



AK2

# Radio-lampen

## VADE-MECUM

SERVICE GEGEVENS OVER AMERIKAANSCH  
EN EUROPEESCHE RADIOLAMPEN



6J8-G

VERZAMELD DOOR

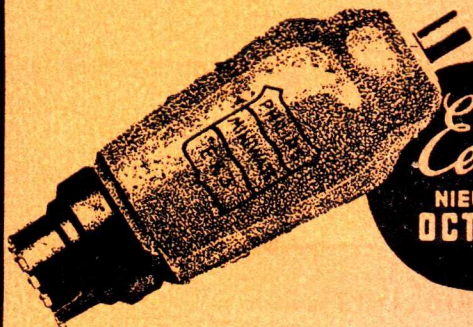
**P. H. BRANS**

RADIOTECHNICUS



Radioboekhandel P. H. BRANS  
Isabellalei, 97 — ANTWERPEN

**PHILIPS**  
**„MINIWATT”**  
**ROODE SERIE**  
**1938**



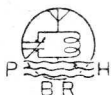
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**NIEUWE  
OCTODE**



# **R**ADIO-LAMPEN- VADE-MECUM

SERVICE GEGEVENS  
OVER AMERIKAANSCH  
EN EUROPEESCH  
RADIOLAMPEN

VERZAMELD DOOR  
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UITGAVE:  
RADIOBOEKHANDEL P. H. BRANS  
Isabellalei, 97 — ANTWERPEN





## VOORWOORD.

Bij het samenstellen van dit « Radiolampen vade-mecum », hebben wij er naar gestreefd alle voor de service praktijk nuttige gegevens over radiolampen samen te brengen zonder onderscheid te maken tusschen lamptypes van Amerikaansch en Europeesch fabrikaat.

Er is zooveel mogelijk getracht, om het werk in een « handig » formaat te kunnen uitvoeren, de nodige plaatsruimte tot het uiterste te beperken. Daarom werd gebruik gemaakt van allerlei afkortingen en conventionele teekens waarvan hierbij de lijst gegeven is.

Teneinde het zoeken te vereenvoudigen werd in de bovenhoeken van elke pagina de typeering (naam van de lamp) vermeld waarvan de karakteristieken zich op die bladzijde bevinden. De opgegeven getallen zijn bedrijfswaarden die voor de praktijk gelden.

Voor elke lamp wordt de huls-schakeling, den aard der lampen en het gebruik ervan opgegeven. Voor de Europeesche lampen is de hulsschakeling voorgesteld met het lampenschema **buiten** de huls terwijl voor de Amerikaansche lampen de methode van de R.M.A. gebruikt werd m.a.w. het lampschema binnen in het « hulsplan ». Hierdoor verkrijgt men onmiddellijk een onderscheid tusschen beide fabrikaten.

De volgorde waarin de lampkarakteristieken geklasseerd zijn, werd als volgt bepaald: De rangschikking geschiedt op basis van de typeering, alfabetisch en in de getallenorde waarbij voorrang gegeven wordt aan de let-

ters (b.v. CY2 komt vóór C1, AZ1 komt vóór A409, enz.) en zonder rekening te houden met het fabrikaat (merk) van de lamp.

De steilheid werd, zoowel voor de Amerikaansche als voor de Europeesche lampen uitgedrukt in mA/V. Wat dit betreft is dus vergelijking van twee willekeurige lamp-types vereenvoudigd.

Het was onmogelijk en trouwens ook nutteloos de karakteristieken van al de in den handel zijnde lampen der verschillende merken op te nemen. Wij hebben ons bepaald tot die der « leidende » merken en hebben achteraan in het werk een tabel toegevoegd waarin al de ons bekende lamptypes vermeld zijn en waarin ook de daarmee overeenstemmende lamp is opgegeven waarvan de karakteristieken zijn opgenomen. Ook voor deze lijst werd dezelfde rangschikking gebruikt zonder onderscheid van fabrikaat te maken wat o.i. de meeste voordeelen biedt.

Een werk als dit zou zeer vlug onvolledig zijn ware het niet dat de dokumentatie geregeld zal worden aangevuld met de karakteristieken der nieuwe lampen.

In dit eerste gedeelte zijn slechts de karakteristieken der meest voorkomende ontvanglampen en enkele zendlampen opgenomen, maar het ligt in de bedoeling het werk uit te breiden door het uitgeven van bijvoegsels waarin, zoo hiervoor voldoende belangstelling bestaat, ook de karakteristieken van speciale versterker- en zendlampen gegeven worden alsmede van kathodestraalbuizen, thermokoppels, photo-electrische cellen enz.

Op die wijze hopen wij een lampendokumentatie ter beschikking van de belanghebbenden te stellen, zooals bij ons weten nog niet gepubliceerd werd en die eenvormig, algemeen, volledig en handig is en vlug en gemakkelijk te raadplegen is.

Ongetwijfeld zijn op dit oogenblik al de lampen, waarvan de karakteristieken opgenomen zijn, niet meer even interessant en zijn ze ook niet alle nog algemeen in gebruik. Wij hebben nochtans niet gearzeld deze karakte-

ristieken op te nemen voor zoover dit nog eenigbins dienstig kon zijn bij het « opknappen » van ouderé toestellen waarvan de eigenaars soms zóó moeilijk kunnen scheiden.

De lijst achter in het werk zal vooral dienstig zijn bij het opzoeken van overeenstemmende lamptypes wat veel te pas komt bij het hernieuwen van lampen in oude toestellen indien de oorspronkelijke lampen niet courant zijn.

Deze dokumentatie werd samengesteld naar ons beste weten en, voor zoover onze ervaring ons heeft kunnen leiden, naar de eischen der praktijk.

Vanwege de Philips laboratoria genoten wij de zeer gewaardeerde medewerking alsmede van de firma's Adzam, Tungsram en Sylvania.

Wij betuigen hier aan al deze firma's onzen oprechten dank.

Vanzelfsprekend zouden wij graag het oordeel, de bevindingen en zoo mogelijk suggesties van de gebruikers van dit werk ontvangen en zullen er in zoo ruim mogelijke mate rekening mede houden.

P. H. B.

1 Juli 1938.

# Belangrijk Bericht

AAN AL DE GEBRUIKERS VAN DIT WERK.

Zooals wij in het voorwoord mededeelden zullen bijvoegsels van dit boek worden uitgegeven.

Deze ontvangt U kosteloos tot 31 December 1938 wanneer U onderstaand formulier invult en terugzendt aan den uitgever

**RADIOBOEKHANDEL P. H. BRANS**

**ISABELLALEI, 97, ANTWERPEN.**

De verzending der bijvoegsels geschiedt per post rechtstreeks door den uitgever aan het adres van den gebruiker. U wordt dus verzocht duidelijk naam en **volledig** adres op te geven en eventueele woonstverandering bekend te maken met een der hierbijgevoegde formulieren.

Gelieve één formulier **dadelijk** terug te zenden daar wij niet kunnen instaan voor geregelde levering der bijvoegsels wanneer wij niet tijdig in het bezit zijn van Uw naam en adres (of van eventueel nieuw adres).

De leveringsvoorwaarden voor de bijvoegsels, die na 1 Januari 1939 verschijnen worden U tijdig medegedeeld.



# Radiolampen-vade-mecum

## BERICHT VAN ADRESVERANDERING.

Naam: .....

Voornaam: .....

Oud adres: .....straat, n<sup>o</sup>.....

te .....

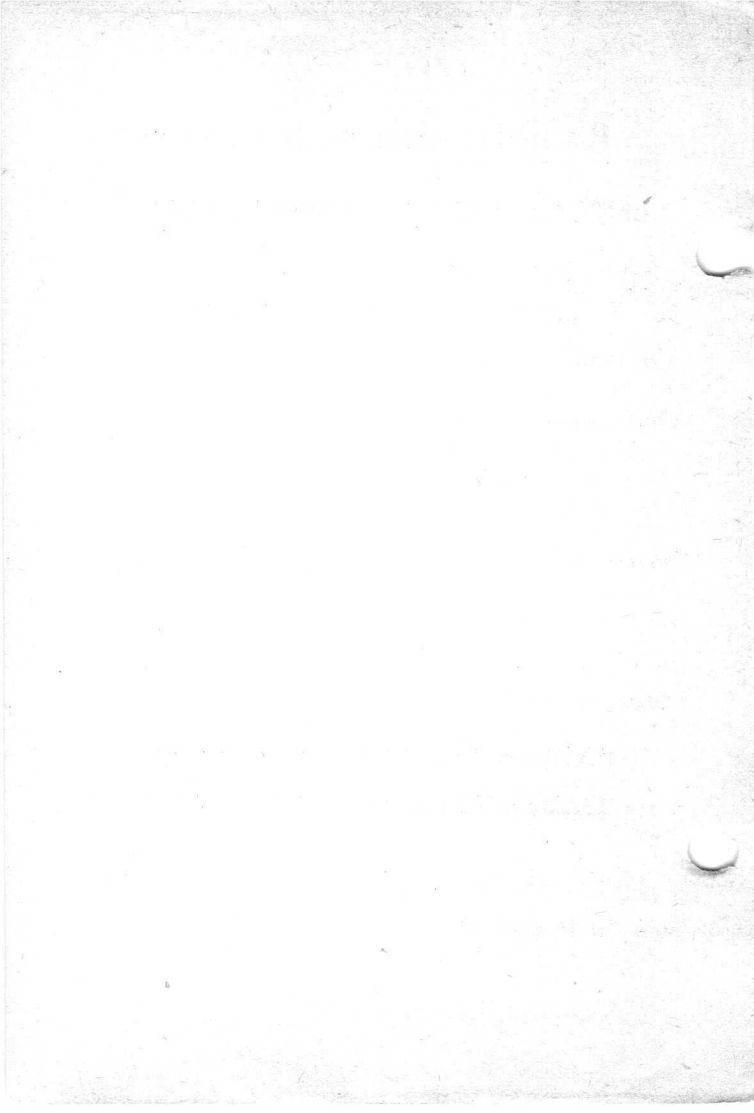
Nieuw adres: .....straat, n<sup>o</sup>.....

te .....

Terug te zenden aan:

**RADIOBOEKHANDEL P. H. BRANS  
ISABELLALEI, 97, ANTWERPEN.**

GEBRUIK DRUKLETTERS bij het invullen  
van dit formulier.



## ALFABETISCHE LIJST DER GEBRUIKTE TEEKENS EN VERKORTINGEN.

---

- A = ampère.
- A = anode (hulsverbinding van Amerikaansche lampen).
- A . DET<sub>T</sub> = anode detector gevolgd door transformator-koppeling.
- A . DET<sub>w</sub> = anode detector gevolgd door weerstand-koppeling.
- A . I = afstem indicator (kathodestraalkruis — toover-oog).
- Ca = capaciteit tusschen de anode en al de andere electrodes.
- Cag<sub>1</sub> = capaciteit tusschen de anode en het 1<sup>e</sup> rooster.
- CAP = topklem bij Amerikaansche lampen.
- Cd<sub>1</sub>-d<sub>2</sub> = capaciteit tusschen de diodes Nr 1 en 2.
- Cd<sub>1</sub>-g = capaciteit tusschen de 1<sup>e</sup> diode en rooster (bij diode-triodes).
- Cd<sub>1</sub>-k = capaciteit tusschen de 1<sup>e</sup> diode en kathode.
- Cgl = capaciteit tusschen het 1<sup>e</sup> rooster en al de andere electrodes.
- Cgl-g<sub>4</sub> = capaciteit tusschen het 1<sup>e</sup> en 4<sup>e</sup> rooster.
- Cg<sub>2</sub> = capaciteit tusschen het 2<sup>e</sup> rooster en al de andere electrodes.

$\bar{C}g_4$  = capaciteit tusschen het 4<sup>e</sup> rooster en al de andere electrodes.

$C_i$  = ingangscapaciteit (input-capacity).

$C_o$  = uitgangscapaciteit (output-capacity).

$C_{pg}$  = waarde van den koppelcondensator tusschen de plaat en het rooster der volgende lamp.

$D$  = maximum diameter van de lamp.

$d\text{ DET}$  = diode detector.

$d\text{ DET} + \text{LF}$  = diode detector met laagfrequentversterker in één lamp.

$d\%$  = % vervorming.

$d\%$  (tot) = % totale vervorming.

$D_p$  = diode-plaat (Amerikaansche hulsverbindingen).

$E$  = eindlamp.

$E_A$  = klasse A-eindversterker.

$E_B$  = klasse B-eindversterker.

$F$  = gloeidraad (Amerikaansche lampen).

$FB$  = (fixed bias) vaste voorspanning.

$g$  = versterkingsfactor.

$G$  = (grid) rooster bij Amerikaansche lampen (Stuur-rooster).

$G_a$  = anoderooster (Amerikaansche hulsverbindingen).

$GAS$  = (gelijkrichterlamp) met gasvulling.

$G.DET_T$  = roosterdetector gevolgd door transformator gekoppelde versterkingstrap.

$G.DET_W$  = roosterdetector gevolgd door weerstand-gekoppelde versterkingstrap.

$G_{on}$  = modulatorrooster (bij hulsverbinding van Amerikaansche lampen).

$G_o$  = oscillatorrooster (bij hulsverbinding van Amerikaanse lampen).  
 $H$  = (heater) gloeidraad (bij Amerikaanse hulsverbindingen).  
 $H_c$  = (heater center) midden van gloeidraad (Amerikaanse hulsverbindingen).  
 $Hex$  = hexode.  
 $HF$  = hoogfrequentversterker.  
 $HFS$  = Hoogfrequent seinspanning.  
 $Hg$  = kwikdamp gelijkrichter.  
 $I_a$  = plaatstroom (anodestroom).  
 $I_{ap}$  = (tijdelijke) topwaarde van den plaatstroom.  
 $I_c$  = kathodestroom.  
 $I_{co}$  = gemiddelde waarde van de gelijkrichterstroom.  
 $I_d (max)$  = maximum diodestroom (gelijkrichter).  
 $I_f$  = gloeistroom.  
 $I_{g3+5}$  = roosterstroom van 3<sup>e</sup> en 5<sup>e</sup> rooster.  
 $Inv$  = omkeerlamp (phase inverter).  
 $I_s$  = schermroosterstroom.  
 $K$  = kathode (Amerikaanse lampen).  
 $k\Omega$  = kilo-ohm.  
 $L$  = lengte der lamp.  
 $LF_T$  = transformatorgekoppelde laagfrequentlamp.  
 $LF_W$  = weerstand gekoppelde laagfrequentlamp.  
 $mA$  = milliampère.  
 $mA/V$  = milliampère per Volt.  
 $MF$  = middenfrequentversterker.  
 $MET$  = metalen lamp.  
 $MOD$  = modulatorlamp.  
 $mW_{tt}$  = milliwatt.

$M\Omega$  = megohm.

$N_c$  = niet verbonden (Amer. hulpverbindingen).

$NM$  = niet-microfonische lamp.

$N_o$  = niet-verbonden (Amer. hulsverbindingen).

$OSC$  = oscillatorlamp (generatorlamp).

$OSC-MOD.$  = oscillator-modulatorlamp.

$P$  = plaat (bij Amerk. lampen).

(pl.) = per lamp (na een opgegeven waarde of een andere verkorting).

$p \rightarrow p$  = tusschen de platen (uitgebalanceerde schakelingen).

p. pl. = per plaat.

$R_a$  = belastingsweerstand in den plaatkring.

$R_a$  (p.p.) = belastingsweerstand tusschen de platen van een balansversterker.

$R_{fk}$  (max) = hoogst toelaatbare weerstand tusschen gloeidraad en kathode.

$R_i$  (norm) = normale inwendige weerstand.

$R_k$  = kathodeweerstand (voor automatische roostervoorspanning).

$R_p$  = weerstand in den plaatkring (bij weerstand gekoppelde lamp).

$S$  = (shield) metalliseering of afscherming bij Amer. lampen.

$S$  (max) = maximum steilheid.

$S$  (norm) = normale steilheid.

$SB$  = (self-bias) automatische roostervoorspanning.

$Sc$  = conversiesteilheid.

$ST$  = stuurlamp voor klasse B (driver).



Su = (suppressor) ~~rooster~~ (Amerikaansche hulsverbindingen).

T = (target) hulpanode bij Al.

TR = transformatorkoppeling.

(tri) = triode.

TEL = lamp gebruikt voor televisie.

Univ = lamp voor algemeen gebruik.

V = volt.

Va = plaatspanning.

Va (max) = maximum plaatspanning.

VAC = hoogvacuum (gelijkrichterlamp).

Vc = gelijkstroomspanning (gelijkgericht).

Vd (max) = maximum spanning op de anode eener diode.

Vf = gloeispanning.

Vfk (max) = hoogste toelaatbare spanning tusschen gloeidraad en kathode.

Vgco = roosterspanning waarbij de plaatstroom tot nul valt.

Vg (min) = minimum roostervoorspanning.

Vg<sub>1</sub> = spanning op het 1<sup>e</sup> rooster.

Vg<sub>2</sub> = spanning op het 2<sup>e</sup> rooster.

Vg<sub>3-5</sub> = spanning van het 3<sup>e</sup> en 5<sup>e</sup> rooster.

Vg<sub>4</sub> = spanning op het 4<sup>e</sup> rooster.

Vi = max. toelaatbare anodewisselspanning.

Vinv = omgekeerde topspanning (max).

VI = spanningsval in de lamp (gelijkrichterlampen).

Vo = output wisselspanning.

Vop = uitgangs topspanning (bij weerstandversterkers).

Vosc = opgewekte wisselspanning in oscillatorgedeelte.

$V_s$  = schermroosterspanning.

$W$  = weerstandkoppeling.

$W_a$  (max) = hoogste vermogen door de anode opgenomen.

$W_i$  = ingangs (input) vermogen bij klasse B versterkers.

$W_o$  = beschikbaar, nuttig vermogen.

$W_o$  (10 %) = beschikbaar, nuttig vermogen met 10 % vervorming.

$W_{tt}$  = watt.

$XS$  = afscherming (uitwendig), (bij Amerikaanse hulsverbindingen).

$Z$  = zendlamp.

$\mu$  = micro (1/1.000.000).

$\mu\mu$  = micro-micro (1/1.000.000.000.000).

$\Omega$  = ohm.

$\Theta$  = lichtsector bij afstemindicatoren (in ° uitgedrukt).

$\square$  = topklem (Amer. hulsverbindingen).

$\rightarrow$  = nok van octalhuls (Amer. hulsverbindingen).

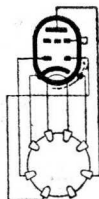
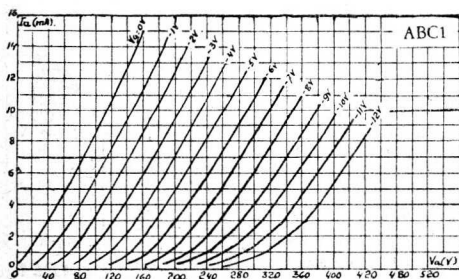
2 lp = 2 lampen.

# ABC 1

# ABC 1

## DUODIODE - TRIODE (dDET+LF)

|                    |   |        |                 |
|--------------------|---|--------|-----------------|
| $V_f$              | = | 4.0    | V.              |
| $I_f$              | = | 0,65   | A.              |
| $V_a(\max)$        | = | 250    | V.              |
| $I_a$              | = | 4.0    | mA.             |
| $V_{gl}$           | = | —7     | V.              |
| $S(\max)$          | = | 3.6    | mA/V.           |
| $S(\text{norm})$   | = | 2.0    | mA/V.           |
| $g$                | = | 27     |                 |
| $R_i(\text{norm})$ | = | 13.500 | $\Omega$        |
| $R_a$              | = | 1750   | $\Omega$        |
| $C_{agl}$          | = | <0.003 | $\mu\text{F}$ . |



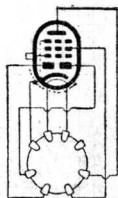
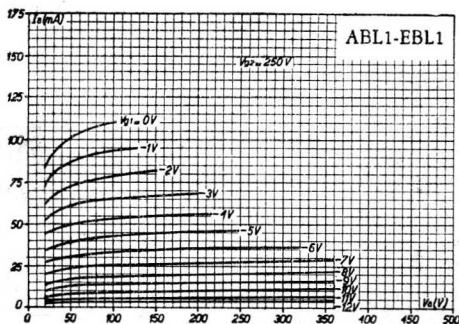
# ABL 1

# ABL 1

## DUODIODE - PENTHODE

(d DET - E)

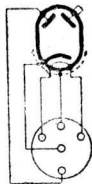
|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 2,25   | A.       |
| $V_a(\max)$        | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | —6     | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 5      | mA.      |
| $S(\text{norm.})$  | = | 9,5    | mA/V.    |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 150    | $\Omega$ |



ABL 1

**AB 1****DUO - DIODE**  
(d DET)**AB 1**

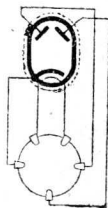
|                |   |        |          |
|----------------|---|--------|----------|
| $V_f$          | = | 4,0    | V.       |
| $I_f$          | = | 0,65   | A.       |
| $V_d(\max)$    | = | 200    | V.       |
| $I_d(\max)$    | = | 0,8    | mA.      |
| $V_{fk}(\max)$ | = | 50     | V.       |
| $R_{fk}(\max)$ | = | 20.000 | $\Omega$ |

**AB1**

**AB 2****DUO - DIODE**  
(d DET)**AB 2**

|                |   |        |
|----------------|---|--------|
| $V_f$          | = | 4,0    |
| $I_f$          | = | 0,65   |
| $V_d(\max)$    | = | 200    |
| $I_d(\max)$    | = | 0,8    |
| $V_{fk}(\max)$ | = | 50     |
| $R_{fk}(\max)$ | = | 20.000 |

V.  
A.  
V.  
mA.  
V.  
 $\Omega$

**AB 2**

# ACH 1

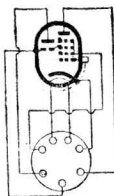
## TRIODE - HEXODE (OSC - MOD)

|                        |   |                    |             |
|------------------------|---|--------------------|-------------|
| $V_f$                  | = | 4                  | V.          |
| $I_f$                  | = | 1.0                | A.          |
| $V_a(\max)$            | = | 300(1) 150(2)      | V.          |
| $I_a$                  | = | 5.0 2,5(2) 0,01(2) | n A.        |
| $V_{g1}$               | = | -2 -20             | V.          |
| $V_{g2}$               | = | 70                 | V.          |
| $V_{gosc}$             | = | 15(3)              | V.          |
| $V_{g4}$               | = | 70                 | V.          |
| $S(\text{norm})$       | = | 1,8 <0,002         | mA/V.       |
| $g(\text{triode})$     | = | 13                 |             |
| $R_i(\text{norm})$     | = | 0,8 >10            | M. $\Omega$ |
| $C_{agl. \text{ hex}}$ | = | <0,1               | $\mu\mu F.$ |
| $C_{ag. \text{ tri}}$  | = | 1,8                | $\mu\mu F.$ |

(1) Triode

(2)  $V_{osc} = \text{ca } 15 \text{ V.}$

(3) over } 20.000  $\Omega$   
à travers }



ACH1

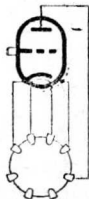
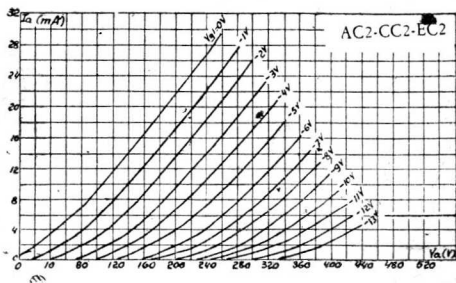
AC 2

AC 2

## TRIODE

(OSC - DET<sub>T</sub> - LF<sub>T</sub> - LF<sub>w</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 4,0    | V.    |
| I <sub>f</sub>        | = | 0,65   | A.    |
| V <sub>a</sub> (max)  | = | 250    | V.    |
| I <sub>a</sub>        | = | 6,0    | mA.   |
| V <sub>gl</sub>       | = | —5,5   | V.    |
| S(max)                | = | 3,5    | mA/V. |
| S(norm)               | = | 2,5    | mA/V. |
| g                     | = | 30     |       |
| R <sub>i</sub> (norm) | = | 12.000 | Ω     |
| R <sub>k</sub>        | = | 900    | Ω     |
| C <sub>agl</sub>      | = | 1,7    | μμF.  |



AC2

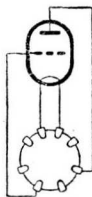
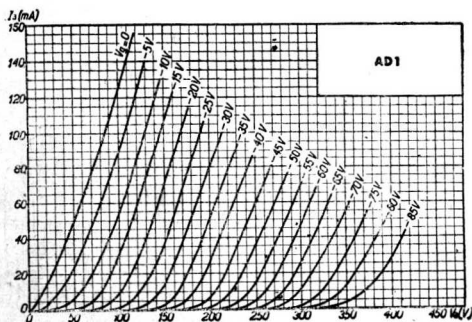


AD 1

TRIODE  
(E)

AD 1

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 0,95  | A.                |
| $V_a(\max)$        | = | 250   | V.                |
| $I_a$              | = | 60    | mA.               |
| $V_{gl}$           | = | —45   | V.                |
| $S(\text{norm})$   | = | 6,4   | mA/V.             |
| $g$                | = | 4     |                   |
| $R_i(\text{norm})$ | = | 670   | $\Omega$          |
| $R_a$              | = | 2.300 | $\Omega$          |
| $R_k$              | = | 750   | $\Omega$          |
| $W_a(\max)$        | = | 15    | W <sub>tt</sub> . |
| $W_o(10\%)$        | = | 4,2   | W <sub>tt</sub> . |



# AF 2

# AF 2

## PENTHODE - SELECTODE (HF - MF)

|                    |   |        |       |
|--------------------|---|--------|-------|
| $V_f$              | = | 4      | V.    |
| $I_f$              | = | 1,1    | A.    |
| $V_a(\text{max})$  | = | 200    | V.    |
| $I_a$              | = | 4,25   | mA.   |
| $V_{g1}$           | = | —2     | V.    |
| $V_{g2}$           | = | 100    | V.    |
| $I_{g2}$           | = | 1,8    | mA.   |
| $S(\text{max})$    | = | 3,2    | mA/V. |
| $S(\text{norm})$   | = | 2,5    | mA/V. |
| $g$                | = | 3.500  |       |
| $R_i(\text{norm})$ | = | 1,4    | M.Ω   |
| $C_{ag1}$          | = | <0,006 | μμF.  |



AF2

AF 3

# PENTHODE - SELECTODE (HF - MF)

AF 3

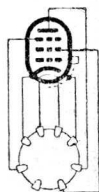
|                       |   |             |       |
|-----------------------|---|-------------|-------|
| V <sub>f</sub>        | = | 4           | V.    |
| I <sub>f</sub>        | = | 0,65        | A.    |
| V <sub>a</sub> (max)  | = | 250         | V.    |
| I <sub>a</sub>        | = | 8,0 < 0,015 | mA.   |
| V <sub>g1</sub>       | = | -3,0 -55    | V.    |
| V <sub>g2</sub>       | = | 100         | V.    |
| I <sub>g2</sub>       | = | 2,6         | mA.   |
| V <sub>g3</sub> —(5)  | = | 0           | V.    |
| S(max)                | = | 2,8         | mA/V. |
| S(norm)               | = | 1,8 < 0,002 | mA/V. |
| g                     | = | 2.200       |       |
| R <sub>i</sub> (norm) | = | 1,2 > 10    | M.Ω   |
| C <sub>agl</sub>      | = | < 0,003     | μF.   |



AF3

**AF 7****AF 7****PENTHODE****(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)**

|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 4      | V.    |
| I <sub>f</sub>       | = | 0,65   | A.    |
| V <sub>a(max)</sub>  | = | 250    | V.    |
| I <sub>a</sub>       | = | 3,0    | mA.   |
| V <sub>g1</sub>      | = | —2,0   | V.    |
| V <sub>g2</sub>      | = | 100    | V.    |
| I <sub>g2</sub>      | = | 1,1    | mA.   |
| V <sub>g3</sub>      | = | 0      | V.    |
| S(max)               | = | 2,4    | mA/V. |
| S(norm)              | = | 2,1    | mA/V. |
| g                    | = | 4.000  |       |
| R <sub>i(norm)</sub> | = | 2      | M.Ω   |
| C <sub>agl</sub>     |   | <0,003 | μμF.  |

**AF7**

AH 1

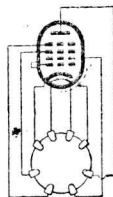
# HEXODE - SELECTODE (HF - MF - MOD)

AH 1

|                    |   |          |                   |
|--------------------|---|----------|-------------------|
| $V_f$              | = | 4        | V.                |
| $I_f$              | = | 0,65     | A.                |
| $V_a(\max)$        | = | 250      | V.                |
| $I_a$              | = | 3,0      | $<0,015$ mA.      |
| $V_{g1}$           | = | -2       | -24 V.            |
| $V_{g2}$           | = | 80       | V.                |
| $I_{g2} + I_{g4}$  | = | 2,6      | 1,1 mA.           |
| $V_{g3}-(5)$       | = | -2       | -24(2) V.         |
| $V_{g4}$           | = | 80       | V.                |
| $S(\max)$          | = | 3,0      | mA/V.             |
| $S(\text{norm})$   | = | 1,8      | $<0,002(1)$ mA/V. |
| $R_i(\text{norm})$ | = | 2        | $>10$ M. $\Omega$ |
| $C_{ag1}$          | = | $<0,003$ | $\mu\mu\text{F.}$ |

(1)  $V_{osc} = 9 V_{eff}$ .

(2) HF - MF.



AH1

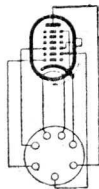
AK 1

AK 1

# OCTODE (OSC - MOD)

|          |   |        |                 |
|----------|---|--------|-----------------|
| Vf       | = | 4      | V.              |
| If       | = | 0,65   | A.              |
| Va(max)  | = | 200    | V.              |
| Ia       | = | 1,6    | <0,015 mA.      |
| Vg1      | = | -1,5   | V.              |
| Vg2      | = | 90     | V.              |
| Ig2      | = | 2,0    | mA.             |
| Vg3—(5)  | = | 70     | V.              |
| Vg4      | = | -1,5   | -25 V.          |
| S(norm)  | = | 0,6(1) | <0,002(1) mA/V. |
| Ri(norm) | = | 1,5    | 10 M.Ω          |
| Cag4     | = | <0,06  | μμF.            |

(1)  $V_{osc} = 8,5 V_{eff}$ .



AK1

AK 2

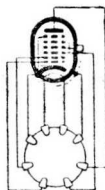
AK 2

# OCTODE (OSC - MOD)

|            |   |        |              |
|------------|---|--------|--------------|
| Vf         | = | 4      | V.           |
| If         | = | 0,65   | A.           |
| Va(max)    | = | 250    | V.           |
| Ia         | = | 1,6    | <0,015 mA.   |
| Vg1        | = | -1,5   | V.           |
| Vg2        | = | 90     | V.           |
| Ig2        | = | 2,0(1) | mA.          |
| Vg3—(5)    | = | 70     | V.           |
| Vg4        | = | -1,5   | -25 V.       |
| S(norm)(2) | = | 0,6    | <0,002 mA/V. |
| Ri(norm)   | = | 1,6    | >10 M.Ω      |
| Cag4       | = |        | <0,06 μμF.   |

(1)  $I_{g_3} + I_{g_5} = 3,8 \text{ mA.}$

(2)  $V_{osc} = 8,5 V_{eff.}$



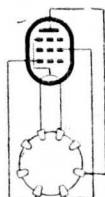
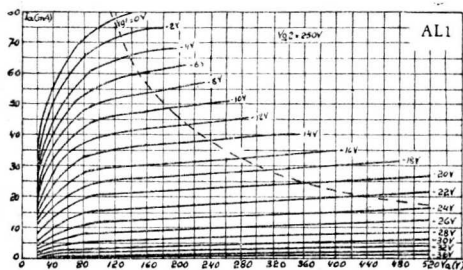
AK2

AL 1

AL 1

# PENTHODE (E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 1,1    | A.       |
| $V_a(\max)$        | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | -15    | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 6,8    | mA.      |
| $S(\text{norm})$   | = | 2,8    | mA/V.    |
| $R_i(\text{norm})$ | = | 43.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 340    | $\Omega$ |
| $W_a(\max)$        | = | 9      | Wtt.     |
| $W_o$ 10%          | = | 3,1    | Wtt.     |



AL1

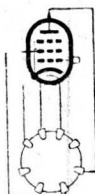
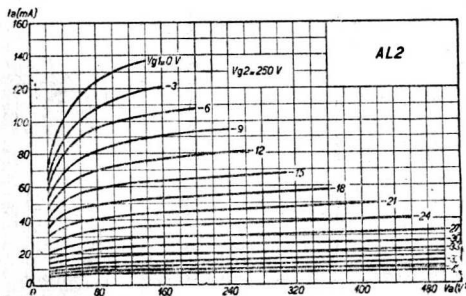


AL 2

AL 2

PENTHODE  
(E)

|              |   |        |          |
|--------------|---|--------|----------|
| $V_f$        | = | 4,0    | V.       |
| $I_f$        | = | 1,0    | A.       |
| $V_{a(max)}$ | = | 250    | V.       |
| $I_a$        | = | 36     | mA.      |
| $V_{g1}$     | = | -25    | V.       |
| $V_{g2}$     | = | 250    | V.       |
| $I_{g2}$     | = | 5      | mA.      |
| $S(norm)$    | = | 2,6    | mA/V.    |
| $R_i(norm)$  | = | 60.000 | $\Omega$ |
| $R_a$        | = | 7.000  | $\Omega$ |
| $R_k$        | = | 610    | $\Omega$ |
| $W_a(max)$   | = | 9      | Wtt.     |
| $W_o(10\%)$  | = | 3,8    | Wtt.     |



AL2

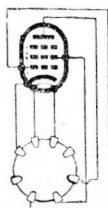
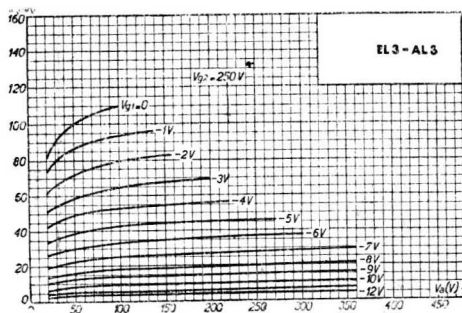
AL 3

PENTHODE

(E)

AL 3

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 1,85   | A.       |
| $V_a(\text{max})$  | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | -6,5   | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 4      | mA.      |
| $S(\text{norm})$   | = | 9      | mA/V.    |
| $g$                | = | 55     |          |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 160    | $\Omega$ |
| $W_a(\text{max})$  | = | 9      | Wtt.     |
| $W_o(10\%)$        | = | 4,5    | Wtt.     |



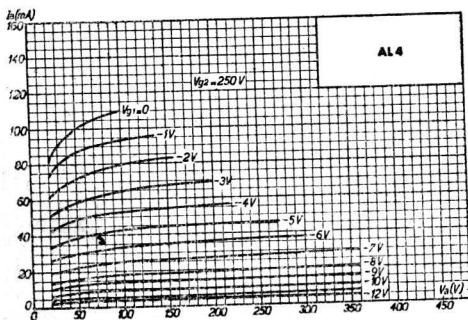
AL3

AL 4

AL 4

PENTHODE  
(E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 1,75   | A.       |
| $V_a(\text{max})$  | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | -6     | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 5      | mA.      |
| $S(\text{norm})$   | = | 9,5    | mA/V.    |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 150    | $\Omega$ |
| $W_a(\text{max})$  | = | 9      | Wtt.     |
| $W_o(10\%)$        | = | 4,3    | Wtt.     |



AL 5

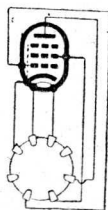
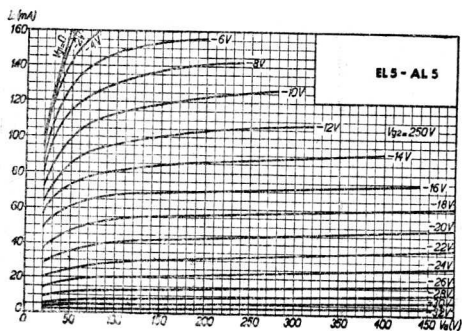
PENTHODE

(E)

AL 5

|                    |   |        |
|--------------------|---|--------|
| $V_f$              | = | 4,0    |
| $I_f$              | = | 2,1    |
| $V_a(\max)$        | = | 250    |
| $I_a$              | = | 72     |
| $V_{g1}$           | = | —16    |
| $V_{g2}$           | = | 250    |
| $I_{g2}$           | = | 7,5    |
| $S(\text{norm})$   | = | 7      |
| $R_i(\text{norm})$ | = | 33.000 |
| $R_a$              | = | 3.500  |
| $R_k$              | = | 200    |
| $W_a(\max)$        | = | 18     |
| $W_o(10\%)$        | = | 7,7    |

V.  
A.  
V.  
mA.  
V.  
V.  
mA.  
mA/V.  
 $\Omega$   
 $\Omega$   
 $\Omega$   
Wtt.  
Wtt.



AL5

**AM 1**

(A . I)

**AM 1** $V_f =$  $I_f =$  $V_a(\max) =$  $I_a =$  $V_{gl} =$  $R_a =$ 

4,0

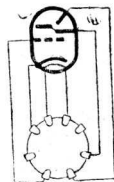
0,3

250

0,095

0

2

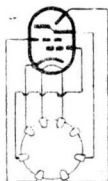
 $V.$  $A.$  $V.$  $\text{mA.}$  $V.$  $M.\Omega$ **AM1**

AM 2

(A . I)

AM 2

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 0,32   | A.       |
| $V_a$              | = | 250    | V.       |
| $I_a$              | = | 3      | mA.      |
| $V_g$              | = | -3,5   | V.       |
| $S(\text{norm})$   | = | 2,0    | mA/V.    |
| $g$                | = | 50     |          |
| $R_i(\text{norm})$ | = | 25.000 | $\Omega$ |

Lichtschermspanning  $V_s = 250$  V.Tension de l'Ecran fluorescent  $V_s = 250$  V.Lichtsector - Secteur fluorescent  $3^\circ$   $150^\circ$   $160^\circ$  $V_a$  ( Triode)  $250$   $250$   $250$  $V_g$   $-4$   $0$   $+3$ 

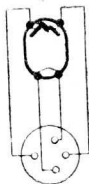
AM2

AX 1

AX 1

GELIJKRICHTERLAMP  
REDRESSEUSE  
(GAS)

|                   |   |                |     |
|-------------------|---|----------------|-----|
| $V_f$             | = | 4,0            | V.  |
| $I_f$             | = | 2,0            | A.  |
| $V_a(\text{max})$ | = | $2 \times 500$ | V.  |
| $I_a(\text{tot})$ | = | 125            | mA. |



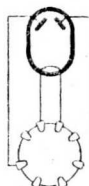
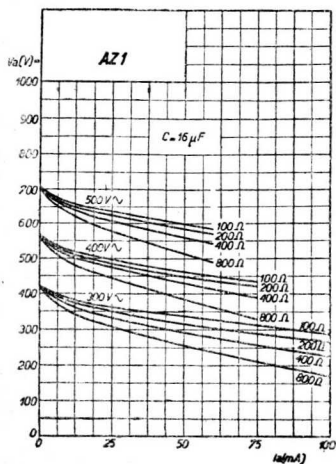
AX 1

AZ 1

AZ 1

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|            |   |                                          |                                    |
|------------|---|------------------------------------------|------------------------------------|
| $V_f$      | = | 4,0                                      | $V$                                |
| $I_f$      | = | 1,1                                      | A                                  |
| $V_a \sim$ | = | $2 \times 500 \text{ V} \rightarrow I_a$ | = 60 mA.                           |
| $V_a \sim$ | = | $2 \times 400 \text{ V} \rightarrow I_a$ | = 75 mA.                           |
| $V_a \sim$ | = | $2 \times 300 \text{ V} \rightarrow I_a$ | = 100 mA.                          |
| L          | = | $110 \frac{\text{m}}{\text{m}}$          | D = 53 $\frac{\text{m}}{\text{m}}$ |



AZ1

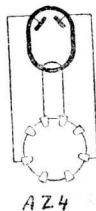
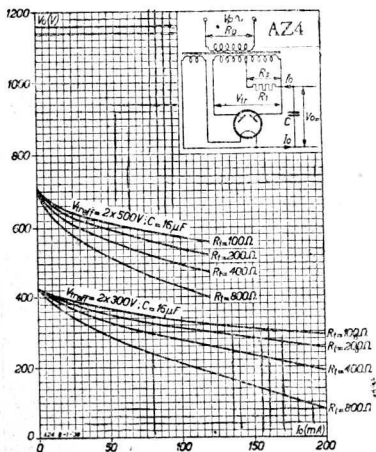


AZ 4

AZ 4

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |                |                |                |     |
|-------|---|----------------|----------------|----------------|-----|
| $V_f$ | = |                | 4              |                | V.  |
| $I_f$ | = |                | 2,3            |                | A.  |
| $V_a$ | = | $2 \times 500$ | $2 \times 400$ | $2 \times 300$ | V.  |
| $I_a$ | = | 120            | 150            | 200            | mA. |



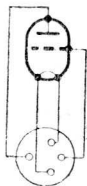
# A 409

# A 409

## TRIODE

(OSC - G , DET<sub>T</sub> - LF<sub>T</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 4,0    | V.    |
| I <sub>f</sub>        | = | 0,065  | A.    |
| V <sub>a</sub> (max)  | = | 150    | V.    |
| I <sub>a</sub>        | = | 3,5    | mA.   |
| V <sub>g1</sub>       | = | —9     | V.    |
| S(max)                | = | 1,2    | mA/V. |
| S(norm)               | = | 0,9    | mA/V. |
| g                     | = | 9      |       |
| R <sub>i</sub> (norm) | = | 10.000 | Ω     |
| R <sub>k</sub>        | = | 2.600  | Ω     |
| C <sub>ag1</sub>      | = | 4      | μμF.  |



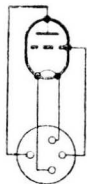
A 409

# **A 410** **A 410 N**

# **A 410** **A 410 N**

## TRIODE (OSC - G. .DET<sub>T</sub> - LF<sub>T</sub>)

|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 4,0    | V.    |
| I <sub>f</sub>       | = | 0,06   | A.    |
| V <sub>a(max)</sub>  | = | 150    | V.    |
| I <sub>a</sub>       | = | 3,5    | mA.   |
| V <sub>g1</sub>      | = | —9     | V.    |
| S(max)               | = | 1,2    | mA/V. |
| S(norm)              | = | 0,9    | mA/V. |
| g                    | = | 9      |       |
| R <sub>i(norm)</sub> | = | 10.000 | Ω     |
| R <sub>k</sub>       | = | 2.600  | Ω     |
| C <sub>ag1</sub>     | = | 4      | μF.   |



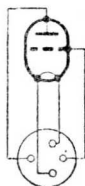
**A 410(N)**

# A 414 K

TRIODE (N . M)  
(OSC - G . DET<sub>T</sub> - LF<sub>T</sub>)

|                      |   |       |       |
|----------------------|---|-------|-------|
| V <sub>f</sub>       | = | 4     | V.    |
| I <sub>f</sub>       | = | 0,08  | A.    |
| V <sub>a(max)</sub>  | = | 150   | V.    |
| I <sub>a</sub>       | = | 4     | mA.   |
| V <sub>gl</sub>      | = | —4,5  | V.    |
| S(max)               | = | 2     | mA/V. |
| S(norm)              | = | 1,5   | mA/V. |
| g                    | = | 14    |       |
| R <sub>i(norm)</sub> | = | 7.000 | Ω     |
| R <sub>k</sub>       | = | 1.125 | Ω     |
| C <sub>agl</sub>     | = | 2,5   | μμF.  |

# A 414 K

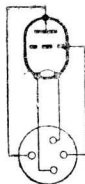


A414K

**A 415****A 415**

TRIODE  
(OSC - G . DET<sub>T</sub> - LF<sub>T</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 4,0    | V.    |
| I <sub>f</sub>        | = | 0,085  | A.    |
| V <sub>a</sub> (max)  | = | 150    | V.    |
| I <sub>a</sub>        | = | 4,0    | mA.   |
| V <sub>g1</sub>       | = | —4,0   | V.    |
| S(max)                | = | 2,0    | mA/V. |
| S(norm)               | = | 1,5    | mA/V. |
| g                     | = | 15     |       |
| R <sub>i</sub> (norm) | = | 10.000 | Ω     |
| R <sub>k</sub>        | = | 1.000  | Ω     |
| C <sub>agl</sub>      | = | 4,5    | μμF.  |

**A415**

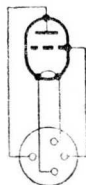
**A 425**

**A 425**

**TRIODE**

(G . DET<sub>w</sub> - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |                |       |
|-----------------------|---|----------------|-------|
| V <sub>f</sub>        | = | 4,0            | V.    |
| I <sub>f</sub>        | = | 0,065          | A.    |
| V <sub>a</sub> (max)  | = | 200            | V.    |
| I <sub>a</sub>        | = | 0,25      0,1  | mA.   |
| V <sub>g1</sub>       | = | -2,5           | V.    |
| S(max)                | = | 1,2            | mA/V. |
| g                     | = | 25             |       |
| R <sub>i</sub> (norm) | = | 0,08      0,25 | M.Ω   |
| C <sub>ag1</sub>      | = | 3              | μμF.  |



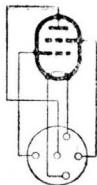
**A425**

**A 441 N**

**A 441 N**

**DUBBELROOSTERLAMP**  
**BIGRILLE**  
 (OSC - MOD)

|             |   |      |       |
|-------------|---|------|-------|
| $V_f$       | = | 4    | V.    |
| $I_f$       | = | 0,08 | A.    |
| $V_a(\max)$ | = | 100  | V.    |
| $I_a$       | = | 4,0  | mA.   |
| $V_{g1}$    | = | 0    | V.    |
| $V_{g2}$    | = | 4    | V.    |
| $S_{g1}$    | = | 0,3  | mA/V. |
| $S_{g2}$    | = | 1,0  | mA/V. |



**A 441 N**

A 442

A 442

TETRODE  
(HF - MF - A . DET - LF<sub>w</sub>)

|                      |   |         |       |
|----------------------|---|---------|-------|
| V <sub>f</sub>       | = | 4,0     | V.    |
| I <sub>f</sub>       | = | 0,06    | A.    |
| V <sub>a(max)</sub>  | = | 200     | V.    |
| I <sub>a</sub>       | = | 4,0     | mA.   |
| V <sub>g1</sub>      | = | —1      | V.    |
| V <sub>g2</sub>      | = | 100     | V.    |
| S(max)               | = | 0,8     | mA/V. |
| S(norm)              | = | 0,7     | mA/V. |
| g                    | = | 280     |       |
| R <sub>i(norm)</sub> | = | 400.000 | Ω     |
| C <sub>ag1</sub>     | = | 0,01    | μμF.  |

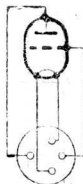
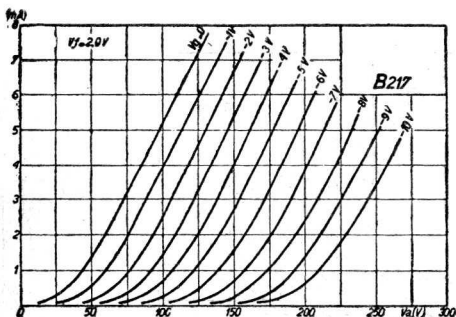


A 442



**B 217****B 217****TRIODE**(OSC - G', DET<sub>T</sub> - LF<sub>T</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 2,0    | V.    |
| I <sub>f</sub>        | = | 0,1    | A.    |
| V <sub>a</sub> (max)  | = | 150    | V.    |
| I <sub>a</sub>        | = | 4,5    | mA.   |
| V <sub>gl</sub>       | = | —3     | V.    |
| S(max)                | = | 1,4    | mA/V. |
| S(norm)               | = | 1,3    | mA/V. |
| g                     | = | 17     |       |
| R <sub>i</sub> (norm) | = | 13.000 | Ω     |
| R <sub>k</sub>        | = | 660    | Ω     |
| W <sub>a</sub> (max)  | = | 0,9    | Wtt.  |
| C <sub>agl</sub>      | = | 5,5    | μF.   |

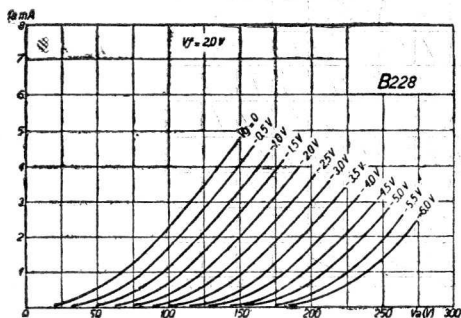
**B 217**

**B 228**

**B 228**

TRIODE  
(G . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 2,0   | V.    |
| I <sub>f</sub>        | = | 0,1   | A.    |
| V <sub>a</sub> (max)  | = | 150   | V.    |
| I <sub>a</sub>        | = | 2,0   | mA.   |
| V <sub>gl</sub>       | = | -2    | V.    |
| S(max)                | = | 1,3   | mA/V. |
| S(norm)               | = | 1,2   | mA/V. |
| g                     | = | 28    |       |
| R <sub>i</sub> (norm) | = | 2.300 | Ω     |
| R <sub>k</sub>        | = | 1.000 | Ω     |
| C <sub>agl</sub>      | = | 5,5   | μF.   |



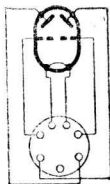
**B 240**

# DUOTRIODE (E)

**B 240**

|               |   |        |          |
|---------------|---|--------|----------|
| $V_f$         | = | 2,0    | V.       |
| $I_f$         | = | 0,2    | A.       |
| $V_a(\max)$   | = | 150    | V.       |
| $I_{a1}$      | = | 1,5    | mA.      |
| $I_{a2}$      | = | 1,5    | mA.      |
| $V_{gl}$      | = | 0      | V.       |
| $R_{a1} - a2$ | = | 14.000 | $\Omega$ |
| $W_o (10\%)$  | = | 1,0(1) | Wtt.     |

(1)  $V_a = 120 \text{ V.}$

**B240**

**B 255**

TETRODE  
(HF - MF)

**B 255**

|                    |   |              |                   |
|--------------------|---|--------------|-------------------|
| $V_f$              | = | 2,0          | V.                |
| $I_f$              | = | 0,18         | A.                |
| $V_a(\max)$        | = | 150          | V.                |
| $I_a$              | = | 1,8      0,1 | mA.               |
| $V_{g1}$           | = | -0,5    -7   | V.                |
| $V_{g2}$           | = | 90           | V.                |
| $I_{g2}$           | = | 0,4          | mA.               |
| $S(\max)$          | = | 1,3          | mA/V.             |
| $S(\text{norm})$   | = | 1,2    0,014 | mA/V.             |
| $g$                | = | 400          |                   |
| $R_i(\text{norm})$ | = | 0,33         | M. $\Omega$       |
| $C_{ag1}$          | = | 0,008        | $\mu\mu\text{F.}$ |

*B255*

B 262

TETRODE  
(HF - MF)

B 262

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 2,0   | V.                |
| $I_f$              | = | 0,18  | A.                |
| $V_a$              | = | 150   | V.                |
| $I_a$              | = | 2,0   | mA.               |
| $V_{g1}$           | = | -0,5  | V.                |
| $V_{g2}$           | = | 90    | V.                |
| $I_{g2}$           | = | 0,4   | mA.               |
| $S(\max)$          | = | 1,4   | mA/V.             |
| $S(\text{norm})$   | = | 1,3   | mA/V.             |
| $g$                | = | 500   |                   |
| $R_i(\text{norm})$ | = | 0,4   | M. $\Omega$       |
| $C_{agl}$          | = | 0,008 | $\mu\mu\text{F.}$ |



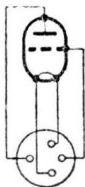
B 262

**B 403**

TRIODE  
(E)

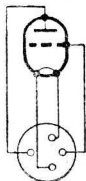
**B 403**

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 4,0   | V.       |
| $I_f$              | = | 0,15  | A.       |
| $V_a(\max)$        | = | 150   | V.       |
| $I_a$              | = | 15    | mA.      |
| $V_{g1}$           | = | —30   | V.       |
| $S(\max)$          | = | 1,5   | mA/V.    |
| $g$                | = | 3     |          |
| $R_i(\text{norm})$ | = | 2.000 | $\Omega$ |
| $R_k$              | = | 2.000 | $\Omega$ |
| $W_a(\max)$        | = | 2,2   | Wtt.     |

**B 403**

**B 405****TRIODE**  
(E)**B 405**

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 4,0   | V.       |
| $I_f$              | = | 0,15  | A.       |
| $V_a(\text{max})$  | = | 150   | V.       |
| $I_a$              | = | 11    | mA.      |
| $V_{g1}$           | = | -20   | V.       |
| $S(\text{max})$    | = | 2,0   | mA/V.    |
| $S(\text{norm})$   | = | 1,6   | mA/V.    |
| $g$                | = | 5     |          |
| $R_i(\text{norm})$ | = | 3.000 | $\Omega$ |
| $R_k$              | = | 1.800 | $\Omega$ |

*B405*

**B 406**

# TRIODE (E)

**B 406**

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 4,0   | $V.$     |
| $I_f$              | = | 0,1   | A.       |
| $V_a(\max)$        | = | 150   | $V.$     |
| $I_a$              | = | 8,0   | mA.      |
| $V_{gl}$           | = | —15   | $V.$     |
| $S(\max)$          | = | 1,4   | mA/V.    |
| $S(\text{norm})$   | = | 1,3   | mA/V.    |
| $g$                | = | 6     |          |
| $R_i(\text{norm})$ | = | 4.500 | $\Omega$ |
| $R_k$              | = | 1.900 | $\Omega$ |

**B406**



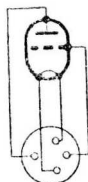
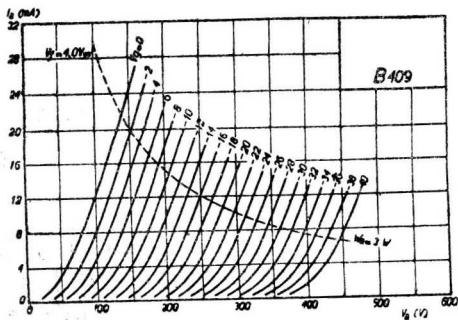
B 409

B 409

# TRIODE

(E)

|                    |   |        |                |
|--------------------|---|--------|----------------|
| $V_f$              | = | 4,0    | V.             |
| $I_f$              | = | 0,15   | A.             |
| $V_a(\max)$        | = | 250    | V.             |
| $I_a$              | = | 12     | mA.            |
| $V_{gl}$           | = | —18    | V.             |
| $S(\max)$          | = | 2,0    | mA/V.          |
| $S(\text{norm})$   | = | 1,8    | mA/V.          |
| $g$                | = | 9      |                |
| $R_i(\text{norm})$ | = | 5.000  | $\Omega$       |
| $R_a$              | = | 12.000 | $\Omega$       |
| $R_k$              | = | 1.500  | $\Omega$       |
| $W_a(\max)$        | = | 3      | Wtt.           |
| $W_o$ (10%)        | = | 0,65   | Wtt.           |
| $C_{agl}$          | = | 5,2    | $\mu\text{F.}$ |



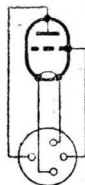
B 409

**B 424**  
**B 424 Serie**

**B 424**  
**B 424 Serie**

TRIODE  
(OSC - G . DET<sub>T</sub> - LF<sub>T</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 4,0   | V.    |
| I <sub>f</sub>        | = | 0,1   | A.    |
| V <sub>a</sub> (max)  | = | 200   | V.    |
| I <sub>a</sub>        | = | 6,0   | mA.   |
| V <sub>g1</sub>       | = | —3    | V.    |
| S(max)                | = | 3,0   | mA/V. |
| S(norm)               | = | 2,5   | mA/V. |
| g                     | = | 24    |       |
| R <sub>i</sub> (norm) | = | 9.000 | Ω     |
| R <sub>k</sub>        | = | 500   | Ω     |
| C <sub>agl</sub>      | = | 4     | μμF.  |



**B424**

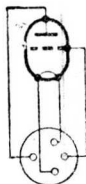
**B 438**  
**B 438 Serie**

**B 438**  
**B 438 Serie**

**TRIODE**

(G . DET<sub>w</sub> - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |               |       |
|-----------------------|---|---------------|-------|
| V <sub>f</sub>        | = | 4,0           | V.    |
| I <sub>f</sub>        | = | 0,1           | A.    |
| V <sub>a</sub> (max)  | = | 200           | V.    |
| I <sub>a</sub>        | = | 0,2      0,05 | mA.   |
| V <sub>g1</sub>       | = | —2,5          | V.    |
| S(max)                | = | 2,0           | mA/V. |
| g                     | = | 38            |       |
| R <sub>i</sub> (norm) | = | 0,17      0,4 | M.Ω   |
| R <sub>a</sub>        | = | 0,3      10   | M.Ω   |
| C <sub>ag1</sub>      | = | 4             | μF.   |



**B438**

**B 442**  
**B 442 Serie**

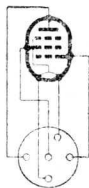
**B 442**  
**B 442 Serie**

**TETRODE**  
 (HF - MF)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 0,1   | A.                |
| $V_a(\max)$        | = | 200   | V.                |
| $I_a$              | = | 4,5   | mA.               |
| $V_{g1}$           | = | -1,0  | V.                |
| $V_{g2}$           | = | 100   | V.                |
| $S(\max)$          | = | 0,9   | mA/V.             |
| $S(\text{norm})$   | = | 0,9   | mA/V.             |
| $g$                | = | 350   |                   |
| $R_i(\text{norm})$ | = | 0,4   | M. $\Omega$       |
| $C_{ag1}$          | = | 0,005 | $\mu\mu\text{F.}$ |



*B 442*



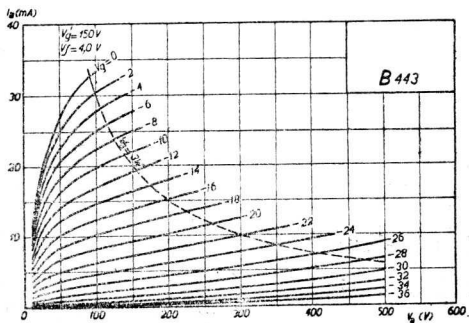
*B 443*

**B 443**

# PENTHODE (E)

**B 443**

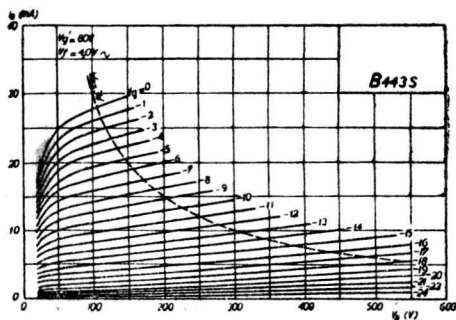
|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 0,15   | A.       |
| $V_a(\max)$        | = | 250    | V.       |
| $I_a$              | = | 12     | mA.      |
| $V_{g1}$           | = | -19    | V.       |
| $V_{g2}$           | = | 150    | V.       |
| $I_{g2}$           | = | 2,4    | mA.      |
| $S(\text{norm})$   | = | 1,3    | mA/V.    |
| $g$                | = | 60     |          |
| $R_i(\text{norm})$ | = | 45.000 | $\Omega$ |
| $R_a$              | = | 20.000 | $\Omega$ |
| $R_k$              | = | 1250   | $\Omega$ |
| $W_a(\max)$        | = | 3      | Wtt.     |
| $W_o$ (10%)        | = | 1,35   | Wtt.     |



B 443

**B 443 S****PENTHODE****(E)****B 443 S**

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 4,0    | V.                |
| $I_f$              | = | 0,15   | A.                |
| $V_a(\max)$        | = | 250    | V.                |
| $I_a$              | = | 12     | mA.               |
| $V_{g1}$           | = | —12    | V.                |
| $V_{g2}$           | = | 80     | V.                |
| $I_{g2}$           | = | 2,0    | mA.               |
| $S(\max)$          | = | 2,0    | mA/V.             |
| $S(\text{norm})$   | = | 1,6    | mA/V.             |
| $g$                | = | 100    |                   |
| $R_i(\text{norm})$ | = | 60.000 | $\Omega$          |
| $R_a$              | = | 22.000 | $\Omega$          |
| $W_a(\max)$        | = | 3      | Wtt.              |
| $W_o$ (10%)        | = | 1,12   | Wtt.              |
| $C_{agl}$          | = | 1,4    | $\mu\mu\text{F.}$ |

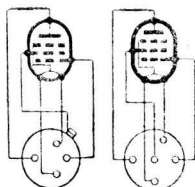
**B 443 S**

**B 543**  
**B 543 Serie**

**B 543**  
**B 543 Serie**

PENTHODE  
(E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 5,0    | V.       |
| $I_f$              | = | 0,1    | A.       |
| $V_a(\text{max})$  | = | 200    | V.       |
| $I_a$              | = | 12     | mA.      |
| $V_{g1}$           | = | —15    | V.       |
| $V_{g2}$           | = | 150    | V.       |
| $S(\text{norm})$   | = | 1,3    | mA/V.    |
| $R_i(\text{norm})$ | = | 45.000 | $\Omega$ |



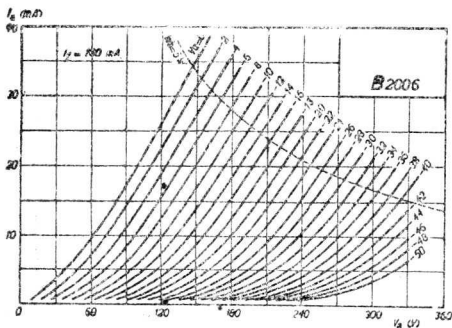
**B543**    **B543**

B 2006

# TRIODE (E)

B 2006

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 20     | .V       |
| $I_f$              | = | 0,18   | A.       |
| $V_a(\max)$        | = | 200    | V.       |
| $I_a$              | = | 15     | mA.      |
| $V_{gl}$           | = | —18    | V.       |
| $S(\max)$          | = | 2,5    | mA/V.    |
| $S(\text{norm})$   | = | 1,6    | mA/V.    |
| $g$                | = | 6      |          |
| $R_i(\text{norm})$ | = | 4.000  | $\Omega$ |
| $R_a$              | = | 16.000 | $\Omega$ |
| $R_k$              | = | 1.200  | $\Omega$ |
| $W_a(\max)$        | = | 3      | Wtt.     |
| $W_o(10\%)$        | = | 0,2    | Wtt.     |



B2006



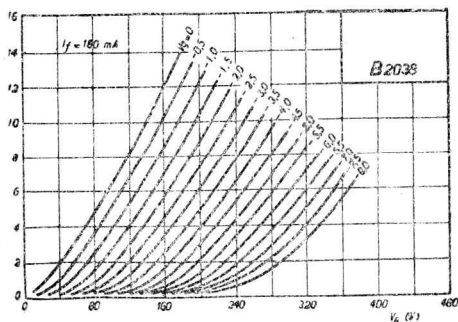
**B 2038**

**B 2038**

**TRIODE**

(OSC - G . DET<sub>T</sub> - A . DET<sub>W</sub> - LF<sub>T</sub> - LF<sub>W</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 20     | V.    |
| I <sub>f</sub>        | = | 0,18   | A.    |
| V <sub>a</sub> (max)  | = | 200    | V.    |
| I <sub>a</sub>        | = | 6,0    | mA.   |
| V <sub>gl</sub>       | = | -3,0   | V.    |
| S(max)                | = | 3,5    | mA/V. |
| S(norm)               | = | 2,3    | mA/V. |
| g                     | = | 33     |       |
| R <sub>i</sub> (norm) | = | 14.000 | Ω     |
| R <sub>k</sub>        | = | 500    | Ω     |



**B 2038**

**B 2041****B 2041**

DUBBELROOSTERLAMP  
BIGRILLE  
(OSC - MOD)

|                  |   |               |       |
|------------------|---|---------------|-------|
| $V_f$            | = | 20            | V.    |
| $I_f$            | = | 0,18          | A.    |
| $V_a(\max)$      | = | 100           | V.    |
| $I_a$            | = | 2,5           | mA.   |
| $V_{g1}$         | = | 0             | V.    |
| $V_{g2}$         | = | 0             | V.    |
| $S(\text{norm})$ | = | 0,1(1) 1,0(2) | mA/V. |

(1)  $g_1$ (2)  $g_2$ **B 2041**

**B 2042****B 2042**

**TETRODE**  
(HF - MF - MOD)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 20    | V.                |
| $I_f$              | = | 0,18  | A.                |
| $V_a(\max)$        | = | 200   | V.                |
| $I_a$              | = | 4,0   | mA.               |
| $V_{g1}$           | = | -2,0  | V.                |
| $V_{g2}$           | = | 60    | V.                |
| $I_{g2}$           | = | 1,9   | mA.               |
| $S(\max)$          | = | 1,1   | mA/V.             |
| $S(\text{onrm})$   | = | 1,0   | mA/V.             |
| $g$                | = | 400   |                   |
| $R_i(\text{norm})$ | = | 0,4   | M $\Omega$        |
| $C_{ag1}$          | = | 0,003 | $\mu\mu\text{F.}$ |

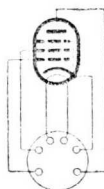
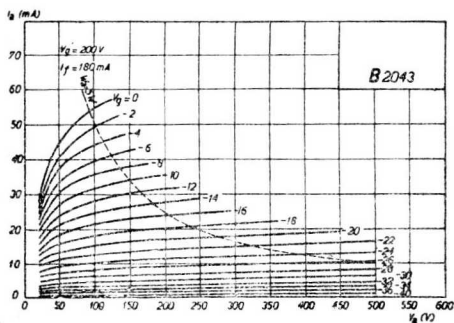
**B2042**

**B 2043**

# PENTHODE (E)

**B 2043**

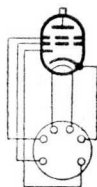
|                    |   |        |           |
|--------------------|---|--------|-----------|
| $V_f$              | = | 20     | $V.$      |
| $I_f$              | = | 0,18   | A.        |
| $V_a(\max)$        | = | 200    | V.        |
| $I_a$              | = | 20     | mA.       |
| $V_{g1}$           | = | —18    | V.        |
| $V_{g2}$           | = | 200    | V.        |
| $I_{g2}$           | = | 8      | mA.       |
| $S(\max)$          | = | 2,5    | mA/V.     |
| $S(\text{norm})$   | = | 1,7    | mA/V.     |
| $g$                | = | 70     |           |
| $R_i(\text{norm})$ | = | 40.000 | $\Omega$  |
| $R_a$              | = | 10.000 | $\Omega$  |
| $R_k$              | = | 900    | $\Omega$  |
| $W_a(\max)$        | = | 5      | $W_{tt}.$ |

**B 2043**

**B 2044****B 2044**

# DIODE - TETRODE (d DET + LF)

|                       |   |       |          |
|-----------------------|---|-------|----------|
| V <sub>f</sub>        | = | 20    | V.       |
| I <sub>f</sub>        | = | 0,18  | A.       |
| V <sub>a</sub> (max)  | = | 200   | V.       |
| I <sub>a</sub>        | = | 0,29  | 0,76 mA. |
| V <sub>g1</sub>       | = | —3,2  | —4,0 V.  |
| V <sub>g2</sub>       | = | 40    | 60 V.    |
| I <sub>g2</sub>       | = | 0,5   | mA.      |
| S(max)                | = | 2,8   | mA/V.    |
| g                     | = | 700   | 600      |
| R <sub>i</sub> (norm) | = | 2,4   | 1,2 M.Ω  |
| R <sub>a</sub>        | = | 0,32  | 0,1 M.Ω  |
| R <sub>k</sub>        | = | 3.200 | Ω        |
| C <sub>ag1</sub>      | = | 0,003 | μμF.     |

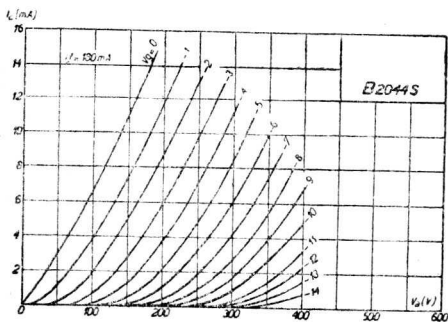
**B 2044**

# B 2044 S

## DIODE - TRIODE (d DET + LF)

# B 2044 S

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 20     | V.       |
| $I_f$              | = | 0,18   | A.       |
| $V_a(\max)$        | = | 200    | V.       |
| $I_a$              | = | 6,0    | mA.      |
| $V_{gl}$           | = | —3     | V.       |
| $S(\max)$          | = | 2,0    | mA/V.    |
| $S(\text{norm})$   | = | 1,8    | mA/V.    |
| $g$                | = | 30     |          |
| $A_i(\text{norm})$ | = | 16.000 | $\Omega$ |
| $R_k$              | = | 500    | $\Omega$ |



B2044S

**B 2045****B 2045**

**TETRODE**  
(HF - MF - MOD)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 20    | V.                |
| $I_f$              | = | 0,18  | A.                |
| $V_a(\max)$        | = | 200   | V.                |
| $I_a$              | = | 4,0   | 0,01 mA.          |
| $V_{g1}$           | = | -2    | -40 V.            |
| $V_{g2}$           | = | 60    | V.                |
| $I_{g2}$           | = | 0,9   | mA.               |
| $S(\max)$          | = | 1,2   | mA/V.             |
| $S(\text{norm})$   | = | 1,0   | 0,005 mA/V.       |
| $g$                | = | 400   |                   |
| $R_i(\text{norm})$ | = | 0,4   | >10 M. $\Omega$   |
| $C_{ag1}$          | = | 0,004 | $\mu\mu\text{F.}$ |

**B2045**

**B 2046****B 2046****PENTHODE**(HF - MF - MOD - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 20     | V.    |
| I <sub>f</sub>       | = | 0,18   | A.    |
| V <sub>a(max)</sub>  | = | 200    | V.    |
| I <sub>a</sub>       | = | 3,0    | mA.   |
| V <sub>g1</sub>      | = | —2     | V.    |
| V <sub>g2</sub>      | = | 100    | V.    |
| I <sub>g2</sub>      | = | 1,1    | mA.   |
| S(max)               | = | 3,5    | mA/V. |
| S(norm)              | = | 2,2    | mA/V. |
| g                    | = | 5.000  |       |
| R <sub>i(norm)</sub> | = | 2,2    | M.Ω   |
| C <sub>agl</sub>     | = | <0,006 | μF.   |

**B 2046**



**B 2047**

**B 2047**

**PENTHODE**  
(HF - MF - MOD)

|                    |   |                 |                   |
|--------------------|---|-----------------|-------------------|
| $V_f$              | = | 20              | V.                |
| $I_f$              | = | 0,18            | A.                |
| $V_a(\max)$        | = | 200             | V.                |
| $I_a$              | = | 4,0             | mA.               |
| $V_{g1}$           | = | -2      -50     | V.                |
| $V_{g2}$           | = | 100             | V.                |
| $I_{g2}$           | = | 1,8             | mA.               |
| $S(\max)$          | = | 3,0             | mA/V.             |
| $S(\text{norm})$   | = | 2,0      <0,002 | mA/V.             |
| $g$                | = | 2.200           |                   |
| $R_i(\text{norm})$ | = | 1,1      >10    | M. $\Omega$       |
| $C_{ag1}$          | = | <0,006          | $\mu\mu\text{F.}$ |



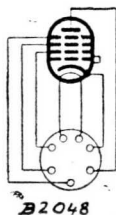
**B 2047**

**B 2048****B 2048**

# HEXODE (OSC - MOD)

|                    |   |             |             |
|--------------------|---|-------------|-------------|
| $V_f$              | = | 20          | V.          |
| $I_f$              | = | 0,18        | A.          |
| $V_a(\max)$        | = | 200         | V.          |
| $I_a$              | = | 3,0         | mA.         |
| $V_{g1}$           | = | -1,5        | V.          |
| $V_{g2}$           | = | 100         | V.          |
| $I_{g3}$           | = | 8,5         | mA.         |
| $V_{g3}$           | = | 200         | V.          |
| $V_{g4}$           | = | -4(1)       | V.          |
| $S(\text{norm})$   | = | 0,58(1)     | mA/V.       |
| $R_i(\text{norm})$ | = | $\geq 0,15$ | M. $\Omega$ |

(1)  $V_{osc} = 6,3 V_{eff}$



**B 2049**

**B 2049**

HEXODE  
(HF - MF)

|                       |   |            |       |
|-----------------------|---|------------|-------|
| V <sub>f</sub>        | = | 20         | V.    |
| I <sub>f</sub>        | = | 0,18       | A.    |
| V <sub>a</sub> (max)  | = | 200        | V.    |
| I <sub>a</sub>        | = | 3,0        | mA.   |
| V <sub>g1</sub>       | = | —2 —8      | V.    |
| V <sub>g2</sub>       | = | 80         | V.    |
| V <sub>g3</sub> —(5)  | = | —2 —8      | V.    |
| V <sub>g4</sub>       | = | 80         | V.    |
| S(max)                | = | 3,0        | mA/V. |
| S(norm)               | = | 0,8 <0,001 | mA/V. |
| R <sub>i</sub> (norm) | = | 0,45 >50   | M.Ω   |
| C <sub>ag1</sub>      | = | <0,002     | μμF.  |



**B2049**

**B 2052 T****B 2052 T****TETRODE**(HF - MF - MOD - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 20    | V.    |
| I <sub>f</sub>        | = | 0,18  | A.    |
| V <sub>a</sub> (max)  | = | 200   | V.    |
| I <sub>a</sub>        | = | 3,0   | mA.   |
| V <sub>g1</sub>       | = | —2    | V.    |
| V <sub>g2</sub>       | = | 100   | V.    |
| I <sub>g2</sub>       | = | 0,2   | mA.   |
| S(max)                | = | 3,0   | mA/V. |
| S(norm)               | = | 2,0   | mA/V. |
| g                     | = | 900   |       |
| R <sub>i</sub> (norm) | = | 0,45  | M.Ω   |
| C <sub>ag1</sub>      | = | 0,003 | μμF.  |

**B2052T**

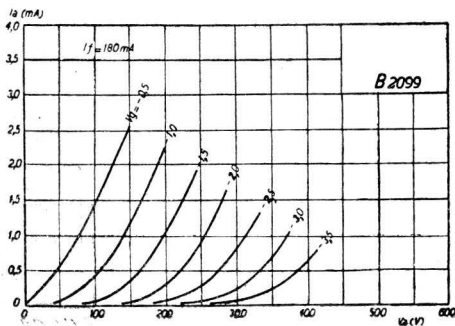
**B 2099**

**B 2099**

TRIODE

( $LF_w$ )

|             |   |      |                  |
|-------------|---|------|------------------|
| $V_f$       | = | 20   | V.               |
| $I_f$       | = | 0,18 | A.               |
| $V_a(max)$  | = | 200  | V.               |
| $I_a$       | = | 0,2  | 0,08 mA.         |
| $V_{gl}$    | = | —1,6 | V.               |
| $S(max)$    | = | 3,0  | mA/V.            |
| $g$         | = | 99   |                  |
| $R_i(norm)$ | = | 0,1  | 0,33 M. $\Omega$ |
| $R_a$       | = | 1    | 0,3 M. $\Omega$  |
| $C_{ag1}$   | = | 1,5  | $\mu\mu F.$      |



**B 2099**

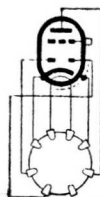
# CBC 1

# CBC 1

## DUODIODE - TRIODE

(d DET + LF)

|             |   |        |        |          |
|-------------|---|--------|--------|----------|
| $V_f$       | = |        | 13,0   | V.       |
| $I_f$       | = |        | 0,2    | A.       |
| $V_a$       | = | 200    | 100    | V.       |
| $I_a$       | = | 4,0    | 2,0    | mA.      |
| $V_{gl}$    | = | -5     | -2,5   | V.       |
| $S(max)$    | = |        | 3,6    | mA/V.    |
| $S(norm)$   | = | 2,0    | 1,8    | mA/V.    |
| $g$         | = |        | 27     |          |
| $R_i(norm)$ | = | 13.500 | 15.000 | $\Omega$ |
| $R_k$       | = |        | 1.250  | $\Omega$ |
| $W_a(max)$  | = |        | 1,5    | Wtt.     |



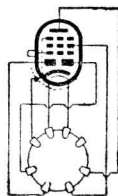
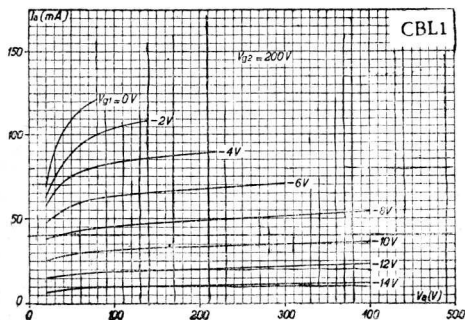
**CBC1**

# CBL 1

## DUODIODE - PENTHODE (d DET - E)

# CBL 1

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 44,0   | V.       |
| $I_f$              | = | 0,2    | A.       |
| $V_a(\max)$        | = | 200    | V.       |
| $I_a$              | = | 45     | mA.      |
| $V_{g1}$           | = | —8,5   | V.       |
| $V_{g2}$           | = | 200    | V.       |
| $I_{g2}$           | = | 6      | mA.      |
| $S(\text{norm})$   | = | 8      | mA/V.    |
| $R_i(\text{norm})$ | = | 35.000 | $\Omega$ |
| $R_a$              | = | 4.500  | $\Omega$ |
| $R_k$              | = | 170    | $\Omega$ |
| $W_a(\max)$        | = | 9      | Wtt.     |
| $W_o(10\%)$        | = | 4      | Wtt.     |



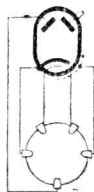
CB 1

DUODIODE  
(d DET)

CB 1

|             |   |      |
|-------------|---|------|
| $V_f$       | = | 13,0 |
| $I_f$       | = | 0,2  |
| $V_d(\max)$ | = | 200  |
| $I_a$       | = | 0,8  |

V.  
A.  
V.  
mA.

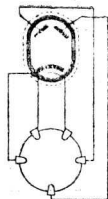


CB1



**CB 2****DUODIODE**  
(d DET)**CB 2**

|             |   |      |     |
|-------------|---|------|-----|
| $V_f$       | = | 13,0 | V.  |
| $I_f$       | = | 0,2  | A.  |
| $V_d(\max)$ | = | 200  | V.  |
| $I_a$       | = | 0,8  | mA. |

**CB 2**

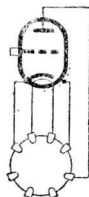
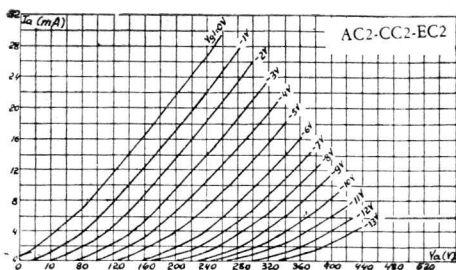
CC 2

CC 2

## TRIODE

(OSC - G . DET<sub>T</sub> - LF<sub>T</sub> - LF<sub>W</sub>)

|                       |   |        |                   |
|-----------------------|---|--------|-------------------|
| V <sub>f</sub>        | = | 13,0   | V.                |
| I <sub>f</sub>        | = | 0,2    | A.                |
| V <sub>a</sub>        | = | 200    | 100 V.            |
| I <sub>a</sub>        | = | 6,0    | 2,0 mA.           |
| V <sub>gl</sub>       | = | —4     | —2,5 V.           |
| S(max)                | = | 3,5    | mA/V.             |
| S(norm)               | = | 2,5    | 1,8 mA/V.         |
| g                     | = | 30     |                   |
| R <sub>i</sub> (norm) | = | 12.000 | 16.000 Ω          |
| R <sub>k</sub>        | = | 660    | 1.250 Ω           |
| W <sub>a</sub> (max)  | = | 2      | W <sub>tt</sub> . |
| C <sub>agl</sub>      | = | 1,7    | μμF.              |



CC 2

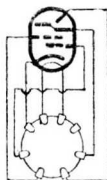
C/EM 2

(A1)

C/EM 2

|                  |   |        |             |
|------------------|---|--------|-------------|
| $V_f$            | = | 6,3    | V.          |
| $I_f$            | = | 0,2    | A:          |
| $V_a(\max)$      | = | 250    | V.          |
| $I_a$            | = | 3,5(1) | mA:         |
| $V_{gl}$         | = | -1,5   | V.          |
| $S(\text{norm})$ | = | 2,0    | mA/V.       |
| $g$              | = | 50     |             |
| $R_a$            | = | 2      | M. $\Omega$ |

(1) Triode



CEM2

CF 1

CF 1

## PENTHODE

(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 13,0   | V.    |
| I <sub>f</sub>        | = | 0,2    | A.    |
| V <sub>a</sub>        | = | 200    | 100   |
| I <sub>a</sub>        | = | 3,0    | mA.   |
| V <sub>g1</sub>       | = | -2     | V.    |
| V <sub>g2</sub>       | = | 100    | V.    |
| I <sub>g2</sub>       | = | 0,9    | mA.   |
| S(max)                | = | 3,2    | mA/V. |
| S(norm)               | = | 2,3    | mA/V. |
| g                     | = | 4.000  | 1.450 |
| R <sub>i</sub> (norm) | = | 1,7    | 0,6   |
| C <sub>ag1</sub>      | = | <0,003 | μμF.  |



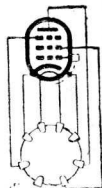
CF1

CF 2

CF 2

# PENTHODE (HF - MF)

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 13,0   | V.                |
| $I_f$              | = | 0,2    | A.                |
| $V_a$              | = | 200    | V.                |
| $I_a$              | = | 4,5    | mA.               |
| $V_{g1}$           | = | -2     | V.                |
| $V_{g2}$           | = | 100    | V.                |
| $I_{g2}$           | = | 1,4    | mA.               |
| $S(\max)$          | = | 2,8    | mA/V.             |
| $S(\text{norm})$   | = | 2,20   | mA/V.             |
| $g$                | = | 3.000  |                   |
| $R_i(\text{norm})$ | = | 0,4    | M. $\Omega$       |
| $C_{ag1}$          | = | <0,003 | $\mu\mu\text{F.}$ |



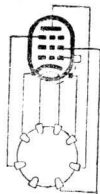
CF2

CF 3

CF 3

# PENTHODE (HF - MF)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 13,0   | V.    |
| I <sub>f</sub>        | = | 0,2    | A.    |
| V <sub>a</sub>        | = | 200    | V.    |
| I <sub>a</sub>        | = | 8,0    | mA.   |
| V <sub>g1</sub>       | = | -3     | V.    |
| V <sub>g2</sub>       | = | 100    | V.    |
| I <sub>g2</sub>       | = | 2,6    | mA.   |
| V <sub>g3</sub>       | = | 0      | V.    |
| S(norm)               | = | 1,8    | mA/V. |
| g                     | = | 1.600  |       |
| R <sub>i</sub> (norm) | = | 0,25   | M.Ω   |
| C <sub>ag1</sub>      | = | <0,003 | μμF,  |



CF3

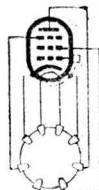
CF 7

CF 7

## PENTHODE

(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                      |   |        |        |
|----------------------|---|--------|--------|
| V <sub>f</sub>       | = | 13,0   | V.     |
| I <sub>f</sub>       | = | 0,2    | A.     |
| V <sub>a</sub> (max) | = | 200    | 100 V. |
| I <sub>a</sub>       | = | 3,0    | mA.    |
| V <sub>g1</sub>      | = | -2     | V.     |
| V <sub>g2</sub>      | = | 100    | V.     |
| I <sub>g2</sub>      | = | 1,1    | mA.    |
| V <sub>g3</sub>      | = | 0      | V.     |
| S(max)               | = | 2,4    | mA/V.  |
| S(norm)              | = | 2,1    | mA/V.  |
| g                    | = | 4.000  | 1.500  |
| C <sub>ag1</sub>     | = | <0,003 | μμF.   |



CF7

## CH 1

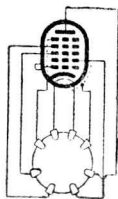
# HEXODE (HF - MF - MOD)

## CH 1

|                    |   |       |                    |
|--------------------|---|-------|--------------------|
| $V_f$              | = | 13    | V.                 |
| $I_f$              | = | 0,2   | A.                 |
| $V_a(\max)$        | = | 200   | V.                 |
| $I_a$              | = | 4,0   | $< 0,015$ mA.      |
| $V_{g1}$           | = | -2    | -24 V.             |
| $V_{g2}$           | = | 100   | V.                 |
| $I_{g2}$           | = | 4     | 2,0(1) mA.         |
| $V_{g3 - (5)}$     | = | -2(2) | -24 V.             |
| $V_{g4}$           | = | 50    | V.                 |
| $S(\max)$          | = | 2     | mA/V.              |
| $S(\text{norm})$   | = | 2     | $< 0,002$ mA/V.    |
| $R_i(\text{norm})$ | = | 2     | $> 10$ M. $\Omega$ |
| $C_{ag1}$          |   | 0,003 | $\mu\mu\text{F.}$  |

(1)  $I_{g4} = 0,25 \text{ mA.}$

(2)  $V_g = \text{const} / R_{g3} = 0,5 \text{ M.}\Omega$



CH 1



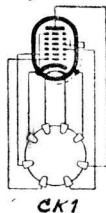
**CK 1**
**CK 1**

OCTODE  
(OSC - MOD)

|              |   |        |                   |
|--------------|---|--------|-------------------|
| Vf           | = | 13,0   | V.                |
| If           | = | 0,2    | A.                |
| Va           | = | 200    | V.                |
| Ia           | = | 100    | V.                |
| $\sqrt{g_1}$ | = | 1,6    | mA.               |
| Vg2          | = | <0,015 | V.                |
| Ig2          | = | -1,5   | V.                |
| Vg3 - (5)    | = | 90     | V.                |
| Vg4          | = | 2(1)   | mA.               |
| S(norm)      | = | 70     | V.                |
| Ri(norm)     | = | -1,5   | V.                |
| Cag4         | = | -25    | V.                |
|              |   | 0,6(2) | mA/V.             |
|              |   | 1      | M. $\Omega$       |
|              |   | >10    | $\mu\mu\text{F.}$ |
|              |   | <0,06  |                   |

(1)  $I_{g_3} + I_{g_5} = 3,8 \text{ mA.}$

(2)  $V_{osc} = 9 V_{eff}$



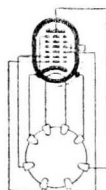
**CK 3**

# OCTODE (OSC - MOD)

|           |   |      |        |
|-----------|---|------|--------|
| Vf        | = |      | 23     |
| If        | = |      | 0,2    |
| Va        | = | 100  | 200    |
| Ia        | = | 1,2  | 2      |
| Vg1       | = | 8    | 8      |
| Vg2       | = | 100  | 135    |
| Ig2       | = | 3,2  | 6      |
| Vg3 - (5) | = | 90   | 100    |
| Vg4       | = | -1,5 | -2     |
| S(max)    | = | 3,5  | 4      |
| Sc        | = | 500  | 600    |
| Ri        | = | 1,4  | 2      |
| Rg1       | = |      | 50.000 |
| Cag4      | = |      | <      |
| Ca        | = |      | 16     |
| Cg1       | = |      | 10     |
| Cg1 g4    | = |      | 1,7    |
| Cg2       | = |      | 5,5    |
| Cg4       | = |      | 14     |

**CK 3**

|                |
|----------------|
| V.             |
| A.             |
| V.             |
| mA.            |
| V.             |
| V.             |
| mA.            |
| V.             |
| V.             |
| mA/V.          |
| $\mu$ A/V.     |
| M. $\Omega$    |
| $\Omega$       |
| $\mu$ $\mu$ F. |
| $\mu$ $\mu$ F. |
| $\mu$ $\mu$ F. |
| $\mu$ $\mu$ F. |
| $\mu$ $\mu$ F. |
| $\mu$ $\mu$ F. |


**CK3**

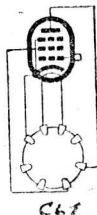
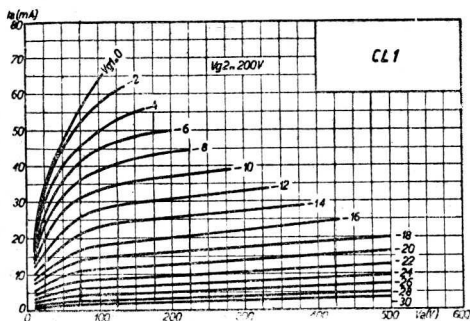
CL 1

CL 1

## PENTHODE

(E)

|                    |   |        |        |          |
|--------------------|---|--------|--------|----------|
| $V_f$              | = |        | 13,0   | $V.$     |
| $I_f$              | = |        | 0,2    | A.       |
| $V_a$              | = | 250    | 200    | $V.$     |
| $I_a$              | = | 32     | 25     | mA.      |
| $V_{g1}$           | = | -19    | -14    | $V.$     |
| $V_{g2}$           | = | 250    | 200    | $V.$     |
| $I_{g2}$           | = | 3,3    | 2,4    | mA.      |
| $S(\text{norm})$   | = | 2,6    | 2,5    | mA/V.    |
| $R_i(\text{norm})$ | = | 48.000 | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | 8.000  | $\Omega$ |
| $R_k$              | = | 540    | 510    | $\Omega$ |
| $W_a(\text{max})$  | = | 8      | 5      | Wtt.     |
| $W_o(10\%)$        | = | 2,8    | 1,7    | Wtt.     |



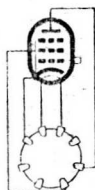
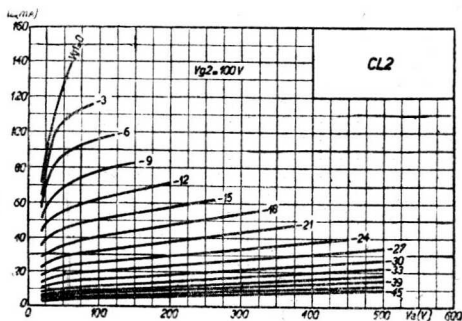
CL 2

CL 2

## PENTHODE

(E)

|                    |   |               |        |          |
|--------------------|---|---------------|--------|----------|
| $V_f$              | = |               | 24,0   | V.       |
| $I_f$              | = |               | 0,2    | A.       |
| $V_a$              | = | 200           | 100    | V.       |
| $I_a$              | = | 40            | 50     | mA.      |
| $V_{g1}$           | = | -19—11        | -15    | V.       |
| $V_{g2}$           | = | 100 75        | 100    | V.       |
| $I_{g2}$           | = | 5 4,5         | 8      | mA.      |
| $S(\text{norm})$   | = | 3,1 3,7       | 3,8    | mA/V.    |
| $R_i(\text{norm})$ | = | 23.000 19.000 | 16.000 | $\Omega$ |
| $R_a$              | = | 5.000         | 2.000  | $\Omega$ |
| $R_k$              | = | 420 250       | 260    | $\Omega$ |
| $W_a(\text{max})$  | = | 8             | 5      | Wtt.     |
| $W_o(10\%)$        | = | 3,0 2,5       | 1,7    | Wtt.     |



CL2

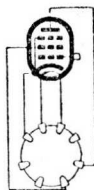
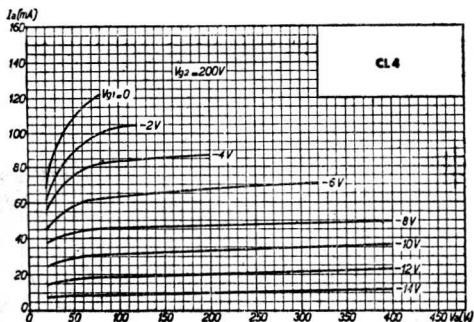
CL 4

CL 4

## PENTHODE

(E)

|                    |   |               |          |
|--------------------|---|---------------|----------|
| $V_f$              | = | 33,0          | V.       |
| $I_f$              | = | 0,2           | A.       |
| $V_a(\text{max})$  | = | 200           | V.       |
| $I_a$              | = | 45            | mA.      |
| $V_{g1}$           | = | -8,5          | V.       |
| $V_{g2}$           | = | 200           | V.       |
| $I_{g2}$           | = | 6,0           | mA.      |
| $S(\text{norm})$   | = | 8,0           | mA/V.    |
| $R_i(\text{norm})$ | = | 45.000        | $\Omega$ |
| $R_a$              | = | 4.500         | $\Omega$ |
| $R_k$              | = | 170(1) 140(2) | $\Omega$ |
| $W_a(\text{max})$  | = | 9             | Wtt.     |
| $W_o(10\%)$        | = | 4             | Wtt.     |

(1)  $\rightarrow E_B$  (2)  $\rightarrow E_A$ 

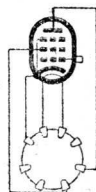
CL 4

CL 6

# PENTHODE (E)

CL 6

|                       |   |        |        |                  |
|-----------------------|---|--------|--------|------------------|
| V <sub>f</sub>        | = |        | 35     | V.               |
| I <sub>f</sub>        | = |        | 0,2    | A.               |
| V <sub>a</sub>        | = | 100    | 200    | V.               |
| I <sub>a</sub>        | = | 50     | 40     | mA.              |
| V <sub>g1</sub>       | = | —8,25  | —10,5  | V.               |
| V <sub>g2</sub>       | = | 100    | 100    | V.               |
| I <sub>g2</sub>       | = | 9      | 5      | mA.              |
| S(max)                | = | 8,5    | 8      | mA/V.            |
| R <sub>i</sub> (norm) | = | 16.000 | 22.000 | Ω                |
| R <sub>a</sub>        | = | 2.000  | 5.000  | Ω                |
| R <sub>k</sub> (max)  | = | 140    | 235    | Ω                |
| V <sub>a</sub> (max)  | = |        | 8      | W <sub>tt.</sub> |
| W <sub>o</sub>        | = | 2,2    | 3,5    | W <sub>tt.</sub> |



CL 6

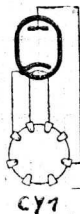
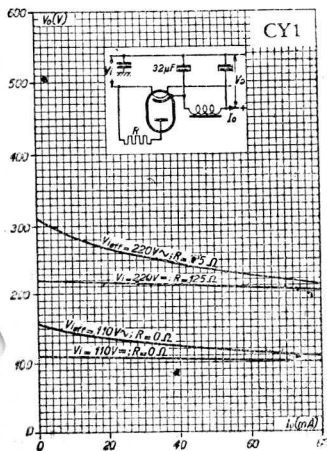
CY 1

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

CY 1

|       |   |     |
|-------|---|-----|
| $V_f$ | = | 20  |
| $I_f$ | = | 0,2 |
| $V_a$ | = | 250 |
| $I_a$ | = | 80  |
| $L$   | = | 102 |
| $D$   | = | 43  |

V.  
A.  
V.  
mA.  
mm.  
mm.



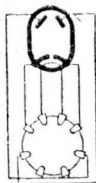
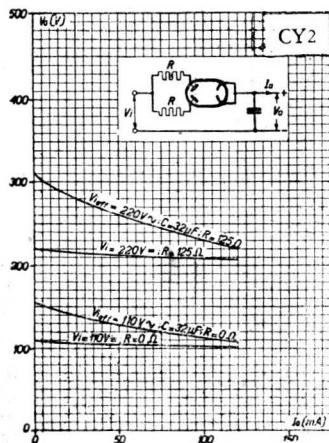
CY 2

CY 2

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|    |   |         |     |
|----|---|---------|-----|
| Vf | = | 30      | V.  |
| If | = | 0,2     | A.  |
| Va | = | 1 × 250 | V.  |
| Va | = | 127(1)  | V.  |
| Ia | = | 120     | mA. |
| Ia | = | 60(1)   | mA. |
| D  | = | 44      | mm. |
| L  | = | 100     | mm. |

(1) Als spanningsverdubbelaar — Comme doubleur de tension.



CY2

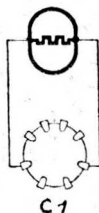
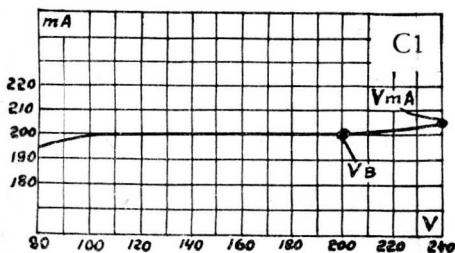


C1

C1

# STROOMREGULATOR REGULATRICE DE COURANT

|           |   |    |     |    |
|-----------|---|----|-----|----|
| $V_f$     | = | 80 | 230 | V. |
| $I_f$     | = |    | 0,2 | A. |
| $V(\max)$ | = |    | 200 | V. |



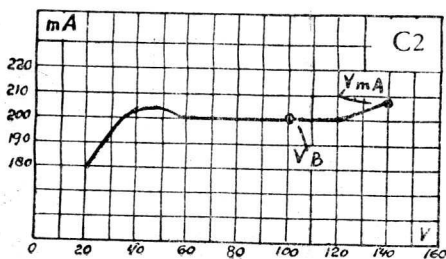
C2

C2

# STROOMREGULATOR REGULATRICE DE COURANT

|           |   |    |     |
|-----------|---|----|-----|
| $V_f$     | = | 35 | 100 |
| $I_f$     | = |    | 0,2 |
| $V(\max)$ | = |    | 110 |

V.  
A.  
V.

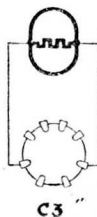
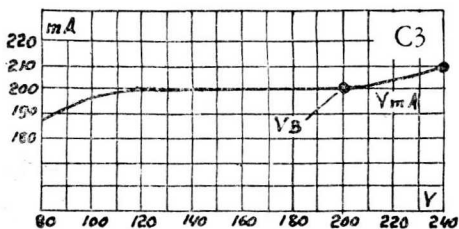


C3

C3

# STROOMREGULATOR REGULATRICE DE COURANT

|           |   |     |     |    |
|-----------|---|-----|-----|----|
| $V_f$     | = | 110 | 200 | V. |
| $I_f$     | = |     | 0,2 | A. |
| $V(\max)$ | = |     | 240 | V. |



**C 8**

STROOMREGULATOR  
REGULATRICE DE COURANT

|        |   |    |     |
|--------|---|----|-----|
| Vf     | = | 80 | 230 |
| If     | = |    | 0,2 |
| V(max) | = |    | 200 |

**C 8**

V.  
A.  
V.

Speciale lamp voor Philipstoestellen.

Lampe spéciale pour appareils Philips.

**C 8**

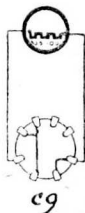
**C9****C9**

STROOMREGULATOR  
REGULATRICE DE COURANT

|             |   |    |     |    |
|-------------|---|----|-----|----|
| $V_f$       | = | 35 | 100 | V. |
| $I_f$       | = |    | 0,2 | A. |
| $V_a(\max)$ | = |    | 100 | V. |

Speciale lamp voor Philipstoestellen.

Lampe spéciale pour appareils Philips.

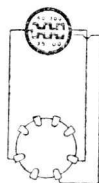


C 12

C 12

# STROOMREGULATOR REGULATRICE DE COURANT

|           |   |                 |    |
|-----------|---|-----------------|----|
| $V_f$     | = | ( 35      100 ) | V. |
| $I_f$     | = | ( 80      200 ) | V. |
|           |   | 0,2             | A. |
| $V(\max)$ | = | ( 200      )    | V. |
|           |   | ( 100      )    | V. |



C/2

**C 142****C 142**

# TETRODE (HF)

|                    |   |      |                 |
|--------------------|---|------|-----------------|
| $V_f$              | = | 1,0  | V.              |
| $I_f$              | = | 0,25 | A.              |
| $V_a(\max)$        | = | 150  | V.              |
| $I_a$              | = | 1,7  | mA.             |
| $V_{g1}$           | = | -1,5 | V.              |
| $V_{g2}$           | = | 75   | V.              |
| $S(\max)$          | = | 0,8  | mA/V.           |
| $S(\text{norm})$   | = | 0,6  | mA/V.           |
| $g$                | = | 300  | M. $\Omega$     |
| $R_i(\text{norm})$ | = | 0,5  | $\mu\text{F}$ . |
| $C_{ag1}$          | = | 0,01 |                 |

**C142**

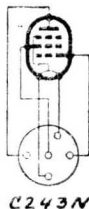
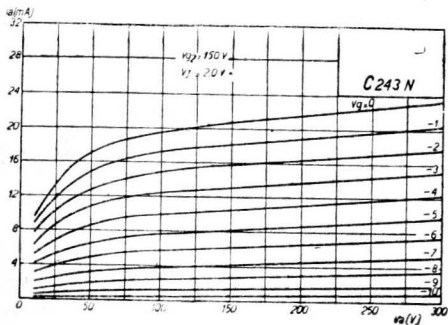
# C 243 N

# C 243 N

## PENTHODE

(E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 2,0    | V.       |
| $I_f$              | = | 0,2    | A.       |
| $V_a(\max)$        | = | 150    | V.       |
| $I_a$              | = | 9,5    | mA.      |
| $V_{g1}$           | = | —4,5   | V.       |
| $V_{g2}$           | = | 150    | V.       |
| $S(\text{norm})$   | = | 2,4    | mA/V.    |
| $R_i(\text{norm})$ | = | 75.000 | $\Omega$ |
| $R_a$              | = | 15.000 | $\Omega$ |
| $R_k$              | = | 500    | $\Omega$ |
| $W_a(\max)$        | = | 1,5    | Wtt.     |
| $W_o(10\%)$        | = | 0,58   | Wtt.     |



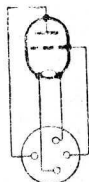
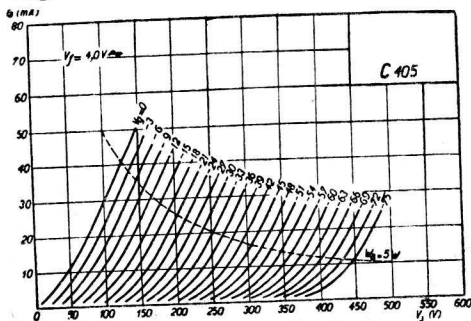


C 405

TRIODE  
(E)

C 405

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 0,3   | A.                |
| $V_a(\max)$        | = | 250   | V.                |
| $I_a$              | = | 20    | mA.               |
| $V_{gl}$           | = | -32   | V.                |
| $S(\max)$          | = | 2,0   | mA/V.             |
| $S(\text{norm})$   | = | 1,9   | mA/V.             |
| $g$                | = | 5     |                   |
| $R_i(\text{norm})$ | = | 2.600 | $\Omega$          |
| $R_a$              | = | 5.200 | $\Omega$          |
| $R_k$              | = | 1.600 | $\Omega$          |
| $W_a(\max)$        | = | 5     | Wtt.              |
| $W_o(10\%)$        | = | 1,1   | Wtt.              |
| $C_{agl}$          | = | 4,8   | $\mu\mu\text{F.}$ |

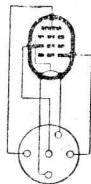
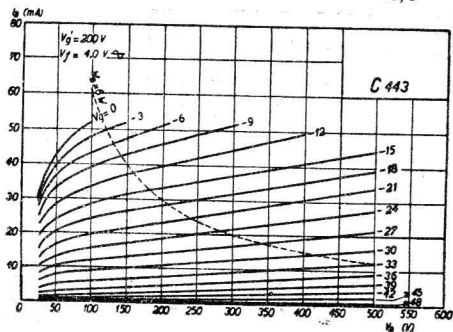


C 443

## PENTHODE

(E)

|                    |   |        |           |
|--------------------|---|--------|-----------|
| $V_f$              | = | 4      | $V.$      |
| $I_f$              | = | 0,25   | A.        |
| $V_a(\max)$        | = | 300    | V.        |
| $I_a$              | = | 20     | mA.       |
| $V_{g1}$           | = | -25    | V.        |
| $V_{g2}$           | = | 200    | V.        |
| $I_{g2}$           | = | 4,5    | mA.       |
| $S(\max)$          | = | 2,0    | mA/V.     |
| $S(\text{norm})$   | = | 1,7    | mA/V.     |
| $g$                | = | 60     |           |
| $R_i(\text{norm})$ | = | 35.000 | $\Omega$  |
| $R_a$              | = | 15.000 | $\Omega$  |
| $R_k$              | = | 1.250  | $\Omega$  |
| $W_a(\max)$        | = | 6      | $W_{tt.}$ |
| $W_o$              | = | 2,8    | $W_{tt.}$ |



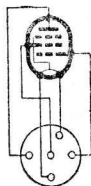
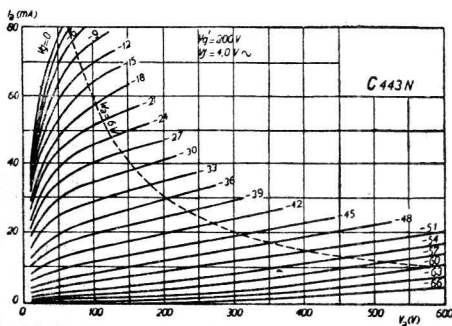
C 443 N

## PENTHODE

(E)

C 443 N

|                    |       |        |          |
|--------------------|-------|--------|----------|
| $V_f$              | =     | 4,0    | V.       |
| $I_f$              | =     | 0,25   | A.       |
| $V_a(\max)$        | =     | 300    | V.       |
| $I_a$              | =     | 20     | mA.      |
| $V_{g1}$           | =     | -42    | V.       |
| $V_{g2}$           | =     | 200    | V.       |
| $I_{g2}$           | =     | 0,4    | mA.      |
| $S(\max)$          | =     | 1,8    | mA/V.    |
| $S(\text{norm})$   | =     | 1,5    | mA/V.    |
| $g$                | =     | 37     |          |
| $R_i(\text{norm})$ | =     | 25.000 | $\Omega$ |
| $R_a$              | $\pm$ | 15.000 | $\Omega$ |
| $R_k$              | =     | 2.000  | $\Omega$ |
| $W_a(\max)$        | =     | 6      | Wtt.     |
| $W_o(10\%)$        | =     | 3,0    | Wtt.     |



C 443 N

# C 443 N Serie

# C 443 N Serie

## PENTHODE (E)

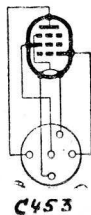
|                    |   |           |                   |
|--------------------|---|-----------|-------------------|
| $V_f$              | = | $\pm 4,0$ | V.                |
| $I_f$              | = | 0,25      | A.                |
| $V_a(\max)$        | = | 300       | V.                |
| $I_a$              | = | 20        | mA.               |
| $V_{g1}$           | = | -20       | V.                |
| $V_{g2}$           | = | 150       | V.                |
| $S(\max)$          | = | 2,0       | mA/V.             |
| $S(\text{norm})$   | = | 1,5       | mA/V.             |
| $g$                | = | 50        |                   |
| $R_i(\text{norm})$ | = | 33.000    | $\Omega$          |
| $R_k$              | = | 1.000     | $\Omega$          |
| $W_a(\max)$        | = | 6         | W <sub>tt</sub> . |



C 443 Ns

**C 453****PENTHODE  
(E)****C 453**

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 4,0    | V.                |
| $I_f$              | = | 0,25   | A.                |
| $V_a(\max)$        | = | 300    | V.                |
| $I_a$              | = | 20     | mA.               |
| $V_{g1}$           | = | —25    | V.                |
| $V_{g2}$           | = | 200    | V.                |
| $I_{g2}$           | = | 4,5    | mA.               |
| $S(\max)$          | = | 2,0    | mA/V.             |
| $S(\text{norm})$   | = | 1,7    | mA/V.             |
| $g$                | = | 60     |                   |
| $R_i(\text{norm})$ | = | 35.000 | $\Omega$          |
| $R_a$              | = | 15.000 | $\Omega$          |
| $R_k$              | = | 1.000  | $\Omega$          |
| $W_a(\max)$        | = | 6      | Wtt.              |
| $W_o(10\%)$        | = | 2,8    | Wtt.              |
| $C_{ag1}$          | = | 1,3    | $\mu\mu\text{F.}$ |



DCG 1/150

DCG 1/150

## GELIJKRICHTERLAMP

## REDRESSEUSE

(Hg)

|           |   |       |          |
|-----------|---|-------|----------|
| $V_f$     | = | 2,0   | V.       |
| $I_f$     | = | 5,0   | A.       |
| $V_{inv}$ | = | 3.000 | V. max.  |
| $I_a$     | = | 150   | mA. max. |
| $V_l$     | = | 16    | V.       |

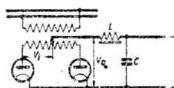


Fig. 1

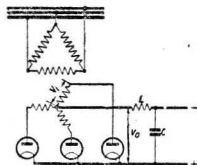


Fig. 2

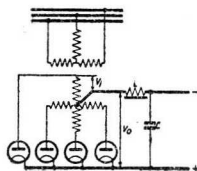


Fig. 3

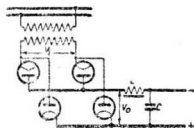


Fig. 4

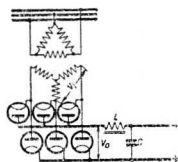


Fig. 5

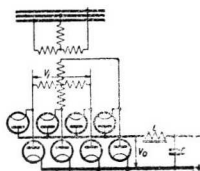


Fig. 6

DCG 1/150

DCG 1/150

|        | $V_i$  | $V_o$  | $I_o(\text{max})$ | $W_o$                |
|--------|--------|--------|-------------------|----------------------|
| fig. 1 | 1050 V | 950 V  | 300 mA            | 285 W <sub>tt</sub>  |
| fig. 2 | 1050 V | 1200 V | 450 mA            | 540 W <sub>tt</sub>  |
| fig. 3 | 1050 V | 1350 V | 600 mA            | 810 W <sub>tt</sub>  |
| fig. 4 | 2100 V | 1900 V | 300 mA            | 570 W <sub>tt</sub>  |
| fig. 5 | 2100 V | 2900 V | 450 mA            | 1300 W <sub>tt</sub> |
| fig. 6 | 2100 V | 2700 V | 600 mA            | 1620 W <sub>tt</sub> |

$D_{\text{max}} = 47 \frac{\text{m}}{\text{m}}$

$L_{\text{max}} = 135 \frac{\text{m}}{\text{m}}$

Huls-Culot: Edison

DCG 2/2000

DCG 2/2000

# GELIJKRICHTERLAMP REDRESSEUSE (Hg)

|                  |   |     |         |
|------------------|---|-----|---------|
| Vf               | = | 5,0 | V.      |
| If               | = | 10  | A.      |
| V <sub>inv</sub> | = | 500 | V. max. |
| I <sub>a</sub>   | = | 1   | A. max. |
| Vl               | = | 16  | V.      |

|            | V <sub>i</sub> | V <sub>o</sub> | I <sub>o</sub> (max) | W <sub>o</sub>        |
|------------|----------------|----------------|----------------------|-----------------------|
| fig. 1 (1) | 1750 V         | 1600 V         | 2,0 A                | 3200 W <sub>tt</sub>  |
| fig. 2     | 1750 V         | 2100 V         | 3,0 A                | 6300 W <sub>tt</sub>  |
| fig. 3     | 1750 V         | 2250 V         | 4,0 A                | 9000 W <sub>tt</sub>  |
| fig. 4     | 3500 V         | 3200 V         | 2,0 A                | 6400 W <sub>tt</sub>  |
| fig. 5     | 3500 V         | 4700 V         | 3,0 A                | 14100 W <sub>tt</sub> |
| fig. 6     | 3500 V         | 4500 V         | 4,0 A                | 18000 W <sub>tt</sub> |

D = 95  $\frac{m}{m}$ L = 254  $\frac{m}{m}$ 

Huls-Culot: Edison

(1) DCG 1/150



DCG 4/1000

DCG 4/1000

## GELIJKRICHTERLAMP

## REDRESSEUSE

(Hg)

|      |   |        |          |
|------|---|--------|----------|
| Vf   | = | 2,5    | V.       |
| If   | = | 5,0    | A.       |
| Vinv | = | 10.000 | V. max.  |
| Ia   | = | 250    | mA. max. |
| Vl   | = | 16     | V.       |

|            | Vi     | Vo     | Io (max) | Wo                   |
|------------|--------|--------|----------|----------------------|
| fig. 1 (1) | 3500 V | 3150 V | 500 mA   | 1575 W <sub>tt</sub> |
| fig. 2     | 3500 V | 4100 V | 750 mA   | 3075 W <sub>tt</sub> |
| fig. 3     | 3500 V | 4500 V | 1000 mA  | 4500 W <sub>tt</sub> |
| fig. 4     | 7000 V | 6300 V | 500 mA   | 3150 W <sub>tt</sub> |
| fig. 5     | 7000 V | 9500 V | 750 mA   | 7125 W <sub>tt</sub> |
| fig. 6     | 7000 V | 9000 V | 1000 mA  | 9000 W <sub>tt</sub> |

$$D = 38 \frac{\text{m}}{\text{m}}$$

$$L = 170 \frac{\text{m}}{\text{m}}$$

Huls-Culot: Edison

(1) DCG 1/150

DCG 5/2500

DCG 5/2500

## GELIJKRICHTERLAMP

## REDRESSEUSE

(Hg)

|      |   |        |          |
|------|---|--------|----------|
| Vf   | = | 5,0    | V.       |
| If   | = | 10     | A.       |
| Vinv | = | 10.000 | V.       |
| Ia   | = | 500    | mA. max. |
| VI   | = | 16     | V.       |

|            | Vi(max) | Vc           | Ico   |
|------------|---------|--------------|-------|
| fig. 1 (1) | 3500 V  | 3150- 5000 V | 1 A   |
| fig. 2     | 3500 V  | 4100- 5000 V | 1,5 A |
| fig. 3     | 3500 V  | 4500- 5000 V | 2 A   |
| fig. 4     | 7000 V  | 6300-10000 V | 1 A   |
| fig. 5     | 7000 V  | 9500-10000 V | 1,5 A |
| fig. 6     | 7000 V  | 9000-10000 V | 2 A   |

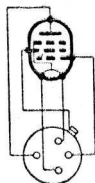
 $W_o = 1600-2400 W_{tt}$  $D = 90 \frac{m}{m}$  $L = 315 \frac{m}{m}$ 

Huls-Culot: Edison

(1) DCG  $1/_{150}$

**D 143****D 143****PENTHODE****(E)**

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 1,0    | V.       |
| $I_f$              | = | 0,6    | A.       |
| $V_a(\max)$        | = | 150    | V.       |
| $I_a$              | = | 12     | mA.      |
| $V_{g1}$           | = | —15    | V.       |
| $V_{g2}$           | = | 150    | V.       |
| $S(\max)$          | = | 1,2    | mA/V.    |
| $S(\text{norm})$   | = | 1,2    | mA/V.    |
| $g$                | = | 60     |          |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_k$              | = | 1.250  | $\Omega$ |

**D/43**

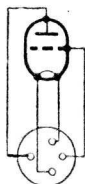
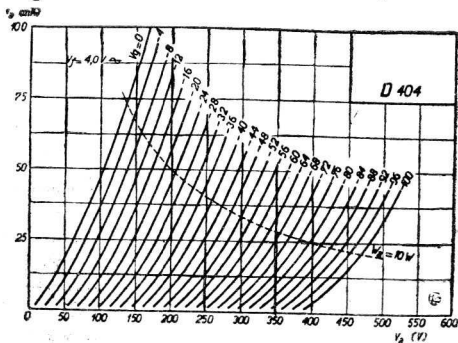
D 404

D 404

## TRIODE

(E)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 0,65  | A.                |
| $V_a(\max)$        | = | 250   | V.                |
| $I_a$              | = | 40    | mA.               |
| $V_{g1}$           | = | -40   | V.                |
| $S(\max)$          | = | 3,5   | mA/V.             |
| $S(\text{norm})$   | = | 2,7   | mA/V.             |
| $g$                | = | 3,5   |                   |
| $R_i(\text{norm})$ | = | 1.300 | $\Omega$          |
| $R_a$              | = | 3.500 | $\Omega$          |
| $R_k$              | = | 1.000 | $\Omega$          |
| $W_a(\max)$        | = | 10    | Wtt.              |
| $W_o(10\%)$        | = | 1,7   | Wtt.              |
| $C_{ag1}$          | = | 7     | $\mu\mu\text{F.}$ |



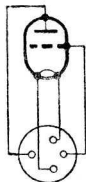
D 404

**D 410**

TRIODE  
(E)

**D 410**

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 4,0   | V.       |
| $I_f$              | = | 0,45  | A.       |
| $V_a(\max)$        | = | 250   | V.       |
| $I_a$              | = | 30    | mA.      |
| $V_{gl}$           | = | —16   | V.       |
| $S(\max)$          | = | 60    | mA/V.    |
| $S(\text{norm})$   | = | 4,0   | mA/V.    |
| $g$                | = | 10,0  |          |
| $R_i(\text{norm})$ | = | 2.500 | $\Omega$ |
| $R_k$              | = | 500   | $\Omega$ |
| $W_a(\max)$        | = | 7,5   | Wtt.     |

**D 410**

**E**

# TRIODE (Univ)

**E**

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | $V.$     |
| $I_f$              | = | 0,7    | A.       |
| $V_a(\max)$        | = | 200    | $V.$     |
| $I_a$              | = | 1,7    | mA.      |
| $V_{g1}$           | = | —9     | $V.$     |
| $S(\max)$          | = | 0,4    | mA/V.    |
| $g$                | = | 10     |          |
| $R_i(\text{norm})$ | = | 25.000 | $\Omega$ |

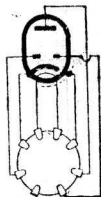
**E**

# EAB 1

# EAB 1

## TRIPLE DIODE

|                           |   |          |             |
|---------------------------|---|----------|-------------|
| $V_f$                     | = | 6,3      | V.          |
| $I_f$                     | = | 0,2      | A.          |
| $Cd1 - d2$                | = | $<0,65$  | $\mu\mu F.$ |
| $Cd1 - d3$                | = | $<0,08$  | $\mu\mu F.$ |
| $Cd2 - d3$                | = | $<0,4$   | $\mu\mu F.$ |
| $Cd1k$                    | = | 1        | $\mu\mu F.$ |
| $Cd2k$                    | = | 1,45     | $\mu\mu F.$ |
| $Cd3k$                    | = | 2,25     | $\mu\mu F.$ |
| $Vd1$                     | = | 200      | V. max.     |
| $Vd2$                     | = | 200      | V. max.     |
| $Vd3$                     | = | 200      | V. max.     |
| $Id1$                     | = | 0,8      | mA.         |
| $Id2$                     | = | 0,8      | mA.         |
| $Id3$                     | = | 0,8      | mA.         |
| $Vfk$                     | = | 75       | V.          |
| $Rfk$                     | = | 20.000   | $\Omega$    |
| $Vd_1 (Id_1 = 0,3 \mu A)$ | = | $-1,3 V$ |             |
| $Vd_2 (Id_2 = 0,3 \mu A)$ | = | $-1,3 V$ |             |
| $Vd_3 (Id_3 = 0,3 \mu A)$ | = | $-1,3 V$ |             |



EAB 1~

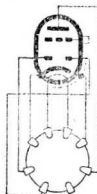
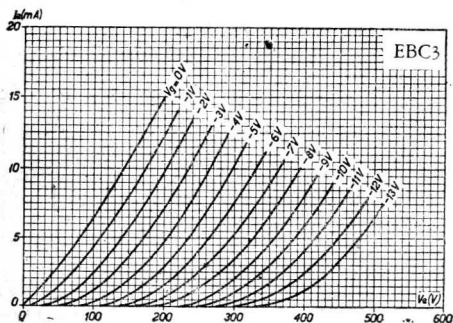
# EBC 3

## DUODIODE - TRIODE (d DET + LF)

|             |   |        |
|-------------|---|--------|
| $V_f$       | = | 6,3    |
| $I_f$       | = | 0,2    |
| $V_a(max)$  | = | 250    |
| $I_a$       | = | 5      |
| $V_{gl}$    | = | -5,5   |
| $S(norm)$   | = | 2,0    |
| $g$         | = | 30     |
| $R_i(norm)$ | = | 15.000 |
| $R_k$       | = | 1.100  |

# EBC 3

|          |
|----------|
| V.       |
| A.       |
| V.       |
| mA.      |
| V.       |
| mA/V.    |
| $\Omega$ |
| $\Omega$ |

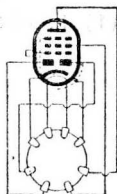


EBC3



**EBF 1****DUODIODE - PENTHODE**(MF - d DET + LF - LF<sub>w</sub>)**EBF 1**

|                       |   |         |       |
|-----------------------|---|---------|-------|
| V <sub>f</sub>        | = | 6,3     | V.    |
| I <sub>f</sub>        | = | 0,3     | A.    |
| V <sub>a(max)</sub>   | = | 250     | V.    |
| I <sub>a</sub>        | = | 9       | mA.   |
| V <sub>g1</sub>       | = | —3      | V.    |
| V <sub>g2</sub>       | = | 125     | V.    |
| I <sub>g2</sub>       | = | 2,3     | mA.   |
| V <sub>g3</sub> - (5) | = | 0       | V.    |
| S(norm)               | = | 1,1     | mA/V. |
| g                     | = | 730     |       |
| R <sub>i</sub> (norm) | = | 650.000 | Ω     |
| C <sub>ag1</sub>      | = | 0,007   | μμF.  |

**EBF1**

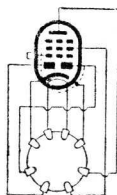
**EBF 2**

DUODIODE - PENTHODE

**EBF 2**

(MF)

|                       |   |     |        |       |
|-----------------------|---|-----|--------|-------|
| V <sub>f</sub>        | = |     | 6,3    | V.    |
| I <sub>f</sub>        | = |     | 0,2    | A.    |
| V <sub>a</sub>        | = |     | 275    | V.    |
| I <sub>a</sub>        | = | 6   | <0,015 | mA.   |
| V <sub>g1</sub>       | = | -2  | -55    | V.    |
| V <sub>g2</sub>       | = | 100 | 275    | V.    |
| I <sub>g2</sub> (1)   | = | 1,9 | 0      | mA.   |
| V <sub>g3</sub>       | = | 0   | 0      | V.    |
| S(1)                  | = | 1,8 | <0,002 | mA/V. |
| g(1)                  | = |     | 2150   |       |
| R <sub>i</sub> (norm) | = | 1,2 | >10    | M.Ω   |
| R <sub>g2</sub>       | = |     | 90.000 | Ω     |
| Cd1 - a               |   |     | <0,2   | μμF.  |
| Cd2 - a               |   |     | <0,3   | μμF.  |
| Cd1 - g               |   |     | <0,005 | μμF.  |
| Cd2 - g               |   |     | <0,005 | μμF.  |
| Cd1 - d2              |   |     | <0,5   | μμF.  |
| C <sub>ag</sub>       |   |     | <0,003 | μμF.  |
| C <sub>i</sub>        | = |     | 4      | μμF.  |
| C <sub>o</sub>        | = |     | 6,8    | μμF.  |

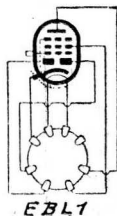
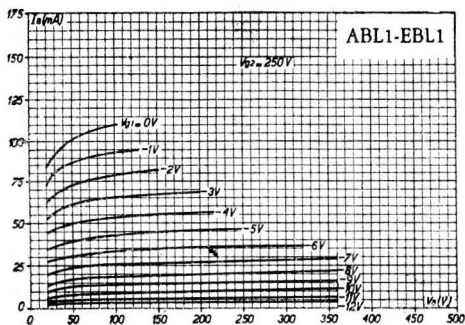
(1) I<sub>a</sub> = 6 mA.**EBF 2**

# EBL 1

# EBL 1

## DUODIODE - PENTHODE (d DET - E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 6,3    | V.       |
| $I_f$              | = | 1,5    | A.       |
| $V_a(\max)$        | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | —6     | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 5      | mA.      |
| $S(\text{norm})$   | = | 9,5    | mA/V.    |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 150    | $\Omega$ |
| $W_a(\max)$        | = | 9      | Wtt.     |
| $W_o$              | = | 4,3    | Wtt.     |



**EB 1**

**DUODIODE**  
(d DET)

$V_f$   
 $I_f$

=  
=

6,3  
0,25

V.  
A.



EB1

EB 4

DUODIODE  
(d DET)

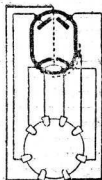
EB 4

Vf  
If

=  
=

6,3  
0,2

V.  
A.



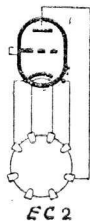
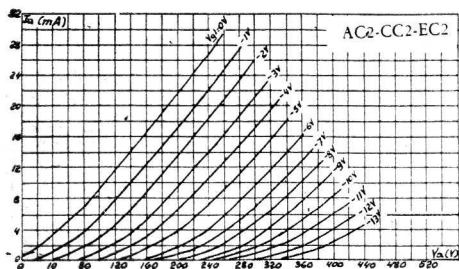
EB 4

# EC 2

## TRIODE

(OSC - G . DET<sub>T</sub> - LF<sub>T</sub> - LF<sub>W</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 6,3    | V.    |
| I <sub>f</sub>        | = | 0,4    | A.    |
| V <sub>a</sub> (max)  | = | 250    | V.    |
| I <sub>a</sub>        | = | 6,0    | mA.   |
| V <sub>gl</sub>       | = | —5,5   | V.    |
| S(norm)               | = | 2,5    | mA/V. |
| g                     | = | 30     |       |
| R <sub>i</sub> (norm) | = | 12.000 | Ω     |
| R <sub>k</sub>        | = | 900    | Ω     |
| C <sub>agl</sub>      | = | 1,7    | μμF.  |

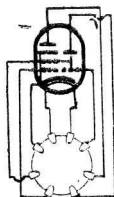


# EFM 1

(A - I)

# EFM 1

|                  |   |      |      |
|------------------|---|------|------|
| Vf               | = | 6,3  | V.   |
| If               | = | 0,2  | A.   |
| Va               | = | 275  | V.   |
| Ra               | = | 0,13 | M.Ω  |
| Vg2              | = | 275  | V.   |
| Rg2              | = | 0,17 | M.Ω  |
| Vgl              | = | -2   | V.   |
| la               | = | 1,3  | mA.  |
| lg2              | = | 1,2  | mA.  |
| Vgl              | = | 0    | V.   |
| g                | = | 75   | 15   |
| Lichtsector      |   | 310° | 350° |
| Secteur lumineux |   |      |      |



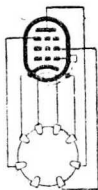
EFM 1

**EF 1****PENTHODE**(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                      |   |        |
|----------------------|---|--------|
| V <sub>f</sub>       | = | 6,3    |
| I <sub>f</sub>       | = | 0,4    |
| V <sub>a(max)</sub>  | = | 250    |
| I <sub>a</sub>       | = | 3,0    |
| V <sub>g1</sub>      | = | —2,0   |
| V <sub>g2</sub>      | = | 100    |
| I <sub>g2</sub>      | = | 0,9    |
| S(norm)              | = | 2,3    |
| g                    | = | 4000   |
| R <sub>i(norm)</sub> | = | 1,7    |
| C <sub>agl</sub>     | = | <0,003 |

**EF 1**

|       |
|-------|
| V.    |
| A.    |
| V.    |
| mA.   |
| V.    |
| V.    |
| mA.   |
| mA/V. |
|       |
| M.Ω   |
| μμF.  |

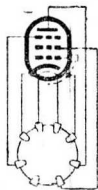
**EF1**



**EF 2****EF 2****PENTHODE**

(HF - MF)

|                    |   |          |                   |
|--------------------|---|----------|-------------------|
| $V_f$              | = | 6,3      | V.                |
| $I_f$              | = | 0,4      | A.                |
| $V_a(\text{max})$  | = | 250      | V.                |
| $I_a$              | = | 4,5      | $<0,015$ mA.      |
| $V_{g1}$           | = | -2       | -22 V.            |
| $V_{g2}$           | = | 100      | V.                |
| $I_{g2}$           | = | 1,4      | mA.               |
| $S(\text{norm})$   | = | 2,2      | $<0,002$ mA/V.    |
| $g$                | = | 3000     |                   |
| $R_i(\text{norm})$ | = | 1,4      | 10 M. $\Omega$    |
| $C_{ag1}$          | = | $<0,003$ | $\mu\mu\text{F.}$ |

**EF2**

**EF 5****EF 5**

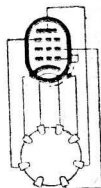
# PENTHODE (HF - MF)

|          |   |        |        |      |        |      |             |
|----------|---|--------|--------|------|--------|------|-------------|
| Vf       | = | 6,3    | V.     |      |        |      |             |
| If       | = | 0,2    | A.     |      |        |      |             |
| Va(max)  | = | 250    |        | 250  |        | 250  | V.          |
| Ia       | = | 8      | <0,015 | 7,5  | <0,015 | 4    | <0,015 mA.  |
| Vg1      | = | -3     | -50    | -2   | -45    | -2   | -35 V.      |
| Vg2      | = | 100    |        | 85   |        | 60   | V.          |
| Ig2      | = | 2,6    |        | 2,3  |        | 1,3  | mA.         |
| Vg3 - 5  | = | 0      |        | 0    |        | 0    | V.          |
| S(norm)  | = | 1,7    | <0,002 | 1,85 | <0,002 | 1,4  | <0,002mA/V. |
| g        | = | 2000   |        | 2200 |        | 2000 |             |
| Ri(norm) | = | 2,5    |        | 1,2  | >10    | 1,2  | >10 M.Ω     |
| Cagl     | = | <0,003 |        |      |        |      |             |

**EF5**

**EF 6****EF 6****PENTHODE**(HF - MF - G . DET<sub>w</sub> - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 6,3    | V.    |
| I <sub>f</sub>        | = | 0,2    | A.    |
| V <sub>a</sub> (max)  | = | 250    | V.    |
| I <sub>a</sub>        | = | 3      | mA.   |
| V <sub>g1</sub>       | = | —2     | V.    |
| V <sub>g2</sub>       | = | 100    | V.    |
| I <sub>g2</sub>       | = | 1,1    | mA.   |
| V <sub>g3</sub> - (5) | = | 0      | V.    |
| S(norm)               | = | 2,0    | mA/V. |
| g                     | = | 5.000  |       |
| R <sub>i</sub> (norm) | = | 2,5    | M.Ω   |
| C <sub>ag1</sub>      | = | <0,003 | μμF.  |

**EF6**

EF 8

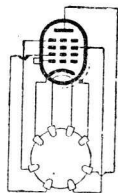
# HEXODE (2) (HF)

EF 8

|        |   |        |       |
|--------|---|--------|-------|
| Vf     | = | 6,3    | V.    |
| If     | = | 0,2    | A.    |
| Va     | = | 275    | V.    |
| Ia     | = | 8      | mA.   |
| Vg1    | = | -2,5   | V.    |
| Vg2    | = | 0      | V.    |
| Ig3(1) | = | 0,22   | mA.   |
| Vg3    | = | 250    | V.    |
| Vg4    | = | 0      | V.    |
| S(1)   | = | 1,8    | mA/V. |
| g(1)   | = | 650    |       |
| Ra(1)  | = | 0,36   | M.Ω   |
| Cag    | = | <0,007 | μμF.  |
| Cg1    | = | 4,9    | μμF.  |
| Ca     | = | 7,8    | μμF.  |

(1)  $I_a = 8 \text{ mA.}$ 

(2) Geruischloos — à faible bruit de fond

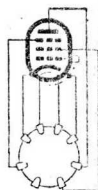


**EF 9**
**EF 9**

# PENTHODE (HF - MF)

|       |   |        |              |
|-------|---|--------|--------------|
| Vf    | = | 6,3    | V.           |
| If    | = | 0,2    | A.           |
| Va    | = | 275    | V.           |
| Ia    | = | 6      | <0,015 mA.   |
| Vg1   | = | —2     | —55 V.       |
| Vg2   | = | 100    | 275 V.       |
| Ig2   | = | 1,8    | 0 mA.        |
| S(1)  | = | 2,1    | <0,002 mA/V. |
| g(1)  | = | 3100   |              |
| Ri(1) | = | 1,5    | >10 M.Ω      |
| Rg2   | = | 95.000 | Ω            |
| Cag   | = | <0,003 | μμF.         |
| Cg1   | = | 5,2    | μμF.         |
| Ca    | = | 7,0    | μμF.         |

(1) Ia = 6 mA.


**EF9**

EH 2

EH 2

# HEPTODE (MOD - HF - MF)

|       |   |     |      |
|-------|---|-----|------|
| $V_f$ | = | 6,3 | $V.$ |
| $I_f$ | = | 0,2 | $A.$ |

## MOD

|                    |   |               |                     |
|--------------------|---|---------------|---------------------|
| $V_a(\max)$        | = | 250           | $V.$                |
| $I_a$              | = | 1,85 < 0,015  | 1,80 < 0,015 mA.    |
| $V_{g1}$           | = | -3            | $V.$                |
| $V_{g2}$           | = | 100           | $V.$                |
| $I_{g2} + I_{g4}$  | = | 3,8           | 3,5 mA.             |
| $R_{g3}$           | = | 0,5           | M. $\Omega$         |
| $V_{g3-5}$         | = | 10            | $V.$                |
| $V_{g4}$           | = | 100           | $V.$                |
| $S(\text{norm})$   | = | 0,4(1) < 0,01 | 0,4(2) < 0,01 mA/V. |
| $R_i(\text{norm})$ | = | 2             | > 10 M. $\Omega$    |

(1)  $V_{osc} = 14 V_{eff.}$

(2)  $V_{osc} = 10 V_{eff.}$



EH2

EH 2

EH 2

HF - MF

|                    |   |             |             |                   |
|--------------------|---|-------------|-------------|-------------------|
| $V_a(\max)$        | = | 250         | 250         | V.                |
| $I_a$              | = | 4,2 < 0,015 | 4,0 < 0,015 | mA.               |
| $V_{g1}$           | = | -3 -25      | -2 -20      | V.                |
| $V_{g2}$           | = | 100         | 80          | V.                |
| $I_{g2} + I_{g4}$  | = | 2,8         | 2,5         | mA.               |
| $V_{g3+5}$         | = | -3 -25      | -2 -20      | V.                |
| $V_{g4}$           | = | 100         | 80          | V.                |
| $S(\text{norm})$   | = | 1,4 < 0,002 | 1,4 < 0,002 | mA/V.             |
| $R_i(\text{norm})$ | = | 1           | > 10        | M. $\Omega$       |
| $C_{ag1}$          | = |             | 0,0015      | $\mu\mu\text{F.}$ |

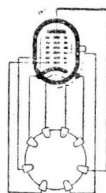
**EK 1****EK 1**

# OCTODE (OSC - MOD)

|                |   |        |                 |
|----------------|---|--------|-----------------|
| $V_f$          | = | 6,3    | V.              |
| $I_f$          | = | 0,4    | A.              |
| $V_{a(max)}$   | = | 250    | V.              |
| $I_a$          | = | 1,6    | <0,015 mA.      |
| $V_{g1}$       | = | -1,5   | V.              |
| $V_{g2}$       | = | 90     | V.              |
| $I_{g2}$       | = | 2(1)   | mA.             |
| $V_{g3 - (5)}$ | = | 70     | V.              |
| $V_{g4}$       | = | -1,5   | -25 V.          |
| $S(norm)$      | = | 0,6(2) | <0,001 mA/V.    |
| $R_i(norm)$    | = | 1,6    | >10 M. $\Omega$ |
| $C_{ag4}$      | = | <0,06  | $\mu F$ .       |

$$(1) I_{g_3 + 5} = 3,8 \text{ mA.}$$

$$(2) V_{osc} = 8,5 V_{eff.}$$

**EK1**



# EK 2

# EK 2

## OCTODE (OSC - MOD)

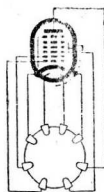
|           |   |         |              |
|-----------|---|---------|--------------|
| Vf        | = | 6,3     | V.           |
| If        | = | 0,2     | A.           |
| Va        | = | 200     | 250 V.       |
| Ia        | = | 1,2     | <0,015 mA.   |
| Vg1       | = | 0       | V.           |
| Vg2       | = | 200     | V.           |
| Ig2       | = | 2,1(1)  | mA.          |
| Vg3 - (5) | = | 50(2)   | 80(3) V.     |
| Vg4       | = | -2      | -25 V.       |
| S(norm)   | = | 0,55(4) | <0,002 mA/V. |
| Ri(norm)  | = | 1,5     | >10 M.Ω      |
| Cag4      | = |         | <0,07 μμF.   |

(1)  $I_{g_3} + I_{g_5} = 1,1 \text{ mA.}$

(2) 100 - 1500 kHz.

(3) >1500 kHz.

(4)  $V_{osc} = 9 \text{ V.eff.}$



EK2

# EK 3

## OCTODE (OSC - MOD)

# EK 3

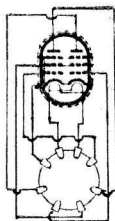
|             |   |        |           |             |
|-------------|---|--------|-----------|-------------|
| $V_f$       | = |        | 6,3       | V.          |
| $I_f$       | = |        | 0,73      | A.          |
| $V_a$       | = | 100    | 275 (max) | V.          |
| $I_a$       | = | 1,2    | 2         | mA.         |
| $V_{g1}$    | = | 8      | 8         | $V_{eff}$ . |
| $V_{g2}$    | = | 100    | 135       | V.          |
| $I_{g2}$    | = | 3,2    | 6         | mA.         |
| $I_{g2(1)}$ | = | 16     | 20        | mA.         |
| $V_{g3+5}$  | = | 90     | 100       | V.          |
| $V_{g4}$    | = | -1,5   | -2        | V.          |
| $I_{g1}$    | = | 190    | 190       | $\mu A$ .   |
| $I_{g3+5}$  | = | 5      | 7         | mA.         |
| $Sc$        | = | 500    | 650       | $\mu A/V$ . |
| $R_{g1}$    | = | 50.000 | 50.000    | $\Omega$    |

(1)  $V_{g_1} = 0$  V.



**ELL 1****ELL 1****DUO - PENTHODE  
(E)**

|          |   |                |          |
|----------|---|----------------|----------|
| Vf       | = | 6,3            | V.       |
| If       | = | 0,45           | A.       |
| Va       | = | 250            | V.       |
| Ia       | = | $2 \times 15$  | mA.      |
| Vg2      | = | 265            | V.       |
| Ig2      | = | $2 \times 2,5$ | mA.      |
| Ra       | = | 16.000         | $\Omega$ |
| Rk       | = | 600            | $\Omega$ |
| Wo(3,7%) | = | 5,4            | Wtt.     |

**ELL1**

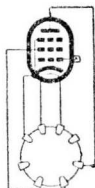
EL 1

## PENTHODE

(E)

EL 1

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 6,3    | V.       |
| $I_f$              | = | 0,4    | A.       |
| $V_a(\max)$        | = | 250    | V.       |
| $I_a$              | = | 32     | mA.      |
| $V_{g1}$           | = | —19    | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 3,3    | mA.      |
| $S(\text{norm})$   | = | 2,6    | mA/V.    |
| $R_i(\text{norm})$ | = | 48.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 540    | $\Omega$ |
| $W_a(\max)$        | = | 8      | Wtt.     |
| $W_o$              | = | 2,8    | Wtt.     |



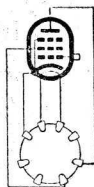
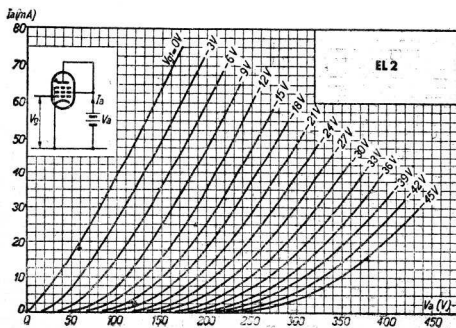
EL 1

EL 2

# PENTHODE (E)

EL 2

|                    |           |        |          |
|--------------------|-----------|--------|----------|
| $V_f$              | $\approx$ | 6,3    | V.       |
| $I_f$              | $\approx$ | 0,2    | A.       |
| $V_a(\max)$        | $\approx$ | 250    | 200      |
| $I_a$              | $\approx$ | 32     | 25       |
| $V_{g1}$           | $\approx$ | -18    | -14      |
| $V_{g2}$           | $\approx$ | 250    | 200      |
| $I_{a2}$           | $\approx$ | 5      | 4        |
| $S(\text{norm})$   | $\approx$ | 2,8    | 3        |
| $R_i(\text{norm})$ | $\approx$ | 70.000 | $\Omega$ |
| $R_a$              | $\approx$ | 8.000  | $\Omega$ |
| $R_k$              | $\approx$ | 490    | 480      |
| $W_a(\max)$        | $\approx$ | 8      | Wtt.     |
| $W_o$              | $\approx$ | 3,6    | 2,3      |
|                    |           |        | Wtt.     |



EL2

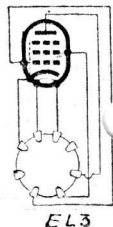
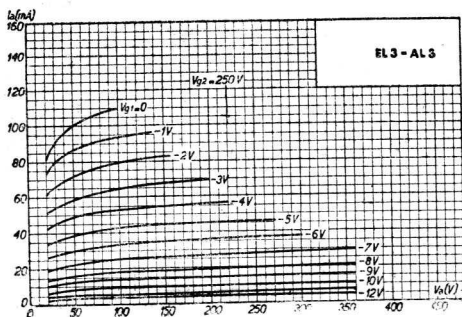
# EL 3

# EL 3

## PENTHODE

(E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 6,3    | V.       |
| $I_f$              | = | 1,2    | A.       |
| $V_a(\text{max})$  | = | 250    | V.       |
| $I_a$              | = | 36     | mA.      |
| $V_{g1}$           | = | —6     | V.       |
| $V_{g2}$           | = | 250    | V.       |
| $I_{g2}$           | = | 5      | mA.      |
| $S(\text{norm})$   | = | 9,5    | mA/V.    |
| $R_i(\text{norm})$ | = | 50.000 | $\Omega$ |
| $R_a$              | = | 7.000  | $\Omega$ |
| $R_k$              | = | 150    | $\Omega$ |
| $W_a(\text{max})$  | = | 9      | Wtt.     |
| $W_o$              | = | 4,3    | Wtt.     |



EL 5

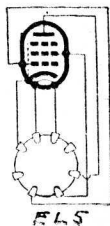
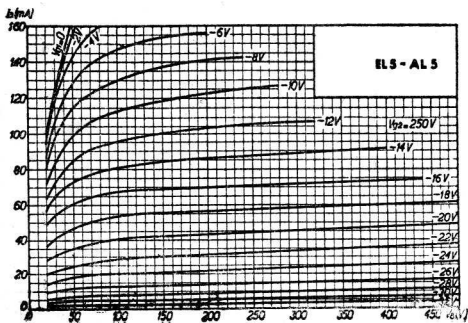
EL 5

## PENTHODE

(E)

|                    |   |               |                      |
|--------------------|---|---------------|----------------------|
| $V_f$              | = | 6,3           | V.                   |
| $I_f$              | = | 1,35          | A.                   |
| $V_a(\max)$        | = | 250(1) 250(2) | V.                   |
| $I_a$              | = | 72            | $2 \times 58(3)$ mA. |
| $V_{g1}$           | = | -14           | V.                   |
| $V_{g2}$           | = | 275           | V.                   |
| $I_{g2}$           | = | 7             | $2 \times 6,25$ mA.  |
| $S(\text{norm})$   | = | 8,5           | mA/V.                |
| $R_i(\text{norm})$ | = | 22.000        | $\Omega$             |
| $R_a$              | = | 3500          | $\Omega$             |
| $R_k$              | = | 175           | $\Omega$             |
| $W_a(\max)$        | = | 18            | Wtt.                 |
| $W_o$              | = | 8,8 19,5      | Wtt.                 |

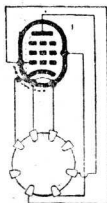
(1)  $E_A$ . (2)  $E_B$ . (3)  $I_a(\max) = 2 \times 65$  mA.



**EL 6****EL 6****PENTHODE**

(E)

|                    |   |           |          |
|--------------------|---|-----------|----------|
| $V_f$              | = | 6,3       | V.       |
| $I_f$              | = | 1,35      | A.       |
| $V_a(\max)$        | = | 250       | V.       |
| $I_a$              | = | 72        | mA.      |
| $V_{g1}$           | = | —8        | V.       |
| $V_{g2}$           | = | 265       | V.       |
| $I_{g2}$           | = | 8,5       | mA.      |
| $S(\text{norm})$   | = | 14,5(1)   | mA/V.    |
| $R_i(\text{norm})$ | = | 17.500(1) | $\Omega$ |
| $R_a$              | = | 3.500     | $\Omega$ |
| $R_k$              | = | 100       | $\Omega$ |
| $W_a(\max)$        | = | 18        | Wtt.     |
| $W_o$              | = | 8,5       | Wtt.     |

(1)  $I_a = 72 \text{ mA.}$ **EL6**



**EM 1**

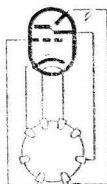
(A 1)

|                    |   |       |            |
|--------------------|---|-------|------------|
| $V_f$              | = | 6,3   | V.         |
| $I_f$              | = | 0,2   | A.         |
| $V_a(\max)$        | = | 250   | V.         |
| $I_a$              | = | 0,095 | 0,021 mA.  |
| $V_{gl}$           | = | 0     | —5 V.      |
| $\Theta$           | = | 10°   | 90°        |
| $I_s$              | = | 0,13  | 0,14 mA.   |
| $R_a(\text{norm})$ | = | 2,0   | M $\Omega$ |

**EM 1****EM 3**

(A 1)

|               |   |      |               |
|---------------|---|------|---------------|
| $V_f$         | = | 6,3  | V.            |
| $I_f$         | = | 0,2  | A.            |
| $V_a$         | = | 200  | 250 V.        |
| $R_a$         | = | 1    | 1 M $\Omega$  |
| $V_g$         | = | 0    | 0 V.          |
| $I_s(V_g=0V)$ | = | 0,25 | 0,3 mA.       |
| $I_a(V_g=0V)$ | = | 175  | 220 $\mu A$ . |

**EM 3****EMI****EM 3**

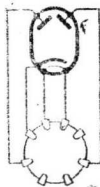
31-12-38

**EZ 1**

**GELIJKRICHTERLAMP  
REDRESSEUSE  
(VAC)**

**EZ 1**

|         |   |         |     |
|---------|---|---------|-----|
| Vf      | = | 6,3     | V.  |
| If      | = | 0,5     | A.  |
| Va(max) | = | 2 × 250 | V.  |
| Ia      | = | 50      | mA. |

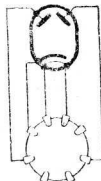
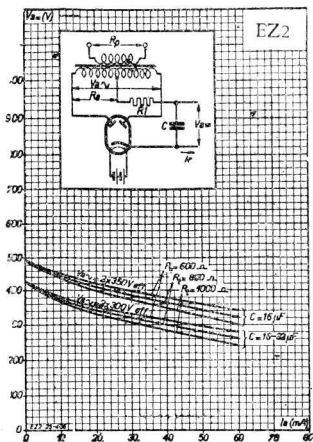
**EZ1**

EZ 2

EZ 2

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |                           |                             |
|-------|---|---------------------------|-----------------------------|
| $V_f$ | = | 6,3                       | V.                          |
| $I_f$ | = | 0,4                       | A.                          |
| $V_a$ | = | $2 \times 350 \text{ V.}$ | $I_a = 60 \text{ mA.}$      |
| $V_a$ | = | $2 \times 300 \text{ V.}$ |                             |
| $D$   | = | 37                        | $\frac{\text{m}}{\text{m}}$ |
| $L$   | = | 85                        | $\frac{\text{m}}{\text{m}}$ |



EZ2

EZ 3

# GELIJKRICHTERLAMP REDRESSEUSE (VAC) (1)

EZ 3

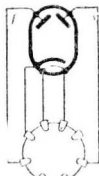
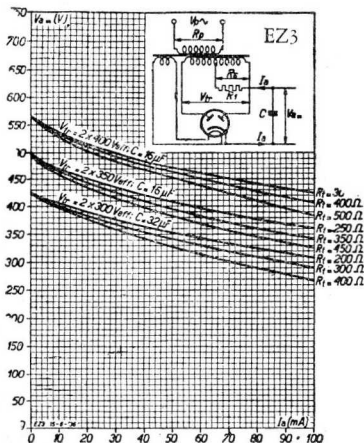
|              |   |                                              |           |
|--------------|---|----------------------------------------------|-----------|
| $V_f$        | = | 6,3                                          | V.        |
| $I_f$        | = | 0,65                                         | A.        |
| $V_a(\max)$  | = | $2 \times 300$ $2 \times 350$ $2 \times 400$ | V.        |
| $I_a(\max)$  | = | 100   100   100                              | mA.       |
| $C(\max)(2)$ | = | 32   16   16                                 | $\mu F$ . |

(1) De kathode steeds met gloeidraad verbinden.

(1) Connecter toujours la cathode au filament.

(2) Eerste afvlakcondensator.

(2) Premier condensateur de filtrage.



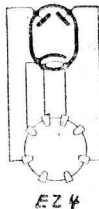
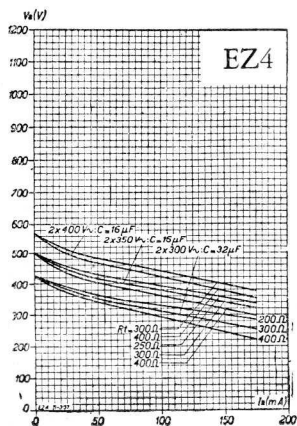
EZ 3

EZ 4

EZ 4

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |                |                |
|-------|---|----------------|----------------|
| $V_f$ | = | 6,3            | V.             |
| $I_f$ | = | 0,9            | A.             |
|       | ( | $2 \times 400$ | V.             |
| $V_a$ | = | (              | $2 \times 350$ |
|       | ( | $2 \times 300$ | V.             |
| $I_a$ | = | 175            | mA.            |
| L     | = | 85             | $\frac{m}{m}$  |
| D     | = | 37             | $\frac{m}{m}$  |

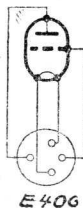
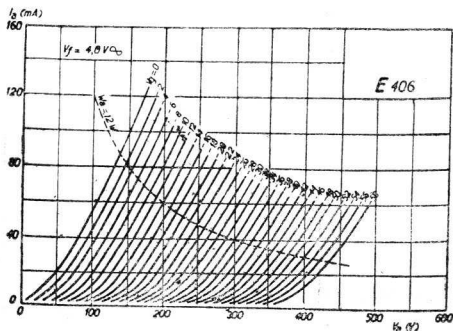


**E 406**  
**E 406 N**

**TRIODE**  
(E)

**E 406**  
**E 406 N**

|                    |   |       |                |
|--------------------|---|-------|----------------|
| $V_f$              | = | 4,0   | V.             |
| $I_f$              | = | 1,0   | A.             |
| $V_a(\max)$        | = | 250   | V.             |
| $I_a$              | = | 48    | mA.            |
| $V_{gl}$           | = | —24   | V.             |
| $S(\max)$          | = | 6,0   | mA/V.          |
| $S(\text{norm})$   | = | 4,0   | mA/V.          |
| $g$                | = | 6     |                |
| $R_i(\text{norm})$ | = | 1,500 | $\Omega$       |
| $R_a$              | = | 2.500 | $\Omega$       |
| $R_k$              | = | 460   | $\Omega$       |
| $W_a(\max)$        | = | 12    | Wtt.           |
| $W_o(10\%)$        | = | 1,75  | Wtt.           |
| $C_{agl}$          | = | 2,9   | $\mu\text{F.}$ |



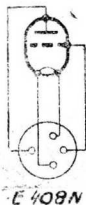
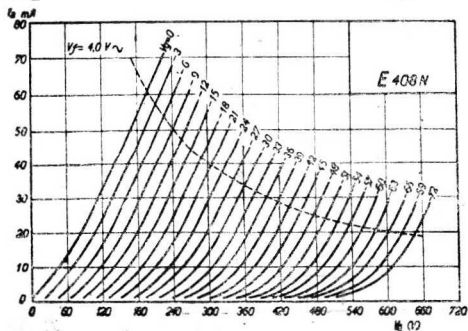
E 408 N

E 408 N

## TRIODE

(E)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 1,0   | A.                |
| $V_a(\max)$        | = | 400   | V.                |
| $I_a$              | = | 30    | mA.               |
| $V_{gl}$           | = | —36   | V.                |
| $S(\max)$          | = | 4,5   | mA/V.             |
| $S(\text{norm})$   | = | 2,7   | mA/V.             |
| $g$                | = | 8     |                   |
| $R_i(\text{norm})$ | = | 3.000 | $\Omega$          |
| $R_a$              | = | 6.000 | $\Omega$          |
| $R_k$              | = | 1.200 | $\Omega$          |
| $W_a(\max)$        | = | 12    | Wtt.              |
| $W_o(10\%)$        | = | 2,6   | Wtt.              |
| $C_{agl}$          | = | 6,8   | $\mu\mu\text{F.}$ |

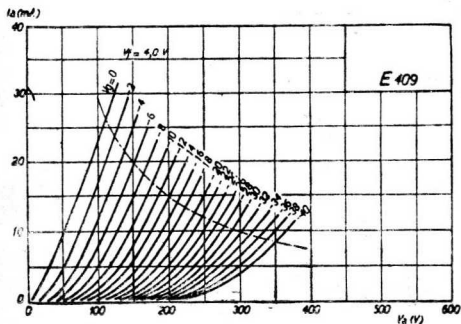


**E 409**  
**E 409 N**

**TRIODE**  
(E)

**E 409**  
**E 409 N**

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 4,0   | V.       |
| $I_f$              | = | 1,0   | A.       |
| $V_a(\max)$        | = | 200   | V.       |
| $I_a$              | = | 12    | mA.      |
| $V_{g1}$           | = | -16   | V.       |
| $S(\max)$          | = | 4     | mA/V.    |
| $S(\text{norm})$   | = | 1,3   | mA/V.    |
| $g$                | = | 9     |          |
| $R_i(\text{norm})$ | = | 7.000 | $\Omega$ |
| $R_k$              | = | 1.330 | $\Omega$ |
| $W_a(\max)$        | = | 3     | Wtt.     |



**E 409 (N)**



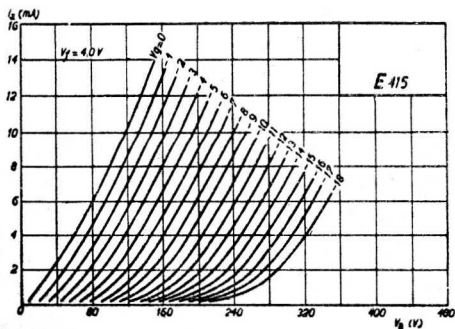
# E 415

# E 415

## TRIODE

(OSC - G . DET<sub>TW</sub> - LF<sub>TW</sub>)

|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 4,0    | V.    |
| I <sub>f</sub>        | = | 1,0    | A.    |
| V <sub>a</sub> (max)  | = | 200    | V.    |
| I <sub>a</sub>        | = | 6,0    | mA.   |
| V <sub>gl</sub>       | = | —8     | V.    |
| S(max)                | = | 2,4    | mA/V. |
| S(norm)               | = | 1,4    | mA/V. |
| g                     | = | 15     |       |
| R <sub>i</sub> (norm) | = | 11.000 | Ω     |
| C <sub>agl</sub>      | = | 3,5    | μμF.  |



E 415

# E 424

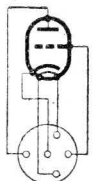
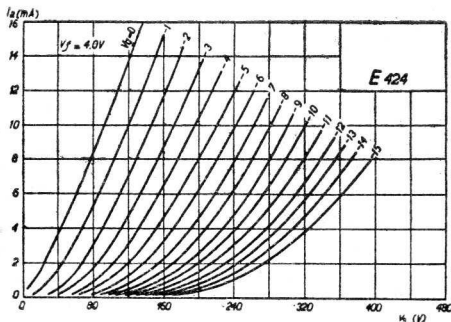
## TRIODE

(OSC - G . DET<sub>TW</sub> - LF<sub>TW</sub>)

|                       |   |        |
|-----------------------|---|--------|
| V <sub>f</sub>        | = | 4,0    |
| I <sub>f</sub>        | = | 1,0    |
| V <sub>a</sub> (max)  | = | 200    |
| I <sub>a</sub>        | = | 6,0    |
| V <sub>g1</sub>       | = | —35    |
| S(max)                | = | 3,5    |
| S(norm)               | = | 2,4    |
| g                     | = | 30     |
| R <sub>i</sub> (norm) | = | 12.500 |
| C <sub>ag1</sub>      | = | 2      |

# E 424

|       |
|-------|
| V.    |
| A.    |
| V.    |
| mA.   |
| V.    |
| mA/V. |
| mA/V. |
| Ω     |
| μμF.  |



E 424(N)

E 424 N

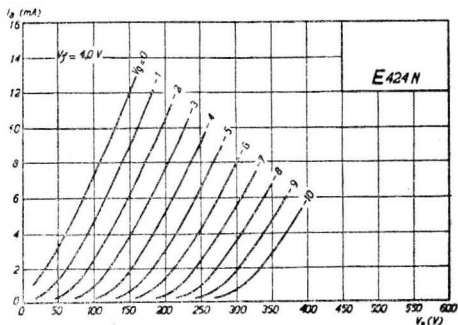
E 424 N

# TRIODE (OSC - DET - LF)

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 4,0    | V.                |
| $I_f$              | = | 1,0    | A.                |
| $V_a(\text{max})$  | = | 200    | V.                |
| $I_a$              | = | 6      | mA.               |
| $V_{gl}$           | = | 3,5    | V.                |
| $S(\text{max})$    | = | 3,5    | mA/V.             |
| $S(\text{norm})$   | = | 2,4    | mA/V.             |
| $g$                | = | 24     |                   |
| $R_i(\text{norm})$ | = | 10.000 | $\Omega$          |
| $R_k$              | = | 580    | $\Omega$          |
| $C_{agl}$          | = | 2,0    | $\mu\mu\text{F.}$ |

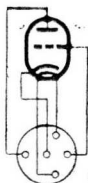


E424(N)



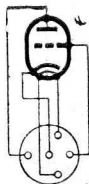
**E 425****TRIODE**(OSC - G . DET<sub>TW</sub> - LF<sub>TW</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 4,0   | V.    |
| I <sub>f</sub>        | = | 0,88  | A.    |
| V <sub>a</sub> (max)  | = | 150   | V.    |
| I <sub>a</sub>        | = | 3     | mA.   |
| V <sub>g1</sub>       | = | —4,5  | V.    |
| S(max)                | = | 3     | mA/V. |
| g                     | = | 25    |       |
| R <sub>i</sub> (norm) | = | 8.500 | Ω     |
| R <sub>k</sub>        | = | 1.500 | Ω     |
| C <sub>ag1</sub>      | = | 2,5   | μμF.  |

**E 425**

**E 428****E 428****TRIODE**(OSC - DET<sub>T</sub> - G . DET<sub>W</sub> - LF<sub>T</sub> - LF<sub>W</sub>)

|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 4,0    | V.    |
| I <sub>f</sub>       | = | 1,0    | A.    |
| V <sub>a(max)</sub>  | = | 200    | V.    |
| I <sub>a</sub>       | = | 6,0    | mA    |
| V <sub>g1</sub>      | = | —3,5   | V.    |
| S(max)               | = | 3,5    | mA/V. |
| S(norm)              | = | 2,4    | mA/V. |
| g                    | = | 28     |       |
| R <sub>i(norm)</sub> | = | 11.500 | Ω     |
| R <sub>k</sub>       | = | 580    | Ω     |
| C <sub>ag1</sub>     | = | 2      | μμF.  |

**E428**

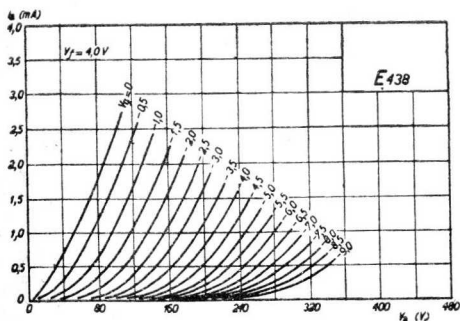
# E 438

# E 438

## TRIODE

(G . DET<sub>w</sub> - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |      |          |
|-----------------------|---|------|----------|
| V <sub>f</sub>        | = | 4,0  | V.       |
| I <sub>f</sub>        | = | 1,0  | A.       |
| V <sub>a</sub> (max)  | = | 200  | V.       |
| I <sub>a</sub>        | = | 0,3  | 0,1 mA.  |
| V <sub>g1</sub>       | = | -2,5 | V.       |
| S(max)                | = | 1,5  | 38 mA/V. |
| g                     | = | 38   |          |
| R <sub>i</sub> (norm) | = | 0,12 | 0,4 M.Ω  |
| R <sub>a</sub>        | = | 0,3  | 1 M.Ω    |
| R <sub>k</sub>        | = | 8    | 25 k.Ω   |
| C <sub>ag1</sub>      | = | 3,0  | μμF.     |



**E 441**  
**E 441 N**

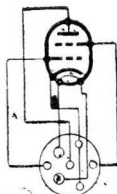
**E 441**  
**E 441 N**

**DUBBELROOSTERLAMP**  
**BIGRILLE**  
**(OSC - MOD)**

|                  |   |                  |       |
|------------------|---|------------------|-------|
| $V_f$            | = | 4,0              | V.    |
| $I_f$            | = | 0,9              | A.    |
| $V_a(\max)$      | = | 100              | V.    |
| $I_a$            | = | 1,7              | mA.   |
| $V_{g1}$         | = | 0                | V.    |
| $V_{g2}$         | = | 0                | V.    |
| $S(\text{norm})$ | = | 0,1(1)    1,0(2) | mA/V. |
| (1) $g_1$        |   |                  |       |
| (2) $g_2$        |   |                  |       |



**E441(N)**



**E441(N)**

E 442

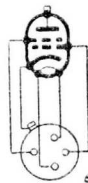
E 442

# TETRODE (HF - MF)

|                    |   |       |                   |
|--------------------|---|-------|-------------------|
| $V_f$              | = | 4,0   | V.                |
| $I_f$              | = | 1,0   | A.                |
| $V_a(\max)$        | = | 200   | V.                |
| $I_a$              | = | 1,5   | mA.               |
| $V_{g1}$           | = | —1,3  | V.                |
| $V_{g2}$           | = | 100   | V.                |
| $I_{g2}$           | = | 0,6   | mA.               |
| $S(\max)$          | = | 1,2   | mA/V.             |
| $S(\text{norm})$   | = | 0,9   | mA/V.             |
| $g$                | = | 700   |                   |
| $R_i(\text{norm})$ | = | 0,8   | M. $\Omega$       |
| $C_{ag1}$          | = | 0,005 | $\mu\mu\text{F.}$ |



E442



E442



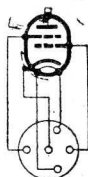
# E 442 S

# E 442 S

## TETRODE

(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |      |       |
|-----------------------|---|------|-------|
| V <sub>f</sub>        | = | 4,0  | V.    |
| I <sub>f</sub>        | = | 1,0  | A.    |
| V <sub>a</sub> (max)  | = | 200  | V.    |
| I <sub>a</sub>        | = | 4,0  | mA.   |
| V <sub>g1</sub>       | = | —2,0 | V.    |
| V <sub>g2</sub>       | = | 60   | V.    |
| I <sub>g2</sub>       | = | 0,5  | mA.   |
| S(max)                | = | 1,1  | mA/V. |
| S(norm)               | = | 1,0  | mA/V. |
| g                     | = | 400  |       |
| R <sub>i</sub> (norm) | = | 0,4  | M.Ω   |
| C <sub>ag1</sub>      | = | 0,02 | μF.   |



E442S

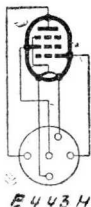
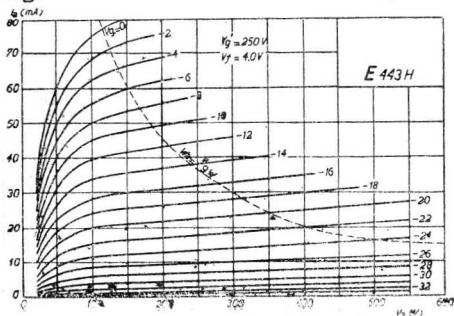
# E 443 H

# E 443 H

## PENTHODE

(E)

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 4,0    | V.                |
| $I_f$              | = | 1,1    | A.                |
| $V_a(\max)$        | = | 250    | V.                |
| $I_a$              | = | 36     | mA.               |
| $V_{g1}$           | = | -15    | V.                |
| $V_{g2}$           | = | 250    | V.                |
| $I_{g2}$           | = | 6,8    | mA.               |
| $S(\max)$          | = | 3,5    | mA/V.             |
| $S(\text{norm})$   | = | 3,0    | mA/V.             |
| $g$                | = | 130    |                   |
| $R_i(\text{norm})$ | = | 43.000 | $\Omega$          |
| $R_a$              | = | 7.000  | $\Omega$          |
| $R_k$              | = | 330    | $\Omega$          |
| $W_a(\max)$        | = | 9      | Wtt.              |
| $W_o(10\%)$        | = | 3,1    | Wtt.              |
| $C_{ag1}$          | = | 1,1    | $\mu\mu\text{F.}$ |

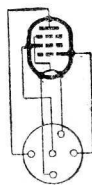
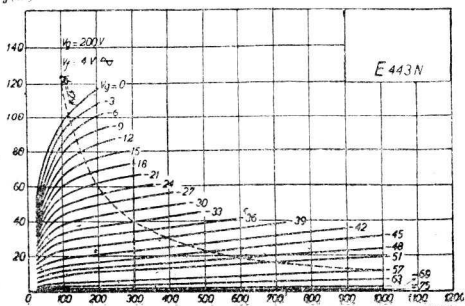


# E 443 N

## PENTHODE (E)

# E 443 N

|                    |   |        |                   |
|--------------------|---|--------|-------------------|
| $V_f$              | = | 4,0    | V.                |
| $I_f$              | = | 1,0    | A.                |
| $V_a(\max)$        | = | 400    | V.                |
| $I_a$              | = | 30     | mA.               |
| $V_{g1}$           | = | —40    | V.                |
| $V_{g2}$           | = | 200    | V.                |
| $I_{g2}$           | = | 5,4    | mA.               |
| $S(\max)$          | = | 3,5    | mA/V.             |
| $S(\text{norm})$   | = | 1,9    | mA/V.             |
| $g$                | = | 75     |                   |
| $R_i(\text{norm})$ | = | 40.000 | $\Omega$          |
| $R_a$              | = | 14.000 | $\Omega$          |
| $R_k$              | = | 1.330  | $\Omega$          |
| $W_a(\max)$        | = | 12     | Wtt.              |
| $W_o$              | = | 5,4    | Wtt.              |
| $C_{ag1}$          | = | 0,9    | $\mu\mu\text{F.}$ |



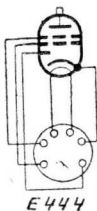
E 443 N

# E 444

## DIODE - TETRODE (d DET + LF)

# E 444

|                    |   |               |                   |
|--------------------|---|---------------|-------------------|
| $V_f$              | = | 4,0           | V.                |
| $I_f$              | = | 1,1           | A.                |
| $V_a(\text{max})$  | = | 200           | V.                |
| $I_a$              | = | 0,35      0,9 | mA.               |
| $V_{g1}$           | = | —2,3          | V.                |
| $V_{g2}$           | = | 33      45    | V.                |
| $S(\text{max})$    | = | 3,0           | mA/V.             |
| $g$                | = | 1000/800      |                   |
| $R_i(\text{norm})$ | = | 2,5      1    | M. $\Omega$       |
| $R_a$              | = | 0,3      0,1  | M. $\Omega$       |
| $C_{ag1}$          | = | 0,003         | $\mu\mu\text{F.}$ |



E444



E444

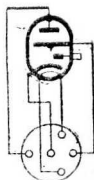
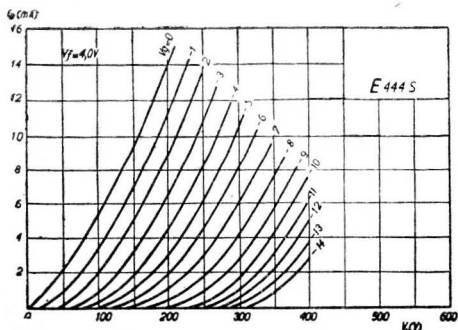
E 444 S

E 444 S

DIODE - TRIODE

(d DET + LF)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | V.       |
| $I_f$              | = | 1,0    | A.       |
| $V_a(\max)$        | = | 200    | V.       |
| $V_a$              | = | 6,0    | mA.      |
| $V_{gl}$           | = | —3,5   | V.       |
| $S(\max)$          | = | 2,5    | mA/V.    |
| $S(\text{norm})$   | = | 2,0    | mA/V.    |
| $g$                | = | 30     |          |
| $R_i(\text{norm})$ | = | 15.000 | $\Omega$ |
| $R_k$              | = | 580    | $\Omega$ |

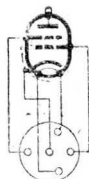


E 444 S

**E 445****E 445**

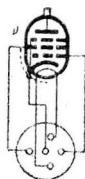
TETRODE - SELECTODE  
(HF, MF, MOD)

|                    |   |      |       |                   |
|--------------------|---|------|-------|-------------------|
| $V_f$              | = |      | 4,0   | V.                |
| $I_f$              | = |      | 1,1   | A.                |
| $V_a(\max)$        | = |      | 200   | V.                |
| $I_a$              | = | 6,0  | 0,01  | mA.               |
| $V_{g1}$           | = | -2,0 | -40   | V.                |
| $V_{g2}$           | = |      | 100   | V.                |
| $I_{g2}$           | = |      | 0,8   | mA.               |
| $S(\max)$          | = |      | 1,2   | mA/V.             |
| $S(\text{norm})$   | = | 1,0  | 0,005 | mA/V.             |
| $g$                | = |      | 300   |                   |
| $R_i(\text{norm})$ | = | 0,3  | >10   | M. $\Omega$       |
| $C_{ag1}$          | = |      | 0,003 | $\mu\mu\text{F.}$ |

**E445**

**E 446****E 446****PENTHODE**(HF - MF - MOD - A . DET<sub>w</sub> - LF<sub>w</sub>)

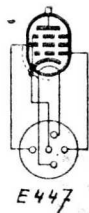
|                       |   |        |       |
|-----------------------|---|--------|-------|
| V <sub>f</sub>        | = | 4      | V.    |
| I <sub>f</sub>        | = | 1,1    | A.    |
| V <sub>a</sub> (max)  | = | 200    | V.    |
| I <sub>a</sub>        | = | 2      | mA.   |
| V <sub>g1</sub>       | = | —2     | V.    |
| V <sub>g2</sub>       | = | 100    | V.    |
| I <sub>g2</sub>       | = | 1,1    | mA.   |
| S(max)                | = | 3,5    | mA/V. |
| S(norm)               | = | 2,3    | mA/V. |
| g                     | = | 5.000  |       |
| R <sub>i</sub> (norm) | = | 2,2    | M.Ω   |
| C <sub>ag1</sub>      |   | <0,006 | μμF.  |

**E446**

**E 447****E 447**

PENTHODE - SELECTODE  
(HF - MF - MOD)

|                    |   |     |        |                   |
|--------------------|---|-----|--------|-------------------|
| $V_f$              | = |     | 4      | V.                |
| $I_f$              | = |     | 1,1    | A.                |
| $V_a(\max)$        | = |     | 200    | V.                |
| $I_a$              | = | 4,5 | 0,01   | mA.               |
| $V_{g1}$           | = | -2  | -50    | V.                |
| $V_{g2}$           | = |     | 100    | V.                |
| $I_{g2}$           | = |     | 1,8    | mA.               |
| $S(\max)$          | = |     | 3,5    | mA/V.             |
| $S(\text{norm})$   | = | 2,3 | 0,002  | mA/V.             |
| $g$                | = |     | 2.300  |                   |
| $R_i(\text{norm})$ | = | 1   | >0,002 | M. $\Omega$       |
| $C_{ag1}$          | = |     | <0,006 | $\mu\mu\text{F.}$ |





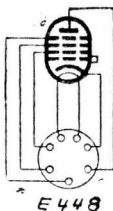
E 448

E 448

# HEXODE (OSC - MOD)

|                    |   |             |             |
|--------------------|---|-------------|-------------|
| $V_f$              | = | 4           | V.          |
| $I_f$              | = | 1,2         | A.          |
| $V_a(\max)$        | = | 200         | V.          |
| $I_a$              | = | 3           | mA.         |
| $V_{g1}$           | = | -1,5        | V.          |
| $V_{g2}$           | = | 100         | V.          |
| $I_{g3}$           | = | 8,5         | mA.         |
| $V_{g3} - (5)$     | = | 200         | V.          |
| $V_{g4}$           | = | -4          | V.          |
| $S(\text{norm})$   |   | $< 0,58(1)$ | mA/V.       |
| $R_i(\text{norm})$ |   | $> 0,15$    | M, $\Omega$ |

(1)  $V_{osc} = 9 \text{ V eff.}$

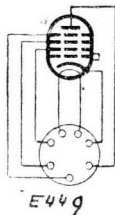


E 449

E 449

# HEXODE - SELECTODE (HF - MF)

|                    |   |                 |                   |
|--------------------|---|-----------------|-------------------|
| $V_f$              | = | 4               | V.                |
| $I_f$              | = | 1,2             | A.                |
| $V_a(\max)$        | = | 200             | V.                |
| $I_a$              | = | 3               | mA.               |
| $V_{g1}$           | = | -2      -15     | V.                |
| $V_{g2}$           | = | 80              | V.                |
| $V_{g3} - (5)$     | = | -2      -7      | V.                |
| $V_{g4}$           | = | 80              | V.                |
| $S(\max)$          | = | 3,0             | mA/V.             |
| $S(\text{norm})$   | = | 1,8      <0,002 | mA/V.             |
| $R_i(\text{norm})$ | = | 0,5      >5     | M. $\Omega$       |
| $C_{ag1}$          | = | <0,002          | $\mu\mu\text{F.}$ |



E 451

E 451

## TETRODE

(LF<sub>T</sub> - E)

|                       |   |          |          |          |                   |
|-----------------------|---|----------|----------|----------|-------------------|
| V <sub>f</sub>        | = |          | 4,0      | V.       |                   |
| I <sub>f</sub>        | = |          | 1,1      | A.       |                   |
| V <sub>a</sub> (max)  | = | 250      | 300      | 400      | V.                |
| I <sub>a</sub>        | = | 22       | 2 × 4    | 2 × 6    | mA.               |
| V <sub>gl</sub>       | = | —33      | 0(1)     | 0(1)     | V.                |
| S(norm)               | = |          | 2,4      |          | mA/V.             |
| g                     | = |          | 5,5      |          |                   |
| R <sub>i</sub> (norm) | = |          | 2400     |          | Ω                 |
| R <sub>a</sub>        | = | 6.400(2) | 5.200(3) | 5.800(3) | Ω                 |
| R <sub>k</sub>        | = |          | 1.500    |          | Ω                 |
| W <sub>o</sub> (10%)  | = | 1,25     | 16       | 20       | W <sub>tt</sub> . |

(1) Cl. B TRIODE G<sub>1</sub> → G<sub>2</sub>(2) × 2 V<sub>r</sub> ST.

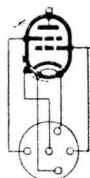
(3) p → p



E451

**E 452 T****E 452 T****TETRODE**(HF - MF - A . DET<sub>w</sub> - G . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |         |       |
|-----------------------|---|---------|-------|
| V <sub>f</sub>        | = | 4,0     | V.    |
| I <sub>f</sub>        | = | 1,0     | A.    |
| V <sub>a</sub> (max)  | = | 200     | V.    |
| I <sub>a</sub>        | = | 3,0     | mA.   |
| V <sub>g1</sub>       | = | —2      | V.    |
| V <sub>g2</sub>       | = | 100     | V.    |
| I <sub>g2</sub>       | = | 0,7     | mA.   |
| S(max)                | = | 3,0     | mA/V. |
| S(norm)               | = | 2,0     | mA/V. |
| g                     | = | 900     |       |
| R <sub>i</sub> (norm) | = | 450.000 | Ω     |
| R <sub>k</sub>        | = | 660     | Ω     |
| C <sub>ag1</sub>      | = | 0,003   | μμF.  |

**E452T**

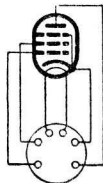
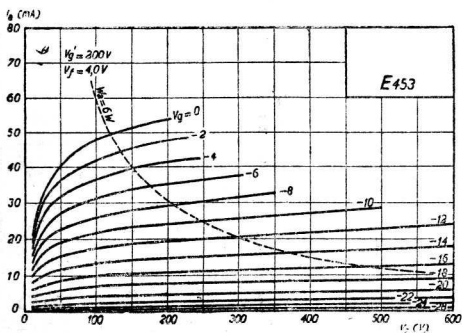
E 453

E 453

## PENTHODE

(E)

|                  |   |     |       |
|------------------|---|-----|-------|
| $V_f$            | = | 4,0 | V.    |
| $I_f$            | = | 1,1 | A.    |
| $V_a(\max)$      | = | 250 | V.    |
| $I_a$            | = | 24  | mA.   |
| $V_{g1}$         | = | —15 | V.    |
| $V_{g2}$         | = | 250 | V.    |
| $I_{g2}$         | = | 10  | mA.   |
| $S(\max)$        | = | 3,5 | mA/V. |
| $S(\text{norm})$ | = | 2,5 | mA/V. |
| $g$              | = | 175 |       |

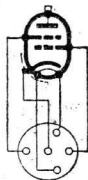


E 453

**E 455****E 455**

# TETRODE - SELECTRODE (HF - MF - MOD)

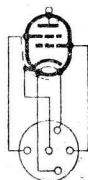
|          |   |       |             |
|----------|---|-------|-------------|
| Vf       | = | 4,0   | V.          |
| If       | = | 1,0   | A.          |
| Va(max)  | = | 200   | V.          |
| Ia       | = | 3,00  | 0,01 mA.    |
| Vg1      | = | -1,5  | - 40 V.     |
| Vg2      | = | 100   | V.          |
| Ig2      | = | 0,8   | mA.         |
| S(max)   | = | 3,0   | mA/V.       |
| S(norm)  | = | 2,0   | 0,005 mA/V. |
| g        | = | 700   |             |
| Ri(norm) | = | 0,35  | >10 M.Ω     |
| Rk       | = | 500Ω  | 4 M.Ω       |
| Cagl     | = | 0,003 | μμF.        |

**E455**

**E 462****E 462**

**TETRODE**  
(HF - MF - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |         |       |
|-----------------------|---|---------|-------|
| V <sub>f</sub>        | = | 4,0     | V.    |
| I <sub>f</sub>        | = | 1,0     | A.    |
| V <sub>a</sub> (max)  | = | 200     | V.    |
| I <sub>a</sub>        | = | 3,0     | mA.   |
| V <sub>g1</sub>       | = | -2,0    | V.    |
| V <sub>g2</sub>       | = | 100     | V.    |
| I <sub>g2</sub>       | = | 0,7     | mA.   |
| S(max)                | = | 3,0     | mA/V. |
| S(norm)               | = | 2,0     | mA/V. |
| g                     | = | 900     |       |
| R <sub>i</sub> (norm) | = | 450.000 | Ω     |
| R <sub>k</sub>        | = | 660     | Ω     |
| C <sub>agl</sub>      | = | 0,003   | μF.   |

**E 462**

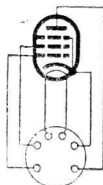
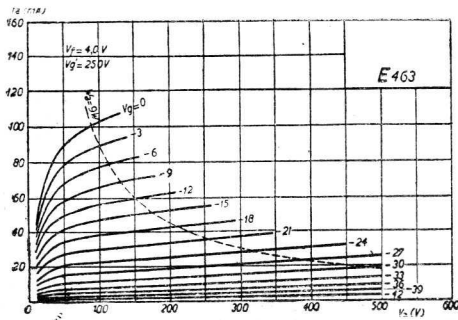
E 463

E 463

## PENTHODE

(E)

|                    |   |        |                |
|--------------------|---|--------|----------------|
| $V_f$              | = | 4,0    | V.             |
| $I_f$              | = | 1,35   | A.             |
| $V_a(\max)$        | = | 250    | V.             |
| $I_a$              | = | 36     | mA.            |
| $V_{g1}$           | = | -22    | V.             |
| $V_{g2}$           | = | 250    | V.             |
| $I_{g2}$           | = | 3,2    | mA.            |
| $S(\max)$          | = | 4,0    | mA/V.          |
| $S(\text{norm})$   | = | 2,7    | mA/V.          |
| $g$                | = | 100    |                |
| $R_i(\text{norm})$ | = | 37.000 | $\Omega$       |
| $R_a$              | = | 8.000  | $\Omega$       |
| $R_k$              | = | 560    | $\Omega$       |
| $W_a(\max)$        | = | 9      | Wtt.           |
| $W_o(10\%)$        | = | 4,1    | Wtt.           |
| $C_{ag1}$          | = | 1      | $\mu\text{F.}$ |



E 463



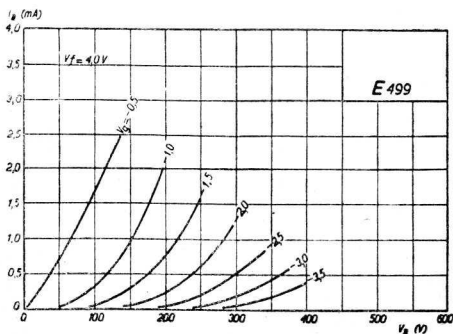
E 499

E 499

## TRIODE

(G . DET<sub>W</sub> - A . DET<sub>W</sub> - LF<sub>W</sub>)

|          |   |       |        |      |
|----------|---|-------|--------|------|
| Vf       | = | 4,0   | V.     |      |
| If       | = | 1,0   | A.     |      |
| Va(max)  | = | 200   | V.     |      |
| Ia       | = | 0,2   | 0,08   | mA.  |
| Vgl      | = | —1,6  | —1,5   | V.   |
| S(max)   | = | 4,0   | mA/V.  |      |
| g        | = | 99    |        |      |
| Ri(norm) | = | 0,1   | 0,33   | M.Ω  |
| Ra       | = | 0,3   | 1      | M.Ω  |
| Rk       | = | 8.000 | 18.750 | Ω    |
| Cagl     | = | 1,5   |        | μμF. |



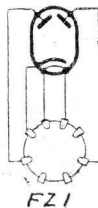
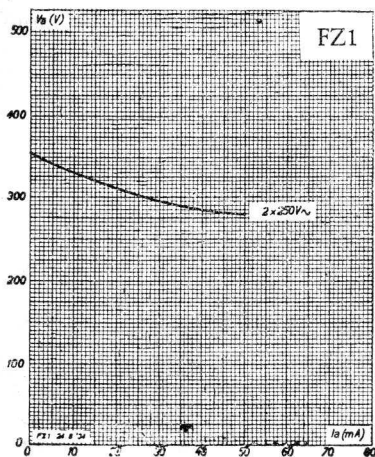
**FZ 1**

**FZ 1**

**GELIJKRICHTERLAMP  
REDRESSEUSE  
(VAC)**

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 13             |
| $I_f$ | = | 0,25           |
| $V_a$ | = | $2 \times 250$ |
| $I_a$ | = | 50             |
| D     | = | 37             |
| L     | = | 91             |

V.  
A.  
V.  
mA.  
 $\frac{m}{m}$   
 $\frac{m}{m}$

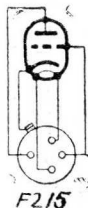


# F 215

# F 215

## TRIODE ( $\text{DET}_T - \text{LF}_T$ )

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 2,5   | V.       |
| $I_f$              | = | 1,5   | A.       |
| $V_a(\text{max})$  | = | 150   | V.       |
| $I_a$              | = | 6,5   | mA.      |
| $V_{g1}$           | = | —6    | V.       |
| $S(\text{max})$    | = | 2,0   | mA/V.    |
| $S(\text{norm})$   | = | 1,7   | mA/V.    |
| $g$                | = | 15    |          |
| $R_i(\text{norm})$ | = | 9.000 | $\Omega$ |
| $R_k$              | = | 900   | $\Omega$ |



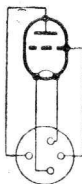
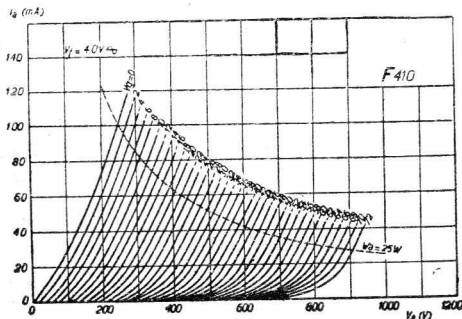
## F 410

TRIODE  
(E)

|          |   |       |
|----------|---|-------|
| Vf       | = | 4,0   |
| If       | = | 2,0   |
| Va(max)  | = | 550   |
| Ia       | = | 45    |
| Vgl      | = | —36'  |
| S(max)   | = | 8,0   |
| S(norm)  | = | 4,0   |
| g        | = | 10    |
| Ri(norm) | = | 2.500 |
| Ra       | = | 7.000 |
| Rk       | = | 800   |
| Wa(max)  | = | 25    |
| Wo(10%)  | = | 5,9   |
| Cagl     | = | 6     |

**F 410**

V.  
A.  
V.  
mA.  
V.  
mA/V.  
mA/V.  
  
 $\Omega$   
 $\Omega$   
 $\Omega$   
Wtt.  
Wtt.  
 $\mu\mu\text{F.}$



F410

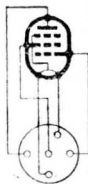
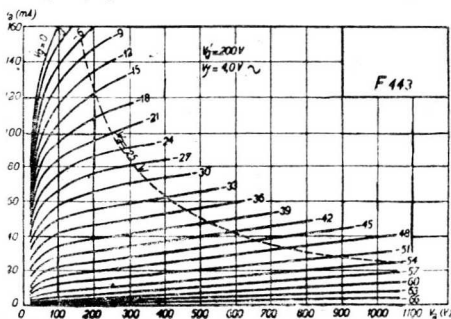
# F 443

# F 443

## PENTHODE

(E)

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 4,0    | $V.$     |
| $I_f$              | = | 2,0    | A.       |
| $V_a(\max)$        | = | 550    | V.       |
| $I_a$              | = | 45     | mA.      |
| $V_{g1}$           | = | -40    | V.       |
| $V_{g2}$           | = | 200    | V.       |
| $I_{g2}$           | = | 6,5    | mA.      |
| $S(\max)$          | = | 5,0    | mA/V.    |
| $S(\text{norm})$   | = | 3,0    | mA/V.    |
| $g$                | = | 100    |          |
| $R_i(\text{norm})$ | = | 33.000 | $\Omega$ |
| $R_a$              | = | 14.000 | $\Omega$ |
| $R_k$              | = | 900    | $\Omega$ |
| $W_a(\max)$        | = | 25     | Wtt.     |
| $W_o(10\%)$        | = | 11,5   | Wtt.     |



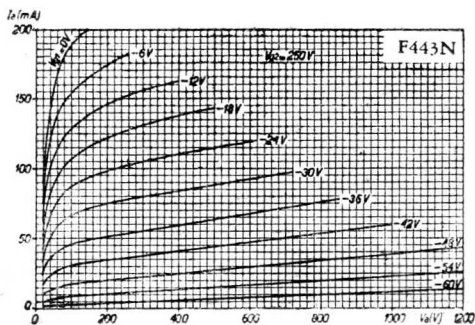
F443

F 443 N

PENTHODE  
(E)

F 443 N

|                    |   |        |        |          |
|--------------------|---|--------|--------|----------|
| $V_f$              | = |        | 4,0    | V.       |
| $I_f$              | = |        | 2,0    | A.       |
| $V_a$              | = | 300    | 550    | V.       |
| $I_a$              | = | 83     | 45     | mA.      |
| $V_{g1}$           | = | -40    | -30    | V.       |
| $V_{g2}$           | = | 300    | 200    | V.       |
| $I_{g2}$           | = | 4,6    | 1,4    | mA.      |
| $S(\max)$          | = |        | 6,0    | mA/V.    |
| $S(\text{norm})$   | = | 3,9    | 3,2    | mA/V.    |
| $g$                | = | 80     | 100    |          |
| $R_i(\text{norm})$ | = | 20.000 | 30.000 | $\Omega$ |
| $R_a$              | = | 3.500  | 12.000 | $\Omega$ |



F443(N)

**F 460**

**F 460**

TRIODE  
( $LF_T$ )

|              |   |        |             |
|--------------|---|--------|-------------|
| $V_f$        | = | 4,0    | V.          |
| $I_f$        | = | 1,4    | A.          |
| $V_{a(max)}$ | = | 250    | V.          |
| $I_a$        | = | 10     | mA.         |
| $V_{gl}$     | = | —2     | V.          |
| $S(max)$     | = | 7,0    | mA/V.       |
| $S(norm)$    | = | 5,5    | mA/V.       |
| $g$          | = | 60     |             |
| $R_i(norm)$  | = | 11.000 | $\Omega$    |
| $R_k$        | = | 200    | $\Omega$    |
| $C_{agl}$    | = | 2      | $\mu\mu F.$ |



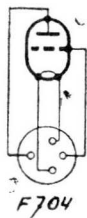
**F460**

# F 704

# F 704

## TRIODE (E)

|                    |   |       |          |
|--------------------|---|-------|----------|
| $V_f$              | = | 7,5   | V.       |
| $I_f$              | = | 1,25  | A.       |
| $V_a(\max)$        | = | 450   | V.       |
| $I_a$              | = | 55    | mA.      |
| $V_{gl}$           | = | —84   | V.       |
| $S(\max)$          | = | 2,1   | mA/V.    |
| $g$                | = | 3,8   |          |
| $R_i(\text{norm})$ | = | 1.800 | $\Omega$ |
| $R_a$              | = | 4.350 | $\Omega$ |
| $R_k$              | = | 650   | $\Omega$ |
| $W_a(\max)$        | = | 25    | Wtt.     |
| $W_o(10\%)$        | = | 4,6   | Wtt.     |





# KBC 1

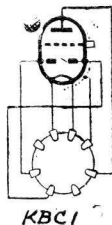
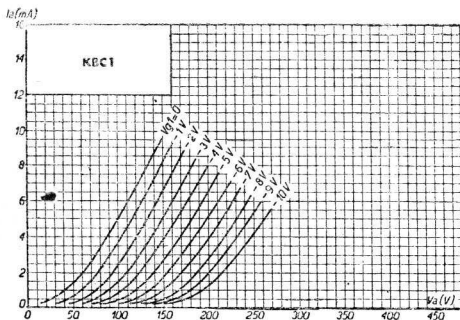
## DUODIODE - TRIODE

(d . DET + LF)

|                    |   |        |
|--------------------|---|--------|
| $V_f$              | = | 2,0    |
| $I_f$              | = | 0,1    |
| $V_a(\text{max})$  | = | 135    |
| $I_a$              | = | 2,5    |
| $V_{gl}$           | = | —4,5   |
| $S(\text{norm})$   | = | 1,0    |
| $g$                | = | 16     |
| $R_i(\text{norm})$ | = | 16.000 |
| $R_k$              | = | 1.800  |

# KBC 1

|          |
|----------|
| V.       |
| A.       |
| V.       |
| mA.      |
| V.       |
| mA/V.    |
| $\Omega$ |
| $\Omega$ |



**KB 2**

DUODIODE  
(d . DET)

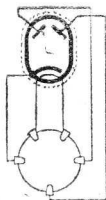
**KB 2**

$V_f$   
 $I_f$

=  
=

2,0  
0,095

V.  
A.



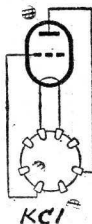
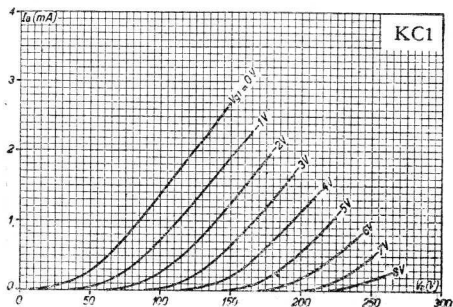
**KB2**

KC 1

KC 1

TRIODE

|                    |   |        |          |
|--------------------|---|--------|----------|
| $V_f$              | = | 2,0    | V.       |
| $I_f$              | = | 0,065  | A.       |
| $V_a$              | = | 90     | V.       |
| $I_a$              | = | 0,3    | mA.      |
| $V_{gl}$           | = | -1,5   | V.       |
| $S(\text{norm})$   | = | 0,4    | mA/V.    |
| $R_i(\text{norm})$ | = | 60.000 | $\Omega$ |
|                    |   | 135    |          |
|                    |   | 1,2    |          |
|                    |   | -1,5   |          |
|                    |   | 0,6    |          |
|                    |   | 48.000 |          |



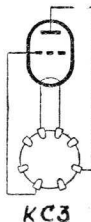
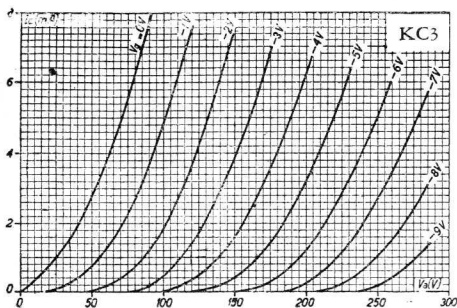
# KC 3

## TRIODE ( $LF_T$ )

# KC 3

|             |   |        |
|-------------|---|--------|
| $V_f$       | = | 2,0    |
| $I_f$       | = | 0,21   |
| $V_a(max)$  | = | 135    |
| $I_a$       | = | 3,0    |
| $V_{gl}$    | = | —2,8   |
| $S(norm)$   | = | 2,5    |
| $g$         | = | 30     |
| $R_i(norm)$ | = | 12.000 |
| $R_k$       | = | 930    |

|          |
|----------|
| V.       |
| A.       |
| V.       |
| mA.      |
| V.       |
| mA/V.    |
| $\Omega$ |
| $\Omega$ |



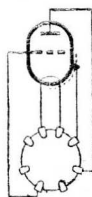
# KC 4

# KC 4

## TRIODE

( $L F_w$ )

|             |   |        |        |          |
|-------------|---|--------|--------|----------|
| $V_f$       | = |        | 2,0    | $V.$     |
| $I_f$       | = |        | 0,1    | $A.$     |
| $V_a(max)$  | = | 90     | 135    | $V.$     |
| $I_a$       | = | 0,5    | 2,2    | $mA.$    |
| $V_{gl}$    | = | -1,5   | -1,5   | $V.$     |
| $S(norm)$   | = | 0,8    | 1,4    | $mA/$    |
| $g$         | = | 30     | 30     |          |
| $R_i(norm)$ | = | 37.500 | 21.500 | $\Omega$ |



KC4

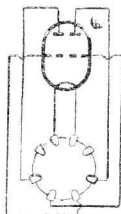
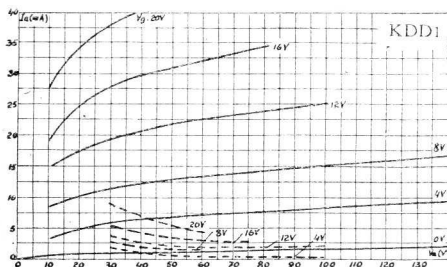
KDD 1

KDD 1

## DUOTRIODE

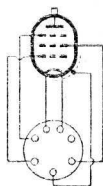
 $(E_B)$ 

|             |   |                  |                   |
|-------------|---|------------------|-------------------|
| $V_f$       | = | 2,0              | V.                |
| $I_f$       | = | 0,22             | A.                |
| $V_a(\max)$ | = | 135              | V.                |
| $I_a$       | = | $(2 \times 1,5)$ | mA.               |
|             |   | $(2 \times 15)$  |                   |
| $V_{gl}$    | = | 0                | V.                |
| $R_{al-a2}$ | = | 10.000           | $\Omega$          |
| $W_o(10\%)$ | = | 2,0              | W <sub>tt</sub> . |



**KF 1****KF 1****PENTHODE**(HF - MF - G . DET<sub>w</sub> - LF<sub>w</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 2,0   | V.    |
| I <sub>f</sub>        | = | 0,2   | A.    |
| V <sub>a</sub> (max)  | = | 135   | V.    |
| I <sub>a</sub>        | = | 3,0   | mA.   |
| V <sub>g1</sub>       | = | 0     | V.    |
| V <sub>g2</sub>       | = | 135   | V.    |
| V <sub>g3</sub>       | = | 0     | V.    |
| I <sub>g2</sub>       | = | 1     | mA.   |
| S(max)                | = | 1,8   | mA/V. |
| S(norm)               | = | 1,8   | mA/V. |
| g                     | = | 1.600 |       |
| R <sub>i</sub> (norm) | = | 0,9   | M.Ω   |
| C <sub>ag1</sub>      |   | <0,01 | μμF.  |

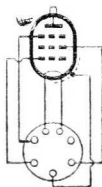
**KF1**

**KF 2**

# PENTHODE (HF - MF)

**KF 2**

|                       |   |     |        |       |
|-----------------------|---|-----|--------|-------|
| V <sub>f</sub>        | = |     | 2,0    | V.    |
| I <sub>f</sub>        | = |     | 0,2    | A.    |
| V <sub>a</sub>        | = |     | 135    | V.    |
| I <sub>a</sub>        | = | 3,0 | 0,01   | mA.   |
| V <sub>g1</sub>       | = | 0   | —16    | V.    |
| V <sub>g2</sub>       | = |     | 135    | V.    |
| S(max)                | = |     | 1,3    | mA/V. |
| S(norm)               | = | 1,3 | <0,002 | mA/V. |
| g                     | = |     | 1.400  |       |
| R <sub>i</sub> (norm) | = | 1,1 | 10     | M.Ω   |
| C <sub>ag1</sub>      | = |     | <0,01  | μμF.  |

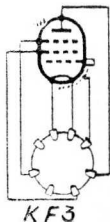

**KF2**



**KF 3****KF 3****PENTHODE**

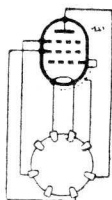
(HF - MF)

|                    |   |          |                   |
|--------------------|---|----------|-------------------|
| $V_f$              | = | 2,0      | V.                |
| $I_f$              | = | 0,045    | A.                |
| $V_a(\max)$        | = | 135      | V.                |
| $I_a$              | = | 2,0      | $<0,015$ mA.      |
| $V_{g1}$           | = | -0,5     | -15 V.            |
| $V_{g2}$           | = | 135      | V.                |
| $I_{g2}$           | = | 0,6      | mA.               |
| $V_{g3}$           | = | 0        | V.                |
| $S(\text{norm})$   | = | 0,65     | $<0,002$ mA/V.    |
| $g$                | = | 850      |                   |
| $R_i(\text{norm})$ | = | 1,3      | 10 M. $\Omega$    |
| $C_{ag1}$          | = | $<0,006$ | $\mu\mu\text{F.}$ |



**KF 4****KF 4****PENTHODE**(HF - MF - G . DET<sub>w</sub> - LF<sub>w</sub>)

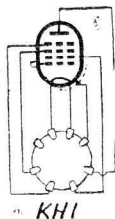
|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 2,0    | V.    |
| I <sub>f</sub>       | = | 0,065  | A.    |
| V <sub>a(max)</sub>  | = | 135    | V.    |
| I <sub>a</sub>       | = | 2,6    | mA.   |
| V <sub>g1</sub>      | = | -0,5   | V.    |
| V <sub>g2</sub>      | = | 135    | V.    |
| I <sub>g2</sub>      | = | 1,0    | mA.   |
| V <sub>g3</sub>      | = | 0      | V.    |
| S(norm)              | = | 0,8    | mA/V. |
| g                    | = | 800    |       |
| R <sub>i(norm)</sub> | = | 1      | M.Ω   |
| C <sub>ag1</sub>     | = | <0,006 | μμF.  |

**KF4**

**KH 1****KH 1**

# HEXODE (HF - OSC - MOD)

|                    |   |           |              |       |
|--------------------|---|-----------|--------------|-------|
| $V_f$              | = |           | 2,0          | V.    |
| $I_f$              | = |           | 0,135        | A.    |
|                    |   | OSC. MOD. | HF           |       |
| $V_a(\max)$        |   | 135       | 135          | V.    |
| $I_a$              | = | 1,5-0,015 | 2 0,01       | mA.   |
| $V_{g2}$           | = | 60        | 60           | V.    |
| $V_{g3}$           | = | 10        | 60           | V.    |
| $V_{g4}$           | = | 60        | 0            | V.    |
| $I_{g2+4}$         | = | 1         |              | mA.   |
| $I_{g2+3}$         | = |           | 0,6          | mA.   |
| $S(\text{norm})$   | = |           | 1,5- < 0,002 | mA/V. |
| $S_c$              | = | 0,4-0,002 |              | mA/V. |
| $g$                | = |           | 1800         |       |
| $R_i(\text{norm})$ | = | 0,5 > 10  | 0,7 > 10     | M.Ω   |



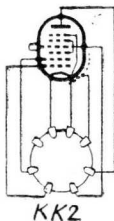
**KK 2**
**KK 2**

OCTODE  
(OSC - MOD)

|                    |   |         |                   |
|--------------------|---|---------|-------------------|
| $V_f$              | = | 2,0     | V.                |
| $I_f$              | = | 0,13    | A.                |
| $V_a(\max)$        | = | 135     | V.                |
| $I_a$              | = | 0,7     | $<0,015$ mA.      |
| $V_{g1}$           | = | 0       | V.                |
| $V_{g2}$           | = | 135     | V.                |
| $I_{g2}$           | = | 2,1(1)  | mA.               |
| $V_{g3-(5)}$       | = | 45      | V.                |
| $V_{g4}$           | = | -0,5    | -12 V.            |
| $S(\text{norm})$   | = | 0,27(2) | $<0,002$ mA/V.    |
| $R_i(\text{norm})$ | = | 2,5     | $>10$ M. $\Omega$ |
| $C_{ag4}$          |   | $<0,07$ | $\mu\mu\text{F.}$ |

(1)  $I_{g_3} + I_{g_5} = 0,7 \text{ mA.}$

(2)  $S_c/V_{osc} = 8,5 \text{ Veff.}$



# KL 2

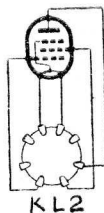
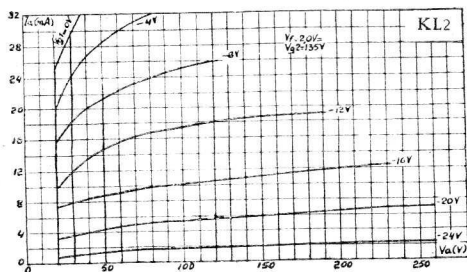
## PENTHODE (E)

# KL 2

|          |   |      |       |       |
|----------|---|------|-------|-------|
| $V_f$    | = |      | 2,0   | V.    |
| $I_f$    | = |      | 0,265 | A.    |
| $V_a$    | = | 90   | 135   | V.    |
| $V_{g1}$ | = | -7,5 | -12   | V.    |
| $V_{g2}$ | = | 90   | 135   | V.    |
| $I_a$    | = | 11   | 18    | mA.   |
| $I_{g2}$ | = | 0,9  | 2     | mA.   |
| $S(1)$   | = |      | 2     | mA/V. |
| $S(2)$   | = | 1,8  |       | mA/V. |
| $R_i(1)$ | = |      | 30    | K.Ω   |
| $R_i(2)$ | = | 30   |       | K.Ω   |

(1)  $V_{g1} = -12$  V.

(2)  $V_{g1} = -7,5$  V.

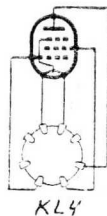
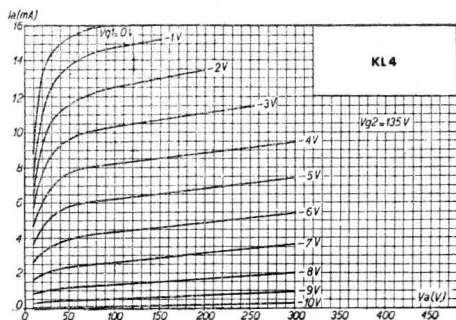


KL 4

PENTHODE  
(E)

KL 4

|                    |   |      |        |                  |
|--------------------|---|------|--------|------------------|
| $V_f$              | = |      | 2,0    | V.               |
| $I_f$              | = |      | 0,14   | A.               |
| $V_a(\max)$        | = | 135  | 90     | V.               |
| $I_a$              | = | 6,5  | 4,7    | mA.              |
| $V_{g1}$           | = | -5   | -2,6   | V.               |
| $V_{g2}$           | = | 135  | 90     | V.               |
| $I_{g2}$           | = | 1,0  | 0,7    | mA.              |
| $S(\text{norm})$   | = |      | 2,1    | mA/V.            |
| $R_i(\text{norm})$ | = | 0,15 | 0,7    | M. $\Omega$      |
| $R_a$              | = |      | 19.000 | $\Omega$         |
| $W_o$              | = | 0,44 | 0,16   | W <sub>tt.</sub> |

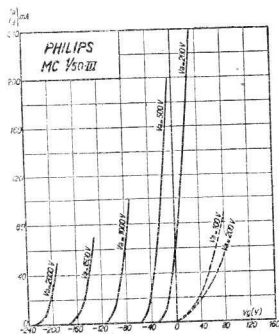
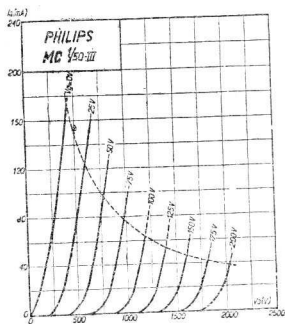


MC 1/50

MC 1/50

TRIODE  
(E - Z)

|                  |   |       |                |
|------------------|---|-------|----------------|
| $V_f$            | = | 10    | $V.$           |
| $I_f$            | = | 1,1   | $A.$           |
| $V_a$            | = | 700   | $V.$           |
| $S(\text{norm})$ | = | 4     | $\text{mA/V.}$ |
| $S(\text{max})$  | = | 7     | $\text{mA/V.}$ |
| $g$              | = | 10    |                |
| $R_i$            | = | 2.500 | $\Omega$       |
| $D$              | = | 51    | $\text{m/m}$   |
| $L$              | = | 184   | $\text{m/m}$   |



MC 1/60

TRIODE  
(Z)

MC 1/60

|          |   |       |          |
|----------|---|-------|----------|
| Vf       | = | 4,0   | V.       |
| If       | = | 3,3   | A.       |
| Va       | = | 1000  | V.       |
| Ia       | = | 75    | mA.      |
| S(max)   | = | 11    | mA/V.    |
| S(norm)  | = | 6     | mA/V.    |
| g        | = | 12,5  |          |
| Ri(norm) | = | 2.100 | $\Omega$ |
| Wa(max)  | = | 75    | Wtt.     |

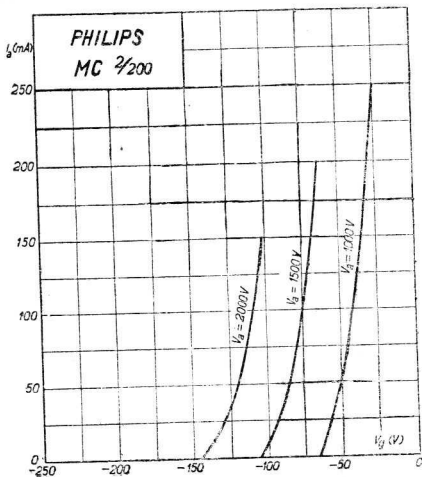


MC 2/200

MC 2/200

# TRIODE (MOD - Z)

|                    |   |       |                |
|--------------------|---|-------|----------------|
| $V_f$              | = | 11    | $V.$           |
| $I_f$              | = | 2,5   | $A.$           |
| $V_a$              | = | 1000  | 2000           |
| $S(\max)$          | = | 10    | $\text{mA/V.}$ |
| $S(\text{norm})$   | = | 6     | $\text{mA/V.}$ |
| $g$                | = | 15    |                |
| $R_i(\text{norm})$ | = | 2.500 | $\Omega$       |
| $W_a(\max)$        | = | 250   | $W_{tt.}$      |
| $D$                | = | 97    | $\frac{m}{m}$  |
| $L$                | = | 370   | $\frac{m}{m}$  |



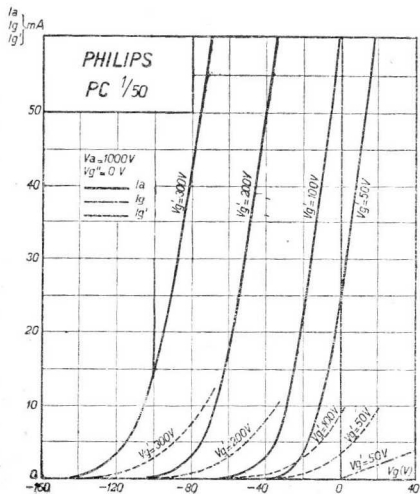
PC 1/50

PC 1/50

# PENTHODE (Z)

|                  |   |          |
|------------------|---|----------|
| $V_f$            | = | 4,0      |
| $I_f$            | = | 2,0      |
| $V_a$            | = | 500 1000 |
| $V_{g2}$         | = | 100 300  |
| $S(\max)$        | = | 3,5      |
| $S(\text{norm})$ | = | 1,5      |
| $W_a(\max)$      | = | 35       |
| $W_{g2}$         | = | 10       |
| $D$              | = | 51       |
| $L$              | = | 182      |

|                             |
|-----------------------------|
| $V.$                        |
| $A.$                        |
| $V.$                        |
| $V.$                        |
| $\text{mA/V.}$              |
| $\text{mA/V.}$              |
| $W_{tt.}$                   |
| $W_{tt.}$                   |
| $\frac{\text{m}}{\text{m}}$ |
| $\frac{\text{m}}{\text{m}}$ |

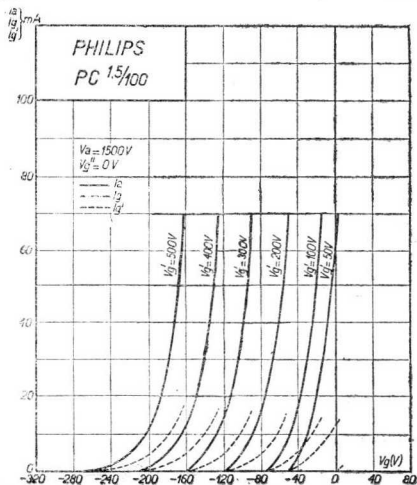


PC 1,5/100

PC 1,5/100

# PENTHODE (Z)

|                  |   |          |               |
|------------------|---|----------|---------------|
| $V_f$            | = | 10       | V.            |
| $I_f$            | = | 2,0      | A.            |
| $V_a$            | = | 1500     | V.            |
| $V_{g2}$         | = | 100 450  | V.            |
| $S(\max)$        | = | 4,0      | mA/V.         |
| $S(\text{norm})$ | = | 1,7      | mA/V.         |
| $g$              | = | 2,7(g_2) |               |
| $W_a(\max)$      | = | 75       | Wtt.          |
| $W_{g2}$         | = | 25       | Wtt.          |
| $D$              | = | 66       | $\frac{m}{m}$ |
| $L$              | = | 262      | $\frac{m}{m}$ |

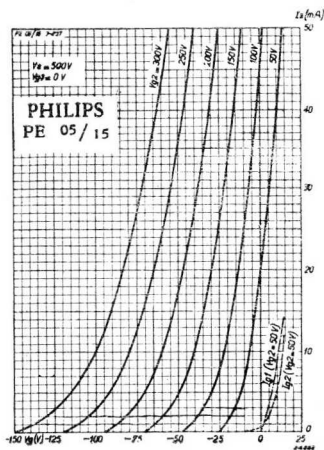


PE 05/15

PE 05/15

# PENTHODE (Z)

|                  |   |         |               |
|------------------|---|---------|---------------|
| $V_f$            | = | 12      | V.            |
| $I_f$            | = | 0,37    | A.            |
| $V_a(\max)$      | = | 500     | V.            |
| $V_{g2}$         | = | 100 300 | V.            |
| $S(\max)$        | = | 2,5     | mA/V.         |
| $S(\text{norm})$ | = | 1,5     | mA/V.         |
| $I_k(\max)$      | = | 85      | mA.           |
| $W_a(\max)$      | = | 15      | Wtt.          |
| $W_{g2}$         | = | 5       | Wtt.          |
| $D$              | = | 51      | $\frac{m}{m}$ |
| $L$              | = | 150     | $\frac{m}{m}$ |



**QB** 2/75

**QB** 2/75

PENTHODE  
(Z)

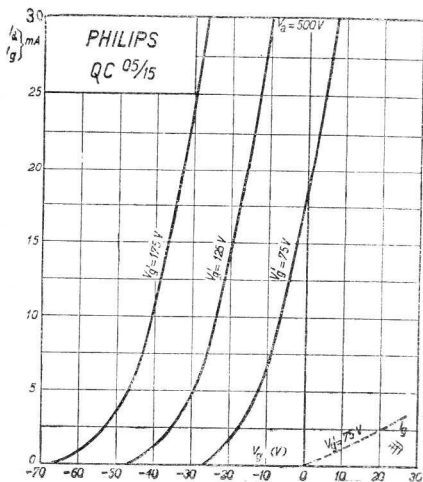
|                  |   |           |       |
|------------------|---|-----------|-------|
| $V_f$            | = | 10        | V.    |
| $I_f$            | = | 3,25      | A.    |
| $V_a$            | = | 1500 3000 | V.    |
| $V_{g2}$         | = | 300 500   | V.    |
| $S(\max)$        | = | 3         | mA/V. |
| $S(\text{norm})$ | = | 1,5       | mA/V. |
| $g$              | = | 6,3(g2)   |       |
| $W_a(\max)$      | = | 100       | Wtt.  |
| $W_{g2}$         | = | 25        | Wtt.  |

QC 05/15

PENTHODE  
(Z)

QC 05/15

|                  |   |         |                |
|------------------|---|---------|----------------|
| $V_f$            | = | 4,0     | $V.$           |
| $I_f$            | = | 1,1     | $A.$           |
| $V_a$            | = | 400     | 500            |
| $V_{g2}$         | = | 75      | 125            |
| $S(\max)$        | = | 2,5     | $\text{mA/V.}$ |
| $S(\text{norm})$ | = | 1,5     | $\text{mA/V.}$ |
| $g$              | = | 2,9(g2) |                |
| $W_a(\max)$      | = | 15      | $W_{tt.}$      |
| $W_{g2}$         | = | 6       | $W_{tt.}$      |
| $D$              | = | 70      | $\frac{n}{m}$  |
| $L$              | = | 160     | $\frac{r}{m}$  |

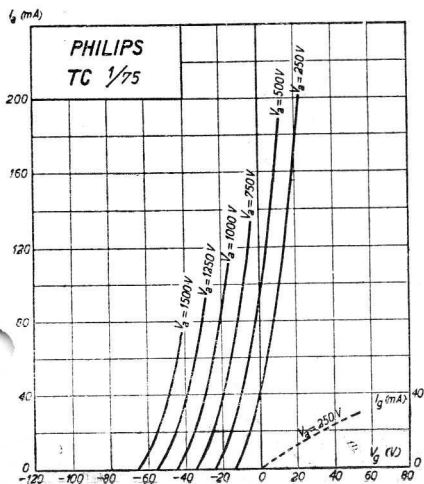


TC 1/75

TC 1/75

# TRIODE (Z)

|                    |   |       |               |
|--------------------|---|-------|---------------|
| $V_f$              | = | 10    | $V.$          |
| $I_f$              | = | 1,6   | A.            |
| $V_a(\max)$        | = | 800   | 1500          |
| $S(\max)$          | = | 8     | mA/V.         |
| $S(\text{norm})$   | = | 5     | mA/V.         |
| $g$                | = | 25    |               |
| $R_i(\text{norm})$ | = | 5.000 | $\Omega$      |
| $W_a(\max)$        | = | 75    | $W_{tt}.$     |
| $D$                | = | 80    | $\frac{m}{m}$ |
| $L$                | = | 196   | $\frac{m}{m}$ |

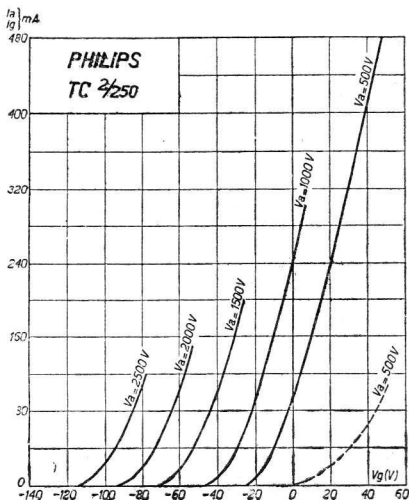


TC 2/250

TC 2/250

TRIODE  
(Z)

|                    |   |           |                             |
|--------------------|---|-----------|-----------------------------|
| $V_f$              | = | 11        | $V.$                        |
| $I_f$              | = | 2,5       | A.                          |
| $V_a$              | = | 1000 2000 | V.                          |
| $S(\max)$          | = | 10        | $\text{mA/V.}$              |
| $S(\text{norm})$   | = | 6         | $\text{mA/V.}$              |
| $g$                | = | 25        |                             |
| $R_i(\text{norm})$ | = | 4.200     | $\Omega$                    |
| $W_a(\max)$        | = | 250       | $W_{tt.}$                   |
| $D$                | = | 97        | $\frac{\text{m}}{\text{m}}$ |
| $L$                | = | 370       | $\frac{\text{m}}{\text{m}}$ |



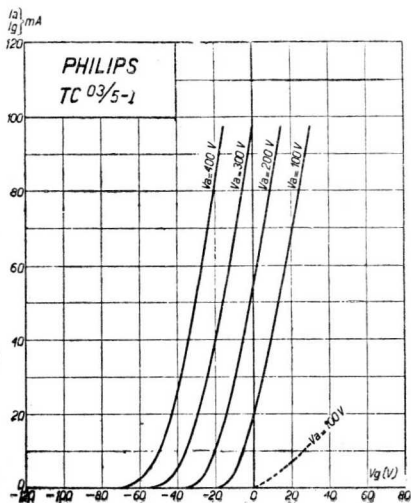


TC 03/5-1

TRIODE  
(Z)

TC 03/5-1

|          |   |         |               |
|----------|---|---------|---------------|
| Vf       | = | 4,0     | V.            |
| If       | = | 0,28    | A.            |
| Va       | = | 150 400 | V.            |
| S(max)   | = | 2,3     | mA/V.         |
| S(norm)  | = | 1,5     | mA/V.         |
| g        | = | 6       |               |
| Ri(norm) | = | 4.000   | $\Omega$      |
| Wa(max)  | = | 6       | Wtt.          |
| D        | = | 50      | $\frac{m}{m}$ |
| L        | = | 90      | $\frac{m}{m}$ |



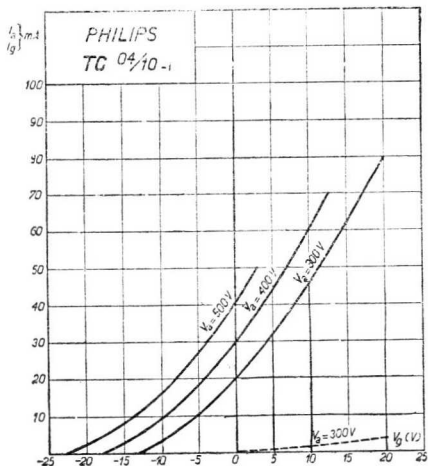
TC 04/10-1

TC 04/10-1

# TRIODE (Z)

|                       |   |         |
|-----------------------|---|---------|
| V <sub>f</sub>        | = | 4,0     |
| I <sub>f</sub>        | = | 1,1     |
| V <sub>a</sub>        | = | 200 500 |
| S(max)                | = | 2,5     |
| S(norm)               | = | 2,2     |
| g                     | = | 25      |
| R <sub>i</sub> (norm) | = | 11.400  |
| W <sub>a</sub> (max)  | = | 10      |
| D                     | = | 75      |
| L                     | = | 152     |

V.  
A.  
V.  
mA/V.  
mA/V.  
  
Ω  
W<sub>tt</sub>.  
m/m  
m/m



TC 05/25

TC 05/25

TRIODE  
(Z)

|          |   |     |       |          |
|----------|---|-----|-------|----------|
| Vf       | = |     | 4,0   | V.       |
| If       | = |     | 2,2   | A.       |
| Va       | = | 300 | 600   | V.       |
| S(max)   | = |     | 4     | mA/V.    |
| S(norm)  | = |     | 2,5   | mA/V.    |
| g        | = |     | 9     |          |
| Ri(norm) | = |     | 3.600 | $\Omega$ |
| Wa(max)  | = |     | 40    | Wtt.     |

**VR 150****VR 150****DIODE**

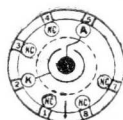
Spanningsregelaar - Régulateur de tension

Ontstekingspanning - Tension d'amorçage 180 V.

Bedrijfsspanning - Tension de régime 150 V.

Bedrijfsstroom ) min. 5 mA.

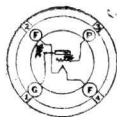
Courant de régime ) max. 30 mA.

**VR 150**

**V 99****V 99**

TRIODE  
(HF - DET - LF)

|             |   |        |   |       |          |
|-------------|---|--------|---|-------|----------|
| $V_f$       | = | 3,0    | / | 3,3   | V.       |
| $I_f$       | = | 0,06   | / | 0,063 | A.       |
| $V_a(\max)$ | = | 90     |   |       | V.       |
| $V_g$       | = | —4,5   |   |       | V.       |
| $I_a$       | = | 2,5    |   |       | mA.      |
| $g$         | = | 6,6    |   |       |          |
| $R_i$       | = | 15.500 |   |       | $\Omega$ |
| $S$         | = | 0,425  |   |       | mA/V.    |
| $R_k$       | = | 1.800  |   |       | $\Omega$ |



V99

WD 11

WD 11

TRIODE  
(DET - LF - E)

|    |   |     |        |        |       |
|----|---|-----|--------|--------|-------|
| Vf | = |     | 1,1    | V.     |       |
| If | = |     | 0,25   | A.     |       |
|    |   | DET | LF     | E      |       |
| Va | = | 45  | 90     | 135    | V.    |
| Vg | = | +A  | —4,5   | —10,5  | V.    |
| Ia | = |     | 2,5    | 3,0    | mA.   |
| g  | = |     | 6,6    |        |       |
| Ri | = |     | 15.500 | 15.000 | Ω     |
| S  | = |     | 0,425  | 0,44   | mA/V. |
| Wo | = |     | 0,007  | 0,04   | Wtt.  |
| Ra | = |     | 15.000 | 15.000 | Ω     |



**X 99****X 99**

TRIODE  
(HF - DET - LF)

|              |   |              |          |
|--------------|---|--------------|----------|
| $V_f$        | = | 3,0 / 3,3    | V.       |
| $I_f$        | = | 0,06 / 0,063 | A.       |
| $V_{a(max)}$ | = | 90           | V.       |
| $V_g$        | = | -4,5         | V.       |
| $I_a$        | = | 2,5          | mA.      |
| $g$          | = | 6,6          |          |
| $R_i$        | = | 15.500       | $\Omega$ |
| $S$          | = | 0,425        | mA/V.    |
| $R_k$        | = | 1.800        | $\Omega$ |



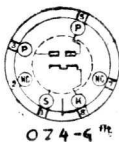
**OZ 4 G**

**GELIJKRICHTERLAMP  
REDRESSEUSE**

|                                |        |
|--------------------------------|--------|
| Koude Kathode - Cathode froide |        |
| V <sub>a</sub>                 | = 350  |
| I <sub>a</sub>                 | = ( 70 |
|                                | ( 30   |

**OZ 4 G**

|                   |
|-------------------|
| V <sub>eff.</sub> |
| mA max.           |
| mA min.           |



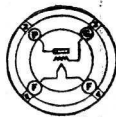


00 A

00 A

# TRIODE (G . DET)

|                   |   |        |                |
|-------------------|---|--------|----------------|
| $V_f$             | = | 5,0    | V.             |
| $I_f$             | = | 0,25   | A.             |
| $V_a(\text{max})$ | = | 45     | V.             |
| $V_g$             | = | 0      | V.             |
| $I_a$             | = | 1,5    | mA.            |
| $g$               | = | 20     |                |
| $R_i$             | = | 30.000 | $\Omega$       |
| $S$               | = | 0,666  | mA/V.          |
| $C_{ag}$          | = | 8,5    | $\mu\text{F.}$ |
| $C_{fg}$          | = | 3,2    | $\mu\text{F.}$ |
| $C_{af}$          | = | 2      | $\mu\text{F.}$ |



00-A

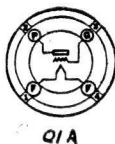
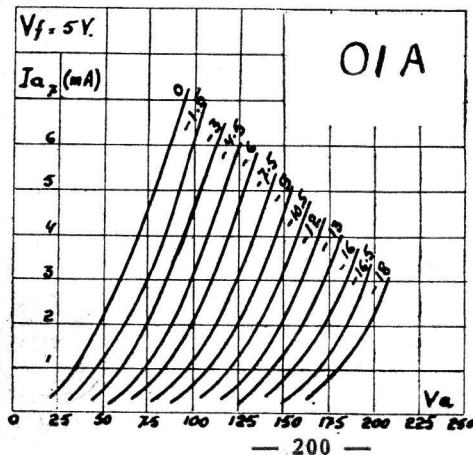
01.A

01.A

# TRIODE (2) (HF - G . DET - LF - A . DET)

|          |   |        |                 |
|----------|---|--------|-----------------|
| $V_f$    | = | 5      | V.              |
| $I_f$    | = | 0,25   | A.              |
| $V_a$    | = | 90     | 135(max) V.     |
| $V_g$    | = | -4,5   | -9 V.           |
| $I_a$    | = | 2,5    | 3,0 mA.         |
| $g$      | = | 8      | 8               |
| $R_i$    | = | 11.000 | 10.000 $\Omega$ |
| $S$      | = | 0,725  | 0,8 mA/V.       |
| $R_k$    | = | 2.000  | 3.000 $\Omega$  |
| $R_k(1)$ | = | 40.000 | 65.000 $\Omega$ |

(1) A . DET (2) GAS



01A

1

1

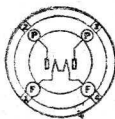
# GELIJKRICHTERLAMP (1) REDRESSEUSE (1)

|                                |   |     |
|--------------------------------|---|-----|
| $V_f$                          | = | 6,3 |
| $I_f$                          | = | 0,3 |
| $V_a(\text{max})(\text{p.pl})$ | = | 350 |
| $I_a$                          | = | 50  |

V.  
A.  
V.~  
mA.

(1) Hg

31-12-38



1

1 A 1

# REGULATOR LAMP REGULATOR TRICE

1 A 1

 $V_f$ 

=

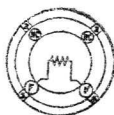
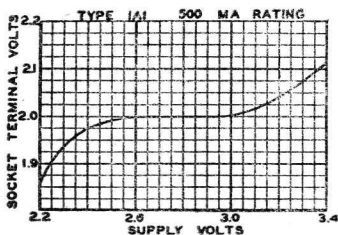
1

 $V.$  $I_f$ 

=

500

mA.



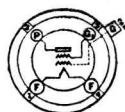
1A1

1 A 4

1 A 4

# TETRODE (HF - MF - OSC - MOD)

|                 |   |      |            |       |
|-----------------|---|------|------------|-------|
| V <sub>f</sub>  | = |      | 2,0        | V.    |
| I <sub>f</sub>  | = |      | 0,06       | A.    |
| V <sub>a</sub>  | = | 90   | 180(max)   | V.    |
| V <sub>sg</sub> | = | 67,5 | 67,5(max)  | V.    |
| V <sub>g</sub>  | = | —3   | —3(min)    | V.    |
| I <sub>a</sub>  | = | 2,2  | 2,3        | mA.   |
| I <sub>sg</sub> | = | 0,9  | 0,8        | mA.   |
| I <sub>g</sub>  | = | 425  | 750        |       |
| R <sub>i</sub>  | = | 0,6  | 1,0        | M.Ω   |
| S               | = | 0,72 | 0,75       | mA/V. |
| R <sub>k</sub>  | = |      | 1.000      | Ω     |
| C <sub>ag</sub> | = |      | 0,007(max) | μμF.  |
| C <sub>i</sub>  | = |      | 5          | μμF.  |
| Co              | = |      | 11         | μμF.  |

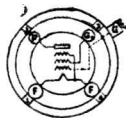


1A4

**1 A 4 P****1 A 4 P**

# PENTHODE (HF)

|          |   |       |          |       |
|----------|---|-------|----------|-------|
| $V_f$    | = |       | 2,0      | V.    |
| $I_f$    | = |       | 0,06     | A.    |
| $V_a$    | = | 135   | 180(max) | V.    |
| $V_{g2}$ | = | 67,5  | 67,5     | V.    |
| $V_g$    | = | —3    | —3       | V.    |
| $I_a$    | = | 2,2   | 2,3      | mA.   |
| $I_{g2}$ | = | 0,9   | 0,8      | mA.   |
| $g$      | = | 325   | 600      |       |
| $R_i$    | = | 0,5   | 0,85     | M.Ω   |
| $S$      | = | 0,675 | 0,7      | mA/V. |

**1A4P**

1 A 4 T(1)

1 A 4 T(1)

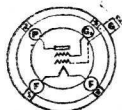
TETRODE  
(HF)

|     |   |       |             |
|-----|---|-------|-------------|
| Vf  | = | 2,0   | V.          |
| If  | = | 0,06  | A.          |
| Va  | = | 135   | 180(max) V. |
| Vg2 | = | 67,5  | 67,5 V.     |
| Vg  | = | —3    | —3 V.       |
| la  | = | 2,2   | 2,2 mA.     |
| Ig2 | = | 0,7   | 0,7 mA.     |
| g   | = | 220   | 400         |
| Ri  | = | 0,35  | 0,6 MΩ      |
| S   | = | 0,625 | 0,65 mA/V.  |
| Rk  | = | 1.000 | Ω           |

(1) Nieuwe typeering voor 1 A 4

(1) Remplace 1 A 4

31-12-38



1A4T

1 A 5 G

1 A 5 G

# PENTHODE (Batt E)

|                |   |             |       |
|----------------|---|-------------|-------|
| Vf             | = | 1,4         | V.    |
| If             | = | 0,05        | A.    |
| Va             | = | 85 90       | V.    |
| Vg2            | = | 85 90       | V.    |
| Vg1            | = | —4,5 —4,5   | V.    |
| Ia             | = | 3,5 4,—     | mA.   |
| Ig2            | = | 0,7 0,8     | mA.   |
| Ri             | = | 0,3 0,3     | M Ω   |
| S              | = | 0,8 0,85    | mA/V. |
| g              | = | 240 255     |       |
| Ra             | = | 25000 25000 | Ω     |
| W <sub>o</sub> | = | 0,1 0,115   | Wtt   |
| d% (tot)       | = | 10 7        | %     |



1A5G



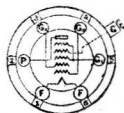
1 A 6

1 A 6

HEPTODE  
(OSC - MOD)

|                          |   |              |          |
|--------------------------|---|--------------|----------|
| $V_f$                    | = | 2,0          | V.       |
| $I_f$                    | = | 0,06         | A.       |
| $V_a$                    | = | 135 180(max) | V.       |
| $V_{g4}$                 | = | —3 —3        | V.       |
| $V_{g3-5}$               | = | 67,5 67,5    | V.       |
| $V_{g2}$                 | = | 135 135      | V.       |
| $I_a$                    | = | 1,2 1,3      | mA.      |
| $I_{g3-5}$               | = | 2,5 2,4      | mA.      |
| $I_{g2}$                 | = | 2,3 2,3      | mA.      |
| $I_{g1}$                 | = | 0,2 0,2      | mA.      |
| $S_c$                    | = | 0,275 0,3    | mA/V.    |
| $S_c(V_{g4} = -22,5V) =$ |   | 4            | mA/V.    |
| $R_k$                    | = | 500 500      | $\Omega$ |
| $R_{g1}$                 | = | 500.000      | $\Omega$ |
| $I_c$                    | = | 6,2 6,2      | mA.      |

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1A6

1 A 7 G

1 A 7 G

# HEPTODE (Batt-OSC - MOD)

|         |   |       |            |
|---------|---|-------|------------|
| Vf      | = | 1,4   | V.         |
| If      | = | 0,05  | A.         |
| Va      | = | 90    | V.         |
| Vg4     | = | 0     | V.         |
| Vg3-5   | = | 45    | V.         |
| Vg2     | = | 90    | V.         |
| Rgl     | = | 0,2   | M $\Omega$ |
| Ia      | = | 0,55  | mA.        |
| Ig3-5   | = | 0,6   | mA.        |
| Ig2     | = | 1,2   | mA.        |
| Igl     | = | 35    | $\mu$ A.   |
| Ik      | = | 2,4   | mA.        |
| Ri      | = | 0,6   | M $\Omega$ |
| Sc      | = | 0,25  | mA/V.      |
| Sc(-2V) | = | 0,05  | mA/V.      |
| Sc(-3V) | = | 0,005 | mA/V.      |



1 B 1

1 B 1

REGULATOR LAMP  
REGULATRICE $V_f$  $=$ 

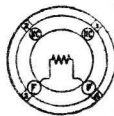
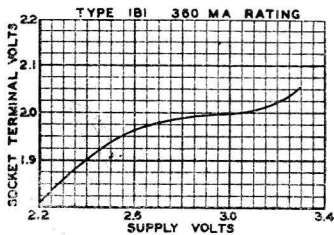
1

 $V.$  $I_f$  $=$ 

360

mA.

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1B1

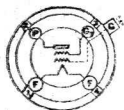
1 B 4

1 B 4

# TETRODE

(HF - MF - DET)

|      |   |       |                   |
|------|---|-------|-------------------|
| Vf   | = | 2,0   | V.                |
| If   | = | 0,06  | A.                |
| Va   | = | 90    | 180(max) V.       |
| Vsg  | = | 67,50 | 67,50 V.          |
| Vg   | = | —3    | —3 V.             |
| Ia   | = | 1,6   | 1,7 mA.           |
| Isg  | = | 0,7   | 0,6 mA.           |
| g    | = | 550   | 1.000             |
| Ri   | = | 1     | 1,5 M $\Omega$    |
| Rk   | = | 1.500 | $\Omega$          |
| S    | = | 0,6   | 0,65 mA/V.        |
| Vgco | = | —8    | —8 V.             |
| Cag  | = | 0,007 | $\mu\mu\text{F.}$ |
| Ci   | = | 5     | $\mu\mu\text{F.}$ |
| Co   | = | 11    | $\mu\mu\text{F.}$ |

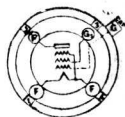


1B4

**1 B 4 P****1 B 4 P**

# PENTHODE (HF)

|                 |   |       |          |       |
|-----------------|---|-------|----------|-------|
| V <sub>f</sub>  | = |       | 2,0      | V.    |
| I <sub>f</sub>  | = |       | 0,06     | A.    |
| V <sub>a</sub>  | = | 135   | 180(max) | V.    |
| V <sub>g2</sub> | = | 67,5  | 67,5     | V.    |
| V <sub>g</sub>  | = | —3    | —3       | V.    |
| I <sub>a</sub>  | = | 1,6   | 1,7      | mA.   |
| I <sub>g2</sub> | = | 0,7   | 0,6      | mA.   |
| g               | = | 440   | 700      |       |
| R <sub>i</sub>  | = | 0,7   | 1,1      | M.Ω   |
| R <sub>k</sub>  | = |       | 1.500    | Ω     |
| S               | = | 0,625 | 0,65     | mA/V. |

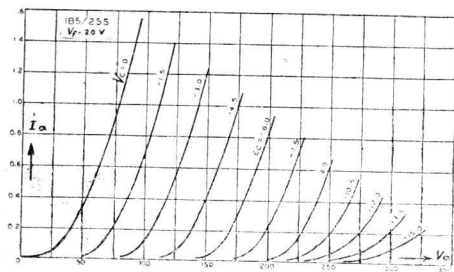
**1B4P**

# 1B5

## DUODIODE - TRIODE (d DET + LF)

# 1B5

|                   |   |        |          |
|-------------------|---|--------|----------|
| $V_f$             | = | 2,0    | V.       |
| $I_f$             | = | 0,06   | A.       |
| $V_a(\text{max})$ | = | 135    | V.       |
| $V_g$             | = | —3     | V.       |
| $I_a$             | = | 0,8    | mA.      |
| $g$               | = | 20     |          |
| $R_i$             | = | 35.000 | $\Omega$ |
| $S$               | = | 0,575  | mA/V.    |
| $R_k$             | = | 3.750  | $\Omega$ |



1C1

REGULATRICE  
REGULATRICE

1C1

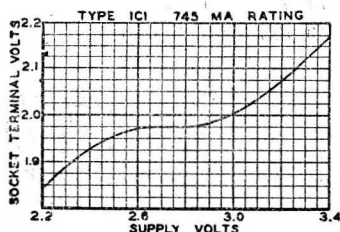
|    |   |     |     |
|----|---|-----|-----|
| If | = | 745 | mA. |
| Vf | = | 1   | V.  |

1C5G

PENTHODE  
(E)

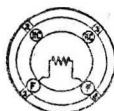
1C5G

|          |   |         |         |
|----------|---|---------|---------|
| Vf       | = | 1,4     | V.      |
| If       | = | 0,1     | A.      |
| Va       | = | 83      | 90      |
| Vgl      | = | -7      | -7,5    |
| Ia       | = | 7       | 7,5     |
| Ig2      | = | 1,6     | 1,6     |
| Ri       | = | 110.000 | 115.000 |
| S        | = | 1,5     | 1,55    |
| g        | = | 165     | 180     |
| Ra       | = | 9000    | 8000    |
| Wo       | = | 0,2     | 0,24    |
| d% (tot) | = | 10      | 10      |

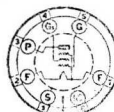


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- 211 -



1C1



1C5G

1 C 6  
1 C 7 G

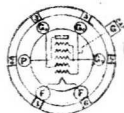
1 C 6  
1 C 7 G

HEPTODE  
(OSC - MOD)

|                   |   |        |                 |
|-------------------|---|--------|-----------------|
| $V_f$             | = | 2,0    | V.              |
| $I_f$             | = | 0,12   | A.              |
| $V_a$             | = | 135    | 180(max) V.     |
| $V_{g3-5}$        | = | 67,5   | 67,5 V.         |
| $V_{g2}$          | = | 135(1) | 180(1) V.       |
| $V_{g4}$          | = | -3     | -3 V.           |
| $I_a$             | = | 1,3    | 1,5 mA.         |
| $I_{g3-5}$        | = | 2      | 2 mA.           |
| $I_{g2}$          | = | 2,6    | 3,3 mA.         |
| $I_{g1}$          | = | 0,2    | 0,2 mA.         |
| $I_c$             | = | 6,5    | 7 mA.           |
| $R_i$             | = | 0,55   | 0,75 M $\Omega$ |
| $S_c$             | = | 0,3    | 0,325 mA/V.     |
| $S_c(V_{g4}=14V)$ | = | 4      | mA/V.           |
| $R_{gl}$          | = | 50.000 | $\Omega$        |
| $R_k$             | = | 400    | 350 /           |

(1) Over  $R=20.000 \Omega$   $C=0,1 \mu F$ .

A travers  $R=20.000 \Omega$   $C=0,1 \mu F$ .



1 C 6



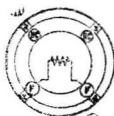
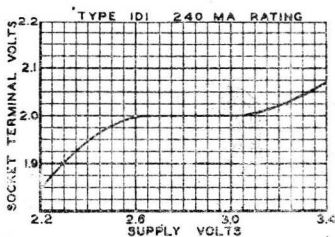
1D1

1D1

# REGULATOR LAMP REGULATRICE

|       |   |     |     |
|-------|---|-----|-----|
| $I_f$ | = | 240 | mA. |
| $V_f$ | = | 1   | V.  |

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1D1

1 D 5 G (1)

1 D 5 GP (1)

1 D 5 GT (1)

1 D 5 G (1)

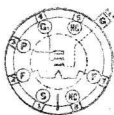
1 D 5 GP (1)

1 D 5 GT (1)

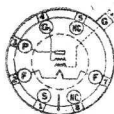
PENTHODE  
(HF)

|          |   |       |             |
|----------|---|-------|-------------|
| $V_f$    | = | 2,0   | V.          |
| $I_f$    | = | 0,06  | A.          |
| $V_a$    | = | 135   | 180(max) V. |
| $V_{sg}$ | = | 67,5  | 67,5 V.     |
| $V_g$    | = | —3    | —3 V.       |
| $I_a$    | = | 2,2   | 2,3 mA.     |
| $I_{g2}$ | = | 0,9   | 0,8 mA.     |
| $g$      | = | 325   | 600         |
| $R_i$    | = | 0,5   | 0,85 M.Ω    |
| $S$      | = | 0,675 | 0,7 mA/V.   |

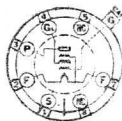
(1) V. 1 A 4 P



1D5-4



1D5-47



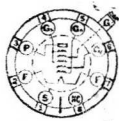
1D54P

1 D 7 G

1 D 7 G

HEPTODE  
(OSC - MOD)

|                 |   |        |              |
|-----------------|---|--------|--------------|
| Vf              | = | 2,0    | V.           |
| If              | = | 0,06   | A.           |
| Va              | = | 135    | 180(max) V.  |
| Vg4             | = | —3     | —3 V.        |
| Vg3-5           | = | 67,5   | 67,5 V.      |
| Vg2             | = | 135    | 135 V.       |
| Ia              | = | 1,2    | 1,3 mA.      |
| Ig3-5           | = | 2,5    | 2,4 mA.      |
| Ig2             | = | 2,3    | 2,3 mA.      |
| Igl             | = | 0,2    | 0,2 mA.      |
| Sc              | = | 0,275  | 0,3 mA/V.    |
| Sc(Vg4=22,5V) = |   | 4      | mA/V.        |
| Rk              | = | 500    | 500 $\Omega$ |
| Rgl             | = | 50.000 | $\Omega$     |
| Ic              | = | 6,2    | mA.          |



1D7-9

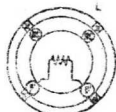
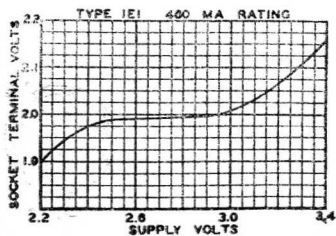
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1E1

REGULATOR LAMP  
REGULATRICE

1E1

$I_f$  = 480 mA.  
 $V_f$  = 1 V.



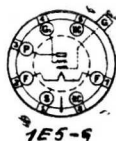
1E1

**1 E 5 G**  
**1 E 5 GP**

**1 E 5 G**  
**1 E 5 GP**

**TETRODE**  
(HF)

|     |   |       |          |       |
|-----|---|-------|----------|-------|
| Vf  | = |       | 2,0      | V.    |
| If  | = |       | 0,06     | A.    |
| Va  | = | 135   | 180(max) | V.    |
| Vsg | = | 67,5  | 67,5     | V.    |
| Vg  | = | —3    | —3       | V.    |
| Ia  | = | 1,6   | 1,7      | mA.   |
| Ig2 | = | 0,7   | 0,6      | mA.   |
| g   | = | 440   | 700      |       |
| Ri  | = | 0,7   | 1,1      | M.Ω   |
| S   | = | 0,625 | 0,65     | mA/V. |



# 1E7G

## DUO - PENTHODE (E)

# 1E7G

|         |   |     |         |       |
|---------|---|-----|---------|-------|
| Vf      | = |     | 2,0     | V.    |
| If      | = |     | 0,24    | A.    |
| Va(max) | = |     | 135     | V.    |
| Vg2     | = |     | 135     | V.    |
| Vg      | = |     | -7,5    | V.    |
| Ia      | = | 2 × | 6,5     | mA.   |
| Ig2     | = | 2 × | 2,5     | mA.   |
| g       | = |     | 350     |       |
| Ri      | = |     | 220.000 | Ω     |
| S       | = |     | 1,6     | mA/V. |
| Wo      | = |     | 0,65    | Wt..  |
| Ra(p.p) | = |     | 24.000  | Ω     |
| Rk      | = |     | 900     | Ω     |



1E7-9

1 F 1

1 F 1

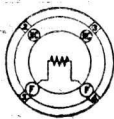
REGULATOR LAMP  
REGULATRICE

$V_f$   
 $I_f$

=  
=

1,0  
720

V.  
mA.



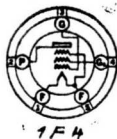
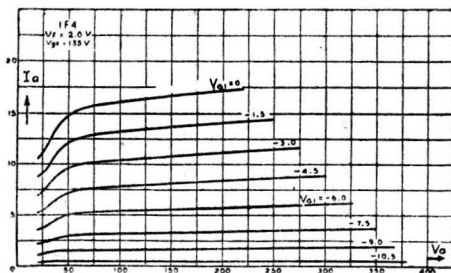
1F1

1F4  
1F5G

1F4  
1F5G

PENTHODE  
(E)

|          |   |        |          |            |
|----------|---|--------|----------|------------|
| $V_f$    | = |        | 2,0      | V.         |
| $I_f$    | = |        | 0,12     | A.         |
| $V_a$    | = | 90     | 135(max) | V.         |
| $V_{g2}$ | = | 90     | 135      | V.         |
| $V_{g1}$ | = | —3     | —4,5     | V.         |
| $I_a$    | = | 4      | 8        | mA.        |
| $I_{g2}$ | = | 1,3    | 2,6      | mA.        |
| $g$      | = |        | 340      |            |
| $R_i$    | = | 0,24   | 0,2      | M.Ω        |
| $S$      | = | 1,4    | 1,7      | mA/V.      |
| $W_o$    | = | 0,12   | 0,34     | $W_{tt}$ . |
| $R_a$    | = | 20.000 | 16.000   | Ω          |
| $R_k$    | = | 566    | 425      | Ω          |





1F6  
1F7G

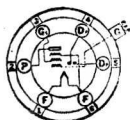
1F6  
1F7G

DUODIODE - PENTHODE  
(HF - MF - d DET - d DET + LF)

|     |   |        |                   |
|-----|---|--------|-------------------|
| Vf  | = | 2      | V.                |
| If  | = | 0,06   | A.                |
| Gi  | = | 4      | $\mu\mu\text{F.}$ |
| Co  | = | 9      | $\mu\mu\text{F.}$ |
| Cag | = | <0,007 | $\mu\mu\text{F.}$ |

HF - MF - PENTH.

|                |   |       |             |
|----------------|---|-------|-------------|
| Va             | = | 180   | V.          |
| Vg2            | = | 67,5  | V.          |
| Vg1            | = | -1,5  | V.          |
| Ia             | = | 2,0   | mA.         |
| Ig2            | = | 0,6   | mA.         |
| Ri             | = | 1     | M. $\Omega$ |
| g              | = | 650   |             |
| S              | = | 0,65  | mA/V.       |
| S(Vg1 = -12 V) | = | 0,015 | mA/V.       |
| Rk             | = | 600   | $\Omega$    |



1F6



1F7G

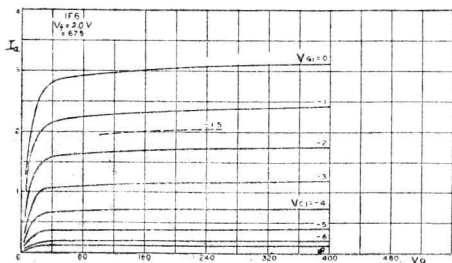
1F6  
1F7G

1F6  
1F7G

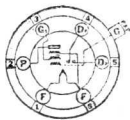
PENTHODE  
(LF)

|          |   |      |       |             |
|----------|---|------|-------|-------------|
| $V_a$    | = | 135  | 135   | $V.$        |
| $V_{g2}$ | = | 135  | 135   | $V.$        |
| $V_{g1}$ | = | —1   | —2    | $V.$        |
| $I_a$    | = | 0,34 | 0,42  | mA.         |
| $R_p$    | = | 0,25 | 0,25  | M. $\Omega$ |
| $R_g$    | = | 1,0  | 0,5   | M. $\Omega$ |
| $g$      | = | 48   | 43    |             |
| $d \%$   | = | 5    | 5     |             |
| $V_{op}$ | = | 30,8 | 28    | $V.$        |
| $R_k$    | = |      | 2.500 | $\Omega$    |

*U over de volgende lampen.*



1F7-G



1F6

1 G 1

1 G 1

REGULATOR LAMP  
REGULATRICE $V_f$ 

=

1,0

V.

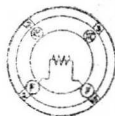
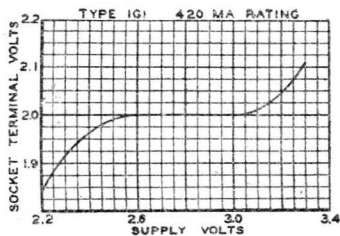
 $I_f$ 

=

420

mA.

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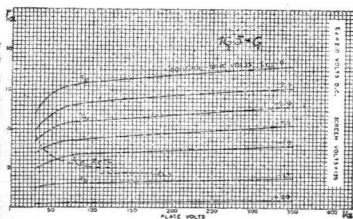
1 G 1

# 1G5G

## PENTHODE (E)

# 1G5G

|             |   |         |            |
|-------------|---|---------|------------|
| $V_f$       | = | 2,0     | V.         |
| $I_f$       | = | 0,12    | A.         |
| $V_a(\max)$ | = | 90      | V.         |
| $V_{g2}$    | = | 90      | V.         |
| $V_g$       | = | -6,0    | V.         |
| $I_a$       | = | 8,5     | mA.        |
| $I_{g2}$    | = | 2,7     | mA.        |
| $g$         | = | 200     |            |
| $R_i$       | = | 135.000 | $\Omega$   |
| $S$         | = | 1,5     | mA/V.      |
| $W_o$       | = | 0,3     | $W_{tt}$ . |
| $R_a$       | = | 8.500   | $\Omega$   |
| $R_k$       | = | 660     | $\Omega$   |



1G5G

# 1H4G

# 1H4G

## TRIODE (DET - E<sub>AB</sub>) (1)

|                |   |      |    |
|----------------|---|------|----|
| V <sub>f</sub> | = | 2    | V. |
| I <sub>f</sub> | = | 0,06 | A. |

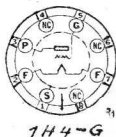
E<sub>A</sub>

|                |   |      |      |          |       |
|----------------|---|------|------|----------|-------|
| V <sub>a</sub> | = | 90   | 135  | 180(max) | V.    |
| V <sub>g</sub> | = | -4,5 | -9   | -13,5    | V.    |
| I <sub>a</sub> | = | 2,5  | 3,0  | 3,1      | mA.   |
| R <sub>i</sub> | = | 11   | 10,3 | 10,3     | kΩ    |
| g              | = | 9,3  | 9,3  | 9,3      |       |
| S              | = | 0,85 | 0,9  | 0,9      | mA/V. |
| R <sub>k</sub> | = | 1,8  | 2,9  | 2,9      | kΩ    |

2 lp E<sub>B</sub>

|                      |   |       |                   |
|----------------------|---|-------|-------------------|
| V <sub>a</sub>       | = | 157,5 | V.                |
| V <sub>g</sub>       | = | -15   | V.                |
| I <sub>a</sub>       | = | 1     | mA.               |
| R <sub>a</sub> (p.p) | = | 8.000 | Ω                 |
| W <sub>o</sub>       | = | 2,1   | W <sub>tt</sub> . |

(1) V. type '30.



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**1H5G**

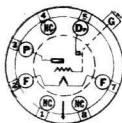
# DIODE - TRIODE (D.det + LF)

**1H5G**

|       |   |       |             |
|-------|---|-------|-------------|
| $V_f$ | = | 1,4   | $V.$        |
| $I_f$ | = | 0,05  | A.          |
| $V_a$ | = | 90    | $V.$        |
| $V_g$ | = | 0     | $V.$        |
| $I_a$ | = | 0,14  | mA.         |
| $R_i$ | = | 0,24  | M. $\Omega$ |
| $S$   | = | 0,275 | mA/V.       |
| $g$   | = | 65    |             |



1H5G



1H5G

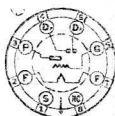
1 H 6 G

1 H 6 G

DUODIODE - TRIODE  
(d DET + LF<sub>r</sub>) (1)

|                     |   |        |       |
|---------------------|---|--------|-------|
| V <sub>f</sub>      | = | 2,0    | V.    |
| I <sub>f</sub>      | = | 0,06   | A.    |
| V <sub>a(max)</sub> | = | 135    | V.    |
| V <sub>g</sub>      | = | —3     | V.    |
| I <sub>a</sub>      | = | 0,8    | mA.   |
| g                   | = | 20     |       |
| R <sub>i</sub>      | = | 35.000 | Ω     |
| S                   | = | 0,575  | mA/V. |
| R <sub>k</sub>      | = | 3.750  | Ω     |

(1) V. 1 B 5.



1 H 6 - G

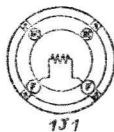
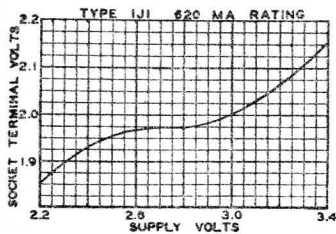
31-12-38

1 J 1

1 J 1

STROOMREGULATOR  
REGLATRICE

|       |   |       |      |
|-------|---|-------|------|
| $V_f$ | = | 1     | $V.$ |
| $I_f$ | = | 0,620 | A.   |





1 J 6 G

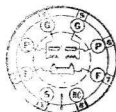
1 J 6 G

DUOTRIODE  
(E<sub>B</sub>)

|                      |   |       |           |                     |
|----------------------|---|-------|-----------|---------------------|
| V <sub>f</sub>       | = |       | 2,0       | V.                  |
| I <sub>f</sub>       | = |       | 0,24      | A.                  |
| V <sub>a</sub> (max) | = | 135   | 135 135   | V.                  |
| V <sub>g</sub>       | = | —6    | —3 0      | V.                  |
| I <sub>a</sub> (1)   | = | 0,5   | 2 5       | mA.                 |
| W <sub>i</sub>       | = | 0,095 | 0,13 0,17 | m.W <sub>tt</sub> . |
| W <sub>o</sub>       | = | 1,6   | 1,9 2,1   | W <sub>tt</sub> .   |
| R <sub>a</sub> (p.p) | = |       | 10.000    | Ω                   |

(1) Zonder sein - En absence de signal.

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1 J 6 G

1 K 1

1 K 1

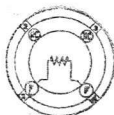
STROOMREGULATOR  
REGULATRICE

$V_f$   
 $I_f$

=  
=

1,0  
550

V.  
mA.



1 K 1

# 1N5G

# 1N5G

## PENTHODE (HF - MF)

|                 |   |       |       |
|-----------------|---|-------|-------|
| V <sub>f</sub>  | = | 1,4   | V.    |
| I <sub>f</sub>  | = | 0,05  | A.    |
| V <sub>a</sub>  | = | 90    | V.    |
| V <sub>g2</sub> | = | 90    | V.    |
| V <sub>g1</sub> | = | 0     | V.    |
| I <sub>a</sub>  | = | 1,2   | mA.   |
| I <sub>g2</sub> | = | 0,3   | mA.   |
| R <sub>i</sub>  | = | 1,5   | M.Ω   |
| S               | = | 0,75  | mA/V. |
| g               | = | 1160  |       |
| S(-3,2V)        | = | 0,05  | mA/V. |
| S(-4V)          | = | 0,005 | mA/V. |

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1 R 1-G

1 R 1-G

STROOMREGULATOR  
REGULATRICE

Vf

=

1,0

V.

If

=

540

mA.



1 T 1 G

1 T 1 G

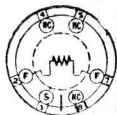
STROOMREGULATOR  
REGULATRICE

$V_f$   
 $I_f$

=  
=

1,0  
560

V.  
mA.



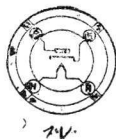
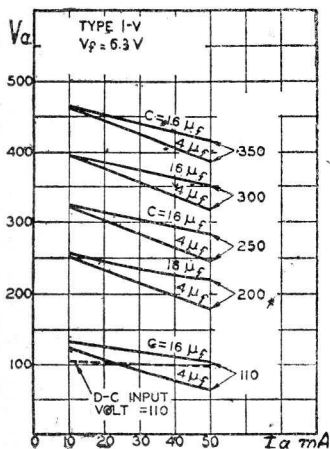
1T1-G

1 V

1 V

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |                     |
|-------|---|-----|---------------------|
| $V_f$ | = | 6,3 | V.                  |
| $I_f$ | = | 0,3 | A.                  |
| $V_a$ | = | 350 | $V \sim (\max)$     |
| $I_a$ | = | 50  | $\text{mA.} (\max)$ |



1 Y 1

STROOMREGULATOR  
REGULATRICE

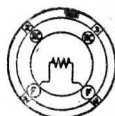
1 Y 1

V<sub>f</sub>  
I<sub>f</sub>

=  
=

1,0  
540

V.  
mA.



1Y1

1 Z 1

STROOMREGULATOR  
REGULATRICE

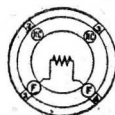
1 Z 1

V<sub>f</sub>  
I<sub>f</sub>

=  
=

1,0  
0,9

V.  
A.



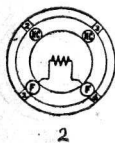
1Z1

2

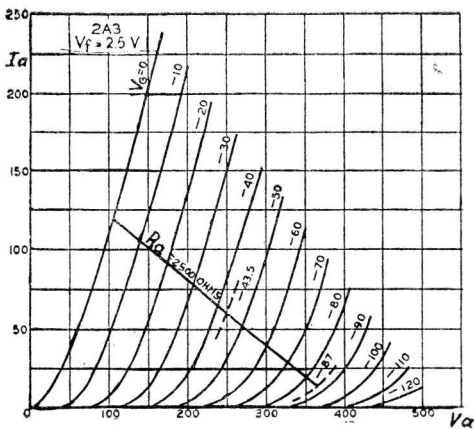
2

# STROOMREGULATOR REGULATRICE

|       |   |     |      |
|-------|---|-----|------|
| $V_f$ | = | 9,0 | $V.$ |
| $I_f$ | = | 0,3 | $A.$ |



2



— 232 —



2 A 3

2 A 3

## TRIODE

 $(E_{AB})$  $E_a$ 

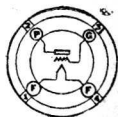
|            |   |      |            |
|------------|---|------|------------|
| $V_f$      | = | 2,5  | V.         |
| $I_f$      | = | 2,5  | A.         |
| $V_a(max)$ | = | 250  | V.         |
| $V_g$      | = | —45  | V.         |
| $I_a$      | = | 60   | mA.        |
| $g$        | = | 4,2  |            |
| $R_i$      | = | 800  | $\Omega$   |
| $S$        | = | 5,25 | mA/V.      |
| $W_o$      | = | 3,5  | $W_{tt}$ . |
| $R_a$      | = | 2500 | $\Omega$   |
| $R_k$      | = | 750  | $\Omega$   |

2 pl  $E_{AB}$ 

F.B

S.B

|             |   |       |       |          |
|-------------|---|-------|-------|----------|
| $V_f$       | = | 2,5   | 2,5   | V.       |
| $V_a(max)$  | = | 300.— | 300.— | V.       |
| $V_g$       | = | —62   | —     | V.       |
| $R_k$       | = | —     | 780   | $\Omega$ |
| $I_a(p.l.)$ | = | 40    | 40    | mA.      |
| $R_a(pp)$   | = | 3000  | 5000  | $\Omega$ |
| $d \%$      | = | 2,5   | 5     |          |
| $W_o$       | = | 15    | 10    | $W_{tt}$ |



2 A 3

**2 A 3 H****2 A 3 H**

TRIODE  
( $E_{AB}$ )

|             |   |        |        |           |
|-------------|---|--------|--------|-----------|
| $V_f$       | = |        | 2,5    | $V.$      |
| $I_f$       | = |        | 2,8    | A.        |
| $V_a(\max)$ | = | 300    | 300    | V.        |
| $V_g$       | = | —62    | —62    | V.        |
| $I_a$       | = | 80-100 | 80-150 | mA.       |
| $W_o$       | = | 10     | 15     | $W_{tt}.$ |
| $R_a$       | = | 5,000  | 3,000  | $\Omega$  |

**2 A 3 H**

2 A 5

2 A 5

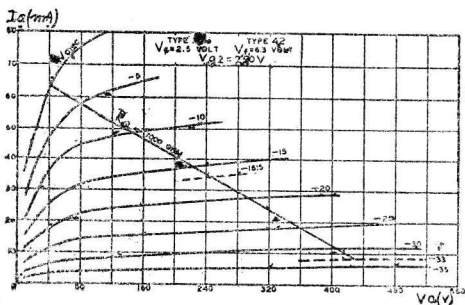
PENTHODE  
( $E_{AB}$ )

|       |   |      |    |
|-------|---|------|----|
| $V_f$ | = | 2,5  | V. |
| $I_f$ | = | 1,75 | A. |

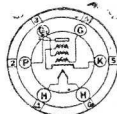
 $E_{A1}$ 

## PENTHODE TRIODE

|                  |   |       |     |      |       |
|------------------|---|-------|-----|------|-------|
| $V_a$            | = | 250   | 315 | 250  | V.    |
| $V_{g2}$         | = | 250   | 315 | —    | V.    |
| $V_{g1}$         | = | -16,5 | -22 | -20  | V.    |
| $I_a$            | = | 34    | 42  | 31   | mA.   |
| $I_{g2}$         | = | 6,5   | 8   | —    | mA.   |
| $R_i$            | = | 80    | 100 | 2,7  | K.Ω   |
| $g$              | = | 190   | 260 | 6,2  |       |
| $S(\text{norm})$ | = | 2,35  | 2,6 | 2,3  | mA/V. |
| $d \%$           | = | 7     | 7   | 5    |       |
| $W_o$            | = | 3     | 5   | 0,65 | Wtt.  |
| $R_k$            | = | 400   | 450 | 600  | Ω     |



zie keer-  
zijde  
voor  
verso



2 A 5

2 A 5

2 A 5

 $E_{AB}$ 

## PENTHODE

|             |   | FB     | SB     |          |
|-------------|---|--------|--------|----------|
| $V_a(\max)$ | = | 375    | 375    | V.       |
| $V_{g2}$    | = | 250    | 250    | V.       |
| $V_{g1}$    | = | —26    | —      | V.       |
| $R_k$       | = | —      | 340    | $\Omega$ |
| $I_a$       | = | 34     | 54     | mA.      |
| $I_{g2}$    | = | 5      | 8      | mA.      |
| $R_a$       | = | 10.000 | 10.000 | $\Omega$ |
| $d \%$      | = | 5      | 5      |          |
| $W_o$       | = | 19     | 19     |          |

## TRIODE

|             |   | FB    | SB     |          |
|-------------|---|-------|--------|----------|
| $V_a(\max)$ | = | 350   | 350    | V.       |
| $V_{g1}$    | = | —38   | —      | V.       |
| $R_k$       | = | —     | 730    | $\Omega$ |
| $I_a$       | = | 45    | 50     | mA.      |
| $R_a$       | = | 6.000 | 10.000 | $\Omega$ |
| $d \%$      | = | 7     | 7      |          |
| $W_o$       | = | 18    | 14     |          |

Andere krommen, zie « 42 »

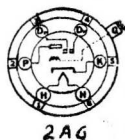
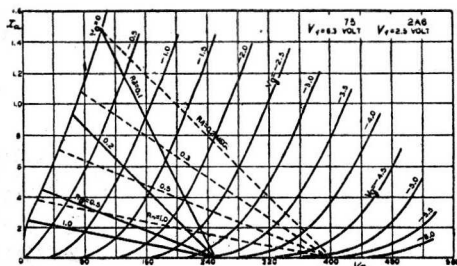
Autres courbes, voir « 42 »

# 2A6

# 2A6

## DUODIODE - TRIODE (d DET - LF<sub>w</sub>)

|                     |   |                |       |
|---------------------|---|----------------|-------|
| V <sub>f</sub>      | = | 2,5            | V.    |
| I <sub>f</sub>      | = | 0,8            | A.    |
| V <sub>a(max)</sub> | = | 250            | V.    |
| V <sub>g</sub>      | = | —2             | V.    |
| I <sub>a</sub>      | = | 0,8            | mA.   |
| g                   | = | 100            |       |
| R <sub>i</sub>      | = | 91.000         | Ω     |
| S                   | = | 1,1            | mA/V. |
| R <sub>k</sub>      | = | 2.600 / 17.400 | Ω     |
| C <sub>ag</sub>     | = | 1,7            | μμF.  |
| C <sub>i</sub>      | = | 1,7            | μμF.  |
| C <sub>o</sub>      | = | 3,8            | μμF.  |



2 A 7  
2 A 7 S

2 A 7  
2 A 7 S

HEPTODE  
(OSC . MOD)

|          |   |        |                   |
|----------|---|--------|-------------------|
| Vf       | = | 2,5    | V.                |
| If       | = | 0,8    | A.                |
| Ci       | = | 8,5    | $\mu\mu\text{F.}$ |
| Co       | = | 9.0    | $\mu\mu\text{F.}$ |
| Va       | = | 100    | 250 V.            |
| Vg3-5    | = | 50     | 100 V.            |
| Vg2      | = | 100    | 200 V.            |
| Vg4(min) | = | 1,5    | —3 V.             |
| Rgl      | = | 10.000 | 50.000 $\Omega$   |
| Ia       | = | 1,3    | 3,5 mA.           |
| Ig3-5    | = | 2,5    | 2,2 mA.           |
| Ig2      | = | 3,3    | 4,0 mA.           |
| Igl      | = | 1,2    | 0,7 mA.           |
| Ik       | = | 8,3    | 10,4 mA.          |
| Rk       | = | 150    | 300 $\Omega$      |
| Ri       | = | 0,6    | 0,36 M. $\Omega$  |
| Sc       | = | 0,35   | 0,52 mA/V.        |
| Vg4(1)   | = | —20    | —45 V.            |

(1) Sc = 0,002 mA/V.



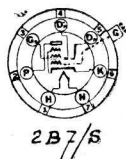
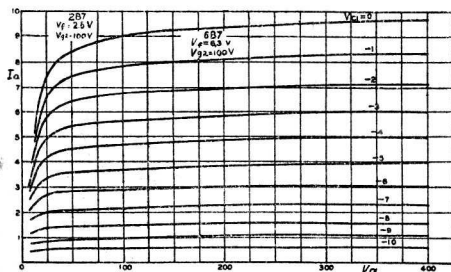
**2B7**  
**2B7S**

**2B7**  
**2B7S**

# DUODIODE - PENTHODE

(d DET + LF<sub>w</sub>)

|                      |   |       |      |       |             |
|----------------------|---|-------|------|-------|-------------|
| $V_f$                | = | 2,5   | V.   |       |             |
| $I_f$                | = | 0,8   | A.   |       |             |
| $V_a$                | = | 100   | 180  | 250   | 250(max) V. |
| $V_{g2}$             | = | 100   | 75   | 100   | 125(max) V. |
| $V_{g1}(\text{min})$ | = | -3    | -3   | -3    | -3 V.       |
| $I_a$                | = | 5,8   | 3,4  | 6,0   | 9,0 mA.     |
| $I_{g2}$             | = | 1,7   | 0,9  | 1,5   | 2,3 mA.     |
| $R_i$                | = | 0,8   | 1,0  | 0,8   | 0,65 M.Ω    |
| $g$                  | = | 285   | 840  | 800   | 730         |
| $S(\text{norm})$     | = | 0,95  | 0,84 | 1,0   | 1,125 mA/V. |
| $V_{g1}(\text{max})$ | = | -17   | -13  | -17   | -21 V.      |
| $R_k$                | = | 2.000 | ∞    | 6.000 | Ω           |
| $C_o$                | = | 9,5   | μμF. |       |             |
| $C_i$                | = | 3,5   | μμF. |       |             |



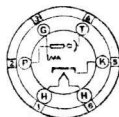
2 E 5

2 E 5

A.I.

|         |   |      |        |     |
|---------|---|------|--------|-----|
| Vf      | = |      | 2,5    | V.  |
| If      | = |      | 0,8    | A.  |
| Va      | = | 100  | 250    | V.  |
| Vs      | = | 100  | 250(1) | V.  |
| Vgl     | = | 0    | 0      | V.  |
| Ia      | = | 0,19 | 0,24   | mA. |
| Is      | = | 4,5  | 4,5    | mA. |
| Vg(min) | = | —3,3 | —8     | V.  |
| Ra      | = | 0,5  | 1      | M.Ω |

(1) min 90 V.



2 E 5



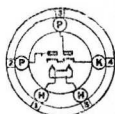
2 S/4 S

DUODIODE  
(d DET)

2 S/4 S

|             |   |      |
|-------------|---|------|
| $V_f$       | = | 2,5  |
| $I_f$       | = | 1,35 |
| $V_a(\max)$ | = | 50   |
| $I_a(\max)$ | = | 40   |

V.  
A.  
V.  
mA.



2,5/4,5

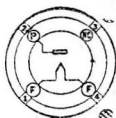
2 Z 2

GELIJKRICHTER  
REDRESSEUSE

2 Z 2

|                          |   |      |
|--------------------------|---|------|
| $V_f$                    | = | 2,5  |
| $I_f$                    | = | 1,50 |
| $V_a(\max \text{ p.pl})$ | = | 350  |
| $I_a$                    | = | 50   |

V.  
A.  
V. ~  
mA.



984/2Z2

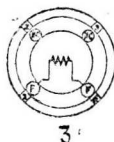
3

3

# STROOMREGULATOR REGULATRICE

|       |   |     |
|-------|---|-----|
| $V_f$ | = | 128 |
| $I_f$ | = | 0,3 |

|    |
|----|
| V. |
| A. |



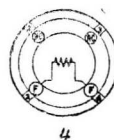
4

4

# STROOMREGULATOR REGULATRICE

|       |   |     |
|-------|---|-----|
| $V_f$ | = | 115 |
| $I_f$ | = | 0,4 |

|    |
|----|
| V. |
| A. |



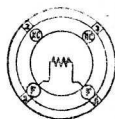
5

# STROOMREGULATOR REGULATRICE

|       |   |      |
|-------|---|------|
| $V_f$ | = | 115  |
| $I_f$ | = | 0,46 |

5

$V.$   
 $A.$



5

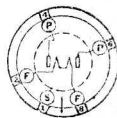
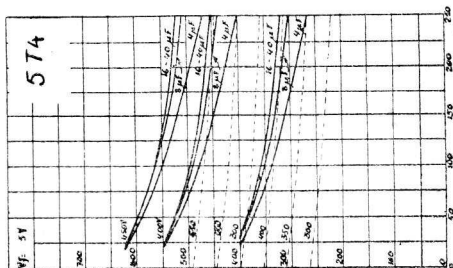
5 T 4

# GELIJKRICHTERLAMP REDRESSEUSE

|             |   |     |
|-------------|---|-----|
| $V_f$       | = | 5,0 |
| $I_f$       | = | 2,0 |
| $V_a(\max)$ | = | 450 |
| $I_a$       | = | 250 |

5 T 4

$V.$   
 $A.$   
 $V. \sim$   
 $mA.$

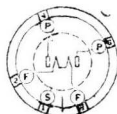


5 T 4

X  
**5 U 4-G**

GELIJKRICHTERLAMP - REDRESSEUSE  
(VAC) (1)

|              |   |      |     |
|--------------|---|------|-----|
| Vf           | = | 5,0  | V.  |
| If           | = | 3,00 | A.  |
| Va(max p pl) | = | 500  | V.~ |
| Ia           | = | 250  | mA. |
| (1) V. 5Z3.  |   |      |     |



5U4-G

**5 U 4-G**

GELIJKRICHTERLAMP  
REDRESSEUSE  
(Hg) (1)

|                 |   |     |     |
|-----------------|---|-----|-----|
| Vf              | = | 5,0 | V.  |
| If              | = | 2,0 | A.  |
| Va(max)         | = | 500 | V.~ |
| Ia(max)         | = | 250 | mA. |
| Iap             | = | 800 | mA. |
| VI              | = | 15  | V.  |
| (1) V. type 80. |   |     |     |



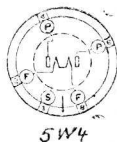
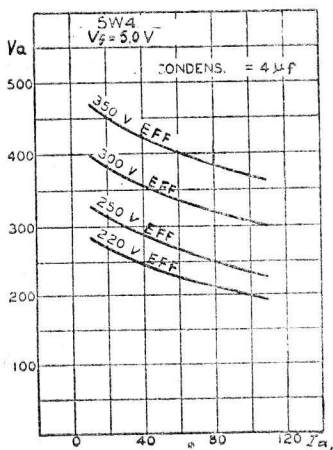
5U4-G

5 W 4

5 W 4

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |                  |
|-------|---|-----|------------------|
| $V_f$ | = | 5,0 | $V.$             |
| $I_f$ | = | 1,5 | $A.$             |
| $V_a$ | = | 350 | $V. \sim (\max)$ |
| $I_a$ | = | 110 | $mA. (\max)$     |



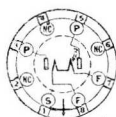
# 5 X 4-G

## GELIJKRICHTER REDRESSEUSE (VAC) (1)

|                         |   |     |
|-------------------------|---|-----|
| $V_f$                   | = | 5,0 |
| $I_f$                   | = | 2,0 |
| $V_a(\text{max p. pl})$ | = | 500 |
| $I_a(\text{max})$       | = | 250 |
| (1) V. type 5 Z 3       |   |     |

# 5 X 4-G

V.  
A.  
V.  $\sim$   
mA.



5X4-G

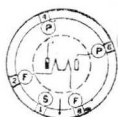
# 5 Y 3-G

## GELIJKRICHTERLAMP REDRESSEUSE (VAC) (1)

|                         |   |     |
|-------------------------|---|-----|
| $V_f$                   | = | 5,0 |
| $I_f$                   | = | 2,0 |
| $V_a(\text{max p. pl})$ | = | 500 |
| $I_a(\text{max})$       | = | 135 |
| (1) V. type 80.         |   |     |

# 5 Y 3-G

V.  
A.  
V.  $\sim$   
mA.



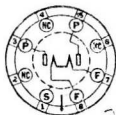
5Y3-G

**5 Y 4-G**

**5 Y 4-G**

**GELIJKRICHTERLAMP  
REDRESSEUSE  
(VAC) (1)**

|                         |   |     |           |
|-------------------------|---|-----|-----------|
| $V_f$                   | = | 5,0 | V.        |
| $I_f$                   | = | 2,0 | A.        |
| $V_a(\text{max p. pl})$ | = | 550 | $V. \sim$ |
| $I_a(\text{max})$       | = | 135 | mA.       |
| (1) V, type 80          |   |     |           |



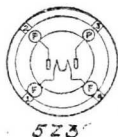
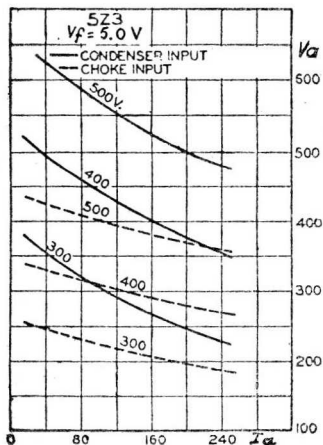
**5 Y 4-G**

5 Z 3

5 Z 3

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |                |
|-------|---|-----|----------------|
| $V_f$ | = | 5,0 | V.             |
| $I_f$ | = | 3,0 | A.             |
| $V_a$ | = | 500 | $V.\sim$ (max) |
| $I_a$ | = | 250 | mA. (max)      |



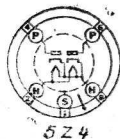
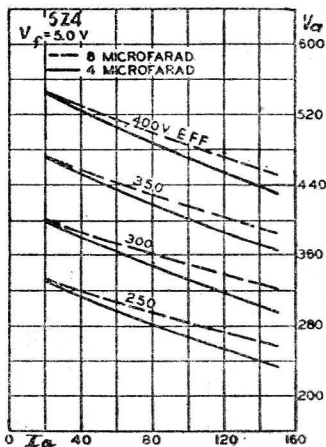


5 Z 4

5 Z 4

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |                 |
|-------|---|-----|-----------------|
| $V_f$ | = | 5,0 | $V.$            |
| $I_f$ | = | 2,0 | A.              |
| $V_a$ | = | 400 | $V. \sim$ (max) |
| $I_a$ | = | 125 | mA. (max)       |



31-12-38

6

6

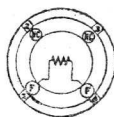
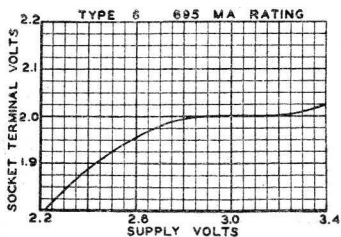
# STROOMREGULATOR REGULATRICE

$V_f$   
 $I_f$

=  
=

1,0  
0,685

V.  
A.



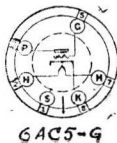
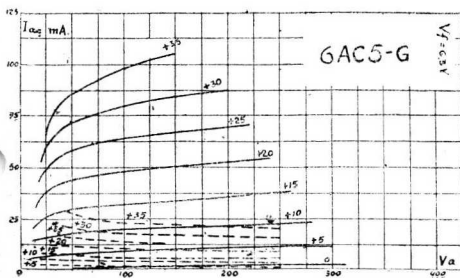
6

# 6 AC 5-G

# 6 AC 5-G

## TRIODE ( $E_{AB}$ )

|                   |   |        |                 |
|-------------------|---|--------|-----------------|
| $V_f$             | = | 6,3    | V.              |
| $i_f$             | = | 0,4    | A.              |
| $V_a(\text{max})$ | = | 250    | V.              |
| $V_g$             | = | +13    | V.              |
| $I_a$             | = | 32     | 2,5(pl) mA.     |
| $g$               | = | 125    |                 |
| $R_i$             | = | 36.700 |                 |
| $S$               | = | 3,4    | mA/V.           |
| $W_o$             | = | 3,7    | 8 $W_{tt}$ .    |
| $R_a$             | = | 7.000  | 10.000 $\Omega$ |



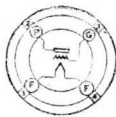
6 A 3

TRIODE  
( $E_{AB}$ )(1)

6 A 3

|       |   |       |       |       |            |
|-------|---|-------|-------|-------|------------|
| $V_f$ | = |       | 6,3   |       | V.         |
| $I_f$ | = |       | 1,0   |       | A.         |
| $V_a$ | = | 250   | 325   | 325   | V.         |
|       |   |       | FB    | SB    |            |
| $V_g$ | = | 45    | 68    |       | V.         |
| $I_a$ | = | 60    | 40    | 40    | mA.        |
| $g$   | = |       |       |       |            |
| $R_i$ | = |       | 4,2   |       | $\Omega$   |
| $S$   | = |       | 800   |       |            |
| $W_o$ | = |       | 5,25  |       | mA/V.      |
| $R_a$ | = | 3,2   | 15    | 10    | $W_{tt}$ . |
| $R_k$ | = | 2.500 | 3.000 | 5.000 | $\Omega$   |
|       | = | 750   |       | 800   | $\Omega$   |

(1) V. type 2 A 3.



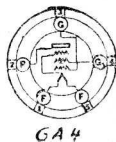
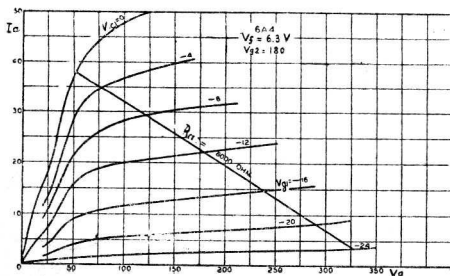
6A3

6 A 4  
6 A 4/LA

6 A 4  
6 A 4/LA

PENTHODE  
(E)

|         |   |        |        |        |        |       |
|---------|---|--------|--------|--------|--------|-------|
| Vf      | = |        |        | 6,3    | V.     |       |
| If      | = |        |        | 0,3    | A.     |       |
| Va(max) | = | 100    | 135    | 165    | 180    | V.    |
| Vg2     | = | 100    | 135    | 165    | 180    | V.    |
| Vg1     | = | —6,5   | —9     | —11    | —12    | V.    |
| Ia      | = | 9      | 14     | 20     | 22     | mA.   |
| Ig2     | = | 1,6    | 2,5    | 3,5    | 3,9    | mA.   |
| g       | = |        |        | 100    |        |       |
| S       | = | 1,2    | 1,9    | 2,1    | 2,2    | mA/V. |
| Wo      | = | 0,31   | 0,7    | 1,2    | 1,4    | Wtt.  |
| Rk      | = | 615    | 545    | 470    | 465    | Ω     |
| Ri      | = | 83.250 | 52.600 | 48.000 | 45.500 | Ω     |
| Ra      | = | 11.000 | 9.500  | 8.000  | 8.000  | Ω     |

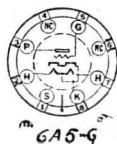


# 6 A 5-G

# 6 A 5-G

## TRIODE ( $E_{AB}$ )

|             |   |       |          |                |
|-------------|---|-------|----------|----------------|
| $V_f$       | = |       | 6,3      | $V.$           |
| $I_f$       | = |       | 1,25     | A.             |
|             |   | FB    | SB       |                |
| $V_a(\max)$ | = | 250   | 325      | $V.$           |
| $V_g$       | = | —45   | —68      | $V.$           |
| $I_a$       | = | 60    | 40(p.pl) | 40 mA.         |
| $g$         | = |       | 4,2      |                |
| $R_i$       | = |       | 800      | $\Omega$       |
| $S$         | = |       | 5,25     | mA/V.          |
| $W_o$       | = | 3,7   | 15       | Wtt.           |
| $R_a$       | = | 3.000 | 3.000    | 7.000 $\Omega$ |





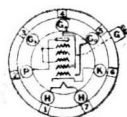
6 A 7  
6 A 7 S

6 A 7  
6 A 7 S

HEPTODE  
(OSC . MOD)

|                      |   |        |                   |
|----------------------|---|--------|-------------------|
| V <sub>f</sub>       | = | 6,3    | V.                |
| I <sub>f</sub>       | = | 0,3    | A.                |
| C <sub>i</sub>       | = | 8,5    | $\mu\mu\text{F.}$ |
| C <sub>o</sub>       | = | 9.0    | $\mu\mu\text{F.}$ |
| V <sub>a</sub>       | = | 100    | 250               |
| V <sub>g3-5</sub>    | = | 50     | 100               |
| V <sub>g2</sub>      | = | 100    | 200               |
| V <sub>g4(min)</sub> | = | -1,5   | -3                |
| R <sub>g1</sub>      | = | 10.000 | 50.000            |
| I <sub>a</sub>       | = | 1,3    | 3,5               |
| I <sub>g3-5</sub>    | = | 2,5    | 2,2               |
| I <sub>g2</sub>      | = | 3,3    | 4,0               |
| I <sub>g1</sub>      | = | 1,2    | 0,7               |
| I <sub>k</sub>       | = | 8,3    | 10,4              |
| R <sub>k</sub>       | = | 150    | 300               |
| R <sub>i</sub>       | = | 0,6    | 0,36              |
| Sc                   | = | 0,35   | 0,52              |
| V <sub>g4(1)</sub>   | = | -20    | -45               |

(1) Sc = 0,002 mA/V.



6A7/S



6 A 8  
6 A 8-G

6 A 8  
6 A 8-G

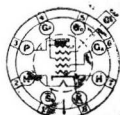
HEPTODE  
(OSC . MOD)

|        |   |              |                   |
|--------|---|--------------|-------------------|
| Vf     | = | 6,3          | V.                |
| If     | = | 0,3          | A.                |
| Ci     | = | 12,5         | $\mu\mu\text{F.}$ |
| Co     | = | 12,5         | $\mu\mu\text{F.}$ |
| Va     | = | 100 250(max) | V.                |
| Vg3-5  | = | 50 100       | V.                |
| Vg2    | = | 100 250(1)   | V.                |
| Vg4    | = | -1,5(min) -3 | V.                |
| Rgl    | = | 50.000       | $\Omega$          |
| Ia     | = | 1,2 3,3      | mA.               |
| Ig3-5  | = | 1,5 3,2      | mA.               |
| Ig2    | = | 1,6 4,0      | mA.               |
| Igl    | = | 0,25 0,5     | mA.               |
| Ri     | = | 0,6 0,36     | M. $\Omega$       |
| Sc     | = | 0,35 0,5     | mA/V.             |
| Vg4(2) | = | -20(min) -45 | V.                |
| Rk     | = | 300 300      | $\Omega$          |

(1) over  $R=20.000 \Omega$  en  $0,1 \mu\text{F}$  condensator.

(1) à travers  $R=20.000 \Omega$  et  $0,1 \mu\text{F}$ .

(2)  $Sc = 0,002 \text{ mA/V}$ .



6 A 8

# 6 B 4-G

# 6 B 4-G

## TRIODE ( $E_{AB}$ )

|       |   |       |       |       |            |
|-------|---|-------|-------|-------|------------|
| $V_f$ | = |       | 6,3   |       | V.         |
| $I_f$ | = |       | 1,0   |       | A.         |
| $V_a$ | = | 250   | 325   | 325   | V.         |
|       |   |       | FB    | SB    |            |
| $V_g$ | = | 45    | -68   |       | V.         |
| $I_a$ | = | 60    | 40    | 40    | mA.        |
| $g$   | = |       | 4,2   |       |            |
| $R_i$ | = |       | 800   |       | $\Omega$   |
| $S$   | = |       | 5,25  |       | mA/V.      |
| $W_o$ | = | 3,2   | 15    | 10    | $W_{tt}$ . |
| $R_a$ | = | 2.500 | 3.000 | 5.000 | $\Omega$   |
| $R_k$ | = | 750   |       | 800   | $\Omega$   |

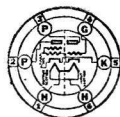


**6B5****6B5**

# DUOTRIODE (1) (E)

|         |   |       |        |          |
|---------|---|-------|--------|----------|
| Vf      | = | 6,3   | V.     |          |
| If      | = | 0,8   | A.     |          |
|         |   | Input | Output |          |
| Va(max) | = | 300   | 300    | V.       |
| Vg      | = | 0     | 0      | V.       |
| la      | = | 9     | 42     | mA.      |
| g       | = |       | 58     |          |
| Ri      | = |       | 2.400  | $\Omega$ |
| S       | = |       | 2,4    | mA/V.    |
| Wo      | = |       | 4      | Wtt.     |
| Ra      | = |       | 7.000  | $\Omega$ |

(1) Triode - Tetrode.

**6B5**

31-12-38

**6 B 6-G****6 B 6-G**

DUO - DIODETRIODE  
(D.det + LF)

|    |   |        |          |
|----|---|--------|----------|
| Vf | = | 6,3    | V.       |
| If | = | 0,3    | A.       |
| Va | = | 250    | V.       |
| Vg | = | —2     | V.       |
| g  | = | 100    |          |
| Ri | = | 91.000 | $\Omega$ |
| S  | = | 1,1    | mA/V.    |
| la | = | 1      | mA.      |



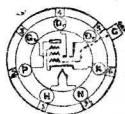
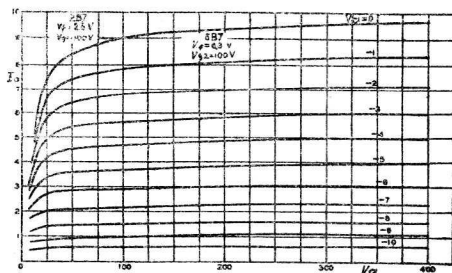
**6B7**  
**6B7-S**

**6B7**  
**6B7-S**

**DUOTRIODE - PENTHODE**  
(1 DET + LF<sub>w</sub>) (1)

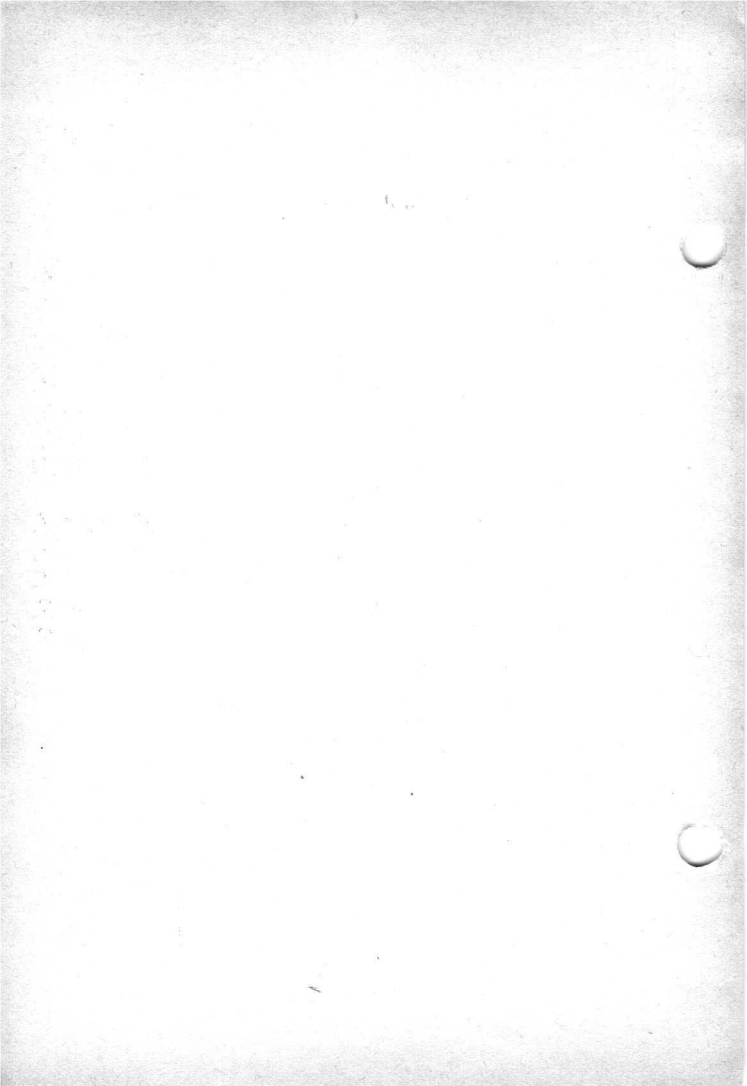
|                       |   |       |                  |       |
|-----------------------|---|-------|------------------|-------|
| V <sub>f</sub>        | = |       | 6,3              | V.    |
| I <sub>f</sub>        | = |       | 0,3              | A.    |
| V <sub>a</sub>        | = | 100   | 180 250 250(max) | V.    |
| V <sub>g2</sub>       | = | 100   | 75 100 125(max)  | V.    |
| V <sub>g1</sub> (min) | = | -3    | -3 -3 -3         | V.    |
| I <sub>a</sub>        | = | 5,8   | 3,4 6,0 9,0      | mA.   |
| I <sub>g2</sub>       | = | 1,7   | 0,9 1,5 2,3      | mA.   |
| R <sub>i</sub>        | = | 0,8   | 1,0 0,8 0,65     | M.Ω   |
| g                     | = | 285   | 840 800 730      |       |
| S(norm)               | = | 0,95  | 0,84 1,0 1,125   | mA/V. |
| V <sub>g1</sub> (max) | = | -17   | -13 -17 -21      | V.    |
| R <sub>k</sub>        | = | 2.000 | à 6.000          | Ω     |
| C <sub>o</sub>        | = | 9,5   |                  | μμF.  |
| C <sub>i</sub>        | = | 3,5   |                  | μμF.  |

(1) V. type 2B7.



2B7/S

31-12-38



**6 B 8**  
**6 B 8-G**

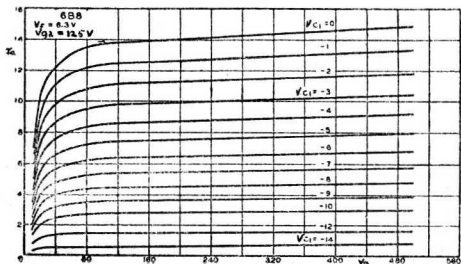
**DUODIODE - PENTHODE**  
(HF - MF - d DET - LF)

**6 B 8**  
**6 B 8-G**

|                      |   |              |       |
|----------------------|---|--------------|-------|
| V <sub>f</sub>       | = | 6,3          | V.    |
| I <sub>f</sub>       | = | 0,3          | A.    |
| V <sub>a</sub> (max) | = | 250          | V.    |
| V <sub>g2</sub>      | = | 125          | V.    |
| V <sub>g1</sub>      | = | —3           | V.    |
| I <sub>a</sub>       | = | 10           | mA.   |
| I <sub>g2</sub>      | = | 2,3          | mA.   |
| g                    | = | 800          |       |
| R <sub>i</sub>       | = | 0,6          | M.Ω   |
| S                    | = | 1,325        | mA/V. |
| V <sub>gco</sub>     | = | —21          | V.    |
| R <sub>k</sub>       | = | 250 - 10.000 | Ω(1)  |
| C <sub>i</sub>       | = | 6            | μμF.  |
| C <sub>o</sub>       | = | 9            | μμF.  |

(1) Volgens de functie der lamp.

Suivant la fonction de la lampe.

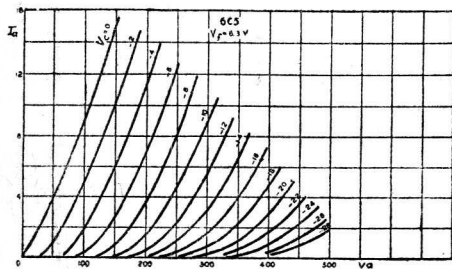


**6C5**  
**6C5-G**

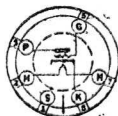
**6C5**  
**6C5-G**

TRIODE  
(HF - MF - OSC - DET - LF<sub>TW</sub>)

|                      |   |        |             |
|----------------------|---|--------|-------------|
| V <sub>f</sub>       | = | 6,3    | V.          |
| I <sub>f</sub>       | = | 0,3    | A.          |
|                      |   | TR     | W           |
| V <sub>a</sub> (max) | = | 250    | 250         |
| V <sub>g</sub>       | = | —8     | —5          |
| g                    | = | 20     | 14          |
| R <sub>i</sub>       | = | 10.000 | Ω           |
| S                    | = | 2      | mA/V.       |
| R <sub>k</sub>       | = | 1.000  | 2.500/3.500 |
| C <sub>i</sub>       | = | 4      | μμF.        |
| C <sub>o</sub>       | = | 13     | μμF.        |



**6C5**



**6C5-G**



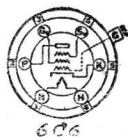
6 C 6

6 C 6

# PENTHODE (A. DET - LF<sub>w</sub>)

|                   |   |                |             |
|-------------------|---|----------------|-------------|
| V <sub>f</sub>    | = | 6,3            | V.          |
| I <sub>f</sub>    | = | 0,3            | A.          |
| V <sub>a</sub>    | = | 100            | 250(max) V. |
| V <sub>g3</sub>   | = | V <sub>c</sub> |             |
| V <sub>g2</sub>   | = | 100            | 100(1) V.   |
| V <sub>g1</sub>   | = | —3             | —3 V.       |
| I <sub>a</sub>    | = | 2              | 2 mA.       |
| I <sub>g2</sub>   | = | 0,5            | 0,5 mA.     |
| g                 | = | 1.185          | >1.500      |
| R <sub>i</sub>    | = | 1,0            | >1,5 M.Ω    |
| S                 | = | 1,185          | 1,225 mA/V. |
| C <sub>i</sub>    | = | 7              | μμF.        |
| C <sub>o</sub>    | = | 12             | μμF.        |
| V <sub>g1co</sub> | = | —7             | —7 V.       |
| R <sub>k</sub>    | = | 3.500          | 3.500 Ω     |

(1) max 125 V



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6 C 6

6 C 6

## A . DET

|                 |        |        |       |        |     |
|-----------------|--------|--------|-------|--------|-----|
| V <sub>a</sub>  | 100    | 100    | 250   | 250    | V.  |
| V <sub>g2</sub> | 12     | 30     | 50    | 100    | V.  |
| V <sub>g1</sub> | -1,16  | -1,83  | -2    | -43    | V.  |
| R <sub>k</sub>  | 18.000 | 10.000 | 3.000 | 10.000 | Ω   |
| I <sub>k</sub>  | 0,63   | 0,183  | 0,65  | 0,43   | mA. |
| R <sub>p</sub>  | 1,0    | 0,25   | 0,25  | 0,5    | M.Ω |
| C <sub>pg</sub> | 0,01   | 0,01   | 0,25  | 0,25   | μF. |
| R <sub>g</sub>  | 1,0    | 0,5    | 0,25  | 0,25   | M.Ω |
| HFS(1)          | 1,05   | 1,6    | 1,18  | 1,37   | V.  |

(1) Deze spanningen op 20 % gemoduleerd geven 17V. output sp. (voldoende om een 6 F 6 vol uit te sturen).

Ces tensions, modulés à 20 % donnent une tension de sortie de 17 V. suffisante pour alimenter une 6 F 6.

**6 C 7****6 C 7**

DUODIODE - TRIODE  
(d DET - LF)

|                   |   |        |          |
|-------------------|---|--------|----------|
| $V_f$             | = | 6,3    | V.       |
| $I_f$             | = | 0,3    | A.       |
| $V_a(\text{max})$ | = | 250    | V.       |
| $V_g$             | = | —9     | V.       |
| $I_a$             | = | 4,5    | mA.      |
| $g$               | = | 20     |          |
| $R_i$             | = | 16.000 | $\Omega$ |
| $S$               | = | 1,25   | mA/V.    |
| $R_k$             | = | 2.000  | $\Omega$ |



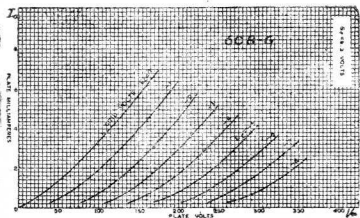
31-12-38

# 6C8-G

# 6C8-G

## DUOTRIODE (LF - Inv.)

|                   |   |        |                   |
|-------------------|---|--------|-------------------|
| $V_f$             | = | 6,3    | V.                |
| $I_f$             | = | 0,3    | A.                |
|                   |   | LF     | Inv.              |
| $V_a(\text{max})$ | = | 250    | 250               |
| $V_g$             | = | -4,5   | -3                |
| $I_a$             | = | 3,1    | mA.               |
| $g$               | = | 38     | 45                |
| $R_i$             | = | 26.000 | $\Omega$          |
| $S$               | = | 1,45   | mA/V.             |
| $V_o$             | = | 60     | $V_{\text{eff.}}$ |
| $R_a$             | = | 50.000 | $\Omega$          |
| $R_k$             | = | 900    | $\Omega$          |



**6D5**

TRIODE  
( $E_{AB}$ )

**6D5**

|                   |   |       |            |            |
|-------------------|---|-------|------------|------------|
| $V_f$             | = |       | 6,3        | V.         |
| $I_f$             | = |       | 0,7        | A.         |
|                   |   | A     | B          |            |
| $V_a(\text{max})$ | = | 275   | 300        | V.         |
| $V_g$             | = | —40   | —50        | V.         |
| $I_a$             | = | 31    | 23(p.l)    | mA.        |
| $g$               | = | 4,7   |            |            |
| $R_i$             | = | 2.250 |            | $\Omega$   |
| $S$               | = | 2,1   |            | mA/V.      |
| $W_o$             | = | 1,4   | 5,0        | $W_{tt}$ . |
| $R_a$             | = | 7.200 | 5.000(p.p) | $\Omega$   |
| $R_k$             | = | 1.300 |            | $\Omega$   |

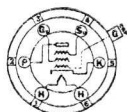
**6D5**

6 D 6

# PENTHODE (HF - MF)

6 D 6

|                      |   |       |          |                   |
|----------------------|---|-------|----------|-------------------|
| $V_f$                | = |       | 6,3      | V.                |
| $I_f$                | = |       | 0,3      | A.                |
| $V_a$                | = | 100   | 250(max) | V.                |
| $V_{g2}$             | = | 100   | 100(max) | V.                |
| $V_{g1}(\text{min})$ | = | —3    | —3       | V.                |
| $I_a$                | = | 8     | 8,2      | mA.               |
| $I_{g2}$             | = | 2,2   | 2,0      | mA.               |
| $g$                  | = | 375   | 1.280    |                   |
| $R_i$                | = | 0,25  | 0,8      | M.Ω               |
| $S(\text{max})$      | = | 1.500 | 1.600    | mA/V.             |
| $C_i$                | = |       | 4,7      | $\mu\mu\text{F.}$ |
| $C_o$                | = |       | 6,5      | $\mu\mu\text{F.}$ |
| $R_k$                | = | 400   | 400      | Ω                 |



6 D 6

6 D 7

6 D 7

# PENTHODE (A . DET - LF<sub>w</sub>)(1)

(1) V. type 6 C 6.

6 D 8-G

6 D 8-G

# HEPTODE (OSC . MOD)

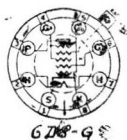
|                   |   |               |       |
|-------------------|---|---------------|-------|
| V <sub>f</sub>    | = | 6,3           | V.    |
| I <sub>f</sub>    | = | 0,15          | A.    |
| V <sub>a</sub>    | = | 100 250       | V.    |
| V <sub>g3-5</sub> | = | 50 100        | V.    |
| V <sub>g</sub>    | = | -1,5 -3       | V.    |
| I <sub>a</sub>    | = | 1,0 3,0       | mA.   |
| I <sub>g3-5</sub> | = | 1,7 3,8       | mA.   |
| R <sub>i</sub>    | = | 0,55 0,32     | M.Ω   |
| S                 | = | 0,3(1) 0,5(2) | mA/V. |
| R <sub>k</sub>    | = | 300 300       | Ω     |

$$(1) V_{g_{3-5}} = 100 \text{ V}$$

$$I_{g_{3-5}} = 1,8 \text{ mA.}$$

$$(2) G_{g_{3-5}} = 200 \text{ V}$$

$$I_{g_{3-5}} = 4,5 \text{ mA.}$$



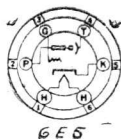
6E5

(Al)

6E5

|                      |   |      |        |     |
|----------------------|---|------|--------|-----|
| V <sub>f</sub>       | = |      | 6,3    | V.  |
| I <sub>f</sub>       | = |      | 0,3    | A.  |
| V <sub>f</sub>       | = |      | 2,5    | V.  |
| I <sub>f</sub>       | = |      | 0,8    | A.  |
| V <sub>a</sub>       | = | 100  | 250    | V.  |
| V <sub>s</sub>       | = | 100  | 250(1) | V.  |
| V <sub>gl</sub>      | = | 0    | 0      | V.  |
| I <sub>a</sub>       | = | 0,19 | 0,24   | mA. |
| I <sub>s</sub>       | = | 4,5  | 4,5    | mA. |
| V <sub>g</sub> (min) | = | -3,3 | -8     | V.  |
| R <sub>a</sub>       | = | 0,5  | 1      | M.Ω |

(1) min 90 V.



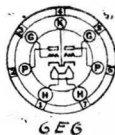


**6 E 6****6 E 6**

# DUOTRIODE ( $E_{AB}$ )

|       |   |        |                 |
|-------|---|--------|-----------------|
| Vf    | = | 6,3    | V.              |
| If    | = | 0,6    | A.              |
| Va    | = | 180    | 250(max) V.     |
| Vg    | = | —20    | —27,5 V.        |
| Ia(1) | = | 23     | 36 mA.          |
| g     | = | 6,0    | 6,0             |
| Ri    | = | 8.600  | 7.000 $\Omega$  |
| S     | = | 2,8    | 3,4 mA/V.       |
| Wo    | = | 0,75   | 1,6 Wtt.        |
| Ra    | = | 15.000 | 14.000 $\Omega$ |
| Rk    | = | 850    | 750 $\Omega$    |

(1) Voor de twee Triodes. Pour les deux Triodes.

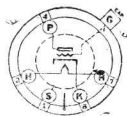
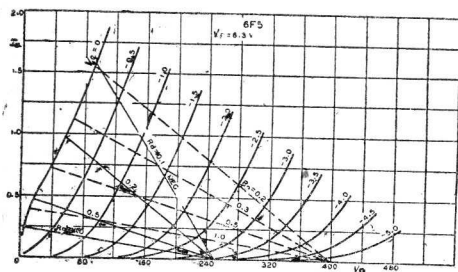


**6F5**  
**6F5-G**

**6F5**  
**6F5-G**

TRIODE  
(LF<sub>w</sub>)

|                      |   |                |       |
|----------------------|---|----------------|-------|
| V <sub>f</sub>       | = | 6,3            | V.    |
| I <sub>f</sub>       | ≈ | 0,3            | A.    |
| V <sub>a</sub> (max) | = | 250            | V.    |
| V <sub>g</sub>       | = | —2             | V.    |
| I <sub>a</sub>       | ≈ | 0,9            | mA.   |
| g                    | = | 100            |       |
| R <sub>i</sub>       | = | 66.000         | Ω     |
| S                    | = | 1,5            | mA/V. |
| C <sub>i</sub>       | ≈ | 6              | μμF.  |
| C <sub>o</sub>       | = | 12             | μμF.  |
| R <sub>k</sub>       | = | 1.300 — 14.700 | Ω     |



6F5-G



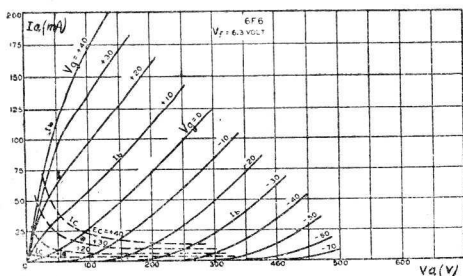
6F5

6F6  
6F6-G

6F6  
6F6-G

PENTHODE  
( $E_{AB}$ )

|                  |   |        |                 |
|------------------|---|--------|-----------------|
| $V_f$            | = | 6,3    | V.              |
| $I_f$            | = | 0,7    | A.              |
| $E_A$ - PENTHODE |   |        |                 |
| $V_a$            | = | 250    | 315(max) V.     |
| $V_{g2}$         | = | 250    | 315(max) V.     |
| $V_{g1}$         | = | -16,5  | -22 V.          |
| $I_a$            | = | 34     | 42 mA.          |
| $I_{g2}$         | = | 6,5    | 8,0 mA.         |
| $R_i$            | = | 80.000 | 75.000 $\Omega$ |
| $g$              | = | 200    | 200             |
| $S$              | = | 2,5    | 2,65 mA/V.      |
| $R_a$            | = | 7.000  | 7.000 $\Omega$  |
| $W_o(7\%)$       | = | 3      | 5 Wtt.          |
| $R_k$            | = | 400    | 400 $\Omega$    |



**6 F 6**  
**6 F 6-G**

**6 F 6**  
**6 F 6-G**

$E_A$  - TRIODE

|            |   |       |           |
|------------|---|-------|-----------|
| $V_a$      | = | 250   | $V.$      |
| $V_{g1}$   | = | -20   | $V.$      |
| $I_a$      | = | 31    | mA.       |
| $R_i$      | = | 2.600 | $\Omega$  |
| $g$        | = | 7     |           |
| $S$        | = | 2,7   | mA/V.     |
| $R_a$      | = | 4.000 | $\Omega$  |
| $W_o(5\%)$ | = | 0,85  | $W_{tt.}$ |
| $R_k$      | = | 650   | $\Omega$  |

$E_{AB}$  - PENTHODE

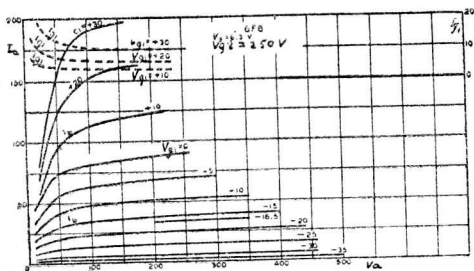
|               |   | FB       | SB       |           |
|---------------|---|----------|----------|-----------|
| $V_a(max)$    | = | 375      | 375      | $V.$      |
| $V_{g2}(max)$ | = | 250      | 250      | $V.$      |
| $V_{g1}$      | = | -26(min) |          | $V.$      |
| $R_k$         | = |          | 340(min) | $\Omega$  |
| $I_a$         | = | 34       | 54       | mA.       |
| $I_{g2}$      | = | 5        | 8        | mA.       |
| $R_a(pl)$     | = | 2.500    | 2.500    | $\Omega$  |
| $R_a(p.p)$    | = | 10.000   | 10.000   | $\Omega$  |
| $W_o(5\%)$    | = | 19       | 19       | $W_{tt.}$ |

6F6  
6F6-G

6F6  
6F6-G

$E_{AB}$  - TRIODE

|                   |   | FB    | SB     |                      |
|-------------------|---|-------|--------|----------------------|
| $V_a(\text{max})$ | = | 350   | 350    | V.                   |
| $V_{g1}$          | = | —38   | —      | V.                   |
| $R_k$             | = | —     | 730    | $\Omega(\text{min})$ |
| $I_a$             | = | 45    | 50     | mA.                  |
| $R_a(\text{pl})$  | = | 1.500 | 2.500  | $\Omega$             |
| $R_a(\text{pp})$  | = | 6.000 | 10.000 | $\Omega$             |
| $W_o(7\%)$        | = | 18    | 14     | Wtt.                 |



**6F7**  
**6F7-S**

**6F7**  
**6F7-S**

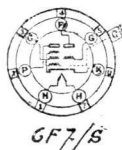
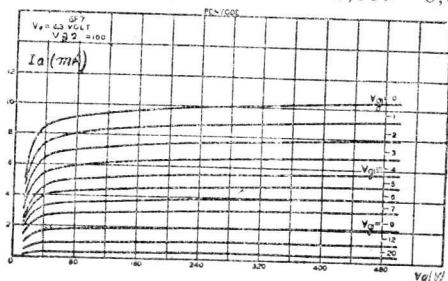
TRIODE - PENTHODE  
(HF - MF - OSC. MOD)

|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 6,3 | V. |
| $I_f$ | = | 0,3 | A. |

|       |   |        |          |             |
|-------|---|--------|----------|-------------|
|       |   | TRIODE | PENTHODE |             |
| $C_i$ | = | 2,5    | 3,2      | $\mu\mu F.$ |
| $C_o$ | = | 3,0    | 12,5     | $\mu\mu F.$ |

HF - MF

|                    |   |          |              |            |
|--------------------|---|----------|--------------|------------|
|                    |   | TRIODE   | PENTHODE     |            |
| $V_a$              | = | 100(max) | 100 250(max) | V.         |
| $V_{g2}$           | = | —        | 100 100(max) | V.         |
| $V_{g1}$           | = | —3(min)  | —3 —3(min)   | V.         |
| $I_a$              | = | 3,5      | 6,3 6,5      | mA.        |
| $I_{g2}$           | = | —        | 1,6 1,5      | mA.        |
| $g$                | = | 8        | 300 900      |            |
| $R_i$              | = | 16       | 290 850      | k $\Omega$ |
| $S$                | = | 0,5      | 1,05 1,1     | mA/V.      |
| $S(v_{g1} = -35V)$ | = |          | 0,009 0,01   | mA/V.      |



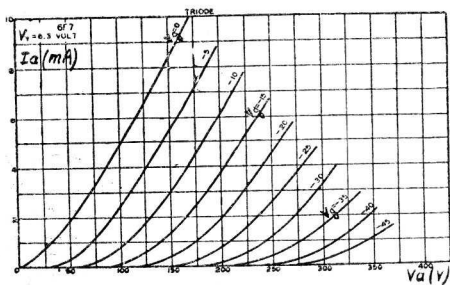
6F7  
6F7-S

6F7  
6F7-S

(OSC. MOD)

TRIODE PENTHODE

|          |   |        |       |          |
|----------|---|--------|-------|----------|
| $V_a$    | = | 100    | 250   | V.       |
| $V_{g2}$ | = | —      | 100   | V.       |
| $V_{g1}$ | = | —      | —10   | V.       |
| $I_g$    | = | 0,15   | 0     | mA.      |
| $I_a$    | = | 2,4(1) | 2,8   | mA.      |
| $I_{g2}$ | = | —      | 0,6   | mA.      |
| $R_i$    | = | —      | 2,0   | $\Omega$ |
| $R_k$    | = | —      | 1,700 | $\Omega$ |
| $Sc$     | = | —      | 0,3   | mA/V.    |

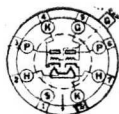


**6F8-G**

# DUOTRIODE (LF - Inv.)

**6F8-G**

|                      |   |       |        |                   |
|----------------------|---|-------|--------|-------------------|
| Vf                   | = |       | 6,3    | V.                |
| If                   | = |       | 0,6    | A.                |
|                      |   | LF    | Inv.   |                   |
| V <sub>a</sub> (max) | = | 250   | 250    | V.                |
| V <sub>g</sub>       | = | —8    | —5,5   | V.                |
| I <sub>a</sub>       | = | 9,0   |        | mA.               |
| g                    | = | 20    | 29     |                   |
| R <sub>i</sub>       | = | 7.700 |        | Ω                 |
| S                    | = | 2,6   |        | mA/V.             |
| V <sub>o</sub>       | = |       | 65     | V <sub>eff.</sub> |
| R <sub>a</sub>       | = |       | 50.000 | Ω                 |
| R <sub>k</sub>       | = |       | 1.150  | Ω                 |

**6F8-G**



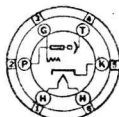
**6 G 5**

**6 G 5**

(A. I.)

V. 6 E 5

31-12-38



**6 G 5**

6 G 6 G

6 G 6 G

PENTHODE  
(E<sub>A</sub>)

|                 |   |        |                  |
|-----------------|---|--------|------------------|
| V <sub>f</sub>  | = | 6,3    | V.               |
| I <sub>f</sub>  | = | 0,15   | A.               |
| V <sub>a</sub>  | = | 180    | V.               |
| V <sub>g2</sub> | = | 180    | V.               |
| V <sub>g1</sub> | = | —9     | V.               |
| I <sub>a</sub>  | = | 15     | mA.              |
| R <sub>i</sub>  | = | 0,175  | M.Ω              |
| S               | = | 2,3    | mA/V.            |
| g               | = | 400    |                  |
| R <sub>a</sub>  | = | 10.000 | Ω                |
| R <sub>k</sub>  | = | 510    | Ω                |
| W <sub>o</sub>  | = | 1,1    | W <sub>tt.</sub> |
| d% (tot)        | = | 10     | %                |

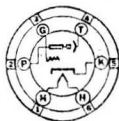


**6 G 5**

(Al)

V. 6E5

**6 G 5**



**6 H 6**  
**6 H 6-G**

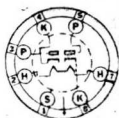
DUODIODE  
(d DET)

**6 H 6**  
**6 H 6-G**

$V_f$  =  
 $I_f$  =  
 $V_a(\text{max})$  =  
 $I_a$  =  
 $C_{p-p}$

6,3  
0,3  
100  
4(max)  
<0,02

V.  
A.  
V.  
mA.  
 $\mu\text{F.}$

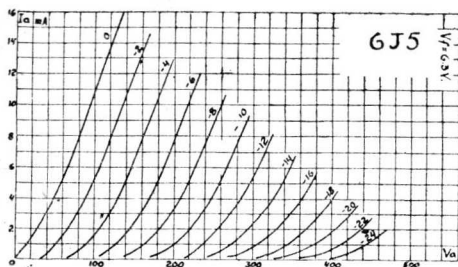


**6J5**  
**6J5-G**

TRIODE  
(LF)

**6J5**  
**6J5-G**

|              |   |       |          |
|--------------|---|-------|----------|
| $V_f$        | = | 6,3   | V.       |
| $I_f$        | = | 0,3   | A.       |
| $V_{a(max)}$ | = | 250   | V.       |
| $V_g$        | = | —8    | V.       |
| $I_a$        | = | 9     | mA.      |
| $g$          | = | 20    |          |
| $R_i$        | = | 7.700 | $\Omega$ |
| $S$          | = | 2,6   | mA/V.    |
| $R_k$        | = | 900   | $\Omega$ |



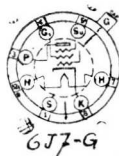
**6J7**  
**6J7-G**

**6J7**  
**6J7-G**

PENTHODE  
(A DET - LF<sub>w</sub>)

|                 |   |       |       |
|-----------------|---|-------|-------|
| V <sub>f</sub>  | = | 6,3   | V.    |
| I <sub>f</sub>  | = | 0,3   | A.    |
| V <sub>a</sub>  | = | 250   | 250   |
| V <sub>g1</sub> | = | 3,0   | 4,3   |
| V <sub>g2</sub> | = | 100   | 100   |
| I <sub>a</sub>  | = | 2(1)  | mA.   |
| I <sub>g2</sub> | = | 0,5   | mA.   |
| R <sub>i</sub>  | = | 1,5   | M.Ω   |
| S               | = | 0,122 | mA/V. |
| g               | = | 1.500 |       |

(1) Ajust. I<sub>a</sub> = 0,1 mA. zonder sein - sans signal.

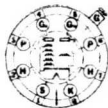


# 6J8-G

## HEPTODE - TRIODE (OSC. MOD)

# 6J8-G

|                      |   |      |      |       |
|----------------------|---|------|------|-------|
| V <sub>f</sub>       | = |      | 6,3  | V.    |
| I <sub>f</sub>       | = |      | 0,3  | A.    |
| V <sub>a</sub>       | = | 100  | 250  | V.    |
| V <sub>sg(max)</sub> | = | 100  | 100  | V.    |
| V <sub>g</sub>       | = | —3   | —3   | V.    |
| I <sub>a</sub>       | = | 1,4  | 1,3  | mA.   |
| V <sub>a(osc)</sub>  | = | 100  | 250  | V.    |
| I <sub>sg</sub>      | = | 3,0  | 2,9  | mA.   |
| I <sub>a(osc)</sub>  | = | 3,0  | 5,0  | mA.   |
| I <sub>g(osc)</sub>  | = | 0,3  | 0,4  | mA.   |
| V <sub>g(osc)</sub>  | = | —20  | —20  | V.    |
| R <sub>i</sub>       | = | 0,9  | 4,0  | M.Ω   |
| Sc                   | = | 0,25 | 0,29 | mA/V. |
| R <sub>g(osc)</sub>  | = | 50   | 50   | kΩ    |



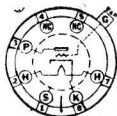
6J8-G

# 6 K 5-G

# 6 K 5-G

## TRIODE (HF)

|       |   |        |                 |
|-------|---|--------|-----------------|
| $V_f$ | = | 6,3    | V.              |
| $I_f$ | = | 0,3    | A.              |
| $V_a$ | = | 100    | 250 (max) V.    |
| $V_g$ | = | -1,5   | -3 V.           |
| $I_a$ | = | 0,35   | 1,1 mA.         |
| $g$   | = | 70     | 70              |
| $R_i$ | = | 78.000 | 50.000 $\Omega$ |
| $S$   | = | 0,9    | 1,4 mA/V.       |



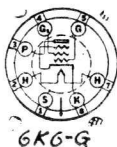
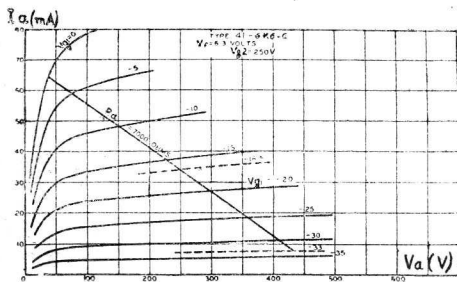
6K5-G

# 6 K 6-G

## PENTHODE (E)

# 6 K 6-G

|         |   |       |      |       |          |       |
|---------|---|-------|------|-------|----------|-------|
| Vf      | = |       |      | 6,3   | V.       |       |
| If      | = |       |      | 0,3   | A.       |       |
| Va      | = | 100   | 135  | 180   | 250(max) | V.    |
| Vg2     | = | 100   | 135  | 180   | 250(max) | V.    |
| Vg      | = | —7    | —10  | —13,5 | —18      | V.    |
| Ia      | = | 9,0   | 12,5 | 18,5  | 32       | mA.   |
| Ig2     | = | 1,6   | 2,2  | 3,0   | 5,5      | mA.   |
| g       | = | 150   | 150  | 150   | 150      |       |
| Ri      | = | 103,5 | 94   | 81    | 68       | kΩ    |
| S       | = | 1,45  | 1,6  | 1,85  | 2,2      | mA/V. |
| Wo(10%) | = | 0,33  | 0,75 | 1,5   | 3,4      | Wtt.  |
| Ra      | = | 12,0  | 10,4 | 9,0   | 7,6      | kΩ    |
| Rk      | = | 660   | 680  | 630   | 480      | Ω     |





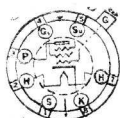
**6 K 7**  
**6 K 7-G**

**6 K 7**  
**6 K 7-G**

**PENTHODE**  
(HF - MF) (1)

|                   |   |       |              |       |
|-------------------|---|-------|--------------|-------|
| Vf                | = |       | 6,3          | V.    |
| If                | = |       | 0,3          | A.    |
| Va                | = | 90    | 180 250(max) | V.    |
| Vg3               | = | 0     | 0 0          | V.    |
| Vg2               | = | 90    | 75 125(max)  | V.    |
| Vgl (min)         | = | —3    | —3 —3        | V.    |
| Vgl (S=0,002mA/V) | = | —38,5 | —32,5 —52,5  | V.    |
| Ia                | = | 5,4   | 4,0 10,5     | mA.   |
| Ig2               | = | 1,3   | 1,0 2,6      | mA.   |
| g                 | = | 400   | 1.100 900    |       |
| Ri                | = | 0,315 | 1,0 0,6      | M.Ω   |
| Rk                | = | 450   | 600 250      | Ω     |
| S                 | = | 1,27  | 1,1 1,65     | mA/V. |
| Ci                | = |       | 7            | μμF.  |
| Co                | = |       | 12           | μμF.  |

(1) V. type 78.



**6K7 (G)**

6 K 8

# TRIODE - HEXODE (OSC . MOD)

6 K 8

|                     |   |       |       |       |
|---------------------|---|-------|-------|-------|
| V <sub>f</sub>      | = |       | 6,3   | V.    |
| I <sub>f</sub>      | = |       | 0,3   | A.    |
| V <sub>a(hex)</sub> | = | 100   | 250   | V.    |
| V <sub>sg</sub>     | = | 100   | 100   | V.    |
| V <sub>g</sub>      | = | —3—30 | —3—30 | V.    |
| V <sub>a(tri)</sub> | = | 100   | 100   | V.    |
| I <sub>a(hex)</sub> | = | 2,3   | 2,7   | mA.   |
| I <sub>sg</sub>     | = | 6,9   | 6,5   | mA.   |
| I <sub>a(tri)</sub> | = | 3,5   | 3,5   | mA.   |
| R <sub>i(hex)</sub> | = | 0,3   | 0,6   | M.Ω   |
| S <sub>c</sub>      | = | 0,36  | 0,4   | mA/V. |



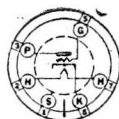
6K8

# 6 L 5-G

# 6 L 5-G

TRIODE  
(HF - DET)

|    |   |        |          |          |
|----|---|--------|----------|----------|
| Vf | = |        | 6,3      | V.       |
| If | = |        | 0,15     | A.       |
| Va | = | 100    | 250(max) | V.       |
| Vg | = | —3     | —9       | V.       |
| Ia | = | 4      | 8        | mA.      |
| g  | = | 15     | 17       |          |
| Ri | = | 10.000 | 9.000    | $\Omega$ |
| S  | = | 1,5    | 1,9      | mA/V.    |
| Rk | = | 750    | 1.125    | $\Omega$ |



6L5-G

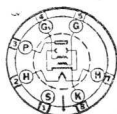
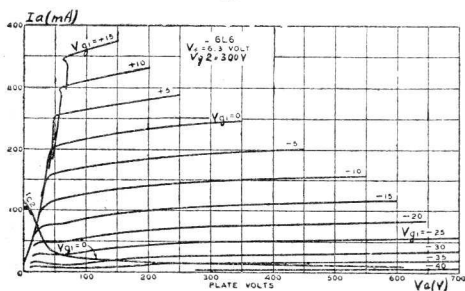
6L6  
6L6-G

6L6  
6L6-G

# BEAM POWER TETRODE E<sub>A</sub> - SB

|                |   |     |    |
|----------------|---|-----|----|
| V <sub>f</sub> | = | 6,3 | V. |
| I <sub>f</sub> | = | 0,9 | A. |

|                      |   |                    |         |       |                  |
|----------------------|---|--------------------|---------|-------|------------------|
|                      |   | E <sub>A</sub> -SB |         |       |                  |
| V <sub>a</sub>       | = | 375                | 250     | 300   | V.               |
| V <sub>g2</sub>      | = | 125                | 250     | 200   | V.               |
| R <sub>k</sub>       | = | 325                | 170     | 220   | Ω                |
| I <sub>a</sub>       | = | 24                 | 76      | 53    | mA.              |
| I <sub>g2</sub>      | = | 0,7-1,8            | 5,4-7,2 | 3-4,6 | mA.              |
| R <sub>a</sub>       | = | 14.000             | 2.500   | 4.500 | Ω                |
| d% (tot)             | = | 9                  | 10      | 11    |                  |
| W <sub>o</sub> (max) | = | 4                  | 6,5     | 6,5   | W <sub>tt.</sub> |
| R <sub>k</sub>       | = | 365                | 170     | 220   | Ω                |



6L6(G)

6 L 6  
6 L 6-G

6 L 6  
6 L 6-G

$E_A$  - FB

|          |   |        |       |         |       |          |
|----------|---|--------|-------|---------|-------|----------|
| Va       | = | 375    | 250   | 300     | 375   | V.       |
| Vg2      | = | 125    | 250   | 200     | 250   | V.       |
| Vg1      | = | —9     | —14   | —12,5   | —17,5 | V.       |
| Ia       | = | 25     | 75    | 52      | 62    | mA.      |
| Ig2      | = | 0,7-2  | 5-7,3 | 2,5-4,7 | 2,5-6 | mA.      |
| Ra       | = | 14.000 | 2.500 | 4.500   | 4.000 | $\Omega$ |
| d% (tot) | = | 9      | 10    | 11      | 14,5  |          |
| Wo       | = | 4,2    | 6,5   | 6,5     | 11,5  | Wtt.     |

PUSH-PULL - A

|          |   |         |         |          |
|----------|---|---------|---------|----------|
|          |   | FB      | SB      |          |
| Va       | = | 250     | 250     | V.       |
| Vg2      | = | 250     | 250     | V.       |
| Vg1      | = | —16     | —       | V.       |
| Rk       | = | —       | 125     | $\Omega$ |
| Ia (21.) | = | 120-140 | 120-130 | mA.      |
| Ig2      | = | 10-16   | 10-15   | mA.      |
| Ra (pp)  | = | 5.000   | 5.000   | $\Omega$ |
| d% (tot) | = | 2       | 2       |          |
| Wo       | = | 14,5    | 13,5    | Wtt.     |

6 L 6  
6 L 6-G

6 L 6  
6 L 6-G

PUSH-PULL - AB<sub>1</sub>

|                 |   | SB       |         | FB     |             |
|-----------------|---|----------|---------|--------|-------------|
| V <sub>a</sub>  | = | 400      | 400     | 400    | V.          |
| V <sub>g2</sub> | = | 250      | 300     | 250    | V.          |
| V <sub>g1</sub> | = | —        | —       | —20    | V.          |
| R <sub>k</sub>  | = | 190      | 200     | —      | Ω           |
| I <sub>a</sub>  | = | 96-110   | 112-128 | 88-124 | 102-152 mA. |
| I <sub>g2</sub> | = | 4,6-10,8 | 7-16    | 4-12   | 6-17 mA.    |
| R <sub>a</sub>  | = | 8.500    | 6.600   | 8.500  | 6.600 Ω     |
| d%              | = | 2        | 2       | 2      | 2           |
| W <sub>o</sub>  | = | 24       | 32      | 26,5   | 34 Wtt.     |

PUSH-PULL - AB<sub>2</sub>

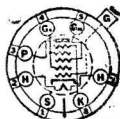
|                 |   |        |         |      |
|-----------------|---|--------|---------|------|
| V <sub>a</sub>  | = | 400    | 400     | V.   |
| V <sub>g2</sub> | = | 250    | 300     | V.   |
| V <sub>g1</sub> | = | —20    | —25     | V.   |
| I <sub>a</sub>  | = | 88-168 | 102-230 | mA.  |
| I <sub>g2</sub> | = | 4-13   | 6-20    | mA.  |
| R <sub>a</sub>  | = | 6.000  | 3.800   | Ω    |
| W <sub>o</sub>  | = | 40     | 60      | Wtt. |
| R <sub>k</sub>  | = | 190    | 200     | Ω    |

**6L7**  
**6L7-G**

**6L7**  
**6L7-G**

HEPTODE  
(HF - MF - OSC. MOD)

|                   |   |                   |       |
|-------------------|---|-------------------|-------|
| V <sub>f</sub>    | = | 6,3               | V.    |
| I <sub>f</sub>    | = | 0,3               | A.    |
| OSC - MOD         |   |                   |       |
| V <sub>a</sub>    | = | 250      250(max) | V.    |
| V <sub>g2-4</sub> | = | 100      150(max) | V.    |
| V <sub>g1</sub>   | = | -3/-30    -6/-45  | V.    |
| V <sub>g3</sub>   | = | -10      -15      | V.    |
| I <sub>a</sub>    | = | 2,4      3,3      | mA.   |
| I <sub>g2-4</sub> | = | 6,2      8,3      | mA.   |
| R <sub>i</sub>    | = | >1                | M.Ω   |
| Sc                | = | 0,35      0,35    | mA/V. |
| R <sub>k</sub>    | = | 350      500      | Ω     |



6L7(G)

6 L 7  
6 L 7-G

6 L 7  
6 L 7-G

HF - MF

|            |   |              |             |
|------------|---|--------------|-------------|
| $V_a$      | = | 250(max)     | V.          |
| $V_{g2-4}$ | = | 100(max)     | V.          |
| $V_{g1}$   | = | -3/-15       | V.          |
| $V_{g3}$   | = | -3           | V.          |
| $I_a$      | = | 5,3          | mA.         |
| $I_{g2-4}$ | = | 5,5          | mA.         |
| $g$        | = | 880          |             |
| $R_i$      | = | 0,8          | M. $\Omega$ |
| $S$        | = | 0,005(1) 1,1 | mA/V.       |
| $R_k$      | = | 300          | $\Omega$    |

(1)  $V_{g_1} = V_{g_3} = -15$  V.

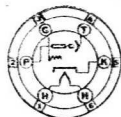


**6N5**

A. I.

**6N5**

|                   |   |        |     |
|-------------------|---|--------|-----|
| $V_f$             | = | 6,3    | V.  |
| $I_f$             | = | 0,15   | A.  |
| $V_a(\text{max})$ | = | 135(1) | V.  |
| $V_{sg}$          | = | 135    | V.  |
| $I_a$             | = | 0,5    | mA. |

(1) Over 0,25 M  $\Omega$ (1) A travers 0,25 M  $\Omega$ **6N5**

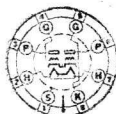
31-12-38

6N7  
6N7-G

DUOTRIODE  
(ST - E<sub>A-B</sub>) (1)

(1) V. type 6 A 6.

6N7  
6N7-G



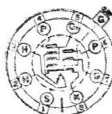
6N7(G)

6P7-G

PENTHODE - TRIODE  
(HF - MF - OSC - MOD)

V. 6 F 7.

6P7-G



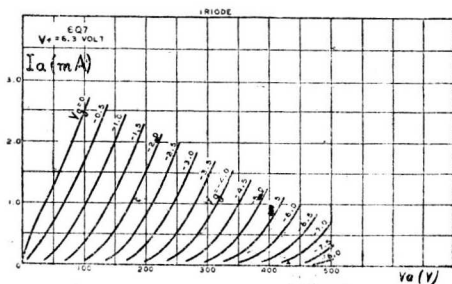
6P7-G

6Q7  
6Q7-G

6Q7  
6Q7-G

DUODIODE - TRIODE  
(d DET - LF<sub>w</sub>)

|                |   |        |             |
|----------------|---|--------|-------------|
| V <sub>f</sub> | ← | 6,3    | V.          |
| I <sub>f</sub> | = | 0,3    | A.          |
| I <sub>a</sub> | = | 0,35   | 1,1 mA.     |
| V <sub>a</sub> | = | 100    | 250(max) V. |
| V <sub>g</sub> | = | —1,5   | —3 V.       |
| g              | = | 70     | 70          |
| R <sub>i</sub> | = | 87.500 | 58.000 Ω    |
| S              | = | 0,8    | 1,2 mA/V.   |
| R <sub>k</sub> | = | 7.000  | Ω           |



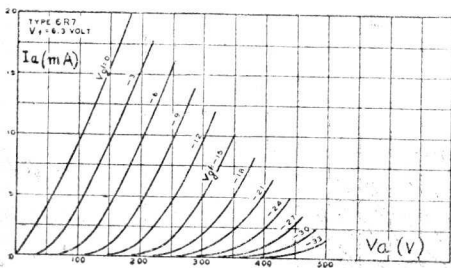
6Q7 (G)

6R7  
6R7-G

6R7  
6R7-G

DUODIODE - TRIODE  
(d DET + LF<sub>w</sub> - E)

|                      |   |                |                  |
|----------------------|---|----------------|------------------|
| V <sub>f</sub>       | = | 6,3            | V.               |
| I <sub>f</sub>       | = | 0,3            | A.               |
| V <sub>a</sub> (max) | = | 250            | V.               |
| V <sub>g</sub>       | = | —9             | V.               |
| I <sub>a</sub>       | = | 9,5            | mA.              |
| g                    | = | 16             |                  |
| R <sub>i</sub>       | = | 8.500          | Ω                |
| S                    | = | 1,9            | mA/V.            |
| W <sub>o</sub>       | = | 0,28           | W <sub>tt.</sub> |
| R <sub>a</sub>       | = | 10.000         | Ω                |
| R <sub>k</sub>       | = | 1.600 / 11.300 | Ω                |



6R7(4)

**6 SF 5****6 SF 5****TRIODE****(LF<sub>w</sub>)**

|                      |   |       |     |
|----------------------|---|-------|-----|
| V <sub>f</sub>       | = | 6,3   | V.  |
| I <sub>f</sub>       | = | 0,3   | A.  |
| V <sub>a</sub> (max) | = | 250   | V.  |
| V <sub>g</sub>       | = | —2    | V.  |
| g                    | = | 100   |     |
| R <sub>i</sub>       | = | 66000 | Ω   |
| S                    | = | 1500  | Ω   |
| I <sub>a</sub>       | = | 0,9   | mA. |
| V. 6 F 5.            |   |       |     |

31-12-38

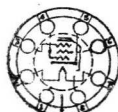


6 SJ 7

6 SJ 7

# PENTHODE (DET - LF)

|          |   |              |          |
|----------|---|--------------|----------|
| $V_f$    | = | 6,3          | V.       |
| $I_f$    | = | 0,3          | A.       |
| $V_a$    | = | 100 250(max) | V.       |
| $V_{g2}$ | = | 100 100      | $V(max)$ |
| $V_{g1}$ | = | —3 —3        | V.       |
| $V_{g3}$ | = | 0 0          | V.       |
| $g_m$    | = | 1100 2500    |          |
| $R_i$    | = | 0,7 1,5      | M.Ω      |
| $S$      | = | 1,575 1,65   | mA/V.    |
| $I_a$    | = | 2,9 3,0      | mA.      |
| $I_{g2}$ | = | 0,9 0,8      | mA.      |



6577

6 SK 7

6 SK 7

PENTHODE  
(HF)

|                                 |   |      |                 |
|---------------------------------|---|------|-----------------|
| $V_f$                           | = | 6,3  | V.              |
| $I_f$                           | = | 0,3  | A.              |
| $V_a$                           | = | 100  | 250(max) V.     |
| $V_{g2}$                        | = | 100  | 100 V(max)      |
| $V_{g1}$                        | = | -3   | -3 V(min)       |
| $V_{g3}$                        | = | 0    | 0 V.            |
| $R_i$                           | = | 0,25 | 0,8 M. $\Omega$ |
| $S$                             | = | 1,9  | 2,0 mA/V.       |
| $V_{g1} (S=0,001 \text{ mA/V})$ | = | —    | -35 V.          |
| $I_a$                           | = | 8,9  | 9,2 mA.         |
| $I_{g2}$                        | = | 2,6  | 2,4 mA.         |

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6 SQ 7

6 SQ 7

# DUODIODE - TRIODE (D det - LF)

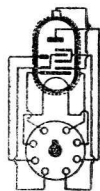
|         |   |        |          |
|---------|---|--------|----------|
| Vf      | = | 6,3    | V.       |
| If      | = | 0,3    | A.       |
| Va(max) | = | 250    | V.       |
| Vg      | = | —2     | V.       |
| g       | = | 100    |          |
| Ri      | = | 91.000 | $\Omega$ |
| S       | = | 1,1    | mA/V.    |
| la      | = | 0,8    | mA.      |





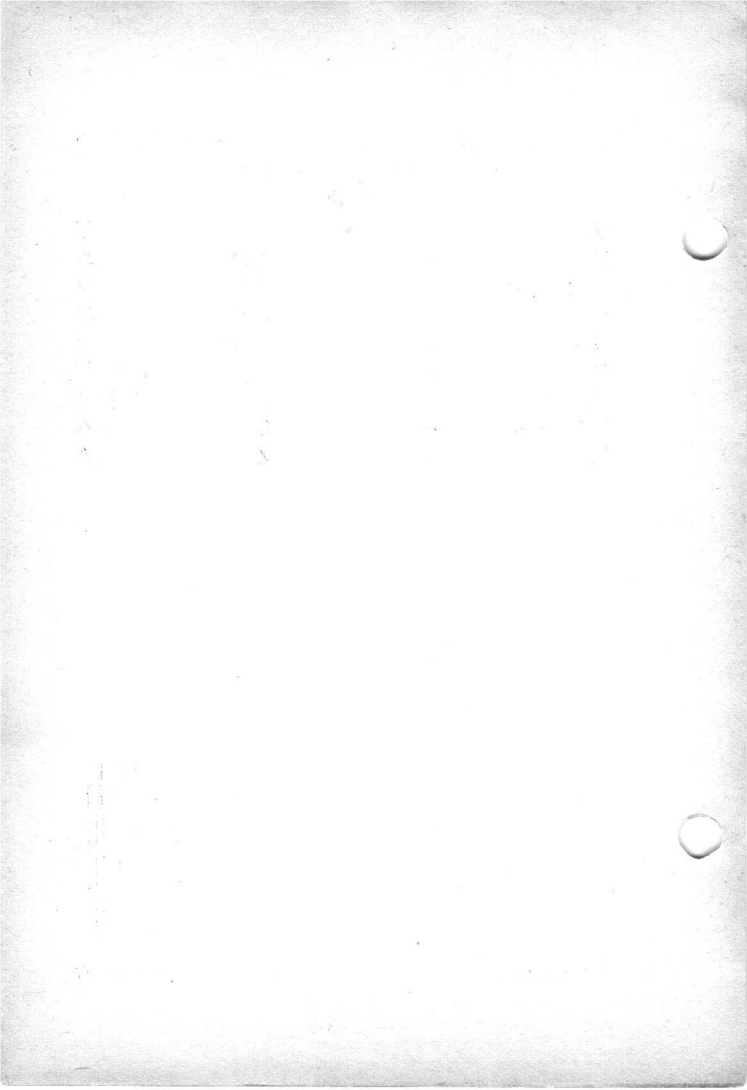
**6 TH 8 (G)****6 TH 8 (G)**TRIODE - HEXODE  
(OSC)

|                    |   |      |             |
|--------------------|---|------|-------------|
| $V_f$              | = | 6,3  | V.          |
| $I_f$              | = | 0,7  | A.          |
| $V_a(\text{max})$  | = | 250  | V.          |
| $V_{gs}$           | = | 100  | V.          |
| $V_{gl}$           | = | —3,5 | V.          |
| $S$                | = | 2,5  | mA/V.       |
| $R_i$              | = | 1    | M. $\Omega$ |
| $I_a(\text{norm})$ | = | 6    | mA.         |
| $I_g$              | = | 2    | mA.         |



31-12-38

**6TH8-G**

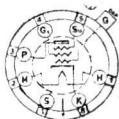


6 S 7-G

PENTHODE  
(HF)

6 S 7-G

|             |   |         |          |
|-------------|---|---------|----------|
| $V_f$       | = | 6,3     | V.       |
| $I_f$       | = | 0,15    | A.       |
| $V_a(\max)$ | = | 100     | V.       |
| $V_{sg}$    | = | 100     | V.       |
| $V_g$       | = | —3      | V.       |
| $I_a$       | = | 8       | mA.      |
| $I_{g2}$    | = | 2,2     | mA.      |
| $g$         | = | 375     |          |
| $R_i$       | = | 250.000 | $\Omega$ |
| $S$         | = | 1,5     | mA/V.    |
| $R_k$       | = | 300     | $\Omega$ |



6S7-G

**6 T 5**

(Al)

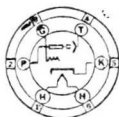
$V_f$              $=$   
 $I_f$              $=$   
 $V_a(\text{max})$      $=$   
 $V_g$              $=$   
 $I_s$              $=$

6,3  
 0,3  
 250  
 —22(1)  
 3,0

**6 T 5**

V.  
 A.  
 V.  
 V.  
 mA.

(1) Schaduwhoek =  $0^\circ$   
 Ombre =  $0^\circ$

**6T5**

**6 T 7-G****6 T 7-G**

# DUODIODE - TRIODE (DET+LF)

|                   |   |        |          |
|-------------------|---|--------|----------|
| $V_f$             | = | 6,3    | V.       |
| $I_f$             | = | 0,15   | A.       |
| $V_a(\text{max})$ | = | 100    | 250      |
| $V_g$             | = | —1,5   | —3       |
| $I_a$             | = | 0,3    | 0,9      |
| $g$               | = | 65     | 65       |
| $R_i$             | = | 95.000 | 65.000   |
| $S$               | = | 0,68   | 1,0      |
| $R_k$             | = | 5.000  | 3.300    |
|                   |   |        | mA/V.    |
|                   |   |        | $\Omega$ |



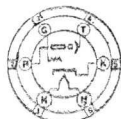
6T7-G

6U5

(A1)

V. 6E5.

6U5



6U5

6U7-G

PENTHODE

6U7-G

(1) V. 6D6.



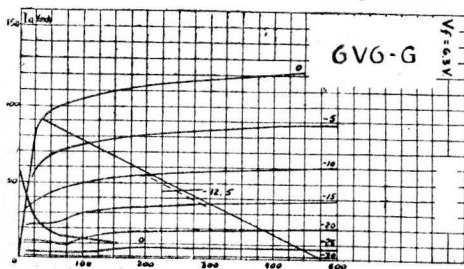
6U7-G

6 V 6  
6 V 6-G

6 V 6  
6 V 6-G

BEAM - POWER TETRODE  
(E<sub>A-AB</sub>)

|                     |   |         |              |                   |
|---------------------|---|---------|--------------|-------------------|
| V <sub>f</sub>      | = |         | 6,3          | V.                |
| I <sub>f</sub>      | = |         | 0,45         | A.                |
|                     |   | A       | AB           | <i>push pull</i>  |
| V <sub>a(max)</sub> | = | 250     | 250 300      | V.                |
| V <sub>sg</sub>     | = | 250     | 250 300      | V.                |
| V <sub>g</sub>      | = | -12,5   | -15 -20      | V.                |
| I <sub>a</sub>      | = | 45      | 35 39        | mA.               |
| I <sub>sg</sub>     | = | 4,5-6,5 | 2,5 2,5      | mA.               |
| g                   | = | 218     |              |                   |
| R <sub>i</sub>      | = | 52.000  |              |                   |
| S                   | = | 4,1     |              | mA/V.             |
| W <sub>o</sub>      | = | 4,25    | 8,5 13,5     | W <sub>tt</sub> . |
| R <sub>a</sub>      | = | 5.000   | 10.000 8.000 | Ω                 |
| R <sub>k</sub>      | = | 300     |              | Ω                 |



# 6 V 7-G

# 6 V 7-G

## DUODIODE - TRIODE ( dDET + LF ) (1)

|    |   |       |       |          |       |
|----|---|-------|-------|----------|-------|
| Vf | = |       | 6,3   | V.       |       |
| If | = |       | 0,45  | A.       |       |
| Va | = | 135   | 180   | 250(max) | V.    |
| Vg | = | -10,5 | -13,5 | -20      | V.    |
| Ia | = | 3,7   | 6,0   | 8,0      | mA.   |
| g  | = | 8,3   | 8,3   | 8,3      |       |
| Ri | = | 11    | 8,5   | 7,5      | kΩ    |
| S  | = | 0,75  | 0,975 | 1,1      | mA/V. |
| Wo | = | 0,075 | 0,16  | 0,35     | Wtt.  |
| Ra | = | 25    | 20    | 20       | kΩ    |
| Rk | = | 3000  | 2250  | 2500     | Ω     |

(1) V. type 55.





6 W 7 G

6 W 7 G

PENTHODE  
(A . DET - LF<sub>w</sub>)

|                       |   |       |       |
|-----------------------|---|-------|-------|
| V <sub>f</sub>        | = | 6,3   | V.    |
| I <sub>f</sub>        | = | 0,15  | A.    |
| V <sub>a</sub> (max)  | = | 250   | V.    |
| V <sub>g1</sub>       | = | —3    | V.    |
| V <sub>g2</sub> (max) | = | 100   | V.    |
| I <sub>a</sub>        | = | 2,0   | mA.   |
| I <sub>g2</sub>       | = | 0,5   | mA.   |
| R <sub>i</sub>        | = | 1,5   | M.Ω   |
| S                     | = | 1,225 | mA/V. |
| g                     | = | 1850  |       |

## A . DET

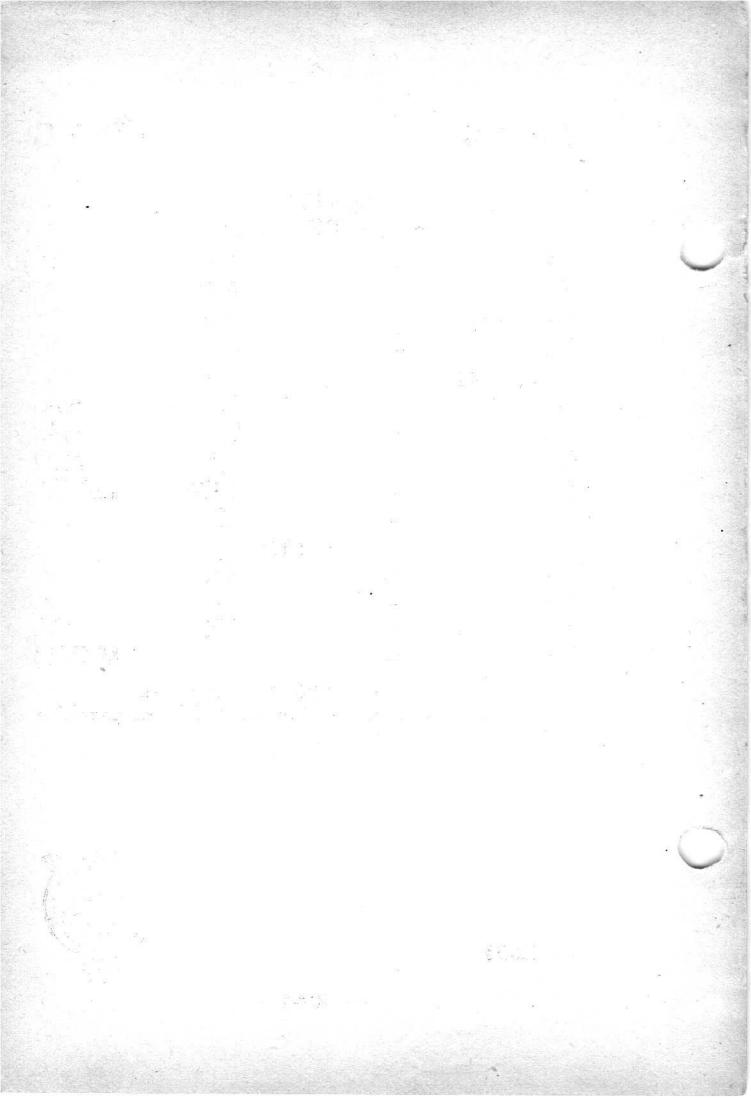
|                       |   |      |        |
|-----------------------|---|------|--------|
| V <sub>a</sub>        | = | 250  | V.     |
| V <sub>g1</sub>       | = | —4,3 | V.     |
| V <sub>g2</sub> (max) | = | 100  | V.     |
| R <sub>a</sub>        | = | 0,25 | M.Ω(1) |

(1) of met smsp van 500 H. in parallel.

(1) ou avec bobine de choc de 500 H en parallèle.

31-12-38





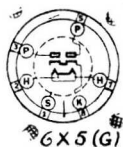
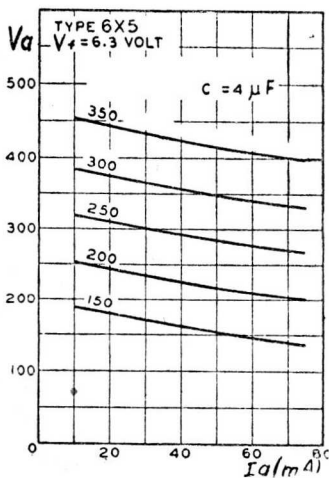
**6 X 5**  
**6 X 5-G**

**6 X 5**  
**6 X 5-G**

# GELIJKRICHTERLAMP REDRESSEUSE

|             |   |     |
|-------------|---|-----|
| $V_f$       | = | 6,3 |
| $I_f$       | = | 0,6 |
| $V_a(\max)$ | = | 350 |
| $I_a(\max)$ | = | 75  |

V.  
A.  
 $V \sim$   
mA.



6 Y 5

GELIJKRICHTERLAMP  
REDRESSEUSE

|                        |   |     |
|------------------------|---|-----|
| $V_f$                  | = | 6,3 |
| $I_f$                  | = | 0,8 |
| $V_a(\text{max p.pl})$ | = | 350 |
| $I_a$                  | = | 50  |

6 Y 5

V.  
A.  
V.  $\sim$   
mA.

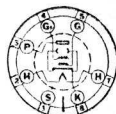


6 Y 6-G

TETRODE  
(E)

6 Y 6-G

|             |   |       |            |
|-------------|---|-------|------------|
| $V_f$       | = | 6,3   | V.         |
| $I_f$       | = | 1,25  | A.         |
| $V_a(\max)$ | = | 135   | V.         |
| $V_{sg}$    | = | 135   | V.         |
| $V_g$       | = | —13,5 | V.         |
| $I_a$       | = | 58    | mA.        |
| $I_{sg}$    | = | 3,0   | mA.        |
| $S$         | = | 7     | mA/V.      |
| $W_o$       | = | 3,6   | $W_{tt}$ . |
| $R_a$       | = | 2.000 | $\Omega$   |



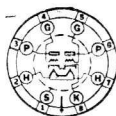
6Y6-G

6 Y 7-G

6 Y 7-G

DUOTRIODE  
(E<sub>B</sub>)

|                      |   |       |          |                  |
|----------------------|---|-------|----------|------------------|
| V <sub>f</sub>       | = |       | 6,3      | V.               |
| I <sub>f</sub>       | = |       | 0,6      | A.               |
| V <sub>a</sub>       | = | 180   | 250(max) | V.               |
| V <sub>g</sub>       | = | 0     | 0        | V.               |
| I <sub>a</sub>       | = | 3,8   | 5,3      | mA.              |
| W <sub>i</sub>       | = | 0,38  | 0,38     | W <sub>tt.</sub> |
| W <sub>o</sub>       | = | 5,5   | 8,0      | W <sub>tt.</sub> |
| R <sub>a</sub> (p.p) | = | 7.000 | 14.000   | Ω                |



6Y7-G

6 ZY5-G

6 ZY 5-G

GELIJKRICHTERLAMP  
REDRESSEUSE

$V_f$

$I_f$

$V_a(\text{max})$

$I_a$

==

==

==

==

6,3

0,3

350

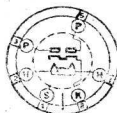
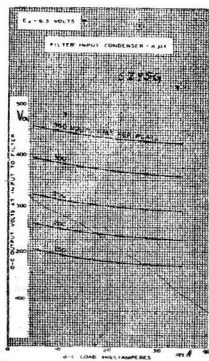
35

V.

A.

V.~

mA.



6ZY5-G

31-12-38

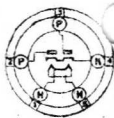
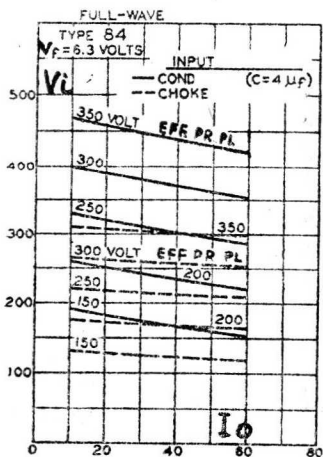
6 Z 4

6 Z 4

# GELIJKRICHTERLAMP REDRESSEUSE (VAC) (I)

|             |   |     |               |
|-------------|---|-----|---------------|
| $V_f$       | = | 6,3 | V.            |
| $I_f$       | = | 0,5 | A.            |
| $V_a(p.pl)$ | = | 350 | $V.\sim(max)$ |
| $I_a$       | = | 50  | $mA.(max)$    |

(I) V. type 84.



6 Z 4



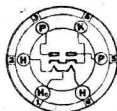
6 Z 5

6 Z 5

# GELIJKRICHTERLAMP REDRESSEUSE

|            |   |            |           |
|------------|---|------------|-----------|
| $V_f$      | = | 6,3 / 12,6 | $V.$      |
| $I_a$      | = | 0,8 / 0,4  | $A.$      |
| $V_a(max)$ | = | 230        | $V. \sim$ |
| $I_a$      | = | 60         | $mA.$     |

31-12-38



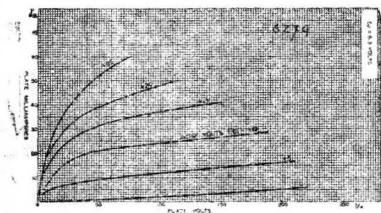
6 Z 5

6 Z 7-G

6 Z 7-G

DUOTRIODE  
( $E_B$ )

|             |   |       |          |
|-------------|---|-------|----------|
| $V_f$       | = | 6,3   | $V.$     |
| $I_f$       | = | 0,3   | A.       |
| $V_a(\max)$ | = | 135   | $V.$     |
| $V_g$       | = | 0     | $V.$     |
| $I_a(pl)$   | = | 6     | mA.      |
| $W_o$       | = | 2,5   | Wtt.     |
| $R_a$       | = | 9.000 | $\Omega$ |



7

7

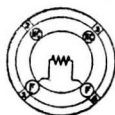
# STROOMREGULATOR REGULATRICE

Vf  
If

=  
=

176  
0,3

V.  
A.



7

8

8

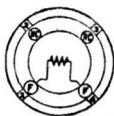
# STROOMREGULATOR REGULATRICE

Vf  
If

=  
=

132  
0,3

V.  
A.



8

9

# STROOMREGULATOR REGULATRICE

Vf  
If

=

50

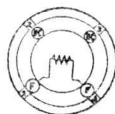
=

0,3

9

V.

A.



9



11

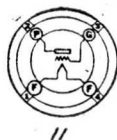
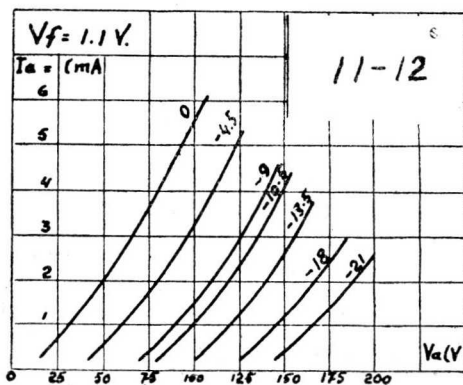
12

11

12

# TRIODE (HF - DET - LF)

|       |   |        |                 |
|-------|---|--------|-----------------|
| $V_f$ | = | 1,1    | V.              |
| $I_f$ | = | 0,25   | A.              |
| $V_a$ | = | 90     | 135(max) V.     |
| $V_g$ | = | -4,5   | -10,5 V.        |
| $I_a$ | = | 2,5    | 3 mA.           |
| $g$   | = | 6,6    |                 |
| $R_i$ | = | 15.500 | 15.000 $\Omega$ |
| $S$   | = | 0,425  | 0,44 mA/V.      |
| $R_k$ | = | 1.800  | 3.500 $\Omega$  |

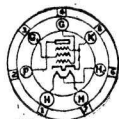


12 A 5

PENTHODE  
(E)

12 A 5

|             |   |        |   |        |                   |
|-------------|---|--------|---|--------|-------------------|
| $V_f$       | = | 12,5   | / | 6,3    | V.                |
| $I_f$       | = | 0,3    | / | 0,6    | A.                |
| $V_a(\max)$ | = | 100    |   | 180    | V.                |
| $V_{sg}$    | = | 100    |   | 180    | V.                |
| $V_g$       | = | —15    |   | —27    | V.                |
| $I_a$       | = | 17     |   | 40     | mA.               |
| $V_{sg}$    | = | 3,     |   | 8,0    | mA.               |
| $g$         | = | 70     |   | 80     |                   |
| $R_i$       | = | 41.000 |   | 35.000 | $\Omega$          |
| $S$         | = | 1,7    |   | 2,3    | mA/V.             |
| $W_o$       | = | 0,7    |   | 3      | W <sub>tt</sub> . |
| $R_a$       | = | 4.500  |   | 3.800  | $\Omega$          |
| $R_k$       | = | 750    |   | 650    | $\Omega$          |



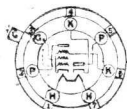
12A5

12 A 7 *Gelührichter*~~DIODE~~ - PENTHODE

(DET - LF)

12 A 7

|             |   |         |         |          |
|-------------|---|---------|---------|----------|
| $V_f$       | = |         | 12,6    | V.       |
| $I_f$       | = |         | 0,3     | A.       |
|             |   | DET     | LF      |          |
| $V_a(\max)$ | = | 125     | 135     | V.       |
| $V_{sg}$    | = |         | 135     | V.       |
| $V_g$       | = |         | -13,5   | V.       |
| $I_a$       | = | 30(max) | 9,0     | mA.      |
| $I_{sg}$    | = |         | 2,5     | mA.      |
| $g$         | = |         | 100     |          |
| $R_i$       | = |         | 102.000 | $\Omega$ |
| $S$         | = |         | 0,975   | mA/V.    |
| $W_o$       | = |         | 0,55    | Wtt.     |
| $R_a$       | = |         | 13.500  | $\Omega$ |
| $R_k$       | = |         | 1.250   | $\Omega$ |



12A7

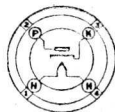
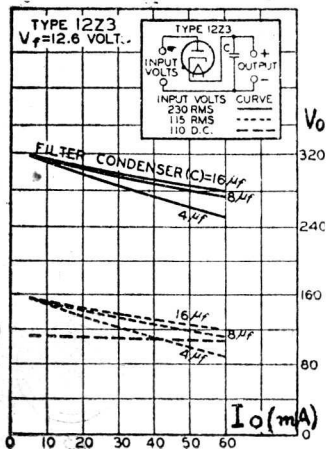


12 Z 3

12 Z 3

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |      |                         |
|-------|---|------|-------------------------|
| $V_f$ | = | 12,6 | V.                      |
| $I_f$ | = | 0,3  | A.                      |
| $V_a$ | = | 250  | $V.\sim(\text{max})$    |
| $I_a$ | = | 60   | $\text{mA}(\text{max})$ |



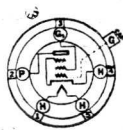
12 Z 3

15

# PENTHODE (HF)

15

|                 |   |      |           |       |
|-----------------|---|------|-----------|-------|
| V <sub>f</sub>  | = |      | 2         | V.    |
| I <sub>f</sub>  | = |      | 0,22      | A.    |
| V <sub>a</sub>  | = | 67,5 | 135(max)  | V.    |
| V <sub>g2</sub> | = | 67,5 | 67,5(max) | V.    |
| V <sub>g</sub>  | = | —1,5 | —1,5      | V.    |
| I <sub>a</sub>  | = | 1,85 | 1,85      | mA.   |
| I <sub>g2</sub> | = | 0,3  | 0,3       | mA.   |
| g               | = | 450  | 600       |       |
| R <sub>i</sub>  | = | 0,63 | 0,8       | M.Ω   |
| S               | = | 0,71 | 0,75      | mA/V. |
| R <sub>k</sub>  | = |      | 700       | Ω     |



18

# PENTHODE (E<sub>AB</sub>) (1)

18

V<sub>f</sub> =  
I<sub>f</sub> =

14,0  
0,30

V.  
A.

(1) V. type 6 F 6.

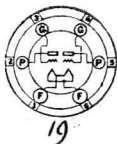
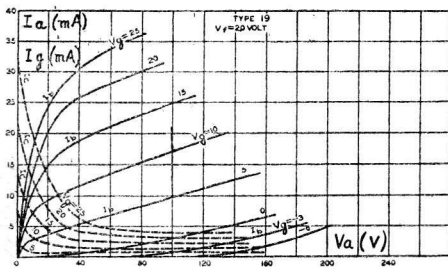


18

# DUOTRIODE (E<sub>B</sub>)

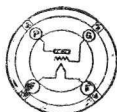
|                     |   |       |        |      |
|---------------------|---|-------|--------|------|
| V <sub>f</sub>      | = |       | 2,0    | V.   |
| I <sub>f</sub>      | = |       | 0,26   | A.   |
| V <sub>a(max)</sub> | = | 135   | 135    | 135  |
| V <sub>g</sub>      | = | -6    | -3     | 0    |
| I <sub>a(1)</sub>   | = | 0,5   | 2      | 5    |
| W <sub>i</sub>      | = | 0,095 | 0,13   | 0,17 |
| W <sub>o</sub>      | = | 1,6   | 1,9    | 2,1  |
| R <sub>a(p.p)</sub> | = |       | 10.000 | Ω    |

(1) Zonder sein - en absence de signaux.



# TRIODE (E)

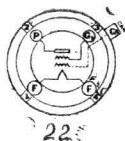
|                |   |       |   |          |                  |
|----------------|---|-------|---|----------|------------------|
| V <sub>f</sub> | = | 3,0   | / | 3,3      | V.               |
| I <sub>f</sub> | = | 0,125 | / | 0,132    | A.               |
| V <sub>a</sub> | = | 90    |   | 135(max) | V.               |
| V <sub>g</sub> | = | —16,5 |   | —22,5    | V.               |
| I <sub>a</sub> | = | 3     |   | 6,5      | mA.              |
| g              | = | 3,3   |   | 3,3      |                  |
| R <sub>i</sub> | = | 8.000 |   | 6.300    | Ω                |
| S              | = | 0,415 |   | 0,255    | mA/V.            |
| W <sub>o</sub> | = | 0,045 |   | 0,11     | W <sub>tt.</sub> |
| R <sub>a</sub> | = | 9.600 |   | 6.500    | Ω                |
| R <sub>k</sub> | = | 5.500 |   | 3.460    | Ω                |



20

TETRODE  
(HF)

|          |   |       |           |       |
|----------|---|-------|-----------|-------|
| $V_f$    | = |       | 3,3       | V.    |
| $I_f$    | = |       | 0,132     | A.    |
| $V_a$    | = | 135   | 135(max)  | V.    |
| $V_{sg}$ | = | 45    | 67,5(max) | V.    |
| $V_g$    | = | -1,5  | -1,5      | V.    |
| $I_a$    | = | 1,7   | 3,7       | mA.   |
| $I_{sg}$ | = | 0,6   | 1,3       | mA.   |
| $g$      | = | 270   | 160       |       |
| $R_i$    | = | 0,725 | 0,325     | MΩ    |
| $S$      | = | 0,375 | 0,5       | mA/V. |
| $R_k$    | = | 600   | 300       | Ω     |

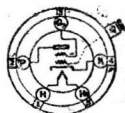


**24-A**  
**24 S**

**24-A**  
**24 S**

**TETRODE**  
(HF - DET - LF)

|          |   |     |          |       |
|----------|---|-----|----------|-------|
| Vf       | = |     | 2,5      | V.    |
| If       | = |     | 1,75     | A.    |
| Va       | = | 180 | 250(max) | V.    |
| Vg2(max) | = | 90  | 90       | V.    |
| Vg       | = | —3  | —3       | V.    |
| Ia       | = | 4   | 4        | mA.   |
| Ig2      | = | 1,7 | 1,7      | mA.   |
| g        | = | 400 | 630      |       |
| Ri       | = | 0,4 | 0,6      | M.Ω   |
| S        | = | 1   | 1,05     | mA/V. |
| Rk       | = |     | 500      | Ω     |



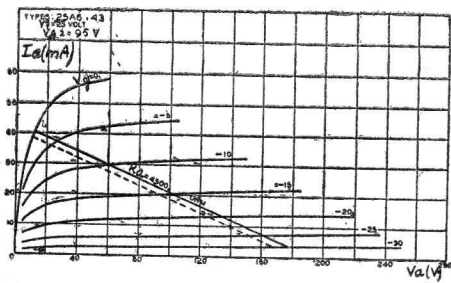
**24A/S**

25 A 6  
25 A 6-G

25 A 6  
25 A 6-G

PENTHODE  
(E)

|          |   |       |       |                        |
|----------|---|-------|-------|------------------------|
| $V_f$    | = |       | 25    | V.                     |
| $I_f$    | = |       | 0,3   | A.                     |
| $V_a$    | = | 95    | 135   | 180(max) V.            |
| $V_{g2}$ | = | 95    | 135   | 135(max) V.            |
| $V_g$    | = | -15   | -20   | -20 V.                 |
| $I_a$    | = | 20    | 37    | 38 mA.                 |
| $I_{g2}$ | = | 4     | 8     | 7,5 mA.                |
| $g$      | = | 90    | 85    | 100                    |
| $R_i$    | = | 45    | 35    | 40 k $\Omega$          |
| $S$      | = | 2     | 2,45  | 2,5 mA/V.              |
| $W_o$    | = | 0,9   | 2     | 2,75 W <sub>tt</sub> . |
| $R_a$    | = | 4.500 | 4.000 | 5.000 $\Omega$         |
| $R_k$    | = | 625   | 440   | 440 $\Omega$           |



25A6(G)



# 25 A 7-G

# 25 A 7-G

## GELIJKRICHTER MET PENTHODE REDRESSEUSE AVEC PENTHODE (LF - VAC)

|         |   |     |                 |
|---------|---|-----|-----------------|
| Vf      | = | 2,5 | V.              |
| If      | = | 0,3 | A.              |
|         |   | VAC | Penth.          |
| Va(max) | = | 125 | 100 V.          |
| Vsg     | = |     | 100 V.          |
| Vg      | = |     | —15 V.          |
| Ia      | = | 75  | 20,5 mA.        |
| Isg     | = |     | 4,0 mA.         |
| g       | = |     | 90              |
| Ri      | = |     | 30.000 $\Omega$ |
| S       | = |     | 1,8 mA/V.       |
| Wo      | = |     | 0,77 Wtt.       |
| Ra      | = |     | 4.500 $\Omega$  |
| Rk      | = |     | 750 $\Omega$    |

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**25 B 5**  
**25 N 6-G**

**25 B 5**  
**25 N 6-G**

DUOTRIODE  
(E)

|                   |   |        |                 |
|-------------------|---|--------|-----------------|
| $V_f$             | = | 25     | V.              |
| $I_f$             | = | 0,3    | A.              |
| $V_a(\max)$       | = | 110    | 180 V.          |
| $V_a(\text{inp})$ | = | 110    | 100 V.          |
| $V_g$             | = | 0      | 0 V.            |
| $I_a$             | = | 45     | 46 mA.          |
| $I_a(\text{inp})$ | = | 7      | 5,8 mA.         |
| $g$               | = | 25     | 25              |
| $R_i$             | = | 11.400 | 15.200 $\Omega$ |
| $S$               | = | 2,2    | 2,3 mA/V.       |
| $W_o$             | = | 2,0    | 3,8 Wtt.        |
| $R_a$             | = | 2.000  | 4.000 $\Omega$  |

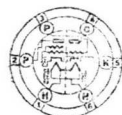
25 B 5

DUOTRIODE (E)

$V_f$

$I_f$

(1) Triode-tetvede; V. 35.



25B5



25N6-G

25 B 6-G

25 B 6-G

PENTHODE  
(E)

|         |   |       |          |
|---------|---|-------|----------|
| Vf      | = | 25    | V.       |
| If      | = | 0,3   | A.       |
| Va(max) | = | 95    | V.       |
| Vsg     | = | 95    | V.       |
| Vg      | = | —15   | V.       |
| Ia      | = | 45    | mA.      |
| Isg     | = | 4     | mA.      |
| Wo      | = | 1,75  | Wtt.     |
| Ra      | = | 2.000 | $\Omega$ |
| Rk      | = | 300   | $\Omega$ |



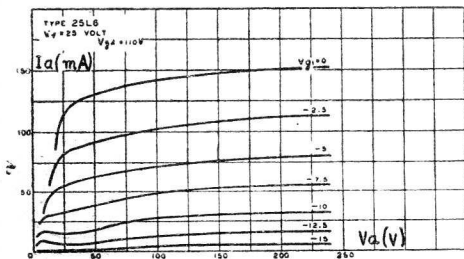
25B5-G

25 L 6  
25 L 6-G

25 L 6  
25 L 6-G

BEAM POWER TETRODE  
(E)

|                   |   |        |          |
|-------------------|---|--------|----------|
| $V_f$             | = | 25     | V.       |
| $I_f$             | = | 0,3    | A.       |
| $V_a(\text{max})$ | = | 110    | V.       |
| $V_{g2}$          | = | 110    | V.       |
| $V_g$             | = | -7,5   | V.       |
| $I_a$             | = | 49-54  | mA.      |
| $I_{g2}$          | = | 4-9    | mA.      |
| $R_i$             | = | 10.000 | $\Omega$ |
| $S$               | = | 8,2    | mA/V.    |
| $W_o(10\%)$       | = | 2,1    | Wtt.     |
| $R_a$             | = | 1.500  | $\Omega$ |
| $R_k$             | = | 1.360  | $\Omega$ |



25L6 (G)

25 N 6 A

25 B 5

25 Y 5

25 Z 5

25 Y 5

25 Z 5

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 25  | V. |
| $I_f$ | = | 0,3 | A. |

## SPANNINGSVERDUBBELAAR DOUBLEUR DE TENSION

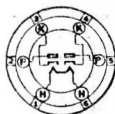
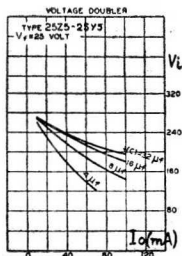
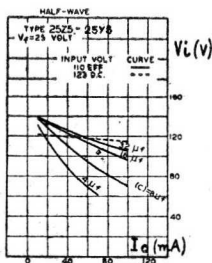
|             |   |     |           |
|-------------|---|-----|-----------|
| $V_a(\max)$ | = | 125 | V. $\sim$ |
| $I_a(\max)$ | = | 100 | mA.       |

## EENPHASIGE GELIJKRICHTER REDRESSEUSE MONOPLAQUE

|             |   |     |        |           |
|-------------|---|-----|--------|-----------|
| $V_a(\max)$ | = | 125 | 250(1) | V. $\sim$ |
| $I_a(\max)$ | = | 85  | 85     | mA. p.pl  |

(1)  $V_a > 125$  V met 100  $\Omega$  in serie met elke plaat.

$V_a > 125$  V avec 100  $\Omega$  en série avec chaque plaque.



25Y5

25 Z 6  
25 Z 6-G

25 Z 6  
25 Z 6-G

# GELIJKRICHTERLAMP REDRESSEUSE

|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 25  | V. |
| $I_f$ | = | 0,3 | A. |

## SPANNINGSVERDUBBELAAR DOUBLEUR DE TENSION

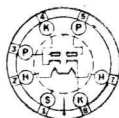
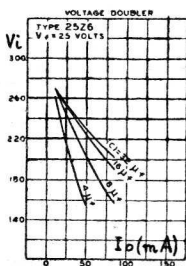
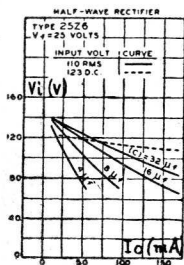
|             |   |     |           |
|-------------|---|-----|-----------|
| $V_a(\max)$ | = | 125 | V. $\sim$ |
| $I_a(\max)$ | = | 85  | mA.       |

## EENPHASIGE GELIJKRICHTER REDRESSEUSE MONOPLAQUE

|             |   |     |        |           |
|-------------|---|-----|--------|-----------|
| $V_a(\max)$ | = | 125 | 250(1) | V. $\sim$ |
| $I_a(\max)$ | = | 85  | 85     | mA. p.pl  |

(1)  $V_a > 125$  V met  $100 \Omega$  in serie met elke plaat.

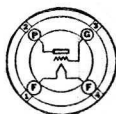
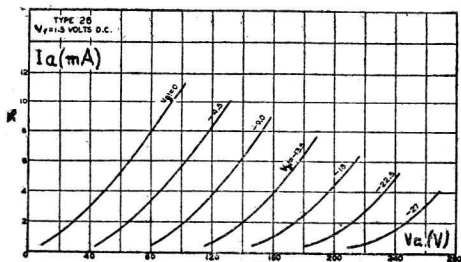
$V_a > 125$  V avec  $100 \Omega$  en série avec chaque plaque.



25Z6-G

# TRIODE (HF - LF)

|       |   |       |       |                |
|-------|---|-------|-------|----------------|
| $V_f$ | = |       | 1,5   | V.             |
| $I_f$ | = |       | 1,05  | A.             |
| $V_a$ | = | 90    | 135   | 180(max) V.    |
| $V_g$ | = | -7    | -10   | -14,5 V.       |
| $I_a$ | = | 2,9   | 5,5   | 6,2 mA.        |
| $g$   | = | 8,3   | 8,3   | 8,3            |
| $R_i$ | = | 8.900 | 7.600 | 7.300 $\Omega$ |
| $S$   | = | 0,935 | 1,1   | 1,15 mA/V.     |
| $R_k$ | = | 2.400 | 1.800 | 2.300 $\Omega$ |

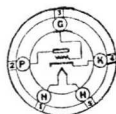
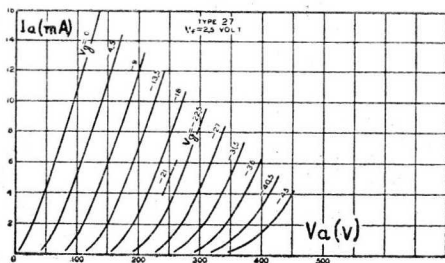


27  
27/S

27  
27/S

TRIODE  
(HF - DET - LF)

|       |   |      |     |       |             |
|-------|---|------|-----|-------|-------------|
| $V_f$ | = |      |     | 2,5   | V.          |
| $I_f$ | = |      |     | 1,75  | A.          |
| $V_a$ | = | 90   | 135 | 180   | 250(max) V. |
| $V_g$ | = | -6   | -9  | -13,5 | -21 V.      |
| $I_a$ | = | 2,7  | 4,5 | 5,0   | 5,2 mA.     |
| $g$   | = | 9    | 9   | 9     | 9           |
| $R_i$ | = | 11   | 9   | 9     | 9,25 kΩ     |
| $S$   | = | 0,82 | 1,0 | 1,0   | 0,975 mA/V. |
| $R_k$ | = | 2,2  | 2   | 2,7   | 4 kΩ        |



27(S)



30  
30 X

$$\text{TRIODE}$$

$$(\text{DET} - E_{AB}) \quad (1)$$

30  
30 X

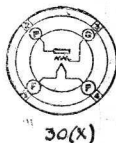
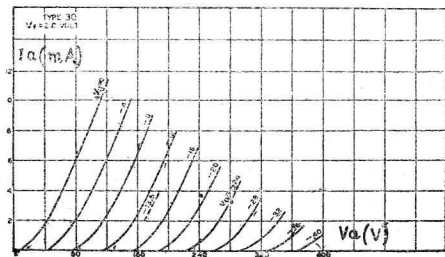
|    |   |      |    |
|----|---|------|----|
| Vf | = | 2    | V. |
| If | = | 0,06 | A. |

E<sub>A</sub>

|                |   |      |      |          |       |
|----------------|---|------|------|----------|-------|
| V <sub>a</sub> | = | 90   | 135  | 180(max) | V.    |
| V <sub>g</sub> | = | —4,5 | —9   | —13,5    | V.    |
| I <sub>a</sub> | = | 2,5  | 3,0  | 3,1      | mA.   |
| R <sub>i</sub> | = | 11   | 10,3 | 10,3     | kΩ    |
| g              | = | 9,3  | 9,3  | 9,3      |       |
| S              | = | 0,85 | 0,9  | 0,9      | mA/V. |
| R <sub>k</sub> | = | 1,8  | 2,9  | 2,9      | kΩ    |

 $2l_p \quad E_B$ 

|                     |   |       |                  |
|---------------------|---|-------|------------------|
| V <sub>a</sub>      | = | 157,5 | V.               |
| V <sub>g</sub>      | = | —15   | V.               |
| I <sub>a</sub>      | = | 1     | mA.              |
| R <sub>a(p.p)</sub> | = | 8.000 | Ω                |
| W <sub>o</sub>      | = | 2,1   | W <sub>tt.</sub> |

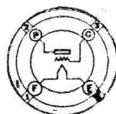
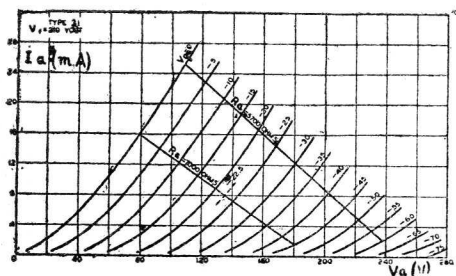


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31

# TRIODE (E)

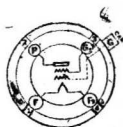
|       |   |       |                |
|-------|---|-------|----------------|
| $V_f$ | = | 2,0   | $V.$           |
| $I_f$ | = | 0,13  | A.             |
| $V_a$ | = | 135   | 180(max) $V.$  |
| $V_g$ | = | -22,5 | -30 $V.$       |
| $I_a$ | = | 8,0   | 12,3 mA.       |
| $g$   | = | 3,8   | 3,8            |
| $R_i$ | = | 4.100 | 3.600 $\Omega$ |
| $S$   | = | 0,925 | 1,05 mA/V.     |
| $W_o$ | = | 0,18  | 0,375 Wtt.     |
| $R_a$ | = | 7.000 | 5.700 $\Omega$ |
| $R_k$ | = | 2.815 | 2.440 $\Omega$ |



3/

TETRODE  
(HF)

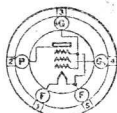
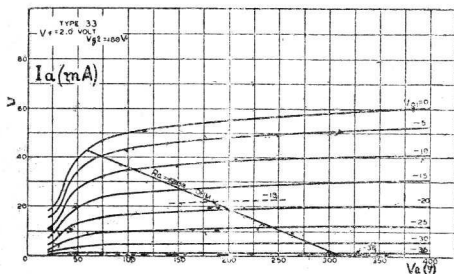
|                       |   |       |          |       |
|-----------------------|---|-------|----------|-------|
| V <sub>f</sub>        | = |       | 2,0      | V.    |
| I <sub>f</sub>        | = |       | 0,06     | A.    |
| V <sub>a</sub>        | = | 135   | 180(max) | V.    |
| V <sub>g2</sub> (max) | = | 67,5  | 67,5     | V.    |
| V <sub>g</sub>        | = | —3    | —3       | V.    |
| I <sub>a</sub>        | = | 1,7   | 1,7      | mA.   |
| I <sub>g2</sub>       | = | 0,4   | 0,4      | mA.   |
| g                     | = | 610   | 780      |       |
| R <sub>i</sub>        | = | 0,95  | 1,2      | M.Ω   |
| S                     | = | 0,64  | 0,78     | mA/V. |
| R <sub>k</sub>        | = | 1.480 | 1.480    | Ω     |



32

# PENTHODE (E)

|            |   |       |                       |
|------------|---|-------|-----------------------|
| $V_f$      | = | 2,0   | V.                    |
| $I_f$      | = | 0,26  | A.                    |
| $V_a$      | = | 135   | 180(max) V.           |
| $V_{g2}$   | = | 135   | 180(max) V.           |
| $V_g$      | = | -13,5 | -18 V.                |
| $I_a$      | = | 14,5  | 22 mA.                |
| $I_{g2}$   | = | 3     | 5 mA.                 |
| $g$        | = | 70    | 90                    |
| $R_i$      | = | 50    | 50 k $\Omega$         |
| $S$        | = | 1,45  | 1,7 mA/V.             |
| $W_o(7\%)$ | = | 0,7   | 1,4 W <sub>tt</sub> . |
| $R_a$      | = | 7.000 | 6.000 $\Omega$        |
| $R_k$      | = | 770   | 670 $\Omega$          |



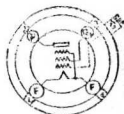
33

# PENTHODE (HF - MF)

|          |   |         |       |             |
|----------|---|---------|-------|-------------|
| Vf       | = |         | 2,0   | V.          |
| If       | = |         | 0,06  | A.          |
| Va       | = | 67,5(1) | 135   | 180(max) V. |
| Vg2      | = | 67,5    | 67,5  | 67,5 V.     |
| Vgl(min) | = | -3      | -3    | -3 V.       |
| Vgl(max) | = | -22,5   | -22,5 | 22,5 V.     |
| la.      | = | 2,7     | 2,8   | 2,8 mA.     |
| lg2      | = | 1,1     | 1,0   | 1,0 mA.     |
| g        | = | 224     | 360   | 620         |
| Ri       | = | 0,4     | 0,6   | 1,0 M.Ω     |
| S(max)   | = | 0,56    | 0,6   | 1,0 mA/V.   |
| S(min)   | = | 0,015   | 0,015 | 0,015 mA/V. |
| Rk       | = | 850     | 850   | 850 Ω       |

(1) Voor draagbare ontvangers.

Pour récepteurs portatifs.

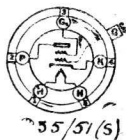


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TETRODE  
(HF - MF)

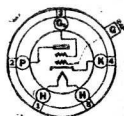
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|          |   |       |       |         |
|----------|---|-------|-------|---------|
| Vf       | = |       | 2,5   | V.      |
| If       | = |       | 1,75  | A.      |
| Va       | = | 180   | 250   | V.      |
| Vg2      | = | 90    | 90    | V.      |
| Vgl(max) | = | —3    | —3    | V.      |
| Vgl(min) | = | —40   | —40   | V.      |
| Ia       | = | 6,3   | 6,5   | mA.     |
| Ig2      | = | 2,5   | 2,5   | mA.     |
| g        | = | 305   | 420   |         |
| Ri       | = | 0,3   | 0,4   | M.Ω     |
| S(max)   | = | 1,02  | 1,05  | mA/V.   |
| S(min)   | = | 0,015 | 0,015 | mA/V(1) |
| Rk       | = | 350   | 350   | Ω       |

(1)  $V_{g_1} = 40 \text{ V.}$ 

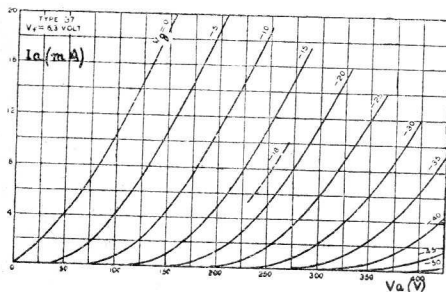
# TETRODE (HF)

|                 |   |      |       |      |              |
|-----------------|---|------|-------|------|--------------|
| V <sub>f</sub>  | = |      |       | 6,3  | V.           |
| I <sub>f</sub>  | = |      |       | 0,3  | A.           |
| V <sub>a</sub>  | = | 100  | 135   | 180  | 250(max) V.  |
| V <sub>g2</sub> | = | 55   | 67,5  | 90   | 90(max) V.   |
| V <sub>g1</sub> | = | -1,5 | -1,5  | -3   | -3 V.        |
| I <sub>a</sub>  | = | 1,8  | 2,8   | 3,1  | 3,2 mA.      |
| I <sub>g2</sub> | = | —    | —     | —    | 1,7(max) mA. |
| g               | = | 470  | 475   | 525  | 595          |
| R <sub>i</sub>  | = | 0,55 | 0,475 | 0,5  | 0,55 M.Ω     |
| S               | = | 0,85 | 1,0   | 1,05 | 1,08 mA/V.   |
| R <sub>k</sub>  | = | 750  | 500   | 850  | 850 Ω        |



# TRIODE (HF - DET - LF)

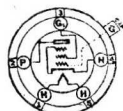
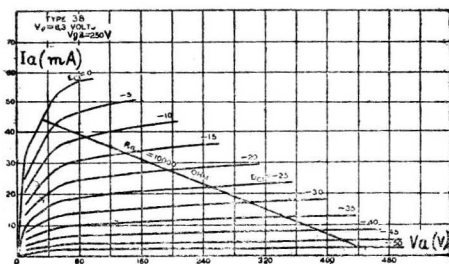
|       |   |      |       |      |     |       |
|-------|---|------|-------|------|-----|-------|
| $V_f$ | = |      |       | 6,3  |     | V.    |
| $I_f$ | = |      |       | 0,3  |     | A.    |
| $V_a$ | = | 90   | 135   | 180  | 250 | V.    |
| $V_g$ | = | -6   | -9    | -13  | -18 | V.    |
| $I_a$ | = | 2,5  | 4,1   | 4,3  | 7,5 | mA.   |
| $g$   | = | 9,2  | 9,2   | 9,2  | 9,2 |       |
| $R_i$ | = | 11,5 | 10    | 10,2 | 8,4 | kΩ    |
| $S$   | = | 0,8  | 0,925 | 0,9  | 1,1 | mA/V. |
| $R_k$ | = | 2,4  | 2,3   | 3    | 2,4 | kΩ    |





# PENTHODE (E)

|             |   |       |       |       |             |
|-------------|---|-------|-------|-------|-------------|
| $V_f$       | = |       |       | 6,3   | V.          |
| $I_f$       | = |       |       | 0,3   | A.          |
| $V_a$       | = | 100   | 135   | 180   | 250(max) V. |
| $V_{g2}$    | = | 100   | 135   | 180   | 250(max) V. |
| $V_g$       | = | -9    | -13,5 | -18   | -25 V.      |
| $I_a$       | = | 7     | 9     | 14    | 22 mA.      |
| $I_{g2}$    | = | 1,2   | 1,5   | 2,4   | 3,8 mA.     |
| $g$         | = | 120   | 120   | 120   | 120         |
| $R_i$       | = | 0,14  | 0,13  | 0,115 | 0,1 M.Ω     |
| $S$         | = | 0,875 | 0,925 | 1,05  | 1,2 mA/V.   |
| $W_o(10\%)$ | = | 0,27  | 0,55  | 1,0   | 2,5 Wtt.    |
| $R_a$       | = | 15    | 13,5  | 11,6  | 10 kΩ       |
| $R_k$       | = | 1,1   | 1,1   | 1,1   | 0,97 kΩ     |



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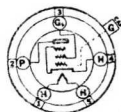
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# PENTHODE (HF . OSC . MOD - MF)

|                      |   |       |          |                  |
|----------------------|---|-------|----------|------------------|
| $V_f$                | = |       | 6,3      | V.               |
| $I_f$                | = |       | 0,3      | A.               |
| $V_a$                | = | 90    | 180      | 250(max) V.      |
| $V_{g2}$             | = | 90    | 90       | 90(max) V.       |
| $V_{g1}(\text{max})$ | = | -3    | -3       | -3 V.            |
| $V_{g1}$             | = | -42,5 | -42,5    | -42,5 V.         |
| $I_a$                | = | 5,6   | 5,8      | 5,8 mA.          |
| $I_{g2}$             | = | 1,6   | 1,4      | 1,4 mA.          |
| $g$                  | = | 360   | 750      | 1050             |
| $R_i$                | = | 0,375 | 0,75     | 1 M. $\Omega$    |
| $S(\text{max})$      | = | 0,96  | 1,0      | 1,05 mA./V.      |
| $S(\text{min})$      | = |       | 0,002(1) | mA/V.            |
| $R_k$                | = | 400   | 400      | 400 $\Omega$ (2) |

(1)  $V_{g_1} = -42,50 \text{ V.}$

(2) MOD  $\rightarrow R_k = 2.000 \text{ } \Omega.$



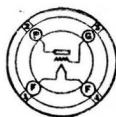
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40

40

# TRIODE (LF<sub>w</sub>)

|                |   |           |       |
|----------------|---|-----------|-------|
| V <sub>f</sub> | = | 5,0       | V.    |
| I <sub>f</sub> | = | 0,25      | A.    |
| V <sub>a</sub> | = | 135 180   | V.    |
| V <sub>g</sub> | = | —1,5 —3   | V.    |
| I <sub>a</sub> | = | 0,2 0,2   | mA.   |
| g              | = | 30 30     |       |
| R <sub>i</sub> | = | 0,15 0,15 | M.Ω   |
| S              | = | 0,2 0,2   | mA/V. |
| R <sub>k</sub> | = | 15.000    | Ω     |

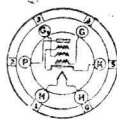
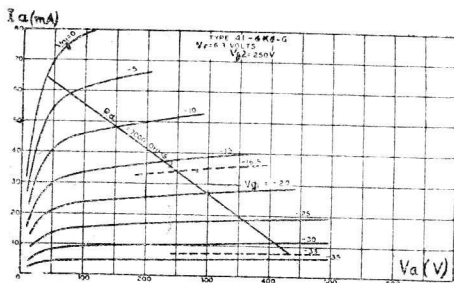


40

# PENTHODE (E)

|         |   |       |      |       |          |       |
|---------|---|-------|------|-------|----------|-------|
| Vf      | = |       |      | 6,3   | V.       |       |
| If      | ≈ |       |      | 0,4   | A.       |       |
| Va      | = | 100   | 135  | 180   | 250(max) | V.    |
| Vg2     | = | 100   | 135  | 180   | 250(max) | V.    |
| Vg      | = | —7    | —10  | —13,5 | —18      | V.    |
| Ia      | = | 9,0   | 12,5 | 18,5  | 32       | mA.   |
| Ig2     | = | 1,6   | 2,2  | 3,0   | 5,5      | mA.   |
| g       | = | 150   | 150  | 150   | 150      |       |
| Ri      | = | 103,5 | 94   | 81    | 68       | kΩ    |
| S       | = | 1,45  | 1,6  | 1,85  | 2,2      | mA/V. |
| Wo(10%) | = | 0,33  | 0,75 | 1,5   | 3,4      | Wtt.  |
| Ra      | = | 12,0  | 10,4 | 9,0   | 7,6      | kΩ    |
| Rk      | = | 660   | 680  | 630   | 480      | Ω     |

V. 6K6-G



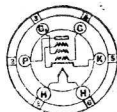
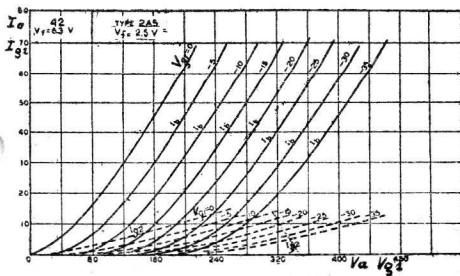
41

# PENTHODE (E<sub>AB</sub>) (1)

V<sub>f</sub> = 6,3  
I<sub>f</sub> = 0,7

V.  
A.

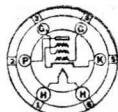
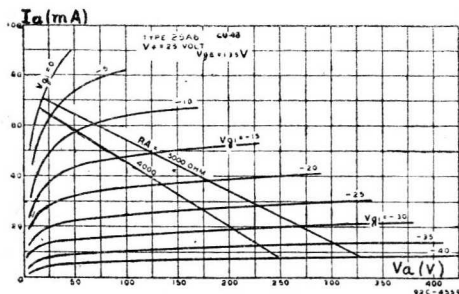
(1) V. type 2A5 6F6.



# PENTHODE (E)

|          |   |       |       |                        |
|----------|---|-------|-------|------------------------|
| $V_f$    | = |       | 25    | V.                     |
| $I_f$    | = |       | 0,3   | A.                     |
| $V_a$    | = | 95    | 135   | 180(max) V.            |
| $V_{g2}$ | = | 95    | 135   | 135(max) V.            |
| $V_g$    | = | -15   | -20   | -20 V.                 |
| $I_a$    | = | 20    | 37    | 38 mA.                 |
| $I_{g2}$ | = | 4     | 8     | 7,5 mA.                |
| $g$      | = | 90    | 85    | 100                    |
| $R_i$    | = | 45    | 35    | 40 k $\Omega$          |
| $S$      | = | 2     | 2,45  | 2,5 mA/V.              |
| $W_o$    | = | 0,9   | 2     | 2,75 W <sub>tt</sub> . |
| $R_a$    | = | 4.500 | 4.000 | 5.000 $\Omega$         |
| $R_k$    | = | 625   | 440   | 440 $\Omega$           |

V. 25 A 6.



45

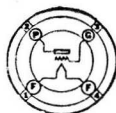
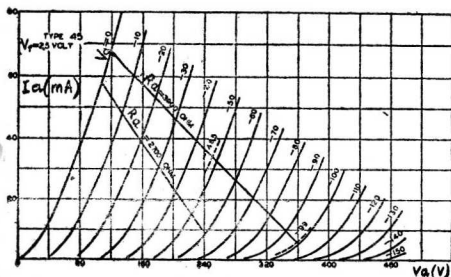
45

# TRIODE ( $E_{AB}$ )

|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 2,5 | V. |
| $I_f$ | = | 1,5 | A. |

 $E_A$ 

|       |   |       |       |          |            |
|-------|---|-------|-------|----------|------------|
| $V_a$ | = | 180   | 250   | 275(max) | V.         |
| $V_g$ | = | -31,5 | -50   | -56      | V.         |
| $I_a$ | = | 31    | 34    | 36       | mA.        |
| $R_i$ | = | 1.650 | 1.610 | 1.700    | $\Omega$   |
| $g$   | = | 3,5   | 3,5   | 3,5      |            |
| $S$   | = | 2,125 | 2,175 | 2,050    | mA/V.      |
| $R_a$ | = | 2,7   | 3,9   | 4,6      | k $\Omega$ |
| $R_k$ | = | 1.020 | 1.470 | 1.550    | $\Omega$   |
| $W_o$ | = | 0,825 | 1,6   | 2,0      | Wtt.       |



45

45

|        |   | $E_{AB2}$ |       |          |  |
|--------|---|-----------|-------|----------|--|
|        |   | FB        | SB    |          |  |
| Va     | = | 275       | 275   | V.       |  |
| Vg     | = | —68       | —     | V.       |  |
| Rk     | = | —         | 775   | $\Omega$ |  |
| Ia     | = | 28-138    | 72-90 | mA.      |  |
| Ra     | = | 3.200     | 5.060 | $\Omega$ |  |
| Wo(5%) | = | 18        | 12    | Wtt.     |  |

45





46

 $E_{A1}$  $g_2 \rightarrow pl.$ 

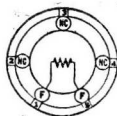
|            |   |       |          |
|------------|---|-------|----------|
| $V_a(max)$ | = | 250   | V.       |
| $V_g$      | = | —33   | V.       |
| $I_a$      | = | 22    | mA.      |
| $R_i$      | = | 2.380 | $\Omega$ |
| $g$        | = | 5,6   |          |
| $S$        | = | 2,35  | mA/V.    |
| $R_a$      | = | 6.400 | $\Omega$ |
| $W_o$      | = | 1,25  | Wtt.     |
| $R_k$      | = | 1.500 | $\Omega$ |

46

**46 A 1**

STROOMREGULATOR  
REGULATRICE

|    |   |      |    |
|----|---|------|----|
| Vf | = | 46,1 | V. |
| If | = | 0,4  | A. |

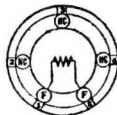


**46A1**

**46 B 1**

STROOMREGULATOR  
REGULATRICE

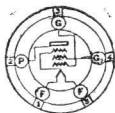
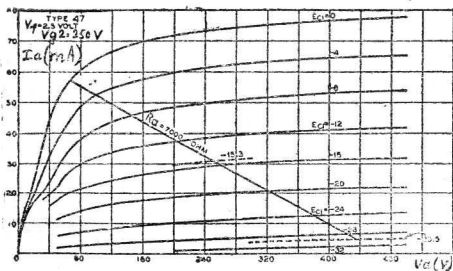
|    |   |      |    |
|----|---|------|----|
| Vf | = | 46,1 | V. |
| If | = | 0,3  | A. |



**46B1**

PENTHODE  
(E)

|                      |   |        |       |
|----------------------|---|--------|-------|
| Vf                   | = | 2,5    | V.    |
| If                   | = | 1,75   | A.    |
| V <sub>a(max)</sub>  | = | 250    | V.    |
| V <sub>sg(max)</sub> | = | 250    | V.    |
| V <sub>g</sub>       | = | —16,5  | V.    |
| I <sub>a</sub>       | = | 31     | mA.   |
| I <sub>sg</sub>      | = | 6      | mA.   |
| g                    | = | 150    |       |
| R <sub>i</sub>       | = | 60.000 | Ω     |
| S                    | = | 2,5    | mA/V. |
| W <sub>o(6%)</sub>   | = | 2,7    | Wtt.  |
| R <sub>a</sub>       | = | 7.000  | Ω     |
| R <sub>k</sub>       | = | 450    | Ω     |
| C <sub>i</sub>       | = | 8,6    | μμF.  |
| C <sub>o</sub>       | = | 13     | μμF.  |



# TETRODE ( $E_{AB}$ )

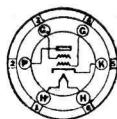
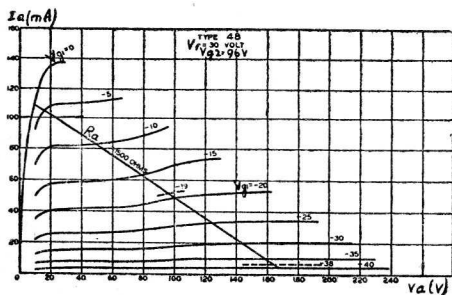
|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 30  | V. |
| $I_f$ | = | 0,4 | A. |

 $E_A$ 

## TETRODE

## TRIODE (1)

|          |   |         |          |     |          |          |
|----------|---|---------|----------|-----|----------|----------|
| $V_a$    | = | 96      | 125(max) | 80  | 125(max) | V.       |
| $V_{g2}$ | = | 96      | 100(max) | —   | —        | V.       |
| $V_{g1}$ | = | -19     | -20      | -20 | -32,5    | V.       |
| $I_a$    | = | 52      | 56       | 31  | 52       | mA.      |
| $I_{g2}$ | = | 9       | 9,5      | —   | —        | mA.      |
| $R_i$    | = | variab. |          | 760 | 675      | $\Omega$ |
| $g$      | = | variab. |          | 2,5 | 2,5      |          |
| $S$      | = | 3,8     | 3,9      | 3,3 | 3,7      | mA/V.    |
| $R_a$    | = | 1.500   | 1.500    | —   | —        | $\Omega$ |
| $R_k$    | = | 310     | 310      | —   | —        | $\Omega$ |
| $W_o$    | = | 2       | 2,5      | —   | —        | Wtt.     |



48

## PUSH-PULL - A - 2 lp.

## TETRODE      TRIODE (1)

|            |   |          |          |           |
|------------|---|----------|----------|-----------|
| $V_a$      | = | 125(max) | 125(max) | $V.$      |
| $V_{g2}$   | = | 100(max) | —        | $V.$      |
| $V_{g1}$   | = | —20      | —32,5    | $V.$      |
| $I_a$      | = | 100      | 100      | mA.       |
| $R_a(p.p)$ | = | 3.000    | 1.250    | $\Omega$  |
| $d \%$     | = | 9        | 2        |           |
| $W_o$      | = | 5        | 3        | $W_{tt.}$ |

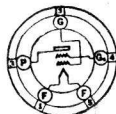
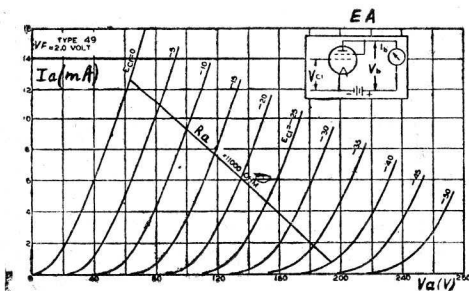
(1)  $g_2 \rightarrow Pl.$

# TETRODE ( $E_{AB}$ )

|       |   |      |    |
|-------|---|------|----|
| $V_f$ | = | 2    | V. |
| $I_f$ | = | 0,12 | A. |

$E_B$  - 2 lp. TRIODE (1)

|            |   |       |          |          |
|------------|---|-------|----------|----------|
| $V_a$      | = | 135   | 180(max) | V.       |
| $V_g$      | = | 0     | 0        | V.       |
| $I_a$      | = | 2,6   | 4        | mA.      |
| $R_a(p.p)$ | = | 8.000 | 12.000   | $\Omega$ |
| $W_o$      | = | 2,3   | 3,5      | Wtt.     |



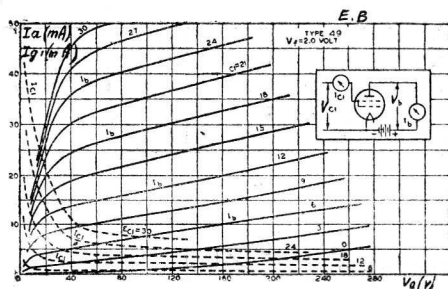
49

49

|       |   |           |          |
|-------|---|-----------|----------|
| $V_a$ | = | 135(max)  | V.       |
| $V_g$ | = | -20       | V.       |
| $I_a$ | = | 6         | mA.      |
| $R_i$ | = | 4.175     | $\Omega$ |
| $g$   | = | 4,7       |          |
| $S$   | = | 1,125     | mA/V.    |
| $R_a$ | = | 11.000(3) | $\Omega$ |
| $W_o$ | = | 0,17      | Wtt.     |
| $R_k$ | = | 3.500     | $\Omega$ |

(1)  $G_1 \rightarrow G_2$ (2)  $G_2 \rightarrow P.$ (3) 22.000  $\Omega$  als stuurlamp.22.000  $\Omega$  comme driver.

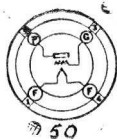
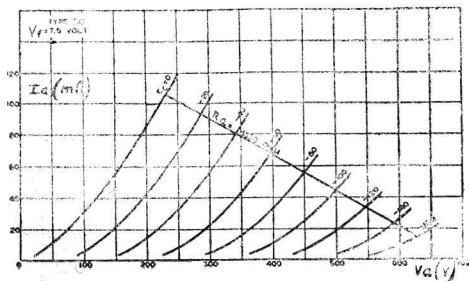
49

 $E_A$  - TRIODE (2)



# TRIODE (E)

|    |      |              |       |          |          |
|----|------|--------------|-------|----------|----------|
| Vf | =    |              |       | 7,5      | V.       |
| If | =    |              |       | 1,25     | A.       |
| Va | 250  | 200 = 350    | 400   | 450(max) | V.       |
| Vg | -95  | -54 = -63    | -70   | -84      | V.       |
| Ia | 20   | 35 = 45      | 55    | 55       | mA.      |
| g  |      | 3,8 = 3,8    | 3,8   | 3,8      |          |
| Ri |      | 2000 = 1.900 | 1.800 | 1.800    | $\Omega$ |
| S  |      | 1,9 = 2,0    | 2,1   | 2,1      | mA/V.    |
| Wo |      | 1,6 = 2,4    | 3,4   | 4,6      | Wtt.     |
| Ra |      | 4600 = 4.100 | 3.670 | 4.350    | $\Omega$ |
| Rk | 1600 | 1550 = 1.400 | 1.275 | 1.530    | $\Omega$ |

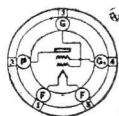


52

# TETRODE (E<sub>AB</sub>)

52

|                     |   |                |                |                  |
|---------------------|---|----------------|----------------|------------------|
| V <sub>f</sub>      | = |                | 6,3            | V.               |
| I <sub>f</sub>      | = |                | 0,3            | A.               |
|                     |   | E <sub>A</sub> | E <sub>B</sub> |                  |
| V <sub>a(max)</sub> | = | 110            | 180            | V.               |
| V <sub>g</sub>      | = | 0              | 0              | V                |
| I <sub>a</sub>      | = | 43             | 6-40           | mA.              |
| g                   | = | 5,2            |                |                  |
| R <sub>i</sub>      | = | 1.750          |                | Ω                |
| S                   | = | 3              |                | mA/V.            |
| W <sub>o</sub>      | = | 1,5            |                | W <sub>tt.</sub> |
| R <sub>a</sub>      | = | 2.000          |                | Ω                |



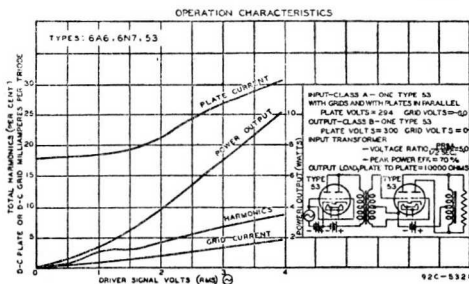
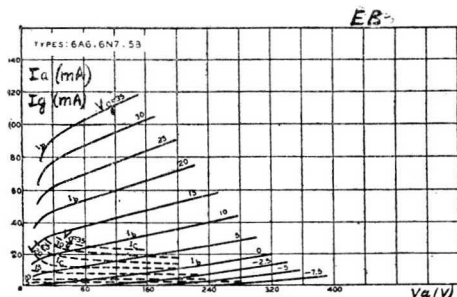
52

# DUOTRIODE (ST - E<sub>A-B</sub>) (1)

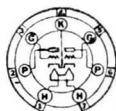
$$\begin{array}{rcl} V_f & = & 2,5 \\ I_f & = & 2 \end{array}$$

$$\begin{array}{rcl} V. & & \\ A. & & \end{array}$$

(1) V. type 6 A 6.



Andere  
krommen  
zie :  
6A6 - 6N7  
Autres  
courbes  
voir :  
6A6 - 6N7



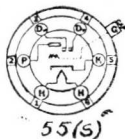
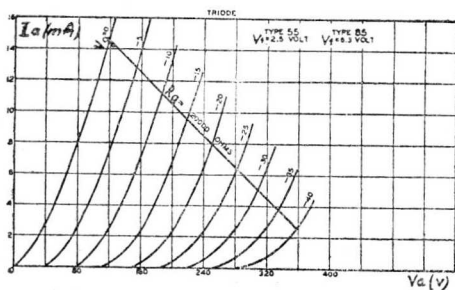
55  
55-S

55  
55-S

DUODIODE - TRIODE  
( dDET + LF) (1)

|       |   |       |       |          |
|-------|---|-------|-------|----------|
| $V_f$ | = |       | 2,5   | V.       |
| $I_f$ | = |       | 1,0   | A.       |
| $V_a$ | = | 135   | 180   | 250(max) |
| $V_g$ | = | -10,5 | -13,5 | -20      |
| $I_a$ | = | 3,7   | 6,0   | 8,0      |
| $g$   | = | 8,3   | 8,3   | 8,3      |
| $R_i$ | = | 11    | 8,5   | 7,5      |
| $S$   | = | 0,75  | 0,975 | 1,1      |
| $W_o$ | = | 0,075 | 0,16  | 0,35     |
| $R_a$ | = | 25    | 20    | 20       |
| $R_k$ | = | 3000  | 2250  | 2500     |

(1) V. type 6 V 7 - G.



56

\*)

56-S

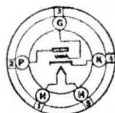
56

56-S

TRIODE  
(HF . DET - OSC)

|                |   |        |          |          |
|----------------|---|--------|----------|----------|
| V <sub>f</sub> | = |        | 2,5      | V.       |
| I <sub>f</sub> | = |        | 1,0      | A.       |
| V <sub>a</sub> | = | 100    | 250(max) | V.       |
| V <sub>g</sub> | = | —5     | —13,5    | V.       |
| I <sub>a</sub> | = | 2,5    | 5        | mA.      |
| $\alpha$       | = | 13,8   | 13,8     |          |
| R <sub>i</sub> | = | 12.000 | 9.500    | $\Omega$ |
| S              | = | 1,15   | 1,45     | mA/V.    |
| R <sub>k</sub> | = |        | 2.700    | $\Omega$ |

\*) Zelfde kan als 76.



56(S)

57 <sup>x)</sup>  
 57 S  
 57 AS(1)

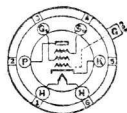
57  
 57 S  
 57 AS(1)

|     |   |       |       |
|-----|---|-------|-------|
| Vf  | = | 2,5   | V.    |
| If  | = | 1,0   | A.    |
| Va  | = | 250   | V.    |
| Vg1 | = | 3,0   | V.    |
| Vg2 | = | 100   | V.    |
| Ia  | = | 2(2)  | mA.   |
| Ig2 | = | 0,5   | mA.   |
| Ri  | = | 1,5   | M.Ω   |
| S   | = | 0,122 | mA/V. |
| g   | = | 1.500 |       |

(1) If = 0,4 A.

(2) Ajust. Ia = 0,1 mA. zonder sein - sans signal.

<sup>x)</sup> Zelfde kan. als 6C6.



57(S)(AS)

58 <sup>\*)</sup>  
 58 S  
 58 AS(1)

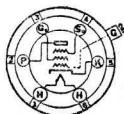
58  
 58 S  
 58 AS(1)

PENTHODE  
 (HF - MF)

|          |   |                    |             |
|----------|---|--------------------|-------------|
| Vf       | = | <del>6,5</del> 2,5 | V.          |
| If       | = | 1,0                | A.          |
| Va       | = | 100                | 250(max) V. |
| Vg2      | = | 100                | 100(max) V. |
| Vgl(min) | = | —3                 | —3 V.       |
| Ia       | = | 8                  | 8,2 mA.     |
| Ig2      | = | 2,2                | 2,0 mA.     |
| g        | = | 375                | 1.280       |
| Ri       | = | 0,25               | 0,8 M.Ω     |
| S(max)   | = | 1.500              | 1.600 mA/V. |
| Ci       | = |                    | 4,7 μμF.    |
| Co       | = |                    | 6,5 μμF.    |
| Rk       | = | 400                | 400 Ω       |

(1) If = 0,4 A.

\*) zeltde kar. als 6D6



58(S)(AS)



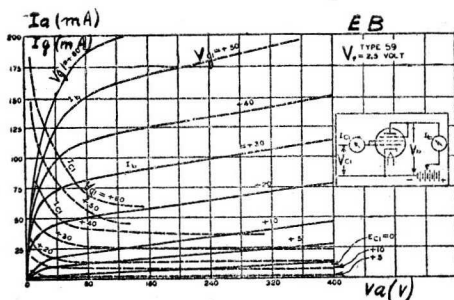


$E_B - 2 \text{ lp.}$ 

## TRIODE (3)

|                    |   |       |       |          |
|--------------------|---|-------|-------|----------|
| $V_a$              | = | 300   | 400   | V.       |
| $V_g$              | = | 0     | 0     | V.       |
| $I_a$              | = | 20    | 26    | mA.      |
| $R_a(\text{p.p.})$ | = | 4.600 | 6.000 | $\Omega$ |
| $W_o$              | = | 15    | 20    | Wtt.     |

- (1)  $G_2 + G_3 \rightarrow \text{anode.}$   
 (2)  $G_3 \rightarrow \text{cath.}$   
 (3)  $G_1 \rightarrow G_2 \rightarrow G_3 \rightarrow \text{anode.}$

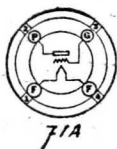
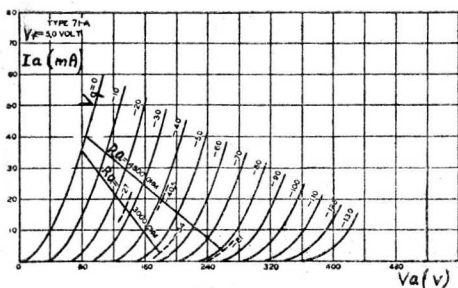


71 A

71 A

TRIODE  
(E)

|       |   |       |       |                |
|-------|---|-------|-------|----------------|
| $V_f$ | = |       | 5     | V.             |
| $I_f$ | = |       | 0,25  | A.             |
| $V_a$ | = | 90    | 135   | 180(max) V.    |
| $V_g$ | = | -16,5 | -27   | -40,5 V.       |
| $I_a$ | = | 10    | 17,3  | 20 mA.         |
| $g$   | = | 3     | 3     | 3              |
| $R_i$ | = | 2.170 | 1.820 | 1.750 $\Omega$ |
| $S$   | = | 1,4   | 1,65  | 1,7 mA/V.      |
| $W_o$ | = | 0,125 | 0,4   | 0,79 Wtt.      |
| $R_a$ | = | 3.000 | 3.000 | 4.800 $\Omega$ |
| $R_k$ | = | 1.600 | 1.700 | 2.150 $\Omega$ |



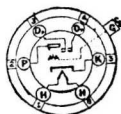
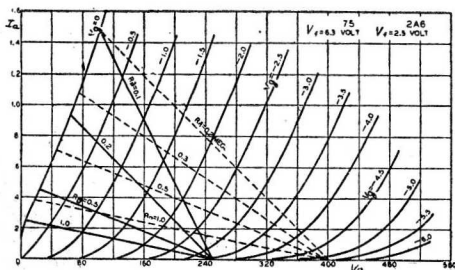
75  
75 S

75  
75 S

# DUODIODE - TRIODE (d DET + LF<sub>w</sub>) (1)

|                     |   |                |       |
|---------------------|---|----------------|-------|
| V <sub>f</sub>      | = | 6,3            | V.    |
| I <sub>f</sub>      | = | 0,3            | A.    |
| V <sub>a(max)</sub> | = | 250            | V.    |
| V <sub>g</sub>      | = | —2             | V.    |
| I <sub>a</sub>      | = | 0,8            | mA.   |
| g                   | = | 100            |       |
| R <sub>i</sub>      | = | 91.000         | Ω     |
| S                   | = | 1,1            | mA/V. |
| R <sub>k</sub>      | = | 2.600 / 17.400 | Ω     |
| C <sub>ag</sub>     | = | 1,7            | μμF.  |
| C <sub>i</sub>      | = | 1,7            | μμF.  |
| C <sub>o</sub>      | = | 3,8            | μμF.  |

(1) V. type 2 A 6.



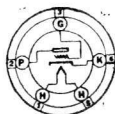
75(S)

76

76

# TRIODE (HF - OSC - MF - DET)

|    |   |        |                |
|----|---|--------|----------------|
| Vf | = | 6,3    | V.             |
| If | = | 0,3    | A.             |
| Va | = | 100    | 250(max) V.    |
| Vg | = | —5     | —13,5 V.       |
| Ia | = | 2,5    | 5 mA.          |
| g  | = | 13,8   | 13,8           |
| Ri | = | 12.000 | 9.500 $\Omega$ |
| S  | = | 1,15   | 1,45 mA/V.     |
| Rk | = | 2.000  | 2.700 $\Omega$ |

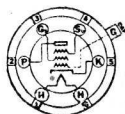


76

# PENTHODE (A . DET)

|          |   |      |          |       |
|----------|---|------|----------|-------|
| $V_f$    | = |      | 6,3      | V.    |
| $I_f$    | = |      | 0,3      | A.    |
| $V_a$    | = | 100  | 250(max) | V.    |
| $V_{g2}$ | = | 60   | 100(max) | V.    |
| $V_{g1}$ | = | -1,5 | -3       | V.    |
| $V_{co}$ | = | -5,5 | -7,5     | V.    |
| $I_a$    | = | 1,7  | 2,3      | mA.   |
| $I_{g2}$ | = | 0,4  | 0,5      | mA.   |
| $g$      | = | 715  | 1.500    |       |
| $R_i$    | = | 0,65 | 1,5      | M.Ω   |
| $S$      | = | 1,1  | 1,25     | mA/V. |
| $R_k$    | = | 700  | 1.000    | Ω     |

$V_{g3} \rightarrow \text{cath.}$

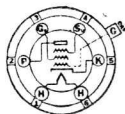


77P

# PENTHODE (HF - MF)

|          |   |       |       |       |          |       |
|----------|---|-------|-------|-------|----------|-------|
| $V_f$    | = |       |       |       | 6,3      | V.    |
| $I_f$    | = |       |       |       | 0,3      | A.    |
| $V_a$    | = | 90    | 180   | 250   | 250(max) | V.    |
| $V_{g2}$ | = | 90    | 75    | 100   | 125(max) | V.    |
| $V_g$    | = | —3    | —3    | —3    | —3       | V.    |
| $V_{co}$ | = | —38,5 | —32,5 | —42,5 | —52,5    | V.    |
| $I_a$    | = | 5,4   | 4,0   | 7,0   | 10,5     | mA.   |
| $I_{g2}$ | = | 1,3   | 1,0   | 1,7   | 2,6      | mA.   |
| $g$      | = | 400   | 1.100 | 1.160 | 990      |       |
| $R_i$    | = | 0.315 | 1,0   | 0,8   | 0,6      | M.Ω   |
| $R_k$    | = | 450   | 600   | 350   | 250      | Ω     |
| $S$      | = | 1,275 | 1,100 | 1,450 | 1,650    | mA/V. |
| $C_i$    | = |       |       |       | 4,5      | μμF.  |
| $C_o$    | = |       |       |       | 11       | μμF.  |

$G_3 \rightarrow \text{Kath.}$



78

79

79

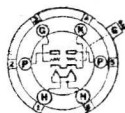
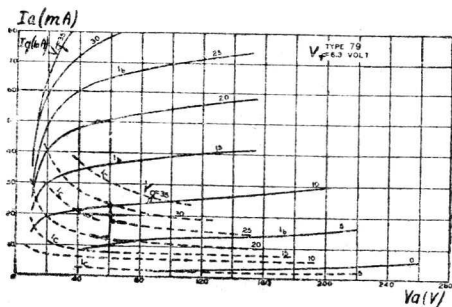
## DUOTRIODE

(E<sub>B</sub>) (1)

|                      |   |       |                       |
|----------------------|---|-------|-----------------------|
| V <sub>f</sub>       | = | 6,3   | V.                    |
| I <sub>f</sub>       | = | 0,6   | A.                    |
| V <sub>a</sub>       | = | 180   | 250(max) V.           |
| V <sub>g</sub>       | = | 0     | 0 V.                  |
| I <sub>a</sub>       | = | 3,8   | 5,3 mA.               |
| W <sub>i</sub>       | = | 0,38  | 0,38 W <sub>tt.</sub> |
| W <sub>o</sub>       | = | 5,5   | 8,0 W <sub>tt.</sub>  |
| R <sub>a</sub> (p.p) | = | 7.000 | 14.000 Ω              |

(1) V. type 6 Y 7-G.

31-12-38



79

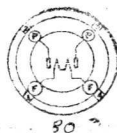
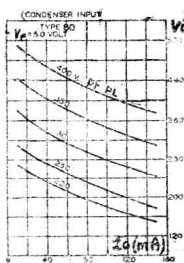
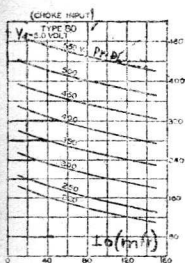
80

80

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|            |   |                |          |
|------------|---|----------------|----------|
| $V_f$      | = | 5,0            | V.       |
| $I_f$      | = | 2,0            | A.       |
| $V_a \sim$ | = | 350 400 550(1) | V(max)   |
| $I_a$      | = | 125 110 135    | mA.(max) |

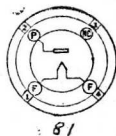
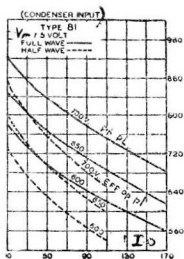
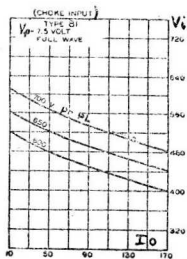
- (1) Alleen voor afvlakking met smoorspoel-ingang.  
Seulement pour filtre avec self d'entrée.





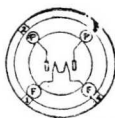
# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |      |                        |
|-------|---|------|------------------------|
| $V_f$ | = | 7,5  | V.                     |
| $I_f$ | = | 1,25 | A.                     |
| $V_a$ | = | 700  | $V_{\sim}(\text{max})$ |
| $I_a$ | = | 85   | mA(max)                |



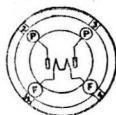
# GELIJKRICHTERLAMP REDRESSEUSE (Hg)

|           |   |     |                  |
|-----------|---|-----|------------------|
| Vf        | = | 2,5 | V.               |
| If        | = | 3   | A.               |
| Va(pr.pl) | = | 500 | $V_{\sim}$ (max) |
| Ia        | = | 125 | mA (max)         |
| Iap       | = | 400 | mA (max)         |
| Vl        | = | 15  | V.               |



# GELIJKRICHTERLAMP REDRESSEUSE (Hg)

|           |   |     |                        |
|-----------|---|-----|------------------------|
| Vf        | = | 5   | V.                     |
| If        | = | 3   | A.                     |
| Va(pr.pl) | = | 500 | $V_{\sim}(\text{max})$ |
| Ia        | = | 250 | mA(max)                |
| Iap       | = | 800 | mA(max)                |
| VI        | = | 15  | V.                     |



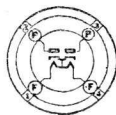
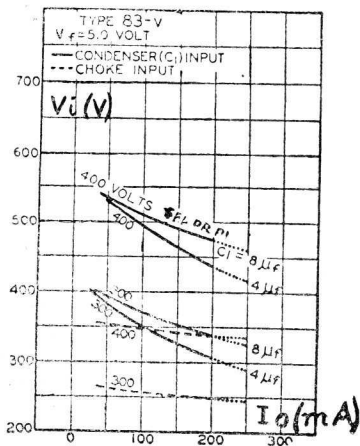
33

83 V

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

83 V

|                     |   |     |                        |
|---------------------|---|-----|------------------------|
| $V_f$               | = | 5,0 | V.                     |
| $I_f$               | = | 2,0 | A.                     |
| $V_a(\text{pr.pl})$ | = | 400 | $V_{\sim}(\text{max})$ |
| $i_a$               | = | 200 | mA(max)                |

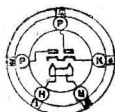
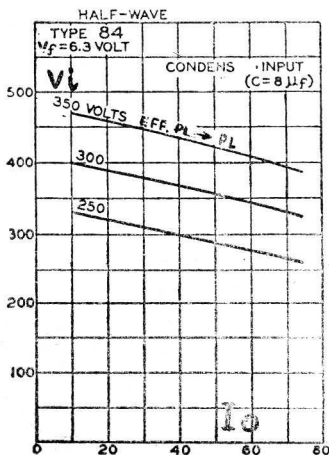


83V

# GELIJKRICHTERLAMP REDRESSEUSE (VAC) (1)

|             |   |     |               |
|-------------|---|-----|---------------|
| $V_f$       | = | 6,3 | V.            |
| $I_f$       | = | 0,5 | A.            |
| $V_a(p.pl)$ | = | 350 | $V.\sim(max)$ |
| $I_a$       | = | 50  | mA.(max)      |

(1) V. type 6 Z 4

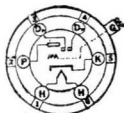
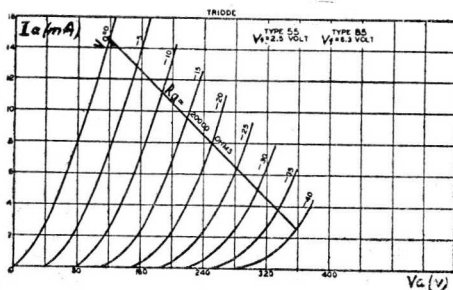


84

# DUODIODE - TRIODE (d DET + LF)

|    |   |       |       |          |       |
|----|---|-------|-------|----------|-------|
| Vf | = |       | 6,3   | V.       |       |
| If | = |       | 0,3   | A.       |       |
| Va | = | 135   | 180   | 250(max) | V.    |
| Vg | = | —10,5 | —13,5 | —20      | V.    |
| Ia | = | 3,7   | 6,0   | 8,0      | mA.   |
| g  | = | 8,3   | 8,3   | 8,3      |       |
| Ri | = | 11    | 8,5   | 7,5      | kΩ    |
| S  | = | 0,75  | 0,975 | 1,1      | mA/V. |
| Wo | = | 0,075 | 0,16  | 0,35     | Wtt.  |
| Ra | = | 25    | 20    | 20       | kΩ    |
| Rk | = | 3000  | 2250  | 2500     | Ω     |

(1) V. type 6 V 7 - G.



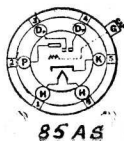
85 AS

85 AS

DUODIODE - TRIODE

|                   |   |        |          |
|-------------------|---|--------|----------|
| $V_f$             | = | 6,3    | $V.$     |
| $I_f$             | = | 0,3    | A.       |
| $V_a(\text{max})$ | = | 250    | V.       |
| $V_g$             | = | —9     | V.       |
| $i_a$             | = | 4,5    | mA.      |
| $g$               | = | 20     |          |
| $R_i$             | = | 16.000 | $\Omega$ |
| $S$               | = | 1,25   | mA/V.    |
| $R_k$             | = | 2.000  | $\Omega$ |

V. 6 C 7



# PENTHODE ( $E_{AB}$ )

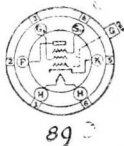
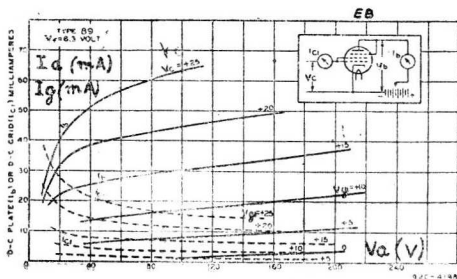
|       |   |     |    |
|-------|---|-----|----|
| $V_f$ | = | 6,3 | V. |
| $I_f$ | = | 0,4 | A. |

## $E_{A1}$ TRIODE

 $G_1 \rightarrow G_2 \rightarrow pl.$ 

|          |   |       |       |          |          |
|----------|---|-------|-------|----------|----------|
| $V_a$    | = | 160   | 180   | 250(max) | V.       |
| $V_{g1}$ | = | -20   | -22,5 | -31      | V.       |
| $I_a$    | = | 17    | 20    | 32       | mA.      |
| $g$      | = | 4,7   | 4,7   | 4,7      |          |
| $R_i$    | = | 3.300 | 3.000 | 2.600    | $\Omega$ |
| $S$      | = | 1,425 | 1,55  | 1,8      | mA/V.    |
| $R_a(1)$ | = | 7.000 | 6.500 | 5.500    | $\Omega$ |
| $R_k$    | = | 1.180 | 1.125 | 970      | $\Omega$ |
| $W_o$    | = | 0,3   | 0,4   | 0,9      | Wtt.     |

(1) Deze waarden zijn de verdubbelen in ST schakelingen.  
Ces valeurs sont à doubler pour « driver ».





$E_{A1}$  PENTHODE $G_3 \rightarrow K$ 

|     |   |      |       |      |          |            |
|-----|---|------|-------|------|----------|------------|
| Va  | = | 100  | 135   | 180  | 250(max) | V.         |
| Vg2 | = | 100  | 135   | 180  | 250(max) | V.         |
| Vgl | = | —10  | —13,5 | —18  | —25      | V.         |
| la  | = | 9,5  | 14    | 20   | 32       | mA.        |
| Ig2 | = | 1,6  | 2,2   | 3,0  | 5,5      | mA.        |
| g   | = | 125  | 125   | 125  | 125      |            |
| Ri  | = | 104  | 92,5  | 80   | 70       | k $\Omega$ |
| S   | = | 1,2  | 1,35  | 1,55 | 1,8      | mA/V.      |
| Ra  | = | 10,7 | 9,2   | 8,0  | 6,75     | k $\Omega$ |
| Rk  | = | 900  | 830   | 785  | 670      | $\Omega$   |
| Wo  | = | 0,33 | 0,75  | 1,5  | 3,4      | Wtt.       |

 $E_B$  TRIODE $G_1 \rightarrow G_2 \quad G_3 \rightarrow pl.$ 

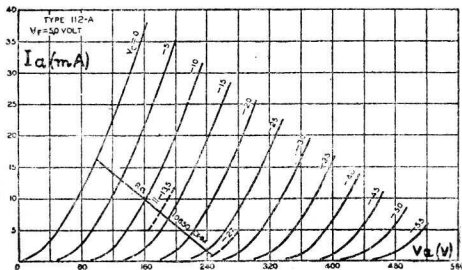
|         |   |       |          |
|---------|---|-------|----------|
| Va      | = | 180   | V.       |
| Vgl     | = | 0     | V.       |
| la      | = | 6     | mA.      |
| Ra(p.p) | = | 9.400 | $\Omega$ |
| Wo      | = | 3,5   | Wtt.     |

112 A

112 A

# TRIODE (DET - LF - E)

|       |   |       |       |                 |
|-------|---|-------|-------|-----------------|
| $V_f$ | = |       | 5,0   | V.              |
| $I_f$ | = |       | 0,25  | A.              |
| $V_a$ | = | 90    | 135   | 180(max) V.     |
| $V_g$ | = | -4,5  | -9    | -13,5 V.        |
| $I_a$ | = | 5,0   | 6,2   | 7,7 mA.         |
| $g$   | = | 8,5   | 8,5   | 8,5             |
| $R_i$ | = | 5.400 | 5.100 | 4.700 $\Omega$  |
| $S$   | = | 1,575 | 1,650 | 1,8 mA/V.       |
| $W_o$ | = | 0,035 | 0,13  | 0,285 Wtt.      |
| $R_a$ | = | 5,000 | 9.000 | 10.650 $\Omega$ |

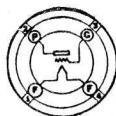


182 B/482 B

182 B/482 B

TRIODE  
(E)

|                     |   |       |                   |
|---------------------|---|-------|-------------------|
| V <sub>f</sub>      | = | 5,0   | V.                |
| I <sub>f</sub>      | = | 1,25  | A.                |
| V <sub>a(max)</sub> | = | 250   | V.                |
| V <sub>g</sub>      | = | —35   | V.                |
| I <sub>a</sub>      | = | 20    | mA.               |
| g                   | = | 5     |                   |
| R <sub>i</sub>      | = | 2.500 | Ω                 |
| S                   | = | 2,0   | mA/V.             |
| W <sub>o</sub>      | = | 1,35  | W <sub>tt</sub> . |
| R <sub>a</sub>      | = | 4.500 | Ω                 |
| R <sub>k</sub>      | = | 1.750 | Ω                 |



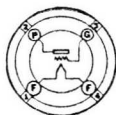
182B  
482 B

183/483

183/483

TRIODE  
(E)

|             |   |       |          |
|-------------|---|-------|----------|
| $V_f$       | = | 5,0   | V.       |
| $I_f$       | = | 1,25  | A.       |
| $V_a(\max)$ | = | 250   | V.       |
| $V_g$       | = | —65   | V.       |
| $I_a$       | = | 20    | mA.      |
| $g$         | = | 3,0   |          |
| $R_i$       | = | 2.000 | $\Omega$ |
| $S$         | = | 1,5   | mA/V.    |
| $W_o$       | = | 1,8   | Wtt.     |
| $R_a$       | = | 4.500 | $\Omega$ |
| $R_k$       | = | 3.250 | $\Omega$ |

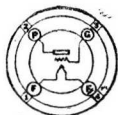
183  
483

200 A

TRIODE (Gas)  
(G. DET)

200 A

|                      |   |        |       |
|----------------------|---|--------|-------|
| V <sub>f</sub>       | = | 5,0    | V.    |
| I <sub>f</sub>       | = | 0,25   | A.    |
| V <sub>a</sub> (max) | = | 45     | V.    |
| V <sub>g</sub>       | = | 0      | V.    |
| I <sub>a</sub>       | = | 1,5    | mA.   |
| g                    | = | 20     |       |
| R <sub>i</sub>       | = | 30.000 | Ω     |
| S                    | = | 0,67   | mA/V. |



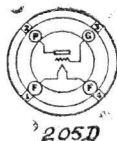
200A

205 D

TRIODE  
(E)

205 D

|              |   |       |           |
|--------------|---|-------|-----------|
| $V_f$        | = | 4,5   | $V.$      |
| $I_f$        | = | 1,6   | $A.$      |
| $V_{a(max)}$ | = | 350   | $V.$      |
| $V_g$        | = | —20   | $V.$      |
| $I_a$        | = | 35    | $mA.$     |
| $g$          | = | 6,5   |           |
| $R_i$        | = | 3.600 | $\Omega$  |
| $S$          | = | 1,8   | $mA/V.$   |
| $W_o$        | = | 1     | $W_{tt}.$ |
| $R_k$        | = | 570   | $\Omega$  |



328

# GELIJKRICHTERLAMP (1) REDRESSEUSE (1)

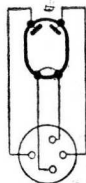
|                   |   |               |
|-------------------|---|---------------|
| $V_f$             | = | 1,8           |
| $I_f$             | = | 2,8           |
| $V_a(\text{max})$ | = | $2 \times 28$ |
| $I_a$             | = | 1,3           |

(1) Accu-lader.

Chargeur d'accumulateurs.

328

V.  
A.  
V.  
A.



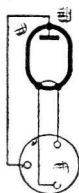
328

373

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

373

|                |   |     |               |
|----------------|---|-----|---------------|
| V <sub>f</sub> | = | 4   | V.            |
| I <sub>f</sub> | = | 1   | A.            |
| V <sub>a</sub> | = | 220 | V.            |
| I <sub>a</sub> | = | 30  | mA.           |
| L              | = | 105 | $\frac{m}{m}$ |
| D              | = | 51  | $\frac{m}{m}$ |



373



451

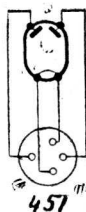
451

# GELIJKRICHTERLAMP (1) REDRESSEUSE (1)

|                   |   |               |    |
|-------------------|---|---------------|----|
| $V_f$             | = | 1,8           | V. |
| $I_f$             | = | 2,8           | A. |
| $V_a(\text{max})$ | = | $2 \times 16$ | V. |
| $I_a$             | = | 1,3           | A. |

(1) Accu-lader.

Chargeur d'accumulateurs.

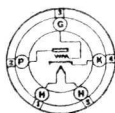


485

# TRIODE (DET - LF)

485

|              |   |       |          |
|--------------|---|-------|----------|
| $V_f$        | = | 3,0   | $V.$     |
| $I_f$        | = | 1,25  | A.       |
| $V_{a(max)}$ | = | 180   | $V.$     |
| $V_g$        | = | —9    | $V.$     |
| $I_a$        | = | 5,8   | mA.      |
| $g$          | = | 12,5  |          |
| $R_i$        | = | 8.900 | $\Omega$ |
| $S$          | = | 1,4   | mA/V.    |
| $R_k$        | = | 1.600 | $\Omega$ |



485

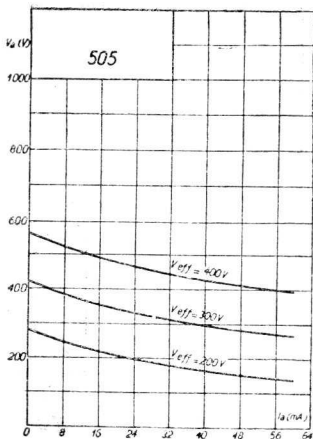
505

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

505

|       |   |     |
|-------|---|-----|
| $V_f$ | = | 4   |
| $I_f$ | = | 1   |
| $V_a$ | = | 400 |
| $I_a$ | = | 60  |
| $L$   | = | 116 |
| $D$   | = | 53  |

V.  
A.  
V.  
mA.  
m/m  
m/m



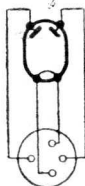
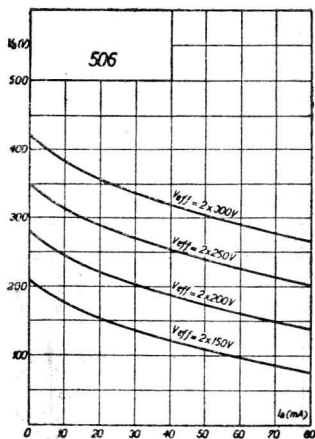
505

506

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

506

|                   |   |                |     |
|-------------------|---|----------------|-----|
| $V_f$             | = | 4,0            | V.  |
| $I_f$             | = | 1,0            | A.  |
| $V_a(\text{max})$ | = | $2 \times 300$ | V.  |
| $I_a$             | = | 75             | mA. |



506

509

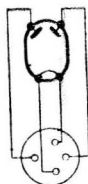
509

# GELIJKRICHTERLAMP (1) REDRESSEUSE (1)

|                   |   |     |     |    |
|-------------------|---|-----|-----|----|
| $V_f$             | = |     | 2,0 | V. |
| $I_f$             | = |     | 4,0 | A. |
| $V_a(\text{max})$ | = | 28  | 175 | V. |
| $I_a$             | = | 1,3 | 0,1 | A. |

(1) Accu-lader.

Chargeur d'accumulateurs.



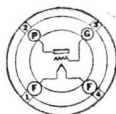
509

841

841

TRIODE  
(LF<sub>w</sub>)

|                     |   |         |       |
|---------------------|---|---------|-------|
| V <sub>f</sub>      | = | 7,5     | V.    |
| I <sub>f</sub>      | = | 1,25    | A.    |
| V <sub>a(max)</sub> | = | 1.000   | V.    |
| V <sub>g</sub>      | = | —9      | V.    |
| I <sub>a</sub>      | = | 2,2     | mA.   |
| g                   | = | 30      |       |
| R <sub>i</sub>      | = | 40.000  | Ω     |
| S                   | = | 0,75    | mA/V. |
| V <sub>o</sub>      | = | 225     | V.    |
| R <sub>a</sub>      | = | 250.000 | Ω     |



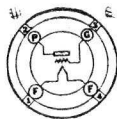
841

842

842

TRIODE  
(MOD - E<sub>A</sub>)

|                     |   |       |                  |
|---------------------|---|-------|------------------|
| V <sub>f</sub>      | = | 7,5   | V.               |
| I <sub>f</sub>      | = | 1,25  | A.               |
|                     |   | EA    | MOD              |
| V <sub>a(max)</sub> | = | 425   | 425 V.           |
| V <sub>g</sub>      | = | —100  | —101 V.          |
| I <sub>a</sub>      | = | 28    | 25 mA.           |
| g                   | = | 3,0   |                  |
| R <sub>i</sub>      | = | 2.500 | Ω                |
| S                   | = | 1,2   | mA/V.            |
| W <sub>o</sub>      | = | 3,0   | W <sub>tt.</sub> |
| R <sub>a</sub>      | = | 8.000 | Ω                |
| R <sub>k</sub>      | = | 3.800 | Ω                |



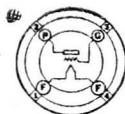
842

864

# TRIODE (DET - LF)

864

|              |   |        |          |
|--------------|---|--------|----------|
| $V_f$        | = | 1,1    | V.       |
| $I_f$        | = | 0,25   | A.       |
| $V_{a(max)}$ | = | 90     | V.       |
| $V_g$        | = | —4,5   | V.       |
| $I_a$        | = | 2,9    | mA.      |
| $g$          | = | 8,2    |          |
| $R_i$        | = | 13.500 | $\Omega$ |
| $S$          | = | 0,61   | mA/V.    |
| $R_k$        | = | 1.500  | $\Omega$ |



864

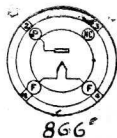


866

866

# GELIJKRICHTERLAMP REDRESSEUSE (Hg)

|             |   |       |          |
|-------------|---|-------|----------|
| $V_f$       | = | 2,5   | $V.$     |
| $I_f$       | = | 5,0   | A.       |
| $V_a(\max)$ | = | 1.750 | $V \sim$ |
| $I_a$       | = | 400   | mA.      |
| $I_a(pk)$   | = | 600   | mA.      |
| $V_l$       | = | 15    | V.       |

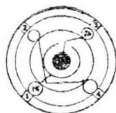


874

874

SPANNINGSREGULATORLAMP  
REGULATEUR DE TENSION

|                     |   |            |
|---------------------|---|------------|
| Ontstekingsspanning | } | min 125 V. |
| Tension d'amorçage  |   |            |
| Bedrijfsspanning    | } | 90 V.      |
| Tension de régime   |   |            |
| Bedrijfsstroom      | } | 10-50 mA.  |
| Courant de régime   |   |            |



374

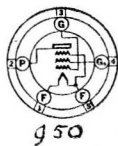
950

950

PENTHODE  
(E)

|             |   |        |          |
|-------------|---|--------|----------|
| $V_f$       | = | 2,0    | V.       |
| $I_f$       | = | 0,12   | A.       |
| $V_a(\max)$ | = | 135    | V.       |
| $V_{sg}$    | = | 135    | V.       |
| $V_g$       | = | —16,5  | V.       |
| $I_a$       | = | 7      | mA.      |
| $g$         | = | 70     |          |
| $R_i$       | = | 50.000 | $\Omega$ |
| $S$         | = | 1,45   | mA/V.    |
| $W_o$       | = | 0,45   | $W_t..$  |
| $R_a$       | = | 7.000  | $\Omega$ |
| $R_k$       | = | 770    | $\Omega$ |

V. type 23.



1002

# GELIJKRICHTERLAMP (1) REDRESSEUSE (1)

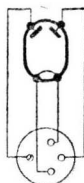
|             |   |     |
|-------------|---|-----|
| $V_f$       | = | 1,8 |
| $I_f$       | = | 2,8 |
| $V_a(\max)$ | = | 160 |
| $I_a$       | = | 0,1 |

(1) Accu-lader.

Chargeur d'accumulateurs.

1002

V.  
A.  
V.  
A.



1002

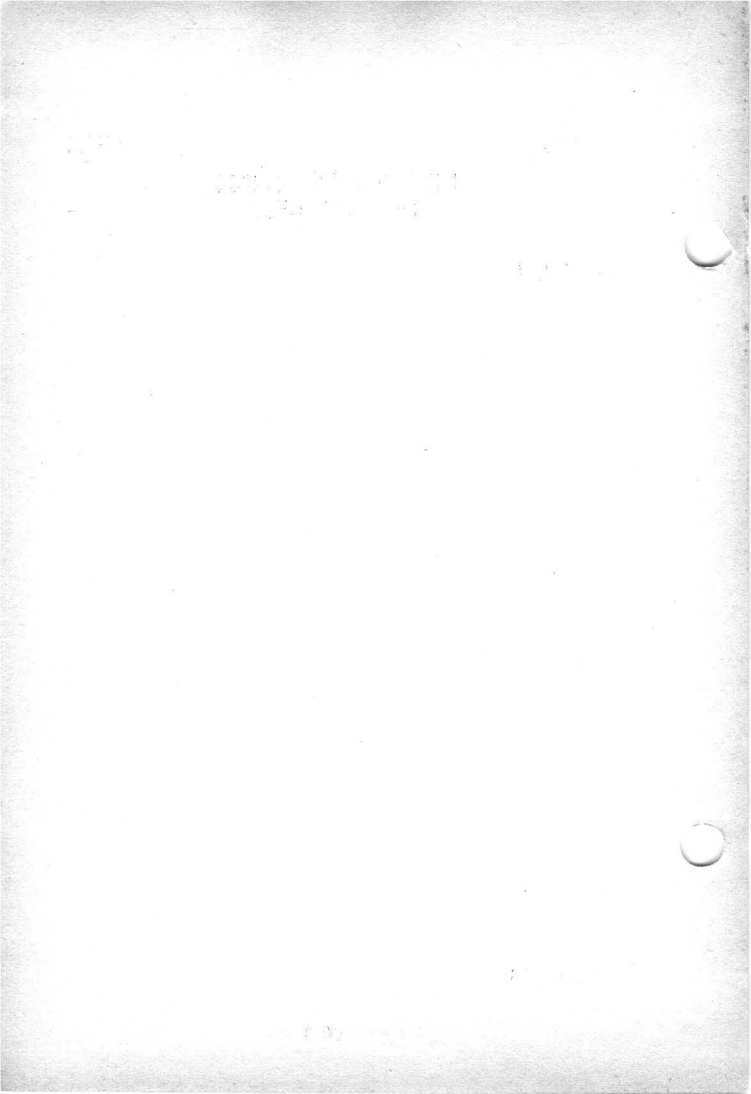
1221

1221

PENTHODE (NM)  
(A . DET - LF<sub>w</sub>)

V. 6 C 6.

31-12-38

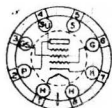


1231

1231

# PENTHODE (TEL)

|                                      |   |                 |                  |                   |
|--------------------------------------|---|-----------------|------------------|-------------------|
| Vf                                   | = |                 | 6,3              | V.                |
| If                                   | = |                 | 0,45             | A.                |
|                                      |   | PENTH.          | TETR.            | TRIODE            |
| Va                                   | = | 300             | 300              | 250 V.            |
| Vg2                                  | = | 150             | 150              | (1) V.            |
| Rk                                   | = | 200             | 200              | 400 $\Omega$      |
| G3                                   | = | $\rightarrow K$ | $\rightarrow G2$ | $\rightarrow Pl.$ |
| la                                   | = | 10              | 12               | 13 mA.            |
| Ig2                                  | = | 2,5             | 0,5              | — mA.             |
| Ri                                   | = | 700             | 540              | 5,2 k $\Omega$    |
| S                                    | = | 0,55            | 0,65             | 0,63 mA/V.        |
| g                                    | = | 3.850           | 3.500            | 33                |
| (1) G <sub>2</sub> $\rightarrow$ Pl. |   |                 |                  |                   |



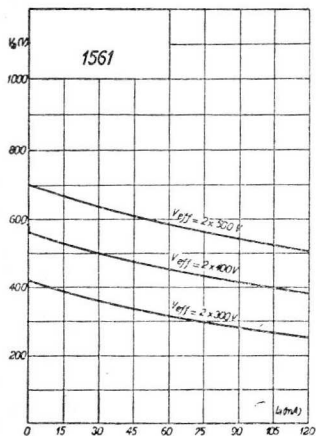
1231

1561

1561

# GELIJKRICHTERLAMP REDRESSEUSE

|       |   |                |      |                         |
|-------|---|----------------|------|-------------------------|
| $V_f$ | = |                | 4    | $V.$                    |
| $I_f$ | = |                | 2    | A.                      |
| $V_a$ | = | $2 \times 500$ | $V.$ | $\rightarrow I_a = 120$ |
| $V_a$ | = | $2 \times 350$ | $V.$ | $\rightarrow I_a = 160$ |
| $L$   | = |                | 125  | $\frac{m}{m}$           |
| $D$   | = |                | 51   | $\frac{m}{m}$           |



1561



1562

1562

# GELIJKRICHTERLAMP REDRESSEUSE

|         |   |      |     |
|---------|---|------|-----|
| Vf      | = | 7,5  | V.  |
| If      | = | 1,25 | A.  |
| Va(max) | = | 750  | V.  |
| Ia      | = | 110  | mA. |



1562

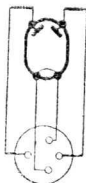
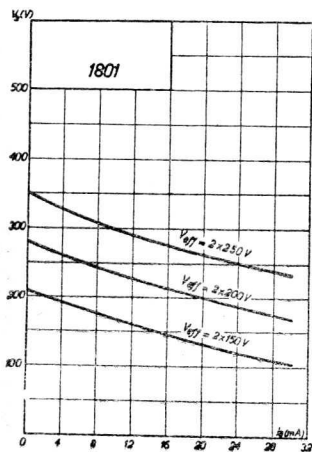
1801

# GELIJKRICHTERLAMP REDRESSEUSE

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 4              |
| $I_t$ | = | 0,5            |
| $V_a$ | = | $2 \times 250$ |
| $I_a$ | = | 30             |
| $L$   | = | 93             |
| $D$   | = | 47             |

1801

V.  
A.  
V.  
mA.  
m/  
/m  
m/  
/m



1801

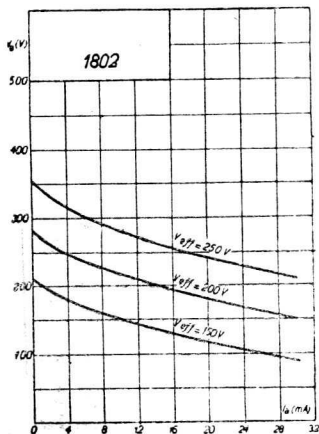
1802

# GELIJKRICHTERLAMP REDRESSEUSE

1802

|       |   |     |
|-------|---|-----|
| $V_f$ | = | 4   |
| $I_f$ | = | 0,4 |
| $V_a$ | = | 250 |
| $I_a$ | = | 30  |
| $L$   | = | 92  |
| $D$   | = | 46  |

V.  
A.  
V.  
mA.  
m/m  
m/m



1802

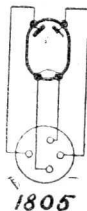
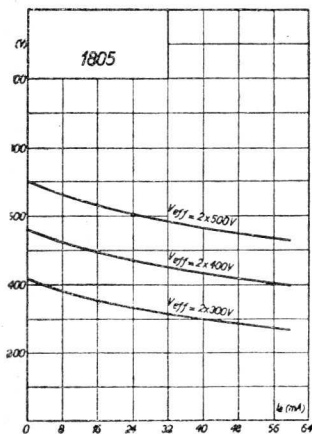
1805

1805

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 4              |
| $I_f$ | = | 1              |
| $V_a$ | = | $2 \times 500$ |
| $I_a$ | = | 60             |
| $L$   | = | 116            |
| $D$   | = | 53             |

V.  
A.  
V.  
mA.  
m/m  
m/m



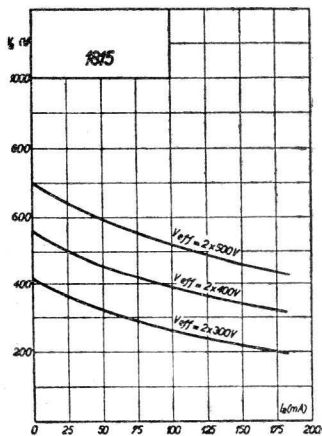
1815

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1815

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 4              |
| $I_f$ | = | 2,5            |
| $V_a$ | = | $2 \times 500$ |
| $I_a$ | = | 180            |
| $L$   | = | 145            |
| $D$   | = | 59             |

V.  
A.  
V.  
mA.  
 $\frac{m}{m}$   
 $\frac{m}{m}$



1815

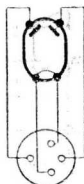
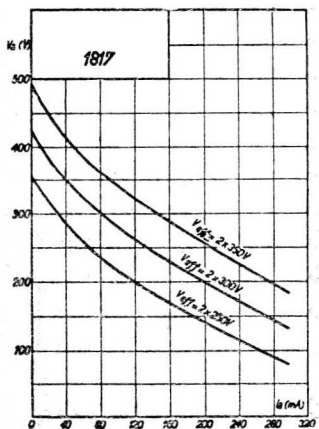
1817

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1817

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 4              |
| $I_f$ | = | 4              |
| $V_a$ | = | $2 \times 350$ |
| $I_a$ | = | 300            |
| $L$   | = | 160            |
| $D$   | = | 67             |

V.  
A.  
V.  
mA.  
 $\frac{m}{m}$   
 $\frac{m}{m}$



1817

1823

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1823

|    |   |         |               |
|----|---|---------|---------------|
| Vf | = | 4       | V.            |
| If | = | 1       | A.            |
| Va | = | 2 × 300 | V.            |
| Ia | = | 75      | mA.           |
| L  | = | 105     | $\frac{m}{m}$ |
| D  | = | 51      | $\frac{m}{m}$ |



1823

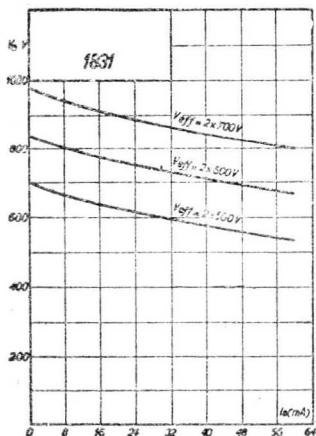
1831

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1831

|       |   |                |
|-------|---|----------------|
| $V_f$ | = | 4              |
| $I_f$ | = | 1              |
| $V_a$ | = | $2 \times 700$ |
| $I_a$ | = | 60             |
| $L$   | = | 145            |
| $D$   | = | 59             |

V.  
A.  
V.  
mA.  
 $\frac{m}{m}$   
 $\frac{m}{m}$



1831

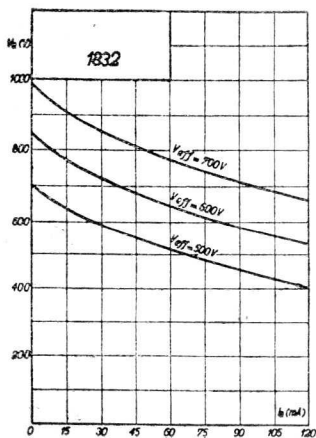


1832

1832

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|       |   |     |               |
|-------|---|-----|---------------|
| $V_f$ | = | 4   | V.            |
| $I_f$ | = | 1,3 | A.            |
| $V_a$ | = | 700 | V.            |
| $I_a$ | = | 120 | V.            |
| L     | = | 145 | $\frac{m}{m}$ |
| D     | = | 60  | $\frac{m}{m}$ |



/632

1875

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1875

|                   |   |       |     |
|-------------------|---|-------|-----|
| $V_f$             | = | 4     | V.  |
| $I_f$             | = | 2,3   | A.  |
| $V_a(\text{max})$ | = | 7.000 | V.  |
| $I_a$             | = | 5     | mA. |



1876

1876

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|         |   |     |     |
|---------|---|-----|-----|
| Vf      | = | 4,0 | V.  |
| If      | = | 0,3 | A.  |
| Va(max) | = | 850 | V.  |
| Ia      | = | 5   | mA. |

31-12-38

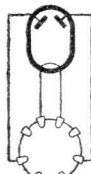
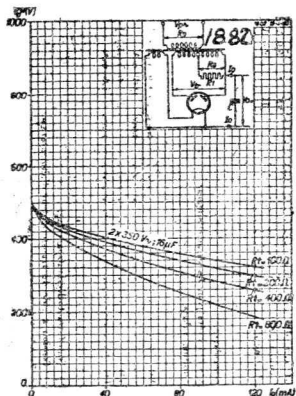


1882

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

1882

|                   |   |                |     |
|-------------------|---|----------------|-----|
| $V_f$             | = | 5              | V.  |
| $I_f$             | = | 2              | A.  |
| $V_{a\sim}$       | = | $2 \times 350$ | V.  |
| $I_a(\text{max})$ | = | 125            | mA. |



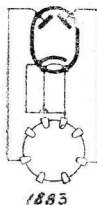
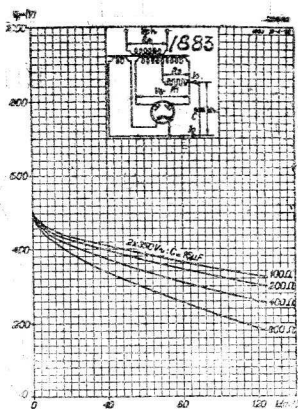
1882

1883

1883

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

|                   |   |                |     |
|-------------------|---|----------------|-----|
| $V_f$             | = | 5              | V.  |
| $I_f$             | = | 1,6            | A.  |
| $V_{a\sim}$       | = | $2 \times 350$ | V.  |
| $I_a(\text{max})$ | = | 125            | mA. |



31-12-38

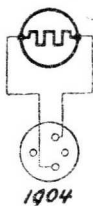
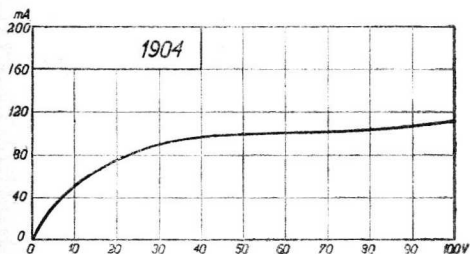
1904

# STROOMREGULATOR REGULATRICE

$V_f$  = 50 — 70  
 $I_f$  = 0,1

1904

$V.$   
 $A.$



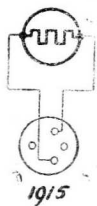
1915

# STROOMREGULATOR REGULATRICE

$V_f$  = 50 — 70  
 $I_f$  = 0,24

1915

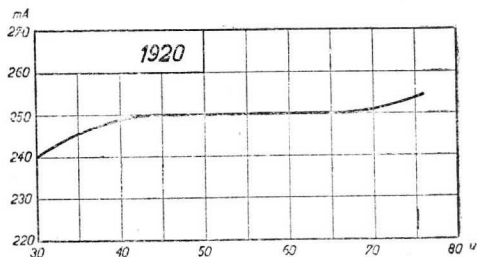
$V.$   
 $A.$



1920

STROOMREGULATOR  
REGULATRICE

$V_f$  = 50 — 70  
 $I_f$  = 0,25



1926

STROOMREGULATOR (1)  
REGULATRICE (-)

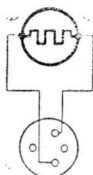
$I_f$  = 0,18

(1) Met constante weerstand.

A résistance fixe.

1920

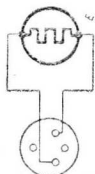
$V.$   
 $A.$



1920

1926

$A.$



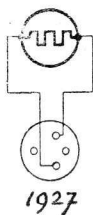
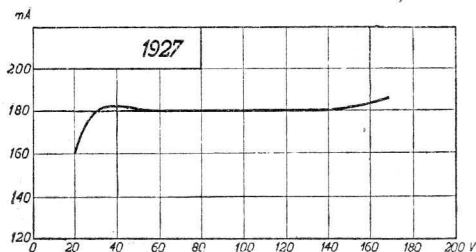
1926.

1927

# STROOMREGULATOR REGULATRICE DE COURANT

$V_f$  = 35 — 100  
 $I_f$  = 0,18

V.  
A.

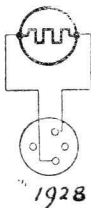
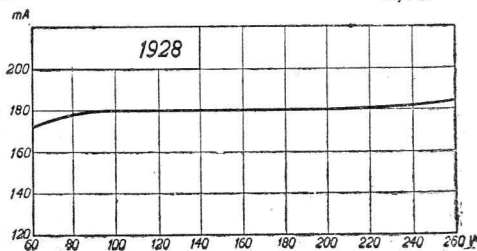


1928

# STROOMREGULATOR REGULATRICE DE COURANT

$V_f$  = 100 — 225  
 $I_f$  = 0,18

V.  
A.





4357

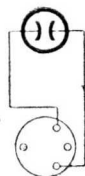
4357

## STABILISATOR

|            |   |    |         |               |
|------------|---|----|---------|---------------|
| $V_a$      | = | 90 | 100     | $V(1)$        |
| $I_a$      | = | 20 | 45(max) | mA.           |
| $R_{\sim}$ | = |    | 100     | $\Omega$      |
| $L(max)$   | = |    | 106     | $\frac{m}{m}$ |
| $D(max)$   | = |    | 60      | $\frac{m}{m}$ |

(1) Ontstekingspanning: 100-110 V.

Tension d'amorçage: 100-110 V.



4357

4376

4376

## STABILISATOR

|             |   |        |         |               |
|-------------|---|--------|---------|---------------|
| Va          | = | 90     | 100     | V(1)          |
| Ia          | = |        | 45(max) | V.            |
| R $\sim$    | = |        | 100     | $\Omega$      |
| L(max)      | = | 115    |         | $\frac{m}{m}$ |
| D(max)      | = | 60     |         | $\frac{m}{m}$ |
| Huls(culot) | = | Edison |         |               |

(1) Ontstekingsspanning: 100-110 V.

Tension d'amorçage: 100-110 V.

4377

4377

## STABILISATOR

|             |   |           |               |
|-------------|---|-----------|---------------|
| Va          | = | 105 — 115 | V(1)          |
| Ia          | = | 45(max)   | mA.           |
| R $\sim$    | = | 80        | $\Omega$      |
| L(max)      | = | 115       | $\frac{r}{m}$ |
| D(max)      | = | 60        | $\frac{m}{m}$ |
| Huls(culot) | = | Edison    |               |

(1) Ontstekingspanning: 130-140 V.

Tension d'amorçage: 130-140 V.

4641

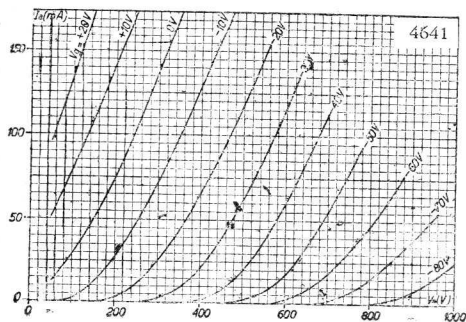
# TRIODE (E)

4641

|                   |   |               |            |
|-------------------|---|---------------|------------|
| $V_f$             | = | 4,0           | V.         |
| $I_f$             | = | 2,0           | A.         |
| $V_a(\text{max})$ | = | 1.000         | V.         |
| $I_a$             | = | $2 \times 25$ | mA.        |
| $V_{gl}$          | = | -82           | V.         |
| $R_a$             | = | 40            | k $\Omega$ |
| $R_k$             | = | 1.600         | $\Omega$   |
| $W_o$             | = | 27,5(1) 43(2) | Wtt.       |

(1) d % = 1.

(2) d % = 4,8.



— 420 —



4641

4646

# GELIJKRICHTERLAMP REDRESSEUSE (VAC)

4646

|                   |   |       |     |
|-------------------|---|-------|-----|
| $V_f$             | = | 4,0   | V.  |
| $I_f$             | = | 1,3   | A.  |
| $V_a(\text{max})$ | = | 1.000 | V.  |
| $I_a$             | = | 75    | mA. |



4673

4673

## PENTHODE

(HF - MF - G . DET<sub>w</sub> - A . DET<sub>w</sub> - LF<sub>w</sub>)

|                      |   |       |       |
|----------------------|---|-------|-------|
| V <sub>f</sub>       | = | 4,0   | V.    |
| I <sub>f</sub>       | = | 1,35  | A.    |
| V <sub>a(max)</sub>  | = | 250   | V.    |
| I <sub>a</sub>       | = | 8     | mA.   |
| V <sub>g1</sub>      | = | -2,5  | V.    |
| V <sub>g2</sub>      | = | 200   | V.    |
| I <sub>g2</sub>      | = | 1,5   | mA.   |
| S(max)               | = | 7     | mA/V. |
| S(norm)              | = | 5     | mA/V. |
| g                    | = | 7.500 |       |
| R <sub>i(norm)</sub> | = | 1,5   | M.Ω   |
| C <sub>ag1</sub>     | = | 0,01  | μμF.  |



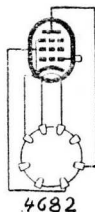
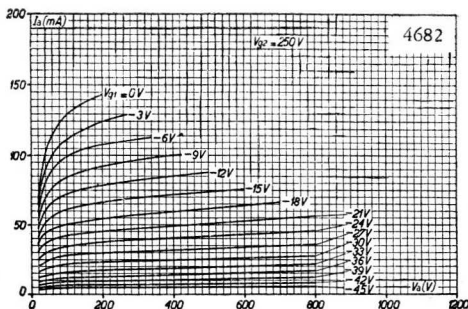
4673

4682

4682

# PENTHODE (E) Push-Pull

|                |   |                |               |           |
|----------------|---|----------------|---------------|-----------|
| $V_f$          | = |                | 4             | V.        |
| $I_f$          | = |                | 1             | A.        |
|                |   | FB             | SB            |           |
| $V_a$          | = | 375            | 375           | V.        |
| $V_{g2}$       | = | 250            | 250           | V.        |
| $I_{a(\max)}$  | = | $2 \times 45$  | $2 \times 29$ | mA.       |
| $I_{g2(\max)}$ | = | $2 \times 5,5$ | $2 \times 4$  | mA.       |
| $V_{g1}$       | = | -32            |               | V.        |
| $R_a$          | = | 9.000          | 15.000        | $\Omega$  |
| $W_o$          | = | 19             | 14            | Wtt.      |
| d              | = | 1,5            | 5,2           | %         |
| $V_i$          | = | 21,5           | 16,5          | $V_{eff}$ |



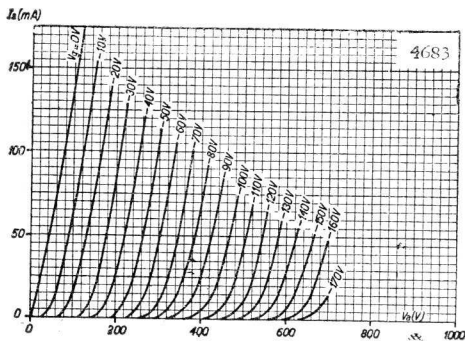
4683

TRIODE  
(E)

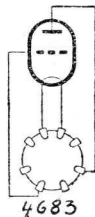
4683

|                   |   |               |
|-------------------|---|---------------|
| $V_f$             | = | 4             |
| $I_f$             | = | 0,95          |
| $V_a$             | = | 350           |
| $I_a(\text{max})$ | = | $2 \times 70$ |
| $R_a$             | = | 5.000         |
| $W_o(\text{max})$ | = | 20            |
| $d$               | = | 2,1           |

V.  
A.  
V.  
mA.  
 $\Omega$   
Wtt.  
%



— 424 —



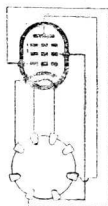
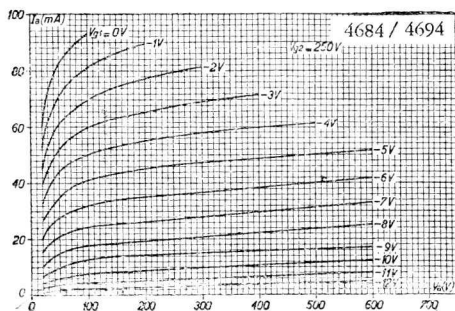


4684

4684

# PENTHODE (E) Push-Pull

|                      |   |                |          |
|----------------------|---|----------------|----------|
| $V_f$                | = | 4              | V.       |
| $I_f$                | = | 1,75           | A.       |
| $V_a$                | = | 375            | V.       |
| $V_{g2}$             | = | 250            | V.       |
| $I_a(\text{max})$    | = | $2 \times 30$  | mA.      |
| $I_{g2}(\text{max})$ | = | $2 \times 5,3$ | mA.      |
| $R_k$                | = | 142            | $\Omega$ |
| $R_a$                | = | 13.000         | $\Omega$ |
| $W_o(\text{max})$    | = | 12             | Wtt.     |
| $d$                  | = | 2,3            | %        |



4684

4687

## STABILISATOR

|             |   |     |
|-------------|---|-----|
| $V_a$       | = | 90  |
| $I_a(\max)$ | = | 40  |
| $R \sim$    | = | 180 |
| $L(\max)$   | = | 94  |
| $D(\max)$   | = | 29  |
| Huls(culot) | = | P26 |

(1) Ontstekingspanning: 105 V.  
Tension d'amorçage: 105 V.

4687

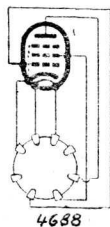
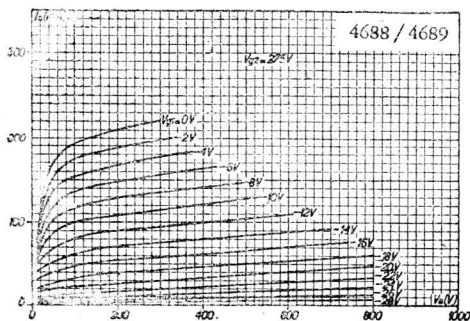
$V.(1)$   
mA.  
 $\Omega$   
 $\frac{m}{m}$   
 $\frac{m}{m}$

4688

4688

# PENTHODE (E) Push-Pull

|                |   |               |          |
|----------------|---|---------------|----------|
| $V_f$          | = | 4             | V.       |
| $I_f$          | = | 2             | A.       |
| $V_a$          | = | 375           | V.       |
| $V_{g2}$       | = | 275           | V.       |
| $R_k$          | = | 165           | $\Omega$ |
| $I_a(\max)$    | = | $2 \times 62$ | mA.      |
| $I_{g2}(\max)$ | = | $2 \times 9$  | mA.      |
| $R_a$          | = | 6.500         | $\Omega$ |
| $W_o(\max)$    | = | 28,5          | Wtt.     |
| $d$            | = | 2,25          | %        |

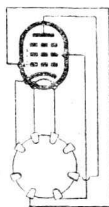
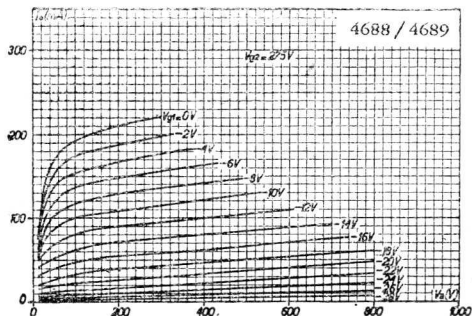


4689

4689

# PENTHODE (E) Push-Pull

|                |   |               |          |
|----------------|---|---------------|----------|
| $V_f$          | = | 6,3           | V.       |
| $I_f$          | = | 1,35          | A.       |
| $V_a$          | = | 375           | V.       |
| $V_{g2}$       | = | 275           | V.       |
| $R_k$          | = | 165           | $\Omega$ |
| $I_a(\max)$    | = | $2 \times 62$ | mA.      |
| $I_{g2}(\max)$ | = | $2 \times 9$  | mA.      |
| $R_a$          | = | 6.500         | $\Omega$ |
| $W_o(\max)$    | = | 28,5          | Wtt.     |
| $d$            | = | 2,25          | %        |



4689

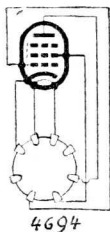
4694

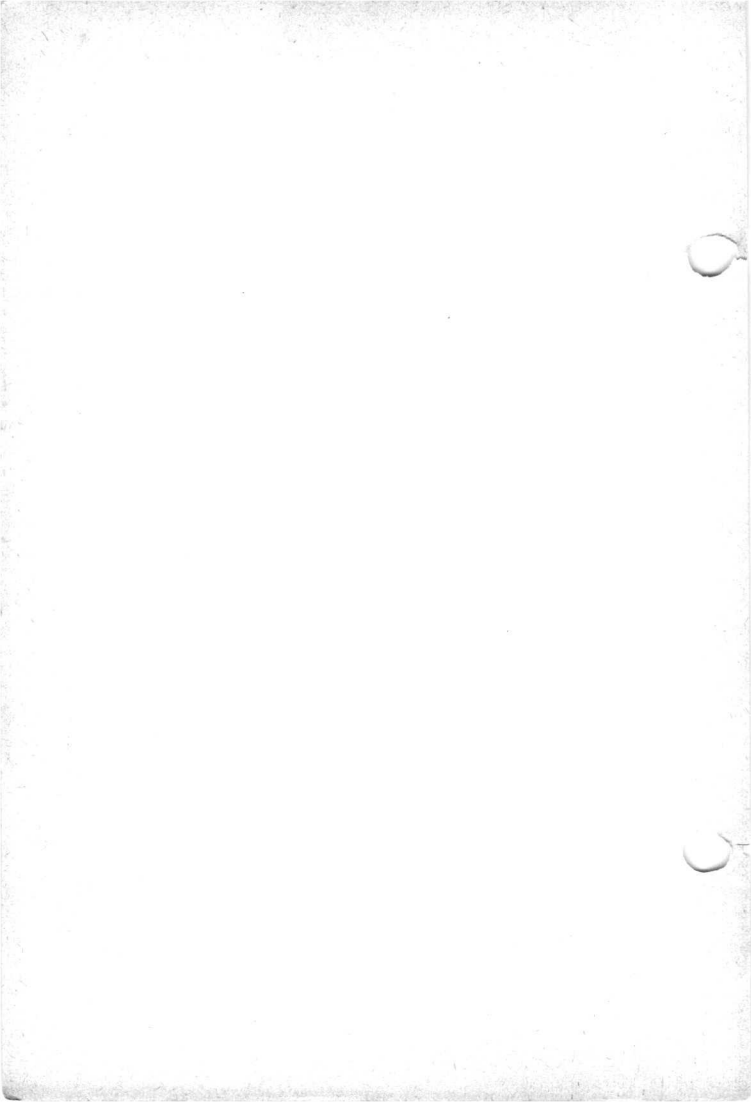
4694

# PENTHODE (E) Push-Pull

|                   |   |                |          |
|-------------------|---|----------------|----------|
| $V_f$             | = | 6,3            | V.       |
| $I_f$             | = | 1,2            | A.       |
| $V_a$             | = | 375            | V.       |
| $V_{g2}$          | = | 250            | V.       |
| $I_a(\text{max})$ | = | $2 \times 30$  | mA.      |
| $I_{g2}$          | = | $2 \times 5,3$ | mA.      |
| $R_k$             | = | 142            | $\Omega$ |
| $R_a$             | = | 13.000         | $\Omega$ |
| $W_o(\text{max})$ | = | 12             | Wtt.     |
| $d$               | = | 2,3            | %        |

Krommen zie 4684  
Courbes v. 4684



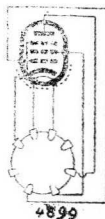
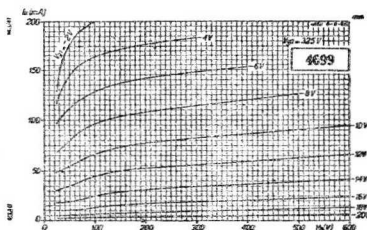


4699

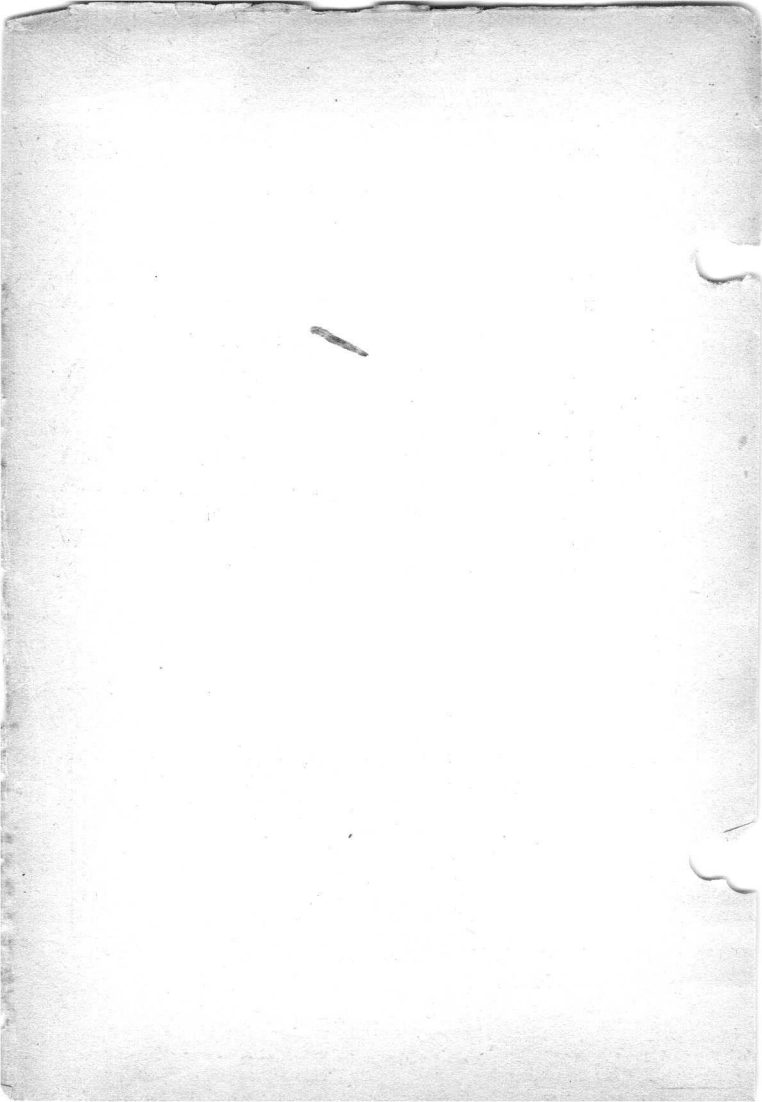
4699

# PENTHODE (E)

|                 |   |                                         |          |
|-----------------|---|-----------------------------------------|----------|
| $V_f$           | = | 6,3                                     | V.       |
| $I_f$           | = | 1,3                                     | A.       |
| 2 lp PUSH-PULL  |   |                                         |          |
| $V_a$           | = | 300                                     | V.       |
| $V_{g2}$        | = | 325                                     | V.       |
| $R_k$           | = | 100                                     | $\Omega$ |
| $I_a(\max)$     | = | $2 \times 67$                           | mA.      |
| $I_{g2}$        | = | $2 \times 6,25 \rightarrow 2 \times 14$ | mA.      |
| $R_a$           | = | 5000                                    | $\Omega$ |
| $W_o$           | = | 25,5                                    | W.       |
| $d(\text{tot})$ | = | 2,5                                     | %        |



31-12-38





# **VERGELIJKINGSTABEL**

**der**

**Amerikaansche en  
Europeesche lampen**

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# **Tableau d'EQUIVALENCE**

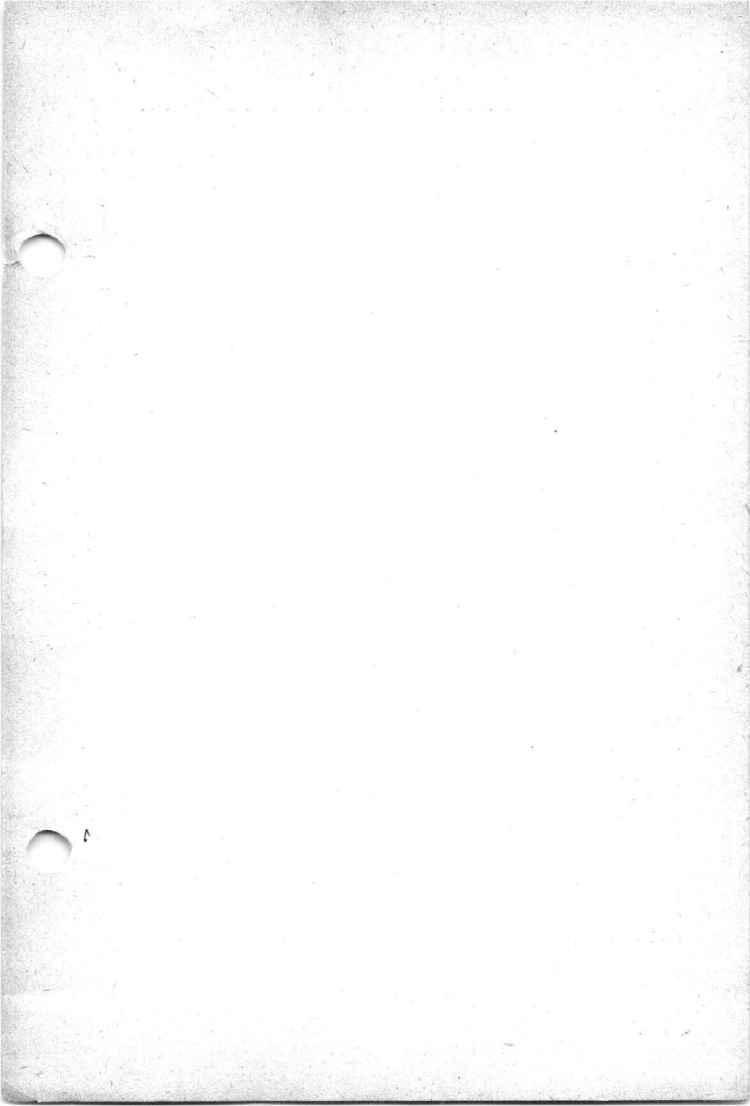
**des lampes**

**Americaines et  
Européennes**



*De Wereld  
tot Uw dienst  
met*

**TUNGSRAM**  
RADIOLAMPEN



## VERGELIJKINGSTABEL VAN ALLE EUROPEESCHE EN AMERIKAANSCH LAMPEN

Deze tabel werd samengesteld zonder rekening te houden van het merk of den aard der lampen.

De rangschikking werd gedaan volgens dezelfde methode als die welke in het eerste deel van dit werk gebruikt werd.

In de eerste kolom zijn alfabetisch en in de getallenorde al de ons bekende lamptypes gerangschikt.

De tweede kolom geeft het merk. (Dario is vermeld als « Radiotechn » en Dario Impex door « Impex » om onderscheid te maken tusschen deze twee merken. — Marconi — Osram en Geco, die dezelfde lampentypeering gebruikten werden voorgesteld door de verkorting « Ge. Mar. Os. » om de lijst niet nuttelooz langer te maken.)

Daar de Amerikaansche lampenfabrikanten op weinig na voor de meeste lampen dezelfde typeering gebruiken, hebben wij hier geen merk opgegeven maar wel de verkorting *Amer* in italiaan, zoodat hierdoor tevens gemakkelijk een Europeesche van een Amerikaansche lamp te onderscheiden is.

In de 3<sup>e</sup> kolom komt de overeenstemmende lamp voor waarvan de karakteristieken opgegeven zijn in het eerste deel van dit werk.

Wanneer kleine verschillen in de karakteristieken voorkomen waardoor de lamp niet in alle gevallen die in de 1<sup>e</sup> kolom vermeld vervangen kan, is het lamptype in de 3<sup>e</sup> kolom tusschen haakjes geplaatst.

Ingeval er geen volkomen overeenstemming bestaat tusschen de lampen in de 1<sup>e</sup> en 3<sup>e</sup> kolom, dan wordt in de 4<sup>e</sup> kolom zoo mogelijk een tweede lamptype opgegeven dat eveneens die in de 1<sup>e</sup> kolom kan vervangen.

De huls der overeenstemmende lampen in de 1<sup>e</sup> en 3<sup>e</sup> kolom is niet steeds dezelfde. Deze en andere bijzonderheden zijn aangegeven door verwijzingen waarvan hieronder de lijst gegeven is:

(1) Met pin-huls; de overeenstemmende lamp in de 3<sup>e</sup> kolom heeft een huls met zijcontacten.

(2) Uitgerust met huls fig. 1 hiernaast.

(3) Uitgerust met huls fig. 2 hiernaast.

(4) De metalen lampen en de G (glas) lampen zijn verwisselbaar maar het bijtrimmen der kringen



FIG. 1



FIG. 2

kan noodzakelijk zijn. In sommige gevallen is een uitwendige afscherming voor de G lampen nodig wanneer zij in de plaats van metalen lampen gebruikt worden.

(5) Voor Auto-Radio toestellen of wisselstroom ontvangers waarin de gloeidraden niet in serie geschakeld zijn.

(6) komt weinig voor.

(7) wanneer voor deze lamp voldoende belangstelling mocht bestaan, zullen wij trachten later in een bijvoegsel, de daarmede overeenstemmende lamp op te geven.

(8) Gloeistroomsterkte verschilt.

(9) niet zonder meer te vervangen.

Voor lampen die niet kunnen vervangen worden door een der in deze dokumentatie opgenomen types, is in de 3<sup>e</sup> kolom niets vermeld.

De hiernavolgende gegevens werden grootendeels ontleend aan documentaties verstrekt door de Philips Laboratoria.



## TABLEAU DE COMPARAISON DES LAMPES EUROPEENNES ET AMERICAINES

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Ce tableau est composé sans tenir compte de la marque ou du genre de lampes.

Le classement est fait d'après la méthode employée dans la première partie de cet ouvrage.

Dans la première colonne on trouve les différentes lampes, classées alphabéthiquement et par ordre numérique.

La deuxième colonne donne le nom du fabricant (Dario est représenté par « Radiotechn » et Dario Impex par « Impex » pour faire la distinction entre ces deux marques. — Marconi Ooram et Geco, qui emploient les mêmes notations, sont renseignés par l'abréviation Ge. Mar. Os.).

Comme les lampes américaines, le plus souvent, sont désignées uniformément par tous les fabricants, nous n'avons pas renseigné de marque dans la deuxième colonne mais bien l'abréviation *Amer* en italiques.

La lampe correspondante est donnée dans la troisième colonne. Les caractéristiques de cette lampe se trouvent dans la première partie du livre.

Lorsqu'il existe de légères différences dans les caractéristiques électriques par suite desquelles il est possible que le tube indiqué dans la 3<sup>e</sup> colonne ne puisse pas toujours remplacer cette lampe, la dénomination du tube est donnée entre parenthèses.

Pour les cas où la correspondance n'est pas complète on trouvera dans la 4<sup>e</sup> colonne une lampe qui, également, peut remplacer celle de la première colonne et qui souvent donne des résultats considérablement meilleures.

Le culottage n'est pas toujours le même pour les lampes dans la première et troisième colonne. Celà, et d'autres détails aussi sont indiqués par des renvois dont on trouve la liste ci-dessous.

- (1) Munie d'un culot à broches; la lampe équivalente est munie du culot à contacts latéraux.
- (2) Munie d'un culot fig. 1 (page).
- (3) Munie d'un culot fig. 2 (page).
- (4) Les lampes « métal » ou « G » sont interchangeables mais un réalignement des circuits peut être nécessaire. — Dans certains cas un blindage extérieur des lampes « verre » est nécessaire quand ils remplacent des lampes métalliques.
- (5) Seulement pour l'emploi en récepteurs automobile ou pour secteur alternatif là où les filaments ne sont pas en série.
- (6) Type très peu courant.
- (7) Nous nous proposons de donner la correspondance dans un de nos compléments si nos lecteurs en expriment le vœu.
- (8) L'intensité de filament est différente.
- (9) Types non directement remplaçables par d'autres.



FIG. 1



FIG. 2

Les lampes pour lesquelles il n'y a pas d'équivalent dans la documentation sont marquées pour un blanc dans la 3<sup>e</sup> colonne.

La majorité des données ci-après ont été empruntées de documentations spéciales fournies par les Laboratoires Philips.

# A

|             |            |         |      |
|-------------|------------|---------|------|
| ABC1        | Longlife   | ABC1    | E472 |
| ABC1        | Mullard    | ABC1    |      |
| ABC1        | Radiotechn | ABC1    |      |
| ABC1        | Telefunken | ABC1    |      |
| ABC1        | Valvo      | ABC1    |      |
| AB1         | Longlife   | AB1     |      |
| AB1         | Mullard    | AB1     |      |
| AB1         | Telefunken | AB1     |      |
| AB1         | Thermion   | AB1     |      |
| AB1         | Valvo      | AB1     |      |
| AB2         | Longlife   | AB2     |      |
| AB2         | Mullard    | AB2     |      |
| AB2         | Radiotechn | AB2     |      |
| AB2         | Telefunken | AB2     |      |
| AB2         | Valvo      | AB2     |      |
| AB4         | Adzam      | A441N   |      |
| AC/DD       | Hivac      | AB1     |      |
| AC/DD(1)    | Mazda      | (AB2)   |      |
| AC/DDT(1)   | Hivac      | ABC1    |      |
| AC/DG       | Mullard    | E441    |      |
| AC/FC2      | Mazda      |         |      |
| AC/HL       | Hivac      | (E424N) |      |
| AC/HL       | Mazda      | (E424N) |      |
| AC/HL       | Record     | (E424N) |      |
| AC/HL/DD(1) | Mazda      | (ABC1)  |      |



|              |            |         |       |
|--------------|------------|---------|-------|
| ACHI         | Radiotechn | ACHI    |       |
| ACHI         | Mullard    | ACHI    |       |
| ACHI         | Telefunken | ACHI    |       |
| ACHI         | Valvo      | ACHI    |       |
| AC/HL/DDD    | Mazda      |         |       |
| AC/HP        | Clarion    | E446    |       |
| AC/HP        | Hivac      | E446    |       |
| AC/L         | Hivac      | (E409N) |       |
| AC/P         | Mazda      | (E409N) |       |
| AC/P         | Record     |         |       |
| AC/Pen(2)    | Mazda      | E463(3) |       |
| AC Polyodion | Impex      | E453    |       |
| AC/PT        | Record     | (E463)  |       |
| AC/PI        | Mazda      |         |       |
| AC/Q         | Mazda      |         |       |
| AC/S         | Record     | (E452T) | E446  |
| AC Screen }  |            | E442    | E452T |
| Odion }      | Impex      |         |       |
| AC/SG        | Clarion    | E452T   | E446  |
| AC/SG        | Lissen     | E452T   | E446  |
| AC/SG        | Mazda      | (E452T) | E446  |
| AC/SGV       | Lissen     | E455    | E447  |
| AC/SGVM      | Mazda      | E455    | E447  |
| AC/SH        | Hivac      | (E452T) | E446  |
| AC/SL        | Hivac      | E452T   | E446  |
| AC/SP        | Lissen     | E446    |       |
| AC/SPV       | Lissen     | AF2     |       |
| AC/SP1       | Mazda      |         |       |
| AC super }   |            |         |       |
| Detector }   | Impex      | (E424N) |       |

|                |         |         |      |
|----------------|---------|---------|------|
| AC super HF    | Impex   | E438    |      |
| AC Super power | Impex   | E409N   |      |
| AC Super       | } Impex | E452T   | E446 |
| Screen odion   |         |         |      |
| AC/S/1/VM      | Mazda   | E455    | E447 |
| AC/S2          | Mazda   | E452T   | E446 |
| AC/S2 Pen      | Mazda   | E446    |      |
| AC/TP          | Mazda   |         |      |
| AC/SIVM        | Mazda   | (E445)  | E455 |
| AC/S2          | Mazda   | (E452T) | E446 |
| AC/S2/Pen      | Mazda   | (E446)  |      |
| AC/V           | Hivac   |         |      |
| AC Var. Mu     | } Impex | E455    |      |
| Screen odion   |         |         |      |
| B              |         |         |      |
| AC Var. Mu     | } Impex | E445    | E455 |
| Screenodion    |         |         |      |
| AC             |         |         |      |
| AC/VH          | Hivac   | (E455)  | E447 |
| AC/VHP         | Clarion | AF2     |      |
| AC/VP          | Hivac   | E447    |      |
| AC/VP1         | Mazda   |         |      |
| AC/VP2         | Mazda   |         |      |
| AC/VS          | Clarion | E455    | E447 |
| AC/VS          | Hivac   | E455    | E447 |
| AC/VS          | Record  | (E455)  | E447 |
| AC/Y           | Hivac   | (E453)  |      |
| AC/Z(1)        | Hivac   | AL4     |      |
| AC042          | Mullard |         |      |
| AC044          | Mullard | (E406N) |      |

|            |             |         |      |
|------------|-------------|---------|------|
| AC044X     | Mullard     | D404    |      |
| AC054      | Mullard     | E406N   |      |
| AC064      | Mullard     | (C405)  |      |
| AC064X     | Mullard     | D404    |      |
| AC084      | Mullard     | E408    |      |
| AC084N     | Mullard     | (E408N) |      |
| AC084NX    | Mullard     | E408N   |      |
| AC2        | Longlife    | AC2     |      |
| AC2        | Mullard     | AC2     |      |
| AC2        | Radiotechn  | AC2     |      |
| AC2        | Telefunken  | AC2     |      |
| AC2        | Valvo       | AC2     |      |
| AC2/HL     | Mazda       | (F460)  |      |
| AC2/Pen(1) | Mazda       | (AL4)   |      |
| AC2/Pen DD | Mazda       |         |      |
| AC3        | Mullard     |         |      |
| AC3/Pen(1) | Mazda       | (AL4)   |      |
| AC4        | Mullard     |         |      |
| AC104      | Mullard     | (E409N) |      |
| AD         | <i>Amer</i> | IV      |      |
| AD1        | Mullard     | AD1     |      |
| AD1        | Radiotechn  | AD1     |      |
| AD1        | Telefunken  | AD1     |      |
| AD1        | Valvo       | AD1     |      |
| AD4        | Triotron    | A409    | A415 |
| AD9        | Adzam       | A409    |      |
| AD15       | Adzam       | A425    | B424 |
| AD77       | Radiotechn  | AM1     |      |
| AD510      | Triotron    | A409    | A415 |
| AF         | <i>Amer</i> | 82      |      |

|        |            |        |       |
|--------|------------|--------|-------|
| AF     | Castilla   | A425   | B438  |
| AF1    | Castilla   | (A415) | B424  |
| AF2    | Longlife   | AF2    |       |
| AF2    | Mullard    | AF2    |       |
| AF2    | Telefunken | AF2    |       |
| AF2    | Thermion   | AF2    |       |
| AF2    | Valvo      | AF2    |       |
| AF3    | Longlife   | AF3    |       |
| AF3    | Mullard    | AF3    |       |
| AF3    | Radiotechn | AF3    |       |
| AF3    | Telefunken | AF3    |       |
| AF3    | Valvo      | AF3    |       |
| AF7    | Longlife   | AF7    |       |
| AF7    | Mullard    | AF7    |       |
| AF7    | Radiotechn | AF7    |       |
| AF7    | Telefunken | AF7    |       |
| AF7    | Valvo      | AF7    |       |
| AG     | Amer       | 83     |       |
| AG495  | Tungsrarn  | E424N  |       |
| AG2018 | Vatea      | B2038  |       |
| AG4100 | Tungsrarn  | E415   | E424N |
| AG4101 | Tungsrarn  | E415   | E424N |
| AH1    | Longlife   | AH1    |       |
| AH1    | Mullard    | AH1    |       |
| AH1    | Radiotechn | AH1    |       |
| AH1    | Telefunken | AH1    |       |
| AH1    | Valvo      | AH1    |       |
| AH10   | Adzam      | (A409) | A415  |
| AH150  | Adzam      | B442   |       |
| AH4100 | Tungsrarn  | E446   |       |

|         |            |       |       |
|---------|------------|-------|-------|
| AH4105  | Tungsram   | E447  |       |
| AI620   | Cyrnos     | C443  | E443H |
| AI1212  | Cyrnos     | E415  | E424N |
| AI15008 | Cyrnos     | E442S | E452T |
| AK1     | Longlife   | AK1   |       |
| AK1     | Mullard    | AK1   |       |
| AK1     | Telefunken | AK1   |       |
| AK1     | Thermion   | AK1   |       |
| AK1     | Valvo      | AK1   |       |
| AK2     | Longlife   | AK2   |       |
| AK2     | Mulard     | AK2   |       |
| AK2     | Radiotechn | AK2   |       |
| AK2     | Telefunken | AK2   |       |
| AK2     | Valvo      | AK2   |       |
| AL1     | Longlife   | AL1   |       |
| AL1     | Mullard    | AL1   |       |
| AL1     | Radiotechn | AL1   |       |
| AL1     | Telefunken | AL1   |       |
| AL1     | Valvo      | AL1   |       |
| AL2     | Longlife   | AL2   |       |
| AL2     | Mullard    | AL2   |       |
| AL2     | Radiotechn | AL2   |       |
| AL2     | Telefunken | AL2   |       |
| AL2     | Valvo      | AL2   |       |
| AL3     | Longlife   | AL3   |       |
| AL3     | Radiotechn | AL3   |       |
| AL4     | Longlife   | AL4   |       |
| AL4     | Mullard    | AL4   |       |
| AL4     | Radiotechn | AL4   |       |
| AL4     | Telefunken | AL4   |       |

|             |              |         |       |
|-------------|--------------|---------|-------|
| AL4         | Valvo        | AL4     |       |
| AL5         | Mullard      | AL5     |       |
| AL5         | Telefunken   | AL5     |       |
| AL5         | Valvo        | AL5     |       |
| AL410       | Ge. Mar. Os. | B415    | B424  |
| AL435       | Cyrnos       | D404    |       |
| AL495       | Tungsram     | (E409N) |       |
| AL735       | Cyrnos       | D404    |       |
| AL1025      | Cyrnos       | E408N   |       |
| Amplitron A | Elektra-Mars | B409    |       |
| Amplitron B | Elektra-Mars | A409    | B415  |
| AM1         | Mullard      | AM1     |       |
| AM1         | Radiotechn   | AM1     |       |
| AM1         | Valvo        | AM1     |       |
| AN4         | Triotron     | E438    |       |
| AN2127      | Valvo        | B2044   |       |
| AN2718      | Valvo        | B2044S  |       |
| AN4092      | Valvo        | E444S   |       |
| AN4126      | Valvo        | E444    |       |
| APP495      | Tungsram     | C443    | E443H |
| APP4100     | Tungsram     | E453    |       |
| APP4120     | Tungsram     | E453    |       |
| APP4130     | Tungsram     | E463    |       |
| APV4100     | Tungsram     | 1561    |       |
| APV4200     | Tungsram     |         |       |
| AP4         | Mullard      | 4676    |       |
| AP495       | Tungsram     | E409N   |       |
| AR23        | Loewe        | A409    | A415  |
| AR25        | Adzam        | A425    | B438  |
| AR4100      | Tungsram     | E438    |       |

|         |              |        |       |
|---------|--------------|--------|-------|
| AR4101  | Tungsrām     | E438   |       |
| AR4120  | Tungsrām     | E499   |       |
| AS      | Elektra-Mars | A409   | A415  |
| AS4     | Triotron     | A425   | B438  |
| AS494   | Tungsrām     | E452T  |       |
| AS495   | Tungsrām     | E452T  | E446  |
| AS2004  | Record       | (B442) |       |
| AS4100  | Tungsrām     | E442S  | E452T |
| AS4100D | Tungsrām     | E442S  | E452T |
| AS4101  | Tungsrām     | E442S  | E452T |
| AS4104  | Tungsrām     | (E445) | E455  |
| AS4105  | Tungsrām     | E445   | E455  |
| AS4120  | Tungsrām     | E452T  | E446  |
| AS4125  | Tungsrām     | E455   | E447  |
| AT4     | Mullard      | 4675   |       |
| AV4100  | Vatea        | E438   |       |
| AX      | <i>Amer</i>  | 01A    |       |
| AX1     | Valvo        | AX1    |       |
| AZ1     | Longlife     | AZ1    |       |
| AZ1     | Mullard      | AZ1    |       |
| AZ1     | Radiotechn   | AZ1    |       |
| AZ1     | Telefunken   | AZ1    |       |
| AZ1     | Valvo        | AZ1    |       |
| AZ920   | Metal        | A109   |       |
| A2      | Zenith       | (B228) |       |
| A4      | Zenith       | B438   |       |
| A4      | Sator        | A409   | A415  |
| A4A     | Castilla     | E455   |       |
| A6-AF   | Castilla     | E438   |       |
| A4AM    | Castila      | E446   |       |

|         |           |         |       |
|---------|-----------|---------|-------|
| A4-AMS  | Castilla  | E447    |       |
| A4-AMS2 | Castilla  | AF2     |       |
| A4-AMS3 | Castilla  | AF3     |       |
| A4-AM7  | Castilla  | AF7     |       |
| A4-A1   | Castilla  | E442S   |       |
| A4-A2   | Castilla  | E452T   | E44b  |
| A4-BF   | Castilla  | B405    |       |
| A4-BS   | Castilla  | E409N   |       |
| A4-CAT  | Castilla  | AM1     |       |
| A4-D    | Castilla  | E415    | E424N |
| A4-DD   | Castilla  | AB1     |       |
| A4-DP   | Castilla  | E444    |       |
| A4-DP1  | Castilla  | E444S   |       |
| A4-DR   | Castilla  | E499    |       |
| A4-D1   | Castilla  | (E424N) |       |
| A4-FF2  | Castilla  | AL2     |       |
| A4-FF4  | Castilla  | AL4     |       |
| A4-GAF  | Castilla  | E442    | E452T |
| A4-GBF  | Castilla  | C443    | E443H |
| A4-GDR  | Castilla  | AK1     |       |
| A4-IF   | Castilla  | E453    |       |
| A4S     | Castilla  | E443H   |       |
| A4-WM   | Castilla  | E445    |       |
| A9      | Fotos     | (A409)  |       |
| A10     | Sator     | (A409)  | A415  |
| A11     | Sator     | (A409)  | A415  |
| A11B    | Everready |         |       |
| A11C    | Everready |         |       |
| A11D    | Everready |         |       |
| A12     | Sator     | (A409)  | A415  |



|         |             |        |        |
|---------|-------------|--------|--------|
| A14     | Sator       | A425   | B438   |
| A16     | Sator       | A409   | A415   |
| A18     | Sator       | A409   | A415   |
| A19     | Sator       | (B405) |        |
| A20     | Sator       | A209   |        |
| A20B(1) | Everready   | AB2    |        |
| A21     | Sator       | (A409) | A415   |
| A22     | <i>Amer</i> | (9)    |        |
| A22     | Sator       | A425   | - B438 |
| A23     | Sator       | (A409) | - A415 |
| A23A(1) | Everready   | ABC1   |        |
| A24     | Sator       | (B405) |        |
| A25     | Fotos       | A425   | B438   |
| A25     | Sator       | (B405) |        |
| A26     | <i>Amer</i> | (9)    |        |
| A30     | <i>Amer</i> | (9)    |        |
| A30B    | Everready   | (F460) |        |
| A30D    | Everready   | (E438) |        |
| A32     | <i>Amer</i> | (9)    |        |
| A36A(1) | Everready   | (ACH1) |        |
| A40     | <i>Amer</i> | (9)    |        |
| A40M    | Everready   | E455   |        |
| A41     | Sator       | (A409) | - A415 |
| A42     | Sator       | A425   | - B438 |
| A43     | Sator       | A425   | - B438 |
| A48     | <i>Amer</i> | (9)    |        |
| A49     | Sator       | A409   | - A415 |
| A50A    | Everready   | E446   |        |
| A50B    | Everready   |        |        |
| A50M    | Everready   | E447   |        |

|         |             |        |       |
|---------|-------------|--------|-------|
| A50N    | Everready   | AF2    |       |
| A50P    | Everready   |        |       |
| A65     | Sator       | A409   | A415  |
| A70B(1) | Everready   | AL2    |       |
| A70C(1) | Everready   | AL4    |       |
| A70D(1) | Everready   | AL4    |       |
| A80A(1) | Everready   | AK2    |       |
| A199    | Sator       | A409   | A415  |
| A206    | Valvo       | A209   |       |
| A211    | Valvo       | B228   |       |
| A214    | Triotron    | B217   |       |
| A408    | Valvo       | A415   | B424  |
| A410    | Valvo       | B415   | B424  |
| A411    | Valvo       | B424   |       |
| A420    | Triotron    | A415   | B424  |
| A430    | Triotron    | B424   |       |
| A430N   | Triotron    | E424N  |       |
| A440N   | Triotron    | E499   |       |
| A520    | Ostar       | B2038  |       |
| A537    | Ge. Mar. Os |        |       |
| A1005   | Cyrnos      | A409   | A415  |
| A2002   | Record      | B252   | B262  |
| A2004   | Record      | (B442) |       |
| A2004S  | Record      | B442   |       |
| A2030N  | Triotron    | B2038  |       |
| A2040N  | Triotron    | B2099  |       |
| A2118   | Valvo       | B2038  |       |
| A2200W  | Valvo       | F215   |       |
| A4090   | Valvo       | E424N  |       |
| A4100   | Valvo       | E415   | E424N |

A4110  
A4115  
A5004  
A15008

Valvo  
Valvo  
Record  
Cyrnos

E424N  
E424N  
E438  
(B442)

# B

|       |             |         |       |
|-------|-------------|---------|-------|
| B     | Adzam       | (A409)  | A415  |
| B     | <i>Amer</i> | V99     |       |
| BA    | <i>Amer</i> | (7)     |       |
| BA9   | Fotos       | A209    |       |
| BBC12 | Impex       | KBC1    |       |
| BC1   | S.I.F.      | B442    |       |
| BC2   | S.I.F.      | E442S   | E452T |
| BC6   | S.I.F.      | E452T   | E446  |
| BC9   | Fotos       | A209    |       |
| BC9D  | Fotos       | (B217)  |       |
| BC18  | Fotos       | (B217)  |       |
| BC18D | Fotos       | (B228)  |       |
| BC40  | Fotos       | (B228)  |       |
| BC150 | Fotos       | (B252)  | B262  |
| BD5   | Fotos       | B205    |       |
| BD9   | Fotos       |         |       |
| BD100 | Fotos       | (C243N) |       |
| BF    | Castilla    | (A409)  | A415  |
| BFF   | Castilla    | (B405)  |       |
| BF1   | Fotos       | (B405)  |       |
| BF2   | Fotos       | B405    |       |
| BF5   | Cyynos      | B405    |       |
| BF6   | Cyynos      | (B405)  |       |
| BF9   | Cyynos      | B409    |       |
| BF32  | Impex       | KF3     |       |

|                |               |         |       |
|----------------|---------------|---------|-------|
| BF42           | Impex         | KF4     |       |
| BF43           | Cyrnos        | B443    | C443  |
| BF50           | Cyrnos        | D404    |       |
| BF100          | Cyrnos        | C443    | E443H |
| BF100          | Fotos         | (C243N) |       |
| BG4            | Ge. Mar. Os.  | A441N   |       |
| BH             | <i>Amer</i>   | (7)     |       |
| Bigrille       | Cyrnos        | A441N   |       |
| Bigr./Ampl.    | Fotos         | (A441N) |       |
| Bigr./BF       | Fotos         | (A441N) |       |
| Bigr./Osc./40V | Fotos         | (A441N) |       |
| Bigr./Osc./80V | Fotos         | (A441N) |       |
| BI4090         | Zenith        | E438    |       |
| BK22           | Impex         | KK2     |       |
| BL22           | Impex         | KL2     |       |
| BM35           | Mégam         | A441N   |       |
| BO9            | Fotos         | B205    |       |
| BR             | <i>Amer</i>   | (7)     |       |
| BR             | Fotos         | (A441N) |       |
| BS             | Elektra-Mars. | A409    | A415  |
| BS215          | Mazda         | (B252)  |       |
| BS1212         | Celsior       | E441    | E441N |
| BU200          | Mazda         | 329     |       |
| BW3            | Metal         | (C243N) |       |
| BW303          | Metal         | (B205)  |       |
| BW602          | Metal         |         |       |
| BW704          | Metal         | (B205)  |       |
| BW1304         | Metal         |         |       |
| BX20           | Vatea         | B240    |       |
| BX604          | Metal         | (B205)  |       |

|        |              |         |       |
|--------|--------------|---------|-------|
| B21    | Mazda        | A225    | B228  |
| B22    | Mazda        | A209    |       |
| B23    | Mazda        | A209    |       |
| B25    | Fotos        | A425    | B438  |
| B30    | Ge. Mar. Os. |         |       |
| B80    | Cyrrnos      | 1561    |       |
| B210L  | Mazda        | A209    |       |
| B215P  | Mazda        | B205    |       |
| BY1    | Metal        | (A241)  |       |
| BY2    | Metal        | (B252)  | B262  |
| BY3    | Metal        | (C243N) |       |
| BY6    | Metal        | (B252)  | B262  |
| BY1013 | Metal        | A209    |       |
| BY1210 | Metal        | (A209)  |       |
| BY1814 | Metal        | B217    |       |
| BY1815 | Metal        | B217    |       |
| BY2010 | Metal        | (B228)  |       |
| BY2020 | Metal        | (B217)  |       |
| BY2023 | Metal        | (B228)  |       |
| B1     | Cyrrnos      | 1801    |       |
| B1     | S.I.F.       | A441N   |       |
| B2     | S.I.F.       | E441    | E441N |
| B2     | Zenith       | (B228)  |       |
| B3     | Cyrrnos      | 1801    |       |
| B4     | Zenith       | B438    |       |
| B7     | Mazda        | A609    |       |
| B9     | Fotos        | A410N   |       |
| B9     | Sator        | A441N   |       |
| B10    | Sator        | A441N   |       |
| B11    | Mazda        | C603    |       |

|           |              |           |      |
|-----------|--------------|-----------|------|
| B11       | Orion        | A441N     |      |
| B11       | Sator        | A441N     |      |
| B12       | Mazda        | E703      |      |
| B13       | Mullard      | C1        |      |
| B13A      | Mullard      | C2        |      |
| B13B      | Mullard      | C3        |      |
| B20 oxyde | Cyrnos       | 1802      |      |
| B21(2)    | Ge. Mar. Os. | (B240)(3) |      |
| B220      | Celsior      | 1801      |      |
| B220(2)   | Hivac        | B240(3)   |      |
| B230      | Celsior      | 506       |      |
| B230(2)   | Hivac        | (B240)(3) |      |
| B350      | Celsior      | 506       |      |
| B420      | Cyrnos       | 1801      |      |
| B430N     | Triotron     | E444      |      |
| B435N     | Triotron     | E444S     |      |
| B440      | Cyrnos       | 506       |      |
| B480      | Cyrnos       | 1561      |      |
| B491      | Zenith       | (F460)    |      |
| B520      | Celsior      | A441N     |      |
| B720      | Cyrnos       | (B405)    |      |
| B1003     | Cyrnos       | 1561      |      |
| B1209     | Cyrnos       | A409      | A415 |
| B2030N    | Triotron     | B2044     |      |
| B2035N    | Triotron     | B2044S    |      |
| B4125     | Cyrnos       | 1561      |      |

# C

|        |            |        |
|--------|------------|--------|
| C      | Adzam      | (B405) |
| CA171  | Castilla   | C603   |
| CA201A | Castilla   | C509A  |
| CBC1   | Mullard    | CBC1   |
| CBC1   | Radiotechn | CBC1   |
| CBC1   | Telefunken | CBC1   |
| CBC1   | Valvo      | CBC1   |
| CB1    | Mullard    | CB1    |
| CB1    | Radiotechn | CB1    |
| CB1    | Telefunken | CB1    |
| CB1    | Valvo      | CB1    |
| CB2    | Mullard    | CB2    |
| CB2    | Radiotechn | CB2    |
| CB2    | Telefunken | CB2    |
| CB2    | Valvo      | CB2    |
| CB212  | Tungsram   |        |
| CB220  | Tungsram   | (B240) |
| CB410D | Tungsram   |        |
| CB510  | Celsior    | A441N  |
| CC2    | Mullard    | CC2    |
| CC2    | Radiotechn | CC2    |
| CC2    | Telefunken | CC2    |
| CC2    | Valvo      | CC2    |
| CF1    | Mullard    | CF1    |
| CF1    | Radiotechn | CF1    |



|        |            |       |       |
|--------|------------|-------|-------|
| CF1    | Telefunken | CF1   |       |
| CF1    | Valvo      | CF1   |       |
| CF2    | Mullard    | CF2   |       |
| CF2    | Radiotechn | CF2   |       |
| CF2    | Telefunken | CF2   |       |
| CF2    | Valvo      | CF2   |       |
| CF3    | Longlife   | CF3   |       |
| CF3    | Mullard    | CF3   |       |
| CF3    | Radiotechn | CF3   |       |
| CF3    | Telefunken | CF3   |       |
| CF3    | Valvo      | CF3   |       |
| CF7    | Longlife   | CF7   |       |
| CF7    | Mullard    | CF7   |       |
| CF7    | Radiotechn | CF7   |       |
| CF7    | Telefunken | CF7   |       |
| CF7    | Valvo      | CF7   |       |
| CH1    | Mullard    | CH1   |       |
| CH1    | Radiotechn | CH1   |       |
| CH1    | Telefunken | CH1   |       |
| CH1    | Valvo      | CH1   |       |
| CI     | Metal      | C443  | E443H |
| CI409  | Cyrnos     | E415  | E424N |
| CI415  | Cyrnos     |       |       |
| CI424  | Cyrnos     | E424N |       |
| CI438  | Cyrnos     | E438  |       |
| CI441  | Cyrnos     | E441  | E441N |
| CI442  | Cyrnos     | E452T |       |
| CI442S | Cyrnos     | E442S | E452T |
| CI4090 | Zenith     | E415  | E424N |
| CK1    | Longlife   | CK1   |       |

|       |            |        |      |
|-------|------------|--------|------|
| CK1   | Mullard    | CK1    |      |
| CK1   | Radiotechn | CK1    |      |
| CK1   | Telefunken | CK1    |      |
| CK1   | Valvo      | CK1    |      |
| CL1   | Mullard    | CL1    |      |
| CL1   | Radiotechn | CL1    |      |
| CL1   | Telefunken | CL1    |      |
| CL1   | Valvo      | CL1    |      |
| CL2   | Longlife   | CL2    |      |
| CL2   | Mullard    | CL2    |      |
| CL2   | Radiotechn | CL2    |      |
| CL2   | Telefunken | CL2    |      |
| CL2   | Valvo      | CL2    |      |
| CL4   | Mullard    | CL4    |      |
| CL4   | Radiotechn | CL4    |      |
| CL4   | Telefunken | CL4    |      |
| CL4   | Valvo      | CL4    |      |
| CL25  | Metal      | (A415) | B424 |
| CL52  | Metal      | (A209) |      |
| CL62  | Metal      | (A209) |      |
| CL64B | Metal      | A415   | B424 |
| CL104 | Metal      | (B405) |      |
| CL124 | Metal      | (B409) |      |
| CL125 | Metal      | B217   |      |
| CL162 | Metal      | (A209) |      |
| CL164 | Metal      | (A425) |      |
| CL202 | Metal      | (A209) |      |
| CL252 | Metal      | (A209) |      |
| CL254 | Metal      | (A415) |      |
| CL504 | Métal      | A425   | B438 |

|              |              |        |        |
|--------------|--------------|--------|--------|
| CL1257       | Métal        | E708   |        |
| CR2          | Mazda        | 1802   |        |
| CS           | Elektra-Mars | A409   | A415   |
| CT06         | Radiotechn   | B2006  |        |
| CT38         | Rariotechn   | B2038  |        |
| CT41         | Radiotechn   | B2041  |        |
| CT42         | Radiotechn   | B2042  |        |
| CT43         | Radiotechn   | B2043  |        |
| CT44         | Radiotechn   | B2044  |        |
| CT44S        | Radiotechn   | B2044S |        |
| CT45         | Radiotechn   | B2045  | B2047  |
| CT46         | Radiotechn   | B2046  |        |
| CT47         | Radiotechn   | B2047  |        |
| CT48         | Radiotechn   | B2048  |        |
| CT49         | Radiotechn   | B2049  |        |
| CT52         | Radiotechn   | B2052T | B2046  |
| CT55         | Radiotechn   | B2045  |        |
| CV1          | Vatea        | C1     |        |
| CV2          | Vatea        | C2     |        |
| CV3          | Vatea        | C3     |        |
| CWN4         | Triotron     | E442S  | E.452T |
| CX171        | Castilla     | C603   |        |
| CX201A       | Castilla     | C509A  |        |
| Cyrnos Ampli | Cyrnos       | A409   | A415   |
| CY1          | Longlife     | CY1    |        |
| CY1          | Mullard      | CY1    |        |
| CY1          | Radiotechn   | CY1    |        |
| CY1          | Telefunken   | CY1    |        |
| CY1          | Valvo        | CY1    |        |
| CY2          | Mullard      | CY2    |        |

|         |            |        |      |
|---------|------------|--------|------|
| CY2     | Radiotechn | CY2    |      |
| CY2     | Telefunken | CY2    |      |
| CY2     | Valvo      | CY2    |      |
| CY9     | Cyrnos     | A409   | A415 |
| CY10    | Cyrnos     | A409   | A415 |
| CY15    | Cyrnos     | B415   | B424 |
| CY25    | Cyrnos     | A425   | B438 |
| CY41N   | Cyrnos     | A441N  |      |
| CY42    | Cyrnos     | (B442) |      |
| C1      | Mullard    | C1     |      |
| C1      | Valvo      | C1     |      |
| C2      | Mullard    | C2     |      |
| C2      | Valvo      | C2     |      |
| C2      | Zenith     | A209   |      |
| C3      | Mullard    | C3     |      |
| C3      | Valvo      | C3     |      |
| C9      | Fotos      | A409   | A415 |
| C10B(1) | Everready  | CY1    |      |
| C20C(1) | Everready  | CB2    |      |
| C25     | Fotos      | A425   | B438 |
| C30B    | Everready  |        |      |
| C50B    | Everready  |        |      |
| C50N    | Everready  |        |      |
| C70D(1) | Everready  | CL4    |      |
| C80B(1) | Everready  | CK1    |      |
| C106    | Zenith     | A109   |      |
| C150    | Fotos      | (B442) |      |
| C208    | Zenith     | A209   |      |
| C303B   | Castilla   | (B405) |      |
| C306A   | Castilla   | (A409) | A415 |

|       |           |        |      |
|-------|-----------|--------|------|
| C306B | Castilla  | (B405) |      |
| C309A | Castilla  | A409   | A415 |
| C325A | Castillla | A425   | B438 |
| C406  | Zenith    | A415   | B424 |
| C412  | Zenith    | A415   | B424 |
| C491  | Zenith    | E424N  |      |
| C512  | Zenith    | A615   |      |
| C1220 | Celsior   | A441N  |      |

# D

|                         |              |        |        |
|-------------------------|--------------|--------|--------|
| D                       | Adzam        | A409   | A415   |
| D                       | Castilla     | A409   | A415   |
| DA                      | Ferranti     |        |        |
| DA1                     | Mullard      |        |        |
| DA2                     | Mullard      |        |        |
| DA30                    | Ge. Mar. Os. |        |        |
| DA60                    | Ge. Mar. Os. |        |        |
| DA100                   | Ge. Mar. Os. |        |        |
| DA406                   | Zenith       | (B442) |        |
| DA412                   | Zenith       | B442   |        |
| DA1050                  | Zenith       | C142   |        |
| DB                      | Astron       | 506    |        |
| DB4                     | Adzam        | A441N  |        |
| DB240                   | Hivac        |        |        |
| DC/HL                   | Mazda        |        |        |
| DC/P                    | Mazda        |        |        |
| DC/Pen                  | Mazda        |        |        |
| DC Polyodion            | Impex        | B2043  |        |
| DC Screenodion          | Impex        | B2042  | B2052T |
| DC/SG                   | Mazda        |        |        |
| DC Super Det            | Impex        | B2038  |        |
| DC Superpower           | Impex        | B2006  |        |
| DC Super<br>Screenodion | Impex        | B2052T | B2046  |
| DC/2 HLDD               | Mazda        |        |        |

|            |              |        |      |
|------------|--------------|--------|------|
| DC2/P      | Mazda        |        |      |
| DC2/Pen    | Mazda        |        |      |
| DC2/SG     | Mazda        |        |      |
| DC2/SGVM   | Mazda        |        |      |
| DC3/HL     | Mazda        |        |      |
| DDA1       | Standard     | (AB1)  |      |
| DD/Pen     | Cossor       | B2043  |      |
| DDS        | Thermion     |        |      |
| DDT(1)     | Cossor       | KBC1   |      |
| DDT16      | Cossor       |        |      |
| DDT 220(1) | Hivac        | KBC1   |      |
| DDU412     | Vatea        |        |      |
| DD4        | Cossor       | (AB1)  |      |
| DD465      | Tungfram     | AB1    |      |
| DD620(1)   | Mazda        | (CB2)  |      |
| DD818      | Tungfram     |        |      |
| DEHL210    | Ge. Mar. Os. |        |      |
| DEH210     | Ge. Mar. Os. | (B228) |      |
| DEH410     | Ge. Mar. Os. | (B438) |      |
| DEH610     | Ge. Mar. Os. | A630   |      |
| DEH612     | Ge. Mar. Os. | (A615) |      |
| DEL210     | Ge. Mar. Os. | A209   | B217 |
| DEL410     | Ge. Mar. Os. | (A415) | B424 |
| DEL610     | Ge. Mar. Os. | A615   |      |
| DEL612     | Ge. Mar. Os. | A609   |      |
| DEP215     | Ge. Mar. Os. | (B205) |      |
| DEP240     | Ge. Mar. Os. | (B205) |      |
| DEP410     | Ge. Mar. Os. | (A209) | B217 |
| DEP610     | Ge. Mar. Os. | (A609) |      |
| DEQ        | Ge. Mar. Os. |        |      |

|                 |              |         |      |
|-----------------|--------------|---------|------|
| DER             | Ge. Mar. Os. | (A209)  | B217 |
| Detection       | Fotos        | A409    | A415 |
| Detector/Bivolt | Impex        | A225    |      |
| DET5            | Ge. Mar. Os. | (F410)  |      |
| DEV             | Ge. Mar. Os. |         |      |
| DEVC            | Ge. Mar. Os. |         |      |
| DEVX            | Ge. Mar. Os. |         |      |
| DE1             | <i>Amer</i>  | 27      |      |
| DE2HF           | Ge. Mar. Os. | (B217)  |      |
| DE2LF           | Ge. Mar. Os. | (A209)  | B217 |
| DE3             | Ge. Mar. Os. | A409    | A415 |
| DE4             | Ge. Mar. Os. | (A409)  | A415 |
| DE5             | Ge. Mar. Os. | (A609)  | A615 |
| DE5A            | Ge. Mar. Os. | (B605)  |      |
| DE5B            | Ge. Mar. Os. | (A630)  |      |
| DE6             | Ge. Mar. Os. | (B205)  |      |
| DE8HF           | Ge. Mar. Os. | (A615)  |      |
| DE8LF           | Ge. Mar. Os. | (A609)  | A615 |
| DG              | Metal        | A441N   |      |
| DGP3            | Vatea        | (A441N) |      |
| DGP4            | Vatea        | (A241)  |      |
| DG2             | Ge. Mar. Os. | (A241)  |      |
| DG2             | Thermion     |         |      |
| DG4             | Sator        | A441N   |      |
| DG4             | Thermion     | 1561    |      |
| DG20            | Mullard      | B2041   |      |
| DG102           | Thermion     | 506     |      |
| DG406           | Astron       | A441N   |      |
| DG407           | Tungsram     | A441N   |      |
| DG407/0         | Tungsram     | A441N   |      |



|        |              |        |      |
|--------|--------------|--------|------|
| DG2018 | Tungsram     | B2041  |      |
| DG2018 | Vatea        | B2041  |      |
| DG4100 | Tungsram     | E441   |      |
| DG4101 | Tungsram     | E441N  |      |
| DH     | Ge. Mar. Os. |        |      |
| DHD    | Ge. Mar. Os. |        |      |
| DHL    | Cossor       |        |      |
| DHL    | Ge. Mar. Os. |        |      |
| DH4    | Mullard      | E448   |      |
| DH20   | Mullard      | B2048  |      |
| DH30   | Ge. Mar. Os. |        |      |
| DH204  | Record       | E447   |      |
| DH504  | Record       | E446   |      |
| DI2    | Radiotechn   |        |      |
| DI3    | Radiotechn   |        |      |
| DI4090 | Zenith       | E441   |      |
| DL     | Ge. Mar. Os. |        |      |
| DLP51  | Sator        | AL1    |      |
| DLS1   | Mazda        | (4152) |      |
| DLS10  | Mazda        |        |      |
| DL2    | Record       | B217   |      |
| DL4    | M.P.         | A409   | A415 |
| DL4A   | M.P.         | A415   | B424 |
| DL4B   | M.P.         | B415   | B424 |
| DL4V   | M.P.         | E424N  |      |
| DL40   | Ge. Mar. Os. |        |      |
| DM15   | Record       | A241   |      |
| DM154  | Record       |        |      |
| DM300  | Record       | A441N  |      |
| DN30   | Ge. Mar. Os. |        |      |
| DN41   | Ge. Mar. Os. |        |      |

|         |              |                |       |
|---------|--------------|----------------|-------|
| DN44    | Record       | E441N          |       |
| DN64    | Record       | (E409N)        |       |
| DN124   | Record       |                |       |
| DN154   | Record       | E415           | E424N |
| Dn254   | Record       | E424N          |       |
| Dn284   | Record       | E424N          |       |
| Dn404   | Record       | E438           |       |
| DN406   | Vatea        | (A441N)        |       |
| Dn754   | Record       | (E499)         |       |
| Dn904   | Record       | E453           |       |
| Dn1004  | Record       | E443N          |       |
| Dn2004  | Record       | E442S          | E452T |
| Dn3004  | Record       | (E452T)        | E446  |
| Dn5004  | Record       | E445           | E455  |
| Dn9014  | Record       | (E452T)        | E446  |
| DO2-30B | Metal        | 1801           |       |
| DO20    | Mullard      | (F704) = Am 50 |       |
| DO24    | Mullard      | F410           |       |
| DO25    | Mullard      |                |       |
| DO26    | Mullard      |                |       |
| DO27    | Mullard      | E707           |       |
| DO34    | Mullard      | 4641           |       |
| DO60    | Mullard      |                |       |
| DO230B  | Mazda        | 1801           |       |
| DP      | Cossor       |                |       |
| DP/Pen  | Cossor       |                |       |
| DPT     | Ge. Mar. Os. |                |       |
| DPT30   | Ge. Mar. Os. |                |       |
| DR      | Record       | (A441N)        |       |
| DR2     | Mazda        | A209           |       |
| DS      | Ge. Mar. Os. |                |       |

|         |              |         |       |
|---------|--------------|---------|-------|
| DSB     | Ge. Mar. Os. |         |       |
| DS/Pen  | Cossor       |         |       |
| DSP1    | Ge. Mar. Os. |         |       |
| DS1     | Thermion     | B442    |       |
| DS228   | Tungsram     | (B2044) |       |
| DS1610  | Celsior      | E415    | E424N |
| DS2408  | Celsior      | E424N   |       |
| DS4100  | Tungsram     | E444    |       |
| DS4101  | Tungsram     | (E444)  |       |
| DT215   | Triotron     | KBC1    |       |
| DT436   | Triotron     | ABC1    |       |
| DT491   | Zenith       | (E444)  |       |
| DT620   | Triotron     | EBC3    |       |
| DT1336  | Triotron     | CBC1    |       |
| DU1     | Mullard      | 1802    |       |
| DU2     | Mullard      | (506)   |       |
| DU/2X   | Mullard      | 506     |       |
| DU3     | Mullard      | 1803    |       |
| DU4     | Mullard      | 505     |       |
| DU5     | Mullard      | 506     |       |
| DU10    | Mullard      | (505)   |       |
| DU15    | Mullard      | (1562)  |       |
| DU412   | Vatea        | (E441N) |       |
| DU412   | Zenith       | (B405)  |       |
| DU415   | Zenith       | B443    | C443  |
| DVG51   | Sator        | AZ1     |       |
| DVPI    | Ge. Mar. Os. | B2047   |       |
| DVSG    | Cossor       |         |       |
| DVS/Pen | Cossor       |         |       |
| DV4100  | Vatea        | E441    |       |

|        |         |         |       |
|--------|---------|---------|-------|
| DW1    | Metal   | (E441)  |       |
| DW1    | Mullard | 1801    |       |
| DW1B   | Metal   | (E441)  |       |
| DW2    | Metal   | (E442S) |       |
| DW2    | Mullard | (506)   |       |
| DW2X   | Mullard | 506     |       |
| DW3    | Metal   | C443    | E443H |
| DW3    | Mullard | (1561)  |       |
| DW4    | Mullard | 1561    |       |
| DW5    | Mullard | 1832    |       |
| DW6    | Metal   | E442    | E452T |
| DW7    | Metal   | E452T   | E446  |
| DW7    | Mullard | 4646    |       |
| DW7X   | Mullard | 1805    |       |
| DW8    | Metal   | E455    | E447  |
| DW8    | Mullard | (1560)  |       |
| DW9    | Metal   | E443H   |       |
| DW11   | Mazda   | E443H   |       |
| DW11   | Metal   | E443H   |       |
| DW15   | Mullard |         |       |
| DW16   | Mullard | (1560)  |       |
| DW302  | Metal   | (D404)  |       |
| DW601  | Metal   | E406N   |       |
| DW702  | Metal   |         |       |
| DW704  | Metal   | (E409N) | E415  |
| DW1003 | Metal   | (E409N) | E415  |
| DW1011 | Metal   | (E424N) |       |
| DW1111 | Metal   | (E409N) | E415  |
| DW1508 | Metal   | E415    | E424N |
| DW3020 | Metal   | E438    |       |

|        |          |         |      |
|--------|----------|---------|------|
| DW3559 | Metal    | E438    |      |
| DW4011 | Mazda    |         |      |
| DW4011 | Metal    | (E424N) |      |
| DW4023 | Metal    | E438    |      |
| DX3    | Metal    | B443    |      |
| DX106  | Vatea    | A141    |      |
| DX406  | Vatea    | A441N   |      |
| DX414  | Vatea    | A441N   |      |
| DX502  | Metal    | B405    |      |
| DY604  | Metal    | (B405)  |      |
| DX804  | Metal    | B409    |      |
| DZ1    | Metal    | A441N   |      |
| DZ2    | Metal    | B442    |      |
| DZ811  | Metal    | A409    | A415 |
| DZ813  | Metal    | A409    | A415 |
| DZ908  | Metal    | A409    | A415 |
| DZ1508 | Metal    | A415    | B424 |
| DZ1623 | Metal    | A415    | B424 |
| DZ2222 | Metal    | A425    | B438 |
| DZ3529 | Metal    |         |      |
| D 1/2  | Amer     | 81      |      |
| D1     | Amer     | 80      |      |
| D1     | Castilla | A409    | A415 |
| D2     | Zenith   | A241    |      |
| D2-30  | Metal    | 1802    |      |
| D2-30B | Metal    | 1801    |      |
| D3-50B | Metal    | 506     |      |
| D3-80B | Metal    | 506     |      |
| D4     | Ferranti | E424N   |      |
| D4     | Zenith   | A441N   |      |

|         |              |        |       |
|---------|--------------|--------|-------|
| D5      | Fotos        | B405   |       |
| D5-125B | Metal        | 1561   |       |
| D9      | Fotos        | B409   |       |
| D15     | Fotos        | A415   | B424  |
| D28     | Thermion     | 373    |       |
| D40     | Fotos        | A425   | B438  |
| D41 (1) | Ge. Mar. Os. | AB2    |       |
| D60     | Fotos        | (C443) | E443H |
| D70     | Fotos        | C443   | E443H |
| D94     | Thermion     | B405   |       |
| D100    | Fotos        | B443   | C443  |
| D100N   | Fotos        | C443   | E443H |
| D163    | Thermion     | A415   | B424  |
| D200    | Triotron     | KB2    |       |
| D201    | Triotron     | KB1    |       |
| D210    | Hivac        | B217   |       |
| D230    | Mazda        | 1802   |       |
| D230B   | Mazda        | 1801   |       |
| D350B   | Mazda        | 506    |       |
| D380B   | Mazda        | 506    |       |
| D400    | Triotron     | AB2    |       |
| D401    | Triotron     | AB1    |       |
| D410    | Triotron     | A441N  |       |
| D410N   | Triotron     | E441   |       |
| D418    | Tungsrarn    | (AB2)  |       |
| D430B   | Mazda        | 1801   |       |
| D480B   | Mazda        | 506    |       |
| D495    | Zenith       | (E441) |       |
| D502    | Thermion     | (A425) | B438  |
| D601    | Triotron     | EB1    |       |

D1208  
D1300  
D1301  
D2010N  
D5125B

Celsior  
Triotron  
Triotron  
Triotron  
Mazda

B415  
CB2  
CB1  
B2041  
1561

B424

REPRODUCED FROM THE NATIONAL ARCHIVES

# E

|          |             |      |
|----------|-------------|------|
| E        | Adzam       | A225 |
| E        | <i>Amer</i> | 20   |
| E        | Tungsram    |      |
| EB       | Astron      | 506  |
| EBC1     | Mullard     | EBC1 |
| EBC1     | Telefunken  | EBC1 |
| EBC1     | Valvo       | EBC1 |
| EBC3     | Mullard     | EBC3 |
| EBC3     | Radiotechn  | EBC3 |
| EBC3     | Valvo       | EBC3 |
| EB1      | Telefunken  | EB1  |
| EB1      | Valvo       | EB1  |
| EB2      | Valvo       | EB2  |
| EB2 Cubi | Telefunken  | EB2  |
| EB4      | Mullard     | EB4  |
| EB4      | Radiotechn  | EB4  |
| EB4      | Valvo       | EB4  |
| EC2      | Mullard     | EC2  |
| EC2      | Telefunken  | EC2  |
| EC2      | Valvo       | EC2  |
| ED78     | Radiotechn  | EM1  |
| EF1      | Telefunken  | EF1  |
| EF1      | Valvo       | EF1  |
| EF2      | Telefunken  | EF2  |
| EF2      | Valvo       | EF2  |



|          |            |        |
|----------|------------|--------|
| EF3      | Valvo      | EF3    |
| EF3 Cubi | Telefunken | EF3    |
| EF5      | Mullard    | EF5    |
| EF5      | Radiotechn | EF5    |
| EF5      | Valvo      | EF5    |
| EF6      | Mullard    | EF6    |
| EF6      | Radiotechn | EF6    |
| EF6      | Valvo      | EF6    |
| EF7      | Valvo      | EF7    |
| EF7 Cubi | Telefunken | EF7    |
| EG1      | Thermion   |        |
| EG4      | Thermion   | (1832) |
| EG50     | Ostar      |        |
| EG100    | Ostar      |        |
| EG101    | Thermion   | 373    |
| EG403    | Sator      | 1802   |
| EG406    | Sator      | 373    |
| EG410    | Sator      | 1832   |
| EG420    | Sator      | 1832   |
| EG430    | Eagle      | 1802   |
| EG2403   | Hoges      | 1810   |
| EG5003   | Hoges      | 1803   |
| EH       | Tungsram   |        |
| EHG      | Tungsram   |        |
| EHP4V    | M.P.       | E447   |
| EHP20    | M.P.       | B2047  |
| EH1      | Mullard    | EH1    |
| EH1      | Telefunken | EH1    |
| EH1      | Valvo      | EH1    |
| EK1      | Telefunken | EK1    |

|           |            |        |       |
|-----------|------------|--------|-------|
| EK1       | Valvo      | EK1    |       |
| EK2       | Mullard    | EK2    |       |
| EK2       | Radiotechn | EK2    |       |
| EK2       | Valvo      | EK2    |       |
| EL1       | Telefunken | EL1    |       |
| EL1       | Valvo      | EL1    |       |
| EL1 Cubi  | Telefunken | EL1    |       |
| EL2       | Mullard    | EL2    |       |
| EL2       | Radiotechn | EL2    |       |
| EL2       | Valvo      | EL2    |       |
| EL3       | Mullard    | EL3    |       |
| EL3       | Radiotechn | EL3    |       |
| EL3       | Valvo      | EL3    |       |
| EL5       | Mullard    | EL5    |       |
| EL5       | Radiotechn | EL5    |       |
| EL5       | Valvo      | EL5    |       |
| EM1       | Mullard    | EM1    |       |
| EM1       | Radiotechn | EM1    |       |
| EM1       | Valvo      | EM1    |       |
| E O       | Fotos      | (1803) |       |
| ESG4V     | M.P.       | E455   | E447  |
| ESG20     | M.P.       | B2045  |       |
| ES32      | Celsior    | E452T  | E446  |
| ES33      | Celsior    | E442S  | E452T |
| ES100     | Tekade     | E442   | E452T |
| ES300/200 | Celsior    | E442S  | E452T |
| Eureka    | Eureka     | A409   | A415  |
| EZ1       | Radiotechn | EZ1    |       |
| EZ1       | Telefunken | EZ1    |       |
| EZ1       | Valvo      | EZ1    |       |

|          |            |        |      |
|----------|------------|--------|------|
| EZ1 Cubi | Telefunken | EZ1    |      |
| EZ2      | Mullard    | EZ2    |      |
| EZ2      | Valvo      | EZ2    |      |
| EZ3      | Mullard    | EZ3    |      |
| EZ3      | Radiotechn | EZ3    |      |
| EZ3      | Valvo      | EZ3    |      |
| EZ4      | Mullard    | EZ4    |      |
| EZ4      | Radiotechn | EZ4    |      |
| EZ4      | Valvo      | EZ4    |      |
| E1       | Fotos      |        |      |
| E1       | Metal      | (B409) |      |
| E2       | Fotos      |        |      |
| E4       | Sator      | B409   |      |
| E4A      | M.P.       | 1802   |      |
| E4B      | M.P.       | 1832   |      |
| E4C      | M.P.       | 1801   |      |
| E4D      | M.P.       | 506    |      |
| E4E      | M.P.       | 1561   |      |
| E4F      | M.P.       | 1815   |      |
| E4G      | M.P.       | 1817   |      |
| E10      | Sator      | (A409) | A415 |
| E11      | Sator      | (A409) | A415 |
| E14      | Sator      | A425   | B438 |
| E15      | Sator      | A409   | A415 |
| E23      | Celsior    | (B442) |      |
| E43      | Sator      | (C443) | E443 |
| E100     | Sator      |        |      |
| E105A    | Radiotechn | E708   |      |
| E105B    | Radiotechn | E708   |      |
| E105C    | Radiotechn | E708   |      |

|          |              |         |      |
|----------|--------------|---------|------|
| E107A    | Radiotechn   | E408N   |      |
| E107B    | Radiotechn   | (E406N) |      |
| E155B    | Radiotechn   |         |      |
| E165A    | Radiotechn   | F704    |      |
| E165B    | Radiotechn   | F704    |      |
| E200/300 | Celsior      | B442    |      |
| E201/A   | Elektra-Mars | A409    | A415 |
| E220B    | Triotron     | (B240)  |      |
| E235     | Triotron     |         |      |
| E381     | Ge. Mar. Os. | (E499)  |      |
| E414     | Triotron     | B405    |      |
| E420     | Triotron     | B405    |      |
| E422     | Triotron     | B409    |      |
| E425     | Triotron     | C405    |      |
| F430N    | Triotron     | E409N   |      |
| E491     | Zenith       | (E 448) |      |
| E495     | Zenith       | (F.449) |      |
| E615     | Triotron     | C643    |      |
| E2020N   | Triotron     | B2006   |      |

# F

|         |            |         |       |
|---------|------------|---------|-------|
| FB12    | Fotos      | B240    |       |
| FB220   | Fotos      | B240    |       |
| FC2     | Mullard    | (KK2)   |       |
| FC2A(1) | Mullard    | KK2     |       |
| FC4(1)  | Mullard    | AK2     |       |
| FC13(1) | Mullard    | CK1     |       |
| FC1320  | Mazda      |         |       |
| FH4105  | Tungsram   | E449    |       |
| FK1     | Loewe      |         |       |
| FV250   | Mazda      | F704    |       |
| FW1     | Impex      | 506     |       |
| FW2     | Impex      | 1561    |       |
| FW3     | Impex      | 1561    |       |
| FW350   | Record     | 1561    |       |
| FW402   | Metal      | C603    |       |
| FZ1     | Mullard    | FZ1     |       |
| FZ1     | Radiotechn | FZ1     |       |
| FZ1     | Telefunken | FZ1     |       |
| FZ1     | Valvo      | FZ1     |       |
| FZ906   | Metal      | A609    |       |
| F4      | Sator      | B415    | B424  |
| F5      | Fotos      | (E406N) |       |
| F5N     | Fotos      | (E406N) |       |
| F10     | Fotos      | D410    |       |
| F10N    | Fotos      | D410    |       |
| F100    | Fotos      | C443    | E443H |
| F100N   | Fotos      | (E443H) |       |

# G

|          |              |         |      |
|----------|--------------|---------|------|
| G        | <i>Amer</i>  | 40      |      |
| G        | Elektra-Mars | A425    | B438 |
| GA       | <i>Amer</i>  | (9)     |      |
| GA24     | Triotron     | 506     |      |
| GD24     | Triotron     | 506     |      |
| GE       | Triotron     | 506     |      |
| GE15     | Triotron     | 373     |      |
| GE25     | Triotron     | 506     |      |
| GL4      | Sator        | 1561    |      |
| GL4/0,15 | Sator        | 1802    |      |
| GL4/0,30 | Sator        | 1801    |      |
| GL4/0,40 | Sator        | 1802    |      |
| GL4/0,6D | Sator        | 1801    |      |
| GL4/0,6E | Sator        | 373     |      |
| GL4/0,60 | Sator        | 506     |      |
| GL4/0,80 | Sator        | 506     |      |
| GL4/1    | Sator        | 506     |      |
| GL4/1D   | Sator        | 506     |      |
| GL4/1E   | Sator        | 505     |      |
| GL4/2    | Sator        | 1561    |      |
| GL4/2D   | Sator        | 1561    |      |
| GL4/2E   | Sator        | 1832    |      |
| GM       | Metal        | (A441N) |      |
| GN14     | Triotron     | 1802    |      |
| GN24     | Triotron     | 1801    |      |

|         |              |         |      |
|---------|--------------|---------|------|
| GP2     | Mazda        | A209    | B217 |
| GP4     | Mazda        | (A409)  | A415 |
| GP210   | Mazda        | (A209)  | B217 |
| GP407   | Mazda        | (A415)  | B424 |
| GP406   | Astron       | A409    | A415 |
| GP607   | Mazda        | (A615)  |      |
| GT1     | Ge. Mar. Os. |         |      |
| GT4H    | Mullard      | 4686    |      |
| GT130   | Tekade       | 506     |      |
| GT138   | Tekade       | 505     |      |
| GUI     | Ge. Mar. Os. |         |      |
| GVG3010 | Hoges        |         |      |
| GW302   | Metal        | E703    |      |
| GW402   | Metal        | F704    |      |
| G2      | Amer         | 2S/4S   |      |
| G4      | Amer         | 2S/4S   |      |
| G7-85   | Metal        | 1562    |      |
| G84     | Amer         | 2Z2/G84 |      |
| G84/2Z2 | Amer         | 2Z2/G84 |      |
| G100    | Fotos        | E443N   |      |
| G102    | Record       | (B2006) |      |
| G132    | AEG          |         |      |
| G138    | AEG          | 1201    |      |
| G203    | Marathon     | 451     |      |
| G204    | Marathon     | 373     |      |
| G206    | Tungsrām     |         |      |
| G210    | Tungsrām     | A209    | B217 |
| G213    | Marathon     | 328     |      |
| G214    | Marathon     | 506     |      |
| G215    | Tungsrām     | (B205)  |      |

|      |          |        |      |
|------|----------|--------|------|
| G223 | Marathon | AX1    |      |
| G224 | Marathon | 1561   |      |
| G234 | Marathon | 1562   |      |
| G252 | Record   | B2038  |      |
| G354 | Valvo    | 1810   |      |
| G405 | Longlife | B405   |      |
| G405 | Tungsrām | (A409) | A415 |
| G406 | Tungsrām | (A409) | A415 |
| G407 | Tungsrām | A409   | A415 |
| G408 | Tungsrām | A409   | A415 |
| C409 | Longlife | A409   | A415 |
| G409 | Tungsrām | A415   | B424 |
| G410 | Tungsrām | A414K  |      |
| G411 | Tungsrām | A415   | B424 |
| G412 | Tungsrām | B409   |      |
| G415 | Longlife | A415   | B424 |
| G415 | Valvo    | (1802) |      |
| G424 | Longlife | B424   |      |
| G425 | Longlife | A425   | B438 |
| G425 | Valvo    | 1810   |      |
| G429 | Triotron | 1802   |      |
| G430 | Triotron | 1803   |      |
| G431 | Triotron | 1801   |      |
| G435 | Valvo    | 1802   |      |
| G440 | Splendor | 506    |      |
| G442 | Longlife | B442   |      |
| G450 | Splendor | 506    |      |
| G450 | Triotron | 505    |      |
| G459 | Triotron | AZ1    |      |
| G460 | Triotron | 1805   |      |



|       |          |         |
|-------|----------|---------|
| G461  | Triotron | 1831    |
| G470  | Triotron | 506     |
| G495  | Valvo    | 505     |
| G504  | Valvo    | 1801    |
| G564  | Valvo    | 1803    |
| G607  | Tungsrām | A615    |
| G608  | Tungsrām | A609    |
| G614  | Tungsrām | (A609)  |
| G615  | Tungsrām | A615    |
| G650  | Triotron | EZ1     |
| G660  | Triotron | EZ2     |
| G715  | Valvo    | 1562    |
| G752  | Record   | (B2099) |
| G1002 | Record   | B2043   |
| G1054 | Valvo    | 506     |
| G1064 | Valvo    | 1805    |
| G1380 | Triotron | FZ1     |
| G1404 | Valvo    | 1832    |
| G1503 | Valvo    | 1201    |
| G2004 | Valvo    | 1561    |
| G2005 | Valvo    | 1560    |
| G2018 | Tungsrām | B2038   |
| G2080 | Triotron | CY1     |
| G2125 | Valvo    | 1703    |
| G2185 | Valvo    | 1700    |
| G2200 | Valvo    | 1702    |
| G2340 | Valvo    | 1701    |
| G2504 | Valvo    | 1815    |
| G2506 | Valvo    | 1326    |
| G3060 | Triotron | CY2     |

|       |          |        |       |
|-------|----------|--------|-------|
| G3412 | Triotron |        |       |
| G4004 | Valvo    | 1817   |       |
| G4110 | Triotron | 1832   |       |
| G4110 | Triotron | 1561   |       |
| G4120 | Triotron | 1561   |       |
| G4120 | Valvo    | 1831   |       |
| G4120 | Triotron |        |       |
| G4150 | Triotron |        |       |
| G4180 | Triotron | 1815   |       |
| G4300 | Triotron | 1817   |       |
| G5002 | Record   | B2045  |       |
| G9002 | Record   | B5052T | B2046 |

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# H

|            |              |        |       |
|------------|--------------|--------|-------|
| H.         | Adzam        | (B405) |       |
| H          | <i>Amer</i>  | 00A    |       |
| HAD        | Ferranti     |        |       |
| HAI        | Ge. Mar. Os. |        |       |
| HA130      | Tekade       | E415   | E424N |
| HD2        | Triotron     | (B217) |       |
| HD21(1)    | Ge. Mar. Os. | KBC1   |       |
| HD22(1)    | Ge. Mar. Os. | KBC1   |       |
| HD410      | Tungsrarn    | B415   |       |
| HF         | Fotos        |        |       |
| HF Bivolt  | Impex        | (B228) |       |
| HF Forvolt | Impex        | (A425) |       |
| HF29       | Loewe        |        |       |
| HF30       | Loewe        |        |       |
| HF210      | Mazda        | B217   |       |
| HF406      | Astron       | B41 5  | B424  |
| HF407      | Mazda        | A425   | B438  |
| HF410      | Mazda        | A425   | B438  |
| HF607      | Mazda        | A630   |       |
| HF610      | Mazda        | A630   |       |
| HG1        | Valvo        | (1875) |       |
| HH2018     | Tungsrarn    | B2048  |       |
| HH2118     | Tungsrarn    | B2049  |       |
| HH4100     | Tungsrarn    | E448   |       |
| HLA        | Standard     | (E499) |       |

|             |              |         |      |
|-------------|--------------|---------|------|
| HLA1        | Standard     | (E499)  |      |
| HLA2        | Standard     | (F460)  |      |
| HLB1        | Standard     | B228    |      |
| HLDD1320(1) | Mazda        | (CBC1)  |      |
| HL2         | Ge. Mar. Os. | B228    |      |
| HL2         | Mazda        | B228    |      |
| HL2/C       | Ge. Mar. Os. | A225    | B228 |
| HL2/K       | Ge. Mar. Os. | (B228)  |      |
| HL13        | Mullard      | CC2     |      |
| HL13C(1)    | Mullard      | CC2     |      |
| HL20        | Mullard      | B2038   |      |
| HL21/DD     | Mazda        |         |      |
| HL210       | Ge. Mar. Os. | B228    |      |
| HL210       | Mazda        | B228    |      |
| HL410       | Ge. Mar. Os. | A425    | B438 |
| HL610       | Ge. Mar. Os. | A630    |      |
| HL607       | Mazda        | A630    |      |
| HL610       | Mazda        | A630    |      |
| HL1320(1)   | Mazda        | (CC2)   |      |
| HM4A        | M.P.         | A425    | B438 |
| HM4B        | M.P.         | B438    |      |
| HM4V        | M.P.         | E438    |      |
| HM20        | M.P.         | B2038   |      |
| HPT220      | Cossor       |         |      |
| HPT230      | Cossor       | (C243N) |      |
| HP2         | Ferranti     | B240    |      |
| HP4V        | M.P.         | E446    |      |
| HP20        | M.P.         | B2046   |      |
| HP100/63    | Celsior      | B443    | C443 |
| HP206       | Tungsram     |         |      |

|               |          |          |      |
|---------------|----------|----------|------|
| HP212(1)      | Tungsram | (KF1)(2) |      |
| HP215(2)      | Hivac    | KF1(3)   |      |
| HP215(1)      | Tungsram | (KF2)(2) |      |
| HP220(1)      | Tungsram | KF1(2)   |      |
| HP221(1)      | Tungsram | KF2(2)   |      |
| HP501         | Celsior  | D404     |      |
| HP604         | Celsior  | (B405)   |      |
| HP1604        | Celsior  |          |      |
| HP1608        | Celsior  | A415     | B424 |
| HP2018        | Tungsram | B2046    |      |
| HP2118        | Tungsram | B2047    |      |
| HP4100        | Tungsram | E446     |      |
| HP4101        | Tungsram | E446     |      |
| HP4105        | Tungsram | E447     |      |
| HP4106        | Tungsram | E447     |      |
| HP4115        | Tungsram | AF2      |      |
| HP5025        | Celsior  | E443N    |      |
| HR206         | Tungsram |          |      |
| HR210         | Tungsram | B228     |      |
| HR406         | Tungsram | A425     | B438 |
| HR410         | Tungsram | A425     | B438 |
| HR607         | Tungsram | A630     |      |
| HSD           | Ferranti |          |      |
| HVR1          | Mullard  |          |      |
| HV4100        | Vatea    | (E424N)  |      |
| HX210         | Vatea    | (B217)   |      |
| HX406         | Vatea    | (A415)   | B424 |
| HX410S        | Vatea    | (B424)   |      |
| Hyper-Power } |          |          |      |
| Bivolt }      | Impex    |          |      |

|               |              |        |      |
|---------------|--------------|--------|------|
| Hyper-Power } | Impex        | (B405) |      |
| Forvolt }     |              |        |      |
| HZ50          | Amer         | 12Z3   |      |
| HZ420         | Valvo        |        |      |
| H2            | Ge. Mar. Os. | A225   | B228 |
| H2            | Mazda        |        |      |
| H2            | Record       | B228   |      |
| H2D(1)        | Ferranti     | (KBC1) |      |
| H2-10         | Amer         | 879    |      |
| H4            | Sator        | A415   | B424 |
| H4D(1)        | Ferranti     | ABC1   |      |
| H11           | Ge. Mar. Os. |        |      |
| H13           | Mullard      | CC2    |      |
| H20           | Mullard      | B2099  |      |
| H30           | Ge. Mar. Os. |        |      |
| H80           | Sator        | A415   | B424 |
| H100          | Sator        | B415   | B424 |
| H107          | Valvo        | A109   |      |
| H125D         | Valvo        | C142   |      |
| H125 spez     | Valvo        |        |      |
| H206          | Valvo        | A209   |      |
| H206D         | Valvo        | B262   |      |
| H206 spez.    | Valvo        |        |      |
| H208D         | Valvo        | B255   |      |
| H210          | Ge. Mar. Os. | (B228) |      |
| H210          | Hivac        | B228   |      |
| H210          | Mazda        |        |      |
| H210          | Tungsram     | A225   | B228 |
| H217          | Vatea        | (B217) |      |
| H406          | Valvo        | A409   | A415 |

|            |              |         |        |
|------------|--------------|---------|--------|
| H406       | Vatea        | (A409)  | A415   |
| H406D      | Valvo        | A442    | B442   |
| H407       | Tungsram     | B438    |        |
| H407 spez. | Valvo        | (A410N) |        |
| H410       | Ge. Mar. Os. | (B438)  |        |
| H410D      | Valvo        | B442    |        |
| H412       | Triotron     | (A409)  | A415   |
| H425       | Triotron     | AH1     |        |
| H425N      | Triotron     | E448    |        |
| H426N      | Triotron     | E449    |        |
| H606       | Valvo        | A609    |        |
| H607       | Mazda        | (A630)  |        |
| H610       | Ge. Mar. Os. | A630    |        |
| H610       | Mazda        | (A630)  |        |
| H615       | Triotron     | A409    | A415   |
| H1325      | Triotron     | CH1     |        |
| H1818D     | Valvo        | B2052T  | B2046  |
| H1918D     | Valvo        | B2045   |        |
| H2018D     | Valvo        | B2042   | B2052T |
| H2025N     | Triotron     | B2048   |        |
| H2026N     | Triotron     | B2049   |        |
| H2518D     | Valvo        | B2046   |        |
| H2618D     | Valvo        | B2047   |        |
| H4080D     | Valvo        | E442S   | E452T  |
| H4100      | Valvo        | E415    | E424N  |
| H4100D     | Valvo        | E442    | E452T  |
| H4111D     | Valvo        | E452T   | E446   |
| H4115D     | Valvo        | E455    | E447   |
| H4125D     | Valvo        | E445    | E455   |
| H4128D     | Valvo        | E446    |        |
| H4129D     | Valvo        | E447    |        |

|         |          |        |       |
|---------|----------|--------|-------|
| I       | Adzam    | B409   |       |
| IFW1    | Impex    | 1861   |       |
| IG4     | Thermion | E409N  | E415  |
| IG4V    | Thermion | E409N  | E415  |
| IG101   | Thermion |        |       |
| IKA     | Sator    | A409   | A415  |
| IP3     | Thermion | C443N  |       |
| IP4     | Thermion |        |       |
| ISV     | Thermion | E445   | E455  |
| IS3     | Thermion | E442S  | E452T |
| IS4     | Thermion | E452T  | E446  |
| IS104   | Thermion | E452T  | E446  |
| IT103   | Thermion | C443   | E443H |
| IW2     | Mullard  |        |       |
| IW2A    | Mullard  |        |       |
| IW3     | Mullard  |        |       |
| IW3B    | Mullard  |        |       |
| IW4     | Mullard  |        |       |
| IW4/350 | Mullard  |        |       |
| IW4/500 | Mullard  |        |       |
| I163    | Thermion | E415   | E424N |
| I253    | Thermion | E424N  |       |
| I503    | Thermion | E438   |       |
| I758    | Thermion |        |       |
| I803    | Thermion | (F460) |       |



|       |            |         |       |
|-------|------------|---------|-------|
| I1126 | Thermion   |         |       |
| I1304 | Thermion   | E424N   |       |
| I2575 | Radiotechn |         |       |
| I2592 | Radiotechn |         |       |
| I4053 | Radiotechn | E441    | E424N |
| I4076 | Radiotechn | E415    |       |
| I4077 | Radiotechn | (E424N) |       |
| I4078 | Radiotechn | E438    | E452T |
| I4081 | Radiotechn | (E442)  | E452T |
| I4091 | Radiotechn | E442    |       |
| I4092 | Radiotechn |         |       |
| I4093 | Radiotechn |         | E446  |
| I4094 | Radiotechn | E452T   |       |

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# J

|       |         |        |       |
|-------|---------|--------|-------|
| JB441 | Elecson | E441   | E441N |
| JPV45 | Elecson | (E445) | E455  |
| J15   | Elecson | E415   | E424N |
| J25   | Elecson | E424N  |       |
| J40   | Elecson | E438   |       |
| J150  | Elecson | E442S  | E452T |
| J200  | Elecson | E452T  |       |
| J240  | Hivac   |        |       |
| J300  | Elecson | E452T  | E446  |

# K

|           |            |      |
|-----------|------------|------|
| K         | Adzam      | A109 |
| KBC1      | Mullard    | KBC1 |
| KBC1      | Radiotechn | KBC1 |
| KBC1      | Telefunken | KBC1 |
| KBC1      | Valvo      | KBC1 |
| KB1       | Telefunken | KB1  |
| KB1       | Valvo      | KB1  |
| KB2       | Mullard    | KB2  |
| KB2       | Radiotechn | KB2  |
| KB2       | Telefunken | KB2  |
| KB2       | Valvo      | KB2  |
| KC1       | Mullard    | KC1  |
| KC1       | Telefunken | KC1  |
| KC1       | Valvo      | KC1  |
| KC3       | Mullard    | KC3  |
| KC3       | Radiotechn | KC3  |
| KC3       | Telefunken | KC3  |
| KC3       | Valvo      | KC3  |
| KDD1      | Mullard    | KDD1 |
| KDD1      | Telefunken | KDD1 |
| KDD1      | Valvo      | KDD1 |
| KD0.30    | Mazda      | 1802 |
| KD02.30B  | Metal      | 1801 |
| KD0.380B  | Metal      | 1561 |
| KD05.125B | Metal      | 1561 |

|         |              |       |      |
|---------|--------------|-------|------|
| KF1     | Mullard      | KF1   |      |
| KF1     | Telefunken   | KF1   |      |
| KF1     | Valvo        | KF1   |      |
| KF2     | Mullard      | KF2   |      |
| KF2     | Telefunken   | KF2   |      |
| KF2     | Valvo        | KF2   |      |
| KF3     | Mullard      | KF3   |      |
| KF3     | Radiotechn   | KF3   |      |
| KF3     | Telefunken   | KF3   |      |
| KF3     | Valvo        | KF3   |      |
| KF4     | Mullard      | KF4   |      |
| KF4     | Radiotechn   | KF4   |      |
| KF4     | Telefunken   | KF4   |      |
| KF4     | Valvo        | KF4   |      |
| KF7     | Telefunken   | KF7   |      |
| KF7     | Valvo        | KF7   |      |
| KF8     | Telefunken   | KF8   |      |
| KF8     | Valvo        | KF8   |      |
| KG1500  | Thermion     |       |      |
| KH1     | Ge. Mar. Os. | E438  |      |
| KK2     | Mullard      | KK2   |      |
| KK2     | Radiotechn   | KK2   |      |
| KK2     | Valvo        | KK2   |      |
| KL1     | Ge. Mar. Os. | E409N | E415 |
| KL1     | Telefunken   | (KL4) |      |
| KL1     | Valvo        | (KL4) |      |
| KL1/ACR | Ge. Mar. Os. | E409N | E415 |
| KL2     | Mullard      | KL2   |      |
| KL2     | Radiotechn   | KL2   |      |
| KL2     | Telefunken   | KL2   |      |

|          |            |         |
|----------|------------|---------|
| KL2      | Valvo      | KL2     |
| KL4      | Mullard    | KL4     |
| KL4      | Telefunken | KL4     |
| KL4      | Valvo      | KL4     |
| KR1      | Amer       | IV      |
| KR5      | Amer       | 6A4/LA  |
| KR20     | Amer       | (9)     |
| KR22     | Amer       | (9)     |
| KR25     | Amer       | 2A5     |
| KR28     | Amer       | 84      |
| KR31     | Amer       | (9)     |
| KSE12/I  | Loewe      |         |
| KSE/II   | Loewe      |         |
| KSE18/I  | Loewe      |         |
| KSE18/II | Loewe      |         |
| K4       | Sator      | (E408N) |
| K12      | Triotron   | (D404)  |
| K23A(1)  | Everready  | (KBC1)  |
| K30      | Metal      | 1562    |
| K30A     | Everready  |         |
| K30B     | Everready  | (A209)  |
| K30C     | Everready  | B228    |
| K30D     | Everready  | B217    |
| K30E     | Fverready  | (B217)  |
| K30G     | Everready  |         |
| K33A     | Everready  | B240    |
| K33B     | Everready  |         |
| K40B     | Everready  | B262    |
| K40N     | Everready  | B255    |
| K50B(2)  | Everready  | KF1(3)  |

|         |           |         |
|---------|-----------|---------|
| K50M(2) | Everready | KF2(3)  |
| K70B    | Everready | C243N   |
| K70D    | Everready |         |
| K77A    | Everready |         |
| K80A(1) | Everready | (KK2)   |
| K158    | A.E.G.    | E707    |
| K430/10 | Triotron  | (E406N) |
| K435/10 | Triotron  | D404    |
| K445/12 | Triotron  | E408N   |
| K450/25 | Triotron  |         |
| K450/40 | Triotron  |         |
| K450/50 | Triotron  |         |
| K480    | Triotron  | F410    |

# L

|        |          |         |       |
|--------|----------|---------|-------|
| LA     | Amer     | 6A4/LA  |       |
| LAP513 | Loewe    | B442S   |       |
| LA203  | Loewe    | E424N   |       |
| LD210  | Tungsrām | B217    |       |
| LD406  | Tungsrām | (A409)  | A415  |
| LD408  | Tungsrām | A415    | B424  |
| LD410  | Tungsrām | B415    | B424  |
| LF210  | Mazda    | (A209)  |       |
| LF215  | Mazda    | B205    |       |
| LF407  | Mazda    | A409    | A415  |
| LF410  | Mazda    | A415    | B424  |
| LF410A | Mazda    | B409    |       |
| LF418  | Astron   | B415    | B424  |
| LF607  | Mazda    | A609    |       |
| LF610  | Mazda    | A615    |       |
| LG210  | Tungsrām | A209    |       |
| LG607  | Tungsrām | A615    |       |
| LG2018 | Vatea    | B2006   |       |
| LI4090 | Zenith   | E409N   | E415  |
| LK430  | Valvo    | C405    |       |
| LK460  | Valvo    | D404    | E406N |
| LK4100 | Valvo    | (E408N) |       |
| LK4110 | Valvo    | E408N   |       |
| LK4111 | Valvo    | E451    |       |
| LK4112 | Valvo    | E406N   |       |

|        |              |         |      |
|--------|--------------|---------|------|
| LK4140 | Valvo        | F460    |      |
| LK4200 | Valvo        | F410    |      |
| LK4250 | Valvo        | 4641    |      |
| LK4330 | Valvo        | 4642    |      |
| LK7110 | Valvo        | E707    |      |
| LK7115 | Valvo        | E704    |      |
| LK8100 | Valvo        | E708    |      |
| LL4    | Sator        | D404    |      |
| LL25   | Sator        | (B405)  |      |
| LL415  | Sator        | B443    |      |
| LL416  | Sator        | B443S   |      |
| LL610  | Sator        | B543    |      |
| LM     | Elektra-Mars | A409    | A415 |
| LP2    | Ge. Mar. Os. |         |      |
| LP2    | Record       |         |      |
| LP2/C  | Ge. Mar. Os. | B205    |      |
| LP4    | Ferranti     | (E406N) |      |
| LP220  | Tungstram    |         |      |
| LS1    | Ge. Mar. Os. |         |      |
| LS2    | Ge. Mar. Os. |         |      |
| LS3    | Ge. Mar. Os. |         |      |
| LS5    | Ge. Mar. Os. |         |      |
| LS5a   | Ge. Mar. Os. |         |      |
| LS5b   | Ge. Mar. Os. |         |      |
| LS6a   | Ge. Mar. Os. |         |      |
| LS7    | Ge. Mar. Os. |         |      |
| LS7B   | Ge. Mar. Os. |         |      |
| LS8    | Ge. Mar. Os. |         |      |
| LS9B   | Ge. Mar. Os. |         |      |
| LU4    | M.P.         | (B405)  |      |



|           |              |        |      |
|-----------|--------------|--------|------|
| LU4A      | M.P.         | B409   |      |
| LU4B      | M.P.         | B405   |      |
| LV3       | Triotron     | (A225) |      |
| LX414     | Vatea        | B405   |      |
| LX625     | Valvo        | C603   |      |
| L2        | Ferranti     | (A209) |      |
| L2        | Mazda        | B217   |      |
| L2        | Record       | (B217) |      |
| L2/B      | Ge. Mar. Os. | B217   |      |
| L2/DD(1)  | Mazda        | (KBC1) |      |
| L4        | Sator        | B405   |      |
| L4        | Zenith       | A415   | B424 |
| L4S       | Sator        | (B405) |      |
| L10       | Triotron     | (A209) |      |
| L11       | Ge. Mar. Os. |        |      |
| L20       | Mullard      | B2006  |      |
| L21       | Ge. Mar. Os. | (B217) |      |
| L21/DD(1) | Mazda        | (KBC1) |      |
| L24       | Sator        | (B405) |      |
| L30       | Ge. Mar. Os. |        |      |
| L43       | Sator        | B443   |      |
| L44       | Sator        | (B405) |      |
| L100      | Sator        | B605   |      |
| L103      | Sator        | B543   |      |
| L115      | Valvo        | B105   |      |
| L160      | Valvo        | D105   |      |
| L160D     | Valvo        | D143   |      |
| L190      | Tungsram     | D105   |      |
| L210      | Ge. Mar. Os. | A209   | B217 |
| L210      | Hivac        | (A209) | B217 |

|       |              |        |       |
|-------|--------------|--------|-------|
| L210  | Mazda        | B217   |       |
| L210  | Tungsram     | B217   |       |
| L210  | Valvo        | B217   |       |
| L215  | Valvo        | B205   |       |
| L220B | Valvo        | B240   |       |
| L227D | Valvo        | C243N  |       |
| L306  | Marathon     | (B405) |       |
| L307  | Marathon     | A425   | B438  |
| L308  | Marathon     | A415   | B424  |
| L312  | Vatea        | (B405) |       |
| L316  | Marathon     | B409   |       |
| L328  | Longlife     | 328    |       |
| L408  | Zenith       | A415   | B424  |
| L409  | Marathon     | B442   |       |
| L410  | Ge. Mar. Os. | A415   | B424  |
| L410  | Valvo        | (B405) |       |
| L412  | Zenith       | A425   | B438  |
| L413  | Valvo        | B409   |       |
| L414  | Tungsram     | B409   |       |
| L414  | Valvo        | B405   |       |
| L415  | Tungsram     | (B409) |       |
| L415  | Valvo        | (B405) |       |
| L415D | Valvo        | B443   | C443  |
| L416D | Valvo        | B443S  |       |
| L425D | Valvo        | C443   | E443H |
| L427D | Valvo        | C443N  |       |
| L430  | Vatea        | (B405) |       |
| L491D | Valvo        | E443N  |       |
| L495D | Valvo        | F443   |       |
| L496D | Valvo        | E443H  |       |

|        |              |         |
|--------|--------------|---------|
| L497D  | Valvo        | F443N   |
| L506   | Marathon     | B543    |
| L510D  | Valvo        | B543    |
| L610   | Ge. Mar. Os. | A615    |
| L610   | Tungsram     | B605    |
| L610D  | Valvo        | B605    |
| L1010  | Longlife     | 1010    |
| L1525  | Ostar        | B2006   |
| L2218  | Valvo        | B2006   |
| L2318D | Valvo        | B2043   |
| L4100  | Valvo        | (E409N) |
| L4138D | Valvo        | E463    |
| L4150D | Valvo        | E453    |

# M

|        |                |         |       |
|--------|----------------|---------|-------|
| M      | Adzam          | A415    | B424  |
| MBC4   | Ge. Mar. Os.   | E441    |       |
| MD4    | Triotron       | A441N   |       |
| MF     | Fotos          | (A425)  | B438  |
| MF2    | Telefunken     |         |       |
| MF1520 | Celsior        | A425    | B438  |
| MG2018 | Vătea          | B2045   | B2047 |
| MHD4   | Ge. Mar. Os.   |         |       |
| MHF    | Cossor         | E438    |       |
| MHL4   | Ge. Mar. Os.   | E415    | E424N |
| MHL4C  | Ge. Mar. Os.   | E415    | E424N |
| MHSD4  | Ge. Mar. Os.   | E415    | E424N |
| MH4    | Ge. Mar. Os.   | (E424N) |       |
| MH4    | { Ge. Mar. Os. | (E424N) |       |
| Catkin |                |         |       |
| MH4C   | Ge. Mar. Os.   | (E424N) |       |
| MH40   | Ge. Mar. Os.   | (E438)  |       |
| MH41   | Ge. Mar. Os.   | (F460)  |       |
| MH42   | Ge. Mar. Os.   | (F460)  |       |
| MH1118 | Tungsrām       |         |       |
| MH4100 | Tungsrām       | E448    |       |
| MH4105 | Tungsrām       |         |       |
| Micro  | Cyrnos         | A409    | A415  |
| Micro  | Elektra-Mars   | A409    | A415  |
| MI41LF | Mazda          | E415    | E424N |
| MI41RC | Mazda          | E438    |       |

|             |              |         |       |
|-------------|--------------|---------|-------|
| MLF         | Cossor       | E415    | E424N |
| ML4         | Ge. Mar. Os. | (E409N) |       |
| ML40        | Ge. Mar. Os. |         |       |
| MM4V        | Ge. Mar. Os. | E445    | E455  |
| MM4V        | Mullard      | E455    |       |
| MM20        | Mullard      | (B2047) |       |
| MN4         | Triotron     | E441    |       |
| MO10        | S.I.F.       | D404    |       |
| MO12        | S.I.F.       | E408N   |       |
| MO44        | Loewe        |         |       |
| MO210       | Tungsram     | KK2     |       |
| MO465       | Tungsram     | (AK1)   |       |
| MP/Pen      | Cossor       | (E453)  |       |
| MP/Pen A(1) | Cossor       | AL2     |       |
| MP2         | Ge. Mar. Os. |         |       |
| MPT4        | Ge. Mar. Os. | (E463)  |       |
| MPT4        | {            | (E463)  |       |
| Catkin      |              |         |       |
| MPT41       | Ge. Mar. Os. | E463    |       |
| MPT42       | Ge. Mar. Os. |         |       |
| MR/ACI      | Mazda        | (4686)  |       |
| MRC         | Cossor       | E438    |       |
| MR2         | Tungsram     | (A409)  | A415  |
| MR3         | Tungsram     | (A409)  | A415  |
| MSG         | Cossor       | E452T   | E446  |
| MSG/HA      | Cossor       | (E452T) | E446  |
| MSG/LA      | Cossor       | E452T   | E446  |
| MS/Pen      | Cossor       | E446    |       |
| MS/Pen A    | Cossor       | E446    |       |
| MS/Pen      | Mazda        |         |       |

|         |              |          |       |
|---------|--------------|----------|-------|
| MSP4    | Ge. Mar. Os. | E446     |       |
| MS4     | Ge. Mar. Os. | (E442S)  | E452T |
| MS4B    | Ge. Mar. Os. | (E452T)  | E446  |
| MS4B    |              |          |       |
| Catkin  | Ge. Mar. Os. | (E452T)  | E446  |
| MS4C    | Ge. Mar. Os. | E442S    | E452T |
| MS4V    | Ge. Mar. Os. | (E445)   | E455  |
| MS70    | Ostar        | B2045    |       |
| MT2118  | Vatea        | B2047    |       |
| MT4110  | Vatea        | E447     |       |
| MT4120  | Vatea        | AF2      |       |
| MU1     | Mazda        |          |       |
| MU2     | Mazda        |          |       |
| MUI2    | Ge. Mar. Os. |          |       |
| MUI4    | Ge. Mar. Os. |          |       |
| MVSG    | Cossor       | E455     |       |
| MVS/Pen | Cossor       | (E447)   |       |
| MVS/Pen | Mazda        |          |       |
| MV4100  | Vatea        | E445     |       |
| MV4110  | Vatea        | E455     | E447  |
| MX20    | Fotos        | (A441N)  |       |
| MX40    | Fotos        | (A441N)  |       |
| MX40(2) | Ge. Mar. Os. | (AK1)(3) |       |
| MX80    | Fotos        | (A441N)  |       |
| MX218   | Vatea        | B255     |       |
| M4      | Sator        | C405     |       |
| M15     | Record       | A209     |       |
| M20     | Fotos        | (A441N)  |       |
| M40     | Fotos        | (A441N)  |       |
| M41LF   | Cossor       | E415     | E424N |

|        |         |         |       |
|--------|---------|---------|-------|
| M43    | Sator   | C443    | E443H |
| M54    | Record  | (B405)  |       |
| M64    | Record  | C405    |       |
| M72    | Record  | B205    |       |
| M80    | Fotos   | (A441N) |       |
| M92    | Record  |         |       |
| M94    | Record  | (B409)  |       |
| M96    | Record  | (B605)  |       |
| M102   | Record  | A209    |       |
| M104   | Record  | B409    |       |
| M142   | Record  | B217    |       |
| M144   | Record  | A415    | B424  |
| M144S  | Record  | B415    | B424  |
| M204   | Record  | (A415)  | B424  |
| M212   | Record  | B217    |       |
| M220   | Celsior | 1802    |       |
| M240   | Zenith  |         |       |
| M254   | Record  | B424    |       |
| M300   | Record  | (A409)  | A415  |
| M300S  | Record  | (B415)  | B424  |
| M350   | Record  | A425    | B438  |
| M350S  | Record  | B438    |       |
| M400   | Record  | (B405)  |       |
| M405   | Cyrnos  | 506     |       |
| M504   | Record  | (B438)  |       |
| M604   | Record  | C443    | E443H |
| M704   | Record  | C443    | E443H |
| M1002  | Record  | (C243N) |       |
| M1004  | Record  | B443    | C443  |
| M1006S | Record  | B543    |       |

# N

|         |            |        |       |
|---------|------------|--------|-------|
| N       | Tungsram   |        |       |
| NA4     | Sator      | E409N  |       |
| NCC4    | Sator      | E452T  | E446  |
| NC4     | Sator      | E442   | E452T |
| NC4A    | Sator      | (E442) | E452T |
| NC4B    | Sator      | (E442) | E452T |
| NDDT15  | Sator      | ABC1   |       |
| NDD40   | Sator      | AB1    |       |
| NDD51   | Sator      | AB2    |       |
| NDG4    | Sator      | E441   |       |
| NDG480  | Sator      | B2041  |       |
| NDS42   | Sator      | E444   |       |
| NDS182  | Sator      | B2044  |       |
| ND4     | Sator      | E424N  |       |
| NEG2002 | Sator      |        |       |
| NEP51   | Sator      | AF3    |       |
| NE4     | Sator      | E409N  |       |
| NE43    | Sator      | E453   |       |
| NE180   | Sator      | B2006  |       |
| NE183   | Sator      | B2043  |       |
| NF2     | Telefunken |        |       |
| NF4     | Telefunken |        |       |
| NG100   | Ostar      |        |       |
| NG3020  | Loewe      |        |       |
| NG6020  | Loewe      |        |       |



|         |       |         |        |
|---------|-------|---------|--------|
| NHP51   | Sator | AF7     |        |
| NH41    | Sator | E415    | E424N  |
| NMO46   | Sator | AK1     |        |
| NMO51   | Sator | AK2     |        |
| NM4     | Sator | E424N   |        |
| NN4     | Sator | (E415)  | E424N  |
| NPG45   | Sator | B2042   | B2052T |
| NP43    | Sator | E463    |        |
| NR4     | Sator | (E499)  |        |
| NR41    | Sator | E499    |        |
| NSS4    | Sator | (E442S) | E452T  |
| NSS42   | Sator | E452T   | E446   |
| NSS43   | Sator | E446    |        |
| NSS44   | Sator | E449    |        |
| NSS45   | Sator | E448    |        |
| NSS180  | Sator | B2052T  |        |
| NSS183  | Sator | B2046   |        |
| NS4     | Sator | (E452T) | E446   |
| NS180   | Sator | B2042   | B2052T |
| NT51    | Sator | AC2     |        |
| NU4     | Sator | E424N   |        |
| NU41    | Sator | (E424N) |        |
| NU180   | Sator | B2038   |        |
| NVG4002 | Sator |         |        |
| NVS4    | Sator | E445    | E455   |
| NVS42   | Sator | E455    | E447   |
| NVS43   | Sator | E447    |        |
| NVS180  | Sator | B2045   | B2047  |
| NVS183  | Sator | B2047   |        |
| NVSS180 | Sator |         |        |

|        |              |         |      |
|--------|--------------|---------|------|
| NW4    | Sator        | E438    |      |
| NW4/1  | Sator        | E438    |      |
| NW180  | Sator        | (B2038) |      |
| NX306  | Valvo        |         |      |
| NZ420  | Valvo        |         |      |
| NZ4200 | Valvo        |         |      |
| N2     | Triotron     | 4662    |      |
| N30    | Ge. Mar. Os. |         |      |
| N31    | Ge. Mar. Os. |         |      |
| N40(1) | Ge. Mar. Os. | AL2     |      |
| N41(1) | Ge. Mar. Os. | AL4     |      |
| N43    | Sator        | B443S   |      |
| N46    | Valvo        | 4662    |      |
| N406   | Valvo        | A409    | A415 |
| N440   | Zenith       | (B405)  |      |

# O

|         |              |        |      |
|---------|--------------|--------|------|
| O       | Elektra-Mars | A409   | A415 |
| OD4     | Triotron     | (A425) | B438 |
| OE4     | Triotron     | (A425) | B438 |
| OV4110  | Vatea        | AK1    |      |
| Oxyde   | Cyrnos       | 1801   |      |
| O15/400 | Tungfram     | E408N  |      |
| O202    | Triotron     | KK2    |      |
| O406    | Triotron     | AK2    |      |
| O407    | Triotron     | AK1    |      |
| O606    | Triotron     | EK2    |      |
| O607    | Triotron     | EK1    |      |
| O1307   | Triotron     | CK1    |      |

# P

|               |            |           |       |
|---------------|------------|-----------|-------|
| P             | Adzam      | B442      |       |
| PA1           | Standard   |           |       |
| PA4           | Standard   | B405      |       |
| PA20          | Mazda      |           |       |
| PBC1          | Radiotechn | KBC1      |       |
| PB1           | Standard   |           |       |
| PB2           | Radiotechn | KB2       |       |
| PB2           | Triotron   | C243N     |       |
| PB4           | Triotron   | B443      | C443  |
| PB172         | Impex      | B217      |       |
| PC3           | Radiotechn | KC3       |       |
| PD4           | Triotron   | C443      | E443H |
| PD5           | Triotron   | B543      |       |
| PD210         | Tungsrarn  | B217      |       |
| PD220(2)      | Mazda      | (B240)(3) |       |
| PD220         | Tungsrarn  | B217      |       |
| PD220A(2)     | Mazda      | (B240)(3) |       |
| PenA1(1)      | Standard   | AL2       |       |
| PenA4(1)      | Mullard    | AL4       |       |
| PenB1         | Standard   | C243N     |       |
| PenB4(1)      | Mullard    | AL5       |       |
| PenDD1360     | Mazda      |           |       |
| PenDD4020     | Mazda      |           |       |
| Pent. Bivolt  | Impex      | (C243N)   |       |
| Pent. Forvolt | Impex      | B443      |       |

|            |            |            |      |
|------------|------------|------------|------|
| Pen4V      | Mullard    | (E453)     | E463 |
| Pen4VA(1)  | Mullard    | AL2        |      |
| Pen4VB(1)  | Mullard    | AL4        |      |
| Pen4VX     | Mullard    | E453       | E463 |
| Pen13      | Mullard    | CL1        |      |
| Pen13A     | Mullard    | CL4        |      |
| Pen13C(1)  | Mullard    | CL1        |      |
| Pen20      | Mullard    | B2043      |      |
| Pen26      | Mullard    | CL2        |      |
| Pen36      | Mullard    |            |      |
| Pen36C(1)  | Mullard    | CL4        |      |
| Pen220     | Mazda      | C243N      |      |
| Pen220A    | Mazda      | C243N      |      |
| Pen230     | Mazda      | (C243N)    |      |
| Pen 231    | Mazda      |            |      |
| Pen425     | Mazda      | C443       |      |
| Pen1330    | Mazda      |            |      |
| Pen1340    | Mazda      |            |      |
| Pen1360    | Mazda      |            |      |
| Pen2020(1) | Mazda      | CL2        |      |
| Pen3520(1) | Mazda      | CL4        |      |
| PF1        | Radiotechn | KF1        |      |
| PF2        | Radiotechn | KF2        |      |
| PF3        | Radiotechn | KF3        |      |
| PF462      | Impex      | KF1        |      |
| PF472      | Impex      | KF2        |      |
| PMP        | Cosson     | E409N      |      |
| PM1A       | Mullard    | (A225)B228 |      |
| PM1DG      | Mullard    | (A241)     |      |
| PM1HF      | Mullard    |            |      |

|       |         |        |      |
|-------|---------|--------|------|
| PM1HL | Mullard | B228   |      |
| PM1LF | Mullard | A209   |      |
| PM2   | Mullard | B205   |      |
| PM2A  | Mullard |        |      |
| PM2B  | Mullard | B240   |      |
| PM2BA | Mullard |        |      |
| PM2DL | Mullard | (B217) |      |
| PM2DT | Mullard | (B217) |      |
| PM2DX | Mullard | B217   |      |
| PM3   | Mullard | A410   | A415 |
| PM3A  | Mullard | (B438) |      |
| PM3AX | Mullard | A425   | B438 |
| PM3B  | Mullard | (B438) |      |
| PM3BX | Mullard | (B438) |      |
| PM3D  | Mullard | B424   |      |
| PM3DC | Mullard | B424   |      |
| PM3X  | Mullard | A409   | A415 |
| PM4   | Mullard | (B409) |      |
| PM4A  | Mullard | (A409) | A415 |
| PM4B  | Mullard | (A425) | B438 |
| PM4C  | Mullard | B409   |      |
| PM4DG | Mullard | A441N  |      |
| PM4DS | Mullard | A414K  |      |
| PM4DX | Mullard | A415   |      |
| PM4V  | Mullard | (B409) |      |
| PM4X  | Mullard | (B405) |      |
| PM5   | Mullard | (A630) |      |
| PM5A  | Mullard | (A630) |      |
| PM5B  | Mullard | (A630) |      |
| PM5D  | Mullard | A630   |      |

|        |         |         |       |
|--------|---------|---------|-------|
| PM5X   | Mullard | (A615)  |       |
| PM6    | Mullard | (B605)  |       |
| PM6D   | Mullard | A615    |       |
| PM11   | Mullard | (C142)  |       |
| PM12   | Mullard | B252    | B262  |
| PM12A  | Mullard | B262    |       |
| PM12M  | Mullard | B255    |       |
| PM12V  | Mullard | (B255)  |       |
| PM12X  | Mullard | (B255)  |       |
| PM13   | Mullard | B442    |       |
| PM13DC | Mullard | (B442)  |       |
| PM13X  | Mullard | B442    |       |
| PM14   | Mullard | A442    | B442  |
| PM16   | Mullard | (A642)  |       |
| PM21   | Mullard | (D143)  |       |
| PM22   | Mullard | C243    |       |
| PM22A  | Mullard | C243N   |       |
| PM22C  | Mullard |         |       |
| PM22D  | Mullard |         |       |
| PM22K  | Mullard | (C243N) |       |
| PM22P  | Mullard | (C243N) |       |
| PM24   | Mullard | B443    | C443  |
| PM24A  | Mullard | C443    | E443H |
| PM24AC | Mullard | C443N   | E443H |
| PM24B  | Mullard | (E443N) |       |
| PM24C  | Mullard | E443N   |       |
| PM24D  | Mullard | F443    |       |
| PM24DC | Mullard | C443N   |       |
| PM24E  | Mullard | F443N   |       |
| PM24M  | Mullard | E443H   |       |

|           |           |         |       |
|-----------|-----------|---------|-------|
| PM24X     | Mullard   |         |       |
| PM25      | Mullard   | B543    |       |
| PM25DC    | Mullard   | B543    |       |
| PM26      | Mullard   | C643    |       |
| PM202     | Mullard   |         |       |
| PM252     | Mullard   | (B205)  |       |
| PM254     | Mullard   | (C405)  |       |
| PM254X    | Mullard   | (B405)  |       |
| PM256     | Mullard   | C606    |       |
| PM256A    | Mullard   |         |       |
| Polyodion |           |         |       |
| Bivolt    | Impex     | (C243N) |       |
| PO1       | Fotos     | B205    |       |
| PP3/250   | Mazda     | (E406N) |       |
| PP3/425   | Mazda     | E703    |       |
| PP5/400   | Mazda     | (E408N) |       |
| PP220     | Hivac     |         |       |
| PP220     | Tungsrarn | C243N   |       |
| PP222     | Tungsrarn | C243N   |       |
| PP230     | Record    | C243N   |       |
| PP230     | Tungsrarn | (C243N) |       |
| PP415     | Tungsrarn | B443    | C443  |
| PP416     | Tungsrarn | B442S   |       |
| PP430     | Tungsrarn | C443    | E443H |
| PP431     | Tungsrarn | C443N   |       |
| PP610     | Tungsrarn | B543    |       |
| PP615     | Tungsrarn |         |       |
| PP616     | Tungsrarn | (C642)  |       |
| PP2018    | Tungsrarn | B2043   |       |
| PP2018d   | Tungsrarn | B2043   |       |



|           |              |         |       |
|-----------|--------------|---------|-------|
| PP3521(1) | Mazda        | (CL4)   |       |
| PP4018    | Tungsrām     |         |       |
| PP4018d   | Tungsrām     |         |       |
| PP4100    | Tungsrām     | (E443N) |       |
| PP4101    | Tungsrām     | E443H   |       |
| PTA       | Ferranti     |         |       |
| PTAD      | Ferranti     |         |       |
| PTS       | Ferranti     |         |       |
| PTSD      | Ferranti     |         |       |
| PTZ(1)    | Ferranti     |         |       |
| PT2       | Ferranti     | C243N   |       |
| PT2       | Ge. Mar. Os. | (C243N) |       |
| PT2       | Record       | (C243N) |       |
| PT2K      | Ge. Mar. Os. | C243N   |       |
| PT4(1)    | Ferranti     | AL4     |       |
| PT4       | Ge. Mar. Os. | E443H   |       |
| PT4D      | Ferranti     |         |       |
| PT8       | Ge. Mar. Os. | (D143)  |       |
| PT16      | Ge. Mar. Os. | (E443N) |       |
| PT25      | Ge. Mar. Os. | (F443N) |       |
| PT25H     | Ge. Mar. Os. |         |       |
| PT30      | Ge. Mar. Os. |         |       |
| PT41      | Cossor       | E443H   |       |
| PT41B     | Cossor       | (E443N) |       |
| PT43      | Ostar        | B2043   |       |
| PT230     | Cossor       | (C243N) |       |
| P235      | Ge. Mar. Os. | (C243N) |       |
| PT240     | Ge. Mar. Os. | (C243N) |       |
| PT415     | Cossor       | B443    |       |
| PT425     | Ge. Mar. Os. | C443    | E443H |

|        |              |         |       |
|--------|--------------|---------|-------|
| PT425X | Ge. Mar. Os. | C443    | E443H |
| PT615  | Cossor       | (C643)  |       |
| PT625  | Ge. Mar. Os. | C643    |       |
| PU801  | Celsior      | E408N   |       |
| PU1002 | Celsior      | E408N   |       |
| PV2    | Mazda        | B205    |       |
| PV6/45 | Tungsrām     | 367     |       |
| PV215  | Mazda        | B205    |       |
| PV225  | Mazda        | (B205)  |       |
| PV400  | Tungsrām     | 373     |       |
| PV410  | Mazda        | (B405)  |       |
| PV425  | Mazda        | (B405)  |       |
| PV430  | Tungsrām     | 1801    |       |
| PV475  | Tungsrām     | 506     |       |
| PV495  | Tungsrām     | 506     |       |
| PV610  | Mazda        | B605    |       |
| PV625  | Mazda        | (B605)  |       |
| PV625a | Mazda        | (C603)  |       |
| PV3018 | Tungsrām     |         |       |
| PV4100 | Tungsrām     | 1805    |       |
| PV4200 | Tungsrām     | 1561    |       |
| PV4201 | Tungsrām     | 1015    |       |
| PV4300 | Tungsrām     | 1561    |       |
| PV6145 | Tungsrām     |         |       |
| PX2    | Ge. Mar. Os. |         |       |
| PX4    | Ge. Mar. Os. | (E406N) |       |
| PX4C   | Ge. Mar. Os. | D404    | E406N |
| PX25   | Ge. Mar. Os. | (F410)  |       |
| PX25A  | Ge. Mar. Os. |         |       |
| PX230  | Hivac        |         |       |

|         |              |         |       |
|---------|--------------|---------|-------|
| PX430   | Vatea        | C405    |       |
| PX460   | Vatea        | D404    | E406N |
| PX4100  | Vatea        | (E406N) |       |
| PX4200  | Vatea        | F410    |       |
| PZ      | Amer         | 47      |       |
| PZH     | Amer         | (7)     |       |
| P1      | Lnglife      | 373     |       |
| P2      | Ge. Mar. Os. |         |       |
| P2      | Longlife     | 506     |       |
| P2      | Record       | B205    |       |
| P2/B    | Ge. Mar. Os. | (B205)  |       |
| P3      | Adzam        | (B405)  |       |
| P3      | Longlife     | 1805    |       |
| P4      | Ferranti     | E406N   |       |
| P4      | Longlife     | 1561    |       |
| P4      | Sator        | E406N   |       |
| P5      | Adzam        | B405    |       |
| P6      | Adzam        | (B405)  |       |
| P6      | Fotos        |         |       |
| P9      | Adzam        | B409    |       |
| P10     | Fotos        | (D404)  | E406N |
| P12     | Fotos        |         |       |
| P13     | Fotos        | (E408N) |       |
| P16     | Fotos        | (E408N) |       |
| P20     | Fotos        | (F704)  |       |
| P43     | Sator        | E443H   |       |
| P60/500 | Tungsram     |         |       |
| P190    | Tungsram     | D105    |       |
| P205    | Sator        | A409    | A415  |

|       |              |         |      |
|-------|--------------|---------|------|
| P207  | Sator        | (B405)  |      |
| P209  | Sator        | A409    | A415 |
| P210  | Triotron     | (KL4)   |      |
| P211  | Sator        | (A409)  | A415 |
| P215  | Ge. Mar. Os. | (B205)  |      |
| P215  | Hivac        |         |      |
| P215  | Mazda        | (B205)  |      |
| P215  | Triotron     | (C243N) |      |
| P215  | Tungsrām     | B205    |      |
| P220  | Hivac        |         |      |
| P220  | Mazda        |         |      |
| P220  | Triotron     | KL2     |      |
| P220  | Tungsrām     | (B205)  |      |
| P220A | Mazda        |         |      |
| P225  | Triotron     | C243N   |      |
| P226  | Triotron     | KL4     |      |
| P227  | Mazda        | (B205)  |      |
| P240  | Ge. Mar. Os. | (B205)  |      |
| P240  | Mazda        |         |      |
| P404  | Elecson      | D404    |      |
| P408  | Elecson      | E408N   |      |
| P409  | Elecson      | B409    |      |
| P410  | Ge. Mar. Os. | (B409)  |      |
| P410  | Tungsrām     | (B405)  |      |
| P414  | Tungsrām     | B405    |      |
| P415  | Mazda        | B405    |      |
| P415  | Tungsrām     | (B405)  |      |
| P420  | Triotron     | B443    | C443 |
| P420  | Zenith       | (F410)  |      |
| P421  | Triotron     | B443S   |      |

|       |              |        |       |
|-------|--------------|--------|-------|
| P422  | Triotron     | C443N  |       |
| P425  | Ge. Mar. Os. | (B405) |       |
| P425  | Mazda        | (B405) |       |
| P425  | Triotron     | C443   | E443H |
| P430  | Triotron     | E443N  |       |
| P430  | Tungsrām     | C405   |       |
| P434  | Triotron     | AL1    |       |
| P435  | Triotron     | E443H  |       |
| P440  | Triotron     | F443N  |       |
| P440N | Triotron     | E453   |       |
| P441N | Triotron     | E463   |       |
| P443  | Elecson      | C443   | E443H |
| P445  | Triotron     | AL2    |       |
| P450  | Zenith       | D404   | E406N |
| P455  | Tungsrām     |        |       |
| P460  | Triotron     | F443N  |       |
| P460  | Tungsrām     | D404   |       |
| P469  | Triotron     | AL5    |       |
| P496  | Triotron     | AL4    |       |
| P520  | Triotron     | B543   |       |
| P610  | Ge. Mar. Os. | B605   |       |
| P614  | Tungsrām     | B605   |       |
| P615  | Mazda        | (B605) |       |
| P615  | Tungsrām     | A609   |       |
| P625  | Ge. Mar. Os. |        |       |
| P625A | Ge. Mar. Os. | (B605) |       |
| P625A | Mazda        |        |       |
| P625B | Mazda        |        |       |
| P626  | Triotron     | EL1    |       |
| P628  | Triotron     | EL2    |       |

|        |             |         |       |
|--------|-------------|---------|-------|
| P650   | Mazda       | 84      |       |
| P861   | <i>Amer</i> | CL1     |       |
| P1320  | Triotron    | B2006   |       |
| P2018  | Tungsrām    | B2006   |       |
| P2018d | Tungsrām    | B2043   |       |
| P2020N | Triotron    | CL2     |       |
| P2060  | Triotron    | CL4     |       |
| P3580  | Triotron    | E408N   |       |
| P4100  | Tungsrām    | D404    | E406N |
| P4100  | Zenith      | (E408N) |       |
| P4105  | Tungsrām    | (E452T) | E446  |
| P4150  | Fotos       |         |       |

# Q

|        |              |        |      |
|--------|--------------|--------|------|
| QF2118 | Vatea        | B2049  |      |
| QF4100 | Vatea        | E449   |      |
| QP21   | Ge. Mar. Os. |        |      |
| QP22   | Mullard      |        |      |
| QP22A  | Mullard      |        |      |
| QP240  | Hivac        |        |      |
| QP240  | Mazda        |        |      |
| QT4100 | Vatea        | E449   |      |
| QV2118 | Vatea        | B2048  |      |
| QV4100 | Vatea        | E448   |      |
| QX     | Ge. Mar. Os. |        |      |
| Q4V    | Mullard      | (E453) | E463 |
| Q461   | Triotron     | 1831   |      |

# R

|             |                 |         |       |
|-------------|-----------------|---------|-------|
| R           | Tungsram        |         |       |
| RA          | Adzam           | E462S   |       |
| RA          | Ferranti        |         |       |
| Radiofotos  | Fotos           | A409    | A415  |
| Radiomicro  | Radioclub micro | A409    | A415  |
| Radio Micro | Radiotechn      | (A409)  | A415  |
| RA1         | Amer            | (9)     |       |
| RA1881      | Radiotechn      | (B252)  |       |
| RA3873      | Radiotechn      | A441    |       |
| RB          | Adzam           | (E424N) |       |
| RB2118      | Vatea           | B2044S  |       |
| RB4110      | Vatea           | E444S   |       |
| RC          | Adzam           | E438    |       |
| RC Bivolt   | Impex           | B228    |       |
| RC Forvolt  | Impex           | A425    | B438  |
| RC210       | Astron          | A225    |       |
| RC406       | Astron          | A425    | B438  |
| RD          | Adzam           | C443    | E443N |
| RD4         | Triotron        | A409    | A415  |
| RD15        | Adzam           | E425    | E424N |
| RD24        | Adzam           | (E406N) |       |
| RD509       | Triotron        | A409    | A415  |
| RED104      | Telefunken      |         |       |
| Reico 500   | Rectron         | 506     |       |
| RENS1204    | Telefunken      | E442S   |       |



|           |            |        |        |
|-----------|------------|--------|--------|
| RENS1214  | Telefunken | E445   | E455   |
| RENS1224  | Telefunken | E448   |        |
| RENS1234  | Telefunken | E449   |        |
| RENS1254  | Telefunken | E444   |        |
| RENS1264  | Telefunken | E452T  | E446   |
| RENS1274  | Telefunken | E455   | E447   |
| RENS1284  | Telefunken | E446   |        |
| RENS1294  | Telefunken | E447   |        |
| RENS1374d | Telefunken | E453   | E463   |
| RENS1384  | Telefunken | E463   |        |
| RENS1818  | Telefunken | B2052T | B2046  |
| RENS1819  | Telefunken | B2045  | B2047  |
| RENS1820  | Telefunken | B2042  | B2052T |
| RENS1823d | Telefunken | B2043  |        |
| RENS1824  | Telefunken | B2048  |        |
| RENS1834  | Telefunken | B2049  |        |
| RENS1854  | Telefunken | B2044  |        |
| RENS1884  | Telefunken | B2046  |        |
| RENS1894  | Telefunken | B2047  |        |
| RENZ2104  | Telefunken |        |        |
| REN704d   | Telefunken | E441N  |        |
| REN804    | Telefunken | E415   | E424N  |
| REN904    | Telefunken | E424N  |        |
| REN914    | Telefunken | E499   |        |
| REN924    | Telefunken | E444S  |        |
| REN1004   | Telefunken | E438   |        |
| REN1004w  | Telefunken | E438   |        |
| REN1104   | Telefunken | F409N  |        |
| REN1104w  | Telefunken | E409N  |        |
| REN1814   | Telefunken | B2099  |        |

|             |            |         |       |
|-------------|------------|---------|-------|
| REN1817d    | Telefunken | B2041   |       |
| REN1821     | Telefunken | B2038   |       |
| REN1822     | Telefunken | B2006   |       |
| REN1826     | Telefunken | B2044S  |       |
| REN2204     | Telefunken | E409N   |       |
| REN2204w    | Telefunken | E409N   |       |
| Resistron   |            |         |       |
| Bivolt      | { Impex    | A225    |       |
| Resistron   |            |         |       |
| Forvolt     | { Impex    | A425    | B438  |
| RES044      | Telefunken | (B442)  |       |
| RES094      | Telefunken | (B442)  |       |
| RES094 spez | Telefunken | (B442)  |       |
| RES105      | Telefunken | B543    |       |
| RES164      | Telefunken | B443S   |       |
| RES164d     | Telefunken | B443S   |       |
| RES174d     | Telefunken | B443    | C443  |
| RES182      | Telefunken | B262    |       |
| RES192      | Telefunken | B255    |       |
| RES212      | Telefunken | C243N   |       |
| RES364      | Telefunken | C443    | E443H |
| RES374      | Telefunken | C443N   | E443H |
| RES374d     | Telefunken | C443N   | E443H |
| RES664d     | Telefunken | (E443N) |       |
| RES964      | Telefunken | E443H   |       |
| REZ126      | Telefunken |         |       |
| REZ139      | Telefunken |         |       |
| REZ147      | Telefunken |         |       |
| REZ364      | Telefunken |         |       |
| REZ404      | Telefunken |         |       |

|              |             |        |      |
|--------------|-------------|--------|------|
| RE1          | <i>Amer</i> | 80     |      |
| RE2          | <i>Amer</i> | 81     |      |
| RE034        | Telefunken  | A425   | B438 |
| RE052        | Telefunken  | A225   |      |
| RE052t       | Telefunken  | A225   |      |
| RE054        | Telefunken  | (A425) | B438 |
| RE061        | Telefunken  | (A109) |      |
| RE062        | Telefunken  | (A209) |      |
| RE062t       | Telefunken  | (A209) |      |
| RE062t spez  | Telefunken  | (A410) | A415 |
| RE074        | Telefunken  | A409   |      |
| RE074d       | Telefunken  | A441N  |      |
| RE074 neutro | Telefunken  | (A409) |      |
| RE074t       | Telefunken  | (A409) |      |
| RE076        | Telefunken  | A609   |      |
| RE084        | Telefunken  | A415   | B424 |
| RE102        | Telefunken  | B228   |      |
| RE112        | Telefunken  | B217   |      |
| RE114        | Telefunken  | (B405) |      |
| RE122        | Telefunken  | B205   |      |
| RE124        | Telefunken  | B405   |      |
| RE134        | Telefunken  | B409   |      |
| RE134t       | Telefunken  | B409   |      |
| RE144        | Telefunken  | (A409) | A415 |
| RE144t       | Telefunken  | (A409) | A415 |
| RE144 super  | Telefunken  | (A409) | A415 |
| RE154        | Telefunken  | (B405) |      |
| RE154t       | Telefunken  | (B405) |      |
| RE209        | Telefunken  | (B405) | B409 |
| RE304        | Telefunken  | C405   |      |

|         |            |        |
|---------|------------|--------|
| RE352   | Telefunken | (B205) |
| RE354   | Telefunken | (B409) |
| RE402b  | Telefunken | B240   |
| RE425   | Vatea      | 1802   |
| RE450   | Vatea      | 1801   |
| RE460   | Vatea      | 1803   |
| RE504   | Telefunken | (B405) |
| RE504t  | Telefunken | (B405) |
| RE604   | Telefunken | D404   |
| RE604K  | Telefunken | E406N  |
| RE614   | Telefunken | E408N  |
| RE1330  | Vatea      | FZ1    |
| RE2020  | Vatea      | CY1    |
| RE3020  | Vatea      | CY2    |
| RE4100  | Vatea      | 506    |
| RE4110  | Vatea      | 1805   |
| RE4111  | Vatea      | 1831   |
| RE4120  | Vatea      | 1832   |
| RE4200  | Vatea      | 1561   |
| RG      | Tungsram   |        |
| RGN354  | Telefunken | 1802   |
| RGN504  | Telefunken | 1801   |
| RGN564  | Telefunken | 1803   |
| RGN1054 | Telefunken | 506    |
| RGN1064 | Telefunken | 1805   |
| RGN1203 | Telefunken |        |
| RGN1304 | Telefunken | (505)  |
| RGN1404 | Telefunken | 1832   |
| RGN1500 | Telefunken |        |
| RGN1503 | Telefunken | 1201   |

|         |            |         |      |
|---------|------------|---------|------|
| RGN1504 | Telefunken | 506     |      |
| RGN2004 | Telefunken | 1561    |      |
| RGN2005 | Telefunken | 1560    |      |
| RGN2504 | Telefunken | 1815    |      |
| RGN4004 | Telefunken | 1817    |      |
| RG22    | Record     |         |      |
| RG24    | Record     | (1817)  |      |
| RG2118  | Vatea      | B2099   |      |
| RH1     | Mazda      | 1562    |      |
| RH40T   | Visseaux   | (A409)  | A415 |
| RH500   | Adzam      | E443S   |      |
| RH4041  | Visseaux   | A441N   |      |
| RK1     | Telefunken |         |      |
| RL100   | Castilla   | 1904    |      |
| RL180   | Castilla   | 1928    |      |
| RM      | Metal      | A441N   |      |
| ROC1875 | Radiotechn | A209    |      |
| ROC1876 | Radiotechn | B217    |      |
| ROC1877 | Radiotechn | B205    |      |
| ROC1878 | Radiotechn | A225    |      |
| RO4010  | Visseaux   | A409    | A415 |
| RO4109  | Visseaux   | A409    | A415 |
| RO4125  | Visseaux   | A425    | B438 |
| RO4141  | Visseaux   | A441N   |      |
| RO4142  | Visseaux   | (B442)  |      |
| RO4181  | Visseaux   | (A441N) |      |
| RO4206  | Visseaux   | (B405)  |      |
| RO4215  | Visseaux   | A415    | B424 |
| RO4243  | Visseaux   | B443    | C443 |
| RO4305  | Vnsseaux   | B405    |      |

|             |          |        |       |
|-------------|----------|--------|-------|
| RO4309      | Visseaux | B409   |       |
| RO4320      | Visseaux | B424   |       |
| RO4342      | Visseaux | B424   |       |
| RO4343      | Visseaux | C443   | E443H |
| RO4404      | Visseaux | D404   |       |
| RO4410      | Visseaux | D410   |       |
| RO4610      | Visseaux |        |       |
| RRR45       | Record   | 1802   |       |
| RRR46       | Record   |        |       |
| RRR134      | Record   |        |       |
| RRR145      | Record   | 505    |       |
| RRR156      | Record   |        |       |
| RRR234      | Record   |        |       |
| RRR245      | Record   | 506    |       |
| RR36        | Adzam    | E438   |       |
| RR100       | Vatea    | 1904   |       |
| RR180       | Vatea    | 1926   |       |
| RR1180      | Vatea    | 1927   |       |
| RR2180      | Vatea    | 1928   |       |
| RS          | Ferranti |        |       |
| RS2         | Triotron | (A209) |       |
| RS2512      | Celsior  | E438   |       |
| RS4141      | Visseaux | E441   |       |
| RS4142      | Visseaux | E442   | E452T |
| RS4142N     | Visseaux | E442S  | E452T |
| RS4143      | Visseaux | B443   |       |
| RS4144      | Visseaux | E444   |       |
| RS4145P var | Visseaux | E445   | E455  |
| RS4215      | Visseaux | E415   | E424N |
| RS4230      | Visseaux | E438   |       |

|             |            |        |       |
|-------------|------------|--------|-------|
| RS4238      | Visseaux   | E438   |       |
| RS4309      | Visseaux   | E409N  | E415  |
| RS4324      | Visseaux   | E424N  |       |
| RS4341      | Visseaux   | (E441) |       |
| RS4342      | Visseaux   | E452T  | E446  |
| RS4343      | Visseaux   | C443   | E443H |
| RS4345P var | Visseaux   | E445   | E455  |
| RS4346      | Visseaux   | E446   |       |
| RS4347P var | Visseaux   | E447   |       |
| RS4543      | Visseaux   | E443H  |       |
| RS4553      | Visseaux   | E453   |       |
| RT1873      | Radiotechn | A225   |       |
| RV24        | Telefunken |        |       |
| RV25        | Telefunken |        |       |
| RV27        | Telefunken |        |       |
| RV30        | Telefunken |        |       |
| RV70        | Telefunken |        |       |
| RV209       | Telefunken |        |       |
| RV216       | Telefunken |        |       |
| RV218       | Telefunken |        |       |
| RV222       | Telefunken |        |       |
| RV230       | Telefunken |        |       |
| RV239       | Telefunken | E704   |       |
| RV240       | Telefunken |        |       |
| RV246       | Telefunken |        |       |
| RV258       | Telefunken | E707   |       |
| RV271       | Telefunken |        |       |
| RV273       | Telefunken |        |       |
| RV275       | Telefunken |        |       |

|            |              |        |      |
|------------|--------------|--------|------|
| RV278      | Telefunken   |        |      |
| RV322 spez | Telefunken   |        |      |
| RV490      | Vatea        | E438   |      |
| RV2300     | Telefunken   |        |      |
| RV2400     | Telefunken   |        |      |
| RV2500     | Telefunken   |        |      |
| RV4100     | Vatea        | E424N  |      |
| RV4104     | Vatea        | (E499) |      |
| RV4110     | Vatea        | E499   |      |
| RX75       | Adzam        | 506    |      |
| RX210      | Vatea        | (B228) |      |
| RX220      | Vatea        | B228   |      |
| RX406      | Vatea        | A425   | B438 |
| RX410      | Vatea        | B424   |      |
| RX411      | Vatea        | B438   |      |
| RZ(1)      | Ferranti     | CY1    |      |
| R1         | Standard     |        |      |
| R2         | Standard     |        |      |
| R3         | Standard     |        |      |
| R4         | Ferranti     | 1561   |      |
| R4A        | Ferranti     | 1561   |      |
| R4B        | Ferranti     | 505    |      |
| R5         | Ferranti     | 1560   |      |
| R5V        | Ge. Mar. Os. |        |      |
| R7ZA       | Rectron      | 3510   |      |
| R8ZB       | Rectron      | 3531   |      |
| R9TA       | Rectron      | 3512   |      |
| R10M       | Zenith       | 1562   |      |
| R10T       | Rectron      | 3513   |      |
| R11T       | Rectron      | 3515   |      |



|       |            |         |      |
|-------|------------|---------|------|
| R12G  | Rectron    | 3530    |      |
| R12T  | Rectron    | 3515    |      |
| R12Y  | Rectron    |         |      |
| R14   | Radiotechn | (A409)  | A415 |
| R14   | Record     | 1802    |      |
| R15   | Radiotechn | (A409)  | A415 |
| R18   | Radiotechn | A441    |      |
| R19   | Radiotechn |         |      |
| R20A  | Zenith     |         |      |
| R20B  | Zenith     |         |      |
| R20M  | Zenith     |         |      |
| R21   | Rectron    | 1700    |      |
| R21H  | Rectron    |         |      |
| R22   | Rectron    | (1010)  |      |
| R24   | Radiotechn | A425    | B438 |
| R24   | Record     | 1801    |      |
| R24/6 | Rectron    | 367     |      |
| R29   | Radiotechn | C509A   |      |
| R31   | Radiotechn | (B405)  |      |
| R33   | Rectron    | (1010)  |      |
| R36   | Radiotechn | (A409)  | A415 |
| R36D  | Radiotechn | (A409)  | A415 |
| R41   | Radiotechn | A409    | A415 |
| R42   | Radiotechn | (A409)  | A415 |
| R43   | Radiotechn | (A441)  |      |
| R43M  | Radiotechn | (A441N) |      |
| R43O  | Radiotechn | A441    |      |
| R43P  | Radiotechn | A441    |      |
| R44   | Rectron    | 328     |      |
| R45   | Rectron    | (1326)  |      |

|          |            |        |       |
|----------|------------|--------|-------|
| R45B     | Rectron    | (1326) |       |
| R50      | Radiotechn | (A409) | A415  |
| R55      | Radiotechn | A409   |       |
| R55      | Rectron    | 451    |       |
| R56      | Radiotechn | (B405) |       |
| R60      | Rectron    | (1325) |       |
| R62      | Radiotechn | A425   | B438  |
| R63      | Radiotechn | A435   |       |
| R64      | Radiotechn | B405   |       |
| R67      | Radiotechn |        |       |
| R69      | Radiotechn |        |       |
| R73      | Radiotechn | A409   | A415  |
| R75/1000 | Record     | 4646   |       |
| R76      | Radiotechn | A415   | B424  |
| R77      | Radiotechn | B405   |       |
| R78      | Radiotechn | A425   | B438  |
| R78      | Record     | 1562   |       |
| R79      | Radiotechn | B443   | C443  |
| R80      | Radiotechn | D410   |       |
| R81      | Radiotechn | (B442) |       |
| R83      | Radiotechn | A441N  |       |
| R85      | Radiotechn | B409   |       |
| R86      | Radiotechn | 4606   |       |
| R87      | Radiotechn | 4607   |       |
| R88      | Radiotechn | 4605   |       |
| R89      | Radiotechn | C443   | E443H |
| R99      | Radiotechn | 4620   |       |
| R100     | Radiotechn | 4621   |       |
| R100     | Zenith     | 1802   |       |
| R101     | Radiotechn | 4609   |       |

|              |          |        |
|--------------|----------|--------|
| R104         | Record   | 1832   |
| R105         | Marathon | 452    |
| R110E/P      | Rectron  | (1325) |
| R110/1/II    | Rectron  | 1325   |
| R115         | Marathon | 329    |
| R120/1,3     | Rectron  | 1325   |
| R134         | Record   | 505    |
| R138         | Record   |        |
| R145         | Record   | 505    |
| R200         | Record   | 328    |
| R200         | Tungfram | 328    |
| R200/1,3/III | Rectron  | 1060   |
| R202         | Record   | 1002   |
| R204         | Record   | 1702   |
| R208         | Tungfram | A225   |
| R215         | Record   | 328    |
| R215         | Vatea    | A225   |
| R216         | Record   | 451    |
| R220         | Rectron  | 1702   |
| R223         | Record   | 1201   |
| R233         | Record   | 506    |
| R234         | Record   | 506    |
| R235         | Record   | 1805   |
| R238         | Record   |        |
| R240         | Record   | 1561   |
| R241         | Record   | 1561   |
| R245         | Record   | 506    |
| R250         | Rectron  | 1701   |
| R254         | Rectron  | 1701   |
| R256         | Record   | 1560   |

B228

|           |          |        |      |
|-----------|----------|--------|------|
| R278      | Record   | 1562   |      |
| R0337     | Rectron  | 1201   |      |
| R354      | Castilla | 1802   |      |
| R405      | Tungram  | A425   | B438 |
| R406      | Tungram  | A425   | B438 |
| R408      | Castilla | 373    |      |
| R0423     | Rectron  | 1801   |      |
| R0424     | Rectron  | 1802   |      |
| R0431     | Rectron  | 1561   |      |
| R0433     | Rectron  | 1817   |      |
| R0437     | Rectron  | 506    |      |
| R0446     | Rectron  | 505    |      |
| R0452     | Rectron  | 1815   |      |
| R0453     | Rectron  | 1803   |      |
| R0457     | Rectron  | 1805   |      |
| R470      | Record   | (505)  |      |
| R0481     | Rectron  | 1832   |      |
| R0500     | Rectron  | 1072   |      |
| R0531     | Rectron  | 1560   |      |
| R561      | Castilla | 1561   |      |
| R740      | Record   |        |      |
| R0771     | Rectron  | 1562   |      |
| R801      | Castilla | 1801   |      |
| R805      | Castilla | AZ1    |      |
| R1000     | Rectron  | (1074) |      |
| R1000/III | Rectron  |        |      |
| R1029     | Rectron  |        |      |
| R1054     | Castilla | 506    |      |
| R1064     | Castilla | 1805   |      |
| R1709     | Rectron  | 367    |      |

|         |            |        |
|---------|------------|--------|
| R1767   | Rectron    |        |
| R1836   | Radiotechn | A209   |
| R1855   | Radiotechn | (A209) |
| R1856   | Radiotechn | B205   |
| R1862   | Radiotechn | A225   |
| R2000   | Rectron    | 1762   |
| R2005   | Rectron    | 1763   |
| R2018   | Tungsrarn  | B2038  |
| R2050   | Rectron    | 1763   |
| R2150   | Rectron    | 1765   |
| R3000   | Rectron    | 1077   |
| R3867   | Radiotechn | A441N  |
| R3880   | Radiotechn | B409   |
| R4000   | Rectron    | 1062   |
| R4050   | Zenith     | 1802   |
| R4100   | Zenith     | 506    |
| R4100/a | *Zenith    | 506    |
| R4200   | Zenith     | 1561   |
| R5100   | Zenith     | 1560   |
| R5200   | Zenith     | (1560) |
| R7200   | Zenith     |        |

# S

|               |            |        |       |
|---------------|------------|--------|-------|
| S             | Adzam      | B443   | C443  |
| SA2004        | Record     | (B442) |       |
| SB2118        | Vatea      | B2044  |       |
| SB4110        | Vatea      | E444   |       |
| SCG4          | Triotron   | B442   |       |
| SCN4          | Triotron   | E442   | E452T |
| Screenodion   | Impex      | B252   | B262  |
| Bivolt        |            |        |       |
| Screenodion   | Impex      | (B252) | B262  |
| Forvolt       |            |        |       |
| SC2           | Triotron   | (B252) |       |
| SC4           | Triotron   | (B442) |       |
| SD            | Ferranti   | (AB1)  |       |
| S Det ACI4076 | Radiotechn | E415   | E424N |
| SD1           | Telefunken |        |       |
| SD2           | Triotron   |        |       |
| SD4           | Mullard    | E444   |       |
| SD4           | Triotron   | A415   | B424  |
| SD15          | Triotron   | A415   | B424  |
| SD20          | Mullard    | B2044  |       |
| SE220         | Tungsrarn  | (B255) |       |
| SE2018        | Tungsrarn  | B2045  |       |
| SF1           | Telefunken |        |       |
| SGA1          | Standard   | E452T  | E446  |
| SG/D          | Mullard    | E444   |       |

|         |          |        |       |
|---------|----------|--------|-------|
| SG      | Forvolt  | Impex  |       |
| SG-VM   | Fotos    | B255   |       |
| SG4     | Iriotron | B415   | B424  |
| SG4A    | M.P.     | A442   | B442  |
| SG4B    | M.P.     | B442   |       |
| SG4V    | M.P.     | E452T  | E446  |
| SG20    | M.P.     | B2052T | B2046 |
| SG20    | Mullard  | B2052T | B2046 |
| SG20A   | Mullard  | B2042  |       |
| SG207   | Mazda    | B242   | B252  |
| SG210   | Hivac    | B252   | B262  |
| SG215   | Cossor   | B252   |       |
| SG215   | Hivac    | (B252) | B262  |
| SG215   | Mazda    | B252   | B262  |
| SG215VM | Mazda    | (B255) |       |
| SG220   | Cossor   | B262   |       |
| SG220   | Hivac    | B252   | B262  |
| SG410   | Cossor   | B442   |       |
| SG410   | Mazda    | B442   |       |
| SG610   | Cossor   | A642   |       |
| SG610   | Mazda    | (A642) |       |
| SG2018  | Vatea    | B2042  |       |
| SG2118  | Vatea    | B2052T | B2046 |
| SI4090  | Zenith   | E442S  | E452T |
| SI4093  | Zenith   | E452T  | E446  |
| SI4095  | Zenith   | E445   | E455  |
| SM4     | Fotos    | E441   |       |
| SM94    | Record   | (B409) |       |
| SM144   | Record   | (A415) | B424  |
| SM300   | Record   | (A409) | A415  |

|          |              |          |      |
|----------|--------------|----------|------|
| SM350    | Record       | (A425)   | B438 |
| SM400    | Record       | (B405)   |      |
| SM1004   | Record       | B443S    |      |
| SN4      | Triotron     | (E424N)  |      |
| SO1      | <i>Amer</i>  | (9)      |      |
| SO2      | <i>Amer</i>  | 50       |      |
| SPT4     | Ferranti     | E446     |      |
| SPT4A    | Ferranti     | E446     |      |
| SP2(2)   | Mullard      | KF1(3)   |      |
| SP2      | Record       |          |      |
| SP2      | Triotron     | (B205)   |      |
| SP4      | Mullard      | E446     |      |
| SP4      | Triotron     | (B405)   |      |
| SP4B     | Mullard      |          |      |
| SP13     | Mullard      | CF1      |      |
| SP13B    | Mullard      |          |      |
| SP13C    | Mullard      |          |      |
| SP20     | Mullard      | B2046    |      |
| SP30     | Ge. Mar. Os. |          |      |
| SP210(2) | Mazda        | (KF1)(3) |      |
| SP215(2) | Mazda        | KF1(3)   |      |
| SP220    | Tungsrām     |          |      |
| SP230    | Tungsrām     | (B205)   |      |
| SP414    | Tungsrām     | B405     |      |
| SP420    | Astron       | 1801     |      |
| SP614    | Tungsrām     | B605     |      |
| SP625    | Tungsrām     | C603     |      |
| SP1320   | Mazda        |          |      |
| SP1330   | Mazda        |          |      |
| SP2020   | Mazda        |          |      |



|                      |          |         |       |
|----------------------|----------|---------|-------|
| SP2220               | Mazda    |         |       |
| SP3020               | Mazda    |         |       |
| SR100                | Sator    | 1904    |       |
| SR150                | Sator    | 1911    |       |
| SR180                | Sator    | 1928    |       |
| SS4PAC               | Mullard  | E409N   |       |
| SS2018               | Tungsram | B2052T  | B2046 |
| ST2118               | Vatea    | B2046   |       |
| ST4110               | Vatea    | E446    |       |
| Super Det<br>Bivolt  | { Impex  | (B217)  |       |
| Super Det<br>Forvolt | { Impex  | (E424N) |       |
| Super HF<br>Forvolt  | { Impex  | A425    | B438  |
| Super HF<br>Hivolt   | { Impex  | (B228)  |       |
| Super<br>Power       | { Impex  | B409    |       |
| Forvolt              |          |         |       |
| Super Valve          | Cyrnos   | 1802    |       |
| SV220                | Tungsram | (B255)  |       |
| SV4100               | Vatea    | E442    | E452T |
| SV4110               | Vatea    | E452T   | E447  |
| SW1                  | Impex    | 505     |       |
| SX210                | Vatea    | B262    |       |
| SX216                | Vatea    | B262    |       |
| SX218                | Vatea    | B262    |       |
| SX406                | Vatea    | (B442)  |       |
| SX410                | Vatea    | B442    |       |

|       |              |         |       |
|-------|--------------|---------|-------|
| S2    | Record       | B252    | B262  |
| S2/C  | Ge. Mar. Os. | (B255)  |       |
| S4    | Fotos        | (E409N) |       |
| S4    | Sator        | (B442)  |       |
| S4V   | Mullard      | (E442)  | E452T |
| S4VA  | Mullard      |         |       |
| S4VB  | Mullard      | E452T   | E446  |
| S4VX  | Mullard      | E442S   |       |
| S8    | Ge. Mar. Os. | C142    |       |
| S11A  | Everready    | 506     |       |
| S21   | Ge. Mar. Os. | (B252)  | B262  |
| S22   | Ge. Mar. Os. | B262    |       |
| S23   | Ge. Mar. Os. | (B252)  | B262  |
| S24   | Ge. Mar. Os. | (B262)  |       |
| S25   | Ostar        | B2052T  | B2046 |
| S30C  | Everready    | (E406N) |       |
| S100  | Fotos        | E453    | E463  |
| S100  | Ostar        | B2042   |       |
| S100  | Sator        | B442    |       |
| S130  | Cossor       |         |       |
| S201  | Triotron     | (B405)  |       |
| S207  | Triotron     | (B252)  |       |
| S209  | Triotron     | KF3     |       |
| S210  | Triotron     | KF4     |       |
| S210  | Tungsram     | B252    | B262  |
| S213  | Triotron     | B255    |       |
| S215  | Ge. Mar. Os. | (B252)  | B262  |
| S215  | Triotron     | B262    |       |
| S215A | Mazda        | B252    | B262  |
| S215B | Mazda        | B262    |       |

|        |              |         |       |
|--------|--------------|---------|-------|
| S215VM | Mazda        | B255    |       |
| S217   | Triotron     | KF2     |       |
| S218   | Triotron     | KF1     |       |
| S220   | Tungsrām     | B262    |       |
| S406   | Tungsrām     | (B442)  |       |
| S407   | Tungsrām     | (B442)  |       |
| S408   | Triotron     | (B442)  |       |
| S409   | Triotron     | B442    |       |
| S410   | Fotos        | (E409N) |       |
| S410   | Ge. Mar. Os. | B442    |       |
| S410   | Tungsrām     | B442    |       |
| S410N  | Triotron     | E442S   | E452T |
| S412   | Record       | E708    |       |
| S412N  | Triotron     | E442    | E452T |
| S415   | Fotos        | (E424N) |       |
| S415N  | Fotos        | (E424N) |       |
| S415N  | Triotron     | E445    | E455  |
| S423   | Triotron     | AF3     |       |
| S424   | Triotron     | AF7     |       |
| S425   | Fotos        | (E438)  |       |
| S430N  | Triotron     | E452T   | E446  |
| S431N  | Triotron     | E455    | E447  |
| S432   | Triotron     | AF2     |       |
| S434N  | Triotron     | E447    |       |
| S435N  | Triotron     | E446    |       |
| S440   | Fotos        | E438    |       |
| S440N  | Fotos        | E438    |       |
| S493   | Zenith       | E452T   | E446  |
| S495   | Zenith       | E455    | E447  |
| S610   | Ge. Mar. Os. | A642    |       |

|        |              |         |        |
|--------|--------------|---------|--------|
| S617   | Triotron     | EF5     |        |
| S620   | Triotron     | EF6     |        |
| S625   | Ge. Mar. Os. | (A642)  |        |
| S628   | Triotron     | EF2     |        |
| S629   | Triotron     | EF1     |        |
| S1010  | Celsior      | A409    | A415   |
| S1323  | Triotron     | CF3     |        |
| S1324  | Triotron     | CF7     |        |
| S1327  | Triotron     | CF2     |        |
| S1328  | Triotron     | CF1     |        |
| S2010N | Triotron     | B2042   | B2052T |
| S2012N | Triotron     | B2045   |        |
| S2018  | Tungsrām     | B2042   |        |
| S2018d | Tungsrām     | B2042   |        |
| S2030N | Triotron     | B2052T  | B2046  |
| S2034N | Triotron     | B2047   |        |
| S2035  | Triotron     | B2046   |        |
| S4150  | Fotos        | (E442S) |        |
| S4150C | Fotos        | (E445)  |        |
| S4250D | Fotos        | (E445)  |        |
| S4150E | Fotos        | (E442S) |        |

# T

|       |              |         |      |
|-------|--------------|---------|------|
| T     | Adzam        | A441N   |      |
| T     | Ge. Mar. Os. | (4060)  |      |
| TABC1 | Tungsrarn    | ABC1    |      |
| TAB2  | Tungsrarn    | AB2     |      |
| TAC2  | Tungsrarn    | AC2     |      |
| TAD1  | Tungsrarn    | AD1     |      |
| TAF3  | Tungsrarn    | AF3     |      |
| TAF7  | Tungsrarn    | AF7     |      |
| TAH1  | Tungsrarn    | AH1     |      |
| TAK2  | Tungsrarn    | AK2     |      |
| TAL1  | Tungsrarn    | AL1     |      |
| TAL2  | Tungsrarn    | AL2     |      |
| TAL3  | Tungsrarn    | AL3     |      |
| TAZ1  | Tungsrarn    | AZ1     |      |
| TA0   | Castilla     | A415    | B424 |
| TA1   | Castilla     | A209    |      |
| TA09  | Radiotechn   | A409    | A415 |
| TA10  | Radiotechn   | (A409)  | A415 |
| TA15  | Radiotechn   | A415    | B424 |
| TA25  | Radiotechn   | A425    | B438 |
| TA31  | Radiotechn   | (A441N) |      |
| TA41  | Radiotechn   | A441N   |      |
| TA42  | Radiotechn   | (B442)  |      |
| TBC1  | Radiotechn   | ABC1    |      |
| TBC14 | Impex        | ABC1    |      |

|           |            |        |
|-----------|------------|--------|
| TBC113    | Impex      | CBC1   |
| TB1       | Radiotechn | AB1    |
| TB2       | Radiotechn | AB2    |
| TB05      | Radiotechn | B405   |
| TB06      | Radiotechn | (B405) |
| TB09      | Radiotechn | B409   |
| TB13      | Impex      | CB1    |
| TB24      | Impex      | AB2    |
| TB24      | Radiotechn | B424   |
| TB032     | Impex      | B203   |
| TB42      | Radiotechn | B442   |
| TB43      | Radiotechn | B443   |
| TB43S     | Radiotechn | B443S  |
| TB50/1000 | Record     | 4641   |
| TB052     | Impex      | B205   |
| TB082     | Impex      |        |
| TB102     | Impex      | A209   |
| TB122     | Impex      |        |
| TB172     | Impex      | B217   |
| TB217     | Radiotechn | B217   |
| TB240     | Radiotechn | B240   |
| TB282     | Impex      | B228   |
| TB402     | Impex      | B240   |
| TB422     | Impex      | B242   |
| TB452     | Impex      | (B255) |
| TB4313    | Impex      | CL1    |
| TB4320    | Impex      | CL2    |
| TB4613    | Impex      | CF1    |
| TB5013    | Impex      | CK1    |
| TB5613    | Impex      | CF2    |

|           |            |          |       |
|-----------|------------|----------|-------|
| TB8013    | Impex      | CC2      |       |
| TCBC1     | Tungsrarn  | CBC1     |       |
| TCB2      | Tungsrarn  | CB2      |       |
| TCC2      | Tungsrarn  | CC2      |       |
| TCF3      | Tungsrarn  | CF3      |       |
| TCF7      | Tungsrarn  | CF7      |       |
| TCH1      | Radiotechn | ACH1     |       |
| TCH1      | Tungsrarn  | CH1      |       |
| TCK1      | Tungsrarn  | CK1      |       |
| TCL1      | Tungsrarn  | CL1      |       |
| TCL2      | Tungsrarn  | CL2      |       |
| TCL3      | Tungsrarn  | CL3      |       |
| TCY1      | Tungsrarn  | CY1      |       |
| TCY2      | Tungsrarn  | CY2      |       |
| TC2       | Radiotechn | AC2      |       |
| TC43      | Radiotechn | C443     |       |
| TC43N(A)  | Radiotechn | C443N(A) |       |
| TC243N    | Radiotechn | C243N    |       |
| TC432     | Impex      | C243N    |       |
| TC434     | Impex      | C443     | E443H |
| TDDS      | Thermion   |          |       |
| TDD2(1)   | Mullard    | KBC1     |       |
| TDD2A     | Mullard    |          |       |
| TDD4(1)   | Mullard    | ABC1     |       |
| TDD6      | Mullard    | EBC3     |       |
| TDD13     | Mullard    | CBC1     |       |
| TDD13C(1) | Mullard    | CBC1     |       |
| TDD25     | Mullard    |          |       |
| TD2       | Triotron   | A209     |       |
| TD4       | Mullard    | E444S    |       |

|         |             |         |         |
|---------|-------------|---------|---------|
| TD10    | Radiotechn  | D410    |         |
| TD20    | Mullard     | B2044S  |         |
| TE      | Radio-Vicco | A409    | A415    |
| TE4     | Impex       | AB1     |         |
| TE06    | Radiotechn  | (E406N) |         |
| TE06N   | Radiotechn  | E406N   |         |
| TE08    | Radiotechn  | E408N   |         |
| TE09    | Radiotechn  | E409N   |         |
| TE094   | Impex       | E409N   |         |
| TE15    | Radiotechn  | E415    | E424N   |
| TE24    | Radiotechn  | (E424N) |         |
| TE24(N) | Radiotechn  | E424N   |         |
| TE38    | Radiotechn  | E438    |         |
| TE41    | Radiotechn  | E441    |         |
| TE41N   | Radiotechn  | E441N   |         |
| TE42    | Radiotechn  | E442    | E452T   |
| TE42S   | Radiotechn  | E442    | S-E452T |
| TE43H   | Radiotechn  | E443H   |         |
| TE43N   | Radiotechn  | E443N   |         |
| TE44    | Radiotechn  | E444    |         |
| TE44S   | Radiotechn  | E444S   |         |
| TE45    | Radiotechn  | E445    |         |
| TE46    | Radiotechn  | E446    |         |
| TE47    | Radiotechn  | E447    |         |
| TE48    | Radiotechn  | E448    |         |
| TE49    | Radiotechn  | E449    |         |
| TE51    | Radiotechn  | E451    |         |
| TE52    | Radiotechn  | E452T   |         |
| TE53    | Radiotechn  | E453    |         |
| TE55    | Radiotechn  | E455    |         |



|         |            |         |       |
|---------|------------|---------|-------|
| TE63    | Radiotechn | E463    |       |
| TE99    | Radiotechn | E499    |       |
| TE104   | Castiilla  | C405    |       |
| TE244   | Impex      | E424N   |       |
| TE384   | Impex      | E438    |       |
| TE424   | Impex      | E442    | E452T |
| TE434   | Impex      | E443H   |       |
| TE444   | Impex      | E444    |       |
| TE464   | Impex      | E446    |       |
| TE474   | Impex      | E447    |       |
| TE504   | Impex      | AK1     |       |
| TE524   | Impex      | E452T   | E446  |
| TE534   | Impex      | E453    |       |
| TE554   | Impex      | E455    | E447  |
| TE564   | Impex      | AF2     |       |
| TE634   | Impex      | E463    |       |
| TE994   | Impex      | E499    |       |
| TF04    | Radiotechn | F704    |       |
| TF2     | Radiotechn | AF2     |       |
| TF3     | Radiotechn | AF3     |       |
| TF7     | Radiotechn | AF7     |       |
| TF10    | Radiotechn | F410    |       |
| TF43    | Radiotechn | (F443N) |       |
| TF43N   | Radiotechn | F443N   |       |
| TF313   | Impex      | CF3     |       |
| TF704   | Radiotechn | F704    |       |
| TF713   | Impex      | CF7     |       |
| TH1     | Radiotechn | AM1     |       |
| TH4     | Mullard    | (ACH1)  |       |
| TH4A(1) | Mullard    | (ACH1)  |       |

|        |            |        |      |
|--------|------------|--------|------|
| TH13C  | Mullard    |        |      |
| TH21C  | Mullard    |        |      |
| TH401  | Triotron   | ACH1   |      |
| TKBC1  | Tungsrarn  | KBC1   |      |
| TKB1   | Tungsrarn  | KB1    |      |
| TKC1   | Tungsrarn  | KC1    |      |
| TKF3   | Tungsrarn  | KF3    |      |
| TKF4   | Tungsrarn  | KF4    |      |
| TKK2   | Tungsrarn  | KK2    |      |
| TKL1   | Tungsrarn  | (KL4)  |      |
| TKL2   | Tungsrarn  | KL2    |      |
| TK1    | Radiotechn | AK1    |      |
| TK2    | Radiotechn | AK2    |      |
| TK24   | Impex      | AK2    |      |
| TK406  | Triotron   | AM1    |      |
| TK606  | Triotron   | EM1    |      |
| TK4110 | Vatea      | E463   |      |
| TK4120 | Vatea      | E453   |      |
| TL1    | Radiotechn | AL1    |      |
| TL1    | Triotron   | A109   |      |
| TL2    | Radiotechn | AL2    |      |
| TL3    | Radiotechn | AL3    |      |
| TL4    | Triotron   | (A409) | A415 |
| TL34   | Impex      | AL4    |      |
| TL44   | Impex      | AL4    |      |
| TL210  | Vatea      | C243N  |      |
| TL230  | Vatea      | C243N  |      |
| TL410  | Vatea      | C443N  |      |
| TL413  | Impex      | CL4    |      |
| TL414  | Vatea      | B443   | C443 |

|           |              |        |       |
|-----------|--------------|--------|-------|
| TL415     | Vatea        | B443S  |       |
| TL510     | Vatea        | B543   |       |
| TL1320    | Vatea        | CL1    |       |
| TL2018    | Vatea        | B2043  |       |
| TM4       | Fotos        | E441   |       |
| TP3       | Vatea        | (A409) |       |
| TP4       | Mullard      |        |       |
| TP22      | Mazda        |        |       |
| TP230     | Hivac        |        |       |
| TP443     | Zenith       | E443H  |       |
| TP450     | Zenith       | E463   |       |
| TP1340    | Mazda        |        |       |
| TP2620    | Mazda        |        |       |
| TP4100    | Zenith       | E443N  |       |
| TR1560    | Adzam        | 1560   |       |
| TSP4      | Mullard      | 4673   |       |
| TS1       | Triotron     | A109   |       |
| TS2       | Rectron      |        |       |
| TS4       | Rectron      |        |       |
| TS4       | Triotron     | (A409) | A415  |
| TS215     | Mazda        |        |       |
| TT4       | Mullard      |        |       |
| TT210     | Triotron     | KDD1   |       |
| TU        | Fotos        |        |       |
| Tuneon    | {            |        |       |
| Indicator |              |        |       |
| TU415     | Ge. Mar. Os. | (4662) |       |
| TU425     | Zenith       | (B443) |       |
| TU430     | Zenith       | (C443) | E443H |
| TU410     | Zenith       | C443   | E443H |
|           | Zenith       | E453   |       |

|         |             |         |       |
|---------|-------------|---------|-------|
| TV4     | Mullard     | AM1     |       |
| TV6     | Mullard     | EM1     |       |
| TV60    | Radiotechn  | 1801    |       |
| TV61    | Radiotechn  | 1802    |       |
| TV80    | Radiotechn  | 506     |       |
| TV81    | Radiotechn  | 1805    |       |
| TV90    | Radiotechn  | 1561    |       |
| TV100   | Radiotechn  | (1815)  |       |
| TV105   | Radiotechn  | (505)   |       |
| TV120   | Radiotechn  | 1817    |       |
| TV165   | Radiotechn  | 1562    |       |
| TV250   | Mazda       | (F704)  |       |
| TV425   | Vatea       | C443    | E443H |
| TV4100  | Vatea       | E443N   |       |
| TV4110  | Vatea       | E443H   |       |
| TV4200  | Vatea       | (F443N) |       |
| TW      | Radio-Vicco | A409    | A415  |
| TW1     | Impex       | CY1     |       |
| TW2     | Impex       | CY2     |       |
| TZ1     | Radiotechn  | AZ1     |       |
| T3-453  | Thermion    | C443    | E443H |
| T4-33   | Thermion    | ABC1    |       |
| T5-409  | Thermion    | E409N   | E415  |
| T5-412  | Thermion    |         |       |
| T5-415  | Thermion    | E415    | E424N |
| T5-428  | Thermion    | E424N   |       |
| T5-438  | Thermion    | E438    |       |
| T5-442  | Thermion    | E442    | E452T |
| T5-442S | Thermion    | E442S   | E452T |
| T5-444  | Thermion    | E444    |       |

|         |          |         |       |
|---------|----------|---------|-------|
| T5-444S | Thermion | E444S   |       |
| T5-446  | Thermion | E446    |       |
| T5-447  | Thermion | E447    |       |
| T5-448  | Thermion | E448    |       |
| T5-455  | Thermion | E455    | E447  |
| T5-462  | Thermion | E452T   | E446  |
| T5-475  | Thermion |         |       |
| T5-499  | Thermion | E499    |       |
| T10     | Triotron | A209    |       |
| T34     | Record   | D404    |       |
| T55     | Adzam    | C443    | E443H |
| T60     | Adzam    | B443    | C443  |
| T78     | Record   | (E708)  |       |
| T94     | Record   | (E406N) |       |
| T104    | Record   | (F410)  |       |
| T114    | Record   | F410    |       |
| T204    | Triotron | KC1     |       |
| T223    | Triotron | KC3     |       |
| T410    | Fotos    | E409N   |       |
| T416    | Record   | E408N   |       |
| T425    | Fotos    | E424N   |       |
| T435    | Triotron | AC2     |       |
| T460    | Triotron | AD1     |       |
| T491    | Zenith   | (E446)  |       |
| T495    | Zenith   | (E447)  |       |
| T635    | Triotron | EC2     |       |
| T730    | Record   | F704    |       |
| T740    | Record   |         |       |
| T1012   | Record   |         |       |
| T1020   | Celsior  | A409    | A415  |

|        |          |       |       |
|--------|----------|-------|-------|
| T1025  | Record   |       |       |
| T1304  | Record   | E443H |       |
| T1335  | Triotron | CC2   |       |
| T4000N | Fotos    | (AK1) |       |
| T4150  | Fotos    | E452T | E446  |
| T4400  | Fotos    | E444  |       |
| T4400N | Fotos    | E444  |       |
| T4450  | Fotos    | E442  | E452T |
| T4500  | Fotos    | E452T | E446  |
| T4500C | Fotos    | E455  | E447  |
| T4500N | Fotos    | E452T | E446  |
| T4600  | Fotos    | E446  |       |
| T4600N | Fotos    | E446  |       |
| T4700  | Fotos    | E447  |       |
| T4700N | Fotos    | E447  |       |

# U

|        |            |        |
|--------|------------|--------|
| UAM    | Castilla   | CF1    |
| UAMS   | Castilla   | CF2    |
| UBC1   | Radiotechn | CBC1   |
| UB1    | Radiotechn | CB1    |
| UB2    | Radiotechn | CB2    |
| UC2    | Radiotechn | CC2    |
| UDD    | Castilla   | CB1    |
| UDDT51 | Sator      | CBC1   |
| UDD51  | Sator      | CB2    |
| UDD80  | Sator      |        |
| UD2    | Triotron   | B205   |
| UD506  | Triotron   | (B405) |
| UEP51  | Sator      | CF3    |
| UEP103 | Sator      |        |
| UFC    | Castilla   | CL2    |
| UFF    | Castilla   | CL1    |
| UF1    | Radiotechn | CF1    |
| UF2    | Radiotechn | CF2    |
| UF3    | Radiotechn | CF3    |
| UF7    | Radiotechn | CF7    |
| UGDR   | Castilla   | CK1    |
| UHP52  | Sator      | CF7    |
| UHP103 | Sator      |        |
| UH1    | Radiotechn | CHI    |
| UKP403 | Sator      |        |

|             |            |       |             |
|-------------|------------|-------|-------------|
| UK1         | Radiotechn | CK1   |             |
| ULP51       | Sator      | CL2   |             |
| ULP204      | Sator      | B2043 |             |
| UL1         | Radiotechn | CL1   |             |
| UL2         | Radiotechn | CL2   |             |
| UMD40       | Sator      | (AB2) |             |
| UMO51       | Sator      | CK1   |             |
| Universal   | {          | Impex | (A209)      |
| Bivolt      |            |       |             |
| Universel C |            | Fotos | (A409) A415 |
| Universal   | {          | Impex | A409 A415   |
| Forvolt     |            |       |             |
| UPG105      | Sator      |       |             |
| UP4B        | M.P.       | B443  | C443        |
| UP4C        | M.P.       | C443  | E443H       |
| UP4D        | M.P.       | E443H |             |
| UP4E        | M.P.       | F443N |             |
| UP4V        | M.P.       | E463  |             |
| UP5B        | M.P.       | B543  |             |
| UP20        | M.P.       | B2043 |             |
| URL200      | Castilla   | CI    |             |
| UR1         | Castilla   | CY1   |             |
| UR1         | Mullard    | CY1   |             |
| UR1C(1)     | Mullard    | CY1   |             |
| UR2         | Castilla   | CY2   |             |
| UR2         | Mullard    | CY2   |             |
| UR3         | Mullard    | CY2   |             |
| UR3C(1)     | Mullard    | CY2   |             |
| UU2         | Mazda      | 506   |             |
| UU3         | Mazda      |       |             |



|           |              |       |       |
|-----------|--------------|-------|-------|
| UU4       | Mazda        |       |       |
| UU30/150  | Mazda        | 1801  |       |
| UU30/250  | Mazda        | 1801  |       |
| UU60/250  | Hivac        |       |       |
| UU60/250  | Mazda        | 506   |       |
| UU120/250 | Mazda        | 1561  |       |
| UU120/350 | Hivac        |       |       |
| UU120/350 | Mazda        | 1561  |       |
| UU120/500 | Hivac        |       |       |
| UU120/500 | Mazda        | 1561  |       |
| UU412     | Vatea        |       |       |
| UU4020(1) | Mazda        | CY2   |       |
| UVG51     | Sator        | CY2   |       |
| UV4100    | Vatea        | E409N |       |
| UX208     | Vatea        | A209  | B217  |
| UX210     | Vatea        | A209  | B217  |
| UX211     | Vatea        | B217  |       |
| UX406     | Vatea        | A409  | A415  |
| UX412     | Vatea        | B409  |       |
| UX414     | Vatea        | B409  |       |
| UY1       | Radiotechn   | CY1   |       |
| UY2       | Radiotechn   | CY2   |       |
| UZ420     | Valvo        |       |       |
| U1        | Radiotechn   | C1    |       |
| U4        | Ge. Mar. Os. |       |       |
| U4C       | M.P.         | D404  | E406N |
| U4D       | M.P.         | D404  | E406N |
| U4E       | M.P.         | F410  |       |
| U5        | Ge. Mar. Os. |       |       |
| U6        | Ge. Mar. Os. |       |       |

|           |              |        |      |
|-----------|--------------|--------|------|
| U6CAT     | Castilla     | EMI    |      |
| U8        | Ge. Mar. Os. |        |      |
| U9        | Ge. Mar. Os. | 506    |      |
| U9c       | Ge. Mar. Os. | 506    |      |
| U10       | Ferranti     | (1560) |      |
| U10       | Ge. Mar. Os. | 506    |      |
| U12       | Ge. Mar. Os. | 1561   |      |
| U14       | Ge. Mar. Os. | 1561   |      |
| U16       | Ge. Mar. Os. | (1875) |      |
| U30       | Ge. Mar. Os. |        |      |
| U30/250   | Mazda        | 1802   |      |
| U60/500   | Mazda        | 505    |      |
| U65/550   | Mazda        | 1562   |      |
| U70/140   | Triotron     | C12    |      |
| U75/300   | Mazda        | 505    |      |
| U107D     | Valvo        | A141   |      |
| U120/350  | Mazda        | 1832   |      |
| U120/500  | Mazda        | 1832   |      |
| U150/1100 | Mazda        |        |      |
| U208D     | Valvo        | A241   |      |
| U209D     | Valvo        | (A241) |      |
| U215      | Zenith       | (B205) |      |
| U230      | Zenith       | (B205) |      |
| U352      | Megam        | A409   | A415 |
| U406      | Vatea        | A409   | A415 |
| U408D     | Valvo        |        |      |
| U409D     | Valvo        | A441N  |      |
| U412      | Vatea        | A409   | A415 |
| U412      | Zenith       | (B405) |      |
| U415      | Zenith       | B409   |      |

|          |        |         |       |
|----------|--------|---------|-------|
| U418     | Zenith |         |       |
| U420     | Zenith | B405    |       |
| U440     | Zenith | B405    |       |
| U460     | Zenith | (D404)  | E406N |
| U525     | Valvo  | C509A   |       |
| U525     | Zenith |         |       |
| U580     | Zenith |         |       |
| U1718D   | Valvo  | B2041   |       |
| U4020(1) | Mazda  | (CY1)   |       |
| U4100D   | Valvo  | (E441N) |       |

# V

|          |            |        |      |
|----------|------------|--------|------|
| VAB1     | Vatea      | AB1    |      |
| VAB2     | Vatea      | AB2    |      |
| VAC2     | Vatea      | AC2    |      |
| VAF2     | Vatea      | AF2    |      |
| VAF3     | Vatea      | AF3    |      |
| VAF7     | Vatea      | AF7    |      |
| VAK1     | Vatea      | AK1    |      |
| VAK2     | Vatea      | AK2    |      |
| Valve 4V | Cyrnos     | 1802   |      |
| VAL1     | Vatea      | AL1    |      |
| VAL2     | Vatea      | AL2    |      |
| Var. Mu  | }          |        |      |
| Screen   |            |        |      |
| Bivolt   | Impex      | (B252) | B262 |
| VAZ1     | Vatea      | AZ1    |      |
| VA41     | S.I.F.     | 1801   |      |
| VA62     | S.I.F.     | 506    |      |
| VA122    | S.I.F.     | 1561   |      |
| VB1      | Radiotechn | EB1    |      |
| VB200.20 | Celsior    | 1801   |      |
| VB250.50 | Celsior    | 506    |      |
| VCB1     | Vatea      | CB1    |      |
| VCB2     | Vatea      | CB2    |      |
| VCC2     | Vatea      | CC2    |      |
| VCF1     | Vatea      | CF1    |      |

|       |              |      |
|-------|--------------|------|
| VCF2  | Vatea        | CF2  |
| VCF3  | Vatea        | CF3  |
| VCF7  | Vatea        | CF7  |
| VCK1  | Vatea        | CK1  |
| VCL1  | Vatea        | CL1  |
| VCL2  | Vatea        | CL2  |
| VCY1  | Vatea        | CY1  |
| VCY2  | Vatea        | CY2  |
| VC1   | Telefunken   | VC1  |
| VC1   | Valvo        | VC1  |
| VC2   | Radiotechn   | EC2  |
| VDP1  | Ge. Mar. Os. |      |
| VDS   | Ge. Mar. Os. |      |
| VDSB  | Ge. Mar. Os. |      |
| VEB1  | Vatea        | EB1  |
| VEC2  | Vatea        | EC2  |
| VEF1  | Vatea        | EF1  |
| VEF2  | Vatea        | EF2  |
| VEG51 | Sator        | CY1  |
| VEK1  | Vatea        | EK1  |
| VEL1  | Vatea        | EL1  |
| VEZ1  | Vatea        | EZ1  |
| VEZ2  | Vatea        | EZ2  |
| VFZ1  | Vatea        | FZ1  |
| VF1   | Radiotechn   | EF1  |
| VF2   | Radiotechn   | EF2  |
| VG406 | Sator        | 1801 |
| VG410 | Sator        | 506  |
| VG411 | Sator        | 1805 |
| VG420 | Sator        | 1561 |

|          |                |        |      |
|----------|----------------|--------|------|
| VG421    | Sator          | 1815   |      |
| VG460    | Eagle          | 1801   |      |
| VG2503   | Hoges          | 1801   |      |
| VG2908   | Hoges          | 1201   |      |
| VG3008   | Hoges          | 506    |      |
| VG3512   | Hoges          | 1561   |      |
| VG4100   | Eagle          | 506    |      |
| VG4200   | Eagle          | 1561   |      |
| VG5006   | Hoges          | 1805   |      |
| VHTA(1)  | Ferranti       | (CK1)  |      |
| VHTS     | Ferranti       |        |      |
| VHT2(1)  | Ferranti       | (KK2)  |      |
| VHT2A(1) | Ferranti       | (KK2)  |      |
| VHT4(1)  | Ferranti       | (AK2)  |      |
| VH4      | Mullard        | E449   |      |
| VH20     | Mullard        | B2049  |      |
| VH300    | Splendor       | (B442) |      |
| VKF1     | Vatea          | KF1    |      |
| VKF2     | Vatea          | KF2    |      |
| VKK2     | Vatea          | KK2    |      |
| VK1      | Radiotechn     | EK1    |      |
| VLS61    | Standard       |        |      |
| VL1      | Radiotechn     | EL1    |      |
| VL1      | Telefunken     | VL1    |      |
| VL1      | Valvo          | VL1    |      |
| VMP4     | Ge. Mar. Os.   | E447   |      |
| VMP4G    | Ge. Mar. Os.   | AF2    |      |
| VMP4K    | Ge. Mar. Os.   | E447   |      |
| VMS4     |                |        |      |
| Catkin   | { Ge. Mar. Os. | (E445) | E455 |

|           |              |          |       |
|-----------|--------------|----------|-------|
| VMS4B     | Ge. Mar. Os. | E455     | E447  |
| VM4V      | Mullard      | E445     | E455  |
| VM20      | Mullard      | B2045    | B2047 |
| VM200.10  | Celsior      | 1802     |       |
| VM200.20  | Celsior      | 1802     |       |
| VM200.30  | Celsior      | 1802     |       |
| VM600.50  | Celsior      | 506      |       |
| VPTA(1)   | Ferranti     | CF7      |       |
| VPTS      | Ferranti     |          |       |
| VPT4      | Ferranti     | E446     |       |
| VPT4A     | Ferranti     | E446     |       |
| VPT4B     | Ferranti     | AF2      |       |
| VP2(2)    | Mullard      | KF2(3)   |       |
| VP2A(2)   | Mullard      | KF2(3)   |       |
| VP4       | Mullard      | E447     |       |
| VP4A      | Mullard      | AF2      |       |
| VP4B      | Mullard      |          |       |
| VP13A     | Mullard      | CF2      |       |
| VP13C     | Mullard      |          |       |
| VP20      | Mullard      | B2047    |       |
| VP21(2)   | Ge. Mar. Os. | (KF2)(3) |       |
| VP30      | Ge. Mar. Os. |          |       |
| VP210(2)  | Mazda        | (KF2)(3) |       |
| VP215(2)  | Hivac        | KF2(3)   |       |
| VP215(2)  | Mazda        | KF2(3)   |       |
| VP1320(1) | Mazda        | CF2      |       |
| VP1321    | Mazda        |          |       |
| VR2       | Castilla     | 505      |       |
| VR4       | Castilla     | 506      |       |
| VSGA1     | Standard     | E455     | E447  |
| VSG220    | Cossor       | B255     |       |

|       |              |        |      |
|-------|--------------|--------|------|
| VS2   | Ferranti     | B255   |      |
| VS2   | Ge. Mar. Os. | (B255) |      |
| VS2   | Record       | B255   |      |
| VS2   | Visseaux     |        |      |
| VS4   | Ferranti     | E445   |      |
| VS24  | Ge. Mar. Os. | B255   |      |
| VS24K | Ge. Mar. Os. | B255   |      |
| VS210 | Hivac        | B255   |      |
| VS215 | Hivac        | (B255) |      |
| VS215 | Mazda        | (B255) |      |
| VS220 | Cossor       | B262   |      |
| VT2   | Vatea        | 4662   |      |
| VT107 | Tekade       | A209   |      |
| VT110 | Tekade       | A225   | B228 |
| VT111 | Tekade       | (B405) |      |
| VT112 | Tekade       | A409   | A415 |
| VT121 | Tekade       | B205   |      |
| VT122 | Tekade       | B217   |      |
| VT123 | Tekade       |        |      |
| VT124 | Tekade       | A425   | B438 |
| VT126 | Tekade       |        |      |
| VT128 | Tekade       | A409   | A415 |
| VT129 | Tekade       | B409   |      |
| VT132 | Tekade       |        |      |
| VT133 | Tekade       |        |      |
| VT134 | Tekade       |        |      |
| VT137 | Tekade       |        |      |
| VT139 | Tekade       |        |      |
| VT141 | Tekade       | E409N  | E415 |
| VT142 | Tekade       |        |      |



|          |              |        |
|----------|--------------|--------|
| VT143    | Tekade       |        |
| VT147    | Tekade       |        |
| VT216    | Tekade       |        |
| VY1      | Telefunken   | VY1    |
| VY1      | Valvo        | VY1    |
| VZ1      | Radiotechn   | EZ1    |
| V0       | Fotos        | 1803   |
| V1       | Fotos        |        |
| V1       | Visseaux     | 505    |
| V2       | Fotos        |        |
| V2       | Visseaux     | 506    |
| V3       | Fotos        | (1832) |
| V3       | Ostar        | B2047  |
| V4       | Cyrnos       | 1802   |
| V4       | Ignix        | 1801   |
| V4 oxyde | Cyrnos       | 1802   |
| V6       | Fotos        | 506    |
| V6M      | Fotos        | (1803) |
| V6N      | Fotos        | 506    |
| V8       | Fotos        |        |
| V8       | Ignix        | 1801   |
| V12      | Fotos        |        |
| V20      | Fotos        | 1801   |
| V21B     | Fotos        | 1801   |
| V21M     | Fotos        | 1803   |
| V22      | Fotos        | 1561   |
| V23      | Fotos        |        |
| V24      | Ge. Mar. Os. |        |
| V30      | Fotos        | 1560   |
| V41      | S.I.F.       | 1801   |

|       |            |      |
|-------|------------|------|
| V42   | Ignix      | 506  |
| V43   | Ignix      | 506  |
| V44   | Ignix      | 1801 |
| V46   | Ignix      | 506  |
| V48   | Ignix      | 1561 |
| V51   | S.I.F.     | 373  |
| V54   | Radiotechn | 506  |
| V60   | Radiotechn | 1801 |
| V60   | Triotron   | 1904 |
| V62   | S.I.F.     | 506  |
| V66   | Radiotechn | 1803 |
| V70   | Radiotechn |      |
| V70   | Triotron   | C2   |
| V70U  | Triotron   | C4   |
| V71   | Radiotechn |      |
| V72   | Radiotechn |      |
| V73   | Radiotechn |      |
| V80   | Radiotechn | 506  |
| V80   | Triotron   | 1911 |
| V90   | Radiotechn | 1561 |
| V100  | Fotos      |      |
| V100  | Radiotechn | 1815 |
| V100  | Triotron   | 1927 |
| V105  | Radiotechn |      |
| V110  | Radiotechn |      |
| V122  | S.I.F.     | 1561 |
| V140  | Triotron   | C1   |
| V140U | Triotron   | C3   |
| V150  | Triotron   | 1928 |
| V150  | Visseaux   | 1803 |

|         |            |       |      |
|---------|------------|-------|------|
| V155    | Radiotechn |       |      |
| V165    | Radiotechn | 1562  |      |
| V180a   | Triotron   | 1927  |      |
| V202    | Elecson    | 1801  |      |
| V250    | Visseaux   | 1801  |      |
| V306    | Elecson    | 506   |      |
| V430    | Tungsrām   | 1802  |      |
| V460    | Tungsrām   | 1803  |      |
| V475    | Tungsrām   | 373   |      |
| V480    | Visseaux   | 1561  |      |
| V495    | Tungsrām   | 506   |      |
| V510    | Elecson    | 80    |      |
| V515    | Fotos      |       |      |
| V580    | Visseaux   | 1560  |      |
| V583    | Visseaux   |       |      |
| V780    | Visseaux   |       |      |
| V781    | Visseaux   |       |      |
| V914(1) | Mazda      | (AB2) |      |
| V1508   | Splendor   | A415  | B424 |
| V2018   | Tungsrām   |       |      |
| V2118   | Tungsrām   |       |      |
| V2350   | Tungsrām   | 1010  |      |
| V3030   | Splendor   | A425  | B438 |
| V3880   | Radiotechn | 506   |      |
| V4200   | Tungsrām   | 1832  |      |

# W

|       |              |        |       |
|-------|--------------|--------|-------|
| WD2   | Triotron     | (B228) |       |
| WD11  | Amer         | (9)    |       |
| WD12  | Amer         | (9)    |       |
| WD30  | Ge. Mar. Os. |        |       |
| WD40  | Ge. Mar. Os. |        |       |
| WG4   | Triotron     | A409   |       |
| WE6   | Rectron      | 340    |       |
| WE15  | Rectron      | 1904   |       |
| WE22  | Rectron      | 501    |       |
| WE33  | Rectron      | 452    |       |
| WE34  | Rectron      | 1011   |       |
| WE44  | Rectron      | 329    |       |
| WE45  | Rectron      | 1331   |       |
| WE46  | Rectron      | 1014   |       |
| WE55  | Rectron      | (452)  |       |
| WE4   | Triotron     | B438   |       |
| WG4SC | Eagle        | E442S  | E452T |
| WG33  | Loewe        |        |       |
| WG34  | Loewe        |        |       |
| WG35  | Loewe        |        |       |
| WG36  | Loewe        |        |       |
| WG37  | Loewe        |        |       |
| WG41  | Eagle        | E415   | E424N |
| WG41  | Loewe        |        |       |
| WG43  | Eagle        | E424N  |       |

|        |              |        |       |
|--------|--------------|--------|-------|
| Wi33   | Valvo        | 452    |       |
| Wi100  | Valvo        | 1904   |       |
| Wi150  | Valvo        | 1911   |       |
| Wi180a | Valvo        | 1927   |       |
| Wi180b | Valvo        | 1928   |       |
| WI 453 | Longlife     | E453   |       |
| WN4    | Triotron     | E438   | B438  |
| WS1507 | Splendor     | E415   | E424N |
| WZ1    | Impex        | FZ1    |       |
| W1     | A.E.G.       |        |       |
| W2     | A.E.G.       |        |       |
| W4     | Sator        | A425   | B438  |
| W6     | Fotos        | 1805   |       |
| W10    | Fotos        | 1805   |       |
| W10    | Record       |        |       |
| W10M   | Zenith       | E708   |       |
| W12    | Fotos        | 1832   |       |
| W15    | Record       | 329    |       |
| W20    | Fotos        | 1832   |       |
| W20    | Record       | 452    |       |
| W30    | Ge. Mar. Os. |        |       |
| W31    | Ge. Mar. Os. |        |       |
| W60    | Fotos        |        |       |
| W100   | Sator        | (B438) |       |
| W213   | Triotron     | B228   |       |
| W306   | Marathon     | F704   |       |
| W308   | Marathon     | E424N  |       |
| W318   | Marathon     | E454   |       |
| W329   | Longlife     | 329    |       |
| W406   | Marathon     | E451   |       |

|       |          |       |       |
|-------|----------|-------|-------|
| W406  | Valvo    | A425  | B438  |
| W408N | Longlife | E408N |       |
| W409  | Marathon | E442  | E452T |
| W410  | Valvo    |       |       |
| W411  | Valvo    | B438  |       |
| W412  | Triotron | A425  |       |
| W415N | Triotron | E438  |       |
| W419  | Marathon | E445  | E455  |
| W420  | Triotron | B438  |       |
| W428  | Longlife | E424N |       |
| W429  | Marathon | E452T | E446  |
| W438  | Longlife | E438  |       |
| W443  | Longlife | B443  | C443  |
| W443H | Longlife | E443H |       |
| W444  | Longlife | E444  |       |
| W446  | Longlife | E446  |       |
| W450  | Zenith   | D404  | E406N |
| W452  | Longlife | 452   |       |
| W453  | Longlife | C443  | E443H |
| W455  | Longlife | E455  | E447  |
| W462  | Longlife | E452T | E446  |
| W463  | Longlife | E463  |       |
| W499  | Longlife | E499  |       |
| W506  | Marathon | C443  | E443H |
| W509  | Marathon | E446  |       |
| W516  | Marathon | E443H |       |
| W519  | Marathon | E447  |       |
| W606  | Valvo    | A630  |       |
| W704  | Longlife | F704  |       |
| W1501 | Record   |       |       |

W2418  
W4080  
W4100  
W4110

Valvo  
Valvo  
Valvo  
Valvo

B2099  
E438  
(E438)  
E499

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# X

|        |              |        |
|--------|--------------|--------|
| XD     | Hivac        |        |
| XL     | Hivac        |        |
| XP     | Hivac        |        |
| XSG    | Hivac        |        |
| XT4    | Triotron     | (B405) |
| XT505  | Triotron     | B405   |
| XY     | Hivac        |        |
| X21(1) | Ge. Mar. Os. | (KK2)  |
| X30    | Ge. Mar. Os. |        |
| X31    | Ge. Mar. Os. |        |
| X41    | Ge. Mar. Os. |        |
| X42    | Ge. Mar. Os. |        |
| X2818  | Valvo        | B2048  |
| X2918  | Valvo        | B2049  |
| X4122  | Valvo        | E448   |
| X4123  | Valvo        | E449   |

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# Y

|       |          |         |      |
|-------|----------|---------|------|
| YD2   | Triotron |         |      |
| YD4   | Triotron | B409    | A415 |
| YG5   | Triotron |         |      |
| YG6   | Triotron | A609    |      |
| YN4   | Triotron | (E409N) |      |
| Y220  | Hivac    | C243N   |      |
| Y2018 | Tungsram |         |      |

# Z

|       |              |         |
|-------|--------------|---------|
| ZD(1) | Ferranti     | CB2     |
| ZD2   | Triotron     | B205    |
| ZD4   | Triotron     | (B405)  |
| ZD503 | Triotron     | B405    |
| ZM144 | Record       |         |
| ZM288 | Record       |         |
| ZR100 | Zenith       | 1802    |
| Z1    | Telefunken   | 4675    |
| Z2    | Telefunken   | 4676    |
| Z4    | Zenith       | A409    |
| Z30   | Ge. Mar. Os. |         |
| Z220  | Hivac        | (C243N) |

REPRODUCED FROM THE ORIGINAL

|          |             |         |      |
|----------|-------------|---------|------|
| 0Z3      | <i>Amer</i> | (7)     |      |
| 0Z4      | <i>Amer</i> | OZ4G(6) |      |
| 0Z4G     | <i>Amer</i> | OZ4G(6) |      |
| 00       | <i>Amer</i> | 00A     |      |
| 0,06D    | Metal       | (A409)  | A415 |
| 01       | <i>Amer</i> | 01A     |      |
| 01AA     | <i>Amer</i> | 01A     |      |
| 1        | <i>Amer</i> | 1V      |      |
| 1A4      | <i>Amer</i> | 1A4T    |      |
| 1A7      | Standard    |         |      |
| 1B4      | <i>Amer</i> | 1B4P    |      |
| 1B4T     | <i>Amer</i> | 1B4P    |      |
| 1B4T/951 | <i>Amer</i> | 1B4P    |      |
| 1D4      | Standard    | CY2     |      |
| 1D5      | Standard    | CY1     |      |
| 1D5G     | <i>Amer</i> | 1D5GT   |      |
| 1E5G     | <i>Amer</i> | 1E5GP   |      |
| 1E5GT    | <i>Amer</i> | 1E5GP   |      |
| 1P6G     | <i>Amer</i> | (9)     |      |
| 1-409    | Thermion    | A409    | A415 |
| 1-415    | Thermion    | A415    | B424 |
| 1-425    | Thermion    | A425    | B438 |
| 2A3H     | <i>Amer</i> | 2A3     |      |
| 2B1      | Ultron      | KF1     |      |
| 2B2      | Ultron      | KF2     |      |
| 2B3      | Ultron      | KF3     |      |
| 2B4      | Ultron      | KF4     |      |
| 2B5      | Ultron      | KK2     |      |
| 2B6      | Ultron      | KB2     |      |
| 2B6      | <i>Amer</i> | (9)     |      |

|          |          |        |      |
|----------|----------|--------|------|
| 2B7      | Ultron   | KC3    |      |
| 2B8      | Ultron   | KDD1   |      |
| 2B9      | Ultron   | KL2    |      |
| 2B10     | Ultron   | KBC1   |      |
| 2B11     | Ultron   | B228   |      |
| 2B12     | Ultron   | B240   |      |
| 2B13     | Ultron   | B217   |      |
| 2B14     | Ultron   | C243N  |      |
| 2B15     | Ultron   | KL4    |      |
| 2D2(1)   | Mullard  | KB2    |      |
| 2D4      | Mullard  | AB1    |      |
| 2D4A(1)  | Mullard  | AB2    |      |
| 2D13     | Mullard  | CB1    |      |
| 2D13A(1) | Mullard  | CB2    |      |
| 2G4      | Cossor   | A441N  |      |
| 2HMD     | Loewe    |        |      |
| 2L0      | Record   | (B405) |      |
| 2L20     | Tekade   | B205   |      |
| 2NF      | Loewe    |        |      |
| 2NG      | Loewe    | 1201   |      |
| 2R100    | Zenith   | 506    |      |
| 2S       | Amer     | 2S/4S  |      |
| 2U15     | Tekade   | A209   |      |
| 2-405    | Thermion | B405   |      |
| 2-406    | Thermion | (B405) |      |
| 2-409    | Thermion | B409   |      |
| 2-424    | Thermion | B424   |      |
| 2-438    | Thermion | B438   |      |
| 2-442    | Thermion | B442   |      |
| 2-443    | Thermion | B443   | C443 |

|          |          |        |       |
|----------|----------|--------|-------|
| 3G130    | Tekade   | 1201   |       |
| 3NF7     | Loewe    |        |       |
| 3NF Bat  | Loewe    |        |       |
| 3NFK     | Loewe    |        |       |
| 3NFL     | Loewe    |        |       |
| 3NF Netz | Loewe    |        |       |
| 3NFW     | Loewe    |        |       |
| 3-405    | Thermion | C405   |       |
| 3-453    | Thermion | C443   | E443H |
| 4AAF     | Castilla | 425    | B438  |
| 4AF      | Castilla | A409   | A415  |
| 4A1      | Ultron   | E452T  | E446  |
| 4A2      | Ultron   | E442   | E462T |
| 4A3      | Ultron   | E415   | E424N |
| 4A4      | Ultron   | C443   | E443H |
| 4A5      | Ultron   | E443H  |       |
| 4A6      | Ultron   | E424N  |       |
| 4A07     | Tekade   | A415   | B424  |
| 4A7      | Ultron   | E499   |       |
| 4A08     | Tekade   | A415   | B424  |
| 4A08n    | Tekade   | A415   | B424  |
| 4A10     | Tekade   | A415   | B424  |
| 4A10     | Ultron   | E447   |       |
| 4A11     | Ultron   | AF2    |       |
| 4A12     | Ultron   | AK1    |       |
| 4A13     | Ultron   | AB1    |       |
| 4A14     | Ultron   | E444   |       |
| 4A15     | Tekade   | (A415) | B424  |
| 4A15     | Ultron   | E441   |       |
| 4A16     | Ultron   | AK2    |       |

|       |          |         |       |
|-------|----------|---------|-------|
| 4A17  | Ultron   | AF3     |       |
| 4A8   | Ultron   | E463    |       |
| 4A9   | Ultron   | E446    |       |
| 4A18  | Ultron   | AF7     |       |
| 4A19  | Ultron   | AH1     |       |
| 4A20  | Ultron   | AC2     |       |
| 4A21  | Ultron   | AB2     |       |
| 4A22  | Ultron   | ABC1    |       |
| 4A23  | Ultron   | AL1     |       |
| 4A24  | Ultron   | AL2     |       |
| 4A25  | Ultron   | AL4     |       |
| 4A26  | Ultron   | AL4     |       |
| 4A27  | Ultron   | AL5     |       |
| 4A28  | Ultron   | AD1     |       |
| 4A80  | Tekade   | E415    | E424N |
| 4A80n | Tekade   | E415    | E424N |
| 4A90  | Tekade   | (E424N) |       |
| 4A120 | Tekade   | E409N   | E415  |
| 4BF   | Castilla | (B405)  |       |
| 4BFF  | Castilla | B405    |       |
| 4BFF2 | Castilla | B409    |       |
| 4B1   | Ultron   | A409    | A415  |
| 4B2   | Ultron   | A415    | B424  |
| 4B3   | Ultron   | A425    | B438  |
| 4B4   | Ultron   | B443    | C443  |
| 4B5   | Ultron   | (B405)  |       |
| 4B06  | Tekade   | A409    | A415  |
| 4B6   | Ultron   | B442    |       |
| 4B7   | Ultron   | A441N   |       |
| 4D    | Castilla | A415    | B424  |

|        |          |        |       |
|--------|----------|--------|-------|
| 4DC    | Castilla | B415   | B424  |
| 4DC1   | Castilla | B424   |       |
| 4DR    | Castilla | A441N  |       |
| 4E1    | Loewe    | AL4    |       |
| 4F     | Castilla | E443N  |       |
| 4F06   | Tekade   | A409   | A415  |
| 4GAF   | Castilla | (B442) |       |
| 4GBF   | Castilla | B443   | C443  |
| 4GBFS  | Castilla | B443S  |       |
| 4G15   | Tekade   | 1802   |       |
| 4G25   | Tekade   | 1802   |       |
| 4G30   | Tekade   | 1801   |       |
| 4G35   | Tekade   | 1802   |       |
| 4G105  | Tekade   | 506    |       |
| 4G200  | Tekade   | 1561   |       |
| 4HA130 | Tekade   |        |       |
| 4H1    | Loewe    | AF7    |       |
| 4H2    | Loewe    | AF3    |       |
| 4H3    | Loewe    | AH1    |       |
| 4H07   | Tekade   | A409   | A415  |
| 4H07n  | Tekade   | A409   | A415  |
| 4H08   | Tekade   | A415   | B424  |
| 4H80   | Tekade   | E415   | E424N |
| 4H130  | Tekade   | E409N  | E415  |
| 4K30   | Tekade   |        |       |
| 4K32   | Tekade   | (C405) |       |
| 4K50   | Tekade   | (D404) |       |
| 4K60   | Tekade   | D404   |       |
| 4K110  | Tekade   |        |       |
| 4K170  | Tekade   |        |       |

|       |             |         |       |
|-------|-------------|---------|-------|
| 4L11  | Tekade      | B405    |       |
| 4L12  | Tekade      | B405    |       |
| 4L13  | Tekade      | B409    |       |
| 4L14  | Tekade      | B409    |       |
| 4L15  | Tekade      | B409    |       |
| 4L29  | Tekade      |         |       |
| 4L31  | Tekade      |         |       |
| 4M1   | Loewe       | AK2     |       |
| 4NG   | Loewe       | 506     |       |
| 4N08  | Tekade      | A409    |       |
| 4N110 | Tekade      | E409N   | E415  |
| 4P25  | Tekade      | C443    | E443H |
| 4R1   | Ultron      | 506     |       |
| 4R2   | Ultron      | 1561    |       |
| 4R3   | Ultron      | AZ1     |       |
| 4S    | <i>Amer</i> | 2S/4S   |       |
| 4SC   | Eagle       | (B442)  |       |
| 4S09  | Tekade      | (B442)  |       |
| 4S10  | Tekade      | (B442)  |       |
| 4S80  | Tekade      | E452T   |       |
| 4S80n | Tekade      | E442S   | E452T |
| 4S120 | Tekade      | E442S   | E452T |
| 4U130 | Tekade      | (E409N) | E415  |
| 4V    | Cynos       | 1802    |       |
| 4V1   | Loewe       | ABC1    |       |
| 4W03  | Tekade      | A425    | B438  |
| 4W03n | Tekade      | A425    | B438  |
| 4W08  | Tekade      | A425    | B438  |
| 4W100 | Tekade      | E438    |       |
| 4W120 | Tekade      | (E438)  |       |



|        |          |         |                 |
|--------|----------|---------|-----------------|
| 4XP    | Cossor   | (E406N) |                 |
| 4-33   | Thermion |         |                 |
| 5B1    | Standard | B262    |                 |
| 5E225  | Mazda    | (C243N) |                 |
| 5E415  | Mazda    | B443    | C443            |
| 5FC    | Castilla | B543    |                 |
| 5V4G   | Amer     | 5T4(6)  | <del>5V4G</del> |
| 5W4G   | Amer     | 5W4(6)  | 5Y3G            |
| 5XX    | Record   | (A409)  | A415            |
| 5Y3    | Amer     | 5Y3G    |                 |
| 5Y4    | Amer     | 5Y4G    |                 |
| 5Z4    | Amer     | 5Z4     | 5V4G            |
| 5Z4G   | Amer     | 5V4G    | 5Z4             |
| 5Z4MG  | Amer     | 5Z4     | 5V4G            |
| 5-409  | Thermion | E409N   | E415            |
| 5-412  | Thermion |         |                 |
| 5-415  | Thermion | E415    | E424N           |
| 5-428  | Thermion | E424N   |                 |
| 5-438  | Thermion | E438    |                 |
| 5-442  | Thermion | E442    | E452T           |
| 5-442S | Thermion | E442S   | E452T           |
| 5-444  | Thermion | E444    |                 |
| 5-444S | Thermion | E444S   |                 |
| 5-446  | Thermion | E446    |                 |
| 5-447  | Thermion | E447    |                 |
| 5-448  | Thermion | E448    |                 |
| 5-449  | Thermion | E449    |                 |
| 5-453  | Thermion | E453    |                 |
| 5-455  | Thermion | E455    | E447            |
| 5-462  | Thermion | E452T   | E446            |

|         |             |          |
|---------|-------------|----------|
| 5-463   | Thermion    | E463     |
| 5-475   | Thermion    |          |
| 5-499   | Thermion    | E499     |
| 6AB5    | <i>Amer</i> | (9)      |
| 6AB6G   | <i>Amer</i> | (9)      |
| 6AC6G   | <i>Amer</i> | (9)      |
| 6A4     | <i>Amer</i> | 6A4/LA   |
| 6A8     | <i>Amer</i> | 6A8 (4)  |
| 6B6     | <i>Amer</i> | 6Q7G (4) |
| 6B6G    | <i>Amer</i> | 6Q7G (4) |
| 6B8     | <i>Amer</i> | 6B8G (4) |
| 6C5     | <i>Amer</i> | 6C5G (4) |
| 6D5     | <i>Amer</i> | (7)      |
| 6D5G    | <i>Amer</i> | (7)      |
| 6E1     | Ultron      | EF5      |
| 6E2     | Ultron      | EF6      |
| 6E3     | Ultron      | EB4      |
| 6E4     | Ultron      | EBC3     |
| 6E5     | Ultron      | EL2      |
| 6E6     | Ultron      | EL3      |
| 6E7     | <i>Amer</i> | 6D7      |
| 6E7     | Ultron      | EL5      |
| 6E8     | Ultron      | EK2      |
| 6F5     | <i>Amer</i> | 6F5G (4) |
| 6F6     | <i>Amer</i> | 6F5G (4) |
| 6G5/6H6 | <i>Amer</i> | 6G5      |
| 6H5     | <i>Amer</i> | 6G5      |
| 6H6     | <i>Amer</i> | 6H6G (4) |
| 6J5     | <i>Amer</i> | 6J5G (4) |
| 6J7     | <i>Amer</i> | 6J7G (4) |

|           |             |             |
|-----------|-------------|-------------|
| 6J8G      | <i>Amer</i> | 6J8G(6)     |
| 6K7       | <i>Amer</i> | 6K7G(4)     |
| 6K8       | <i>Amer</i> | 6K8(6)      |
| 6L6       | <i>Amer</i> | 6L6G(4)     |
| 6L7       | <i>Amer</i> | 6L7G(4)     |
| 6NG       | Loewe       | 1562        |
| 6N5       | <i>Amer</i> | 6G5         |
| 6N6G      | <i>Amer</i> | 6N6(4)      |
| 6N7G      | <i>Amer</i> | 6N7         |
| 6P7G      | <i>Amer</i> | 6P7         |
| 6Q6       | <i>Amer</i> | 6T7G        |
| 6Q6G      | <i>Amer</i> | 6T7G        |
| 6Q6G/6T7G | <i>Amer</i> | 6T7G        |
| 6Q7G      | <i>Amer</i> | 6Q7         |
| 6R3       | Ultron      | EZ3         |
| 6R4       | Ultron      | EZ4         |
| 6R7       | Ultron      | EZ2         |
| 6R7G      | <i>Amer</i> | 6R7         |
| 6S7G      | <i>Amer</i> | 6S7G        |
| 6T7G/6Q6G | <i>Amer</i> | 6T7G        |
| 6V6G      | <i>Amer</i> | 6V6(4)      |
| 6W5G      | <i>Amer</i> | 6X5G        |
| 6X5G      | <i>Amer</i> | 6X5(4)      |
| 6Y5V      | <i>Amer</i> | 6Y5         |
| 6Z3       | <i>Amer</i> | 1V          |
| 6Z4       | <i>Amer</i> | 84          |
| 6Z4/84    | <i>Amer</i> | 84          |
| 6Z5/12Z5  | <i>Amer</i> | 6Z5         |
| 6Z6MG     | <i>Amer</i> | (9)         |
| 6/100D    | Metal       | (A409) A415 |

|         |             |        |
|---------|-------------|--------|
| 7A2(1)  | Standard    | AL2    |
| 7A3(1)  | Standard    | AL4    |
| 7D3(1)  | Standard    | (CL2)  |
| 7D5     | Standard    |        |
| 7D6(1)  | Standard    | (CL2)  |
| 7D7(1)  | Standard    | (CL2)  |
| 7D8     | Standard    |        |
| 7R1     | Ultron      | 1562   |
| 8A1     | Standard    | (E446) |
| 8A2     | Standard    | (E446) |
| 8D2(1)  | Standard    | CF7    |
| 8K290   | Tekade      |        |
| 8K300   | Tekade      |        |
| 8NG     | Loewe       | 1201   |
| 9A1     | Standard    | (E447) |
| 9A3     | Standard    |        |
| 9D2(1)  | Standard    | CF3    |
| 10D1(1) | Standard    | CBC1   |
| 10NG    | Loewe       | (1802) |
| 11A1(1) | Standard    | (ABC1) |
| 11A2(1) | Standard    | (ABC1) |
| 11D3    | Standard    |        |
| 12      | <i>Amer</i> | 12A    |
| 12NG    | Loewe       | 1801   |
| 12Z5    | <i>Amer</i> | 6Z5    |
| 13      | <i>Amer</i> | 80     |
| 13DHA   | Cossor      |        |
| 13H1    | Loewe       | CF7    |
| 13H2    | Loewe       | CF3    |
| 13H3    | Loewe       | CF7    |

|          |          |        |
|----------|----------|--------|
| 13PGA(1) | Cossor   | (CK1)  |
| 13SPA(1) | Cossor   | (CF7)  |
| 13VPA(1) | Cossor   | (CF3)  |
| 13U1     | Ultron   | CF1    |
| 13U2     | Ultron   | CF2    |
| 13U3     | Ultron   | CK1    |
| 13U4     | Ultron   | CB1    |
| 13U5     | Ultron   | CL2    |
| 13U6     | Ultron   | CY1    |
| 13U7     | Ultron   | CY2    |
| 13U8     | Ultron   | CI     |
| 13U9     | Ultron   | C2     |
| 13U10    | Ultron   | CF3    |
| 13U11    | Ultron   | CF7    |
| 13U12    | Ultron   | CH1    |
| 13U13    | Ultron   | CC2    |
| 13U14    | Ultron   | CB2    |
| 13U15    | Ultron   | CBC1   |
| 13U16    | Ultron   | CL1    |
| 13U17    | Ultron   | CL4    |
| 14       | Amer     | (9)    |
| 14NG     | Loewe    | 1805   |
| 14Z3     | Amer     | 12Z3   |
| 15A2(1)  | Standard | (AK2)  |
| 15D1(1)  | Standard | (CK1)  |
| 16       | Amer     | 81     |
| 16B      | Amer     | 81     |
| 16D1     | Standard |        |
| 16NG     | Loewe    | (1862) |
| 17       | Amer     | (9)    |

|        |             |              |
|--------|-------------|--------------|
| 20AC   | Castilla    | B2042        |
| 20AD   | Castilla    | B2052T       |
| 20AM   | Castilla    | B2046        |
| 20AMS  | Castilla    | B2047        |
| 20BF   | Castilla    | B2006        |
| 20C1   | Ultron      | B2042 B2052T |
| 20C2   | Ultron      | B2045        |
| 20C3   | Ultron      | B2038        |
| 20C4   | Ultron      | B2043        |
| 20DC   | Castilla    | B2038        |
| 20DP   | Castilla    | B2044        |
| 20DP1  | Castilla    | B2044S       |
| 20DR   | Castilla    | B2099        |
| 20FC   | Castilla    | B2043        |
| 22AC   | <i>Amer</i> | 24A          |
| 24NG   | Loewe       |              |
| 25A6G  | <i>Amer</i> | 25A6(4)      |
| 25A7   | <i>Amer</i> | 25A7G(6)     |
| 25B5   | <i>Amer</i> | (9)          |
| 25L6G  | <i>Amer</i> | 25L6         |
| 25N6   | <i>Amer</i> | (9)          |
| 25N6G  | <i>Amer</i> | (9)          |
| 25S    | <i>Amer</i> | 1B5          |
| 25Z3   | <i>Amer</i> | (9)          |
| 25Z5MG | <i>Amer</i> | 25Z5G(4)     |
| 25Z6G  | <i>Amer</i> | 25Z6(4)      |
| 26NG   | Loewe       |              |
| 27HM   | <i>Amer</i> | 56           |
| 28     | <i>Amer</i> | (9)          |
| 30NG   | Loewe       | CY2          |

|             |         |           |       |
|-------------|---------|-----------|-------|
| 33EL        | Loewe   | CL4       |       |
| 36A         | Amer    | 36        |       |
| 37A         | Amer    | 37        |       |
| 38A         | Amer    | 38        |       |
| 39A         | Amer    | 39/44     |       |
| 40PPA(1)    | Cossor  | (CL2)     |       |
| 40SUA(1)    | Cossor  | (CY1)     |       |
| 41MDG       | Cossor  | (E441)    |       |
| 41MH        | Cossor  | (F460)    |       |
| 41MHF       | Cossor  | (E438)    |       |
| 41MLF       | Cossor  | E415      | E424N |
| 41MPG(1)    | Cossor  | (AK2)     |       |
| 41MRC       | Cossor  | (E438)    |       |
| 41MSG       | Cossor  | (E462)    | E452T |
| 41MVSG      | Cossor  | E445      | E455  |
| 41PGDD(1)   | Cossor  | (AK2)     |       |
| 41STH(2)    | Cossor  | (ACH1)(3) |       |
| 43MG        | Amer    | 25A6(4)   |       |
| 43MP/PEN(1) | Cossor  | (AL4)     |       |
| 44          | Amer    | 39        |       |
| 44SU        | Cossor  | 1802      |       |
| 45A         | Amer    | 45        |       |
| 51          | Amer    | 35        |       |
| 51S         | Amer    | 35        |       |
| 52          | Amer    | (9)       |       |
| 054V        | Mullard |           |       |
| 59B         | Amer    | (7)       |       |
| 64          | Amer    | 36(5)     |       |
| 64A         | Amer    | 36(5)     |       |
| 65          | Amer    | 39/44(5)  |       |

|        |             |          |       |
|--------|-------------|----------|-------|
| 65A    | <i>Amer</i> | 39/44(5) |       |
| 67     | <i>Amer</i> | 37(5)    |       |
| 67A    | <i>Amer</i> | 37(5)    |       |
| 68     | <i>Amer</i> | 38(5)    |       |
| 68A    | <i>Amer</i> | 38(5)    |       |
| 70     | <i>Amer</i> | (9)      |       |
| 69     | <i>Amer</i> | 69(6)    |       |
| 71     | <i>Amer</i> | 71A      |       |
| 71B    | <i>Amer</i> | 71A      |       |
| 80M    | <i>Amer</i> | 83       |       |
| 81M    | <i>Amer</i> | 81       |       |
| 82V    | <i>Amer</i> | 82       |       |
| 84/6Z4 | <i>Amer</i> | 84       |       |
| 88     | <i>Amer</i> | 83       |       |
| 90     | <i>Amer</i> | (9)      |       |
| 91     | <i>Amer</i> | (9)      |       |
| 92     | <i>Amer</i> | (9)      |       |
| 95     | <i>Amer</i> | 2A5      |       |
| 96     | <i>Amer</i> | 1V       |       |
| 98     | <i>Amer</i> | 84       |       |
| 99     | <i>Amer</i> | V99      | X99   |
| 100R   | Tungsram    | 1904     |       |
| 102D   | Standard    | 4607     |       |
| 103    | Ignix       | E415     | E424N |
| 104    | Visseaux    | 451      |       |
| 104V   | Mullard     | (E409N)  |       |
| 105    | Ignix       | E424N    |       |
| 105    | Visseaux    | 452      |       |
| 107    | Ignix       | E438     |       |
| 121    | Ignix       | E441     | E441N |



|           |              |        |       |
|-----------|--------------|--------|-------|
| 140NG     | Loewe        |        |       |
| 143D      | Amer         | 879    |       |
| 144V      | Mullard      | (E415) |       |
| 150R      | Tungsrarn    | 1911   |       |
| 151       | Ignix        | E442S  | E452T |
| 152       | { Fotos      | 1111   |       |
| Regul     |              |        |       |
| 152       | { Fotos      | 1110   |       |
| Valvgaz   |              |        |       |
| 153       | Ignix        | (E445) | E455  |
| 154V      | Mullard      | E415   |       |
| 155       | Ignix        | E442S  | E452T |
| 157-159   | Ignix        | E455   | E447  |
| 164V      | Mullard      | (E415) | E424N |
| 180R      | Tungsrarn    | 1928   |       |
| 200RI     | Tungsrarn    | C1     |       |
| 200RII    | Tungsrarn    | C2     |       |
| 201       | Ge. Mar. Os. | C1     |       |
| 202       | Ge. Mar. Os. | C1     |       |
| 202       | Ignix        |        |       |
| 202DDT(1) | Cossor       | (CBC1) |       |
| 202MPG(1) | Cossor       | (CK1)  |       |
| 204       | Ge. Mar. Os. | C1     |       |
| 204       | Ignix        | E408N  |       |
| 205E      | Standard     |        |       |
| 210Det    | Cossor       | B217   |       |
| 210HF     | Cossor       | B228   |       |
| 210HL     | Cossor       | A225   | B228  |
| 210LF     | Cossor       | (A209) |       |
| 210PG(1)  | Cossor       | (KK2)  |       |

|           |              |           |
|-----------|--------------|-----------|
| 210SPT(2) | Cossor       | (KF1)(3)  |
| 210T      | Amer         | 10        |
| 210VPT(2) | Cossor       | (KF2)(3)  |
| 211       | Western      |           |
| 215P      | Cossor       | (B205)    |
| 215SG     | Cossor       | B252      |
| 215SG     | Mazda        | (B252)    |
| 215VS     | Cossor       | (B255)    |
| 220B(2)   | Cossor       | (B240)(3) |
| 220DD(1)  | Cossor       | KB2       |
| 220HPT    | Cossor       | C243N     |
| 220P      | Cossor       | (B205)    |
| 220PA(1)  | Cossor       | (KC3)     |
| 220PT     | Cossor       | (C243N)   |
| 220SG     | Cossor       | (B262)    |
| 220VS     | Cossor       | (B255)    |
| 220VSG    | Cossor       | (B255)    |
| 230HPT    | Cossor       | (C243N)   |
| 230Pen    | Mazda        | (C243N)   |
| 230PT     | Cossor       | (C243N)   |
| 230XP     | Cossor       | (B205)    |
| 240B(2)   | Cossor       | B240(3)   |
| 244V      | Mullard      | E424N     |
| 244VX     | Mullard      | E424N     |
| 251       | Ge. Mar. Os. | 1934      |
| 252       | Ignix        | E443N     |
| 252       | }            | 1111      |
| Regul     |              |           |
| 252       | }            | 1110      |
| Valvgaz   |              |           |

|       |              |        |      |
|-------|--------------|--------|------|
| 257   | Amer         | (9)    |      |
| 264   | Amer         | (9)    |      |
| 268   | Amer         | 83V    |      |
| 291   | Amer         | (9)    |      |
| 293   | Amer         | (9)    |      |
| 295   | Amer         | (9)    |      |
| 301   | Ge. Mar. Os. | 1941   |      |
| 302   | Ge. Mar. Os. | 1941   |      |
| 303   | Ge. Mar. Os. | 1941   |      |
| 304   | Ge. Mar. Os. | 1941   |      |
| 354V  | Mullard      |        |      |
| 402   | Amer         | (9)    |      |
| 403   | Amer         | (9)    |      |
| 406   | Fotos        | A410   |      |
| 407A  | Eagle        | A409   | A415 |
| 407H  | Eagle        | A409   | A415 |
| 407W  | Eagle        | A425   | B438 |
| 408BU | Cossor       | 1801   |      |
| 408L  | Eagle        | (B405) |      |
| 410HF | Cossor       | A425   | B438 |
| 410LF | Cossor       | A415   | B424 |
| 410P  | Cossor       | B409   |      |
| 410PT | Cossor       | B443   | C443 |
| 410RC | Cossor       | B438   |      |
| 410SC | Eagle        | B442   |      |
| 410SG | Cossor       | (B442) |      |
| 411   | Fotos        | (B406) |      |
| 412BU | Cossor       | 506    |      |
| 412SU | Cossor       | (505)  |      |
| 415A  | Eagle        | B415   | B424 |

|        |              |        |      |
|--------|--------------|--------|------|
| 415L   | Eagle        | B409   |      |
| 415LL  | Eagle        | B405   |      |
| 415PT  | Cossor       | (B443) | C443 |
| 415QT  | Cossor       | (B443) | C443 |
| 415XP  | Cossor       | B405   |      |
| 425Pen | Mazda        | C443   |      |
| 425PT  | Ge. Mar. Os. | B443   | C443 |
| 425XP  | Cossor       | (C405) |      |
| 430K   | Eagle        | E443N  |      |
| 442BU  | Cossor       | 1561   |      |
| 460BU  | Cossor       | 1561   |      |
| 475K   | Eagle        | D404   |      |
| 482A   | <i>Amer</i>  | 71A    |      |
| 482B   | <i>Amer</i>  | 182B   |      |
| 483    | <i>Amer</i>  | 183    |      |
| 484    | <i>Amer</i>  | 485    |      |
| 484V   | Mullard      | (E438) |      |
| 484VX  | Mullard      | E438   |      |
| 486    | <i>Amer</i>  | (9)    |      |
| 506BU  | Cossor       | 506    |      |
| 524    | S.I.F.       | B405   |      |
| 551    | Arcturus     | 35     |      |
| 585    | <i>Amer</i>  | 50     |      |
| 586    | <i>Amer</i>  | 50     |      |
| 604    | Visseaux     | 367    |      |
| 604T   | Mullard      | (F460) |      |
| 610FP  | Cossor       | B605   |      |
| 610LF  | Cossor       | A615   |      |
| 610P   | Cossor       | (B605) |      |
| 610SG  | Cossor       | A642   |      |

|           |         |            |      |
|-----------|---------|------------|------|
| 610XP     | Cossor  | B605       |      |
| 615PT     | Cossor  | C643       |      |
| 624BU     | Cossor  |            |      |
| 625P      | Cossor  |            |      |
| 660SU     | Cossor  |            |      |
| 660T      | Cossor  |            |      |
| 680HF     | Cossor  |            |      |
| 680P      | Cossor  |            |      |
| 680XP     | Cossor  |            |      |
| 723       | S.I.F.  | B409       |      |
| 822       | S.I.F.  | D404       |      |
| 825BU     | Cossor  | (1562)     |      |
| 840       | Amer    | (9)        |      |
| 864       | Amer    | (9)        |      |
| 866       | Amer    | (9)        |      |
| 874       | Amer    | (9)        |      |
| 876       | Amer    | 886        |      |
| 904V      | Mullard | (F460)     |      |
| 907       | S.I.F.  | A409       | A415 |
| 913       | Amer    | (9)        |      |
| 915       | S.I.F.  | A409       | A415 |
| 950       | Amer    | 33 (7) (8) |      |
| 951       | Amer    | 1B4P       |      |
| 951/1B4   | Amer    | 1B4P       |      |
| 985       | Amer    | (7)        |      |
| 986       | Amer    | 83         |      |
| 994V      | Mullard | E499       |      |
| 1004      |         |            |      |
| (Valvgaz) | Fotos   | 451        |      |
| 1005      |         |            |      |
| (Regul)   | Fotos   | 452        |      |

|           |   |          |         |       |
|-----------|---|----------|---------|-------|
| 1184      |   | Cossor   | (4662)  |       |
| 1200      |   | Fotos    | 1002    |       |
| 1201      |   | Fotos    | 1003    |       |
| (Regul)   | { | Visseaux | 1010    |       |
| 1204      |   | Visseaux | 1011    |       |
| 1205      |   | Amer     | 6C6     |       |
| 1221      |   | Amer     | 1612(7) |       |
| 1225      |   | S.I.F.   | A409    | A415  |
| 1515      |   | S.I.F.   | E415    | E424N |
| 1620      |   | Philips  | 80      |       |
| 1882      |   |          |         |       |
| 2004      | { | Fotos    | 328     |       |
| (Valvgaz) | } |          |         |       |
| 2005      | { | Fotos    | 329     |       |
| (Regul)   | } |          |         |       |
| 2124      | { | Fotos    | 1010    |       |
| (Valvgaz) | } |          |         |       |
| 2124N     |   | Fotos    |         |       |
| 2404      | { | Fotos    | 354     |       |
| (Valvgaz) | } |          |         |       |
| 2405      | { | Fotos    |         |       |
| (Regul)   | } |          |         |       |
| 2430      |   | S.I.F.   | E424N   |       |
| 2805      |   | Fotos    | 1003    |       |
| 3004      | { | Fotos    |         |       |
| (Valvgaz) | } |          |         |       |
| 3005      | { | Fotos    |         |       |
| (Regul)   | } |          |         |       |
| 3006      | { | Fotos    | 1129    |       |
| (Valvgaz) | } |          |         |       |

|         |   |          |        |      |
|---------|---|----------|--------|------|
| 3007    | ) | Fotos    |        |      |
| (Regul) | ) |          |        |      |
| 3124    |   | Fotos    | 1110   |      |
| 3124M   |   | Fotos    |        |      |
| 3125    |   | Fotos    | 1111   |      |
| 3180    |   | Cossor   | (4662) |      |
| 3215    |   | S.I.F.   | A425   | B438 |
| 3815    |   | S.I.F.   | E438   |      |
| 3935T   |   | Mullard  | (B252) |      |
| 4001A   |   | Standard |        |      |
| 4001AB  |   | Standard |        |      |
| 4002B   |   | Standard |        |      |
| 4002T   |   | Mullard  | (B252) | B262 |
| 4004AB  |   | Standard |        |      |
| 4005AB  |   | Standard |        |      |
| 4007    |   | Standard |        |      |
| 4007A   |   | Standard |        |      |
| 4011B   |   | Standard |        |      |
| 4019A   |   | Standard | 4630   |      |
| 4020A   |   | Standard | 4631   |      |
| 4021A   |   | Standard | 4617   |      |
| 4022A   |   | Standard | 4609   |      |
| 4028    |   | S.I.F.   | E438   |      |
| 4028T   |   | Mullard  | (E455) | E447 |
| 4037A   |   | Standard |        |      |
| 4039A   |   | Standard |        |      |
| 4101D   |   | Standard | 4606   |      |
| 4101DL  |   | Standard | 4606   |      |
| 4102D   |   | Standard | 4607   |      |
| 4104D   |   | Standard | 4616   |      |

|           |            |      |       |
|-----------|------------|------|-------|
| 4205D     | Standard   |      |       |
| 4205E     | Standard   |      |       |
| 4211E     | Standard   |      |       |
| 4212D     | Standard   |      |       |
| 4215A     | Standard   |      |       |
| 4215AB    | Standard   |      |       |
| 4222A     | Standard   |      |       |
| 4239      | Standard   |      |       |
| 4662      | Radiotechn | 4662 |       |
| 6001      | Mullard    | 3962 |       |
| 6003      |            |      |       |
| (Regul)   | Fotos      | 1012 |       |
| 6005      |            |      |       |
| (Regul)   | Fotos      |      |       |
| 6006      |            |      |       |
| (Valvgaz) | Fotos      | 367  |       |
| 6404      |            |      |       |
| (Valvgaz) | Fotos      | 1029 |       |
| 7515      | S.I.F.     | B443 | C443  |
| 8517      | S.I.F.     | C443 | E443H |



# *Sylvania* REG. U.S. PAT. OFF. RADIO TUBES

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Alleenvertegenwoordiger voor België

**André P. CLOSSET**

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**Sloepenkaai, 1 :: BRUSSEL**

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Technische Documen-  
tatie G R A T I S op  
aanvraag.

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**SYLVANIA...**

de lamp welke in het toestel beproefd werd.



# ADZAM

KOOPT een nieuw radiotoestel voorzien van  
"ADZAM,, LAMPEN  
of, verjongt in elk geval uw toestel door de  
vermoeide lampen door "Adzam,, te vervangen