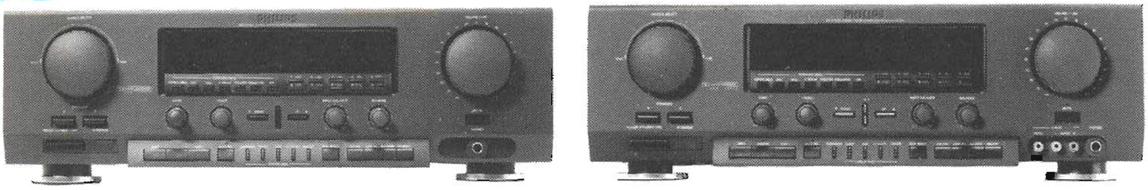
Receiver **70FR930/00S/01S**

70FR940/00S/13S
FR930PBK01
FR940PBK01

Service
Service
Service



Service Manual

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PHILIPS

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SPECIFICATION

General		Nominal value	Typical value
Mains voltage		220V ~ (/00S), 120/220/240V ~ (/01S), 110/220V ~ (/13S) 120V ~ (BK01)	220V ~ (/00S), 120/220/240V ~ (/01S), 110/220V ~ (/13S) 120V ~ (BK01)
Mains frequency		50/60 Hz (/00S/01S), 60 Hz (/13S, BK01)	50/60 Hz (/00S/01S), 60 Hz (/13S, BK01)
Power consumption		380W (FR930), 460W (FR940)	380W (FR930), 460W (FR940)
Dimensions (WxHxD)		435 x 124 x 300 mm	435 x 124 x 300 mm
Weight		8.6 kg (FR930), 9.4 kg (FR940)	8.6 kg (FR930), 9.4 kg (FR940)
Tuner: FM section (at 75Ω)			
Tuning range		87.5 MHz to 108.0 MHz	87.5 MHz to 108.0 MHz
Aerial inputs		75Ω coaxial	75Ω coaxial
Sensitivity	mono	2.5 μV (19.2 dBf) 3% Distortion (75 kHz dev.)	1.3 μV (13.5 dBf) 3% Distortion (75 kHz dev.)
Selectivity		50 dB at ±400 kHz bandwidth	60 dB at ±400 kHz bandwidth
Frequency response	30 Hz – 15 kHz	+1.0, –4.0 dB	+0.5, –2.0 dB
Suppression	IF-AM	65 dB –45 dB	70 dB –55 dB
	pilot tone	40 dB	50 dB
	image frequency	40 dB	50 dB
Channel separation		30 dB 1 kHz	45 dB 1 kHz
Distortion T.H.D	mono	0.5%	0.2%
	stereo	1.0%	0.4%
Signal/noise ratio	mono	71 dB	76 dB
	stereo	63 dB	68 dB
Auto-stop threshold	(Muting)	23.3 – 32.0 dBf (4 – 11 μV)	27.2 dBf (6.3 μV)
Output		650 –1300 mV/2.0 kΩ	940 mV/2.0 kΩ
Tuner: AM section			
Wave ranges		520 kHz to 1710 kHz	520 kHz to 1710 kHz
Sensitivity	(Loop antenna)	1000 μV/m 10% Distortion	600 μV/m 10% Distortion
Selectivity	(Loop antenna)	20 dB at ±10 kHz bandwidth	30 dB at ±10 kHz bandwidth
Suppression	IF (Loop antenna)	50 dB	60 dB
	image frequency (Loop antenna)	35 dB	40 dB
Output	(Loop antenna)	130 – 260 mV	190 mV

Note

– Test methods: IHF

SPECIFICATION

Audio

Output power (Front/Rear/Center)	60W (8Ω)/20W (4+4Ω)/20W (8Ω) (FR930)	65W (8Ω)/22W (4+4Ω)/22W (8Ω) (FR930)
	100W (8Ω)/20W (4+4Ω)/20W (8Ω) (FR940)	105W (8Ω)/22W (4+4Ω)/22W (8Ω) (FR940)
Distortion		
T.H.D. (Front)	⩽ 0.09% at 20 Hz –20 kHz	⩽ 0.05% at 20 Hz –20 kHz
Intermodulation (Front)	⩽ 0.09% at 60/7000 Hz 4:1	⩽ 0.03% at 60/7000 Hz 4:1
Frequency characteristic		
Phono input tone control	from 20 Hz – 20 kHz ±2 dB (RIAA)	from 20 Hz – 20 kHz ±0.5 dB (RIAA)
Linear inputs neutral	from 20 Hz – 20 kHz ±2 dB	from 10 Hz – 30 kHz ±2 dB
Bass control	at 100 Hz +10 dB to –10 dB ±2 dB	at 100 Hz +10 dB to –10 dB
Treble control	at 10 kHz +10 dB to –10 dB ±2 dB	at 10 kHz +10 dB to –10 dB
Acoustic bass boost (80 Hz/150 Hz/250 Hz)	10 dB/10 dB/10 dB ±2 dB	10 dB/10 dB/10 dB
Signal/noise ratio weighted (A-curve)		
Phono input	for 1W output ⩾ 70 dB	for 1W output ⩾ 75 dB
Linear inputs	for 1W output ⩾ 78 dB	for 1W output ⩾ 82 dB
Channel separation	at 1000 Hz ⩾ 40 dB	at 1000 Hz ⩾ 45 dB
	at 100 Hz – 10 kHz ⩾ 30 dB	at 100 Hz –10 kHz ⩾ 35 dB
Input sensitivity/Input impedance		
Audio		
Phono	2.1 – 3.1 mV/47 kΩ	2.5 mV/47 kΩ
CD/LD/TV	120 – 190 mV/20 kΩ	150 mV/25 kΩ
Tape/VCR	120 – 190 mV/20 kΩ	150 mV/25 kΩ
Output level/Output impedance		
Tape (Audio)	⩾ 250 mV/300 – 500Ω (Phone 5.0 mV 1 kHz input)	300 mV/400Ω (Phono 5.0 mV 1 kHz input)

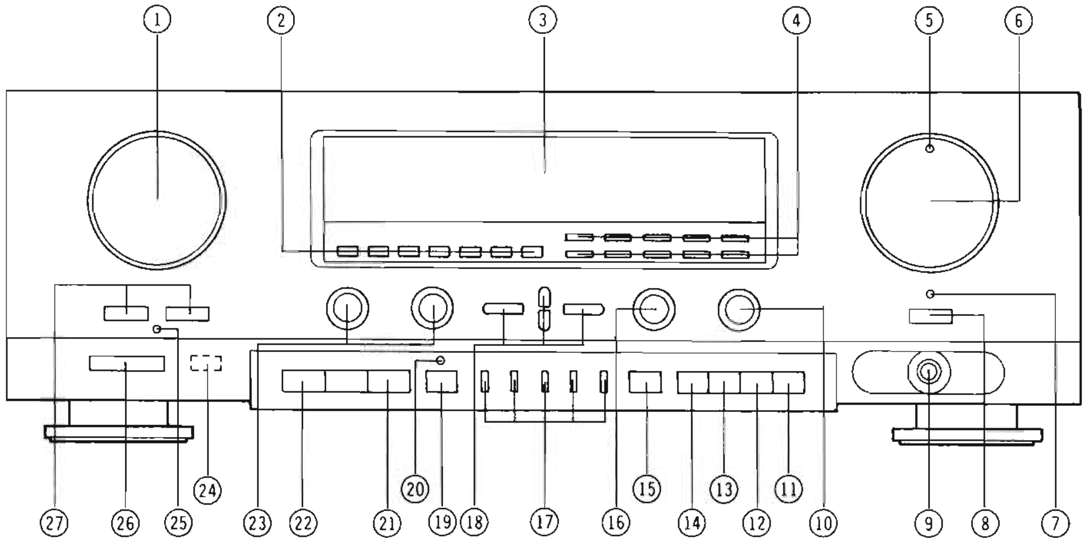
Video

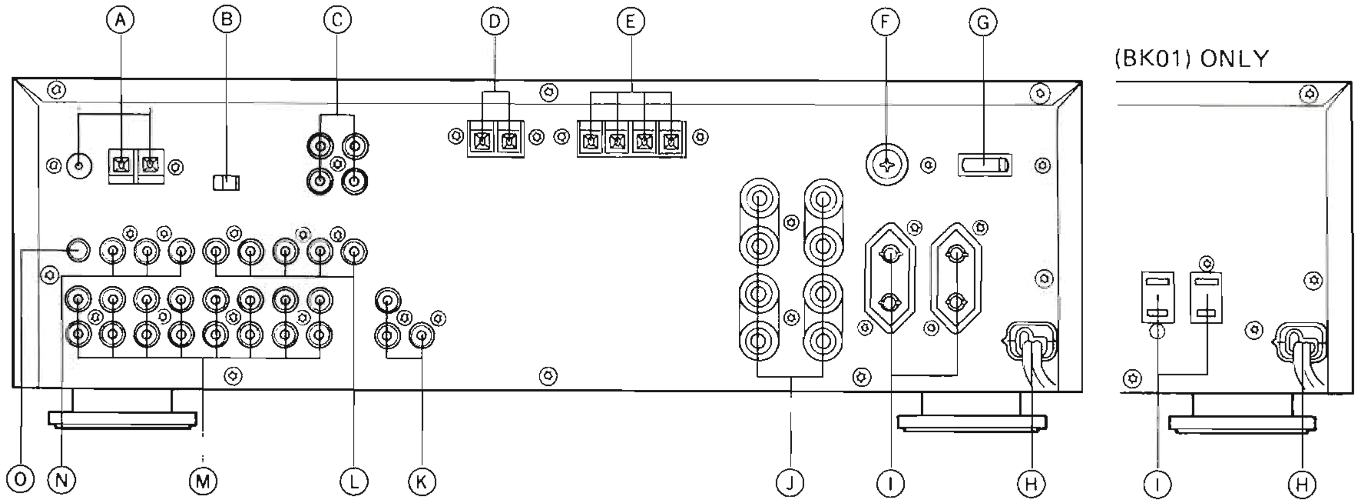
Frequency characteristic	from 10 Hz – 6 MHz –3 dB	from 10 Hz – 10 MHz –3 dB
Signal/noise ratio weighted (A-curve)		
Video inputs	70 dB	75 dB
Crosstalk 3.58 MHz	35 dB	38 dB
Input sensitivity		
Video inputs	1.8 – 2.2 Vp-p	2.0 Vp-p
Output level/Output impedance		
Video outputs	0.9 – 1.1 Vp-p/60 – 85Ω	1.0 Vp-p/75Ω

Note

- Test methods: IHF

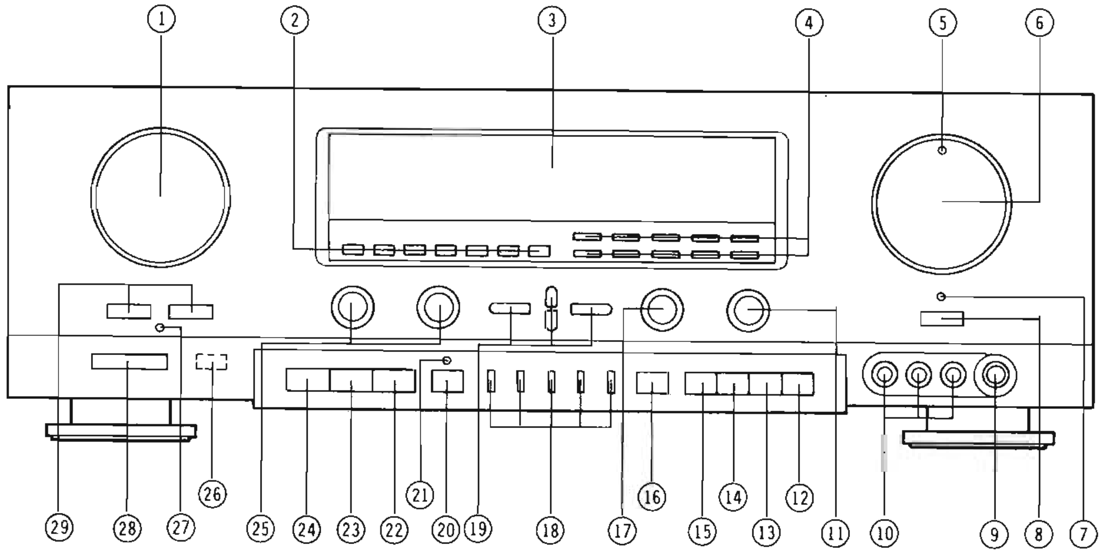
CONNECTIONS AND CONTROLS (FR930)

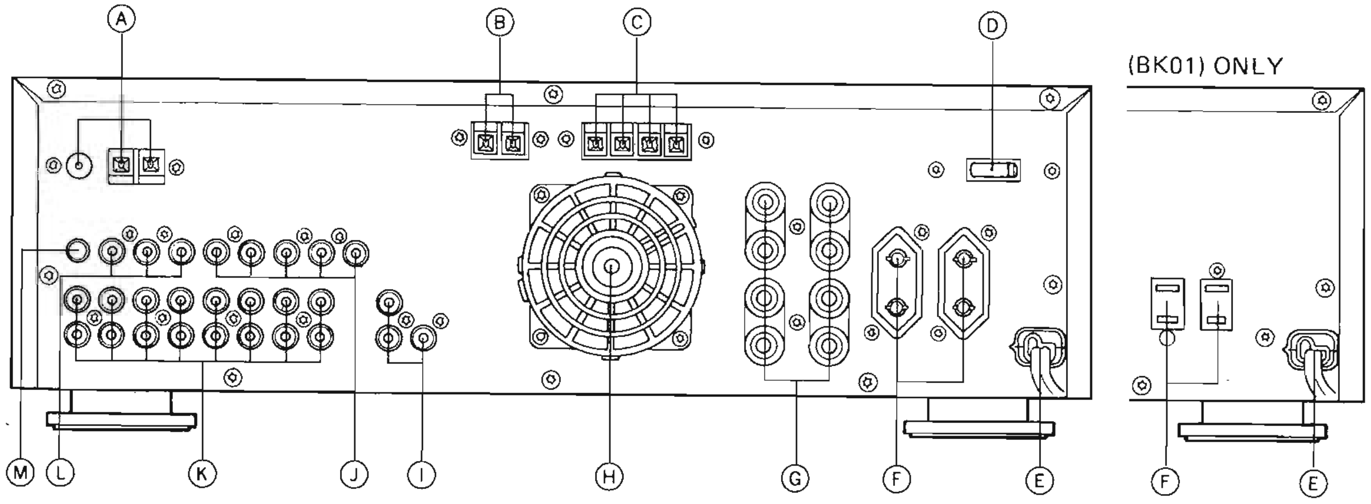




1	Source selector		S437
2	Surround mode switches (/01S/BK01 only)		S401~S407
3	FTD display		V401
4	Tuner preset switches		S408~S417
5	Volume indicator (/01S/BK01 only)		D651
6	Volume control		R662
7	Mute indicator		D405
8	Mute switch		S418
9	Headphones socket		J586
10	Balance control		R532
11	Memory switch		S436
12	FM mode switch		S435
13	Display switch		S434
14	FM/AM switch		S433
15	Frequency direct switch		S432
16	Input balance control (/01S/BK01 only)		R351
	Source direct switch (/00S only)		S701
17	Cursor mode switches	(/01S/BK01)	S423~S427
		(/00S)	S424~S426
18	Cursor switches		S428~S431
19	Auto selector switch		S422
20	Auto selector indicator		D406
21	Sleep switch		S421
22	Video switch		S419
23	Tone controls		R519, R520
24	I.R. receiver		Q406
25	Standby indicator		D404
26	Power switch	(/00S/01S)	S321
		(BK01)	S320
27	Speaker switch		S251
A	Antenna terminal		J101
B	Scan step/De-emphasis switch (/01S only)		S101
C	Processor input/output (/00S only)		J104
D	Center speaker terminal (/01S/BK01 only)		J309
E	Surround speaker terminal (/01S/BK01 only)		J310
F	Fuse holder (/01S only)		J001
G	Voltage selector (/01S only)		S322
H	Mains cord		W001
I	Mains outlet	(/00S/01S)	J326, J327
		(BK01)	J320
J	Front speaker terminal		J300
K	System control jacks		J553, J554
L	Video input/output		J570, J571
M	Analog audio input/output		J551, J552
N	Digital input/output (/00S only)		J592
O	Ground terminal		J053

CONNECTIONS AND CONTROLS (FR940)





1	Source selector		S437
2	Surround mode switches		S401~S407
3	FTD display		V401
4	Tuner preset switches		S408~S417
5	Volume indicator (/13S, BK01 only)		D651
6	Volume control		R662
7	Mute indicator		D405
8	Mute switch		S418
9	Headphones socket		J581
10	Video-Aux input		J582~J584
11	Balance control		R532
12	Memory switch		S436
13	FM mode switch		S435
14	Display switch		S434
15	FM/AM switch		S433
16	Frequency direct switch		S432
17	Input balance control		R351
18	Cursor mode switches		S423~S427
19	Cursor switches		S428~S431
20	Auto selector switch		S422
21	Auto selector indicator		D406
22	Sleep switch		S421
23	Dubbing switch		S420
24	Video switch		S419
25	Tone controls		R519, R520
26	I.R. receiver		Q406
27	Standby indicator		D404
28	Power switch	(/00S)	S321
		(/13S, BK01)	S320
29	Speaker switch		S251
A	Antenna terminal		J101
B	Center speaker terminal		J309
C	Surround speaker terminal		J310
D	Voltage selector (/13S only)		S322
E	Mains cord		W001
F	Mains outlet	(/00S)	J326, J327
		(/13S)	J021, J022
		(BK01)	J320
G	Front speaker terminal		J300
H	Fan motor		910G
I	System control jacks		J553, J554
J	Video input/output		J570, J571
K	Analog audio input/output		J551, J552
L	Digital audio input/output		J592
M	Ground terminal		J053

BG

Service Routine

To enter the service routine, press the POWER switch to ON while press and hold the MUTE and MEMORY switches simultaneously. The display shows characters "·SERVICE··" for 2 seconds, then shows "TUNER-OK" or "TUNER-NG" for 2 seconds.

TUNER-OK: The data communication between the PLL IC (Q150) and microprocessor (Q401) is normal.

TUNER-NG: The data communication between the PLL IC (Q150) and microprocessor (Q401) is abnormal. Check the data line between them.

In case of "TUNER-NG", the characters blink at a cycle of 1 Hz. The blinking can be stopped with the FM/AM switch. Other switches are invalid during blinking.

After the "TUNER-OK" or "TUNER-NG" display, normal operation starts. However, the source indicator on the display keeps on blinking at 1 Hz while the unit in the service routine.

– Tracking point memory mode

When the MUTE and MEMORY switches are pressed simultaneously while the unit is in the service routine, the tracking point frequencies as shown below are written in the memory.

- Tracking point frequencies

Pre Set Nbr.	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S /13S	87.5	90.0	98.0	106.0	603	999	1404	87.5	522
BK01					600	1000	1400	87.5	530
	FM (MHz)				AM (KHz)			FM (MHz)	AM (KHz)

In the service routine, the RAM can be cleared by pressing the POWER switch to OFF while pressing and holding the 0/+– and MEMORY switches simultaneously.

To quit the service routine, press the POWER switch to OFF.

F

Routine d'entretien

Pour utiliser la routine d'entretien, appuyer sur la touche POWER tout en appuyant et maintenant la pression simultanément sur les touches MUTE et MEMORY pour mettre l'appareil en service. L'afficheur indique le mot "·SERVICE··" pendant 2 secondes puis soit "TUNER-OK", soit "TUNER-NG" pendant 2 secondes.

TUNER-OK: La transmission d.informations entre le CI PLL (Q150) et le microprocesseur (Q401) est normale.

TUNER-NG: La transmission d'informations entre le CI PLL (Q150) et le microprocesseur (Q401) est anormale. Vérifier la ligne de transmission.

Dans le cas de "TUNER-NG", les caractères clignotent à la fréquence de 1 Hz. Il est possible d'arrêter le clignotement au moyen de la touche FM/AM. Les autres touches sont sans effet pendant le clignotement.

Après l'affichage de "TUNER-OK" ou de "TUNER-NG", le fonctionnement normal commence. Toutefois, le témoin de la source, placé sur l'afficheur, continue de clignoter à la fréquence de 1 Hz aussi longtemps que l'appareil est en routine d'entretien.

– Mémoire du point de poursuite

Lorsque l'on appuie simultanément sur les touches MUTE et MEMORY alors que l'appareil est en routine d'entretien, les fréquences du point de poursuite indiquées ci-dessous sont écrites en mémoire.

- Fréquences du point de poursuite

Numéro de présélec-ction	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

Pendant la routine d'entretien, la mémoire vive peut être effacée en appuyant sur la touche POWER pour mettre l'appareil en service tout en appuyant et maintenant la pression simultanément sur les touches 0/+– et MEMORY.

Pour abandonner la routine d'entretien, appuyer sur la touche POWER pour mettre l'appareil hors service.

NL

Onderhoud en kontrole

Druk de MUTE en MEMORY schakelaars in en druk tegelijkertijd de POWER schakelaar op ON om de onderhoudskontrolefunktie te aktiveren. "·SERVICE··" wordt 2 sekonden op het display getoond. Hierna verschijnt "TUNER-OK" of "TUNER-NG" gedurende 2 sekonden op het display.

TUNER-OK: Data-uitwisseling tussen de PLL IC (Q150) en mikroprocessor (Q401) is in orde.

TUNER-NG: Data-uitwisseling tussen de PLL IC (Q150) en mikroprocessor (Q401) is niet in orde. Kontroleer het pad van de data.

De karakters knipperen met een interval van 1 Hz indien "TUNER-NG" op het display wordt getoond. Het knipperen kan worden gestopt door op de FM/AM schakelaar te drukken. Overige schakelaars kunnen niet worden bediend terwijl de karakters knipperen.

Normale bediening start nadat "TUNER-OK" of "TUNER-NG" op het display werd getoond. De bronindikator blijft echter met een interval van 1 Hz op het display knipperen zolang de onderhoudskontrolefunktie is ingeschakeld.

— Geheugenfunktie voor sporingspunt

De hierna beschreven sporingspuntfrekwenties worden in het geheugen vastgelegd indien u tegelijkertijd op de MUTE en MEMORY schakelaars drukt terwijl de onderhoudskontrolefunktie is geaktiveerd.

- Sporingspuntfrekwenties

Voorkeuze-nummer	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

De RAM kan worden gewist door tijdens de onderhoudskontrolefunktie tegelijkertijd de 0/+– en MEMORY schakelaars in te drukken terwijl u de POWER schakelaar op OFF drukt.

Druk de POWER schakelaar op OFF om de onderhoudskontrolefunktie te annuleren.

D

Wartungsroutine

Zum Aktivieren der Wartungsroutine den POWER-Schalter auf ON drücken und dann die Schalter MUTE und MEMORY gleichzeitig gedrückt halten. Im Display erscheint der Schriftzug "·SERVICE··" für 2 Sekunden, danach "TUNER-OK" oder "TUNER-NG" für 2 Sekunden.

TUNER-OK: Die Datenkommunikation zwischen dem PLL IC (Q150) und dem Mikroprozessor (Q401) ist normal.

TUNER-NG: Die Datenkommunikation zwischen dem PLL IC (Q150) und dem Mikroprozessor (Q401) ist nicht normal. Die zwischenliegende Datenleitung überprüfen.

Im Fall von "TUNER-NG" blinken die Zeichen mit einer Frequenz von 1 Hz. Das Blinken kann mit dem FM/AM-Schalter gestoppt werden. Andere Schalter funktionieren während des Blinkens nicht.

Nach der Anzeige "TUNER-OK" der "TUNER-NG" beginnt der normale Betrieb. Die Quellen-Anzeige im Display blinkt jedoch weiterhin mit einer Frequenz von 1 Hz, solange das Gerät sich in der Wartungsroutine befindet.

— Spurlagenpunkt-Speichermodus

Wenn die Schalter MUTE und MEMORY gleichzeitig gedrückt werden, während das Gerät sich in der Wartungsroutine befindet, werden die nachstehend angeführten Spurlagenpunkt-Frequenzen in den Speicher geschrieben.

- Spurlagenpunkt-Frequenzen

Speicher-nummer	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S /13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	UKW (MHz)				MW (kHz)			UKW (MHz)	MW (kHz)

Inder Wartungsroutine kann der RAM-Speicher gelöscht werden, indem der POWER-Schalter auf OFF gedrückt wird, während die Schalter 0/+– und MEMORY gleichzeitig gedrückt gehalten werden.

Zum Verlassen der Wartungsroutine den POWER-Schalter auf OFF drücken.

I

Routine di assistenza

Per impostare il modo della routine di assistenza, premere il tasto POWER portandolo su ON mentre si tengono premuti contemporaneamente i tasti MUTE e MEMORY. Il display visualizza il messaggio "·SERVICE··" per 2 secondi, quindi mostra quello "TUNER-OK" o quello "TUNER-NG" per altri 2 secondi.

TUNER-OK: La comunicazione di dati fra il circuito integrato PLL IC (Q150) ed il microprocessore (Q401) è normale.

TUNER-NG: La comunicazione di dati fra il circuito integrato PLL IC (Q150) ed il microprocessore (Q401) non è normale. Controllare la linea di invio dati fra di essai.

Nel caso di "TUNER-NG", i caratteri lampeggiano in un ciclo di 1 kHz. Il lampeggiare può essere fatto terminare con l'interruttore FM/AM. Gli altri comandi non funzionano mentre il lampeggiare è in corso.

Dopo che il display "TUNER-OK" o quello "TUNER-NG" è comparso, il funzionamento normale ha inizio. Tuttavia, l'indicatore della sorgente di segnale attivata continua a lampeggiare ad 1 kHz sintanto che il modo della routine di servizio è impostato.

— Modo di memoria del punto di allineamento

Se i tasti MUTE e MEMORY vengono premuti contemporaneamente mentre l'unità si trova nel modo di routine di assistenza, le frequenze del punto di allineamento mostrate di seguito vengono scritte in memoria.

- Frequenze del punto di allineamento

Numero di preselezione	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

Nella routine di assistenza, il contenuto della RAM può venire cancellato premendo il tasto POWER su OFF mentre si tengono premuti contemporaneamente i tasti 0/+ e MEMORY.

Per abbandonare la routine di assistenza, premere il tasto POWER portandolo su OFF.

ADJUSTMENTS

Audio Section

Idling Current

SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
Power switch OFF (S321: /00S/01S) (S320: /13S, BK01)				R263, R264 Preset in full C.C.W. position		
Power switch ON (S321: /00S/01S) (S320: /13S, BK01)			Min.	Lch R263		Lch TP1 (+), TP3 (–) (Both side of R271) DC 7.2 mV (20 mA)
				Rch R264		Rch TP2 (+), TP4 (–) (Both side of R272) DC 7.2 mV (20 mA)

C.C.W.: Counterclockwise

(GB) Notes:

- In 5 minutes after the power has been switched ON, adjust to read 7.2 mV DC.
- If the heat-sink temperature is higher than the ambient temperature, switch the power OFF, and leave the unit until the heat-sink temperature falls equal to or below the ambient temperature before proceeding to the idling current adjustment.

(F) Remarques:

- Dans 5 minutes après la mise en circuit, régler pour lire 7,2 mV CC.
- Si la température de la plaque de refroidissement est supérieure à la température ambiante, couper l'alimentation et laisser l'appareil jusqu'à ce que la température de la plaque de refroidissement soit égale ou inférieure à la température ambiante avant de passer à l'ajustement du courant déwatté.

(NL) Opmerkingen:

- Stel binnen 5 minuten nadat de spanning is aangeschakeld (ON) op 7,2 mV DC in.
- Als de temperatuur van de warmteput hoger is dan de omringende temperatuur, schakel dan de spanning uit totdat de temperatuur van de warmteput gelijk is aan of lager is dan de omringende temperatuur alvorens over te gaan tot aanpassen op de stationaire stroom.

(D) Anmerkungen:

- 5 Minuten nach dem Einschalten der Spannungsversorgung die Anzeige auf 7,2 mV Gleichstrom einstellen.
- Wenn die Temperatur des Kühlkörpers höher ist als die Umgebungstemperatur, die Spannungsversorgung ausschalten und warten, bis die Temperatur des Kühlkörpers gleich der oder niedriger als die Umgebungstemperatur wird, bevor die Ruhestrom-Einstellung durchgeführt wird.

(I) Note:

- Regolare in modo da ottenere 7,2 mV di corrente continua dopo aver atteso 5 minuti dopo l'accensione.
- Se la temperatura degli organi di dispersione del calore è superiore a quella dell'ambiente, spegnete l'unità e lasciatela raffreddare sino a che la sua temperature non diviene uguale o inferiore a quella ambiente, quindi procedete con la regolazione della corrente a riposo.

Tuner Section

- Inner adjustment of the FM front end pack (A101) of this unit is difficult. (IF, RF, OSC)
- Inductance of the AM OSC coil (L102) is preset. Therefore, please do not turn the core of this coil.
- Refer to "Tracking point memory mode" in the Service Routine.

FM-Distortion

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
FM (S433)	98 MHz Mod. 1 kHz Δf 40 kHz (/00S/01S) Δf 75 kHz (/13S, BK01) (Mono) Output 500 µV (65 dBf)	J101	▭		L105		J551 (Tape out) Distortion Min.
	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz (/00S/01S) Δf L+R 67.5 kHz Pilot 6.75 kHz (/13S, BK01) Output 500 µV (65 dBf)				A101-IFT (Front end IFT)		

Stereo Separation

FM (S433)	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz (/00S/01S) Δf L+R 67.5 kHz Pilot 6.75 kHz (/13S, BK01) Output 500 µV (65 dBf)	J101	▭		R119		J551 (Tape out) Separation Max.

Muting Level

FM (S433) FM mode switch (S435) (Mono indicator OFF)	98 MHz Mod. 1 kHz Δf 75 kHz Output 6.3 µV (27.2 dBf)	J101	▭		R114		J551 (Tape out) 1

AM-IF

AM (S433)	999 kHz (/00S/01S/13S) 1000 kHz (BK01) Mod. 400 Hz 30% Low Output (300 µV/m)	Loop Ant.	▭		L104		J551 (Tape out) Output Max.

AM-RF

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
AM (S433)	1404 kHz (/00S/01S/13S) 1400 kHz (BK01)	Loop Ant.	▭		L101		J551 (Tape out) Output Max.
	603 kHz (/00S/01S/13S) 600 kHz (BK01)				C101		

AM Auto Stop

AM (S433)	999 kHz (/00S/01S/13S) 1000 kHz (BK01) Mod. 400 Hz 30% Output 1000 μV/m	Loop Ant.	▭		R103		J551 (Tape out) 2

(GB) Notes:

1. By turning R114, clear once the output waveform the J551, and then adjust it by turning R114 a little so that the waveform appears again.
2. Adjust R103 so that the "TUNED" indicator of the FL display tubes lights up.

(F) Remarques:

1. En tournant R114, effacer la forme d'onde de sortie de J551 dans un premier temps, puis ajuster celle-ci en tournant doucement R114 de sorte que la forme d'onde apparaisse à nouveau.
2. Ajuster R103 pour que l'indicateur "TUNED" du tube d'affichage fluorescent s'allume.

(NL) Opmerkingen:

1. Draai R114 rond om de uitgangsgolfvorm van de J551 eenmaal te doorlopen en stel daarna af door R114 een weinig te draaien zodat de golfvorm weer verschijnt.
2. Stel R103 zodanig af dat de "TUNED" indicator van de FL-display oplicht.

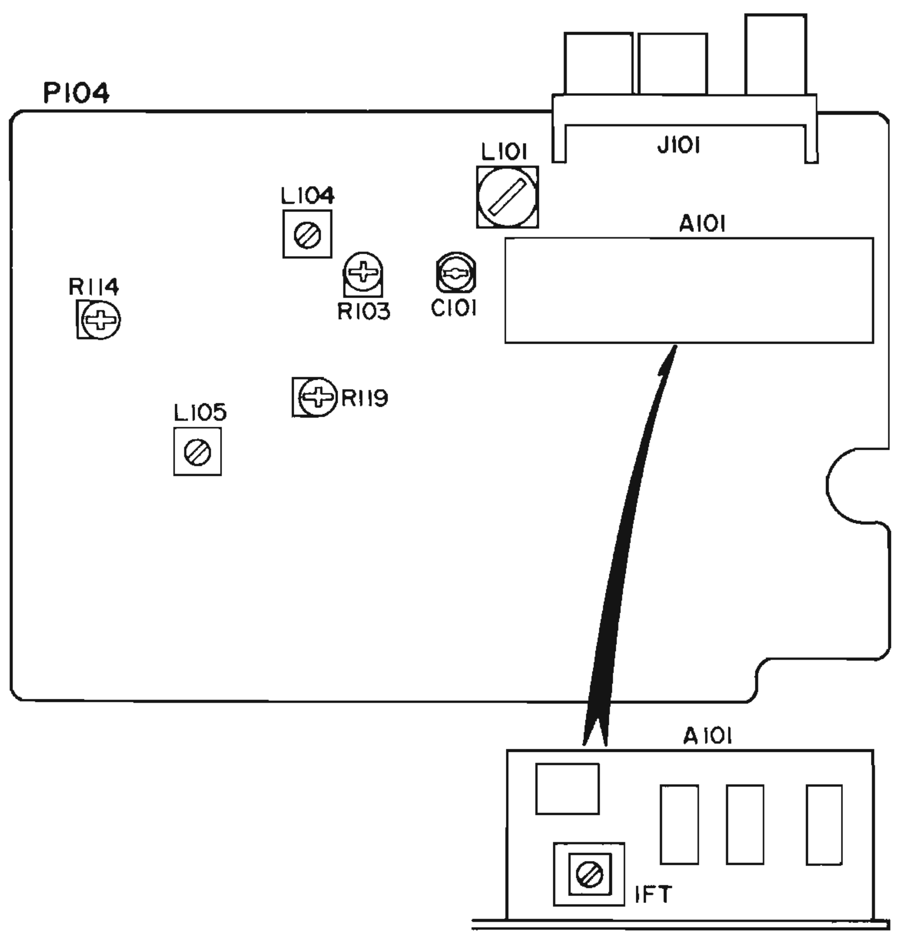
(D) Anmerkungen:

1. Die Ausgangswellenform von J551 durch Drehen von R114 löschen und dann durch geringfügiges Drehen von R114 so einstellen, daß die Wellenform wieder erscheint.
2. R103 so einstellen, daß die Anzeige "TUNED" auf dem Fluoreszenz-Display leuchtet.

(I) Note:

1. Ruotando R114 cancellare la forma d'onda in uscita di J551 e quindi regolaria ruotando leggermente R114 in modo che la forma d'onda ricompaia.
2. Regolare R103 in modo che l'indicatore "TUNED" del display FL si illumini.

Tuner Adjustment Positions



─[▲]─	Carbon film 0.125 W or 0.2 W	70°C	5%
─[□]─	Carbon film 0.25 W or 0.33 W	70°C	5%
─[■]─	Metal film 0.25 W or 0.33 W	70°C	5%
─[●]─	Carbon film 0.5 W	70°C	5%
─[▨]─	Carbon film 0.67 W	70°C	5%
─[◤]─	Carbon film 1 W or 1.15 W	70°C	5%
Ⓒ	Chip component		

△△*	Ceramic plate Tuning ⩽ 120 pF NP.0 Others	 2% −20/+80%
●●*	Polyester flat foil	10%
□*	Metalized polyester flat film	10%
○□*	Polyester flat foil small size (Mylar)	10%
○△*	Polysterene film/foil	1%
■▲*	Tubular ceramic	
○*	Miniature single	
○○*	Subminiature tantalum	± 20%

*a = 2.5 V
b = 3.15 V or 4 V
c = 6.3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1.6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

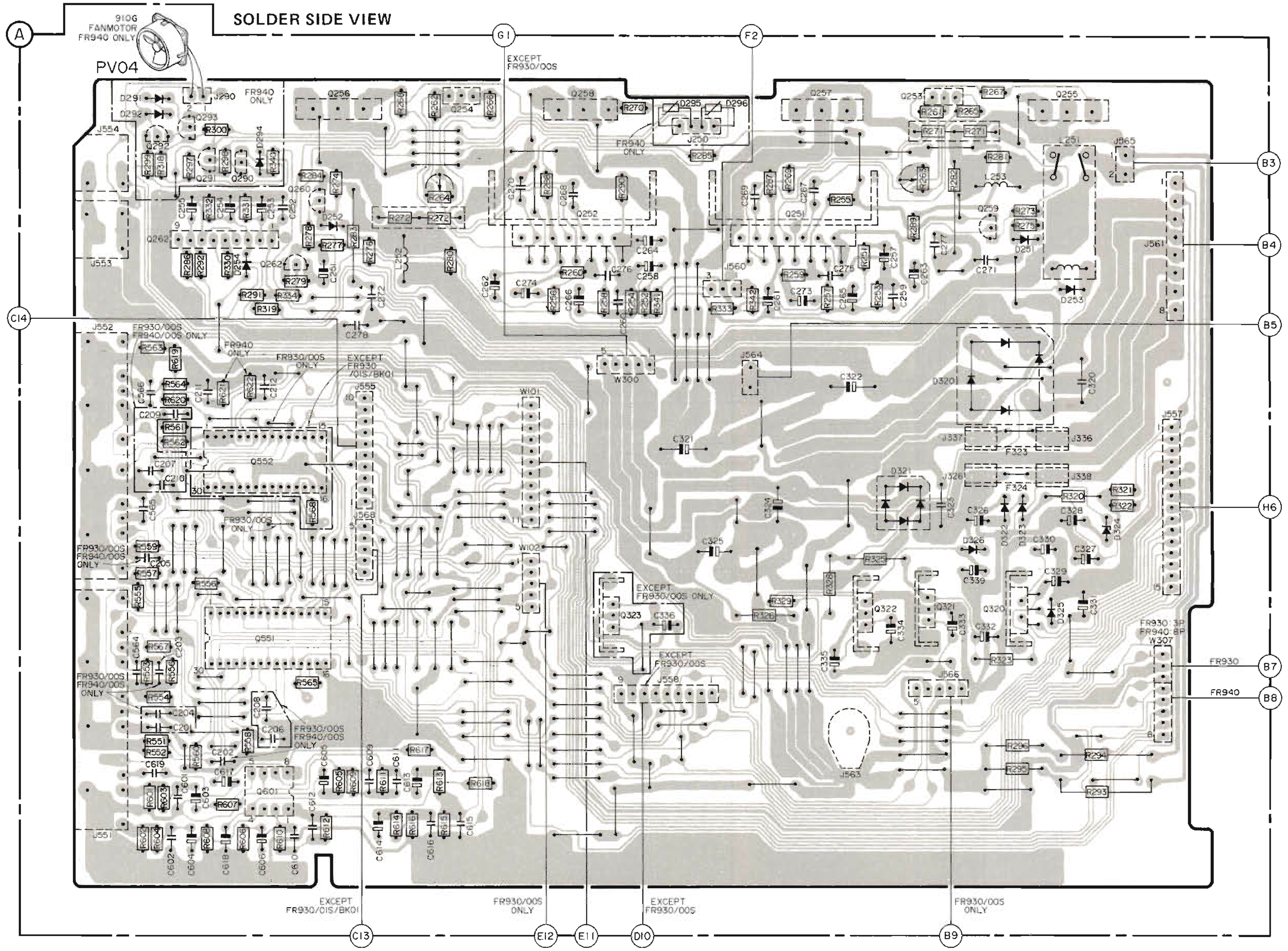
***μ*-Processor Data**

Q401: TMP47C1670AN H054

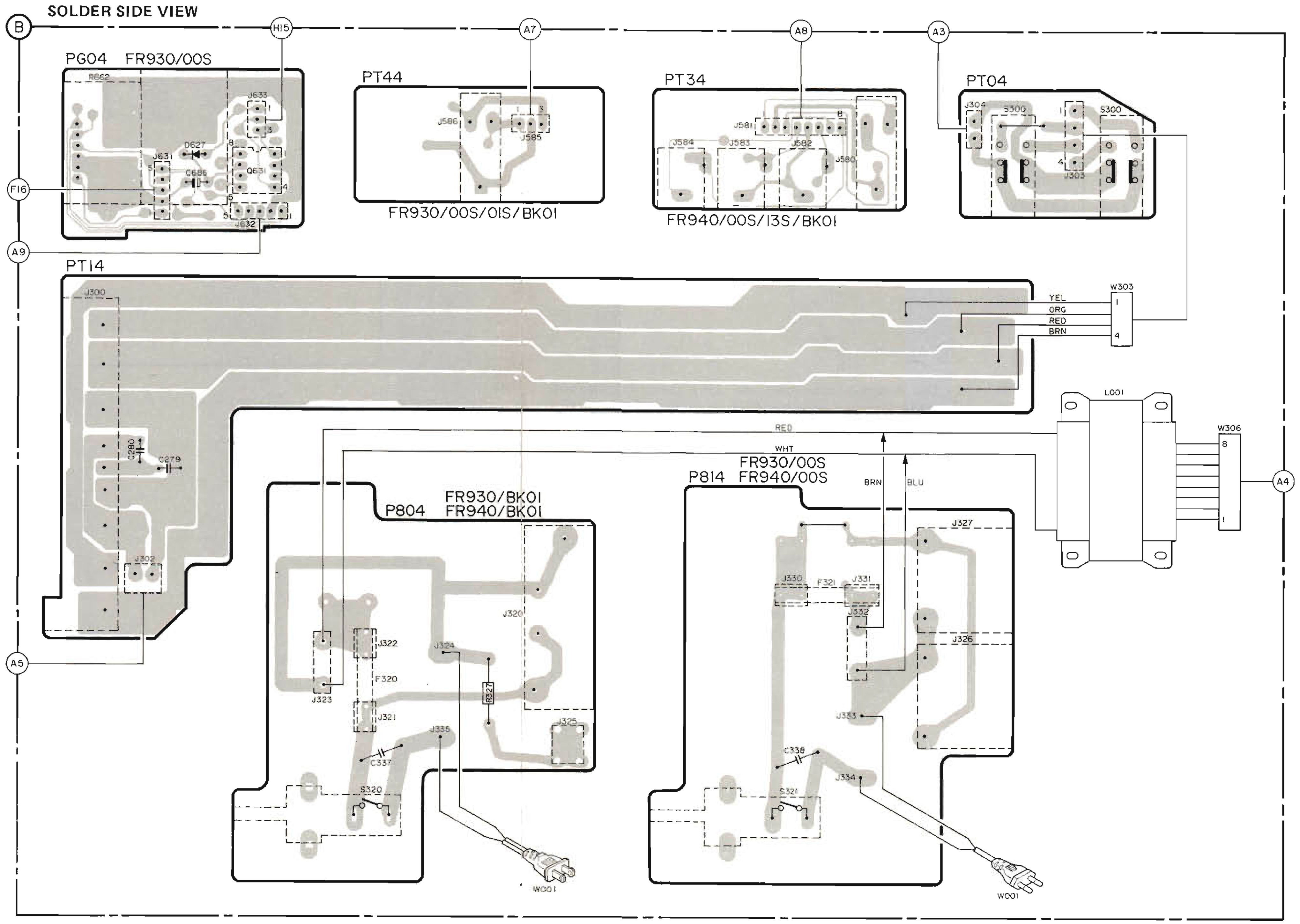
Pin Nbr.	Pin Name	I/O	Act.	Function
1	VKK	–	–	–35V
2	S0	O	H	FTD Segment Drive
3	S1	O	H	
4	S2	O	H	
5	S3	O	H	
6	S4	O	H	
7	S5	O	H	
8	S6	O	H	
9	S7	O	H	
10	S8	O	H	
11	S9	O	H	
12	S10	O	H	
13	S11	O	H	
14	K0	I	H	Key Input
15	K1	I	H	
16	K2	I	H	
17	K3	I	H	
18	TEST	I	–	GND
19	OSC	I	–	Clock Input
20	OSC	O	–	Clock Output
21	RESET	I	L	Reset
22	HOLD	I	H	Elect. Failure Sensing Signal Input
23	CE4	O	H	Strobe Signal Output
24	PULSE UP	I	L	Function Selector Pulse Input
25	PULSE DOWN	I	L	
26	CE3	O	H	Latch Signal Output
27	CE2	O	L	"REQ" Signal Output
28	CE1	O	H	Chip Enable Signal Output
29	CLK OUT	O	H	Serial Data Control Clock Output
30	DATA OUT1	O	H	Data Output
31	DATA OUT2	O	H	Data Signal Output
32	VSS	–	–	GND
33	N.C.	–	–	Not Used
34	AUTO SELECT IND	O	L	Auto Select Mode Indicator Out
35	MUTE	O	L	Audio Mute Output
36	STANDBY IND	O	L	Standby Indicator Output
37	DATA IN	I	H	Serial Data Input
38	W.T. OUT	O	L	Watchdog Reset Signal Output
39	DIGITAL IND	I	L	Detecting Digital Signal Out/In
40	3/4 CH	O	H	3CH/4CH Switching Signal Output
41	RC-5 IN	I	L	RC-5 Bus Signal Input
42	SD IN	I	L	Band Detecting Signal Input
43	EASY LINK IN	I	L	Easy Link Bus Signal Input
44	EASY LINK OUT	O	L	Easy Link Bus Signal Output
45	SPK RELAY	O	L	Speaker Relay Control
46	MUTE	O	L	Front Channel Mute Signal Out
47	V-AUX	O	L	FTD Segment Drive
48	G11	O	H	FTD Grid Drive
49	G10	O	H	
50	G9	O	H	
51	G8	O	H	
52	G7	O	H	
53	G6	O	H	
54	G5	O	H	
55	G4	O	H	
56	G3	O	H	
57	G2	O	H	
58	G1	O	H	
59	G0	O	H	
60	S15	O	H	FTD Segment Drive
61	S14	O	H	
62	S13	O	H	
63	S12	O	H	
64	VDD	–	–	+5V

SCHEMATIC DIAGRAMS AND PARTS LOCATION

R	R318 R286 R292 R297~R300 R277~R279 R340 R284 R274 R268 R262 R266 R288 R260 R290 R270 R341 R285 R342 R287 R269 R257 R255 R251 R253 R263 R261 R265 R267 R273 R320~R323	R
	R551~R568 R601~R622 R330~R332 R291 R319 R334 R283 R276 R272 R264 R280 R256 R258 R254 R252 R333 R326 R329 R259 R328 R325 R289 R271 R282 R281 R275 R293~R296	
C	C564~C566 C251~C255 C278 C272 C262 C270 C268 C276 C264 C321 C269 C261 C273 C267 C275 C265 C257 C259 C263 C277 C271 C320	C
	C201~C212 C601~C606 C564~C570 C609~C619 C274 C266 C260 C258 C336 C325 C324 C335 C322 C334 C323 C333 C332 C326 C339 C327~C331	
Q	Q262 Q290~Q293 Q552 Q551 Q601 Q262 Q260 Q256 Q254 Q258 Q252 Q323 Q251 Q257 Q322 Q353 Q321 Q259 Q320 Q255	Q
D	D291 D292 D254 D294 D252 D295 D296 D321 D320 D322~D326 D251 D253	D
L	L252 L253 L251	L



R-C-Q-D	R662 C280 C279 D627 C686 Q631 C337 R327 C338	R-C-Q-D
S-F-L	S320 F320 S321 S300 L001	S-F-L



FR930/01S,BK01

C251	B10
C252	E10
C253	F10
C256	D11
C257	B6
C258	C6
C259	B6
C260	C6
C261	A7
C262	C7
C263	A6
C264	C6
C265	B6
C266	D6
C267	B7
C268	D7
C269	B8
C270	C8
C271	B10
C272	D9
C273	B6
C274	D6
C279	C15
C280	C15
C320	G15
C321	H14
C322	H14
C323	G15
C324	G14
C325	D9
C326	F14
C327	G13
C328	F12
C329	G11
C330	H11
C331	G10
C332	G10
C333	G10
C334	H11
C335	H12
C336	G11
C337	G18
C338	B19
C339	F14
C564	E1
C565	E1
C566	G1
C601	B2
C602	C2
C603	B2
C604	B2
C605	A2
C606	C2
C609	A3
C610	C3
C611	A3
C612	C3
C613	B3
C614	B3
C615	B4
C616	C4
C617	B3
C618	B3
C619	C1
D251	B9
D252	D9
D253	C11
D254	F10
D320	H14
D321	G14
D322	G14
D323	F14
D324	G12
D325	H11
D326	F14
F001	B18
F320	H17
J001	B18
J053	A1
J300	B15
J302	C15
J303	B14
J304	B13
J321	H17
J322	H17
J323	G17
J323	H17
J324	H18
J325	G18
J326	B19
J327	B19
J332	B19
J332	C19
J333	C20
J334	C20
J335	H18
J336	G15
J337	G15
J338	F15
J339	F15
J551	B1
J552	E1
J553	H15
J554	H15
J555	H4
J560	A5
J561	F15
J563	F15
J564	C15
J565	B12
J581	A13
J585	A12
J586	A13
L001	A17
L001	F16
L251	B11
L252	C10
L253	A10
Q251	B7
Q252	C7
Q253	B8
Q254	D8
Q255	A9
Q256	C9
Q257	B9
Q258	E9
Q259	A9
Q260	C9
Q261	B10
Q262	D10
Q320	G11
Q321	G10
Q322	H11
Q323	F11
Q551	D4
Q551	D6
Q551	E8
R251	B5
R252	C5
R253	B6
R254	C6
R255	A6
R256	C6
R257	B7
R258	D7
R259	B6
R260	D6
R261	B7
R262	D7
R263	B7
R264	D7
R265	B7
R266	D7
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R268	C8
R269	B8
R270	D8
R271	A9
R272	C9
R273	A9
R274	C9
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R276	D9
R277	B9
R278	C9
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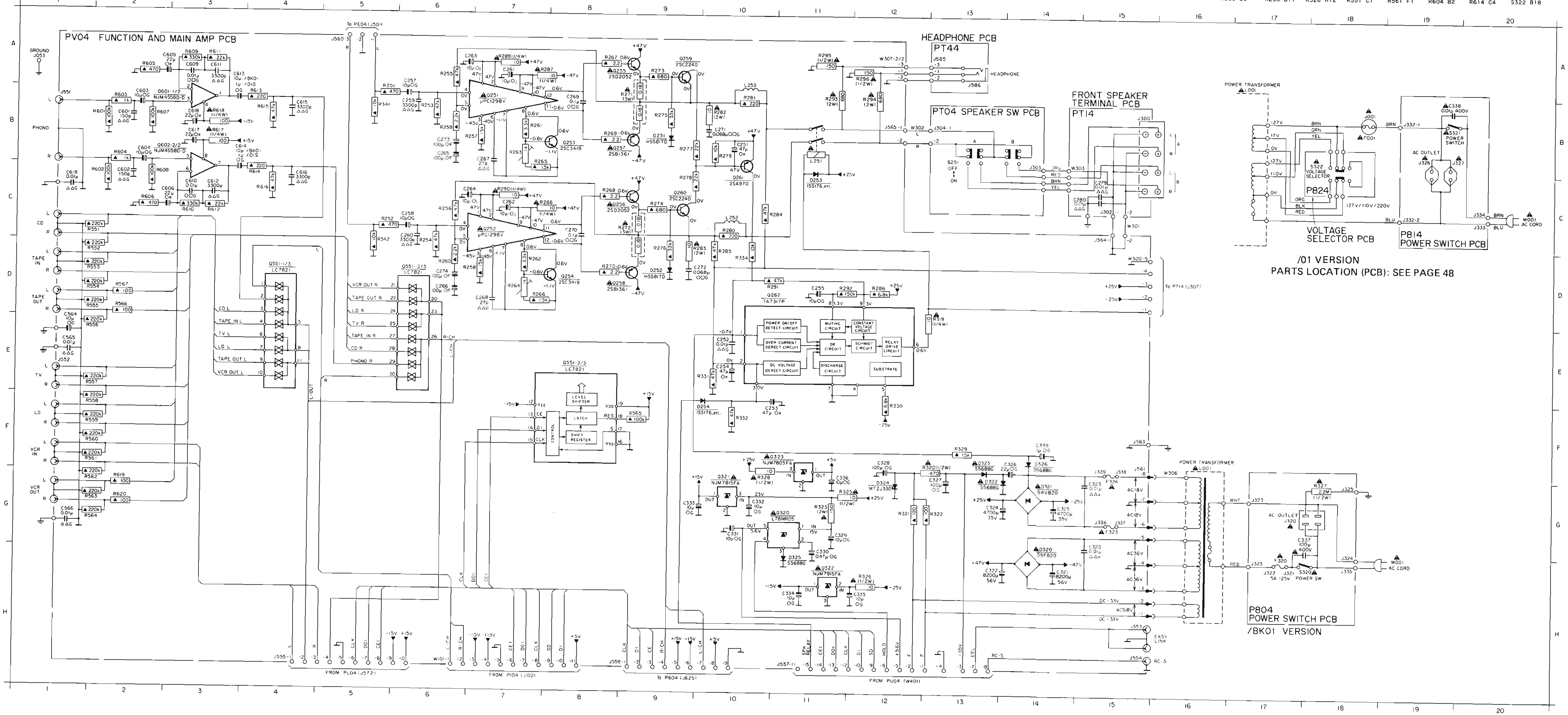
R280	C10
R281	B10
R282	B10
R283	D9
R284	C10
R285	D19
R286	D12
R287	A7
R288	C7
R289	A7
R290	C7
R291	D10
R292	D11
R293	B11
R294	B12
R295	A11
R296	A12
R319	D13
R320	F13
R321	G12
R322	G13
R323	G11
R325	G11
R326	H12
R327	G18
R328	F10
R329	F13
R330	F12
R331	E10
R332	F10
R334	D10
R341	B5
R342	C5
R551	C1
R552	D1
R553	D1
R554	D1
R555	D1
R556	E1
R557	E1
R558	F1
R559	F1
R560	F1
R561	F1
R562	G1
R563	G1
R564	G1
R565	F9
R566	D2
R567	D2
R601	B2
R602	C2
R603	B2
R604	B2
R605	A2
R606	C2
R607	B2
R608	C2
R609	A3
R610	C3
R611	A3
R612	C3
R613	B4
R614	C4
R615	B4
R616	C4
R617	B3
R618	B3
R619	G2
R620	G2
S251	B13
S320	H18
S321	B19
S322	B18



FR930/00S

C251	B10
C252	E10
C253	F10
C254	E10
C255	D11
C257	B6
C258	C6
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C260	C6
C261	A7
C262	C7
C263	A6
C264	C6
C265	B6
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C268	D7
C269	B8
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C322	H14
C323	G15
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C334	H11
C335	H12
C339	F14
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C566	G1
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C604	B2
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C610	A3
C611	A3
C612	C3
C613	B3
C614	B4
C615	B4
C616	C4
C617	B3
C618	B3
C619	C1
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D252	D9
D253	C11
D254	F10
D320	F14
D321	G14
D322	G14
D324	G12
D325	H11
D326	F14
D327	H10
D627	E18
D628	E18
F321	E18
J053	A1
J104	D17
J300	B15
J302	C15
J303	B14
J304	B13
J326	B19
J327	B19
J330	H17
J331	H17
J332	G17
J332	H17
J333	C20
J334	C20
J551	B1
J552	E1
J553	H15
J554	H15
J555	H4
J557	H11
J560	A5
J561	F15
J563	F15
J564	C15
J565	B12
J568	H3
J581	A13
J585	A13
J586	A13
J631	F16
J632	E16
J633	E19
L001	F16
L251	B11
L252	C10
L253	A10
Q251	B7
Q252	C7
Q253	B8
Q254	D8
Q255	A9
Q256	C9
Q257	B9
Q258	E9
Q259	A9
Q260	C9
Q261	B10
Q262	D10
Q320	G11
Q321	G10
Q322	H11
Q551	D4
Q551	D6
Q551	E8
Q552	F4
Q552	F6
Q552	G8
Q631	E18
R251	B5
R252	C5
R253	B6
R254	C6
R255	A6
R256	C6
R257	B7
R258	D7
R259	B6
R260	D6
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R263	B7
R264	D7
R265	B7
R266	D7
R267	A8
R268	C8
R269	B8
R270	D8
R271	A9
R272	C9
R273	A9
R274	C9
R275	B9
R276	D9
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R278	C9
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R280	C10
R281	B10
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R284	C10
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R286	D12
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R288	C7
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R290	C7
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R292	D11
R293	B11
R294	B12
R295	A11
R296	A12
R319	D13
R320	F13
R321	G12
R322	G13
R323	G11
R325	G11
R326	H12
R329	F13
R330	F12
R331	E10
R332	F10
R334	D10
R341	B5
R342	C5
R551	C1
R552	D1
R553	D1
R554	D1
R555	D1
R556	E1
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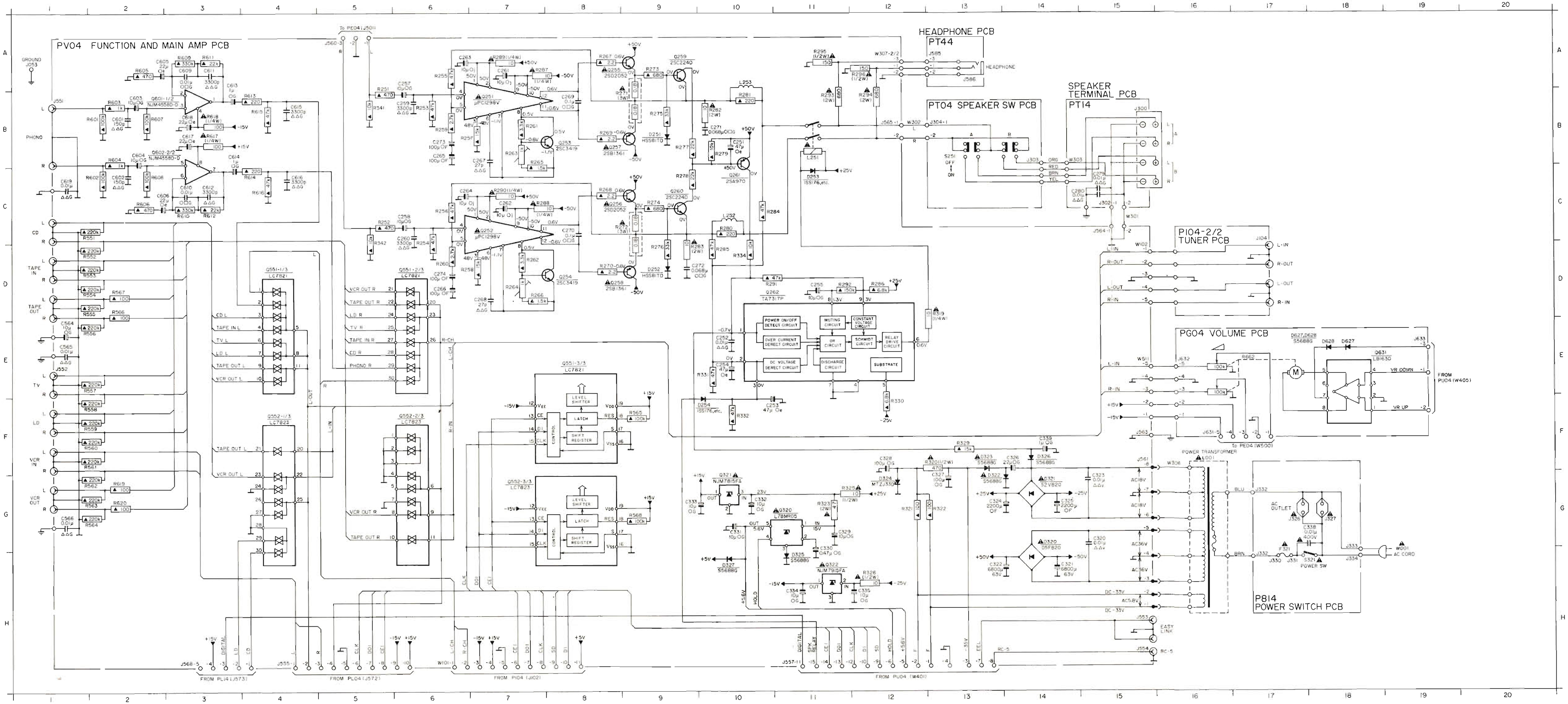
R558	F1
R559	F1
R560	F1
R561	F1
R562	G1
R563	G1
R564	G1
R565	F9
R566	D2
R567	D2
R568	G9
R601	B2
R602	C2
R603	B2
R604	B2
R605	A2
R606	C2
R607	B2
R608	C2
R609	A3
R610	C3
R611	A3
R612	C3
R613	B4
R614	C4
R615	B4
R616	C4
R617	B3
R618	B3
R619	G2
R620	G2
R662	E16
S251	B13
S321	H18



FR940/00S/13S,BK01

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C252	E10
C253	F10
C254	E10
C255	D11
C257	B6
C258	C6
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C262	C7
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C270	C8
C271	B10
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C273	B6
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C321	H14
C322	H14
C323	G15
C324	G14
C325	G14
C326	F14
C327	G13
C328	F12
C329	G11
C330	H11
C331	G10
C332	G10
C333	G10
C334	H11
C335	H12
C336	B19
C336	G11
C337	G18
C338	B19
C338	E18
C339	F14
C564	E1
C565	E1
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C615	B4
C616	C4
C617	B3
C618	B3
C619	C1
D251	B9
D252	D9
D253	C11
D254	F10
D291	E14
D294	E13
D295	E16
D296	E16
D320	H14
D321	G14
D322	G14
D323	F13
D324	G12
D325	H11
D326	F14
F001	B18
F320	H17
F321	E18
F323	G15
F324	G15
J001	B18
J053	A1
J250	E15
J290	F15
J300	B15
J302	C15
J303	B14
J304	B13
J320	G18
J321	H17
J322	H17
J323	G17
J323	H17
J324	H18
J325	G18
J326	B19
J326	E18
J327	B19
J327	E18
J330	E18
J331	E18
J332	B19
J332	D18
J332	C19
J332	E18
J333	C20
J333	E19
J334	C20
J334	E19
J335	H18
J336	G15
J337	G15
J338	F15
J339	F15
J551	B1
J552	E1
J553	H15
J554	H15
J555	H4
J557	H11
J558	H9
J560	A5
J561	F15
J563	F15
J564	C15
J565	B12
J568	H3
J581	A13
J581	H2
J582	H1
J583	H1
J584	H1
L001	A17
L001	D17
L001	F16
L251	B11
L252	C10
L253	A10
Q251	B7
Q252	C7
Q253	B8
Q254	D8
Q255	A9
Q256	C9
Q257	B9
Q258	E9
Q259	A9
Q260	C9
Q261	B10
Q262	D10
Q290	E13
Q291	E14
Q292	E14
Q293	E15
Q320	G11
Q321	G10
Q322	H11
Q323	F11
Q551	D4
Q551	D6
Q551	E8
Q552	F4
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R262	D7
R263	B7
R264	D7
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R266	D7
R267	A8
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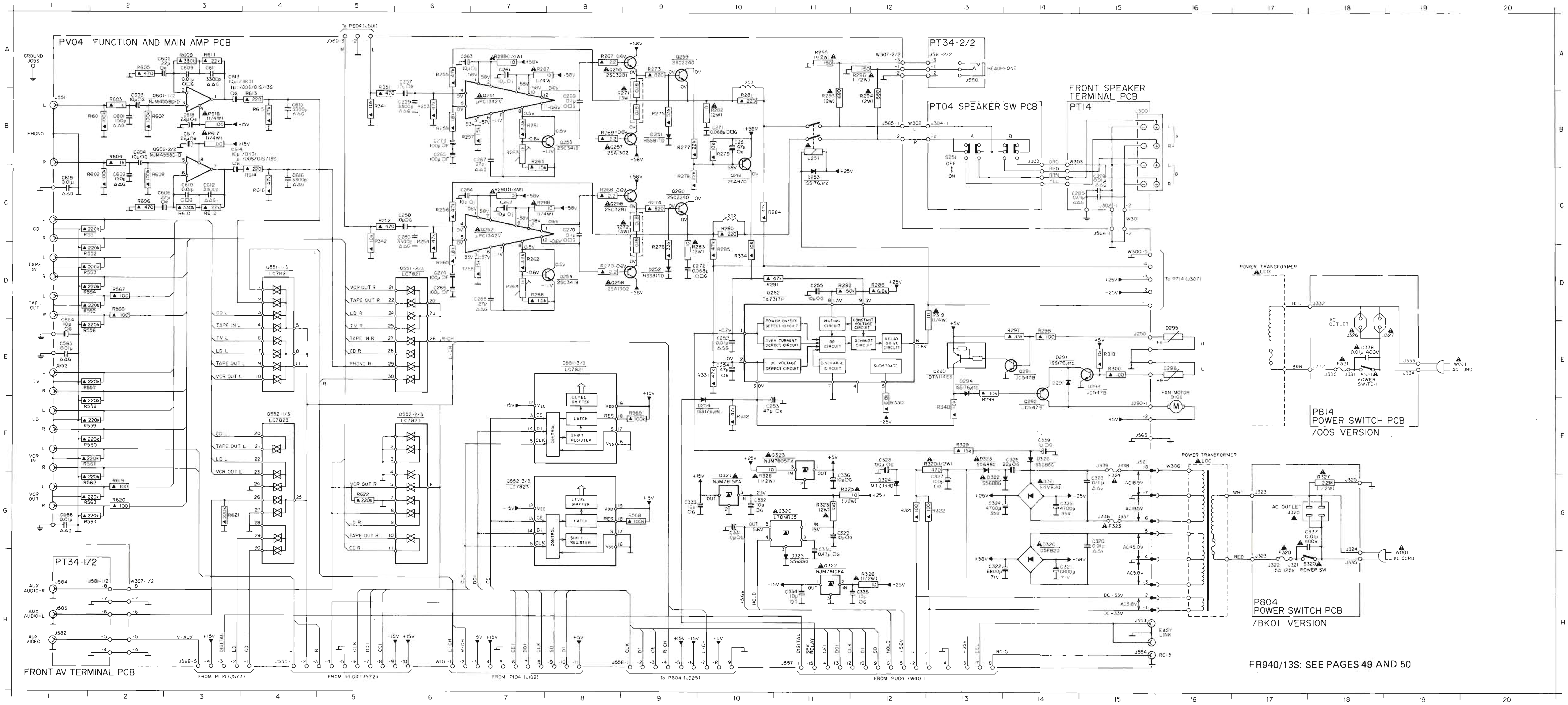
R270	D8
R271	A9
R272	C9
R273	A9
R274	C9
R275	B9
R276	D9
R277	B9
R278	C9
R279	B10
R280	C10
R281	B10
R282	B10
R283	D9
R284	C10
R285	D10
R286	D12
R287	A7
R288	C7
R289	A7
R290	C7
R291	D10
R292	D11
R293	B11
R294	B12
R295	A11
R296	A12
R297	E14
R298	E14
R299	E14
R300	E15
R318	E15
R319	D13
R320	F13
R321	G12
R322	G13
R323	G11
R325	G11
R326	H12
R327	H18
R328	F10
R329	F13
R330	F12
R331	E10
R332	F10
R334	D10
R340	F13
R341	B5
R342	C5
R551	C1
R552	D1
R553	D1
R554	D1
R555	D1
R556	E1
R557	E1
R558	F1
R559	F1
R560	F1
R561	F1
R562	G1
R563	G1
R564	G1
R565	F9
R566	D2
R567	D2
R568	G9
R601	B2
R602	C2
R603	B2
R604	B2
R605	A2
R606	C2
R607	B2
R608	C2
R609	A3
R610	C3
R611	A3
R612	C3
R613	B4
R614	C4
R615	B4
R616	C4
R617	B3
R618	B3
R619	G2
R620	G2
R621	G3
R622	G5
S251	B13
S320	H18
S321	B19
S321	E18
S322	B18



FR930/FR940

C351	A2
C352	C2
C357	C4
C358	C4
C359	B7
C360	C4
C361	B7
C362	B8
C363	B6
C364	B6
C365	B4
C366	B5
C367	A5
C369	B5
C370	A6
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C373	B6
C374	A6
C375	A7
C376	A7
C377	A8
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C379	B8
C381	A4
C382	C10
C383	A12
C384	C12
C625	G3
C626	G3
C627	E6
C628	E5
C629	E5
C630	E5
C631	F4
C632	F4
C633	F4
C634	F4
C635	G3
C636	G4
C637	G4
C638	H4
C639	H5
C640	H4
C641	H5
C642	H6
C643	H8
C643	H8
C644	H6
C646	G8
C647	G8
C649	D11
C650	F8
C651	F7
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C661	F11
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C663	F13
C664	H14
C665	G16
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C675	F13
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C677	G13
C678	F13
C679	G4
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C681	H11
C682	H12
C683	F19
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C754	C14
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C758	C18
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D626	E19
D651	H20
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Q355	A5
Q355	A9
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Q356	B9
Q356	C4
Q356	C5
Q356	C6
Q356	C13
Q625	E4
Q625	F9
Q626	G13
Q627	H9
Q628	G11
Q629	F11
Q630	E18
Q751	B16
Q752	C14
Q752	C17
Q753	B17
Q754	B15
R351	B2
R352	C2
R359	B3
R360	B3
R361	C3
R362	C4
R363	B7
R364	C4
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R368	B8
R369	B4
R370	B4
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R371	B5
R372	B5
R373	C5
R374	B6
R376	B6
R377	A3
R378	B3
R379	A4
R380	B4
R381	B5
R382	A5
R383	A5
R384	A5
R385	A6
R386	B6
R387	A6
R388	A7
R389	A8
R390	A8
R391	A8
R392	A8
R393	A8
R394	A9
R395	A9
R396	A12
R397	A6
R398	A6
R531	G1
R625	G3
R626	H3
R627	H3
R628	H3
R629	F4
R630	F4
R631	G4
R632	H4
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R644	F16
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R658	G9
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R660	F10
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R663	F20
R664	C14
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R666	G11
R667	D9
R668	H12
R677	H13
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R752	C14
R753	C13
R754	C18
R756	B14
R757	C18
R758	C7
R759	C13
R760	C14
R761	A2
R762	C2
R763	C10
R764	A11
R765	A10
U671	E19
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U681	F19
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U683	D10
U684	D10
U685	D10
U686	D3
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U710	G19
U711	D12
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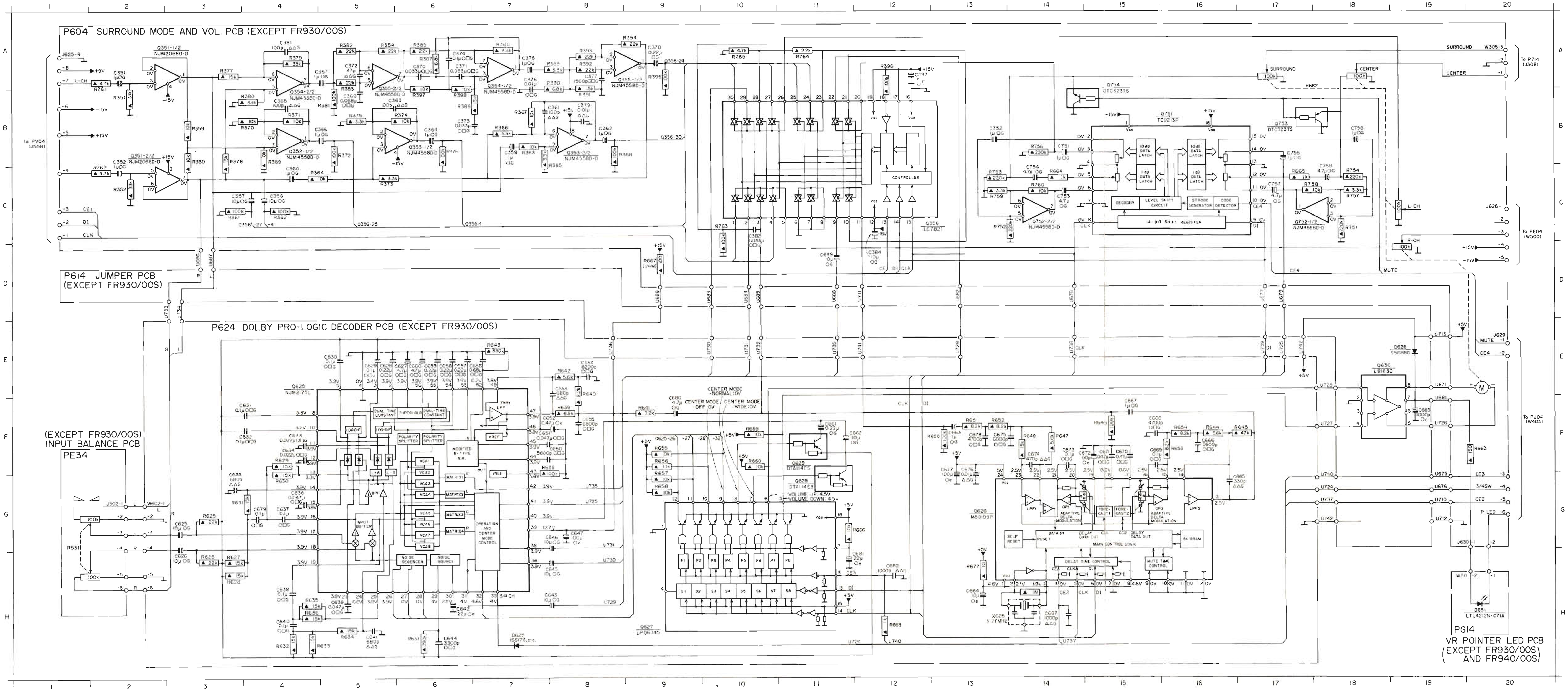
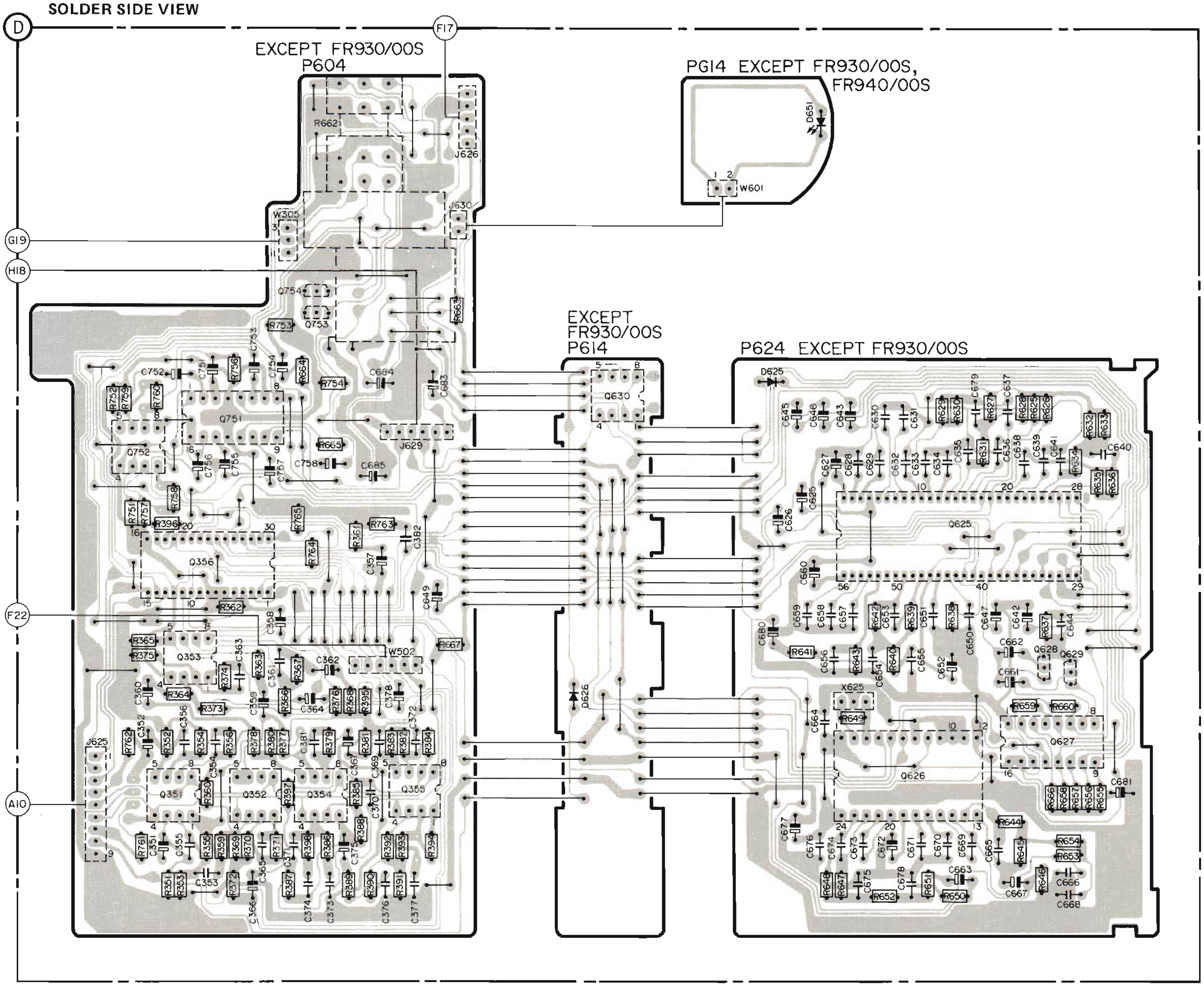


R	R752 R751 R396 R756~R762 R753 R662 R664 R665 R754 R763~R765 R667 R663 R638~R643 R625~R637 R653~R660	R
	R351~R356 R359~R365 R369~R380 R366~R368 R397 R398 R381~R395 R647~R649 R650~R652 R644~R646 R666	
C	C751~C758 C358 C359 C361~C367 C357 C382 C649 C645 C646 C643 C625~C635 C679 C636~C642 C644	C
	C351~C356 C381 C369~C378 C680 C664 C650~C660 C670~C678 C647 C661~C663 C665~C669 C681	
Q - D	Q752 Q351 Q353 Q356 Q751 Q352 Q754 Q753 Q354 Q355 D626 Q630 D625 D651 Q626 Q625 Q627~Q629	Q - D
X	X625	X

SOLDER SIDE VIEW



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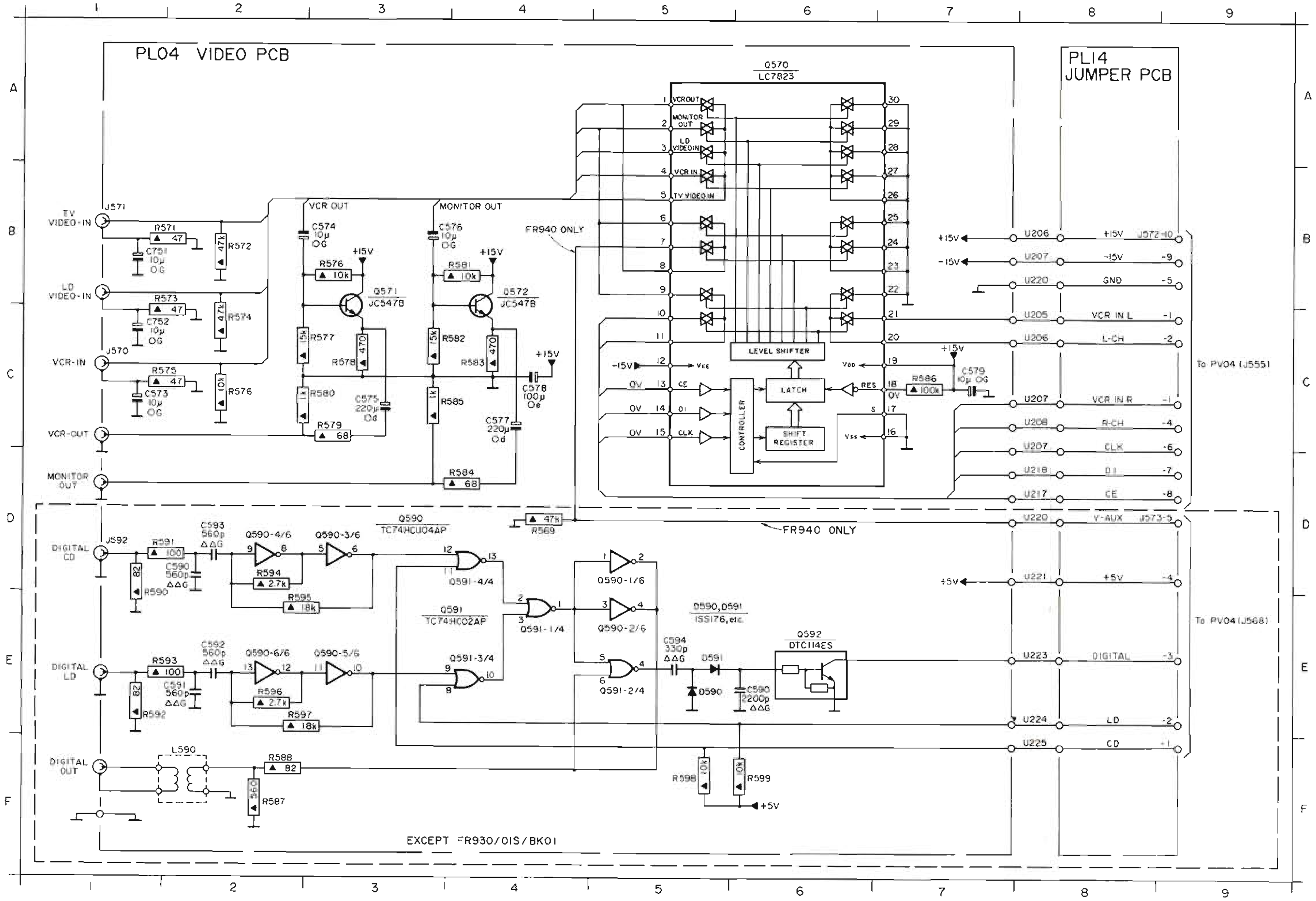
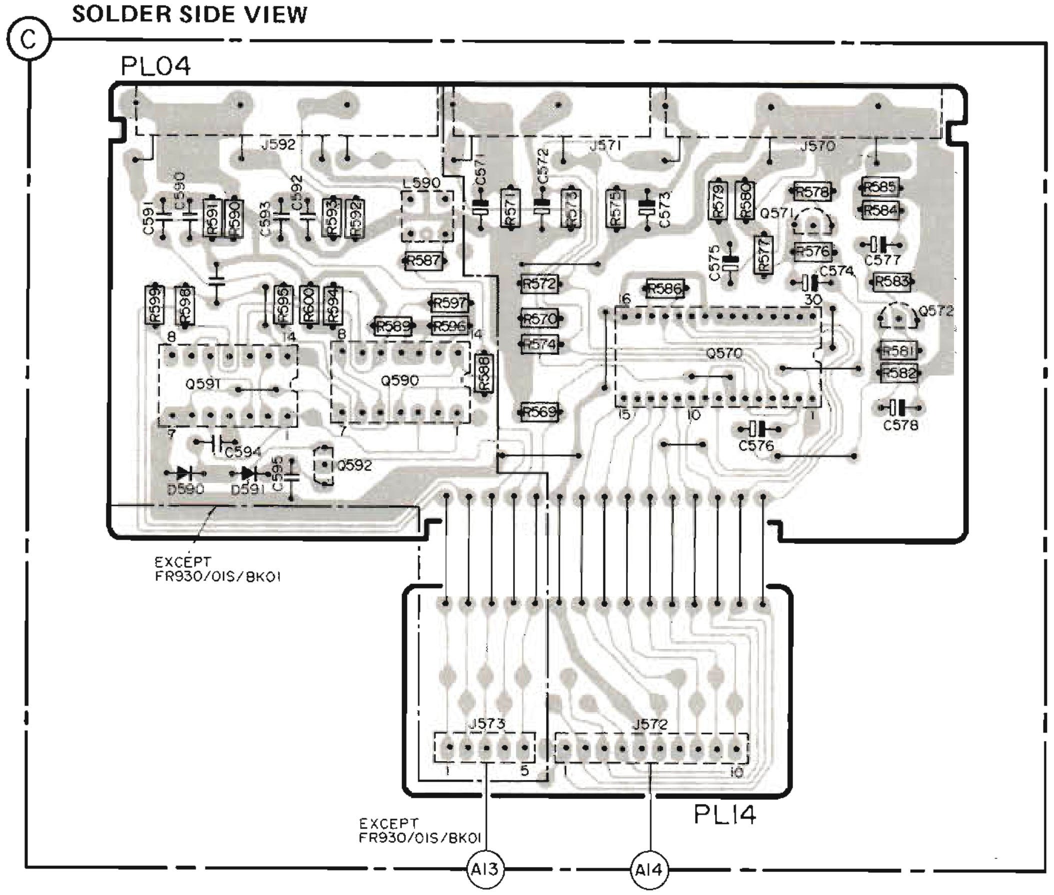
C574	B3	C592	E2	L590	F2	Q591	D4	R576	B3	R586	C7	R597	E2
C575	C3	C593	D2	Q570	A6	Q591	E4	R576	C2	R587	F2	R598	F5
C576	B3	C594	E5	Q571	B3	Q591	E5	R577	C2	R588	F2	R599	F6
C577	C4	C751	B1	Q572	B4	Q592	E6	R578	C3	R590	D1		
C578	C4	C752	C1	Q590	D2	R569	D4	R579	C3	R591	D1		
C579	C7	J570	C1	Q590	D3	R571	B1	R580	C2	R592	E1		
C590	D2	J571	B1	Q590D5		R571	B2	R582	C3	R593	E1		
C590	E5	J572	B9	Q590	E2	R573	B1	R583	C4	R594	D2		
C590	E6	J573	D9	Q590	E3	R574	C2	R584	D4	R595	E2		



R	R599 R598 R600 R590~R595 R587~R589 R597 R596 R569~R575 R586 R580 R576~R580 R581~R585	R
C	C591 C590 C592~C595 C571 C572 C573 C575 C576 C574 C577 C578	C
Q-D-L	D590 Q591 D591 Q592 Q590 L590 Q570 Q571 Q572	Q-D-L

SOLDER SIDE VIEW



FR930/FR940

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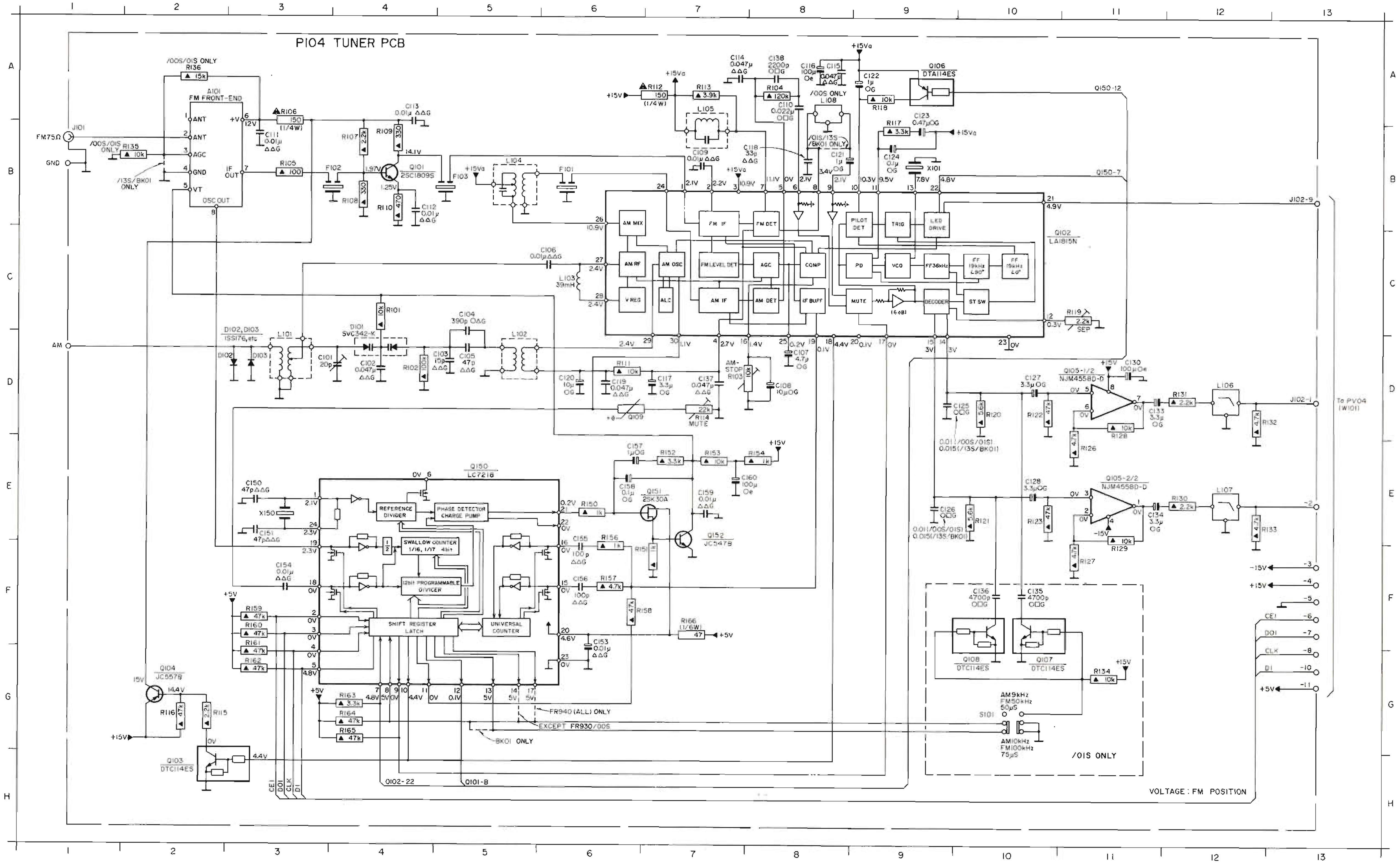
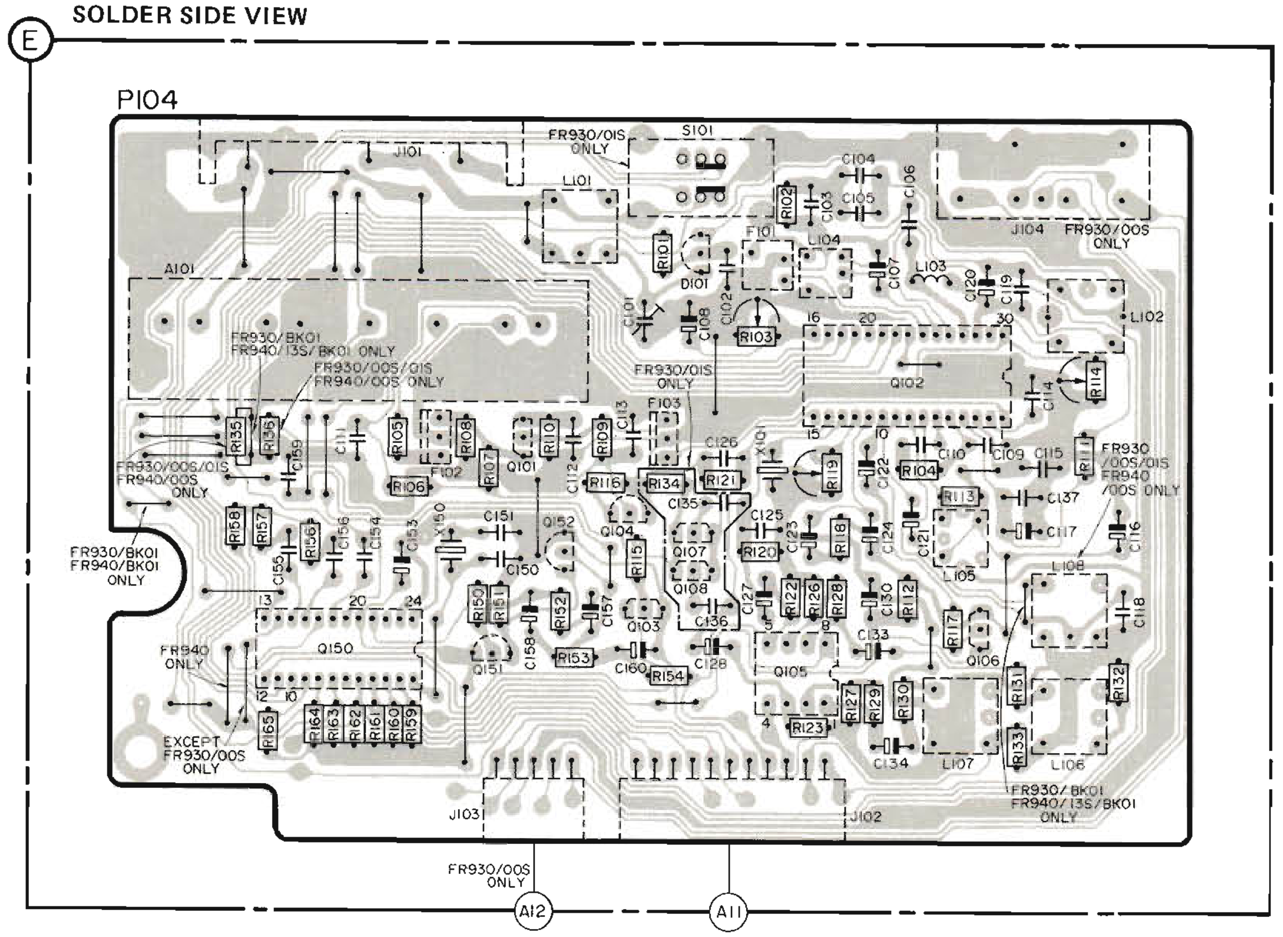
C101	D4	C111	B3	C121	B8	C134	E11	C155	F6	F102	B3	L106	A9	Q106	A9	R102	D4	R112	A7	R122	D10	R134	G11	R158	F6	X150	E3
C102	D4	C112	B4	C122	A9	C135	F10	C156	F6	F103	B5	L107	E12	Q107	F10	R103	D7	R113	A7	R123	E10	R135	B2	R159	F3		
C103	D5	C113	A4	C123	B9	C136	F10	C157	E6	J101	B1	Q101	B4	Q108	F10	R104	A8	R114	D7	R126	E11	R136	A2	R160	F3		
C104	C5	C114	A7	C124	B9	C137	D7	C158	E6	J102	B13	Q101	H5	Q109	D6	R105	B3	R115	G2	R127	F11	R150	E6	R161	G3		
C105	D5	C115	A8	C125	D9	C138	A8	C159	E7	J102	B13	Q102	C11	Q150	A11	R106	A3	R116	G2	R128	D11	R151	F7	R162	G3		
C106	C6	C116	A8	C126	E9	C150	E3	C160	E7	L101	D3	Q102	H4	Q150	B11	R107	B4	R117	B9	R129	E11	R152	E7	R163	G4		
C107	D8	C117	D7	C127	D10	C151	E3	D101	D4	L102	D5	Q103	H2	Q150	E5	R108	B4	R118	A9	R130	E12	R153	E7	R164	G4		
C108	D8	C118	B8	C128	E10	C153	F6	D102	D3	L103	C6	Q104	G2	Q151	E7	R109	B4	R119	C11	R131	D12	R154	E8	R165	G4		
C109	B7	C119	D6	C130	D11	C153	G6	D103	D3	L104	B5	Q105	D11	Q152	E7	R110	B4	R120	D10	R132	D12	R156	F6	R166	F7		



R	R135 R136 R105～R108 R110 R109 R101 R134 R103 R102 R119 R118 R104 R113 R111 R114	R
	R156～R158 R159～R165 R150～R153 R116 R115 R154 R120～R122 R126～R130 R112 R117 R131 R133 R132	
C	C159 C111 C151 C112 C113 C101 C108 C102 C103～C107 C130 C120 C119 C137	C
	R153～C156 C150 C158 C157 C160 C135 C136 C125～C128 C121～C124 C133 C134 C110 C109 C114～C118	
Q	Q150 Q151 Q101 Q152 Q104 Q103 Q107 Q108 Q105 Q102 Q106	Q
D - S	S101 D101	D - S
F - L - X	F102 X150 L101 F103 F101 X101 L104 L103 L105 L107 L108 L106 L102	F - L - X

SOLDER SIDE VIEW



FR930/01S,BK01
FR940/00S/13S,BK01

C501	B2
C502	C2
C503	B2
C504	C2
C505	A4
C506	C4
C507	A6
C508	C6
C509	A7
C510	C7
C511	B4
C512	B4
C513	B6
C514	B6
C515	E6
C516	D6
C517	C11
C518	C10
C519	A12
C520	C8
C521	A12
C522	C8
C523	B12
C524	B8
C525	B12
C526	B8
C527	C12
C528	A8
C529	C12
C530	A8
C531	B4
C532	C3
C533	D4
C554	E4
D501	C10
D502	C10
J501	E13
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Q501	A12
Q501	C7
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Q502	A7
Q502	B7
Q502	B12
Q502	C12
Q503	E11
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R547	E6
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R549	D12
R550	D12
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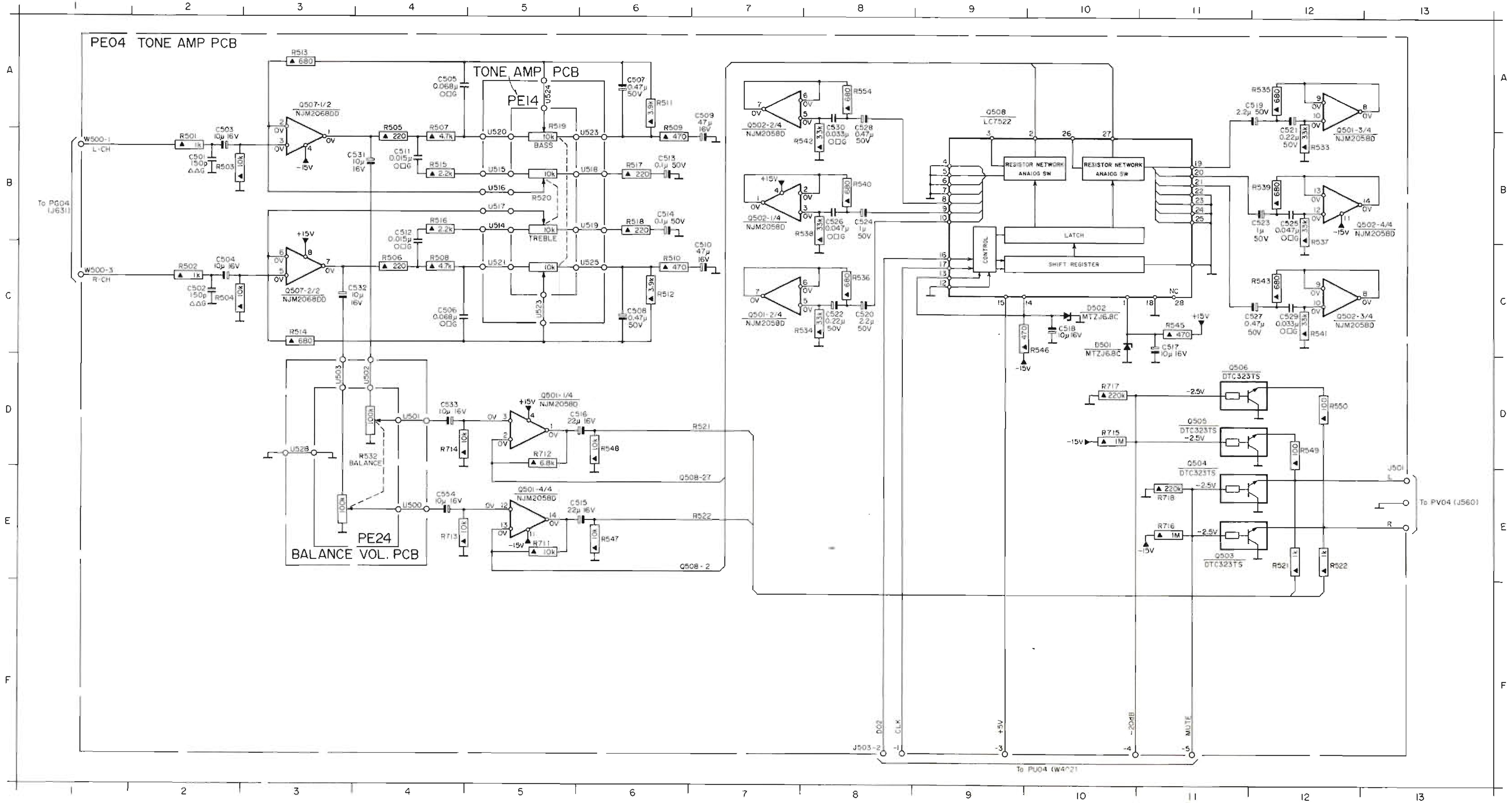
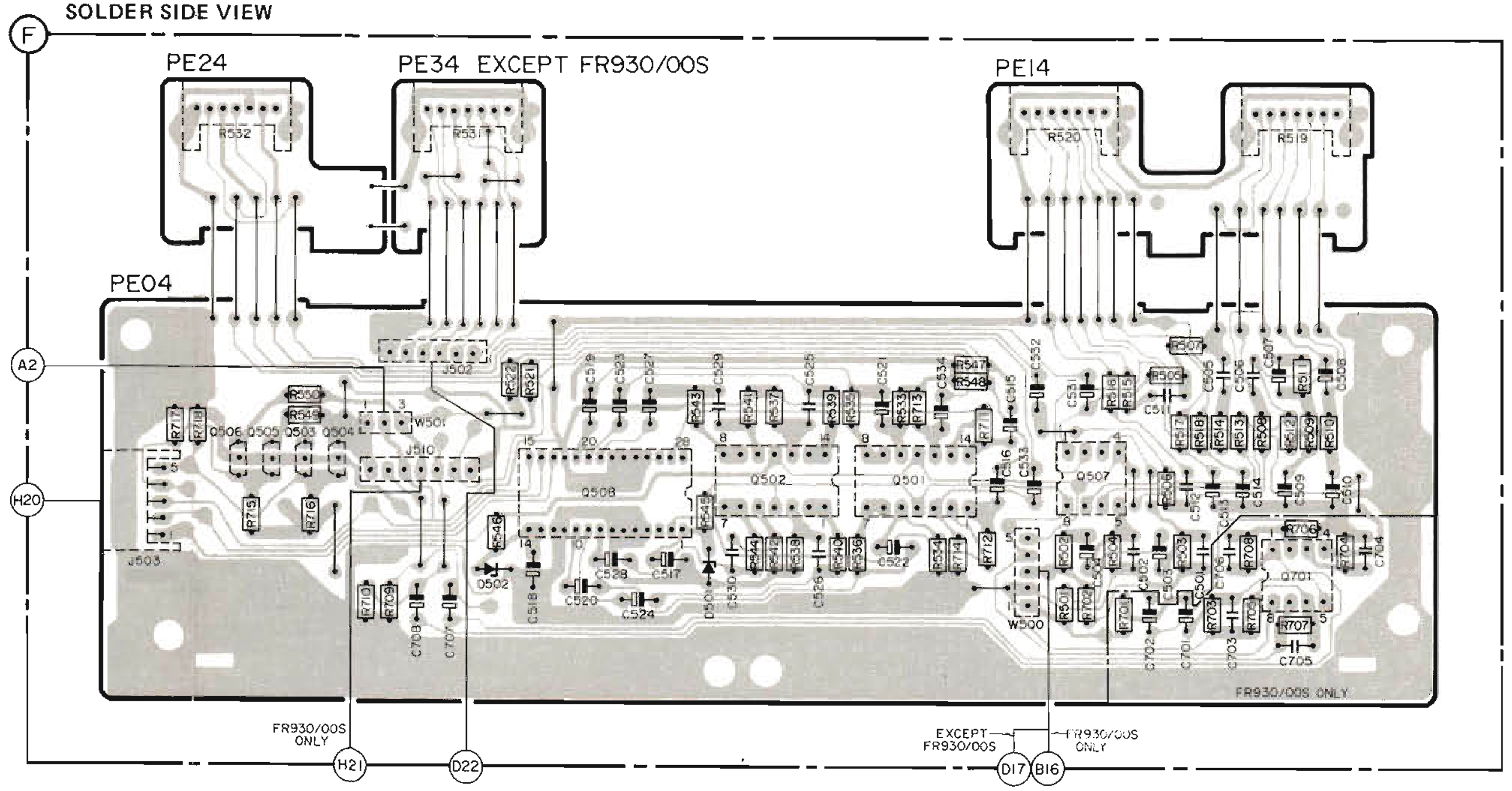
R718	E11



R	R717 R718 R532 R550 R531 R522 R521 R543 R541 R537 R539 R535 R533 R713 R547 R711 R520 R516 R515 R517~R519 R505~R514 R715 R716 R710 R709 R546 R545 R544 R542 R538 R540 R536 R534 R714 R548 R712 R501~R504 R701~R703 R704~R708	R
C	C517~C520 C523 C524 C527~C530 C525 C526 C521 C522 C534 C516 C515 C531 C531~C533 C501~C514 C701~C706	C
D – Q	Q506 Q505 Q503 Q504 D502 Q508 D501 Q502 Q501 Q507 Q701	D – Q

SOLDER SIDE VIEW



FR930/00S

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C504	C2
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C507	A6
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C704	F4
C705	G3
C706	F4
C707	F4
C708	F5
D501	C10
D502	C10
J501	E13
J503	G8
J510	E13
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Q501	D5
Q501	E5
Q502	A7
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R712	D5
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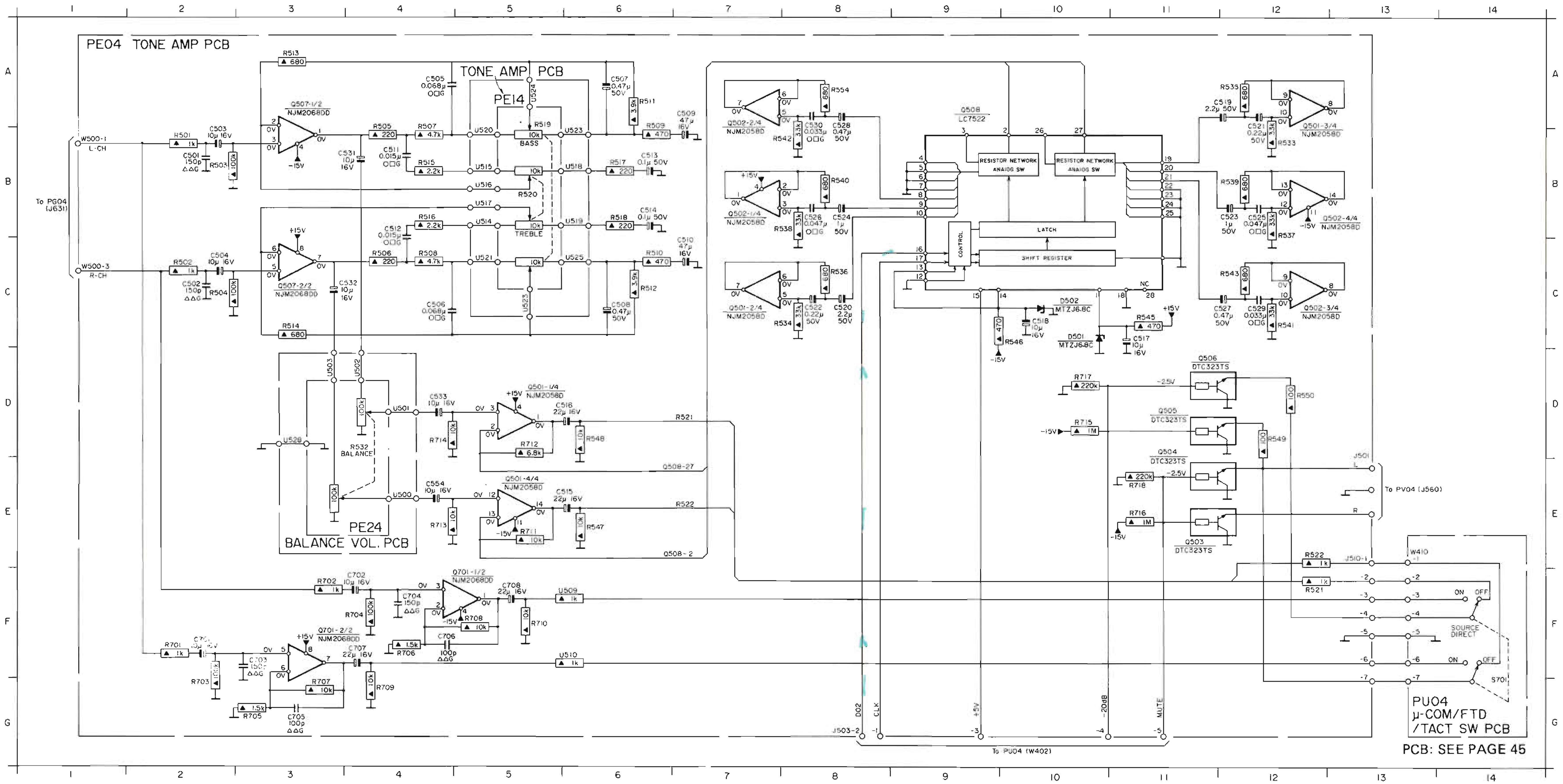
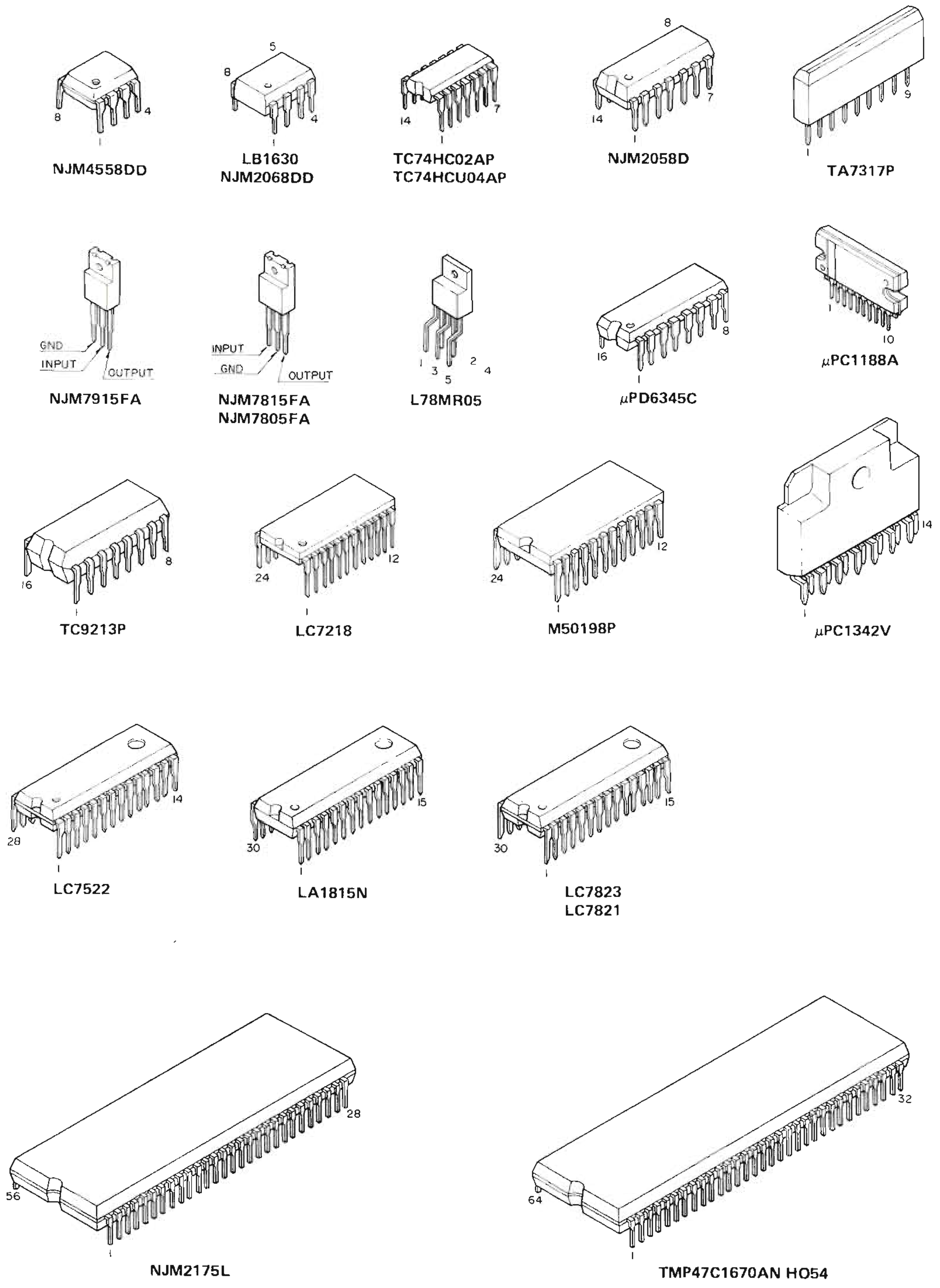
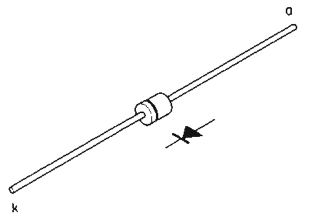


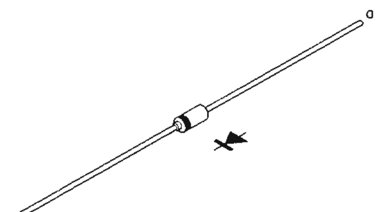
SEMI-CONDUCTOR LAYOUT



SEMI-CONDUCTOR LAYOUT



S5688G



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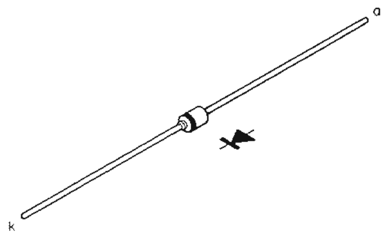
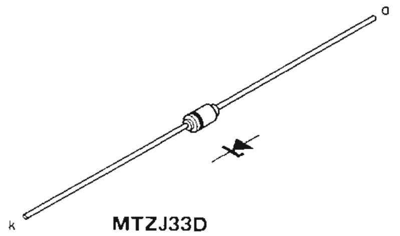
MA165
1SS254



HSS81TD



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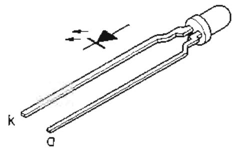
RD6.8JB2/MTZJ6.8C



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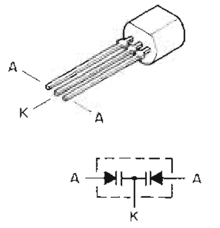
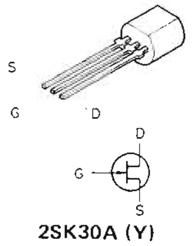


SVC342 (K)



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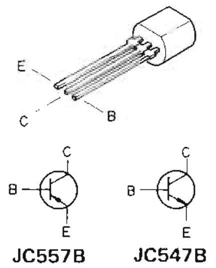

JC557B
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JC547B
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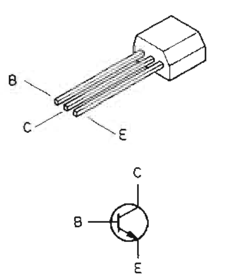

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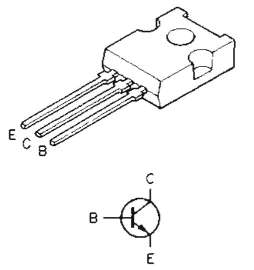

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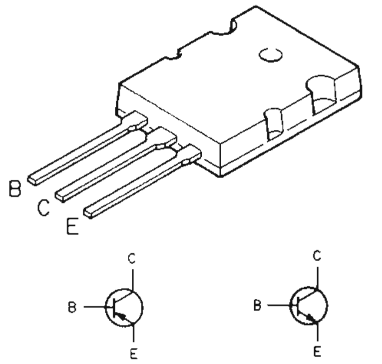

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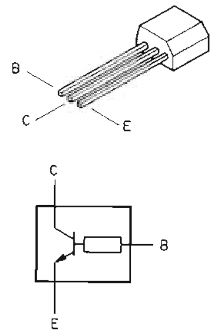
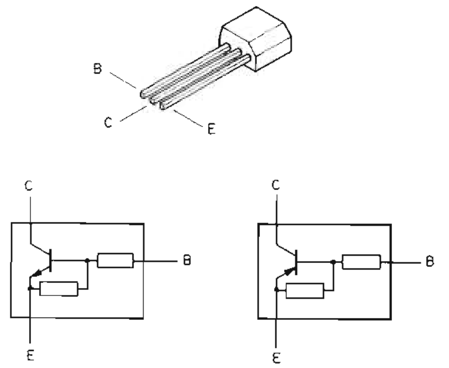
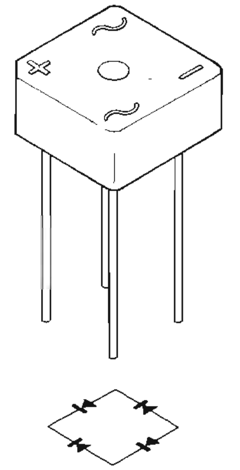


DTC323TS

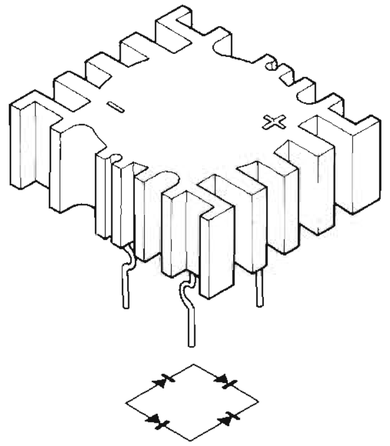


DTC114ES

DTA114ES



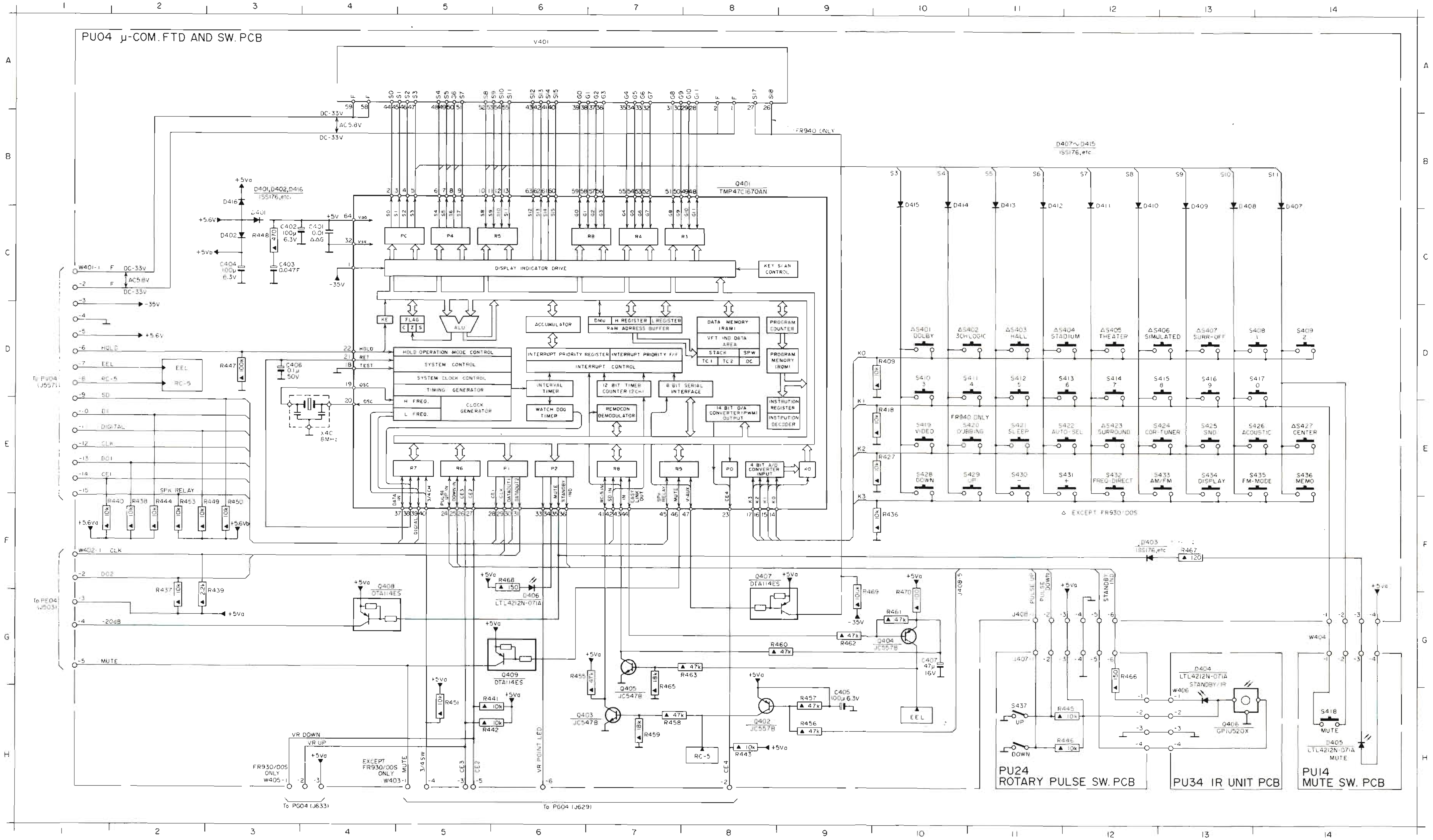
PCS 67 152 S4VB-20



D5FB02L20

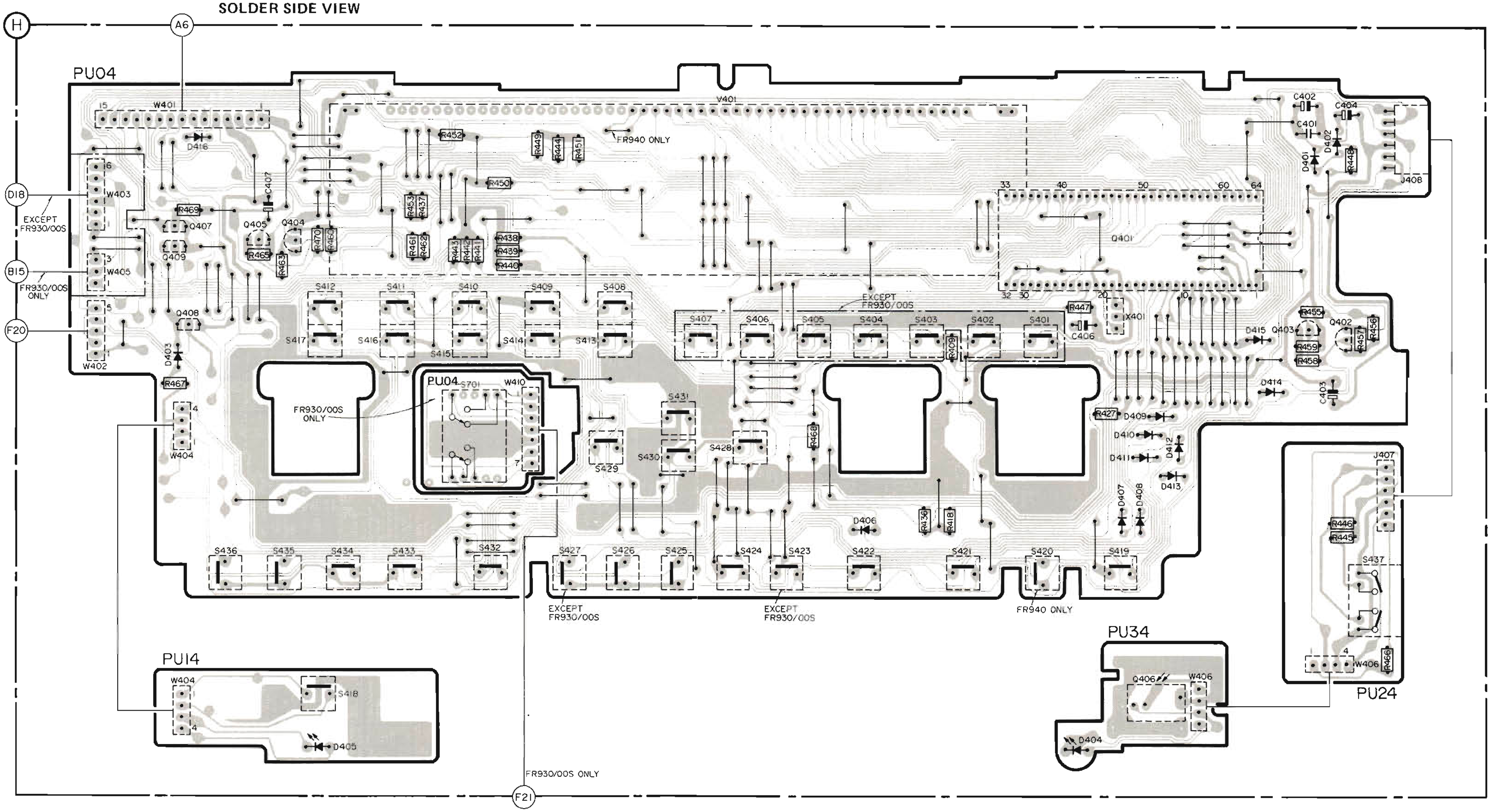
C401	C4	D404	G13	D414	B10	Q401	B8	R418	E10	R444	F2	R456	H9	R467	F13	S407	D13	S417	D14	S427	E14	S437	H11
C402	C3	D405	H14	D415	B10	Q403	H7	R427	E10	R445	H12	R457	H9	R468	F6	S408	D14	S418	D14	S428	E10	V401	A6
C403	C3	D406	G6	D416	B3	Q404	G10	R436	F10	R446	H12	R458	H7	R469	G9	S409	D14	S419	E10	S429	E11	X401	E4
C404	C3	D407	B14	J407	G11	Q405	H7	R437	G2	R447	D3	R459	H7	R470	G10	S410	D10	S420	E11	S430	E11		
C405	H9	D408	B13	J408	F10	Q406	H13	R438	F2	R448	C3	R460	G9	S401	D10	S411	D11	S421	E11	S431	E12		
C406	D3	D409	B13	J408	G11	Q407	G8	R439	G2	R449	F2	R461	G10	S402	D11	S412	D11	S422	E12	S432	E12		
C407	G10	D410	B12	J503	G1	Q408	G4	R440	F1	R450	F3	R462	G9	S403	D11	S413	D12	S423	E12	S433	E13		
D401	C3	D411	B12	J557	D1	Q408	H8	R441	H5	R451	H5	R463	G8	S404	D12	S414	D12	S424	E13	S434	E13		
D402	C3	D412	B11	J629	H6	Q409	G6	R442	H5	R453	F2	R465	H7	S405	D12	S415	D13	S425	E13	S435	E14		
D403	F12	D413	B11	J633	H4	R409	D10	R443	H8	R455	H7	R466	G12	S406	D13	S416	D13	S426	E14	S436	E14		

FR930/FR940



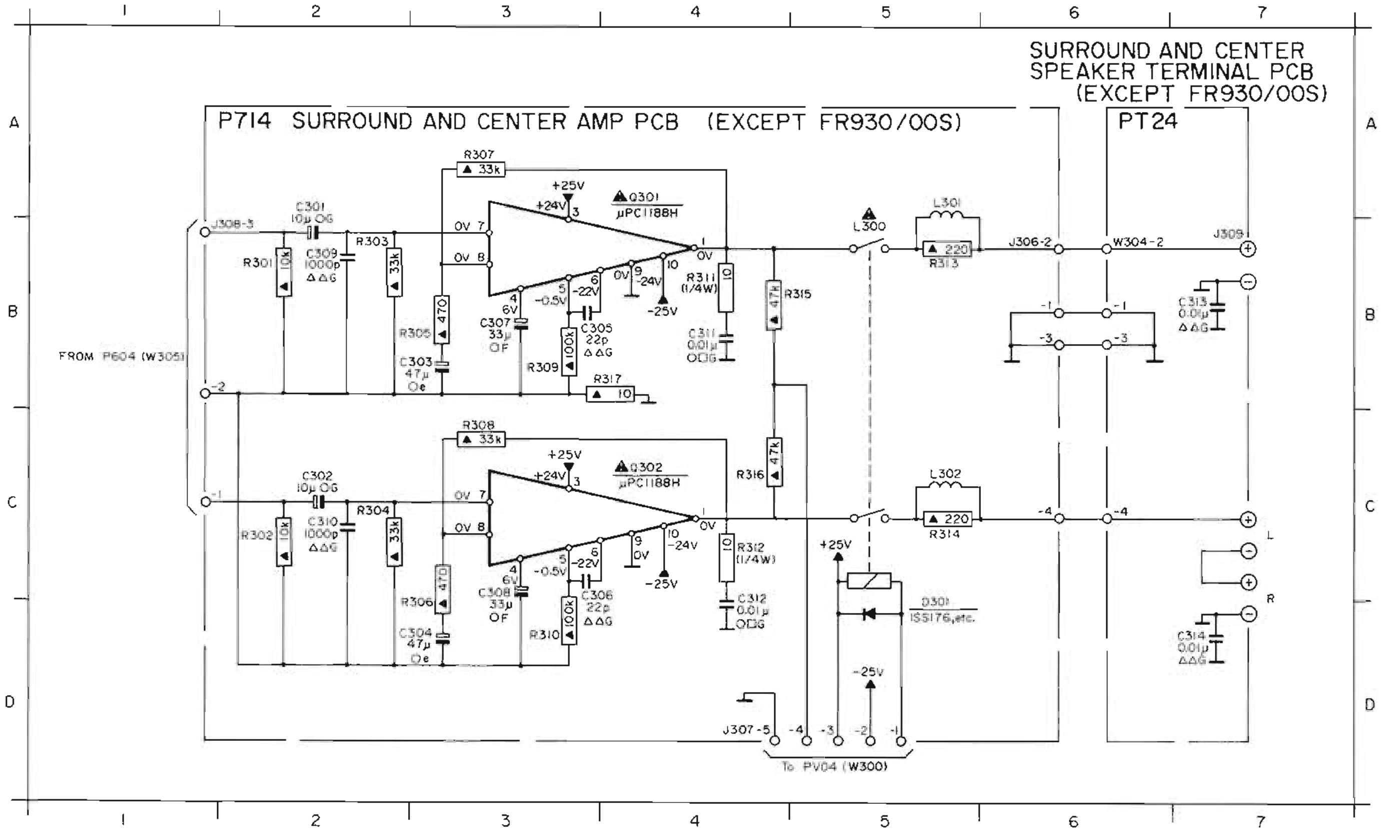
R	R467 R469 R465 R463 R470 R460 R453 R437 R461 R462 R452 R438~R444 R449~R451 R468 R436 R418 R409 R447 R427 R455~R459 R445 R446 R448 R466	R
C	C407 C406 C401 ~ C404	C
Q – D	D403 Q407~Q409 D416 Q405 Q404 D405 D406 D404 Q401 Q406 D407~D413 D415 D414 Q403 D401 D402 Q402	Q – D
S – X	S432~S436 S413~S417 S408~S412 S423~S431 S401~S407 S419~S422 X401 S437	S – X

SOLDER SIDE VIEW



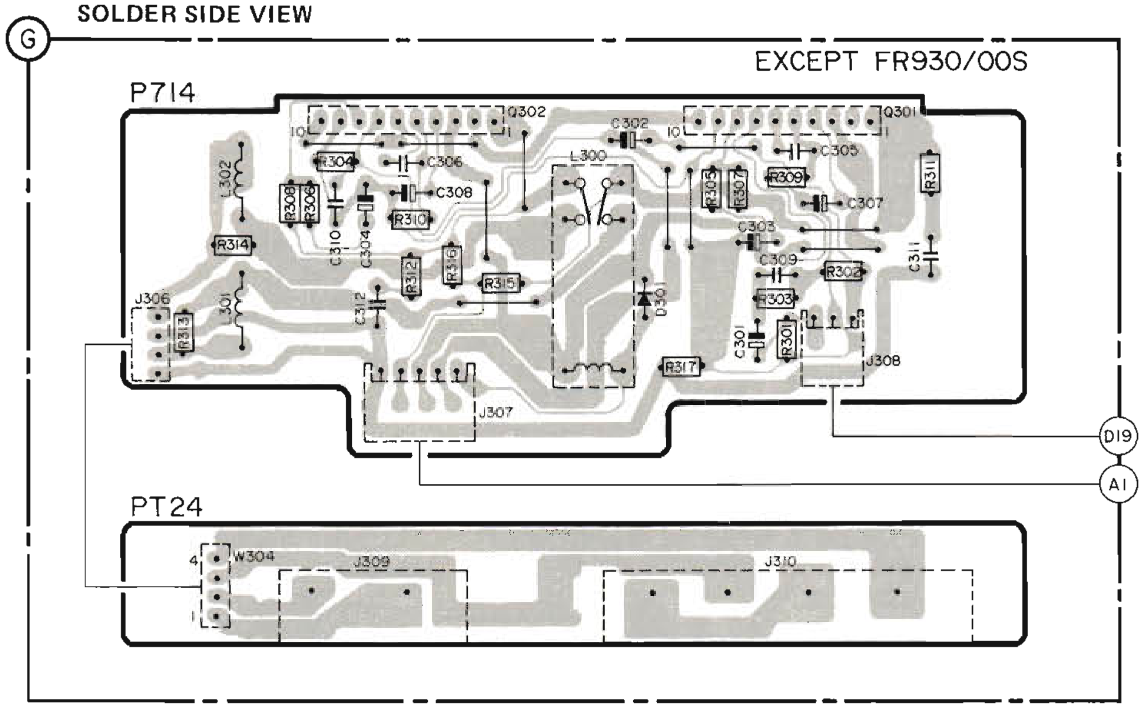
FR930/01S,BK01
FR940/00S/13S,BK01

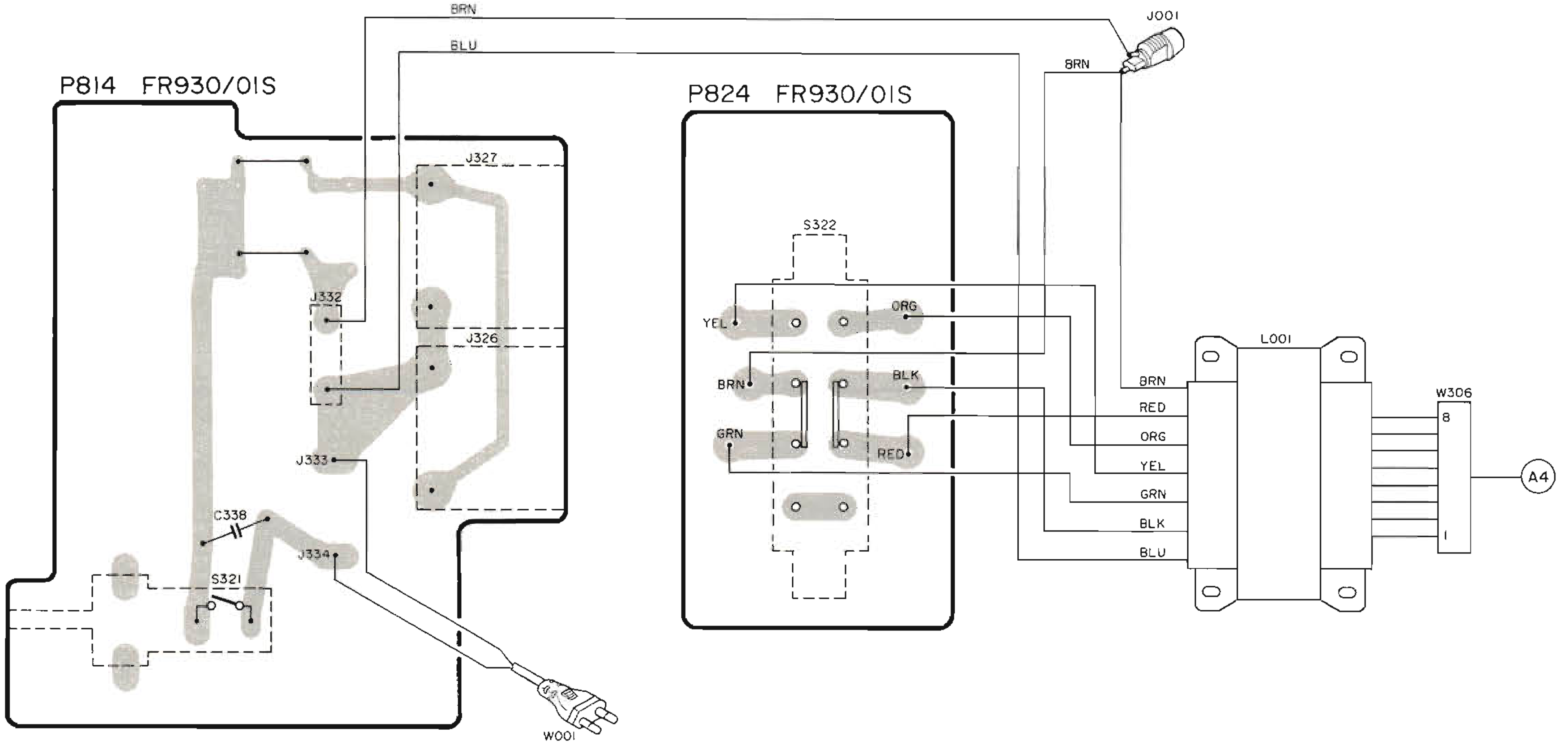
C301	B2	C311	B4	L301	A5	R307	A3	R317	B4
C302	B3	C312	D4	L302	C5	R308	C3		
C303	B3	C313	B7	Q301	A4	R309	B3		
C304	D3	C314	D7	Q302	C4	R310	D3		
C305	B3	D301	D5	R301	B2	R311	B4		
C306	C3	J306	B6	R302	C2	R312	C4		
C307	B3	J307	D4	R303	B2	R313	B5		
C308	C3	J308	B1	R304	C2	R314	C5		
C309	B2	J309	B7	R305	B3	R315	B4		
C310	C2	L300	B5	R306	C3	R316	C4		



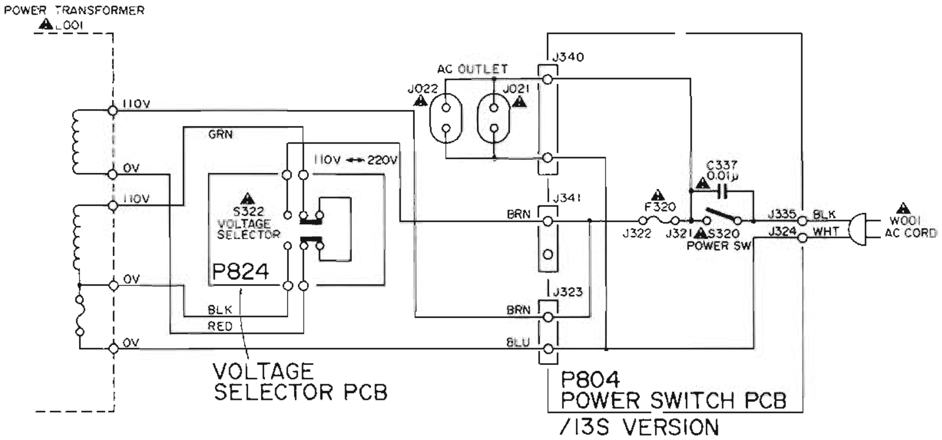
R	R313 R314 R308 R306 R304 R310 R312 R316 R315	R317 R305 R307 R309 R301~R303 R311	R
C	C310 C312 C304 C306 C308	C302 C301 C303 C309 C305 C307 C311	C
Q – D	Q302	D301 Q301	Q – D
L	L302 L301	L300	L

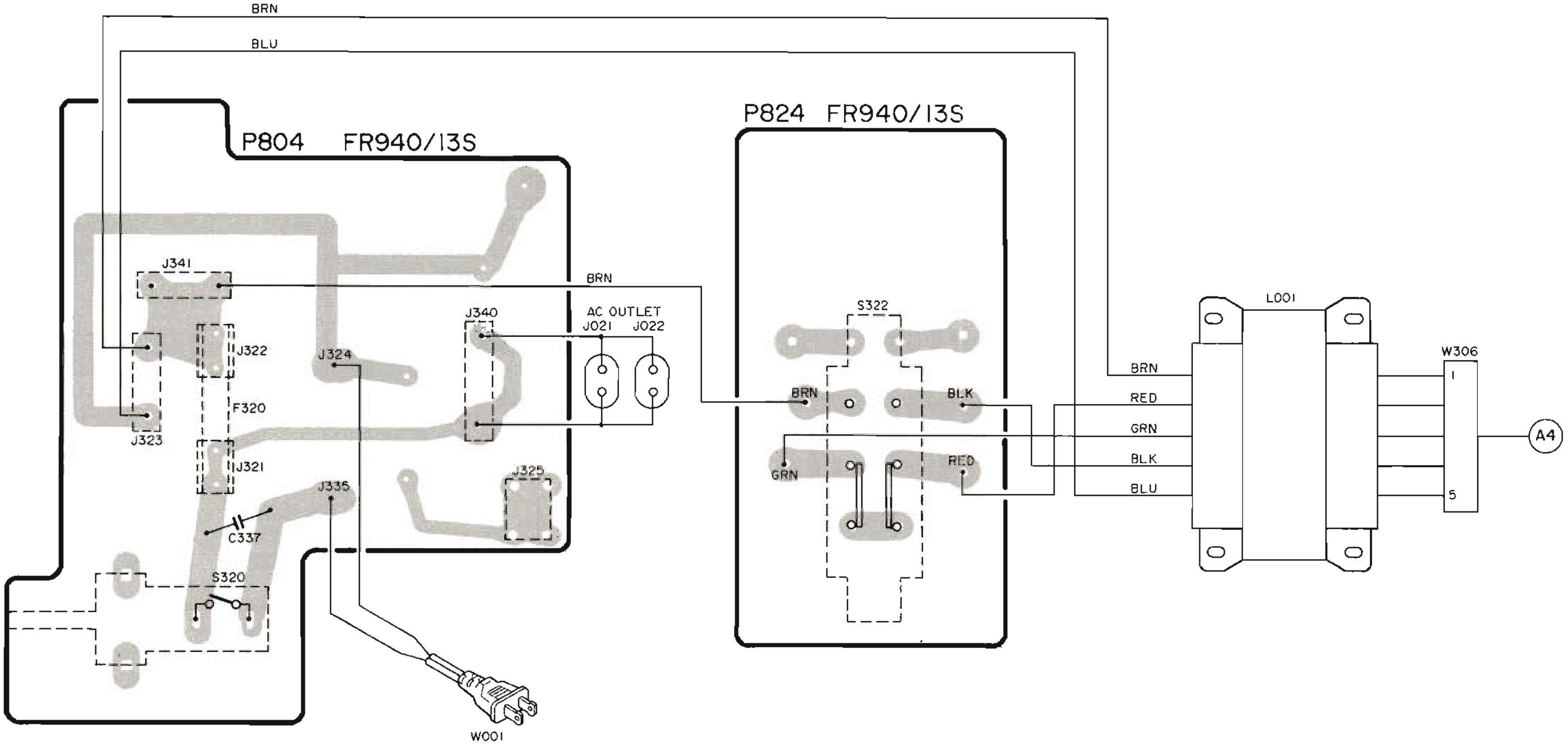
SOLDER SIDE VIEW





FR940/13S


POWER TRANSFORMER
L001
110V
0V
110V
0V
0V
GRN
BLK
RED
S322
VOLTAGE
SELECTOR
P824
110V ↔ 220V
VOLTAGE
SELECTOR PCB
AC OUTLET
J022
J021
J340
J341
BRN
J323
BRN
BLU
F320
J322
J321
S320
POWER SW
C337
0.01μ
J335
BLK
J324
WHT
W001
AC CORD
P804
POWER SWITCH PCB
/13S VERSION


BRN
BLU
P804 FR940/13S
J341
J322
J323
F320
J321
J324
J340
AC OUTLET
J021 J022
BRN
J335
C337
J325
S320
W001
P824 FR940/13S
S322
BRN
BLK
GRN
RED
L001
BRN
RED
GRN
BLK
BLU
W306
1
5
A4

ELECTRICAL PARTS LIST (FR930)

	Q101	4822 130 62294	2SC1809S (P)
	Q103	4822 130 60588	DTC114ES
	Q104	4822 130 62386	JC557B
	Q106	4822 130 61227	DTA114ES
	Q107, Q108	4822 130 60588	DTC114ES [/01S]
	Q151	4822 130 42121	2SK30A (Y)
	Q152	4822 130 62295	JC547B
	Q253, Q254	4822 130 60117	2SC3419 (Y)
▲	Q255, Q256	4822 130 63096	2SD2052 (S)
▲	Q257, Q258	4822 130 63095	2SB1361 (S)
	Q259, Q260	4822 130 43233	2SC2240 (GR, BL)
	Q261	4822 130 42951	2SA970 (GR, BL)
	Q402, Q404	4822 130 62386	JC557B
	Q403, Q405	4822 130 62295	JC547B
	Q407÷Q409	4822 130 61227	DTA114ES
	Q503÷Q506	4822 130 61723	DTC323TS
	Q571, Q572	4822 130 62295	JC547B
	Q592	4822 130 60588	DTC114ES [/00S]
	Q628, Q629	4822 130 61227	DTA114ES [/01S,BK01]
	Q753, Q754	4822 130 61723	DTC323TS [/01S,BK01]

	D101	4822 125 50416	SVC342K
	D102, D103	4822 130 33305	1SS176 (MA165, 1SS254)
	D251, D252	4822 130 80837	HSS81TD
	D253, D254	4822 130 33305	1SS176 (MA165, 1SS254)
	D301	4822 130 33305	1SS176 (MA165, 1SS254) [/01S, BK01]
▲	D320	4822 130 30984	S5VB20
▲	D321	4822 130 31007	S4VB20 [/01S, BK01]
▲	D321	4822 130 80907	S2VB20 [/00S]
▲	D322, D323	4822 130 80839	S5688G
	D324	4822 130 81729	MTZJ33D
	D325, D326	4822 130 80839	S5688G
	D327	4822 130 80839	S5688G [/00S]
	D401÷D403	4822 130 33305	1SS176 (MA165, 1SS254)
	D404÷D406	4822 130 82978	LTL4212N-071A
	D407÷D416	4822 130 33305	1SS176 (MA165, 1SS254)
	D501, D502	4822 130 80318	RD6.8JB2, MTZJ6.8C
	D590, D591	4822 130 33305	1SS176 (MA165, 1SS254) [/00S]
	D625	4822 130 33305	1SS176 (MA165, 1SS254) [/01S, BK01]
	D626	4822 130 80839	S5688G
	D627	4822 130 80839	S5688G [/00S]
	D651	4822 130 82978	LTL4212N-071A [/01S, BK01]
	Q109	4822 126 90002	Posistor ZPA21BB251B1UA

	Q102	4822 209 31001	LA1851N
	Q105	4822 209 83631	NJM4558DD
	Q150	4822 209 73435	LC7218
▲	Q251, Q252	4822 209 70382	μPC1298V
	Q262	4822 209 83312	TA7317P
▲	Q301, Q302	4822 209 73727	μPC1188H [/01S, BK01]
▲	Q320	4822 209 70385	L78MR05
▲	Q321	4822 209 61848	NJM7815FA
▲	Q322	4822 209 83828	NJM7915FA
▲	Q323	4822 209 31631	NJM7805FA [/01S,BK01]
	Q351	4822 209 73064	NJM2068DD [/01S,BK01]
	Q352÷Q355	4822 209 83631	NJM4558DD [/01S,BK01]
	Q356	4822 209 72748	LC7821 [/01S,BK01]
	Q401	4822 209 31556	TMP47C1670AN H054
	Q501, Q502	4822 209 70044	NJM2058D
	Q507	4822 209 73064	NJM2068DD
	Q508	4822 209 71783	LC7522
	Q551	4822 209 72748	LC7821
	Q552	4822 209 73731	LC7823 [/00S]
	Q570	4822 209 73731	LC7823
	Q590	4822 209 72323	TC74HCU04AP [/00S]
	Q591	4822 209 61688	TC74HC02AP [/00S]
	Q601	4822 209 83631	NJM4558DD
	Q625	4822 209 31572	NJM2175L [/01S,BK01]
	Q626	4822 209 31573	M50198P [/01S,BK01]
	Q627	4822 209 31574	μPD6345C [/01S,BK01]
	Q630	4822 209 73287	LB1630 [/01S,BK01]
	Q631	4822 209 73287	LB1630 [/00S]
	Q701	4822 209 73064	NJM2068DD [/00S]
	Q751	4822 209 31575	TC9213P [/01S,BK01]
	Q752	4822 209 83631	NJM4558DD [/01S,BK01]

	L101	4822 157 63084	Ant coil AM
	L102	4822 157 52716	OSC coil AM
	L103	4822 157 53589	Choke coil 39mH
	L104	4822 148 81095	I.F.T. coil AM
	L105	4822 148 81269	I.F.T. coil FM
	L106, L107	4822 157 70021	MPX coil FM
	L108	4822 156 10794	MPX coil [/00S, /01S]
▲	L251	4822 280 70354	Relay, speaker
	L252, L253	4822 157 70022	Air coil, speaker
▲	L300	4822 280 70354	Relay, speaker [/01S, BK01]
	L301, L302	4822 157 70022	Air coil speaker [/01S, BK01]
	L590	4822 148 81268	Pulse transformer [/00S]

(FR930)

	R103	4822 100 11351	Potm. trimmer 10K
▲	R106, R112	4822 050 21501	Res. 150E 1/4W
	R114	4822 100 11352	Potm. trimmer 22K
	R119	4822 100 20681	Potm. trimmer 2.2K
	R263, R264	4822 100 11386	Potm. trimmer 1K
▲	R271, R272	4822 116 82049	Res. 0.18Ex2 3W
	R280, R281	4822 050 22201	Res. 220E 1/4W
▲	R282, R283	4822 053 11109	Res. 10E 2W
▲	R287÷R290	4822 115 90166	Res. fusible 10E 1/4W
▲	R293, R294	4822 053 11681	Res. 680E 2W
▲	R295, R296	4822 050 21501	Res. 150E 1/2W
	R311, R312	4822 052 10109	Res. 10E 1/4W [/01S,BK01]
	R313, R314	4822 050 22201	Res. 220E 1/4W [/01S,BK01]
▲	R319	4822 115 90166	Res. fusible 10E 1/4W
▲	R320	4822 050 24701	Res. 470E 1/2W
▲	R323	4822 053 11151	Res. 150E 2W [/01S,BK01]
▲	R323	4822 053 11479	Res. 47E 2W [/00S]
▲	R325, R326	4822 116 60313	Res. fusible 10E 1/2W
▲	R327	4822 113 80322	Res. 2.2M 1/2W [/01S,BK01]
▲	R328	4822 116 60313	Res. fusible 10E 1/2W [/01S,BK01]
	R519	4822 101 30797	Potm. bass 10K (C)
	R520	4822 101 30797	Potm. treble 10K (C)
	R531	4822 101 30798	Potm. input bal. 100K (W) [/01S,BK01]
	R532	4822 101 30798	Potm. balance 100K (W)
▲	R617, R618	4822 050 21021	Res. 100E 1/4W
	R662	4822 101 30799	Potm. master vol 100K [/01S,BK01]
	R662	4822 101 30801	Potm. master vol 100K (B)x2 [/00S]
	R667	4822 050 21021	Res. 100E 1/4W [/01S,BK01]

	C101	4822 125 60185	Cap. trimming 20pF
	C320, C323	4822 122 30043	Cap. ceramic 0.01μF 500V
	C321, C322	4822 124 23346	Cap. elect 8200μF 56V [/01S, BK01]
	C321, C322	4822 124 80369	Cap. elect 6800μF 63V [/00S]
	C324, C325	4822 124 80244	Cap. elect 4700μF 35V [/01S,BK01]
▲	C337	4822 122 33276	Cap. ceramic 0.01μF 400V [BK01]
▲	C338	4822 122 33276	Cap. ceramic 0.01μF 400V [/00S, /01S]
	C402	4822 124 21737	Cap. elect 100μF 6.3V
	C403	4822 124 23128	Cap. big elect 0.047F 5.5V
	C404, C405	4822 124 21737	Cap. elect 100μF 6.3V
	C406	4822 124 41604	Cap. elect 0.1μF 50V
	C407	4822 124 41246	Cap. elect 47μF 16V
	C503, C504	4822 124 21894	Cap. elect 10μF 16V
	C507, C508	4822 124 21898	Cap. elect 0.47μF 50V
	C509, C510	4822 124 41246	Cap. elect 47μF 16V
	C513, C514	4822 124 41604	Cap. elect 0.1μF 50V
	C515, C516	4822 124 21739	Cap. elect 22μF 16V
	C517, C518	4822 124 21894	Cap. elect 10μF 16V
	C519, C520	4822 124 41243	Cap. elect 2.2μF 50V
	C521, C522	4822 124 21895	Cap. elect 0.22μF 50V
	C523, C524	4822 124 21736	Cap. elect 1μF 50V
	C527, C528	4822 124 21898	Cap. elect 0.47μF 50V
	C531÷C534	4822 124 21894	Cap. elect 10μF 16V
	C701, C702	4822 124 21894	Cap. elect 10μF 16V [/00S]
	C707, C708	4822 124 21739	Cap. elect 22μF 16V [/00S]

	S101	4822 277 20968	Sean/ De-emphasis [/01S]
	S300	4822 276 13289	Speaker
▲	S320	4822 276 13285	Power [BK01]
▲	S321	4822 276 13285	Power [/00S,/01S]
▲	S322	4822 272 10322	Voltage selector [/01S]
	S401÷S417	4822 276 13288	Functions [01S,BK01]
	S408÷S417	4822 276 13288	Functions [/00S]
	S418, S419	4822 276 13213	Functions
	S421, S422	4822 276 13213	Functions
	S423÷S431	4822 276 13288	Functions [01S,BK01]
	S424÷S426	4822 276 13288	Functions [/00S]
	S428÷S431	4822 276 13288	Functions [/00S]
	S432÷S436	4822 276 13213	Functions
	S437	4822 273 10249	Pulse switch
	S701	4822 273 10251	Source direct [/00S]

ELECTRICAL PARTS LIST (FR940)

MISCELLANEOUS

	A101	4822 210 10397	V.H.F. tuner [BK01]
	A101	4822 210 10372	V.H.F. tuner [/00S, /01S]
	F101	4822 242 81262	Ceramic filter SFP450F
	F102	4822 242 70911	Ceramic filter 10.7MHz [BK01]
	F102	4822 242 71135	Ceramic filter 10.7MHz [/00S, /01S]
	F103	4822 242 71135	Ceramic filter 10.7MHz
▲	F320	4822 253 30224	Fuse 4.0A 125V [BK01]
▲	F321	4822 253 30416	Fuse T2.5A 250V [/00S]
▲	F322	4822 253 30416	Fuse T2:5A 250V [/00S]
▲	F323	4822 253 30409	Fuse T4.0A 250V [/01S]
▲	F323	4822 253 30224	Fuse 4.0A 125V [BK01]
▲	F324	4822 253 30409	Fuse T4.0A 250V [/01S]
▲	F324	4822 253 30224	Fuse 4.0A 125V [BK01]
	J101	4822 264 30255	Terminal, antenna [/00S]
	J101	4822 290 81537	Terminal, antenna [/01S, BK01]
	J104	4822 157 63605	Terminal, processor IN/OUT [/00S]
	J105	4822 264 10111	Short plug [/00S]
	J300	4822 266 30323	Terminal, speaker
	J309	4822 290 81525	Terminal, speaker 2P [/01S,BK01]
	J310	4822 290 81526	Terminal, speaker 4P [/01S,BK01]
▲	J320	4822 267 31286	Jack, AC outlet [BK01]
▲	J326, J327	4822 267 31194	Jack, AC outlet [/00S, /01S]
	J551, J552	4822 290 81524	Terminal, RCA pin 8P
	J553	4822 265 20542	Terminal, RCA pin 2P
	J554	4822 290 81519	Terminal, RCA pin 1P
	J570	4822 265 41264	Terminal, RCA pin 3P
	J571	4822 265 41263	Terminal, RCA pin 2P
	J585	4822 265 20555	Jack, headphone
	J592	4822 265 41265	Terminal, RCA pin 3P [/00S]
	Q406	4822 130 83197	IR receiver GP1U58XP
	V401	4822 130 91145	Display unit
	X101	4822 242 81248	Ceramic resonator CSB456F15
	X150	4822 242 72333	Crystal 7.2MHz
	X401	4822 242 73696	Ceramic resonator 8.00MHz
	X625	4822 242 81271	Ceramic resonator 3.27MHz [/01S, BK01]

	Q101	4822 130 62294	2SC1809S (P)
	Q103	4822 130 60588	DTC114ES
	Q104	4822 130 62386	JC557B
	Q106	4822 130 61227	DTA114ES
	Q151	4822 130 42121	2SK30A (Y)
	Q152	4822 130 62295	JC547B
	Q253, Q254	4822 130 60117	2SC3419 (Y)
▲	Q255, Q256	4822 130 63121	2SC3281 (O)
▲	Q257, Q258	4822 130 63119	2SA1302 (O)
	Q259, Q260	4822 130 43233	2SC2240 (GR, BL)
	Q261	4822 130 42951	2SA970 (GR, BL)
	Q290	4822 130 61227	DTA114ES
	Q291÷Q293	4822 130 62295	JC547B
	Q402, Q404	4822 130 62386	JC557B
	Q403, Q405	4822 130 62295	JC547B
	Q407÷Q409	4822 130 61227	DTA114ES
	Q503÷Q506	4822 130 61723	DTC323TS
	Q571, Q572	4822 130 62295	JC547B
	Q592	4822 130 60588	DTC114ES
	Q628, Q629	4822 130 61227	DTA114ES
	Q753, Q754	4822 130 61723	DTC323TS

	D101	4822 125 50416	SVC342K
	D102, D103	4822 130 33305	1SS176 (MA165, 1SS254)
	D251, D252	4822 130 80837	HSS81TD
	D253, D254	4822 130 33305	1SS176 (MA165, 1SS254)
	D291	4822 130 33305	1SS176 (MA165, 1SS254)
	D294, D301	4822 130 33305	1SS176 (MA165, 1SS254)
	D295	4822 130 42848	PTH9MO4BB222TS2F333 Posistor
	D296	4822 130 43564	PTH9MO4BE222TS2F333 Posistor
▲	D320	4822 130.33132	D5FBO2L20
▲	D321	4822 130 31007	S4VB-20
▲	D322, D323	4822 130 80839	S5688G
	D324	4822 130 81729	MTZJ33D
	D325, D326	4822 130 80839	S5688G
	D401÷D403	4822 130 33305	1SS176 (MA165, 1SS254)
	D404÷D406	4822 130 82978	LTL4212N-71A
	D407÷D416	4822 130 33305	1SS176 (MA165, 1SS254)
	D501, D502	4822 130 80318	RD6.8JB2, MTZJ6.8C
	D590, D591	4822 130 33305	1SS176 (MA165, 1SS254)
	D625	4822 130 33305	1SS176 (MA165, 1SS254)
	D626	4822 130 80839	S5688G
	D651	4822 130 82978	LTL4212N-071A [/13S, BK01]
	Q109	4822 126 90002	Posistor ZPA21BB251B1UA

	Q102	4822 209 31001	LA1851N
	Q105	4822 209 83631	NJM4558DD
	Q150	4822 209 73435	LC7218
▲	Q251, Q252	4822 209 31613	µPC1342V
	Q262	4822 209 83312	TA7317P
▲	Q301, Q302	4822 209 73727	µPC1188H
▲	Q320	4822 209 70385	L78MR05
▲	Q321	4822 209 61848	NJM7815FA
▲	Q322	4822 209 83828	NJM7915FA
▲	Q323	4822 209 31631	NJM7805FA
	Q351	4822 209 73064	NJM2068DD
	Q352÷Q355	4822 209 83631	NJM4558DD
	Q356	4822 209 72748	LC7821
	Q401	4822 209 31556	TMP47C1670AN H054
	Q501, Q502	4822 209 70044	NJM2058D
	Q507	4822 209 73064	NJM2068DD
	Q508	4822 209 71783	LC7522
	Q551	4822 209 72748	LC7821
	Q552, Q570	4822 209 73731	LC7823
	Q590	4822 209 72323	TC74HCU04AP
	Q591	4822 209 61688	TC74HC02AP
	Q601	4822 209 83631	NJM4558DD
	Q625	4822 209 31572	NJM2175L
	Q626	4822 209 31573	M50198P
	Q627	4822 209 31574	µPD6345C
	Q630	4822 209 73287	LB1630
	Q751	4822 209 31575	TC9213P
	Q752	4822 209 83631	NJM4558DD

	C101	4822 125 60185	Cap. trimming 20pF
	C320, C323	4822 122 30043	Cap. ceramic 0.01µF 500V
	C321, C322	4822 124 80254	Cap. elect 6800µF 71V
	C324, C325	4822 124 80244	Cap. elect 4700µF 35V
▲	C337	4822 122 33276	Cap. ceramic 0.01µF 400V [/13S, BK01]
▲	C338	4822 122 33276	Cap. ceramic 0.01µF 400V [/00S]
	C402	4822 124 21737	Cap. elect 100µF 6.3V
	C403	4822 124 23128	Cap. big elect 0.047F 5.5V
	C404, C405	4822 124 21737	Cap. elect 100µF 6.3V
	C406	4822 124 41604	Cap. elect 0.1µF 50V
	C407	4822 124 41246	Cap. elect 47µF 16V
	C503, C504	4822 124 21894	Cap. elect 10µF 16V
	C507, C508	4822 124 21898	Cap. elect 0.47µF 50V
	C509, C510	4822 124 41246	Cap. elect 47µF 16V
	C513, C514	4822 124 41604	Cap. elect 0.1µF 50V
	C515, C516	4822 124 21739	Cap. elect 22µF 16V
	C517, C518	4822 124 21894	Cap. elect 10µF 16V
	C519, C520	4822 124 41243	Cap. elect 2.2µF 50V
	C521, C522	4822 124 21895	Cap. elect 0.22µF 50V
	C523, C524	4822 124 21736	Cap. elect 1µF 50V
	C527, C528	4822 124 21898	Cap. elect 0.47µF 50V
	C531÷C534	4822 124 21894	Cap. elect 10µF 16V

	R103	4822 100 11351	Potm. trimmer 10K
▲	R106, R112	4822 050 21501	Res. 150E 1/4W
	R114	4822 100 11352	Potm. trimmer 22K
	R119	4822 100 20681	Potm. trimmer 2.2K
	R263, R264	4822 100 11386	Potm. trimmer 1K
▲	R271, R272	4822 116 82049	Res. 0.18Ex2 3W
	R280, R281	4822 050 22201	Res. 220E 1/4W
▲	R282, R283	4822 053 11109	Res. 10E 2W
▲	R287÷R290	4822 115 90166	Res. fusible 10E 1/4W
▲	R293, R294	4822 053 11681	Res. 680E 2W
▲	R295, R296	4822 050 21501	Res. 150E 1/2W
	R311, R312	4822 052 10109	Res. 10E 1/4W
	R313, R314	4822 050 22201	Res. 220E 1/4W
▲	R319	4822 115 90166	Res. fusible 10E 1/4W
▲	R320	4822 050 24701	Res. 470E 1/2W
▲	R323	4822 053 11151	Res. 150E 2W
▲	R325, R326	4822 116 60313	Res. fusible 10E 1/2W
▲	R327	4822 113 80322	Res. 2.2M 1/2W [BK01]
▲	R328	4822 116 60313	Res. fusible 10E 1/2W
	R519	4822 101 30797	Potm. bass 10K (C)
	R520	4822 101 30797	Potm. treble 10K (C)
	R531	4822 101 30798	Potm. input bal. 100K (W)
	R532	4822 101 30798	Potm. balance . 100K (W)
▲	R617, R618	4822 050 21021	Res. 100E 1/4W
	R662	4822 101 30799	Potm. master vol 100K
	R667	4822 050 21021	Res. 100E 1/4W

	L101	4822 157 63084	Ant coil AM
	L102	4822 157 52716	OSC coil AM
	L103	4822 157 53589	Choke coil 39mH
	L104	4822 148 81095	I.F.T. coil AM
	L105	4822 148 81269	I.F.T. coil FM
	L106, L107	4822 157 70021	MPX coil FM
	L108	4822 156 10794	MPX coil FM [/00S]
▲	L251	4822 280 70354	Relay, speaker
	L252, L253	4822 157 70022	Air coil, speaker
▲	L300	4822 280 70354	Relay, speaker
	L301, L302	4822 157 70022	Air coil, speaker
	L590	4822 148 81268	Pulse transformer

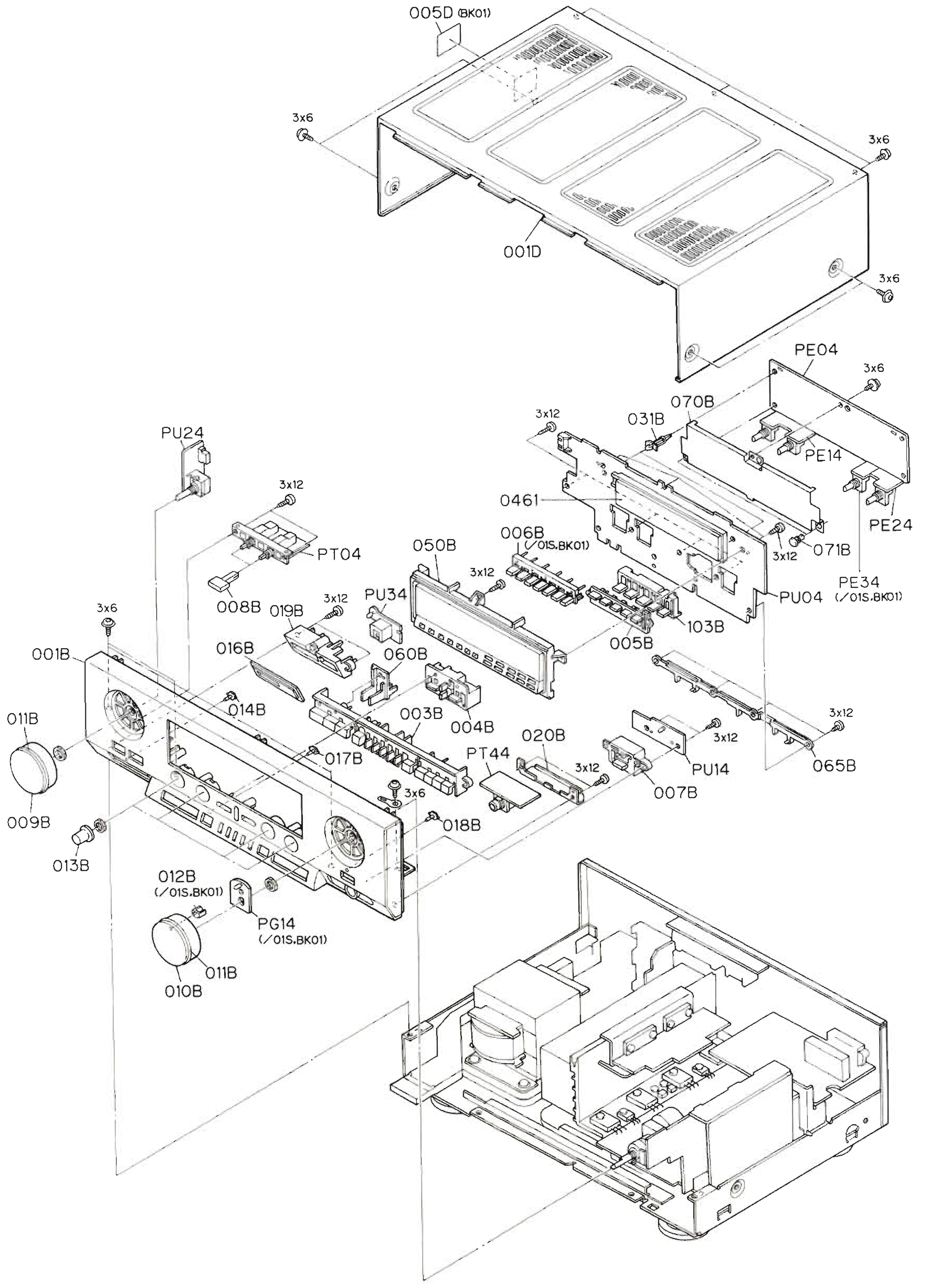
	S300	4822 276 13289	Speaker
▲	S320	4822 276 13285	Power [/13S, BK01]
▲	S321	4822 276 13285	Power [/00S]
▲	S322	4822 272 10325	Voltage selector [/13S]
	S401÷S417	4822 276 13288	Functions
	S418÷S422	4822 276 13213	Functions
	S423÷S431	4822 276 13288	Functions
	S432÷S436	4822 276 13213	Functions
	S437	4822 273 10249	Pulse switch

MISCELLANEOUS

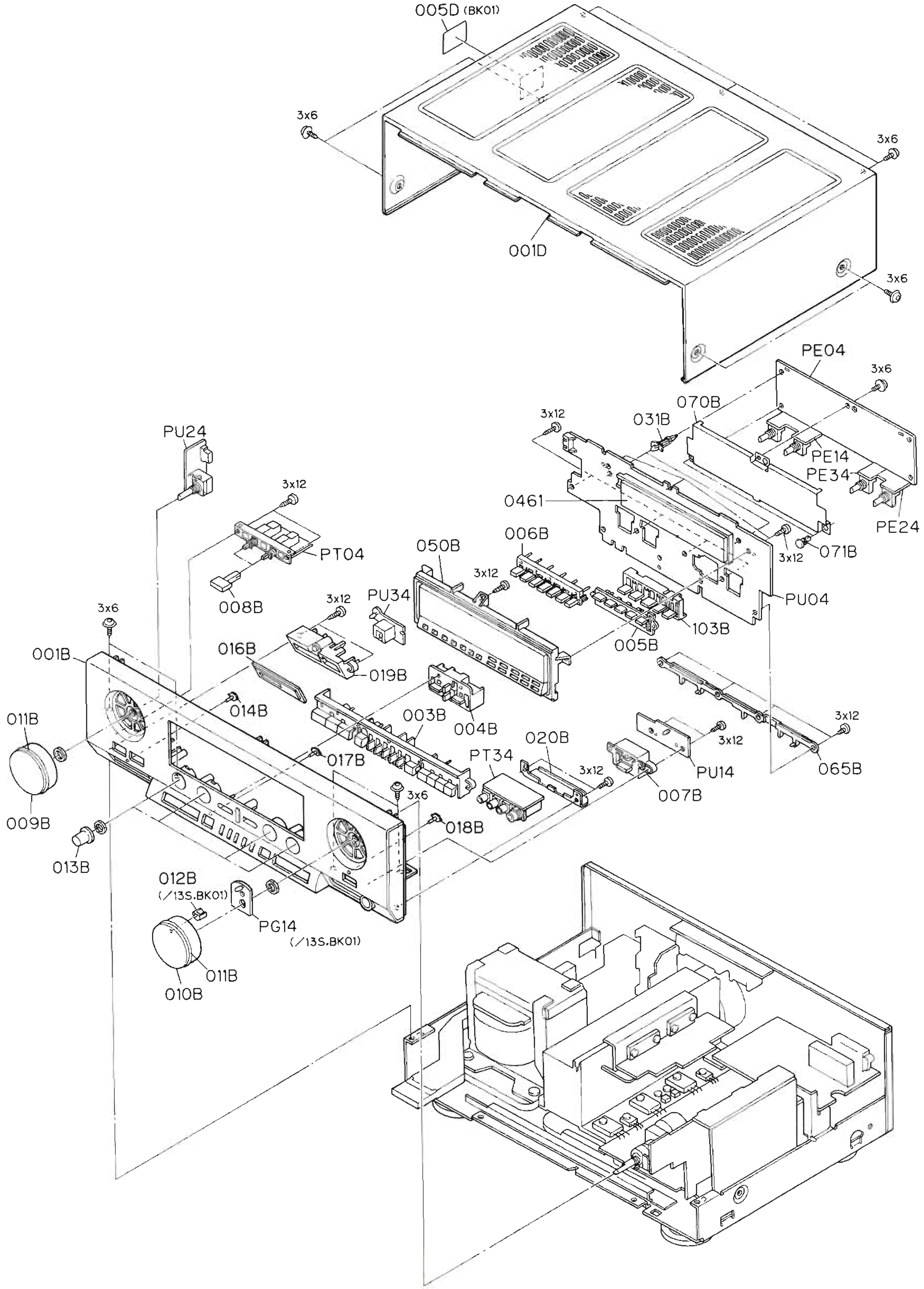
A101	4822 210 10372	V.H.F. tuner [/00S]
A101	4822 210 10397	V.H.F. tuner [/13S,BK01]
F101	4822 242 81262	Ceramic filter SFP450F
F102	4822 242 71135	Ceramic filter 10.7MHz [/00S]
F102	4822 242 70911	Ceramic filter 10.7MHz [/13S, BK01]
F103	4822 242 71135	Ceramic filter 10.7MHz
⚠ F320	4822 253 30411	Fuse 5.0A 125V [BK01]
⚠ F320	4822 253 30397	Fuse T5.0A 250V [/13S]
⚠ F321	4822 253 30416	Fuse T2.5A 250V [/00S]
⚠ F322	4822 253 30416	Fuse T2.5A 250V [/00S]
⚠ F323	4822 253 30409	Fuse T4.0A 250V [/00S, /13S]
⚠ F323	4822 253 30224	Fuse 4.0A 125V [BK01]
⚠ F324	4822 253 30409	Fuse T4.0A 250V [/00S, /13S]
⚠ F324	4822 253 30224	Fuse 4.0A 125V [BK01]
J101	4822 264 30255	Terminal, antenna [/00S]
J101	4822 290 81537	Terminal, antenna [/13S, BK01]
J300	4822 266 30323	Terminal, speaker 8P
J309	4822 290 81525	Terminal, speaker 2P
J310	4822 290 81526	Terminal, speaker 4P
⚠ J320	4822 267 31286	Jack, AC outlet [BK01]
⚠ J326, J327	4822 267 31194	Jack, AC outlet [/00S]
J551, J552	4822 290 81524	Terminal, RCA pin 8P
J553	4822 265 20542	Terminal, RCA pin 2P
J554	4822 290 81519	Terminal, RCA pin 1P
J570	4822 265 41264	Terminal, RCA pin 3P
J571	4822 265 41263	Terminal, RCA pin 2P
J580	4822 265 20555	Jack, headphone
J582	4822 290 81521	Terminal, RCA pin 1P
J583	4822 290 81522	Terminal, RCA pin 1P
J584	4822 290 81523	Terminal, RCA pin 1P
J592	4822 265 41265	Terminal, RCA pin 3P
Q406	4822 130 83197	IR receiver GP1U58XP
V401	4822 130 91145	Display unit
X101	4822 242 81248	Ceramic resonator CSB456F15
X150	4822 242 72333	Crystal 7.2MHz
X401	4822 242 73696	Ceramic resonator 8.00MHz
X625	4822 242 81271	Ceramic resonator 3.27MHz

EXPLODED VIEW AND PARTS LIST (FR930)

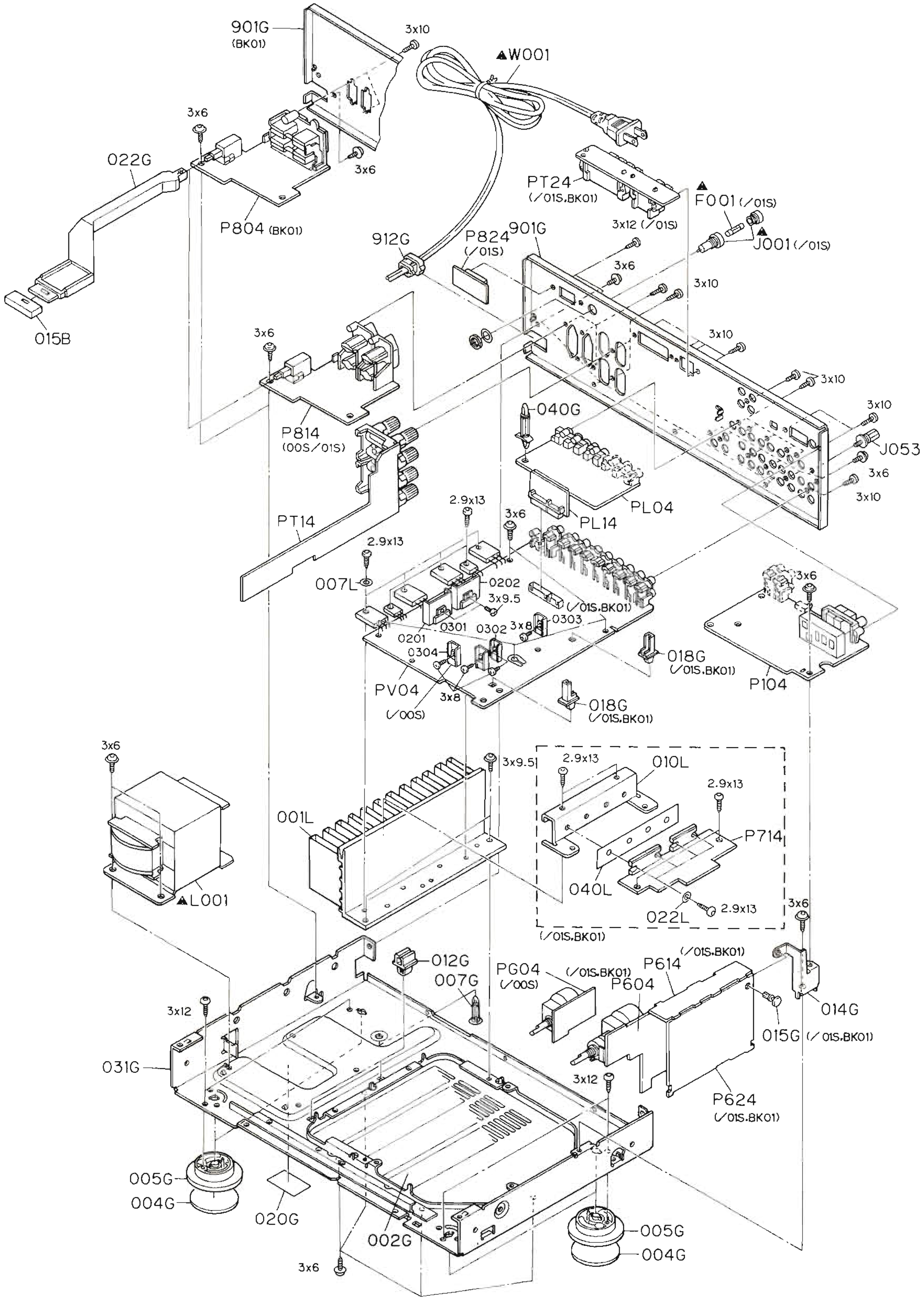
001B	4822 426 51565	Front panel [/01S, BK01]
	4822 426 51566	Front panel [/00S]
003B	4822 410 62061	Button, nose[/01S, BK01]
	4822 410 62067	Button, nose [/00S]
004B	4822 410 62062	Button, cursor
005B	4822 410 62063	Button, 10key upper
006B	4822 410 62064	Button, surround [/01S, BK01]
007B	4822 410 62065	Button, muting
008B	4822 410 62066	Button, speaker
009B	4822 413 31708	Knob, selector [/01S, BK01]
	4822 413 41727	Knob, selector [/00S]
010B	4822 413 41733	Knob, volume [/01S, BK01]
	4822 413 41732	Knob, volume [/00S]
011B	4822 532 21449	Rubber ring
012B	4822 381 11349	Lens, pointer [/01S, BK01]
013B	4822 413 41704	Knob, tone/ balance
014B	4822 381 11311	Lens, standby
015B	4822 462 71808	Cap, power knob
016B	4822 381 11347	Lens, IR sensor
017B	4822 381 11311	Lens, auto selector
018B	4822 381 11311	Lens, muting
050B	4822 454 12845	Escutcheon assembly, window [/01S, BK01]
	4822 454 12879	Escutcheon assembly, window [/00S]
103B	4822 410 62069	Button, 10key lower
004G	4822 462 41887	Buffer, leg
005G	4822 462 41888	Leg
022G	4822 404 21245	Link, power
912G	4822 532 60948	Bushing, AC cord
0461	4822 256 91966	Holder, FTD
⚠ F001	4822 253 30408	Fuse T2.0A 250V [/01S]
⚠ J001	4822 256 30233	Fuse holder [/01S]
J053	4822 290 40297	Terminal, GND
⚠ L001	4822 146 21683	Power transformer [/00S]
	4822 146 21696	Power transformer [/01S]
	4822 146 21682	Power transformer [BK01]
		Accessories
001T	4822 736 21472	User manual [/01S]
	4822 736 21471	User manual [BK01]
	4822 736 21474	User manual [/00S]
Z001	4822 218 10468	Remote control unit, RC6640 [/00S]
	4822 218 10469	Remote control unit, RC6640 [/01S, BK01]
Z003	4822 157 70019	AM loop antenna
Z005	4822 303 50055	FM ext. antenna [/00S]
	4822 303 30314	FM ext. antenna [/01S, BK01]
Z006	4822 264 30265	Ant. adaptor [/01S, BK01]
Z007	4822 253 30409	Fuse, 4A 250V [/01S]



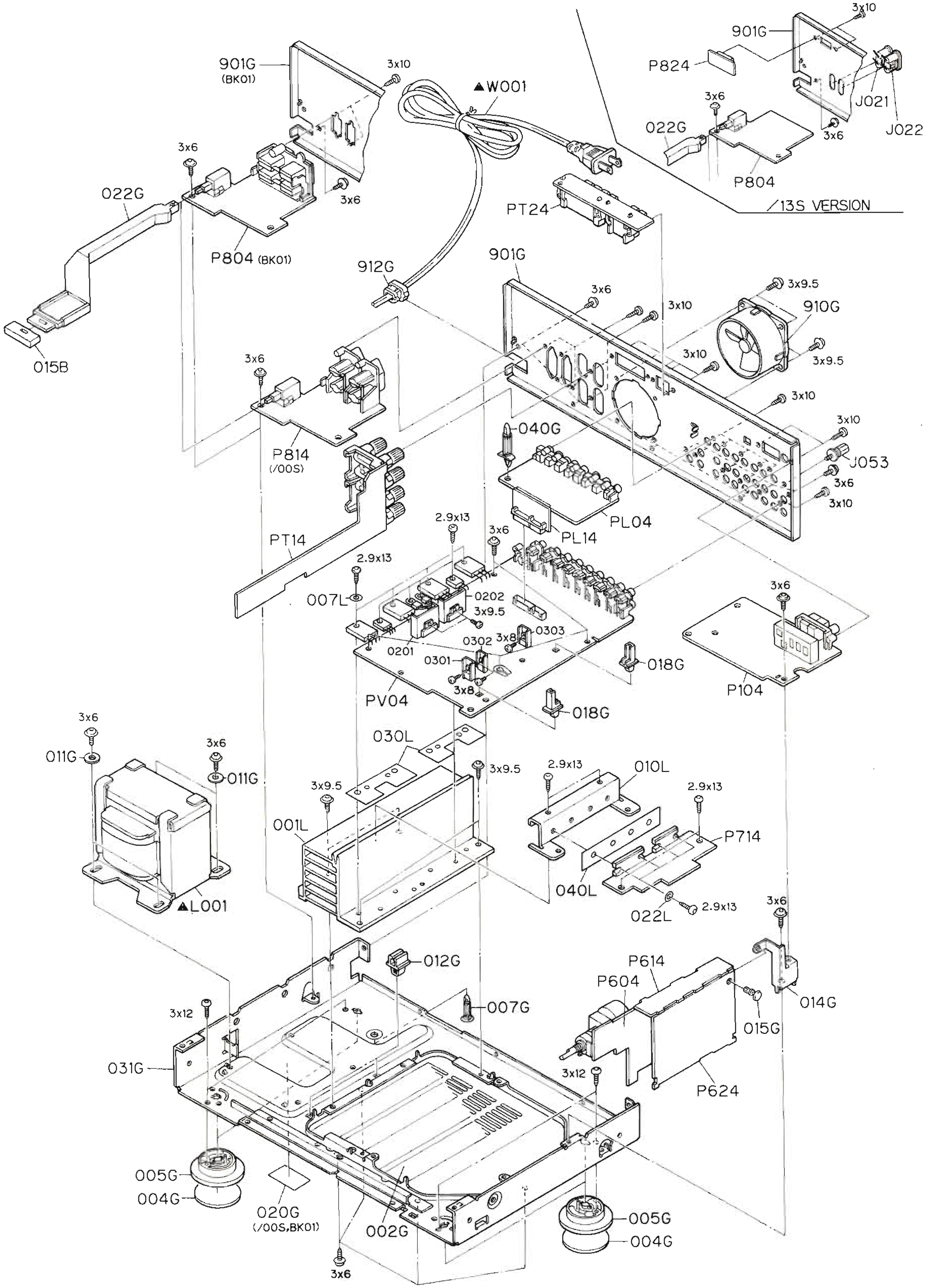
EXPLODED VIEW AND PARTS LIST (FR940)



(FR930)



(FE940)



(FR940)

001B	4822 426 51564	Front panel [/00S, BK01]
	4822 426 51599	Front panel [/13S]
003B	4822 410 62061	Button, nose
004B	4822 410 62068	Button, cursor
005B	4822 410 62063	Button, 10key upper
006B	4822 410 62064	Button, surround mode
007B	4822 410 62065	Button, muting
008B	4822 410 62066	Button, speaker
009B	4822 413 41727	Knob, selector [/00S]
	4822 413 31708	Knob, selector [/13S, BK01]
010B	4822 413 41732	Knob, volume [/00S]
	4822 413 41733	Knob, volume [/13S, BK01]
011B	4822 532 21449	Rubber, ring
012B	4822 381 11349	Lens, pointer [/13S, BK01]
013B	4822 413 41704	Knob, tone/balance
014B	4822 381 11311	Lens, standby
015B	4822 462 71808	Cap, power knob
016B	4822 381 11347	Lens, IR sensor
017B	4822 381 11311	Lens, auto selector
018B	4822 381 11311	Lens, muting
050B	4822 454 12845	Escutcheon assembly, window [/00S, BK01]
	4822 454 12877	Escutcheon assembly, window [/13S]
103B	4822 410 62069	Button, 10key lower
004G	4822 462 41887	Buffer, leg
005G	4822 462 41888	Leg
022G	4822 404 21245	Link, power switch
910G	4822 361 10653	Fan
912G	4822 532 60948	Bushing, AC cord
0461	4822 256 91966	Holder, FTD
▲ J021	4822 267 31573	AC outlet [/13S]
▲ J022	4822 267 31573	AC outlet [/13S]
J053	4822 290 40297	Terminal, GND
▲ L001	4822 146 21687	Power transformer [/00S]
	4822 146 21695	Power transformer [/13S]
	4822 146 21685	Power transformer [BK01]
		Accessories
001T	4822 736 21473	User manual [/00S]
	4822 736 21577	User manual [/13S]
	4822 736 21477	User manual [BK01]
Z001	4822 218 10469	Remote control unit, RC6624 [/00S, BK01]
	4822 218 10487	Remote control unit, RC6624 [/13S]
Z003	4822 157 70019	AM loop antenna
Z005	4822 303 50055	FM ext. antenna [/00S]
	4822 303 30314	FM ext. antenna [/13S, BK01]
Z006	4822 264 30265	Ant. adaptor [/13S, BK01]

Service
Service
Service

Product Service Group CE Audio

Service Information

FAULT: When in cursor mode ACOUSTIC with setting
LEVEL 10dB
FREQ 150Hz
the receiver is switched to standby and then reactivated the volume is reduced by more than 20dB.

To achieve the original sound level one has to switch the source select to another input and back.

CAUSE: When the power is switched off and on after the accoustic bass was set at 150Hz / +10dB, switches (pins 7 - 9 & 22 - 24) in the selector IC Q552 (LC7823) are turned on. Unfortunately pins 7 and 24 which are "NOT USE" are connected to ground, short-circuiting the output of the selector.

SOLUTION: Rework the PV04 pc board by cutting the copper tracks between pin 7 & ground and pin 24 and ground (See figure 1).

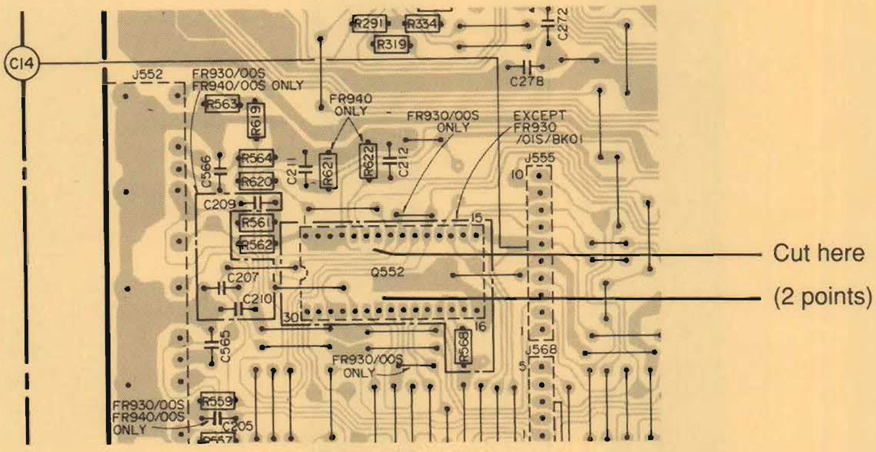


Figure 1

1994 - 05 - 04

4822 725 25129