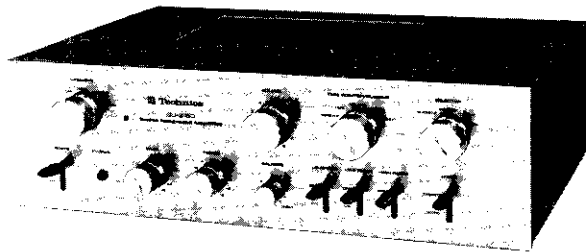


Service Manual


Technics
HI-FI COMPONENTS

Technics

Stereo Integrated Amplifier


MODEL SU-3150

FM/AM Stereo Tuner


MODEL ST-3150

TECHNICAL SPECIFICATION (IHF) **Model SU-3150**

MAIN AMPLIFIER SECTIONS

| | |
|-----------------------------------------------|----------------------------------------|
| Music Power: | 80W (4Ω) 60W (8Ω) |
| 1kHz continuous power: | |
| each channel driven | 26W/26W (4Ω) 23W/23W (8Ω) |
| both channels driven | 22W+22W (4Ω) 20W+20W (8Ω) |
| 20Hz~20kHz continuous power: | |
| both channels driven | 19W+19W (4Ω) 17W+17W (8Ω) |
| Total harmonic distortion: | 0.5% |
| Intermodulation distortion: | 0.5% |
| Power bandwidth: (both channels driven at 8Ω) | 10 Hz~40 kHz -3 dB |
| Residual hum and noise: | 0.5 mV |
| Damping factor: | 30 (8Ω) |
| Load impedance: | 4~16 Ω |
| | MAIN or REMOTE MAIN + REMOTE 8~16 Ω |

PRE AMPLIFIER SECTION

| | |
|----------------------------------|-----------------------------------------|
| Input sensitivity and impedance: | PHONO 1, 2 2mV/50kΩ |
| | TUNER, AUX 180mV/40kΩ |
| | TAPE DECK 1, 2 (PLAYBACK) 180mV/40kΩ |
| | TAPE DECK 1 REC/PLAY (Input) 180mV/40kΩ |

PHONO 1, 2 maximum input voltage:

| | |
|------|-------------------|
| S/N: | PHONO 1, 2 120 mV |
| | TUNER, AUX 74 dB |
| | 82 dB |

Frequency response:

| | |
|------------|-----------------------------|
| PHONO 1, 2 | RIAA standard curve ±0.5 dB |
| TUNER, AUX | 7 Hz~90 kHz +0 dB, -3 dB |
| BASS | 50 Hz, +1 dB~-11 dB |
| TREBLE | 10 kHz, +10 dB~-10 dB |
| LOW | 40 Hz, -6 dB/oct |
| HIGH | 8 kHz, -6 dB/oct |
| | 100 Hz, +7 dB |

Tone control:

| | |
|---------|------|
| Filter: | LOW |
| | HIGH |

Loudness control (volume at -30 dB):

| | |
|-------------------------------|-------------------------------------------|
| Output voltage and impedance: | TAPE DECK 1, 2 (REC OUT) 180 mV/1 kΩ |
| | TAPE DECK 1 REC/PLAY (Output) 30 mV/80 kΩ |

GENERAL

| | |
|-------------------------|-------------------------------------------------|
| Power supply: | 110/120/220/240 V |
| Power consumption: | 190 W |
| Dimensions (W × H × D): | 15 3/8" × 4 1/2" × 11 1/8" (386 × 115 × 303) mm |
| Weight: | 13.5 lb (6.1 kg) |

TECHNICAL SPECIFICATIONS (IHF) **Model ST-3150**

FM TUNER SECTION

| | |
|-----------------------------------------------------|---------------------------------------|
| Frequency range: | 88~108 MHz |
| Antenna terminals: | 300 Ω (balanced) 75 Ω (unbalanced) |
| Sensitivity: | 1.8 μV |
| Total harmonic distortion (400Hz, 100% modulation): | |
| MONO | 0.2% |
| STEREO | 0.4% |
| S/N: | 75 dB |
| Frequency response: | 20Hz~15kHz -0.2 dB |
| Alternate channel selectivity: | 70 dB |
| Capture ratio: | 1.0 dB |
| Image rejection (at 98 MHz): | 55 dB |
| IF rejection (at 98 MHz): | 80 dB |
| Spurious response rejection (at 98 MHz): | 85 dB |
| AM suppression: | 50 dB |
| Stereo separation: | 45 dB at 1 kHz 35 dB at 10 kHz |
| Leak carrier (19 kHz, 38 kHz): | 60 dB |

AM TUNER SECTION

| | |
|--------------------------------|--------------|
| Frequency range: | 520~1610 kHz |
| Sensitivity: | 25 μV |
| Selectivity: | 25 dB |
| Image rejection (at 1000 kHz): | 45 dB |
| IF rejection (at 1000 kHz): | 40 dB |

GENERAL

| | |
|-------------------------|-------------------------------------------------|
| Output voltage: | 07 V |
| Power supply: | 50/60 Hz 110/120/220/240 V |
| Power consumption: | 9 W |
| Dimensions (W × H × D): | 15 3/8" × 4 1/2" × 12 1/8" (386 × 115 × 313) mm |
| Weight: | 10.81 lb (4.9 kg) |

Matsushita Electric
Matsushita Electric Trading Co., Ltd.
P. O. Box 288, Central Osaka, Japan

POWER SOURCE & PRE-MAIN AMPLIFIER CIRCUIT BOARD

TR 301

| | |
|---|---------|
| C | +12.7 V |
| B | +21.3 V |
| E | +20.7 V |

TR201,202

| | |
|---|---------|
| C | -25.8 V |
| B | +0.1 V |
| E | +0.7 V |

TR 203,204

| | |
|---|---------|
| C | -26.5 V |
| B | +0.1 V |
| E | +0.7 V |

TR205,206

| | |
|---|---------|
| C | -1.2 V |
| B | -25.8 V |
| E | -25.5 V |

TR207,208

| | |
|---|--------|
| C | +2.7 V |
| B | +1.2 V |
| E | +0.7 V |

TR209,210

| | |
|---|--------|
| C | -2.7 V |
| B | -1.2 V |
| E | -0.7 V |

TR211,212

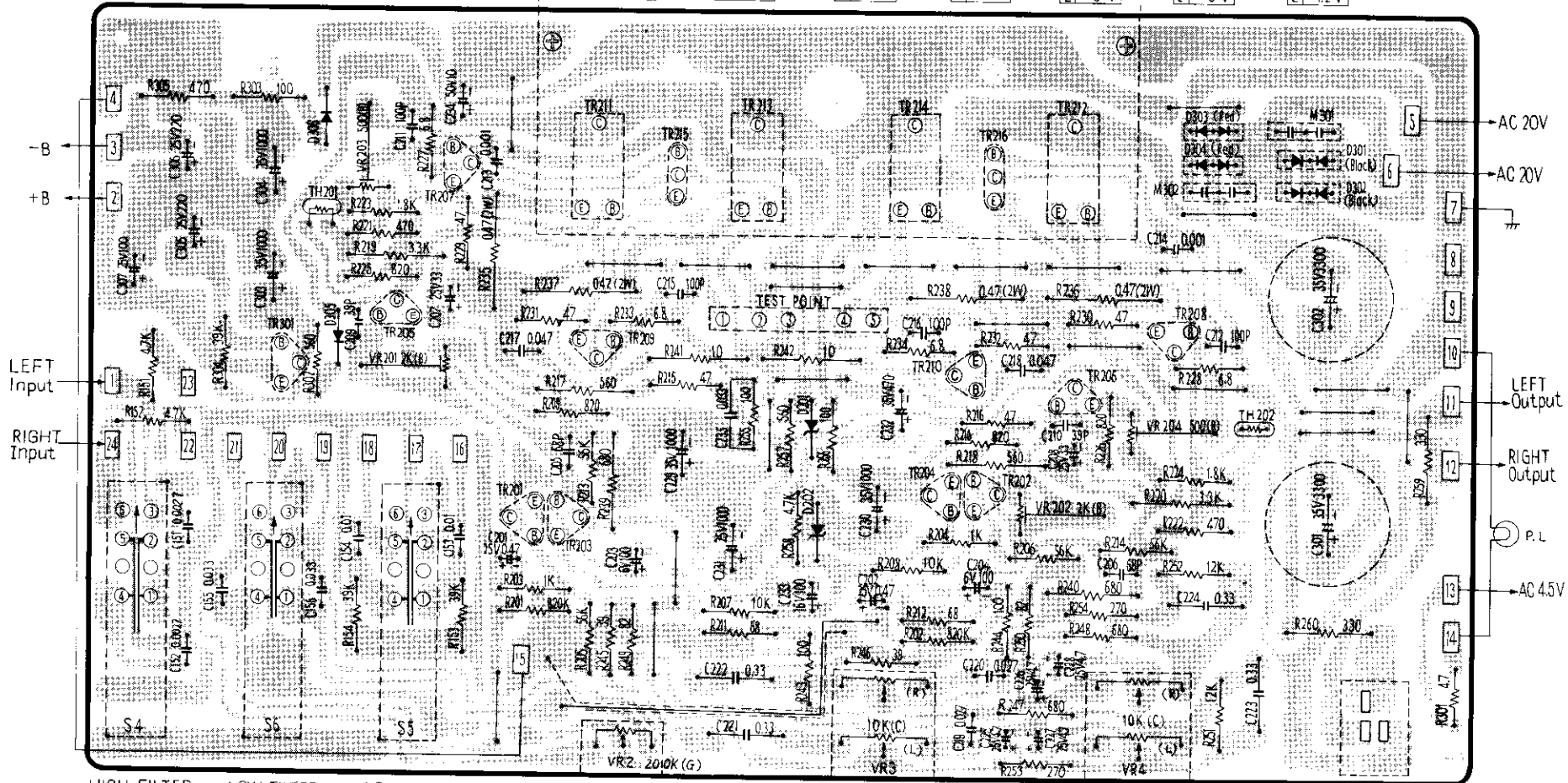
| | |
|---|--------|
| C | +2.7 V |
| B | +0.7 V |
| E | 0 V |

TR213,214

| | |
|---|--------|
| C | -2.7 V |
| B | -0.7 V |
| E | 0 V |

TR215,216

| | |
|---|--------|
| C | +1.2 V |
| B | -0.6 V |
| E | -1.2 V |



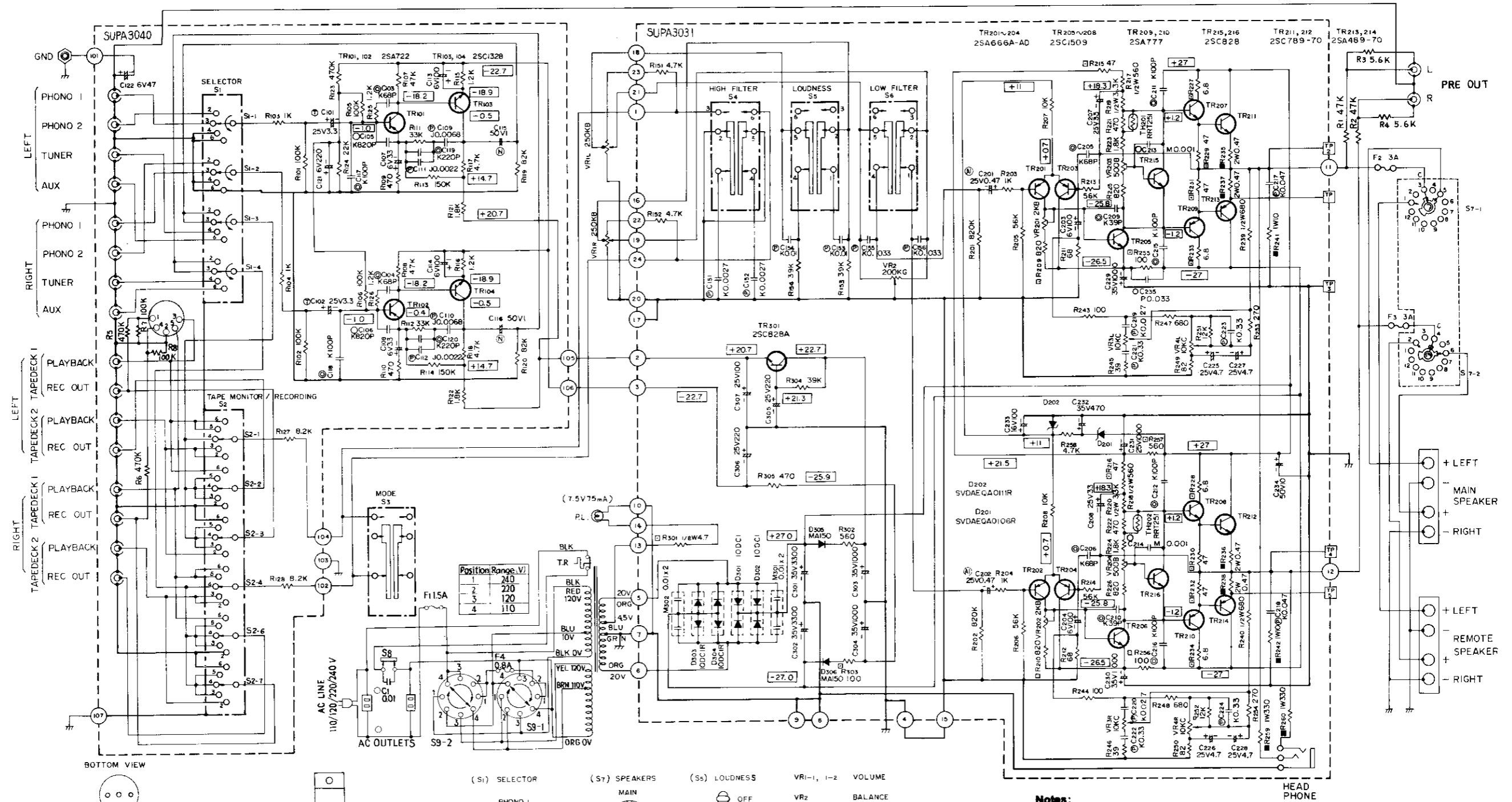
-B
+B
LEFT Input
RIGHT Input

AC 20V
AC 20V
LEFT Output
RIGHT Output
P.L.
AC 4.5V

HIGH FILTER SWITCH LOW FILTER SWITCH LOUDNESS SWITCH BALANCE CONTROL TREBLE CONTROL BASS CONTROL HEADPHONE JACK

Schematic Diagram..... Model SU-3150

(This schematic diagram may be modified at any time with the development of new technology.)



| | |
|----------------------|------------|
| TR101, 102 | 2SA722 |
| TR103, 104 | 2SC1328 |
| TR201, 202, 203, 204 | 2SA666A-AD |
| TR205, 206, 207, 208 | 2SC1509 |
| TR209, 210 | 2SA777 |
| TR215, 216 | 2SC828 |
| TR301 | 2SC828A |

| | |
|------------|-----------|
| TR211, 212 | 25C789-70 |
| TR215, 214 | 25A489-70 |

| | |
|------|--------------|
| D201 | SVDAEQA0106R |
| D202 | SVDAEQA0111R |

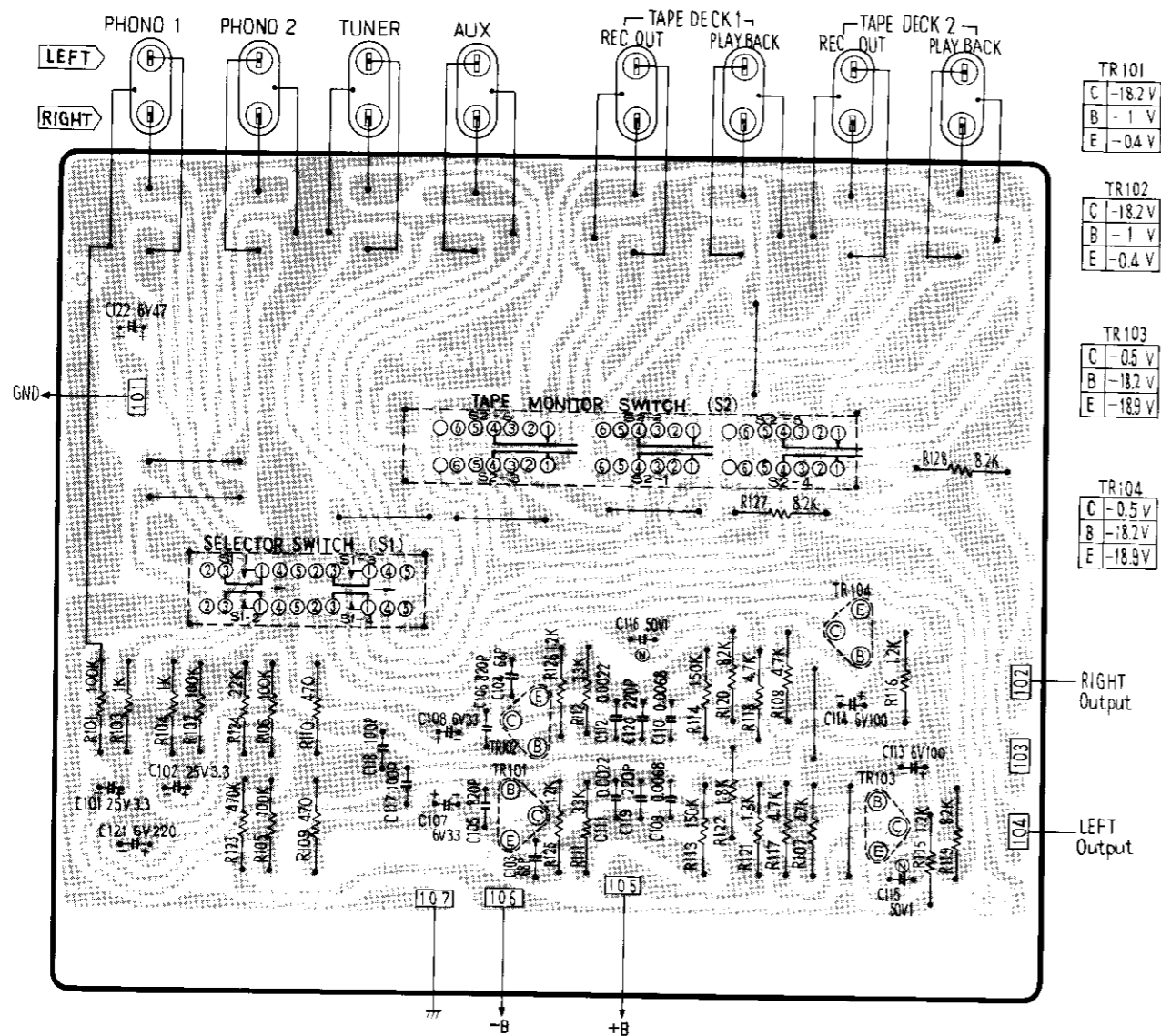
| | |
|-----------|-----------|
| D301, 302 | RVD10DC1 |
| D303, 304 | RVD10DC1R |

- (S1) SELECTOR
PHONO 1
PHONO 2
TUNER
AUX
- (S2) TAPE MONITOR/DUBBING
SOURCE
TAPE 1
TAPE 2
TAPE 1-2
- (S3) MODE
STEREO
MONO
- (S4) HIGH FILTER
OFF
ON
- (S5) LOUDNESS
OFF
ON
- (S6) LOW FILTER
OFF
ON
- (S7) SPEAKERS
MAIN
REMOTE
MAIN+REMOTE
- (S8) POWER
ON
OFF
- VR1-1, -2 VOLUME
- VR2 BALANCE
- VR3, 3R TREBLE
- VR4, 4R BASS

Notes:
 S1-1~S1-4: Selector switch in "PHONO 1" position.
 PHONO 2 ↔ PHONO 1 ↔ TUNER ↔ AUX.
 S2-1 ~ S2-6: Tape monitor and tape dubbing switch in "SOURCE" position.
 TAPE 1 ▶ 2 ↔ TAPE 1 ↔ SOURCE ↔ TAPE 2 ↔ TAPE 2 ▶ 1
 S3: Mode switch in "STEREO" position.
 S4: High filter switch in "OFF" position.
 S5: Loudness switch in "OFF" position.
 S6: Low filter switch in "OFF" position.
 S7-1, S7-2: Speakers selector switch in "MAIN" position.
 OFF ↔ MAIN ↔ REMOTE ↔ MAIN+REMOTE.
 S8: Power source switch in "ON" position.
 S9-1, S9-2: Voltage selector switch in "110 V" position.
 (4) 110 V ↔ (3) 120 V ↔ (2) 220 V ↔ (1) 240 V

DC voltage measurements are taken with DC VTVM from chassis ground.

Model SU-3150 EQUALIZER, TAPE MONITOR & SELECTOR SWITCH CIRCUIT BOARD



TR101
C -18.2 V
B -1 V
E -0.4 V

TR102
C -18.2 V
B -1 V
E -0.4 V

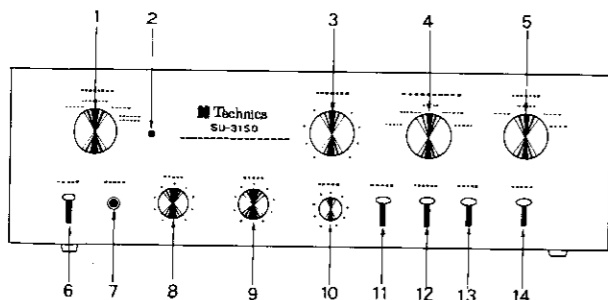
TR103
C -0.5 V
B -18.2 V
E -18.9 V

TR104
C -0.5 V
B -18.2 V
E -18.9 V

RIGHT Output

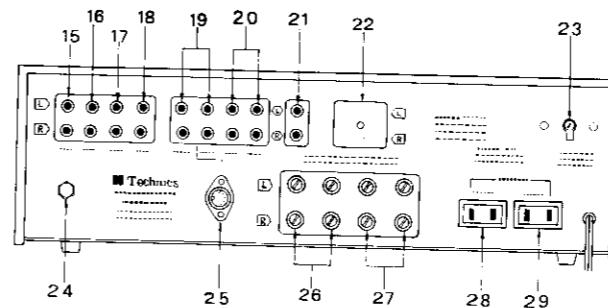
LEFT Output

Model SU-3150 LOCATION OF CONTROLS



1. SPEAKER SELECTOR SWITCH (S7)
2. POWER INDICATOR
3. VOLUME CONTROL
4. TAPE MONITOR/DUBBING SWITCH (S2)
5. SELECTOR SWITCH (S1)
6. POWER SOURCE SWITCH (S8)
7. HEADPHONES JACK
8. BASS CONTROL
9. TREBLE CONTROL
10. BALANCE CONTROL
11. LOUDNESS SWITCH (S5)
12. LOW FILTER SWITCH (S6)
13. HIGH FILTER SWITCH (S4)
14. MODE SWITCH (S3)

Model SU-3150 LOCATION OF CONTROLS

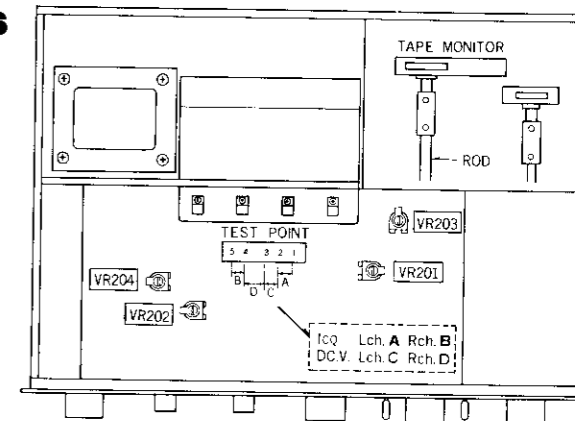


15. PHONO 1 INPUT TERMINALS
16. PHONO 2 INPUT TERMINALS
17. TUNER INPUT TERMINALS
18. AUX INPUT TERMINALS
19. TAPE DECK 1 CONNECTION TERMINALS
20. TAPE DECK 2 CONNECTION TERMINALS
21. PRE OUTPUT TERMINALS
22. CIRCUIT PROTECTION FUSES
23. VOLTAGE SELECTOR SWITCH (Not attach for Australia) (S9)
24. GROUND TERMINAL
25. TAPE DECK 1 DIN SOCKET
26. MAIN SPEAKER TERMINALS
27. REMOTE SPEAKER TERMINALS
28. AC OUTLET.....Switched (Not attach for Australia)
29. AC OUTLET.....Unswitched (Not attach for Australia)

Model SU-3150 ALIGNMENT INSTRUCTIONS

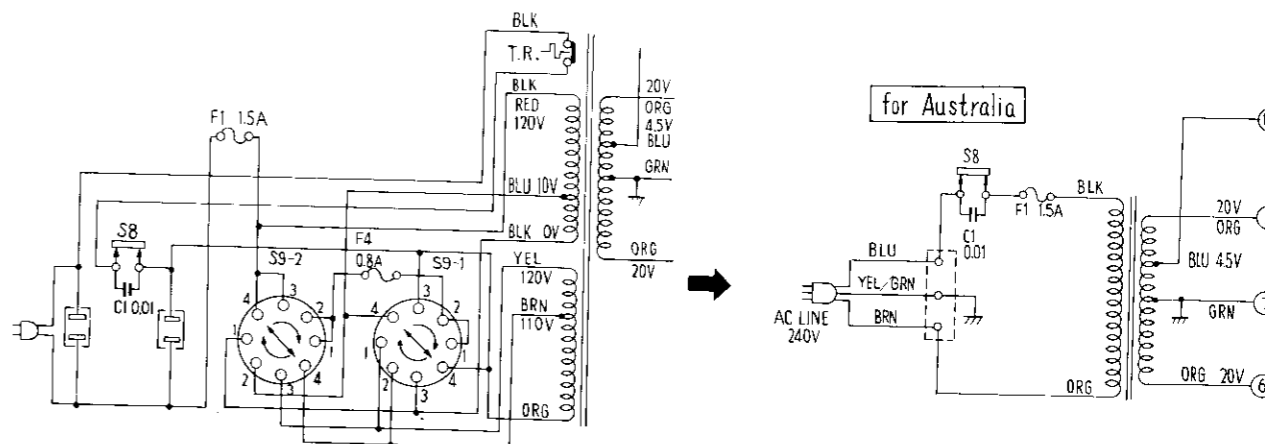
Notes:

1. Volume control to minimum.
2. Maintain line voltage at rated voltage.
3. The I_{cq} adjustment should be started about 3 minutes after setting the power switch to the "ON" position.



| ALIGNMENT | DC VTVM CONNECTION | ADJUSTMENT POINTS | REMARKS |
|-----------------|------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------|
| DC UNBALANCE | Left ch. ....Connect DC VTVM between test point No. ② and No. ③ terminals. | VR 201 | Make sure that DC VTVM becomes zero (0) V. |
| | Right ch.....Connect DC VTVM between test point No. ③ and No. ④ terminals. | VR 202 | |
| I _{cq} | Left ch. ....Connect DC VTVM between test point No. ① (-) and No. ② (+) terminals. | VR 303 | Make adjustments so that the indication on DC VTVM becomes 8 mV. |
| | Right ch.....Connect DC VTVM between test point No. ④ (+) and No. ⑤ (-) terminals. | VR 304 | |

Model SU-3150 (for Australia) SCHEMATIC DIAGRAM.....Power Supply



Model ST-3150

ALIGNMENT INSTRUCTIONS

| Notes: | | | | | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------|
| 1. Muting switch OFF | | 4. Maintain line voltage at rated voltage | | | |
| 2. MPX high blend switch OFF | | 5. Output of signal generator should be no higher than necessary to obtain an output reading. | | | |
| 3. Band selector switch AM, FM AUTO (FM-RF, FM-IF) | | | | | |
| SIGNAL GENERATOR or SWEEP GENERATOR | | DIAL SETTING | INDICATOR (VTVM or SCOPE) | ADJUSTMENT POINTS | REMARKS |
| CONNECTION | FREQUENCY | [DISTANCE] | (DISTORTION METER) | | |
| AM ALIGNMENT | | | | | |
| 1 | High side through 0.001 μF to TP2. Common to chassis. | 455kHz (Set for Ingrand to 470 kHz) | Point of non-interference | T202 (1st IFT) T203 (2nd IFT) | Adjust for maximum output |
| 2 | Fashion loop of several turns of wire and radiate signal into loop of tuner. | 550kHz (30% Mod. with 400Hz) | 550kHz [8,1 mm] | T201 (OSC Coil) L201 (ANT Coil) | Adjust for maximum output. Adjust ferrite core of L201 by screw driver. |
| 3 | Fashion loop of several turns of wire and radiate signal into loop of tuner. | 1500kHz (30% Mod. with 400Hz) | 1500kHz [191.4 mm] | CT202 (OSC Trimmer) CT201 (ANT Trimmer) | Adjust for maximum output. Repeat steps (2) and (3). |
| FM-IF ALIGNMENT | | | | | |
| 4 | No Signal | Point of non-interference | Connect vertical amplifier of scope to output terminal of set. | T101 (DISCRI IFT)(P) Brown Core | Adjust for maximum noise level. |
| 5 | No Signal | Point of non-interference | Connect vertical amplifier of scope to output terminal of set. | T101 (DISCRI IFT)(S) Green Core | Adjust for center of tuning meter indication. |
| FM-RF ALIGNMENT | | | | | |
| 6 | Connect to FM antenna terminal through FM dummy antenna. | 90MHz (100% Mod. with 400Hz) | 90MHz [24 mm] | L6 (OSC Coil) L4 (DET Coil) L2 (ANT Coil) | Adjust for maximum output. |
| 7 | Connect to FM antenna terminal through FM dummy antenna. | 106MHz (100% Mod. with 400Hz) | 106MHz [153 mm] | CT3 (OSC Trimmer) CT2 (DET Trimmer) CT1 (ANT Trimmer) | Adjust for maximum output. Repeat steps (6) and (7). |
| FM MONO DISTORTION ALIGNMENT | | | | | |
| 8 | Connect to FM antenna terminal through FM dummy antenna. | 98MHz (100% Mod. with 400Hz) | 98MHz | T101 (DISCRI IFT)(P) Brown Core | Adjust for minimum of distortion meter indication. |
| SIGNAL METER ALIGNMENT | | | | | |
| 9 | Connect to FM antenna terminal through FM dummy antenna. Output level of SG...32 dB (IHF) | 98MHz (30% Mod. with 400Hz) | 98MHz | T102 (Meter IFT) | Adjust for maximum of signal meter indication. |
| 10 | Output level of SG. 72dB (IHF) | | | VR102 | Adjust for 4.8~5 point of signal meter indication. |
| MUTING LEVEL ALIGNMENT | | | | | |
| Note: Muting switch to ON | | | | | |
| 11 | Connect to FM antenna terminal through FM dummy antenna. Output level of SG. 32 dB (IHF) | 98MHz (100% Mod. with 400Hz) | 98MHz | T103 | Adjust for maximum of DC VTVM indication. |
| 12 | | | Connect VTVM or scope to output terminal of set. | VR101 | Adjust so that output can be obtained. |

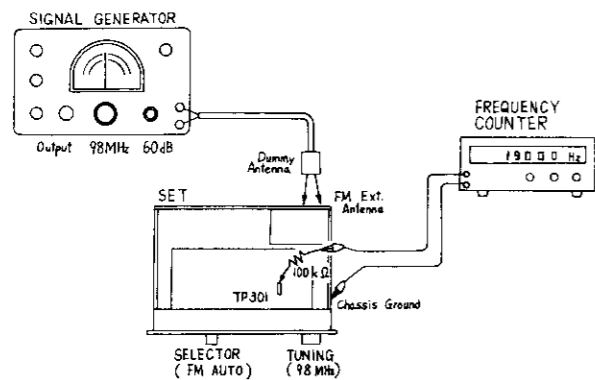
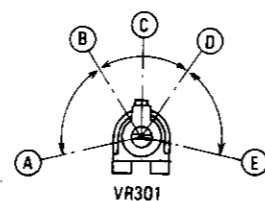


Fig. 1



A~B, D~E: Stereo OFF Position.
 B~D: Stereo ON Position (Indicator Lighting)
 C: Adjust Point of Pilot Circuit.

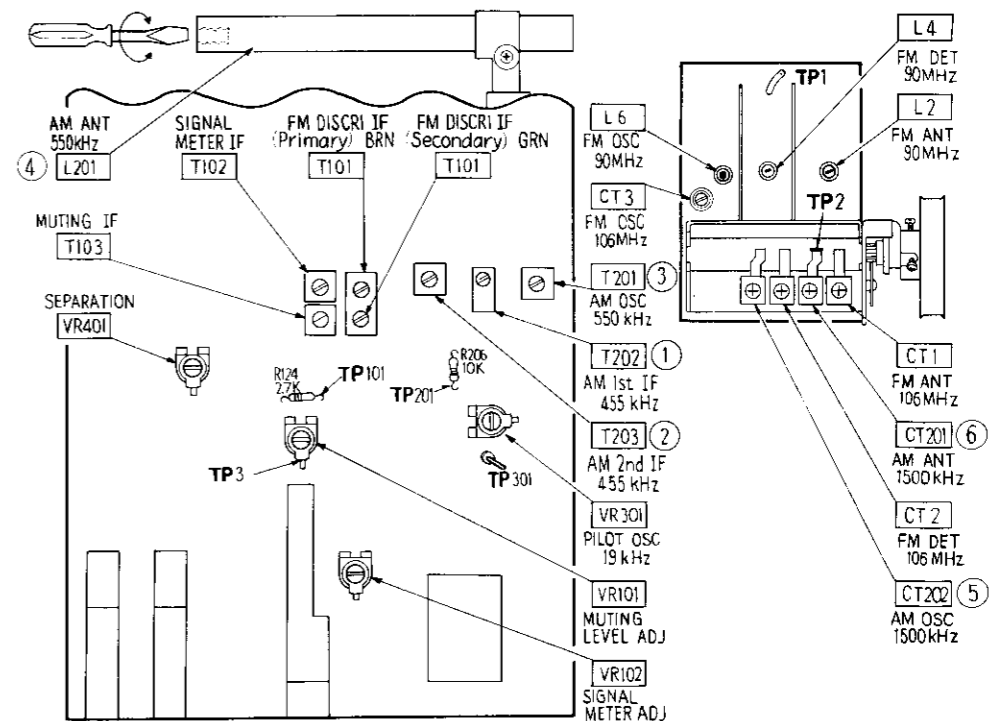
Fig. 2

| FM MPX PILOT ALIGNMENT | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------|
| When use the frequency counter | | When not use the frequency counter | | |
| 13 | ① 98MHz Non-modulation mono signal applied to set. ② Muting switch to ON. ③ Connect the frequency counter as shown fig. 1. ④ Adjust VR301 to 19kHz ±100Hz | ① Stereo signal applied to set or receive the stereo station. ② Adjust VR301 to lighting point of stereo indicator and sement contactor of VR301 as shown fig. 2. | | |
| STEREO SEPARATION ALIGNMENT | | | | |
| Note: 1. Stereo modulator Connect stereo modulator output to EXT. MOD. terminal of signal generator. Internal OSC 1 kHz. Pilot signal modulation 10% 2. Signal generator Frequency approximately 98 MHz. Output level: 72dB (IHF). Modulation mode to FM. 3. Band selector switch FM AUTO | | | | |
| SIGNAL GENERATOR CONNECTION | STEREO MODULATOR MODE and MOD. RATE | INDICATOR (VTVM or SCOPE) | ADJUSTMENT POINTS | REMARKS |
| 14 | FM antenna terminal through dummy antenna. | L (and R) 30% Modulation | VR401 | Adjust for minimum right (and left) output. |

FM-RF ALIGNMENT INSTRUCTIONS Only set for Germany

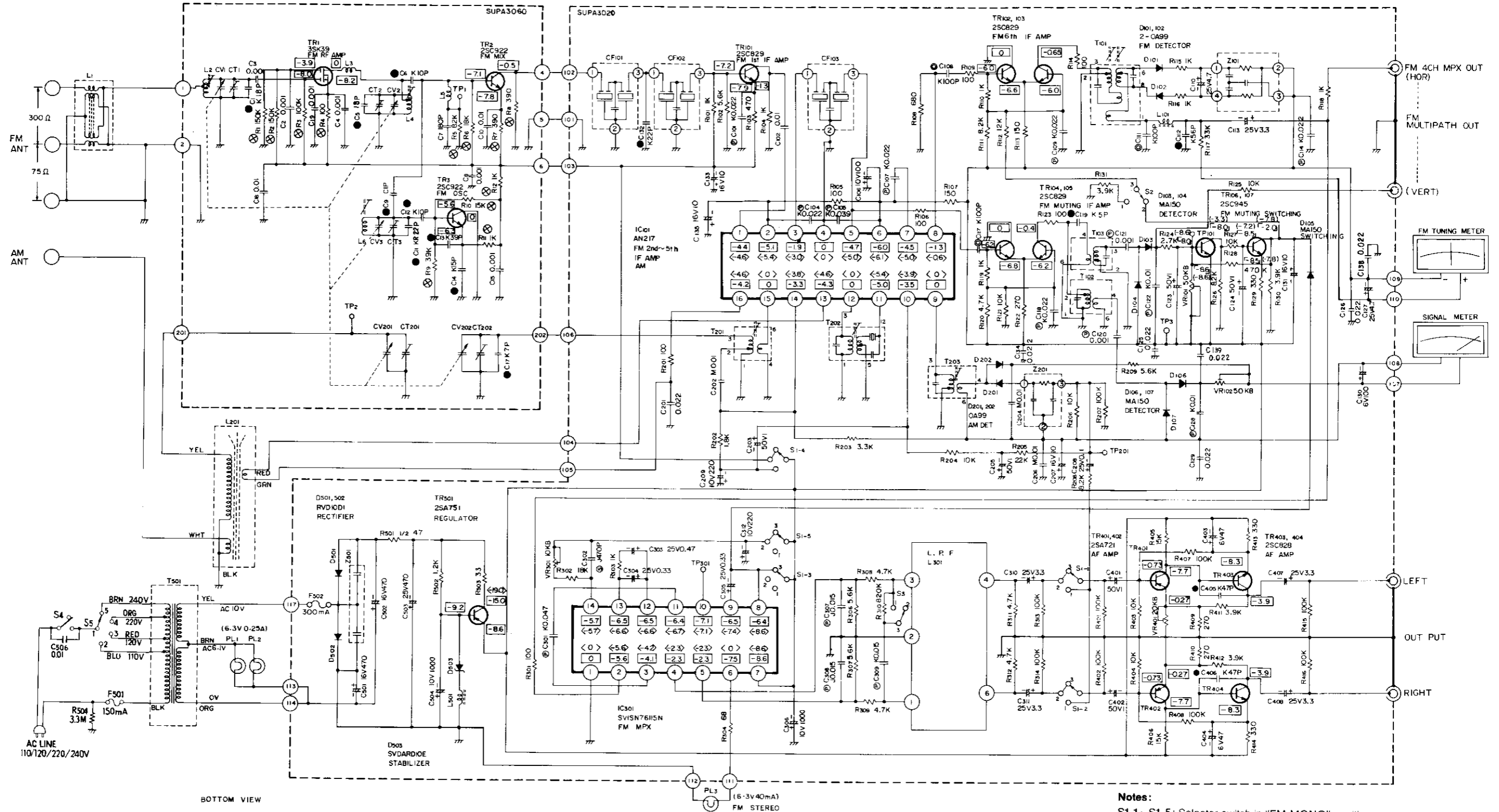
| ABGLEICHANWEISUNGEN VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN | | | | | |
|---------------------------------------------------------------------|--------------------------------|---------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|-----------------------------|
| MESSENDER | | SKALENZEIGER-EINSTELLUNG DES EMPFANGERS (ABSTAND) | ANGEIGE (RÖHRENVOLTMETER ODER OSZILLOGRAPH) | ABGLEICH | BEMERKUNGEN |
| SCHALTUNG | FREQUENZ | | | | |
| FM HF-ABGLEICH | | | | | |
| Anschluß an den FM Antennenanschluß über die künstliche FM Antenne. | 87.5 MHz (100% Mod. bei 400Hz) | 87.5 MHz [0 mm] | Output meter über Lautsprecher-schwingensule anschließen | L6 (Oszillatortspule) | Auf max. Ausgang abgleichen |
| " | 90 MHz (") | 90 MHz | " | L4 (Zwischenkreis) L2 (Antennenspule) | " |
| " | 106 MHz (") | 106 MHz [153 mm] | " | CT3 (OSZ. Trimmer) CT2 (DET Trimmer) CT1 (ANT Trimmer) | " |

ALIGNMENT POINTS

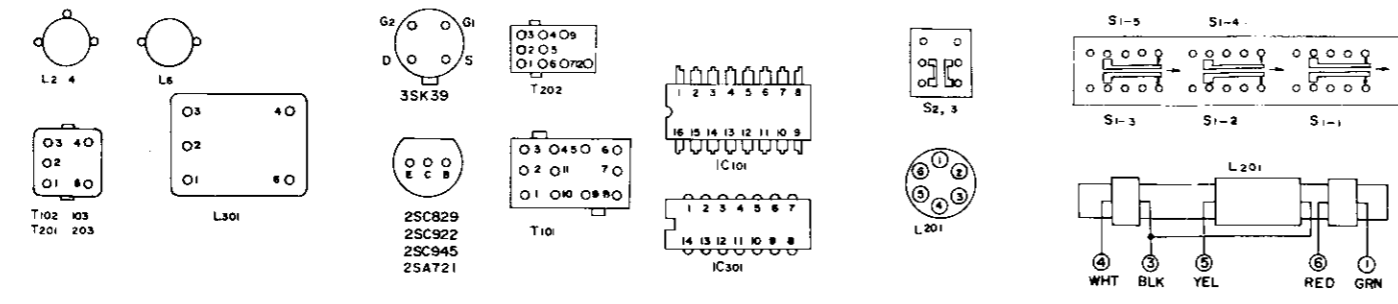


Schematic Diagram..... Model ST-3150

(This schematic diagram may be modified at any time with the development of new technology.)



BOTTOM VIEW



- Notes:**
- S1-1~S1-5: Selector switch in "FM MONO" position, FM MONO ↔ FM AUTO ↔ AM
 - S2: Muting switch in "ON" position.
 - S3: MPX high blend switch in "OFF" position.
 - S4: Power source switch in "OFF" position.
 - S5: Voltage selector switch in "240 V" position. 110 V ↔ 120 V ↔ 220 V ↔ 240 V

DC voltage measurements are taken with DC VTVM from chassis ground.

.....FM stereo signal reception.
 < >FM mono signal or AM signal reception.
 ()Muting switch to "OFF" position.
 []Muting switch to "ON" position.

⊗ Mark resistors are printed carbon resistor.

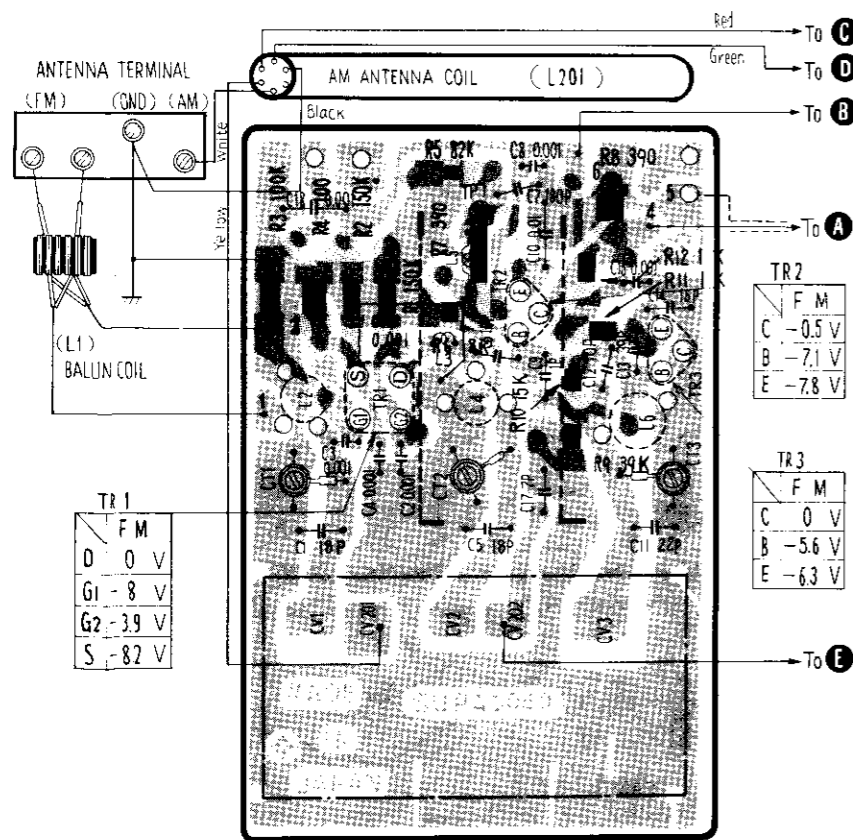
Model ST-3150

AM/FM-IF, MPX & POWER SOURCE CIRCUIT BOARD (→)

Model ST-3150

FM-RF CIRCUIT BOARD (↓)

■ Printed Carbon Resistor
 ○ Circuit View on Top of P.C.B.



| TR 1 | |
|------|---------|
| F M | |
| D | 0 V |
| G1 | - 8 V |
| G2 | - 3.9 V |
| S | - 8.2 V |

| TR 2 | |
|------|---------|
| F M | |
| C | - 0.5 V |
| B | - 7.1 V |
| E | - 7.8 V |

| TR 3 | |
|------|---------|
| F M | |
| C | 0 V |
| B | - 5.6 V |
| E | - 6.3 V |

| TR103 | |
|-------|----------|
| F M | |
| C | - 0.55 V |
| B | - 6 V |
| E | - 6.6 V |

| TR104 | |
|-------|---------|
| F M | |
| C | - 1.3 V |
| B | - 6.2 V |
| E | - 6.8 V |

| TR105 | |
|-------|---------|
| F M | |
| C | - 0.4 V |
| B | - 6.2 V |
| E | - 6.8 V |

| TR101 | |
|-------|---------|
| F M | |
| C | - 1.3 V |
| B | - 7.2 V |
| E | - 7.9 V |

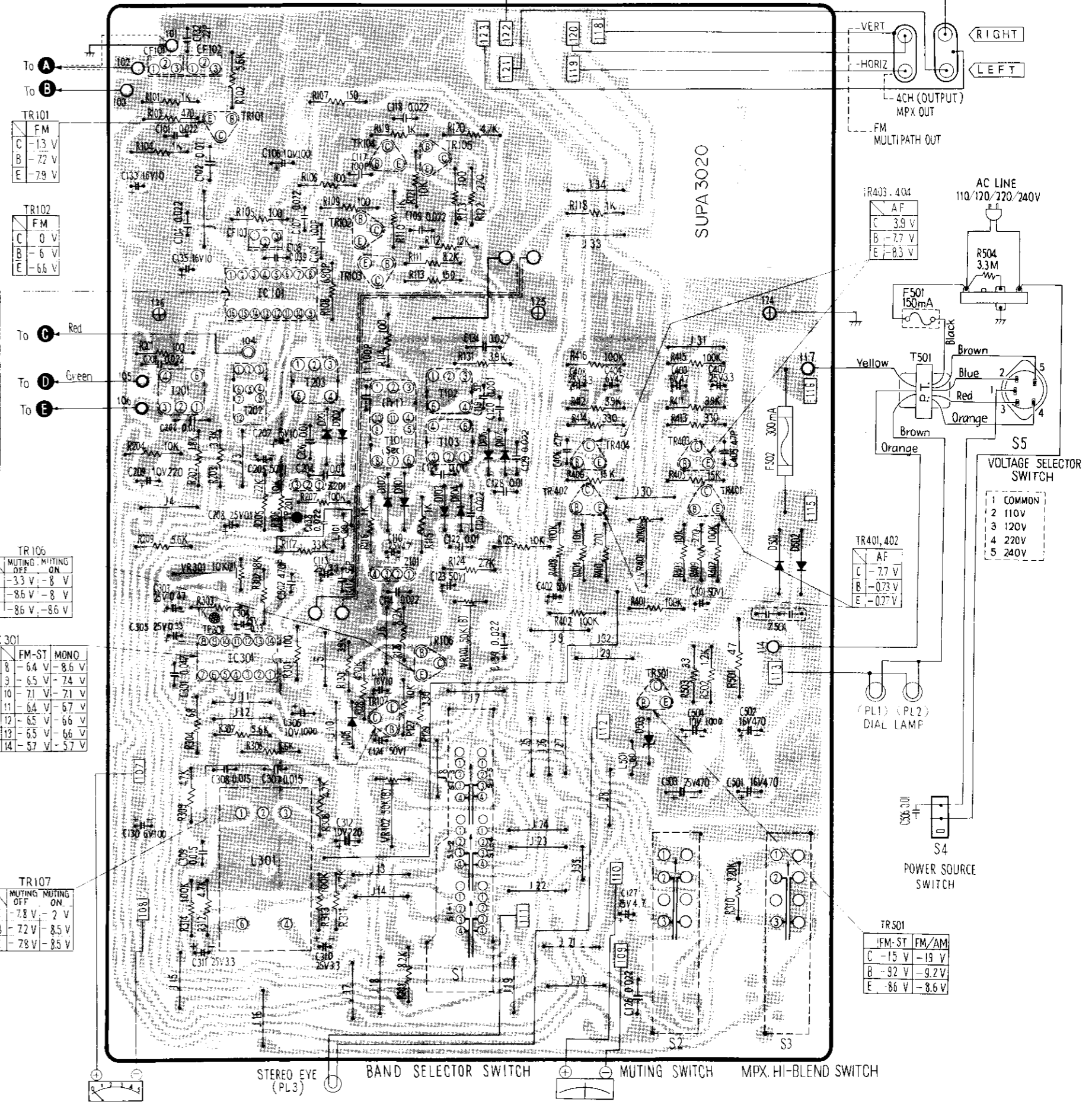
| TR102 | |
|-------|---------|
| F M | |
| C | 0 V |
| B | - 6 V |
| E | - 6.6 V |

| IC 101 | |
|--------|-----------------|
| F M | A M |
| 1 | - 4.4 V - 4.6 V |
| 2 | - 5.1 V - 5.4 V |
| 3 | - 1.9 V - 3 V |
| 4 | 0 V - 0 V |
| 5 | - 4.7 V - 5 V |
| 6 | - 6 V - 6.1 V |
| 7 | - 4.5 V - 5 V |
| 8 | - 1.3 V - 0.6 V |
| 9 | 0 V - 0 V |
| 10 | - 3.5 V - 3.8 V |
| 11 | - 5 V - 5.4 V |
| 12 | 0 V - 0 V |
| 13 | - 4.3 V - 4.6 V |
| 14 | - 3.3 V - 3.8 V |
| 15 | 0 V - 0 V |
| 16 | - 4.1 V - 4.6 V |

| TR 106 | |
|--------|-----------------|
| MUTING | MUTING |
| OFF | ON |
| C | - 3.3 V - 8 V |
| B | - 8.6 V - 8 V |
| E | - 8.6 V - 8.6 V |

| IC 301 | |
|----------|-----------------|
| F M - ST | MONO |
| 1 | 0 V - 0 V |
| 2 | - 5.6 V - 5.6 V |
| 3 | - 4.1 V - 4.2 V |
| 4 | - 2.3 V - 2.3 V |
| 5 | - 2.3 V - 2.3 V |
| 6 | - 7.5 V - 0 V |
| 7 | - 8.6 V - 8.6 V |
| 8 | - 6.4 V - 8.6 V |
| 9 | - 6.5 V - 7.4 V |
| 10 | - 7.1 V - 7.1 V |
| 11 | - 6.4 V - 6.7 V |
| 12 | - 6.5 V - 6.6 V |
| 13 | - 6.5 V - 6.6 V |
| 14 | - 5.7 V - 5.7 V |

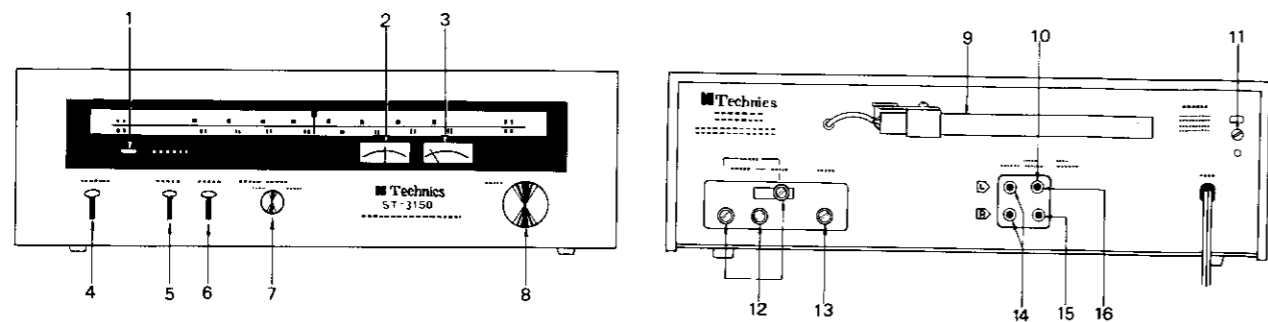
| TR 107 | |
|--------|-----------------|
| MUTING | MUTING |
| OFF | ON |
| C | - 7.8 V - 2 V |
| B | - 7.2 V - 8.5 V |
| E | - 7.8 V - 8.5 V |



| TR401, 402 | |
|------------|----------|
| A F | |
| C | - 7.7 V |
| B | - 0.73 V |
| E | - 0.27 V |

| TR 501 | |
|----------|-----------------|
| F M - ST | F M / A M |
| C | - 15 V - 19 V |
| B | - 9.2 V - 9.2 V |
| E | - 8.6 V - 8.6 V |

Model ST-3150 LOCATION OF CONTROLS

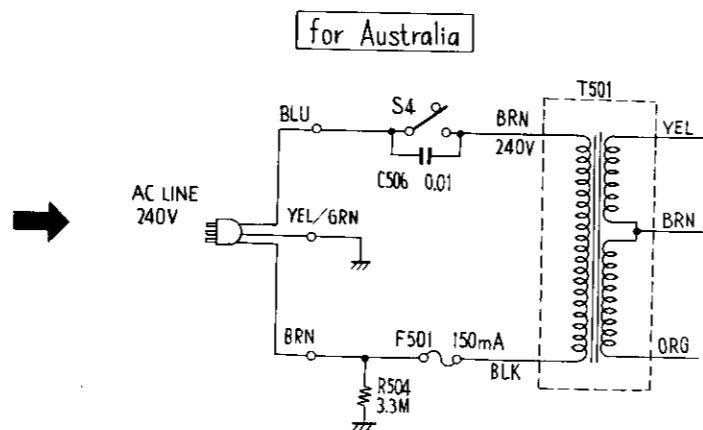
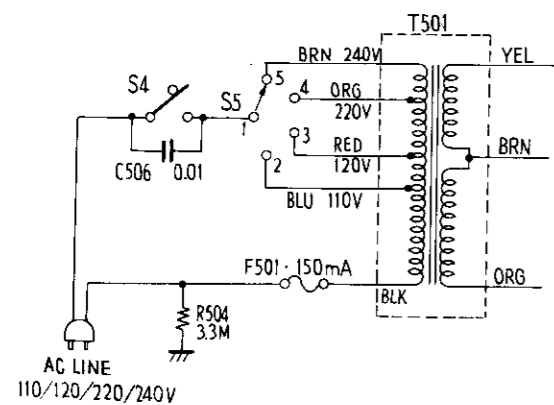


1. FM STEREO INDICATOR
2. FM TUNING METER
3. SIGNAL STRENGTH METER
4. POWER SOURCE SWITCH (S4)
5. MPX HI-BLEND SWITCH (S3)
6. MUTING SWITCH (S2)
7. BAND SELECTOR SWITCH (S1)
8. TUNING CONTROL
9. AM FERRITE CORE ANTENNA

10. 4CH MPX OUTPUT TERMINAL
11. VOLTAGE SELECTOR SWITCH (Not attach for Australia) (S5)
12. FM ANTENNA TERMINALS
13. AM ANTENNA TERMINAL
14. OUTPUT TERMINAL
15. MULTIPATH OUTPUT TERMINAL.....Vertical
16. MULTIPATH OUTPUT TERMINAL.....Horizontal

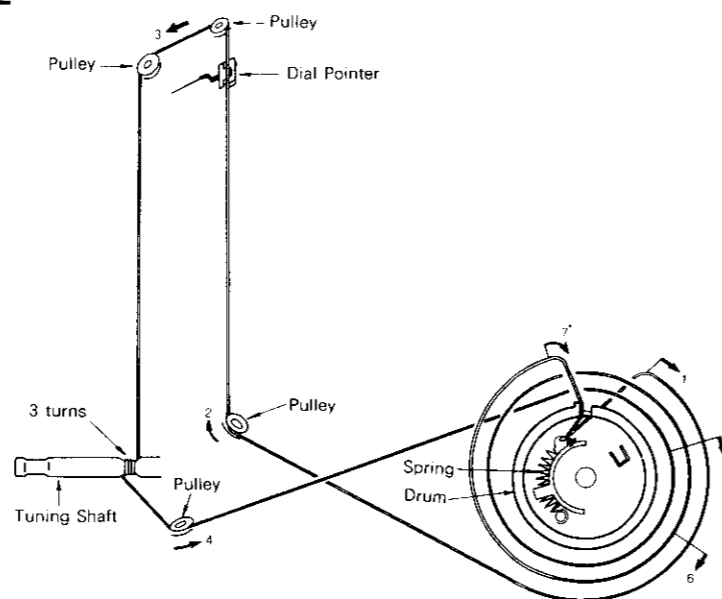
Model ST-3150 (for Australia)

SCHEMATIC DIAGRAM.....Power Supply

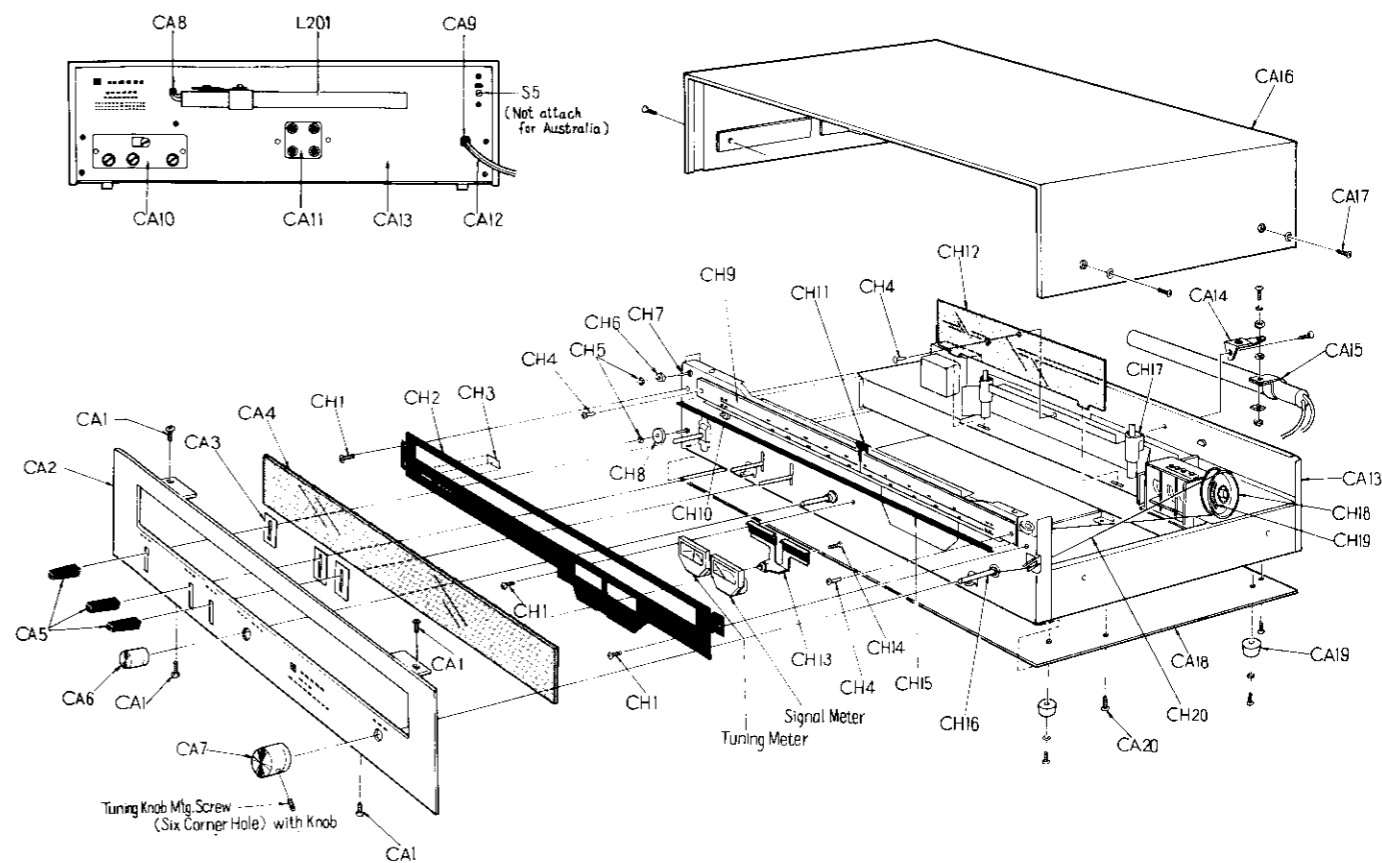


DIAL CORD INSTALLATION GUIDE

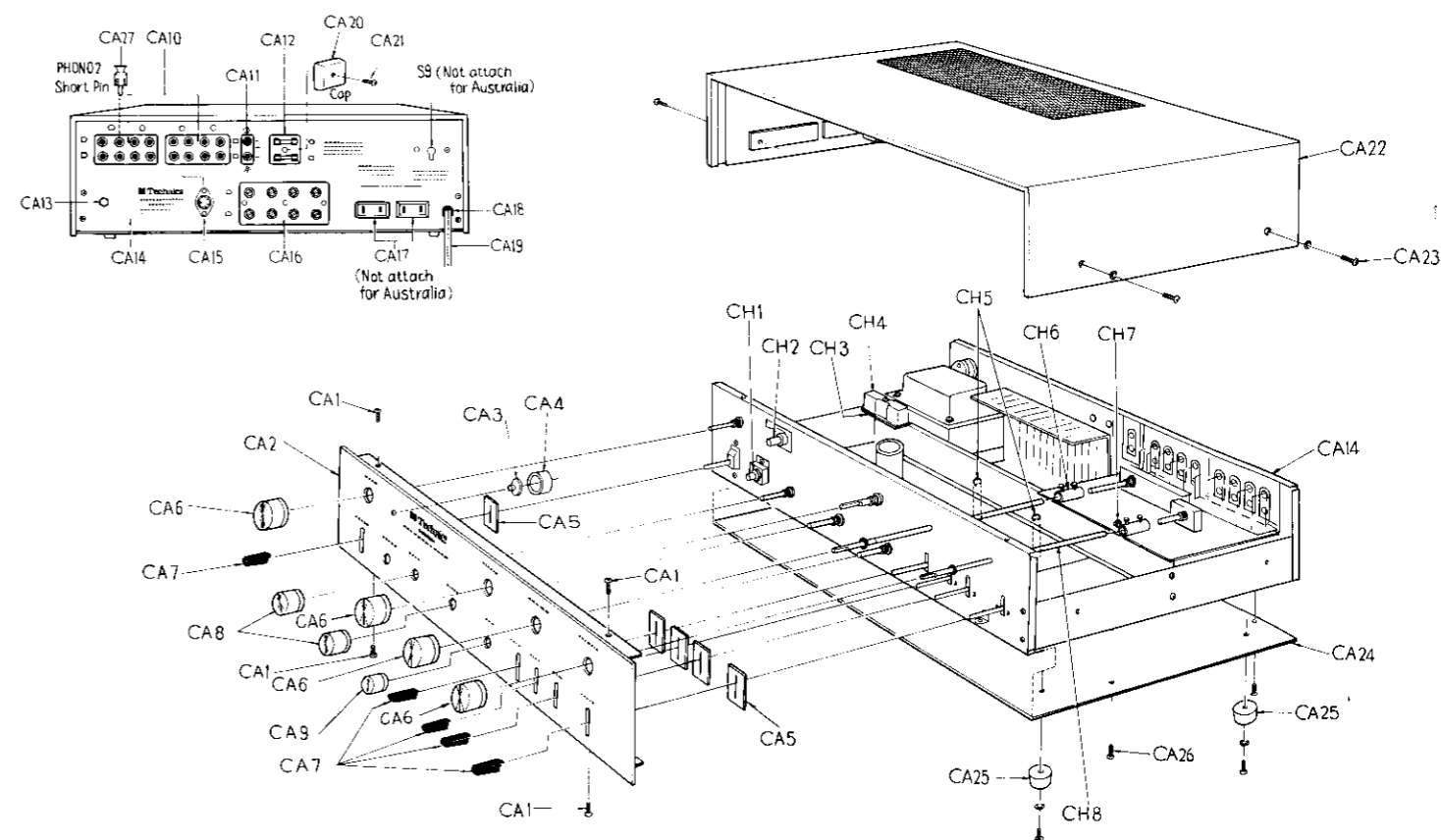
1. Dial cord length is 190 cm (74 11/16")
2. Tuning gang is positioned at maximum capacity.
(Frequency is minimum)
3. Arrow marks (1~7) indicate correct order and direction of stringing dial cord.



Model ST-3150 CABINET & CHASSIS PARTS LOCATION



Model SU-3150 CABINET & CHASSIS PARTS LOCATION



Model ST-3150

REPLACEMENT PARTS LIST

NOTES:

- 1 Part numbers are indicated on most mechanical parts. Please use this part number, for parts orders.
- 2 **N** indicates the New Parts.
- 3 **X-Z** rank: **X** rank parts will cover 80% of repair needs
X + Y rank parts will cover 95% of repair needs
Z rank parts are less necessary.

Bemerkungen:

- 1 Die meisten mechanischen Teile sind mit Teilnummern versehen. Bitte geben Sie diese Nummern an, sofern die Teile keine Bezugsnummern haben.
- 2 **N** bedeutet: Neue Teile.
- 3. Gruppen **X-Z**: Teile der Gruppe **X** machen 80% des Ersatzteilbedarfes aus. Teile der Gruppen **X** und **Y** machen 95% des Ersatzteilbedarfes aus. Teile der Gruppe **Z** werden seltener benotigt.

| Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks | Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks |
|-----------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|----------------------------------------------|--------------|-------------------------------------|----------------|---------|
| INTEGRATED CIRCUITS | | | | | | | | | |
| IC101 | AN217BB | FM IF Amplifier | 1 | X | R117 | ERD14TJ333 | 33kΩ, ¼W, -5%, Carbon | 1 | Y |
| IC301 | SVISN76115N | FM MPX Circuit | 1 | X | R207, 313, 314, 401, 402, 407, 408, 415, 416 | ERD14TJ104 | 100kΩ, ¼W, -5%, Carbon | 9 | Y |
| TRANSISTORS | | | | | | | | | |
| TR1 | 3SK39Q | FM RF Amplifier | 1 | X | R128 | ERD14TJ474 | 470kΩ, ¼W, -5%, Carbon | 1 | Y |
| TR2, 3 | 2SC922M | FM MIX & OSC | 2 | X | R310 | ERD14TJ824 | 820kΩ, ¼W, -5%, Carbon | 1 | Y |
| TR101, 102, 103, 104, 105 | 2SC829C | FM IF, Muting IF Amplifier | 5 | X | R503 | ERD12TJ330 | 33Ω, ½W, -5%, Carbon | 1 | Y |
| TR106, 107 | 2SC945P2 | Muting Switching | 2 | X | R501 | ERD12TJ470 | 47Ω, ½W, -5%, Carbon | 1 | Y |
| TR401, 402 | 2SA721T | AF Amplifier | 2 | X | R504 | ERC12ZGK335 | 3.3MΩ, ½W, -10%, Solid | 1 | Y |
| TR403, 404 | 2SC828R | AF Amplifier | 2 | X | VARIABLE RESISTORS | | | | |
| TR501 | 2SA751R | Regulator | 1 | X | VR101, 102 | EVL33AA00B54 | 50kΩ/B, Muting & Meter Adjustment | 1 | Y |
| | | | | | VR301 | EVL33AA00B14 | 10kΩ/B, VCO Adjustment | 1 | Y |
| | | | | | VR401 | EVL33AA00B24 | 20kΩ/B, Separation Adjustment | 1 | Y |
| DIODES | | | | | | | | | |
| D101, 102 | 2-OA99 | FM Discriminator | 1 pair | X | CAPACITORS | | | | |
| D103, 104, 105, 106, 107 | MA150 | Muting & Meter Detector | 5 | X | C2, 3, 4, 8, 15, 19 | ECKDIH102PF | 0.001μF, 50WV, ±100%, Ceramic | 6 | Z |
| D201, 202 | OA99 | AM Detector | 2 | X | C10, 18, 102 | ECKE1H103PF | 0.01μF, 50WV, ±100%, Ceramic | 3 | Z |
| D501, 502 | RVD10D1 | Rectifier | 2 | X | C202, 204, 206 | ECKE1H103MD | 0.01μF, 50WV, +20%, Ceramic | 3 | Z |
| D503 | SVDARD10E | 10V Zener | 1 | X | C138, 125, 126, 129, 134, 201 | ECKE1H223PF | 0.022μF, 50WV, ±100%, Ceramic | 6 | Z |
| COILS and TRANSFORMERS | | | | | | | | | |
| L1 | SLAA4W1-3 | FM Balun Coil | 1 | X | C9 | ECCD1H010CC | 1pF, 50WV, -0.25pF, Ceramic | 1 | Z |
| L2 | SLAA4N9 | FM Antenna Coil | 1 | X | C119 | ECCD1H050CC | 5pF, 50WV, -0.25pF, Ceramic | 1 | Z |
| L3 | RLQY15S5 | Choke Coil | 1 | Y | C17 | ECCD1H070DC | 7pF, 50WV, -0.5pF, Ceramic | 1 | Z |
| L4 | SLDA4N18 | FM Detector Coil | 1 | X | C6, 12 | ECCD1H100KC | 10pF, 50WV, -10%, Ceramic | 2 | Z |
| L5 | RLQY15G5 | Choke Coil | 1 | Y | C14 | ECCD1H150KC | 15pF, 50WV, -10%, Ceramic | 1 | Z |
| L6 | SL0A4N9 | FM Oscillator Coil | 1 | X | C15 | ECCD1H180KC | 18pF, 50WV, -10%, Ceramic | 1 | Z |
| L101, 501 | SLQX101-2D | Choke Coil | 2 | Y | C5 | ECCD1H180KS | 18pF, 50WV, ±10%, Ceramic | 1 | Z |
| L201 | SLFA2E21-0 | AM Antenna Coil | 1 | X | C132 | ECCD1H220KC | 22pF, 50WV, -10%, Ceramic | 1 | Z |
| L301 | SLMA123-K | Low Pass Filter | 1 | X | C11 | ECCD1H220KR | 22pF, 50WV, -10%, Ceramic | 1 | Z |
| T101 | SLIA4D51 | FM Discr. Transformer | 1 | X | C13 | ECCD1H390KC | 39pF, 50WV, -10%, Ceramic | 1 | Z |
| T102 | SLIA4C241 | FM Meter IF Transformer | 1 | X | C405, 406 | ECCD1H470KC | 47pF, 50WV, -10%, Ceramic | 2 | Z |
| T103 | SLIA4C242 | Muting IF Transformer | 1 | X | C112 | ECCD1H560KC | 56pF, 50WV, -10%, Ceramic | 1 | Z |
| T201 | SL0A2C6 | AM Oscillator Coil | 1 | X | C108, 111, 117 | ECCD1H101K | 100pF, 50WV, -10%, Ceramic | 3 | Z |
| T202 | RLI7W10SS-T | AM IF Transformer | 1 | X | C7 | ECCD1H181K | 180pF, 50WV, -10%, Ceramic | 1 | Z |
| T202 (England) | RLI7W108P-T | AM IFT Transformer (for England) | 1 | X | C120, 121 | ECQM05102KZ | 0.001μF, 50WV, -10%, Polyester | 2 | Z |
| T203 | RLI2C450 | AM IF Transformer | 1 | X | C122, 128 | ECQM05103KZ | 0.01μF, 50WV, -10%, Polyester | 2 | Z |
| T501 | SLTASK3 | Power Transformer | 1 | X | C307, 308 | ECQM05153JZ | 0.015μF, 50WV, -5%, Polyester | 2 | Z |
| T501 (Australia) | SLTASK4 | Power Transformer (for Australia) | 1 | X | C309 | ECQM05153KZ | 0.015μF, 50WV, -10%, Polyester | 1 | Z |
| CERAMIC FILTERS | | | | | | | | | |
| CF101, 102, 103 | SVF107MA8A SVF107MA8B SVF107MA8C SVF107MA8D SVF107MA8E | FM IF Circuit, Red, 10.7MHz FM IF Circuit, Blue, 10.67MHz FM IF Circuit, Orange, 10.73MHz FM IF Circuit, Black, 10.64MHz FM IF Circuit, White, 10.76MHz | each 3 | X | C101, 104, 107, 109 114, 118, 139 | ECQM05223KZ | 0.022μF, 50WV, -10%, Polyester | 7 | Z |
| RESISTORS | | | | | | | | | |
| R304 | ERD14TJ680 | 68Ω, ¼W, -5%, Carbon | 1 | Y | C105 | ECQM05393KZ | 0.039μF, 50WV, -10%, Polyester | 1 | Z |
| R105, 106, 109, 114, 123, 201, 301 | ERD14TJ101 | 100Ω, ¼W, -5%, Carbon | 7 | Y | C301 | ECQM05473KZ | 0.047μF, 50WV, -10%, Polyester | 1 | Z |
| R107, 113 | ERD14TJ151 | 150Ω, ¼W, ±5%, Carbon | 2 | Y | C302 | ECQS1471J-Z | 470pF, 125WV, -5%, Styroi | 1 | Z |
| R122, 409, 410 | ERD14TJ271 | 270Ω, ¼W, ±5%, Carbon | 3 | Y | C506 | ECQU2A103MD | 0.01μF, 250VAC, -20%, Polyester | 1 | Z |
| R129, 413, 414 | ERD14TJ331 | 330Ω, ¼W, ±5%, Carbon | 3 | Y | C208 | ECAG25ER1X | 0.1μF, 25WV, Electrolytic | 1 | Y |
| R103 | ERD14TJ471 | 470Ω, ¼W, -5%, Carbon | 1 | Y | C304, 305 | ECAG25ER33X | 0.33μF, 25WV, Electrolytic | 2 | Y |
| R108 | ERD14TJ681 | 680Ω, ¼W, -5%, Carbon | 1 | Y | C303 | ECAG25ER47X | 0.47μF, 25WV, Electrolytic | 1 | Y |
| R101, 104, 110, 115, 116, 118, 119, 303 | ERD14TJ102 | 1kΩ, ¼W, -5%, Carbon | 8 | Y | C403, 404 | ECEA6V47L | 47μF, 6.3WV, Electrolytic | 2 | Y |
| R502 | ERD14TJ122 | 1.2kΩ, ¼W, -5%, Carbon | 1 | Y | C130 | ECEA6V100L | 100μF, 6.3WV, Electrolytic | 1 | Y |
| R202 | ERD14TJ182 | 1.8kΩ, ¼W, -5%, Carbon | 1 | Y | C106 | ECEA10V100L | 100μF, 10WV, Electrolytic | 1 | Y |
| R124 | ERD14TJ272 | 2.7kΩ, ¼W, ±5%, Carbon | 1 | Y | C207, 312 | ECEA10V220L | 220μF, 10WV, Electrolytic | 2 | Y |
| R203 | ERD14TJ332 | 3.3kΩ, ¼W, ±5%, Carbon | 1 | Y | C306, 504 | ECEA10V1000L | 1000μF, 10WV, Electrolytic | 2 | Y |
| R130, 131, 411, 412 | ERD14TJ392 | 3.9kΩ, ¼W, ±5%, Carbon | 4 | Y | C131, 133, 135, 207 | ECEA16V101L | 10μF, 16WV, Electrolytic | 4 | Y |
| R120, 308, 309, 311, 312 | ERD14TJ472 | 4.7kΩ, ¼W, ±5%, Carbon | 5 | Y | C501, 502 | ECEA16V470L | 470μF, 16WV, Electrolytic | 2 | Y |
| R102, 209, 306, 307 | ERD14TJ562 | 5.6kΩ, ¼W, -5%, Carbon | 4 | Y | C113, 310, 311, 407, 408 | ECEA25V3R3L | 3.3μF, 25WV, Electrolytic | 5 | Y |
| R111, 126, 208 | ERD14TJ822 | 8.2kΩ, ¼W, -5%, Carbon | 3 | Y | C110, 127 | ECEA25V4R7L | 4.7μF, 25WV, Electrolytic | 2 | Y |
| R121, 125, 127, 204, 206, 403, 404 | ERD14TJ103 | 10kΩ, ¼W, +5%, Carbon | 7 | Y | C503 | ECEA25V470L | 470μF, 25WV, Electrolytic | 1 | Y |
| R112 | ERD14TJ123 | 12kΩ, ¼W, ±5%, Carbon | 1 | Y | C123, 124, 203, 205, 401, 402 | ECEA50V1L | 1μF, 50WV, Electrolytic | 6 | Y |
| R405, 406 | ERD14TJ153 | 15kΩ, ¼W, ±5%, Carbon | 2 | Y | VARIABLE CAPACITORS | | | | |
| R302 | ERD14TJ183 | 18kΩ, ¼W, ±5%, Carbon | 1 | Y | CV1, 2, 3, 201, 202 (CT1, 2, 201, 202) | ECV5MX25X20G | Tuning Gang, FM & AM (with Trimmer) | 1 | Y |
| R205 | ERD14TJ223 | 22kΩ, ¼W, ±5%, Carbon | 1 | Y | CT3 | ECV1ZW06P35 | FM OSC Trimmer, 6pF | 1 | Y |
| COMPONENT COMBINATIONS | | | | | | | | | |
| Z101 | EXAF5DL04C | FM Detector | 1 | Y | | | | | |
| Z201 | EXAF203Z471 | AM Detector | 1 | Y | | | | | |
| Z501 | RXAF103P22HD | Power Source | 1 | Y | | | | | |
| FUSES and LIGHTS | | | | | | | | | |
| F501 | XBA2E015NS5 | 150mA Fuse, Power Source | 1 | X | | | | | |
| F502 | XBAS1B0303 | 300mA Fuse, Power Source | 1 | X | | | | | |

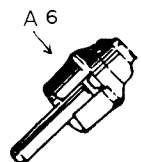
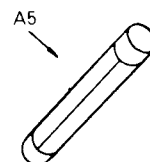
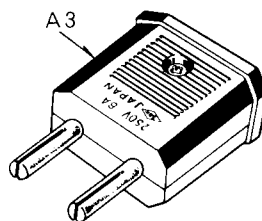
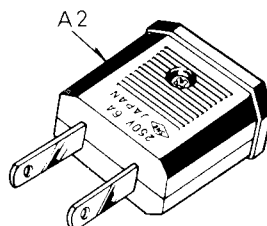
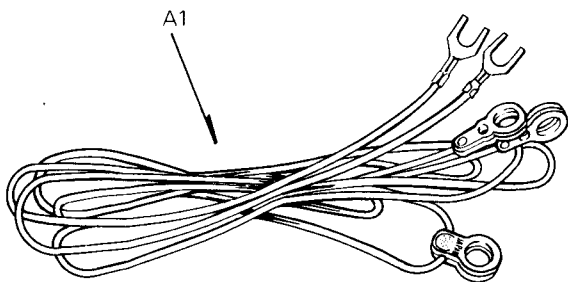
Model ST-3150

| Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks | Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks |
|--------------------------------------|----------------------|--------------------------------------------------|----------------|---------|--------------------------------------------------|----------|-------------------------------------------------|----------------|---------|
| PL1, 2 PL3 | XAM35W XAMR38S200 | Dial Lamp (6.3V 0.25A) Stereo Eye (6.3V 40mA) | 2 1 | X X | CHASSIS PARTS | | | | |
| METERS | | | | | CH1 | XTV3+8C | Screw, Meter Bracket M'tg. | 3 | Z |
| SWITCHES | | | | | CH2 | SDHA55 | Bracket, Meter | 1 | ○ Z |
| S1 | SSMA30 | Signal Meter | 1 | ○ X | CH3 | SDUA7-1 | Orange Filter, Stereo Eye | 1 | Z |
| S2, 3 | SSMA31 | Tuning Meter | 1 | ○ X | CH4 | SHRA916 | Lock Pin, Dial Scale & Dial Light Filter | 3 | Z |
| CABINET PARTS | | | | | CH5 | RNW150-2 | Lock Washer, Pulley | 4 | Z |
| CA1 | XTV3+8CK | Black Screw, Panel M'tg. | 4 | Z | CH6 | RDR20 | Pulley, Dial Cord | 3 | Z |
| CA2 | SGWA1390 | Front Panel | 1 | ○ Z | CH7 | RDY34 | Shaft, Pulley (RDR20) | 3 | Z |
| CA3 | SHRA610 | Bracket, Lever Switch | 3 | Z | CH8 | RDR23 | Pulley, Dial Cord | 1 | Z |
| CA4 | SGUA29 | Glass Plate | 1 | ○ Y | CH9 | RDY32 | Shaft, Pulley (RDR23) | 1 | Z |
| CA5 | SBLA3 | Knob, Lever Switch | 3 | Y | CH10 | SKDA520 | Scale, Dial | 1 | ○ Z |
| CA6 | SBNA123 | Knob, Selector Switch | 1 | ○ Y | CH11 | SHGA204 | Rubber Cushion, Stereo Eye & Variable Capacitor | 2 | Z |
| CA7 | SBNA122S | Knob, Tuning | 1 | ○ Y | CH12 | SDPA5-1 | Pointer, Dial | 1 | Y |
| CA8 | RHR106 | Bushing, AM Antenna Lead Wire | 1 | Z | CH13 | SDUA8 | Green Filter, Dial Light | 1 | ○ Z |
| CA9 | RHR111 | Bushing, AC Cord | 1 | Z | CH14 | SMM16 | Mounting, Meter | 1 | ○ Z |
| CA9(Australia) | SHR113 | Bushing, AC Cord (for Australia) | 1 | Z | CH15 | XTV3-6C | Screw, Meter M'tg. | 1 | Z |
| CA10 | SJFA4402 | Terminal, Ext. Antenna | 1 | ○ Z | CH16 | SUMA11 | Mounting, Dial Scale | 1 | ○ Z |
| CA11 | SJFA3416 | Terminal, Output | 1 | Z | CH17 | SDTA8-1S | Tuning Shaft, Complete (with Flywheel) | 1 | ○ Z |
| CA12 | SJAA3-1 | AC Cord | 1 | Y | CH18 | RJV1A | Holder, Dial Lamp | 2 | Z |
| CA12(Australia) | SJA51 | AC Cord (for Australia) | 1 | Y | CH19 | SDDA391S | Drum, Tuning | 1 | Z |
| CA13 | SGPA600-1C | Rear Panel | 1 | ○ Z | CH20 | XXAR3H6S | Screw, Drum M'tg. | 2 | Z |
| CA13(Australia) | SGPA600-2B | Rear Panel (for Australia) | 1 | ○ Z | | SDSA4121 | Spring, Dial Cord | 1 | Y |
| CA14 | SMA197 | Mounting, AM Antenna Coil | 1 | Z | | RDZ05C | Cord, Dial (190cm [74 3/4"]) | 1 roll | Y |
| CA15 | SMAA6-2 | Band, AM Antenna Coil | 1 | Z | ACCESSORIES | | | | |
| CA16 (BRN) | SKAA850 | Cabinet, Brown Wood | 1 | ○ Y | A1 | SSAA3 | Cord, FM Antenna | 1 | Y |
| CA16 (BLK) | SKAA850-1 | Cabinet, Black Wood (for Germany) | 1 | ○ Y | A2 | RJP16AS | AC Plug | 1 | Y |
| CA17 (BRN) | XSB4+12BVCS | Screw, Brown Cabinet M'tg. | 4 | Z | A3 | RJP17AS | AC Plug | 1 | Y |
| CA17 (BLK) | XSB4+16KS | Screw, Black Cabinet M'tg. | 4 | Z | A4 | SJP2129 | Connector Cord | 1 | Y |
| CA18 | SYUA111A | Bottom Board, (With Leg) | 1 | ○ Z | PACKING PARTS | | | | |
| CA19 | SHG309 | Leg | 4 | Z | P1 | SPPA39 | Soft Cover | 1 | ○ Z |
| CA20 | XTB4+8BR | Red Screw, Bottom Board M'tg | 5 | Z | P2 | SPSA31-1 | Pad, AM Bar Antenna | 1 | Z |
| PACKING PARTS (for Australia) | | | | | P3 | SPPA28 | Polyethylene Bag | 1 | Z |
| Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks | P4 | SPSA16-2 | Pad, Left & Right Side | 2 | ○ Z |
| P1 | SPPA39 | Soft Cover | 1 | Z | P5 | ..... | Deletion | ..... | ..... |
| P2 | SPSA31-1 | Pad, AM Bar Antenna | 1 | Z | P6 | ..... | Deletion | ..... | ..... |
| P3 | SPPA28 | Polyethylene Bag | 1 | Z | P7 | SPGA501 | Carton Box | 1 | ○ Z |
| P4 | SPSA16-2 | Pad, Left & Right Side | 2 | Z | P8 | SQFA244 | Printed Matter, Complete | 1 | ○ Y |
| P5 | ..... | Deletion | ..... | ..... | PACKING PARTS (for Germany & England) | | | | |
| P6 | ..... | Deletion | ..... | ..... | Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks |
| P7 | SPGA501 | Carton Box | 1 | ○ Z | P1 | SPPA39 | Soft Cover | 1 | Z |
| P8 | SQFA244 | Printed Matter, Complete | 1 | ○ Y | P2 | SPSA31-1 | Pad, AM Bar Antenna | 1 | Z |

Model ST-3150

Model SU-3150

ACCESSORIES



| Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks | Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks |
|-------------------------------|--------------|-----------------------------------------------------|----------------|---------|-------------------------------|-------------|--------------------------------------------------------|----------------|---------|
| TRANSISTORS | | | | | CAPACITORS | | | | |
| TR101, 102 | 2SA722T | Equalizer Amplifier | 2 | X | C209, 210 | ECCD1H390K | 39pF, 50WV, $\pm 10\%$, Ceramic | 2 | Z |
| TR103, 104 | 2SC1328T | Equalizer Amplifier | 2 | X | C103, 104, 205 | ECCD1H680K | 68pF, 50WV, $\pm 10\%$, Ceramic | 4 | Z |
| TR201, 202, 203, 204 | 2SA666A-AD3 | Differential Amp. (Use in Pairs) | 4 | X | C117, 118, 211, 212, 215, 216 | ECCD1H101K | 100pF, 50WV, $\pm 10\%$, Ceramic | 6 | Z |
| TR205, 206, 207, 208 | 2SC1509Q | Driver Amplifier | 4 | X | C119, 120 | ECCD1H221K | 220pF, 50WV, $\pm 10\%$, Ceramic | 2 | Z |
| TR209, 210 | 2SA777Q | Driver Amplifier | 2 | X | C105, 106 | ECKD2H821K | 820pF, 500WV, $\pm 10\%$, Ceramic | 2 | Z |
| TR211, 212 | 2SC789-70.0 | Power Amplifier | 2 | X | C213, 214 | ECKE1H102MD | 0.001 μ F, 50WV, $\pm 20\%$, Ceramic | 2 | Z |
| TR213, 214 | 2SA489-70.0 | Power Amplifier | 2 | X | C235 | ECKE1H333PF | 0.033 μ F, 50WV, $\pm 100\%$, Ceramic | 1 | Z |
| TR215, 216 | 2SC828R | Thermal Compensation | 2 | X | C1 | ECQU2A103MD | 0.01 μ F, 250VAC, $\pm 20\%$, Polyester | 1 | Z |
| TR301 | 2SC828A-R | Ripple Filter | 1 | X | C111, 112 | ECQM05222JZ | 0.0022 μ F, 50WV, $\pm 5\%$, Polyester | 2 | Z |
| TRANSFORMER | | | | | FUSES and LAMP | | | | |
| (Australia) | SLTA5N18S | Power Transformer | 1 | ○ X | F1 | XBAS2B1501 | 1.5A Fuse, Power Source | 1 | X |
| (Australia) | SLT5N131 | Power Trans(Only for Australia) | 1 | ○ X | F1 (Australia) | XBA2E08NS5 | 0.8A Fuse, (Only for Australia) | 1 | ○ X |
| DIODES and THERMISTORS | | | | | SWITCHES | | | | |
| D201 | SVDAEQA0106R | 6V Zener, Shock Noise Cancel | 1 | X | S1 | SSRA73 | Selector Switch | 1 | ○ Y |
| D202 | SVDAEQA0111R | 11V Zener, Shock Noise Cancel | 1 | X | S2 | SSRA74 | Tape Monitor Switch | 1 | ○ Y |
| D301, 302 | RVD10DC1 | Rectifier | 2 | X | S3 | SSLA24S | Mode Switch | 1 | X |
| D303, 304 | RVD10DC1R | Rectifier | 2 | X | S4, 5, 6 | SSLA23S | Filters & Loudness Switch | 3 | X |
| D305, 306 | MA150 | Rectifier | 2 | X | S7 | SSRA75 | Speakers Switch | 1 | ○ Y |
| TH201, 202 | RRT251 | Thermistor, Driver Circuit | 2 | X | S8 | SSLA27-1S | Power Source Switch | 1 | X |
| COMPONENT COMBINATIONS | | | | | CABINET PARTS | | | | |
| M301, 302 | RXAF103P22HD | 0.01 μ F ($\times 2$), 500WV, Hum Canceler | 2 | Y | CA1 | XTV3-8CK | Black Screw, Panel M'tg. | 4 | Z |
| RESISTORS | | | | | SPEAKERS | | | | |
| R245, 246 | ERD14TJ390 | 39 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA2 | SGWA1400 | Front Panel | 1 | ○ Y |
| R211, 212 | ERD14TJ680 | 68 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA3 | SGLA9 | Orange Filter | 1 | Z |
| R249, 250 | ERD14TJ820 | 82 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA4 | SHRA601 | Bracket, Pilot Lamp | 1 | Z |
| R243, 244 | ERD14TJ101 | 100 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA5 | SHRA610 | Bracket, Lever Switch | 5 | Z |
| R253, 254 | ERD14TJ271 | 270 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA6 | SBNA124 | Knob, Speakers, Volume, Tape Monitor & Selector Switch | 4 | ○ Y |
| R109, 110, 221, 222, 305 | ERD14TJ471 | 470 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 5 | Y | CA7 | SBLA3 | Knob, Lever Switch | 5 | Y |
| R302 | ERD14TJ561 | 560 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 1 | Y | CA8 | SBNA125 | Knob, Bass & Treble Control | 2 | ○ Y |
| R247, 248 | ERD14TJ681 | 680 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA9 | SBNA123 | Knob, Balance Control | 1 | Y |
| R225, 226 | ERD14TJ821 | 820 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA10 | SJFA3805 | Terminal, Input & Tape Monitor | 2 | ○ Z |
| R103, 104, 203, 204 | ERD14TJ102 | 1k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | CA11 | SJFA3207 | Terminal, Pre Out | 1 | Z |
| R115, 116, 125, 126 | ERD14TJ122 | 1.2k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | CA12 | SJFA5201-1 | Holder, Protection Fuses | 1 | Z |
| R121, 122, 223, 224 | ERD14TJ182 | 1.8k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | CA13 | SNEA404 | Nut, Ground | 1 | Z |
| R117, 118, 151, 152, 258 | ERD14TJ472 | 4.7k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 5 | Y | CA14 | SNEA204-2S | Bolt, Ground | 1 | Z |
| R3, 4 | ERD14TJ562 | 5.6k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA14 (Australia) | SGPA610-1B | Rear Panel Only | 1 | Z |
| R127, 128 | ERD14TJ822 | 8.2k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA14 (Australia) | SGPA610-2A | Rear Panel(Only for Australia) | 1 | Z |
| R207, 208 | ERD14TJ103 | 10k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA15 | RJS31-1 | DIN Socket, Tape Monitor | 1 | Z |
| R251, 252 | ERD14TJ123 | 12k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA16 | SJFA4803-1 | Terminal, Speakers | 1 | Z |
| R124 | ERD14TJ223 | 22k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 1 | Y | CA17 | SJSA66-1 | Socket, AC Outlet | 2 | Z |
| R111, 112 | ERD14TJ333 | 33k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA18 | RHR111 | Bushing, AC Cord | 1 | Z |
| R153, 154, 304 | ERD14TJ393 | 39k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 3 | Y | CA18 (Australia) | SHR113 | Bushing, AC Cord (Only for Australia) | 1 | Y |
| R1, 2, 107, 108 | ERD14TJ473 | 47k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | CA19 | SJAA3-1 | AC Cord | 1 | Y |
| R205, 206, 213, 214 | ERD14TJ563 | 56k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | CA19 (Australia) | SJAS1 | AC Cord (Only for Australia) | 1 | Y |
| R119, 120 | ERD14TJ823 | 82k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA20 | SJFA5202-1 | Cap. Protection Fuse Holder | 1 | Z |
| R7, 8 | ERD14TJ104 | 100k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA21 | XSN26+12 | Screw, Fuse Cap M'tg. | 1 | Z |
| R113, 114 | ERD14TJ154 | 150k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | CA22(BRN) | SKAA840 | Cabinet, Brown Wood | 1 | ○ Y |
| R5, 6, 123 | ERD14TJ474 | 470k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 3 | Y | | | | | |
| R201, 202 | ERD14TJ824 | 820k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | | | | | |
| R101, 102, 105, 106 | ERD14TSJ104 | 100k Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | | | | | |
| R227, 228, 233, 234 | ERD14FJ6R8 | 6.8 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 4 | Y | | | | | |
| R215, 216, 229, 230, 231, 232 | ERD14FJ470 | 47 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 6 | Y | | | | | |
| R255, 256, 303 | ERD14FJ101 | 100 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 3 | Y | | | | | |
| R257 | ERD14FJ561 | 560 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 1 | Y | | | | | |
| R209, 210 | ERD14FJ821 | 820 Ω , $\frac{1}{4}$ W, $\pm 5\%$, Carbon | 2 | Y | | | | | |
| R217, 218 | ERD12TJ561 | 560 Ω , $\frac{1}{2}$ W, $\pm 5\%$, Carbon | 2 | Y | | | | | |
| R239, 240 | ERD12TJ6B1 | 680 Ω , $\frac{1}{2}$ W, $\pm 5\%$, Carbon | 2 | Y | | | | | |
| R219, 220 | ERD12TJ332 | 3.3k Ω , $\frac{1}{2}$ W, $\pm 5\%$, Carbon | 2 | Y | | | | | |
| R301 | ERD18FJ4R7 | 4.7 Ω , $\frac{1}{8}$ W, $\pm 5\%$, Carbon | 1 | Y | | | | | |
| R235, 236, 237, 238 | ERX2ANJR47 | 0.47 Ω , 2W, $\pm 5\%$, Metallic | 4 | Y | | | | | |
| R241, 242 | ERX1ANJ100 | 10 Ω , 1W, $\pm 5\%$, Metallic | 2 | Y | | | | | |
| R259, 260 | ERG1ANJ331 | 330 Ω , 1W, $\pm 5\%$, Metallic | 2 | Y | | | | | |
| VARIABLE RESISTORS | | | | | | | | | |
| VR1 | EWFPA085BF5 | 250k Ω (B), Volume Control | 1 | ○ X | | | | | |
| VR2 | EVH6DA038G25 | 200k Ω (G), Balance Control | 1 | ○ X | | | | | |
| VR3, 4 | EFW3NA037C14 | 10k Ω (C), Tone Control | 2 | ○ X | | | | | |
| VR201, 202 | EVL33AA00B23 | 2k Ω (B), DC Unbalance Adjustment | 2 | X | | | | | |
| VR203, 204 | EVL33AA00B52 | 500 Ω (B), Ico Adjustment | 2 | X | | | | | |

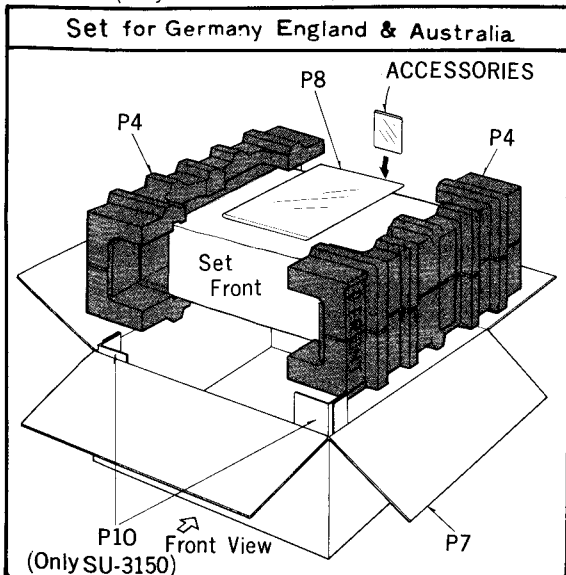
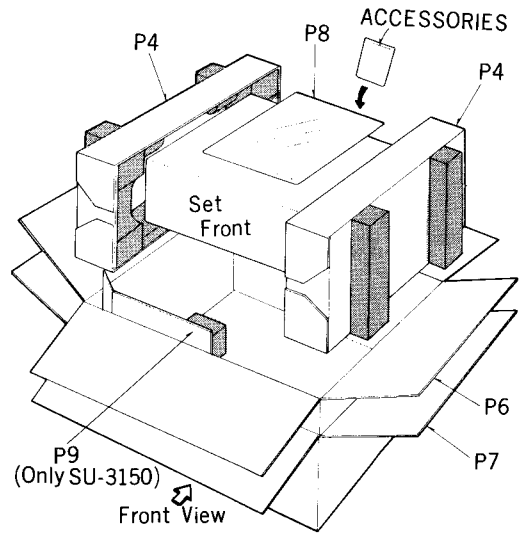
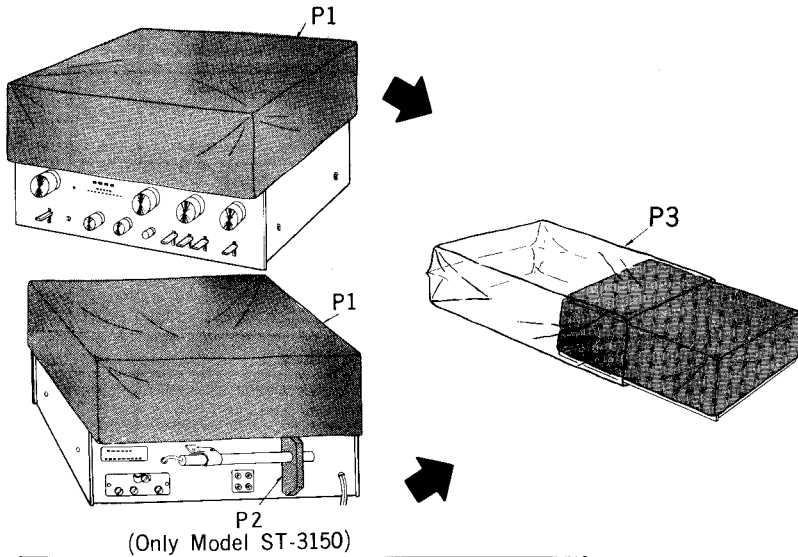
Model SU-3150

| Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks | Ref. No. | Part No. | Description | Per Set (Pcs.) | Remarks |
|--------------------------------------------------|-------------|----------------------------------------------|----------------|---------|--------------------------------------------------|------------|----------------------------------|----------------|---------|
| CA22(BLK) | SKAA840-1 | Cabinet, Black Wood (for Germany) | 1 | ○ Y | ACCESSORIES | | | | |
| CA23(BRN) | XSB4+25FVCS | Screw, Brown Cabinet M'tg. | 4 | Z | A2 | RJP16AS | AC Plug(Nothing, for Australia) | 1 | Y |
| CA23(BLK) | XSB4+16KS | Screw, Black Cabinet M'tg. | 4 | Z | A3 | RJP17AS | AC Plug(Nothing, for Australia) | 1 | Y |
| CA24 | SYUA112A | Bottom Board (with Leg) | 1 | Z | A5 | XBAS1A3001 | Circuit Protection Fuse, 3A | 2 | X |
| CA25 | SHG309 | Leg Only | 4 | Z | A6 | RJP5 | Pin Plug(Nothing, for Australia) | 4 | Y |
| CA26 | XTB4+8BR | Red Screw, Bottom Board M'tg. | 4 | Z | PACKING PARTS | | | | |
| CA27 | SJPA11 | Short Pin, PHONO 2 Accessory | 2 | ○ Y | P1 | SPPA39 | Soft Cover | 1 | Z |
| CHASSIS PARTS | | | | | P3 | SPPA28 | Polyethylene Bag | 1 | Z |
| CH1 | SJJA15 | Jack Headphones | 1 | ○ Z | P4 | SPSA137 | Pad, Left & Right | 2 | Z |
| CH2 | SMZA6091 | Rubber Bracket, Pilot Lamp | 1 | Z | P5 | SPSA36 | Pad, Carton Box | 1 | Z |
| CH3 | SJFA2 | Holder, Fuse | 1 | Z | P6 | SPNA350A | Carton Box, Inner | 1 | ○ Z |
| CH4 | SUV295 | Cap. Fuse Holder | 1 | Y | P7 | SPGA611A | Carton Box, Outer | 1 | ○ Z |
| CH5 | XUC5FZ | E-Ring | 4 | Y | P8 | SQFA243 | Printed Matter, Complete | 1 | ○ Y |
| CH6 | SUBA21S | Coupler, Switch & Coupling Rod | 2 | Z | P9 | SPS41 | Pad | 1 | ○ Z |
| CH7 | XXAR3H6S | Screw, Coupler M'tg. | 6 | Z | PACKING PARTS (for Australia) | | | | |
| CH8 | SUBA22 | Coupling Rod, Selector & Tape Monitor Switch | 2 | ○ Z | P1 | SPPA39 | Soft Cover | 1 | Z |
| PACKING PARTS (for Germany & England) | | | | | P3 | SPPA28 | Polyethylene Bag | 1 | Z |
| P1 | SPPA39 | Soft Cover | 1 | Z | P4 | SPSA16-2 | Pad, Left & Right | 2 | Z |
| P3 | SPPA28 | Polyethylene Bag | 1 | Z | P5 | ..... | Deletion | ..... | ..... |
| P4 | SPSA16-2 | Pad, Left & Right | 2 | Z | P6 | ..... | Deletion | ..... | ..... |
| P5 | ..... | Deletion | ..... | ..... | P7 | SPG503 | Carton Box | 1 | ○ Z |
| P6 | ..... | Deletion | ..... | ..... | P8 | SQFA243 | Printed Matter, Complete | 1 | ○ Y |
| P7 | SPG503 | Carton Box, Outer | 1 | Y | P9 | ..... | Deletion | ..... | ..... |
| P8 | SQF945 | Printed Matter, Complete | 1 | ○ Z | P10 | SPS39 | Pad, Carton Box Corner | 2 | ○ Z |
| P9 | ..... | Deletion | ..... | ..... | PACKING PARTS (for Germany & England) | | | | |
| P10 | SPS39 | Pad, Carton Box Corner | 2 | Z | P1 | SPPA39 | Soft Cover | 1 | Z |

Model ST-3150

Model SU-3150

PACKING PARTS



Service Manual

FM/AM Stereo Tuner

SU-3500 / ST-3500

(XGB), (XGS) (XGB), (XGS)

Supplementary

For additional information, please refer to the service manual for Model SU-3500 (ORDER NO. AD7303-070) and ST-3500 (ORDER NO. AD7405-071).

Notes: * This service manual supplementary includes only the changes of **SU-3500** (ORDER NO. AD7303-070) and **ST-3500** (ORDER NO. AD7405-071).

* When servicing model **SU-3500(XGB), (XGS)** and model **ST-3500(XGB), (XGS)**, this service manual supplementary and **SU-3500** (ORDER NO. AD7303-070) and **ST-3500** (ORDER NO. AD7405-071) service manual should be used together.

CHANGES SU-3500 (XGB), (XGS)

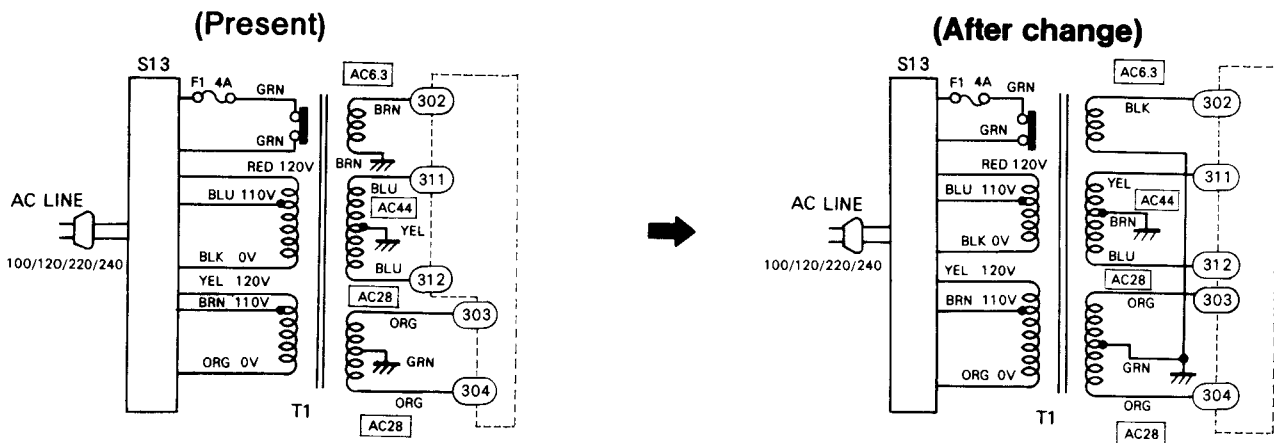
REPLACEMENT PARTS LIST

| Ref. No. | Change of Parts No. | | Description | Per Set (Pcs.) | Remarks |
|--------------------|---------------------|-----------------------|----------------------------------------|----------------|---------|
| | SU-3500 | → SU-3500 (XGB) (XGS) | | | |
| TR101 ~ 104 | 2SA722T | 2SA902S-F | Equalizer Amplifier | 4 | |
| TR201(x2), 202(x2) | 2SA722T | 2SA902-F | Tone Amplifier | 4 | |
| T1 | SLTA5Q24S | SLTA5Q27S | Power Transformer | 1 | |
| R502, 503 | ERD18FJ2R2 | ERQ12HJ2R2 | 2.2Ω, 1/2 W, ±5%, Fuse Type Metallic | 2 | |
| R329, 330 | Addition | ERD25TJ105 | 1 MΩ, 1/4 W, ±5%, Carbon | 2 | |
| R331 | Addition | ERD25TJ562 | 5.6 kΩ, 1/4 W, ±5%, Carbon | 1 | |
| C522, 524 | ECEA25V47 | ECEA25V10 | 10 μF, 25 WV, Electrolytic | 2 | |
| C528 | ECEA25V100 | ECEA25V10 | 10 μF, 25 WV, Electrolytic | 1 | |
| C502 | ECEA63V47L | ECEA63V100V | 100 μF, 63 WV, Electrolytic | 1 | |
| F1 | XBAS2A4001 | XBA2E40NS5 | Fuse, 4 A, Power Source | 1 | |
| F4 | XBAS2B2002 | XBA2K20NS5 | Fuse, 2 A, Power Source | 1 | |
| | SSYA1 | SSY13 | Relay, Power Source Circuit | 1 | |
| S12 | SSLA20S | SSLA27-1S | Switch, Power Source | 1 | |
| for [XGB] only | SYWA160A | SYWA162A | Black Panel, Front, Only Set for [XGB] | 1 | |
| CA35 | SJFA107 | QTF1046 | Holder, Circuit Protection Fuse | 1 | |
| CA37 | SJFA1 | QTF1046 | Holder, Power Source Fuse | 1 | |
| CA38 | SJAA3 | SJAA3-1 | AC Cord | 1 | |
| CA40 | SJPA9201 | SJP9205 | Short Pin, Pre & Main Amplifier | 2 | |
| CA41 | SJP9103 | SJPA11 | Short Pin Plug, PHONO-2 Terminal | 2 | |
| CH3 | SJJA14 | SJJA14-1 | Jack, Headphones | 1 | |
| P3 | SPSA73 | Deletion | ----- | 0 | |
| P4 | SPSA70 | Deletion | ----- | 0 | |

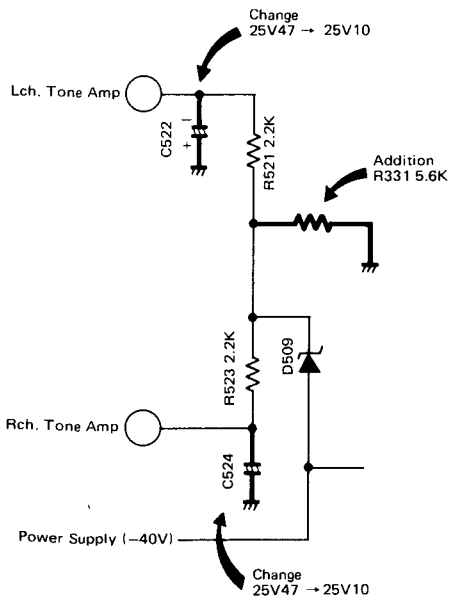
| Ref. No. | Change of Parts No. | | Description | Per Set (Pcs.) | Remarks |
|----------|---------------------|-----------------------|-------------------|----------------|---------|
| | SU-3500 | → SU-3500 (XGB) (XGS) | | | |
| P5 | SPNA230A | Deletion | ----- | 0 | |
| P6 | SPSA30 | Deletion | ----- | 0 | |
| P7 | SPGA440A | SPG815 | Carton Box, Outer | 1 | ○ |
| P10 | Addition | SPS475 | Pad, Outside | 1 | |
| P11 | Addition | SPS579 | Pad, Inside | 1 | ○ |
| P12 | Addition | SPS473 | Pad, Lower | 1 | |

■ CHANGE OF SCHEMATIC DIAGRAMS

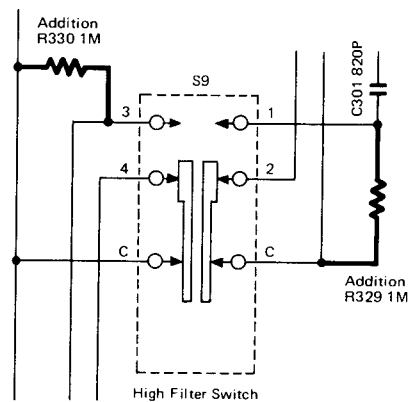
• Power Supply



• Tone Amp Power Supply



• High Filter Switch



CHANGES

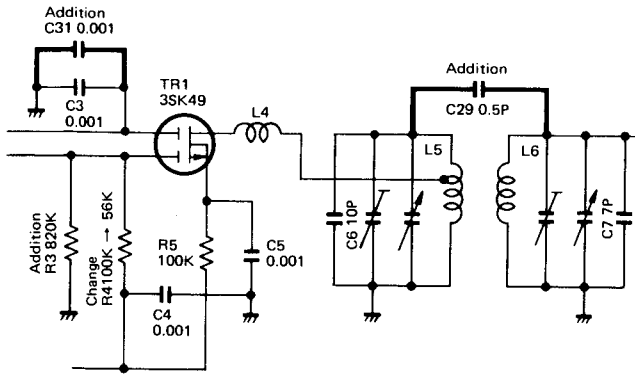
ST-3500 (XGB), (XGS)

■ REPLACEMENT PARTS LIST

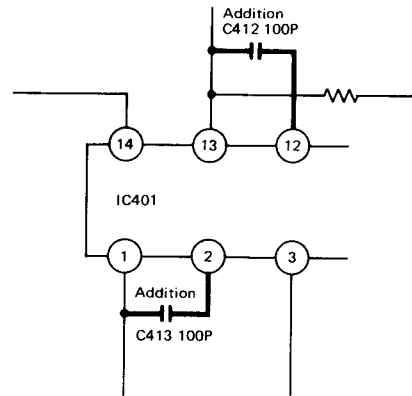
| Ref. No. | Change of Parts No. | | Description | Per Set (Pcs.) | Remarks |
|----------------|---------------------|-----------------------|-----------------------------------------------|----------------|---------|
| | ST-3500 | → ST-3500 (XGB) (XGS) | | | |
| D106, 107 | OA99 | MA150 | Diode, AGC | 2 | |
| L201 | RLM1X2-D | ELQ393D599G | Choke Coil | 1 | |
| R19 | ERD14TJ102 | ERD25TJ821 | 820Ω, 1/4 W, ± 5%, Carbon | 1 | |
| R15 | ERD14VJ103 | ERD25TJ104 | 100kΩ, 1/4 W, ± 5%, Carbon | 1 | |
| R16 | ERD14VJ153 | ERD25TJ222 | 2.2kΩ, 1/4 W, ± 5%, Carbon | 1 | |
| R4 | ERD14TJ104 | ERD25TJ563 | 56kΩ, 1/4 W, ± 5%, Carbon | 1 | |
| R17 | ERD14VJ274 | ERD25TJ153 | 15kΩ, 1/4 W, ± 5%, Carbon | 1 | |
| R3 | Addition | ERD25TJ824 | 820kΩ, 1/4 W, ± 5%, Carbon | 1 | |
| C13 | ECCD1H070DC | ECCD1H050CC | 5 pF, 50 WV, ± 0.25 pF, Ceramic | 1 | |
| C29 | Addition | ECCD1H0R5CC | 0.5 pF, 50 WV, ± 0.25 pF, Ceramic | 1 | |
| C151 | ECCD1H390KC | ECCD1H101K | 100 pF, 50 WV, ± 10%, Ceramic | 1 | |
| C30, 31 | Addition | ECKD1H102PF | 0.001μF, 50 WV, ± 100% ₀ , Ceramic | 2 | |
| C18 | ECKD1H102PF | ECCD1H150KC | 15 pF, 50 WV, ± 10%, Ceramic | 1 | |
| C163, 164 | ECKD1H222MD | ECKD1H102PF | 0.001μF, 50 WV, ± 100% ₀ , Ceramic | 2 | |
| C171 | ECKD1H223PF | Deletion | ----- | 0 | |
| C412, 413 | Addition | ECCD1H101K | 100 pF, 50 WV, ± 10%, Ceramic | 2 | |
| C407, 408 | ECQG05332KZN | ECQM05102KZN | 0.001μF, 50 WV, ± 10%, Polyester | 2 | |
| S3 | SSLA26S | SSLA26-1S | Delay Time Switch | 1 | |
| S4 | SSLA25S | SSLA25-1S | MPX Hi-Blend Switch | 1 | |
| F1 | XBAS1B0302 | XBA1E03NR5 | Fuse, 0.3 A | 1 | |
| F2 | XBAS1B0502 | XBA1K05NS5 | Fuse, 500 mA | 1 | |
| for [XGB] only | SYWT3500X1 | SYWT3500X2 | Black Panel, Front Only Set for [XGB] | 1 | ○ |
| CA21 | SHGA925 | Deletion | ----- | 0 | |
| CH3 | SSMA26-1 | SSMA26-2 | Meter, FM Tuning | 1 | |
| CH4 | SSMA25-1 | SSMA25-2 | Meter, Signal | 1 | |
| CH6 | SUMA8 | SUMA8-2 | Mounting, Dial Scale | 1 | |
| CH18 | RDZ05-5 | RDZ05C | Cord, Dial | 1 roll | |
| P2 | SPSA31 | SPSA31-1 | Pad, AM Bar Antenna | 1 | |
| P3 | SPP163 | SPHA2 | Polyethylene Sheet | 1 | |
| P4 | SPSA73 | Deletion | ----- | 0 | |
| P5 | SPSA70 | Deletion | ----- | 0 | |
| P6 | SPNA250A | Deletion | ----- | 0 | |
| P7 | SPSA30 | Deletion | ----- | 0 | |
| P8 | SPGA490A | SPG817 | Carton Box, Outer | 1 | ○ |
| P10 | Addition | SPS475 | Pad, Outside | 1 | |
| P11 | Addition | SPS579 | Pad, Inside | 1 | |
| P12 | Addition | SPS473 | Pad, Lower | 1 | |

■ CHANGE OF SCHEMATIC DIAGRAMS (Addition & Deletion Parts)

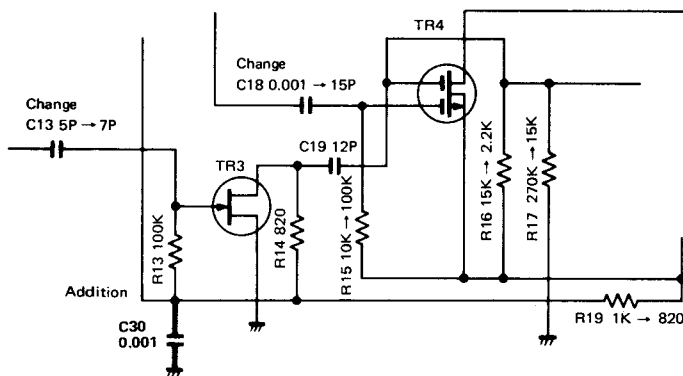
● FM RF Amplifier Circuit



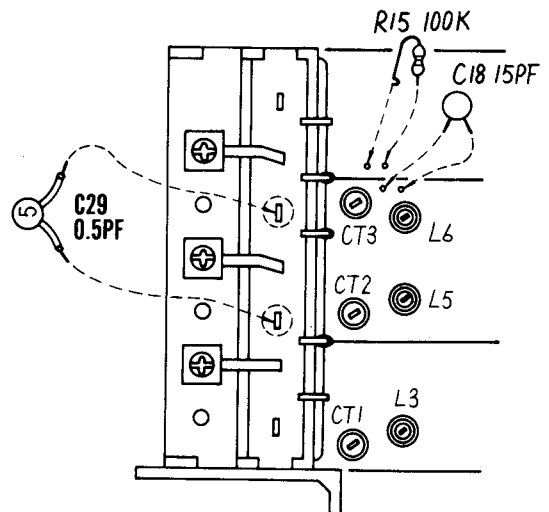
● AF Amplifier Circuit



● FM Mixer Circuit



● FM RF Amplifier p.c.b. Top View



■ CHANGE OF PACKINGS.....SU-3500/ST-3500

