

FT-767GX

TECHNICAL SUPPLEMENT

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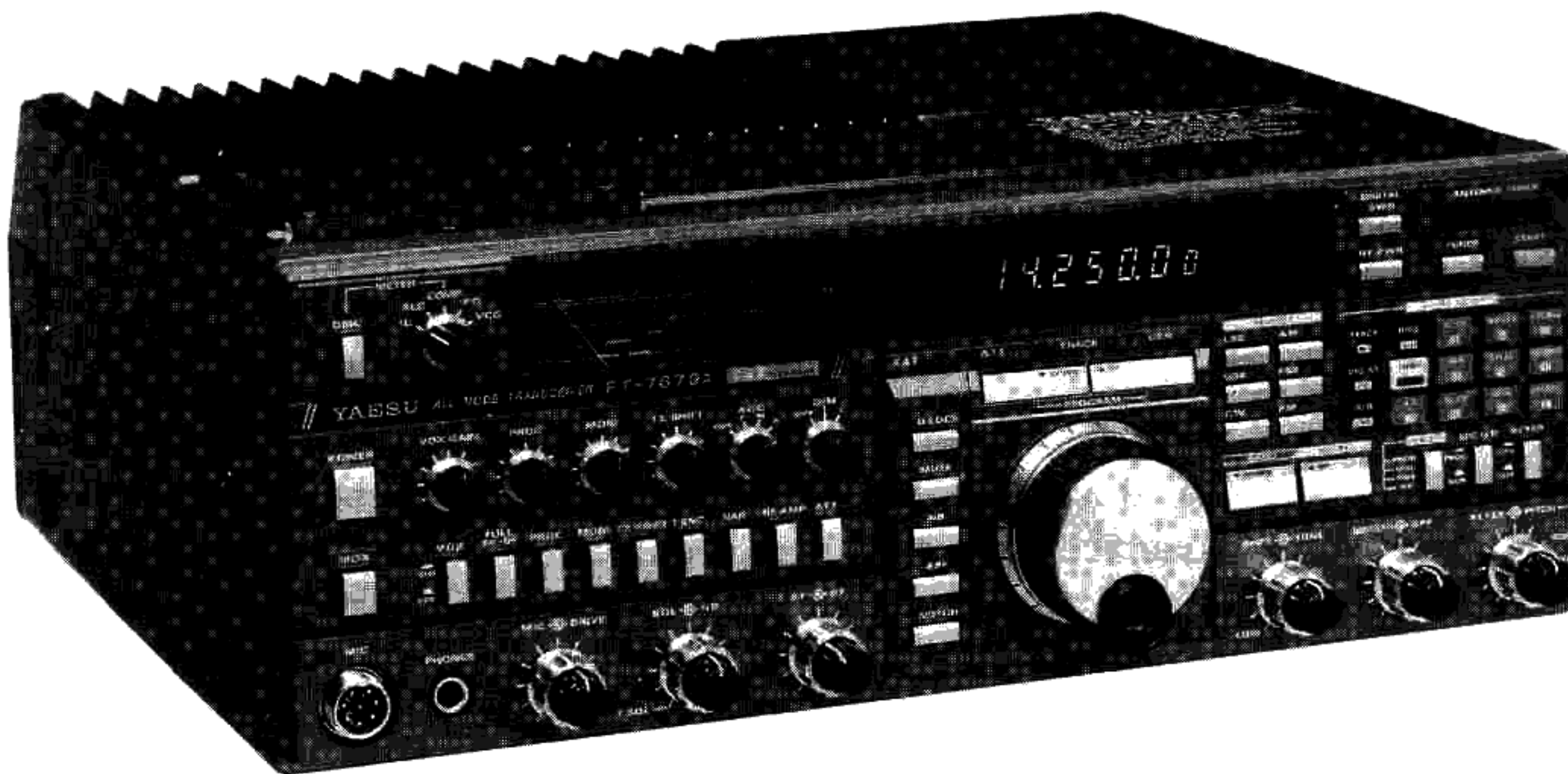
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FT-767GX TECHNICAL SUPPLEMENT



This manual is intended to serve as a technical supplement to the FT-767GX Operating Manual. Detailed information regarding functions, installation, interconnections and operation is provided in the Operating Manual, and is not reprinted herein. Therefore this Technical Supplement is not intended to serve as an independent reference, but to be used in conjunction with the information provided in the Operating Manual.

Because there are over 280 circuit stages in the fully-equipped FT-767GX, circuit description is provided by numerous block diagrams supplementing the schematic diagrams. We trust that this manner of providing functional information will prove more helpful than would a lengthy verbal description. Readers who are unfamiliar with the basic types of analog and digital circuits that serve as the building blocks of the FT-767GX may benefit from studying basic instructional texts published elsewhere, such as in handbooks on amateur radio and digital circuit design, before attempting to understand the design of the FT-767GX. Each block in the block diagrams represents one such basic circuit, with specific circuit details provided in the schematic diagrams.

While we believe this technical information is correct and factual, some errors are bound to be present, and those known at the time of printing have been noted at relevant points in the Alignment Instructions. Yaesu assumes no liability, however, for damage that may result from typographical or other errors that may be present. Readers' cooperation in bringing to our attention any inconsistencies in the technical information is appreciated.

Yaesu Musen strives to keep all officially appointed distributors of the FT-767GX advised of all significant design changes that may be developed, in the interest of technological improvement, during the course of production. Said distributors may elect to incorporate such changes at their discretion. However, neither Yaesu Musen nor its distributors can accept any obligation to advise owners or modify previously produced sets based on such design changes, beyond that which may be required by law.

SERVICE AND ALIGNMENT

The FT-767GX is carefully designed to allow the knowledgeable operator to make all adjustments required for various installations, modes and operating preferences simply from the controls on the front and rear panels, without opening the case of the transceiver. These adjustments are described in the FT-767GX Operating Manual.

The following procedures cover the sometimes critical and tedious adjustments that are not normally required once the transceiver has left the factory. We recommend that these adjustments be made only by authorized Yaesu service representatives, as many are interdependent and difficult to perform correctly without extensive prior experience with this type of procedure. Without such experience and the proper test equipment, any attempt to make internal adjustments may cause degraded transceiver performance, the correction of which is not covered by the warranty policy when caused by unauthorized internal adjustments.

In the unlikely attempt that a sudden failure occurs during normal operation, do not attempt realignment. Such failures are almost always due to the failure of a component, sometimes in an external accessory, or a problem with the antenna system. After all external connections have been checked, if the transceiver is still suspect, the dealer from whom the set was originally purchased should be contacted immediately for instructions regarding repair. Authorized Yaesu service technicians automatically perform complete performance checks and realignment of all circuits that may be affected once a faulty component has been replaced.

Those who do undertake any of the following alignment procedures are cautioned to proceed only at their own risk. Yaesu must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners. Under no circumstan-

ces should any realignment be attempted unless the normal function and operation of the transceiver are clearly understood, the malfunction has been carefully analyzed and any faulty components replaced, and the need for a specific realignment determined to be absolutely necessary. Procedures not involving adjustments are called 'Checks', and are provided to aid troubleshooting.

The following test equipment (and thorough familiarity with its use) is required for complete alignment. While most steps do not require all of the equipment listed, the interactions of such adjustments may require that more complex adjustments be performed afterwards. Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Rather, have all test equipment ready before beginning, and follow all of the steps in the order that they are listed in each section.

During all of the following procedures that call for the transmitter to be activated (MOX button pressed), a 50-ohm dummy load and in-line wattmeter must be connected to the relevant antenna jack, except where specifically stated otherwise. After the adjustment in any of these steps, return the MOX button to its OFF (out) position before proceeding to the next step. In no case should the MOX button be left depressed for more than the minimum amount of time necessary, which should be less than 30 seconds.

Also, the SHIFT control must be set to the 12 o'clock position, the RF gain control must be fully clockwise, and the SQL control must be fully counterclockwise during all steps, unless indicated otherwise.

After completing each step, read the following step to determine whether the same test equipment will be required. If not, remove the test equipment (except the dummy load and wattmeter) before proceeding.

COVER REMOVAL

- (1) Switch off the transceiver and remove the AC power cable and all other cables from the rear panel.
- (2) Remove the two screws affixing each VHF or UHF Band Module, and slide the Modules out of the transceiver (Fig. 1).
- (3) Remove the two screws at the front of the top cover (heatsink, Fig. 2).
- (4) Place the transceiver upside down, and remove the four screws from the bottom corners and two on either side (including the carrying handle screws). Remove the carrying handle and bottom cover (Fig. 3).
- (5) Referring to Figure 4, remove the 7 black painted screws from the rear panel. Then remove the (black) outer rear panel.
- (6) Referring to Figure 5, remove the 10 screws from the inner rear panel, and remove this panel.
- (7) Remove one screw on either side, as shown in Figure 6.
- (8) Locate the white molex connectors (one for power and one for the speaker) inside the rear of the chassis, and disconnect them.
- (9) Fold the lower half of the chassis away from the upper half, placing a book of about the same thickness of the heatsink under the bottom half as shown in Figure 8.

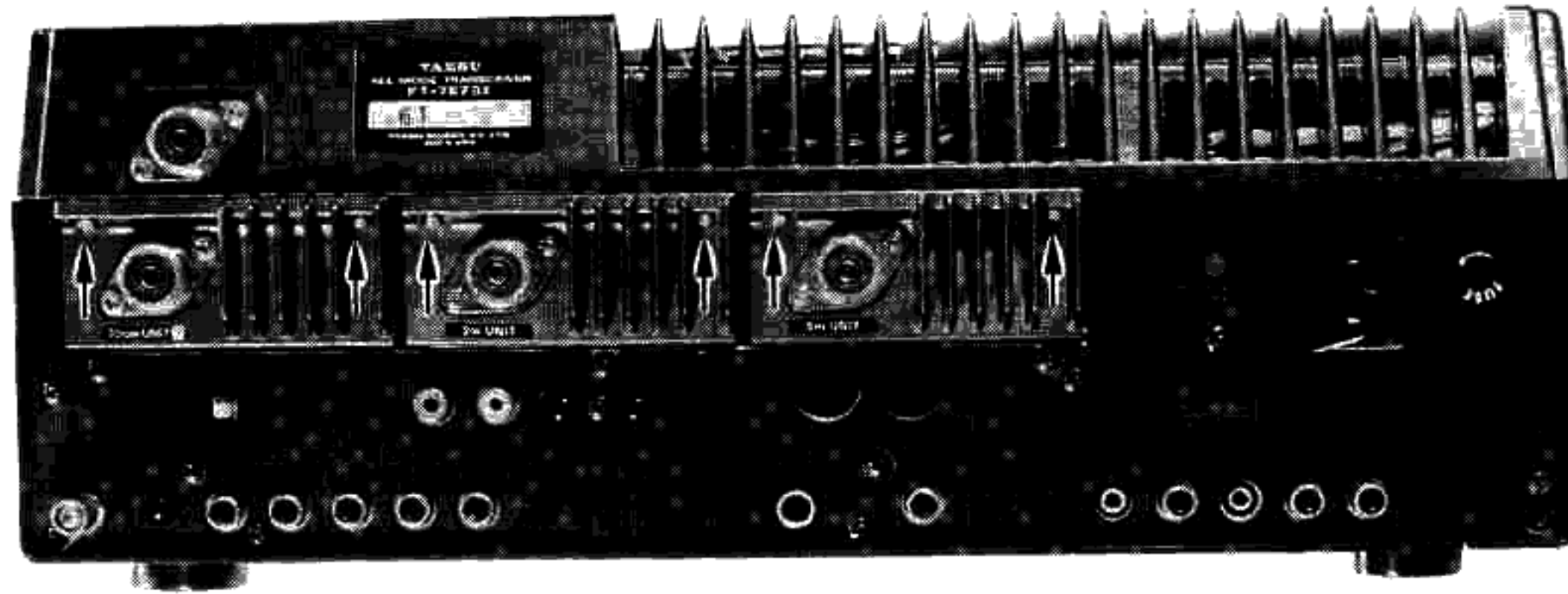


Figure 1

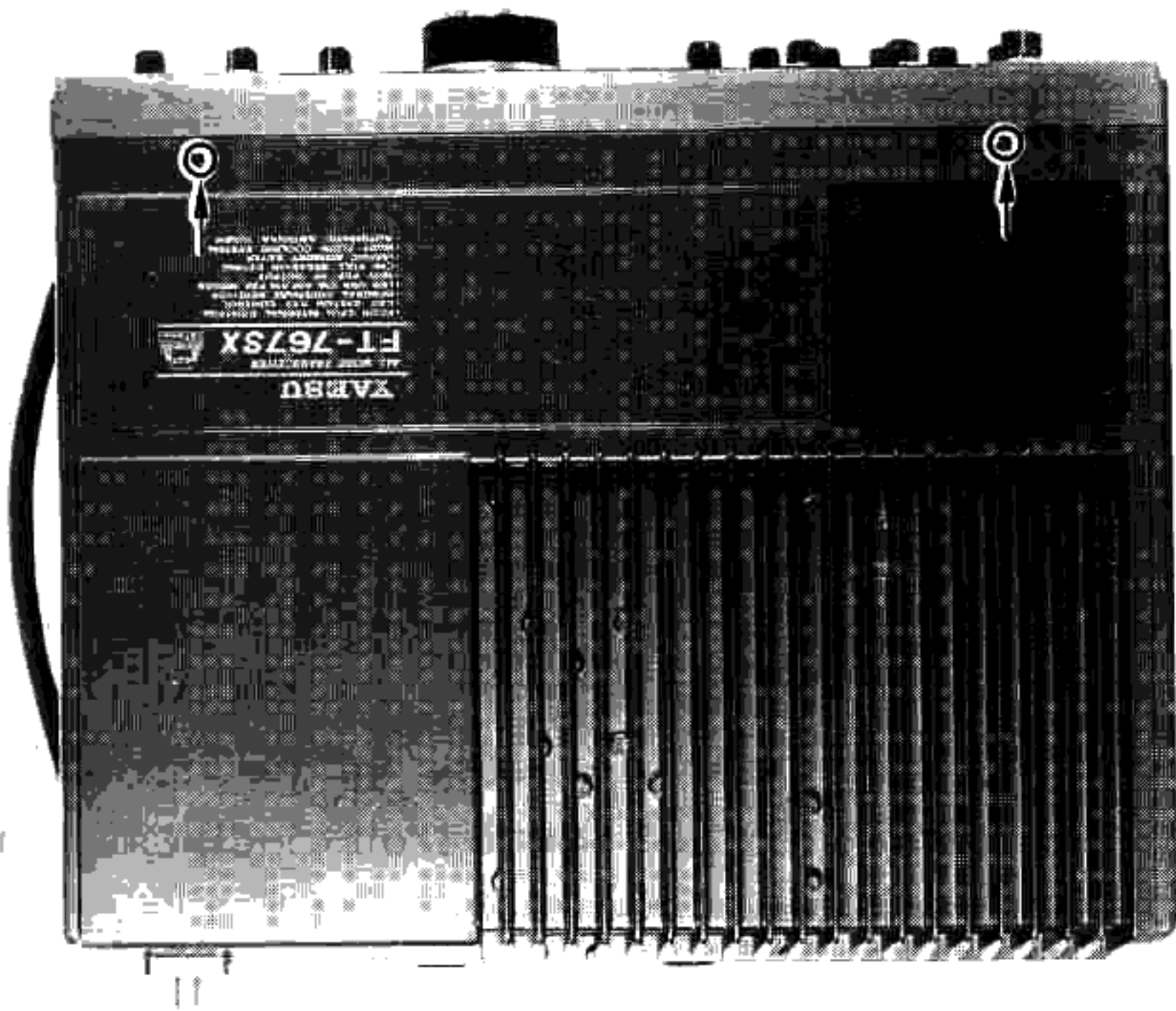


Figure 2

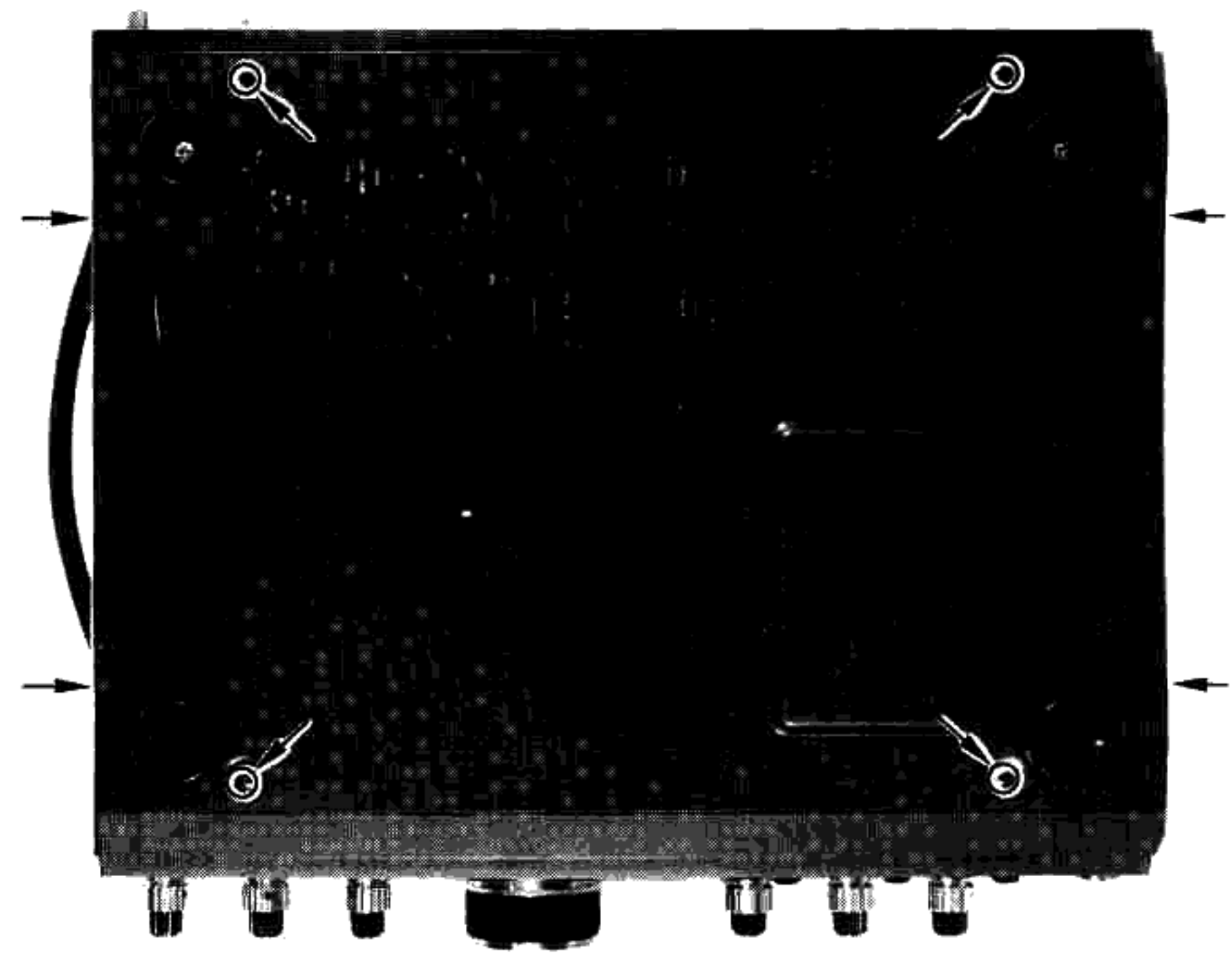


Figure 3

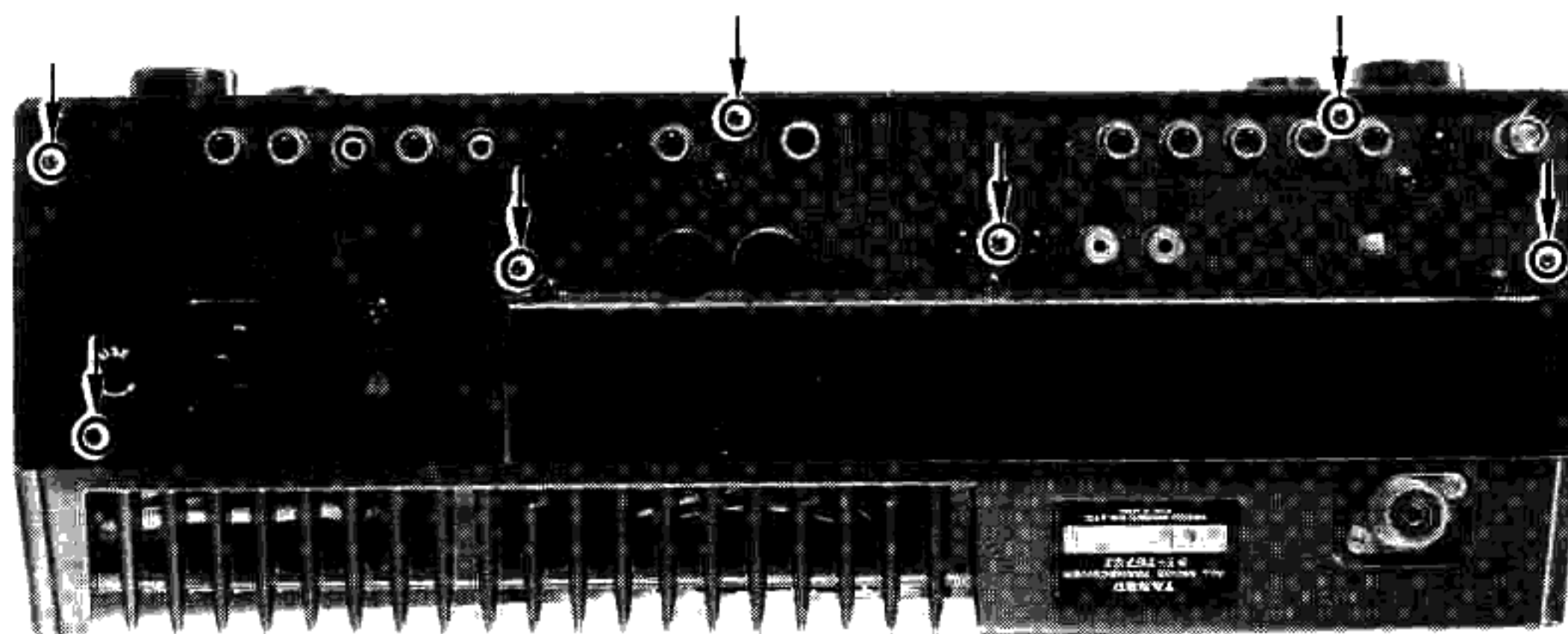


Figure 4

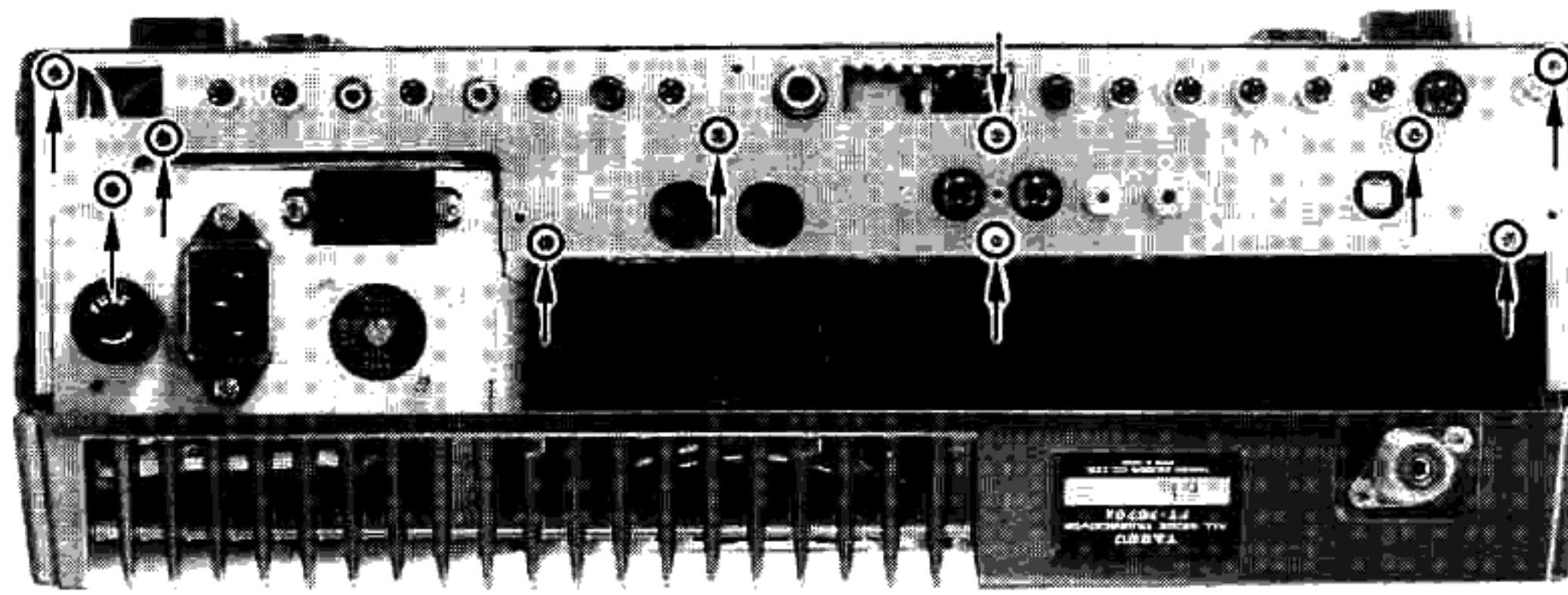


Figure 5

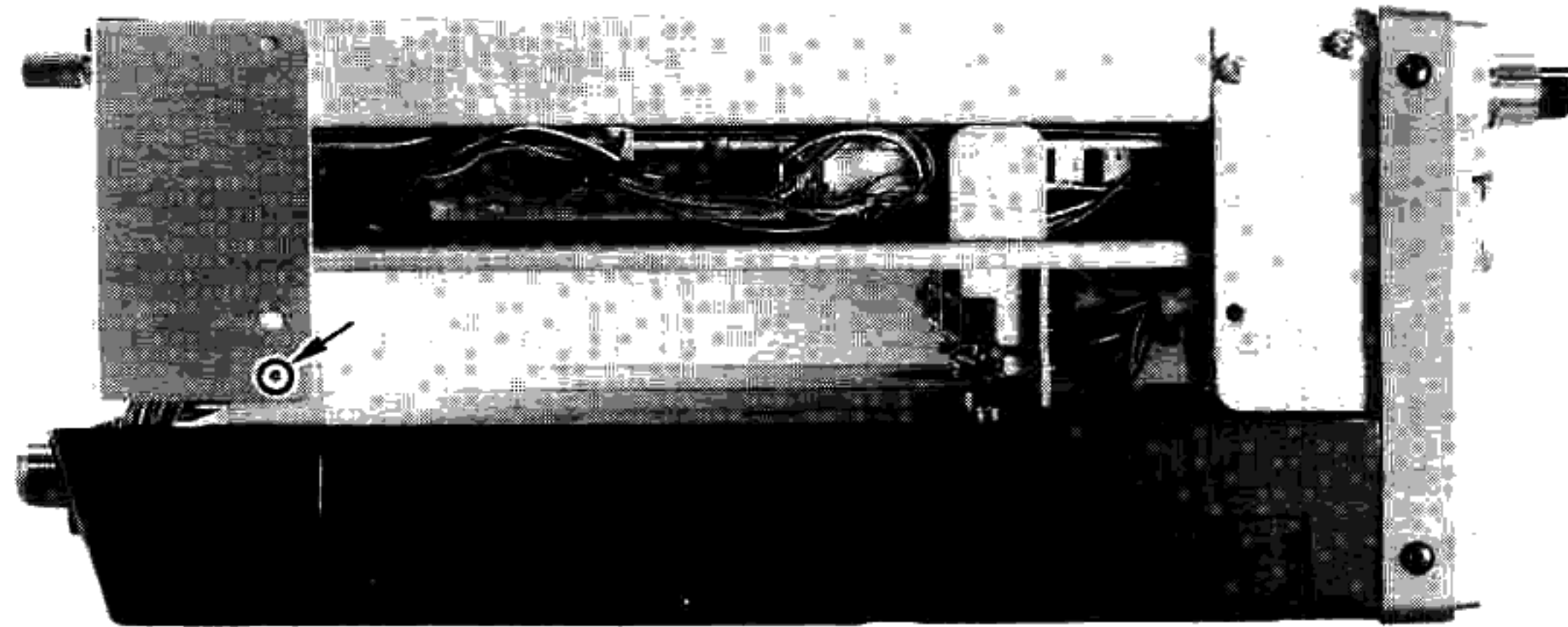


Figure 6

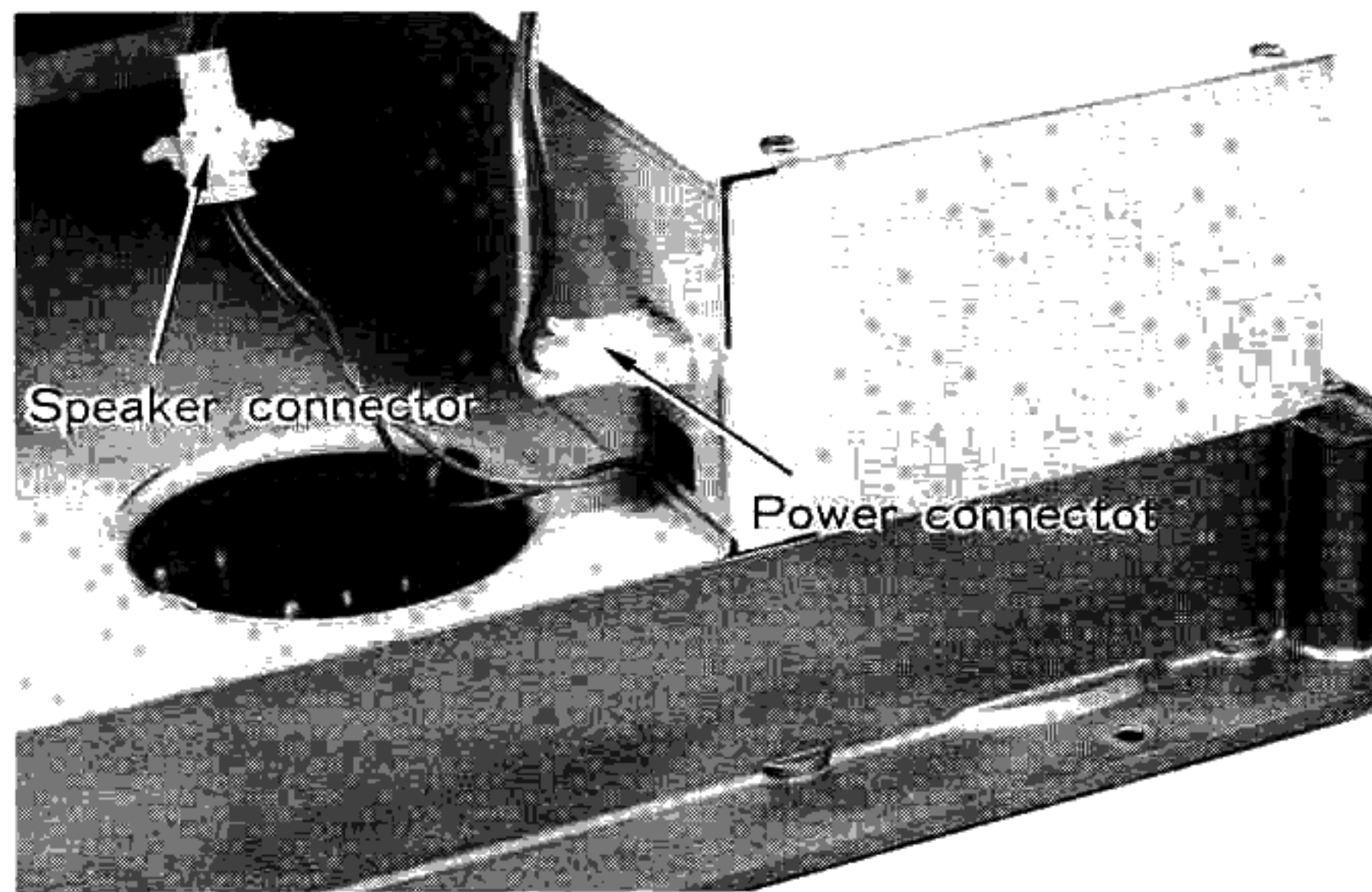


Figure 7

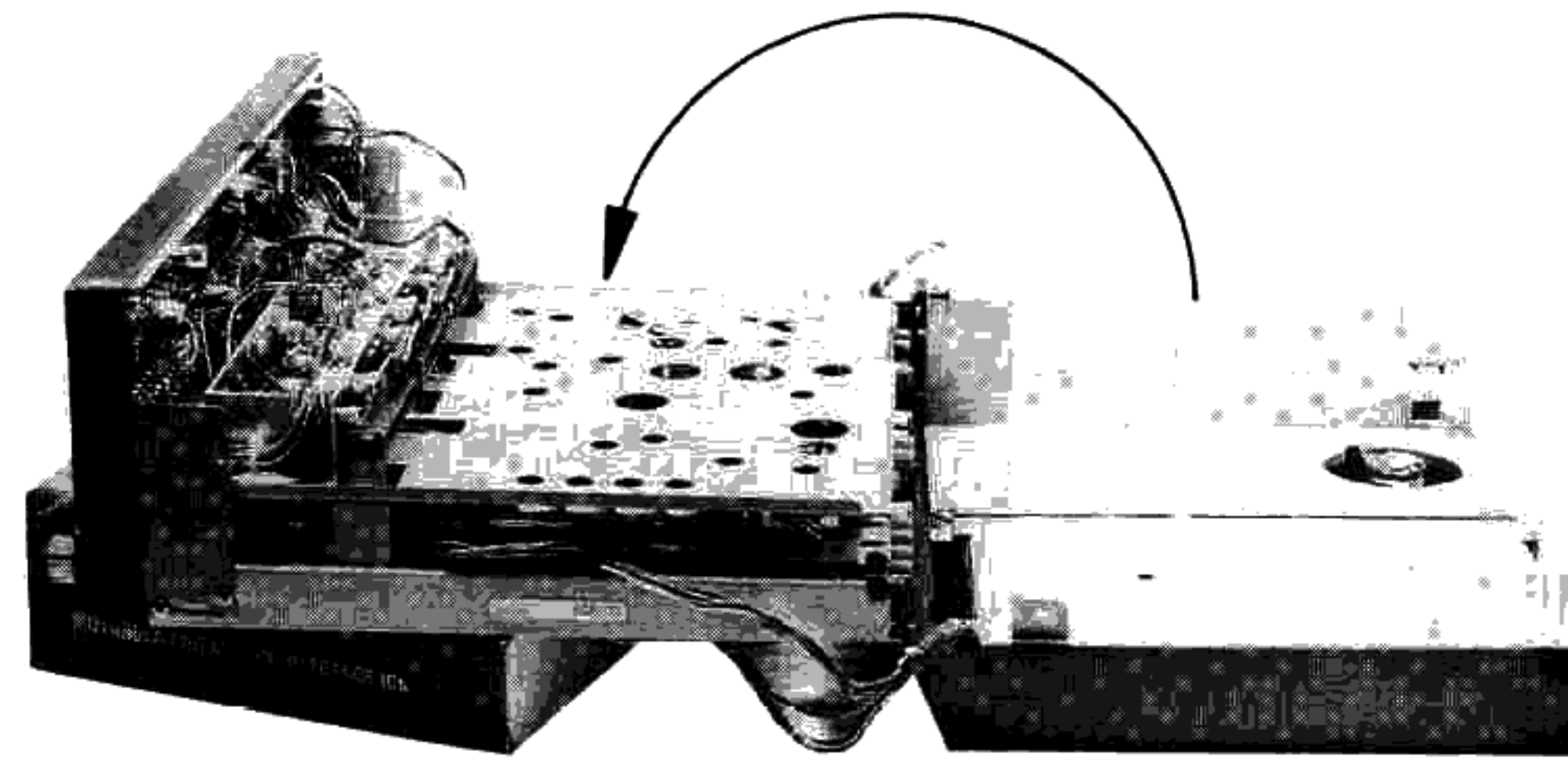


Figure 8

Alignment Equipment

Frequency counter with accuracy of 0.1 ppm to 500MHz

DC voltmeter with at least 10-Megohm impedance

RF voltmeter with at least 5% accuracy to 500 MHz, high impedance, ranging from 10 mV to 3 Vrms, and indicating dB (see note below)

AF millivoltmeter

DC milliammeter ranging to 500 mA.

Spectrum Analyzer or X-Y oscilloscope with 120 MHz bandwidth (for 2m Band Unit Alignment)

In-line RF Wattmeter

50-ohm non-reactive dummy loads: three required, at least 150W Pd.

3-ohm, 60W resistor

RF signal generator covering up to 500 MHz with calibrated output level from 5 dBu to 100 dBu, and adjustable FM modulation.

AF signal generator with calibrated output level at least from 1 mV to 25 mV.

FM deviation meter/Sinad meter and RF sampling coupler 'T'.

Linear Detector for up to 30 MHz.

NOTE: All RF voltage measurements are referenced to 0 dBu = 0.5uV @50 ohms relative to chassis ground nearest the measurement point.

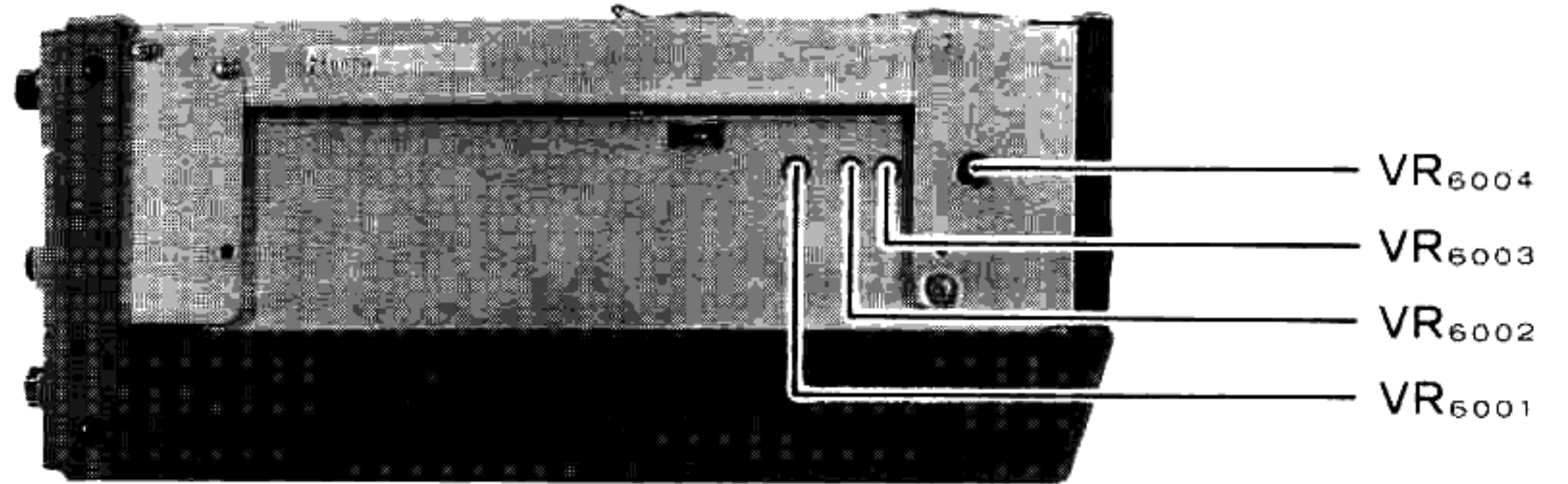
POWER SUPPLY

(1) 24V Supply

On the PA Unit, connect the DC voltmeter to J9002 (J8009 for 10W version) and ground. Adjust VR6003 on the PS Unit for $24.0 \pm 0.5V$ while receiving.

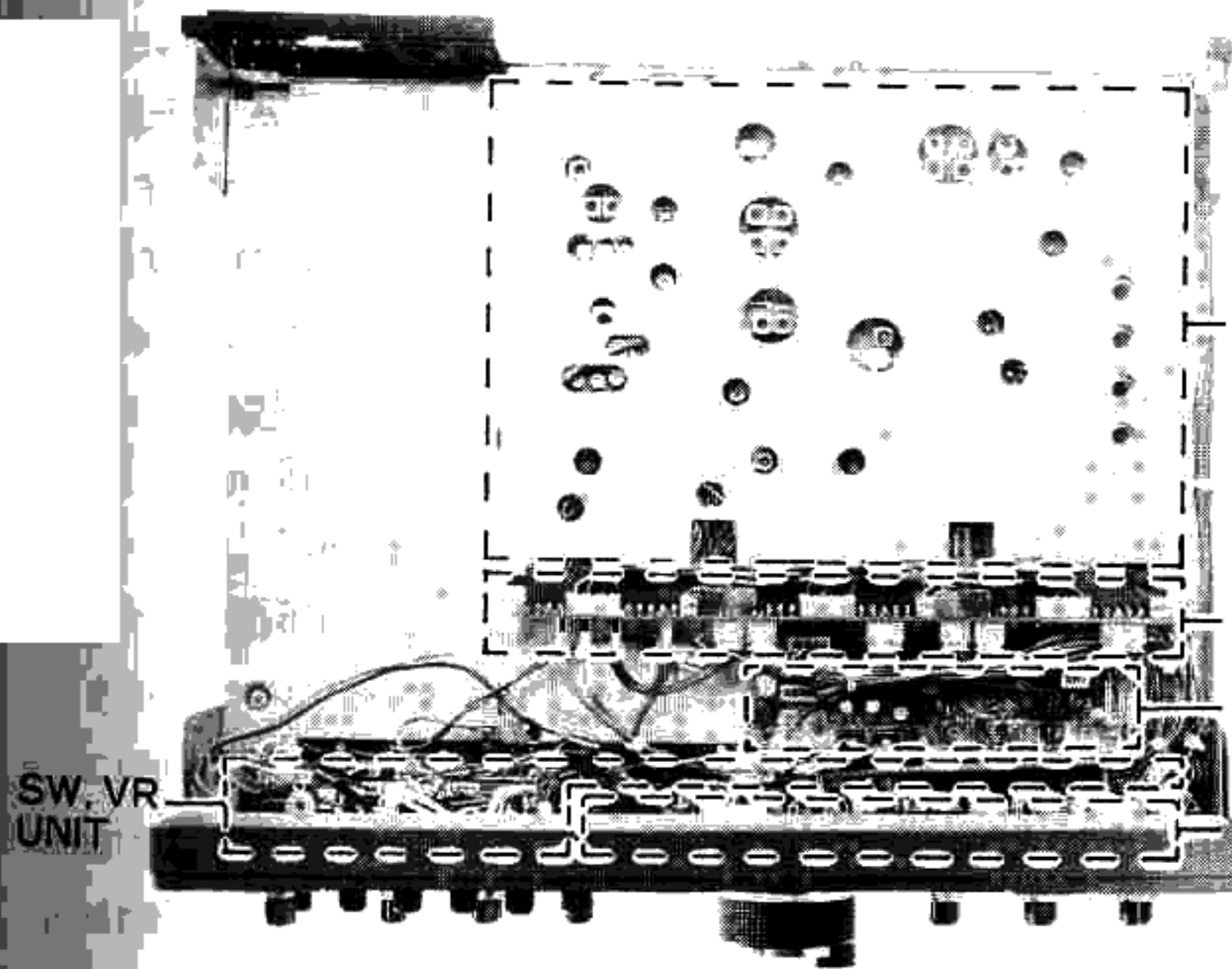
(2) 13.5V Supply

On the PA Unit, connect the voltmeter to J9007 (J8007 for 10W version) and ground. Adjust VR6004 on the PS Unit for $13.5 \pm 0.3V$ while receiving.

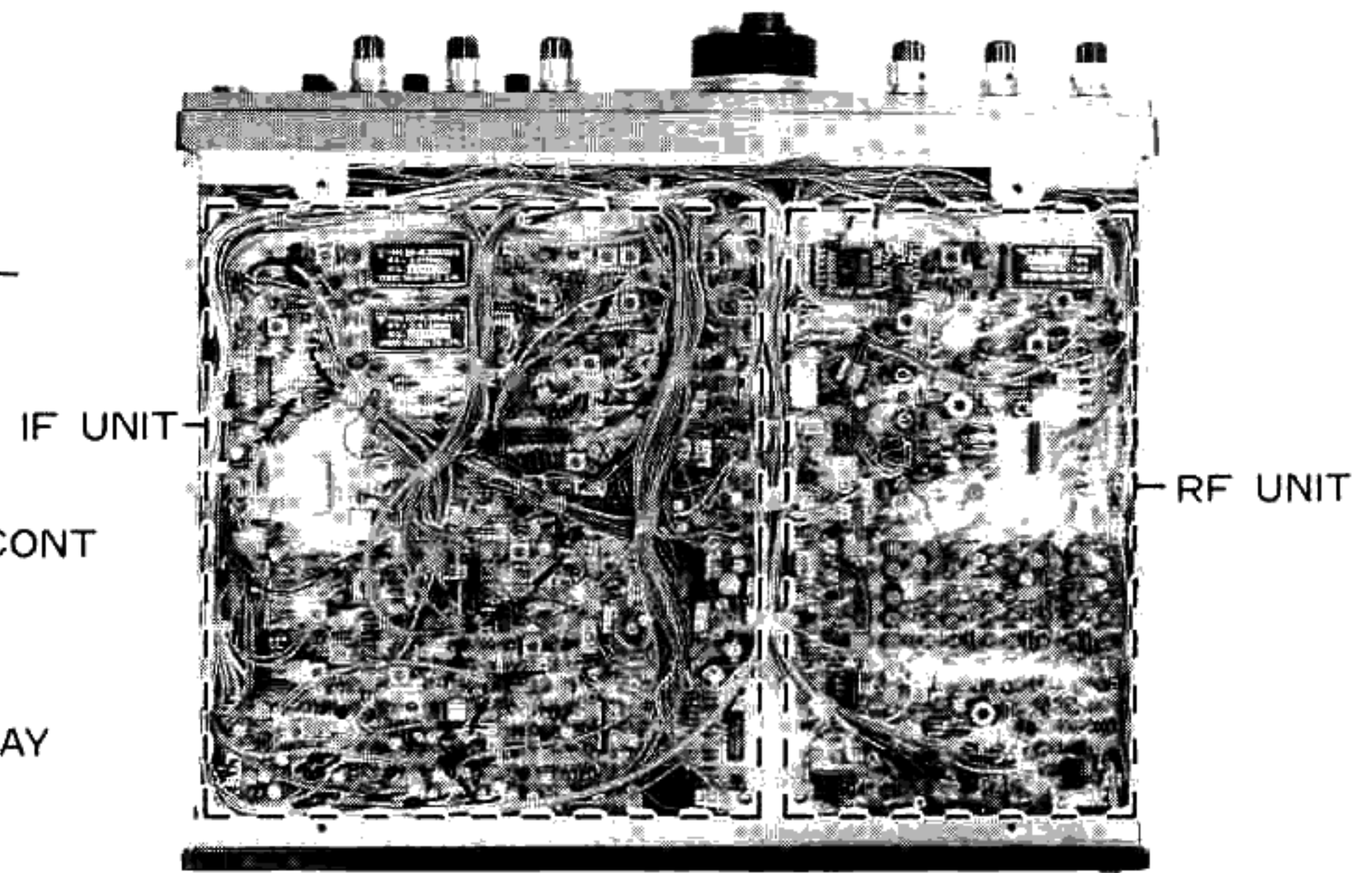


PS UNIT Alignment Points

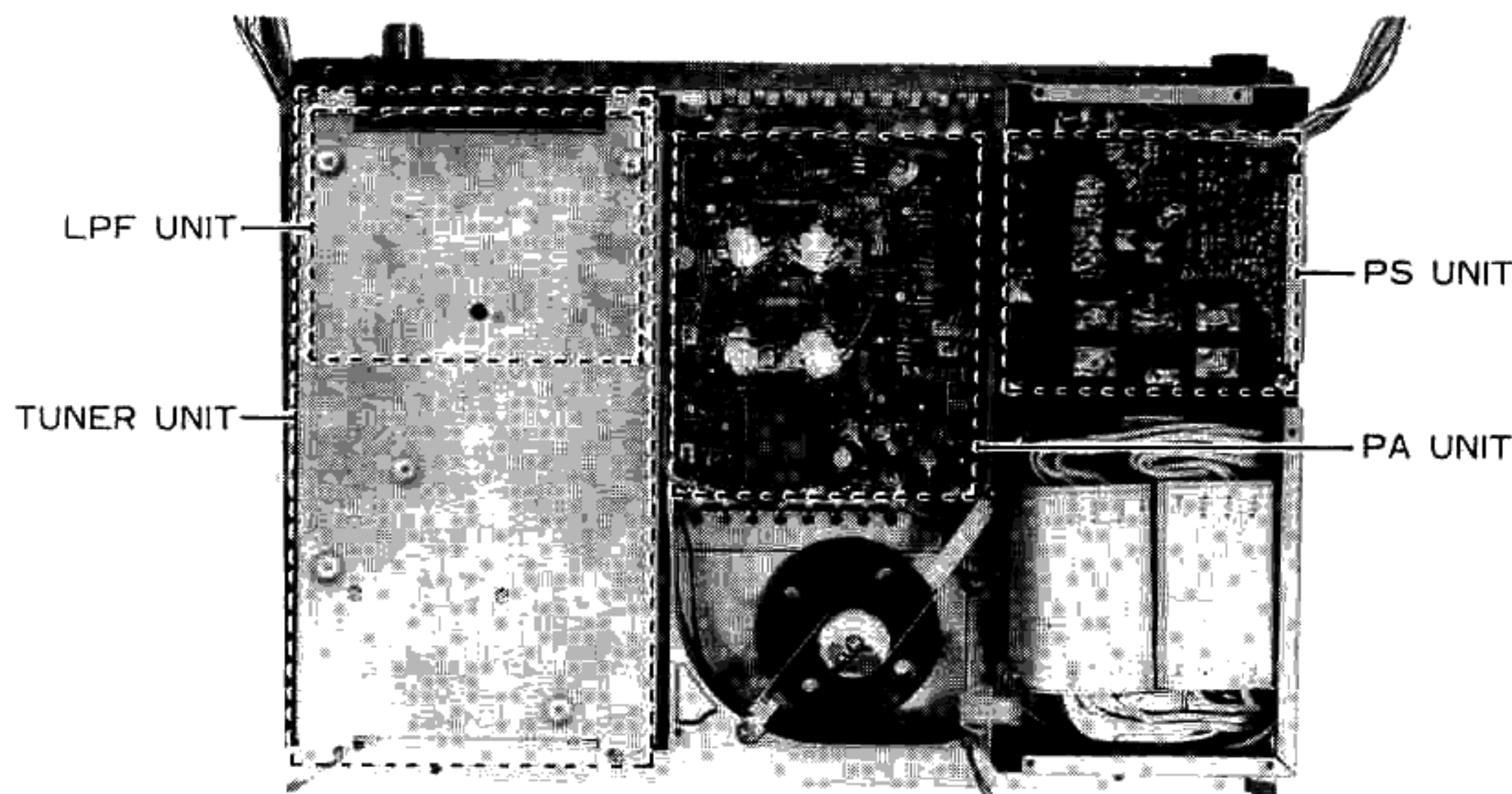
BOARD LOCATIONS



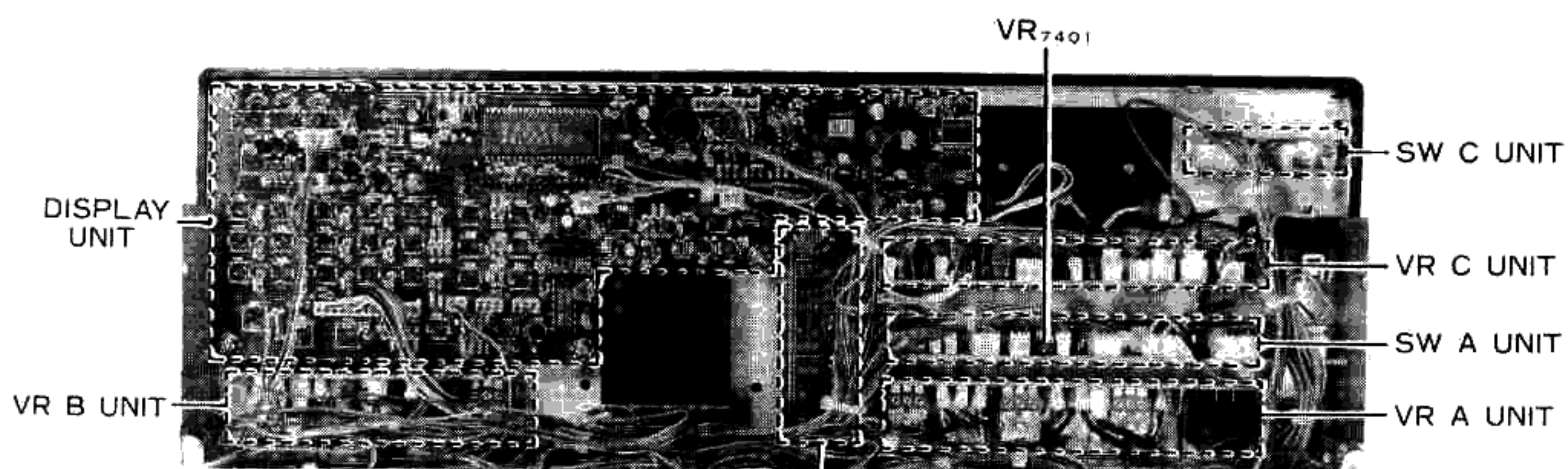
Chassis Top View



Chassis Bottom View



Underside of Heatsink



Inside of Front Panel

LOCAL UNIT

Make all measurements and adjustments while receiving in the CW mode, except where stated otherwise.

(1) 3rd Local Oscillator

Connect the RF voltmeter to J3002 and adjust T3023 and T3024 for maximum voltage (at least 50 mVrms).

(2) 45 MHz Bandpass Filter I

Tune to 14.250 MHz and connect the RF millivoltmeter to TP3005. Adjust T3017 and T3018 for maximum RF (at least 50 mVrms).

(3) 60 MHz Bandpass Filter

Tune to 21.250 MHz and connect the RF millivoltmeter to TP3001. Adjust T3014 and T3015 for maximum RF (at least 80 mVrms).

(4) 45 MHz Bandpass Filter II

Tune to 14.250 MHz and connect the RF millivoltmeter to TP3001. Adjust T3012 and T3013 for maximum RF (at least 80 mVrms).

(5) 15 MHz Reference TCXO

Connect the frequency counter to TP3005 and adjust the trimmer accessible through the hole in the TCXO for 45 MHz ± 10 Hz.

(6) 2nd Local Oscillator & D/A Converter

Tune to 14.0000 MHz and connect the frequency counter to TP3007. Adjust TC3001 for 30.03000 MHz ± 20 Hz. Now retune the display to 13.99999 MHz and adjust VR3001 for 30.02901 MHz. Ensure that the difference between the two readings is within 990 ± 5 Hz.

(7a) Carrier Oscillators

Make certain the SHIFT control is set to the 12 o'clock position. Connect the frequency counter to pin 5 of Q3060. Select the mode indicated in the following table, and adjust the indicated coil or trimmer for the indicated frequency on the counter ± 10 Hz.

| <u>Mode</u> | <u>Adj. Point</u> | <u>Freq. (kHz)</u> |
|-------------|-------------------|--------------------|
| CW | L3019 | 6784.100 |
| LSB | TC3002 | 6786.600 |
| USB | TC3003 | 6783.400 |
| FSK | TC3004 | 6787.200 |

(7b) Transmitter IF Shift

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Set the TX SHIFT button OFF (out) and select the LSB mode. Set the TX SHIFT control to the 12 o'clock position. Connect the frequency counter to pin 5 of Q3060. Press the MOX button and adjust VR3002, if necessary, for 6786.6 kHz ± 10 Hz on the counter. Now press the TX SHIFT button and if necessary adjust TC3005 for the same indication on the counter.

(8) CW BFO Frequency

Select the CW mode and connect the frequency counter to pin 2 of Q3060. Set the PITCH selector and adjust the corresponding trimmer for the frequency indicated as follows (± 10 Hz):

| <u>Pitch</u> | <u>Adj. Point</u> | <u>Freq.(MHz)</u> |
|--------------|-------------------|-------------------|
| 800 Hz | TC3009 | 15.0008 |
| 700 Hz | TC3008 | 15.0007 |
| 600 Hz | TC3007 | 15.0006 |

(9) FM Carrier Frequency

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Select the FM mode. With the frequency counter connected to pin 2 of Q3060, press the MOX button and adjust VR3003 for 15 MHz ± 50 Hz.

(10) PLL Sub-loop VCO

Tune the display to 13.999.99. Connect the DC voltmeter to TP3003 and adjust T3016, if necessary, for 5.5 ± 0.1 V. Retune the display to 14.000.00 and check for 2 to 3V.

(11) 41/56 MHz Bandpass Filters

Tune to 14.250 MHz. Connect the RF voltmeter to TP3002 and adjust T3002, T3003 and T3004 for maximum RF (at least 25 mVrms).

Retune to 21.250 MHz and adjust T3005, T3006 and T3007 for maximum RF (at least 25 mVrms).

To check for proper bandpass selection, connect the frequency counter to TP3002 and tune to 1.750, 3.750, 7.250 and 10.250, confirming 41 MHz on the counter at each frequency. Then tune to 18.250, 24.750 and 28.250 and confirm 56 MHz on the counter at each frequency.

(12) Main Loop VCOs

Set the display to 0.000.00. Connect the high-impedance DC voltmeter to TP3006 and adjust transformer T3022 for 1.5 ±0.1V. Retune the display to 7.499.00 and confirm 5 to 6V. Repeat the same procedure for the same voltages at the following frequencies:

| Display | Xfmr | Confirm |
|-----------|-------|-----------|
| 7.500.00 | T3021 | 14.999.00 |
| 15.000.00 | T3020 | 21.999.00 |
| 22.000.00 | T3019 | 29.999.00 |

Check that the voltage at TP3006 increases smoothly from 1.5V to about 6V when tuning from 0 to 7.499 MHz, 7.5 to 14.999 MHz, 15 to 21.999 MHz and 22 to 29.999 MHz.

(13) 2nd Local Level

Connect the RF voltmeter across J3001 (do not remove the plug) and adjust T3009, T3010 and T3011 for maximum RF (at least 90 mVrms).

(14) SSB Carrier Point Check (Transmit)

A 50-ohm dummy load and wattmeter must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Tune to 14.200 MHz, USB mode. Connect the AF generator to the center pin of the MIC jack, and set for 5 mV output at 1 kHz. Press the MOX button and adjust the MIC gain control for 80W RF output.

Reduce the AF generator frequency until 20W RF output is obtained, and note the corresponding audio frequency. Now increase the AF frequency until 20W RF output is again obtained, and again note the corresponding audio frequency.

The lower frequency should be below 350 Hz, and the upper frequency should be above 2900 Hz. If not, perform procedures (7a) and (7b).

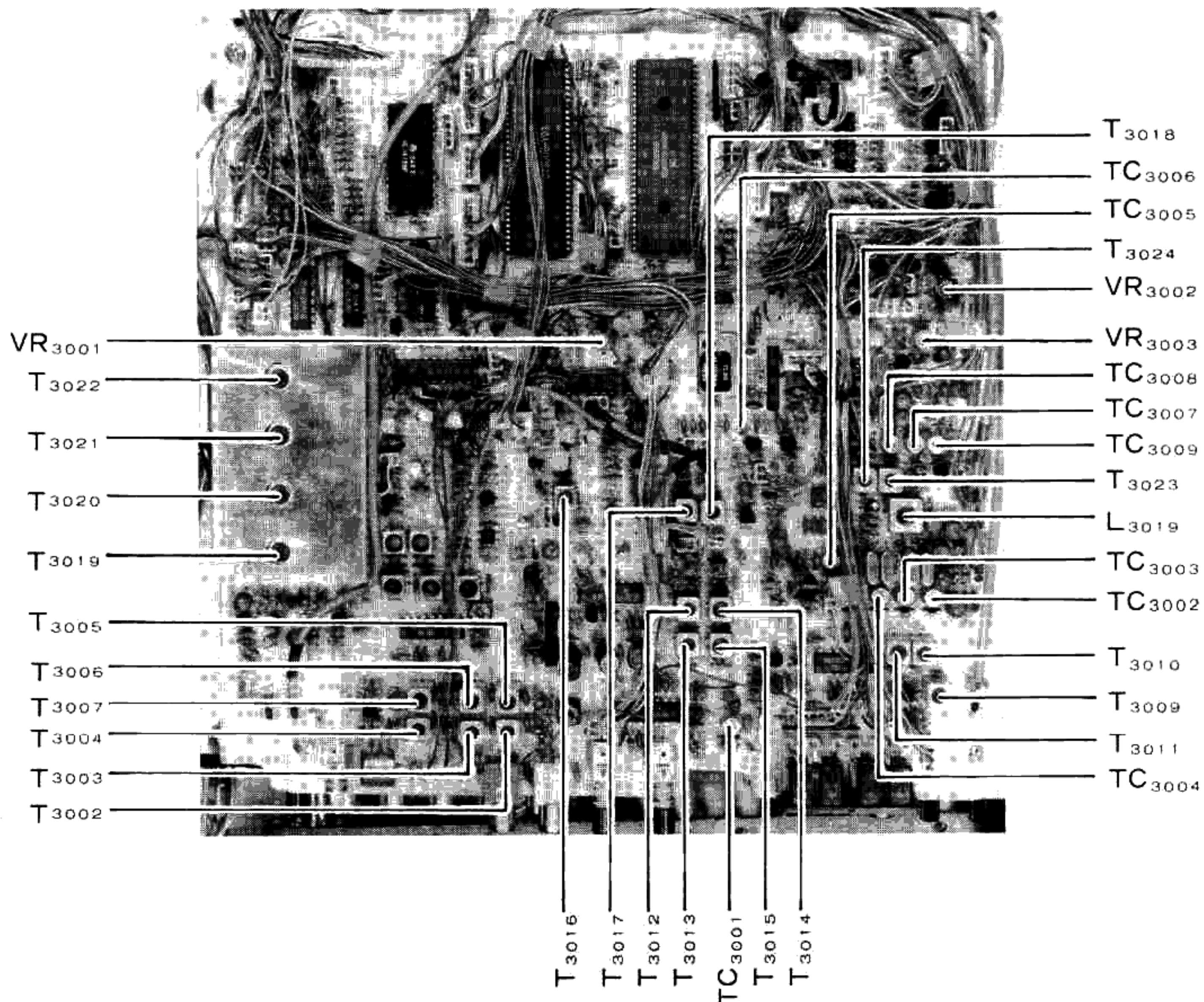
Repeat the above in LSB mode.

(15) 1st Local Level Check

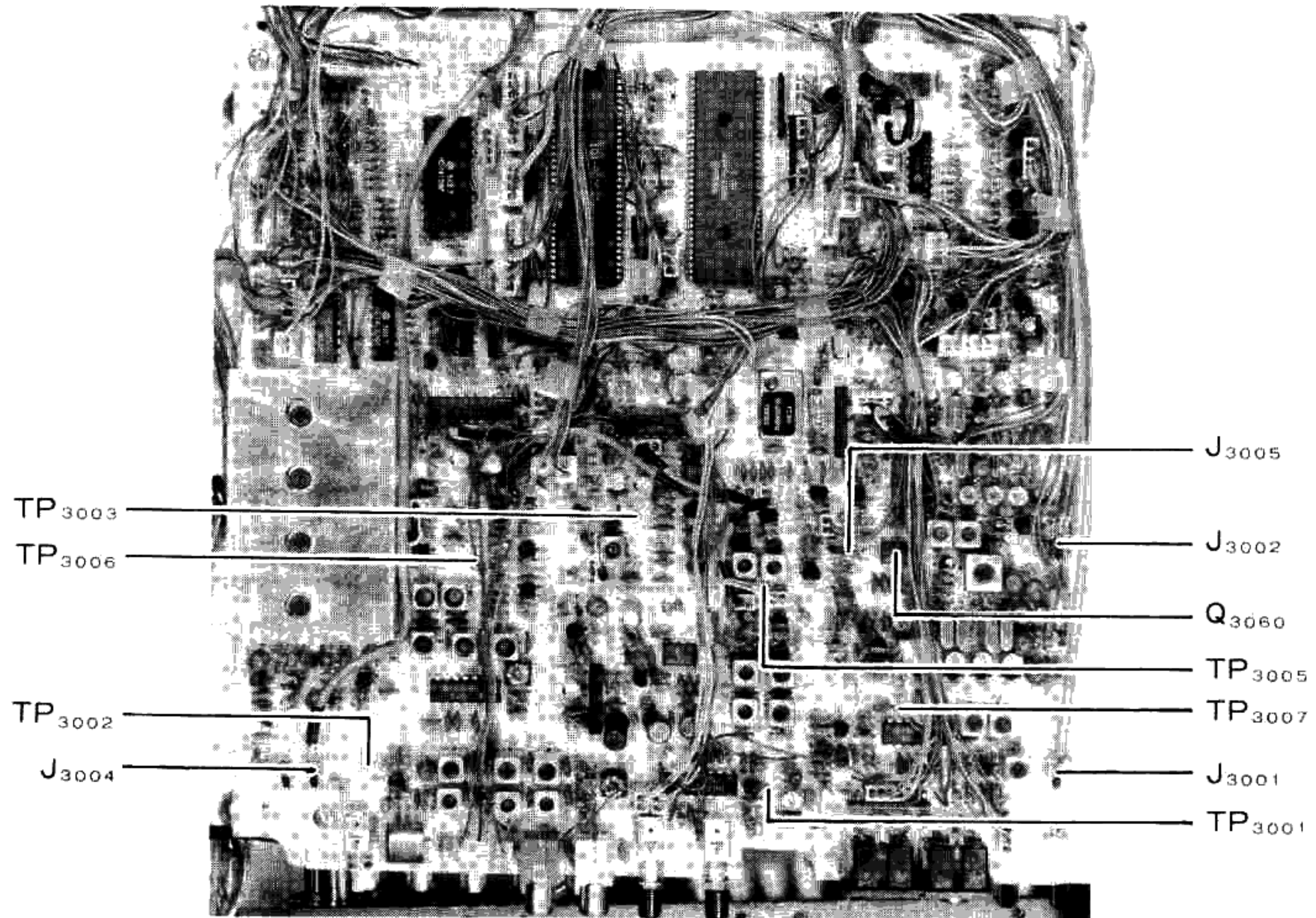
Tune to 14.200.00. Connect the RF millivoltmeter to J3004 (do not remove the plug) and confirm at least 220 mVrms.

(16) VHF/UHF Module Reference Level Check

Set the transceiver to the 50 MHz band. Connect the RF voltmeter to J3005 (don't re-move the plug) and confirm at least 150 mVrms.



LOCAL UNIT Alignment Points

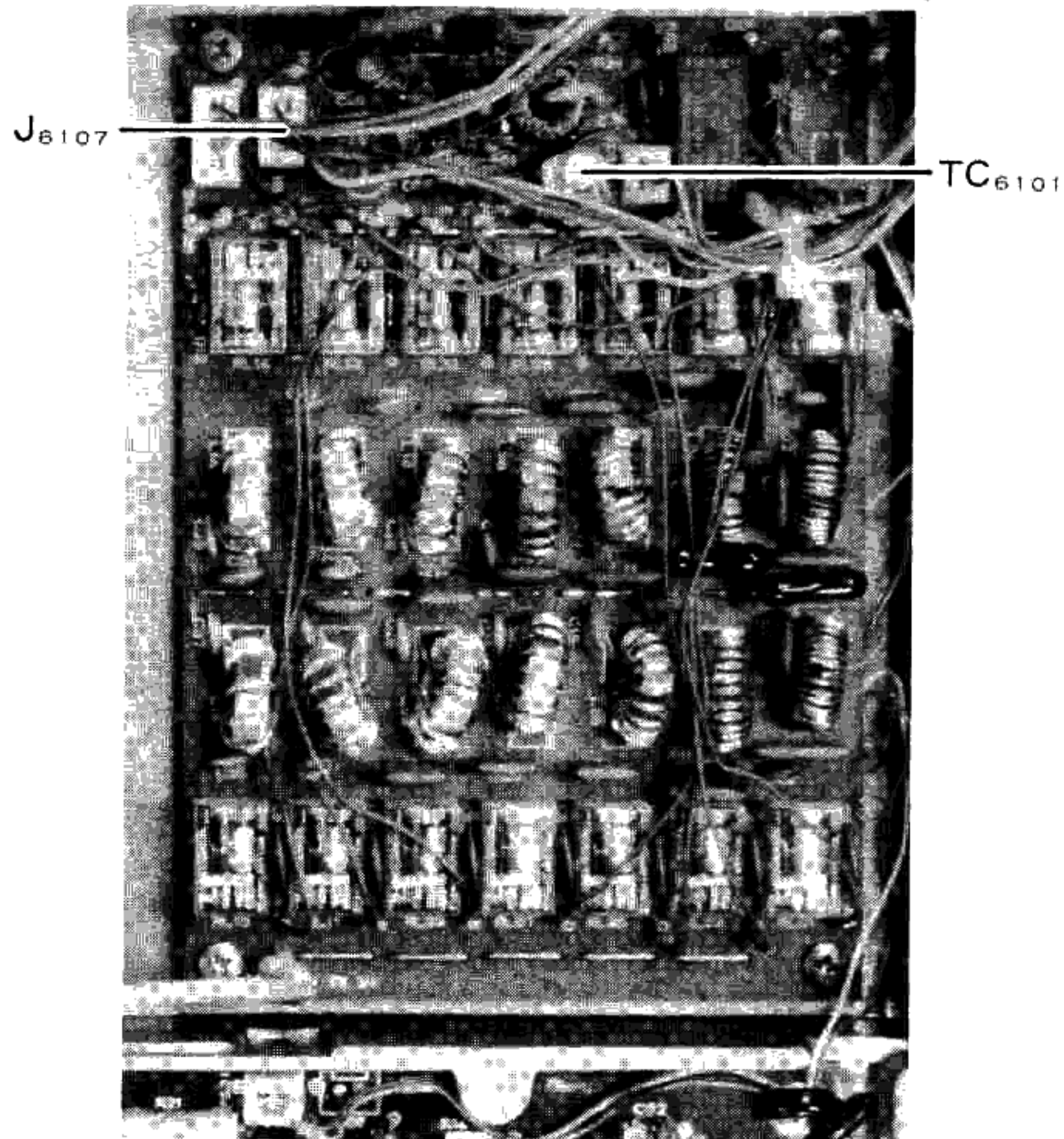


LOCAL UNIT Test Points

LPF UNIT : CM Coupler Balance

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Tune to 14.2 MHz CW mode, and set the DRIVE control fully clockwise. Connect the DC voltmeter to pin 2 of J6107, press the MOX button and adjust TC6101 for minimum voltage.



LPF UNIT Alignment Points

IF UNIT

(1) 8.67 MHz Oscillator Frequency (Receive)

Connect the frequency counter and RF millivoltmeter to the base of Q1024. Adjust L1013, if necessary, for 8.670 MHz \pm 50 Hz on the counter, and T1014 for maximum RF.

(2) 3rd Local Level

Connect the RF voltmeter to the emitter of Q1026 and adjust T1015 for maximum RF (at least 300 mVrms).

(3) 2nd Local Level

Connect the RF voltmeter to JP1020 (do not remove the plug) and adjust T1013 for maximum RF (250 to 500 mVrms).

(4) 8.67 MHz Oscillator Frequency (Transmit)

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Set the PROC switch ON (depressed), and the TX SHIFT switch OFF. Connect the frequency counter to the base of Q1024. Press the MOX button and adjust VR7401 on the SW A Unit, if necessary, for 8.670 MHz \pm 50 Hz.

(5) Receiver IF Transformers

Remove all connections to the ANT jack, and set the transceiver to USB.

Preset VR1006 (IF gain) fully clockwise and adjust VR1008 for minimum S-meter deflection (on BFO leakage). VR1006 will be realigned in step (7).

Tune the transceiver and RF signal generator to 14.2 MHz, and connect the generator to the ANT jack. Adjust the injection level to maintain mid-scale S-meter deflection while adjusting T2003 - T2005 on the RF Unit, and T1003 - T1010 and T1012 on the IF Unit for maximum S-meter deflection. Repeat these adjustments several times.

(6) IF Filter Compensation

Remove all connections from the ANT jack. To compensate for slight non-symmetry in the SSB IF filters, listen to the receiver while switching between LSB and USB modes, and adjust L1013 (8.67 MHz osc) for the same noise pitch.

(7) IF Gain

With the transceiver and RF signal generator tuned to 14.2 MHz, connect the generator to the ANT jack and set for 6dBu injection. In the USB mode, adjust VR1006 for S-1 indication on the meter.

(8) S-Meter Calibration

While tuned to 14.2 MHz, set the RF signal generator to inject 100dBu at the ANT jack. In USB mode, adjust VR1004 for S-meter deflection to the +60 mark at the right edge.

(9) FM Receive Sensitivity

Connect the SINAD meter in parallel with an 8-ohm resistor to the EXT SP jack. While tuned to 14.2 MHz, set the RF signal generator to inject a 40 dBu carrier with 70% FM modulation of a 1 kHz tone at the ANT jack. Adjust L1007 (may be marked T23 on the schematic, but correct on the silkscreen) for optimum SINAD (minimum deflection) while receiving, FM mode.

(10) FM Receive Audio Volume Preset

Connect the AF millivoltmeter in parallel with an 8-ohm resistor to the EXT SP jack. Tune the transceiver and RF signal generator to 29.2 MHz, and inject an unmodulated carrier at 40 dBu to the ANT jack. In USB mode, adjust the AF gain control for 0.1V on the voltmeter.

Now select the FM mode and modulate the carrier with \pm 3.5 kHz deviation of a 1 kHz tone. Adjust VR1002 for 0.2V \pm 10mV on the voltmeter.

(11) Discriminator Center Meter Calibration

With no signal applied to the ANT jack, set the METER switch to the DISC position and adjust VR1003 for center deflection in FM mode.

(12) FM Squelch Threshold Calibration

With no signal applied to the ANT jack, select the AM mode and set the SQL control on the front panel so that the squelch is just closed. Now select the FM mode and, without moving the SQL control, adjust VR1001 so that the squelch is again just closed.

(13) Noise Blanker IF

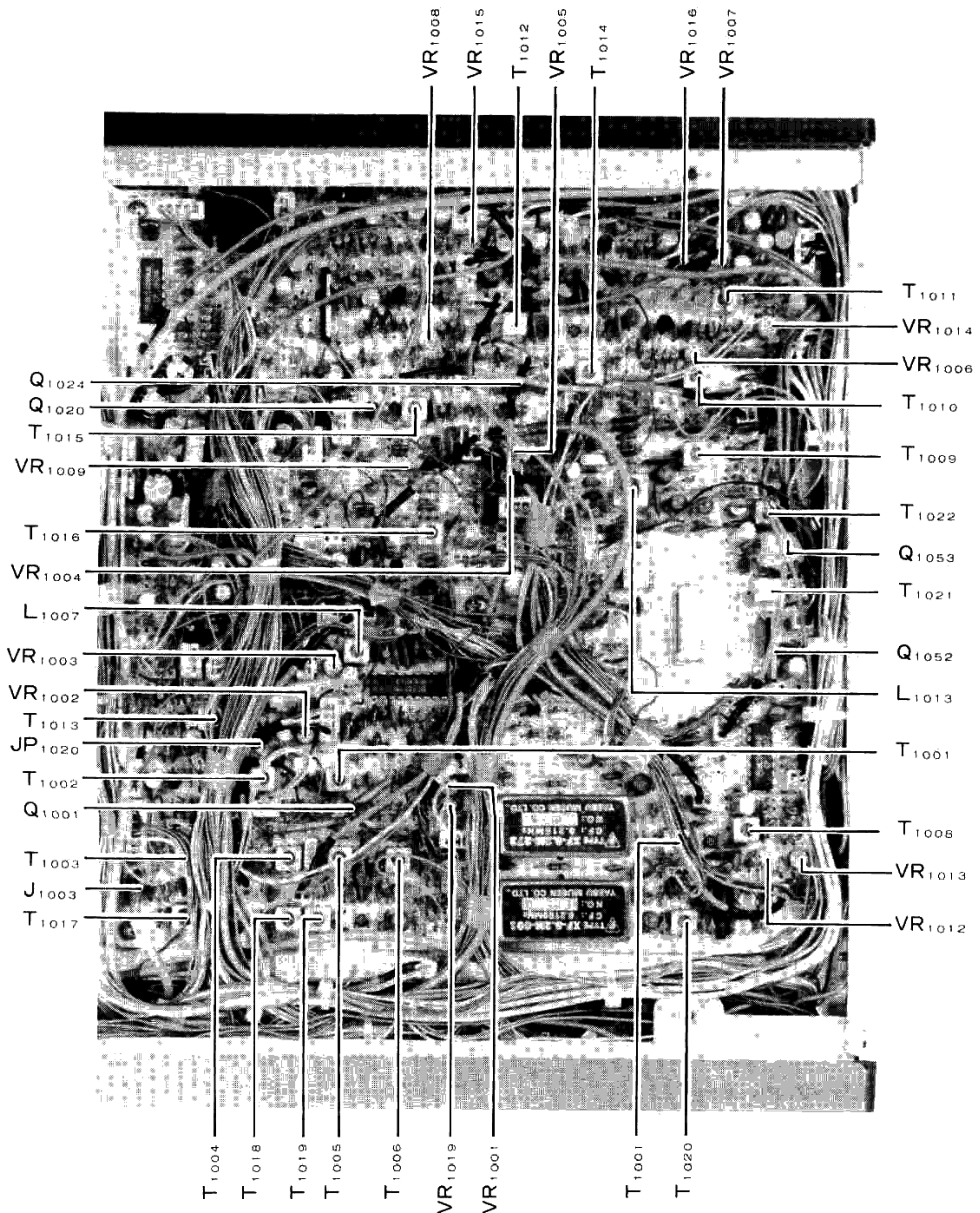
Connect the DC voltmeter (10 to 15V range) to gate 2 of Q1001 (with R1001). Tune the transceiver and RF signal generator to 14.2 MHz, and inject an unmodulated carrier at 20 dBu to the ANT jack. Select the USB mode, and press the NB switch on. Adjust T1001 and T1002 for minimum indication on the voltmeter.

(14) IF Notch Resonance

With the RF signal generator tuned to 14.2 MHz, inject an unmodulated carrier at 40 dBu to the ANT jack. Select the USB mode and tune the transceiver for an approximately 1.6 kHz heterodyne on the carrier. Set the NOTCH control to the 12 o'clock position, and the NOTCH button ON. Adjust T1011 and VR1007 alternately for minimum S-meter deflection.

(15) Tone Squelch Threshold (requires FTS-8)

Set the SQL control fully counterclockwise into the T SQL click-stop. In the FM mode, with no signal applied to the antenna, adjust VR1019 so that the BUSY LED just turns off.



IF UNIT Alignment Points

RF UNIT : Transmitter

A 50-ohm dummy load and in-line wattmeter must be connected to the ANT jack for all of the following procedures. All measurements and adjustments are to be made with the MOX button pressed, while all test equipment connections and tuning or mode selection are to be done while receiving, unless otherwise indicated.

(1) ALC Meter Zero Threshold

Set the METER selector to ALC and tune to 14.2 MHz USB mode. With no microphone input, press the MOX button and set VR2007 to the point just the start of ALC indication.

(2) Transmitter IF Transformers

Preset the DRIVE control to the center of its range. With the METER selector to ALC and tuned to 14.2 MHz, CW mode, press the MOX button and adjust T1020, T1019, T1018 and T1017 on the IF Unit, and T2006 and T2007 on the RF Unit (in that order) for maximum ALC meter deflection.

Note: if no ALC deflection is found at first, perform the adjustments first with the METER selector set to PO, and then repeat for ALC. If the ALC indication is too high, reduce the setting of the DRIVE control.

(3) ALC Level (Maximum Power Output)

With the transceiver tuned to 14.2 MHz, CW mode, set the DRIVE control fully clockwise. Press the MOX button and adjust VR2003 for 100W output on the wattmeter (in the 10W SX version, adjust VR2001 for 10W output).

(4) ALC Meter Sensitivity

With the transceiver tuned to 14.2 MHz CW mode and the METER selector set to ALC, inject 3mV at 1 kHz from the AF signal generator to the center pin of the MIC jack. Press the MOX button and set the MIC gain to the point where ALC deflection just begins. Now increase the AF level to 9mV and adjust VR2008 for full-scale ALC deflection.

(5) PO Meter Calibration

With the transceiver tuned to 14.2 MHz, CW mode, set the DRIVE control for 100W output on the external wattmeter. Press the MOX button and adjust the PO ADJ potentiometer (VR2010) on the rear panel so that the analog meter on the front panel deflects to '8' on the PO scale.

(6) **Automatic Final Protection (SWR turndown)**
Connect a 16.7-ohm dummy load (3 50-ohm loads in parallel) through a wattmeter to the ANT jack. Set the DRIVE control fully clockwise, press the MOX button and adjust VR2005 for 90 \pm 5W on the wattmeter.

(7) Digital SWR/PWR Meter Calibration

While tuned to 14.2 MHz, CW mode, set the DRIVE control for 100W output on the external wattmeter. Press the RF PWR button and the MOX button and adjust VR2002 for 100W on the digital display.

(8) Transverter ALC Level

Set the METER selector to ALC. Connect a 3-ohm, 60W resistor from pin 3 of J2023 to ground. Press the MOX button and adjust VR2009 for full scale ALC meter deflection. Remove the 3-ohm resistor.

(9) VCC (RF PA Collector Voltage) Meter

Set the METER selector to VCC. Press the MOX button and adjust VR2011 so the meter deflects to the middle of the (white) VCC zone.

(10) SSB Carrier Balance

With the transceiver tuned to 14.2 MHz, CW mode, set the MIC gain control fully counter-clockwise. Press the MOX button and adjust VR2012 for minimum power output.

(11) AM Carrier Level

With the transceiver tuned to 14.2 MHz, CW mode, press the MOX button and set the DRIVE control for 80W output. Return to receive, switch to AM mode, press MOX again and adjust VR1012 on the IF Unit for 40W output.

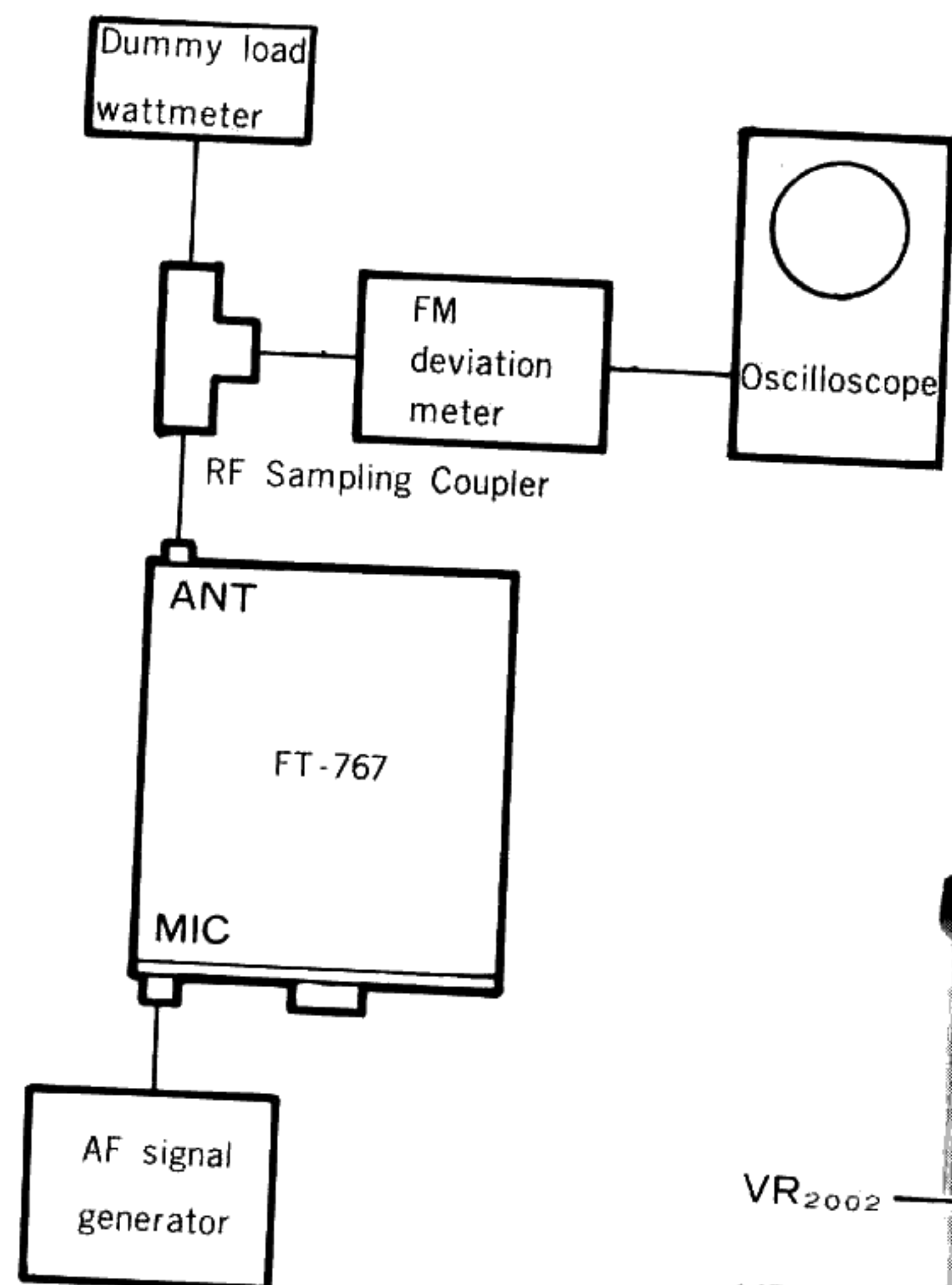
(12) Speech Processor Balance

Connect the RF voltmeter to pin 6 of Q1053 and adjust VR1014 for minimum voltage in an SSB mode with the PROC switch ON.

(13) Speech Processor IF

Set the PROC control to the 9 o'clock position, press the PROC button ON and inject 2mV at 1 kHz from the AF signal generator to the center pin of the MIC jack. Connect the RF millivoltmeter to pin 5 of Q1052 and in an SSB mode, press the MOX button and adjust T1022 and then T1021 for maximum meter deflection.

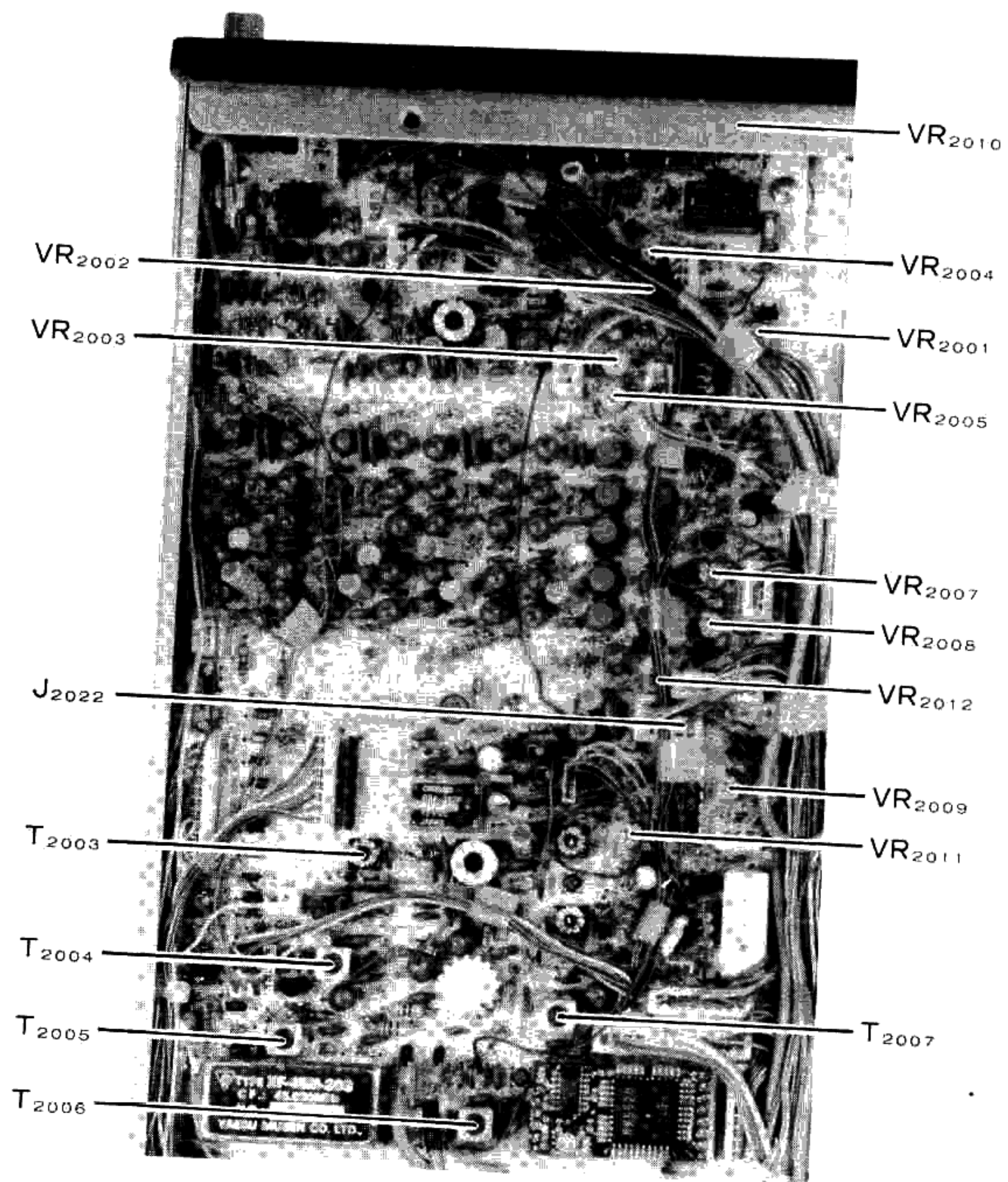
Set up the test equipment as shown below. Pre-set VR1016 fully clockwise, and inject 10 mV of 1 kHz audio to the MIC jack. Press the MOX button and adjust VR1015 for ± 4.5 kHz deviation. Now decrease the AF injection level to 1.5mV and adjust VR1016 for ± 3.5 kHz deviation. Repeat these adjustments at their respective AF levels until deviation at both injection levels is within 100 Hz of the specified values.



With the transceiver tuned to 14.2 MHz, mode, set the DRIVE control to the 12 o'clock position. Connect the DC voltmeter to cathode of D1060, press the MOX button, and adjust T1016 for maximum voltage.

(16) IF Monitor Output Level

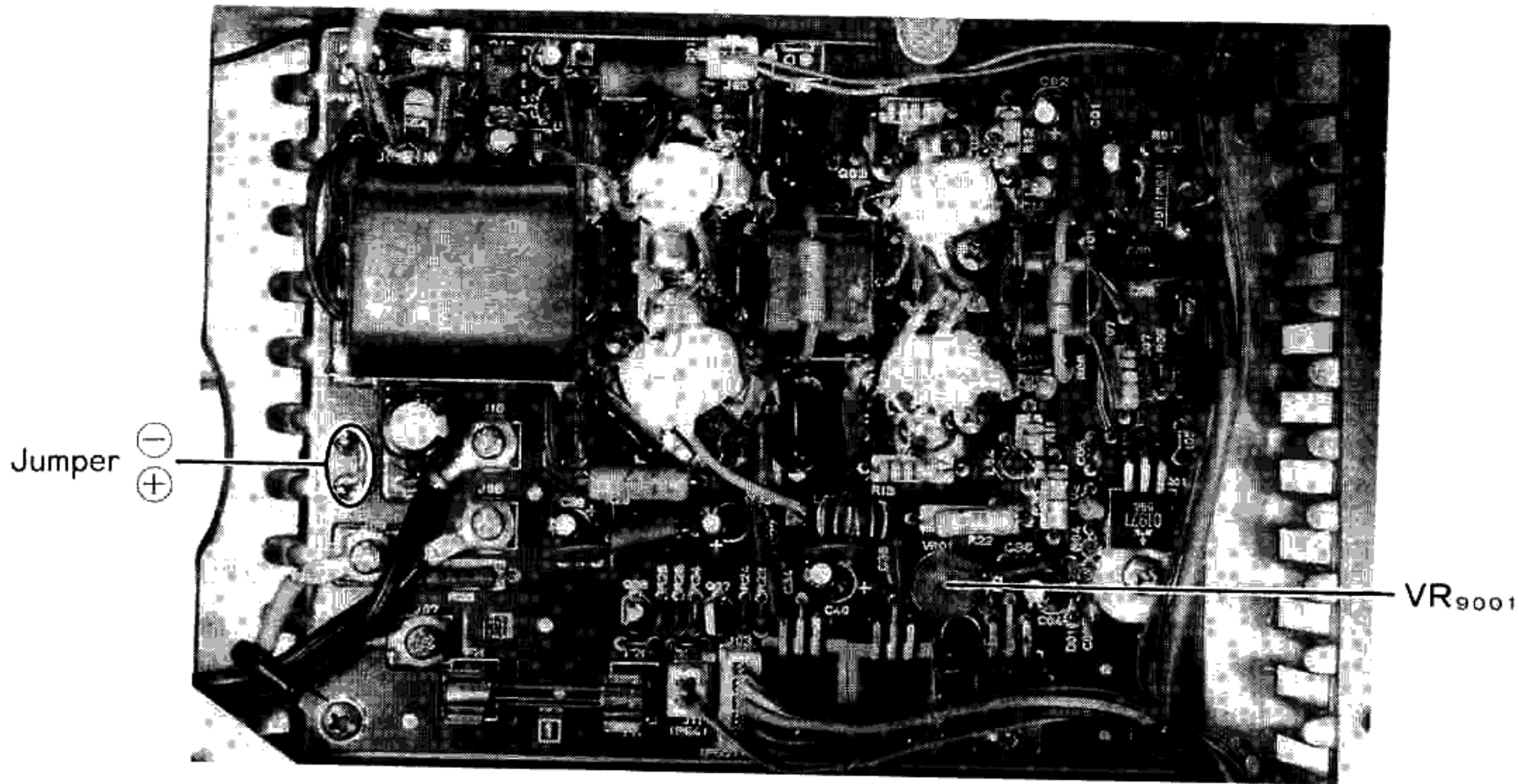
With the transceiver tuned to 14.2 MHz, mode, set the MIC gain control fully clockwise, MONI button ON, and MONI control to 12 o'clock position. Connect the DC voltmeter to the cathode of D1060, press the MOX button and adjust T1016 for maximum voltage.



RF UNIT Alignment Points

PA UNIT : Idling Current

Remove the jumper indicated in the diagram below, and connect the DC milliammeter (500mA range) in its place. Set the transceiver to an SSB mode and with no microphone input, press the MOX button and adjust VR9001 for 250 mA. Replace the jumper after adjustment.



PA UNIT Alignment Points

ANTENNA TUNER UNIT

(1) Variable Capacitor Servos

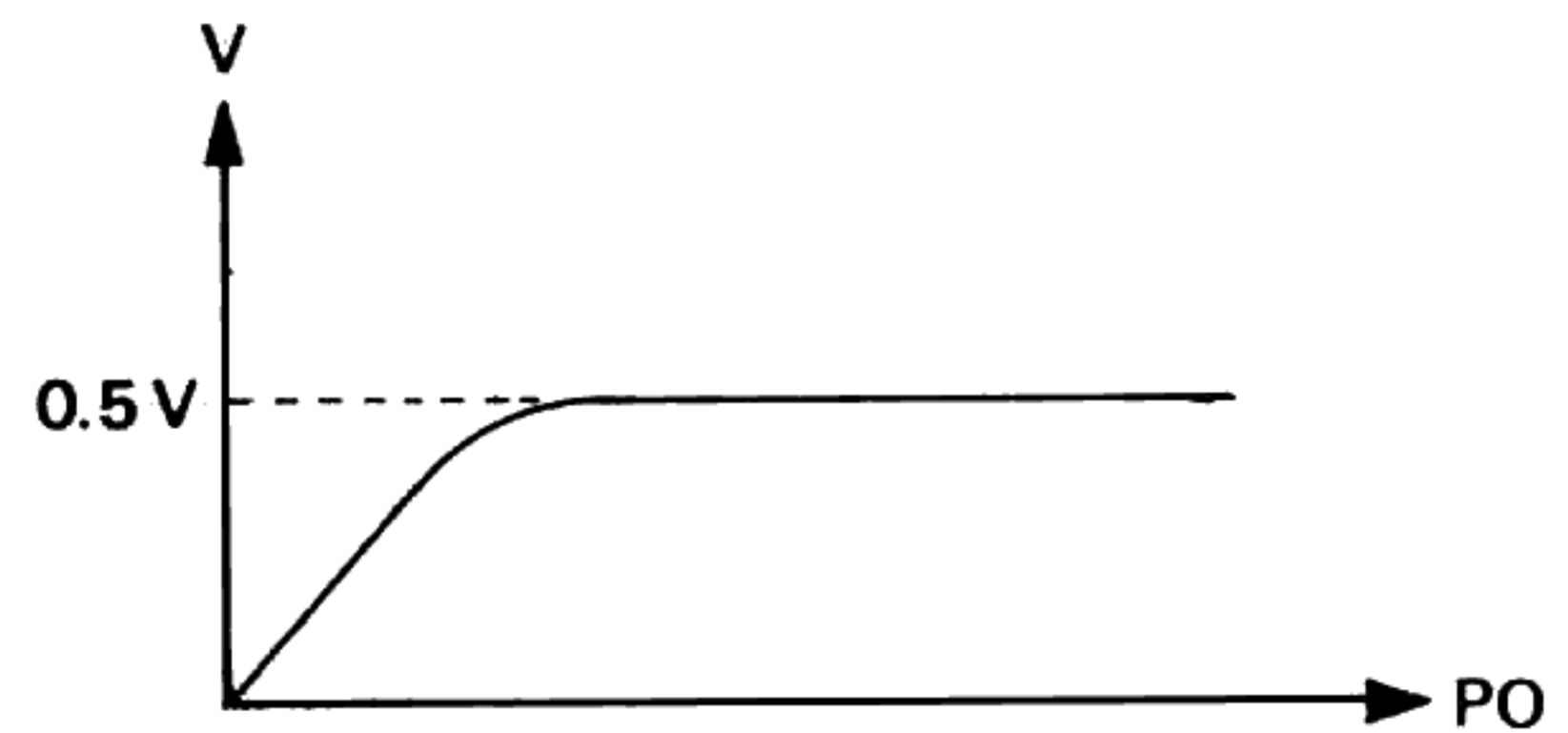
Preset VR5003 and VR5004 to the center of their ranges. Loosen the shaft-coupler setscrews of VC5001 and VC5002 so they can be adjusted by hand.

While receiving, press the TUNER and START buttons. After the motor stops, manually set VC5001 for minimum capacitance (minimally meshed) and VC5002 for maximum capacitance (fully meshed), then tighten the setscrews.

Press the START button again while receiving, and ensure that VC5001 and VC5002 both rotate throughout at least 180°. When motion stops, note whether both capacitors are fully meshed. If not, adjust VR5003 (for VC5002) or VR5004 (for VC5001) and repeat this step until both capacitors mesh fully when the tuner stops.

(2) Tuner Stop SWR Threshold

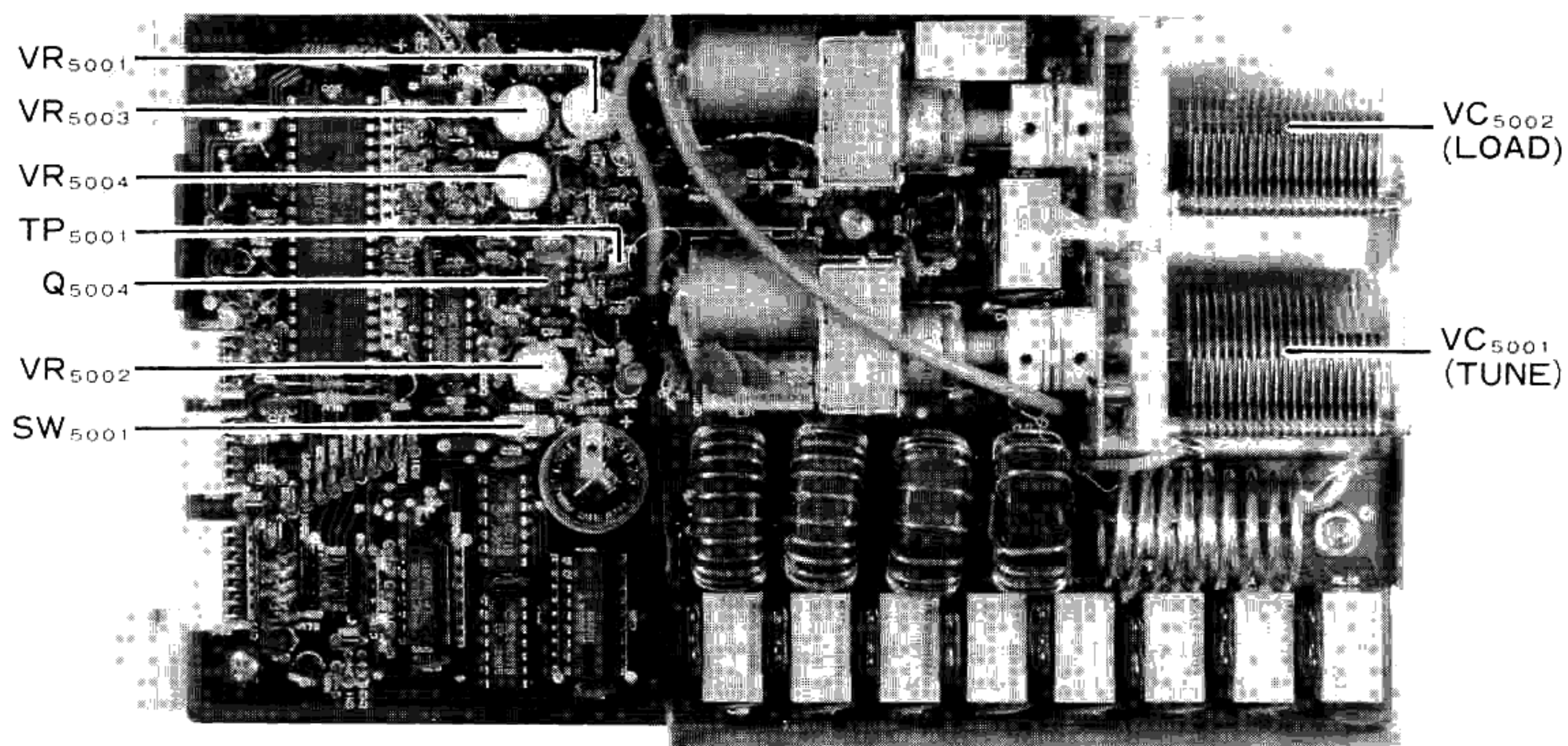
Tune to 14.2 MHz, CW mode, and set the TUNER switch OFF. Connect a 16.7-ohm dummy load (3 50-ohm loads in parallel) to the ANT jack, and connect the DC voltmeter to TP5001. Press the MOX button and rotate the DRIVE control gradually clockwise, noting the saturation level beyond which the voltage at TP5001 no longer increases (see diagram below). Adjust VR5001, if necessary, for a 0.5V saturation level.



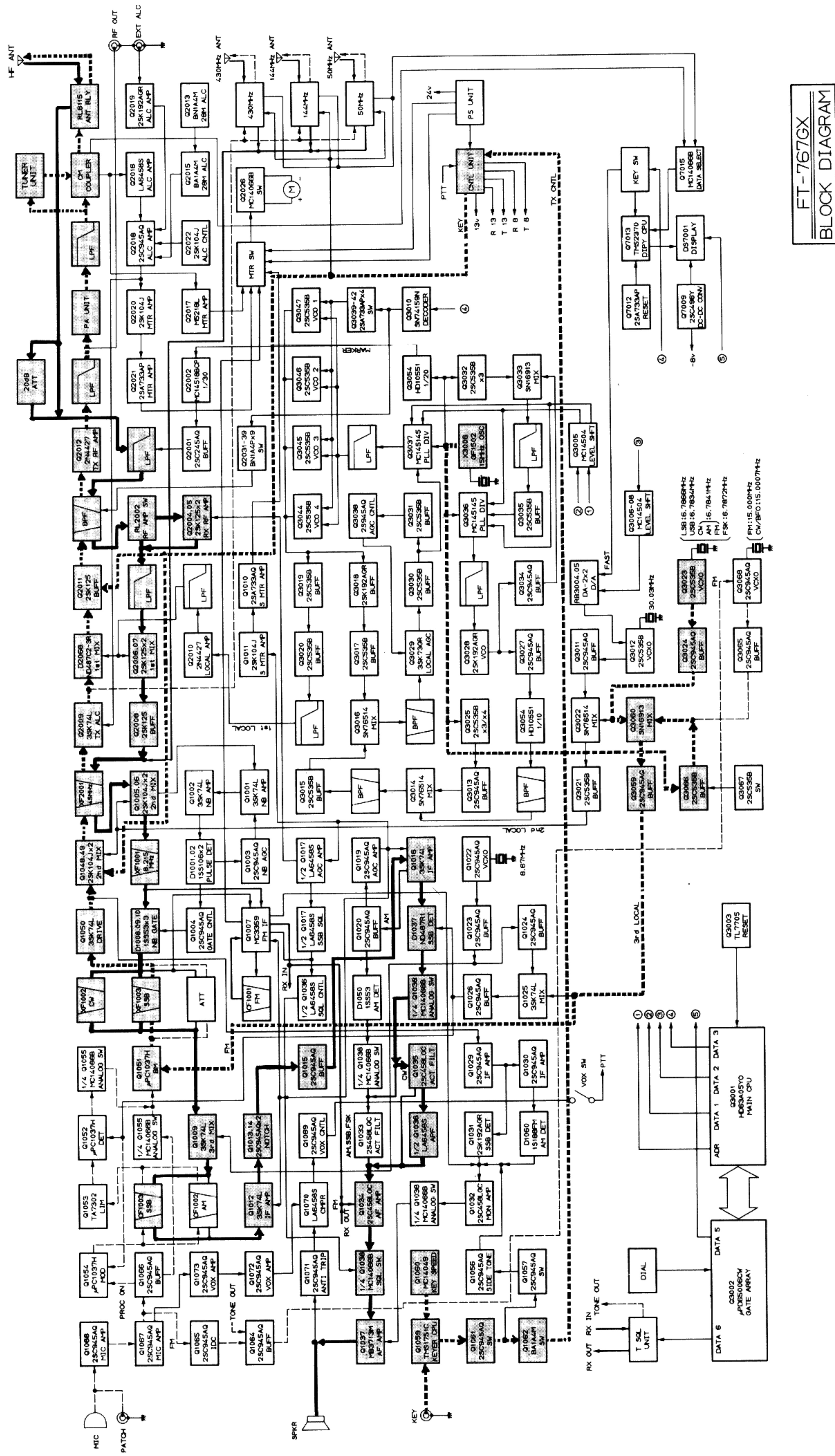
(3) Tuner Auto-Start SWR Threshold

With the transceiver set to 14.2 MHz, CW mode, and 16.7-ohm dummy load as in the previous step, set the DRIVE control fully clockwise, and connect the DC voltmeter to pin 7 of Q5004. Preset VR5002 fully counterclockwise, and then press the MOX button and rotate it slowly until the voltmeter drops to zero. Note the position of VR5002, and set it slightly counterclockwise from this point.

Now replace the 16.7-ohm dummy load with one 50-ohm load, press the MOX button and confirm that the tuner automatically starts and stops.



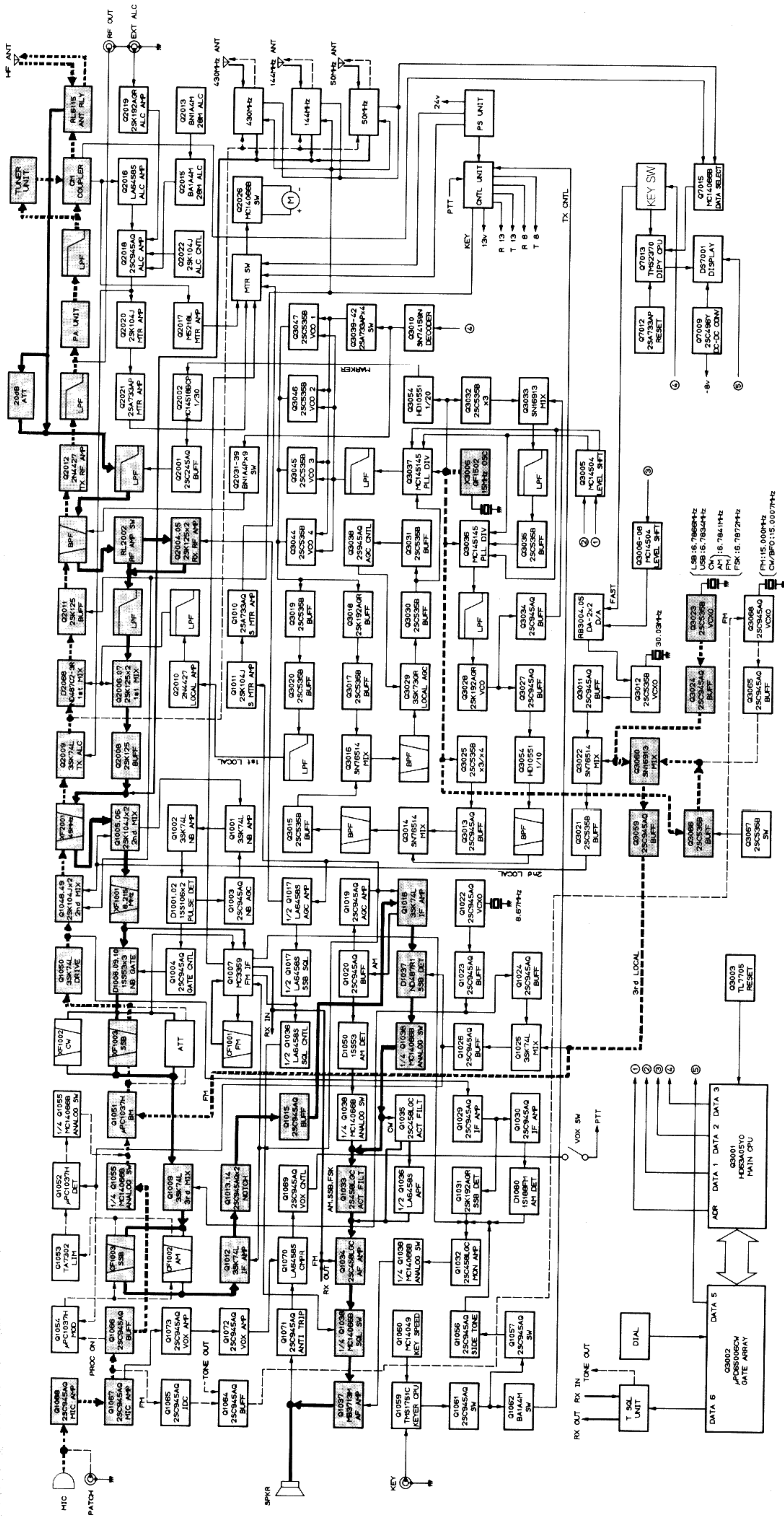
ANTENNA TUNER UNIT Alignment Points



FT-767GX
BLOCK DIAGRAM

SIGNAL TRACING (CW MODE)

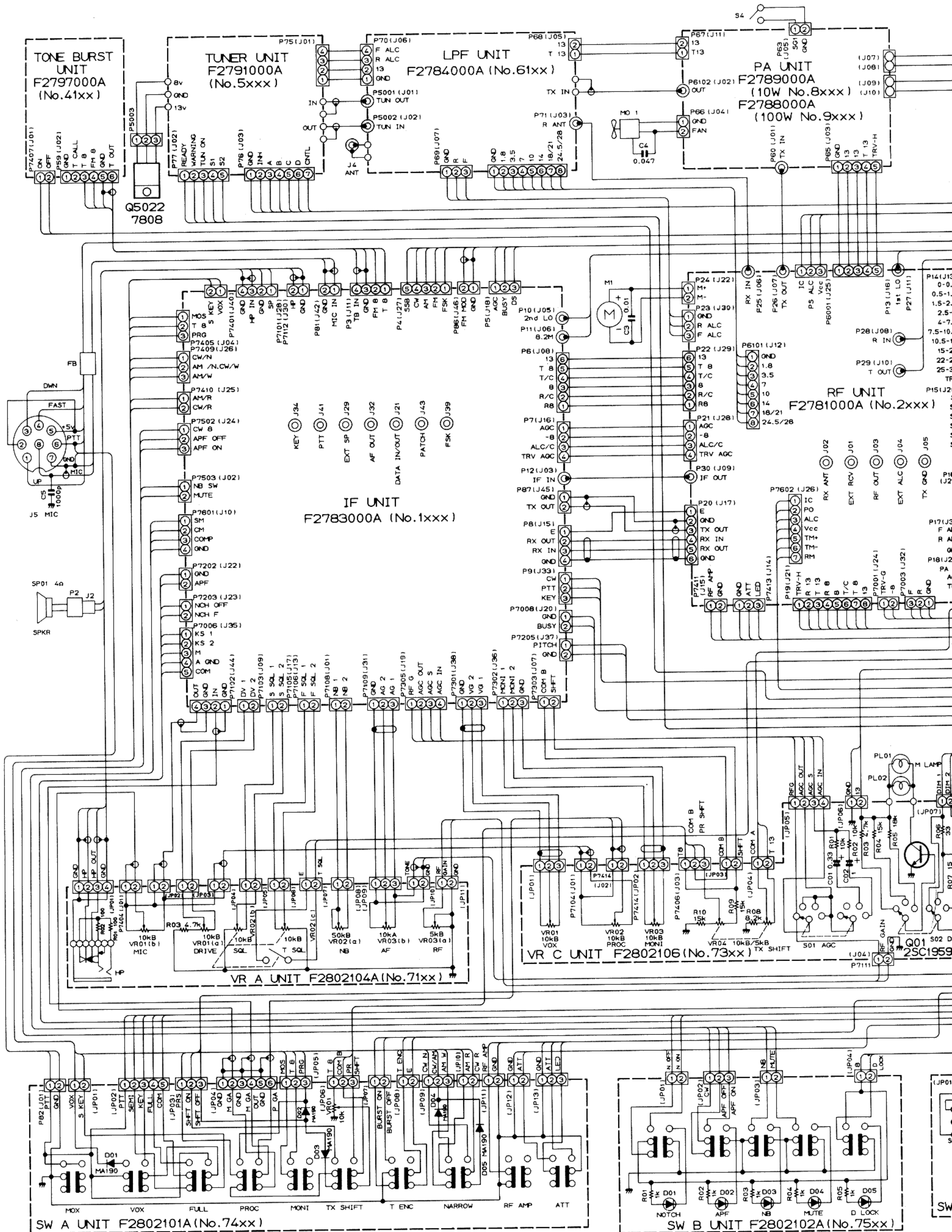
RECEIVE
TRANSMIT
CONTROL



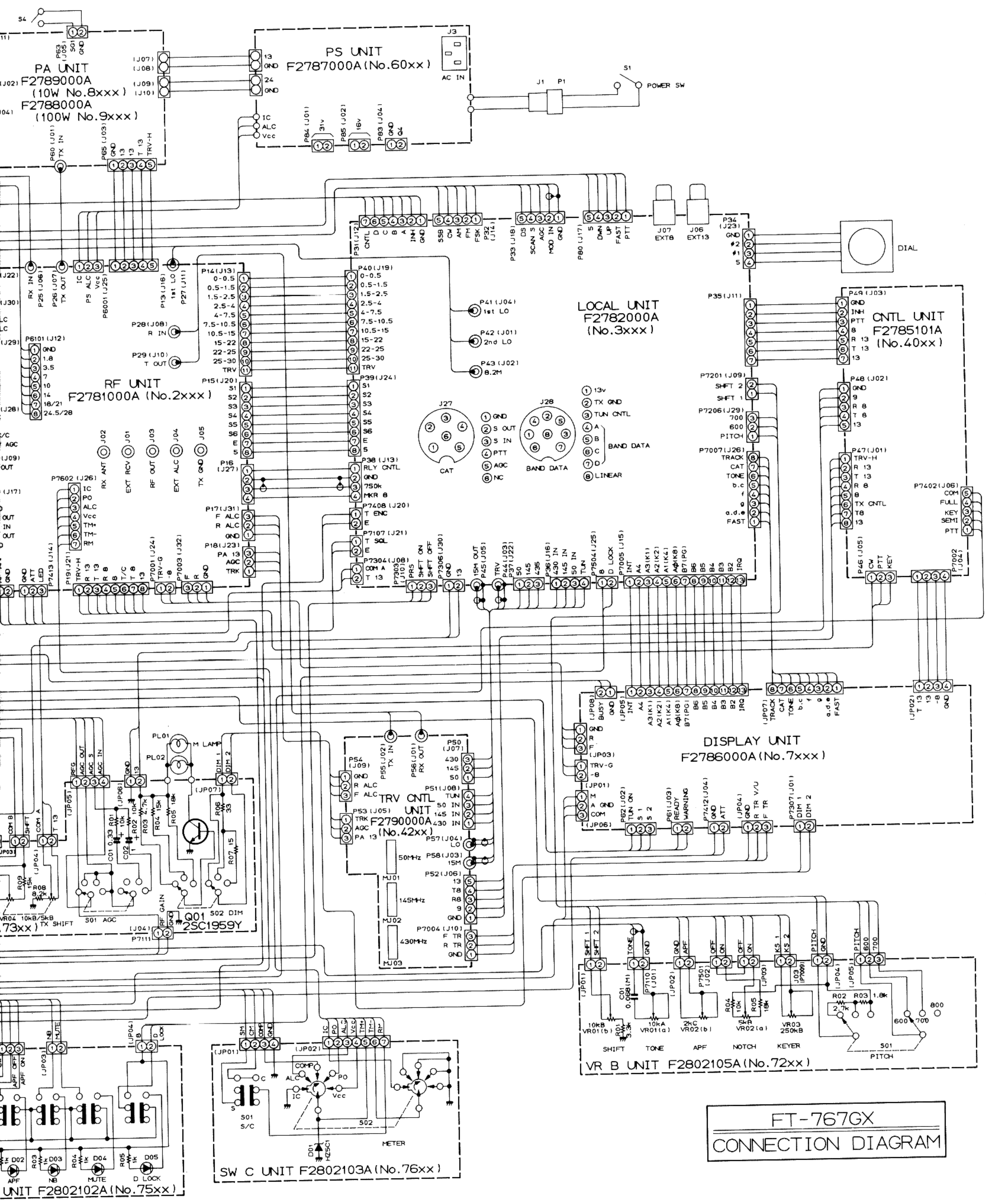
FT-767GX
BLOCK DIAGRAM

— RECEIVE
- - - TRANSMIT
— CONTROL

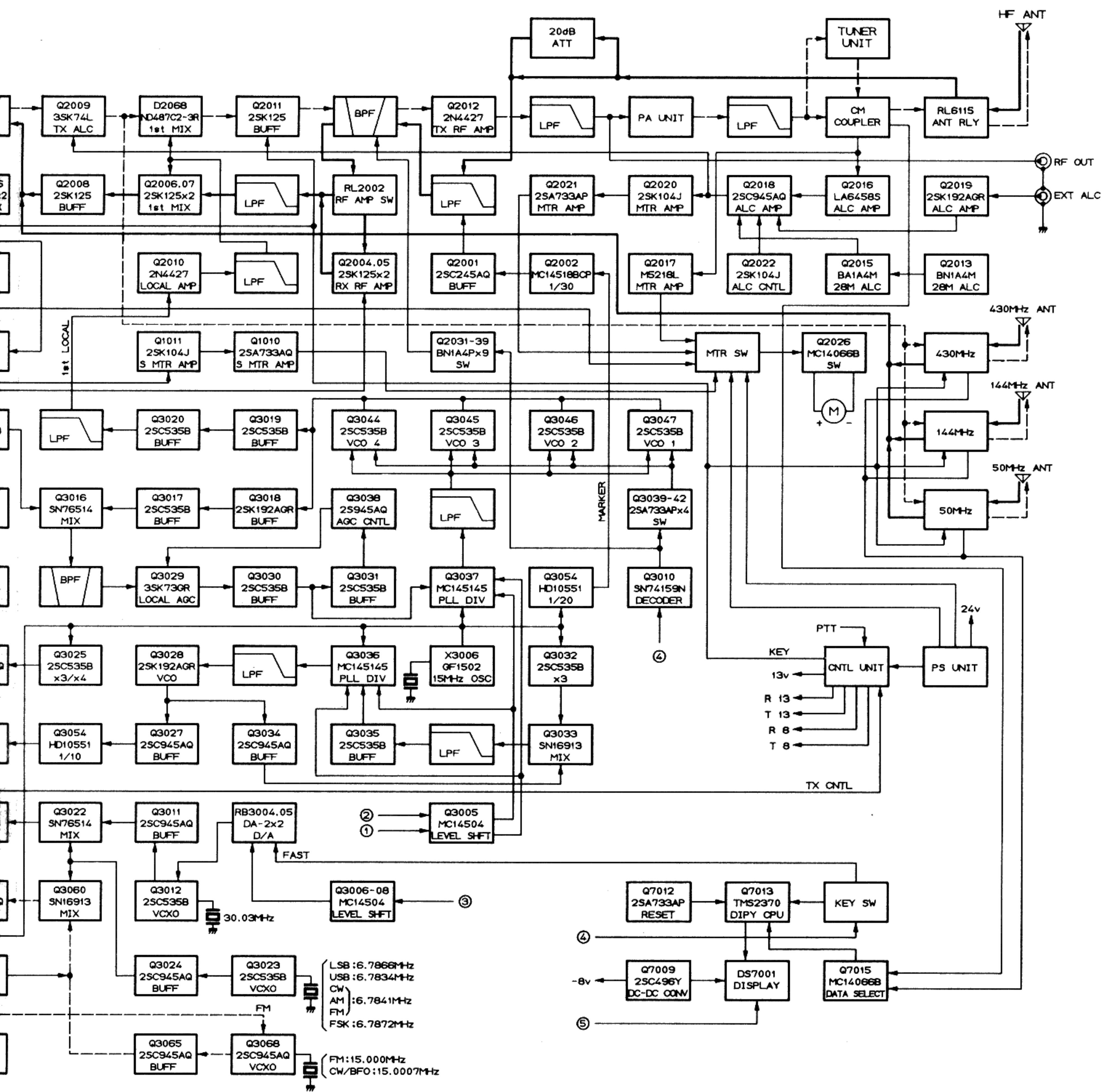
SIGNAL TRACING (SSB MODE)



RESISTOR VALUES ARE IN Ω , 1/4w; CAPACITOR VALUES ARE IN μ F;
 UNLESS OTHERWISE NOTED.
 (M) CAPACITORS ARE POLYESTER FILM, 50wv.

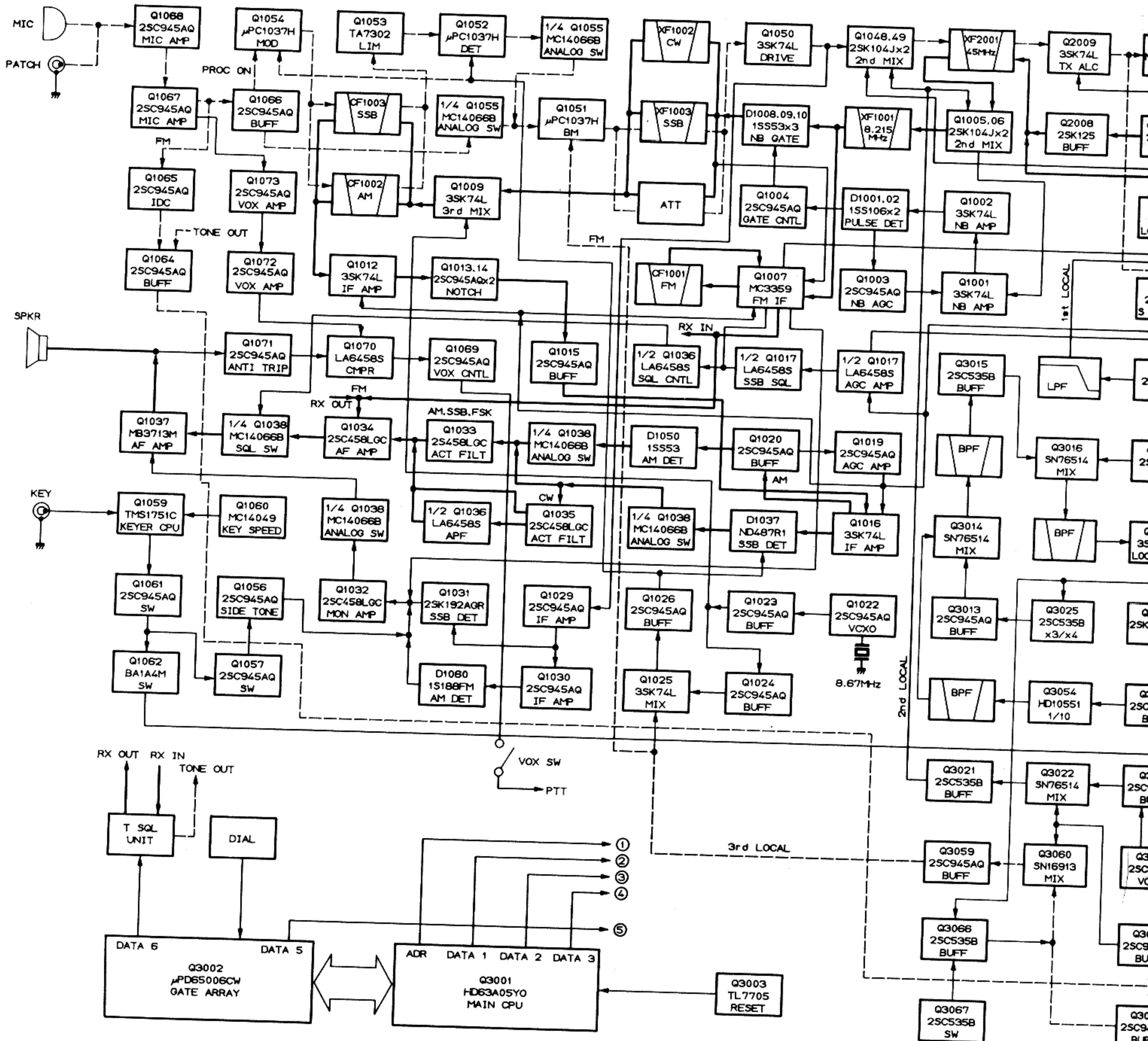


FT-767GX
CONNECTION DIAGRAM



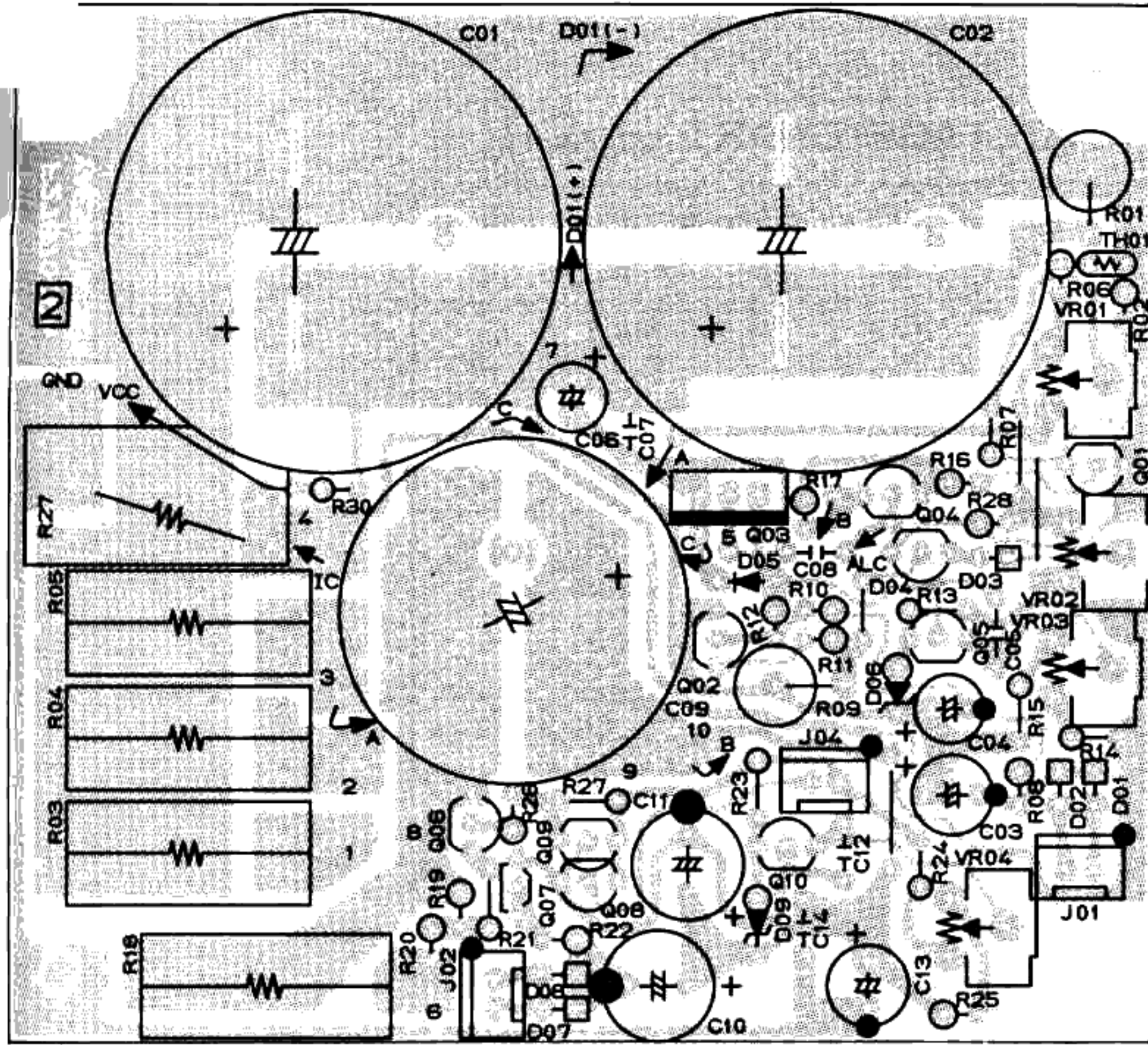
FT-767GX
BLOCK DIAGRAM

RECEIVE
TRANSMIT
CONTROL

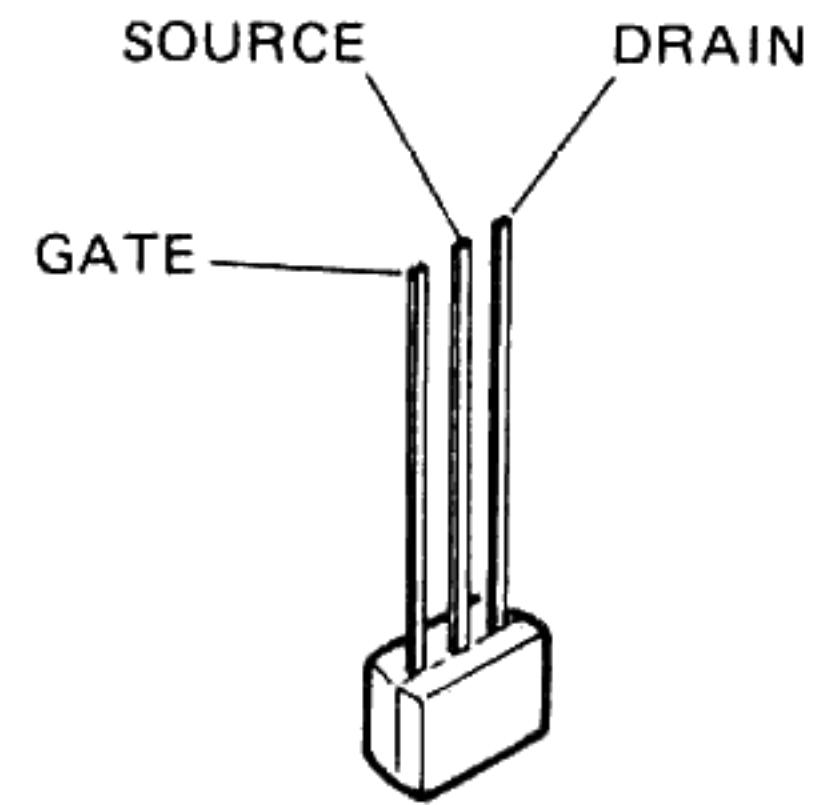


—●— RECEIVE
 - - - TRANSMIT
 —●— CONTROL

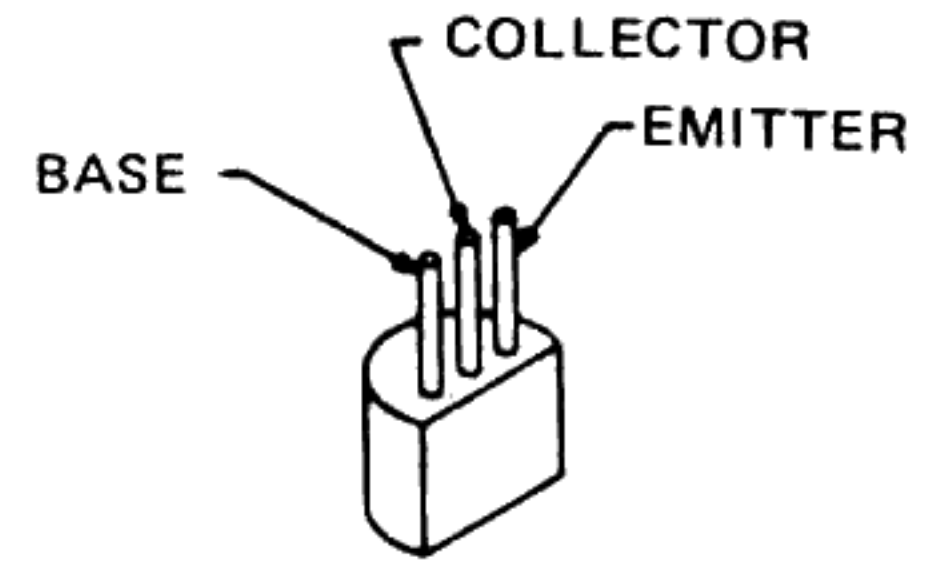
PS UNIT PARTS LAYOUT



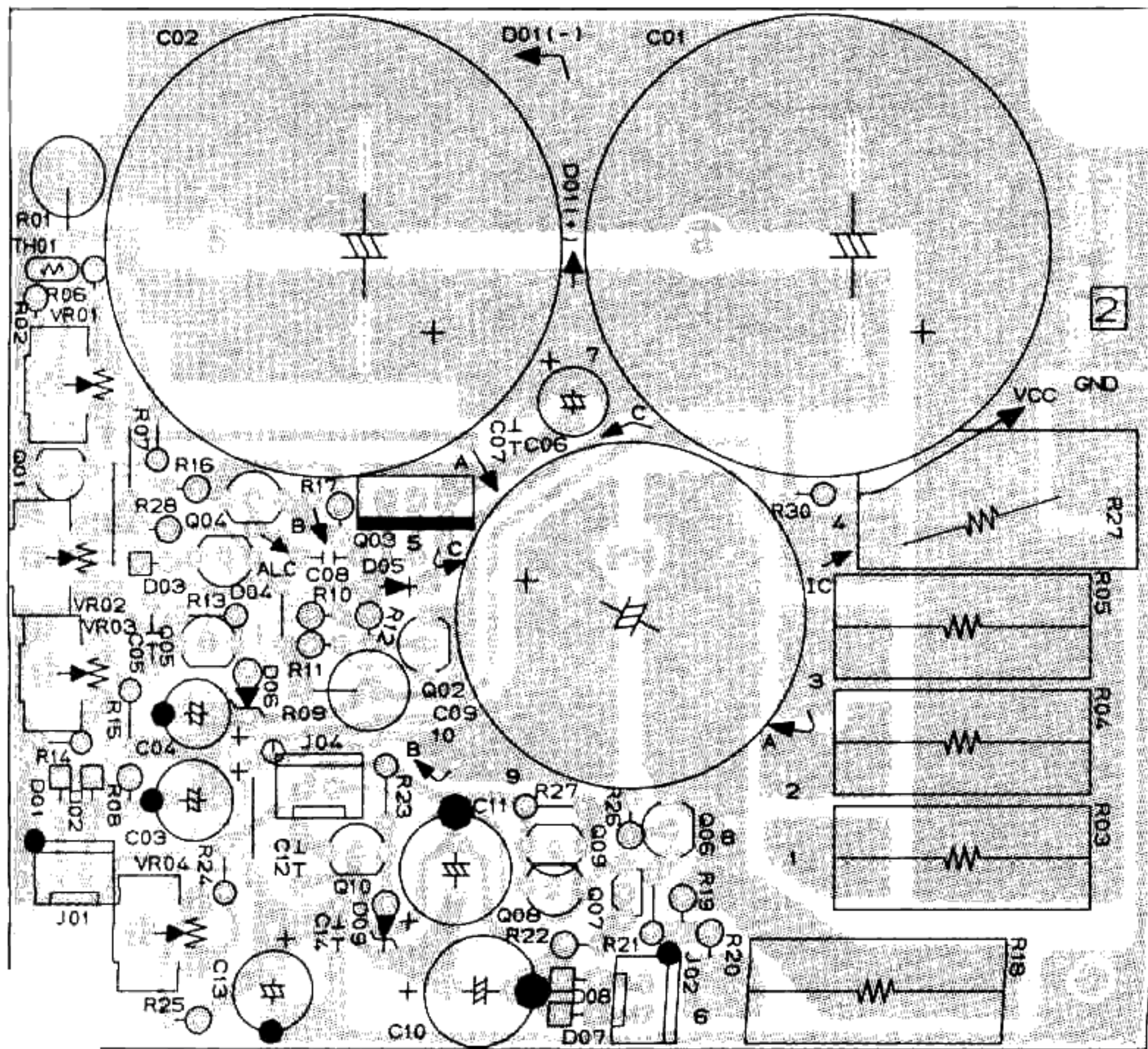
(Viewed from Component side)



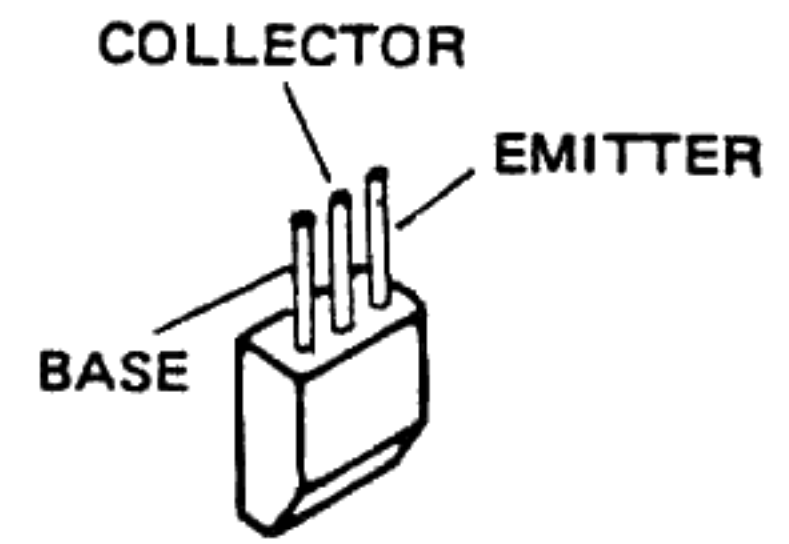
2SK192A-GR (Q6007)



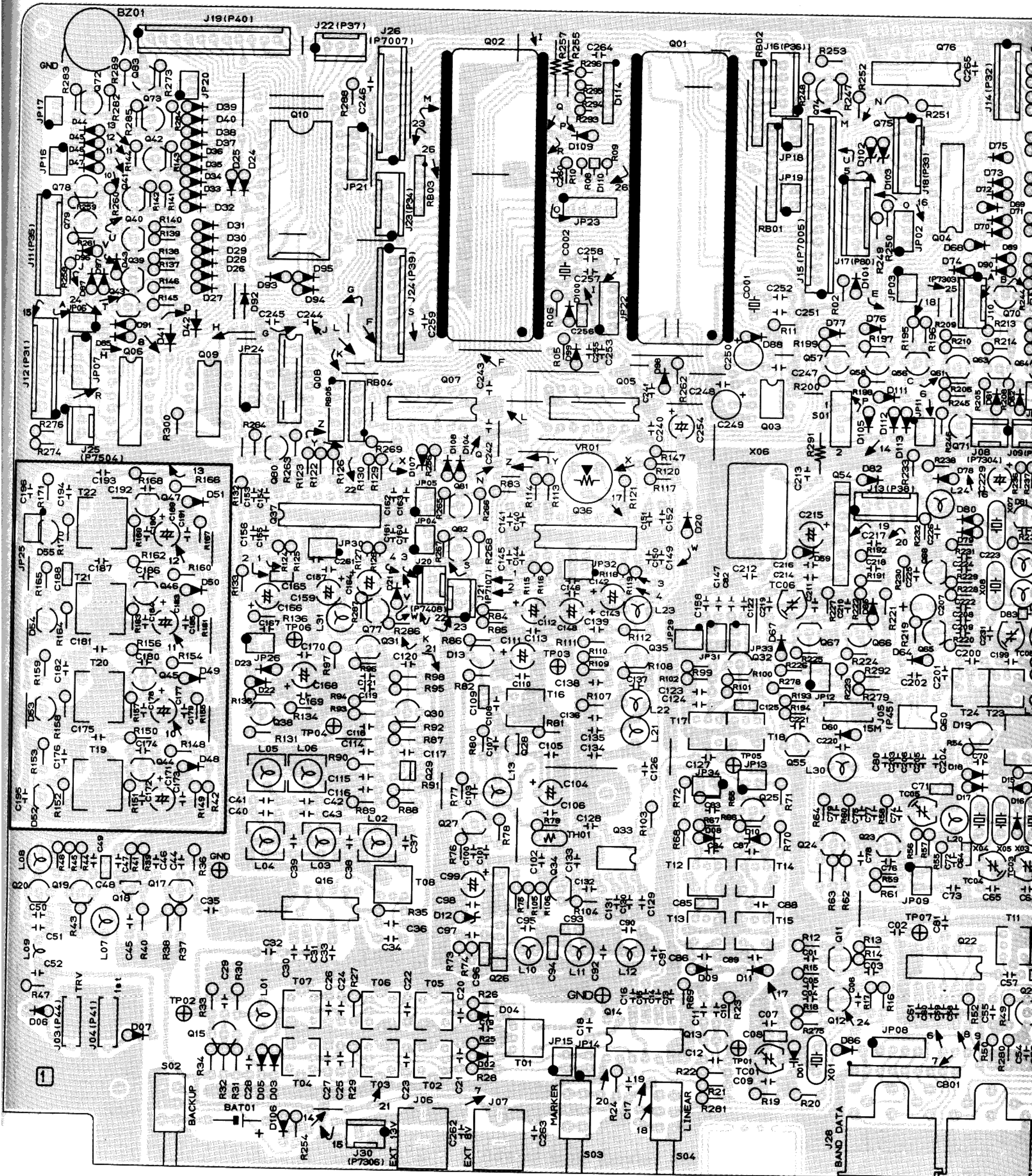
2SA684R (Q6005)
 2SA733AP
 (Q6002,6004,6009)
 2SA950Y (Q6008)
 2SA1012Y (Q6003)
 2SA1051Y (Q6010)
 2SC458B (Q6001,6006)



(Viewed from Solder side)

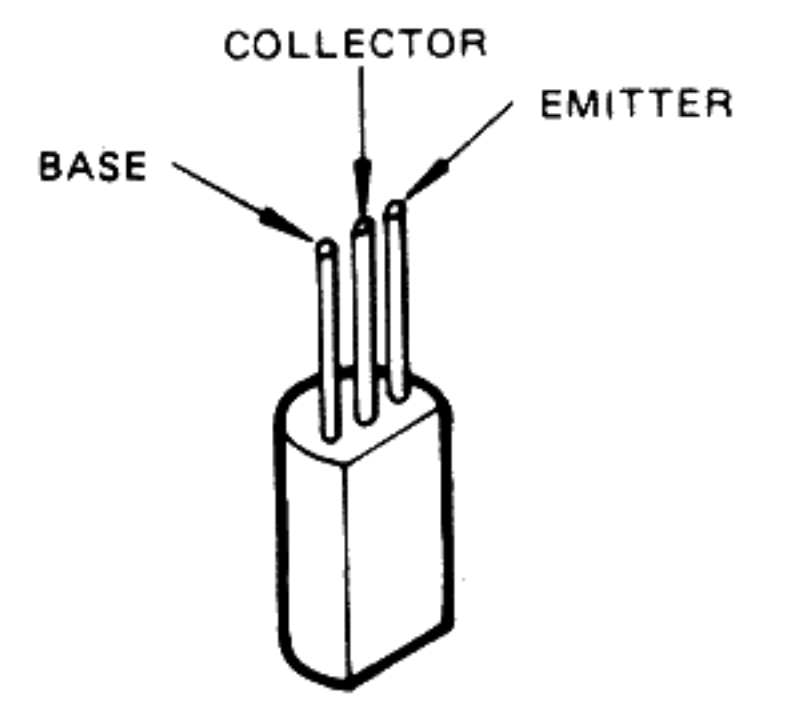
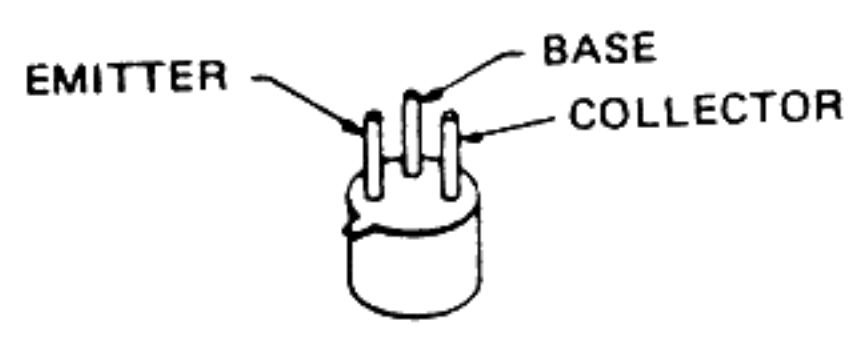
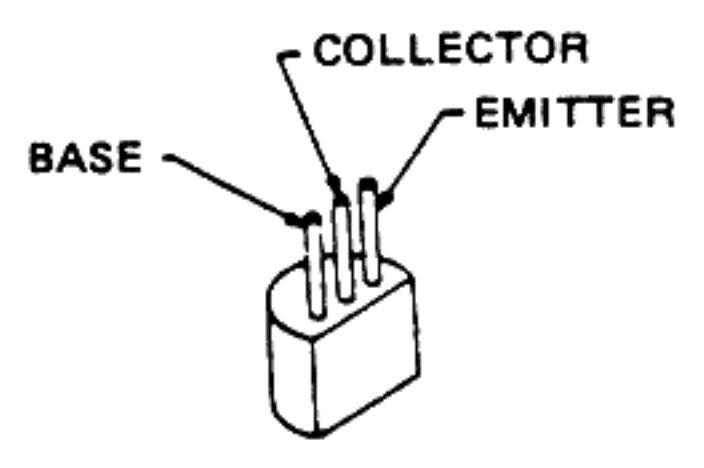
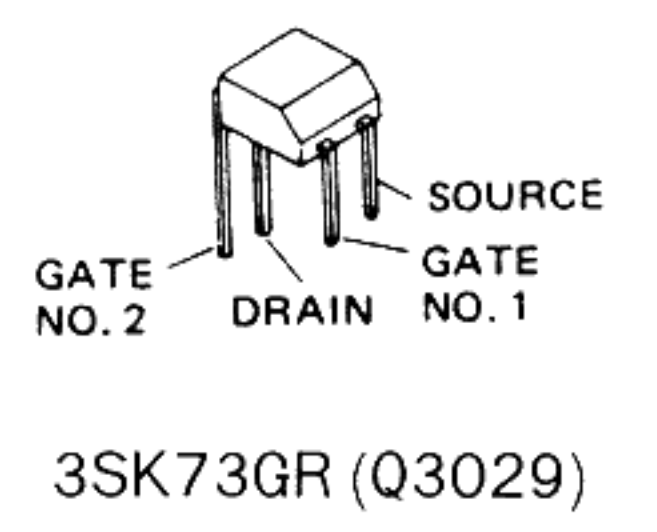
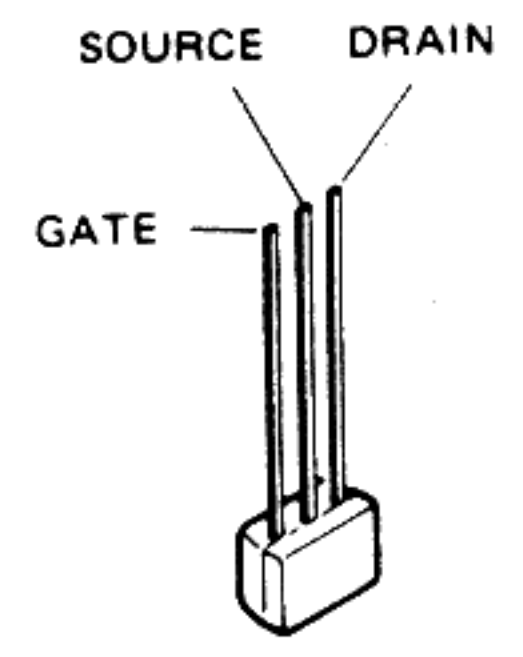
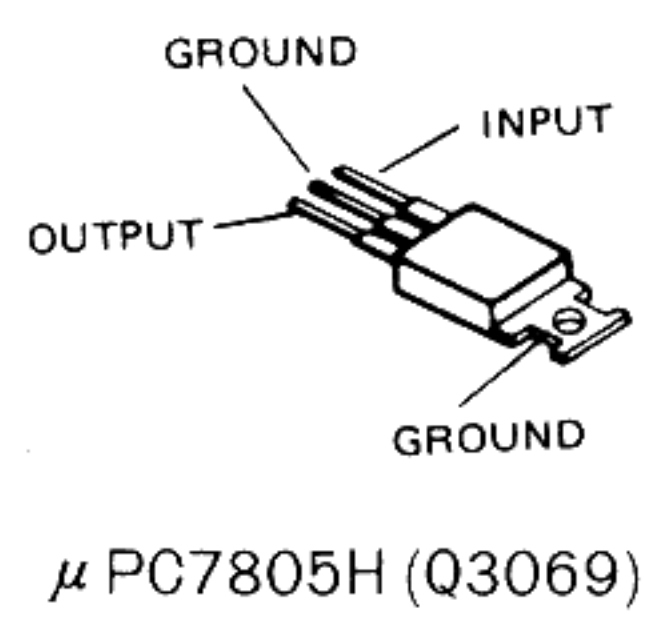
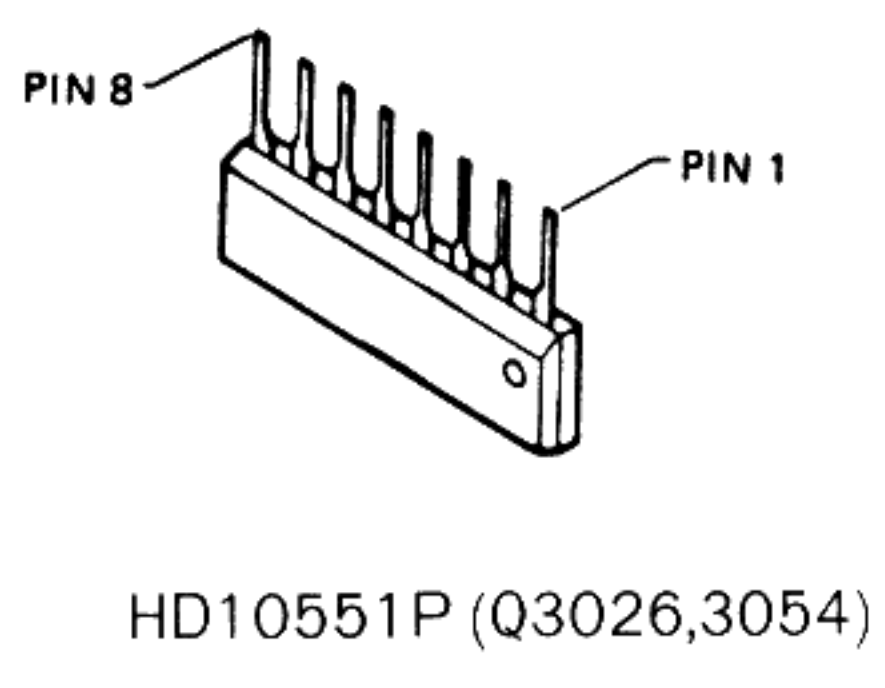
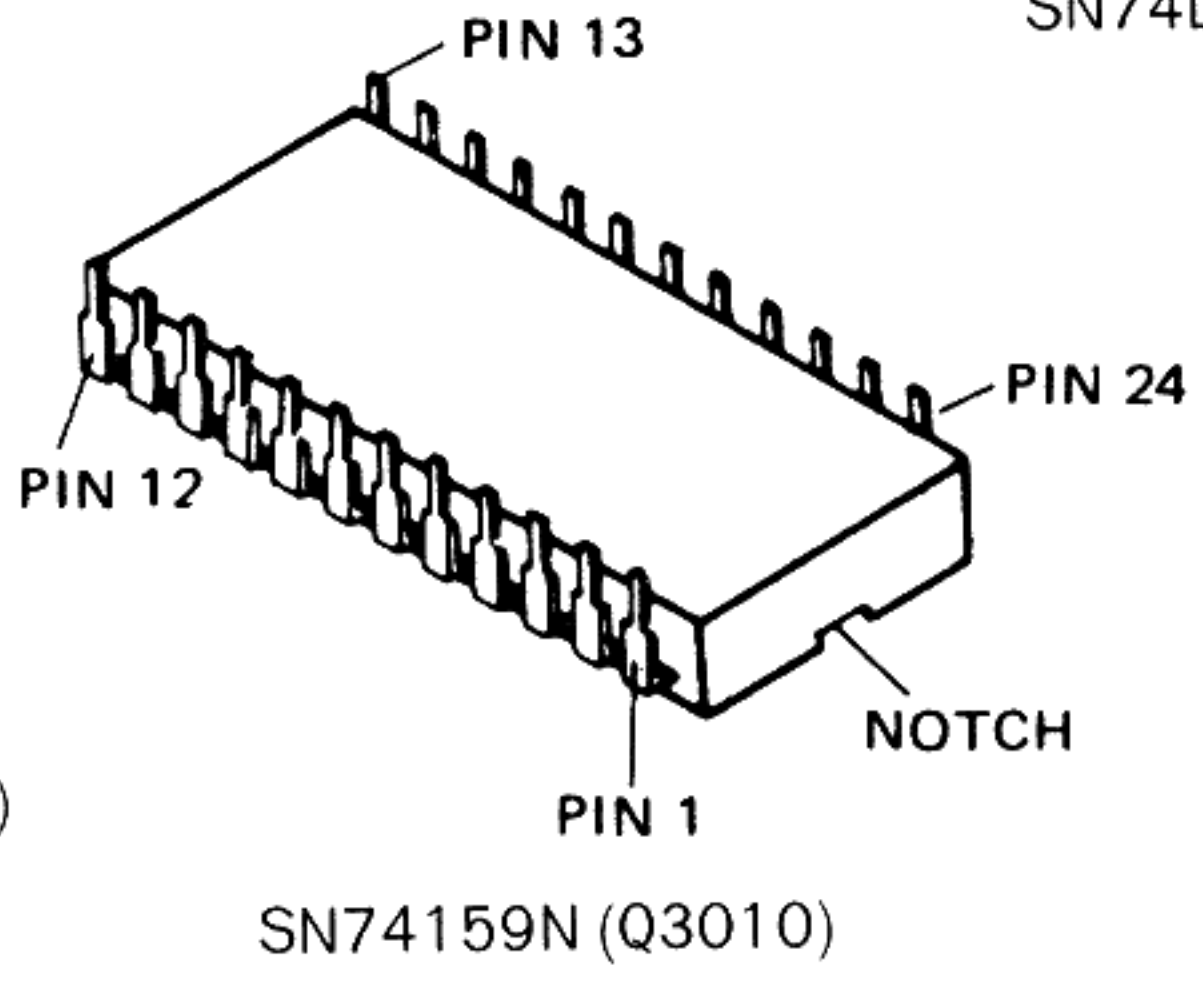
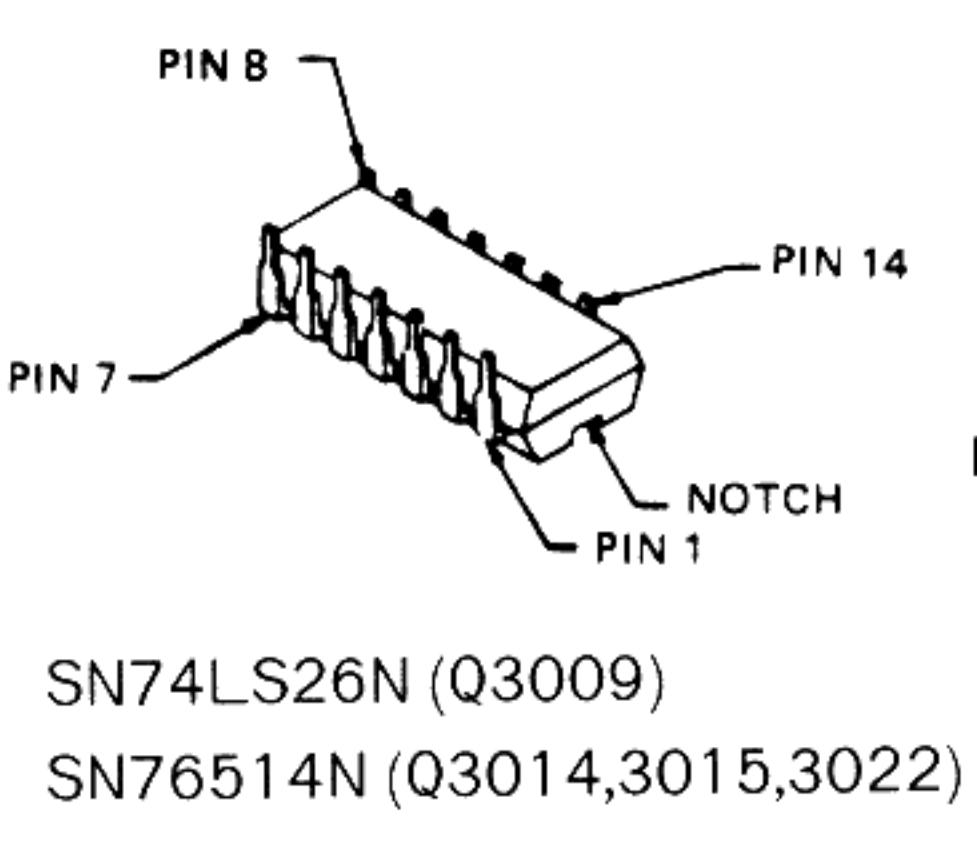
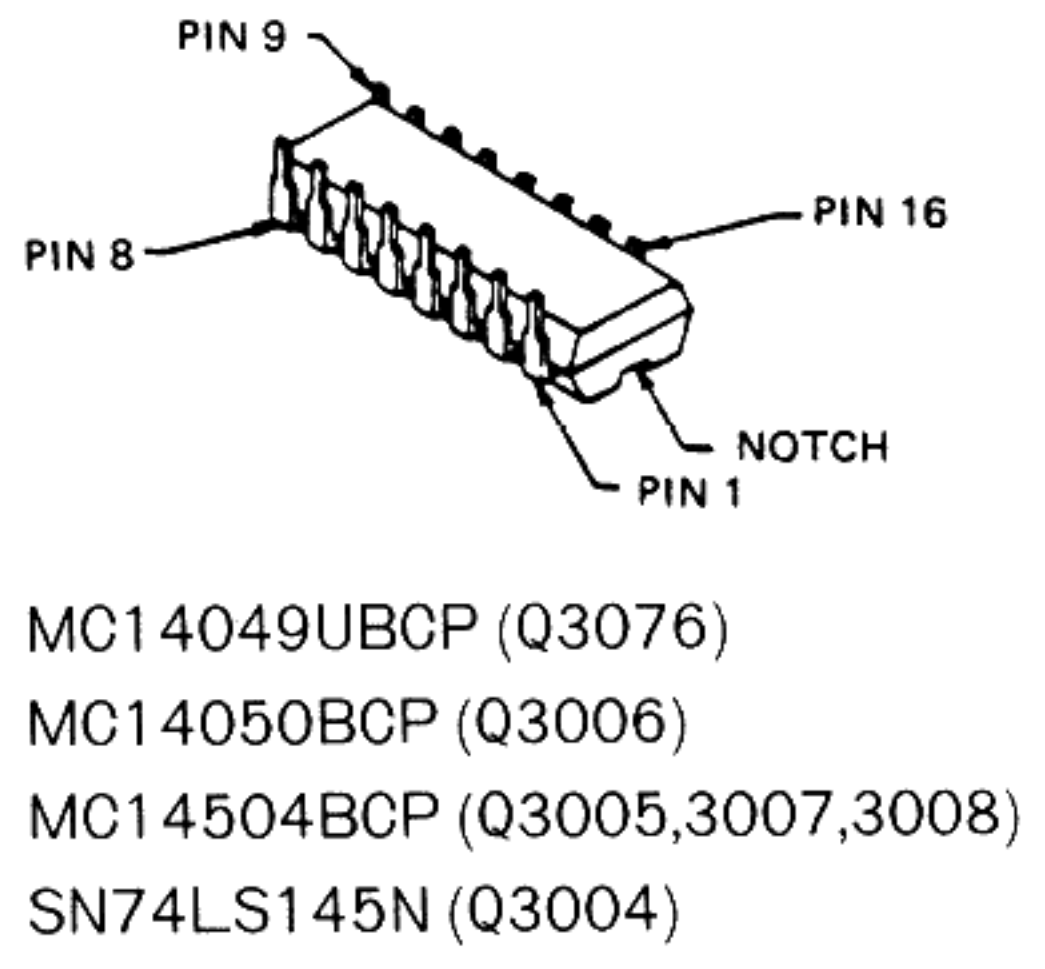
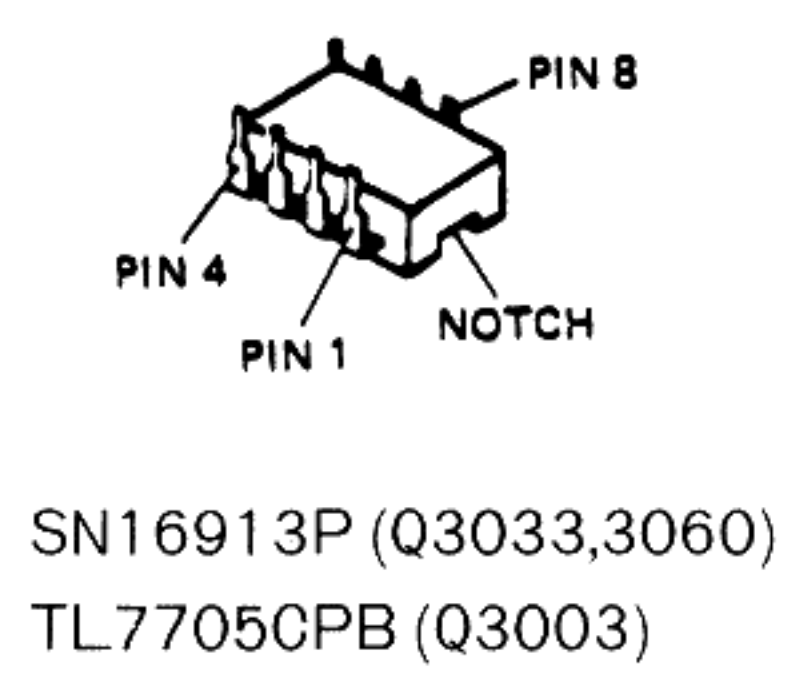
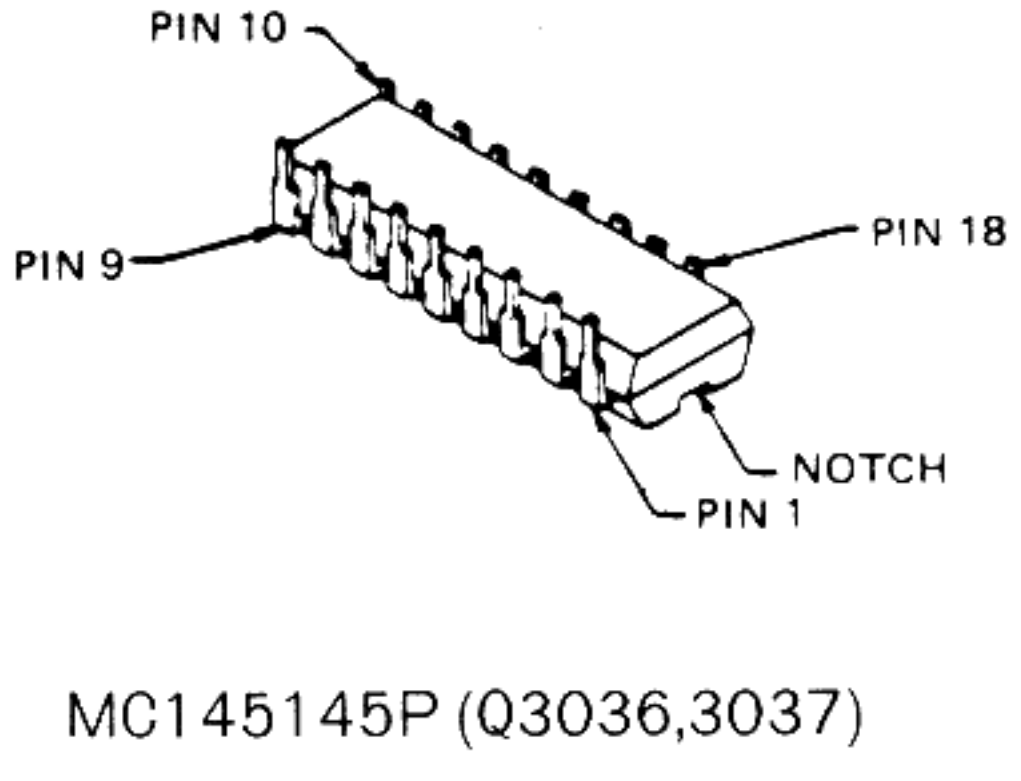
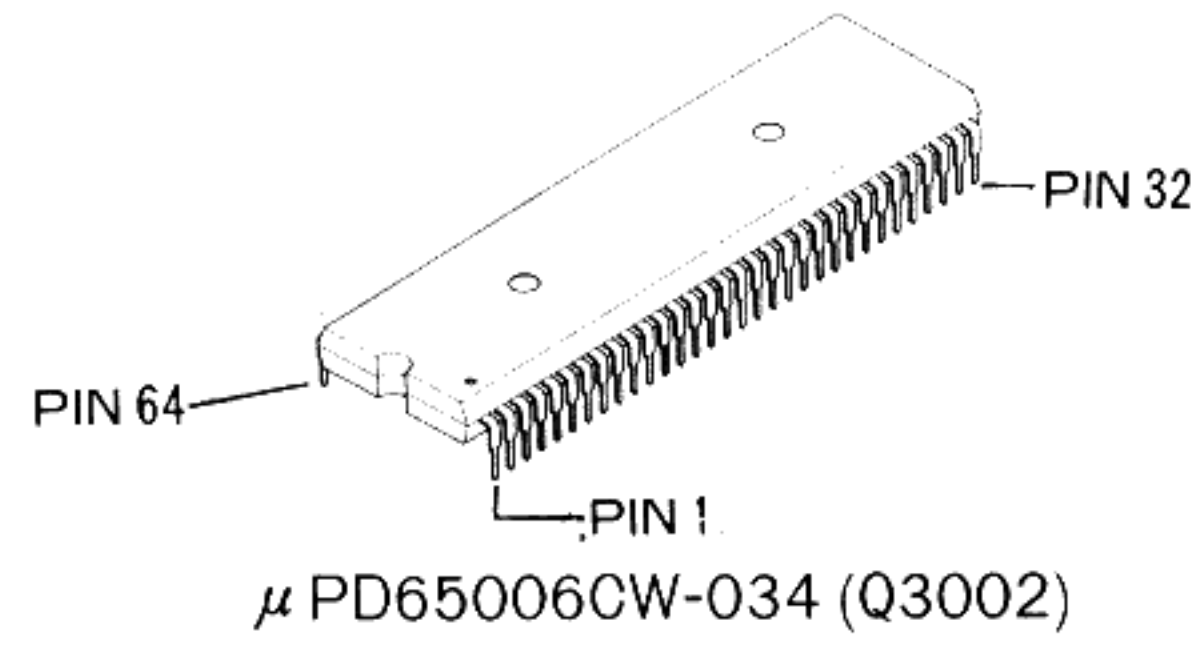
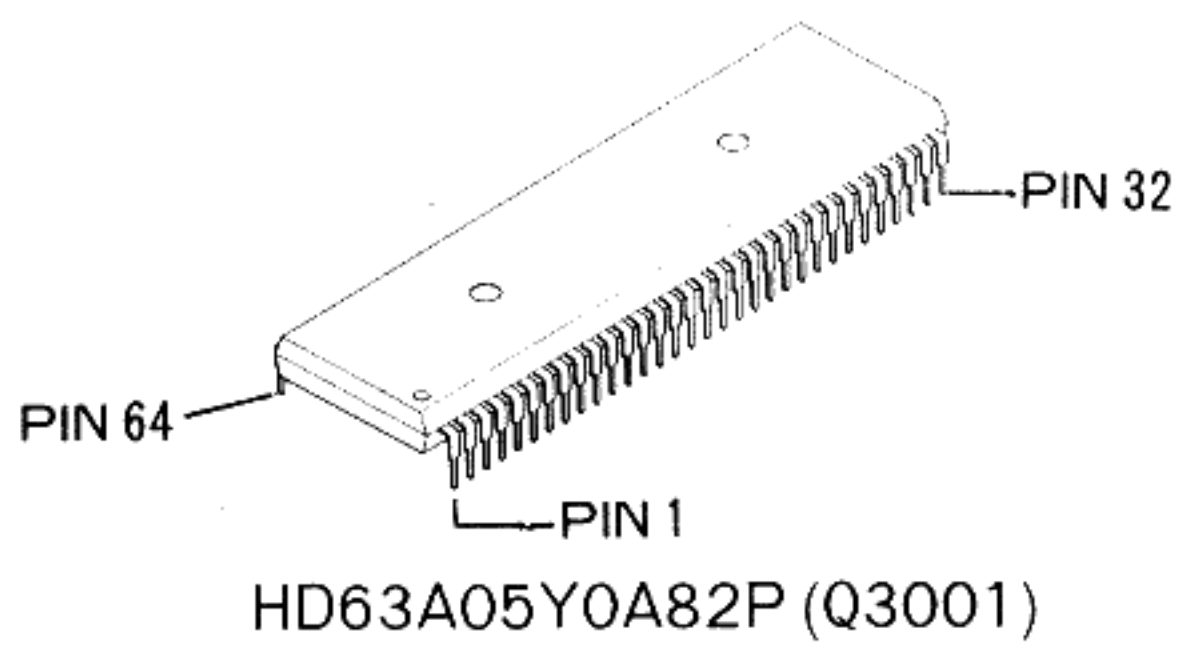
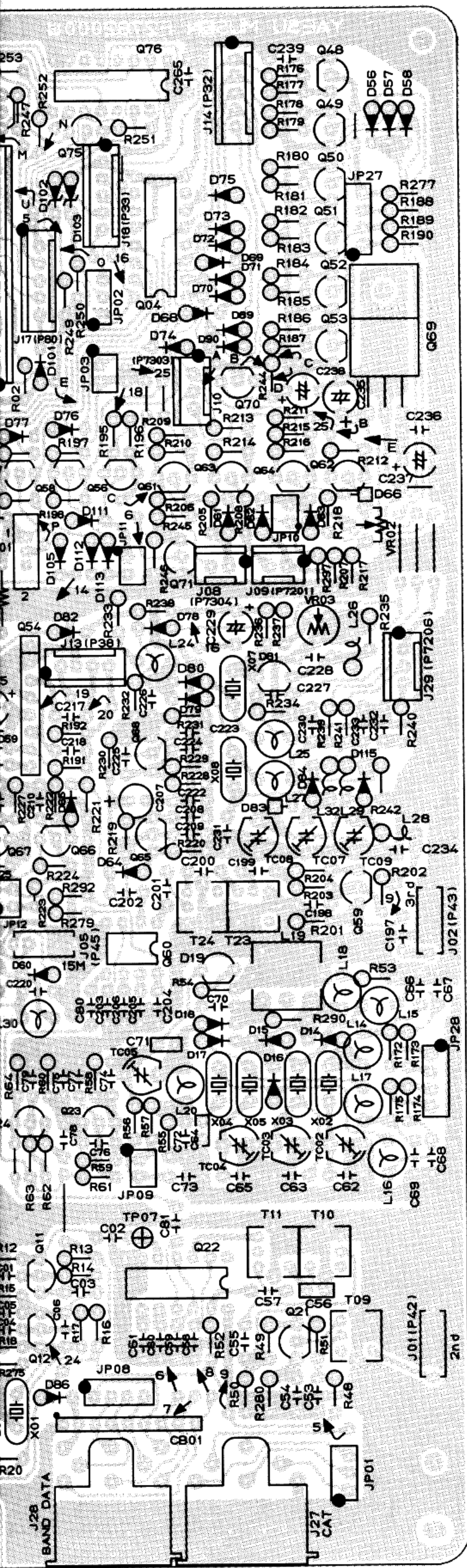


2SD717Y (Q6011-6014)



(Viewed from Component s

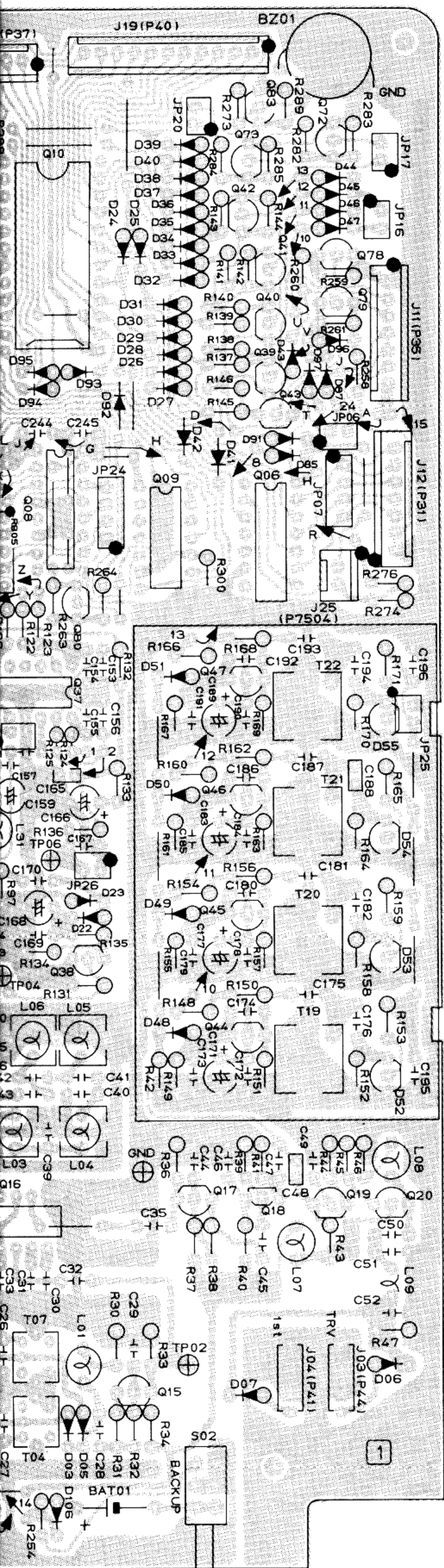
CAL UNIT PARTS LAYOUT



(Viewed from Component side)

LOCAL UNIT VOLTAGE CHART (DC VOLTS)

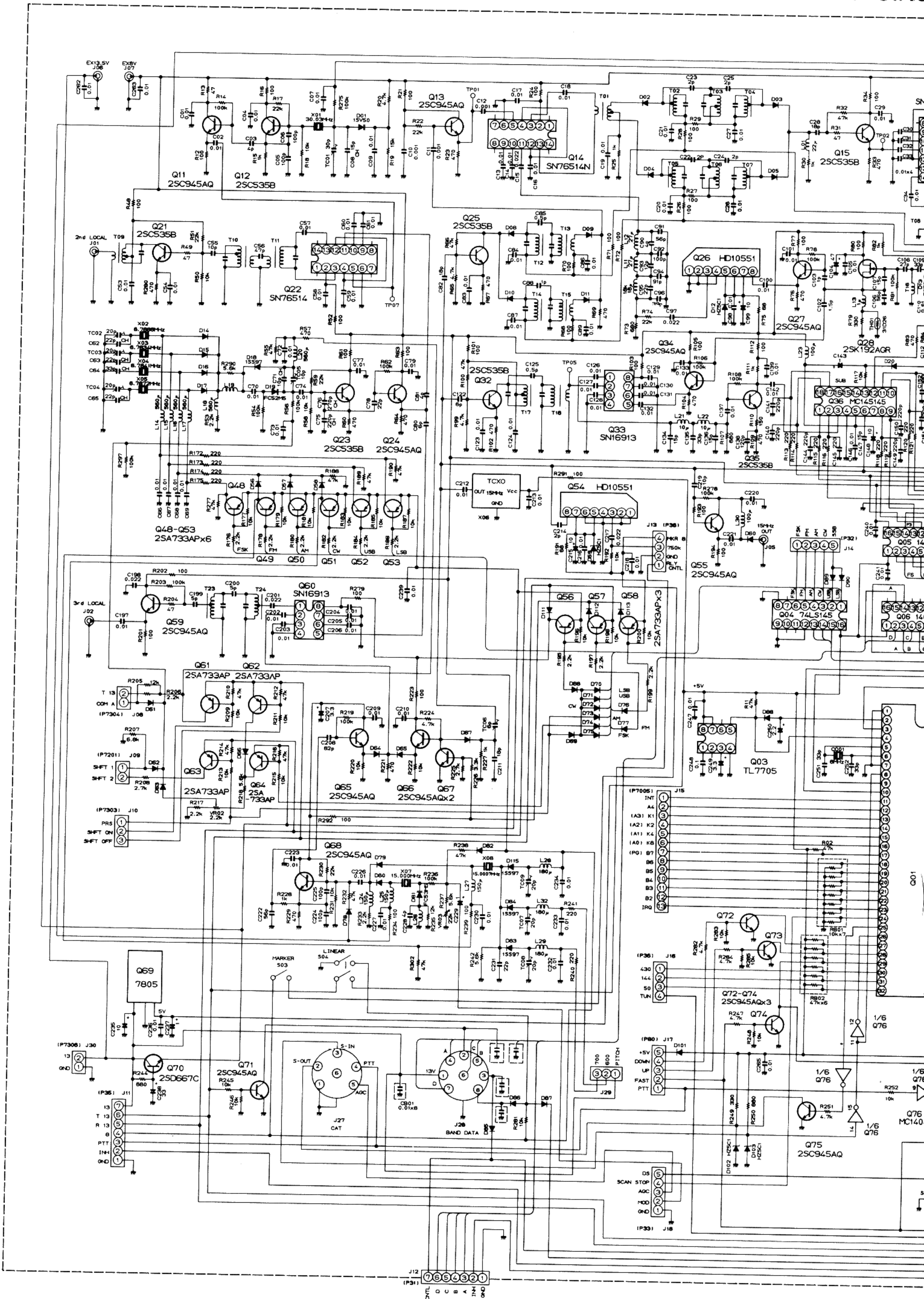
| | E | | (S) | | C | | (D) | | B | | (G ₁) | | (G ₂) | | REMARKS |
|-------|---------|------|-------|------|---------|------|-----|-----|---|---|-------------------|---|-------------------|---|-------------|
| | R | T | R | T | R | T | R | T | R | T | R | T | R | T | |
| Q3011 | 1.4 | 1.4 | 7.4 | 7.4 | 2.1 | 2.1 | | | | | | | | | |
| Q3012 | 1.8 | 1.8 | 7.8 | 7.8 | 2.3 | 2.3 | | | | | | | | | |
| Q3013 | 5.2 | 5.2 | 6.9 | 6.9 | 5.9 | 5.9 | | | | | | | | | |
| Q3015 | 3.2 | 3.2 | 7.3 | 7.3 | 4.0 | 4.0 | | | | | | | | | |
| Q3017 | 2.2 | 2.2 | 7.8 | 7.8 | 3.0 | 3.0 | | | | | | | | | |
| Q3018 | 1.0 | 1.0 | 7.8 | 7.8 | 0 | 0 | | | | | | | | | |
| Q3019 | 4.3 | 4.3 | 8.0 | 8.0 | 5.2 | 5.2 | | | | | | | | | |
| Q3020 | 3.6 | 3.6 | 8.0 | 8.0 | 4.3 | 4.3 | | | | | | | | | |
| Q3021 | 1.4 | 1.4 | 7.7 | 7.7 | 2.2 | 2.2 | | | | | | | | | |
| Q3023 | 1.5 | 1.5 | 7.7 | 7.7 | 2.2 | 2.2 | | | | | | | | | |
| Q3024 | 3.4 | 3.4 | 7.3 | 7.3 | 4.0 | 4.0 | | | | | | | | | |
| Q3025 | 0.4 | 0.4 | 8.5 | 8.5 | 0.7 | 0.7 | | | | | | | | | |
| Q3027 | 3.6 | 3.6 | 7.3 | 7.3 | 4.2 | 4.2 | | | | | | | | | |
| Q3028 | 7.6 | 7.6 | 0.8 | 0.8 | 0 | 0 | | | | | | | | | |
| Q3029 | 0.6 | 0.6 | 4.6 | 4.6 | 0.7 | 0.7 | 0.7 | 0.7 | | | | | | | |
| Q3030 | 1.3 | 1.3 | 5.1 | 5.1 | 2.0 | 2.0 | | | | | | | | | |
| Q3031 | 2.2 | 2.2 | 7.6 | 7.6 | 3.0 | 3.0 | | | | | | | | | |
| Q3032 | 0.3 | 0.3 | 8.0 | 8.0 | 0.7 | 0.7 | | | | | | | | | |
| Q3034 | 4.2 | 4.2 | 7.3 | 7.3 | 3.6 | 3.6 | | | | | | | | | |
| Q3035 | 1.7 | 1.7 | 5.1 | 5.1 | 2.4 | 2.4 | | | | | | | | | |
| Q3038 | 0 | 0 | 0.7 | 0.7 | 0.5 | 0.5 | | | | | | | | | |
| Q3039 | 12.0 | 12.0 | 11.7 | 11.7 | 11.3 | 11.3 | | | | | | | | | 28MHz |
| Q3040 | 12.0 | 12.0 | 11.7 | 11.7 | 11.3 | 11.3 | | | | | | | | | 21MHz |
| Q3041 | 12.0 | 12.0 | 11.7 | 11.7 | 11.3 | 11.3 | | | | | | | | | 14MHz |
| Q3042 | 12.0 | 12.0 | 11.7 | 11.7 | 11.3 | 11.3 | | | | | | | | | 7MHz |
| Q3043 | 12.0 | 12.0 | 11.7 | 11.7 | 11.3 | 11.3 | | | | | | | | | 1MHz |
| Q3044 | 4.0 | 4.0 | 10.8 | 10.8 | 4.4 | 4.4 | | | | | | | | | 28MHz |
| Q3045 | 3.3 | 3.3 | 10.8 | 10.8 | 3.8 | 3.8 | | | | | | | | | 21MHz |
| Q3046 | 4.2 | 4.2 | 10.8 | 10.8 | 4.5 | 4.5 | | | | | | | | | 14MHz |
| Q3047 | 4.1 | 4.1 | 10.8 | 10.8 | 4.4 | 4.4 | | | | | | | | | 7MHz |
| Q3048 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE FSK |
| Q3049 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE FM |
| Q3050 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE AM |
| Q3051 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE CW |
| Q3052 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE USB |
| Q3053 | 12.0 | 12.0 | 12.0 | 12.0 | 11.4 | 11.4 | | | | | | | | | MODE LSB |
| Q3055 | 0.4 | 0.4 | 2.7 | 2.7 | 1.0 | 1.0 | | | | | | | | | TRV |
| Q3056 | 13.0 | 0.4 | 12.1 | 12.1 | 11.3 | 11.3 | | | | | | | | | |
| Q3057 | 0 | 13.0 | 0 | 12.0 | 0 | 12.6 | | | | | | | | | |
| Q3058 | 13.1 | 0.2 | 13.0 | 0 | 12.7 | 0 | | | | | | | | | MODE CW |
| Q3059 | 1.3 | 1.3 | 6.8 | 6.8 | 1.9 | 1.9 | | | | | | | | | |
| Q3061 | 0 | 13.0 | 0 | 13.0 | 0 | 12.3 | | | | | | | | | TX SHIFT ON |
| Q3062 | 0 | 13.0 | 0 | 13.0 | 0 | 12.3 | | | | | | | | | |
| Q3063 | 13.0 | 0 | 13.0 | 0 | 12.4 | 1.5 | | | | | | | | | |
| Q3064 | 12.1 | 12.1 | 12.1 | 12.1 | 11.5 | 11.5 | | | | | | | | | MODE FM |
| Q3065 | 5.7 | 0 | 10.5 | 0 | 6.3 | 0 | | | | | | | | | MODE CW |
| Q3066 | 2.0 | 2.0 | 11.6 | 11.6 | 2.6 | 2.6 | | | | | | | | | |
| Q3067 | 0 | 0 | 0 | 2.6 | 0.7 | 0 | | | | | | | | | MODE CW |
| Q3068 | 2.9 | 0 | 10.5 | 0 | 3.1 | 0 | | | | | | | | | MODE CW |
| Q3069 | IN 13.0 | 13.0 | GND 0 | 0 | OUT 5.0 | 5.0 | | | | | | | | | |
| Q3070 | 12.1 | 12.1 | 13.1 | 13.1 | 12.1 | 12.1 | | | | | | | | | |
| Q3071 | 0 | 0 | 0 | 0 | 0 | 0.7 | | | | | | | | | |
| Q3072 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | | | MIC DWN ON |
| Q3073 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | | | MIC UP ON |
| Q3074 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | | | MIC FASTON |
| Q3075 | 0 | 0 | 5.0 | 5.0 | 0 | 0 | | | | | | | | | |
| Q3077 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | | | MIC FASTON |
| Q3078 | 0 | 0 | 0 | 7.6 | 0 | 0 | | | | | | | | | |
| Q3079 | 5.0 | 5.0 | 5.0 | 5.0 | 0 | 0 | | | | | | | | | |
| Q3080 | 5.0 | 5.0 | 5.0 | 5.0 | 4.3 | 4.3 | | | | | | | | | TRV |
| Q3081 | 0 | 0 | 4.5 | 0 | 0 | 0.5 | | | | | | | | | TONE ENC ON |
| Q3082 | 0 | 0 | 0 | 4.5 | 0.5 | 0 | | | | | | | | | TONE SQL ON |
| Q3083 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |



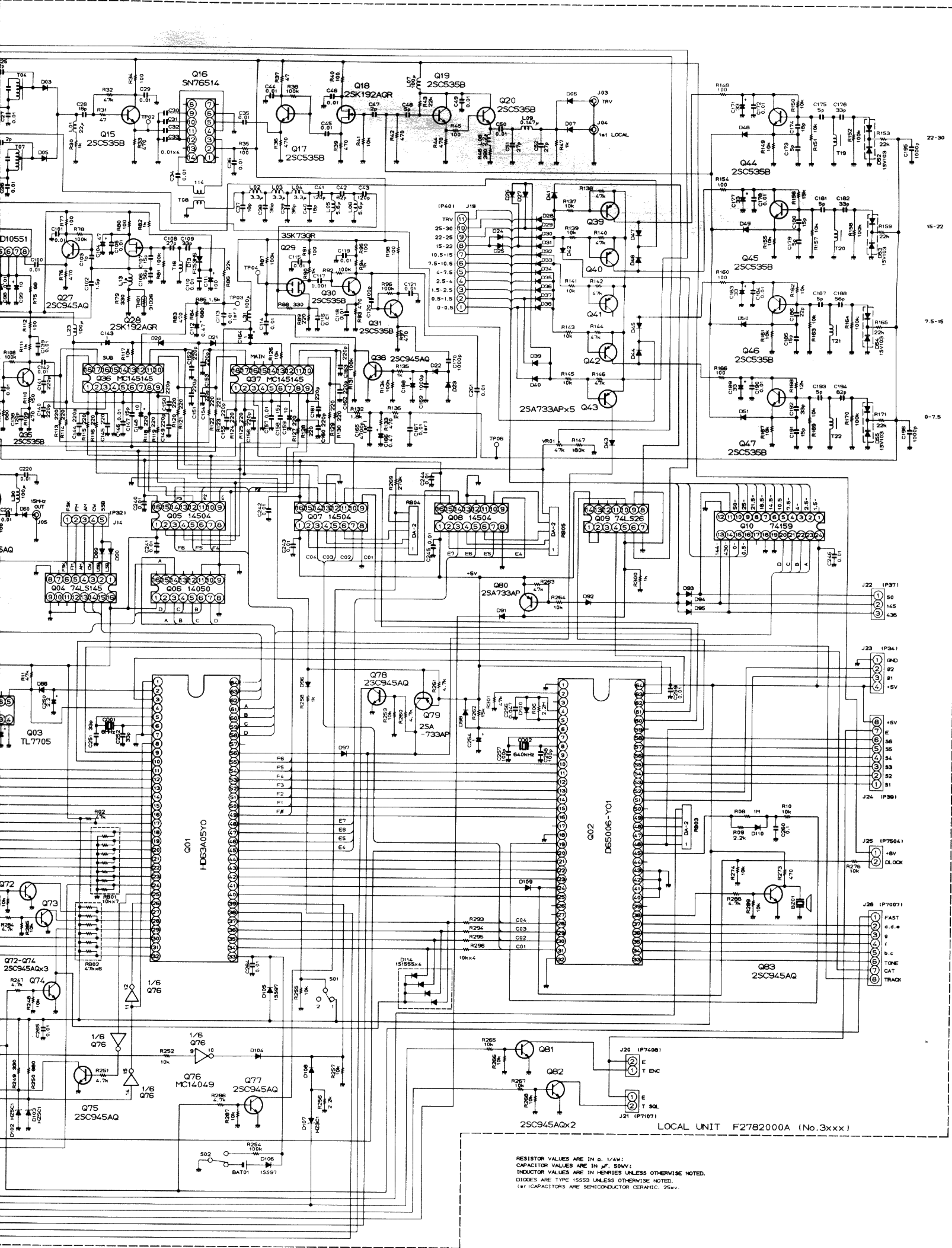
LOCAL UNIT IC VOLTAGE CHART (DC VOLTS)

| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | REMARKS | |
|---------|-----|-----|---|---|-----|-----|-----|-----|---|----|----|----|----|-----|----|-----|----|----|---------|--|
| Q3003 | - | - | - | - | - | 5.0 | 5.0 | | | | | | | | | | | | | |
| Q3004 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.0 | | | | |
| Q3005 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.0 | | | | |
| Q3006 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3007 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.0 | | | | |
| Q3008 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.0 | | | | |
| Q3009 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.0 | - | - | | | | |
| Q3014 | - | 8.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3016 | - | 8.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3022 | - | 8.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3026 | - | - | - | - | 5.0 | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3033 | - | - | - | - | - | - | - | 8.0 | - | - | - | - | - | - | - | - | | | | |
| Q3036 | - | - | - | - | 8.0 | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3037 | - | - | - | - | 8.0 | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3054 | - | - | - | - | 5.0 | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Q3060 | - | - | - | - | - | - | - | 8.0 | - | - | - | - | - | - | - | - | | | | |
| Q3076 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |

(Viewed from Solder side)



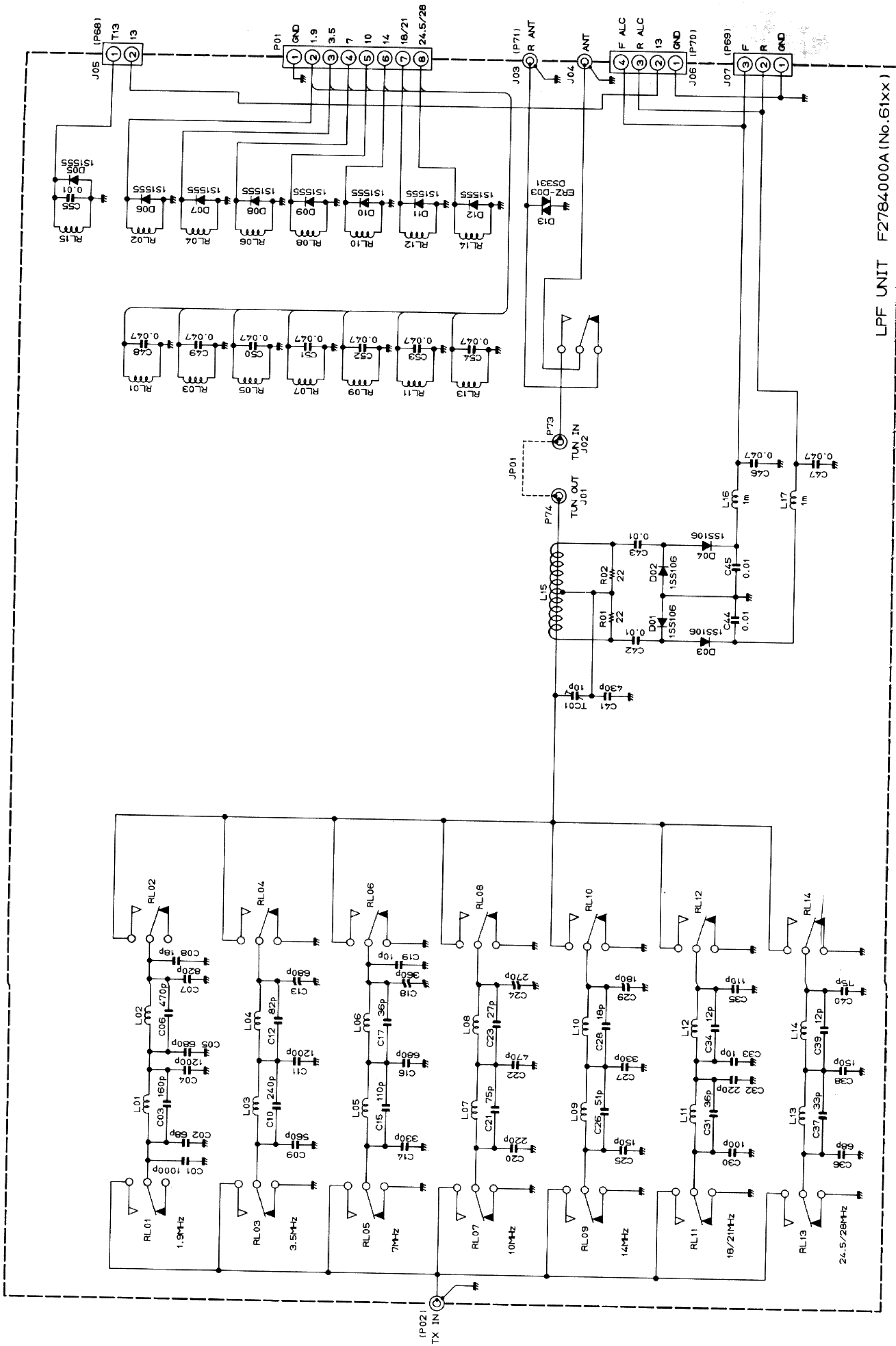
LOCAL UNIT CIRCUIT DIAGRAM



RESISTOR VALUES ARE IN Ω, 1/4W;
 CAPACITOR VALUES ARE IN μF, 50V;
 INDUCTOR VALUES ARE IN HENRIES UNLESS OTHERWISE NOTED.
 DIODES ARE TYPE 15553 UNLESS OTHERWISE NOTED.
 (†) CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.

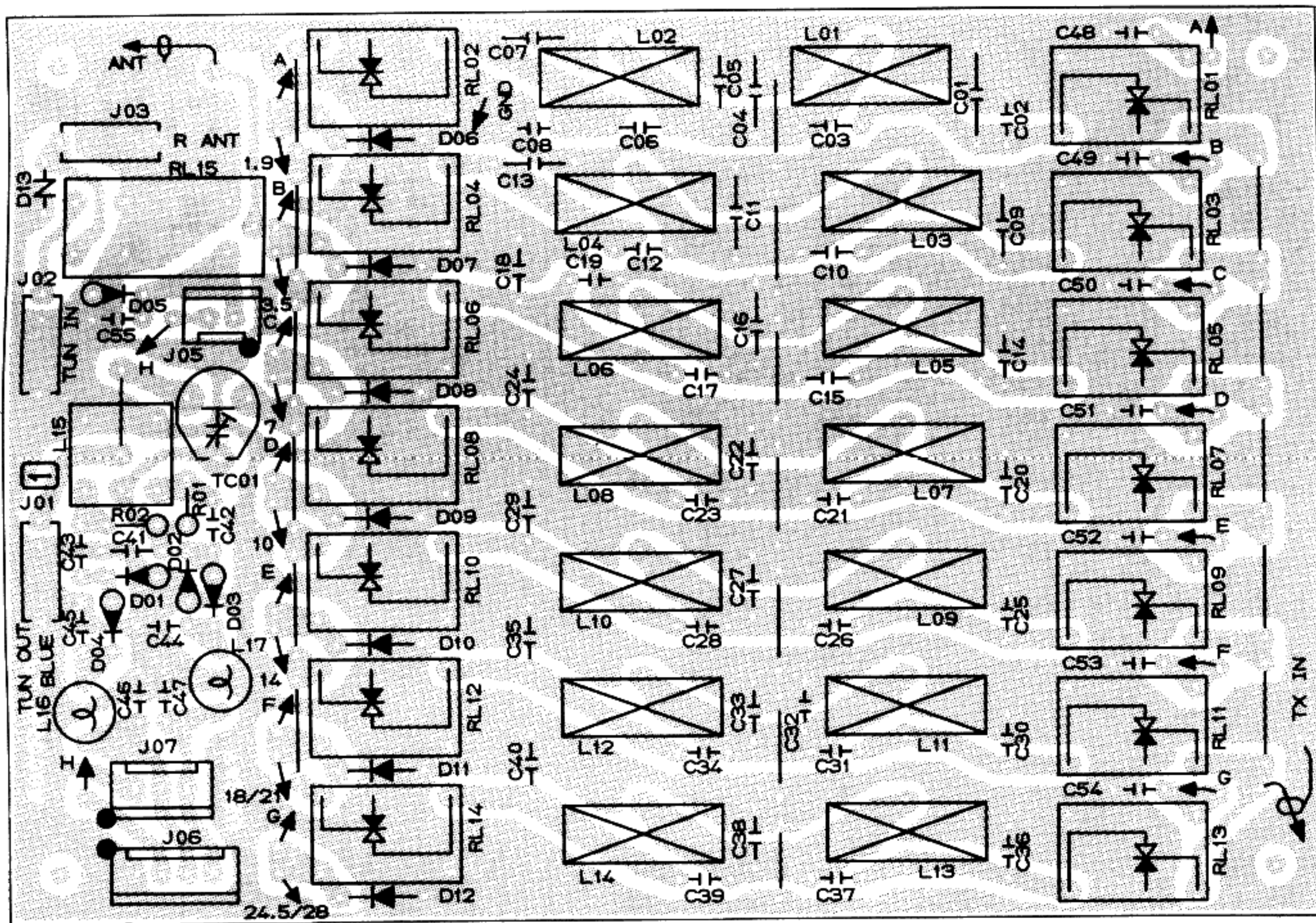
LOCAL UNIT F2782000A (No.3xxx)

LPF UNIT CIRCUIT DIAGRAM

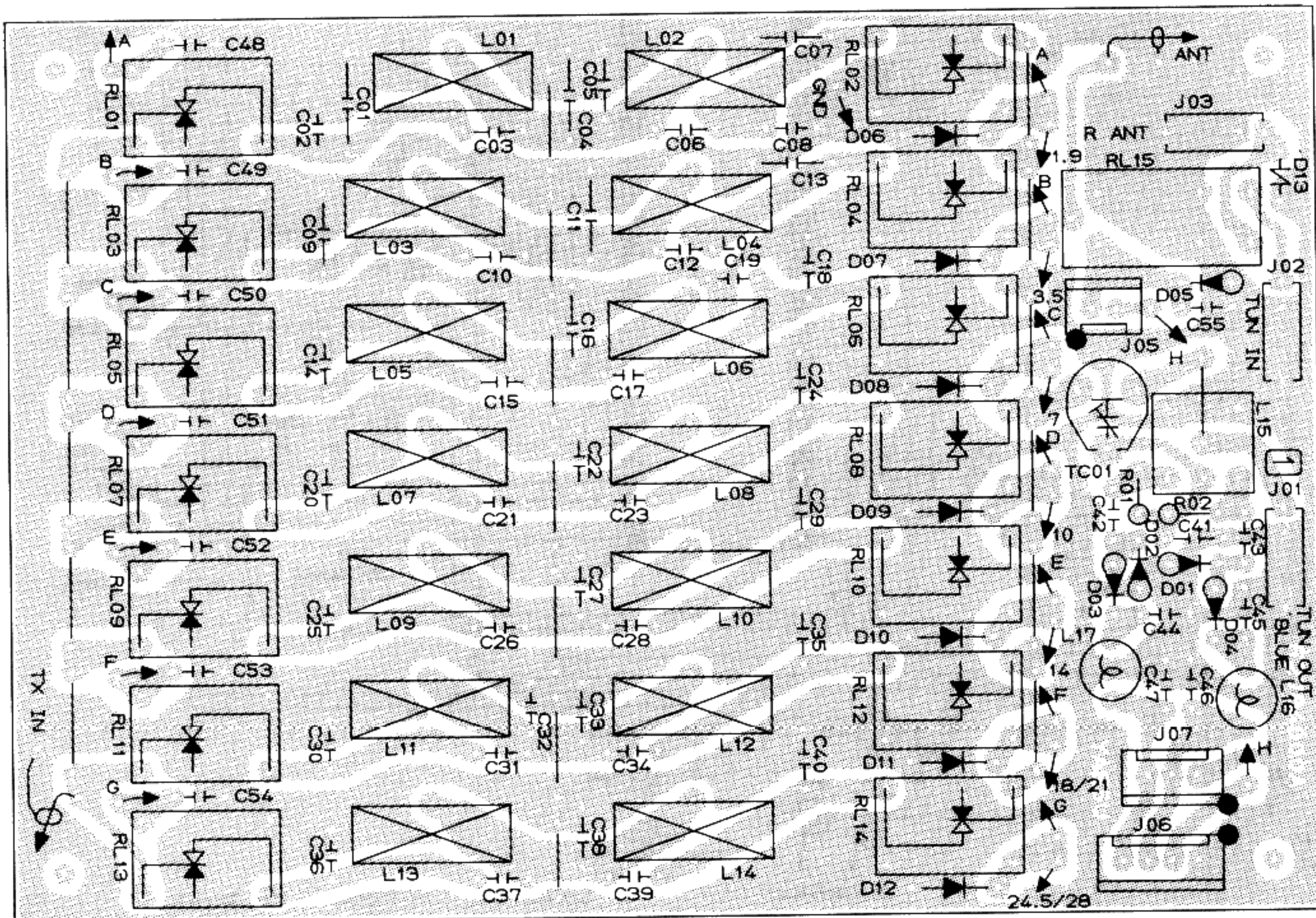


RESISTOR VALUES ARE IN Ω , $\frac{1}{4}\omega$; CAPACITOR VALUES ARE IN μF ;
AND INDUCTOR VALUES ARE IN H; UNLESS OTHERWISE NOTED.

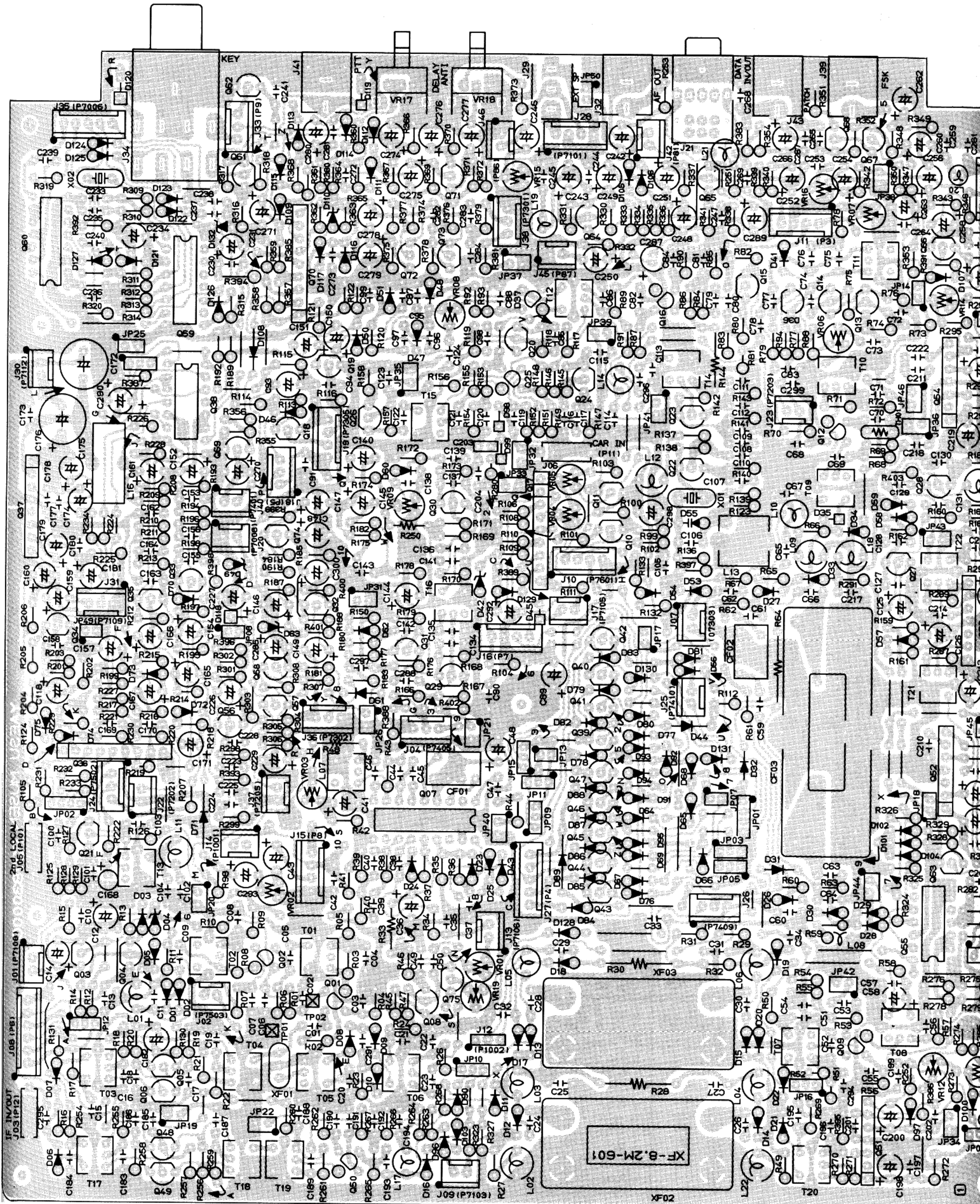
LPF UNIT PARTS LAYOUT



(Viewed from Component side)

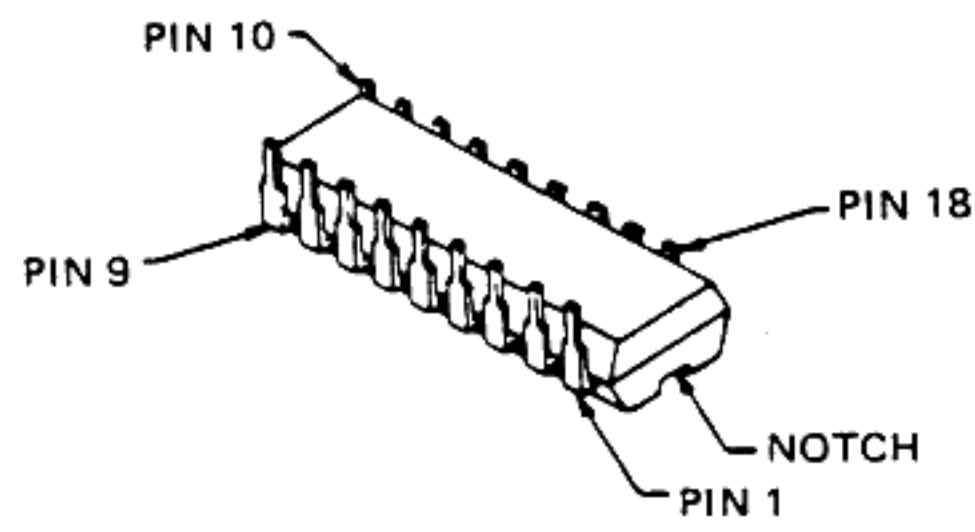
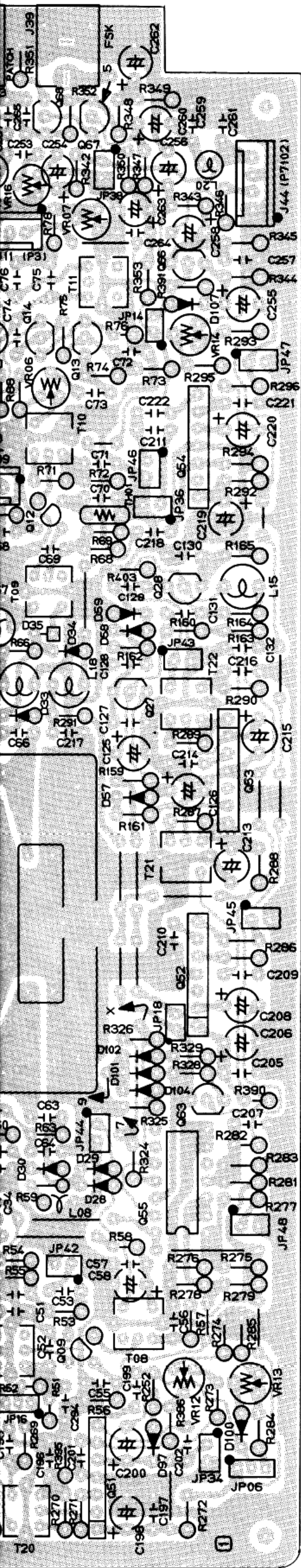


(Viewed from Solder side)

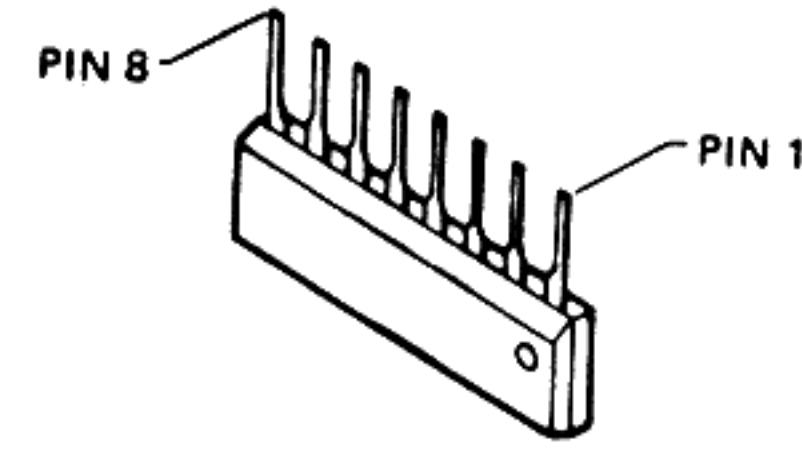


(Viewed from Component side)

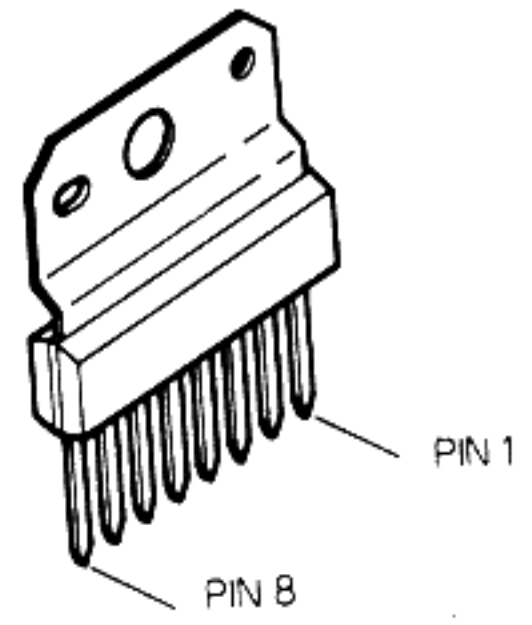
T PARTS LAYOUT



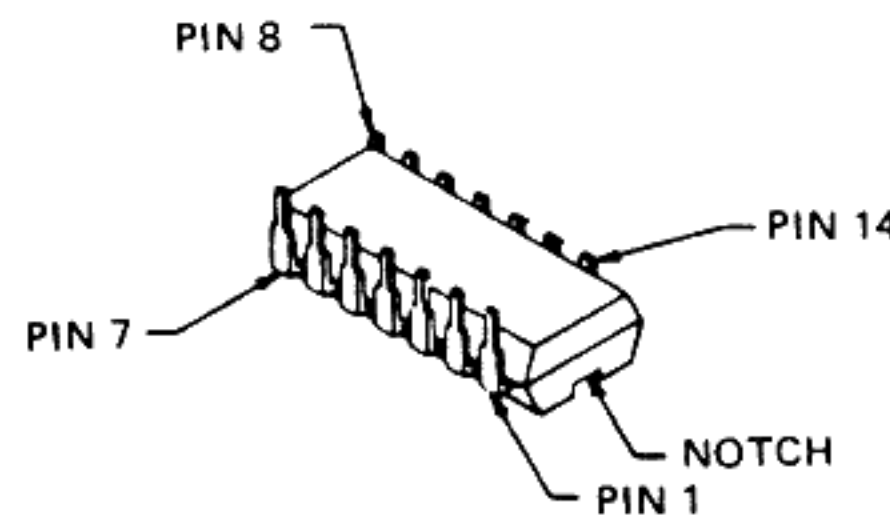
MC3359P (Q1007)



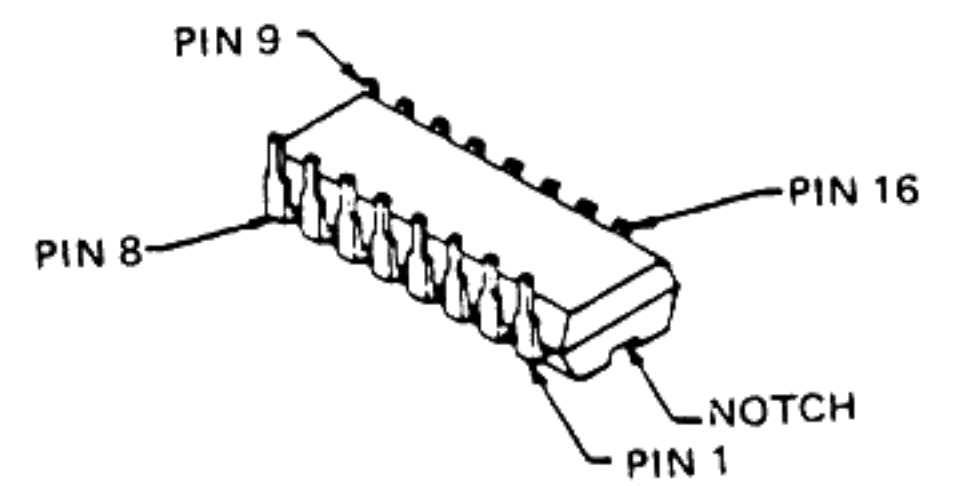
LA6458S (Q1017,1036,1070)



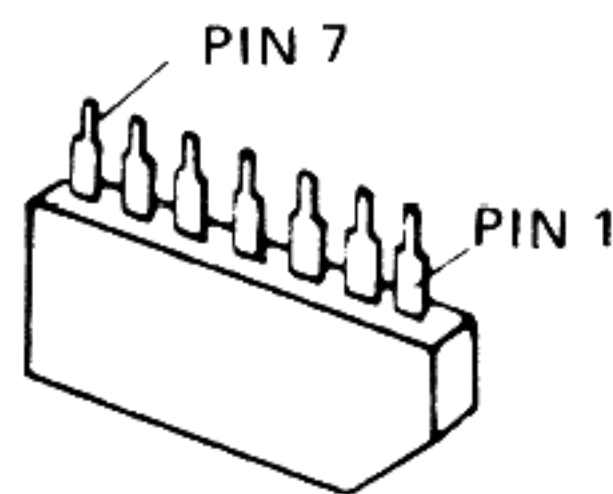
MB3713M-G (Q1037)



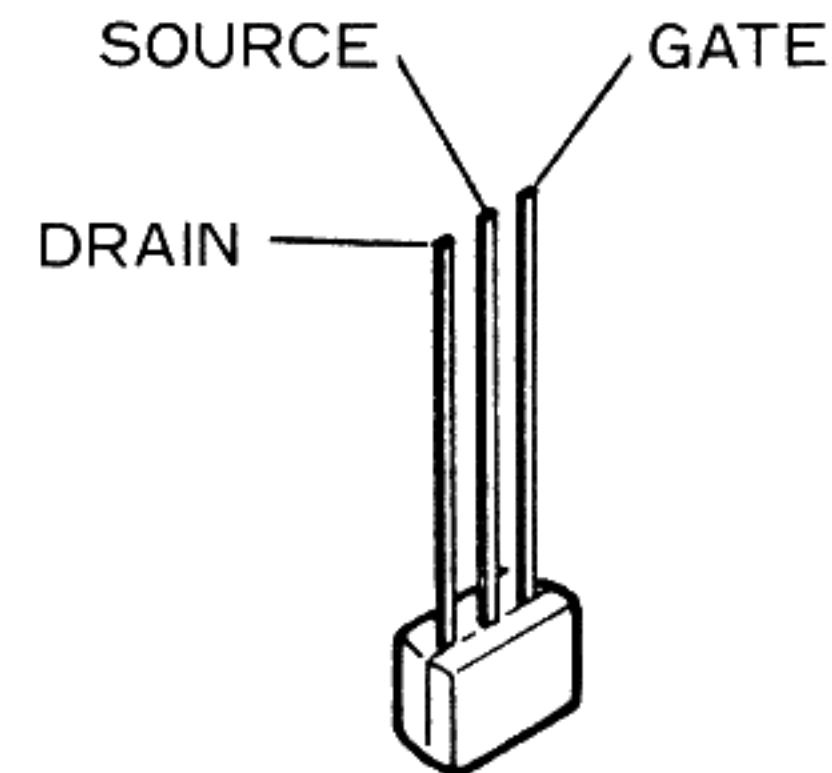
MC14066BCP (Q1038,1055)



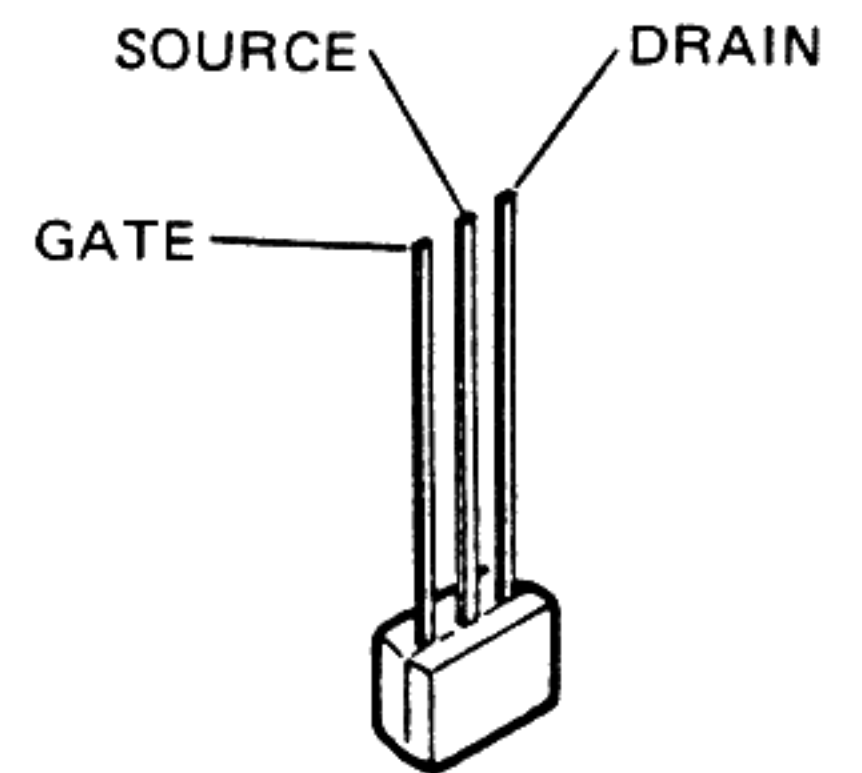
MC14049UBCP (Q1060)
TMS1751C (Q1059)



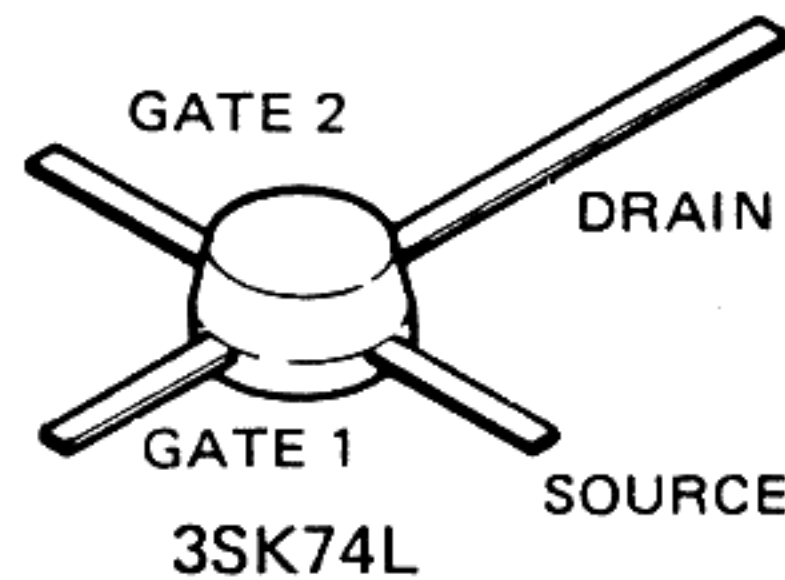
μPC1037H (Q1051,1052,1054)
TA7302P (Q1053)



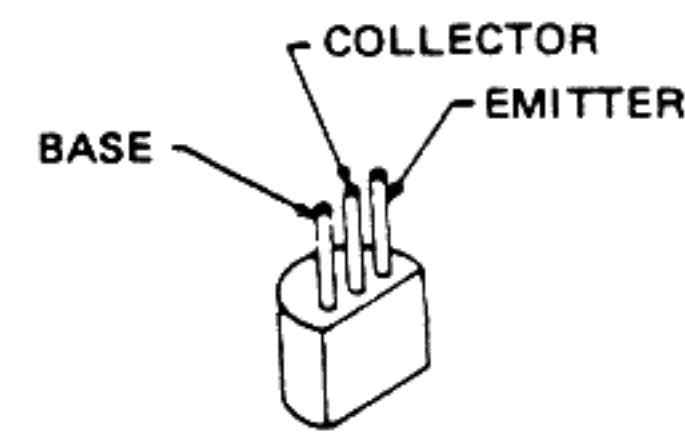
2SK104J
(Q1005,1006,1018)
1048,1049,1076
1077



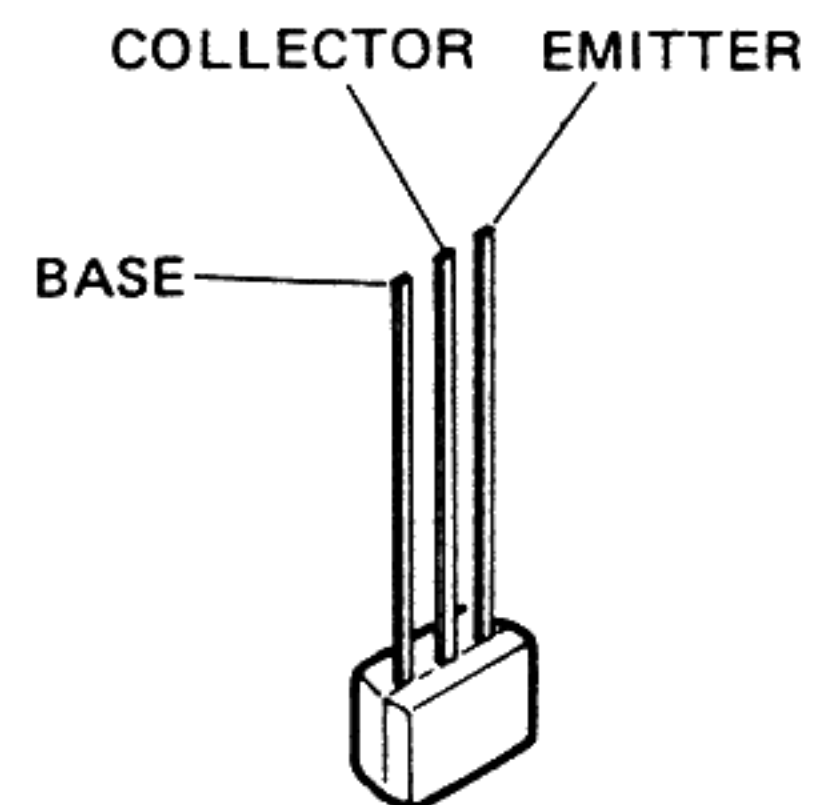
2SK192AGR (Q1011,1031)
2SK241GR (Q1008)



3SK74L
(Q1001,1002,1009)
1012,1016,1025
1050



2SA733AP (Q1010,1061,1063)
2SC458LGC (1033-1035,1074)
2SC1923, O (Q1021)
2SC945AQ
(Q1003,1004,1013-1015)
1019,1020,1022-1024
1026-1030,1056-1058
1064-1069,1071-1073

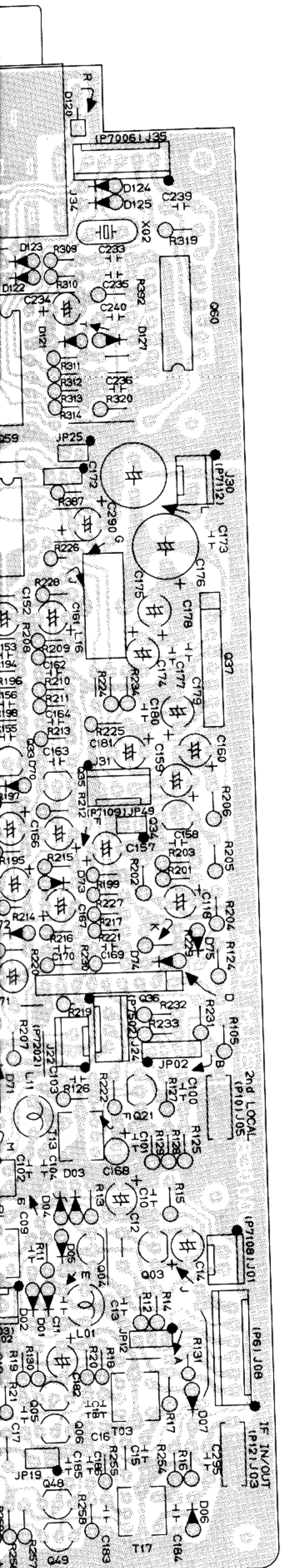


BN1A4P (Q1039-1047)
BA1A4M (Q1062,1075)

Component side)

IF UNIT VOLTAGE CHART (DC VOLTS)

| Q | E | | (S) | | C | | (D) | | B | | (G ₁) | | (G ₂) | | REMARKS |
|-------|-------|------|------|------|------|------|-----|-----|---------------------|-------|-------------------|---|-------------------|---|---------|
| | R | T | R | T | R | T | R | T | R | T | R | T | R | T | |
| | Q1001 | 0.4 | 0.4 | 7.5 | 7.5 | 0 | 0 | 4.0 | 4.0 | NB ON | | | | | |
| Q1002 | 0.4 | 0.4 | 7.5 | 7.5 | 0 | 0 | 4.0 | 4.0 | NB ON | | | | | | |
| Q1003 | -7.2 | -7.2 | 4.0 | 4.0 | -7.2 | -7.2 | | | NB ON | | | | | | |
| Q1004 | -6.8 | -6.8 | -2.2 | -2.2 | -7.2 | -7.2 | | | NB ON | | | | | | |
| Q1005 | 1.5 | 0 | 13.0 | 13.2 | 0.4 | -3.8 | | | | | | | | | |
| Q1006 | 1.5 | 0 | 13.0 | 13.2 | 0.4 | -3.8 | | | | | | | | | |
| Q1008 | 1.0 | 1.0 | 7.8 | 7.8 | 0 | 0 | | | MODE FM | | | | | | |
| Q1009 | 2.2 | 0 | 7.7 | 8.0 | 2.0 | -3.0 | 2.2 | 2.2 | | | | | | | |
| Q1010 | 4.8 | 4.8 | 0 | 0 | 4.2 | 4.2 | | | | | | | | | |
| Q1011 | 5.2 | 5.2 | 8.0 | 8.0 | 3.0 | 3.0 | | | | | | | | | |
| Q1012 | 1.7 | 1.7 | 6.7 | 6.7 | 1.8 | 1.8 | 3.0 | 3.0 | | | | | | | |
| Q1013 | 2.5 | 1.8 | 7.4 | 7.4 | 3.0 | 2.4 | | | | | | | | | |
| Q1014 | 2.5 | 1.8 | 7.4 | 7.8 | 3.0 | 0 | | | | | | | | | |
| Q1015 | 3.0 | 0 | 7.7 | -0.4 | 3.7 | -0.2 | | | | | | | | | |
| Q1016 | 1.9 | 1.9 | 7.1 | 7.1 | 1.8 | 1.8 | 3.0 | 3.0 | | | | | | | |
| Q1018 | 3.4 | 3.4 | 3.4 | 3.4 | 0 | 0 | | | | | | | | | |
| Q1019 | 0 | 0 | 3.0 | 3.0 | 0 | 0 | | | | | | | | | |
| Q1020 | 5.6 | 5.6 | 7.5 | 7.5 | 4.9 | 4.9 | | | | | | | | | |
| Q1021 | 1.5 | 1.5 | 7.7 | 7.7 | 2.3 | 2.3 | | | | | | | | | |
| Q1022 | 1.9 | 1.9 | 7.8 | 7.8 | 2.4 | 2.4 | | | | | | | | | |
| Q1023 | 0.8 | 0.8 | 7.8 | 7.8 | 1.3 | 1.3 | | | | | | | | | |
| Q1024 | 3.8 | 3.8 | 7.4 | 7.4 | 4.5 | 4.5 | | | | | | | | | |
| Q1025 | 1.0 | 1.0 | 7.6 | 7.6 | 0.7 | 0.7 | 1.4 | 1.4 | | | | | | | |
| Q1026 | 4.0 | 4.0 | 7.4 | 7.4 | 4.7 | 4.7 | | | | | | | | | |
| Q1027 | 0 | 0 | 0 | 7.1 | 0 | 0 | | | | | | | | | |
| Q1028 | 0 | 0.5 | 0 | 7.0 | 0 | 1.2 | | | | | | | | | |
| Q1029 | 0 | 0.7 | 0 | 7.8 | 0 | 1.3 | | | MODE AM | | | | | | |
| Q1030 | 0.6 | 0.6 | 5.2 | 5.2 | 1.2 | 1.2 | | | | | | | | | |
| Q1031 | 2.6 | 2.6 | 3.5 | 3.5 | 0 | 0 | | | | | | | | | |
| Q1033 | 3.8 | 3.8 | 6.1 | 6.1 | 4.5 | 4.5 | | | | | | | | | |
| Q1034 | 1.2 | 1.2 | 4.3 | 4.3 | 1.9 | 1.9 | | | | | | | | | |
| Q1035 | 4.3 | 4.3 | 7.3 | 7.3 | 4.9 | 4.9 | | | | | | | | | |
| Q1039 | 0 | 8.0 | -0.5 | 7.9 | 0 | 1.0 | | | MODE CW | | | | | | |
| Q1040 | 8.0 | -0.4 | 8.0 | -0.6 | 1.0 | -0.4 | | | MODE CW | | | | | | |
| Q1041 | 0 | 8.0 | -0.6 | 8.0 | 0 | 0.9 | | | MODE AM | | | | | | |
| Q1042 | 8.0 | -0.4 | 7.9 | -0.4 | 0.9 | -0.4 | | | MODE SSB | | | | | | |
| Q1043 | 8.0 | 8.0 | 8.0 | 8.0 | 1.6 | 1.6 | | | MODE CW | | | | | | |
| Q1044 | 8.0 | 8.0 | 8.0 | 8.0 | 1.0 | 1.0 | | | MODE AM | | | | | | |
| Q1045 | 8.0 | 8.0 | 8.0 | 8.0 | 1.0 | 1.0 | | | MODE FM | | | | | | |
| Q1046 | 8.0 | 8.0 | 8.0 | 8.0 | 0.9 | 0.9 | | | MODE FSK | | | | | | |
| Q1047 | 8.0 | 8.0 | 8.0 | 8.0 | 0.9 | 0.9 | | | | | | | | | |
| Q1048 | 13.3 | 13.0 | 0 | 1.3 | -4.6 | 0 | | | | | | | | | |
| Q1049 | 13.3 | 13.0 | 0 | 1.3 | -4.6 | 0 | | | | | | | | | |
| Q1050 | 0.9 | 0.9 | 9.4 | 9.4 | 2.0 | 2.0 | 4.0 | 4.0 | | | | | | | |
| Q1056 | 0.3 | 0.3 | 3.8 | 3.8 | 0.9 | 0.9 | | | CW SEMI KEY DWN | | | | | | |
| Q1057 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | CW SEMI KEY DWN | | | | | | |
| Q1058 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | MODE CW | | | | | | |
| Q1061 | 1.1 | 1.1 | 1.8 | 1.8 | 1.8 | 1.8 | | | CW SEMI KEY DWN | | | | | | |
| Q1062 | 0 | 0 | 0 | 0 | 1.8 | 1.8 | | | CW SEMI KEY DWN | | | | | | |
| Q1063 | 0 | 8.0 | 0 | 7.8 | 0 | 7.2 | | | PROC ON | | | | | | |
| Q1064 | 0.1 | 0.1 | 1.4 | 1.4 | 0.8 | 0.8 | | | MODE FM | | | | | | |
| Q1065 | 0.2 | 0.2 | 2.7 | 2.7 | 0.9 | 0.9 | | | MODE FM | | | | | | |
| Q1066 | 0 | 2.4 | 0 | 6.8 | 0 | 3.1 | | | | | | | | | |
| Q1067 | 0.7 | 0.7 | 3.7 | 3.7 | 1.4 | 1.4 | | | | | | | | | |
| Q1068 | 0.1 | 0.1 | 1.4 | 1.4 | 0.7 | 0.7 | | | | | | | | | |
| Q1069 | 0 | 0 | 7.4 | 0.1 | 0 | 0 | | | VOX ON | | | | | | |
| Q1071 | 0.6 | 0.6 | 3.5 | 3.5 | 1.2 | 1.2 | | | | | | | | | |
| Q1072 | 0.8 | 0.8 | 4.9 | 4.9 | 1.5 | 1.5 | | | | | | | | | |
| Q1073 | 0.1 | 0.1 | 1.5 | 1.5 | 0.7 | 0.7 | | | | | | | | | |
| Q1074 | 0 | 0.8 | 0 | 3.5 | 0 | 1.4 | | | MONI ON | | | | | | |
| Q1075 | 0 | 0 | 0 | 1.3 | 2.1 | 0 | | | TONE SOL ON (FTS-8) | | | | | | |
| Q1076 | 1.4 | 3.7 | 8.0 | 8.0 | 2.2 | 4.0 | | | | | | | | | |
| Q1077 | 1.7 | 1.7 | 7.9 | 7.9 | 0 | 0 | | | MODE FM | | | | | | |

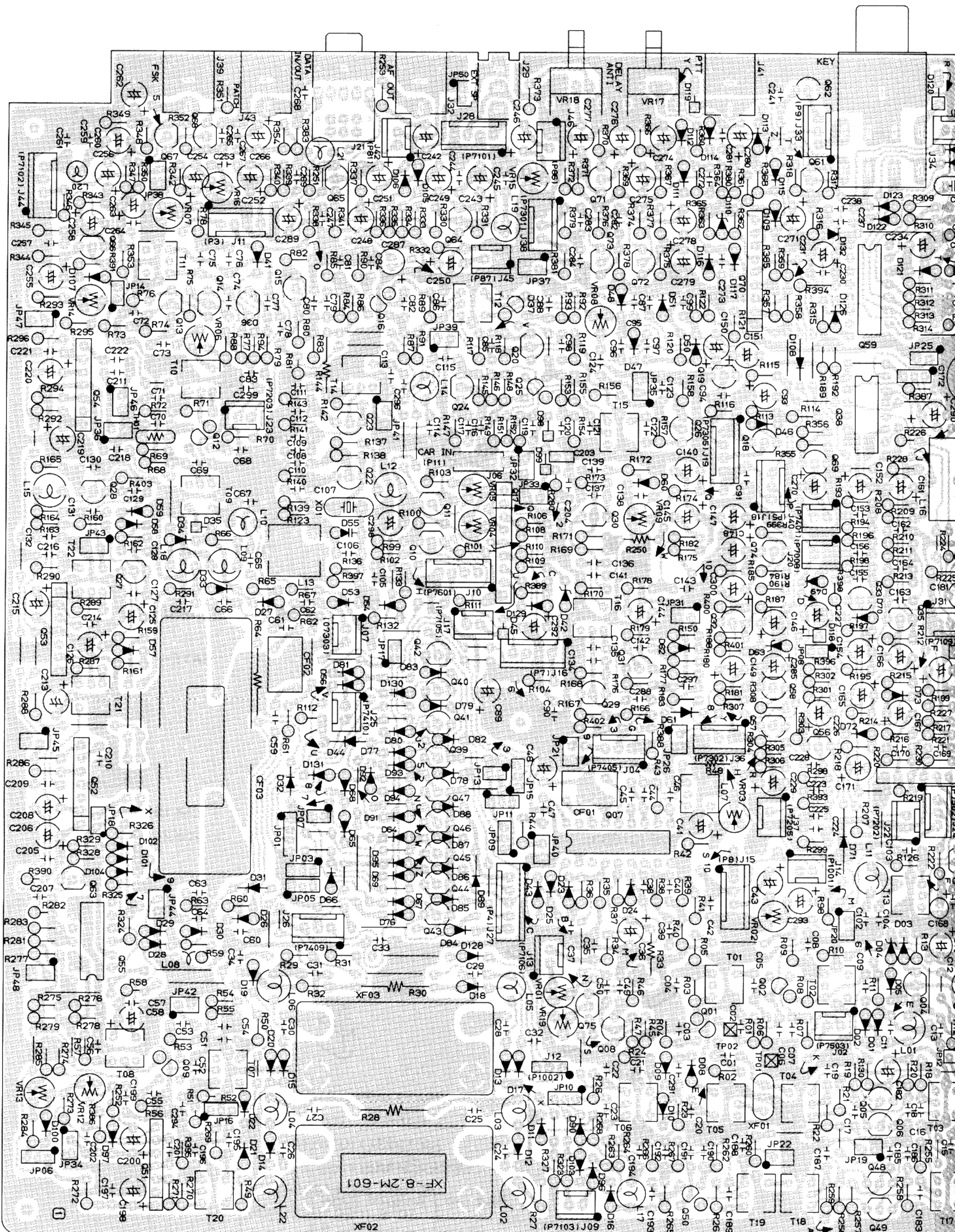


from Solder side)

IF UNIT IC VOLTAGE CHART (DC VOLTS)

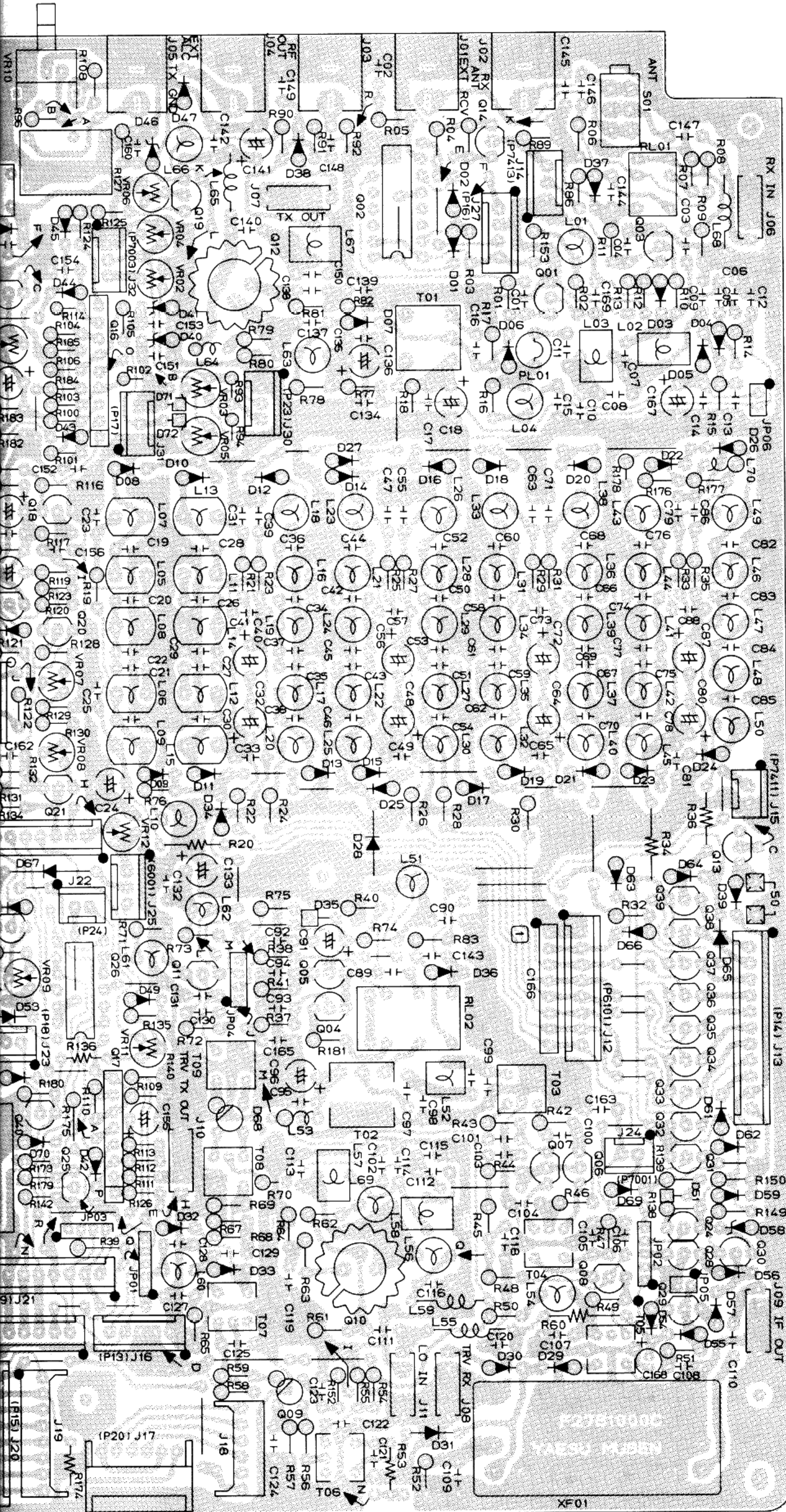
| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | REMARKS |
|---------|----|-----|------|------|------|------|-----|------|------|-----|-----|-----|-----|------|-----|----|----|-----|---------|
| Q1007 | RX | 7.4 | 0 | 7.5 | 1.0 | 1.1 | 1.1 | 7.3 | 4.5 | 3.7 | 4.7 | - | 2.5 | 2.6 | 0.7 | 0 | 0 | 2.1 | MODE FM |
| | TX | 7.3 | 0 | 7.4 | 1.0 | 1.1 | 1.1 | 7.3 | 4.1 | 3.4 | 6.6 | - | 2.4 | 2.6 | 0.7 | 0 | 0 | 2.1 | |
| Q1017 | RX | 8.0 | 6.9 | 3.5 | 3.0 | -6.0 | 3.4 | 3.7 | -6.0 | 8.0 | | | | | | | | | |
| | TX | 8.0 | 6.6 | 0 | 1.2 | -7.3 | 0 | 0 | 0 | 8.0 | | | | | | | | | |
| Q1036 | RX | 8.0 | 6.6 | 0 | 1.2 | -7.3 | 0 | 0 | 0 | 8.0 | | | | | | | | | |
| Q1037 | RX | 8.0 | -6.0 | 0 | -3.5 | -7.3 | 0 | 0 | 0 | 8.0 | | | | | | | | | |
| Q1038 | RX | 6.8 | 13.2 | 12.5 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | | | | |
| | TX | 0 | 0 | 0 | 0 | 5.6 | 6.6 | -0.7 | 0 | 0 | 0 | 0 | 0 | -0.2 | 8.0 | | | | |
| Q1051 | RX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | TX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Q1052 | RX | 6.3 | 5.6 | 4.9 | 0 | 2.8 | 2.8 | 2.8 | | | | | | | | | | | PROC ON |
| | TX | 6.3 | 5.6 | 5.1 | 0 | 2.8 | 2.8 | 2.8 | | | | | | | | | | | |
| Q1053 | RX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | |
| | TX | 2.6 | 2.6 | 3.7 | 0 | 5.6 | 6.5 | 6.5 | | | | | | | | | | | PROC ON |
| Q1054 | RX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | |
| | TX | 6.2 | 5.4 | 4.7 | 0 | 2.8 | 2.8 | 2.8 | | | | | | | | | | | |
| Q1055 | RX | 2.0 | 2.0 | 2.0 | 2.0 | 6.4 | 0 | 0 | 0.5 | 0.4 | 0 | 6.4 | | | | | | | |

IF UNIT PARTS LAYOUT

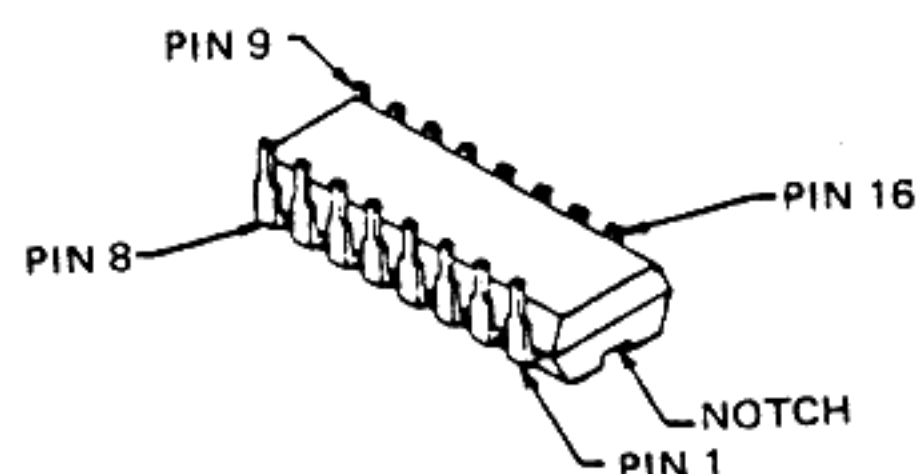


(Viewed from Solder side)

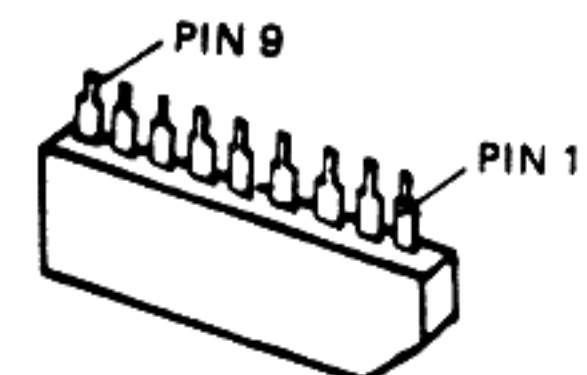
LAYOUT



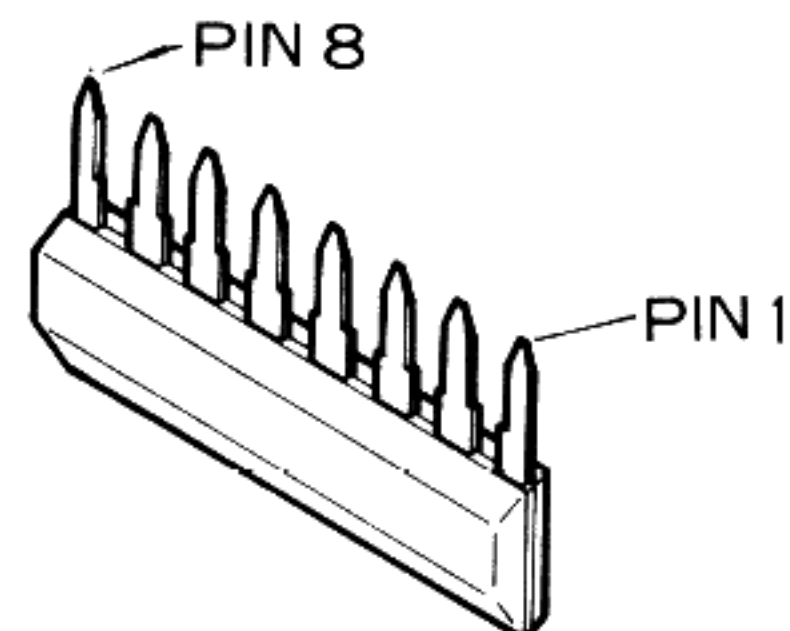
(Viewed from Solder side)



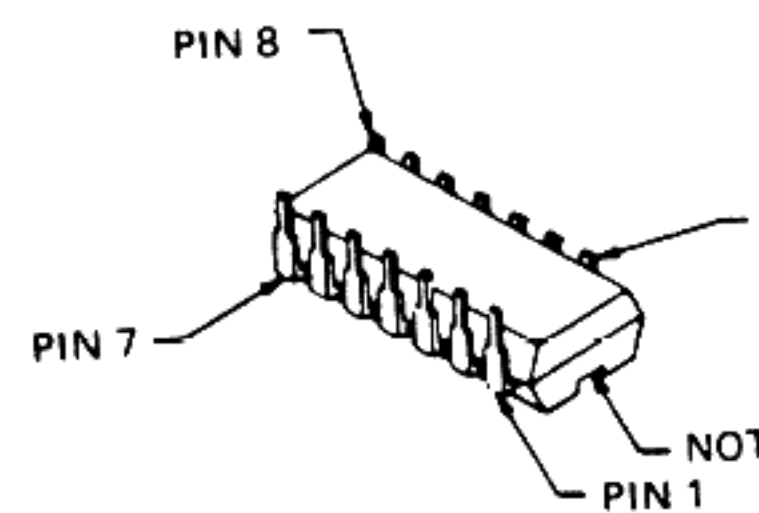
MC14518BCP (Q2002)



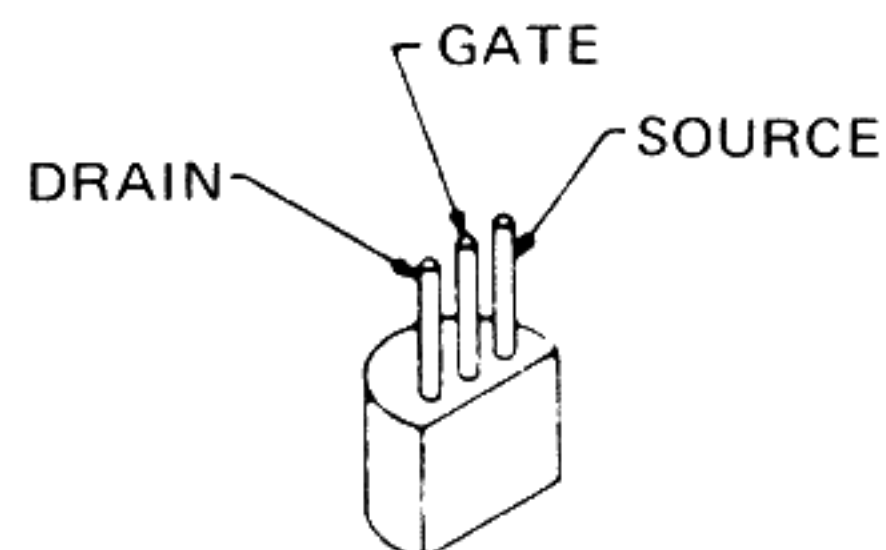
LA6458S (Q2016)



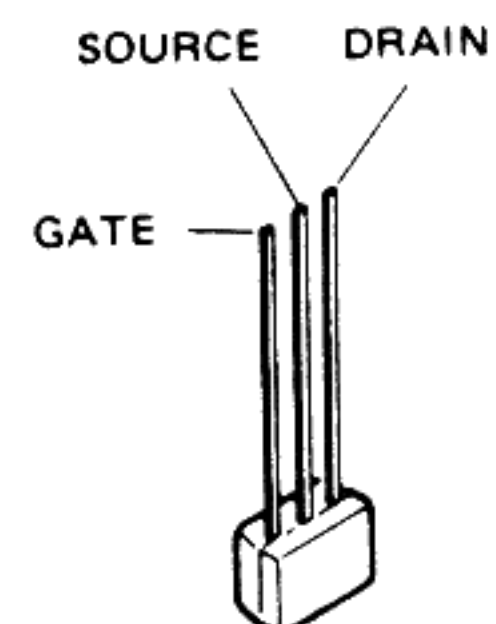
M5218 (Q2017)



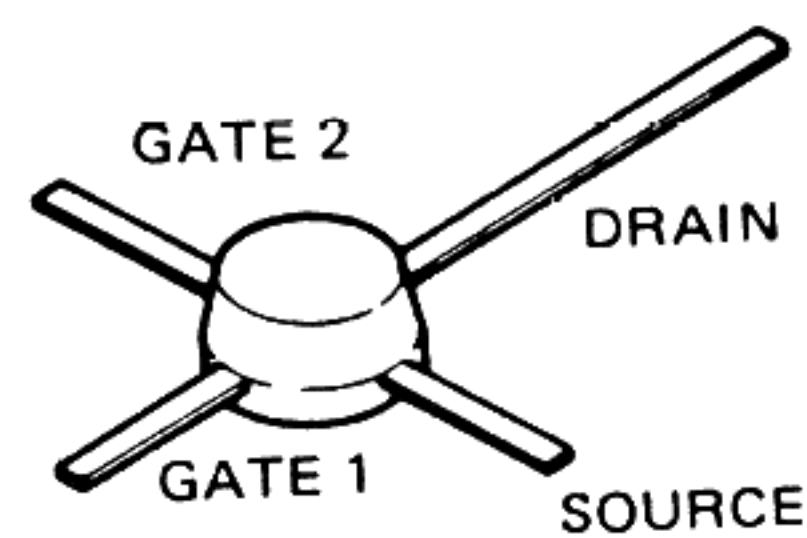
MC14066BCP (Q2026)



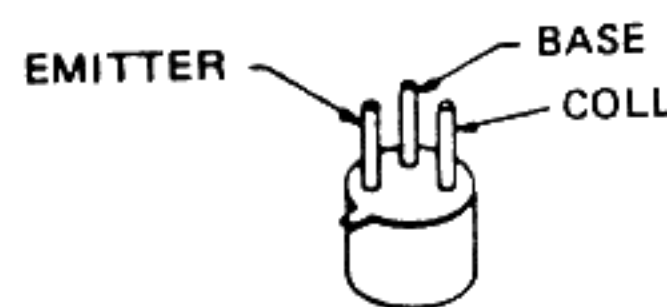
2SK125 (Q2004-2008,2011)
2SK104J (Q2020,2025)



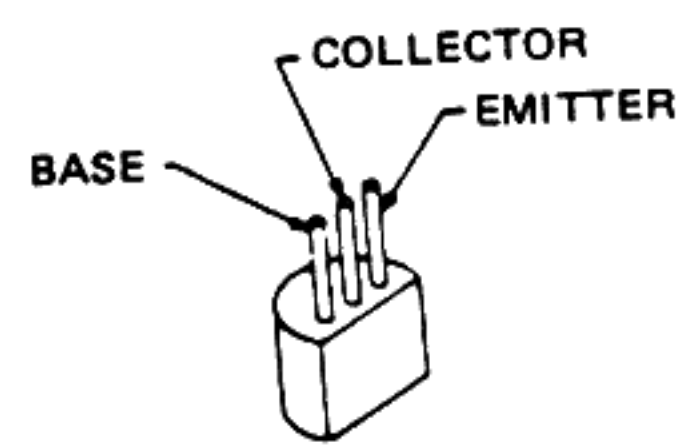
2SK192A-GR (Q2019)



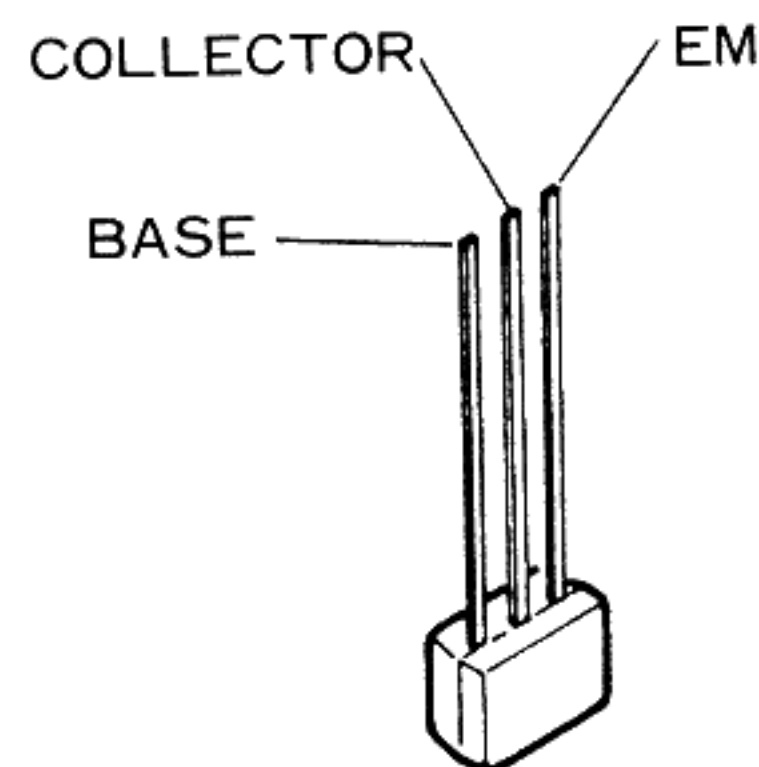
3SK74L (Q2009)



2N4427 (Q2010,2020)



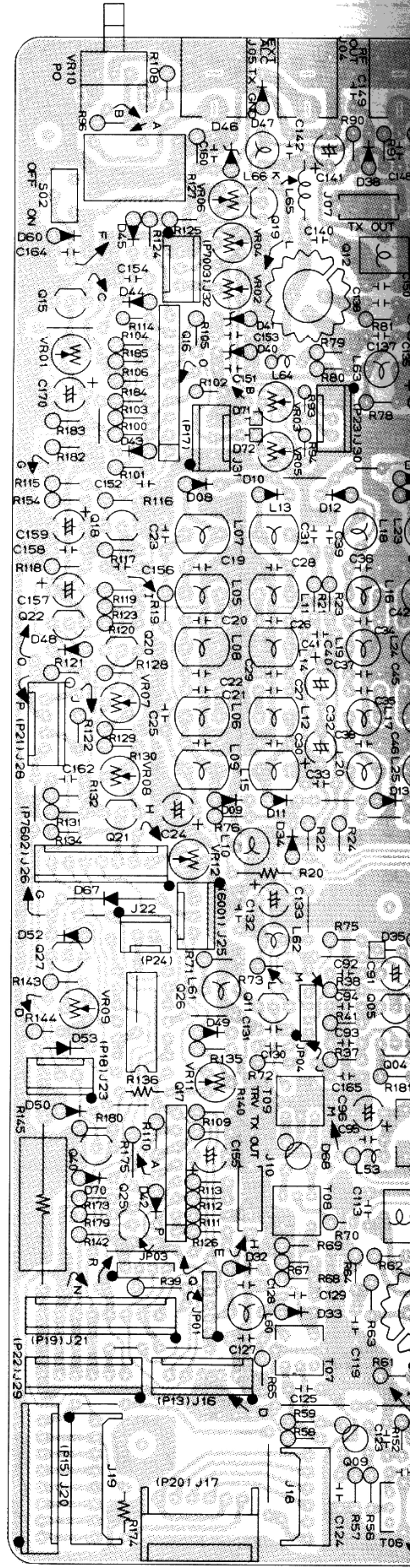
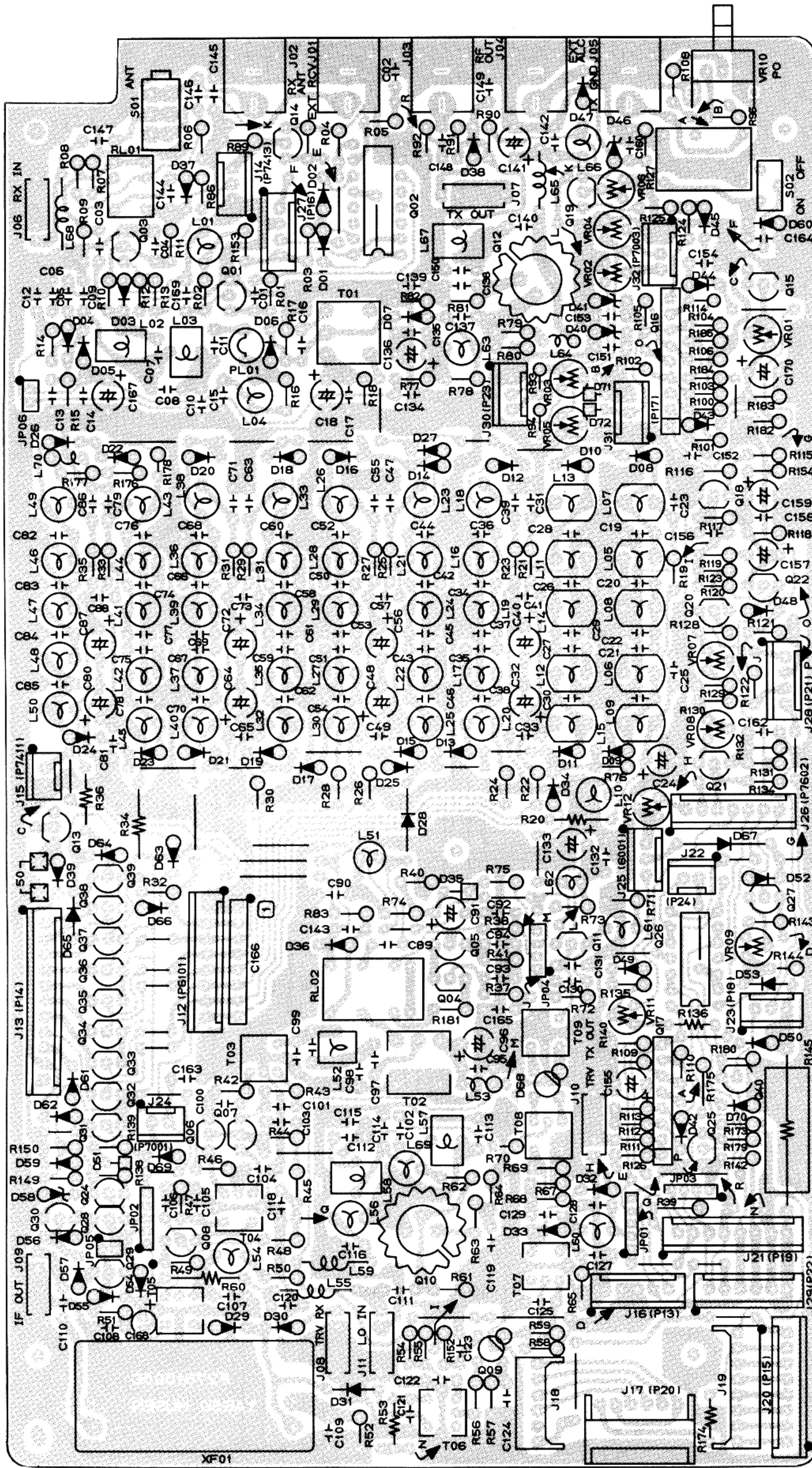
2SA733AP
(Q2021,2024,2027)



BA1A4M (Q2014,2014)
BN1A4P
(Q2013,2028,2029,
2031-2039)

2SC945AQ
(Q2001,2003,2018)
2030,2040

RF UNIT PARTS LAYOUT



(Viewed from Component side)

RF UNIT VOLTAGE CHART

(DC VOLTS)

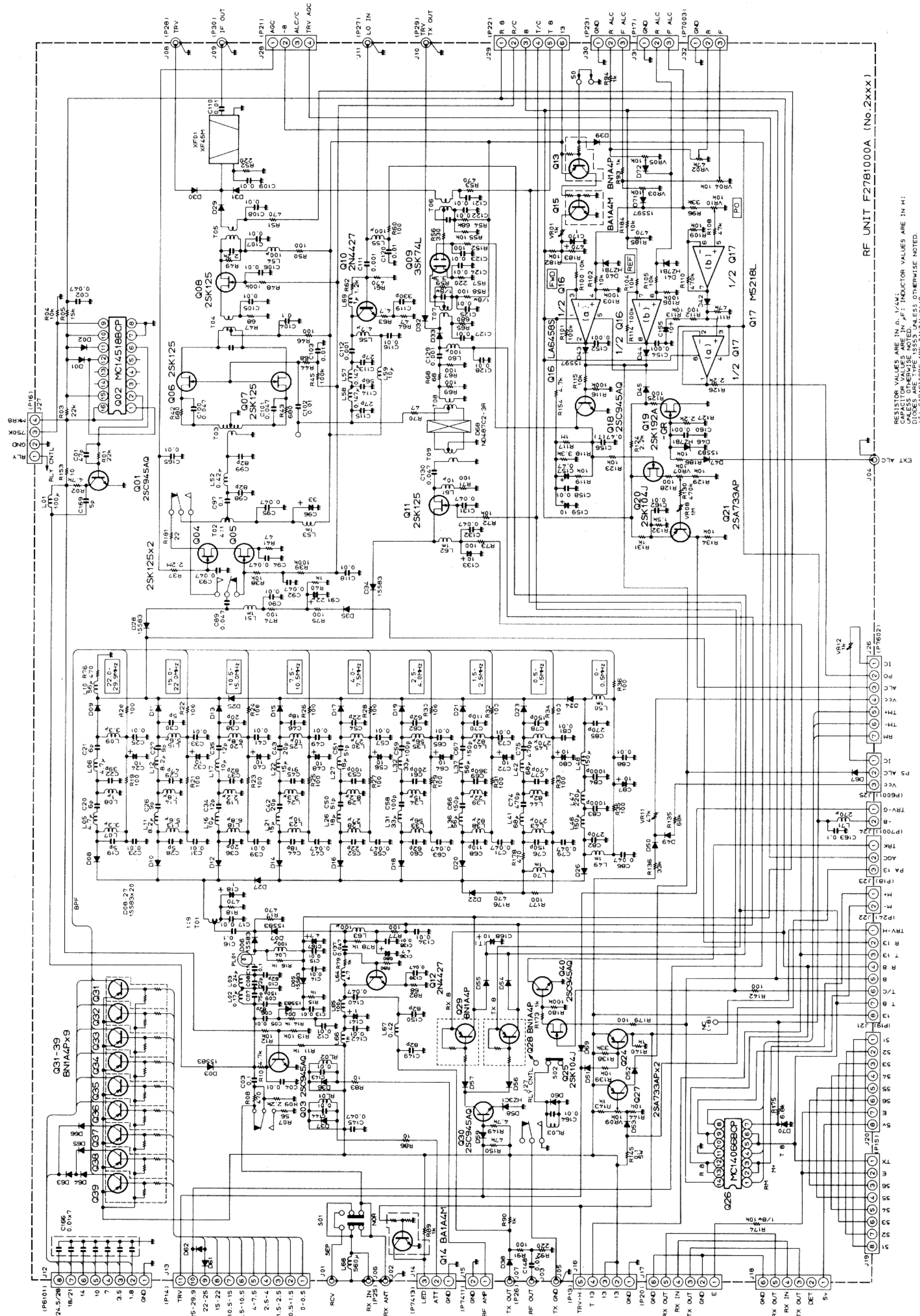
| | E | | (S) | | C | | (D) | | B | | (G ₁) | | (G ₂) | | REMARKS |
|-------|------|------|------|------|------|------|-----|-----|---|---|-------------------|---|-------------------|---|--------------|
| | R | T | R | T | R | T | R | T | R | T | R | T | R | T | |
| Q2001 | 0 | 0 | 5.9 | 8.0 | 0.25 | 0 | | | | | | | | | MARKER ON |
| Q2003 | 0 | 0 | 0 | 0 | 0.74 | 0.7 | | | | | | | | | MARKER ON |
| Q2004 | 4.0 | 6.5 | 12.3 | 13.3 | 2.5 | 2.5 | | | | | | | | | RF AMP ON |
| Q2005 | 1.4 | 0 | 4.0 | 6.5 | 0.5 | -4.5 | | | | | | | | | RF AMP ON |
| Q2006 | 3.8 | 0.2 | 12.3 | 13.3 | 0.5 | -4.5 | | | | | | | | | |
| Q2007 | 3.8 | 0.2 | 12.3 | 13.3 | 0.5 | -4.5 | | | | | | | | | |
| Q2008 | 1.5 | 0 | 11.0 | 13.3 | 0.5 | -4.5 | | | | | | | | | |
| Q2009 | 1.0 | 1.0 | 6.6 | 6.6 | 1.0 | 1.0 | 3.0 | 3.0 | | | | | | | |
| Q2010 | 2.7 | 2.7 | 13.3 | 13.3 | 3.4 | 3.4 | | | | | | | | | |
| Q2011 | 0 | 1.7 | 0 | 10.1 | -4.7 | 0 | | | | | | | | | |
| Q2012 | 4.2 | 4.2 | 12.7 | 12.7 | 4.9 | 4.9 | | | | | | | | | |
| Q2013 | 12.0 | 12.0 | 11.8 | 11.8 | 0.5 | 0.5 | | | | | | | | | 28MHz GX |
| Q2014 | 0 | 0 | 0 | 0 | 13.2 | 13.2 | | | | | | | | | TRV ATT ON |
| Q2015 | 0 | 0 | 0.1 | 0.1 | 12.0 | 12.0 | | | | | | | | | 28MHz GX |
| Q2018 | 0 | 0 | 3.0 | 3.0 | 0 | 0 | | | | | | | | | |
| Q2019 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | | | | | | | | | |
| Q2020 | 5.2 | 5.2 | 8.0 | 8.0 | 3.0 | 3.0 | | | | | | | | | |
| Q2021 | 4.8 | 4.8 | 0 | 0 | 4.2 | 4.2 | | | | | | | | | |
| Q2024 | 13.3 | 13.3 | 13.2 | 13.2 | 12.5 | 12.5 | | | | | | | | | TRV |
| Q2025 | 0 | 1.4 | 8.0 | 7.9 | -4.8 | 0 | | | | | | | | | TRV |
| Q2027 | 13.3 | 13.3 | 0 | 0 | 13.0 | 13.0 | | | | | | | | | |
| Q2028 | 0 | 13.0 | 0 | 12.0 | 0 | 3.8 | | | | | | | | | |
| Q2029 | 13.0 | 0.4 | 12.8 | 0.5 | 3.8 | 0.4 | | | | | | | | | |
| Q2030 | 3.0 | 3.0 | 3.0 | 3.0 | 3.8 | 3.8 | | | | | | | | | |
| Q2031 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 0~500kHz |
| Q2032 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 0.5~1.5MHz |
| Q2033 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 1.5~2.5MHz |
| Q2034 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 2.5~4.0MHz |
| Q2035 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 4.0~7.5MHz |
| Q2036 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 7.5~10.5MHz |
| Q2037 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 10.5~15.0MHz |
| Q2038 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 15.0~22.0MHz |
| Q2039 | 13.3 | 13.3 | 12.7 | 12.7 | 0 | 0 | | | | | | | | | 22.0~30.0MHz |
| Q2040 | 0 | 0 | 0 | 0 | 0 | 0.7 | | | | | | | | | TRV |

RF UNIT IC VOLTAGE CHART

(DC VOLTS)

| PIN No. | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | REMARKS |
|---------|----|-----|------|---|------|------|-----|------|------|-----|------|-----|------|------|-----|-----|-----|-----------|
| Q2002 | RX | 3.0 | 8.0 | — | — | — | 1.6 | 0 | 0 | 4.0 | 8.0 | 4.1 | 3.0 | — | — | 1.2 | 8.0 | MARKER ON |
| | TX | 0 | 8.0 | — | — | — | 0 | 0 | 0 | 4.0 | -0.4 | 8.0 | 0 | — | — | 0.8 | 8.0 | |
| Q2016 | | 8.0 | -3.4 | 0 | 0 | -7.2 | 0 | 0 | -3.4 | 8.0 | | | | | | | | |
| Q2017 | | 0 | 0 | 0 | -7.2 | 0 | 0 | 0 | 8.0 | | | | | | | | | |
| Q2026 | RX | 0 | 0 | 0 | 0 | 0 | 0 | -0.7 | 0 | 0 | 0 | 0 | 8.0 | 8.0 | 8.0 | | | METER ALC |
| | TX | 0 | 0 | 0 | 0 | 8.0 | 8.0 | -0.7 | 0 | 0 | 0 | 0 | -0.4 | -0.4 | 8.0 | | | |

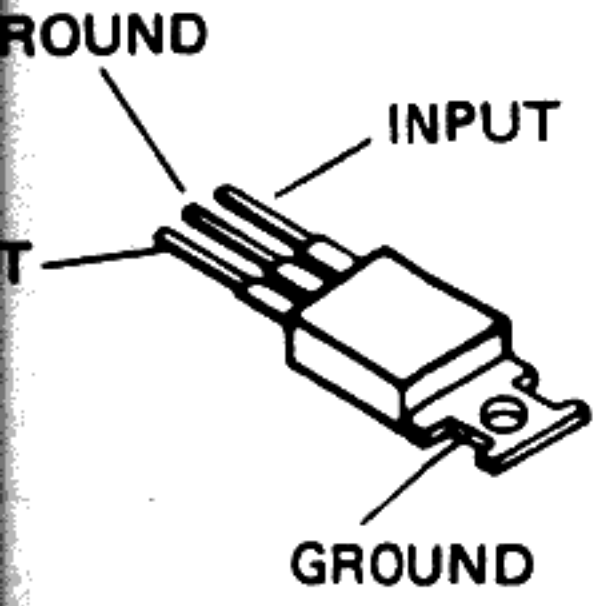
RF UNIT CIRCUIT DIAGRAM



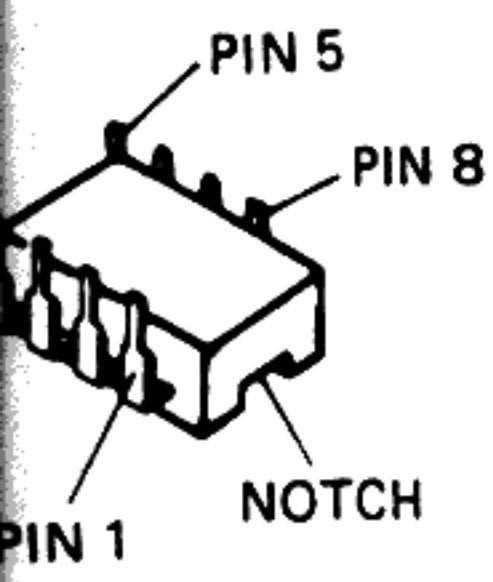
RF UNIT F2781000A (No.2xxx1)

RESISTOR VALUES ARE IN Ω, 1/4W;
CAPACITOR VALUES ARE IN µF; INDUCTOR VALUES ARE IN H;
UNLESS OTHERWISE NOTED.
RESISTOR VALUES ARE IN Ω, 1/4W;
CAPACITOR VALUES ARE IN µF;
INDUCTOR VALUES ARE IN H;
UNLESS OTHERWISE NOTED.

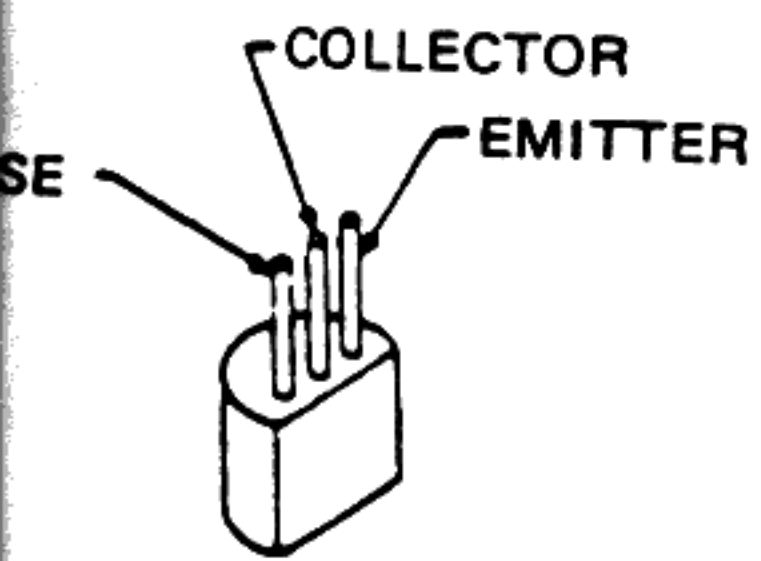
100W PA UNIT CIRCUIT DIAGRAM



7808H (Q9009)

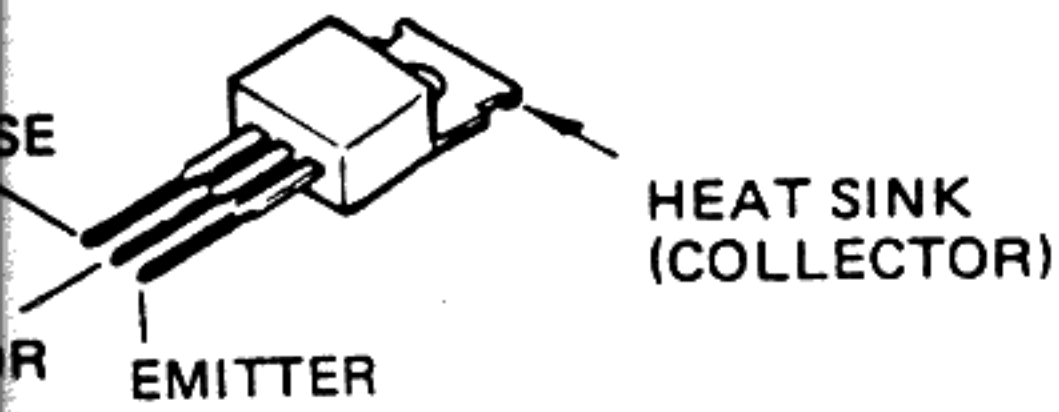


05CPB (Q9010)

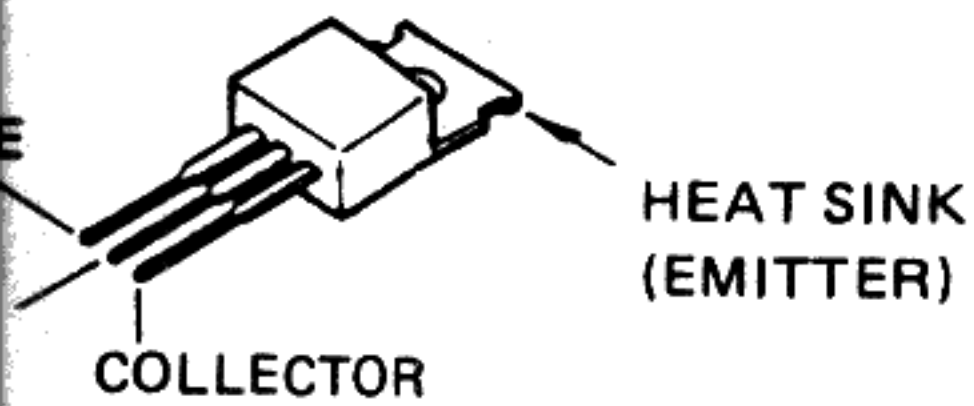


2SA952L (Q9012)

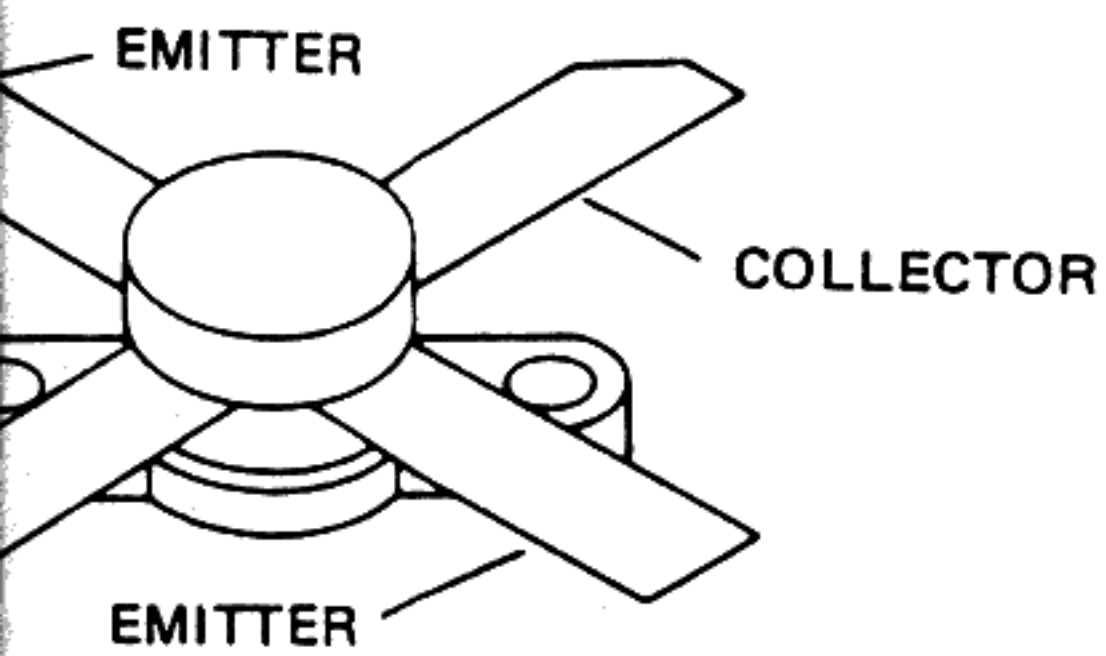
2SC458B (Q9007,9008)



2SA1012Y (Q9006)

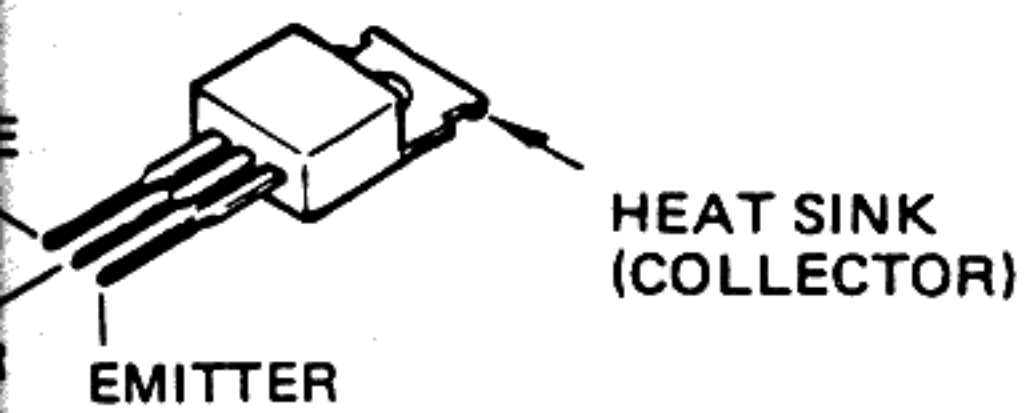


2SC1971 (Q9001)

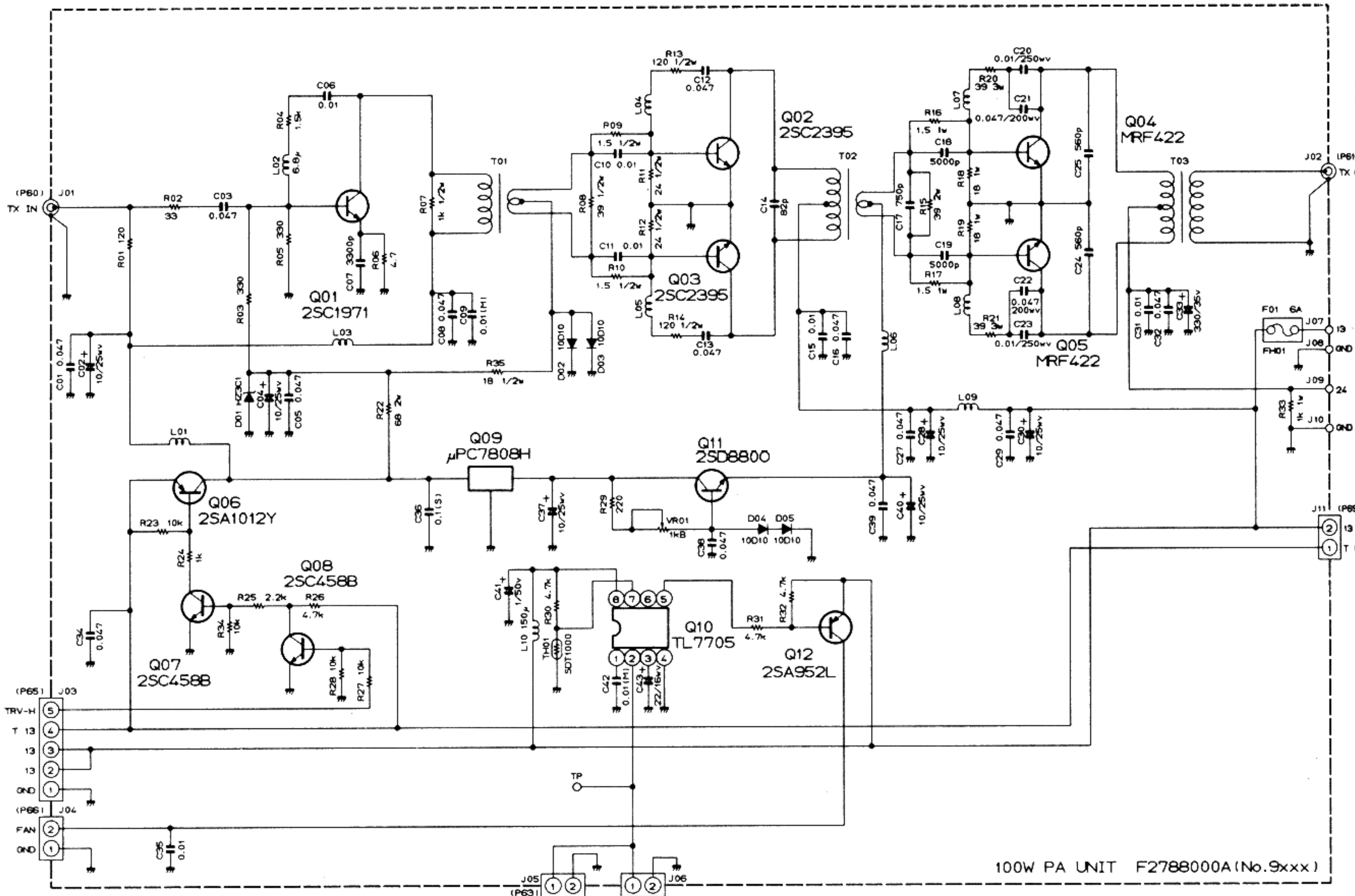


2SC2395 (Q9002,9003)

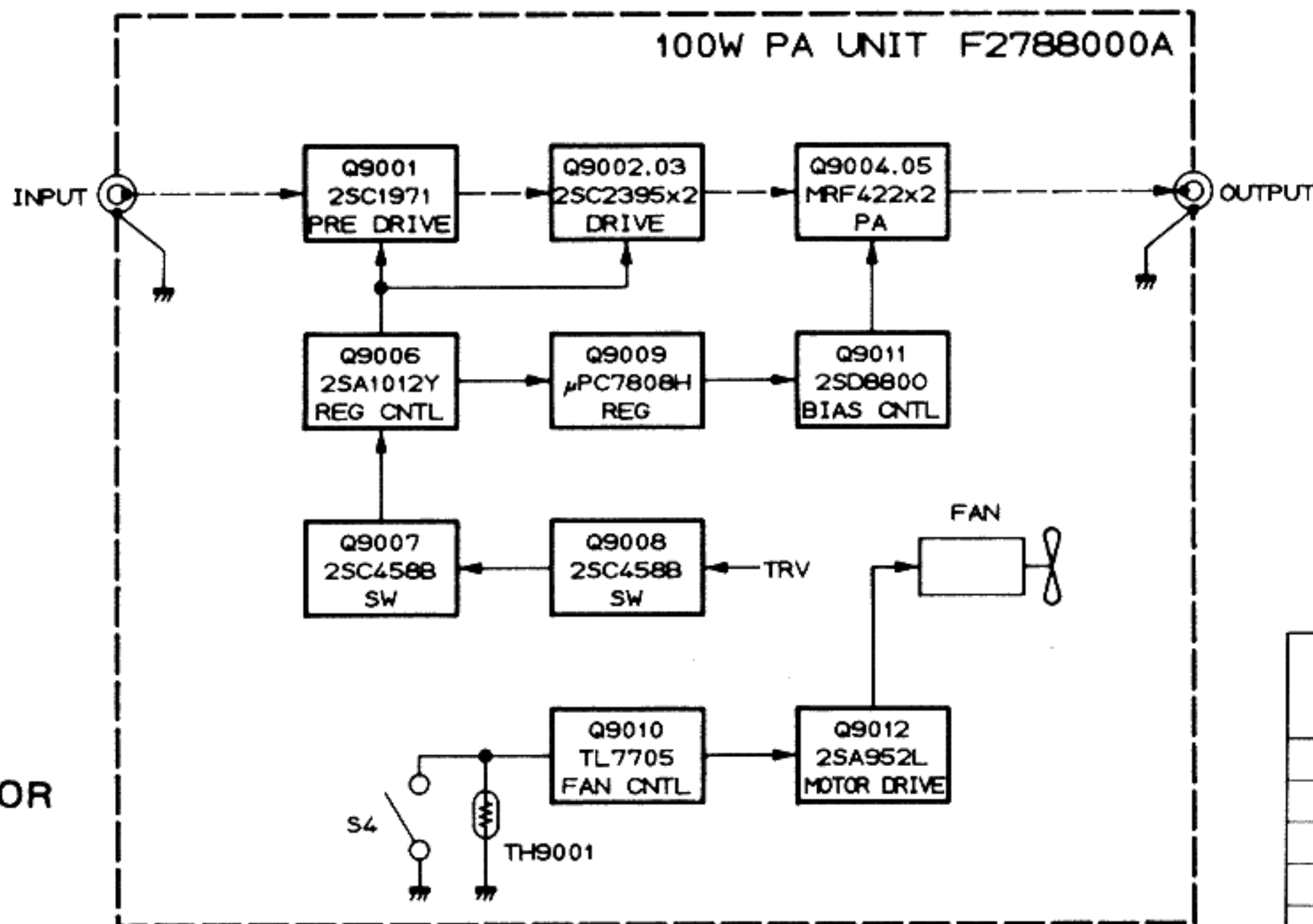
MRF422 (Q9004,9005)



2SD880O (Q9011)



RESISTOR VALUES ARE IN Ω , 1/4W; CAPACITOR VALUES ARE IN μ F;
AND INDUCTOR VALUES ARE IN H; UNLESS OTHERWISE NOTED.
(M) CAPACITORS ARE POLYESTER FILM, 50V.
(S) CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.



--- TRANSMIT
— CONTROL

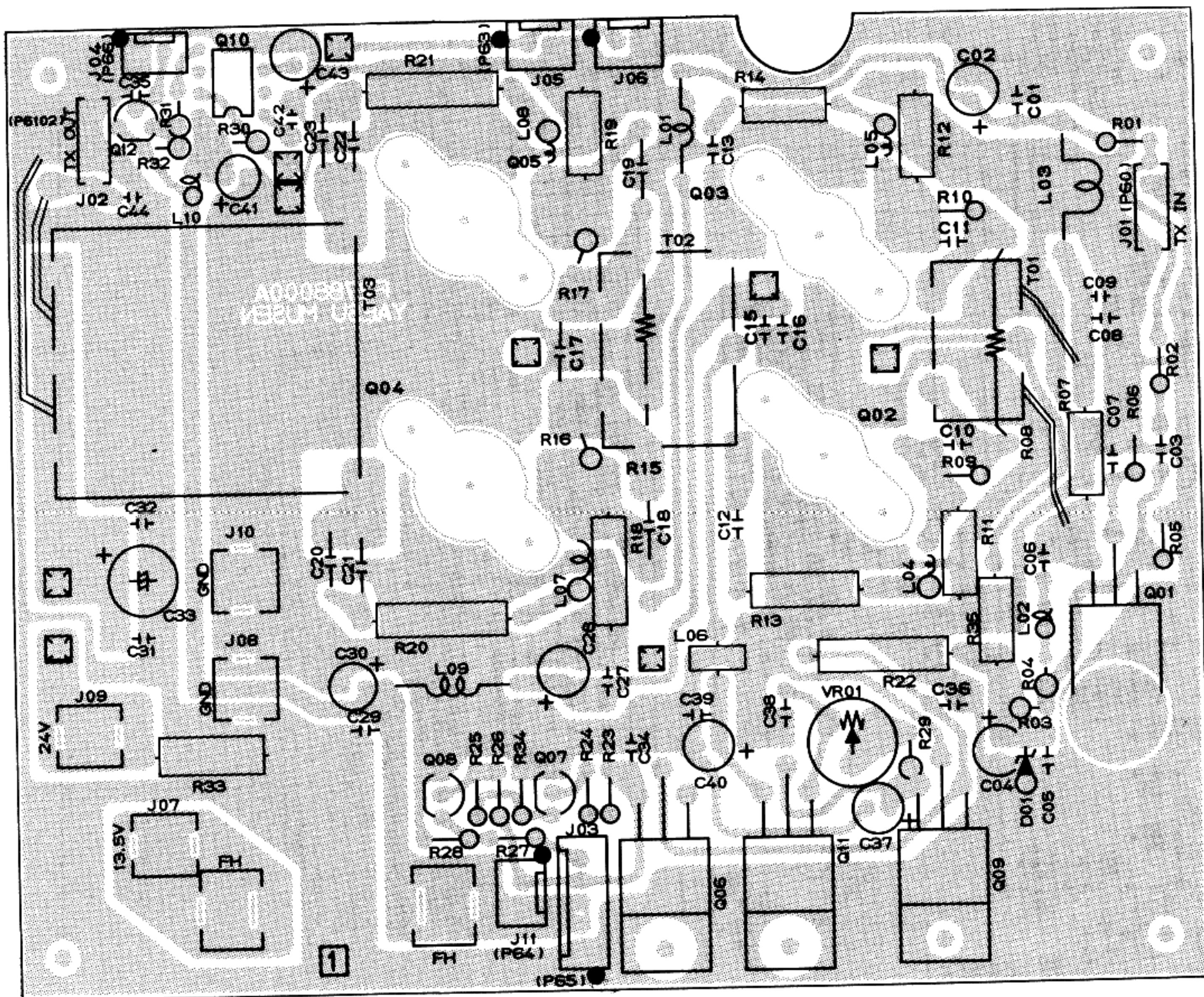
100W PA UNIT VOLTAGE CHART (DC VOLTS)

| | E (S) | | C (D) | | B (G.) | | REMARKS |
|-------|---------|------|-------|------|--------|------|----------|
| | R | T | R | T | R | T | |
| Q9001 | 0 | 0.5 | 0 | 13.0 | 0 | 1.3 | |
| Q9002 | 0 | 0 | 13.3 | 13.3 | 0 | 0.7 | |
| Q9003 | 0 | 0 | 13.3 | 13.3 | 0 | 0.7 | |
| Q9004 | 0 | 0 | 23.5 | 23.5 | 0 | 0.7 | |
| Q9005 | 0 | 0 | 23.5 | 23.5 | 0 | 0.7 | |
| Q9006 | 0 | 13.3 | 0 | 13.0 | 0 | 12.2 | |
| Q9007 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | |
| Q9008 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | TRV |
| Q9009 | IN 13.0 | 13.0 | GND 0 | 0 | OUT 0 | 8.0 | |
| Q9011 | 0 | 0.8 | 0 | 8.0 | 0 | 1.4 | |
| Q9012 | 13.3 | 13.3 | 5.2 | 5.2 | 13.0 | 13.0 | FAN SLOW |

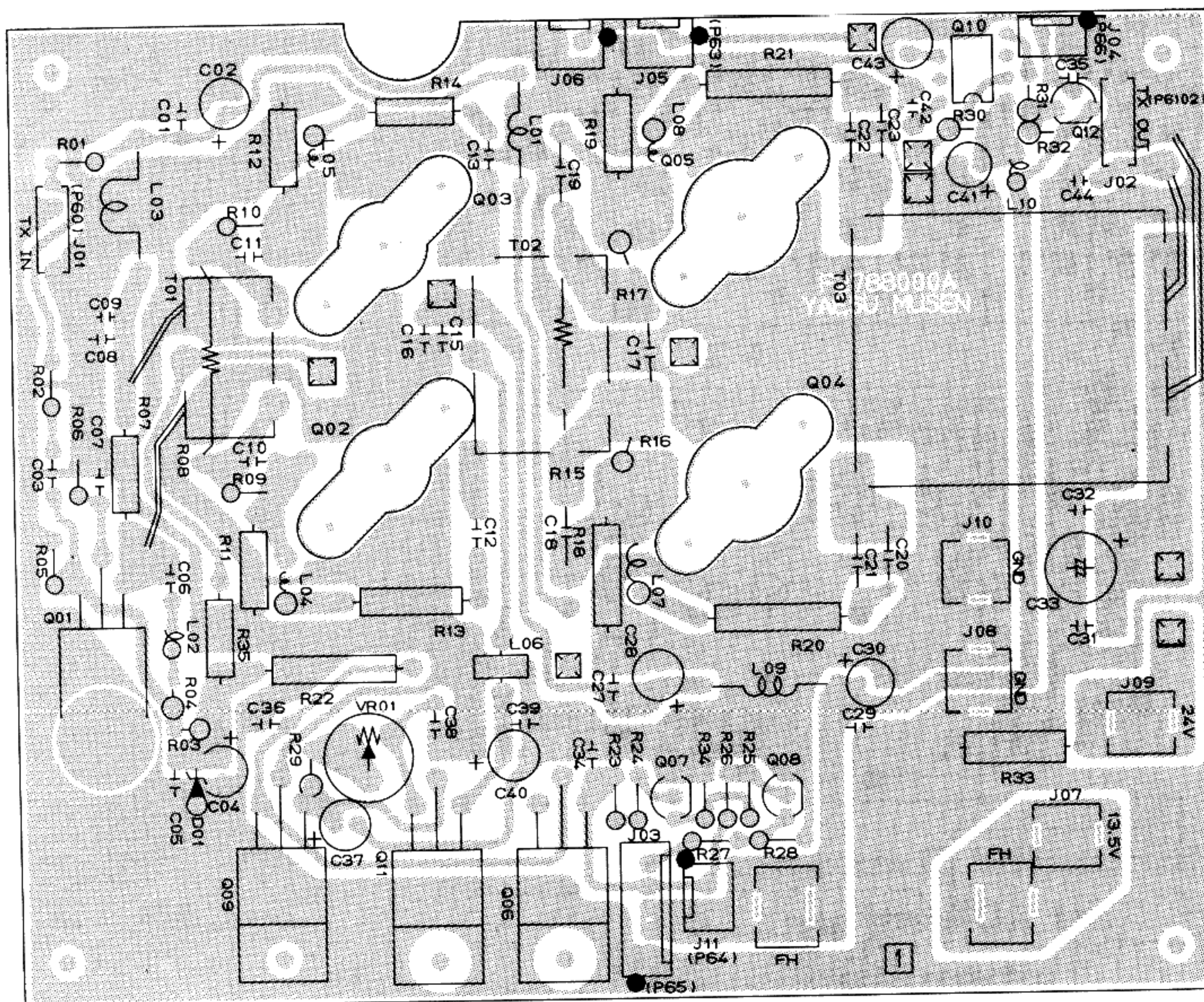
100W PA UNIT IC VOLTAGE CHART (DC VOLTS)

| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------|---|---|---|---|---|---|---|------|
| Q9010 | — | — | — | 0 | — | — | — | 13.0 |

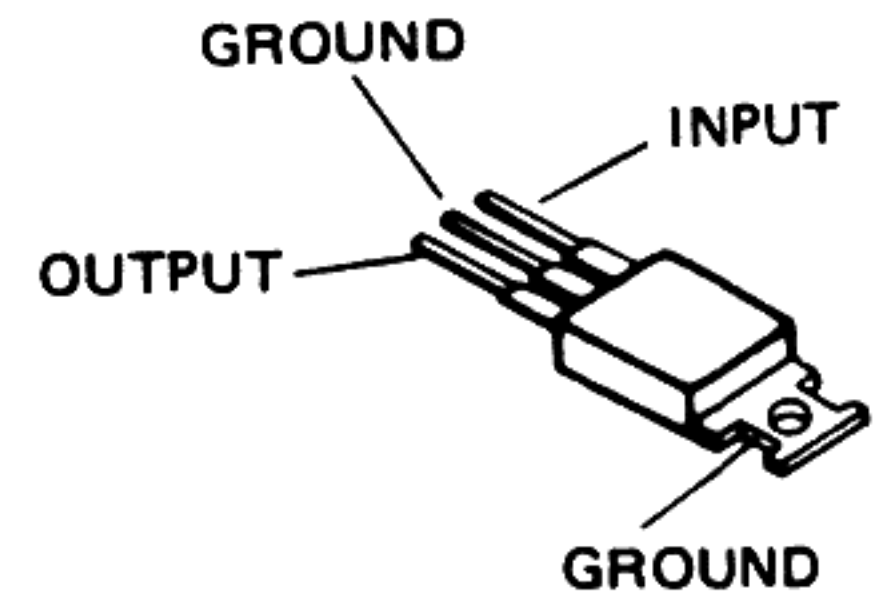
100W PA UNIT PARTS LAYOUT



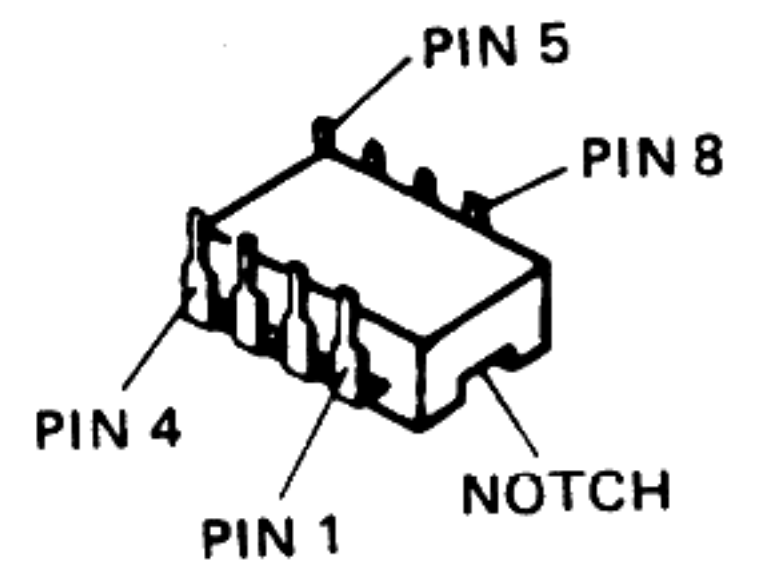
(Viewed from Component side)



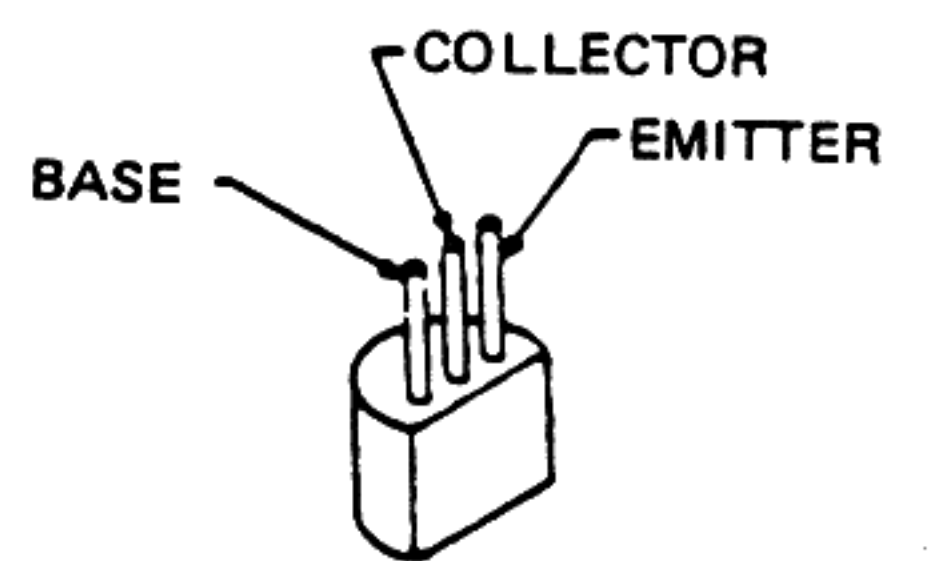
(Viewed from Solder side)



μ PC7808H (Q9009)

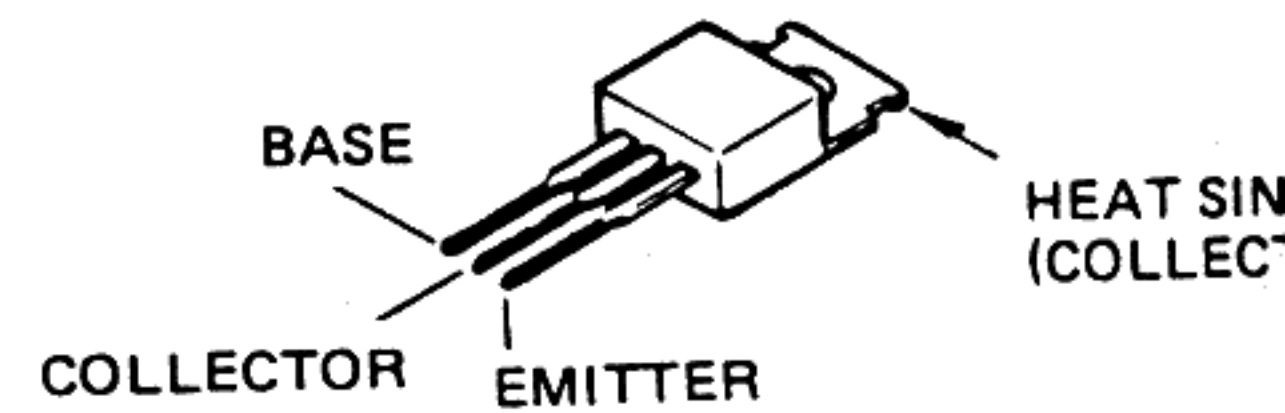


TL7705CPB (Q9010)

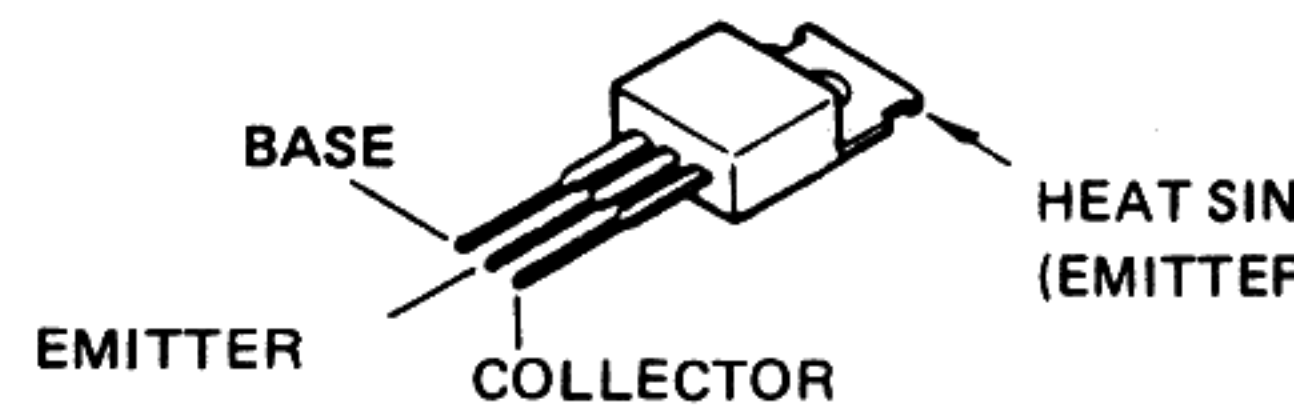


2SA952L (Q9012)

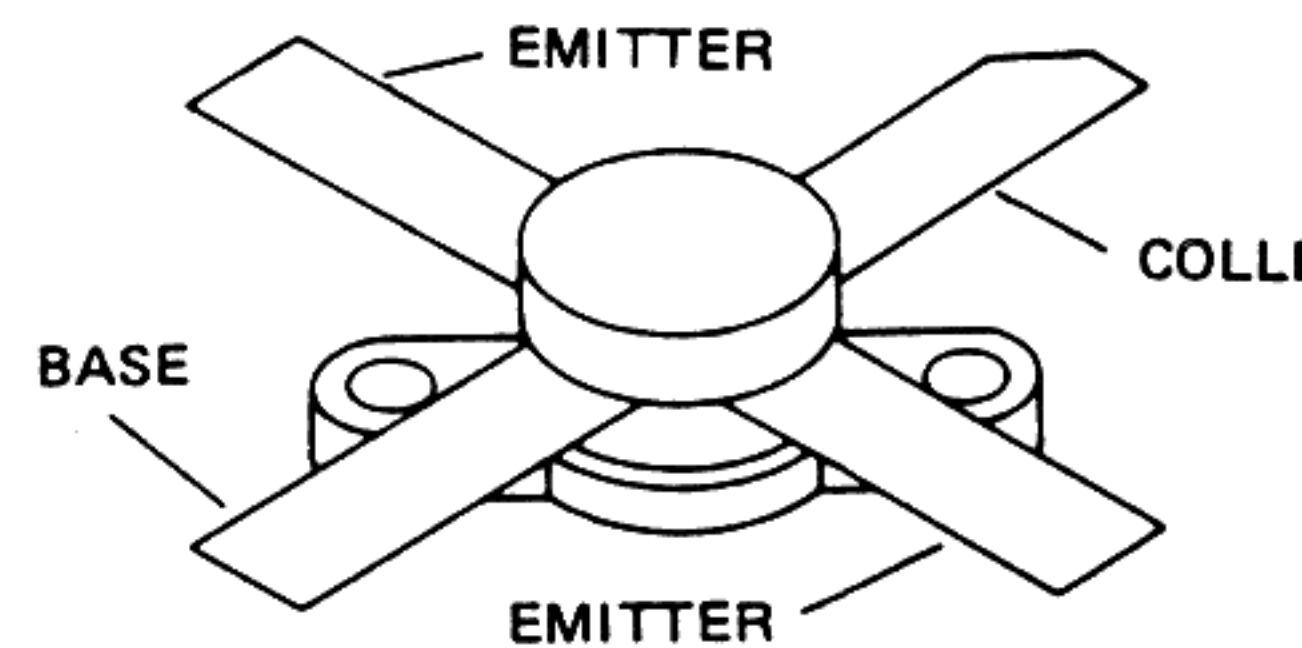
2SC458B (Q9007,9008)



2SA1012Y (Q9006)

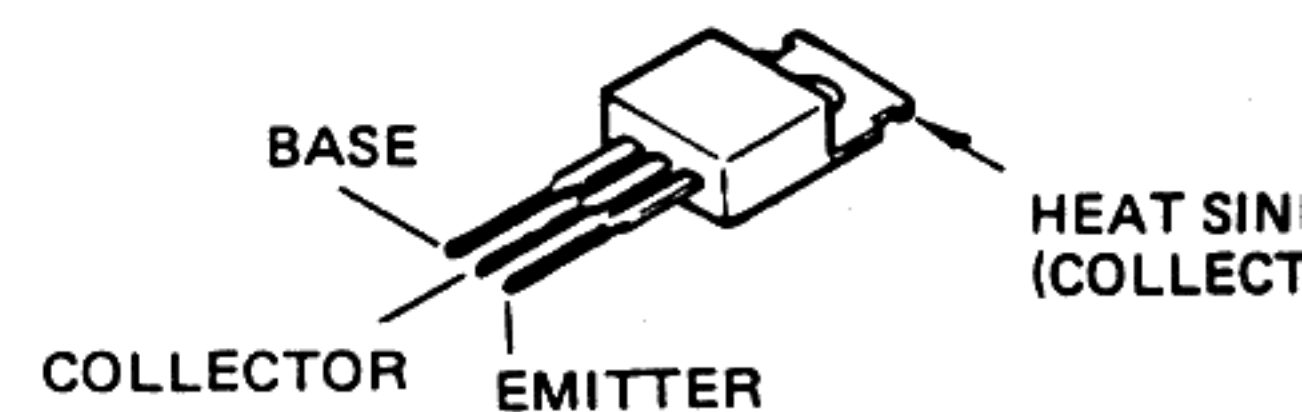


2SC1971 (Q9001)



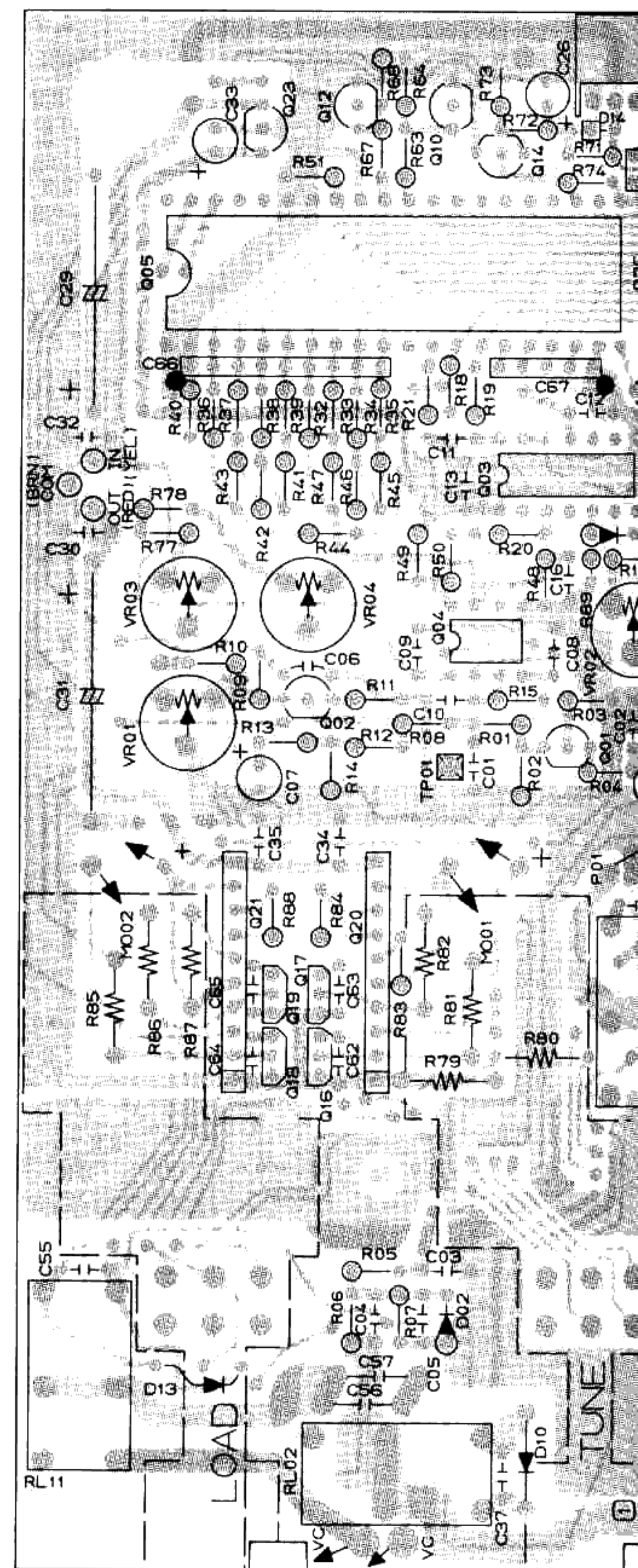
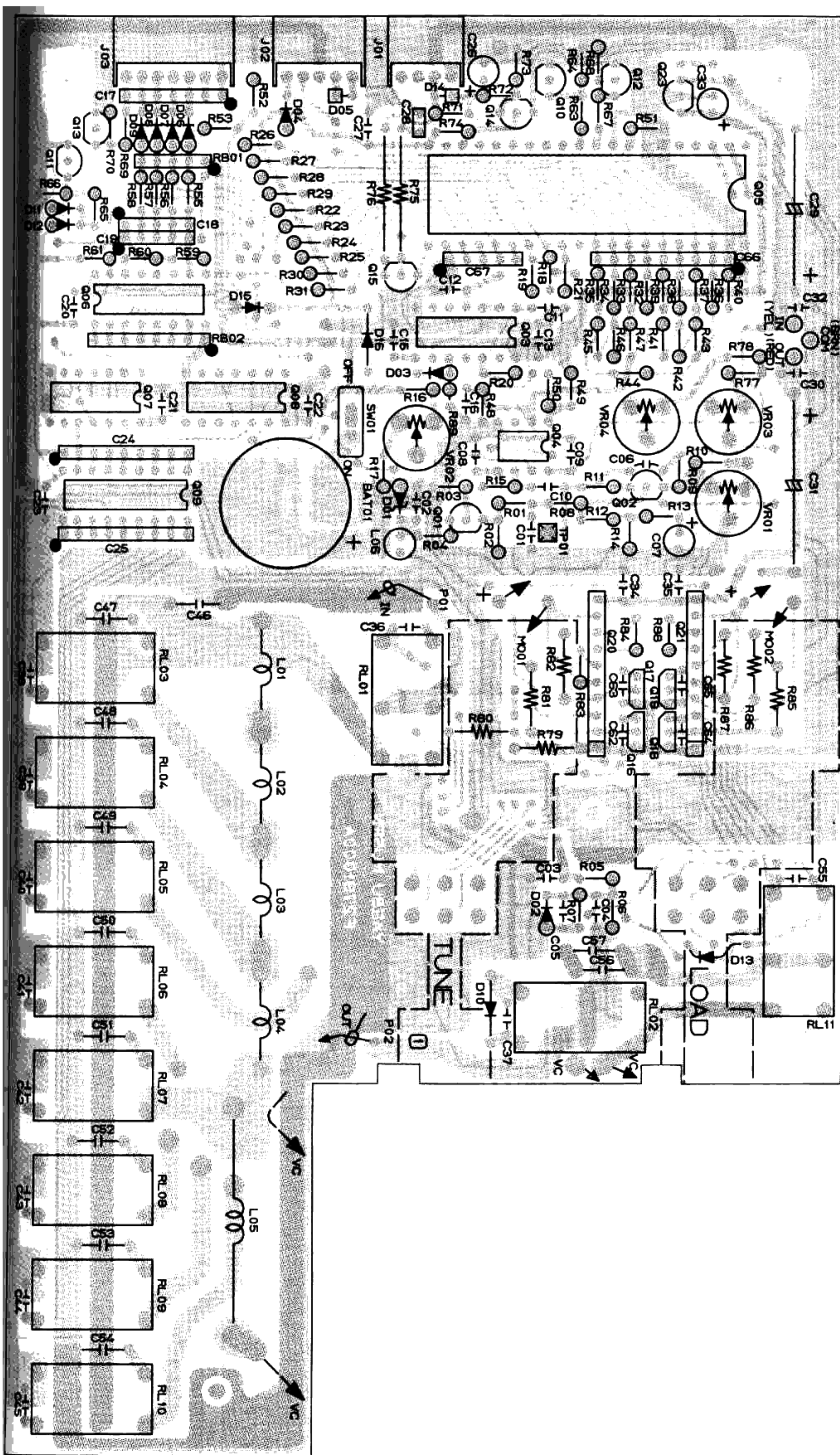
2SC2395 (Q9002,9003)

MRF422 (Q9004,9005)

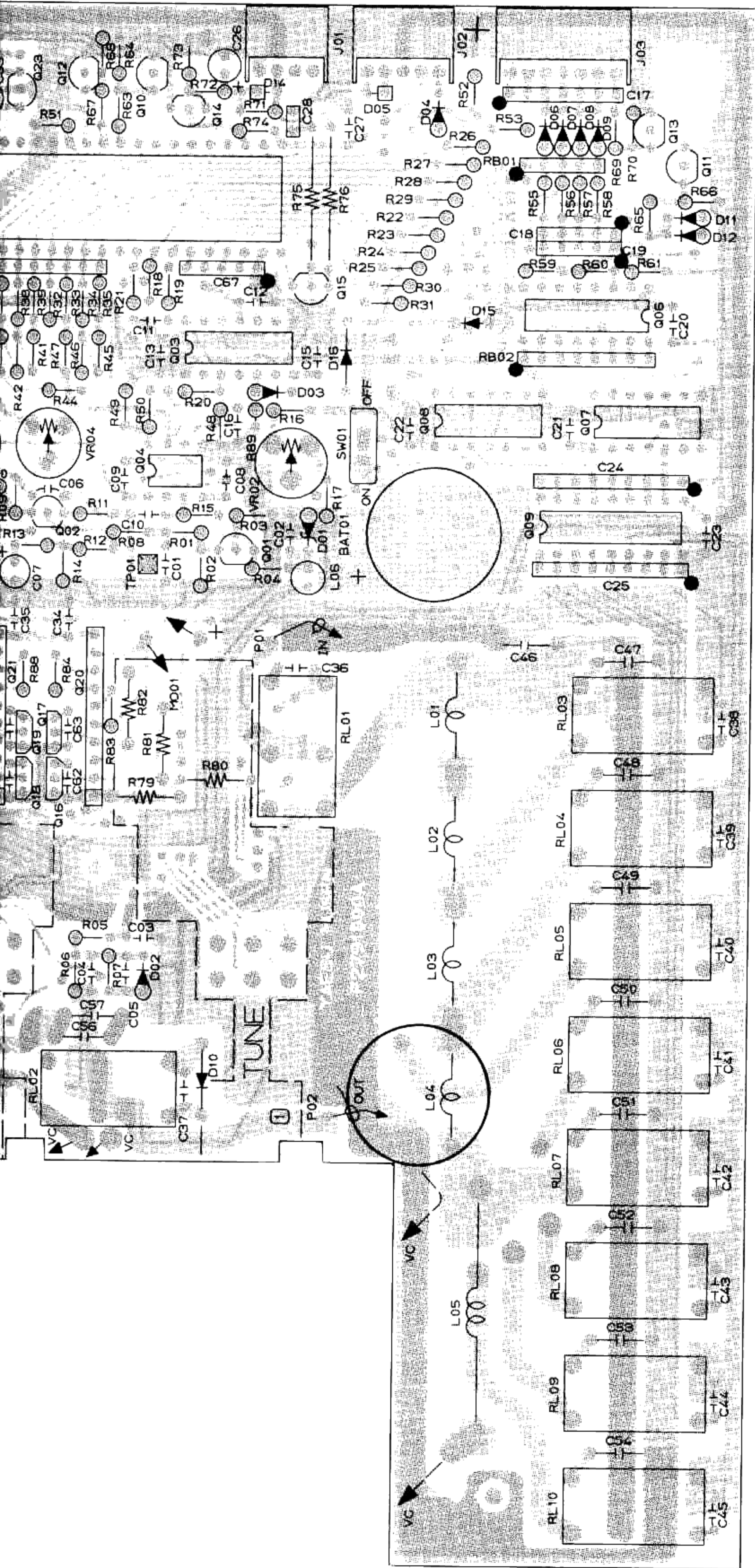


2SD880O (Q9011)

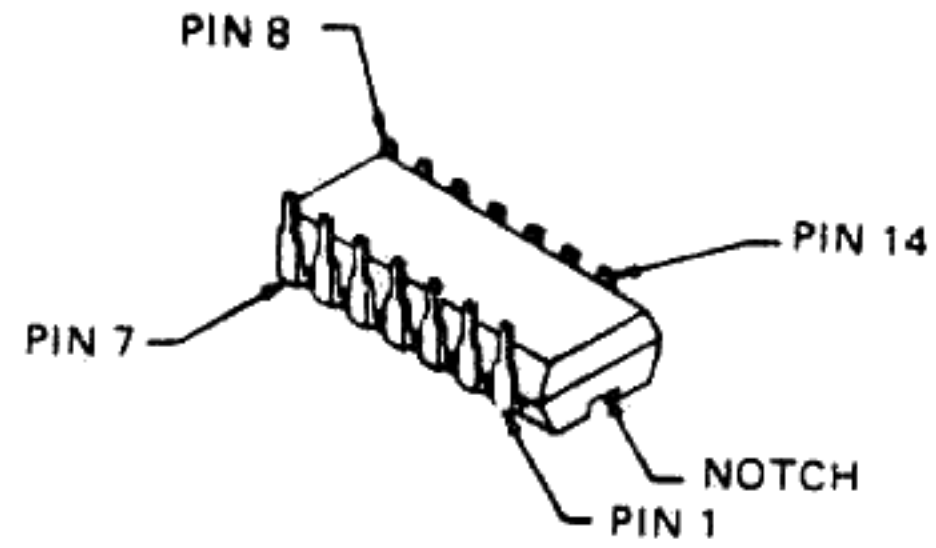
TUNER UNIT PARTS LAYOUT



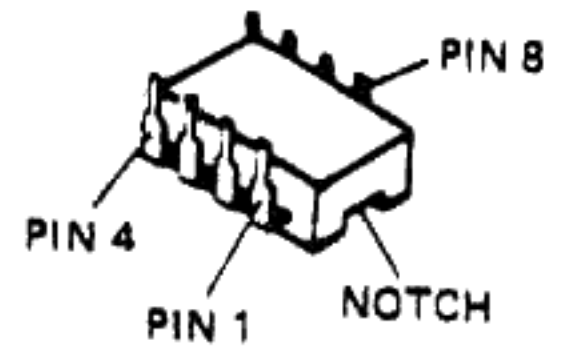
(Viewed from Component side)



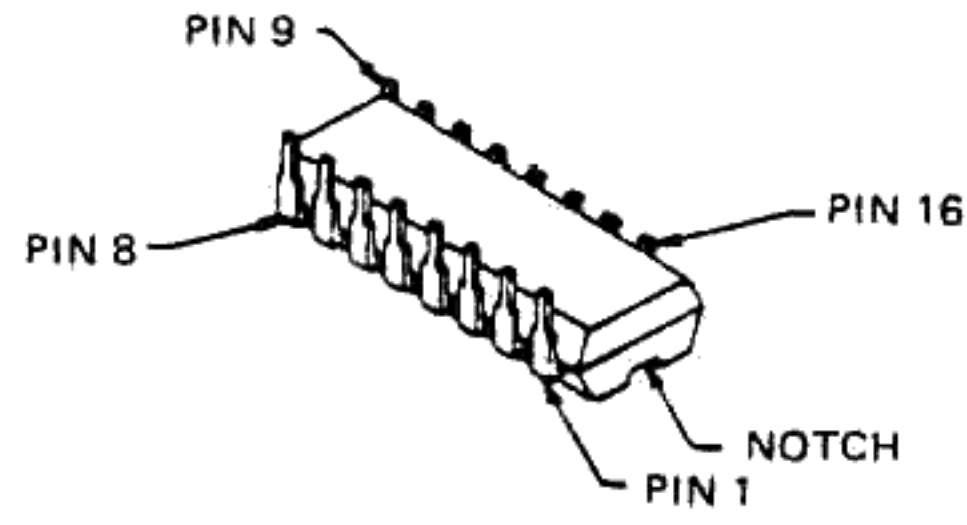
(Viewed from Solder side)



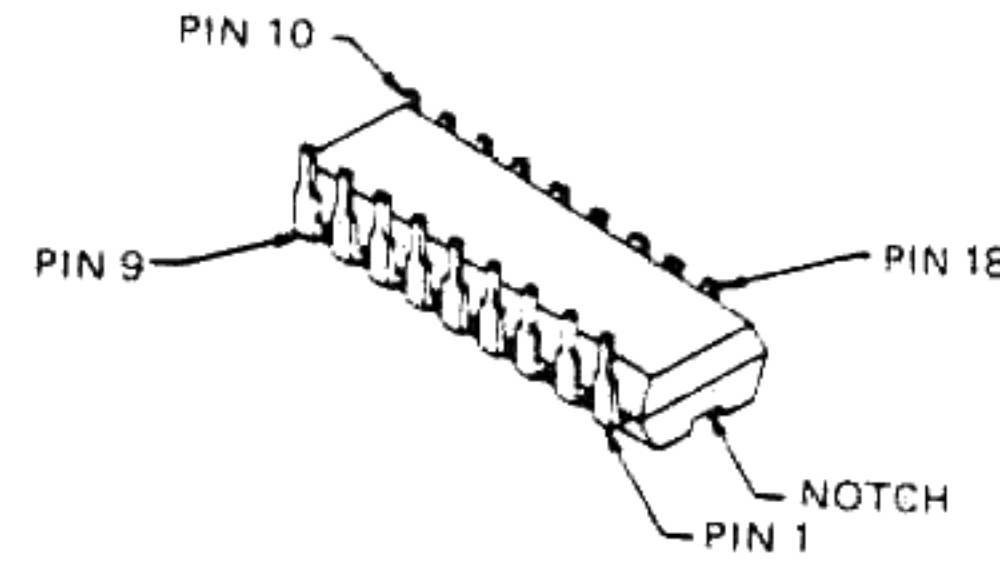
MC14066BCP (Q5003)
MC14071BCP (Q5007,Q5008)



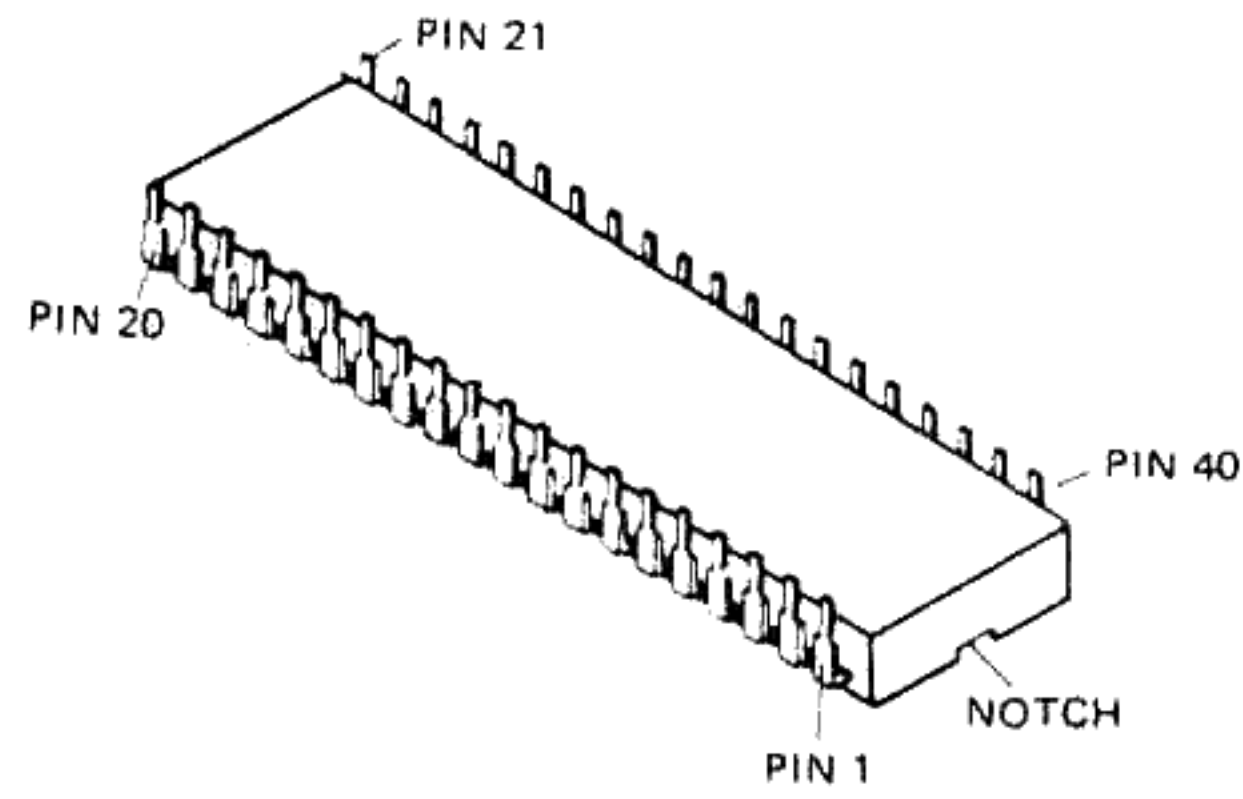
μPC277C (Q5004)



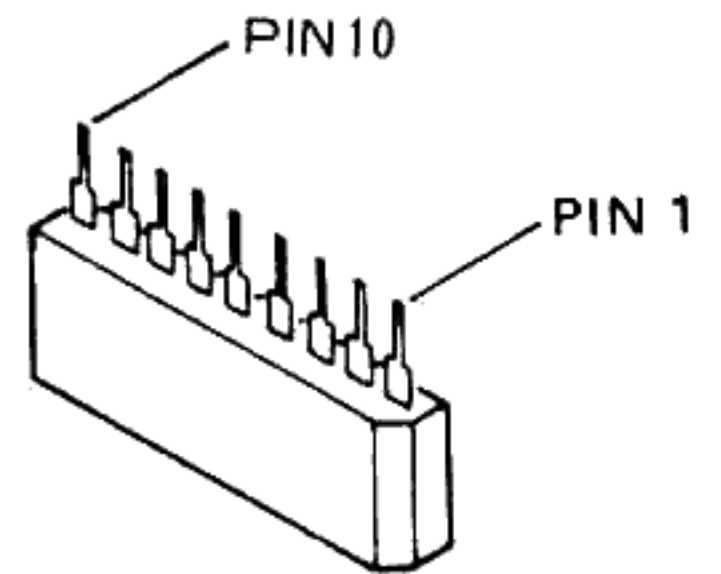
MC14028BCP (Q5006)



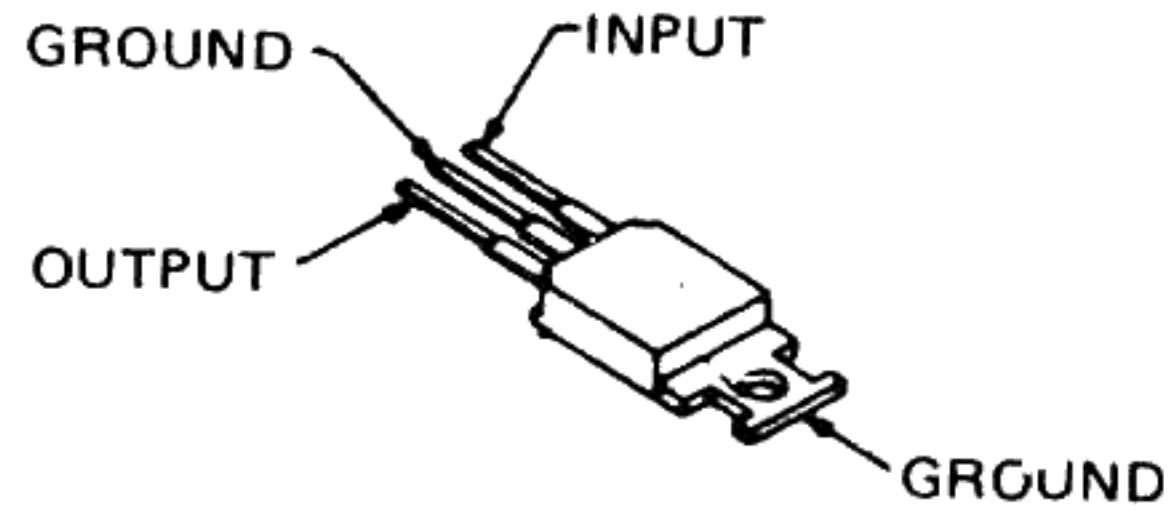
M54563P (Q5009)



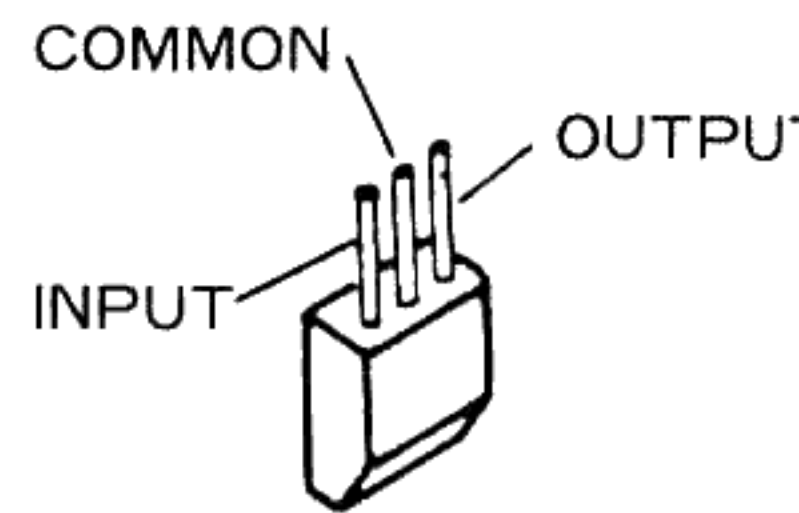
μPD7507C-070 (Q5005)



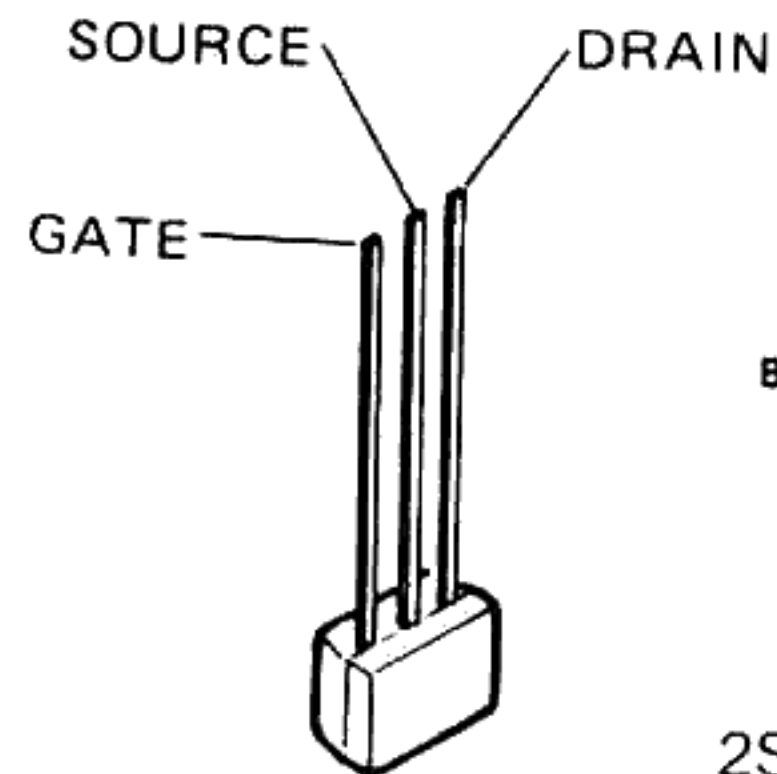
TH3C10 (Q5020,Q5021)



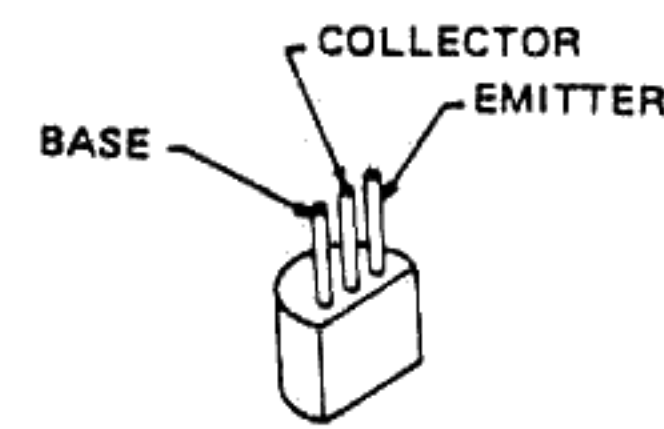
μPC7808H (Q5022)



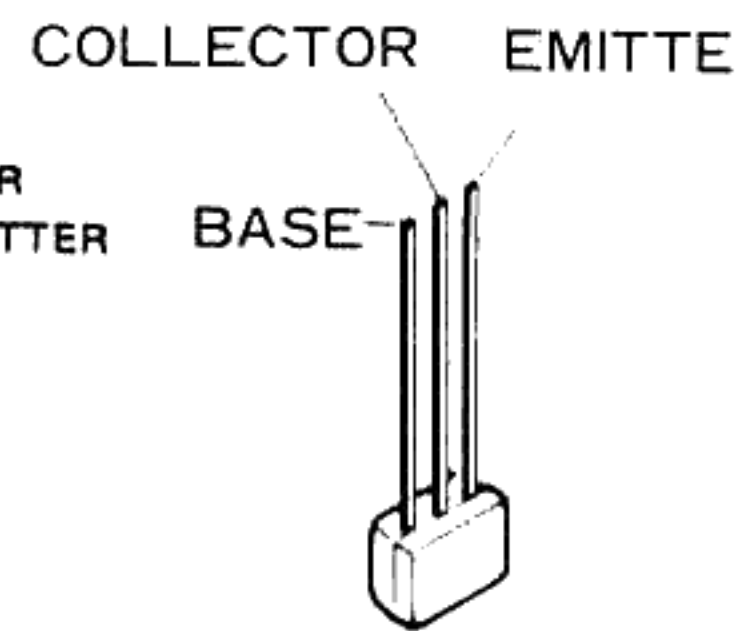
μPC78L05 (Q5023)



2SK152-3 (Q5001) (Q5002,Q5010,Q5015)



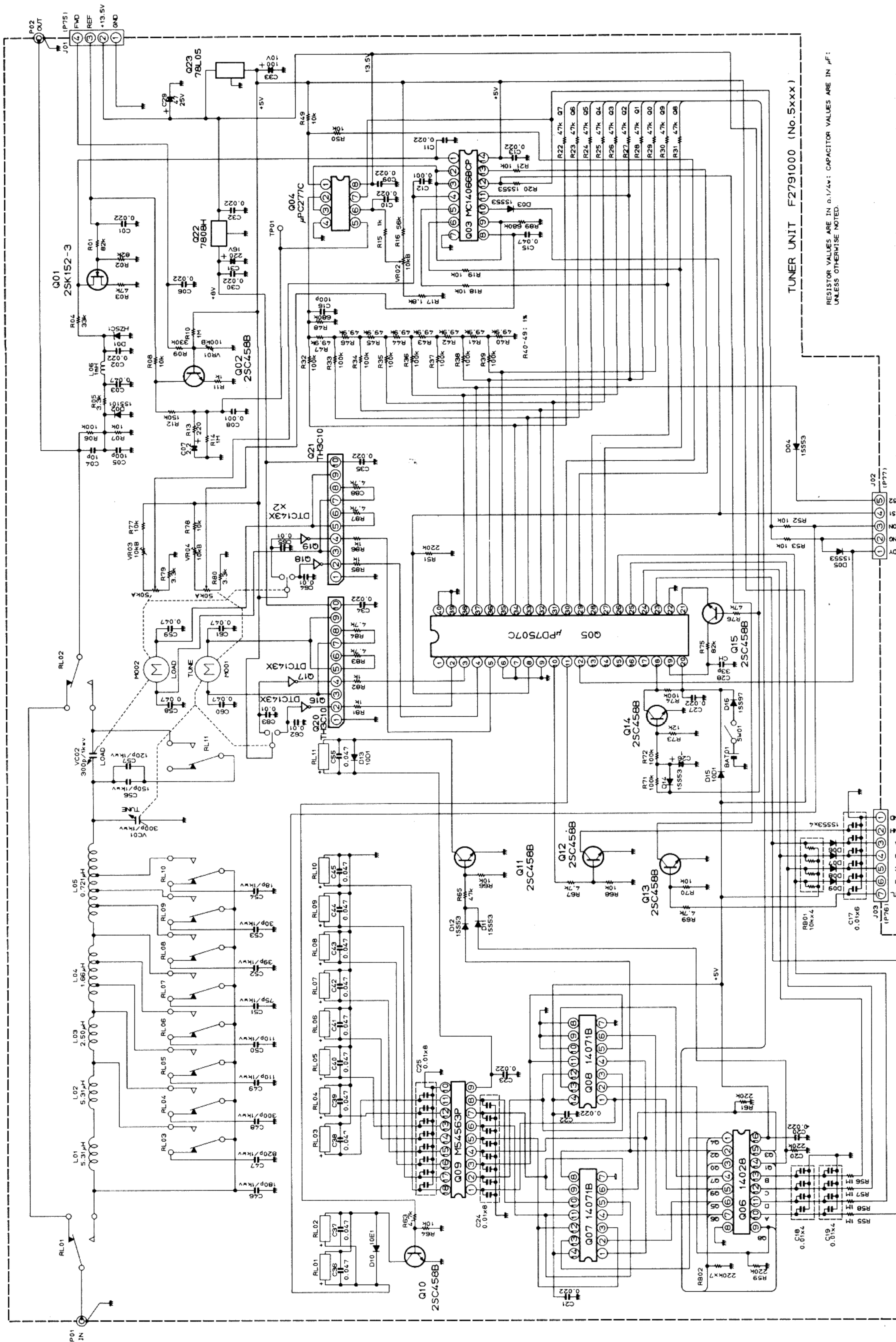
2SC458B

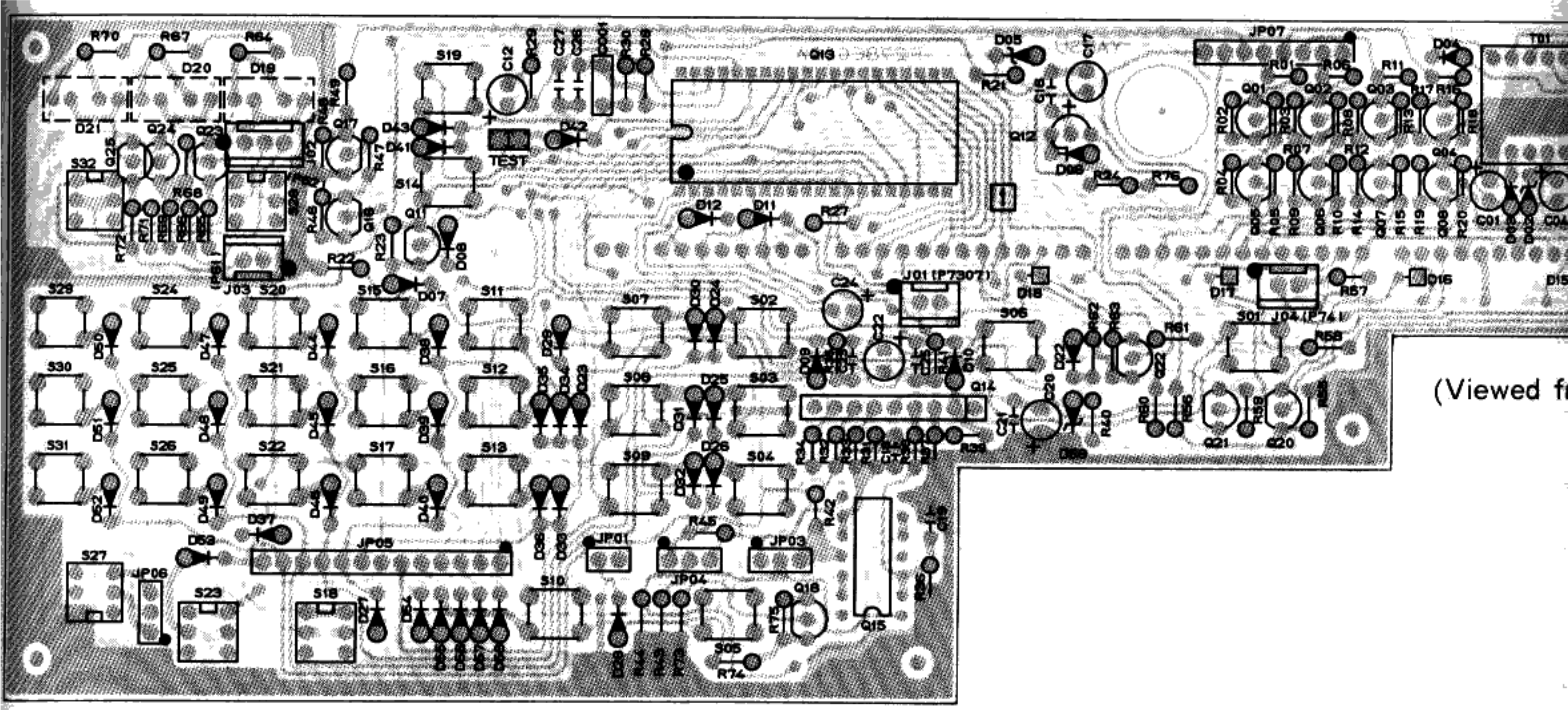


BA1A4M (Q5016-5019)

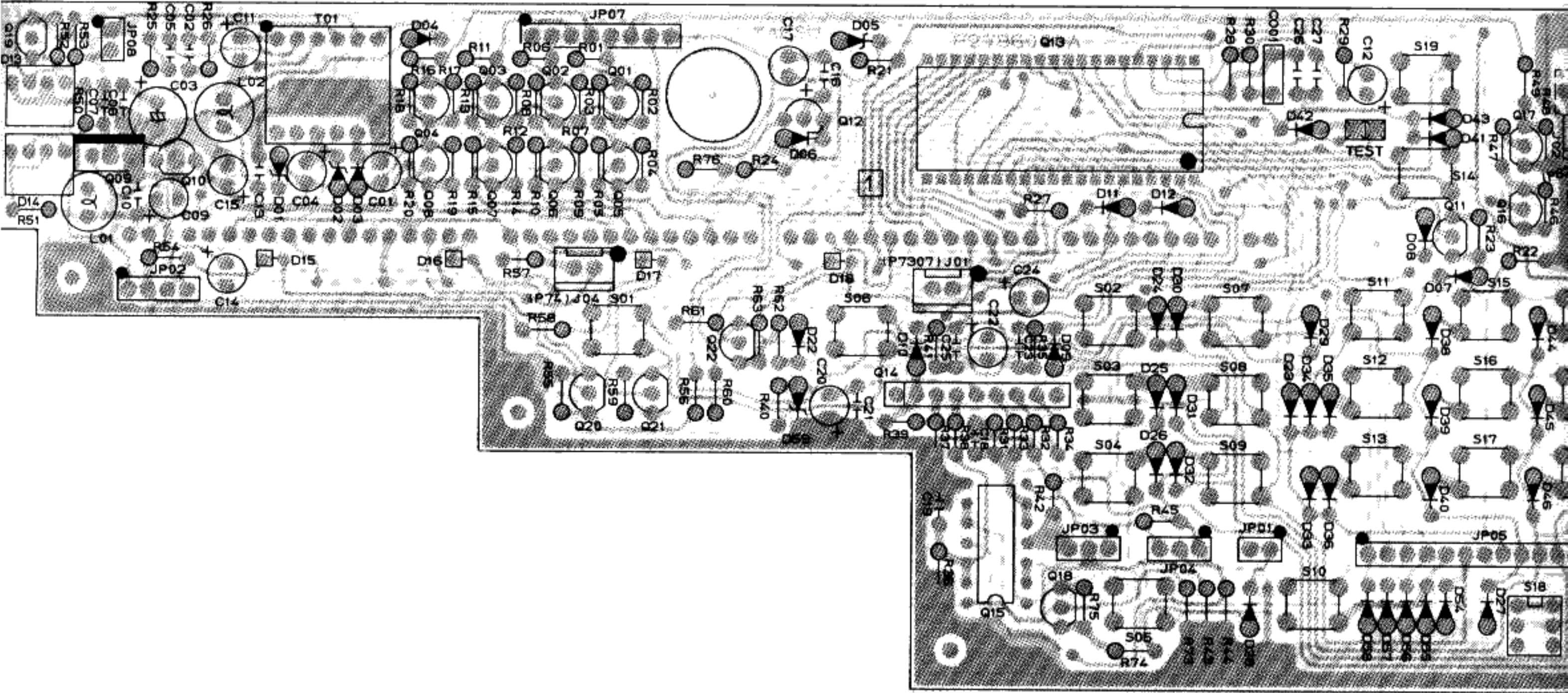
TUNER UNIT CIRCUIT DIAGRAM

← RECEIVE
 → TRANSMIT
 ← CONTROL

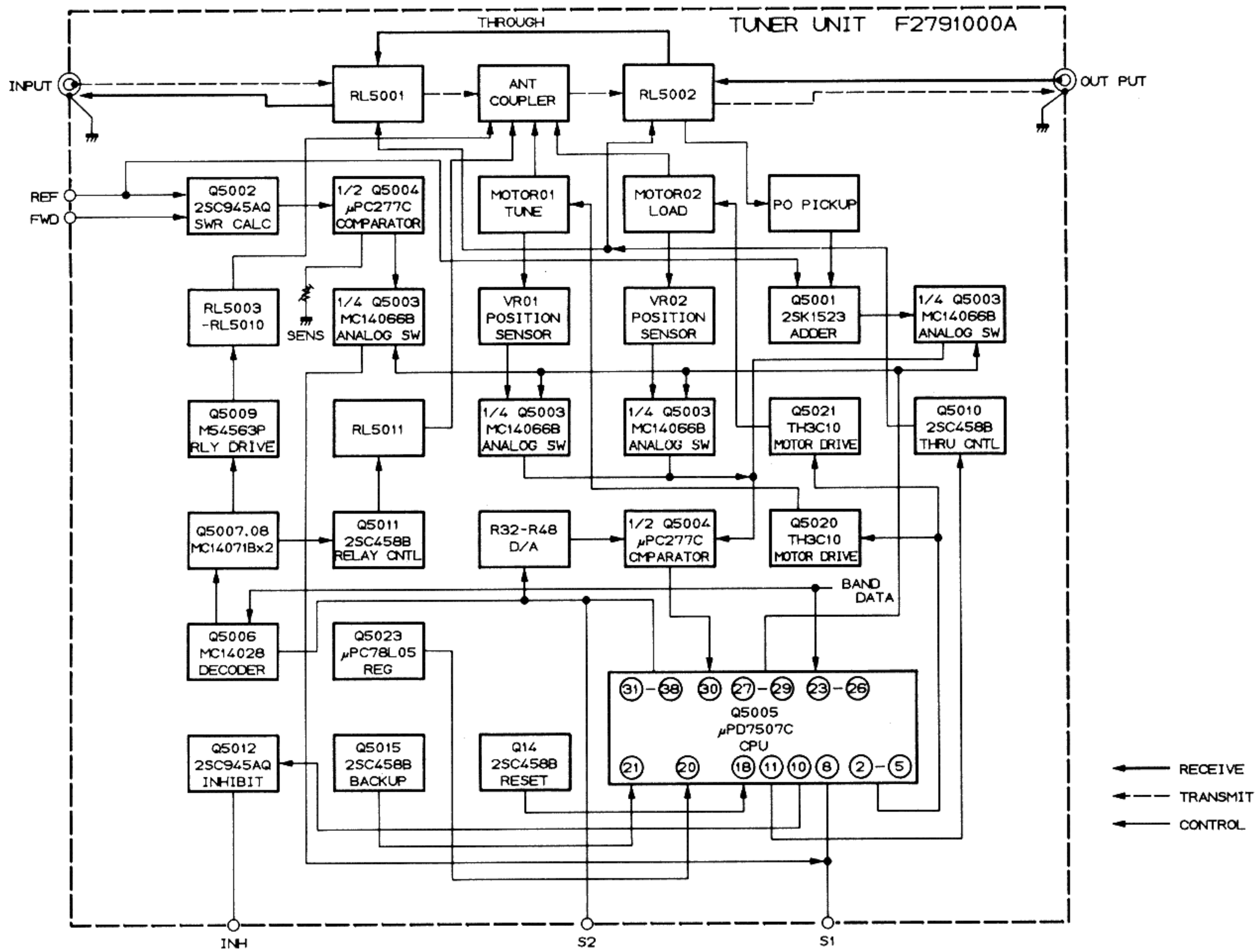




(Viewed fr



(Viewe



TUNER UNIT VOLTAGE CHART (DC VOLTS)

| | E | | (S) | | C | | (D) | | B | | (G ₁) | | REMARKS |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|---|---|-------------------|-----------|---------|
| | R | T | R | T | R | T | R | T | R | T | | | |
| Q5001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Q5002 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0.3 | | | | | |
| Q5010 | 0 | 0 | 0.2 | 0.2 | 0.8 | 0.8 | | | | | | TUNER ON | |
| Q5011 | 0 | 0 | 0 | 0 | 0.8 | 0.8 | | | | | | 3.5MHz | |
| Q5012 | 0 | 0 | 4.5 | 4.5 | 0 | 0 | | | | | | | |
| Q5013 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | | | | | | 1MHz(TRV) | |
| Q5014 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | | | | | | | |
| Q5015 | 2.0 | 2.0 | 2.0 | 2.0 | 2.6 | 2.6 | | | | | | | |
| Q5016 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| Q5017 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| Q5018 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| Q5019 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

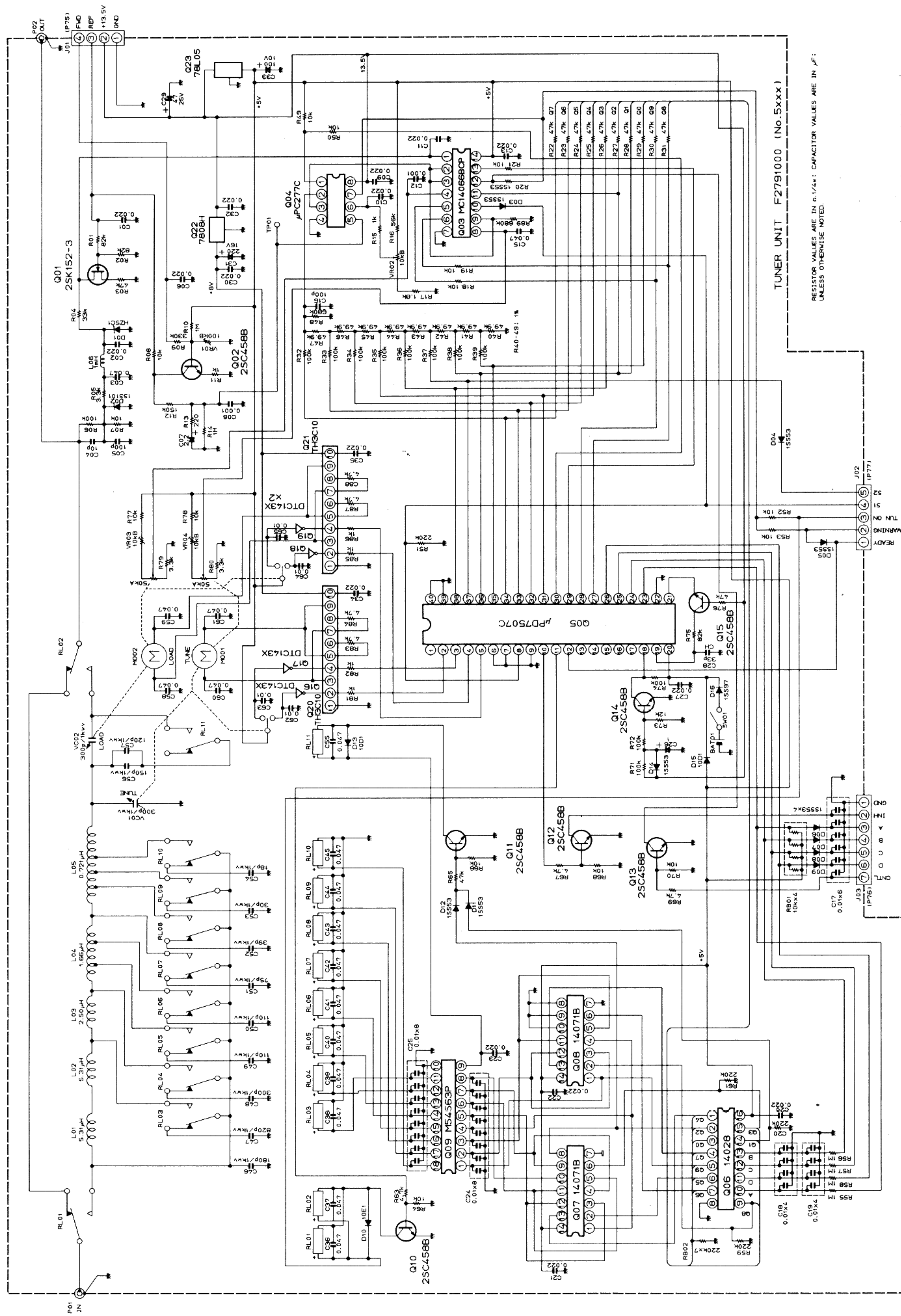
TUNER UNIT IC VOLTAGE CHART (DC VOLTS)

| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|------|------|-----|----|----|----|-----|----|-----|
| Q5003 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 5.0 | | |
| Q5004 | - | - | - | 0 | - | - | - | 13.3 | | | | | | | | |
| Q5006 | - | - | - | - | - | - | - | 0 | - | - | - | - | - | - | - | 5.0 |
| Q5007 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 5.0 | | |
| Q5008 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 5.0 | | |
| Q5009 | - | - | - | - | - | - | - | - | 11.4 | 0 | | | | | | |
| Q5020 | 0 | - | - | - | - | - | - | - | - | 8.0 | | | | | | |
| Q5021 | 0 | - | - | - | - | - | - | - | - | 8.0 | | | | | | |

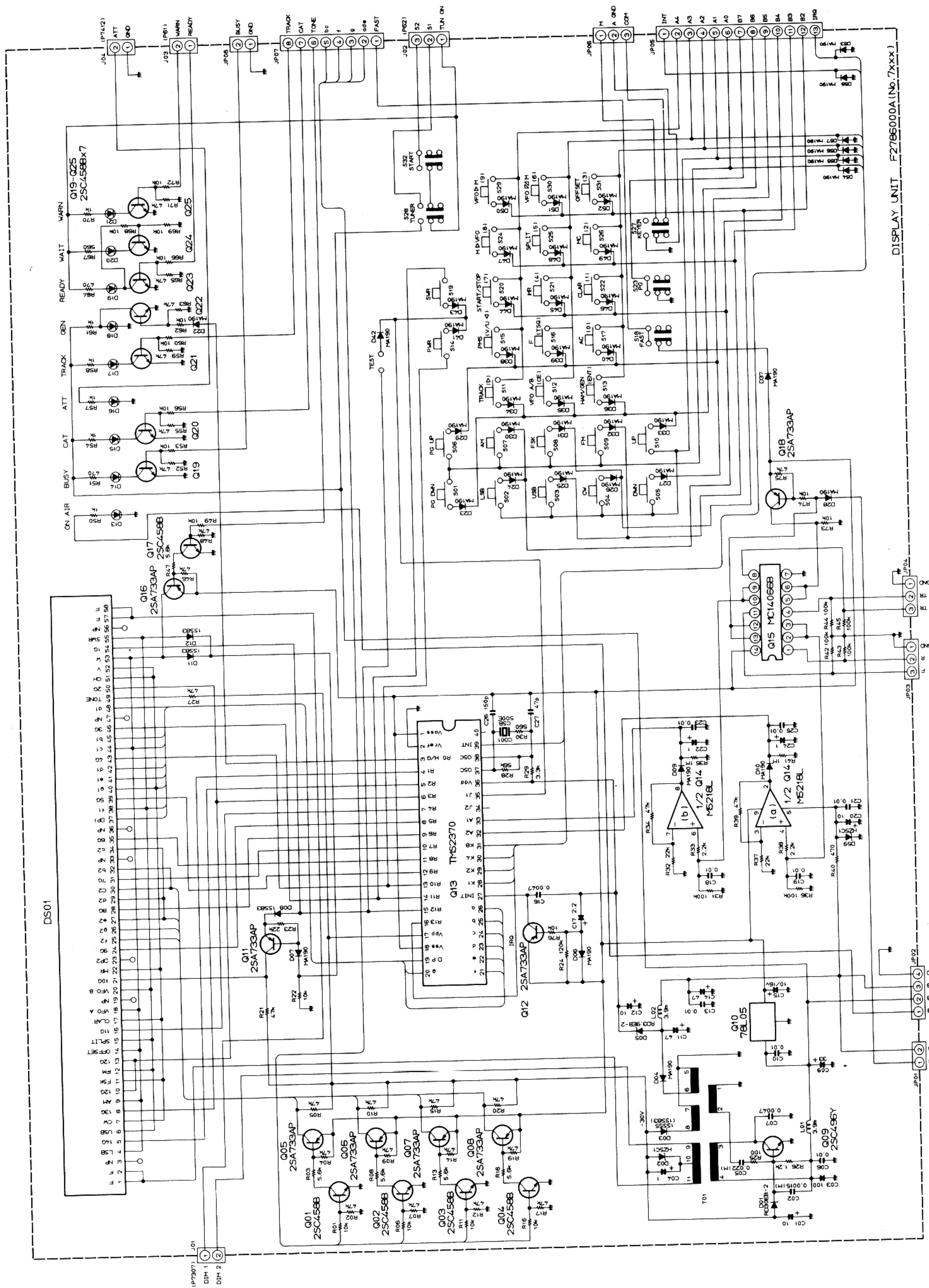
TUNER UNIT CIRCUIT DIAGRAM

PUT

RECEIVE
TRANSMIT
CONTROL



DISPLAY UNIT CIRCUIT DIAGRAM



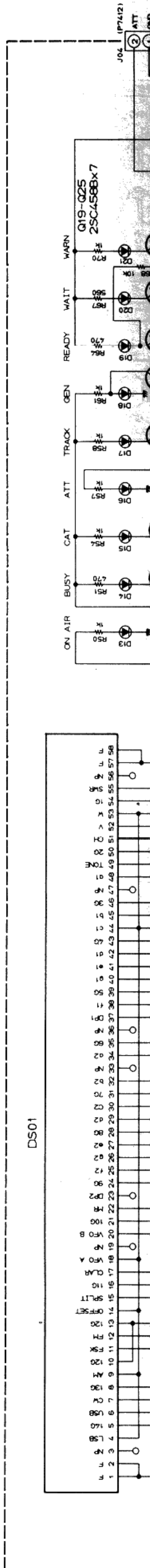
DISPLAY UNIT F2786000A (No. 7xxx)

DISPLAY UNIT VOLTAGE CHART (DC VOLTS)

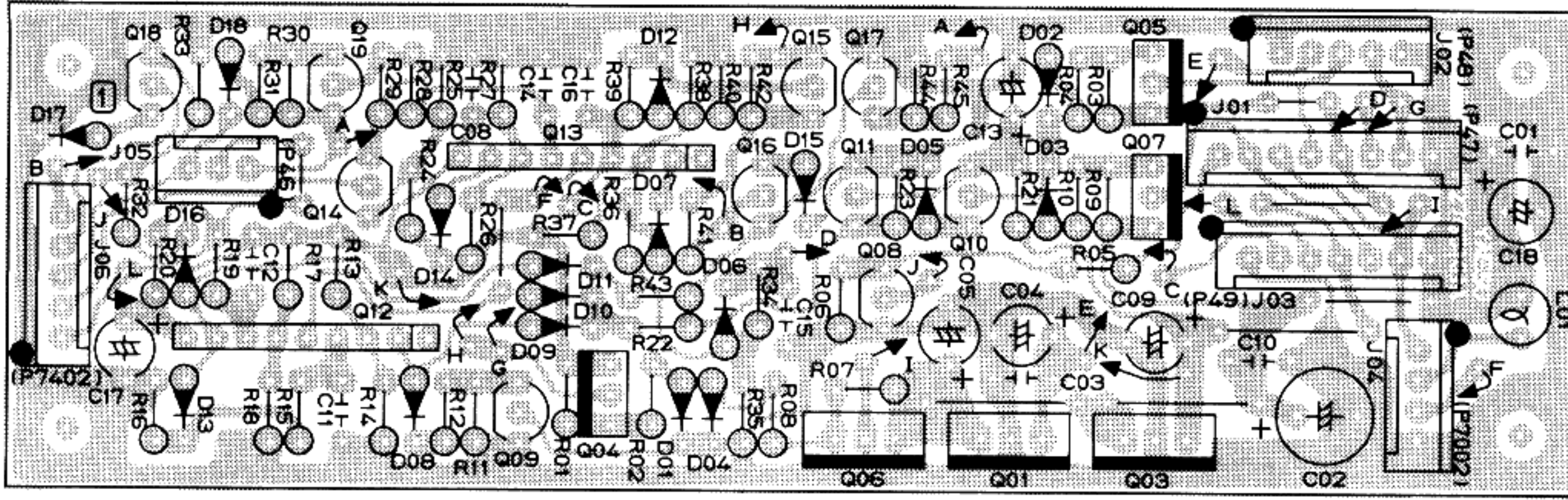
| | E | | (S) | | C | | (D) | | B | | (G ₁) | REMARKS |
|-------|-----|-----|-------|-------|-----|-----|--------------|-----|----------|--|-------------------|---------|
| | R | T | R | T | R | T | R | T | | | | |
| Q7001 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 430MHz | | | |
| Q7002 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | "050"MHz | | | |
| Q7003 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 430MHz | | | |
| Q7004 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 430MHz | | | |
| Q7005 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 430MHz | | | | | |
| Q7006 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | "050"MHz | | | | | |
| Q7007 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 430MHz | | | | | |
| Q7008 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 430MHz | | | | | |
| Q7009 | 0 | 0 | AC | AC | AC | AC | DC-DC | | | | | |
| Q7011 | 0 | 0 | -27.0 | -27.0 | 0 | 0 | | | | | | |
| Q7012 | 5.0 | 5.0 | -3.5 | -3.5 | 5.0 | 5.0 | | | | | | |
| Q7016 | 5.0 | 5.0 | 5.0 | 5.0 | 4.4 | 4.4 | TONE ON | | | | | |
| Q7017 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | TONE ON | | | | | |
| Q7018 | 5.0 | 5.0 | 5.0 | 5.0 | 4.4 | 4.4 | TRV | | | | | |
| Q7019 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | BUSY LED ON | | | | | |
| Q7020 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | CAT LED ON | | | | | |
| Q7021 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | TRACK LED ON | | | | | |
| Q7022 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | GEN LED OFF | | | | | |
| Q7023 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | READY LED ON | | | | | |
| Q7024 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | WAIT LED ON | | | | | |
| Q7025 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | WARN LED ON | | | | | |
| Q01 | 0 | | 0 | | 0.8 | | VRC | | | | | |

DISPLAY UNIT IC VOLTAGE CHART (DC VOLTS)

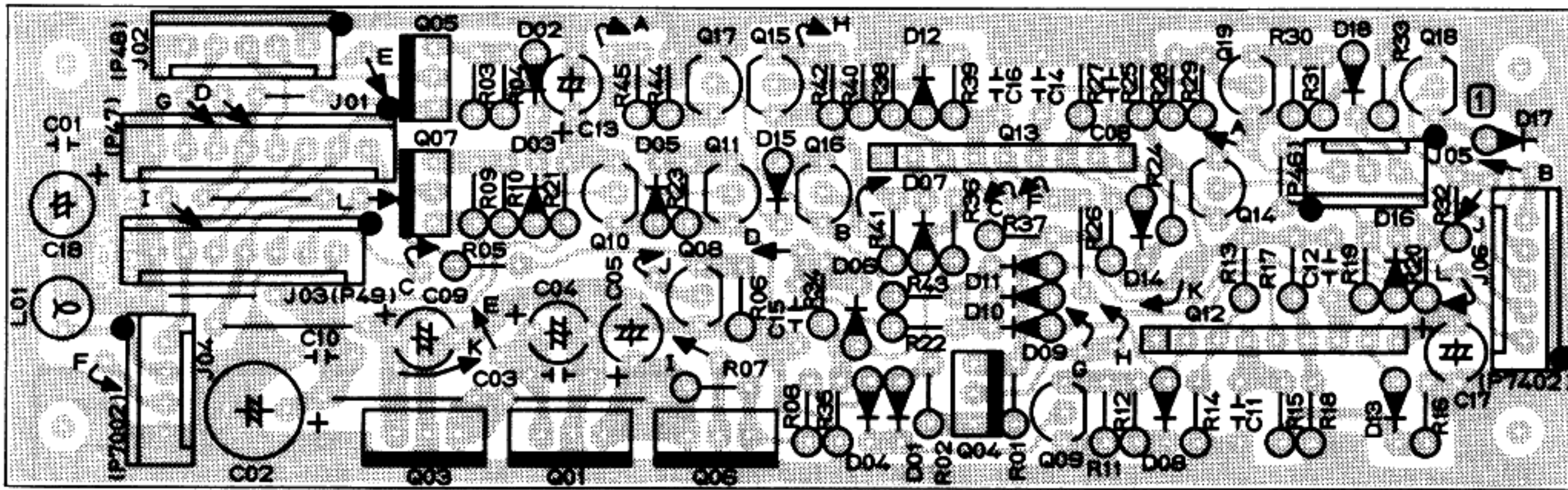
| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---------|---|---|---|------|---|---|---|-----|---|----|----|-----|-----|-----|
| Q7014 | 0 | 0 | 0 | -4.9 | 0 | 0 | 0 | 5.0 | | | | | | |
| Q7015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.3 | 2.3 | 5.0 |



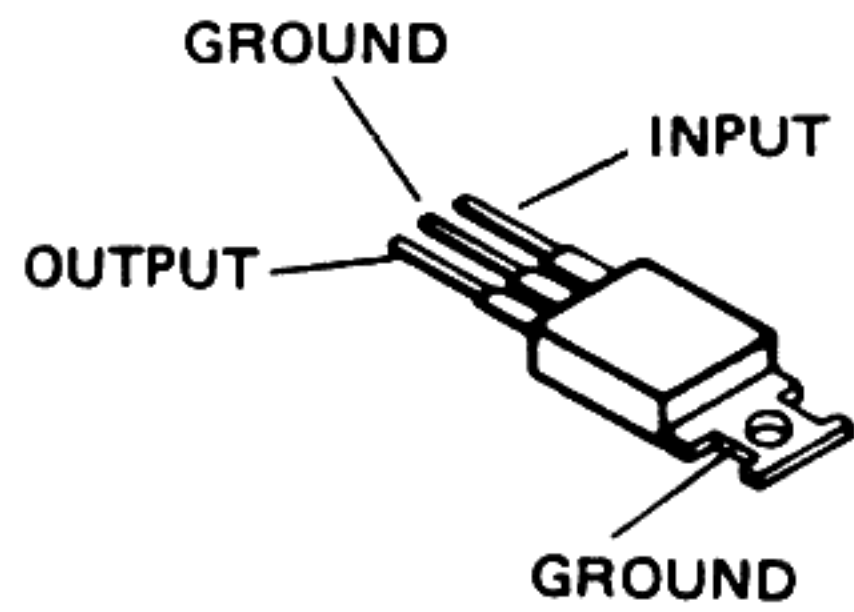
CONTROL UNIT PARTS LAYOUT



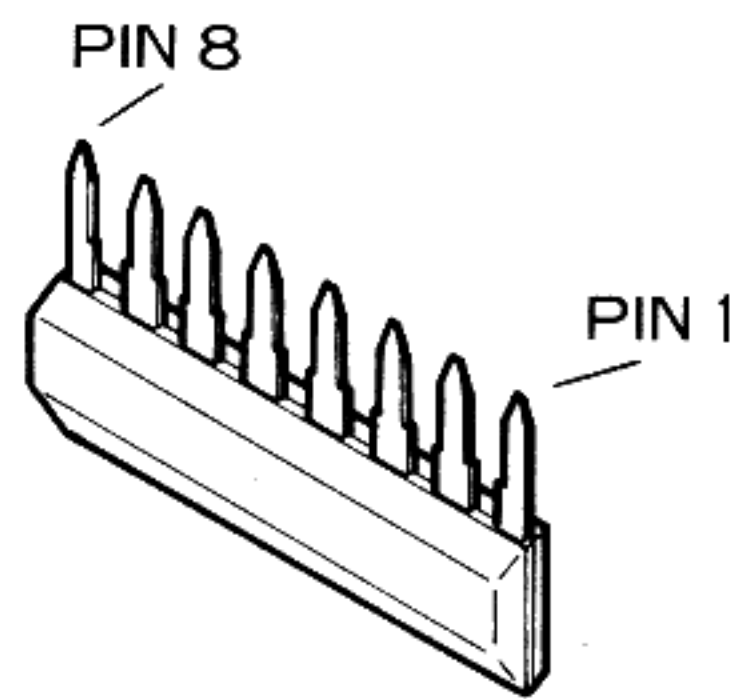
(Viewed from component side)



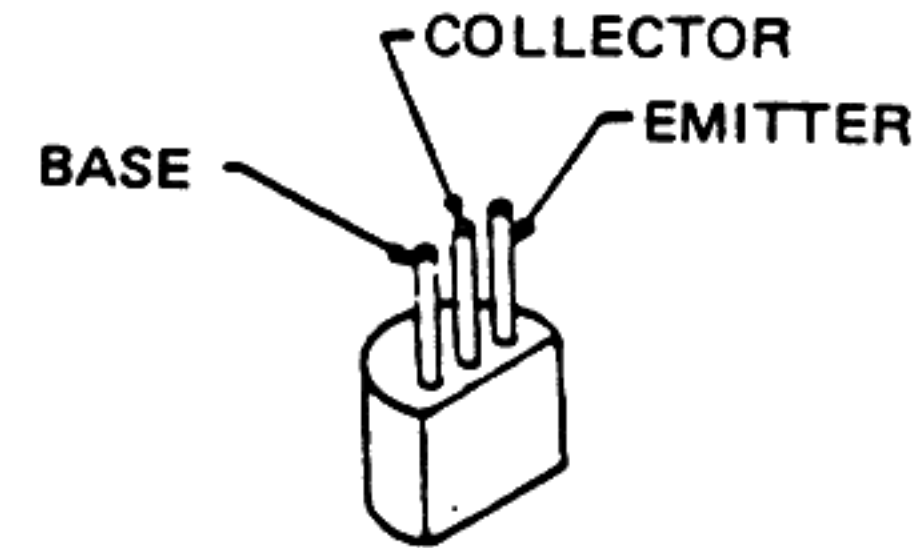
(Viewed from solder side)



TA78009AP (Q4001)
μPC7808H (Q4003)

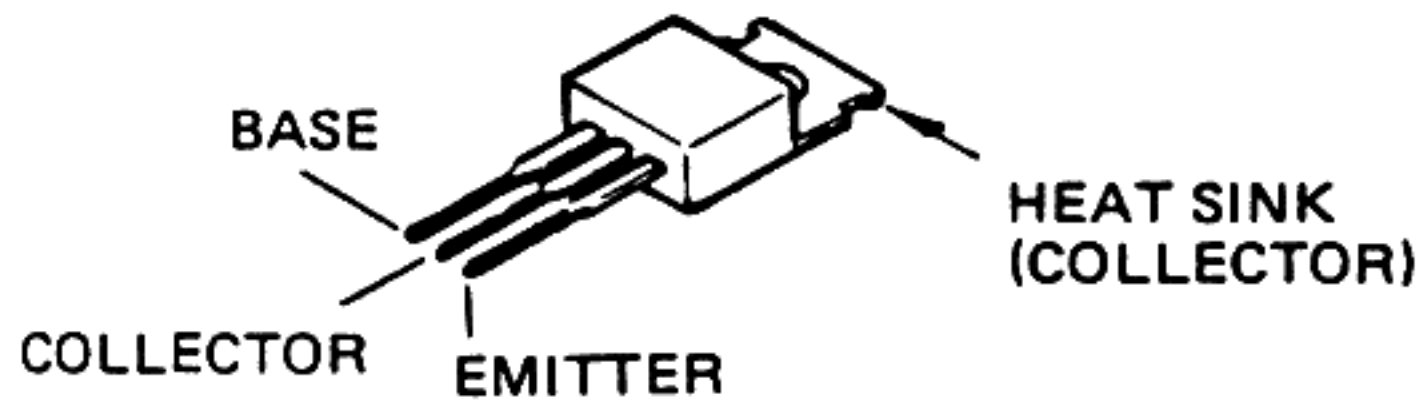


M5218L
(Q4012,4013)

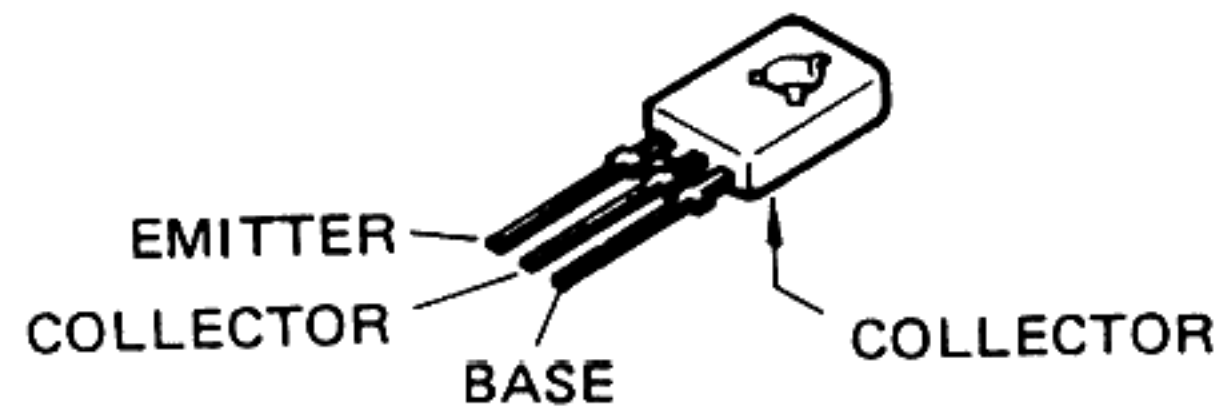


2SA733AP
(Q4015,4019)

2SC945AQ
(Q4008-4011,4014)
4016-4018



2SA1012Y (Q4006)



2SC496Y
(Q4004,4005,4007)

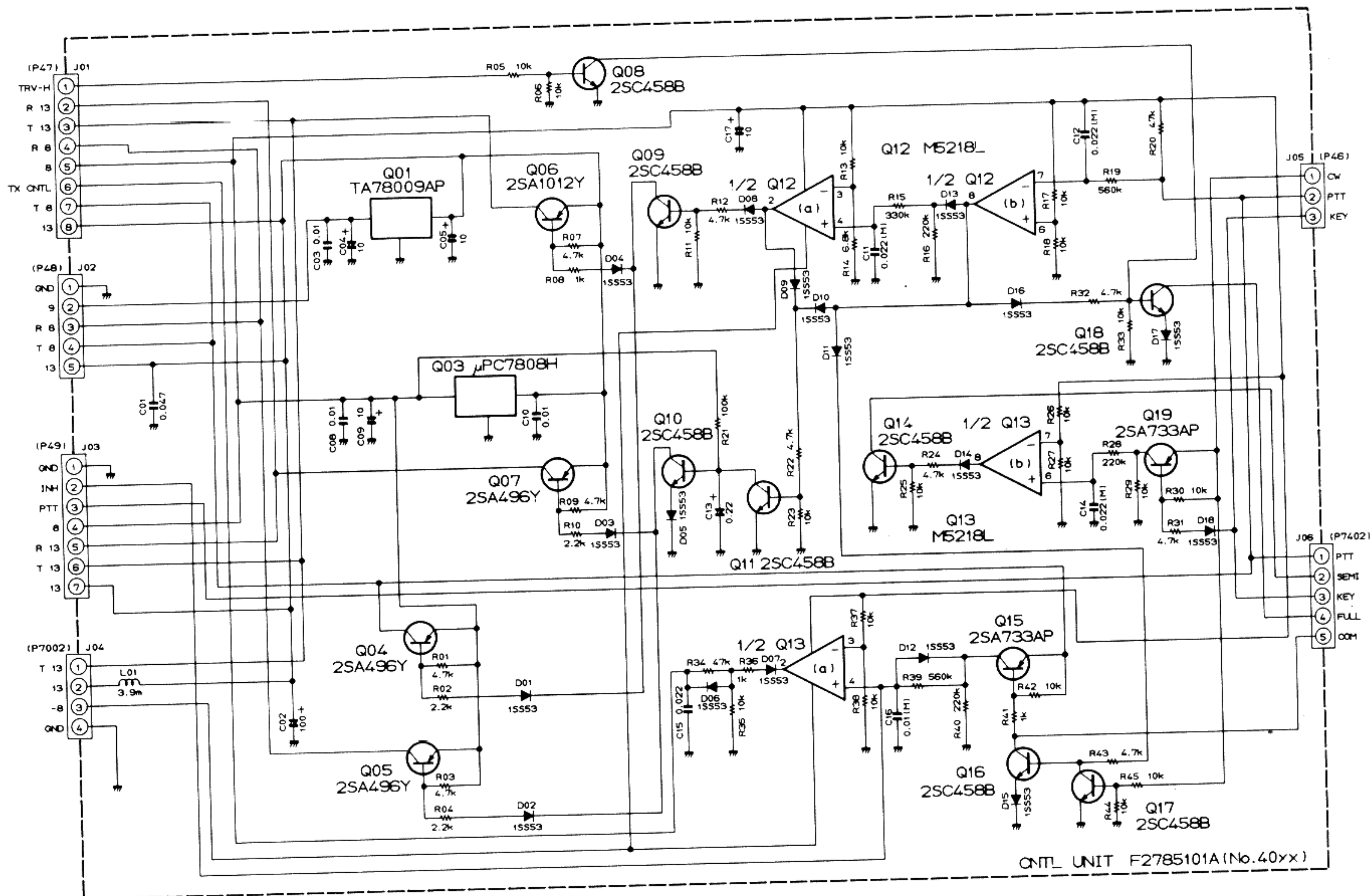
CONTROL UNIT VOLTAGE CHART (DC VOLTS)

| | E | | C | | B | | REMARKS |
|-------|------|------|------|------|------|------|-----------------|
| | R | T | R | T | R | T | |
| Q4004 | 8.0 | 8.0 | 0 | 8.0 | 8.0 | 7.3 | |
| Q4005 | 8.0 | 8.0 | 8.0 | 0 | 7.3 | 8.0 | |
| Q4006 | 13.2 | 13.2 | 0 | 13.0 | 13.2 | 12.4 | |
| Q4007 | 13.2 | 13.0 | 0 | 13.0 | 13.2 | 12.4 | |
| Q4008 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | TRV |
| Q4009 | 0 | 0 | 12.7 | 0 | 0 | 0.7 | |
| Q4010 | 0.8 | 0 | 0 | 12.7 | 1.5 | 0 | |
| Q4011 | 0 | 0 | 1.5 | 0 | 0 | 0.7 | |
| Q4014 | 0 | 0 | 0 | 0.8 | 0 | 0 | |
| Q4015 | 0 | 8.0 | 0 | 8.0 | 0 | 7.2 | |
| Q4016 | 0 | 0.8 | 0 | 0.8 | 0 | 1.5 | |
| Q4017 | 0 | 0 | 0 | 1.5 | 0 | 0 | |
| Q4018 | 0 | 0.7 | 0 | 0.7 | 0 | 1.4 | |
| Q4019 | 8.0 | 8.0 | 8.0 | 8.0 | 7.3 | 7.3 | CW SEMI KEY DWN |

CONTROL UNIT IC VOLTAGE CHART (DC VOLTS)

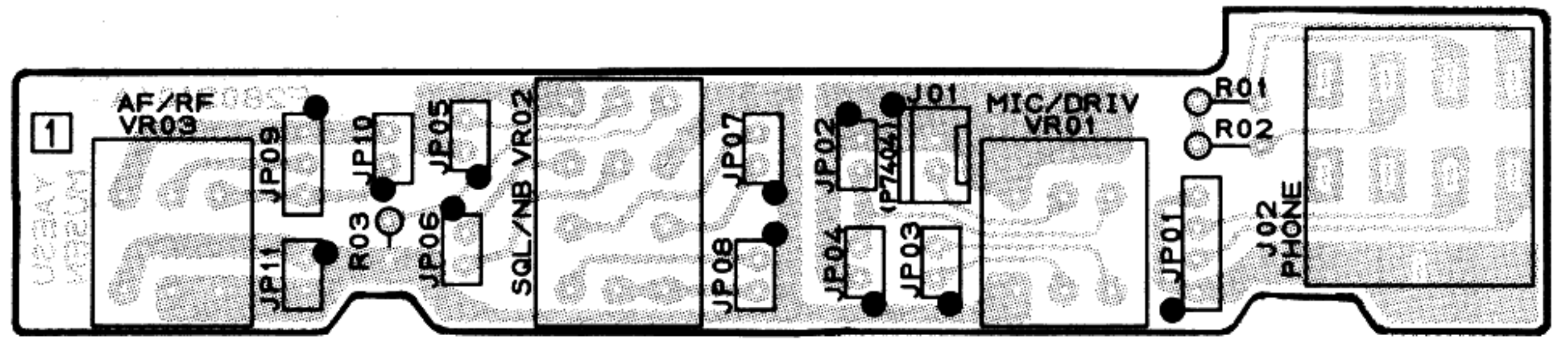
| PIN No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | REMARKS | |
|---------|----|------|-----|-----|------|-----|------|------|---------|-----------------|
| Q4012 | RX | -6.0 | 7.5 | 4.0 | -7.4 | 0 | 3.24 | -6.0 | 8.0 | |
| | TX | 7.1 | 0 | 4.0 | -7.4 | 6.3 | 3.24 | 7.1 | 8.0 | |
| Q4013 | RX | -6.0 | 4.0 | 0 | -7.4 | 0 | 4.0 | -6.0 | 8.0 | CW SEMI KEY DWN |
| | TX | 7.2 | 4.0 | 8.0 | -7.4 | 7.6 | 4.0 | 7.5 | 8.0 | |

CONTROL UNIT CIRCUIT DIAGRAM

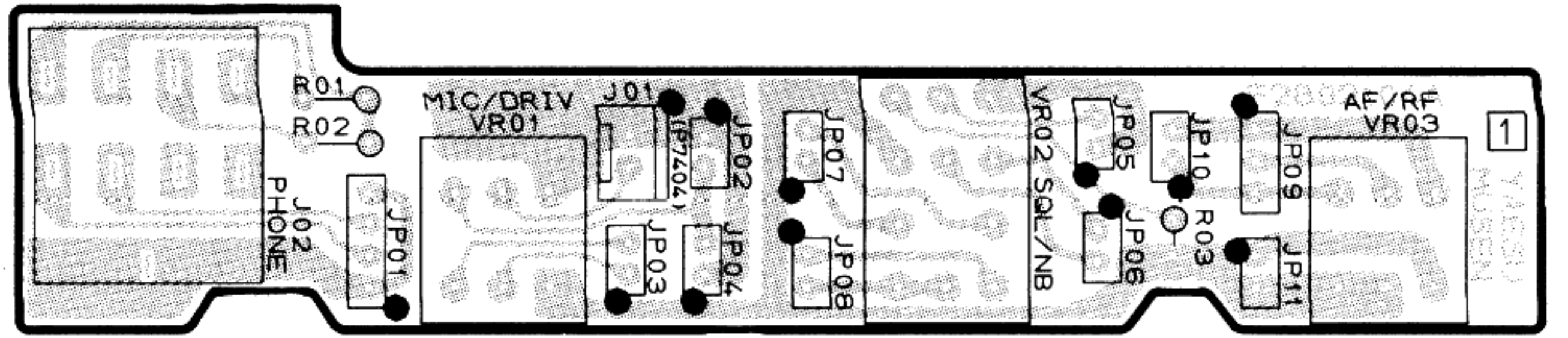


RESISTOR VALUES ARE IN Ω, 1/4W; CAPACITOR VALUES ARE IN μF;
AND INDUCTOR VALUES ARE IN H; UNLESS OTHERWISE NOTED.
(M) CAPACITORS ARE POLYESTER FILM, 50V.

VR A UNIT PARTS LAYOUT

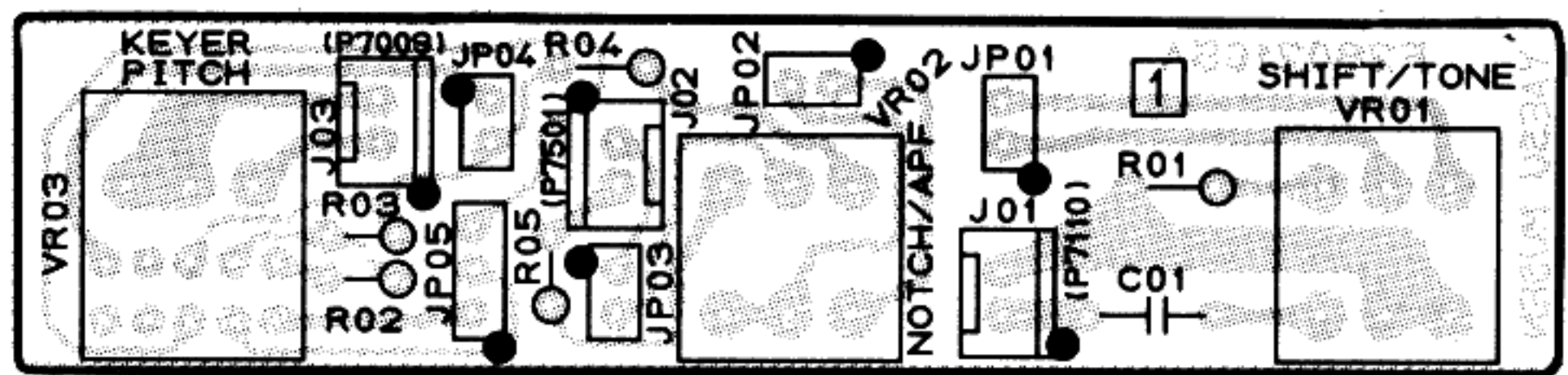


(Viewed from Component side)

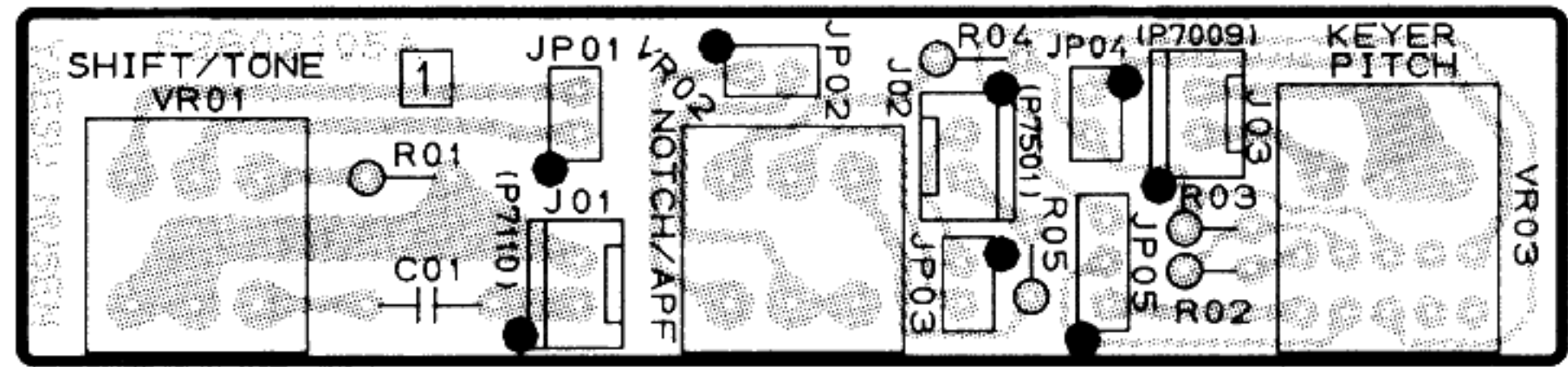


(Viewed from Solder side)

VR B UNIT PARTS LAYOUT

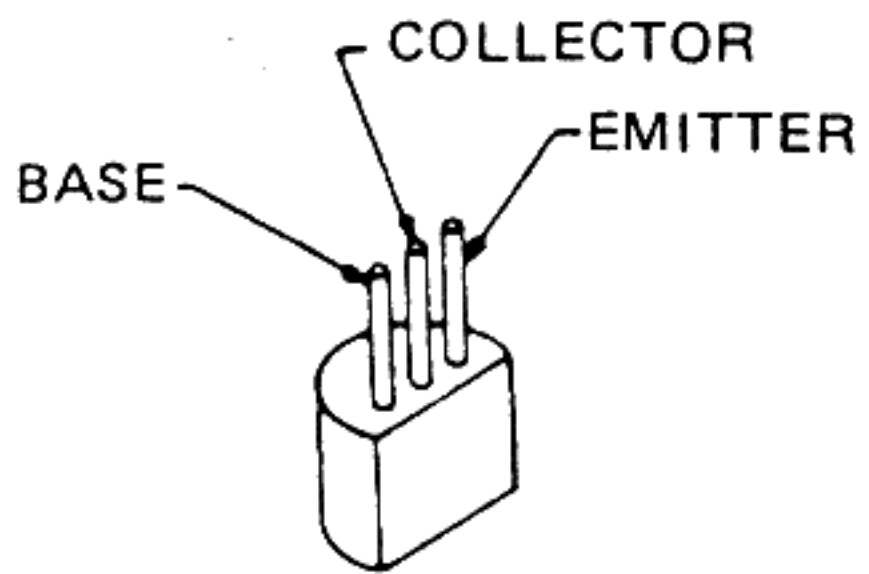


(Viewed from Component side)

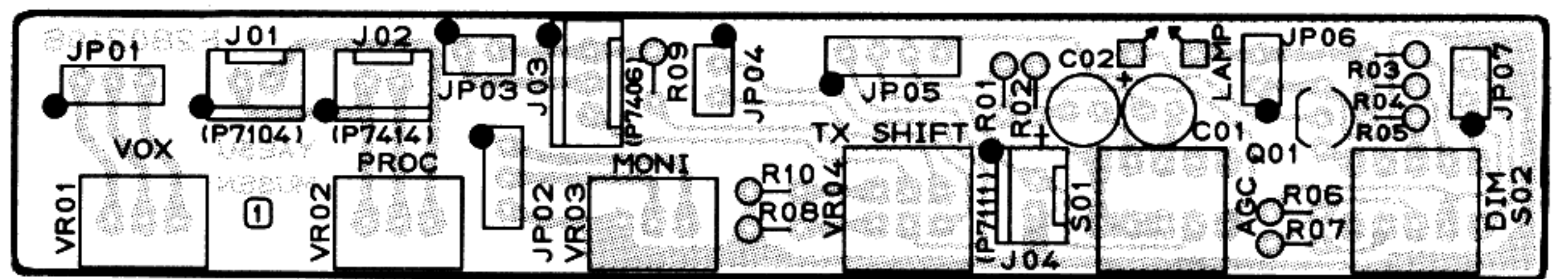


(Viewed from Solder side)

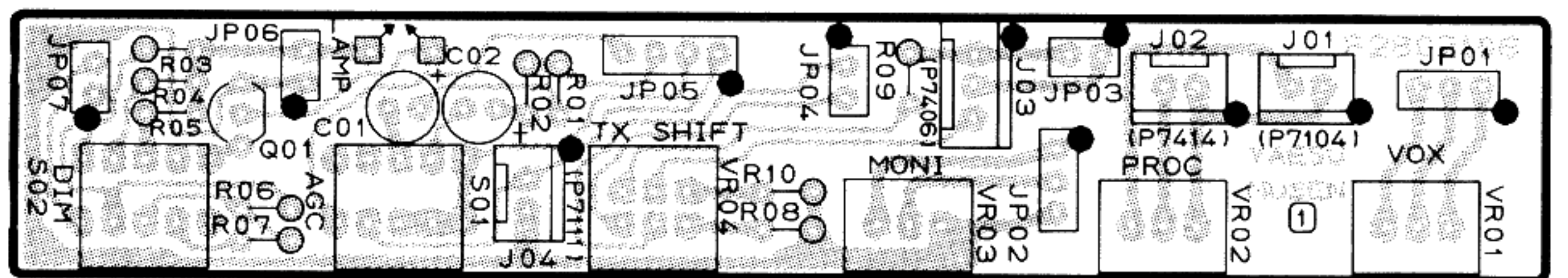
VR C UNIT PARTS LAYOUT



2SC1959Y (Q7301)

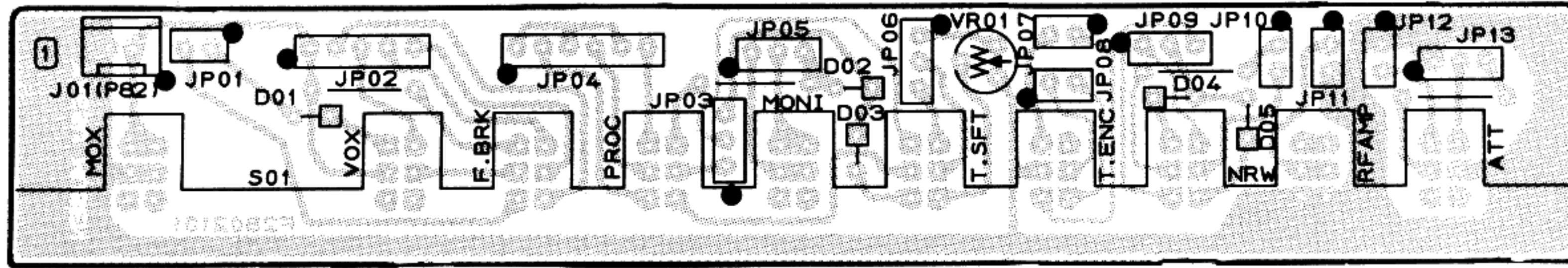


(Viewed from Component side)

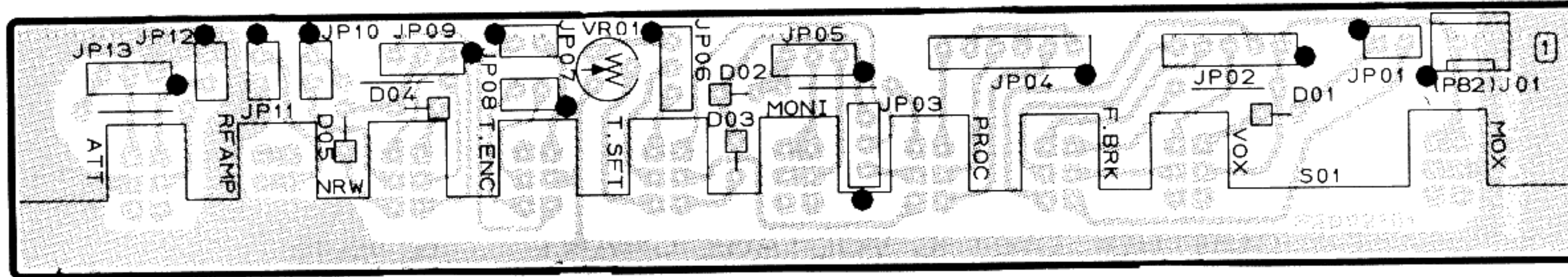


(Viewed from Solder side)

SW A UNIT PARTS LAYOUT

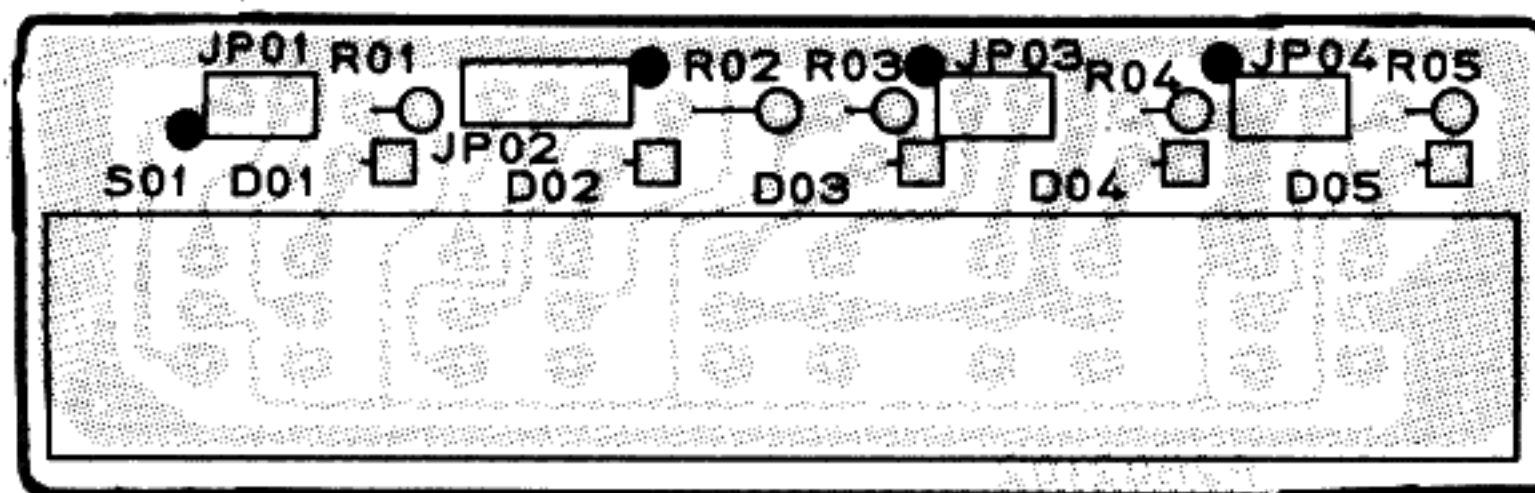


(Viewed from Component side)

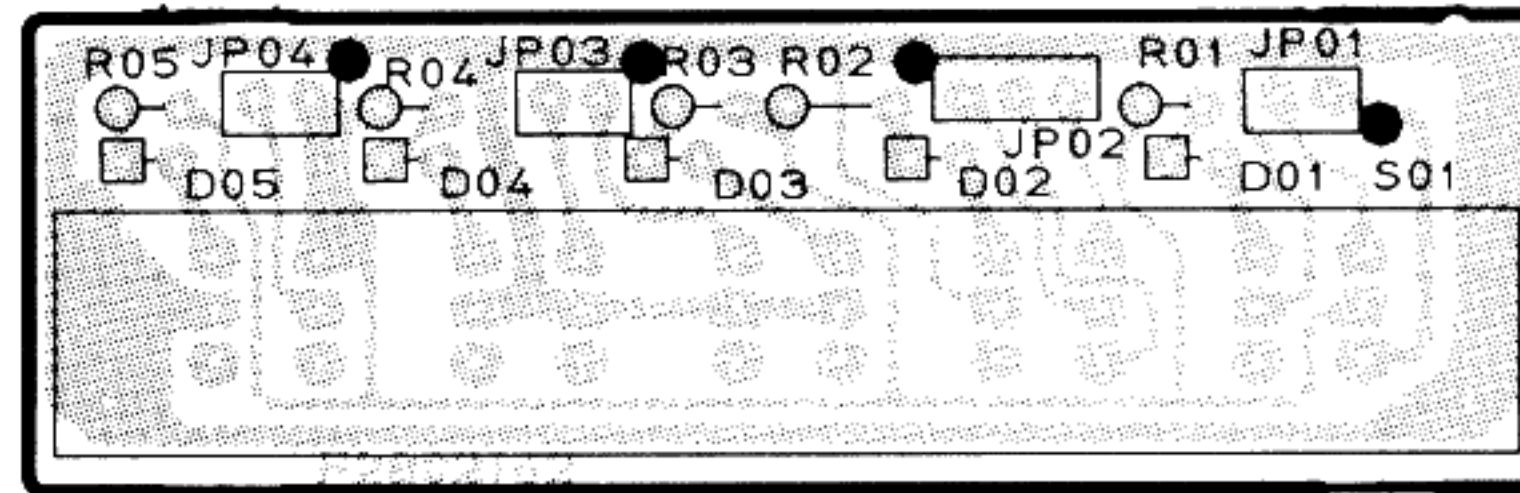


(Viewed from Solder side)

SW B UNIT PARTS LAYOUT

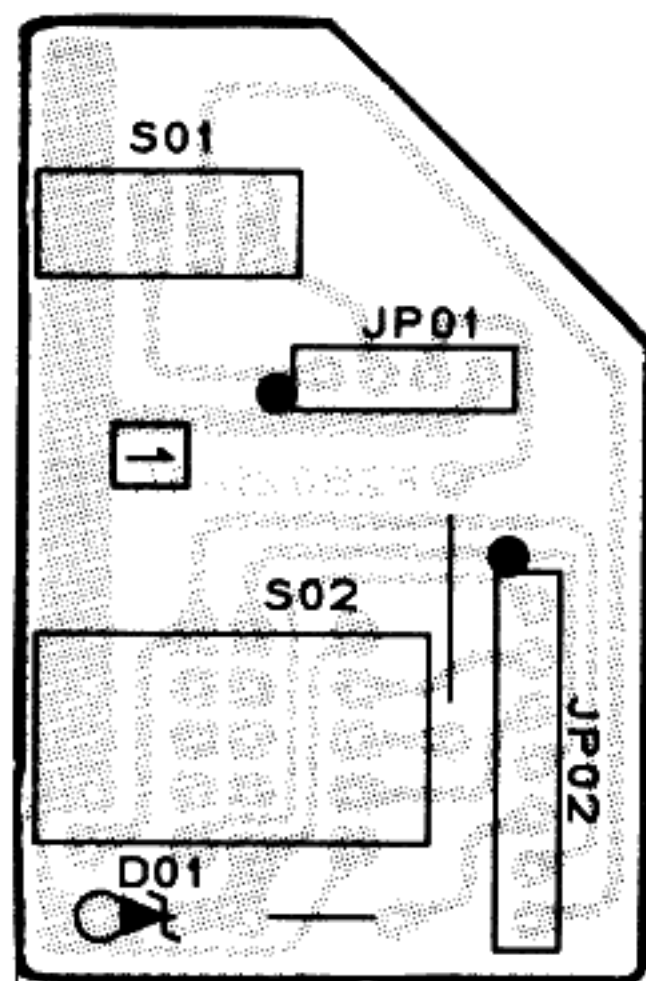


(Viewed from Component side)

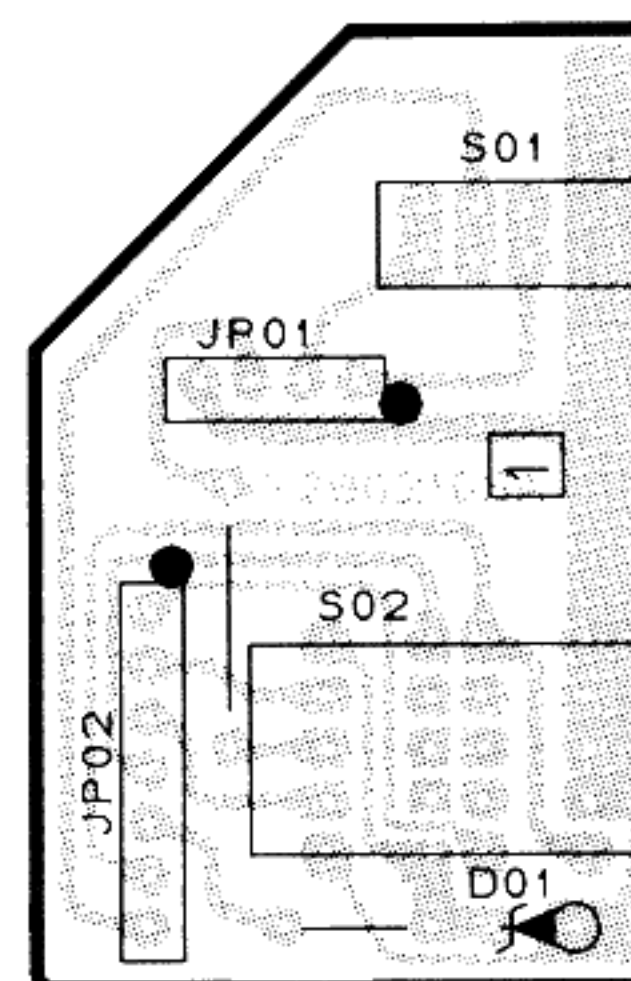


(Viewed from Solder side)

SW C UNIT PARTS LAYOUT



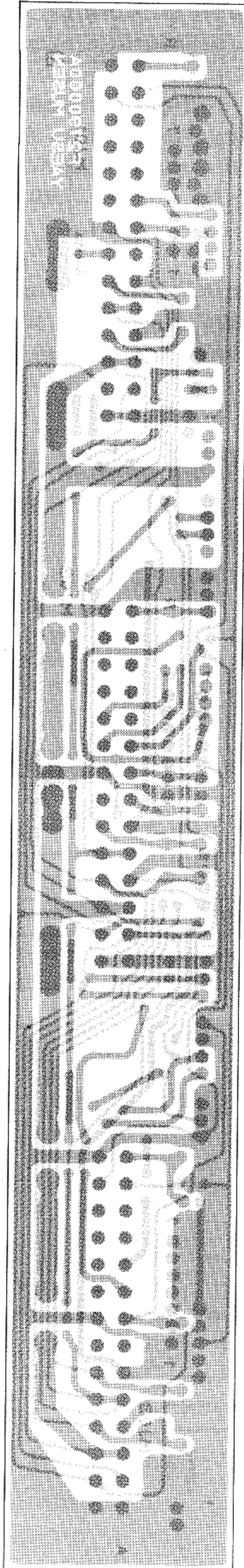
(Viewed from Component side)



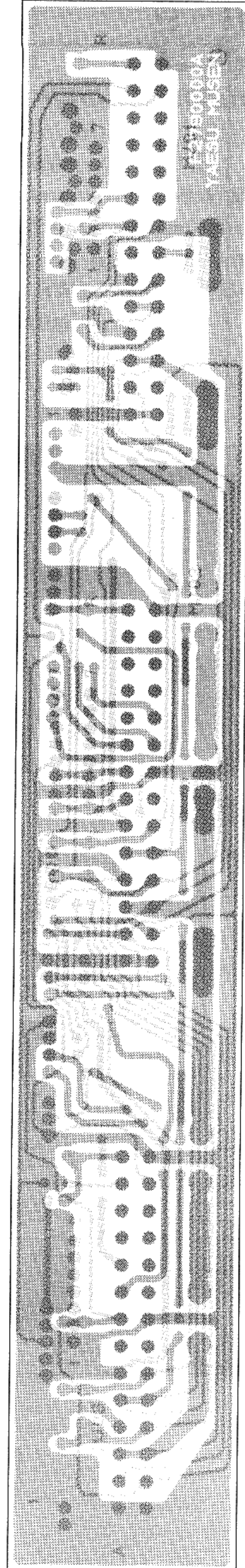
(Viewed from Solder side)

See page 19 for Schematic Diagrams of these Units.

TRV CNTL UNIT PARTS LAYOUT

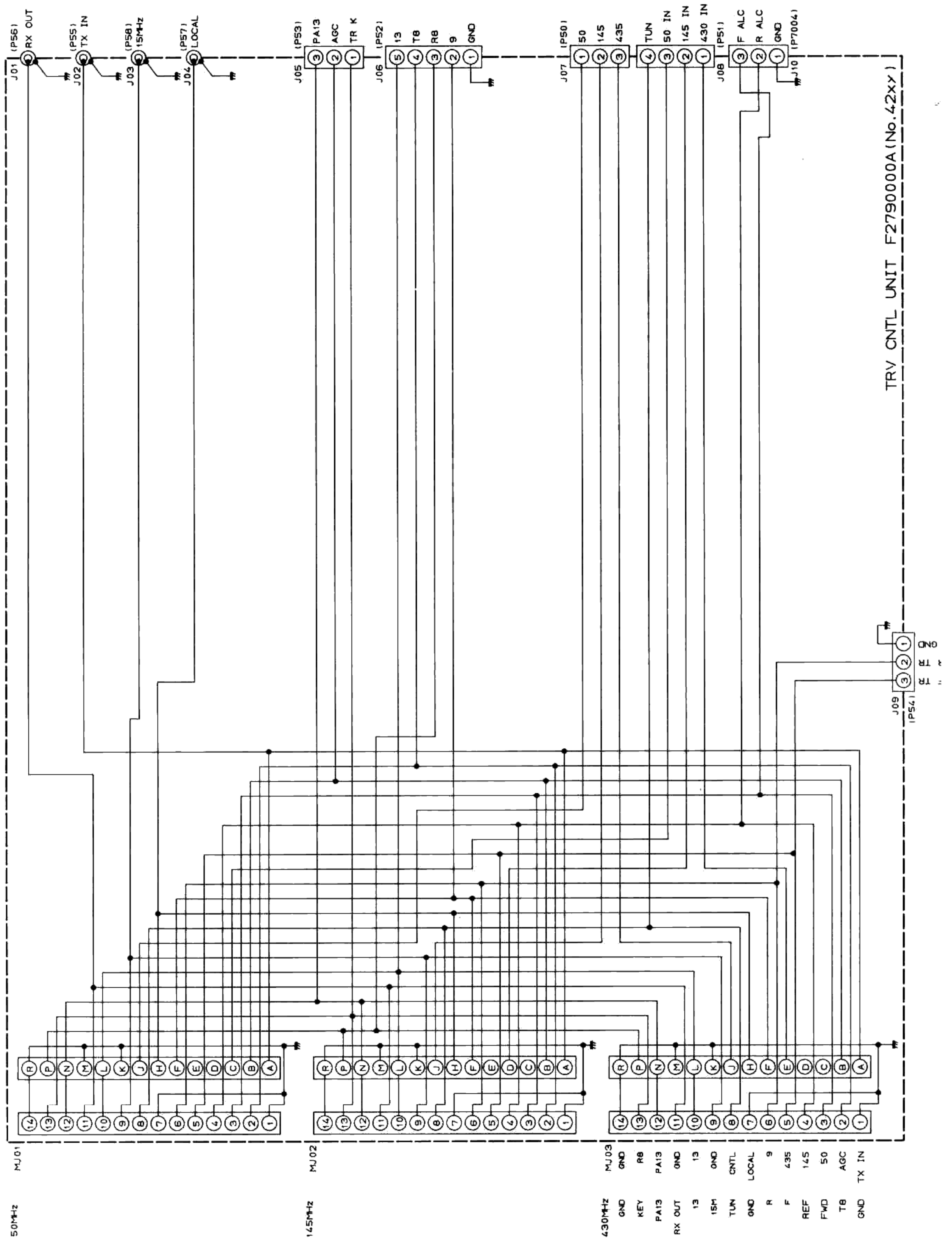


(Viewed from Component side)



(Viewed from Solder side)

TRV CNTL UNIT CIRCUIT DIAGRAM



FEX-767-6 6m BAND MODULE

LOCAL UNIT

Measurements and adjustments are to be made while receiving unless otherwise stated.

VCV (Varactor Control Voltage)

Tune the transceiver to 50.5 MHz, and connect the high impedance DC voltmeter to TP2002. Adjust VR2001, if necessary, for $2.0 \pm 0.2V$.

30 MHz Doubler

Tune the transceiver to 52.0 MHz. Connect the voltmeter to TP2001 and adjust T2007 and T2006 for maximum RF (at least 80 mVrms).

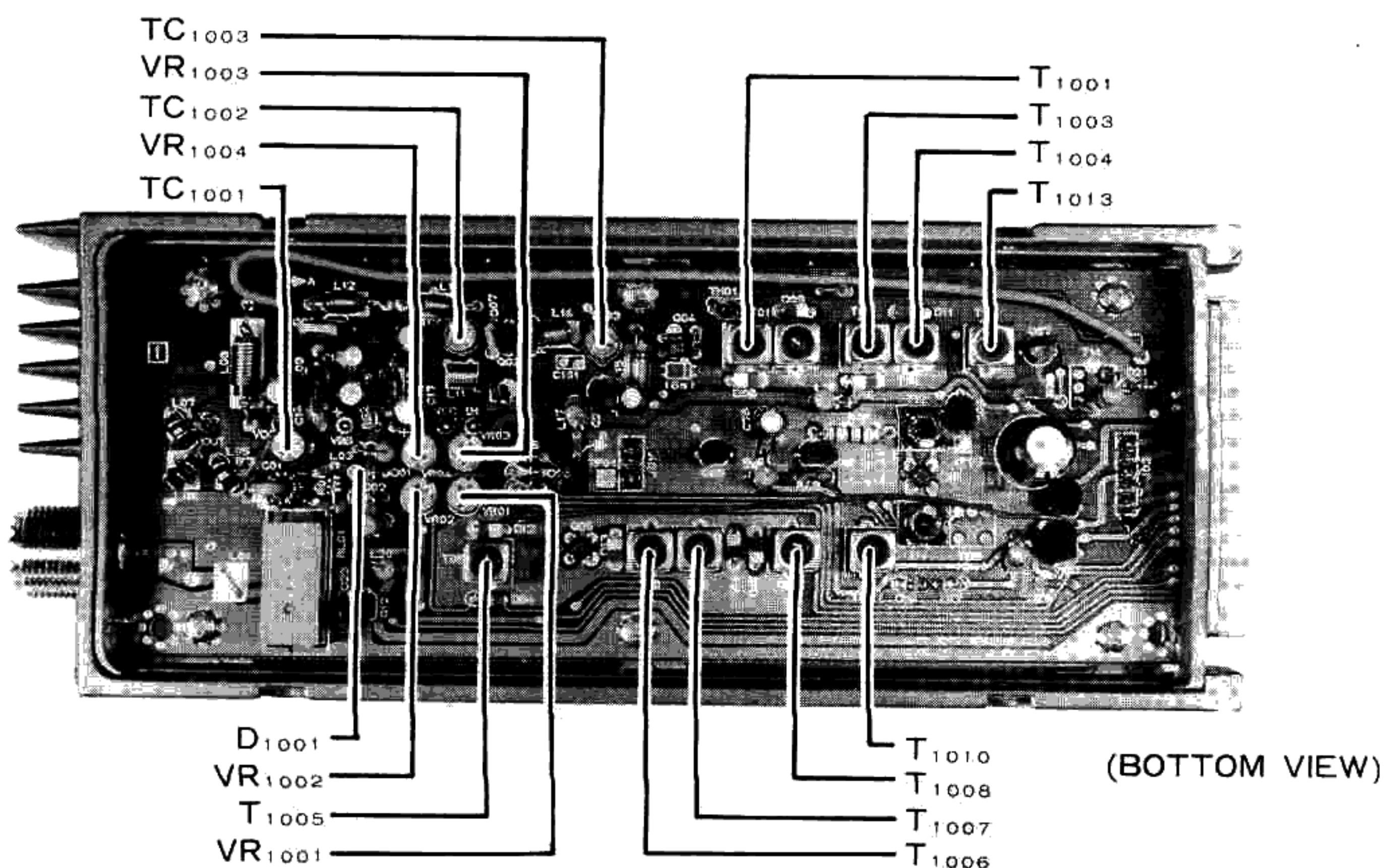
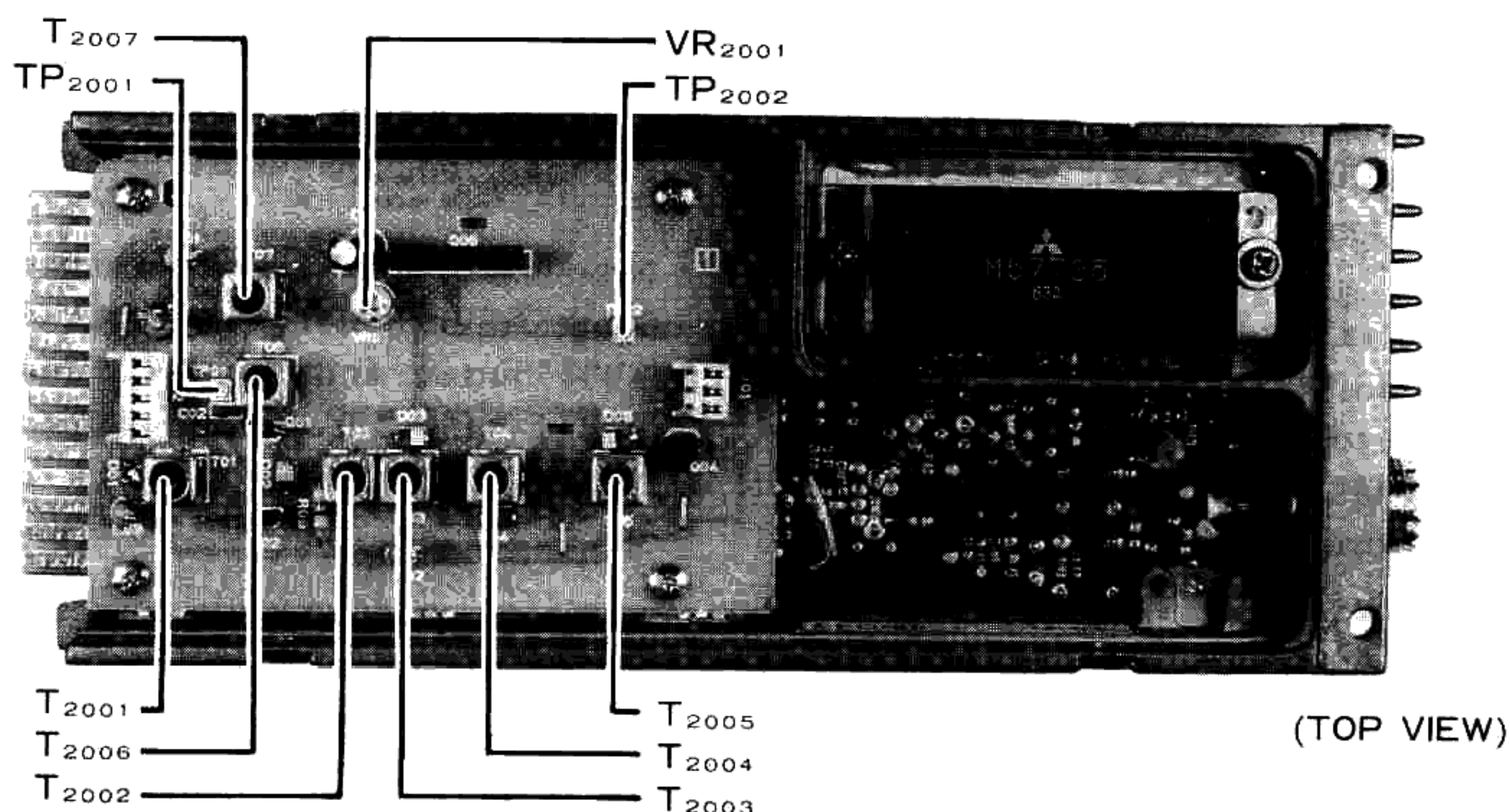
(3) Local Output Filters

Tune the transceiver to 51.5 MHz. Connect the RF voltmeter to pin 3 of J2001 and adjust T2001 through T2005 for maximum RF (at least 600 mVrms).

6m RECEIVING CONVERTER

(1) 6m Front End

Tune the transceiver to 50.5 MHz, USB mode. Inject a 60 dBu carrier at the receiving frequency to the 6m ANT jack and adjust T1013, T1008, T1007, T1006 and T1005 for maximum S-meter deflection.



FEX-767-6 Alignment Points

(2) 45 MHz Trap Coil

After the above step, retune the RF signal generator to 45.03 MHz and inject 90 dBu to the 6m ANT jack. Adjust T1010 for minimum S-meter deflection, and then repeat the previous step to realign T1008.

6M TRANSMITTING CONVERTER

Connect a 50-ohm dummy load and in-line wattmeter to the 6m ANT jack for all steps, except where indicated otherwise. Press the MOX button for all measurements.

(1) 6m Resonant Circuits

Tune the transceiver to 50.5 MHz, FM mode, and set the METER selector to ALC and the DRIVE control to the center of its range. Press the MOX button and adjust T1001 and T1004 for maximum ALC indication.

Retune to 51.8 MHz, press the MOX button and adjust T1002 and T1003 for maximum ALC indication. Now retune to 51.5 MHz, press the MOX button and adjust TC1003 and TC1002 for maximum ALC indication.

(2) 6m Directional CM Coupler Balance

Connect the DC voltmeter to the cathode of D1001 (top end), press the MOX button and adjust TC1001 for minimum voltage.

(3) 6m ALC Level

Tune to 52.0 MHz, FM mode, and set the DRIVE control fully clockwise. Press the MOX button and adjust VR1001 for 12W on the wattmeter. Now remove the dummy load and wattmeter, press the MOX button, and adjust VR1003 for 5W on the transceiver's digital wattmeter.

(4) Digital Wattmeter and SWR Meter

Replace the dummy load and wattmeter at the 6m ANT jack. In the FM mode, press the MOX button and adjust the DRIVE control for 10W on the external wattmeter. Press the RF PWR button and MOX button adjust VR1002 for the same indication on the digital display.

Now connect a 150-ohm dummy load (3 50-ohm loads in series) to the 6m ANT jack. Press the SWR button and the MOX button, and adjust VR1004 for 3.0 on the digital display.

FEX-767-2 2m BAND MODULE

Band center for Version B is 145.0 MHz, and for Version A, 146.0 MHz. The high band edge for for Version B is 146.999 MHz, and for Version A, 147.999 MHz.

2m LOCAL UNIT

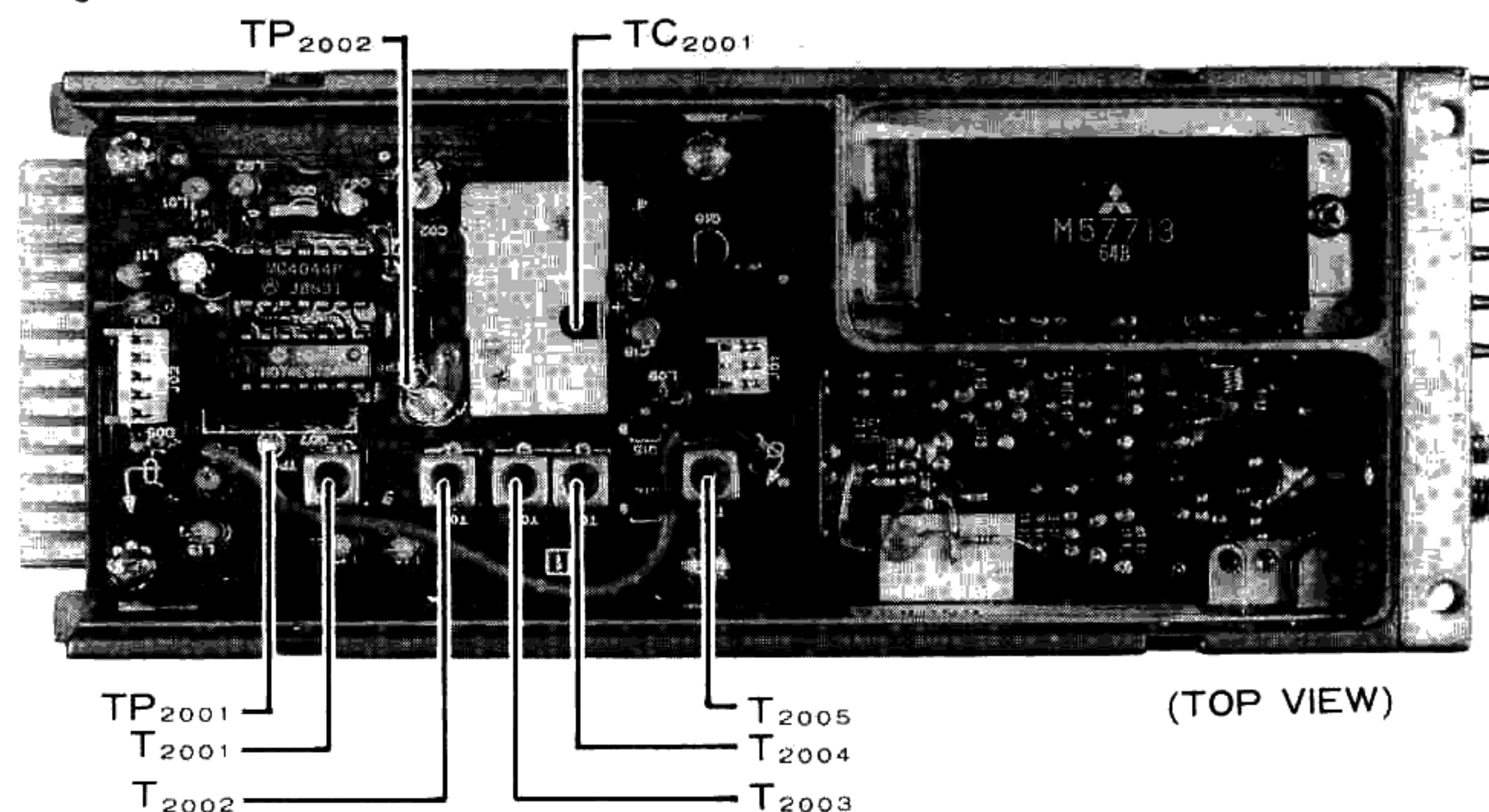
All measurements and adjustments are to be made while receiving unless otherwise stated.

(1) VCV (Varactor Control Voltage)

Tune to the high band edge, and connect the high-impedance DC voltmeter to TP2002. Adjust TC2001 for 6.5V (Version A), or 5V (Version B). Retune to 144.0 MHz and confirm 3 to 4V.

(2) 120 MHz Mixer, Loop Amplifier

Tune the transceiver to band center. Connect the oscilloscope or spectrum analyzer to TP2001 and adjust T2001 through T2005 for maximum RF (at least 250 mVrms). Caution: make



FEX-767-2 Alignment Points

sure that the signal tuned is at 120 MHz, and not a spurious mixer product.

2m RECEIVING CONVERTER

Tune the transceiver to band center, USB mode. Inject a 60 dBu carrier at the receiving frequency to the 2m ANT jack and adjust T1013, T1008, T1007, T1006 and T1005 for maximum S-meter deflection.

TRANSMITTING CONVERTER

Connect a 50-ohm dummy load and in-line wattmeter to the 2m ANT jack for all steps, except where indicated otherwise. Press the MOX button for all measurements.

(1) 2m Resonant Circuits

Tune the transceiver to band center, FM mode. Set the METER selector to ALC and DRIVE control to the center of its range. Preset VR1001 and VR1003 to mid-range. Press the MOX button and adjust T1004, T1003, T1002 and T1001 for maximum ALC indication. Perform the following two procedures to align VR1001 and VR1003.

(2) 2m Directional CM Coupler Balance

Connect the DC voltmeter to the cathode of D1001 (top end), press the MOX button and adjust TC1001 for minimum voltage.

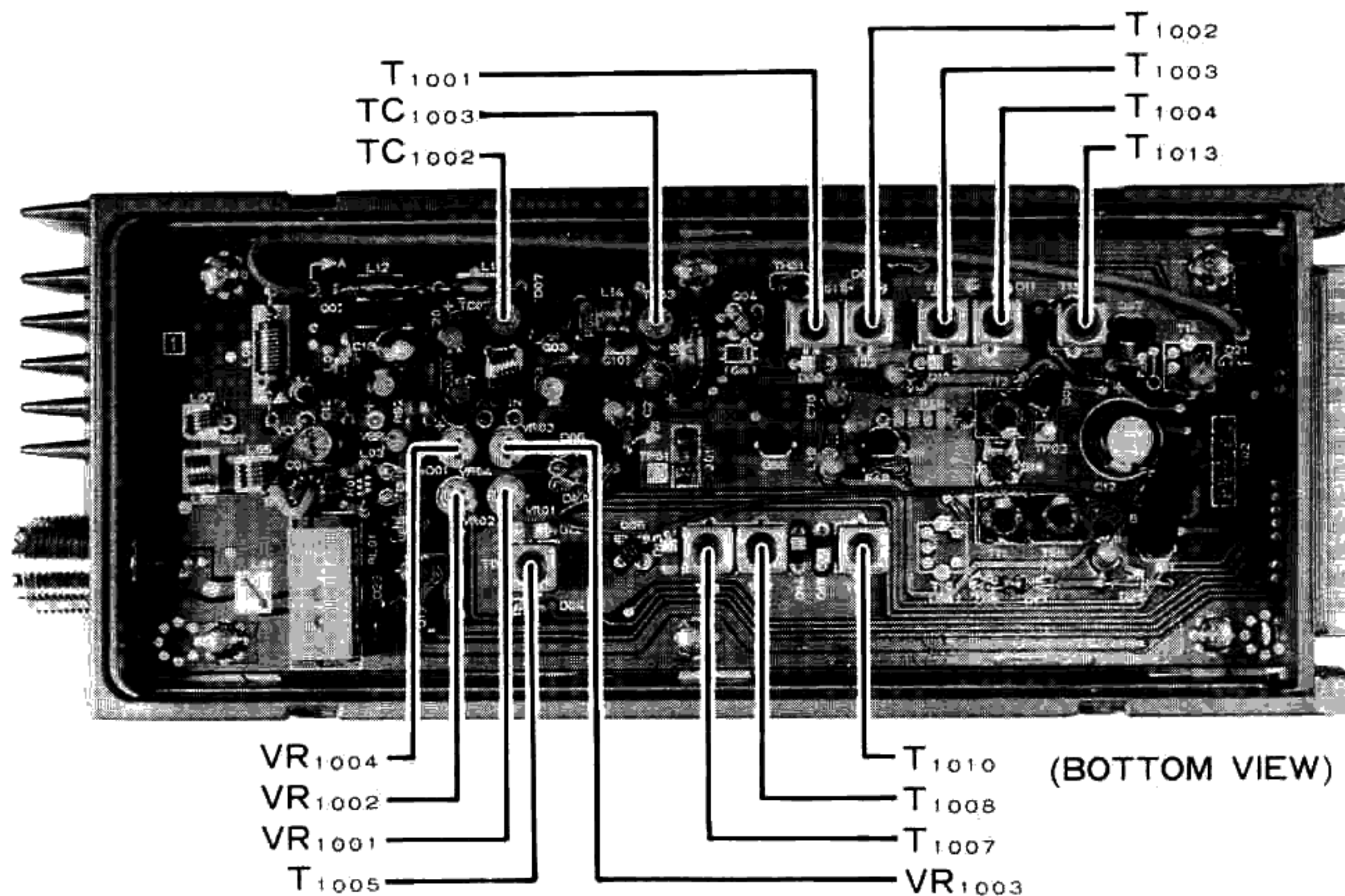
(3) 2m ALC Level

Tune to band center, FM mode, and set the DRIVE control fully clockwise. Press the MOX button and adjust VR1001 for 12W on the wattmeter. Now replace the 50-ohm dummy load with 150 ohms. Press the MOX button and adjust VR1003 to the point where the wattmeter indication just begins to drop.

(4) Digital Wattmeter and SWR Meter

Return the 50-ohm dummy load to the 2m ANT jack. In the FM mode, press the MOX button and adjust the DRIVE control for 10W on the external wattmeter. Press the RF PWR button and adjust VR1002 for the same indication on the digital display.

Remove the dummy load and wattmeter from the 2m ANT jack. Press the SWR button and the MOX button, and adjust VR1004 for a 8 or more on the digital display. Then replace the 50-ohm load again and confirm 1.2 or less SWR on the digital display.



FEX-767-2 Alignment Points

FEX-767-7 70cm BAND MODULE

Band center for Version B is 435.0 MHz, and for Version A, 445.0 MHz. The high band edge for for Version B is 449.999 MHz, and for Version A, 439.999 MHz. The low band edge for Version B is 430.00 MHz, and for Version A, 440.00 MHz.

70cm PLL UNIT

All measurements and adjustments are to be made while receiving unless otherwise stated.

(1) VCV (Varactor Control Voltage)

Tune to the low band edge, and connect the high-impedance DC voltmeter to TP2001. Adjust TC2001 for 2.0V. Retune to the high band edge and confirm 4.5 to 5.5 V.

(2) Local Bandpass

Tune to band center. Connect the RF voltmeter to pin 2 of J01 and adjust both sides of CV2001 and CV2002 for maximum deflection (at least 280 mVrms).

(3) 410 MHz Loop Amplifier

Connect the RF voltmeter to the top end of R2017 and adjust both sides of CV2003 and CV2004 for maximum RF voltage. Now turn the cores 180° clockwise from the maximum position, and confirm at least 80 mVrms remains.

70cm RECEIVING CONVERTER

Tune the transceiver to band center, USB mode. Inject a 60 dBu carrier at the receiving frequency to the 70cm ANT jack and adjust TC1001 and TC1003 for maximum S-meter deflection.

Now tune the transceiver and signal generator to the high band edge and adjust CV1003(b) and CV1004(b) for maximum S-meter deflection.

Retune to 500 kHz above the low band edge and adjust CV1003(a) and CV1004(a) for maximum S-meter deflection.

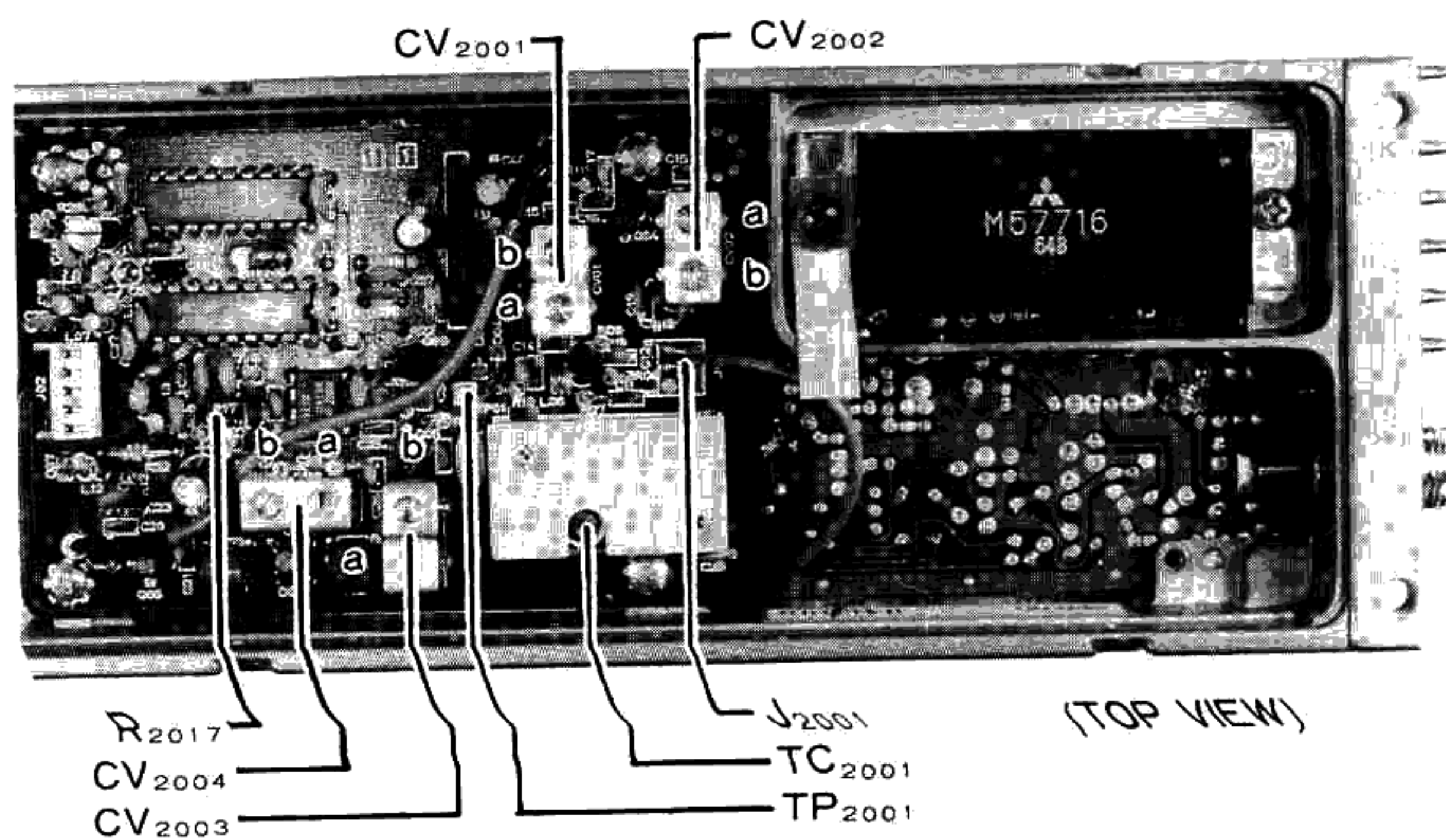
Repeat adjustment of the helical resonator several times.

70cm TRANSMITTING CONVERTER

Connect a 50-ohm dummy load and in-line wattmeter to the 70cm ANT jack for all steps except where indicated otherwise. Press the MOX button for all measurements.

(1) 70cm Resonant Circuits

Tune the transceiver to band center, FM mode and set the METER selector to ALC and the DRIVE control to the center of its range. Preset VR1002 fully counterclockwise, and VR1001 to mid-range.



FEX-767-7 Alignment Points

Press the MOX button and adjust both sides of CV1002 and CV1001, and then TC1002 and TC1001 for maximum ALC indication.

Retune to the low band edge, press the MOX button and readjust CV1002(b) for maximum ALC. Then retune to the high band edge, press the MOX button and readjust CV1002(a) for maximum ALC. Repeat at the low and high band edges several times.

Perform the following two procedures to align VR1002 and VR1004.

(2) 70cm Directional CM Coupler Balance

Connect the DC voltmeter to the cathode of D1002 (top end), press the MOX button and adjust VR1001 for minimum voltage (less than 0.5V).

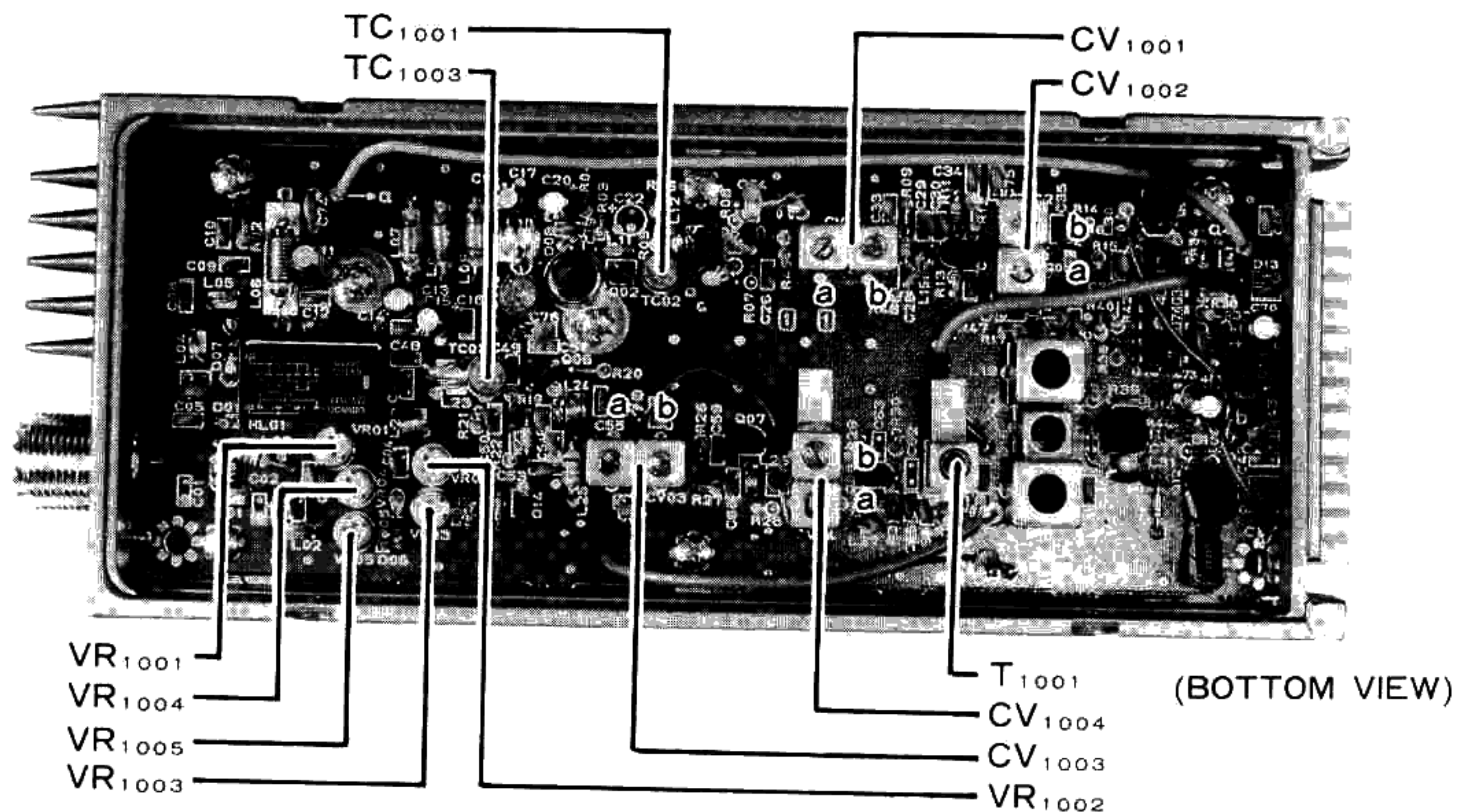
(3) 70cm ALC Level

Tune to band center, FM mode, and set the DRIVE control fully clockwise. Press the MOX button and adjust VR1004 for 12W on the wattmeter. Now replace the 50-ohm dummy load with 150 ohms. Press the MOX button and adjust VR1002 to the point where the wattmeter indication just begins to drop.

(4) Digital Wattmeter and SWR Meter

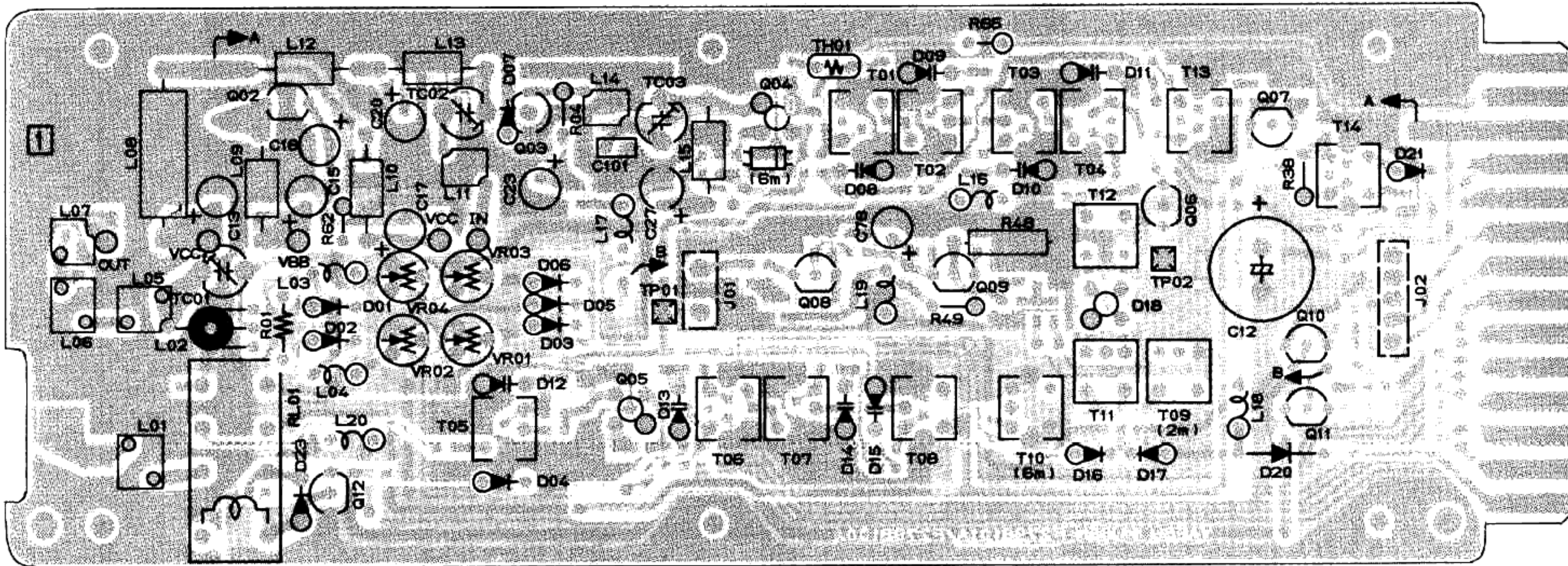
Return the 50-ohm dummy load to the 70cm ANT jack. In the FM mode, press the MOX button and adjust the DRIVE control for 10W on the external wattmeter. Press the RF PWR button and adjust VR1005 for the same indication on the digital display.

Connect the 150-ohm dummy load in place of the 50-ohm load to the 70cm ANT jack. Press the SWR button and the MOX button, and adjust VR1003 for 3.0 on the digital display.

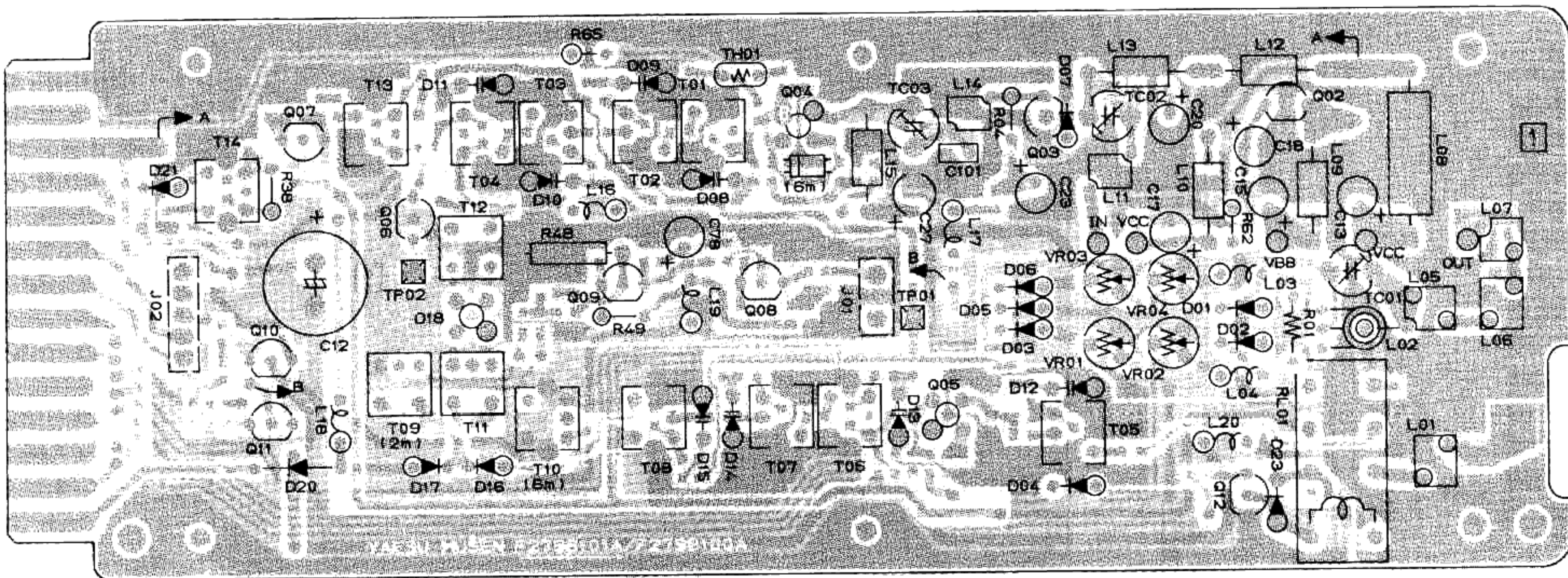


FEX-767-7 Alignment Points

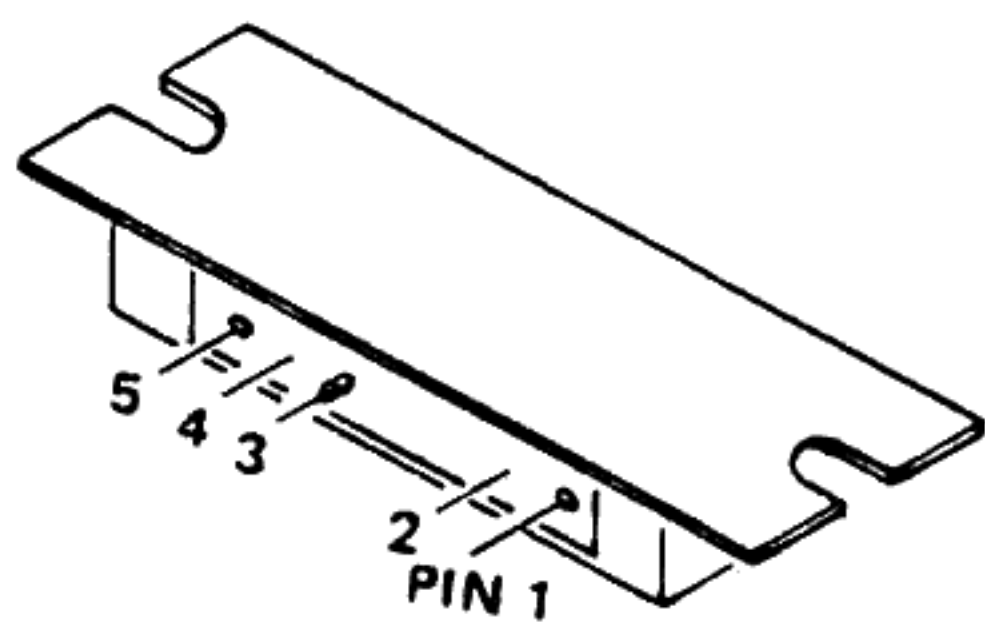
MAIN UNIT



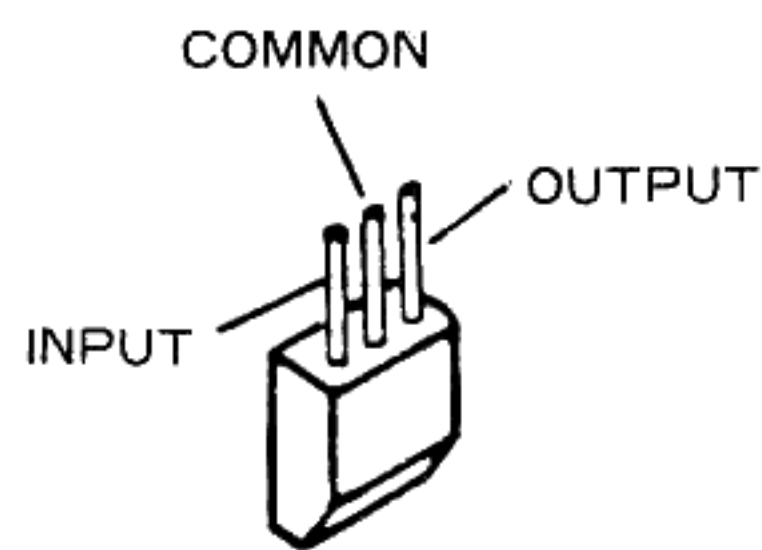
(Obverse view of "component" side)



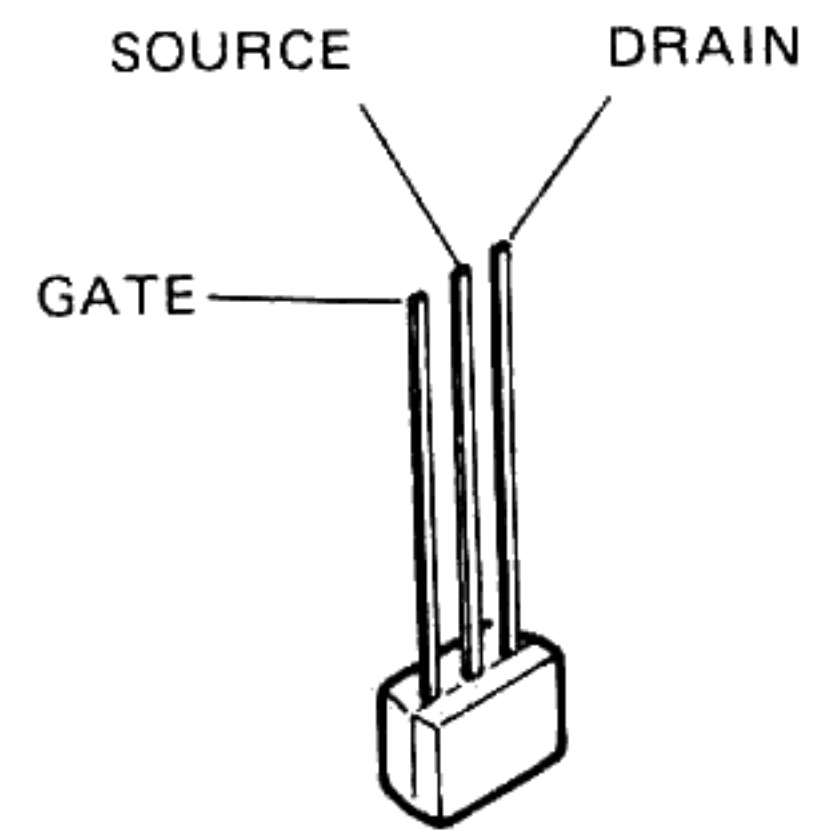
(Reverse view of "component" side)



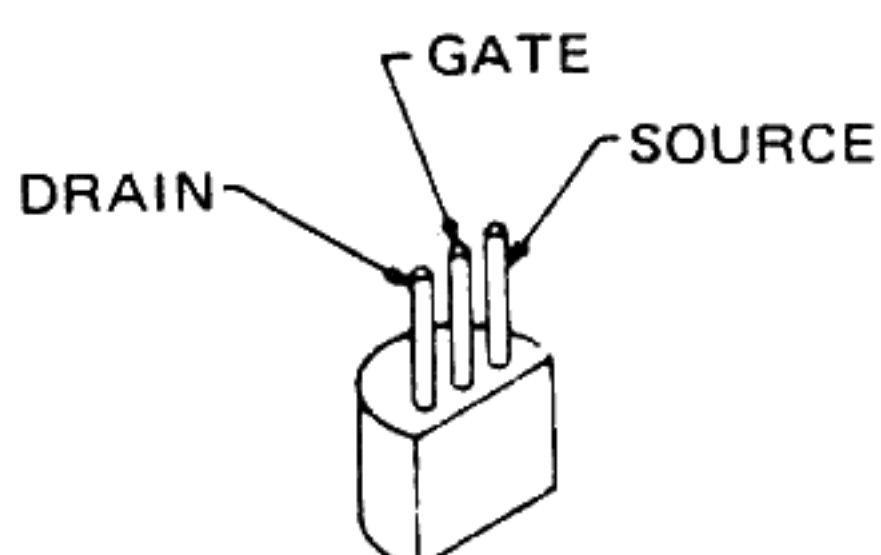
M57735 (Q1001)



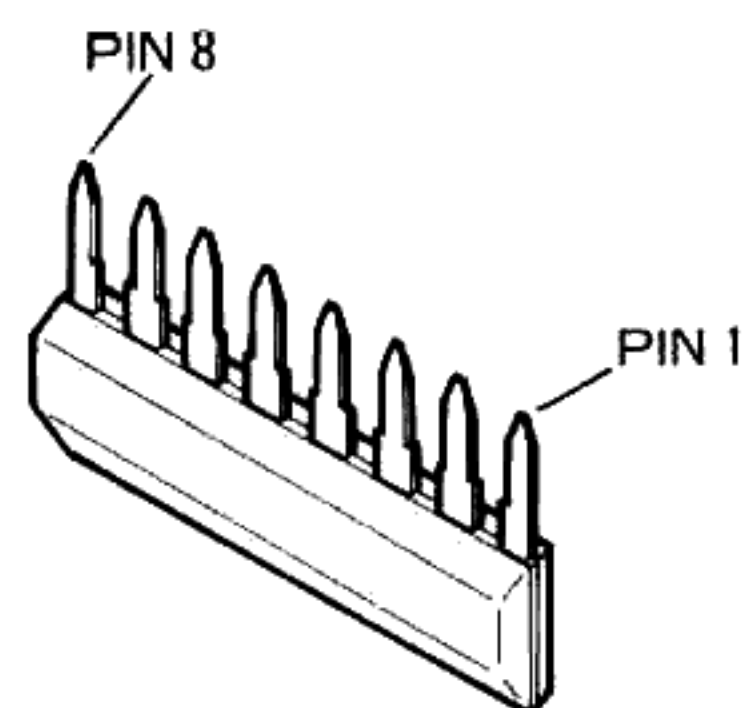
μPC78L08 (Q1002)



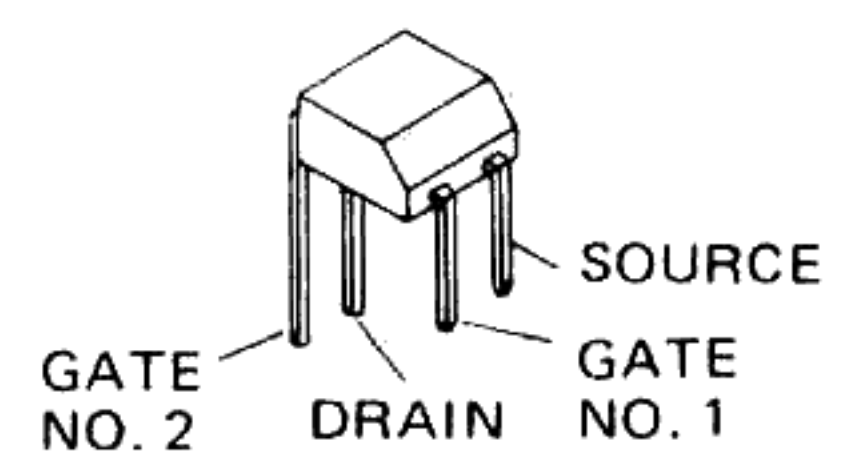
2SK241Y (Q2001, 2002)



2SK125 (Q1006)



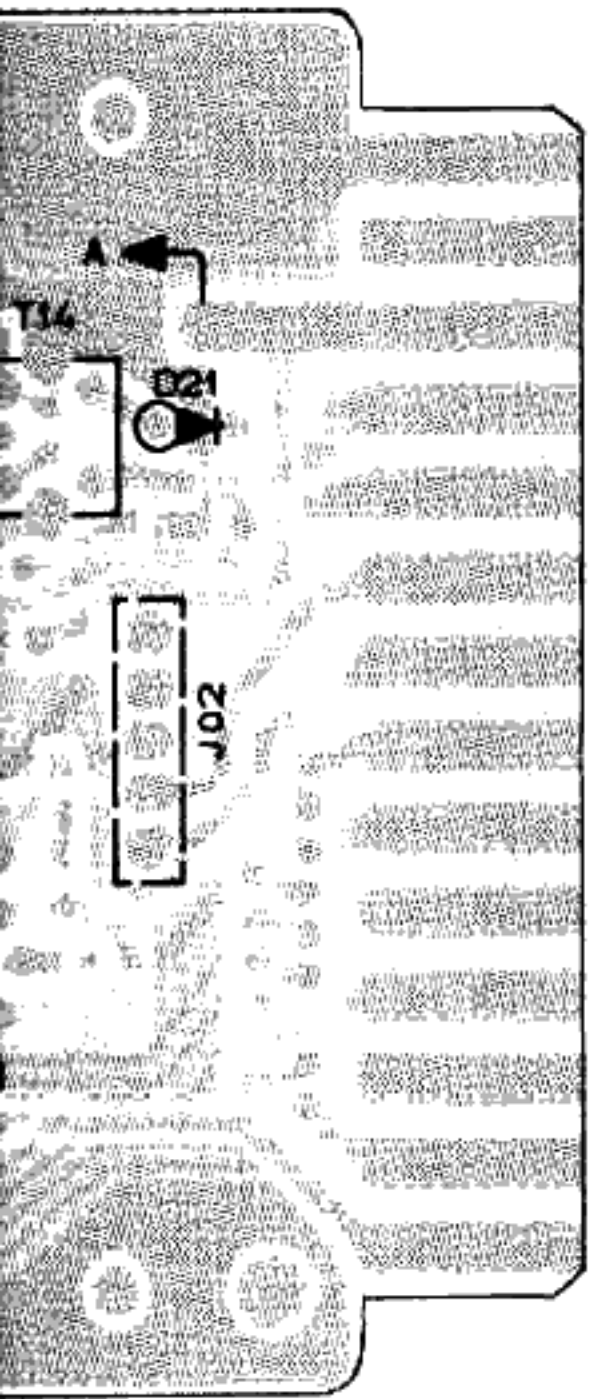
M5218L (Q2006)



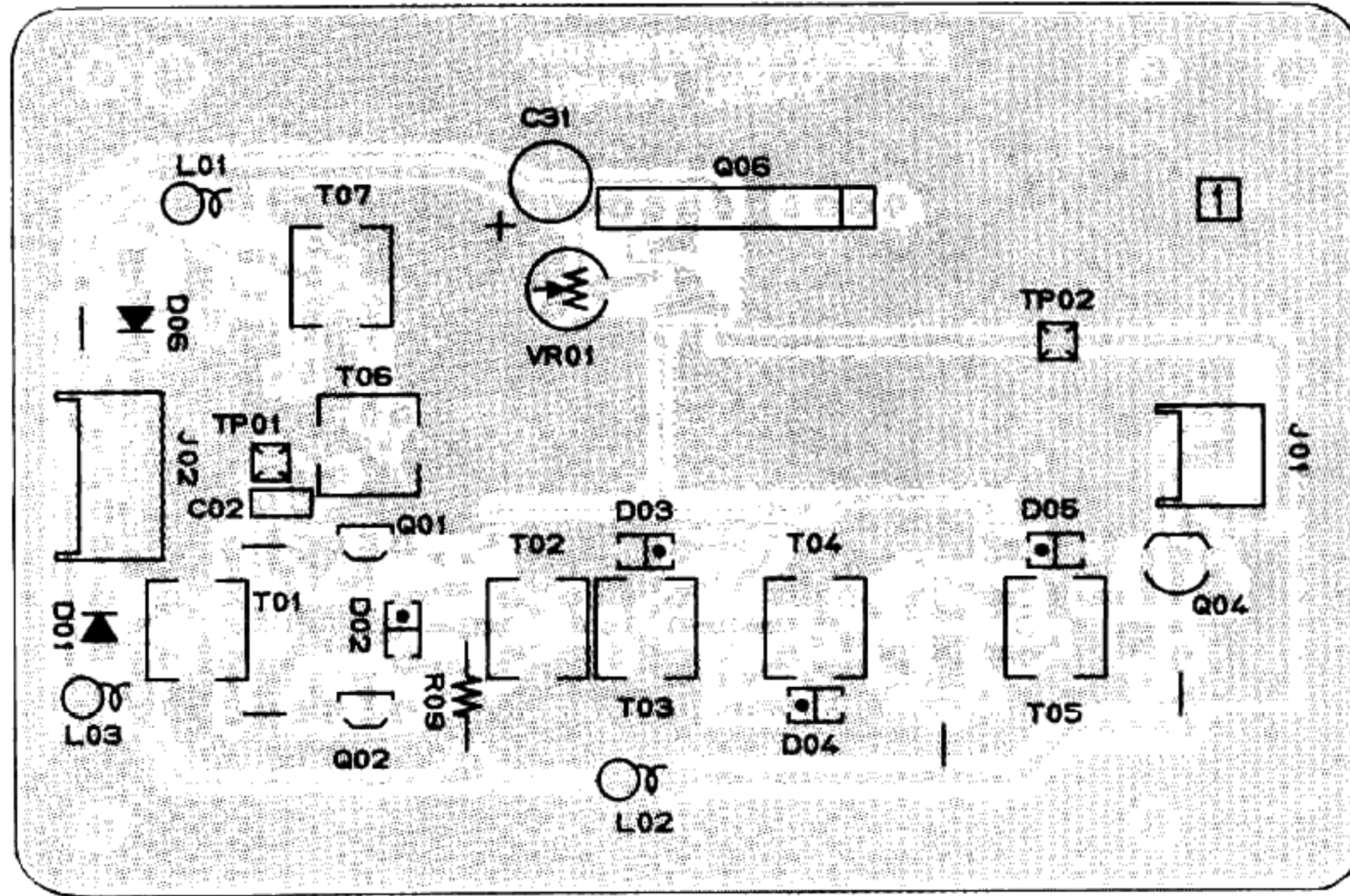
3SK73Y (Q1004)

K-767-6 PARTS LAYOUT

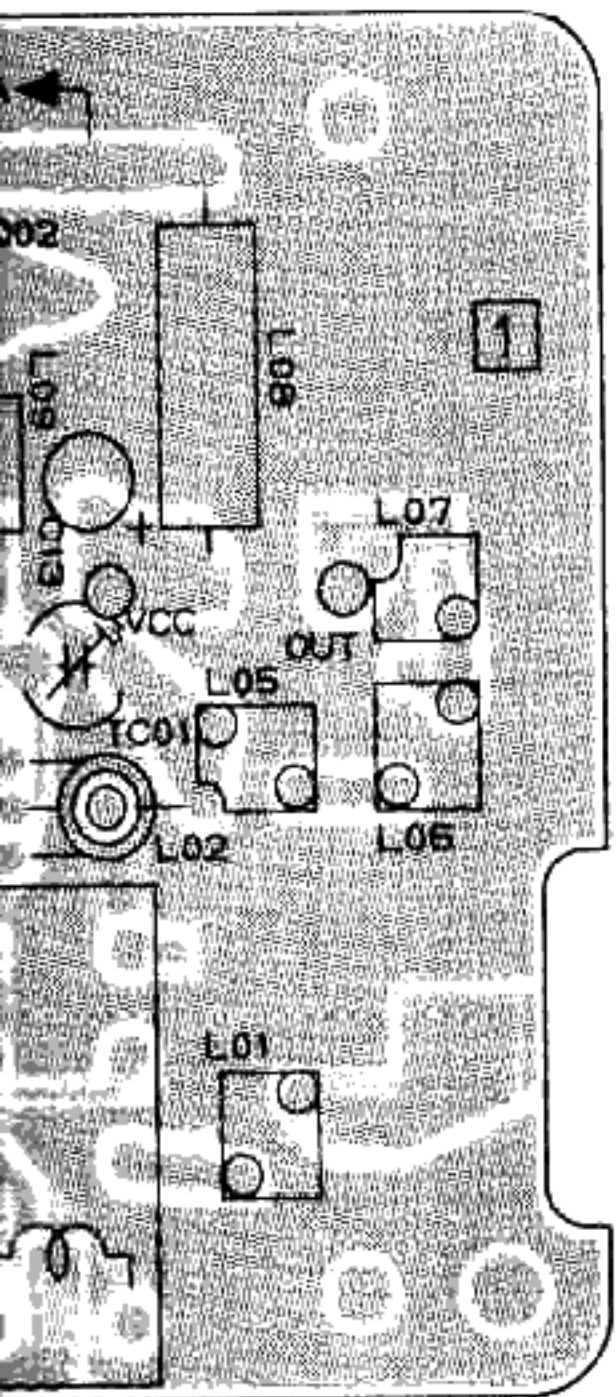
LOCAL UNIT



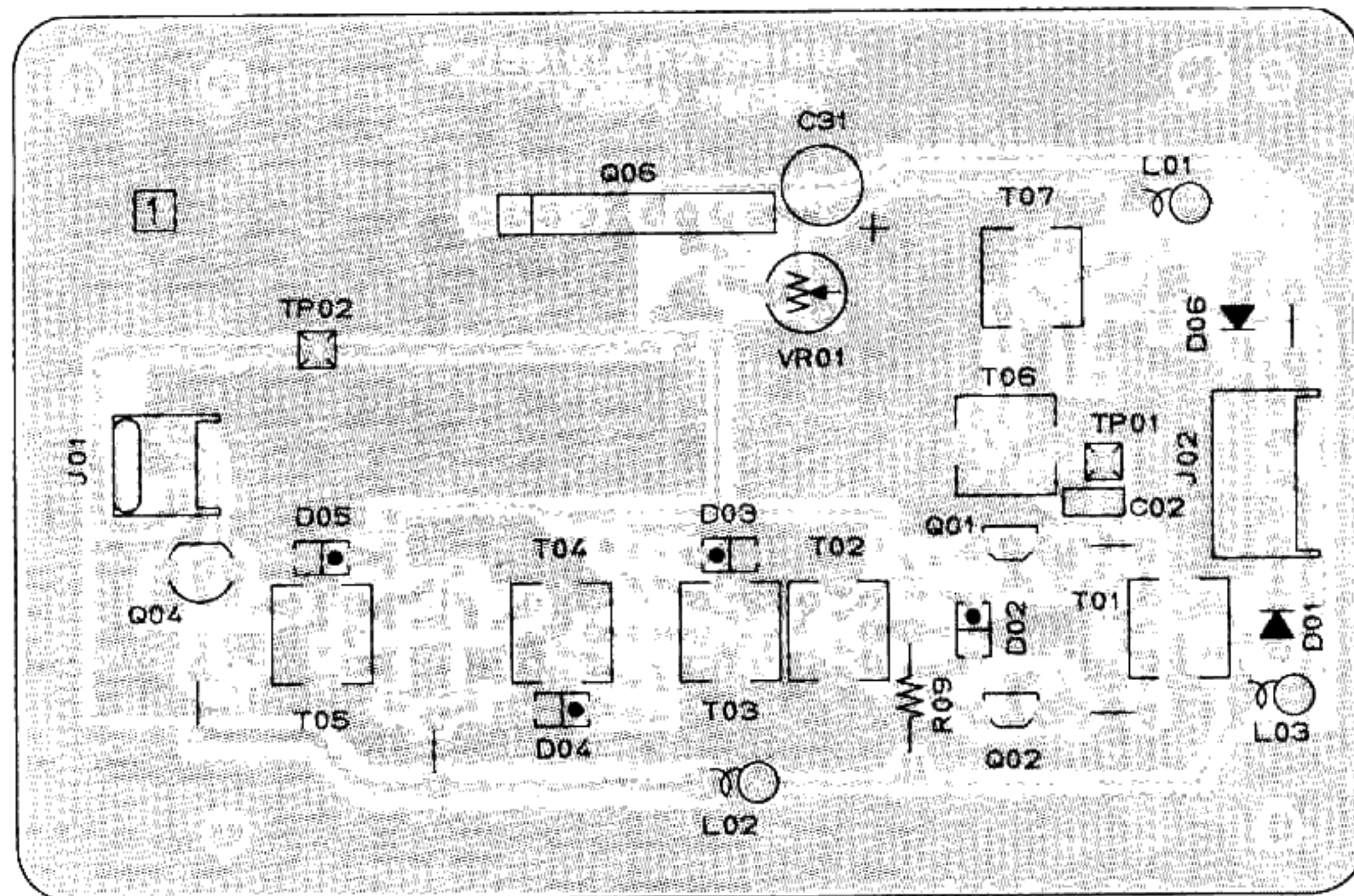
nt" side)



(Obverse view of "component" side)

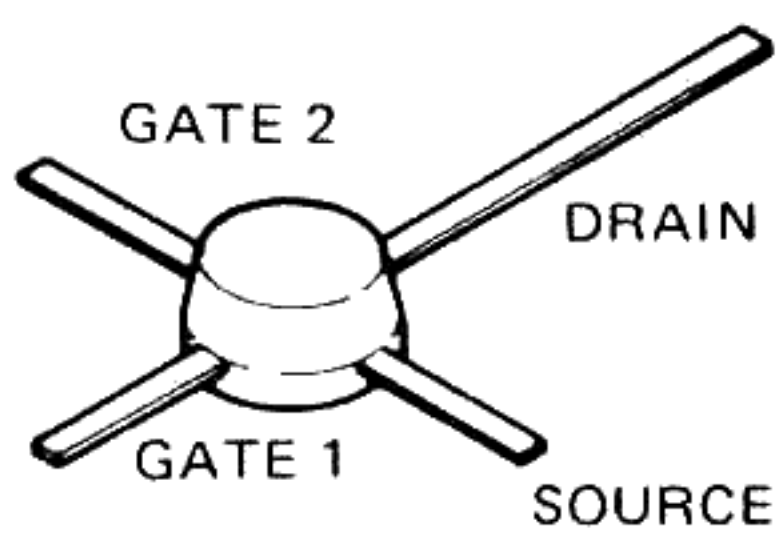


nt" side)



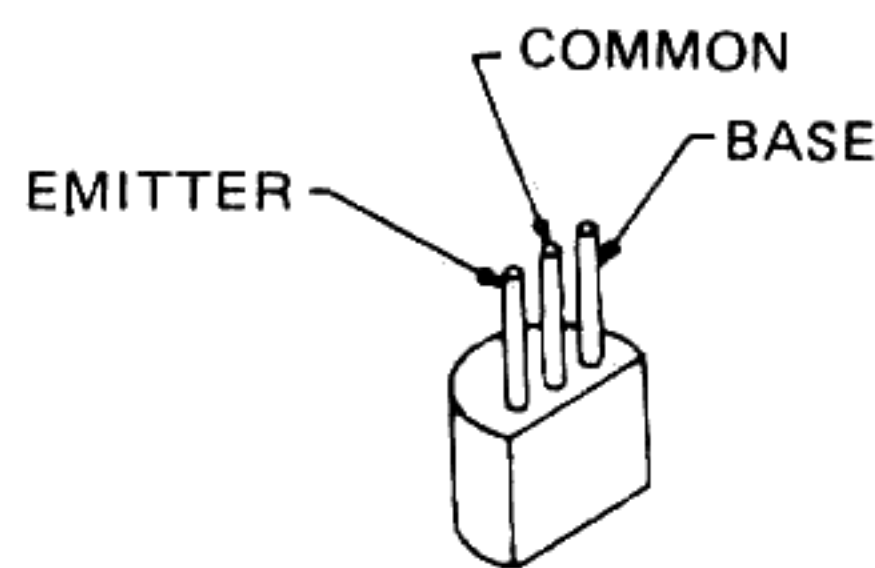
(Reverse view of "component" side)

DRAIN

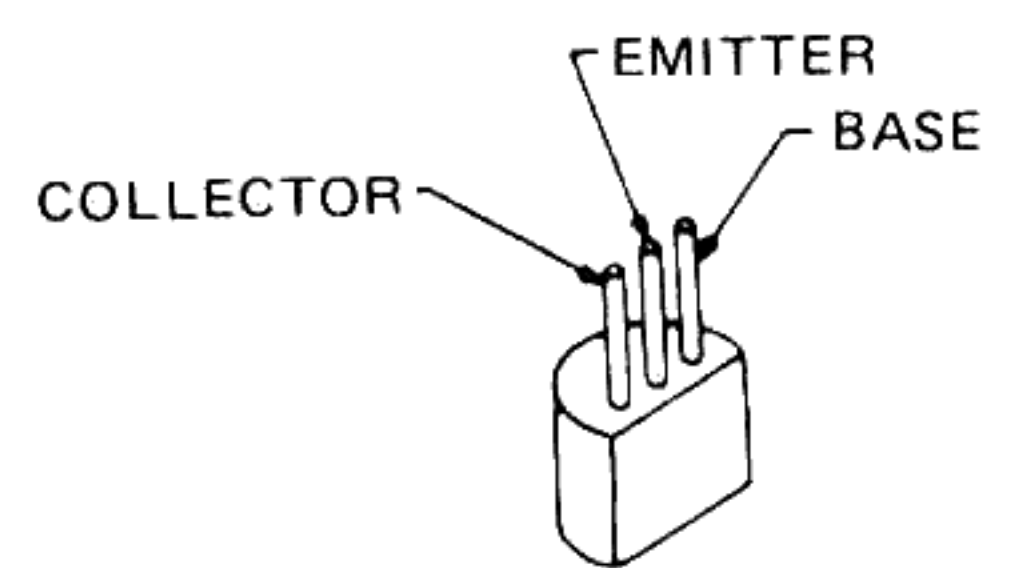


3SK74Y (Q1005)

2002)



2SC2053 (Q1003)

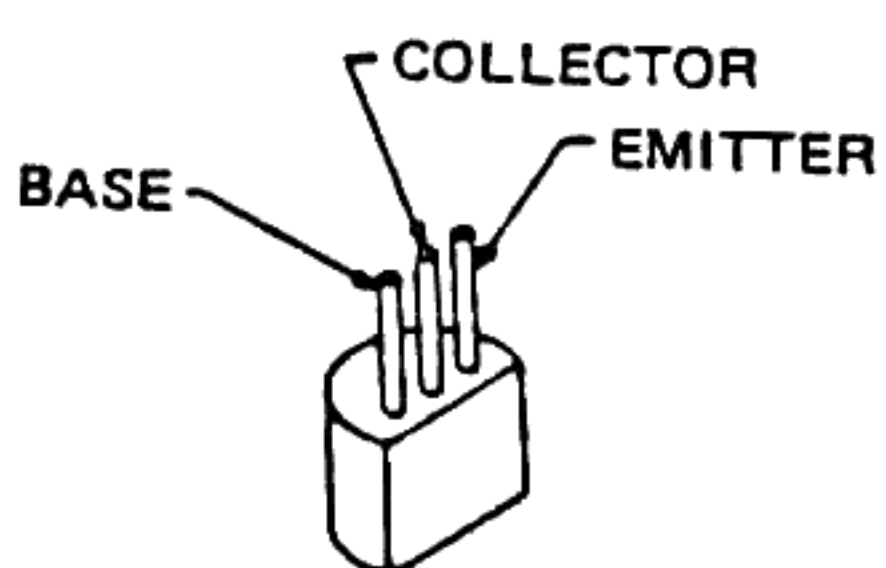


2SC2026 (Q1008)
2SC2407A (Q1009)

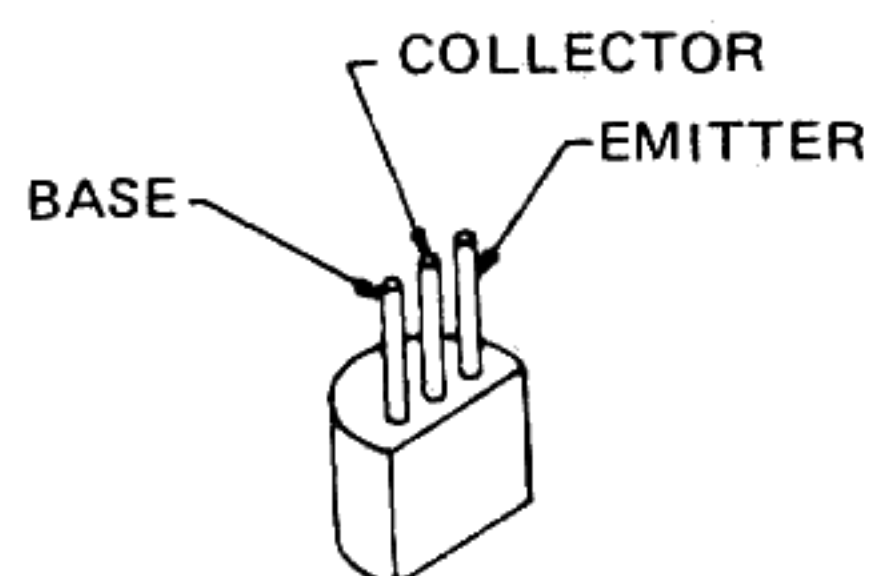
SOURCE

GATE
0.1

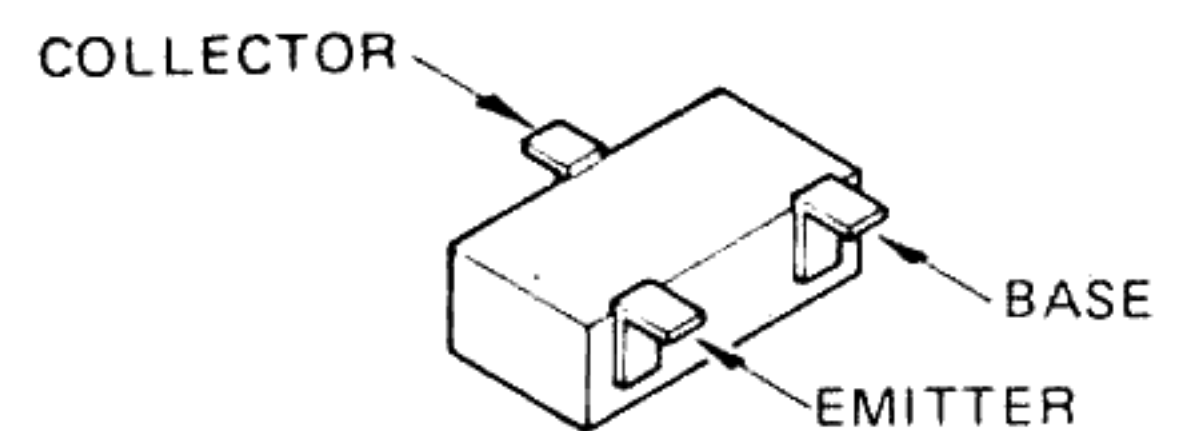
04)



2SA684 (Q1010, Q1011)



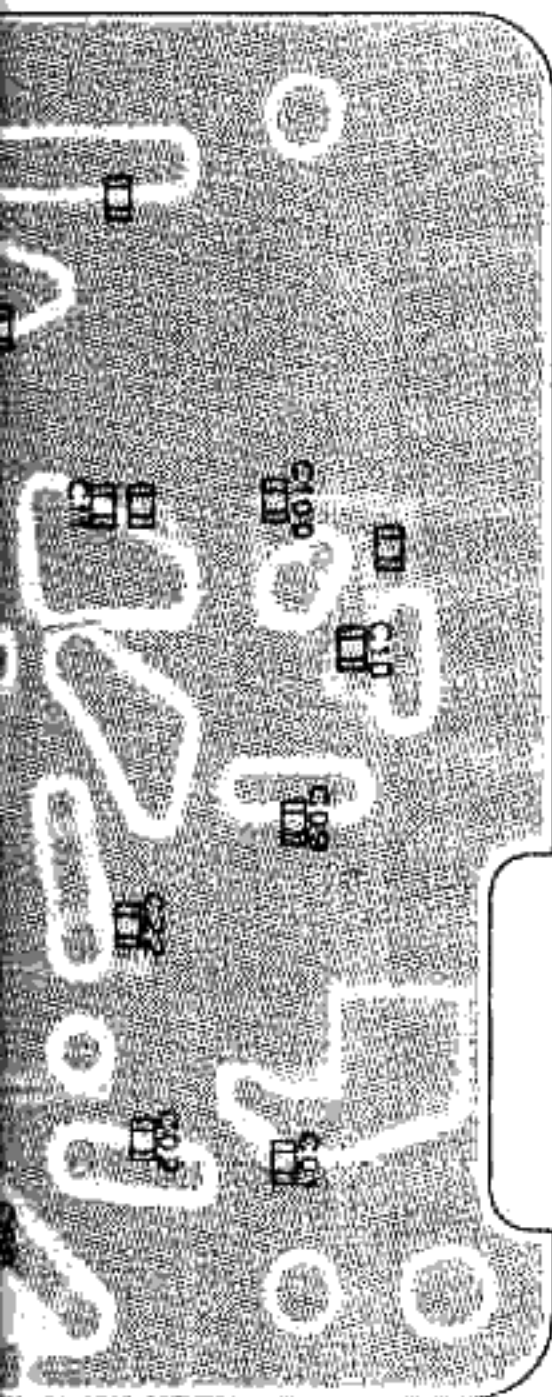
2SC535B (Q1007)
2SC19230 (Q2004)
2SC2001 (Q1012)



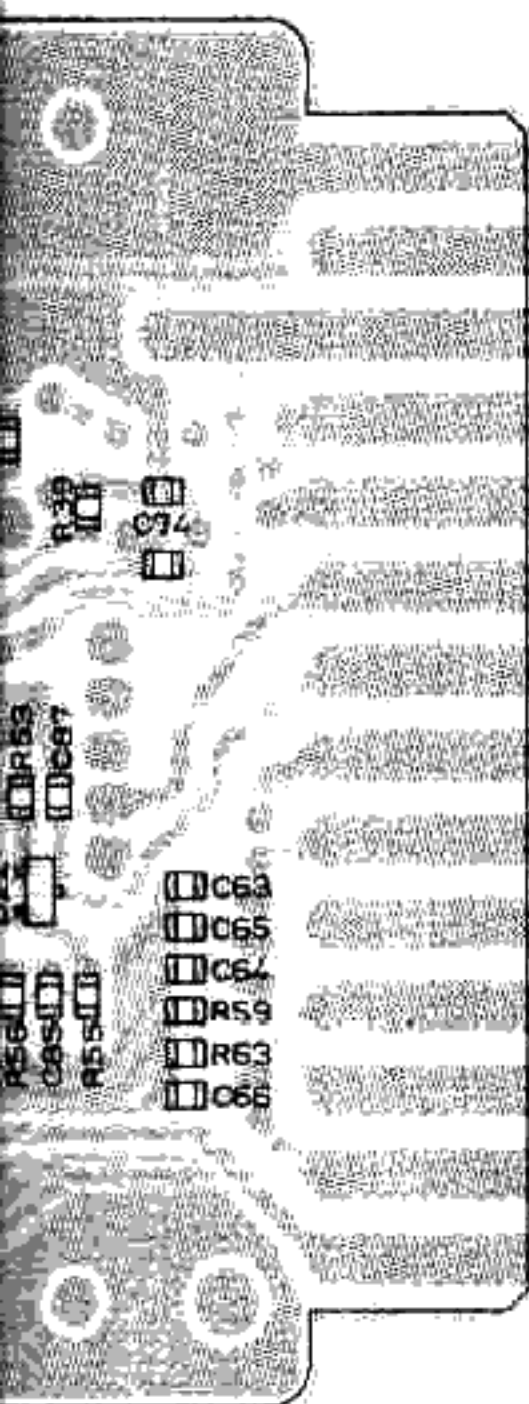
Marked Surface
2SC2620QB (Q2003)
2SC1623 (Q2005)

FEX-767-6 PARTS LAYOUT

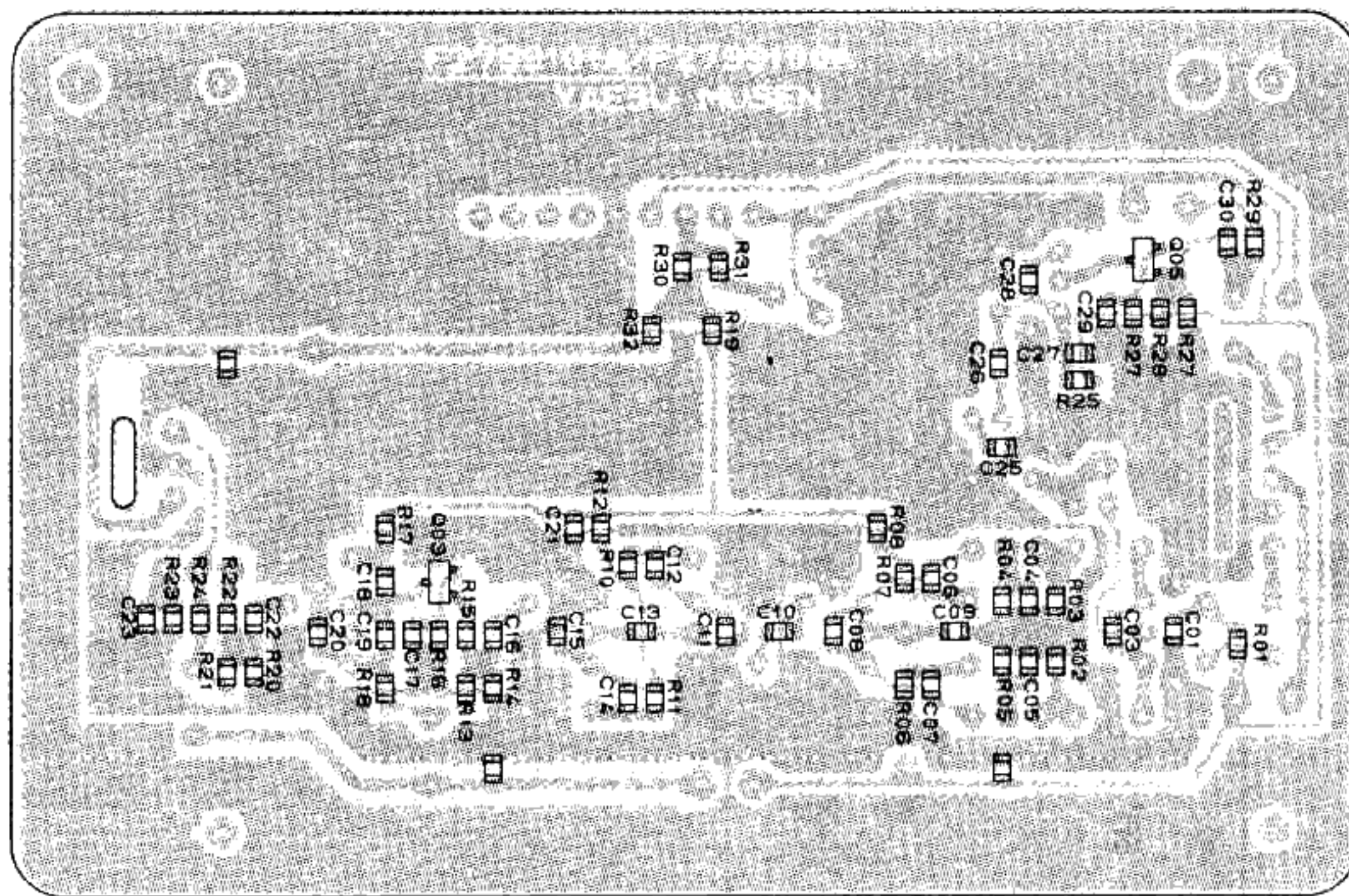
LOCAL UNIT



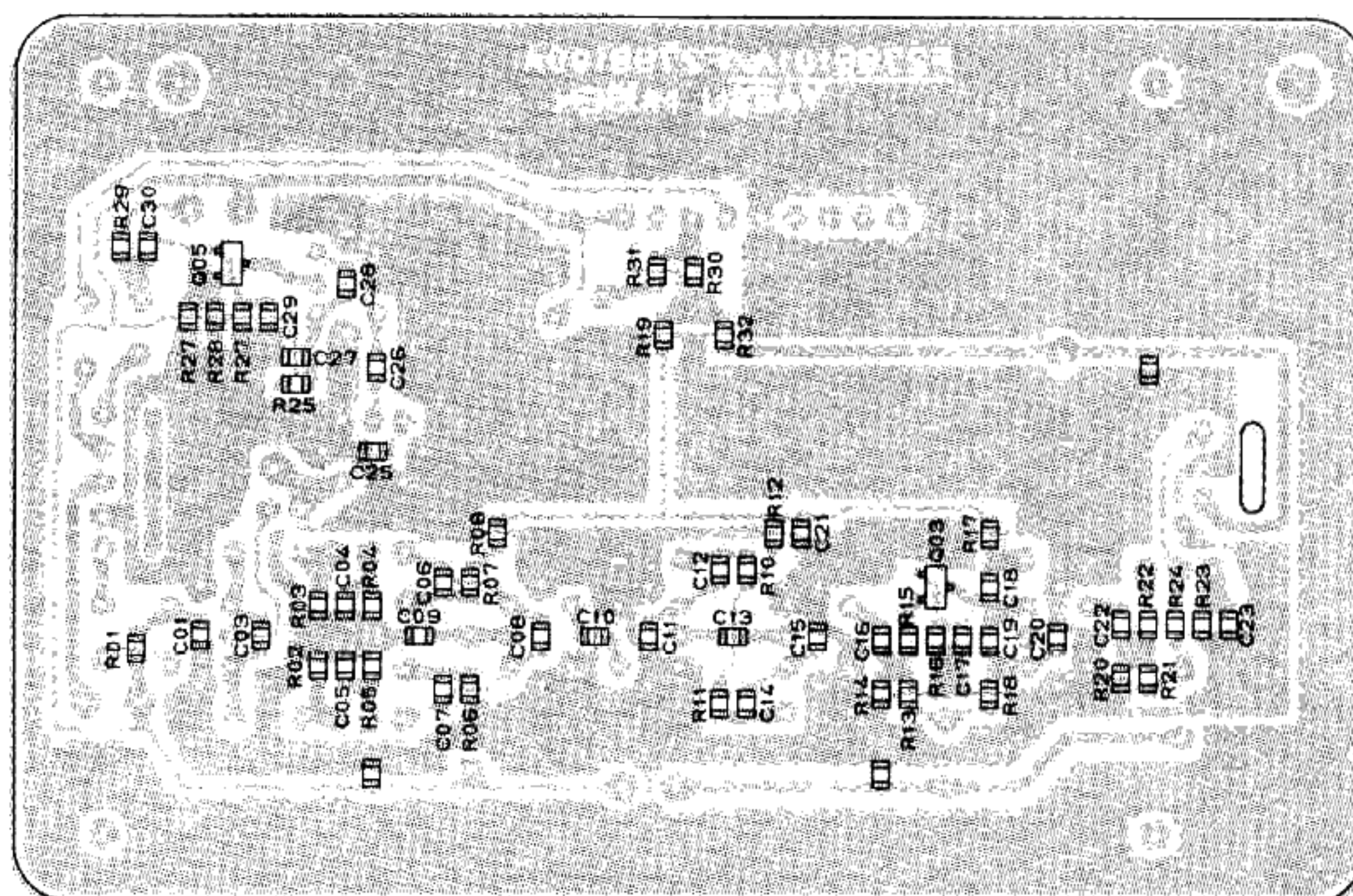
side)



side)



(Obverse view of "chip-only" side)



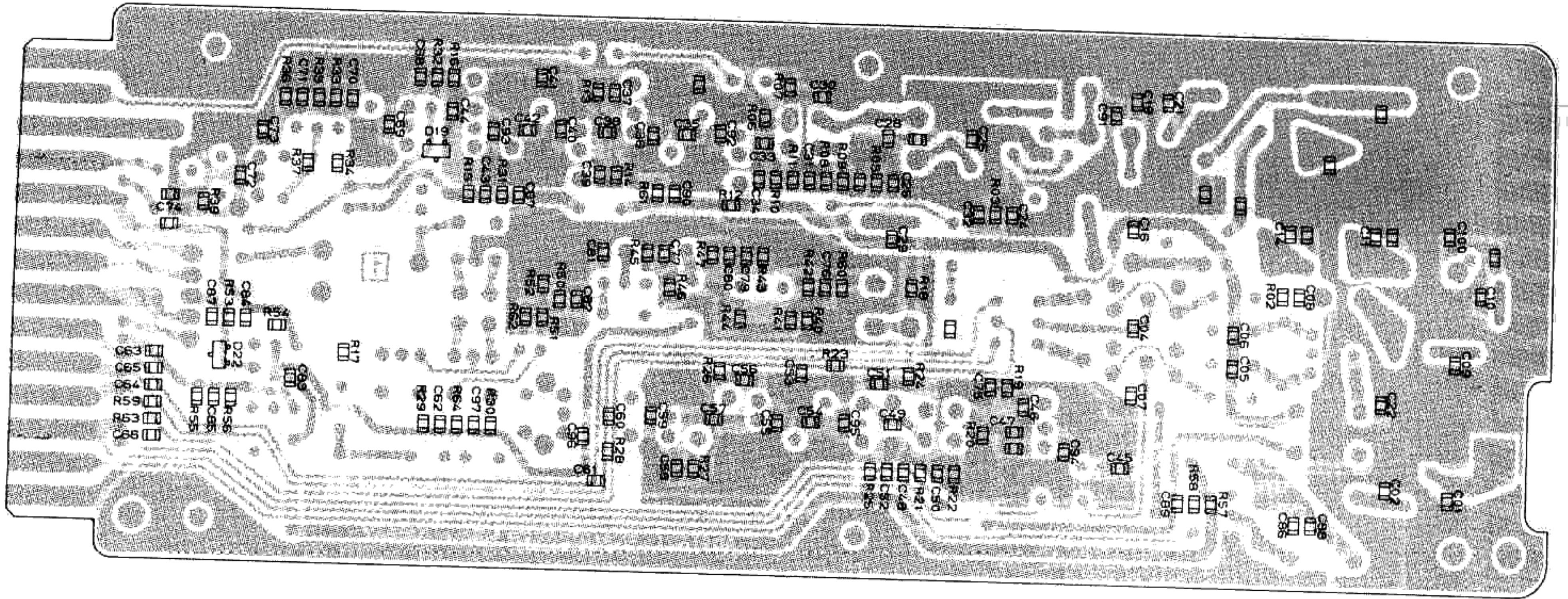
(Reverse view of "chip-only" side)

FEX-767-6 IC VOLTAGE CHART

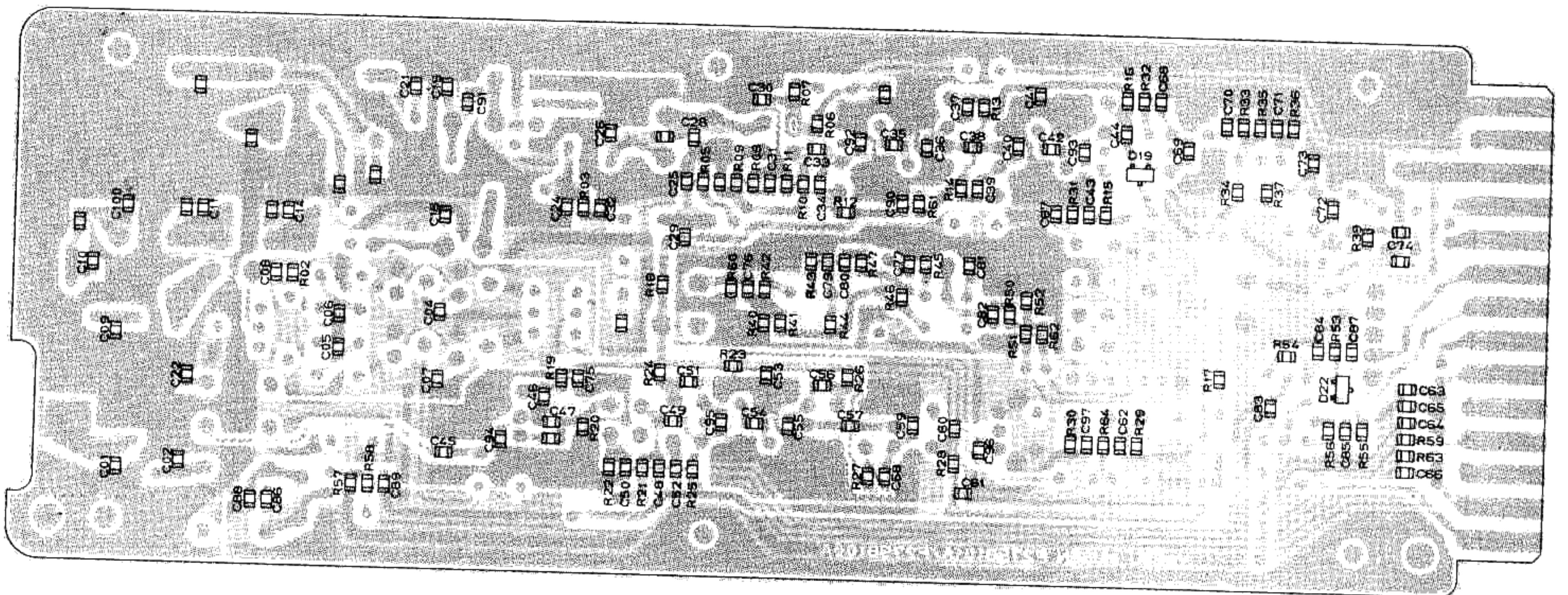
(DC VOLTS)

| PIN No. | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | REMARKS |
|---------|----|---|------|-----|------|---|---|---|-----|----------|
| Q1001 | RX | — | 13.3 | 0 | 13.3 | — | | | | MODE USB |
| | TX | — | 13.3 | 8.0 | 13.3 | — | | | | |
| Q2006 | | — | — | — | 0 | — | — | — | 9.0 | |

MAIN UNIT



(Obverse view of "chip-only" side)



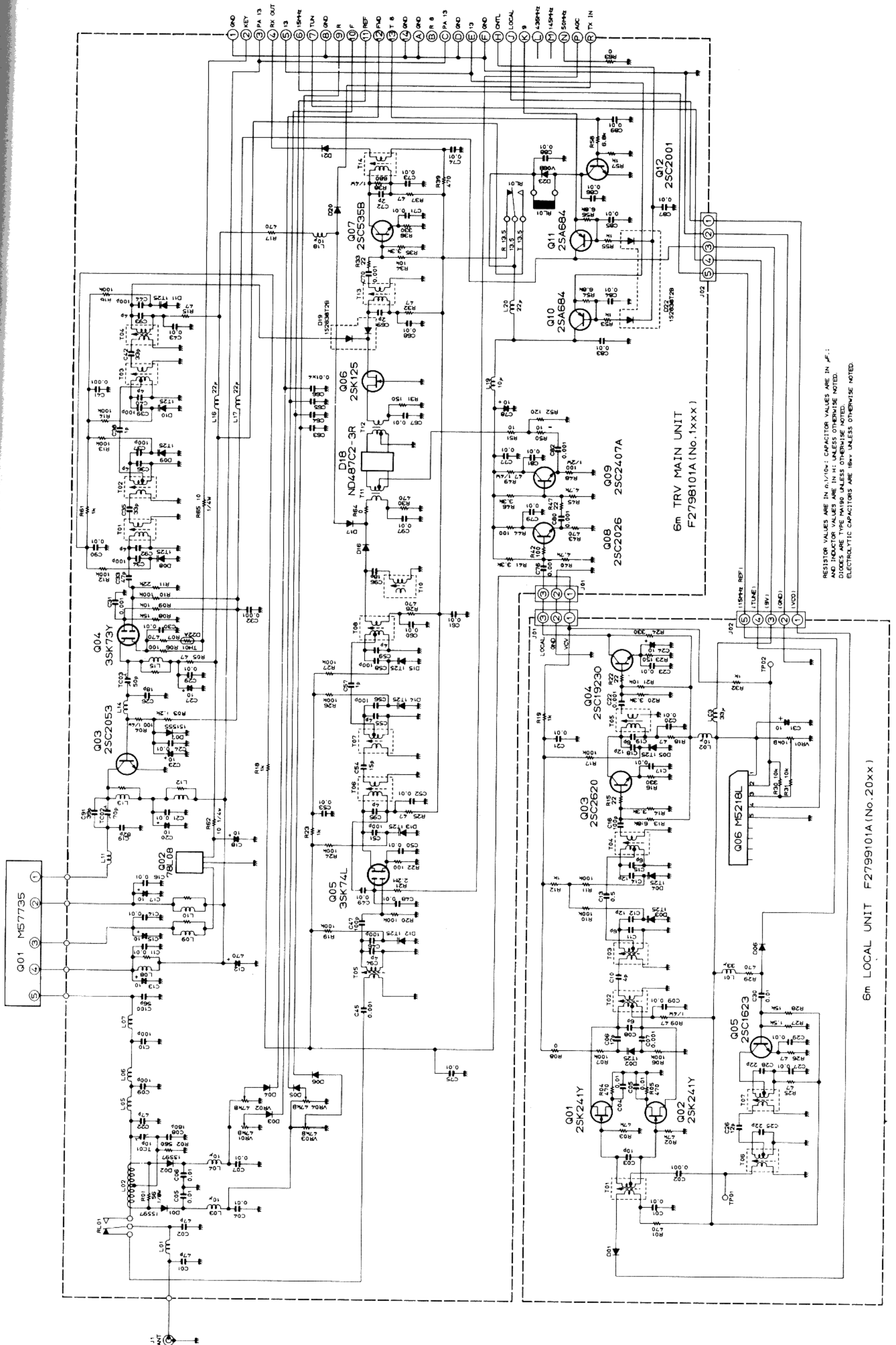
(Reverse view of "chip-only" side)

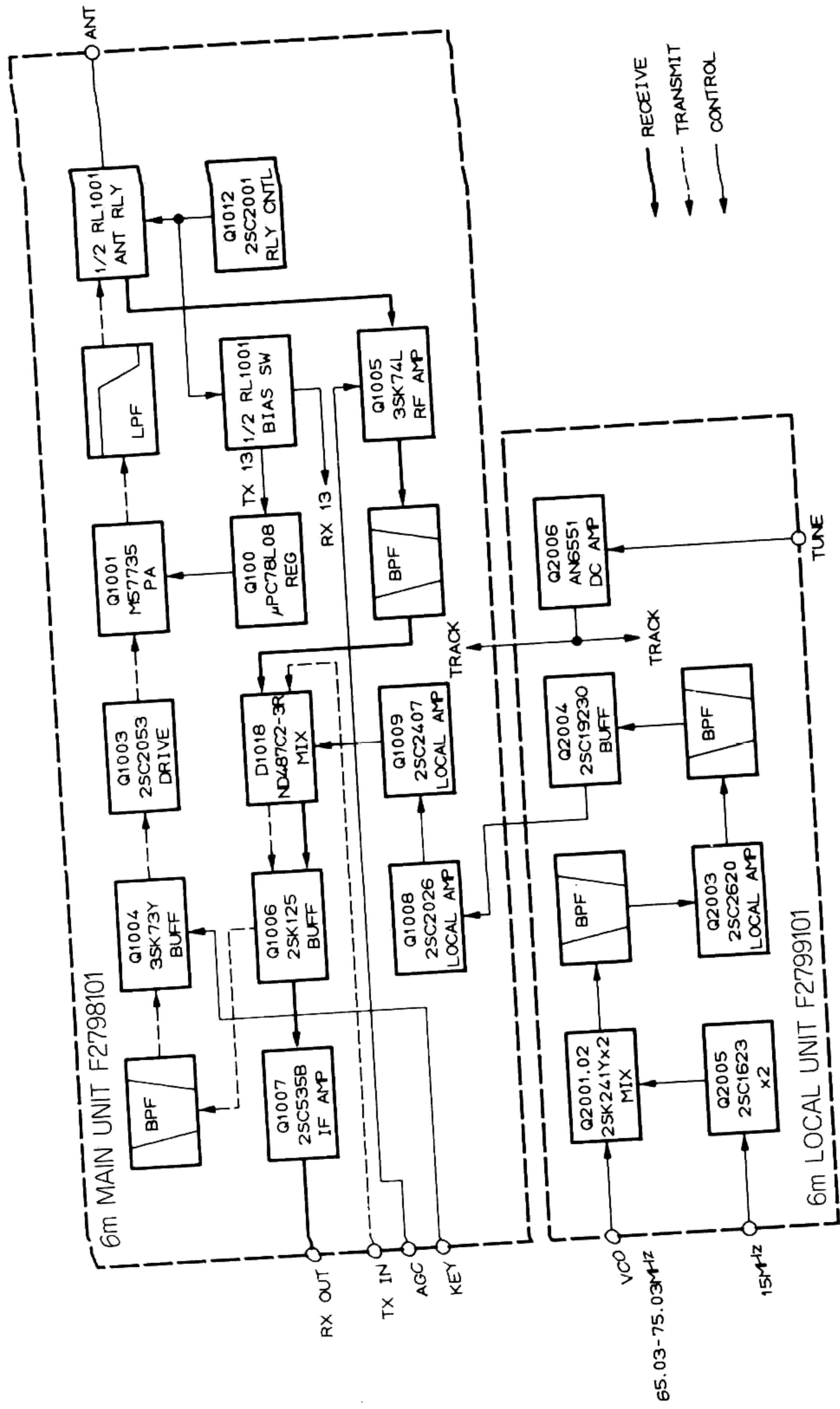
FEX-767-6 VOLTAGE CHART

(DC VOLTS)

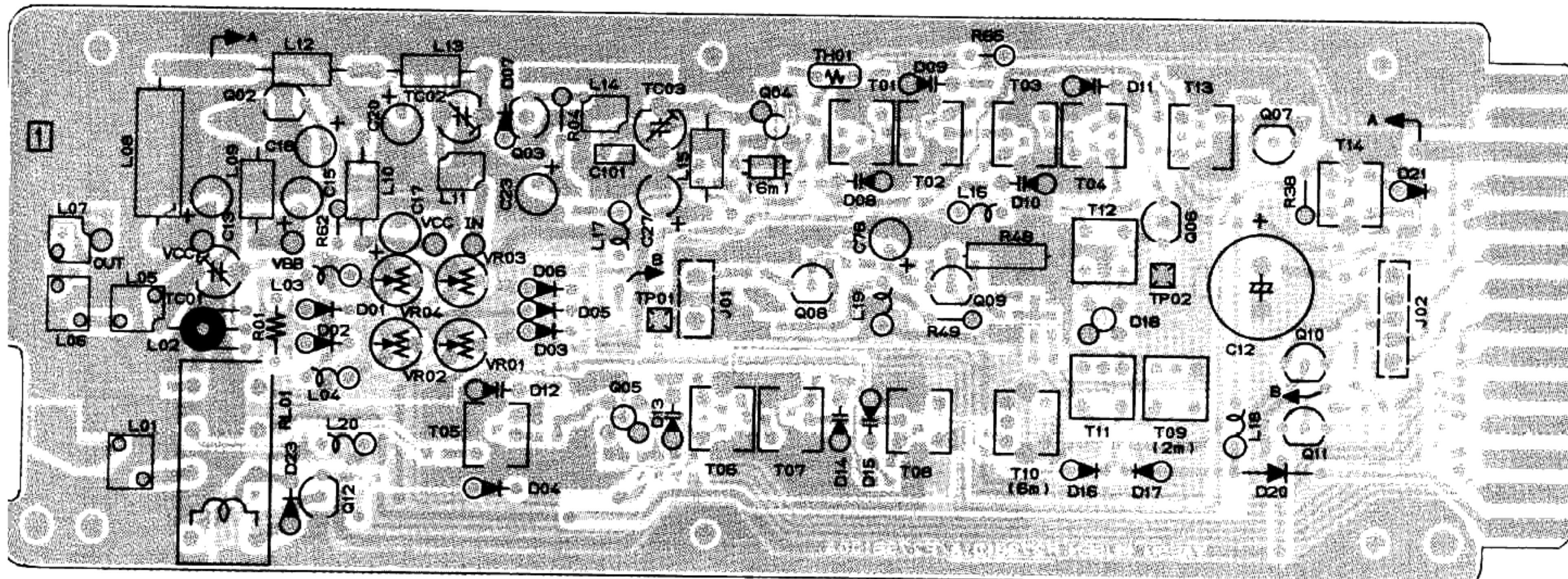
| | E | | (S) | | C | | (D) | | B | | (G ₁) | | (G ₂) | | REMARKS |
|-------|------|------|------|------|------|------|-----|-----|-----|---|-------------------|---|-------------------|---|----------|
| | R | T | R | T | R | T | R | T | R | T | R | T | R | T | |
| Q1002 | IN | 0.4 | 11.3 | GND | 0 | 0 | OUT | 0 | 8.0 | | | | | | MODE USB |
| Q1003 | 0 | 0 | 13.3 | 13.3 | 0.7 | 0.7 | | | | | | | | | |
| Q1004 | 0.4 | 1.1 | 0 | 12.2 | 1.6 | 1.6 | 2.5 | 2.5 | | | | | | | |
| Q1005 | 1.3 | 0 | 12.4 | 0 | 1.4 | 0 | 2.5 | 2.5 | | | | | | | |
| Q1006 | 1.6 | 1.6 | 11.5 | 11.3 | 0 | 0 | | | | | | | | | |
| Q1007 | 2.3 | 0 | 13.0 | 0 | 3.1 | 0 | | | | | | | | | |
| Q1008 | 6.5 | 6.5 | 11.6 | 11.6 | 7.2 | 7.2 | | | | | | | | | |
| Q1009 | 5.5 | 5.5 | 10.5 | 10.5 | 6.2 | 6.2 | | | | | | | | | |
| Q1010 | 13.1 | 13.1 | 13.0 | 13.0 | 12.3 | 12.3 | | | | | | | | | |
| Q1011 | 9.0 | 9.0 | 9.0 | 9.0 | 8.3 | 8.3 | | | | | | | | | |
| Q1012 | 0 | 0 | 13.0 | 0 | 0 | 0.7 | | | | | | | | | |
| Q2001 | 0.6 | | 8.9 | | 0 | | | | | | | | | | |
| Q2002 | 0.6 | | 8.9 | | 0 | | | | | | | | | | |
| Q2003 | 2.1 | | 8.7 | | 2.8 | | | | | | | | | | |
| Q2004 | 2.1 | | 6.4 | | 2.8 | | | | | | | | | | |
| Q2005 | 1.4 | | 8.6 | | 2.1 | | | | | | | | | | |

FEX-767-6 CIRCUIT DIAGRAM

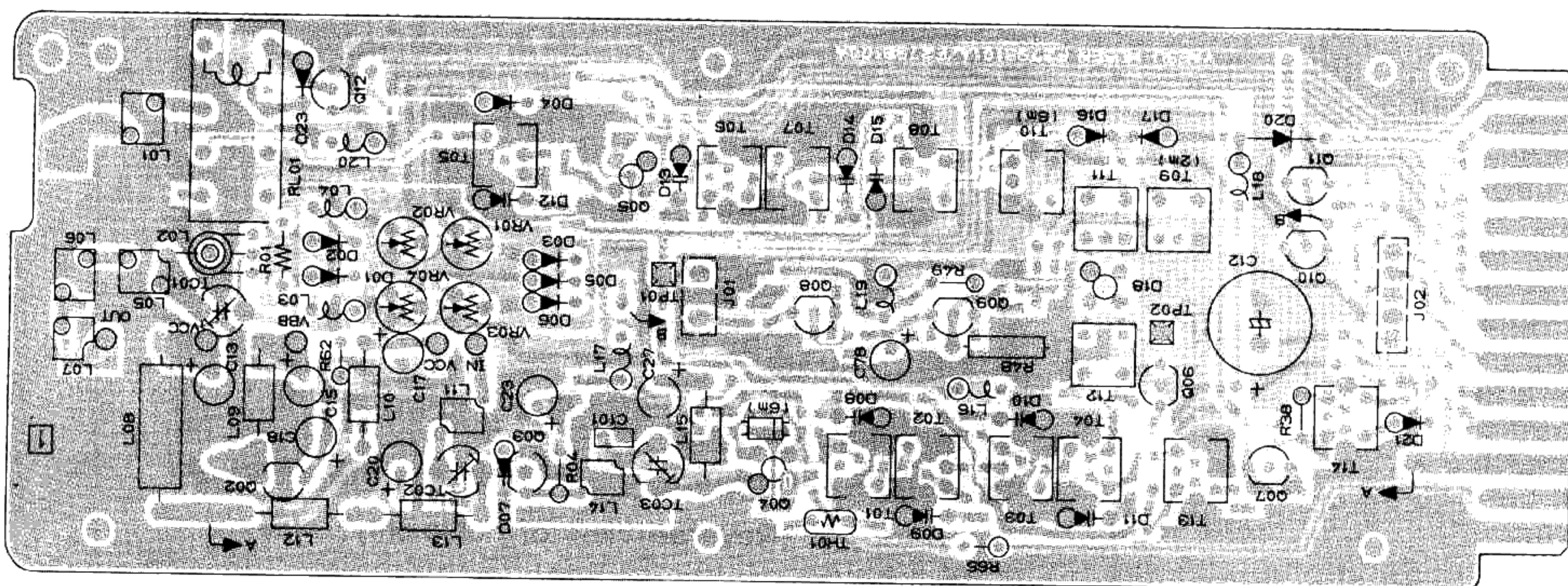




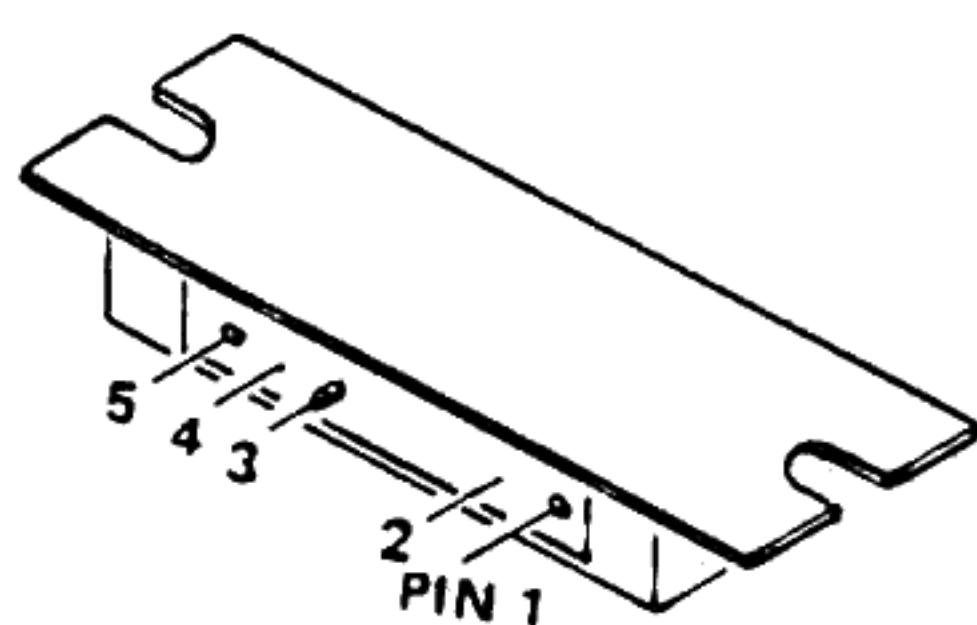
MAIN UNIT



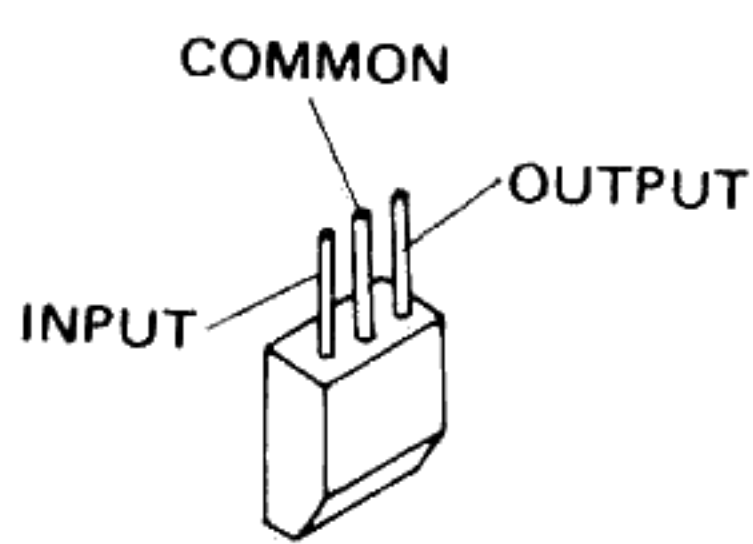
(Obverse view of "component" side)



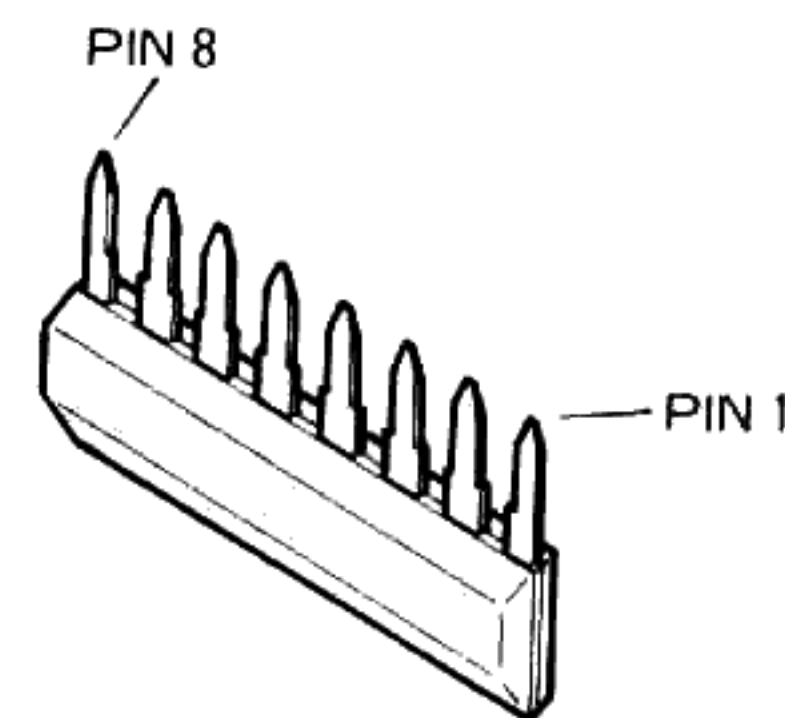
(Reverse view of "component" side)



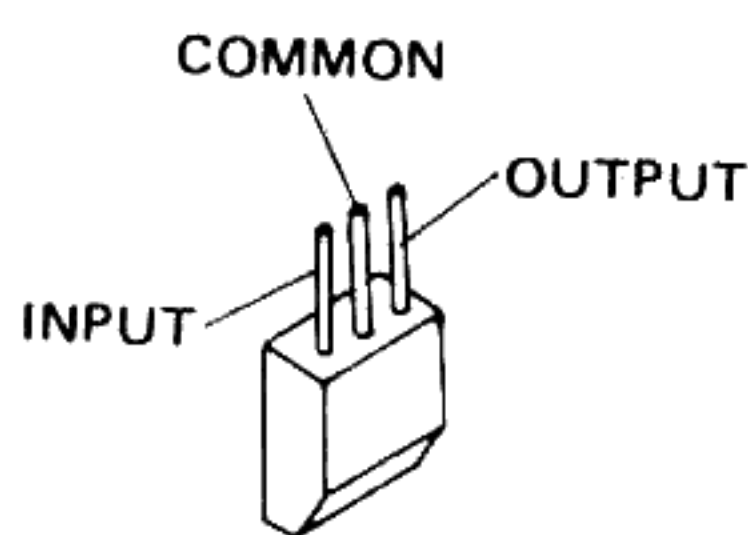
M57713 (Q1001)



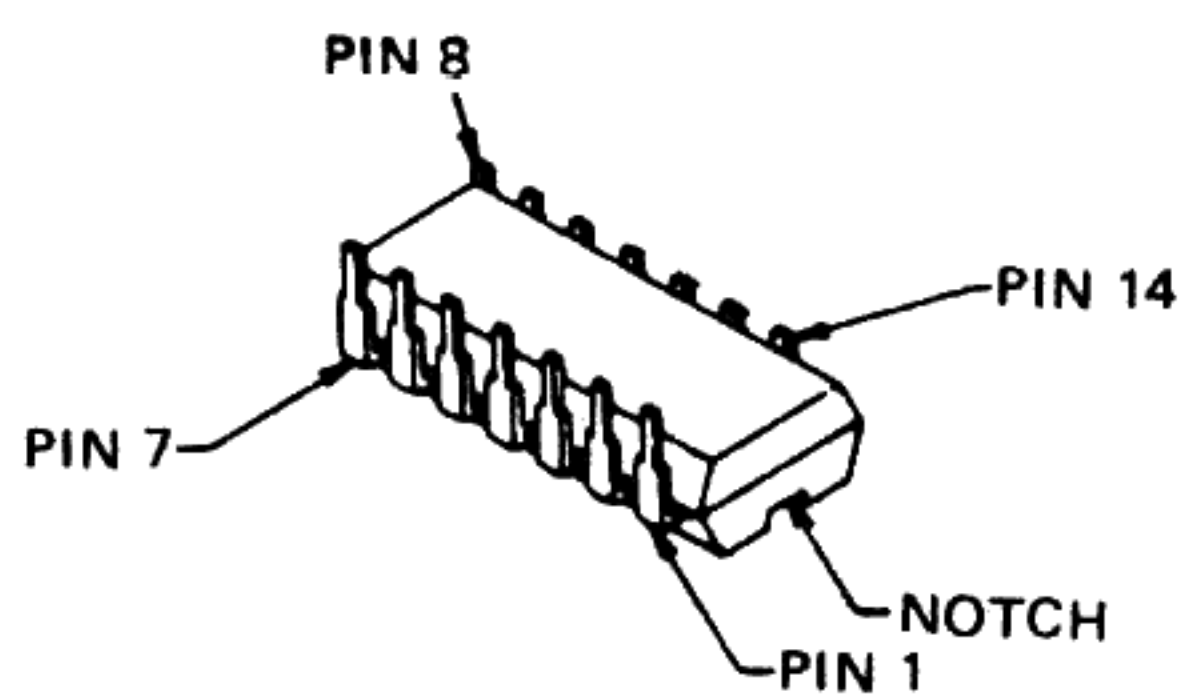
μPC78L05 (Q2005)



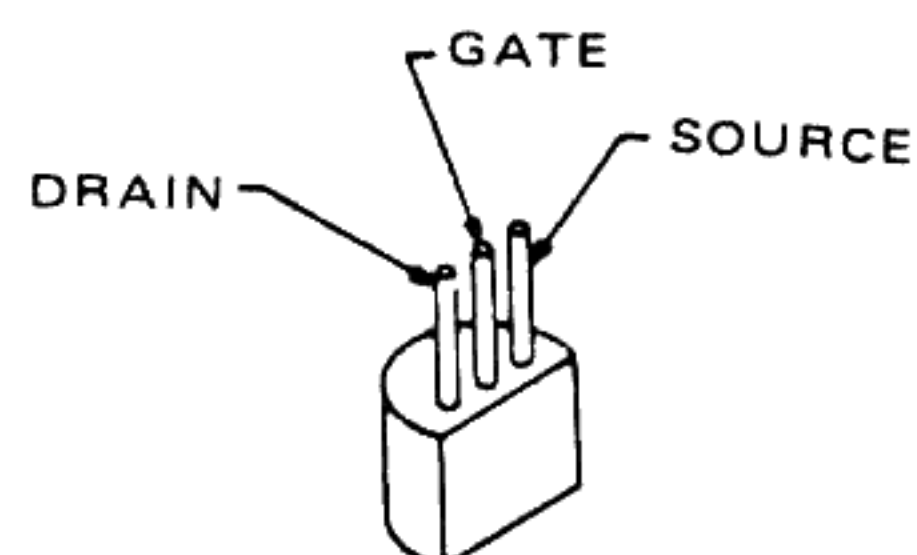
M54455L (Q2007)



μPC78L08 (Q1002)

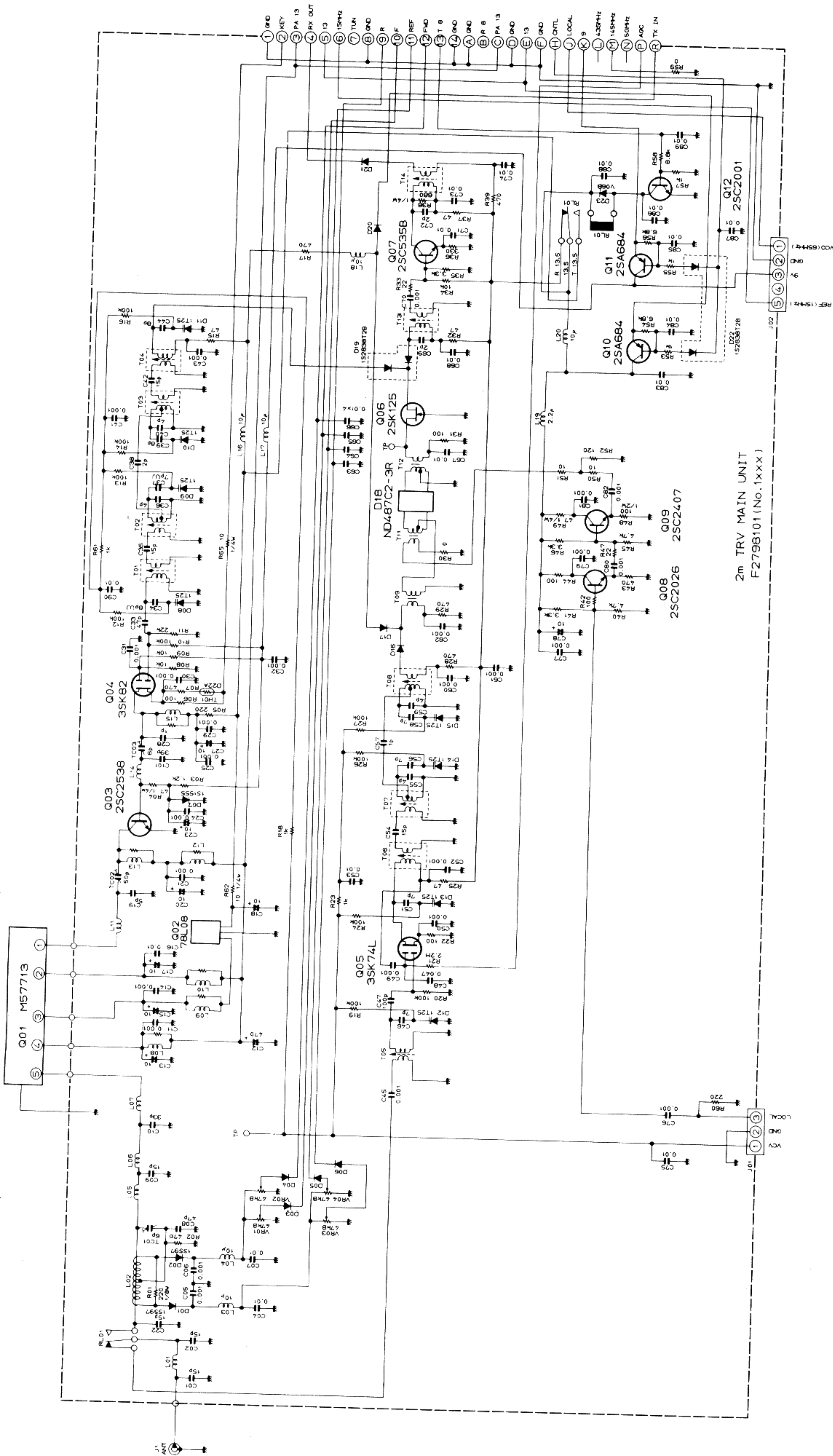


MC4044P (Q2004)
SN74LS73N (Q2006)

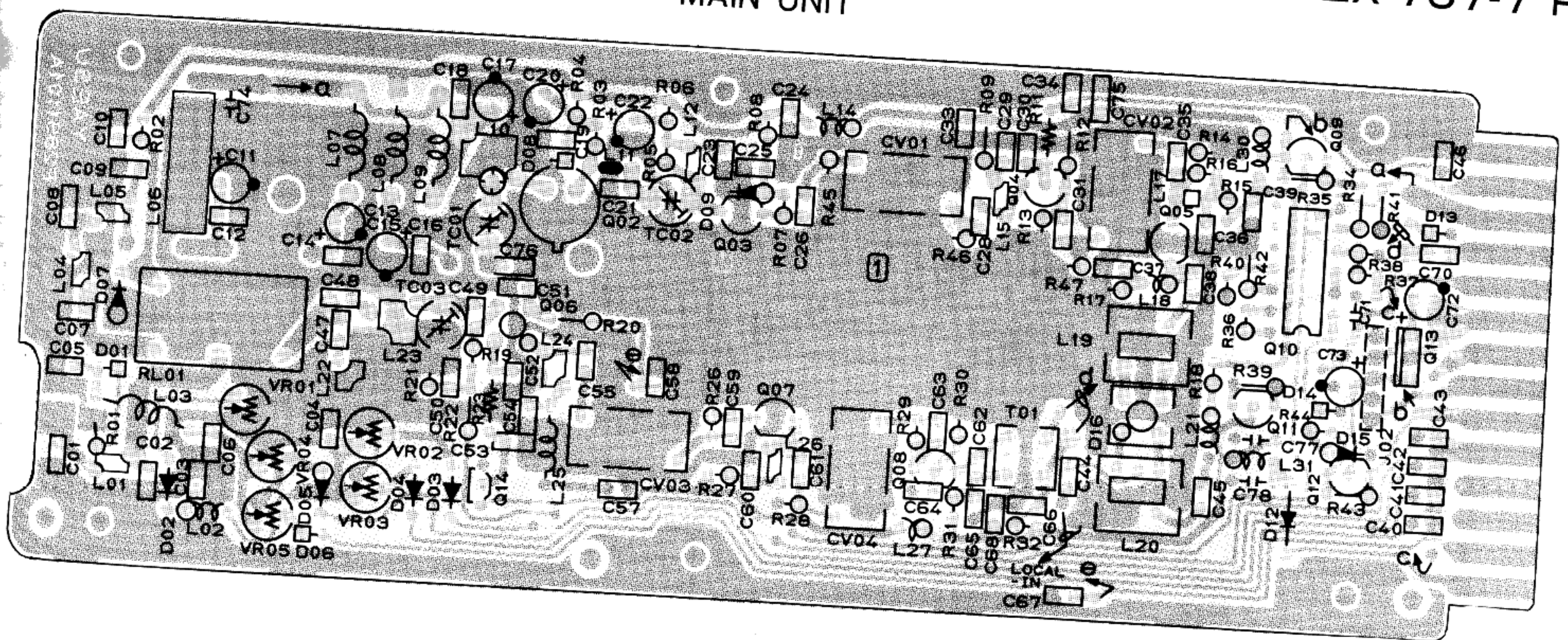


2SK125 (Q1006)

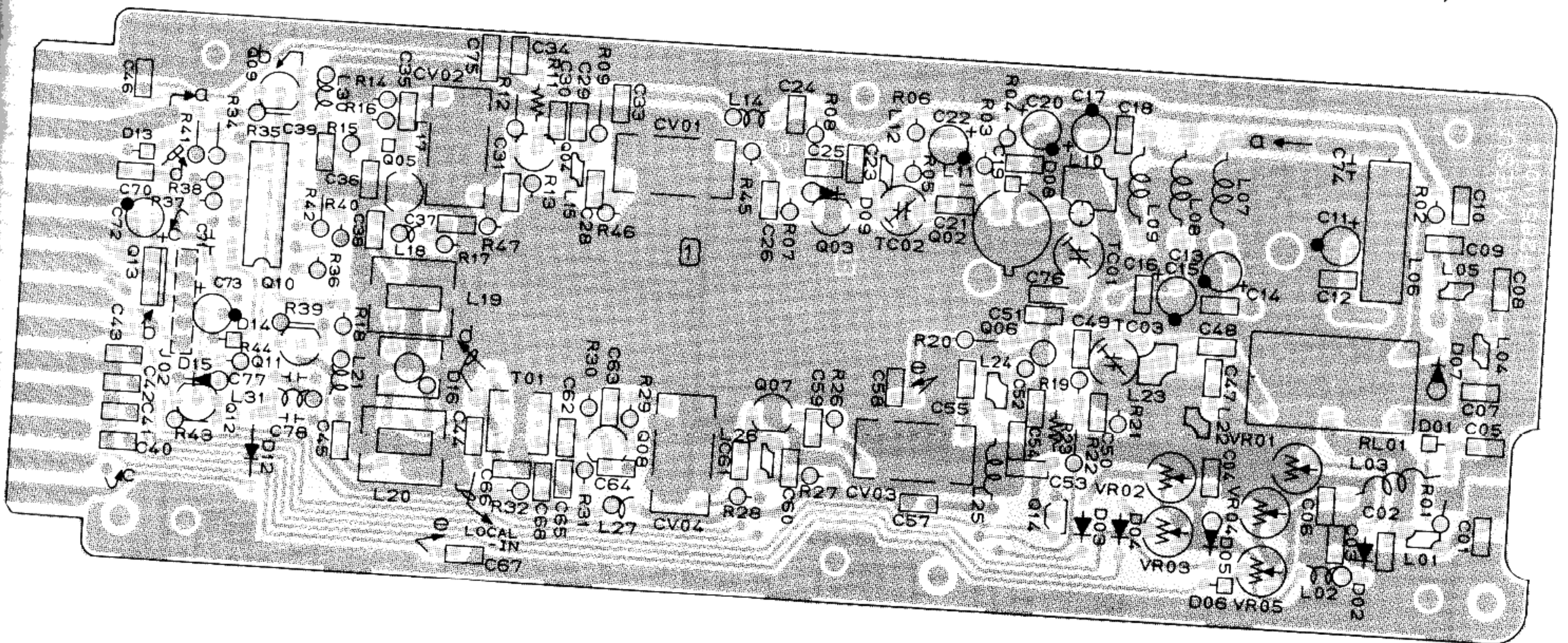
FEX-767-2 CIRCUIT DIAGRAM



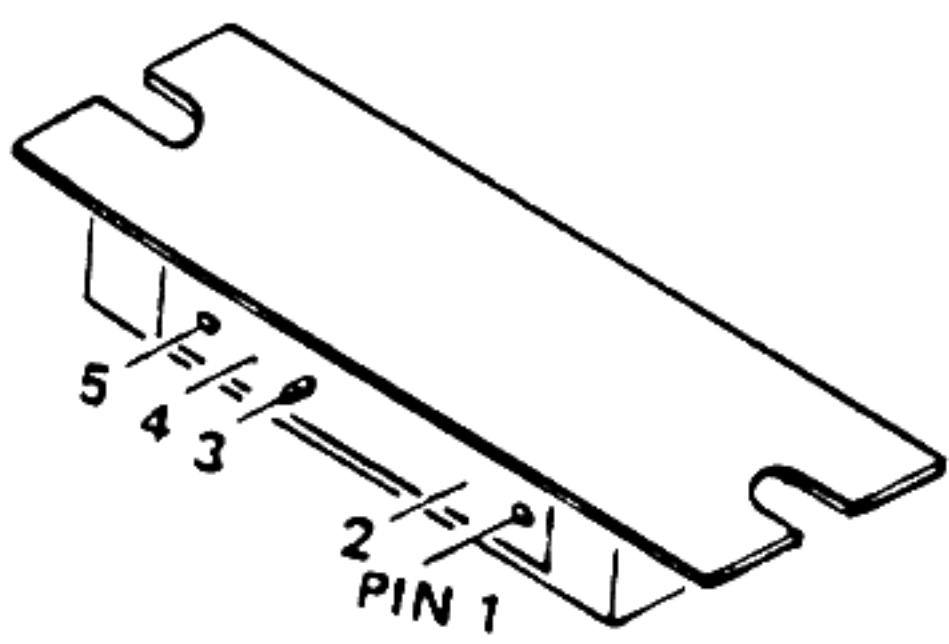
RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE NOTED.
 CAPACITOR VALUES ARE IN MICROFARADS UNLESS OTHERWISE NOTED.
 ELECTROLYTIC CAPACITORS ARE 16V UNLESS OTHERWISE NOTED.



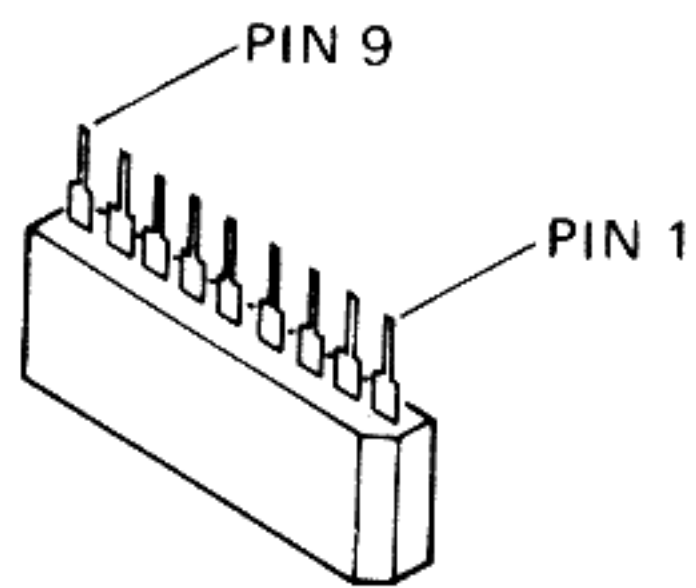
(Viewed from Component side)



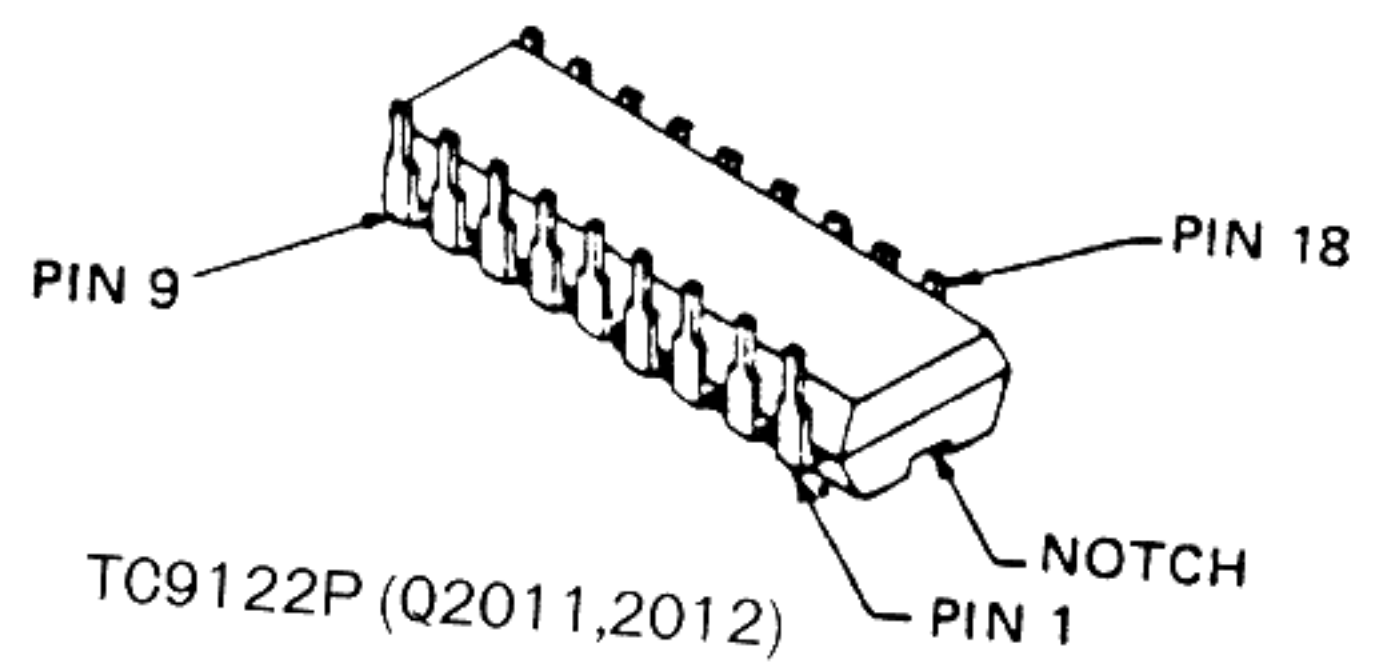
(Viewed from Solder side)



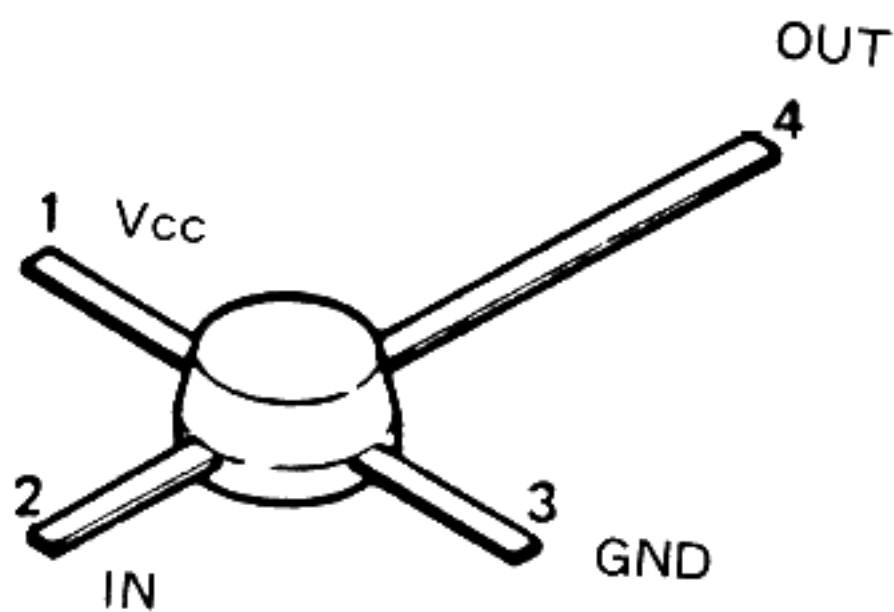
M57716 (Q1001)



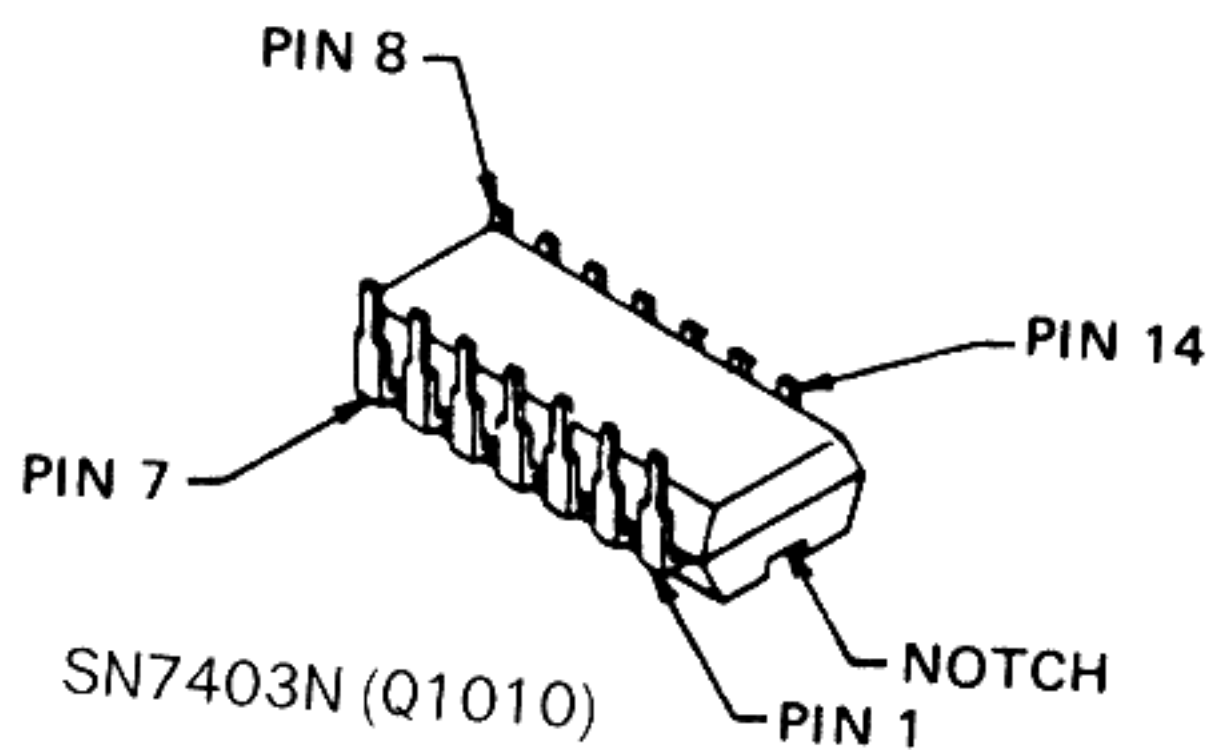
TC5081AP (Q2010)



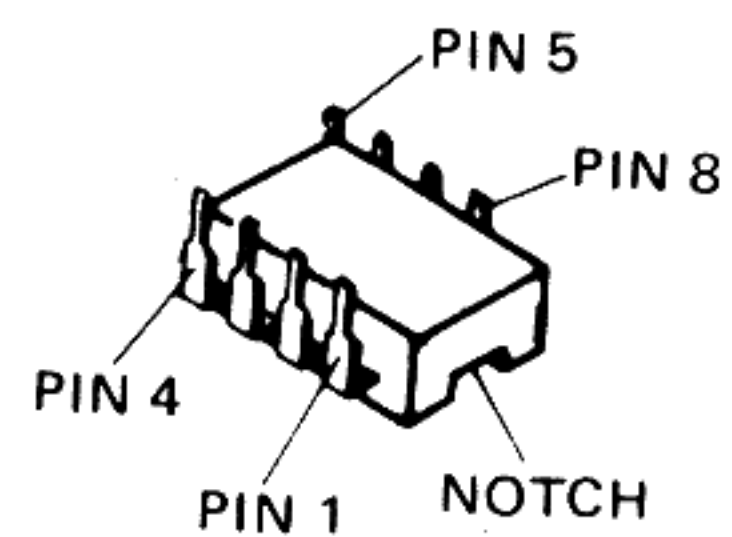
TC9122P (Q2011,2012)



μPC1651G (Q2004-2006)



SN7403N (Q1010)



μPB571C (Q2008)

INPUT

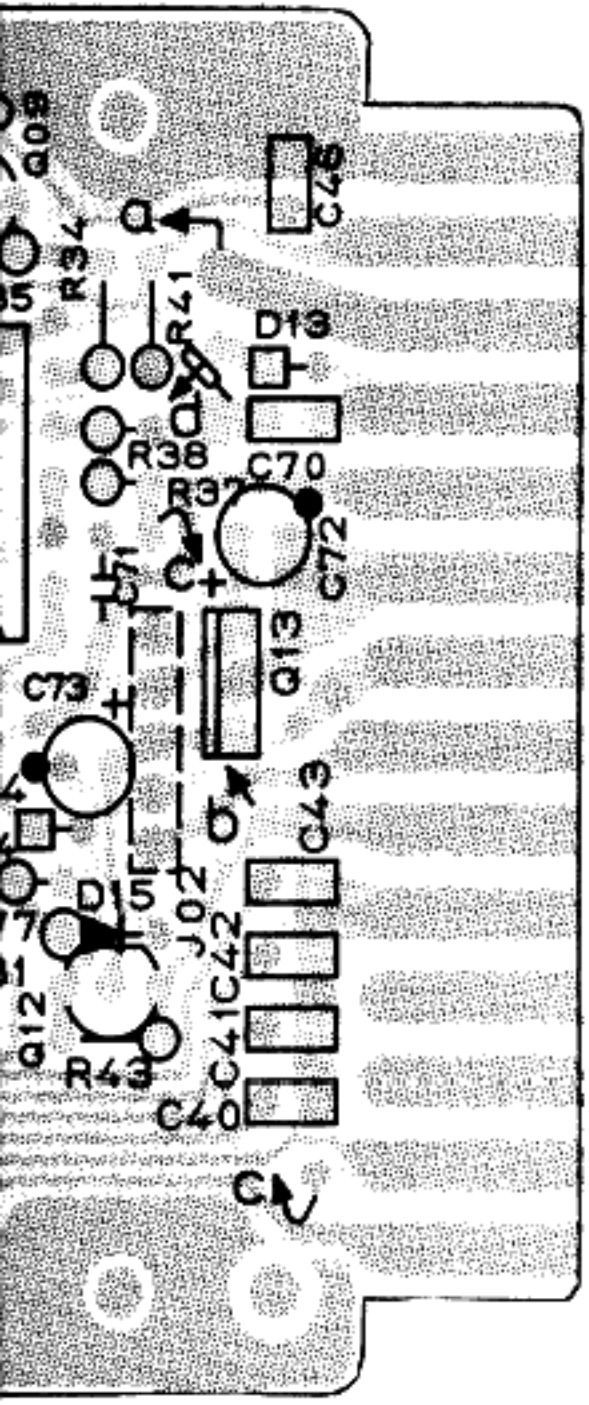
μPC7

DRAIN

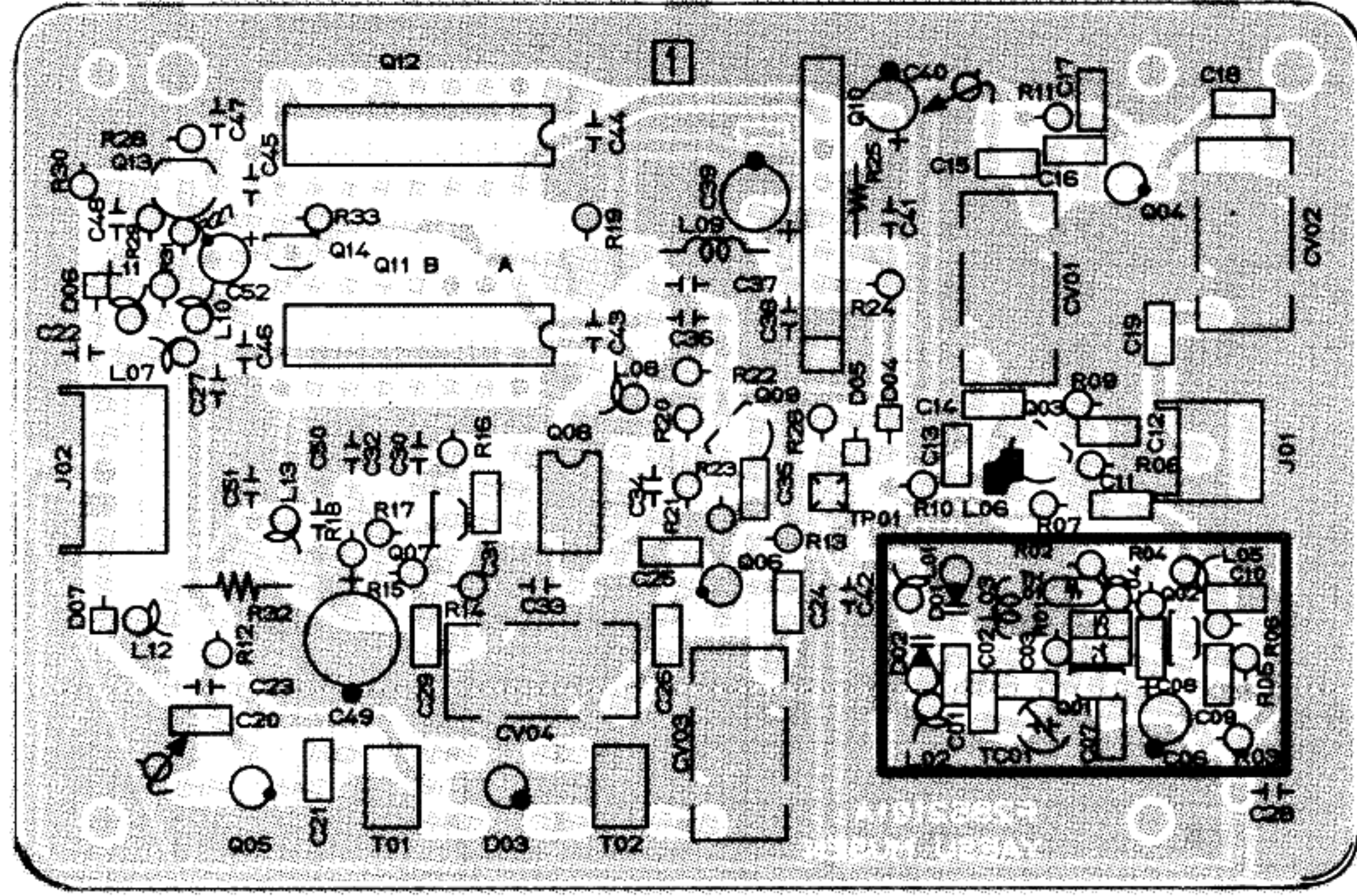
2SK125

EX-767-7 PARTS LAYOUT

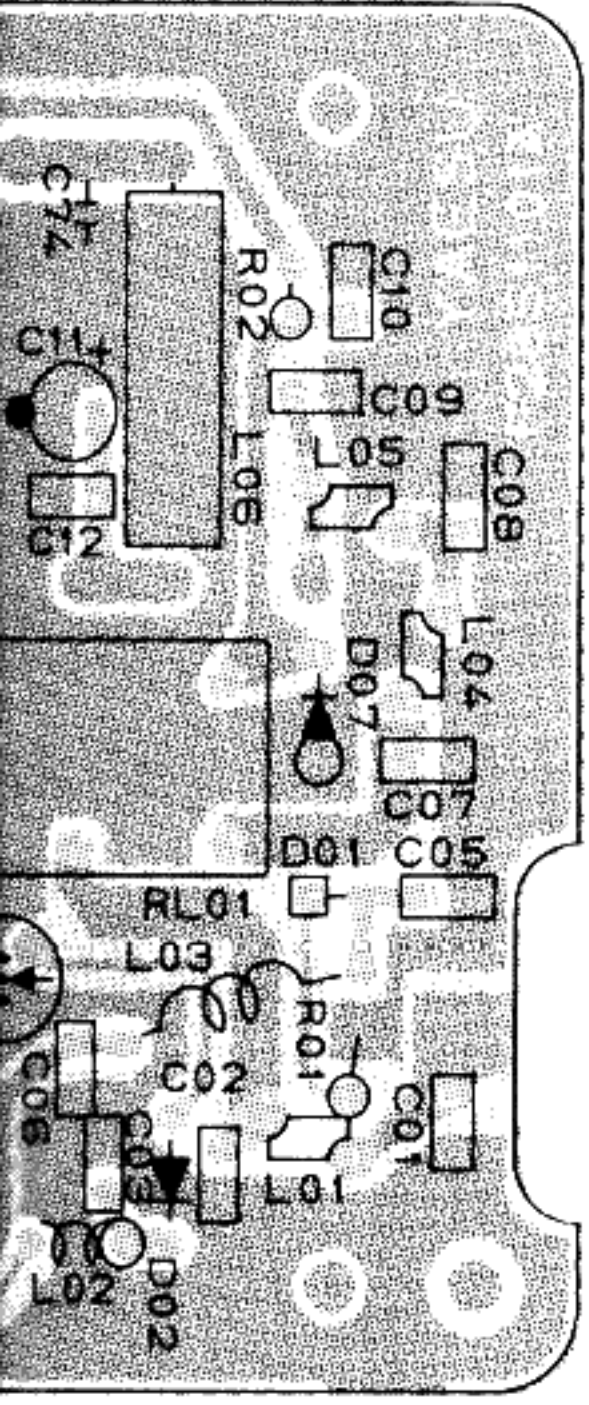
PLL LOCAL UNIT



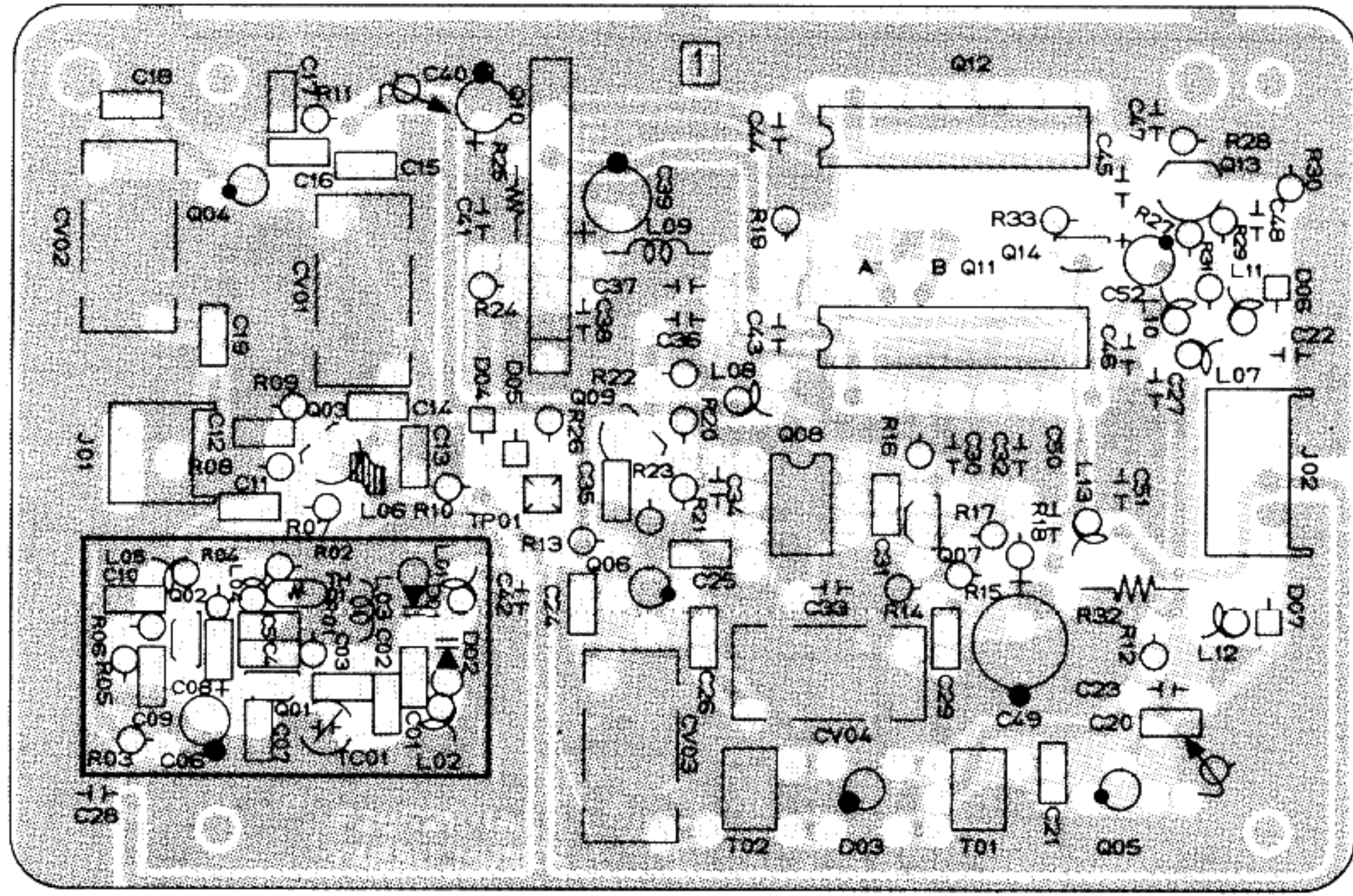
(Component side)



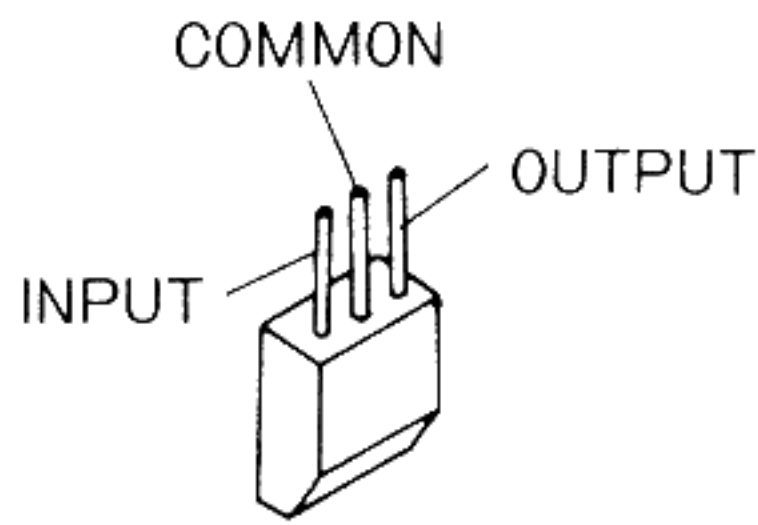
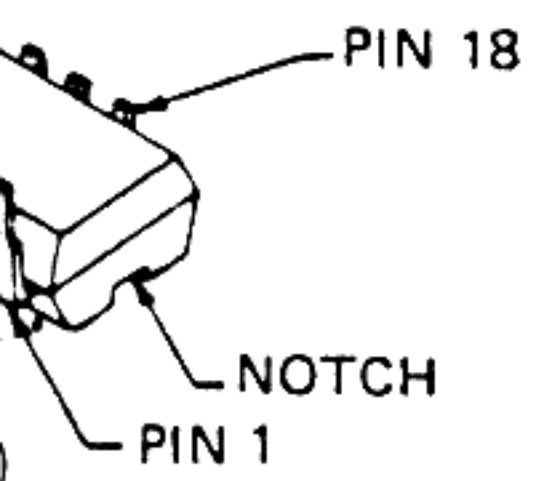
(Viewed from Component side)



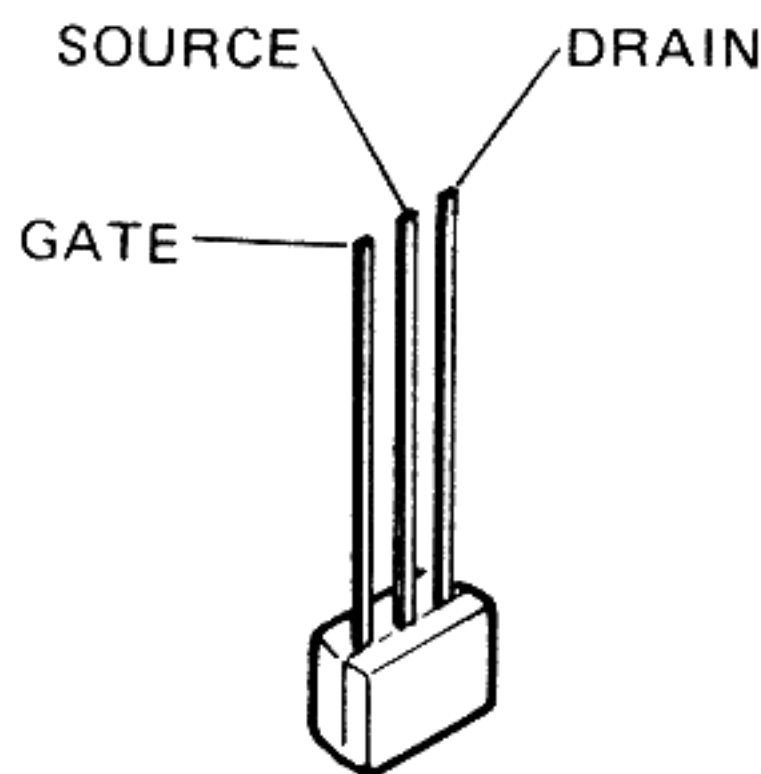
(Solder side)



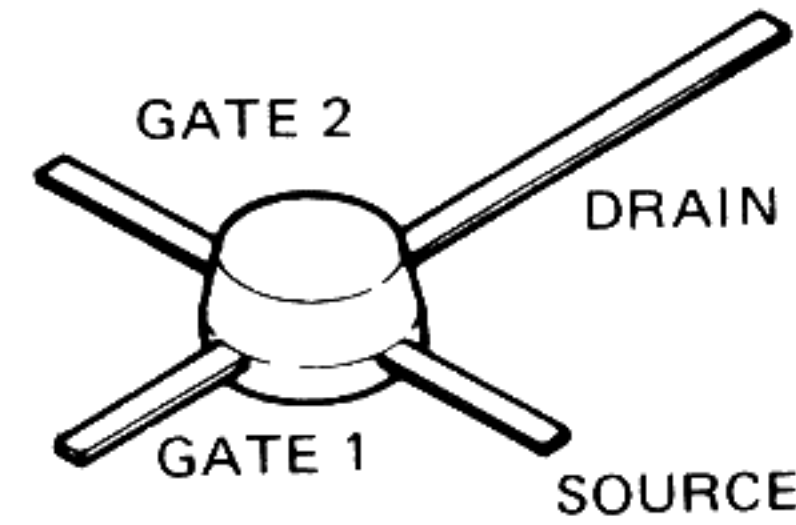
(Viewed from Solder side)



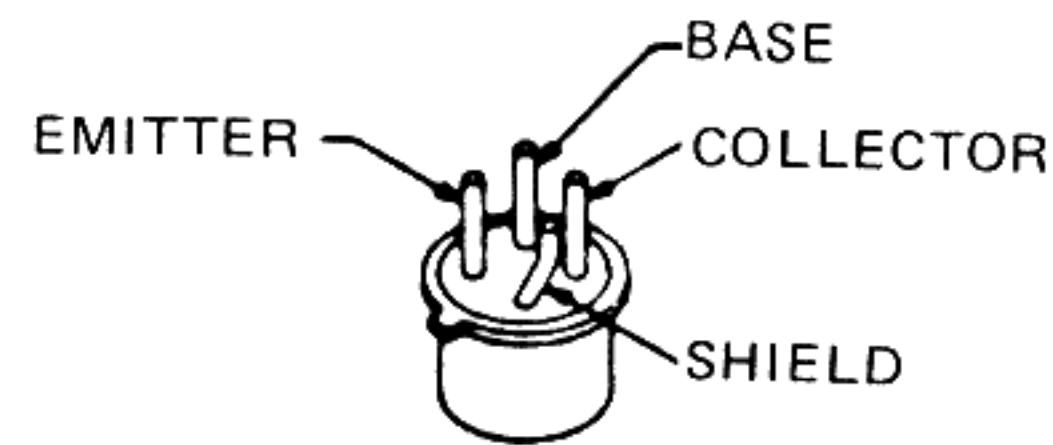
μPC78L05 (Q1013)



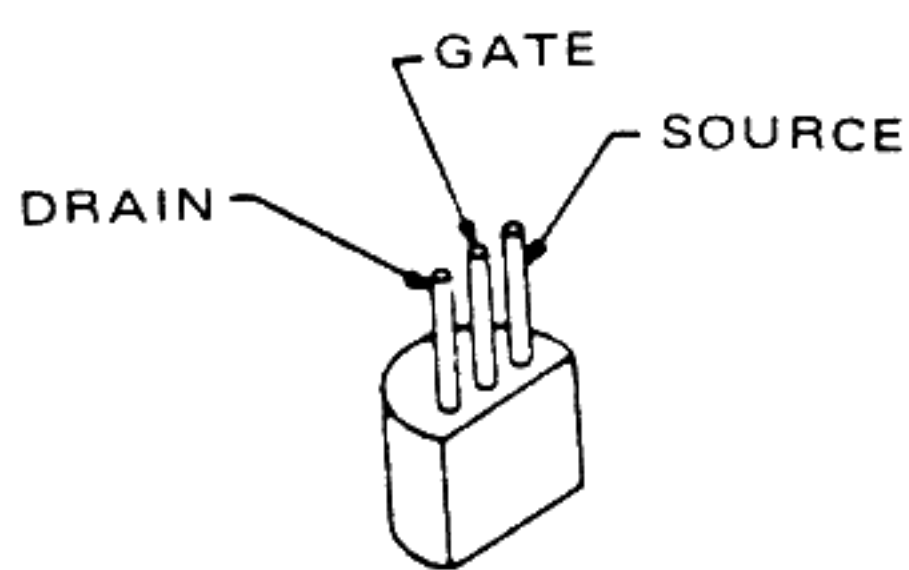
2SK241Y (Q1008)



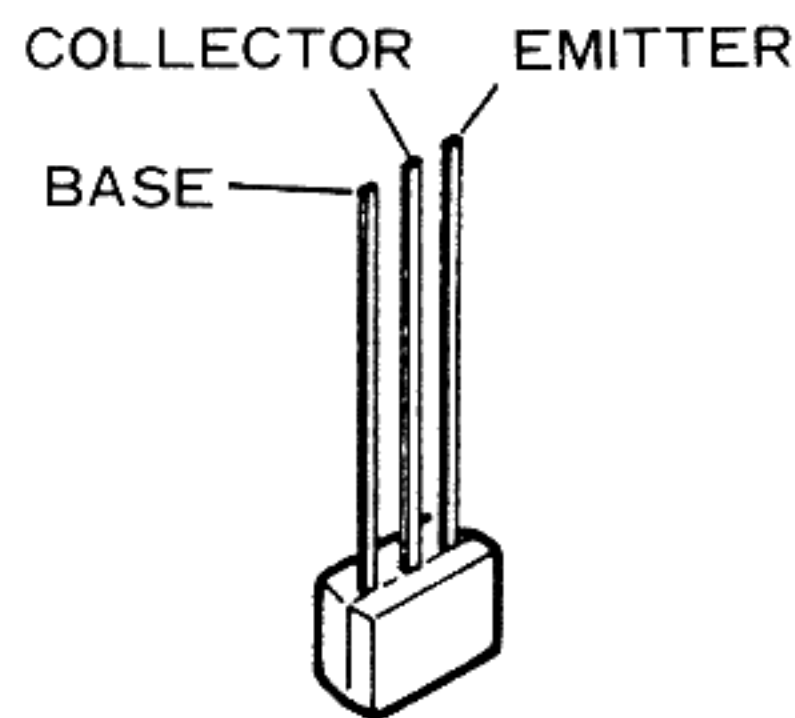
3SK121GR (Q1006)



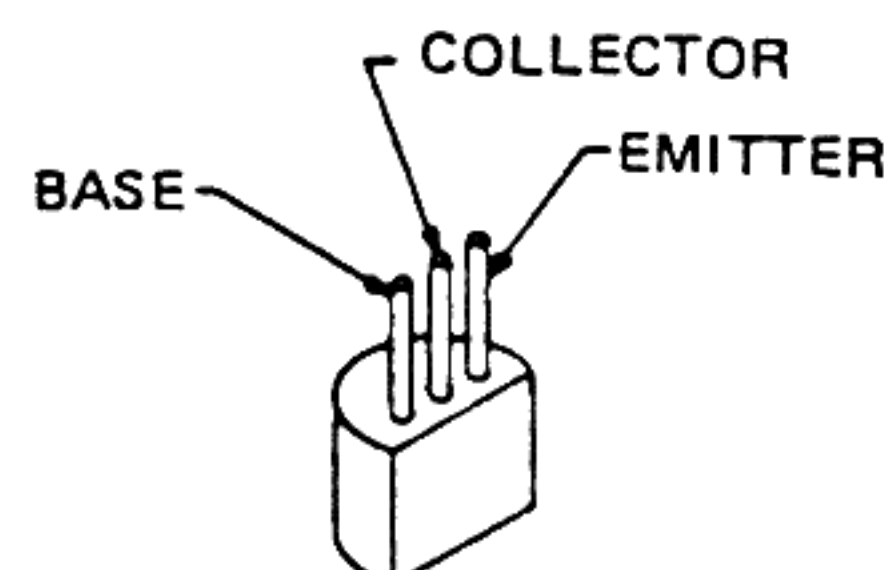
2SC1426 (Q1002)



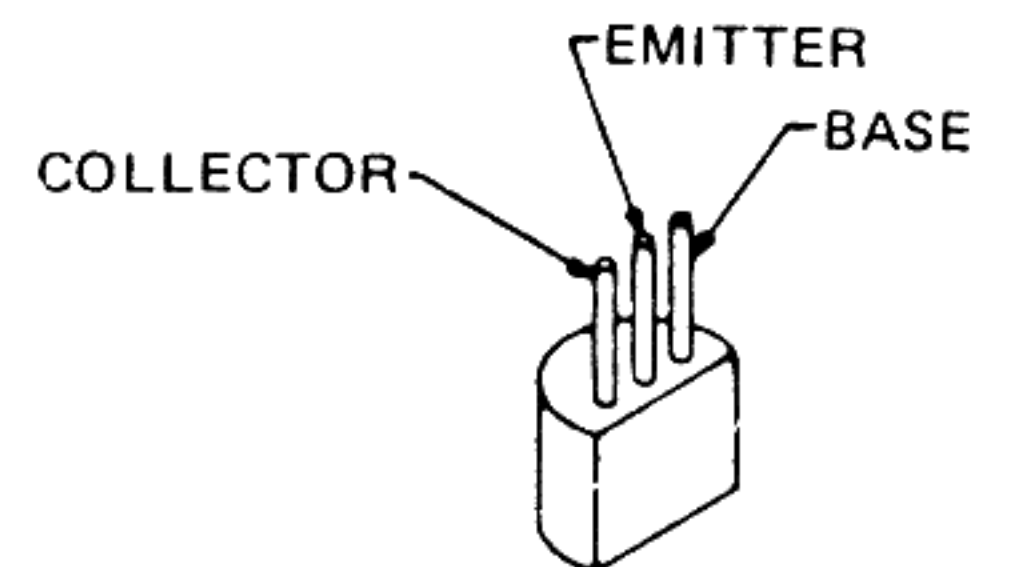
2SK125 (Q1005,1007)



BA1L4L (Q1014)



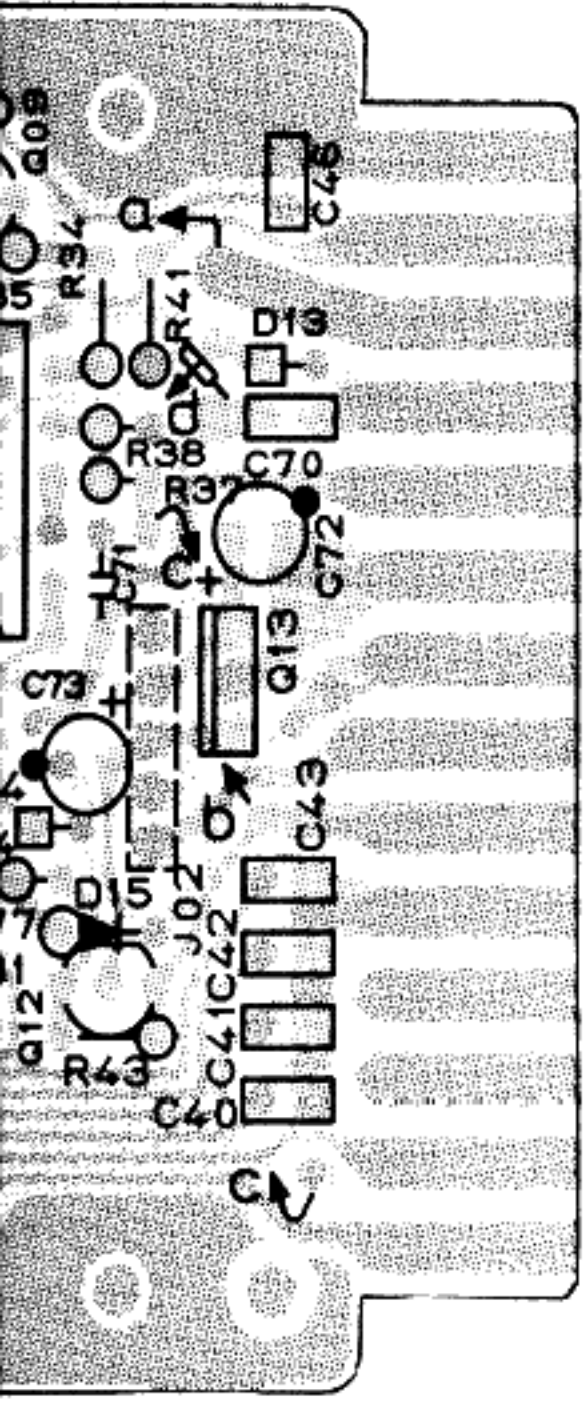
2SA684 (Q1009,1011,1012)
2SC945P (Q2009,2013)
2SC3354T (Q2007)



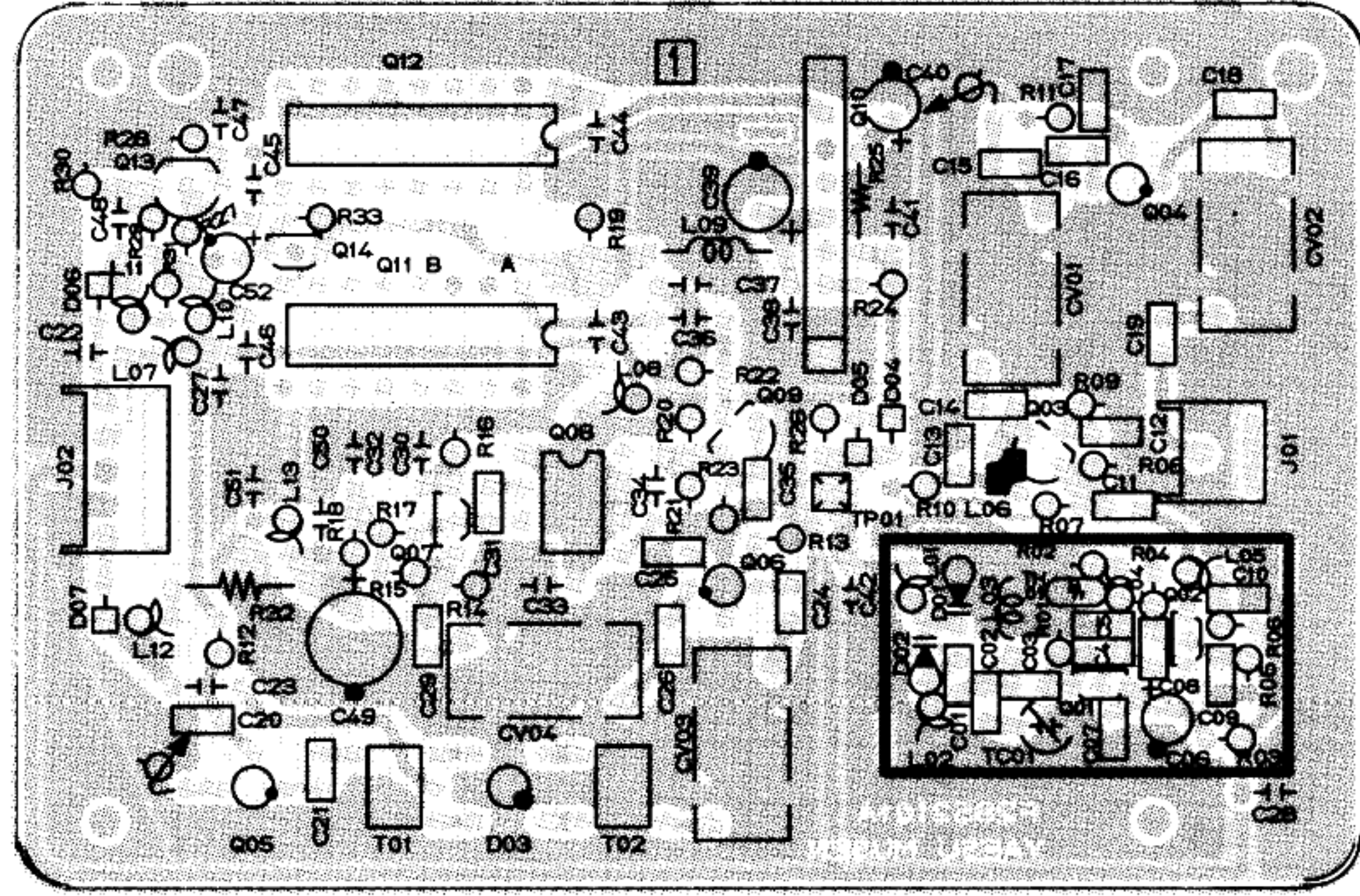
2SC2026 (Q2003)
2SC2407A (Q1003)
2SC3355 (Q1004)

EX-767-7 PARTS LAYOUT

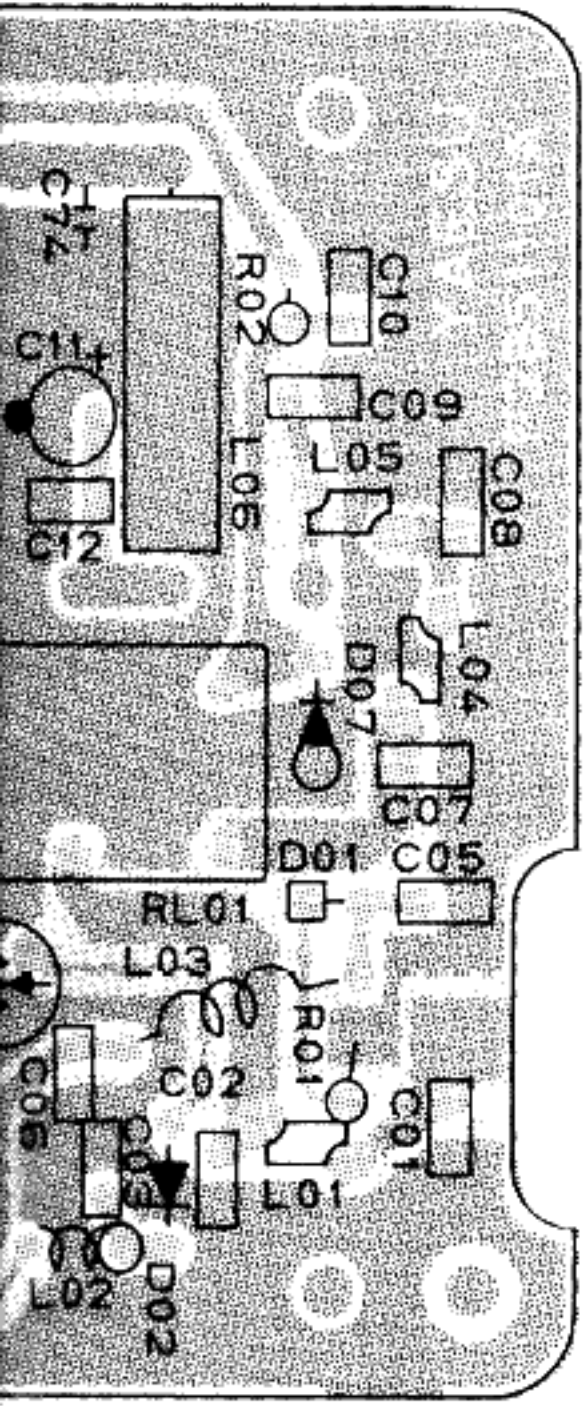
PLL LOCAL UNIT



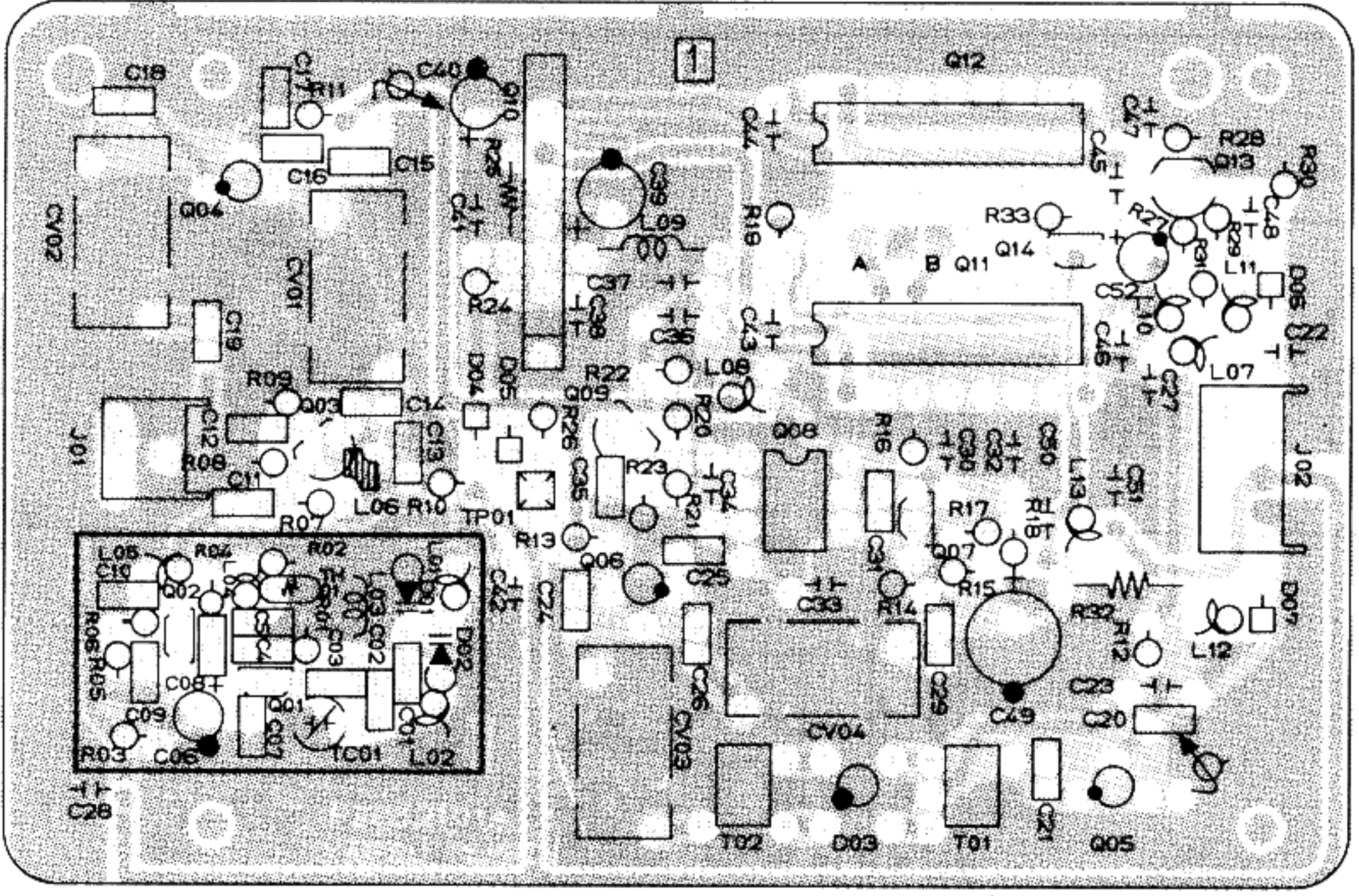
(Component side)



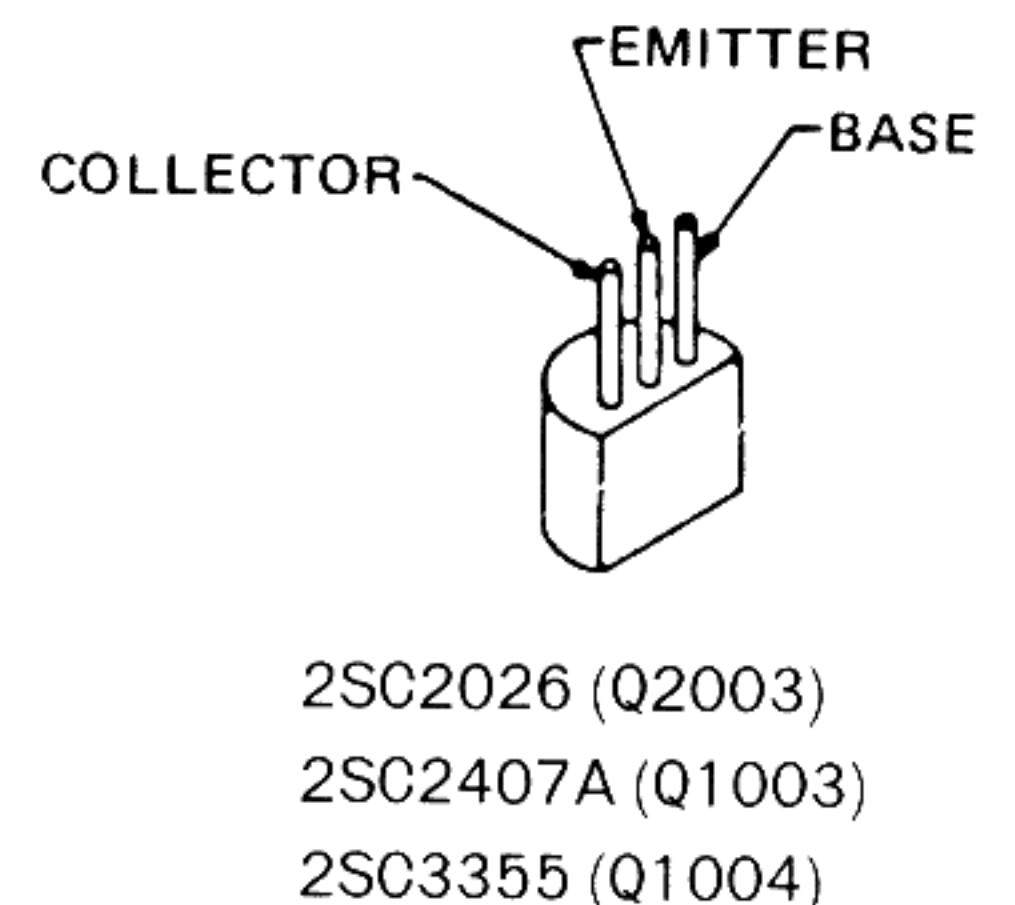
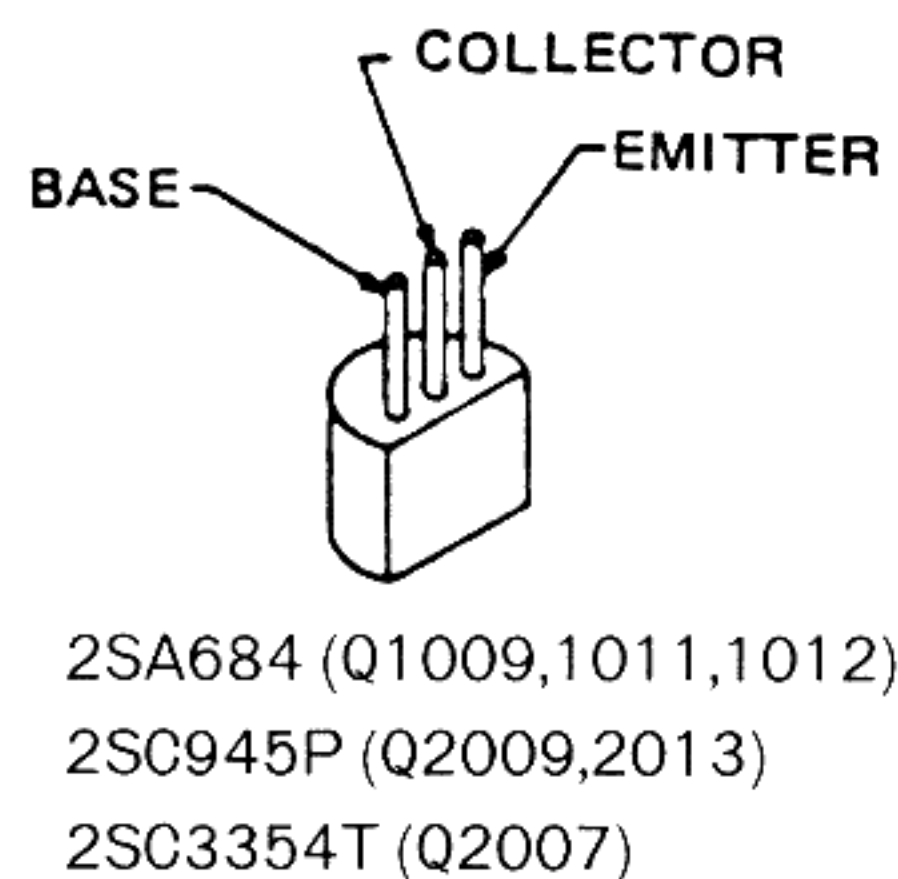
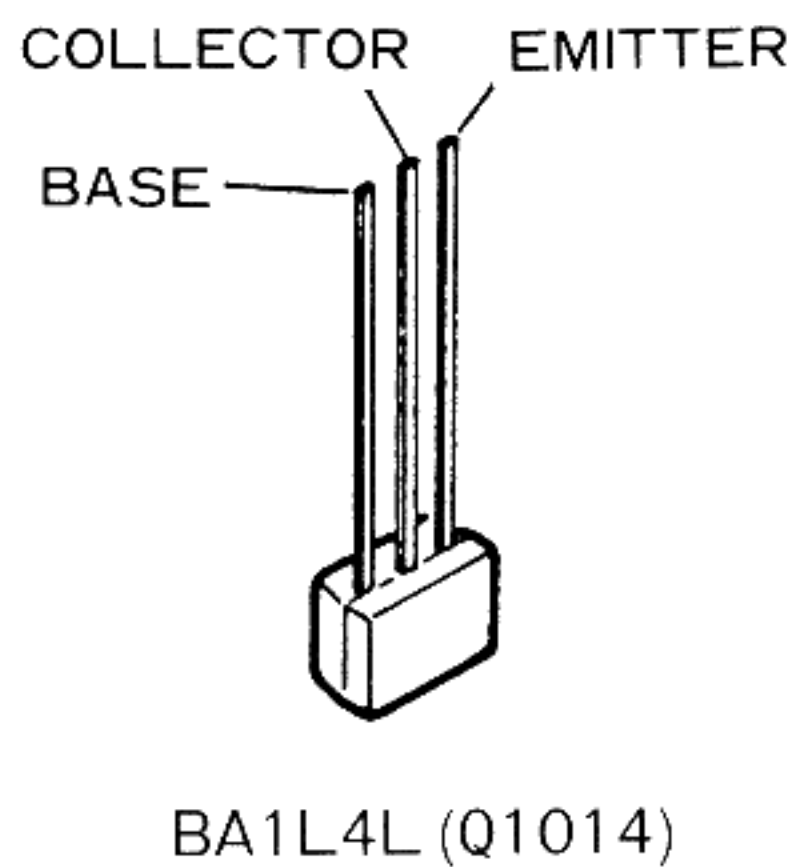
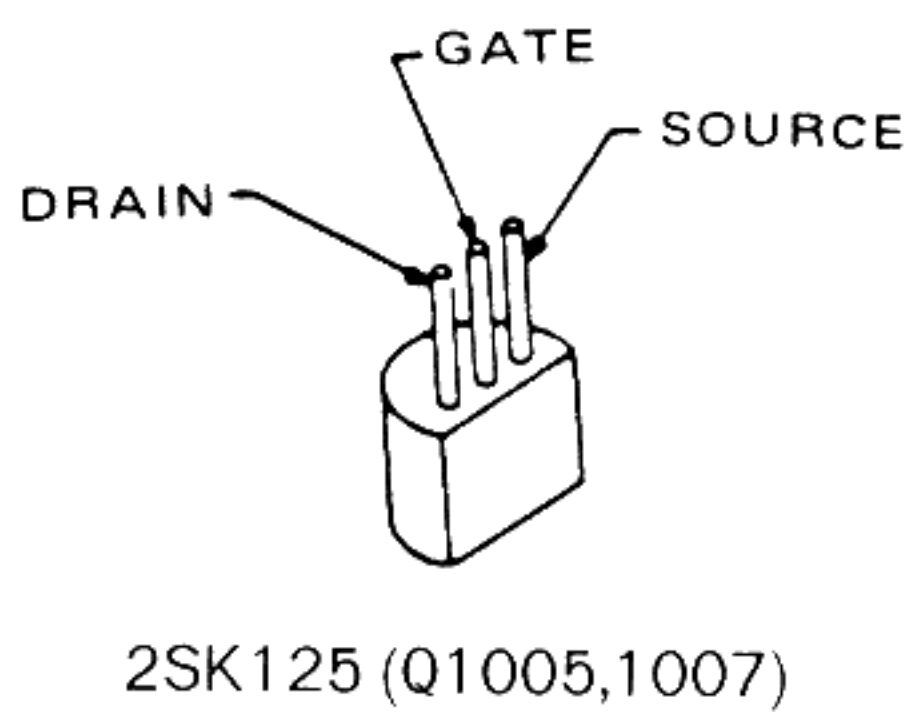
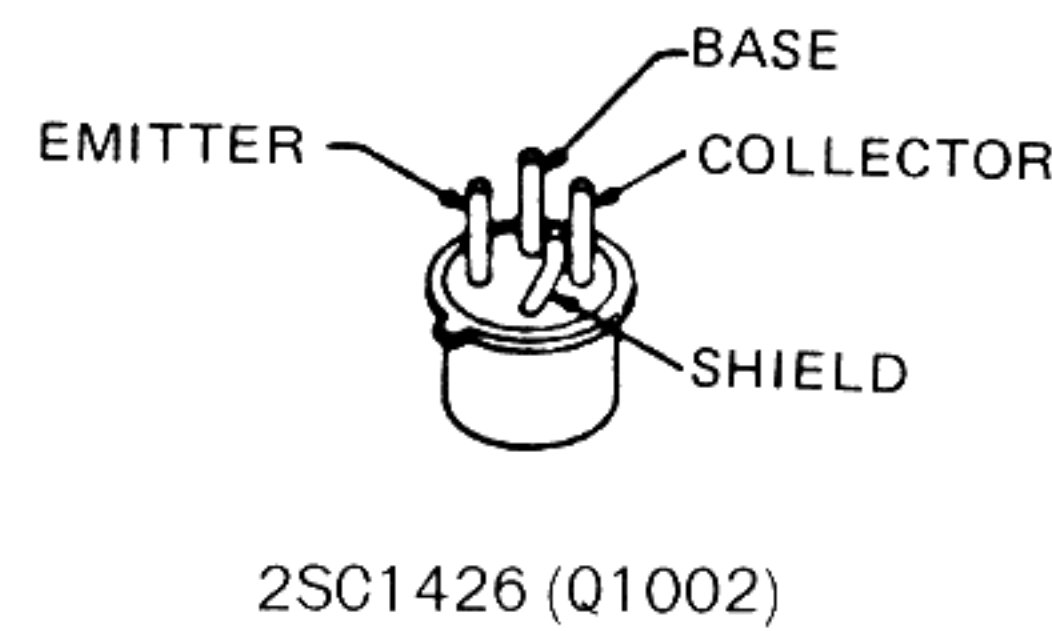
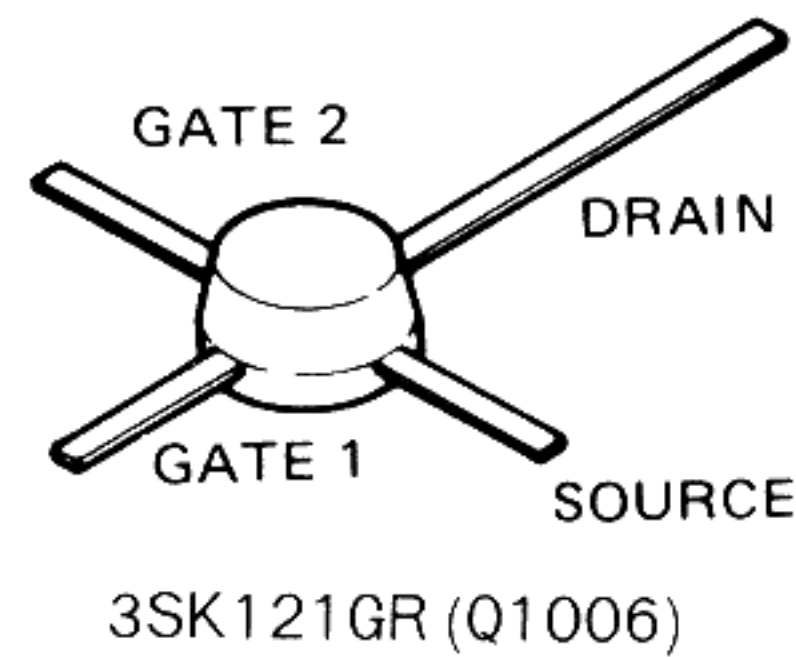
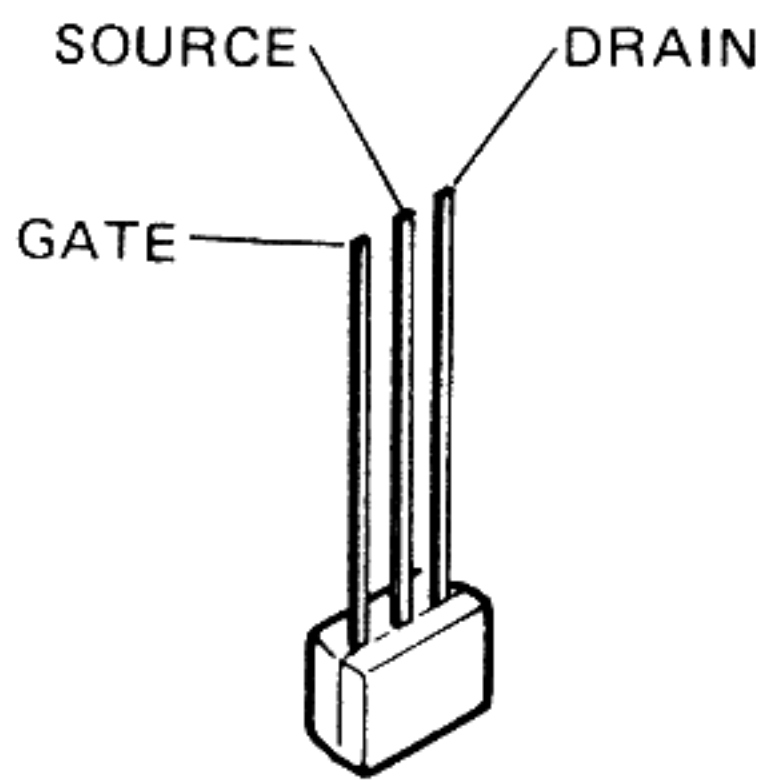
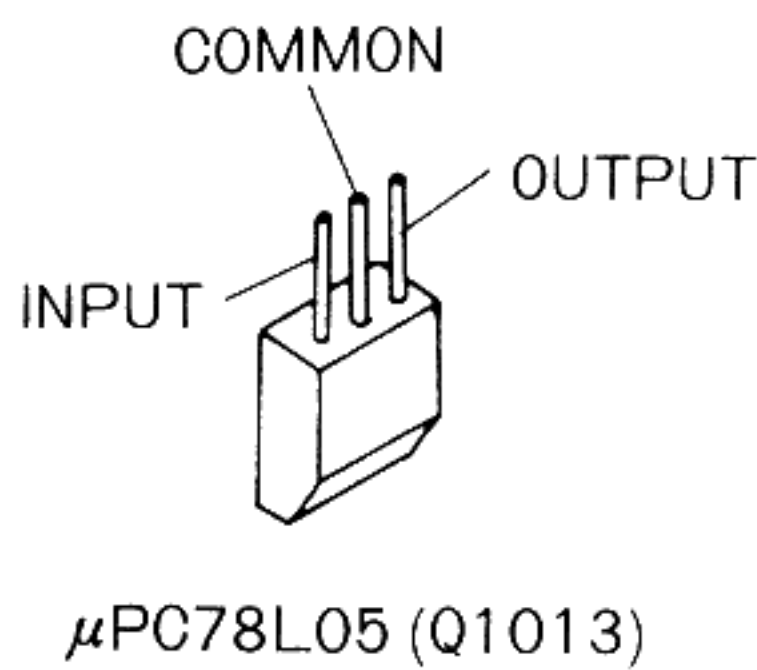
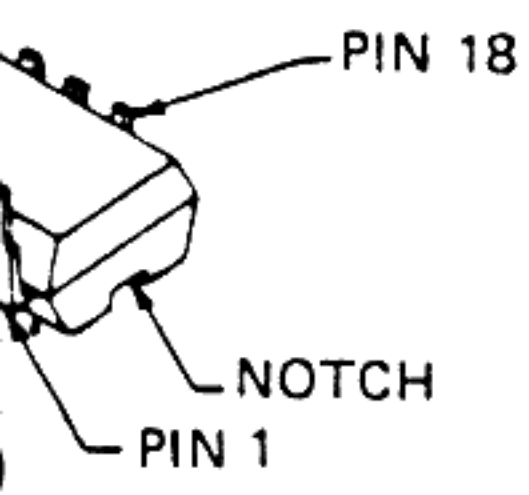
(Viewed from Component side)



(Solder side)



(Viewed from Solder side)



| | | | | | |
|---|-----------|--------------------------|-------------------------------------|-----------|--|
| D2003-2028, 2034, 2047 | G2090340 | 1SS83 Si | R2108, 2111, 2150 | J02245473 | " " " 47kΩ * |
| | | | R2135 | J02245683 | " " " 68kΩ * |
| D2040, 2041, 2046 | G2090229 | HZ7B1 Zener | R2039, 2045, 2048, | J02245104 | " " " 100kΩ * |
| D2058 | G2090217 | HZ3C1 " | 2101, 2103, 2106, | | |
| D2068 | G2090135 | ND487C2-3R Quad (Ring) | 2114, 2116, 2124, | | |
| D2071, 2072 | G2090118 | 1SS97 Schottky | 2180 | | |
| | | | R2054 | J02245124 | " " " 120kΩ * |
| | | CRYSTAL FILTER | R2187 | J01215224 | " " 1/8W 220kΩ TJ |
| XF2001 | H1102107 | XF45M-203-01 | R2110 | J02245474 | " " 1/4W 470kΩ SJ |
| | | | R2130 | J02245824 | " " " 820kΩ * |
| | | RESISTORS | R2117 | J02245105 | " " " 1MΩ * |
| R2145 | J30376019 | Cement 5W 0.1Ω | R2037 | J02245225 | " " " 2.2MΩ * |
| R2063 | J02245689 | Carbon Film 1/4W 6.8Ω SJ | | | |
| R2081 | J02245569 | " " " 5.6Ω " | | | POTENTIOMETERS |
| R2083, 2086, 2153 | J02245100 | " " " 10Ω " | VR2001, 2012 | J51745102 | H0651A 007-1KB 1kΩB |
| R2181 | J01245220 | " " " 22Ω TJ | VR2002, 2011 | J51745473 | H0651A 017-47KB 47kΩB |
| R2041, 2064 | J02245470 | " " " 47Ω SJ | VR2003-2005, | J51745103 | H0651A 013-10KB 10kΩB |
| R2070 | J01245470 | " " " 47Ω TJ | 2007, 2009 | | |
| R2007 | J02245560 | " " " 56Ω SJ | VR2008 | J51745105 | H0651A 025-1MB 1MΩB |
| R2044, 2047, 2057, 2068, 2082 | J02245680 | " " " 68Ω " | VR2010 | J60800124 | RK09K 1110-10KB 10kΩB |
| R2019-2029, 2031, 2033, 2035, 2046, 2067, 2069, 2073-2075, 2077, 2091, 2112, 2125, 2128, 2142, 2152, 2177, 2179, 2190 | J02245101 | " " " 100Ω " | C2019, 2028, 2030, 2169 | K00172050 | Ceramic Disc 50WV 5pF SL (DD104SL050C50) |
| R2030, 2032, 2034, 2036, 2050, 2058, 2060 | J01245101 | " " " 100Ω TJ | C2020, 2021 | K00173060 | " " " 6pF * (DD104SL060D50) |
| R2191 | J00215101 | " " 1/8W 100Ω VJ | C2026, 2027 | K00173090 | " " " 9pF * (DD104SL090D50) |
| R2052, 2092 | J02245221 | " " 1/4W 220Ω SJ | C2034, 2035 | K00175120 | " " " 12pF * (DD104SL120J50) |
| R2056 | J02245331 | " " " 330Ω " | C2178 | K02175150 | " " " 15pF CH (DD104CH150J50) |
| R2008, 2017, 2018, 2051, 2061, 2076, 2176, 2178, 2183, 2185 | J02245471 | " " " 470Ω " | C2044, 2046 | K00175180 | " " " 18pF SL (DD104SL180J50) |
| R2053 | J01245471 | " " " 470Ω TJ | C2036, 2038, 2042, 2043 | K00179005 | " " " 20pF * (DD104SL200J50) |
| R2042, 2043, 2065, 2080 | J02245681 | " " " 680Ω SJ | C2008, 2052, 2054 | K00175220 | " " " 22pF * (DD104SL220J50) |
| R2011, 2014-2016, 2040, 2078, 2079, 2089, 2090, 2093, 2094, 2131, 2140, 2143, 2173 | J02245102 | " " " 1kΩ " | C2113, 2115 | K00175330 | " " " 33pF * (DD104SL330J50) |
| R2189 | J01215102 | " " 1/8W 1kΩ TJ | C2022 | K00175390 | " " " 39pF * (DD104SL390J50) |
| R2062 | J02245122 | " " 1/4W 1.2kΩ SJ | C2001, 2029 | K00175470 | " " " 47pF * (DD104SL470J50) |
| R2132 | J02245152 | " " " 1.5kΩ " | C2050, 2051 | K00179010 | " " " 51pF * (DD104SL510J50) |
| R2009, 2049, 2126 | J02245222 | " " " 2.2kΩ " | C2114 | K00175680 | " " " 68pF * (DD104SL680J50) |
| R2118 | J02245332 | " " " 3.3kΩ " | C2010, 2060, 2062 | K00175620 | " " " 62pF * (DD104SL620J50) |
| R2059 | J00215332 | " " 1/8W 3.3kΩ VJ | C2007 | K00175750 | " " " 75pF * (DD104SL750J50) |
| R2002, 2010, 2149, 2154 | J02245472 | " " " 4.7kΩ SJ | C2006, 2037, 2098, 2099, 2149, 2150 | K00175820 | " " " 82pF * (DD104SL820J50) |
| R2175, 2188 | J02245682 | " " " 6.8kΩ " | C2045 | K00179013 | " " " 91pF * (DD105SL910J50) |
| R2004, 2012, 2013, 2038, 2072, 2100, 2102, 2104, 2105, 2109, 2113, 2115, 2119, 2123, 2129, 2134, 2139, 2144, 2182, 2184 | J02245103 | " " " 10kΩ " | C2058, 2059 | K00175101 | " " " 100pF * (DD105SL101J50) |
| R2186 | J01245103 | " " 1/4W 10kΩ TJ | C2053, 2068, 2070 | K00179015 | " " " 110pF * (DD105SL111J50) |
| R2055, 2174 | J01215103 | " " 1/8W 10kΩ " | C2009, 2066, 2067, 2076, 2078 | K00175151 | " " " 150pF * (DD106SL151J50) |
| R2005 | J02245153 | " " 1/4W 15kΩ SJ | C2061 | K00179019 | " " " 200pF * (DD106SL201J50) |
| R2001, 2003 | J02245223 | " " " 22kΩ " | C2082, 2085 | K00175271 | " " " 270pF * (DD107SL271J50) |
| R2096, 2136, 2138 | J02245333 | " " " 33kΩ " | C2119 | K00175561 | " " " 560pF * (DD107SL561J50) |

C2069
C2074,
C2083,
2112,
2151-
C2004,
2012-
2023,
2033,
2049,
2073,
2090,
2105-
2118,
2127,
2135,
2148,
2164,
2173.
C2002
2063,
2086,
2100
2132
2140
C2093
C2003
2097
C2157
C2018
C2136
C2024
2048
2072
2133
C209
C217
C209
C216
C216
L200
206
L200
L200
L200
L200
L200
L200
L201
202
L201

| |
|----------|
| 47kΩ " |
| 68kΩ " |
| 100kΩ " |
| 120kΩ " |
| 220kΩ TJ |
| 470kΩ SJ |
| 820kΩ " |
| 1MΩ " |
| 2.2MΩ " |
| 1kΩB |
| 47kΩB |
| 10kΩB |
| 1MΩB |
| 10kΩB |
| V 5pF SL |
| 6pF " |
| 9pF " |
| 12pF " |
| 15pF CH |
| 18pF SL |
| 20pF " |
| 22pF " |
| 33pF " |
| 39pF " |
| 47pF " |
| 51pF " |
| 68pF " |
| 62pF " |
| 75pF " |
| 82pF " |
| 91pF " |
| 00pF " |
| 10pF " |
| 50pF " |
| 00pF " |
| 70pF " |
| 50pF " |

| | | | | | |
|--|-----------|--|---------------------------------|-----------|--------------------|
| C2069 | K00179022 | Ceramic Disc 50WV360pFSL (DD108SL361J50) | L2013, 2015 | L0190048 | RF3855-5R6K 5.6μH |
| C2074, 2075, 2077 | K00175471 | " " " 470pF " (DD109SL471J50) | L2014 | L0190042 | RF3855-1R8K 1.8μH |
| C2083, 2084, 2111, 2112, 2129, 2138, 2151-2154, 2160 | K12171102 | " " " 0.001μF E (DD104E102P50) | L2018, 2020 | L1190161 | LHL06NA 6R8K 6.8μH |
| C2004, 2005, 2012-2015, 2017, 2023, 2025, 2031, 2033, 2039, 2041, 2049, 2057, 2065, 2073, 2081, 2088, 2090, 2102, 2103, 2105-2110, 2116, 2118, 2120-2125, 2127, 2128, 2134, 2135, 2142-2144, 2148, 2158, 2162, 2164, 2165, 2171- 2173, 2176, 2177 | K13179008 | " " " 0.01μF F (DD108F103Z50) | L2019 | L1190155 | LHL06NA 2R2K 2.2μH |
| C2002, 2047, 2055, 2063, 2071, 2079, 2086, 2089, 2092, 2100, 2101, 2130, 2132, 2137, 2139, 2140, 2145 | K13179009 | " " " 0.047μF F (DD110F473Z50) | L2021, 2022, 2034 | L1190165 | LHL06NA 150K 15μH |
| C2093-2095, 2131 | K19149021 | Barrier Layer 25WV 0.047μF (UAT08X473K-L45AE) | L2024 | L1190157 | LHL06NA 3R3K 3.3μH |
| C2003, 2011, 2016, 2097, 2104, 2163 | K19149025 | " " " 0.1μF (UAT10X104K-L45AE) | L2026, 2027 | L1190166 | LHL06NA 180K 18μH |
| C2157 | K40179010 | Electrolytic 50WV 0.47μF (RE-50VR47M) | L2028, 2030 | L1190168 | LHL06NA 270K 27μH |
| C2018, 2141, 2170 | K40179013 | " " " 1μF (RE-50V010M) | L2029 | L1190162 | LHL06NA 8R2K 8.2μH |
| C2136, 2167 | K40179012 | " " " 4.7μF (RE-50V4R7M) | L2031, 2032 | L1190169 | LHL06NA 330K 33μH |
| C2024, 2032, 2040, 2048, 2056, 2064, 2072, 2080, 2087, 2133, 2155, 2159 | K40179014 | " " " 10μF (RE-50V100M) | L1010, 2033, 2035-2037 | L1190172 | LHL06NA 560K 56μH |
| C2091 | K40179022 | " " " 22μF (RE-50V220M) | L2038, 2040, 2044 | L1190174 | LHL06NA 820K 82μH |
| C2175 | K40129016 | " " 16WV 22μF (RE-16V220M) | L2039 | L1190167 | LHL06NA 220K 22μH |
| C2096 | K40129008 | " " " 33μF (RE-16V330M) | L2041, 2042 | L1190173 | LHL06NA 680K 68μH |
| C2156 | K70167224 | Tantalum 50WV 0.22μF (DN1VR22MIS) | L2043, 2045 | L1190180 | LHL06NA 271K 270μH |
| | K70167474 | " " " 0.47μF (DN1VR47MIS) | L2046, 2048 | L1190177 | LHL06NA 151K 150μH |
| C2168 | K70127106 | " " 16WV 10μF (DN1C100MIS) | L2047 | L1190179 | LHL06NA 221K 220μH |
| C2166 | K80000003 | Capacitor Block 7x 0.01μF (CA1037) | L2049, 2050, 2066 | L1190187 | LHL06NA 102K 1mH |
| | | INDUCTORS | L2051, 2062 | L1190040 | S4-102 1mH |
| L2001, 2004, 2054, 2060, 2063 | L1190175 | LHL06NA 101K 100μH | L2052, 2067 | L0021245 | 0.42μH |
| L2002 | L0021221 | 0.17μH | L2055, 2065 | L1190133 | LAL04NA 101K 100μH |
| L2003 | L0021222 | 0.24μH | L2056 | L1190159 | LHL06NA 4R7K 4.7μH |
| L2005, 2006 | L0190047 | RF3855-4R7K 4.7μH | L2064 | L1190095 | LAL04NA 4R7K 4.7μH |
| L2007, 2009 | L0190045 | RF3855-3R3K 3.3μH | L2057, 2058 | L0021221 | 0.17μH |
| L2008 | L0190039 | RF3855-1R0K 1μH | L2059 | L1190138 | LAL04NA 100K 10μH |
| L2016, 2017, 2023, 2025 | L1190163 | LHL06NA 100K 10μH | L2068 | L1190135 | LAL04NA 561K 560μH |
| L2011, 2012 | L0190050 | RF3855-8R2K 8.2μH | L2069 | L1190151 | LHL06NA 1R0M 1μH |
| | | | L2053, 2070 | L1190090 | LAL04NA 102K 1mH |
| | | | L2071 | L1190336 | LAL04NA 271K 270μH |
| | | | L2072 | L1190188 | LAL03NAR22M 0.22μH |
| | | | | | TRANSFORMERS |
| | | | T2001 | L0021605 | |
| | | | T2002 | L0020856 | |
| | | | T2003, 2008, 2009 | L0020788A | |
| | | | T2004-2007 | L0021225 | R12-6707A 47.1MHz |
| | | | | | FERRITE BEADS |
| | | | | L9190001 | R13X3-1 |
| | | | | | RELAYS |
| | | | RL2001 | M1190067 | G5A-237P DC 12V |
| | | | RL2002 | M1190056 | FBR21D12 " |
| | | | RL2003 | M1190068 | G6E-134P " |
| | | | | | LAMP FUSE |
| | | | F2001 | Q1000010 | BQ041-22803A |
| | | | | | SWITCHES |
| | | | S2001 | N4090101 | SPJ-2E |
| | | | S2002 | N6090033 | SSS-21200 |
| | | | | | CONNECTORS |
| | | | J2001-2005 | P1090348 | S-Q 3097-01 |
| | | | J2006-2011 | P1090255 | TMP-JA |
| | | | J2012, 2020, 2021 | P0090197 | B08B-XH-A |
| | | | J2013 | P0090200 | B11B-XH-A |
| | | | J2014, 2023, 2025, 2030-2032 | P0090192 | B03B-XH-A |
| | | | J2015, 2022, 2024 | P0090191 | B02B-XH-A |
| | | | J2016 | P0090194 | B05B-XH-A |
| | | | J2017 | P0090207 | S06B-XH-A |
| | | | J2018 | P1090419 | 3024-06CH |
| | | | J2019 | P1090250 | 3024-08CH |
| | | | J2026 | P0090196 | B07B-XH-A |
| | | | J2027, 2028 | P0090193 | B04B-XH-A |
| | | | J2029 | P0090195 | B06B-XH-A |

| | R5047911B | HEATSINK | 1102-1109, 1113-1115, 1118-1120, 1124-1131, 1133, 1134, 1136, 1138, 1140, 1141 | | |
|--|-----------|------------------------|--|-----------|--------------------------|
| | | TERMINALS | | | |
| | Q5000050 | TP-K | | | |
| IF UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | CRYSTAL |
| | F2783000B | Printed Circuit Board | X1001 | H0102550 | HC-18/u 8.67MHz |
| | C027830AA | PCB with Components | | | |
| | | ICs | | | CRYSTAL FILTERS |
| Q1007 | G1090389 | MC3359P | XF1001 | H1102050 | 8.2M20A |
| Q1017, 1036, 1070 | G1090686 | LA6458S | XF1002 | H1102079 | XF-8.2M601-01 (CW) |
| Q1037 | G1090494 | MB3713M-G | XF1003 | H1102080 | XF-8.2M272-01 (SSB) |
| Q1038, 1055 | G1090257 | MC14066BCP | | | |
| Q1051, 1052, 1054 | G1090101 | μPC 1037H | | | CERAMIC FILTERS |
| Q1053 | G1090413 | TA7302P | CF1001 | H3900200 | CFW 455E |
| Q1059 | G1090531 | TMS1751C (M47003) | CF1002 | H3900340 | LF-H6S |
| Q1060 | G1090052 | MC14049UBCP | CF1003 | H3900378 | LF-E2A |
| | | FETs | | | |
| Q1001, 1002, 1009, 1012, 1016, 1025, 1050 | G4800740L | 3SK74L | | | CERAMIC RESONATOR |
| | | | CO1001 | H7900140 | CSA 1.000MK |
| | | | | | RESISTORS |
| Q1005, 1006, 1018, 1048, 1049, 1076, 1077 | G3801040J | 2SK104J | R1407 | J01275279 | Carbon Film 1/2W 2.7Ω TJ |
| | | | R1153, 1342 | J02245100 | " " 1/4W 10Ω SJ |
| | | | R1341, 1353 | J02245560 | " " " 56Ω " |
| Q1008 | G3802410G | 2SK241GR | R1125, 1161, 1220 | J02245680 | " " " 68Ω " |
| Q1011, 1031 | G3801921G | 2SK192A-GR | R1004, 1005, 1007, 1009, 1010, 1017, 1022, 1029, 1046, 1057, 1061, 1070, 1072, 1073, 1083, 1087, 1091, 1117, 1126, 1137, 1146, 1155, 1156, 1160, 1163, 1166, 1195, 1204, 1205, 1250, 1254, 1255, 1260, 1272, 1292, 1332, 1338, 1380, 1390, 1391, 1396 | J02245101 | " " " 100Ω " |
| | | TRANSISTORS | | | |
| Q1003, 1004, 1013-1015, 1019, 1020 1022-1024, 1026-1030, 1056-1058 1064-1069, 1071-1073 | G3309451Q | 2SC945AQ | | | |
| Q1010, 1061, 1063 | G3107331P | 2SA733AP | | | |
| Q1021 | G3319230O | 2SC1923O | | | |
| Q1033-1035, 1074 | G3090068 | 2SC458LGC | | | |
| Q1039-1047, 1079 | G3090075 | BN1A4P | | | |
| Q1062, 1075 | G3090074 | BA1A4M | R1028, 1048, 1064 | J01245101 | " " " 100Ω TJ |
| Q1078 | G3406670C | 2SD667C | R1032, 1214, 1348, 1394 | J02245151 | " " " 150Ω SJ |
| | | DIODES | | | |
| D1001, 1002, 1058, 1059, 1121, 1137 | G2090244 | 1SS106 Schottky | R1030 | J01245151 | " " " 150Ω TJ |
| D1013, 1015, 1017-1020, 1101, 1142, 1143 | G2090118 | 1SS97 " | R1026, 1050, 1090, 1154, 1173, 1183, 1268, 1269, 1277, 1286, 1288, 1290, 1291, 1349 | J02245221 | " " " 220Ω SJ |
| | G2090217 | HZ3C1 Zener | | | |
| D1036 | G2090180 | FC53-M5 Varactor | R1144 | J01245221 | " " " 220Ω TJ |
| D1037 | G2090220 | ND487R1-3R Quad (Ring) | R1053, 1181, 1303, 1351, 1370, 1375 | J02245331 | " " " 330Ω SJ |
| D1042, 1049 | G2090226 | HZ4C3 Zener | | | |
| D1055 | G2090023 | 1SV50 Varactor | R1027, 1044, 1049 | | |
| D1057, 1122, 1123 | G2090340 | 1SS83 Si | 1059, 1075, 1092, 1165, 1168, 1282, 1378 | J02245471 | " " " 470Ω " |
| D1060, 1111, 1112, 1116, 1117 | G2001880F | 1S188FM1 Ge | | | |
| D1063, 1110 | G2090111 | HZ6C1 Zener | R1415 | J01245561 | " " " 560Ω TJ |
| D1132 | G2090188 | HZ5C1 " | R1129, 1222, 1265 | J02245561 | " " " 560Ω SJ |
| D1135 | G2090217 | HZ3C1 " | R1056, 1066, 1147, 1158, 1253, 1344 | J02245681 | " " " 680Ω " |
| D1003, 1006-1012, 1014, 1016, 1021-1035, 1041, 1043-1048, 1050, 1051, 1053, 1054, 1056, 1061, 1064-1091, 1094-1100, | G2090027 | 1SS53 Si | R1408 | J01215102 | " " 1/8W 1kΩ TJ |
| | | | R1001, 1011, 1016, 1019, 1020, 1037, 1047, 1058, 1067, 1076, 1082, 1100, 1119, 1120, 1124, 1140, 1143, 1150, | J02245102 | " " 1/4W 1kΩ SJ |

| | | | | | | |
|--|-----------|------------------|--|--|-----------|--|
| 1171, 1178, 1187, 1188, 1206, 1213, 1218, 1257, 1258, 1263, 1271, 1273, 1280, 1284, 1296, 1309, 1318, 1354, 1366, 1374, 1383, 1385, 1395, 1398, 1418 | | | 1112, 1148, 1164, 1167, 1169, 1175 1177, 1221, 1227, 1229, 1276, 1278, 1283, 1305, 1328, 1343, 1345, 1371 | | | |
| R1337 | J02245122 | Carbon Film 1/4W | 1.2kΩ " | R1267 | J02245563 | " " " 56kΩ " |
| R1040, 1099, 1162 | J02245152 | " " " | 1.5kΩ " | R1071, 1184, 1201, 1308, 1319, 1335, 1358 | J02245683 | " " " 68kΩ " |
| R1014, 1094, 1198, 1199, 1274, 1294, 1307, 1316, 1346, 1347, 1369, 1373, 1379, 1416, 1417 | J02245222 | " " " | 2.2kΩ " | R1080 | J02245823 | " " " 82kΩ " |
| | J01245222 | " " " | 2.2kΩ TJ | R1002, 1036, 1045, 1052, 1081, 1084, 1106, 1108, 1114, 1118, 1136, 1145, 1151, 1157, 1176, 1226, 1259, 1264, 1295, 1304, 1311, 1325, 1339, 1363, 1365, 1377, 1386, 1397 | J02245104 | " " " 100kΩ " |
| R1298 | J02245272 | " " " | 2.7kΩ SJ | | | |
| R1060, 1062, 1063, 1065, 1121, 1159, 1172, 1186, 1203, 1306, 1326 | J02245332 | " " " | 3.3kΩ " | R1051, 1197, 1212, 1275, 1279, 1281, 1364 | J02245154 | " " " 150kΩ " |
| R1224 | J01215392 | " " " | 1/8W 3.9kΩ TJ | R1033 | J01245154 | " " " 150kΩ TJ |
| R1024, 1034, 1098, 1122, 1141, 1207, 1215, 1251, 1285, 1299, 1302, 1330, 1333, 1340, 1389, 1393, 1413, 1419 | J02245472 | " " " | 1/4W 4.7kΩ " | R1079 | J02245224 | " " " 220kΩ SJ |
| R1405 | J01215472 | " " " | 1/8W 4.7kΩ TJ | R1412 | J01215224 | " " " 1/8W 220kΩ TJ |
| R1093, 1217, 1334, 1336 | J02245562 | " " " | 1/4W 5.6kΩ SJ | R1038, 1105, 1331 | J02245334 | " " " 1/4W 330kΩ SJ |
| R1023, 1115, 1193, 1194, 1196, 1209-1211 | J02245682 | " " " | 6.8kΩ " | R1101 | J02245474 | " " " 470kΩ " |
| R1003, 1006, 1008, 1012, 1013, 1015, 1018, 1035, 1042, 1069, 1077, 1085, 1088, 1102-1104, 1109-1111, 1128, 1130-1133, 1139, 1149, 1152, 1170, 1174, 1189, 1192, 1208, 1216, 1225, 1230, 1231, 1266, 1287, 1293, 1312-1315, 1323, 1324, 1329, 1355, 1356, 1359, 1360, 1362, 1367, 1368, 1372, 1381, 1392, 1402, 1403 | J02245103 | " " " | 10kΩ " | R1219 | J01245474 | " " " 470kΩ TJ |
| R1406, 1410 | J01215103 | " " " | 1/8W 10kΩ TJ | R1074 | J02245824 | " " " 820kΩ SJ |
| R1078, 1411 | J01245103 | " " " | 1/4W 10kΩ " | R1310 | J02245105 | " " " 1MΩ " |
| R1039, 1252, 1256, 1352 | J02245153 | " " " | 15kΩ SJ | R1409 | J01215105 | " " " 1/8W 1MΩ TJ |
| R1055 | J02245183 | " " " | 18kΩ " | R1116 | J02245155 | " " " 1.5MΩ SJ |
| R1123, 1127, 1138, 1142, 1202, 1232, 1234, 1270, 1317, 1320, 1350, 1376, 1399 | J02245223 | " " " | 22kΩ " | R1228 | J02245225 | " " " 2.2MΩ " |
| R1233 | J02245273 | " " " | 27kΩ " | R1361 | J02245335 | " " " 3.3MΩ " |
| R1041, 1068, 1086, 1113, 1179, 1301 | J02245333 | " " " | 33kΩ " | | | |
| R1021, 1043, 1054, | J02245473 | " " " | 47kΩ " | | | |
| | | | | VR1001, 1014, 1019 | J51745104 | POTENTIOMETERS H0651A 019-100KB 100kΩ B |
| | | | | VR1002, 1005, 1007, 1009, 1012, 1016 | J51745103 | H0651A 013-10KB 10kΩ B |
| | | | | VR1003, 1013 | J51745473 | H0651A 017-47KB 47kΩ B |
| | | | | VR1004 | J51745105 | H0651A 025-1MB 1MΩ B |
| | | | | VR1006, 1015 | J51745472 | H0651A 011-4.7KB 4.7kΩ B |
| | | | | VR1008 | J51745102 | H0651A 007-1KB 1kΩ B |
| | | | | VR1017 | J60800126 | RK09K1110-500KB 500kΩ B |
| | | | | VR1018 | J60800124 | RK09K1110-10KB 10kΩ B |
| | | | | | | THERMISTORS |
| | | | | TH1001 | G9090002 | D22A |
| | | | | TH1002 | G9090016 | 112252-2 |
| | | | | TH1003 | G9090012 | SDT500 |
| | | | | | | CAPACITORS |
| | | | | C1106 | K06172030 | Ceramic disc 50WV 3pF UJ (DD104UJ 030C50) |
| | | | | C1189 | K00172050 | " " " 5pF SL (DD104SL 050C50) |
| | | | | C1032, 1034, 1288, 1309, 1310 | K00173100 | " " " 10pF " (DD104SL 100D50) |
| | | | | C1009, 1115, 1203 | K00175220 | " " " 22pF " (DD104SL 220J50) |
| | | | | C1102, 1104, 1119, 1139 | K00175330 | " " " 33pF " (DD104SL 330J50) |
| | | | | C1096, 1113, 1295 | K00175470 | " " " 47pF " (DD104SL 470J50) |

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|--|-----------|---|---|-----------|--|
| C1136 | K00175680 | Ceramic disc 50WV 68pF SL (DD104SL 680J50) | C1087, 1162, 1164, 1253 | K50177103 | " " 0.01μF (50F2U103M) |
| C1001, 1023, 1047, 1053, 1085, 1112, 1117, 1129, 1235, 1284 | K00175101 | " " " 100pF " (DD105SL 101J50) | C1169, 1170 | K50177153 | " " 0.015μF (50F2U153M) |
| C1233 | K00175121 | " " " 120pF " (DD105SL 121J50) | C1099, 1143, 1163, 1223-1225, 1244, 1245, 1259, 1261 | K50177223 | " " 0.022μF (50F2U223M) |
| C1005, 1046, 1131 | K00175151 | " " " 150pF " (DD106SL 151J50) | C1239 | K50177273 | " " 0.027μF (50F2U273M) |
| C1011, 1013 | K00179019 | " " " 200pF " (DD106SL 201J50) | C1042 | K50177683 | " " 0.068μF (50F2U683M) |
| C1107-1109 | K06179018 | " " " 330pF UJ (DD110UJ 331J50) | C1182 | K40179016 | Electrolytic 50WV 0.1μF (RE-50V 0R1M) |
| C1211 | K00175471 | " " " 470pF " (DD109SL 471J50) | C1058 | K40179026 | " " 0.22μF (RE-50V R22M) |
| C1017, 1018, 1097, 1128, 1142, 1180, 1185, 1186, 1237, 1238, 1240, 1257, 1265, 1267-1269, 1282, 1294 | K12171102 | " " " 0.001μF E (DD104E 102P50) | C1285, 1287 | K40179005 | " " 0.47μF (RE-50V R47M) |
| C1002-1004, 1006- 1008, 1010, 1015, 1016, 1019, 1021, 1022, 1024-1031, 1033, 1035, 1049- 1051, 1054, 1057, 1059, 1061, 1063, 1066, 1073, 1074, 1077-1079, 1083, 1100, 1101, 1103, 1105, 1110, 1111, 1116, 1120, 1122- 1124, 1127, 1132, 1134, 1135, 1137, 1141, 1183, 1184, 1187, 1188, 1190- 1197, 1199, 1202, 1207, 1230, 1236, 1241, 1247, 1264, 1281, 1291, 1296, 1297, 1299, 1305 | K13179008 | " " " 0.01μF F (DD106F 103Z50) | C1140, 1144, 1147, 1149, 1200, 1213, 1215, 1229, 1243, 1246, 1249-1252, 1266, 1270, 1277, 1278, 1289 | K40179013 | " " 1μF (RE-50V 010M) |
| C1020, 1055, 1056, 1060, 1062, 1064, 1065, 1067-1072, 1080-1082, 1084, 1086, 1088, 1090, 1091, 1098, 1121, 1130, 1201, 1204, 1205, 1210, 1216-1219, 1272, 1273, 1301 | K13179009 | " " " 0.047μF " (DD110F 473Z50) | C1234, 1271 | K40179009 | " " 2.2μF (RE-50V 2R2M) |
| C1037, 1173, 1177, 1209, 1214, 1221, 1222, 1283 | K19149021 | Barrier Layer 25WV 0.047μF (UAT08X 473K-L45AE) | C1036, 1150-1152, 1157, 1159, 1161, 1166, 1167, 1171, 1181, 1208, 1220, 1226, 1231, 1242, 1255, 1258, 1260, 1275, 1293 | K40179012 | " " 4.7μF (RE-50V 4R7M) |
| C1038, 1044, 1045, 1052, 1178, | K19149025 | " " " 0.1μF (UAT10X 104K-L45AE) | C1012, 1014, 1041, 1048, 1125, 1148, 1165, 1174, 1198, 1227, 1248, 1254, 1262, 1263, 1274, 1276, 1279, 1280, 1292, 1298, 1308 | K40179014 | " " 10μF (RE-50V 100M) |
| C1075, 1076 | K51176102 | Polyester 50WV 0.001μF (50SU102K) | | K40129004 | " 16WV 10μF (RE-16V 100M) |
| C1039, 1040, 1153, 1228 | K50170007 | Mylar 50WV 0.001μF (50F2U102M) | C1168 | K40129012 | " " 10μF (RC2-16V 100M) |
| C1138, 1155, 1158 | K50177222 | " " " 0.0022μF (50F2U222M) | C1093, 1118, 1146, 1154, 1160, 1256, 1307 | K40149025 | " 25WV 22μF (RE-25V 220M) |
| C1156 | K50177472 | " " " 0.0047μF (50F2U472M) | C1126 | K40109002 | " 10WV 47μF (RE-10V 470M) |
| | | | C1175 | K40149022 | " 25WV 47μF (RE-25V 470M) |
| | | | C1089, 1179 | K40149003 | " " 100μF (RE-25V 101M) |
| | | | C1172, 1176 | K40129031 | " 16WV 470μF (RC-16V 471M) |
| | | | C1094 | K70167224 | Tantalun 35WV 0.22μF (DN1VR22MIS) |
| | | | C1302 | K70167474 | " " 0.47μF (DN1V R47MIS) |
| | | | C1303 | K70167684 | " " 0.68μF (DN1V R68MIS) |
| | | | C1304 | K70107475 | " " 4.7μF (DN1A 4R7MIS) |
| | | | | | INDUCTORS |
| | | | L1001, 1009, 1010, 1015, 1018 | L1190187 | LHL06NA 102K 1mH |
| | | | L1002-1006, 1012, 1017, 1022, 1023 | L1190177 | LHL06NA 151K 150μH |

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|--------------|
| " 2.7kΩ " |
| " 3.3kΩ " |
| " 4.7kΩ " |
| " 5.6kΩ " |
| " 6.8kΩ " |
| " 10kΩ " |
| " 10kΩ TJ |
| 1/8W 10kΩ SJ |
| 1/4W 15kΩ SJ |
| " 22kΩ " |
| " 33kΩ " |
| " 47kΩ " |
| " 100kΩ " |
| " 120kΩ " |
| " 270kΩ " |
| " 1MΩ " |
| " 1.5MΩ " |
| " 2.2MΩ " |
| 10KΩ×7 |
| 47KΩ×6 |

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|-------------------------------------|-----------|--|---|-----------|------------------------------|
| RB3003-3005 | J40900023 | DA-2 | C3134, 3136, 3147, 3158 | K00175150 | " " 15pF " |
| | | | C3028, 3037, 3040, 3055, 3082, 3211 | K00175180 | (DD104SL150J50) |
| | | POTENTIOMETERS | | | " " 18pF " |
| VR3001 | J51760104 | GF06P 100kΩB | C3056, 3078, 3095 | K00175220 | (DD104SL180J50) |
| VR3002 | J51769222 | PK502H222H0 2.2kΩB | | | " " 22pF " |
| VR3003 | J51745223 | H0651A015-22KB 22kΩB | C3051, 3052 | K00175270 | (DD104SL220J50) |
| | | | | | " " 27pF " |
| | | | C3135 | K00175330 | (DD104SL270J50) |
| | | CAPACITORS | | | " " 33pF " |
| C3103 | K02179001 | Ceramic disc 50WV 1pF CH (DD104CK010C50) | C3038, 3039 | K00179008 | (DD104SL330J50) |
| C3102 | K02179005 | " " " 1.5pF " (DD104CK1RC50) | C3096 | K00175390 | " " 36pF " |
| C3003 | K02172040 | " " " 4pF " (DD104CH040C50) | C3091, 3222 | K00175560 | (DD104SL360J50) |
| C3071 | K02173080 | " " " 8pF " (DD104CH080J50) | C3042, 3208 | K00175620 | (DD104SL390J50) |
| C3107, 3231 | K02175150 | " " " 15pF " (DD104CH150D50) | C3251, 3252 | K00175680 | " " 56pF " |
| C3062, 3063, 3065 | K02175220 | " " " 22pF " (DD104CH220J50) | C3094 | K00179013 | (DD104SL560J50) |
| C3064 | K02175390 | " " " 39pF " (DD105-257CH390J50) | C3092, 3120, 3224, 3225, 3257 | K00175101 | " " 62pF " |
| | K02179025 | " " " 220pF " (DD111CH221J50) | C3041, 3043, 3138 | K00175121 | (DD105SL620J50) |
| C3075, 3076 | K02179027 | " " " 270pF " (DD112CH271J50) | C3258 | K00175151 | " " 68pF " |
| C3173, 3175, 3179, 3181, 3187, 3193 | K06172050 | " " " 5pF UJ (DD104UJ050C50) | C3140, 3141, 3144, 3145, 3149-3156, 3160-3163 | K00175221 | (DD105SL910J50) |
| C3008, 3180, 3185, 3191 | K06175150 | " " " 15pF " (DD104UJ150J50) | C3106 | K05175560 | " " 100pF " |
| C3174 | K06175180 | " " " 18pF " (DD104UJ180J50) | | | (DD105SL101J50) |
| C3186 | K06175220 | " " " 22pF " (DD104UJ220J50) | C3010-3012, 3117, 3169, 3170, 3195, 3196 | K12171102 | " " 120pF " |
| C3108 | K06175270 | " " " 27pF " (DD104UJ270J50) | | | (DD105SL121J50) |
| C3109, 3176, 3182, 3192 | K06175330 | " " " 33pF " (DD104UJ330J50) | | | " " 150pF " |
| C3188 | K06179009 | " " " 56pF " (DD105UJ560J50) | | | (DD106SL151J50) |
| C3194 | K06175820 | " " " 82pF " (DD106UJ820J50) | | | " " 220pF " |
| C3005, 3006 | K06175101 | " " " 100pF " (DD106UJ101J50) | | | (DD107SL221J50) |
| C3085, 3125 | K00179001 | " " " 0.5pF SL (DD104SL0R5C50) | | | " " 56pF RH (DD106RH560J50) |
| C3088 | K00172010 | " " " 1pF " (DD104SL010C50) | | | " " 0.001μF E (DD104E102P50) |
| C3102 | K00175159 | " " " 1.5pF " (DD104SL1R5C50) | | | " " 0.01μF F (DD106F103Z50) |
| C3022-3025, 3047, 3214 | K00172020 | " " " 2pF " (DD104SL020C50) | | | |
| C3081, 3090, 3228 | K00172040 | " " " 4pF " (DD104SL040C50) | | | |
| C3048, 3199, 3200 | K00172050 | " " " 5pF " (DD104SL050C50) | | | |
| C3080, 3122 | K00173060 | " " " 6pF " (DD104SL060D50) | | | |
| C3266 | K00173080 | " " " 8pF " (DD104SL080D50) | | | |
| C3219 | K00173100 | " " " 10pF " (DD104SL100D50) | | | |
| C3093 | K00175120 | " " " 12pF " (DD104SL120J50) | | | |
| | | | C3015, 3097, 3197, 3202, 3217 | K13179010 | " " 0.022μF " (DD108F228Z50) |

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|--|-----------|---|----------------------------------|-----------|---|
| C3256 | K13179009 | Ceramic 50WV 0.047 μ F F (DD110F473Z50) | T3020, 3021 | L0021399 | 0.42 μ H |
| C3165 | K19149009 | Barrier Layer 25WV 0.0047 μ F (UAT05X472K-L45AE) | T3022 | L0021599 | |
| C3113, 3167 | K19149013 | " " " 0.01 μ F (UAT05X103K-L45AE) | T3023, 3024 | L0021199 | R12-4043A 8.20MHz |
| C3248, 3259, 3260, 3267 | K19149025 | " " " 0.1 μ F (UAT10X104K-L45AE) | | L9190016 | 07MM |
| C1112, 1166 | K40179010 | Electrolytic 50WV 0.47 μ F (RE-50VR47M) | | | SWITCHES |
| C1143, 3164, 3168, 3229, 3237, 3254 | K40179013 | " " " 1 μ F (RE-50V010M) | S3001 | N6090037 | SSS-312 |
| C3250 | K40179009 | " " " 2.2 μ F (RE-50V2R2M) | S3002-3004 | N4090012 | SPJ-22-A01 |
| C3207, 3249 | K40179011 | " " " 3.3 μ F (RE-50V3R3M) | J3001-3005 | P1090255 | CONNECTORS TMP-JA |
| C3099, 3148, 3159, 3215, 3235 | K40179014 | " " " 10 μ F (RE-50V100M) | J3006 | P1090296 | S-Q3097-02 |
| C3171, 3177, 3183, 3189, 3238 | K40129008 | " 16WV 33 μ F (RE-16V330M) | J3007 | P1090354 | S-Q3097-04 |
| C3104 | K40109002 | " 10WV 47 μ F (RE-10V470M) | J3008, 3009, 3020, 3021, 3025 | P00090191 | B02B-XH-A |
| C3111 | K40109001 | " " 100 μ F (RE-10V101M) | J3010, 3022, 3029 | P0090192 | B03B-XH-A |
| | | | J3011, 3012, 3030 | P0090196 | B07B-XH-A |
| | | | J3013, 3016, 3023 | P0090193 | B04B-XH-A |
| | | | J3014, 3017, 3018 | P0090194 | B05B-XH-A |
| | | | J3015 | P0090202 | B13B-XH-A |
| | | | J3019 | P0090200 | B11B-XH-A |
| | | | J3024, 3026 | P0090197 | B08B-XH-A |
| | | | J3027 | P1090423 | TCS4460-01-111 |
| | | TRIMMER CAPACITORS | J3028 | P1090521 | TCS4490-01-1111 |
| TC3001, 3005 | K91000093 | CTZ51F118 30pF | | | |
| TC3002, 3003, 3004, 3007, 3008, 3009 | K91000086 | CTZ51E117 20pF | | | |
| | K91000085 | CTZ51C122 10pF | | Q5000050 | TERMINAL POSTS TP-K |
| | K91000108 | CTZ51A157 6pF | | | |
| | | | | | BATTERY |
| | | BLOCK CAPACITOR | BAT3001 | Q9000248 | CR-1/3N-P |
| CB3001 | K80000007 | 1038Z 0.01 μ FX8 | | | |
| | | | | R0114910 | Shield Case |
| | | | | R0114920 | Shield Cover |
| | | INDUCTORS | | | |
| L3013 | L1190151 | LHL06NA1R0M 1 μ H | | | |
| L3008 | L1190155 | LHL06NA2R2M 2.2 μ H | | | |
| L3002-3004 | L1190157 | LHL06NA3R3M 3.3 μ H | | | |
| L3006, 3007 | L1190160 | LHL06NA5R6K 5.6 μ H | | | |
| L3021, 3022 | L1190163 | LHL06NA100K 10 μ H | | | |
| L3010 | L1190134 | S4-180K 18 μ H | | | |
| L3001 | L1190167 | LHL06NA220K 22 μ H | | | |
| L3011, 3012 | L1190147 | S4-270K 27 μ H | | | |
| L3007, 3023, 3030, 3031 | L1190175 | LHL06NA101K 100 μ H | | | |
| L3024, 3025, 3027 | L1190177 | LHL06NA151K 150 μ H | D6101-6104 | G2090244 | DIODES 1SS106 Schottky |
| L3028, 3029, 3032 | L1190221 | LAL03NA181K 180 μ H | D6105-6112 | G2015550 | 1S1555 Si |
| L3014-3018, 3020 | L1190184 | LHL06NA561K 560 μ H | | | |
| L3009 | L0021410 | | | | |
| L3019 | L0020332A | R12-1255X 5.25MHz | | | |
| L3026 | L0021206B | | D6113 | Q9000375 | SURGE ABSORBER DSP201-S00B |
| | | | | | |
| | | TRANSFORMERS | | | RESISTORS |
| T3001, 3008 | L0020788A | | R6101, 6102 | J02245220 | Carbon film 1/4W 22 Ω SJ |
| T3002-3004, 3012, 3013, 3017, 3018 | L0020909 | 46.3MHz | | | |
| T3005-3007, 3014, 3015 | L0021390 | 58.1125MHz | | | |
| T3009-3011 | L0021609 | 36.8MHz | C6142-6145, 6155 | K13179008 | CAPACITORS Ceramic 50WV 0.01 μ F F (DD106F103Z50) |
| T3016 | L0021205 | 0.70 μ H | C6146-6154 | K13179009 | " " 0.047 μ F " |
| T3019 | L0021401 | 0.28 μ H | | | (DD110F473Z50) |

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|---------|-------------------------|-----------|--|---|-----------|-------------------------|
| 2μH | C6119, 6133 | K00275100 | Ceramic 500WV 10pF SL (DD06SL100D500) | L6107 | L0021228 | 0.780μH |
| | | | | L6108 | L0021229 | 0.920μH |
| MHz | C6134, 6139 | K00275120 | " " 12pF " (DD06SL 120J500) | L6109 | L0020854 | 0.590μH |
| | | | | L6110 | L0020855 | 0.700μH |
| | C6128 | K00275180 | " " 18pF " (DD06SL180J500) | L6111 | L0020621 | 0.370μH |
| | | | | L6112 | L0020622 | 0.440μH |
| | C6137 | K00275330 | " " 33pF " (DD09SL330J500) | L6113 | L0020623 | 0.250μH |
| | | | | L6114 | L0020624 | 0.310μH |
| | C6117, 6131 | K00275360 | " " 36pF " (DD06SL360J500) | L6115 | L0021347 | |
| | | | | L6116, 6117 | L1190017 | FL5H102K 1mH |
| | C6126 | K00275510 | " " 51pF " (DD09SL510J500) | | | |
| | | K00275680 | " " 68pF " (DD09SL680J500) | | | RELAYS |
| | | | | RL6101-6114 | M1190045 | AG2013 12V |
| | C6121, 6140 | K00275750 | " " 75pF " (DD09SL750J500) | RL6115 | M1190005 | NR-HD-12V AE5343 |
| | | | | | | |
| | C6112 | K00275820 | " " 82pF " (DD09SL820J500) | | | CONNECTORS |
| | | K00275101 | " " 100pF " (DD09SL101J500) | J6101, 6102, 6103 | P1090255 | TMP-JA |
| | | | | J6105 | P0090191 | B2B-XH-A |
| | C6115, 6135 | K00275111 | " " 110pF " (DD09SL111J500) | J6106 | P0090193 | B4B-XH-A |
| | | | | J6107 | P0090192 | B3B-XH-A |
| | C6125, 6130, 6138 | K00275151 | " " 150pF " (DD10SL151J500) | | | |
| | | | | | | |
| | C6123 | K30275270 | Dipped Mica " 27pF (LCQ12270J5) | P6101 | T9205243A | |
| | C6136 | K30275121 | " " " 120pF (LCQ17121J5) | P6102 | T9315913A | |
| | | | | | | |
| | C6103 | K30275161 | " " " 160pF (LCQ17161J5) | | | |
| | | | | | | |
| | C6129 | K30275181 | " " " 180pF (LCQ17181J5) | | | |
| | | | | | | CONTROL UNIT |
| | C6120, 6132 | K30275221 | " " " 220pF (LCQ17221J5) | Symbol No. | Part No. | Name & Description |
| | | | | | F2785101A | Printed Circuit Board |
| | C6110 | K30275241 | " " " 240pF (LCQ17241J5) | | C027851AA | PCB with Components |
| | | | | | | |
| | C6124 | K30275271 | " " " 270pF (LCQ17271J5) | | | ICs |
| | | | | | | |
| | C6114, 6127 | K30275331 | " " " 330pF (LCQ17331J5) | Q4001 | G1090720 | TA78009AP |
| | | | | Q4003 | G1090294 | μPC7808H |
| | C6118 | K30275361 | " " " 360pF (LCQ17361J5) | Q4012, 4013 | G1090649 | M5218L |
| | | | | | | |
| | C6141 | K30275431 | " " " 430pF (LCQ18431J5) | | | TRANSISTORS |
| | | | | | | |
| | C6102, 6106, 6108, 6122 | K30275471 | " " " 470pF (LCQ17471J5) | Q4004, 4005, 4007 | G3104960Y | 2SA496Y |
| | | | | Q4006 | G3110120Y | 2SA1012Y |
| | C6109 | K30275561 | " " " 560pF (LCQ18561J5) | Q4008-4011, 4014, 4016-4018 | G3309450Q | 2SC945AQ |
| | | | | | | |
| | C6105, 6113, 6116 | K30275681 | " " " 680pF (LCQ18681J5) | Q4015, 4019 | G3107330P | 2SA733AP |
| | | | | | | |
| | C6107 | K30275821 | " " " 820pF (LCQ18821J5) | | | DIODES |
| | | | | | | |
| | C6101 | K30275102 | " " " 1000pF (LCQ21102J5) | D4001-4018 | G2090027 | 1SS53 Si |
| | | | | | | |
| | C6104, 6111 | K30279095 | " " " 1200pF (DM19122J5) | | | RESISTORS |
| | | | | | | |
| | | | | R4008, 4020, 4036, 4041 | J02245102 | Carbon film 1/4W 1kΩ SJ |
| | | | TRIMMER CAPACITOR | | | |
| | TC6101 | K91000012 | ECV-1ZW10X32 10pF | R4002, 4004, 4010 | J02245222 | " " " 2.2kΩ " |
| | | | | R4001, 4003, 4007, 4009, 4012, 4022, 4024, 4031, 4032, 4043 | J02245472 | " " " 4.7kΩ " |
| 22Ω SJ | | | INDUCTORS | | | |
| | L6101 | L0021405 | T50-2 3.770μH | | | |
| | L6102 | L0021406 | " 2.940μH | | | |
| | L6103 | L0020615 | " 1.900μH | R4014 | J02245682 | " " " 6.8kΩ " |
| 01μF F | L6104 | L0021433 | " 2.400μH | | | |
| | L6105 | L0020617 | T50-6 1.100μH | R4005, 4006, 4011, 4013, 4017, 4018, 4023, 4025-4027, | J02245103 | " " " 10kΩ " |
| 047μF " | L6016 | L0020618 | " 1.320μH | | | |

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|---------------------|-----------|--|----------------------------|-----------|--|
| 7001 | K40179014 | Electrolytic 50WV 10 μ F (RE-50V100M) | R6011, 6019, 6028, 6030 | J02245103 | " " " 10k Ω SJ |
| 7012, 7015, 7020 | K40129004 | " 16WV 10 μ F (RE-16V100M) | R6031 | J01245103 | " " " 10k Ω TJ |
| 7009 | K40129008 | " " 33 μ F (RE-16V330M) | R6014 | J02245153 | " " " 15k Ω SJ |
| 7011, 7014 | K40129002 | " " 47 μ F (RE-16V470M) | R6007 | J02245473 | " " " 47k Ω " |
| 7003 | K40129007 | " " 100 μ F (RE-16V101M) | R6002 | J02245683 | " " " 68k Ω " |
| | | | R6017, 6027 | J01215104 | " " " 100k Ω " |
| | | | R6032 | J20356102 | " " " 1/8W 100k Ω TJ |
| | | | R6001, 6009 | J30376019 | Metallic " 3W 1k Ω |
| 7001, L7002 | L1190123 | INDUCTORS S6-392K 3.9mH | R6018 | J30376029 | Cement " 5W 0.1 Ω |
| | | | R6003-6005 | J32009003 | " " " 0.2 Ω |
| | | | R6029 ■ | J32009004 | R125 J(Meter Shunt) 0.125 Ω |
| | | | R6029 ▲ | | R025 J(Meter Shunt) 0.025 Ω |
| | | | | | POTENTIOMETERS |
| | | | VR6001, 6002 | J50709102 | H1052A007 -1KB 1k Ω B |
| | | | VR6003 | J50709472 | H1052A011 -4.7KB 4.7k Ω B |
| | | | VR6004 | J51757472 | H1052C -4.7KB 4.7k Ω B |
| | | | | | CAPACITORS |
| | | | C6008 | K13179008 | Ceramic 50WV 0.01 μ F F (DD106F103Z50) |
| | | | C6007, 6014 | K13179009 | " " " 0.047 μ F " |
| | | | C6012 | K50170015 | (DD110F103Z50) Mylar " 0.022 μ F |
| | | | C6005 | K50170017 | (50F2D223M) " 0.047 μ F |
| | | | C6004 | K40179028 | (50F2D473M) " 47 μ F |
| | | | C6006 | K40169013 | Electrolytic " 35WV 47 μ F (RE-50V470M) |
| | | | C6003 | K40179032 | " " 50WV 100 μ F (RE-25V470M) |
| | | | C6013 | K40149003 | " " 25WV 100 μ F (RE-25V101M) |
| | | | C6010, 6011 | K40149030 | " " " 330 μ F (RE-25V331M) |
| | | | C6009 | K42140004 | " " " 18000 μ F (25LP183) |
| | | | C6001, 6002 | K42170004 | " " 50WV 18000 μ F (50L18000) |
| | | | C6015 | K19149023 | Barrier Layer 25WV 0.068 μ F (UAT10X683K-L45AE) |
| | | | J6001, 6002, 6004 | P0090191 | CONNECTORS |
| | | | P6001 | T9205242A | B02B-XH-A |
| PS UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | |
| | F2787000A | Printed Circuit Board | | | |
| | C027870AA | PCB with Components | | | |
| | | FET | | | |
| | G3801921G | 2SK192AGR | | | |
| | | TRANSISTORS | | | |
| | G3304580B | 2SC458B | | | |
| | G3107331P | 2SA733AP | | | |
| | G3110120Y | 2SA1012Y | | | |
| | G3109500Y | 2SA950Y | | | |
| | G3110150G | 2SA1015GR | | | |
| | G3407170Y | 2SD717Y | | | |
| | G3106840R | 2SA684R | | | |
| | | DIODES | | | |
| | G2090306 | 10E1 Si | | | |
| | G2090237 | MA190 " | | | |
| | G2090111 | HZ6C1 Zener | | | |
| | G3090044 | CW12B Thyristor | | | |
| | | THERMISTOR | | | |
| | G9090015 | SDT-100 | | | |
| | | RESISTORS | | | |
| | J02245560 | Carbon film 1/4W 56 Ω SJ | | | |
| | J02245471 | " " " 470 Ω " | | | |
| | J02245821 | " " " 820 Ω " | | | |
| | J02245102 | " " " 1k Ω " | | | |
| | J02245152 | " " " 1.5k Ω " | | | |
| | J02245332 | " " " 3.3k Ω " | | | |
| | J02245392 | " " " 3.9k Ω " | | | |
| | | | D9002-9005 | | DIODES |
| | | | G2090002 | 10D10 | Si |
| 100W PA UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | |
| | F2788000A | Printed Circuit Board | | | |
| | C027880AA | PCB with Components | | | |
| | | ICs | | | |
| | G1090294 | PC7808H | | | |
| | G1090549 | TL7705CPB | | | |
| | | TRANSISTORS | | | |
| | G3319710 | 2SC1971 | | | |
| | G3323950 | 2SC2395 | | | |
| | G3090059 | MRF422 | | | |
| | G3110120Y | 2SA1012Y | | | |
| | G3304580B | 2SC458B | | | |
| | G3408800O | 2SD880-O | | | |
| | G3109520L | 2SA952L | | | |

■ 10W Type
▲ 100W Type

| | | | | | |
|---|-----------|---|-------------------------------------|-----------|---|
| D9001 | G2090217 | HZ3C1 Zener | C9002, 9004, 9028, 9030, 9037, 9040 | K40129004 | Electrolytic 16WV 10 μ F (RE-16V100M) |
| | | THERMISTOR | C9043 | K40129016 | " " 22 μ F (RE-16V220M) |
| TH9001 | G9090011 | SDT-1000 | C9033 | K40169020 | " 35WV 330 μ F (RE2-35V331M) |
| | | RESISTORS | | | |
| R9020, 9021 | J22379006 | Metallic film 5W 39 Ω | | | INDUCTORS |
| R9009, 9010 | J00275159 | Carbon film 1/2W 1.5 Ω VJ | | | |
| R9016, 9017 | J20306159 | Metallic " 1W 1.5 Ω | L9001, 9003, 9009 | L1020015 | |
| R9006 | J02245479 | Carbon " 1/4W 4.7 Ω SJ | L9002 | L1190235 | LAL04NA6R8K 6.8 μ H |
| R9035 | J01275180 | " " 1/2W 18 Ω TJ | L9004, 9005, 9007, 9008 | L1020035A | |
| R9018, 9019 | J20306180 | Metallic " 1W 18 Ω | | | |
| R9011, 9012 | J01275240 | Carbon " 1/2W 24 Ω TJ | L9006 | L0021432 | |
| R9002 | J02245330 | " " 1/4W 33 Ω SJ | L9010 | L1190037 | LAL04NA151K 150 μ H |
| R9008 | J01275390 | " " 1/2W 39 Ω TJ | | | TRANSFORMERS |
| R9015 | J21339003 | Metallic " 2W 39 Ω | T9001 | L0021402 | |
| | J22359001 | " " 3W 39 Ω | T9002 | L0021403A | |
| R9022 | J21339004 | " " 2W 68 Ω | T9003 | L0021606 | |
| R9001 | J02245121 | Carbon " 1/4W 120 Ω SJ | | | |
| R9013, 9014 | J01275121 | " " 1/2W 120 Ω TJ | | | CONNECTORS |
| R9029 | J01275151 | " " " 150 Ω " | | | |
| R9003, 9005 | J02245331 | " " 1/4W 330 Ω SJ | J9001, 9002 | P1090255 | TMP-JA |
| R9036 | J01275331 | " " 1/2W 330 Ω TJ | J9003 | P0090194 | B05B-XH-A |
| R9024 | J02245102 | " " 1/4W 1k Ω SJ | J9004, 9005, 9011 | P0090191 | B02B-XH-A |
| R9007 | J01275102 | " " 1/2W 1k Ω TJ | J9007, 9008, 9009, 9010 | R0100970 | Terminal |
| R9033 | J20306102 | Metallic " 1W 1k Ω | | | |
| R9004 | J02245152 | Carbon " 1/4W 1.5k Ω SJ | | | FUSE |
| R9025 | J02245222 | " " " 2.2k Ω " | | | |
| R9030-9032 | J02245472 | " " " 4.7k Ω " | F9001 | Q0000012 | 6A |
| R9023, 9027, 9028, 9034 | J02245103 | " " " 10k Ω " | | | FUSE HOLDER |
| R9037 | J01245103 | " " " 10k Ω TJ | FH9001 | P2000029 | AFP226 |
| | | POTENTIOMETER | | | |
| VR9001 | J51727102 | H1021A307 -1KB 1k Ω B | | Q9000192 | 30F-T0-220 Insulator |
| | | | | Q9000110 | YC-40B " |
| | | | | R0102810 | Nut |
| | | | | | 10W PA UNIT |
| | | CAPACITORS | Symbol No. | Part No. | Name & Description |
| C9024, 9025 | K30279045 | Dipped Mica 500WV 560pF (DM19D561J5) | | F2789000 | Printed Circuit Board |
| C9017 | K30279092 | " " " 750pF (DM19D751J5) | | C027890AA | PCB with Components |
| C9018, 9019 | K30279097 | " " " 5000pF (DM19D502J5) | Q8008 | G1090080 | μ PD 78L05 |
| C9014 | K00275820 | Ceramic " 82pF SL (DD109SL820J500) | | | TRANSISTORS |
| C9007 | K10176332 | " 50WV 0.0033 μ F B (DD107B332K50) | Q8001 | G3320530 | 2SC2053 |
| C9010, 9011 | K10179038 | " " 0.0047 μ F B (DD108B472K50) | Q8002 | G3321660 | 2SC2166 |
| C9006, 9015, 9031 9035 | K13179008 | " " 0.01 μ F F (DD106F103Z50) | Q8003, 8004 | G3090071 | MRF485 |
| C9001, 9003, 9005, 9008, 9012, 9013, 9016, 9027, 9029, 9032, 9034, 9038, 9039 | K13179009 | " " 0.047 μ F " (DD110F473Z50) | Q8005 | G3110120Y | 2SA1012Y |
| | | | Q8006, 8007 | G3304580B | 2SC458B |
| | | | Q8009 | G3408820Q | 2SD882Q |
| | | | | | DIODES |
| | | | D8001 | G2090217 | HZ3C1 Zener |
| | | | D8002 | G2090306 | 10E10 Si |
| | | | D8003 | G2015880 | 1S1588 " |
| | | | | | RESISTORS |
| C9020, 9023 | K10246103 | " 250WV 0.01 μ F (CD125XB103K250) | R8005 | J02245479 | Carbon film 1/4W 4.7 Ω SJ |
| C9036 | K19149025 | Barrier Layer 25WV 0.1 μ F (UAT10X104K-L45AE) | R8015, 8016 | J01275150 | " 1/2W 15 Ω TJ |
| C9009, 9042 | K50177103 | Mylar 50WV 0.01 μ F (50F2U103M) | R8014 | J01275390 | " " " 39 Ω " |
| C9021, 9022 | K55239001 | " 200WV 0.047 μ F (PRA473K200) | R8004 | J02245470 | " 1/4W 47 Ω SJ |
| C9041 | K40179013 | Electrolytic 50WV 1 μ F (RE-50V010M) | R8027 | J20336680 | Metallic " 2W 68 Ω |
| | | | R8012 | J02245101 | Carbon " 1/4W 100 Ω SJ |
| | | | R8001, 8006 | J01245121 | " " " 120 Ω TJ |
| | | | R8017, 8018 | J20336151 | Metallic " 2W 150 Ω |
| | | | R8007, 8009, 8026 | J02245221 | Carbon " 1/4W 220 Ω SJ |

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|---|-----------|---|--------------|-----------|--------------------------------------|
| R5041-5047 | J20249002 | Metallic film 1/4W 49.9kΩ | C5007 | K40179006 | Tantalum 50WV 2.2μF (RC2-50V2R2M) |
| R5016 | J02245563 | Carbon " " 56kΩ SJ | | | |
| R5001, 5002 | J02245823 | " " " 82kΩ " | C5029 | K41140476 | " 25WV 47μF (25TL470) |
| R5075 | J01245823 | " " " " TJ | | | |
| R5006, 5071, 5072, 5074 | J02245104 | " " " 100kΩSJ | C5033 | K40109015 | " 10WV 100μF (RC2-10V101M) |
| R5032-5040 | J20249045 | Metallic " " 100kΩ | C5031 | K41120227 | " 16WV 220μF (16TL221) |
| R5012 | J02245154 | Carbon " " 150kΩSJ | | | |
| R5051, 5059-5061 | J02245224 | " " " 220kΩ " | | | |
| R5009 | J02245474 | " " " 470kΩ " | | | |
| R5048, 5089 | J02245684 | " " " 680kΩ " | | | BLOCK CAPACITORS |
| R5010, 5014, 5055-5058 | J02245105 | " " " 1MΩ " | C5018, 5019 | K80000001 | 0.01μF×4 (CA1034) |
| R5090 | J01245105 | " " " 1MΩ TJ | C5017 | K80000002 | 0.01μF×6 (CA1036) |
| | | BLOCK RESISTORS | C5024, 5025 | K80000007 | 0.01μF×8 (CA1038) |
| RB5001 | J40900010 | RK1/16 B4R103 1kΩ×4 | | | |
| RB5002 | J40900027 | RA1/16 B7R224 220kΩ×7 | | | |
| | | POTENTIOMETERS | | | VALIABLE CAPACITORS |
| VR5001 | J51723104 | H1051A019-100KB 100kΩ B | VC5001, 5002 | K90000044 | YV-300 300pF |
| VR5002, 5003, 5004 | J51723103 | H1051A013-10KB 10kΩ " | | | |
| | | CAPACITORS | | | INDUCTORS |
| C5028 | K02175330 | Ceramic 50WV 33pF CH (DD105CH330J50) | L5001, 5002 | L0021603 | 5.31μH |
| C5016 | K02175101 | " " 100pF " (DD107CH102K50) | L5003 | L0021602 | 2.50μH |
| C5008, 5012, 5015, 5066 | K10176102 | " " 0.001μF B (DD104B102K50) | L5004 | L0021604 | 1.66μH |
| C5062-5065 | K13179008 | " " 0.01μF F (DD106F103Z50) | L5005 | L0021601 | 0.721μH |
| C5001, 5002, 5006, 5009-5011, 5013, 5020-5023, 5027, 5030, 5032, 5034, 5035, 5055 | K13179010 | " " 0.022μF " (DD108F223Z50) | L5006 | L1190017 | FL5H102K 1mH |
| | | | L5007, 5008 | L1190189 | LAL03NA102K " |
| | | | | | |
| | | | | | RELAYS |
| | | | RL5001-5011 | M1190069 | AGP2013 |
| | | | | | |
| | | | | | CONNECTORS |
| C5003, 5036-5045, 5058-5061 | K13179009 | " " 0.047μF " (DD110F473Z50) | J5001 | P0090205 | S04B-XH-A |
| C5004 | K30275100 | Dipped Mica 500WV 10pF (LCQ11100J5) | J5002 | P0090206 | S05B-XH-A |
| C5054 | K30309038 | " " 1KWV 18pF (DML2 180J10) | J5003 | P0090208 | S07B-XH-A |
| C5053 | K30309037 | " " " 30pF (DML2 300J10) | P5001 | T9315911A | |
| C5052 | K30309036 | " " " 39pF (DML2 390J10) | P5002 | T9315910A | |
| C5051 | K30309001 | " " " 75pF (DML2 750J10) | P5003 | T9205422 | |
| C5005 | K30275101 | " " 500WV 100pF (LCQ12101J5) | | | SWITCH |
| C5049, 5050 | K30309039 | " " 1KWV 110pF (DML2 111J10) | SW5001 | N6090064 | SS-912 |
| C5057 | K30309035 | " " " 120pF (DML2 121J10) | | | |
| C5056 | K30309004 | " " " 150pF (DML2 151J10) | | | BATTERY |
| C5046 | K30309006 | " " " 180pF (DML2 181J10) | BA5001 | Q9000106 | CR-2025-WT2 |
| C5048 | K30309011 | " " " 300pF (DML2 301J10) | | | |
| C5047 | K30309002 | " " " 820pF (DML2 821J10) | | | MOTORS |
| C5026 | K40179001 | Electrolytic 50WV 1μF (RC2-50V010M) | MO5001, 5002 | Q9000360 | RK16312M0 50KΩ A |
| C5067 | K40167474 | " 35WV 0.47μF (RE-35V222M) | | | |
| | | | | Q5000016 | TP-E Terminal Post |
| | | | | S1000003 | 116-4 Coupler |
| | | | | | |
| | | | | R0803320A | Shield Case |
| | | | | R0803330A | Shield Cover |
| | | | | R0114900 | Holder |
| | | | | R7116460 | Press Board |
| | | | | R7079690 | |

| TONE BURST UNIT | | | POTENTIOMETER | | |
|-------------------------|-----------|--------------------------------------|---------------|-----------|---|
| Symbol No. | Part No. | Name & Description | VR7401 | J51745103 | H0651A013-10KB 10KΩ B |
| | | TONE BURST UNIT | | | |
| | F2797000 | Printed Circuit Board | | | SWITCH |
| | C027970AA | PCB with Components | S7401 | N4090102 | SUJ A1 |
| | | IC | | | CONNECTOR |
| Q4104 | G1090239 | TC5082P-G | | P0090191 | B02B-XH-A |
| | | TRANSISTORS | | | |
| Q4101, 4102 | G3304580B | 2SC458B | | | |
| Q4103 | G3107331Q | 2SA733AQ | | | |
| | | | SW B UNIT | | |
| Symbol No. | Part No. | Name & Description | Symbol No. | Part No. | Name & Description |
| | | DIODES | | | |
| D4101-4104 | G2090237 | MA190 | | F2802102 | Printed Circuit Board |
| | | | | C028022AA | PCB with Components |
| | | CRYSTAL | | | |
| X4101 ▲ | H0101982 | HC-18/T 7.168MHz | | | DIODES |
| X4101 ■ | H0101983 | " 7.3728MHz | D7501-7503 | G2090267 | SG238D LED |
| | | | D7504 | G2090268 | SY438D " |
| | | RESISTORS | D7505 | G2090269 | SR538D " |
| R4109 | J02245101 | Carbon film 1/4W 100Ω SJ | | | |
| R4104 | J02245471 | " " " 470Ω " | | | RESISTORS |
| R4108 | J02245222 | " " " 2.2kΩ " | R7501-7505 | J01215102 | Carbon film 1/8W 1kΩ TJ |
| R4105 | J02245472 | " " " 4.7kΩ " | | | |
| R4110, 4111 | J02245103 | " " " 10kΩ " | | | SWITCH |
| R4102, 4103, 4106, 4107 | J02245473 | " " " 47kΩ " | S7501 | N4090103 | SEA51A |
| R4101 | J02245155 | " " " 1.5MΩ " | | | |
| | | | SW C UNIT | | |
| Symbol No. | Part No. | Name & Description | Symbol No. | Part No. | Name & Description |
| | | POTENTIOMETER | | | |
| VR4101 | J51745103 | H0651A013-10KB 10KΩ B | | F2802103 | Printed Circuit Board |
| | | | | C028023AA | PCB with Components |
| | | CAPACITORS | | | |
| C4102 | K00175150 | Ceramic 50WV 15pF SL (DD104SL150J50) | | | DIODES |
| C4103, 4104 | K00175330 | " " 33pF " (DD104SL330J50) | D7601 | G2090188 | HZ5C1 Zener |
| C4105 | K13179008 | " " 0.01μF " (DD106F103Z50) | | | SWITCHES |
| C4107 | K50170014 | Mylar " 0.01μF (50F2D103M) | S7601 | N4090104 | SUJ12 |
| C4108 | K40179013 | Electrolytic " 1μF (RE-50V010M) | S7602 | N0190137 | SBM1025 (SRBM25) |
| C4101 | K40179009 | " " 2.2μF (RE-50V2R2M) | | | |
| C4106 | K40129004 | " 16WV 10μF (RE-16V100M) | VR A UNIT | | |
| | | | Symbol No. | Part No. | Name & Description |
| | | SWITCH | | | |
| S4101 | N6090033 | SSS21200 | R7101, 7102 | J02245101 | Carbon film 1/4W 100Ω SJ |
| | | CONNECTORS | | | |
| J4101 | P0090191 | B02B-XH-A | VR7101 | J62800088 | RKBBB0 10KB/10KB K12B60026 10KB/μCB |
| J4102 | P0090195 | B06B-XH-A | | | |
| | | | VR7102 | J63800004 | RKBBC1 50KB/10KB×2 K12C1101Y 50KB/10KB×2/SW |
| | S6000092 | KGLS-12R Spacer | | | |
| | | | VR7103 | J62800089 | RKBBB0 5KB/10KA K12B60026 5KB/10KA |
| SW A UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | |
| | F2802101 | Printed Circuit Board | | | CONNECTORS |
| | C028021AA | PCB with Components | J7101 | P0090191 | B02B-XH-A |
| | | | J7102 | P1090522 | SG-4117 |
| | | DIODES | | | |
| D7401-7405 | G2090237 | MA190 Si | | | |

▲ 1750Hz
■ 1800Hz

| VR B UNIT | | | ACCESSORIES | | |
|-----------------------|-----------|--|-------------|-----------|--------------------------------|
| Symbol No. | Part No. | Name & Description | Symbol No. | Part No. | Name & Description |
| | F2802105A | Printed Circuit Board | | | AC POWER CORD |
| | C028025AA | PCB with Components | | T9013280 | 2 wire, 2prong plug |
| | | | | T9013282 | 3 wire, 3 prong plug (UL) |
| | | RESISTORS | | T9013283 | 3 wire, 3prong Australian plug |
| R7203 | J02245182 | Carbon film 1/4W 1.8kΩ SJ | | T9013285 | 3 wire, 2prong EU plug |
| R7201 | J02245222 | " " " 2.2kΩ " | | | |
| R7202 | J02245272 | " " " 2.7kΩ " | | | FUSE |
| R7204 | J02245103 | " " " 10kΩ " | | Q0000007 | 10A 100-117V AC |
| R7205 | J02245183 | " " " 18kΩ " | | Q0000005 | 5A 220-234V AC |
| | | POTENTIOMETERS | | | PLUGS |
| VR7201 | J62800090 | RKBBB0 10KA/10KB 10KΩA/10KΩ B | | PP0090008 | S-H3603 |
| VR7202 | J62800091 | 2KC/5KB 2KΩC/5KΩ B | | P0090544 | T-1447 |
| VR7203 | J60800125 | RKBBA5 250KB/2-3 SW 250KΩB/2-3 SW | | P0090034 | P2204/C107 |
| | | CAPACITOR | | R3054620 | Foot 30A |
| C7201 | K50177683 | Mylar 50WV 0.068μF (50F2U683M) | | R7054630A | Pad |
| | | CONNECTORS | | | |
| J7201-7203 | P0090191 | B02B-XH-A | | | |
| VR C UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | |
| | F2802106 | Printed Circuit Board | | | |
| | C028026AA | PCB with Components | | | |
| | | TRANSISTOR | | | |
| Q7301 | G3319590Y | 2SC1959Y | | | |
| | | RESISTORS | | | |
| R7307 | J02245150 | Carbon film 1/4W 15Ω SJ | | | |
| R7306 | J02245330 | " " " 33Ω " | | | |
| R7303 | J02245472 | " " " 4.7kΩ " | | | |
| R7308 | J02245822 | " " " 8.2kΩ " | | | |
| R7301, 7302 | J02245103 | " " " 10kΩ " | | | |
| R7304, 7309, 7310 | J02245153 | " " " 15kΩ " | | | |
| R7305 | J02245223 | " " " 22kΩ " | | | |
| | | POTENTIOMETERS | | | |
| VR7301, 7302, 7303 | J60800123 | RK9A10 10KB 10kΩ B | | | |
| VR7304 | J61800019 | RK9AD0 5KB×2 5kΩB×2 | | | |
| | | CAPACITORS | | | |
| C7301 | K40179027 | Electrolytic 50WV 0.33μF (RE-50VR33M) | | | |
| C7302 | K40179013 | " " " 1μF (RE-50V010M) | | | |
| | | SWITCHES | | | |
| S7301 | N0190133 | SBM 1024 | | | |
| S7302 | N0190134 | SBM 1023 | | | |
| | | CONNECTORS | | | |
| J7301, 7302, 7304 | P0090191 | B02B-XH-A | | | |
| J7303 | P0090192 | B03B-XH-A | | | |
| | | TERMINAL POSTS | | | |
| TP7301, 7302 | Q5000050 | TP-K | | | |

FEX-767-6

| MAIN CHASSIS | | | | | |
|---|-----------|--------------------------|--|-----------|---|
| Symbol No. | Part No. | Name & Description | | | |
| | | | R1008, 1034 | J24205103 | " " -103J 10kΩ |
| | | | R1020 | J24205153 | " " -153J 15kΩ |
| | | RECEPTACLE | R1011 | J24205223 | " " -223J 22kΩ |
| | P1090352 | FM-MDR-MI (Antenna) | R1009 | J24205273 | " " -273J 27kΩ |
| | | | R1069 | J24205333 | " " -333J 33kΩ |
| | | | R1010, 1012-1014, 1016, 1019, 1024, 1026, 1027 | J24205104 | " " -104J 100kΩ |
| | | | R1067 | J24205124 | " " -124J 120kΩ |
| | | | R1021 | J24205225 | " " -225J 2.2MΩ |
| MAIN UNIT | | | | | |
| Symbol No. | Part No. | Name & Description | | | |
| | F2798101B | Printed Circuit Board | | | |
| | C027980A | PCB with Components | | | |
| | | ICs | | | |
| Q1001 | G1090475 | M57735 | | | |
| Q1002 | G1090080 | μPC 78L08 | | | |
| | | FETs | | | |
| Q1004 | G4800730Y | 3SK73Y | C1038 | K22170202 | Chip Ceramic 50WV 1pF CH (C2012 CH1H 010CFA) |
| Q1005 | G4800740L | 3SK74Y | | | |
| Q1006 | G3801250 | 2SK125 | C1057 | K22170204 | " " " 3pF " (C2012 CH1H 030CFA) |
| | | TRANSISTORS | | | |
| Q1003 | G3320530 | 2SC2053 | C1036, 1040, 1055, 1059, 1092-1095 | K22170205 | " " " 4pF " (C2012 CH1H 040CFA) |
| Q1007 | G3305350B | 2SC535B | C1054 | K22170215 | " " " 15pF " (C2012 CH1H 150JFA) |
| Q1008 | G3320260 | 2SC2026 | | | |
| Q1009 | G3324071 | 2SC2407A | C1026, 1096 | K22170217 | " " " 18pF " (C2012 CH1H 180JFA) |
| Q1010, 1011 | G3106840 | 2SA684 | | | |
| Q1012 | G3320010 | 2SC2001 | C1035, 1042 | K22170223 | " " " 33pF " (C2012 CH1H 330JFA) |
| | | DIODES | | | |
| D1001-1006, 1020 | G2090118 | 1SS97 Schottky | C1091 | K22170225 | " " " 39pF " (C2012 CH1H 390JFA) |
| D1016, 1017, 1021 | G2090237 | MA190 Si | C1033, 1104 | K22170227 | " " " 47pF " (C2012 CH1H 470JFA) |
| D1007 | G2015550 | 1S1555 " | | | |
| D1008-1015 | G2090107 | 1T25 Varactor | C1100 | K22170229 | " " " 56pF " (C2012 CH1H 560JFA) |
| D1018 | G2090135 | ND487C2-3R Schottky Ring | | | |
| D1019, 1022 | G2070018 | MC2838T2B | C1019 | K22170233 | " " " 82pF " (C2012 CH1H 820JFA) |
| D1023 | G2090003 | V06B | | | |
| | | THERMISTOR | | | |
| TH1001 | G9090002 | D22A | C1009, 1010, 1034, 1037, 1039, 1044, 1046, 1047, 1051, 1056, 1058, 1105 | K22170235 | " " " 100pF " (C2012 CH1H 101JFA) |
| | | RESISTORS | | | |
| R1062, 1065 | J02245100 | Carbon film 1/4W 10Ω SJ | | | |
| R1049 | J02245470 | " " " 47Ω " | C1008 | K22170241 | " " " 180pF " (C2012 CH1H 181JFA) |
| R1001 | J01215560 | " " 1/8W 56Ω TJ | | | |
| R1004 | J02245101 | " " 1/4W 100Ω SJ | C1032, 1041, 1045, 1070, 1076, 1080, 1082, 1103, 1107 | K22170805 | " " " 0.001μF B (C2012 B1H 102MFA) |
| R1048 | J01275101 | " " 1/2W 100Ω TJ | | | |
| | J02245681 | " " 1/4W 680Ω SJ | | | |
| | J01215332 | " " 1/8W 3.3kΩ TJ | C1004-1007, 1011, 1014, 1016, 1021, 1024, 1029, 1030, 1043, 1048, 1050, 1052, 1053, 1060, 1061, 1064, 1066-1068, 1074, 1075, 1077, 1079, 1081, 1083-1090, 1097, 1102, 1108 | K22170817 | " " " 0.01μF B (C2012 B1H 103MFA) |
| R1063, 1064 | J24205000 | Chip RMC1/10-000J 0Ω | | | |
| R1050, 1051, 1066 | J24205100 | " " -100J 10Ω | | | |
| R1047 | J24205220 | " " -220J 22Ω | | | |
| R1005, 1015, 1025, 1032 | J24205470 | " " -470J 47Ω | | | |
| R1006, 1022, 1031, 1033, 1042, 1044, 1071 | J24205101 | " " -101J 100Ω | | | |
| R1052 | J24205121 | " " -121J 120Ω | | | |
| | J24205151 | " " -151J 150Ω | | | |
| R1036 | J24205331 | " " -331J 330Ω | | | |
| R1007, 1017, 1028, 1030, 1039, 1043 | J24205471 | " " -471J 470Ω | | | |
| R1002 | J24205561 | " " -561J 560Ω | | K02175470 | Ceramic disc 50WV 47pF CH (DD106CH470J50) |
| R1018, 1023, 1057, 1061 | J24205102 | " " -102J 1kΩ | | K02175101 | " " " 100pF " (DD107CH101J50) |
| R1003 | J24205122 | " " -122J 1.2kΩ | C1013, 1015, 1017, 1018, 1020, 1023, 1027, 1078 | K40129004 | Electrolytic 16WV 10μF (RE-16V 100M) |
| R1055 | J24205222 | " " -222J 2.2kΩ | | | |
| R1035, 1041, 1046, 1053, 1068 | J24205332 | " " -332J 3.3kΩ | C1012 | K40129049 | " " " 470μF (RE2-16V 471M) |
| R1040, 1045 | J24205472 | " " -472J 4.7kΩ | | | |
| R1054, 1056, 1058 | J24205682 | " " -682J 6.8kΩ | TC1001 | K91000085 | TRIMMER CAPACITORS CTZ51C 10pF |
| | | | TC1002 | K91000117 | CTZ51H 70pF |
| | | | TC1003 | K91000089 | CTZ51G 50pF |

| | | INDUCTORS | | | POTENTIOMETER |
|-------------------------------|-----------|-------------------------|---|-----------|---|
| L1005-1007, 1022 | L0020824 | | VR2001 | J51745103 | H0651A013-10KB 10kΩB |
| L1002 | L0021631 | | | | |
| L1003, 1004, 1018, 1019 | L1190138 | LAL04NA100K 10μH | | | |
| L1008 | L1020663 | | C2013 | K22170201 | CAPACITORS Chip Ceramic 50WV 0.5pF CH (C2012 CH1H 0R5CFA) |
| L1009, 1010, 1012 | L1020673 | | | | |
| L1011 | L0020724 | | C2026 | K22170202 | " " " 1pF " (C2012 CH1H 010CFA) |
| L1013 | L1020683 | | | | |
| L1014 | L0020340 | | C2010 | K22170205 | " " " 4pF " (C2012 CH1H 040CFA) |
| L1015 | L1020680 | LAL04NA 220K 22μH | | | |
| L1016, 1017, 1020, 1021 | L1190327 | | C2008, 2011, 2015, 2019 | K22170207 | " " " 6pF " (C2012 CH1H 060DFA) |
| | | TRANSFORMERS | C2003 | K22170211 | " " " 10pF " (C2012 CH1H 100DFA) |
| | L0020825 | | | | |
| T1001-1008, 1010 | L0021462 | | C2006, 2012, 2014, 2018 | K22170213 | " " " 12pF " (C2012 CH1H 120JFA) |
| T1011, 1012 | L0020857 | | | | |
| T1013 | | | C2025, 2028 | K22170219 | " " " 22pF " (C2012 CH1H 220JFA) |
| | | RELAY | | | |
| | M1190052 | MR-62-12S | C2016 | K22170235 | " " " 100pF " (C2012 CH1H 101JFA) |
| RL1001 | | | | | |
| | | MINI CONNECTORS | C2007, 2022 | K22170805 | " " " 0.001μF B (C2012 B1H 102MFA) |
| | P0090520 | 3022-03B | | | |
| J1001 | P0090594 | 3022-05B | C2001, 2004, 2005, 2009, 2017, 2020, 2021, 2023, 2027, 2029, 2030 | K22170817 | " " " 0.01μF " (C2012 B1H 103MFA) |
| J1002 | | | | | |
| | | TERMINAL POSTS | | | |
| | Q5000050 | TP-K | | | |
| LOCAL UNIT | | | C2032 | K02173070 | Ceramic disc 50WV 7pF CH (DD104CH 070D50) |
| | Part No. | Name & Description | | | |
| Symbol No. | F2799101A | Printed Circuit Board | C2002 | K10176102 | " " " 0.001μF B (DD104B102K50) |
| | C027990A | PCB with Components | | | |
| | | | C2031 | K40129004 | Electrolytic 16WV 10μF (RE-16V 100M) |
| | | IC | | | |
| Q2006 | G1090649 | M5218L | | | |
| | | | | | INDUCTORS |
| | | FETs | L2001, 2003 | L1190329 | LAL04NA 330K 33μH |
| Q2001, 2002 | G3802410Y | 2SK241Y | L2002 | L1190138 | LAL04NA 100K 10μH |
| | | | L2004 | L1190131 | LAL04NA 1R8M 1.8μH |
| | | TRANSISTORS | | | |
| Q2003 | G3326207B | 2SC2620QB | | | TRANSFORMERS |
| Q2004 | G3319230O | 2SC1923O | T2001 | L0020825 | |
| Q2005 | G3316237E | 2SC1623-T2BL5 | T2002-2005 | L0021632 | |
| | | | T2006, 2007 | L0021633 | |
| | | DIODES | | | |
| D2001, 2006 | G2090237 | MA190 Si | | | MINI CONNECTORS |
| D2002-2005 | G2090107 | 1T25 Varactor | J2001 | P1090425 | 5124-03BH |
| | | RESISTORS | J2002 | P1090427 | 5124-05BH |
| R2009 | J01245470 | Carbon film 1/4W 47Ω TJ | | | |
| R2008 | J24205000 | Chip RMC 1/10T-000J 0Ω | | | TERMINAL POSTS |
| R2015, 2022 | J24205220 | " " -220J 22Ω | | Q5000050 | TP-K |
| R2018, 2025, 2026 | J24205470 | " " -470J 47Ω | | | |
| R2033 | J24205680 | " " -680J 68Ω | | | |
| R2023, 2035 | J24205151 | " " -151J 150Ω | | | |
| R2016, 2024 | J24205331 | " " -331J 330Ω | | | |
| R2001, 2004, 2005, 2027, 2029 | J24205471 | " " -471J 470Ω | | | |
| R2012, 2019, 2032 | J24205102 | " " -102J 1kΩ | | | |
| R2028 | J24205152 | " " -152J 1.5kΩ | | | |
| R2014, 2020 | J24205332 | " " -332J 3.3kΩ | | | |
| R2013 | J24205682 | " " -682J 6.8kΩ | | | |
| R2021, 2030, 2031 | J24205103 | " " -103J 10kΩ | | | |
| | J24205153 | " " -153J 15kΩ | | | |
| | J24205223 | " " -223J 22kΩ | | | |
| R2002, 2003 | J24205473 | " " -473J 47kΩ | | | |
| R2006, 2007, 2010, 2011, 2017 | J24205104 | " " -104J 100kΩ | | | |

| | | | | | |
|---|-----------|--|---|-----------|--|
| C1013, 1015, 1017, 1018, 1020, 1023, 1027, 1078 | K40129004 | Electrolytic 16WV 10 μ F (RE-16V 100M) | TH2001 | G9090008 | THERMISTOR 31D26 |
| C1012 | K40129049 | " " 470 μ F (RE2-16V 471M) | R2002, 2018, 2032 | J24205220 | RESISTORS Chip RMC 1/10 -220J 22 Ω |
| | | TRIMMER CAPACITORS | R2014, 2015, 2024, 2030, 2035 | J24205470 | " " -470J 47 Ω |
| TC1001, 1003 | K91000108 | CTZ51A 6pF | R2007, 2012, 2027 | J24205101 | " " -101J 100 Ω |
| TC1002 | K91000089 | CTZ51G 50pF | R2019, 2042, 2048 | J24205151 | " " -151J 150 Ω |
| | | | R2011, 2020, 2031, 2043 | J24205331 | " " -331J 330 Ω |
| | | INDUCTORS | R2036, 2037, 2040, 2045 | J24205471 | " " -471J 470 Ω |
| L1005, 1006, 1011, 1022 | L0020679 | | R2003-2005, 2008, 2022, 2026 | J24205102 | " " -102J 1k Ω |
| L1002 | L0021631 | | R2001, 2025 | J24205152 | " " -152J 1.5k Ω |
| L1003, 1004, 1016-1018, 1020, 1023 | L1190138 | LAL04NA 100K 10 μ H | R2049 | J2420222 | " " -222J 2.2k Ω |
| L1007 | L0020678 | | R2016, 2034 | J24205332 | " " -332J 3.3k Ω |
| L1008 | L1020663 | | R2028, 2041 | J24205472 | " " -472J 4.7k Ω |
| L1009, 1010, 1012 | L1020673 | | R2009, 2029 | J24205682 | " " -682J 6.8k Ω |
| L1013 | L1020692A | | R2017, 2033 | J24205103 | " " -103J 10k Ω |
| L1014 | L0021356 | | R2044 | J24205333 | " " -333J 33k Ω |
| L1015 | L1020688 | | R2038, 2039 | J24205473 | " " -473J 47k Ω |
| L1019 | L1190319 | LAL04NA 2R2M 2.2 μ H | R2006, 2013, 2021 | J24205104 | " " -104J 100k Ω |
| L1021 | L1190327 | | R2010 | J24205474 | " " -474J 470k Ω |
| | | | R2047 | J01215221 | Carbon Film 1/8W 220 Ω T Ω |
| | | TRANSFORMERS | R2050 | J01215222 | " " " 2.2k Ω * |
| T1001-1008 | L0020907 | | | | CAPACITORS |
| T1009, 1011, 1012 | L0021462 | | C2025 | K22170201 | Chip Ceramic 50WV 0.5pFCH (C2012 CH1H 0R5CFA) |
| T1013 | L0020857 | | C2034 | K22170204 | " " " 3pF " (C2012 CH1H 030CFA) |
| | | RELAY | C2020 | K22170206 | " " " 5pF " (C2012 CH1H 050CFA) |
| RL1001 | M1190052 | MR-62-12S | C2013 | K22170208 | " " " 7pF " (C2012 CH1H 070DFA) |
| | | MINI CONNECTORS | C2038 | K22170209 | " " " 8pF " (C2012 CH1H 080DFA) |
| J1001 | P0090520 | 3022-03B | C2015 | K22170210 | " " " 9pF " (C2012 CH1H 090DFA) |
| J1002 | P0090594 | 3022-05B | C2029, 2030 | K22170211 | " " " 10pF " (C2012 CH1H 100DFA) |
| | | TERMINAL POSTS | C2014, 2016 | K22170213 | " " " 12pF " (C2012 CH1H 120JFA) |
| | | PLL LOCAL UNIT | C2033, 2035 | K22170215 | " " " 15pF " (C2012 CH1H 150JFA) |
| | | Symbol No. | C2036 | K22170219 | " " " 22pF " (C2012 CH1H 220JFA) |
| | | Part No. | C2042 | K22170229 | " " " 56pF " (C2012 CH1H 560CFA) |
| | | Name & Description | C2012, 2019, 2021-2024, 2026-2028, 2031, 2032, 2037, 2039, 2040, 2042, 2048 | K22170805 | " " " 0.001 μ F B (C2012 B1H 102MFA) |
| | | Printed Circuit Board | C2003, 2006, 2008-2011, 2043-2047 | K22170817 | " " " 0.01 μ F B (C2012 B1H 103MFA) |
| | | PCB with Components | C2049 | K02173070 | Ceramic disc 50WV 7pF CH (DD104CH 070D50) |
| | | ICs | C2004 | K52170002 | Metallized Film 100WV 1 μ F (ECQ-V1H105JZ) |
| Q2004 | G1090087 | MC4044P | C2001 | K50170019 | Mylar " 0.1 μ F (50F2D 104M) |
| Q2005 | G1090084 | μ PC 78L05 | C2007, 2018 | K40129004 | Electrolytic 16WV 10 μ F (RE-16V 100M) |
| Q2006 | G1090195 | SN74LS73N | | | |
| Q2007 | G1090697 | M54455L | | | |
| | | TRANSISTORS | | | |
| Q2001-2003 | G3327127G | 2SC2712 GRTE85R | | | |
| Q2010 | G3320260 | 2SC2026 | | | |
| Q2012, 2013, 2016 | G3326207B | 2SC2620 QB | | | |
| | | FETs | | | |
| Q2008, 2009, 2011 | G3803027Y | 2SK302Y | | | |
| Q2014, 2015 | G3802410Y | 2SK241Y | | | |
| | | DIODES | | | |
| D2001 | G2090118 | 1SS97 Schottky | | | |
| D2002, 2003 | G2090107 | 1T25 Varactor | | | |
| D2004, 2005 | G2090237 | MA190 Si | | | |

FEX-767-7

| MAIN CHASSIS | | | | | POTENTIOMETERS | |
|---|-----------|--------------------------|---|-----------|--|-------|
| Symbol No. | Part No. | Name & Description | VR1001 | J51745331 | H0651A004-330B | 330ΩB |
| | | RECEPTACLE | VR1002-1005 | J51745473 | H0651A017-47KB | 47kΩB |
| J1 (A, B) | P1090547 | N-RDS 020-0291 (N) | | | | |
| J1 (F) | P1090352 | NR-S FM-MDR-MI (M) | | | | |
| | | MAIN UNIT | C1055 | K02172159 | Ceramic disc 50WV 1.5pF CH (D104CK1R5C50) | |
| | F2851101B | Printed Circuit Board | C1035, 1048, 1061 | K02172030 | " " " 3pF (DD104CK030C50) | |
| | C028511A | PCB with components | C1002 | K02172040 | " " " 4pF (DD104CH040C50) | |
| | | ICs | C1007-1009 | K02172050 | " " " 5pF (DD104CH050C50) | |
| Q1001 | G1090341 | M57716 | | | | |
| Q1010 | G1090002 | SN7403N | | | | |
| Q1013 | G1090084 | μPC78L05 | C1028 | K02173060 | " " " 6pF (DD104CH060D50) | |
| | | FETs | C1047 | K02173090 | " " " 9pF (DD104CH090D50) | |
| Q1005, 1007 | G3801250 | 2SK125 | | | | |
| Q1006 | G4801210G | 3SK121GR | C1026 | K02175150 | " " " 15pF (DD104CH150J50) | |
| Q1008 | G3802410G | 2SK241GR | | | | |
| | | TRANSISTORS | C1021 | K02175180 | " " " 18pF (DD104CH180D50) | |
| Q1002 | G3314260 | 2SC1426 | C1049 | K02179009 | " " " 22pF (DD104CH220J50) | |
| Q1003 | G3324071 | 2SC2407(A) | | | | |
| Q1004 | G3333550 | 2SC3355 | C1031 | K02175330 | " " " 33pF (DD105CH330J50) | |
| Q1009, 1011, 1012 | G3106840 | 2SA684 | | | | |
| Q1014 | G3090076 | BA1L4L | C1077, 1078 | K02175680 | " " " 68pF (DD107CH680J50) | |
| | | DIODES | C1003-1006, 1010, 1012, 1014, 1016, 1018, 1019, 1023, 1024, 1029, 1030, 1033, 1034, 1036-1041, 1044-1046, 1050, 1052-1054, 1057-1060, 1064-1068, 1070, 1075 | K10176102 | " " " 0.001μF (DD104B102K50) | |
| D1001, 1002, 1005, 1006 | G2090118 | 1SS97 Schottky | | | | |
| D1003, 1004, 1007-1009, 1012-1015 | G2015550 | 1S1555 Si | | | | |
| | G2090044 | MC301 " | | | | |
| D1016 | G2090247 | ND487C1-3R Schottky Ring | | | | |
| | | RESISTORS | | | | |
| R1001, 1015, 1031 | J02225470 | Carbon film 1/6W 47Ω UJ | | | | |
| R1009 | J01225470 | " " " 47Ω PJ | C1071, 1074 | K13179008 | " " " 0.01μF (DD106F103Z50) | |
| R1006 | J02245470 | " " 1/4W 47Ω SJ | | | | |
| R1002 | J02245101 | " " " 100Ω " | | | | |
| R1003, 1017, 1026, 1027 | J02225101 | " " 1/6W 100Ω UJ | C1025, 1051 | K22170805 | Chip Ceramic 50WV0.001μF (C2012B1H102MFA) | |
| R1011 | J01225101 | " " " 100Ω PJ | | | | |
| R1014, 1045-1047 | J02225151 | " " " 150Ω UJ | C1011, 1013, 1015, 1017, 1020, 1022, 1072, 1073, 1079 | K40129004 | Electrolytic 16WV 10μF (RE-16V100M) | |
| R1023 | J01225151 | " " " 150Ω PJ | | | | |
| R1018, 1032 | J02225221 | " " " 220Ω " | | | | |
| R1008 | J01245270 | " " 1/4W 270Ω TJ | | | | |
| R1037 | J02225331 | " " 1/6W 330Ω UJ | TC1001-1003 | K91000108 | TRIMMER CAPACITORS VCT51A 6pF | |
| R1041 | J01225331 | " " " 330Ω PJ | | | | |
| R1038 | J02225471 | " " " 470Ω UJ | | | | |
| R1004, 1005, 1010, 1042 | J01225471 | " " " 470Ω PJ | L1004, 1005, 1015, 1026 | L0021273 | INDUCTORS | |
| R1016, 1030, 1040, 1044 | J02225102 | " " " 1kΩ UJ | L1002, 1003, 1014, 1025, 1027, 1030 | L1190199 | LAL03NA 2R2M | |
| R1034 | J01225102 | " " " 1kΩ PJ | L1007-1009, 1018 | L1020673 | | |
| R1013, 1021 | J02225152 | " " " 1.5kΩ UJ | L1006 | L1020663 | | |
| R1012 | J02225332 | " " " 3.3kΩ " | L1010 | L0020900 | | |
| R1036 | J02225472 | " " " 4.7kΩ " | L1011 | L0020474 | | |
| R1022, 1035, 1039, 1043 | J01225682 | " " " 6.8kΩ PJ | L1012, 1017 | L0021359 | | |
| | J02225103 | " " " 10kΩ UJ | L1001 | L0021590 | | |
| R1050, 1052, 1053 | J01225473 | " " " 47kΩ PJ | L1019, 1020 | L0190007 | | |
| R1019 | J02225104 | " " " 100kΩ UJ | L1021 | L1190264 | L-C3A 330MA 33μH | |
| R1049 | J01225154 | " " " 150kΩ PJ | L1022 | L0020342 | | |
| R1051 | J01225224 | " " " 220kΩ " | L1023 | L0020472 | | |
| R1020 | J01225225 | " " " 2.2MΩ " | L1024 | L0020678 | | |
| R1007 | J24205331 | Chip RMC-1/10-331J 330Ω | L1031 | L1190190 | 0.27μH | |
| | | | | L1190258 | L-C3A 100KA | |

**LATE PRODUCTION LOT ADDENDUM
FOR**

FT-767GX

TECHNICAL SUPPLEMENT

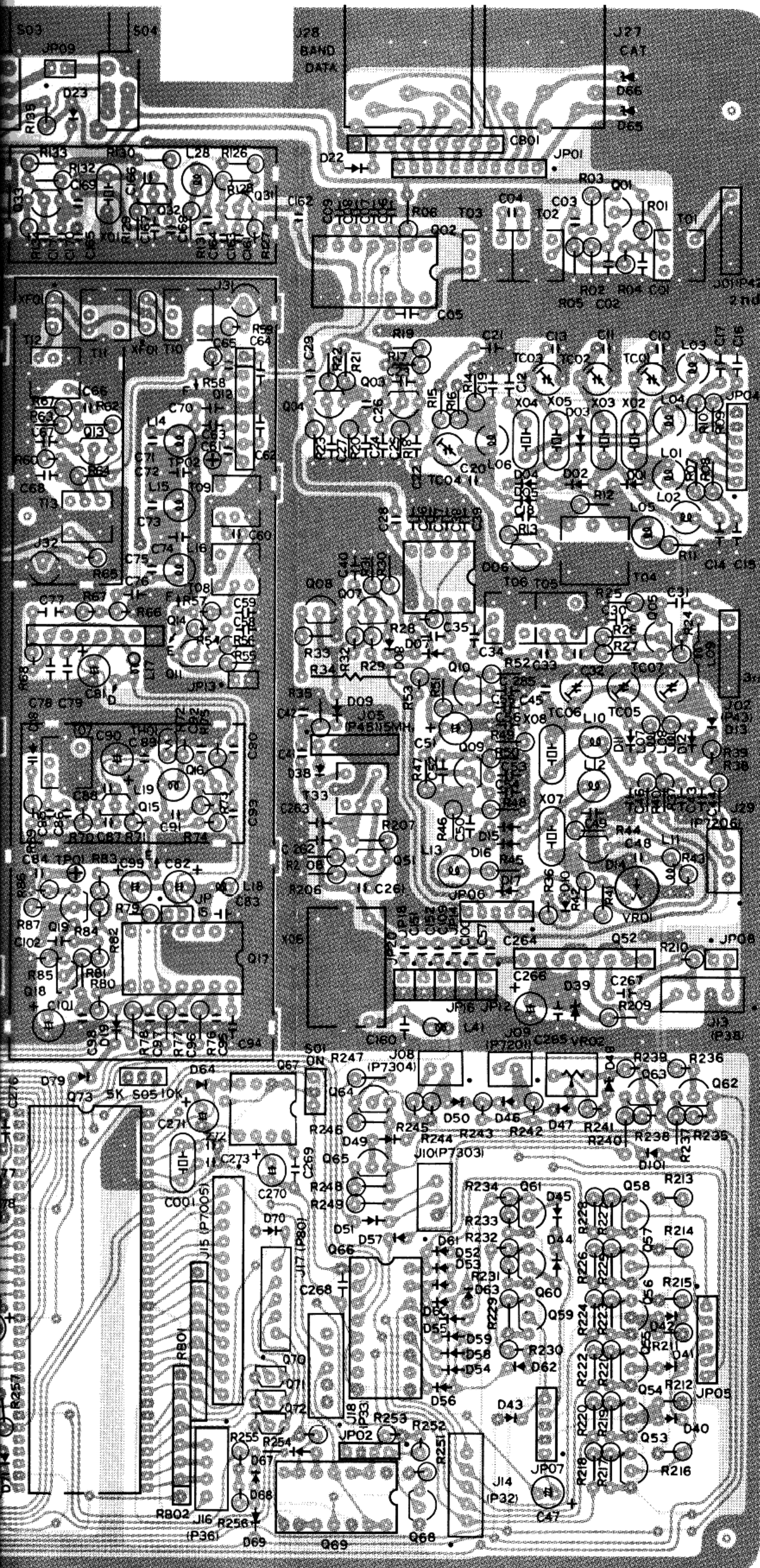
LOCAL UNIT (PROD. LOT 18+)

FEX-767-2 PLL UNIT (PROD. LOT 18+)

*Applies to
my Radio*

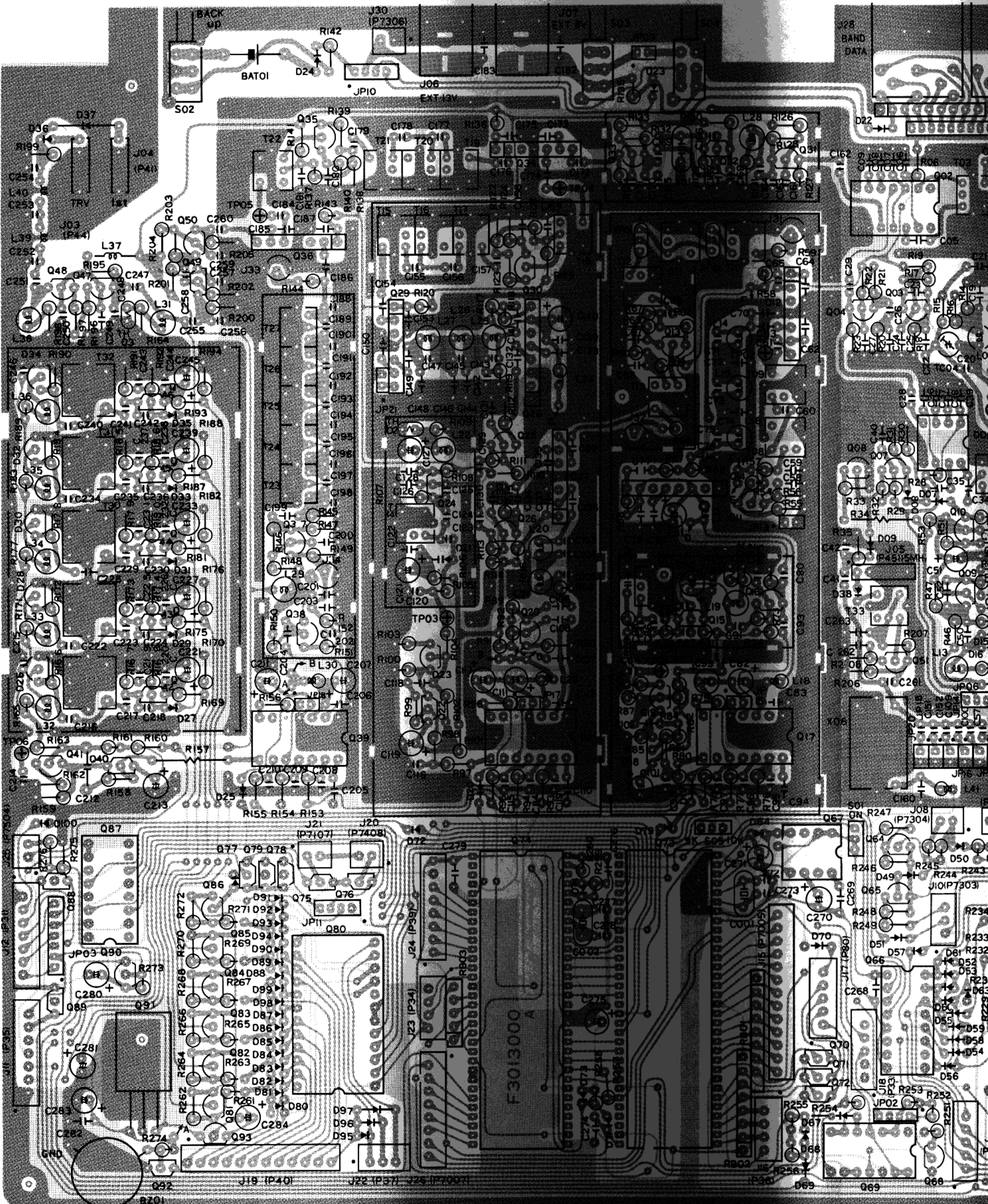
LOCAL UNIT PARTS LAYOUT

LOCAL UNIT VOLTAGE CHART (DC VOLT)



(Reverse View)

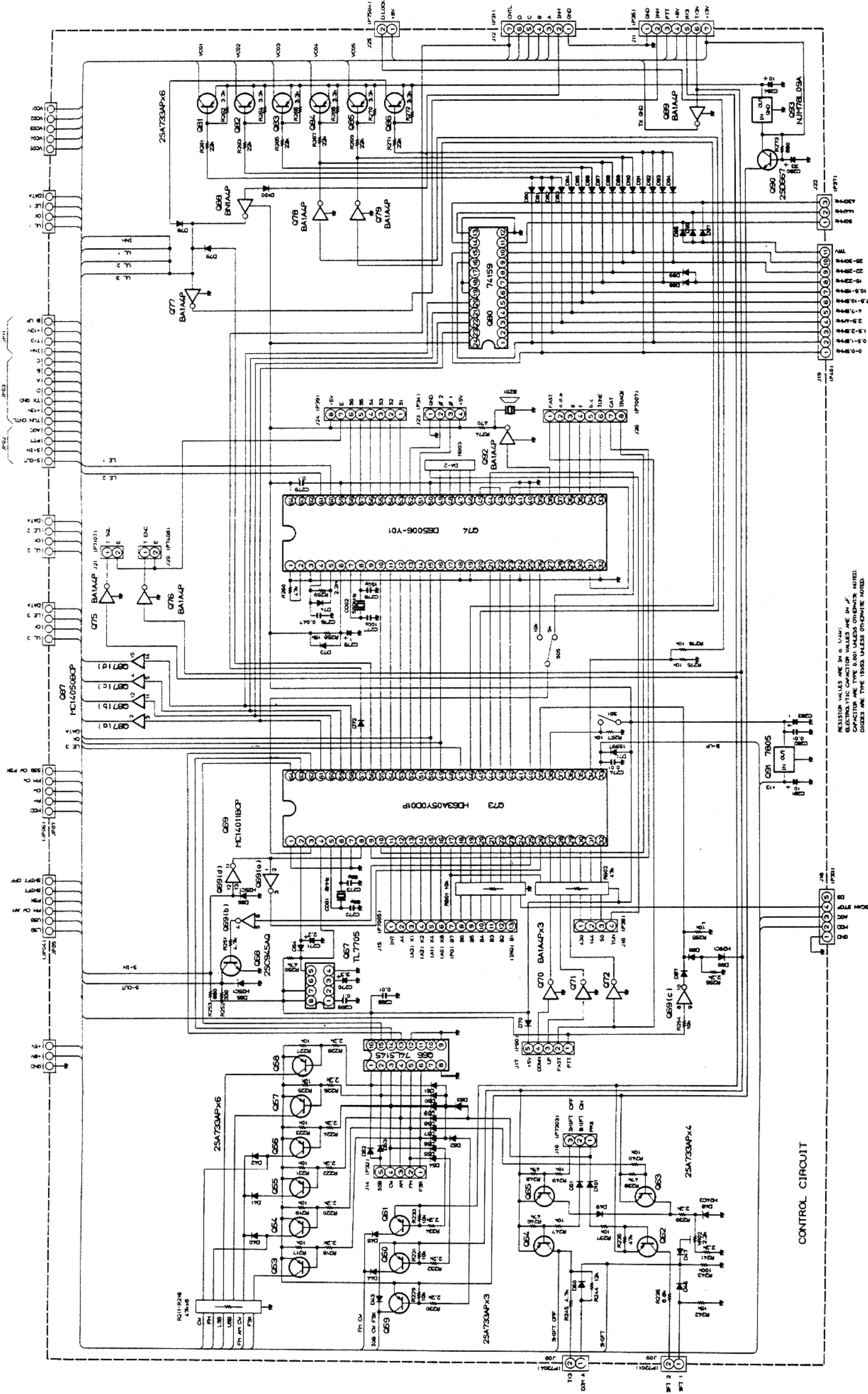
| | E (S) | C (D) | B (G) | REMARKS |
|-------|-------------|-------------|-------------|---------------------|
| Q3001 | 2.15 | 7.65 | 1.40 | |
| Q3003 | 1.07/1.07 | 7.68/7.68 | 1.87/1.79 | RX/TX |
| Q3004 | 3.36 | 7.26 | 4.00 | |
| Q3005 | 1.20/1.20 | 6.75/6.75 | 1.70/1.50 | RX/TX |
| Q3007 | 2.04 | 11.77 | 2.67 | |
| Q3008 | 0/0 | 0/2.67 | 0.7/0 | RX/TX,MODE CW |
| Q3009 | 2.82/0 | 10.66/0 | 2.7/0 | RX/TX,MODE CW |
| Q3010 | 0/5.14 | 0/10.45 | 0/5.76 | RX/TX,MODE FM |
| Q3011 | 0.20 | 7.90 | 0.71 | |
| Q3013 | 1.30 | 7.56 | 2.05 | |
| Q3015 | 1.0 | 7.45 | 0 | |
| Q3016 | 2.21 | 7.50 | 2.94 | |
| Q3018 | 0.75 | 7.72 | 0.50 | |
| Q3019 | 0.10 | 4.52 | 0.75 | |
| Q3020 | 0.37 | 2.25 | 1.00 | |
| Q3022 | 0.80 | 7.63 | 0.58 | |
| Q3023 | 0.10 | 4.50 | 0.80 | |
| Q3024 | 0.85 | 7.65 | 0 | |
| Q3025 | 3.44 | 7.24 | 4.08 | |
| Q3026 | 3.52 | 7.23 | 4.15 | |
| Q3030 | 1.63 | 7.60 | 2.27 | |
| Q3031 | 3.54 | 7.21 | 4.18 | |
| Q3032 | 1.20 | 7.71 | 0.40 | |
| Q3033 | 3.44 | 7.23 | 4.08 | |
| Q3035 | 1.41 | 7.65 | 2.16 | |
| Q3037 | 1.46 | 7.65 | 2.20 | |
| Q3038 | 0.74 | 4.45 | 1.46 | |
| Q3040 | 0.73 | 7.79 | 0.46 | |
| Q3041 | 0.27 | 7.90 | 0.80 | |
| Q3042 | 1.36 | 11.50 | 0 | 3.5MHz |
| Q3043 | 1.20 | 11.50 | 0 | 7MHz |
| Q3044 | 0.80 | 11.50 | 0 | 14MHz |
| Q3045 | 1.10 | 11.40 | 0 | 21MHz |
| Q3046 | 1.40 | 11.40 | 0 | 28MHz |
| Q3047 | 4.10 | 7.96 | 4.10 | |
| Q3048 | 3.39 | 7.96 | 4.10 | |
| Q3049 | 1.58 | 7.64 | 0 | |
| Q3050 | 1.86 | 7.60 | 2.60 | |
| Q3051 | 1.00 | 5.60 | 1.69 | TRV ON |
| Q3053 | 12.20 | 12.20 | 11.50 | MODE FSK |
| Q3054 | 12.30/12.30 | 11.59/11.49 | 11.68/11.58 | RX/TX, MODE FM |
| Q3055 | 12.40/12.30 | 12.40/12.30 | 11.70/11.60 | RX/TX, MODE AM |
| Q3056 | 12.30 | 12.20 | 11.60 | MODE CW |
| Q3057 | 12.30 | 12.20 | 11.57 | MODE USB |
| Q3058 | 12.30 | 12.20 | 11.58 | MODE LSB |
| Q3059 | 12.30 | 12.20 | 11.58 | |
| Q3060 | 0/13.06 | 0/13.02 | 0/12.30 | RX/TX, MODE FM |
| Q3061 | 13.20/0 | 13.10/0 | 12.40/0 | RX/TX, MODE CW |
| Q3062 | 13.20/0 | 13.20/0 | 12.50/0 | RX/TX |
| Q3063 | 12.50 | 12.50 | 11.80 | MODE FM |
| Q3064 | 0/13.00 | 0/13.00 | 0/12.40 | RX/TX, TX SHIFT ON |
| Q3065 | 0/13.00 | 0/13.00 | 0/12.38 | RX/TX, TX SHIFT OFF |
| Q3070 | 0 | 0 | 4.30 | MIC DOWN |
| Q3071 | 0 | 0 | 4.30 | MIC UP |
| Q3072 | 0 | 0 | 4.30 | MIC FAST |
| Q3075 | 0/0 | 0/0 | 13.20/0 | RX/TX, TONE SQL ON |
| Q3076 | 0/0 | 0/0 | 0/13.00 | RX/TX, TONE ENC ON |
| Q3077 | 0/0 | 0/7.52 | 0/0 | RX/TX |
| Q3081 | 12.20/12.20 | 12.32/12.20 | 11.64/11.54 | RX/TX, 3.5MHz |
| Q3082 | 12.34/12.30 | 12.20/12.10 | 11.64/11.50 | RX/TX, 7MHz |
| Q3083 | 12.34/12.30 | 12.20/12.10 | 11.60/11.50 | RX/TX, 14MHz |
| Q3084 | 12.30/12.30 | 12.20/12.10 | 11.60/11.50 | RX/TX, 21MHz |
| Q3085 | 12.30/12.30 | 12.20/12.10 | 11.60/11.50 | RX/TX, 28MHz |
| Q3086 | 12.30/12.30 | 12.20/12.10 | 11.60/11.50 | RX/TX, 1MHz |
| Q3088 | 4.90 | 11.56 | 10.93 | 1MHz |
| Q3089 | 0/0 | 0/0 | 0/13.10 | RX/TX |
| Q3090 | 12.34 | 13.20 | 12.90 | |



UNIT CIRCUIT DIAGRAM

RESISTOR VALUES ARE IN Ω, 1/4W.
 INDUCTOR VALUES ARE IN HENRIES, UNLESS OTHERWISE NOTED.
 ELECTROLYTIC CAPACITOR VALUES ARE IN μF.
 CAPACITOR AND TUBE TYPES UNLESS OTHERWISE NOTED.
 DIMENSIONS ARE TYPE 1950, UNLESS OTHERWISE NOTED.

RESISTOR VALUES ARE IN Ω, 1/4W.
 ELECTROLYTIC CAPACITOR VALUES ARE IN μF.
 CAPACITOR AND TUBE TYPES UNLESS OTHERWISE NOTED.
 DIMENSIONS ARE TYPE 1950, UNLESS OTHERWISE NOTED.



CONTROL CIRCUIT

LOCAL UNIT ALIGNMENT

the frequency
 CH selector
 mer for the

ncy (MHz)
 0008
 0007
 0006

ected to the
 mission for

ncy counter
 as the MOX
 z ±50 Hz.

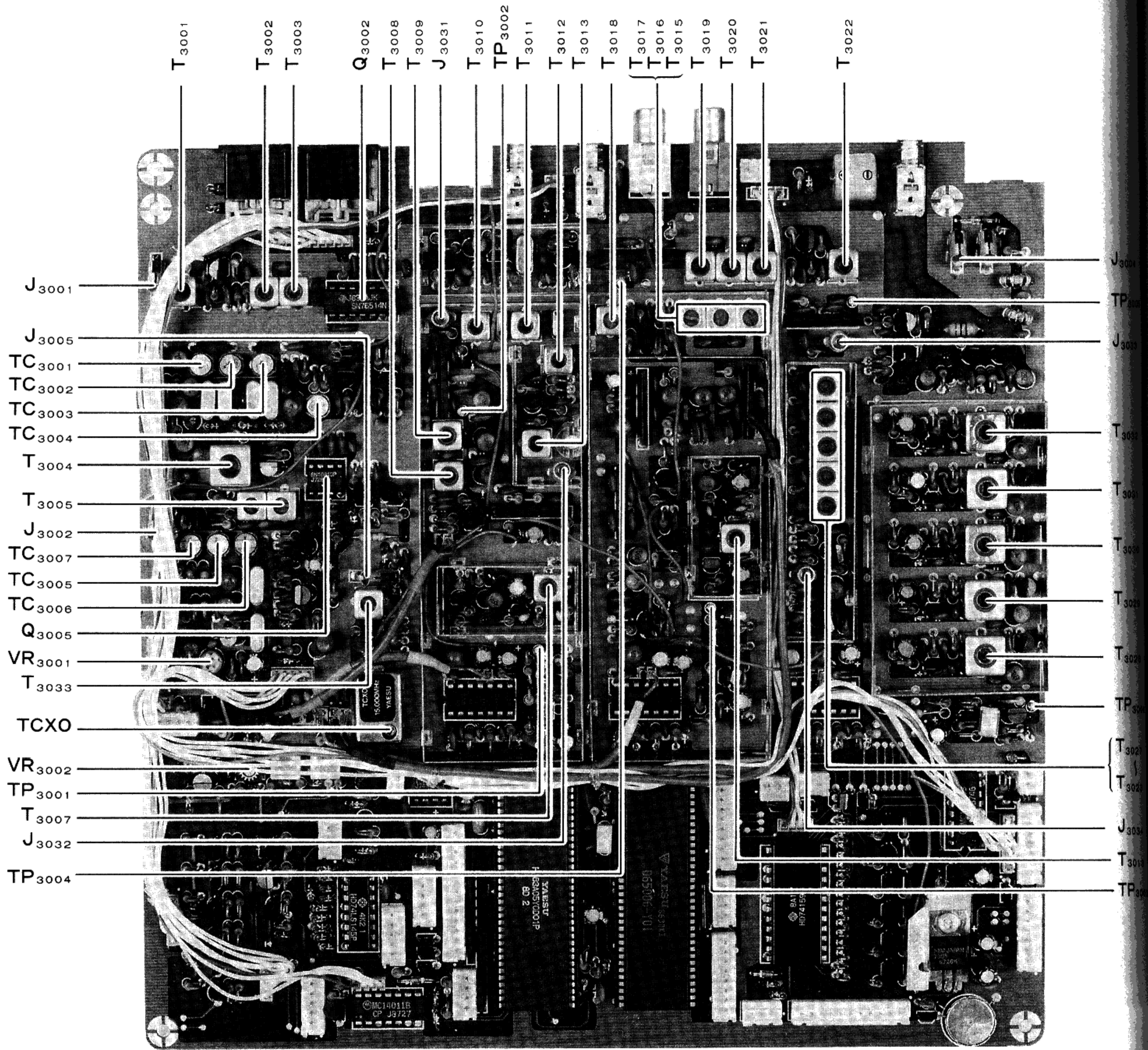
rect the DC
 07, if neces-
 display to

he RF milli-
 d T3009 for

TP3002 and
 the hole in
 Hz.

J3031 and
 3032. Adjust
 below (redu-
 avoid satu-

dB



LOCAL UNIT ALIGNMENT POINTS

(12) PLL-2 VCO

Tune the display to 14.199.99. Connect the DC voltmeter to TP3003 and adjust T3004, if necessary, for $5.5 \pm 0.1V$. Retune the display to 14.000.00 and check for 2.5 to 4.0V.

Make all measurements and adjustments while receiving in the CW mode, except where stated otherwise.

(1) 3rd Local Oscillator

Connect the RF voltmeter to J3002 and adjust T3005 and T3006 for maximum voltage (at least 30 mVrms).

(2) 2nd Local Level

Connect the RF voltmeter across J3001 (do not remove the plug) and adjust T3001, T3002 and T3003 for maximum RF (at least 40 mVrms).

(3) 2nd Local Frequency Check

Connect the frequency counter to pin 5 of Q3002 and confirm 30.030 MHz \pm 1 kHz.

(4) Carrier Oscillators

Make certain the SHIFT control is set to the 12 o'clock position. Connect the frequency counter to pin 5 of Q3006. Select each mode indicated in the following table, and adjust the indicated coil or trimmer for the indicated frequency on the counter \pm 10 Hz.

| Mode | Adj. Point | Frequency (kHz) |
|------|------------|-----------------|
| CW | T3004 | 6784.100 |
| LSB | TC3001 | 6786.600 |
| USB | TC3002 | 6783.400 |
| FSK | TC3003 | 6787.200 |

(5) Transmitter IF Shift

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Set the TX SHIFT button OFF (out) and select the LSB mode. Set the TX SHIFT control to the 12 o'clock position. Connect the frequency counter to pin 5 of Q3006. Press the MOX button and adjust VR3002, if necessary, for 6786.6 kHz \pm 10 Hz on the counter. Now press the TX SHIFT button and adjust TC3004, if necessary, for the same indication on the counter.

(6) CW BFO Frequency

Select the CW mode and connect the frequency counter to pin 2 of Q3006. Set the PITCH selector and adjust the corresponding trimmer for the frequency indicated below (\pm 10 Hz).

| Pitch | Adj. Point | Frequency (MHz) |
|--------|------------|-----------------|
| 800 Hz | TC3007 | 15.0008 |
| 700 Hz | TC3006 | 15.0007 |
| 600 Hz | TC3005 | 15.0006 |

(7) FM Carrier Frequency

A 50-ohm dummy load must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Select the FM mode. With the frequency counter connected to pin 2 of Q3006, press the MOX button and adjust VR3001 for 15 MHz \pm 50 Hz.

(8) PLL-3 VCO

Tune the display to 14.2000.00. Connect the DC voltmeter to TP3001 and adjust T3007, if necessary, for 4.5 \pm 0.1V. Retune the display to 14.199.99 and check for 3 to 4V.

(9) 45 MHz Bandpass Filter

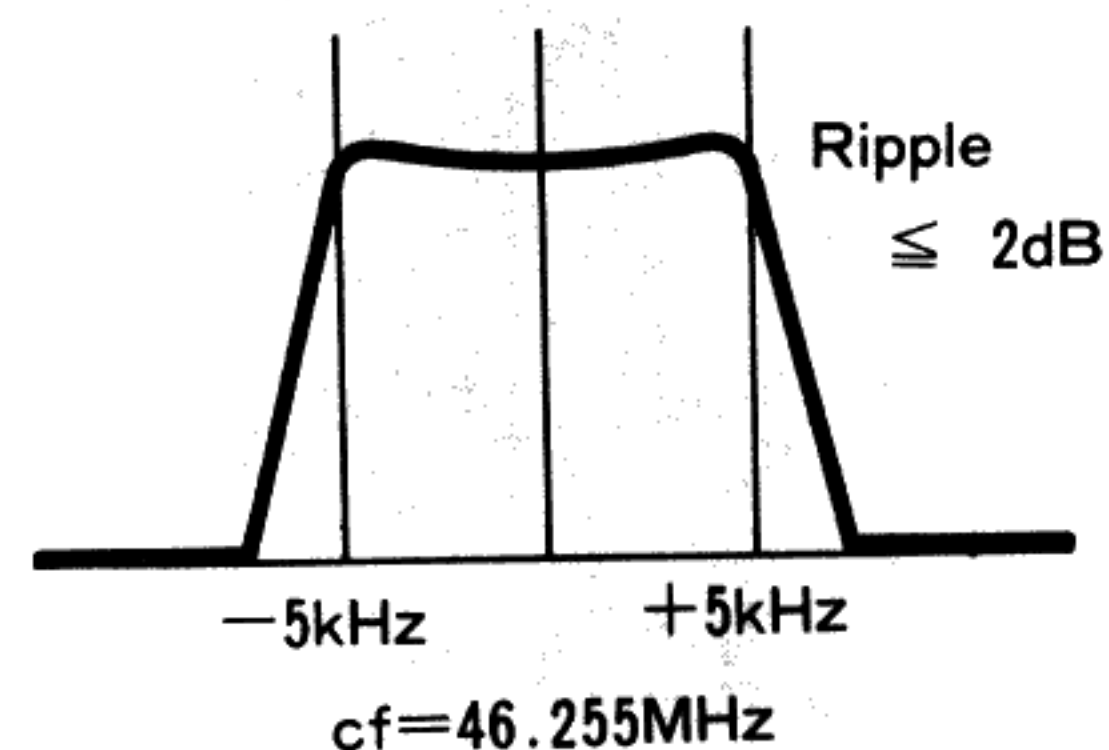
Tune to 14.250 MHz and connect the RF millivoltmeter TP3002. Adjust T3008 and T3009 for maximum RF (at least 60 mVrms).

(10) 15 MHz Reference TCXO

Connect the frequency counter to TP3002 and adjust the trimmer accessible through the hole in the TXCO housing for 45 MHz \pm 10 Hz.

(11) 46 MHz Bandpass Filter

Connect the tracking generator to J3031 and couple the spectrum analyzer to J3032. Adjust T3010-T3013 for the passband shown below (reducing injection level, if necessary, to avoid saturation).



- J₃₀₀₁ —
- J₃₀₀₅ —
- TC₃₀₀₁ —
- TC₃₀₀₂ —
- TC₃₀₀₃ —
- TC₃₀₀₄ —
- T₃₀₀₄ —
- T₃₀₀₅ —
- J₃₀₀₂ —
- TC₃₀₀₇ —
- TC₃₀₀₅ —
- TC₃₀₀₆ —
- Q₃₀₀₅ —
- VR₃₀₀₁ —
- T₃₀₃₃ —
- TCXO —
- VR₃₀₀₂ —
- TP₃₀₀₁ —
- T₃₀₀₇ —
- J₃₀₃₂ —
- TP₃₀₀₄ —

LOCAL UNIT ALIGNMENT

(13) 13 MHz Bandpass Filter

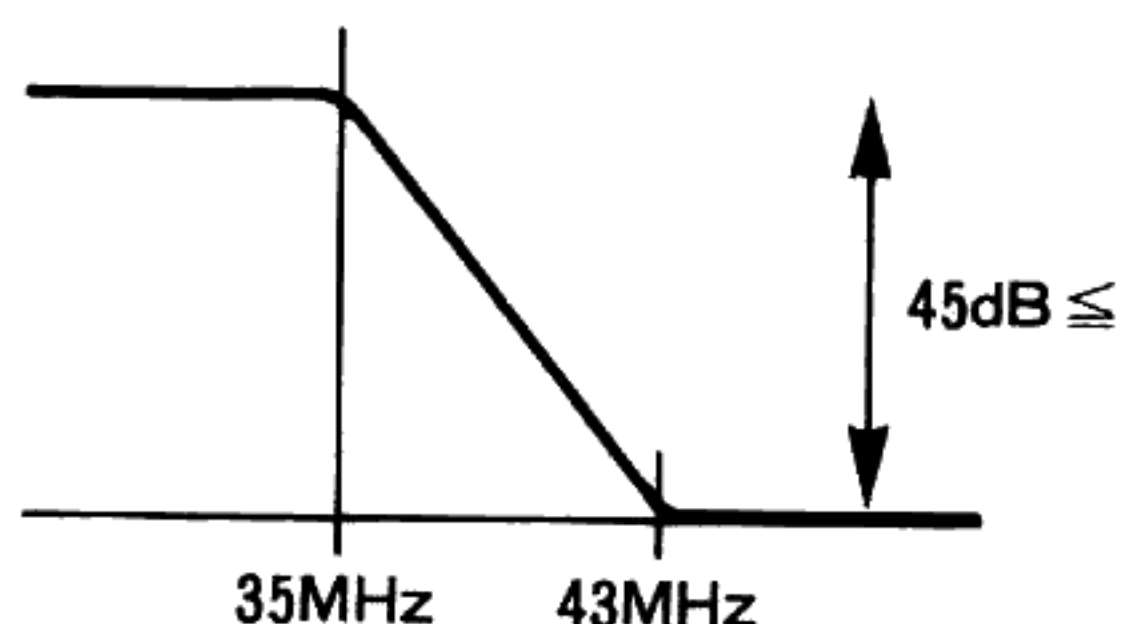
Tune to 14.250 MHz and connect the RF millivoltmeter to TP3004. Adjust T3015 through T3018 for maximum RF (at least 40 mVrms).

(14) 43 MHz Bandpass Filter

Tune to 14.250 MHz and connect the RF millivoltmeter to TP3005. Adjust T3019 through T3022 for maximum RF (at least 40 mVrms).

(15) Main Loop Lowpass Filter

Connect the tracking generator to J3033 and couple the spectrum analyzer to J3034. Adjust T3023 through T3027 for the roll-off shown (reducing injection level, if necessary, to avoid saturation).



(16) Main Loop VCOs

Set the display to 3.999.99. Connect the high-impedance DC voltmeter to TP3006 and adjust transformer T3028 for $6.0 \pm 0.1V$. Retune the display to 0.000.00 and confirm 1 to 2V. Repeat the same procedure for the same voltages at the following frequencies:

| Display | Xfmr | Confirm |
|-----------|-------|-----------|
| 7.499.99 | T3029 | 4.000.00 |
| 14.999.99 | T3030 | 7.500.00 |
| 21.999.99 | T3031 | 15.000.00 |
| 29.999.99 | T3032 | 22.000.00 |

Check that the voltage at TP3006 increases smoothly from 1.0 to about 6.5V when tuning from 0 to 7.499 MHz, 7.5 to 14.999 MHz, 15 to 21.999 MHz and 22 to 29.999 MHz.

(17) SSB Carrier Point Check (Transmit)

A 50-ohm dummy load and wattmeter must be connected to the ANT jack, as this step requires transmission for measurement and adjustment.

Tune to 14.200 MHz, USB mode. Connect the AF generator to the center pin of the MIC jack, and set for 5 mV output at 1 kHz. Press the MOX button and adjust the MIC gain control for 80W RF output.

Reduce the AF generator frequency until 20W RF output is obtained, and note the corresponding audio frequency. Now increase the AF frequency until 20W RF output is again obtained, and again note the corresponding audio frequency.

The lower frequency should be below 350 Hz, and the upper frequency should be above 2900 Hz. If not, perform procedures (4) and (5), and repeat this procedure.

Repeat the above in LSB mode.

(18) 1st Local Level Check

Tune to 14.200.00. Connect the RF millivoltmeter to J3004 (do not remove the plug) and confirm at least 100 mVrms.

(19) VHF/UHF Module Reference Level

Set the transceiver to the 50 MHz band. Connect the RF voltmeter to J3005 (don't remove the plug) and adjust T3033 for 150 mVrms.

LOCAL UNIT PARTS LIST

| *** LOCAL UNIT *** | | | |
|--------------------------------|-----------|------------|------------|
| C030130AA PCB with Components | | | |
| R3013000 Printed Circuit Board | | | |
| Q3001 | G3305350B | Transistor | 2SC535B |
| Q3002 | G1090062 | IC | SN76514N |
| Q3003 | G3305350B | Transistor | 2SC535B |
| Q3004 | G3309451Q | Transistor | 2SC945AQ |
| Q3005 | G3309451Q | Transistor | 2SC945AQ |
| Q3006 | G1090012 | IC | SN16913P |
| Q3007 | G3309451Q | Transistor | 2SC945AQ |
| Q3008 | G3309451Q | Transistor | 2SC945AQ |
| Q3009 | G3309451Q | Transistor | 2SC945AQ |
| Q3010 | G3309451Q | Transistor | 2SC945AQ |
| Q3011 | G3305350B | Transistor | 2SC535B |
| Q3012 | G1090101 | IC | uPC1037H |
| Q3013 | G3305350B | Transistor | 2SC535B |
| Q3014 | G1090838 | IC | M54459L |
| Q3015 | G3801921G | FET | 2SK192AGR |
| Q3016 | G3305350B | Transistor | 2SC535B |
| Q3017 | G1090834 | IC | CX7925B |
| Q3018 | G3801840Y | FET | 2SK184Y |
| Q3019 | G3307320B | Transistor | 2SC732TMBL |
| Q3020 | G3309451Q | Transistor | 2SC945AQ |
| Q3021 | G1090834 | IC | CX7925B |
| Q3022 | G3801840Y | FET | 2SK184Y |
| Q3023 | G3307320B | Transistor | 2SC732TMBL |
| Q3024 | G3801921G | FET | 2SK192AGR |
| Q3025 | G3309451Q | Transistor | 2SC945AQ |
| Q3026 | G3309451Q | Transistor | 2SC945AQ |
| Q3027 | G1090101 | IC | uPC1037H |
| Q3028 | G1090838 | IC | M54459L |
| Q3029 | G1090101 | IC | uPC1037H |
| Q3030 | G3309451Q | Transistor | 2SC945AQ |
| Q3031 | G3309451Q | Transistor | 2SC945AQ |
| Q3032 | G3801921G | FET | 2SK192AGR |
| Q3033 | G3309451Q | Transistor | 2SC945AQ |
| Q3034 | G1090101 | IC | uPC1037H |
| Q3035 | G3305350B | Transistor | 2SC535B |
| Q3036 | G1090101 | IC | uPC1037H |
| Q3037 | G3305350B | Transistor | 2SC535B |
| Q3038 | G3305350B | Transistor | 2SC535B |
| Q3039 | G1090834 | IC | CX7925B |
| Q3040 | G3801840Y | FET | 2SK184Y |
| Q3041 | G3307320B | Transistor | 2SC732TMBL |
| Q3042 | G3801921B | FET | 2SK192ABL |
| Q3043 | G3801921B | FET | 2SK192ABL |
| Q3044 | G3801921B | FET | 2SK192ABL |
| Q3045 | G3801921B | FET | 2SK192ABL |
| Q3046 | G3801921B | FET | 2SK192ABL |
| Q3047 | G3305350B | Transistor | 2SC535B |
| Q3048 | G3305350B | Transistor | 2SC535B |
| Q3049 | G3801921G | FET | 2SK192AGR |
| Q3050 | G3305350B | Transistor | 2SC535B |
| Q3051 | G3309451Q | Transistor | 2SC945AQ |
| Q3052 | G1090296 | IC | HD10551 |
| Q3053 | G3107331P | Transistor | 2SA733AP |
| Q3054 | G3107331P | Transistor | 2SA733AP |
| Q3055 | G3107331P | Transistor | 2SA733AP |
| Q3056 | G3107331P | Transistor | 2SA733AP |
| D3024 | G2090118 | DIODE | 1SS97 |
| D3025 | G2090027 | DIODE | 1SS53 |
| D3086 | G2090027 | DIODE | 1SS53 |
| D3087 | G2090027 | DIODE | 1SS53 |
| D3088 | G2090027 | DIODE | 1SS53 |
| D3001 | G2090027 | DIODE | 1SS53 |
| D3002 | G2090118 | DIODE | 1SS97 |
| D3003 | G2090027 | DIODE | 1SS53 |
| D3004 | G2090027 | DIODE | 1SS53 |
| D3005 | G2090118 | DIODE | 1SS97 |
| D3006 | G2090165 | DIODE | FC52M-5 |
| D3007 | G2090027 | DIODE | 1SS53 |
| D3008 | G2090027 | DIODE | 1SS53 |
| D3009 | G2090027 | DIODE | 1SS53 |
| D3010 | G2090027 | DIODE | 1SS53 |
| D3011 | G2090118 | DIODE | 1SS97 |
| D3012 | G2090118 | DIODE | 1SS97 |
| D3013 | G2090118 | DIODE | 1SS97 |
| D3014 | G2090180 | DIODE | FC53M-5 |
| D3015 | G2090027 | DIODE | 1SS53 |
| D3016 | G2090027 | DIODE | 1SS53 |
| D3017 | G2090027 | DIODE | 1SS53 |
| D3018 | G2090248 | DIODE | 1T32 |
| D3019 | G2090027 | DIODE | 1SS53 |
| D3020 | G2090027 | DIODE | 1SS53 |
| D3021 | G2022080 | DIODE | 1S2208 |
| D3022 | G2090027 | DIODE | 1SS53 |
| D3023 | G2090027 | DIODE | 1SS53 |
| D3086 | G2090027 | DIODE | 1SS53 |
| D3087 | G2090027 | DIODE | 1SS53 |
| D3088 | G2090027 | DIODE | 1SS53 |

LOCAL UNIT PARTS LIST

| | | | | |
|-------|-----------|------------------|----------|------|
| R3028 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3029 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3030 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3031 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3032 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3033 | J02245272 | Carbon Film Res. | 2.7k Ohm | 1/4W |
| R3034 | J02245332 | Carbon Film Res. | 3.3k Ohm | 1/4W |
| R3035 | J02245102 | Carbon Film Res. | 1k Ohm | 1/4W |
| R3036 | J02245333 | Carbon Film Res. | 33k Ohm | 1/4W |
| R3037 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3038 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3039 | J02245332 | Carbon Film Res. | 3.3k Ohm | 1/4W |
| R3040 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3041 | J02245562 | Carbon Film Res. | 5.6k Ohm | 1/4W |
| R3042 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3043 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3044 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3045 | J02245222 | Carbon Film Res. | 2.2k Ohm | 1/4W |
| R3046 | J02245473 | Carbon Film Res. | 47k Ohm | 1/4W |
| R3047 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3048 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3049 | J02245102 | Carbon Film Res. | 1k Ohm | 1/4W |
| R3050 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3051 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3052 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3053 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3054 | J02245473 | Carbon Film Res. | 47k Ohm | 1/4W |
| R3055 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3056 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3057 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3058 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3059 | J02245332 | Carbon Film Res. | 3.3k Ohm | 1/4W |
| R3060 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3061 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3062 | J02245470 | Carbon Film Res. | 47 Ohm | 1/4W |
| R3063 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3064 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3065 | J02245332 | Carbon Film Res. | 3.3k Ohm | 1/4W |
| R3066 | J02245561 | Carbon Film Res. | 560 Ohm | 1/4W |
| R3067 | J02245822 | Carbon Film Res. | 8.2k Ohm | 1/4W |
| R3068 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3069 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3070 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3071 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3072 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3073 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3074 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3075 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3076 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3077 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3078 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3079 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3080 | J02245222 | Carbon Film Res. | 2.2k Ohm | 1/4W |
| R3081 | J02245222 | Carbon Film Res. | 2.2k Ohm | 1/4W |
| R3082 | J02245393 | Carbon Film Res. | 39k Ohm | 1/4W |
| R3083 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3084 | J02245152 | Carbon Film Res. | 1.5k Ohm | 1/4W |
| R3085 | J02245182 | Carbon Film Res. | 1.8k Ohm | 1/4W |
| R3086 | J02245560 | Carbon Film Res. | 56 Ohm | 1/4W |
| R3087 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3088 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3089 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3090 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3091 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3092 | J02245222 | Carbon Film Res. | 2.2k Ohm | 1/4W |
| R3093 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3094 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3095 | J02245221 | Carbon Film Res. | 220 Ohm | 1/4W |
| R3096 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3097 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3098 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3099 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3100 | J02245182 | Carbon Film Res. | 1.8k Ohm | 1/4W |
| R3101 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3102 | J02245152 | Carbon Film Res. | 1.5k Ohm | 1/4W |
| R3103 | J02245560 | Carbon Film Res. | 56 Ohm | 1/4W |
| R3104 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3105 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3106 | J02245102 | Carbon Film Res. | 1k Ohm | 1/4W |
| R3107 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3108 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3109 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3110 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3111 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3112 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3113 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3114 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3115 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3116 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3117 | J02245472 | Carbon Film Res. | 4.7k Ohm | 1/4W |
| R3118 | J02245822 | Carbon Film Res. | 8.2k Ohm | 1/4W |
| R3119 | J02245561 | Carbon Film Res. | 560 Ohm | 1/4W |
| R3120 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3121 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3122 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3123 | J02245470 | Carbon Film Res. | 47 Ohm | 1/4W |
| R3124 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3125 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3126 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3127 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3128 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3129 | J02245473 | Carbon Film Res. | 47k Ohm | 1/4W |
| R3130 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3131 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3132 | J02245104 | Carbon Film Res. | 100k Ohm | 1/4W |
| R3133 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3134 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3135 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3136 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3137 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3138 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3139 | J02245470 | Carbon Film Res. | 47 Ohm | 1/4W |
| R3140 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3141 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3142 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3143 | J02245151 | Carbon Film Res. | 150 Ohm | 1/4W |
| R3144 | J02245332 | Carbon Film Res. | 3.3k Ohm | 1/4W |
| R3145 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3146 | J02245223 | Carbon Film Res. | 22k Ohm | 1/4W |
| R3147 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W |
| R3148 | J02245101 | Carbon Film Res. | 100 Ohm | 1/4W |
| R3149 | J02245471 | Carbon Film Res. | 470 Ohm | 1/4W |
| R3150 | J02245102 | Carbon Film Res. | 1k Ohm | 1/4W |
| R3151 | J02245121 | Carbon Film Res. | 120 Ohm | 1/4W |

| | | | | |
|-------|-----------|------------------|---------|------|
| R3152 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3153 | J02245331 | Carbon Film Res. | 330 Ohm | 1/4W |
| R3214 | J02245473 | Carbon Film Res. | 47k Ohm | 1/4W |
| R3215 | J02245473 | Carbon Film Res. | 47k Ohm | 1/4W |

LOCAL UNIT PARTS LIST

| Part No. | Description | Quantity | Material | Notes |
|----------|------------------|----------|----------|-----------|
| R3086 | Carbon Film Res. | 1/4W | 56 Ohm | J02245560 |
| R3087 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3088 | Carbon Film Res. | 1/4W | 330 Ohm | J02245331 |
| R3089 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3152 | Carbon Film Res. | 1/4W | 330 Ohm | J02245331 |
| R3153 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3154 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3155 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3156 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3157 | Carbon Film Res. | 1/4W | 5.6k Ohm | J02245562 |
| R3158 | Carbon Film Res. | 1/4W | 3.3k Ohm | J02245332 |
| R3159 | Carbon Film Res. | 1/4W | 1.8k Ohm | J02245182 |
| R3160 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3161 | Carbon Film Res. | 1/4W | 1.5k Ohm | J02245152 |
| R3162 | Carbon Film Res. | 1/4W | 56 Ohm | J02245562 |
| R3163 | Carbon Film Res. | 1/4W | 5.6k Ohm | J02245562 |
| R3164 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3165 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3166 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3167 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3168 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3169 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3170 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3171 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3172 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3173 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3174 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3175 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3176 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3177 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3178 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3179 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3180 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3181 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3182 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3183 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3184 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3185 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3186 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3187 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3188 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3189 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3190 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3191 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3192 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3193 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3194 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3195 | Carbon Film Res. | 1/4W | 220 Ohm | J02245223 |
| R3196 | Carbon Film Res. | 1/4W | 470 Ohm | J02245471 |
| R3197 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3198 | Carbon Film Res. | 1/4W | 390 Ohm | J02245391 |
| R3199 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3200 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3201 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3202 | Carbon Film Res. | 1/4W | 470 Ohm | J02245471 |
| R3203 | Carbon Film Res. | 1/4W | 100k Ohm | J02245104 |
| R3204 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3205 | Carbon Film Res. | 1/4W | 470 Ohm | J02245471 |
| R3206 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3207 | Carbon Film Res. | 1/4W | 22k Ohm | J02245223 |
| R3208 | Carbon Film Res. | 1/4W | 470 Ohm | J02245471 |
| R3209 | Carbon Film Res. | 1/4W | 680 Ohm | J02245680 |
| R3210 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3211 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3212 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3213 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3214 | Carbon Film Res. | 1/4W | 330 Ohm | J02245331 |
| R3215 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3216 | Carbon Film Res. | 1/4W | 220 Ohm | J02245221 |
| R3217 | Carbon Film Res. | 1/4W | 220 Ohm | J02245103 |
| R3218 | Carbon Film Res. | 1/4W | 10k Ohm | J02245222 |
| R3219 | Carbon Film Res. | 1/4W | 5.6k Ohm | J02245103 |
| R3220 | Carbon Film Res. | 1/4W | 3.3k Ohm | J02245222 |
| R3221 | Carbon Film Res. | 1/4W | 1.8k Ohm | J02245103 |
| R3222 | Carbon Film Res. | 1/4W | 100 Ohm | J02245222 |
| R3223 | Carbon Film Res. | 1/4W | 1.5k Ohm | J02245103 |
| R3224 | Carbon Film Res. | 1/4W | 56 Ohm | J02245222 |
| R3225 | Carbon Film Res. | 1/4W | 5.6k Ohm | J02245103 |
| R3226 | Carbon Film Res. | 1/4W | 220 Ohm | J02245222 |
| R3227 | Carbon Film Res. | 1/4W | 220 Ohm | J02245103 |
| R3228 | Carbon Film Res. | 1/4W | 47k Ohm | J02245222 |
| R3229 | Carbon Film Res. | 1/4W | 100k Ohm | J02245103 |
| R3230 | Carbon Film Res. | 1/4W | 10k Ohm | J02245222 |
| R3231 | Carbon Film Res. | 1/4W | 100 Ohm | J02245103 |
| R3232 | Carbon Film Res. | 1/4W | 1k Ohm | J02245222 |
| R3233 | Carbon Film Res. | 1/4W | 220 Ohm | J02245103 |
| R3234 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3235 | Carbon Film Res. | 1/4W | 100k Ohm | J02245473 |
| R3236 | Carbon Film Res. | 1/4W | 10k Ohm | J02245682 |
| R3237 | Carbon Film Res. | 1/4W | 100 Ohm | J02245103 |
| R3238 | Carbon Film Res. | 1/4W | 1k Ohm | J02245473 |
| R3239 | Carbon Film Res. | 1/4W | 220 Ohm | J02245222 |
| R3240 | Carbon Film Res. | 1/4W | 47k Ohm | J02245103 |
| R3241 | Carbon Film Res. | 1/4W | 100k Ohm | J02245222 |
| R3242 | Carbon Film Res. | 1/4W | 10k Ohm | J02245153 |
| R3243 | Carbon Film Res. | 1/4W | 100 Ohm | J02245104 |
| R3244 | Carbon Film Res. | 1/4W | 1k Ohm | J02245123 |
| R3245 | Carbon Film Res. | 1/4W | 220 Ohm | J02245472 |
| R3246 | Carbon Film Res. | 1/4W | 47k Ohm | J02245473 |
| R3247 | Carbon Film Res. | 1/4W | 100k Ohm | J02245103 |
| R3248 | Carbon Film Res. | 1/4W | 10k Ohm | J02245473 |
| R3249 | Carbon Film Res. | 1/4W | 100 Ohm | J02245103 |
| R3250 | Carbon Film Res. | 1/4W | 1k Ohm | J02245473 |
| R3251 | Carbon Film Res. | 1/4W | 220 Ohm | J02245472 |
| R3252 | Carbon Film Res. | 1/4W | 47k Ohm | J02245331 |
| R3253 | Carbon Film Res. | 1/4W | 100k Ohm | J02245681 |
| R3254 | Carbon Film Res. | 1/4W | 10k Ohm | J02245103 |
| R3255 | Carbon Film Res. | 1/4W | 100 Ohm | J02245103 |
| R3256 | Carbon Film Res. | 1/4W | 1k Ohm | J02245222 |
| R3257 | Carbon Film Res. | 1/4W | 22k Ohm | J02245103 |
| R3258 | Carbon Film Res. | 1/4W | 470 Ohm | J02245153 |
| R3259 | Carbon Film Res. | 1/4W | 100 Ohm | J02245225 |
| R3260 | Carbon Film Res. | 1/4W | 390 Ohm | J02245473 |
| R3261 | Carbon Film Res. | 1/4W | 1k Ohm | J02245223 |
| R3262 | Carbon Film Res. | 1/4W | 10k Ohm | J02245332 |
| R3263 | Carbon Film Res. | 1/4W | 100 Ohm | J02245223 |
| R3264 | Carbon Film Res. | 1/4W | 470 Ohm | J02245332 |
| R3265 | Carbon Film Res. | 1/4W | 100k Ohm | J02245223 |
| R3266 | Carbon Film Res. | 1/4W | 100 Ohm | J02245332 |
| R3267 | Carbon Film Res. | 1/4W | 470 Ohm | J02245223 |
| R3268 | Carbon Film Res. | 1/4W | 10k Ohm | J02245332 |
| R3269 | Carbon Film Res. | 1/4W | 22k Ohm | J02245223 |
| R3270 | Carbon Film Res. | 1/4W | 470 Ohm | J02245332 |
| R3271 | Carbon Film Res. | 1/4W | 680 Ohm | J02245223 |
| R3272 | Carbon Film Res. | 1/4W | 10k Ohm | J02245332 |
| R3273 | Carbon Film Res. | 1/4W | 47k Ohm | J02245681 |
| R3274 | Carbon Film Res. | 1/4W | 47k Ohm | J02245471 |
| R3275 | Carbon Film Res. | 1/4W | 47k Ohm | J02245103 |
| R3148 | Carbon Film Res. | 1/4W | 100 Ohm | J02245101 |
| R3149 | Carbon Film Res. | 1/4W | 470 Ohm | J02245471 |
| R3150 | Carbon Film Res. | 1/4W | 1k Ohm | J02245102 |
| R3151 | Carbon Film Res. | 1/4W | 120 Ohm | J02245121 |

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| Part No. | Part Description | Material | Value | Notes | Part No. | Part Description | Material | Value | Notes |
|----------|------------------|------------------|-------------|-------|----------|------------------|-----------------|----------|-------|
| R3276 | J02245103 | Carbon Film Res. | 10k Ohm | 1/4W | C3054 | K13179008 | Ceramic Cap. | 0.01uF | F |
| RB3001 | J40900044 | Block Res. | 7 x 10k Ohm | | C3055 | K02179017 | Ceramic Cap. | 62pF | CH |
| RB3002 | J40900053 | Block Res. | 7 x 47k Ohm | | C3056 | K02175560 | Ceramic Cap. | 56pF | CH |
| RB3003 | J40900023 | Block Res. | DA-2 | | C3057 | K00172050 | Ceramic Cap. | 5pF | SL |
| VR3001 | J51745223 | Potentiometer | 22k Ohm | | C3058 | K13179008 | Ceramic Cap. | 0.01uF | F |
| VR3002 | J51769222 | Potentiometer | 2.2k Ohm | | C3059 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3001 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3060 | K00179001 | Ceramic Cap. | 0.5pF | SL |
| C3002 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3061 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3003 | K00175150 | Ceramic Cap. | 15pF | 50V | C3062 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3004 | K00175470 | Ceramic Cap. | 47pF | 50V | C3063 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3005 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3064 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3006 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3065 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3007 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3066 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3008 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3067 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3009 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3068 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3010 | K02179009 | Ceramic Cap. | 22pF | 50V | C3069 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3011 | K02179009 | Ceramic Cap. | 22pF | 50V | C3070 | K00175181 | Ceramic Cap. | 180pF | SL |
| C3012 | K02175390 | Ceramic Cap. | 39pF | 50V | C3071 | K00175820 | Ceramic Cap. | 82pF | SL |
| C3013 | K02179009 | Ceramic Cap. | 22pF | 50V | C3072 | K00179022 | Ceramic Cap. | 360pF | SL |
| C3014 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3073 | K00179009 | Ceramic Cap. | 43pF | SL |
| C3015 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3074 | K00175391 | Ceramic Cap. | 390pF | SL |
| C3016 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3075 | K00175120 | Ceramic Cap. | 12pF | SL |
| C3017 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3076 | K00179020 | Ceramic Cap. | 240pF | SL |
| C3018 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3077 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3019 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3078 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3020 | K02173100 | Ceramic Cap. | 10pF | 50V | C3079 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3021 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3080 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3022 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3081 | K40129004 | Al Electro Cap. | 10uF | |
| C3023 | K02179027 | Ceramic Cap. | 270pF | 50V | C3082 | K40129008 | Al Electro Cap. | 33uF | |
| C3024 | K02179027 | Ceramic Cap. | 270pF | 50V | C3083 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3025 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3084 | K19149005 | Ceramic Cap. | 0.0022uF | Sr |
| C3026 | K00175220 | Ceramic Cap. | 22pF | 50V | C3085 | K05173080 | Ceramic Cap. | 8pF | RH |
| C3027 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3086 | K06175120 | Ceramic Cap. | 12pF | UJ |
| C3028 | K00173060 | Ceramic Cap. | 6pF | 50V | C3087 | K05173100 | Ceramic Cap. | 10pF | RH |
| C3029 | K00172040 | Ceramic Cap. | 4pF | 50V | C3088 | K02175120 | Ceramic Cap. | 12pF | CH |
| C3030 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3089 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3031 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3090 | K40129008 | Al Electro Cap. | 33uF | |
| C3032 | K00172050 | Ceramic Cap. | 5pF | 50V | C3091 | K02172059 | Ceramic Cap. | 0.5pF | CK |
| C3033 | K00172050 | Ceramic Cap. | 5pF | 50V | C3092 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3034 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3093 | K12171102 | Ceramic Cap. | 0.001uF | E |
| C3035 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3094 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3036 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3095 | K10176101 | Ceramic Cap. | 100pF | B |
| C3037 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3096 | K10176101 | Ceramic Cap. | 100pF | B |
| C3038 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3097 | K10176101 | Ceramic Cap. | 100pF | B |
| C3039 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3098 | K19149013 | Ceramic Cap. | 0.01uF | Sr |
| C3040 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3099 | K40179013 | Al Electro Cap. | 1uF | |
| C3041 | K00173080 | Ceramic Cap. | 8pF | 50V | C3100 | K00173080 | Ceramic Cap. | 8pF | SL |
| C3042 | K00175180 | Ceramic Cap. | 18pF | 50V | C3101 | K40129008 | Al Electro Cap. | 33uF | |
| C3043 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3102 | K19149017 | Ceramic Cap. | 0.022uF | Sr |
| C3044 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3103 | K00175560 | Ceramic Cap. | 56pF | SL |
| C3045 | K02175150 | Ceramic Cap. | 15pF | 50V | C3104 | K00175121 | Ceramic Cap. | 120pF | SL |
| C3046 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3105 | K00175560 | Ceramic Cap. | 56pF | SL |
| C3047 | K40179013 | Al Electro Cap. | 1uF | 50V | C3106 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3048 | K06172040 | Ceramic Cap. | 4pF | 50V | C3107 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3049 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3108 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3050 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3109 | K00173080 | Ceramic Cap. | 8pF | SL |
| C3051 | K40179011 | Al Electro Cap. | 3.3uF | 50V | C3110 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3052 | K06175101 | Ceramic Cap. | 100pF | 50V | C3111 | K40129008 | Al Electro Cap. | 33uF | |
| C3053 | K06175101 | Ceramic Cap. | 100pF | 50V | C3112 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3116 | K19149013 | Ceramic Cap. | 0.01uF | 25V | C3113 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3117 | K13179008 | Al Electro Cap. | 1uF | 50V | C3114 | K10176101 | Ceramic Cap. | 0.01uF | F |
| C3118 | K13179008 | Al Electro Cap. | 1uF | 50V | C3115 | K10176101 | Ceramic Cap. | 0.01uF | F |
| C3179 | K00175330 | Ceramic Cap. | 33pF | 50V | C3179 | K00175330 | Ceramic Cap. | 33pF | SL |
| C3180 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3180 | K13179008 | Ceramic Cap. | 0.01uF | F |
| C3181 | K13179008 | Ceramic Cap. | 0.01uF | 50V | C3181 | K13179008 | Ceramic Cap. | 0.01uF | F |

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|-------|-----------|-----------------|----------|-----|----|-----------|-----------------|---------|-----|----|
| C3116 | K19149013 | Ceramic Cap. | 0.01uF | 25V | Sr | K00175330 | Ceramic Cap. | 33pF | 50V | SL |
| C3117 | K40179013 | Al Electro Cap. | 1uF | 50V | Sr | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3118 | K19149021 | Ceramic Cap. | 0.047uF | 25V | Sr | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3120 | K19149009 | Ceramic Cap. | 0.0047uF | 25V | Sr | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3121 | K40129008 | Al Electro Cap. | 33uF | 16V | F | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3122 | K13179008 | Ceramic Cap. | 0.01uF | 50V | UJ | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3123 | K06175220 | Ceramic Cap. | 22pF | 50V | UJ | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3124 | K06175220 | Ceramic Cap. | 22pF | 50V | UJ | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3125 | K05175120 | Ceramic Cap. | 12pF | 50V | RH | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3126 | K05175470 | Ceramic Cap. | 47pF | 50V | RH | K00173080 | Ceramic Cap. | 8pF | 50V | SL |
| C3127 | K40129008 | Al Electro Cap. | 33uF | 16V | F | K00172030 | Ceramic Cap. | 3pF | 50V | CH |
| C3128 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K02179006 | Ceramic Cap. | 24pF | 50V | SL |
| C3129 | K02179001 | Ceramic Cap. | 1pF | 50V | CK | K00173080 | Ceramic Cap. | 8pF | 50V | SL |
| C3130 | K02172059 | Ceramic Cap. | 0.5pF | 50V | CK | K00175220 | Ceramic Cap. | 22pF | 50V | SL |
| C3131 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00173100 | Ceramic Cap. | 10pF | 50V | SL |
| C3132 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00175270 | Ceramic Cap. | 27pF | 50V | SL |
| C3133 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00172050 | Ceramic Cap. | 5pF | 50V | SL |
| C3134 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00175270 | Ceramic Cap. | 27pF | 50V | SL |
| C3135 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00179001 | Ceramic Cap. | 0.5pF | 50V | SL |
| C3136 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K00175120 | Ceramic Cap. | 12pF | 50V | SL |
| C3137 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3138 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3139 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3140 | K40129004 | Al Electro Cap. | 10uF | 16V | F | K10176181 | Ceramic Cap. | 180pF | 50V | B |
| C3141 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3142 | K00179015 | Ceramic Cap. | 110pF | 50V | SL | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3143 | K00179010 | Ceramic Cap. | 51pF | 50V | SL | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3144 | K00175221 | Ceramic Cap. | 220pF | 50V | SL | K13179008 | Ceramic Cap. | 0.01uF | 50V | F |
| C3145 | K00179006 | Ceramic Cap. | 24pF | 50V | SL | K40129008 | Al Electro Cap. | 33uF | 16V | B |
| C3146 | K00179020 | Ceramic Cap. | 240pF | 50V | SL | K10176101 | Ceramic Cap. | 100pF | 50V | B |
| C3147 | K00172050 | Ceramic Cap. | 5pF | 50V | SL | K10176101 | Ceramic Cap. | 100pF | 50V | B |
| C3148 | K00175151 | Ceramic Cap. | 150pF | 50V | SL | K10176101 | Ceramic Cap. | 100pF | 50V | B |
| C3149 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K40179013 | Al Electro Cap. | 1uF | 20V | |
| C3150 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K54200012 | Film Cap. | 0.47uF | 20V | |
| C3151 | K00173060 | Ceramic Cap. | 6pF | 50V | SL | K40129008 | Al Electro Cap. | 33uF | 16V | |
| C3152 | K00173080 | Ceramic Cap. | 8pF | 50V | SL | K19149013 | Ceramic Cap. | 0.01uF | 25V | Sr |
| C3153 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3154 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K06175330 | Ceramic Cap. | 33pF | 50V | UJ |
| C3155 | K00172020 | Ceramic Cap. | 2pF | 50V | SL | K06175180 | Ceramic Cap. | 18pF | 50V | UJ |
| C3156 | K00172020 | Ceramic Cap. | 2pF | 50V | SL | K06175150 | Ceramic Cap. | 15pF | 50V | UJ |
| C3157 | K00175220 | Ceramic Cap. | 22pF | 50V | SL | K06175220 | Ceramic Cap. | 22pF | 50V | UJ |
| C3158 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3159 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K40149001 | Al Electro Cap. | 4.7uF | 25V | UJ |
| C3160 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K06179006 | Ceramic Cap. | 30pF | 50V | UJ |
| C3161 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K06175180 | Ceramic Cap. | 18pF | 50V | UJ |
| C3162 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K06175150 | Ceramic Cap. | 15pF | 50V | UJ |
| C3163 | K00173080 | Ceramic Cap. | 8pF | 50V | SL | K06175220 | Ceramic Cap. | 22pF | 50V | UJ |
| C3164 | K00172020 | Ceramic Cap. | 2pF | 50V | SL | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3165 | K02173070 | Ceramic Cap. | 7pF | 50V | CH | K40149001 | Al Electro Cap. | 4.7uF | 25V | UJ |
| C3166 | K02179009 | Ceramic Cap. | 22pF | 50V | CH | K06175680 | Ceramic Cap. | 68pF | 50V | UJ |
| C3167 | K02175680 | Ceramic Cap. | 68pF | 50V | CH | K06175150 | Ceramic Cap. | 15pF | 50V | UJ |
| C3168 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K06175120 | Ceramic Cap. | 12pF | 50V | UJ |
| C3169 | K00172010 | Ceramic Cap. | 1pF | 50V | SL | K06175180 | Ceramic Cap. | 18pF | 50V | UJ |
| C3170 | K00172020 | Ceramic Cap. | 2pF | 50V | SL | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3171 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K40149001 | Al Electro Cap. | 4.7uF | 25V | UJ |
| C3172 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K06175470 | Ceramic Cap. | 47pF | 50V | UJ |
| C3173 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K02175150 | Ceramic Cap. | 15pF | 50V | CH |
| C3174 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K06175120 | Ceramic Cap. | 12pF | 50V | UJ |
| C3175 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | K06173100 | Ceramic Cap. | 10pF | 50V | UJ |
| C3176 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | K12171102 | Ceramic Cap. | 0.001uF | 50V | E |
| C3177 | K00172010 | Ceramic Cap. | 1pF | 50V | SL | K40149001 | Al Electro Cap. | 4.7uF | 25V | UJ |
| C3178 | K02172010 | Ceramic Cap. | 1pF | 50V | SL | K06175470 | Ceramic Cap. | 47pF | 50V | UJ |

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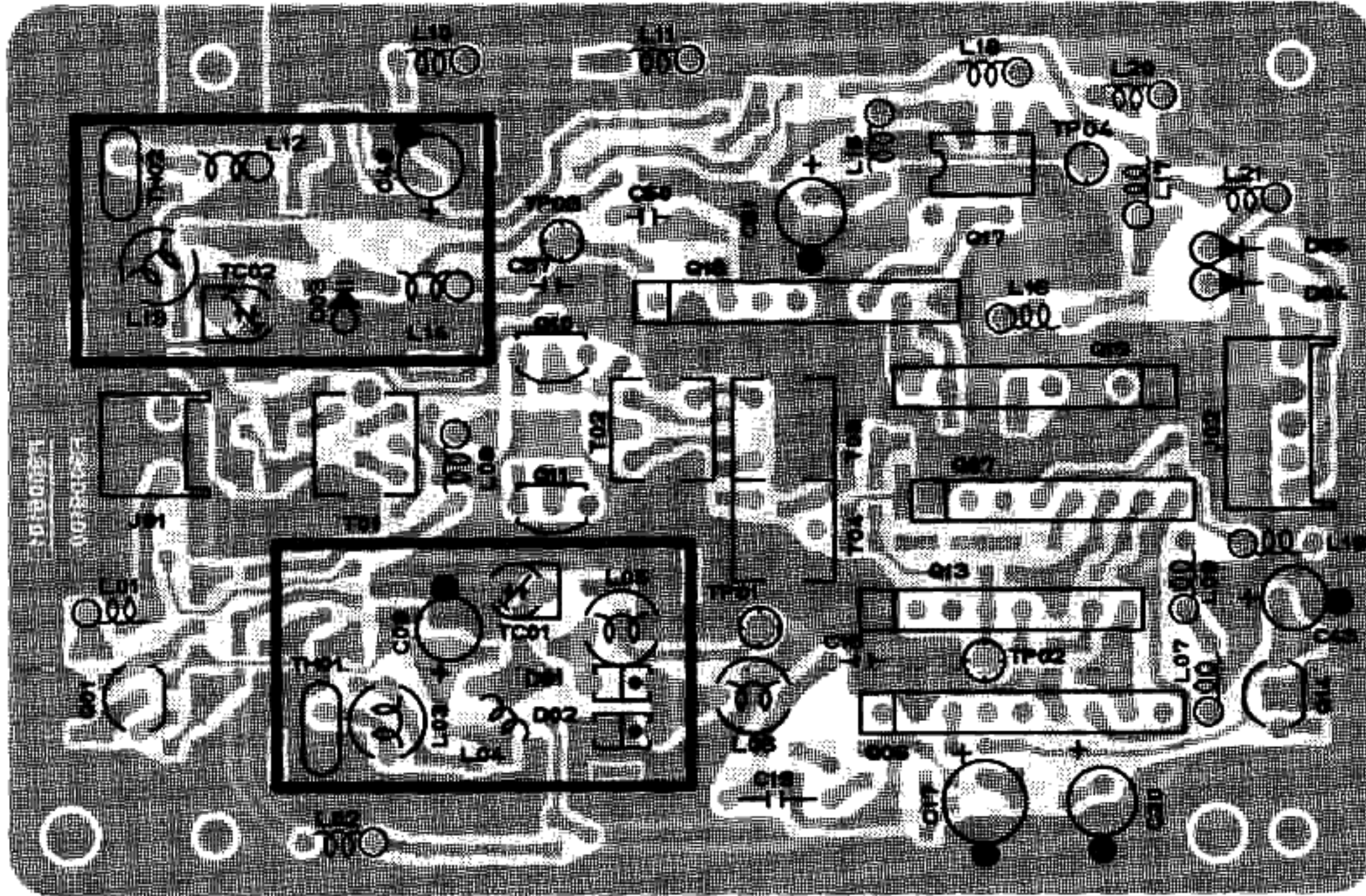
| | | | | | | | | |
|--------|-----------|------------------|------------|-----------|----|-------|-----------|------|
| C3241 | K05175150 | Ceramic Cap. | 15pF | 50V | RH | L3006 | L1190039 | RFC |
| C3242 | K06175120 | Ceramic Cap. | 12pF | 50V | UJ | L3007 | L1190221 | RFC |
| C3243 | K02173080 | Ceramic Cap. | 8pF | 50V | CH | L3008 | L1190221 | RFC |
| C3244 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3009 | L1190221 | RFC |
| C3245 | K40149001 | Al. Electro Cap. | 4.7uF | 25V | E | L3010 | L1190020 | RFC |
| C3246 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3011 | L0021206B | Coil |
| C3247 | K02173080 | Ceramic Cap. | 8pF | 50V | CH | L3012 | L1190020 | RFC |
| C3249 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3013 | L1190020 | RFC |
| C3250 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3014 | L1190030 | RFC |
| C3251 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3015 | L1190031 | RFC |
| C3252 | K00175270 | Ceramic Cap. | 27pF | 50V | SL | L3016 | L1190031 | RFC |
| C3253 | K00175560 | Ceramic Cap. | 56pF | 50V | SL | L3017 | L1190220 | RFC |
| C3254 | K00175270 | Ceramic Cap. | 27pF | 50V | SL | L3018 | L1190220 | RFC |
| C3255 | K02179001 | Ceramic Cap. | 1pF | 50V | CK | L3019 | L1190004 | RFC |
| C3256 | K02172030 | Ceramic Cap. | 3pF | 50V | CJ | L3020 | L1190014 | RFC |
| C3257 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3021 | L1190014 | RFC |
| C3258 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3022 | L1190005 | RFC |
| C3259 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3023 | L1190220 | RFC |
| C3260 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | L3024 | L1190220 | RFC |
| C3261 | K00172050 | Ceramic Cap. | 5pF | 50V | SL | L3025 | L1190025 | RFC |
| C3262 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3026 | L1190029 | RFC |
| C3263 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3027 | L1190029 | RFC |
| C3264 | K00172020 | Ceramic Cap. | 2pF | 50V | SL | L3028 | L1190008 | RFC |
| C3265 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3029 | L1190220 | RFC |
| C3266 | K40129004 | Al. Electro Cap. | 10uF | 16V | F | L3030 | L1190220 | RFC |
| C3267 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3031 | L1190005 | RFC |
| C3268 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3032 | L1190029 | RFC |
| C3269 | K19149025 | Ceramic Cap. | 0.1uF | 25V | Sr | L3033 | L1190029 | RFC |
| C3270 | K40179011 | Al. Electro Cap. | 3.3uF | 50V | F | L3034 | L1190029 | RFC |
| C3271 | K40179009 | Al. Electro Cap. | 2.2uF | 50V | SL | L3035 | L1190029 | RFC |
| C3272 | K00175680 | Ceramic Cap. | 68pF | 50V | SL | L3036 | L1190029 | RFC |
| C3273 | K00175680 | Ceramic Cap. | 68pF | 50V | SL | L3037 | L1190218 | RFC |
| C3274 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | L3038 | L1190008 | RFC |
| C3275 | K40179013 | Al. Electro Cap. | 1uF | 50V | F | L3039 | L0021410 | Coil |
| C3276 | K19149021 | Ceramic Cap. | 0.047uF | 25V | Sr | L3040 | L0021410 | Coil |
| C3277 | K10176101 | Ceramic Cap. | 100pF | 50V | B | L3041 | L1190222 | RFC |
| C3278 | K10176151 | Ceramic Cap. | 150pF | 50V | B | L3042 | L1190149 | RFC |
| C3279 | K19149025 | Ceramic Cap. | 0.1uF | 25V | Sr | T3001 | L0021609 | Coil |
| C3280 | K40129008 | Al. Electro Cap. | 33uF | 16V | F | T3002 | L0021609 | Coil |
| C3281 | K40129004 | Al. Electro Cap. | 10uF | 16V | F | T3003 | L0021609 | Coil |
| C3282 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | T3004 | L0020332A | Coil |
| C3283 | K40179013 | Al. Electro Cap. | 1uF | 50V | F | T3005 | L0021199 | Coil |
| C3284 | K40129004 | Al. Electro Cap. | 10uF | 16V | F | T3006 | L0021199 | Coil |
| C3285 | K13179008 | Ceramic Cap. | 0.01uF | 50V | F | T3007 | L0020904 | Coil |
| C3286 | K12171102 | Ceramic Cap. | 0.001uF | 50V | E | T3008 | L0021557 | Coil |
| CB3001 | K80000007 | Block Cap. | 8 x 0.01uF | | | T3009 | L0021557 | Coil |
| CB3002 | K80000002 | Block Cap. | 6 x 0.01uF | | | T3010 | L0020909 | Coil |
| TC3001 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3011 | L0020909 | Coil |
| TC3002 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3012 | L0020909 | Coil |
| TC3003 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3013 | L0020909 | Coil |
| TC3004 | K91000093 | Trimmer Cap. | 20pF | VCT51F | | T3014 | L0021554 | Coil |
| TC3005 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3015 | L0021912 | Coil |
| TC3006 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3016 | L0021912 | Coil |
| TC3007 | K91000086 | Trimmer Cap. | 20pF | VCT51E117 | | T3017 | L0021912 | Coil |
| L3001 | L1190039 | RFC | | | | T3018 | L0021912 | Coil |
| L3002 | L1190039 | RFC | | | | T3019 | L0021234 | Coil |
| L3003 | L1190039 | RFC | | | | T3020 | L0021234 | Coil |
| L3004 | L1190039 | RFC | | | | T3021 | L0021234 | Coil |
| L3005 | L1190039 | RFC | | | | T3022 | L0021234 | Coil |
| L3006 | L1190039 | RFC | | | | T3023 | L0021555 | Coil |

T3024 L0021553
T3025 L0021553
T3026 L0021553

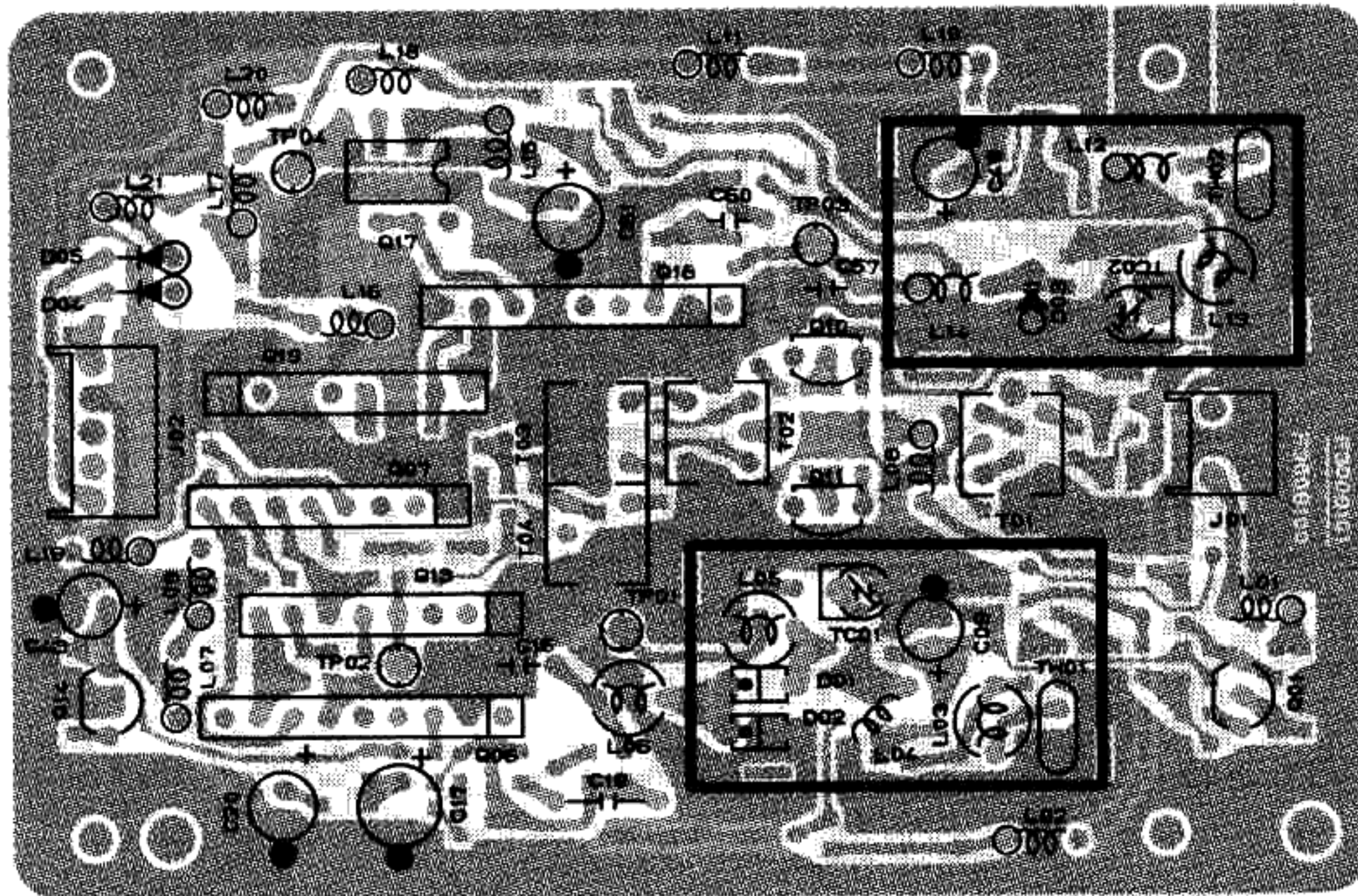
LOCAL UNIT PARTS LIST

| | | | | |
|--------|-----------|-----------------|--|-------------------|
| T3024 | L0021553 | Coil | | |
| T3025 | L0021553 | Coil | | |
| T3026 | L0021553 | Coil | | |
| T3027 | L0021553 | Coil | | |
| T3028 | L0021559 | Coil | | |
| T3029 | L0021559 | Coil | | |
| T3030 | L0021399 | Coil | | |
| T3031 | L0021400 | Coil | | |
| T3032 | L0021401 | Coil | | |
| T3033 | L0020783 | Coil | | |
| BZ3001 | M4290001 | Buzzer | | EFBRE-25D02 |
| S3001 | N6090064 | Switch | | SS912 |
| S3002 | N4090012 | Switch | | SPJ-22-A01 |
| S3003 | N4090012 | Switch | | SPJ-22-A01 |
| S3004 | N4090012 | Switch | | SPJ-22-A01 |
| S3005 | N6090064 | Switch | | SS912 |
| J3001 | P1090255 | Connector | | TMP-JA |
| J3002 | P1090255 | Connector | | TMP-JA |
| J3003 | P1090255 | Connector | | TMP-JA |
| J3004 | P1090255 | Connector | | TMP-JA |
| J3005 | P1090255 | Connector | | TMP-JA |
| J3006 | P1090296 | Connector | | S-Q3097-02 |
| J3007 | P1090354 | Connector | | S-Q3097-04 |
| J3008 | P0090191 | Connector | | B02B-XH-A |
| J3009 | P0090191 | Connector | | B02B-XH-A |
| J3010 | P0090192 | Connector | | B03B-XH-A |
| J3011 | P0090196 | Connector | | B07B-XH-A |
| J3012 | P0090196 | Connector | | B07B-XH-A |
| J3013 | P0090193 | Connector | | B04B-XH-A |
| J3014 | P0090194 | Connector | | B05B-XH-A |
| J3015 | P0090202 | Connector | | B13B-XH-A |
| J3016 | P0090193 | Connector | | B04B-XH-A |
| J3017 | P0090194 | Connector | | B05B-XH-A |
| J3018 | P0090194 | Connector | | B05B-XH-A |
| J3019 | P0090200 | Connector | | B11B-XH-A |
| J3020 | P0090191 | Connector | | B02B-XH-A |
| J3021 | P0090191 | Connector | | B02B-XH-A |
| J3022 | P0090192 | Connector | | B03B-XH-A |
| J3023 | P0090193 | Connector | | B04B-XH-A |
| J3024 | P0090197 | Connector | | B08B-XH-A |
| J3025 | P0090191 | Connector | | B02B-XH-A |
| J3026 | P0090197 | Connector | | B08B-XH-A |
| J3027 | P1090423 | Connector | | B08B-XH-A |
| J3028 | P1090521 | Connector | | TCS4460-01-111 |
| J3029 | P0090192 | Connector | | TCS4490-01-111 |
| J3030 | P0090191 | Connector | | B03B-XH-A |
| J3031 | P1090210 | Connector | | B02B-XH-A |
| J3032 | P1090210 | Connector | | TMP-JV |
| J3033 | P1090210 | Connector | | TMP-JV |
| J3034 | P1090210 | Connector | | TMP-JV |
| BA3001 | Q90000309 | Lithium Battery | | 2L76-T2 (CR-1/3N) |
| | Q5000050 | Terminal Posts | | TP-K |
| | Q5000082 | Terminal Posts | | TP-N |

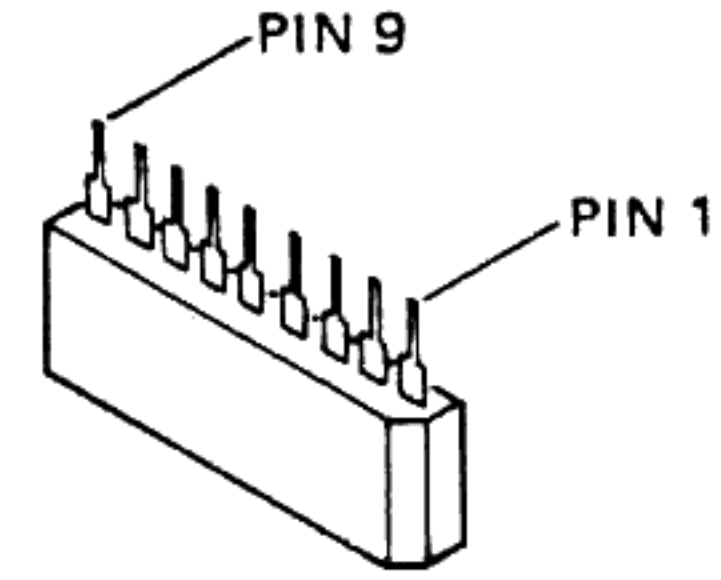
FEX-767-2 PLL UNIT PARTS LAYOUT



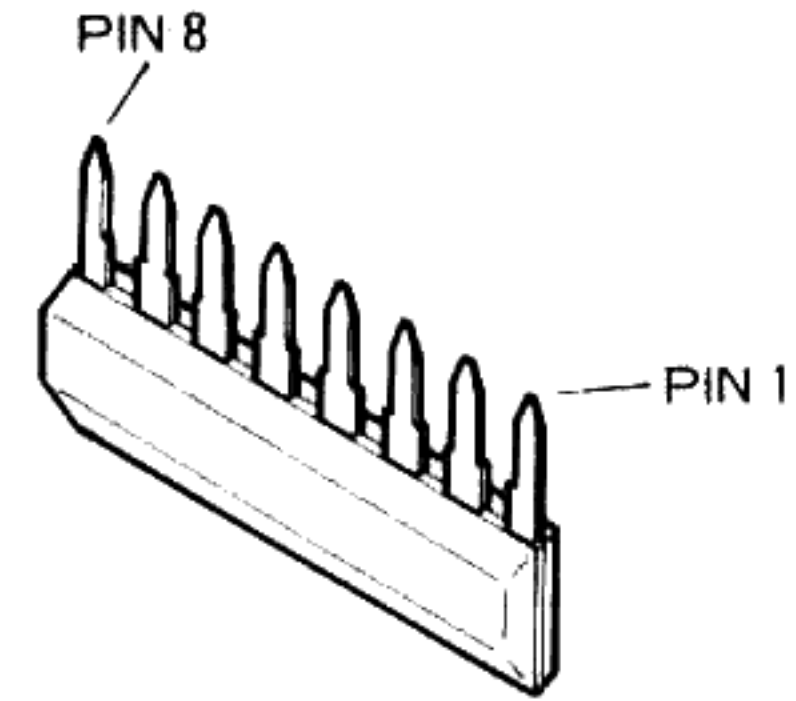
(Obverse view of "component" side)



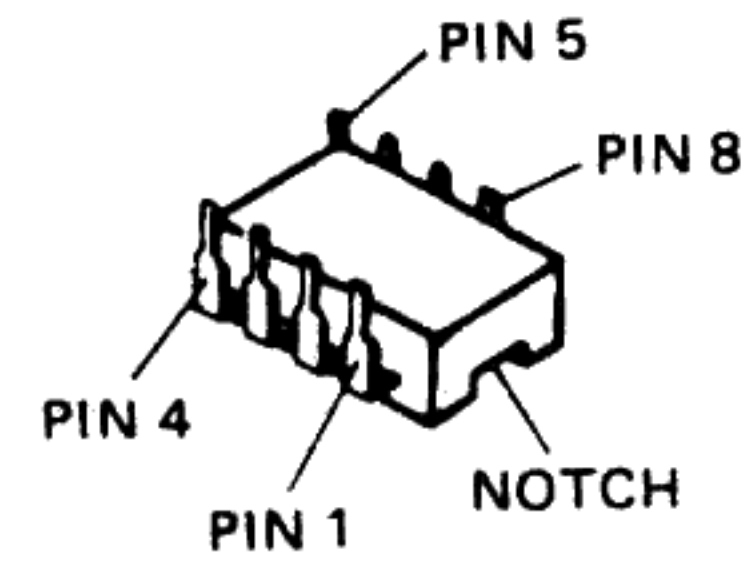
(Reverse view of "component" side)



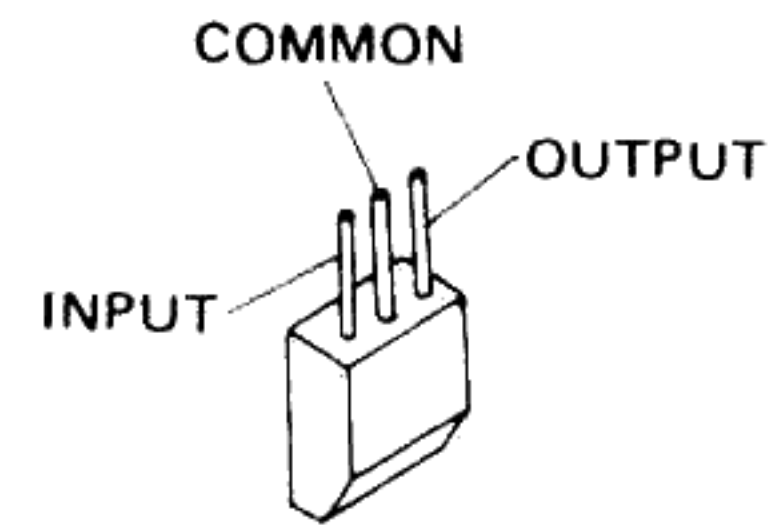
TC5081AP (Q2006,2018)



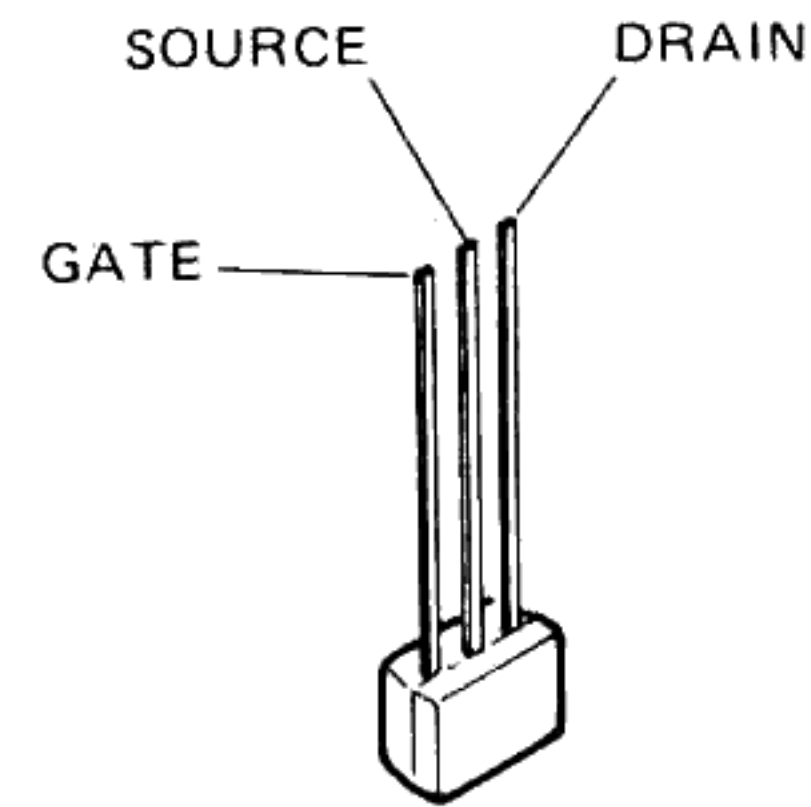
M54455L (Q2019)
M54459L (Q2007,2013)



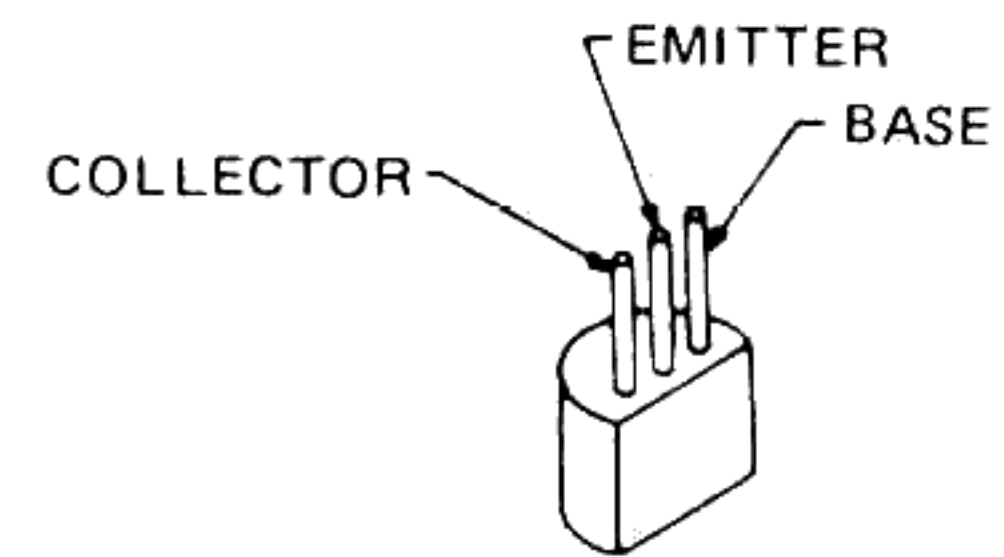
MC12017P (Q2017)



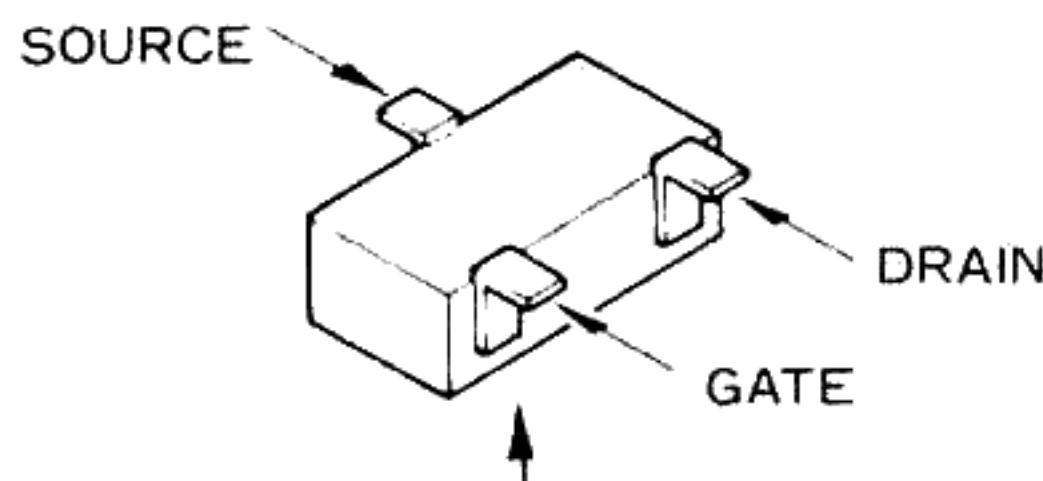
μPC78L05J (Q2014)



2SK241Y (Q2010,2011)

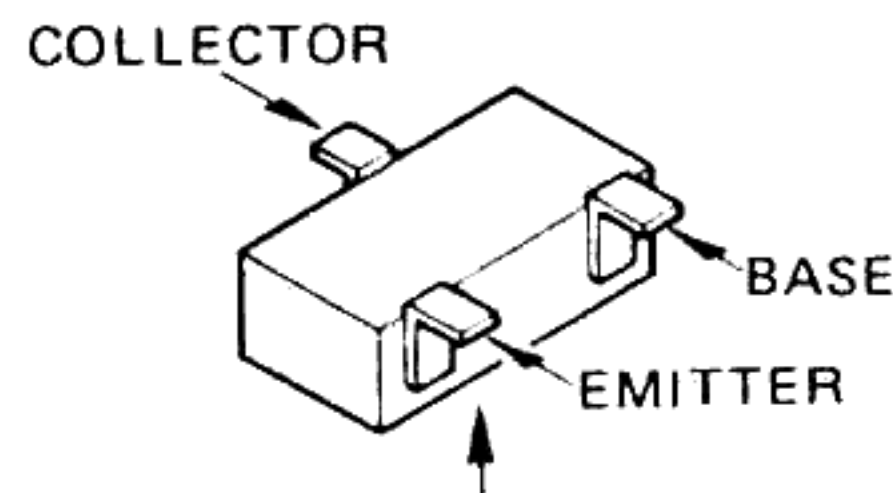


2SC2026 (Q2001)



Marked Surface

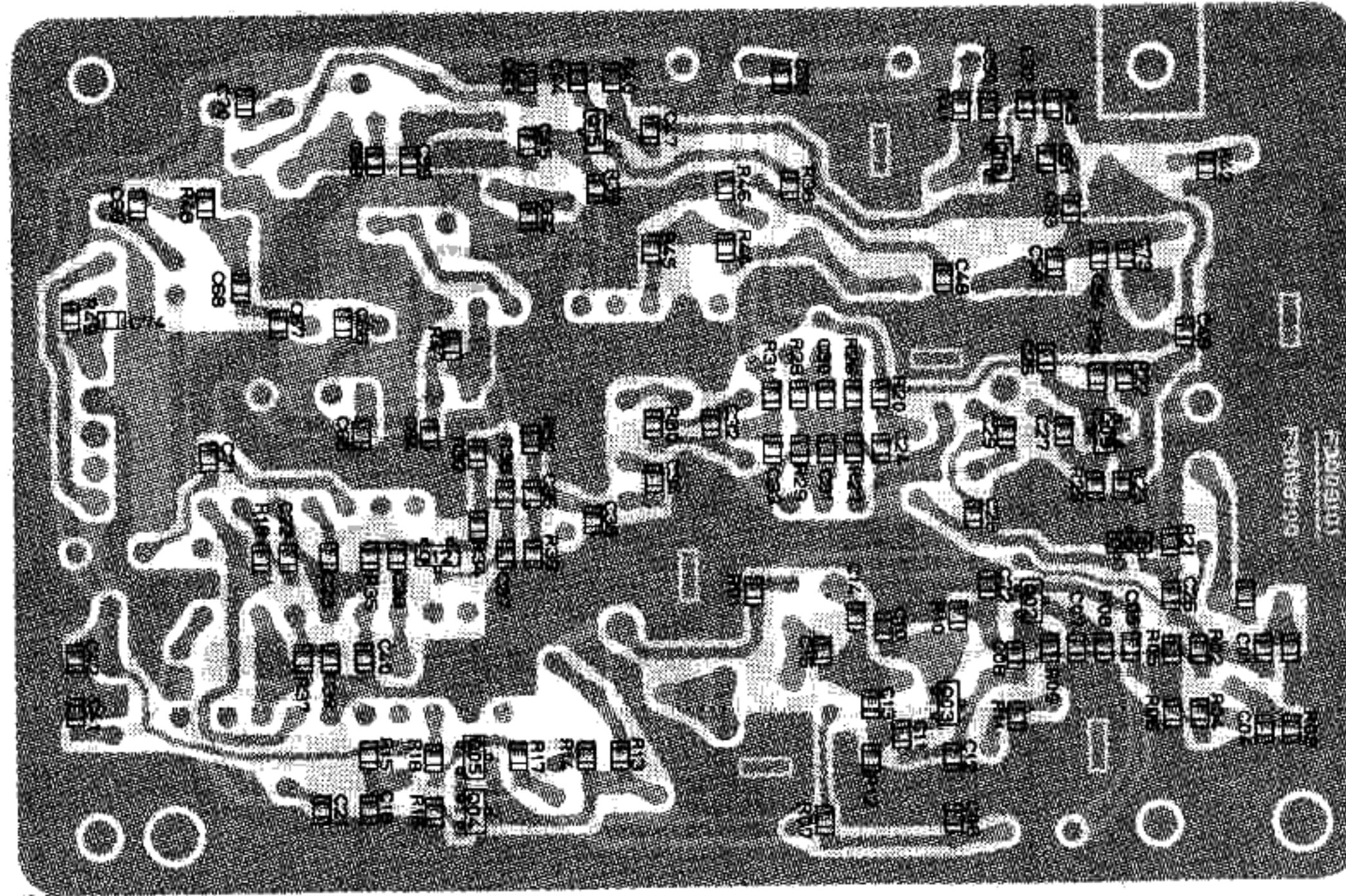
2SK210GR (YG)
(Q2002,2003,2008,
2015,2016)



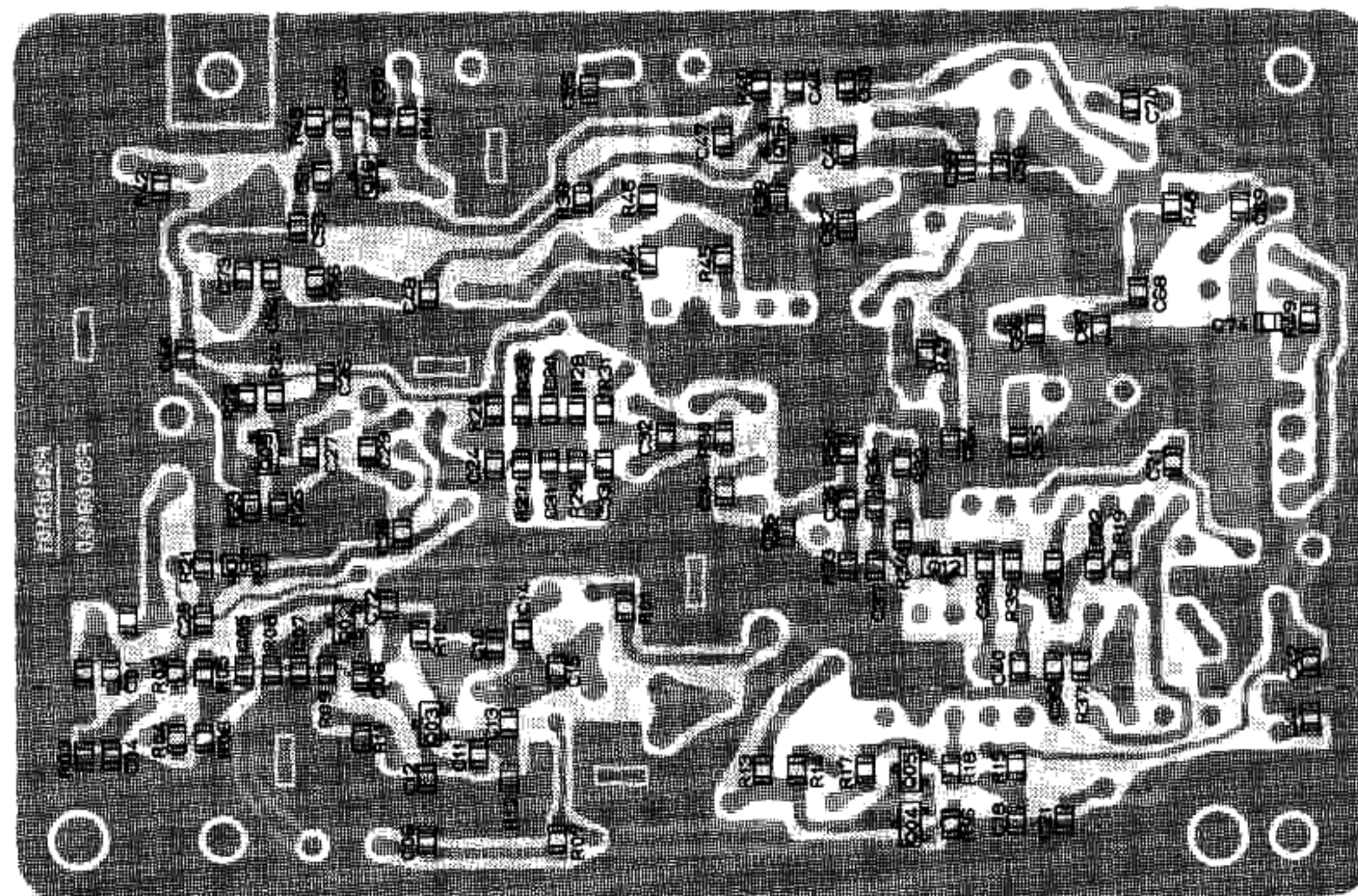
Marked Surface

2SC2620 (QB)
(Q2009,2012)
2SC2712GR (LG)
(Q2004,2005)

FEX-767-2 PLL UNIT PARTS LAYOUT



(Obverse view of "chip" side)

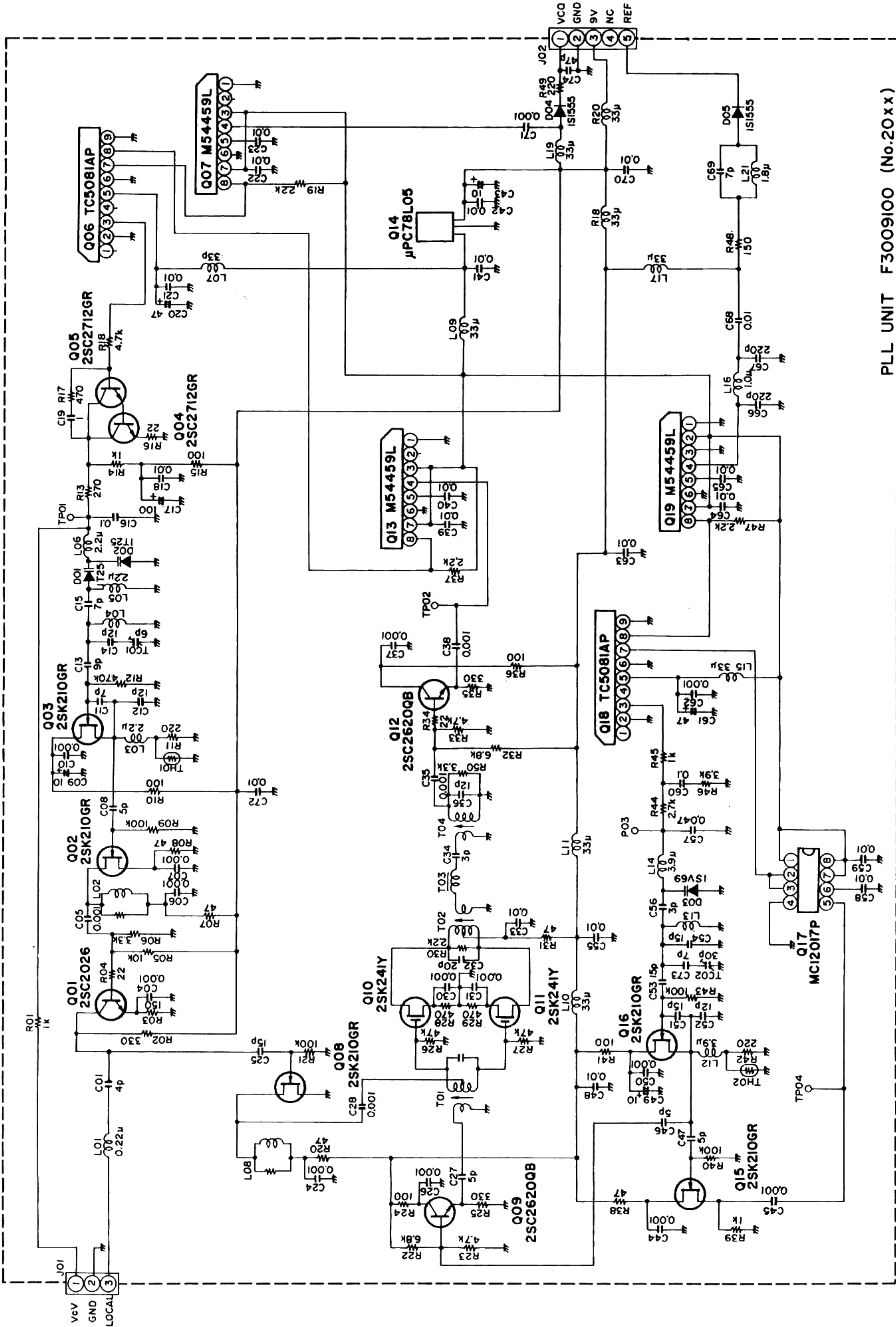


(Reverse view of "chip" side)

FEX-767-2 PLL UNIT VOLTAGE CHART (DC VOLT)

| | E (S) | C (D) | B (G) | REMARKS |
|-------|-------|-------|-------|---------|
| Q2001 | 5.05 | 1.11 | 1.84 | |
| Q2002 | 0.25 | 8.52 | 0 | |
| Q2003 | 0.82 | 8.29 | 0 | |
| Q2004 | 0 | 5.03 | 0.10 | |
| Q2005 | 0.21 | 5.03 | 0.10 | |
| Q2008 | 0 | 8.30 | -0.30 | |
| Q2009 | 2.47 | 7.96 | 3.24 | |
| Q2010 | 0.99 | 8.54 | 0 | |
| Q2011 | 1.00 | 8.50 | 0 | |
| Q2012 | 2.48 | 8.02 | 3.26 | |
| Q2015 | 2.12 | 8.63 | 0 | |
| Q2016 | 0.89 | 8.16 | 0 | |

FEX-767-2 PLL UNIT CIRCUIT DIAGRAM



PLL UNIT F3009100 (No.20xx)

RESISTOR VALUES ARE IN Ω, 1/10W;
CAPACITOR VALUES ARE IN μF, 50V;
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16V;
AND INDUCTOR VALUES ARE IN H;
UNLESS OTHERWISE NOTED.

FEX-767-2 PLL UNIT ALIGNMENT

(1) Sub Loop VCV (Varactor Control Voltage)

Connect the high-impedance DC voltmeter to TP2003, and the frequency counter to TP2004. Adjust TC2002 for $2.0 \pm 0.1V$, and confirm $120 \text{ MHz} \pm 1 \text{ kHz}$ on the counter.

(2) Main Loop VCV

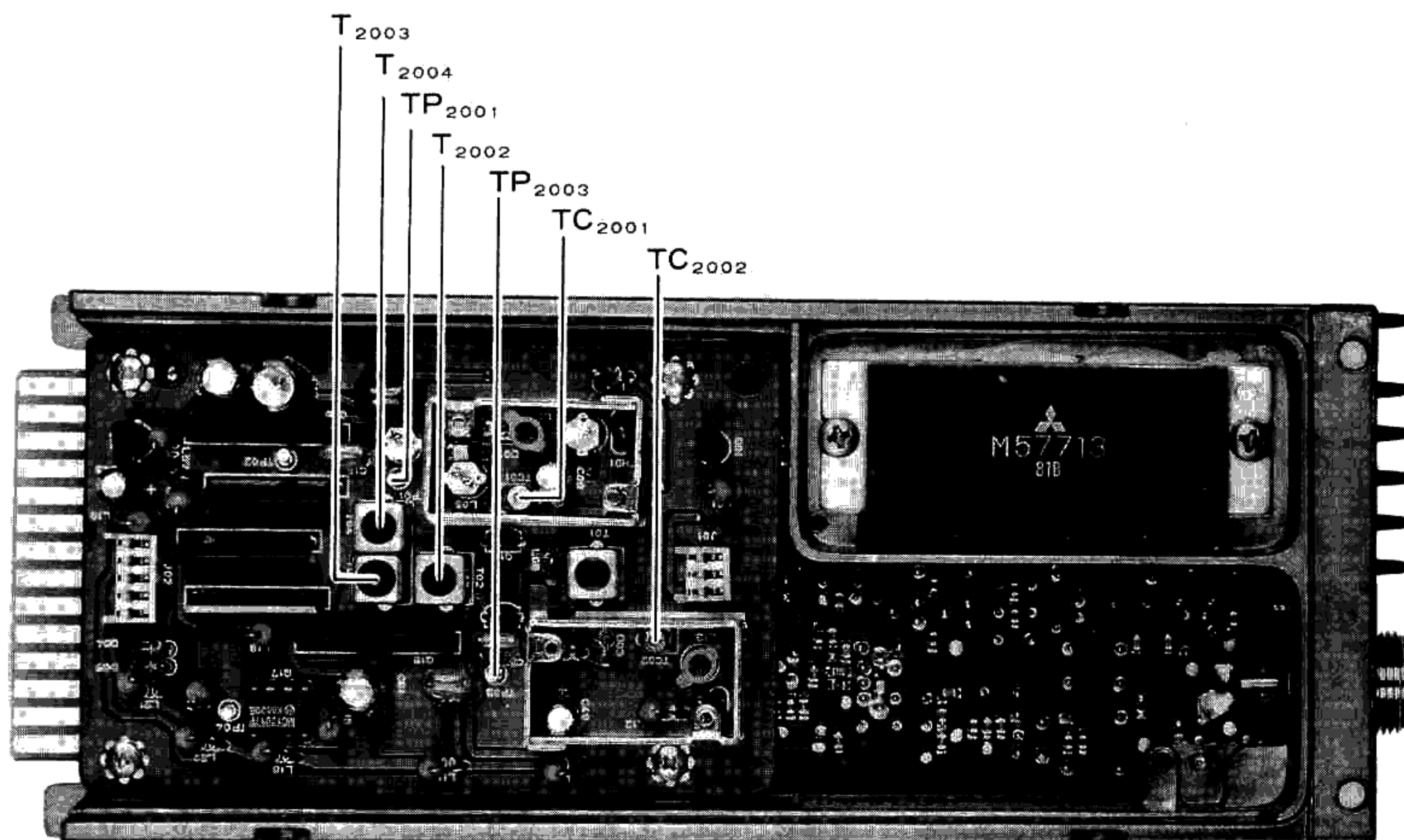
Tune to the high edge of the band and connect the high impedance DC voltmeter to TP2001. Adjust TC2001 for $8.2 \pm 0.1V$ on the meter. Retune to the low edge of the band and confirm 1 to 2V.

(3) PLL Output Level

Connect the RF millivoltmeter to TP2002. Tune to the center of the band and adjust T2001 for maximum RF. Then retune as indicated below, adjusting each transformer for maximum RF above the levels indicated.

| <u>Frequency</u> | <u>Transformer</u> | <u>Min. Level</u> |
|------------------|--------------------|-------------------|
| Low Edge | T2003 | 100 mVrms |
| Band Center | T2002 | 100 mVrms |
| High Edge | T2004 | 80 mVrms |

Repeat the adjustments at each frequency several times.



FEX-767-2 PLL UNIT ALIGNMENT POINTS

FEX-767-2 PLL UNIT PARTS LIST

| PLL UNIT | | Printed Circuit Board | | PCB w/components | |
|----------|-----------|-----------------------|-----------------|------------------|--|
| Q 2001 | G3320260 | Transistor | 2SC2026 | | |
| Q 2002 | G3802107G | FET | 2SK210GR TE85R | | |
| Q 2003 | G3802107G | FET | 2SK210GR TE85R | | |
| Q 2004 | G3327127G | Transistor | 2SC2712GR TE85R | | |
| Q 2005 | G3327127G | Transistor | 2SC2712GR TE85R | | |
| Q 2006 | G1090473 | IC | TC5081AP | | |
| Q 2007 | G1090838 | IC | M54459L | | |
| Q 2008 | G3802107G | FET | 2SK210GR TE85R | | |
| Q 2009 | G3326207B | Transistor | 2SC2620 QBTR | | |
| Q 2010 | G3802410Y | FET | 2SK241Y | | |
| Q 2011 | G3802410Y | FET | 2SK241Y | | |
| Q 2012 | G3326207B | Transistor | 2SC2620 QBTR | | |
| Q 2013 | G1090838 | IC | M54459L | | |
| Q 2014 | G1090848 | IC | uPC78L05J | | |
| Q 2015 | G3802107G | FET | 2SK210GR TE85R | | |
| Q 2016 | G3802107G | FET | 2SK210GR TE85R | | |
| Q 2017 | G1090725 | IC | MC12017P | | |
| Q 2018 | G1090473 | IC | TC5081AP | | |
| Q 2019 | G1090697 | IC | M54455L | | |
| D 2001 | G2090107 | Diode | 1T25 | | |
| D 2002 | G2090107 | Diode | 1T25 | | |
| D 2003 | G2090109 | Diode | 1SV69 | | |
| D 2004 | G2015550 | Diode | 1S1555 | | |
| D 2005 | G2015550 | Diode | 1S1555 | | |
| TH 2001 | G9090008 | Thermistor | 112102-2 | | |
| TH 2002 | G9090008 | Thermistor | 112102-2 | | |
| R 2001 | J24205102 | RES. Chip | 1k Ohm | 1/10W | |
| R 2002 | J24205331 | RES. Chip | 330 Ohm | 1/10W | |
| R 2003 | J24205151 | RES. Chip | 150 Ohm | 1/10W | |
| R 2004 | J24205220 | RES. Chip | 22 Ohm | 1/10W | |
| R 2005 | J24205103 | RES. Chip | 10k Ohm | 1/10W | |
| R 2006 | J24205332 | RES. Chip | 3.3k Ohm | 1/10W | |
| R 2007 | J24205470 | RES. Chip | 47 Ohm | 1/10W | |
| R 2008 | J24205470 | RES. Chip | 47 Ohm | 1/10W | |
| R 2009 | J24205104 | RES. Chip | 100k Ohm | 1/10W | |
| R 2010 | J24205101 | RES. Chip | 100 Ohm | 1/10W | |
| R 2011 | J24205221 | RES. Chip | 220 Ohm | 1/10W | |
| R 2012 | J24205474 | RES. Chip | 470k Ohm | 1/10W | |
| R 2013 | J24205271 | RES. Chip | 270 Ohm | 1/10W | |
| R 2014 | J24205102 | RES. Chip | 1k Ohm | 1/10W | |
| R 2015 | J24205101 | RES. Chip | 100 Ohm | 1/10W | |
| R 2016 | J24205220 | RES. Chip | 22 Ohm | 1/10W | |
| R 2017 | J24205471 | RES. Chip | 470 Ohm | 1/10W | |
| R 2018 | J24205472 | RES. Chip | 4.7k Ohm | 1/10W | |
| R 2019 | J24205222 | RES. Chip | 2.2k Ohm | 1/10W | |
| R 2020 | J24205470 | RES. Chip | 47 Ohm | 1/10W | |
| R 2021 | J24205104 | RES. Chip | 100k Ohm | 1/10W | |
| R 2022 | J24205682 | RES. Chip | 6.8k Ohm | 1/10W | |
| R 2023 | J24205472 | RES. Chip | 4.7k Ohm | 1/10W | |
| R 2024 | J24205101 | RES. Chip | 100 Ohm | 1/10W | |
| R 2025 | J24205331 | RES. Chip | 330 Ohm | 1/10W | |

| | | | | | |
|--------|-----------|------------------|----------|-------|----|
| R 2026 | J24205473 | RES. Chip | 47k Ohm | 1/10W | |
| R 2027 | J24205473 | RES. Chip | 47k Ohm | 1/10W | |
| R 2028 | J24205471 | RES. Chip | 470 Ohm | 1/10W | |
| R 2029 | J24205471 | RES. Chip | 470 Ohm | 1/10W | |
| R 2030 | J24205222 | RES. Chip | 2.2k Ohm | 1/10W | |
| R 2031 | J24205470 | RES. Chip | 47 Ohm | 1/10W | |
| R 2032 | J24205682 | RES. Chip | 6.8k Ohm | 1/10W | |
| R 2033 | J24205472 | RES. Chip | 4.7k Ohm | 1/10W | |
| R 2034 | J24205220 | RES. Chip | 22 Ohm | 1/10W | |
| R 2035 | J24205331 | RES. Chip | 330 Ohm | 1/10W | |
| R 2036 | J24205101 | RES. Chip | 100 Ohm | 1/10W | |
| R 2037 | J24205222 | RES. Chip | 2.2k Ohm | 1/10W | |
| R 2038 | J24205470 | RES. Chip | 47 Ohm | 1/10W | |
| R 2039 | J24205102 | RES. Chip | 1k Ohm | 1/10W | |
| R 2040 | J24205104 | RES. Chip | 100k Ohm | 1/10W | |
| R 2041 | J24205101 | RES. Chip | 100 Ohm | 1/10W | |
| R 2042 | J24205221 | RES. Chip | 2.2k Ohm | 1/10W | |
| R 2043 | J24205104 | RES. Chip | 100k Ohm | 1/10W | |
| R 2044 | J24205272 | RES. Chip | 2.7k Ohm | 1/10W | |
| R 2045 | J24205102 | RES. Chip | 1k Ohm | 1/10W | |
| R 2046 | J24205392 | RES. Chip | 3.9k Ohm | 1/10W | |
| R 2047 | J24205222 | RES. Chip | 2.2k Ohm | 1/10W | |
| R 2048 | J24205151 | RES. Chip | 150 Ohm | 1/10W | |
| R 2049 | J24205221 | RES. Chip | 220 Ohm | 1/10W | |
| R 2050 | J24205332 | RES. Chip | 3.3k Ohm | 1/10W | |
| C 2001 | K22170205 | CAP. Chip | 4pF | 50V | CH |
| C 2004 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2005 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2006 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2007 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2008 | K22170206 | CAP. Chip | 5pF | 50V | B |
| C 2009 | K40129004 | AL. Electro CAP. | 10uF | 16V | CH |
| C 2010 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2011 | K22170208 | CAP. Chip | 7pF | 50V | CH |
| C 2012 | K22170213 | CAP. Chip | 12pF | 50V | CH |
| C 2013 | K22170210 | CAP. Chip | 9pF | 50V | CH |
| C 2014 | K22170213 | CAP. Chip | 12pF | 50V | CH |
| C 2015 | K22170208 | CAP. Chip | 7pF | 50V | CH |
| C 2016 | K50170017 | Mylar CAP. | 0.047uF | 50V | B |
| C 2017 | K40129007 | AL. Electro CAP. | 100uF | 16V | CH |
| C 2018 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2019 | K52170002 | Mylar CAP. | 1uF | 50V | B |
| C 2020 | K40129002 | AL. Electro CAP. | 47uF | 16V | CH |
| C 2021 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2022 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2023 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2024 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2025 | K22170215 | CAP. Chip | 15pF | 50V | CH |
| C 2026 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2027 | K22170206 | CAP. Chip | 5pF | 50V | B |
| C 2028 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2029 | K22170209 | CAP. Chip | 8pF | 50V | CH |
| C 2030 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2031 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2032 | K22170219 | CAP. Chip | 22pF | 50V | CH |
| C 2033 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2034 | K22170204 | CAP. Chip | 3pF | 50V | CH |
| C 2035 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2036 | K22170219 | CAP. Chip | 22pF | 50V | CH |
| C 2037 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2038 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2039 | K22170817 | CAP. Chip | 0.01uF | 50V | B |

| | | | | | |
|--------|-----------|------------------|---------|-----|----|
| C 2040 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2041 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2042 | K22170817 | CAP. Chip | 0.01uF | 50V | B |
| C 2043 | K40129004 | AL. Electro CAP. | 10uF | 16V | CH |
| C 2044 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| C 2045 | K22170805 | CAP. Chip | 0.001uF | 50V | B |
| T 2003 | L0020963 | Coil | | | |
| T 2004 | L0021646 | Coil | | | |

FEX-767-2 PLL UNIT PARTS LIST

| Part No. | Part Description | Quantity | Notes |
|----------|------------------|----------|-----------------|
| C 2039 | CAP. Chip | 0.001uF | 50V B |
| C 2039 | CAP. Chip | 0.01uF | 50V B |
| T 2003 | Coil | L0020963 | 132MHZ |
| T 2004 | Coil | L0021646 | 132MHZ |
| J 2001 | Connector | P1090425 | 5124-03BHPB |
| J 2002 | Connector | P1090427 | 5124-05BHPB |
| | Terminal Posts | Q5000050 | TP-K |
| | Shield Case | R0115290 | Shield Case Lid |
| | Shield Case Lid | R0115300 | Shield Case Lid |

| Part No. | Part Description | Quantity | Notes |
|----------|------------------|----------|--------|
| C 2040 | CAP. Chip | 0.01uF | 50V B |
| C 2041 | CAP. Chip | 0.01uF | 50V B |
| C 2042 | CAP. Chip | 0.01uF | 50V B |
| C 2043 | AL.Electro CAP. | 10uF | 16V B |
| C 2044 | CAP. Chip | 0.001uF | 50V B |
| C 2045 | CAP. Chip | 0.001uF | 50V B |
| C 2046 | CAP. Chip | 5pF | 50V CH |
| C 2047 | CAP. Chip | 5pF | 50V CH |
| C 2048 | CAP. Chip | 0.01uF | 50V B |
| C 2049 | AL.Electro CAP. | 10uF | 16V B |
| C 2050 | CAP. Chip | 0.001uF | 50V CH |
| C 2051 | CAP. Chip | 15pF | 50V CH |
| C 2052 | CAP. Chip | 12pF | 50V CH |
| C 2053 | CAP. Chip | 15pF | 50V CH |
| C 2054 | CAP. Chip | 12pF | 50V CH |
| C 2055 | CAP. Chip | 0.01uF | 50V B |
| C 2056 | CAP. Chip | 3pF | 50V CH |
| C 2057 | Mylar CAP. | 0.01uF | 50V B |
| C 2058 | CAP. Chip | 0.01uF | 50V B |
| C 2059 | CAP. Chip | 0.01uF | 50V B |
| C 2060 | Mylar CAP. | 0.1uF | 50V B |
| C 2061 | AL.Electro CAP. | 47uF | 16V B |
| C 2062 | CAP. Chip | 0.001uF | 50V B |
| C 2063 | CAP. Chip | 0.01uF | 50V B |
| C 2064 | CAP. Chip | 0.01uF | 50V B |
| C 2065 | CAP. Chip | 0.01uF | 50V B |
| C 2066 | CAP. Chip | 220pF | 50V CH |
| C 2067 | CAP. Chip | 220pF | 50V CH |
| C 2068 | CAP. Chip | 0.01uF | 50V B |
| C 2069 | CAP. Chip | 7pF | 50V CH |
| C 2070 | CAP. Chip | 0.01uF | 50V B |
| C 2071 | CAP. Chip | 0.001uF | 50V B |
| C 2072 | CAP. Chip | 0.01uF | 50V B |
| TC 2001 | Trimmer CAP. | 6pF | |
| TC 2002 | Trimmer CAP. | 6pF | |
| L 2001 | M.RFC | 0.22uH | |
| L 2002 | RFC | | |
| L 2003 | M.RFC | 2.2uH | |
| L 2004 | Coil | | |
| L 2005 | M.RFC | 2.2uH | |
| L 2006 | M.RFC | 2.2uH | |
| L 2007 | M.RFC | 33uH | |
| L 2008 | RFC | | |
| L 2009 | M.RFC | 33uH | |
| L 2010 | M.RFC | 33uH | |
| L 2011 | M.RFC | 33uH | |
| L 2012 | M.RFC | 3.9uH | |
| L 2013 | Coil | | |
| L 2014 | M.RFC | 3.9uH | |
| L 2015 | M.RFC | 33uH | |
| L 2016 | M.RFC | 1.0uH | |
| L 2017 | M.RFC | 33uH | |
| L 2018 | M.RFC | 33uH | |
| L 2019 | M.RFC | 33uH | |
| L 2020 | M.RFC | 33uH | |
| L 2021 | M.RFC | 1.8uH | |
| T 2001 | Coil | | 145MHZ |
| T 2002 | Coil | | 132MHZ |