INSTRUCTION MANUAL

FT-625RD
FT-625R

YAESU MUSEN CO , LTD.

TOKYO JAPAN.

ALL-MODE 6M MEMORY TRANSCEIVER

FT-625RD, FT-625R

GENERAL

The FT-625RD is a high performance, all solid state transceiver for the most discriminating six meter operators. Covering the entire 50-54 MHz range in four bands of 1 MHz each, the FT-625RD features digital plus analog readout of the operating frequency on all modes of operation: SSB, CW, AM, and FM. An economy version, the FT-625R, includes a 100 kHz crystal calibrator for alignment of the analog display.

Yaesu's exciting memory system, which provides storage and recall of any transmit, receive, or transceive frequency, is an available option for your FT-625RD. Also optional is a 600 Hz CW filter which may be used **in addition to** the normal 2.4 kHz bandwidth for CW.

Built into every FT-625RD are an RF speech processor, a high-performance noise blanker, VOX, semi-break-in CW with sidetone, and offset tuning (clarifier) for both receive and transceive frequencies. Also included is an automatic mic gain control (AMGC), which will act as a microphone squelch to minimize transmission of random noises in the operating room.

For FM enthusiasts, the FT-625RD includes ± 1 MHz repeater split, and an auxiliary split may be used via an optional crystal. Tone burst and a discriminator center meter are included for maximum versatility.

A front panel control will vary the power output up to the maximum of 25 watts output. For energy conservation or nighttime mobile operation, the front panel lamps and digital display may be dimmed by pressing a front panel switch. Rear panel connections for relay control, ALC input, PTT (footswitch), CW key, and external speaker allow full interface with peripheral station equipment.

All circuits are fully solid state, and computer-type plug-in circuit boards are used for increased reliability and ease of maintenance. The FT-625RD is entirely self-contained, requiring only an antenna and power source for operation. The FT-625RD is normally supplied for 117 VAC (USA model) or 13.6 VDC operation, but the AC transformer may easily be rewired for operation from 100/110/117/200/220/234 VAC. Two power cords are supplied with the FT-625RD; selection of the power source is automatically made when the proper cord is inserted into the rear panel receptacle.

The transceiver weighs approximately 9 kg, and is 280 mm wide, 125 mm high, and 315 mm deep. Heavy-duty construction provides an extremely rugged package which is virtually immune to the effects of shock and vibration encountered in mobile service.

SPECIFICATIONS

GENERAL

Frequency range : 50–51 MHz 52–53 MHz
51–52 MHz 53–54 MHz

Frequency readout : Digital readout to 0.1 kHz, analog display resolution better than 1 kHz.

Modes of operation : USB, LSB, CW, AM, FM.

Frequency stability : Within 100 Hz during any 30 minute period after warmup. Not more than 20 Hz with 10% line voltage variation.

Intermediate frequencies : First IF = 10.81 MHz
Second IF = 455 kHz (AM/FM only)

Antenna impedance : 50 ohms unbalanced

Repeater split : 1 MHz installed, any split up to 4 MHz possible using optional crystal.

Power requirements : AC 100/110/117/200/220/234 Volts, 50/60 Hz
DC 13.8 Volts, negative ground

Power consumption : AC Receive 35 VA DC Receive 0.7 A
Transmit 135 VA Transmit 7.0 A 50% duty cycle

Size : 280(W) x 125(H) x 300(D) mm.

Weight : Approximately 9 kg.

RECEIVER

Sensitivity : SSB/CW 0.5 μV for S/N 20 dB
AM 0.5 μV for S/N 10 dB (400 Hz 30% mod.)
FM 0.35 μV for 20 dB QS

Selectivity : SSB/CW-W : 2.4 kHz @ –6 dB, 4.1 kHz @ –60 dB
*** CW-N : 600 Hz @ –6 dB, 1.6 kHz @ –60 dB
AM : 4 kHz @ –6 dB, 15 kHz @ –60 dB
FM : 15 kHz @ –6 dB, 32 kHz @ –60 dB

*** With optional CW filter installed.

Image response : Better than –60 dB.

Spurious response : Better than 1 μV at antenna input.

Audio output impedance : 4 ohms nominal.

Audio output : 2 watts @ 10% THD.

TRANSMITTER

Audio response : 300–2700 Hz, –6 dB

Carrier suppression : –40 dB or better.

Unwanted sideband suppression: –40 dB or better.

Spurious radiation : –60 dB or better.

FM deviation : Factory set at ± 5 kHz.

Power output : SSB/CW/FM 25 watts
AM 8 watts

SEMICONDUCTOR COMPLEMENT

Integrated Circuits:

F4011	1	TA7060P	1
MC1496G	2	TA7063P	1
MC14011B	5	TC5032P	1
MC14069B	1	μPC577H	1
MSM561	1	μPC1037H	1
MSM5564	1	μPC14305	1
MSM5576	1	μPC14308	1
SN75453	3	μPC14308S	1
SN76514N	1		

Germanium Diodes:

1S188FM	15	1S1007(GB)	16

Silicon Diodes:

1S1209	1	MC301	4
1S1555	59	U05B	1
10D1	18	S15VB10	1

Silicon Varistors:

MV-103	5	MV-5W	1

Varactor Diodes:

1S2209	16

Field Effect Transistors:

2SK19GR	9	3SK51	2
2SK30AY	2	3SK59Y	11
3SK40M	3		

Transistors:

2SA496	1	2SC735Y	1
2SA564AR	2	2SC784R	2
2SA695D	1	2SC784BN	1
2SB529	1	2SC1815Y	41
2SC372Y	14	2SC1945D	1
2SC373	6	2SC2053	1
2SC496	7	2SC2099	2
2SC4960	1	2SD313	1
2SC710	2	2SD359	1
2SC711D	1	MJ802	1
2SC730	1	MPS-A13	1

Zener Diodes:

WZ034	1	WZ090	1

Light Emitting Diodes:

GD4-203SRD	11

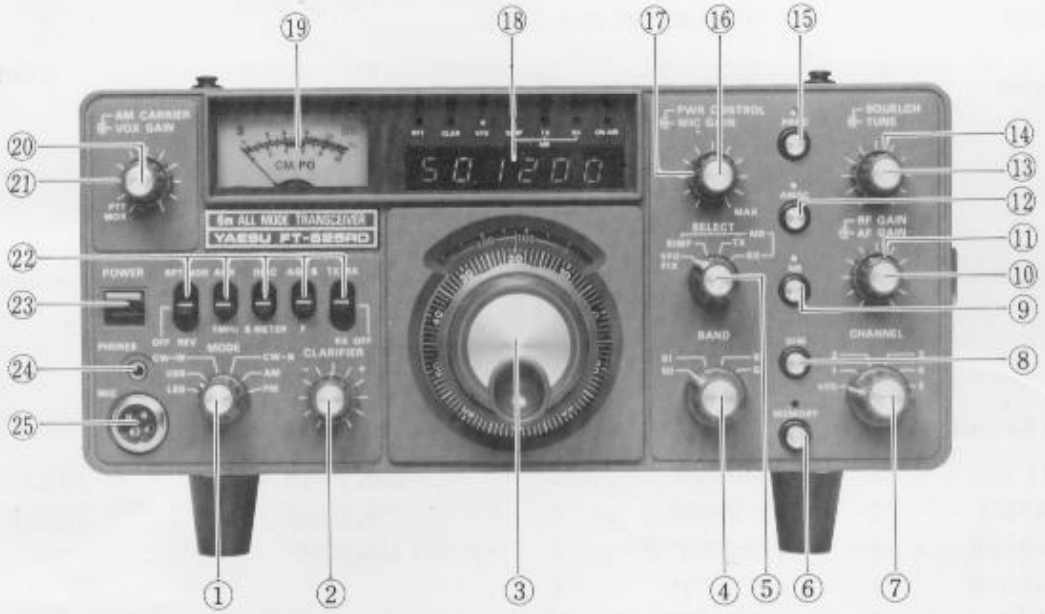
LED Display

5082-7740	6

Specifications subject to change without notice.

CONTROLS AND SWITCHES

This transceiver has been specifically designed for ease of operation and versatility. All internal controls have been carefully preset at the factory. The operator may, however, be unfamiliar with operation of some of the controls, and improper adjustment thereof may result in poor transceiver performance. The various front panel controls and switches are described in the following section, and the operator should become familiar with the function of every control before attempting transceiver operation.



(1) MODE SWITCH

This switch chooses the mode of operation: LSB, USB, CW-W (SSB bandwidth). CW-N (using optional 600 Hz CW filter), AM, and FM.

(2) CLARIFIER

The clarifier allows offsetting of the transceive or receive frequency ±4 kHz from the operating frequency established by the main tuning dial.

(3) MAIN TUNING DIAL

The main tuning control is a dual rate, double-shaft mechanism which provides for both fast and slow tuning rates. The main dial skirt is calibrated in 1 kHz increments, and the analog dial window is calibrated in 100 kHz increments. Determination of the 1 MHz band segment is made by the BAND switch.

(4) BAND SWITCH

The BAND switch selects one of the four 1 MHz segments of the six-meter band.

(5) SELECT SWITCH

This switch selects frequency control between the VFO/FIX mode and memory (optional) control of the transmit, receive, or transceive frequency.

(6) MEMORY

When the optional memory unit is installed, a new frequency may be stored in memory by pressing the MEMORY switch.

(7) CHANNEL

This switch selects between VFO control or one of the 5 crystal controlled positions available per band.

(8) DIM

This switch, when pressed, dims the front panel lamps and digital display for reduced power consumption or nighttime mobile operation. In the analog FT-625R, this is the MARK switch, which actuates the 100 kHz crystal calibrator.

(9) NB

This switch, when pressed, activates the noise blanker for elimination of pulse-type noise.

(10) AF GAIN

The AF GAIN control adjusts the audio output to the speaker and headphones. Clockwise rotation increases the audio output level.

(11) RF GAIN

The RF GAIN control varies the gain of the receiver RF and IF amplifiers. Maximum sensitivity is obtained when the control is set to the fully clockwise position.

(12) AMGC

The Automatic Mic Gain Control acts as a "microphone squelch" to prevent output from the microphone amplifier stage unless a preset level of input from the microphone is present. Thus, minor noises can exist in the operating room without their going on the air.

(13) TUNE

The TUNE control peaks all transceiver circuits for the frequency being used.

(14) SQUELCH

This control adjusts the FM receiver squelch threshold level.

(15) PROC

This switch activates the RF speech processor.

(16) MIC GAIN

This control varies the output from the microphone amplifier stage for AM and SSB operation, and it has suffucient range to permit the use of any quality dynamic microphone having an impedance of 500 to 600 ohms.

(17) PWR CONTROL

This control is used to vary the output from the transmitter.

(18) DIAL AND DISPLAY

Frequency readout is by means of the digital and analog displays. The digital display reads out all digits of the operating frequency, with resolution to 100 Hz. The analog sub-dial is calibrated every 100 kHz, and the BAND switch and main dial skirt are used to establish the precise operating frequency.

(19) METER

The meter reads out signal strength or FM discriminator center current on receive, and relative power output on transmit.

(20) VOX GAIN

The VOX GAIN control selects between PTT and MOX (manual transmit)operation, as well as setting the VOX sensitivity.

(21) AM CARRIER

This control sets the AM carrier level.

(22) SWITCHES

RPT NOR/REV

This switch is used for operation on non-standard repeaters. In the NOR position, the transmit frequency is shifted 1 MHz lower. In the REV position, the receive frequency is shifted 1 MHz lower.

AUX/1 MHz

This switch selects the normal 1 MHz repeater split or an auxiliary split established by means of an optional crystal.

DISC/S METER

This switch selects between meter indication of discriminator center current or signal strength on receive.

AGC F/S

This switch selects between fast or slow AGC response.

CLARIFIER

The CLARIFIER switch selects between transceive (TX RX) or receive (RX) frequency offset using the clarifier control. In the center (horizontal) position, the clarifier is turned off.

(23) POWER

This is the main ON/OFF switch for both AC and DC operation.

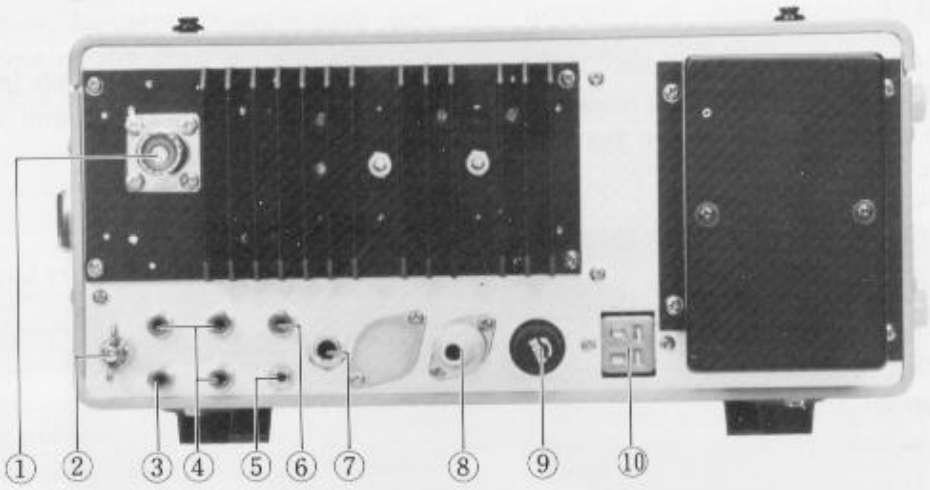
(24) PHONES

This is a miniature phone jack for use of headphones or a speaker. The internal speaker is disabled when a plug is inserted into this jack.

(25) MIC

This is a four-conductor jack for microphone and PTT connections.

REAR PANEL CONNECTIONS



REAR PANEL CONNECTIONS

(1) ANT

UHF female coaxial connector for antenna input.

(2) GND

Ground connection.

(3) ALC

ALC (automatic level control) input from linear amplifier, etc.

(4) RELAY CONNECTIONS: COM, MAKE, BREAK

These are relay connections for control of station equipment.

(5) SP

External speaker audio output. Audio output impedance is 4 ohms.

(6) PTT

This is used for activating the transceiver push-to-talk circuitry, should the operator be using a foot-switch, etc. This jack is in parallel with the mic jack PTT connection as well as the TONE IN PTT connection.

(7) KEY

Key jack for CW operation.

(8) TONE IN

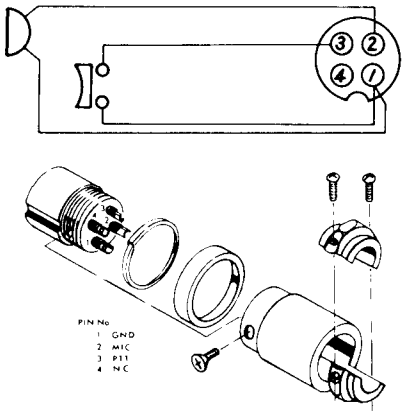
This is a tone pad input jack. Refer to the drawing for tone input, speaker, PTT, and DC connections.

(9) FUSE

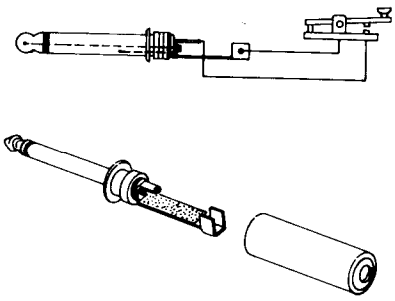
Fuse holder. For AC operation, a 3 amp fuse is used on 100/110/117 volts, and a 2 amp fuse is used for 200/220/234 volt operation. For DC operation, a 10 amp fuse is located in the DC power cord. When replacing fuses, be certain to replace the blown fuse with one of the proper rating. WARRANTY DOES NOT COVER DAMAGE CAUSE BY IMPROPER FUSE REPLACEMENT.

(10) POWER

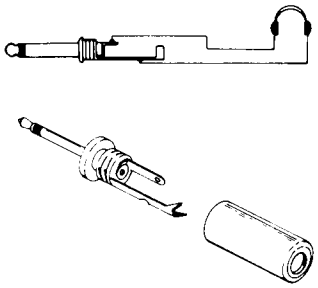
Both AC and DC cables are connected to this receptacle. They are both supplied with the transceiver.



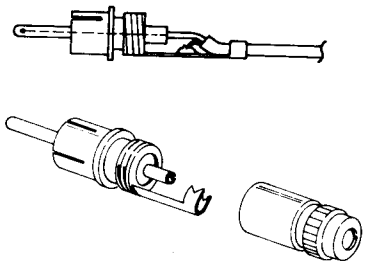
Microphone Connector



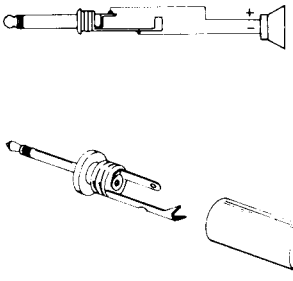
Key Plug



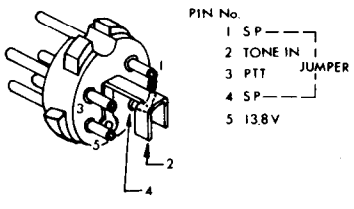
Headphone Plug



Phono Plug



Speaker Plug



Tone In Plug

INSTALLATION

GENERAL

The FT-625RD has been designed primarily for base station service, requiring only an antenna and power source. However, the transceiver provides for efficient mobile operation. The FT-625RD has been factory pre-tuned, and requires no alignment for operation into a 50 ohm load.

The antenna and its location are of critical importance in both fixed and mobile operation. In many cases, communications effectiveness is directly related to antenna height. The antenna should be as high and in the clear as possible, and a minimum separation of 5 feet should be maintained between VHF and other antennas. In mobile operation, it is desirable to locate the antenna as far away from the engine as possible, so as to minimize noise pickup from the ignition system.

For base station operation, the most popular antennas for DX work are the various multielement Yagi arrays, used singly or in stacked systems. Most DX work is done using horizontal polarization, while mobile antennas invariably are vertical. If much work is done with FM and/or mobile stations, some sort of vertical antenna should be used to avoid cross-polarization loss of signal.

To minimize loss in the antenna system, do not economize on coaxial cable, and use the shortest length of cable which is practicable, avoiding sharp angles or kinks. Type RG8A/U is suitable for line lengths exceeding 25 feet, while type RG58A/U may be used for mobile installations. For extremely long runs, type RG-17A/U, air-dielectric "heliax", or aluminum-jacketed foam-dielectric coax may be required. If you are using an amplifier with this transceiver, check the coaxial cable manufacturer's specifications to make sure that it is capable of handling your power level.

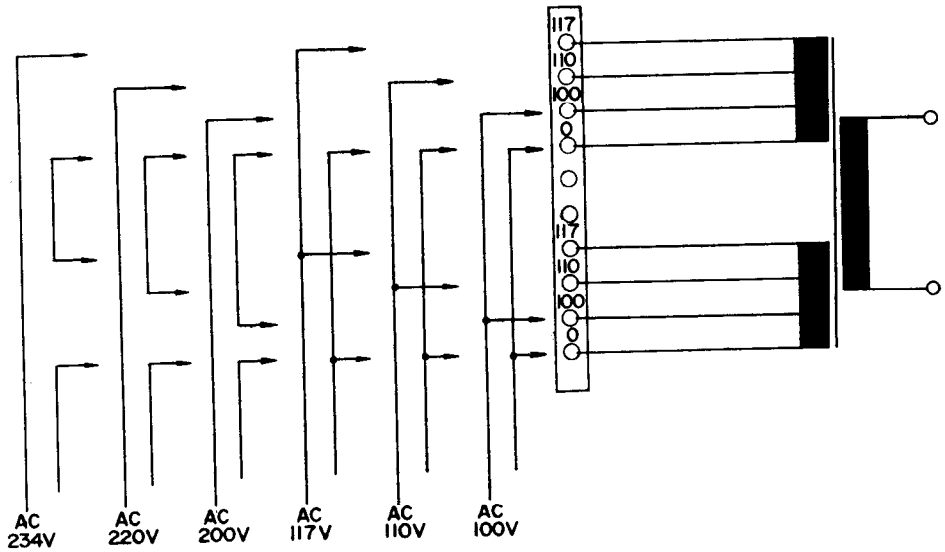
BASE STATION INSTALLATION

The FT-625RD is designed for use in many parts of the world, where the AC supply voltage may differ from the operator's local supply voltage. Therefore, **before connecting the AC cord to the power outlet, be absolutely certain that the voltage marked on the rear of the transceiver agrees with the local AC supply voltage.** If not, please refer to the transformer primary winding chart for the proper connections.

CAUTION

PERMANENT DAMAGE WILL RESULT IF IMPROPER AC SUPPLY VOLTAGE IS APPLIED TO THE TRANSCEIVER. OUR WARRANTY DOES NOT COVER THE DAMAGE CAUSED BY APPLICATION OF IMPROPER SUPPLY VOLTAGE.

Be sure that a proper fuse is used for the local supply voltage. For 100/110/117 volts, use a 3 amp fuse, and for 200/220/234 volts, use a 2 amp fuse.



POWER TRANSFORMER PRIMARY CONNECTIONS

CAUTION

IMPROPER FUSE REPLACEMENT CAN CAUSE PERMANENT DAMAGE IN THE EVENT OF UNUSUAL OPERATING CONDITIONS. OUR WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER FUSE REPLACEMENT.

The transceiver should be connected to a good ground through a heavy braided cable. The ground lead should be connected to the terminal marked GND on the rear panel.

It is recommended that excessively warm locations be avoided. The transceiver should be situated so that adequate air circulation through cabinet openings is possible.

MOBILE INSTALLATION

The transceiver will operate satisfactorily from any 12 volt negative ground battery source by connecting the DC power cord to the rear panel receptacle. In the car, a location should be selected that is clear of heater ducts to protect it from excessive heat. No special mounting precautions need to be observed if adequate ventilation is available. A minimum of two inches of air space is recommended to allow proper air flow around the transceiver. You may put it on the seat but be sure there is clearance between the cabinet bottom and the seat. Since the transceiver requires an average of 7 A on transmit, the fuse in the DC power cable should be rated for 10 amps.

When making connections to the car battery, be certain that the RED lead is connected to the positive (+) terminal and the BLACK lead is connected to the negative (−) terminal of the battery. Reversed connections could permanently damage the transceiver. The power cable should be as short as possible, and should be connected to the battery so as to take advantage of the filtering action of the battery.

Prior to operating the transceiver in a mobile installation, the voltage regulator setting should be checked. In many vehicles, the voltage regulation is very poor, and in some cases the regulator may be set for an excessively high charging voltage. As the battery and regulator age, the maximum voltage while charging can increase to a very high level. This is not only detrimental to the battery, but it may damage the transceiver. The transceiver is designed to operate from a source voltage of 11–16.5 volts. It is desirable to set the regulator so that the highest charging voltage does not exceed 14 volts, so as to give a margin of safety. The transceiver should be switched OFF when the vehicle is started so as to prevent voltage transients from damaging the transistors.

It is recommended that the microphone furnished with this transceiver be used; however, any quality microphone of 500–600 ohm impedance may be used. Refer to Fig. 2 for the microphone plug wiring connections. The microphone bracket may be put on the side of the cabinet, or at any other convenient place by drilling two 2.5 mm holes spaced 13 mm.

A speaker is built into the transceiver. However, audio output is also available for use with an external speaker. Any speaker having an impedance of 4 ohms may be used. When an external speaker plug is inserted in the EXT SP jack on the rear panel, the internal speaker is disabled.

OPERATION

The tuning procedure for this transceiver is not complicated. However, care should be exercised in operation to secure peak performance. The following paragraphs describe the procedure for receiver and transmitter tuning.

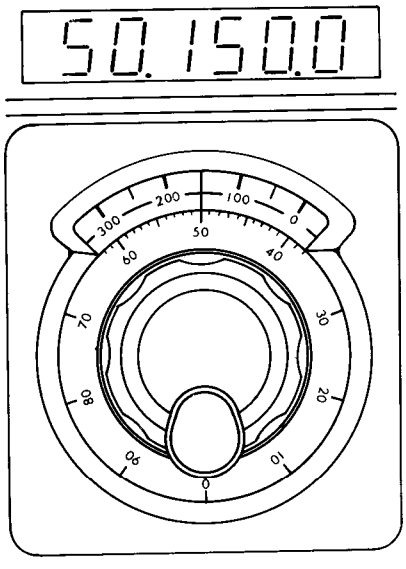
INITIAL CHECK

Before connecting the transceiver to a power source, carefully examine the unit for any visible damage. Be sure that all modules and crystals are firmly in place, and that all controls and switches are operating normally. Be certain that the voltage specification marked on the rear panel matches the supply voltage.

FREQUENCY READOUT

The digital display indicates all digits of the operating frequency, with resolution to 0.1 kHz.

The analog display consists of three components: the bandswitch, the analog dial window, and the main tuning dial skirt. For example, let us say that it is desired to operate on 50.150 MHz. The bandswitch should be rotated to the "50" position; the main dial should then be rotated so that the dial window reads half way between "100" and "200", and so that the dial skirt indicates "50". By changing the position of the bandswitch, this positioning of the main dial will also yield 51.150, 52.150, and 53.150 MHz.



RECEIVER

After the transceiver is properly set up for operation, preset the controls and switches as follows:

POWER	Down to OFF position
MODE	Desired mode
BAND	Desired band segment
RPT	Lever horizontal to OFF position
AUX/1 MHz	Lever position horizontal to 1 MHz
DISC	Lever position horizontal to S METER
CLAR	Lever position horizontal to OFF
MAIN TUNING DIAL	Desired operating frequency
VOX GAIN	PTT
AF GAIN	12 o'clock position
RE GAIN	Fully clockwise
SELECT	VFO/FIX
CHANNEL	VFO
SQUELCH	Fully counter-clockwise
PROC	OFF (Not pushed)
AMGC	OFF (Not pushed)
NB	OFF (Not pushed)
MIC GAIN	Full counter-clockwise
AM CARRIER	Fully counter-clockwise

Reconfirm that the voltage specification on the back panel of the transceiver matches your local supply voltage. Connect the appropriate power cord to the power source, and connect an antenna to the antenna receptacle on the rear panel.

Turn on the POWER switch. The dial and meter lamps and the digital display should be illuminated. The transceiver is now ready to operate. Peak the TUNE control for maximum receiver backgrund noise; this will also peak the transmitter circuits for maximum power output.

(1) SSB and AM Modes

Using the main tuning dial, tune in an SSB signal. Upper sideband (USB) is almost universally accepted for 6 meter operation, but if a station cannot be tuned in, try switching to LSB. The AF GAIN control should be adjusted for a comfortable listening level, and the RF GAIN should, usually,

be set to the fully clockwise position. If, however, the incoming signal is very strong, or if you are trying to copy a weak station adjacent to a strong one, reducing the RF GAIN somewhat may improve reception. When pulse-type noise is encoutered, such as that from an automobile ignition system, press the NB (noise balanker) switch. For AM, tune for a natural sounding voice.

(2) CW Mode

With the CLARIFIER in the OFF position, tune in a CW signal. When the incoming signal is tuned to a beat note of 800 Hz, your transmit frequency will coincide with that of the other station. When the optional 600 Hz CW filter is installed, selection of wide or narrow bandwidths may be made by placing the MODE swtich in the CW-W or CW-N position, respectively.

(3) FM Mode

Using the main tuning dial, tune in an FM signal for maximum and steady S-meter reading and a clear, natural voice output from the speaker. For accurate tuning, set the meter switch to the DISC position, and carefully adjust the tuning control until the pointer is vertical (zero on the discriminator scale).

If the S-meter wobbles, or if it is impossible to obtain clean audio, it is possible that the incoming signal is on another mode, such as SSB.

FREQUENCY CALIBRATION

(1) FT-625RD (Digital plus Analog Model)

The digital display is automatically calibrated, and no further adjustment is needed. The analog dial skirt should be rotated so that it coincides with the frequency shown on the digital display.

(2) FT-625R (Analog Model)

A. SSB/CW Modes

Activate the MARK switch, rotate the main tuning dial to the nearest 100 kHz point, and tune in the marker signal for a zero beat (lowest pitch frequency). Though it is very difficult to hear the zero point, some fine adjustment and careful listening will yield the zero beat. Rotate the dial skirt to align the "0" calibration with the vertical calibration marking. The transceiver must be recalibrated when changing modes, USB/CW to LSB.

B. AM Mode

Activate the MARK switch, and rotate the main tuning dial to the nearest 100 kHz point. Tune in the marker signal for a maximum S-meter reading. Rotate the dial skirt to align the "0" calibration with the vertical calibration marking.

C. FM Mode

Place the meter switch in the DISC position. Activate the MARK switch, and rotate the main tuning dial to the nearest 100 kHz point. Tune in the marker signal for a vertical indication of the meter pointer (zero on the discriminator center meter). Rotate the dial skirt for calibration at the "0" point, as in previous sections.

NOTE: WHEN THE MARKER SWITCH IS ACTIVATED, THE ANTENNA IS AUTOMATICALLY DISCONNECTED FOR EASIER CALIBRATION. THE LAMPS WILL ALSO BE DIMMED DURING CALIBRATION; THIS IS ENTIRELY NORMAL.

TRANSMITTER

Connect a 50 ohm dummy load or matched antenna to the coax fitting on the rear panel. If the TUNE control has been adjusted for maximum receiver noise, no further adjustment is needed for full transmitter output. The adjustment of the TUNE control for maximum output is very broad.

For adjustment of the power output level, the PWR CONTROL may be rotated as required. While this control is normally set fully clockwise, this control allows the operator to control the transmitter output level as needed.

(1) SSB Mode

The MIC GAIN control should be adjusted while speaking in a normal voice a long syllable such as the word "four". The SSB MIC GAIN should only be advanced to the point where the power output does not increase further. Excessive advancement of the gain control will result in splatter and distortion, thus reducing intelligibility. The microphone PTT switch may be used, or the VOX circuitry may be utilized (see part (5) of this section).

(2) AM Mode

Place the MODE switch in the AM position, and press the microphone PTT switch. Advance the AM CARRIER control until a reading of 7 on the meter PO scale is attained. Speaking in a normal voice, advance the MIC GAIN control unitl a slight movement of the PO needle is noted on voice peaks.

(3) CW Mode

Plug a key into the KEY jack on the rear panel. In the key-down condition, the meter will indicate between 6 and 8 on the PO scale, at full transmitter output. For semi-break-in operation, advance the VOX GAIN control until the sidetone oscillator activates the VOX relay when the key is closed. For PTT operation, rotate the VOX GAIN control to the PTT position. Keying is accomplished by closing a DC 8 V line to ground. Key down current is approximately 8 mA. Use caution when using an electronic keyer so as to avoid damage caused by reversed polarity.

(4) FM Mode

Push the microphone PTT switch while speaking into the microphone in a normal voice. All gain controls are set automatically for FM operation. The relative output meter should read between 6 and 8 at full output.

(5) VOX (Voice Controlled) Operation

Adjust the VOX GAIN control on the front panel until your voice activates the transmitter while you are speaking into the microphone in a normal voice. Set the antitrip control, VR_{402}, which is located on the AF AMP UNIT, to the minimum point that prevents speaker output from tripping the VOX. Do not use more VOX GAIN nor antitrip than necessary. Adjust the DELAY control VR_{401} for the desired VOX release time. The DELAY control is also located on the AF AMP UNIT.

(6) PTT Operation

Push-to-talk operation is accomplished by rotating the VOX GAIN control to the PTT position (but not into the click-stop, which is the MOX position). The PTT circuit may then be activated either by the microphone PTT switch or by a footswitch. If a footswitch is used, it may be connected through the rear panel PTT jack.

MEMORY OPERATION (With optional MEMORY UNIT installed)

The memory circuitry can be used to store any frequency within a 1 MHz band segment for recall and control of the transceive, receive, or transmit frequency. A frequency is memorized by pressing the MEMORY button, and the frequency is recalled by positioning the SELECT switch as needed.

In the SIMPLEX position, the transceive frequency is locked on the memorized frequency.

In the TX MR position, the transmitter is locked on the memorized frequency, while the receiver is controlled by the main VFO (or FIX unit).

In the RX MR position, the receiver is locked on the memorized frequency, while the transmitter is controlled by the VFO.

Caution should be observed during repeater operation. If the SELECT switch is in the TX MR position, and the RPT switch is in the NOR position, the 1 MHz shift will be applied to the memorized frequency (which is recalled only for transmission). Unless the operator is careful, an unwanted repeater may be activated, causing interference to other users.

Optional batteries inserted into the MEMORY UNIT will allow the memorized frequency to be held, even though the FT-625RD is turned off.

For most repeater work, the memorized repeater frequency can be recalled by placing the SELECT switch in the SIMPLEX position, and placing the RPT switch in the NOR position. The main VFO may then be turned to another repeater or calling frequency; return to the VFO frequency is performed by placing the SELECT switch in the VFO/FIX position. Alternatively, the repeater input frequency may be memorized and recalled by placing the SELECT switch in the TX MR position. The VFO can then be tuned to the repeater output frequency, and the RPT switch should be turned OFF.

REPEATER OPERATION

The transmit frequency may be shifted 1 MHz for repeater operation. When the RPT switch is in the NOR (normal) position, the transmit frequency is shifted 1 MHz lower than the receive frequency. When the RPT switch is placed in the REV (reverse) position, the receive frequency is shifted 1 MHz lower. Extreme caution should be exercised so as not to transmit outside the amateur bands when using the RPT switch.

In some areas, repeater splits other than 1 MHz have been authorized. In this case, an optional crystal may be installed in the local unit to provide repeater splits of up to 4 MHz. The AUX/1 MHz switch must be placed in the AUX position for actuating the optional crystal.

Determination of the AUX crystal frequency is made as follows:

Band 51 (51.0–52.0 MHz)

(71.01 – Shift frequency)

Band 52 (52.0–53.0 MHz)

(72.01 – Shift frequency)

Band 53 (53.0–54.0 MHz)

(73.01 + Shift frequency)

Example

Calculate the crystal frequency for –1.2 MHz shift in the 53 MHz band segment (TX frequency 1.2 MHz lower):

73.01 – 1.2 = 71.81

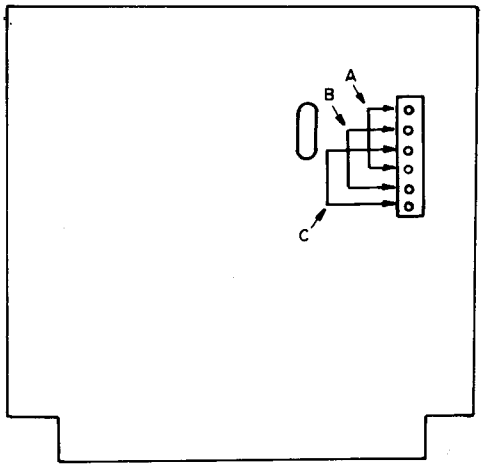
When the optional memory unit is installed, the output frequency of the repeater may be stored by pressing the MEMORY button and placing the SELECT switch in the SIMPLEX position. By placing the RPT switch in the NOR or REV positions, the desired offset will occur. If the repeater input and output frequencies are within the same 1 MHz width of the BAND switch, the input frequency may be stored in memory, and then recalled for transmission only by placing the SELECT switch in the TX MR position. The VFO can then be tuned to the output frequency of the repeater. In this way, "oddball" splits can be accommodated.

Tone actuated repeaters can be accessed by means of the built-in tone burst generator, which is activated by pressing the BURST switch on the front panel. With this button depressed, pushing the microphone PTT switch will cause insertion of the burst signal at the beginning of each transmission.

The audio frequency of the tone burst signal may be programmed for any frequency between 671 and 2900 Hz, by use of a crystal and by positioning the selector plug on the tone burst unit. The U.S. model normally is set up for 1800 Hz operation. The chart shows the relation between the position of the selector plug, the crystal frequency, and the tone frequency.

Tone Frequency (Hz)	Multiplier	Plug Position	Crystal Frequency (kHz)
671–1342	4096	A	2750–5500
1343–2685	2048	B	2750–5500
2686–2900	1024	C	2750–2970

Crystal frequency = Tone frequency × Multiplier.



CRYSTAL CONTROLLED OPERATION

In addition to normal VFO operation, five crystals may be selected by the channel switch on the front panel for crystal controlled operation. Such operation is often useful for operation on favorite calling or repeater frequencies. Since the 6 meter band is divided into four segments in the FT-625RD, these five crystals could provide for operation on 20 different frequencies.

The crystal holders accept standard HC-25/U type crystals. All crystal frequencies must fall between 8,200 kHz and 9,200 kHz. A trimmer capacitor is connected in series with each crystal to permit fine tuning of the crystal frequency; Adjustment of this trimmer will move the crystal frequency approximately 1 kHz.

The correct crystal frequency for any desired operating frequency may be determined by using the following formula:

$$f_x = f_1 - f_0$$

where f_x = **crystal frequency**
f_0 = **operating frequency**
f_1 = **a constant shown in Table 1**

Example: Calculate the required crystal frequency for 50.105 MHz CW operation.

$f_x = f_1 - f_0 =$ **59.1993 − 50.105 = 9094.3 kHz**

It can be seen from the chart that a crystal for 50.51 MHz FM can also be used for 51.51, 52.51, and 53.51 MHz FM by changing the position of the BAND switch.

BAND (MHz)	f_1			
	LSB(MHz)	USB(MHz)	FM (MHz)	AM·CW (MHz)
50	59.2015	59.1985	59.2	59.1993
51	60.2015	60.1985	60.2	60.1993
52	61.2015	61.1985	61.2	61.1993
53	62.2015	62.1985	62.2	62.1993

Table 1

CW FILTER INSTALLATION

1) Remove the top cover by releasing the fasteners marked "A" in Figure 1. Slowly lift the cover, and remove the speaker lead, marked "B", from the speaker lugs.

2) Remove the plate marked "C" as shown in Figure 1.

3) Remove the screws marked "D" in Figure 1, and carefully remove the Filter Unit from its edge connector.

4) Install the CW filter on the Filter Unit as shown in Figures 2 and 3. Slide the mounting lug and leads into the holes on the circuit board, make the mounting nut snug, and solder the two leads to the circuit board, as shown in Figure 2.

5) The jumper shown in Figure 3 must be moved to the position shown in the drawing.

6) Replace the circuit board, covering plate, speaker lead, and the top cover of the transceiver. Installation is now complete.

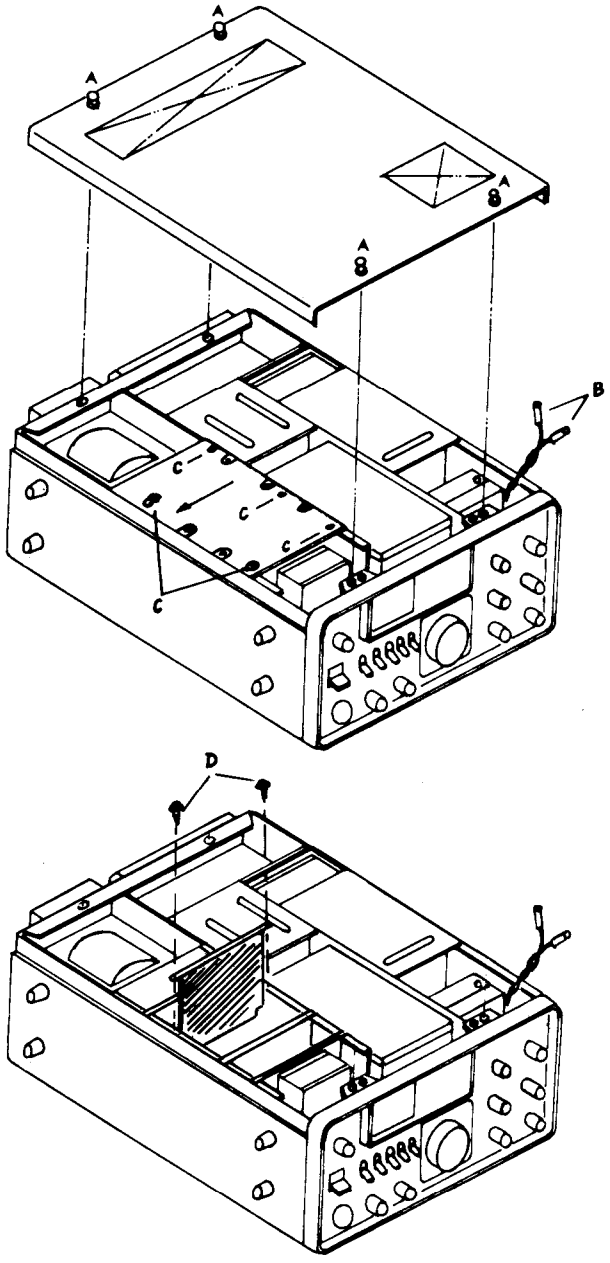


Fig. 1

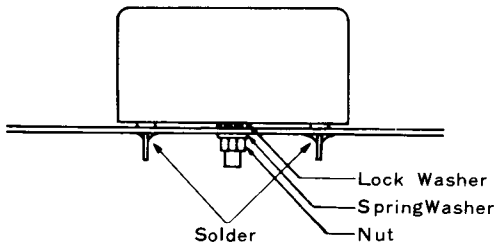


Fig. 2

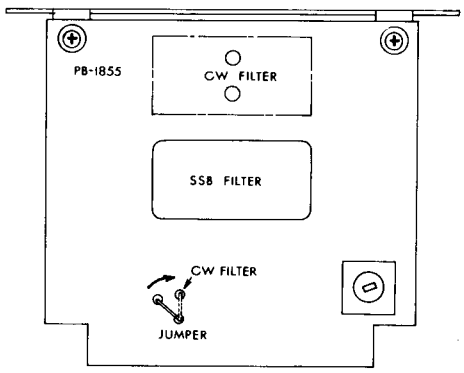
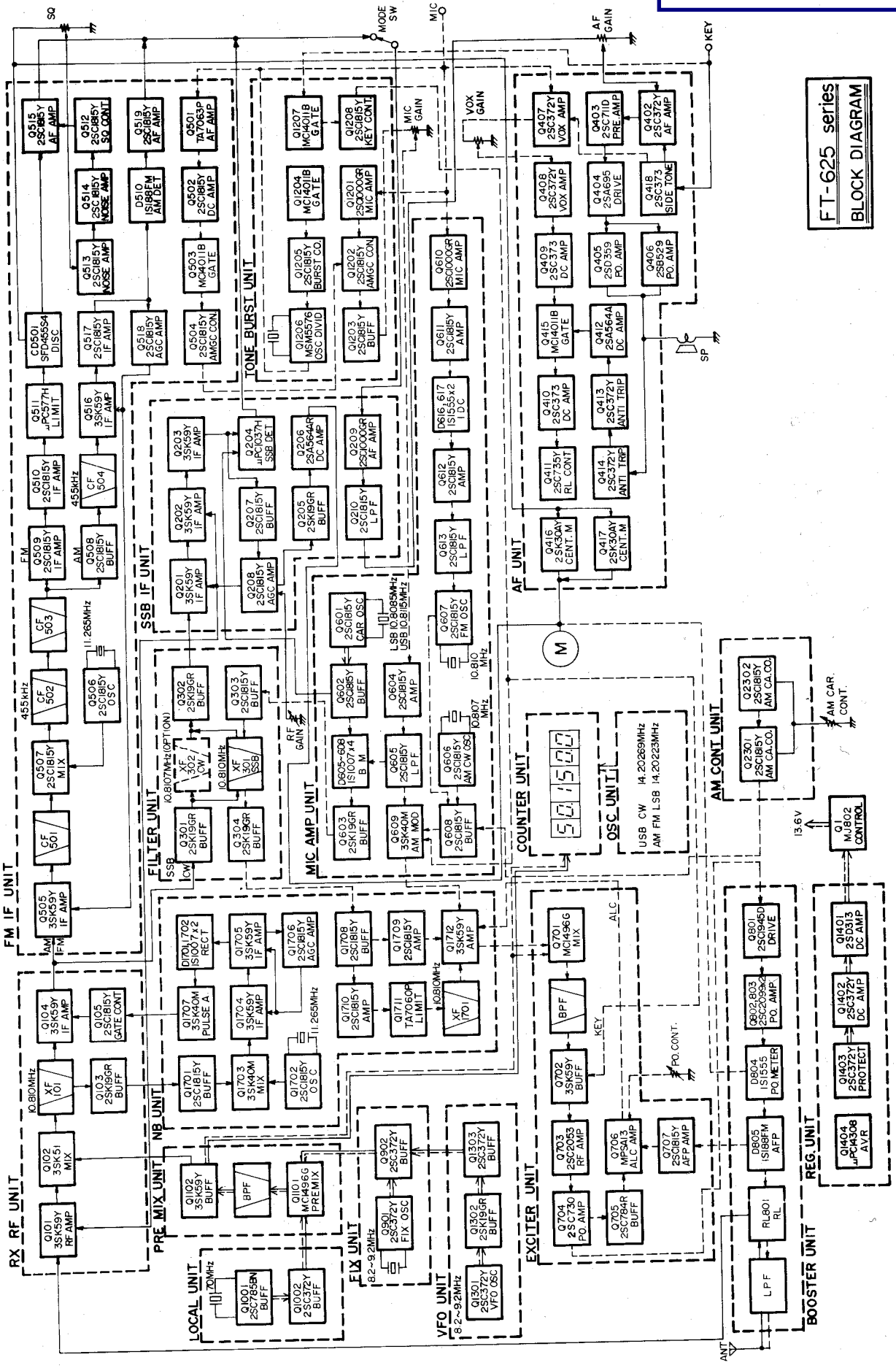


Fig. 3



CIRCUIT DESCRIPTION

GENERAL

The block diagram and the following circuit description will provide you with a better understanding of this transceiver. The discussion will be on a module-by-module basis, in the interest of clarity.

Each circuit board has its own parts numbers, beginning, usually, with the number___01. For example, RF amplifier transistor type **3SK59Y** on PB-1853 is Q_{101}.

The FT-625RD utilizes single conversion on SSB and CW, with a 10.81 MHz IF. On AM and FM, double conversion is used, with a 455 kHz second IF.

RECEIVER

RF UNIT (PB-1853)

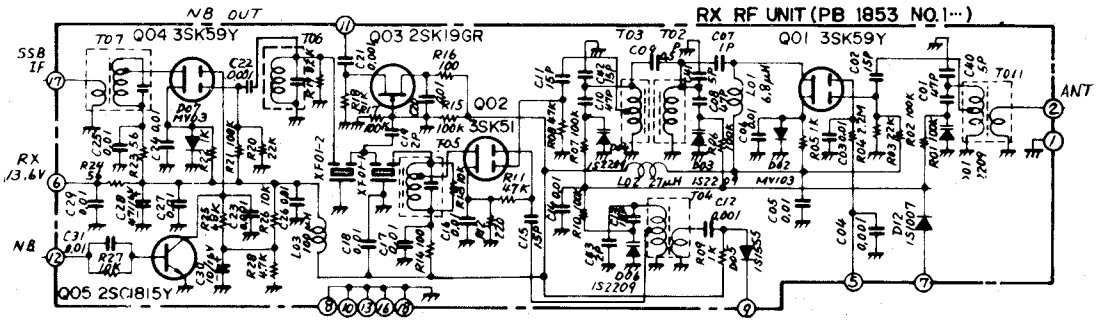
The 50 MHz signal from the antenna is switched from the BOOSTER UNIT **(PB-1859)**, where the input signal has passed through a lowpass filter (L_{810}, L_{811}, C_{825}–C_{827}), to pin 2 of the RF UNIT. The signal is amplified by RF amplifier Q_{101} **(3SK59Y)** and fed to gate 1 of the first mixer, Q_{102} **(3SK51)**. The input and output circuits of the RF amplifier utilize a double tuned circuit, which is sharply tuned to the center of the band by varactor diodes D_{101}, D_{103}, and D_{104} **(1S2209)**, thus minimizing cross modulation and intermodulation effects.

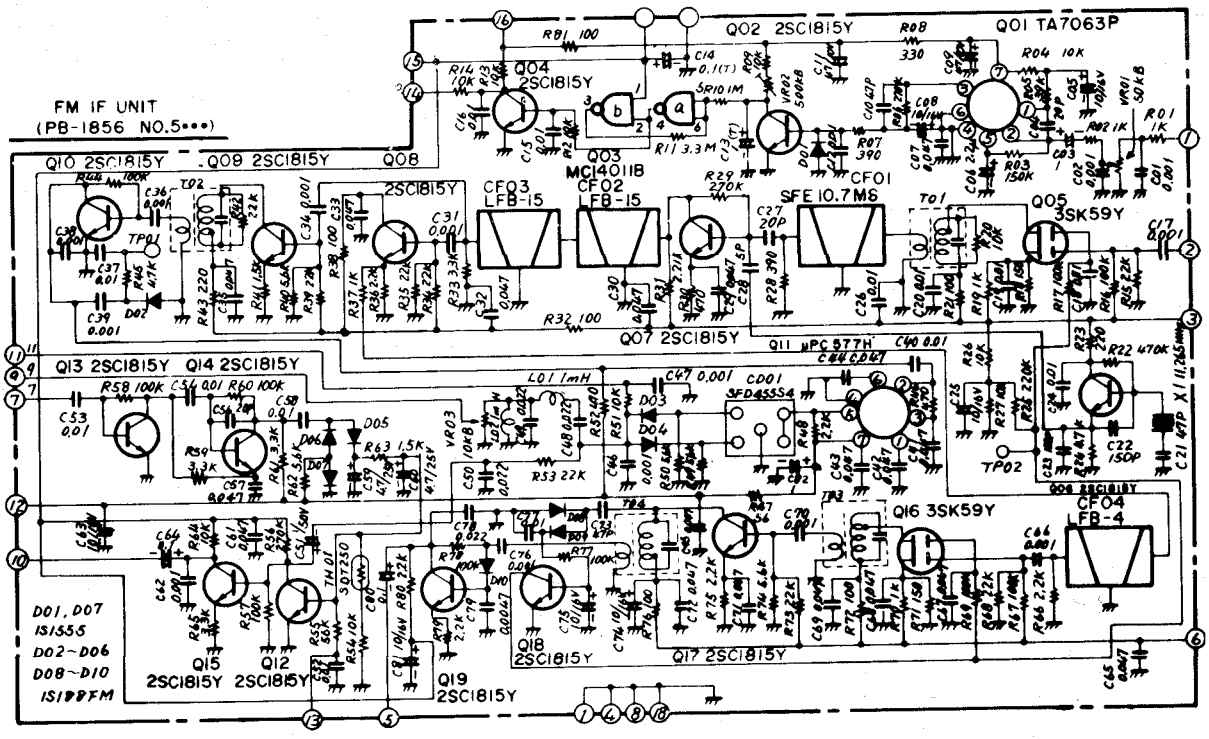
A local signal is generated in the PREMIX UNIT **(PB-1861)**, filtered by T_{104}, C_{113}, and D_{106} **(1S2209)**, and fed to gate 2 of Q_{102}. Here the 60.81–64.81 MHz local signal is mixed with the 50–54 MHz incoming signal, producing a 10.81 MHz IF. The IF signal is passed through crystal filter XF_{101}. which has a 3 dB bandwidth of 30 kHz, and is amplified by IF amplifier Q_{104} **(3SK59Y)**. The SSB and CW signals are fed to the FILTER UNIT, while AM and FM signals are fed to the FM IF UNIT.

FM IF UNIT (PB-1856)

The FM or AM signal delivered from the RF UNIT is fed to pin 7 of the FM IF UNIT. The signal is amplified by IF amplifier Q_{505} **(3SK59Y)**, and delivered to ceramic filter CF501, which has bandwidth of 300 kHz. From here the signal is fed second mixer Q_{507} **(2SC1815Y)**, where the IF signal is mixed with an 11.265 MHz signal generated by second heterodyne oscillator Q_{506} **(2SC1815Y)**, thus producing a 455 kHz second IF. The second IF signal is passed through ceramic filters CF_{502} and CF_{503}.

An FM signal is amplified by IF amplifiers Q_{509} and Q_{510} **(2SC1815Y)**, and fed to amplifier limiter Q_{511} **(μPC577H)**, which removes any amplitude modulation component of the signal. The signal is then passed to ceramic discriminator CD_{501} **(SFD455S4)**, which produces an audio output in response to a corresponding frequency or phase shift in the 455 kHz IF signal. The output of CD501 is amplified by Q_{515} **(2SC1815Y)** and delivered to the AF UNIT.



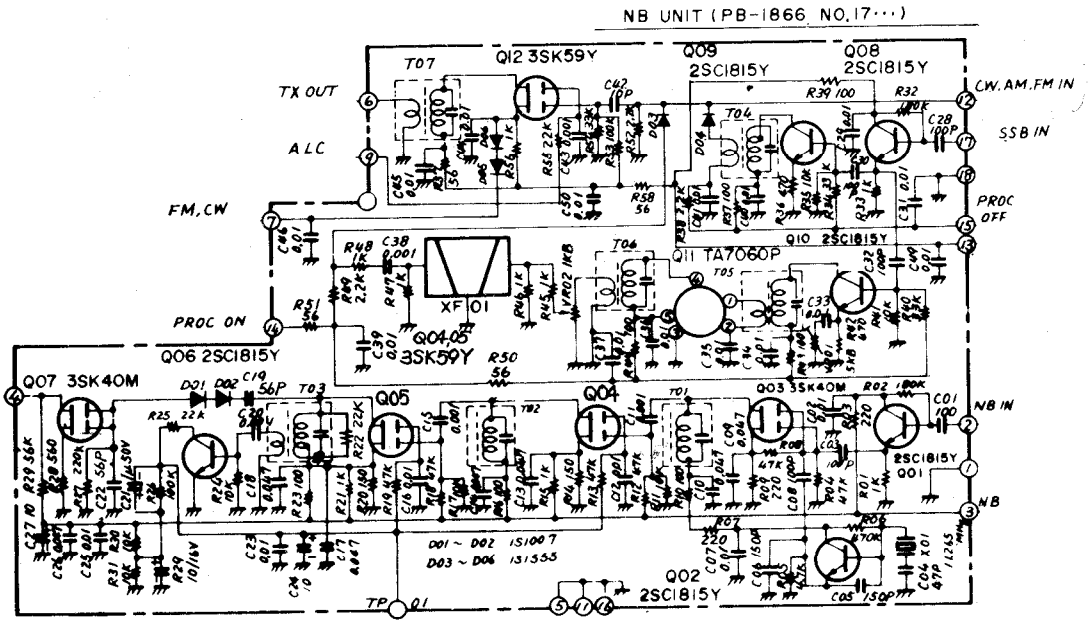


An AM signal is amplified by buffer amplifier Q_{508} **(2SC1815Y)**, passed through ceramic filter CF_{504}, and amplified by IF amplifiers Q_{516} **(3SK59Y)**, and Q_{517} **(2SC1815Y)**. The output of Q_{517} is detected by AM detector D_{510} **(1S188FM)**, amplified by Q_{519} **(2SC1815Y)**, and passed to the AF UNIT.

A portion of the output of Q_{517} is detected by D_{508} and D_{509} **(1S188FM)**, amplified by Q_{518} **(2SC1815Y)**, and then fed to the second gates of Q_{505} and Q_{516} for AGC (Automatic Gain Control) purposes.

NB UNIT (PB-1866)

SSB and CW signals from XF_{101} on the RF UNIT are amplified by buffer amplifier Q_{103} **(2SK19GR)** and delivered to pin 11 of the NB UNIT. The 10 MHz IF signal is amplified by buffer amplifier Q_{1701} **(2SC1815Y)** and fed to noise blanker mixer Q_{1703} **(3SK40M)**; here the 10.7 MHz IF signal is mixed with a local signal generated by Q_{1702} **(2SC1815Y)**, producing a 455 kHz noise blanker IF. This signal is amplified by Q_{1704} and Q_{1705}.



When a carrier or noise-free modulated signal is received, the 455 kHz signal is rectified by D_{1701} and D_{1702} (**1S1007**), charging C_{1719}. There is no discharge loop for C_{1719}; therefore, signals which exceed the charged voltage established by the reference voltage on C_{1719} will not pass through D_{1701} and D_{1702}. Accordingly, there will be no voltage drop across R_{1727}, and Q_{1707} (**3SK40M**) will conduct as the gate voltage approaches zero. When Q_{1707} conducts, the voltage applied to the base of Q_{105} (**2SC1815Y**) will drop. As the drain voltage of Q_{1707} drops, the base voltage of Q_{105} drops, turning the latter off. The collector voltage will then increase, producing a forward bias to gate 2 of IF amplifier Q_{104}, allowing normal operation of Q_{104}.

When pulse noise is received which exceeds the charged reference voltage established by C_{1720}, D_{1701} and D_{1702} will permit negative-going pulses to turn Q_{1707} off. The drain voltage will increase rapidly as it turns off.

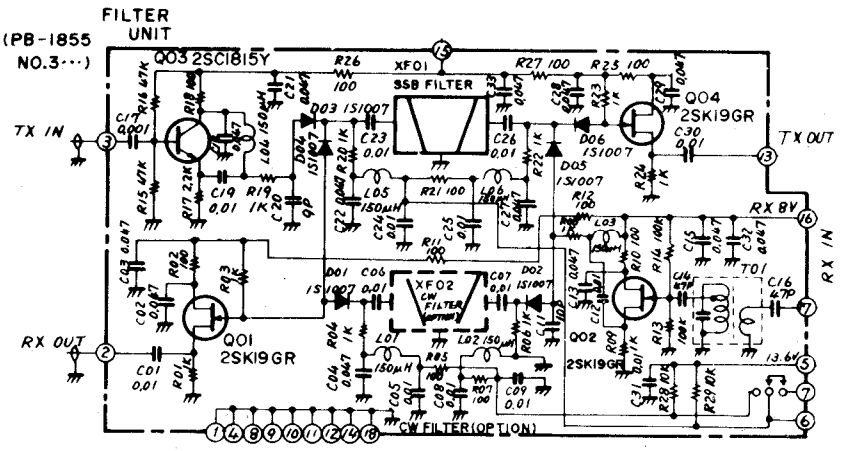
When no carrier is present in the 455 kHz IF, the noise at the discriminator output is amplified by Q_{513} and Q_{514} (**2SC1815Y**) and detected by D_{505} and D_{506} (**1S188FM**), producing a DC voltage. This voltage turns squelch controller Q_{512} (**2SC1815Y**) on; with Q_{512} on, the base of Q_{515} is grounded, quieting the audio amplifier. When a carrier is present, the quieting action of the receiver removes noise from the discriminator output, and Q_{512} is turned off, permitting normal operation of Q_{515}.

As the drain voltage increases, Q_{105} will turn on, and the collector voltage will decrease. Accordingly, gate 2 of Q_{104} will be biased to block the signal flow momentarily in the presence of the noise pulse.

Q_{1706} (**2SC1815Y**) samples the output of Q_{1705}, providing AGC control action on Q_{1704} and Q_{1705}.

FILTER UNIT (PB-1855)

SSB and CW signals from pin 7 of the RF UNIT appear at pin 17 of the FILTER UNIT. The 10.81 MHz signal is amplified by buffer amplifier Q_{301} (**2SK19GR**) and passed through SSB filter XF_{301} or optional CW filter XF_{302}. The filtered IF signal is amplified again by buffer amplifier Q_{302} (**2SK19GR**) and passed to the SSB IF UNIT.



SSB IF UNIT (PB-1854)

The 10.81 MHz filtered IF signal from pin 2 is amplified by Q_{201}, Q_{202}, and Q_{203}(**3SK59Y**) and delivered to SSB detector Q_{204}(**μPC1037H**), where the signal is joined with the BFO signal from the MIC AMP UNIT. The resulting audio signal exits the circuit board at pin 15, passes through the mode switch, and reappears at pin 6, where it is fed to amplifier Q_{209} (**2SC1000GR**). The audio response is then shaped by Q_{210} (**2SC1815Y**), which acts as an active low-pass filter; the signal is then delivered to the AF UNIT.

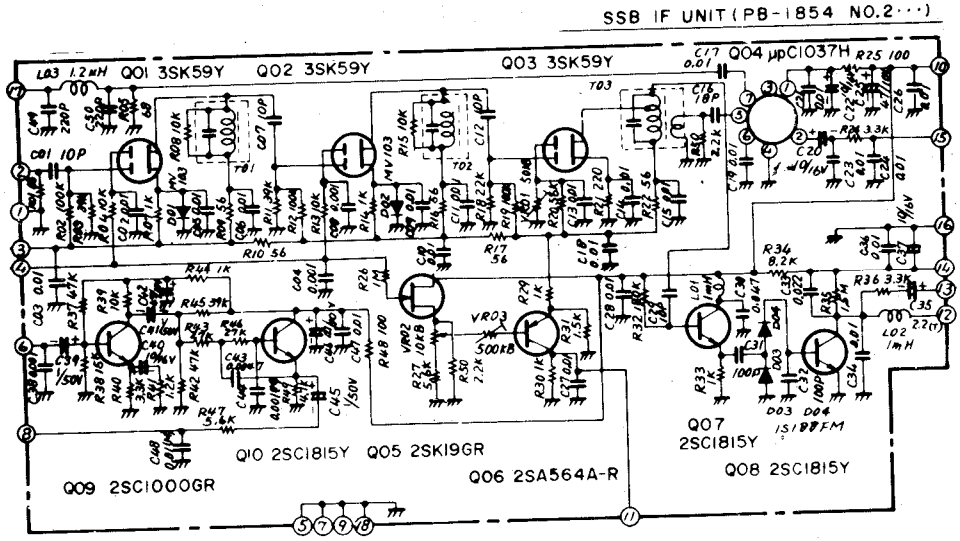
A portion of the output of Q_{203} is detected by D_{202} and D_{203}(**1S188FM**), amplified by buffer amplifier Q_{207}(**2SC1815Y**) and delivered to AGC amplifier Q_{208} (**2SC1815Y**), which controls the gain of the IF and RF amplifiers. A further sampling of the signal is made at the output of Q_{208}; this signal is amplified by buffer Q_{205}(**2SK19GR**) and DC amplifier Q_{206}(**2SA564AR**), and this DC voltage produces an indication of received signal strength on the S-meter.

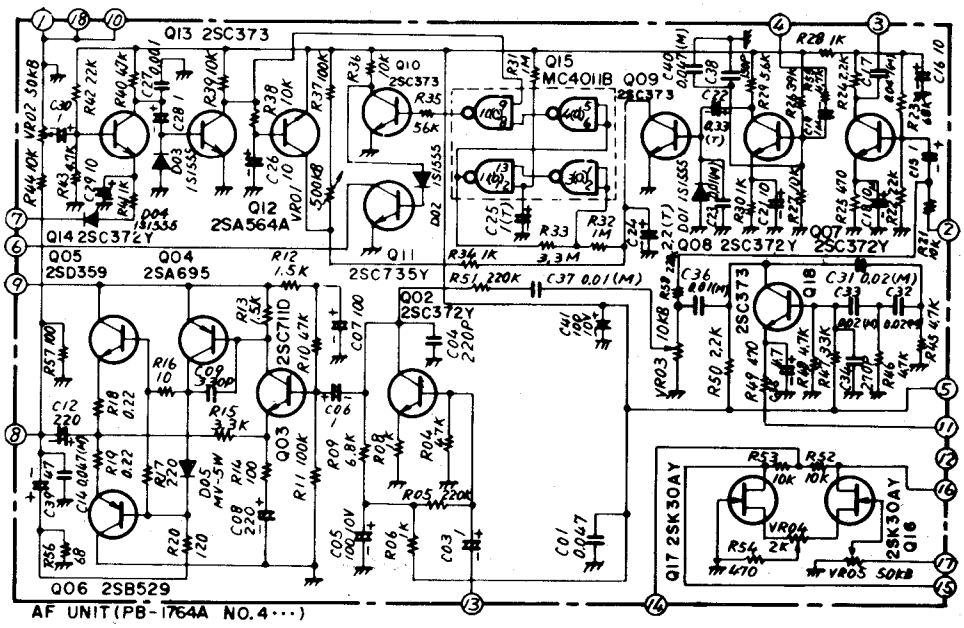
AF UNIT (PB-1764)

The audio signals are passed via the mode switch to pin 13 of the AF UNIT, with SSB and CW signals passing through Q_{209} and Q_{210}. The signal is amplified by Q_{402}(**2SC372Y**), Q_{403}(**2SC711D**), Q_{404}(**2SA695**), Q_{405}(**2SD359**), and Q_{406}(**2SB529**), delivering 3 watts of audio output to the speaker through an OTL (output transformerless) circuit configuration.

The output of sidetone oscillator Q_{418}(**2SC373**) is fed to Q_{402}.

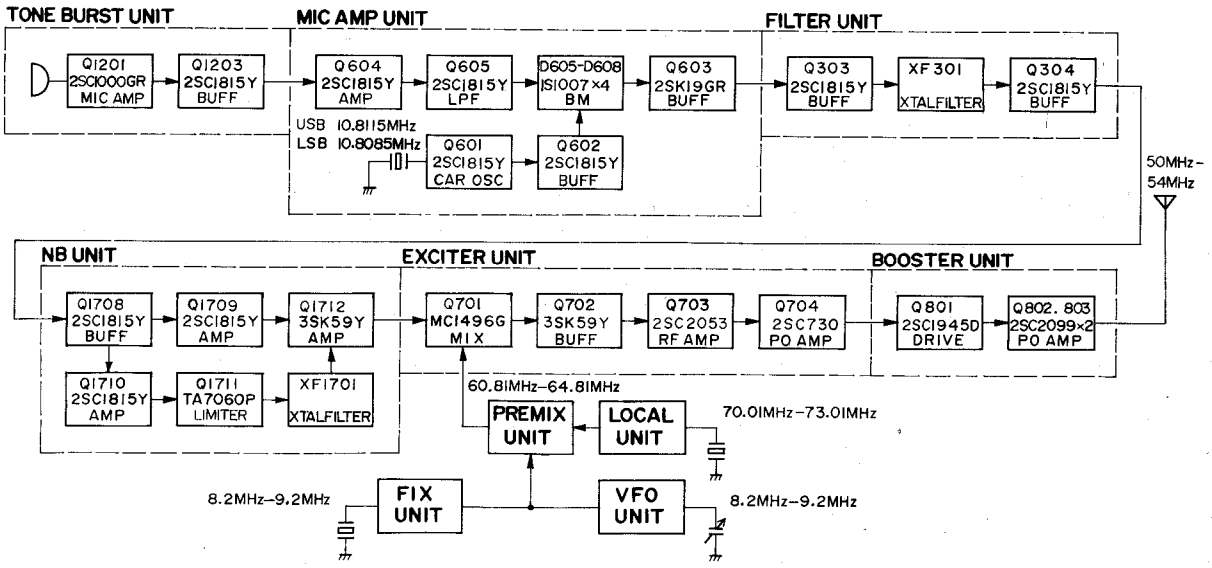
In the FM mode, a DC voltage at the discriminator is applied to differential amplifier Q_{416} and Q_{417} (**2SK30AY**). When the frequency of the received signal is shifted from the discriminator center, the resulting DC voltage causes either Q_{416} or Q_{417} to conduct, and the amount of shift is displayed on the meter when the meter switch is in the DISC position.





TRANSMITTER

The discussion of the transmitter section of the FT-625RD will be done on a mode-by-mode basis.



SSB TX SIGNAL PATH

SSB

MIC AMP UNIT (PB-1857)

The speech signal from the microphone enters the TONE BURST UNIT at pin 6B, and is amplified by Q_{1201} (**2SC1000GR**) and buffer amplifier Q_{1203} (**2SC1815Y**) and fed to pin 3B of the MIC AMP UNIT.

The signal is controlled in amplitude by MIC GAIN control VR_{3a}. The signal is amplified further by Q_{604} (**2SC1815Y**) and shaped by low-pass filter Q_{605} (**2SC1815Y**) for delivery to the ring modulator, D_{1025}–D_{1208} (**1S1007**).

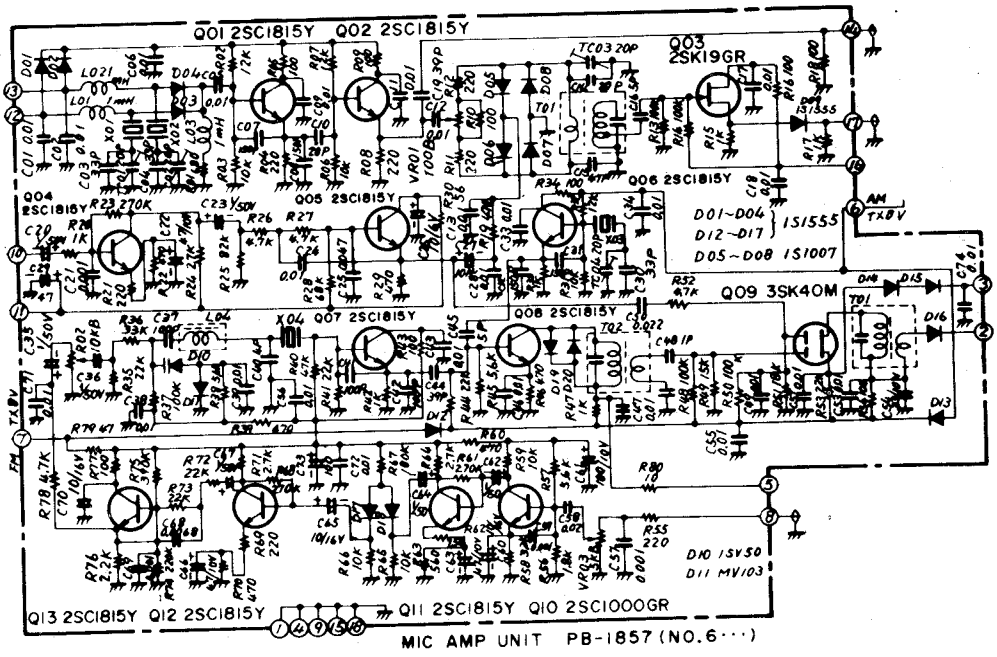
Carrier oscillator Q_{601} (**2SC1815Y**) oscillates at 10.8115 MHz for LSB and 10.8085 MHz for USB, depending on the position of the mode switch. The output from the oscillator is fed through buffer amplifier Q_{602} (**2SC1815Y**) to the ring modulator. The resulting 10.81 MHz double sideband signal is amplified by buffer amplifier Q_{603} (**2SK19GR**) and fed to the FILTER UNIT through pin 17.

FILTER UNIT (PB-1855)

The 10.81 MHz DSB signal is fed from pin 3 to buffer amplifier Q_{303} (**2SC1815Y**). From here the signal passes through diode switch D_{303} (**1S1007**), is filtered by XF_{301}, and the resulting SSB signal passes through diode switch D_{306} (**1S1007**) to buffer amplifier Q_{304} (**2SK19GR**). The amplified SSB signal is fed from pin 13 to the NB UNIT.

NB UNIT (PB-1866)

The SSB signal is fed from pin 17 to buffer amplifier Q_{1078} (**2SC1815Y**), and from there the signal is applied to the bases of Q_{1709} and Q_{1710} (**2SC1815Y**). When the RF processor switch is OFF, the SSB signal is amplified by Q_{1709} and fed to Q_{1712} (**3SK59Y**). When the processor switch is ON, the SSB signal is amplified by Q_{1710} and further amplified by limiter Q_{1711} (**TA7060P**), where the signals that exceed the preset clipping level are sliced out. This highly clipped SSB signal is passed through a selective filter, XF_{1701}, to remove RF harmonics that result from clipping. The filtered output signal is amplified by Q_{1712} and fed to the EXCITER UNIT.



EXCITER UNIT (PB-1858)

The SSB signal from pin 2 is fed to the balanced mixer, Q_{701} **(MC1496G)**, where the SSB signal is heterodyned to the desired RF frequency by mixing with the 60.81–64.81 MHz local signal supplied from the PRE MIX UNIT. The output signal from the balanced mixer passes through tuned circuits consisting of T_{701}–T_{705}, which are tuned by varactor diodes D_{702}–D_{705} and D_{707} **(1S2209)**, in which voltages are preset according to the position of the bandswitch. In this manner, the circuit is tuned exactly to the operating frequency, and spurious radiation is effectively eliminated.

The signal is then amplified by Q_{702} **(3SK59Y)**, Q_{703} **(2SC2053)**, and Q_{704} **(2SC730)**, providing 0.2 watts of drive to the BOOSTER UNIT.

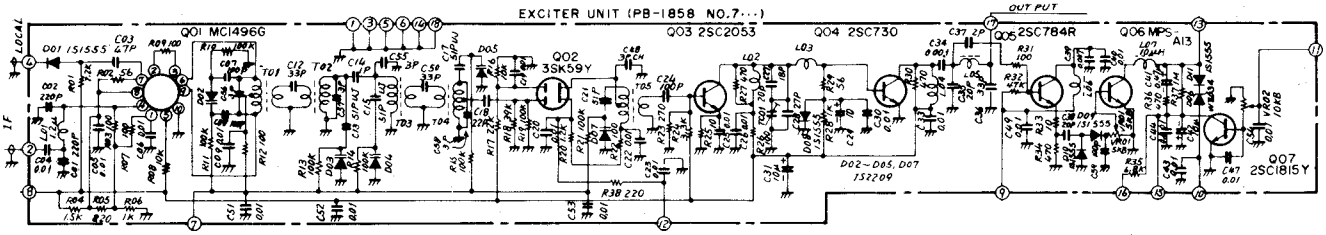
BOOSTER UNIT (PB-1859)

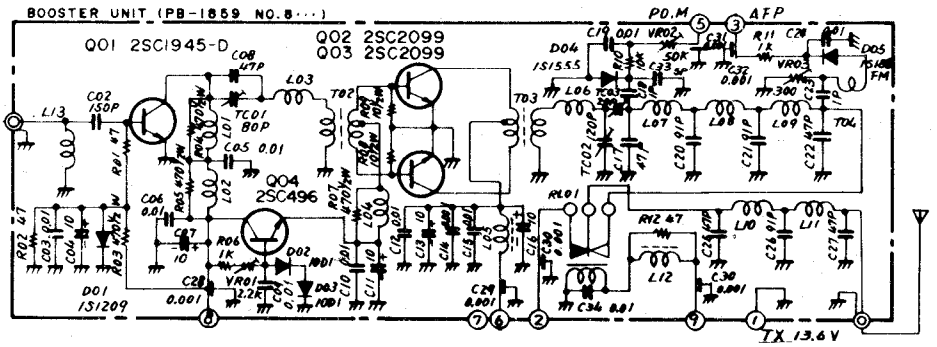
The signal from the EXCITER UNIT is fed to the BOOSTER unit's driver amplifier Q_{801} **(2SC1945D)** and to power amplifiers Q_{802} and Q_{803} **(2SC2099)**, providing 25 watts of RF output. The signal is fed through a low-pass filter to the antenna jack.

A small portion of the output is rectified by D_{804}, and the resulting DC voltage is fed to the meter, where an indication of relative output power is provided.

A further sampling of the RF output is made by D_{805} **(1S188FM)**, and the resulting DC voltage is amplified by Q_{707} **(2SC1815Y)** and applied to ALC amplifier Q_{706}, which controls the gain of Q_{702}. In the presence of high SWR, the drive level through the EXCITER UNIT is reduced, thus protecting the final transistors.

The bias to Q_{802} and Q_{803} is stabilized by Q_{804} **(2SC496O)** at 9 volts, and it is controlled by diodes D_{802} and D_{803} **(10D1)**, providing further protection for the final transistors.





AM

The AM signal path is identical to that for SSB until the signal reaches Q_{605}. At this point, the signal is delivered to AM modulator Q_{609} **(3SK40M)**. The AM carrier is generated at 10.8107 MHz by oscillator Q_{606} **(2SC1815Y)**, amplified by buffer Q_{608} **(2SC1815Y)**, and fed to Q_{609}. The output of Q_{609} is delivered to pin 2 of the EXCITER UNIT, and from there to amplifier Q_{1712}. The signal then is amplified in the same way as the SSB signal, for delivery to the antenna.

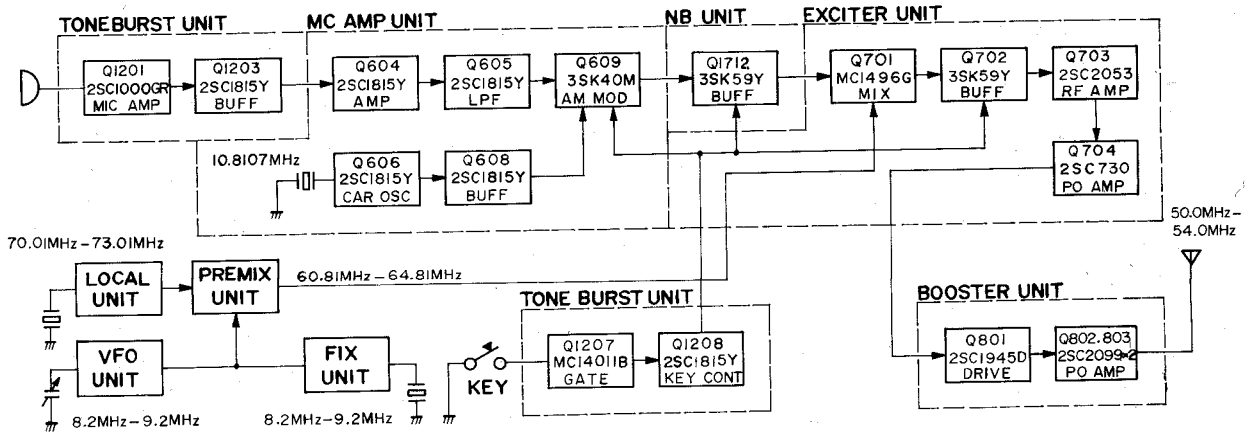
CW

In the CW mode, the carrier generated for AM by Q_{606} is used. The key line is connected to sidetone oscillator Q_{418}, the output of which is fed to Q_{402} for sidetone monitoring, as well as to VOX amplifier Q_{407} **(2SC372Y)** for semi-break-in operation.

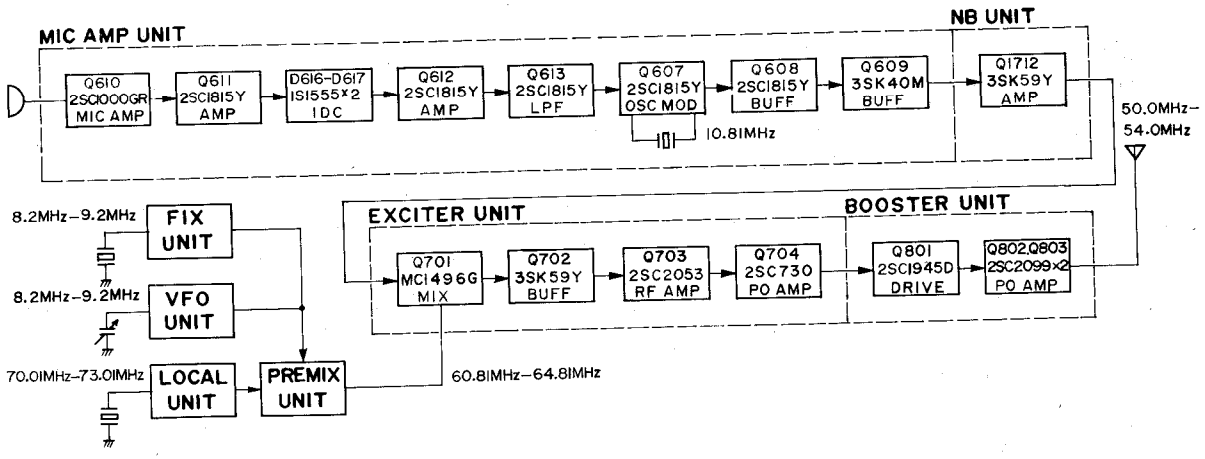
The key line is also fed to a flip-flop circuit in Q_{1207} **(MC14011B)**, which provides the high-low output to drive keying switch Q_{1208} **(2SC1815Y)**, Q_{1208} keys both Q_{609} and Q_{702}, providing a stable, chirp-free CW signal. Shaping is applied to the output of Q_{1208} to remove any trace of key clicks.

FM

The speech signal for FM is amplified by microphone amplifier Q_{610} **(2SC1000GR)**, and is further amplified by Q_{611} **(2SC1815Y)**. The amplified signal is fed to the instantaneous deviation control (IDC), consisting of diodes D_{616} and D_{617} **(1S1555)**, which clips both positive and negative peaks.

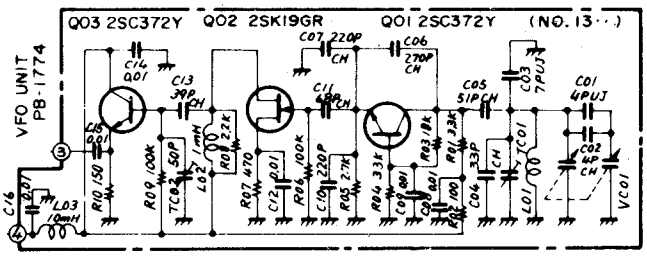


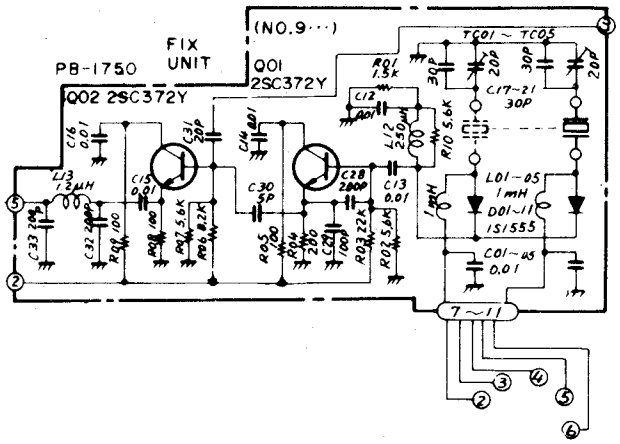
CW, AM TX SIGNAL PATH

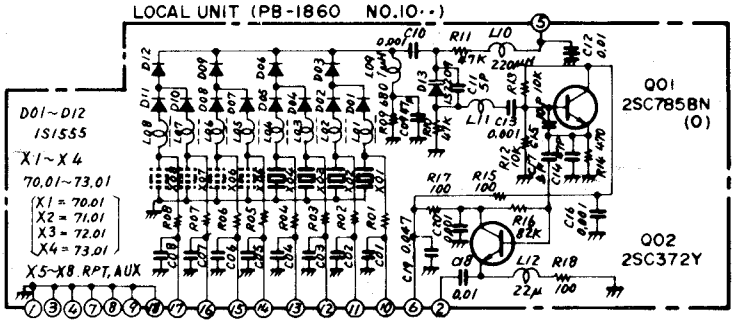


FM TX SIGNAL PATH

The output from the IDC is amplified by Q_{612} (2SC1815Y), and fed through active low-pass filter Q_{613} (2SC1815Y), which removes harmonics above the speech range caused by clipping. The speech signal is then applied to phase modulator varactor diode D_{610} (1S2209), which varies the frequency of the 10.81 MHz modulator oscillator, Q_{607} (2SC1815Y). The frequency modulated signal is amplified by buffer amplifiers Q_{608} (2SC1815Y) and Q_{609} (3SK40M), passed to the NB UNIT, where it is amplified by Q_{1712}, and then fed to Q_{701} for conversion to 50–54 MHz by mixing with the 60.81–64.81 MHz local signal. From there, the signal is amplified as on the other modes.







COMMON CIRCUITS

CARRIER GENERATION

Q_{601}, located on the MIC AMP UNIT, generates an LSB carrier of 10.8085 MHz and a USB carrier of 10.8115 MHz. The AM and CW carrier is generated at 10.8107 MHz by Q_{606}.

VFO UNIT (PB-1774)

A modified Colpitts oscillator is used to generate a 1 MHz tuning range for the VFO of 8.2–9.2 MHz. The oscillator signal generated by Q_{1301} (2SC372Y) is varied by VC_{1301}, which is geared to a precision dial tuning mechanism. Temperature compensation is provided for by sub-blades of VC_{1301}.

The output from the VFO oscillator is amplified by buffer amplifiers Q_{1302} (2SK19GR) and Q_{1303} (2SC372Y) and delivered to the FIX UNIT.

FIX UNIT (PB-1750-3380)

In addition to VFO operation, 5 crystal controlled channels may be employed for fixed frequency operation. Selection of the crystal channel or VFO operation is made by the selector switch on the front panel.

The FIX channel crystal oscillator Q_{901} (2SC372Y) oscillates at a frequency between 8.2 and 9.2 MHz. The output is fed through buffer amplifier Q_{902} (2SC372Y) to the PREMIX UNIT. Trimmer capacitors TC_{901}–TC_{905} provide for precise adjustment of the crystal frequency.

The VFO signal also passes through buffer Q_{902} and is passed to the PREMIX UNIT.

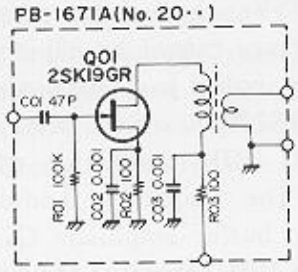
LOCAL UNIT (PB-1840)

A premix local signal of 70.01–73.01 MHz is generated by Q_{1001} (2SC785BN) and amplified by buffer amplifier Q_{1002} (2SC372Y). This signal is delivered to the PRE MIX UNIT for mixing with the VFO signal. The frequency mixing scheme is shown in Figure 4.

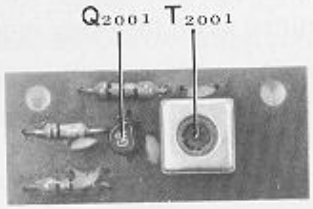
PREMIX UNIT (PB-1861)

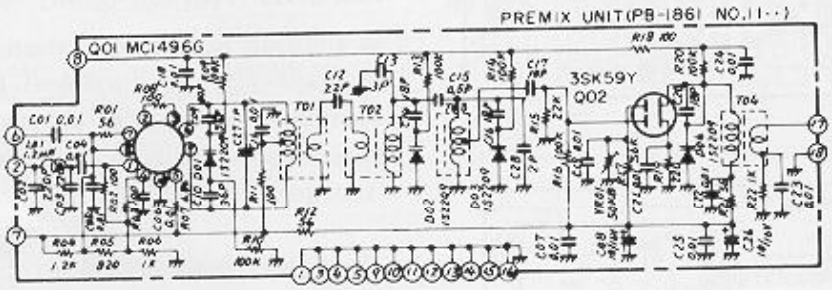
The premix system utilizes double balanced mixer Q_{1001} (**MC1496G**). Here the premix local signal at 70.01–73.01 MHz is mixed with the VFO signal at 8.2–9.2 MHz, yielding an output local signal of 60.81–64.81. This frequency range, when mixed with the incoming RF signal, yields the first IF of 10.81 MHz.

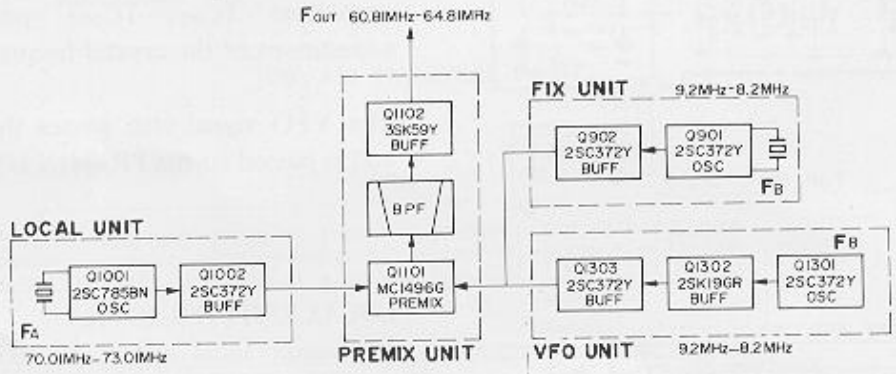
The output from Q_{1101} is passed through a band-pass filter consisting of T_{1101}, T_{1103}, and varactor diodes D_{1101} – D_{1103} (**1S2209**). The filtered signal is amplified by buffer Q_{1102} (**3SK59Y**) and delivered to the COUNTER BUFFER UNIT, RF UNIT, and the EXCITER UNIT.



COUNTER BUFFER UNIT







BAND(MHz)	FA (MHz)	FB (MHz)	Fout (MHz)
50.0-51.0	70.01	9.2-8.2	60.81-61.81
51.0-52.0	71.01		61.81-62.81
52.0-53.0	72.01		62.81-63.81
53.0-54.0	73.01		63.81-64.81

Fig. 4

FREQUENCY MIXING CHART

COUNTER UNIT (PB-1867)

The frequency of operation is indicated in MHz, kHz, and to 100 Hz resolution by six large light-emitting diode display digits.

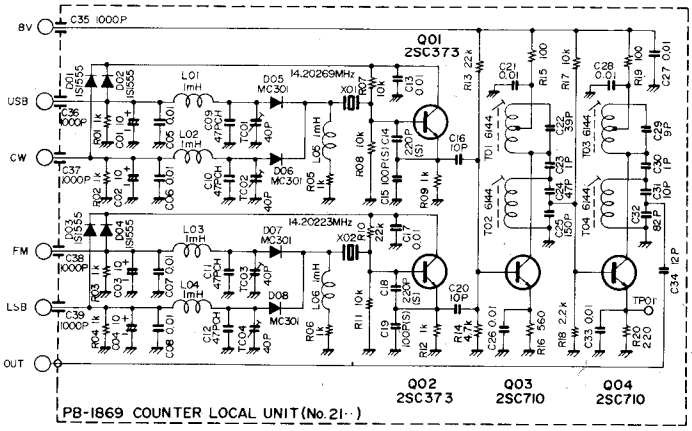
The signal from the PREMIX UNIT is amplified by Q_{1801} (2SK19GR) and fed to double balanced mixer Q_{1802} (SN76514). Here the 60.81–64.81 MHz premix signal is mixed with a local signal from the OSC UNIT of 56.81 MHz, producing a 4–8 MHz signal at its output.

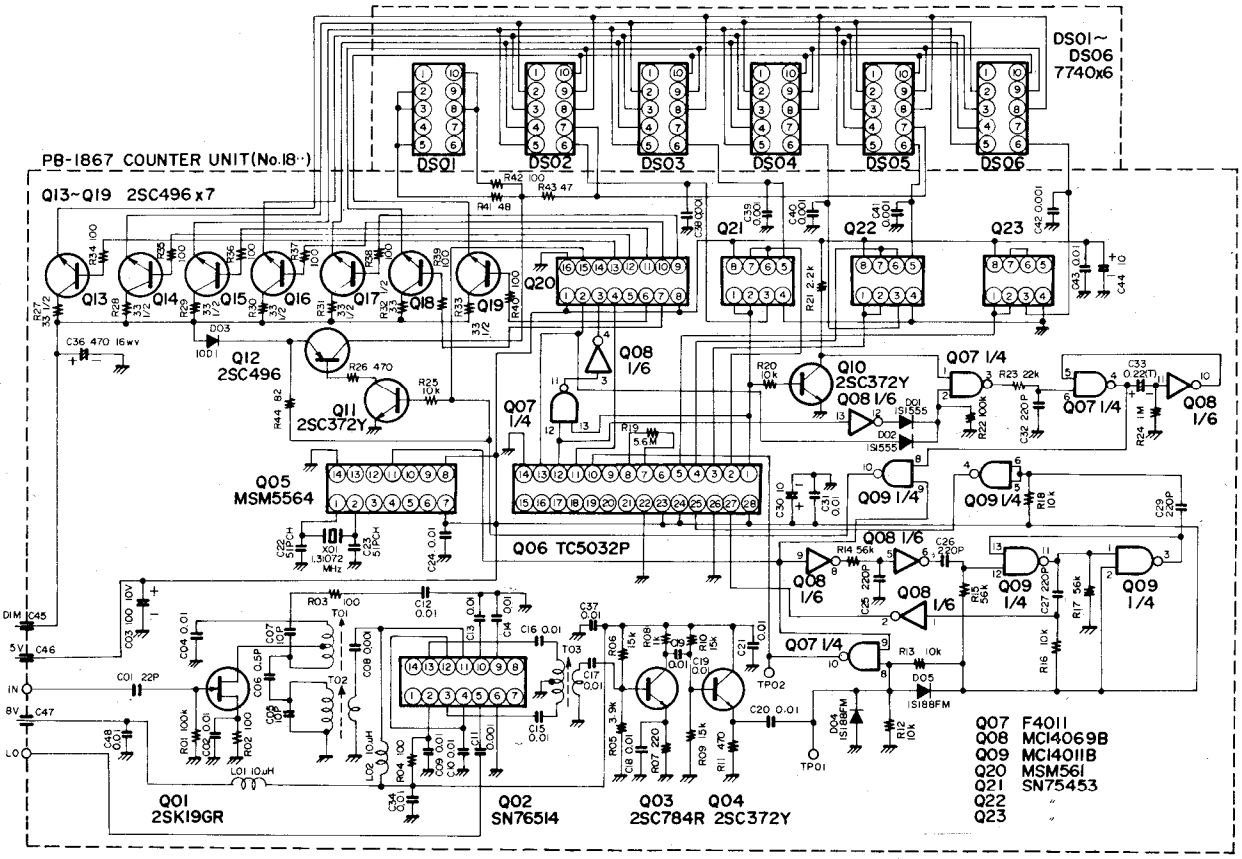
The 4–8 MHz signal is amplified by Q_{1803} (2SC-784R), and fed through a wave shaper, Q_{1804} (2SC372Y), to counter gate Q_{1807} (F4011), which counts the pulses which pass while the gate is open. The pulses are fed to the six digit decade counter, Q_{1806} (TC5032P), which counts 100 Hz, 1 kHz, 10 kHz, 100 kHz, and 1 MHz. The BCD output signal from Q_{1806} is fed through LED dimmer Q_{1802} (MSM561) and Q_{1813}–Q_{1819} (2SC496) to the display LED's, DS_{01}–DS_{06} (HP5082–7740). Q_{1821}–Q_{1823} (SN75453) act as a series of switches operated by a timing signal delivered from Q_{1806} to select the output of Q_{1806} which drives the display in the sequence 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz.

When the transceiver is tuned below 50.000 MHz or above 53.999 MHz, Q_{1811}(2SC372Y) and Q_{1812} (2SC496) generate a blanking signal to the LED drivers.

OSC (COUNTER LOCAL) UNIT (PB-1869)

This unit is used to generate a 56.81 MHz heterodyne signal for oscillates at 14.20269 MHz for USB/CW, and 14.20223 MHz for AM, FM, and LSB. Its output is multiplied by 4 by doublers Q_{2103} and Q_{2104} (2SC710), producing the 56.81 MHz signal. A diode switch in series with crystal X_{1801} provides frequency compensation when the mode is changed.





POWER SUPPLY and REGULATOR UNIT (PB-1858)

The power supply has been designed for operation from 100/110/117/200/220/234 volts AC, 50/60 Hz, or 12 volts DC, negative ground. Inserting the appropriate power cord into the rear panel receptacle makes the connections necessary for operation from the AC or DC supply.

For AC operation, the DC voltage is supplied from bridge rectifier unit D_2 **(S15VB10)**, which is connected to a 20 volt, 6 amp secondary winding of the power transformer. The DC voltage is stabilized at 13.8 volts by the voltage regulator circuit consisting of Q_{1401} **(2SD313)**, Q_{1402} **(2SC372Y)**, Q_1 **(MJ802)** and D_{1402} **(WZ-090)**.
Since such circuits as the VFO, FIX, and LOCAL units require an extremely stable voltage, the 13.6 V DC supply is further stabilized at 8 volts by Q_{1404} **(μPC14308)**.

Q_{1403} acts as a switch to disable the voltage regulators when the current exceeds a preset value.

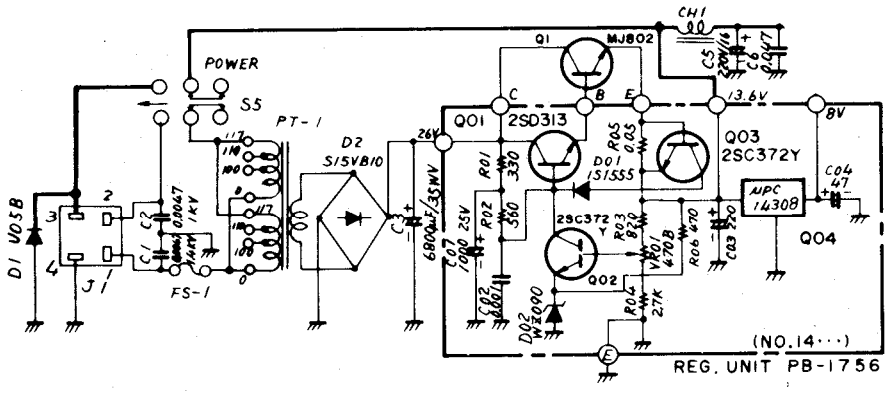
For DC operation, the positive voltage is connected to pin 3 and the negative voltage to pin 4 of the power receptacle. To protect the circuits from reversed polarity of the DC voltage, D_1 **(U05B)** conducts heavily under reversed polarity conditions to blow the line fuse in the DC cord.

VOX OPERATION

A portion of the speech input from the microphone is amplified by Q_{407} **(2SC372Y)** on the AF UNIT, passed through VOX GAIN control VR_{4a}, further amplified by Q_{408} **(2SC372Y)**, and applied to the base of Q_{409} **(2SC373)**, Q_{409} conducts with the speech signal, causing the collector to reach the "low" state. When a speech signal is not present, Q_{409} cuts off, and the voltage across C_{424} becomes "high".

C_{424}, VR_{401}, R_{434}, and R_{437} form the delay circuit to adjust the VOX relay hold time. The collector voltage is applied to NAND gate Q_{415} **(MC14011B)**, causing pin 8 to become "high".When pins 8 and 9 are "high", pin 10 becomes "low", causing Q_{410} **(2SC373)** to cut off. In turn, relay controller Q_{411}**(2SC735)** actuates the VOX relay.

The antitrip circuit provides a bucking voltage to prevent the speaker output from tripping the transmitter. The receiver audio output is connected through ANTITRIP potentiometer VR_{402} to the antitrip amplifier, Q_{414}**(2SC372Y)**. Amplifier Q_{413} **(2SC373)** conducts with the rectified voltage provided from D_{403} **(1S1555)**, thus keeping the potential at pin 9 of Q_{415} "low", maintaining Q_{415} in an "off" configuration while receiving.



The collector voltage of Q_{413} is also fed to the base of Q_{412}, which conducts with high collector voltage on Q_{413}, causing Q_{414} to become "high" rapidly for immediate relay actuation when a speech signal appears in the microphone circuit.

CW SIDETONE

Tone oscillator Q_{418} (2SC373) operates when the MODE switch is in the CW position. It is a phase shift oscillator, operating at approximately 800 Hz.

The tone output is activated by the keying circuit through the emitter circuit of Q_{418}. It is coupled through sidetone level control VR_{403} to the receiver audio amplifier Q_{403} for sidetone monitoring. The output from Q_{418} is also coupled to VOX amplifier Q_{408} for semi-break-in operation.

ALC

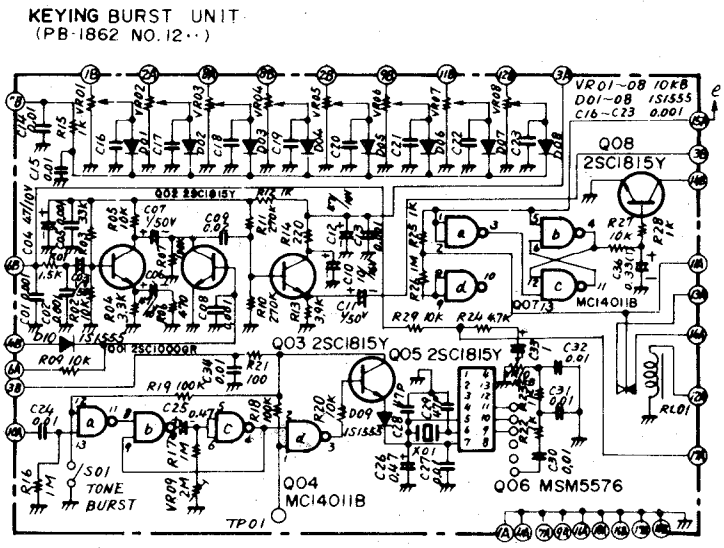
A small portion of the output from the EXCITER UNIT is rectified by diodes D_{709} and D_{710} (1S1555) and the resulting DC voltage is amplified by Q_{705} (2SC784R) and Q_{706} (MPSA13). The output of Q_{706} is applied to the gate of Q_{1712} and Q_{702}. ALC bias control VR_{701} controls the bias applied to Q_{706}, and the gain of Q_{1712} and Q_{702} can then be controlled to limit the drive applied to the final amplifier, preventing any distortion caused by overdrive.

TONE BURST UNIT (PB1862)

When the PTT switch is closed, a DC voltage is applied to trigger Q_{1204} (MC14011B), a NAND gate which produces a pulse of 0.5–1 second duration. The pulse switches Q_{1205} (2SC1815Y) to supply DC voltage to Q_{1206} (MSM5576), where the clock signal is divided by 1024, 2048, or 4096, producing an accurate tone burst signal. This signal is fed to the base of the microphone amplifier Q_{610}. The tone length is set by VR_{1209}, and the level is set by VR_{1210}.

AMGC

The AMGC circuit is located on the FM IF UNIT, and is used to reduce the gain of the microphone amplifier when only low-level background noise is present (no speech input from the operator). The microphone signal is fed to pin 17 of the circuit board, is amplified by Q_{501} (TA7063), and is delivered to Q_{502} (2SC1815Y). When a sufficient level of speech input is applied to the microphone,



Q_{502} conducts, causing the output of NAND gate Q_{503} (MC14011B) to be "low". This condition cuts off AMGC controller Q_{504} (2SC1815Y). The collector circuit of Q_{504} is connected to the base of the microphone amplifier, Q_{1202}.

When the microphone input signal strength becomes significantly lower than the normal speech level (background noise only), Q_{502} turns off, causing the output of Q_{503} to be "high". This condition causes Q_{504} to conduct, grounding the output circuit of Q_{1202}.

VR_{502} controls the gate holding time.

MAINTENANCE & ALIGNMENT

GENERAL

Your FT-625RD transceiver has been carefully aligned and tested at the factory prior to shipment. The reliability of the solid-state devices used in the FT-625RD should provide years of trouble-free service if the transceiver is not abused, and if routine maintenance is carried out.

The following precautions should be observed, so as to prevent damage to the transceiver:

(1) Do not interchange the AC and DC power cords.
(2) Do not apply any AC voltage other than that voltage determined by the transformer primary winding.
(3) When replacing fuses, be certain to use a fuse of the proper rating for the voltage being used.
(4) Do not exceed 14 volts DC, at the POWER receptacle, for DC operation. When operating mobile, the battery voltage should be measured with the battery under load (transmitter "keyed" in the FM mode), with the engine running fast enough so that the ammeter shows a "charge". In addition, do not operate the FT-625RD if the supply voltage is less than 12 volts DC.
(5) Avoid direct exposure to sunlight or water.

ROUTINE MAINTENANCE

Routine maintenance should be limited to keeping the transceiver clean, and performing occasional performance checks of the transmitter RF power output and the receiver sensitivity.

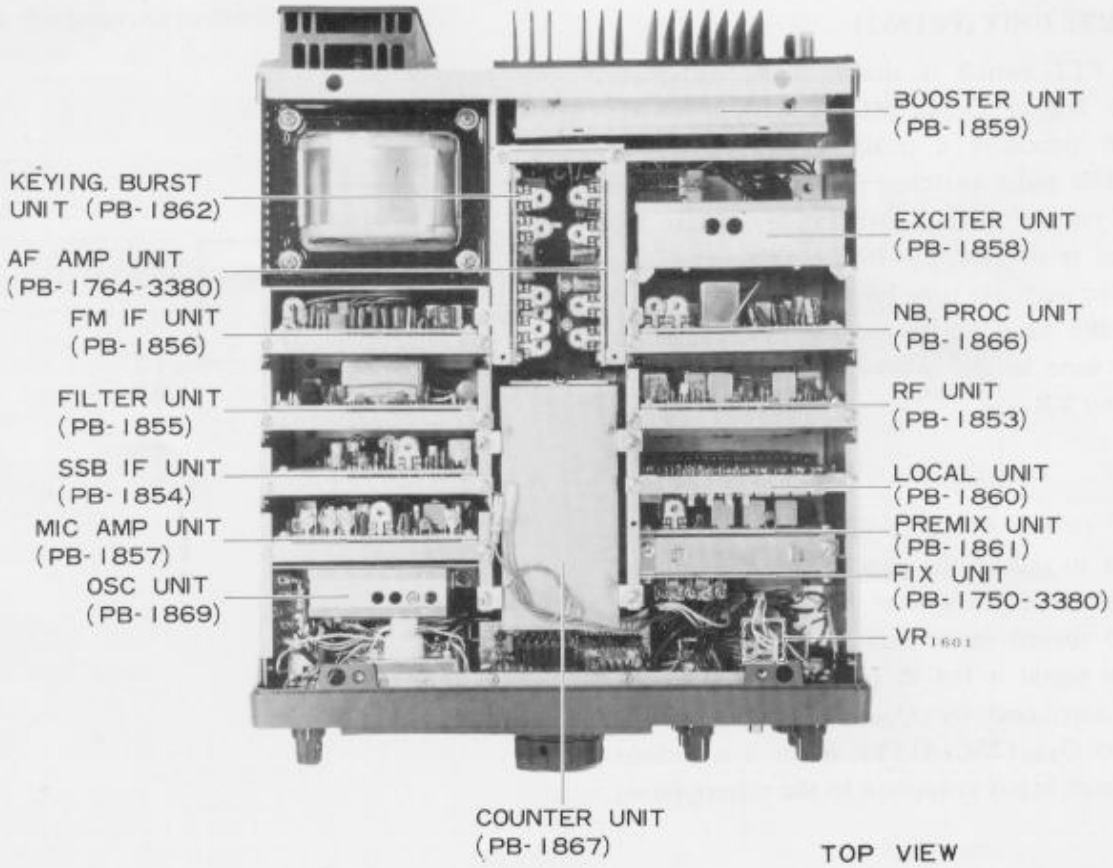
Cleaning:

When the transceiver has been used in a dusty or sandy environment, the interior should be cleaned periodically. A vacuum cleaner or low pressure air blower should be used.

Accumulated dirt may be removed with a soft brush. Check that the interior is thoroughly dry before replacing the cabinet and/or operating the equipment. Wipe the exterior with a damp cloth when necessary.

PERFORMANCE CHECKS

Make all performance checks at 13.6 volts DC (under load), or on the appropriate AC voltage as determined by the transformer primary wiring.



TOP VIEW

Check the transmitter as follows:

(a) Connect a suitable 50 ohm dummy load/RF wattmeter to the ANT receptacle.

(b) Set the MODE switch to the FM position, and key the transmitter while observing the power output, which should be approximately 25 watts. At full power, the S-meter should indicate between 6 and 8 on the relative power output scale.

(c) Set the MODE switch to SSB, and key the transmitter. Speak in a normal voice into the microphone. The output meter should indicate between 3 and 5 nominally.

Check the receiver sensitivity as follows:

(a) Connect an AC VTVM to the SP jack. Set the MODE switch to the FM position, and set the SQUELCH control fully counterclockwise.

(b) Connect the RF output of a precision VHF signal generator to the ANT receptacle and note the VTVM reading with no signal input. Adjust the AF GAIN control and the VTVM range, as required, to obtain a full scale VTVM reading. Do NOT change the setting of the AF GAIN control after this calibration has been made.

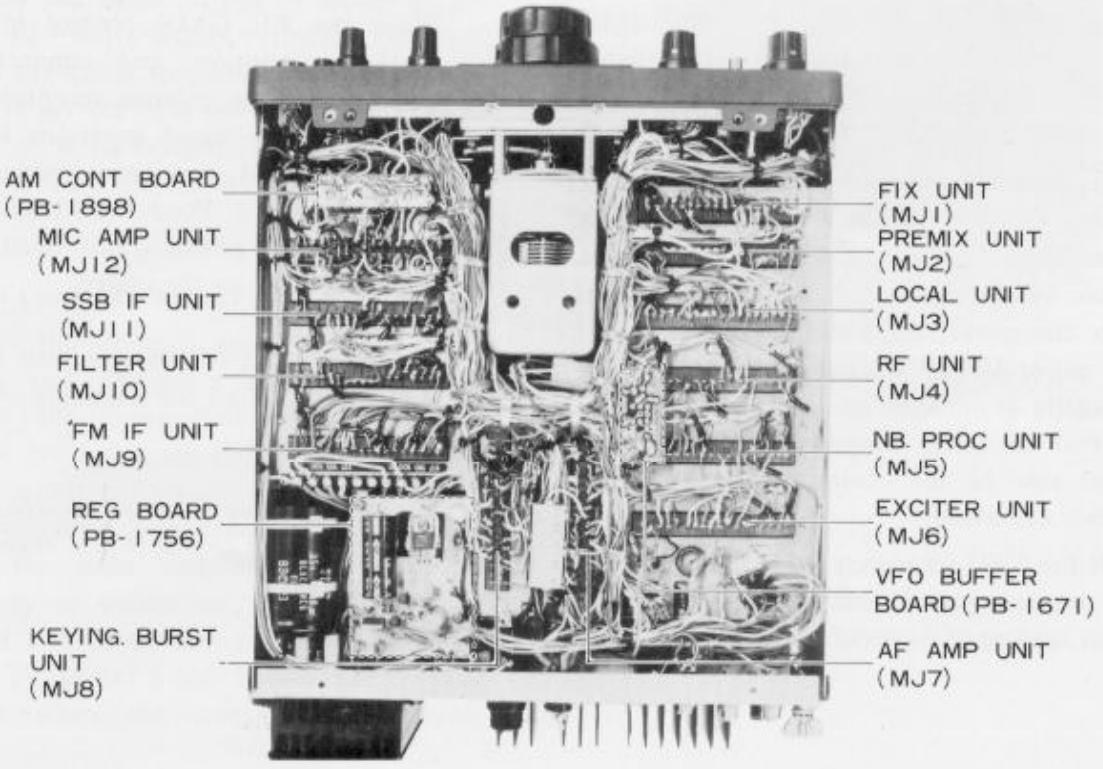
(c) Set the signal generator to the receiving frequency of the transceiver, and adjust the output amplitude of the signal generator until the VTVM reads 1/100th (20 dB decrease) of the reading in step (b). The signal generator output voltage at this point is the 20 dB quieting sensitivity, and it should be approximately 0.35 μV.

(d) Set the MODE switch to SSB, and connect the AC VTVM to the speaker output. Apply an unmodulated 0.5 μV signal from the signal generator, and tune the transceiver tuning dial for a maximum VTVM reading.

(e) Advance the RF Gain control to the fully clockwise position, and adjust the AF GAIN control for a reading of 450 mV on the VTVM.

(f) Reduce the signal generator output, and read the VTVM; the VTVM reading should be less than 45 mV for a 10 dB S/N ratio.

If the above checks indicate a need for realignment, it is recommended that the unit be returned to the dealer for this procedure. Alignment requires special test equipment not normally available to the average station owner. Adjustment of the tuned circuits without the proper equipment or technical expertise will result in degraded transceiver performance.



BOTTOM VIEW

ALIGNMENT

SOME OF THE FOLLOWING PROCEDURES REQUIRE SPECIAL TEST EQUIPMENT AND TECHNICAL KNOWLEDGE, AND SHOULD BE PERFORMED ONLY BY AN EXPERIENCED TECHNICIAN.

AF UNIT (PB-1764A-3380)

(1) CW Semi-break-in

Adjust VR_{401}, the DELAY control, for the desired relay hold time.

(2) CW Sidetone Level

Adjust VR_{403} for the desired sidetone level.

(3) Antitrip

Set the ANTITRIP control, VR_{402}, to the minimum point that will prevent the speaker output from activating the VOX.

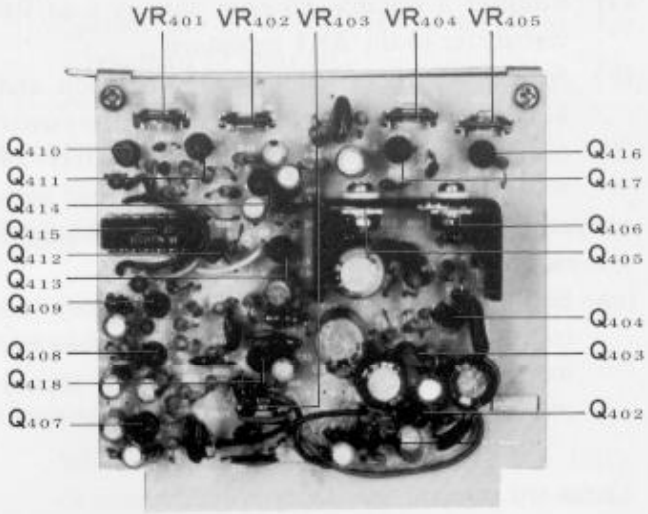
(4) Discriminator Center Meter

Set the controls as follows:

CHANNEL ..... VFO
MODE ..... FM
DISC ..... OFF (S-meter position)
RF GAIN ..... Fully clockwise
MARKER ..... ON (Analog model; for 625RD, connect signal generator to antenna receptacle)

Tune the transceiver for a maximum S-meter reading on the marker or signal generator signal. Tune the main dial so as to find the center of the maximum signal indication. Place the meter switch in the DISC position, and adjust VR_{404} so that the meter pointer is exactly at midscale on the meter. Check to see that the meter moves an equal amount on either side of the center for an equal frequency excursion.

Shift the VFO frequency 10 kHz higher than the reference signal, and adjust VR_{405} for a meter reading of 8 on the PO scale.



AF UNIT (PB-1764—3380)

SSB IF UNIT (PB-1854)

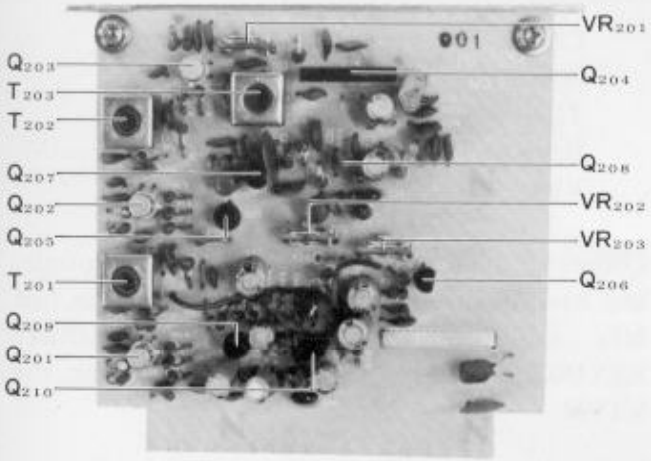
(1) S-Meter Setting

Disconnect the antenna from the coax receptacle. Set the MODE switch to AM, and set the RF GAIN control to the fully counter-clockwise position. Adjust VR_{202} **(FULL SCALE)** until the meter reads full scale.

Place the RF GAIN control in the fully clockwise position, and connect a signal generator to the antenna receptacle. Set the output of the signal generator to +3dB at 52 MHz, and tune the receiver to the generator signal. Place the TUNE control in the 12 o'clock position, and adjust VR_{201} for a reading of S1 on the meter.

Set the output of the generator to +20 dB, and adjust VR_{203} for a reading of S9 on the meter.

These adjustments should be repeated several times, in order to secure proper calibration of the S-meter.



SSB IF UNIT (PB-1854)

MIC AMP UNIT (PB-1857)

(1) SSB Carrier Frequency

Connect a 50 ohm dummy load, such as the Yaesu YP-150, to the antenna receptacle, and connect the output of an audio oscillater to the microphone input. Set the MODE switch to an SSB mode. Apply a 1500 Hz tone to the microphone input, and adjust the SSB MIC GAIN or the audio output to secure an RF output of 5 watts. Without changing the level, change the audio frequency to 300 Hz, and adjust TC_{601} for LSB and TC_{602} for USB to obtain 2 watts output. Change the audio frequency to 2700 Hz, the output should be 2 watts.

(2) AM/CW Carrier Frequency

Tune the transceiver in the USB mode into a dummy load, and use a separate receiver to monitor the transmitted signal. Tune the external receiver until the transmitted voice quality is natural. Change the FT-625RD to AM (leave the external receiver in USB), and rotate the main dial 800 Hz higher in frequency as shown on the digital display (4/5 of 1 kHz division on analog display). Adjust TC_{604} for a zero beat in the monitor receiver when the transmitter is keyed.

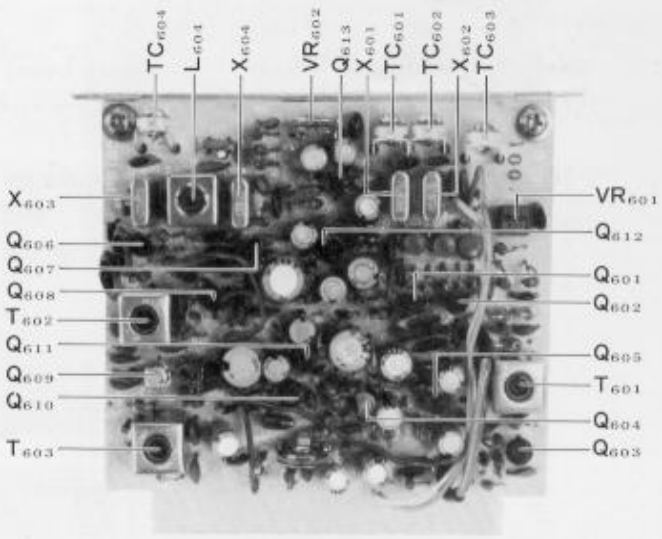
(3) Carrier Balance

Connect a dummy load to the antenna receptacle, and the RF probe of a VTVM to the center conductor of the antenna receptacle. Se the MODE switch to LSB. Set the MIC GAIN control to the fully counter-clockwise position. Set the VOX GAIN control to the MOX position, and adjust VR_{601} and TC_{603} for a minimum reading on the VTVM. A nominal value will be less than 0.2 V.

Repeat this procedure on USB, then repeat again on LSB, so that a minimum reading is obtained on both sidebands.

(4) AM Carrier Level

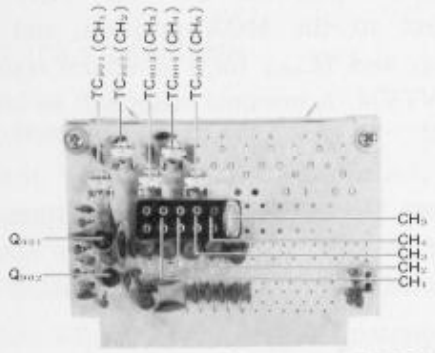
Set the MODE switch to AM, and key the transmitter. With no audio input, adjust VR_{2301} **(AM CONT UNIT)** for a reading of 15 watts into a dummy load/wattmeter.



MIC AMP UNIT (PB-1857)

FIX UNIT (PB-1750-3380)

Precise frequency alignment of optional fixed channel crystals may be made by adjustment TC_{901} –TC_{905} for channels 1–5, respectively.



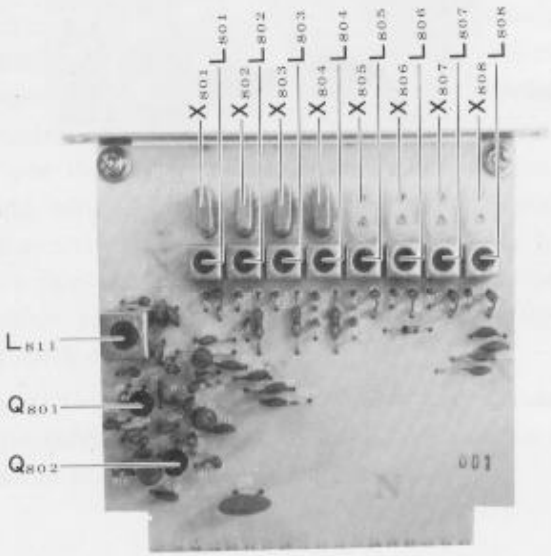
FIX UNIT (PB-1750-3380)

LOCAL UNIT (PB-1860)

Set the BAND switch to 50, and connect precision frequency counter to pin 2 of MJ3. Adjust L_{1001} for a counter reading of 70.010 MHz.

Set the band switch to 51, and adjust L_{1002} for a counter reading of 71.010 MHz.

In like fashion, L_{1003} and L_{1004} should be adjusted for readings of 72.010 and 73.010 MHz, with the BAND switch in the 52 and 53 positions, respectively.



LOCAL UNIT (PB-1860)

PREMIX UNIT

Preset the controls as follows:

CHANNEL ..... VFO
MAIN DIAL 500
TUNE ..... 12 o'clock position
BAND 50
RPT .....OFF

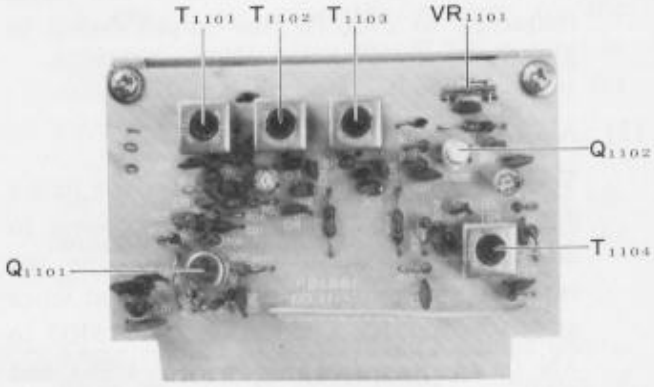
Connect a dummy load to the antenna receptacle, and connect the DC probe of a VTVM to pin 7 of MJ_6. Adjust VR_{1201}, located on the BURST/KEYING UNIT, for a reading of 3.2 V on the VTVM.

Adjust the following controls for the readings shown below, for the specified bandswitch positions:

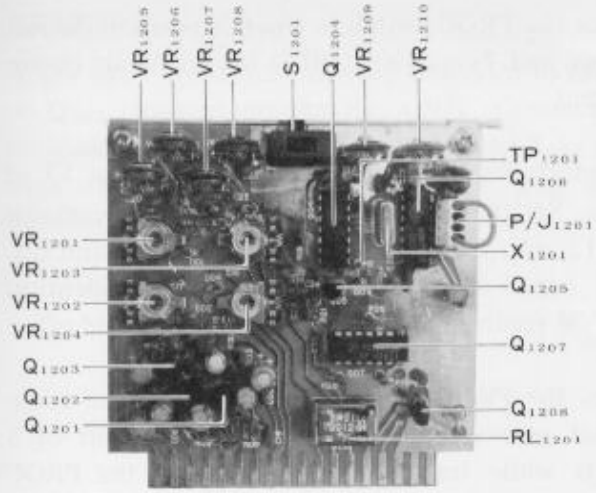
BAND	CONTROL	VTVM READING
51	VR_{1202}	4.2 V
52	VR_{1203}	5.2 V
53	VR_{1204}	6.2 V

Set the BAND switch to 52.

Now connect the RF probe of the VTVM to pin 4 of MJ_6. Peak T_{1101} –T_{1104}, and reset VR_{1101} for a reading of 200 mV. This process should be repeated several times so that the peaking of the transformers corresponds to a 200 mV reading.



PREMIX UNIT (PB-1861)



BURST. KEYING UNIT (PB-1862)

Set the VFO knob to 0. Peak the front panel TUNE control for a maximum reading on the VTVM. Note the position of the TUNE control: this position will be used in future alignment steps, and will be referred to as "52 MHz position". This position should be very close to the 12 o'clock position.

Set the VFO to 500. Set the TUNE control to the 12 o'clock position. Set the BAND switch to 50, and peak VR_{1201} for a maximum reading on the VTVM. Place the BAND switch to 51, and peak VR_{1202} for a maximum VTVM reading. Set the BAND switch to 53, and peak VR_{1204} for a maximum VTVM reading.

Do not adjust VR_{1203} with the BAND switch in the 52 position, because it has already been adjusted.

For peaking of optional auxiliary repeater split crystals, peak VR_{1205}–VR_{1208} for 50–54 MHz, respectively, for a maximum VTVM indication. The RPT switch should be at NOR, and the AUX position should be selected.

EXCITER, BOOSTER UNITS (PB-1858, 1859)

For peaking of the driver and final amplifier stages, preset the controls as follows:

BAND 52
MODE ..... FM
VFO 0
TUNE ..... 52 MHz position

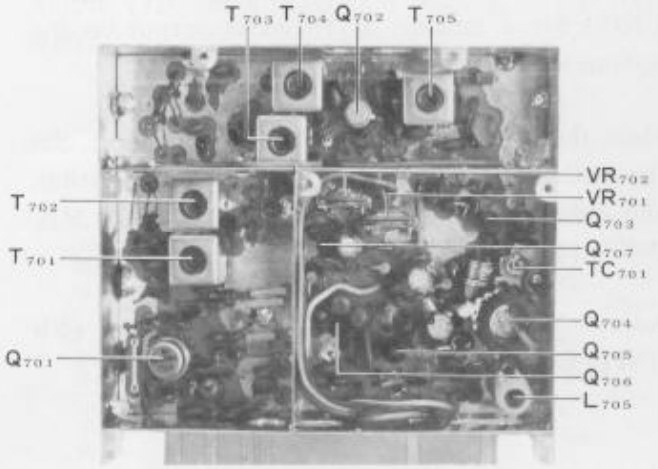
Connect a dummy load/wattmeter to the antenna receptacle.

Connect the RF probe of a VTVM to pin 6 of MJ_5. Peak T_{1707} for a maximum VTVM reading while transmitting.

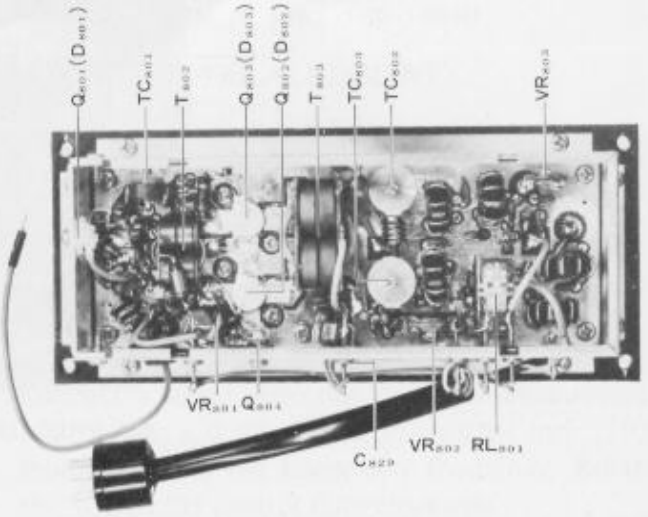
Connect the RF probe of the VTVM to pin 17 of MJ_6. Peak T_{701}–T_{705}, TC_{701}, and L_{705} for a maximum reading on the VTVM.

Connect a DC ammeter between the 13.6 V DC line and feedthrough capacitor C_{829} to which the DC line is connected. Set the front panel PWR CONTROL fully counterclockwise, and adjust VR_{801}, located on the BOOSTER UNIT, for a reading of 150 mA while transmitting.

Rotate the PWR CONTROL fully clockwise. Rotate VR_{701} and VR_{702} **EXCITER UNIT)** fully clockwise. Adjust TC_{801}–TC_{803} **(BOOSTER UNIT)** for maximum power output as indicated on the wattmeter.



EXCITER UNIT (PB-1858)



BOOSTER UNIT (PB-1859)

ALC, PO METER, and AFP

Connect a DC voltmeter to pin 11 of MJ_6. Adjust VR_{803} for a minimum voltage reading while transmitting.

While transmitting, adjust VR_{701} **(EXCITER UNIT)** for a reading of 25 watts on the wattmeter.

While transmitting at full power, adjust VR_{802} for a reading of 8 on the front panel PO meter.

Remove the dummy load from the antenna receptacle. Transmit at full power, and adjust VR_{702} for a reading of 2 on the PO meter.

Connect the dummy load/wattmeter to the antenna receptacle, and place the MODE switch in the AM position. Place the AM carrier control in the 3 o'clock position.

While transmitting, adjust VR_{2301} **(AM CONT UNIT)** for a reading of 15 watts output on the wattmeter.

Place the MODE switch in the SSB position. Set the MIC GAIN control to the 12 o'clock position, and connect an audio signal generator to the MIC jack. Apply a 1 kHz, 1.5 mV audio signal.

Adjust T_{601} **(MIC AMP UNIT)** and T_{1704} **(NB UNIT)** for maximum power output.

Place the PROC switch in the ON position. Adjust T_{1705} and T_{1706} (NB UNIT) for maximum power output.

Connect the DC probe of a VTVM to pin 13 of MJ_6. Set the output of the audio signal generator to 15 mV. Switch the PROC control on and off, and adjust VR_{1702} **(NB UNIT)** for an identical VTVM reading with the RF processor on and off.

Turn the PROC switch off, and adjust the audio signal generator to secure a power output of 5 watts while transmitting. Now place the PROC switch ON, and adjust VR_{1701} **(NB UNIT)** for a reading of 10 watts output on the wattmeter.

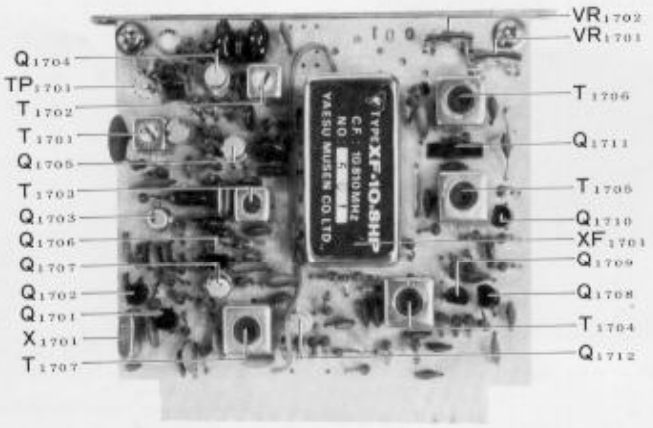
NOISE BLANKER ALIGNMENT

Preset the controls as follows:

BAND 52
VFO 0
TUNE ..... 52 MHz position
ATT ..... OFF

Connect a signal generator to the antenna receptacle. Apply a 40 dB signal from the generator to the transceiver frequency, and connect a DC voltmeter to TP_{1701} **(NB UNIT)**. Place the NB switch ON.

Adjust T_{1701}–T_{1703} **(NB UNIT)** for a minimum reading on the DC voltmeter.



NB. PROC UNIT (PB-1866)

RF UNIT

Apply the output from a sweep generator to gate 1 of Q_{102}, located on the RF UNIT. Connect an oscilloscope to the drain of Q_{104}. Adjust T_{105} and T_{106} until the scope pattern shown in Fig. 5 is obtained.

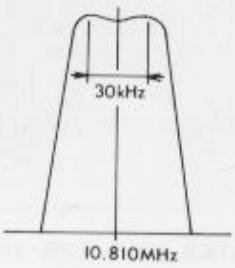


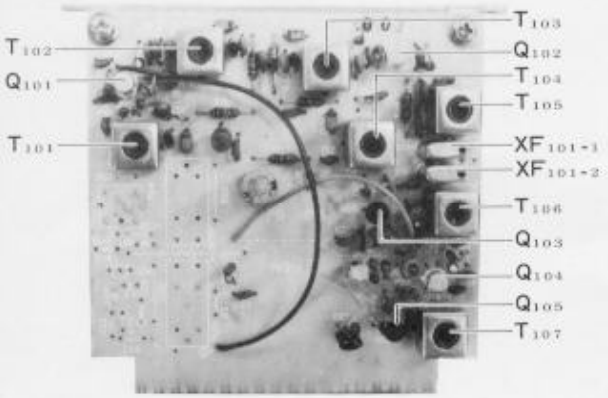
Fig. 5

Set the controls as follows:

BAND ..... 52 MHz
VFO 0
TUNE ..... 52 MHz position

Connect a signal generator to the antenna receptacle.

Apply a 10 dB signal from the signal generator, and tune the generator output to the transceiver receiving frequency. Adjust T_{101}–T_{104} and T_{107} **(RF UNIT)**, T_{301} **(FILTER UNIT)**, and T_{202}–T_{203} **(SSB IF UNIT)** for a maximum S-meter deflection. The adjustment of these cores should be performed several times to ensure peaking.



RF UNIT (PB-1853)

FM IF UNIT

Preset the controls as follows:

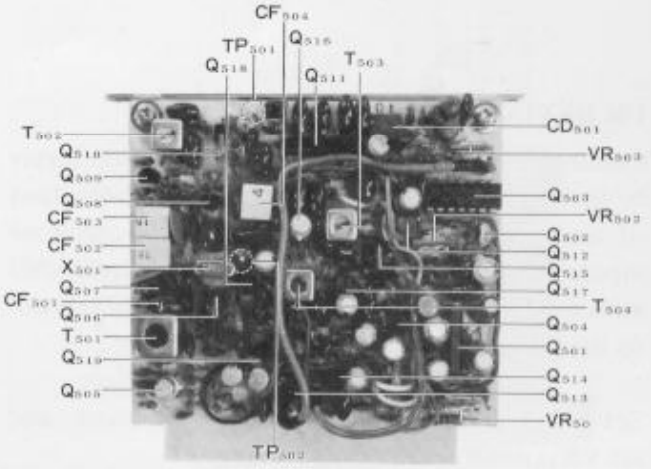
BAND 52
VFO 0
TUNE ..... 52 MHz position
ATT ..... OFF
MODE ..... AM

Connect a signal generator to the antenna receptacle, and apply a 20 dB signal to the transceiver frequency. Connect a DC voltmeter to TP_{502} **(FM IF UNIT)**.

Adjust T_{501}, T_{503}, and T_{504} for a minimum reading on the voltmeter.

Place the MODE switch in the FM position, and set the signal generator output to 40 dB. Connect the DC voltmeter to TP_{501} **(FM IF UNIT)**.

Adjust T_{502} for a maximum reading on the voltmeter.



FM IF UNIT (PB-1856)

SQUELCH LEVEL ALIGNMENT

Press the controls as follows:

BAND 52
VFO 0
TUNE ..... 52 MHz position
MODE ..... FM
ATT ..... OFF

Connect a signal generator to the antenna receptacle. Apply a 0 dB, 1 kHz modulated tone (70% modulation) to the transceiver frequency. Rotate the SQUELCH control fully clockwise.

Adjust VR_{503} **(FM IF UNIT)** to the threshold point where the receiver is just silenced.

Remove the generator signal. With no signal present, the receiver should remain quieted until the SQUELCH control is rotated to approximately the 10 o'clock position.

AMGC ALIGNMENT

Connect a DC voltmeter to pin 4A of MJ_8. Apply an audio signal of 1 kHz @ 0.7 mV to the microphone jack. Place the AMGC switch in the ON position, and adjust VR_{501} **(FM IF UNIT)** for a reading of 8 volts on the voltmeter.

Set the audio input level to 0.8 mV, and adjust VR_{501} for a reading of 0 volts.

Now adjust the delay time for the AMGC. Remove the audio input, and after 0.5 second, the voltage should again read 8 volts. VR_{502} adjusts the delay time. Clockwise rotation increases the delay time.

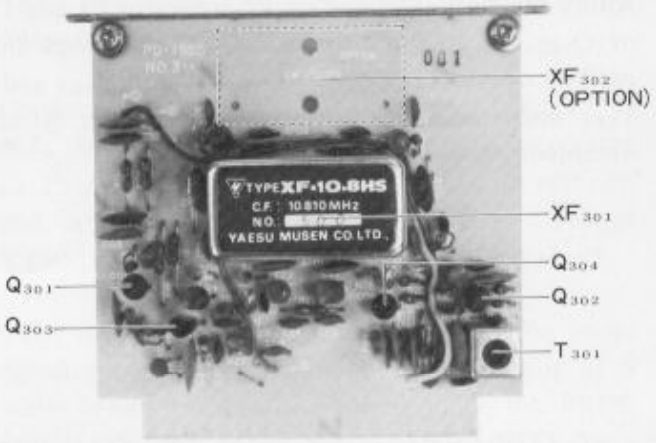
FM DEVIATION ADJUSTMENT

Connect a dummy load and an FM deviation meter to the antenna receptacle, and connect the output of an audio signal generator to the microphone input. Set the MODE switch to FM, set the BAND switch to 52, the VFO to 0 and the TUNE control to the 52 MHz position. Refer to Fig. 6 .

Set VR_{501} **(MIC AMP UNIT)** fully clockwise, and set VR_{504} to the center of its range.

Connect a frequency counter to pin 12 of the MIC AMP UNIT, and ensure that the audio signal generator is off. Adjust L_{604} for a reading of precisely 10.8100 MHz on the counter.

Apply a 1 kHz, 25 mV signal from the audio generator. Adjust VR_{602} for a deviation of 5 kHz. Now reduce the audio input level to 2.5 mV. Adjust VR_{603} for a deviation of 3.5 kHz.



FILTER UNIT (PB-1855)

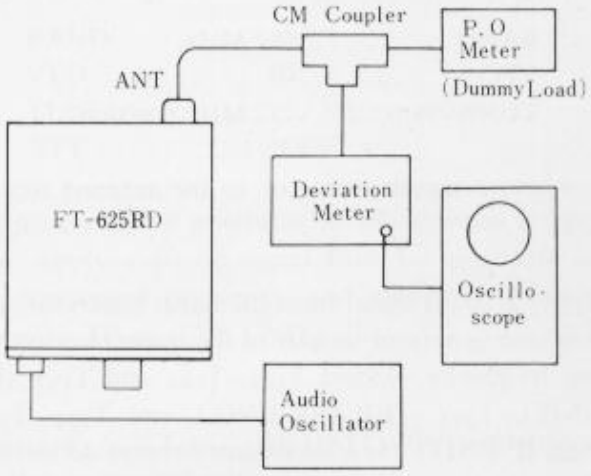


Fig. 6

COUNTER UNIT

Apply the output from a sweep generator to the gate of Q_{1801} (**COUNTER UNIT**). Connect an oscilloscope to pin 2 of Q_{1802}. Adjust T_{1801} and T_{1802} until the waveform shown in Fig. 7 is obtained.

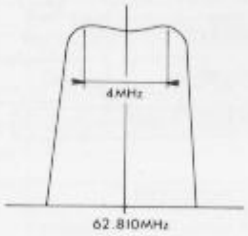


Fig. 7

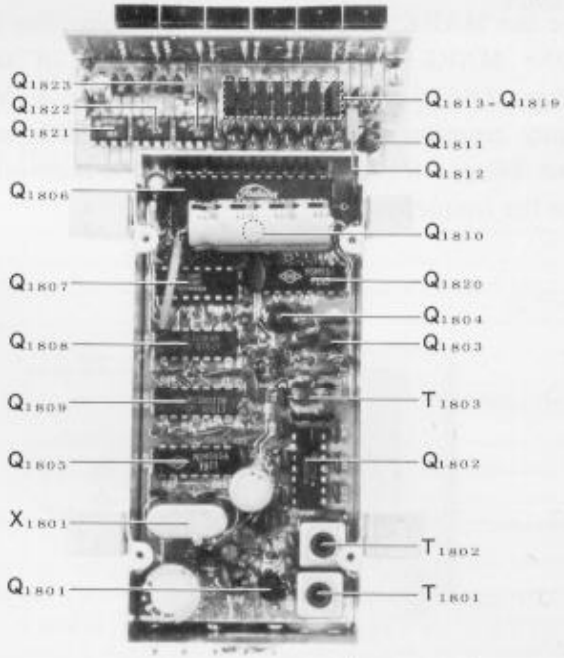
COUNTER LOCAL ALIGNMENT

Connect a DC voltmeter to TP_{2101} (**COUNTER LOCAL UNIT**). Place the MODE switch in the AM position. Adjust T_{2101} and T_{2102} for a maximum reading on the voltmeter.

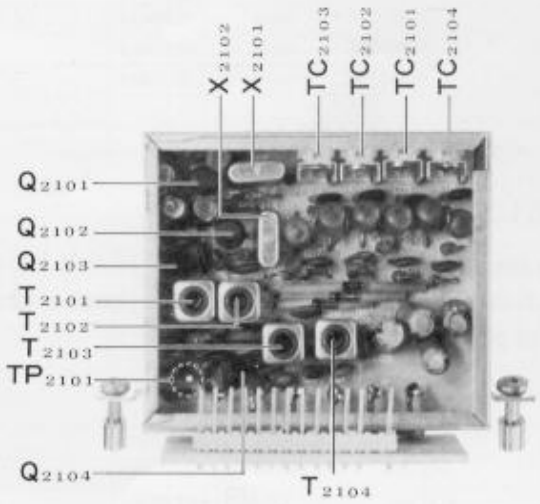
Connect a 56 ohm resistor between pin 6 of PB-1802 (connector board for PB-1869) and ground. Connect the RF probe of a VTVM to pin 6. Adjust T_{2103} and T_{2104} for a maximum reading on the VTVM.

Disconnect the VTVM, and connect a precision frequency counter to pin 6. Adjust the trimmer capacitors shown for the MODE switch positions indicated in the chart below.

MODE	TRIMMER	FREQUENCY
USB	TC_{2101}	56.8115 MHz
CW	TC_{2102}	56.8107 MHz
FM	TC_{2103}	56.8100 MHz
LSB	TC_{2104}	56.8085 MHz



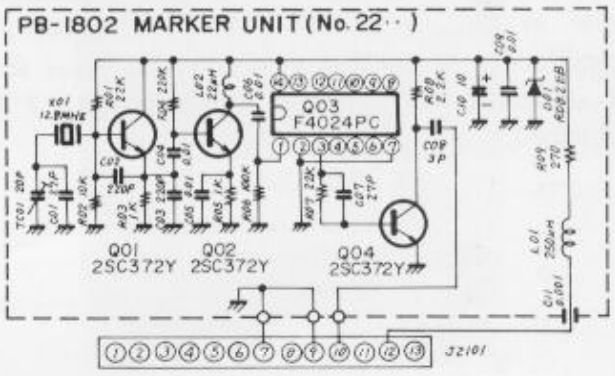
COUNTER UNIT (PB-1867)

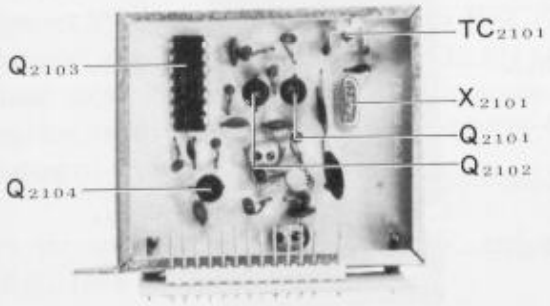


OSC UNIT (PB-1869)

MARKER CALIBRATION (FT-625R only)

Place the MARK switch in the ON position. Pin 10 of the MARKER UNIT is the output of the marker. Use the fundamental output of a frequency counter such as the Yaesu YC-500, and adjust TC_{2201} for a zero beat against the harmonic from the frequency counter.

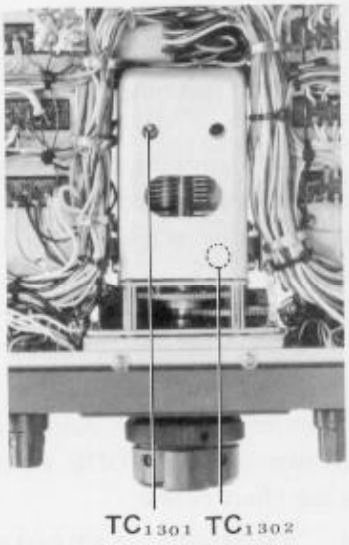




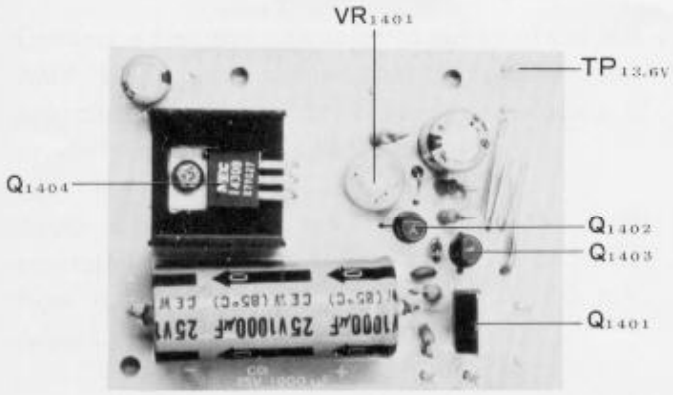
MARKER UNIT (PB-1802)

REG UNIT

VR_{1401} provides adjustment of the 13.6 V DC output from the REG UNIT. The test point is shown in the photograph.



VFO COMPARTMENT



Regulator unit (PB-1756)

FT-625RD PARTS LIST

MAIN CHASSIS

Symbol Number	Parts Number	Description
		IC & TRANSISTOR
Q2,5	25000116	IC μPC14308
Q3	25000109	〃 μPC14305
Q1	22490003	Transistor MJ-802
		DIODE
D1	21090130	Silicon U05B
D3~15	21090011	〃 10D1
D2	21090144	Bridge Rectifier Module S15VB10
		RESISTOR
R10	40143680	Carbon Film ¼W VJ 68Ω
R9,11	40143121	〃 〃 〃 〃 120Ω
R2	42124100	〃 Composition ½W GK10Ω
R13	42124270	〃 〃 〃 〃 27Ω
R1	42124101	〃 〃 〃 〃 100Ω
R12,14	42124181	〃 〃 〃 〃 180Ω
R4,5	42124102	〃 〃 〃 〃 1KΩ
R8	42144223	〃 〃 ¼W 〃 22KΩ
R7	42144274	〃 〃 〃 〃 270KΩ
		POTENTIOMETER
VR1	49800110	DM10A041A 10KΩC/10KΩA
VR2	49800111	DM10A041A 10KΩB/100KΩB
VR3	49900098	DM10A041 5KΩB/10KΩA
VR4	49800112	DM11A5M1112 10KΩB/10KΩA
VR5	49900100	EVH,BOAS25B54 50KΩB
		CAPACITOR
C14	31829010	Ceramic Disc 50WV SL 1PF
C1,2	30240472	〃 〃 1.4KV 0.0047μF
C15~19,23~25	30820103	〃 〃 50WV 0.01μF
C6~13	30820473	〃 〃 〃 0.047μF
C20~22	35220476	Electrolytic 16WV T 4.7μF
C26	34120107	〃 10WV 〃 100μF
C5	34320227	〃 16WV 〃 220μF
C4	35220228	〃 〃 R 2200μF
C3	34529001	〃 35WV 〃 6800μF
		TRIMMER CAPACITOR
TC1	39000005	ECV-1ZW 50×32 50PF
		MICRO INDUCTOR
L1,2,3	53020013	LA104N 151K 150μH
		AF CHOKE
CH1	55003001	SN8S-500
CH2	50000010	50-12 #230012
		POWER TRANSFORMER
PT1	52000052	52-56 #230015B
		METER
M1(with PL3)	74000370	SP-38A
		SPEAKER
SP1	76000017	4Ω 3W SA-77KY
		RELAY
RL1	70000005	AE-3171-42
RL2	70000031	BR211D012M
PB-1829	60418290	RL2, Support Board
		RELAY SOCKET
RLS	69000004	AE-3860
		SWITCH
S1	61000531	Channel SRN1026N
S2,4	64000520	Band SRN2064N
S3	61000533	Mode SRN4086N
S5	64000200	Power SP-2022
		PLUG
P1	68130002	5047-13
P2	68100012	5047-10
P3	67040002	SI 5908
		RECEPTACLE
J1	67040004	POWER QMS-AB4M
J2	68050003	TONE IN CS-250
J3	68020002	KEY SG-7615
J4	68020012	EXT SP SG-8050
J5	68040003	MIC FM-144S
J6	68020013	PHONE SG-8018
J7~10,14	68020001	REMOTE CN-7017J
J11	68090001	BOOSTER SB-7702
J12 (with wire)	68060018	MEMORY #240087
		MULTI JACK
MJ1~6,9,10,11	68180003	121S-18B-105 18P
MJ7,8,12	68360001	22D-36B-205 36P
		FUSE
F1	73000003	3A (100V~117V)
	73000002	2A (200V~234V)

FT-625RD PARTS LIST

		FUSE HOLDER	
FH1	69030001	SN1001	#2
		LAMP	
PL1,2	14000018	BQ044-32751A	
PL3	—	(Meter Lamp)	

RF UNIT

Symbol Number	Parts Number	Description
PB-1853	60418530	Printed Circuit Board
	018530AZ	P.C.B. with components
		FET & TRANSISTOR
Q103	22800195	FET 2SK19GR
Q102	23800510	〃 3SK51
Q101,104	23800594	〃 3SK59Y
Q105	22318154	Transistor 2SC1815Y
		DIODE
D112	21010070	Germanium 1S1007
D105	21090142	Silicon MC301
D101,103,104,106	21022090	Varactor 1S2209
D102,107	21090138	Varistor MV103
		MONOLITHIC FILTER
XF101	71000033	HCM10N2A2 #210111
		RESISTOR
R123,124	40143560	Carbon Film 1/4W VJ 56Ω
R114	41143101	〃 〃 〃 TJ 100Ω
R116	40143101	〃 〃 〃 VJ 100Ω
R112	40143221	〃 〃 〃 〃 220Ω
R109	41143102	〃 〃 〃 TJ 1KΩ
R105,118,122	40143102	〃 〃 〃 VJ 1KΩ
R128	40143472	〃 〃 〃 〃 4.7KΩ
R119	40143822	〃 〃 〃 〃 8.2KΩ
R113,125,126,127	40143103	〃 〃 〃 〃 10KΩ
R103,120	40143223	〃 〃 〃 〃 22KΩ
R108,111	40143473	〃 〃 〃 〃 47KΩ
R125	40143683	〃 〃 〃 〃 68KΩ
R101,106,107,110	41143104	〃 〃 〃 TJ 100KΩ
R102,115,117,121	40143104	〃 〃 〃 VJ 100KΩ
R104	40143225	〃 〃 〃 〃 2.2MΩ
		CAPACITOR
C109	31829059	Ceramic Disc 50WV SL 0.5PF
C107	31829010	〃 〃 〃 〃 1PF
C119	31820020	〃 〃 〃 〃 2PF
C102,111,115	31829150	〃 〃 〃 〃 15PF
C143	31820020	〃 〃 〃 CH 2PF
C141	31820040	〃 〃 〃 〃 4PF
C140.142	31820050	〃 〃 〃 〃 5PF
C113	31827180	Ceramic Disc 50WV UJ 18PF
C101,108,110	31827470	〃 〃 〃 〃 47PF
C104,112,121~123	30820102	〃 〃 〃 0.001μF
C103,105,106,114 116~118,120,124~127,129	30820103	〃 〃 〃 0.01μF
C131	36825103	Mylar 〃 0.01μF
C130	34220106	Electrotic 16WV T 10μF
C128	34220476	〃 〃 〃 47μF
		MICRO INDUCTOR
L101	53020006	FL4H6R8K 6.8μH
L102	53020024	FL5H270K 27μH
L103	53020023	FL5H101K 100μH
		TRANSFORMER
T101~103	55000308	#220407A
T104	55000309	#220408
T105,107	54140730	R12-4073 #220149
T106	54140740	R12-4074 #220150

SSB IF UNIT

Symbol Number	Parts Number	Description
PB-1854	60418540	Printed Circuit Board
	018540AZ	P.C.B with components
		IC, FET & TRANSISTOR
Q204	25000152	IC μPC1037H
Q205	22800195	FET 2SK19GR
Q201~203	23800594	〃 3SK59Y
Q206	22105641	Transistor 2SA564A-R
Q209	22310005	〃 2SC1000GR
Q207,208,210	22318154	〃 2SC1815Y
		DIODE
D203,204	21001880	Germanium 1S188FM
D201,202	21090138	Varistor MV-103
		RESISTOR
R209,210,216,217,222	40143560	Carbon Film 1/4W VJ 56Ω
R201,205	40143680	〃 〃 〃 〃 68Ω
R225,248	40143101	〃 〃 〃 〃 100Ω
R221	40143221	〃 〃 〃 〃 220Ω
R207,214,229,230,233,244	40143102	〃 〃 〃 〃 1KΩ
R241	40143122	〃 〃 〃 〃 1.2KΩ
R231	40143152	〃 〃 〃 〃 1.5KΩ
R250	40143222	〃 〃 〃 〃 2.2KΩ
R224,236,240	40143332	〃 〃 〃 〃 3.3KΩ
R249	40143472	〃 〃 〃 〃 4.7KΩ
R227,247	40143562	〃 〃 〃 〃 5.6KΩ
R234	40143822	〃 〃 〃 〃 8.2KΩ
R204,208,213,215,239	40143103	〃 〃 〃 〃 10KΩ
R238	40143153	〃 〃 〃 〃 15KΩ
R218	40143223	〃 〃 〃 〃 22KΩ
R243,246	40143273	〃 〃 〃 〃 27KΩ
R203,211,245	40143273	〃 〃 〃 〃 39KΩ
R237,242	40143393	〃 〃 〃 〃 47KΩ
R220	40143563	〃 〃 〃 〃 56KΩ
R202,212,219	40143104	〃 〃 〃 〃 100KΩ
R232	40143184	〃 〃 〃 〃 180KΩ
R228	40143224	〃 〃 〃 〃 220KΩ
R226	40143105	〃 〃 〃 〃 1MΩ
R235	40143155	〃 〃 〃 〃 1.5MΩ

FT-625RD PARTS LIST

		POTENTIOMETER	
VR202	49906103	EVL-SOAA 00B14	10KΩB
VR201	49906503	〃 00B54	50KΩB
VR203	40906504	〃 00B55	500KΩB

		CAPACITOR	
C201,207,212,229	31829100	Ceramic Disc 50WV SL	10PF
C216	31829180	〃 〃 〃 〃	18PF
C231,232	31829101	〃 〃 〃 〃	100PF
C249,250	31829221	〃 〃 〃 〃	220PF
C204,208,238	30820102	〃 〃 〃 〃	0.001μF
C202	38820103	〃 〃 〃	0.01μF
		(RD204YM 103Z)	
C203,205,206,209,210 211,213,214,215,217 218,219,221,223,224 226~228,234,236,247	30820103	〃 〃 〃	0.01μF
C230	30820473	〃 〃 〃	0.047μF
C244	36825102	Mylar 〃	0.001μF
C243	36825472	〃 〃	0.0047μF
C248	36825103	〃 〃	0.01μF
C233	36825223	〃 〃	0.022μF
C235	36226225	Tantalum 16WV	2.2μF
C239,241,245	34820105	Electrolytic 50WV T	1μF
C220,222,237,240	34220106	〃 16WV T	10μF
C225,242,246	34120476	〃 10WV 〃	47μF

		MICRO INDUCTOR	
L201,202	53020009	FL7H	1mH
L203	53020012	FL4H	1.2μH

		TRANSFORMER	
T201,202	54140730	R12-4073	#220149
T203	54140740	R12-4074	#220150

		FERRITE BEADS	
FB	56000024	RI 3×3×1	

FILER UNIT

Symbol Number	Parts Number	Description
PB-1855	60418550	Printed Circuit Board
	018550AZ	P.C.B with components

		FET & TRANSISTOR	
Q301,302,304	22800195	FET	2SK19GR
Q303	22318154	Transistor	2SC1815Y

		DIODE	
D301~306	21010070	Germanium	1S1007

		CRYSTAL FILTER	
XF301	71000034	XF10.8HS	#210112
XF302 (OPTION)	71000035	XF10.8HC	#210113

		RESISTOR	
R305,307,311,312 318,321,326,327	41143101	Carbon Film ¼W TJ	100Ω
R302,310,325	40143101	〃 〃 〃 VJ	100Ω
R301,303,304,306,308 R309,319,320,322~324	40143102	〃 〃 〃 〃	1KΩ
R317	40143222	〃 〃 〃 〃	2.2KΩ
R328,329	40143103	〃 〃 〃 〃	10KΩ
R316	41143473	〃 〃 〃 TJ	47KΩ
R315	40143473	〃 〃 〃 VJ	47KΩ
R313,314	40143104	〃 〃 〃 〃	100KΩ

		CAPACITOR	
C320	31820090	Ceramic Disc 50WV CH	9PF
C311	31820100	〃 〃 〃 〃	10PF
C314,316	31829470	〃 〃 〃 SL	47PF
C317	30820102	〃 〃 〃	0.001μF
C301,305~309,312,319 323~326,330,331	30820103	〃 〃 〃	0.01μF
C302~304,310,313,315 C318,321,322,327~329 332,333	30820473	〃 〃 〃	0.047μF

		MICRO INDUCTOR	
L301~306	53020013	FL-5H	150μH

		TRANSFORMER	
T301	54140730	R12-4073	#220149

		PIN TERMINAL	
	91100011	MS-60121	

AF UNIT

Symbol Number	Parts Number	Description	
PB-1764A-3380	60417641	Printed Circuit Board	
	017641BZ	P.C.B with components	

		IC, FET & TRANSISTOR	
Q415	25000111	IC	MC14011B
Q416,417	22800304	FET	2SK30AY
Q412	22105641	Transistor	2SA564A
Q404	22106950	〃	2SA695
Q406	22205290	〃	2SB529
Q402,407,408,414	22303724	〃	2SC372Y
Q409,410,413,418	22303730	〃	2SC373
Q403	22307114	〃	2SC711D
Q411	22307354	〃	2SC735Y
Q405	22403590	〃	2SD359

FT-625RD PARTS LIST

		DIODE	
D401~404	21015550	Silicon	1S1555
D405	29090013	Varistor	MV-5W
		RESISTOR	
R416	40143100	Carbon Film	¼W VJ 10Ω
R456	40143680	〃 〃	〃 〃 68Ω
R414,457	40143101	〃 〃	〃 〃 100Ω
R420	40143121	〃 〃	〃 〃 120Ω
R417	40143221	〃 〃	〃 〃 220Ω
R425,449,454	40143471	〃 〃	〃 〃 470Ω
R406,408,428,430,434,441	40143102	〃 〃	〃 〃 1KΩ
R412,413	40143152	〃 〃	〃 〃 1.5KΩ
R424,450	40143222	〃 〃	〃 〃 2.2KΩ
R415	40143332	〃 〃	〃 〃 3.3KΩ
R440,443,445,446,448,455	40143472	〃 〃	〃 〃 4.7KΩ
R429	40143562	〃 〃	〃 〃 5.6KΩ
R409	40143682	〃 〃	〃 〃 6.8KΩ
R421,427,436,438 439,444,452,453	40143103	〃 〃	〃 〃 10KΩ
R422,442	40143223	〃 〃	〃 〃 22KΩ
R447	40143333	〃 〃	〃 〃 33KΩ
R426	40143393	〃 〃	〃 〃 39KΩ
R404,410	40143473	〃 〃	〃 〃 47KΩ
R435	40143563	〃 〃	〃 〃 56KΩ
R423	40143683	〃 〃	〃 〃 68KΩ
R411,437	40143104	〃 〃	〃 〃 100KΩ
R405,451	40143224	〃 〃	〃 〃 220KΩ
R458	41143224	〃 〃	〃 TJ 220KΩ
R431,432	40143105	〃 〃	〃 VJ 1MΩ
R418,419	40124029	Wire Wound	½W 〃 0.22Ω
R433	42144335	Carbon Composition	¼W GK 3.3MΩ
		POTENTIOMETER	
VR404	49906202	EVL-SOAA 00B23	2KΩB
VR403	49906103	EVL-SOAA 00B14	10KΩB
VR402	49907053	EVL-VOAA 00B54	50KΩB
VR405	49906503	EVL-SOAA 00B54	50KΩB
VR401	49907504	EVL-VOAA 00B55	500KΩB
		CAPACITOR	
C438	31829151	Ceramic Disc	50WV SL 150PF
C404	31829221	〃 〃	〃 〃 220PF
C434	31829271	〃 〃	〃 〃 270PF
C409	31829331	〃 〃	〃 〃 330PF
C427	30820102	〃 〃	〃 0.001μF
C401	30820473	〃 〃	〃 0.047μF
C423,436,437	36825103	Mylar	〃 0.01μF
C431,432,433	36825223	〃	〃 0.02μF
C414,417,440	36825473	〃	〃 0.047μF
C422	36526334	Tantalum	35WV 0.33μF
C425	36526105	〃	〃 1μF
C424	36526225	〃	〃 2.2μF
C403,406,415,419,428,430	34820105	Electrolytic	50WV T 1μF
C435	34220475	〃	16WV 〃 4.7μF
C416,418,421,426,429	34220106	〃	〃 〃 10μF
C439	34120475	〃	10WV 〃 47μF
C405	34120107	〃	〃 〃 100μF
C441	35120107	〃	〃 R 100μF
C407	34220107	Electrolytic	16WV T 100μF
C408,412	34220227	〃	〃 〃 〃 220μF

FM IF UNIT

Symbol Number	Parts Number	Description	
PB-1856	60418560	Printed Circuit Board	
	018560AZ	P.C.B with components	
		IC, FET & TRANSISTOR	
Q501	25000134	IC	TA7063P
Q503	25000111	〃	MC14011B
Q511	25000118	〃	μPC577H
Q505,516	23800594	FET	3SK59Y
Q502,504,506~510 512~515,517,~519	22318154	Transistor	2SC1815Y
		DIODE	
D502~506,508~510	21001880	Germanium	1S188FM
D501,507	21015550	Silicon	1S1555
		THERMISTOR	
TH501	29090001	SDT-250	
		CRYSTAL	
X501	71800118	HC-18/U 11.265MHz	#210110
		CERAMIC FILTER	
CF501	71200006	SFE-10.7MS	
CF502,503	71200016	LFB-15	
CF504	71200022	LFB-4	
		CERAMIC DISCRIMINATOR	
CD501	70900001	SFD455S4	
		RESISTOR	
R547	40143560	Carbon Film	¼W VJ 56Ω
R532,581	41143101	〃 〃	〃 TV 100Ω
R521,538,572,576	40143101	〃 〃	〃 VJ 100Ω
R518,571	40143151	〃 〃	〃 〃 150Ω
R523,543	40143221	〃 〃	〃 〃 220Ω
R508	40143331	〃 〃	〃 〃 330Ω
R507,528	40143391	〃 〃	〃 〃 390Ω
R530,546,552	40143471	〃 〃	〃 〃 470Ω
R501	41143102	〃 〃	〃 TJ 1KΩ
R502,519,537,570,575	40143102	〃 〃	〃 VJ 1KΩ
R541,563	40143152	〃 〃	〃 〃 1.5KΩ

FT-625RD PARTS LIST

R531,536,548,566	40143222	Carbon Film	¼WV	VJ	2.2KΩ		
579,580							
R533,559,561,565	40143332	〃	〃	〃	3.3KΩ		
R524,545	40143472	〃	〃	〃	4.7KΩ		
R540,549,550,562,574	40143562	〃	〃	〃	5.6KΩ		
R504,509,512,513,514	40143103	〃	〃	〃	10KΩ		
520,526,527,551,554							
564							
R515,534,535,539,542	40143223	〃	〃	〃	22KΩ		
553,568,573							
R505	40143393	〃	〃	〃	39KΩ		
R555	40143563	〃	〃	〃	56KΩ		
R516,517,544,557,558	40143104	〃	〃	〃	100KΩ		
560,567,569,577,578							
R503	40143154	〃	〃	〃	150KΩ		
R525	40143224	〃	〃	〃	220KΩ		
R506,529,556	40143274	〃	〃	〃	270KΩ		
R522	40143474	〃	〃	〃	470KΩ		
R510	40143105	〃	〃	〃	1MΩ		
R511	42144335	〃	Composition	¼W	GK 3.3MΩ		
		POTENTIOMETER					
VR503	49906103	EVL-SOAA	00B54		10KΩB		
VR501	49906503	〃	00B55		50KΩB		
VR502	49906504	〃	00B14		500KΩB		
		CAPACITOR					
C528	31829050	Ceramic Disc	50WV	SL	5PF		
C504,527,556	31829200	〃	〃	〃	20PF		
C510,521,573	31829470	〃	〃	〃	47PF		
C522,523	31829151	〃	〃	〃	150PF		
C501,502,517,538	30820102	〃	〃	〃	0.001μF		
C516,518~520,524	30820103	〃	〃	〃	0.01μF		
526,552							
C529,530	30820473	〃	〃	〃	0.047μF		
C531,534,536,539,546	36825102	Mylar		〃	0.001μF		
547,562,566,570,576							
C579	36825472	〃		〃	0.0047μF		
C512,515,537,540,553	36825103	〃		〃	0.01μF		
554,558,577							
C548~550,578	36825223	〃		〃	0.022μF		
C507,532,533,535,541	36825473	〃		〃	0.047μF		
~545,557,561,565							
567~569,571,572							
C514,564,580	36526104	Tantalum	35WV		0.1μF		
C513	36526105	〃	〃		1μF		
C503,551,582	34320105	Electrolytic	50WV	T	1μF		
C506	34820225	〃	〃	〃	2.2μF		
C559,560	34320475	〃	25WV	〃	4.7μF		
C505,508,525,563,574	34220106	〃	16WV	〃	10μF		
575,581							
C509,511	34120476	〃	10WV	〃	47μF		
		MICRO INDUCTOR					
L501,502	53020001	FL-5H-102J			1mH		

		TRANSFORMER	
T501	54140730	R12-4073	#220149
T502	54179430	R12-7943	
T503	54179350	R12-7935	
T504	54179470	R12-7947	
TP501,502	91100008	Wrapping Terminal C	

MIC AMP UNIT

Symbol Number	Parts Number	Description	
PB-1857	60418570	Printed Circuit Board	
	018570AZ	P.C.B with components	
		FET & TRANSISTOR	
Q603	22800195	FET	2SK19GR
Q609	23800401	〃	3SK40M
Q610	22310005	Transistor	2SC1000GR
Q601,602,604~608	22318154	〃	2SC1815Y
611~613			
		DIODE	
D605~608	21010070	Germanium	1S1007
D601~604,609	21015550	Silicon	1S1555
612~620			
D610	21090108	Varactor	1S2209
D611	29090004	Varistor	MV103
		CRYSTAL	
X601	71800119	HC-18/U 10.8085MHz	#210099
X602	71800120	〃 10.8115MHz	#210100
X603	71800121	〃 10.810 MHz	#210101
X604	71800122	〃 10.850 MHz	#210102
		RESISTOR	
R680	40143100	Carbon Film ¼W VJ	10Ω
R679	40143470	〃 〃 〃	47Ω
R630	40143560	〃 〃 〃	56Ω
R605,609,610,616,618	40143101	〃 〃 〃	100Ω
634,643,654,677			
R662	40143151	〃 〃 〃	150Ω
R604,608,611,612,621	40143221	〃 〃 〃	220Ω
655,669			
R619,622,629,639,646	40143471	〃 〃 〃	470Ω
660,670			
R663	40143561	〃 〃 〃	560Ω
R601	40143681	〃 〃 〃	680Ω
R615,617,620,633,642	40143102	〃 〃 〃	1KΩ
647			
R656	40143182	〃 〃 〃	1.8KΩ
R653,676	40143222	〃 〃 〃	2.2KΩ
R624,664,671	40143272	〃 〃 〃	2.7KΩ

FT-625RD PARTS LIST

R658	40143332	Carbon	Film	¼W	VJ	3.3KΩ
R626,627,652,678	40143472	〃	〃	〃	〃	4.7KΩ
R638,645,657	40143562	〃	〃	〃	〃	5.6KΩ
R603,606,631,659,665 666	40143103	〃	〃	〃	〃	10KΩ
R602,607,632	40143123	〃	〃	〃	〃	12KΩ
R649	40143153	〃	〃	〃	〃	15KΩ
R651	40143183	〃	〃	〃	〃	18KΩ
R635,641,644,672,673	40143223	〃	〃	〃	〃	22KΩ
R636	40143333	〃	〃	〃	〃	33KΩ
R640	40143473	〃	〃	〃	〃	47KΩ
R628	40143683	〃	〃	〃	〃	68KΩ
R625	40143823	〃	〃	〃	〃	82KΩ
R613,614,637,648,650	40143104	〃	〃	〃	〃	100KΩ
R667	40143184	〃	〃	〃	〃	180KΩ
R674	40143224	〃	〃	〃	〃	220KΩ
R623,661,668	40143274	〃	〃	〃	〃	270KΩ
R675	40143394	〃	〃	〃	〃	390KΩ
		POTENTIOMETER				
VR601	49800113	PN822H	101V			100ΩB
VR602	49906502	EVL-SOAA	00B53			10KΩB
VR603	49906103	〃	00B14			5KΩB
		CAPACITOR				
C616,645	31820050	Ceramic	Disc	50WV	CH	5PF
C610,614	31820200	〃	〃	〃	〃	20PF
C603,604,630	31820330	〃	〃	〃	〃	33PF
C619,644	31820390	〃	〃	〃	〃	39PF
C615	31820470	〃	〃	〃	〃	47PF
C641,642	31820101	〃	〃	〃	〃	100PF
C607,608,631,632	31820151	〃	〃	〃	〃	150PF
C648	31829010	〃	〃	〃	SL	1PF
C640	31827040	〃	〃	〃	UJ	4PF
C637	31827101	〃	〃	〃	〃	100PF
C621,657,659	30820102	〃	〃	〃		0.001μF
C601,602,605,606,609 611~613,617,618 628,633,634,638,639 643,646,647,649,651 653,655,656,672,674	30820103	〃	〃	〃		0.01μF
C668	36825682	Mylar		50WV		0.0068μF
C669	36825102	〃		〃		0.001μF
C625	36825472	〃		〃		0.0047μF
C624,671	36825103	〃		〃		0.01μF
C650,658	36825223	〃		〃		0.022μF
C660	36226106	Tantalum		16WV		10μF
C620,623,635,636,662 664,667	34820105	Electrolytic		50WV	T	1μF
C626,627,665,670	36220106	〃		16WV	〃	10μF
C654	34120336	〃		10WV	〃	33μF
C622,629,663,666	34120476	〃		〃	〃	47μF
C661,673	34120107	〃		〃	〃	100μF
		TRIMMER CAPACITOR				
TC601~604	39000007	ECV-1ZW	20×40			20PF

		INDUCTOR	
L601~603	53020001	FL-5H	102J 1mH
L604	55003256		#220319
		TRANSFORMER	
T601~603	54140730	R12-4073	#220149

EXCITER UNIT

Symbol Number	Parts Number	Description
PB-1858	60418580	Printed Circuit Board
	018580AZ	P.C.B with components
		IC. FET & TRANSISTOR
Q701	25000101	IC MC-1496G
Q702	23800510	FET 3SK51Y
Q704	22307300	Transistor 2SC730
Q705	22307842	〃 2SC784R
Q703	22320530	〃 2SC2053
Q707	22318154	〃 2SC1815Y
Q706	22390001	〃 MPSA13
		DIODE
D701,708~711	21015550	Silicon 1S1555
D702~705,707	21022090	Varactor 1S2209
D712	21090148	Zener WZ034
		RESISTOR
R725,733	40143100	Carbon Film ¼W VJ 10Ω
R702,729	40143560	〃 〃 〃 〃 56Ω
R703,707,709,722,726 731,738	40143101	〃 〃 〃 〃 100Ω
	40143221	〃 〃 〃 〃 220Ω
R723	40143271	〃 〃 〃 〃 270Ω
R734,736	49143471	〃 〃 〃 〃 470Ω
R705	40143821	〃 〃 〃 〃 820Ω
R706,728	40143102	〃 〃 〃 〃 1KΩ
R720	40143122	〃 〃 〃 〃 1.2KΩ
R701	40143222	〃 〃 〃 〃 2.2KΩ
R724	40143332	〃 〃 〃 〃 3.3KΩ
R735	40143682	〃 〃 〃 〃 6.8KΩ
	40143103	〃 〃 〃 〃 10KΩ
R717,718	40143223	〃 〃 〃 〃 22KΩ
	40143393	〃 〃 〃 〃 39KΩ
R732	40143473	〃 〃 〃 〃 47KΩ
R711,713,715,719,721	40143104	〃 〃 〃 〃 100KΩ
R737	40143105	〃 〃 〃 〃 1MΩ
R712	40143105	Carbon Composition ¼ GK 100Ω
R727,730	42124471	〃 〃 ½W GK 470Ω
R704		〃 〃 ¼W GK 1.5KΩ
R708,716		〃 〃 〃 〃 10KΩ
R710,714		〃 〃 〃 〃 100KΩ

FT-625RD PARTS LIST

		POTENTIOMETER
VR701	49906502	EVL-SOAA 00B53 5KΩB
VR702	49906103	〃 00B14 10KΩB
		CAPACITOR
C714	31820010	Ceramic Disc 50WV CH 1PF
C737	31820020	〃 〃 〃 〃 2PF
C748,755~758	31820030	〃 〃 〃 〃 3PF
C727	31820180	〃 〃 〃 〃 18PF
C735,738	31820200	〃 〃 〃 〃 20PF
C728	31820270	〃 〃 〃 〃 27PF
C712,736,750	31820330	〃 〃 〃 〃 33PF
C703	31820470	〃 〃 〃 〃 47PF
C701,702	31820221	〃 〃 〃 〃 220PF
C718	31829220	〃 〃 〃 SL 22PF
C724,759	31829101	〃 〃 〃 〃 100PF
C713,715,717,721	31827510	〃 〃 〃 UJ 51PF
C707,708	31827101	〃 〃 〃 〃 100PF
C734,744	30820102	〃 〃 〃 0.001μF
C704~706,709,719,720 722,723,725,726,730 733,740,743,747,749 751~754	30820103	〃 〃 〃 0.01μF
C739	30820473	〃 〃 〃 0.047μF
C741	36826474	Tantalum 〃 0.47μF
C729,731,742	34220226	Electrolytic 16WV T 10μF
		TRIMMER CAPACITOR
TC701	39000011	ECV-1ZW 20×53 20PF
		INDUCTOR
L701	53020012	Micro Inductor FL-4H 1.2μH
L706,707	53020034	〃 〃 10μH
L702,704	55003262	RFC #220324
L703	55003310	#220416
L705	53030010	S10-H3 1C66
		TRANSFORMER
T701~705	55003308	#220407A

BOOSTER UNIT

Symbol Number	Parts Number	Description
PB-1859	60518590	Printed Circuit Board
	018590AZ	P.C.B with components
		TRANSISTOR
Q801	22319454	Transistor 2SC1945D
Q802,803	22320990	〃 2SC2099
Q804	22304963	〃 2SC496(O)
		DIODE
D805	21001880	Germanium 1S188FM
D801	21012090	Silicon 1S1209
D804	21015550	〃 1S1555
D802,803	21090011	〃 10D1
		RESISTOR
R801,802	40143470	Carbon Film ¼W VJ 47Ω
R812(L812)	40143470	〃 〃 〃 〃 〃
R806,811	40143102	〃 〃 〃 〃 1KΩ
R810	40143103	〃 〃 〃 〃 10KΩ
R812	42144470	Carbon Composition ¼W GK47Ω
R808,809	42124100	〃 〃 ½W 〃 10Ω
R803	42144471	〃 〃 〃 〃 470Ω
R804,805,807 (L801,802,804)	42144471	〃 〃 〃 〃 〃
		POTENTIOMETER
VR803	49906301	EVL-SOAA 00B32 300ΩB
VR801	49918222	CR19R, 2.2KΩB
VR802	49906503	EVL-SOAA 00B54 50KΩB
		CAPACITOR
C818,823	31829010	Ceramic Disc 50WV SL 1PF
C833	31829050	〃 〃 〃 〃 5PF
C808,817,822,825,827	31829470	〃 〃 〃 〃 47PF
C820,821,826	31829910	〃 〃 〃 〃 91PF
C802	31829151	〃 〃 〃 〃 150PF
C814	30820102	〃 〃 〃 〃 0.001μF
C803,809,819	38820103	〃 〃 〃 0.01μF (2222-662-02103)
C805,806,810,812,815 824,834	30820103	〃 〃 〃 0.01μF
C804,807,811,813,816	36220106	Tantalum 16WV 10μF
C828~832	32821102	Feed Thru 50WV 1000PF
		TRIMMER CAPACITOR
TC801	39000080	2222-808-61809 80PF
TC802,803	39000081	2222-808-41121 120PF

FT-625RD PARTS LIST

		INDUCTOR	
L801,802,804	55003262		#220324
L803,813	55003086		#220190
L805	55003312		#220410
L806	55003093		#220196
L807~811	55003313		#220411
L812	55003311		#220338
		TRANSFORMER	
T802	55003303		#220413
T803	55003304		#220414AB
T804	55003305		#220415
		RELAY	
RL801	70000031	BR221D012M	

FIX UNIT

Symbol Number	Parts Number	Description
PB-1750~3380	60417500	Printed Circuit Board
	017500BZ	P.C.B with components
		TRANSISTOR
Q901,902	22303724	2SC372Y
		DIODE
D901~905	21015550	Silicon 1S1555
		CRYSTAL
X901~905	—	HC-25/U (OPTION) #210104
		CRYSTAL SOCKET
XS901	69010009	HC-25/U S-20 6P
		RESISTOR
R905,908,909	40143101	Carbon Film 1/4W VJ 100Ω
R904	40143221	〃 〃 〃 〃 220Ω
R901	40143152	〃 〃 〃 〃 1.5KΩ
R902,907,910	40143562	〃 〃 〃 〃 5.6KΩ
R906	40143822	〃 〃 〃 〃 8.2KΩ
R903	40143223	〃 〃 〃 〃 22KΩ
		CAPACITOR
C917~921	31820300	Ceramic Disc 50WV CH 30PF
C929	31820101	〃 〃 〃 〃 100PF
C928	31820201	〃 〃 〃 〃 200PF
C930	31829050	Ceramic Disc 50WV SL 5PF
C931	31829200	〃 〃 〃 〃 20PF
C932,933	31829201	〃 〃 〃 〃 200PF
C901~905,912~916	30820103	〃 〃 〃 0.01μF
		TRIMMER CAPACITOR
TC901~905	39000007	ECV-1ZW 20×40 20PF
		MICRO INDUCTOR
L901~905	53020001	FL-5H 1mH
L912	53010003	250μH
L913	53020012	FL-4H 1.2μH

LOCAL UNIT

Symbol Number	Parts Number	Description
PB-1860	60418600	Printed Circuit Board
	018600AZ	P.C.B with components
		TRANSISTOR
Q1002	22303724	Transistor 2SC372Y
Q1001	22307851	〃 2SC785BN
		DIODE
D1013	21022090	Germanium 1S2209
D1001~1006, 1007~1012	21015550	Silicon 1S1555
		CRYSTAL
X1001	71800123	HC-18/U 70.01MHz #210105
X1002	71800124	〃 71.01MHz #210106
X1003	71800125	〃 72.01MHz #210107
X1004	71800126	〃 73.0MHz #210108
X1005~1008	—	HC-25/U (OPTION) #210109
		CRYSTAL SOCKET
XS1001~1004	69010012	HC-25/U SD0105
		RESISTOR
R1015,1017,1018	40143101	Carbon Film 1/4W VJ 100Ω
R1014	40143471	〃 〃 〃 〃 470Ω
R1002~1004	41143681	〃 〃 〃 TJ 680Ω
R1001,1005~1009	40143681	〃 〃 〃 VJ 680Ω
R1012,1013	40143101	〃 〃 〃 〃 10KΩ
R1010,1011	40143473	〃 〃 〃 〃 47KΩ
R1016	40143823	〃 〃 〃 〃 82KΩ
		CAPACITOR
C1009	31820470	Ceramic Disc 50WV CH 47PF
C1017	31829050	〃 〃 〃 SL 5PF
C1011	31827050	〃 〃 〃 UJ 5PF
C1015	31827100	〃 〃 〃 〃 10PF
C1014	31827470	〃 〃 〃 〃 47PF
C1010,1013,1016,1020	30820102	〃 〃 〃 0.001μF
C1001~1004,1005~1008 1012,1018	30820103	〃 〃 〃 0.01μF
C1019	30820473	〃 〃 〃 0.047μF

FT-626RD PARTS LIST

		INDUCTOR	
L1001~1008	55003306		#220417
L1009	53020035	Micro Inductor	FL-4HIROM 1μH
L1010	53010004	〃	FL-5H 221K 220μH
L1012	53010002	〃	〃 220K 22μH
L1011	55003307		#220418

PREMIX UNIT

Symbol Number	Parts Number	Description
PB-1861	60418610	Printed Circuit Board
	018610AZ	P.C.B with components

		IC & FET	
Q1101	25000101	IC	MC1496G
Q1102	23800594	FET	3SK59Y

		DIODE	
D1101~1104	21022090	Varactor	1S2209

		RESISTOR				
R1101,1112,1121	40143560	Carbon Film		¼W	VJ	56Ω
R1102,1103,1108,1111 1118	40143101	〃	〃	〃	〃	100Ω
R1119	40143221	〃	〃	〃	〃	220Ω
R1105	40143821	〃	〃	〃	〃	820Ω
R1106,1122	40143102	〃	〃	〃	〃	1KΩ
R1104	40143122	〃	〃	〃	〃	1.2KΩ
R1107	40143682	〃	〃	〃	〃	6.8KΩ
R1115	40143223	〃	〃	〃	〃	22KΩ
R1117	40143563	〃	〃	〃	〃	56KΩ
R1109,1110,1120	40143104	〃	〃	〃	〃	100KΩ
R1113,1114,1116	41143104	〃	〃	〃	TJ	100KΩ

		POTENTIOMETER		
VR1101	49906503	EVL-SOAA 00B54		50KΩB

		CAPACITOR				
C1127	31820010	Ceramic Disc		50WV	CH	1PF
C1128	31820020	〃	〃	〃	〃	2PF
C1113	31820030	〃	〃	〃	〃	3PF
C1117	31820100	〃	〃	〃	〃	10PF
C1112	31820220	〃	〃	〃	〃	22PF
C1115	31829059	〃	〃	〃	SL	0.5PF
C1102,1103	31829221	〃	〃	〃	〃	220PF
C1114,1116,1120	31827180	〃	〃	〃	UJ	18PF
C1109,1110	31827360	〃	〃	〃	〃	36PF
C1101,1104~1107,1111 1118,1119,1121~1125	30820103	〃	〃	〃		0.01μF
C1108,1126	34220106	Electrolytic		16WV	T	10μF

MICRO INDUCTOR		MICRO INDUCTOR	
L1101	53020012	FL-4H 1R2M	1.2μH

		TRANSFORMER
T1101~1104	55003298	#220408

		FERRITE BEADS
FB	56000024	RI 3×3×1

KEYING/BURST UNIT

Symbol Number	Parts Number	Description
PB-1862	60418620	Printed Circuit Board
	018620AZ	P.C.B with components

		IC & TRANSISTOR	
Q1204,1207	25000114	IC	MC14011B
Q1206	25000155	〃	MSM5576
Q1201	22310005	Transistor	2SC1000GR
Q1202,1203,1205,1208	22318154	〃	2SC1815Y

		DIODE	
D1201~1210	21015550	Silicon	1S1555

		CRYSTAL	
X1201	71500174	HC-25/U	(1800Hz Tone) 3.6864MHz
	71500188	〃	(1750Hz Tone) 3.584MHz
	—	〃	OPTION (See Table)

		CRYSTAL SOCKET	
XS1201	69010012	HC-25/U	SD0105

		RESISTOR				
R1221	40143101	Carbon Film		¼W	VJ	100Ω
R1214	40143221	〃	〃	〃	〃	220Ω
R1206	40143471	〃	〃	〃	〃	470Ω
R1212,1215,1222 1223,1225,1228	40143102	〃	〃	〃	〃	1KΩ
R1201	40143152	〃	〃	〃	〃	1.5KΩ
R1204	40143332	〃	〃	〃	〃	3.3KΩ
R1213	40143392	〃	〃	〃	〃	3.9KΩ
R1224	40143472	〃	〃	〃	〃	4.7KΩ
R1202,1205,1209,1220 1227,1229	40143103	〃	〃	〃	〃	10KΩ
R1229	41143103	〃	〃	〃	TJ	10KΩ
R1203	40143333	〃	〃	〃	VJ	33KΩ
R1207,1218,1209	40143104	〃	〃	〃	〃	100KΩ
R1210,1211	40143274	〃	〃	〃	〃	270KΩ

FT-625RD PARTS LIST

R1216,1217,1226	40143105	Carbon Film ¼W VJ 1MΩ
		POTENTIOMETER
VR1201~1204	49901103	EVL-S3AA 00B14 10KΩB
VR1205~1208,1210	49906103	EVL-S0AA 00B14 10KΩB
VR1209	49906205	EVL-S0AA 00B26 2MΩB
		CAPACITOR
C1228,1229	31829470	Ceramic Disc 50WV SL 47PF
C1201,1202,1205,1208 1213,1216~1219 1220~1223	30820102	〃 〃 〃 〃 0.001μF
C1214,1215,1227,1234 1235	30820103	〃 〃 〃 0.01μF
C1224,1230~1232	36825103	Mylar 〃 0.01μF
C1209	36825203	〃 〃 0.02μF
C1236	36526334	Tantalum 35WV 0.33μF
C1225,1226	36526474	〃 〃 0.47μF
C1203,1207,1211,1233 1237	34820105	Electrolytic 50WV T 1μF
C1210	34220106	〃 16WV T 10μF
C1204,1206,1212	34120476	〃 10WV T 47μF
		RELAY
RL1201	70000031	BR211A D012-M
		SWITCH
S1201	63000012	ESD1426
		MINI CONNECTOR
J1201	68060013	3022-06A
		MINI PLUG
P1201	67040006	3021-04 with Jumper wire
TP1201	91100008	Wrapping terminal C

VFO UNIT

Symbol Number	Parts Number	Description
PB-1774	60417740	Printed Circuit Board
	017740BZ	3380 VFO Unit assembly
		FET & TRANSISTOR
Q1302	22800195	FET 2SK19GR
Q1301,1303	22303724	Transistor 2SC372Y

		RESISTOR
R1302	40143101	Carbon Film ¼W VJ 100Ω
R1310	40143151	〃 〃 〃 〃 150Ω
R1307	40143471	〃 〃 〃 〃 470Ω
R1308	40143222	〃 〃 〃 〃 2.2KΩ
R1305	40143272	〃 〃 〃 〃 2.7KΩ
R1301	40143332	〃 〃 〃 〃 3.3KΩ
R1303	40143183	〃 〃 〃 〃 18KΩ
R1304	40143333	〃 〃 〃 〃 33KΩ
R1306,1309	40143104	〃 〃 〃 〃 100KΩ
		CAPACITOR
C1302	31820040	Ceramic Disc 50WV CH 4PF
C1304	31820330	〃 〃 〃 〃 33PF
C1313	31820390	〃 〃 〃 〃 39PF
C1305	31820510	〃 〃 〃 〃 51PF
C1311	31820680	〃 〃 〃 〃 68PF
C1307,1310	31820221	〃 〃 〃 〃 220PF
C1306	31820271	〃 〃 〃 〃 270PF
C1301	31827040	〃 〃 〃 UJ 4PF
C1303	31827070	〃 〃 〃 〃 7PF
C1308,1309,1312 1314~1316	30820103	〃 〃 〃 0.01μF
		VARIABLE CAPACITOR
VC1301	39000027	C521-112A
		TRIMMER CAPACITOR
TC1301	39000070	TSN-100D15 15PF
TC1302	39000005	ECV-1ZW 50×32 50PF
		INDUCTOR
L1301	55003276	#220314
L1302	53030001	Micro Inductor 1mH
L1303	53010001	〃 10μH
		CONNECTOR
J1301	68040001	SI-6303
	91100008	Wrapping terminal C
	91000102	Seal terminal A102

FT-625RD PARTS LIST

REG BOARD

Symbol Number	Parts Number	Description
PB-1756A	60417561	Printed Circuit Board
	017561AZ	P.C.B with components
		IC & TRANSISTOR
Q1404	25000116	IC μPC14308S
Q1402,1403	22303724	Transistor 2SC372Y
Q1401	22402350	〃 2SD313
		DIODE
D1401	21015550	Silicon 1S1555
D1402	21090043	Zener WZ090
		RESISTOR
R1401	40143331	Carbon Film ¼W VJ 330Ω
R1406	40143471	〃 〃 〃 〃 470Ω
R1402	40143561	〃 〃 〃 〃 560Ω
R1403	40143821	〃 〃 〃 〃 820Ω
R1404	40143272	〃 〃 〃 〃 2.7KΩ
R1406	44144059	Wire Wound 〃 0.05Ω
		POTENTIOMETER
VR1401	49905471	SR19R 470ΩB
		CAPACITOR
C1402	30820102	Ceramic Disc 50WV 0.001μF
C1404	34220476	Electrolytic 16V V T 47μF
C1403	34220227	〃 〃 〃 220μF
C1401	35320108	〃 25WV R 1000μF
	91100008	Wrapping terminal C

LEVER SWITCH BOARD

Symbol Number	Parts Number	Description
PB-1864	60418640	Printed Circuit Board
	018640AZ	P.C.B with components
		DIODE
D1501	21010070	Germanium 1S1007
		RESISTOR
R1502	41143153	Carbon Film ¼W TJ 15KΩ
R1501	41143273	〃 〃 〃 〃 27KΩ
R1503,1504	42124471	〃 Composition ½W GK 470Ω
		SWITCH
S1501,1505	64000101	SEL 62301
S1502,1503	64000103	SLE 62251
S1504	64000108	SLE 64251

PUSH SWITCH BOARD

Symbol Number	Parts Number	Description
PB-1865	60418650	Printed Circuit Board
	018650AZ	P.C.B with components
		DIODE
D1604,1606	21090011	Silicon 10D1
D1601~1603,1605	21090140	LED GD4-203-SRD
		RESISTOR
R1606	42124220	Carbon Composition ½W GK 22Ω
R1604	42124221	〃 〃 〃 〃 220Ω
R1601~1603	42124471	〃 〃 〃 〃 470Ω
R1605	42144563	〃 〃 〃 〃 5.6KΩ
		POTENTIOMETER
VR1601	49906503	EVL-S0AA 00B54 50KΩB
		SWITCH
S1601~1604	65000036	MB-0202AA2060 B-2U-EE
S1605	65000037	MB-0201AA2060 B-2U-0A

NB/PROCESSOR UNIT

Symbol Number	Parts Number	Description
PB-1866	60418660	Printed Circuit Board
	018660AZ	P.C.B with components
		IC, FET & TRANSISTOR
Q1711	25000105	IC TA7060P
Q1703,1707	23800401	FET 3SK40M
Q1704,1705,1712	23800594	〃 3SK59Y
Q1701,1702,1706 1708~1710	22318154	Transistor 2SC1815Y
		DIODE
D1701,1702	21010070	Germanium 1S1007
D1703~1706	21015550	Silicon 1S1555

FT-625RD PARTS LITS

		CRYSTAL	
X1701	71800127	HC-18/U 11.265MHz	#210110
		CRYSTAL FILTER	
XF1701	71000036	XF10.8GA	#210114
		RESISTOR	
R1750,1751,1757,1758	40143560	Carbon Film ¼W VJ 56Ω	
R1710,1716,1723,1737 1739,1743,1744	40143101	〃 〃 〃 〃 100Ω	
R1714,1720	40143151	〃 〃 〃 〃 150Ω	
R1703,1707,1709	40143221	〃 〃 〃 〃 220Ω	
R1736,1742	40143471	〃 〃 〃 〃 470Ω	
R1728	40143561	〃 〃 〃 〃 560Ω	
R1701,1715,1721,1733 1745~1748,1756	40143102	〃 〃 〃 〃 1KΩ	
R1738,1749,1752	40143222	〃 〃 〃 〃 2.2KΩ	
R1705	40143472	〃 〃 〃 〃 4.7KΩ	
R1711,1717,1724,1730 1731,1735,1741	40143103	〃 〃 〃 〃 10KΩ	
R1722,1725,1755	40143223	〃 〃 〃 〃 22KΩ	
R1734,1740,1754	40143333	〃 〃 〃 〃 33KΩ	
R1704,1708,1712,1713 1718,1719	40143473	〃 〃 〃 〃 47KΩ	
R1729	40143563	〃 〃 〃 〃 56KΩ	
R1726,1753	40143104	〃 〃 〃 〃 100KΩ	
R1702,1732	40143184	〃 〃 〃 〃 180KΩ	
R1727	40143224	〃 〃 〃 〃 220KΩ	
R1706	40143474	〃 〃 〃 〃 470KΩ	
		POTENTIOMETER	
VR1702	49906102	EVL-S0AA 00B13	1KΩB
VR1701	49906502	〃 〃 00B53	5KΩB
		CAPACITOR	
C1742	31829100	Ceramic Disc 50WV SL10PF	
C1704	31829470	〃 〃 〃 〃 47PF	
C1719,1722	31829560	〃 〃 〃 〃 56PF	
C1701,1703,1708 1728,1730,1732	31829101	〃 〃 〃 〃 100PF	
C1705,1706	31829151	〃 〃 〃 〃 150PF	
	31829201	〃 〃 〃 〃 200PF	
C1738,1743	30820102	〃 〃 〃 0.001μF	
C1702,1707,1725,1729 1731,1733~1737 1739~1741,1744~1746 1749,1750	30820103	〃 〃 〃 0.01μF	
C1709,1710	30820473	〃 〃 〃 0.047μF	
C1711,1715,1720	36825102	Mylar 〃 〃 0.001μF	
C1712,1716,1723	36825103	〃 〃 〃 0.01μF	
C1713,1714,1717 1718,1726	36825473	〃 〃 〃 0.047μF	
C1721	34820105	Electrolytic 〃 T 1μF	
C1724,1727	34220106	〃 16WV 〃 10μF	

		TRANSFORMER	
T1701,1702	54179430	R12-7943	
T1703	54179470	R12-7947	
T1704,1705	54140740	R12-4074	#220150
T1706,1707	54140730	R12-4073	#220149
TP1701	91100008	Wrapping terminal C	

COUNTER UNIT

Symbol Number	Parts Number	Description	
		Printed Circuit Board	
PB-1868	60418680	LED board	
PB-1867	60418670	Counter board	
PB-1803	60418030	Connector board	
	018670AZ	Counter unit Assembly	
		IC, FET & TRANSISTOR	
Q1807,1809	25000153	IC	F4011
Q1808	25000195	〃	MC14069B
Q1820	25000085	〃	MSM561
Q1805	25000054	〃	MSM5564
Q1821~1823	25000154	〃	SN75453
Q1802	25000104	〃	SN76514
Q1806	25000148	〃	TC5032P
Q1801	22800195	FET	2SK19GR
Q1812	22104963	Transistor	2SA496(O)
Q1804,1810,1811	22303724	〃	2SC372Y
Q1813~1819	2230496	〃	2SC496
Q1803	22307842	〃	2SC784R
		DISPLAY LED	
DS1801~1806	21090135	5082-7740	
		DIODE	
D1804,1805	21001880	Germanium	1S188FM
D1801,1802	21015550	Silicon	1S1555
D1803	21090011	〃	10D1
		CRYSTAL	
X1801	71600033	HC-6/W 1.31072MHz	#210056
		RESISTOR	
R1843	40143470	Carbon Film ¼W VJ 47Ω	
R1841	40143680	〃 〃 〃 〃 68Ω	
R1844	40143820	〃 〃 〃 〃 82Ω	
R1802~1804,1834 1835~1840,1842	40143101	〃 〃 〃 〃 100Ω	
R1807	40143221	〃 〃 〃 〃 220Ω	
R1811,1826	40143471	〃 〃 〃 〃 470Ω	

FT-625RD PARTS LIST

R1808	40143102	Carbon Film ¼W VJ 1KΩ
R1821	40143222	〃 〃 〃 〃 2.2KΩ
R1805	40143392	〃 〃 〃 〃 3.9KΩ
R1812,1813,1816,1818 1820,1825	40143103	〃 〃 〃 〃 10KΩ
R1806,1809,1810	40143153	〃 〃 〃 〃 15KΩ
R1823	40143223	〃 〃 〃 〃 22KΩ
R1814,1815,1817	40143563	〃 〃 〃 〃 56KΩ
R1801,1822	40143104	〃 〃 〃 〃 100KΩ
R1824	40143105	〃 〃 〃 〃 1MΩ
R1827~1833	42124330	Carbon Composition ½W GK 33Ω
R1819	42144566	〃 〃 ¼W GK 5.6MΩ
		CAPACITOR
C1822,1823	31820510	Ceramic Disc 50WV CH 51PF
C1806	31829010	〃 〃 〃 〃 1PF
C1805,1807	31829100	〃 〃 〃 SL 10PF
C1801	31829220	〃 〃 〃 〃 22PF
C1825~1829,1832	31829221	〃 〃 〃 〃 220PF
C1808,1811,1838 1839~1842	30820102	〃 〃 〃 0.001μF
C1802,1804,1809,1810 1812~1821,1824 1831,1837,1843,1848	30820103	〃 〃 〃 0.01μF
C1833	36226224	Tantalum 35WV 0.22μF
C1845~1847	32821102	Feed Thru 50WV 0.001μF
C1830,1844	34220106	Electrolytic 16WV 10μF
C1803	34120337	〃 6.3WV 330μF
C1836	34220477	〃 16WV 470μF
C1849	35120108	〃 10WV 1000μF
		MICRO INDUCTOR
L1801,1802	53020034	FL4H 100K 10μH
		TRANSFORMER
T1801,1802	55003293	#220408
T1803	55003174	#220209
		IC SOCKET
QS	68280001	116-28-30-114 28P
QS	68140008	116-14-30-114 14P
	91100008	Wrapping terminal C

LED BOARD

Symbol Number	Parts Number	Description
PB-1801	60418010	Printed Circuit Board
	018010AZ	P.C.B with components
		DIODE
D1901~1907	21090140	GD4-203SRD
		RESISTOR
R1902~1905	42124331	Carbon Composition ½W GK 330Ω
R1901	42124471	〃 〃 〃 〃 470Ω

COUNTER BUFFER BOARD

Symbol Number	Parts Number	Description
PB-1671A-3380	60416711	Printed Circuit Board
	016711BZ	P.C.B with components
		FET
Q2001	22800195	2SK19GR
		RESISTOR
R2002,2003	40143101	Carbon Film ¼W VJ 100Ω
R2001	40143104	〃 〃 〃 〃 100KΩ
		CAPACITOR
C2001	31820470	Ceramic Disc 50WV CH 47PF
C2002,2003	30820102	〃 〃 〃 0.001μF
		TRANSFORMER
T2001	55003174	#220209

OSC (COUNTER LOCAL) UNIT

Symbol Number	Parts Number	Description
PB-1869	60418690	Printed Circuit Board
PB-1804	60418041	Connector Board
	018690AZ	OSC unit with components
		TRANSISTOR
Q2101,2102	22303730	Transistor 2SC373
Q2103,2104	22307104	〃 2SC710D

FT-625RD PARTS LIST

		DIODE
D2101~2104	21015550	Silcon 1S1555
D2105~2108	21090142	〃 MC301
		CRYSTAL
X2101	71800128	HC-18/U 14.20269MHz #210118-1
X2102	71800129	〃 14.20223MHz #210118-2
		RESISTOR
R2115,2119	41143101	Carbon Film ¼W VJ 100Ω
R2120	41143221	〃 〃 〃 〃 220Ω
R2116	41143561	〃 〃 〃 〃 560Ω
R2101~2106,2109 2112	41143102	〃 〃 〃 〃 1KΩ
R2118	41143222	〃 〃 〃 〃 2.2KΩ
R2114	41143472	〃 〃 〃 〃 4.7KΩ
R2108,2111,2117	41143103	〃 〃 〃 〃 10KΩ
R2107,2110,2113	41143223	〃 〃 〃 〃 22KΩ
		CAPACITOR
C2109~2112	31820470	Ceramic Disc 50WV CH 47PF
C2123,2130	31829010	〃 〃 〃 SL 1PF
C2129	31829090	〃 〃 〃 〃 9PF
C2116,2120,2131	31829100	〃 〃 〃 〃 10PF
C2134	31829120	〃 〃 〃 〃 12PF
C2122	31829390	〃 〃 〃 〃 39PF
C2124	31829470	〃 〃 〃 〃 47PF
C2132	31829820	〃 〃 〃 〃 82PF
C2125	31829151	〃 〃 〃 〃 150PF
C2105~2108,2113 2117,2121,2126~2128 2133	30820103	〃 〃 〃 0.01μF
C2115,2119	36824101	Styrol 〃 100PF
C2114,2118	36824221	〃 〃 220PF
C2135~2139	32821102	Feed Thru 〃 0.001μF
C2101~2104	34220106	Electrolytic 16WV T 10μF
		TRIMMER CAPACITOR
TC2101~2104	39000008	ECV-1ZW 40×40 40PF
		MICRO INDUCTOR
L2101~2106	53020001	FL-5H 102K 1mH
		TRANSFORMER
T2101~2104	55003319	IFT #220347
	91100008	Wrapping terminal C
		MINI CONNECTOR
J2101	67130001	5048-13A

MARKER UNIT

Symbol Number	Parts Number	Description
PB-1802	60418020	Printed Circuit Board
PB-1804	60418040	Connector Board B
	018020BZ	Marker unit with components
		IC & TRANSISTOR
Q2203	25000108	IC 34024PC
Q2201,2202,2204	22303724	Transistor 2SC372Y
		DIODE
D2201	21090139	Zener RD8.2EB
		CRYSTAL
X2201	71800060	HC-18/U 12.8MHz
		RESISTOR
R2209	40143271	Carbon Film ¼W VJ 270Ω
R2203,2205	40143102	〃 〃 〃 〃 1KΩ
R2208	40143222	〃 〃 〃 〃 2.2KΩ
R2202	40143103	〃 〃 〃 〃 10KΩ
R2201,2207	40143223	〃 〃 〃 〃 22KΩ
R2206	40143104	〃 〃 〃 〃 100KΩ
	40143224	〃 〃 〃 〃 220KΩ
		CAPACITOR
C2201,2207	31820272	Ceramic Disc 50WV CH 27PF
C2202,2203	31820221	〃 〃 〃 〃 220PF
C2208	31829030	〃 〃 〃 SL 3PF
C2204~2206,2210	30820103	〃 〃 〃 0.01μF
C2209	35220106	Electrolytic 16WV T 10μF
		TRIMMER CAPACITOR
TC2201	39000007	ECV-1ZW 20×40 20PF
		MICRO INDUCTOR
L2201	53010002	22μH
L2202	53010003	250μH
		MINI CONNECTOR
J2201	67130001	5048-13A
TP	91100008	Wrapping terminal C

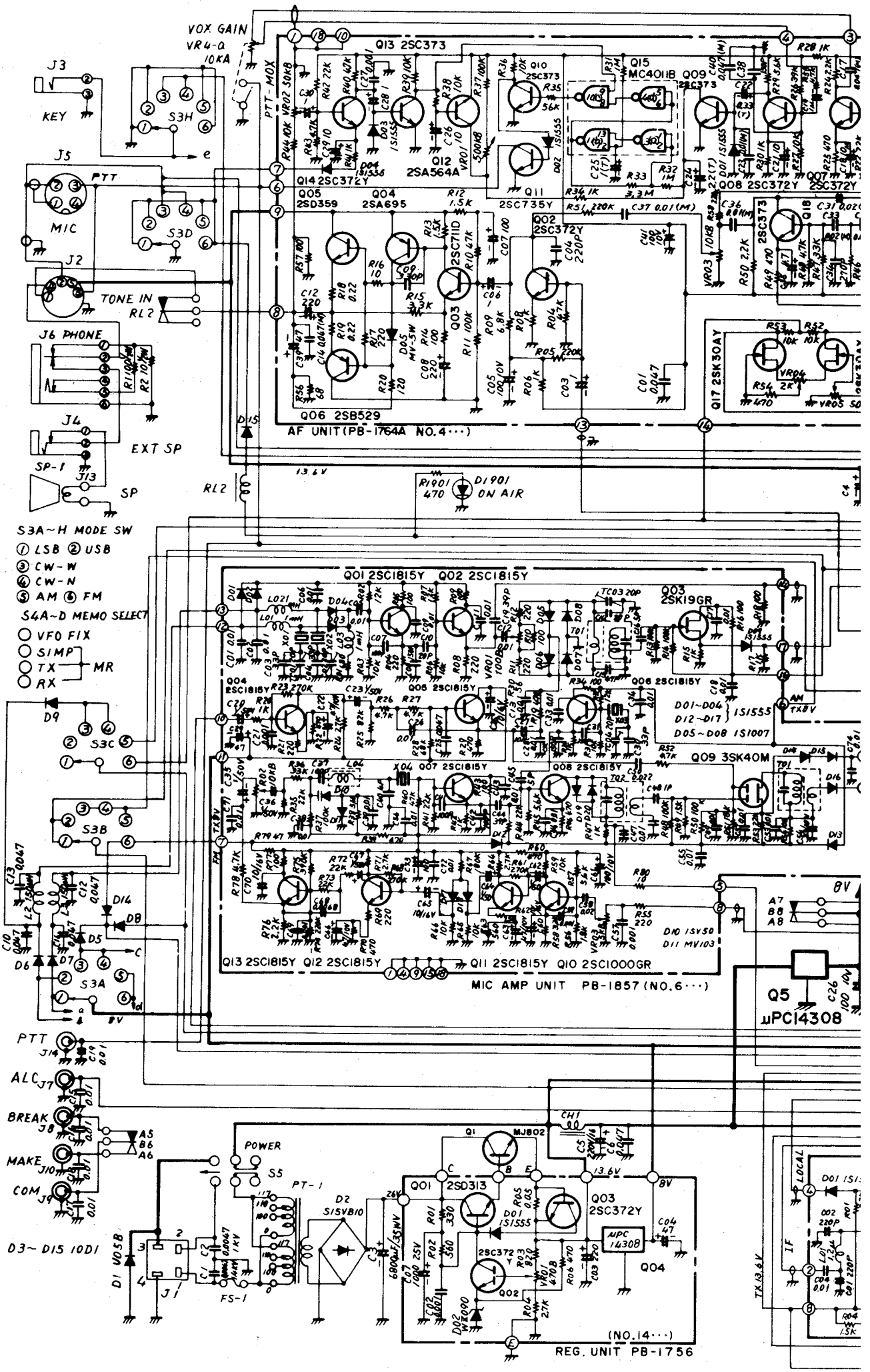
FT-625RD PARTS LIST

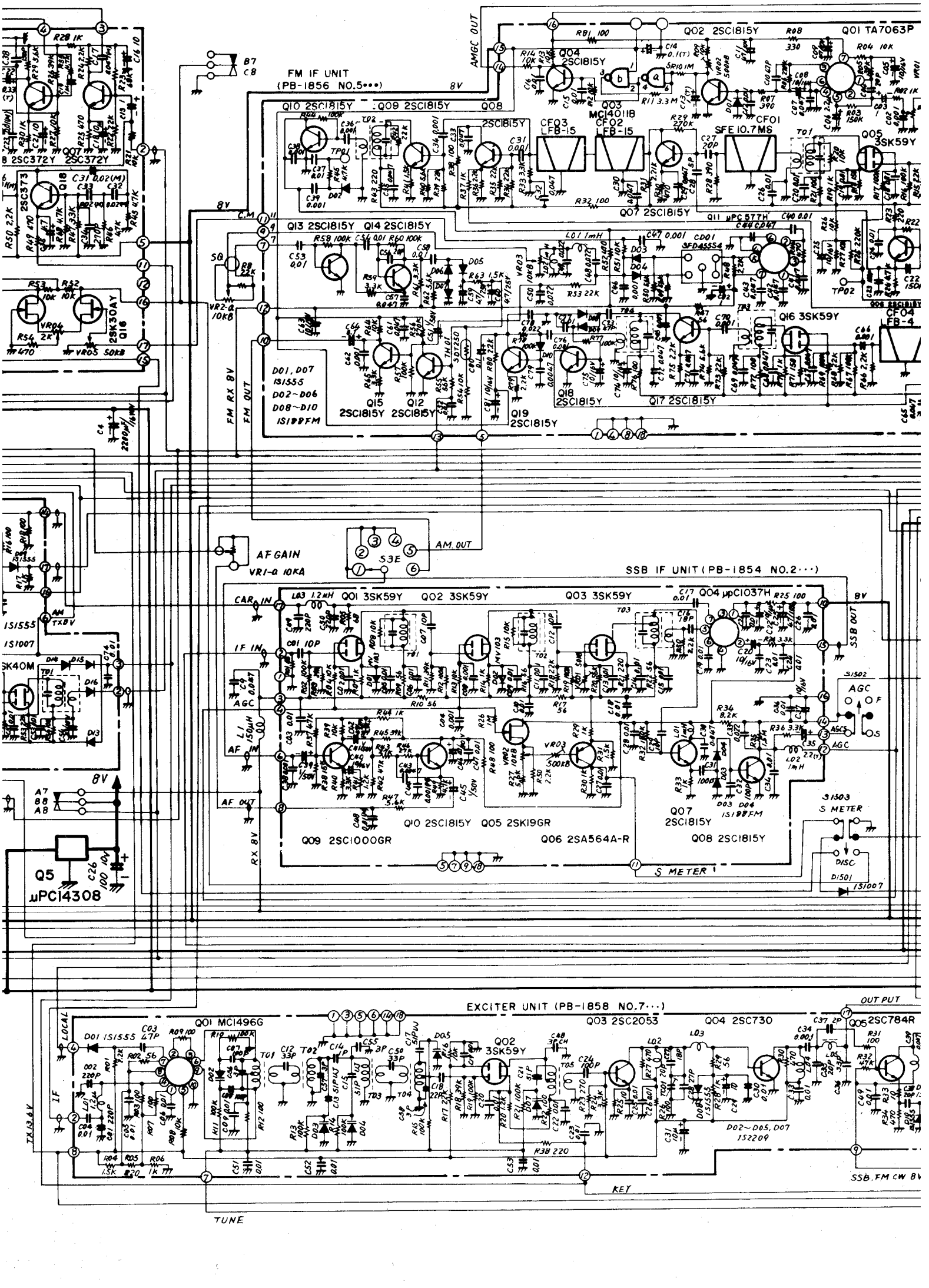
AM CONTROL UNIT

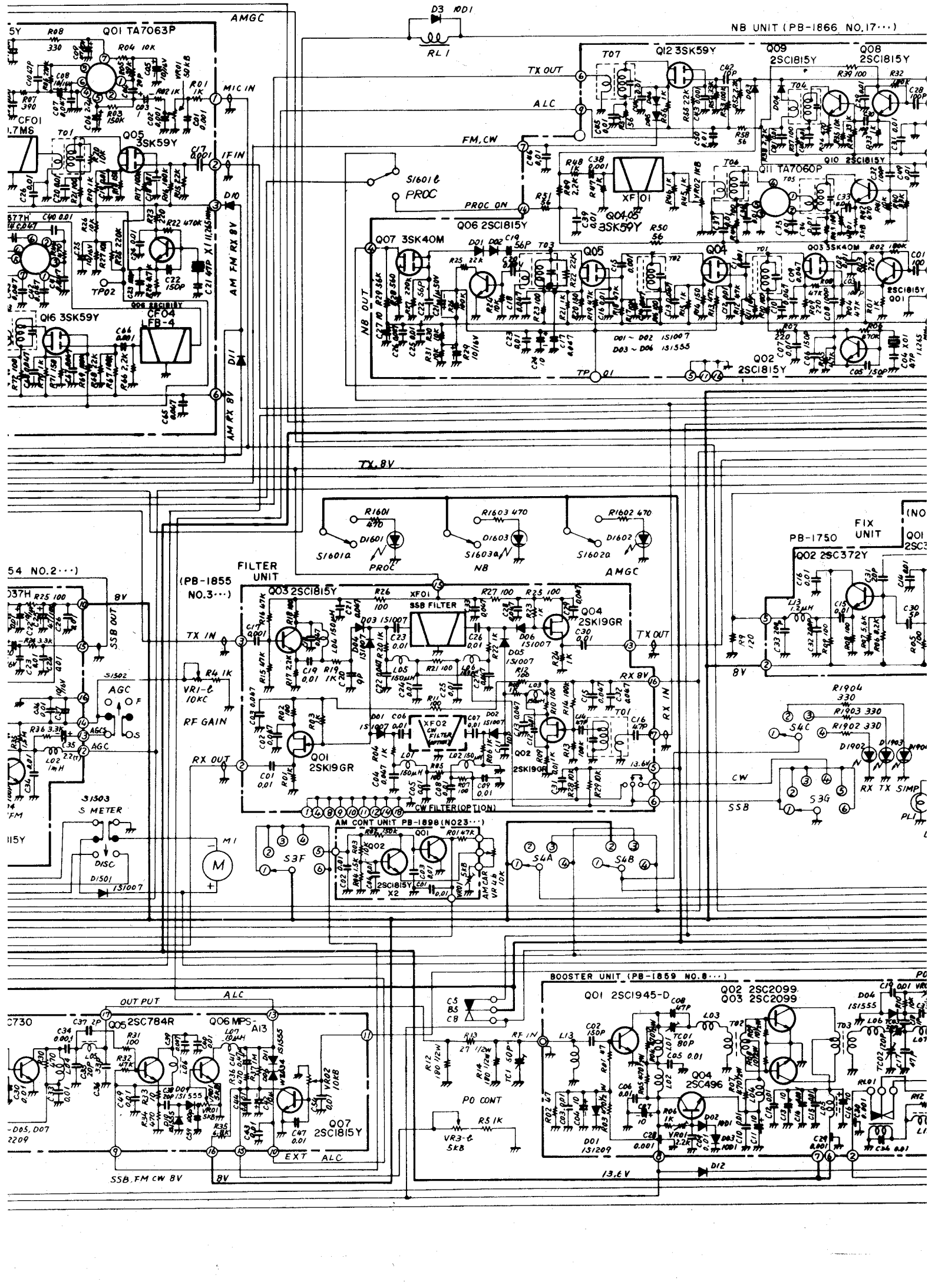
Symbol Number	Parts Number	Description
PB-1898	60418980	Printed Board Circuit
	018980AZ	P.C.B with components
		TRANSISTOR
Q2301,2302	22318154	2SC1815Y
		RESISTOR
R2304	40143152	Carbon Film ¼W VJ 1.5KΩ
R2303	40143103	〃 〃 〃 10KΩ
R2301	40143473	〃 〃 〃 〃 47KΩ
R2302	40143154	〃 〃 〃 〃 150KΩ
		POTENTIOMETER
VR2301	49901503	EVL-S3A 00B54 50KΩB
		CAPACITOR
C2301~2305	30820103	Ceramic Disc 50WV 0.01μF

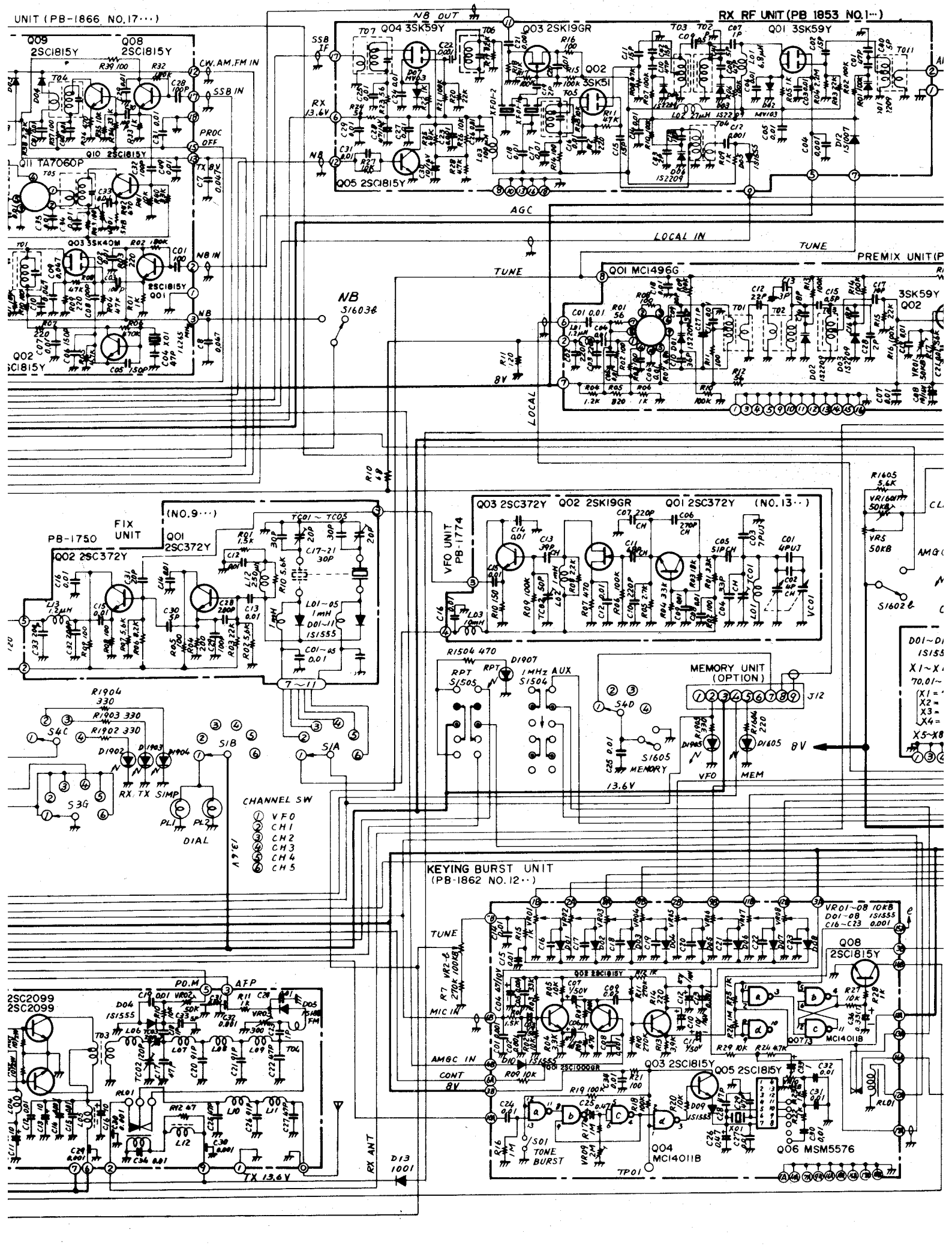
ACCESSORIES

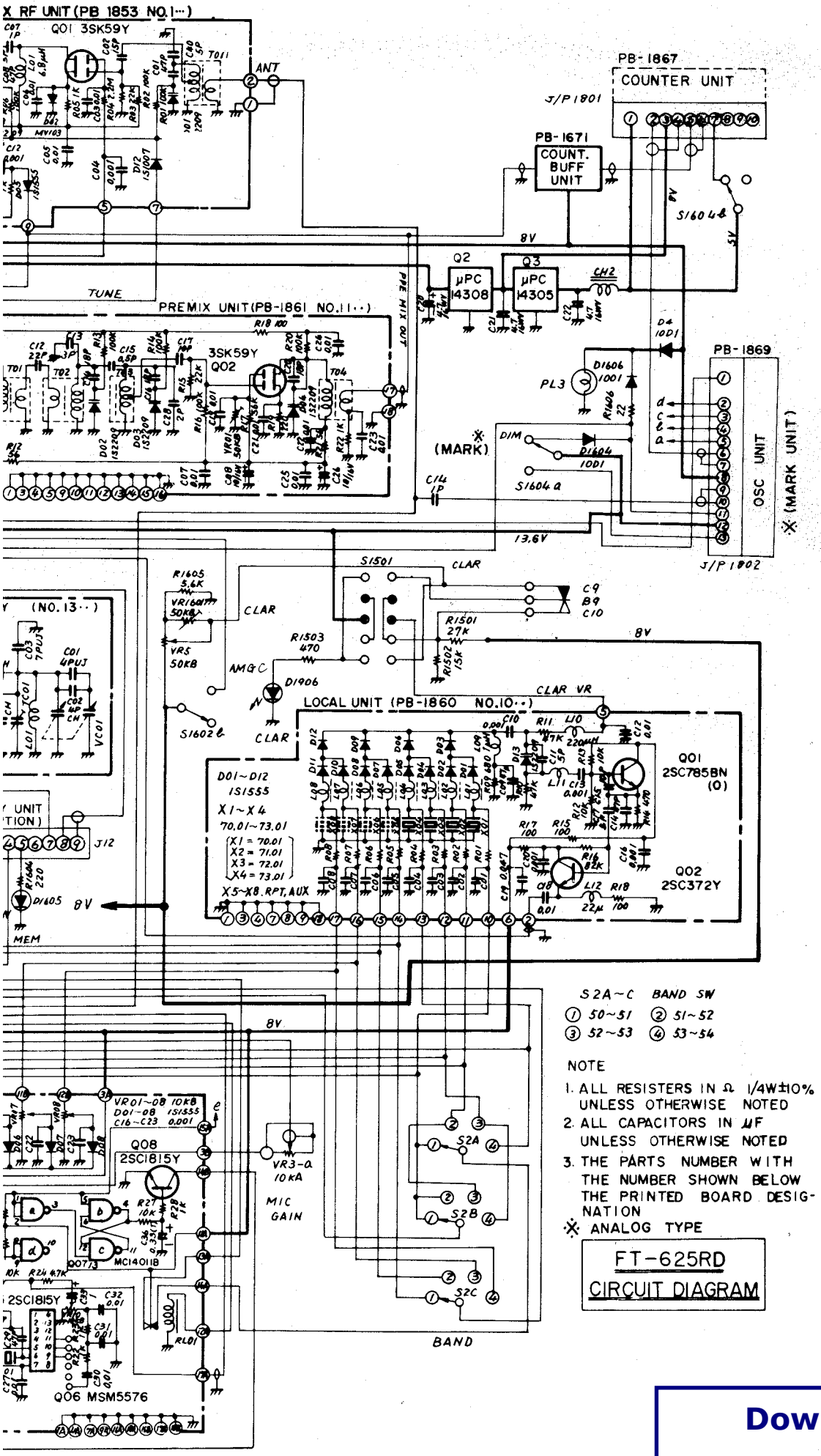
Symbol Number	Parts Number	Description
	77000011	Microphone Assembly YE-11
		with Microphone hanger, Screws
	67040001	Microphone Plug FM-144P
	67020005	Antenna plug PL-259
	67050003	Accessory plug CP-0084
	67020002	Key plug SH3001
	67020003	External Speaker, Headphone
		plug P-2240
	67030002	Plug Adaptor KA409
	67020001	Pin plug CN7017P
	73000003	Fuse 3A (AC100-117V)
	73000002	Fuse 2A (AC200-234V)
	73000005	Fuse 10A (DC)
	96000001	AC Power Cord #240011
	68040005	Power Plug QMS-P4FK
	96000035	DC Power Cord #240068
	68040005	Power plug QMS-P4FK
	69030002	Fuse Holder SN SN1101


VOX GAIN
VR4-a 10KA
J3
KEY
S3H
J5
PTT
MIC
S3D
J2
TONE IN
RL2
J6 PHONE
J4
EXT SP
SP-1
J13
SP
S3A~H MODE SW
① LSB ② USB
③ CW-W
④ CW-N
⑤ AM ⑥ FM
S4A~D MEMO SELECT
VFO FIX
SIMP
TX
RX
MR
D9
S3C
S3B
S3A
D14
D8
D5
D6
D7
PTT J14
ALC J7
BREAK J8
MAKE J10
COM J9
D3~D15 1OD1
D1 U05B
J1
FS-1
POWER
S5
PT-1
D2 S15VB10
Q13 2SC373
Q15 MC4011B
Q09 2SC373
Q10 2SC373
Q12 2SA564A
Q11 2SC735Y
Q14 2SC372Y
Q05 2SD359
Q04 2SA695
Q02 2SC372Y
Q08 2SC372Y
Q07 2SC372Y
Q06 2SB529
Q17 2SK30AY
AF UNIT(PB-1764A NO.4···)
13.6V
R1901 470
D1901 ON AIR
Q01 2SC1815Y
Q02 2SC1815Y
Q03 2SK19GR
Q04 2SC1815Y
Q05 2SC1815Y
Q06 2SC1815Y
Q07 2SC1815Y
Q08 2SC1815Y
Q09 3SK40M
D01~D04 1S1555
D12~D17 1S1555
D05~D08 1S1007
D10 1SV50
D11 MV103
Q13 2SC1815Y Q12 2SC1815Y
Q11 2SC1815Y Q10 2SC1000GR
MIC AMP UNIT PB-1857(NO.6···)
Q5 μPC14308
Q1 MJ802
Q01 2SD313
Q03 2SC372Y
Q02 2SC372Y
μPC 14308
Q04
REG. UNIT PB-1756
(NO.14···)
8V
13.6V
TX 13.6V
LOCAL
IF


FM IF UNIT
(PB-1856 NO.5•••)
SSB IF UNIT (PB-1854 NO.2•••)
EXCITER UNIT (PB-1858 NO.7•••)
AF GAIN
VR1-a 10KA
AM OUT
S3E
CAR IN
IF IN
AF IN
AF OUT
SSB OUT
AGC
S METER
DISC
D1501
TUNE
KEY
LOCAL
OUT PUT
SSB, FM CW 8V
Q01 TA7063P
Q02 2SC1815Y
Q03 MC14011B
Q04 2SC1815Y
Q05 3SK59Y
Q06 2SA564A-R
Q07 2SC1815Y
Q08 2SC1815Y
Q09 2SC1000GR
Q10 2SC1815Y
Q11 μPC577H
Q12 2SC1815Y
Q13 2SC1815Y
Q14 2SC1815Y
Q15 2SC1815Y
Q16 3SK59Y
Q17 2SC1815Y
Q18 2SC1815Y
Q19 2SC1815Y
Q01 MC1496G
Q02 3SK59Y
Q03 2SC2053
Q04 2SC730
Q05 2SC784R
Q5 μPC14308
CF01 SFE 10.7MS
CF02 LFB-15
CF03 LFB-15
CF04 FB-4
8V
RX 8V
TX 13.6V
IF
AM TX 8V
FM RX 8V
FM OUT
SQ
S METER


AMGC
Q01 TA7063P
MIC IN
IF IN
AM FM RX 8V
AM RX 8V
Q16 3SK59Y
CF04
FB-4
D3 10D1
RL1
NB UNIT (PB-1866 NO.17···)
TX OUT
ALC
FM, CW
S1601b
PROC
PROC ON
Q06 2SC1815Y
Q07 3SK40M
NB OUT
Q12 3SK59Y
Q09 2SC1815Y
Q08 2SC1815Y
Q10 2SC1815Y
Q11 TA7060P
Q04,05 3SK59Y
XF01
Q05
Q04
Q03 3SK40M
Q01 2SC1815Y
Q02 2SC1815Y
D01 ~ D02 1S1007
D03 ~ D06 1S1555
TX 8V
S1601a
S1602a
S1603a
D1601
D1602
D1603
R1601
R1602
R1603 470
FILTER UNIT
(PB-1855 NO.3···)
Q03 2SC1815Y
SSB FILTER
XF01
Q04 2SK19GR
TX IN
TX OUT
RF GAIN
VR1-b 10KC
RX OUT
RX IN
RX 8V
Q01 2SK19GR
Q02 2SK19GR
CW FILTER(OPTION)
XF02
AM CONT UNIT PB-1898(NO23···)
Q01
Q02 2SC1815Y
X2
AM GAIN VR4b 10K
S3F
S4A
S4B
S4C
S3G
CW
SSB
RX TX SIMP
PB-1750 FIX UNIT
Q02 2SC372Y
S1502
AGC
S1503
S METER
DISC
D1501 1S1007
M1
BOOSTER UNIT (PB-1859 NO.8···)
Q01 2SC1945-D
Q02 2SC2099
Q03 2SC2099
Q04 2SC496
PO CONT
VR3-b 5kB
OUT PUT
ALC
Q05 2SC784R
Q06 MPS-A13
Q07 2SC1815Y
EXT ALC
SSB, FM CW 8V
8V
13.6V
D12


UNIT (PB-1866 NO.17···)
RX RF UNIT (PB 1853 NO.1···)
Q09 2SC1815Y
Q08 2SC1815Y
Q10 2SC1815Y
Q11 TA7060P
Q03 3SK40M
Q02 2SC1815Y
Q01 2SC1815Y
CW.AM.FM IN
SSB IN
PROC OFF
TX 8V
NB IN
NB
SSB IF
RX 13.6V
NB OUT
Q04 3SK59Y
Q03 2SK19GR
Q02 3SK51
Q05 2SC1815Y
Q01 3SK59Y
AGC
LOCAL IN
TUNE
PREMIX UNIT(P
Q01 MC1496G
Q02 3SK59Y
NB
S1603
8V
LOCAL
FIX UNIT
PB-1750
(NO.9···)
Q01 2SC372Y
Q02 2SC372Y
TC01 ~ TC05
C17~21 30P
L01~05 1mH
D01~11 1S1555
C01~05 0.01
7~11
VFO UNIT PB-1774
Q03 2SC372Y Q02 2SK19GR Q01 2SC372Y (NO.13··)
R1504 470
RPT S1505
D1907
1MHz AUX S1504
MEMORY UNIT (OPTION)
J12
S1605 MEMORY
VFO
MEM
13.6V
R1605 5.6K
VR1601 50KB
VR5 50KB
S1602
S1604
R1904 330
R1903 330
R1902 330
S4C
S4B
S4A
S4G
D1902
D1903
D1904
RX. TX SIMP
PL1
PL2
DIAL
CHANNEL SW
VFO
CH1
CH2
CH3
CH4
CH5
KEYING BURST UNIT
(PB-1862 NO.12··)
VR01~08 10KB
D01~08 1S1555
C16~C23 0.001
TUNE
MIC IN
AMGC IN
CONT
8V
Q08 2SC1815Y
Q07 2SC1000GR
Q03 2SC1815Y
Q05 2SC1815Y
Q04 MC14011B
Q06 MSM5576
S501 TONE BURST
TP01
2SC2099
PO.M
AFP
TX 13.6V
RX ANT
D13 1001



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