OPERATING MANUAL

FT-ONE

YAESU MUSEN CO., LTD.

C.P.O. BOX 1500
TOKYO. JAPAN

FT-ONE
GENERAL COVERAGE ALL MODE SOLID STATE TRANCEIVER

GENERAL DESCRIPTION

The FT-ONE presents substantial breakthroughs in the top of the line HF transceiver field. From the standpoints of operating control, circuit design and layout, performance, size and weight; the Yaesu engineering staff has stretched the very limits of the state-of-the-art for tomorrow's Amateur needs with the reliability normally reserved for the Commercial industry.

The front control panel of the FT-ONE sports both dual metering and dual digital displays along with twelve separate LED status indicators, showing at a glance exactly what the transceiver operating conditions are at all times. 24 keys, including a numerical keyboard, allow complete frequency control; including split frequency operation, scanning and 10 VFOs operable over the entire frequency range with one finger. Multiple tuning rates down to 10Hz per steps are also key selectable. Automatic Mic Gain Control (AMGC) is provided to eliminate background noise on transmit, and is adjustable from the front panel along with noise blanker threshold, Notch/APF frequency, IF Shift and Width, RF speech processor compression level, SWR meter adjustments, FM Squelch, keyer speed, VOX gain and delay, and PIN attenuator, as well as the usual controls (except for Plate and Tune controls, since it is all-solid state; a preselector, since RF tuning is microprocessor controlled; and a bandswitch, since it has just one band—30 MHz wide).

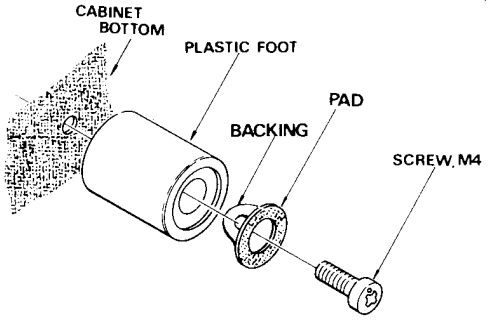
Glass epoxy plug-in circuit cards with spacious component layouts and easy access are used throughout the standard FT-ONE, so that many of the alignment procedures can be performed without removing anything but the top cover.

AC POWER CORD			1
2 wire, 2 prong plug (DC-546-007)		T9013280	
3 wire, 3 prong UL plug (UC-904-016)		T9013282	
3 wire, 3 prong Australian plug (SC-411-001)		T9013283	
3 wire, 2 prong EU plug (YFC-14K)		T9013285	
(Cord Band)		S3000023	
FUSE			
10A	(100–117 VAC)	Q0000007	1
5A	(200–234 VAC)	Q0000005	(1)
0.5A	(Backup)	Q0000001	1
DUMMY PLUG		C3001120	1

[redacted]

BOTTOM PANEL FEET

The feet on the bottom panel may be changed, if it is desired to change the viewing angle for the FT-ONE. In the accessory kit for your FT-ONE there are two extender feet with mounting pads. These may be installed either in front or in back, according to the requirments of your station.



TRANSMITTER

Frequency range:

160m band	1.8 to 2.0 MHz
80m band	3.0 to 4.0 MHz
40m band	7.0 to 8.0 MHz
30m band	10.0 to 11.0 MHz
20m band	14.0 to 15.0 MHz
17m band	18.0 to 19.0 MHz
15m band	21.0 to 22.0 MHz
12m band	24.0 to 25.0 MHz
10m band	28.0 to 29.99 MHz

Tuning steps:
Selectable 1 MHz, 100 kHz, 100 Hz, 10 Hz

Emission types:
LSB, USB (A3J/J3E*), CW (A1/A1A*), AM (A3/A3E*), FSK (F1/F1B*), **FM (F3/F3E*)
* New emission designation per WARC '79
** With optional FM unit installed.

Power output (minimum):

	160m through 15m	10m
SSB, CW	100W (PEP)	90W (PEP)
AM	25W	25W
FM, FSK	50W	50W

Carrier suppression:
better than −40 dB below peak output.

Unwanted sideband suppression:
better than −50 dB below peak output, (measured at 14 MHz, 1 kHz tone)

Non-harmonic spurious radiation:
better than −40 dB below peak output

Harmonic radiation:
better than −50 dB below peak output

Audio response:
better than −6 dB from 300 Hz to 2700 Hz

3rd order intermodulation distortion:
better than −31 dB below peak output

Frequency stability:
less than 300 Hz drift during the first 30 minutes after 10 minutes warm-up; less than 100 Hz every 30 minutes thereafter.

Modulation type:
A3J: Balanced Modulator
A3: Low Level Modulation
F3: Variable Reactance

Maximum deviation (FM, optional Unit installed):
±5 kHz

FSK shift frequency:
170 Hz.

Output impedance:
50 ohms, unbalanced (nominal)

Microphone impedance:
Low Impedance (500 to 600 ohms)

RECEIVER

Frequency range:
150 kHz to 29.9999 MHz (continuous)

Clarifier range:
±9.9 kHz

Sensitivity:
(CW, SSB, and AM figures measured for 10 dB S+N/N)
* 1.8 to 30 MHz ** 150 kHz to 1.8 MHz
SSB/FSK(W)/CW(W)
* better than 0.3 μV, ** better than 5.0 μV
CW(N)
(with optional XF-8.9KCN filter installed)
* better than 0.2 μV, ** better than 2.5 μV
CW(M)/FSK(N)
(with optional XF-8.9KC filter installed)
* better than 0.25 μV, ** better than 3.0 μV
AM
* better than 2.0 μV, ** better than 30 μV
AM
(with optional XF-8.9KA filter installed)
* better than 3.0 μV, ** better than 50 μV
FM
(with optional FM unit installed)
better than 20 dB of Quieting from 1.8 to 29.99 MHz

Intermediate frequencies:

1st IF:	73.115 MHz
2nd IF:	8.9875 MHz
Width/shift IF:	10.76 MHz
Noise Blanker IF:	455 kHz

FM IF (with optional FM unit installed): 455 kHz

Image rejection:
better than −80 dB

IF rejection:
better than −70 dB for all frequencies

Selectivity:

	−6 dB	−60 dB
SSB, CW(W), FSK(W)	2.4 kHz	4.0 kHz
CW(N)*	300 Hz	900 Hz
CW(M)*, FSK(N)*	600 Hz	1.2 kHz
AM*	6 kHz	10 kHz
FM**	12 kHz	24 kHz

* with optional filter installed
** with optional FM unit installed
NOTE: These figures apply as maximum bandwidths with Width control set to maximum.

SEMICONDUCTORS

Transistors:

2SA719Q	1
2SA719R	8
2SA733AP	4
2SA733AQ	24
2SB536K	2
2SB772Q	1
2SB774	9
2SC535B	3
2SC732TMBL	6
2SC732TMGR	1
2SC945AP	63
2SC945AQ	24
2SC945P	2
2SC1589	2
2SC1815Y	1
2SC1923-O	15
2SC1959Y	5
2SC2002L	1
2SC2026	3
2SC2290	2
2SC2395	2
2SC2407	3
2SC2562Y	1
2SD288K	2
2SD882Q	2
2N4427	2
MPS-A13	1

FETs:

2SK19TMGR	4
2SK19TMY	2
2SK61GR	1
2SK125	1
2SK206-3	2
3SK73GR	20
3SK74L	2
JF1033B	2
JF1033S	1

ICs:

AN6552	3
HD10551P	1
MB8718M	2
MC1496CP	2
MC3403P	3
MC14001BCP	2
MC14011BCP	2
MC14012BCP	1
MC14013BCP	1
MC14066BCP	5
MC14069UBCP	3
MC14071BCP	1
MC14081BCP	4
MC14510BCP	1
MC14518B	1
MC14538BCP	1
MN1201A	3
MN1203	2
MN9005	1
ND487C2-3R (Ring Module)	1
SN16913P	5
SN7406N	1
SN74S11	1
SN74LS26N	1
SN74S113	1
SN74LS196N	2
SN74LS390N	1
SN76514N	1
TA7060P	2
TBP18SA030N -0376	1
-0378	1
-0379	1
-0380	1
MC7908H	1
μPC2002H	1
μPC78L05	2
μPC78L08	4
8044	1

Photo-Interrupters:

ON1105	2

Silicon Diodes:

10D10	4
1SS53	226
V06B	13
S2VB10	1

Germanium Diodes:

1N60	21

Varactor Diodes:

1S1658	1
1T25	11
FC52M-5	2
MV-104	2

Schottky Barrier Diodes:

1SS97	5

PIN Diodes:

1SV80	3

Zener Diodes:

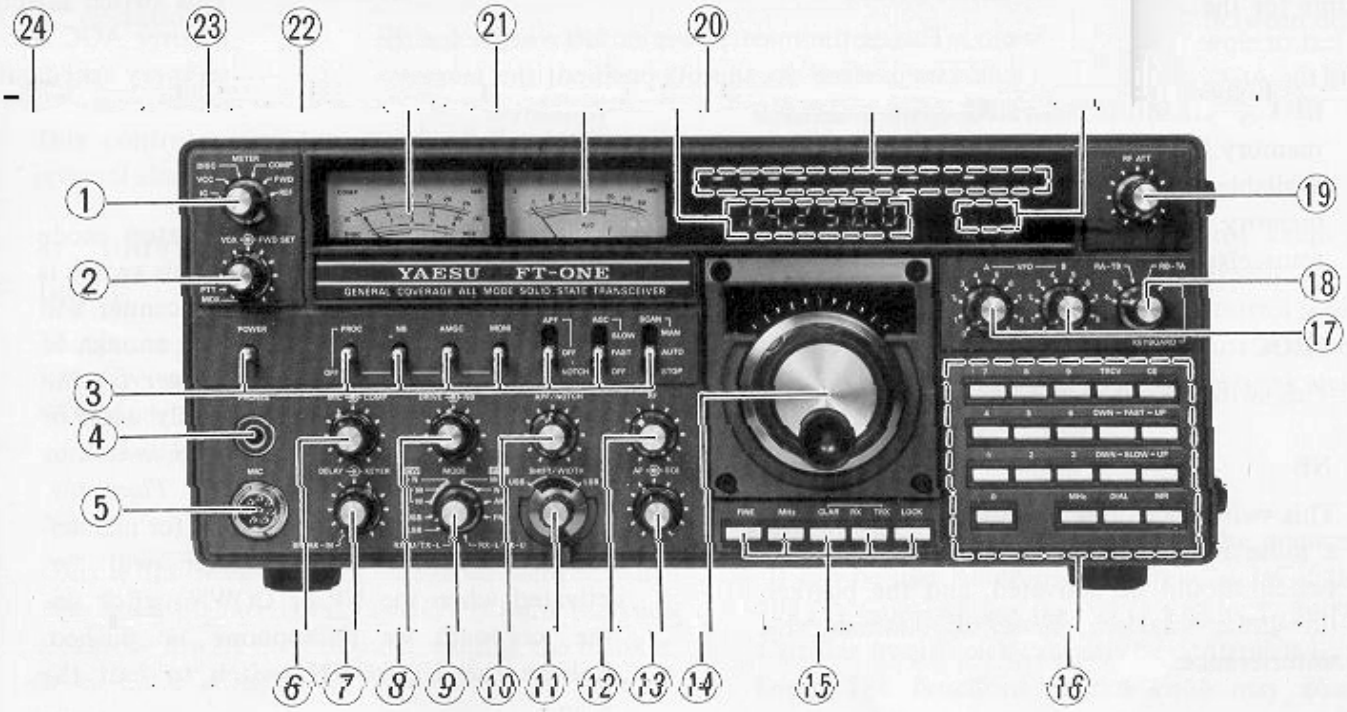
RD3.3EB2	1
RD4.7EB2	1
RD5.1EB2	2
RD5.6EB3	11
RD6.2EB3	2
RD9.1EB2	13
RD10EB1	1
RD12EB2	1
YZ-003	2

Light Emitting Diodes:

LN410YP	12

LED Displays:

5082-7415	1
5082-7623	6



This transceiver has been specifically designed for ease of operation. However, the operator may not be familiar with the functions of some of the controls, and improper adjustment may degrade transceiver performance. Therefore, be certain that you understand the functions of all controls and switches before operating the FT-ONE.

1) METER

This switch selects METER 1 indication of various functions to monitor transceiver operating conditions.

IC: This position indicates the current drain of the final transistors during transmission.

VCC: In this position, METER 1 will show the DC source voltage of the transceiver (during both transmit and receive).

DISC: In the FM mode, the meter indicates any tuning error in the receiving frequency. Adjust the receiver frequency so that the meter indicator is at the center of the scale.

COMP: While in this position, the meter shows the compression level of the built-in speech processor.

FWD: This position monitors relative forward power output.

To measure SWR (Standing wave ratio), set the meter indication level to full scale during transmission.

REF: After full-scale adjustment in the FWD position has been made, the meter will indicate the reflected power (SWR) in this switch position.

2) VOX/FWD SET

VOX

This control is used to set the sensitivity of the VOX (voice operated TX/RX switching). Clockwise rotation of the VOX control increases the sensitivity of the circuit. In the MOX position, the transmitter is activated until the control is rotated out of the click-stop. The PTT position provides push-to-talk operation from a footswitch or the microphone PTT switch. A jack is provided on the rear panel for footswitch input.

During CW operation, the sidetone will cause the VOX circuitry to be activated, providing semi-break-in operation. The VOX and DELAY controls should be set for the appropriate switching hang time.

FWD SET

This control is used for full-scale adjustment of METER 1 (METER switch in FWD position) for SWR measurement.

backup circuit is activated. (An additional memory backup unit for power outages is an available option. This unit protects the memory whenever the supply voltage to the transceiver is cut off.)

b) **PROC**

This switch activates the RF speech processor.

c) **NB**

This switch activates the noise blanker. When a pulse-noise interferes with reception, this switch should be activated, and the blanker threshold adjusted, so as to eliminate the interference.

d) **AMGC**

The Automatic Microphone Gain Control switch enables a microphone gain threshold circuit which requires a minimum input level from the microphone before the microphone amplifier is activated. The AMGC feature is useful in a noisy environment, as background noise such as that generated by an amplifier fan will be eliminated in gaps between words and sentences. This circuit may be thought of as a "microphone squelch" system.

e) **MONI**

This switch allows you to monitor the speech signal from the microphone, such as for tape recording purposes. On CW, the MONI switch activates the CW sidetone. See the section on operation regarding CW sidetone operation.

f) **APF/NOTCH**

This switch activates an audio filter for enhanced reception. In the APF (Audio Peak Filter) mode, very narrow audio bandwidth is provided, for single-signal CW reception. In the NOTCH position, an audio notch may be placed on an interfering carrier. The center frequency of the peak or notch is varied by means of the APF/NOTCH potentiometer on the front panel.

if desired.

h) **SCAN**

This switch selects the desired stop mode during scanner operation. When this switch is placed in the AUTO mode, the scanner will halt on any signal which is strong enough to engage AGC action (S1 or stronger on the S-meter). To stop the scan manually while in the AUTO mode, place the SCAN switch in the STOP position momentarily. Place the SCAN switch in the MAN position for manual scanner operation; the scanner will be activated when the UP or DOWN switch on the keyboard or microphone is pushed. Release the UP/DOWN switch to halt the scan.

4) **PHONES**

This is a standard two conductor jack for output to headphones. The impedance of the headphones should be 4 to 8 ohms. Insertion of a plug into this jack will automatically disconnect the internal speaker.

5) **MIC**

This eight-pin connector accepts the microphone audio input, as well as the push-to-talk (PTT) and scanning control lines. The nominal microphone impedance is 600 ohms.

6) **MIC/COMP**

MIC

This control adjusts the gain of the microphone amplifier for SSB and AM operation. Clockwise rotation increases the gain.

COMP

This controls the compression level of the RF speech processor.

7) **DELAY/KEYER**

DELAY

This control adjusts the hang time of the VOX circuitry for SSB voice or CW semi-break-in operation. When rotated fully counterclockwise into the

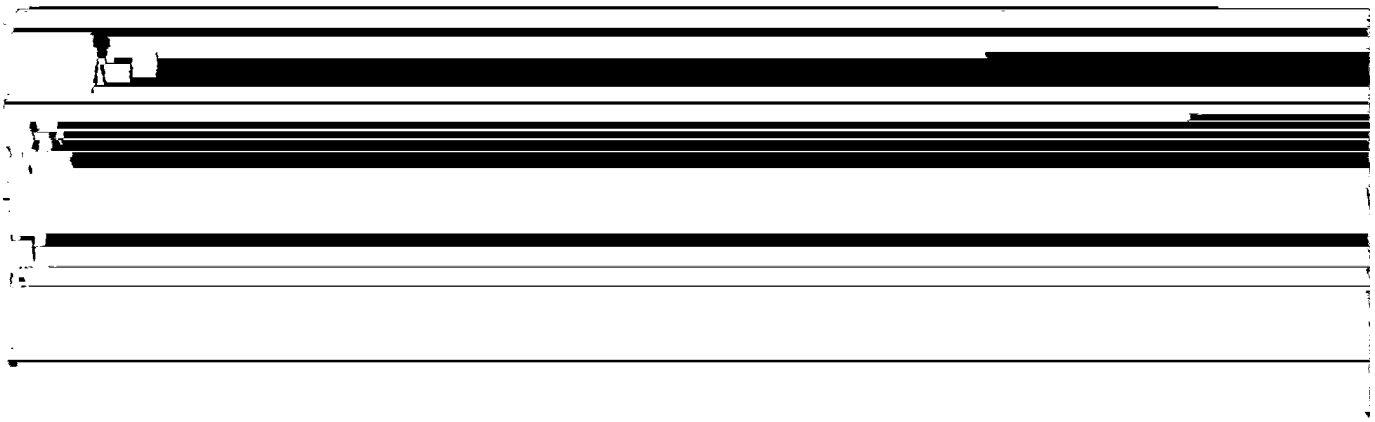
This is the output carrier level control for the AM, FM, CW and FSK modes. While operating on the SSB mode with the RF speech processor on, this control adjusts the drive level.

NB

This is the noise blanker threshold control. When the Noise Blanker is switched on, turning the knob clockwise lowers the threshold, causing the blanker to be more sensitive to lower levels of impulse noise.

9) MODE

This switch has eleven positions for selection of the operating mode desired: LSB, USB, CW(N), CW(M), CW(W), FSK(W), FSK(N), AM, FM, and



RX U/TX L (receive USB; transmit LSB), RX L/ TX-U (receive LSB; transmit USB).

10) APF/NOTCH

The APF/NOTCH control varies the APF/NOTCH filtering center frequency to anywhere within the 300 Hz – 1500 Hz frequency range.

11) SHIFT/WIDTH

The SHIFT and WIDTH controls are mounted on concentric shafts. The WIDTH control varies the center frequency of the third IF across the pass-band of the second bank of crystal filters in the IF, the first bank presenting a fixed boundary. The SHIFT control then varies the selected IF passband for optimum interference rejection. The controls are slaved with moderate friction between them for fingertip adjustment of the IF shift feature.

12) RF GAIN

This control varies the gain of the receiver RF and IF amplifiers. For full S-meter operation and maximum receiver sensitivity, this control should be set fully clockwise.

the point where the receiver noise just disappears, so as to provide maximum response to weak signals. (FM unit optional).

14) TUNING KNOB

This is the main tuning knob of the transceiver. It can be used to control the frequencies of the 10 VFO's selected by the VFO SELECT SWITCH. Clarifier frequencies can also be controlled by this knob. The functions of this knob may also be controlled from the keyboard. Continuous rotation will vary the transceiver frequency from 150 kHz to 30 MHz. The frequency variations per rotation may be selected from 2 kHz, 20 kHz or 10 MHz by the FINE and MHz pushbuttons.

15) PUSHBUTTON SWITCHES

a) FINE

This switch allows precise zeroing-in on a signal. When this switch is pushed, frequency changes via the tuning knob can be made in 10 Hz steps at 2 kHz per turn (verses 100 Hz at 20 kHz per turn normally). Press this switch again to return the frequency steps to 100 Hz.

b) MHz

Press this switch while simultaneously rotating the tuning knob, and the operating frequency digits to the left of the decimal point will change in 1 MHz steps continuously from 0 – 29 MHz, while the digits to the right of the decimal point will remain unchanged.

PER TURN / PUSH SW	2 kHz	20kHz	10MHz
FINE			
MHz			

While the clarifier function is activated, press this button once to activate the clarifier function for both transmit and receive frequency offset. If the button is pushed again, the clarifier function will return to receiver offset only.

e) **LOCK**

Press this button to disable frequency changes via the tuning knob, thus preventing inadvertent frequency changes. Press this button a second time to release the lock.

While the VFO is locked, frequency entry from the keyboard is still possible.

16) KEYBOARD

This keyboard allows you to control the operating frequency, scanning and VFO selection (refer to the "OPERATION" section for details).

17) A-VFO-B

These selectors allow you to select one of the VFO channels. Both selectors are used when you operate on different frequencies for transmit and receive. VFO A or VFO B can be selected through the VFO SELECT SWITCH, or their functions can be alternatively controlled via the keyboard.

Frequencies stored in the same numbered channels of VFO A and VFO B are the same.

18) VFO SELECT SWITCH

This switch selects the desired VFO mode (VFO A, VFO B or KEYBOARD), providing either split operation or simplex operation. VFO channels and VFO modes can, alternatively, be selected through the keyboard.

VFO CH SELECTOR B for transmit.

RB-TA

This position provides operation on a frequency selected by VFO CH SELECTOR B for receive and VFO CH SELECTOR A for transmit.

KEYBOARD

When the VFO SELECT SWITCH is in the KEYBOARD position, the VFO mode and channel selections are controlled entirely via the keyboard.

19) RF ATT

This control adjusts the attenuation provided by the receiver front end PIN diode attenuator. This control may be used for tailoring the noise figure of the receiver to the level of band noise present on the operating frequency. The attenuator may also be used to minimize intermodulation problems caused by extremely strong local signals.

20) DIGITAL DISPLAY II

This miniature LED display indicates the VFO channel selected, as well as the clarifier frequency offset (when activated). When a minus sign (–) appears, the clarifier frequency is lower than the original operating frequency.

21) INDICATORS

These indicators provide quick verification of the various operating functions. When a particular LED is illuminated, the respective function is in operation.

PROC

This LED lights up when the RF speech processor is turned on.

scanning position, this LED lights up.

RX

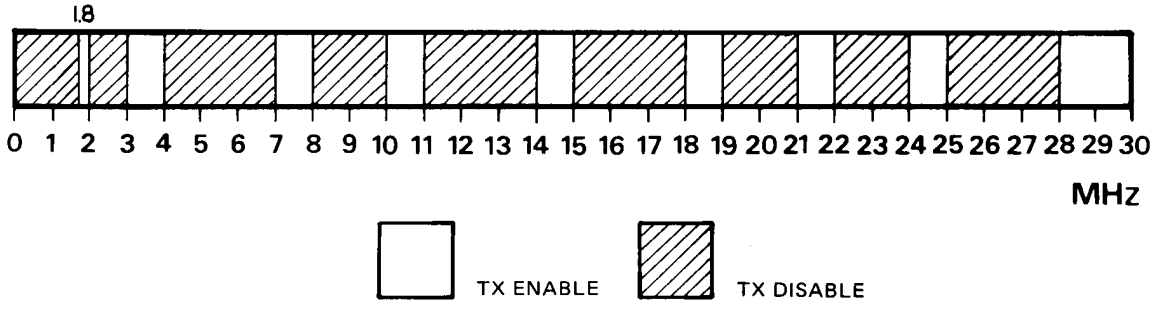
When the receiver clarifier is activated, this LED lights up.

TRX

When the receive/transmit clarifier is activated, this LED lights up.

D. LOCK

This LED turns on when frequency entry via the tuning knob is disabled (dial lock on).



STANDARD MODEL

er, the
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–6 dBm (0.1 V rms) at 50 ohms for use with a transverter, etc.

2) ANT

This is a standard UHF type female jack for connection to the antenna.

3) GROUND

A good ground connection to this point is important for top transceiver performance and safety.

signal is applied from an external receiv
anti-trip device protects the VOX relay fro
activated by the external receiver's speaker.

PATCH

This is an auxiliary microphone input jack
with a phone patch, etc.

PTT

This jack provides external PTT control
switch or similar external switch may be c
at this point to close the transceiver PTT line.

4) PIN JACK BOARD A

SP

This is a miniature phone jack for connection to an external speaker. Insertion of a plug into this jack automatically disconnects the internal speaker.

IF OUT

This jack provides narrow-band IF output from the transceiver for the monitoring of IF signal waveforms.

TONE

This jack provides a sidetone signal for CW operation. When an external receiver is used, connect the output to the audio amplifier in the external receiver to hear your sidetone from the external receiver's speaker.

AUX

This jack provides a special clocking signal when certain YAESU external accessories are connected. This jack must not be used other than for the special YAESU accessories.

5) BU

This switch activates the memory backup circuit, which preserves the memory when the transceiver power switch is off. Also, when the FT-ONE is equipped with the optional RAM board, the memory will be preserved during power cuts or transceiver transportation (when the FT-ONE is disconnected from its power source).

6) KEY-1

Two-conductor jack for a CW key or external keyer.

7) KEY-2

When the optional internal electronic keyer unit is installed, connect a three-conductor phone plug from the keyer paddles to this jack.

8) ACC-1

This is a 7-pin DIN jack for connection to a linear amplifier or other station equipment. Included are make-and-break relay connections, as well as the external ALC line.

9) AC

Connect the AC power cable to this jack to provide operation from an AC power line. NEVER connect DC power to this jack.

10) ACC-2

This 8-pin DIN type jack allows connection of a transverter or other accessories.

11) F-1

This is the fuse holder for the built-in memory backup power supply. Be certain to use a fuse of 0.5 amp rating.

12) DC 13.5V

For DC operation only, the DC cable should be connected at this point.

Never connect AC power to this jack. Failure to observe this simple precaution will void any and all warranties on this equipment. During AC operation with the built-in power supply, insert the DC dummy plug into this jack.

13) F-2

A properly rated fuse for the AC line should be inserted in this fuse holder. For 100/110/120 VAC, use only a 10 amp fuse, and for 200/220/234 VAC, use only a 5 amp fuse.

MICROPHONES

he Yaesu microphones, models YM-34 through ıe YM-38, can be used with the FT-ONE. These ıicrophones are available from your Yaesu dealer.

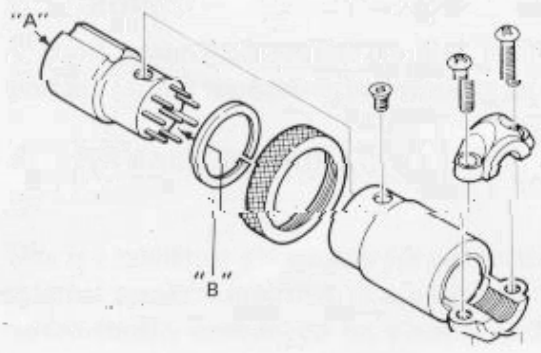
YM-34

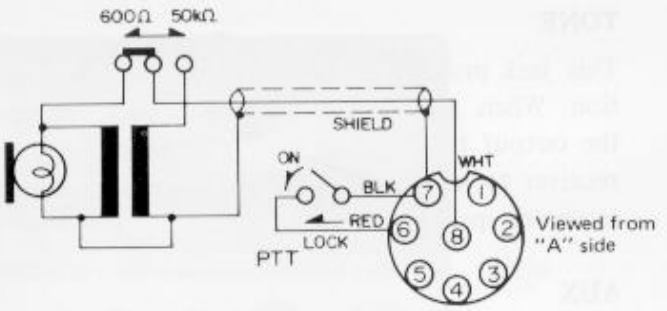
YM-38

YM-35

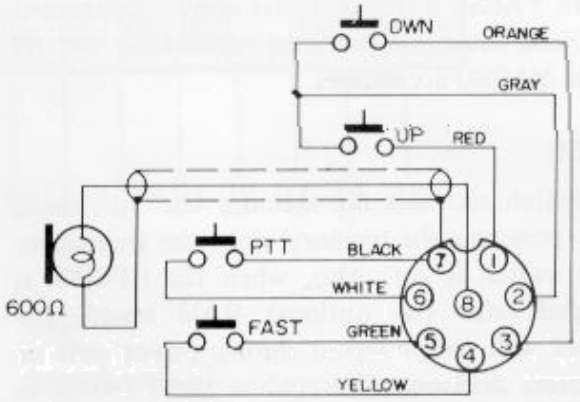
YM-36

YM-37

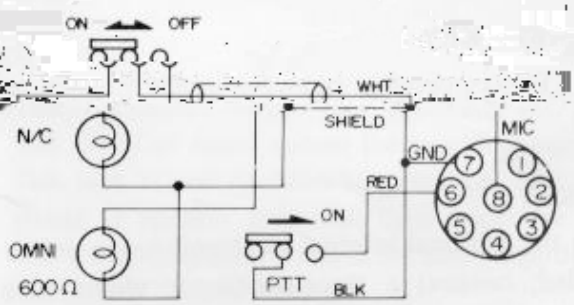




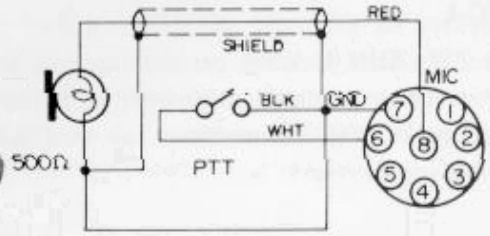
YM-34 MICROPHONE CONNECTIONS



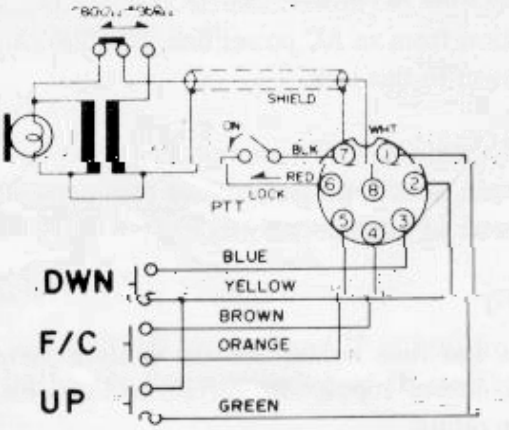
YM-35 MICROPHONE CONNECTIONS



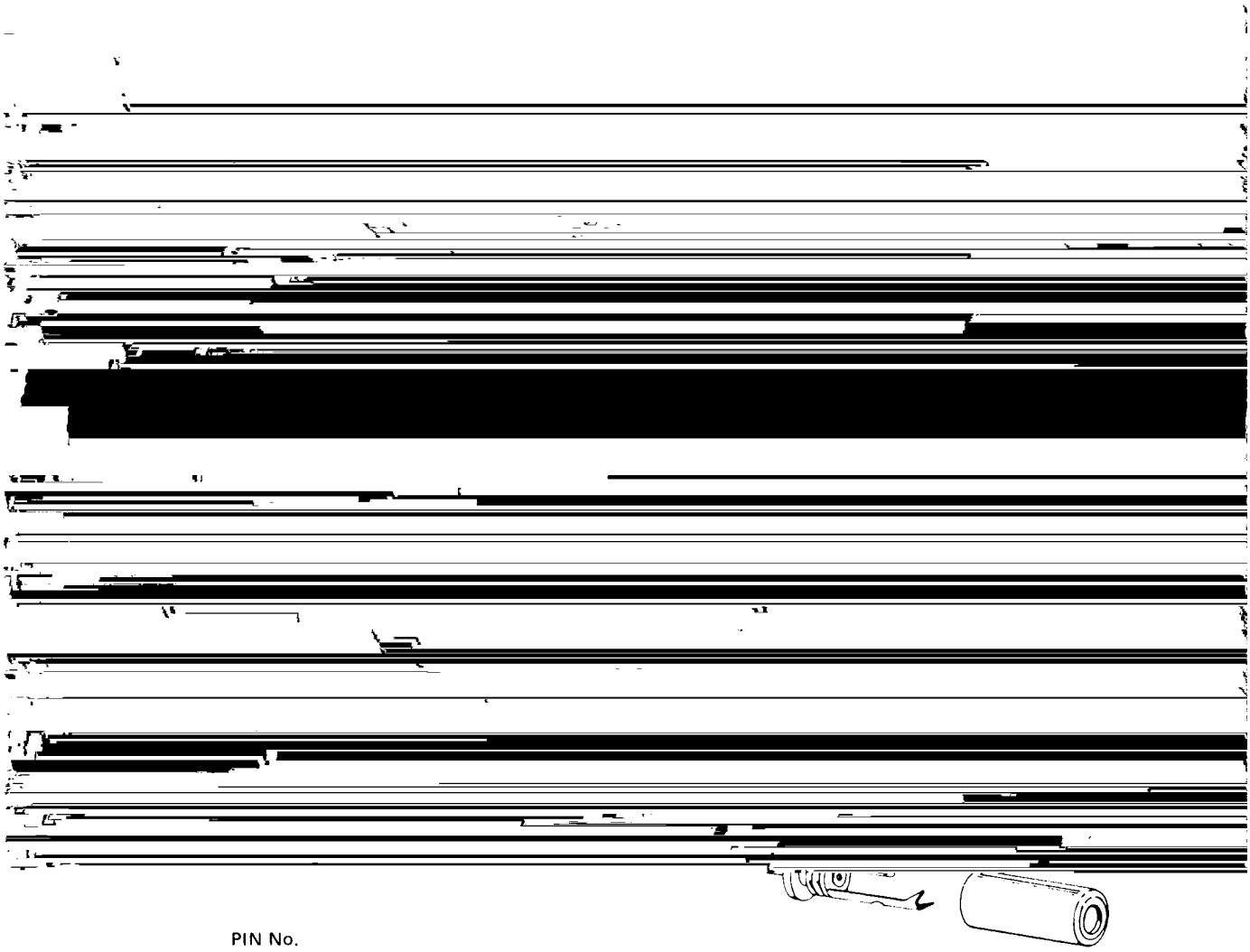
YM-36 MICROPHONE CONNECTIONS



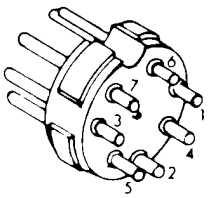
YM-37 MICROPHONE CONNECTIONS



YM-38 MICROPHONE CONNECTIONS



External speaker connections

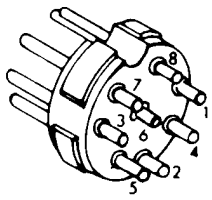


ACC-1

PIN No.

1.	ALC	
2.	RY COM.	
3.	RY N.O. (Normally open)	
4.	LNR GND (*1)	
5.	RY N.C. (Normally closed)	
6.	FLN-1	(*2, *3)
7.	FLN-2	(*2, *3)
Shell	GND	

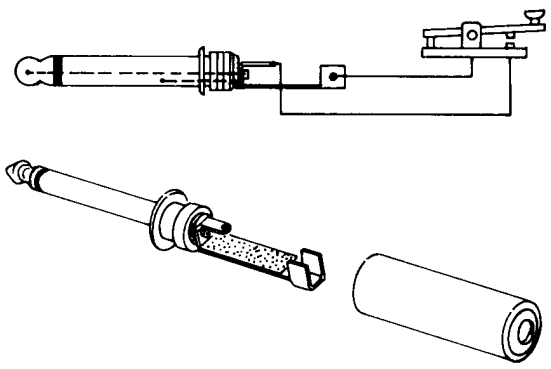
*1. Connect to ground, except when using full break-in linear amplifier such as ALPHA 78.
*2. Normally jumpered internally.
*3. Remove internal jumper and connect to linear only when using a full break-in linear amplifier.



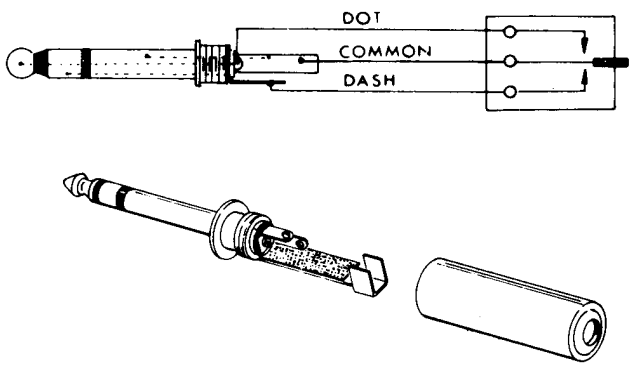
ACC-2

PIN No.

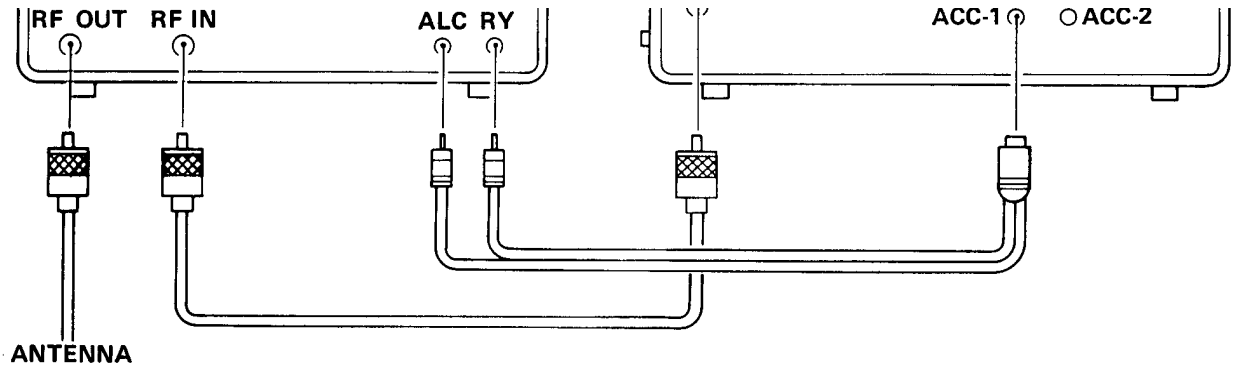
1.	TX GND	
2.	+13.5V	
3.	RX GND	
4.	CONTROL	
5.	+13.5V	
6.	+8V (PS-2)	
7.	AGC	
8.	ALC	
Shell	GND	

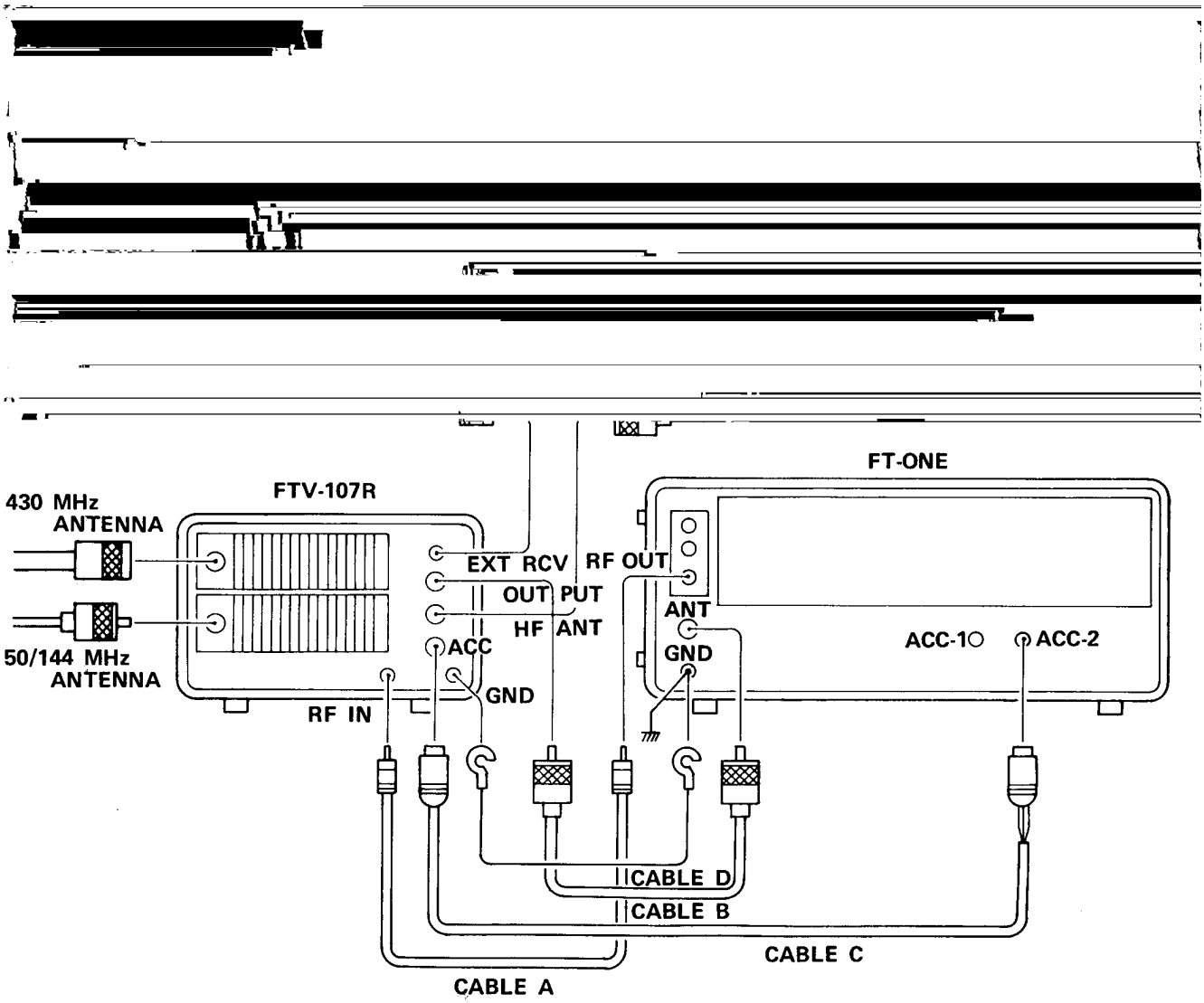


KEY-1 Plug



KEY-2 Plug

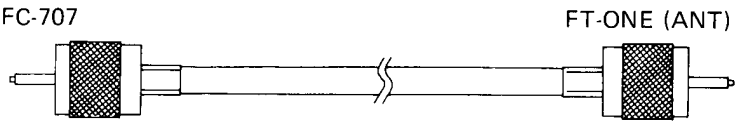

RF OUT
RF IN
ALC RY
ACC-1
ACC-2
ANTENNA


FT-ONE
FTV-107R
430 MHz
ANTENNA
50/144 MHz
ANTENNA
EXT RCV
OUT PUT
HF ANT
ACC
GND
RF IN
RF OUT
ANT
GND
ACC-1
ACC-2
CABLE D
CABLE B
CABLE C
CABLE A

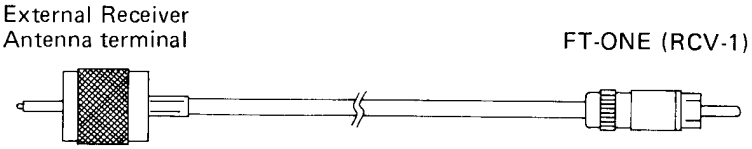
INTERCONNECTION CABLE INFORMATION

(THESE CABLES ARE AVAILABLE AS OPTIONS)

FL-2100Z
FC-107
FC-707

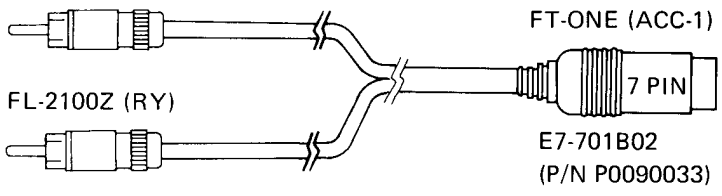


External Receiver
Antenna terminal



FL-2100Z (ALC)

FL-2100Z (RY)

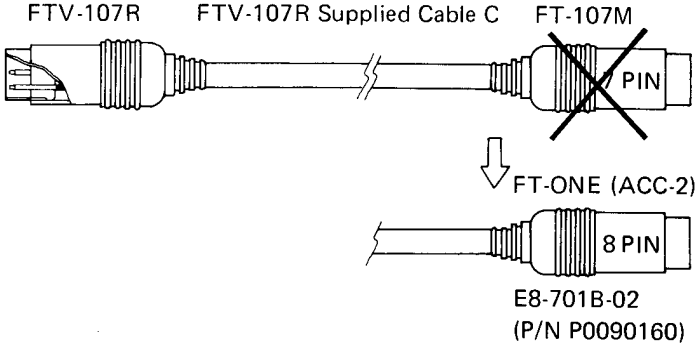


E7-701B02
(P/N P0090033)

1.	ALC inner conductor	
2.	RY outer conductor	
3.	RY inner conductor	
4.	LNR GND	
5.	–	
6.	–	
7.	–	
Shell	GND	ALC outer conductor

(for Pin locations see page 13)

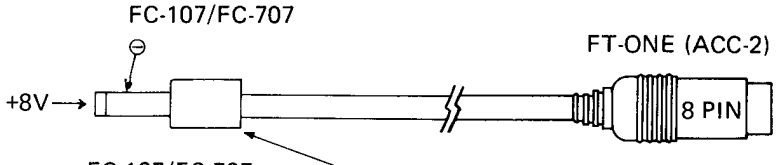
FTV-107R FTV-107R Supplied Cable C FT-107M



E8-701B-02
(P/N P0090160)

	FT-107M		FT-ONE
1.	CONTROL (BLK)	1.	TX GND (RED)
2.	+13.5V (WHT)	2.	13.5V (WHT)
3.	+8V (YEL)	3.	RX GND (GRN)
4.	CONTROL	4.	X-VER 13.5V (BLK) (CONTROL)
5.	+13.5V	5.	13.5V
6.	TX GND (RED)	6.	8V (PS-2 (YEL)
7.	RX GND (GRN)	7.	AGC
Shell	GND (BLU)	8.	ALC
		Shell	GND (BLU)

FC-107/FC-707



FC-107/FC-707
Meter illumination
and
FC-707 Relay control

P-200
(P/N P1090139)

1.	–
2.	–
3.	–
4.	–
5.	–
6.	8V
7.	–
8.	–
Shell	GND

[redacted]

as the supply voltage marked on the back of the transceiver. If it is not, jumper wire connections in the AC power supply unit and on the back-up supply transformer must be changed.

[redacted]

that the main station antenna will be connected to the RCV-1 jack when configured in this manner; this allows the FT-ONE operator to monitor on the receive-only antenna, while a spotting operator (on the external receiver) can be using the main

[redacted]

azimuthal directions or signal arrival angles may be covered using separate antennas.

THIS INSPECTION PROCEDURE MENTIONED ABOVE MUST BE MADE BEFORE CONNECTING THE AC POWER CORD TO THE POWER OUTLET.

[redacted]

jack to the receive antenna line.

Be certain to use 50 ohm cables for the above interconnections, so as to minimize loss on the received signal. As with any complex switching arrangement in an advanced amateur station, be absolutely certain that the switching connections prevent transmitter energy from being applied to the FT-ONE receiver input line.

WARNING

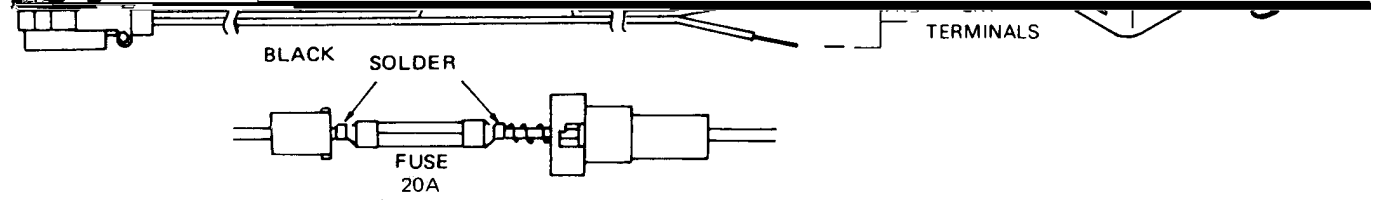
Our warranty does not cover damage caused by the omission of the required switching circuitry on the RCV-2 line, nor damage caused by feeding improper RF energy to the receiver input line in other ways.

[redacted] AC voltages and 13.5 volts DC (negative ground). For mobile operation at 13.5 volts DC, a 20 amp maximum current is required on the RF peak. As such, it provides exceptional performance as a mobile station.

DC cables are available from your Yaesu dealer.

For under-dash mounting, a special mobile mounting bracket is available, and this may also be obtained from your dealer.

The FT-ONE should be located away from heater ducts with a minimum of two inches of air space on the rear side, in order to allow proper air flow around the heatsink.



DC POWER CORD/DUMMY PLUG CONNECTIONS

SWR conditions present in most amateur installations. The power output of the transceiver will be 90 % of the full rated power when the SWR is 2:1.

In some newly designed vehicles, an electronic fuel injection system is employed, rather than a mechanical carburetor. If your car is one of these newer models, we recommend that you install your transceiver as far away from the injection system as possible, as high SWR conditions may result in interference to the injection system. If you observe any evidence of RF interference problems, we strongly recommend that you contact your vehicle's manufacturer for assistance.

The Yaesu RSL series of mobile antennas is available from your Yaesu dealer for mobile installations.

MICROPHONE INFORMATION

The eight pin microphone jack includes provision for external scanning, as well as microphone and PTT input. The Yaesu models YM-34, YM-35, YM-36, YM-37, YM-38 and MD-1B8 will provide excellent performance with your FT-ONE. See your Yaesu dealer.

If you use a non-Yaesu microphone, be certain to connect the microphone plug correctly. The nominal microphone impedance is 600 ohms.

PRIMARY VOLTAGE CHANGE INFORMATION

The FT-ONE AC power supply is designed to operate from any line voltage between 100 – 120 volts AC or 200 – 240 volts AC. If the voltage range of your FT-ONE does not match your local line voltage, the following modification should

connector holders located at the transformer. Disconnect these connectors.

3. Now unsolder the wires on the transformer, and reconnect them as shown in Fig. 6. Remove the 6 screws affixing the rear plastic cover to the regulator and final amplifier heatsinks. (Figure 2)

4. Referring to Figures 2 and 3, remove the screws marked "A" and "B", located on the regulator heatsink. Now carefully pull the regulator unit backward. Do not attempt to separate the unit completely from the main chassis—just provide enough space to remove the regulator cover.

5. Unscrew the 9 "C" screws securing the regulator unit cover, and remove the cover from the unit, as shown in Figure 3.

6. On the terminal block in the unit, change the jumper wire connection(s) so the regulator primary voltage meets that of your local line voltage. Figure 4 shows the primary voltage for 100 – 120 volts, and Figure 5 shows the primary voltage for 200 – 240 volts.

7. Now replace the regulator case, re-install the unit, connect the power connectors, and replace the bottom cover and heatsink cover.

8. After this modification is complete, replace the power fuse in the fuse holder with a fuse of the proper rating. For 100 – 120 volt use, replace with a 10 amp fuse. For 200 – 240

volt use, install a 5 amp fuse. To prevent any future confusion, cross out the voltage marked on the label applied to the regulator unit, and write down the correct primary voltage, as per the modification you performed.

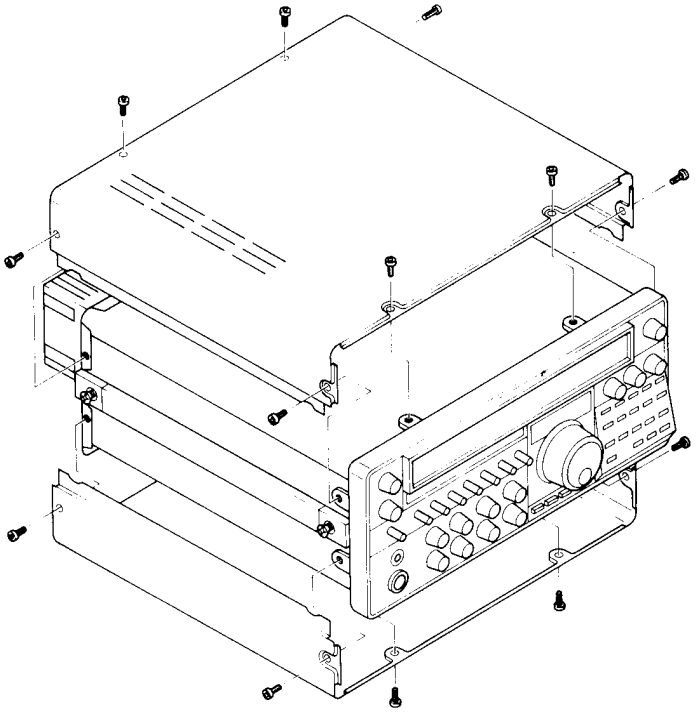


Figure 1

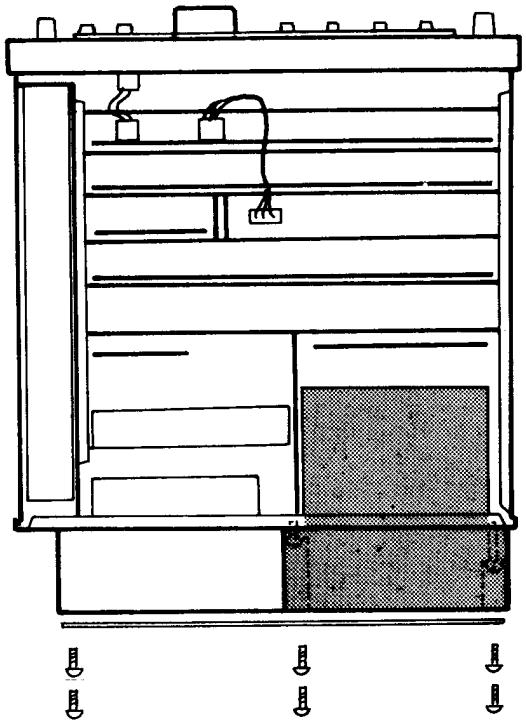
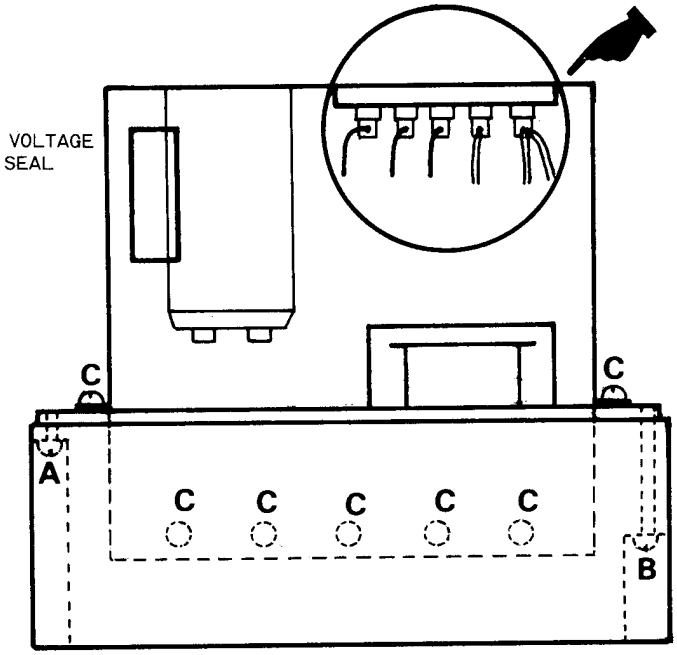


Figure 2 (TOP VIEW)



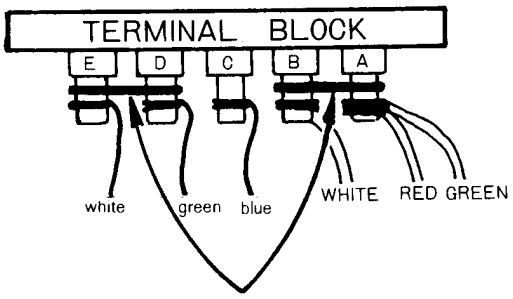


Figure 4

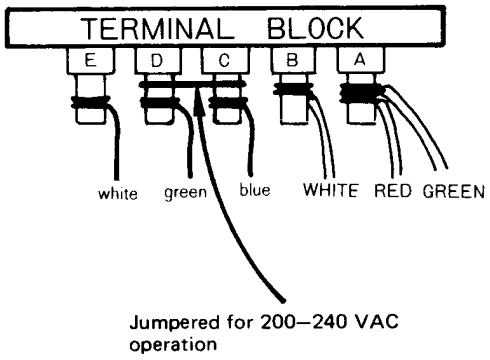


Figure 5

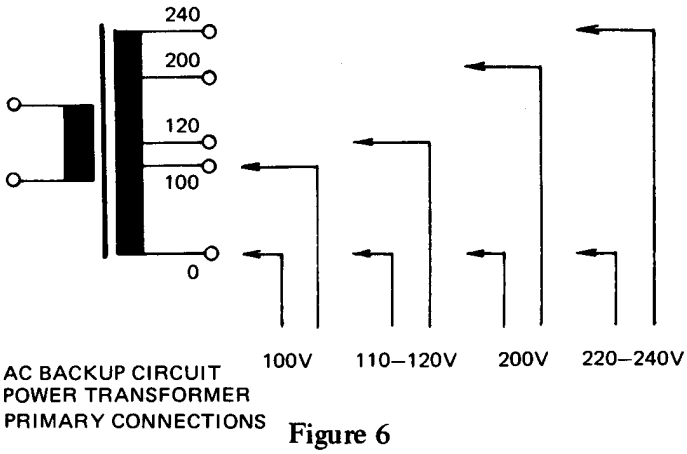


Figure 6

[redacted]

dummy plug is installed in the rear panel DC 13.5 V jack (for AC operation).

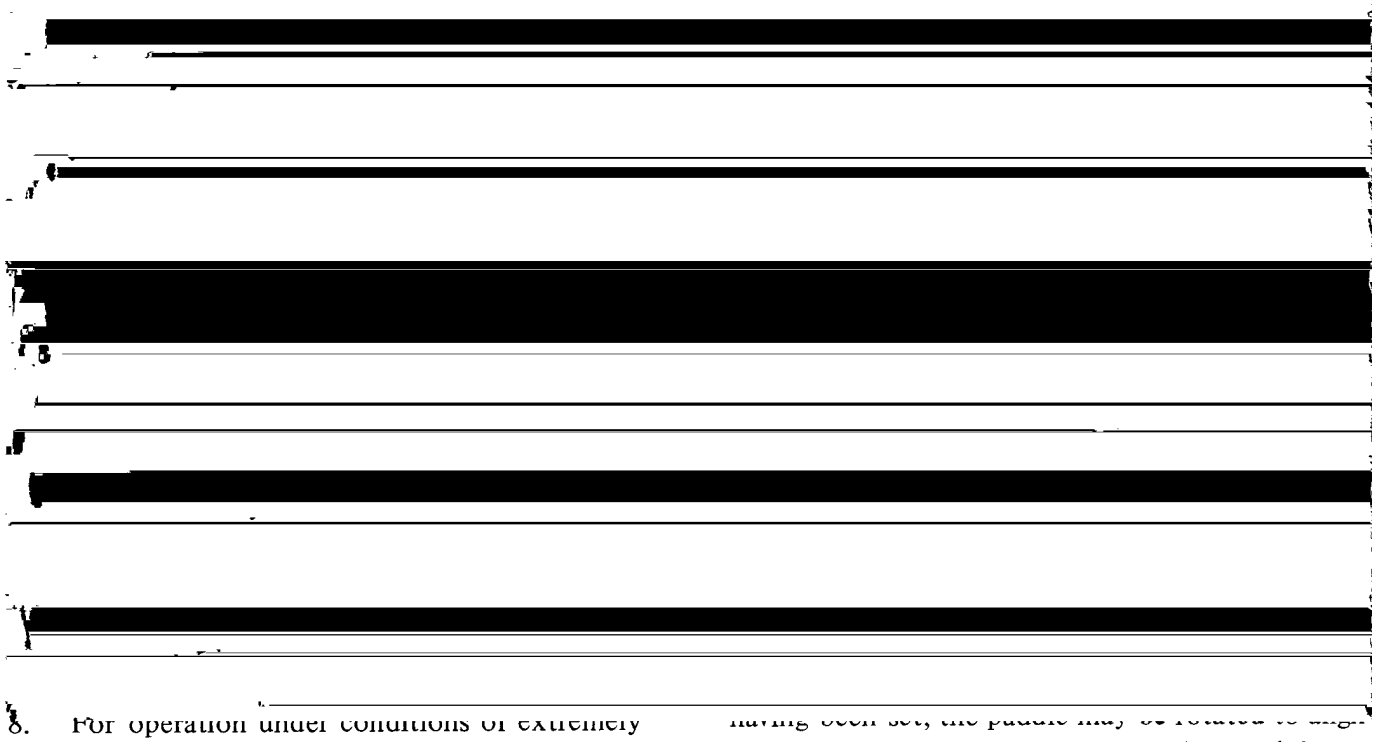
BASIC RECEIVER OPERATION

1. Preset the controls and switches as follows:

METER	VCC
VOX	PTT
POWER	OFF
NB	OFF
APF/NOTCH	OFF
AGC	FST
SCAN	MAN

quency, excessive clockwise rotation may result in intermodulation. The best setting of the noise blanker is the point at which the noise pulses just disappear to allow copying of the signal.

6. If the incoming signal is drifting, or is on a slightly different frequency, the RX CLARIFIER may be used to offset the receive frequency up to ±10 kHz from the transmit frequency. With the CLARIFIER switched on, pushing the TRX switch will offset both transmit and receive frequencies together. Push the TRX switch again to return to the RX clarifier function.



8. For operation under conditions of extremely strong signals or high band noise, the RF ATT may be used to reduce the signal levels applied to the front end of the receiver. The RF ATT control is very useful for tailoring the receiver noise figure for the band in use; for operation on 7 MHz, for example, the operator may find the high level of band noise objectionable, and rotation of the RF ATT control to the 10–11 o'clock position will achieve the dual purpose of selecting a more appropriate noise figure and also reducing the level of signals applied to the front end.

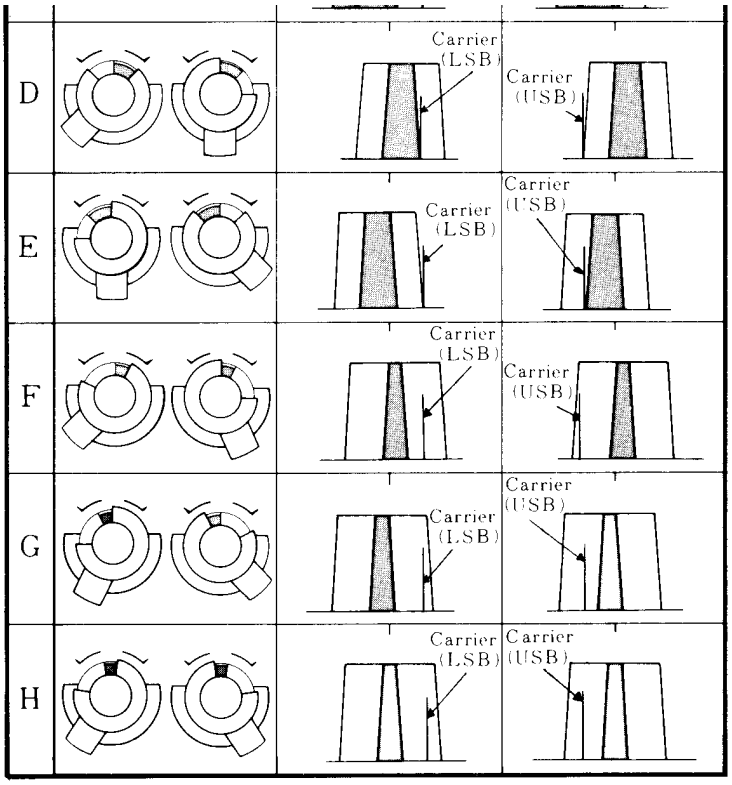
   The RF GAIN control may also be used to reduce the gain of the RF and IF stages. However, in most cases, it is preferable to use the RF Attenuator control, leaving the RF GAIN fully clockwise, thereby biasing the IF transistors for full output for best distortion characteristics.

having been set, the paddle may be rotated to align the passband for optimum reception and interference reduction.

The above procedure may also be used to program an intermediate CW bandwidth. For example, if the optional 500 Hz CW filter is installed, but a slightly narrower bandwidth is desired, offset the two controls slightly from the centered position. The paddle control may then be rotated to set the center frequency of the new passband. passband.

In the FSK mode, under some conditions, the 500 Hz passband presented by the FSK-N (when the XF8.9KC is installed) may be too narrow. Use the WIDTH and SHIFT controls and the FSK-W filter to set a bandwidth of, for example, 850 Hz for easy tuning.

It should be noted that it makes no difference, from a bandwidth standpoint, whether the WIDTH control is turned to the left or right relative to the SHIFT control when setting intermediate bandwidths. However, ease of access to the paddle will usually dictate to the operator which direction provides the most convenience.



AUDIO FILTER OPERATION

The audio peak and notch filter may be used to advantage under special circumstances of heavy interference.

1) To activate the audio peak filter, set the APF/NOTCH switch to APF. Now adjust the APF control to zero the passband of the audio filter on the incoming CW signal (the passband is much too narrow for SSB use). The operator will notice that the APF will dramatically improve the adjacent channel rejection under extremely crowded conditions.

2) The notch filter is quite critical in its adjustment, owing to the tremendous notch depth.

Both manual and automatic scanning features are available on the FT-ONE. The scanner may be activated either via the UP/DOWN controls on the keyboard, or via scanning controls on the optional scanning microphones, models YM-35, YM-38 and MD-1B8.

To activate the manual scanner, press either the SLOW DOWN or SLOW UP keys on the keyboard. Scanning will now occur in the direction selected in 10 Hz steps. The FAST DOWN and FAST UP controls, on the other hand, scan in 100 kHz steps, for quick frequency changes. Release the key to halt the scan. If an optional scanning microphone is used, press the FAST button along with either the UP or DOWN button to select fast scanning.

The automatic scanner is activated by setting the SCAN lever switch to AUTO. Now, press the SLOW UP or SLOW DOWN key to activate the scan. The FT-ONE will continue to scan until a signal strong enough to move the S-meter slightly is received; the scanner will stop and hold on that frequency. The RF GAIN control may be used to set the threshold for halting the auto scan if you want the scanner to stop only on stronger signals. The auto scan may be halted manually by flipping the SCAN lever switch to STOP momentarily.

CLARIFIER SCANNING OPERATION

To scan using the clarifier only, push the CLAR button, then activate the scanning controls as in the previous section. The transceive frequency may also be varied using the clarifier, by pressing the TRX button as described previously. Only manual scanning can be performed using the clarifier, and the scanning range will be the normal ±9.9 kHz.

the final transistors to recover to their normal operating temperature.

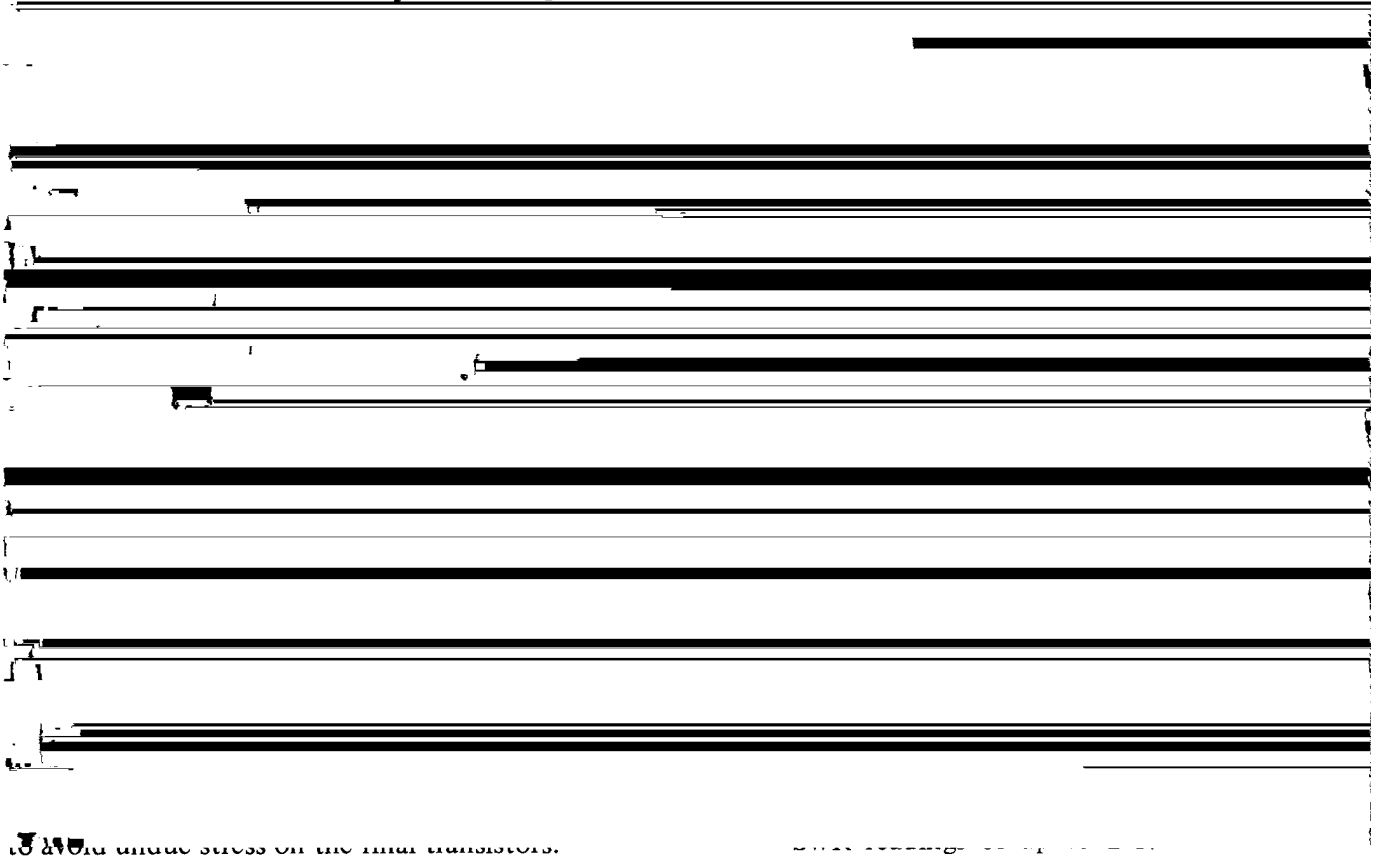
In cases of accidental short or open conditions of the load (antenna), the AFP (Automatic Final Protection) circuitry protects the final transistors, by reducing the transmitter gain to prevent over-dissipation problems. Furthermore, when the antenna SWR is high, the AFP circuit reduces the output power according to various antenna matching conditions. However, the AFP circuit is intended only for accidental occasions, so we recommend that you adjust your antenna to be as close to 50 ohms resistive impedance as possible

frequency inside an amateur band.

4. Advance the DRIVE control so that the IC reading on METER 1 reaches 10 amperes.

5. Set the METER switch to FWD, and adjust the FWD SET control so that the METER 1 needle is aligned with the FWD SET position on the right side of the meter scale.

6. Set the METER switch to REF. The meter needle should be within the REF scale area for full power operation. The REF area covers



to avoid undue stress on the final transistors.

The following paragraphs describe transmitter operation. If these guidelines are followed, the FT-ONE will provide many years of trouble-free operation.

reading is 2:1, the APF circuitry reduces the power output to about 90% of the full rated power. Normally, we recommend the use of an antenna having an SWR of less than 2:1 so the transmitter provides the full rated output. If the meter needle rests above the REF area, remedial work on your antenna system may be in order. Alternatively, an antenna tuner may be used with your antenna to present a 50 ohm load to your transceiver.

PRELIMINARY CHECKS

1. Preset the controls and switches as follows:

   VOX ..... PTT
   FWD ..... Center position
   PROC ..... OFF
   AMGC ..... OFF
   MONI ..... OFF

7. For the above test procedure, please be sure to check that the frequency is clear before transmitting. Also, use the minimum power necessary to obtain a full scale reading on the FWD SET step. If less than 10 amps of IC will

connected to the rear apron PTT jack.

2) Preset the controls and switches as follows:

MODE ..... LSB, USB, RX-U/TX-L, or RX-L/TX-U
METER IC
MIC ..... Center position

3) Close the PTT switch, and speak into the microphone in a normal voice. Adjust the MIC GAIN control so that the ALC meter needle does not go beyond the ALC range of METER 2. The IC meter should read approximately 5 amps on voice peaks, corresponding to about 1/3 to 1/2 of the full-power single-tone

4) Now adjust the RF speech processor. Place the PROC switch up to turn the processor on. Do not change the MIC GAIN setting made in step (3). Preset the COMP control to the 12 o'clock position, and speak into the microphone in a normal voice. Adjust the DRIVE control so that the METER 2 (ALC) needle stays at the left side of the scale. Now adjust the COMP control with the METER switch set to the COMP position; the correct setting is one which causes deflection of the needle between 5 and 10 on the COMP scale.

While some initial adjustment of the MIC GAIN, COMP, and DRIVE controls may be required, the optimum setting will soon become clear to the operator. A monitorscope is particularly helpful in adjusting the speech processor. It is important, though, that the transmitter not be overdriven; when speaking into the microphone with a long syllable (such as the word "four"), do not advance the DRIVE control past the point where the IC or forward power reading ceases to increase as the control is advanced.

may be adjusted by VR_{4001} and VR_{4002} under the top cover.

6. To set the VOX circuitry, advance the VOX gain control on the front panel so your voice activates the transmitter. The DELAY control will allow you to set the VOX time constant for the desired hang time after you have finished speaking. The ANTI-TRIP control, VR_{4003}, under the top cover, may be adjusted as necessary to prevent the speaker output from activating the VOX. Do not use more VOX gain or ANTI-TRIP than necessary.

CW OPERATION

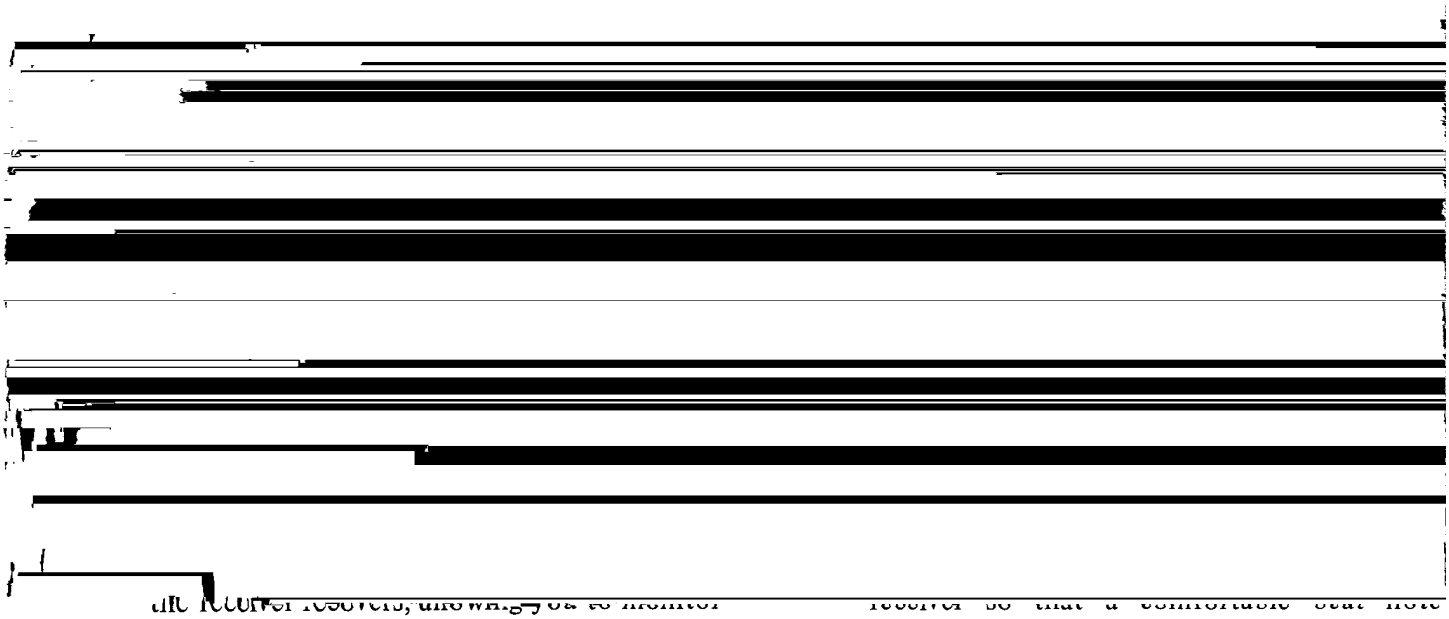
1) The FT-ONE has two jacks on the rear panel for key input. When using a straight key, semi-automatic key, or external electronic keyer, the key lead should be routed through the two-conductor KEY-1 phone jack. When using the optional internal keyer board, connect your paddle through the three-conductor KEY-2 stereo phone jack. The keyer speed control is located on the front panel, concentric with the DELAY control.

2) Please note that the key-up voltage is 8 volts, while the key-down current is 800 μA. If you experience difficulty in achieving proper electronic keyer operation through the KEY-1 jack, check to be certain that the keying transistor (if used) pulls completely to ground on make. Some transistors designed for switching high voltages do not accomplish this.

3) Three MODE switch positions are available during CW operation. The XF8.9KC provides a 600 Hz bandwidth for the CW-M position, while the XF8.9KCN provides a 300 Hz bandwidth for the CW-N position. In addition, the

reading as indicated on the IC meter. The maximum IC reading for full power will be approximately 17 amps.

5) For full CW break-in operation, rotate the DELAY control fully counterclockwise into the click-stop. Between each dot and dash,



your frequency. This is particularly useful during pile-ups or net operation. Do **not** attempt to use a linear amplifier not equipped for full break-in with the DELAY control set up for that mode; damage to the amplifier components may occur. Use the semi-break-in feature, with the relay hang time controlled by the DELAY control. See the Installation section for details of the proper interconnections.

6) To activate the CW sidetone switch the MONI lever on. The frequency of the sidetone oscillator may be set to your desired pitch by adjusting the SIDETONE PITCH control, VR_{4004}. The AF SIDETONE VOLUME may be adjusted through VR_{4005}. These potentiometers are located under the top cover.

jack. Set the MODE switch to CW.

3) Set the FT-ONE to 14.100 MHz, and likewise set the external receiver to 14.100 MHz. Switch on the crystal calibrator.

4) Align both the FT-ONE and the external

(approximately 700 Hz) is obtained. Zero the two beat notes so that the two receivers are precisely tuned to the same frequency.

5) Set the MONI switch to ON to activate the CW sidetone. Set the DRIVE control fully counterclockwise, and set the VOX control to the MOX position.

6) Key the transmitter, and adjust the gain controls on the external receiver so that it is not overloaded. Noting the beat note of the transmitted signal from the FT-ONE, adjust VR_{4004} so that the sidetone beat note is exactly the same as that produced by the transmitter. The sidetone now becomes a reference spotting signal during CW operation.

Operation

1) Let us say that DX1DX is operating on 14.002 MHz, working stations around his frequency. Locate the station working DX1DX, and close your key while in the **receive** mode. Align the sidetone beat note with that of the station working DX2DX; you will now be zero beat with that station.

find the 600 Hz bandwidth too narrow for your application, set the MODE switch to FSK-W, and adjust the WIDTH and SHIFT controls for an intermediate bandwidth of appropriate center frequency.

4) Set the VOX control to MOX. Advance the DRIVE control for a reading of 10 amps or less on the IC meter. Do not operate the FT-ONE at the same power levels as stipulated previously for SSB and CW operation.

tion on the VHF and UHF bands.

1) Set the MODE switch to FM, and the METER switch to IC. Set the DRIVE control fully counterclockwise.

2) Depress the microphone PTT switch, and advance the DRIVE control until the reading on the IC meter reaches 10A. During FM operation, we recommend that you periodically check the IC meter to be sure the IC reading does not exceed 10A.

3) Speak into the microphone. While in the FM mode the microphone gain is preset by a potentiometer in the FM unit, so the MIC gain

control is inoperative. In the FM mode the RF speech processor and WIDTH/SHIFT controls are also disabled.

4) The receiver squelch control, concentric with the AF GAIN control, may be used to silence the receiver during standby periods when no signals are being received. While listening on an unoccupied frequency, advance the SQL control until the background noise is just silenced. Do not go beyond this threshold point too far, or the receiver will not respond to weak signals.

SSTV OPERATION

Slow-scan television operation is easily accomplished using the FT-ONE. Proper adjustment involves techniques outlined previously for SSB and FSK operation.

1) Set the MODE switch to USB or LSB, per the band in use. Connect the audio output from your SSTV generator into the rear panel PATCH jack, and connect the audio input for the SSTV decoder to the SP or AF OUT jack, depending on the impedance requirement of your terminal.

2) Receive operation is identical to that for SSB operation. Use the receive clarifier, as needed, for minor receive frequency adjustments without changing the transmitter frequency.

3) To transmit, leave the microphone gain control in the same position as for SSB operation. Close the PTT switch, and adjust the output level from your SSTV generator such that the ALC meter needle stays within the ALC range. Now adjust the DRIVE control so that the IC meter reading is 10 amps or less. Check the IC reading periodically to ensure that this level is not exceeded.

KEYBOARD OPERATION

The front panel keyboard may be used in conjunction with the main tuning knob for quick band changes or programming of individual operating frequencies. Alternatively, the keyboard may be used for complete channel selection and split frequencies. Alternatively, the keyboard alone may be used for complete channel selection and split experimentation should be made in order to determine the most efficient use of the FT-ONE's microcomputer circuitry to suit your particular requirements.

ERROR MODE

If an invalid entry is made by the operator, the letter "E" will appear after the decimal point, indicating that an error has been made. Simply press the "CE" (Clear Entry) key to return to the previous operating frequency.

KEYBOARD VFO CHANNEL SELECTION

To select a desired VFO channel while programming from the keyboard, set the VFO SELECT switch to KEYBOARD. When the switch is in the KEYBOARD position, all VFO channel selections can be made through the keyboard, instead of through the VFO A and VFO B channel selectors.

To select a desired VFO channel, press a VFO number between 0 – 9, and then "MR". The appropriate VFO is recalled, providing operation on that frequency. You can then change the frequency via either the Tuning Knob or the keyboard.

KEYBOARD FREQUENCY ENTRY

The FT-ONE built-in keyboard allows you to enter any frequency with resolution of 100 Hz. To enter a frequency, set the VFO SELECT switch to KEYBOARD position. Press the VFO number desired and then press "MR". The channel is now available for frequency entry (You may also select the VFO channel with VFO switches and the VFO SELECT switch in a VFO position). The first one or two digits of the operating frequency

1) To enter "21.285.0" MHz, press "21" on the keyboard. The display will show "2.1" on the right side of the display. Now press the "MHz" key, and the digital display will show "21.XXX.X" MHz. The last four digits remain from the last set frequency.

2) Press "2850" and "DIAL" and the last four digits are entered over the previous digits. The digital display now shows "21.285.0" MHz. Also, you can shift the frequency from 21.285.0 MHz by rotating the VFO dial.

Let's try another example: for operation on 21.325.5 MHz, press "3255" and "DIAL". In this case, it was not necessary to enter "21" and "MHz" because 21 MHz was set previously, and is already displayed.

Let us say that you are operating on 21.325.5 MHz, as just programmed, and wish to check 14.225 MHz without losing the original operating frequency. Rotate the VFO-A selector to another position. Now push the "14" and "MHz" keys, followed by "2250" and "DIAL." To return to 21.325.5 MHz, just rotate the VFO-A selector to the original channel. Note that the main dial can be rotated to select a new frequency at any time, as these frequencies are stored in VFO access slots, not fixed frequency memories.

Remember you must enter all four digits of the frequency to the right of the MHz decimal point when changing kHz from the keyboard.

Note also that the VFO SELECT switch may be set to VFO-B, and the VFO-B switch rotated among channels 0, 1, and 2; the frequencies will be observed to be the same as when called up via the VFO-A access route or via the keyboard recall method, thus demonstrating further the independence of the ten synthesized variable frequency oscillators.

will be provided.

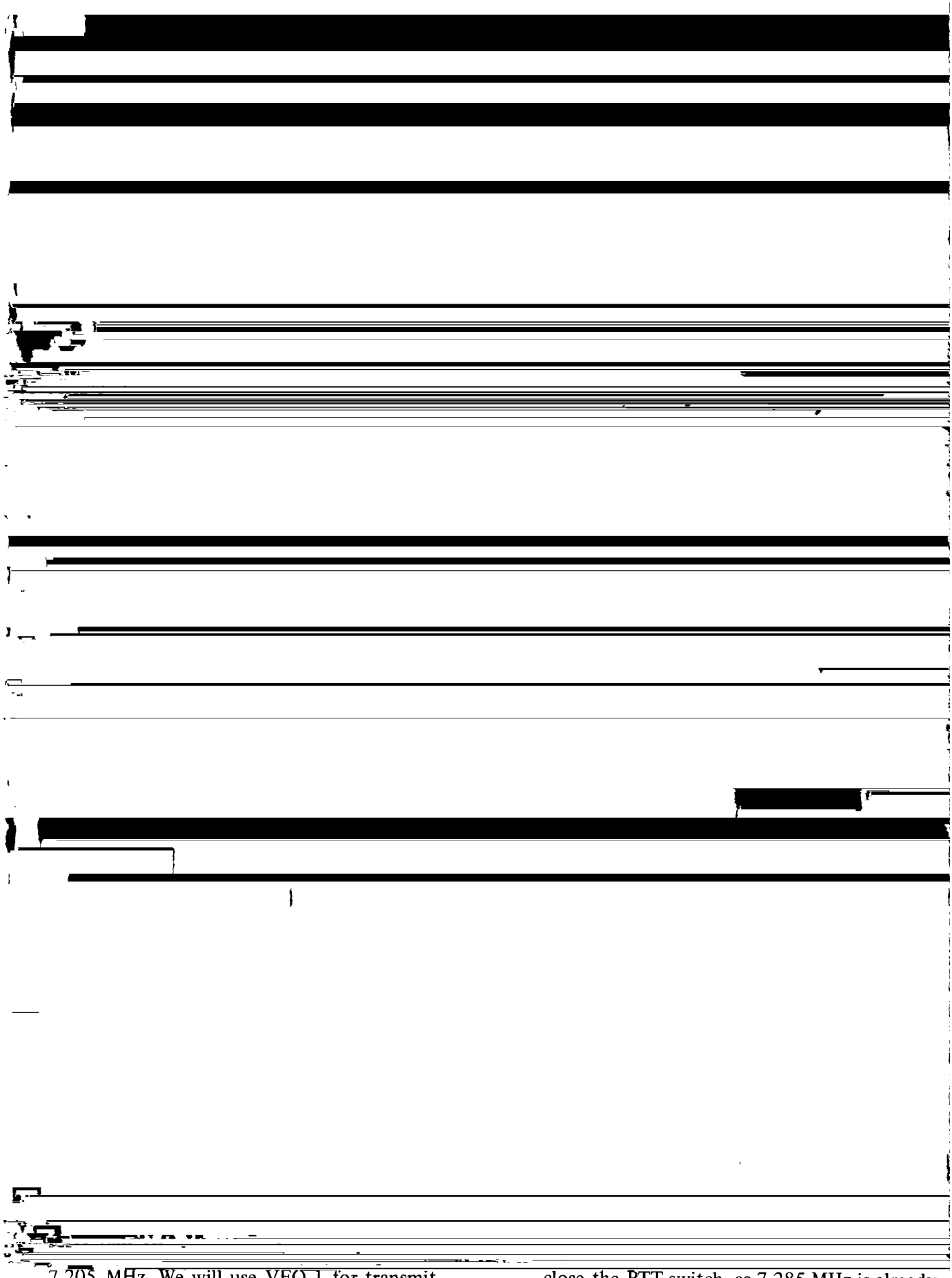
Split Operation Via VFO SELECT Switch (VFO-A and VFO-B)

1) The VFO SELECT switch has four positions of chief interest for split frequency operation. These are the "A" "B" "RA-TB" and "RB-TA" positions. The "RA-TB" position selects receive on VFO-A, with transmit on VFO-B, while the "RB-TA" position selects receive on VFO-B with transmit on VFO-A.

2) Let us say that you are working 7 MHz SSB. You have located DX1DX on 7.098 MHz using VFO-A, channel 1. DX1DX is listening for calls on 7.205 MHz. Set the VFO-B channel selector to channel 2, and set the VFO SELECT switch to VFO-B for a moment.

Now program in 7.205 MHz into channel 2 by pressing "7" "MHz" "2050" and "DIAL" in that order. Now set the VFO SELECT switch to the "RA-TB" position. You will be receiving on 7.098 MHz, and transmitting on 7.205 MHz. If DX1DX begins to drift, simply follow his signal using the main tuning dial. If DX1DX calls out 7.208 MHz as a new listening frequency, set the VFO SELECT switch to VFO-B for a moment, and set the new frequency using either the main tuning knob or the keyboard. Note that easy spotting of the 7.205 MHz pile-up on DX1DX may be performed by checking VFO-B in this manner.

3) Let us use the further example of DX2DX transmitting on 14.195 MHz, listening up the band. Some observation indicates that DX2DX listens first on 14.205 MHz, then tunes up the band in 3 kHz increments up to 14.214 MHz, at which point he reverts to 14.205 MHz. Let us use VFO channels 1 through 5 to cover this application.



7.205 MHz. We will use VFO 1 for transmit, and VFO 2 for receive.

close the PTT switch, as 7.285 MHz is already programmed as your transmit frequency. To

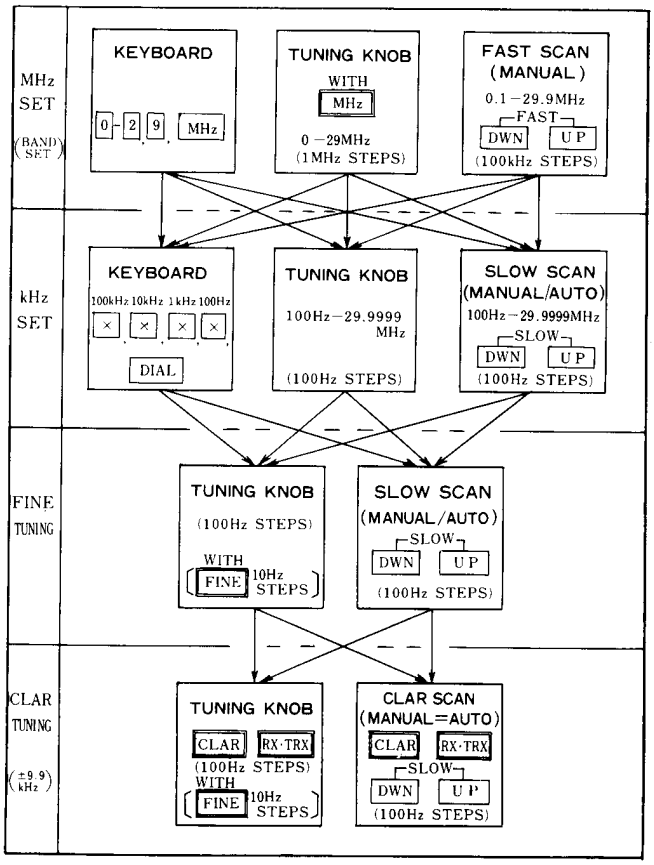
recheck DX3DX on 7.098 MHz, push "2" and "MR". If you wish to call DX3DX, push "1" "MR" "TRCV" "TRCV" followed by "2" and "MR". It can be seen that this method is identical in objective to using the VFO-A and VFO-B knobs; in this case, though, all control commands are being made by the keyboard.

MEMORY BACKUP INFORMATION

The memory backup protection feature is activated by turning on the BU switch located on the rear panel. This will perserve the memory information while the transceiver power switch is off, so long as line voltage is connected to the transceiver. However, if the voltage to the transceiver is cut off, the memory will be lost.

An optional RAM Unit and three AA size penlight battery cells can be used to provide the necessary backup power for power cuts. If your power situation is poor, or if you wish to retain memory when the transceiver is disconnected from the line, the RAM unit will ensure memory backup. Ask your dealer for the optional RAM unit.

FREQUENCY SELECTION

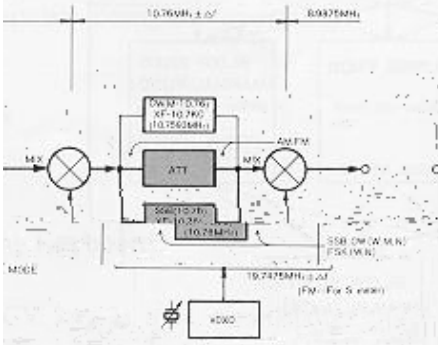


CRYSTAL FILTER INFORMATION

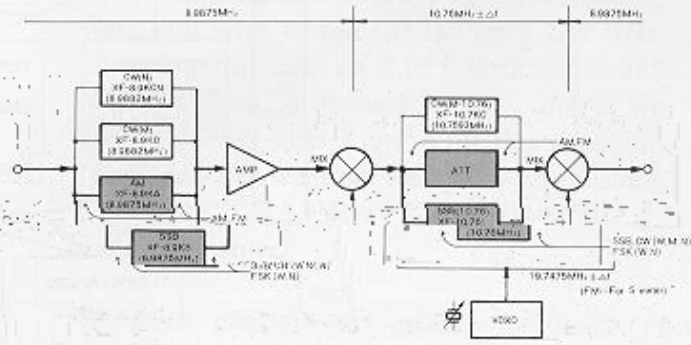
IDENT. NUMBER	YAESU PART NUMBER / KIT NUMBER	CENTER FREQUENCY	BANDWIDTH	INSERT LOSS	POLES
XF-8.9KS	H1102040 / –	8.9875 MHz	More than 2.7 kHz –6 dB Less than 4.5 kHz –60 dB	Less than 4 dB	8
XF-10.7KS	H1102042 / –	10.76 MHz	2.8 kHz –6 dB 7.0 kHz –60 dB	3 dB	6
XF-8.9KA	H1102039 / D2000020	8.9875 MHz	6 kHz –6 dB 10 kHz –60 dB	3 dB	8
XF-8.9KC	H1102038 / D2000019	8.9882 MHz	600 Hz –6 dB 1.2 kHz –60 dB	7 dB	8
XF-8.9KCN	H1102037 / D2000018	8.9882 MHz	300 Hz –6 dB 900 Hz –60 dB	11 dB	8
XF-10.7KC	H1102041A / D2000021	10.7593 MHz	800 Hz –6 dB 2.4 kHz –60 dB	6.5 dB	6
XF-8.9KP	H1102035 / –	8.9875 MHz	2.7 kHz –6 dB 5.4 kHz –60 dB	3 dB	6
XF-8.9JF	H1102036A / –	8.9875 MHz	20 kHz –6 dB 50 kHz –40 dB	3 dB	4
XF-73KX	H1102043 /	73.115 MHz	20 kHz –6 dB 70 kHz –50 dB	4 dB	4

SSB FILTER
SSB FILTER (10.76)
OPTIONAL AM FILTER
OPTIONAL CW(M) FILTER
OPTIONAL CW(N) FILTER
OPTIONAL CW(M-10.76) FILTER
PROC FILTER
NB FILTER
1st IF FILTER

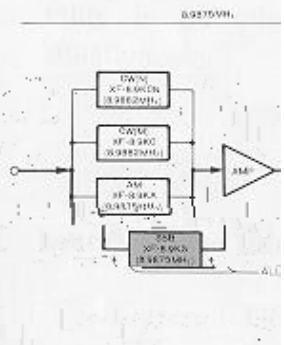
IF FILTER CIRCUIT RECEIVE SIGNAL PATHS



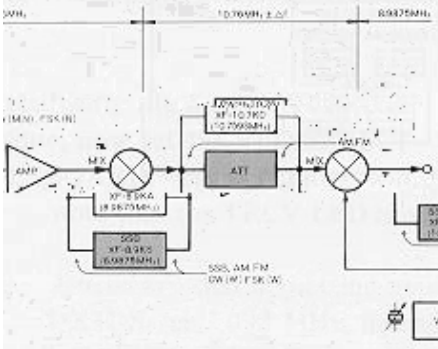
(without optional crystal filters)



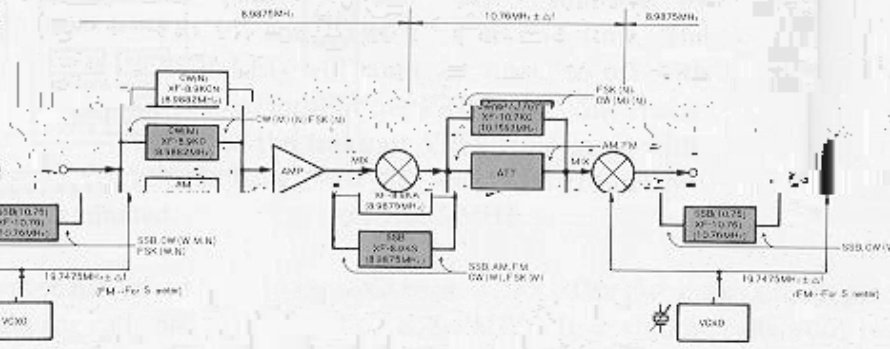
OPTIONAL AM FILTER INSTALLED



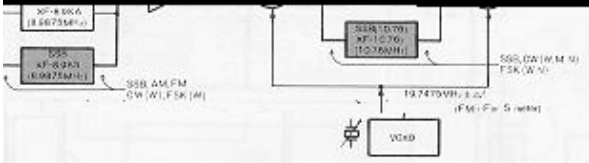
STANDARD



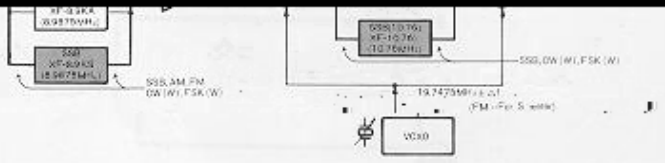
OPTIONAL CW(M) FILTER INSTALLED



OPTIONAL CW(M), CW(M-10.76) FILTERS INSTALLED

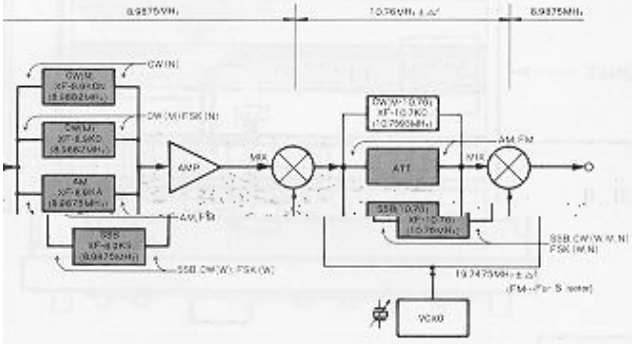


TIONAL CW(M), CW(N) FILTERS INSTALLED

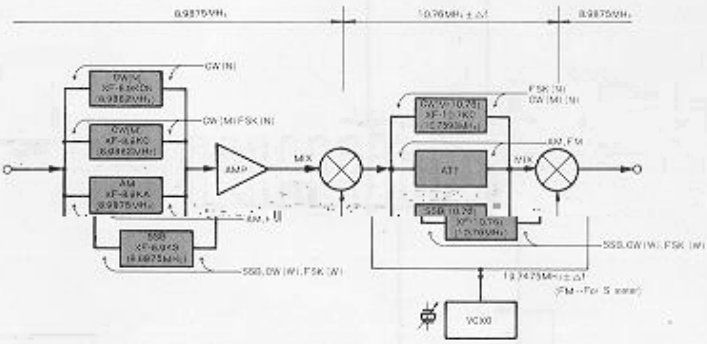


OPTIONAL CW(M), CW(N), CW(M-10.76)
FILTERS INSTALLED

OPT



OPTIONAL AM CW(M), CW(N),
FILTERS INSTALLED



ALL OPTIONAL FILTERS INSTALLED

OPTIONAL CRYSTAL FILTER INSTALLATION

Remove the eight screws affixing the top cover of the FT-ONE and loosen the two carrying-handle screws. Remove the cover, taking care not to pull on the speaker leads.

Remove the black plastic cover over the pc boards by disengaging the four plastic latch pins.

Remove the two angle brackets on either side of the pc boards by removing the two screws affixing each.

Lift the pc board ejector levers on the edges of the IF UNIT and remove the IF UNIT pc board.

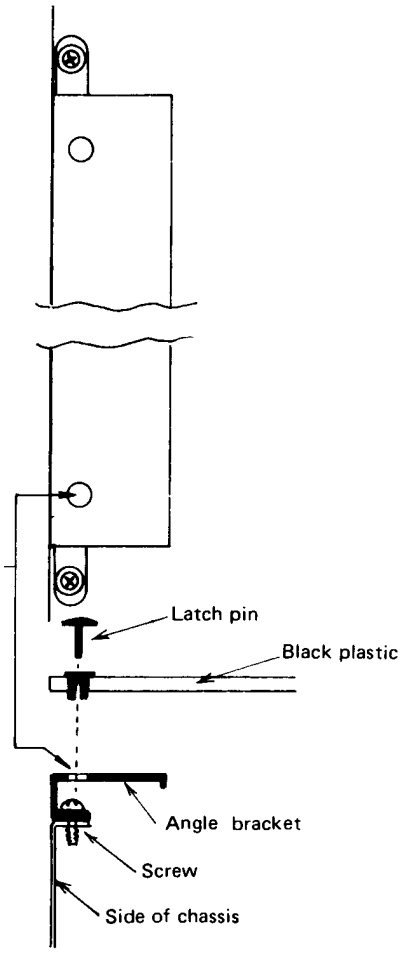
Referring to the figure on the facing page, determine the correct location on the IF UNIT for the filter(s) you wish to install.

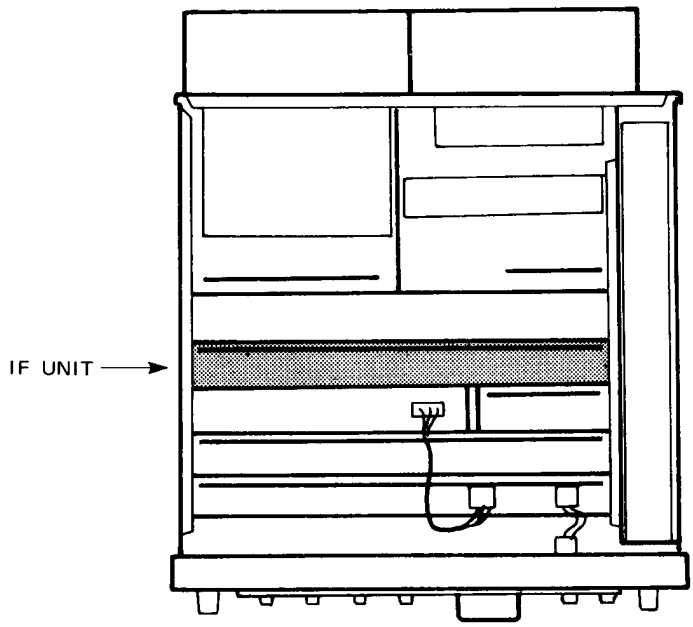
Install the filter and solder the four leads to the copper pattern.

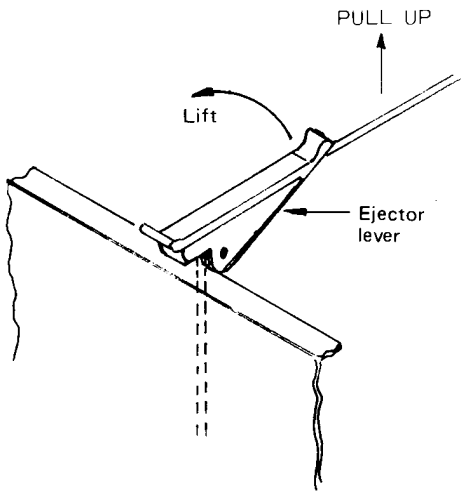
Again referring to the figure on the facing page, transfer the jumper plug associated with the filter you are installing to the new location shown.

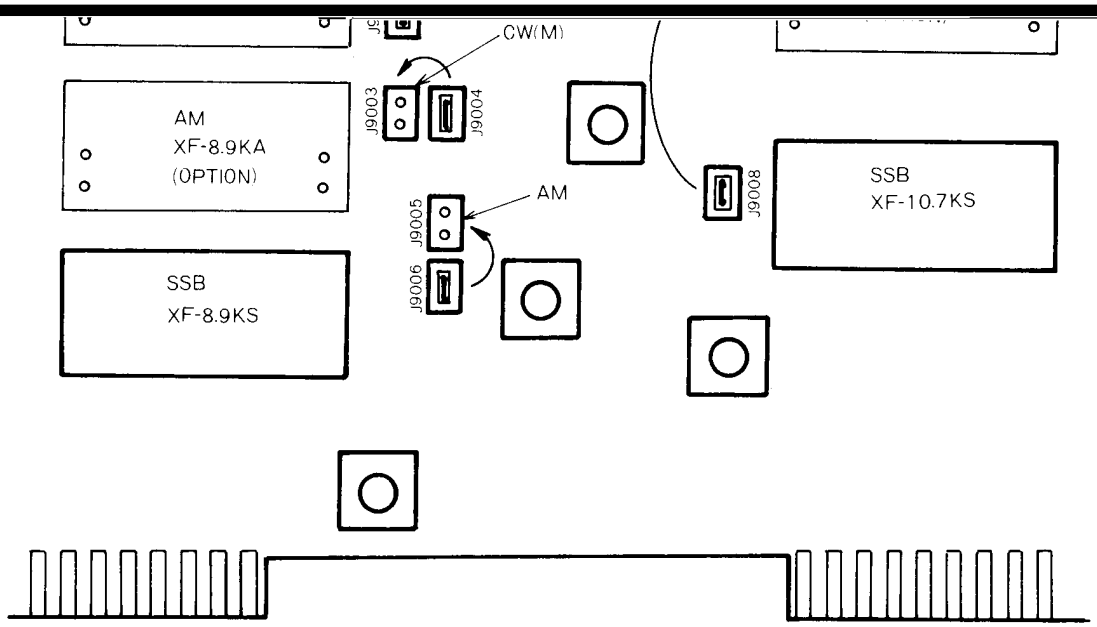
Carefully replace the IF UNIT pc board into the FT-ONE, and ensure that it is firmly seated in place.

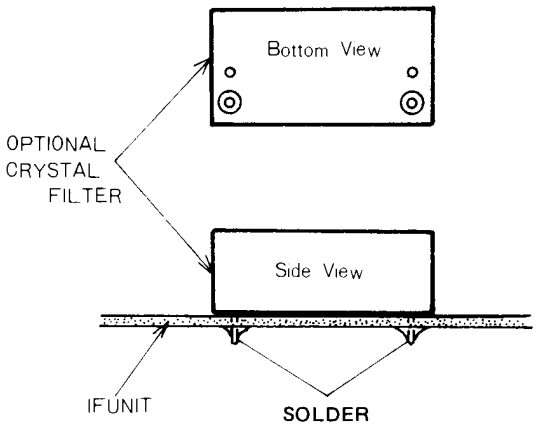
Replace the two angle brackets and their four screws, then replace the black plastic cover and finally the top cover and its eight screws. Retighten the carrying-handle screws. Installation is now complete.

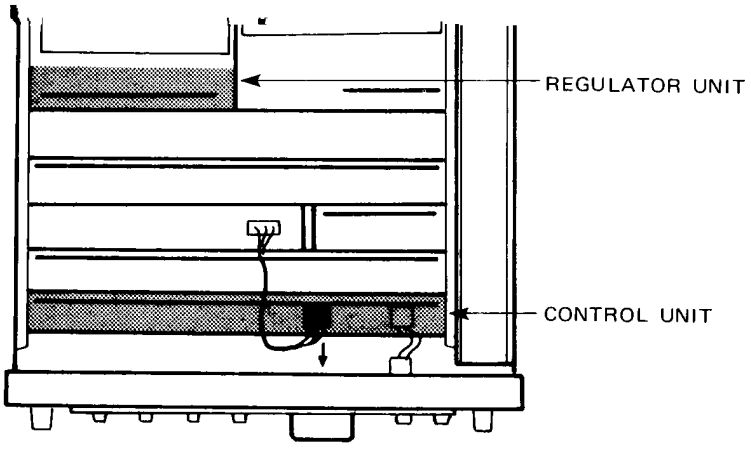


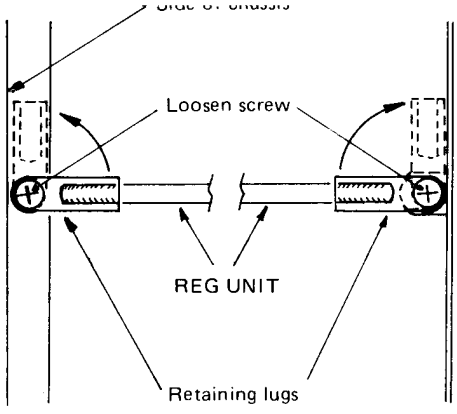


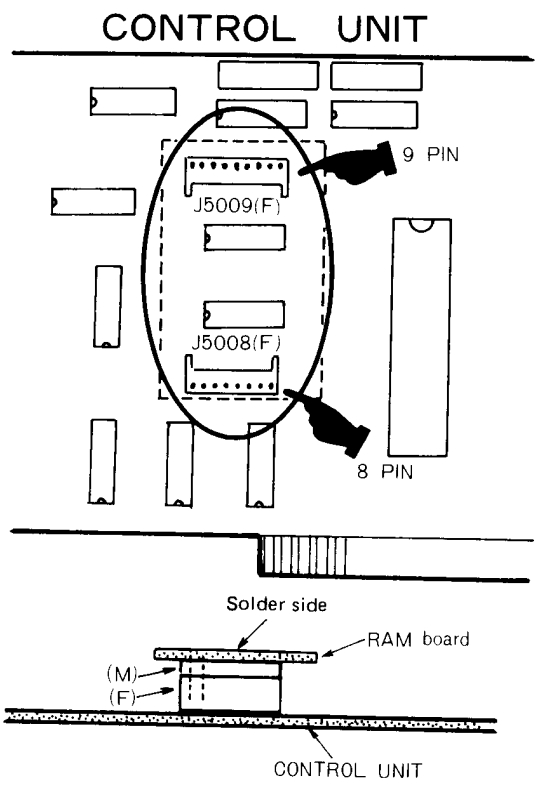


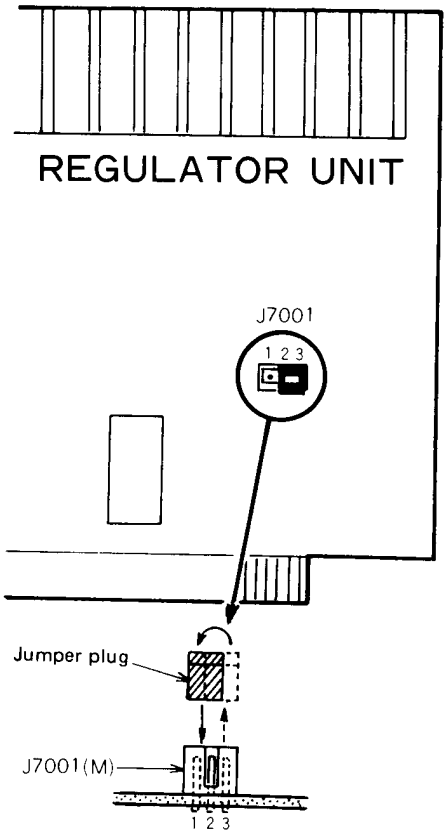

CW(M)
J9003
J9004
AM
XF-8.9KA
(OPTION)
AM
J9005
J9006
J9008
SSB
XF-10.7KS
SSB
XF-8.9KS

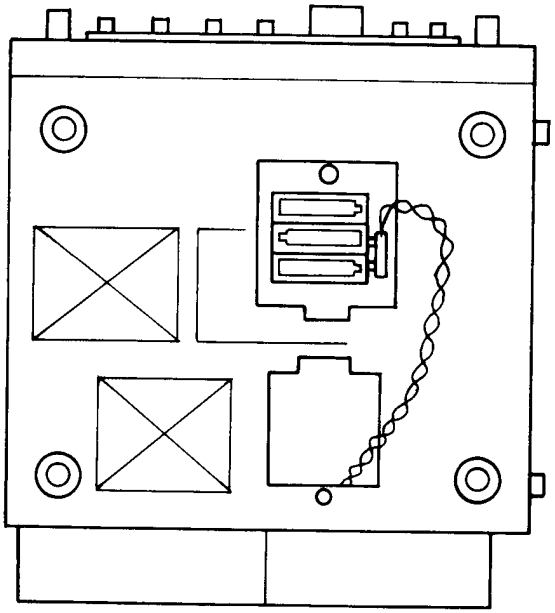

Bottom View
OPTIONAL
CRYSTAL
FILTER
Side View
IFUNIT
SOLDER


REGULATOR UNIT
CONTROL UNIT


Loosen screw
REG UNIT
Retaining lugs


CONTROL UNIT
9 PIN
J5009(F)
J5008(F)
8 PIN
Solder side
RAM board
(M)
(F)
CONTROL UNIT


REGULATOR UNIT
J7001
1 2 3
Jumper plug
J7001(M)
1 2 3



1. Remove the eight screws affixing the top cover of the FT-ONE and loosen the two carrying-handle screws. Remove the cover, taking care not to pull on the speaker leads.

2. Referring to the left-hand figure on page 34, remove the black plastic cover over the pc boards by disengaging the four plastic latch pins.

3. Remove the two angle brackets on either side of the pc boards by removing the two screws affixing each.

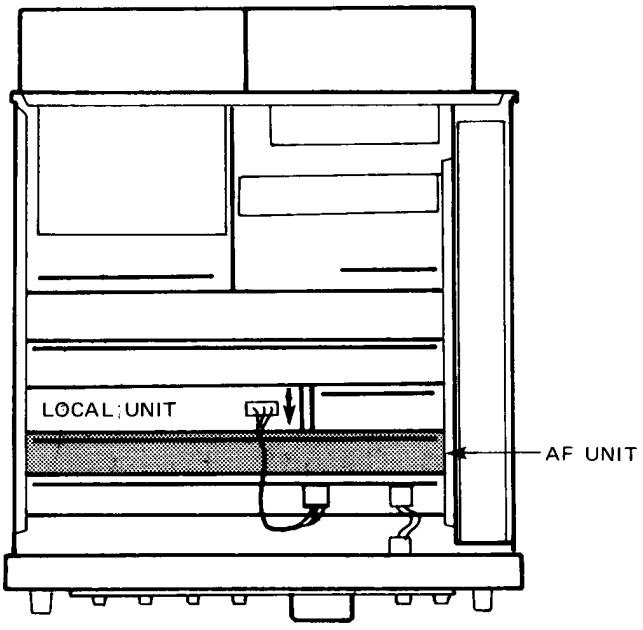
4. Disconnect the cable connector (on the cable that connects from the LOCAL UNIT to the CONTROL UNIT) from the LOCAL UNIT. It is not necessary to disconnect this cable from the CONTROL UNIT (see below).

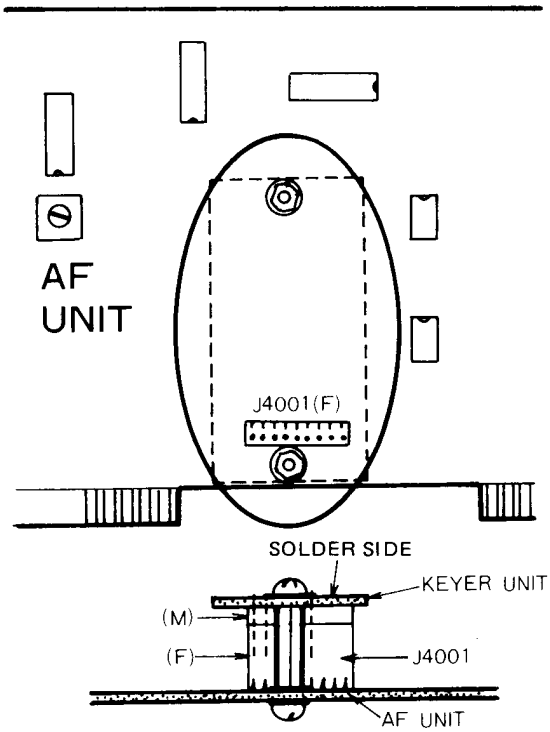
5. Lift the pc board [illegible] of the AF UNIT and remove the AF UNIT.

6. Plug the KEYER UNIT into connector $J_{4001(F)}$, and then fasten the KEYER UNIT to the AF UNIT mounting posts with the two screws provided (see drawings below).

7. Replace the AF UNIT pc board into the FT-ONE.

8. Replace the two angle brackets and their four screws, then replace the black plastic cover and finally the top cover and its eight screws. Retighten the carrying-handle screws. Installation is now complete.





FM UNIT INSTALLATION

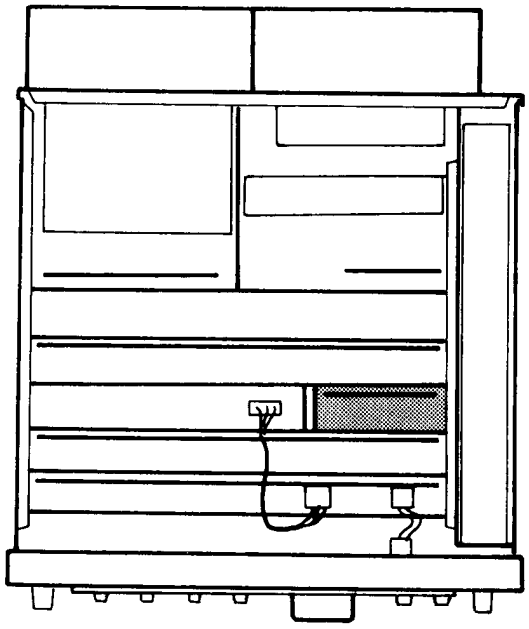
Remove the eight screws affixing the top cover of the FT-ONE and loosen the two carrying-handle screws. Remove the cover, taking care not to pull on the speaker leads.

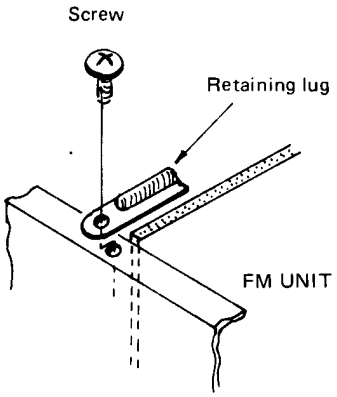
Referring to the left-hand figure on page 34, remove the black plastic cover over the pc boards by disengaging the four plastic latch pins.

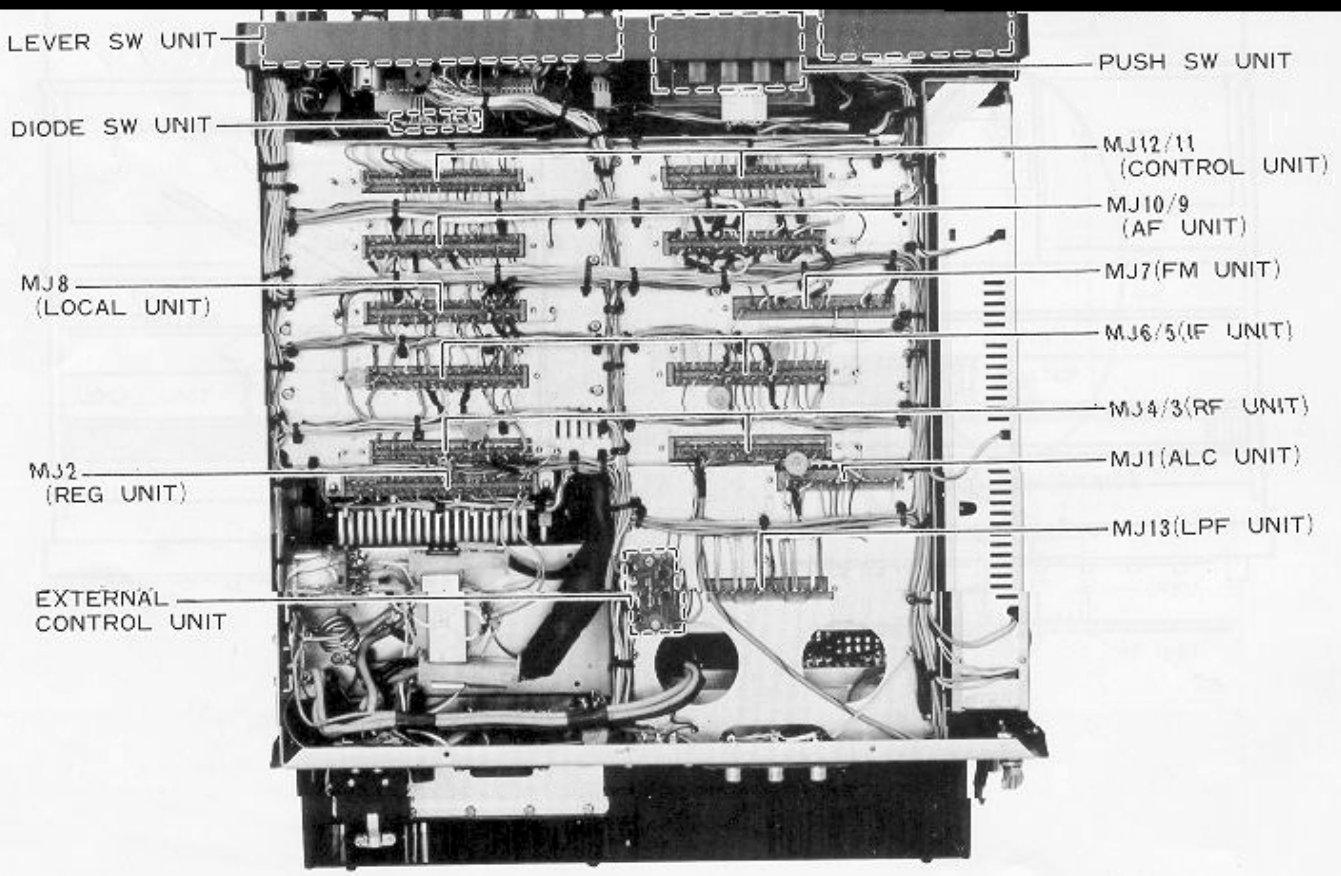
Remove the two angle brackets on either side of the pc boards by removing the two screws affixing each.

Install the FM UNIT pc board in the space to the right of the LOCAL UNIT, and insert the two screws into the pc board retaining lugs (supplied with the FM UNIT) on either side of the board.

Replace the two angle brackets and their four screws, then replace the black plastic cover and finally the top cover and its eight screws. Retighten the carrying-handle screws. Installation is now complete.

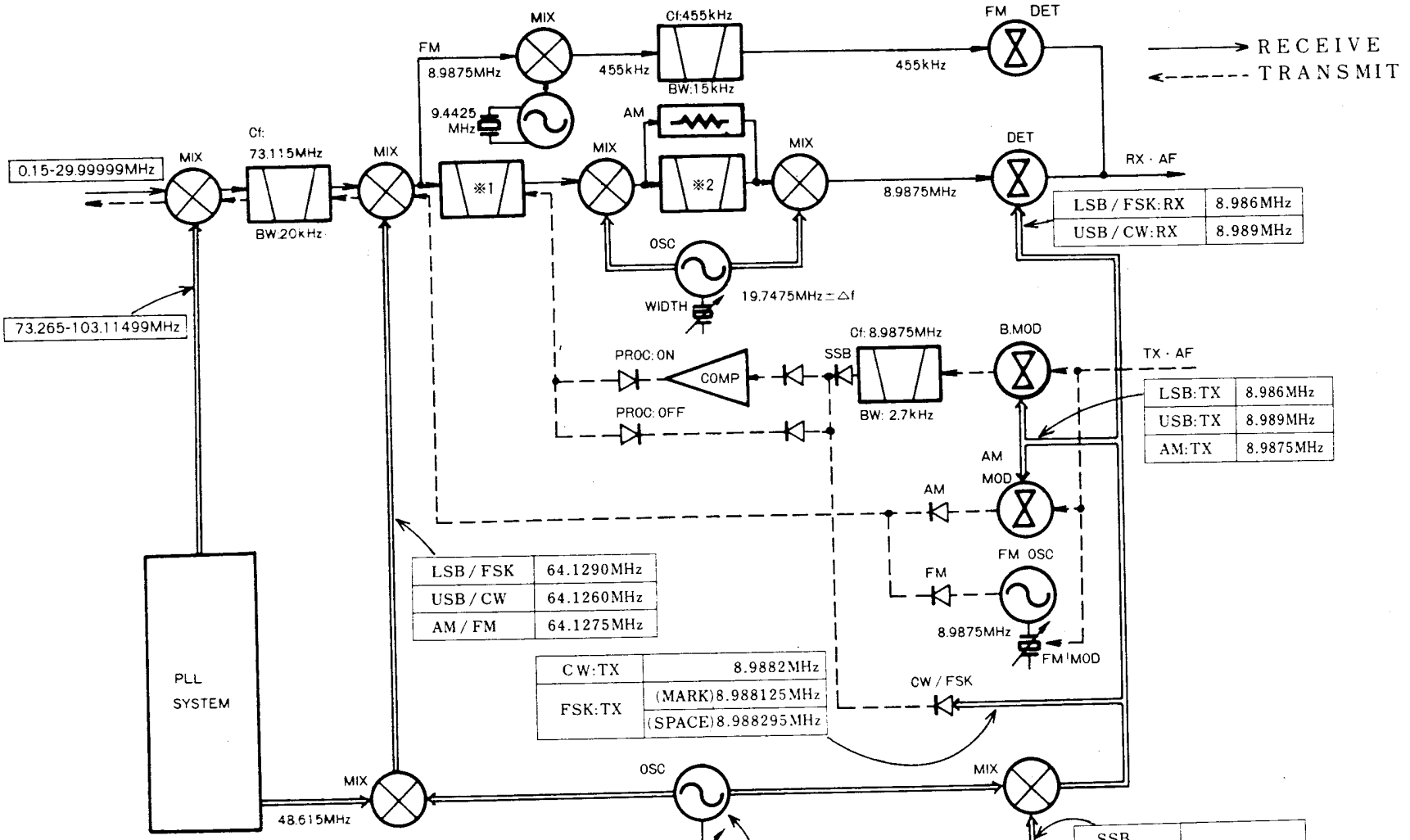





LEVER SW UNIT
DIODE SW UNIT
MJ8
(LOCAL UNIT)
MJ2
(REG UNIT)
EXTERNAL
CONTROL UNIT
PUSH SW UNIT
MJ12/11
(CONTROL UNIT)
MJ10/9
(AF UNIT)
MJ7(FM UNIT)
MJ6/5(IF UNIT)
MJ4/3(RF UNIT)
MJ1(ALC UNIT)
MJ13(LPF UNIT)

BOTTOM VIEW

FT-ONE FREQUENCY RELATIONSHIPS



LSB / FSK:RX	8.986MHz
USB / CW:RX	8.989MHz

LSB:TX	8.986MHz
USB:TX	8.989MHz
AM:TX	8.9875MHz

LSB / FSK	64.1290MHz
USB / CW	64.1260MHz
AM / FM	64.1275MHz

CW:TX	8.9882MHz
FSK:TX	(MARK)8.988125MHz
	(SPACE)8.988295MHz

LSB / FSK	15.5140MHz±△f
USB / CW	15.5110MHz±△f
AM / FM	15.5125MHz±△f

SSB	24.5MHz
CW:RX	
FSK:RX	
AM:TX	
CW:TX	24.4992MHz
FSK:TX	(MARK) 24.502125MHz
	(SPACE) 24.502295MHz

CRYSTAL FILTER DATA(☆OPTION)

	MODE	Cf	BW
※1	SSB / CW(W) / FSK(W)	8.9875MHz	2.7kHz
	CW(M) / FSK(N)☆	8.9882MHz	600Hz
	CW(N)☆	8.9882MHz	300Hz
	AM☆	8.9875MHz	6kHz
※2	SSB / CW(W) / FSK(W)	10.76MHz	2.8kHz
	CW(M) / CW(N) / FSK(N)☆	10.7593MHz	800Hz

E3740581A(8112-B)