



TV-506

OPERATING MANUAL

FEATURES

- * TV-506 is designed to be used in combination with TS-520 for 50 MHz operation.
- * Operates in the frequency range from 50.0 MHz to 54.0 MHz
- * Amplification type ALC system is employed. ALC voltage feed back to TS-520 minimizes the distortion due to overdriving, assuring quality transmission.
- * All-solid state configuration with FET employed in major circuits.
- * Provides maximum enjoyment of 50 MHz SSB mobile operation.
- * Enjoyable excellent operation performance of TS-520 on 50 MHz band by connecting to TS-520.
- * Unique, functional design perfectly matches the styling of TS-520, VFO-520 and SP-520.
- * With minor modification of wiring, changeover between HF and VHF is effected by simply manipulating the Power Switch of TV-506.

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SECTION 1. BEFORE USING

1.1 ACCESSORIES

The following accessories should be included with TV-506 Transverter.

Operating Manual	1
Control Cable	1
Dual-pin Plug Cord	1
Earth Cable	1
12P Multi-connector Plug (shorting plug)	1
Stand	2
Stand Mounting Screw	2
Fuse (2A)	1
2P Plug (DC)	1

1.2 CONNECTIONS (SEE FIG. 1)

Connect TV-506 to TS-520 in the following sequence.

1. Confirm that the power switches of TS-520 and TV-506 are OFF.
2. Connect the X VERTER connector of TS-520 to the 6m CONTROL connector of TV-506 using the supplied control cable.
3. Connect the 6m TX IN jack of TV-506 to the X VERTER OUT jack of TS-520 using the supplied dual-pin plug cord.

4. Connect the GND terminal of TS-520 to the GND terminal of TV-506 using the supplied earth cable.
To prevent electric shock and to ensure stable operation, the earth cable must be connected between two units, though the units will operate without the connection.
5. Set the SG switch on the rear of TS-520 of the OFF Position (down position).
6. Remove the HF antenna connected to TS-520.
7. Connect the 50 MHz antenna to the ANT terminal on the rear of TV-506. Be sure to use a coaxial cable of 50Ω impedance. VSWR should be less than "2".
8. Confirm that the power switch and the standby switch of TS-520 are set in OFF and REC, respectively. Also, confirm that the power switch of TV-506 is OFF. Then, connect the AC power cord (or DC power cord for DC operation) to each unit.

NOTE: The "X VERTER IN" jack of TS-520 is not used.

Your TV-506 and TS-520 are now ready for operation.

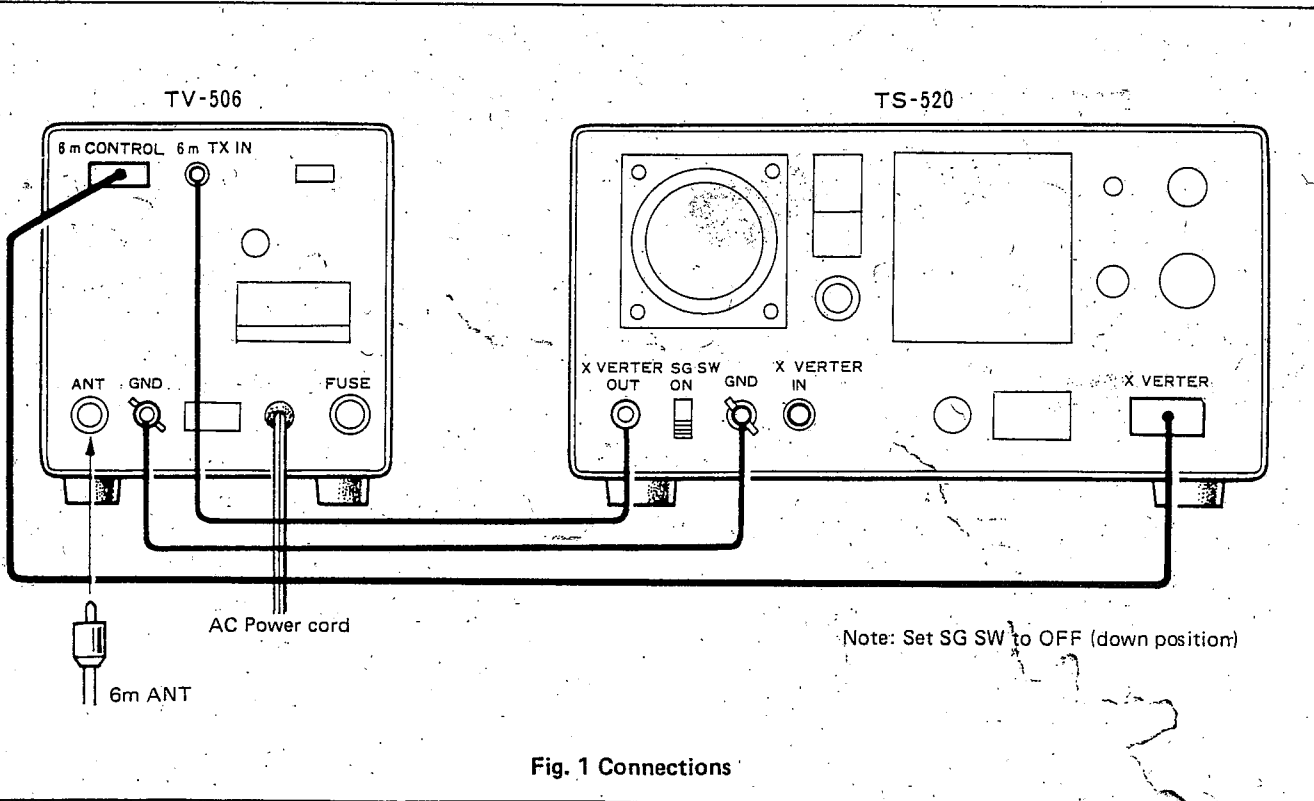


Fig. 1 Connections

SECTION 2. OPERATING CONTROL AND THEIR FUNCTION

2.1 FRONT PANEL (SEE Fig. 2)

- ① **POWER SWITCH**
Turns on and off AC or DC power supply. It functions on both TS-520 and TV-506.
- ② **BAND SWITCH**
Selects the band-width of 50 MHz ~ 54 MHz.
- ③ **DRIVE KNOB**
The DRIVE tuning knob tunes the transmitter stage as well as receiver stage. It should be set for maximum sensitivity or maximum ALC (ALC meter on TS-520).
- ④ **IF TUNE KNOB**
This is a tuning knob for IF frequency of 28.0 ~ 29.7 MHz.
It should be set for maximum sensitivity or maximum ALC (ALC meter on TS-520).
- ⑤ **METER**
This is an RF transmitting output indicator. It is used to check the transmitting condition of TV-506.

- ⑦ **GND TERMINAL**
TV-506 is grounded through this terminal. The supplied earth cable should be connected between this terminal and the GND terminal of TS-520.
- ⑧ **POWER CORD**
A power cord for AC power supply.

2.2 REAR PANEL (SEE Fig. 3)

- ① **6 M CONTROL CONNECTOR**
A connector to connect TS-520 to TV-506. It is used for connections of various control sources such as receiving IF signal output, standby line, -100 V for blocking bias, etc.
- ② **6 M TX IN JACK**
A pin-jack to feed transmitting IF signal to TV-506.
- ③ **ANT CONNECTOR**
Connect an antenna designed for 50 MHz band to this connector. The antenna system must be adjusted for less than "2" of VSWR. Note that if VSWR is higher than "2", the protection circuit for the transistors of the final stage of TV-506 is activated; in this case, expected performance cannot be obtained.
- ④ **AC-DC SELECTOR SWITCH**
Select the power supply. For AC operation, set the switch to AC position. For DC 13.8 V operation, first remove the switch stopper and then set the switch to DC position.
- ⑤ **FUSE**
TV-506 is provided with a fuse rated at 0.2A. When it is blown out, check the cause of it and replace it with the new one supplied.
- ⑥ **DC POWER CONNECTOR**
This connector is used for operating TV-506 on DC 13.8 V power. Connect the supplied 2P plug making sure that the polarity is correct. A 3 A fuse must be connected to the "plus" side of the DC power cord.

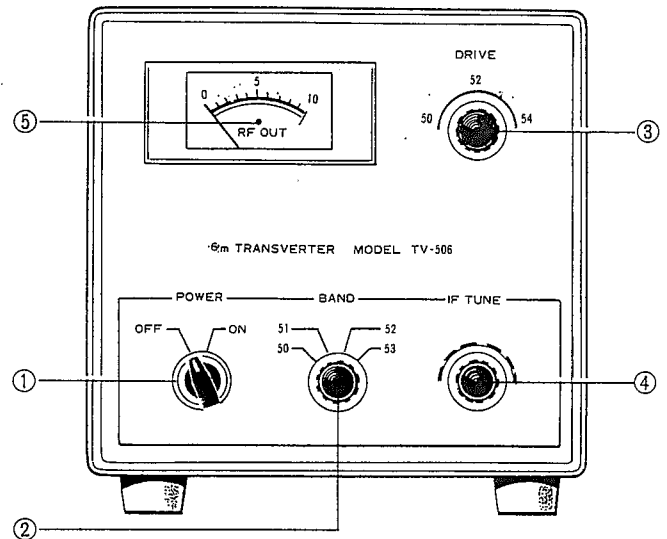


Fig. 2 Front Panel

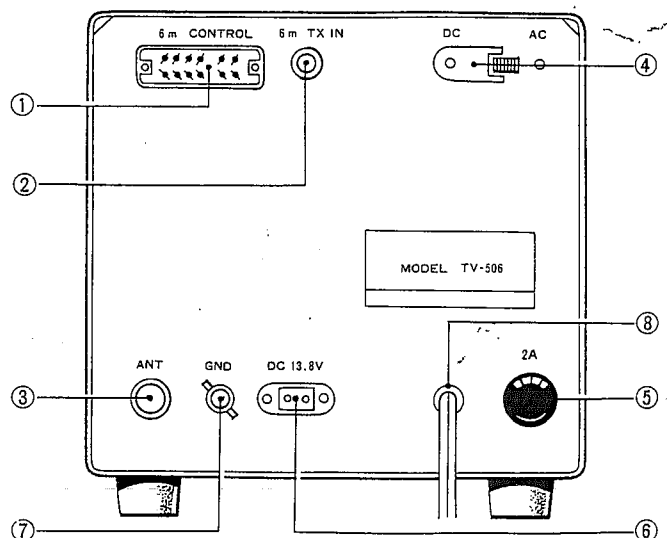


Fig. 3 Rear Panel

SECTION 3. OPERATION

3.1 RECEPTION

After the completion of connections between TV-506 and TS-520, set the control knobs of both units according to the instructions in Table 2 below.

FRONT PANEL: TS-520	
POWER Switch	OFF
Standby Switch	REC
H.SW Switch	OFF (ON for DC operation)
VOX Switch	MAN.
NB Switch	OFF
AGC Switch	SLOW or FAST
MODE Switch	Desired receiving mode of CW or USB
JJY/WWV Switch	OFF
RIT Switch	OFF
BAND Switch	Desired receiving BAND of 28, 28.5 or 29.1
FUNCTION Switch	VFO
AF GAIN Knob	Fully counterclockwise
RF GAIN Knob	Fully clockwise
DRIVE Knob	Center position
REAR PANEL: TS-520	
SG Switch	OFF (down position)
ANT Terminal	Remove HF antenna
EXT VFO Jack	Confirm that 9PMT plug is inserted.

FRONT PANEL: TV-506	
POWER Switch	OFF
BAND Switch	50
IF TUNE Knob	Center position
DRIVE Knob	Center position
REAR PANEL: TV-506	
AC-DC Selector Switch	Set to AC or DC according to the type of operating power

TABLE 2. PRELIMINARY SETTING FOR RECEPTION

When the above setting has been completed, turn on the POWER switches of TS-520 and TV-506. The pilot lamp of each unit will light up indicating that the unit is operating. Slowly turn AF GAIN knob of TS-520 clockwise and noise or signal will be heard through the speaker. Adjust the knob for suitable volume.

Next, slowly turn the main tuning knob of VFO and adjust it until the desired signal is heard most clearly.

Adjust the drive knob of TS-520, and the PRESELECTOR knob and IF TUNE knob of TV-506, until maximum sensitivity is obtained.

3.2 TRANSMISSION

Set the control knobs and switches of both units according to the instructions in Table 3 below. Ascertain that the SG switch on the rear panel of TS-520 is set to OFF position (down position).

FRONT PANEL: TS-520	
POWER Switch	ON
Standby Switch	REC
H.SW Switch	ON
VOX Switch	MAN
NB Switch	OFF
AGC Switch	SLOW or FAST
MODE Switch	CW
JJY/WWV Switch	OFF
RIT Switch	OFF
BAND Switch	Desired BAND of 28, 28.5 or 29.1
FUNCTION Switch	VFO
AF GAIN Knob	Adjust for suitable volume of receiving signal
RF GAIN Knob	Fully clockwise
DRIVE Knob	Center position
MIC Knob	Fully counterclockwise
CAR Knob	Center position
METER Switch	ALC
REAR PANEL: TS-520	
SG Switch	OFF (down position)
ANT Terminal	Remove HF antenna

FRONT PANEL: TV-506	
POWER Switch	ON
BAND Switch	50
IF TUNE Knob	Center position (or maximum receiving Sensitivity)
DRIVE Knob	Center position (or maximum receiving sensitivity)
REAR PANEL: TV-506	
AC-DC Selector Switch	Set to AC or DC according to the type of operating power

TABLE 3. PRELIMINARY SETTING FOR TRANSMISSION

For transmission, proceed as follows.

1. Set the standby switch of TS-520 to SEND position. Then, turn the DRIVE knob for maximum deflection of ALC meter or of RF meter of TV-506.
2. Turn the IF TUNE knob of TV-506 for maximum deflection of ALC meter of TS-520 or of RF meter of TV-506.
3. You are now ready for CW or SSB operation; for CW operation, connect the key to TS-520; for SSB operation, set the MODE switch to USB; connect the microphone and increase the MIC gain. Adjust the CAR knob (CW) or the MIC knob (SSB) so that the ALC level meter indication is within the ALC zone.
4. To receive incoming signals, simply set the standby switch to REC position.
5. The DRIVE knob of TS-520 and the IF TUNE knob of TV-506 may be adjusted in either transmitting mode or receiving mode. Once these knobs are adjusted, you are assured of optimum transmission and reception in the adjusted frequency.

3.3 READING THE OPERATING FREQUENCY

The operating frequency can be read on the dial of TS-520. To read the frequency, replace the figure of the frequency (MHz) of 28 MHz BAND read on TS-520 with "50 ~ 53" position of the BAND switch of TV-506 as shown in Fig. 4.

TV-506 uses 1.7 MHz frequency (28.0 ~ 29.7 MHz) band of TS-520 to facilitate the reading. Table 4 shows the

relationship between the frequency and the band switch position.

During the operation, care should be taken so that the operating frequency is not deviated from the amateur band.

TS-520 BAND	TV-506 BAND	Operating Frequency (MHz)
28	50	50.0 ~ 50.5
28.5	50	50.5 ~ 51.1
29.1	50	51.1 ~ 51.7
28	51	51.0 ~ 51.5
28.5	51	51.5 ~ 52.1
29.1	51	52.1 ~ 52.7
28	52	52.0 ~ 52.5
28.5	52	52.5 ~ 53.1
29.1	52	53.1 ~ 53.7
28	53	53.0 ~ 53.5
28.5	53	53.5 ~ 54.0

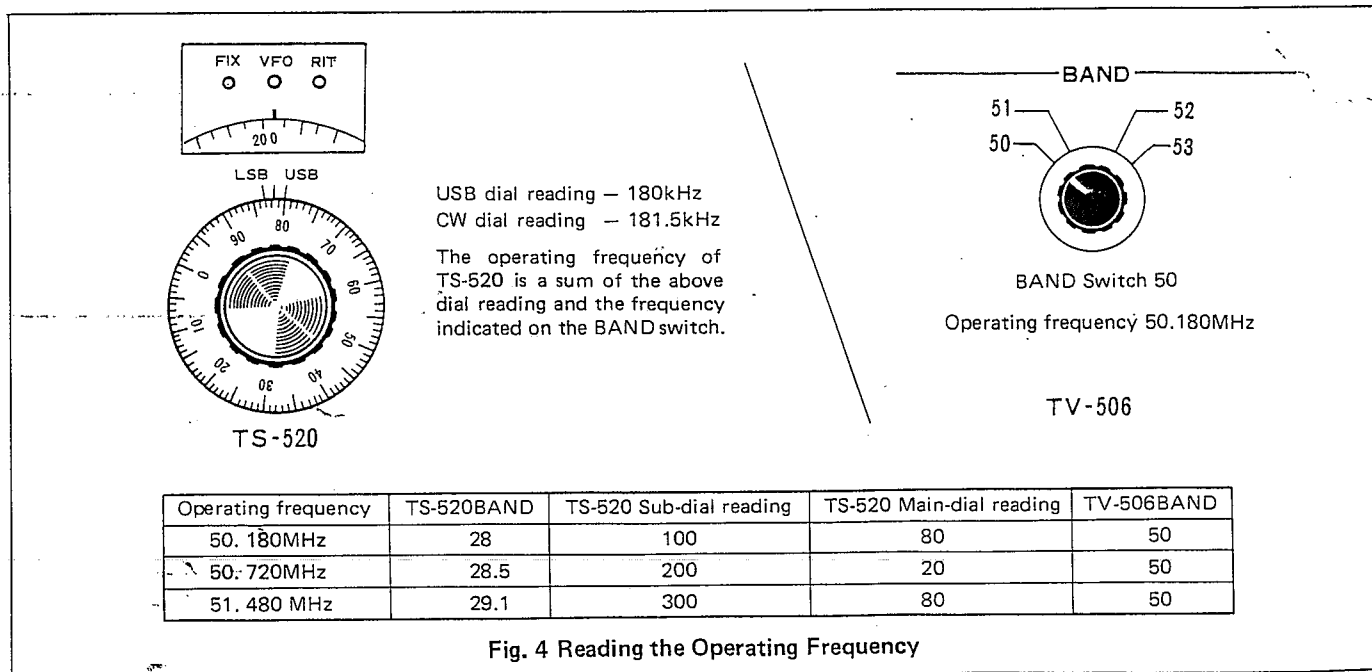
TABLE 4 RELATIONSHIP BETWEEN BAND SWITCHES OF TS-520 AND TV-506

3.4 OPERATION IN HF BAND

TS-520 operates as VHF SSB or VHF CW transceiver when connected to TV-506.

If you desire to use it as a transceiver of HF band, turn the Power Switch of TV-506 to OFF and remove the 12P XVERTER connector connected to XVERTER Jack on the rear of TS-520 (the dual-pin plug cord connected to XVERTER OUT Jack may be left as they are); then, turn the SG Switch to ON (up position) and connect your HF antenna to the ANT Connector.

It is unnecessary to remove the connecting cable if the modification has been made as outlined next the paragraph 3.5.



3.5 HF/VHF CHANGEOVER

TS-520 operates as VHF SSB/CW transceiver with the aid of TV-506. Changeover between HF and VHF can be accomplished simply by manipulating the power switch of TV-506 if the modification mentioned below is made in TS-520.

When such modification is properly made, the SG switch (see table 2 and 3) on the rear panel may be left set in ON position and the HF antenna left connected for 6m operation.

For the modification, proceed as follows.

1. Remove the case of TS-520 by referring the item, "Page 38, Fig. 27 Removal of Case" in TS-520 Instruction Manual.

2. Change the wiring of the X VERTER connector as shown in Fig. 5. Remove the shorting wires between No. 3 and No. 10 and between No. 6 and No. 7 of the X VERTER connector.

The above completes the modification of TS-520. Replace the case of TS-520.

NOTE: When performing the modification, ample care should be taken not to damage the parts and lead wires. When operating with TS-520 alone, be sure to insert the supplied 12P multi-connector shorting plug into the X VERTER connector.

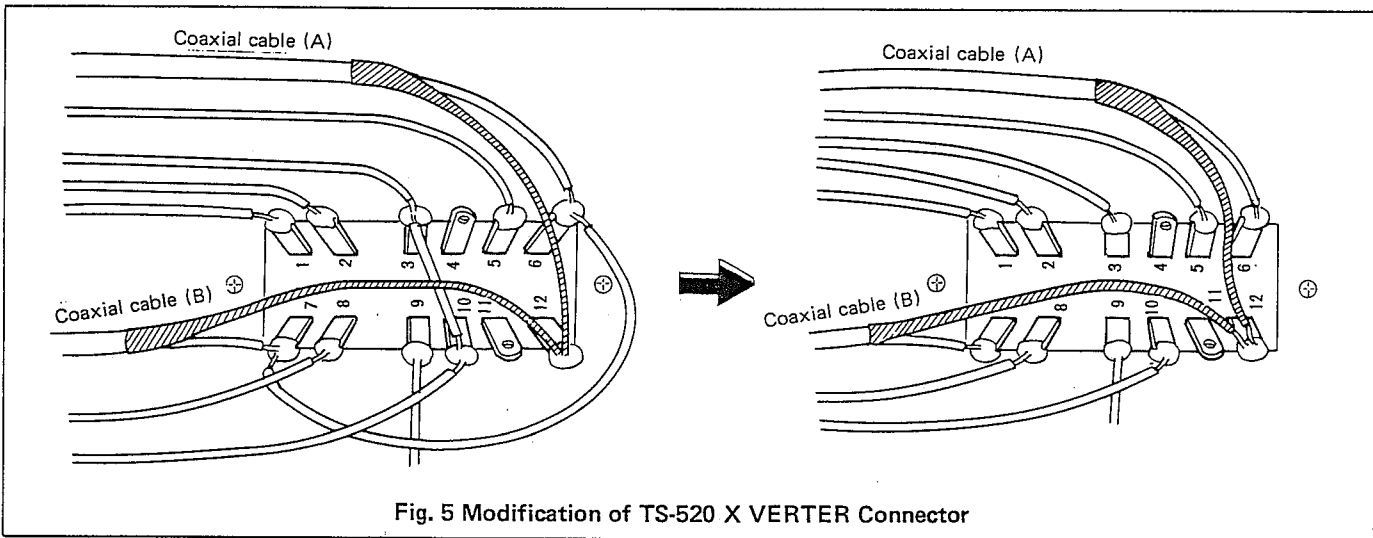


Fig. 5 Modification of TS-520 X VERTER Connector

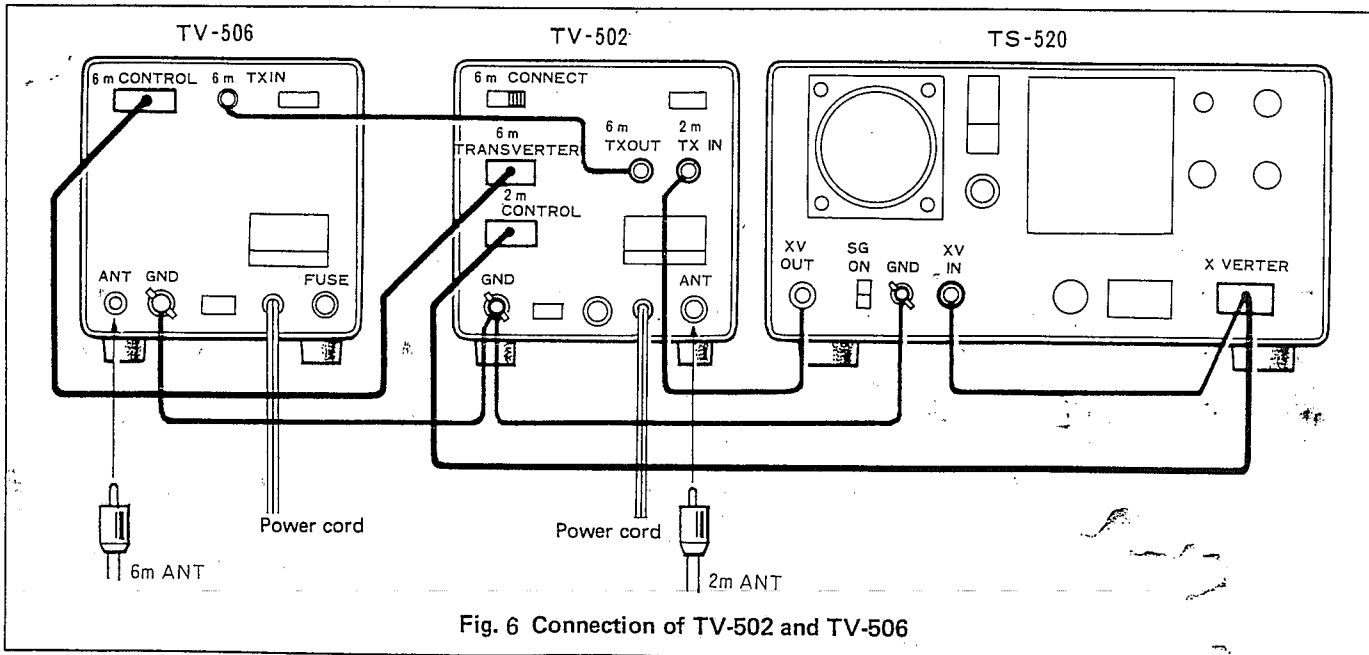


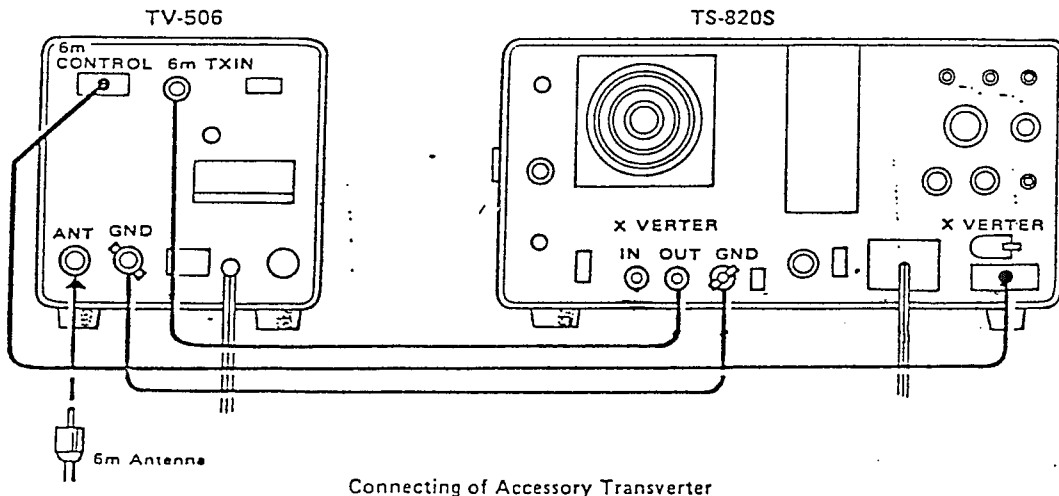
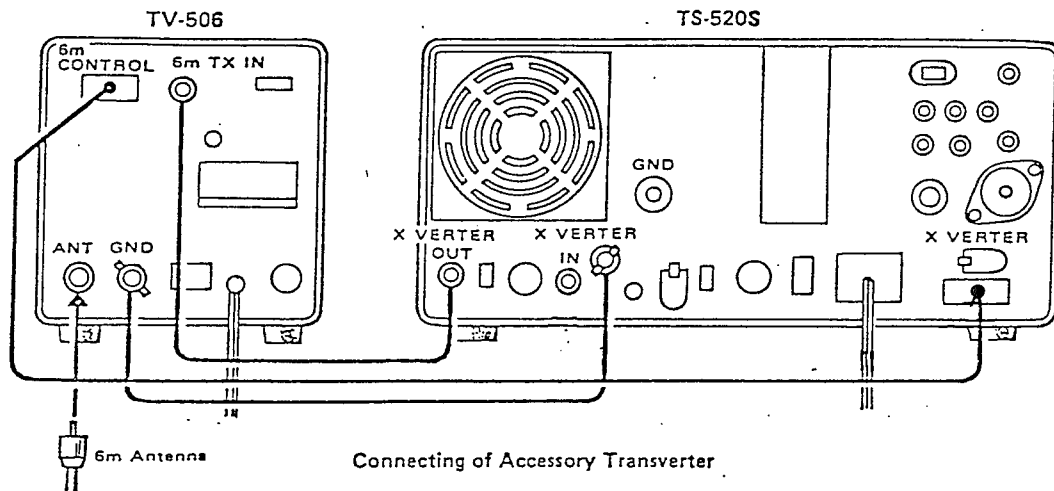
Fig. 6 Connection of TV-502 and TV-506

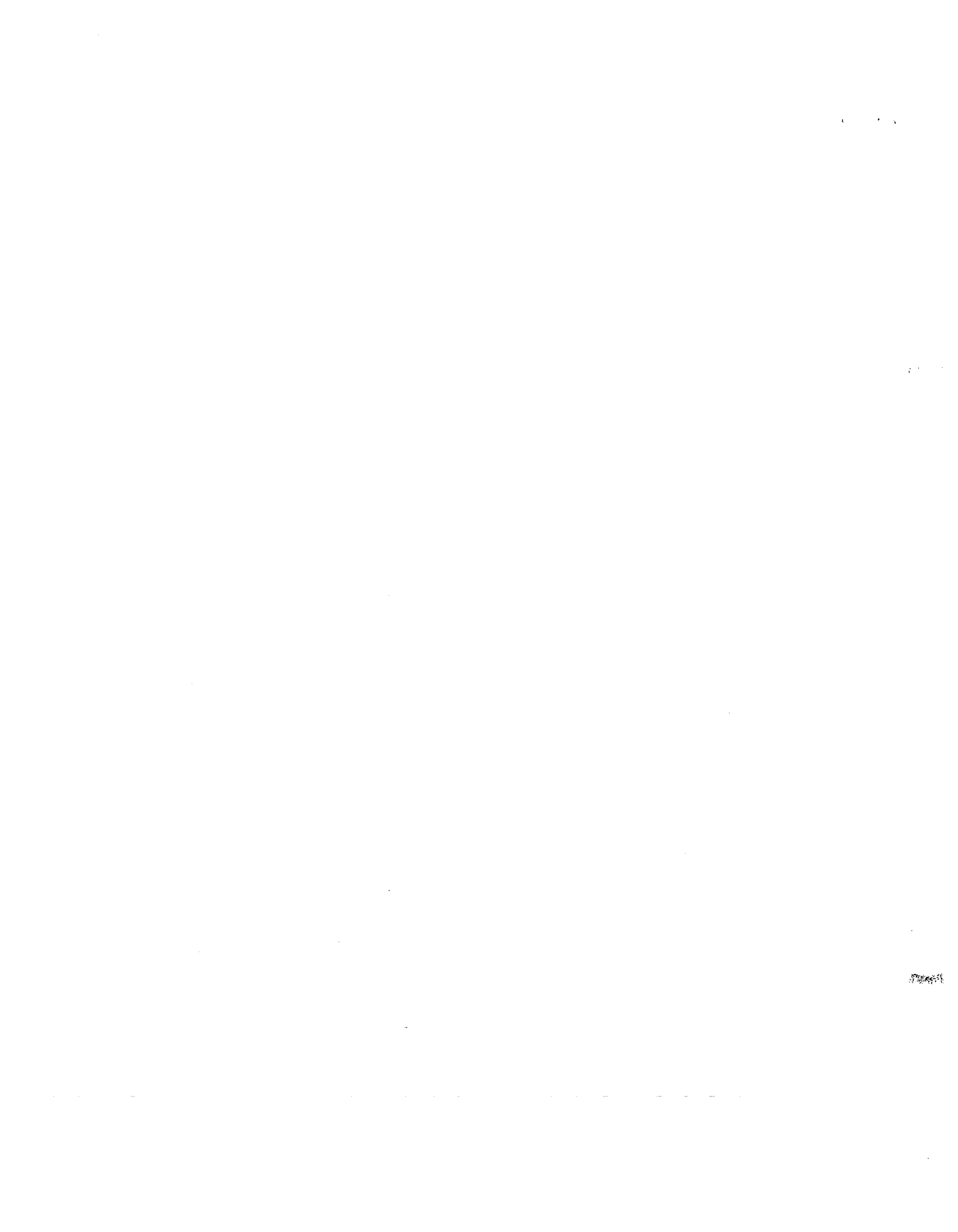
NOTE

CONNECTION OF TV-506 WITH TS-520S AND TS-820S

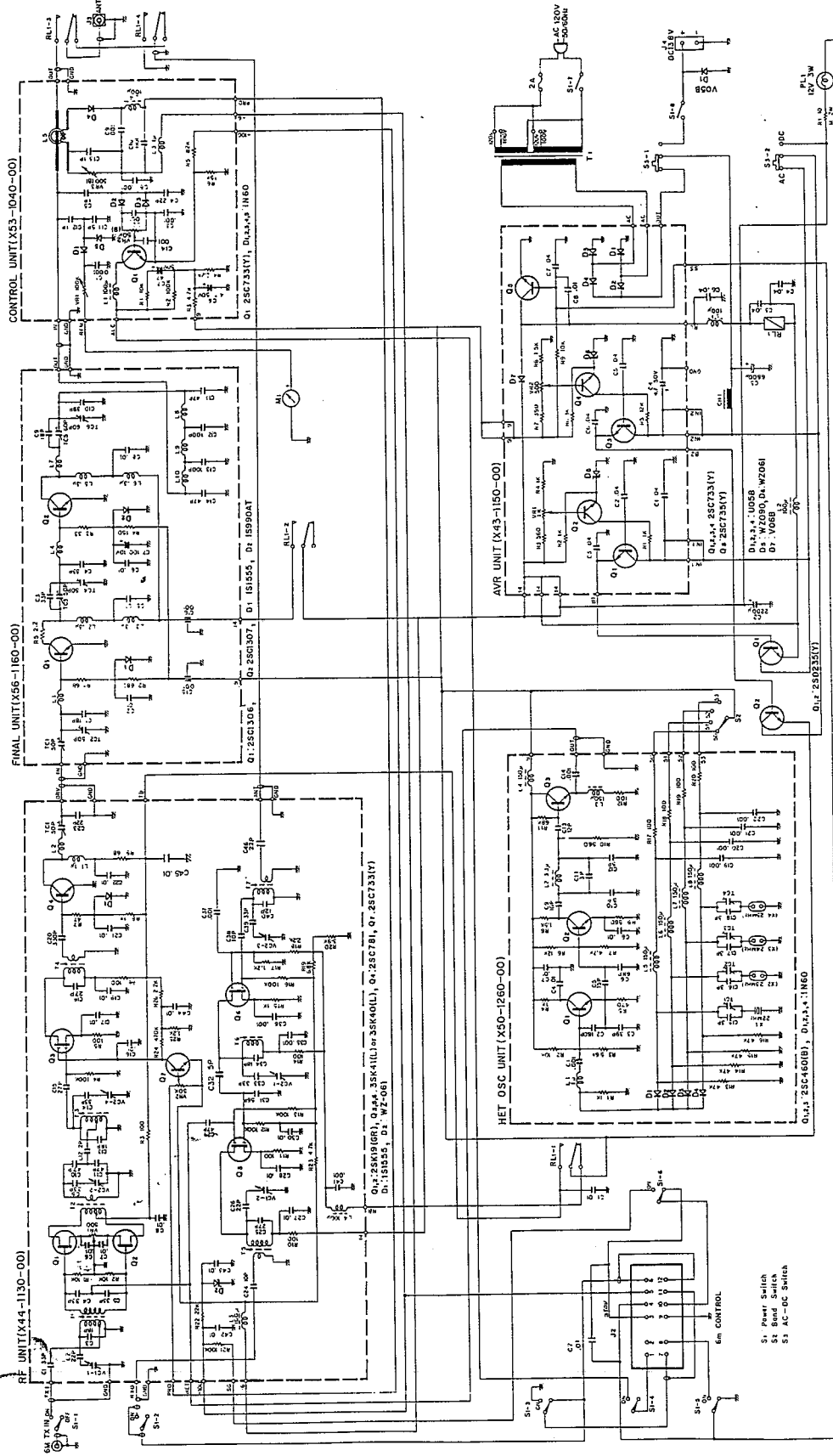
HF-VHF Changeover

Each of the TS-520S and TS-820S has a transverter switch. When the TV506 is connected with it, turn the switch on. This allows the POWER switch on the TV-506 to automatically switch from the HF band to the VHF band, and vice versa. Therefore there is no need for modifying any part of the TS-520S and TS-820S. You, accordingly, may not read the description in Section 3.4 and 3.5, the "HF-VHF Changeover", page 6, in this manual. For the method of connection, see the figure below.



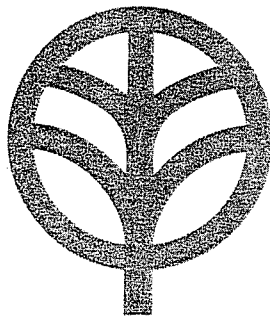


TV-506 CIRCUIT DIAGRAM



TV-506 SPECIFICATIONS (Connected to TS-520)

Transmitting/receiving frequency:	50.0 ~ 54.0 MHz	Power consumption:	AC 120V Transmission 50W max Reception 12W max
Input/output IF frequency:	28.0 ~ 29.7 MHz		DC 13.8V Transmission 2A max Reception 0.4A max
Type of emission	SSB (A3J) CW (A1)	Power requirement:	AC 120V DC 12 ~ 16V (standard voltage 13.8V)
Rated output:	8W (AC operation)	Semi-conductor:	FET 5 Transistor 15 Diode 21
Antenna input/output impedance:	50 Ω	Dimensions:	6-9/16" (168 mm) wide x 5-15/16 (153mm) high x 13-1/8" (336mm) deep
Unwanted radiation:	less than -60 dB	Weight:	11.7 lbs. (5.3 kg)
Receiving sensitivity:	more than 1 μ V at S/N 10 dB		
Image ratio:	more than 60 dB		
IF rejection:	more than 60 dB		
Frequency stability:	less than ± 2.5 kHz during 1 ~ 60 min after power switch is ON and within 150 Hz (per 30 min) thereafter		



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