KENWOOD

INSTRUCTION MANUAL

HF TRANSCEIVER

Model TS-940S

NOTES:

1. If the timer switch is set to ON, the unit sometimes does not function even when the POWER switch is set to ON.
2. When the squelch is not in use, turn the SQL control fully counterclockwise. If the control is turned fully clockwise, the reception sound sometimes cannot be heard.

CONTENTS

Unpacking 3
Operating Precautions 3
Features 3

1. PREPARATION BEFORE USE 4
1-1. Installation Precautions 4
1-2. Cooling Fan Operation 4
1-3. Front Feet 4
1-4. AC Power 4
1-5. Antenna 5
1-6. Grounding 5
1-7. Short Wave Reception 5

2. CONTROLS, INDICATORS AND CONNECTORS 6

3. OPERATION 1 7
3-1. Headphones and Microphones 7
3-2. Initial Switch Setting 7
3-3. SSB Operation 8
3-4. CW Operation 10
3-5. AM Operation 12
3-6. FM Operation 14
3-7. FSK (RTTY) Operation 16

4. AUTO ANTENNA TUNER OPERATION 18

5. OPERATION 2 19
5-1. Frequency and Band Selection 19
5-2. Indicators 19
5-3. Function Switch Operation 19
5-4. Dual VFO Operation 20
5-5. T-F Set Operation 20
5-6. Meter 20
5-7. Interference Reduction Capability 21
5-8. Noise Blanker 22
5-9. Zero Beating 23
5-10. CW Break-in 23
5-11. VOX Operation 24
5-12. Speech Processor 24
5-13. Other Control and Switch Functions 24
5-14. RTTY 27
5-15. Connectors 29

6. MEMORY OPERATIONS 31
6-1. Memory Channel Entry 31
6-2. Memory Recall 32
6-3. Memory Scan 33
6-4. Program Scan 33
6-5. Direct Keyboard Frequency Entry 34
6-6. Clearing Memory 34

7. SUB-DISPLAY FUNCTION 35
7-1. Setting the Clock 35
7-2. Graphic Display 36
7-3. Frequency Display 36

8. TIMER FUNCTIONS 37

9. OPTIONAL ACCESSORIES 40
9-1. Peripheral Devices and Options 40
9-2. Installation of Accessories 42
9-3. Optional Filter Installation 42
9-4. AT-940 Installation 43
9-5. VS-1 Installation 44
9-6. SO-1 Installation 44

10. CIRCUIT DESCRIPTION 47
10-1. Frequency Configuration 47
10-2. Local Oscillator PLL Circuit 47
10-3. Receiver 47
10-4. Transmitter 49
10-5. Antenna Tuner 49

11. MAINTENANCE AND ADJUSTMENT 50
11-1. Preparation 50
11-2. Adjustments 50
11-3. Maintenance 51
11-4. How to Initialize Microprocessor 52

12. IN CASE OF DIFFICULTY 53

13. INTERNAL VIEWS 54

14. BLOCK DIAGRAMS 55

15. SPECIFICATIONS 58

■ UNPACKING

Remove the TS-940S from its shipping container and packing material and examine it for visible damage. If the equipment has been damaged in shipment, notify the transportation company immediately. Save the boxes and packing material for future shipping .

The following accessories should be included with the transceiver.

1. Instruction Manual (B50-8002-10) 1
2. 13-pin DIN plug (E07-1351-05) 1
3. 7 pin DIN plug (E07-0751-05) 1
4. Fuse (6A) (F05-6021-05) or
   (4A) (F05-4022-05) 1
5. Power cable 1
6. Warranty card 1

■ OPERATING PRECAUTIONS: READ BEFORE OPERATING

Read this instruction manual carefully before attempting operation of your new TS-940S. While this set is similar to others you may have owned before, there are many features that are new or unique to this radio. Familiarize yourself with the operation of controls and procedures before you even apply power. Note that the final power transistors might be damaged during transmission if the transceiver is operated into an improper load.

1. If the built-in antenna tuner is used, operate at full power only after automatic tuning is completed.
2. Use only a resonant 50 ohm antenna which has been adjusted for an SWR of 1.5 to 1 or less.
3. DO NOT transmit without an Antenna or 50 ohm load.

THE FOLLOWING DEFINITIONS APPLY IN THIS MANUAL:

NOTE: If disregarded, inconvenience only – no damage or personal injury.

CAUTION: Equipment damage may occur, but not personal injury.

■ FEATURES

Circuit Configuration providing Receiver Performance of the Highest Quality.

1. Trio-Kenwood has succeeded in achieving the highest level dynamic range of 102 dB (with an IF bandwidth of 500 Hz.)
2. General coverage receiver section tunes from 150 kHz – 30 MHz.
3. The transceiver can operate in any mode (SSB, CW, AM, FM or FSK).
4. Every possible function has been adopted to eliminate radio interference.

- SSB slope tune
- CW VBT
- Notch (100 kHz IF notch)
- AF tune
- Variable CW pitch circuit
- Dual Noise Blankers
- 10 Hz Step RIT/XIT with a ±9.99 kHz tuning range employing an optical encoder
- Four step RF ATT control prevents saturation upon reception of excessive signal inputs.

Transmitter Section with Low Distortion and High Reliability

1. The power supply voltage of 28V has been adopted to assure the lowest distortion.
2. Semi break-in or full break-in.
3. Auto tuner available built in or as an optional accessory.
4. Built-in RF speech processor.

Microprocessor Control of various Digital functions

1. VFO with auto quick tuning function
2. Built-in Dual digital VFO's
3. Direct entry of frequency from the key board.
4. 40-Channel Memory
5. Two types of frequency scan
   Program scan
   Memory scan

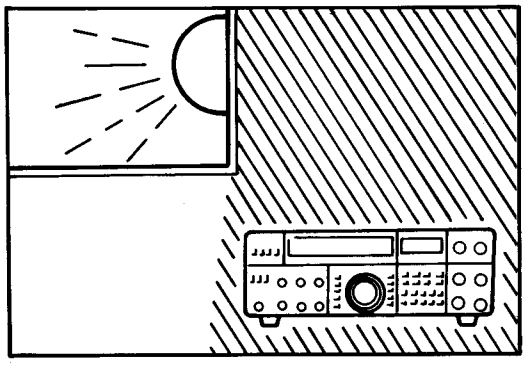
Design and Construction Appropriate to a Quality Transceiver

1. Dual displays
- Main display is a large, two color fluorescent display.
- Sub-display consists of a 2-line, 16 digit liquid crystal dot matrix.

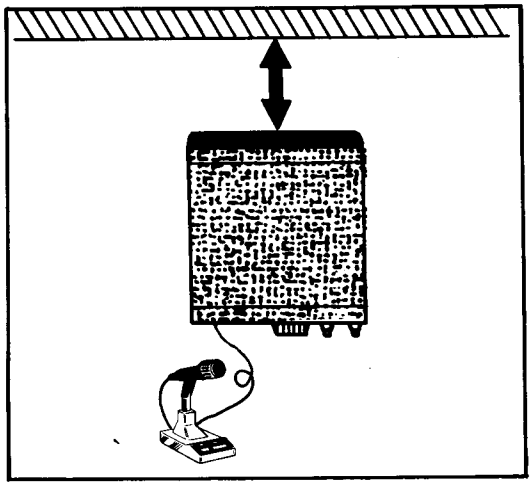
2. Built-in 24 hour digital clock with timer
3. All-in-one type construction containing all components from AC power supply to speaker

1. PREPARATION BEFORE USE

1-1. INSTALLATION PRECAUTIONS



Choose an operating location that is dry and cool, and avoid operating the transceiver in direct sunlight.



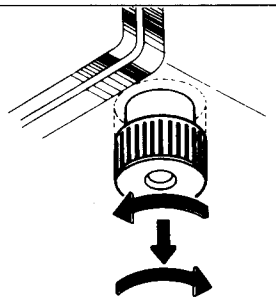
Allow at least 3 inches clearance between the back of the equipment to any object. This space allows an adequate airflow from the ventilating fans to keep the transceiver cool.

1-2. COOLING FAN OPERATION

The cooling fan operates automatically when the heat sink temperature rises, and stops when the temperature falls.
The heat sink is die-cast aluminum integral with the rear panel for sufficient heat dissipation. Therefore, the cooling fan will rarely operate during ordinary operation.
If the cooling fan operates, insure adequate ventilation to insure good heat dissipation.

1-3. FRONT FEET

By extending the front feet, the front panel can be elevated for operating convenience.
Turn the front feet left and pull down.
Then turn right to lock.

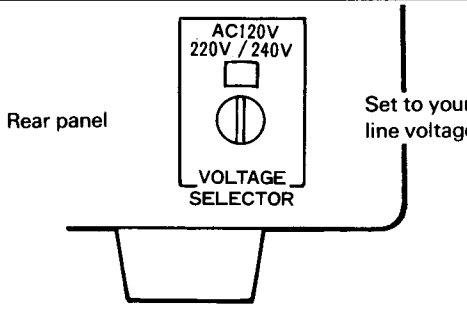


Front feet extension

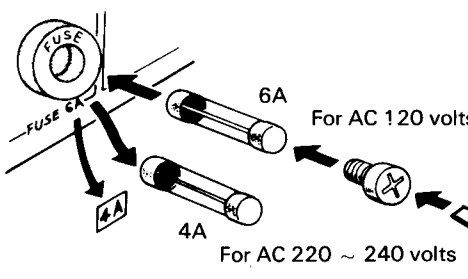
1-4. AC POWER

The TS-940S is supplied to operate from a 120V AC, 220V AC or 240V AC 50/60 Hz power source capable of supplying 510 watts or more.

For units shipped to the U.U.A., the switch is set for 120 VAC with a 6-ampere fuse installed.
For units shipped to European, Central, South American, and African countries, the switch is set for 220 VAC with a 4-ampere fuse installed.
For units shipped to Oceania countries, and U.K. the switch is set for 240 VAC with a 4-ampere fuse installed.

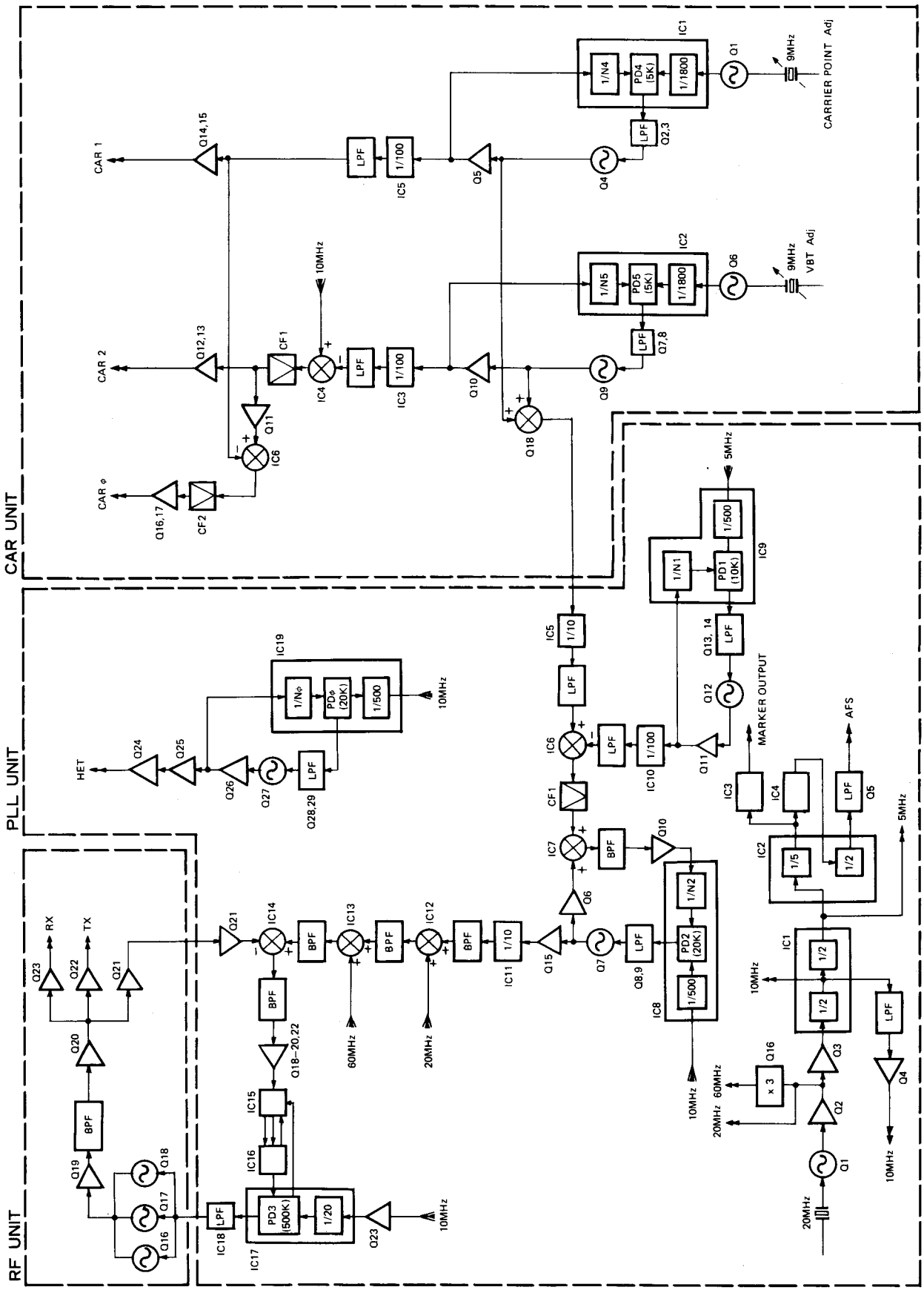


Voltage selector switch on the rear panel



Fuse replacement

(PLL · CAR UNIT)


CAR UNIT
PLL UNIT
RF UNIT
CAR 1
CAR 2
CAR φ
Q14,15
Q12,13
Q16,17
CF1
CF2
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8,9
Q10
Q11
Q12
Q13, 14
Q15
Q16
Q18–20,22
Q21
Q23
Q24
Q25
Q26
Q27
Q28,29
1/N4
PD4 (5K)
1/1800
1/N5
PD5 (5K)
1/100
1/10
1/500
1/N1
PD1 (10K)
1/Nφ
PDφ (20K)
1/N2
PD2 (20K)
PD3 (500K)
1/20
1/5
1/2
x 3
LPF
BPF
9MHz
CARRIER POINT Adj
VBT Adj
10MHz
5MHz
60MHz
20MHz
MARKER OUTPUT
AFS
HET
RX
TX

15. SPECIFICATIONS

[GENERAL]

Transmitter Frequency Range:	160 m Band 1.8 ~ 2.0 MHz 80 m Band 3.5 ~ 4.0 MHz 40 m Band 7.0 ~ 7.3 MHz 30 m Band 10.1 ~ 10.15 MHz 20 m Band 14.0 ~ 14.35 MHz 17 m Band 18.068 ~ 18.168 MHz 15 m Band 21.0 ~ 21.45 MHz 12 m Band 24.89 ~ 24.99 MHz 10 m Band 28.0 ~ 29.7 MHz
Receiver Frequency Range:	150 kHz ~ 30 MHz
Mode:	A3J (USB, LSB), A1 (CW), F1 (FSK), A3 (AM), F3 (FM)
Frequency Stability	$\pm 10 \times 10^{-6}$ (–10°C ~ +50°C)
Frequency Accuracy	$\pm 10 \times 10^{-6}$(Room temperature)
Antenna Impedance	50 ohms
With AT-940 Antenna Tuner	20 ~ 150 ohms (Transmission only)
Power Requirement:	120/220/240 VAC, 50/60 Hz
Power Dissipation:	Max. 510 W during transmission, 80 W during reception
Dimensions	W 401 x H 141 x D 350 mm (Projections Inc.) W 409 x H 154 x D 420 mm W 160.4 x H 56.4 x D 140 inch (Projections Inc.) W 163.6 x H 61.6 x D 168 inch
Weight	With antenna tuner: Approx. 20 kg (44.0 lbs) Without antenna tuner: Approx. 18.5 kg (41.0 lbs)

[TRANSMITTER]

Rated Final Power Input	250W PEP (160 ~ 10 m bands in SSB, CW, FSK, FM) 140W (in AM)
Modulation	SSB: Balanced modulation FM: Reactance modulation AM: Low level modulation
Maximum Frequency Deviation	± 5 kHz
RTTY Shift	170 Hz
Harmonic Content	–40 dB or less (in CW)
Carrier Suppression	40 dB or more (with 1.5 kHz modulation)
Unwanted Sideband Suppression	Better than 50 dB (with 1.5 kHz modulation)
3rd order intermodulation	–37 dB or less (based on Single tone output)
Microphone Impedance	500Ω ~ 50kΩ
Frequency Response	400 ~ 2600 Hz at –6 dB in SSB

[RECEIVER]

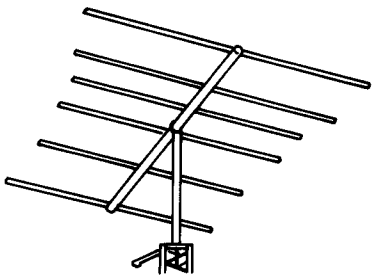
Circuitry	Quadruple conversion for SSB, CW, AM, FSK Triple conversion for FM
Intermediate Frequencies	1st IF: 45.05 MHz 2nd IF: 8.83 MHz 3rd IF: 455 kHz 4th IF: 100 kHz

1-5. ANTENNA

Any of the common antenna systems designed for use on the high frequency amateur bands may be used with the TS-940S, provided the input impedance of the transmission line is not outside the capability of the AT-940 Automatic Antenna Tuner pi-output matching network. The transmission line should be coaxial cable. An antenna system which shows a standing wave ratio of less than 1.5 : 1 when using 50 ohm coaxial transmission line, or a system that results in a transmission line input impedance that is essentially resistive, and between 20 and 150 ohms will take power from the transceiver through the AT-940. If open wire or balanced type transmission line is used with the antenna, a suitable antenna tuner with balun is recommended between the transceiver and the feed line. Methods of construction and operating such tuners are described in detail in the ARRL Antenna Handbook, or similar publications. For operation on the 160, 75 and 40 meter bands, a simple dipole antenna, cut to resonance in the most used portion of the band, will perform saticfactorily. For operation on the 10, 15 and 20 meter bands, the efficiency of the station will be greatly increased if a good directional rotary antenna is used. Remember that even the most sophisticated transceiver is useless without a good antenna.

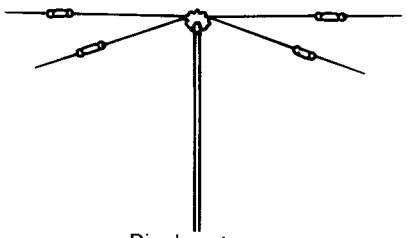
CAUTION:

Protect your Equipment – Use a LIGHTNING ARRESTOR.



Beam antenna

Ground plane antenna



Dipole antenna

1-6. GROUNDING

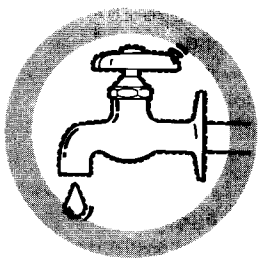
Making a good earth connection is important for preventing dangers such as electric shock and for emitting a high quality signal with minimum spurious radiation. Bury a commercially available ground rod or copper plate under the ground and connect it to the GND terminal of the TS-940S. A thick wire, cut as short as possible, should be used for the connection.

A city water pipe cannot be used as a good earth in some cases. To make a good earth connection, connect the GND terminal to a metal water pipe grounded.

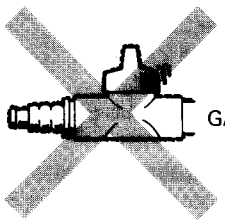
Never use a gas pipe or electrical conduit pipe.

NOTE:

A ground connection that is a 1/4 wavelength or its multiple may provide a good DC ground, but it will not provide a good RF ground.

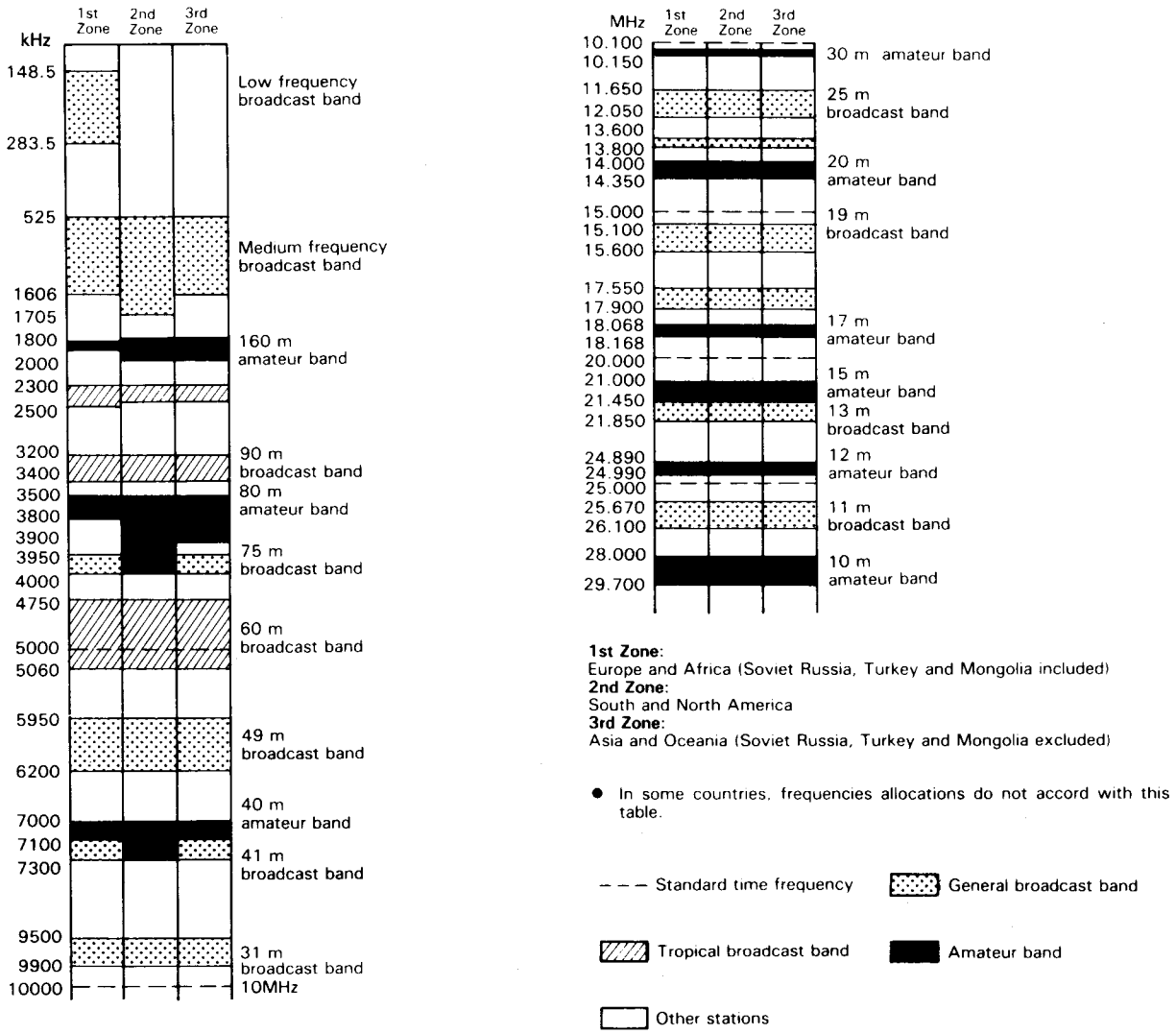


OK



GAS

1-7. SHORT WAVE RECEPTION



Radio Frequency Allocation

Frequency Distribution in the Broadcast and Amateur Bands.

The TS-940S receiver covers from 150 kHz to 30 MHz, to receive international broadcast and communication services.

As shown in the Frequency Allocation Chart, above figure, broadcast and Amateur radio station frequencies are allocated in specific bands expressed in megahertz (MHz) or wavelength in meters (m). Also in the above figure the frequencies of "other stations" are assigned for fixed station business use, marine mobile, aviation mobile, land mobile, radio beacon stations, etc.

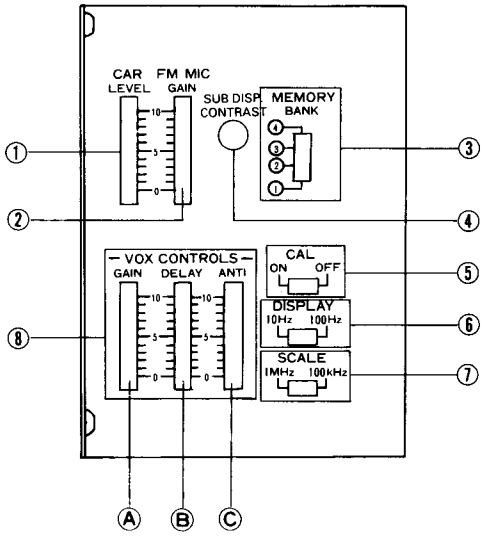
NOTE:

1. Radio stations throughout the world are listed in the WORLD RADIO TV HANDBOOK or similar publications.
2. Antennas designed for HAM BAND operation will generally provide satisfactory reception for SW stations near the HAM BANDS. For antenna construction details, see the ARRL ANTENNA HANDBOOK, or similar publications.

2. CONTROLS, INDICATORS AND CONNECTORS

TOP COVER

Slide lid opened



① **CAR LEVEL (carrier level) control**
Used to adjust carrier level during CW.

② **FM MIC GAIN (microphone gain) control**
Used to adjust microphone amplifier gain in FM.

③ **Memory group selector switch**
Allows to selection of the desired memory channel group.

④ **SUB DISP. CONTRAST control**
Allows you to adjust the contrast of the sub display, using a (–) screwdriver.

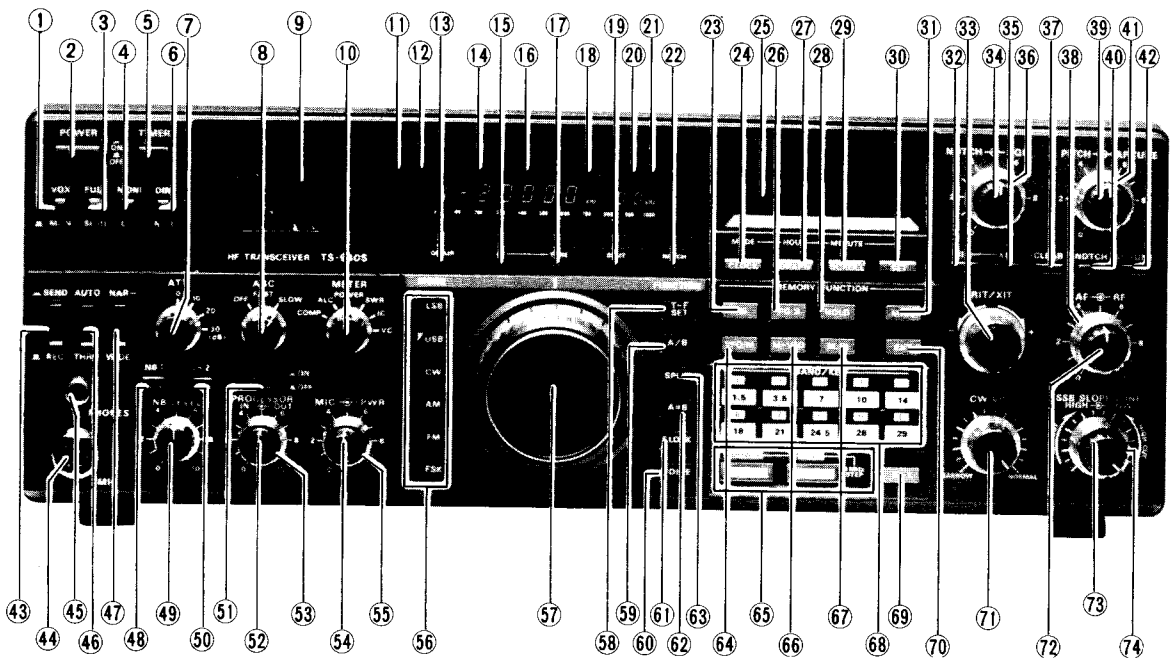
⑤ **CAL (marker) switch**
When this switch is ON during reception, the built-in oscillator will generate a marker signal at 100 kHz intervals. This switch is also used to zero beat the internal oscillator frequency with a standard frequency (WWV).

⑥ **10 Hz indication switch**
Allows frequency indication down to the nearest 10 Hz digit.

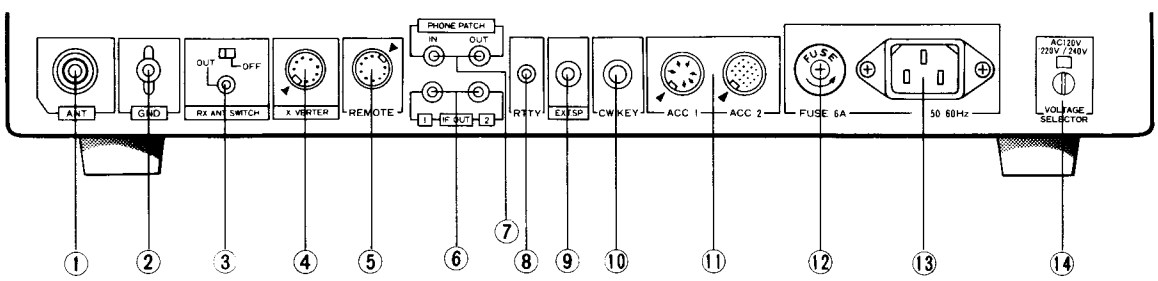
⑦ **Analog SCALE selection switch**
Used to select the analog scale range, 1 MHz or 100 kHz.

⑧ **VOX control**
Ⓐ GAIN: Used to adjust VOX amplifier gain.
Ⓑ DELAY: Used to adjust delay time.
Ⓒ ANTI: Used so that VOX will not be actuated by the internal speaker sound.

FRONT PANEL



REAR PANEL



FRONT PANEL

① **VOX switch ⇨ page 24**
② **POWER switch**
③ **CW break-in selector switch ⇨ page 23**
④ **MONI (monitor) switch ⇨ pages 8,10, 14, 16**
⑤ **TIMER switch ⇨ page 38**
⑥ **DIM (Dimmer) switch ⇨ page 19**
⑦ **ATT switch ⇨ page 24**
⑧ **AGC switch ⇨ page 25**
⑨ **Meter ⇨ page 20**
⑩ **METER switch ⇨ page 20**
⑪ **Main display**
⑫ **F. LOCK indicator ⇨ page 19**
⑬ **ON AIR indicator ⇨ page 19**
⑭ **VFO A indicator ⇨ page 19**
⑮,⑰ **ANT TUNE indicator ⇨ page 19**
⑯ **VFO B indicator ⇨ page 19**
⑱ **MEMO (Memory) channel indicator ⇨ page 19**
⑲ **SPLIT indicator ⇨ page 19**
⑳ **RIT indicator ⇨ page 19**
㉑ **XIT indicator ⇨ page 19**
㉒ **NOTCH indicator ⇨ page 19**
㉓ **MS (Memory scan) switch ⇨ page 33**
㉔ **CLOCK switch ⇨ page 35**
㉕ **Sub-display ⇨ page 35**
㉖ **PG. S (Program scan) switch ⇨ page 33**
㉗ **GRAPH switch ⇨ pages 35, 36**
㉘ **HOLD switch ⇨ page 33**
㉙ **SCROLL switch ⇨ pages 34, 35**
㉚ **SET switch ⇨ page 35**
㉛ **M. CE switch ⇨ page 34**
㉜ **RIT switch ⇨ page 26**
㉝ **RIT/XIT control ⇨ page 26**
㉞ **NOTCH control ⇨ page 22**
㉟ **XIT switch ⇨ page 26**
㊱ **SQL control ⇨ pages 9, 13, 15, 17**
㊲ **CLEAR switch ⇨ page 26**
㊳ **RF (gain) control ⇨ page 25**
㊴ **PITCH control ⇨ page 26**
㊵ **NOTCH switch ⇨ page 22**
㊶ **AF TUNE control ⇨ page 26**
㊷ **AF TUNE switch ⇨ page 26**
㊸ **REC/SEND stand-by switch ⇨ pages 9, 11, 15, 17**
㊹ **MIC (Microphone) connector ⇨ pages 7, 29**
㊺ **PHONES jack ⇨ pages 7, 29**
㊻ **AUTO-THRU selector switch ⇨ page 18**
㊼ **NAR/WIDE switch ⇨ pages 10, 12**
㊽ **NB 1 switch ⇨ page 22**
㊾ **NB control ⇨ page 22**
㊿ **NB 2 switch ⇨ page 22**
(51) **PROC switch ⇨ page 24**
(52) **PROCESSOR-IN control ⇨ page 24**
(53) **PROCESSOR-OUT control ⇨ page 24**
(54) **MIC (microphone gain) control ⇨ pages 9, 15**
(55) **PWR (RF power) control ⇨ pages 8, 10, 14, 16**
(56) **MODE switch ⇨ pages 8 ~ 17**
(57) **Main tuning control ⇨ pages 8 ~ 17**
(58) **T-F SET switch ⇨ page 20**
(59) **A/B switch ⇨ page 19**
(60) **VOICE switch ⇨ page 19**
(61) **F. LOCK switch ⇨ page 19**
(62) **A = B switch ⇨ page 19**
(63) **SPLIT switch ⇨ page 19**
(64) **VFO/M switch ⇨ page 31**
(65) **1 MHz step switch ⇨ pages 8 ~ 17**
(66) **M ▶ VFO switch ⇨ page 33**
(67) **M. IN switch ⇨ page 31**
(68) **BAND KEY (1 – 10) switch ⇨ pages 8 ~ 17**
(69) **AT. T switch ⇨ page 18**
(70) **ENT (Enter) switch ⇨ page 34**
(71) **VBT control ⇨ page 21**
(72) **AF (audio gain) control ⇨ page 26**
(73) **SSB SLOPE TUNE HIGH CUT control ⇨ page 21**
(74) **SSB SLOPE TUNE LOW CUT control ⇨ page 21**

REAR PANNEL

① **Antenna connector**
Connect an antenna with an impedance of 50 Ω, with an SWR of 1.5 or less.

② **GND (ground) terminal**
Used to make TS-940S ground. Connect using as thick and short a wire as possible.

③ **RX ANT terminal selector switch**
Used to disconnect the TS-940S receiver. Supplies an antenna connection to an external receiver.

④ **Transverter connector**
For details, see page 29.

⑤ **Remote connector**
This connector is used when a linear amplifier is used.

⑥ **IF OUT jack**
IF 1 is for connection to the SM-220 for Pan Display. (8.83 MHz)
IF 2 is for connection to the SM-220 for RX Modulation Display. (100 kHz)

⑦ **PHONE PATCH jacks**
The IN terminal is used for transmit audio from the phone patch (600 Ω).
The OUT terminal is used for received audio from the transceiver to the phone patch (600 Ω). These jacks can also be used for input to and from SSTV, or RTTY terminals.

⑧ **RTTY jack**
For connection to an RTTY interface unit. (direct keying)

⑨ **EXT SP (external speaker)**
This terminal is for an external speaker.

⑩ **CW KEY jack**
Used to connect the key during use of CW.

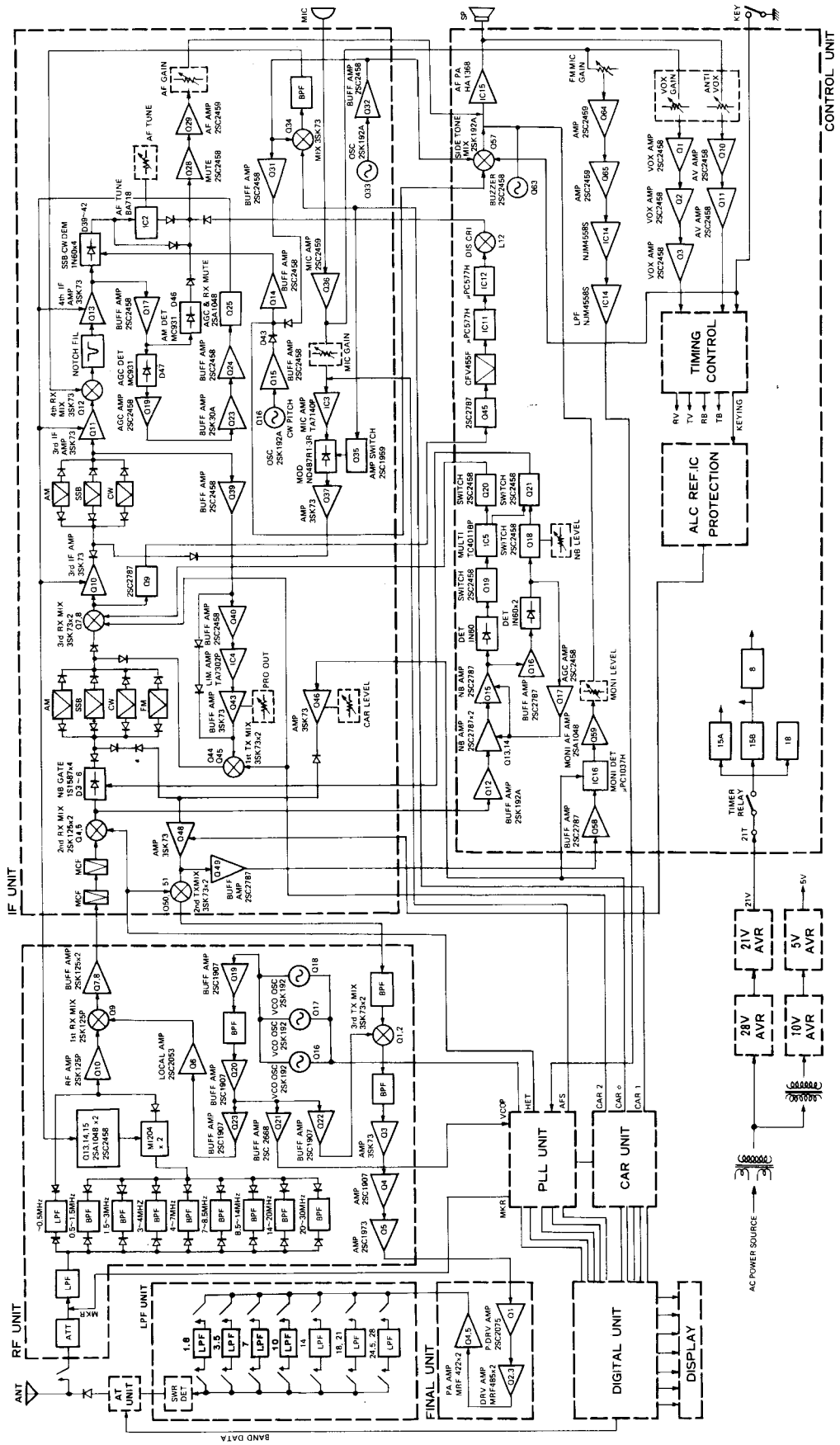
⑪ **Accessory terminals**

⑫ **Fuse Holder**

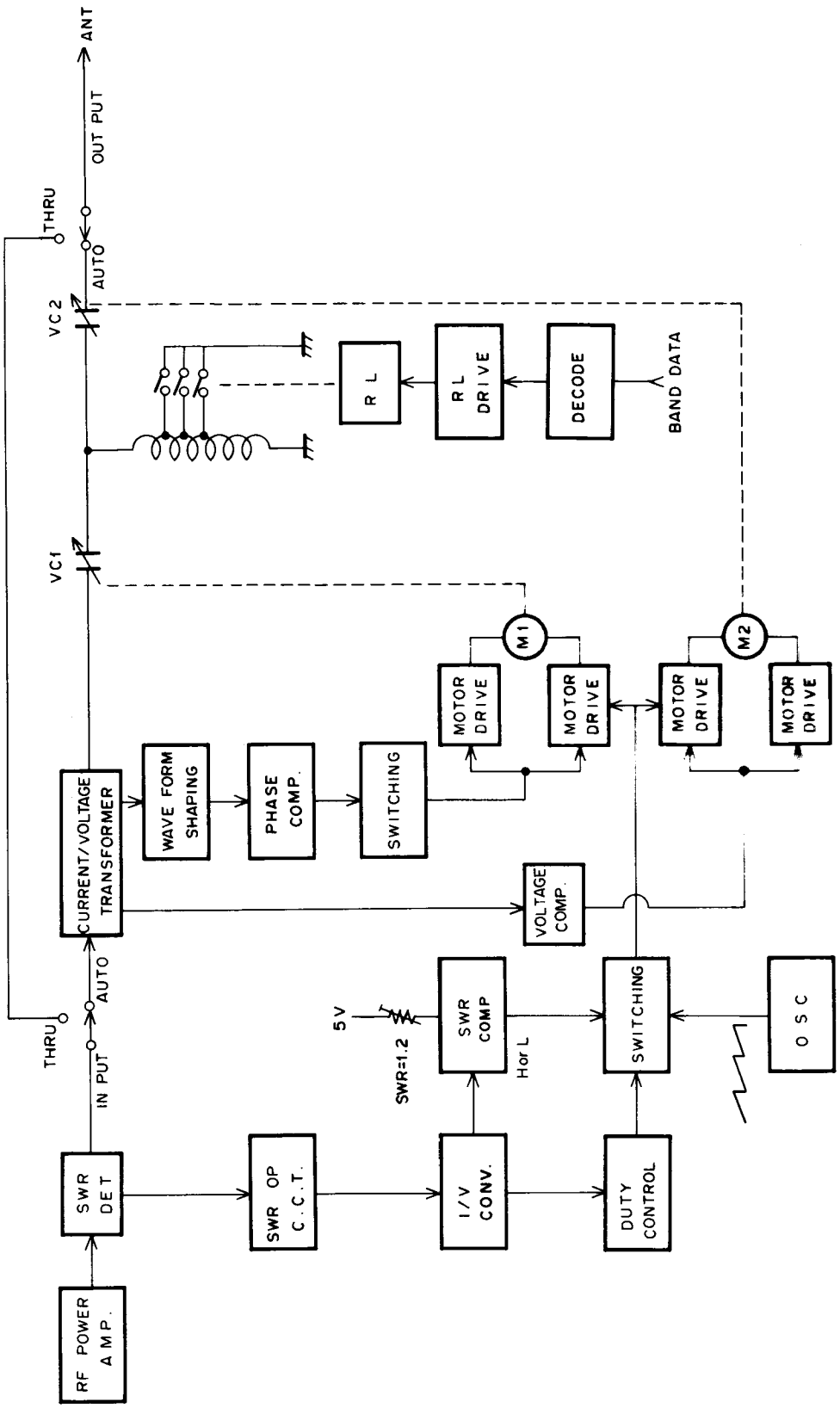
⑬ **AC power connector**
Connect the supplied power cord.

⑭ **VOLTAGE SELECTOR switch**
Used to select the correct line voltage.

14. BLOCK DIAGRAMS



ANTENNA TUNER AT-940



Sensitivity	
150 kHz ~ 500 kHz	10 dB S/N 0 dBμ (1μV) or less in SSB, CW and FSK
	10 dB S/N 20 dBμ (10μV) or less in AM
500 kHz ~ 1.8 MHz	10 dB S/N 12 dBμ (4μV) or less in SSB, CW and FSK
	10 dB S/N 30 dBμ (32μV) or less in FM
1.8 MHz ~ 30 MHz	10 dB S/N −14 dBμ (0.2μV) or less in SSB, CW and FSK
	10 dB S/N 6 dBμ (2μV) or less in AM
	12 dB SINAD −6 dBμ (0.5μ) or less in FM
Squelch Sensitivity	−10 dBμ (0.32μV) or less
Image Ratio	80 dB or more in 1.8 – 30 MHz
IF Rejection	70 dB or more in 1.8 – 30 MHz
Selectivity:	
N: Denotes the filter setting is NARROW.	
W: Denotes the filter setting is WIDE.	
(SSB, CW, AM(N), FSK)	2.4 kHz/−6 dB
	3.6 kHz/−60 dB
(AM (W))	6 kHz/−6 dB
	15 kHz/−50 dB
(FM)	12 kHz/−6 dB
	22 kHz/−60 dB
Variable Range	With SSB Filter
(SSB Slope Tune)	High-cut: 1500 Hz or more
	Low-cut: 700 Hz or more
	Without SSB filter
(CW VBT)	600 Hz ~ 2.4 kHz continuously variable
RIT/XIT Variable range	±9.99 kHz
Notch Filter Antenuation	40 dB or more
Audio Output	1.5 W (at 8 ohm load/10% distortion)
Audio Load Impedance	8 ohms

Note: Circuits and ratings subject to change without notice due to developments in technology.

Model TS-940S

Serial No. _____

Date of Purchase _____

Dealer _____

_____

_____

KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150 Japan

KENWOOD U.S.A. CORPORATION
2201 E. Dominguez Street, Long Beach, California 90810 U.S.A.

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker Str. 15, 6056 Heusenstamm, West Germany

KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
(INCORPORATED IN N.S.W.)
4E. Woodcock Place, Lane Cove, N.S.W. 2066 Australia

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3. OPERATION 1

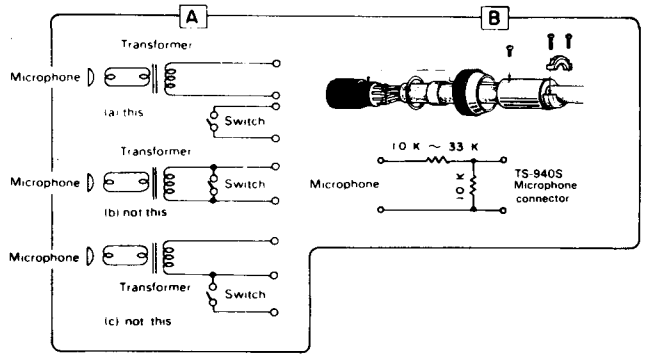
3-1. HEADPHONES AND MICROPHONES

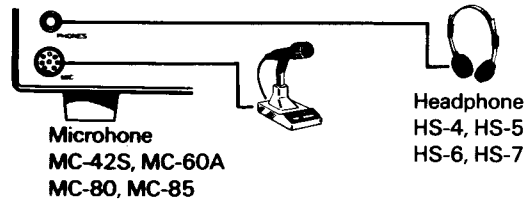
Headphones

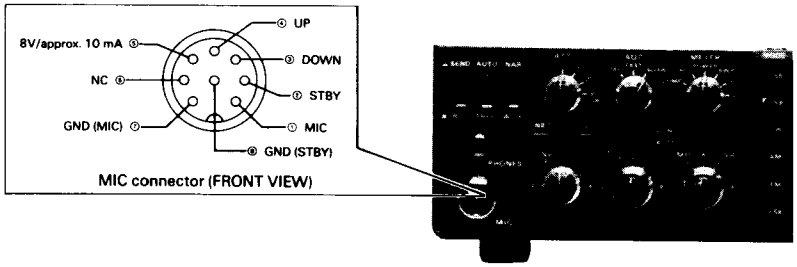
The Trio-Kenwood headphones HS-4, HS-5, HS-6 and HS-7 can be used with this transceiver. When using other headphones, use 4 to 16 ohms impedance. Stereo headphones can also be used.

Microphones

The Trio-Kenwood microphones MC-42S (handheld), MC-60A, MC-80, MC-85 (table-top type) are recommended.







Either a low or high impedance microphone (500 Ω ~ 50 kΩ) may be used. The PTT switch must be isolated from the microphone audio circuit, as shown in [A]. Use a microphone with a separate switch and MIC line so both PTT and VOX may be selected. Figure [B] shows the circuit that should be used for high output microphones such as the Shure 444, and the D-104.

3-2. INITIAL SETTING CONFIRMATION

Prior to operation ensure the following switches and controls are set as indicated in the figure below:

[1] Ensure the POWER switch is OFF.

[2] An antenna must be connected.

Caution:
Never transmit without the antenna connected.

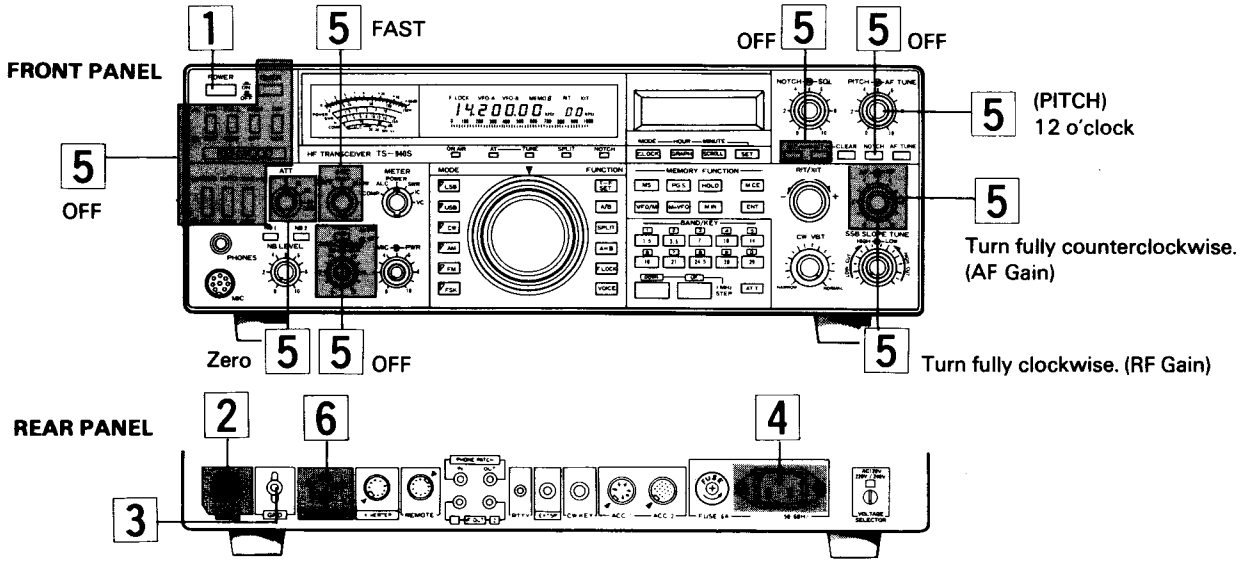
Note:
Ensure the VOLTAGE SELECTOR switch is set for your AC line voltage.

[3] A ground must be connected.

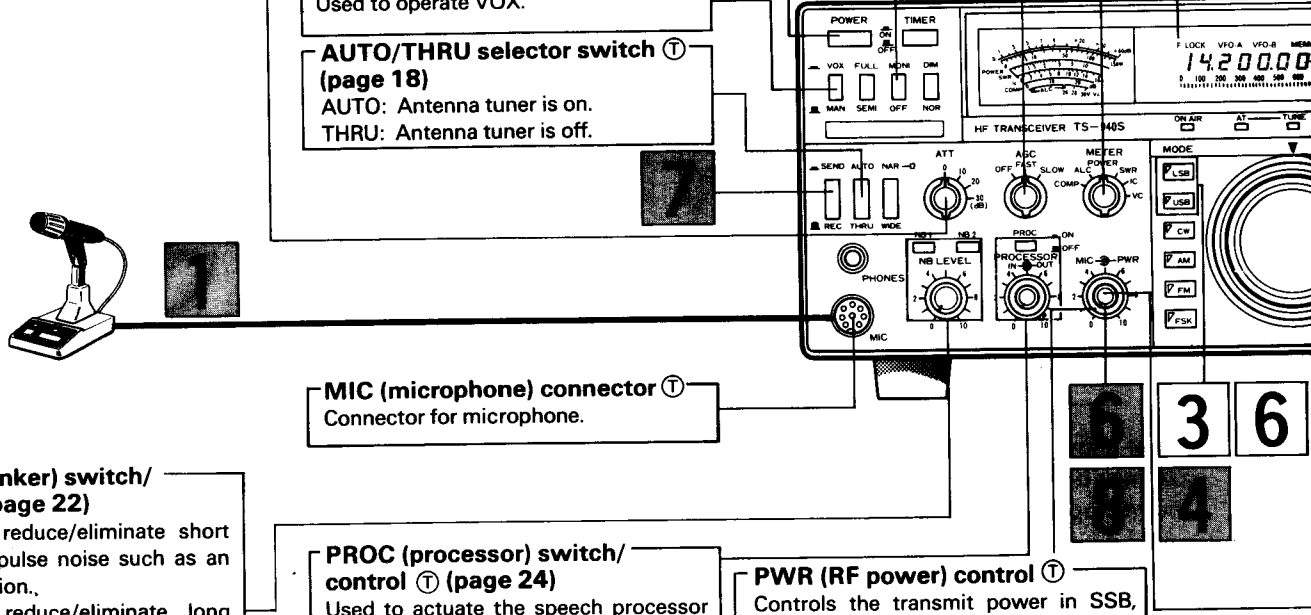
[4] The power cord is connected.

[5] Ensure the front panel controls and switches are set as shown in the figures below.

[6] The RX ANT switch is OFF.



3-3 SSB OPERATION



ATT (RF attenuator) switch Ⓡ
Inserts 10, 20 or 30 dB of attenuation into the receiver antenna circuit, to protect the RF amplifier and mixer circuits from distortion caused by excessive input signal levels.

MONI (monitor) switch Ⓣ
Allows monitoring of your transmit signal.

AGC switch Ⓡ (page 25)
OFF – Used to disable the AGC. (Turns OFF the S-Meter function)
FAST – Normally used for CW and FSK.
SLOW – Normally used for SSB, AM and FM.

VOX switch Ⓣ (page 24)
Used to operate VOX.

AUTO/THRU selector switch Ⓣ (page 18)
AUTO: Antenna tuner is on.
THRU: Antenna tuner is off.

MIC (microphone) connector Ⓣ
Connector for microphone.

NB (noise blanker) switch/ control Ⓡ (page 22)
NB1: Used to reduce/eliminate short duration pulse noise such as an auto ignition.
NB2: Use to reduce/eliminate long duration pulse noise such as the "Russian Woodpecker".

PROC (processor) switch/ control Ⓣ (page 24)
Used to actuate the speech processor circuit.

PWR (RF power) control Ⓣ
Controls the transmit power in SSB, CW and FM modes. Clockwise rotation increases power output.

RECEIVE

1. Turn on the power.
2. The meter lamp lights and a frequency is shown on the display.
3. For operation up to the 7 MHz band, place the MODE switch to LSB. For operation on or above the 10 MHz band, use the USB mode.

Note:
Ⓣ denotes transmit operation.
Ⓡ denotes receive operation.

4. Select the desired band by operating the BAND/ KEY switch or with the 1 MHz step switch.
5. Adjust audio volume with the AF (audio gain) control.
6. Adjust the main tuning control so that the desired signal may be clearly heard.

12. IN CASE OF DIFFICULTY ...

TRANSMITTER SECTION

SYMPTOM	CAUSE	REMEDY
No output in SSB (No Ic.)	1. Open microphone cable or bad microphone. 2. Low microphone gain. 3. PROC switch is to ON with PROC IN/OUT control fully counterclockwise.	1. Check the microphone. 2. Increase the mic Gain. 3. Increase the PROC IN/OUT settings.
VOX does not operate.	1. VOX GAIN control too low. 2. ANTI VOX control requires adjustment.	1. See section 5-11 VOX operation. 2. See section 5-11 VOX operation.
VOX trips by speaker output.	ANTI VOX control requires adjustment.	See section 5-11 VOX operation.
Mic or radio chassis is "hot" during TX.	Excess RF in the shack. No earth ground, poor ground, or antenna is too close to the radio.	See section 1-6.
Poor audio in SSB, TX-feedback.	Excess RF in the shack.	See section 5-13.

RECEIVER SECTION

SYMPTOM	CAUSE	REMEDY
Lights do not light and there is no receiver noise when the POWER switch is turned on.	1. Bad power cable or connections. 2. Blown power supply fuse.	1. Check cables and connections. 2. Check for the cause of the blown fuse and replace the fuse.
An antenna is connected but no signals are heard.	Microphone PTT switch (or stand-by switch) is in the transmit position.	Release the PTT switch.
An antenna is connected but S-meter deflects without a received signal.	1. RF GAIN control fully anticlock use. 2. Low AC line voltage.	1. Open RF GAIN control. 2. Use a step-up transformer to raise the line voltage.
SSB signal unintelligible.	MODE switch is set to wrong sideband.	Turn MODE switch to the correct sideband.
RIT control inoperative.	RIT switch is off.	Push RIT button.
SSB received signal is extremely high cut or low cut.	Slope tuning is out of adjustment.	Set to the NORMAL position.

TIMER SECTION

SYMPTOM	CAUSE	REMEDY
Transceiver not turned on.	TIMER switch on with repeat timer set.	Set the TIMER switch to off.