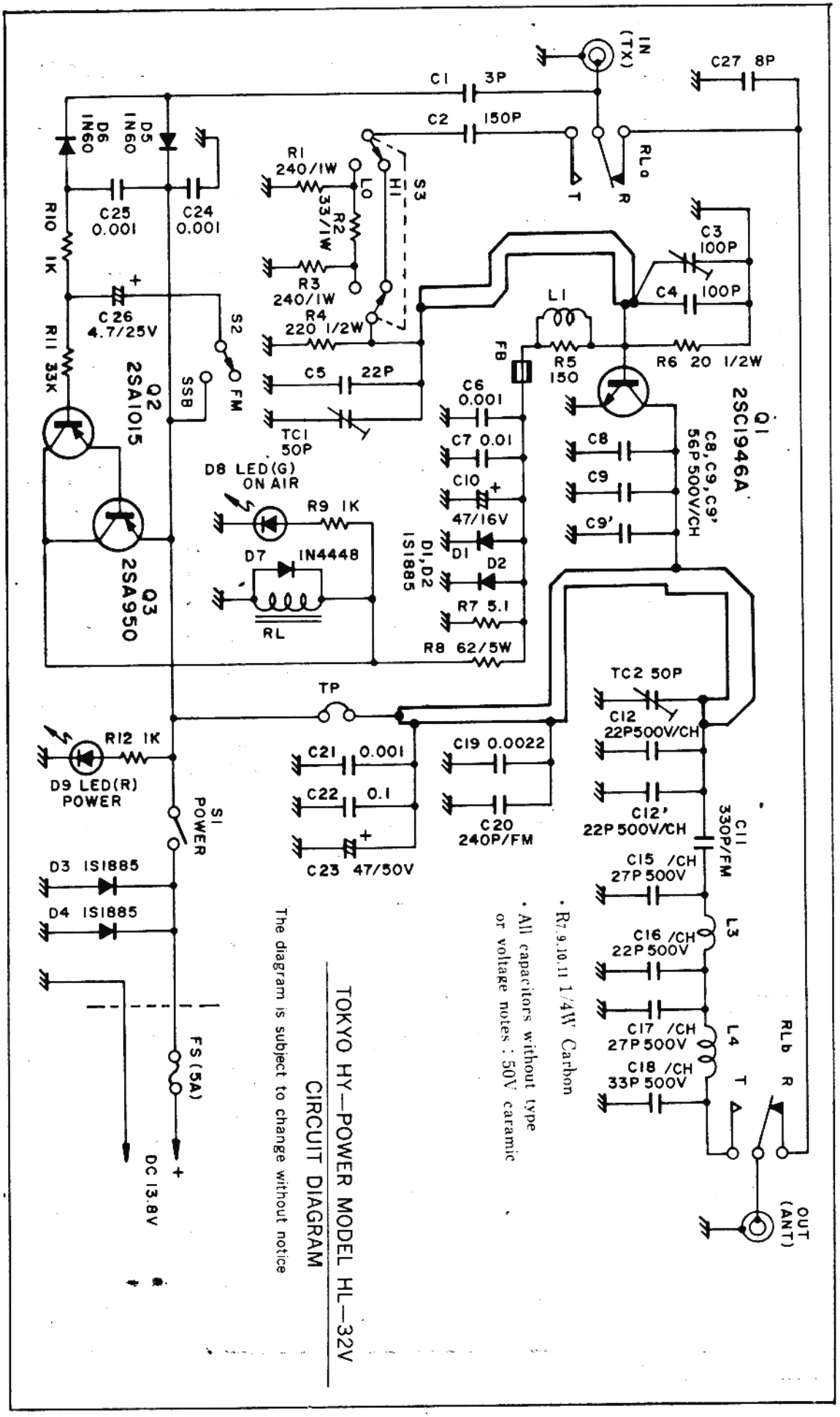
INSTRUCTION MANUAL

144 MHz BAND POWER AMP

model HL-32V

TOKYO HY-POWER LABS., INC.



TOKYO HY—POWER MODEL HL—32V

CIRCUIT DIAGRAM

The diagram is subject to change without notice

- All capacitors without type or voltage notes : 50V caramic
- R7.9.10.11 1/4W Carbon

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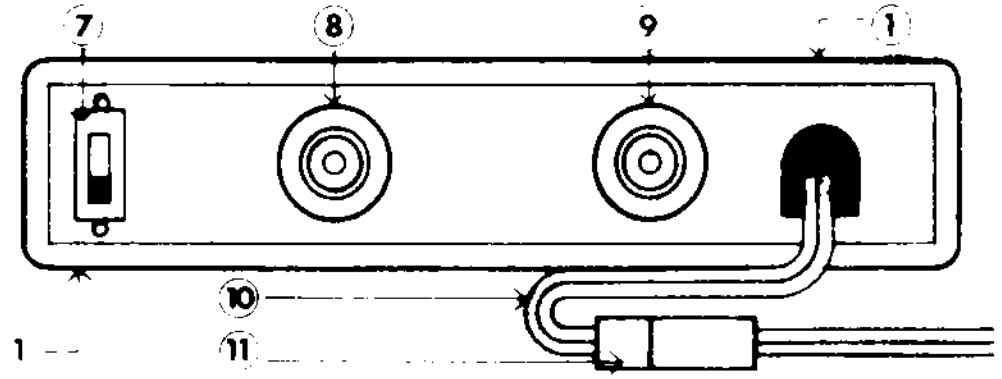
Rear Panel

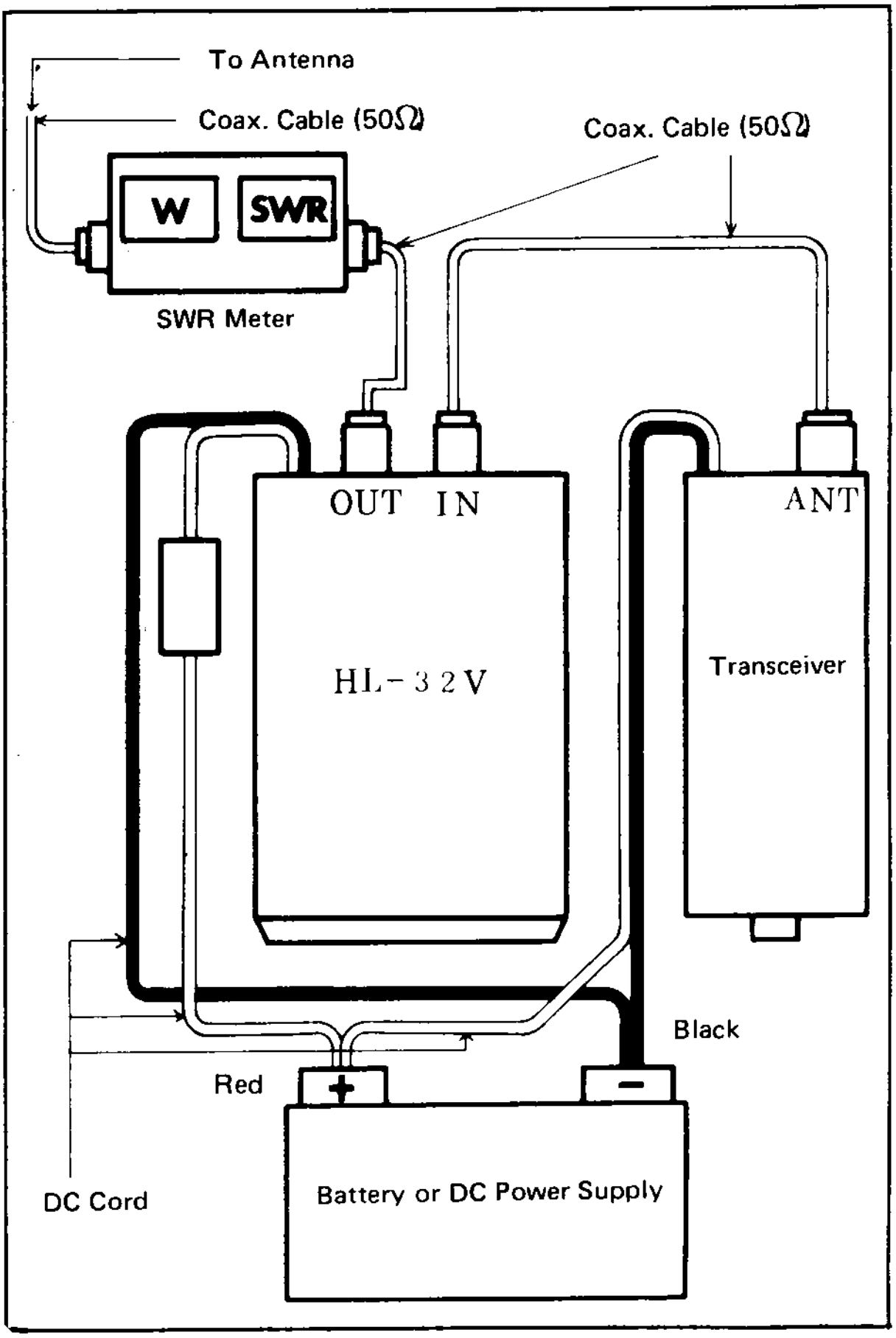


(7) MODE (switch to change FM to SSB)
(8) TX (IN) (Drive input connector)
To connect coaxial cable from antenna connector to transceiver. (Optional readymade cable is available with a BNC and type M already installed.)
(9) ANT (OUT) (Antenna output power connector)
(10) DC +13.8V (Power cord)
(11) Fuse holder

* CAUTIONS

1. This amplifier is designed to give its best performance when the impedance of the transceiver and the antenna are both 50 ohm. If the output impedance of the transceiver and/or the coaxial cable is not 50 ohms (such as 52 ohm. 75 ohm. etc.), it will cause mismatching and loss of performance. If you use a different coaxial cable from 50 ohm for the antenna, it will affect not only SWR but will drop TX power to antenna. This could cause damage of the RF power transistor.
PLEASE USE 50 OHM COAXIAL CABLE FOR THE INPUT AND OUTPUT CONNECTIONS.

Connecting chart of cables



* Setting and Operation

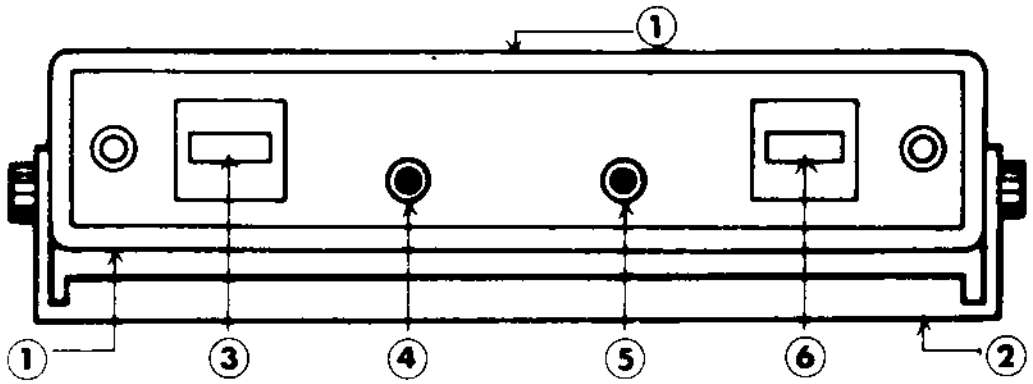
1. Connect power cord (10) to the power source with Red to PLUS (+) and Black to MINUS (-).
2. Connect "TX" (IN) on the rear panel to the antenna connector of the transceiver with an appropriate cable.
3. Connect the "ANT" (OUT) connector (9) to the coaxial cable from the antenna.
4. Check the antenna matching condition with the SWR meter. In case the SWR is high, adjust the length of the antenna and try to get the SWR less than 1.5 (it is preferable to get as close to 1.1 as possible).
   Please refer to #2 of Cautions regarding to the connection and adjusting methods.
5. Now, when you transmit, the carrier control of the HL-32V works and the amplifier is activated.
6. When the transceiver is changed from transmitting to receiving, the carrier control of this HL-32V will cutoff and go back to the receiving condition.
7. When amplification with the HL-32V is not necessary, leave the power switch (3) in the "OFF" position. This allows the TX/RX signal of the transceiver to pass through the HL-32V without amplification.
8. To operate with SSB or CW, set the SSB/FM slide switch (7) on rear panel in the SSB position, and at the FM position when it is used for FM or AM.

2. PLEASE CONFIRM THE MATCH PRIOR TO USE of the HL-32V by putting an SWR meter between the antenna and the amplifier.
   If you find that SWR is high, please adjust the length of antenna, etc., to get SWR less than 1.5 SWR.
   1) First, leave the power switch of HL-32V "OFF" and measure SWR with the output power of transceiver only.
   2) After you get the best condition with the above measurement, turn the power switch "ON" and measure again with the amplifier in line and adjust antenna for lowest SWR.
   3) This amplifier is originally designed for 12V level power source and if you connect to a 24V level power source, there is a high probability that the RF transistor will be destroyed.
   4) The heatsink of the HL-32V starts radiating after transmitting for 5 minutes, and if it is kept on for a long period, the heatsink will become rather hot. To preserve the life of the power transistor, check the surroundings of the HL-32V to assure proper ventilation, and do not place in direct sunlight.
   5) To prevent damage, do not disturb or modify the parts inside as unauthorized tuning or repair voids the warranty.
   6) In case the HL-32V is used for Base amplification, a regulated DC power supply of 13.8V (5A) is necessary. For such use please choose a power supply which is well designed and R.F. bypassed. OVERVOLTAGE WILL KILL THE AMPLIFIER.

Accessories	Instruction manual Mounting bracket Spare screws for mounting bracket Spare fuse

* Explanation of features

Front Panel



(1) Heatsink (top and base)
(2) Mounting bracket
(3) Power switch
(4) Power LED (Red)
(5) TX lamp (Green)
(6) Power level switch

Push in	:	Low power
Release	:	High power

power level to compensate for the power level of the drive or the power needed to communicate.

4. C.O.X. Time Constant.
   In the "SSB" position of the slide switch on the rear panel the relay works smoothly without chattering during SSB operation. Transmitting and Receiving change occurs without any delay at "FM".

5. A protection circuit for reverse polarity is included.

* Specification

Frequency Coverage	:	144MHz – 148MHz Band
Mode	:	FM/SSB/(CW & AM)
Power Supply	:	DC 13.8V Minus Ground
Current Consumption	:	4A (Max) at TX
Output Power	:	25W (10W – 30W) Power Change HI : 25W LO : 10W
RF Input	:	1W (0.5W – 3W)
Input/Output Impedance	:	50 ohm
Input/Output Connector	:	M type connector
Semiconductors	:	RF Power Transistor 1 Transistor 2 Diode 7 LED 2
Fuse	:	5A
Dimensions	:	100(W) x 30(H) x 158(D) mm
Weight	:	Approx. 520g

* General Information

The HL-32V is an FM/SSB power amplifier for the Two-meter Handheld/Portable Transceiver. It amplifies 0.5W – 3W output power from the portable to 10W – 30W from the HL-32V expanding the facility of Handheld/Portable Transceivers.

The cabinet itself acts as a heatsink and this contributes to the small size and shape. It doesn't require a special place for installation and both mobile use and base applications are suitable. It also has features such as a power change switch, and a Carrier Operated X (relay) Time Constant change switch, bright LED indicators, and even an ON/OFF switch. The big power amplifier transistor is designed for reliability and easy drive, too.

* Features

1. Any Handheld/Portable Transceiver can be connected to the HL-32V. Carrier control is used for the TX to RX change. This amplifier can be used with most smaller wattage transceivers sold in the stores, and even transceivers which have DC applied to the antenna line.
2. High Capacity Output Power Transistor
   The 2SC1946A used for amplification allows long periods of transmission with stable performance since it is specified conservatively. The HL-32V is designed for high reliability and good resistance to mismatch.
3. HI/LO Output Power Selection.
   Output power can be switched from high to low