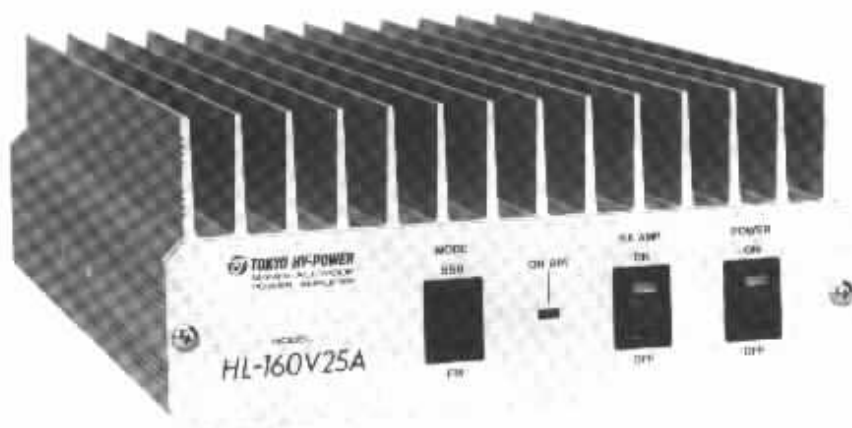


# *\* INSTRUCTION MANUAL \**

2 Meter Power Amplifier

Model HL-160V25A



Model HL-160V25A is a high power linear amplifier designed for 144MHz amateur band operation. It features a stable and powerful amplification along with an excellent linearity, which is especially effective on SSB mode. With a combination of built in high-gain and low noise GaAs FET RX pre-amp, HL-160V25A enables you to enjoy a more comfortable DX QSO.

#### FEATURES

##### 1. Low Noise GaAs FET RX Pre-amp.

GaAs FET with low noise characteristics, amplifies even a very weak receiving signal.

##### 2. FM/SSB Mode Switch

The time constant of COX (automatic send-receive switch) is changed in relation to modes of FM/SSB. At "FM", the change from "TX" to "RX" is made instantly and at "SSB", with some delay.

##### 3. Terminal for Remote Send-Receive Control

A remote control terminal is accommodated at the rear panel, which enables a smooth and instant change-over especially

on SSB mode when two leads are wired to the remote control terminal of the transceiver.

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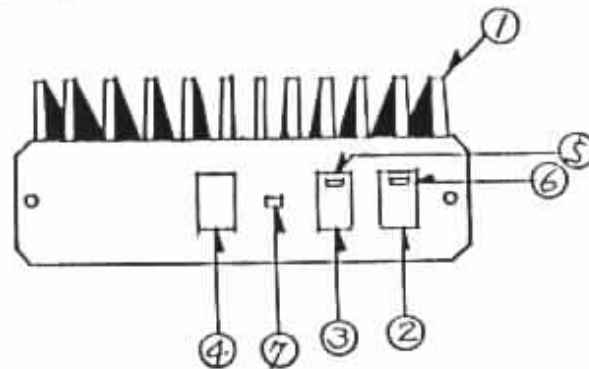
#### SPECIFICATIONS

DC Power	: + 13.8V, 23A(max)
Frequency band	: 144MHz amateur band(144-148MHz)
Mode	: FM, SSB, CW
Output Power	: 150W(80-160W)
Input Power	: 25W(10-30W)

Input/Output Impedance	: 50 $\Omega$
Input/Output Connector	: S0-239
Accessory Circuit	: COX(Carrier Operated T-R Switch) RX Pre-amp. Reverse DC Power Polarity Protection, Remote Control
Semiconductors	: RF Power Transistor(MRF247) x 2, Transistor x 3, GaAs FET x 1, Diode x 11, LED x 3
Accessories	: Connector with vinyl coated wires for remote operation
Dimension	: 183(W) x 78(H) x 233(D) mm
Weight	: Approx. 2.6 Kg

## EXPLANATION OF FEATURES

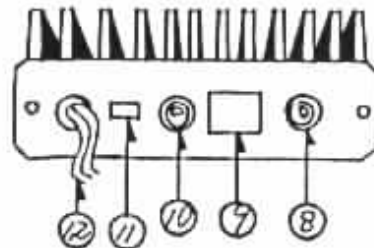
### \*Front Panel



- 1.Heat Sink : Aluminum, heavy duty
- 2.DC Power Switch : ON/OFF
- 3.RX AMP Switch : Receive pre-amp. switch, ON/OFF.  
The amp does not work with "POWER" switch off.
- 4.MODE Switch : SSB/FM mode select. At "SSB", the change-over from TX(send) to RX(receive) is made with some delay of approx. 1 second, and at "FM", the change is made instantly.
- 5."RX" Pilot Lamp : Red lamp inside the RX AMP Switch lights when RX switch is turned on.
- 6."POWER" Pilot Lamp : Red lamp inside the POWER Switch indicates DC power is on.
- 7."ON AIR" Pilot Lamp : Green lamp indicates the amp is transmitting or on air.

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\*Rear Panel



8.ANT(output) connector : Connect antenna.

9.Name Plate

10.IX(input) connector : Connect the cable from the transceiver.

11.Remote Control Terminal : Connect the connector with vinyl coated wires between Remote Control Terminal and "STAND BY" terminal (remote control) at the transceiver.

and then HL-160V25A can be controlled  
remotely by the transceiver.  
(See item 8 of OPERATION)

12.DC 13.8V : DC power leads.  
Red for positive, black for negative.

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#### SETTING AND OPERATION

- 1.Connect DC power leads to the DC power supply and or the battery, red lead to the positive(+) terminal and the black one to the negative(-).
- 2.Using a coaxial jumper cable(50Ω type), connect "TX" of the rear panel to the Antenna connector of the transceiver.
- 3.Connect the antenna cable to the "ANT" at the rear panel.
- 4.The impedance condition of the antenna used(or SWR) must be checked to be 1.5 or less by using SWR meter.

5. Select "MODE" switch to either FM or SSB.
6. Operating the transceiver to "transmit", HL-160V25A is also automatically operated to transmit.  
As the same way, switch the transceiver to "stand-by(or receive)", the device is also switched to "receive" state.
7. Turning the DC power switch off, the receiving and transmitting signals to and from the transceiver will bypass the HL-160V25A.
8. Connect vinyl coated wires of plug for remote operation to "stand-by" terminal on transceiver.

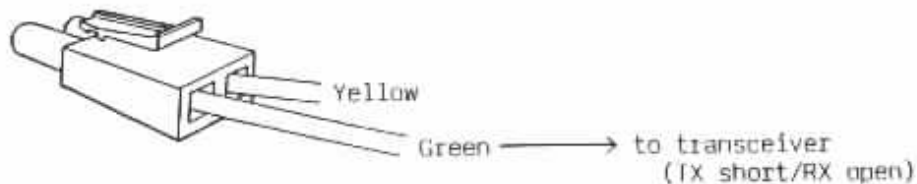
Colour on vinyl wire	Designation	Connecting point at the transceiver
Yellow	+DC	Terminal or circuitry which comes to DC +3 - 9V on transmission at the transceiver.
Green	SHORT - OPEN	Terminal or circuitry which is made short on transmission and open on reception at the transceiver.

**\*Connection\***

a) +DC



b) SHORT-OPEN



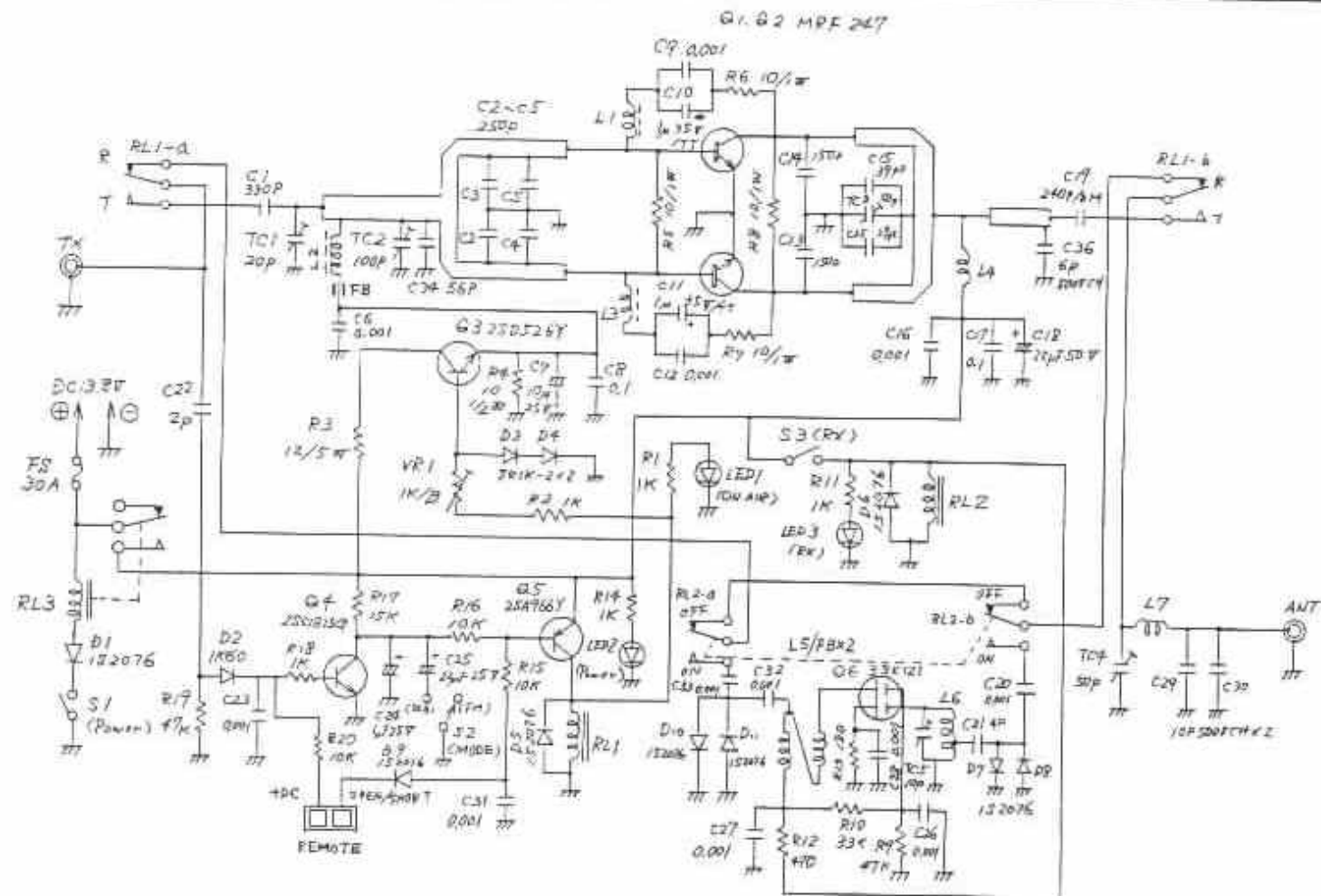


- 9.If the received signals are weak, noisy or hard to copy,  
turn "RX AMP" switch on. You may hear signals more clearly.

#### CAUTION

- 1.Nominal DC power supply voltage of HL-160V25A is 13.8V, and HL-160V25A is designed to work from 12V battery system.  
Please do not apply DC voltage over 15V, or the internal transistor circuitry will be blown off.
- 2.Since the expensive and precision components are used throughout, please do not touch or trim the internal parts.
- 3.Operating this amplifier with over 25W drive may lead to the destrucion of RF power transistors.  
Please check the driving power not to exceed 25W.
- 4.In case that the amplifier is connected to the antenna in the bad impedance condition, or that you forget to connect the antenna to the amplifier, these may also kill the RF power transistors.  
Please be careful.
- 5.During transmission, the heat sink may reach a high temperature.  
Therefore, please do not put any object on the top of the amplifier, nor set the amplifier upside down.

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TOKYO HY-POWER LABS., INC.

CIRCUIT DIAGRAM MODEL HL-160V25A



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