



KB2LJJ Radio Mods Database and Manuals

# PS-510

## POWER SUPPLY and SPEAKER UNIT



## OPERATING MANUAL

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## SPECIAL FEATURES

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1. Designed as an A.C. power supply unit exclusively for the SSB transceiver TS-510.
2. 6½" communication speaker is incorporated.
3. Provided with a power supply cord for connection with the transceiver.
4. A.C. power supply switch is attached to the transceiver, providing a great convenience for the operator. When no space is available, the PS-510 can be placed under the table on which the transceiver is installed.
5. For a high voltage current, silicon rectifiers are in use, and the unique design of the stabilized power supply system assures greater stability.
6. Special design consideration is given so as to match the TS-510 transceiver.

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## CIRCUIT DESCRIPTION

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### AC LINE

The A.C. line of the power transformer primary winding employs filters of the  $\pi$  type, thereby preventing the possible emission of undesired electric waves from the power supply line.

### 800-VOLT LINE

For the 800-volt current, a silicon voltage doubler rectifier circuit is used. To withstand the peak-inverse voltages involved, silicon rectifiers in pairs are placed in series. Resistors of high magnitude, arranged in parallel to the silicon rectifier and chemical condenser, serve to avoid an overload resulting from the imbalance of voltages.



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# CIRCUIT DESCRIPTION

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## 300-VOLT LINE

To minimize variations and ripple in the line, a silicon bridge rectifier circuit and chalk input system are employed for the 300-volt B line.

## 210-VOLT LINE

Resistors are placed in series between the 300-volt line and the 210-volt line for the purpose of dropping the voltage.

## 150-VOLT LINE

If the 150-volt line voltage drops due to a variation of load, the grid voltage on the triod side of  $V_{201}$  6BM8 will also drop. This causes the plate current to decrease, since the cathod voltage is fixed.

When the plate current decreases, the voltage drop across the  $R_{201}$   $470\text{ K}\Omega$  becomes less, while the plate voltage tends to rise. Accordingly, the grid bias on the pentode side of 6BM8 tends to decrease, thereby stabilizing the 150-volt output at the operating point. This output voltage can be varied by adjusting the  $VR_1$  half-fixed resistor.

## (-) C LINE FOR BIAS

The half-wave current is supplied to the (-) C line for the bias through a silicon diode.

## 12.6-VOLT LINE

To supply heater voltages, the power transformer has two 12.6-volt secondary windings; that is, one for the final S2001 x 2 line exclusively for the transceiver and the other for other vacuum tubes. Taking into consideration a possible voltage drop at the power supply cord between the PS-510 and the TS-510, the transformer is provided with two 13.5-volt windings.

## 6.3-VOLT LINE

A 6.3-volt winding is used for heating the 6BM8. To prevent the breakage of the insulation between the cathode heaters, this winding is applied with a voltage of + 150 V.

## SPEAKER TERMINALS

The power supply jack incorporates speaker line terminals. The on-off power switch is attached to the transceiver. Part of the lead wire to the transformer primary winding is connected with the power supply socket. This enables the operator to turn on or off the machine from the transceiver side.

## OPERATING

### 1. Accessories

The PS-510 is furnished with the following accessories.

Power supply connecting cord - 2m . . . . .	1
(with plug and jack)	
Hyzex legs . . . . .	2
Fuse (8A) . . . . .	1
Operation Manual . . . . .	1

### 2. Connecting Method

As shown in Fig. 1, the PS-510 should be connected to the TS-510, with the cord furnished. With this connection, the speaker unit is also connected to the transceiver.

The power on-off switch is attached to the transceiver. (No power switch is attached to the PS-510.) When power supply is on, the neon tube located on the lower right end of the PS-510 goes on.

### 3. A.C Power Voltage Selector

A.C power voltage selector is provided on the back panel of the PS-510. The selector is set at 230 volts before shipment from the factory. To set the selector at 250 volts, remove the stopper from the selector and set the selector, then placing the stopper again.

## MAINTENANCE

### 1. How to Take Out the Chassis

Remove the two flat-head bolts from the top of the enclosure, four decorative bolts from its sides, and seven locking bolts from the bottom. Then the chassis can be drawn out from the enclosure toward you. The Hyzex legs need not be removed from the chassis.

### 2. Fuse

This unit is fused at 6 Ampere. The fuse holder is located at the rear. When replacing the burnt fuse, inspect the cause.

### 3. 150-Volt Line

The stabilized 150-volt line is so designed as to be exactly fixed at 150 volts. If the voltage is off the specified voltage for some reasons, the TS-510 should be placed on the receiving condition. Then adjust the voltage to 150 volts by turning the half-fixed resistor VR<sub>1</sub> located on the back of the PS-510.

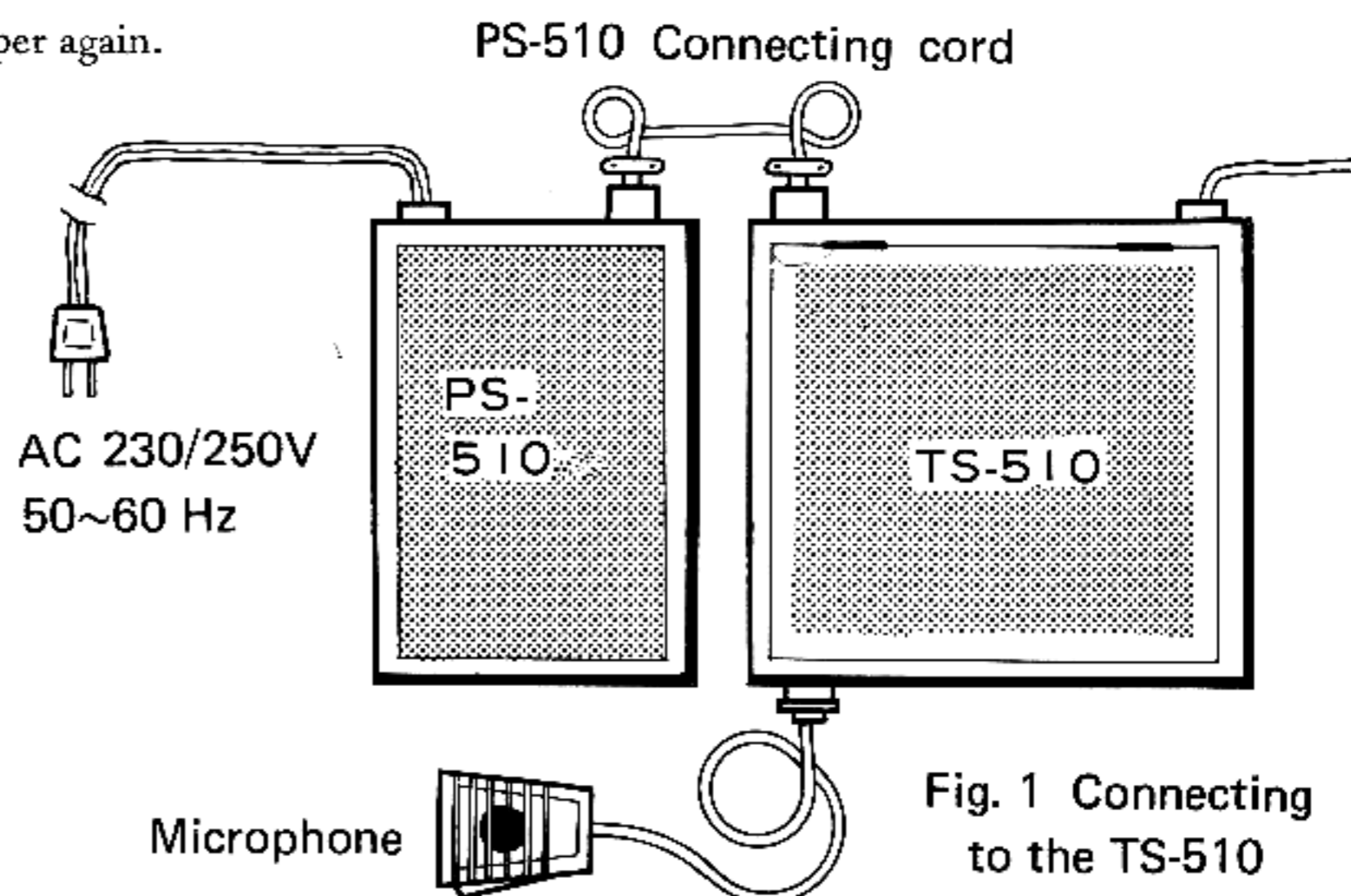


Fig. 1 Connecting to the TS-510

# SPECIFICATION

## ○ Power Unit

Primary side input: 230/250 volts,  
50/60 Hz

Secondary side output: (When TS-510 is  
transmitting CW, and  
output is 90 W)

Terminal	Voltage (V)	Current (mA)	
900 V	880 (970)	196 (14.3)	DC
300 V	285 (295)	36.5 (10.0)	DC
210 V	202 (212)	64 (56.0)	DC
150 V	150	90 (107.0)	DC
- C	-91	11.1 (13.8)	DC
12.6 V	13.6 (14)	1.07 A (1.09A)	AC
12.6 V	12.7 (13.1)	2.76 A (2.81A)	AC

The above figures are the values measured at  
the connector section of the TS-510.

The figures in the parentheses are the values  
measured when receiving in CW mode.

○ Power Consumption: 360 W (Max.)

## ○ Speaker:

Diameter: 6½"

Impedance: 8 Ω

Frequency: 150 ~ 5,000 Hz

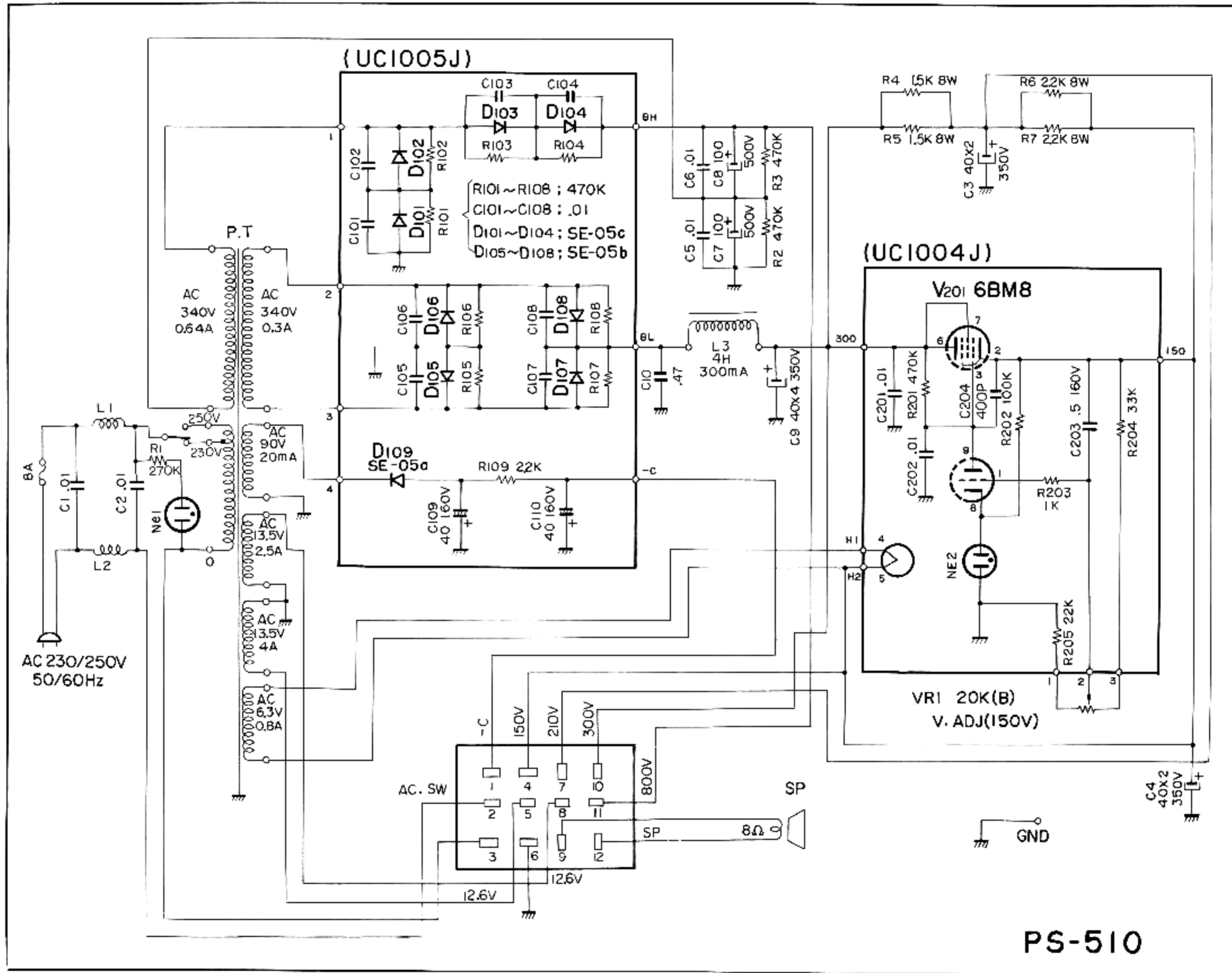
Allowable maximum

input: 1.5 W

Dimensions: 200 (w) × 180 (h) ×  
360 (d) mm (exclud-  
ing legs)

Weight: 15 kg

# PS-510 SCHEMATIC DIAGRAM



PS-510