

MODEL 7372  
REGULATED DC POWER SUPPLY  
OPERATION MANUAL

印刷表紙使用のこと

KIKUSUI ELECTRONICS CORP.

# Power Requirements of this Product

Power requirements of this product have been changed and the relevant sections of the Operation Manual should be revised accordingly.

(Revision should be applied to items indicated by a check mark )

Input voltage

The input voltage of this product is \_\_\_\_\_ VAC,  
and the voltage range is \_\_\_\_\_ to \_\_\_\_\_ VAC. Use the product within this range only.

Input fuse

The rating of this product's input fuse is \_\_\_\_\_ A, \_\_\_\_\_ VAC, and \_\_\_\_\_.

### WARNING

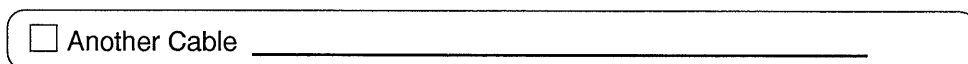
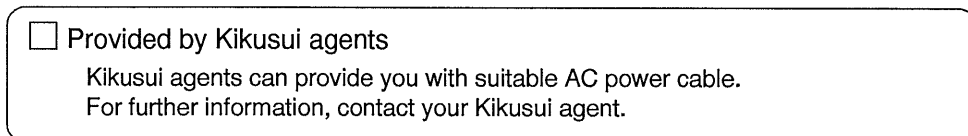
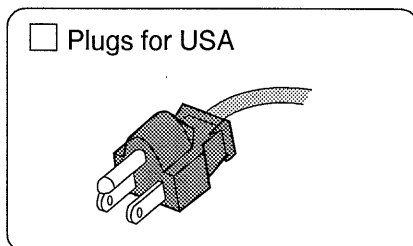
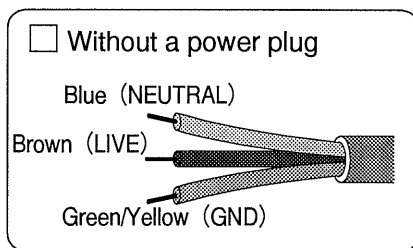
- To avoid electrical shock, always disconnect the AC power cable or turn off the switch on the switchboard before attempting to check or replace the fuse.
- Use a fuse element having a shape, rating, and characteristics suitable for this product. The use of a fuse with a different rating or one that short circuits the fuse holder may result in fire, electric shock, or irreparable damage.

AC power cable

The product is provided with AC power cables described below. If the cable has no power plug, attach a power plug or crimp-style terminals to the cable in accordance with the wire colors specified in the drawing.

### WARNING

- The attachment of a power plug or crimp-style terminals must be carried out by qualified personnel.



## 1. General

Model 7372 is a series control type regulated DC power supply that used vacuum tubes as series control elements and transistors in control circuits. The output voltage is finely and continuously adjustable over a range of 5 to 300 V with a 10-turn potentiometer, and a maximum output current of 0.15 A is obtainable. Provided with a voltmeter and an ammeter on the front panel, Model 7372 is compact, lightweight power supply.

When an overload or output shorting occurs, the output current limiting circuit operates without fail. The limit current can be set to a desired value within a range of 10 to 100% of the maximum rated value. Thus, Model 7372 can also be used as a constant current power supply.

Two or more Model 7372s can be operated in series, and two Model 7372s in parallel.

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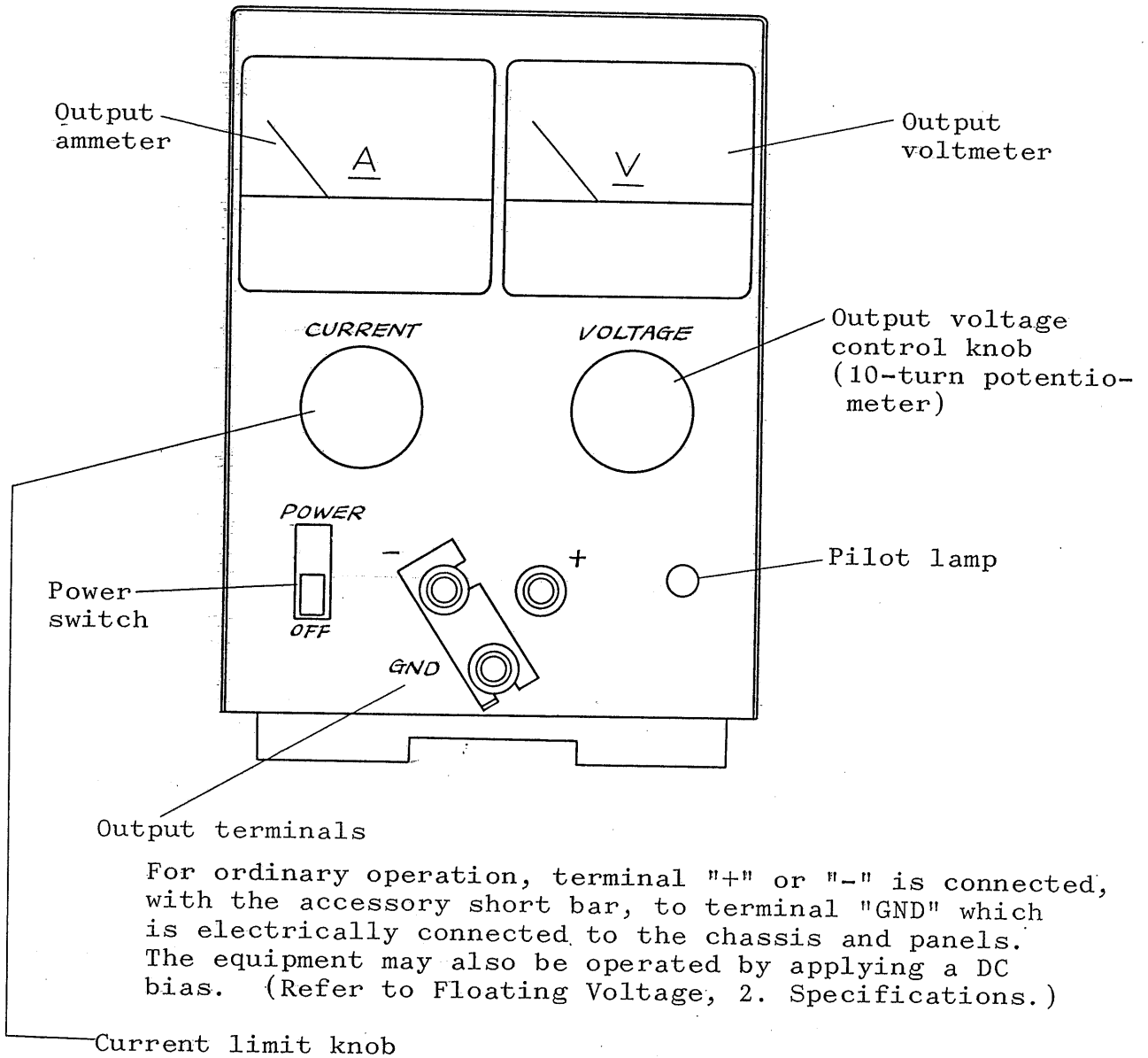
## 2. Specifications

Input	V, 50 / 60 Hz
	Approx. 115 VA (at 300 V, 0.15 A output for full load)
Ambient Temperature	40°C max.
Dimensions	106 mm width, 145 mm heights, 301mm depth
	Maximum: 111 mm width, 158 mm heights 345 mm depth
	Four Model 7372s can be mounted side by side on a 19" or 500-mm standard rack.
Weight	Approx. 5 kg
Accessories Supplied	Short bar 1 Operation manual 1
Output	
Terminals	Arranged 19 mm apart in equilateral triangle, colored in red, white and black, respectively
Polarity	Positive or negative
Floating Voltage	Up to $\pm 600$ V to chassis
Voltage	5 to 300 V continuously variable
Current	0.15 A
Ripple	3 mVrms

Regulation	40 mV when input voltage change of $\pm 10\%$ ; 60 mV when load voltage change of to 300 V, and current 0 to 0.15 A (The circuitry is designed for compensating for the voltage drop in the ammeter.)
Current limit (voltage current automatic crossover type)	0.015 to 0.15 A continuously variable
Voltmeter	300 V (accuracy: 2.5% of full scale)
Ammeter	0.16 A (accuracy: 2.5% of full scale)
Insulation	DC 1000 V between chassis and output terminal more than 10 M $\Omega$ DC 1000 V between chassis and input circuit more than 50 M $\Omega$
Multiple Operation	Two or more units can be operated in series, and two in parallel.

### 3. Front and Rear Panels

#### 3.1 Front Panel

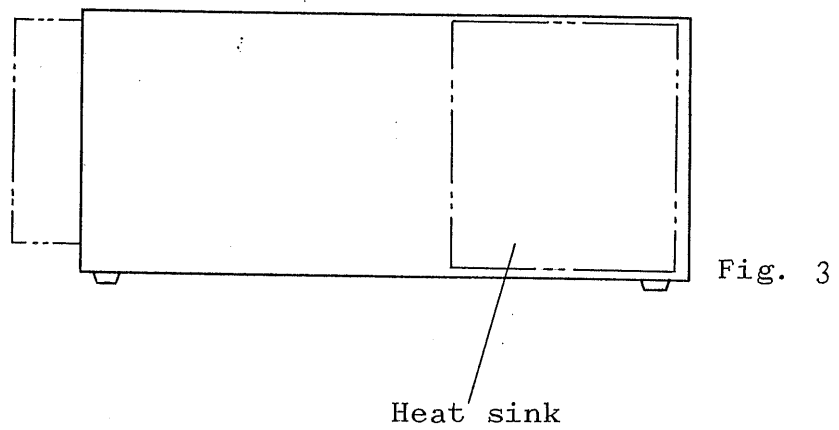
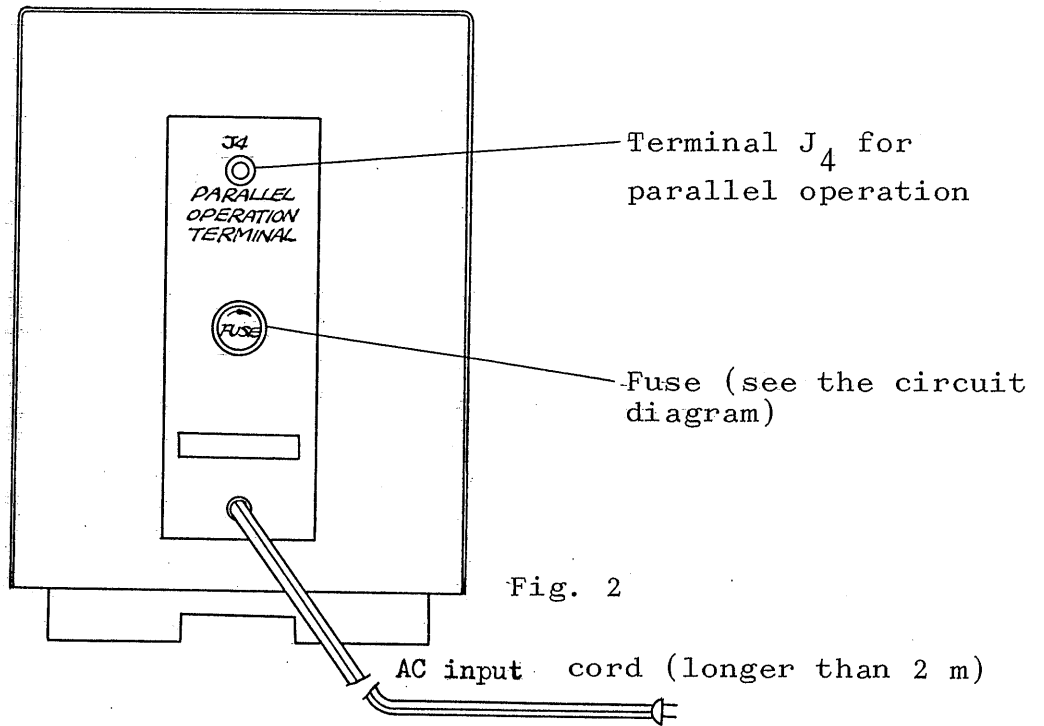


For ordinary operation, terminal "+" or "-" is connected, with the accessory short bar, to terminal "GND" which is electrically connected to the chassis and panels. The equipment may also be operated by applying a DC bias. (Refer to Floating Voltage, 2. Specifications.)

Limits the output current within a range of 10 to 100% of the maximum rated value. Within this range, the equipment can be used as a constant current power supply.

Fig. 1

### 3.2 Rear panel



The heat sink must be well ventilated when the equipment is operated for an output of a low voltage and a current close to the maximum value.



## 4. Use

### 4.1 Operation

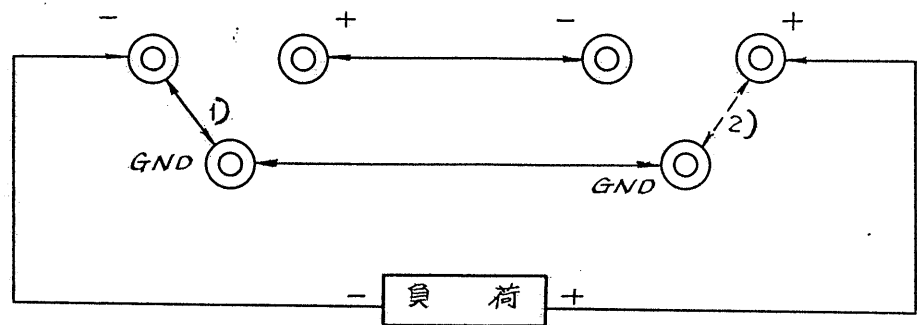
#### 4.1.1 Single operation

When using one Model 7372, no special preparation is necessary.

#### 4.1.2 Series operation

A higher output voltage can be obtained by connecting two or more Model 7372s in series. In this case, the voltage at each output terminal to the panels and chassis should not exceed the floating voltage.

When two Model 7372s are connected in series, twice the output voltage of one Model 7372 and the same amount of current as that of one Model 7372 can be obtained.



Load Fig. 4

Connect the GND terminal as indicated with

- 1) Solid line in Fig. 4 for negative grounding

2) Dotted line in Fig. 4 for positive grounding  
Be sure to connect the GND terminals for the same  
polarity.

#### 4.1.3 Overload protection in series operation

When the two or more Model 7372s connected in series  
are overloaded, one Model 7372 whose protective  
circuit operated first would be applied with the  
output voltages of the other Model 7372s in the  
reverse direction, and the series control elements  
of that Model 7372 would be damaged. To prevent this,  
a diode is connected between the output terminals of  
each Model 7372 as shown in Fig. 5.

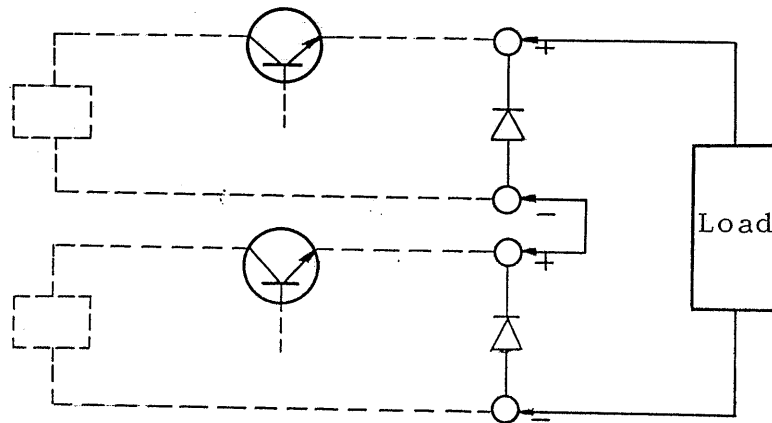


Fig. 5

#### 4.1.4 Parallel operation

When using two Model 7372s in parallel operation for

obtaining twice the current of one Model 7372, follow the instructions below after both power switches turned off. In parallel operation, one of the Model 7372s operates as the master equipment and the other as the slave equipment. Both the output voltage and current are controlled on the master equipment.

- (1) Remove the perforated panel of the Models 7372s, and set the slide switch on the printed board from "MASTER" to "SLAVE" position. This Model 7372 will operate as the slave equipment.
- (2) Connect the PARALLEL OPERATION TERMINAL J4 on the rear panel of the slave to its counterpart of the other Model 7372 to be used as the master equipment.
- (3) Set the two knobs of the slave to the maximum position by rotating it fully clockwise.
- (4) Replace the perforated panel of the slave, and turn on the power switches of both the master and slave.

The output voltage and current can be changed as desired by using the control knobs of the master. The output current limit can be set as desired within a range of 10 to 100% of twice the maximum rated value. The short bars of the master and slave must be connected for the same polarity, for positive or

negative grounding. Never connect the bars for different polarities. (See Fig. 6.)

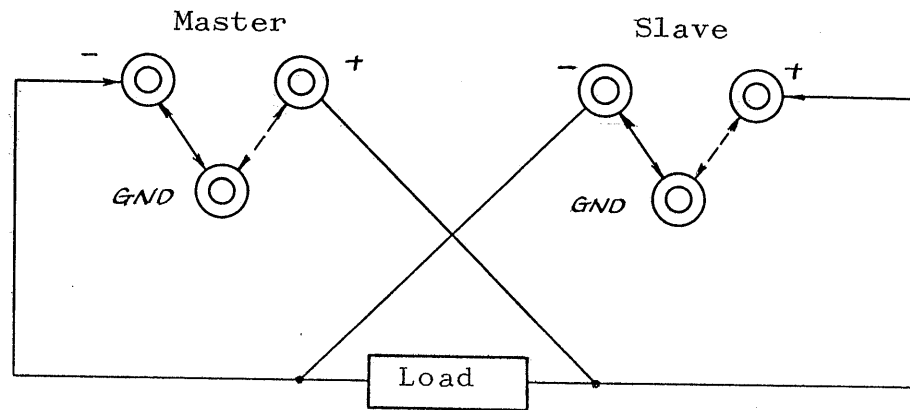


Fig. 6

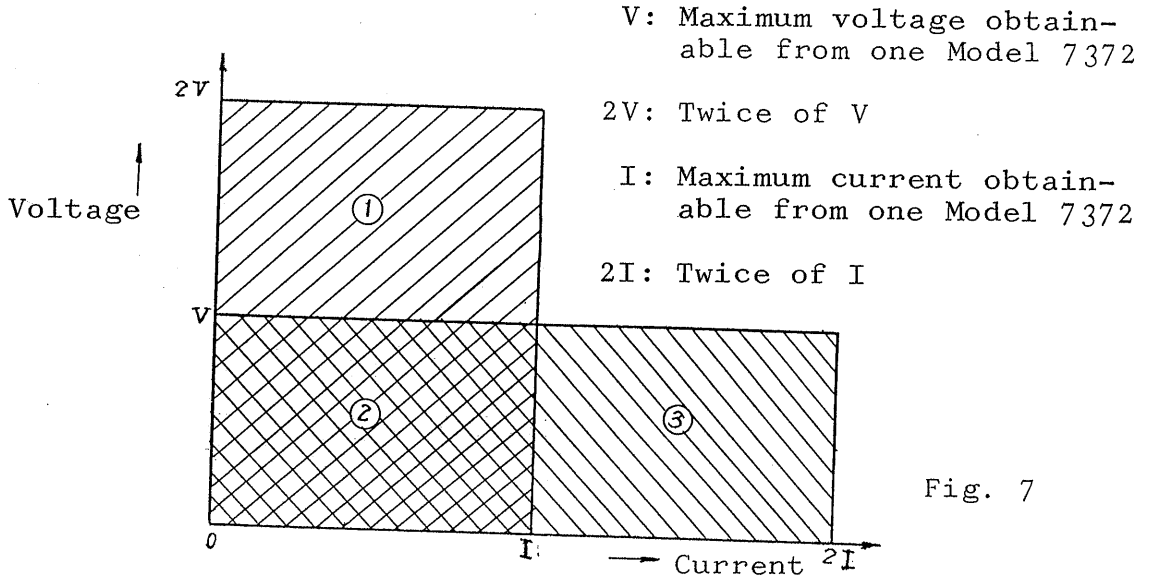
More than two Model 7372s cannot be connected for parallel operation.

Model 7372 cannot, in principle, be combined with other model for parallel operation.

When using the Model 7372, which has been used as a slave equipment, by itself, be sure to reset the slide switch on the printed board from "SLAVE" to "MASTER" position. Otherwise, the output will not be supplied to the output terminals.

The voltage and current ranges obtainable from one Model 7372, from two Model 7372s in series operation and from two Model 7372s in parallel operation are

shown in Fig. 7.



- One Model 7372 Within area ②
- Two Model 7372s in series operation Within area ① + area ②
- Two Model 7372s in parallel operation Within area ① + area ②

4.2 Place of installation

Avoid using Model 7372 where the ambient temperature exceeds 40°C.

Limit the continuous maximum output current as appropriate when the equipment is not well ventilated, or exposed to direct sunlight or heat radiation.

Model 7372 stably operates at an input voltage within

a range of 90 to 110% of the rated value.

#### 4.3 Overshoot of output voltage

Model 7372 is designed not to generate a voltage higher than the preset value between the output terminals when the power switch is turned on or off.

#### 4.4 Voltage drop in ammeter

The circuitry of Model 7372 is designed to compensate for the voltage drop caused by the output ammeter.

#### 4.5 Current limiting circuit

To protect series control elements, output ammeter and other parts from damage when the output terminals are accidentally shorted, Model 7372 is provided with an electronic, trouble-free output current limiting circuit which controls the output current not to exceed the rated value.

The output current limit is continuously variable as desired within a range of 10 to 100% of the maximum rated value. When the output current reaches the value preset, Model 7372 operates as a constant current power supply.

When the output current decreases to lower than the value preset, Model 7372 operates as a constant voltage power supply automatically and continuously.

(See Fig. 8.)

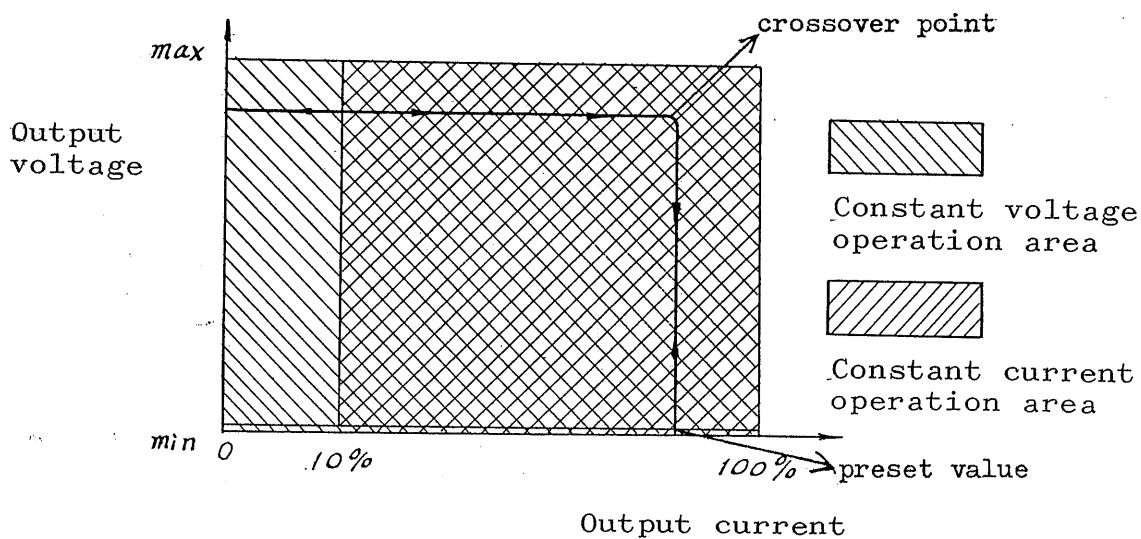


Fig. 8

## 5. Maintenance

When a faulty part has been replaced or the output voltage has deviated, conduct the following adjustments:

### 5.1 0 V adjustment

Turn the voltage control knob on the front panel fully counterclockwise, and adjust the semi-fixed resistor on the printed board (on the circuit pattern side; marked ① in Fig. 9) so that the voltage between output terminals is approximately 0 V. After conducting the maximum voltage adjustment (Item 5.2 below), readjust this voltage to be within a range of  $\pm 0.5$  V.

### 5.2 Maximum voltage adjustment

Turn the voltage control knob on the front panel fully clockwise, and adjust the semi-fixed resistor on the printed board (on the side more parts are located; marked ② in Fig. 9) so that the voltage between output terminals is the rated maximum voltage.

Repeat the above adjustments (Items 5.1 and 5.2) a few times alternately.

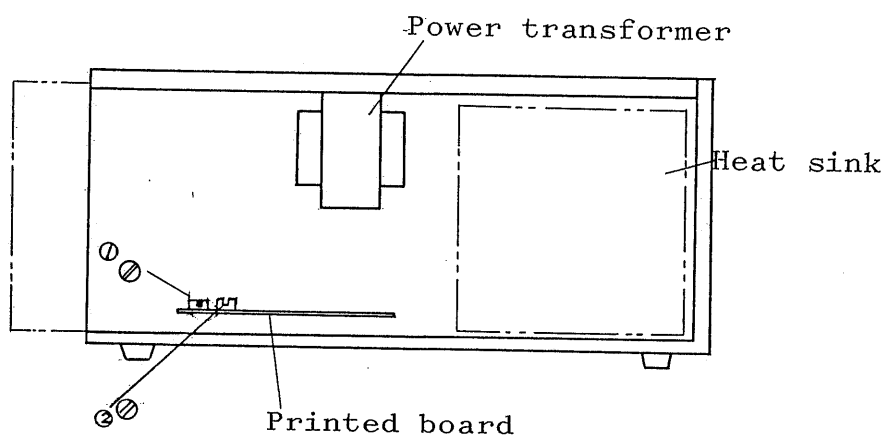


Fig. 9