

HITACHI REGULATORS

Isuzu & LUV (Gasoline Models Only)

DESCRIPTION

Regulator system consists of a voltage regulator and a charge relay. The voltage regulator has 2 sets of contact points to control alternator voltage. An armature plate, placed between the 2 sets of contacts, moves upward, downward, or vibrates.

The lower contacts, when closed, complete the field circuit direct to ground. The upper contacts complete the field circuit to ground when closed, through a resistance (field coil), causing the alternator to charge.

The charge relay is similar in construction to the voltage regulator. When upper contacts are closed, the ignition warning light goes on.

APPLICATION

Model	Hitachi No.
I-Mark	1
LUV & P'UP	TLIZ-87

¹ — Isuzu part number is 8-94208-462-0.

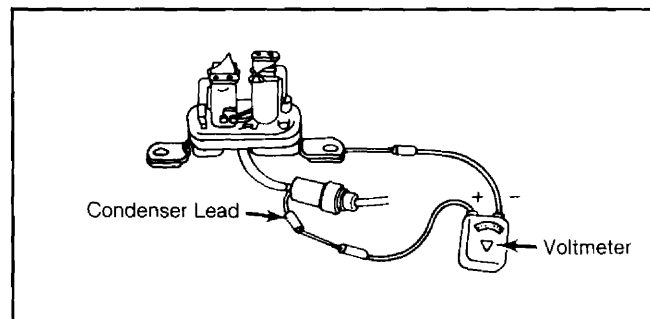
TESTING

VOLTAGE REGULATOR

I-Mark

1) Connect a voltmeter between condenser lead and ground with all electrical loads disconnected including blower relay connector. See Fig. 1. The voltage relay is working properly when lower side points are closed when engine is off and when upper points are closed when engine is running at idle.

Fig. 1: Regulator Test Connection for Isuzu I-Mark



Connect voltmeter between condenser lead and voltage regulator mounting bracket.

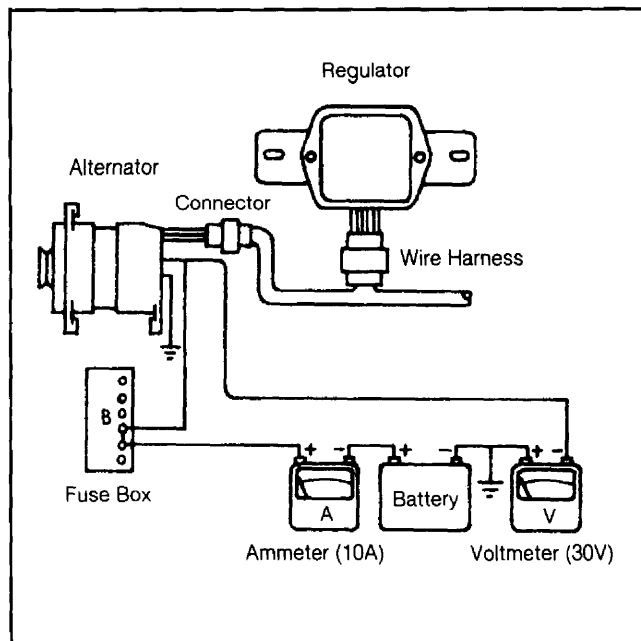
2) If points are not working properly, check coil resistance. If normal, adjust relay. Start engine and increase speed gradually. Voltage should increase with engine speed up to 1400-1850 RPM. Normal condition of regulator is indicated when voltage is 13.8-14.8 volts.

LUV & P'UP

1) Connect voltmeter and ammeter as shown in Fig. 2. Start engine and maintain speed at 2500 RPM for a few minutes. Check that ammeter reading is 5 amps. or less.

2) If reading remains higher than 5 amps., remove battery and substitute with battery known to be fully charged. Recheck to ensure ammeter reading is less than 5 amps.

Fig. 2: Regulator Test Connections for Isuzu P'Up & LUV



Connect voltmeter and ammeter as shown.

3) Lower engine speed to idle and again increase it gradually to 2500 RPM. Note voltmeter reading. Function of regulator is normal if measured value is within specified regulated voltage (13.8-14.8 volts).

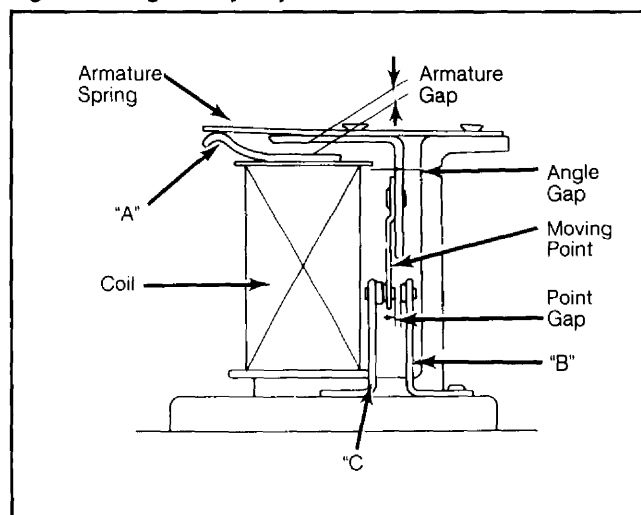
4) If voltmeter reading is not within specified range, regulator is in need of adjustment.

RELAY

I-Mark

1) Connect voltmeter between negative terminal and ground. Increase engine speed gradually. Voltmeter reading should be 4.0-5.8 volts when indicator light goes out. If cut-in voltage is too high, bend coil arm "A" down. Bend up if voltage is too low. See Fig. 3.

Fig. 3: Voltage Relay Adjustment for I-Mark



2) If adjustment of core arm does not correct cut-in voltage, proceed with point gap adjustment. Disconnect battery. Check armature core gap with armature

Alternators & Regulators

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depressed until moving point is in contact with "B" side point.

3) Adjust core gap to .012" (.30 mm) by bending point arm "B". Release armature and adjust gap between "B" side point and moving point to .016-.047" (.40-1.2 mm) by bending point arm "C". After point adjustment, recheck cut-in voltage. If not within 4.0-5.8 volts, repeat cut-in voltage adjustment.

LUV & P'UP

Manufacturer does not provide testing procedures for these models.

ADJUSTMENT

NOTE: Voltage regulators and charge relays are adjusted in the same manner.

LUV & P'UP

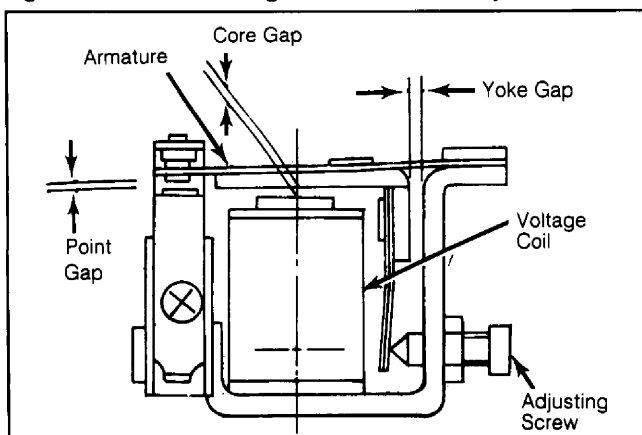
1) Disconnect and remove voltage regulator from vehicle. If contact points are roughened, smooth with fine sandpaper. Check and adjust core gap first, then point gap. Yoke gap adjustment is not necessary.

2) Adjust core gap by loosening screws attaching contact set to yoke. Move contact set upward or downward as required. Adjust point gap by loosening screw attaching upper contact. Move upper contact up or down as required to set gap to specification.

3) After core and point gaps have been adjusted, adjust regulated voltage by means of adjusting screw. Turn screw in to increase regulated voltage or out to decrease voltage.

4) When correct voltage adjustment is obtained, secure with lock nut. When adjustment procedure is complete, reinstall regulator and perform on car check.

Fig. 4: Schematic of Regulator for Isuzu P'Up & LUV



Charge relay is similar.

VOLTAGE REGULATOR SPECIFICATIONS

Application	Specification
Battery Voltage	12 Volts
Regulated Voltage	13.8-13.8 Volts
Voltage Coil Resistance	¹ 10.3 Ohms
Yoke Gap	²
Core Gap024-.039" (.6-1.0 mm)
Point Gap012-.016" (.3-.4 mm)

¹ — I-Mark resistance is 102 ohms.

² — No yoke adjustment is required.

VOLTAGE RELAY SPECIFICATIONS

Application	Specification
Released Voltage	¹ 5 Volts
Voltage Coil Resistance	² 31.9 Ohms
Yoke Gap	³
Core Gap032-.039" (.8-1.0 mm)
Point Gap016-.024" (.4-.6)

¹ — Measured at "A" terminal.

² — I-Mark resistance is 24 ohms.

³ — No yoke adjustment is required.