NIPPONDENSO REGULATORS

Honda
Opel
Toyota

DESCRIPTION

Nippondenso regulators may be either single or double element type. Single element type has a voltage regulator element only while 2 element type has both voltage regulator and a voltage warning relay. Single element type is normally fitted to units with an ammeter, while double element type normally has a charge warning light.

APPLICATION

Model	Part No.
Honda (All Models)	56979-31400-657-673
Opel	94208462
Toyota①	
Celica	27700-38100
Corolla	
KE	27700-24020
TE	27700-26030
Corona	27700-38100
Cressida	27700-38100 or 27700-41050
Supra	27700-41050
Land Cruiser	27700-24020
Pickup	
40 Amp	27700-38120
55 Amp	27700-38110

① — Some Toyota regulators are integrated circuit (IC) type. Part number furnished for information only.

TESTING

VOLTAGE REGULATOR

Opel and Toyota — Connect test meters as shown in illustrations. Vary alternator RPM and check voltmeter reading. Increase alternator RPM and note voltage when ammeter registers ½ of maximum rated output. Voltage should be 13.8-14.8 volts. Increase alternator speed to 3,000 RPM and note voltage again from 13.8-14.8 volts. If voltage is not within specified range, adjust regulator by bending arm to obtain correct setting.

Honda — Connect voltmeter across battery terminals and ammeter between positive terminal and main fuse. (Main fuse wire from battery disconnected.) Ensure that all lights and accessories are OFF and disconnect negative cable from battery with engine idling. Vary engine speed from 2000 to 4000 RPM and note voltage reading between 13.5 and 14.5 volts. If not within specifications, adjust or replace regulator as required. See *ADJUSTMENT.*

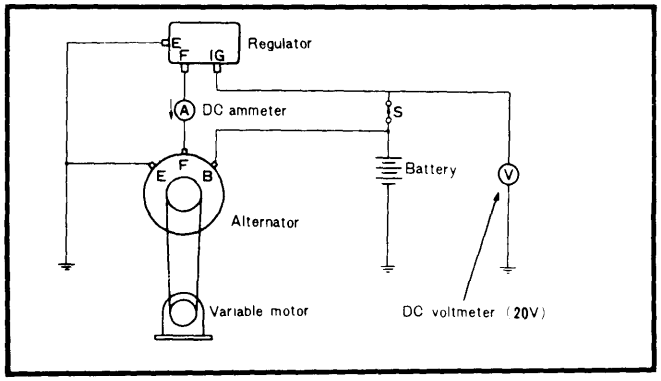

Fig. 1 Test Circuit for Single Element Type

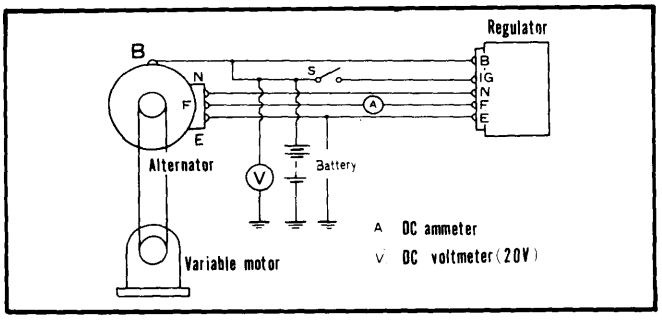

Fig. 2 Test Circuit for Two Element Type

CAUTION — *If engine stops when battery negative cable is removed, DO NOT attempt to restart engine until cable is connected.*

VOLTAGE RELAY

Charge Warning Lamp Type — Connect test meters as shown in *Fig. 3 thru 6.* Increase alternator RPM gradually and note voltage when charge lamp goes out. Cut-in voltage should be 4.0-5.8 volts. If voltage is not as specified, bend voltage relay adjusting arm to obtain correct setting.

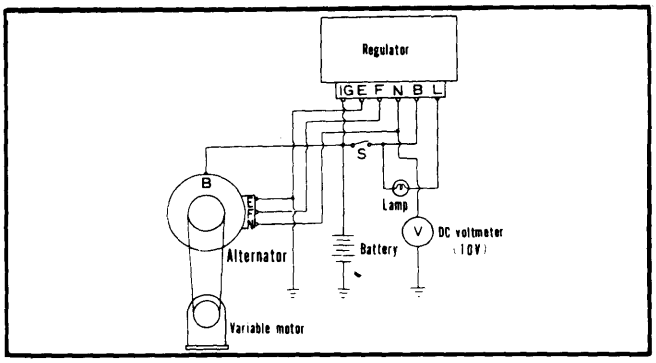

Fig. 3 Test Circuit for Relay-Warning Lamp Type

Ammeter Type — Connect test meters as shown in *Fig. 4 thru 6.* Increase alternator RPM gradually and note voltage. Voltage should be 4.5-5.8 volts. If necessary, adjust voltage by bending adjusting arm.

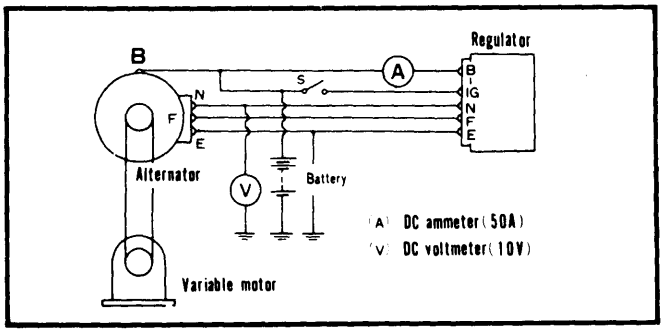

Fig. 4 Test Circuit for Relay-Ammeter Type

NIPPONDENSO REGULATORS (Cont.)

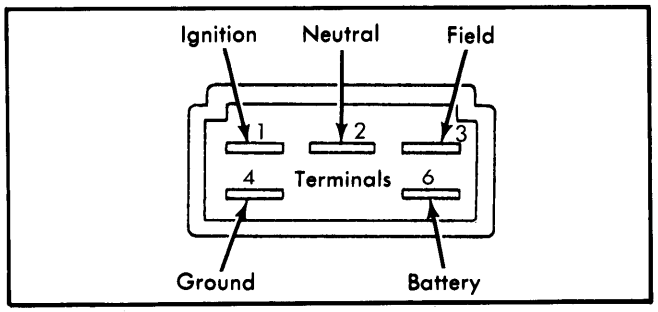

Fig. 5 Terminal Position for Honda Connector P55

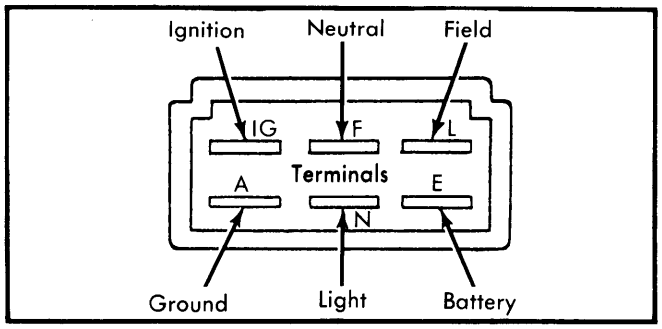

Fig. 6 Toyota 6 Pin Connector Terminal Positions

ADJUSTMENT

NOTE – *Adjustments are not applicable to sealed units. If points are slightly oxidized or pitted, dress contacts with sandpaper (400 grit or finer). If points are oxidized or pitted excessively, replace regulator assembly.*

Voltage Relay – Connect voltmeter between "N" terminal (white wire) and ground then increase engine speed gradually. Voltmeter reading should be 4.0-5.8 volts when indicator light goes out. Adjust cut-in voltage by adjusting armature core gap and point gap using following procedures.

1) If cut-in voltage is too high, adjust by bending core adjusting arm down. Bend arm up if cut-in voltage is too low.

2) If adjustment of core arm does not correct cut-in voltage, proceed with point gap adjustment. Disconnect negative cable from battery. Check armature core gap with armature depressed until moving point is in contact with "B" side point. Armature core gap should be .012" or more. Adjust by bending point arm "B".

3) Release the armature and adjust the gap between the "B" side point and the moving point by bending point arm "A". Point gap should be .016" to .047".

4) After point gap adjustment, recheck cut-in voltage. If not within 4.0-5.8 volts, repeat cut-in voltage adjustment.

Voltage Regulator – If the no load regulated voltage is not within the 13.8-14.8 volt range, adjust regulator as follows:

1) If regulated voltage is too high, adjust by bending armature adjusting arm down. If voltage is too low, bend arm up.

2) If core arm adjustment will not correct regulated voltage, proceed to point gap adjustment.

3) Disconnect battery ground cable. Depress armature arm until the moving point contacts "B" side point. Bend point arm "B" to obtain armature gap of .012" or more.

4) Release armature and adjust gap between "B" side point and moving point by bending point arm "A". Gap should be .012" to .018".

5) After gap adjustment is made, recheck no load regulated voltage under operating test. Repeat core arm adjustment if necessary.

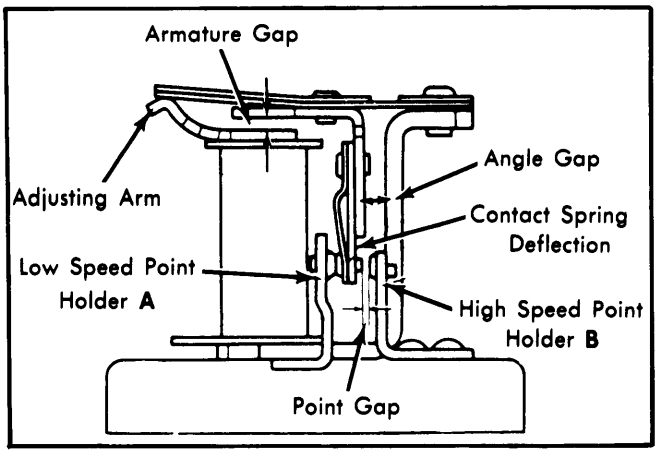

Fig. 7 Adjustments for Voltage Relay

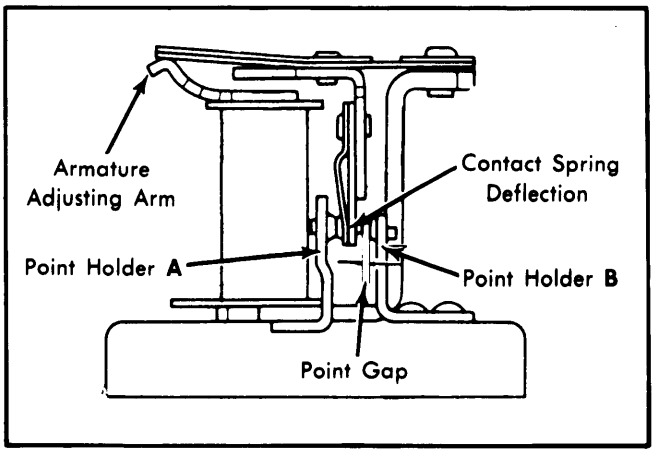

Fig. 8 Adjustments for Voltage Regulator