MARELLI REGULATORS

Fiat
All Models

► CHANGES, CAUTIONS, CORRECTIONS

► *SERVICE PRECAUTIONS* — When replacing regulator, and during bench testing, be careful not to exchange the wire to plug "15" with wire to plug "67" (see illustration). Current passing through contacts would be high enough to melt second stage contacts before fuse in lead "15" would blow.

► *HANDLING* — During installation, removal, and handling, protect regulator from blows which might damage the resistors and upset adjustments.

► *GROUNDING* — During checks on vehicle and on bench, see that regulator is well grounded. If grounding is poor or open, alternator voltage will rise to an abnormally high value, which may damage battery and electrical equipment.

► *CAPACITORS* — NEVER install radio noise suppressor on regulator plug "67" as operation of contacts will be adversely affected.

► *COVER GASKET* — Should gasket require replacement, use only a gasket of same original material. Unsuitable gasket could release harmful volatile substances into regulator which will foul contacts.

► *SUPPLY CIRCUITS* — DO NOT connect electrical accessories directly in circuit between alternator and voltage regulator (i.e., cable between terminal "30" of alternator ignition switch, plug "15" of regulator, or cable between ignition switch and voltage regulator), since alternator voltage would rise and affect life of battery and electrical equipment.

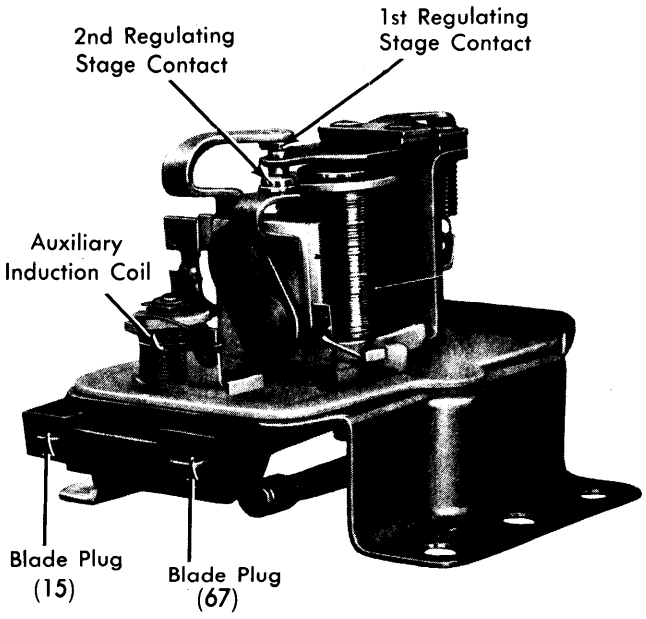

Fig. 1 Marelli Voltage Regulator

DESCRIPTION

Fiat voltage regulators are of the dual stage vibrating contact type. An induction auxiliary coil, considerably smaller than the magnetizing coil, is mounted near contact side of the yoke. In addition to two regulating resistors, an additional resistor works in series with the main voltage coil. The regulator is grounded through the mounting flanges. Resistors are protected from impacts by a metal shield secured to mounting flange.

APPLICATION

Model	Part No.
124	RC2/12B
128	RC 2/12E
131 & X1/9 W/O A.C.	RC 2/12D
131 & X1/9 W/A.C.	RC 2/12E

SPECIFICATIONS

Application	Specification
Alternator Test RPM	
All Models	5000 RPM
1st Stage Testing (Amps)	
RC 2/12E Regulator	40-45
All Others	25-35
2nd Stage Testing (Amps)	
RC 2/12B Regulator	2-12
All Others	10-14
2nd Stage Testing (Volts)	
All Models	14.2±.3
Resistance Values (Ohms)	
Plug "15" & Ground	
RC 2/12B Regulator	27.7±2
All Others	27.2±2
Plug "15" & "67" W/Contacts Open	
RC 2/12E Regulator	3.7±.2
All Others	5.6±.3
Armature Air Gap	
Point "A"	.055-.063"
Point "B"	.014-.022"

TESTING

BENCH TESTING

1) Install alternator and regulator on test bench equipped with gradual speed control. Connect ammeter, voltmeter, and rheostat as shown in illustration. Regulator must be placed vertically, with terminals "15" and "67" at base. Regulator must be checked without removing cover.

2) **CAUTION** — *DO NOT operate regulator with switch "I" open (battery disconnected) since this will damage regulator contacts.* Operate voltage regulator in an ambient temperature of 122±5.4°F for 30 minutes (thermal stabilization). Start with rheostat fully inserted, then adjust current output to one sixth of maximum alternator output. Alternator should be operated slowly at first and then be SLOWLY brought up to 5000 RPM.

3) **NOTE** — *Suitable thermostatic equipment must be available in order to maintain regulator at specified temperature throughout test.* Operate alternator at 5000 RPM. Adjust rheostat for specified current output. See specifications.

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4) Check first stage immediately after second stage, and ensure that the conditions specified in step **2**) are still met. At 5000 RPM, adjust rheostat until specifications are met for 1st Stage Testing. Regulated voltage should be .2-.7 volts (model 124) or 0-.5 volts (all other models) less than the voltage recorded for the second stage. **NOTE** – *When testing the first and second stages, check that regulated voltage is stable, without any sudden surges or drops.*

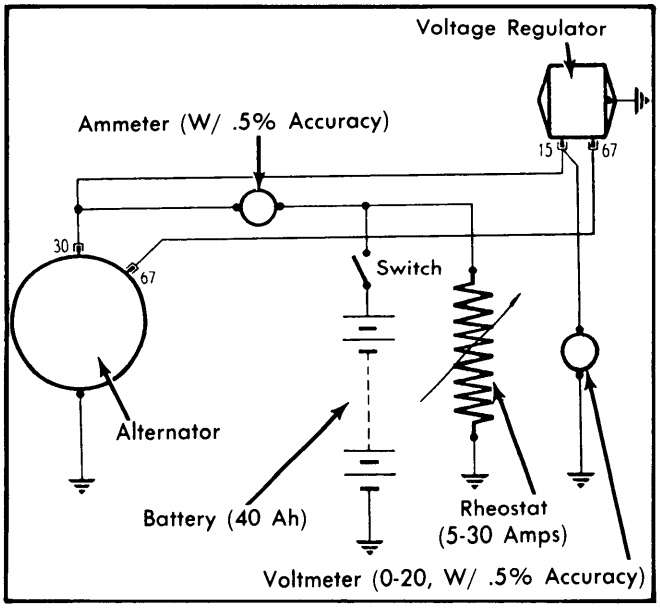

Fig. 2 Circuit for Conducting Bench Test

ADJUSTMENT

VOLTAGE REGULATOR

1) Disconnect positive battery cable then remove dust cover on voltage regulator. Inspect contact points for pitting and burn marks, then clean minor pitting and burn marks. **NOTE** – *Extreme damage to points requires regulator replacement.* Use a feeler gauge to check measurements at point "A" and "B" as shown in *Fig. 3*.

2) If clearances are not within specifications, remove the regulator from vehicle. Loosen nut and adjust gaps by moving the slotted arms indicated in *Fig. 3*. until clearances are within specifications. Tighten nut and recheck clearances.

3) Install regulator in vehicle and connect battery cable. Run engine until normal operating temperature is reached, then connect a voltmeter positive lead to positive battery post and negative lead to a good ground. Voltmeter should read 13.9-14.5 volts at 2500 RPM with all electrical components off. If reading is not within specifications carefully apply slight pressure to lower spring bracket to adjust. Bending bracket down increases reading while bending bracket up decreases reading. **NOTE** – *Bend bracket a very small amount as a slight change will adjust voltage.* Disconnect voltmeter and install dust cover.

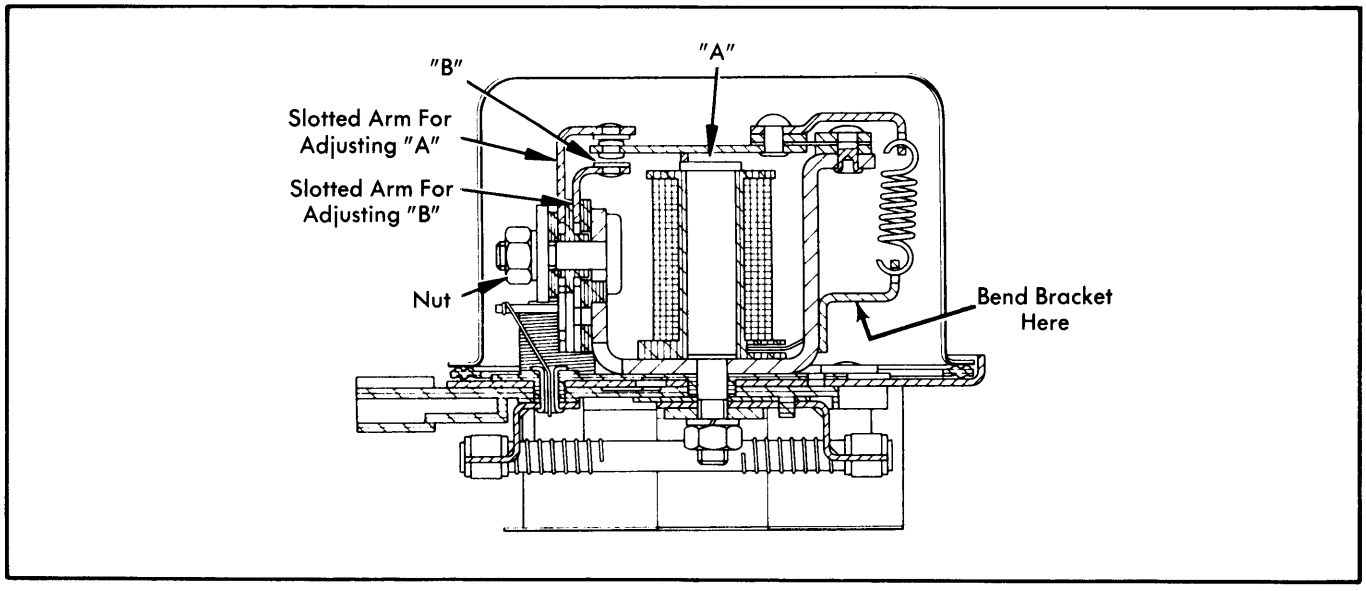

Fig. 3 Adjusting the Voltage Regulator