

ALTERNATOR AND STARTER TEST BENCH

INSTRUCTION MANUAL

DELCO REMY MODELS

10457728, 10457729 & 10457771

INSTRUCTION MANUAL

DELCO REMY MODEL : 10457728, 10457729 & 10457771

WIRING INSTRUCTIONS

READ INSTRUCTIONS CAREFULLY BEFORE WIRING

**WARNING: TESTER MUST BE WIRED BY A LICENSED ELECTRICIAN
ACCORDING TO LOCAL CODES.**

**WARNING: IMPROPER ELECTRICAL CONNECTIONS MAY VOID
WARRANTY.**

5 HP 220V 1 PHASE- 40 AMPS

5 HP 220V 3 PHASE- 30 AMPS

5 HP 460V 3 PHASE- 15 AMPS

**NOTE: LOCAL ELECTRICAL CODE REQUIRES A SAFETY DISCONNECT
SWITCH LOCATED NEAR TESTER.**

ELECTRICAL CONNECTIONS:

- A. 1 -PHASE, LINE 1 (WHITE WIRE), LINE 2 (BLACK WIRE), GROUND (GREEN WIRE)
- B. 3 PHASE, LINE 1 (RED WIRE), LINE 2 (BLACK WIRE), LINE 3 (WHITE WIRE), LINE 4 (GREEN WIRE) IS GROUND.

**WARNING: ON THREE PHASE CONNECTION THE "RED" WIRE MUST BE
CONNECTED TO THE HIGH LEG OF THE POWER CIRCUIT,
OTHERWISE DAMAGE WILL OCCUR TO THE METERS.**

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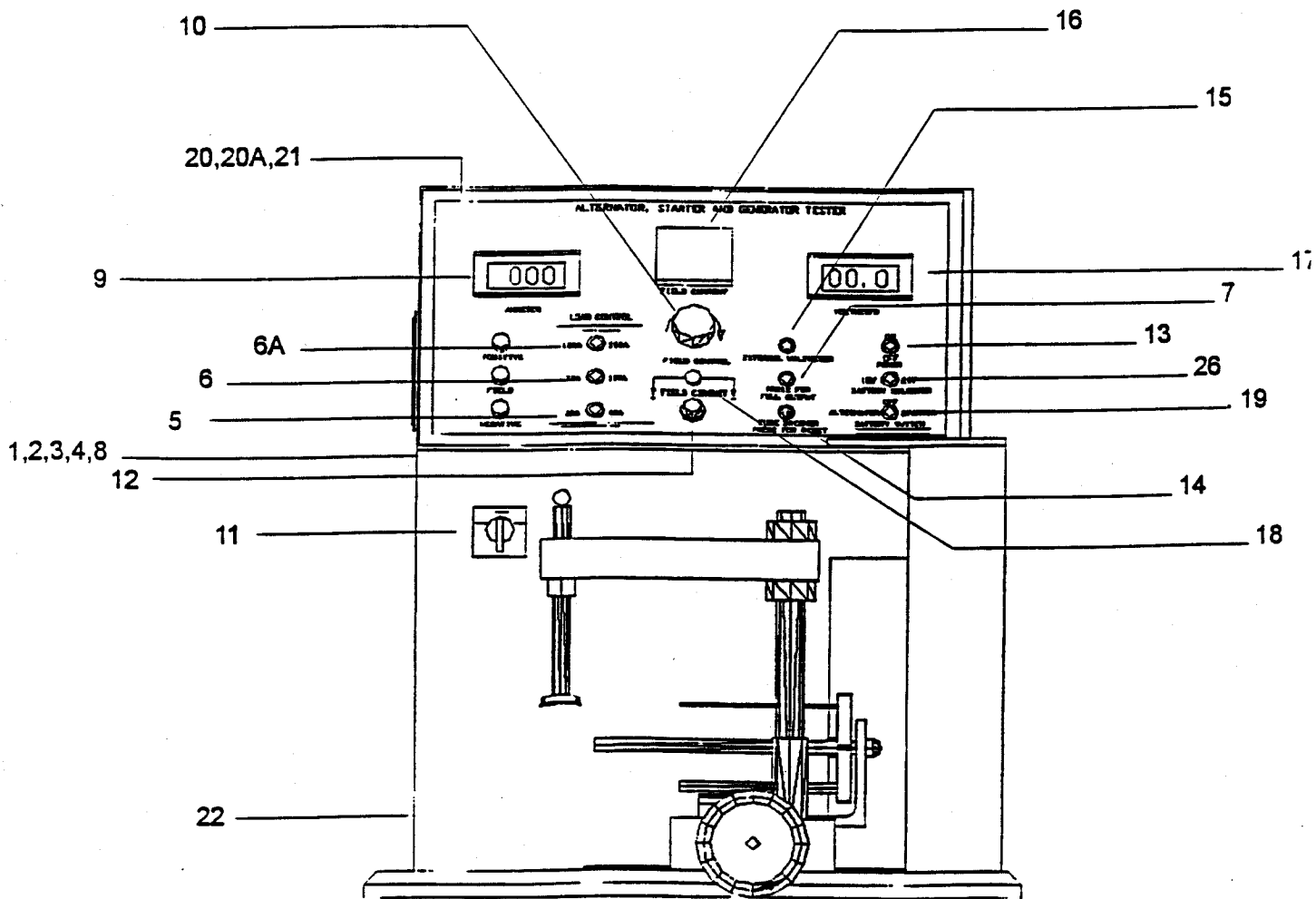


FIGURE 1

BOARD COMPONENTS

*****PLEASE REFER TO FIGURE 1, ABOVE*****

<u>NO.</u>	<u>DESCRIPTION</u>
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- | | |
|---|--|
| 1 | POSITIVE LEAD (RED): TO ALTERNATOR BATTERY CONNECTION. |
| 2 | FIELD LEAD (GREEN): TO ALTERNATOR FIELD TERMINAL. |
| 3 | NEGATIVE LEAD (BLACK): TO ALTERNATOR NEGATIVE CONNECTION |

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NO. DESCRIPTION

- 4 STATOR LEAD (BLUE): TO ALTERNATOR STATOR CONNECTION.
 - 5 LOAD CONTROL SWITCH: 20 AMP LOAD AND 40 AMP LOAD.
 - 6 LOAD CONTROL SWITCH: 70 AMP LOAD AND 100 AMP LOAD.
 - 6A. LOAD CONTROL SWITCH: 130 AMP LOAD AND 160 AMP LOAD
- NOTE: DO NOT USE LOAD FOR MORE THAN FIVE (5) SECONDS AT A TIME.**
- 7 FULL FIELD SWITCH.
 - 8 INDICATOR LIGHT (FOR ALTERNATORS WITH INTERNAL REGULATOR):
LEAD AND INTEGRAL PLUG CONNECTOR.
 9. AMMETER: TO MEASURE ALTERNATOR OUTPUT AND STARTER DRAW.
 - 10 VARIABLE FIELD CONTROL.
 - 11 MOTOR SWITCH: FORWARD-OFF-REVERSE.
 - 12 DTL LAMP: IDIOT LAMP.
 - 13 VOLT AND AMMETER POWER SWITCH.
 - 14 CIRCUIT BREAKER: PRESS TO RESET.
 - 15 EXTERNAL VOLTMETER SWITCH: PRESS TO READ STATOR VOLTAGE IN
VOLTMETER.
 - 16 AMMETER: TO MEASURE FIELD CURRENT.
 - 17 VOLTMETER
 - 18 FIELD SELECTOR SWITCH: TO SELECT EITHER "A" OR "B" CIRCUITS. "B" CIRCUIT
IS POSITIVE, "A" CIRCUIT IS NEGATIVE.
 - 19 BATTERY SWITCH. POSITION SWITCH TO LEFT FOR ALTERNATOR, CENTER
FOR OFF, RIGHT FOR STARTER.
- 20, 20A BATTERY LEADS FROM BACK OF THE TESTER: RED LEAD TO BATTERY
&21 POSITIVE POST, BLACK LEAD TO BATTERY NEGATIVE POST.
- 22 AC LEAD CONNECTOR: TO SAFETY DISCONNECT SWITCH.
 - 26 12-24 VOLT SELECTOR

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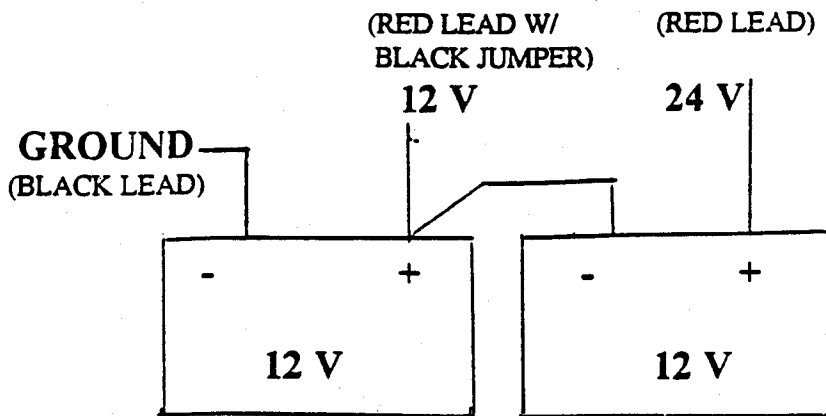
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BATTERY INSTALLATION & MAINTENANCE

STEP 1 CHECK THAT SWITCH NUMBER 19 IS IN THE "OFF" POSITION.

STEP 2 CONNECT THE TWO 12 VOLT BATTERIES.

NOTE: THE MOST IMPORTANT MAINTENANCE TASK IS THE PROPER CARE OF THE BATTERIES. CHECK THE ELECTROLYTE LEVEL OF EACH BATTERY, FILL WITH DISTILLED WATER IF LEVEL IS LOW AND WIPE THE TOPS AT THE SAME TIME. INCREASE MAINTENANCE TO A DAILY BASIS IF THE TESTER IS USED CONTINUOUS 8-HOUR PRODUCTION. PROPER MAINTENANCE OF THE BATTERIES IS THE SINGLE MOST IMPORTANT FACTOR IN CONSISTENT AND ACCURATE ALTERNATOR TESTING.



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ALTERNATOR MOUNTING INSTRUCTIONS (DELCO REMY ALTERNATORS).

NOTE: Ensure hand wheel is properly installed on vise shaft and tightened with allenwrench.

1-Install a three inch (or smaller) V-belt pulley on the alternator and torque to 70 lb.-ft. The fan must be on the shaft before the pulley is installed.

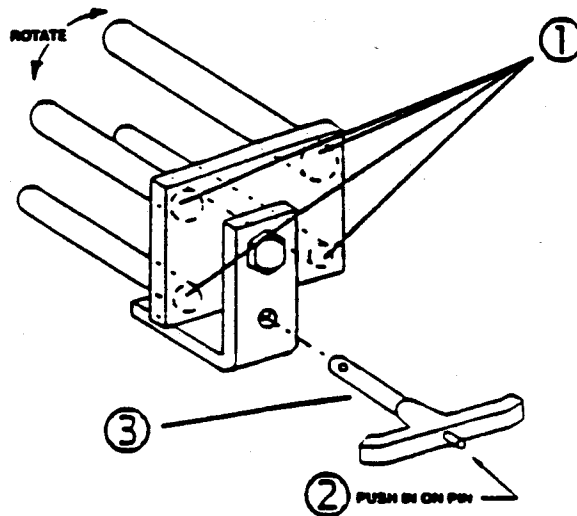
2-Adjust pin spindle for proper size by pushing in on the small pin located on the T-handle and removing the T-handle. Rotate spindle so that the proper size mounting pin is closest to the drive pulley. Replace the T-handle by depressing the small T-handle pin and inserting the T-handle to lock the spindle into position. (See illustration below).

3- Mount the alternator on the proper spindle (one half inch for heavy duty units) by sliding the mounting lugs on with the drive end first. Clamp the alternator to the vise and secure using the top hold down screw clamp.

4-Install the v-belt over the large (4 in.) pulley on the tester and loosely over the alternator pulley. Rotate the hand wheel counter clockwise to move the alternator closer to the tester pulley as necessary.

5-Align the alternator pulley with the motor pulley by loosening the wing nuts holding the vise to the base. sliding the vise left or right as needed to align the pulleys and then tighten the wing nuts.

6-Rotate the hand wheel clockwise to tighten the drive belt. The belt must be tight enough to transfer five horsepower from the motor to the alternator.



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ALTERNATOR MOUNTING INSTRUCTIONS

STEP 1 FOR THE FIRST USE OF THE TESTER: REMOVE THE HAND-WHEEL FROM THE ½" PIN WITH ALLEN WRENCH AND MOUNT IT ON THE VISE SHAFT. TIGHTEN IT WITH THE ALLEN WRENCH.

STEP 2a FOR ALTERNATORS WITH MOUNTING EARS:

MOUNT THE ALTERNATOR ON THE VISE USING THE APPROPRIATE PIN. THERE ARE FOUR PINS (5/16", 3/8", 7/16", AND ½") (D TO ACCOMMODATE ALTERNATORS OF DIFFERENT SIZES - FROM FOREIGN-MADE UNITS TO HEAVY-DUTY DOMESTIC UNITS.

TO ADJUST PIN SPINDLE FOR PROPER PIN SIZE, PUSH IN ON THE SMALL PIN (D LOCATED ON THE BACK OF THE T-HANDLE. PULL OUT T-HANDLE FROM SPINDLE, THEN ROTATE SPINDLE SO THAT PROPER PIN IS IN POSITION FOR MOUNTING ALTERNATOR. RELOCATE T-HANDLE BACK IN LOCKING POSITION BY AGAIN PUSHING IN ON SMALL PIN ON BACK OF T-HANDLE, (THEN SLIDE T-HANDLE BACK INTO HOLE IN SPINDLE). CLAMP THE ALTERNATOR TO THE VISE AND SECURE USING THE TOP HOLD DOWN SCREW CLAMP.

STEP 2b FOR ALTERNATORS THAT DO NOT HAVE MOUNTING EARS, MOUNT IT DIRECTLY ON THE "V" BLOCK AND SECURE PROPERLY WITH THE TOP HOLD DOWN SCREW CLAMP.

STEP 3 PLACE THE BELT IN THE APPROPRIATE PULLEY AND TIGHTEN IT WITH THE HANDWHEEL.

NOTE: THE SIZE OF THE PULLEY DETERMINES THE RPM. FOR ALTERNATORS WITH SMALL DIAMETER PULLEY, USE THE SMALL MOTOR PULLEY. FOR LARGER DIAMETER PULLEYS (3.5 AND LARGER), USE THE LARGE DIAMETER MOTOR PULLEY.

STEP 4 ALIGN THE ALTERNATOR PULLEY WITH THE MOTOR PULLEY: UNFASTEN THE WING NUTS HOLDING THE VISE TO THE BASE, SLIDE VISE TO ONE SIDE OR THE OTHER TO FIND PROPER ALIGNMENT, SECURE VISE TO BASE BY TIGHTENING THE WING NUTS SECURELY.

WARNING: NEVER RELEASE ALTERNATOR WHILE TESTER IS OPERATING.

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ALTERNATOR TESTING (DELCO REMY MODELS)

1-Turn tester on: Turn POWER switch "13" to on, 12V-24V BATTERY SELECTOR switch "26" to desired voltage, and BATTERY switch "19" to ALTERNATOR position.

WARNING: IF A BIG SPARK IS OBSERVED DURING THE CONNECTION PROCESS, THE ALTERNATOR MAY BE SHORTED OR THE LARGE LEADS MAY BE REVERSED. DISCONNECT LEADS IMMEDIATELY AND DO NOT CONTINUE THE CONNECTING PROCESS OR TESTER MAY BE DAMAGED.

1-Connect the large red (positive) lead to the output (BAT) terminal of the alternator and the large black (negative) lead to the alternator case or ground terminal in insulated units.

2-Connect the small blue lead to the output (BAT) terminal of the alternator and the small black lead (next to blue lead with bare alligator clip) to alternator ground or negative.

3-Connect integral plug connector (black and red 14 ga.) if three wire circuit.

WARNING: DO NOT DISCONNECT BATTERY SWITCH "19" DURING TEST. THIS COULD CAUSE ALTERNATOR damaged DUE TO "LOAD DUMP".

4-Close shield protector. Turn motor on at desired rotation by turning motor switch "11" to either forward or reverse. The ammeter should show some current charging the battery. The voltmeter should show the voltage regulator setting (13.7 to 14.5 volts), if voltage is higher than 15 volts, the alternator is defective.

5-Press load switches "5", "6", or "6A" to desired amperage load and observe readings in the following meters:

A. Ammeter "9" show alternator output current and should be within 15 amps of the rated output of the alternator.

B. Voltmeter "17" shows the operating voltage at the battery. To observe the alternator voltage, depress VOLTMETER switch "15" to the EXTERNAL VOLTMETER position and observe voltmeter reading.

6-Turn off the motor, then the tester, loosen the belt, disconnect , all leads and remove the alternator.

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ALTERNATOR TESTING INSTRUCTIONS FOR INTEGRAL-TYPE ALTERNATORS THOSE WITH AN INTERNALLY CONNECTED (IC) REGULATOR ONLY.

NOTE: ALTERNATORS WITH IC REGULATORS HAVE A DIODE TRIO TO PROVIDE FIELD EXCITATION. FIELD AMMETER "16", VARIABLE FIELD CONTROL "10", AND FULL FIELD "7" SHOULD BE IGNORED WHEN USING IC REGULATED ALTERNATORS.
OPERATING INSTRUCTIONS -

AFTER CONNECTING TO POWER TURN CIRCUIT BREAKER "ON", SWITCH "34".

STEP 1) TURN TESTER ON: TURN POWER SWITCH "19" AND "13" TO THE "ALTERNATOR" POSITION. SELECT DESIRED VOLTAGE FROM SWITCH "26" (12V OR 24V).

WARNING: DO NOT DISCONNECT BATTERY SWITCH "19" DURING TEST. THIS WILL SIMULATE A LOAD DUMP AND POTENTIALLY DAMAGE THE ALTERNATOR.

STEP 2) SELECT PROPER "A" OR "B" FIELD CIRCUIT ON FIELD SELECTOR "I 8".

- A. "B" IS FOR POSITIVE FIELD UNITS. THOSE WHOSE REGULATOR IS CONNECTED BETWEEN OUTPUT (+) AND FIELD.
- B. "A" IS FOR NEGATIVE FIELD UNITS, THOSE WHOSE REGULATOR IS CONNECTED BETWEEN FIELD AND GROUND.

NOTE: SEE DETAILED EXPLANATION OF "A" AND "B" CIRCUITS.

STEP 3) ALTERNATOR CONNECTION:

- A. CONNECT (6 GA.) BLACK LEAD TO GROUND.
- B. CONNECT (6 GA.) RED LEAD TO ALTERNATOR OUTPUT OR BATTERY TERMINAL.
- C. CONNECT INTEGRAL PLUG CONNECTOR, (14 GA.) BLACK AND RED TO ITS LOCATION ON ALTERNATOR (WHERE APPLICABLE).

NOTE: WHEN INTEGRAL PLUG IS CONNECTED THE CHARGE INDICATOR LIGHT "I 2" WILL BE "ON" WHILE THE MOTOR IS NOT RUNNING. IF THE DTL PLUG IS CONNECTED; WITH THE MOTOR RUNNING, THE LIGHT SHOULD BE "OFF" TO INDICATE THE IC REGULATOR IS IN FACT PERFORMING ITS FUNCTION.

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TO CHECK CONDITION OF INDICATOR LIGHT "12" WITH POWER SWITCH "19" ON, TOUCH THE NEGATIVE GROUND LEAD (6 GA. BLACK COMING FROM THE LEFT SIDE OF THE TESTER) TO THE INTEGRAL PLUG (14 GA.) BLACK LEAD: THE INDICATOR LAMP SHOULD LIGHT, IF NOT, REPLACE THE BULB.

- D. CONNECT (14 GA.) BLUE LEAD TO ALTERNATOR OUTPUT OR BATTERY TERMINAL.

WARNING: IF DURING THE CONNECTION PROCESS A BIG SPARK IS OBSERVED, THE ALTERNATOR MAY BE SHORTED OUT. DO NOT CONTINUE THE CONNECTING PROCESS OR TESTER WILL BE DAMAGED.

- STEP 4) CLOSE SHIELD PROTECTOR, PRESS RUN ON MOTOR STARTER, SWITCH "25". TURN MOTOR "ON" AT DESIRED ROTATION BY TURNING MOTOR SWITCH "11" TO EITHER FORWARD OR REVERSE.

- STEP 5) PRESS LOAD SWITCH "5", "6", OR "6A" TO DESIRED AMPERAGE LOAD AND OBSERVE READINGS IN THE FOLLOWING METERS:

- A. AMMETER, "9", SHOWS ALTERNATOR OUTPUT.
B. VOLTMETER, "17", SHOWS OPERATING VOLTAGE.

NOTE: WHEN DEPRESSING SWITCH "15" WHILE UNIT IS BEING TESTED UNDERLOAD, VOLTMETER "17" WILL SHOW OUTPUT VOLTAGE OF REGULATOR.

WARNING: KEEPING THE FULL OUTPUT FOR MORE THAN FIVE TO TEN SECONDS WILL OVERHEAT ALTERNATOR AND IS NOT RECOMMENDED.

CAUTION: IF MOTOR STALLS DURING START-UP, STOP TEST AND CHECK FOR DEFECTIVE REGULATOR.

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ALTERNATOR TESTING INSTRUCTIONS FOR NON-INTEGRAL TYPE ALTERNATORS

STEP 1) TURN TESTER ON: TURN POWER SWITCH "19" AND "13" TO THE "ON" POSITION.

WARNING: DO NOT DISCONNECT BATTERY SWITCH "19" DURING TEST. THIS WILL SIMULATE A LOAD DUMP AND POTENTIALLY DAMAGE THE ALTERNATOR.

STEP 2) SELECT PROPER "A" OR "B" FIELD CIRCUIT ON FIELD SELECTOR "18".

- A. "B" IS FOR POSITIVE FIELD UNITS, THOSE WHOSE REGULATOR IS CONNECTED BETWEEN OUTPUT (+) AND FIELD.
- B. "A" IS FOR NEGATIVE FIELD UNITS. THOSE WHOSE REGULATOR IS CONNECTED BETWEEN FIELD AND GROUND.

NOTE: SEE PAGE FOR DETAILED EXPLANATIONS OF "A" AND "B" CIRCUITS.

STEP 3) ALTERNATOR CONNECTIONS:

- A. CONNECT (6 GA.) BLACK LEAD TO THE NEGATIVE TERMINAL OR GROUND.
- B. CONNECT (6 GA.) RED LEAD TO THE POSITIVE OUTPUT OR BATTERY TERMINAL.

NOTE: FOR UNITS THAT ARE POSITIVE GROUND, REVERSE RED AND BLACK LEADS.

- C. CONNECT (12 GA. GREEN) FIELD LEAD TO FIELD TERMINAL.
- D. CONNECT (14 GA. BLUE) STATOR LEAD TO STATOR TERMINAL: "S" ON FORD ALTERNATORS, OR "R" ON EARLY DELCO ALTERNATORS.

STEP 4) TURN MOTOR "ON" AT DESIRED ROTATION BY TURNING MOTOR SWITCH "11" TO EITHER FORWARD OR REVERSE.

STEP 5) APPLYING LOADS TO ALTERNATOR:

WITH MOTOR RUNNING, SLOWLY TURN THE FIELD CONTROL RHEOSTAT "10" TO MAXIMUM AND OBSERVE READINGS IN ALL THREE METERS "9", "16", AND "17",

- A. AMMETER, "9", SHOWS ALTERNATOR OUTPUT.
- B. VOLTMETER, "17", SHOWS OPERATING VOLTAGE.

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- C. FIELD AMMETER, "16", SHOWS ROTOR AMPERAGE DRAW.
- D. EXTERNAL VOLTMETER READING, "6", SHOWS STATOR OUTPUT AND CAN ALSO BE USED AS AN AUXILIARY VOLTMETER WHEN SWITCH NUMBER "15" IS DEPRESSED

STEP 6) FULL OUTPUT:

TO DETERMINE FULL OUTPUT OF ALTERNATOR, DEPRESS SWITCH "7" FOR FULL OUTPUT AND OBSERVE THE SAME READINGS AS OUTLINED IN STEP "5" ABOVE.

WARNING: KEEPING THE FULL OUTPUT FOR MORE THAN FIVE TO TEN SECONDS WILL OVERHEAT ALTERNATOR AND IS NOT RECOMMENDED.

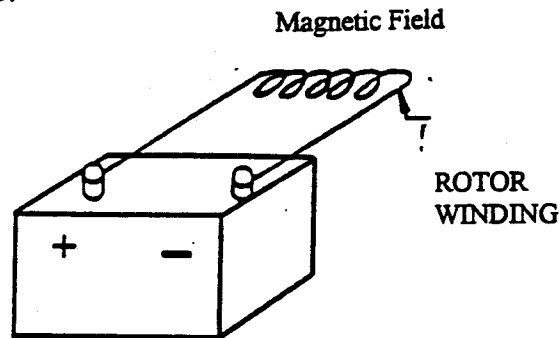
CAUTION: IF MOTOR STALLS DURING START-UP, STOP TEST AND CHECK FOR DEFECTIVE REGULATOR.

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EXPLANATIONS OF "A" AND "B" CIRCUIT ALTERNATORS

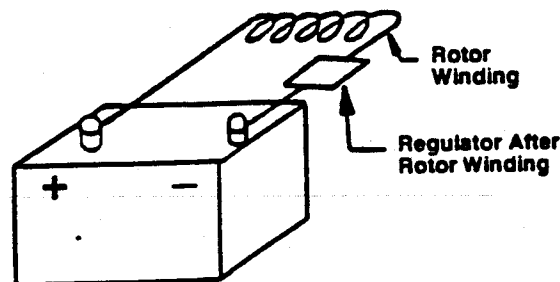
THE ROTOR IN AN ALTERNATOR SERVES AS AN ELECTROMAGNET TO INDUCE VOLTAGE AND AMPERAGE IN THE STATOR. IT IS BASICALLY CONSTRUCTED OF TWO IRON POLE PIECES, A SHAFT, ONE CONTINUOUS COIL OF WIRE AND TWO SLIP RINGS FOR THE BRUSHES TO RIDE ON. BEING ONE CONTINUOUS COIL OF WIRE, ANYTIME A CIRCUIT IS CREATED (ONE END OF WIRE TOUCHED TO POSITIVE AND THE OTHER END TO NEGATIVE), A MAGNETIC FIELD IS PRODUCED.



THE REGULATOR SERVES AS A MEANS OF CONNECTING OR DISCONNECTING THE ONE CONTINUOUS COIL OF WIRE FROM A POWER SOURCE, THEREFORE, WEAKENING OR STRENGTHENING THE MAGNETIC FIELD IN THE ROTOR, AN ALTERNATOR DESIGNER HAS THE OPTION OF MAKING THE VOLTAGE REGULATOR CONNECTION ON THE POSITIVE SIDE ("B" CIRCUIT) OR ON THE NEGATIVE SIDE ("A" CIRCUIT). KNOWING WHICH CIRCUIT THE ALTERNATOR IS DESIGNED TO USE IS VERY IMPORTANT WHEN TESTING EXTERNALLY REGULATED ALTERNATORS.

AN EASY WAY TO REMEMBER "A" AND "B" CIRCUITS IS TO THINK OF "A" AS STANDING FOR "AFTER" AND "B" AS STANDING FOR "BEFORE".

EXAMPLE OF "A" (AFTER) CIRCUIT-

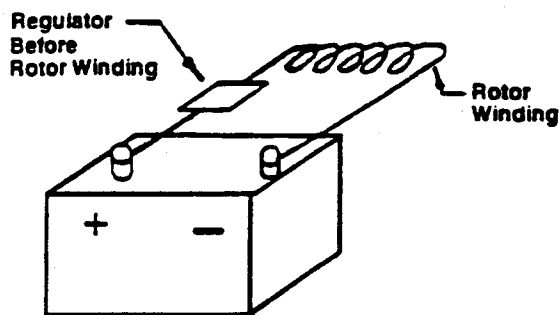


AS YOU CAN SEE IN THE DIAGRAM THE ONE END OF THE ROTOR WINDING IS CONNECTED TO THE POSITIVE BATTERY TERMINAL AND MAKES A CIRCUIT OR A PATH TO GROUND THROUGH THE REGULATOR "AFTER" THE ROTOR COIL.

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EXAMPLE OF "B" (BEFORE) CIRCUIT:



IN THIS EXAMPLE YOU CAN SEE THAT ONE END OF THE ROTOR WINDING IS CONNECTED TO THE NEGATIVE BATTERY TERMINAL, AND THE REGULATOR COMPLETES OR BREAKS THE CONNECTION TO POSITIVE "BEFORE" THE ROTOR COIL.

GENERALLY YOU WILL FIND TWO VERSIONS OF EXTERNALLY REGULATED ALTERNATORS. THE ONE VERSION HAS TWO FIELD TERMINALS AND THE OTHER ONLY HAS ONE.

TWO FIELD TERMINAL ALTERNATORS:

ALTERNATORS WITH TWO FIELD TERMINALS ACCESS TO BOTH ENDS OF THE ROTOR WINDING. IT IS NEITHER AN "A" OR "B" CIRCUIT UNTIL ONE TERMINAL IS EITHER CONNECTED TO NEGATIVE OR POSITIVE BY MEANS OF A JUMPER OR STRAP, ETC. IF ONE OF THE FIELD TERMINALS IS CONNECTED TO NEGATIVE; PLACE THE TEST LEAD ON THE OTHER FIELD TERMINAL AND SET ON "B" CIRCUIT. IF ONE OF THE FIELD TERMINALS IS CONNECTED TO POSITIVE; PLACE THE TEST LEAD ON THE OTHER FIELD TERMINAL AND SET ON "A" CIRCUIT. IF NEITHER TERMINAL HAS ANY JUMPERS INSTALLED CONNECT ONE TERMINAL TO NEGATIVE (GROUND) AND PLACE THE TEST LEAD ON THE OTHER TERMINAL AND SET ON "B" CIRCUIT.

ONE FIELD TERMINAL ALTERNATOR:

HAVING ONLY ONE FIELD TERMINAL ASSUMES THAT THE ALTERNATOR MANUFACTURER HAS CONNECTED ONE END OF THE CONTINUOUS COIL OF WIRE IN THE ROTOR TO EITHER POSITIVE OR NEGATIVE INSIDE THE ALTERNATOR. GO AHEAD AND TOUCH ONE LEAD OF AN OHMMETER TO THE FIELD TERMINAL, AND THE OTHER LEAD OF OHMMETER TO THE ALTERNATOR NEGATIVE TERMINAL. IF YOU HAVE A CIRCUIT (LOW RESISTANCE) YOU CAN ASSUME THAT THE ALTERNATOR IS A "B" CIRCUIT. IF YOU PERFORM THE OHMMETER TEST AND FIND THAT THERE IS NO CIRCUIT (HIGH RESISTANCE) YOU CAN ASSUME YOU HAVE AN "A" CIRCUIT.

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GENERATORS:

"A" AND "B" CIRCUIT GENERATORS RELATES TO WHETHER THE FIELD COILS ARE INTERNALLY OR EXTERNALLY GROUNDED.

AN INTERNALLY GROUNDED FIELD IS A "B" CIRCUIT, AND AN EXTERNALLY GROUNDED FIELD IS AN "A" CIRCUIT

AN INTERNALLY GROUNDED FIELD, OR "B" CIRCUIT, HAS ONE END OF THE FIELD COIL CONNECTED TO A GROUND BRUSH (SEE FIGURE 1).

AN EXTERNALLY GROUNDED FIELD, OR "A" CIRCUIT, HAS ONE END OF THE FIELD COIL CONNECTED TO AN INSULATED BRUSH (SEE FIGURE 2).

**"B" CIRCUIT
GENERATOR**

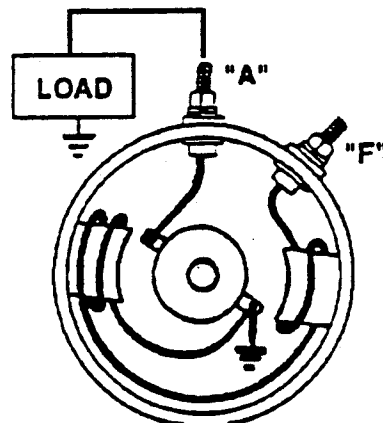


FIGURE 2

**"A" CIRCUIT
GENERATOR**

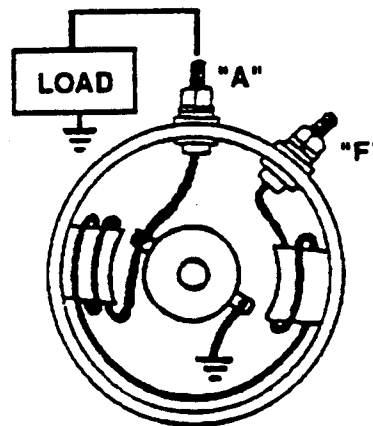


FIGURE 3

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GENERATOR TESTING INSTRUCTIONS

THE TESTER HAS BEEN DESIGNED TO TEST ALTERNATORS AND GENERATORS. FOLLOWING ARE THE GENERATOR TESTING PROCEDURES.

STEP 1 MOUNT GENERATOR ON VISE, CLAMP TO THE VISE USING THE TOP SCREW-CLAMP AND ALIGN WITH MOTOR PULLEY.

STEP 2 TURN TESTER OFF: TURN POWER SWITCH "19" TO THE "OFF" POSITION.

NOTE: SEE DETAILED EXPLANATION OF "A" AND "B" CIRCUITS.

STEP 3 FIELD SELECTOR "18" MUST BE IN THE PROPER POSITION, "A" OR "B".

STEP 4 GENERATOR CONNECTION:

A. CONNECT BLACK LEAD (6 GA.) TO THE NEGATIVE TERMINAL OR GROUND.

B. CONNECT RED LEAD (6 GA.) TO THE POSITIVE OUTPUT OR BATTERY TERMINAL.

NOTE: FOR POSITIVE GROUND OPERATION REVERSE THE CONNECTION MENTIONED ABOVE.

C. CONNECT FIELD LEAD(12GA.GREEN)TO FIELD TERMINAL.

STEP 5 TURN ON SWITCH "7", FULL OUTPUT SWITCH.

STEP 6 TURN SWITCH "19" ON TO FIND OUT WHICH WAY THE GENERATOR ROTATES. ONCE THE DIRECTION OF ROTATION IS DETERMINED, TURN SWITCH "19" OFF AND TIGHTEN BELT.

STEP 7 TURN MOTOR "ON" (SWITCH "11") IN THE SAME DIRECTION AS THE GENERATOR WAS TURNING. WHEN THE GENERATOR IS RUNNING, TURN SWITCH "19" ON.

STEP 8 TEST THE GENERATOR USING THE SAME STEPS OUTLINED FOR THE TESTING OF A NON-INTEGRAL ALTERNATOR (STEP 5, PAGE OF THESE INSTRUCTIONS).

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STARTER WITH SOLENOID SWITCH "FREE-SPEED TEST"

CAUTION: Do not wear ties, gloves, or loose fitting clothing while performing these test procedures. Motor armature acceleration can result in speeds of nearly 10000 RPM in a few seconds.

- 1- Place starter in vise with "S" terminal accessible. Lock starter in vise using the top hold down.
- 2- Connect positive clamp (red) to battery post on the solenoid-switch.
- 3- Connect negative clamp (black) to ground terminal on CE frame (insulated motor) or motor case (internally grounded Motor).
- 4- Connect the jumper lead on the positive clamp (red) to the solenoid-switch "S" terminal.
- 5- Turn Tester on and use starter select switch (19) to power starter. Record stabilized (5 seconds) amperes, volts, and RPM if possible and compare to specifications.
- 6- Disconnect lead at solenoid-switch "S" terminal. Motor should stop running. If motor continues to spin, the solenoid-switch is defective and should be noted on core or warranty tag.

12 VOLT MOTOR "FREE SPEED" TEST SPECIFICATIONS

<u>MODEL</u>	<u>VOLTS</u>	<u>MIN. AMPS</u>	<u>MAX. AMPS</u>	<u>MIN. RPM</u>	<u>MAX. RPM</u>
28MT	10	125	190	3000	5600
37MT	10	120	160	6000	8700
42MT	10	115	170	6600	9000
50MT	11	190	280	4600	7400

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FREE RUNNING STARTER TEST INSTRUCTIONS

- STEP 1 LOCK STARTER IN HOLDING VISE USING THE TOP HOLD DOWN SCREW CLAMP
- STEP 2 SELECT VOLTAGE 12V OR 24V.
- STEP 3 CONNECT POSITIVE CLAMP (RED) TO STARTER POST ON STARTER. CONNECT NEGATIVE CLAMP (BLACK) TO STARTER GROUND OR NEGATIVE TERMINAL.

STARTERS WITH SOLENOID.

- A. CONNECT POSITIVE CLAMP (RED) TO BATTERY POST ON SOLENOID.
 - B. CONNECT A JUMPER LEAD FROM BATTERY CLAMP TO SOLENOID SWITCH POST.
- STEP 4 USE STARTER SELECT SWITCH TO OPERATE SOLENOID.
 - STEP 5 READ FREE RUNNING DRAW ON AMMETER #9.

REFER TO MANUFACTURER SPEC.'S FOR PROPER DRAW.

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ALTERNATOR TERMINAL DESIGNATIONS

UNITED STATES AND EUROPEAN DESIGNATIONS

TERMINAL DESIGNATION

- 15 SWITCH (+) OUTPUT FROM BATTERY IGNITION SWITCH OUTPUT
- 15a OUTPUT AT BALLAST RESISTOR TO IGNITION COIL
- 16 USE 15 AND 15a
- 30 INPUT DIRECTLY FROM BATTERY
- 31 RETURN DIRECT TO BATTERY (-) OR GROUND
- 50 STARTING MOTOR CONTROL (DIR)
- 61 CHARGE INDICATOR (IND. LIGHT)
- 67 FIAT (DF)
- A BATTERY (FORD REGULATOR) CONNECTS TO B+ TERMINAL
ARM AUTOLITE (D+)
- AI LUCAS (LOAD)
- B LUCAS, DUCEL, DELCO, AUTOLITE (B+)
- B+ OUTPUT TO (+) BATTERY TERMINAL
- B- OUTPUT TO (-) BATTERY TERMINAL
BAT AUTOLITE, DELCO, AUTOLITE, (+)
- C COMPUTER IF GROUNDED - LOWERS OUTPUT
- D DUMMY (NO) CONNECTION
- D+ TRIO DIODE TRIO OUTPUT GENERATOR LIGHT TERMINAL
- D- GROUND FOR REGULATOR
- DF FIELD (LUCAS)
- DYNDUCEL (D+)
- E DUCEL (DF), GROUND FOR REGULATOR
- EXCDUCEL (DF)
- F FIELD
MAY BE "A" OR "B" CIRCUIT, MAY BE TWO TERMINALS - EXT. REG.
- FL DAUTOLITE (DF)
- FR FAULT RELAY SIGNAL TO COMPUTER
- G AUTOLITE (D-), (B-), 0
- GEN DELCO (D+)
- GND AUTOLITE, DELCO, (D-), (B-), (31)
- L LIGHT (FORD)
LIGHT SIGNAL - NOT TRIO DO NOT CONNECT DIRECTLY TO BATTERY
- I IGNITION TERMINAL CONNECTS TO BATTERY
- IG IGNITION
- IL TRIO LIGHT TERMINAL
- K DIODE TRIO
- IND LUCAS (61)
- L LIGHT AND/OR RELAY
DO NOT CONNECT DIRECTLY TO BATTERY MAY BE GEN. LIGHT ONLY MAY BE TRIO
TERMINAL

INSTRUCTION MANUAL

DELCO REMY MODEL : 10457728, 10457729 & 10457771

M EARTH GROUND
N STATOR
P STATOR
R RELAY - STATOR OR IGNITION
S SENSE
CONTROLS REG. VOLTS MAY BE STATOR - EXT REG.
W STATOR
WL LUCAS (61)
+ BOSCH AUXILIARY OUTPUT RADIO NOISE CAPACITOR VOLT SURGE PROTECTION DEVICE, ETC.

JAPANESE DESIGNATION

TERMINAL DESIGNATION

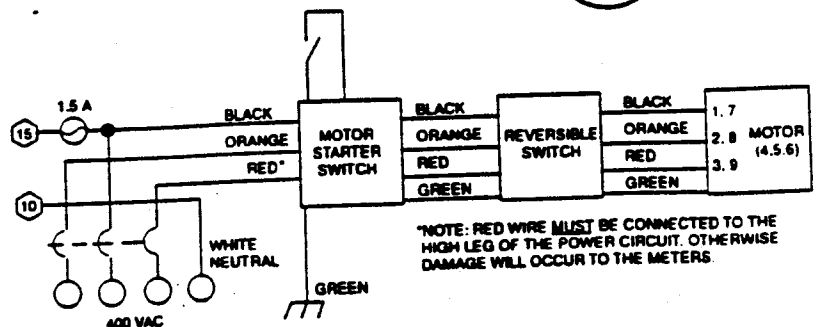
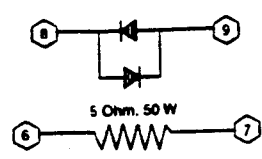
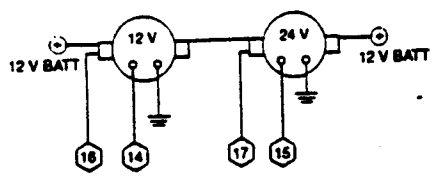
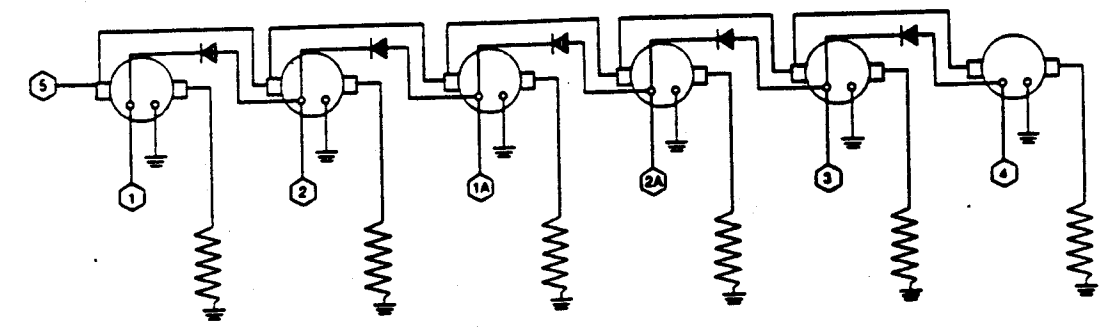
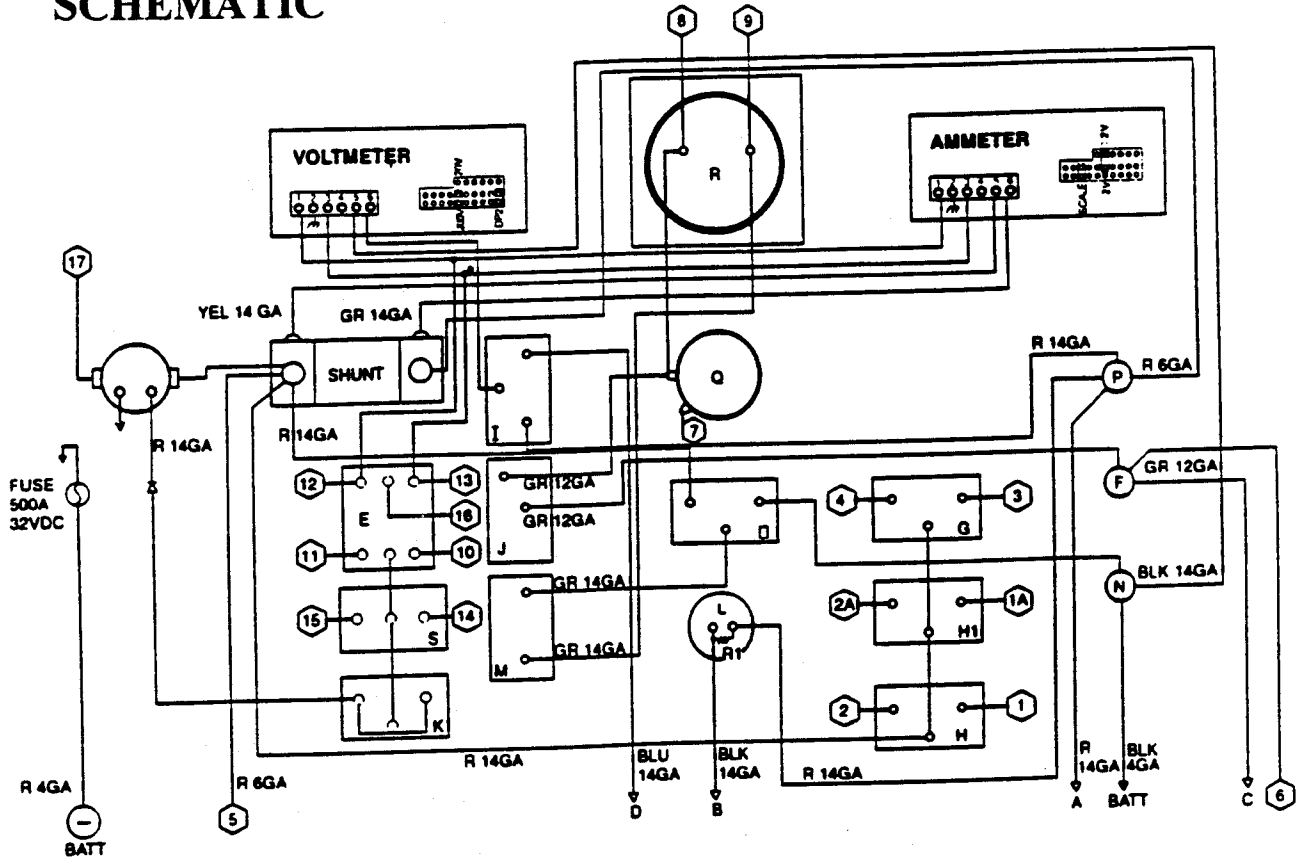
A ALTERNATOR OUTPUT AUXILIARY
B ALTERNATOR OUTPUT TO BATTERY
E ALTERNATOR OUTPUT GROUND
F ALTERNATOR FIELD (+) SOMETIMES (-) INPUT FROM V.R.
IG (-) INPUT FROM IGNITION SW
L (+) INPUT FROM INDICATOR LIGHT CIRCUIT OUTPUT TO INDICATOR LIGHT IN CHARGING MODE
N ALTERNATING CURRENT OUTPUT
PP SEUDO ALTERNATING CURRENT OP
R (+) INPUT VOLTAGE SENSOR
S (+) INPUT VOLTAGE SENSOR

NOTE: THIS INFORMATION HAS BEEN AVAILABLE BY THE APRA TECHNICAL SERVICE.

INSTRUCTION MANUAL

DELCO REMY MODEL : 10457728 & 10457729

SCHEMATIC



INSTRUCTION MANUAL

DELCO REMY MODEL : 10457728, 10457729 & 10457771

WARRANTY

THE ALTERNATOR AND REGULATOR TESTER IS WARRANTED BY KAR INDUSTRIES CORP..
AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE YEAR
AFTER DATE OF PURCHASE UNLESS SPECIFIED BELOW.

ALL ELECTRONIC PARTS ARE WARRANTED BY THE MANUFACTURER FOR TWELVE MONTHS
AFTER DATE OF PURCHASE.

ALL MOTOR PARTS ARE WARRANTED BY THE MANUFACTURER FOR ONE YEAR AFTER DATE
OF PURCHASE.

ALL PARTS RETURNED FOR REPAIRS UNDER WARRANTY MUST BE SHIPPED PREPAID TO :

KAR INDUSTRIES CORPORATION
7910 N.W. 66TH STREET
MIAMI, FLORIDA 33166-2726
1-305-594-0790

THIS WARRANTY DOES NOT APPLY TO DAMAGE(S) RESULTING FROM ACCIDENT(S),
ALTERATION(S), OR MISUSE OF THE EQUIPMENT.

