

GROUP 10 ELECTRICAL SYSTEMS

SECTIONS IN GROUP 10

Section	Subject	Page	Section	Subject	Page
10-A	Electrical Specifications	10-1	10-F	Ignition System	10-53
10-B	Electrical Trouble Diagnosis	10-5	10-G	Lighting System	10-70
10-C	Battery and Cables	10-11	10-H	Signal Systems	10-78
10-D	Generating System	10-20	10-I	Instruments and Clock	10-88
10-E	Cranking (Starter) System	10-36	10-J	Wiring Circuit Diagrams	10-93

SECTION 10-A ELECTRICAL SPECIFICATIONS

CONTENTS OF SECTION 10-A

Paragraph	Subject	Page	Paragraph	Subject	Page
10-1	Battery Specifications	10-1	10-4	Ignition System Specifications	10-3
10-2	Generating System Specifications	10-1	10-5	Lighting System Specifications	10-3
10-3	Cranking (Starter) System Specifications	10-2	10-6	Signaling Systems Specifications	10-4

SERVICE BULLETIN REFERENCE

Bulletin No.	Page No.	SUBJECT

10-1 BATTERY SPECIFICATIONS

Items	Series 40-50	Series 70
Make	← Delco-Remy →	
Number	15 E4-W	17 E4-W
Location	← Right Side Under Hood →	
Voltage	6	6
Capacity—Wet Battery (Amp. Hrs. @ 20 Hr. Rate)	100	120
Number of Plates	15	17
Separator Material	Wood	Wood
Case Material	Buna "S"	Buna "S"
Terminal Grounded	Negative	Negative
Electrolyte Level	← See paragraph 10-18 →	
Bench Charging Rate—Start	← 1 Amp./Pos. Plate or 7 Amp. for 15 Plate Battery →	
Bench Charging Rate—Finish	½ Amp./Pos. Plate	1 Amp./Pos. Plate

10-2 GENERATING SYSTEM SPECIFICATIONS

a. Generator

Items	Series 40-50	Series 70
Make	← Delco-Remy →	
Type	Shunt	Shunt
Model	← 1102709 →	
Location	← L. Side of Engine—Front →	
Mounting Type	Hinged	Hinged
Drive	← Fan Belt →	
Rotation	← Clockwise—Drive End →	

10-2 SPECIFICATIONS

ELECTRICAL SYSTEMS (240)

Items	Series 40-50	Series 70
Ratio—Generator to Engine	← 1.901 to 1 →	
Output Regulation	← Voltage and Current Regulator →	
Max. Charge Capacity (Amps.) Hot, @ 8 Volts and 2400 Gen. RPM	40	40
Amps. Motoring Freely @ 6 Volts and 500 RPM Min.	← 4.8 Approx. →	

NOTE: With brushes seated and bearings run in.

Amps. Max. Stall Current @ 6 Volts	55	55
Amps. Field Current @ 6 Volts (Room Temp.)	← 1.90-2.05 →	
Brush Spring Tension—Ounces	← 24-32 →	

b. Generator Regulator

Make	← Delco-Remy →	
Model	← 118364 →	
Location	← L.F. Fender Skirt →	
Cutout Relay Closing Voltage, HOT	← 5.9 to 6.8; Adjust to 6.4 →	
Cutout Relay Opening Current	← Reverse or Discharge →	
Cutout Relay Air Gap, Points Closed	.020"	.020"
Cutout Relay Contact Point Opening	.020"	.020"
Car Speed When Cutout Relay Closes, Approx. MPH	← 8 to 10 →	
Current Regulator Air Gap, Points Just Touching	.075"	.075"
Current Regulator Setting, Amps., HOT at Approx. 2000 Eng. RPM	← 40 to 46; Adjust to 42 →	
Voltage Regulator Air Gap, Points Just Touching	.075"	.075"
Voltage Regulator Setting, Volts @ 8-10 Amps., HOT, at Approx. 1500 Eng. RPM	← 7.2 to 7.7; Adjust to 7.4 →	

10-3 CRANKING (STARTER) SYSTEM SPECIFICATIONS

a. Cranking Motor

Items	Series 40-50	Series 70
Make	← Delco-Remy →	
Model	1107078	1107953
Location	← Right Side of Engine →	
Type of Shift	← Mechanical—Electrically Controlled →	
Shift Actuation	← Solenoid →	
Shift Operation	← Accelerator Pedal →	
Type of Drive	← Overrunning Clutch →	
Rotation, Viewing Drive End	← Clockwise →	
Gear Ratio	16.22 to 1	17.33 to 1
No. Teeth on Flywheel Ring Gear	146	156
No. Teeth on Drive Pinion	9	9
Running Torque—Ft. Lbs.	8 @ 475 RPM	8 @ 625 RPM
Running Torque—Amps.	375 @ 4.1 V.	380 @ 4.2 V.
No Load Test—		
Amperes	65	65
Volts	5.67	5.67
R.P.M.	5000	5500
Lock Torque Test—		
Amperes	525	600
Volts	3.4	3.0
Torque—Lbs. Ft.	12	16
Brush Spring Tension—Ounces	← 24 to 28 →	
Armature End Play	← .005" — .050" →	
Pinion Clearance in Cranking Position	3/16"	3/16"
Shift Lever Return Spring Tension—		
Start of Travel	← 9 to 12 Lbs. →	
End of Travel	← 28 to 35 Lbs. →	

b. Solenoid Switch and Relay

Current Draw of Solenoid Windings @ 80° F.—	
Hold-in Winding	← 12 to 14 Amps. @ 5 Volts →
Both Windings in Parallel	← 65 to 71 Amps. @ 5 Volts →
Solenoid Relay Adjustments—	
Air Gap—Points Closed	← .014" — .018" →
Point Opening	← .020" — .030" →
Closing Voltage	← 1.2 to 1.8 V. →
Sealing Voltage	← Not More Than 3.0 V. →
Opening Voltage	← Not Less Than .6 V. →

c. Accelerator Vacuum Switch and Neutral Safety Switch Timing

Carter Vacuum Switch	← See paragraph 10-32 →
Stromberg Vacuum Switch	← See paragraph 10-33 →
Neutral Safety Switch	← See paragraph 10-34 →

10-4 IGNITION SYSTEM SPECIFICATIONS

a. Ignition Switch and Lock

Items	Series 40-50	Series 70
Switch—Make	← Delco-Remy →	
Lock—Make	← Rochester Prod. or Briggs Stratton →	

b. Ignition Coil

Make	← Delco-Remy →	
Model	← 1115328 →	
Location	← Right Side of Engine →	
Amps. Draw of Coil—		
Engine Stopped	4 1/2	4 1/2
Engine Idling	2 1/2	2 1/2
Coil Pri. Res. Ohms @ 70° F.	← 1.20 to 1.30 →	
Coil Sec. Res. Ohms @ 70° F.	← 2900 to 3800 →	

c. Spark Plugs

Make	AC	AC
Model	46-X	46-X
Plug Location	← R. Side of Cyl. Head →	
Thread Size	14MM	14MM
Shell Hex. Size	13/16"	13/16"
Gap	← .023" — .028" →	
Length of Terminal Nut	3/4"	3/4"
Length of Cable Terminal	13/16"	13/16"

d. Distributor

Make	← Delco-Remy →	
Model	← 1110815 →	
Location	← R. Side of Crankcase →	
Drive	← Gears on Cam Shaft and Distrib. Shaft →	
Rotation	← Counterclockwise, Top View →	
Timing, Before U.D.C., Full Advance	4 Deg.	6 Deg.
Spark Control Advance—Flywheel Degrees—		
Centrifugal	← 22 to 26 →	
Vacuum—Max.	← 10 to 12 →	
Vacuum Advance Test, Distributor Degrees—		
At 5" to 7" (Hg.) of Vacuum	← Start Travel →	
At 10" to 13" (Hg.) of Vacuum	← 5 to 6 Deg. →	
Centrifugal Advance Test, Distributor Degrees and RPM		
(1/2 Engine RPM)		
At 250 RPM	← 0 to 2 Deg. →	
At 400 RPM	← 5 to 7 Deg. →	
At 1500 RPM	← 11 to 13 Deg. →	
Contact Point Opening	← .0125" to .0175" →	
Breaker Arm Spring Tension, Measured at Side of Point	← 19 to 23 oz. →	
Breaker Base Plate Tension	← 8 to 16 →	
Shaft End Play	← .002" to .007" →	
Condenser Make	← Delco-Remy →	
Condenser Capacity—Microfarads	← .18 to .23 →	

10-5 LIGHTING SYSTEM SPECIFICATIONS

a. Lamps, Switches, Wiring

Items	Series 40-50	Series 70
Headlamp—Make	← Guide →	
Headlamp—Type	← Sealed Beam →	
Headlamp Lens Diameter	← 6 1/16" →	
Parking and Signal Lamp—Make	← Guide →	
Tail, Stop and Signal Lamp—Make	← Guide →	
Lighting Switch—Make	← Delco-Remy →	
Wiring Circuit Type	← Single Wire →	
Wiring Circuit Protection, for Head, Parking, Tail, License, Map, Instrument Lights	← Thermo Circuit Breaker →	
Thermo Circuit Breaker Location	← On Lighting Switch →	
Thermo Circuit Breaker Calibration @ 70° F.—		
Stay Open Indefinitely at	← 30 Amps. →	
Open in 3 Minutes at	← 42 Amps. →	

b. Lighting and Other Circuit Fuses

NOTE: Unless otherwise specified, all fuses are mounted on fuse block under cowl. Head, tail, parking, license, instrument and map light circuits protected by thermal circuit breaker on light switch.

Stop and Direction Signal Light	← 14 Amp. SFE (1 1/16 x 1/4) →
Dome Light, Glove Box Light, Luggage Comp. Light	← 30 Amp. SFE (1 1/16 x 1/4) →
Heater and Blower	← 14 Amp. SFE (1 1/16 x 1/4) →
Electric Clock	← 3 Amp. AGA (5/8 x 1/4) →
Back-Up Lamp	← 14 Amp. SFE (1 1/16 x 1/4) →
Cigar Lighter	← Special →
Location, Casco	← In Back of Lighter →
Location, Rochester	← In Circuit Breaker in Back of Lighter →
Radio	← 15 Amp. AGA (1 1/4 x 1/4) →
Location	← At End of "A" Lead at Set →

c. Lamp Bulbs

	No. Req.	Mazda No. and Power
Headlamp Sealed Beam Unit	2	45-35 Watt
Headlamp Beam Indicator	1	51; 1 CP
Parking and Front Dir. Signal	2	1154; 21-3 CP
Direction Signal, Rear	2	1129; 21 CP
Direction Signal Indicator	2	51; 1 CP
License Plate Lamp	1	63; 3 CP
Tail and Stop Lamps	2	1154; 21-3 CP
Instrument Lights	4	55; 2 CP
Map Light	2	55; 2 CP
Dome Lamp—Except 56C, 56R, 76C, 76R	1	88; 15 CP Dbl. Contact
Models 56C, 56R, 76C, 76R	1	82; 6 CP Contact
Trunk Compartment	1	55; 2 CP
Clock Light	1	55; 2 CP
Glove Box	1	55; 2 CP
Radio Dial Light	1	55; 2 CP
Back-Up Light	2	1129; 21 CP

10-6 SIGNAL SYSTEMS SPECIFICATIONS

Items	Series 40-50	Series 70
Stop Light Switch—Type	← Hydraulic →	
Stop Light Switch Location	← Brake Pipe Distrib. Fitting Near Master Cyl. →	
Direction Signal Switch—Make	← Delco-Remy →	
Direction Signal Flasher—Make	← Tungsol →	
Lamp Bulbs—Mazda No. and Power	← See paragraph 10-5 →	
Stop and Signal Light Circuit Protection	← 14 Amp. Fuse →	
Location	← On Fuse Block Under Cowl →	
Horn—Make and Type	← Delco-Remy, Vibrator →	
Horn Model, High Note (L.H.)	← 1999650 →	
Low Note (R.H.)	← 1999649 →	
Horn Amperage Draw @ 6 Volts—		
High Note (L.H.)	← 16 to 18 →	
Low Note (R.H.)	← 17 to 19 →	
Horn Relay—Make and Model	← Delco-Remy, 1116775 →	
Horn Relay Adjustment—		
Air Gap	← .015" →	
Contact Point Opening	← .025" →	
Closing Voltage	← 2.75 to 4 →	