IMPORTANT Service INFORMATION

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

DeSoto

DATE 11-18-59 | NUMBER 1105

GROUP Electrical

SUB-GROUP Speedometer

TO ALL DE SOTO DEALERS:

SUBJECT: SPEEDOMETER REMOVAL AND INSTALLATION

The following information will assist you should it be necessary to remove and install the speedometer assembly in an instrument panel of a 1960 De Soto.

REMOVAL

1. Disconnect battery cable.
2. Disconnect speedometer cable at speedometer.
3. Remove the transmission push button bezel.
4. Remove the transmission control push buttons.
5. Remove the two retainer stud nuts that hold the transmission push button housing assembly to dash, then remove housing and disconnect back-up light wires. Move housing to one side, out of way.
6. Disconnect the three instrument panel lights.
7. Remove the steering column dash support to cowl panel brace.
8. Disconnect the horn and turn signal wires (from steering column) at the connector under dash.
9. Remove the four phillips head screws that attach the speedometer to instrument panel. IMPORTANT: Hold the speedometer while removing the last attaching screw, to avoid the possibility of dropping and scratching the lens. Also, exercise extreme care in removing the speedometer from the instrument panel opening and from under the dash. DO NOT FORCE.
10. When the screws are removed, tilt the speedometer base toward the firewall and carefully lower the speedometer until the lens has cleared the instrument panel opening. Move the speedometer in the direction of the parking brake and at the same time roll the end toward the parking brake downward, until the speedometer lens is straight up and down. Then, turn the speedometer assembly (approximately 180 degrees) until the base is toward the firewall, and lower the speedometer to remove.

(Over)

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85-51 5-20 DESIGNED TO ENDURE

INSTALLATION

1. Starting at the parking brake side of the steering column, place speedometer in a vertical position with the numerals facing the steering column and the base toward the firewall.
2. While raising the speedometer straight up from this position, turn the assembly one half turn clockwise as the base passes the lower edge of dash panel, then in the same motion, rotate the lens to the left and lower the base to place the lens and dial face in position to be inserted through the instrument panel opening.
3. Locate the speedometer in its position with an upward rolling motion and insert the four retainer screws.
4. Reinstall the back-up light wires to the back-up switch on the transmission push button housing.
5. Position the transmission push button housing in instrument panel bracket and install the two retainer stud nuts.
6. Reinstall the steering column dash support to cowl panel brace.
7. Connect the three instrument panel lights.
8. Reinstall the transmission control push buttons.
9. Reinstall the transmission push button bezel and retainer screws.
10. Connect the speedometer drive cable.
11. Connect the battery cable.

Time required to accomplish the preceding operations is 1.2 hours, Labor Operation No. 8-520.

George J. Cutler

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Director of Service
PLYMOUTH-DE SOTO-VALIANT DIVISION

IMPORTANT Service INFORMATION

DeSoto

DATE	NUMBER
11-18-59	1107

GROUP: Electrical

SUB-GROUP: Speedometer

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

TO ALL DE SOTO DEALERS:

SUBJECT: ODOMETER SHIELD AND WINDOW ALIGNMENT

There is a possibility that on some early production 1960 De Soto cars the odometer numerals may not be centered in the instrument panel odometer shield window. In those instances where this condition is encountered, the following procedure will assist you in properly centering the odometer for best visibility:

1. From under the dash panel, remove the four speedometer shield stud nuts. When the four nuts are removed, the shield can be lifted from over the speedometer, exposing the odometer and window.
2. Referring to sketch on page 2, remove the two phillips head screws which hold the main instrument panel housing odometer window to the dash, as shown by arrows "A".
3. Measure back, approximately 3/16 inch from the front edge of the instrument panel, as shown in sketch. Using a 45° angle 1/4" power drill, drill a 5/32 inch hole in the panel, as indicated by arrows "B". Note: Place one end of a straight blade off-set screwdriver under the point to be drilled, to raise and support the panel while drilling.

   CAUTION: HAMMERING ON OR AROUND THE SPEEDOMETER HEAD CAN RESULT IN DAMAGE TO THE SPEEDOMETER UNIT.
4. Install the two screws through the new holes in the instrument panel and into the tinnerman nuts in the original holes in the dash panel as indicated by arrows "B". (If oval head screws are used, replace them with a washer head screw of equal size and length.)
5. Reinstall speedometer shield.

Experience indicates the time required to relocate the odometer window housing to be .5 hour.

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Director of Service
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P-4131-C

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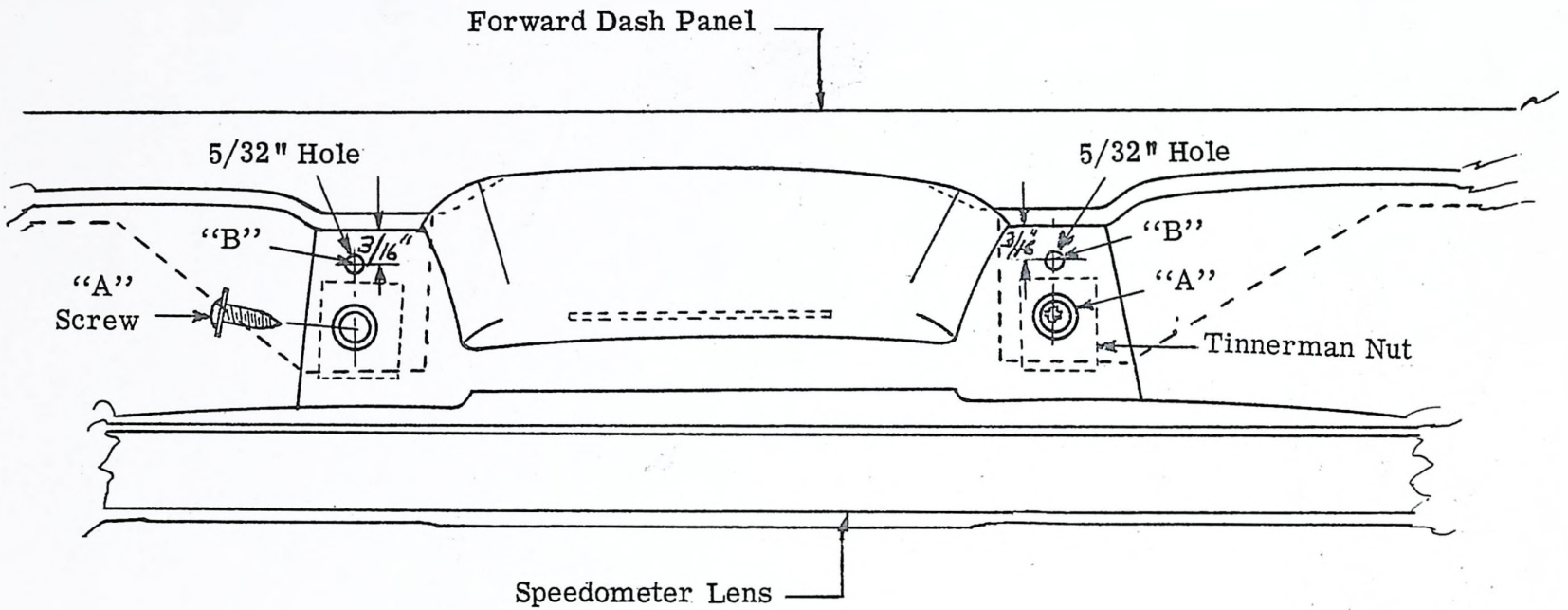

ODOMETER SHIELD AND WINDOW

IMPORTANT Service INFORMATION

DeSoto

DATE	NUMBER
12-16-59	1114

GROUP: ELECTRICAL

SUB-GROUP: Miscellaneous

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

TO ALL DE SOTO DEALERS:

On a few early production 1960 De Soto cars there may be instances where the following electrical system components may require checking and correction to insure satisfactory operation.

SUBJECT - HEADLAMP AND INSTRUMENT PANEL LAMP SWITCH: The intensity of instrument panel lighting is controlled by a reostat located at the forward end of the headlamp switch. In some cases, a switch with an incorrect reostat may have been installed which could result in no variable control of panel lighting between "bright" and "off". If this condition is encountered, install a new Switch, Part No. 1881765, as follows:

1. Disconnect the battery cable. Pull out and rotate the switch knob until the flat on the shaft is down. Push the knob all the way in.
2. Disconnect wires at switch. Press down on the spring-loaded catch release button located at the top center of the switch to release the shaft from the switch mechanism. Pull the shaft and knob out. Unscrew the switch mounting bezel on the instrument bezel and remove the switch. When installing the shaft and knob in the new switch, push the shaft in until it engages the catch at the end.

SUBJECT - FUEL GAUGE RADIO CONDENSOR: On cars factory equipped with radio, a .5 MFD capacity condensor is installed on the fuel gauge between ground and ignition side of the gauge to suppress a rapid clicking noise in the radio caused by the voltage regulator in the fuel gauge. If this type radio noise is reported, check the fuel gauge to make sure the condensor is installed and properly connected as follows;

1. Remove the six screws attaching the transmission push button selector housing to the instrument panel and remove the housing.
2. If a radio condensor is not installed below the fuel gauge, a .5 MFD capacity condensor with a metal case can be obtained locally and installed as shown in sketch on page 2. Remove the push buttons for access to the bottom side of the fuel gauge. The negative side of the condensor must be grounded to, or as close to the fuel gauge base as possible, and the positive lead must be installed at the ignition terminal, as shown. Be sure to use a pal-nut for attaching the pigtail to the ignition terminal on the gauge so the snap-on type wiring connection can also be properly installed on the terminal.

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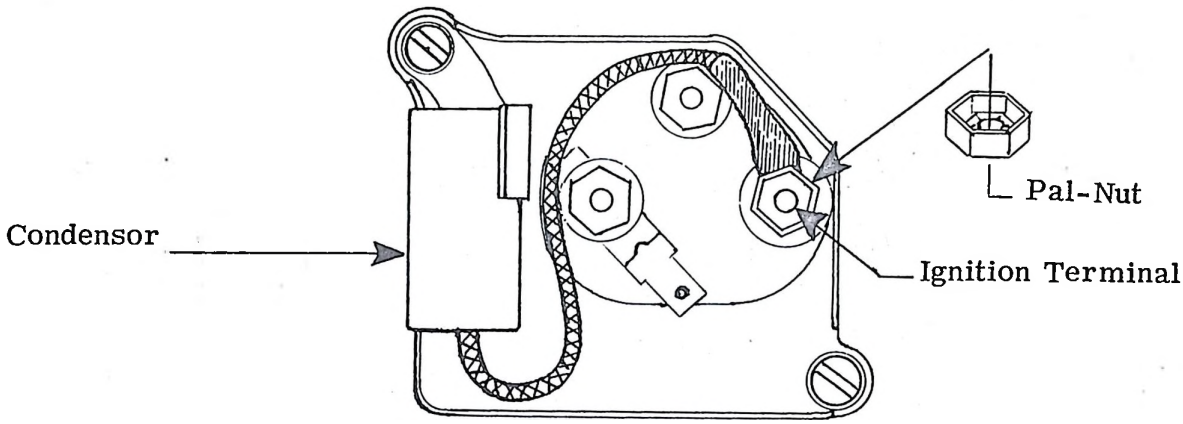
85-515-6880 DESIGNED TO ENDURE



BOTTOM OF FUEL GAUGE

SUBJECT - CLOCK LIGHT: If the No.57 clock light bulb installed on early built 1960 De Soto cars appears too dim, replace it with a brighter No.1816 bulb. The clock light is readily accessible by removing the push button selector housing as outlined above.

SUBJECT - GENERATOR TO VOLTAGE REGULATOR WIRING HARNESS is routed along the intake manifold side of the right cylinder head cover and attached with wiring harness clips installed under the cover stud nuts. It is very important that this wiring harness is properly routed and secured with clips so it can not come in contact with the "hot spot" in the intake manifold. Should you find that the clips have been omitted on any early production De Soto cars, rubber coated wiring harness clips, such as Part No. 684158, must be installed to properly secure the wiring harness.

Part numbers shown in the bulletin are available through regular MoPar parts sources and are stock class code "P".

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P-4683-C

IMPORTANT Service INFORMATION

DeSoto

DATE	NUMBER
1-20-60	1119

GROUP: Electrical

SUB-GROUP: Ignition Switch

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

TO ALL DE SOTO DEALERS:

SUBJECT: BALLAST RESISTOR BY-PASS

An additional circuit has been added to the ignition system of 1960 De Soto cars. This new circuit allows full battery current to by-pass the ballast resistor and reach the ignition coil during the time the starter is in operation, thus providing improved cold weather starting. This improvement was accomplished by incorporating a new Starter and Ignition Switch, Part No. 2097628, effective with Adventurer Serial No. 7203-101679 and Fireflite Serial No. 7103-101680.

A wiring harness with five leads has been used since the start of 1960 production, however, on cars built prior to the serial numbers listed a Starter and Ignition Switch with only four terminals was used. Four of the wires were attached to the switch by a four-way connector, the fifth wire (dark brown) had a single connector for insulating purposes and was not connected to the switch.

Since the five terminal Starter and Ignition Switch, Part No. 2097628, is now released for service on all 1960 De Soto cars, should it be necessary to install a new switch on a car bearing a serial number prior to those shown above, remove the four-way connector and install a single connector, Part No. 1843227 on each wire. In this manner all five leads, including the by-pass (dark brown), can be connected to the new five terminal switch as follows:

Switch Terminal	Wire Color
"ACC"	Black
"ST"	Yellow
"BAT"	Red
"IGN-1"	Dark Blue
"IGN-2"	Dark Brown

The parts shown in this bulletin are stock code class "P".

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P-165-C

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IMPORTANT Service INFORMATION

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

DeSoto

DATE	NUMBER
2-25-60	1126

GROUP: Electrical

SUB-GROUP: Speedometer

TO ALL DE SOTO DEALERS:

SUBJECT: SPEEDOMETER REMOVAL AND INSTALLATION

As a result of changes in assembly line processes for installation of the 1960 De Soto speedometers, it has become necessary to revise the Removal and Installation procedure. Therefore, the information in this bulletin cancels and supersedes that contained in De Soto Service Bulletin No. 1105, in the Electrical Section of the 1960 De Soto Service Manual, and in the 1960 De Soto Service Operation Time Schedule Manual (81-170-0021 dated 10-59).

SPEEDOMETER REMOVAL

1. Disconnect battery cable.
2. Disconnect speedometer cable at speedometer.
3. Remove the transmission push button bezel.
4. Remove the transmission control push buttons.
5. Remove the two retainer stud nuts that hold the transmission push button housing assembly to dash, then remove housing and disconnect back-up light wires. Move housing to one side, out of way.
6. Disconnect the three instrument panel lights.
7. Remove the steering column dash support to cowl panel brace.
8. Disconnect the horn and turn signal wires (from steering column) at the connector under dash.
9. From under the dash panel, remove the four (4) self tapping screws, which attach the speedometer lens hood to the dash, and remove hood.
10. Loosen the two instrument panel odometer shield attaching screws (one on each side of the odometer shield window). Then, remove the odometer shield to odometer hood attaching screw, if so equipped.
11. Remove the four phillips head screws that attach the speedometer to instrument panel. IMPORTANT: Hold the speedometer while removing the last attaching screw, to avoid the possibility of dropping and scratching the lens. Also, exercise extreme care in removing the speedometer from the instrument panel opening and from under the dash. DO NOT FORCE.

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(Over)

12. When the screws are removed, tilt the speedometer base toward the firewall and carefully lower the speedometer until the lens has cleared the instrument panel opening. Move the speedometer in the direction of the parking brake and at the same time roll the end toward the parking brake downward, until the speedometer lens is straight up and down. Then, turn the speedometer assembly (approximately 180 degrees) until the base is toward the firewall, and lower the speedometer to remove.

SPEEDOMETER INSTALLATION

1. Starting at the parking brake side of the steering column, place speedometer in a vertical position with the numerals facing the steering column and the base toward the firewall.
2. While raising the speedometer straight up from this position, turn the assembly one half turn clockwise as the base passes the lower edge of dash panel, then in the same motion, rotate the lens to the left and lower the base to place the lens and dial face in position to be inserted through the instrument panel opening.
3. Locate the speedometer in its position with an upward rolling motion and insert the four retainer screws.
4. Reinstall the screw through the aligning hole, on the top of the odometer shield, into the screw boss on the odometer hood, if so equipped. Then, tighten the screws on each side of the odometer shield window.
5. Reinstall the speedometer lens hood and four attaching screws.
6. Reinstall the back-up light wires to the back-up switch on the transmission push button housing.
7. Position the transmission push button housing in instrument panel bracket and install the two retainer stud nuts.
8. Reinstall the steering column dash support to cowl panel brace.
9. Connect the three instrument panel lights.
10. Reconnect the horn and turn signal wires at the connector under dash.
11. Reinstall the transmission control push buttons.
12. Reinstall the transmission push button bezel and retainer screws.
13. Connect the speedometer drive cable.
14. Connect the battery cable.

The labor allowance for Removal and Installation of the 1960 De Soto speedometer, in accordance with the preceding instructions, is 1.7 hours on Labor Operation No. 8-520. (If equipped with air conditioning add .1 hour.)

George J. Cutler

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IMPORTANT Service INFORMATION

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DeSoto

DATE	NUMBER
3-3-60	1129

GROUP: ELECTRICAL

SUB-GROUP: STARTING MOTOR

TO ALL DE SOTO DEALERS:

SUBJECT: NEW 1960 DE SOTO STARTING MOTOR - PART NO. 1889200

A new starting motor assembly manufactured by the Electrical Equipment Division of Chrysler Corporation recently entered production on 1960 De Soto cars. Initially, both the new starting motor and the original Auto-Lite motor will be used in production to meet scheduled requirements.

The new starting motor is the same basic type as the Auto-Lite starter used previously, although the external appearance is noticeably different. The new motor is a 12 volt, four-coil type with an overrunning clutch drive operated by a solenoid switch mounted on the starter frame. The starter brushes and springs are installed in a separate, replaceable brush holder plate assembly. See Figure 1.

WARRANTY SERVICE POLICY for the new starting motor is the same as for all other standard parts on 1960 De Soto cars. Since this new starting motor is manufactured by Chrysler Corporation, Auto-Lite Service Stations can not extend warranty service. Parts required for servicing the new unit are listed in your 1960 MoPar Parts Catalog.

Service Diagnosis procedures on the new starting motor are the same as outlined in the 1960 De Soto Service Manual for the original Auto-Lite motor. Also, procedures for testing starter current resistance and current draw, removal of unit, free running and stall test on the bench remain the same as shown in the 1960 De Soto Service Manual, Group 8, Electrical and Instruments, page 16. (Refer to page 6 of this bulletin for specifications on the new starting motor.) Service procedures for disassembly, testing and reassembly of the new starter are as follows:

DISASSEMBLING THE STARTER

1. Remove the through bolts at the commutator end of the starter and pull the end head from the field frame. Remove the thrust washers from armature shaft.

2. Lift the brush holder springs and remove the brushes, as shown in Figure 2. Remove the brush holder ring.

3. Disconnect the field coil leads at the solenoid connector. A rubber sealing grommet is located at the lower end of the solenoid connector strap, as shown in Figure 3.

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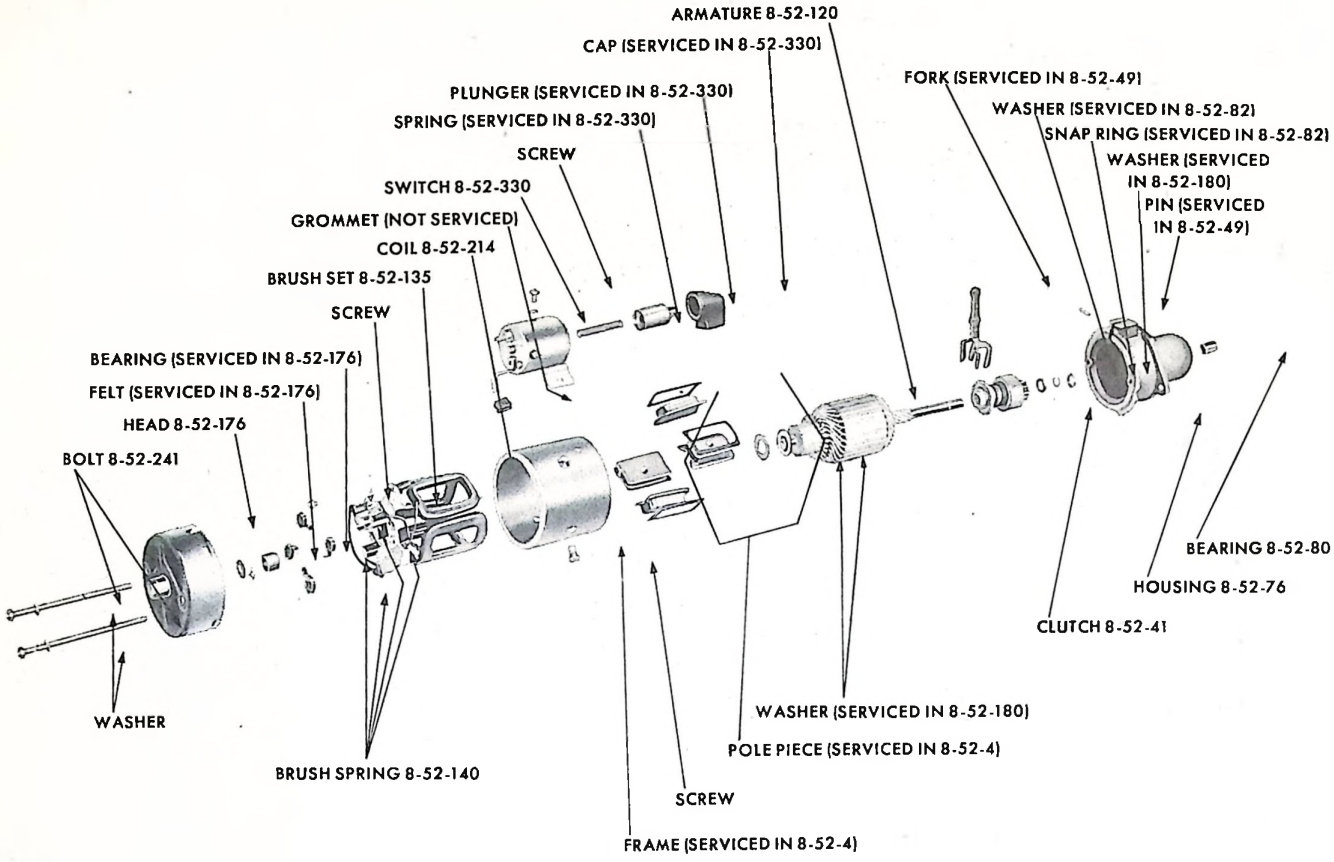

Figure 1.

4. Remove the solenoid attaching screws and remove the solenoid and boot assembly.

5. Drive out the overrunning clutch shift fork pivot pin at the upper side of the pinion housing. Remove the drive end pinion housing and spacer washer.

6. Note the position of the shifter fork on starter drive and remove shifter fork, as shown in Figure 4.

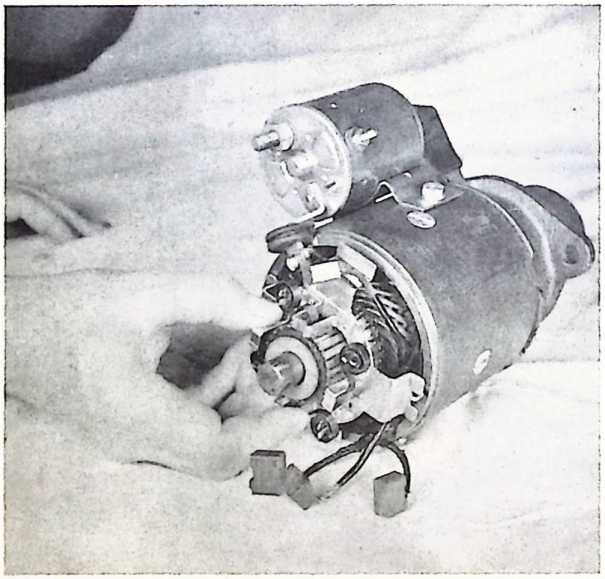

Figure 2.

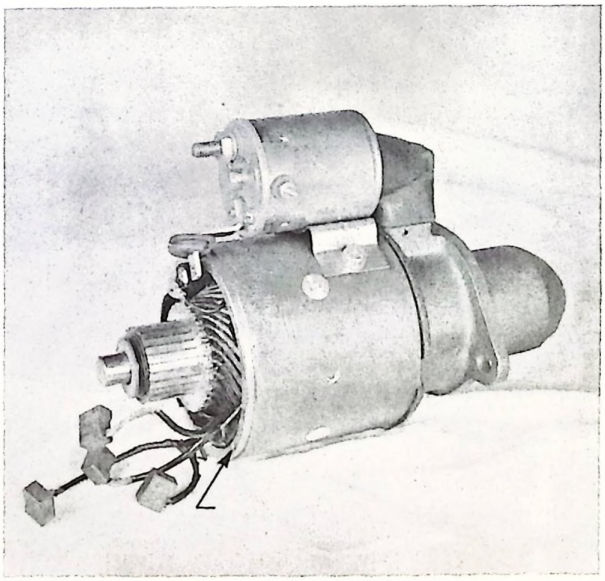

Figure 3.

7. Slide the overrunning clutch pinion gear towards commutator end of armature, drive the stop retainer towards the pinion gear to expose the snap ring (Figure 4.) and remove the snap ring. Remove the overrunning clutch drive from the armature shaft.

8. If necessary to replace field coils, remove the ground brushes terminal attaching screw and raise the brushes with terminal and shunt wire up and away from field frame. See Figure 5. Remove pole shoe screws with special impact screwdriver, Tool C-3475.

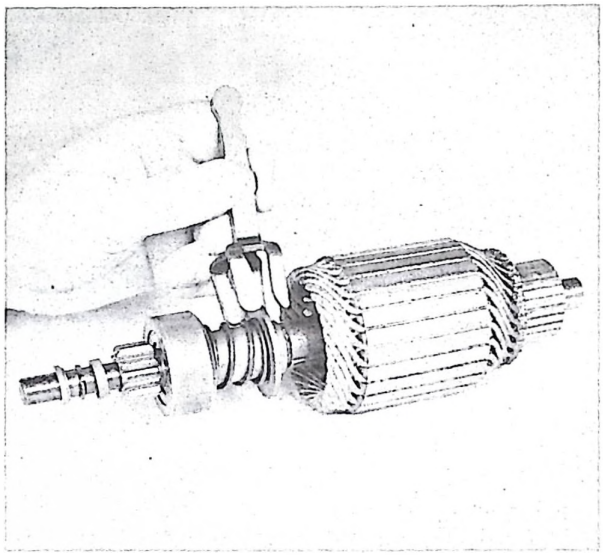

Figure 4.

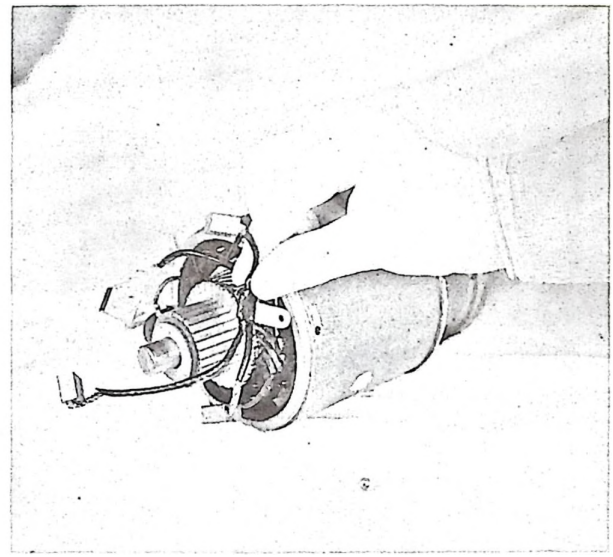

Figure 5.

The procedure for cleaning the starter parts is the same as outlined in the 1960 De Soto Service Manual.

REPLACING BRUSHES AND SPRINGS

Brushes that are worn to 1/4 inch or less in length, or are oil-soaked, should be replaced.

1. To replace the two grounded brushes, unsolder the leads at the ground brush terminal. See Figure 5.

2. To replace the two brushes connected to the field coils, unsolder the brush leads at the field coil terminal adjacent to the hole in the front face of the field frame which is used in locating the brush holder ring assembly. (See arrow, Figure 3.)

3. When resoldering brush leads, a strong, low resistance connection should be made, using a high temperature solder and resin flux. Do not use acid core solder. Care must be exercised so that shunt wire is not broken when removing and installing ground brushes.

4. Check brush spring tension with the starting motor completely assembled except for the end head. Measure spring tension with a spring scale hooked under the spring near the end. Pull the scale straight back from the end of the brush while holding the brush against the commutator. Take a reading just as the spring end looses contact with the brush. Spring tension should be 32 to 48 ounces. Replace any springs that are not within specifications.

5. To remove brush springs, spread the retainer tabs apart slightly on the brush holder ring. If new springs are installed, pinch the retainer tabs together if necessary, to hold spring securely.

The following service procedures are the same on the new starting motor as for the Auto-Lite motor: Testing armature for short circuit and ground; checking commutator for runout; and, refacing and undercutting the commutator.

TESTING THE FIELD COILS FOR GROUND

1. With commutator end head, brushes and brush holder ring removed, disconnect field lead wires at solenoid connector and separate field leads to make sure they do not touch the solenoid connector. Refer to Figure 3.

2. Remove the screw attaching the ground terminal to the field frame and pull the brush leads, shunt wire and terminal assembly aside so there will be no contact, as shown in Figure 5.

3. Touch one probe of test lamp to series field coil lead and the other probe to field frame, as shown in Figure 6. Lamp should not light.

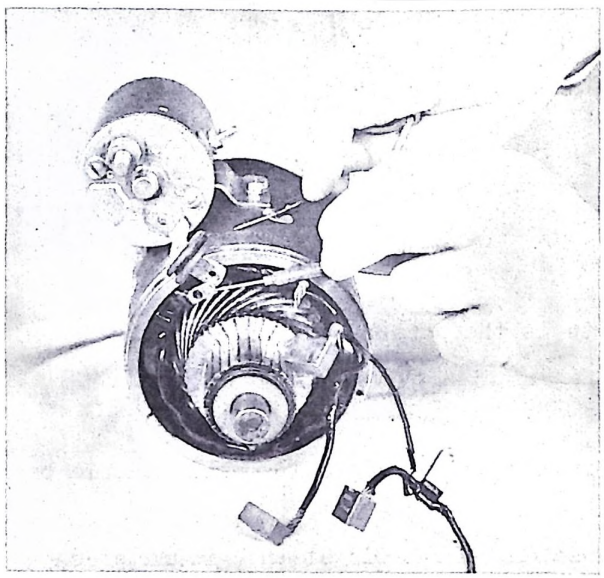

Figure 6.

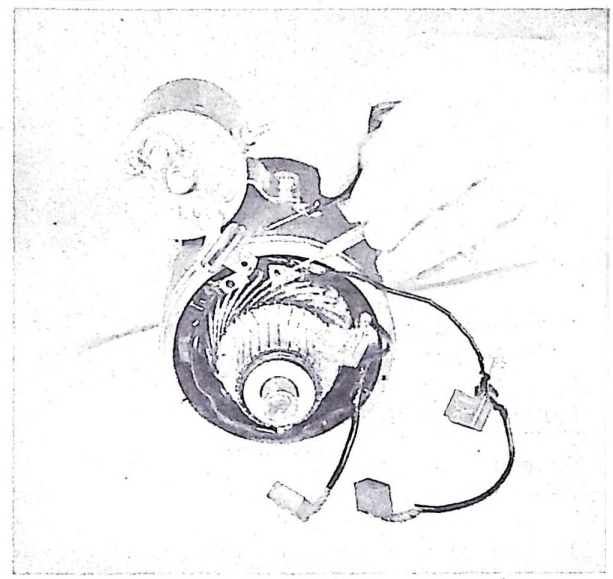

Figure 7.

4. Touch one probe to the shunt field coil lead and the other probe to the field frame. Figure 7. If lamp lights in either test (3) or (4) the field coils are grounded and each coil should be tested separately after unsoldering the connector wires. Replace grounded field coils.

5. Test the two insulated brush holders for ground contact to the ring assembly by touching one test light probe to the brush holder and the other to the ring, as shown in Figure 8.

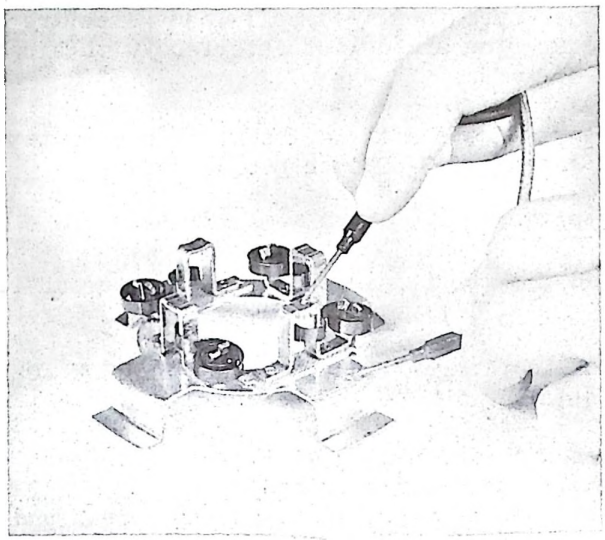

Figure 8.

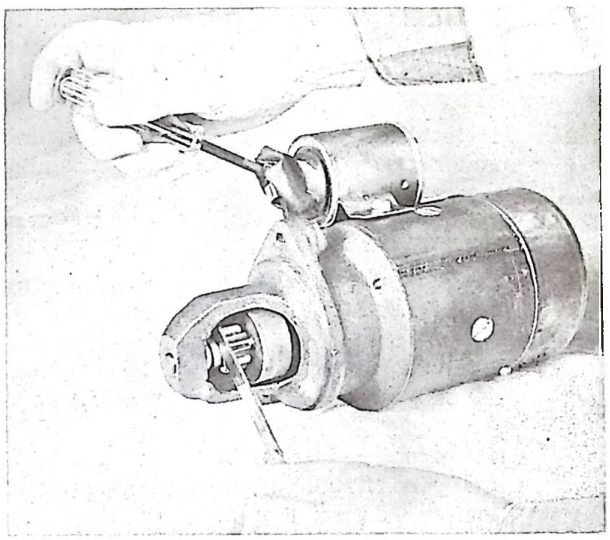

Figure 9.

The lamp should not light. If lamp lights, the insulated brush holders are grounded and the brush ring assembly must be replaced. The other two brush holders are intentionally grounded.

Service procedures covering armature shaft bushings and drive unit are the same as for the Auto-Lite starting motor.

ASSEMBLING THE STARTER

1. Lubricate the armature shaft and splines with SAE 10-W oil or 30W rust preventative oil.

2. Install the starter drive, stop collar (retainer), lock ring and spacer washer. When properly assembled, the smaller diameter end of the spacer washer should be in contact with the lock ring inside the stop collar.

3. Install shifting fork over the starter drive spring retainer washer with narrow leg of fork towards commutator, as shown in Figure 4. Important: If fork is not properly positioned, it will restrict starter gear travel, causing a lock-up in the clutch mechanism.

4. Install drive end (pinion) housing on armature shaft, indexing shifting fork with slot in housing. Install shifting fork pivot pin.

5. Install the solenoid and the boot assembly on the field frame. Tighten mounting screws to 60-70 inch pounds torque.

6. Install pinion housing and armature assembly into the field frame so that the slot in the housing indexes with the locating tab projecting from the solenoid base. Make sure the shifting fork lever is inserted in the solenoid plunger link.

7. Connect the field coil leads at the solenoid connector. Figure 3. Connect the ground brushes and shunt wire terminal to field frame, if removed. Figure 5.

8. Install the brush holder ring assembly, indexing tang on ring in hole of field frame. Figure 2.

9. Install the brushes in brush holders. Be sure the field coil lead wires are properly enclosed behind the brush holder ring and do not interfere with brush operation.

10. Position the thrust washers on end of armature shaft and install the commutator end head. Insert through bolts and tighten to 40-50 inch pounds torque.

ADJUSTING STARTER DRIVE GEAR (PINION) CLEARANCE

1. Place starter assembly in vise equipped with soft jaws and tighten vise sufficiently to hold starter.

2. Push in on the forward end of the solenoid plunger link (NOT THE SHIFTING FORK LEVER) until plunger bottoms, as shown in Figure 9.

3. Measure clearance between end of pinion and pinion stop with plunger seated and pinion pushed toward commutator end. The clearance should be 1/8" ± 1/32 inch. Adjust for proper clearance by loosening solenoid attaching screws and moving solenoid in slotted holes in base, if required. NOTE: In some cases, it may be necessary to remove the starter end head and bend the end of the solenoid connector slightly to obtain proper adjustment.

SPECIFICATIONS - STARTING MOTOR PART NO. 1889200

Starter Model	
Voltage	12
No. of Fields	4
No. of Poles	4
Brushes	4
Spring Tension	32 to 48 ounces
Drive	Solenoid Shift Overrunning Clutch
End Play	.005" Minimum
Free-Running Test	
Voltage	11
Amperage Draw	80 Amps. Maximum
Minimum Speed RPM	3800 Minimum
Stall Torque Test	
Torque Foot-Pounds	8.5
Voltage	4
Amperage Draw	350
Pinion to Stop Clearance	1/8" ± 1/32" Between Pinion Stop (with Armature End Play Removed)
Solenoid Switch	
Pull-In Coil	20.0 to 22.2 Amps at 6 Volts (at 70° F.)
Hold-In-Coil	11.2 to 12.4 Amps at 6 Volts (at 70° F.)

The part number listed in this bulletin is stock class code "P".

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Director of Service
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IMPORTANT Service INFORMATION

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

DeSoto

DATE	NUMBER
3-9-60	1122

GROUP: Electrical

SUB-GROUP: Gauges

TO ALL DE SOTO DEALERS:

SUBJECT: 1960 FUEL AND TEMPERATURE GAUGE TEST PROCEDURE

The information in this bulletin supplements that contained in the 1960 De Soto Service Manual on page 51 of the Electrical Group under Testing and Diagnosis of Thermal Type Gauges.

In instances where either Fuel or Temperature Gauge malfunction is suspected, or the gauges are inoperative, the following test procedure will provide a quick method which may be of assistance in diagnosis of an inoperative or inaccurate gauge.

The only special equipment needed to perform the tests as outlined is a 1960 fuel gauge tank unit and a test lamp equipped with a two candle power bulb. These two Special Service Tools can be readily developed from parts stock, as follows:

1. Important: The test lamp procedure outlined in this bulletin is based on specific current draw and resistance, therefore, it is absolutely essential that the test lamp bulb used not exceed two candle power. Make a special test lamp for this purpose, using a Generator or Oil Pressure Indicator Lamp Socket Assembly, Part No. 1753632 and a No. 57 Bulb.

2. Select a fuel gauge tank unit, Part No. 2084063, from the parts stock, have it checked for accuracy with an * OHM meter, then retain the gauge as a Special Service Tool for future use in testing both Fuel and Temperature Gauges. The tank unit selected for this purpose should show the following resistance when tested on a dependable OHM meter.

Full Position	9.6 ± 1 OHM Resistance	9.6 OHM Preferred
Empty Position	73 ± 12 OHM Resistance	73 OHM Preferred

* If you do not have a dependable OHM meter in the Service Department, your local radio repair station will be able to check a fuel gauge tank unit for resistance.

FUEL GAUGE TEST PROCEDURE

Note: If the fuel gauge indicator needle is completely out of sight in the gauge opening, the needle may be hung up on the stop pin at the end of the needle travel. In such cases it is only necessary to lift the needle from the pin to correct.

(Over)

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If necessary to gain access to the fuel gauge, remove the transmission push button bezel and push button knobs.

1. All checks must be made with the ignition switch ON and the engine not running. Battery voltage at the battery must be at least 12.6 volts.

2. Disconnect the fuel gauge dash unit feed wire (light blue) to tank unit, at the kick up in the luggage compartment. Connect the tank test unit lead wire to the fuel gauge dash unit wire. Then, securely ground the test unit base to the car body.

3. Move the test unit float arm to "Full". If the fuel gauge dash unit indicator moves to "Full", the dash unit and the voltage regulator in the dash unit are satisfactory. The difficulty is in the tank unit. Proceed to Step 4, however, if the dash unit indicator does not move to "Full" the difficulty may be in the dash unit, the voltage regulator or in the wire to the dash unit. Proceed with Step 5 through 7.

4. Check the Fuel Gauge Tank Unit for secure ground contact. To test the tank unit, remove the gauge from tank and check operation of gauge by observing dash unit while the tank unit is rotated through its normal travel. Note: The tank unit must be securely grounded in order to operate when removed from tank. Replace tank unit if necessary.

5. Check for voltage at fuel gauge terminal "I" (double dark blue wires). The input voltage at terminal "I" should be approximately the same as battery voltage. If there is a noticeable voltage drop at the "I" terminal, check for loose wiring connections.

6. Checking Fuel Gauge Voltage Regulator: Using special test lamp, check for current at fuel gauge terminal "A" (black wire). Securely ground one lead to the instrument panel and touch other lead of test lamp to terminal "A" of fuel gauge. If the test lamp is bright and the light pulsates approximately twenty-two times every fifteen seconds, the circuit and the voltage regulator are satisfactory. If the light pulsation is considerably faster or slower, the fuel gauge should be replaced. If the regulator checks good, proceed as follows:

7. With one test lamp lead still grounded, touch other lead of test lamp to terminal "S" of fuel gauge (light blue wire). If the test lamp pulsation is the same as at terminal "A" and the light is noticeably dimmer than at terminal "A", the fuel gauge dash unit is satisfactory, therefore, if difficulty exists it must be in the light blue wire from the fuel gauge to the tank unit, correct as required. If the test lamp does not light, replace fuel gauge dash unit.

TEMPERATURE GAUGE TEST PROCEDURE

Note: If both the Fuel and Temperature dash units are inoperative, it is possible that the difficulty is in the voltage regulator in the fuel gauge. Therefore, in these instances the fuel gauge should be tested first.

1. Disconnect violet wire from temperature sensing unit at the front of the engine and ground to the engine. If the temperature gauge indicator moves to the "hot" end of gauge, the circuit and the temperature gauge are satisfactory, the difficulty is in the temperature gauge sensing unit. Replace with a new sensing unit, Part No. 2084459, with 233° F stamped on side of hex. If the temperature gauge indicator does not move, proceed as follows:

2. Remove the heater (or air conditioner) control bezel and lift out control assembly to gain access to the temperature gauge dash unit.

3. Securely ground one lead of special test lamp and touch other lead of test lamp to terminal "A" of temperature gauge. (Black wire - right hand terminal.) If the test lamp is bright and pulsation is approximately 22 pulsations in fifteen seconds, the circuit from the fuel gauge to the temperature gauge is normal. Proceed with Item 4. If no light or pulsation is detected, check the black wire back to the fuel gauge and test as outlined in Item 5, 6 and 7 of Fuel Gauge Test Procedure.

4. With one test lamp lead grounded, touch other lead to the "S" terminal on the temperature gauge. If the test lamp is dimmer than at the "A" terminal, but the light pulsation is the same, the temperature gauge is satisfactory, therefore, if difficulty exists it must be in the violet lead wire from the temperature gauge to sensing unit, correct as required.

TEMPERATURE GAUGE CALIBRATION

If the Temperature Gauge reading is still felt to be inaccurate after it has been established that the electrical circuits are satisfactory through all gauges and wiring, and the actual temperature of the engine is found to be within the normal range, the gauge calibration can be checked and corrected if necessary, as follows:

1. Remove the violet wire from the "S" terminal of temperature gauge (left hand terminal). Connect the tank gauge test unit lead to the temperature gauge "S" terminal. Then, securely ground the test unit base to the dash panel. NOTE: When performing the following checks allow the temperature gauge to settle for two minutes to normalize at each of the test unit settings.

2. Ignition Switch On. Move the test unit float arm to "Full". The temperature gauge indicator should move toward the "hot spot" on the gauge. Looking from directly in front of the gauge, observe the position of the indicator in relation to the "hot spot" on the gauge. If the indicator covers any portion of the "hot spot", proceed to step 3. If the indicator is to the high side or beyond the "hot spot", the gauge will require calibration as outlined in step 4 through 8 below.

3. Move the test unit float arm to the "Empty" position. The temperature gauge indicator should then move slowly to the low end of the gauge and cover at least a portion of the "cold spot". If the indicator does not cover a portion of the "cold spot" adjust as outlined in step 4 through 8.

Calibrating Temperature Gauge (Calibration should be made in draft free area)

4. Remove the Temperature Gauge Dash Unit as follows: Disconnect the temperature gauge "A" terminal wire. Then, remove the two screws that attach the temperature gauge to the instrument panel gauge housing. Carefully lower the gauge from the housing and remove from the instrument panel through the heater control opening. Remove the tape covering the calibration holes in the gauge base.

5. Hold the gauge face on a level horizontal plane, insert a screwdriver through the calibration hole closest to the face of the gauge. Then, turn the screwdriver until the indicator needle just touches the rest stop. CAUTION: If the gauge is not held level during the setting of the indicator, a false stop setting may be obtained which will affect the final calibration.

6. Carefully reinstall the gauge in the instrument panel and connect the black wire to the "A" terminal. Then reconnect the tank gauge test unit wire to the temperature gauge "S" terminal and ground the test unit base to the dash.

7. Turn the ignition switch on. Move the test unit float arm to "Full". Allow the gauge to settle for two minutes at the "hot spot" to normalize. Then, insert the screwdriver through the rear hole in the gauge base and carefully turn the screwdriver slowly until the gauge indicator covers the "hot spot".

8. Move the test unit arm to "Empty" and observe the indicator as it returns to the "cold spot". Again allow two minutes for gauge to settle. If the indicator does not cover a portion of the "cold spot" replace the gauge.

9. If gauge calibration is now correct, place a piece of masking tape over the calibration holes in gauge to prevent entry of dust and dirt and reinstall violet wire on "S" terminal.

10. Reassemble the heater control and bezel. Reinstall the transmission push button knobs and bezel, if removed. Tighten all screws securely.

The parts shown in this bulletin are stock class code "P".

George J. Cutler

GEORGE J. CUTLER
Director of Service
PLYMOUTH-DE SOTO-VALIANT DIVISION

IMPORTANT Service INFORMATION

DeSoto

DATE 4-13-60 NUMBER 1129 Rev.

GROUP ELECTRICAL

SUB-GROUP STARTING MOTOR

○ SERVICE DEPARTMENT ○ DE SOTO DIVISION ○ CHRYSLER CORPORATION ○

TO ALL DE SOTO DEALERS:

ATTENTION: This page cancels and supersedes the original page one of De Soto Service Bulletin No. 1129, dated March 3, 1960. Please remove the original first page from your copy of that bulletin and insert this revision in its place.

SUBJECT: NEW 1960 DE SOTO STARTING MOTOR - PART NO. 1889200

A new starting motor assembly manufactured by the Electrical Equipment Division of Chrysler Corporation recently entered production on 1960 De Soto cars. Initially, both the new starting motor and the original Auto-Lite motor will be used in production to meet scheduled requirements.

The new starting motor is the same basic type as the Auto-Lite starter used previously, although the external appearance is noticeably different. The new motor is a 12 volt, four-coil type with an overrunning clutch drive operated by a solenoid switch mounted on the starter frame. The starter brushes and springs are installed in a separate, replaceable brush holder plate assembly. See Figure 1.

WARRANTY SERVICE POLICY for the new starting motor is the same as for all other standard parts on 1960 De Soto cars. Since this new starting motor is manufactured by Chrysler Corporation, Auto-Lite Service Stations can not extend warranty service. Parts required for servicing the new unit are listed in your 1960 MoPar Parts Catalog.

Service Diagnosis procedures on the new starting motor are the same as outlined in the 1960 De Soto Service Manual for the original Auto-Lite motor. Also, procedures for testing starter current resistance and current draw, removal of unit, free running and stall test on the bench remain the same as shown in the 1960 De Soto Service Manual, Group 8, Electrical and Instruments, page 16. (Refer to page 6 of this bulletin for specifications on the new starting motor.) Service procedures for disassembly, testing and reassembly of the new starter are as follows:

DISASSEMBLING THE STARTER

1. Remove the through bolts at the commutator end of the starter and pull the end head from the field frame. Remove the thrust washers from armature shaft.

2. Lift the brush holder springs and remove the brushes, as shown in Figure 2. Remove the brush holder ring.

3. Disconnect the field coil leads at the solenoid connector. A rubber sealing grommet is located at the lower end of the solenoid connector strap, as shown in Figure 3.

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85-515-6880 DESIGNED TO ENDURE

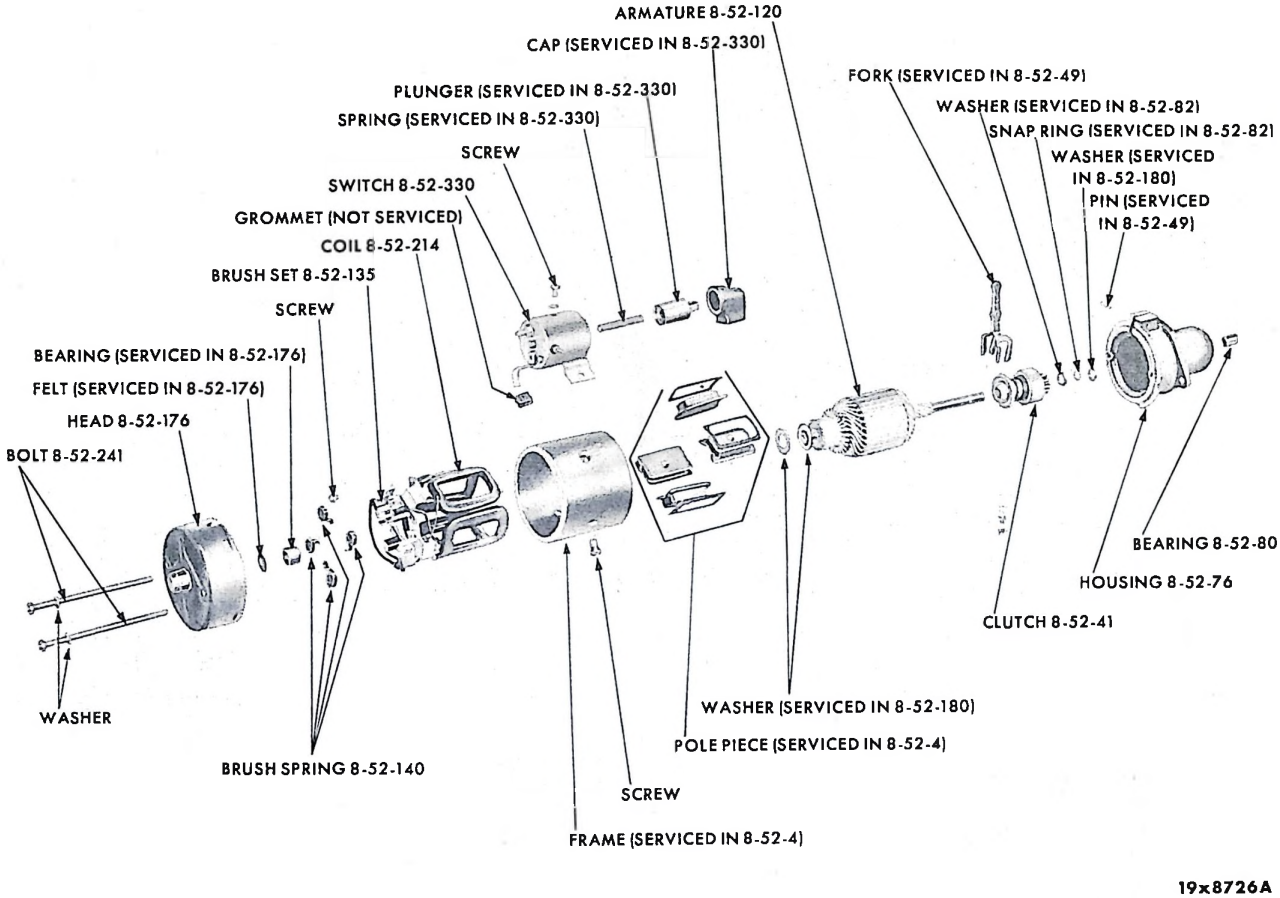

Figure 1.

4. Remove the solenoid attaching screws and remove the solenoid and boot assembly.

5. Drive out the overrunning clutch shift fork pivot pin at the upper side of the pinion housing. Remove the drive end pinion housing and spacer washer.

6. Note the position of the shifter fork on starter drive and remove shifter fork, as shown in Figure 4.

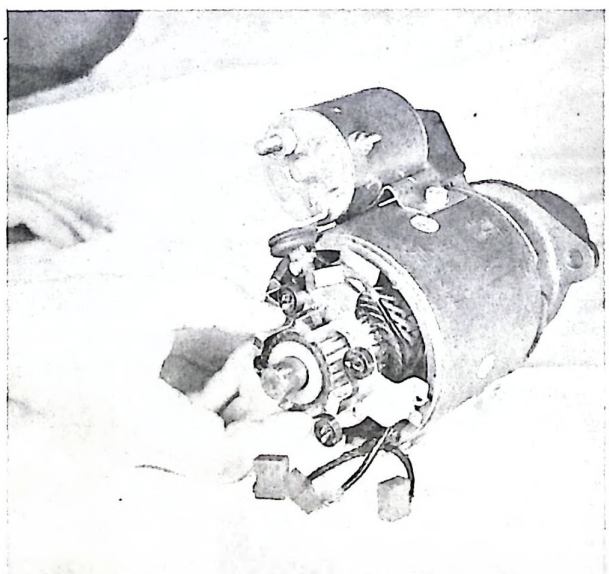

Figure 2.

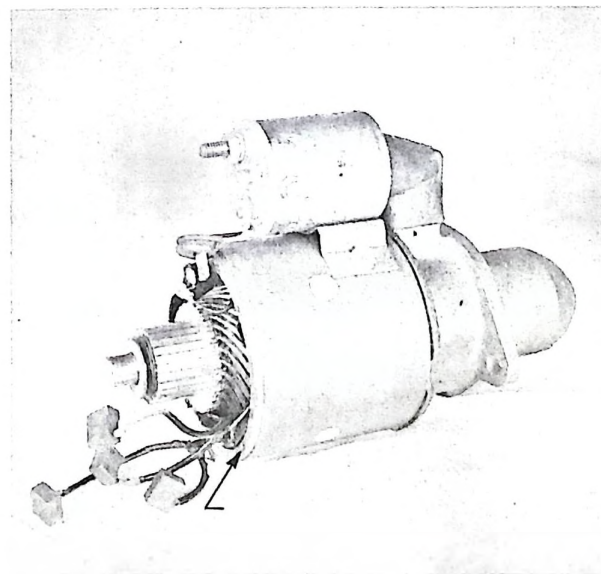

Figure 3.

7. Slide the overrunning clutch pinion gear towards commutator end of armature, drive the stop retainer towards the pinion gear to expose the snap ring (Figure 4.) and remove the snap ring. Remove the overrunning clutch drive from the armature shaft.

8. If necessary to replace field coils, remove the ground brushes terminal attaching screw and raise the brushes with terminal and shunt wire up and away from field frame. See Figure 5. Remove pole shoe screws with special impact screwdriver, Tool C-3475.

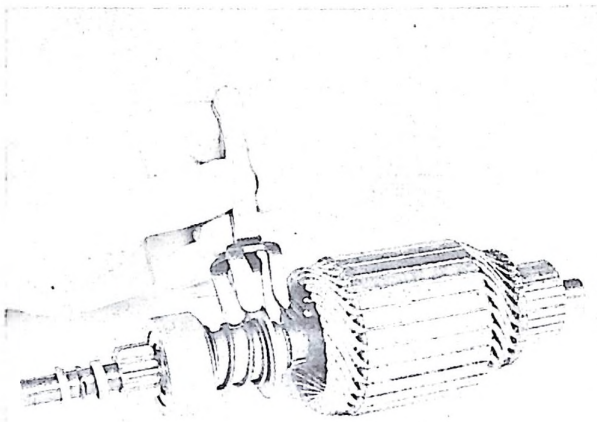

Figure 4.

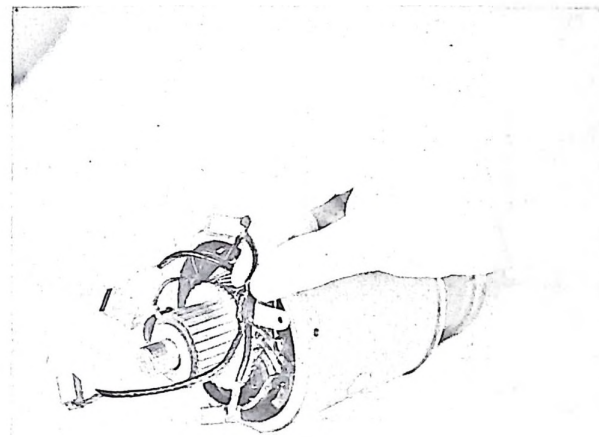

Figure 5.

The procedure for cleaning the starter parts is the same as outlined in the 1960 De Soto Service Manual.

REPLACING BRUSHES AND SPRINGS

Brushes that are worn to 1/4 inch or less in length, or are oil-soaked, should be replaced.

1. To replace the two grounded brushes, unsolder the leads at the ground brush terminal. See Figure 5.

2. To replace the two brushes connected to the field coils, unsolder the brush leads at the field coil terminal adjacent to the hole in the front face of the field frame which is used in locating the brush holder ring assembly. (See arrow, Figure 3.)

3. When resoldering brush leads, a strong, low resistance connection should be made, using a high temperature solder and resin flux. Do not use acid core solder. Care must be exercised so that shunt wire is not broken when removing and installing ground brushes.

4. Check brush spring tension with the starting motor completely assembled except for the end head. Measure spring tension with a spring scale hooked under the spring near the end. Pull the scale straight back from the end of the brush while holding the brush against the commutator. Take a reading just as the spring end looses contact with the brush. Spring tension should be 32 to 48 ounces. Replace any springs that are not within specifications.

5. To remove brush springs, spread the retainer tabs apart slightly on the brush holder ring. If new springs are installed, pinch the retainer tabs together if necessary, to hold spring securely.

The following service procedures are the same on the new starting motor as for the Auto-Lite motor: Testing armature for short circuit and ground; checking commutator for runout; and, refacing and undercutting the commutator.

TESTING THE FIELD COILS FOR GROUND

1. With commutator end head, brushes and brush holder ring removed, disconnect field lead wires at solenoid connector and separate field leads to make sure they do not touch the solenoid connector. Refer to Figure 3.

2. Remove the screw attaching the ground terminal to the field frame and pull the brush leads, shunt wire and terminal assembly aside so there will be no contact, as shown in Figure 5.

3. Touch one probe of test lamp to series field coil lead and the other probe to field frame, as shown in Figure 6. Lamp should not light.

Figure 6.

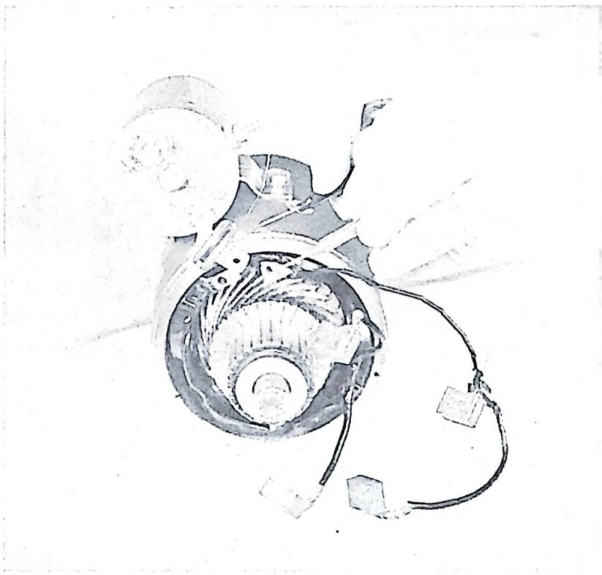

Figure 7.

4. Touch one probe to the shunt field coil lead and the other probe to the field frame. Figure 7. If lamp lights in either test (3) or (4) the field coils are grounded and each coil should be tested separately after unsoldering the connector wires. Replace grounded field coils.

5. Test the two insulated brush holders for ground contact to the ring assembly by touching one test light probe to the brush holder and the other to the ring, as shown in Figure 8.

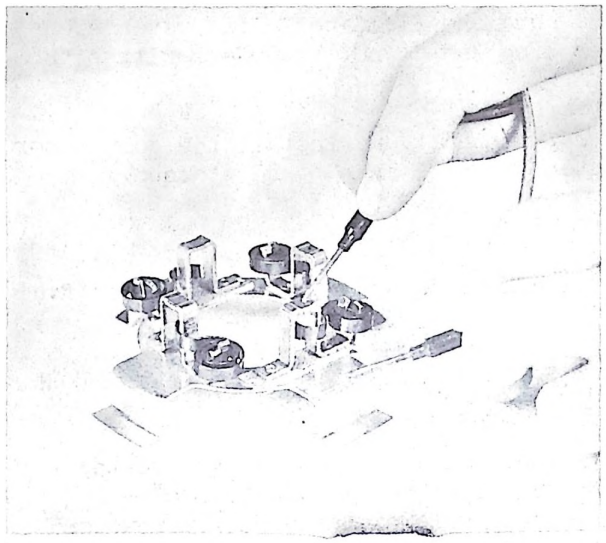

Figure 8.

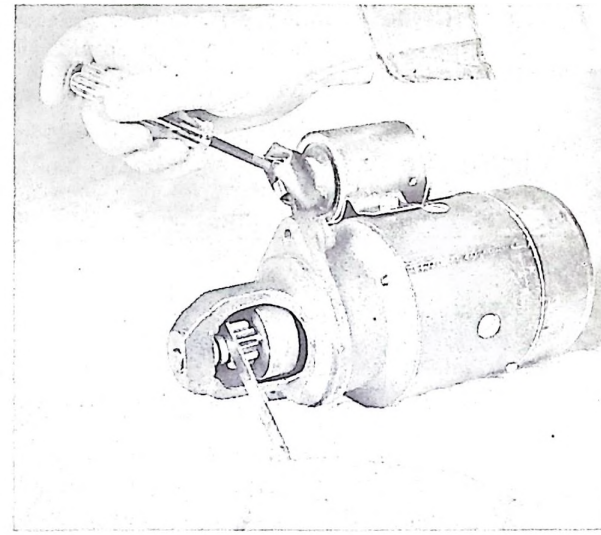

Figure 9.

The lamp should not light. If lamp lights, the insulated brush holders are grounded and the brush ring assembly must be replaced. The other two brush holders are intentionally grounded.

Service procedures covering armature shaft bushings and drive unit are the same as for the Auto-Lite starting motor.

ASSEMBLING THE STARTER

1. Lubricate the armature shaft and splines with SAE 10-W oil or 30W rust preventative oil.

2. Install the starter drive, stop collar (retainer), lock ring and spacer washer. When properly assembled, the smaller diameter end of the spacer washer should be in contact with the lock ring inside the stop collar.

3. Install shifting fork over the starter drive spring retainer washer with narrow leg of fork towards commutator, as shown in Figure 4. Important: If fork is not properly positioned, it will restrict starter gear travel, causing a lock-up in the clutch mechanism.

4. Install drive end (pinion) housing on armature shaft, indexing shifting fork with slot in housing. Install shifting fork pivot pin.

5. Install the solenoid and the boot assembly on the field frame. Tighten mounting screws to 60-70 inch pounds torque.

6. Install pinion housing and armature assembly into the field frame so that the slot in the housing indexes with the locating tab projecting from the solenoid base. Make sure the shifting fork lever is inserted in the solenoid plunger link.

7. Connect the field coil leads at the solenoid connector. Figure 3. Connect the ground brushes and shunt wire terminal to field frame, if removed. Figure 5.

8. Install the brush holder ring assembly, indexing tang on ring in hole of field frame. Figure 2.

9. Install the brushes in brush holders. Be sure the field coil lead wires are properly enclosed behind the brush holder ring and do not interfere with brush operation.

10. Position the thrust washers on end of armature shaft and install the commutator end head. Insert through bolts and tighten to 40-50 inch pounds torque.

ADJUSTING STARTER DRIVE GEAR (PINION) CLEARANCE

1. Place starter assembly in vise equipped with soft jaws and tighten vise sufficiently to hold starter.

2. Push in on the forward end of the solenoid plunger link (NOT THE SHIFTING FORK LEVER) until plunger bottoms, as shown in Figure 9.

3. Measure clearance between end of pinion and pinion stop with plunger seated and pinion pushed toward commutator end. The clearance should be 1/8" ± 1/32 inch. Adjust for proper clearance by loosening solenoid attaching screws and moving solenoid in slotted holes in base, if required. NOTE: In some cases, it may be necessary to remove the starter end head and bend the end of the solenoid connector slightly to obtain proper adjustment.

SPECIFICATIONS - STARTING MOTOR PART NO. 1889200

Starter Model	
Voltage	12
No. of Fields	4
No. of Poles	4
Brushes	4
Spring Tension	32 to 48 ounces
Drive	Solenoid Shift Overrunning Clutch
End Play	.005" Minimum
Free-Running Test	
Voltage	11
Amperage Draw	80 Amps. Maximum
Minimum Speed RPM	3800 Minimum
Stall Torque Test	
Torque Foot-Pounds	8.5
Voltage	4
Amperage Draw	350
Pinion to Stop Clearance	1/8" ± 1/32" Between Pinion Stop (with Armature End Play Removed)
Solenoid Switch	
Pull-In Coil	20.0 to 22.2 Amps at 6 Volts (at 70° F.)
Hold-In-Coil	11.2 to 12.4 Amps at 6 Volts (at 70° F.)

The part number listed in this bulletin is stock class code "P".

George J. Cutler

GEORGE J. CUTLER
Director of Service
PLYMOUTH-DE SOTO-VALIANT DIVISION

IMPORTANT Service INFORMATION

DeSoto

DATE	NUMBER
4-27-60	1141

GROUP: Electrical

SUB-GROUP: Wiring Connections

SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION

TO ALL DE SOTO DEALERS:

SUBJECT: WIRING HARNESS CONNECTOR TERMINALS

If erratic or intermittent operation of an electrical unit is encountered on a 1960 De Soto car, it is important to first check the wiring harness connector terminals in the particular circuit involved before assuming that the unit itself is at fault. A loose connector terminal, or one that is not firmly inserted in the mating terminal, can affect the operation of electrical units. The recommended checking procedures are as follows:

1. Check for correct assembly of wiring terminals at single and multiple blade type connectors according to the color code shown on the wiring diagrams in the 1960 De Soto Service Manual. Make sure each terminal is firmly inserted in the mating terminal.

2. If the condition is not corrected in (1) above, disconnect the single terminal connectors in the circuit. Slide the female half of the terminal out of its insulator by disengaging the retainer tab on the flat side of the terminal. To accomplish this, insert a thin knife blade or similar tool at the open end of the terminal so it wedges between the terminal and insulator and press down on the retainer tab. Care must be exercised to avoid cracking the insulator.

3. Reassemble the connector with the blade terminal firmly inserted and check or secure contact. IMPORTANT: If the male terminal is not held securely, crimp the female terminal sufficiently to obtain a more positive contact. There should be no looseness in the connection. Re-install the insulator on the female terminal.

It must be emphasized that the procedure for checking single terminal connectors by removing the female terminal from the insulator, as outlined above, is essential because satisfactory terminal contact can not be detected by visual inspection alone. This procedure should also be applied for checking multiple connectors if high resistance in the circuit is indicated.

George J. Cutler

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Director of Service
PLYMOUTH-DE SOTO-VALIANT DIVISION

P-2005-C

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IMPORTANT Service INFORMATION

DeSoto

• SERVICE DEPARTMENT • DE SOTO DIVISION • CHRYSLER CORPORATION •

DATE	NUMBER
4-27-60	1145

GROUP: Electrical

SUB-GROUP: Voltage Regulator

TO ALL DE SOTO DEALERS:

SUBJECT: DE SOTO IMPORTANT SERVICE INFORMATION BULLETIN NO. 1066, GROUP - ELECTRICAL, DATED APRIL 15, 1959

REFERENCE: VOLTAGE REGULATOR, PART NO. 1842798 (VRX-6301-A) CODE DATED 10N OR A LOWER NUMBER

Effective May 1, 1960, the subject bulletin and the special warranty policy covering the replacement of the particular voltage regulators outlined in that bulletin are cancelled.

Please remove Bulletin No. 1066 from your Bulletin File.

George J. Cutler

GEORGE J. CUTLER
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PLYMOUTH-DE SOTO-VALIANT DIVISION

P-2055-C

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