



Service Repair Manual

Models

**D35HP ARTICULATED
DUMP TRUCK**

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Product: ARTICULATED TRUCK

Model: D35HP ARTICULATED TRUCK 3FD

Configuration: D35HP ARTICULATED DUMP TRUCK 3FD00001-00079 (MACHINE) POWERED BY 3406 ENGINE

Disassembly and Assembly

Starting Motor - Delco 50-MT

Media Number -SEN3860-03

Publication Date -01/03/2007

Date Updated -06/07/2016

i02711568

Starting Motor - Assemble

SMCS - 1453-016

Assemble the Starting Motor

Note: The following procedure is only for the 24 volt starting motor.

Table 1

Tools Needed
1P-0510 Driver Gp
1P-1855 Retaining Ring Pliers

1. Lubricate the following items with SAE 20W oil: bushings, seals and oil wicks.



Illustration 1

g00705427

2. Put the field winding assembly (35) and pole shoes (34) in position in the starting motor housing. Install the twelve screws (37) and tighten to a torque of $20.3 \pm 2.3 \text{ N}\cdot\text{m}$ ($180 \pm 20 \text{ lb in}$). Install the motor terminal (36), the washers and the nut. Tighten the nut to a torque of $30 \pm 3 \text{ N}\cdot\text{m}$ ($22 \pm 2.0 \text{ lb ft}$).

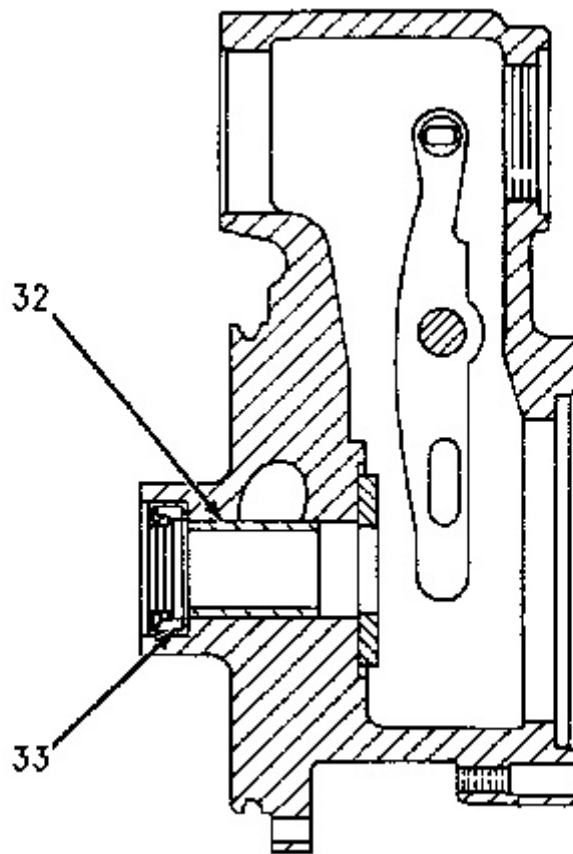


Illustration 2

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3. Use a **1P-0510** Driver Gp to install the bushing (32) and the seal (33) into the shift lever housing .

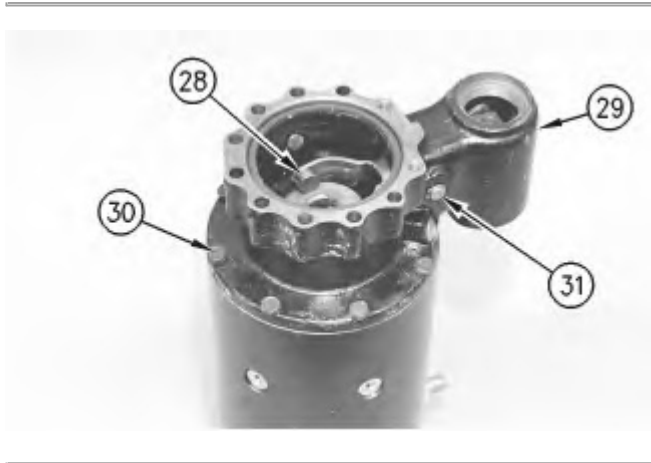


Illustration 3

g00705073

4. Install the seals on the shaft (31). Position the shift lever assembly (28) into the shift lever housing. Use a **1P-1855** Retaining Ring Pliers to install the shaft (31) and the snap ring .
5. Install the O-ring seal and the gasket onto the shift lever housing. Set the shift lever housing assembly (29) onto the starting motor housing in the correct position. Install the seven bolts and tighten the bolts (30) to a torque of 12.2 ± 2.7 N·m (108 ± 24 lb in).

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Illustration 4

g00704879

6. Use **5P-0960** Molybdenum Grease to lubricate the armature assembly bushing areas. Do not grease the armature core or the commutator.
7. Put the pinion drive assembly (27) into position in the fork of the shift lever. Put the spacer on the armature assembly (26). Install the armature assembly (26) into the starting motor housing and the shift lever housing. Slide the armature assembly (26) into the pinion drive assembly (27).

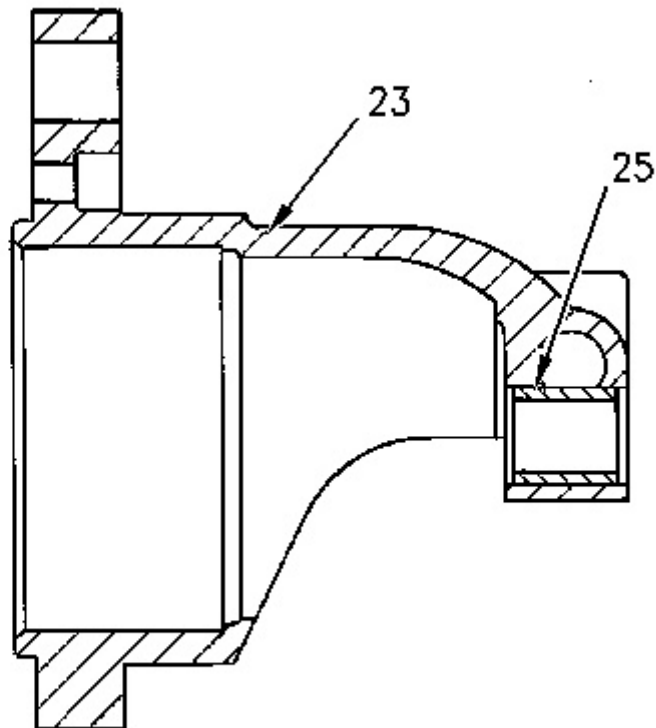


Illustration 5

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8. Use a **1P-0510** Driver Gp to install the bushing (25) into the pinion drive housing (23).

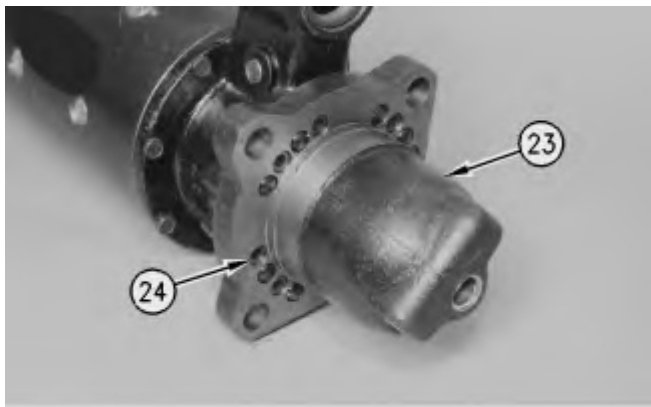


Illustration 6

g00704870

- Slide the pinion drive housing assembly (23) onto the shift lever housing in the correct position. Install the six screws (24) and tighten to a torque of $20 \pm 3 \text{ N}\cdot\text{m}$ ($178 \pm 27 \text{ lb in}$).

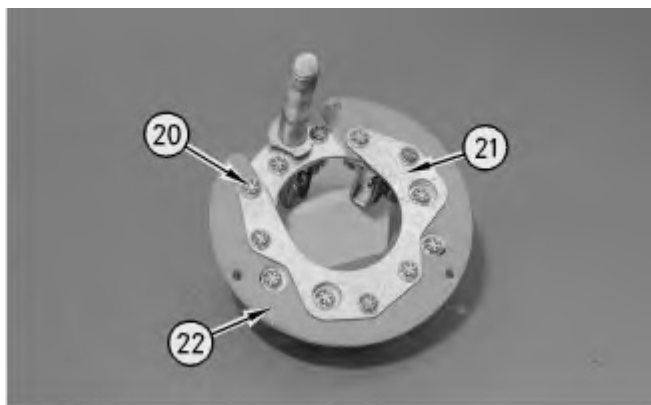


Illustration 7

g00704856

- Position the insulator (22), the plate (21) and the brush holders onto the brush plate assembly. Install the screws (20) and tighten the screws .
-

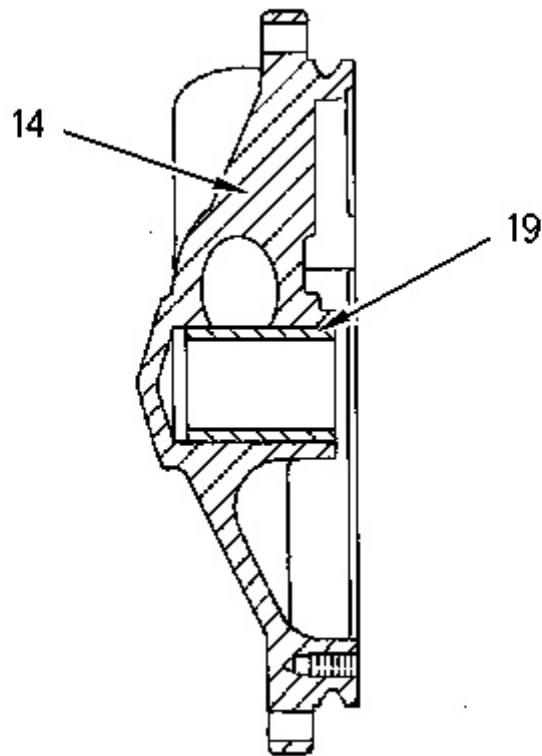


Illustration 8

g00704842

11. Use a **1P-0510** Driver Gp in order to install the bushing (19) into the rear frame assembly (14) .

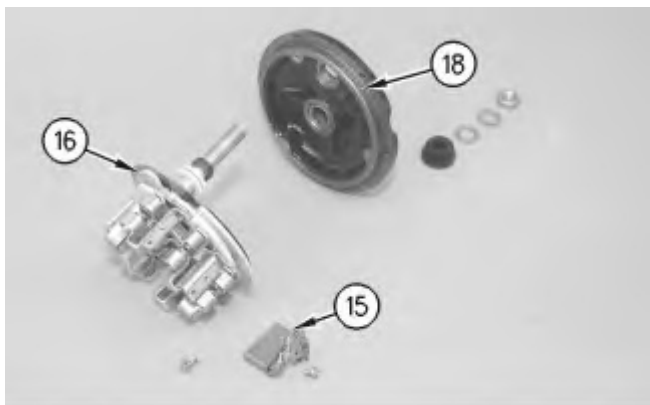


Illustration 9

g00705811

12. Install the O-ring seal (18) onto the rear frame assembly. Position the gasket onto the brush plate assembly (16). Put the washers and the insulator on the negative terminal.
13. Position brush plate assembly (16) onto the rear frame and install the three screws. Install the negative terminal insulator, the washers and the nut. Tighten the nut to a torque of $30 \pm 3 \text{ N}\cdot\text{m}$ ($22 \pm 2 \text{ lb ft}$).

14. Install the brushes (15) with the brush springs against the side of each brush. Tighten the lead screw for the brushes to a torque of $2.9 \pm 1.0 \text{ N}\cdot\text{m}$ ($26 \pm 8 \text{ lb in}$).

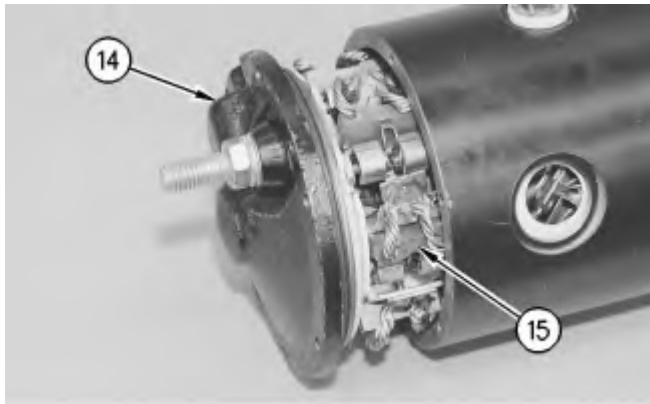


Illustration 10

g00705821

15. Put the washer onto the armature assembly. Position the rear frame assembly (14) over the commutator. Push the brushes (15) into the holders so that the springs are on top of the brushes.
16. Put the rear frame assembly against the starting motor housing in the correct position. Install the six bolts and tighten the bolts to a torque of $12.2 \pm 2.7 \text{ N}\cdot\text{m}$ ($108 \pm 24 \text{ lb in}$). Connect the wire assembly to the negative terminal on the end frame assembly.

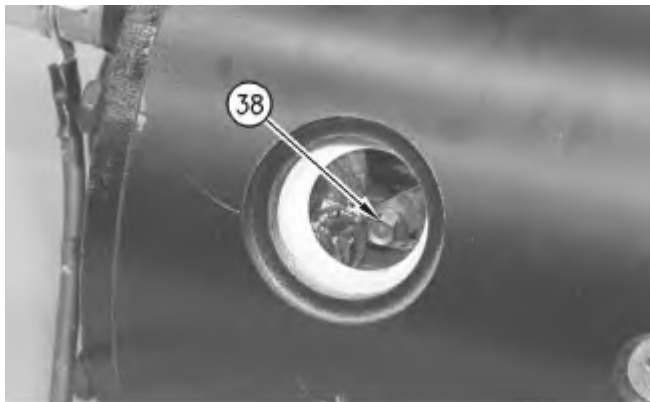


Illustration 11

g00705835

17. Connect the three field winding leads (38) to the brush plate assembly. Tighten the screws to a torque of $2.9 \pm 1.0 \text{ N}\cdot\text{m}$ ($26 \pm 8 \text{ lb in}$). Install the three gaskets and plugs on the starting motor housing.
-

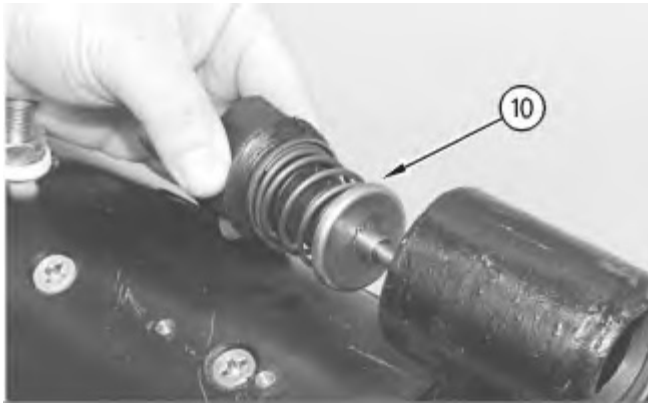


Illustration 12

g00706331

18. Install the washer, the retainer, the boot, the spring, the retainer and the ring onto the plunger.
19. Position the plunger assembly (10) into the shift lever housing. Install the nut finger tight. The plunger assembly will need to be adjusted for the correct pinion clearance after the starting motor has been completely assembled.

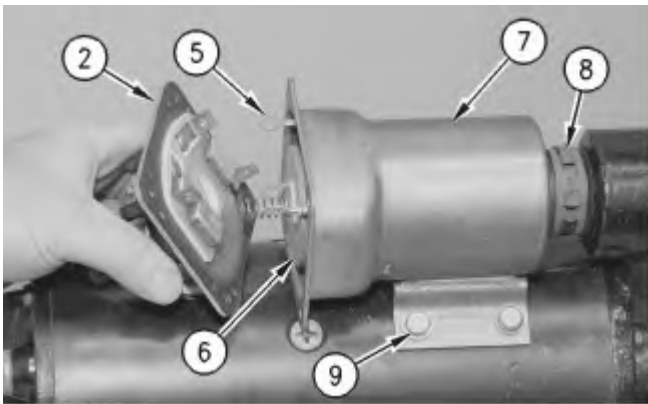


Illustration 13

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20. Position the solenoid (7) over the plunger assembly. Install the bolts (9) and tighten the bolts to a torque of $12.2 \pm 2.7 \text{ N}\cdot\text{m}$ ($108 \pm 24 \text{ lb in}$). Tighten the clamp.
21. Install the contact assembly (6). Install the insulator, the lockwashers, the washers, the nuts and the gasket onto the terminal assembly. Tighten the small nuts to a torque of $2.25 \pm 0.25 \text{ N}\cdot\text{m}$ ($20 \pm 2.2 \text{ lb in}$). Tighten the larger nuts to a torque of $30 \pm 3 \text{ N}\cdot\text{m}$ ($22 \pm 2 \text{ lb ft}$).
22. Connect the leads (5) to the back of the terminal assembly (2). Install the terminal assembly, the bolts and the nuts onto the solenoid. Tighten the nuts to a torque of $2.25 \pm 0.25 \text{ N}\cdot\text{m}$ ($20 \pm 2.2 \text{ lb in}$). Connect the negative wire assembly to the ground terminal. Tighten the nut to a torque of $30 \pm 3 \text{ N}\cdot\text{m}$ ($22 \pm 2 \text{ lb ft}$).

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Product: ARTICULATED TRUCK

Model: D35HP ARTICULATED TRUCK 3FD

Configuration: D35HP ARTICULATED DUMP TRUCK 3FD00001-00079 (MACHINE) POWERED BY 3406 ENGINE

Disassembly and Assembly

ARTICULATED DUMP TRUCK OPERATOR'S STATION & ELECTRICAL SYSTE

Media Number -SEN8188-00

Publication Date -01/09/1987

Date Updated -09/10/2003

SEN81880001

Dash Panel Components - D25C, D30C, D35C, D350C, D35HP, D400, D44B, D550B

Dash Panel Components - D25C, D30C, D35C, D350C, D35HP, D400, D44B, D550B

NOTICE

Moving dash panels may cause electrical connections to ground on the panel housing. Disconnect the batteries before working on the dash panels.

 **WARNING**

Compressed air will be released when air pipes are disconnected from the dash panels.

This can cause personal injury. Loosen connections slowly and wear protective clothing and glasses.

Before removing any electrical cables, clearly mark the cable and the connection to aid correct assembly.

Left Hand Panel Components

Remove Panel

Remove screws (1) and carefully lift the panel out to the extent of the of the electrical harness.

Remove Warning Lights

All warning lights (23) can be removed in the same way. Disconnect the wires. Remove the nut from the light body on the back of the panel and withdraw the light assembly from the front.

Remove Lights Switch

Disconnect the wires from the switch (22). Remove screw (26) and pull off the knob (25). Remove nut (24) from the front of the panel, and withdraw the switch from the back.

Remove Switches

All switches (19) are removed in the same way. Disconnect the wires, remove the rubber cover and locknut from the front of the panel, and withdraw the switch from the back.

Remove Circuit Breakers

All circuit breakers(2) are removed in the same way. Disconnect the wires. Remove the rubber cover and the nut from the front of the panel and withdraw the circuit breaker from the back.

Remove Flasher Unit

The flasher unit(20) is located behind the panel. Remove by carefully pulling it free from the socket.

Remove Brake Overstroke Warning Light Interruptor Unit

The interruptor unit(21) is located behind the panel. Remove by cutting the plastic ties securing the unit to the harness and disconnect the wires.

Center Panel Components

Remove Panel

Remove screws(6) and carefully lift the panel out to the extent of the electrical harness.

Remove Gages

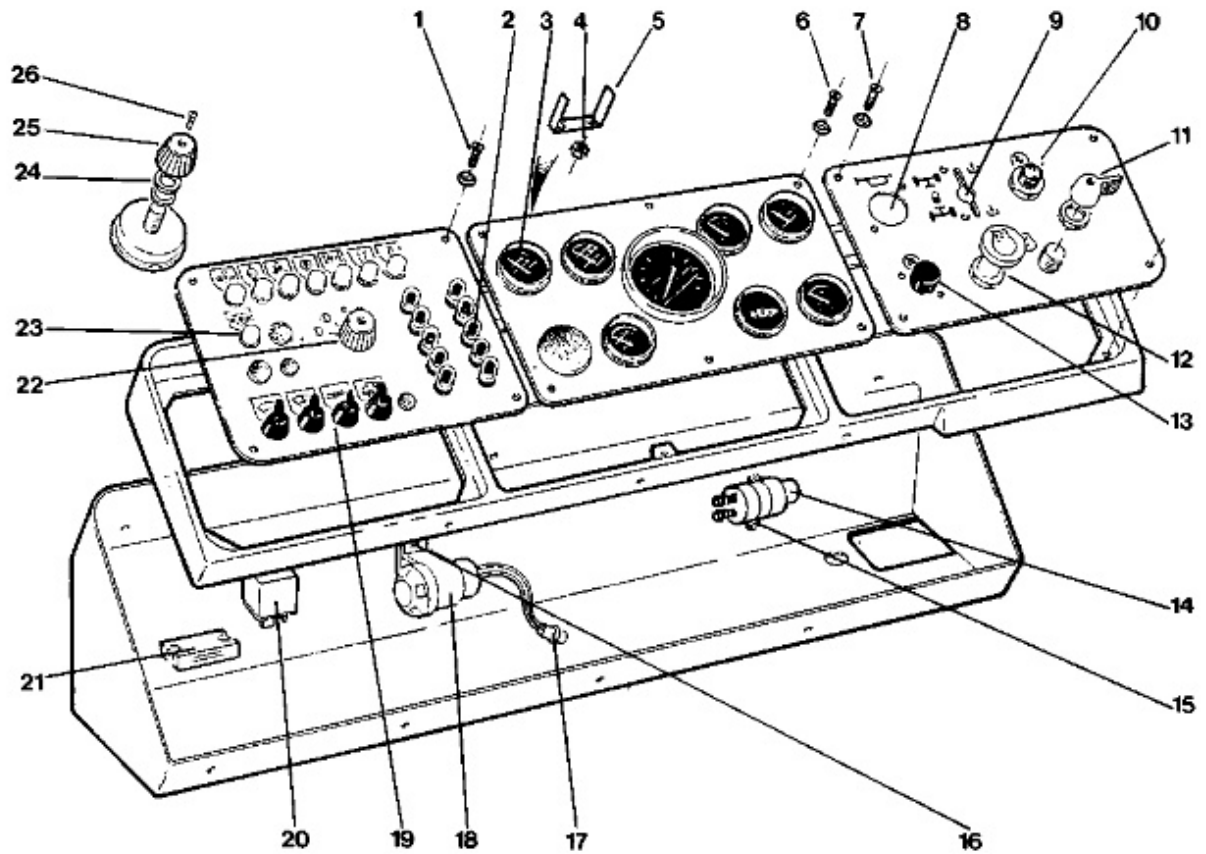
All gauges(3) can be removed in the same way. Disconnect the wires from electric gages or the pipes from the mechanical gages. Remove the nuts(4) and brackets(5) which hold the gauge in place, and remove the gauge from the front of the panel.

Remove Low Air Pressure Warning Buzzer

The warning buzzer(18) is located behind the panel. Remove by separating snap connector(17) and remove the two mounting screws(16).

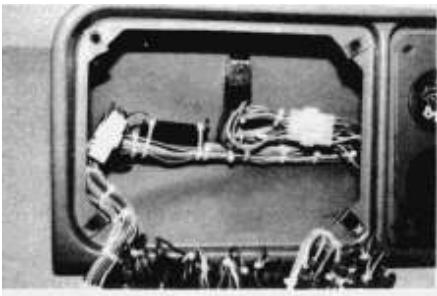
Remove Windscreen Washer Pump

The washer pump(14) is located behind the panel. Disconnect the pipes and wires and remove two bolts and nuts(15).



Dash Panel Arrangement

(1) Screw (2) Circuit Breaker (3) Gauges (4) Nut (5) Bracket (6) Screw (7) Screw (8) Horn Valve (9) Differential Lock/Six Wheel Drive Air Valve (10) Isolator Switch (11) Start Switch (12) Ether Inject Switch (13) Engine Stop Switch (14) Windscreen Washer Pump (15) Bolt (16) Screw (17) Snap Connector (18) Low Air Pressure Warning Buzzer (19) Switches (20) Flasher Unit (21) Brake Overstroke Interruptor Unit (22) Lights Switch (23) Warning Lights (24) Nut (25) Knob (26) Screw



Right Hand Panel Components

Remove Panel

Remove screws(7) and lift the panel out to the extent of the electrical harness.

Remove Horn Valve

Mark for identification on reassembly, and remove the plastic pipes from the horn valve body(8). Remove the two screws from the front of the panel and withdraw the valve from the back.

Remove Ether Inject Switch

Disconnect the wires from the back of the switch(12). Remove the screw from the switch knob, and pull off the knob. Remove the nut from the front of the panel and withdraw the switch from the back.

Remove Start Switch

Disconnect the wires from the back of the switch(11). Remove the screw from the switch knob, and pull off the knob. Remove the nut from the front of the panel and withdraw the switch from the back.



Remove Engine Stop Switch

Disconnect the wires from the switch(13). Remove the two screws from the front of the panel, and withdraw the switch from the back.

Remove Isolator Switch

Disconnect the wires from the switch(10). Remove the nut from the front of the panel and withdraw the switch from the back.

Remove Differential Lock/Six Wheel Drive Valve

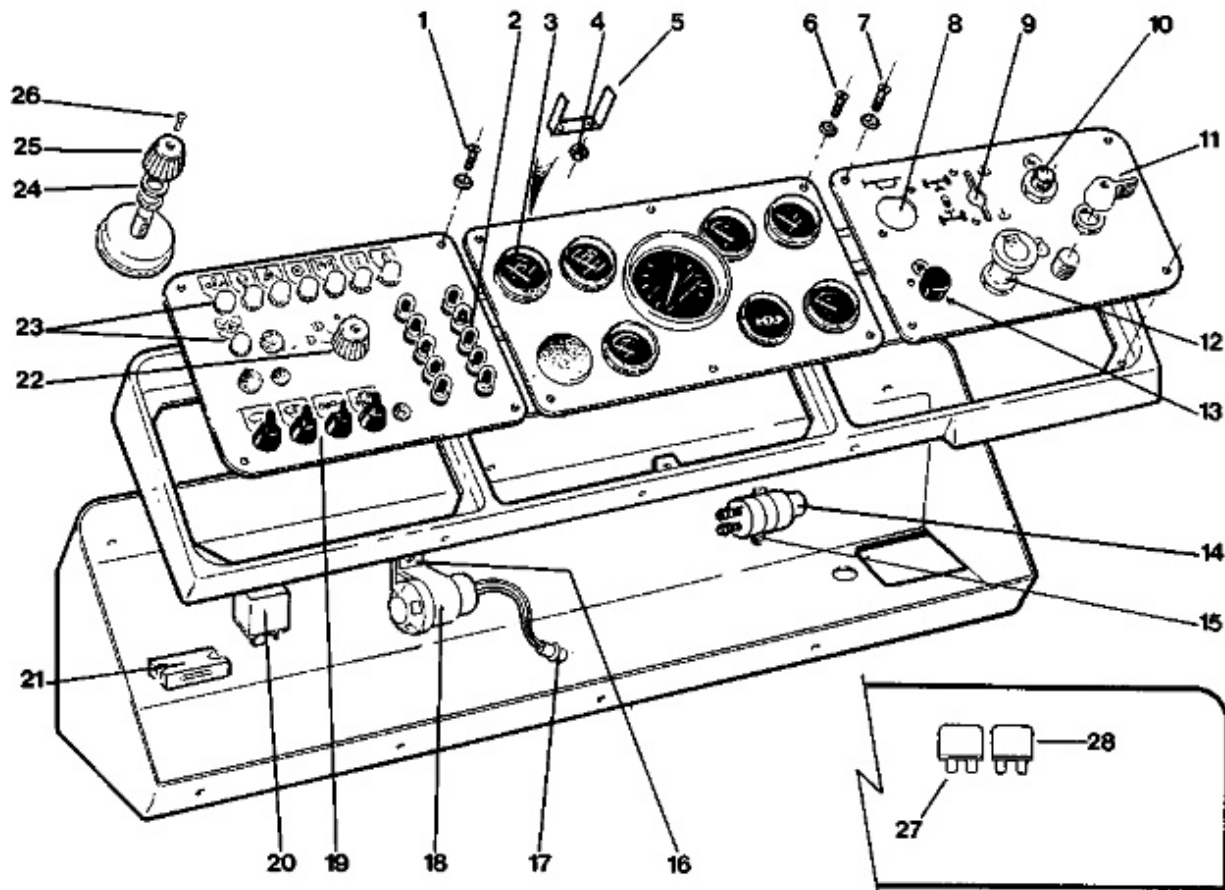
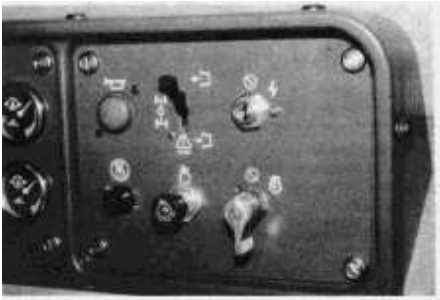
Mark the pipes for identification on assembly, and disconnect. Remove the two screws from the front of the panel and withdraw the valve(9) from the back.

Remove Torque Converter Lock Up Relay (if equipped)

The relay is located behind the panel. Remove by carefully pulling it free from its socket.

Remove Jake Brake Relay (D35HP and D400)

The relay is located behind the panel. Remove by carefully pulling it free from its socket.



Dash Panel Arrangement

(1) Screw (2) Circuit Breaker (3) Gages (4) Nut (5) Bracket (6) Screw (7) Screw (8) Horn Valve (9) Differential Lock/Six Wheel Drive Air Valve (10) Isolator Switch (11) Start Switch (12) Ether Inject Switch (13) Engine Stop Switch (14) Windscreen Washer Pump (15) Bolt (16) Screw (17) Snap Connector (18) Low Air Pressure Warning Buzzer (19) Switches (20) Flasher Unit (21) Brake Overstroke Interruptor Unit (22) Lights Switch (23) Warning Lights (24) Nut (25) Knob (26) Screw (27) Lock Up Relay (if equipped) (28) Jake Brake Relay (D35HP and D400)

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Product: ARTICULATED TRUCK

Model: D35HP ARTICULATED TRUCK 3FD

Configuration: D35HP ARTICULATED DUMP TRUCK 3FD00001-00079 (MACHINE) POWERED BY 3406 ENGINE

Disassembly and Assembly

ARTICULATED DUMP TRUCK OPERATOR'S STATION & ELECTRICAL SYSTE

Media Number -SEN8188-00

Publication Date -01/09/1987

Date Updated -09/10/2003

SEN81880002

Dash Panel Components - D250B and D300B

Dash Panel Components - D250B and D300B

NOTICE

Moving dash panels may cause electrical connections to ground on the panel housing. Disconnect the batteries before working on the dash panels.



Compressed air will be released when air pipes are disconnected from the dash panels.

This can cause personal injury. Loosen connections slowly and wear protective clothing and glasses.

Before removing any electrical cables, clearly mark the cable and the connection to aid correct assembly.

Left Hand Panel Components.

Remove Panel

Remove the five screws(21) securing the panel trim(20), and lift the trim off the panel housing. Remove screws(16) and lift the panel out to the extent of the electrical harness.

Remove Ether Inject Switch and Engine Stop Switch.

Remove both switches as follows. Disconnect the wires. Loosen the switch locknut on the back of the panel, unscrew and remove the pushbutton cover on the front of the panel, and withdraw the switches(13) and (15) from the back.

Remove Isolator Switch

Disconnect the wires. Remove the nut from the front of the panel and withdraw the switch(14) from the back.

Remove Horn Valve

Mark for identification on reassembly, and remove the plastic pipes from the valve(17). Pull the pushbutton out of the valve, remove the nut from the front of the panel and withdraw the valve from the back.

Center Panel Components.

Remove Panel

Remove screws(12) and lift the panel out to the extent of the electrical harness.

Remove Gauges

All gauges(9) can be removed in the same way. Disconnect the wires or pipes as appropriate. Remove the nuts(10) and brackets(11) which hold the gauge in place, and remove the gauge from the front of the panel.

Remove Warning Lights

All warning lights(19) can be removed in the same way. Disconnect the wires. Remove the nut from the light body on the back of the panel and withdraw the warning light from the front.

Remove Circuit Breakers

To remove all of the circuit breakers(1) as an assembly, proceed as follows:

1. Remove the two screws(2), and pull the mounting plate, with the circuit breakers attached, down into the panel housing.
2. Disconnect the wires and remove the assembly from the housing.

To remove individual circuit breakers, proceed as follows:

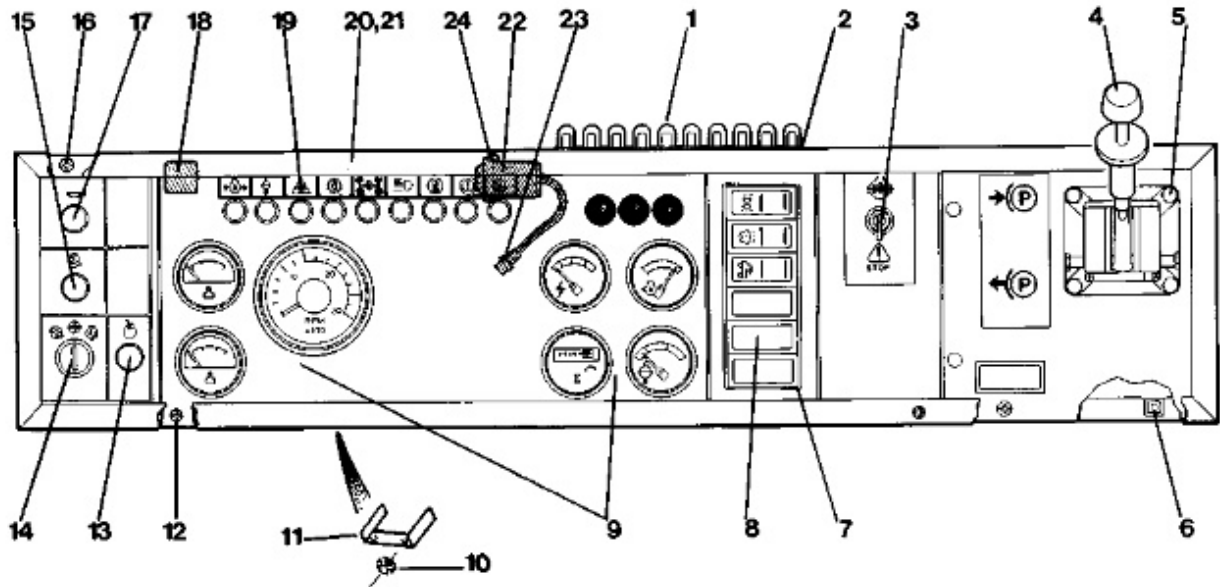
1. Remove the rubber cover and nut from the reset button.
2. Pull the assembly down into the panel housing.
3. Disconnect the wires and remove the circuit breaker from the housing.

Remove Low Air Pressure Warning Buzzer

The warning buzzer(22) is located behind the panel. Remove from the housing by separating snap connector(23), and removing bolts(24).

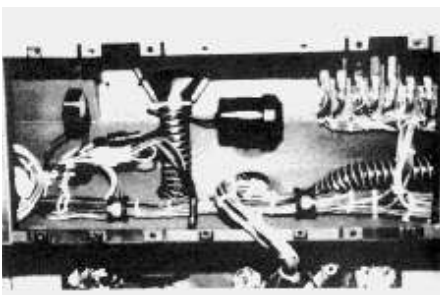
Remove Flasher Unit

The flasher unit(18) is located behind the panel. Remove by carefully pulling it free of the socket.



Dash Panel Arrangement

(1) Circuit Breakers (2) Screws (3) Differential Lock Air Valve (4) Parking Brake Hand Control Valve (5) Bolts (6) Screws (7) Switch Mounting Plate (8) Switches (9) Gauges (10) Nuts (11) Brackets (12) Screws (13) Ether Inject Switch (14) Isolator Switch (15) Engine Stop Switch (16) Screws (17) Horn Valve (18) Flasher Unit (19) Warning Lights (20) Trim (21) Screws (22) Low Air Pressure Warning Buzzer (23) Snap Connector (24) Bolts



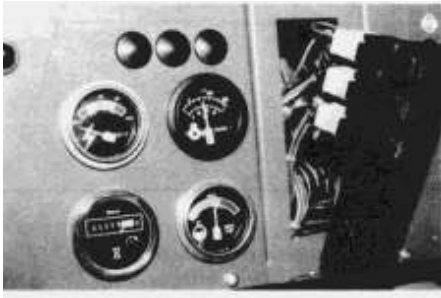
Right Hand Panel Components

Remove Panel

Remove screws(6) and lift out the panel to the extent of the parking brake hand control air hoses.

Parking Brake Hand Control Valve

Mark for identification on reassembly, and disconnect the air pipes. Remove bolts(5) and lift out the valve(4).



Remove Differential Lock Air Valve

Mark for identification on reassembly and disconnect the pipes from the air valve(3). Remove the nut from the front of the panel, and withdraw the valve from the back.

Remove Switches

Remove the switch mounting plate(7) by pushing out carefully from inside the panel housing, and disconnect the wires. Remove individual switches from the mounting plate, by pressing the switch out from the back of the plate.



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Product: ARTICULATED TRUCK

Model: D35HP ARTICULATED TRUCK 3FD

Configuration: D35HP ARTICULATED DUMP TRUCK 3FD00001-00079 (MACHINE) POWERED BY 3406 ENGINE

Disassembly and Assembly**ARTICULATED DUMP TRUCK OPERATOR'S STATION & ELECTRICAL SYSTEM**

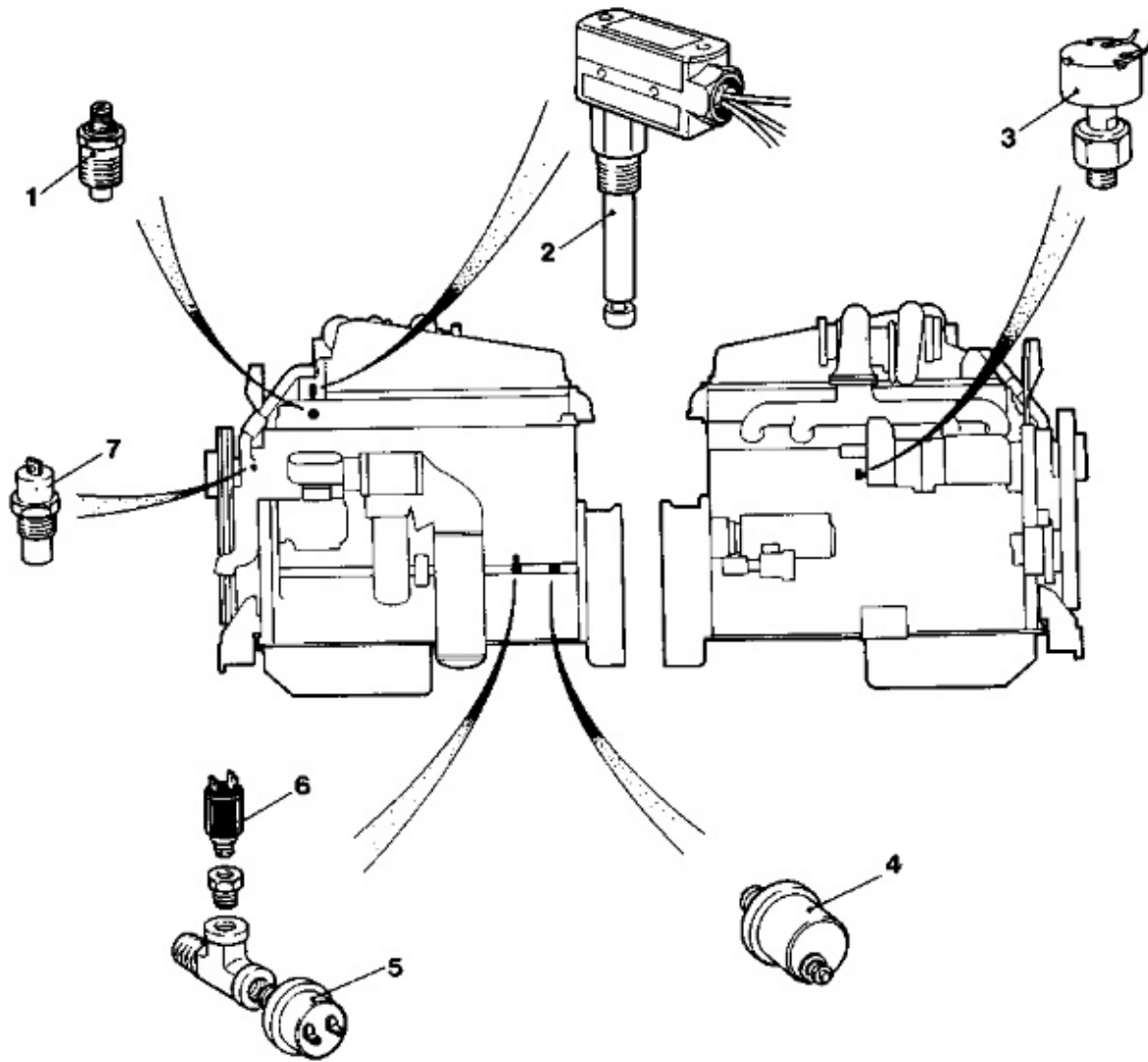
Media Number -SEN8188-00

Publication Date -01/09/1987

Date Updated -09/10/2003

SEN81880003

**Engine Mounted Switches and Sender Units - D25C, D30C,
D35C and D350C****Engine Mounted Switches and Sender Units -
D25C, D30C, D35C and D350C**



Locations for Engine Mounted Switches and Sender Units - D25C, D30C, D35C and D350C

(1) Sender Unit - Water Temperature (2) Switch - Water Temperature (3) Generator - Tachometer (4) Sender Unit - Oil Pressure (5) Switch - Oil Pressure (6) Switch - Hourmeter (7) Switch - Ether Start



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Product: ARTICULATED TRUCK

Model: D35HP ARTICULATED TRUCK 3FD

Configuration: D35HP ARTICULATED DUMP TRUCK 3FD00001-00079 (MACHINE) POWERED BY 3406 ENGINE

Disassembly and Assembly**ARTICULATED DUMP TRUCK OPERATOR'S STATION & ELECTRICAL SYSTE**

Media Number -SEN8188-00

Publication Date -01/09/1987

Date Updated -09/10/2003

SEN81880004

Engine Mounted Switches and Sender Units - D250B and D300B**Engine Mounted Switches and Sender Units - D250B and D300B**

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