

Operation & Maintenance Manual

**Supplement for D8L,
D8L SA & D9L**

Track-Type Tractors

**Fire Suppression System
Product Updates**

Foreword

This publication provides supplemental information necessary for operation and maintenance of D8L, D8L SA and D9L Track-Type Tractors.

This publication provides information for fire suppression system and other product updates.

Refer to the Operation Guide and the Maintenance Guide for your machine, for items not covered in this supplement.

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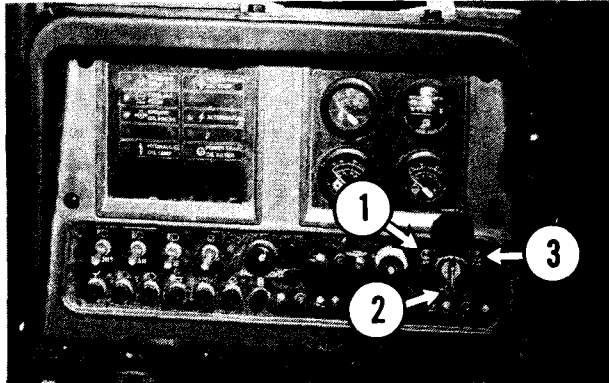
Maintenance Section

Every 50 Service Hours or Weekly	9
Every 250 Service Hours or Monthly	10
Every 2000 Service Hours or 1 Year	12

Operator's Compartment




New machines now have an OFF-ON-START switch, refer to the text below for the start procedure.

Engine OFF-ON-START Switch



NOTICE

Do not turn the switch key to OFF when the engine is running.

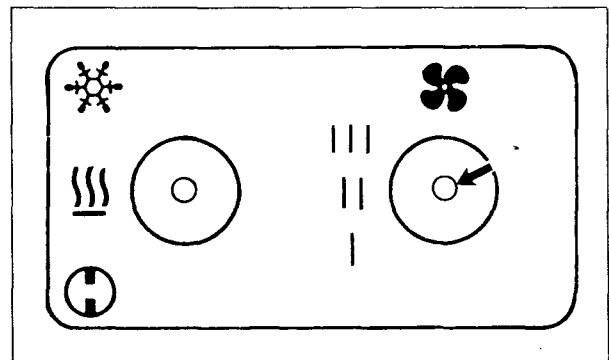
-  **1. OFF** – To disconnect the electrical circuits, except for the dash and front lights, rotate the key to OFF.
-  **2. ON** – To connect the electrical circuits, rotate the key to ON.
-  **3. START** – To start or crank the engine, rotate the key to START. Release the key after the engine starts. It will return to ON.


NOTE: If the engine does not start, return the key to OFF, before returning it to START. The disconnect switch key must be on, to start the engine.

Heating and Air Conditioning System Operation



The heating and air conditioning system controls and operation have changed on new machines. Refer to text below for the new operation procedure.



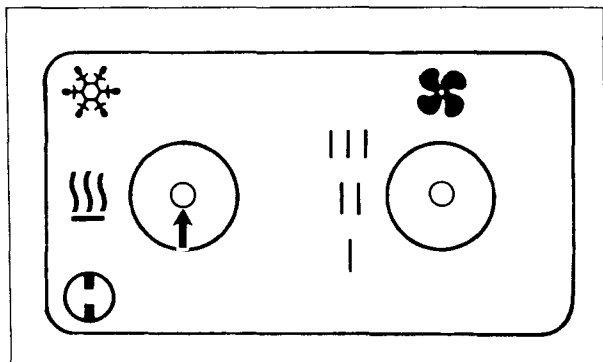
-  **1. FAN CONTROL** – This switch controls the air flow speed.

FIRST (I) – Move the switch toward symbol (I), to run the fan at low speed.

SECOND (II) – Move the switch to the CENTER (II), to run the fan at medium speed.

THIRD (III) – Move the switch toward symbol (III), to run the fan at high speed.

Selector Switch



AIR CONDITIONING – Move the switch to the air conditioning symbol to activate the air conditioning control system.

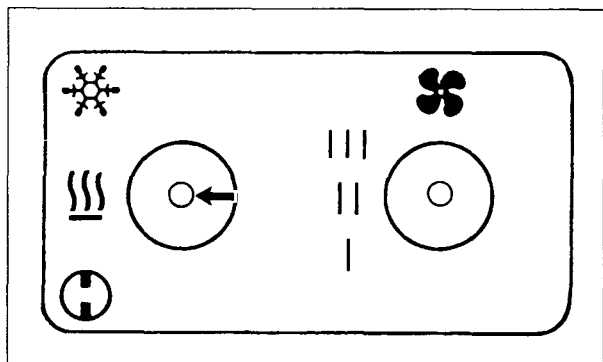


HEATER – Move the switch to the CENTER position.



OFF – Move the switch toward the OFF symbol.

Temperature Control

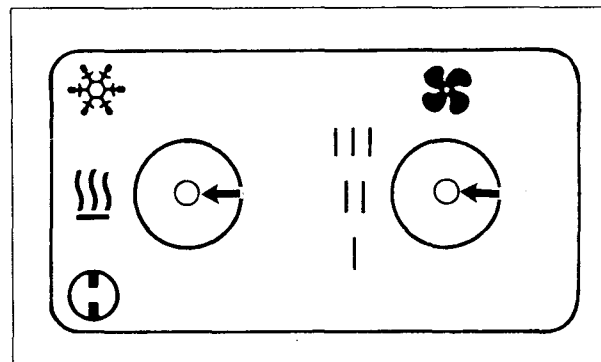


WARM – Move the switch to CENTER position for heating and turn knob to the RIGHT (clockwise) until the desired temperature is achieved.

COOL – Move switch toward the air conditioning symbol and turn knob fully to the LEFT (counterclockwise). No heat will be furnished to the system.

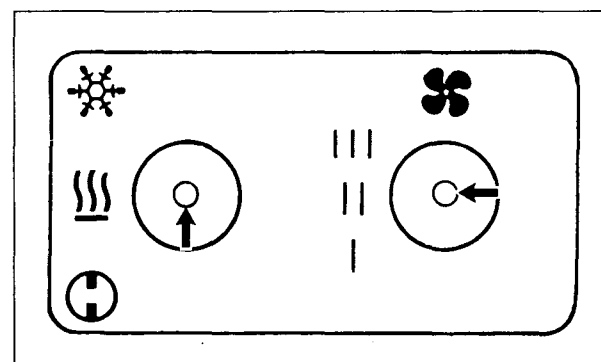
The heating and cooling system can perform four functions.

Heating



Turn the heating control switch ON. Move the blower fan switch to LOW, MEDIUM or HIGH speed. Adjust the temperature control for the desired temperature. Adjust the air flow louvers in cab posts for the desired air flow pattern.

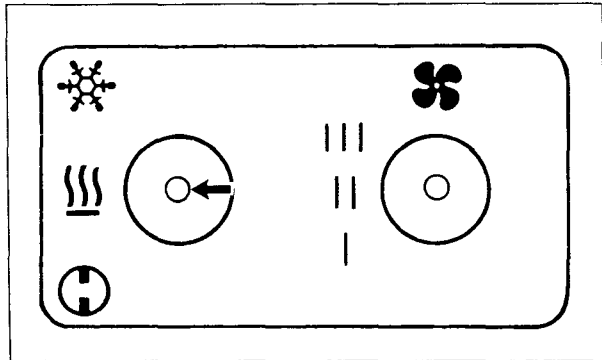
Cooling



Turn the cooling control switch ON. Move the blower fan switch to LOW, MEDIUM or HIGH speed. Adjust the cooling control for the desired temperature. Adjust the air flow louvers.

Controls

Pressurizing

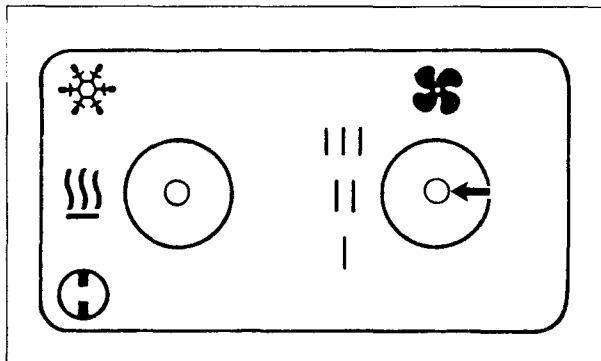


Pressure inside the cab will help keep dust out when heating or cooling is not desired.

Turn the cooling and air conditioning control switch to CENTER position and turn temperature control knob FULLY counterclockwise.

Turn the fan switch to either LOW, MEDIUM or HIGH speed, as needed to keep out dust. Adjust the air flow with the louvers.

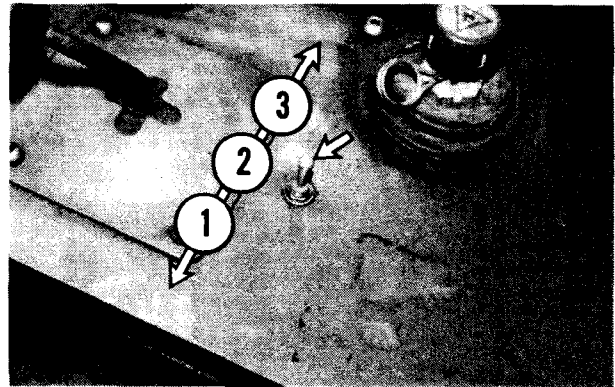
Defogging



Turn on the fan to desired air speed. Adjust the heating and cooling controls until the moisture level is lowered, and the temperature is comfortable in the cab. Adjust the air flow with the louvers.

Ripper

The lever previously used to engage or disengage the ripper shank pin, has been replaced by a toggle switch. This toggle switch will perform the same functions as the lever. Refer to the text below for operation of the ripper shank pin.



NOTE: The toggle switch must be pulled up before moving it to operate the ripper shank pin. This will prevent it from being bumped accidentally and operating the ripper shank pin.

1. Shank Pin In – To engage the ripper shank pin (detent), pull up on the toggle switch and move it toward the operator.

Pull the toggle switch up and move it to the center (HOLD) position to stop the ripper shank pin movement.

2. Shank Pin Hold – Pull up on the toggle switch and move it to the center (HOLD) position, and the ripper shank pin movement will stop.

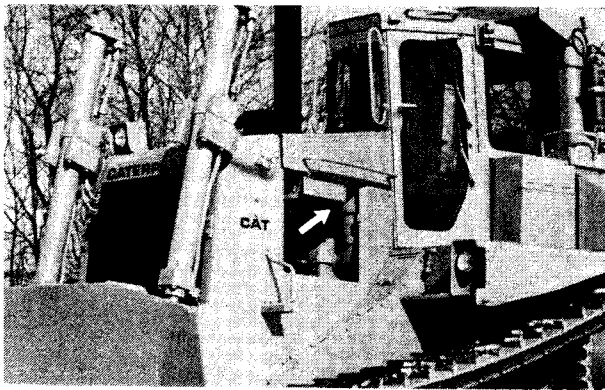
3. Shank Pin Out – To disengage the ripper shank pin (detent), pull up on the toggle switch and move it away from the operator.

Pull the toggle switch up and move it to the center (HOLD) position to stop the ripper's shank pin movement.

Fire Suppression System

The purpose of the fire suppression system is to suppress an oil, fuel or debris fire, long enough to allow the operator to safely leave the tractor.

The fire suppression system will not suppress fires outside the tractor. It will not suppress fires in the operator's compartment.



There are agent dispersion nozzles strategically located in the power train compartments and the engine compartment.

The fire suppression system is electronically (automatic mode) or manually actuated. It works even if the machine is unattended or not in operation. Should a fire occur while the engine is running and the parking brake is engaged, the system automatically actuates while simultaneously shutting down the engine by an electronically controlled fuel shutoff. Even with the key off and the machine parked, the system will continue to monitor heat and activate if a fire is detected.

Should a fire occur while the machine is in operation (parking brake not engaged), the system will actuate but will not shut down the engine. This allows the operator to move the machine to a safe shutdown area.

NOTE: A fire suppression system is not meant to be a substitute for a hand-held fire extinguisher. Fire extinguishers are still recommended, and are useful if re-ignition occurs or when fires originate independently of a machine or outside a protected area.

To Activate Fire Suppression System

WARNING

The Fire Suppression System will not be able to suppress a fire and protect the operator unless the nitrogen and agent cylinders are fully charged.

The nitrogen and agent cylinders must be recharged if the system has been activated. Consult your Caterpillar dealer for recharging information.

Fire suppression agents, either Halon or dry chemical type, may create hazards to people if discharged on them.

Fire suppression agent can cause breathing difficulties and/or skin irritation. To prevent accidental discharge during maintenance or repair work, put the disconnect switch in the OFF position.

Fire suppression agents can irritate eyes, skin and nasal passages. If the agent gets into eyes, flush thoroughly with water, then consult a physician. In case of skin contact, wash all exposed areas with soap and water. If irritation persists, after inhalation or skin contact, consult a physician.

Automatic Actuation

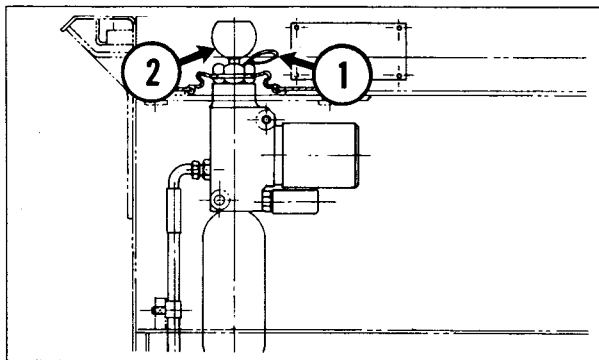
Once a sensor has detected a fire, an electrical signal warns the operator and actuates the system. A solenoid in the operator's compartment triggers a pin in the actuation cylinder that ruptures a burst disc, releasing nitrogen gas into the line between the actuation cylinder and the agent cylinder. This "stored" energy depresses a piston in the agent cylinder rupturing another burst disc which releases pressurized liquid Halon 2402 or dry chemical into the lines and out of the nozzles. Either dry chemical or Halon 2402 are effective suppressants. Dry chemical, however, requires cleanup of residue to prevent corrosion.

Manual Actuation

If necessary, the system can be manually actuated either from the cab or rear of machine. The operator removes a safety pin from the actuation cylinder and depresses a plunger puncturing the burst disc. The system then proceeds as with the automatic sequence.

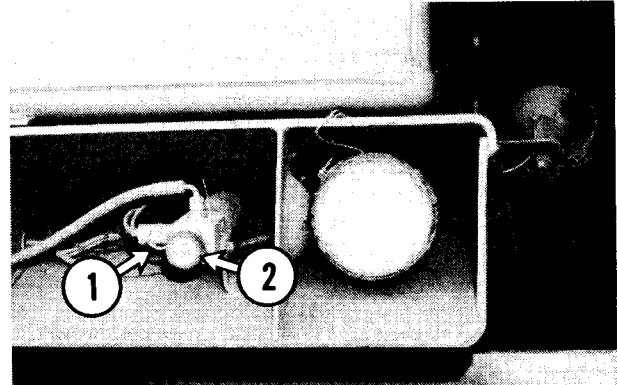
Actuation From Operator's Compartment

The nitrogen cylinder has an actuator lock pin that keeps the cylinder from being accidentally discharged. To activate the fire suppression system, remove the lock pin and depress the plunger.



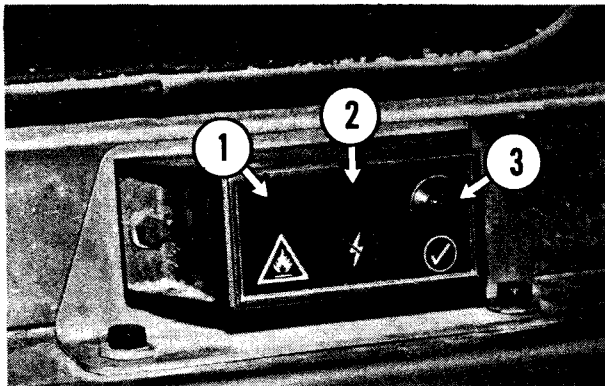
- 1.** Stop the machine.
- 2.** Pull the lock pin ① out of the nitrogen cylinder actuator.
- 3.** Depress the nitrogen cylinder actuator plunger ② to discharge the agent cylinder.
- 4.** Get off machine, using the steps and handholds. However, if time permits, complete the following steps:
 - A. Lower all raised equipment.
 - B. Shift the transmission to neutral.
 - C. Engage the transmission parking brake lock lever.
 - D. Shut off the engine if the automatic shutdown system did not shut it off.

Actuation From Rear of Machine



- 1.** Pull the lock pin ① out from the nitrogen cylinder actuator, located under the fuel tank on rear end of the machine.
- 2.** Depress the nitrogen cylinder actuator plunger ② to discharge the agent cylinder.
- 3.** The engine should shut off.

Electronic Fire Monitor Control Panel



All new machines have an electronic fire monitor control panel located on the dash to alert the operator of a fire on the machine or a problem in the fire suppression system.

- 1. Fire Indicator** – This red indicator will flash and a horn will “BEEP” to indicate that there is a fire on the machine and that the fire suppression system has been activated.

NOTE: It is important to note that the electronic fire monitor control panel is wired to the same fuse as that of the operator monitor (EMS), thus being controlled by the key switch, whereas, the automatic fire suppression control panel can only be electrically disconnected by turning off the machine disconnect switch. Also, when the fire warning horn is “BEEPING,” it does so at a rate greater than that of the machine EMS system warning horn.

- 2. System Fault Indicator** – This light indicates that the actuation or agent cylinder pressure has dropped below an acceptable level. It will also indicate a problem in the wiring circuit, such as, faulty sensor circuits, an engine shutdown solenoid or a discharge actuator solenoid. When this light comes on, find the problem and have the problem repaired before operating.

- 3. Engine Shutdown Test Push-Button** – The engine should shut off automatically when the agent system discharges. To make certain the automatic engine shutdown system is operable, a test push-button is provided. With the key switch in the “RUN” position and the parking brakes applied, push the test push-button.

The fire suppression monitor “Fire” indicator should flash, the horn should “BEEP” and the engine shutdown solenoid should energize and shut down the engine. Activation of the test push-button will not result in a system discharge.

If the engine does not stop, have the system repaired before operating.

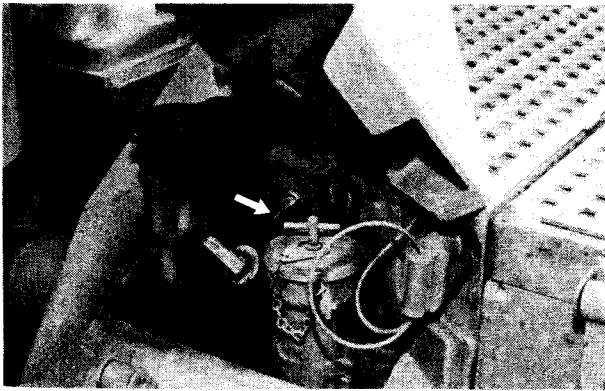
Automatic Fire Suppression Control Panel



There are eight lights located on the automatic fire suppression control panel that function as service lights for troubleshooting the electrical system. It is located beneath the floor plate of the cab.

Refer to the Service Manual for complete troubleshooting procedures of the fire suppression system.

Disconnect Switch



All new machines now have the disconnect switch in a new location. It is located on the left side of the machine under the deck, outside of the cab.

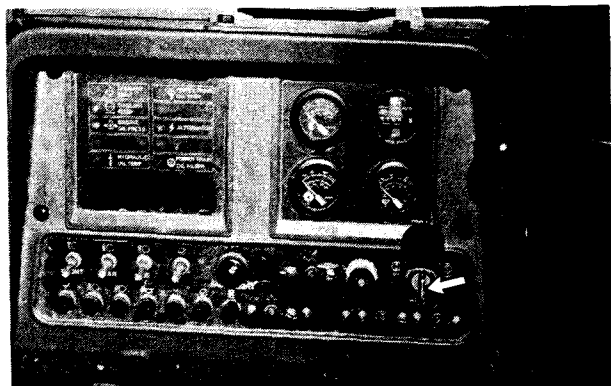
Coolant Conditioner Element



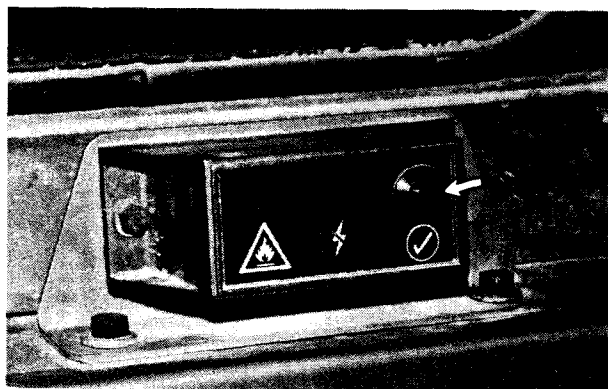
The coolant conditioner element has been relocated to the front of the engine on all new machines.

Fire Suppression System

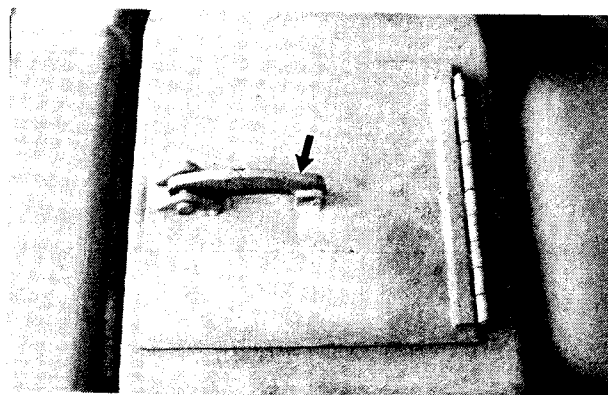
Check the Engine Shutdown System



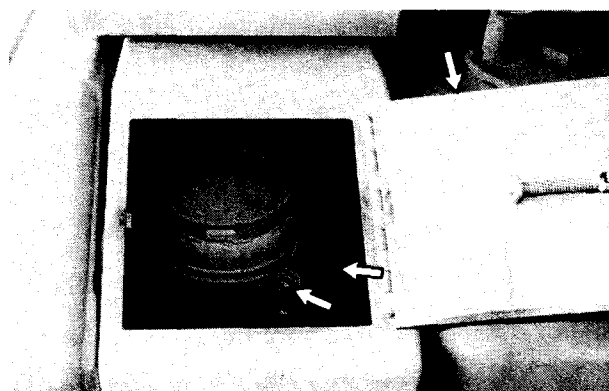
1. Start the engine and engage the parking brake.



2. Push the engine shutdown test button. The engine must stop. If it does not stop, have the system checked and corrections made before operating again.



3. Open the agent cylinder compartment cover.

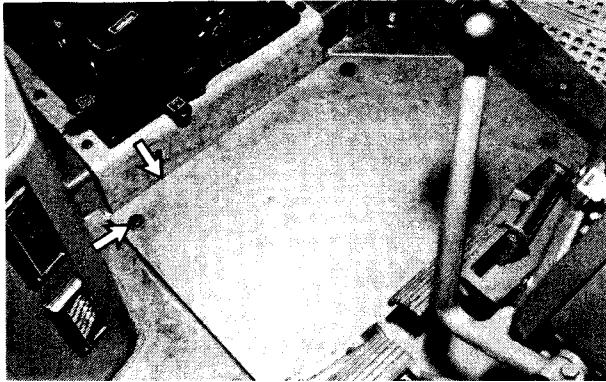


4. Tighten any loose agent cylinder fittings, clamps and hoses. Close the compartment cover.

Alternator and Air Conditioner Belts

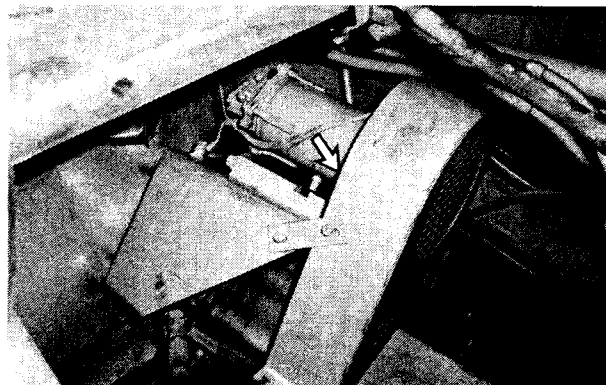
NOTE: The alternator has been moved to the front of the engine on all new machines. Refer to the text that follows for adjustment of the alternator and air conditioner belts.

Adjust the Air Conditioner Belt

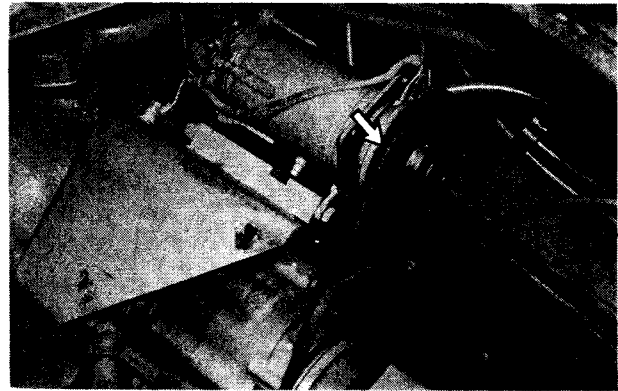


1. Remove the floor mat.

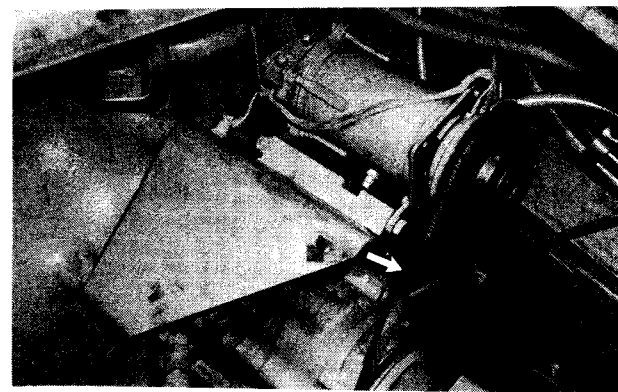
2. Remove the retaining bolts and the floor plate.



3. Remove the belt guard.

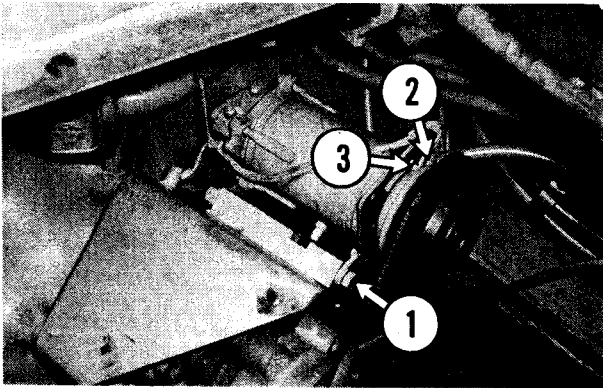


4. Look at the condition of the belt. Replace if cracked or frayed.



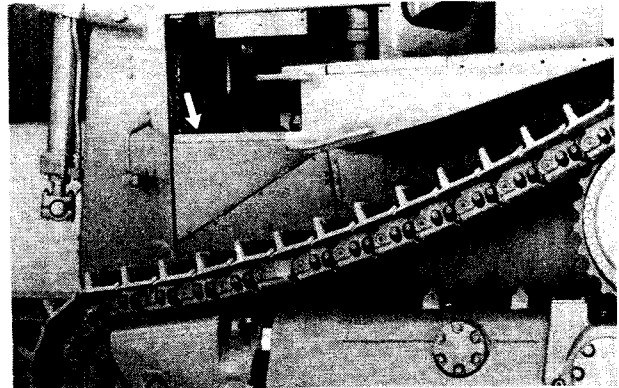
5. Measure the deflection of the belt. Apply approximately 110 N (25 lb) force midway between the drive pulley and the air conditioning compressor pulley. Deflection should be 14 to 20 mm (9/16 to 13/16 inch).

6. If deflection is not correct, adjust the belt.

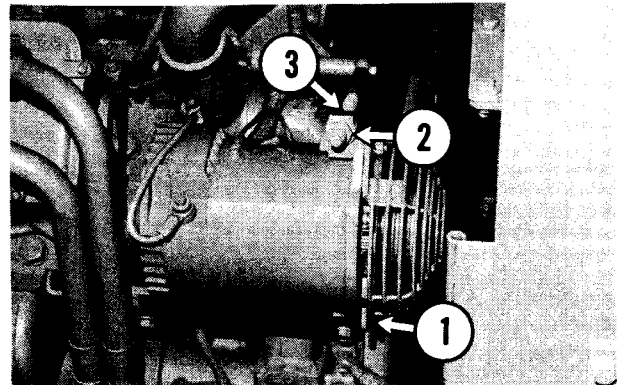


- 7.** Loosen the mounting bolt ①.
- 8.** Loosen the locknut ②.
- 9.** Tighten the adjusting nut ③, to move the compressor to obtain the required belt deflection.
- 10.** Tighten the locknut.
- 11.** Tighten the mounting bolt.
- 12.** Measure the belt deflection. If deflection is not correct, repeat the adjustment procedure.
- 13.** Reinstall the guard floor plate and floor mat.

Adjust the Alternator Belt



Lower the engine access cover, by pulling back on the cover release, located on the inside of the cover.



Look at the condition of the belts. If any one requires replacement, replace all the belts as a set.

- 1.** Loosen the mounting bolt ①.
- 2.** Loosen the locknut ②.
- 3.** Tighten the adjusting nut ③ to move the alternator until deflection is correct. Tighten the locknut.
- 4.** Tighten the mounting bolt.
- 5.** Measure the belt deflection. If deflection is not correct, repeat the adjustment procedure.

Fire Suppression System

Weigh Agent Cylinder

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Fire suppression agents, either Halon or dry chemical type, may create hazards to people if discharged on them.

Fire suppression agent can cause breathing difficulties and/or skin irritation. To prevent accidental discharge during maintenance or repair work, put the disconnect switch in the OFF position.

Fire suppression agents can irritate eyes, skin and nasal passages. If the agent gets into eyes, flush thoroughly with water, then consult a physician. In case of skin contact, wash all exposed areas with soap and water. If irritation persists, after inhalation or skin contact, consult a physician.



Remove the agent cylinder yearly and check the weight, whether it has been discharged or not.

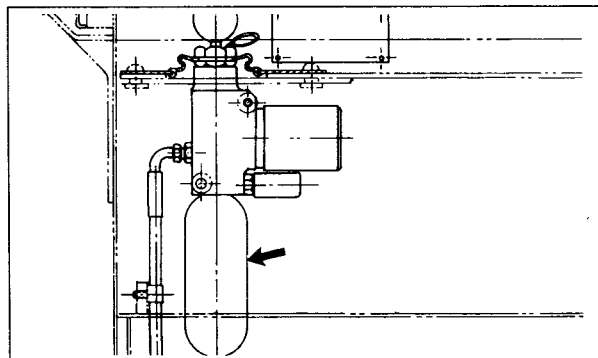
See the D8L or D9L Track-Type Tractor Service Manual for removal and installation procedures.

For a dry chemical agent cylinder, the total weight of the agent and cylinder should be 24.0 ± 1 kg (53.5 ± 2.2 lb).

For a Halon agent cylinder, the total weight of the agent and cylinder should be 25.6 ± 1 kg (56.3 ± 2.2 lb).

If cylinder weights are not correct, consult your Caterpillar dealer for service or instructions.

Check Nitrogen Actuator Cylinder Charge



The nitrogen actuator cylinders should be checked for a proper charge yearly, whether they have been discharged or not.

There are two actuator cylinders. One is located in the cab compartment, to the right of the operator, and one on the rear of the machine, under the fuel tank.

Consult your Caterpillar dealer for instructions or service of the nitrogen actuator cylinders.