

CTM255 - PowerTech™ 8.1L Diesel Engines Level 9 Electronic Fuel System With Denso High Pressure Common Rail

Foreword

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This manual (CTM255) is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

This manual covers only Level 9 (Tier II) Electronic Fuel System (200,000—).

Other manuals will be added in the future to provide additional information on electronic fuel systems as needed.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



CAUTION:

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Use this component technical manual in conjunction with the machine technical manual. An application listing in Section 01, Group 001 identifies product-model/component type-model relationship. See the machine technical manual for information on component removal and installation, and gaining access to the components.

Information is organized in sections and groups for the various components requiring service instruction. At the beginning of each group are summaries of the up coming group.

Before beginning repair on an engine, clean the engine.

This manual contains SI Metric units of measure followed immediately by the U.S. customary units of measure. Most hardware on these engines are metric sized.

Some components of this engine may be serviced without removing the engine from the machine. Refer to the specific machine technical manual for information on components that can be serviced without removing the engine from the machine and for engine removal and installation procedures.

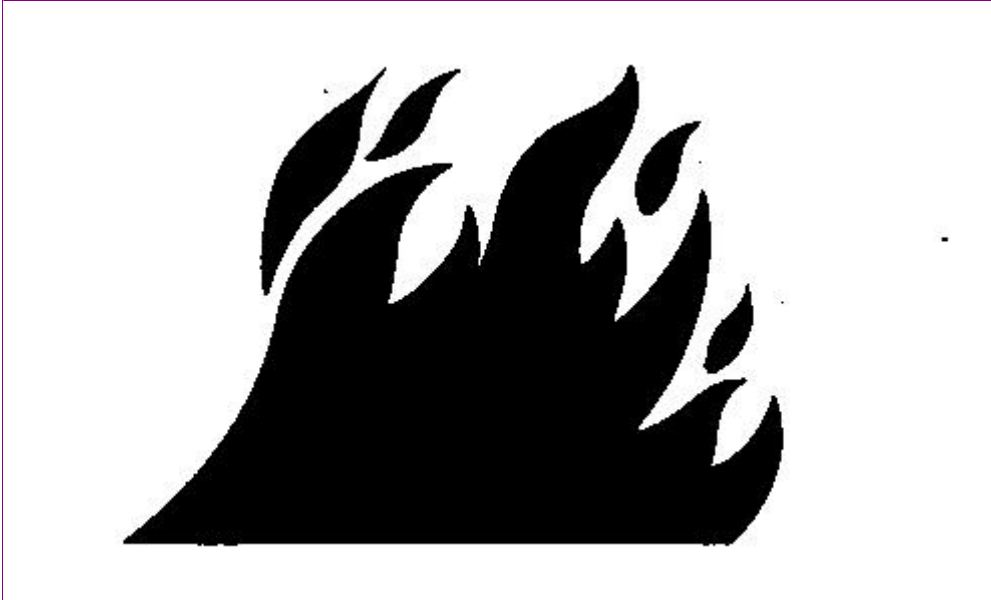
Read each block of material completely before performing service to check for differences in procedures or specifications. Follow only the procedures that apply to the engine model number you are working on. If only one procedure is given, that procedure applies to all the engines in the manual.

CALIFORNIA PROPOSITION 65 WARNING: Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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Handle Fluids Safely—Avoid Fires

Handle Fluids Safely—Avoid Fires



TS227-UN: Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

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Handle Starting Fluid Safely

Handle Starting Fluid Safely



TS1356-UN: Store Safely

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.

Do not use starting fluid on an engine equipped with glow plugs or an air intake heater.

CTM255 - PowerTech™ 8.1L Diesel Engines Level 9 Electronic Fuel System With Denso High Pressure Common Rail Service Cooling System Safely

Service Cooling System Safely



TS281-UN: Cooling System

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

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Prevent Battery Explosions

Prevent Battery Explosions



TS204-UN: Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

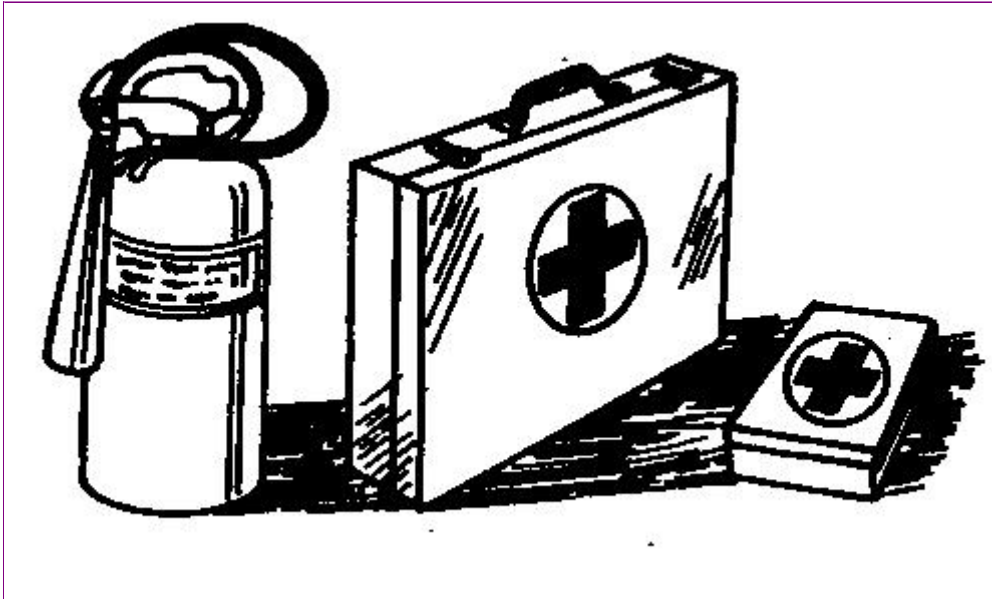
Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

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Prepare for Emergencies

Prepare for Emergencies



TS291-UN: First Aid Kit

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

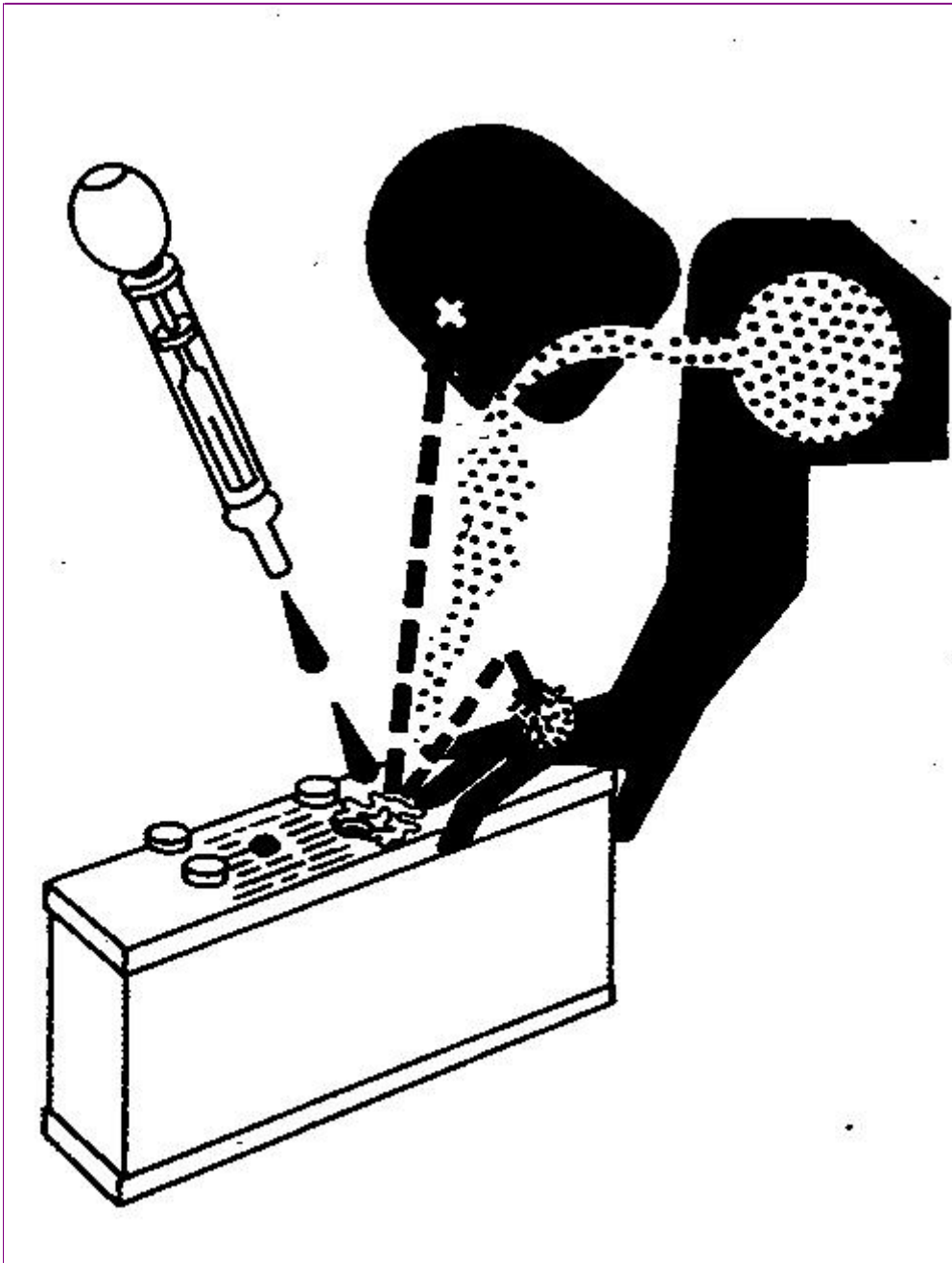
Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

CTM255 - PowerTech™ 8.1L Diesel Engines Level 9 Electronic Fuel System With Denso High Pressure Common Rail Handling Batteries Safely

Handling Batteries Safely



TS204-UN: Caution



TS203-UN: Caution

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace grounded clamp last.

Sulfuric acid in battery electrolyte is poisonous and strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

If acid is spilled on skin or in eyes:

1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 qt.).
3. Get medical attention immediately.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**

CTM255 - PowerTech™ 8.1L Diesel Engines Level 9 Electronic Fuel System With Denso High Pressure Common Rail Wait Before Opening High-Pressure Fuel System

Wait Before Opening High-Pressure Fuel System



TS1343-UN: High-Pressure Fuel Lines

High-pressure fluid remaining in fuel lines can cause serious injury. Only technicians familiar with this type of system should perform repairs. Before disconnecting fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High-Pressure Common Rail (HPCR) fuel system, confirm that the fuel pressure is relieved.

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Avoid High-Pressure Fluids

Avoid High-Pressure Fluids



X9811-UN: High Pressure

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

Escaping fluid under pressure can penetrate the skin causing serious injury.

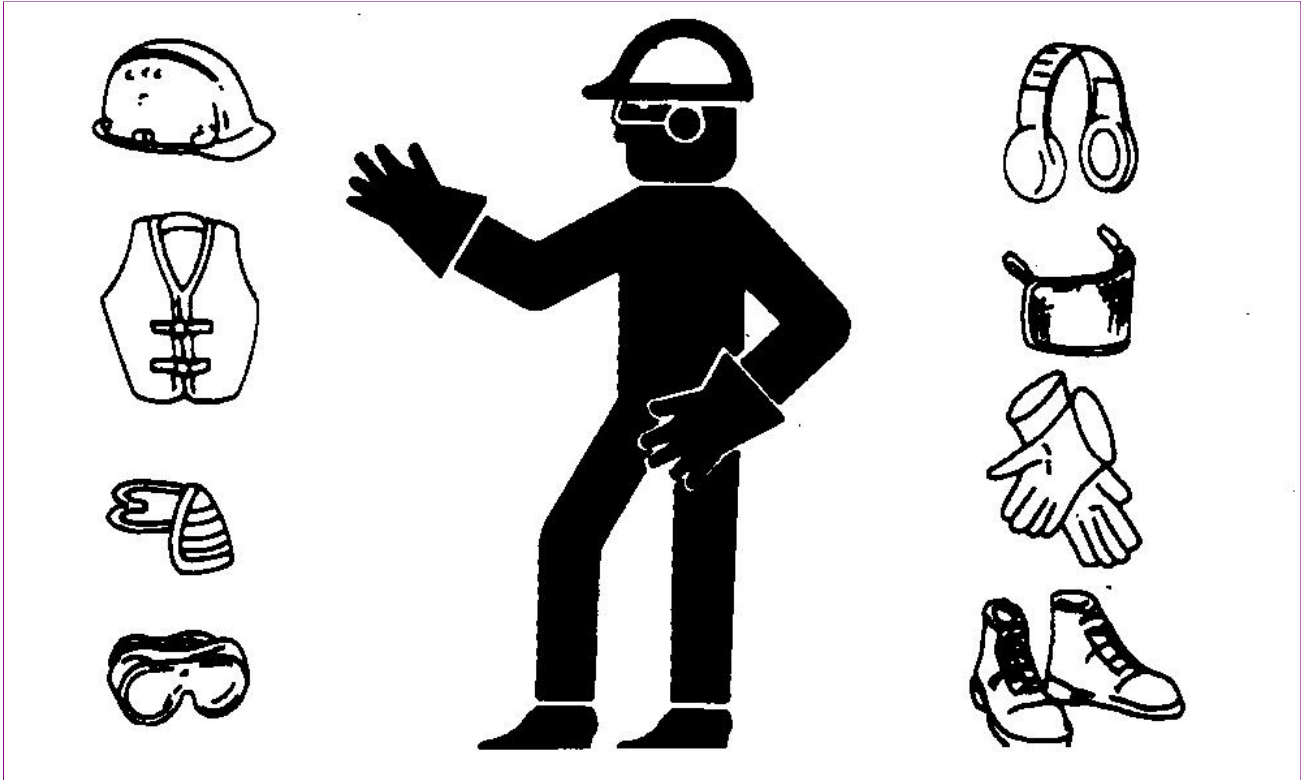
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

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Wear Protective Clothing

Wear Protective Clothing



TS206-UN: Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

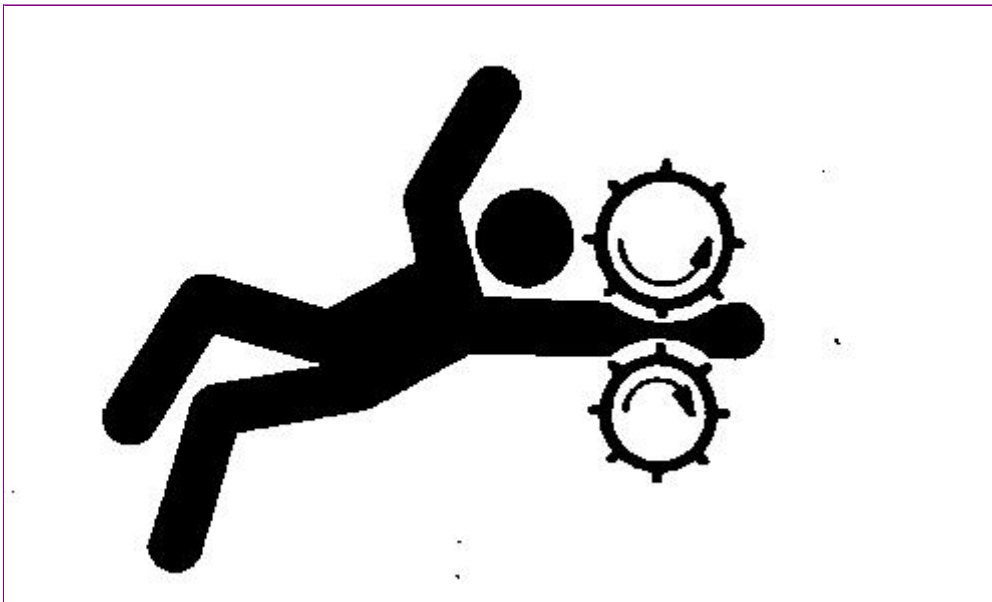
Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

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Service Machines Safely



TS228-UN: Moving Parts

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

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Protect Against Noise

Protect Against Noise



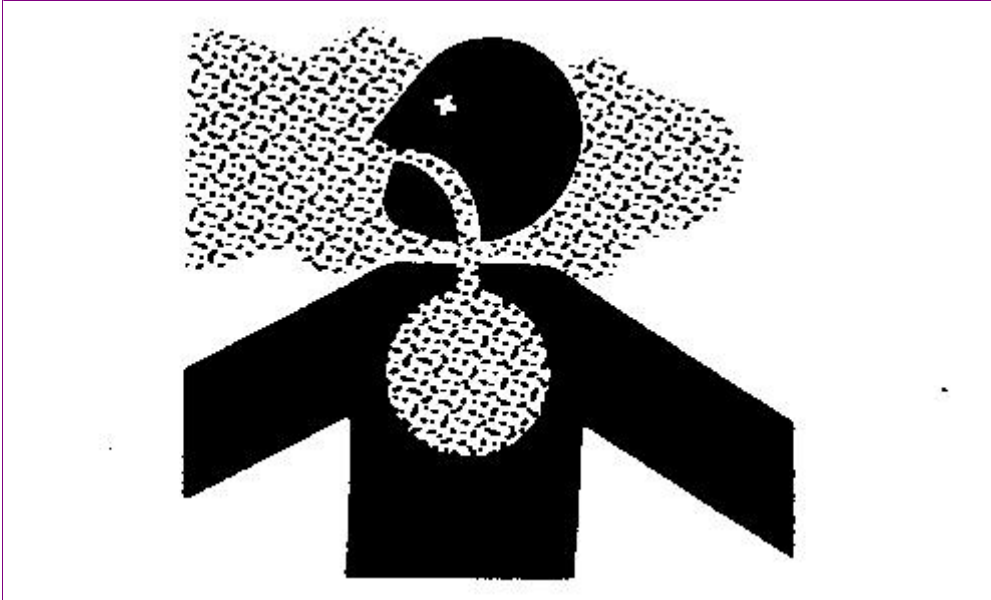
TS207-UN: Noise Exposure

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

CTM255 - PowerTech™ 8.1L Diesel Engines Level 9 Electronic Fuel System With Denso High Pressure Common Rail Work In Ventilated Area

Work In Ventilated Area



TS220-UN: Engine exhaust fumes

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



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