

# 6205 and 6505 Tractors Repair

For complete service information also see:

|   |         |
|---|---------|
| 6205 and 6505 Tractors                    |         |
| Operation and Tests . . . . .             | TM4608  |
| Front Wheel Drive Axles . . . . .         | CTM4509 |
| POWERTECH® Engines . . . . .              | CTM104  |
| Alternators and Starting Motors . . . . . | CTM77   |

**John Deere Werke Mannheim**  
**TM4612 (01JUL99)**

Printed in Germany  
ENGLISCH

## FOREWORD

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

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



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.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

**RECOGNIZE SAFETY INFORMATION**

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

Follow recommended precautions and safe operating practices.



DX,ALERT -19-29SEP98

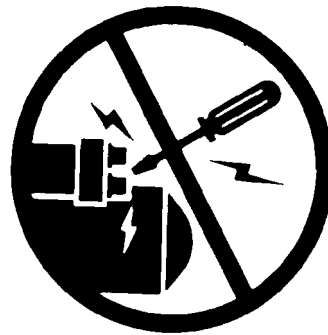
T81389 -UN-07DEC68

**PREVENT MACHINE RUNAWAY**

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



DX,BYPAS1 -19-29SEP98

TS177 -UN-11JAN89

**HANDLE FLUIDS SAFELY—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.



DX,FLAME -19-29SEP98

TS227 -UN-23AUG88

**Thanks very much for your reading,  
Want to get more information,  
Please click here, Then get the complete  
manual**

**JustClickHere** 

**NOTE:**

**If there is no response to click on the link above,  
please download the PDF document first, and then  
click on it.**

**Have any questions please write to me:  
[admin@servicemanualperfect.com](mailto:admin@servicemanualperfect.com)**

## Safety Measures

### PREVENT 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).



DX,SPARKS -19-03MAR93

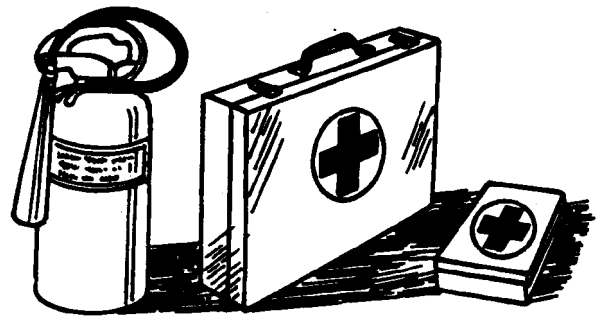
TS204  
-UN-23AUG88

### PREPARE FOR EMERGENCIES

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.



DX,FIRE2 -19-03MAR93

TS291  
-UN-23AUG88

## PREVENT ACID BURNS

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

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your 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 quarts).
3. Get medical attention immediately.



DX,POISON -19-21APR93

TSS203 -UN-23AUG88

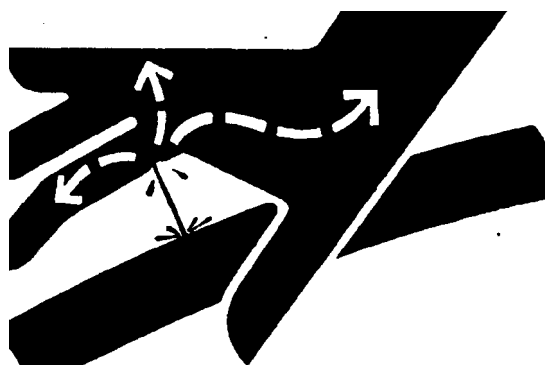
## AVOID HIGH-PRESSURE FLUIDS

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 from Deere & Company Medical Department in Moline, Illinois, U.S.A.



X9811  
-JUN-23AUG88

DX,FLUID -19-03MAR93

## SERVICE COOLING SYSTEM SAFELY

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.



TS281  
-JUN-23AUG88

DX,RCAP -19-04JUN90

## REMOVE PAINT BEFORE WELDING OR HEATING

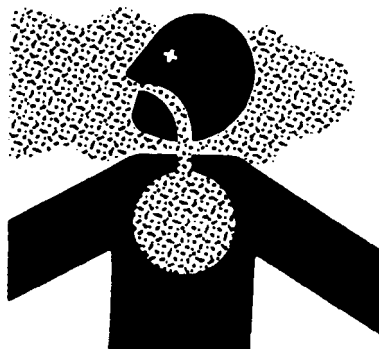
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



DX,PAINT -19-03MAR93

TS220 -UN-23AUG88

## AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.



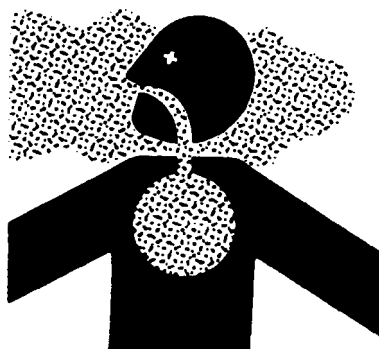
DX,TORCH -19-03MAR93

TS953 -UN-15MAY90

## WORK IN VENTILATED AREA

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.



DX,AIR -19-04JUN90

TS220 -UN-23AUG88



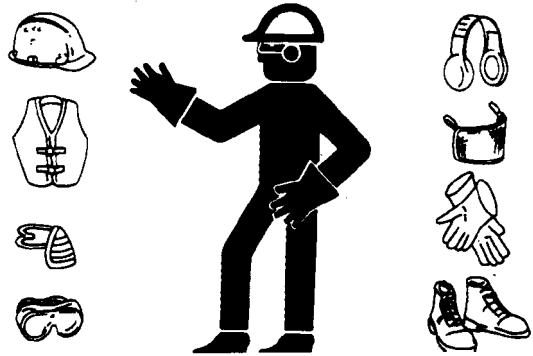
## WEAR PROTECTIVE CLOTHING

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.



DX,WEAR -19-10SEP90

TS206 -UN-23AUG88

## PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



DX,SERV -19-04FEB99

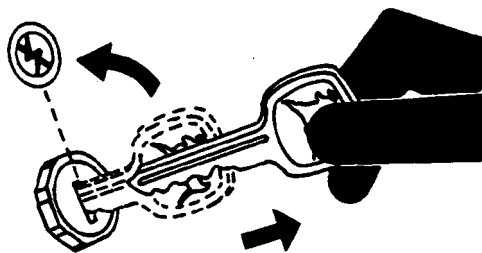
TS218 -UN-23AUG88

## Safety Measures

### PARK MACHINE SAFELY

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



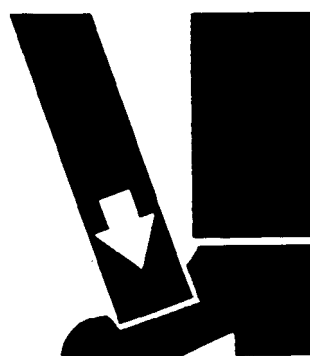
DX,PARK -19-04JUN90

TS230  
-UN-24MAY69

### USE PROPER LIFTING EQUIPMENT

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



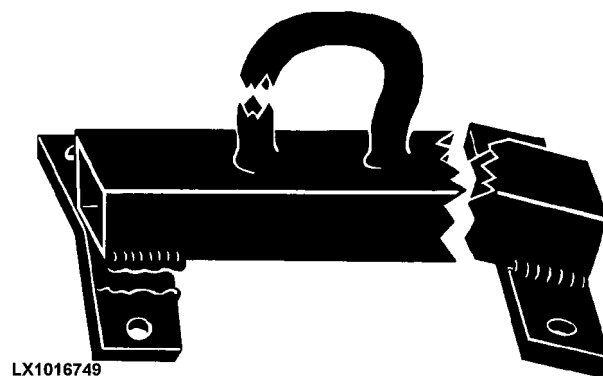
DX,LIFT -19-04JUN90

TS226  
-UN-23AUG88

### CONSTRUCT DEALER-MADE TOOLS SAFELY

Faulty or broken tools can result in serious injury. When constructing tools, use proper, quality materials, and good workmanship.

Do not weld tools unless you have the proper equipment and experience to perform the job.



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DX,SAFE,TOOLS -19-19SEP97

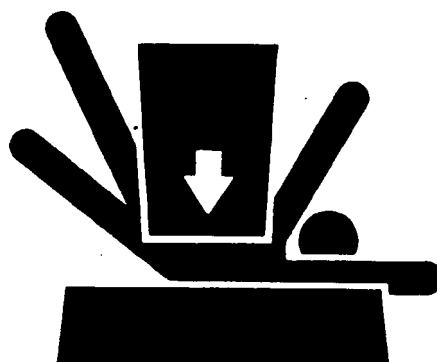
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-UN-01JUL97

## SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a tractor, always follow safety precautions listed in the implement operator's manual.



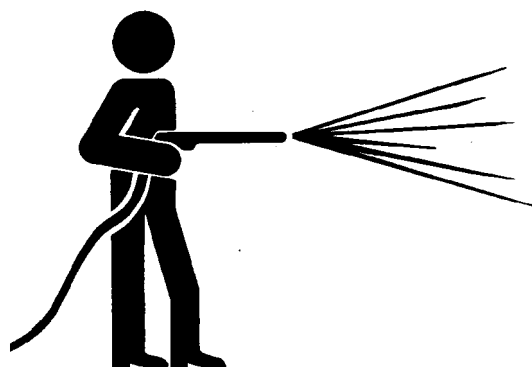
DX,LOWER -19-04FEB99

-UN-23AUG88  
TS229

## WORK IN CLEAN AREA

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.

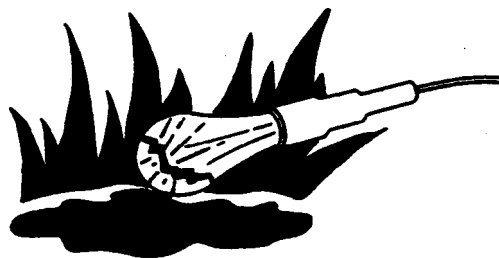


DX,CLEAN -19-04JUN90

T6642EJ  
-UN-18OCT88

## ILLUMINATE WORK AREA SAFELY

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



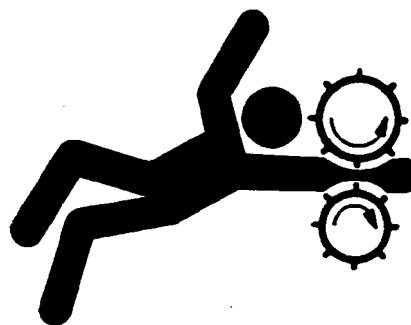
DX,LIGHT -19-04JUN90

-UN-23AUG88  
TS223

### SERVICE MACHINES SAFELY

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.



DX, LOOSE -19-04JUN90

TS228  
-UN-23AUG68

### USE PROPER TOOLS

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.



DX, REPAIR -19-04JUN90

TS779  
-UN-08NOV69

## SERVICE TIRES SAFELY

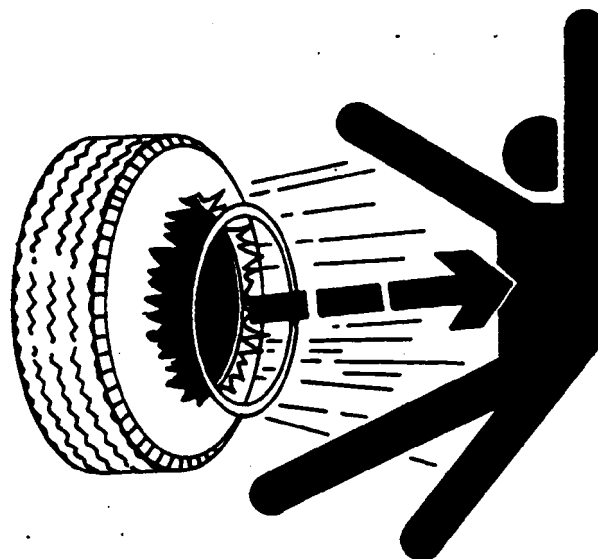
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

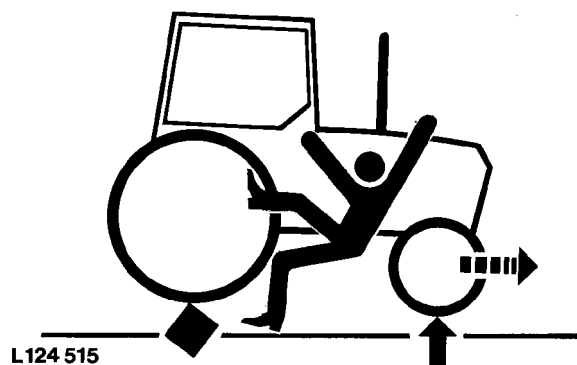


TS211 -UN-23AUG88

DX,RIM -19-24AUG90

## SERVICE FRONT-WHEEL DRIVE TRACTOR SAFELY

When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission/hydraulic system pressure will engage the front driving wheels, pulling the rear wheels off the support if front wheels are not raised. Under these conditions, front drive wheels can engage even with switch in disengaged position.



L124 515

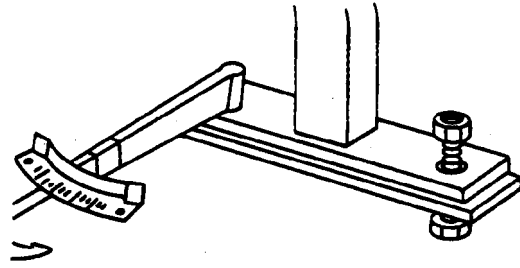
L124515 -UN-06AUG94

LX,MFWD2 -19-01MAY91

### KEEP ROPS INSTALLED PROPERLY

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

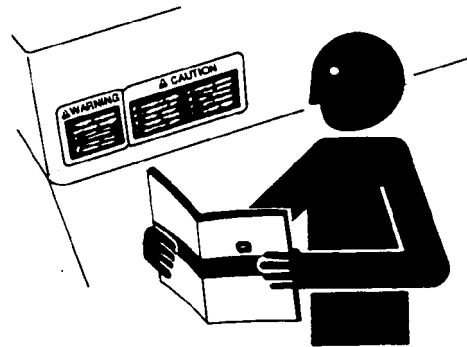


DX,ROPS3 -19-03MAR93

-UN-23AUG88  
TS212

### REPLACE SAFETY SIGNS

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



DX,SIGNS1 -19-04JUN90

-UN-23AUG88  
TS201

## DISPOSE OF WASTE PROPERLY

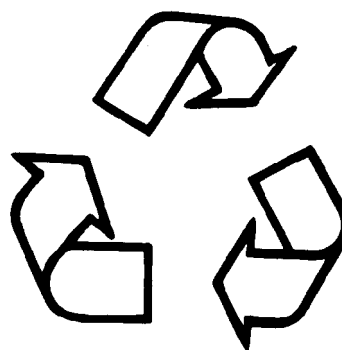
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



TS1133 -UN-26NOV90

DX,DRAIN -19-03MAR93

## LIVE WITH SAFETY

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



TS231 -19-07OCT88

DX,LIVE -19-15APR98

**SPECIFICATIONS**

**Engine**

|   | 6205  |                                    | 6505  |                                     |
|---|---|------------------------------------|---|-------------------------------------|
|   | 4045TL064<br>turbocharged                   | 4045TL051<br>turbocharged          | 6068DL051<br>naturally<br>aspirated         | 6068DL050<br>naturally<br>aspirated |
| Engine type   | 4045TL064<br>turbocharged                   | 4045TL051<br>turbocharged          | 6068DL051<br>naturally<br>aspirated         | 6068DL050<br>naturally<br>aspirated |
| Engine power at rated engine speed according to ECE-R24 (not certificated)                    | 63 kW<br>(85 hp)                            | —                                  | 74 kW<br>(100 hp)                           | —                                   |
| Engine power at rated engine speed according to ECE-R24 with viscous fan drive (certificated) | —   | 66 kW<br>(90 hp)                   | —   | 77 kW<br>(105 hp)                   |
| Max. torque   | 333 N·m<br>(246 lb-ft)<br>1300 rpm          | 383 N·m<br>(282 lb-ft)<br>1500 rpm | 387 N·m<br>(285 lb-ft)<br>1000 rpm          | 454 N·m<br>(335 lb-ft)<br>1000 rpm  |
| Compression ratio   | 16.87:1                                     | 16.87:1                            | 16.87:1                                     | 16.87:1                             |
| Number of cylinders   | 4   |                                    | 6   |                                     |
| Bore  | 106.5 mm (4.19 in.)                         |                                    | 106.5 mm (4.19 in.)                         |                                     |
| Stroke  | 127.0 mm (5.0 in.)                          |                                    | 127.0 mm (5.0 in.)                          |                                     |
| Displacement  | 4500 cm <sup>3</sup> (275 in <sup>3</sup> ) |                                    | 6800 cm <sup>3</sup> (415 in <sup>3</sup> ) |                                     |
| Firing order  | 1 3 4 2                                     |                                    | 1 5 3 6 2 4                                 |                                     |
| Intake valve clearance  | 0.35 mm (0.014 in.)                         |                                    | 0,35 mm (0.014 in.)                         |                                     |
| Exhaust valve clearance   | 0.45 mm (0.018 in.)                         |                                    | 0.45 mm (0.018 in.)                         |                                     |
| Injection pump  |   |                                    |   |                                     |
| Slow idle   | 850± 50 rpm                                 |                                    | 850± 50 rpm                                 |                                     |
| Fast idle   | 2460+ 50 rpm                                |                                    | 2460+ 50 rpm                                |                                     |
| Rated engine speed  | 2300 rpm                                    |                                    | 2300 rpm                                    |                                     |
| Working speed range   | 1000-2300 rpm                               |                                    | 1000-2300 rpm                               |                                     |

LX,10,05B013091-19-01JUN99