

# **1200 Bunker and Field Rake**

For complete service information also see:

**John Deere K Series Air Cooled  
Engines . . . . . CTM5**

**John Deere Horicon Works  
TM1525 (27SEP91)**

LITHO IN U.S.A.  
ENGLISH

# Introduction

## 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.

**N** 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 diagnostics. Repair sections tell how to repair the components. Diagnostic 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, other materials needed to do the job and service parts kits.

Section 10, Group 15—Repair Specifications, consist of all applicable specifications, near tolerances and specific torque values for various components on each individual machine.

Binders, binder labels, and tab sets can be ordered by John Deere dealers direct from the John Deere Distribution Service Center.

This manual is part of a total product support program.

FOS MANUALS—REFERENCE

TECHNICAL MANUALS—MACHINE SERVICE

COMPONENT MANUALS—COMPONENT SERVICE

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

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

Component Technical Manuals are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.

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*All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

TM1525-19-27SEP91

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A John Deere ILLUSTRATION® Manual

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# Section 10

# GENERAL INFORMATION

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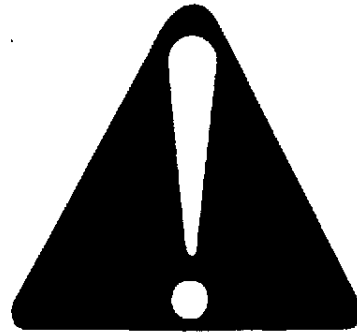
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## RECOGNIZE SAFETY INFORMATION

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 -19-04JUN90

T81389 -UN-07DEC88

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## UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



DX,SIGNAL -19-04JUN90

TS187 -19-30SEP88

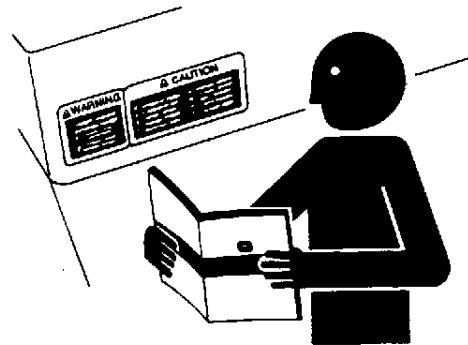
## FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



DX,READ -19-04JUN90

TS201 -UN-23AUG88

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### 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 -19-04JUN90

-UN-23AUG88  
TS227

### 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 -19-04JUN90

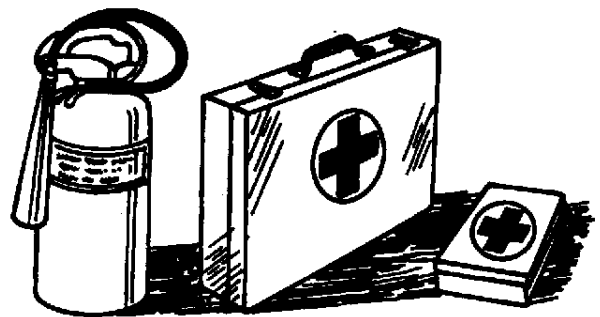
-UN-23AUG88  
TS204

### 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 -19-04JUN90

-UN-23AUG88  
TS291

## 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:

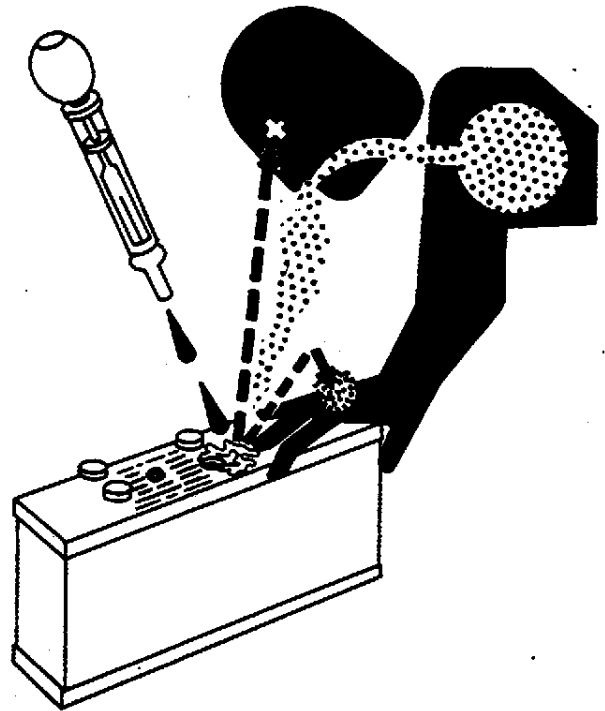
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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 10—15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



DX.POISON -19-04JUN90

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TSS203 -UN-23AUG88



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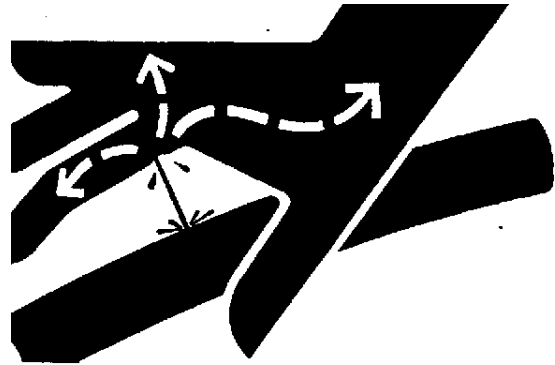
### AVOID HIGH-PRESSURE FLUIDS

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.



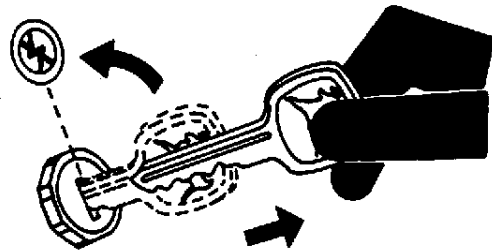
X9811 -JUN-23AUG88

DX,FLUID -19-09AUG91

### 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.



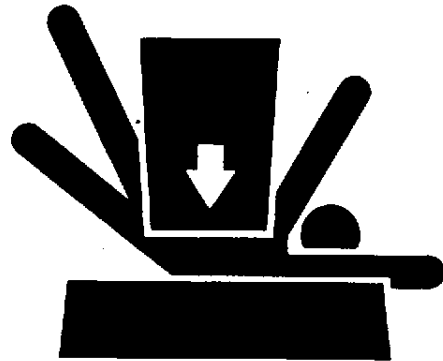
TS230 -JUN-24MAY88

DX,PARK -19-04JUN90

### 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.

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.



DX,LOWER -19-04JUN90

TS229 -UN-23AUG88

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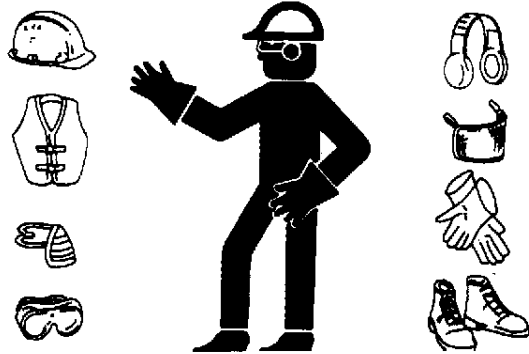
### WEAR PROTECTIVE CLOTHING

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.



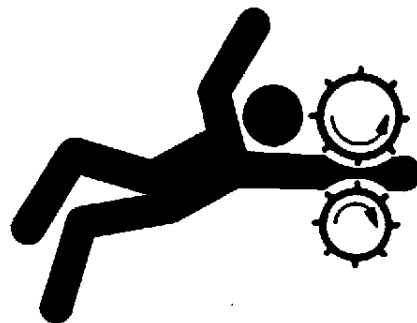
DX,WEAR -19-10SEP90

TS206 -UN-23AUG88

### 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.



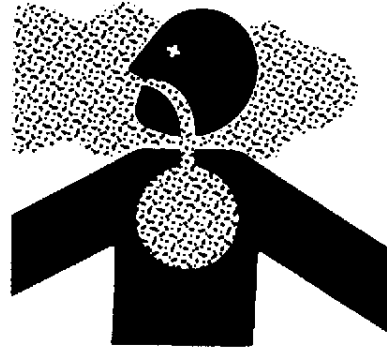
DX,LOOSE -19-04JUN90

TS228 -UN-23AUG88

### 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.



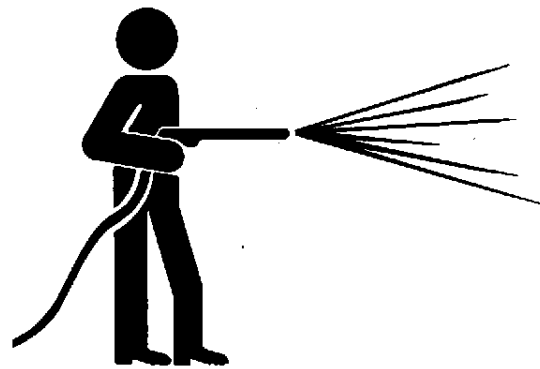
DX,AIR -19-04JUN90

TS220 -UN-23AUG88

### 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

TS223 -UN-23AUG88

## REMOVE PAINT BEFORE WELDING OR HEATING

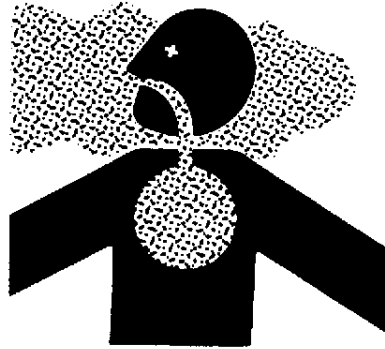
Avoid potentially toxic fumes and dust.

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 -19-04JUN90

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TS220

## 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.

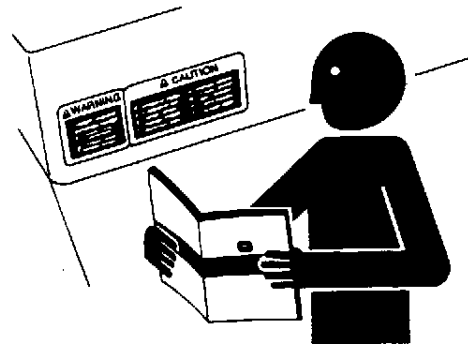


DX,TORCH -19-05OCT90

-UN-15MAY90  
TS953

## REPLACE SAFETY SIGNS

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



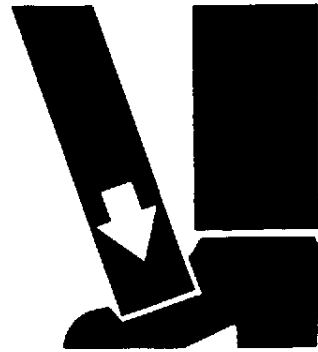
DX,SIGNS1 -19-04JUN90

-UN-23AUG88  
TS201

### 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-23AUG68

### 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.



DX,TIRECP -19-24AUG90

TS952 -UN-12APR90

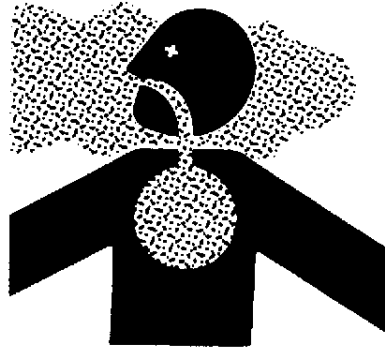
## AVOID HARMFUL ASBESTOS DUST

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding material containing asbestos. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos.

Keep bystanders away from the area.



DX,DUST -19-15MAR91

## PRACTICE SAFE MAINTENANCE

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

Never lubricate or service 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.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.



DX,SERV -19-04JUN90

### 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.



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TS779

DX,REPAIR -19-04JUN90

### DISPOSE OF WASTE PROPERLY

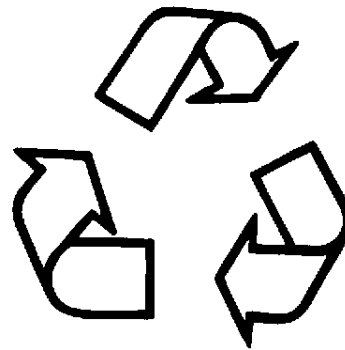
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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.



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TS1133

DX,DRAIN -19-09AUG91

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## LIVE WITH SAFETY

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



DX,LIVE -19-04JUN90

TS231 -19-07OCT88

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11



**Thank you very much for  
your reading. Please Click  
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MANUAL. NO WAITING**



**NOTE:**

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**MACHINE SPECIFICATIONS**

**ENGINE**

Make .....	John Deere "K" Series
Type .....	OHV
Model .....	FE290R
Horsepower .....	7.5 kW (10 hp)
Number of Cylinders .....	1
Displacement .....	286 cm <sup>3</sup> (17.5 cu. in.)
Bore and Stroke .....	78 x 60 mm (3.07 x 2.36 in.)
Fast Idle .....	3800 rpm
Slow Idle .....	1300—1550 rpm
Starting System .....	Electric
Lubrication .....	Pressurized
Cooling System .....	Forced Air
Air Cleaner .....	Dry Replaceable
Engine Shutoff .....	Key Switch

**FUEL SYSTEM**

Type .....	Carburetor
Fuel Delivery .....	Fuel Pump

**ELECTRICAL SYSTEM**

Type .....	12 Volt
Battery Size .....	255 Cold Cranking Amps at -18°C (0°F)
Alternator .....	13 Amp

**POWER TRAIN**

Type .....	Belt-Driven Torque Converter with Gear-Driven Transaxle
Number of Speeds .....	Forward-Neutral-Reverse
Clutch	
Type .....	Kawasaki, Wet 2.1 Reduction (Variable)
Engagement	
Speed .....	1600—1800 rpm
Travel Speeds	
Forward/Reverse .....	Variable, 0—18 km/h (0—11 mph)

**STEERING/BRAKES**

Steering .....	Mechanical, Roller-Chain and Sprocket 6:1 Reduction Ratio
Brakes .....	Mechanically Operated Disc with Park Brake

MX,1010HE,A1 -19-27SEP91

## General Specifications/Specifications

### HYDRAULIC SYSTEM

Lift Pump (optional) . . . . . Oildyne Electro-Hydraulic Lift

### CAPACITIES

Fuel Tank . . . . . 9.5 L (2.5 U.S. gal)  
Engine Crankcase . . . . . 1.4 L (3.0 U.S. pt)  
Wet Reduction Clutch Gearbox . . . . . 0.6 L (1.3 U.S. pt)  
Transaxle . . . . . 2.3 L (2.5 qt)

### TIRES

#### Standard Equipment

Front . . . . . One 22.5 x 10.00—8 2 PR High Floatation  
Rear . . . . . Two 25 x 12.00—9 2 PR High Floatation

### OVERALL DIMENSIONS:

Wheelbase . . . . . 1054 mm (41.5 in.)  
Length . . . . . 1676 mm (66 in.)  
Width . . . . . 1473 mm (58 in.)  
Height . . . . . 1041 mm (41 in.)  
Ground Clearance at  
Rake Attachment . . . . . 241 mm (9.5 in.)  
Turning Radius . . . . . 305 mm (12 in.)  
Approximate Shipping  
Weight . . . . . 238 kg (525 lb)

(Specifications and design subject to change without notice.)

MX.1010HE,A2 -19-27SEP91

## ATTACHMENT SPECIFICATIONS

### RAKE (Standard)

Type . . . . . Rear Mount, Hand Lift Control  
(Hydraulic Lift—Optional)  
Width . . . . . 1981 mm (78 in.)  
Weight . . . . . 20 kg (44 lb)  
Blades . . . . . Five Section, Bunker or Field  
Prong Rake . . . . . Three Section, 24 Prongs  
25—76 mm (1—3 in.) Adjustment

### CULTIVATOR (Optional)

Type . . . . . Mid-Mount, 10 Blades, Hand Control  
with 5-Position Depth Adjustment  
Width . . . . . 1626 mm (64 in.)  
Weight . . . . . 20 kg (44 lb)

### FRONT BLADE (Optional)

Type . . . . . Front-Mount, Hand Control with  
Up-Lock Position  
Width . . . . . 1016 mm (40 in.)  
Height . . . . . 152 mm (6 in.)  
Weight . . . . . 25 kg (56 lb)

(Specifications and design subject to change without notice.)

MX.1010HE,A3 -19-27SEP91

**REPAIR SPECIFICATIONS**

Item	Measurement	Specification
<b>SECTION 20—ENGINE REPAIR</b>		
For all repair specifications—Use CTM5		
Engine-to-Frame Cap Screw	Torque	23 N·m (204 lb-in.)
Muffler-to-Engine Nut	Torque	14 N·m (124 lb-in.)
<b>SECTION 30—FUEL AND AIR REPAIR</b>		
For all carburetor repair specifications—Use CTM5		
<b>SECTION 40—ELECTRICAL SYSTEM</b>		
For all starter and engine ignition and charging system repair—Use CTM5		
Steering Wheel Nut-to-Shaft	Torque	197 N·m (145 lb-ft)
Neutral Start Switch-to-Transaxle	Torque	39 N·m (28 lb-ft)
<b>SECTION 50—POWER TRAIN REPAIR</b>		
Wet Reduction Clutch		
Output Shaft/Gear Gear Side Journal	OD (MIN)	0.25 mm (0.982 in.)
Output Shaft/Gear Shaft Side Journal	OD (MIN)	31.94 mm (1.257 in.)
Drive Hub Journal	OD (MIN)	36.92 mm (1.453 in.)
Clutch Drum Bushing	ID (MAX)	37.08 mm (1.460 in.)
	Installation Depth	1.50 mm (0.060 in.)
	Finished ID	37.00—37.03 mm (1.457—1.458 in.)
Clutch Springs	Free Length (MIN)	22.70 mm (0.890 in.)
Case Half-to-Engine Cap Screw	Torque	28 N·m (20 lb-ft)
Clutch Drum Assembly-to-Engine Crankshaft Cap Screw	Torque	55 N·m (40 lb-ft)
Case Cover-to-Case Half Cap Screw	Torque	28 N·m (20 lb-ft)

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