

655, 755, 855, 955, 756 and 856 Compact Utility Tractors

TECHNICAL MANUAL

**John Deere
Lawn & Grounds Care Division
TM1360 (June 1996)**

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.

PThis 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, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

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.

NOTE: The 756 and 856 tractors are identical to the 755 and 855 tractors; therefore, all information pertaining to the 755 also pertains to the 756 and the same is true for the 855 and the 856 tractors. The 655, 756 and 856 tractors were all discontinued before the late model 755 and 855 tractors and the new 955 tractors were produced. Therefore, any late model references do not include the 655, 756, and 856 tractors.

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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.

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Previous Editions
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Section 10

General Information

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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

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05
-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

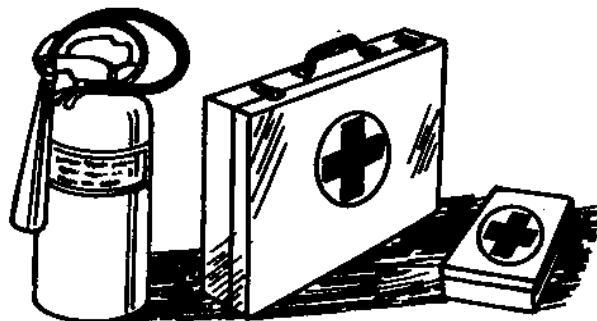
-UN-23AUG88
TS204

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:

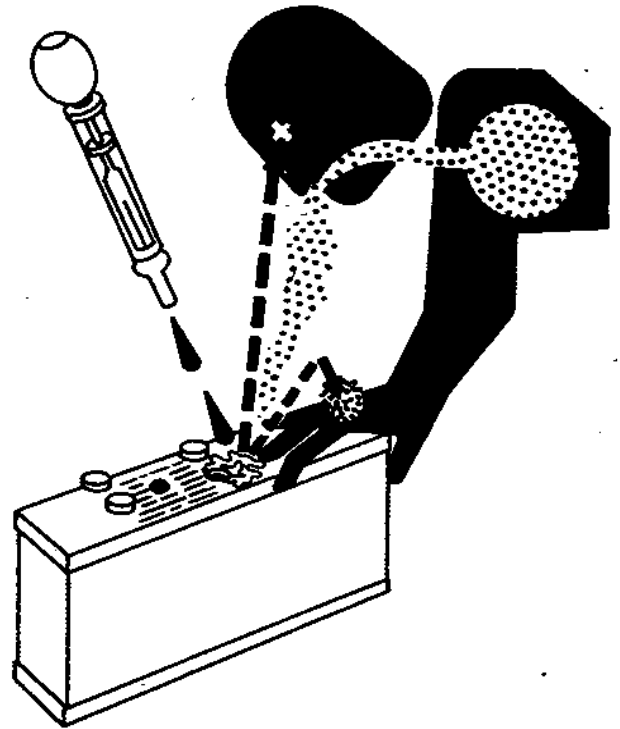
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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

TS203 -UN-23AUG88

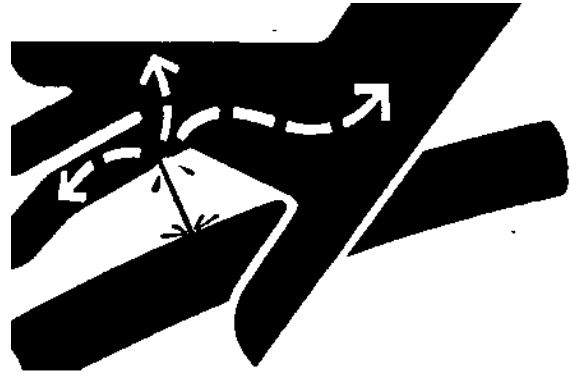
AVOID HIGH-PRESSURE FLUIDS

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.



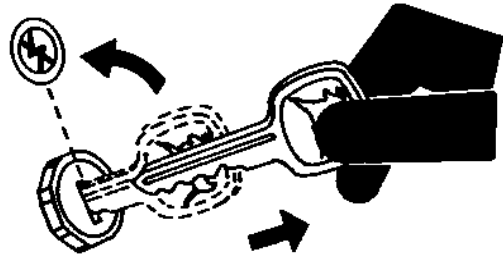
DX,FLUID -19-09AUG91

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-UN-23AUG88
X9811

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

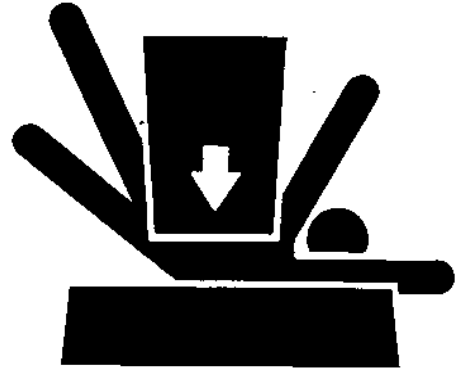
-UN-24MAY69
TS230

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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

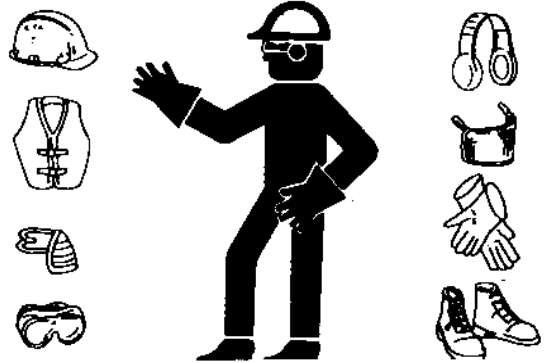
WEAR PROTECTIVE CLOTHING

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.



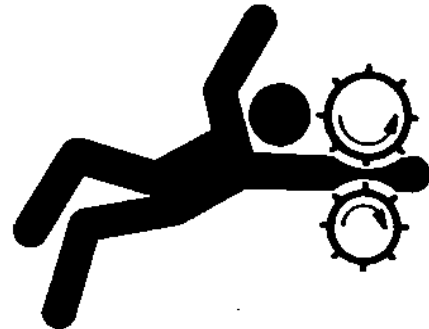
DX,WEAR -19-10SEP90

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.



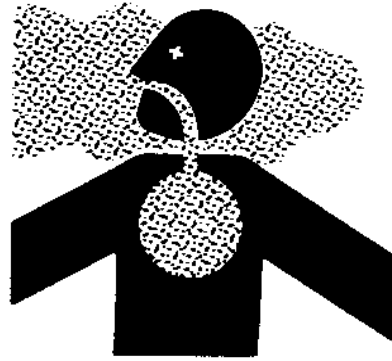
DX,LOOSE -19-04JUN90

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

51910
-UN-23AUG88
TS220

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.

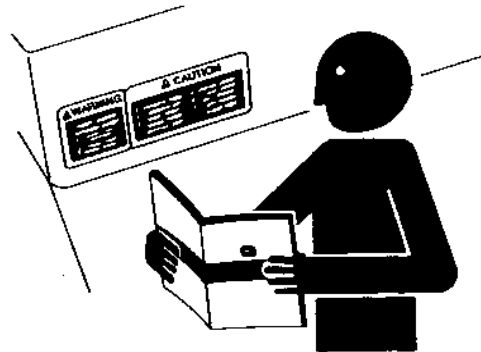


DX,LIGHT -19-04JUN90

-UN-23AUG88
TS223

REPLACE SAFETY SIGNS

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



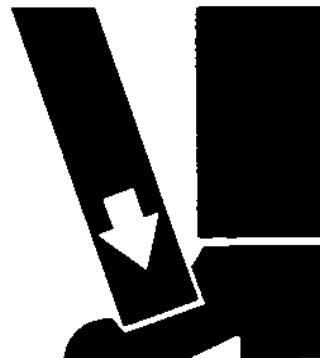
DX,SIGNS1 -19-04JUN90

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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.



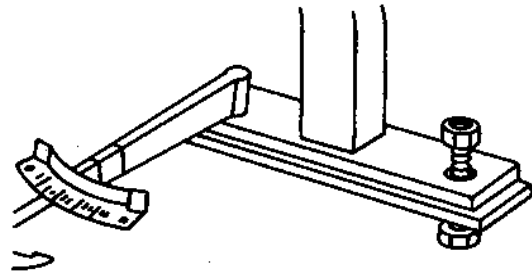
DX,LIFT -19-04JUN90

-UN-23AUG88
TS226

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 -19-04JUN90

TS212 -UN-23AUG88

SERVICE TIRES SAFELY

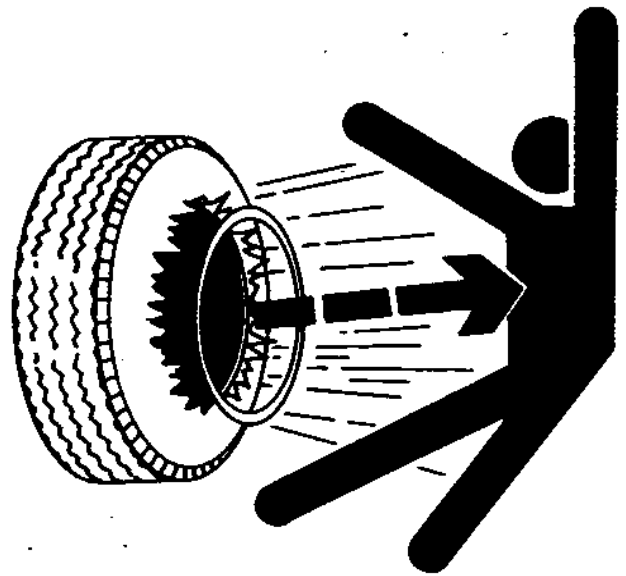
Explosive separation of a tire and rim parts can cause serious injury or death.

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,RIM -19-24AUG90

TS211 -UN-23AUG88

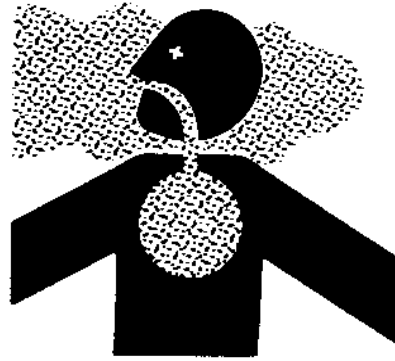
AVOID HARMFUL ASBESTOS DUST

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.



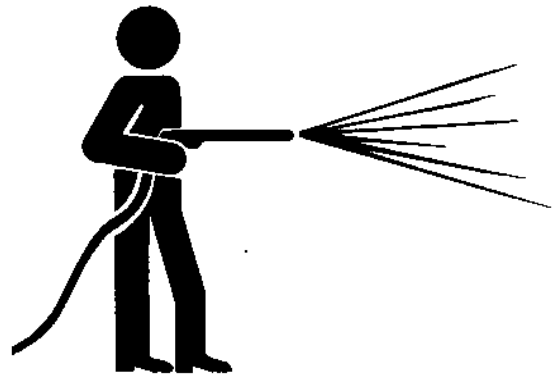
DX,DUST -19-15MAR91

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-UN-23AUG88
TS220

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

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.



TS779 -UN-08NOV89

DX,REPAIR -19-04JUN90

DISPOSE OF WASTE PROPERLY

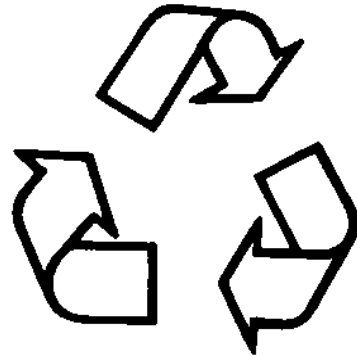
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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.



TS1133 -UN-26NOV90

DX,DRAIN -19-09AUG91

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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GENERAL TRACTOR SPECIFICATIONS

ITEM	655	755/756	855/856	955
ENGINE:				
Engine Model	3TN66UJ	3TNA72UJ	3TN75RJ	3TN84RJ
Engine Horsepower, Net.	16 (11.9 kW)	20 (14.9 kW)	24 (17.9 kW)	33 (24.6 kW)
PTO Horsepower	10.6 (8.1 kW)	15 (11.2 kW)	19 (14.2 kW)	27 (20.1 kW)
Rated Engine Speed.	3200 rpm	3200 rpm	3200 rpm	3200 rpm
Type	Diesel	Diesel	Diesel	Diesel
Operating Range	1400-3425 rpm	1400-3425 rpm	1400-3425 rpm	1400-3425 rpm
Number of Cylinders	3	3	3	3
Displacement	40.2 cu. in. 658 cm ³	53.6 cu. in. 879 cm ³	60.7 cu. in. 995 cm ³	87.3 cu. in. 1430 cm ³
Bore and Stroke	2.59x2.53 in. (66x64.2 mm)	2.83x2.83 in. (72x72 mm)	2.95x2.95 in. (75x75 mm)	3.31x3.39 in. (84x86 mm)
Compression Ratio	22.4:1	22.3:1	17.8:1	18.0:1
Lubrication	Pressured	Pressured	Pressured	Pressured
Cooling System.	Water-pump	Water-pump	Water-pump	Water-pump
Air Cleaner	Dry-Type with Safety Element	Dry-Type with Safety Element	Dry-Type with Safety Element	Dry-Type with Safety Element
Engine Shutoff	Key	Key	Key	Key
Engine Torque at Rated Speed.	35 N•m (26 lb-ft)	45 N•m (33 lb-ft)	58 N•m (39 lb-ft)	73 N•m (54 lb-ft)
ELECTRICAL SYSTEM:				
Type	12 volt	12 volt	12 volt	12 volt
Battery Size	491 Cold Cranking Amps @ -18° C	491 Cold Cranking Amps @ -18° C	475 Cold Cranking Amps @ -18° C	475 Cold Cranking Amps @ -18° C
Alternator	35 Amp 40 Amp	35 Amp 40 Amp	35 Amp 40 Amp	N/A 40 Amp
Starter Size	1.3 hp (1.0 kW)	1.3 hp (1.0 kW)	1.3 hp (1.0 kW)	1.9 hp (1.4 kW)
FUEL SYSTEM:				
Type	Indirect Injection	Indirect Injection	Direct Injection	Direct Injection
Injection Pump Type	In-line with Electric Shutoff	In-line with Electric Shutoff	In-line with Electric Shutoff	In-line with Electric Shutoff
Gallon/hr at 75% load (mowing)	Not Available	0.86	0.79	1.4
DRIVE TRAIN:				
Transmission Type	Hydrostatic-2-range	Hydrostatic-2-range	Hydrostatic-2-range	Hydrostatic-2-range
Transaxle Speed Ranges	High/Lo	High/Lo	High/Lo	High/Lo
Number of Speeds	Infinite	Infinite	Infinite	Infinite
Final Drive.	Planetary	Planetary	Planetary	Planetary
Brakes.	Wet Disk	Wet Disk	Wet Disk	Wet Disk
Steering	Power	Power	Power	Power
Drawbar Tonque Weight Capacity	675 lb. (306 kg)	675 lb. (306 kg)	675 lb. (306 kg)	800 lb. (363 kg)

GENERAL SPECIFICATIONS—CONTINUED

ITEM	655	755/756	855/856	955
HYDRAULIC SYSTEM:				
Type of System	Open Center	Open Center	Open Center	Open Center
Working Pressure	2050 psi (14135 kPa)	2050 psi (14135 kPa)	2050 psi (14135 kPa)	2500 psi (17240 kPa)
Pump Type	Gerotor Gear	Gerotor Gear	Gerotor Gear	Gerotor Gear
Pump Capacity	4 gpm (0.25 L/s)	5.6 gpm (0.35 L/s)	5.6 gpm (0.35 L/s)	7.2 gpm (0.45 L/s)
3-PT. Hitch Type	Cat. 1 (Standard)	Cat. 1 (Standard)	Cat. 1	Cat. 1
Hitch Lift Capacity (24 in. behind link arms)				
Early Models	785 lbs. (357 kg)	785 lbs. (357 kg)	785 lbs. (357 kg)	957 lbs. (434 kg)
Late Models or Retrofit	N/A	SN 180250— 1005 lbs. (456 kg)	SN 180450— 1005 lbs. (456 kg)	SN 180525— 1177 lbs. (534 kg)
Lift Control Type	Position	Position	Position	Position
PTO:				
Type	Live Independent	Live Independent	Live Independent	Live Independent
Speed (PTO rpm at 3200 engine rpm—full load):				
Mid (1:1 gear ratio)	2100 rpm	2100 rpm	2100 rpm	2100 rpm
Rear (1:3 gear ratio)	540 rpm	540 rpm	540 rpm	540 rpm
Clutch	Hydraulic Multi-Disk	Hydraulic Multi-Disk	Hydraulic Multi-Disk	Hydraulic Multi-Disk
Brake	Hydraulically Controlled	Hydraulically Controlled	Hydraulically Controlled	Hydraulically Controlled
MOWER BLADE TIP SPEED (at 3200 engine rpm full load):				
50 Inch Mower	15,371 ft/min (4688 m/min)	N/A	N/A	N/A
1:1.04 Gear Ratio	Spindle rpm 3389	N/A	N/A	N/A
60 Inch Mower	N/A	15,471 ft/min (4719 m/min)	15,471 ft/min (4719 m/min)	15,471 ft/min (4719 m/min)
1:1 Gear Ratio	N/A	Spindle rpm 2883	Spindle rpm 2883	Spindle rpm 2883
72 Inch Mower	N/A	15,167 ft/min (4626 m/min)	15,167 ft/min (4626 m/min)	15,167 ft/min (4626 m/min)
1:1 Gear Ratio	N/A	Spindle rpm 2321	Spindle rpm 2321	Spindle rpm 2321
261 Inch Mower	N/A	14,465 ft/min (4412 m/min)	14,465 ft/min (4412 m/min)	14,465 ft/min (4412 m/min)
1:3 Gear Ratio	N/A	Spindle rpm 2695	Spindle rpm 2695	Spindle rpm 2695
272 Inch Mower	N/A	14,601 ft/min (4453 m/min)	14,601 ft/min (4453 m/min)	14,601 ft/min (4453 m/min)
1:3 Gear Ratio	N/A	Spindle rpm 2234	Spindle rpm 2234	Spindle rpm 2234

GENERAL SPECIFICATIONS—CONTINUED

ITEM	655	755/756	855/856	955
FLUID CAPACITIES:				
Fuel Tank	3.95 U.S. gal (15 L)	4.4 U.S. gal (16.7 L)	6.6 U.S. gal (25 L)	6.6 U.S. gal (25 L)
Cooling System.	4 U.S. qt. (3.8 L)	4 U.S. qt. (3.8 L)	4.8 U.S. qt. (4.5 L)	4.8 U.S. qt. (4.5 L)
Crankcase (w/filter).	2.5 U.S. qt. (2.4 L)	2.86 U.S. qt. (2.7 L)	4.1 U.S. qt. (3.9 L)	4.4 U.S. qt. (4.2 L)
Transmission and Hydraulic System	4.5 U.S. gal. (17 L)	4.5 U.S. gal. (17 L)	4.5 U.S. gal. (17 L)	4.5 U.S. gal. (17 L)
MFWD Gear Case	2.25 U.S. qt. (2.13 L)	2.25 U.S. qt. (2.13 L)	2.25 U.S. qt. (2.13 L)	3.5 U.S. qt. (3.3 L)
WEIGHT (includes fuel, oil, coolant and R-1 tires):				
2WD	1584 lbs. (718 kg)	1700 lbs. (771 kg)	1790 lbs. (812 kg)	N/A
MFWD.	1680 lbs. (762 kg)	1835 lbs. (832 kg)	1870 lbs. (848 kg)	1990 lbs. (903 kg)
SERVICE INTERVALS:				
Engine				
Valve Adjustment	300 Hours	300 Hours	300 Hours	300 Hours
Primary Filter	400 Hours	400 Hours	400 Hours	400 Hours
		or every two years		
Secondary Filter	Every two years	Every two years	Every two years	Every two years
		or when every third primary filter is installed		
GROUND SPEEDS (at full engine rpm):				
Forward High Range.	0—10.0 mph (0—16.1 K/hr)	0—10.6 mph (0—17.1 K/hr)	0—11.0 mph (0—17.7 K/hr)	0—11.4 mph (0—18.3 K/hr)
Forward Lo Range	0—05.4 mph (0—08.7 K/hr)	0—05.8 mph (0—09.3 K/hr)	0—06.0 mph (0—09.7 K/hr)	0—05.1 mph (0—08.2 K/hr)
Reverse High And Lo	0—05.0 mph (0—08.1 K/hr)	0—05.3 mph (0—08.5 K/hr)	0—05.5 mph (0—08.9 K/hr)	0—05.7 mph (0—09.2 K/hr)
ENGINE COOLANT HEATER:				
	Current Draw 400 Watts	Current Draw 400 Watts	Current Draw 400 Watts	Current Draw 400 Watts
SPARK ARRESTER:				
	Not Available	Available	Available	Available

