

675 and 675B Skid Steer Loaders

TECHNICAL MANUAL

**John Deere
Lawn & Grounds Care Division
TM1374 (Sept 94)**

Contents

SECTION 10—GENERAL INFORMATION

- Group 05—Introduction and Safety
- Group 10—General Specifications
- Group 15—Cap Screw Torque
- Group 20—Tune-Up
- Group 25—Fuel and Lubrication
- Group 30—Serial Numbers

SECTION 20—ENGINE

- Group 05—Engine Removal and Installation
- Group 10—Cooling System

SECTION 30—FUEL AND AIR SYSTEM

- Group 05—Throttle Control Linkage
- Group 10—External Fuel Supply

SECTION 40—ELECTRICAL

- Group 05—Seat Lockout Switch

SECTION 50—POWER TRAIN

- Group 05—Hydrostatic Pumps
- Group 10—Hydrostatic Motor
- Group 15—Drive Chains and Axles
- Group 20—Drive Shaft

SECTION 60—STEERING AND BRAKES

- Group 05—Park Brake
- Group 10—Steering Neutralizer

SECTION 70—HYDRAULICS

- Group 05—Hydraulic Charge Pump
- Group 10—Main Control Valve
- Group 12—Auxiliary Control Valves
- Group 15—Hydraulic Cylinders
- Group 20—Oil Cooler
- Group 25—Miscellaneous Hydraulics
- Group 30—Lift Arms and Stops

SECTION 210—SPECIFICATIONS/OPERATIONAL CHECKOUT PROCEDURE

- Group 01—Specifications
- Group 05—Operational Checkout Procedure

SECTION 220—ENGINE/FUEL SYSTEM OPERATION AND TESTS

- Group 05—675 Engine System Checkout
- Group 10—675 Engine System Diagnosis

SECTION 240—ELECTRICAL OPERATION AND TESTS

- Group 05—Electrical System Checkout
- Group 10—Electrical System Diagnosis
- Group 15—Component Locations/Wiring Diagrams

SECTION 250—POWER TRAIN OPERATION AND TESTS

- Group 05—Power Train System Checkout
- Group 10—Power Train System Diagnosis

SECTION 270—HYDRAULIC OPERATION AND TESTS

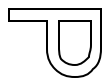
- Group 05—Hydraulic System Checkout
- Group 10—Hydraulic System Diagnosis

Index

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.

TM1374-19-24APR90

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A John Deere ILLUSTRATION™ Manual



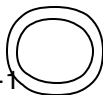
GENERAL INFORMATION

Contents

Page

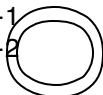
Group 05—Introduction and Safety

Introduction	10-05-1
Safety	10-05-3



Group 10—General Specifications

Loader Specifications	10-10-1
Bucket Specifications	10-10-2

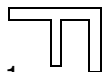


Group 15—Cap Screw Torque

Bolt Torque Chart	10-15-1
Metric Hardware Torque Specifications	10-15-2

Group 20—Tune-Up

675 Skid-Steer Loader	10-20-1
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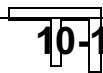
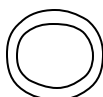
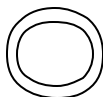
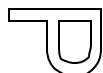


Group 25—Fuel and Lubrication

Fuel	10-25-1
Fuel Specifications	10-25-1
Fuel Storage	10-25-2
Diesel Engine Oil	10-25-3
General Purpose Grease	10-25-4
Hydraulic Oil	10-25-4

Group 30—Serial Numbers

Product Identification Number	10-30-1
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INTRODUCTION

This manual is part of a total service 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 types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical Manuals are concise service guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.

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



10-05

10-05-1
RWS339

O53,INTRO2 -19-03JUL85



FEATURES OF THIS TECHNICAL MANUAL

John Deere ILLUSTRATION format emphasizing illustrations and concise instructions in easy-to-use modules.



Emphasis on diagnosis, analysis, and testing so you can understand the problem and correct it.



Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

Step-by-step instructions for teardown and assembly.



Summary listing at the beginning of each group of all applicable specifications, wear tolerances, torque values, essential tools, and materials needed to do the job.

An emphasis throughout on safety—so you do the job right without getting hurt.



This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.



PHOTOGRAPH BY JIM JENSEN



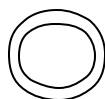
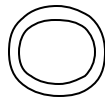
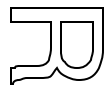
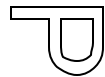
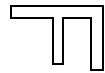
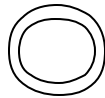
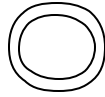
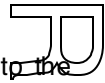
O53.INTRO3 -19-07OCT85



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SAFETY AND YOU

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.



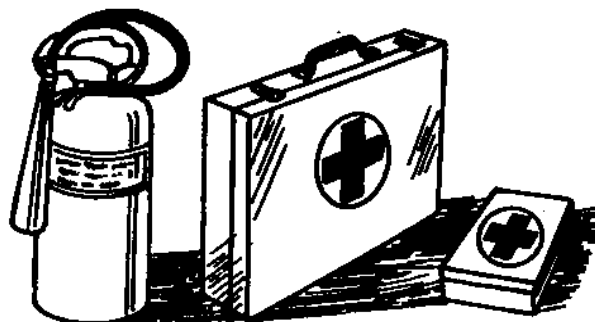
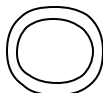
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TM1374 -19-07-2008

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.



O53,FIRE2 -19-26JAN90

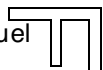
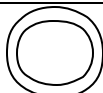
TS291 -JUN-20-2004

HANDLE FUEL SAFELY—AVOID FIRES

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



O53,FIRE1 -19-26JAN90

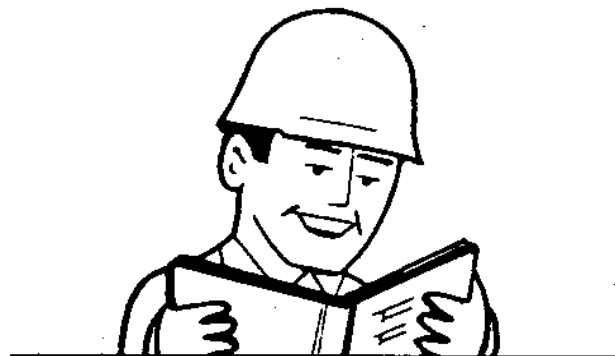
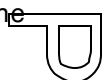
TS202 -JUN-20-2004

LEARN MACHINE SAFETY

Carefully read this manual. Learn how to operate the machine and how to use the controls properly.

Do not let anyone operate this machine without proper instruction.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



O53,READ1 -19-08JUL85

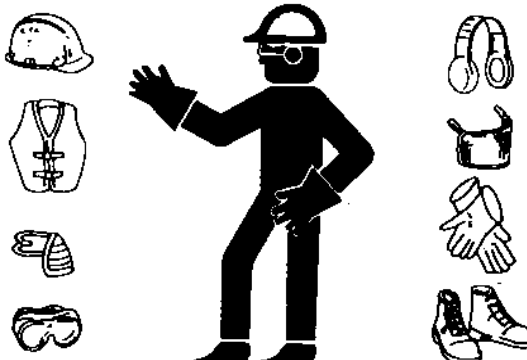
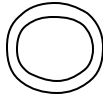
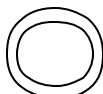
TS203 -JUN-29-2004

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.



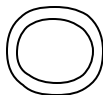
O53,WEAR -19-26JAN90

TS206 -JUN-20-2004

PROTECT AGAINST NOISE

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.



O53,NOISE -19-26JAN90

TS.217 -J14-20A-J5.21

1515

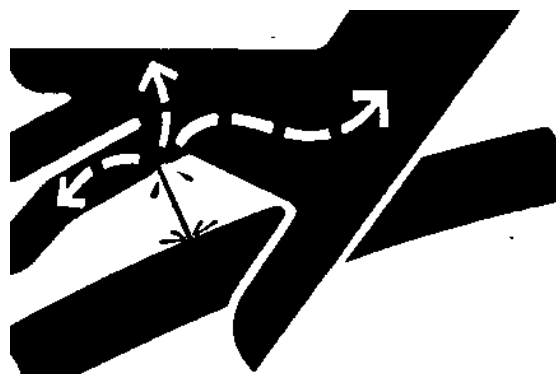
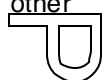
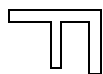
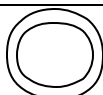
AVOID HIGH-PRESSURE FLUIDS

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.

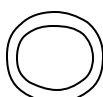
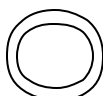
Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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 may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.



O53,FLUID -19-26JAN90

X8911 -J14-20A-J5.21



SERVICE LOADER SAFELY

Do not work under lift arms unless they are resting on lift arm stops.



Before you work on loader or any attached equipment:

- Lower attachments to ground, or
- Rest lift arms on lift arm stops.



Lower lift arms all the way and stop engine before you install or remove attachments.

Before you make repairs or adjustments, stop the engine.



Do not change engine governor settings or overspeed engine.

Keep the loader and attachments in good operating condition.



Keep safety devices in place and in working condition.

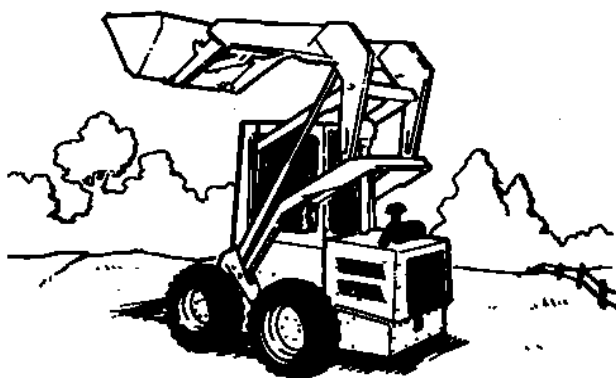
Keep all nuts, bolts, and screws tight so equipment is in safe working condition.

Before you work on any part of the engine, stop the engine, and let it cool. Hot engine parts can burn skin on contact.

Do not run engine unless park brake is locked.



Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, belts, or any other moving parts.



150196 -JUN-2006-2408

M21,SAU.I -19-09SEP85

PREVENT BATTERY EXPLOSIONS

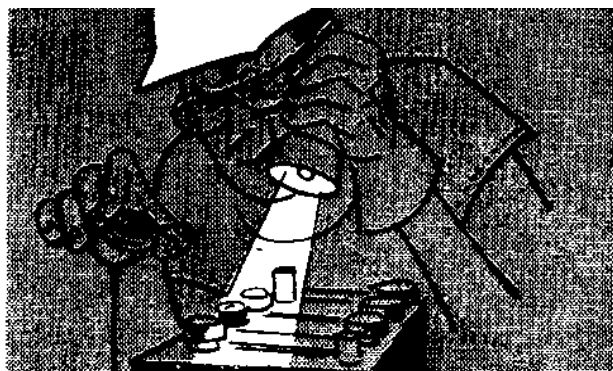


Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

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 it last.



150196 -JUN-2006-2508

O53,EXPLO -19-29JAN86

CAUTION: 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:

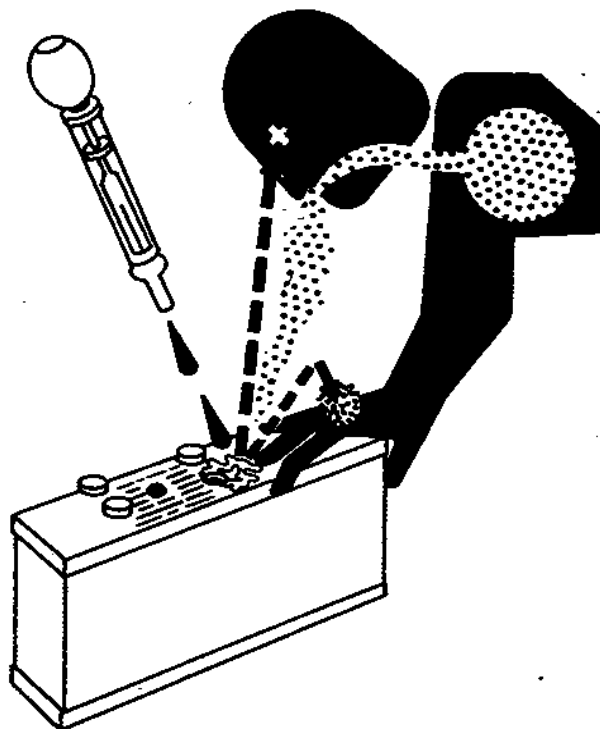
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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.



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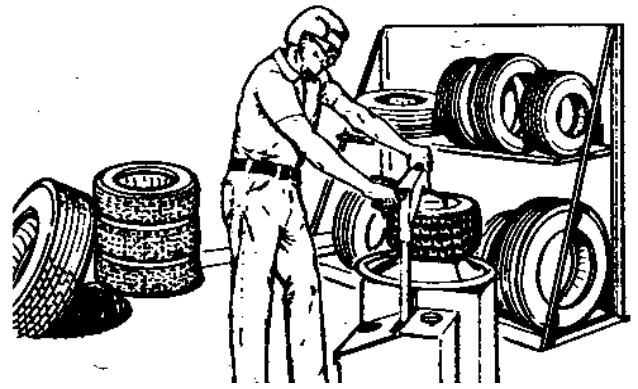
O53,ACID -19-29JAN86

SERVICE TIRES SAFELY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Have it done by your John Deere dealer or a qualified tire repair service.

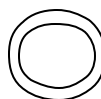
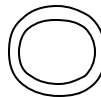
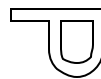
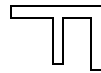
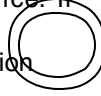
When sealing tire beads on rims, never exceed 35 psi (241 kPa) (2.4 bar) or maximum inflation pressures specified by tire manufacturers for mounting tires.

Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when the maximum recommended pressure is reached, deflate, reposition tire, relubricate bead and reinflate.



MO=160 -JN-237-J568

O53,TIRE4 -19-21APR86



Group 10 General Specifications

ENGINE

Make and model	Yanmar 4TN82ESP
Cooling system	Water Cooled
Fuel	Diesel
Cylinders	4
Horsepower (mfg. rating)	@3600 (32.8 kW)
Operating hp at governed rpm	38.8 @ 2800 (28.9 kW)
Bore	.323 in. (82 mm)
Stroke	.339 in. (86 mm)
Displacement	110.8 cu. in. (1816 cm ³)
RPM speeds:	
Fast (no load)	2915/2975
Slow (no load)	900/1000
Fuel tank capacity	16.1 gal (61 L)
Crankcase capacity	W/O filter 6 qt. (5.7 L)
Regulator	Solid-state

TRANSMISSION

Type	Hydrostatic
Capacity	17 gal (64.4 L)

TRAVEL SPEEDS

(forward/reverse)	(0 to 6.7 mph (0 to 10.8 km/h))
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BOOM CYLINDERS

Type	Double acting
------	---------------

PERFORMANCE RATINGS*

Operating load, SAE (per SAEJ818)	1650 lb (748 kg)
Timing load, SAE	3330 lb (1510 kg)
Breakout force, SAE IEMC	2820 lb
Slow (no load)	900/1000
Fuel tank capacity	16.1 gal (61 L)
Crankcase capacity	8.4 qt (8 L)
Regulator	Solid-state

WEIGHTS

Operating weight, SAE	4379 lb (991 kg)
Shipping weight (less tires and attachments)	3530 lb (1605 kg)

CYCLE TIMES (seconds):

Boom raised	4.3
Boom lowered	2.1
Bucket rollback	1.8
Bucket dumping	1.7

HYDRAULIC SYSTEM

Pump Type	Gear
Pump Manufacturer	Cessna
Output	14 gpm (52.9 LPM @2800 rpm)
Displacement	1.24 cu in. per rev (20.3 cm ³)

*Performance ratings taken with 10.00-16.5 tires, 66-inch dirt and foundry bucket, 175 pound operator and full fuel tank.

(Specifications and design subject to change without notice.)

BUCKET CAPACITIES AND WEIGHTS

2019

Bucket Size in. (cm)	Struck Capacity cu ft (M ³)	Heaped Capacity cu ft (M ³)	Weight lb (kg)
62 (157) Dirt and Foundry Bucket	11.7 (0.3)	14.9 (0.4)	325 (147)
62 (157) Utility and Fertilizer Bucket	19.1 (0.54)	23 (0.65)	355 (161)
62 (157) Low Profile Bucket	11.3 (0.32)		
84 (213) Light Materials Bucket	25.3 (0.72)	29.9 (0.85)	415 (189)
70 (178) Manure and Fertilizer Bucket	15.9 (0.45)	19.5 (0.55)	405 (184)

(Specifications and design subject to change without notice.)

M21,SPX,B -19-03JAN86



BOLT TORQUE CHART

Grade of Bolt		SAE-2	SAE-5	SAE-8	Socket or Wrench Size	
Min. Tensile Strength		64,000 PSI	105,000 PSI	150,000 PSI		
Grade Marking on Bolt					U.S. Regular	
U.S. Standard					U.S. Regular	
Bolt Dia.	U.S. Dec. Equiv.	TORQUE IN FOOT POUNDS			Bolt Head	Nut
1/4	0.250	(8.14 N-m) 6	(13.56 N-m) 10	(18.98 N-m) 14	7/16	7/16
5/16	0.3125	(17.63 N-m) 13	(27.12 N-m) 20	(40.68 N-m) 30	1/2	1/2
3/8	0.375	(31.19 N-m) 23	(47.46 N-m) 35	(67.80 N-m) 50	9/16	9/16
7/16	0.4375	(47.46 N-m) 35	(74.58 N-m) 55	(108.48 N-m) 80	5/8	11/16
1/2	0.500	(74.58 N-m) 55	(115.26 N-m) 85	(162.72 N-m) 120	3/4	3/4
9/16	0.5625	(101.70 N-m) 75	(176.28 N-m) 130	(237.30 N-m) 175	13/16	7/8
5/8	0.625	(142.38 N-m) 105	(230.52 N-m) 170	(325.44 N-m) 240	15/16	15/16
3/4	0.750	(250.86 N-m) 185	(406.80 N-m) 300	(576.30 N-m) 425	1-1/8	1-1/8
7/8	0.875	(216.96 N-m) 160	(616.98 N-m) 445	(928.86 N-m) 685	1-5/16	1-5/16
1	1.000	(339.00 N-m) 250	(908.52 N-m) 670	(1396.68 N-m) 1030	1-1/2	1-1/2

Multiply readings by 12 for inch-pound values.

* "B" Grade bolts larger than 3/4-inch (19.1 mm) are sometimes formed hot rather than cold, which accounts for the lower recommended torque.

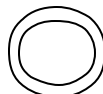
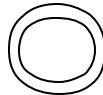
NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.

SET SCREW SEATING TORQUE CHART

Screw Size	Cup Point	Square Head
	Torque in Inch Pounds	
#5	(1.02 N-m) 9	—
#6	(1.02 N-m) 9	—
#8	(2.26 N-m) 20	—
#10	(3.78 N-m) 33	—
1/4	(9.83 N-m) 87	(23.96 N-m) 212
5/16	(18.65 N-m) 165	(47.46 N-m) 420
3/8	(32.77 N-m) 290	(93.79 N-m) 830
7/16	(48.59 N-m) 430	—
1/2	(70.06 N-m) 620	(237.30 N-m) 2100
9/16	(70.06 N-m) 620	—
5/8	(138.43 N-m) 1225	(480.25 N-m) 4250
3/4	(240.13 N-m) 2125	(870.10 N-m) 7700

Divide readings by 12 for foot-pound values

NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.



M21,1010K.C -19-25AUG82

12515

METRIC HARDWARE TORQUE SPECIFICATIONS

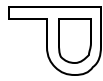
Metric Standard Thread

Thread	8.8		10.9		1	2.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)	
M5	5.9	(4.4)	7.9	(5.8)	9.8	(7.2)	
M6	9.8	(7.2)	13.8	(10.2)	16.7	(12.3)	
M8	24.6	(18.1)	34.4	(25.4)	40.2	(29.6)	
M10	48.1	(35.5)	67.8	(50.0)	81.5	(60.1)	
M12	84.4	(62.2)	118.0	(87.0)	142.0	(105.0)	
M14	133.0	(98.0)	187.0	(138.0)	226.0	(187.0)	
M16	206.0	(152.0)	290.0	(214.0)	348.0	(257.0)	
M18	285.0	(210.0)	398.0	(294.0)	476.0	(351.0)	
M20	402.0	(296.0)	570.0	(420.0)	677.0	(499.0)	
M22	540.0	(398.0)	765.0	(564.0)	914.0	(674.0)	
M24	697.0	(514.0)	980.0	(723.0)	1180.0	(870.0)	

Metric Fine Thread

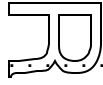

Thread	8.8		10.9		12.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)
M8 x 1	26.5	(19.5)	37.3	(27.5)	44.2	(32.6)
M10 x 1	47.1	(34.7)	68.8	(50.7)	81.5	(60.1)
M12 x 1.5	88.4	(65.2)	123.0	(91.0)	147.0	(106.0)
M14 x 1.5	147.0	(108.0)	206.0	(152.0)	246.0	(181.0)
M16 x 1.5	221.0	(163.0)	309.0	(228.0)	373.0	(275.0)
M18 x 1.5	319.0	(235.0)	451.0	(333.0)	540.0	(398.0)
M20 x 1.5	451.0	(333.0)	628.0	(463.0)	755.0	(557.0)
M22 x 1.5	599.0	(442.0)	845.0	(623.0)	1030.0	(760.0)
M24 x 2	765.0	(564.0)	1080.0	(796.0)	1275.0	(940.0)
M26 x 2	1130.0	(833.0)	1570.0	(1158.0)	1915.0	(1412.0)

O53.TORQUE -19-13MAR85

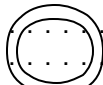


TUNE-UP SPECIFICATIONS

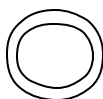
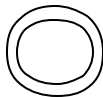
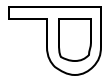
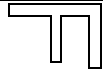
675 SKID-STEER LOADER

Fast Idle		2915/2 975 rpm
Slow Idle		900/1000 rpm
Horsepower (mfg. Rating)		44 (32.8 kW) at 3600 rpm
Operating Horsepower		38.8 (28.9 kW) at 2800 rpm
Intake Valve Clearance (Cold)		0.008 in. (0.2 mm)
Exhaust Valve Clearance (Cold)		0.008 in. (0.2 mm)
Gradability		
(Maximum Angle for Engine Operation on Intermittent Basis)		30°
(Maximum Angle for Engine Operation on Continuous Basis)		25°

CAPACITIES

Engine Oil with Filter		6 qt (5.8 L)
Fuel Tank		16 gal (60.5 L)
Cooling System		3.4 gal (12.9 L)
Hydraulic System		17 gal (64.3 L)

M21,1020X,A -19-30JUN86



FUEL

CAUTION: Handle fuel carefully. If the engine is running, do not fill the fuel tank. If engine is hot, let engine cool several minutes before you add fuel. Do not smoke while you fill the fuel tank or service the fuel system. Fill fuel tank only to bottom of filler neck.



M09-003 -JN-17-A-V90

Fuel tank cap is vented. Use only a vented cap.

M21_FLX,A -19-02JAN86

Check fuel gauge regularly.

Fuel tank capacity is 16 gal (60.5 L)

Fill fuel tank at end of each day's operation.

If engine runs out of fuel:

- Fill fuel tank.
- Bleed fuel system.



M039-5 -JY-29AJ533

M21_1025X,A -19-09JUL86

FUEL SPECIFICATIONS

Use ONLY clean, high-quality fuel.

Use Grade No. 2-D fuel at temperatures above 40°F (4°C).

Use Grade No. 1-D fuel at temperatures below 40°F (4°C).

Use Grade No. 1-D fuel for all air temperatures at altitudes above 5000 ft (1500 m).

IMPORTANT: Use fuel with less than 1.0 percent sulfur. If possible, use fuel with less than 0.5 percent sulfur.

If fuel sulfur is more than 0.5 percent, change engine oil and filter every 100 hours.

For maximum filter life, sediment and water should not be more than 0.10 percent.

The cetane number should be 40 minimum. If you operate your machine where air temperatures are normally low or where altitudes are high, you may need fuel with a higher cetane number.

Cloud Point—For cold weather operation, cloud point should be 10°F (6°C) below lowest normal air temperature.

M21_FLQ,A -19-12MAR85

FUEL STORAGE

NOTE: Diesel fuels stored for a long time may form gum and plug filters.

Keep fuel in a clean container in a protected area. Water and sediment must be removed before fuel gets to the engine. Do not use de-icers to remove water from fuel. Do not depend on fuel filters to remove water.



If possible, install a water separator at the storage tank outlet. (See your John Deere dealer for this part).

IMPORTANT: Keep all dirt, scale, water or other foreign material out of fuel.



Store fuel drum on its side with plug up.

M21,FLQ,B -19-02APR85

DO NOT USE GALVANIZED CONTAINERS

IMPORTANT: Diesel fuel stored in galvanized containers reacts with zinc coating on the container to form zinc flakes. If fuel contains water, a zinc gel will also form. The gel and flakes will quickly plug fuel filters and damage fuel injectors and fuel pumps.

DO NOT USE a galvanized container to store diesel fuel.



Store fuel in:

- plastic containers.
- aluminum containers.
- specially coated steel containers made for diesel fuel.

DO NOT USE brass-coated containers: brass is an alloy of copper and zinc.



M21,FLQ,B1 -19-02AUG85



ENGINE OIL

Depending upon the expected air temperature range during the drain interval, use oil viscosity shown on the adjoining temperature chart.

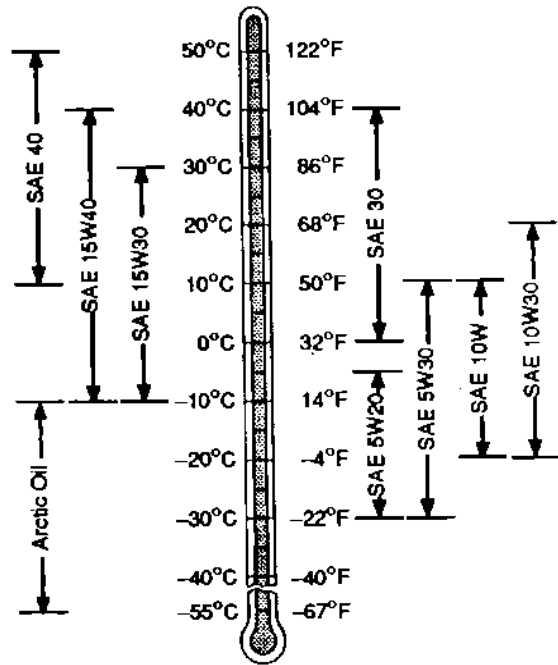
John Deere TORQ-GARD SUPREME® engine oil is recommended. If other oils are used, they must be premium quality engine oils meeting performance requirements of:

- API Service Classification CD/SC
- Military Specification MIL-L-2104C or MIL-L-2104D

Quality engine oils are blended, so additives are neither required nor recommended.

For SAE 5W20, SAE 10W20, and arctic oil viscosity grades, where oils meeting the above requirements may not be available, oils meeting a minimum of API Service classification CC/SC or Military Specification MIL-L-46152 may be used, but at a short drain interval.

At temperatures below -30°C (-22°F), use arctic oils meeting a minimum of API Service Classification CC/SC or Military Specification MIL-L-46167, but at a shorter drain interval.



10
25
3
TS200 -19-17MAY91

O53, ENGOIL -19-11MAY84

10-25-4

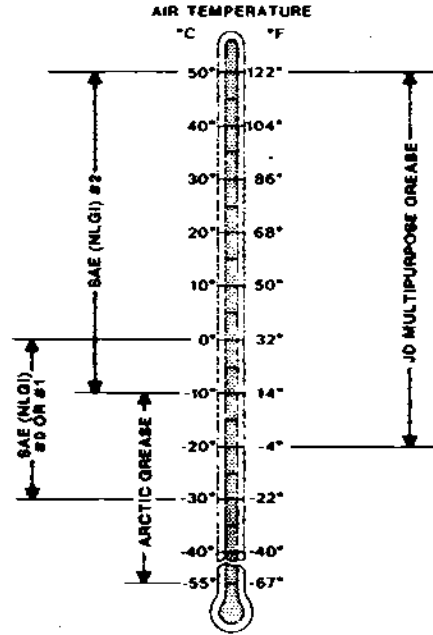
GENERAL PURPOSE GREASE

Use grease as shown on the temperature chart for the expected air temperature range during the service interval.

John Deere Multipurpose Grease is recommended. If other greases are used, use:

- SAE Multipurpose Grease.
- Multipurpose Grease containing 3 to 5 percent molybdenum disulfide.

At temperatures below -22°F (-30°C), use arctic greases such as those meeting Military Specification MIL-G-10924C.



X912A3 -19-00157-00

M21,FLJ,05 -19-12MAY83

HYDRAULIC OIL

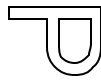
Use John Deere HY-GARD® Transmission and Hydraulic Oil or an equivalent or oil meeting John Deere J20A specifications.

M21,FLU,C -19-10SEP85

COLD WEATHER OPERATION

Additional information on cold weather operation is available from your John Deere dealer.

AB6,O53,COLD -19-12MAY84

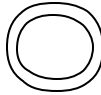


SERIAL NUMBERS

When working on machines or components that are covered by warranty, it is IMPORTANT that you include the tractor Product Identification Number and the component serial number on the warranty claim form.

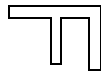
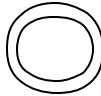


the location of component serial number plates are shown below.



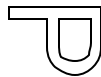
M21,1030R,1 -19-22APR85

PRODUCT IDENTIFICATION NUMBER

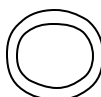
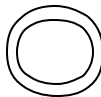


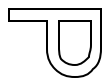
M21,1030X,A -19-30JUN86

ENGINE SERIAL NUMBER



M21,1030X,B -19-30JUN86





Section 20 ENGINE



Contents

Page

Group 05—Engine Removal and Installation

Service Equipment and Tools 20-05-1

Other Material 20-05-1

Specifications 20-05-1

Engine

Remove 20-05-2

Inspect Mounts 20-05-6

Install 20-05-5

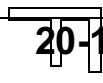
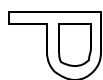
Group 10—Cooling System

Specifications 20-10-1

Radiator

Remove and Inspect 20-10-1

Install 20-10-3



20

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