RX and SX Series Riding Mowers

TECHNICAL MANUAL

John Deere
Lawn & Grounds Care Division

TM1391 (JUN-88)

Litho in U.S.A

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.

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, 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.

O53,TMIFC -19-26JAN90

TO JOHN DEERE DEALERS

FILING INSTRUCTIONS

TM-1391 (JULY 1988)

RX63, RX73, TX75, SX75, RX95, SX95 Riding Mowers

This is a complete revision of TM-1391. Please discard old TM-1391 dated February 1987.

For complete engine repair information use CTM-5. Engine tests and adjustments are covered in Section 220 of this manual.

Model RX63 has been added.

An abundance of diagnostic information has been added to the operation and test sections.

Contents

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.

TM1391-19-17APR90

Section 10
SAFETY AND SPECIFICATIONS

Contents

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.

T81389 -UN-07DEC88

O53,ALERT -19-26JAN90

UNDERSTAND SIGNAL WORDS

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

Safety signs with signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

TS187 -19-30SEP88

O53,SIGNAL -19-26JAN90

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.

TS202 -UN-23AUG88

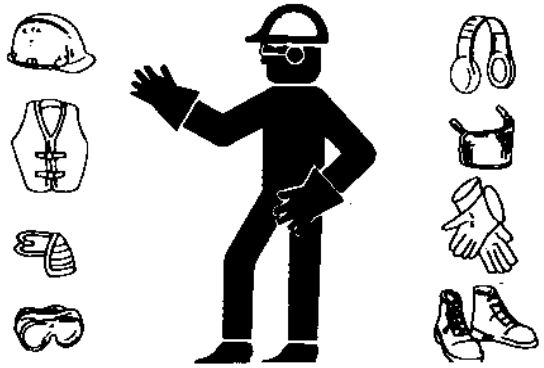
O53,FIRE1 -19-26JAN90

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.



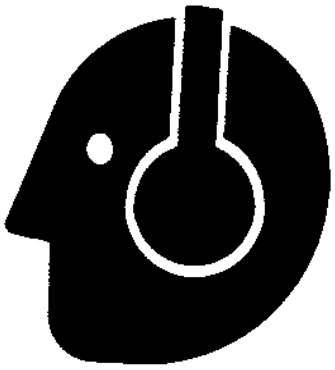
TS206 -UN-23AUG88

O53,WEAR -19-26JAN90

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.



TS207 -UN-23AUG88

O53,NOISE -19-26JAN90

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.

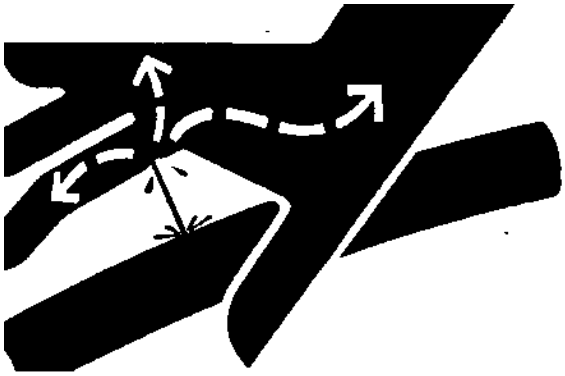
Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

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

TS218 -UN-23AUG88

O53,SERV -19-26JAN90

AVOID HIGH-PRESSURE FLUIDS



X9811 -UN-23AUG88

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

BOLT TORQUE CHART

Grade of Bolt		SAE-2	SAE-5	SAE-8		
Min. Tensile Strength		64,000 PSI	105,000 PSI	150,000 PSI		
Grade Marking on Bolt					Socket or Wrench Size	
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 fo 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	(3.73 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.

-19-28APR89

M28575

M21,1010K,C -19-25AUG82

O-RING BOSS FITTINGS SERVICE RECOMMENDATIONS

1. Inspect boss O-ring boss seat. It must be free of dirt and defects. If repeated leaks occur, inspect for defects with a magnifying glass. Some raised defects can be removed with a slip stone.

Occasionally a lower durometer O-ring will seat against a rough seat. If neither of these solutions work, the component must be replaced.

2. Put hydraulic oil, petroleum jelly or soap on the O-ring. Put a thimble over the threads to protect O-ring from nicks. Slide O-ring over the thimble and into the turned down section of fitting.

For angle fittings, loosen special nut and push special washer against threads so O-ring can be installed into the turned down section of fitting.

3. Turn fitting into the boss by hand until special washer or washer face (straight fitting) contacts boss face and O-ring is squeezed into its seat.

4. To position angle fittings, turn the fitting counterclockwise a maximum of one turn.

5. Tighten straight fittings to torque valve shown on chart. For angle fittings, tighten the special nut to valve shown in the chart while holding body of fitting with a wrench.

STRAIGHT FITTING OR SPECIAL NUT TORQUE (1)

Thread Size	Torque[1] N·m	(lb-ft)	Number of Flats[2]
7/16-20 UNF	12	(9)	2
1/2-20 UNF	16	(12)	2
9/16-18 UNF	24	(18)	2
3/4-16 UNF	46	(34)	2
7/8-14 UNF	62	(46)	1-1/2
1-1/16-12 UN	102	(75)	1
1-3/16-12 UN	122	(90)	1
1-5/16-12 UN	142	(105)	3/4
1-5/8-12 UN	190	(140)	3/4
1-7/8-12 UN	217	(160)	1/2

1. Torque tolerance is ± 10 percent.

2. To be used if a torque wrench cannot be used. After tightening fitting by hand, put a mark on nut or boss; then tighten special nut or straight fitting the number of flats shown.

M45,1010A,4 -19-10JAN85

ENGINE

For complete specifications on repair of Kawasaki engines see CTM-5.

Engine sheave mounting cap screw torque	73 ± 13 N·m (54 ± 10 lb-ft)
Engine mounting cap screw torque	19 ± 2 N·m (14 ± 5 lb-ft)
Spark plug gap	0.76 N·M (0.030 in.)
Spark plug torque	9—20 N·m (80—180 lb-in.)
Idle mixture screw (initial setting)	
6 hp	1-1/8 turns open
9 hp	1-1/8 turns open
12.5 hp	1-1/2 turns open
Idle speed	1550 ± 75 rpm
Wide open throttle (no load)	3350 ± 75 rpm
Fuel pump output at 3000 rpm (12.5 hp only)	0.09 L (0.2 pt) in 15 seconds

TRANSAXLE

Cover cap screw torque	10 N·m (95 lb-in.)
Shift lever detent set screw torque	Flush with cover
Brake lever nut torque	10 N·m (95 lb-in.)

STEERING

Tie rod attaching nut torque	25—30 N·m (18.5—2 lb-ft)

BRAKE

Brake pedal free play	19 mm (1-1/4 in.)
Brake pad thickness (min.)	6 mm (1/4 in.)

MOWER DECK

Mower spindle sheave locknut torque	140 N·m (103 lb-ft)

M22,1010G,A -19-01JUL88

OTHER MATERIAL

Number	Name	Use
T43511	John Deere LOCTITE® Clean and Cure Primer	Clean threads
TY9369	John Deere LOCTITE Threadlock and Sealer (low strength)	
T43512	John Deere LOCTITE Threadlock and Sealer (medium strength)	
TY6305	John Deere Flexible Sealant	
T43514	John Deere LOCTITE Plastic Gasket	
PT502	John Deere GASKET MAKER®	
	PLASTIGAGE®	Measure engine bearing clearance
TY6431	John Deere SLIP-PLATE® Lubricant	
PT569	John Deere NEVER-SEEZ® Lubricant	
	John Deere LUBRIPLATE®	
	ALVANIA® EP2 Lubricant	
TY6333	Moly High-Temperature EP Grease	
	TEFLON® Material	
TY9375	John Deere LOCTITE Pipe Sealant with TEFLON	

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M22,1010G,2 -19-01DEC86

Section 20
ENGINE

Contents

JOHN DEERE ENGINE REPAIR—USE CTM-5

For complete repair information the component technical manual (CTM) is also required.

Use the component technical manual in conjunction with this machine manual.

TS225 -UN-17JAN89

M22,2001G,1 -19-10JUN88