TRS21/21E/22/24/26/ 27/32 and TRX24/26 Walk-Behind Snowthrowers/ Snowblowers

JOHN DEERE

TECHNICAL MANUAL

TRS21/21E/22/24/26/ 27/32 and TRX24/26
Walk-Behind Snowthrowers/ Snowblowers

TM1466 (20JAN95) English

John Deere
Lawn & Grounds Care Division
TM1466 (20JAN95)
Replaces TM1466 (25AUG92)

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.

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.

TM1466-20Jan95

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Section 10
GENERAL INFORMATION

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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.

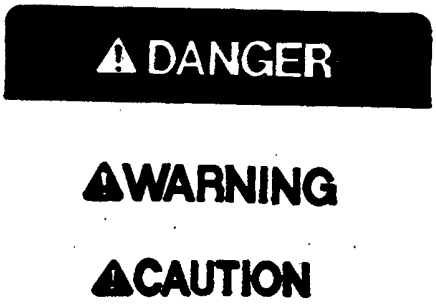
T81389 -UN-07DEC88

DX,ALERT -19-04JUN90

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.



TS187 -19-30SEP88

DX,SIGNAL -19-09JAN92

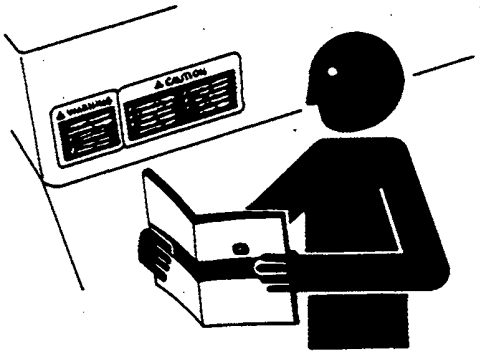
FOLLOW SAFETY INSTRUCTIONS

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.



TS201 -UN-23AUG88

DX,READ -19-04JUN90

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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.

TS227 -UN-23AUG88

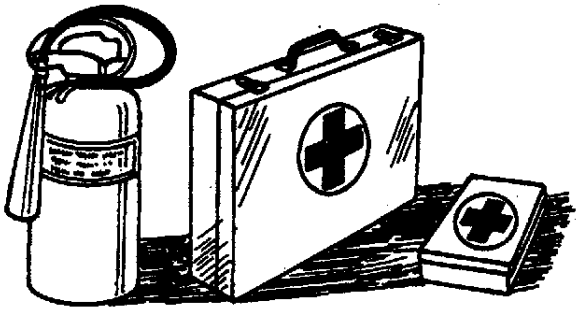
DX,FLAME -19-04JUN90

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.



TS291 -UN-23AUG88

DX,FIRE2 -19-04JUN90

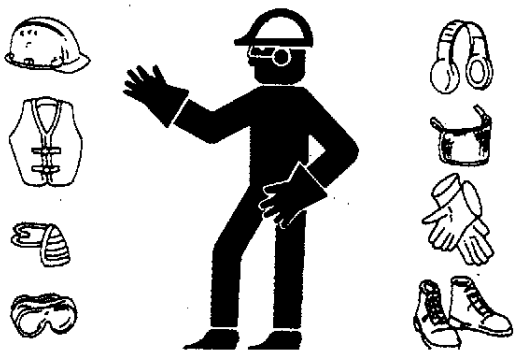
WEAR PROTECTIVE CLOTHING

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.



TS206 -UN-23AUG88

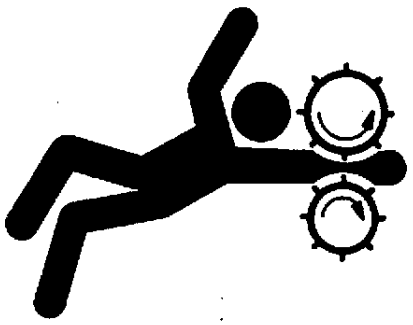
DX,WEAR -19-10SEP90

270892

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.



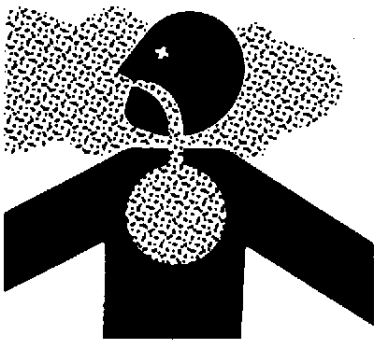
TS226 -UN-23AUG88

DX,LOOSE -19-04JUN90

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.

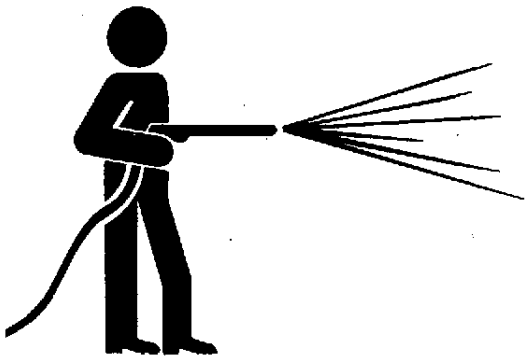


TS220 -UN-23AUG88

DX,AIR -19-04JUN90

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.



T6642EJ -UN-18OCT88

DX,CLEAN -19-04JUN90

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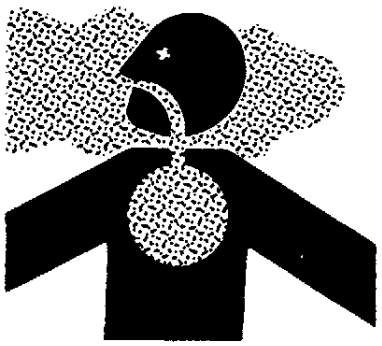
REMOVE PAINT BEFORE WELDING OR HEATING



TS220 -UN-23AUG88

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

ILLUMINATE WORK AREA SAFELY

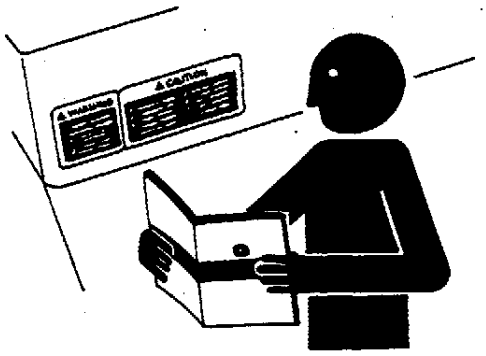
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

TS223 -UN-23AUG88

DX,LIGHT -19-04JUN90

REPLACE SAFETY SIGNS

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



TS201 -UN-23AUG88

DX,SIGNS1 -19-04JUN90

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.

TS952 -UN-12APR90

DX,TIRECP -19-24AUG90

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. 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.

TS216 -UN-23AUG88

MX,SERV,CP -19-16JUL92

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USE PROPER TOOLS

TS779 -UN-08NOV89

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

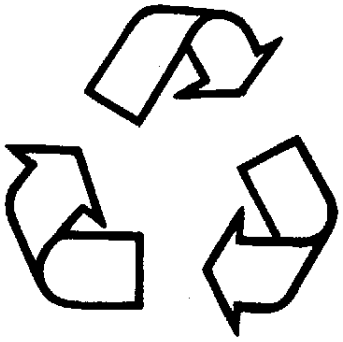
Use power tools only to loosen threaded parts and fasteners.

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

Use only service parts meeting John Deere specifications.

DX,REPAIR -19-04JUN90

DISPOSE OF WASTE PROPERLY



TS1133 -UN-26NOV90

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.

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

MX,DRAIN,CP -19-16JUL92

LIVE WITH SAFETY

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

TS231 -19-07OCT88

DX,LIVE -19-04JUN90

DO NOT MODIFY SNOWBLOWER

Never alter engine governor setting.

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

Do not alter or remove any part of the snowblower impeller clutch mechanism.

MX,1005FA,A1 -19-10OCT89

USE CARE WITH ELECTRICAL CORD (ELECTRIC START MODELS ONLY)

The plug end of power cord is equipped with a third (ground) prong. Do not remove this prong. Be sure to plug electric start power cord into an outlet that is properly grounded and that will accommodate a 3-prong plug.

Do not use an extension cord.

Disconnect power cord from electrical outlet before removing upper shroud of snowblower.

Make sure power cord and connection receptacles are moisture-free before making connection.

Always connect power cord to snowblower before connecting to receptacle.

Always disconnect power cord at receptacle before disconnecting at snowblower.

Disconnect power cord from receptacle before refueling, servicing or removing cowling.

Replace damaged power cord immediately.

MX,1005FA,A2 -19-10OCT89

MACHINE SPECIFICATIONS—TRS21 AND 22

	TRS21	TRS22
ENGINE		
Manufacturer	Tecumseh Snow King	Tecumseh Snow King
Model	HSK840	HSSK40
Type	Air cooled (2)	Air cooled (4)
Horsepower	5 hp (3.73 kW)	4 hp (2.9 kW)
RPM	3600	3600
Displacement	8.46 cu. in. (139 cc)	10.49 cu. in. (172 cc)
Bore	2.440 in. (62 mm)	2.625 in. (67 mm)
Stroke	1.810 in. (46 mm)	1.938 in. (49 mm)
Cooling	Forced air	Forced air
Lubrication		
Type	Pressurized mist (fuel-oil mix)	Splash system
Oil Capacity	N/A	21 U.S. oz (0.62 L)
Fuel		
Type Required	2-Cycle 50:1 gas/oil mixture	Lead-free or leaded Regular grade gasoline
Fuel Tank Capacity	1.5 U.S. qt	2 U.S. qt
Carburetor	Float-type with primer	Float-type with primer
Fuel Filter	In-line	Fine mesh molded in fuel tank
Electrical		
Ignition	Electronic	Flywheel magneto, solid state
Spark Plug	Resistor	Resistor
Starter	Recoil	Recoil
Electric Start	Factory installed	Attachment
Alternator	N/A	Attachment
Headlight	N/A	Attachment
Component Construction		
Bearings		
PTO End	Needle bearings	Aluminum alloy
Flywheel End	Needle bearings	Aluminum alloy
Crankshaft	Iron alloy	Iron alloy
Cylinder	Aluminum alloy with cast iron sleeve	Aluminum alloy
Valves		
Intake	N/A	Heat treated alloy steel
Exhaust	N/A	Austentic steel
Guides	N/A	Iron alloy inserts
Seats	N/A	One piece iron alloy, cast integrally into cylinder

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MACHINE SPECIFICATIONS—TRS21 AND 22

	TRS21	TRS22
SNOW THROWER		SNOW BLOWER
Stages	1	2
Clearing Width	21 in. (533 mm)	22 in. (559 mm)
Auger		
Type	Rubber ribbon	Serrated ribbon
Diameter	9 in. (229 mm)	10 in. (254 mm)
Housing Opener		
Height	12 in. (305 mm)	13.5 in. (343 mm)
Drive-Clutch	V-belt from engine to auger	V-belt from engine to blower shaft
Drive-gear case	N/A	Worm on blower shaft-to-gear on auger shaft
Blower		
Diameter	9 in. (229 mm)	10 in. (254 mm)
Number of Blades	2	4
Discharge Chute		
Rotation	0—190 degrees	0—200 degrees
Traction Drive System		
Drive components	N/A	Primary reduction—V-belt from engine to transmission. Transmission—spring loaded friction disk driven from aluminum input disk. Gear reduction to axle shaft.
Differential	N/A	Pin in hub and axle
Speeds		
1st	N/A	0.90 mph (1.45 km/h)
2nd	N/A	1.20 mph (1.93 km/h)
3rd	N/A	1.50 mph (2.41 km/h)
4th	N/A	1.90 mph (3.06 km/h)
5th	N/A	2.25 mph (3.62 km/h)
6th	N/A	2.50 mph (4.02 km/h)
Reverse 1	N/A	1.00 mph (1.61 km/h)
Reverse 2	N/A	1.15 mph (1.85 km/h)
Wheels	Semi-pneumatic	Steel 9 x 2 in.
Tires	N/A	Pneumatic turf tread 12.5 x 4 in.
OVERALL DIMENSIONS		
Length	46 in. (1168 mm)	N/A
Width	21 in. (533 mm)	N/A
Height	36 in. (914 mm)	N/A
Shipping Weight		
Recoil Start	72 lb (33 kg)	N/A
Electric Start	75 lb (34 kg)	N/A

(Specifications and design subject to change without notice.)

MX,1010FA,A9A -19-05AUG92

MACHINE SPECIFICATIONS—TRS/TRX24 AND 26

	TRS24	TRX24	TRS26	TRX26
ENGINE				
Manufacturer	Tecumseh Snow King	Tecumseh Snow King	Tecumseh Snow King	Tecumseh Snow King
Model	HSSK50	HSSK50	HMSK80	HMSK80
Type (cycle)	Air cooled (4)	Air cooled (4)	Air cooled (4)	Air cooled (4)
Horsepower	5 hp (3.73 kW)	5 hp (3.73 kW)	8 hp (6 kW)	8 hp. (6 kW)
RPM	3700	3700	3700	3700
Displacement	12.04 cu. in. (197 cc)	12.04 cu. in. (197 cc)	19.43 cu. in. (318 cc)	19.43 cu. in. (318 cc)
Bore	2.813 in. (71.5 mm)	2.813 in. (71.5 mm)	3.125 in. (79.4 mm)	3.125 in. (79.4 mm)
Stroke	1.938 in. (49.2 mm)	1.938 in. (49.2 mm)	2.532 in. (64.3 mm)	2.532 in. (64.3 mm)
Cooling	Forced air	Forced air	Forced air	Forced air
Lubrication				
Type	Splash system	Splash system	Splash system	Splash system
Oil capacity	21 U.S. oz. (0.62 L)	21 U.S. oz. (0.62 L)	26 U.S. oz. (0.77 L)	26 U.S. oz. (0.77 L)
Fuel				
Type required		Lead-free or leaded regular grade gasoline		
Fuel tank capacity	2 U.S. qt. (1.9 L)	2 U.S. qt. (1.9 L)	4 U.S. qt. (3.79 L)	4 U.S. qt. (3.79 L)
Carburetor		Float-type with primer.		
Fuel filter		Fine mesh molded in fuel tank.		
Electrical				
Ignition	Flywheel magneto solid state	Flywheel magneto solid state	Flywheel magneto solid state	Flywheel Magneto solid state
Spark plug	Resistor	Resistor	Resistor	Resistor
Alternator	Attachment	Attachment	Standard	Standard
Electric start	Attachment	Attachment	Attachment	Attachment
Headlight	Attachment	Attachment	Attachment	Attachment
Component Construction				
Bearings				
PTO end	Aluminum alloy	Aluminum alloy	Replaceable bronze bushing	Replaceable bronze bushing
Flywheel end	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy
Crankshaft	Iron alloy	Iron alloy	Iron alloy	Iron alloy
Cylinder	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy

MX,1010FA,A5 -19-05AUG92