

S2048, S2348 and S2554
SCOTTS YARD AND GARDEN TRACTORS



TECHNICAL MANUAL

TM1777 (24Feb00)
Replaces TM1777 (10Mar99)

This technical manual is written for an experienced technician and contains sections that are specifically for this product. It is a part of a total product support program.

The manual is organized so that all the information on a particular system is kept together. The order of grouping is as follows:

- Table of Contents
- Specifications
- Component Location
- System Schematic
- Theory of Operation
- Troubleshooting Chart
- Diagnostics
- Tests & Adjustments
- Repair

Note: Depending on the particular section or system being covered, not all of the above groups may be used.

Each section will be identified with a symbol rather than a number. The groups and pages within a section will be consecutively numbered.

We appreciate your input on this manual. If you find any errors, or want to comment on the layout of the manual, please mail your comments back to us.

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Safety



Specifications and Information



Engine – 20, 23 & 25 HP



Electrical System



Hydrostatic Power Train



Steering



Brakes



Attachments



Miscellaneous





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 servicing practices.

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.

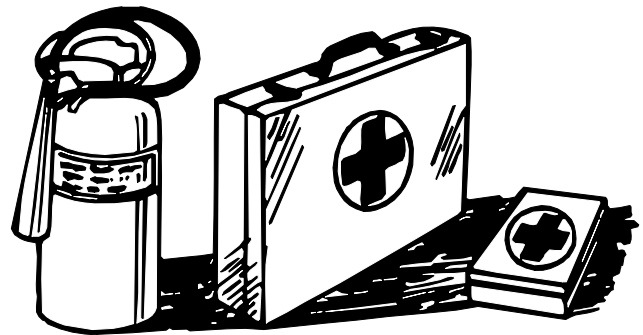
REPLACE SAFETY SIGNS



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

HANDLE FLUIDS SAFELY-AVOID FIRES

Be Prepared For Emergencies



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.

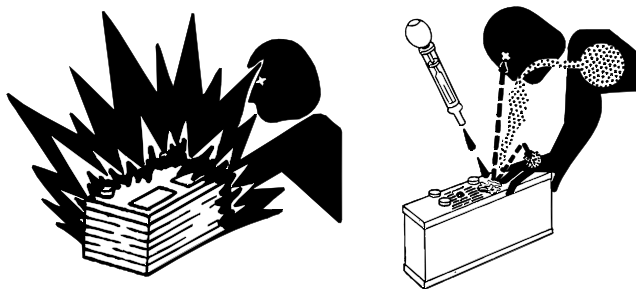
Do not store oily rags; they can ignite and burn spontaneously.

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.

USE CARE IN HANDLING AND SERVICING BATTERIES



Prevent Battery Explosions

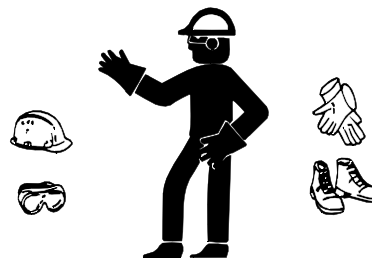
- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.
- Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.
- Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

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 acid burns 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.
 4. 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.

USE SAFE SERVICE PROCEDURES

Wear Protective Clothing

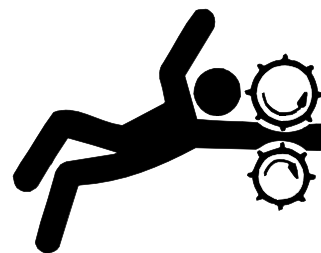


Wear close fitting clothing and safety equipment appropriate to the job.

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.

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.

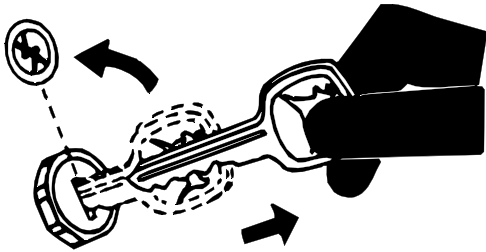
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

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.



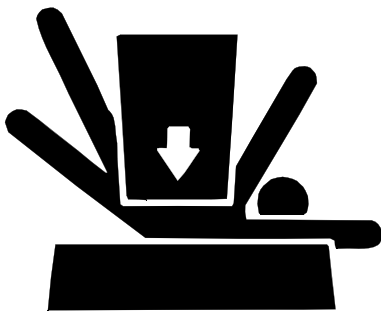
Park Machine Safely



Before working on the machine:

1. Lower all equipment to the ground.
2. Stop the engine and remove the key.
3. Disconnect the battery ground strap.
4. Hang a "DO NOT OPERATE" tag in operator station.

Support Machine Properly And Use Proper Lifting Equipment



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.

Lifting heavy components incorrectly can cause severe injury or machine damage. Follow recommended procedure for removal and installation of components in the manual.

Work In Clean Area

Before starting a job:

1. Clean work area and machine.
2. Make sure you have all necessary tools to do your job.
3. Have the right parts on hand.
4. Read all instructions thoroughly; do not attempt shortcuts.

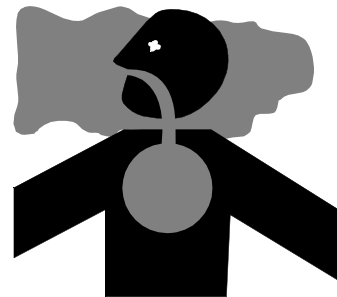
Using High Pressure Washers

Directing pressurized water at electronic/electrical components or connectors, bearings, hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure and spray at a 45 to 90 degree angle.

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.

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.

WARNING: California Proposition 65

Warning:

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

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.

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.

SERVICE TIRES SAFELY



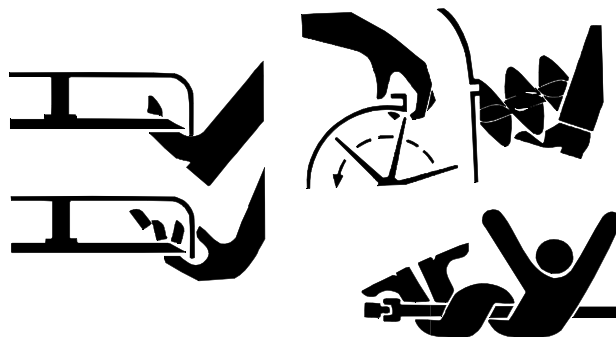
Explosive separation of a tire and rim parts can cause serious injury or death.

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.

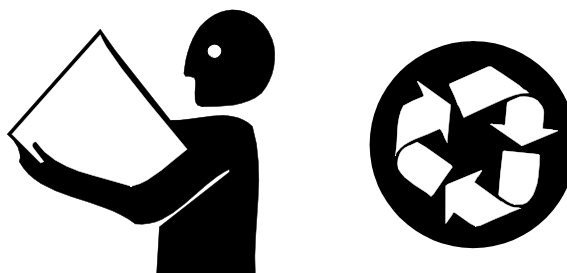
Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

AVOID INJURY FROM ROTATING BLADES, AUGERS AND PTO SHAFTS



Keep hands and feet away while machine is running. Shut off power to service, lubricate or remove mower blades, augers or PTO shafts.

HANDLE CHEMICAL PRODUCTS SAFELY



Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

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



LIVE WITH SAFETY



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

CONTENTS

	Page
SPECIFICATIONS	3
INCH TORQUE VALUES	6
METRIC TORQUE VALUES	7
GASOLINE SPECIFICATIONS	8
GASOLINE STORAGE	8
LUBRICANT SPECIFICATIONS	8
ENGINE OIL	8
ENGINE BREAK-IN OIL	8
HYDROSTATIC TRANSMISSION OIL.....	9
GREASE	9
ALTERNATIVE LUBRICANTS.....	9
SYNTHETIC LUBRICANTS.....	10
OIL FILTERS	10
LUBRICANT STORAGE	10
SERIAL NUMBER LOCATIONS	10
TRACTOR IDENTIFICATION NUMBER	10
ENGINE SERIAL NUMBER.....	10
HYDROSTATIC TRANSMISSION SERIAL NUMBER.....	10





SPECIFICATIONS

ENGINE (2048)

Engine	Kohler
Model Number	CV20S
Horsepower	14.9 kW (20 hp)
Displacement	624 cm ³ (38.1 cu.in.)
Oil Capacity	
w/o oil filter	1.65 L (1.7 qt.)
w/ oil filter	2.0 L (2.1 qt.)
Cylinders	2
Stroke/Cycle	4
Valves	Overhead Valves
Lubrication	Fully Pressurized
Oil Filter	Single Element, Full Flow, Spin-On Filter
Cooling System	Air Cooled
Air Cleaner	Dual Stage
Muffler	Horizontal Discharge Below Frame

ENGINE (2348)

Model Number	CV23S
Horsepower	17.15 kW (23 hp)
Displacement	674 cm ³ (41.1 cu.in.)
Bore	80 mm (3.15 in.)
Stroke	67 mm (2.64 in.)
Oil Capacity	
w/o oil filter	1.65 L (1.7 qt.)
w/ oil filter	2.0 L (2.1 qt.)
Cylinders	2
Stroke/Cycle	4
Valves	Overhead Valves
Lubrication	Fully Pressurized
Oil Filter	Single Element, Full Flow, Spin-On Filter
Cooling System	Air Cooled
Air Cleaner	Dual Stage
Muffler	Horizontal Discharge Below Frame

ENGINE (2554)

Engine	Kohler
Model Number	CV25S
Horsepower	18.6 kW (25 hp)
Displacement	725 cm ³ (44.0 cu.in.)
Oil Capacity	
w/o oil filter	1.65 L (1.7 qt.)
w/ oil filter	2.0 L (2.1 qt.)
Cylinders	2
Stroke/Cycle	4
Valves	Overhead Valves
Lubrication	Fully Pressurized
Oil Filter	Single Element, Full Flow, Spin-On Filter
Cooling System	Air Cooled
Air Cleaner	Dual Stage
Muffler	Horizontal Discharge Below Frame





FUEL SYSTEM

Aspiration Natural
 Fuel Tank Location Rear
 Fuel Tank Capacity 11 L (3 U.S. gal)
 Fuel (minimum octane) Unleaded Gasoline, 87 Octane
 Fuel Delivery Float-Type Side Draft Carburetor
 Fuel Filter Replaceable In-Line

ELECTRICAL

Ignition. Electronic Capacitor Discharge Ignition (CDI)
 Type of Starter. Solenoid Shift
 Charging System. Flywheel Alternator
 Battery Type BCI Group, U1
 Battery Voltage 12 V
 Battery Reserve Capacity at 25 Amp 38 minutes
 Battery Cold Cranking Amps at -18°C (0°F) 295 amps

TRANSAXLE (HYDROSTATIC)

Drive Train Belt Drive Transaxle with foot-controlled variable speed drive
 Transaxle (S2048 and S2348). Tuff-Torq Model K-62C
 Transaxle (S554) Tuff-Torq Model K-66C

PTO DRIVE

Type. V-Belt
 Clutch Type Engine-Mounted, Electric
 Control. Switch on dash

IMPLEMENT LIFT

Lift System Manual with Lift-Assist Spring
 Lift Lever Location Left-hand side of hood

DIMENSIONS-MODEL NUMBER S2048

Overall Height 114.0 cm (44.9 in.)
 Overall Length. 182.9 cm (72 in.)
 Vehicle Weight. 259 kg (570 lb.)

DIMENSIONS-MODEL NUMBER S2348

Overall Height 114.0 cm (44.9 in.)
 Overall Length. 182.9 cm (72 in.)
 Vehicle Weight. 259 kg (570 lb.)

DIMENSIONS-MODEL NUMBER S2554

Overall Height 115.7 cm (45.6 in.)
 Overall Length. 183.6 cm (72.3 in.)
 Vehicle Weight. 275 kg (606 lb.)

TIRES

Model Number 2048	
Size Front	16 X 6.50
Size Rear	23 X 10.50
Model Number 2348	
Size Front	16 X 6.50
Size Rear	23 X 10.50
Model Number 2554	
Size Front	16 X 7.50
Size Rear	24 X 12



MOWER DECK (48-INCH)

Blades	3
Cutting Height-Approx.	25–102 mm (1–4 in.)
Blade Length	423 mm (16.6 in.)
Cutting Width	1219 mm (48 in.)

MOWER DECK (54-INCH)

Blades	3
Cutting Height-Approx.	25–102 mm (1–4 in.)
Blade Length	474 mm (18.7 in.)
Cutting Width	1372 mm (54 in.)

STEERING

Type	Manual—Pinion/Sector
Axle Pivot Hub	Shim Adjustable
Lubrication	Multipurpose Grease
Lubrication Interval	10 hrs (Maximum)
Toe-In	6 mm (0.24 in.) — Non-Adjustable
Turning Radius	584 mm (23 in.)

PTO DRIVE

Type	V-Belt
Clutch Type	Manual Belt Tensioning
Control Location	Lever on dash