

E-GATOR® UTILITY VEHICLE

TECHNICAL MANUAL

**John Deere
Worldwide Commercial and
Consumer Equipment Division**

**TM1766 (31Mar00)
Replaces TM1766 (22Apr99)**

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. To help, there are postage paid post cards included at the back. If you find any errors or want to comment on the layout of the manual please fill out one of the cards and mail it back to us.

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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Consumer Equipment Division
Horicon, WI
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Safety 

Specifications and Information 

Batteries 

Battery Charger 

Electric Motor 

Electrical System 

Power Train 

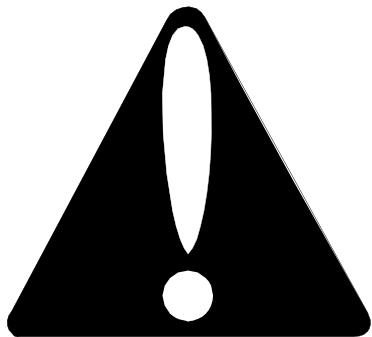
Steering 

Brakes 

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.

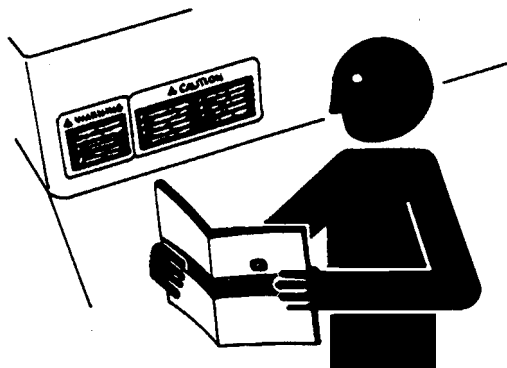
Follow recommended precautions and safe servicing practices.

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



TS201

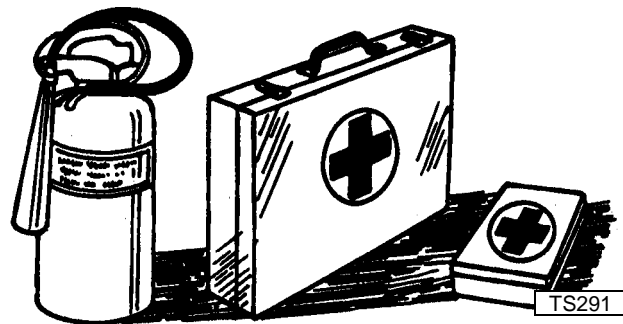
Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

HANDLE FLUIDS SAFELY-AVOID FIRES

Be Prepared For Emergencies



TS227



TS291

When you work around batteries, do not smoke or work near heaters, sparks or other fire hazards.

Charge batteries in a well ventilated area.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

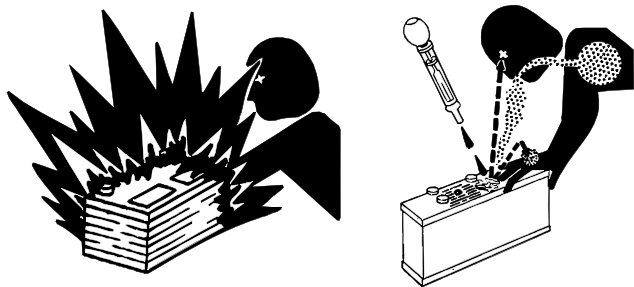
Do not store oily rags; they can ignite and burn spontaneously.

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

Batteries contain sulfuric acid and produce explosive mixtures of hydrogen and oxygen. Because self-discharge action generates hydrogen gas even when the battery is not in operation, make sure batteries are stored and serviced in a well ventilated area.

- Always wear proper eye, face and hand protection.
- Keep sparks, lighted matches, and open flame away from the top of battery.
- Remove all jewelry (watches, rings, bracelets, etc.) before servicing the electrical system or batteries.
- Make sure work area is well ventilated.
- Never lean over battery while testing or charging.
- Keep removable vents tight and level except when servicing electrolyte.
- Exercise caution while working with metallic tools or conductors to prevent short circuits and sparks.
- Never check battery charge by placing a metal object across the posts. Use a battery tester, voltmeter or hydrometer.
- Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

Safe Charging

- Never attempt to charge a battery without first reviewing the instructions for the charger being used.
- Use only the battery charger provided with the utility vehicle. DO NOT use substitutes.
- Always wear proper eye, face and hand protection.
- Keep sparks, lighted matches, and open flame away from the top of battery.
- Make sure work area is well ventilated.
- Never lean over battery while testing or charging.
- Keep removable vents tight and level except when servicing electrolyte.
- To avoid dangerous sparks, Do not disconnect the DC output cord from the battery receptacle when the charger is on. Disconnect the AC power supply cord to turn the charger off before disconnecting the DC output plug.
- Never try to charge a visibly damaged or frozen battery.

- Be sure that the key switch and all electrical accessories are turned off.
- Make sure that the charger leads are not broken, frayed or loose.
- If the battery becomes hot, or if violent gassing or spewing of electrolyte occurs, unplug the charger AC source first before removing the DC plug
- If battery set is on charge, unplug the charger AC plug before disconnecting the charger DC cable plug to avoid dangerous sparks.



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.

Use extreme caution when handling electrolyte and keep an acid neutralizing solution - such as baking soda or household ammonia mixed with water - readily available.

• Avoid acid burns by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye and face protection a rubber apron and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.

• If you spill acid on yourself:

1. Flush area of body that has been exposed with clean water for at least 20 minutes.
2. Remove contaminated clothing.
3. Flush your eyes with clean, cool water for at least 20 minutes.
4. Get medical attention immediately.

• If acid is swallowed:

1. Drink large amounts of water or milk. Do not induce vomiting.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



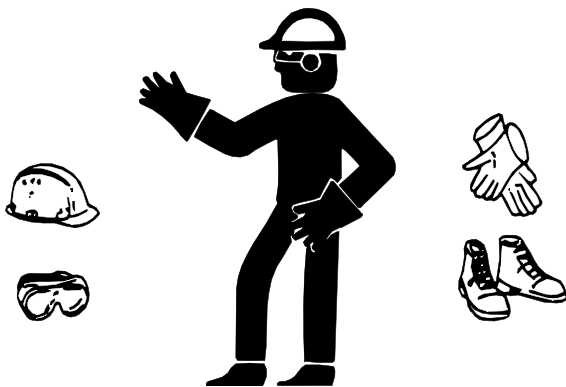
USE SAFE SERVICE PROCEDURES

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 Caution When Servicing Electrical System

Always use extreme caution when servicing this utility vehicle. This utility vehicle is equipped with a 48 volt electrical system capable of passing a high voltage electrical current.

Only persons trained in electrical maintenance should repair or service this utility vehicle.

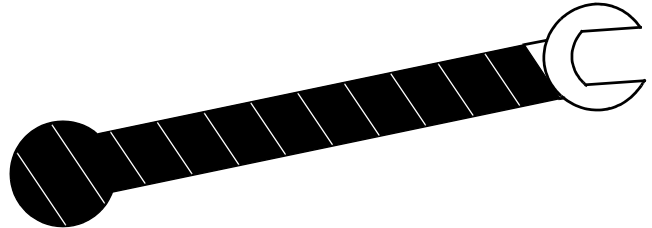
Always move the service/drive switch to the SERVICE position before servicing any part of the electrical system.

Always refer to the battery position/connection diagram when making battery connections to avoid battery explosion. Disconnect the battery set positive (B+) cable before servicing the electrical system.

Use Proper Tools

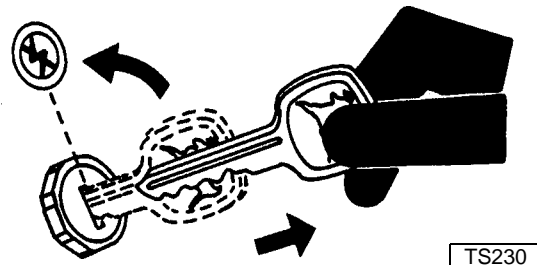
Use tools appropriate to the work.

Use extreme caution when using tools, wires, or metal objects near batteries! A short circuit and/or spark could cause an electrical shock or an explosion. Wrap tools with vinyl tape to prevent shorting out battery(s).



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.

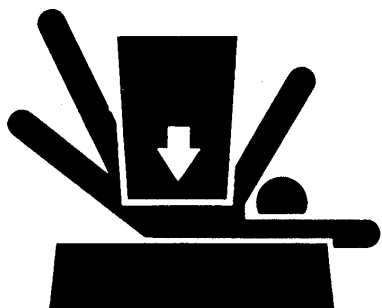
Park Machine Safely



Before working on the machine:

1. Turn key switch to the OFF position and remove the key.
2. Move directional control lever to the NEUTRAL position.
3. Engage the park brake.
4. Raise and tilt operator seat forward. Move the service/drive switch to the SERVICE position.
5. Hang a "DO NOT OPERATE" tag in operator station.

Support Machine Properly And Use Proper Lifting Equipment



TS229

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.

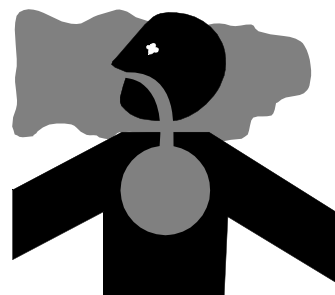
Using High Pressure Washers

Directing pressurized water at electronic/electrical components or connectors, bearings, 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 hydrogen gases or spilled fuel or oil.

Work In Ventilated Area

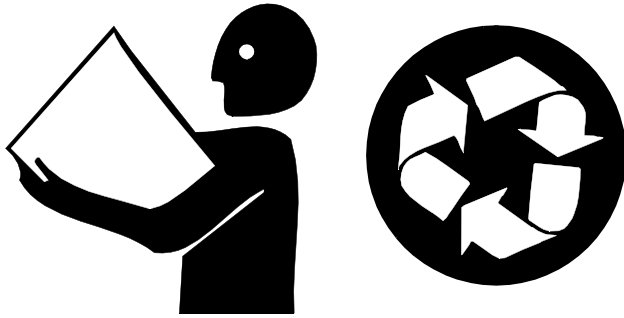


Battery fumes can cause sickness or death. Make sure the work area is well ventilated if it is necessary to charge the batteries in an enclosed area.





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, greases and batteries. Use leakproof containers when draining fluids.

- Waste products such as batteries, can harm the environment and people.
- 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.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your vehicle is responsible for providing the MSDS for that product.

LIVE WITH SAFETY



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

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GENERAL VEHICLE SPECIFICATIONS

BATTERIES:

Type.....Trojan T-105
 Voltage (Each Battery) 6 VDC
 Total Voltage (8 Batteries)..... 48 VDC
 Rating
 Minutes @ 56 amps 165
 Approximate weight..... 28.1 kg (62 lbs)

Optional TypeTrojan T-145
 Voltage (Each Battery) 6 VDC
 Total Voltage (8 Batteries)..... 48 VDC
 Rating
 Minutes @ 56 amps 200
 Approximate weight..... 32.2 kg (71 lbs)

MOTOR:

Type..... Separately Excited D.C. Motor
 Voltage 48 VDC
 Insulation Class.....H 180°C

CONTROLLER:

Type..... Separately Excited Solid State
 Nominal Input Voltage.....36-48 VDC
 Electrical Isolation to Heatsink (minimum) 500 VAC
 Armature Current Limit 400 Amps

TRANSAXLE

Nominal Travel Speed-Forward.....25 km/h (15.5 mph)
 Nominal Travel Speed-Reverse..... 14.5 km/h (9 mph)
 Transaxle Capacity 0.4 L (15 oz)

STEERING and BRAKES

Steering—Type Rack and Pinion Ackerman-type
 Brake—Type Dual Rear Wheel Mechanical Drum, Auto Adjusting
 Suspension
 Front Independent, Spring Over Shock Single A-Arm Design
 Rear..... Fixed Position Axle
 Park Brake..... Three Position, Hand Operated

DIMENSIONS

Overall Length..... 266.5 cm (104.9 in.)
 Overall Width..... 152.5 cm (60 in.)
 Overall Height 113 cm (44.5 in.)
 Front tread centers 127 cm (50 in.)
 Rear tread centers 122 cm (48 in.)
 Wheelbase 194.0 cm (76.4 in.)
 Vehicle Weight w/T-105 Batteries 634 kg (1395 lb)



GROUND CLEARANCE

Under transaxle 196 mm (7.7 in.)
 Under foot platform 215 mm (8.5 in.)
 Turning clearance circle 6.7 m (22 ft)

CAPACITY

Seating 2 persons
 Seat type Professional high back
 Payload (total)² 408 kg (900 lb)
 Towing 272 kg (600 lb)
 Cargo Box - Volume 0.32 m³ (11.2 cu ft)
 Cargo Box - Weight 227 kg (500 lb)
 2. Includes 200lb. operator, 200 lb. passenger and maximum box capacity.

TIRES

Size-Front 22.5 x 10.00 - 8 2PR Hi-Flotation
 Size-Rear 25 x 12.00 - 9 2PR Hi-Flotation

ELECTRICAL

Headlights Two 48 VDC 27 watt Incandescent (marked SP8)

Charger - N.A.:

Type Ferro-Resonant Automatic Taper Charge
 Input Voltage 120 VAC 60 hz
 Input Amperage 12 Amps (15 amp breaker max.)
 Power Factor 0.87
 Output Voltage 48 VDC Nominal
 Output Amperage 21 Amps DC Nominal
 AC Power Cord
 Plug 125 V 15 amp (NEMA Spec 5-15p)
 Length 2.4 m (94 in.)
 DC Power Cord
 Length 2.8 m (110 in.)

Charger - Export:

Type Ferro-Resonant Automatic Taper Charge
 Input Voltage 230 VAC 50 hz
 Input Amperage 5.7 Amps (15 amp breaker max.)
 Power Factor 0.95
 Output Voltage 48 VDC Nominal
 Output Amperage 22 Amps DC Nominal
 AC Power Cord (User Supplied)
 Length (Maximum) 4 m (13 ft)
 DC Power Cord
 Length 2.8 m (110 in.)

RECOMMENDED LUBRICANT

Grease
 John Deere NON-CLAY HIGH TEMPERATURE EP GREASE®-JDM J13E4, NLGI Grade 2

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Thank you very much!**