JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER EQUIPMENT DIVISION

Gator Light Duty Utility Vehicles
CS and CX

TM2119 SEPTEMBER 2005

TECHNICAL MANUAL

JOHN DEERE

North American Version
Litho In U.s.a.

INTRODUCTION

Manual Description

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 and Information
- Identification Numbers
- Tools and Materials
- Component Location
- Schematics and Harnesses
- Theory of Operation
- Operation and Diagnostics
- Diagnostics
- Tests and Adjustments
- Repair
- Other

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

The bleed tabs for the pages of each section will align with the sections listed on this page. Page numbering is consecutive from the beginning of the Safety section through the last section.

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

Safety

Specifications and Information

Engine (FE250D)

Engine (FE290D)

Electrical

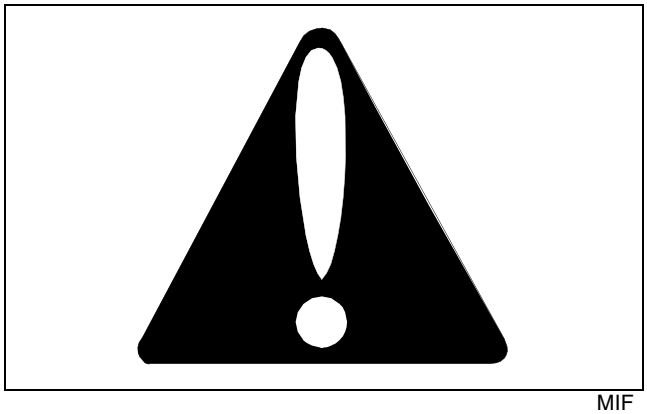
Power Train

Steering

Brakes

Miscellaneous

Recognize Safety Information



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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.

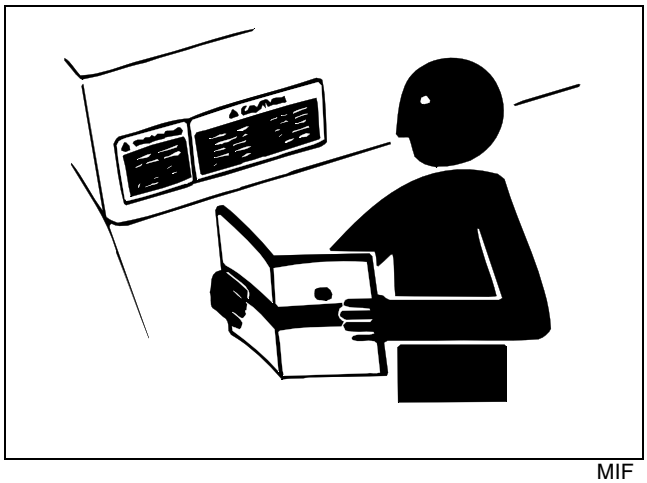
Follow recommended precautions and safe servicing practices.

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



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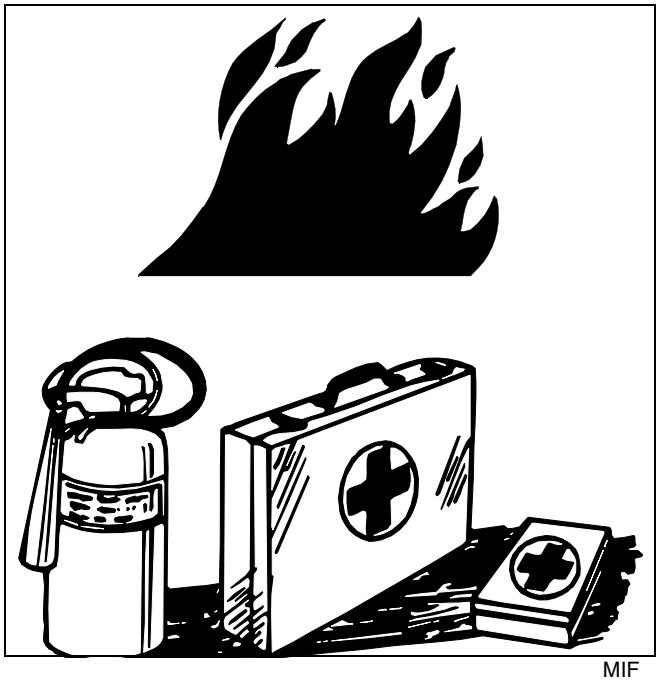
Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

Handle Fluids Safely - Avoid Fires

Be Prepared For Emergencies



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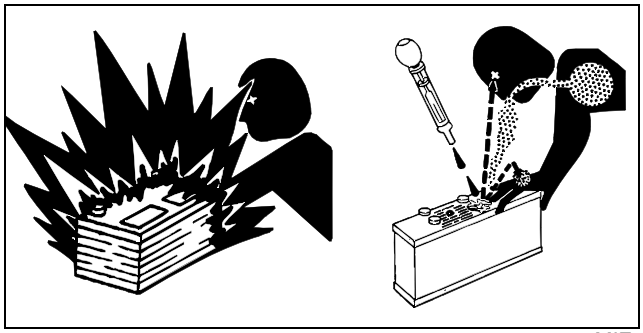
- When you work around fuel, do not smoke or work near heaters or other fire hazards.
- Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.
- Make sure machine is clean of trash, grease, and debris.
- Do not store oily rags; they can ignite and burn spontaneously.
- 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



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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.

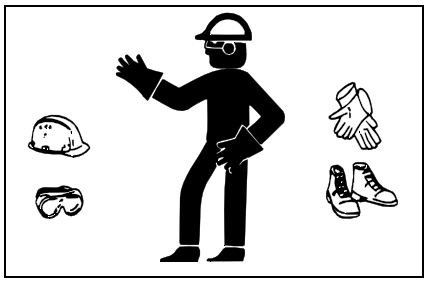
If you spill acid on yourself:

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.

Wear Protective Clothing



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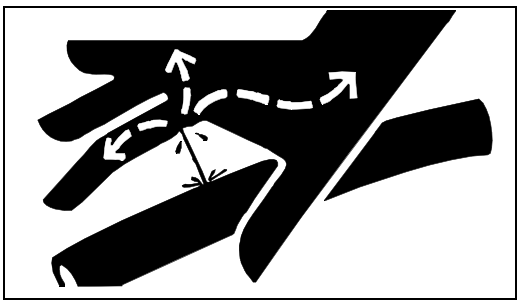
Wear close fitting clothing and safety equipment appropriate to the job.

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.

Use Care Around High-pressure Fluid Lines

Avoid High-Pressure Fluids



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Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid injury from escaping fluid under pressure by stopping the engine and relieving pressure in the system before disconnecting or connecting 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 should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

Avoid Heating Near Pressurized Fluid Lines

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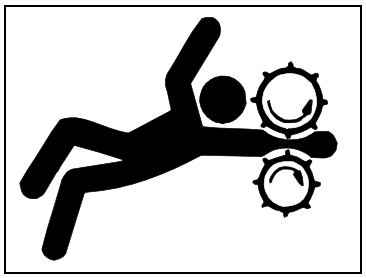
Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

Service Machines Safely



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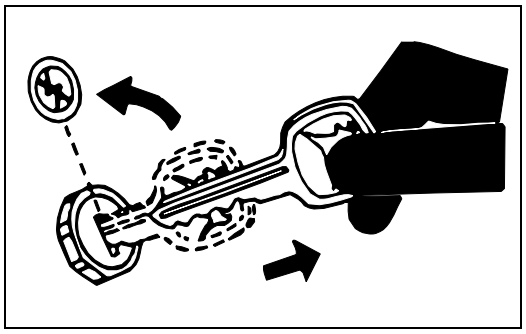
Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

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.

Parking Safely



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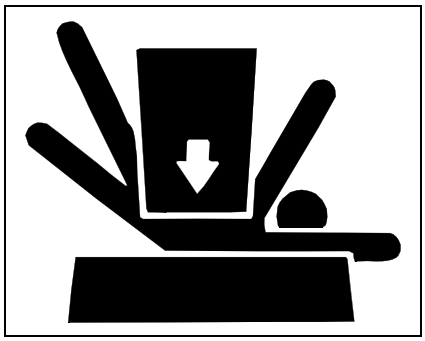
1. Stop machine on a level surface, not on a slope.
2. Disengage and stop attachments.
3. Lower attachments to the ground.
4. Lock park brake.
5. Stop engine.
6. Remove key.
7. Wait for engine and all moving parts to stop before you leave the operator's station.
8. Close fuel shut-off valve, if your machine is equipped.

Support Machine Properly and Use Proper Lifting Equipment



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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.

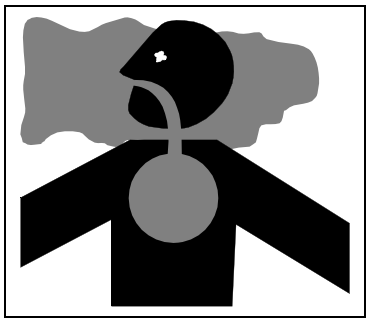
Using High Pressure Washers

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



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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

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

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

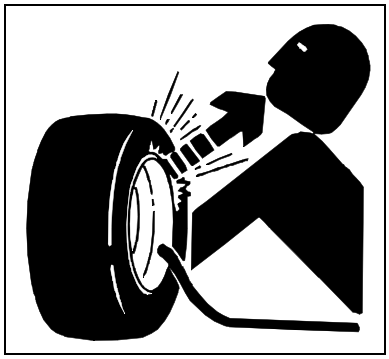
Avoid Harmful Asbestos Dust

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



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

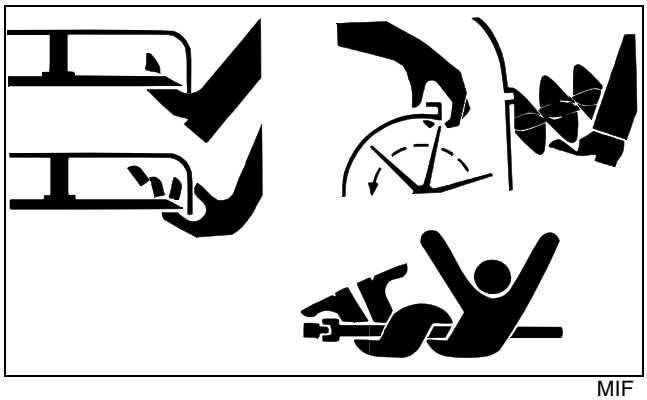
Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

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



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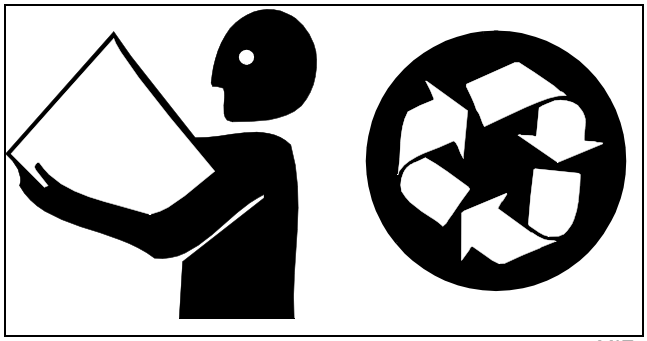
Keep hands and feet away while machine is running. Shut off power to service, lubricate or remove mower blades, augers or PTO shafts.

Handle Chemical Products Safely



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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

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

Diagnostics

Diagnostic Check Points

Drive Train Diagnostics

Test Conditions

- Engine OFF
- Rear wheels supported off floor
- Air pressure equal in driving tires. Driving tires close to same radius.

Drive Train

1. Is the drive belt in good condition?

Yes: Go to next step.

No: Replace drive belt.

2. Shift linkage shifts in to forward, neutral and reverse and stays in gear during operation?

Yes: Go to next step.

No: Adjust shift linkage. See “Transaxle Shift Adjustment” on page 262.

3. Axles rotate smoothly and quietly; no free play in axles, bearings or housings?

Yes: Go to next step.

No: Check axles and housings.

4. Brakes not dragging?

Yes: Go to next step.

No: Adjust brakes. See “Brake Spring Adjustment” on page 307 in the Brakes section.

5. Differential lock engages and disengages?

Yes: Go to next step.

No: Adjust differential lock. See “Differential Lock Cable Adjustment (CX Only)” on page 263.

6. Differential lock produces no ratcheting sound in transaxle?

Yes: Go to next step.

No: Check internal components.

Engine Drive Clutch Check

Test Conditions

- Engine running at operating temperature and brakes set
- Transmission in neutral position
- Ensure engine is at correct slow idle speed. See appropriate engine specifications.

Engine Drive Clutch

1. Drive clutch disengaged (drive belt not moving)?

Yes: Go to next step.

No: Repair or replace drive clutch. See “Drive Clutch Repair” on page 265.

Engine Drive Clutch Check

Test Conditions

- Engine running at operating temperature and brakes set
- Transmission in NEUTRAL
- Accelerate engine

Engine Drive Clutch

1. Drive clutch engages drive belt at 1350 - 1600 rpm?

Yes: Go to next step.

No: Replace drive belt. Repair or replace drive clutch. See “Drive Clutch Repair” on page 265.

Drive Clutch and Driven Clutch Check

Test Conditions

- Engine running at operating temperature and brakes set
- Transmission in NEUTRAL
- Ensure engine is at correct fast idle speed. See appropriate engine specifications.

Drive and Driven Clutch

1. Drive clutch sheave (movable clutch sheave) moves toward stationary sheave?

Yes: Go to next step.

No: Repair or replace drive clutch. See “Drive Clutch Repair” on page 265.

2. Driven clutch sheaves separate?

Yes: Go to next step.

No: Repair or replace driven clutch.

3. Driven clutch fully up-shifted, drive clutch sheaves completely close?

No: Repair or replace drive and/or driven clutches. See “Drive Clutch Repair” on page 265.

Tests and Adjustments

Transaxle Shift Adjustment

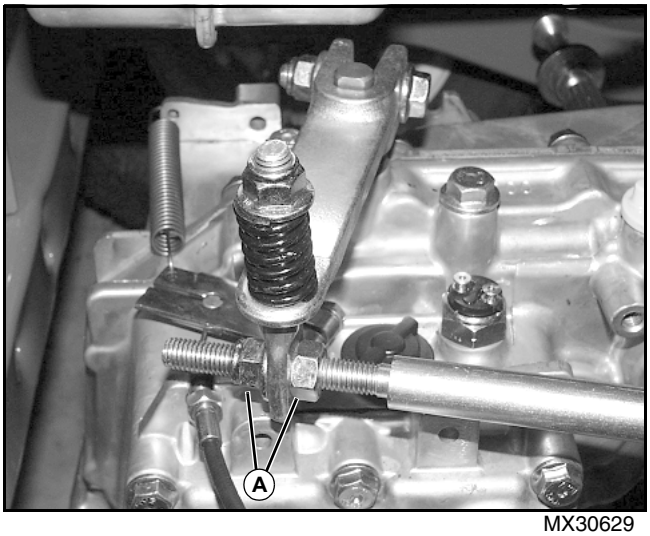
Reason:

- To insure gear shift lever is centered in neutral when transaxle is in neutral.
- To insure both forward and reverse gears will be completely engaged.
- To help prevent shifter from disengaging from gear during operation.

Procedure:

1. Park on level surface and lock park brake. Cargo box raised, engine off, key removed.

2. Move shift lever until detent inside transaxle clicks firmly into the center neutral position.



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3. Loosen shift rod nuts (A) as necessary. Adjust the shift rod nuts so the shift lever is centered in the shifter quadrant in the neutral position.

4. Shift into forward and reverse. There should be an even gap between the lever and quadrant in both forward and reverse positions. The shift lever should NOT contact the shift quadrant in either forward or reverse. Adjust the shift linkage if the gaps are uneven. Tighten the shift rod nuts.

5. Shift into neutral. Check neutral start.

6. Drive machine over rough ground to check adjustments.

Differential Lock Cable Adjustment (CX Only)

Reason:

To insure complete disengagement and engagement of differential lock.

Conditions:

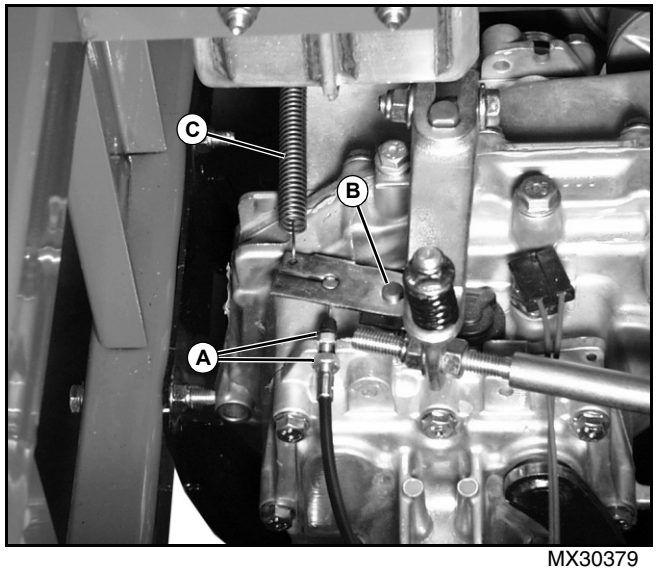
- Engine OFF
- Park brake OFF
- Cargo box RAISED
- Differential lock lever DISENGAGED
- Right rear side wheel jacked up and free to rotate
- Left side of machine wheels on ground and chocked

Disengagement Check:

1. By hand, rotate right side drive wheel.

Results:

- Wheel should rotate freely with no clicking sound in transaxle.
- Differential should be disengaged.



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- If there is noise or wheel will not rotate, loosen differential lock cable rear adjusting nuts (A), and slacken cable:

Note: If brakes are too tight, wheel will be difficult to rotate. See "Inspecting Brake Cables and Brake Function" on page 306.

- If differential releases, check cable adjustment.
- If differential will not release, move differential lock arm on transaxle by hand while trying to rotate tires and check if differential lock shaft is moving freely. If not, repair transaxle.
- If cable is adjusted correctly and lock lever movement will still not disengage transaxle, check that differential lock spring (C) has tension.

Conditions:

- Engine OFF
- Park brake OFF
- Cargo box RAISED
- Differential lock lever ENGAGED

Engagement Check:

1. Engage differential lock lever at operator's station.
2. Move differential lock arm at transaxle by hand. Check for free play.
3. Remove free play by adjusting cable.

Results:

- Differential lock should engage, or engage as tire is rotated. When locked, tire should not rotate. If differential will not lock, adjust cable.

Drive Train Performance Tests

Engagement and Full Up-Shift Check

Caution: Avoid Injury! When operating machine to observe drive train performance, always operate in an area flat and free of obstacles. Use a passenger to observe power train so you can concentrate on driving safely. Never back machine with cargo box raised.

Reason:

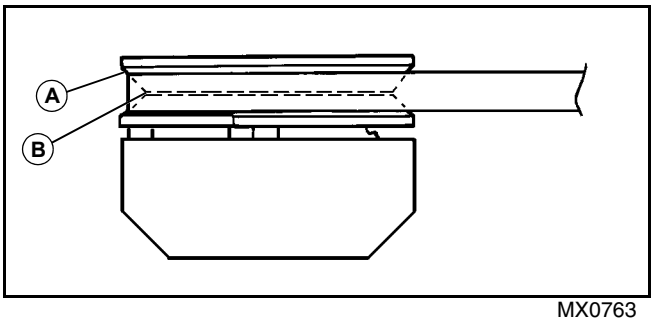
To determine if the engine and drive train are operating at peak performance.

Conditions:

- Engine slow idle and fast idle speed set correctly
- Drive belt width at or above minimum specification
- Engine warmed up

Procedure:

1. Transaxle in neutral, park brake set. Start engine.
2. Slowly increase engine rpm. Observe engine rpm when clutch starts to engage and move drive belt.



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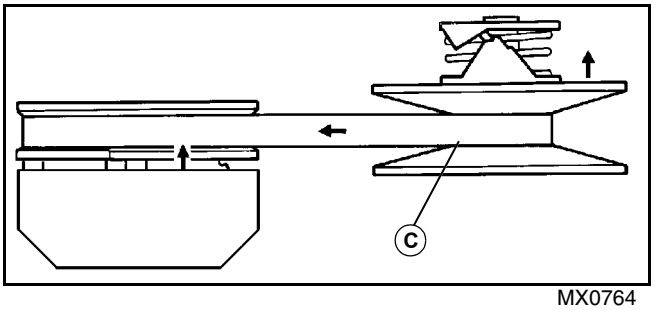
3. Accelerate from idle to wide-open-throttle and back to idle several times. Watch drive belt for a smooth transition from bottom to top of drive clutch (A). Watch closely for any hesitation or engine surging. Observe gap between drive clutch movable sheave and stationary sheave. Gap should close completely (B).

4. When approaching idle, watch for a positive disengagement from drive belt.

Note: On clutches with some hours of use, system may not disengage as smoothly due to the drive clutch spring taking a set and wear in the drive components.

5. Shut off engine.

Result:



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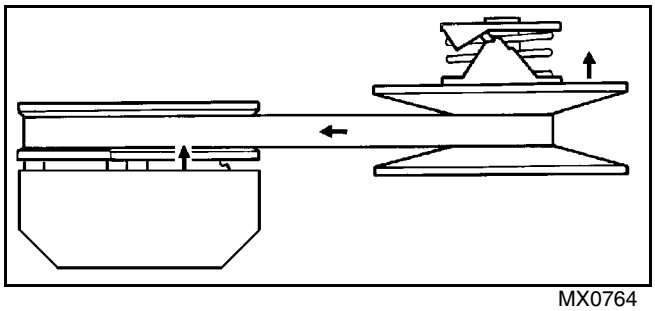
- Clutch should slowly start to engage and move drive belt between 1350 - 1600 rpm. Drive belt should be riding high in drive clutch and low in driven clutch (C).
- If clutch has harsh engagement, erratic transition, hesitation, or clutch noise (chirping), perform drive clutch lubrication. Check drive clutch for cam weights binding, pivot pins worn, flat spots on rollers or rollers sticking, and no groove in sheave. Repair or replace drive clutch.
- If engine is surging; check engine and governor performance.
- Smooth engagement and transition (up-shift), drive clutch is good. Go to “Driven Clutch Back-Shifting Check”.

Driven Clutch Back-Shifting Check

Reason:

To determine condition of driven clutch and back-shifting performance.

Conditions:


MX0764

- Cargo box raised
- Indoor testing - rear wheels off ground and machine supported safely on jack-stands.
- Front wheels chocked
- Differential lock engaged if equipped
- Tachometer displaying engine speed

Procedure:

Caution: Avoid Injury! Rear wheels will rotate during test. Keep clear!

1. Start engine.
2. Put transaxle in gear.
3. Operate engine at wide open throttle.

Results:

- Engine and wheel speed should remain at constant speed. Drive belt should be riding high in drive clutch and low in driven clutch.

Procedure:

1. Momentarily load power train by slowly applying brake or park brake until back-shift is made.
2. Quickly observe engine speed, then release brake.

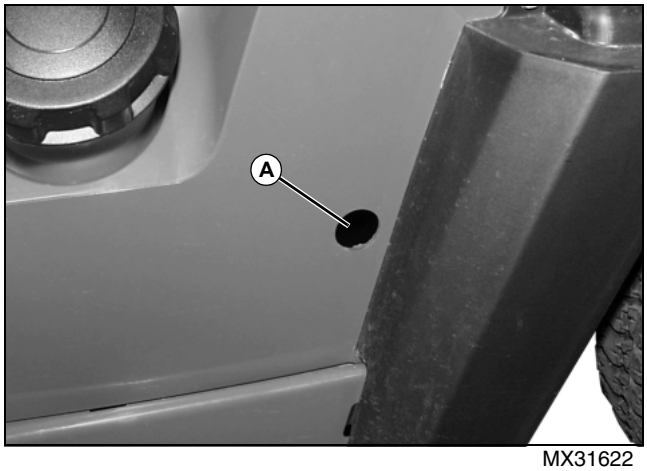
Results:

- Clutches should back-shift as load is increased.
- Drive belt should not squeal or slip.
- Check driven clutch for complete up-shift. Check for load on drive train, such as an engaged brake or failed axle bearings. See “Brake Spring Adjustment” on page 307 in the Brakes section.

Repair

Drive Clutch Removal and Installation

1. Park machine safely.
2. Raise cargo box.



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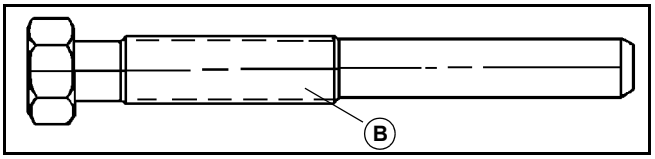
3. Remove plug (A) in front of left rear wheel.
4. Remove drive belt guard and drive belt.
5. Remove plastic plug from left side of clutch cover.
6. Remove clutch mounting bolt and washers.



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7. Use JDG1641 Clutch Removal Tool (B). Thread the puller into the clutch and against crankshaft. Tighten until clutch pops free from the crankshaft.

Note: Use an impact wrench to remove the drive clutch.

8. Install clutch in reverse order of removal. Tighten clutch bolt to specification.

Torque Specification:

Clutch Bolt . . . . . 37 N•m (28 lb-ft)

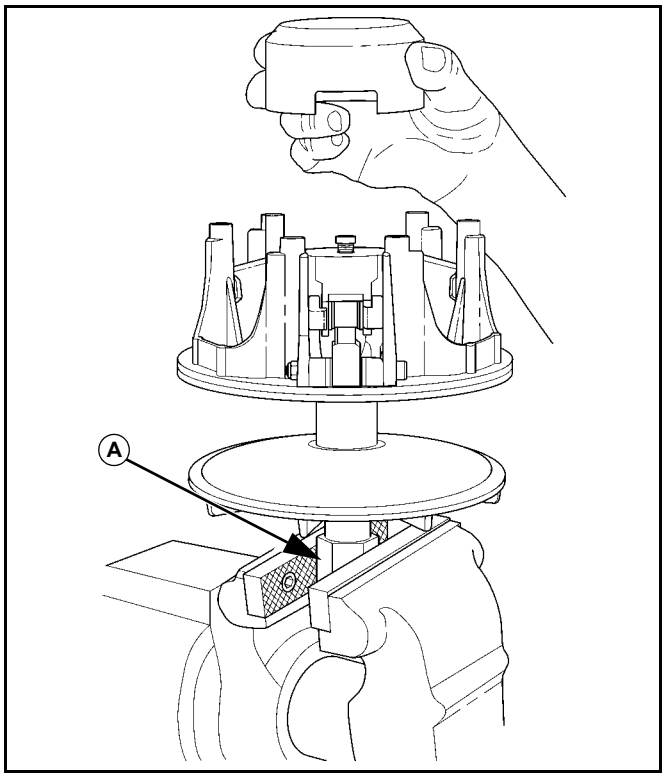
Drive Clutch Repair

Special or Required Tools:

- JDG813 Clutch Servicing Kit

Procedure:

1. Remove clutch cover bolts. Remove cover. (Cover should pop off; do not pry).



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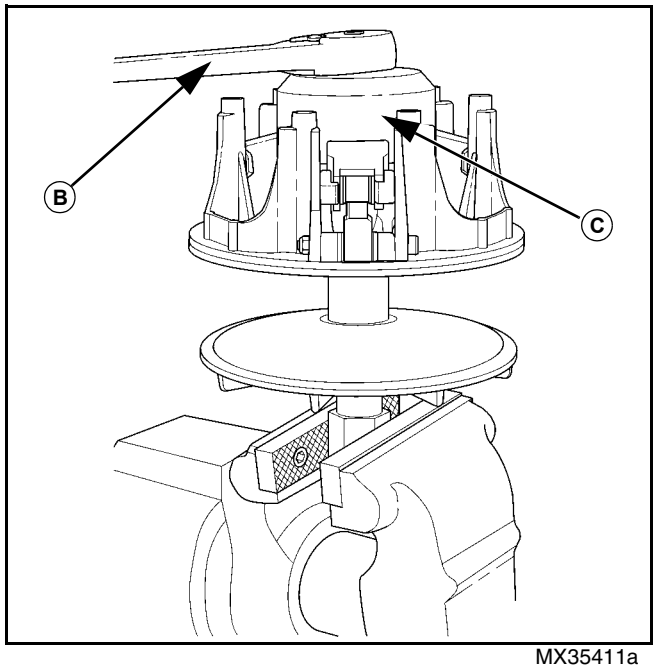
2. Install JDG813-3 Tapered Holding Tool (B) to the clutch. Retain it with an M10 X 1.5 X 150 mm socket-head bolt. Place the clutch and tool securely into a vise as shown.

Important: Avoid Damage! Use spanner wrench to remove spider. Unequal pressure on clutch towers could cause stress fractures or break them off. Use medium strength thread lock on spider threads when installing.

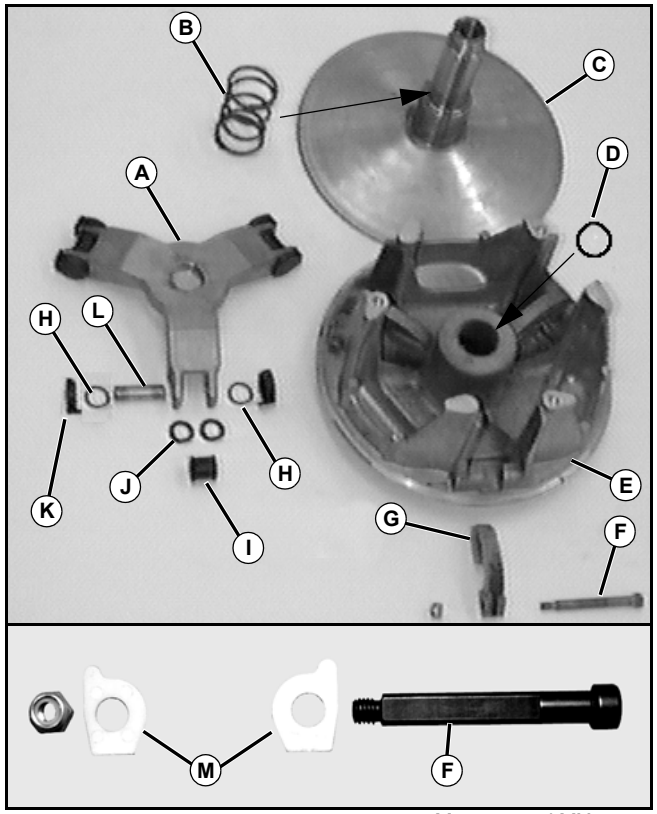


MX35411a

3. Use a 1/2 in. drive tool (B) andJDG813-2 Spanner Wrench (C) to remove spider.

Inspection:

Note: Each side of the cam weight (G) has plastic thrust washers (M).



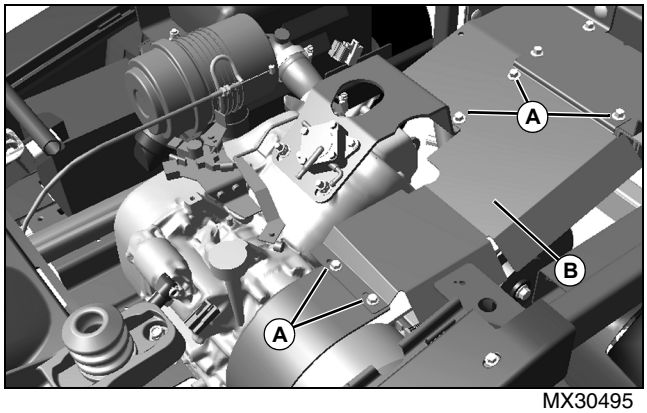
M56707 and MX1402

A- Spider
B- Spring
C- Stationary Sheave
D- Washer
E- Clutch Sheave
F- Pivot Bolt (3 used)
G- Cam Weight (3 used)
H- O-Ring (6 used)
I- Roller (3 used)
J- Thrust Washers (3 used)
K- Button (6 used)
L- Pin (3 used)
M- Plastic Thrust Washers (6 used)

1. Check spider rollers for flat spots or binding.
2. Reassemble components. Tighten spider to **135 N•m (100 lb-ft)**.
   - Use medium strength thread lock on threads.

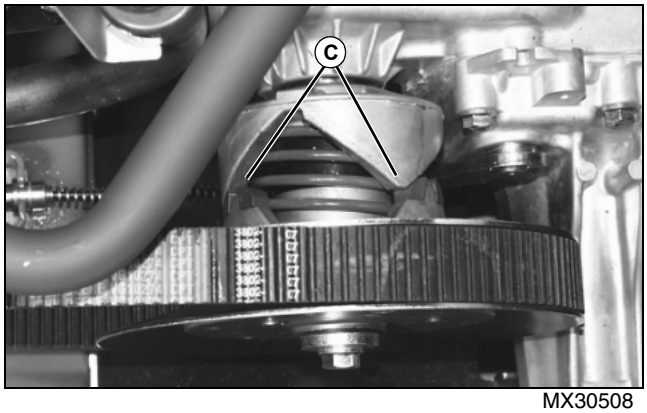
Driven Clutch Ramp Shoe Replacement

1. Park machine safely.
2. Raise or remove cargo box.
3. Remove engine access panel.



MX30495

4. Remove cap screws (A) and belt guard (B).



MX30508

5. Check for missing or worn clutch buttons (C).

- There should not be excessive wear, or metal-to-metal contact.
- If replacement is necessary, continue with procedure.

6. Remove drive belt.

7. Install locking pliers on outer edge of fixed sheave half. Rotate sheave until pliers contact frame and prevent sheave from turning.

8. Turn moveable sheave until shoes are away from ramps. Install small block of wood between other ramps and shoes to hold sheave in position.

9. Remove ramp shoe.

10. Install new ramp shoes. Push ramp shoe straight in with a screwdriver by prying against cam.

- If shoe is difficult to install, sand mounting tab as necessary.
- If shoe is loose, apply thread lock and sealer (medium strength) on mounting tabs.

11. Install belt guard. Tighten cap screws to 14 N•m (124 lb-in.).

12. Install engine access panel.

13. Lower the cargo box.

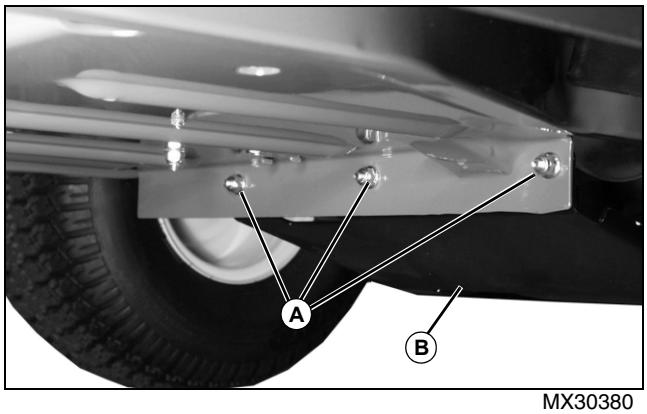
Transaxle Removal and Installation

Removal (SN -M000CXA040000):

1. Park machine safely.

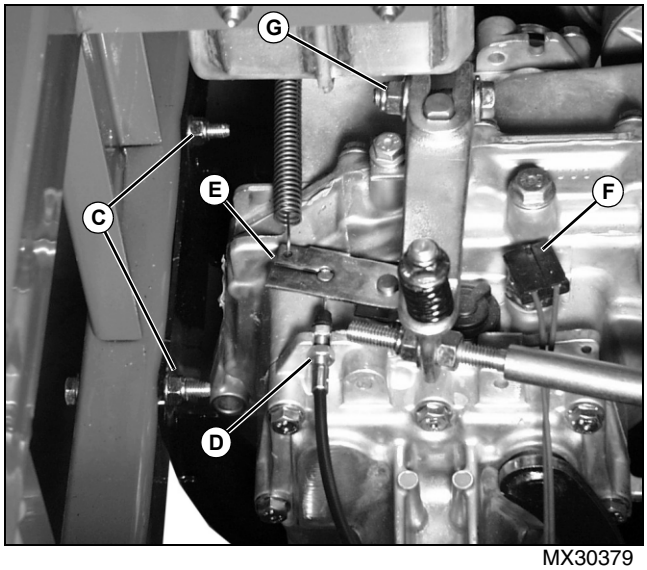
2. Block front wheels.

3. Remove cargo box.



MX30380

4. Remove three nuts (A) and cap screws securing front of transaxle skid pan (B).



MX30379

5. Remove two nuts (C) securing rear of transaxle skid pan. Remove skid pan.

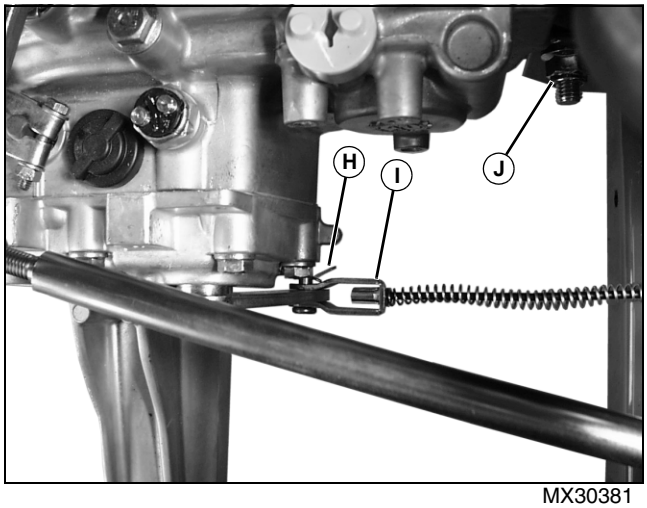
Note: Differential lock assembly used on CX Gators only.

6. Loosen lock nut (D) securing differential lock control cable to transaxle housing. Lift cable from transaxle housing and rotate cable until it can be removed through slot in transaxle differential lock lever (E).

7. Disconnect wiring harness connector (F) from neutral switch.

Note: Remove the muffler to obtain the clearance to remove the shift lever from transaxle.

8. Loosen lock nut (G) securing shift lever to shifter shaft.

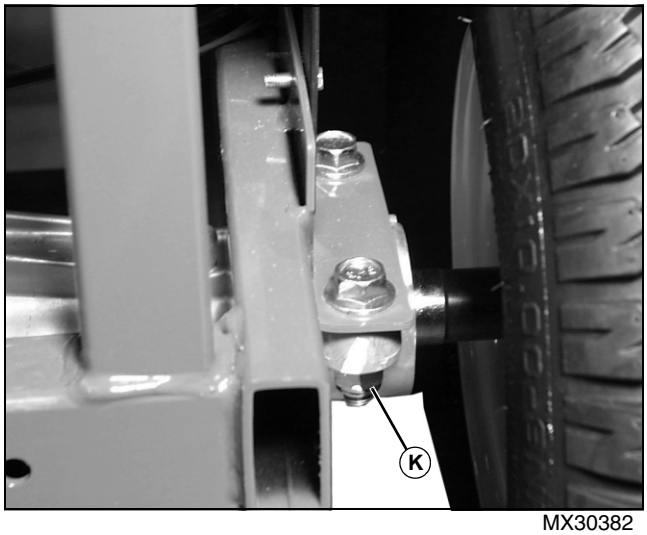


MX30381

9. Unlock parking brake. Remove cotter pin (H) from drilled pin in brake rod clevis (I). Remove drilled pin and disconnect clevis from brake lever.

10. Repeat for other side.

11.Loosen nut (J) on transaxle front mounting bolt.



MX30382

12.Remove two nuts (K) from axle-to-frame mounting bolts.

13.Repeat for other side.

Important: Avoid Damage! As machine frame is raised, remove shift lever from transaxle shifter shaft.

14.Place jack under frame in front of rear wheels and slowly raise machine. Remove shift lever from shifter shaft. Continue to raise machine until transaxle and wheels assembly can be rolled out from under machine.

Important: Avoid Damage! Support front of transaxle while removing front mounting bolt.

15.Remove nut (J) and transaxle front mounting bolt.

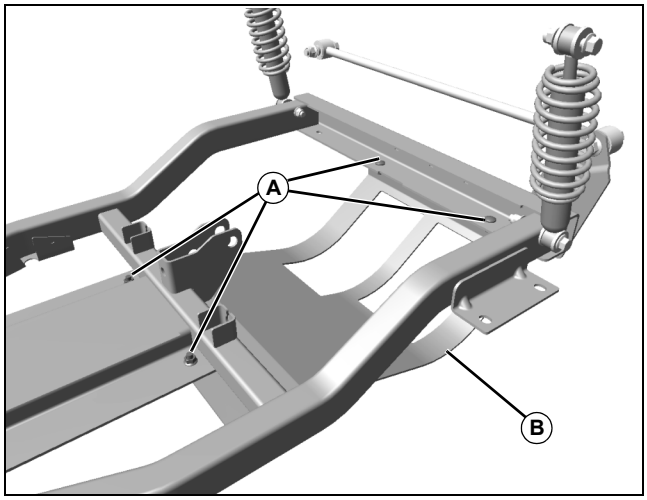
16.Remove transaxle assembly from under machine.

Removal (SN M00CXRA040001-):

1. Remove cargo box. See “Cargo Box Removal and Installation” on page 316.

2. Block front wheels. Raise and safely support the rear of the machine.

3. Remove the exhaust pipe and muffler. See “Muffler Removal and Installation” on page 85.



MX35178

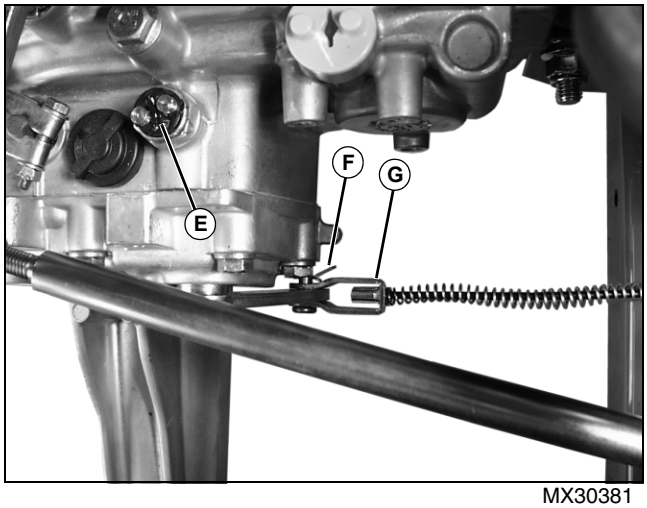
Picture Note: Components removed for clarity.

4. Remove nuts and cap screws (A) securing the transaxle skid pan (B). Remove skid pan.

MX30629

5. Loosen nut and cap screw (C) securing the shift lever to the transaxle. Remove shift lever from transaxle.

6. Loosen lock nut (D) securing differential lock control cable to transaxle housing. Lift cable from transaxle housing and rotate cable until it can be removed through slot in transaxle differential lock lever.

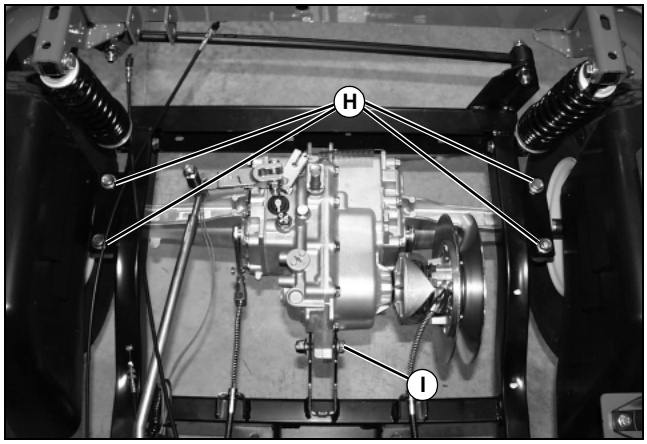


MX30381

7. Disconnect wiring harness connector from neutral switch (E).

8. Unlock parking brake (if set). Remove cotter pin (F) from drilled pin in brake rod clevis (G). Remove drilled pin from clevis. Disconnect clevis from brake lever.

9. Repeat for other side.



MX35239

10.Remove front transaxle bolt (I).

11.Remove the transaxle mounting bolts (H) from each side of the machine.

12.Remove transaxle from under machine.

Installation:

Installation is the reverse of removal.

- Tighten bolts and nuts to specification.
- Adjust brakes if necessary. See “Brake Spring Adjustment” on page 307 in the Brakes section.
- Adjust transaxle shift linkage if necessary. See “Transaxle Shift Adjustment” on page 262.
- Adjust differential lock cable if necessary. See “Differential Lock Cable Adjustment (CX Only)” on page 263.

Torque Specifications:

Transaxle Mounting Bolts . . . . . 120 N•m (90 lb-ft)
Shift Lever to Transaxle Shift Shaft Bolt 50 N•m (37 lb-ft)

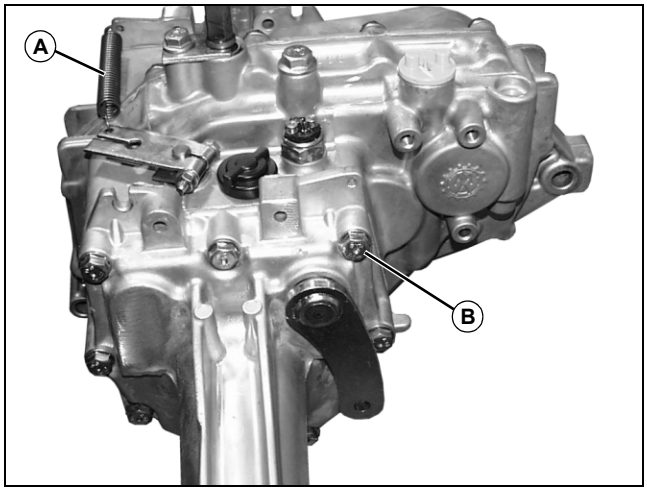
Transaxle Disassembly and Assembly

Transaxles are available with and without a differential lock. Except for the differential lock components, the transaxles are the same.

Transaxle disassembly and assembly are shown with the differential lock installed. Differential lock parts are noted.

Axle Removal:

1. Drain transaxle.



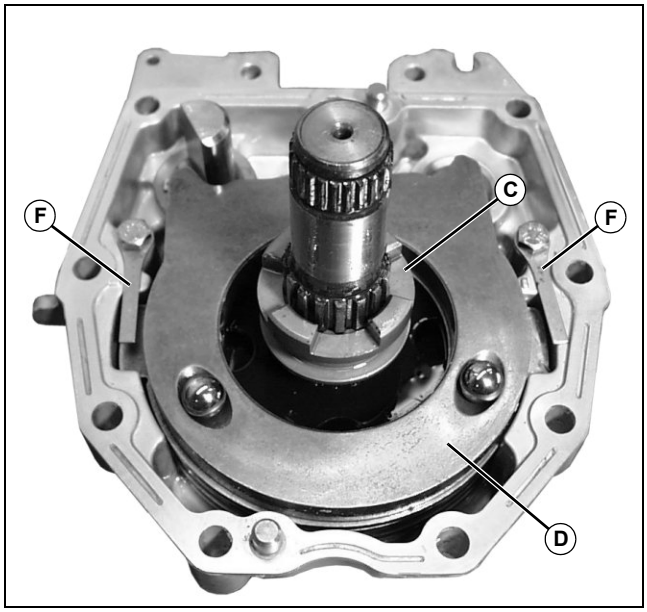
MX30386

2. Remove differential lock spring (A) if equipped.

3. Remove cap screws (B) securing right axle housing to transaxle case.

Note: When separating axle assembly from transaxle housing three ball bearings from brake assembly may fall out.

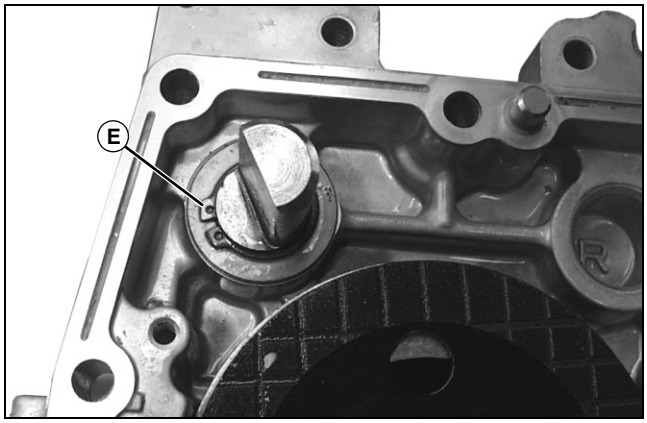
4. Carefully separate axle assembly from transaxle housing.



MX30387

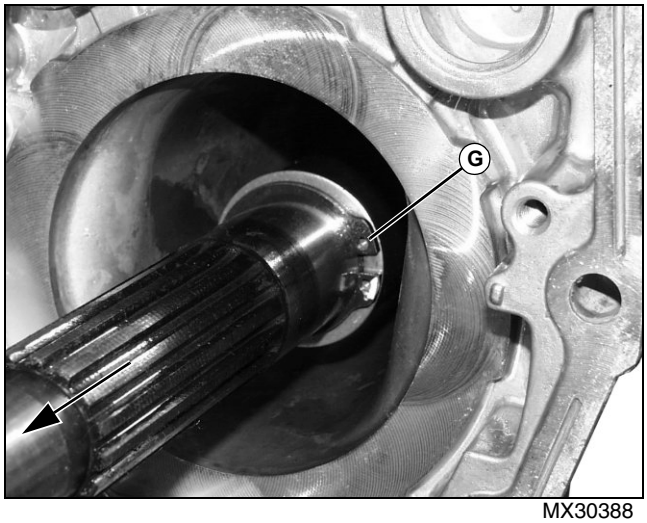
Picture Note: Brake ball bearings shown in position for reference.

5. Remove differential lock collar (C) if equipped.
6. Remove brake actuator ring (D).



MX30390

7. Remove snap ring (E) and washer securing brake cam lever. Remove cam lever from housing. Replace cam lever O-ring before assembly.
8. Remove two cap screws and ring retainers (F) holding brake plates in axle housing.
9. Remove brake plates.

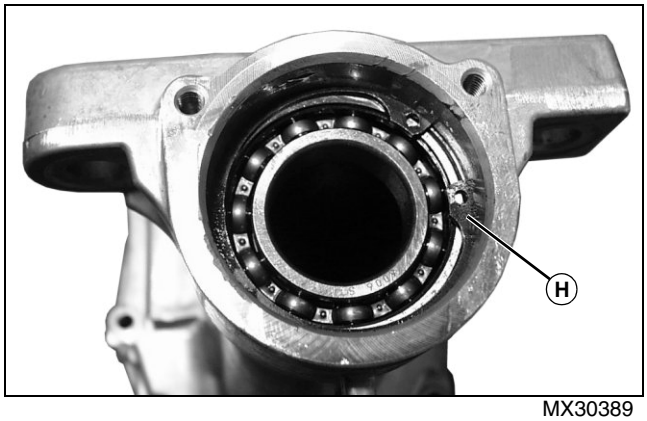


MX30388

10. Remove snap ring (G), washer and axle collar from axle.

Important: Avoid Damage! Remove axle from axle housing by driving it toward the transaxle flange end of housing. Do not remove axle from small end of housing.

11. Drive axle from axle housing.
12. Remove axle seal from housing.

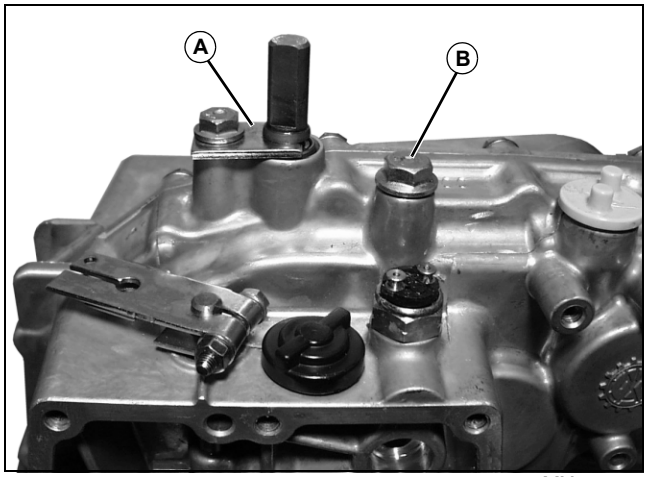


MX30389

13. Remove snap ring (H) and bearing from housing.
14. Inspect bearing for damage. Replace if necessary.
15. Replace seal before assembly.

Transaxle Disassembly:

1. Remove axles. See “Axle Removal:” on page 269.



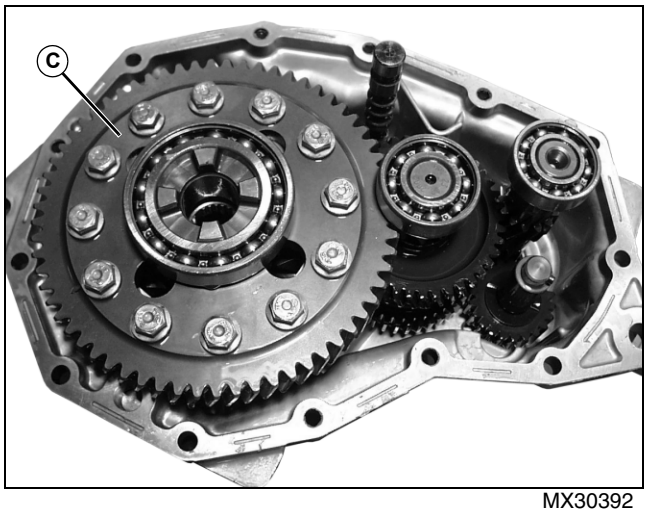
MX30391

2. Remove cap screw and shifter shaft lock plate (A).

3. Remove flange bolt (B), washer, spring and detent ball bearing from transaxle housing.

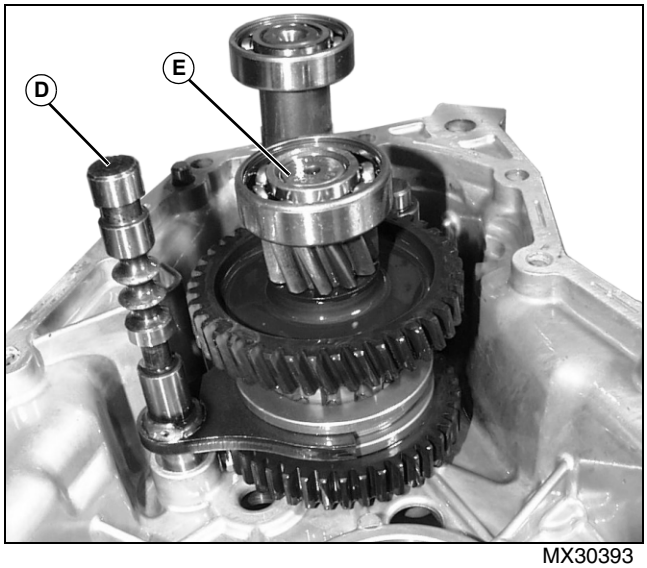
Note: Raise shifter shaft during housing separation to disengage shift lever from shift collar.

4. Remove cap screws securing transaxle case halves. Carefully separate case halves.



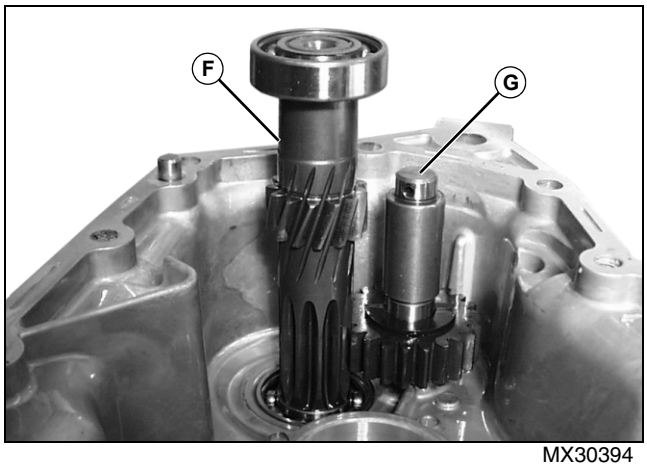
MX30392

5. Loosen gear assemblies from case. Remove differential assembly (C). For deferential disassembly see “Differential:” on page 274.



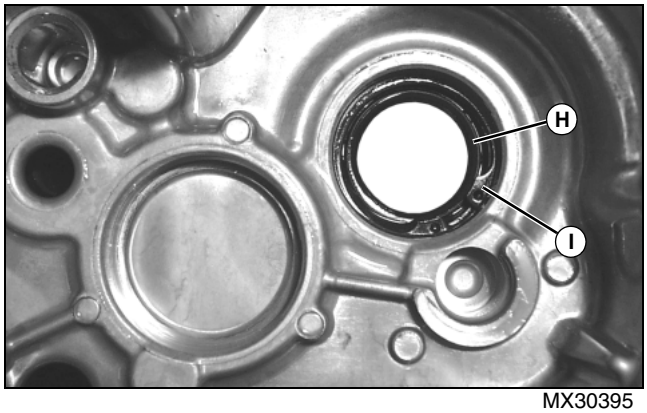
MX30393

6. Remove shifter fork (D) and gear shift assembly (E).



MX30394

7. Remove input shaft (F) and reverse shaft (G) assemblies.

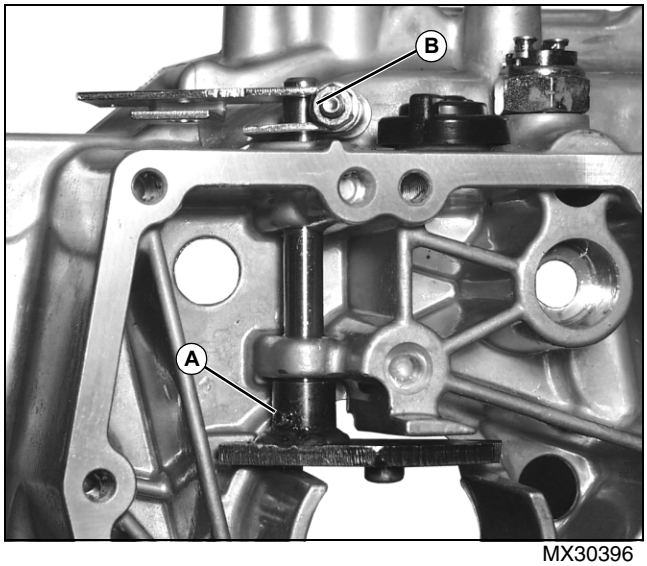


MX30395

8. Remove snap ring (H) and replace input shaft seal (I).

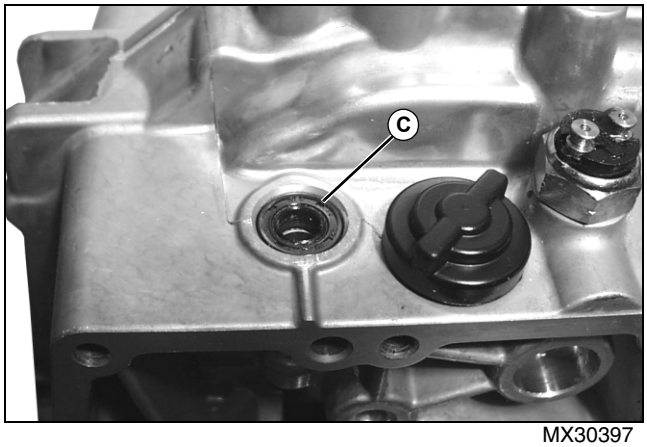
Differential Shift Assembly:

Important: Avoid Damage! When removing spring pin, avoid damage to transaxle case.



MX30396

1. Remove spring pin (A) from differential lock shifter.
2. Slide differential lock shaft assembly (B) out of case.



MX30397

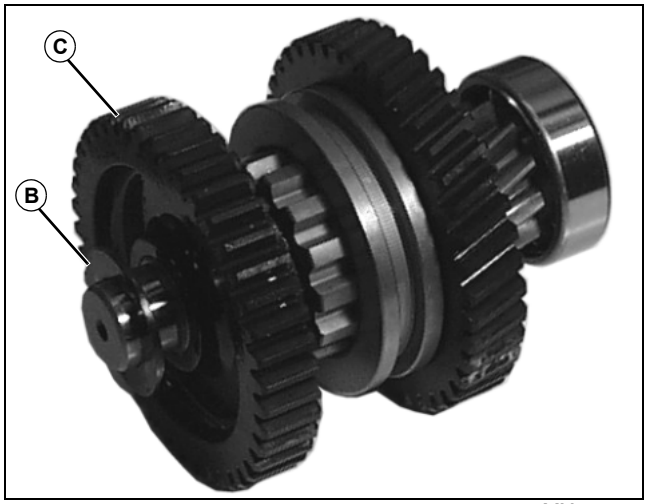
3. Remove and replace seal (C).

Forward/Reverse Reduction Gear:

MX30399

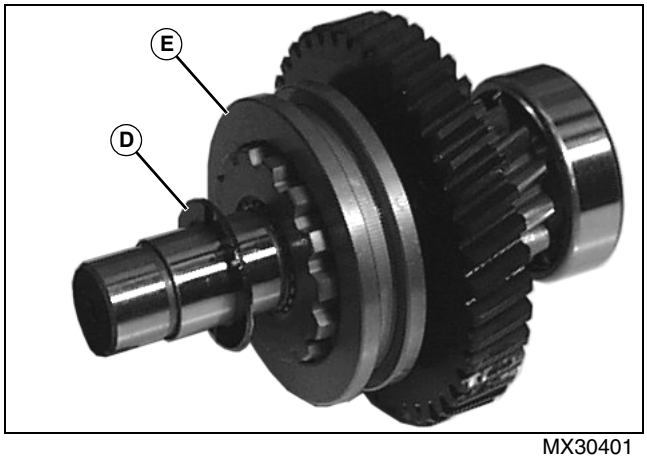
1. Remove ball bearing (A) from gear assembly.

Note: The thrust washers have three different inside diameters. Note location during disassembly.



MX30400

2. Remove thrust washer (B) and gear (C).



MX30401

3. Remove thrust washer (D) and shift collar (E).