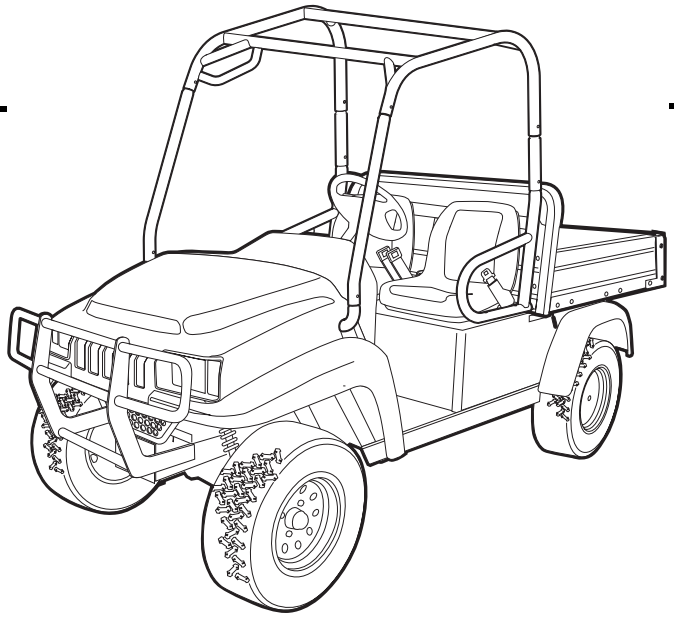
Utility Vehicle 2200

Bobcat®

Service Manual

S/N 235311001-D to 235312999-D
S/N 235211001-G to 235212999-G



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FOREWORD

Bobcat vehicles are designed and built to provide the ultimate in performance efficiency; however, proper maintenance and repair are essential for achieving maximum service life and continued safe and reliable operation.

This manual provides detailed information for the maintenance and repair of Bobcat 2200 Utility vehicle, and should be thoroughly reviewed prior to servicing the vehicles. The procedures provided must be properly implemented, and the DANGER, WARNING, and CAUTION statements must be heeded.

This manual was written for the trained technician who already possesses knowledge and skills in electrical and mechanical repair. If the technician does not have such knowledge and skills, attempted service or repairs to the vehicle may render the vehicle unsafe. For this reason, Bobcat advises that all repairs and/or service be performed by an authorized Bobcat distributor/dealer representative or by a Bobcat factory-trained technician.

It is the policy of Bobcat, Inc. to assist its distributors and dealers in continually updating their service knowledge and facilities so they can provide prompt and efficient service for vehicle owners. Regional technical representatives, vehicle service seminars, periodic service bulletins, maintenance and service manuals, and other service publications also represent Bobcat's continuing commitment to customer support.

This manual covers all aspects of typical vehicle service; however, unique situations sometimes occur when servicing a vehicle. If it appears that a service question is not answered in this manual, you may write to us at: Bobcat, Inc.; P.O. Box 204658; Augusta, GA 30917; Attention: Technical Services, or contact a Bobcat Technical Service Representative at (706) 863-3000, ext. 3580.

This manual effective September 20, 2004.

⚠ WARNING

- **Read Section 1 – Safety before attempting any service on this vehicle.**
- **Before servicing vehicle, read complete section(s) and any referenced information that may be relevant to the service or repair to be performed.**

NOTE: *This manual represents the most current information at the time of publication. Bobcat, Inc., is continually working to further improve our vehicles and other products. These improvements may affect servicing procedures. Any modification and/or significant change in specifications or procedures will be forwarded to all Bobcat dealers and will, when applicable, appear in future editions of this manual.*

Damage to a vehicle or component thereof not resulting from a defect or that occurs due to unreasonable or unintended use, overloading, abuse, or neglect (including failure to provide reasonable or necessary maintenance as instructed in the vehicle owner's manual), accident or alteration, including increasing vehicle speed beyond factory specifications or modifications that affect the stability of the vehicle or the operation thereof, will void the warranty.

Bobcat, Inc., reserves the right to change specifications and designs at any time without notice and without incurring any obligation or liability whatsoever.

There are no warranties expressed or implied in this manual. See the limited warranty found in the vehicle owner's manual or write to Bobcat, Inc., P.O. Box 204658, Augusta, GA 30917-4658 USA, Attention: Warranty Department.

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SECTION 1 – SAFETY

To ensure the safety of those servicing these vehicles, and to protect the vehicles from damage resulting from improper service or maintenance, the procedures in this manual must be followed. It is important to note that throughout this manual there are statements contained within headings labeled DANGER, WARNING, CAUTION, or NOTE. These special statements relate to specific safety issues, and must be read, understood, and heeded before proceeding.

⚠ DANGER

- **A DANGER indicates an immediate hazard that will result in severe personal injury or death.**

⚠ WARNING

- **A WARNING indicates an immediate hazard that could result in severe personal injury or death.**

⚠ CAUTION

- **A CAUTION with the safety alert symbol indicates a hazard or unsafe practice that could result in minor personal injury.**

CAUTION

- **A CAUTION without the safety alert symbol indicates a potentially hazardous situation that could result in property damage.**

GENERAL WARNING

The following safety statements must be heeded whenever the vehicle is being operated, repaired, or serviced. Service technicians should become familiar with these safety statements, which can be found throughout this manual. Also, other specific safety statements appear throughout this manual and on the vehicle.

⚠ DANGER

- **Battery – Explosive gases! Do not smoke. Keep sparks and flames away from the vehicle and service area. Ventilate when charging or operating vehicle in an enclosed area. Wear a full face shield and rubber gloves when working on or near batteries.**
- **Battery – Poison! Contains acid! Causes severe burns. Avoid contact with skin, eyes, or clothing. Antidotes:**
  - **External: Flush with water. Call a physician immediately.**
  - **Internal: Drink large quantities of milk or water. Follow with milk of magnesia or vegetable oil. Call a physician immediately.**
  - **Eyes: Flush with water for 15 minutes. Call a physician immediately.**
- **Gasoline/Diesel – Flammable! Explosive! Do not smoke. Keep sparks and flames away from the vehicle and service area. Service only in a well-ventilated area.**
- **Do not operate engine in an enclosed area without proper ventilation. The engine produces carbon monoxide, which is an odorless, deadly poison.**

⚠ WARNING

- **Follow the procedures exactly as stated in this manual, and heed all DANGER, WARNING, and CAUTION statements in this manual as well as those on the vehicle.**
- **Only trained technicians should service or repair the vehicle. Anyone doing even simple repairs or service should have knowledge and experience in electrical and mechanical repair. The appropriate instructions must be used when performing maintenance, service, or accessory installation.**
- **Prior to servicing the vehicle or leaving the vehicle unattended, turn the key switch OFF, remove the key, and place the Forward/Reverse handle in the NEUTRAL position. Chock the wheels when servicing the vehicle.**
- **To avoid unintentionally starting the vehicle:**
  - **Disconnect battery cables, negative (–) cable first (Figure 1-2, Page 1-3).**
  - **Gasoline vehicles only: Disconnect the spark plug wires from the spark plugs.**
- **Frame ground – Do not allow tools or other metal objects to contact frame when disconnecting battery cables or other electrical wiring. Do not allow a positive wire to touch the vehicle frame, engine, or any other metal component.**
- **Wear safety glasses or approved eye protection when servicing the vehicle. Wear a full face shield and rubber gloves when working on or near batteries.**
- **Do not wear loose clothing or jewelry such as rings, watches, chains, etc., when servicing the vehicle.**
- **Moving parts! Do not attempt to service the vehicle while it is running.**
- **Hot! Do not attempt to service hot engine or exhaust system. Failure to heed this warning could result in severe burns.**
- **Use insulated tools when working near batteries or electrical connections. Use extreme caution to avoid shorting of components or wiring.**
- **Check the vehicle owner's manual for proper location of all vehicle safety and operation decals and make sure they are in place and are easy to read.**
- **Any modification or change to the vehicle that affects the stability or handling of the vehicle, or increases maximum vehicle speed beyond factory specifications, could result in severe personal injury or death.**
- **Lift only one end of the vehicle at a time. Use a suitable lifting device (chain hoist or hydraulic floor jack) with 1000 lb. (454 kg) minimum lifting capacity. Do not use lifting device to hold vehicle in raised position. Use approved jack stands of proper weight capacity to support the vehicle and chock the wheels that remain on the floor. When not performing a test or service procedure that requires movement of the wheels, lock the brakes.**
- **When servicing the vehicle with part of the vehicle on jack stands, do not operate the engine with the Forward/Reverse handle in either the FORWARD or REVERSE position. The all-wheel drive system will engage any wheel(s) with traction. See Figure 1-1, Page 1-3.**

Figure 1-1 All-Wheel Drive Warning

- **If wires are removed or replaced, make sure wiring and wire harness are properly routed and secured. Failure to properly route and secure wiring could result in vehicle malfunction, property damage, personal injury, or death.**
- **For vehicles with cargo beds, remove all cargo before raising the bed or servicing the vehicle. If the vehicle is equipped with a prop rod, ensure that it is securely engaged while bed is raised. Do not close bed until all persons are clear of cargo bed area. Keep hands clear of all crush areas. Do not drop cargo bed; lower gently and keep entire body clear. Failure to heed this warning could result in severe personal injury or death.**
- **Improper use of the vehicle or failure to properly maintain it could result in decreased vehicle performance, severe personal injury, or death.**
- **Do not leave children unattended on vehicle.**

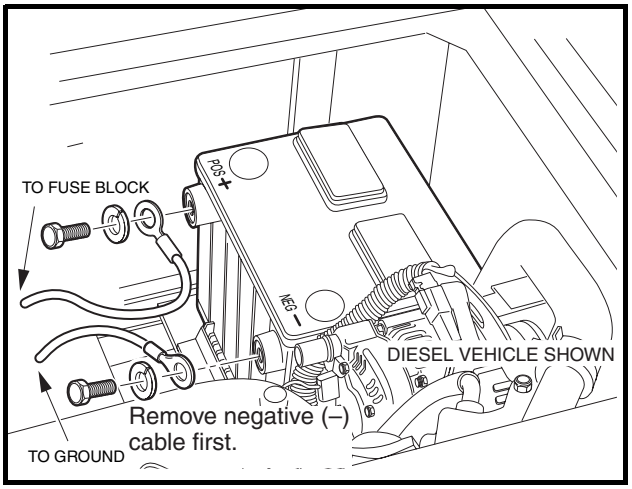

Figure 1-2 Battery

SECTION 2 – VEHICLE SPECIFICATIONS

SPECIFICATIONS	GASOLINE VEHICLES	DIESEL VEHICLES
POWER SOURCE		
Engine: 4-cycle OHV, 614 cc, 20.0 maximum HP @3600 rpm (per SAE J 1940/1349), twin-cylinder, air-cooled, with pressure lubrication system	•	
Engine: 4-cycle OHV, 719 cc, 20.0 maximum HP @3600 rpm (per SAE J 1940/1349), three-cylinder, liquid-cooled, with pressure lubrication system		•
Fuel system: Side-draft carburetor with float bowl, fixed jets, fuel filters, and impulse fuel pump	•	
Fuel system: Mechanical injection, fuel water separator, fuel filters, and electric fuel pump		•
Governor: Automatic ground-speed sensing, internally geared in transmission	•	
Governor: internal to engine, mechanical, centrifugal ball		•
Ignition: Transistorized magneto	•	
Ignition: Compression		•
Transmission: Forward and reverse with neutral (4.98:1 forward, 7.79:1 reverse)	•	•
Electrical system: 12 volt, 500 cca at 0 °F (-17.8 °C), 650 at 32 °F (0 °C). 105-minute reserve capacity and 35-amp charging capacity	•	•
Torque converter: Automatic, variable-speed, dry type	•	•
STEERING/SUSPENSION/BRAKES		
Steering: Self-adjusting rack and pinion, Ackerman	•	•
Suspension: **Front:** Independent double A-arms with coil-over shock absorbers **Rear:** Swing arms with coil-over shock absorbers	•	•
Brakes: Hydraulic brake system – brake pads and discs on each wheel with separate foot-operated park brake	•	•
BODY/CHASSIS		
Frame/Chassis: Box tube aluminum	•	•
Side and rear body: All aluminum	•	•
Cargo bed: Powder-coated steel	•	
Front body: ABS/DR acrylic cap	•	•
Tires: **All Terrain:** 23 x 8.0 – 12 front, 23 x 10.5 – 12 rear; tubeless, 4-ply rated load range **Mud:** 23 x 10.5 – 12 front and rear; tubeless, 4-ply rated load range	•	•
DIMENSIONS/WEIGHT		
Overall length (box bed configuration)	124.6 in. (317 cm)	
Overall width: without mirror with mirror	58.5 in. (148.5 cm) 63.6 in. (161.5 cm)	
Overall height (with ROPS)	78.4 in. (199.2 cm)	
Wheelbase	81 in. (206 cm)	
Ground clearance: under differential under floorboard	6.4 in. (16 cm) 11.1 in. (28 cm)	
Front wheel tread	42.3 in. (107 cm)	
Rear wheel tread	48.8 in. (124 cm)	
Weight (with all-terrain tires)	1410 lb. (639.6 kg)	1551 lb. (703.5 kg)
Forward speed	25 mph (40 km/h)	
Governed RPM	3825	3825

SPECIFICATIONS	GASOLINE VEHICLES	DIESEL VEHICLES
Turning radius (per SAE J 695)	141 in. (358 cm)	
Specifications continued on next page...		
Load bed height	33 in. (84 cm)	
Load bed size (box bed inside dimensions)	48.0 x 49.8 x 10.9 in. (122 x 127 x 28 cm) (15.3 cubic feet)	
Maximum payload capacity (level surface only)	800 lb. (363 kg) High capacity option: 1050 lb. (476 kg)	
Vehicle rated capacity (payload, driver, and passenger; level surface only)	1200 lb. (544 kg) High capacity option: 1450 lb (658 kg)	
Maximum gross vehicle weight (fully loaded vehicle, including accessories)	2750 lb. (1247 kg) High capacity option: 3012 lb. (1366 kg)	
Standard seating capacity	2	
LIQUID CAPACITIES		
Engine crankcase with filter: SAE 10W-30, API classification SJ	1 qt., 25 oz. (1.7 L)	
Engine crankcase with filter: SAE 10W-30, API classification CF		3 qt. (2.8 L)
Front differential: Bobcat Trans/Differential Fluid P/N 6687120	5 oz. (150 mL)	
Rear differential: Bobcat Trans/Differential Fluid P/N 6687120	20 oz. (600 mL)	
Transmission: Bobcat Trans/Differential Fluid P/N 6687120	20 oz. (600 mL)	
Engine coolant: mixture of 55% propylene glycol and 45% water	n/a	2 gal. (7.8 L)
Brake fluid: DOT 5 (silicone) brake fluid	8 oz. (240 ml)	
Fuel tank: unleaded gasoline	6.5 gallons (24.6 L)	
Fuel tank: diesel grade no.2 with cetane rating of 45 or higher		6.5 gallons (24.6 L)
TIRE PRESSURE		
All-terrain tread	20 - 22 psi (1.38 - 1.52 Bars)	
Mud tires	20 - 22 psi (1.38 - 1.52 Bars)	

SECTION 3 – GENERAL INFORMATION

⚠ DANGER

- **See General Warning, Section 1, Page 1-1.**

⚠ WARNING

- **See General Warning, Section 1, Page 1-1.**

GENERAL INFORMATION

Refer to the owner's manual provided with the vehicle for information on the following topics:

- Safety Decal Identification
- Controls and Indicators
- Driving Instructions
- Towing with the Vehicle
- Transporting on a Trailer
- Engine Oil and Filter Change
- Accessory Equipment
- Subsequent Owner Registration
- Warranties

MODEL IDENTIFICATION

The serial number of each vehicle is printed on a bar code decal mounted on the frame directly above the accelerator pedal (Example: GP0401-123456) **(Figure 3-1, Page 3-1)**. There is also a second serial number decal mounted on the rear body frame behind the fuel tank. The fuel tank must be removed to view this decal. **See following NOTE.**

NOTE: *Have the vehicle serial number available when ordering parts or making inquiries.*

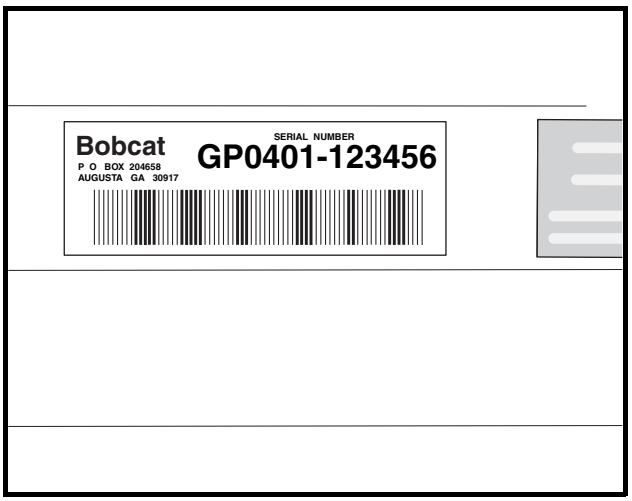

Figure 3-1 Serial Number Decal

STORAGE

See General Warning, Section 1, Page 1-1.

⚠ DANGER

- **Do not attempt to drain fuel when the engine is hot or while it is running.**
- **Clean up any spilled fuel before operating the vehicle.**
- **Store fuel in an approved fuel container only. Store in a well-ventilated area away from sparks, open flames, heaters, or heat sources.**
- **Keep fuel out of the reach of children.**
- **Do not siphon fuel from the vehicle.**

⚠ WARNING

- **Turn the key switch to the OFF position, remove the key, and leave the Forward/Reverse handle in the NEUTRAL position during storage. This is to prevent unintentionally starting the vehicle or a fire hazard.**
- **Gasoline vehicles only: Turn fuel shut-off valve to the closed (OFF) position (Figure 3-5, Page 3-4).**
- **Do not attempt to charge frozen batteries or batteries with bulged cases. Discard the battery. Frozen batteries can explode.**

⚠ CAUTION

- **Batteries in a low state of charge will freeze at low temperatures.**

PREPARING THE VEHICLE FOR EXTENDED STORAGE

1. Unload the vehicle so that the tires are supporting only the weight of the vehicle.
2. Store the vehicle in a cool, dry place. This will minimize battery self-discharge. If the battery appears to be weak, have it charged by a trained technician. Use an automotive-type 12-volt battery charger rated at 10 amps or less. Check electrolyte level after charging and add distilled water if necessary.
3. Make sure the key switch is in the OFF position and the Forward/Reverse handle is in the NEUTRAL position. Chock the wheels.

Gasoline vehicles:

4. Prepare the fuel tank.
   - 4.1. Fill the fuel tank with fresh fuel.
   - 4.2. Following manufacturer's directions, add a commercially available fuel stabilizer (such as Sta-Bil®). Run the engine in a well-ventilated area to allow treated fuel to replace untreated fuel in the carburetor.
   - 4.3. Disconnect the fuel vent line from the fuel tank vent nipple **(Figure 3-2, Page 3-3)**.
   - 4.4. Plug the fuel tank vent nipple so that it is air tight. The manufacturer recommends using a slip-on vinyl cap.
5. Remove both spark plugs and pour 1/2 ounce (14.2 mL) of SAE 10 weight oil through each of the two spark plug holes. Rotate the engine crankshaft by hand several times, then install both spark plugs.

Diesel vehicles:

6. Prepare the fuel tank.

6.1. Fill the fuel tank with fresh fuel.

6.2. Disconnect the fuel vent line from the fuel tank vent nipple **(Figure 3-3, Page 3-3)**.

6.3. Plug the fuel tank vent nipple so that it is air tight. The manufacturer recommends using a slip-on vinyl cap.

All vehicles:

7. Disconnect the battery cables, negative (–) cable first. **See WARNING "To avoid unintentionally starting..." in Section 1 – Safety on page 1-2.**
8. Change engine oil. **See Engine Oil and Filter Change on page 10-7.**
9. Batteries should be clean and free of corrosion. Wash tops and terminals of batteries with a solution of baking soda and water (1 cup (237 mL) baking soda per 1 gallon (3.8 L) of water). Rinse solution off batteries. Do not allow this solution to enter the batteries. Be sure terminals are tight. Let the terminals dry and then coat them with Battery Terminal Protector Spray (CCI P/N 1014305).
10. Adjust the tires to the recommended tire pressure. **See Section 8 – Wheels and Tires.**
11. Perform semiannual periodic lubrication. **See Periodic Lubrication Schedule on page 10-4.**
12. Thoroughly clean the front body, rear body, seats, cargo bed, engine compartment, and underside of vehicle.
13. Do not engage the park brake. Chock the wheels to prevent the vehicle from rolling.

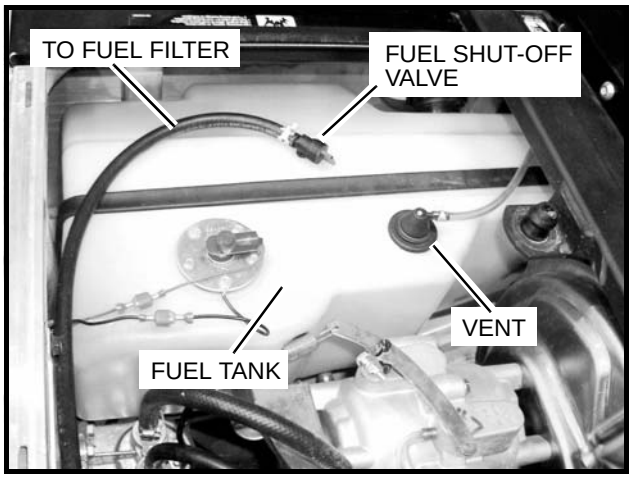

Figure 3-2 Fuel Tank – Gasoline Vehicles

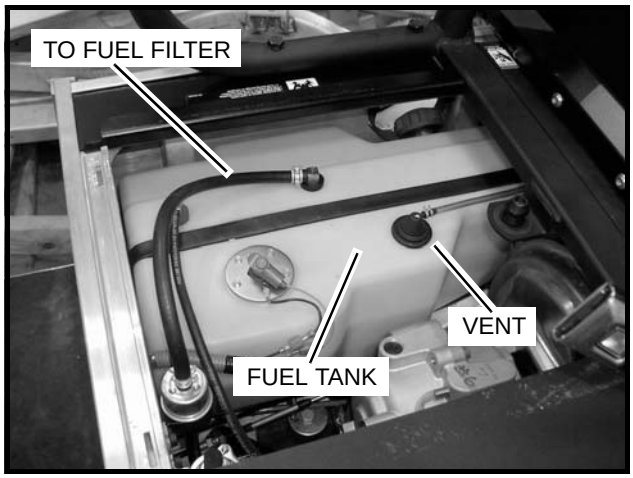

Figure 3-3 Fuel Tank – Diesel Vehicles

RETURNING THE STORED VEHICLE TO SERVICE

1. Make sure the key switch is in the OFF position and the Forward/Reverse handle is in the NEUTRAL position. Chock the wheels.
2. Restore the fuel system to operation **(Figure 3-2, Page 3-3 or Figure 3-3, Page 3-3)**.
   2.1. Remove the plug from the fuel tank vent.
   2.2. Connect the vent tube to the fuel tank vent.
3. Connect the battery cables, positive (+) cable first, and tighten the terminals to 12 ft-lb (16 N·m). Coat terminals with Battery Terminal Protector Spray (CCI P/N 1014305).
4. **Gasoline vehicles only:** Completely open the fuel shut-off valve **(Figure 3-4, Page 3-4)**. Ensure that the valve is fully open. A partially closed fuel shut-off valve combined with the use of the choke can result in a fouled spark plug and engine failure **(Figure 3-6, Page 3-4)**.

Returning the Stored Vehicle to Service, Continued:

5. Place the Forward/Reverse handle in the NEUTRAL position. Crank the engine until fuel is pumped into the carburetor (gasoline vehicles) and the fuel lines and the engine starts. Turn the engine off. **See following NOTE.**

NOTE: *Due to the oil added to the engine in preparation for storage, the engine may smoke excessively for a short time when it is run for the first time after storage.*

6. Perform the Pre-Operation and Daily Safety Checklist. **See the Pre-Operation and Daily Safety Checklist in the vehicle owner's manual.**

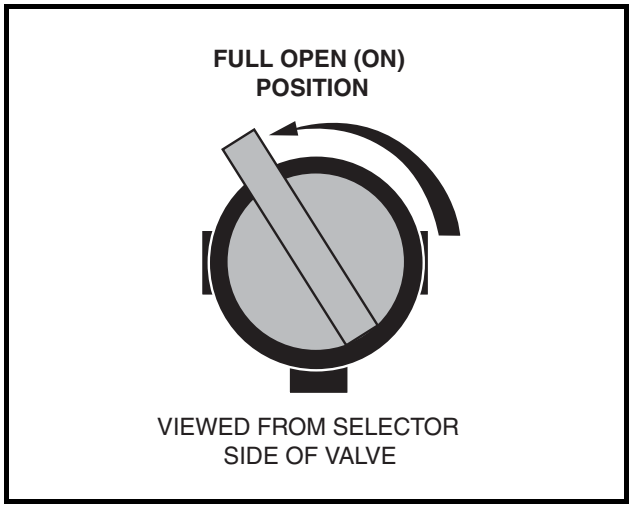

Figure 3-4 Fuel Shut-Off Valve – Open Position

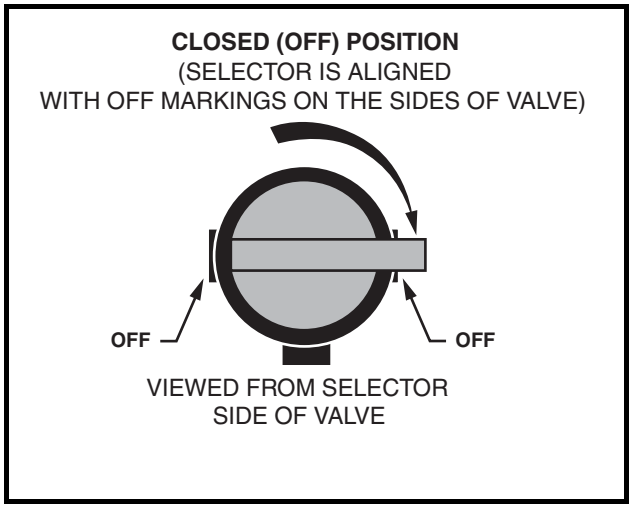

Figure 3-5 Fuel Shut-Off Valve – Closed Position

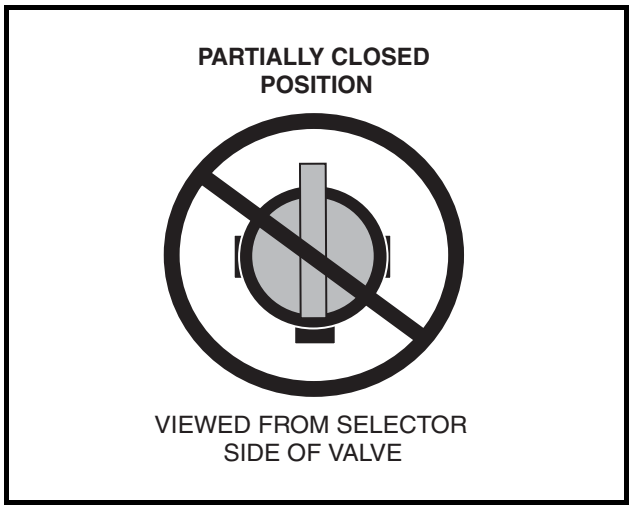

Figure 3-6 Fuel Shut-Off Valve – Partially Closed Position

SECTION 4 – BODY AND TRIM

⚠ DANGER

- **See General Warning, Section 1, Page 1-1.**

⚠ WARNING

- **See General Warning, Section 1, Page 1-1.**

CLEANING THE VEHICLE

See General Warning, Section 1, Page 1-1.

CAUTION

- **Do not use detergents or cleaning solvents that contain ammonia, aromatic solvents, or alkali materials on body panels or seats.**
- **Do not allow battery acid to drip on body panels. Battery acid will cause permanent damage. Wash spilled battery acid from body panels immediately.**

Each vehicle is equipped with an ABS/DR acrylic cap front body and an aluminum rear body and frame. The cargo bed is powder-coated steel.

The manufacturer does not recommend any type of pressure washing or steam cleaning. Such a process will expose electrical components to moisture. Moisture entering electrical components can result in water damage and subsequent component failure. Normal residential water pressure is adequate for exterior cleaning.

For regular front body cleaning, use automotive cleaning solutions with a sponge or soft cloth. Repair kits and cleaning/polishing products are also available at most hardware stores where ABS/DR acrylic products (hot tubs and shower/tub units) are sold.

To remove oxidation or discoloration from aluminum, use a commercially available aluminum cleaner paste and fine grade (No. 00) steel wool. Battery acid, fertilizers, tars, asphalt, creosote, paint, or chewing gum should be removed immediately to prevent possible stains.

SEAT CLEANING

Clean seats regularly using the following guidelines: **See following CAUTION.**

Light Soiling – A solution of 10% liquid dish soap and warm water applied with a soft, damp cloth is recommended. A soft bristle brush may be used if necessary. Wipe off any residue with a water dampened cloth. **See following NOTE.**

NOTE: *Dispose of waste water properly.*

Difficult Stains – Dampen a soft, white cloth with a solution of 10% household bleach (sodium hypochlorite) and 90% water. Rub gently to remove stain, then rinse with a water dampened cloth to remove bleach concentration.

For More Difficult Stains – Perform previous procedure using full-strength bleach, or allow bleach to puddle on affected area for approximately 30 minutes. Rinse with a water dampened cloth to remove any remaining bleach concentration. **See following CAUTION.**

Seat Cleaning, Continued:

CAUTION

- **To prevent damage to the vehicle when removing difficult stains or heavy soiling, remove the seat from the vehicle first.**

FRONT BODY REPAIR

See General Warning, Section 1, Page 1-1.

ABRASIONS AND HAZE

The original gloss can be restored by hand buffing with “Novus Plastic Polish”, “Mirror Glaze Professional Formula Number 17”, or similar polishing compounds. A buffing wheel with a small amount of automotive type paste wax applied to the pad may also be used. Use a very light touch, because ABS/DR acrylic polishes easily. Johnson’s® “J-Wax” or “Kit” may be applied as a final treatment.

LIGHT SCRATCHES

Ajax cleanser applied dry and hand-rubbed will rapidly smooth moderate scratches. Use a soft polishing compound to restore gloss.

Scratches (up to 10 mils; the equivalent thickness of an average business card) can be removed by light sanding. Start with wet silicone carbide abrasive paper (320 grit or finer). Use progressively finer grits (i.e. 400, 600, 800) to reduce sanding marks. Use Ajax cleanser (or equivalent) for final smoothing. A “Micro Mesh” acrylic polishing kit with abrasive papers from 1800 to 8000 grit will provide the best final finish. Restore gloss with soft polishing compound. It is not the intent of any of these processes to fill-in the material removed due to light scratches but rather to blend the finish of the surrounding area and the scratch together.

LARGE SCRATCHES AND ABRASIONS

Touch-up is not recommended. Replace the entire body part or have it repaired by a professional paint and body repair shop with experience repairing ABS/DR acrylic bodies.

FRONT BODY COMPONENTS

See General Warning, Section 1, Page 1-1.

INSTRUMENT PANEL REMOVAL

1. Loosen and remove the seven Tuflok® screws from the instrument panel.
2. Pull the top of the instrument panel forward to access the panel rear.
3. Disconnect the wiring from components mounted on the instrument panel.

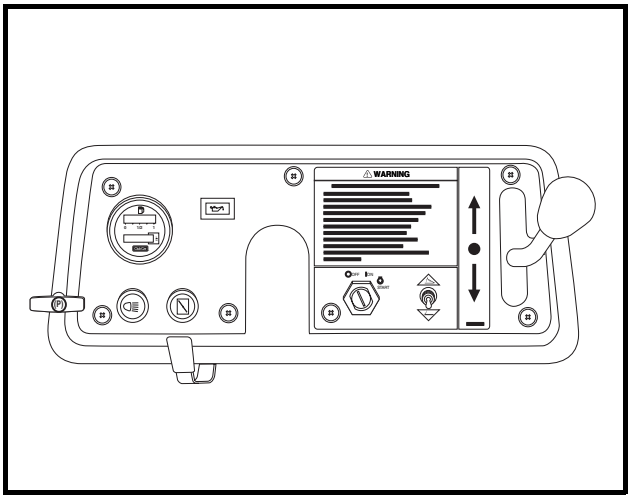

Figure 4-1 Instrument Panel – Gasoline Vehicles

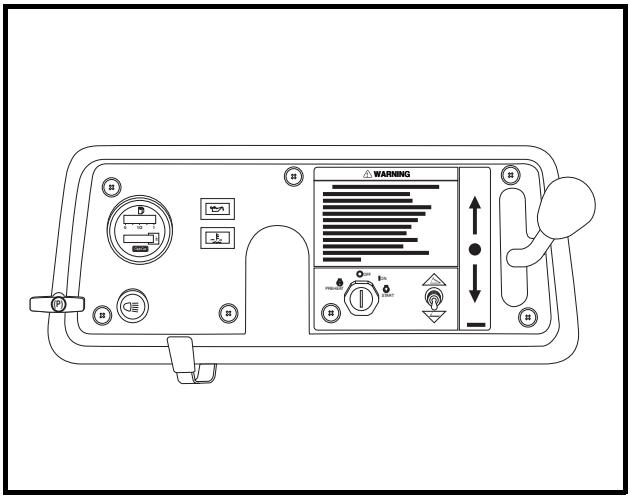

Figure 4-2 Instrument Panel – Diesel Vehicles

4. **Gasoline vehicles:** Remove the choke cable from the choke on the engine.
   4.1. Remove the driver seat.
   4.2. Loosen the two Tuflok screws from the rear of the console, and remove the screws and console.
   4.3. Remove the component safety plate and engine handling eye bracket from the top of the engine.
   4.4. Remove the Z-shaped cable end (1) from the choke lever **(Figure 4-3, Page 4-3)**.
   4.5. Remove the cable strain relief (2) from the cable bracket.

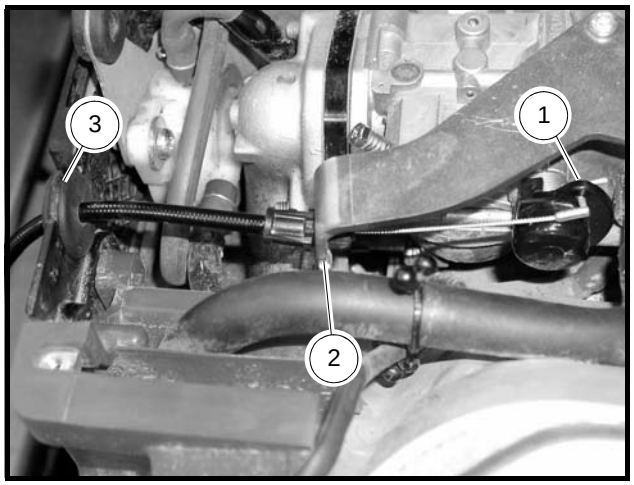

Figure 4-3 Engine Choke Cable at Engine (Gasoline Vehicles)

   4.6. Remove the rubber grommet and cable from the engine plate (3).
   4.7. Remove the cable from the two grommets under the frame. **See following NOTE.**

NOTE: *Removing the rubber grommets from the cable will allow the cable to pass smoothly past wiring and structural components.*

Tie a nylon cord to the end of the cable before removal. Route the cord from the engine, under the frame, and up to the instrument panel to be used during installation.

   4.8. Feed the cable from the engine compartment, under the body, and up to the dash.
5. Remove the instrument panel.

Suggest:

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Thank you so much for reading

INSTRUMENT PANEL INSTALLATION

1. Connect the wiring to the electrical components mounted on the instrument panel. **See Wiring Diagram on page 11a-6 (gasoline vehicles) or Wiring Diagram on page 11b-6 (diesel vehicles).**
2. **Gasoline vehicles:** Connect the choke cable to the engine choke lever.
   2.1. Feed the choke cable down behind the dash, under the body, and up into the engine compartment. See following NOTE.

NOTE: *Tie the engine end of the cable to the loose end of the nylon cord, and pull the cable from the engine compartment under the vehicle up to the engine choke.*

   2.2. Secure the choke cable Z-shaped cable end to the choke lever **(Figure 4-3, Page 4-3)**.
   2.3. Secure the cable connector to the cable bracket.
   2.4. Slide the choke cable into the grommet slot.
   2.5. Slide the cable into the grommet slots that are under the vehicle seat and floorboard.
3. Secure the instrument panel to the dashboard with the seven Tuflok screws.

DASHBOARD REMOVAL

1. Make sure the key switch is OFF and the Forward/Reverse handle is in the NEUTRAL position. Remove the key. Chock the wheels.
2. Disconnect the battery cables as instructed. **See WARNING "To avoid unintentionally starting..." in General Warning, Section 1, Page 1-2.**
3. Remove the steering wheel. **See Steering Wheel Removal, Section 7, Page 7-1.**
4. Remove the instrument panel. **See Instrument Panel Removal on page 4-2.**
5. Remove the five plastic caps from the point where dashboard and front body meet.
6. Remove the five Torx-head screws with special plastic washers from the top of the dashboard.
7. Remove the park brake release handle and jam nut from the park brake cable assembly.
8. Remove the knob from the Forward/Reverse shift handle.
9. Remove the seven Tuflok screws from the underside of the dashboard, and gently slide the dashboard away from the floor mat trim plate and frame.
10. Remove the 12-volt power plug wire harness.
11. Remove the dashboard from the vehicle.

DASHBOARD INSTALLATION

1. Position the dashboard over steering column and park brake cable assembly and locate attachment points. **See following NOTE.**

NOTE: *Feed the park brake rod through the hole in the dashboard, and loosely secure the jam nut and park brake handle.*

2. Install and tighten the five Torx-head screws with special plastic washers on the top side of the dashboard to 45 in-lb (5.1 N·m).
3. Install five plastic caps onto the screw heads.
4. Secure the underside of the dashboard with seven Tuflok screws.
5. Advance the park brake release handle to the jam nut, and tighten the nut to 50 in-lb (5.6 N·m).
6. Install the instrument panel. **See Instrument Panel Installation on page 4-4.**