Utility Vehicle 2200

Bobcat®

Service Manual

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TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSES	REFER TO
Front differential does not engage front wheels.	Failed front drive gearcase engagement coil	Test Procedure 16 – Front Drive Gearcase Coil on page 11b-31
	Failed differential relay	Test Procedure 9 – Differential Relay on page 11b-18
	Neutral switch failure (failed closed)	Test Procedure 14 – Neutral Switch (Transmission) on page 11b-30
	Failed front gearcase	See Section 18.
Torque converter does not shift smoothly.	Drive belt is worn, cracked, glazed, or frayed	Drive Belt Removal on page 13b-30
	Drive clutch malfunction	Drive Clutch Cleaning and Inspection on page 13b-31
	Driven clutch malfunction	Drive Clutch Cleaning and Inspection on page 13b-31
Battery discharged.	Loose alternator belt	See Alternator and V-belt Installation on page 12b-13
	Loose electrical connection(s)	Check for proper wiring and tighten any loose connections. See Wiring Diagram on page 11b-6.
	Failed alternator	Test Procedure 17 – Alternator on page 11b-32
	Failed battery	Test Procedure 1 – Battery on page 11b-9
	50-amp circuit breaker failed	Test Procedure 18 – 50-Amp Circuit Breaker on page 11b-32
Engine can be started while Forward/ Reverse handle is in the FOWARD or REVERSE position.	Diode 3 failed closed	Test Procedure 13C – Diode 3 on wire 64 on page 11b-26
Hour meter adds increments with key switch ON and engine not running.	Oil pressure switch failed open	See Section 19.
Hour meter does not function.	Failed low oil warning light or oil pressure sensor	Test Procedure 26 – Low Oil Warning Light Circuit on page 11b-38
	Oil pressure switch failed closed	See Section 19.
	Failed hour meter	Test Procedure 30 – Hour Meter on page 11b-41
30-amp fuse (on w02) blows repeatedly.	Diode 1 or diode 5 in wire harness failed	Test Procedure 13A – Diode 1 on wire 32 on page 11b-25, and Test Procedure 13E – Diode 5 on wire 52 on page 11b-27
30-amp fuse (on w74) blows repeatedly.	Diode 2 or diode 6 in wire harness failed	Test Procedure 13B – Diode 2 on wire 55 on page 11b-25, and Test Procedure 13F – Diode 6 on wire 57 on page 11b-29
Bed lift does not function	Bed lift motor failed	Test Procedure 33 – Bed Lift Motor on page 11b-44
	Bed lift switch failed	Test Procedure 34 – Bed Lift Switch on page 11b-45
	Bed lift circuit breaker failed	Test Procedure 35 – Bed Lift Circuit Breaker on page 11b-46

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2. Connect the multi-pin connector from the voltage regulator to the wire harness.
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. With the Forward/Reverse handle in NEUTRAL, start the engine and check the regulator for proper functioning as described in the voltage regulator test procedure. **See Test Procedure 14, Section 11a, Page 11a-26.**



Figure 12a-4 Voltage Regulator

INSTRUMENT PANEL

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

Instrument Panel Removal

1. Turn the key switch OFF and remove the key. Place the Forward/Reverse handle in NEUTRAL. 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. Loosen the Tuflok screws, but do not remove screws completely, as shown in Detail A **(Figure 12a-5, Page 12a-5)**.
4. Remove Tuflok screws from instrument panel as shown in Detail B.
5. Pull forward on top of the instrument panel.
6. If required, disconnect the electrical components.
7. If required, remove the choke cable. **See Choke Cable Removal on page 13a-27.**

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Half Shaft Installation, Continued:

6. Secure the caliper and discs to the upright and wheel hub disc with new lock-patch bolts. Tighten the hardware to 36 ft-lb (49 N·m) **(Figure 14-3, Page 14-2). See following CAUTION.**

CAUTION

- **If lock-patch bolts are not available, use Loctite 222 on new, standard thread, hex-head bolts.**

7. Secure the lower shock absorber mount to the upper A-frame with new flanged-head bolts and locknuts. Tighten the hardware to 22 ft-lb (30 N·m).
8. Secure the top shock absorber mount to the flanged brackets on the frame with a new flanged-head bolt and flanged locknut. Tighten the hardware to 73 ft-lb (99 N·m) **(Figure 14-2, Page 14-1)**.
9. Install the tire and wheel, and finger-tighten the lug nuts.
10. Repeat steps 1 through 9 for the remaining half shaft and wheel.
11. Lift the front of the vehicle with a chain hoist or floor jack, remove the jack stands, and lower the vehicle to the ground. **See WARNING "Lift only one end..." in General Warning, Section 1, Page 1-2.**
12. Use a crisscross pattern to tighten the lug nuts on both front wheels to 85 ft-lb (115 N·m).
13. Tighten both spindle locknuts to 150 ft-lb (203 N·m).
14. Adjust the front wheel camber. **See Camber Adjustment, Section 7, Page 7-11.**
15. Connect the battery cables, positive (+) cable first, and tighten the hardware to 12 ft-lb (16 N·m). Coat terminals with Battery Terminal Protector Spray (CCI P/N 1014305).

FRONT DIFFERENTIAL

⚠ WARNING

- **The diameter of all tires on the vehicle must be equal; otherwise the all-wheel drive system will not operate as intended and could result in severe personal injury or death. Never install tires of different diameters on the vehicle.**

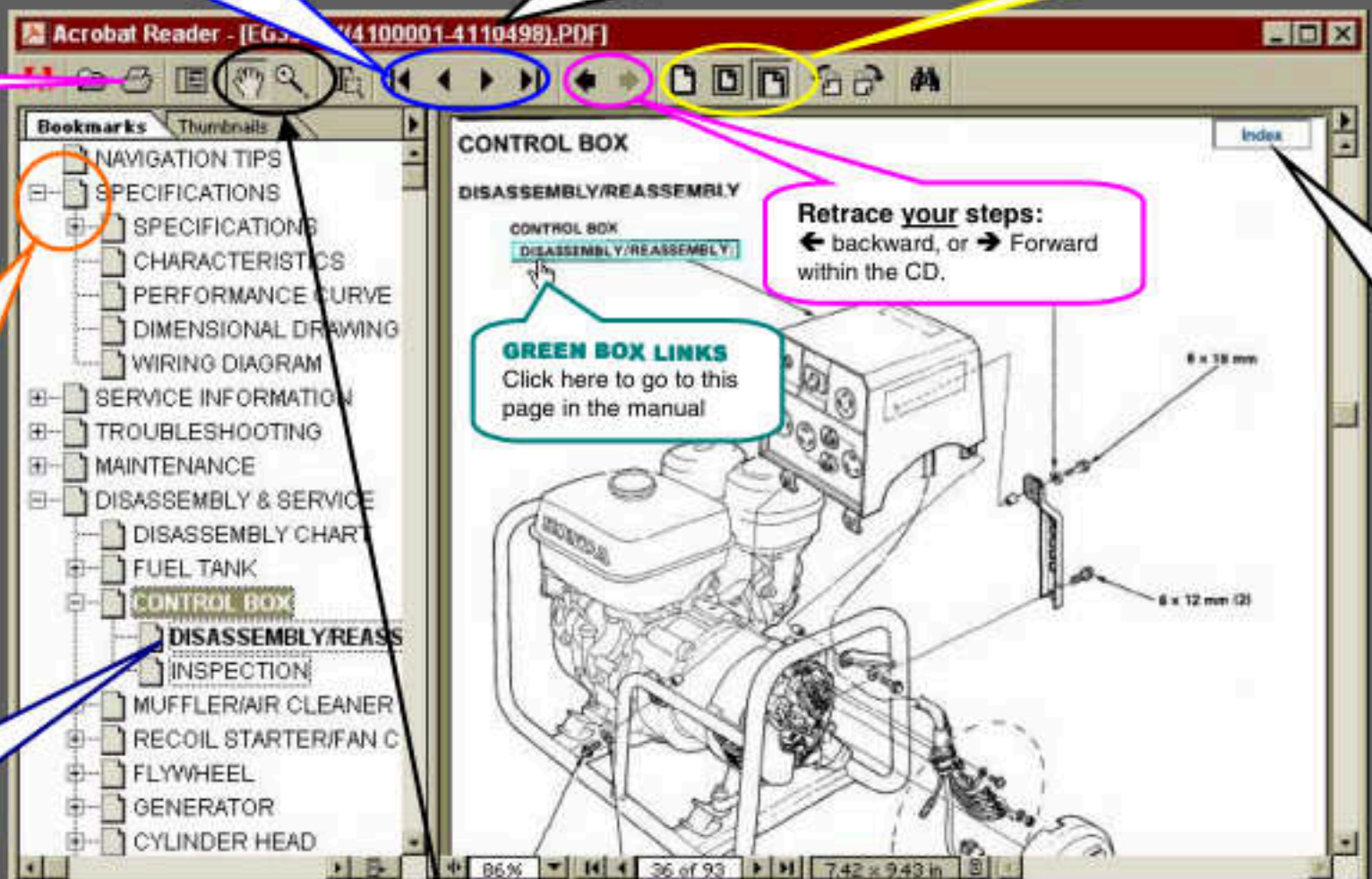
FRONT DIFFERENTIAL REMOVAL

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

1. Turn the key switch OFF and remove the key. Place the Forward/Reverse handle in NEUTRAL. 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. Loosen the lug nuts on both front wheels.
4. Loosen the spindle nuts and lift the front of the vehicle with a chain hoist or floor jack. **See WARNING "Lift only one end..." in General Warning, Section 1, Page 1-2.**
5. Place jack stands under the lower A-frame plates, and lower the vehicle onto the stands **(Figure 14-1, Page 14-1)**.
6. Remove both half shafts. **See Half Shaft Removal on page 14-1.**
7. Remove the roll pin from the differential output shaft and front drive shaft **(Figure 14-8, Page 14-5). See following NOTE.**

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NAVIGATION *QUICK* TIPS – ELECTRONIC SHOP MANUAL



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Figure 17-16 Install Roller Thrust Bearing

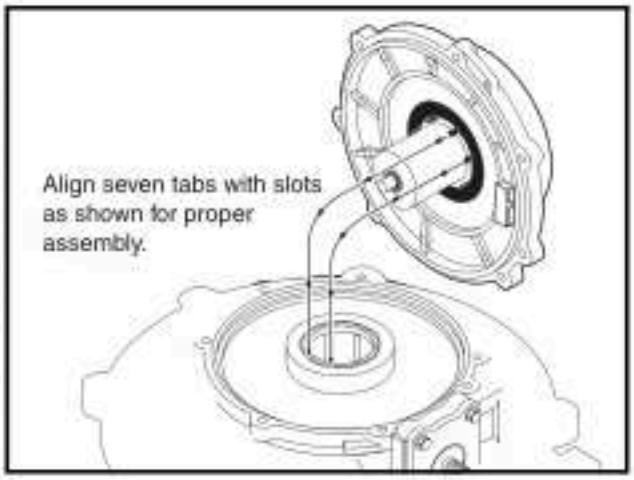


Figure 17-17 Align Armature Plate Tabs and Ring Gear Bearing Cage Slots



Figure 17-18 Install Cover and Torque Bolts

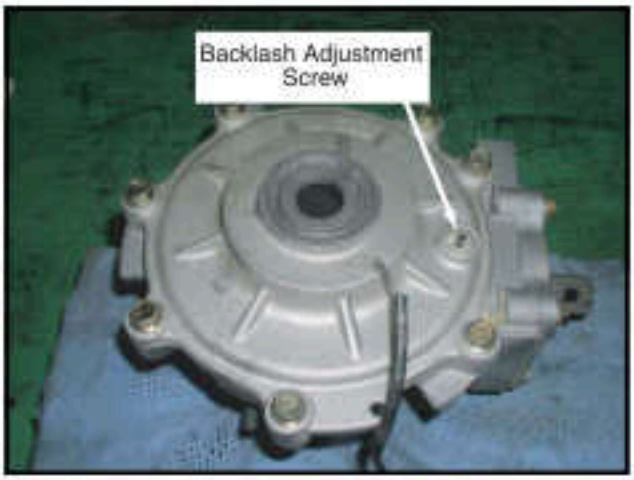


Figure 17-19 Backlash Adjustment Set Screw

Backlash Adjustment

1. Locate the backlash adjustment set screw on the right front, coil side, of the differential **(Figure 17-19, Page 17-7)**.
2. Use a 3/32-inch Allen wrench and turn the screw clockwise until it stops (do not apply torque).

NOTE: *When the screw stops, the splined shaft of the pinion gear should not be movable by hand in either direction.*

3. Turn the Allen wrench and set screw counterclockwise slowly while turning the pinion gear shaft clockwise. Continue this process until the pinion gear shaft can rotate four complete turns freely and without any tight spots.

NOTE: *The set screw should only have to be turned 1/4 to 1/2 of a full turn from its stop position to achieve the proper backlash set.*

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