



2004 Technical Update



Cub Cadet Big Country

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

This Service Manual is not a substitute for the Operator's Manual. You must read, understand and follow all of the directions in this manual as well as the Operator's Manual before working on this power equipment.

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Big Country 6 x 4 and 4 X 2 Update

1. ISSUE: BATTERY DRAIN IN LONG TERM STORAGE (CC 431)

Some first-year production Big country Utility Vehicles (prior to serial number 1A013B000001) may experience an electrical draw that drains the battery. The problem will generally occur when the Big Country is not in use for a month or more. If a customer has complained of this situation, the following change should be made to the wiring harness.

- 1.1. Turn the engine off and remove the key from the key switch. Tilt the driver's seat forward and check the serial number. If the serial number is not legible, identify the wiring harness.
- 1.2. Remove the bolts, flat washers, and rubber washers that secure the hood in the closed position using a 1/2" wrench. Open the hood.
- 1.3. Vehicles equipped with the wiring harness that is subject to this occurrence are readily identifiable by the location of the fuse box, relays and voltage regulator-rectifier. The fuse box is mounted under the hood in a vertical position on driver's side of the firewall. Directly beneath it are molded plugs for three relays. The regulator-rectifier is located under the hood on the passenger's side firewall, directly above the battery. See Figure 1.3.

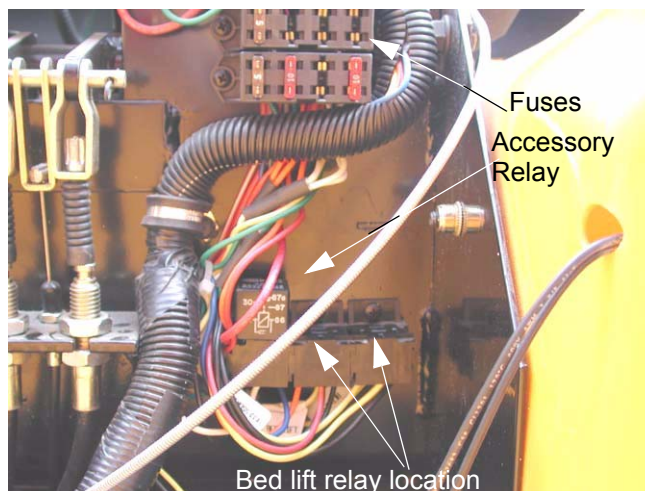


Figure 1.3

- 1.4. If not equipped with the effected harness further diagnosis is necessary. If equipped with the effected harness, disconnect the negative battery cable using a 7/16" wrench.
- 1.5. Unplug the harness connector from the pigtail on the regulator-rectifier. See Figure 1.5.

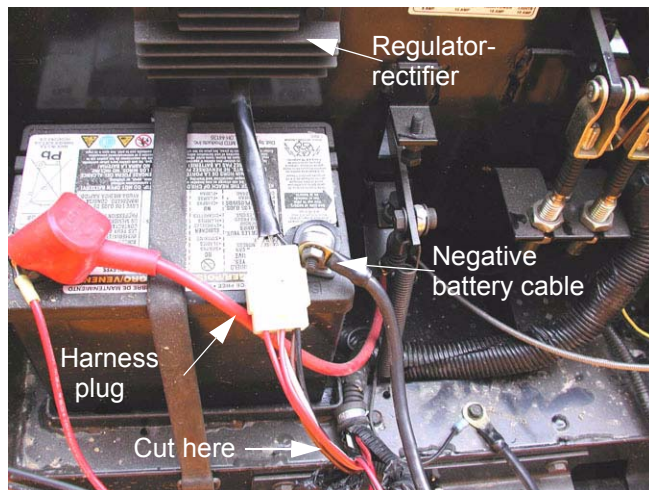


Figure 1.5

- 1.6. Cut the **two red wires** that enter the harness connector roughly 6" from the connector.

NOTE: It may be necessary to remove some of the protective covering (conduit) from the harness.

- 1.7. Strip 1/4" of insulation from the loose ends of the red wires that are attached to the harness plug.
- 1.8. Twist the stripped ends together, and crimp them securely into the yellow butt connector.
- 1.9. Strip 1/2" of insulation from the end of the red wire provided in the kit.

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- 1.10. Fold the stripped end back on itself, and crimp it securely into the other end of the yellow butt connector. See Figure 1.10.

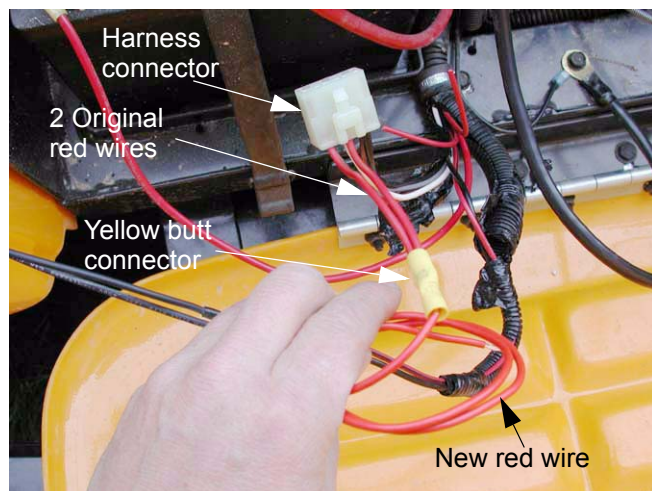


Figure 1.10

- 1.11. Remove the accessory relay from the relay block on the firewall. See Figure 1.11.

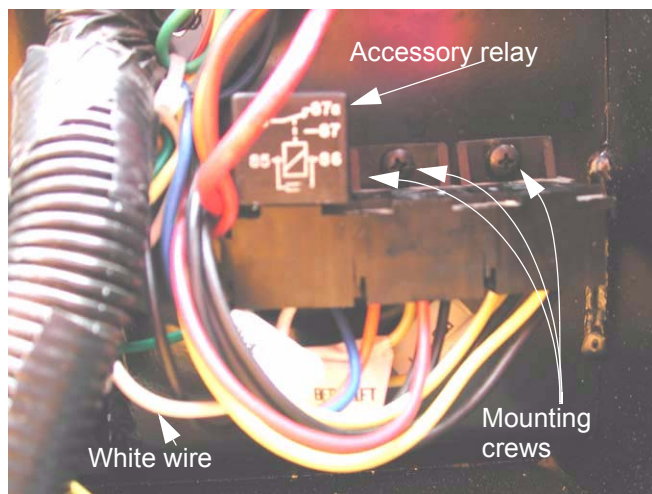


Figure 1.11

- 1.12. Remove the relay block from the firewall using a phillips head screwdriver, and separate it from the other two relay blocks.

NOTE: The relay blocks have interlocking channels on each side.

- 1.13. Cut the white wire that enters the accessory relay block. Leave enough length accessible on each side of the cut to strip the insulation from the wire and install a butt connector.

NOTE: It may be necessary to remove some of the protective covering (conduit) from the harness.

- 1.14. Strip 1/4" of insulation from the ends of the two lengths of white wire and 1/2" of insulation from the loose end of the red wire that was previously added to the harness connector.
- 1.15. Twist the two stripped ends of the white wire together and crimp them securely into the second yellow butt connector.
- 1.16. Fold the stripped end of the red wire back on itself, and crimp it securely into the other end of the yellow butt connector. See Figure 1.16.

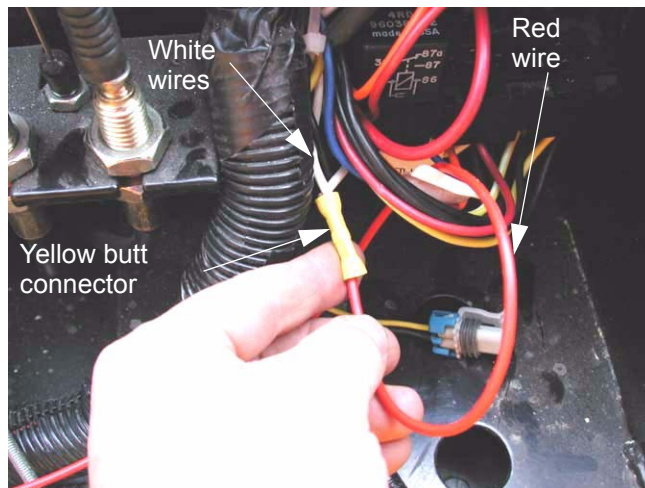


Figure 1.16

- 1.17. Install the relay block back on the firewall, and plug-in the relay.
- 1.18. Plug the voltage regulator-rectifier connector back into the harness connector.
- 1.19. Connect the negative battery cable to the negative battery terminal.
- 1.20. Close and secure the hood.
- 1.21. Test-run the Big Country 6 X 4 before returning it to service.

Big Country 6 x 4 and 4 X 2 Update

2. ISSUE: REVERSED OPERATION OF ACCESSORY (BED LIFT) SWITCH (CC 438)

Some first-year production Big country Utility Vehicles (after serial number 1A013B000001) may have been made with mis-wired accessory connectors in the wiring harness. If this situation exists, rocking the bed lift switch up will lower the bed, and rocking the bed lift switch down will tilt the bed. If a customer has complained of this situation, the following change should be made to the wiring harness:

- 2.1. The service kit consists of three adaptors that reverse the polarity of the connections. See Figure 2.1.

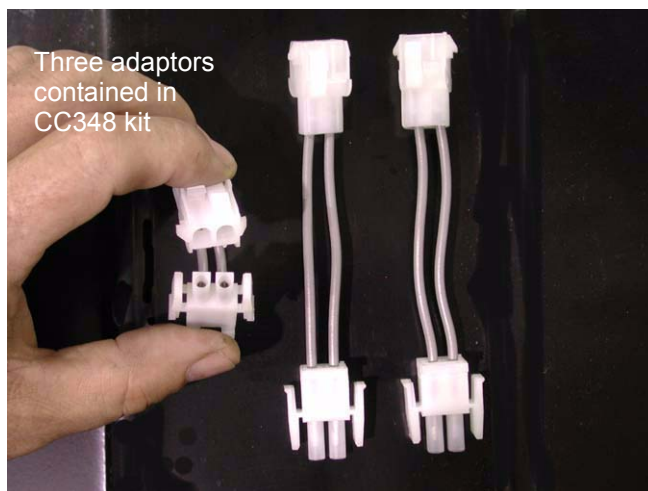


Figure 2.1

- 2.2. Remove the two wing screws that secure the hood, and open the hood.
- 2.3. Identify the front accessory relay connector. See Figure 2.3.

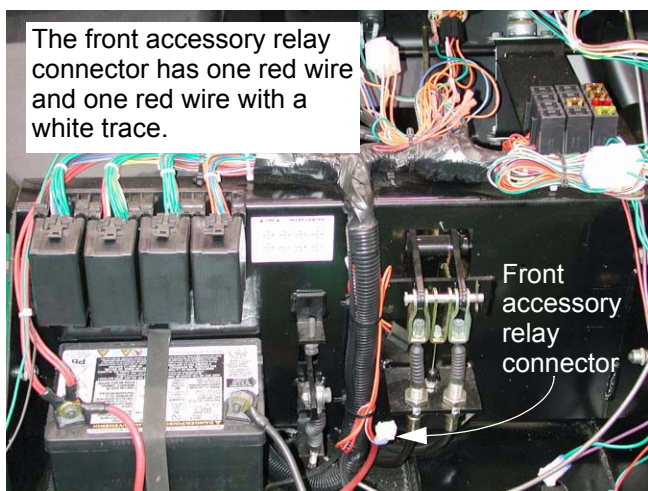


Figure 2.3

- 2.4. Install one adaptor from the service kit as an interface connector between the harness and the accessory. See Figure 2.4.

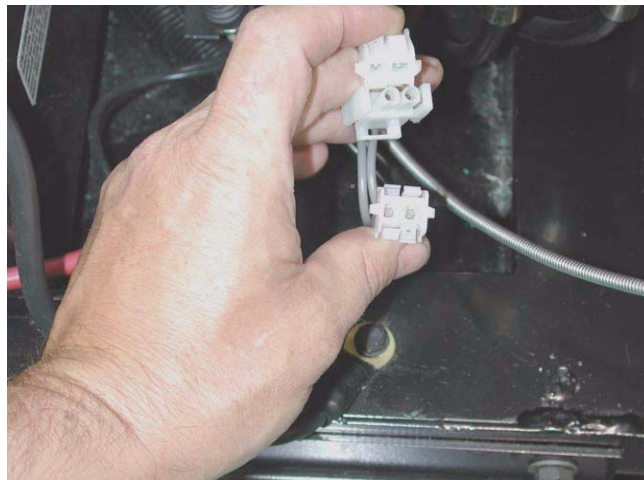


Figure 2.4

- 2.5. Raise the bed. The final two connectors are located among the bundle near the right rear corner of the engine compartment, at the top of the frame. See Figure 2.5.

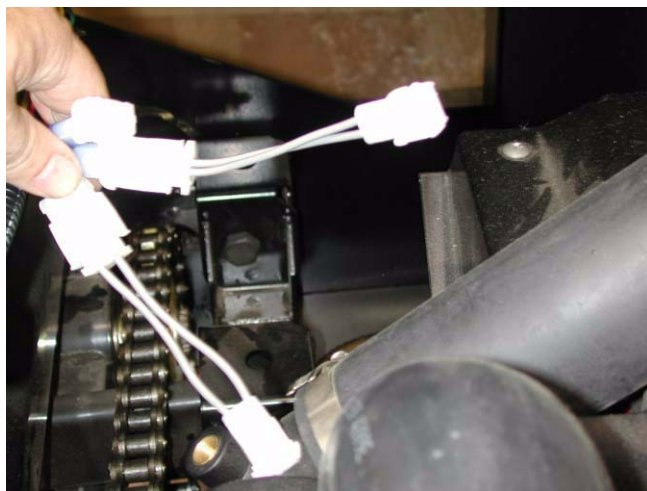


Figure 2.5

- 2.6. Identify the connector that joins the lift motor to the lift motor relays. It has **one red wire** and **one yellow wire**. Install the second adaptor as an interface connector between the lift motor and the harness connection to the lift motor relays.
- 2.7. Identify the rear accessory relay connector, and install the third adaptor to it in similar fashion to the first two adaptors. The rear accessory relay connector has **one purple wire** and **one black wire**.

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- 2.8. The adaptors will reverse the polarity of the connections. If reverses action of accessories or bed lift is not encountered, the adaptors are not necessary on that unit. See Figure 2.8.

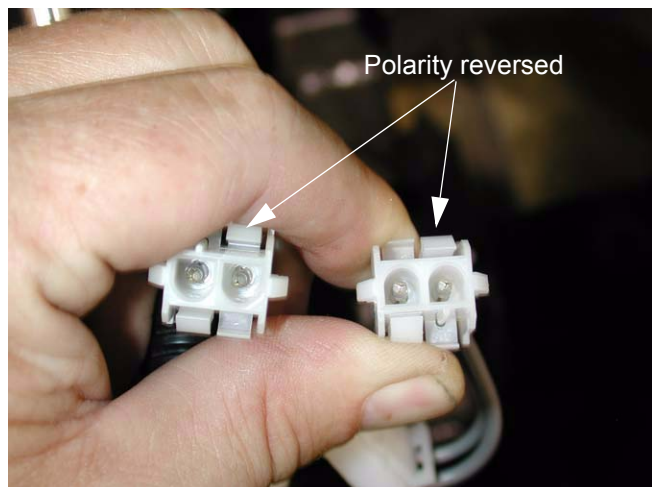


Figure 2.8

- 2.9. Lower the bed. Close and secure the hood.
2.10. Test the operation of the bed lift and accessories before returning the unit to service.

3. FEATURE: NEW WIRING HARNESS

- 3.1. The relays have been consolidated into a relay center above the battery, in the place formerly occupied by the voltage regulator-rectifier. The fuse block has been moved from the vertical surface of the firewall. See Figure 3.1.

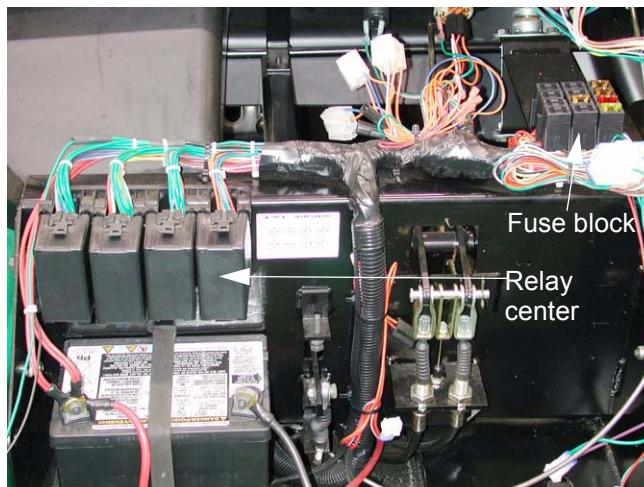


Figure 3.1

NOTE: The 4 X 2 and 6 X 4 use the same wiring harness after serial number 1A013B000001. the features listed apply to both models.

- 3.2. The relays and their sockets in the relay centered protected by plastic covers. See Figure 3.2.

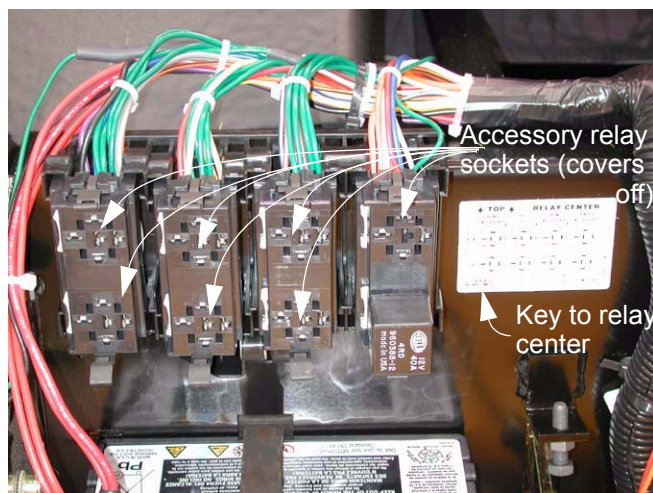


Figure 3.2

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- 3.3. One relay in this block is used by the original equipment. The rest of the sockets accommodate pre-wired accessories. See Figure 3.3.

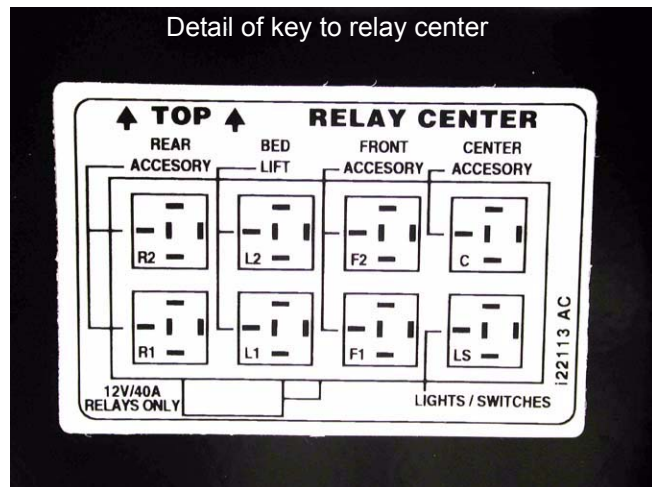


Figure 3.3

- 3.4. The relay covers go on in one direction only. There is a notch in each cover that matches a notch in the relay socket. See Figure 3.4.

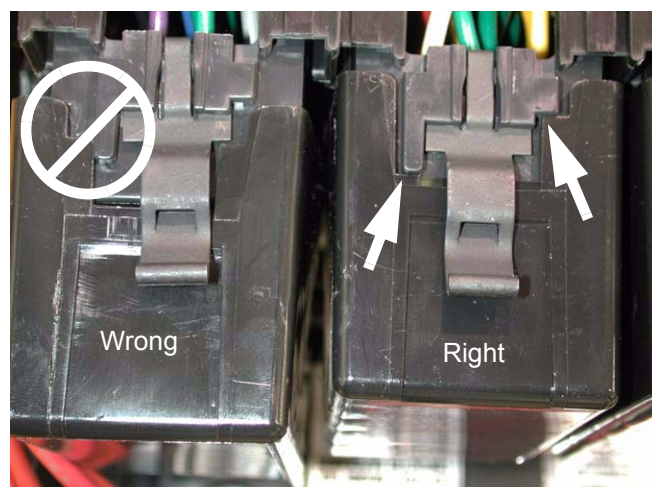


Figure 3.4

- 3.5. The one relay that is not in this group is the starter relay, which is located on the outside of the harness, just below the center of the upper cross-member at the front of the engine compartment. See Figure 3.5.



Figure 3.5

NOTE: The starter relay is different from the other relays on the Big country 6 X 4, but is interchangeable with the relays used on the 2000 series, 3000 series, and the recent 1000 series.

- 3.6. The fuse block has been moved to the horizontal surface at the top of the firewall on the driver's side of the vehicle. See Figure 3.6.

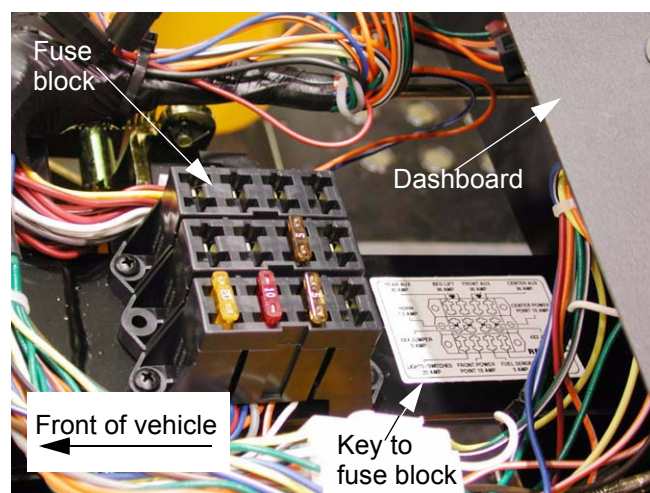


Figure 3.6

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- 3.7. The fuse block also contains capacity for expansion, allowing the easy addition of accessories See Figure 3.7.

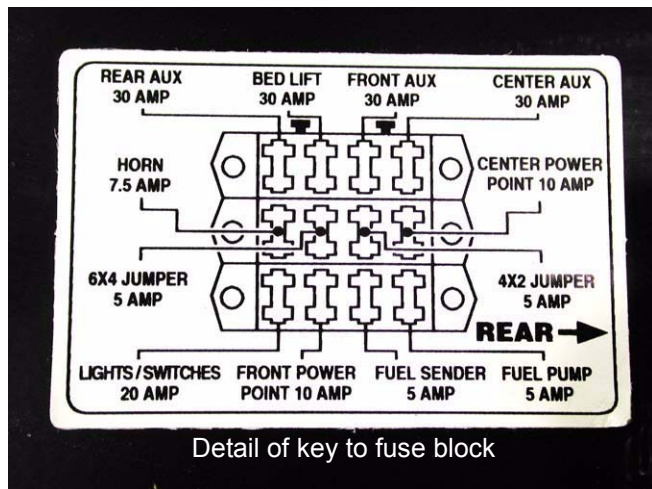


Figure 3.7

- 3.8. The voltage regulator-rectifier has been relocated to the right side of the cross-member at the top front corner of the engine compartment. See Figure 3.8.



Figure 3.8

- 3.9. The instrument panel has been revised slightly, and may be further revised for '04 production.

- 3.10. The 4 X 2 and the 6 X 4 use the same wiring harness. The 6 X 4 has a mechanical gear selector system while the 4 X 2 has an electrically controlled, vacuum actuated gear selector system. The harness connections that join the push-button gear selector to the main harness in the 4 X 2 exist in the 6 x 4 as well. They are secured behind the dashboard, but are not connected to anything. See Figure 3.10.

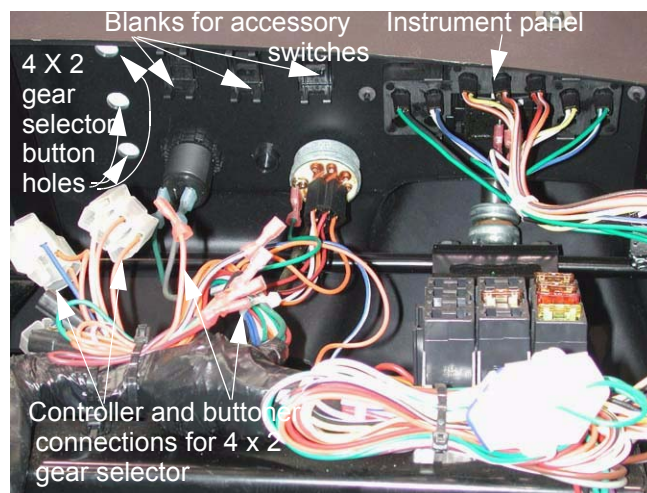


Figure 3.10

4. FEATURES: GENERAL IMPROVEMENTS

NOTE: Most of the features listed in this section are present on the 4 X 2 and the 6 X 4. Lessons learned in the first year of production have been applied to all models.

- 4.1. Suspension travel has been increased. See Figure 4.1.



Figure 4.1

Big Country 6 x 4 and 4 X 2 Update

- 4.2. The manually operated lift bed now features a gas charged lift assist cylinder on the 6 X 4 as well as the 4 X 2. See Figure 4.2.

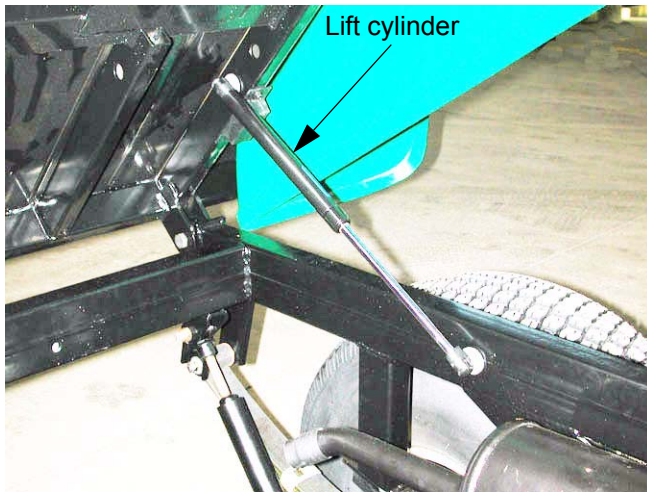


Figure 4.2

- 4.3. The heat shield will move from the bed to the muffler to reduce vibration noise.
- 4.4. The dashboard and glove box are now a single piece instead of two. See Figure 4.4.



Figure 4.4

- 4.5. The engine and transmission support bracket (6 X 4) are solid mounted to the frame. Early versions (prior to serial number 1A013B000001) used rubber isolated engine and transmission support brackets. The solid mountings maintain more consistent alignment between the transmission and the suspension. Mis-alignment allows drive-shaft whip, causing vibration under load, and accelerated wear.

- 4.6. The two mounting systems are not interchangeable. The rear mounting points on the frame are not drilled and cut to accept the rubber isolator mounts. The front mounting points have changed substantially. Inserting rubber isolator mounts between the frame and the the engine and transmission support bracket on a Big Country 6 X 4 that was not meant to have them will also create clearance issues between the bed and the intake system. See Figure 4.6.

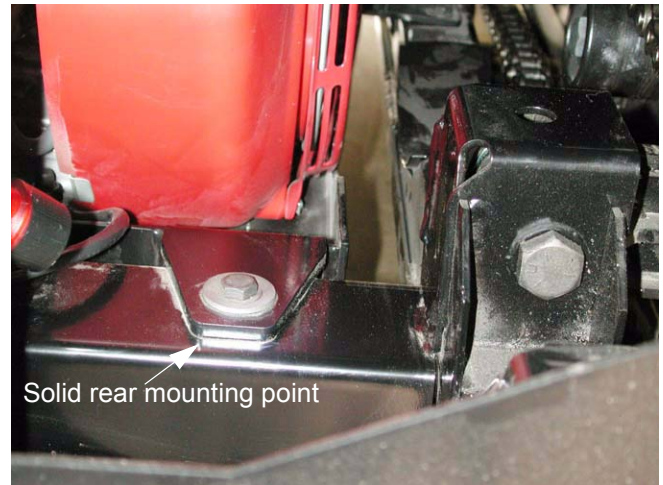


Figure 4.6

NOTE: The solid mounts may allow slightly higher vibration at idle than the rubber mounts.

- 4.7. All of this year's production will have the smaller headlights with better optics than last year. This was a running change during '03 model year production.

Big Country 6 x 4 and 4 X 2 Update

- 4.8. This year's fenders will also be high-cut compared to last year's fenders. This was a running change during '03 model year production. See Figure 4.8.



Figure 4.8

- 4.9. A seal has been added to the rear edge of the hood.
- 4.10. A more subtle change to the front fenders involves the contour where the hood meets the fender. The previous fender did not have the extra ridge to help locate the edge of the hood. See Figure 4.10.

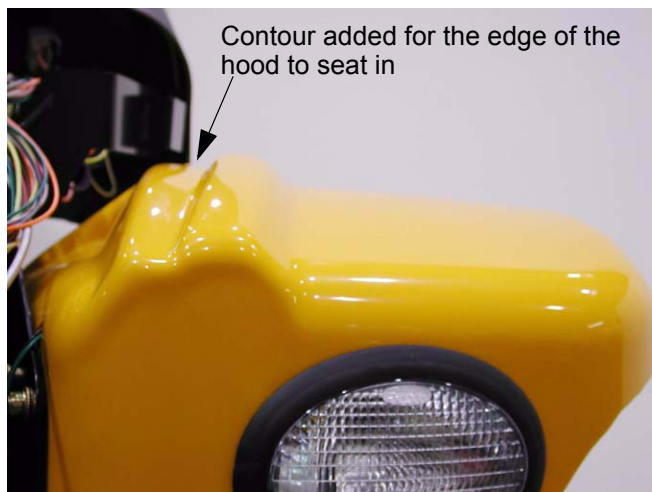


Figure 4.10

- 4.11. Mossy Oak™ Dark Forrest Floor Pattern camouflage will be an available finish for bodywork on the Big country.

- 4.12. Last year, if the optional brush guard was fitted, it was necessary to remove it before opening the hood. See Figure 4.12.



Figure 4.12

- 4.13. The new hood is mounted on a bracket that slides into brackets on the frame, rather than a piano hinge previously used. See Figure 4.13.

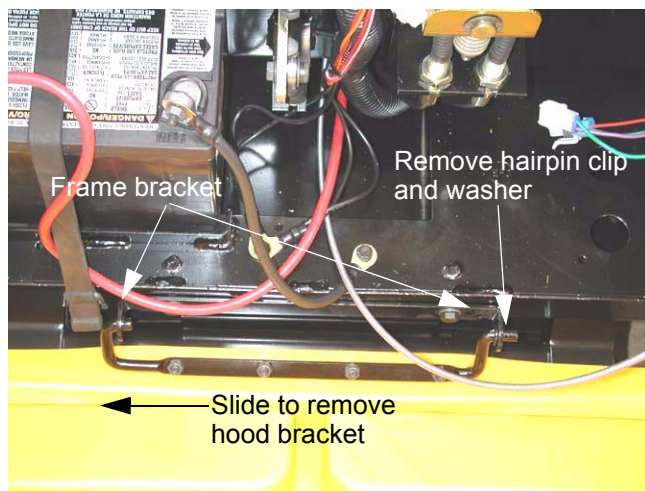


Figure 4.13

- 4.14. The pin is retained by a washer and hairpin clip.

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- 4.15. The bed of the 4 X 2 is rated to carry 800 lbs, as opposed to 1,000 lbs for the 6 X 4. The 4 X 2 bed is 39" long (internal) compared to 47" (internal) for the 6 X 4. See Figure 4.15.



Figure 4.15

- 4.16. The tailgate of the 4 X 2 bed differs from that of the 6 X 4 in that of the 6 X 4 in that it is held in place by 4 J-pins. See Figure 4.16.



Figure 4.16

- 4.17. It can be released at the top for loading or dumping. See Figure 4.17.

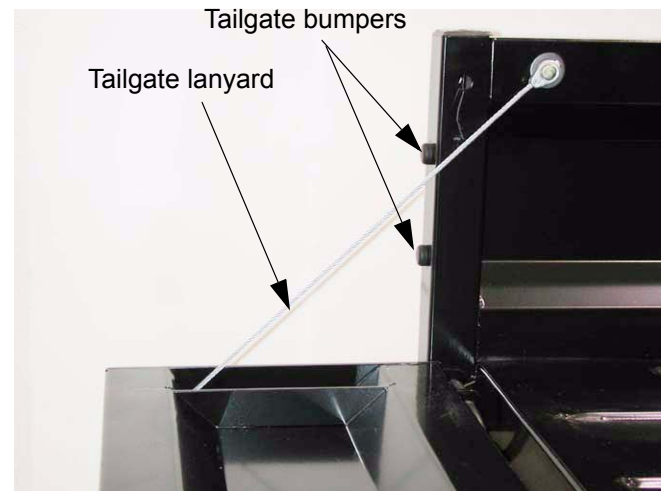


Figure 4.17

- 4.18. If the operator wishes to spread the contents of the bed, the two bottom J-pins can be released. This will allow the bottom of the tailgate to swing away from the bed, while the top edge remains fixed. See Figure 4.18.



Figure 4.18

Big Country 6 x 4 and 4 X 2 Update

- 4.19. Travel limiters are installed on the 4 X 2 bed hinge point to keep the bed from tilting beyond the intended range. Under no circumstances should a Big Country 4 X 2 be placed in service without those components in place. See Figure 4.19.

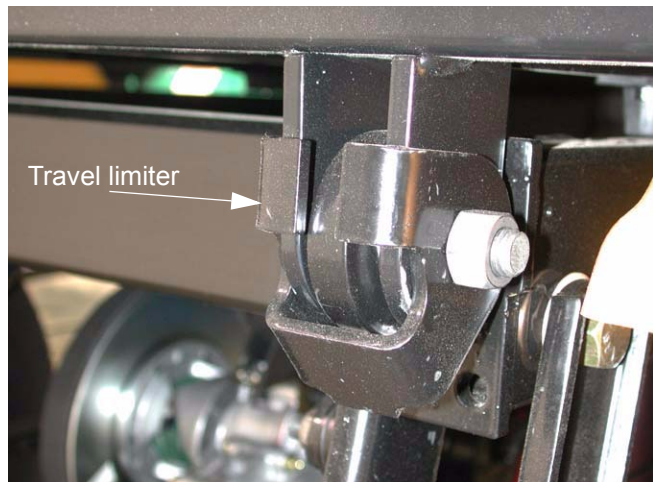


Figure 4.19

- 4.20. There have been some complaints of rattling tail-gates. This issue will be addressed for '04 production.
- 4.21. For '04, the 4 X 2 Big Country will use a cable operated shift mechanism instead of the electrically controlled, vacuum operated system currently in place.
- 4.22. The electrically controlled, vacuum operated differential lock will remain for the '04 season.

- 4.23. For '04, the structure of the frame forward of the engine bay will change. Instead of one hollow channel beneath the floor, three separate channels will increase the rigidity of the structure. Suspension pick-up points and mounting locations will remain unchanged. Some firewall bracketry will be simplified. See Figure 4.23.



Figure 4.23

- 4.24. The pedal mounting brackets will also be simplified. See Figure 4.24.



Figure 4.24

- 4.25. For '04, the front wheel mounting (lugs) and size **may** be standardized to match the rear wheels.
- 4.26. For '04, the hood will be held down with a rubber strap fastener. This will eliminate easy-to-lose wing bolts, and it will hold the hood more firmly in position.

5. OPENING PRICE POINT

- 5.1. An OPP (opening price point) version of the 4 X 2 will be introduced for the 2004 model season.
- 5.2. It will use the same platform as the standard 4 X 2, with the possible exception of closed panels on the side. See Figure 5.2.



Figure 5.2

- 5.3. The opening price point model may have a polymer bed.
- 5.4. The opening price point model may have four four-bolt wheels. They will be smaller than those found on the heavy duty 4 X 2.
- 5.5. Turf tread may be the only tire available for the OPP model.
- 5.6. The opening price point model may feature a translucent fuel tank.
- 5.7. The opening price point model will have a 9.5 H.P. single-cylinder Kawasaki engine and transaxle.
- 5.8. The engine and transmission cradle (OPP only) will be changed to fit the Kawasaki drive train.
- 5.9. The rear spring rates of the OPP model will be changed to reflect lighter usage.
- 5.10. The wiring harness will be pared-down for the OPP model. Accessory harnesses must be added for accessories.