

RECALL DOCUMENT



RECALL-05V043-0000

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Description : HYDRO-BOOST/HYDRAULIC BRAKE/BOSCH

Document Type : Other Recall Related Documents

Print

Close

Wallace, Patricia

From: Wallace, Patricia
Sent: Wednesday, March 02, 2005 11:15 AM
To: 'joy.m.hotchkiss@gm.com'
Subject: RE: 05V-043 - 05006 Hydro-Boost - Draft

I have reviewed your proposed owner letter and it meets the requirements of Part 577.

Please let me know the date when the actual mailing takes place and, as usual, provide this office with final copies of all documents relating to the recall.

Thanks.

Wallace, Patricia

From: joy.m.hotchkiss@gm.com
Sent: Wednesday, February 23, 2005 1:01 PM
To: Wallace, Patricia
Subject: 05V-043 - 05006 Hydro-Boost - Draft



05006 bulletin.doc (950 KB) 05006 letter.doc (42 KB)

05006 - Hydro-Boost Accumulator Over-Pressurization

For your review. Attached are the bulletin and owner letter.

(See attached file: 05006 bulletin.doc) (See attached file: 05006 letter.doc)

Thanks,
Joy Hotchkiss
Technical Analyst
Product Investigations
Phone (586) 986-5474
Fax (586) 947-2318



Recall Bulletin

File In Section: Product Recalls
Bulletin No.: 05006
Date:
Draft: #1



PRODUCT SAFETY RECALL

SUBJECT: HYDRO-BOOST® ACCUMULATOR OVER-PRESSURIZATION

MODELS: 2004-2005 CHEVROLET AVALANCHE, EXPRESS, KODIAK, SILVERADO, SUBURBAN
2004-2005 GMC SAVANA, SIERRA, TOPKICK, YUKON XL
2004-2005 HUMMER H2

DRAFT

A FINAL VERSION OF THIS DRAFT WILL BE USED
IF THERE IS A DECISION TO RECALL

CONDITION

General Motors has decided that a defect, which relates to motor vehicle safety, exists in **certain** 2004-2005 Chevrolet Avalanche, Express, Kodiak, Silverado, Suburban; GMC Savana, Sierra, TopKick, Yukon XL; and HUMMER H2 vehicles. On some of these vehicles, the hydraulic brake booster's pressure accumulator may crack and/or separate from the Hydro-Boost® assembly during normal vehicle operating conditions. If a separation occurred and the hood of the vehicle were open, fragments from the accumulator could cause injury to people in the immediate area. In addition, the presence of this crack or fractured surface could allow the hydraulic fluid to leak from the accumulator circuit of the booster assembly. The loss of fluid would cause increased steering and braking effort.

CORRECTION

Dealers are to inspect the hydraulic brake booster, and replace it if necessary.

VEHICLES INVOLVED

Involved are **certain** 2004-2005 Chevrolet Avalanche, Express, Kodiak, Silverado, Suburban; GMC Savana, Sierra, TopKick, Yukon XL; and HUMMER H2 vehicles built within these VIN breakpoints:

YEAR	DIVISION	MODEL	FROM	THROUGH
2004	Chevrolet	Avalanche	4G226638	4G339306
2005	Chevrolet	Avalanche	5G100021	5G130776
2004	Chevrolet	Express	41177387	41248485
2005	Chevrolet	Express	51100001	51133193
2004	Chevrolet	Kodiak	4F512865	4F523027
2005	Chevrolet	Kodiak	5F500328	5F505377
2004	Chevrolet	Silverado	4E261348	4E403759
			4F185416	4F269044
2005	Chevrolet	Silverado	5E100002	5E136477
			5F800001	5F832011
2004	Chevrolet	Suburban	4G222885	4G340904
			4R236166	4R319594
2005	Chevrolet	Suburban	5G100028	5G130879
			5R100032	5R140752
2004	GMC	Savana	41183558	41907085
2005	GMC	Savana	51100003	51133483
2004	GMC	Sierra	4E261360	4E403758
			4F187632	4F269047
2005	GMC	Sierra	5E100003	5E136470
			5F800011	5F832003
2004	GMC	TopKick	4F512634	4F520130
2005	GMC	TopKick	5F500356	5F502566
2004	GMC	Yukon XL	4G223117	4G329815
			4R237816	4R322692
2005	GMC	Yukon XL	5G100030	5G130965
			5R100003	5R140643
2004	HUMMER	H2	4H113129	4H122803
2005	HUMMER	H2	5H100001	5H112861

IMPORTANT: Dealers should confirm vehicle eligibility through **GMVIS** (GM Vehicle Inquiry System) prior to beginning recall repairs. [Not all vehicles within the above breakpoints may be involved.]

For US: For dealers with involved vehicles, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared and will be loaded to the GM DealerWorld, Recall Information website. Dealers that have no involved vehicles currently assigned, will not have a report available in GM DealerWorld.

For Canada: For dealers with involved vehicles, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared, and is being furnished to involved dealers. Dealers that have no involved vehicles currently assigned, will not receive a Campaign Initiation Detail Report.

For Export: For dealers with involved vehicles, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared, and is being furnished to involved dealers. Dealers that have no involved vehicles currently assigned, will not receive a report with the recall bulletin.

The Campaign Initiation Detail Report may contain customer names and addresses obtained from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any purpose other than follow-up necessary to complete this recall is a violation of law in several states/provinces/countries. Accordingly, you are urged to limit the use of this report to the follow-up necessary to complete this recall.

PARTS INFORMATION

A very small number of vehicles (less than 90 world-wide) will require the replacement of the hydraulic brake booster. Do not order boosters for shelf stock. When a replacement is required, order the appropriate booster from GMSPO. **All replaced boosters (excluding Export) must be returned to the Warranty Parts Center.** Hold the booster until you receive the request for return.

SPECIAL TOOL

Beginning February 18, 2005, each dealer will be shipped a Hydro-Boost Checking Tool, CH 47950, for use in this recall. This tool is being furnished at no charge. Additional tools, if required, may be purchased by contacting SPX Kent-Moore at 1-800-468-6657.

SERVICE PROCEDURE

Inspection

Tools Required

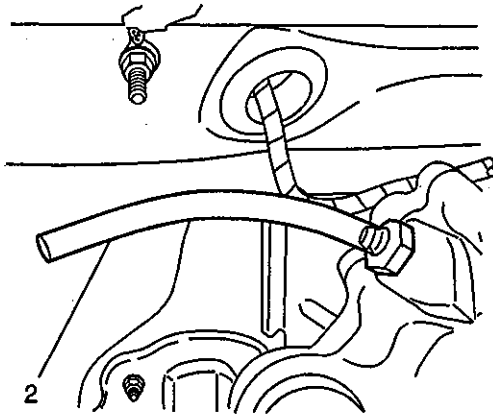
- CH 47950 Hydro-Boost Checking Tool

1. With the vehicle transmission in PARK or NEUTRAL, set the park brake.
2. With the engine OFF, make a minimum of five (5) high effort brake applies until the pedal feels hard.
3. Start the engine.

Important: DO NOT depress the brake pedal until instructed.

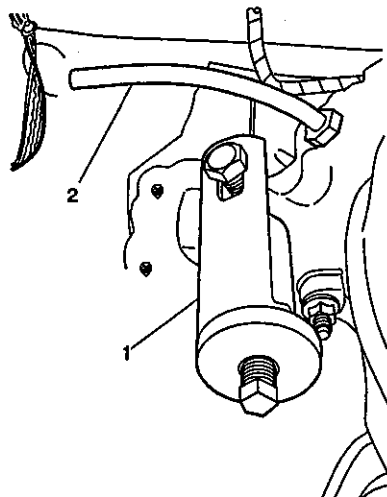
4. Turn the steering wheel to the "steering lock" (fully turned) position. Hold at the steering lock position for 1 to 2 seconds and then release the steering wheel. Repeat a total of 3 times.
5. Turn the vehicle off, being careful not to step on the brake pedal.
6. For Express/Savana only:
 - a. Remove the remote power steering reservoir mounting nuts.
 - b. Disconnect the reservoir outlet hose from the booster unit. Keeping the hose end higher than the reservoir, reposition the reservoir forward and down out of the way.
7. Using a clean, lint-free shop cloth, wipe any dirt away from the steering pump supply hose/tube connection area on the hydro-boost (this is the center hose/tube of the three).

8. Disconnect the power steering supply hose/tube from the hydro-boost unit and wrap a clean lint-free shop cloth around the end of the hose and secure it in the engine compartment.



1612883

9. Using a clean lint-free shop cloth, clean any dirt off of the inlet port adapter valve assembly. Install the adapter, CH 47950-2 into the booster supply port.
10. Before installing the adapter assembly, place a shop cloth below the booster supply port in order to capture any fluid exiting the hydro-boost unit.
11. Using a torque wrench, slowly tighten the inlet port adapter to 16 N·m (12 lb ft). If the clear tube was removed from the adapter assembly, be sure it is re-installed.
12. Before each use of the tube assembly fixture, CH 47950-1, be sure to grease the clamp bolt and anti-rotation washer with wheel bearing grease.



1612880

13. Install the tube assembly fixture, CH 47950-1, by sliding it over the accumulator and straddling the hydro-boost housing.
14. Confirm that the tube assembly fixture is squarely seated onto the booster housing and accumulator, and place the 3/4 inch containment bolt into the fixture. Install the nut hand-tight onto the containment bolt.

15. Check and make sure that the fixture washer is correctly positioned between the end of the accumulator, and that the pin is engaged in the end of the bolt. The tab on the washer should be rotated clockwise so it is located below the master cylinder mounting flange ear.

Caution: Incorrect installation of the washer will result in damage to the accumulator end.

16. Hand-tighten the tube fixture clamp bolt. Make sure the fixture is level and the tube is square to the end of the accumulator.
17. Place a shop cloth next to the opening of the inlet port adapter valve assembly in order to capture any fluid exiting the hydro-boost unit.

Important: Do not exceed 65 N·m (48 lb ft) torque.

Important: A torque wrench must be used to tighten the fixture clamp bolt.

18. Slowly tighten the fixture clamp bolt while monitoring the inlet port adapter tube for signs of power steering fluid.

Stop tightening of the bolt when either fluid is observed (below the maximum 65 N·m (48 lb ft) torque)

OR

The 65 N·m (48 lb ft) maximum bolt torque is achieved (with no fluid visible in the clear adapter tube).

- a. If fluid is seen coming out of the inlet port adapter valve up to 65 N·m (48 lb ft) maximum torque, the hydro-boost booster assembly is "OK". Proceed to Step 19.
 - b. If NO fluid is seen exiting from the inlet port adapter valve, complete Steps 19-27, and then repeat Steps 1-18.
 - c. If no fluid is visible from the second evaluation, replace the hydro-boost unit. Proceed to the appropriate procedure found in this bulletin.
19. Loosen the fixture clamp bolt, remove the fixture containment bolt, and remove the fixture. Remove the inlet port adapter valve assembly from the supply port of the booster. Wipe the excess power steering fluid off of the adapter with a clean, lint-free shop cloth. Store the adapter in a clean location, such as a plastic bag.
 20. Reinstall the supply hose/tube to the booster.

Tighten

Tighten to 28 N·m (21 lb ft).

21. Clean any spilled fluid from the outside of the booster.

22. For Express/Savana only:

- a. Connect the reservoir outlet hose to the booster unit. Keeping the hose end higher than reservoir, reposition the reservoir onto the mounting studs.
- b. Install the remote power steering reservoir mounting nuts.

Tighten

Tighten to 7 N·m (58 lb in).

23. Start the engine and run at idle. Depress the brake pedal 5 times. Turn the steering wheel to the "steering lock" position. Hold for 1-2 seconds. Check to see if there is any leakage from the ports/fittings.
24. Turn the engine off.
25. If leaks were observed, re-check that the fittings are at the recommended torque values. Repeat Steps 17 and 18.
26. Check the power steering reservoir fluid level, add fluid if necessary.
27. Close the hood.

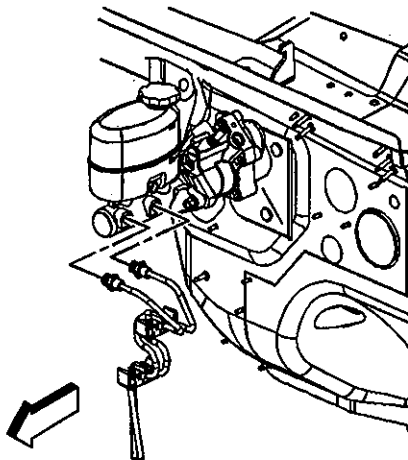
Hydro-Boost® Replacement – Avalanche, Express, Savana, Silverado, Sierra, Suburban, Yukon XL, H2

Removal

Tools Required

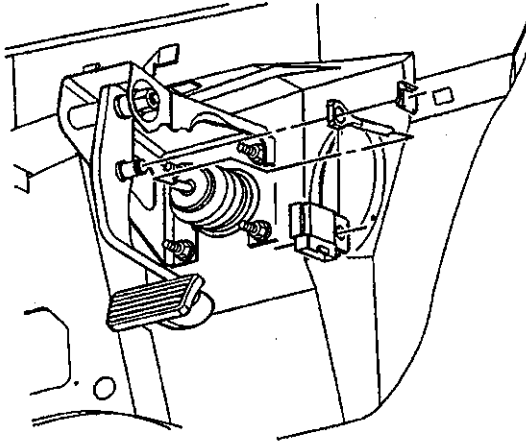
- J 35555 Metal Mityvac
- J 43485 Power Steering Bleeder Adapter

1. Apply the park brake and block the wheels.



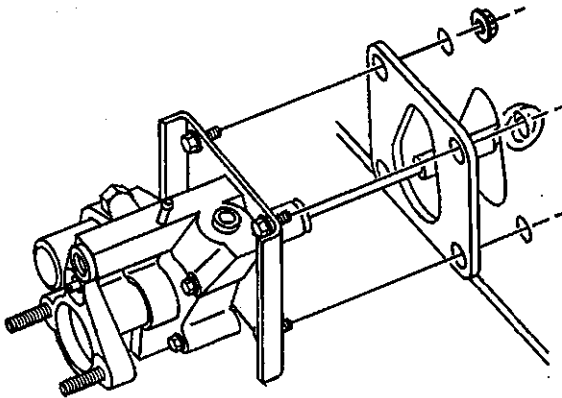
793135

2. Remove the master cylinder from the booster. Do not remove the pipes from the master cylinder. Set the master cylinder aside in the engine compartment.
3. Disconnect the power brake booster inlet hose, the steering gear inlet hose, and the power brake booster outlet hose from the booster assembly.



161509

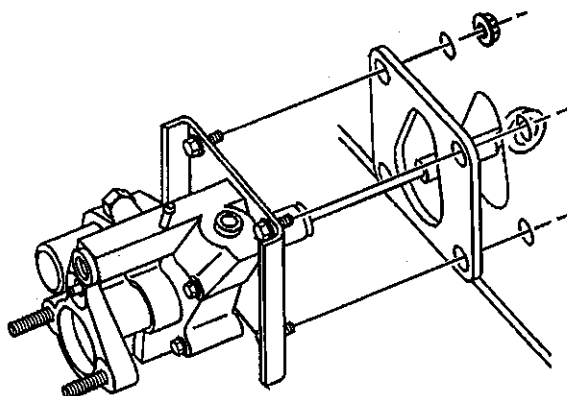
4. Disconnect the electrical connector from the stop lamp switch.
5. Remove the retainer from the brake pedal pin.
6. Remove the stop lamp switch and the pushrod to the power brake booster from the brake pedal pin.
7. Unsnap the stop lamp switch from the power brake booster pushrod.



361376

8. Remove the 4 booster to bulkhead nuts.
9. Remove the booster assembly.
10. Remove the gasket.

Installation

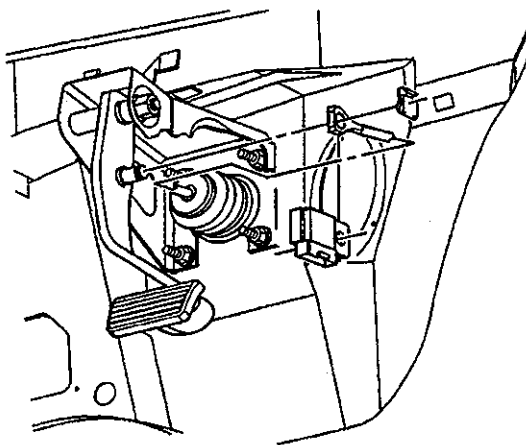


361376

1. Install the gasket.
2. Install the booster assembly.
3. Install the 4 booster to bulkhead nuts.

Tighten

Tighten the nuts to 36 N·m (26 lb ft).



161509

4. Snap the stop lamp switch onto the pushrod to the power brake booster.
5. Install the stop lamp switch with the pushrod on the brake pedal pin.
6. Install the brake switch retainer.
7. Connect the electrical connector to the stop lamp switch.
8. Install the master cylinder to the booster.
9. Install the master cylinder mounting nuts.

Tighten

Tighten the nuts to 36 N·m (27 lb ft).

10. Connect the power brake booster outlet hose, the steering gear inlet hose, and the power brake booster inlet hose.

Tighten

Tighten the power brake booster inlet hose to 28 N·m (20 lb ft).

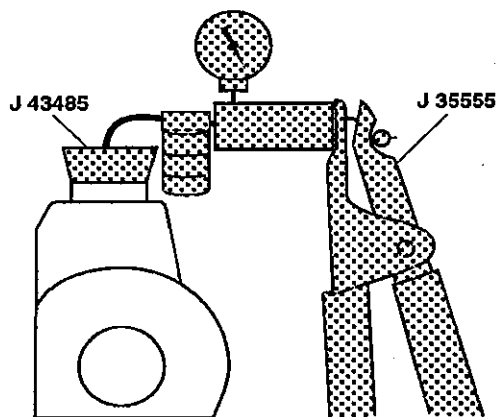
Tighten the steering gear inlet hose to 28 N·m (20 lb ft).

Important: Maintain the fluid level throughout the bleed procedure.

11. Remove the pump reservoir cap.

Important: Use clean, new power steering fluid only.

12. Fill the pump reservoir with fluid to the FULL COLD level.



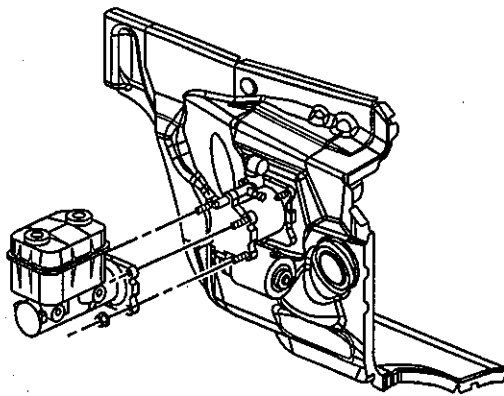
443646

13. Attach J 43485, Power Steering Bleeder Adapter, to J 35555, Metal Mityvac, or equivalent.
14. Place J 43485 on or in the pump reservoir filler neck.
15. Apply a vacuum of 68 kPa (20 in Hg) maximum.
16. Wait 1 minute.
17. Remove J43485 and J 35555.
18. Reinstall the pump reservoir cap.
19. Start the engine. Allow the engine to idle.
20. Turn the steering wheel 180-360 degrees in both directions 5 times.
21. Switch the ignition off.
22. Verify the fluid level.
23. Release the park brake and unblock the wheels.

Hydro-Boost® Replacement – Kodiak, TopKick**Removal****Tools Required**

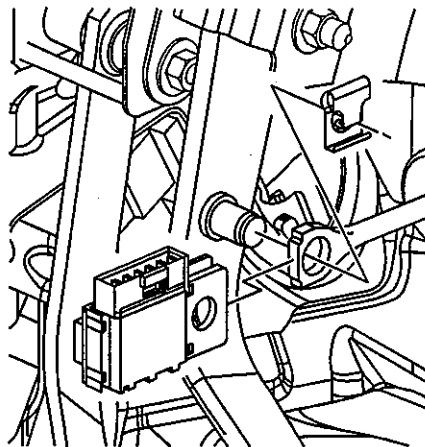
- J 35555 Metal Mityvac
- J 43485 Power Steering Bleeder Adapter

1. Block the wheels.
2. Disconnect the electrical connectors from the electrohydraulic pump and the flow switch.



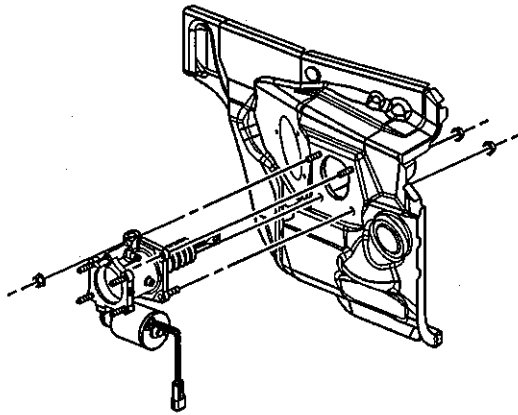
1507017

3. Remove the master cylinder nuts. Do not remove the pipes from the master cylinder. Position the master cylinder away from the booster head. Secure the master cylinder in an upright position.
4. Disconnect the power brake booster inlet hose, the steering gear inlet hose, and the power brake booster outlet hose from the booster assembly.



1507019

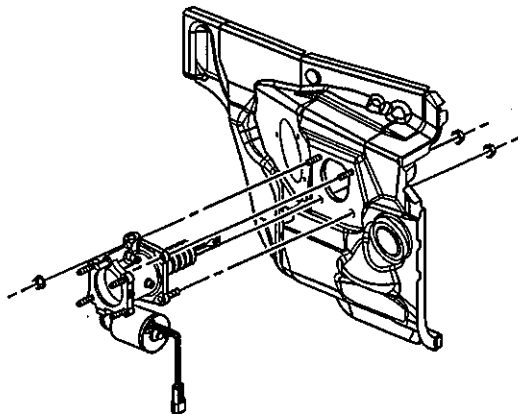
5. Remove the booster pump rod retainer from the lever.
6. Remove the stop lamp switch from the lever.
7. Remove the booster pump rod from the lever.



1507018

8. Remove the nuts at the booster.
9. Remove the booster assembly.

Installation

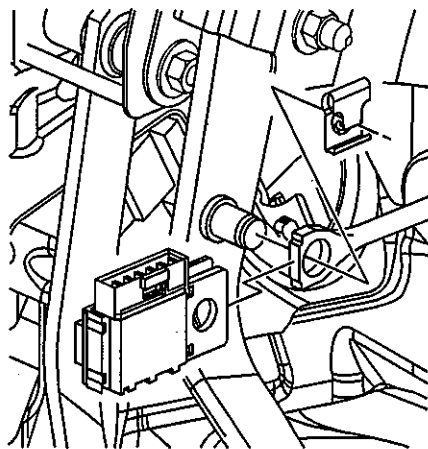


1507018

1. Install the booster assembly to the vehicle.
2. Install the nuts at the booster.

Tighten

Tighten the nuts to 50 N·m (37 lb ft).



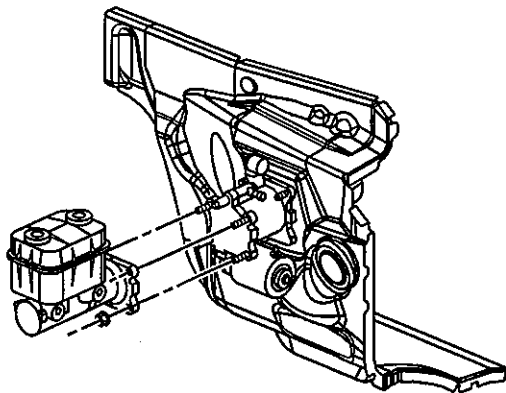
1507019

3. Install the booster pump rod to the lever.
4. Install the stop lamp switch to the lever.
5. Install the booster pump rod retainer.
6. Connect the power brake booster outlet hose, the steering gear inlet hose, and the power brake booster inlet hose.

Tighten

Tighten the power brake booster inlet hose to 28 N·m (20 lb ft).

Tighten the steering gear inlet hose to 28 (20 lb ft).



1507017

7. Install the master cylinder.
8. Install the mounting nuts.

Tighten

Tighten the mounting bolts to 50 N·m (37 lb ft).

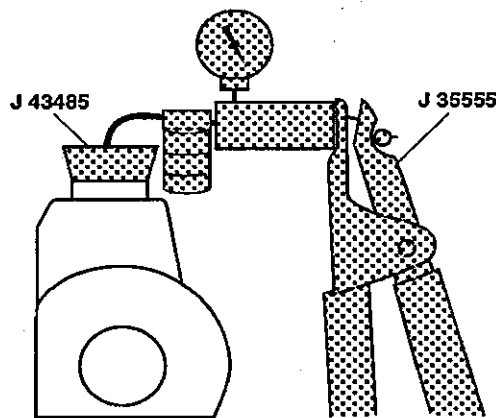
9. Install the electrical connectors to the electrohydraulic pump and the flow switch.
10. Fill the hydraulic pump reservoir.

Important: Maintain the fluid level throughout the bleed procedure.

11. Remove the pump reservoir cap.

Important: Use clean, new power steering fluid only.

12. Fill the pump reservoir with fluid to the FULL COLD level.



443646

13. Attach J43485, Power Steering Bleeder Adapter, to J35555, Metal Mityvac, or equivalent.
14. Place J 43485 on or in the pump reservoir filler neck.
15. Apply a vacuum of 68 kPa (20 in Hg) maximum.
16. Wait 1 minute.
17. Remove J43485 and J 35555.
18. Reinstall the pump reservoir cap.
19. Start the engine. Allow the engine to idle.
20. Turn the steering wheel 180-360 degrees in both directions 5 times.
21. Switch the ignition off.
22. Verify the fluid level.
23. Release the park brake and unblock the wheels.

COURTESY TRANSPORTATION

The General Motors Courtesy Transportation Program is intended to minimize customer inconvenience when a vehicle requires a repair that is covered by the New Vehicle Limited Warranty. The availability of courtesy transportation to customers whose vehicles are within the warranty coverage period and involved in a product recall is very important in maintaining customer satisfaction. Dealers are to ensure that these customers understand that shuttle service or some other form of courtesy transportation is available and will be provided at no charge. Dealers should refer to the General Motors Service Policies and Procedures Manual for courtesy transportation guidelines.

CLAIM INFORMATION

Submit a Product Recall Claim with the information indicated below:

REPAIR PERFORMED	PART COUNT	PART NO.	PARTS ALLOW	CC-FC	LABOR OP	LABOR HOURS	NET ITEM
Inspect Hydro-Boost® - No Further Action Required	N/A	N/A	N/A	MA-96	V----		**
• Avalanche, Silverado, Sierra, Suburban, Yukon XL, H2, Kodiak, TopKick						0.3	
• Express, Savana						0.4	
Add: Repeat Inspection						0.2	
Inspect & Replace Hydro-Boost®	1	---	*	MA-96	V----		***
• Avalanche, Silverado, Sierra, Suburban, Yukon XL, H2						1.3	
• Express, Savana						1.4	
• Kodiak, TopKick						1.5	
Courtesy Transportation	N/A	N/A	N/A	MA-96	****	N/A	*****

- * The "Parts Allowance" should be the sum total of the current GMSPO Dealer net price plus applicable Mark-Up or Landed Cost Mark-Up (for Export) for the hydraulic brake booster needed to complete the repair.
- ** The amount identified in the "Net Item" column should represent the sum total of the current GMSPO Dealer net price plus applicable Mark-Up or Landed Cost Mark-Up (for Export) for the power steering fluid needed to perform the required repairs, if needed, not to exceed 118 ml (4 oz).
- *** The amount identified in the "Net Item" column should represent the sum total of the current GMSPO Dealer net price plus applicable Mark-Up or Landed Cost Mark-Up (for Export) for power steering fluid needed to perform the required repairs, not to exceed 355 ml (12 oz).
- **** Submit courtesy transportation using normal labor operations for courtesy transportation as indicated in the GM Service Policies and Procedures Manual.
- ***** The amount identified in the "Net Item" column should represent the actual dollar amount for courtesy transportation.

Refer to the General Motors WINS Claims Processing Manual for details on Product Recall Claim Submission.

CUSTOMER NOTIFICATION – For US and CANADA

General Motors will notify customers of this recall on their vehicle (see copy of customer letter included with this bulletin).

CUSTOMER NOTIFICATION – For Export

Letters will be sent to known owners of record located within areas covered by the US National Traffic and Motor Vehicle Safety Act. For owners outside these areas, dealers should notify customers using the attached sample letter.

DEALER RECALL RESPONSIBILITY – For US and Export (US States, Territories, and Possessions)

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle that is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

DEALER RECALL RESPONSIBILITY - ALL

All unsold new vehicles in dealers' possession and subject to this recall must be held and inspected/repaired per the service procedure of this recall bulletin before customers take possession of these vehicles.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. A copy of the customer letter is provided in this bulletin for your use in contacting customers. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory, or is in your dealership for service in the future, you must take the steps necessary to be sure the recall correction has been made before selling or releasing the vehicle.

<Month Of Mailing>, 200#

Dear General Motors Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Reason For This Recall: General Motors has decided that a defect which relates to motor vehicle safety exists in certain 2004-2005 Chevrolet Avalanche, Express, Kodiak, Silverado, Suburban; GMC Savana, Sierra, TopKick, Yukon XL; and HUMMER H2 vehicles. On some of these vehicles, the hydraulic brake booster's pressure accumulator may crack and/or separate from the Hydro-Boost® assembly during normal vehicle operating conditions. If a separation occurred and the hood of the vehicle were open, fragments from the accumulator could cause injury to people in the immediate area. In addition, the presence of this crack or fractured surface could allow the hydraulic fluid to leak from the accumulator circuit of the booster assembly. The loss of fluid would cause increased steering and braking effort.

What Will Be Done: Your GM dealer will inspect the hydraulic brake booster, and replace it if necessary. This service will be performed for you at **no charge**.

How Long Will The Repair Take? This inspection will take approximately 20-40 minutes. If the hydraulic brake booster requires replacement, an additional 1 hour will be required. However, due to service scheduling requirements, your dealer may need your vehicle for a longer period of time.

Contacting Your Dealer: To limit any possible inconvenience, we recommend that you contact your dealer as soon as possible to schedule an appointment for this repair. By scheduling an appointment, your dealer can ensure that the necessary parts will be available on your scheduled appointment date. Should your dealer be unable to schedule a service date within a reasonable time, you should contact the appropriate Customer Assistance Center at the listed number below. The Customer Assistance Center's hours of operation are from 8:00 AM to 11:00 PM, EST, Monday through Friday.

Division	Number	Text Telephones (TTY)
Chevrolet	1-800-630-2438	1-800-833-2438
GMC	1-866-996-9463	1-800-462-8583
Hummer	1-866-964-8663	
Puerto Rico – English	1-800-496-9992	
Puerto Rico – Español	1-800-496-9993	
Virgin Islands	1-800-496-9994	
Guam	1-671-648-8650	

If, after contacting the appropriate Customer Assistance Center, you are still not satisfied that we have done our best to remedy this condition without charge and within a reasonable time, you may wish to write the Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590 or call 1-888-327-4236.

Customer Reply Form: The enclosed customer reply form identifies your vehicle. Presentation of this form to your dealer will assist in making the necessary correction in the shortest possible time. If you no longer own this vehicle, please let us know by completing the form and mailing it back to us.

Courtesy Transportation: If your vehicle is within the New Vehicle Limited Warranty your dealer may provide you with shuttle service or some other form of courtesy transportation while your vehicle is at the dealership for this repair. Please refer to your Owner's Manual and your dealer for details on Courtesy Transportation.

Owner Center Online: This free online service offers vehicle and ownership related information and tools tailored to your specific vehicle. To get the most personalized information for your vehicle, visit www.mygmink.com, and enter your vehicle's 17-character vehicle identification number (VIN) shown on the enclosed customer reply form.

Federal regulation requires that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten days.

We are sorry to cause you this inconvenience; however, we have taken this action in the interest of your safety and continued satisfaction with our products.

General Motors Corporation

Enclosure
05006