



SAFETY RECALL

(Previously called Vehicle Recall)

SC320

(Not applicable to Mack Trucks Australia)

Date: 06/15/07 (Supersedes SC320 dated 06/01/07)

To: All MACK Dealers

Subject: Brake System Non-Compliance — CT and CTP Models Equipped with Haulmaax® HMX460 Rear Suspension

It has been determined that the brake system on certain CT and CTP model chassis equipped with the Haulmaax® HMX460 rear suspension are not in compliance with Federal Motor Vehicle Safety Standards (FMVSS) 121 and Canada Motor Vehicle Safety Standards (CMVSS) 121, Air Brake Systems. These vehicles do not meet the minimum required stopping distance as specified by the regulations. To correct this condition on these vehicles, the ABS sensors and the wheel hubs having the ABS tone ring on the rear-rear axle must be relocated to the front-rear axle. Approximately 31 CT and CTP models manufactured between January 3, 2005 and April 2, 2007 are involved in this campaign. A list of affected chassis has been sent to all applicable dealers.

Procedures:

On all affected vehicles, the ABS sensors located on the rear-rear axle must be relocated to the front-rear axle. Along with relocation of the ABS sensors, the wheel hubs on the rear-rear axle (which have the ABS tone wheel) must be moved to the front-rear axle, and the hubs on the front-rear axle (without the ABS tone wheels) must be moved to the rear-rear axle. Before proceeding, determine Safety Recall eligibility by:

- a. Checking Safety Recall status in eWarranty.
- b. Checking the campaign completion label located on the lower edge of the passenger-side door. If the campaign has been completed, SC320 should be written on the label. Campaign eligibility can also be verified by noting the location of the ABS sensor on the rear axles.

Procedures for relocating the ABS sensors are as follows:

NOTE

Before beginning these procedures, check for ABS sensor faults. If sensor faults are present, replacement of the sensor will be required.

1. Secure the chassis for service and block the front wheels to prevent the vehicle from moving.
2. Back off the slack adjusters at all four rear wheels (refer to the *Air and Brake System Service Manual*, 16-104, for information on backing off the slack adjusters).

3. Raise the rear of the chassis so that all four rear wheels are off the ground, then support the chassis on jackstands of adequate capacity to support the weight of the vehicle.

 DANGER

Never work on or around a vehicle that is supported only by a hydraulic jack, as the jack could fail unexpectedly and cause serious personal injury or death.

4. Using a suitable wheel dolly, remove the tire and rim assemblies from both sides of the vehicle on the front-rear and rear-rear axles. Mark the tire and rim assemblies so they will be reinstalled at the same locations at reassembly.
5. Remove all four brake drums. Mark the drums so they will be reinstalled at the same locations at reassembly.
6. Remove the hub assemblies from all four wheel ends.

NOTE

For information on removing the hub assemblies, refer to the *Wheel Bearings Service Manual*, 15-701.

7. Mark the right-hand and left-hand top and bottom brake shoes at all four wheel ends so that they will be reinstalled in the same positions at reassembly. Remove the brake shoe assemblies from all four wheel ends.

NOTE

For information on removing brake shoes, refer to the *Air and Brake System Service Manual*, 16-104, or the applicable brake vendor service literature.

8. Trace the ABS sensor wire from the rear-rear axle brake assembly up to the frame rail. The cable assembly is approximately six feet long. Unplug the sensor cables from the chassis harness connectors on both sides of the chassis.
9. Remove any clamps or tie wraps that secure the sensor cables to the chassis.
10. Remove the ABS sensor from the sensor mounting block on both sides of the chassis and carefully pull the sensor harness through the hole in the brake spider.

NOTE

The sensor mounting block is welded to the rear axle. **DO NOT** remove the block.

11. The ABS sensor will be relocated to the front-rear axle. It will be necessary to install bolt-on sensor mounting brackets (part No. 11MN41 for chassis WITHOUT Central Tire Inflation [CTI], or part No. 11MN43M for chassis WITH CTI). The mounting brackets must be installed at the following positions on the front-rear axle:

- Right-hand side — 10:30 position
- Left-hand side — 1:30 position

NOTE

The sensor bracket must be oriented as shown in the following illustration. For CTI-equipped chassis, the sensor bracket must be installed with the shape of the bracket following the circumference of the brake spider. On non-CTI chassis, the sensor bracket must be installed with the shape of the bracket opposite the circumference of the brake spider.

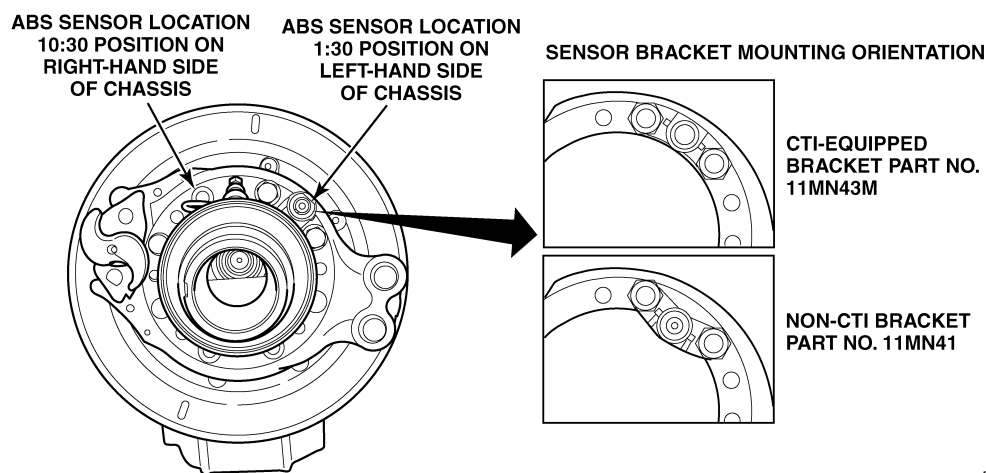


Figure 1 — Relocation of ABS Sensor

Install the ABS sensor as follows:

- Remove and discard the brake spider mounting hardware located on each side of the ABS sensor pass-through hole.
- Lubricate the rubber grommet (part No. 6MO2122) with spray silicone, and then push and seat the grommet into the pass-through hole in the brake spider.

- REV** c. Install the sensor mounting bracket (part No. 11MN41 for chassis WITHOUT Central Tire Inflation [CTI], or part No. 11MN43M for chassis WITH CTI) to the brake spider using new bolts (part No. 3AX1846), washers (part No. 35AX1466PL) and nuts (part No. 21AX834). Tighten the fasteners to 346 N•m (255 lb-ft).

NOTE

- REV** For CTI-equipped chassis, spacers (part No. 35AX1364, item 4 in the illustration below) must be installed between the sensor mounting bracket and the brake spider. Spacers are NOT used on chassis without CTI.

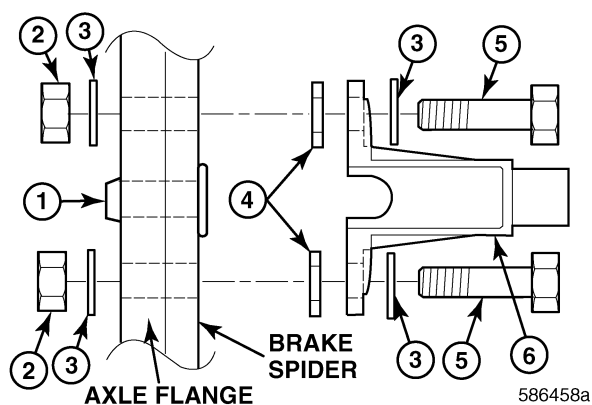


Figure 2 — Installing Sensor Bracket

Key	Qty.*	Part No.	Description
1	1	6MO2122	Grommet, ABS sensor wire
2	2	21AX834	Nuts
3	4	35AX1466PL	Flat washers
4	2	35AX1364	Spacers (for CTI-equipped chassis only)
5	2	3AX1846	Bolts
6	1	11MN41	Bracket, ABS sensor mounting, chassis WITHOUT CTI
	1	11MN43M	Bracket, ABS sensor mounting, chassis WITH CTI

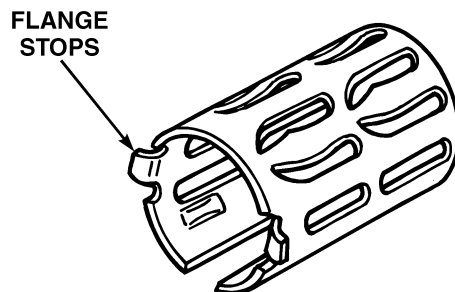
* Quantity per side of vehicle

- d. Feed the sensor harness through the pass-through hole in the brake spider and axle flange.

NOTE

If ABS sensor faults were logged, or the sensor is damaged in any way, replace with a new sensor (part No. 745-801542 for Bendix ABS system, or part No. 8235-R955349 for Meritor WABCO ABS system).

- e. Apply never-seize compound to a new ABS sensor retainer spring (part No. 745-801534 for Bendix ABS system, or 8235-S8997605104 for Meritor WABCO ABS system). With the flange stops on the sensor retainer spring facing the inboard side of the chassis, insert the spring into the sensor mounting bracket until it stops.



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Figure 3 — Sensor Mounting Retainer Spring Flange Stops

- f. Insert the ABS sensor into the retainer spring, and push in completely until contacting the tone wheel.
- g. Route the sensor harness upward and across the top of the brake cam tube, then use tie wraps (part No. 48RU2313) to secure the harness to the brake hoses as required.
- h. Route the sensor harness under the frame rail and reconnect to the chassis harness connector.

NOTE

Make sure that the sensor harness is routed and secured in such a manner so that it does not interfere with movement of the slack adjuster, will not be pinched or chafe against any sharp edges and will allow sufficient movement for suspension travel. For proper routing, use tie wraps to secure the sensor harness to the brake chamber air hose.

- i. Repeat steps “a” through “h” for the opposite side of the chassis.
- 12. Reinstall the brake shoe assemblies in the same locations from which they were removed.
 - 13. Remove the wheel seals and the bearing cones from the hubs.
 - 14. Clean and inspect the inner and outer wheel bearing cups and cones. Replace wheel bearings that show any signs of wear or damage.

NOTE

If bearings are replaced, both the bearing cup and cone must be replaced as a set. Never install a new cone with a used cup, or a used cone with a new cup.

15. Thoroughly clean the hub cavity.

NOTE

If new bearings are installed, thoroughly clean the hub cavity after installing the new cups to ensure that all metal chips, debris, etc., are removed from the cavity.

16. Coat the inner wheel bearing cone with approved gear lubricant, then position into the inner bearing cup.
17. Apply a thin coating of silicone sealer (MACK part No. 342SX33) to the outside diameter of a new wheel seal. Using the correct wheel seal installation tool and a hammer, squarely drive the wheel seal into the hub bore until the seal has bottomed in the hub.
18. Lightly oil the axle spindles and seal flange.
19. Install the hub assemblies originally used at the rear-rear axle (hub with the ABS tone ring) onto the front-rear axle, and the hub assemblies originally used on the front-rear axle (hub without the ABS tone ring) onto the rear-rear axle.

NOTE

Failure to install the hub with the ABS tone wheel on the correct axle will result in an inoperative ABS system and logged ABS faults.

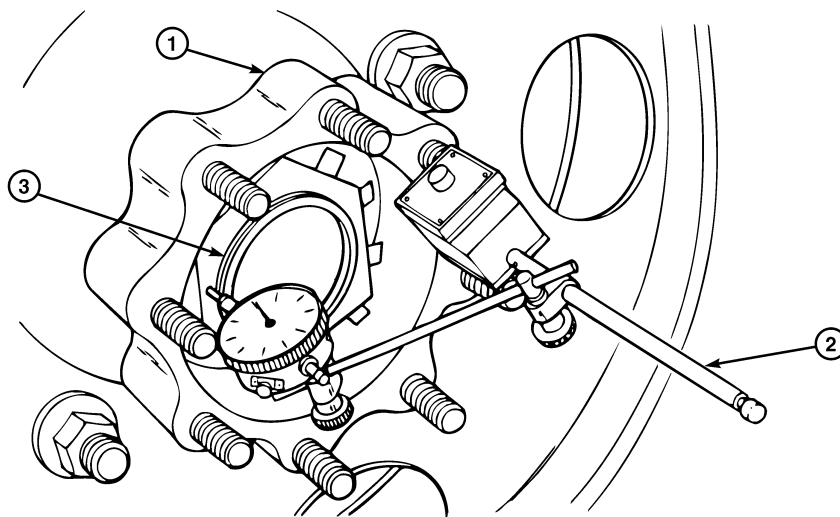
Installation procedures are as follows:

- a. Carefully slide the hub assembly onto the axle spindle until the wheel seal just contacts the outside edge of the seal flange.

NOTE

Do not push the seal over the seal flange at this time. The wheel seal will be drawn over the flange when the outer bearing cone and adjusting nut are installed and tightened.

- b. Coat the outer wheel bearing cone with approved gear lubricant. Slide the bearing cone onto the axle spindle until squarely contacting the outer wheel bearing cup.
- c. Install the wheel bearing adjusting nut and washer. Using a proper size socket, tighten the adjusting nut until the hub assembly bottoms on the spindle. As the bearing adjusting nut is tightened, the wheel seal is drawn over the seal flange.
- d. While rotating the hub, tighten the bearing adjusting nut to 475 N•m (350 lb-ft). As the proper torque is reached, resistance should be felt as the hub is being rotated, as all bearing surfaces are in contact.
- e. Back off the bearing adjusting nut 1/6 to 1/3 turn, then rotate the hub one complete revolution. The hub should now rotate freely, without drag or binding.
- f. Using a dial indicator installed as shown in the illustration below, check wheel bearing end play. Adjust bearing end play to approximately 0.203–0.254 mm (0.008"–0.010").



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Figure 4 — Wheel Bearing End Play Adjustment

- g. After wheel bearing end play has been properly set, install the locking washer and the outer locknut. Tighten the outer nut to 407–542 N•m (300–400 lb-ft).

NOTE

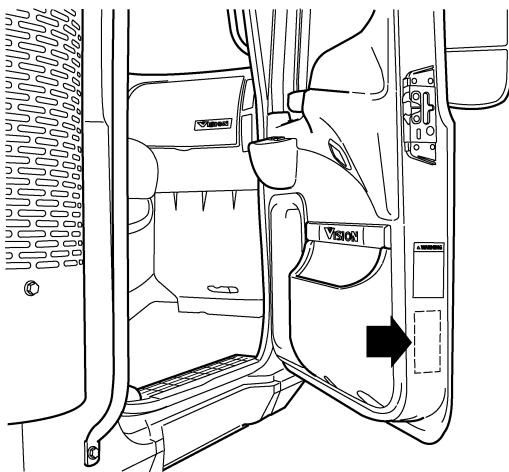
Recheck wheel bearing end play after the outer wheel bearing locknut has been tightened to specifications. Final end play should be 0.025–0.127 mm (0.001"–0.005"). When checking end play, the tire, wheel/rim and hub assembly must be pushed and pulled straight in and straight out. Do not rock or rotate the hub assembly, as an incorrect end play reading will result.

- h. After end play has been properly set and verified, bend the locking washer over one of the flats on the jam nut.
20. Reinstall the brake drums on the same wheel ends from where they were removed.
21. Using a suitable wheel dolly, reinstall the rim and tire assemblies in the same locations from where they were originally removed. Tighten the wheel nuts to specifications. Refer to the *Maintenance and Lubrication Manual*, TS494, for proper wheel torquing procedures and torque specifications.

22. Clean the axle shaft drive flanges.
23. Apply silicone sealant (MACK part No. 342SX33) or install the axle drive flange gaskets (refer to MACKnet parts for gasket part number) as required, and then install the axle shafts. Tighten the flange nuts to 160 N•m (118 lb-ft).
24. Adjust the brakes at both the front-rear and rear-rear axles (refer to the *Air and Brake System Service Manual*, 16-104, for brake adjustment procedures).
25. Lower the rear of the chassis to the floor.
26. Check the oil level in both the front-rear and rear-rear axles and add approved gear lubricant if necessary.
27. To ensure that gear oil from the carrier reaches both hub assemblies, raise one side of the chassis, then the opposite side, eight inches for approximately three minutes per side, then lower the chassis to the floor.
28. Recheck the oil level in both the front-rear and rear-rear axles and add approved gear lubricant if necessary.
29. Using the proper ABS diagnostic tool, clear any fault codes that may be logged into the ABS ECU memory.
30. Operate the vehicle and ABS indicator lamp turns does not illuminate.

NOTE

To signify that the campaign has been completed, use a permanent-type marker (such as a Sharpie®) to write the campaign number (SC320) and completion date in the spaces provided on the Campaign Completion label located on the lower edge (below the door latch) of the passenger-side door. If a label is not already affixed to the door, apply a label (part No. TS897) and supply the information as required. Campaign Completion labels are available in packs of 50 and can be ordered by faxing a completed BR313 to Pacesetters Business Services at 610-264-9465.



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Figure 5 — Campaign Label Location

Parts Required:

Order vehicle Safety Recall parts on a separate stock order and process through the parts distribution center normally serving your area. Do not include parts on this requisition that are not required for this safety campaign.

International orders are to be prefixed — V.O.R.



Qty.	Part No.	Description
2	11MN41	Mounting bracket, ABS sensor, chassis without Central Tire Inflation (CTI)
	11MN43M	Mounting bracket, ABS sensor, chassis with CTI
4	3AX1846	Bolts
4	21AX834	Nuts
8	35AX1466PL	Washer
4	35AX1364	Spacer (for CTI-equipped chassis only)
2	6MO2122	Grommet, ABS sensor harness
2	745-801534	Retainer spring, ABS sensor, Bendix ABS system
	8235-S8997605104	Retainer spring, ABS sensor, Meritor WABCO ABS system
*	48RU2313	Tie wraps

* Quantity as required

In addition to the parts listed above, the following parts may also be required:

Part No.	Description
745-801542	ABS sensor, Bendix ABS system (required only if existing sensor is defective)
8235-R955349	ABS sensor, Meritor WABCO ABS system (required only if existing sensor is defective)

For wheel seals and other parts that may be required, refer to the MACKnet Parts System.

Reimbursement:

Campaign expenses are to be recovered through normal warranty claim procedures. Enter the following information on the warranty claim:

UNDER**ENTER**

Failed Part (Causal Part) SC0320

eWarranty Authorization No..... SC0320

Labor Code/Allowance 539 2A 00 95 — 0.2 hr.

Time allowed to take charge of vehicle and determine campaign eligibility.

539 2B 00 95 — 10.0 hrs.

Time allowed to relocate ABS wheel speed sensor from rear-rear axle to front-real axle and move wheel hubs between front-rear and rear-rear axles on CT and CTP model chassis involved in this campaign. Does not include “take-charge” time.

NOTE

As required by Federal Motor Vehicle Safety Standards 49 CFR 573.11, no vehicle subject to an open safety campaign shall be delivered to the customer until such time as the defect or noncompliance is remedied.