



(Does not apply to Mack Trucks Australia)

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Axle Beam Replacement

FAW

SC0361, Axle Beam Replacement

(July 2012)

Mack Trucks, Inc. has decided that a defect, which relates to motor vehicle safety, exists in certain LE and MR model vehicles manufactured from February 1, 2002 through December 22, 2004. The issue is related to a manufacturing defect, which may affect the performance of the axle beam when used in certain applications. This may result in a fatigue crack, which over time may result in the complete fracture of the axle beam.

The recall will involve replacement of the axle beam for those vehicles used in the applications at risk.

NOTE

At time of scheduling the vehicle, contact 1-877-800-4945, Option 2, to place order for required parts. Calling is required to initiate recall. Certain parts are VIN specific.

Required Tools: 9992573, 9996201 or suitable alternate tooling

Required Parts:

Part Number	Part	Quantity
21895896	Axle Beam	1
TBA (U-bolt part number to be determined when placing order)	U-bolts	4
*25091922	Bolt - Brake Spider	4
*25084956	Bolt - Brake Spider	8
*25089373	Nut - Brake Spider	12
301SQ52A	King Pin Set	1
*25088023	Washer, U-bolt	8
*25098611	Nut, U-bolt	8
*7843-3303009	Gasket, Hub Cap	2
*7843-3830164	VOY Wheel Seal	2
43RU1754	Screw, Adjustment	2

* Included in Kit 85135159

NOTE

All additional parts are subject to normal warranty guidelines. Worn parts are the responsibility of the customer. Parts damaged during removal, e.g. drag links, tie-rod ends, etc. may be put on claims but are subject to review. Should additional parts be required that are not available in dealer inventory, please contact 1-877-800-4945 and select "Option 2" for ordering, or place order using model and last six digits of VIN as P.O. Number. Receiving additional parts does not constitute approval for warranty purposes.

Repair Procedure:

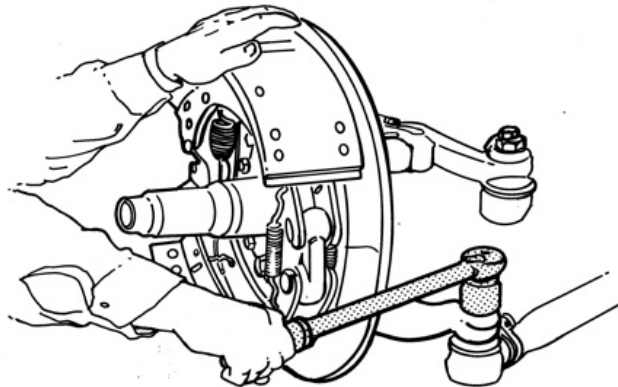
NOTE

Axle must be stored in a clean dry location. Avoid damage to packaging and use care in moving and lifting the axle. Damage to the axle and machined surfaces can occur. Damaged axles cannot be used.

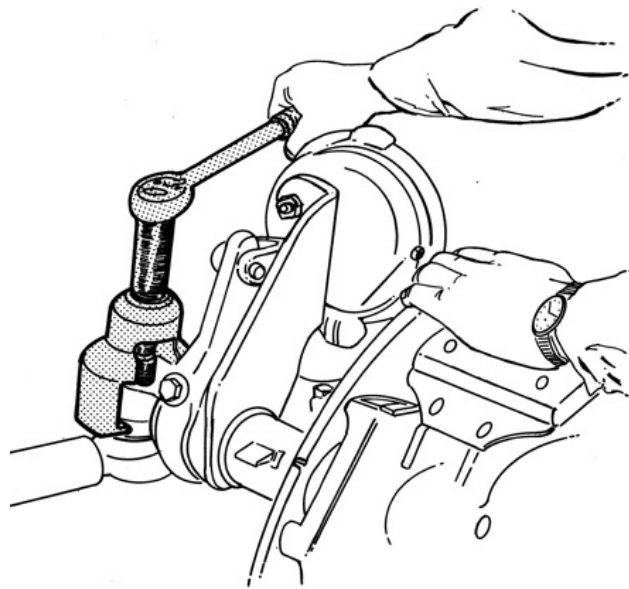
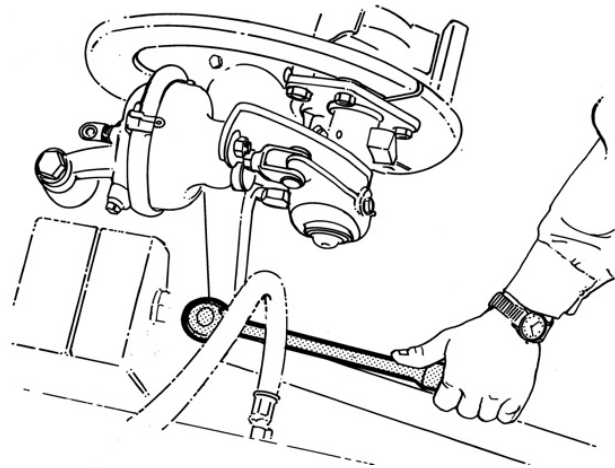
NOTE

Inspect vehicle and determine if vehicle falls within specified guidelines for axle replacement.

1. Chock the vehicle and set parking brakes to prevent vehicle from moving.
2. Raise cab.
3. Raise up the front axle and place the vehicle on frame stands which will allow the axle to hang freely.
4. Remove wheels, tires and hub as an assembly from the steer axle.



5. Remove tie rod from axle ends, using Tool 9992573 (or suitable alternate tool).

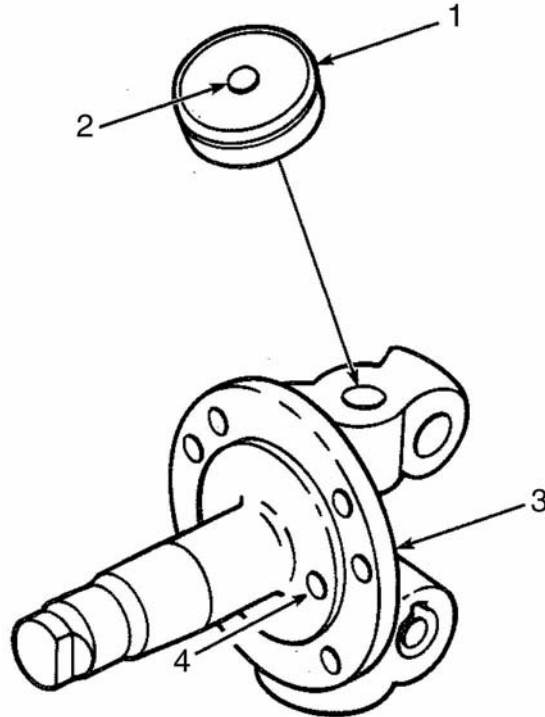


6. Remove drag link from steering knuckle, using Tool 9996201 (or suitable alternate tool).
7. Remove or disconnect the ABS sensor from the steering knuckle or connector.

8. Disconnect brake hose.

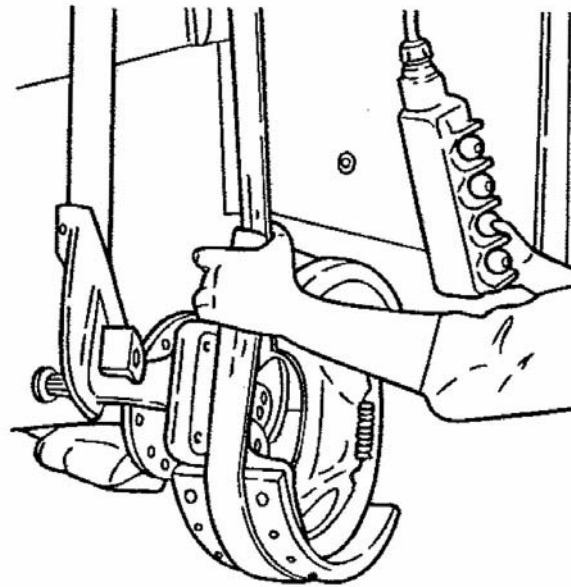
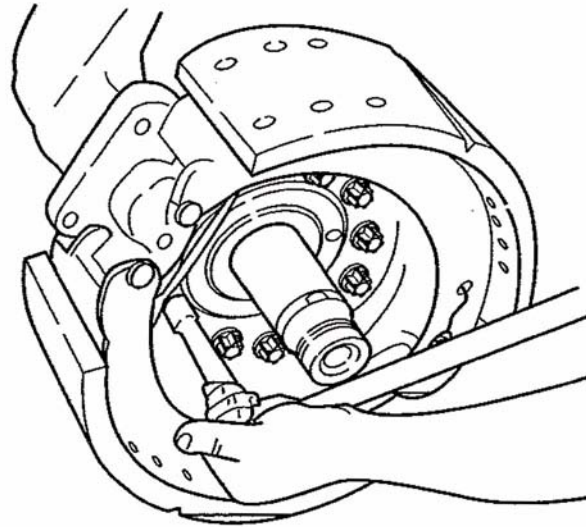
NOTE

Some axles may use an expansion plug seat that is staked in place. These expansion plugs should be replaced with a press fit seal plug.



1. Seal plug
2. Removal (Jackscrew) Hole
3. Steering Knuckle
4. ABS Sensor Insertion Hole

9. Remove the brake shoes from both sides.



10. Remove brake spider, backing plates, and brake cams along with the brake chambers.

NOTE

Remove as an assembly to simplify re-installation onto new axle.

11. Remove the Allen plug from the jackscrew hole located in the center of the seal plug. Then install a 7/16"-20 grade 5 bolt into the threaded hole until it contacts the top of the kingpin. Slowly tighten the bolt to push the plug from the kingpin upper bore.
12. Remove the center cotter pin which retains the thrust bearing adjusting screw. Remove the adjusting screw using tool J44004 (or suitable alternate tool), being careful when removing the screw, as the thrust bearing will be on top of the adjusting screw.

13. Drive the kingpin out through the bottom of the knuckle by using a brass drift and driving on the top of pin until the tapered kingpin falls free. Lift the knuckle off the axle.

 CAUTION

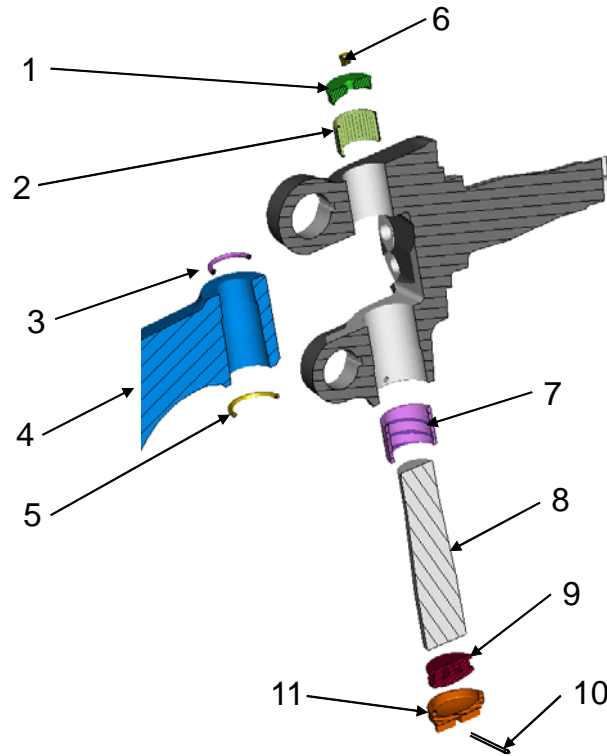
Steering knuckles built with the staked expansion plug have four stake marks located on the top of the steering knuckle 90 degrees apart to assist in retaining the expansion plug. These stake marks must be removed prior to installation of the press fit seal plug.

14. Disassemble left and right side knuckles. Keep parts together for reassembly.
15. Support the axle beam with jacks on either side, or secure to transmission jack at center of beam.
16. Remove all the u-bolts from the steer axle and spring assemblies. Remove the axle from the vehicle (destroy by cutting in half and dispose of locally) and discard the old u-bolts.

NOTE

Verify part number of new axle beam (Part #: 21895896; Forging # 21893794).

17. Install the new axle beam into correct position on vehicle. Secure with new u-bolts. Torque to 542-610 Nm (400-450 ft-lb).



1. Plug
2. Bearing
3. Upper Seal
4. Axle Beam
5. Lower Seal
6. Plug
7. Bushing
8. Kingpin
9. Bearing
10. Cotter Pin
11. Adjusting Screw

NOTE

Lubricate king pin before and after installation.

18. Check spindle portion of knuckle for wear caused by wheel bearings. Replace if necessary.
19. Inspect brake hose and replace if necessary.
20. If knuckle spindle or brake hose are worn or damaged they should be replaced as required. However, it should be noted that parts are not covered under this recall.
21. Clean the knuckle thoroughly. Be sure that the lubrication holes are open.
22. Press the lower bushing from the knuckle.
23. Install new presized bushings using a hydraulic press or a hammer and correct size bushing drivers, taking care to line up lubrication holes or grooves with those in the knuckle. Bushings must be assembled with the groove runout toward the bottom.
24. Install a new needle bearing.
25. Install a new oil seal.

NOTE

Never reuse the kingpin seal plug. Always install a new plug.

26. Install the kingpin seal plug into the top of the steering knuckle assembly by using a hydraulic press to press the plug into the bushing bore until the plug flange is sealed against the knuckle.
27. Apply a coating of anti-seize to the Allen plug threads. Install the plug into the jackscrew hole.

NOTE

If the front axle is equipped with an expansion plug, replace it with a seal plug.

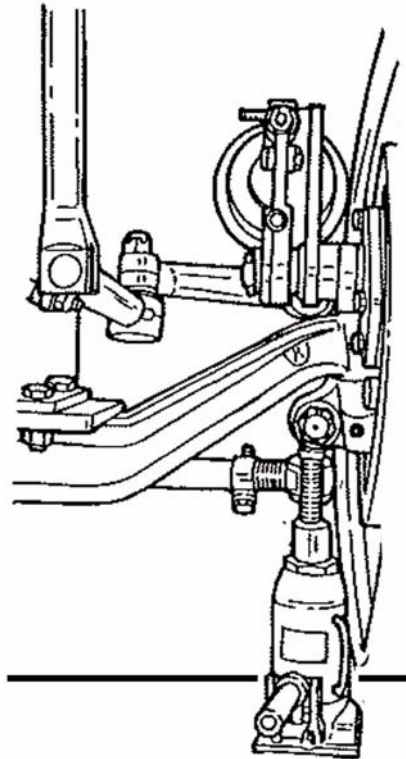
28. Lubricate the kingpin, upper bearing and lower bushing. Position the steering knuckle onto the axle eye.
29. Insert the kingpin into the knuckle assembly from the bottom. Then use a bottle jack positioned against the bottom of the kingpin, to push the kingpin into the tapered eye of the axle.

NOTE

Excessive force with a hammer is not required. Use care not to damage axle beam.

30. With the bottle jack applying force against the bottom of the kingpin, use a heavy hammer to rap the top of the axle beam near the knuckle, to drive and tightly wedge the kingpin into the taper of the axle eye. A heavy blow with a hammer will be necessary to wedge the kingpin into the taper.
31. Apply anti-seize to the threads of the new adjusting screw, and pack the thrust bearing with grease. Install these two components into the knuckle. Adjust the steering knuckle vertical clearance.
32. Steering knuckle vertical clearance must be checked and adjusted if necessary, at the first service after axle replacement and thereafter, at each C and D inspection. Failure to maintain this clearance may result in accelerated wear of the steering knuckle/axle beam assembly.

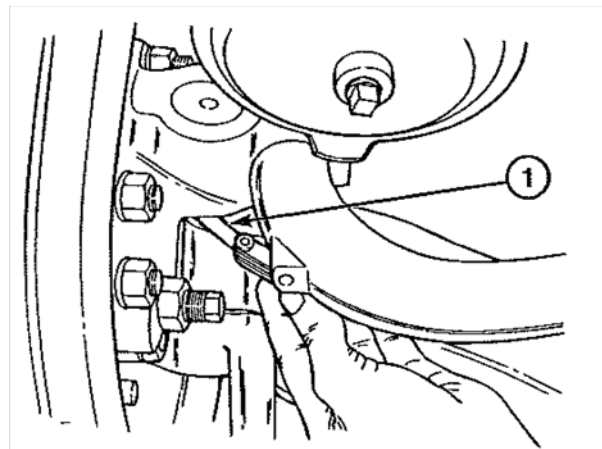
33. Place a jack under the knuckle as shown in graphic below to load the knuckle upward.



NOTE

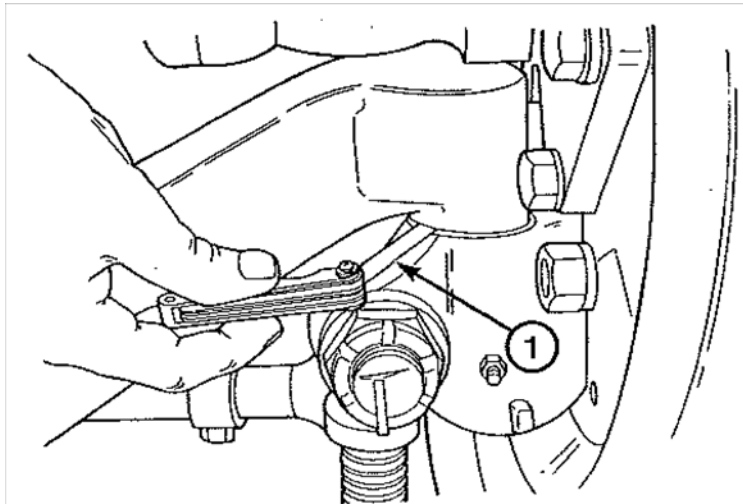
Do not put jack on adjusting screw.

34. To measure the clearance, place a feeler gauge between the steering knuckle and the axle beam eyelet as shown in graphic. Measure at three locations, approximately 90 degrees apart, around the axle beam eyelet.

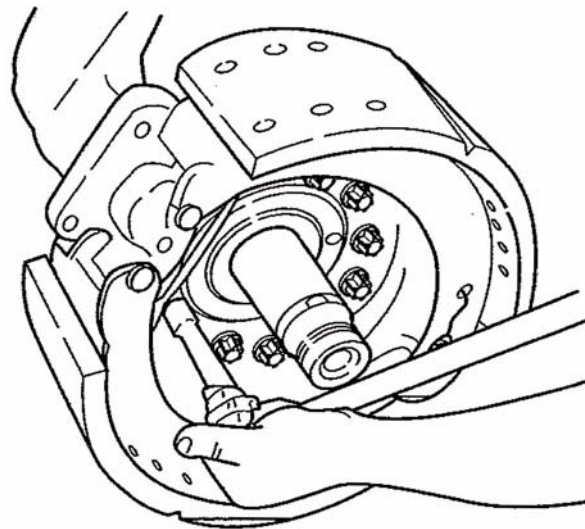
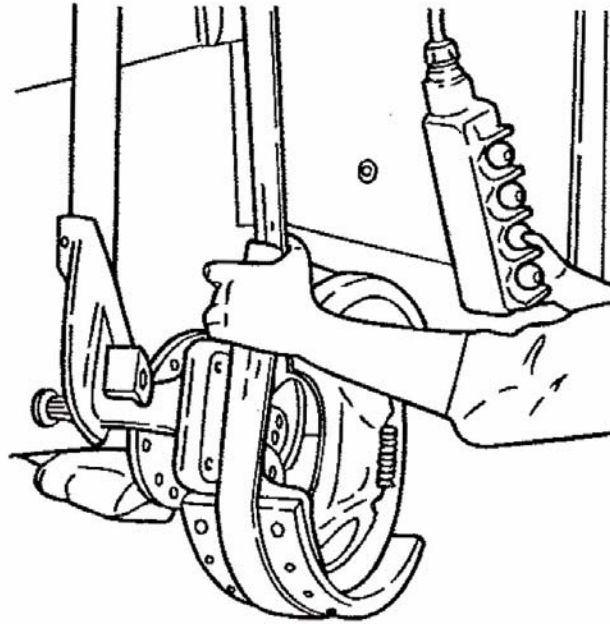


1. Measuring clearance between steering knuckle and axle beam eyelet.

35. If the measurement is not between 0.127-0.686 mm (0.005-0.027 in), adjust vertical clearance as follows:
- At the bottom of the steering knuckle, turn the adjusting screw clockwise to draw the knuckle snug against the top of the axle beam eye.
 - Once the knuckle is snug against the axle beam, turn the adjusting screw counterclockwise until the first cotter pin slot aligns with the cotter pin hole. Recheck the vertical clearance as previously described. If upper clearance is not within range, turn the adjusting nut an additional 1/4 turn counterclockwise until the second cotter pin slot aligns with the cotter pin hole. Recheck the measurement.
 - After proper steering knuckle upper clearance has been set, install a new cotter pin to secure the adjusting nut in place.
36. When the steering knuckle upper clearance is properly set between 0.127-0.0686 mm (0.005-0.027 in), verify that the lower clearance is at least 0.508 mm (0.020 in) by measuring the gap between the steering knuckle and the bottom of the axle beam eyelet with a thickness gauge as shown in graphic below.



1. Measuring gap between steering knuckle and axle beam bottom.



37. Install brake spiders, backing plates, and brake cams along with brake chambers.

NOTE

Install as an assembly to simplify installation onto axle.

NOTE

Bolts can only be used one time. Torque to 210-237 Nm (155-175 ft-lb)

38. Install tie rod onto axle ends at steering knuckle. Torque to specification:
 - 5/8" - 18 NF Thread: 133-146 Nm (98-108 ft-lb)
 - 3/4" - 16 NF Thread: 183-201 Nm (134-148 ft-lb)
 - 7/8" - 14 NF Thread: 323-358 Nm (238-264 ft-lb)
 - 1" - 14 NF Thread: 511-564 Nm (377-416 ft-lb)
39. Ball studs should be firmly seated into steering lever before torque is applied to stud retaining nut. Nut should be driven to minimum torque. Check for alignment of slots in nut with cotter hole in stud. If alignment has not been obtained, turn nut clockwise to nearest alignment of nut slots and stud hole and insert cotter key.
40. Install drag link. Torque to specifications as listed below.
 - 7/8"-14 UNC: Torque to 323-358 Nm (238-264 ft-lb)
 - M20 x 1.5: 196-210 Nm (145-155 ft-lb)
41. Install ABS sensor and adjust.
42. Install brake hoses.
43. Install brake shoes.
44. Adjust wheel bearings as required to obtain 0.001-0.005" end play using axle nut per manufacturer's adjustment procedure.
45. Install wheels, tires and hubs as an assembly onto the steer axle. Adjust wheel hubs. Fill hubs with lubricant as needed.
46. Check and adjust toe in.
47. Adjust brakes on steer axle.
48. Raise up the steer axle and remove jack stands. Lower the axle.
49. Lower cab.

NOTE

Ensure that poppets are correctly set.

NOTE

On all vehicles, the front axle wheel stops must be adjusted to provide a minimum of one inch clearance between the tires and chassis components, and a minimum of 1/2 inch between any moving steering component (pitman arm, drag link, steering lever, etc.) and any other steering component.

50. Check and adjust wheel cut as needed.
51. Remove wheel chocks and test drive vehicle.

Reimbursement

This repair is covered by an authorized Safety Recall campaign. Reimbursement is obtained through the normal claim handling process.	
Claim Type (used only when uploading from the Dealer Bus. Says.)	R
Recall Status	
Vehicle inspected, no repair required	
Vehicle repaired per instructions	2-Modified per instructions
Labor Code	
Primary Labor Code (includes steam clean)	4211A-01-95 - 9.5 hr.
Time to take charge of vehicle and determine campaign status	101AA 0A 00 - 0.3 hr.
Causal Part	21895896
Authorization No.	SC0361

Take-charge time is not included in the labor code for this operation. Take charge may be eligible, but can only be used once per vehicle repair visit. If the vehicle is having other warranty repairs performed, take-charge should be charged to the warranty repair, otherwise take-charge can be charged to this Safety Recall.

NOTE

Dealers are to perform Safety Recall Campaigns on all subject vehicles at no charge to the vehicle owner regardless of mileage, age of vehicle or ownership (original purchaser or subsequent purchasers). Whenever vehicles are subject to a safety recall are brought to your dealership for service, or taken into your dealership vehicle inventory, it is strongly recommended that every effort be made to perform the recall correction before the vehicle is sold or released to the owner.
