

MERITOR[®]
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Service Parts Instructions

Frame Bracket Side Plate Repair Procedures

Meritor RideStar™ RHP Series Single-Axle and Sliding Tandem Trailer Air Suspension Systems

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

Wear safe clothing and eye protection when you use welding equipment. Welding equipment can burn you and cause serious personal injury. Follow the operating instructions and safety procedures recommended by the welding equipment manufacturer.

Axle weld locations and welding procedures must adhere to Meritor standards. Welding at locations other than those authorized by Meritor will void the warranty and can reduce axle beam fatigue life. Serious personal injury and damage to components can result.

How to Obtain Additional Maintenance and Service Information

Refer to Maintenance Manual 14L, RideStar™ RHP Series Single-Axle Trailer Air Suspension System; Maintenance Manual 14S, RideStar™ RHP Series Sliding Tandem Trailer Air Suspension System; and Maintenance Manual MM-99100, Wheel Equipment. To obtain these publications, visit Literature on Demand at arvinmeritor.com.

How to Obtain Repair Kits

Call ArvinMeritor's Commercial Vehicle Aftermarket at 888-725-9355 to obtain the following kits.

- The curbside repair procedure for RHP11 sliding tandem trailer air suspension systems requires Kit 11301, which repairs one bolt position and supplies all new bushings and bolts. If additional special washers are needed, obtain Kit 11304.
- Kit 11304 contains special washers for the curbside repair procedure for RHP11 sliding tandem trailer air suspension systems. The Kit does not contain bolts, bushings or standard washers.
- The roadside repair procedure for RHP11 sliding tandem trailer air suspension systems requires Kit 11322, which contains a set of alignment side repair plates and special bolts. The Kit does not contain bushings or standard bolts.
- Use Kit 11303 to repair the upper control arm position on all RHP55 single-axle trailer air suspension systems.

Side Plate Repair Procedure (Curbside) for the RHP55 Series Single-Axle Trailer Air Suspension System

Use Kit 11303 to repair the upper control arms on all RHP single-axle trailer air suspension systems. The Kit contains one bolt position and supplies all new bushings and bolts. If you are repairing side plates at both curbside and roadside, Kit 11304 is also required.

1. Wear safe eye protection.
2. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
3. Remove the wheel and tire assemblies.
4. Place safety stands under the axle at the approximate ride height.

5. Remove the alignment side (roadside) bolts.
6. Remove the curbside pivot bolts, nuts and washers from the frame bracket. Figure 1.
 - **If the nuts are welded to the bolt:** Remove the weld by grinding the threads off the bolt at the weld area. Use an air wrench to spin the bolt prior to attempting to remove the nuts. This will break corrosion between the bolt and the inner metal tube of the bushing.

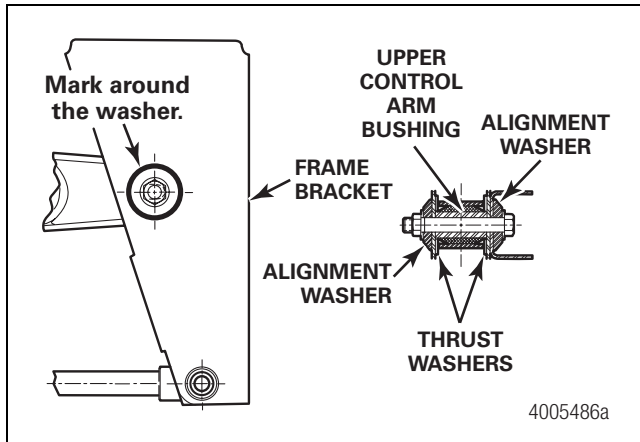


Figure 1

7. Use a bolt and alignment washer to mark the curbside frame bracket for cutting. Mark both inside and outside of the frame.
8. Use a suitable tool to push the upper control arm out of the side plates.
9. Use a suitable tool to cut on the marks made earlier around the alignment washers. Cut the holes at least 3.25-inches (89 mm) in diameter. Remove all slag and sharp edges from the inside and outside side plates. Figure 2.

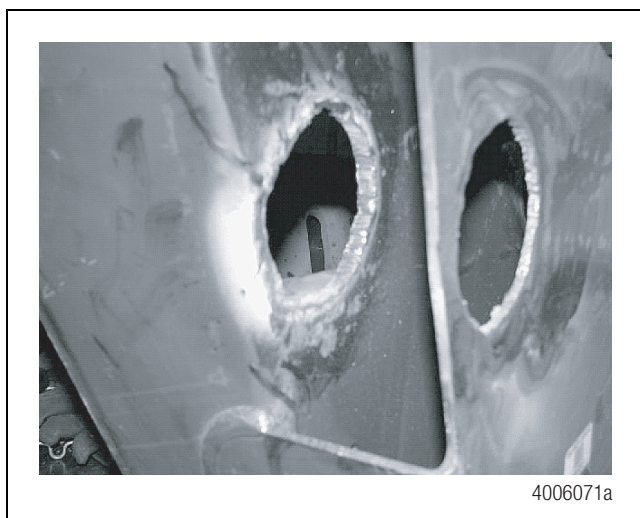


Figure 2

10. Use the following procedure to install new bushings into the control arm. For the complete bushing replacement procedure, refer to Maintenance Manual 14L.
 - A. Confirm the upper control arm is within the tolerance specified in Maintenance Manual 14L.
 - B. Lubricate the bushing and I.D. of the upper control arm with P80 tire lubricant or non-petroleum-based liquid soap.
 - C. Use bushing insertion tool, part number A-3256-H-1152, to insert the bushings. Ensure that the bushing is centered in the upper control arm.
 - D. Install the thrust washers onto the outer protruding ends of the upper control arm bushing.
 - E. Pull the upper control arm into the side plates. Ensure that the thrust washers remain in place on the bushing ends.
 - F. Install the new inside and outside special washers, hardened flat washers, bolts and nuts. Install the shear nuts, if supplied, onto the curbside of the trailer.
 - G. Ensure that the pilots on the special washers go through the holes in the side plates and do not seize. Tighten the nuts to the final specifications. Figure 3.

- **If shear nuts are supplied for the curbside of the axle:** Tighten the nut until it shears. Apply tack welds to the nut and bolt threads.
- **If you are installing prevailing torque nuts:** Refer to Maintenance Manual 14L for the correct procedure and torque specification.

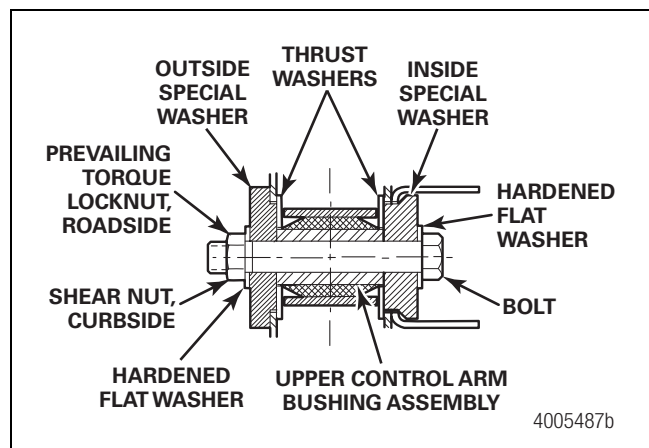


Figure 3

11. Weld the inner and outer special washers. Place a wet rag inside the side plate when welding the special washers to absorb the heat. Do not expose the new bushings or thrust washers to excessive heat or they will be damaged. Figure 4 and Figure 5.

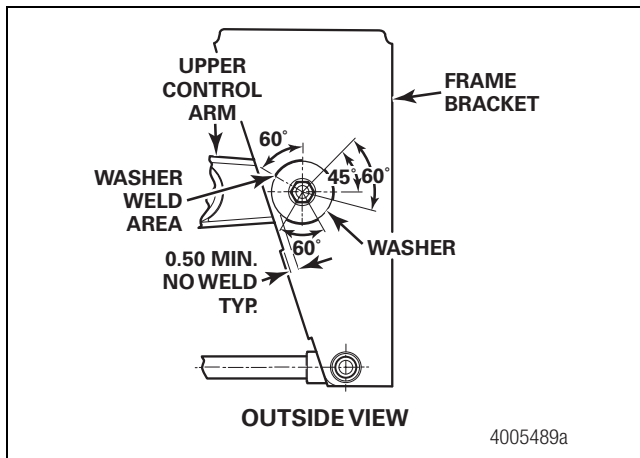


Figure 4

4. Apply a mark around the alignment washers. Figure 6.

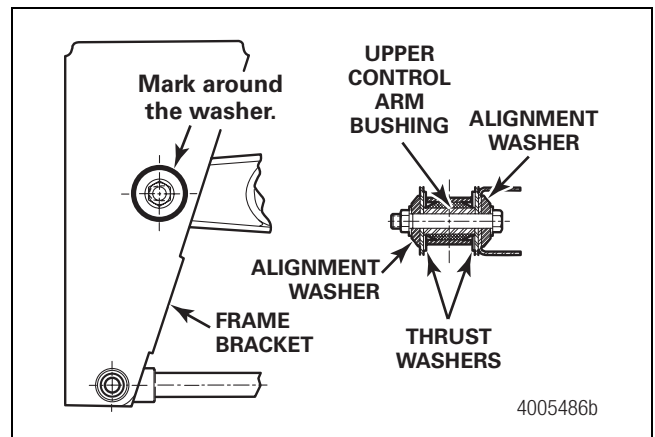


Figure 6

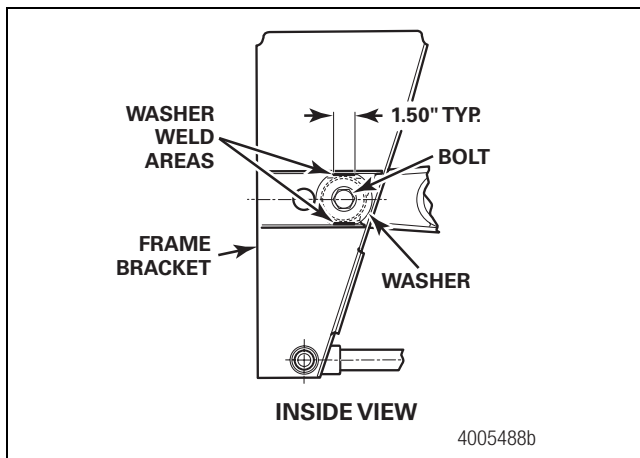


Figure 5

12. Install the tire and wheel assemblies. Tighten the nuts. Refer to Maintenance Manual MM-99100 for the correct specifications.

Side Plate Repair Procedure (Roadside) for the RHP55 Series Single-Axle Trailer Air Suspension System

Use Kit 11303 to repair the upper control arms on all RHP55 single-axle trailer air suspension systems (roadside). The Kit contains one bolt position and supplies all new bushings and bolts. If you are repairing side plates at both curbside and roadside, Kit 11304 is also required.

1. Wear safe eye protection.
2. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
3. Check the axle alignment. Do not remove axle components until the axle is correctly aligned. If necessary, align the axle to the required specifications. The axle-to-kingpin measurements must be within 1/8-inch (3.175 mm). Refer to Maintenance Manual 14L.

5. Place safety stands under the axle at the approximate ride height.
6. Remove the roadside pivot bolts, nuts and washers from the frame bracket.
 - **If the nuts are welded to the bolts:** Remove the weld by grinding the threads off the bolt at the weld area. Use an air wrench to spin the bolt prior to attempting to remove the nuts. This will break corrosion between the bolt and the inner metal tube of the bushing.
7. Remove the wheel and tire assemblies.
8. Use a suitable tool to push the upper control arm out of the side plates.
9. Use a suitable tool to cut on the marks made earlier around the alignment washers. Cut the holes at least 3.25-inches (89 mm) in diameter. Remove all slag and sharp edges from the inside and outside side plates. Figure 7.

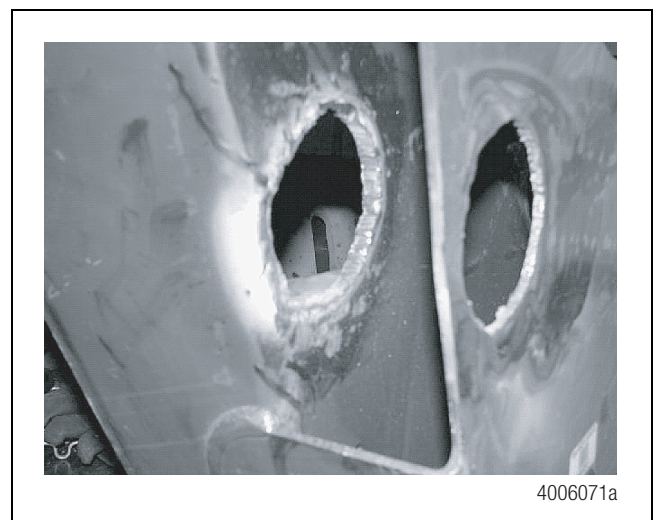


Figure 7

10. Use the following procedure to install new bushings into the control arm. For the complete bushing replacement procedure, refer to Maintenance Manual 14L.
 - A. Confirm the upper control arm is within the tolerance specified in Maintenance Manual 14L.
 - B. Lubricate the bushing and I.D. of the upper control arm with P80 tire lubricant or non-petroleum-based liquid soap.
 - C. Use bushing insertion tool, part number A-3256-H-1152, to insert the bushings. Ensure that the bushing is centered in the upper control arm.
 - D. Install the thrust washers onto the outer protruding ends of the upper control arm bushing.
 - E. Pull the upper control arm into the side plates. Ensure that the thrust washers remain in place on the bushing ends.
 - F. Install the new inside and outside special washers, hardened flat washers, bolts and nuts. Install the shear nuts, if supplied, onto the curbside of the trailer and the prevailing torque locknuts onto the roadside of the trailer.
 - G. Ensure that the pilots on the special washers go through the holes in the side plates and do not seize. Do not tighten the nuts to the final specifications. Figure 8.

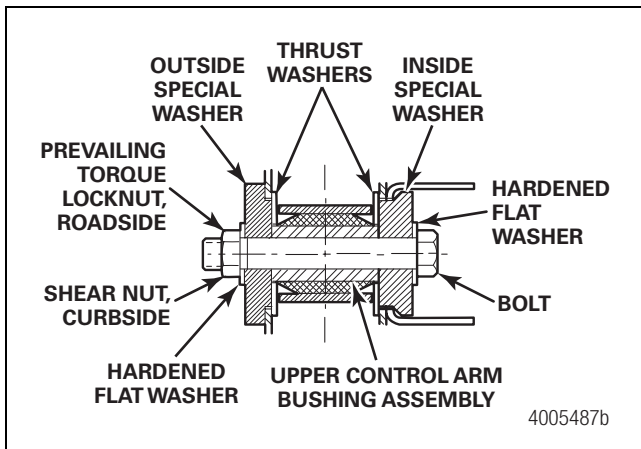



Figure 8

11. Recheck the axle-to-kingpin alignment described in Step 3. If it is within tolerance, tighten the nuts.
 - **For the prevailing torque nuts on the roadside of the axle:** Tighten the nuts to 600 lb-ft (813.49 N•m). 
12. Weld the inner and outer special washers. Place a wet rag inside the side plate when welding the special washers to absorb the heat. Do not expose the new bushings or thrust washers to excessive heat, or they will be damaged. Figure 9 and Figure 10.

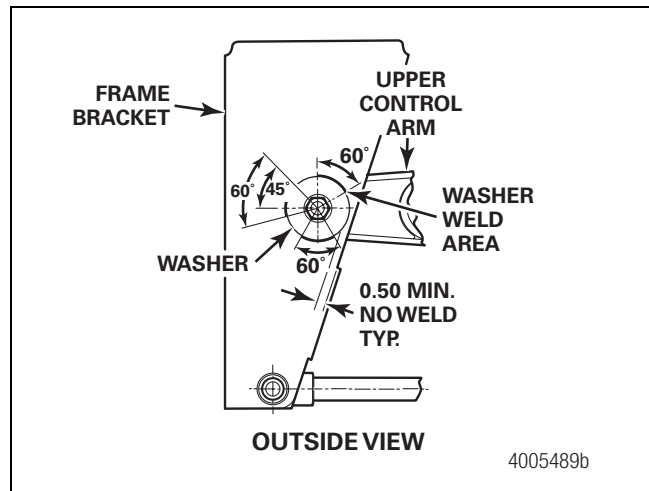


Figure 9

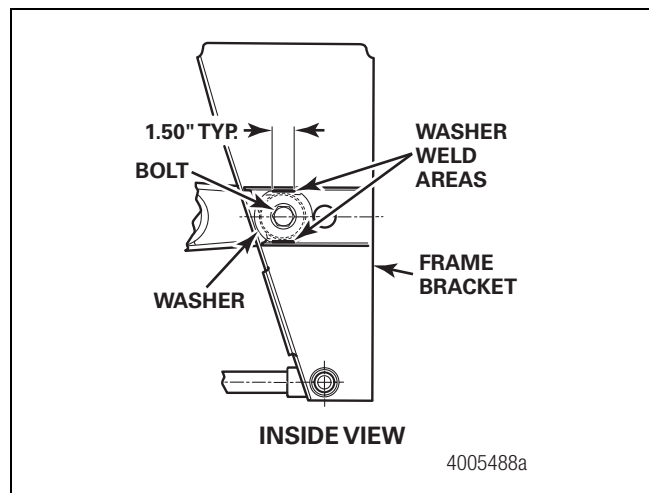


Figure 10

13. Install the tire and wheel assemblies. Tighten the nuts. Refer to Maintenance Manual MM-99100 for the correct specifications.

Side Plate Repair Procedure (Curbside) for the RHP11 Series Sliding Tandem Trailer Air Suspension System

Use Kit 11301 to repair all RHP11 Series sliding tandem trailer air suspension systems (curbside). The Kit repairs one bolt position and supplies all new bushings and bolts. Kit 11304 contains special washers for the curbside repair procedure for RHP11 suspensions and does not contain bolts, bushings or standard washers.

1. Wear safe eye protection.
2. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
3. Remove the wheel and tire assemblies from the axle you are servicing.

4. Place safety stands under the axle at the approximate ride height.
5. Remove the roadside bolts.
6. Remove the curbside pivot bolts, nuts and washers from the frame bracket. Figure 11.
 - **If the nuts are welded to the bolts:** Remove the weld by grinding the threads off the bolt at the weld area. Use an air wrench to spin the bolt prior to attempting to remove the nuts. This will break corrosion between the bolt and the inner metal tube of the bushing.
7. Use a bolt and alignment washer to mark the curbside frame bracket for cutting. Mark both inside and outside of the frame.

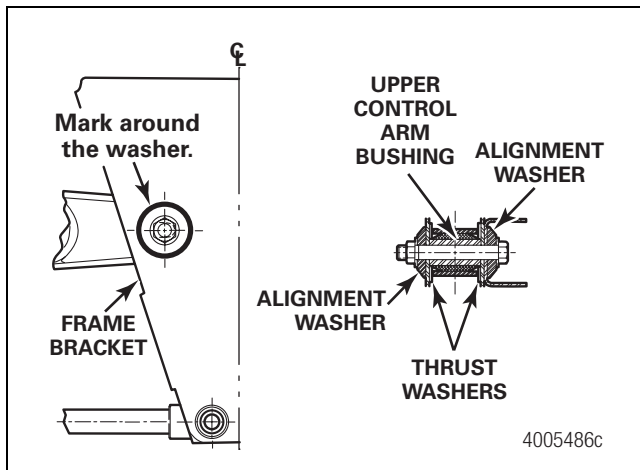


Figure 11

8. Use a suitable tool to push the upper control arm out of the side plates.
9. Use a suitable tool to cut on the marks made earlier around the alignment washers. Cut the holes at least 3.25-inches (89 mm) in diameter. Remove all slag and sharp edges from the inside and outside side plates.
10. Use the following procedure to install new bushings into the control arm. For the complete bushing replacement procedure, refer to Maintenance Manual 14S.
 - A. Confirm the upper control arm is within the tolerance specified in Maintenance Manual 14S.
 - B. Lubricate the bushing and I.D. of the upper control arm with P80 tire lubricant or non-petroleum-based liquid soap.
 - C. Use bushing insertion tool, part number A-3256-H-1152, to insert the bushings. Ensure that the bushing is centered in the upper control arm.
 - D. Install the thrust washers onto the outer protruding ends of the upper control arm bushing.

- E. Pull the upper control arm into the side plates. Ensure that the thrust washers remain in place on the bushing ends.
- F. Install the new inside and outside special washers, hardened flat washers, bolts and nuts. Install the shear nuts, if supplied, onto the curbside of the trailer and the prevailing torque locknuts onto the roadside of the trailer.
- G. Ensure that the pilots on the special washers go through the holes in the side plates and do not seize. Tighten the nuts to the final specifications. Figure 12.
 - **If shear nuts are supplied for the curbside of the axle:** Tighten the nut until it shears. Apply tack welds to the nut and bolt threads.
 - **If you are installing prevailing torque nuts:** Refer to Maintenance Manual 14S for the correct procedure and torque specification.

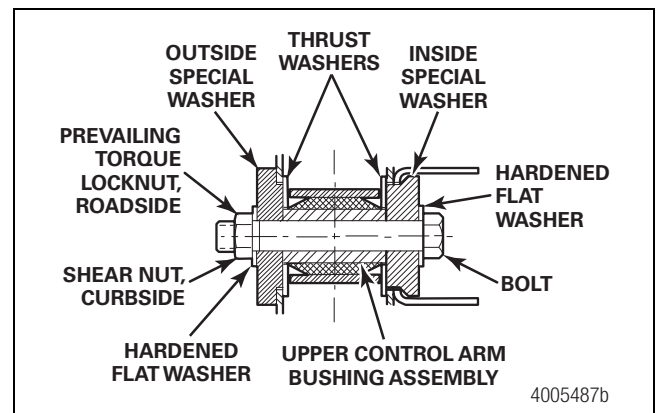


Figure 12

11. Weld the inner and outer special washers. Place a wet rag inside the side plate when welding the special washers to absorb the heat. Do not expose the new bushings or thrust washers to excessive heat or they will be damaged. Figure 13 and Figure 14.

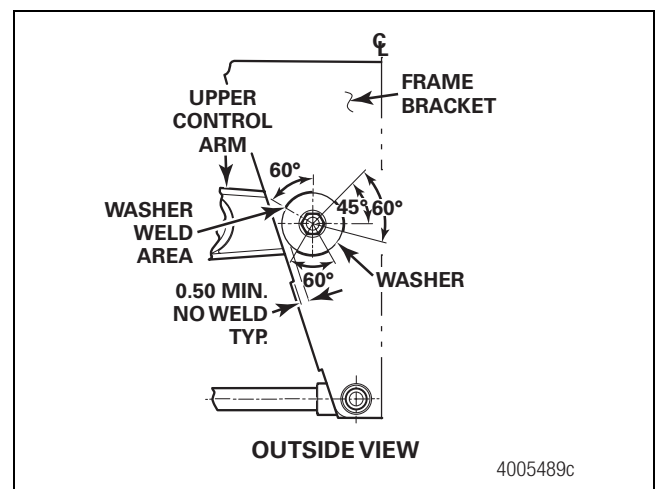


Figure 13

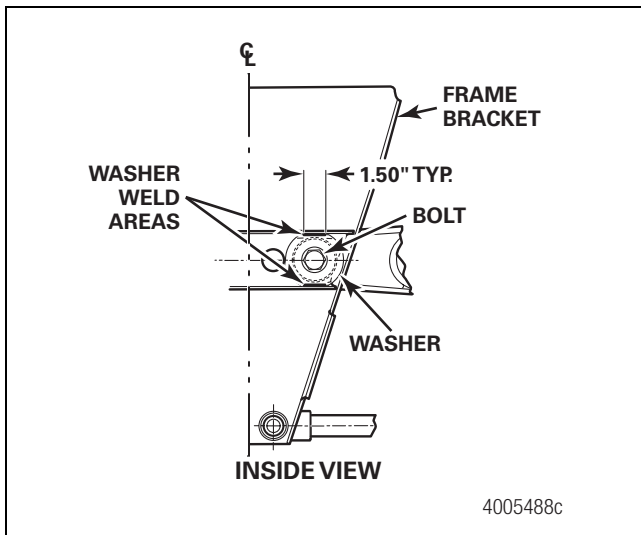


Figure 14

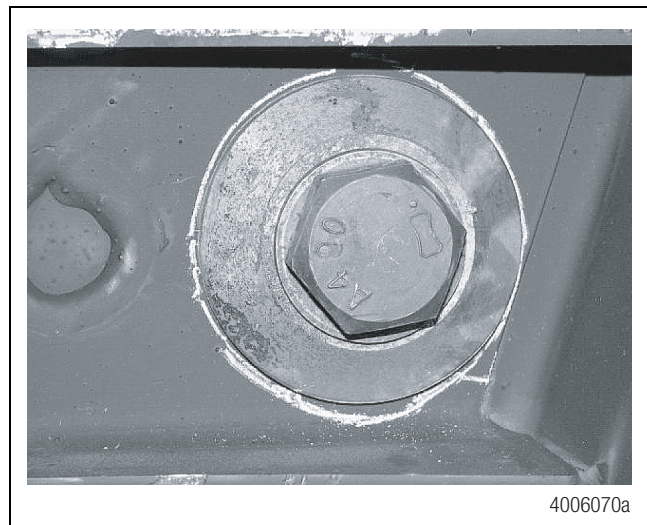


Figure 15

12. Install the tire and wheel assemblies. Tighten the nuts. Refer to Maintenance Manual MM-99100 for the correct specifications.

6. Use a suitable tool to cut on the line marked around the washer in the previous step to remove the damaged area of the side plate. Figure 16.

Side Plate Repair Procedure (Roadside) for the RHP11 Series Sliding Tandem Trailer Air Suspension System

Use Kit 11322 to repair all RHP11 Series sliding tandem trailer air suspension systems (roadside). The Kit contains a set of alignment side repair plates and special bolts, but does not contain bushings or standard bolts.

1. Wear safe eye protection.
2. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
3. Remove the wheel and tire assemblies from the axles you are servicing.
4. Place safety stands under the axles at the approximate ride height.
5. Mark the diameter of the washer with a soap stone using the alignment washers as the template. Verify the washer is 0.5-inch from the edge of the frame bracket. Do this both inside and outside. Figure 15.

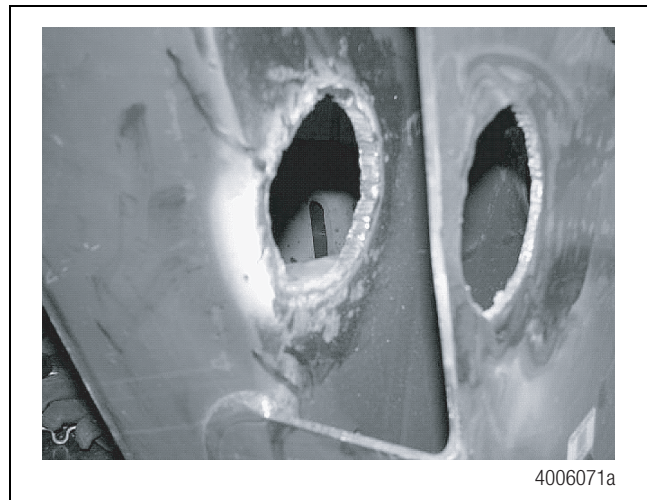


Figure 16

7. Remove all slag and burrs from the cut area using a suitable tool. Ensure nothing interferes with the area that the plates are covering, especially the inside of the frame bracket. Confirm that the area where the washer installs has no interference.
8. Install the outside plate. It is slightly longer than the original plate and will extend beyond the original plate. Align the plate so it is centered and the angles match the original plate. Clamp in place. Figure 17. Verify that the pilots that are welded to the slide plate repair kit fit correctly through the holes cut into the original side plate. Figure 18.

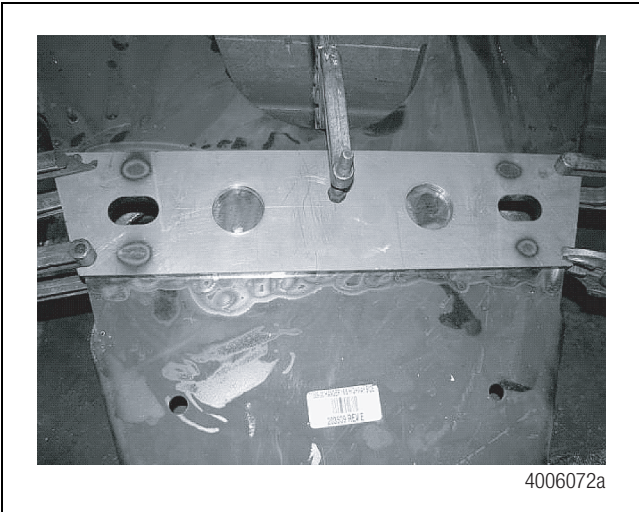


Figure 17

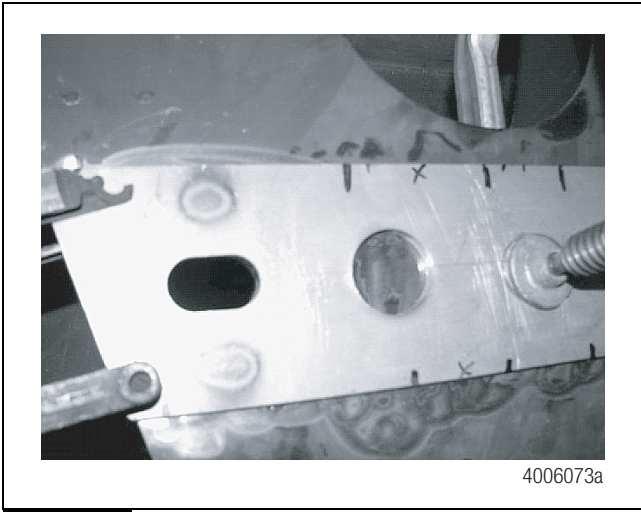


Figure 19

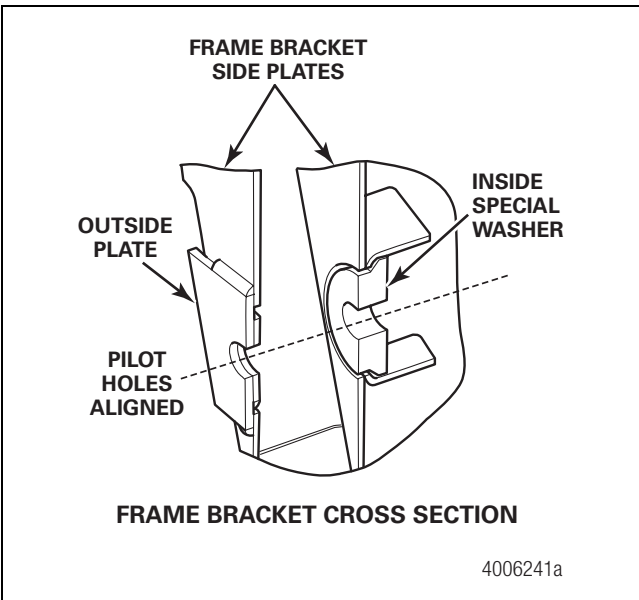


Figure 18

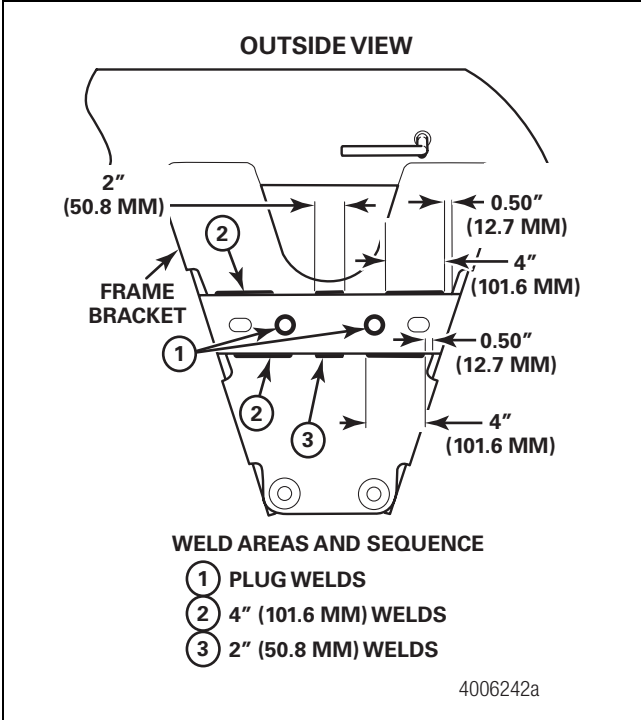


Figure 20

9. After clamping firmly, weld the plug weld holes. Mark the edge welds. Start 0.5-inch from any corner and weld four-inches. Repeat at all four corners. Weld a two-inch bead in the center, top and bottom. Remove the clamps after it has cooled. Figure 19 and Figure 20.

10. Place the inside washers into position. Ensure that the washers are tight against the bottom and all the way against the gusset plate. Install a bolt through the frame bracket and loosely tighten the bolt. This will ensure that the inner washer is held firmly in place. Figure 21. If you overtighten the bolt, it will be difficult to reinstall the upper control arm.

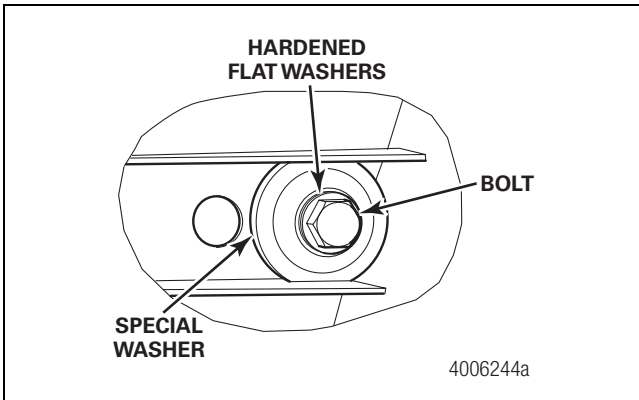


Figure 21

11. Weld the washer along the bottom and top with a 0.25-inch weld. Weld the area that is contacting the gusset plate with a 0.25-inch weld. Place a 1.25-inch weld midpoint at the washer radius and the channel. Figure 22 and Figure 23. It is important not to make the top, bottom and gusset welds too large, or they will interfere with the alignment washer. Figure 24.

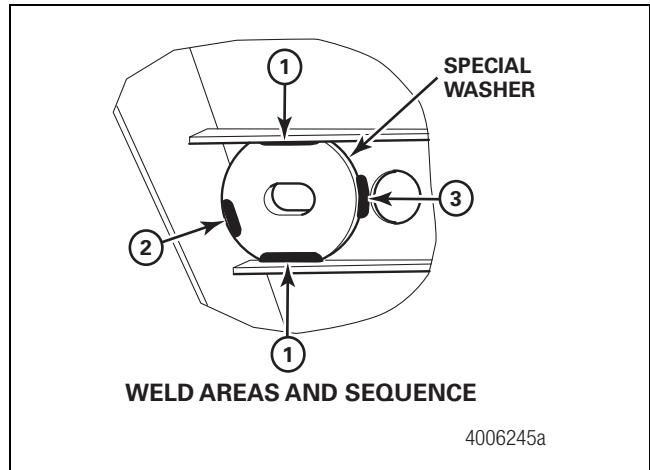


Figure 23

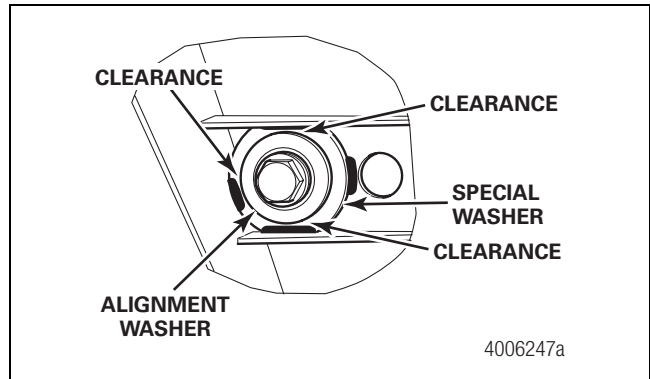


Figure 24

12. Reassemble the suspension using the hardware provided. When installing the special bolt, it may be necessary to install two washers under the head of the bolt to ensure that there is no interference with the threads of the bolt and the tire. Ensure that there are at least two threads through the nut, but not enough bolt extending through the nut to interfere with the tires. Figure 25.

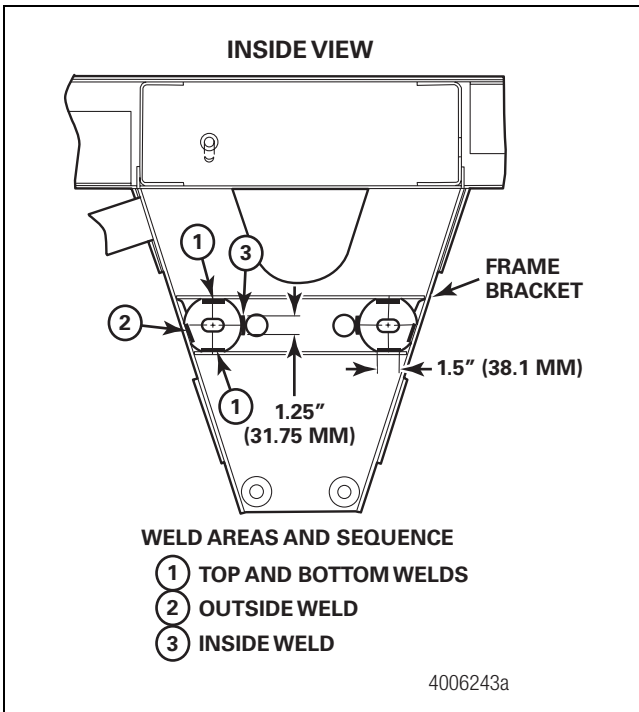


Figure 22

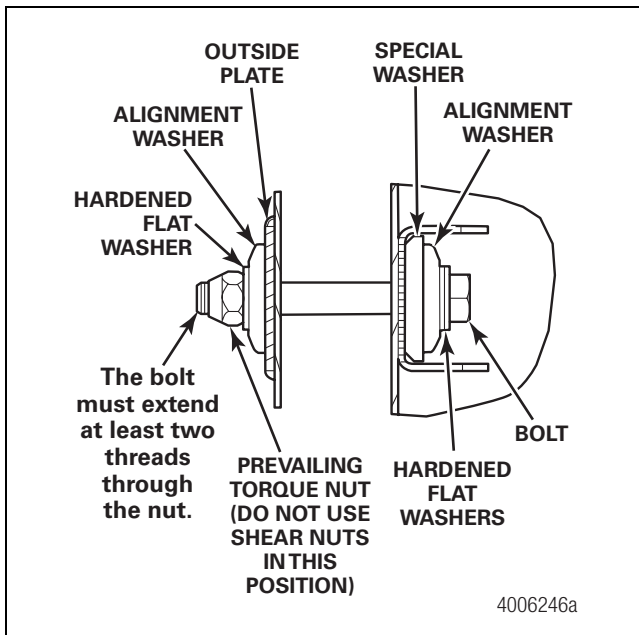


Figure 25

13. Check the alignment to confirm it is within tolerance and that the suspension is at the correct ride height. Then tighten all of the nuts to the final torque specifications. Refer to Maintenance Manual 14S for the correct alignment procedures and torque specifications.
14. Paint and undercoat all surfaces.
15. Install the tire and wheel assemblies. Tighten the nuts. Refer to Maintenance Manual MM-99100 for the correct specifications.

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