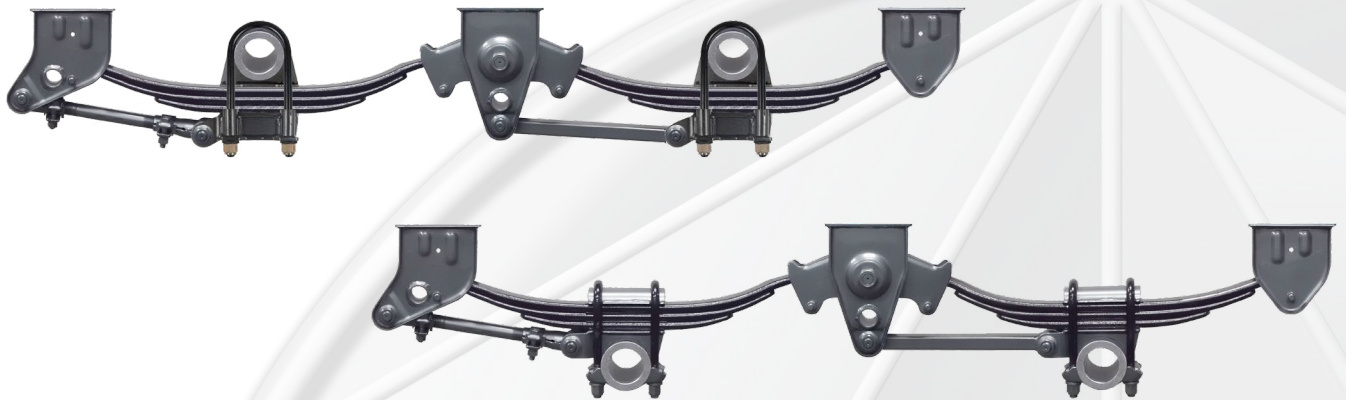




AXN
HEAVY DUTY

Mechanical Suspension Installation Manual



Overslung & Underslung with:

- Undermount Hangers
- Straddlemount Hangers
- Flangemount Hangers
- Sidemount Hangers

General Warnings

Before You Begin

1. Read and understand all instructions and procedures before beginning.
 2. To prevent serious personal injury always wear eye protection and appropriate personal protection equipment.
 3. Use of special tools will aid in performing service and maintenance as well as help avoid serious personal injury and damage to components.
 4. Follow all warning and caution messages in this publication to prevent personal injury and/or damage to components.
 5. Follow your company's guidelines when performing diagnostic, maintenance, service, or installation procedures.
-

UNDER-, STRADDLE-, FLANGE-. and SIDE-MOUNT HANGERS Installation & Welding Instructions*

NOTE:

These instructions are intended to provide general recommendations for the installation of AXN Mechanical Suspension components to a typical 4.0" I-beam Flange or other chassis configuration. The manufacturer is solely responsible for the design and production of the finished product.

Hanger fitment and tack-welding:

Weld using AWS E70xx structural welding materials and practices.

1. Using your axle spread and the technical drawings supplied, determine the center to center dimensions of the hangers for your suspension system.
2. Mark the center position of an equalizer hanger on the chassis as per your requirements.
3. Measure and mark the centers of the remaining hangers from the first as per the technical drawing for your suspension system.
4. Tack weld the hangers in place, ensuring that the hangers are square on the chassis and that the hangers line up along the chassis rails (within 1/16").
5. Check the diagonal distances between all the hangers (i.e.: Front Hangers, Equalizer Hangers, and Rear Hangers). These measurements must be within $\pm 1/8$ " based on dimensions shown on the technical drawings.
6. If these measurements are correct, insert a 1-1/4" schedule 40 (or similar) steel pipe cross brace through the holes on the front and equalizer hangers and weld 1/8" fillets around pipe on the OUTSIDE of hangers, and weld 1/8" fillets on only 3/4" of the horizontal center line of pipe on INSIDE of hangers (see examples on following pages).
7. Once the pipes are in place, the operator can commence fully welding the hangers in place. Detailed requirements for final hanger welding are shown in the figures on the following pages.

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

UNDERMOUNT HANGER

Installation & Welding Instructions* for 4" I-beam Flange

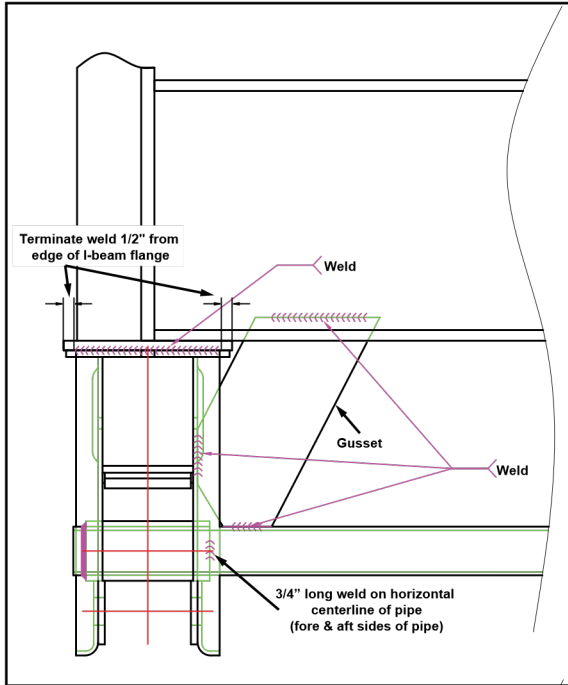


FIGURE 1

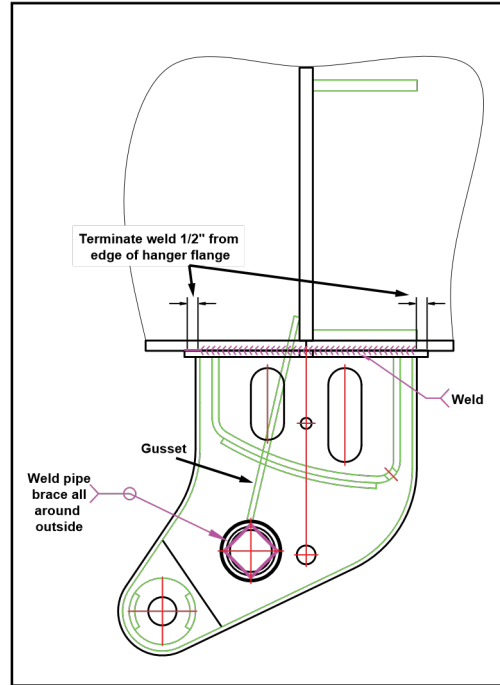


FIGURE 2

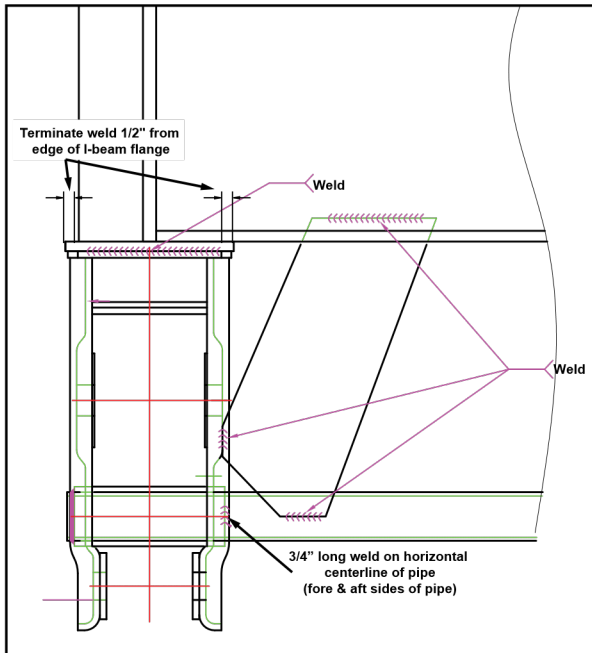


FIGURE 3

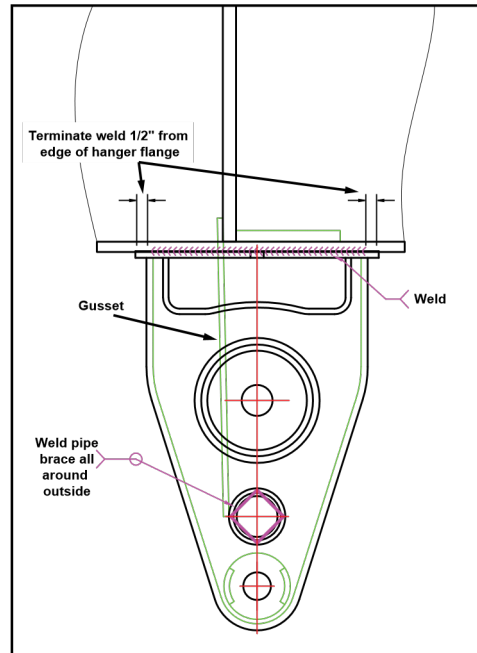


FIGURE 4

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

UNDERMOUNT HANGER

Installation & Welding Instructions* for 4" I-beam Flange

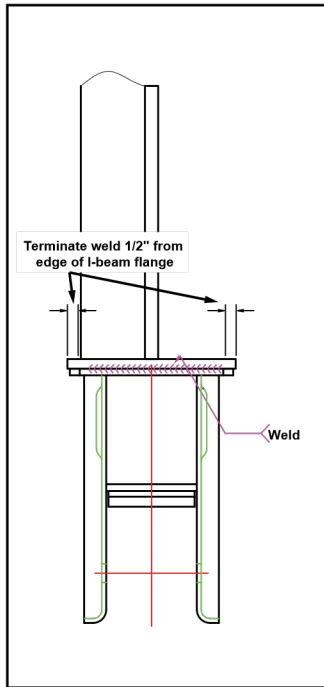


FIGURE 5

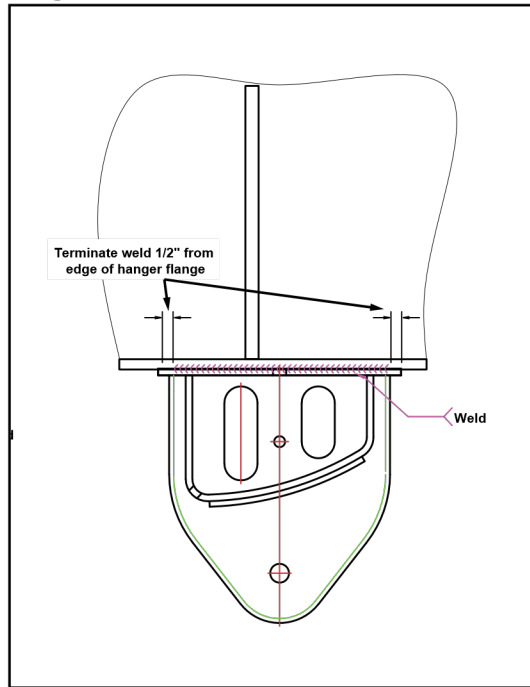


FIGURE 6

Undermount Hanger final welding:

Weld using AWS E70xx structural welding materials and practices.

1. Weld TOP of hangers to chassis rail with 3/16" fillet weld, terminating welds 1/2" from edge of hanger flanges (see Undermount figures 2, 4 and 6).
2. Weld ENDS of hangers to chassis rail with 3/16" fillet weld, terminating welds 1/2" from edge of I-beam flange free edges (see Undermount figures 1, 3 and 5).
3. Hanger bracing or gussets should be considered for all suspensions, especially if the trailer will be operating in off-road conditions.
4. If used, gussets should be welded to pipes, insides of front and equalizer hangers and to the frame cross-members (see Undermount figures 1, 2, 3 and 4).

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

STRADDLEMOUNT HANGER Installation & Welding Instructions*

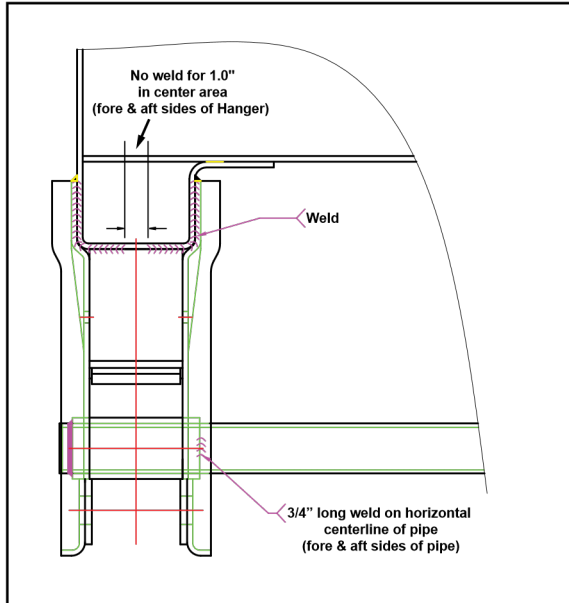


FIGURE 1

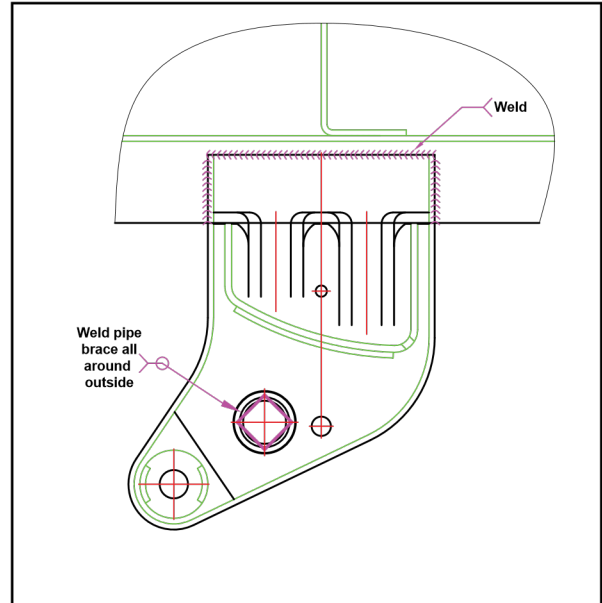


FIGURE 2

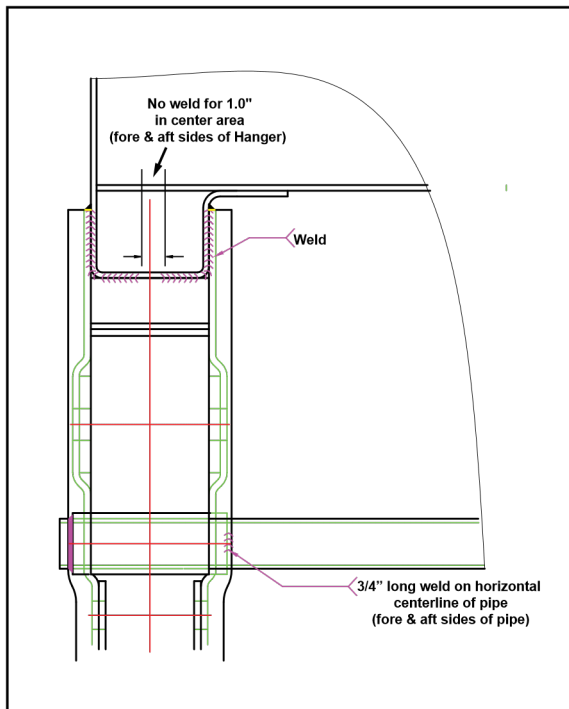


FIGURE 3

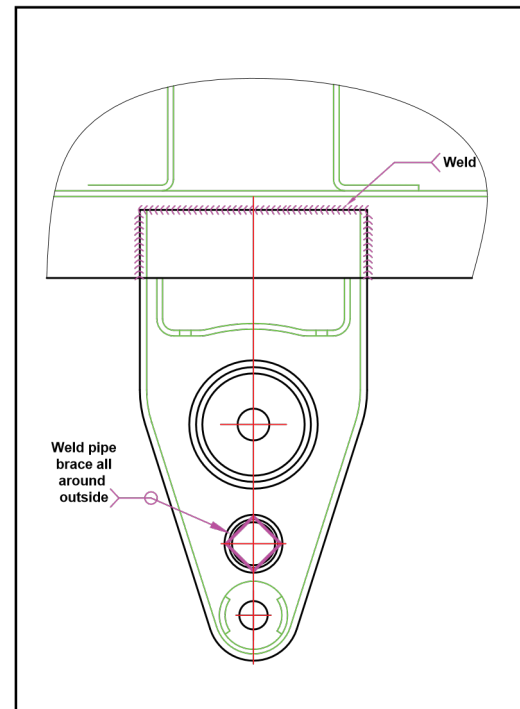


FIGURE 4

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

STRADDLEMOUNT HANGER Installation & Welding Instructions*

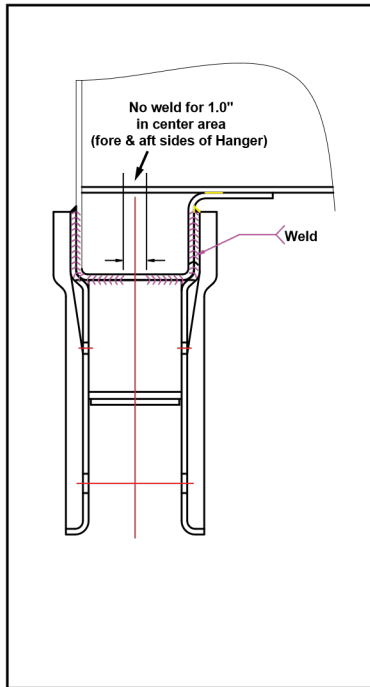


FIGURE 5

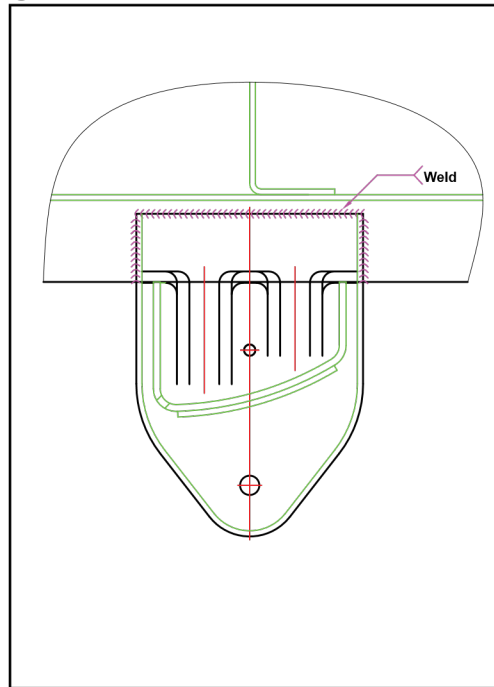


FIGURE 6

Straddlemount Hanger final welding:

Weld using AWS E70xx structural welding materials and practices.

1. Weld hangers to chassis rail with 3/16" fillet weld, terminating welds leaving a 1.0" gap in center area (see Straddlemount figures 1, 3 and 5).
2. Hanger bracing or gussets should be considered for all suspensions, especially if the trailer will be operating in off-road conditions.
3. If used, gussets should be welded to pipes, insides of front and equalizer hangers and to the frame cross-members (see Straddlemount figures 1, 2, 3 and 4).

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

FLANGEMOUNT BOLT-ON HANGER Installation & Welding Instructions*

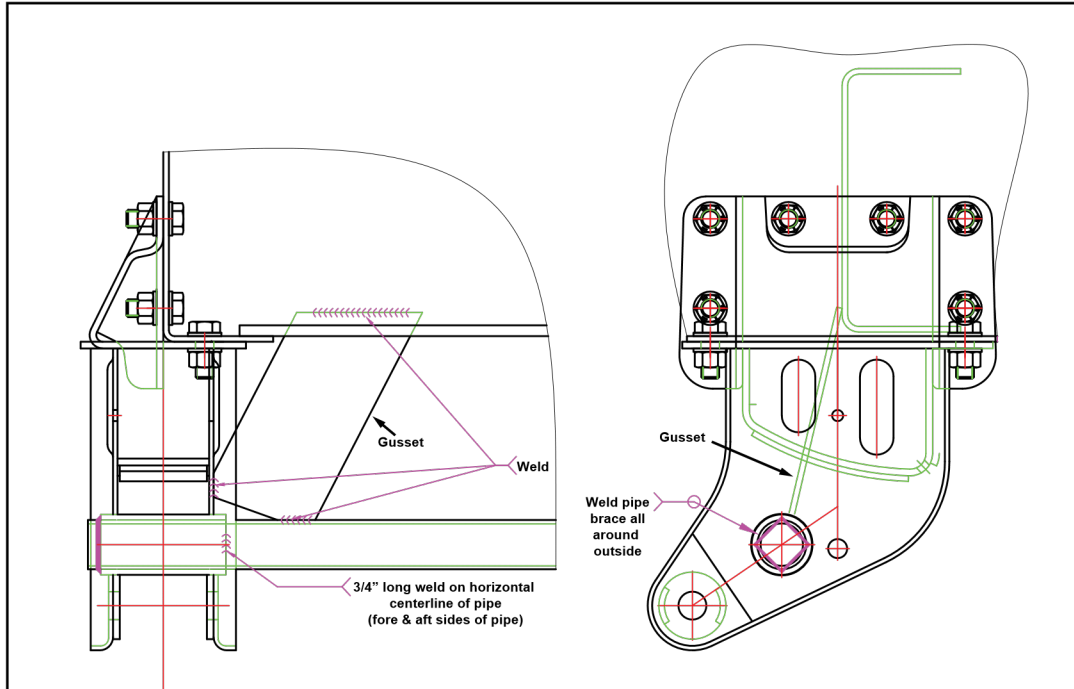


FIGURE 1

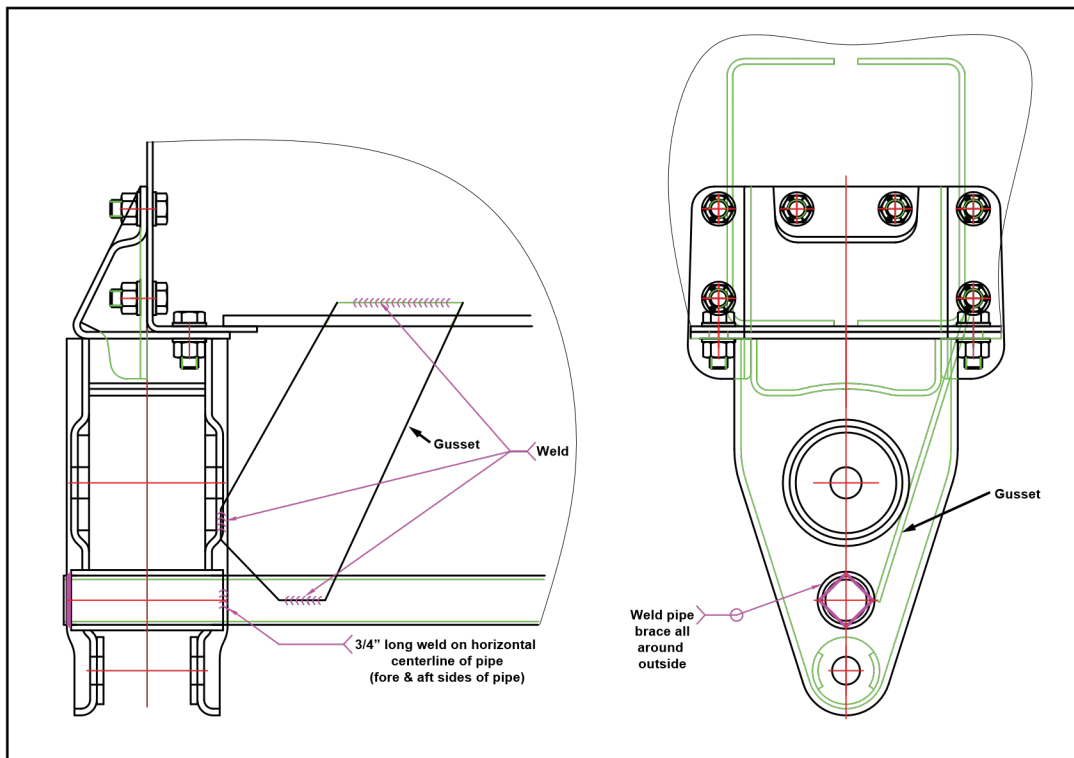


FIGURE 2

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

FLANGEMOUNT BOLT-ON HANGER Installation & Welding Instructions*

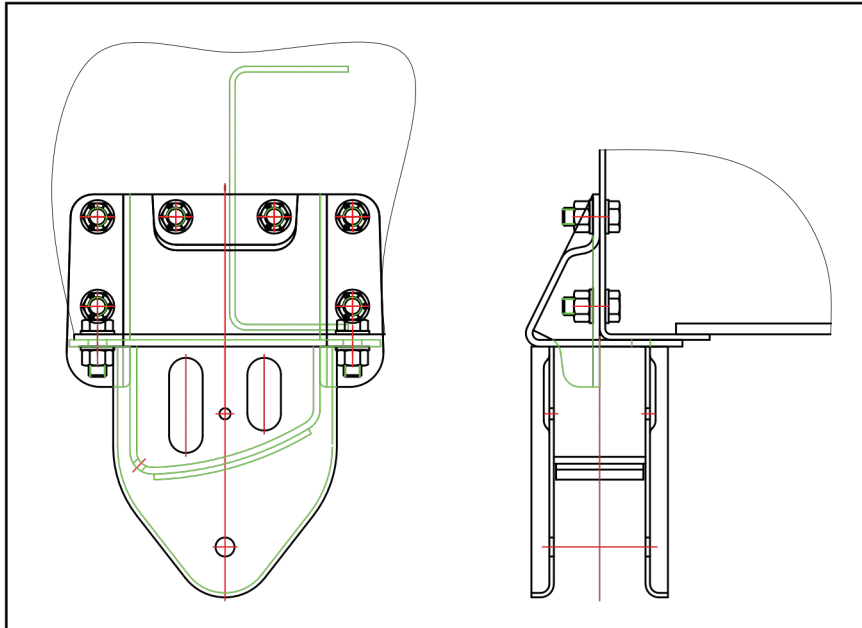


FIGURE 3

Flangemount Bolt-on Hanger final installation and welding:

Weld using AWS E70xx structural welding materials and practices.

1. Install Hangers with minimum .625" Grade 5 fasteners. (See Flangemount figures 1, 2 and 3).
2. Hanger bracing or gussets should be considered for all suspensions, especially if the trailer will be operating in off-road conditions.
3. If used, gussets should be welded to pipes, insides of front and equalizer hangers and to the frame cross-members (see Flangemount figures 1 and 2).

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

SIDEMOUNT HANGER for C-CHANNEL Installation & Welding Instructions*

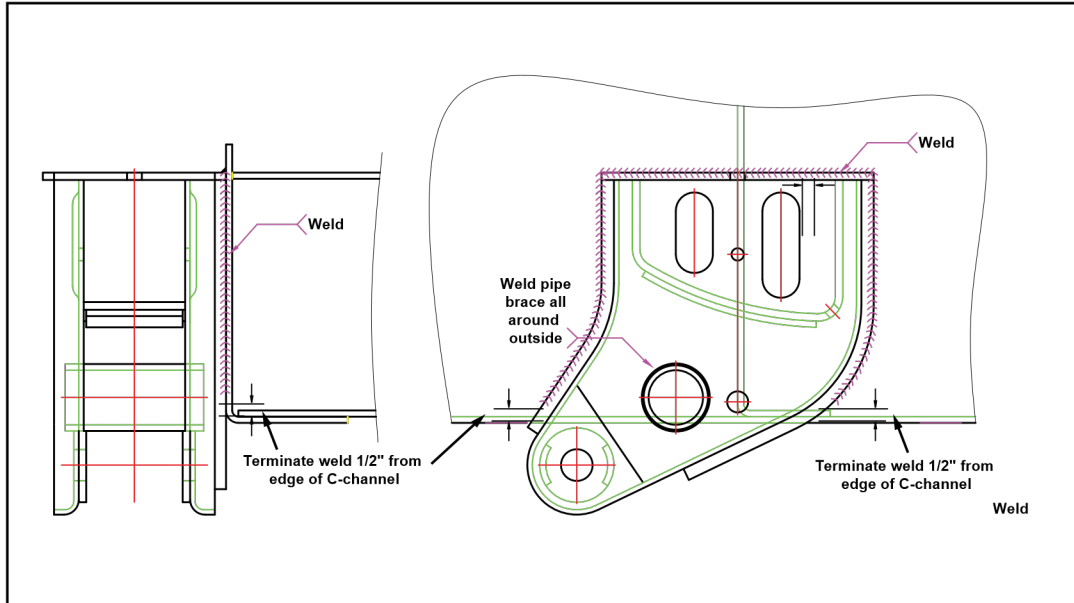


FIGURE 1

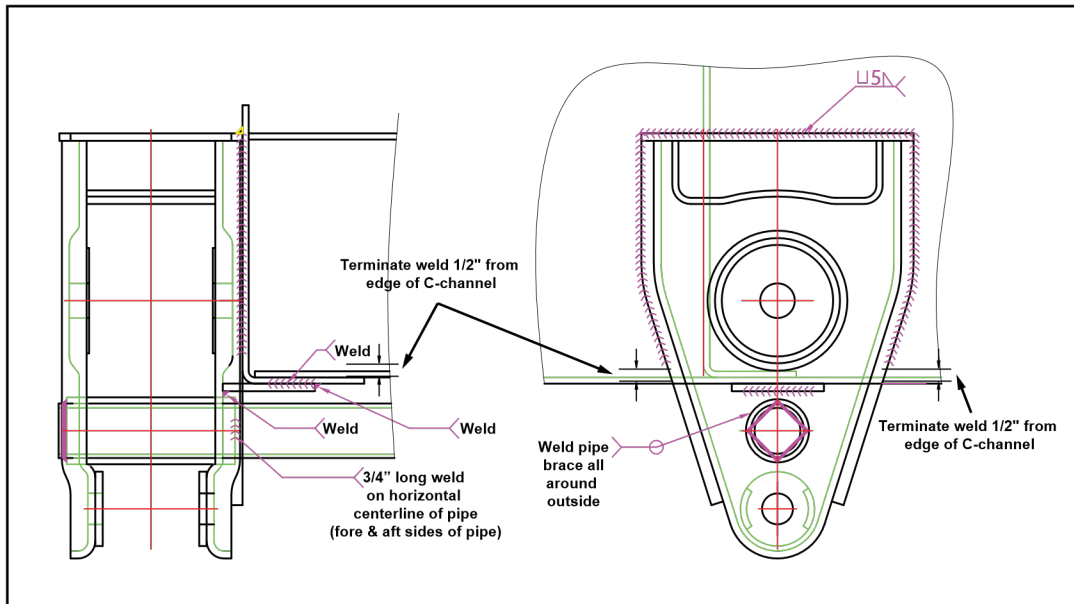


FIGURE 2

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

SIDEMOUNT HANGER for C-CHANNEL Installation & Welding Instructions*

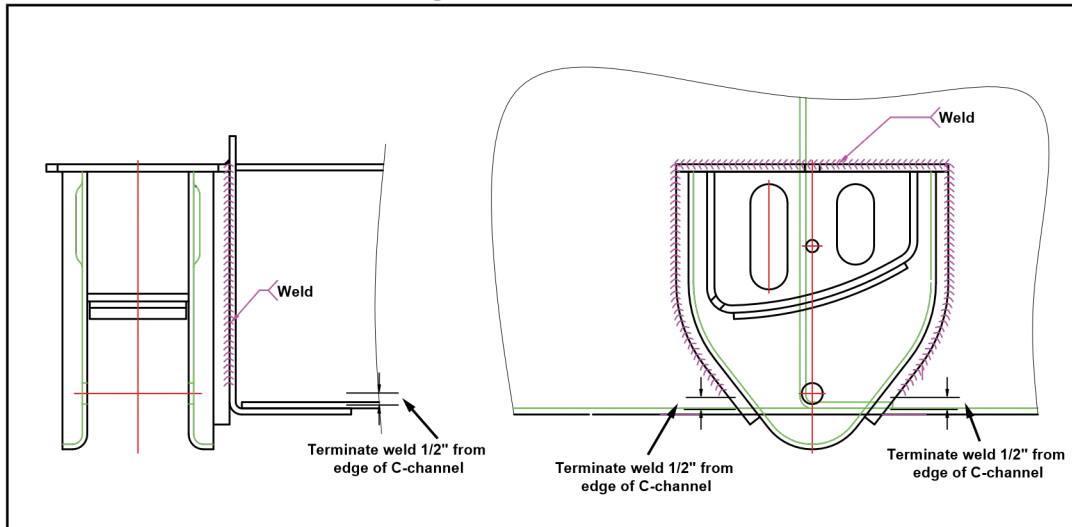


FIGURE 3

Sidemount Hanger final welding:

Weld using AWS E70xx structural welding materials and practices.

1. Weld hangers to chassis rail with 3/16" fillet weld, terminating welds leaving a 0.5" gap from edge of C-channel (see Sidemount figures 1, 2 and 3).
2. Hanger bracing should be considered for all suspensions, especially if the trailer will be operating in off-road conditions.
3. If used, pipes should be welded to the insides of the equalizer hangers (see Sidemount figure 2).

* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

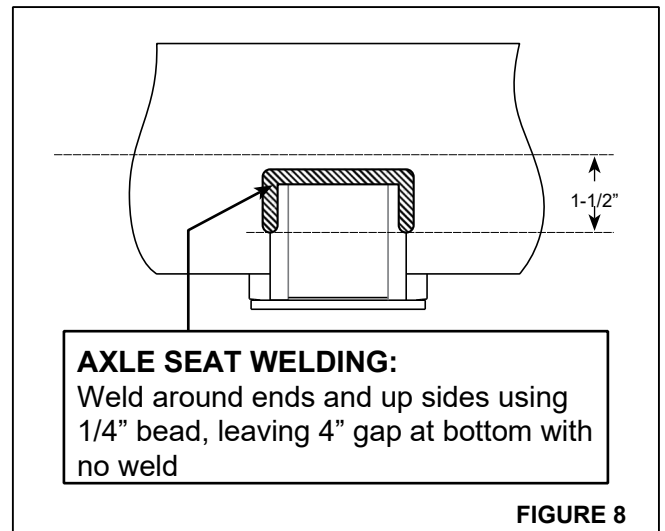
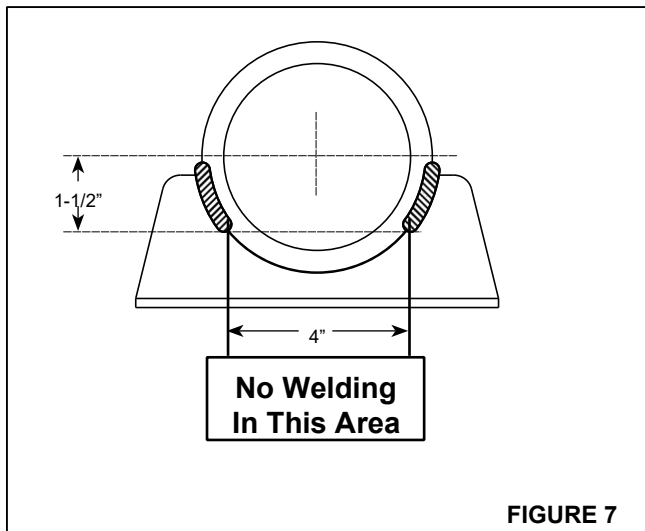
If you have additional questions, please contact your AXN Heavy Duty representative.

UNDERSLUNG AXLE SEAT Assembly & Welding Instructions*



Underslung 5" Round Axle, and Axle Seats:

1. Pre-fit and Axle Seats before welding.
2. Axle Seats MUST be parallel within 1/32" to ensure proper installation and positioning of U-bolts, Springs, and Axles.
3. DO NOT weld more than 2" above or 1-1/2" below the horizontal centerline of the axle beam, making sure to leave the proper 4" gap between welds on the Axle Seat (See figures 7 & 8 below).
4. Weld using AWS E70xx structural welding materials and practices.
5. Proceed to Final Assembly Instructions for hardware torque specifications.



* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

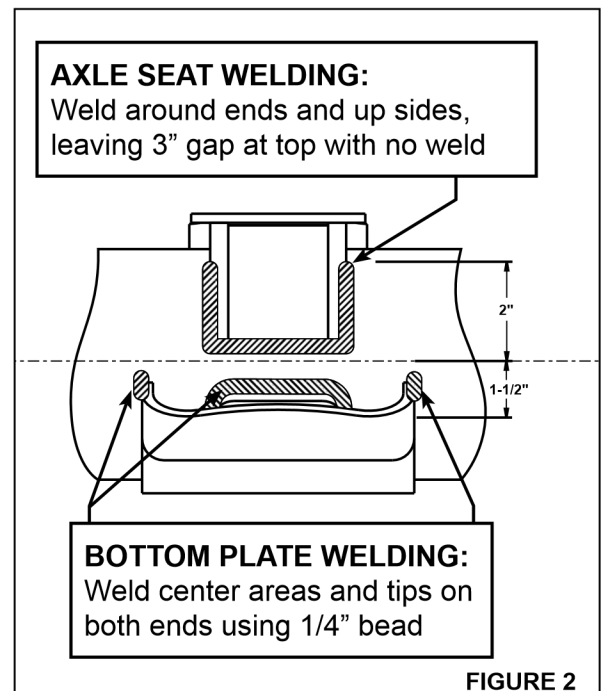
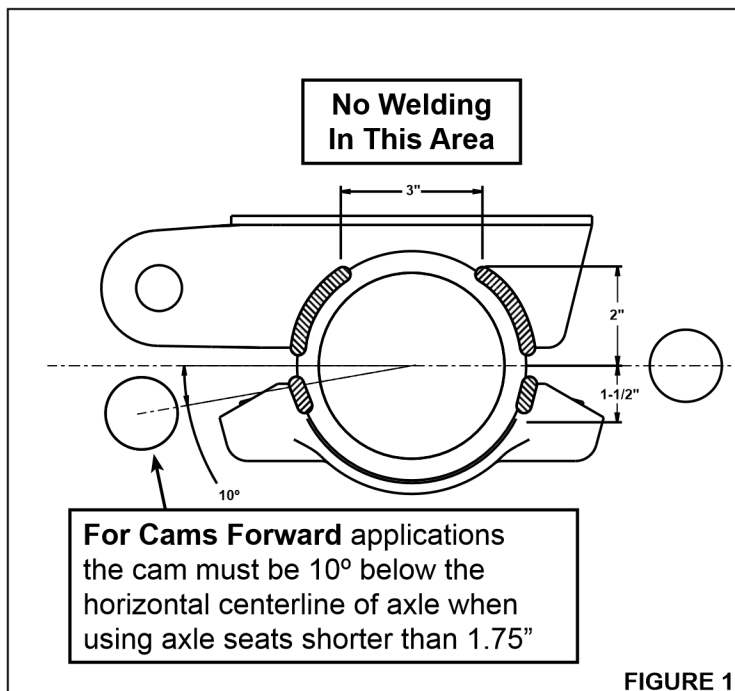
If you have additional questions, please contact your AXN Heavy Duty representative.

OVERSLUNG AXLE SEAT Assembly & Welding Instructions*



Overslung 5" Round Axle, Axle Seats and Bottom Plates:

1. Pre-fit Axle Seats and Bottom Plates before welding.
2. All Axle Seats and Bottom Plates MUST be parallel within 1/32" to ensure proper installation and positioning of U-bolts, Springs and Axles.
3. DO NOT weld more than 2" above or 1-1/2" below the horizontal centerline of the axle beam, making sure to leave the proper 3" gap between welds on the Axle Seat (See Figures 9 & 10 below).
4. Weld using AWS E70xx structural welding materials and practices.
5. For "cams forward" applications (Figure 1), camshaft position must be 10 degrees below the horizontal centerline of the axle when using spring seats shorter than 1.75".
6. Proceed to Final Assembly Instructions for hardware torque specifications.



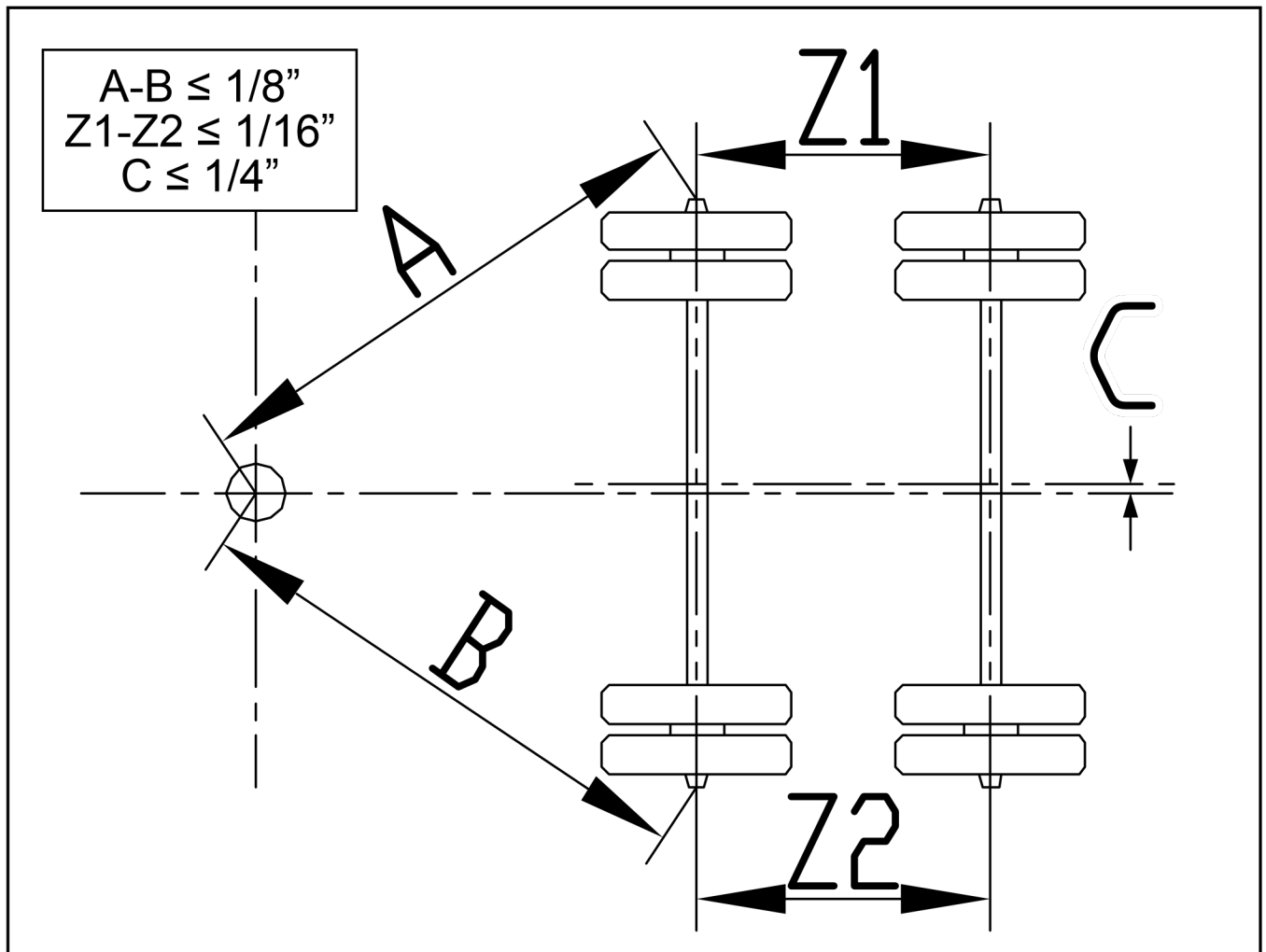
* For any questions regarding fitment, welding and installation procedures please refer to the TMC (Technology Maintenance Council) Recommended Practice RP 728 – Trailer Axle Maintenance publication.

If you have additional questions, please contact your AXN Heavy Duty representative.

AXLE ALIGNMENT

The following steps are to ensure that proper axle and suspension alignment is achieved.

1. The trailer must be in straight line and on smooth level surface.
2. Release the brakes.
3. Check that the tires are the same size and have equal inflation pressure.
4. Align all axles within the tolerances shown below.
5. Re-check the alignment at the 1st Service (3,000-6,000 miles or 2-4 weeks)




If you have additional questions, please contact your AXN Heavy Duty representative.

Final Assembly Instructions

Overslung & Underslung 5" Round Axle:


1. For consistent clamp loads, lubricate all fasteners and torque to oiled specifications per the AXN Torque Decal AX-MS-TD-06-23 supplied with the suspension kit (shown below).
2. U-bolt nuts must be tightened in an alternating pattern.
3. Apply the AXN Torque Decal AX-MS-TD-06-23 on the roadside of the trailer in clear view, above the installed suspension.
4. After initial break in period, check fasteners to ensure properly maintained torque, per the instructions on the AXN Torque Decal AX-MS-TD-06-23.


WARNING

SAFETY ALERT! (1) FOLLOW ALL TORQUE REQUIREMENTS LISTED BELOW.
 (2) DO NOT USE ANY FASTENER COMPONENT WITH VISIBLY WORN OR DAMAGED THREADS. FAILURE TO FOLLOW THESE SAFETY ALERTS CAN LEAD TO LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, SERIOUS PERSONAL INJURY OR DEATH.

AXN Heavy Duty Suspension Torque Requirements for Mechanical Suspension
 After the initial break in period (approximately 1000 miles) and at least every 4 months thereafter, ALL fasteners should be checked to ensure that recommended torque values are being maintained. Lubricated torque values listed below are specified using lightly oiled fasteners. The higher torque specification should be used on dry threads.
Failure to follow these instructions could void the warranty and may result in subsequent injury.

MECHANICAL SPRING SUSPENSION TORQUE REQUIREMENTS			
FASTENER TYPE	DESCRIPTION	Lubricated	Dry
1 1/8"-7	Equalizer Nut	590-650 lb-ft	790-850 lb-ft
1"-14	Radius Rod Nut	540-600 lb-ft	720-780 lb-ft
7/8"-14	U-Bolt Assembly	350-400 lb-ft	470-520 lb-ft
5/8"-18	Radius Rod Clamp Nut	130-160 lb-ft	170-200 lb-ft
5/8"-18	Spring Retainer Nut	35-45 lb-ft	50-60 lb-ft



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AX-MS-TD-06-23

If you have additional questions, please contact your AXN Heavy Duty representative.

Suspension Mounting Height Chart

Nominal values for no-load conditions: 5" Round Axles with 3/4" Spring Seats for Under-mount, Side-mount and Flange-mount Hangers (subtract 1/4" for Straddle-mount Hangers).

Spring Part No.	Description	G.A.W.R. (lbs.)	Overslung Configuration		Underslung Configuration	
			Tandem Axle 49" Axle Center Fabricated	Single Axle 36.5" Hanger Spacing Fabricated	Tandem Axle 49" Axle Center Fabricated	Single Axle 36.5" Hanger Spacing Fabricated
AXN-TSP-2740 (365-00)	Hi-arch, Heavy Duty 3-leaf	25,000	16.00"	15.75"	6.50"	6.25"
AXN-TSP-2741 (365-01)	Low-arch, Heavy Duty 3-leaf	25,000	13.75"	13.25"	4.25"	3.75"
AXN-TSP-2752 (324-01)	Hi-arch, 2-leaf	22,400	16.00"	15.50"	7.50"	7.00"
AXN-TSP-2753 (325-01)	Med-arch, 2-leaf	22,400	14.50"	13.75"	6.00"	5.25"
AXN-TSP-2754 (326-01)	Low-arch, 2-leaf	22,400	13.75"	13.25"	5.25"	4.75"
AXN-TSP-2726 (354-00)	Hi-arch, 3-leaf	22,400	16.00"	15.75"	7.00"	6.75"
AXN-TSP-2727 (355-00)	Med-arch, 3-leaf	22,400	14.50"	14.00"	5.50"	5.00"
AXN-TSP-2728 (356-00)	Low-arch, 3-leaf	22,400	13.75"	13.25"	4.50"	4.00"
AXN-TSP-021 (363-00)	Low-arch, 1-leaf	22,400	13.75"	13.25"	5.75"	5.25"

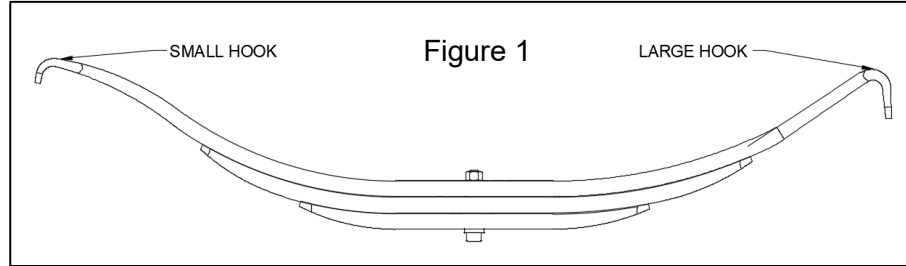
NOTE:

1. Mounting heights shown are for units with 5" round axles and 3/4" spring seats. Add 1/2" to the mounting height shown for each 1/2" increase in spring seat height.
2. For best results, mounting heights should not exceed 17 1/4" on any suspension.
3. AXN recommends a minimum of 4 1/2" vertical clearance be maintained above the tires with trailer or chassis in an unloaded condition, and a minimum of 4" is required between the axle and the frame. With mounting heights less than 6 1/2" modifications may be necessary to the trailer or chassis frame to achieve the required clearances.

If you have additional questions, please contact your AXN Heavy Duty representative.

LEAF SPRING Installation Instructions

Unless directed otherwise: The large hook of the spring (Figure 1) should be orientated as stated below for the following configurations.



- Single Axle – Large hook to be located at the rear hanger.
- Tandem Axle – Large hook for both springs to be at the center hanger/equalizer.
- Tridem Axle – Large hook located on front axle to be positioned toward rear. Remaining large hook are to be pointed toward front.

U-BOLT Length Chart OVERSLUNG 5" Round Axle

U-Bolt Part No.: FH66-0509-See Below; Standard 7/8" Dia. x 5" Rd. x See Length Below						
Seat Height (inches)	Single Leaf Spring		Two Leaf Spring		Three Leaf Spring	
	U-Bolt Part No.	Length (inches)	U-Bolt Part No.	Length (inches)	U-Bolt Part No.	Length (inches)
3/4	-244	9 3/4	-257	10 1/4	-269	10 3/4
1 1/4	-257	10 1/4	-269	10 3/4	-282	11 1/4
1 3/4	-269	10 3/4	-282	11 1/4	-295	11 3/4
2 1/4	-282	11 1/4	-295	11 3/4	-307	12 1/4
2 3/4	-295	11 3/4	-307	12 1/4	-320	12 3/4

U-BOLT Length Chart UNDERSLUNG 5" Round Axle

U-Bolt Part No.: FH66-0509i-See Below; Standard 7/8" Dia. x 5" Rd. x See Length Below						
Seat Height (inches)	Single Leaf Spring		Two Leaf Spring		Three Leaf Spring	
	U-Bolt Part No.	Length (inches)	U-Bolt Part No.	Length (inches)	U-Bolt Part No.	Length (inches)
3/4	-269	10-3/4	-282	11 1/4	-295	11 3/4
1 1/4	-282	11 1/4	-295	11 3/4	-307	12 1/4
1 3/4	-295	11 3/4	-307	12 1/4	-320	12 3/4
2 1/4	-307	12 1/4	-320	12 3/4	-332	13 1/4

If you have additional questions, please contact your AXN Heavy Duty representative.