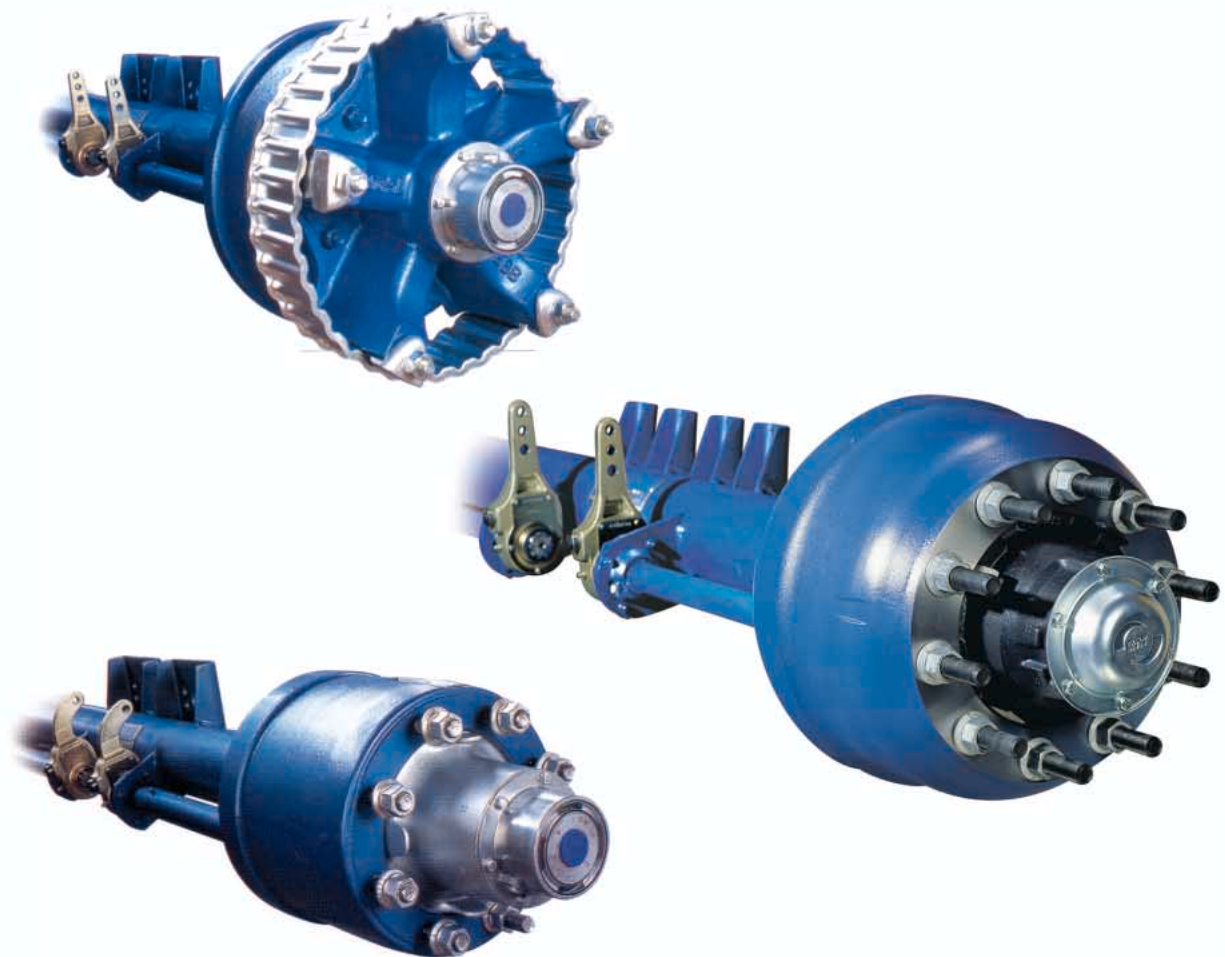


INSTALLATION AND MAINTENANCE MANUAL



DRUM BRAKE TRAILER AXLE

INTRODUCTION

The purpose of this manual is to familiarize yourself with an IMT axle.

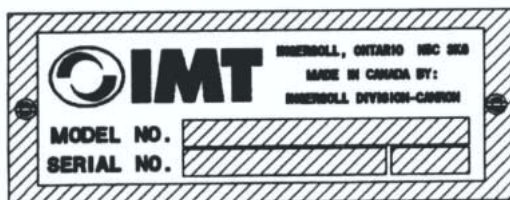
Topics included will cover :

- Installation
- Adjustments
- Maintenance
- Inspections

This manual also contains information in chronological order to get your axle working as soon as possible. Tables, diagrams, and charts for a common sense approach are included to make this package as complete as possible.

Your IMT nameplate on any axle is located on the center of the beam. It contains the model and serial number. Your invoice number will also help to identify your axle. (Fig 1)

Fig 1



Safety

This manual is intended to retain the safety, dependability, and performance engineered into IMT Axle Products. Study this manual carefully before you perform any installation or maintenance procedures.

CAUTIONS and WARNINGS will be used to point out any circumstances that can cause personal injury or damage components.



Before any repair or maintenance work that requires raising a vehicle, secure it with lift stands that are properly rated. Also make sure wheel chocks are accurately inserted. Do not depend on wheel jacks alone for support of vehicle.

Without proper training, safety equipment, and tools, serious if not fatal accidents can occur. Read and understand procedures in this manual before attempting any work.

Do not sand, chisel, hammer, or alter linings in any way. Do not blow brake assemblies with high pressure air lines. Dust from linings should not be inhaled. Do not weld on wheel or heat wheel nuts with tire on. A potentially explosive tire failure called "Pyrolysis" can occur.

Do not use a chisel to remove/install spindle nuts. Always use the right socket size and torque wrench, following torque procedures.

GENERAL INFORMATION

Before installation can begin, now is the time to inspect your IMT axle for any flaws or damage that has occurred at the factory or during shipping.

WELDING HARDWARE TO AXLES

Methods

Four methods may be used to weld hardware to trailer axles:

- Shielded metal arc (stick electrodes)
- Gas metal arc (MIG, solid wire)
- Gas tungsten arc (TIG)
- Flux cored arc (tubular wire)

American Welding Society (AWS) classifications and specifications for these four methods are shown in **Table 1**.

Method for Welding Carbon & Low Alloy Steels	AWS Electrode Classification	AWS Specifications
Shielded Metal Arc	E70XX	A5.1 / A5.5
Gas Metal Arc	ER70S-X	A5.18
Gas Tungsten Arc	ER70S-X	A5.18
Flux Cored Arc	E70T-X	A5.20

Table 1.
AWS WELDING SPECIFICATIONS

The weld tensile strength must be 70,000 psi as per AWS specifications. Weld tensile strengths which either higher or lower than this rating are not acceptable.

The best fusion and strength will be obtained using the voltage, current and shielding medium recommended by the electrode manufacturer. If the shielded metal arc method is used, electrodes must be clean, dry and have been stored per AWS specifications (AWS Section 4.5.2).

AXLE PREPARATION

The area to be welded must be free of grease, dirt, paint, slag and other contaminants. These contaminants may affect weld quality.

Never weld when the axle is cold. The axle and brackets to be welded should be stored overnight in a heated room, and be at a temperature of at least 60°F prior to welding. This will reduce the chance of forming an area of brittle material adjacent to the weld.

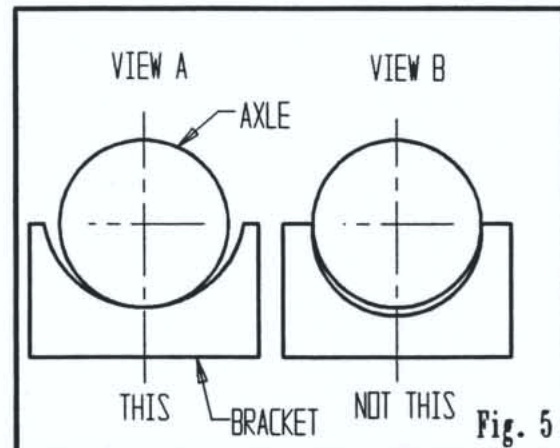
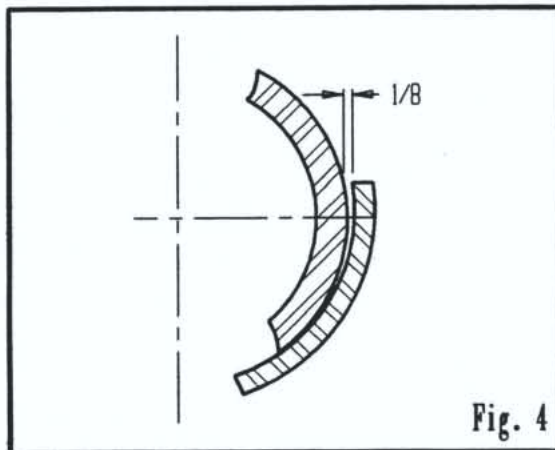
If temperature requirements are not met, moderately pre-heat the weld area to a maximum temperature of 200°F using a "Rosebud". Do not concentrate heat in one area. Rather, slowly heat a wide area around the joint to be welded. Verify axle temperature using a temperature sensitive crayon or other appropriate means.

HARDWARE FIT

Hardware at the weld site should fit as close as possible to the axle. A maximum gap of 1/8-inch (3.18mm) should exist between the bracket and the axle tube. This will avoid the necessity for excessive welding. (See Fig.4)

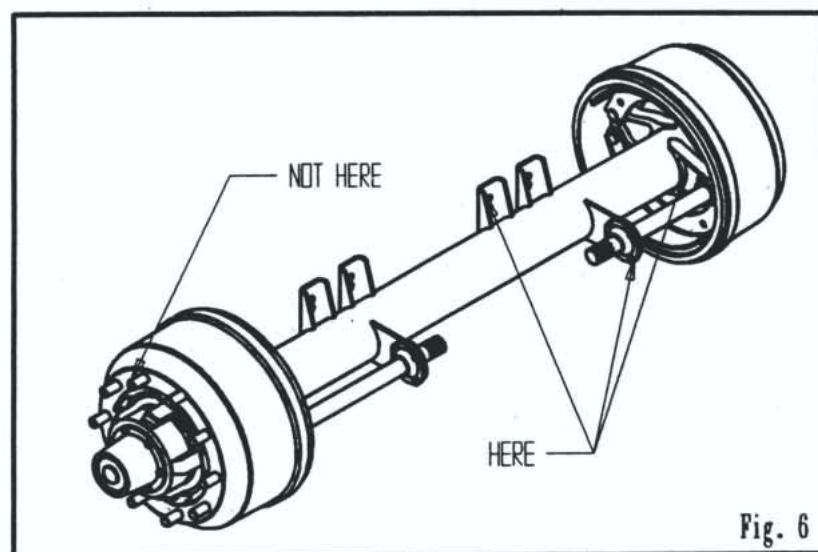
Hardware such as suspension spring seats and trailing arms must be accurately positioned parallel to each other. Use the top-center mark-when available-for reference in locating this hardware, then C-clamp in position prior to welding.

Brackets on axles should fit the axle such that the point of contact is at the base of the bracket as shown in "Fig. 5, VIEW A". Here the fit is such that loads imposed on the bracket are transferred directly to the axle. A fit as shown in Fig. 5 "View B," is such that loads imposed on the bracket are transferred to the axle through the weld. This may cause the weld to crack.



WELDING PREPARATION

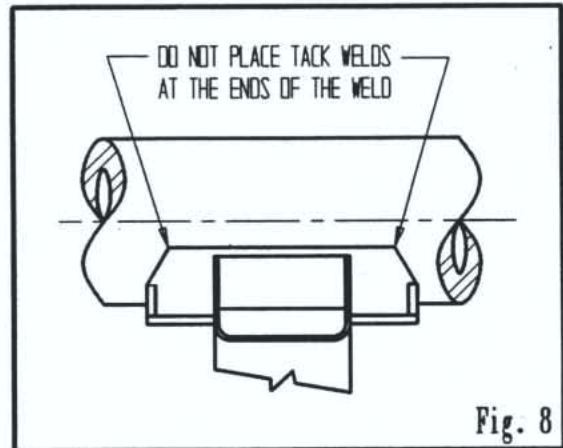
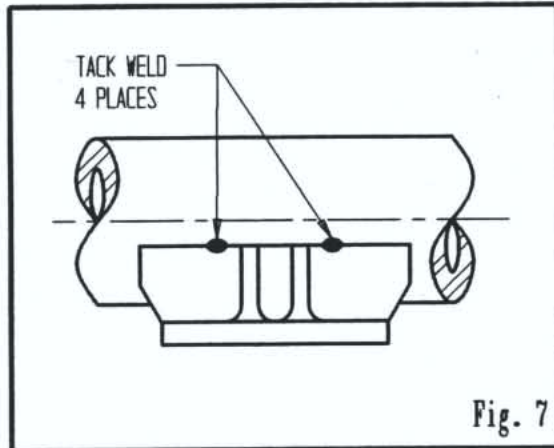
The welding equipment should be grounded to the axle through a cable connection that is both clean and tight. The connection should be located at one of the parts welded to the axle, such as the camshaft bracket, air chamber bracket, or brake spider. The connection should not be located at a suspension spring, U-bolt, or at a point that will place a wheel bearing between the ground cable connection and the weld area, since the wheel bearing can be damaged by electric arcing. (See Fig.6)



Prior to applying the final welds, hardware should be tack-welded to the axle as per recommendations provided by the component supplier. This will help minimize axle distortion and residual stresses caused by the final welds. After tack-welding, clean up the weld slag and then fuse the tack-welds into the final welds.

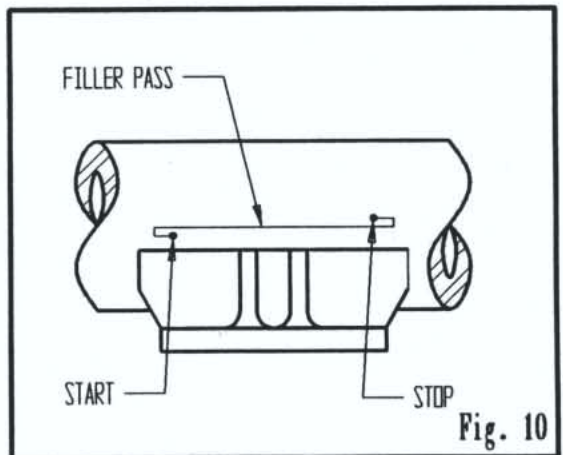
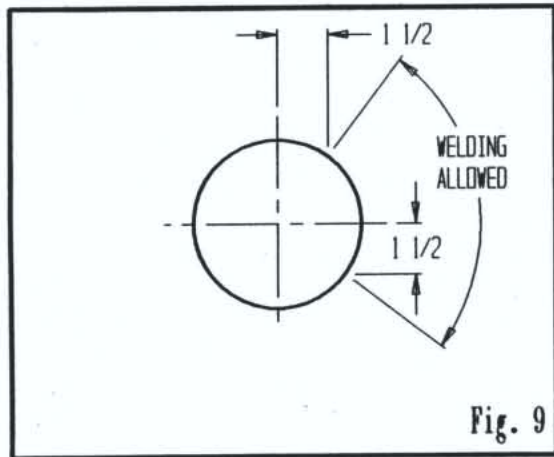
(See Fig. 7). Tack welds should never be located at the ends of the weld pass.

(See Fig. 8).



LOCATION

Axles are more likely to crack at a weld location since welds reduce the strength of the axle material adjacent to the weld location. It is, therefore, essential that welding be confined to areas of relatively low stress near the center of the beam. These welding locations apply to all welds including both full attachment welds and tack welds. Additionally, the arc weld should not be tested on the axle-especially on the bottom half. This, too, can cause a material change that can reduce axle service life. (See Fig. 9).



WELDING PROCEDURE

Welds should not be started or stopped at the end of the weld pass. Rather, they should be started and stopped away from the ends as shown in Fig. 10. This will ensure that the stress riser-which occur when either starting or stopping a weld-are located away from the ends of the weld.

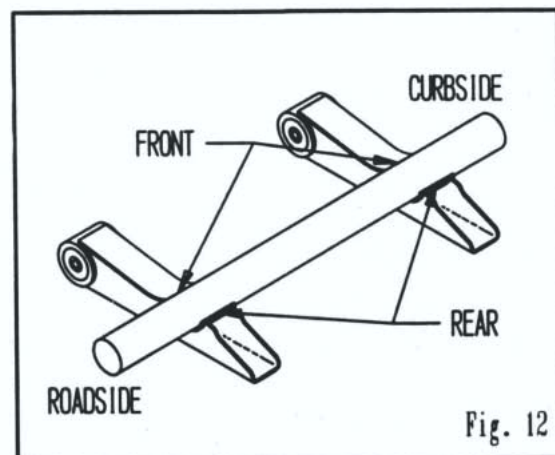
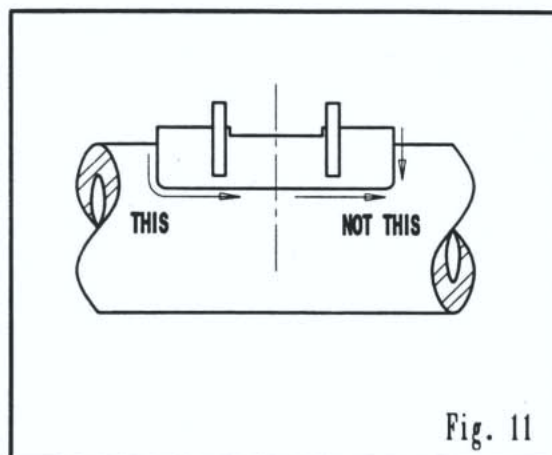
All welds should be made in one continuous pass rather than stopping and starting the weld passes as shown in **Fig.11**.

When attaching a bracket using multiple welds, axle distortion can be minimized by sequencing the welds. This involves alternating weld passes between the front and rear of an individual bracket and between the brackets located on the axle roadside and curbside. (See **Fig.12**). This is in contrast to applying all the welds at one bracket location.

Note further that the first weld pass should be made on the front side of the bracket. This will help ensure that any warping will result in the more desirable “toe-in” condition, rather than the less desirable “toe-out” condition.

WELD BEAD SIZE

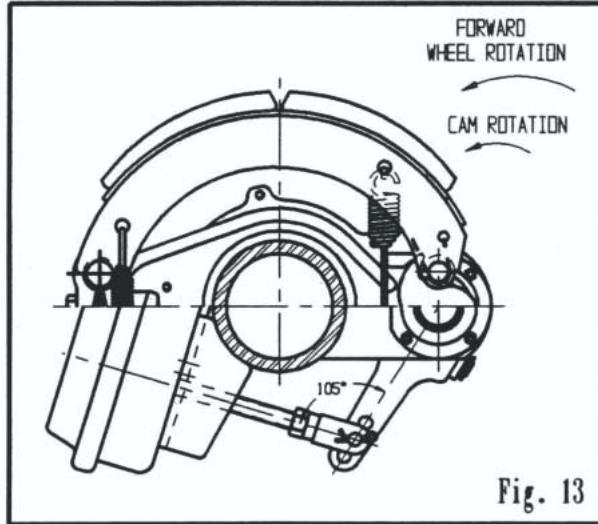
The maximum weld bead size allowed-regardless of whether the weld is achieved with a single or multiple pass-is 1/2 inch (12.7mm) on round axles.



INSTALLATION

ORIENTATION

Because of the many variations of IMT axles, orientation is important. A good rule of thumb is to align cam rotation with wheel rotation in the forward direction. (See Fig 13). If cam/wheel rotation is opposite, natural frequencies can cause brake squealing and vibrations.



Consult IMT for further information.



INSTALLING AXLES AND ASSOCIATED EQUIPMENT

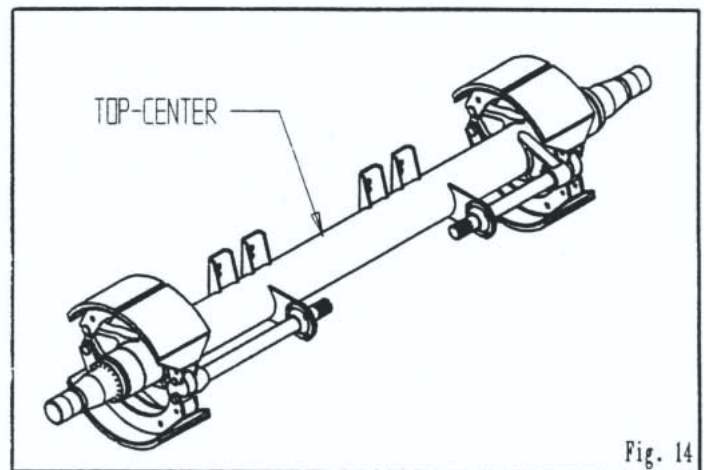
Axle Top-Center Location

Some trailer axle models are built with some type of mark, such as a drilled hole or a punch mark, which locates the top center of the beam. These markers can be used to orient the axle assembly on the suspension and identify the center of the beam so the suspension brackets can be located from a central reference point. (See Fig. 14).

ALLOWABLE AXLE ROTATION

WARNING: This section provides information on the allowable rotation of trailer axles. It does not, however, attempt to evaluate any possible interference between the axle assembly and other trailer components resulting from this rotation. Responsibility for maintaining adequate clearance between various components lies with the vehicle manufacturer.

WARNING: Installation of axles with the top-center other than as specified will void the warranty and could result in premature fatigue damage to the axle.



Cambered trailer axles must be installed so that the top-center mark is located at the exact top of the axle.

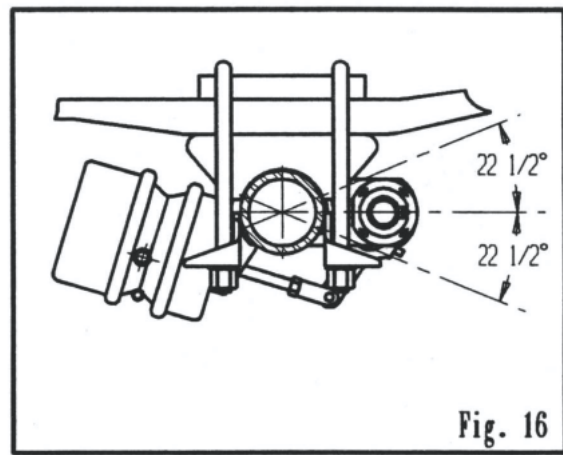
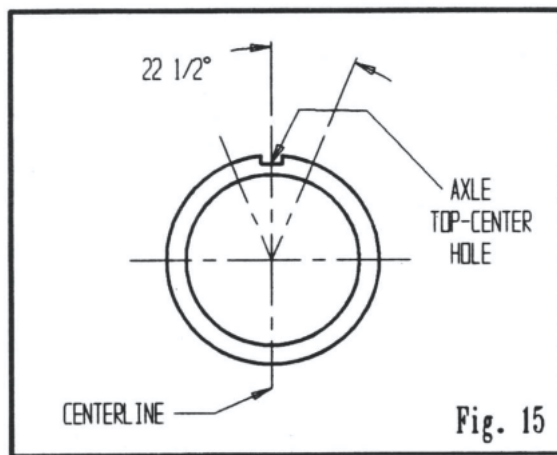
Non-cambered trailer axles can be installed so that the top-center mark is not located at the exact top of the axle. If rotation of the axle is allowed, the top center mark can be rotated $22\frac{1}{2}$ degrees away from the exact top position.

(See Fig. 15).

IMT axles are supplied as non-cambered and are within the limits of a 2 minute negative setting and a 10 minute positive setting.

NOTE:

If top-center rotation is allowed, the hardware for the specific brake model must remain within the rotational limitation shown in Fig. 16.

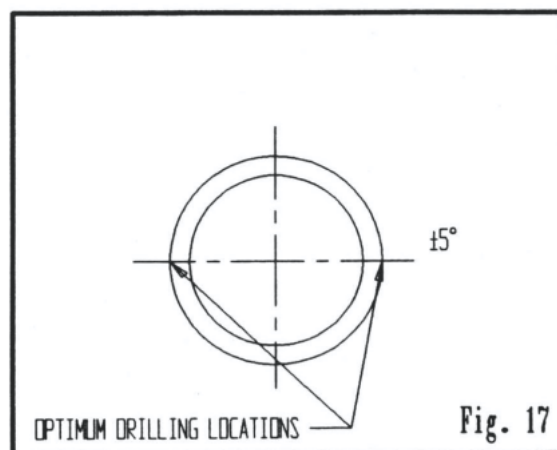


DRILLING INTO THE AXLE

NOTE: This document makes recommendations as to the most logical location in which to drill a hole into an axle tube. Any components altered on an axle are the responsibility of the manufacturers who modify them.

Auxiliary trailer equipment such as central tire inflation systems may require drilling of a hole into the axle tube. In order to minimize the effect of hole drilling on axle strength, the hole should be located in an area of the tube that experiences the least stress. Therefore, good design practice dictates that the hole be located as per the following guidelines:

1. As close to the neutral axis of the axle tube as possible. (See Fig. 17)



AXLE INSTALLATION PROCEDURE

NOTE: Due to the many variations in suspension design, proper suspension installation is the responsibility of the trailer or suspension manufacturer.

1. Position the suspension components on the axle. Check to ensure that they fit the axle properly. Refer to the guidelines on welding contained within this Recommended Practice.
2. Locate the axle top-center and follow guidelines regarding allowable axle rotation as stated in this Recommended Practice.
3. Weld the suspension components to the axle according to suspension manufacturer's guidelines and this Recommended Practice.
4. Position the axle in place under the suspension while ensuring that the proper spacing and alignment requirements are met.
5. Snug the U-bolts with an impact tool. Torque the U-bolts to manufacturer's published requirements using a calibrated torque wrench. Tighten the U-bolts in a crisscross pattern. Be careful not to overtighten the U-bolts since this may damage the axle at the point which the U-bolts contact the axle.
6. Following axle installation and alignment, inspect the assembly to ensure the following:
 - All suspension springs are properly located on the wear pad.
 - Adequate clearance exists between the axle and the trailer frame and suspension components, both when the axle is loaded and unloaded.
 - All bolts have been tightened to proper torque values.

SLACK ADJUSTER INSTALLATION

There are two types of slack adjusters. The manual type and the automatic type. First we will look at manual slack adjusters.

Manual Slack Adjusters: Installation

1. With the proper spider/cam hardware installed, completely push the cam against the spider face.
2. Install the slack on the cam spline so that the adjusting hex is accessible for servicing.
3. Adjust the clevis pin on the air chamber rod to the required length. (ref 12 ¼" and 16 ½" brake geometry **Fig 20 - 21**)
4. Align the slack adjuster arm to the clevis and insert the provided pin through the aligned holes. Secure the clevis pin with a cotter pin.
5. Check that the angle between the air chamber rod and the slack adjuster center lines are 105° +0° -2° when the brakes are in there released position.
6. Install the camshaft retaining washer and retaining ring on the end of the cam shaft. Be sure to shim clearance to slack adjuster manufacturer's specified tolerance.
7. Tighten the jam nut on the air chamber rod to lock the clevis into position. (1/2-20 300-400 in.lbs. 5/8-18 400in.lbs.
8. After installation, make sure there is enough clearance for both applied and released brake positions. Also check that the slack adjuster rotates freely without binding.

Manual Slack Adjusters: Brake Adjustment Procedure

Safely raise the vehicle so that the tires spin freely. Clean the locking sleeve area so that the sleeve can return to its locked position without any obstructions. Place a socket or wrench on the adjusting hex and sink the locking sleeve to disengage it. While rotating the tires, adjust the set screw until the shoes contact the drum. Then, back off the adjusting hex until the tires rotate freely. Make sure the locking sleeve raises to its locked position. Note that the actuator stroke should be as short as possible without the brakes dragging.

Roadside Adjustment

If the vehicle cannot be raised up, again clean the locking sleeve area thoroughly. Place a socket or wrench on the adjusting hex sinking the locking sleeve. Turn the adjusting hex until it stops, indicating that the shoes have made contact with the drum. Pull on the slack adjuster to see if there is any movement. If it will not move the adjusting hex was turned in the proper direction. If there is movement then the adjusting hex was turned in the wrong direction and will have to be turned in the opposite direction until it stops, locking the shoes against the drums. After determining solid shoe contact, back off the adjusting hex 1/2 turn for new linings, or 1/4 turn for worn linings. The actuator stroke should be as short as possible without the brakes engaging. Make sure the locking sleeve moves up to its locked position. If it does not the slack adjuster can back itself off.

Automatic Slack Adjusters: Installation (A-arm link type B-anchor bracket type)

1. With the proper spider/cam hardware installed, completely push the cam against the spider face.
 - 2A. Adjust the clevis pin on the air chamber rod to the required length and install air chamber. (ref 12 1/4" and 16 1/2" brake geometry **SEE Fig 20 - 21**).
 - 2B. Place clevis pin on air chamber mounting stud. Repeat (2A).
 - 3A. Place swing tool or template onto the cam spline and rest against clevis.
 - 3B. Rotate the control arm away from the adjusting hex until it comes to a complete stop. Note the indicator between the slots.
 - 4A. Reposition clevis until 1/4" link pin holes are aligned. This will ensure a proper slack adjuster angle and fit.
 - 4B. Tighten all anchor bracket fasteners while ensuring that the control arm does not move.
 - 5A. Install slack adjuster on the camshaft so that the adjusting hex is accessible for servicing. Be sure to shim the slack adjuster to the manufactures specifications.
 - 5B. Install autoslack adjuster onto camshaft with adjusting hex away from the air chamber. Be sure to shim the slack adjuster to the manufactures specifications.
 - 6A. Rotate the adjusting mechanism if needed to insert the clevis and link pins. Install cotter pins.
 - 6B. Rotate the adjusting hex to align the clevis hole with the slack adjuster hole and insert clevis pin. Note: Do not install cotter pin, see adjustment procedure to check for proper installation.
Then install cotter pin.
 - 7A. Tighten jam nut on the air chamber rod.
- Note: See Automatic slack adjuster Manufacturer's instructions for detailed illustrations and procedures.**

Automatic Slack Adjusters: Brake Verification Procedure

Air Chamber Power Stroke: A power stroke at 80-90 psi brake application pressure will check both the adjustment and foundation brake condition. Apply the following procedure.

1. Measure the distance from the bottom of the air chamber to the center of the clevis pin on all wheels. See Fig 18.
2. Apply brakes repetitively until the air reservoir indicator reads 90 - 100 psi. Then have someone apply full brakes and hold.
3. Again, measure the distance from the bottom of the air chamber to the center of the clevis on all wheels. See Fig 19.
4. The difference between applied and released brakes is called the power stroke. If the measured distance is no more than the legal maximum stroke shown in Table 2, the procedure is complete.

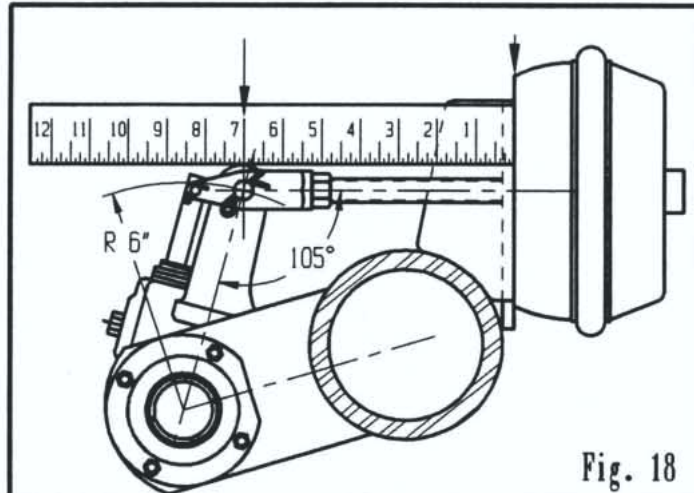


Fig. 18

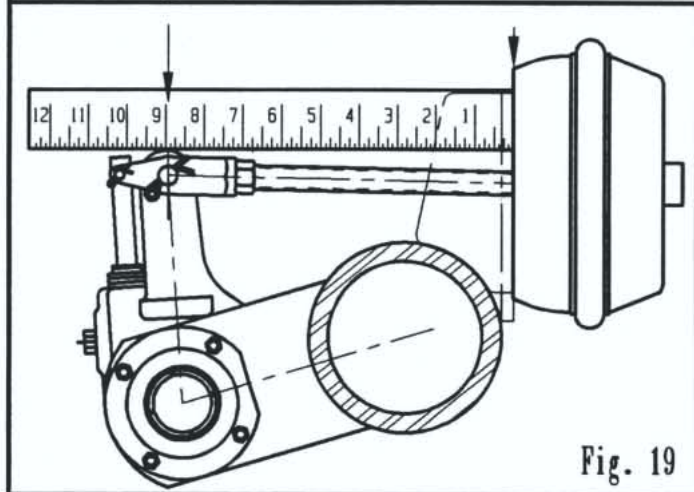


Fig. 19

Automatic Slack Adjuster: Adjustment

Place a socket or wrench over the adjusting mechanism. Turn it so the shoes contact the drum. Pull the slack adjuster by hand to make sure it does not move. If it does move, adjustment was made in the wrong direction. Turn the adjusting mechanism in the opposite direction until the shoes are contacting the drum and the adjusting mechanism stops.

Air Chamber Type	Maximum Legal Stroke
12	1 3/8"
16	1 3/4"
20	1 3/4"
24	1 3/4"
24 Long Stroke	2"
30 Long Stroke	2 1/2"
30	2"
36	2 1/4"

Table 2

Reverse the rotation 1/2 turn backing off the slack adjuster. Measure the air chamber power stroke at 80-90 psi as mentioned in the Brake Verification Procedure. Make a free stroke measurement (distance from rest to drum contact using a pry bar). you should be measuring a distance between 3/8" - 5/8".

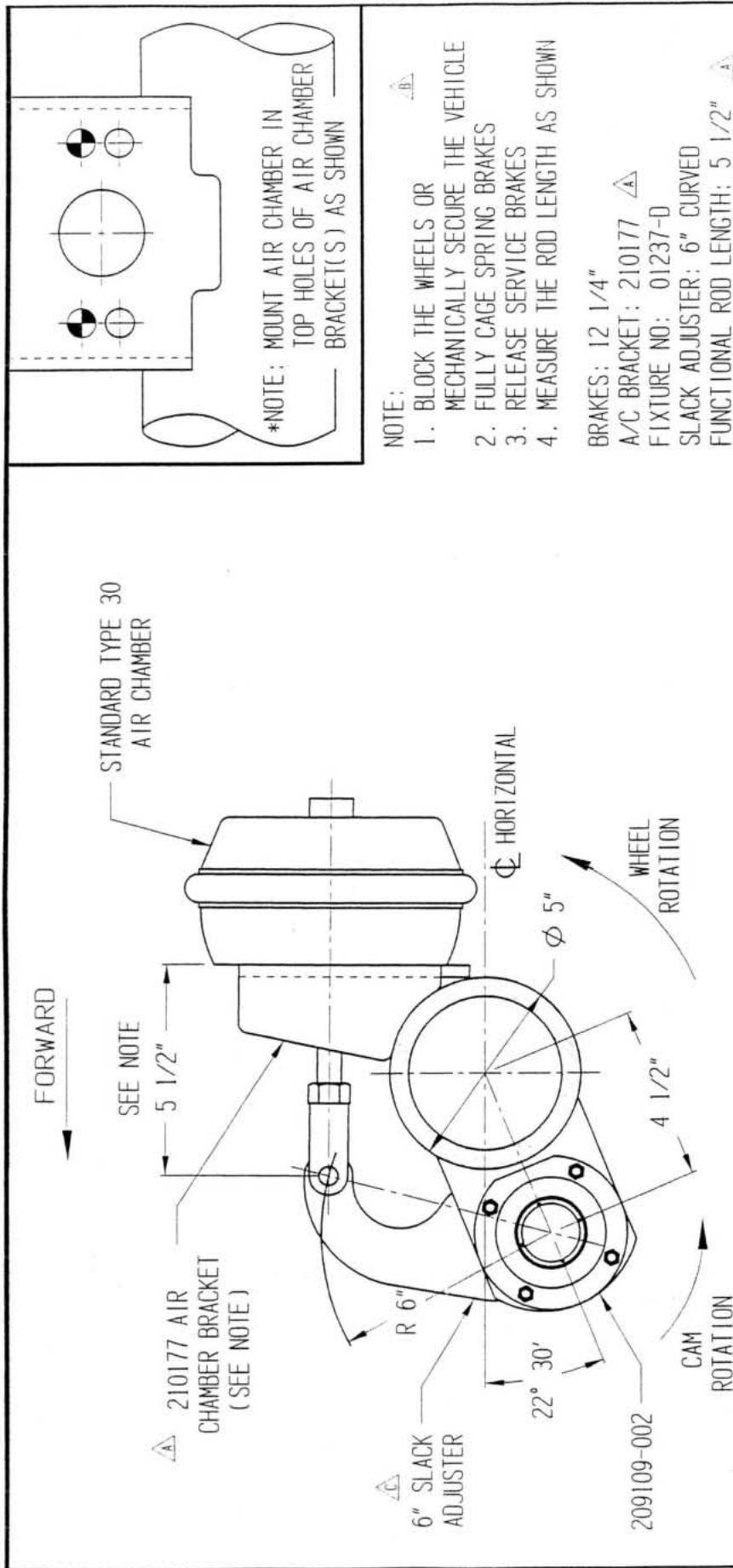
If you cannot maintain the maximum legal stroke, and the free stroke is less than 3/8", contact the brake manufacturer for foundation or brake geometry problems.

Roadside Adjustment


If the vehicle cannot be raised, use a pry bar to pull back on the slack adjuster. If there is more than 5/8" movement, an adjustment is required. Block the wheels or secure the vehicle. On the brakes to be adjusted, the spring brakes have to be caged or released with air.

Rotate the adjusting mechanism on the slack adjuster until the shoes contact the drum. Use a pry bar to see if there is any movement. If there is any, the adjustment was made in the wrong direction. Adjust in the opposite direction until the shoes contact the drum. Note: You should hear a muffled knock when hitting the locked drum with a wrench. Back off the slack adjuster by small increments tapping the drum until a unobstructed chime is heard.

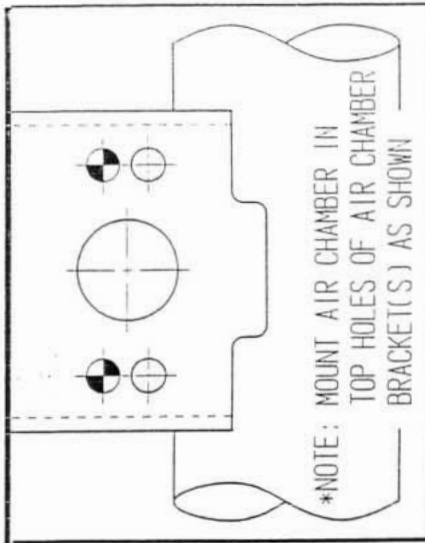
Using a pry bar recheck the slack adjuster by pulling it back, measuring no more than 5/8" of movement. If it is more, then the adjustment was done improperly or there is a problem with the brake foundation.



- NOTE:**
1. BLOCK THE WHEELS OR MECHANICALLY SECURE THE VEHICLE
 2. FULLY CAGE SPRING BRAKES
 3. RELEASE SERVICE BRAKES
 4. MEASURE THE ROD LENGTH AS SHOWN
- BRAKES: 12 1/4"
- A/C BRACKET: 210177
- FIXTURE NO: 01237-D
- SLACK ADJUSTER: 6" CURVED
- FUNCTIONAL ROD LENGTH: 5 1/2"

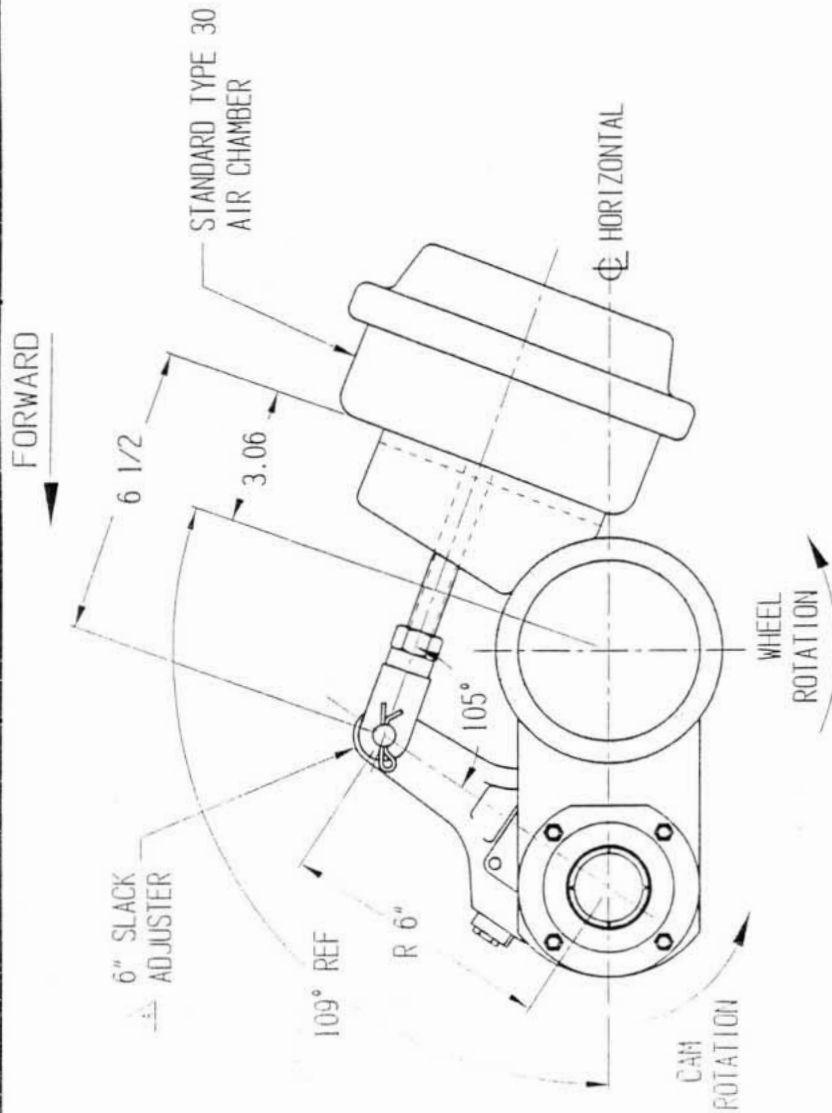
		IMT CORPORATION 347 KING STREET WEST INGERSOLL, ONTARIO, N5C 3K6		TEL: (519) 485-2210 FAX: (519) 485-2163 EMAIL: eng@imtpcdt.com
DRAWING TITLE: A/C MOUNTING GEOMETRY		DATE: JUN 07 92		SCALE: A = 1:4
6" SLACK, 5 1/2" ROD		SHEET: 1 OF 1		APPROVAL: C
UNLESS SPECIFIED, ALL DIM'S ARE IN INCHES UNSPECIFIED TOLERANCES X.X = +/- 0.03 FRACTIONS = +/- 1/16 X.XX = +/- 0.01 ANGLES = +/- 1 DEG X.XXX = +/- 0.005 SURFACE FINISH: 125 X.XXXX = +/- 0.0010		REF: 12 1/4" BRAKES		DWG No. 1AT-1237
C ELIMINATED SLACK ADJUSTER PART NUMBER.		JUN 26/97	P.S.	**BREAK SHARP CORNERS**
B ADDED MEASURING INSTRUCTIONS FOR ROD LENGTH.		JUN 3/96	B.B.	
A A/C BRACKET WAS 210172-001. ADDED FIXTURE NO.		JUN 21/94	E.H.	
REV DESCRIPTION		DATE	REV'D	
REVISIONS				

BREAK SHARP CORNERS



- NOTE:
1. BLOCK THE WHEELS OR MECHANICALLY SECURE THE VEHICLE
 2. FULLY CAGE SPRING BRAKES
 3. RELEASE SERVICE BRAKES
 4. MEASURE THE ROD LENGTH AS SHOWN

BRAKES: 15"
 A/C BRACKET: 210177 | 210180
 FIXTURE NO: 01394-D | 01940-D
 SLACK ADJUSTER: 6" STRAIGHT
 FUNCTIONAL ROD LENGTH: 6 1/2"



IMT CORPORATION 347 KING STREET WEST INGERSOLL, ONTARIO, N5C 3K6 TEL: (519) 485-2113 FAX: (519) 485-2163 EMAIL: eng@imtpd.com	
A/C MOUNTING GEOMETRY	
6" SLACK, 6 1/2" ROD	
UNLESS SPECIFIED, ALL DIM'S ARE IN INCHES UNSPECIFIED TOLERANCES: X.X = +/- 0.03 FRACTIONS = +/- 1/16 X.XX = +/- 0.01 ANGLES = +/- 1 DEG X.XXX = +/- 0.005 SURFACE FINISH: 125 X.XXXX = +/- 0.0010 **BREAK SHARP CORNERS**	
REF: 15" BRAKES	APPROVAL REV LEVEL A
DWG No. 01946-A	

REV	DESCRIPTION	DATE	REV'D	P.S.
1	REVISED SLACK ADJUSTER LABEL	JUN 26/97		

REVISIONS



MAINTENANCE

Oil and grease change – suggested intervals:

Due to the varying load and driving conditions, service intervals will vary. Below is a generally accepted guideline on which maintenance scheduling can be observed.

- Always clean parts thoroughly with proper solvents and equipment.
- Do not use gasoline or steel brushes. Never refill the hub with old oil.
- Extra attention should be given to seals. Contaminated lubricants can quickly destroy the entire wheel assembly.

Oil properties:

Original equipment supplied with 'CALTEX SYNSTAR TL50'
Fully synthetic SAE50 grade
Flashpoint 235° Celsius

Grease properties:

Original equipment supplied with 'CALTEX STARPLEX 2'
Lithium complex, NLG1 No. 2
Dropping point - 232° Celsius
Additives – corrosion and oxidization inhibitors, EP additives

SERVICE SCHEDULE

FOR IMT DRUM BRAKE AXLE TYPES F22, FE22, FE24

SERVICE SCHEDULE Which ever comes first <div> → Mileage intervals → Time intervals </div>	After first 5,000km	Periodic checks		
	After first Month	Every 30,000km	Every 100,000km	Every 250,000km
		Every 3 months	Every 12 months	Every 24 months

Visual inspection - for wear / damage

OIL FILLED HUBS				
Regular visual inspection of oil levels,	weekly			
Inspection for oil leaks	monthly			
Drain and replace oil				●

GREASE FILLED HUBS - for wear / damage				
Remove hub cap and inspect grease around outer bearing and in hub cap			●	
Clean and repack bearings and hub with fresh grease				●
Check condition of taper roller bearings, Replace if necessary				●

GENERAL - for wear / damage				
Check brake linings for wear	monthly			
Check brakes for correct adjustment	monthly			
Check braking system for air leaks	●	●		
Check truck-trailer combination for brake compatibility	●		●	
Check camshafts for free movement and lubricate	monthly			

Special service conditions;

Vehicles operating in off highway / harsh conditions; service at suitably reduced time intervals

AXLE COMPONENT LUBRICATION

This section offers recommendations for periodic lubrication of trailer brake components installed on trailer axles. Many fleets use their trailer inspection interval as their trailer lubricant interval. For information on brake lubrication intervals, refer to TMC RP 607 and 609.

Refer to TMC RP 624, *Lubricant Fundamentals* for more information.

Lubricant Leakage

Inspect the axle for lubricant leakage. Wear or damage to seals can result in either leaks or component contamination, and could ultimately lead to wheel-end loss. Any signs of lubricant leakage should be investigated, and the seals or rings replaced if any damage or improperly installed components are found. Seal leakage can lead to loss of wheel-end lubricant and ultimately cause the wheel end to overheat.

Lubrication Preparation

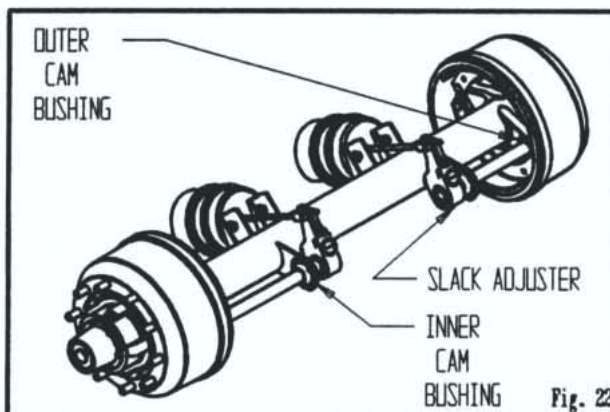
If possible, clean the trailer prior to lubrication. This will help the mechanic locate the grease fittings and spot any problems with the trailer.

Park the trailer on level ground and set the parking brakes. Be sure the landing gear is in place and free of defects. Chock the wheels to prevent the trailer from rolling, and block accessibility to the trailer so that no one attempts to hook it up and drive it off.

Locate all fittings to be lubricated and wipe off any excess grease or road film with a clean rag or paper towel.

Grease Fitting Location

A trailer axle fitted with S-cam brakes has grease fittings located at the inner cam bushings, outer cam bushings and slack adjusters. (See **Fig. 22**).



Lubrication Procedure

Using either a hand-held grease gun - free of grit - add grease to each component through the appropriate grease fitting. Grease should be added until a small quantity of fresh grease appears at the purge point or at any opening of the component. This ensures that the contaminants have been flushed from the component without over greasing.

The excess grease should be wiped after it purges from the joint. This helps ensure that contaminants are not attracted to the lubrication point during regular road operations, that grease does not contaminate the brake linings, and that grease does drop onto the road surface.

GREASE PACKING PROCEDURE

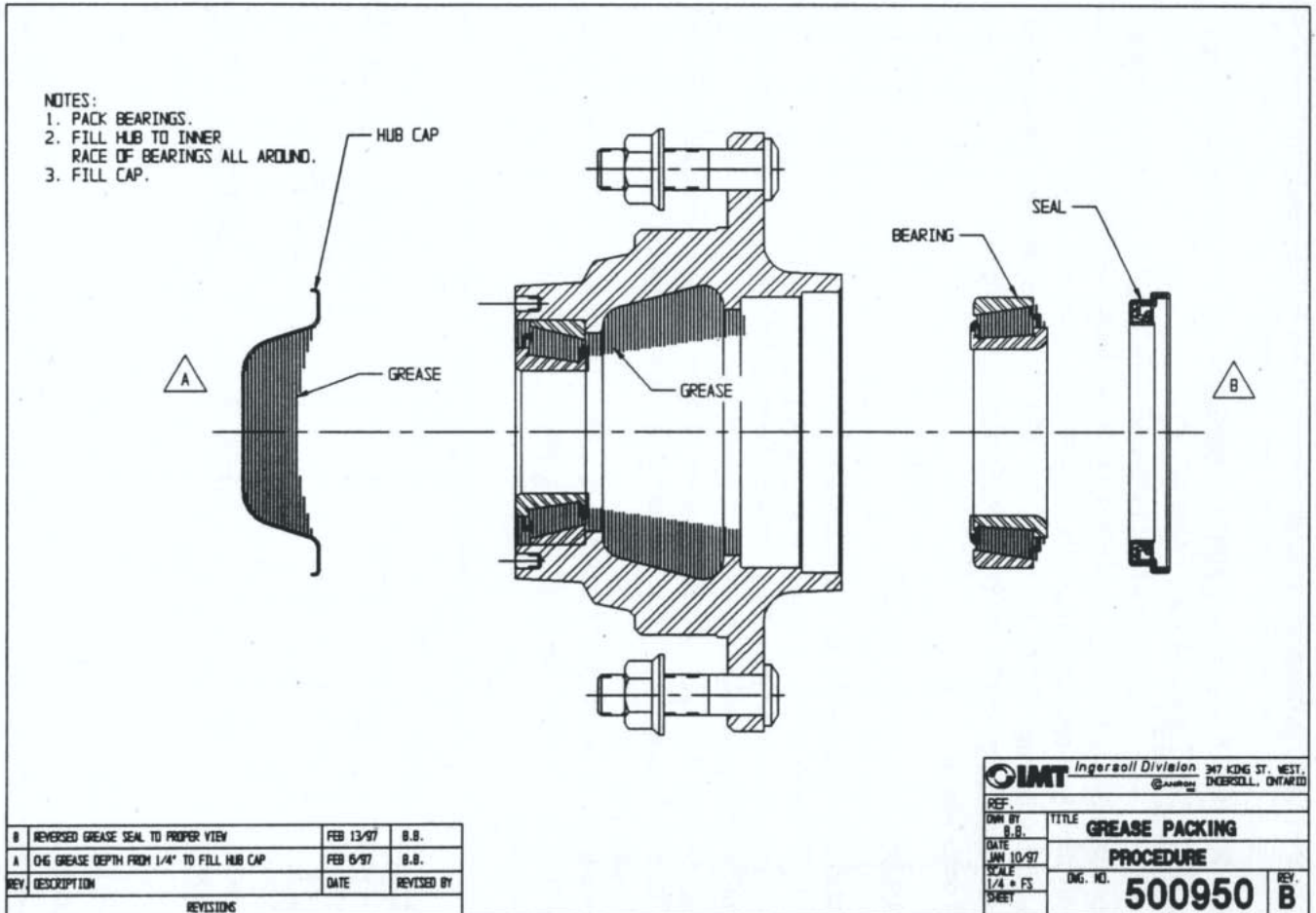


Fig 23

WHEEL BEARING ADJUSTMENT PROCEDURE

IMT Endorses TMC's Recommended Wheel Bearing Adjustment Procedure RP 618.
The objective of these procedures is to obtain 0.001" to 0.005" end play

PROCEDURE IN018 (See Fig 24)

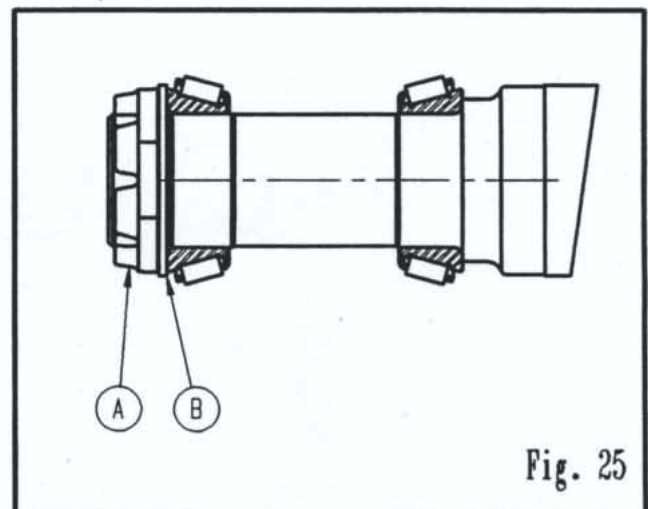
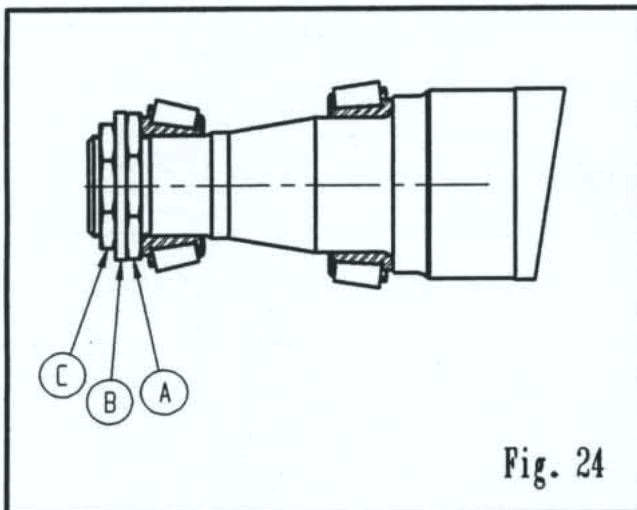
Double Adjusting Nut System: F19, A21, F22, F23, A26

1. Tighten the adjusting nut (A) to a torque of 200 ft-lbs. (271 N·m) while rotating the wheel.
2. Back off the adjusting nut (A) one full turn.
3. Tighten the adjusting nut (A) to a final torque of 50 ft-lbs (68N·m) while rotating the wheel.
4. Back off adjusting nut (A) 1/4 to 1/3 turn and install lock washer (B) to nearest hole.
5. Install outer jam nut (C) and torque to 300-400 ft-lbs. (407-542 N·m).
6. **Acceptable end play is 0.001" (0.025mm) to 0.005" (0.13mm) measured with a dial indicator**
7. Verify that the wheel rotates freely when adjustment is complete.

PROCEDURE IN019 (See Fig 25)

For Single Adjusting Nut System: F23, A24, F24

1. Install lock washer (B).
2. Tighten adjusting nut (A) to a torque of 200 ft-lbs. (271N·m) while rotating wheel.
3. Back off adjusting nut (A) 1 full turn.
4. Tighten the adjusting nut to a final torque of 50 ft-lbs. (68N·m) while rotating the wheel.
5. Back off adjusting nut (A) 1/16 to 1/8 turn to the nearest locking hole.
6. Install cotter pin.
7. **Acceptable end play is 0.001" (0.025mm) to 0.005" (0.13mm) measured with a dial indicator**
8. Verify that the wheel rotates freely when adjustment is complete.



BRAKE FORCE DISTRIBUTION

It is important that the distribution of brake force (*between axles/vehicles*) in a vehicle combination is adapted so that the brake force for each axle/vehicle is proportioned in accordance with the legally applied braking calculations.

If the brake force is not correctly distributed it can lead to excessive braking of a vehicle and/or one or more axles in the combination. This can result in overheating, accelerated wear and damage to the drums, linings, hubs, tyres and wheel components.

Before a trailer is taken into use it must be set up according to the specified values in the relevant brake calculation. After the linings/drums have been run in for a period of around 3,000 – 5,000 km the brake force distribution between the truck/tractor and trailer may require adjustment.

Contact the vehicle supplier for information on the appropriate action.

Following replacement of any essential components or spare parts in the brake operating system (*such as brake valves or control units*), the brake operating system must also be checked and adjusted (*if necessary*) in accordance with the relevant braking calculations.

Failure to follow these instructions could lead to damage or repeated damage to the axle components and/or brake components.

ATTENTION

BRAKE BALANCE

To obtain maximum drum-brake performance from the axles fitted to this trailer, brake balance between the truck and trailer must be carried out before going into service and again at 5000km service, and then every 12 months thereafter.

**Maximum lead to trailer must not exceed
0.28 bar (4 psi).**

PROCEDURE IN023

SEPT 20,2001

IMT STRAIGHT AXLE TOE-IN, TOE-OUT VERIFICATION

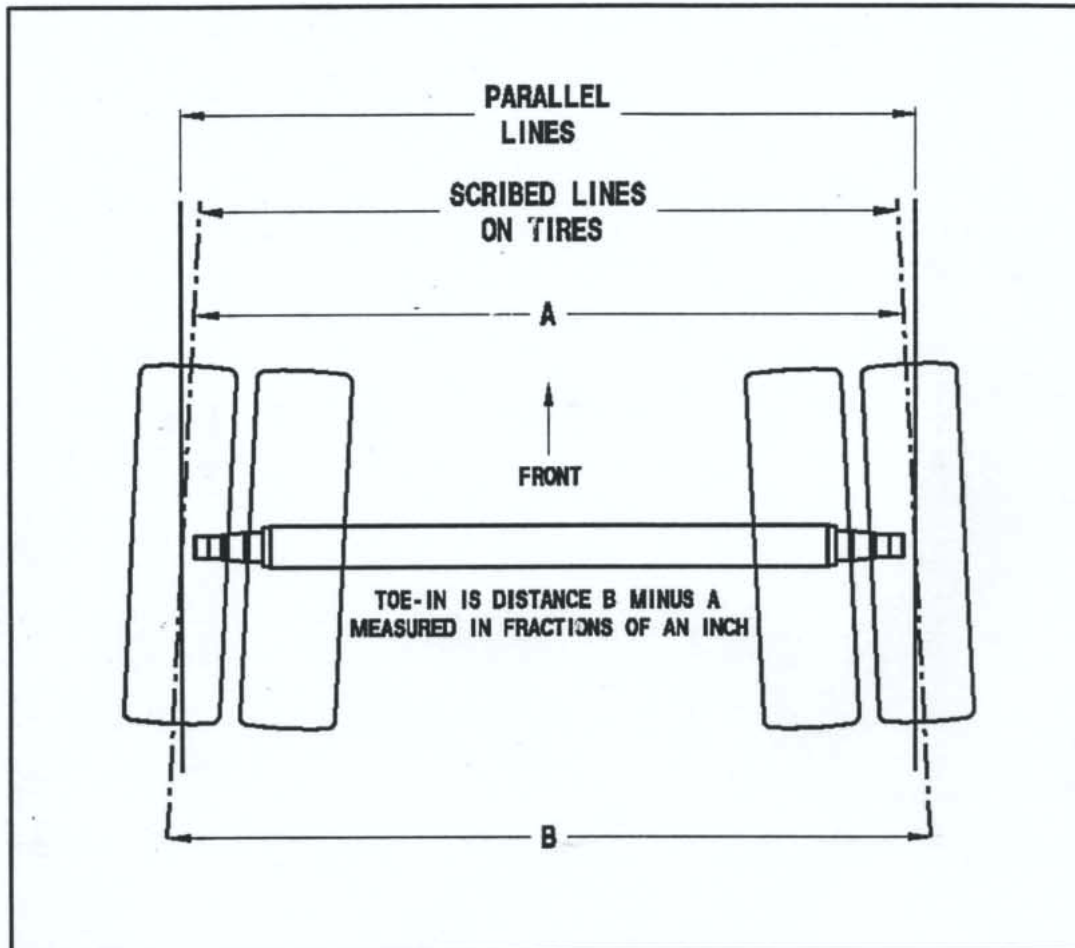


Figure A
WHEEL TOE-IN
(TOP VIEW OF AXLE WITH DUALS)

Note: With wheels off the ground, scribe a fine line on the tire tread all around the tire to aid in the measurement of "A" and "B".

Toe-in: "A" is smaller than "B".

Toe-out: "A" is larger than "B".

(See Figure A.)

To be correctly aligned, wheel toe-in or toe-out must be within the limits of .25", 6.35 mm, 0.358 degree, or 21 minutes toe-in, and .063", 1.59 mm, 0.09 degree, or 5 minutes toe-out. Toe-in or toe-out which exceeds these limits will cause increased tire wear.

INSPECTING AXLES AND ASSOCIATED EQUIPMENT

Proper Inspection Intervals

Trailer axles should be inspected for cracks, wear and leaks every six months or 50,000 miles.

Cracks

The entire axle tube should be visually inspected for cracks. Any cracks found in the tubing indicate immediate axle replacement is necessary. Repair welding of the axle tube is prohibited.

Welds attaching brake spiders, camshaft brackets, air-chamber brackets and suspension components should be inspected for cracks. If a crack is detected, determine if it penetrates into the tubing. If a crack penetrates into the axle tubing, repair welding is not permitted and the axle must be replaced.

Axle Straightness

The axle should meet the trailer manufacturer's specifications for straightness. Refer to RP 708 regarding this inspection. Obvious signs of improper axle straightness include premature and excessive tire wear. Trailer axle manufacturer's do not approve of straightening axles in the shop. Overloaded or bent axles should be replaced.

Spindle Wear, Scratches, Rust and Pitting

Any cracks found in the spindle require immediate axle replacement. Repair is not allowed.

Surface rust, scratches, or slight pitting on the wheel spindle bearing or seal journals may be polished or sanded out with emery or crocus cloth. Do not reduce the diameters of the journals beyond the axle manufacturer's specifications. Excessive pitting, scratches or fretting on the spindle bearing or seal journals-covering more than 50 percent of the surface-require immediate axle replacement.

Spindle threads may be cleaned with a wire brush or chased with a die.

Repair welding of spindle threads are not permitted. Consult **IMT** if any wear is questionable.





Notes



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