

TECHNICAL SERVICE BULLETIN



Issue Date:	05/02/2019
Version:	1
Bulletin No:	TSB# T-1206
Operation No:	T1206
Labor Time:	.5
TSB Classification:	Mandatory TSB <input checked="" type="checkbox"/>

Subject: How to Install Visual Brake Stroke Adjustment Indicators	Company Segment: ALL
	Manufacturer: ALL TRUCK/TRACTORS & TRAILERS
	Model : N/A
	Engine: N/A
	Tier Rating: N/A

PROBLEM:

The most frequently cited statistical safety defect in trucking is Brakes out-of-adjustment. It is also estimated to be responsible for at least 30% of all truck crash fatalities, making it one of the deadliest conditions industry.

- Undetected defects increase costs and exposure to risk and liability
- Checking brakes by “feel” is ineffective and unreliable.
- Drivers can visually inspect every pre-trip item except for brake stroke.
- Drivers are commonly unaware of out-of-adjustment brake conditions.

SOLUTION:

This TSB details the necessary steps to install Visual Brake Stroke Adjustment Indicators on all Gravity TRUCK/TRACTORS & TRAILERS to provide drivers and technicians with a quick and effective means to visually inspect and identify any brake out-of-adjustment condition for prompt correction.



COST & SAFETY BENEFITS:

- Reduces each PM* inspection by approx. 20 minutes.
- Promotes use of the industry approved “Applied Stroke” inspection method in the least amount of time.
- Quickly identifies dangerous out-of-adjustment conditions, failures, & defects.
- Eliminates the need to physically reference and measure stroke at each wheel position.
- Eliminates damaging manual adjustments to ASAs.
- Reduces “safety lane” inspection time.
- Provides a convenient visual aid to drivers.
- Reduces requests for unscheduled maintenance.
- Reduces costly downtime, OOS violations and fines.
- Reduces frequency of major brake work.

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MATERIALS NEEDED:

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Brake Sentry Visual Brake Stroke Indicators Part #22012

Part No.	Description	Supplier	Cost
22012	BrakeSentry Visual Brake Stroke Indicator Kit	brakesentry.com	\$14.95

TOOLS REQUIRED: 15/16" wrench or socket, Needle-nose pliers, Slip-joint pliers, & Side cutters

ACTION TO BE TAKEN:

STEP 1. Ensure the wheels are chocked, brakes are released and you have a minimum of 100 PSI system air pressure prior to performing this installation.



WARNING:

1. When performing any procedures on air brakes systems, all safety precautions must be strictly observed. A proper understanding of blocking wheels and stored energy in air brake is essential. **ONLY** qualified mechanics should perform this installation.
2. This TSB is not intended to correct preexisting damage, please document and correct any related damage prior to performing this TSB.

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STEP 2.

The **Chart** on the right is provided to help identify the Maximum Stroke At Which Brakes Should Be Readjusted. The **Referencing Gauge** (marked in ¼" increments) comes at an overall length of 3 inches and must be "trimmed" (cut to proper length) for each specific application. By referring to the **Chart**, simply determine the chamber type, find the readjustment limit (**bold type**) and trim Gauge accordingly.

For example, a typical "Clamp Ring Type-30" chamber has a diameter of 8-1/4" and a maximum 'legal' stroke of 2". The Gauge would be trimmed to 2 inches.

Installation Tips:

(1) Since the 5/8" diameter of the pushrod is a nominal measurement and varies between manufacturers, you may find it helpful to spread the 'legs' of the Clip slightly to aid in the insertion of the Clip into the Indicator.

(2) When inserting Clip from the same side as the needle-nose pliers, simply angle pliers away from the pushrod to allow insertion of the Retainer Clip.

(3) With Clip fully inserted, pull/bend the 'legs' of the Retainer Clip toward each other and into the recessed area of the indicator. **Note:** Properly installed, there should be no gap at the 'split parting' of the Indicator. **Installation Instructions** cover the most common applications and give detailed procedures to aid in the installation of the kit.

STEP 3. Simply look through the following sections to identify instructions specific to your application

Maximum Stroke at Which Brakes Should be Readjusted

Chamber Type		Overall Diameter	Maximum Stroke
Bolted Flange Brake Chambers	A (12)	6-15/16"	1-3/8"
	B (24)	9-3/16"	1-3/4"
	C (16)	8-1/16"	1-3/4"
	D (6)	5-1/4"	1-1/4"
	E (9)	6-3/16"	1-3/8"
	F (36)	11"	2-1/4"
	G (30)	9-7/8"	2"
Clamp Ring	9	5-1/4"	1-3/8"
	12	5-11/16"	1-3/8"
	16	6-3/8"	1-3/4"
	20	6-25/32"	1-3/4"
	24	7-7/32"	1-3/4"
	30	8-1/4"	2"
	36	9"	2-1/4"
Long Stroke Clamp Ring	16	6-3/8"	2"
	20	6-25/32"	2"
	24	7-7/32"	2"
	* for 3" max. stroke type 24 chambers	24*	7-7/32"
	30	8-3/32"	2-1/2"
Rotochambers	9	4-9/32"	1-1/2"
	12	4-13/16"	1-1/2"
	16	5-13/32"	2"
	20	5-15/16"	2"
	24	6-13/32"	2"
	30	7-1/16"	2-1/4"
	36	7-5/8"	2-3/4"
	50	8-7/8"	3"

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TRUCK/TRACTOR

Installation Instructions

Step 1. Trim referencing gauge to proper length, being sure not to cut the "stepped" portion. (Fig.1) Proper gauge length is determined by chamber size, type and maximum stroke at which brakes should be readjusted. (See chart)

Step 2. Place indicator onto pushrod against chamber "face". Do not secure in place at this time. (Fig. 2)

Step 3. Remove one (1) nut and washer from brake chamber mounting stud.

Step 4. Position the gauge bracket onto the mounting stud with the "ears" toward the face of the brake chamber and resting above the chamber's mounting bracket. (Fig. 3) NOTE: The "ears" of the gauge bracket should be placed close to, but not touching, the indicator.

Step 5. Having established position of the gauge bracket, secure in place by re-installing the washer and nut onto the stud and over the gauge bracket. Retorque to specifications.

Step 6. Apply and hold brake (service chambers) or, apply parking brake for chambers equipped with spring brakes. Indicator will move out with the pushrod.

Step 7. Without disturbing the position of the indicator, secure the BrakeSentry indicator to the pushrod by inserting needle nose pliers into the two holes provided at either side of the split parting. Squeeze together and insert the retaining clip through the slits (Fig. 4) With clip fully inserted, bend the tabs toward each other and into the recessed area of the indicator. (Fig.5)

Step 8. Install referencing gauge into the "ears" of the bracket, positioning against chamber face. (Fig.6)

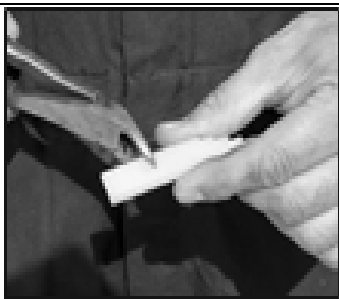


Fig. 1

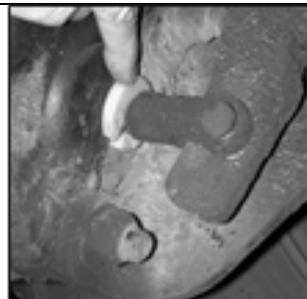


Fig. 2

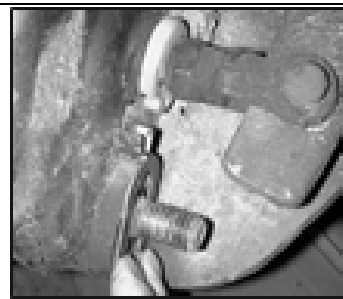


Fig. 3

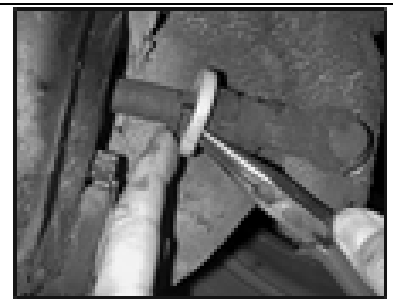


Fig. 4

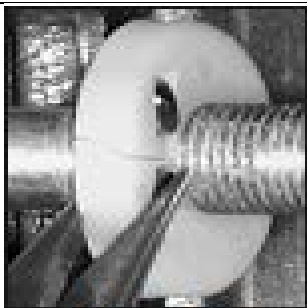


Fig. 5



Fig. 6

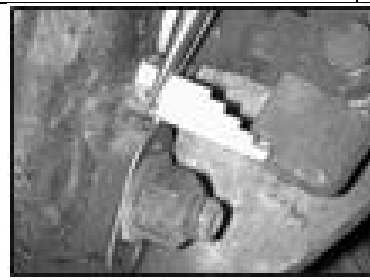


Fig. 7

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TRAILER

Installation Instructions

NOTE: Will work for both Square and Round axle tubes.

: Locating the indicator further out on the pushrod and mounting the stationary referencing gauge onto the axle tube in this application provides optimum visibility.

Step 1. Trim referencing gauge to proper length, being sure not to cut the "stepped" portion. Proper gauge length is determined by chamber size, type and maximum stroke at which brakes should be readjusted. (See chart)

Step 2. Square Tube: Place gauge into the gauge bracket as shown in (Fig. 2) and crimp in place using pliers.

Step 3. Spread indicator at the split parting and place onto pushrod as shown. Do not secure in place at this time.

Step 4. Mounting location should be slightly to the right or left of the indicator and toward the centerline of the trailer. See (Fig. 3 & 4)

NOTE: For ROUND axle tube, place gauge bracket against axle tube and, pressing with the

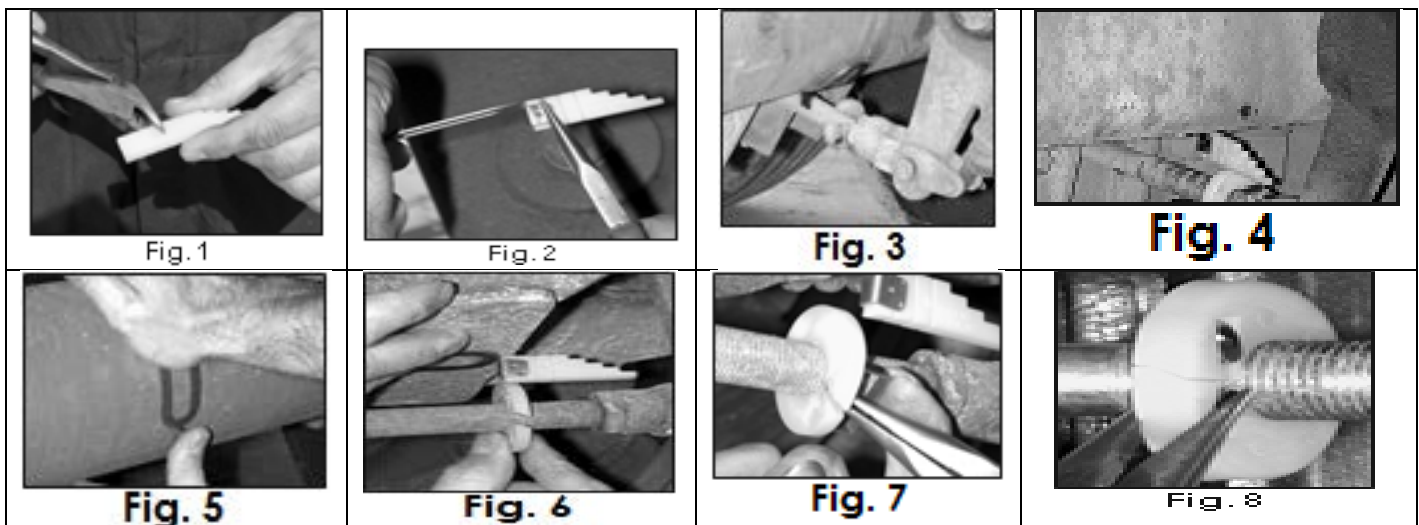
palm of your hand, conform bracket to the same shape and curvature. (Fig. 5)

Bend the "neck" of the bracket so that gauge is parallel to the pushrod. (See Fig. 3) Place gauge into the gauge bracket as shown and crimp in place using pliers.

Step 5. Align the rear of the gauge with the indicator to establish the released position. Once established, use the "MIG" welder to 'tack' gauge bracket to axle tube. (Fig. 6)

Square Tube: Bend "neck" of the bracket as needed so that referencing gauge is parallel to pushrod.

Step 6. Secure the BrakeSentry indicator to the pushrod by inserting needle nose pliers into the two holes provided at either side of the split parting. Squeeze together and insert the retaining clip through the slits. (Fig. 7) With clip fully inserted, bend the tabs toward each other and into the recessed area of the indicator. (Fig. 8)



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TRAILER AXLE Installation Instructions

Step 1. Trim referencing gauge to proper length, being sure not to cut the “stepped” portion. Proper gauge length is determined by chamber size, type and maximum stroke at which brakes should be readjusted. (See chart) (Fig.1)

Step 2. Place gauge into the gauge bracket as shown in (Fig.2) Lay gauge bracket on a flat surface, place gauge into the bracket “ears” upright on surface and, using pliers, squeeze “ears” closed.

Step 3. Place indicator onto pushrod against chamber “face” Do not secure in place at this time.

Step 4. Being certain brakes are fully released, loosen both brake chamber mounting stud nuts by backing them off several threads without completely removing nuts. (Fig. 3)
If threads are rusted, apply penetrating oil first

Step 5. Support the chamber by hand and slip referencing gauge bracket between the brake chamber and the chamber mounting bracket. (Fig. 4)

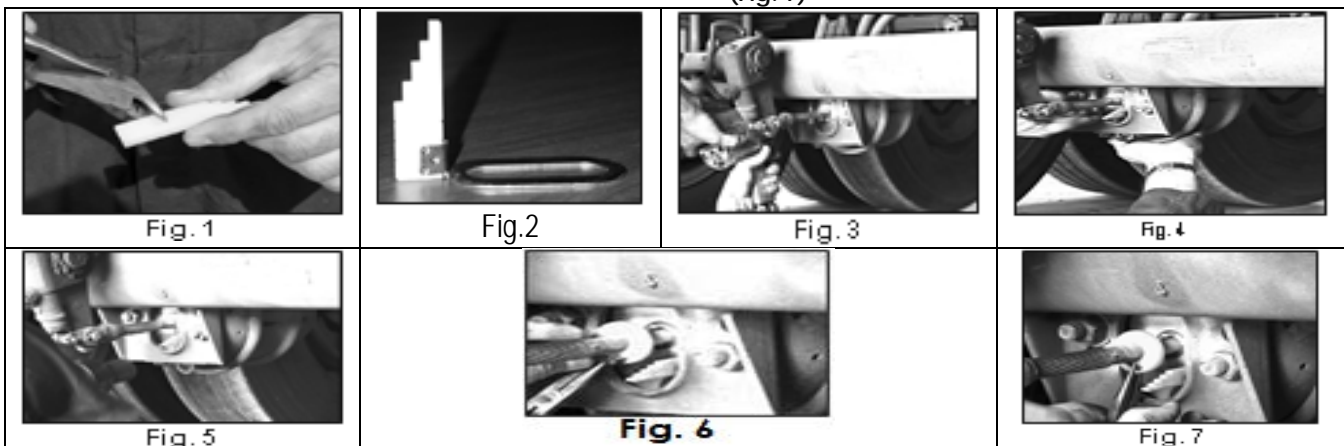
NOTE: Place referencing gauge below pushrod indicator and slightly toward the centerline of the trailer.

Step 6. With referencing gauge placement established, (gauge should be close to, but not be in contact with push-rod indicator) tighten the brake chamber mounting fasteners. This will secure the gauge bracket in place and gauge should be in contact with the chamber “face”. (Fig. 5)

Step 7. With chamber mounting fasteners retorqued, position the pushrod indicator even/parallel with the back (chamber) side of the referencing gauge. This provides the brakes- released position reference.

Step 8. Apply brakes, (Set parking/spring brake), Indicator will move out with the pushrod.

Step 9. Without disturbing the position of the indicator, secure the BrakeSentry indicator to the push rod by inserting needle-nose pliers into the two holes provided at either side of the split parting. Squeeze together and insert the retaining clip through the slits (Fig. 6) With clip fully inserted, bend the tabs toward each other and into the recessed area of the indicator. (Fig. 7)



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ARVIN MERITOR/ROCKWELL TRAILER AXLES

Installation Instructions

Step 1. Using a pair of needle nose pliers, bend the "neck" of the bracket to match the (approx. 45 degree) angle at which the chamber's pushrod passes through the outer panel of the mounting bracket. (Fig. 1)

Step 2. Trim referencing gauge to proper length, being sure not to cut the "stepped" portion. Proper gauge length is determined by chamber size, type and maximum stroke at which brakes should be readjusted. (See chart)

Step 3. Place trimmed gauge into the bracket as shown in (Fig. 2) and crimp in place using pliers.

Step 3. Spread indicator at the split parting and place onto pushrod as shown (Fig. 3) Do not secure at this time.

Step 4. Position referencing gauge bracket alongside the pushrod indicator to determine mounting location.

Note: For best visibility, mount referencing gauge toward the centerline of the trailer.

(Be certain the gauge and indicator are not in

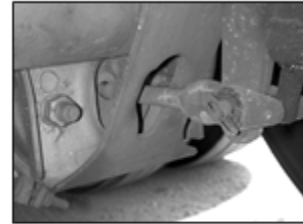
contact with one another.) Once position is determined, mark the mounting surface of the brake chamber-mounting bracket for drilling location. Drill through bracket with a ¼" (quarter inch) drill bit. (Fig. 4) Or, if using a "MIG" welder is more practical, 'tack' in place rather than using fasteners.

Step 5. Using the fasteners provided, secure the referencing gauge bracket as shown in (Fig. 5) making certain gauge and indicator are close, but not in contact.

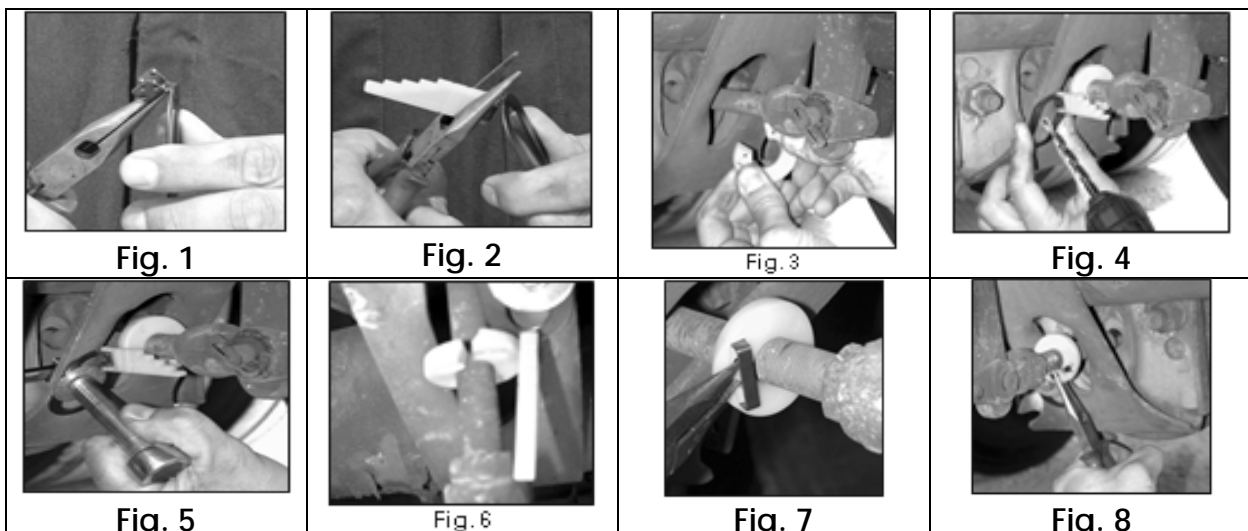
Step 6. Position the BrakeSentry pushrod indicator even/parallel with the back (chamber) side of the referencing gauge. (Fig. 6) This provides the brakes-released position reference.

Step 7. Secure the BrakeSentry indicator to the pushrod by inserting needle nose pliers into the two holes provided at either side of the split parting. Squeeze together and insert the retaining clip through the slits (Fig. 7)

Step 8. With clip fully inserted, pull and bend the tabs toward each other and into the recessed area of the indicator. (Fig. 8)



Example



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HENDRICKSON INTRAAX & VANTRAAX TRAILER AXLES Installation Instructions



Example

Step 1. Trim referencing gauge to proper length, being sure not to cut the “stepped” portion. **(Fig.1)** Proper gauge length is determined by chamber size, type and maximum stroke at which brakes should be readjusted. **(See chart)**

Step 2. Place gauge into the gauge bracket as shown in **(Fig. 2)** and crimp securely in place using pliers.

Step 3. Spread indicator at the split parting and place onto pushrod behind the clevis, as shown **(Fig. 3)** Do not secure at this time.

Step 4. Position referencing gauge bracket alongside the indicator to establish mounting location. **(Fig. 3)**

Note: For best visibility, mount referencing gauge toward centerline of the trailer.

Step 5. Once position is determined, either mark the mounting surface to drill or, if using a “MIG”

welder is more practical, ‘tack’ weld gauge bracket in place. **(Fig. 4)**

If using fasteners, drill a ¼” hole and secure the referencing gauge bracket as shown in **(Fig. 5)** making certain gauge and indicator are close, but not in contact.

Step 6. Position the BrakeSentry indicator even/parallel with the back (chamber) side of the referencing gauge. *This provides the brakes-released position reference.*

Step 7. Secure the BrakeSentry indicator to the pushrod by inserting needle nose pliers into the two holes provided at either side of the split parting. Squeeze together and insert the retaining clip through the slits **(Fig. 6)**

Step 8. With clip fully inserted, pull and bend the tabs toward each other and into the recessed area of the indicator. **(Fig. 7)**

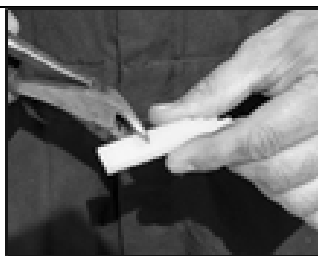


Fig. 1

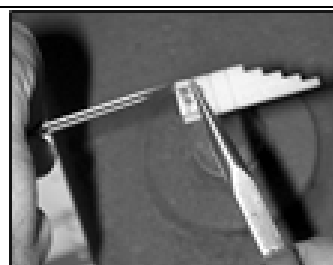


Fig. 2



Fig. 3



Fig. 4



Fig. 5

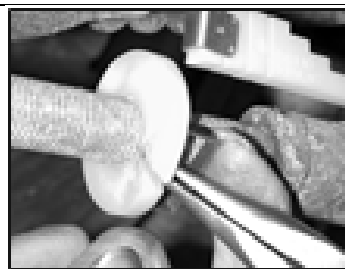


Fig. 6

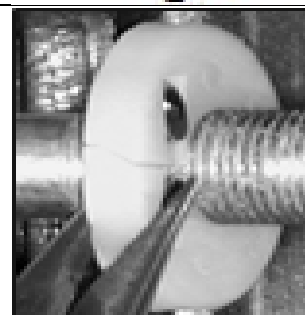


Fig. 7

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STEP 4. Accuracy is crucial in successfully tracking the progress of this TSB campaign. Unassigned TSB work orders have been created in eMaint for all affected Tractors & Trailers. After TSB completion please be sure to install a TSB decal on the inside driver side door jam (See Picture Below) and write the TSB#, branch, technician's initials, date performed, and unit hours.

TECHNICAL SERVICE BULLETIN	
TSB# :	TSB-#1206 Visual Brake Stroke Adjustment Indicators Installation
PERFORMED AT:	Snyder -FS BY: TI
DATE:	05/03/2019 HRS. 11254



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(How Visual Brake Stroke Adjustment Indicators Work)



Brakes Released

Indicator reference identifies those brakes not fully releasing due to mechanical or pneumatic problems. While traveling, indicator functions as a brake chamber seal preventing road spray from entering brake chamber.

(Examples of Brakes Applied)

Acceptable Range



Brake stroke within Acceptable range. Reference is used to determine brake adjustment and balance

Unacceptable Range



Brake stroke outside of acceptable range. Indicates ineffective braking, needs maintenance attention.

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The visual brake stroke indicator provides drivers and technicians with an effective means to quickly identify defects for prompt correction.



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