Owner's Manual for CZ PoleTrailers

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Thank-you for purchasing a CZ trailer . Many man-hours of labor by skilled craftsmen have been spent in the manufacture of your trailer. We have taken great care to ensure quality design and production, but, we realize any product has room for improvement. We appreciate any input you might have concerning the improvement of our trailers or distribution system.

This manual will help you make better use of your new CZ trailer. It contains information on safe operation and maintenance procedures to protect you and your trailer.

Your CZ trailer was built to require a minimum of maintenance, but a little care by you will increase its useful life as well as keep it looking great for a long time.

CZ Engineering, Inc.

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SECTION 1

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USE/OPERATING INSTRUCTIONS

HOOKING UP

Your trailer should be coupled to the towing vehicle only by approved pintle hooks and eyes suited to the capacity of the trailer. No other coupling system is authorized by the manufacturer. When empty the trailer should sit level to slightly front-high so it will ride level when loaded. Adjust the pintle eye into one of its' 5 positions to match the hook on the truck. If the range of adjustment does not suit the truck, then adjust the hook on the truck to the desired range. Inspect all truck and trailer connections thoroughly to ensure their capability and safety.

WARNING: Always check the tightness of the pintle eye bolts before using the trailer.

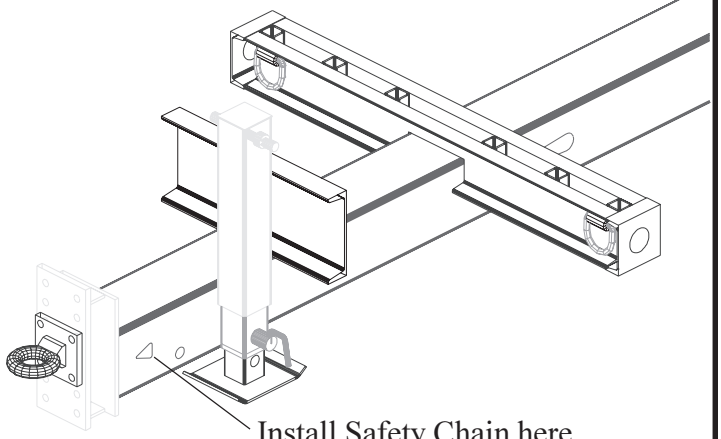
☜ **WARNING**

SAFETY CHAINS

SAFETY CHAINS

Every CZ trailer has built-in provisions for custom safety chains. These provisions are triangle shaped cutouts at the front of the drawbar (tongue) just behind the coupling plate. (see figure 1-1) These holes permit you to install a chain of the proper size and length for your application. We recommend that you only use hardened chains. Safety chains must be of sufficient strength to carry the dynamic loading of the trailer when loaded in the heaviest tongue-loaded configuration for your range of applications. Use a minimum of 3/8" grade 70 chains.

FIGURE 1-1



WARNING: Never operate a tag-a-long trailer without a safety chain.

☜ **WARNING**

The safety chain should be one length and pass through both triangular holes in the tongue of the trailer in such a fashion as to prevent them from accidently unfastening. Both ends of the chain should be fastened to a secure part of the towing vehicle. DO NOT hook the ends of the chains to the coupler on the truck or any other member that is prone to failure under severe loading. Attachment to the towing vehicle should be at least as strong as the chain. **Chains should be long enough to permit a full turn and short enough to prevent the tongue of the trailer from contacting the ground in the event of a break-a-way. Crossing the chains may help.**

LOADING

LOADING

In order for a tag type trailer to handle properly, tongue load should be at least 10 to15% of the Gross Vehicle Weight (GVW). Proper placement of the line poles is necessary to achieve this tongue load. Line poles have a trapezoidal shape, thus the center of gravity is not in the middle of the pole. The following information will assist the operator to achieve proper trailer loading.

CENTER OF GRAVITY FOR LIGHT WEIGHT POLES

Length of Pole	Distance from butt end to center of gravity
30' class 6	13' 6"
35' class 6	16'
40' class 6	18' 2"
45' class 6	20' 4"
50' class 5	22' 4"
55' class 5	24' 6"
60' class 3	27'

NOTE: The center of gravity of poles with lower class numbers will be closer to the butt end of the pole.

NOTE: Poles that have been used will be much heavier at the butt end than the rest of the pole.

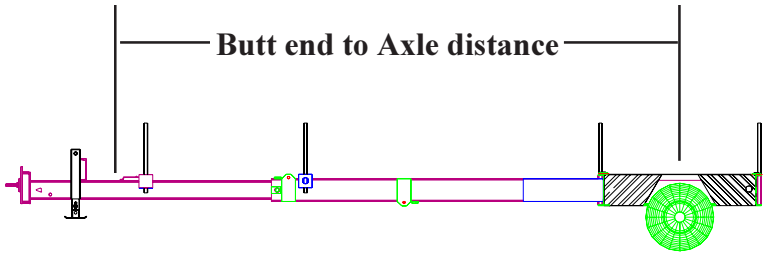
NOTE

Poles should be loaded so their center of gravity is placed in front of the axle to achieve the proper tongue load. The following table lists the recommended distance from the butt end of the pole to the axle of the trailer.

TIP

Pole Length	Distance from butt to axle
30' class 6	16' 10"
35' class 6	19' 2"
40' class 6	21' 10"
45' class 6	24' 3"
50' class 5	26' 7"
55' class 5	29' 4"
60' class 3	32' 6"

FIGURE 1-3

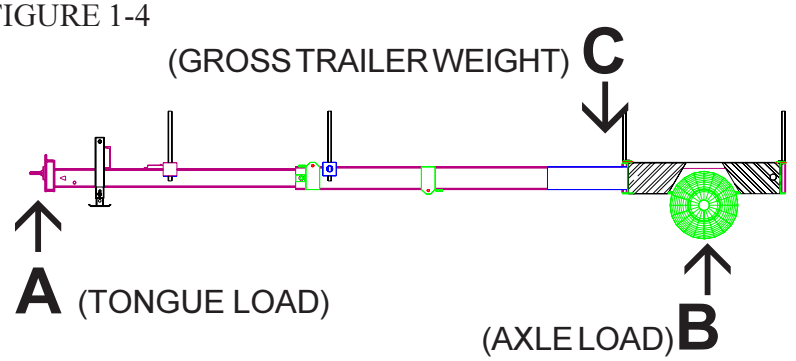


NOTE

* * * * * GVWR * * * * *

The ***Gross Vehicle Weight Rating*** for your CZ trailer can be found on the Data Plate fastened to the front of the trailer. The GVWR is the sum of the loads imposed on the axles and through the coupler to the truck. The GVWR of a properly designed trailer is greater than the axle capacity because the axles can be loaded to capacity and additional weight can be transferred to the truck.

FIGURE 1-4



☞ **WARNING:** GVWR and tongue load ratings are for the trailer only. Make certain the towing vehicle and its components are capable of these ratings.

TIRES AND WHEELS

TIRES & WHEELS

Consult the tire side walls for the tire weight ratings and inflation pressures for your tires. Light truck tires (16" or 16.5" tires) manufactured by most domestic tire manufacturers can have their ratings increased by 9% when operated at 54 M.P.H. or slower. Heavy truck tires manufactured by most domestic tire manufacturers are allowed a 9% increase when operated below 50 M.P.H. (See Figure 1-6)

215/75R/17.5 16-ply tire ratings are specified in Figure 1-5.

M.P.H.	215/75R/17.5 16 P.R.
62	18160# @ 125 PSI
33	20000# @ 125 PSI

TIRE CAPACITY (per axle)

FIGURE 1-5

☞ **WARNING:** NEVER EXCEED THE AXLE CAPACITY

Check the tightness of wheel lug nuts daily. Use soapy water to lubricate the threads and bearing surfaces prior to reinstallation. Periodically inspect the wheels and rims for cracks especially around connection points and lug holes.

TABLE 1 - LIGHT TRUCK TIRES		
The service load and minimum (cold) inflation must comply with the following limitations:		
SPEED RANGE (MPH)	INFLATION PRESSURE INCREASE	% INCREASE (+) OR DECREASE (-) IN LOADS
75 THRU 84	+ 10 PSI	- 10%
65 THRU 74	+ 10 PSI	None
55 THRU 64	No Increase	None
45 THRU 54	No Increase	+ 9%
35 THRU 44	No Increase	+16%
25 THRU 34	No Increase	+24%
15 THRU 24	No Increase	+32%
The inflations shown in the light truck tire tables are minimum cold pressures for the various loads listed. Higher pressures should be used as follows:		
A. When required by the above speed/load table		
B. When higher pressures are desirable to obtain improved operating performance.		
The combined increases of A & B should not exceed 10 PSI above the inflation specified for the maximum load of the tire.		
THE MAXIMUM RIM CAPACITY MUST NOT BE EXCEEDED		

TABLE 2 - TRUCK-BUS TIRES				
For Tires Shown in Tables TB-2, TTB-2, WBTB-2 and STB-1C				
The service load and minimum (cold) inflation must comply with the following limitations:				
SPEED RANGE (MPH)	INFLATION PRESSURE INCREASE		% INCREASE (+) or DECREASE (-) IN LOADS	
	DIAGONAL (BIAS) PLY TIRES	RADIAL PLY TIRES	CONVENTIONAL TIRES	WIDE BASE TIRES
71 THRU 75	+ 10 PSI	+ 10 PSI	- 10 %	- 10 %
61 THRU 70	+ 10 PSI	+ 10 PSI	None	None
51 THRU 60	No Increase	No Increase	None	None
41 THRU 50	No Increase	No Increase	+ 9%	+ 7%
31 THRU 40	No Increase	No Increase	+16%	+9%
21 THRU 30	No Increase	+ 10 PSI	+24%	+12%
11 THRU 20	No Increase	+ 15 PSI	+32%	+17%
The inflations shown in the referenced tables are minimum cold pressures for the various loads listed. Higher pressures should be used as follows				
A. When required by the above speed/load table				
B. When higher pressures are desirable to obtain improved operating performance.				
The combined increases of A and B should not exceed 20 psi above the inflation specified for the maximum load of the tire.				

FIGURE 1-6

WARNING: The maximum rim capacity must not be exceeded.

☜ **WARNING**

ELECTRICAL

ELECTRICAL

When hooking up the electrical system be sure the trailer and truck plug ends are compatible and the wiring on the truck is of sufficient size to carry the electrical load to the trailer lights and the break-a-way system (on electric brake trailers). Always use an electric brake controller of sufficient capacity for your trailer.

NOTE: The electric brake circuit should be at least 14 AWG wire.

The trailer end (front of trailer) of the electrical coupling is wired as detailed in figure 2-1. The plug at the center of the pole trailer is used when adjusting its length. That plug is wired as shown in figure 2-2

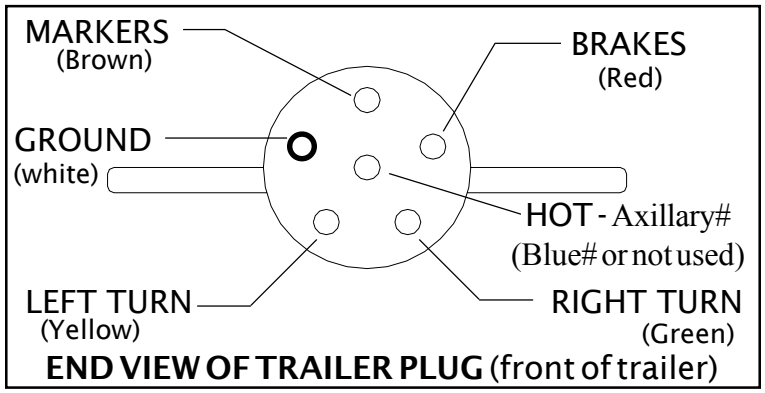


FIGURE 2-1

As of September 2005

 # Applies to trailers with electric over hydraulic brakes.

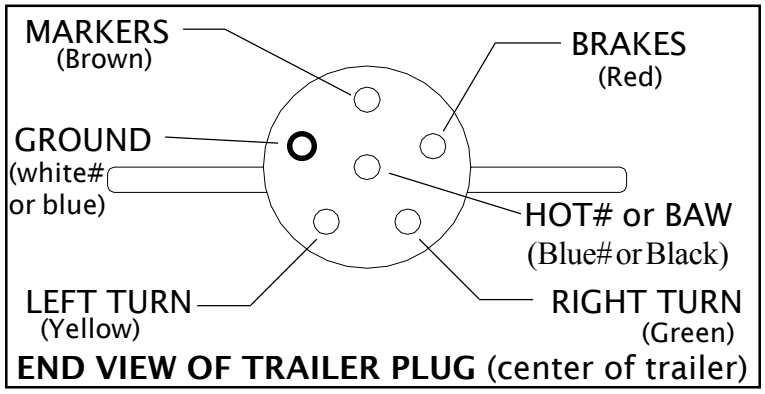


FIGURE 2-2

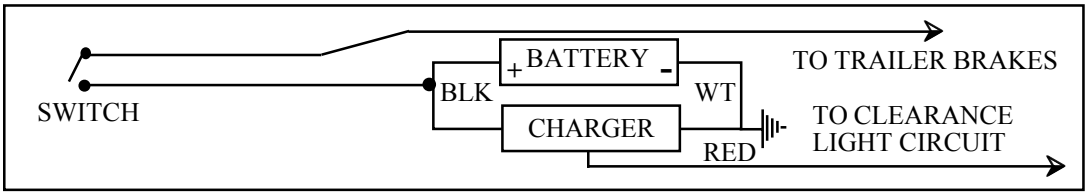
BREAK AWAY SYSTEMS

All models of CZ trailers use the same basic electrical components. Tail and clearance lights are the sealed beam type and must be replaced as a unit. You can replace just the bulb on the license plate light. Both types can be obtained at many auto parts stores or RV dealers.

A Break-Away device applies the trailer brakes in the event of a separation of the trailer from the towing vehicle. (Hydraulic and air brake trailers have break-away systems

built in. All electric brake trailers must have the break-away kit installed.)
Before operating your trailer be sure the break-away device meets all the requirements of your application.

Your electric brake trailer is equipped with a break-away system. It has provisions for charging the battery while the trailer is in use. The trailer battery will only charge when the running lights are on. (Except for trailers with electric over hydraulic brakes, which charge full time.) You must operate the lights a sufficient amount of time to keep the battery charged. If full time charging is desired you can wire a separate charging circuit. The two possible wiring circuits (full and part time charging) are detailed in Fig. 2-2 and 2-3.



Part Time Charging

FIGURE 2-3

NOTE: For trailers with a circuit braker box, including elecrtic over hydralic brake trailers, see the electical wiring supplement.

A battery condition indicator is located in the battery box in the platform area of the trailer. An indicator button will illuminate a green light if the battery is fully charged.

MAINTENANCE

Your trailer was designed to require as little maintenance as possible, but, a little attention to the following maintenance items will be well worth your while.

BRAKES

BRAKES

The brakes on all CZ Pole Trailers are self adjusting.

See the technical bulletin at the end of this manual for more important information about your brake system

A properly adjusted air brake will have a space the thickness of a business card between the lining and the drum. Other drum type brakes should slightly rub on the drum, but not enough to cause excessive drag when the wheel is rotated. Air brakes with automatic slack adjusters will adjust each time the brakes are applied, regardless of direction of travel.

The self adjusters on electric and hydraulic brakes are actuated by applying the brakes while backing the trailer. Most trailers are backed enough in everyday use to keep the brakes adjusted, but you may occasionally have to deliberately adjust the brakes by backing up and braking several times. In addition to automatic adjustment all shoe type brakes can be adjusted manually like any conventional drum/shoe brake.

BRAKE INSPECTIONS

BRAKE INSPECTIONS

It is not practical to suggest a brake inspection interval for all applications. Mileage has little to do with brake life. The number of stops you make and the loading of the brake components as a result of those stops will determine your brake lining life. A trailer used in the city will not get as much mileage from its brakes as one used primarily on open roads.

We suggest you inspect your brake linings after the first six months of use. From this inspection you should be able to determine the approximate rate of wear for your application and can adjust your inspection intervals accordingly.

NOTE: Brake components MUST be inspected at least once every twelve months.

Service of trailer brakes is similar to the service of automobile brake systems. Electric brakes will require occasional replacement of the magnets. Magnets should be inspected with the brake linings.

BEARINGS & SEALS

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CZ trailer wheel bearings are lubricated with SAE EP-90 weight hypoid gear oil. Oil levels should be checked daily when the trailer is in use. The oil level can be checked through the clear dust covers on the end of the hubs. An oil level line is molded into the cover. Oil can be added through the rubber plug in the end of the dust cover.

NOTE: It may take a while for the oil to run through the bearings to the inner chamber of the hub. DO NOT OVERFILL the hub with oil.

The area around the dust covers and on the back side of the hub and drum should be inspected frequently for oil leaks. If oil is observed in these areas the dust cover and inner seal should be checked.

NOTE: We recommend you replace the inner bearing seals each time the hubs are removed. Be careful not to pinch the bearing seals during the installation of the hub. Leakage after installation may indicate the seals have been pinched.

Check end play in the wheel bearings after the first 100 miles of use and after each replacement. Remove and inspect bearings at least once every twelve months. Adjustment of CZ trailer bearings is conventional.

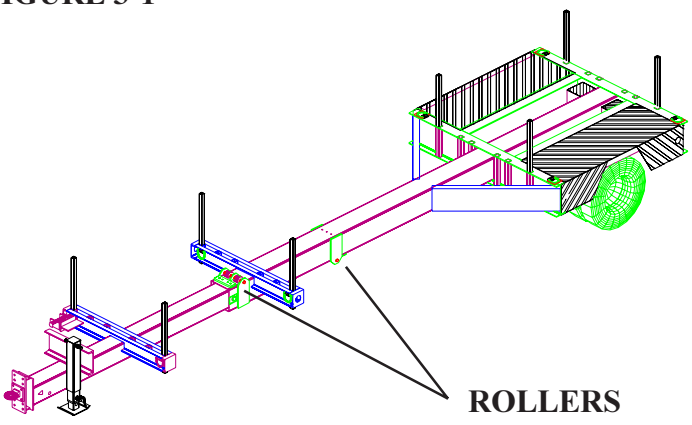
LUBRICATION

LUBRICATION

Your new trailer requires little lubrication. The suspension is a rubber bushed system which requires no lubrication, but it does require that you maintain proper torque. See page 11 for details.

The only lubrication required of your Pole Trailer is the tongue rollers. There are grease fittings on the ends of the roller axles. Note that there is one set of rollers on the top and one set on the bottom of the tongue. See figure 3-1

FIGURE 3-1



NOTE: Excessive lubrication is as bad as too little.

NOTE

When the trailer has been greased make sure the suspension bolts are torqued properly. (Refer to the suspension torque decal on the trailer for correct torque limits). Notice that the torque requirements are greater for dry bolts than oiled bolts.

PAINT

PAINT

DuPont Centari automotive paint code number 7378A is the standard CZ paint color. This is similar to the color most state highway departments use.

We have taken great care to ensure the quality of the paint job on your trailer. Everything from surface preparation to paint application has been done to our exacting standards. Unfortunately, a quality paint job is no substitute for proper paint care. A trailer is always "tailgating", so it has a rough life. **The use of good mud flaps on the towing vehicle will help save the paint on the front of your CZ trailer.**

HAYES AXLE DUAL WHEEL MOUNTING INSTUCTIONS

WHEEL MOUNTING

☞ **WARNING:** Proper wheel nut torque is mandatory to prevent accidental wheel loosening or damage.

Note: You may have different wheels or suspension than the ones listed in this section. Consult the label on the axle and check the last section in this manual for brand specific instructions.

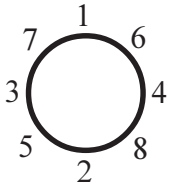
1. Remove rust, dirt, and paint from studs. Inspect studs and nuts carefully for excessively worn or damaged threads.
2. Remove rust, dirt, oil, grease, and paint from hub and wheel mounting surfaces. Inspect hubs and wheels and their mounting surfaces for damage or cracks.
3. Mount wheels and start nuts by hand to prevent cross threading.
4. Tighten all nuts to 50 ft-lb. using the sequence shown, continue to full torque in the same sequence, use chart below.

NUT SIZE/TYPE	5/8 SWIVELING FLANGE NUT (9K & 10K AXLE)	3/4 SWIVELING FLANGE NUT (12K & 16K AXLE)
TORQUE RQM'T	250-300 ft-lbs	350 - 400 ft-lbs

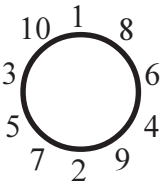
☞ **WARNING:** Over torquing or under torquing can result in sudden or premature stud failure or wheel loss.

5. Hubs with 10 bolts require the use of 2 in. dia. flange nuts.
6. After the first 50 to 100 miles the torque should be rechecked, tightened if necessary. Check torque at regular intervals.
7. Repeat all steps above after every change in wheel mounting.

8 BOLT HUB TIGHTENING SEQUENCE



10 BOLT HUB TIGHTENING SEQUENCE



9K-16K AXLE SUSPENSION

NOTE: Daily visual inspection is recommended — **NOTE**

PERIODIC INSPECTION

An inspection of the suspension is recommended at regular intervals following initial inspection at 3,000 miles. All bolts and nuts to be checked and tightened to the torque values below, if required.

Nut torque values for bolts with clean threads. Position equalizer horizontal while torquing.

3/4" Spring eye 225-275 ft-lbs

3/4" Roller snug fit or welded. Roller must roll **5/8" U-Bolt** 120 ft-lbs

WARNING: Failure to maintain proper bolt torque may result in damage to the suspension components — **WARNING**

NOTE: All bolts to be inserted from outside of trailer in all hangers to allow torquing of nuts without removing tires and wheels. — **NOTE**

HUTCHENS SUSPENSION TORQUE REQUIREMENTS

WARNING: Follow all torque requirements — **WARNING**

WARNING: Do not use any component with visibly worn or damaged threads. — **WARNING**

WARNING: Failure to follow these safety alerts can lead to loss of vehicle control, property damage, serious personal injury or death. — **WARNING**

After an initial break in period, approximately 1000 miles, and at least every 4 months periodically thereafter, ALL bolts and nuts should be checked to insure that recommended torque values are being maintained.

Oiled torque values listed are for new fasteners with lubricated threads. It is recommended that new installations be performed with oiled fasteners. For dry threads which have been in service, use the higher torque values which are noted below.

	OILED	DRY
1 1/8-7 (9600/9700 Rocker Bolt)	590 lb-ft	790 lb-ft
1-14 (7700 Radius Rod Bolt)	540 lb-ft	720 lb-ft
7/8-14 (Axle U-Bolts & 7600 Rad. Rod Bolt)	350 lb ft	470 lb-ft
3/4-16 (Axle U-Bolts)	310 lb-ft	420 lb-ft
5/8-18 (7600/7700 Rocker Step Bolt & Cast Rad. Rod Clamp Bolt)	130 lb-ft	170 lb-ft
5/8-18 (Spring Retainer Bolt)	35 lb-ft	50 lb-ft
1/2-20 (Rad. Rod Clamp Bolt)	65 lb-ft	85 lb-ft

Note: You may have different wheels or suspension than the ones listed in this section. Consult the label on the axle and check the last section in this manual for brand specific instructions.

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Expressed Warranty

CZ Engineering, Inc., Inc., hereinafter referred to as Manufacturer, warrants each new trailer to be free from defects in material and workmanship under normal use and service for a period of two (2) years from the date of original sale.

This warranty is expressly in lieu of all other warranties and representations, expressed or implied, and all other obligations or liabilities on the part of the manufacturer.

Manufacturer's liability and obligation is limited to repair, or replacement of the product or a refund of purchase price, at manufacturer's option, provided the purchaser returns the claimed defective product to the manufacturer, with transportation charges prepaid, and an examination by manufacturer discloses the product is defective.

Manufacturer makes no warranty with respect to tires, wheels, brake systems, axle assemblies, or hitches, or other accessories not manufactured by manufacturer, as these items are usually warranted specially by the respective manufacturers of those items.

This warranty does not cover any product which has been repaired or altered outside of the factory of manufacturer in any way so as to, in the judgment of the manufacturer, affect the stability, reliability, or performance of the product. This warranty does not cover damage or product failure caused by accident, misuse, negligence, or tampering.

This warranty excludes any and all liability for consequential or incidental damages. Some states do not allow this exclusion or limitation of incidental or consequential damages, so the foregoing limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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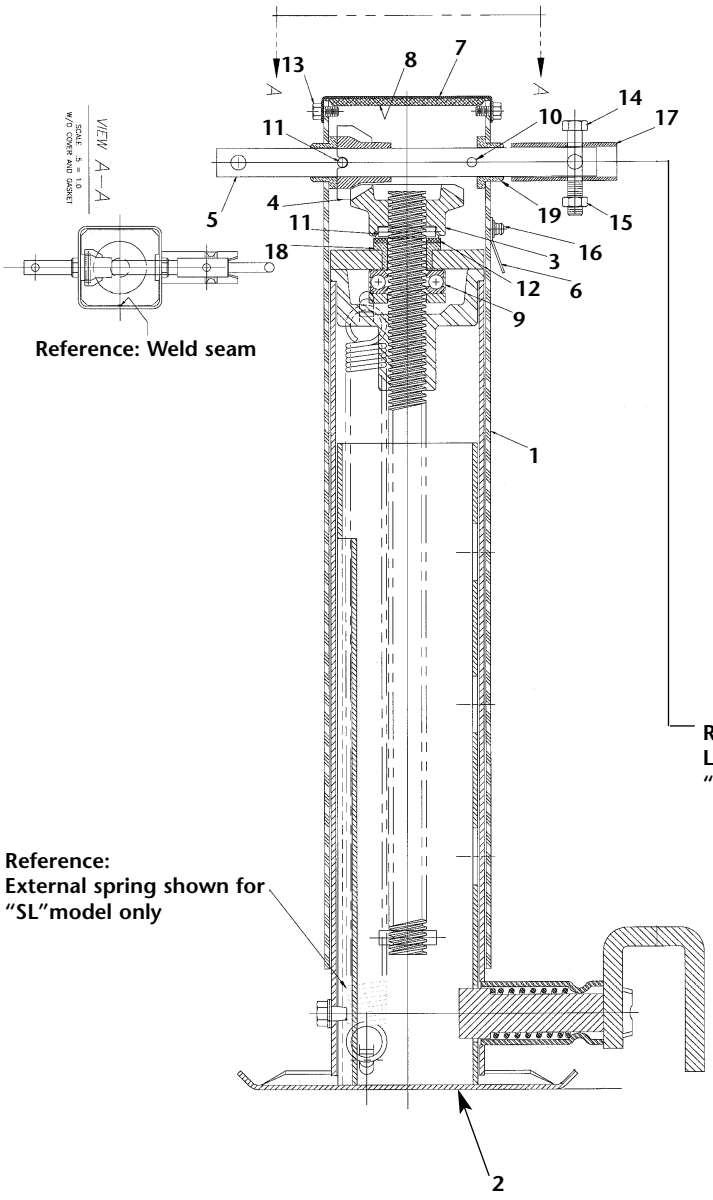
NOT ALL COMPONENTS SOLD SEPARATELY



ITEM	DESCRIPTION	PART NO.	QTY
1	Upper Housing W/A	LG2392-01	1
2*	Tube Assy, Retract and Telescoping	LG1723-01	1
2**	Tube Assy, Retract and Telescoping	LG1723-01	1
2***	Tube Assy, Retract and Telescoping	LG1723-02	1
3	Gear, Bevel	XB-LG2027	1
4	Gear, Pinion	XB-LG2026	1
5	Shaft, Drive	XB-LG2328	1
6	Tag, Date of Manufacture	LG1430	1
7	Top Cover	XA-LG0880	1
8	Gasket	XB-LG0893	1
9	Bearing, Thrust	XB-BRG-013-70	1
10	Pin, Spring 1/4" x 1-1/2" HDN	XB-SP-014-27	1
11	Pin, Groove, Type E 1/4" x 1-1/2"	XB-GP-014-07	2
12	Washer, 1.015" ID x 1.750" OD x .125"	XB-PW-016-51	1
13	Screw, Self-Tap, 1/4"-20 x 1/2"	XB-STS-008-11	2
14	Bolt, Hex Head, 3/8"-16 x 2-1/4" GR 5	XB-HHC-050-42	1
15	Nut, Self-Locking, 3/8"-16 Zinc Plated	XB-SLN-012-04	1
16	Fitting, Grease	XB-GRF-022-16	1
17	Adapter, Crank	XB-CP4651-16	1
18	Bearing, Flange	XB-LG1460	1
19	Bushing, Slip-Fit	LG2329	2

* Spring loaded with extension spring, without shoe handle - no paint.

** Spring loaded with extension spring, without shoe handle.

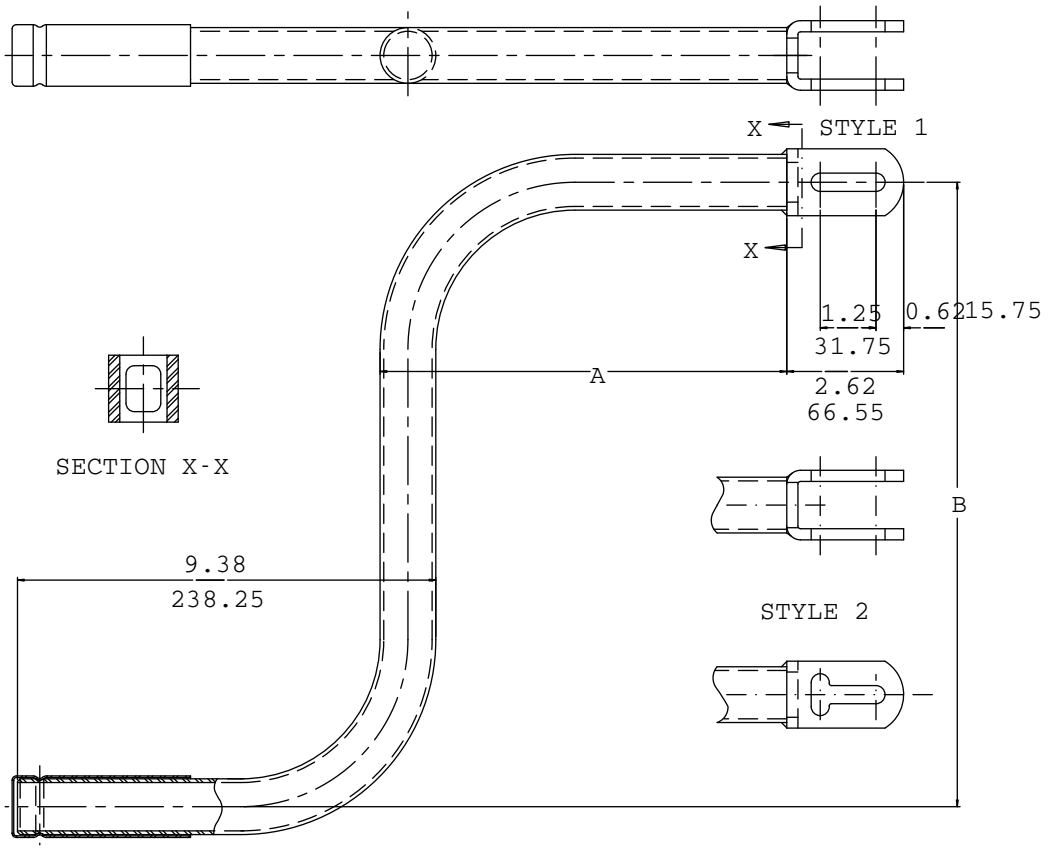
***"Cam lock" without extension spring and with shoe handle.

Mark V Crank Chart

OPTION CODE	PART NO.	"A" DIM. IN.	"A" DIM. (MM)	"B" DIM. IN.	"B" DIM. (MM)	CRANK JAW	NET WT. (LBS.)
0	XA-V-90-0	9.12″	(231.65)	14.00″	(355.60)	Style 1*	2.76
1	XA-V-90-1	9.12″	(231.65)	15.00″	(381.00)	Style 1*	2.85
2	XA-V-90-2	11.62″	(295.15)	14.00″	(355.60)	Style 1*	2.98
3	XA-V-90-3	9.12″	(231.65)	14.00″	(355.60)	Style 1	2.76
4	XA-V-90-4	11.62″	(295.15)	14.00″	(355.60)	Style 1	2.98
5	XA-V-90-5	14.50″	(368.30)	14.00″	(355.60)	Style 1*	3.22
6	XA-V-90-6	14.50″	(368.30)	14.00″	(355.60)	Style 1	3.22
7	XA-V-90-7	5.12″	(130.05)	14.00″	(355.60)	Style 1*	2.42
8	XA-V-90-8	11.12″	(282.45)	12.00″	(304.80)	Style 1*	2.76
9	XA-V-90-10	17.00″	(431.80)	14.00″	(355.60)	Style 1*	3.44
A	XA-V-90-11	19.00″	(482.60)	14.00″	(355.60)	Style 1*	3.61
B	XA-V-90-12	21.00″	(533.40)	14.00″	(355.60)	Style 1*	3.78
C	XA-V-90-146	6.50″	(165.10)	14.00″	(355.60)	Style 1	2.53
D	XA-V-90-161	4.62″	(117.30)	11.75″	(298.45)	Style 1	2.18
E	XA-03679	9.12″	(231.65)	14.00″	(355.60)	Style 1*	2.76
F	XA-03694	11.62″	(295.15)	14.00″	(355.60)	Style 1*	2.98
G	XA-S01681	18.63″	(473.20)	12.00″	(304.80)	Style 1*	3.41
H	XA-S0208	8.37″	(212.59)	14.00″	(355.60)	Style 1	2.70
J	XA-S02584	14.50″	(368.30)	18.00″	(457.20)	Style 1*	3.57
K	XA-S04475	15.35″	(389.89)	14.00″	(355.60)	Style 1*	3.30
M	XA-S06067	9.12″	(231.65)	19.00″	(482.60)	Style 1*	3.19
N	XA-S04475-1	15.35″	(389.89)	14.00″	(355.60)	Style 1*	3.30
P	XA-V-S07518	7.12″	(180.85)	14.00″	(355.60)	Style 1*	2.59
Q	XA-V-90-13	17.00″	(431.80)	14.00″	(355.60)	Style 1	3.44

* As shown.

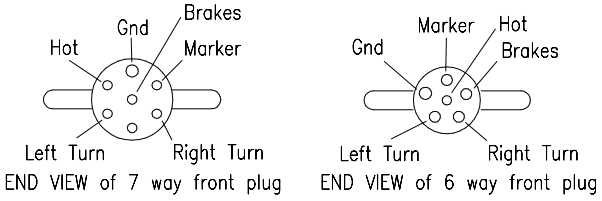
† Rotated 90°.



POLE TRAILER WIRING

As of 10/20/2005
(Junction Box on tongue)

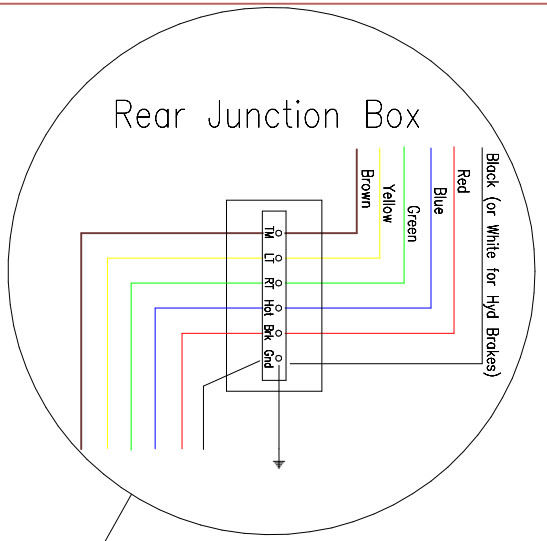
NOTE: See hydraulic brake wiring supplement for Elec/Hyd brake trailers.

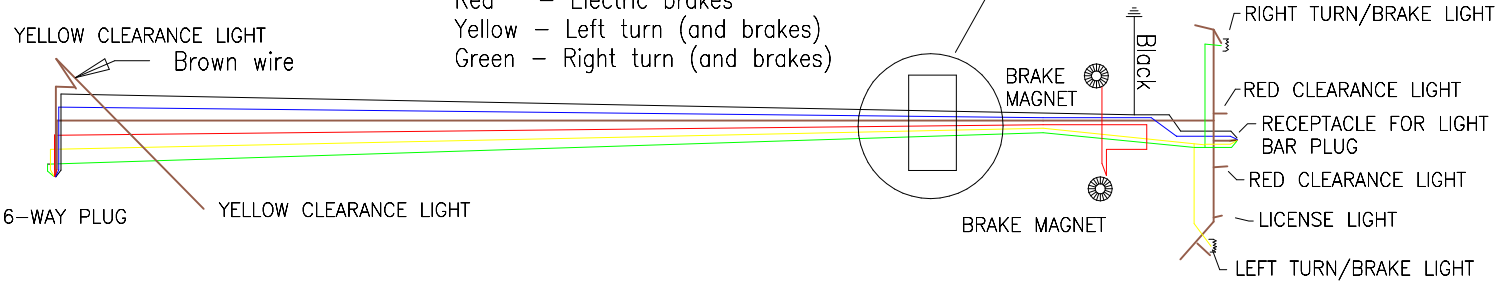


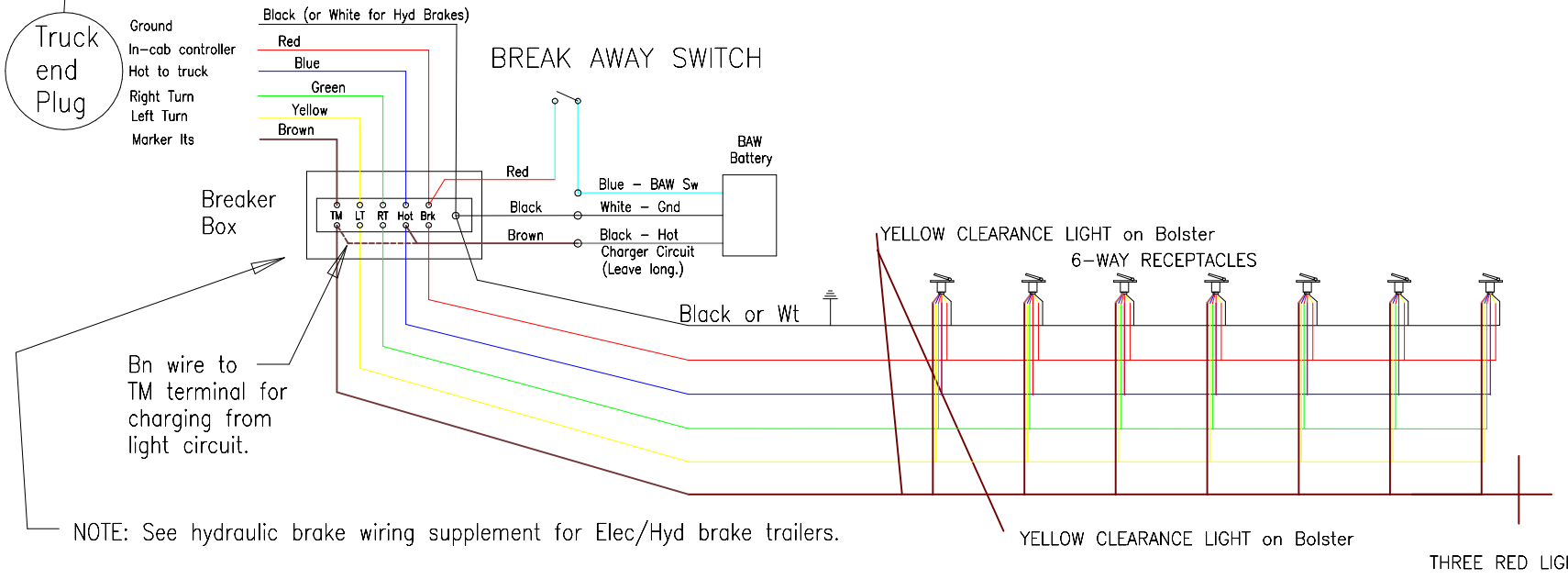
END VIEW of 7 way front plug

END VIEW of 6 way front plug

Wire Colors – Top to Bottom
Black or White – Ground
Blue – 12 volts from truck
Brown – Marker lights
Red – Electric brakes
Yellow – Left turn (and brakes)
Green – Right turn (and brakes)







DATE: 7/22/91

CZ Engineering, Inc.

Insert Scale: 110.000000000000

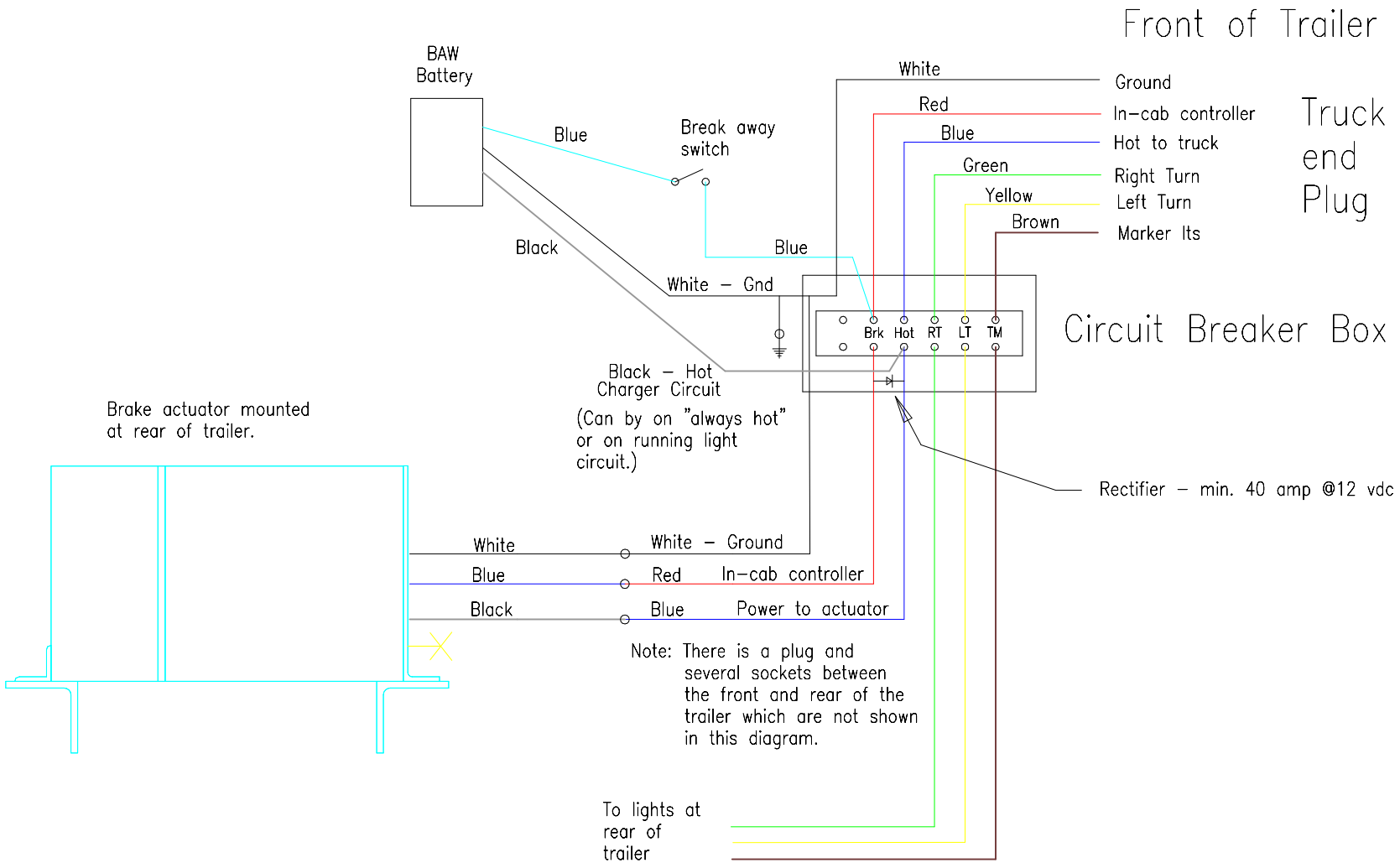
PROJECT: Pole Trailer – Wire Diagram

PLOT DESC. Wire---D

DRAWN BY: RC/CD

LAST REV. DATE: 03/14/2008 RC

Wiring supplement for Elec / Hyd brake trailers.



NOTE:
This diagram applies to trailers built after 07/25/2007. These trailers use the Carlisle Hydrastar electric over hydraulic brake actuator with a built-in HBA-CAM to make them compatible with sensing brake controllers.

DATE: 01/24/2008

CZ Engineering, Inc.

Insert Scale: 4.500000000000000

PROJECT: HydraStar Wiring - built in HBA-CAM
PLOT DESC. OHydrastar-Wire2
DRAWN BY: RC
LAST REV. DATE:

Recommended Oil Lubrication Specification

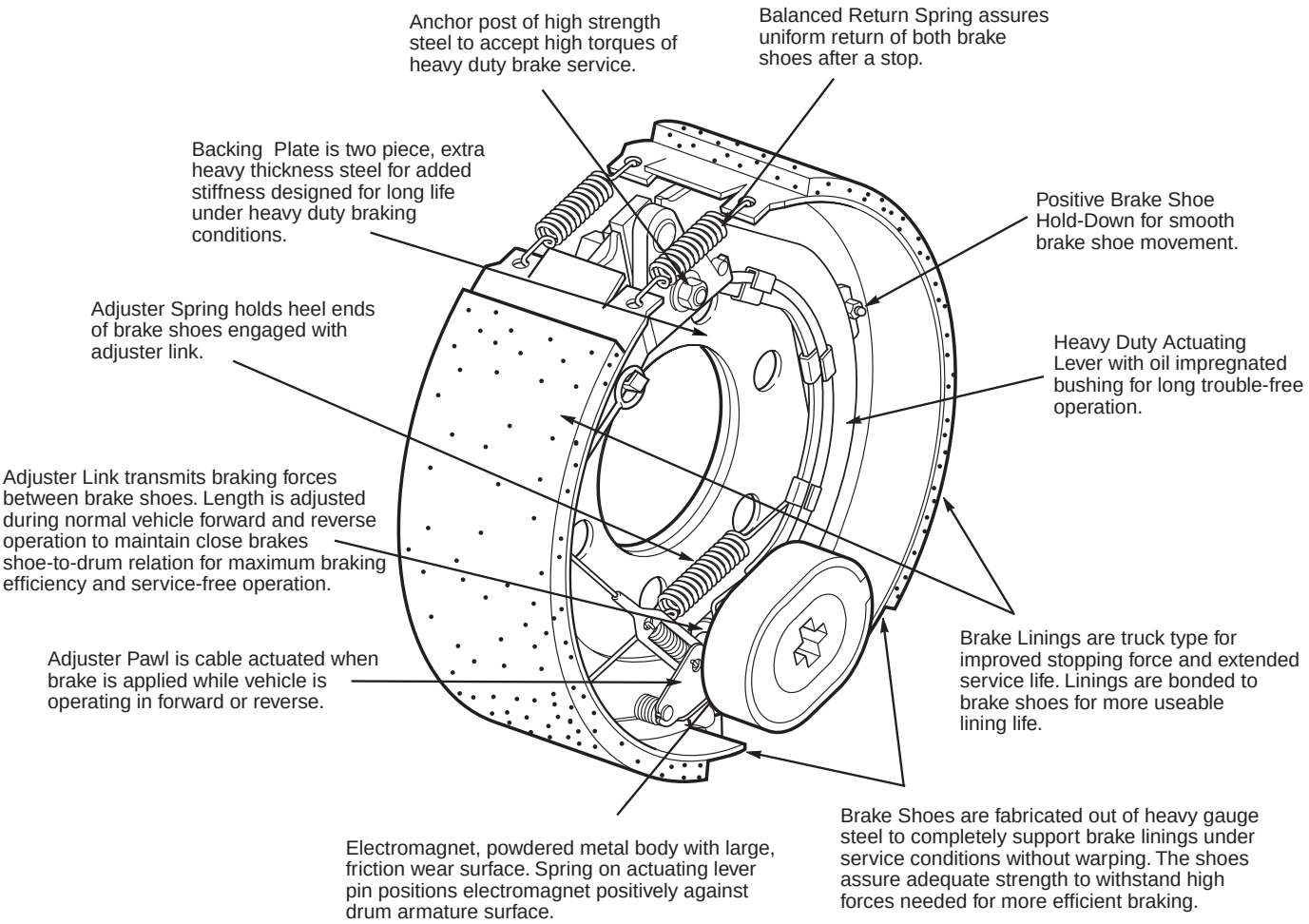
Use:	Axle hubs with tapered roller bearing
Service Designation:	API-GL-3 or API-GL-4 or API-GL-5
Viscosity:	SAE 90 or SAE 80w-90 or SAE 80W-85W-90 or SAE 75W-90
Pour Point:	-18°C (0°F) Maximum
Additives:	Corrosion and oxidation inhibitors, foam inhibitors, EP additives
Compatability:	Must be compatable with nitrile and neoprene seals and polycarbonate plastic oil caps
Approved Sources:	Ashland Oil Valvoline High Performance Gear Lube 80W90 Cato Oil & Grease Company PMO Gear Lubricant Code 1505 Universal 2105 Gear Lubricant Code 1633 Mystik JT-7 Gear Lubricant Code 1617 Mystik 825 Gear Lubricant Code 1600 Exxon Company Gear Oil GX 80W-90 Kendal Refining Co., Division of Witco Corp. Kendall NS-MP Hypoid Gear Lube SAE 80W-90 Lubriplate Div./Fiske Brothers Refining Co. Lubriplate APG 90 Mobil Oil Corporation Mobilube SHC 75W-90 Pennzoil Products Company Multi-Purpose Gear Lubricant 4092 or 4096 Oil Center Research Liquid-O-Ring #750 Southwest Petro-Chem Division, Witco Corp. GL-5 Gear Lubricant Code SB8365013 Sun Refining & Marketing Company Sunfleet GL-5 Code 110402 or 110502 Union Oil Company Unocal MP Gear Lube-LS 80W-90

Bearing Adjustment

For double nut construction. Bearing end play is .001 to .010

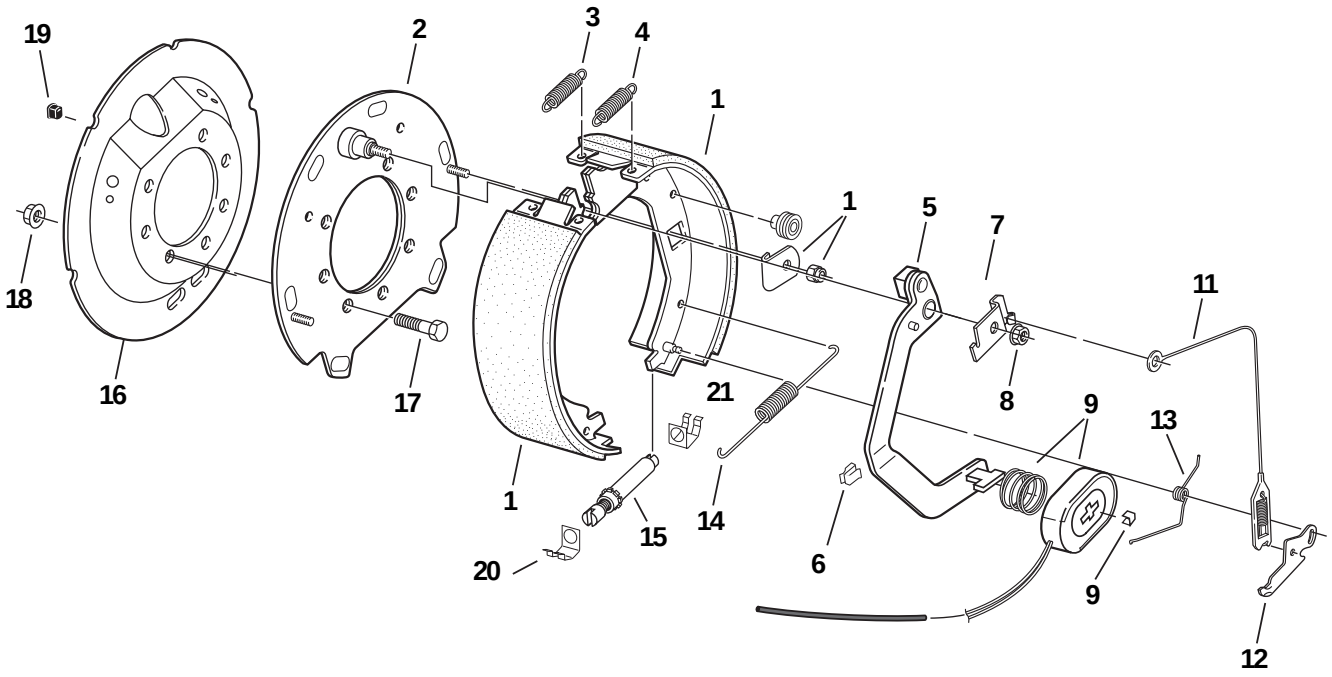
1. Tighten inner nut to 100 lb.-ft. while rotating hub to seat bearings.
2. Loosen nut to remove preloaded torque without rotating hub.
3. Hand tighten nut then back off 1/8 turn minimum, ¼ turn maximum.
4. Install tab washer and outer nut. Torque outer nut to 225 to 250 lb.-ft. Insure that the inner nut does not turn.
5. Bend two tabs over outer nut to secure in place.

Forward Self-Adjusting Electric Brake



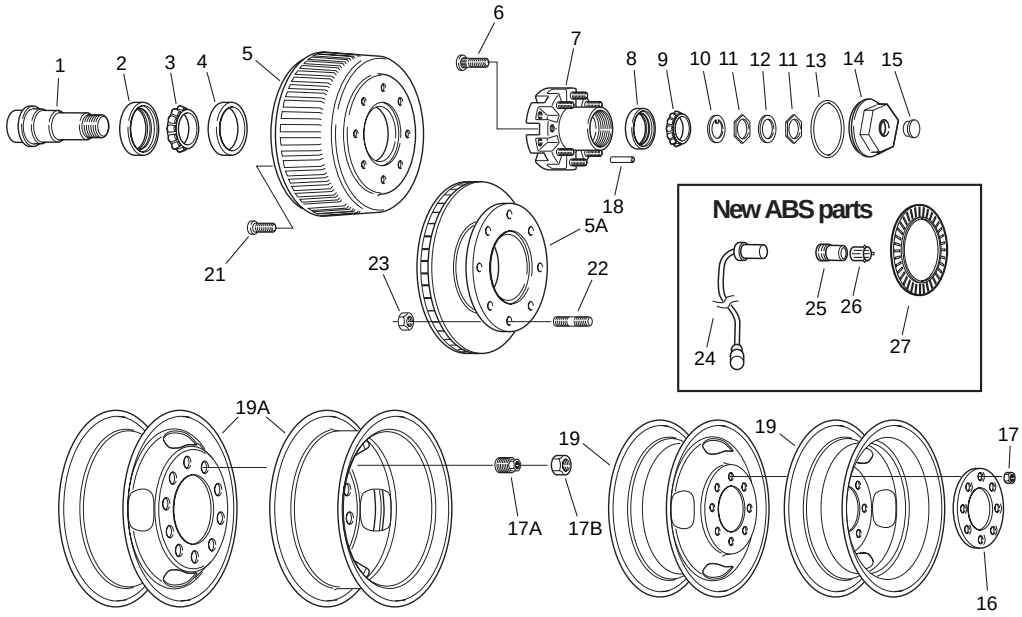
Size	Capacity	Part No. LH	Part No. RH
12¼x3⅜"	9K, 10K GD	023-195-00	023-196-00
12¼x4"	10K	023-198-00	023-199-00
12¼x5"	12K	023-201-00	023-202-00
12¼x5"	15K	023-204-00	023-205-00

Electric Brake Parts



Item	Description	Qty. Per Brake	12¼ x 3⅜ 9K & 10K GD Part No.	12¼ x 4 10K Part No	12¼ x 5 12K Part No.	12¼ x 5 15K Part No.
1	LH Shoe & Lining Kit containing:	1	K71-049-00	K71-051-00	K71-053-00	K71-053-00
	LH Primary	1	040-110-01	040-108-01	040-102-01	040-102-01
	LH Secondary	1	040-111-02	040-109-02	040-103-02	040-103-02
	Shoe Hold Down Washer	2	005-107-00	005-107-00	005-107-00	005-107-00
	Lock Nut	2	006-127-00	006-127-00	006-127-00	006-127-00
1	RH Shoe & Lining Kit containing:	1	K71-050-00	K71-052-00	K71-054-00	K71-054-00
	RH Primary	1	040-111-01	040-109-01	040-103-01	040-103-01
	RH Secondary	1	040-110-02	040-108-02	040-102-02	040-102-02
	Shoe Hold Down Washer	2	005-107-00	005-107-00	005-107-00	005-107-00
	Lock Nut	2	006-127-00	006-127-00	006-127-00	006-127-00
2	Backing Plate Assembly	1	036-072-05	036-072-05	036-072-06	036-072-06
3	Shoe Return Spring (Rear-Black)	1	046-071-00	046-071-00	046-071-00	046-071-00
4	Shoe Return Spring (Front-Green)	1	046-083-00	046-083-00	046-083-00	046-083-00
5	LH Actuator Arm Assembly	1	047-123-38	047-123-06	047-123-04	047-123-04
	RH Actuator Arm Assembly	1	047-123-37	047-123-05	047-123-03	047-123-03
6	Wire Clip	3	027-039-00	027-039-00	027-039-00	027-039-00
7	LH Arm/Shoe Retainer	1	071-455-01	071-455-01	071-455-01	071-455-01
	RH Arm/Shoe Retainer	1	071-455-02	071-455-02	071-455-02	071-455-02
8	Flange Nut	1	006-062-00	006-062-00	006-062-00	006-062-00
9	Magnet Kit containing:	1	K71-376-00	K71-376-00	K71-377-00	K71-378-00
	Magnet Retainer Clip	1	027-050-00	027-050-00	027-050-00	027-050-00
	Magnet Assembly	1	042-129-00	042-129-00	042-130-00	042-131-00
	Magnet Mtg. Spring	1	046-117-00	046-117-00	046-117-00	046-117-00
11	Adjuster Cable	1	071-020-00	071-020-00	071-020-00	071-020-00
12	LH Adjuster Lever	1	071-019-01	071-019-01	071-019-01	071-019-01
	RH Adjuster Lever	1	071-019-02	071-019-02	071-019-02	071-019-02
13	LH Adjuster Lever Spring	1	046-073-00	046-073-00	046-073-00	046-073-00
	RH Adjuster Lever Spring	1	046-074-00	046-074-00	046-074-00	046-074-00
14	Adjuster Spring	1	046-072-00	046-072-00	046-072-00	046-072-00
15	LH Adjuster Assembly	1	048-009-00	048-009-00	048-009-00	048-009-00
	RH Adjuster Assembly	1	048-010-00	048-010-00	048-010-00	048-010-00
16	Dust Shield Kit	1	036-115-21	036-115-22	036-115-23	036-115-23
17	Brake Moutning Screw	7	007-116-00	007-116-00	007-116-00	007-116-00
18	Brake Mounting Nut	7	006-092-00	006-092-00	006-092-00	006-092-00
19	Sleeve	1	027-014-00	027-014-00	027-014-00	027-014-00
20	Adjuster Clip (Thread End)	1	046-132-00	046-132-00	046-132-00	046-132-00
21	Adjuster Clip (Barrel End)	1	046-133-00	046-133-00	046-133-00	046-133-00
ns	Wire Grommet	1	046-016-00	046-016-00	046-016-00	046-016-00

10K, 12K and 15K Hub Groups



Item	Description	10K 8 on 6.50	10K Disc 8 on 6.50	10K 10 on 11.25	12K 8 on 6.50	12K Heavy Duty 8 on 6.50	12K Disc Hi-Profile 8 on 6.50	15K 10 on 8.75	15K 6 on 8.75	15K 10 on 11.25
2	Unitized Oil Seal	010-056-00	010-056-00	010-056-00	010-056-00	010-056-00	010-056-00	010-056-00	010-056-00	010-056-00
3	Inner Bearing Cone	031-022-02 (395S)	031-022-02 (395S)	031-022-02 (395S)	031-020-02 (3984)	031-020-02 (3984)	031-020-02 (3984)	031-020-02 (3984)	031-020-02 (3984)	031-020-02 (3984)
4	Inner Bearing Cup	031-022-01 (394A)	031-022-01 (394A)	031-022-01 (394A)	031-020-01 (3920)	031-020-01 (3920)	031-020-01 (3920)	031-020-01 (3920)	031-020-01 (3920)	031-020-01 (3920)
5	Brake Drum	009-027-01		009-027-01	009-028-01	009-028-01		009-028-01	009-028-01	009-028-01
5	Brake Drum-ABS	009-027-03		009-027-05	009-028-05	009-028-05		009-028-05	009-028-05	009-028-05
5A	Brake Drum Rotor		070-006-01				070-006-01			
5A	Brake Drum Rotor-ABS		070-006-02				007-006-02			
6	Wheel Mtg. Stud RH	007-115-00	007-115-00	007-102-01	007-115-00	007-115-00	007-115-00	025-013-01	025-013-01	007-102-01
	Wheel Mtg. Stud LH	None	None	007-102-02	None	None	None	025-013-02	025-013-02	007-102-02
7	Hubs w/Cups & StudsRH	008-214-05	008-214-06	008-263-08	008-216-08	008-214-08	008-214-10	008-217-05	008-217-09	008-263-11
	Hubs w/Cups & StudsLH	None	None	008-263-28	None	None	None	008-217-25	008-217-29	008-263-31
8	Outer Bearing Cone	031-019-01 (382A)	031-019-01 (382A)	031-019-01 (382A)	031-021-01 (28622)	031-021-01 (28622)	031-021-01 (28622)	031-021-01 (28622)	031-021-01 (28622)	031-021-01 (28622)
9	Outer Bearing Cup	031-019-02 (387A)	031-019-02 (387A)	031-019-02 (387A)	031-021-02 (28682)	031-021-02 (28682)	031-021-02 (28682)	031-021-02 (28682)	031-021-02 (28682)	031-021-02 (28682)
10	Spindle Washer	005-060-00	005-060-00	005-060-00	005-060-00	005-060-00	005-060-00	005-060-00	005-060-00	005-060-00
11	Spindle Nut	006-084-00	006-084-00	006-084-00	006-084-00	006-084-00	006-084-00	006-084-00	006-084-00	006-084-00
12	Tang Washer	005-059-00	005-059-00	005-059-00	005-059-00	005-059-00	005-059-00	005-059-00	005-059-00	005-059-00
13	Oil Cap "O" ring	010-050-00	010-050-00	010-050-00	010-050-00	010-050-00	010-050-00	010-050-00	010-050-00	010-050-00
14	Oil Cap	021-036-00	021-036-00	021-036-00	021-036-00	021-036-00	021-036-00	021-036-00	021-036-00	021-036-00
15	Oil Cap Plug	046-032-00	046-032-00	046-032-00	046-032-00	046-032-00	046-032-00	046-032-00	046-032-00	046-032-00
16	Wheel Clamp Ring	033-052-01	033-052-01		033-052-01	033-052-01	033-052-01			
17	Wheel Nut RH	006-109-00	006-109-00	006-064-01	006-109-00	006-109-00	006-109-00			006-064-01
	Wheel Nut LH			006-064-02						006-064-02
17A	Inner Nut RH							006-069-01	006-069-01	
	Inner Nut LH							006-069-02	006-069-02	
17B	Outer Nut RH							006-070-01	006-070-01	
	Outer Nut LH							006-070-02	006-070-02	
18	Locating Pin	056-008-00	056-008-00		056-008-00	056-008-00				
19	14.5 x 7.00 MH Dual				017-186-00					
	16 x 6K Dual		017-279-00			017-279-00	017-279-00			
	16.5 x 6.75 Dual	017-157-00	017-157-00		017-157-00	017-157-00				
	17.5 x 6.75 HC Dual							017-185-00		
ns	17.5 x 8.25 HC Single	017-176-00	017-176-00		017-176-00	017-176-00				
	17.5 x 6.75 HC	017-298-00	017-298-00							
21	Drum Mounting Screw	007-244-00		007-244-00	007-244-00	007-244-00		007-244-00	007-244-00	007-244-00
22	Rotor Mounting Stud		025-014-00				025-014-00			
23	Rotor Mounting Nut		006-046-00				006-046-00			
24	ABS Sensor, straight	097-004-00	097-004-00	097-004-00	097-004-00	097-004-00	097-004-00	097-004-00	097-004-00	097-004-00
25	ABS Sensor Block	024-204-00	024-204-00	024-204-00	024-204-00	024-204-00	024-204-00	024-204-00	024-204-00	024-204-00
26	ABS Sensor Clip	097-002-00	097-002-00	097-002-00	097-002-00	097-002-00	097-002-00	097-002-00	097-002-00	097-002-00
27	ABS Tone Ring	024-203-00	024-203-00	024-203-00	024-203-00	024-203-00	024-203-00	024-203-00	024-203-00	024-203-00

NS - not shown

Suspension Kits

9K 38" MULTI-AXLE CONVERSION KIT HAP-205-01

Part No.	Qty.	Description
029-039-04	2	Center Hanger
013-117-03	2	Equalizer
007-181-00	2	Spring Eye Bolt
007-007-00	2	Keeper Bolt
007-182-00	2	Equalizer Bolt
006-038-00	2	5/8-11 UNC Locknut
006-011-00	2	5/16-18 UNC Locknut
006-112-00	2	1-8 UNC Locknut

42.25" MULTI-AXLE CONVERSION KIT HAP-205-02

Part No.	Qty.	Description
029-039-04	2	Center Hanger
013-118-03	2	Equalizer
007-181-00	2	Spring Eye Bolt
007-007-00	2	Keeper Bolt
007-182-00	2	Equalizer Bolt
006-038-00	2	5/8-11 UNC Locknut
006-011-00	2	5/16-18 UNC Locknut
006-112-00	2	1-8 UNC Locknut

48.5" MULTI-AXLE CONVERSION KIT HAP-205-03

Part No.	Qty.	Description
029-039-04	2	Center Hanger
013-119-03	2	Equalizer
007-181-00	2	Spring Eye Bolt
007-007-00	2	Keeper Bolt
007-182-00	2	Equalizer Bolt
006-038-00	2	5/8-11 UNC Locknut
006-011-00	2	5/16-18 UNC Locknut
006-112-00	2	1-8 UNC Locknut

9K SINGLE AXLE HAP-105-00

Part No.	Qty.	Description
028-068-04	2	Front Hanger
030-068-01	2	Rear Hanger
007-181-00	2	Spring Eye Bolt
007-007-00	2	Keeper Bolt
006-038-00	2	5/8-11 Locknut
006-011-00	2	5/16-18 Locknut

10K GD SINGLE AXLE HAP-156-00

Part No.	Qty.	Description
028-059-00	1	Hanger
028-060-00	1	Hanger
030-061-02	2	Rear Hanger
007-135-02	2	Spring Eye Bolt
006-113-00	2	Locknut

10-15K SINGLE AXLE HAP-103-00

Part No.	Qty.	Description
028-067-04	2	Front Hanger
030-066-01	2	Rear Hanger
007-169-00	2	Spring Eye Bolt
007-095-00	2	Keeper Bolt
006-046-00	2	½-20 Locknut
006-112-00	2	1-8 Locknut

10K GD 38" MULTI-AXLE CONVERSION KIT HAP-256-01

Part No.	Qty.	Description
006-112-00	2	Locknut
006-113-00	2	Locknut
007-135-02	2	Spring Eye Bolt
007-136-02	2	Equalizer Bolt
013-080-01	1	LH Equalizer
013-081-01	1	RH Equalizer
029-033-00	2	Center Hanger

42.25" MULTI-AXLE CONVERSION KIT HAP-256-02

Part No.	Qty.	Description
006-112-00	2	Locknut
006-113-00	2	Locknut
007-135-02	2	Spring Eye Bolt
007-136-02	2	Equalizer Bolt
013-082-01	1	LH Equalizer
013-083-01	1	RH Equalizer
029-033-00	2	Center Hanger

48.5" MULTI-AXLE CONVERSION KIT HAP-256-03

Part No.	Qty.	Description
006-112-00	2	Locknut
006-113-00	2	Locknut
007-135-02	2	Spring Eye Bolt
007-136-02	2	Equalizer Bolt
013-084-01	1	LH Equalizer
013-085-01	1	RH Equalizer

10-15K 38" MULTI-AXLE CONVERSION KIT HAP-203-01

Part No.	Qty.	Description
029-037-04	2	Center Hanger
013-107-07	1	LH Equalizer
013-107-08	1	RH Equalizer
007-169-00	2	Spring Eye Bolt
007-095-00	2	Keeper Bolt
007-170-00	2	Equalizer Bolt
006-046-00	2	½-20 Locknut
006-072-00	2	1 1/8-7 Locknut
006-112-00	2	1-8 Locknut

42.25" MULTI-AXLE CONVERSION KIT HAP-203-02

Part No.	Qty.	Description
029-037-04	2	Center Hanger
013-108-03	1	LH Equalizer
013-108-04	1	RH Equalizer
007-169-00	2	Spring Eye Bolt
007-095-00	2	Keeper Bolt
007-170-00	2	Equalizer Bolt
006-046-00	2	½-20 Locknut
006-072-00	2	1 1/8-7 Locknut
006-112-00	2	1-8 Locknut

48.5" MULTI-AXLE CONVERSION KIT HAP-203-03

Part No.	Qty.	Description
029-037-04	2	Center Hanger
013-109-03	1	LH Equalizer
013-109-04	1	LH Equalizer
007-169-00	2	Spring Eye Bolt
007-095-00	2	Keeper Bolt
007-170-00	2	Equalizer Bolt
006-046-00	2	½-20 Locknut
006-072-00	2	1 1/8-7 Locknut
006-112-00	2	1-8 Locknut

9K AXLE ASSEMBLIES

	38"	42.25"	48.50"
For single axle assemblies use (1) HAP-105-00			
Tandem	(1) HAP-105-00 (1) HAP-205-01	(1) HAP-105-00 (1) HAP-205-02	(1) HAP-105-00 (1) HAP-205-03
Triple	(1) HAP-105-00 (2) HAP-205-01	(1) HAP-105-00 (2) HAP-205-02	(1) HAP-105-00 (2) HAP-205-03

10K GD AXLE ASSEMBLIES

	38"	42.25"	48.50"
For single axle assemblies use (1) HAP-156-00			
Tandem	(1) HAP-156-00 (1) HAP-256-01	(1) HAP-156-00 (1) HAP-256-02	(1) HAP-156-00 (1) HAP-256-03
Triple	(1) HAP-156-00 (2) HAP-256-01	(1) HAP-156-00 (2) HAP-256-02	(1) HAP-156-00 (2) HAP-256-03

10-15K AXLE ASSEMBLIES

	38"	42.25"	48.50"
For single axle assemblies use (1) HAP-103-00			
Tandem	(1) HAP-103-00 (1) HAP-203-01	(1) HAP-103-00 (1) HAP-203-02	(1) HAP-103-00 (1) HAP-203-03
Triple	(1) HAP-103-00 (2) HAP-203-01	(1) HAP-103-00 (2) HAP-203-02	(1) HAP-103-00 (2) HAP-203-03

Tire and Wheel Application and Capacities

Axle	Brake	Tire	Load @PSI	Dual	Rim	Wheel	Capacity @PSI	Bolt Circle	W&T	Stand	MAX.	MIN.
10K	Electric	11R17.5HC (H)	5530@120	N/A	17.5x8.25HC	017-176-00	5000@120	8 on 6.50	10,000	74.0	47.0	43.0
Single	Hyd.	215/75R17.5 (H)	4805@125	N/A	17.5x6.75HC	017-240-00	4500@125	8 on 6.50	9,000			
	Air											
10K Dual	Electric	7.5016LT (E)	2440@75	11.0	16x6K	017-279-00	3000@80	8 on 6.50	9,760			
64 mph	Hyd.	7.50R16LT (F)	2756@80	11.0	16x6K	017-279-00	3000@80	8 on 6.50	11,024	74.0	47.0	43.0
max	Air	9.50-16.5LT (E)	2790@75	11.0	16.5x6.75	017-157-00	3000@80	8 on 6.50	11,160	66.0	39.0	35.0
		9.50R16.5LT (E)	2790@80	11.0	16.5x6.75	017-157-00	3000@80	8 on 6.50	11,160			
12K Dual	Electric									74.5	40.0	33.5
Hvy Duty	Hyd.	9-14.5LT (F)	3095@100	11.3	14.5x7.00MH	017-186-00	3000@100	8 on 6.50	12,000	70.5	36.0	29.5
54 mph max	Air									66.5	32.5	25.5
	Electric	7.5016LT (E)	2660@75	11.0	16x6K	017-279-00	3000@80	8 on 6.50	10,640			
12K Dual	Hyd.	7.50R16LT (F)	2756@80	11.0	16x6K	017-279-00	3000@80	8 on 6.50	11,024	74.0	45.5	33.0
Hi-Profile	Air	9.50-16.5LT (E)	3040@75	11.0	16.5x6.75	017-157-00	3000@80	8 on 6.50	12,000	66.0	37.5	25.0
54 mph max		9.50R16.5LT (E)	3040@80	11.0	16.5x6.75	017-157-00	3000@80	8 on 6.50	12,000			
15K Dual	Electric	8.25-15TR (G)	3470@100	11.0	15-6.50T		4290@100	10 on 8.75	13,880	75.0	44.5	42.0
DISC	Hyd.	8.25R15TR (G)	3470@105	11.0	15-6.50T		4290@105	10 on 8.75	13,880	67.0	36.5	34.0
Wheels	Air											
15K Dual	Electric	9R17.5HC (H)	3970@110	12.4	17.5x6.75HC	017-185-00	4710@120	10 on 8.75	15,880			
DISC	Hyd.	215/75R17.5 (H)	4540@125	12.4	17.5x6.75HC	017-185-00	4710@120	10 on 8.75	18,160	73.5	43.0	40.5
Wheels	Air	9.00-15TR (F)	3760@85	12.0	15-7.00T		4500@105	10 on 8.75	15,040	65.5	35.0	32.5
		10R17.5 (H)	4410@110	12.4	17.5x6.75HC	017-185-00	4710@120	10 on 8.75	17,640			

Note: For 15K axle with the 10 on 11¼" bolt circle, single wheel hub, the maximum spring center is hub face minus 24". The hub is designed for a wheel with an outset between 1.87" and 2.25". The minimum spring center is track minus 33."

Running Gear Installation Dimensions

Axle		Tire		Bottom of Frame to Top of Tire	Frame Ht.	Ground Clearance	Bottom of Frame to Top of Tire	Frame Ht. Tandem	Bottom of Frame to Top of Tire	Frame Ht. Triple	SLR Static Loaded Radius	Overall Dia.
10K	**Single Wheel**	11R 17.5HC	(H)	12.1	22.9	9.7	12.6	22.4	12.8	22.2	16.9	36.2
10K and 12K	**Dual Wheels**	7.50-16 LT	(E)	10.3	21.1	7.9	10.8	20.6	11.0	20.4	15.1	32.5
		7.5R16LT	(F)	9.9	20.6	7.4	10.4	20.1	10.6	19.9	14.6	31.7
		9.50-16.5LT	(E)	9.4	20.2	7.0	9.9	19.7	10.1	19.5	14.2	30.7
		9.50R16.5LT	(E)	9.4	20.2	7.0	9.9	19.7	10.1	19.5	14.2	30.7
		LT235/85R16		9.9	20.6	7.4	10.4	20.1	10.6	19.9	14.6	31.7
12K	**Dual Wheels**	9-14.5LT	(F)	8.2	19.3	6.1	8.7	18.8	8.9	18.6	13.3	28.3
15K	**Dual Wheels**	8.25-15TR	(G)	10.7	21.7	8.5	11.2	21.2	11.4	21.0	15.7	33.3
		8.25R15TR	(G)	10.7	21.5	8.3	11.2	21.0	11.4	20.8	15.5	33.3
		215/75R17.5	(H)	9.1	19.9	6.7	9.6	19.4	9.8	19.2	14.1	29.2
		9R17.5HC	(H)	10.6	21.6	8.4	11.1	21.1	11.3	20.9	15.6	33.1
		9.00-15TR	(F)	11.4	22.3	9.1	11.9	21.8	21.1	21.6	16.3	34.8
		10R17.5	(H)	10.9	21.7	8.5	11.4	21.2	11.6	21.0	15.7	33.8

For diagram, see page 18

Note: All dimensions are with the axles loaded to capacity.

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