TITANIUM®

HYDRAULIC DETACHABLE GOOSENECK TRAILER

Replacement Parts & Service Manual and Operating Instructions

This manual covers the following models:
T-70DTG, T-100DTG, T-110DTG, T-120DTG

TOWMASTER® TRAILERS

The Standard for the Road Ahead!

towmaster.com

A forward from Towmaster Trailers to our valued customers and dealers.

In this manual you will find service information and replacement parts for your current Towmaster trailer. We have put forth our best effort to provide you with common operations and replacement part information. However, Towmaster Trailers builds many custom trailers for various customers and cannot guarantee that your trailers features are outlined in this manual. If you encounter this problem please contact your dealer. If they cannot be of assistance please feel free to call our Parts Department.

To ensure a more productive call have your trailer's VIN number (serial number) ready as that will be needed to locate your correct replacement parts and answer your technical questions. As a reminder, we do not sell parts directly to you; we only sell parts through our dealer network. The team here at Towmaster Trailers will make every effort to get you back up and running and keep your ownership as trouble free as possible.

Contact Information

Towmaster Trailers
61381 U.S. Hwy 12
Litchfield, MN 55355

800-462-4517 Toll Free
320-693-7921 Company Fax
866-239-2221 Parts Department
www.towmaster.com

Thank you!
Towmaster Trailers

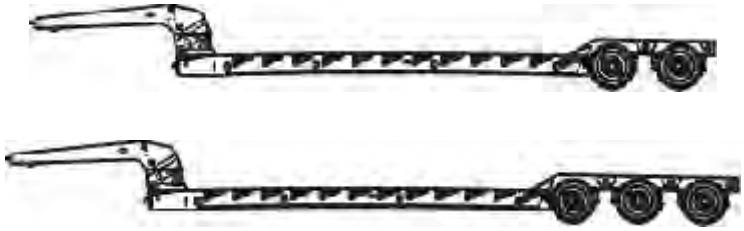
Table of Contents

Read and understand complete manual before using trailer.

SECTION 1

Trailer Specs

Trailer and Dealer Information



Trailer Information

Model purchased:_____ Date purchased: _____

VIN (Serial) Number: _____

Axle Serial Numbers (each axle has its own)

Axle 1: _____ Axle 4: _____

Axle 2: _____ Axle 5: _____

Axle 3: _____

Dealer Information

Dealer: _____

Address: _____

_____

_____

Phone: _____ Fax: _____

Please have serial number available for all orders.

Truck Requirements/Operating Ranges

P.S.I. - 2,800 to 3,000

G.P.M. - 10 GPM minimum, 25 GPM maximum

Swing Clearance - See truck dimensions (page 5)

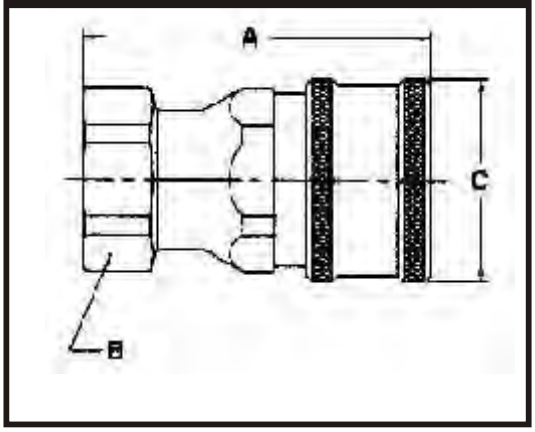
5th Wheel Height - 47" - 52" See truck dimensions (page 5)

Hydraulic Connections - See below...

Parker Fluid Connectors

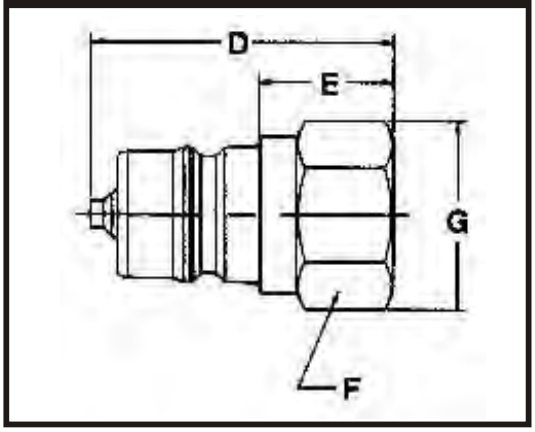
Coupler

Towmaster p/n 37-5972



Nipple

Towmaster p/n 37-5971



COUPLER

BODY SIZE	3/4"
THREAD SIZE (NPTF)	3/4-14
DIMENSION A (OVER-ALL LENGTH)	3.36
DIMENSION B (HEX SIZE)	1.62
DIMENSION C (LARGEST DIAMETER)	1.90

NIPPLE

BODY SIZE	3/4"
THREAD SIZE (NPTF)	3/4-14
DIMENSION D (OVER-ALL LENGTH)	2.28
DIMENSION E (EXPOSED LENGTH)	1.18
DIMENSION F (HEX SIZE)	1.38
DIMENSION G (LARGEST DIAMETER)	1.59

Towmaster Trailer Limited Warranty

Limited Warranty

Current and complete warranty details are available at Towmaster.com.

Customer Registration Required

Federal regulations require motor vehicle manufacturers to maintain a record of original owners of their equipment. Our warranty registration fulfills this requirement. Please make

Manufacturer reserves the right to modify, without notice, specific designs and specifications as deemed advisable on the trailers described herein without obligation in regards to trailers previously sold. The manufacturer also reserves the right to discontinue any model or models without obligation in regards to trailers previously sold. Written warranty covers each

Reporting Safety Defects

Towmaster Trailers INC.
61381 U.S. Hwy 12
Litchfield, MN 55355

Reporting Safety Defects:

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Towmaster, Inc.

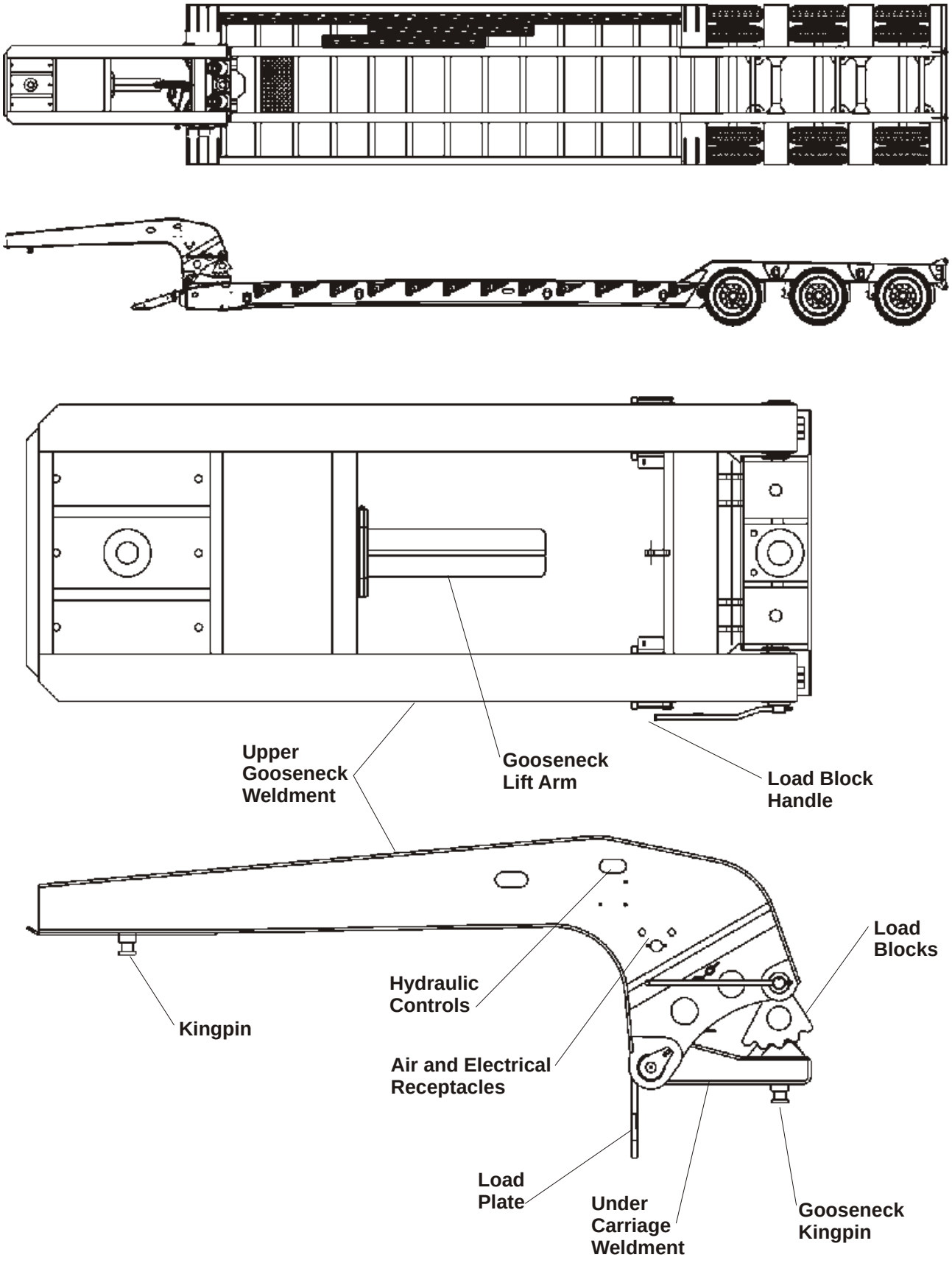
If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Towmaster, Inc.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, DC area) or write to:

NHTSA
U.S. Department of Transportation
400 7th Street SW NSA-11
Washington, DC 20590.

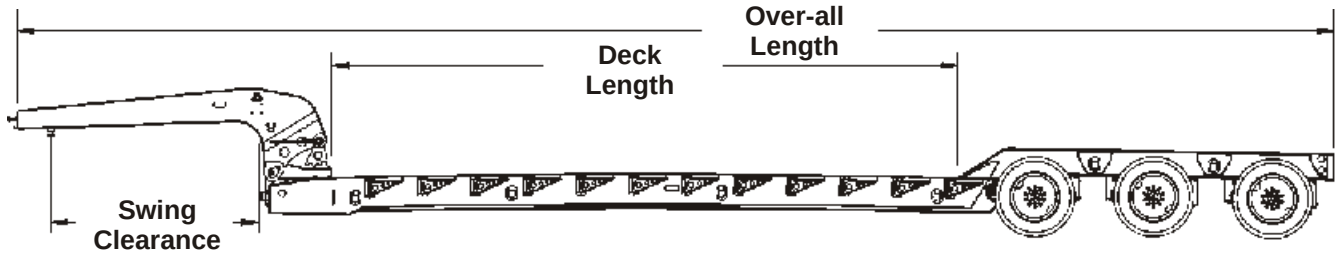
You may also obtain other information about motor vehicle safety from the http://www.safecar.gov.

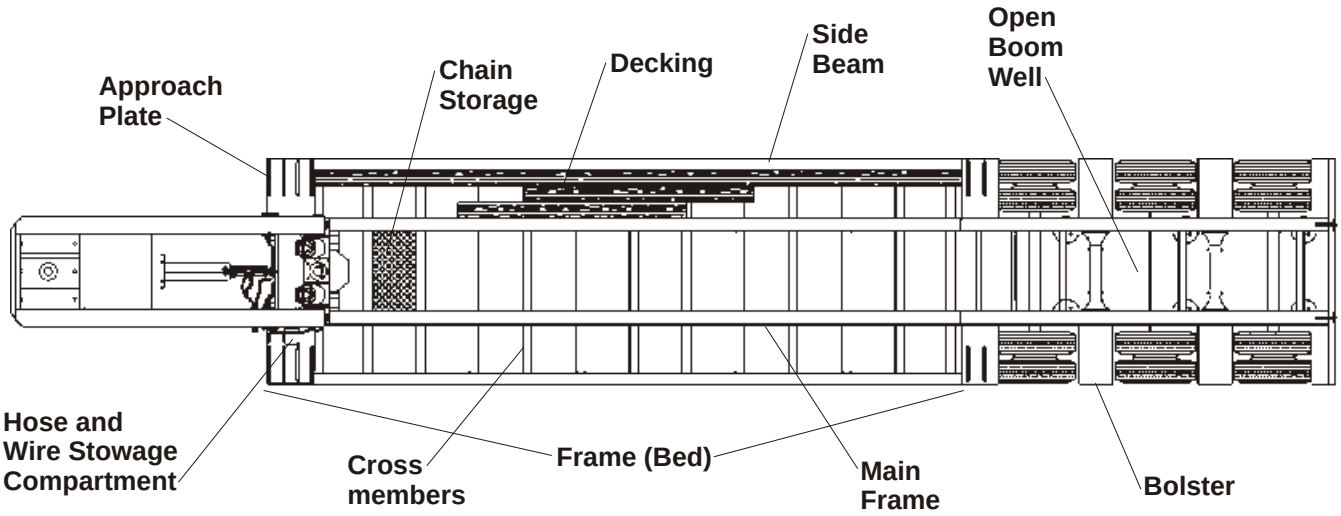
Trailer Terminology - Gooseneck

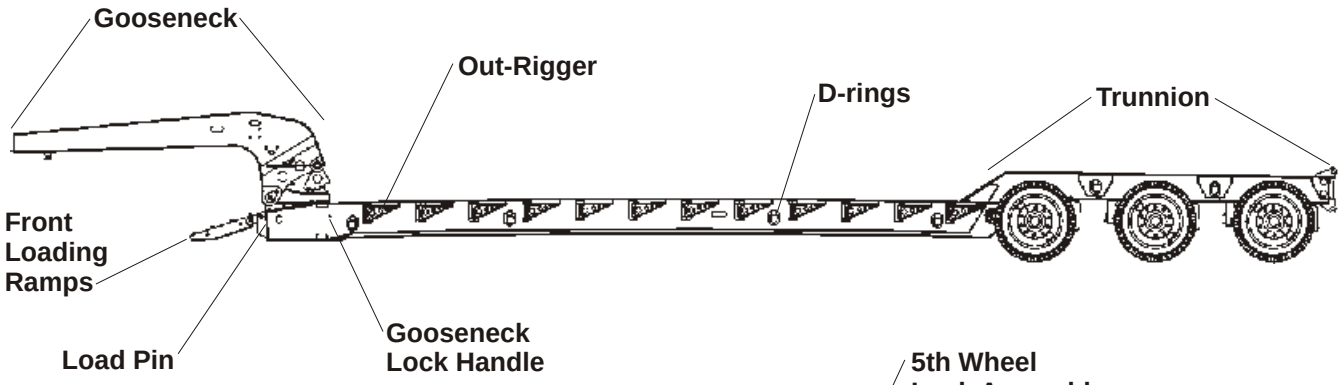


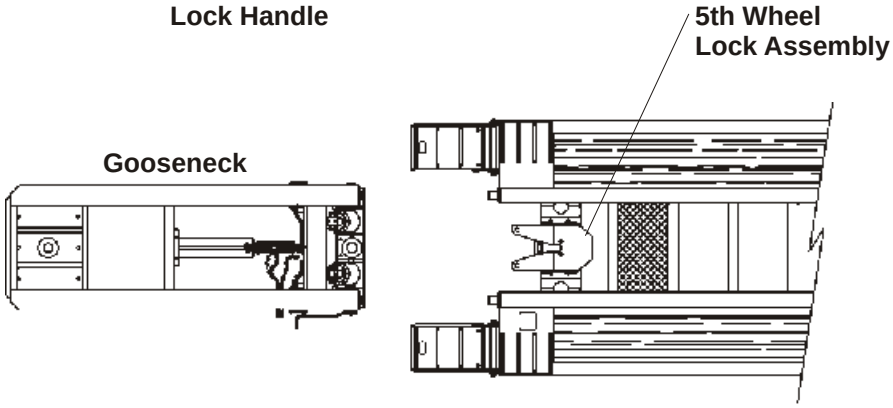
Trailer Terminology - Frame and Trunnion

Triple axle model shown.









SECTION 2

Operation Instructions

Operation of Trailer (Titanium Series)

INTRODUCTION

These instructions are designed to make you familiar with the operation of our product. It is not intended for the purpose of training or to replace common knowledge in operating a detachable gooseneck trailer. Make sure you read these instructions before using the Towmaster Titanium detachable gooseneck trailer.

There are references at the end of these instructions to find your local and state laws regarding the use of a trailer. Please follow all local, state and federal regulations.

OPERATION INSTRUCTIONS

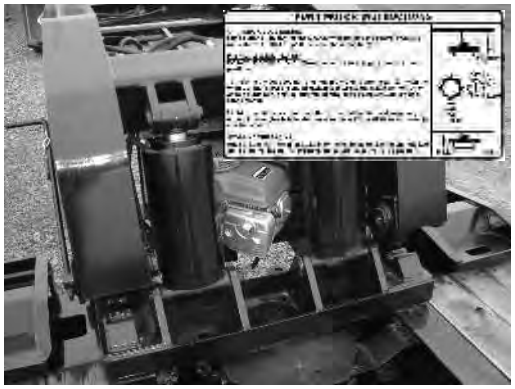
1. IMPORTANT! Read and understand all safety decals and the operating decal prior to using the trailer!

These decals are placed in key areas on the trailer and point out instructions and important safety factors in those areas. Failure to understand these instructions could cause serious injury.

2. The ***Titanium Series*** detachable gooseneck trailer features a king pin hitch system for use with tractor truck fifth-wheels. Make sure the truck fifth-wheel is in the proper location so that the gooseneck can be properly detached and reattached to the trailer bed.

3. Before using the trailer, make sure you are in a safe location and parked on solid ground. Make sure the truck and trailer are in a straight line and on as level ground as possible.

DETACHING TRAILER



4. Start the hydraulic system so that oil is flowing to the gooseneck. If your trailer has the pony motor option, start the pony motor according to the instructions on the pony motor decal.

5. Detach the air and electrical lines from the gooseneck to the trailer bed and store them in the storage area at the front of the trailer bed near the front ramp.

6. Using the hydraulic control levers, raise the gooseneck until the load blocks can be rotated and the handle attached to the holder to keep the load blocks out of the way.

⚠ DANGER

Stand clear when lowering deck.

7. Using the hydraulic controls, lower the gooseneck and trailer to the ground and continue lowering until the load pins are centered in the load plate holes.

DANGER! Watch your feet! Stand clear from trailer deck when lowering the trailer to the ground!

DETACHING TRAILER

8. Lower the gooseneck lifting arm to the truck frame using the front hydraulic control lever. Lower it only to touch the frame enough to support the gooseneck.

9. Firmly pull the lock release handle to release the fifth-wheel lock on the trailer bed. If your trailer is equipped with the Air Lock-Pin Release, push the release button to release the fifth-wheel lock. Stand clear of the lock release handle when operating the Air Lock-Pin Release.

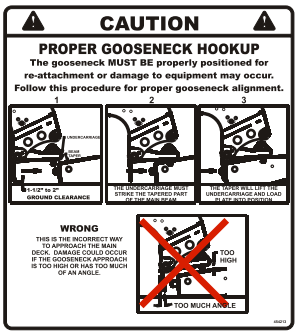
10. Slowly drive forward and adjust the lifting arm accordingly so the gooseneck load plates clear the ground by 1.5” to 2”, but do not drag on the ground.

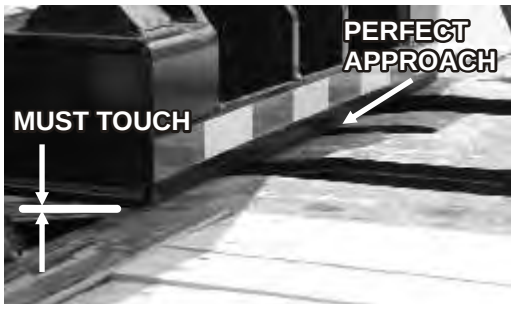
11. Flip down the front ramps and carefully load or unload the equipment.

ATTACHING GOOSENECK TO TRAILER

12. Adjust the gooseneck so that the load plate is approximately 1-1/2" above the ground. Do this by lifting the gooseneck with the gooseneck lifting arm hydraulic controls.

13. CAUTION! If the gooseneck is too high and does not approach the main deck properly, damage could occur to the fifth-wheel lock. Make sure you approach the main deck properly with the gooseneck.





14.Adjust the undercarriage if necessary, then slowly back to the trailer bed.

Lock handle shown in **UNLOCKED** position.

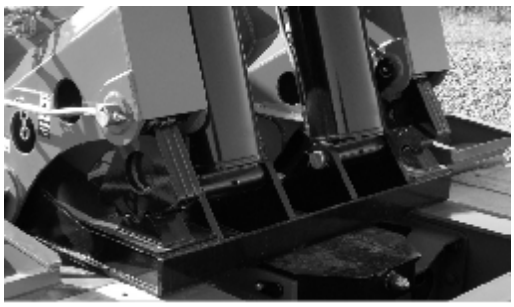
15. The gooseneck will self-align into the fifth-wheel on the trailer bed. Back up until the gooseneck locks in place and the lock handle is in the lock position (all the way in).

Lock handle shown in **LOCKED** position.

16. Raise the gooseneck lift arm (shoe plate).

ATTACHING GOOSENECK TO TRAILER

17. Raise the gooseneck and trailer until the load blocks can be rotated and positioned in the desired ride position.



18. Lower the gooseneck and trailer to transport position (load blocks resting on the base). Visually check to make sure the load blocks are on the same cams.

19. Connect the air and electrical lines.

Instructions for other options

There are other options available for the ***Titanium Series*** detachable gooseneck. Instructions on how to operate these options follow.

Air Raise/Lower Kits

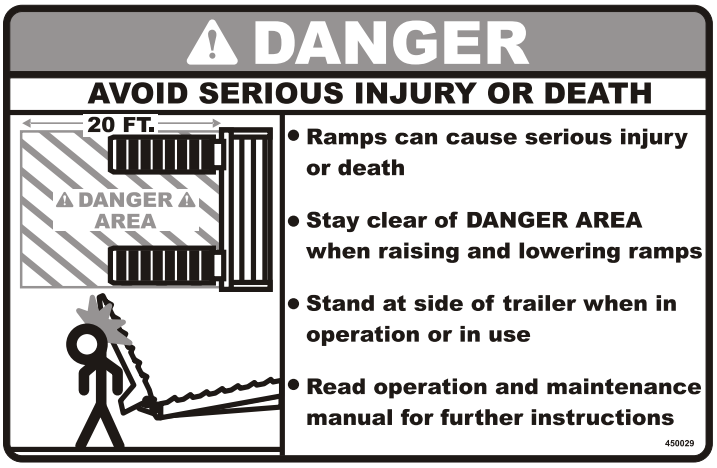
This option allows you to raise or lower the rear of the trailer to clear objects, grades, railroad rails and more.

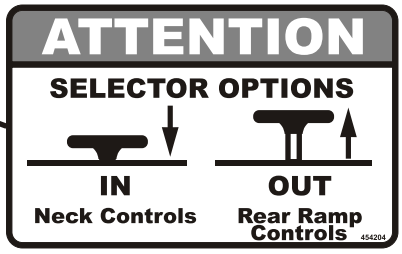
To raise:
Pull the air control knob to allow air to the raise and lower controls. You will see the needle on the gauge show air pressure.

Lift the lever to raise the rear suspension and lower the lever to lower the rear suspension.

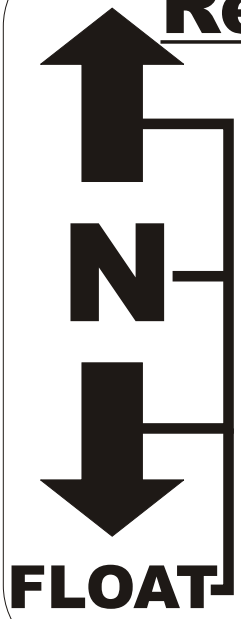
When finished, push the air control knob to stop air from entering the controls.

Rear hydraulic ramps





Rear Ramp Instructions



1. (If equipped) Pull Hyd. Selector valve out to provide Hyd. power to rear ramp controls. Hyd. wet line or pony motor must be running.
2. Remove Ramp Hold-Up bars. WARNING! Stand Clear of ramp Danger Area at all times.
3. To Lower Ramp: Push Ramp Control Lever DOWN until ramps reach the ground.
4. Lock Ramp Control Lever down in the FLOAT position before loading/unloading trailer.

Note: Damage will occur to ramps or Hyd. system if valve is not locked in FLOAT position.

5. To Raise Ramps: Pull Ramp Control Lever UP until ramps are fully raised.
6. Reattach Ramp Hold-Up bars.
7. Select power off to valve or Pony Motor (if equipped)

450030

Operation of Trailer (Titanium Series)

Outrigger boards with hold-downs

With this option, you can carry the outrigger boards in the open areas of the deck. The hold-downs (shown) are spring loaded.

Follow the instruction decal.

Battery pack with flasher for marker lights

This kit allows the flashers to be used when the trailer deck is detached from the gooseneck. Unplug the electrical plug from the receptacle and plug it into the flasher kit receptacle located in the line storage area.

Rear lift axle

The rear lift axle should only be used in an empty condition only! This kit reduces wear when transporting the trailer without a load.

At the rear of the trailer you will find the raise/lower valve.

To raise the rear axle: Pull the knob.

To lower the rear axle: Push the knob.

When the axle is lowered it becomes a part of the working suspension.

SECTION 3

Warnings

General

A recent law was enacted that requires trailer manufacturers to place a tire and loading information decal placed near the serial tag on a trailer as well as detailed information on loading and tires in the owner's manual on all trailers with a GVWR (Gross Vehicle Weight Rating) of 10,000 lbs. or less. This section of our manual covers the required information.

Tire and Safety Information

This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 1.1 contains "Steps for Determining Correct Load Limit - Trailer".
Section 1.2 contains "Steps for Determining Correct Load Limit – Tow Vehicle".
Section 1.3 contains a Glossary of Tire Terminology, including "cold inflation pressure", "maximum inflation pressure", "recommended inflation pressure", and other non-technical terms.
Section 1.4 contains information from the NHTSA brochure entitled "Tire Safety – Everything Rides On It".
This brochure, as well as the preceding subsections, describes the following items;

Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).

Recommended tire inflation pressure, including a description and explanation of:

A. Cold inflation pressure.

B. Vehicle Placard and location on the vehicle.

C. Adverse safety consequences of under inflation (including tire failure).

D. Measuring and adjusting air pressure for proper inflation.

E. Tire Care, including maintenance and safety practices.

Vehicle load limits, including a description and explanation of the following items:

A. Locating and understanding the load limit information, total load capacity, and cargo capacity.

B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.

C. Determining compatibility of tire and vehicle load capabilities.

D. Adverse safety consequences of overloading on handling and stopping on tires.

1.1. Steps for Determining Correct Load Limit – Trailer

Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the unit. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided.

If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer, up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer can not exceed the stated GVWR.

Tire and Safety Information - Continued

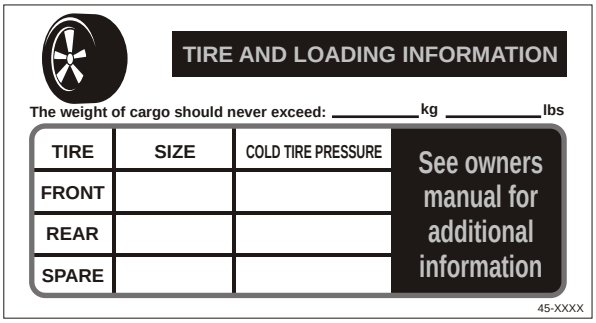
1.1. Steps for Determining Correct Load Limit – Trailer (continued)

For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there is a fresh water storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer. This would include the weight empty or unloaded, weights per axle, wheel, hitch or king-pin, and total weight.

Excessive loads and/or underinflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

1.1.1. Trailers 10,000 Pounds GVWR or Less



1. Locate the statement, “The weight of cargo should never exceed XXX kg or XXX lbs.,” on your vehicle’s placard. See figure 1-1.

2. This figure equals the available amount of cargo and luggage load capacity.

3. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer’s placard refers to the Tire Information Placard attached adjacent to or near the trailer’s VIN (Certification) label at the left front of the trailer.

1.1.2. Trailers Over 10,000 Pounds GVWR (Note: These trailers are not required to have a tire information placard on the vehicle)

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.

2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer’s VIN (Certification) label.

3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer and may not be safely exceeded.

Tire and Safety Information - Continued

1.2. Steps for Determining Correct Load Limit – Tow Vehicle

1. Locate the statement, “The combined weight of occupants and cargo should never exceed XXX lbs.,” on your vehicle’s placard.

2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.

3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.

4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the “XXX” amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage capacity is 650 lbs. (1400-750 (5 x 150) = 650 lbs.).

5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4.

6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle’s manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

1.3. Glossary Of Tire Terminology

Accessory weight
The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

Bead
The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

Bead separation
This is the breakdown of the bond between components in the bead.

Bias ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

Carcass
The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

Chunking
The breaking away of pieces of the tread or sidewall.

Cold inflation pressure
The pressure in the tire before you drive.

Cord
The strands forming the plies in the tire.

Cord separation
The parting of cords from adjacent rubber compounds.

Cracking
Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

CT
A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

Tire and Safety Information - Continued

Curb weight
The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

Extra load tire
A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Groove
The space between two adjacent tread ribs.

Gross Axle Weight Rating
The maximum weight that any axle can support, as published on the Certification / VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.

Gross Vehicle Weight Rating
The maximum weight of the fully loaded trailer, as published on the Certification / VIN label. Actual weight determined by weighing trailer on a public scale, without being attached to the towing vehicle.

Hitch Weight
The downward force exerted on the hitch ball by the trailer coupler.

Innerliner
The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

Innerliner separation
The parting of the innerliner from cord material in the carcass.

Intended outboard sidewall
The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

Light truck (LT) tire
A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load rating
The maximum load that a tire is rated to carry for a given inflation pressure.

Maximum load rating
The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum permissible inflation pressure
The maximum cold inflation pressure to which a tire may be inflated.

Maximum loaded vehicle weight
The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Measuring rim
The rim on which a tire is fitted for physical dimension requirements.

Pin Weight
The downward force applied to the 5th wheel or gooseneck ball, by the trailer kingpin or gooseneck coupler.

Non-pneumatic rim
A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separably, to the wheel center member and upon which the tire is attached.

Non-pneumatic spare tire assembly
A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

Tire and Safety Information - Continued

Non-pneumatic tire
A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

Non-pneumatic tire assembly
A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

Normal occupant weight
This means 68 kilograms (150 lbs.) times the number of occupants specified in the second column of Table I of 49 CFR 571.110.

Occupant distribution
The distribution of occupants in a vehicle as specified in the third column of Table I of 49 CFR 571.110.

Open splice
Any parting at any junction of tread, sidewall, or innerliner that extends to cord material.

Outer diameter
The overall diameter of an inflated new tire.

Overall width
The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

Ply
A layer of rubber-coated parallel cords.

Ply separation
A parting of rubber compound between adjacent plies.

Pneumatic tire
A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

Production options weight
The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

Radial ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

Recommended inflation pressure
This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

Reinforced tire
A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Rim
A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

Rim diameter
This means the nominal diameter of the bead seat.

Rim size designation
This means the rim diameter and width.

Tire and Safety Information - Continued

Rim type designation
This means the industry of manufacturer's designation for a rim by style or code.

Rim width
This means the nominal distance between rim flanges.

Section width
The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

Sidewall
That portion of a tire between the tread and bead.

Sidewall separation
The parting of the rubber compound from the cord material in the sidewall.

Special Trailer (ST) tire
The "ST" is an indication the tire is for trailer use only.

Test rim
The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

Tread
That portion of a tire that comes into contact with the road.

Tread rib
A tread section running circumferentially around a tire.

Tread separation
Pulling away of the tread from the tire carcass.

Treadwear indicators (TWI)
The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

Vehicle capacity weight
The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicle's designated seating capacity.

Vehicle maximum load on the tire
The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

Vehicle normal load on the tire
The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

Weather side
The surface area of the rim not covered by the inflated tire.

Wheel center member
In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic tire and provides the connection between tire and the vehicle.

Wheel-holding fixture
The fixture used to hold the wheel and tire assembly securely during testing.

Tire and Safety Information - Continued

1.4. Tire Safety - Everything Rides On It

The National Traffic Safety Administration (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

This area presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

1.5. Safety First–Basic Tire Maintenance

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

1.5.1. Finding Your Vehicle's Recommended Tire Pressure and Load Limits

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW–the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR– the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the trailer near the left front.

1.5.2. Understanding Tire Pressure and Load Limits

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure– measured in pounds per square inch (psi)–a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kpa), which is the metric measure used internationally.)

Tire and Safety Information - Continued

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

1.5.3. Checking Tire Pressure

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold.

The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

1.5.4. Steps for Maintaining Proper Tire Pressure

Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.

Step 2: Record the tire pressure of all tires.

Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.

Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.

Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.

Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

1.5.5. Tire Size

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

Tire and Safety Information - Continued

1.5.6. Tire Tread

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

1.5.7. Tire Balance and Wheel Alignment

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires. These adjustments require special equipment and should be performed by a qualified technician.

1.5.8. Tire Repair

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

1.5.9. Tire Fundamentals

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

1.5.9.1. Information on Passenger Vehicle Tires

P
The "P" indicates the tire is for passenger vehicles.

Next number
This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number
This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R
The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number
This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number
This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S
The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Tire and Safety Information - Continued

Speed Rating

The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.

Letter Rating	Speed Rating
Q	99 mph
R	106 mph
S	112 mph
T	118 mph
U	124 mph
H	130 mph
V	149 mph
W	168* mph
Y	186* mph

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number
This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used
The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating
This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure
This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

1.5.9.2. UTQGS Information

Treadwear Number
This number indicates the tire's wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

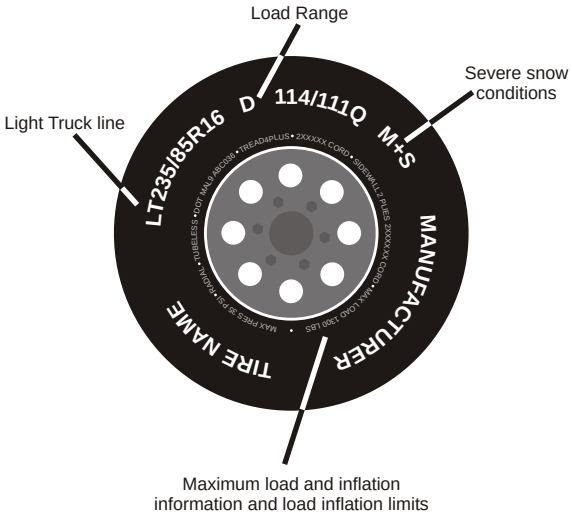
Traction Letter
This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA","A", "B", and "C".

Temperature Letter
This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Tire and Safety Information - Continued

1.5.9.3. Additional Information on Light Truck Tires

Please refer to the following diagram.



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT
The "LT" indicates the tire is for light trucks or trailers.

ST
An "ST" is an indication the tire is for trailer use only.

Max. Load Dual kg (lbs) at kPa (psi) Cold
This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg (lbs) at kPa (psi) Cold
This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range
This information identifies the tire's load-carrying capabilities and its inflation limits.

1.6. Tire Safety Tips

Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Tire Safety Checklist

- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.
- Check tire pressure before going on a long trip.
- Do not overload your vehicle. Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.

More information may be found at http://www.natm.com.

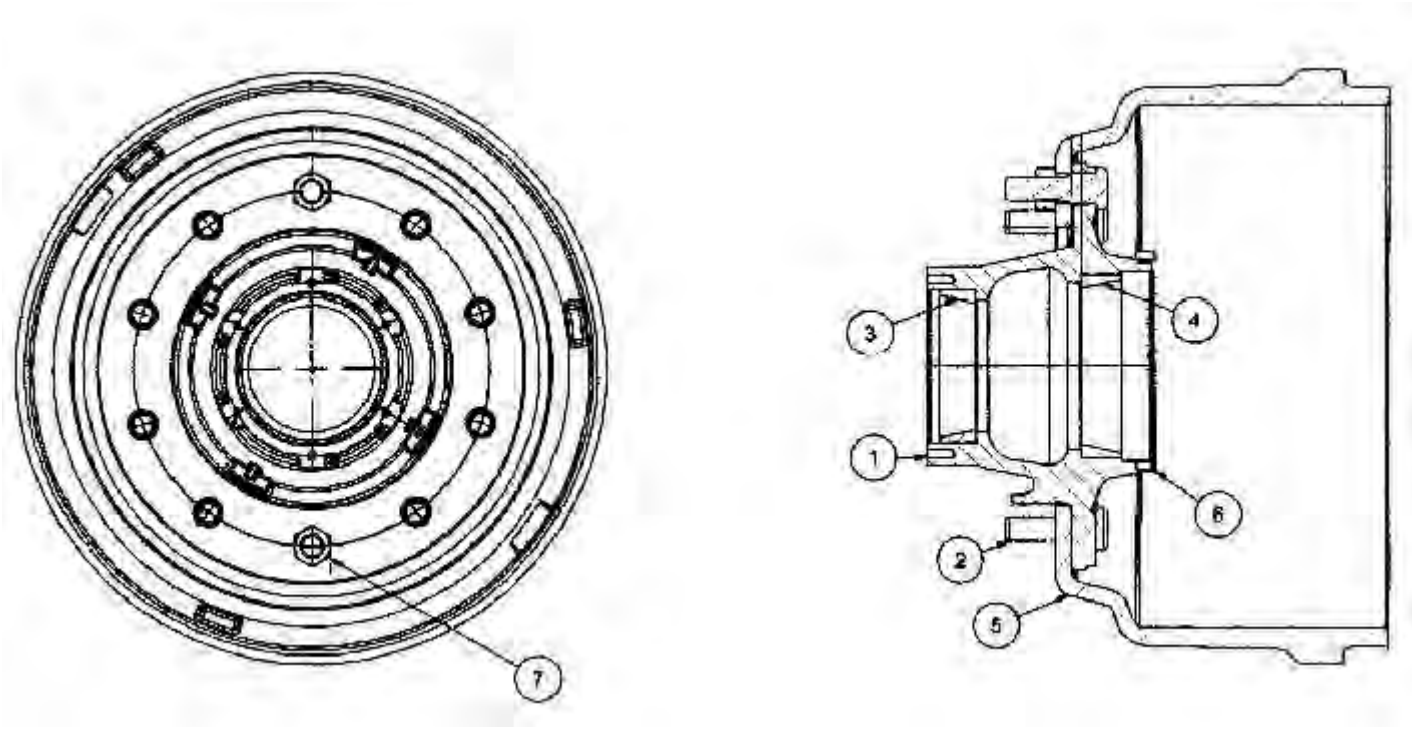
SECTION 4

Replacement Parts

Continued

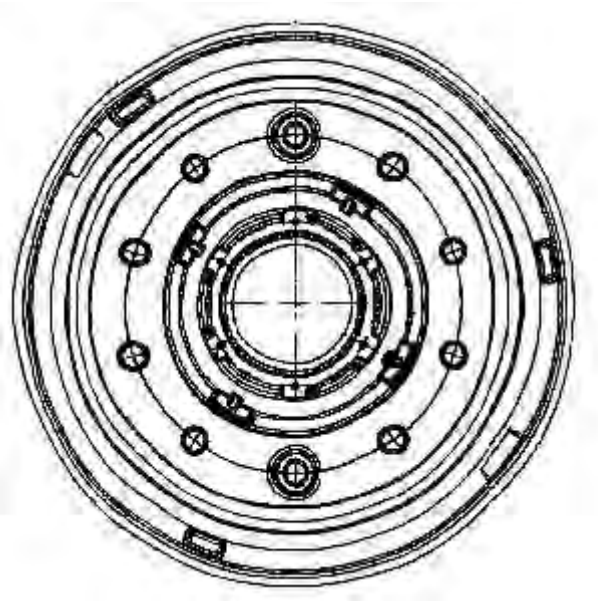
Replacement Parts

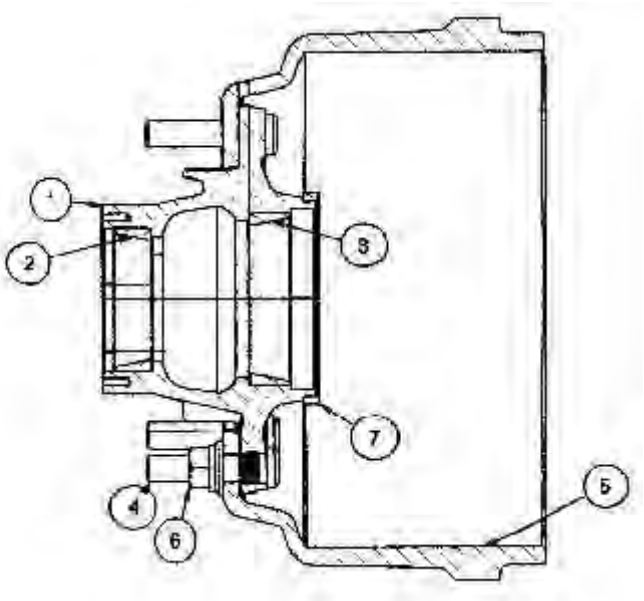
Hub/Drum Assembly, Stud Piloted



Item	Part #	Description
1	252150	hub casting
2	252156	3/4-16 stud
3	252153	wheel bearing cup, outer
4	252154	wheel bearing cup, inner
5	252160	16.5 x 7" brake drum
6	252165	abs tone ring
7	252171	hex nut

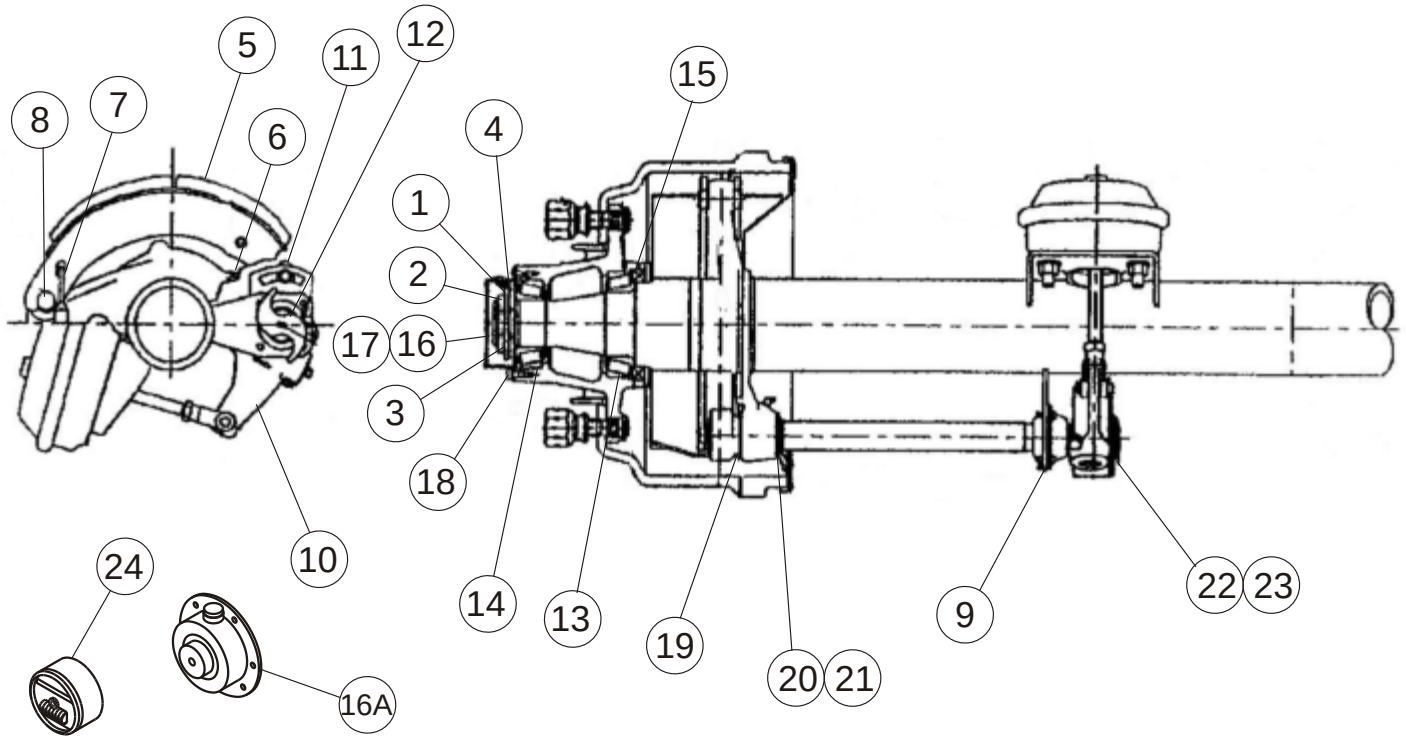
Hub/Drum Assembly, Hub Piloted





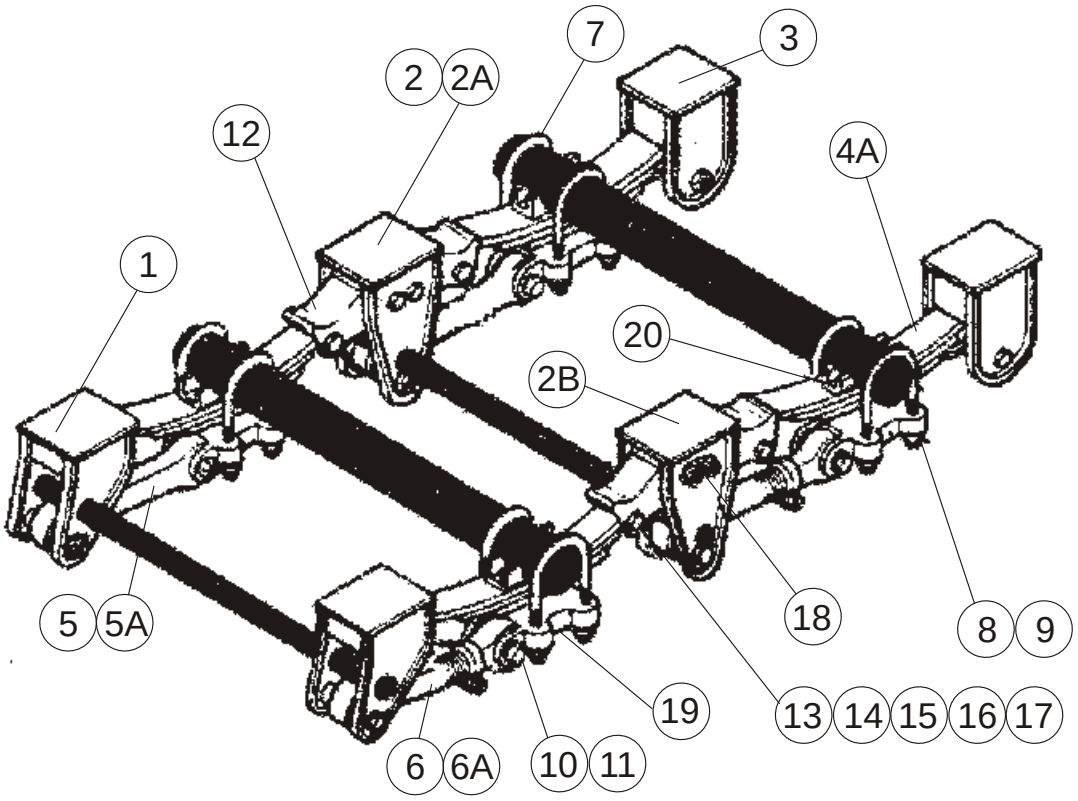
Item	Part #	Description
1	252150	hub casting
2	252153	wheel bearing cup, outer
3	252154	wheel bearing cup, inner
4	252157	M22 wheel stud
5	252160	16.5 x 7" brake drum
6	252170	M22 x 1.5 swivel flange nut
7	252165	100 tooth tone ring

Brake Assembly, non ABS and ABS



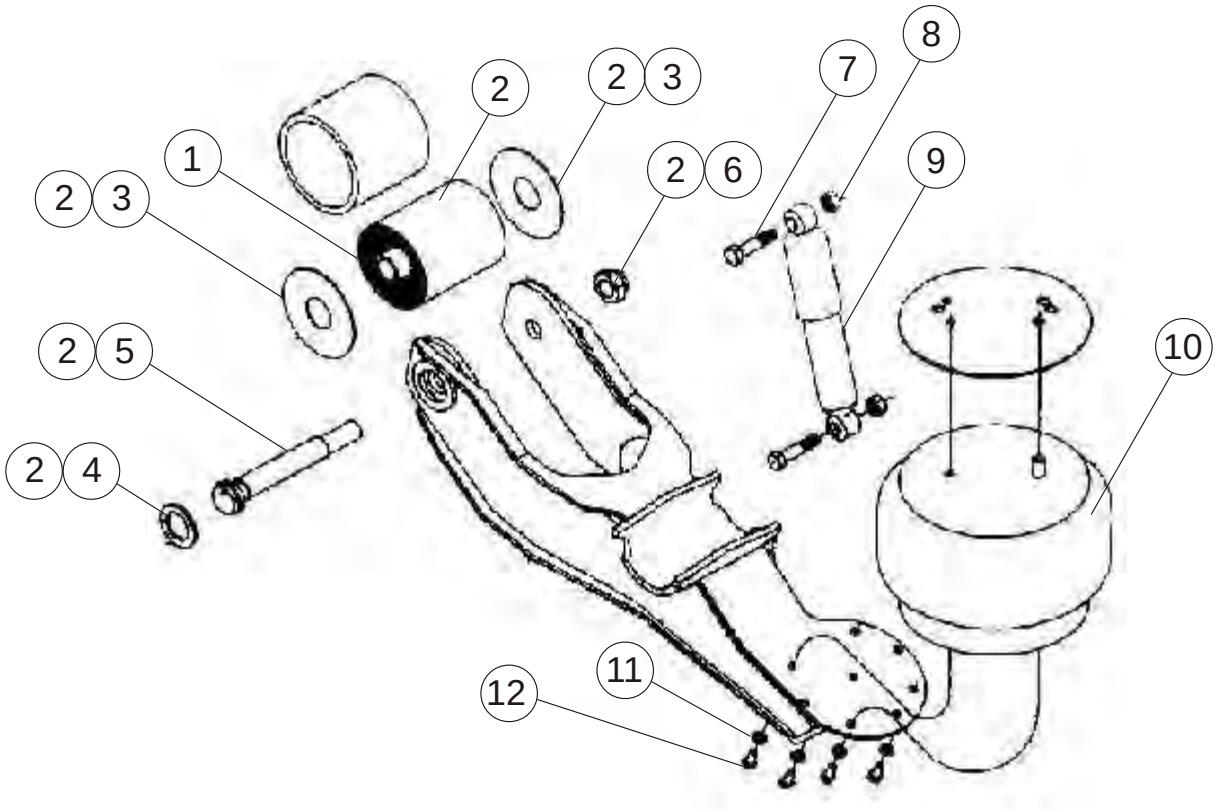
Item	Part #	Description
	25-2200	r.h. hub and drum assembly, non abs
	25-2201	r.h. hub and drum assembly, abs
	25-2241	l.h. hub and drum assembly, non abs
	25-2240	l.h. hub and drum assembly, abs
1	25-2219	spindle nut, inner
2	25-2218	spindle nut, outer
3	25-2217	washer
4	25-2216	star washer
5	31-1700	shoe and lining assembly ½" 16.5 x 7"
6	31-1701	return spring
7	31-1702	tension spring
8	31-1703	anchor pin
9	31-1704	r.h. cam bracket
	31-1705	l.h. cam bracket
10	31-1706	slack adjuster
11	25-2206	bolt and nut kit
12	31-1710	cam, r.h.
	31-1711	cam, l.h.
13	25-2231	bearing cone, inner
14	25-2230	bearing cone, outer
15	25-2051	oil seal
16	25-2003	hub cap
16A	25-2004	hub cap (for hubodometer)
17	25-2005	gasket
18	25-2226	bolt and lock washer
19	31-1715	spacer, steel
20	31-1716	spacer, steel
21	31-1717	snap ring
22	31-1718	spacer, steel
23	31-1719	snap ring
24	37-5011	hubodometer
	25-2220	spider welding spec
	25-2244	abs sensor clip (not shown)
	25-2245	abs sensor lead (not shown)
	25-2246	abs block (not shown)

Suspension, Spring (Hutchens)



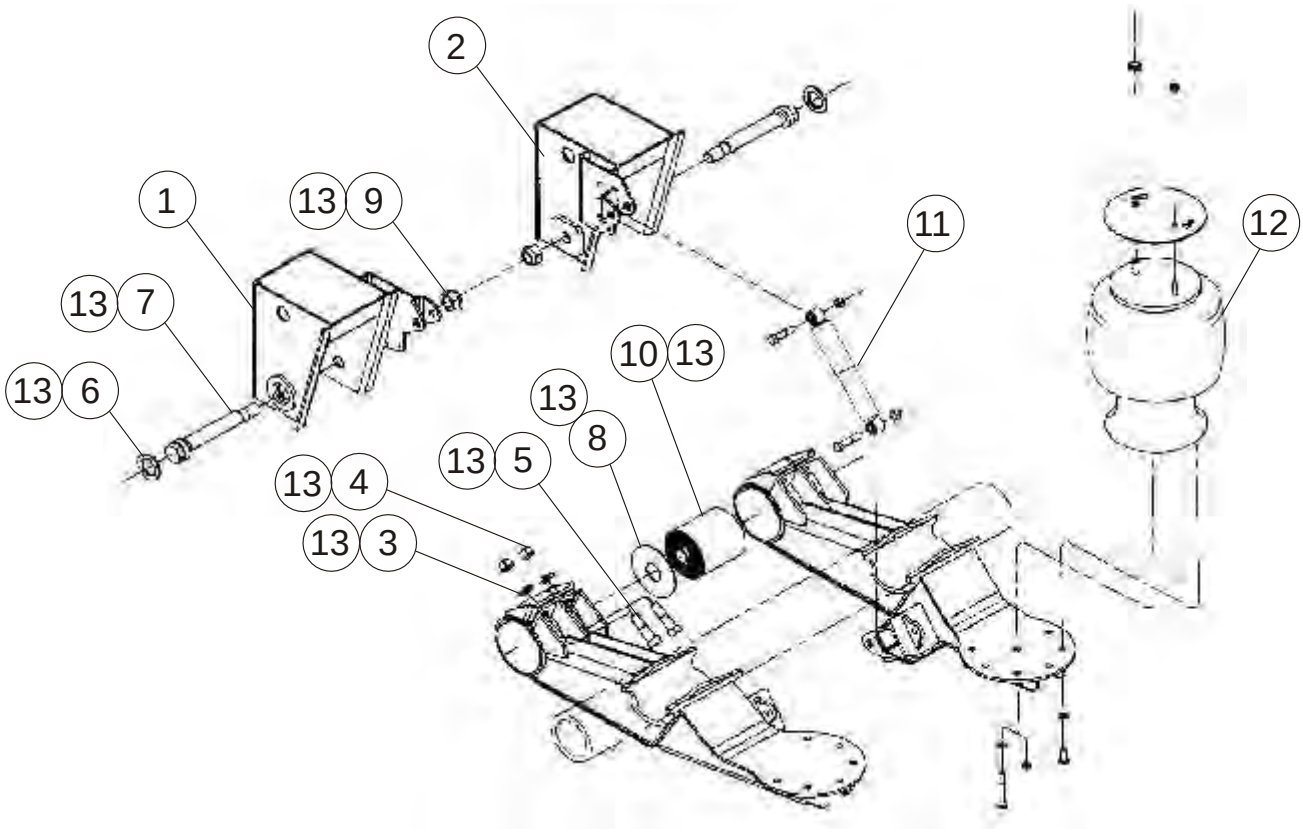
Item	Part #	Description
1	29-0026	front spring hanger
2	29-0029	center spring hanger w/ equalizer, 49" axle spacing
2A	29-0029R	rh center spring hanger w/ equal., 54 ½" axle spacing
2B	29-0029L	lh center spring hanger w/ equal., 54 ½" axle spacing
3	29-0030	rear spring hanger
4A	29-0027	3 leaf spring, 24,000 lb. cap.
5	29-0032	non-adjustable torque arm, 49" axle spacing
5A	29-0032A	non-adjustable torque arm, 54 ½" axle spacing
6	29-0034	adjustable torque arm, 49" axle spacing
6A	29-0034A	adjustable torque arm, 54 ½" axle spacing
7	29-0036	u-bolts 7/8" x 5" rd x 11 3/4"
8	29-0038	washer 7/8"-14
9	29-0040	hex nut 7/8"-14
10	29-0042	torque arm bolt, 1"-14 x 5"
11	29-0044	lock nut 1"-14
12	29-0029	center spring hanger w/ equalizer
13	29-0048	hex nut 5/8"-18
14	29-0050	hex bolt 5/8" x 4 ½"
15	29-0052	washer 5/8" shakeproof
16	29-0054	sleeve spacer
17	29-0056	step bolt 5/8" x 18 x 3/4"
18	29-0058	double washer-lock tab 5/8"
19	29-0060	bottom plate, u-bolt
20	29-0062	spring seat, 3/4" high

Suspension, Air-Ride, Front Section (Ridewell)



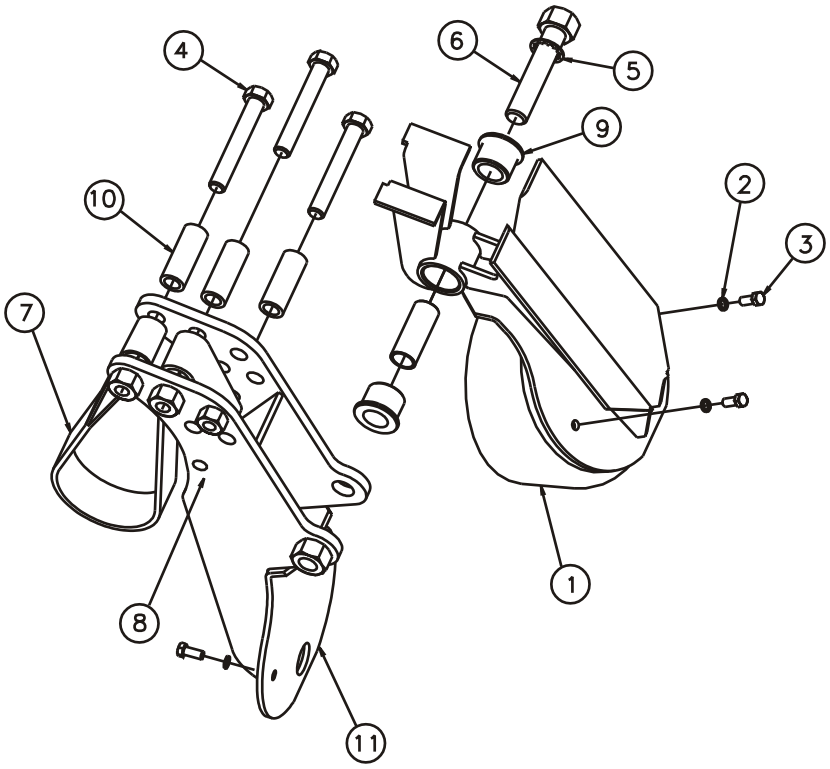
Item	Part #	Description
	29-4014	air ride suspension kit, complete
1	29-4096	bushing sleeve assembly only
2	29-4090	kit, bushing replacement
3	29-4079	wear washer only
4	29-4074	anti-turn washer only
5	29-4092	eccentric bolt only
6	29-4078	nut for eccentric bolt only
7	29-4081	bolt, shock absorber
8	29-4082	nut, shock absorber
9	29-4080	shock absorber
10	29-4062	airspring
11	29-4103	washer, beam
12	29-4102	bolt, beam

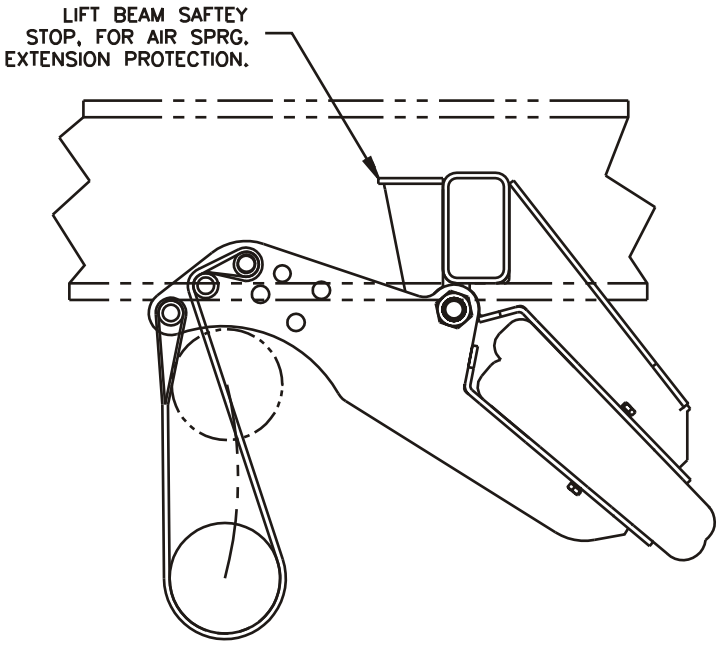
Suspension, Air-Ride, Center and Rear Section (Ridewell)



Item	Part #	Description
	29-4012	9' air ride suspension kit, complete
1	29-4060	hanger assembly, l.h.
2	29-4061	hanger assembly, r.h.
3	29-4071	washer only
4	29-4072	nut only
5	29-4073	bolt only
6	29-4074	anti-turn washer only
7	29-4075	eccentric bolt only
8	29-4079	wear washer only
9	29-4078	nut for eccentric bolt only
10	29-4076	bushing assembly only, l.h.
	29-4077	bushing assembly only, r.h.
11	29-4080	shock absorber
12	29-4062	airspring only
13	29-4070	kit, bushing replacement (specify l.h. or r.h.)

Axle Lift





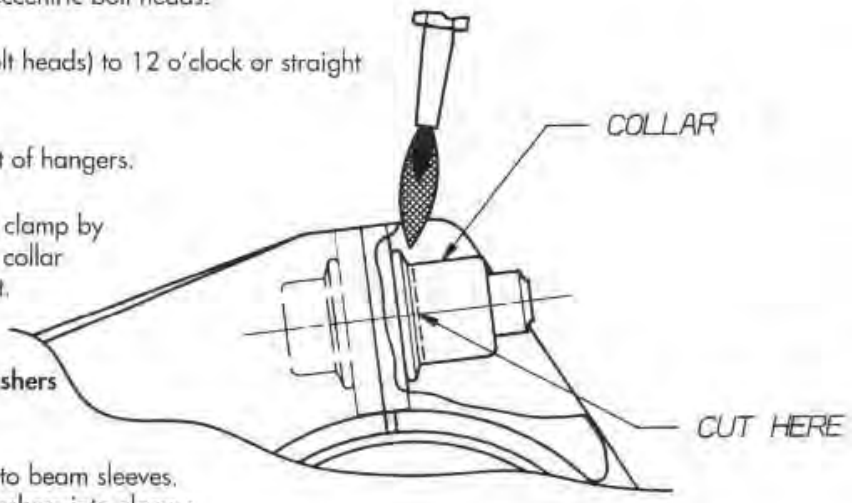
Item	Part #	Description
	16-6029	
1	29-4043	air spring, #7808
2	29-4044	3/8 lock washer
3	29-4045	HHCS, 3/8 x 7/8 lg
4	29-4046	HHCS, 3/4 x 5 lg
5	29-4047	1" lock tooth washer
6	29-4048	HHCS, 1" x 5" lg
7	29-4049	36" nylon strap
8	29-4050	3/4" oval lock nut
9	29-4051	split bushing with sleeve
10	29-4052	sleeve, 3/4" i.d. x 3" long
11	29-4053	underslung lift beam

PARTS REPLACEMENT

Pivot Bushing and Eccentric Bolt Replacement Procedure #7739

This procedure is for 25,000 and 30,000 lb. cap. standard overslung and underslung RAR-240 models manufactured after 10-1-95 with huck-bolted bushing clamps and eccentric bolt on both sides of the axle. If your suspension was manufactured prior to 10-1-95, contact Ridewell's Insides Sales Dept. for assistance, 800-641-4122

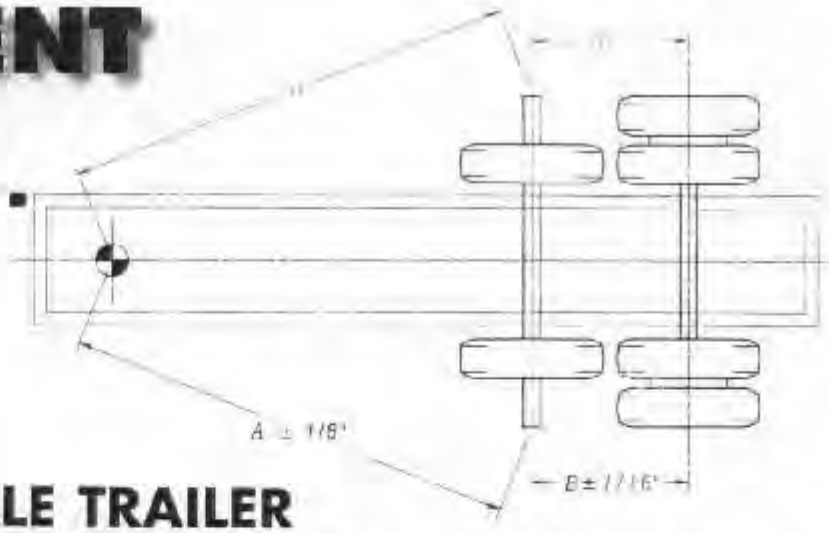
1. Remove tires and wheels from axle.
2. Deflate air springs and disconnect air control valve linkage between valve and axle.
3. Remove anti-turn washers from eccentric bolt heads.
4. Turn eccentric bolt arrows (on bolt heads) to 12 o'clock or straight up position and remove.
5. Rotate axle beams down and out of hangers.
6. Remove huck bolts from bushing clamp by cutting the fastener in half at the collar with a torch as illustrated at right. Remove bushing. **NOTE: Huck fasteners will be replaced by conventional bolts, nuts and washers included in the service kit.**



7. Insert new bushing assemblies into beam sleeves. Assemble new bolts, nuts and washers into clamps. Torque clamp bolts to 190 ft. lbs. minimum while making sure bushing is centered in the beam sleeve. Make sure clamp faces are closed "metal-to-metal". You may torque the bolts safely to 280 ft. lbs.
8. Re-assemble beams to hangers, making sure the polyethylene bearing washer is on the inboard or shock side of suspension before pushing beams back into hangers. **NOTE: Your service kit contains new polyethylene bearing washers if needed.**
9. Align hanger holes to bushing sleeves and install new eccentric bolts into hangers. **NOTE: Eccentric arrow must be at 12 o'clock position as you insert bolt into hanger.**
10. Realign axles to trailer using alignment procedure on page 8.
11. Install new anti-turn washers (provided in your kit) onto bolt heads as shown on page 4. Torque eccentric bolt lock nuts to 1000 ft. lbs. after alignment.
12. Assemble tires and wheels to axle.
13. Re-attach air control linkage from height control valve to axle and inflate air springs. Check for proper ride height.

ALIGNMENT OF AXLE

The Monopivot 240 is equipped with an eccentric bolt in one or both hangers for simple, manual alignment of axles.



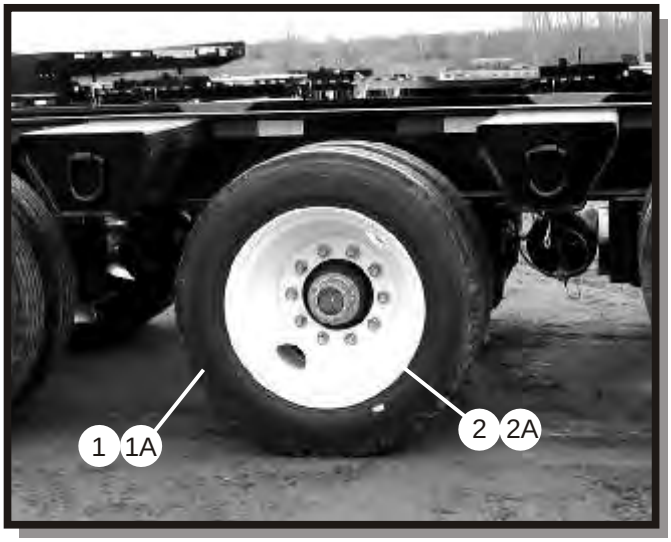
FOR TANDEM AXLE TRAILER

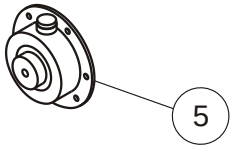
1. Align the forward axle to center of kingpin (see "A" above), then align rear axle to center of forward axle (see "B" above). The measurement from left to right side of axle centers should not exceed 1/16" difference.
2. To align the axle, loosen the eccentric bolt lock nut.
3. Remove the anti-turn washer from head of eccentric bolt.
4. To move the axle forward, rotate the eccentric bolt arrow toward the front of the trailer. The bolt may be rotated a maximum of a 1/4 turn from top center.
5. To move the axle rearward, rotate the eccentric bolt arrow toward the rear of the trailer. The bolt may be rotated a maximum of a 1/4 turn from top center.
6. After alignment is achieved, re-install anti-turn washer and weld at positions as shown on page 4. Re-torque the eccentric bolt lock nut to specified torque.

YOUR SUSPENSION WILL HAVE THIS LABEL ABOVE THE ECCENTRIC BOLT

NOTICE!
ECCENTRIC BOLT ARROW MUST BE AT 12 O'CLOCK POSITION PRIOR TO ALIGNMENT. AFTER ALIGNMENT INSTALL ANTI-TURN WASHER OVER HEAD OF BOLT AND TORQUE TO 1,000 FT. LBS.

Wheels and Tires





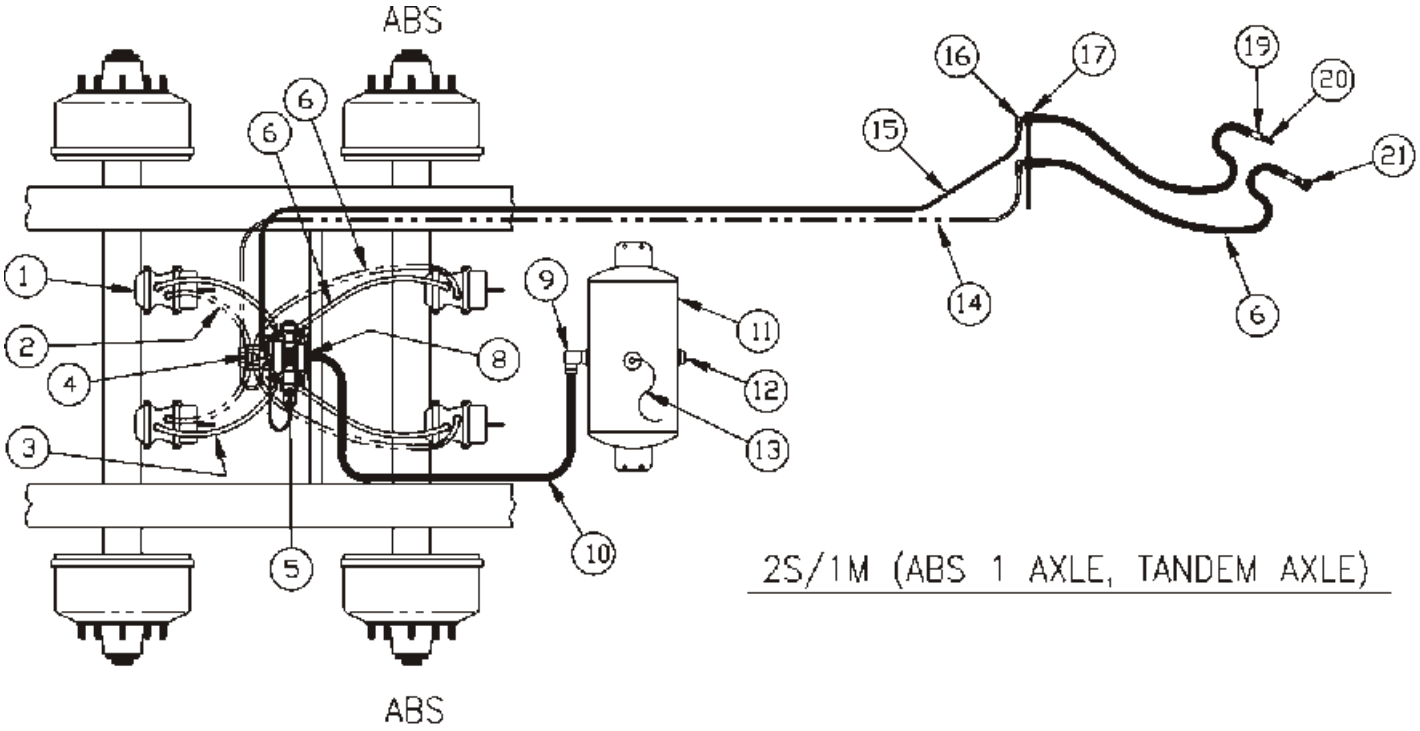
*** 255/70R x 22.5, load range H, 16 ply, is rated for 5,070 lbs. @ 120psi (dual wheel application)**

*** 270/80R x 22.5, load range H, 16 ply, is rated for 6,175 lbs. @ 120psi (dual wheel application)**

Item	Part #	Description
1	27-0080	tire only, 255/70R x 22.5 Load H
1A	27-0081	tire only, 275/80R x 22.5 Load H
2	27-0800	wheel only, budd, 8.25 x 22.5
2A	27-0084	wheel only, hub-piloted, 8.25 x 22.5
3	27-0790	wheel only, hub-piloted, 8.25 x 22.5, aluminum
4	37-5011	hubodometer only
5	25-2004	hub cap/hubodometer mount, 20K
	27-4070	assembly, tire/wheel, 255/70 x 22.5 tire and hub piloted 8.25 x 22.5 wheel (27-0080 & 27-0084)
	27-4071	assembly, tire/wheel, 255/70 x 22.5 tire and budd 8.25 x 22.5 wheel (27-0080 & 27-0800)
	27-4072	assembly, tire/wheel, 255/70 x 22.5 tire and hub piloted aluminum wheel (27-0080 & 27-0790)
	27-4075	assembly, tire/wheel, 275/80 x 22.5 tire and hub piloted 8.25 x 22.5 wheel (27-0081 & 27-0084)
	27-4076	assembly, tire/wheel, 275/80 x 22.5 tire and budd 8.25 x 22.5 wheel (27-0081 & 27-0800)
	27-4077	assembly, tire/wheel, 275/80 x 22.5 tire and hub piloted aluminum wheel (27-0081 & 27-0790)

Air Brake System, Tandem Axle, 2S/1M

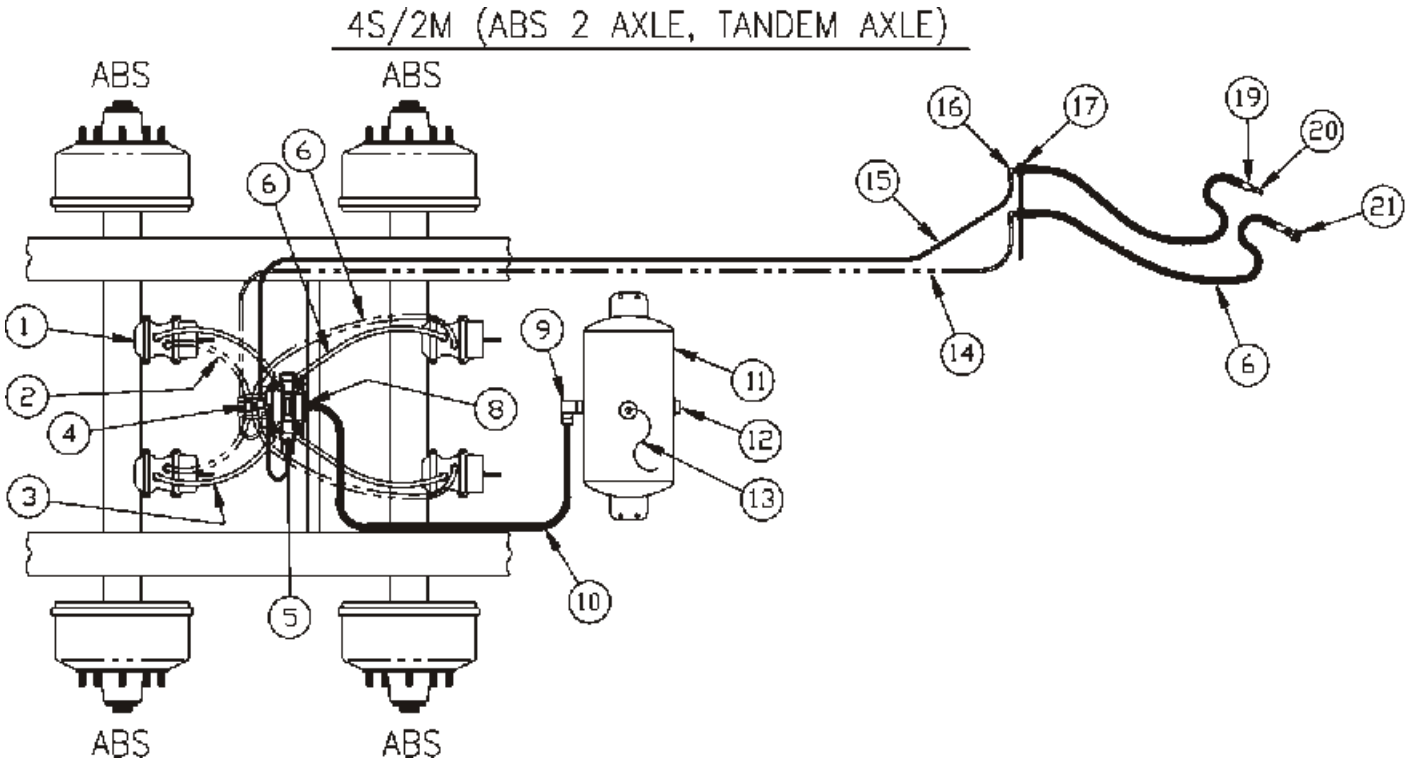
ref. dwg.: 16-6027



Item	Part #	Description
1	31-4515	air chamber, park, type 30/30
2	35-0101	3/8" air brake hose, 24"
3	35-0107	3/8" air brake hose, 32"
4	35-0183	spring brake valve, ABS system
5	35-0177	ecu/valve 2S/1M
6	35-0103	3/8" air brake hose, 54"
7		
8	35-0400	comp. fitting, 1" pipe, 3/4" hose straight
9	35-0404	90 deg. elbow, 1" pipe, 3/4" hose
10	35-0112	3/4" synflex air brake hose
11	35-0085	air tank, 2800 cu. in.
12	35-0003	3/4" sq. head plug
13	35-0070	drain valve with 5 ft. pull cable
14	35-0136	blue 3/8" nylon air brake tubing
15	35-0156	red 3/8" nylon air brake tubing
16	37-5984	male elbow, 90 deg.
17	37-5988	bulkhead fitting
18		
19	35-0071	coupling, 3/8" brass
20	35-0927	nipple m/pipe, 3/8", air
21	35-0926	coupler m/pipe, 3/8", quick connect, air

Air Brake System, Tandem Axle, 4S/2M

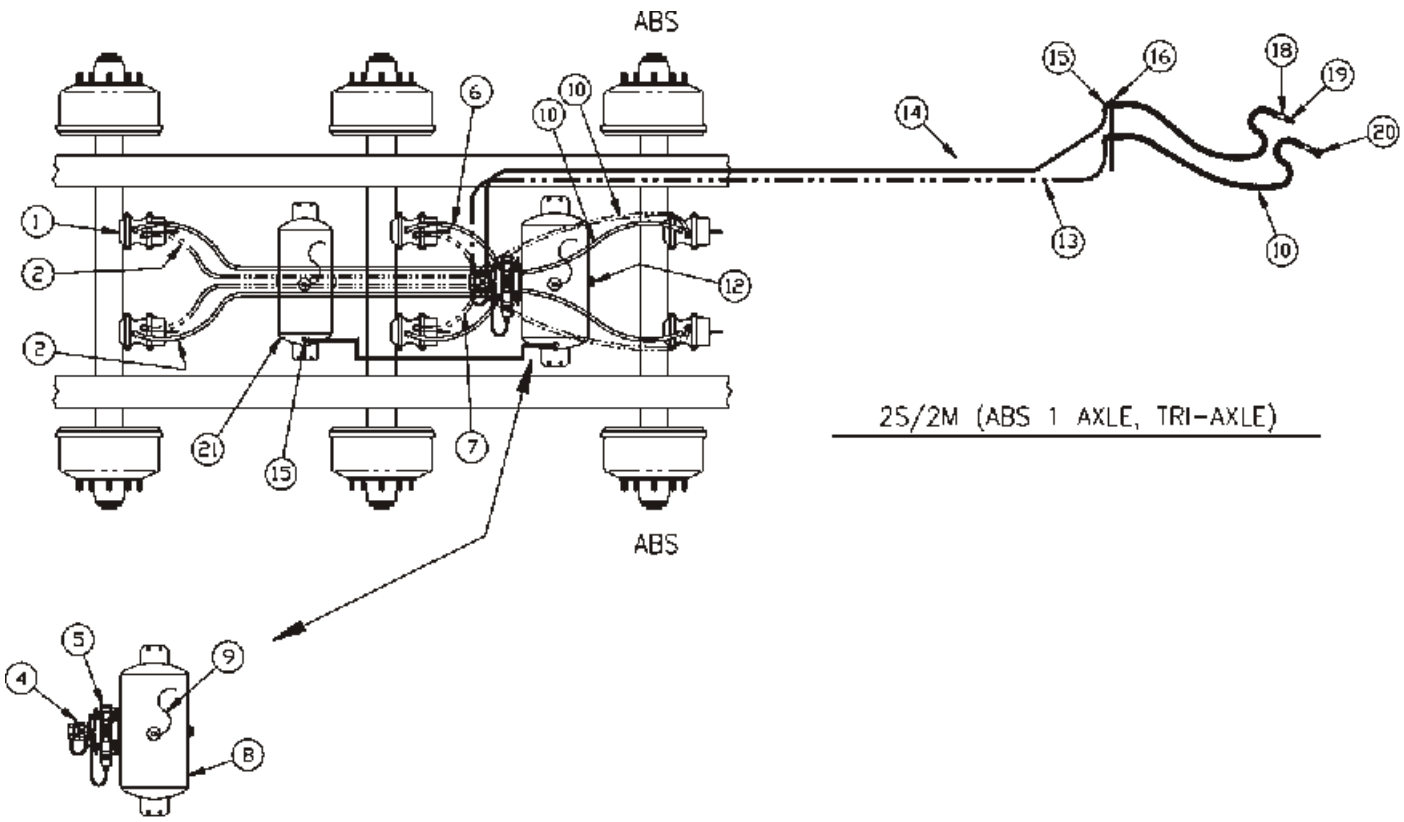
ref. dwg.: 16-6033



Item	Part #	Description
1	31-4515	air chamber, park, type 30/30
2	35-0101	3/8" air brake hose, 24"
3	35-0107	3/8" air brake hose, 32"
4	35-0183	spring brake valve
5	35-0173	ecu/valve
6	35-0103	3/8" air brake hose, 54"
7		
8	35-0400	comp. fitting, 1" pipe, 3/4" hose
9	35-0404	90 deg. elbow, 1" pipe, 3/4" hose
10	35-0112	3/4" synflex air brake hose
11	35-0085	air tank, 2800 cu. in.
12	35-0003	3/4" sq. head plug
13	35-0070	drain valve with 5 ft. pull cable
14	35-0136	blue 3/8" nylon air brake tubing
15	35-0156	red 3/8" nylon air brake tubing
16	37-5984	male elbow, 90 deg.
17	37-5988	bulkhead air
18		
19	35-0071	coupling, 3/8" brass
20	35-0927	nipple m/pipe 3/8", air
21	35-0926	coupler m/pipe, 3/8", air

Air Brake System, Tri-Axle, 2S/2M

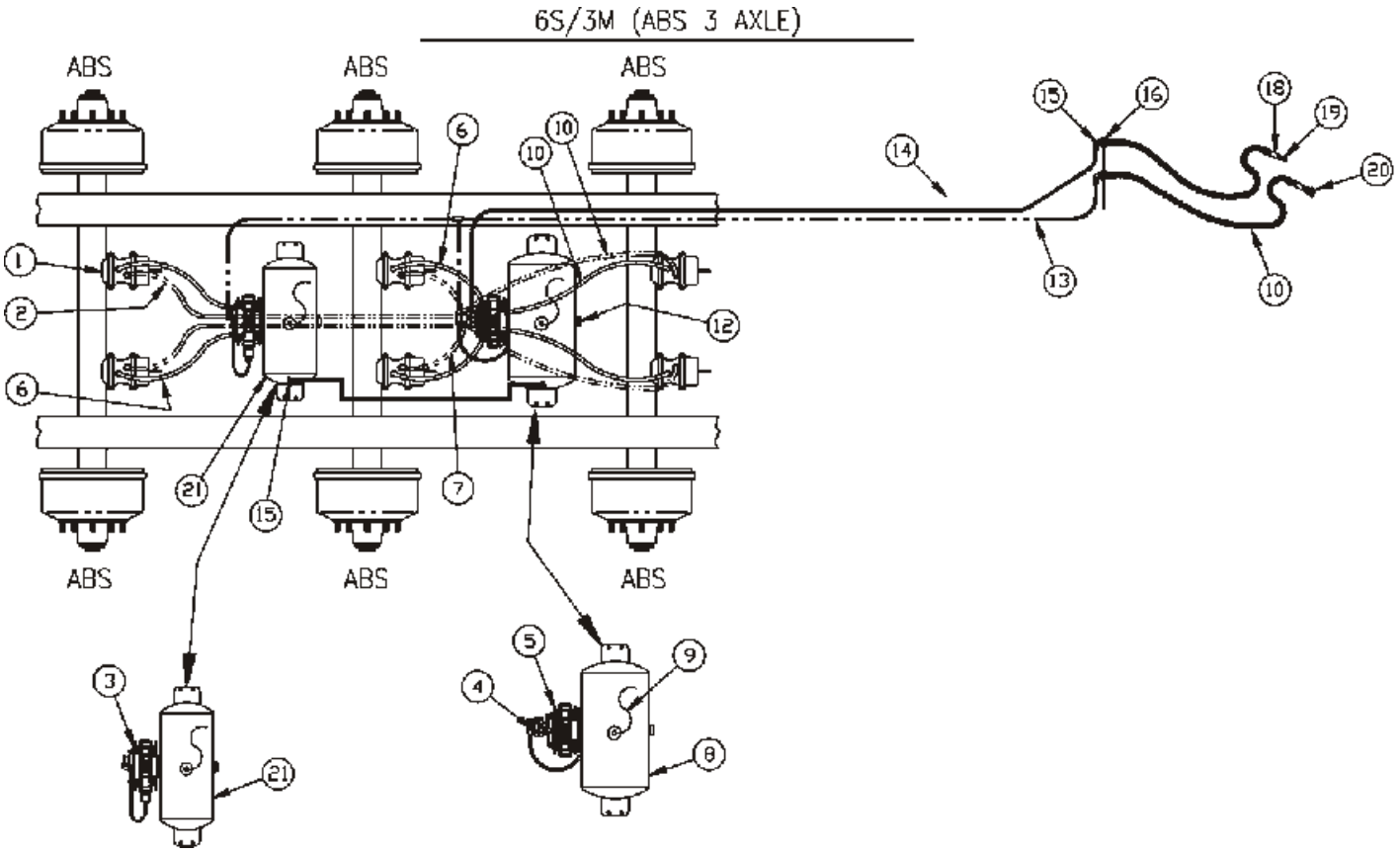
ref. dwg.: 16-6026



Item	Part #	Description
1	31-4515	air chamber, park, type 30/30
2	35-0100	3/8" air brake hose, 97"
3		
4	35-0183	spring brake valve, ABS system
5	35-0178	ecu/valve 2S/2M
6	35-0102	3/8" air brake hose, 44"
7	35-0107	3/8" air brake hose, 32"
8	35-0085	air tank, 2800 cu. in.
9	35-0070	drain valve with 5 ft. pull cable
10	35-0103	3/8" air brake hose, 54"
11		
12	35-0003	3/4" sq. head plug
13	35-0136	blue 3/8" nylon air brake tubing
14	35-0156	red 3/8" nylon air brake tubing
15	37-5984	male elbow, 90 deg.
16	37-5988	bulkhead fitting
17		
18	35-0071	coupling, 3/8” brass
19	35-0927	nipple m/pipe 3/8”
20	35-0926	coupler m/pipe 3/8”
21	35-0080	air tank, 1488 cu. in.

Air Brake System, Tri-Axle, 6S/3M

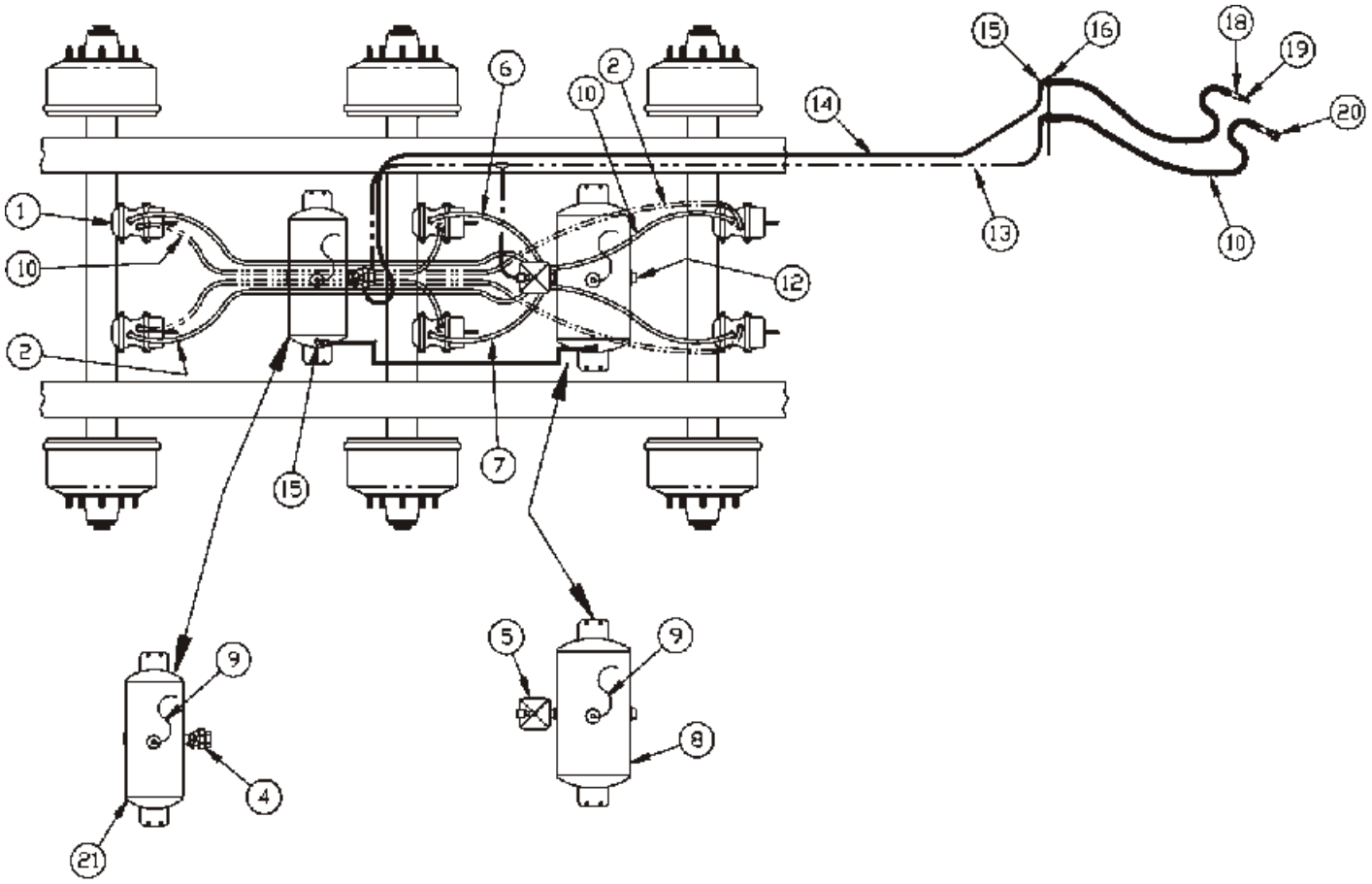
ref. dwg.: 16-6031



Item	Part #	Description
1	31-4515	air chamber, park, type 30/30
2	35-0100	3/8" air brake hose, 97"
3	35-0177	ECU valve
4	35-0183	spring brake valve
5	35-0173	ecu valve
6	35-0102	3/8" air brake hose, 44"
7	35-0107	3/8" air brake hose, 32"
8	35-0085	air tank, 2800 cu. in.
9	35-0070	drain valve with 5 ft. pull cable
10	35-0103	3/8" air brake hose, 54"
11		
12	35-0003	3/4" sq. head plug
13	35-0136	blue 3/8" nylon air brake tubing
14	35-0156	red 3/8" nylon air brake tubing
15	37-5984	male elbow, 90 deg.
16	37-5988	bulkhead fitting
17		
18	35-0071	coupling, 3/8 brass
19	35-0927	nipple m/pipe 3/8” air
20	35-0926	coupler m/pipe 3/8” Quick connect, air
21	35-0080	air tank, 1488 cu. in.

Air Brake System, Tri-Axle, Non ABS

ref. dwg.: 16-6032



Item	Part #	Description
1	31-4515	air chamber, park, type 30/30
2	35-0100	3/8" air brake hose, 97"
3		
4	35-0183	spring brake valve
5	35-0480	relay valve
6	35-0102	3/8" air brake hose, 44"
7	35-0107	3/8" air brake hose, 32"
8	35-0085	air tank, 2800 cu. in.
9	35-0070	drain valve with 5 ft. pull cable
10	35-0103	3/8" air brake hose, 54"
11		
12	35-0003	3/4" sq. head plug
13	35-0136	blue 3/8" nylon air brake tubing
14	35-0156	red 3/8" nylon air brake tubing
15	37-5984	male elbow, 90 deg.
16	37-5988	bulkhead anchor
17		
18	35-0071	coupling, 3/8 brass
19	35-0927	nipple m/pipe 3/8” air
20	35-0926	coupler m/pipe 3/8” Quick connect, air
21	35-0080	air tank, 1488 cu. in.

Air Brake System Fittings


350003
3/4" sq. head plug


350008
branch tee


350015
3/8" sq. head plug


350028
3/8" street elbow


350031
3/8" male connector


350033
90 deg. male swivel elbow, 1/4" pipe


350034
90 deg. male swivel elbow, 3/8" pipe


350048
pipe tee

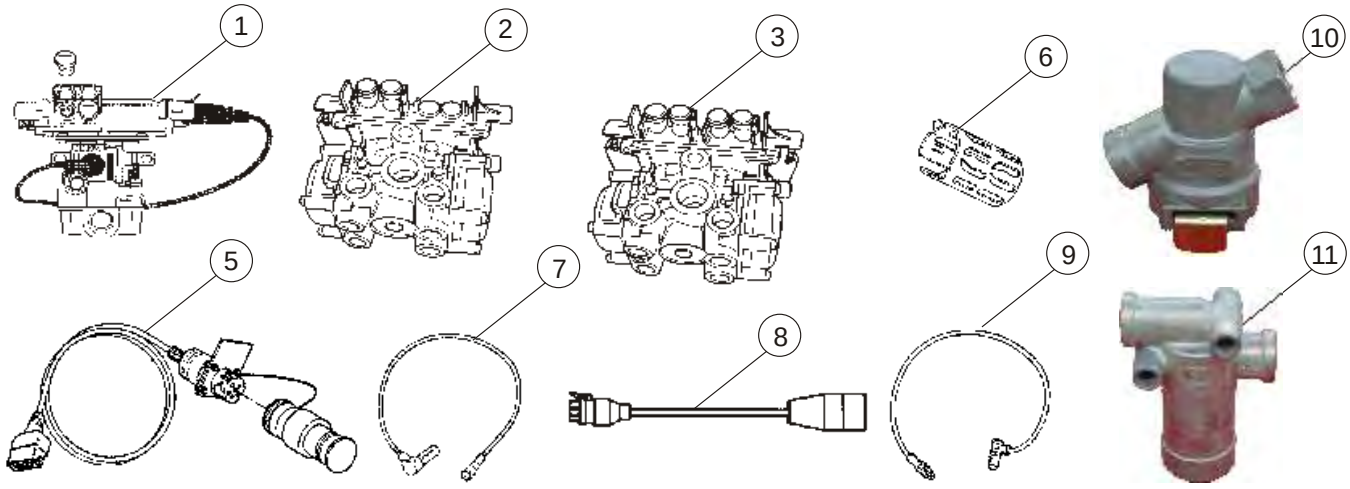

350126
3/8" hex nipple


350400
comp. fitting, 1" pipe 3/4" hose


350404
90 deg. elbow, 1 pipe, 3/4" hose


350041
reducer, 3/4" - ½"

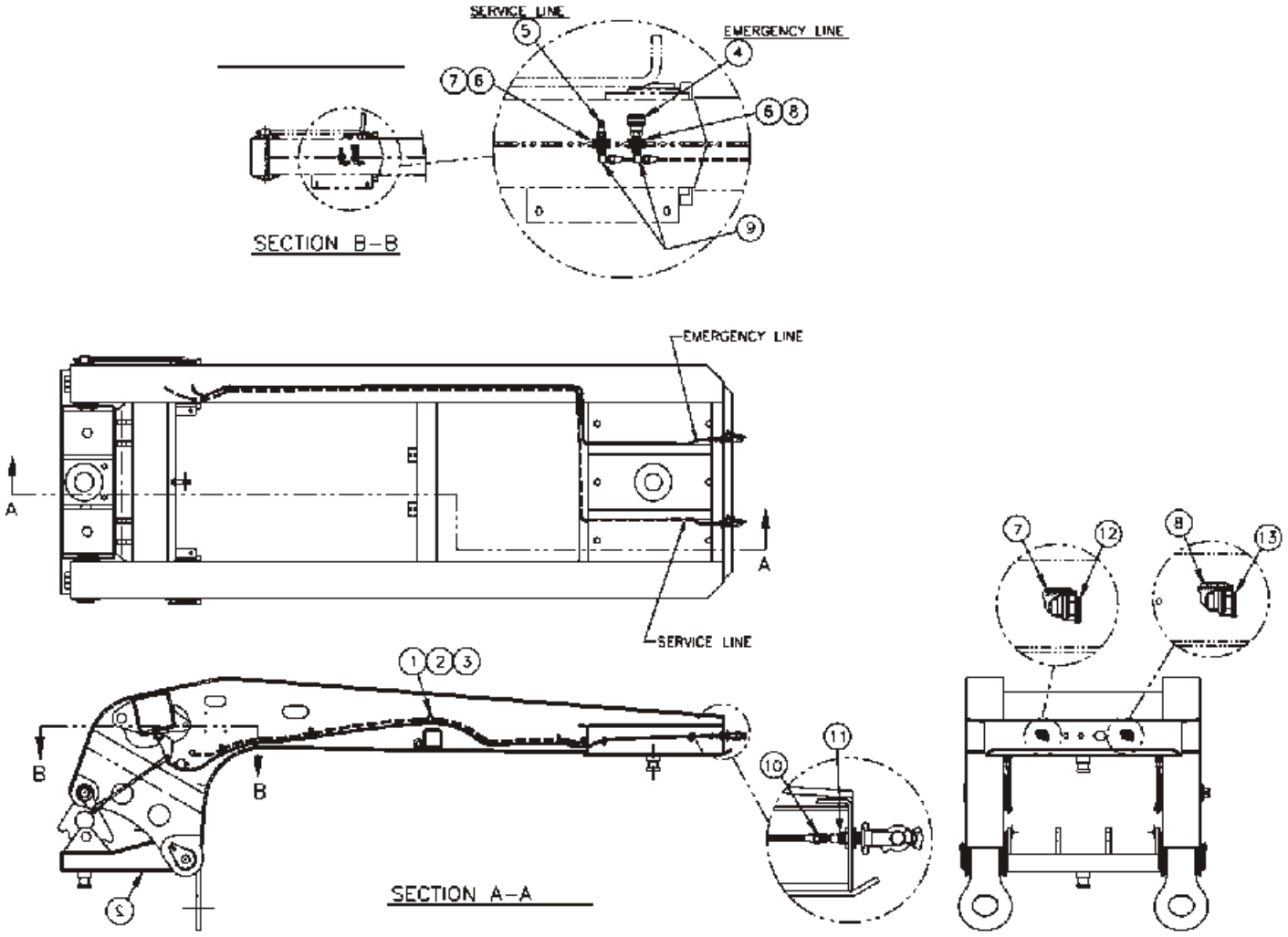
ABS Components



Item	Part #	Description
1	35-0177	ecu/valve assembly, 2s/1m
2	35-0178	ecu/valve assembly, 2s/2m (triple axle only)
3	35-0173	ecu/valve assembly, 4s/2m
5	35-0187	abs diagnostic cable (optional)
6	35-0196	sensor spring clip (Wabco)
7	35-0194	sensor with molded socket
8	35-0161	power cord (2s/1m)
	35-0163	power cord (4s/2m)
9	35-0198	sensor extension with plug
10	35-0225	Air line filter, Blue supply
11	35-0500	Air line filter, Red supply

Air System, Gooseneck, 96" Swing Clearance

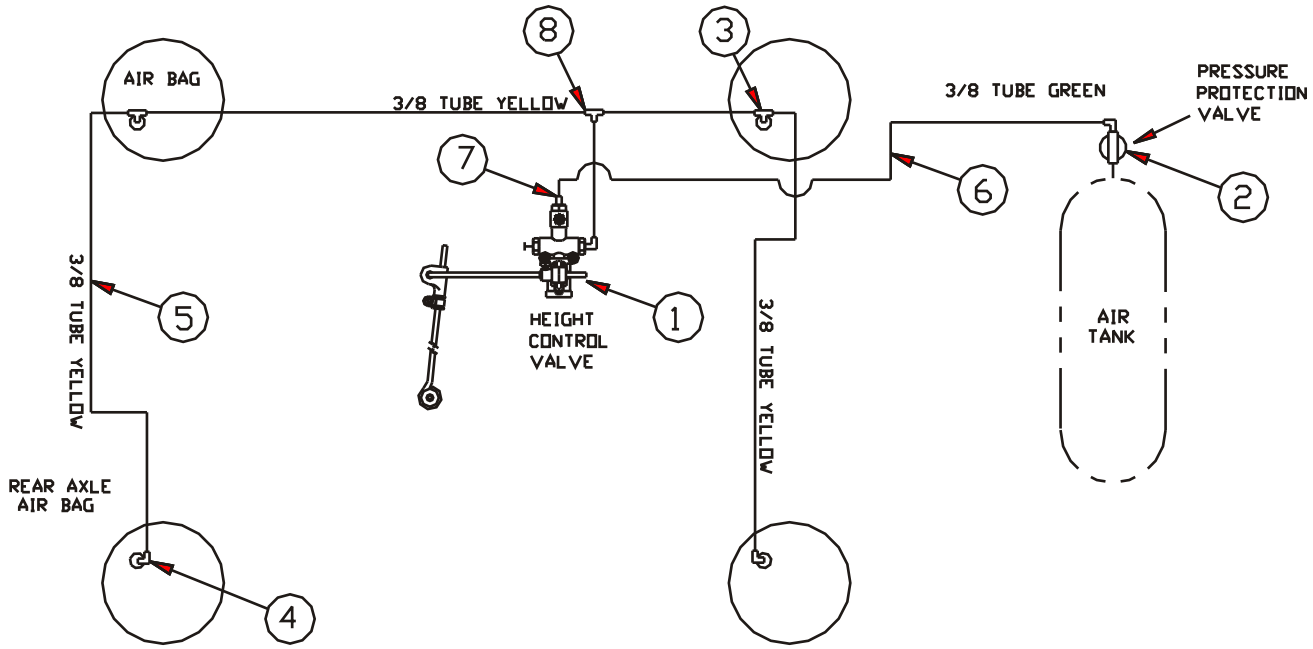
ref. dwg.: 16-6012



Item	Part #	Description
1	37-0832	1 1/4" rubberized hose clamp
2	36-0013	nut, 1/4-nc
3	36-0016	1/4" lock-washer
4	35-0926	type 30 coupler m/pipe, Quick connect, air
5	35-0927	type 30 nipple m/pipe, air
6	37-5988	bulk head anchor fitting
7	37-5987	tag service
8	37-5983	tag emergency
9	37-5984	male elbow, 90 deg.
10	37-5985	male connector, 3/8"
11	37-5986	bulk head/glad hand, frame coupling stud
12	35-0050	glad hand service
13	35-0052	glad hand emergency
	35-0156	nylon brake hose, red
	35-0136	nylon brake hose, blue

Tandem Axle Air Ride Suspension Air System

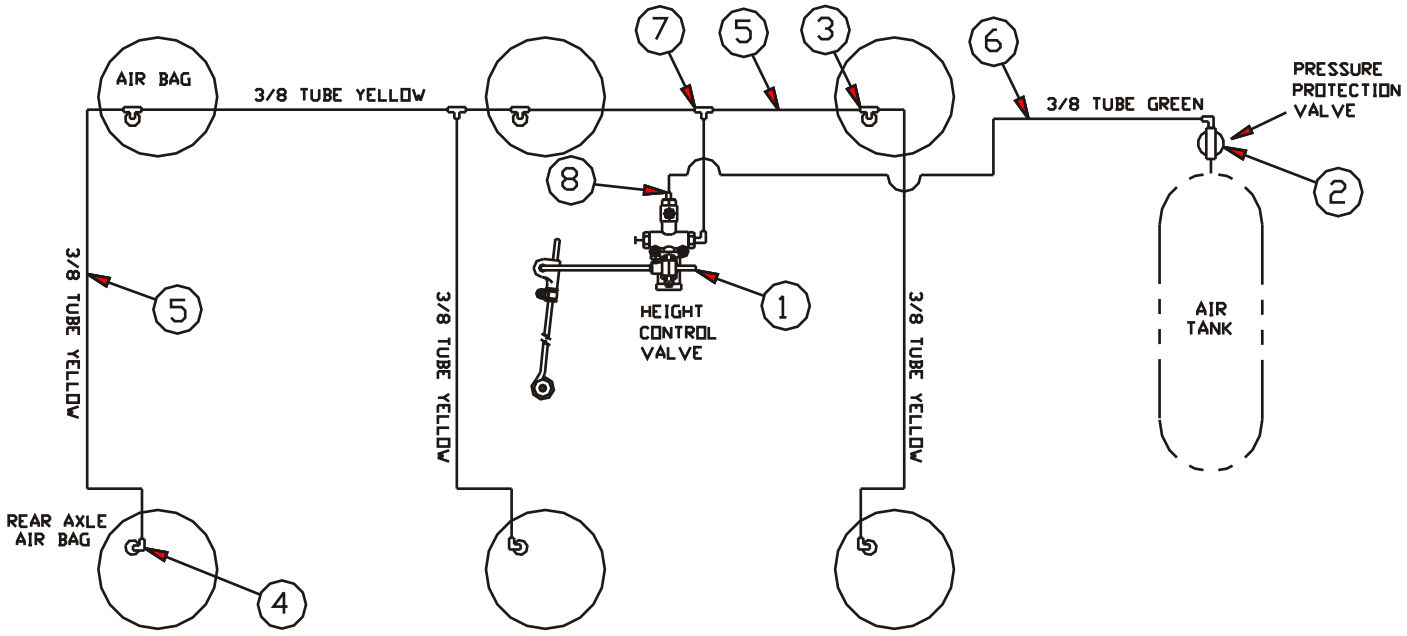
ref. dwg.: 16-6025



Item	Part #	Description
1	370471	height control valve
2	370470	pressure protection valve
3	350032	tee, 1/4MNPT x 3/8 tube
4	350033	90 deg. elbow, 1/4MNPT x 3/8 tube
5	350117	3/8 tube yellow, brake
6	350118	3/8 tube green, brake
7	355998	3/8 tube x 1/4MNPT
8	355870	3/8 tube tee

Tri Axle Air Ride Suspension Air System

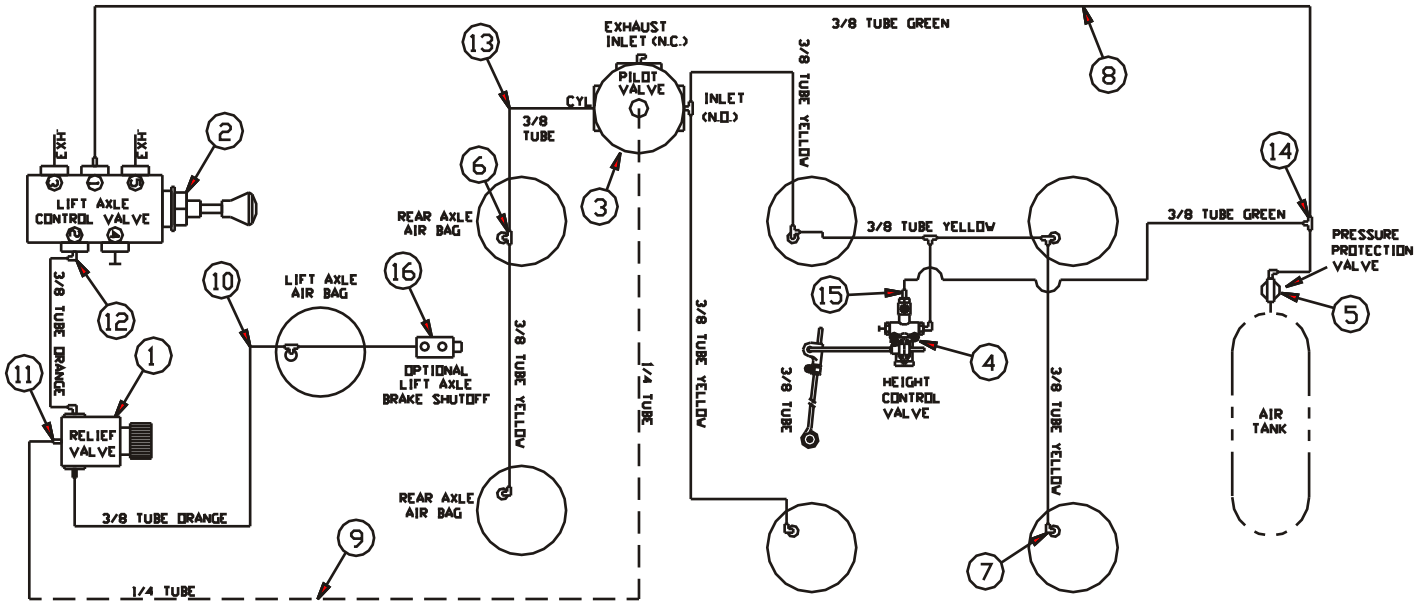
ref. dwg.: 16-6023



Item	Part #	Description
1	370471	height control valve
2	370470	pressure protection valve
3	350032	tee, 1/4MNPT x 3/8 tube
4	350033	90 deg. elbow, 1/4MNPT x 3/8 tube
5	350117	3/8 tube yellow, brake
6	350118	3/8 tube green, brake
7	355870	3/8 tube tee
8	355998	3/8 tube x 1/4MNPT

Tri Axle Air Ride Suspension Air System with Lift on Rear Axle

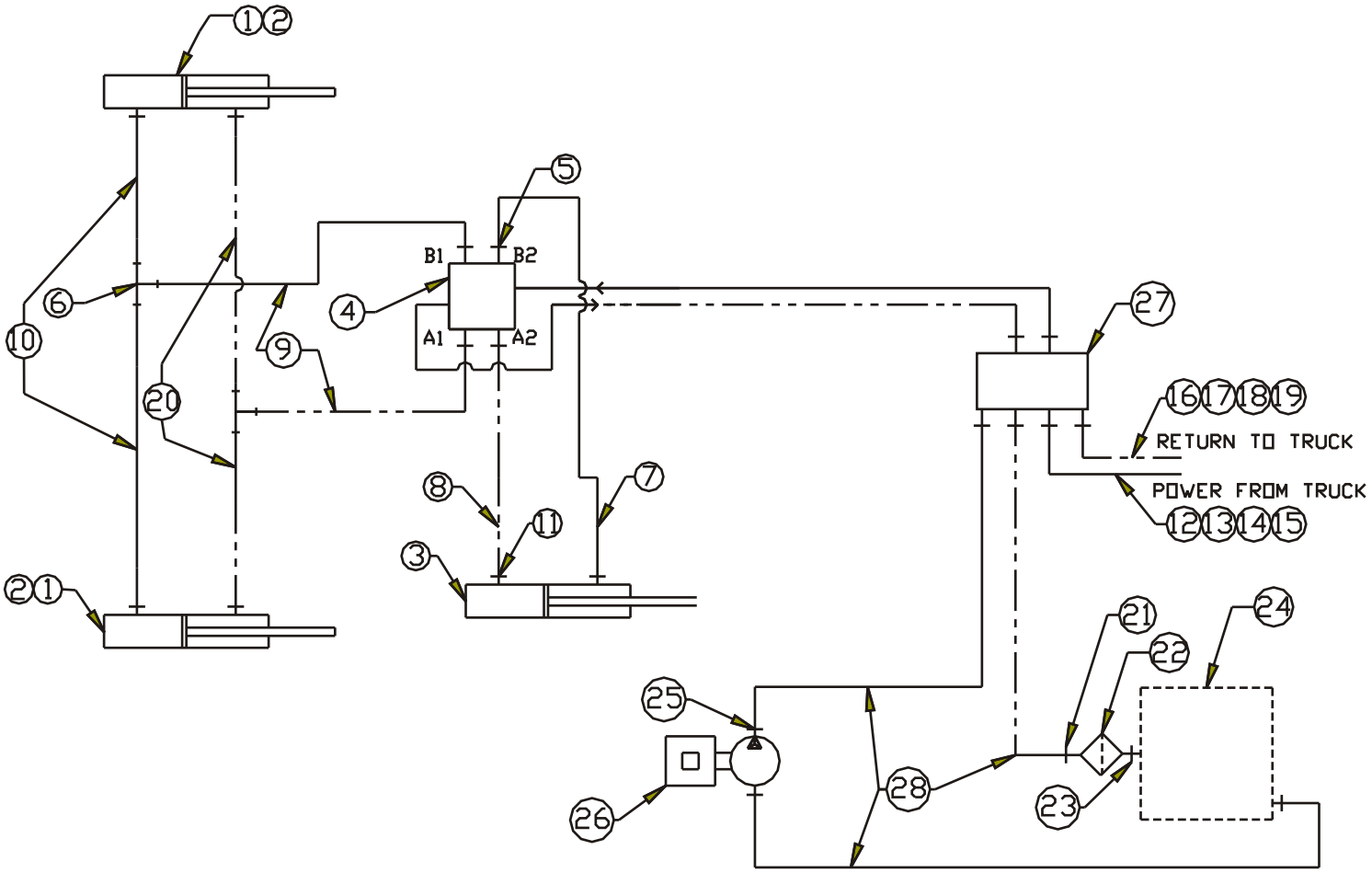
ref. dwg.: 16-6020



Item	Part #	Description
1	379476	100psi valve
2	370477	lift axle control valve
3	370475	pilot valve
4	370471	height control valve
5	370470	pressure protection valve
6	375996	3/8 tube 1/4MNPT tee
7	350033	3/8, 90 deg. elbow
8	350118	3/8 tube green, brake
9	350113	1/4 tube black
10	350119	3/8 tube orange, brake
11	376020	1/4 tube 1/8MNPT
12	376022	3/8 tube 1/8 MNPT 90deg. elbow
13	350117	3/8 tube yellow, brake
14	355870	3/8 tube tee
15	355998	3/8 tube 1/4MNPT
16	314602	lift axle brake valve shut-off
		ref. dwg. no. 166020

Dual Hydraulic System, Wet Line & Pony Motor

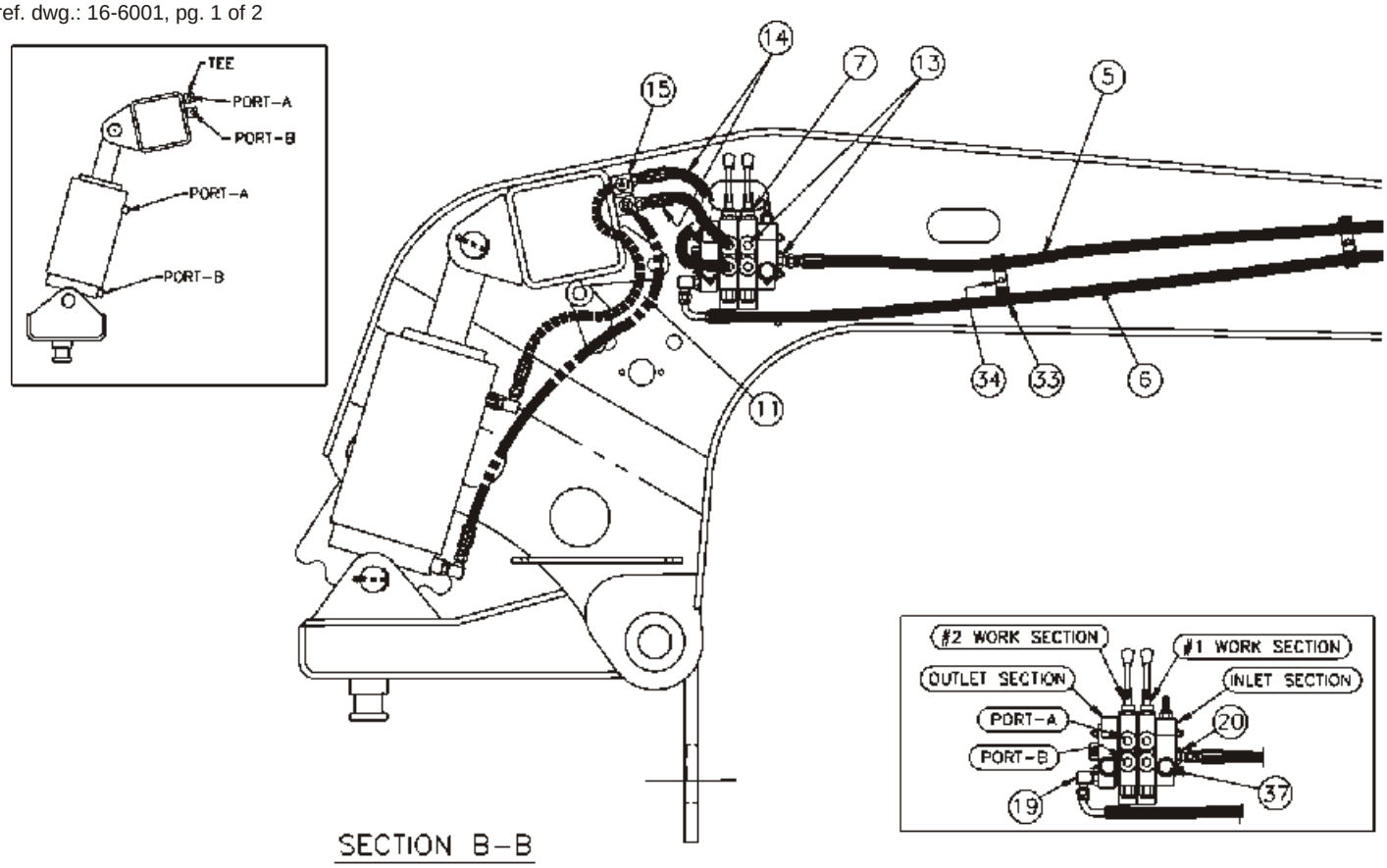
ref. dwg.: 16-6022



Item	Part #	Description	Item	Part #	Description
1	37-0311	8”x 8” Hyd Cylinder	19	37-5157	return hose asm. 114”swing
2	37-0312	9”x 9” Hyd Cylinder	20	37-5964	female hose asm.
3	37-0320	4”x 10” Hyd Cylinder	21	37-5601	90 deg. fitting
4	37-0502	2 spool control valve	22	35-0504	head unit filter
5	37-5978	O-ring fitting		35-0503	element filter
6	37-5975	male tee	23	35-0017	pipe adapter nipple
7	37-5966	female hose asm.	24	12-6440	hyd. reservior
8	37-5967	female hose asm.	25	37-6035	90 deg. fitting
9	37-5961	female hose asm. union	26	37-6035	pony motor
10	37-5963	female hose asm.	27	37-4305	check valve
11	37-5978	male O-ring pipe fitting	28	37-5160	hose asm.
12	37-5962	supply hose asm. 84” swing			
13	37-5968	supply hose asm. 96” swing			
14	37-5155	supply hose asm. 108”swing			
15	37-5158	supply hose asm. 114” swing			
16	37-5965	return hose asm. 84” swing			
17	37-5969	return hose asm. 96” swing			
18	37-5156	return hose asm. 108” swing			

Hydraulic System (Wet Line) 84" Swing Gooseneck

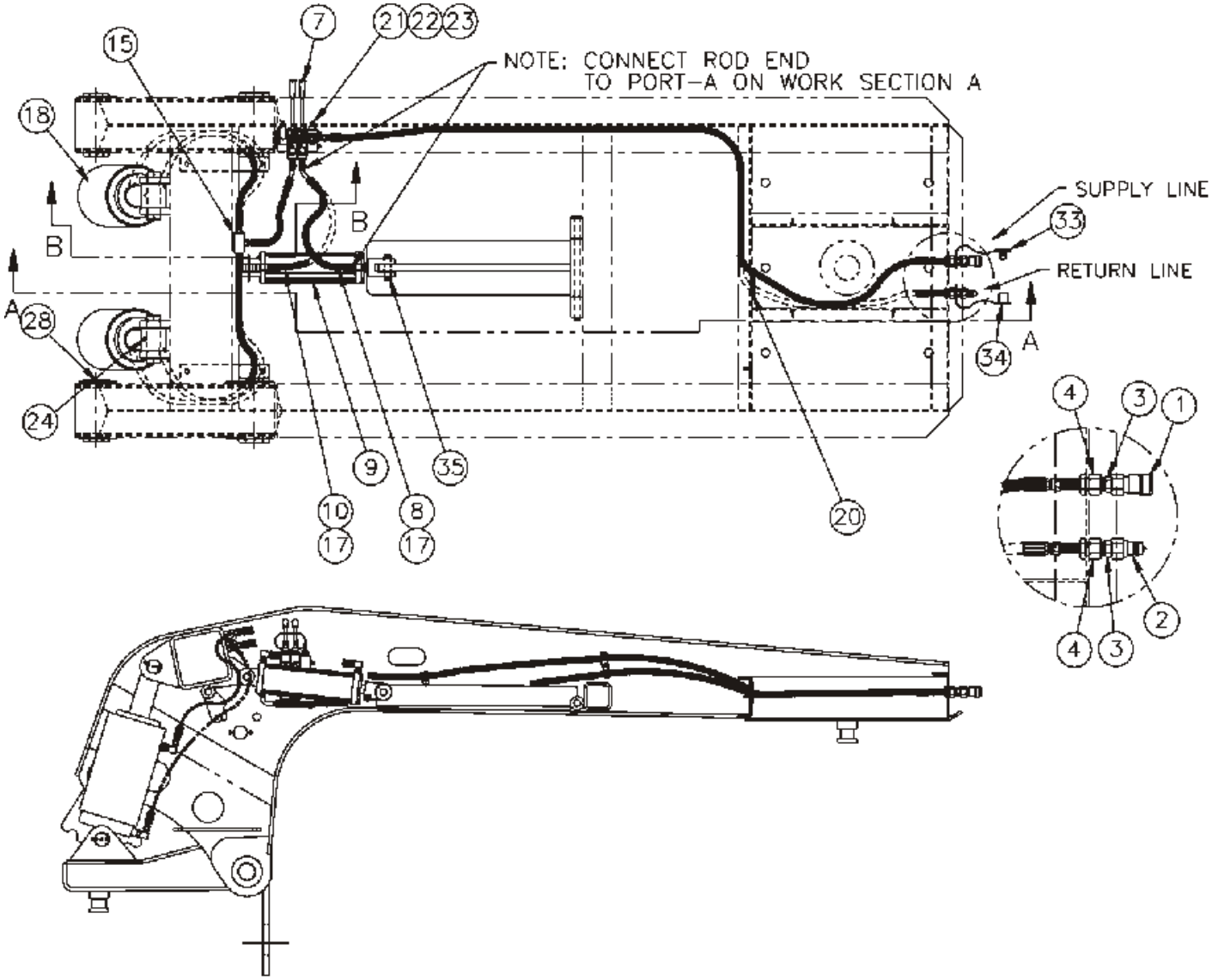
ref. dwg.: 16-6001, pg. 1 of 2



Item	Part #	Description
	16-6001	
1	37-5972	quick coupler , female
2	37-5971	nipple, male
3	37-5969	pipe adapter, return
4	37-5970	bulkhead w/ lock nut
5	37-5962	supply hose, 108"
6	37-5965	return hose, 116"
7	37-0502	control valve
8	37-5966	rod end, 30" (4 x 10)
9	37-0320	cylinder, 4 x 10
10	37-5967	butt end, 24" (4 x 10)
11	37-5964	main cyl top hose, 39"
12	37-5963	main cyl bot hose, 50"
13	37-5978	o-ring, jic
14	37-5961	hose, union, 19"
15	37-5975	tee adapter
16		
17	37-5977	½" - ½", 90 deg. o-ring, jic
18	37-0311	cylinder, 8 x 8
19	37-5976	½" - 3/4", 90 deg. o-ring, jic
20	37-5968	3" rubber grommet
21	37-5981	bolt, 3/8-unc hhcs x 1", grade 5
22	36-0202	3/8 flat washer
23	36-0201	3/8 lock washer
24	37-0245	grease zert, 1/4 ase
25	07-0320	bottom pin, 8 x 9 cyl
26	37-5979	cotter pin, 1/4 x 3
27	07-0321	top pin, 8 x 8 cyl
28	37-5980	grease zert, 1/4-45 deg.
29	37-0832	hose clamp
30	36-0206	1/4-unc lock nut
31		
32		
33	37-5126	dust plug
34	37-5125	dust cap

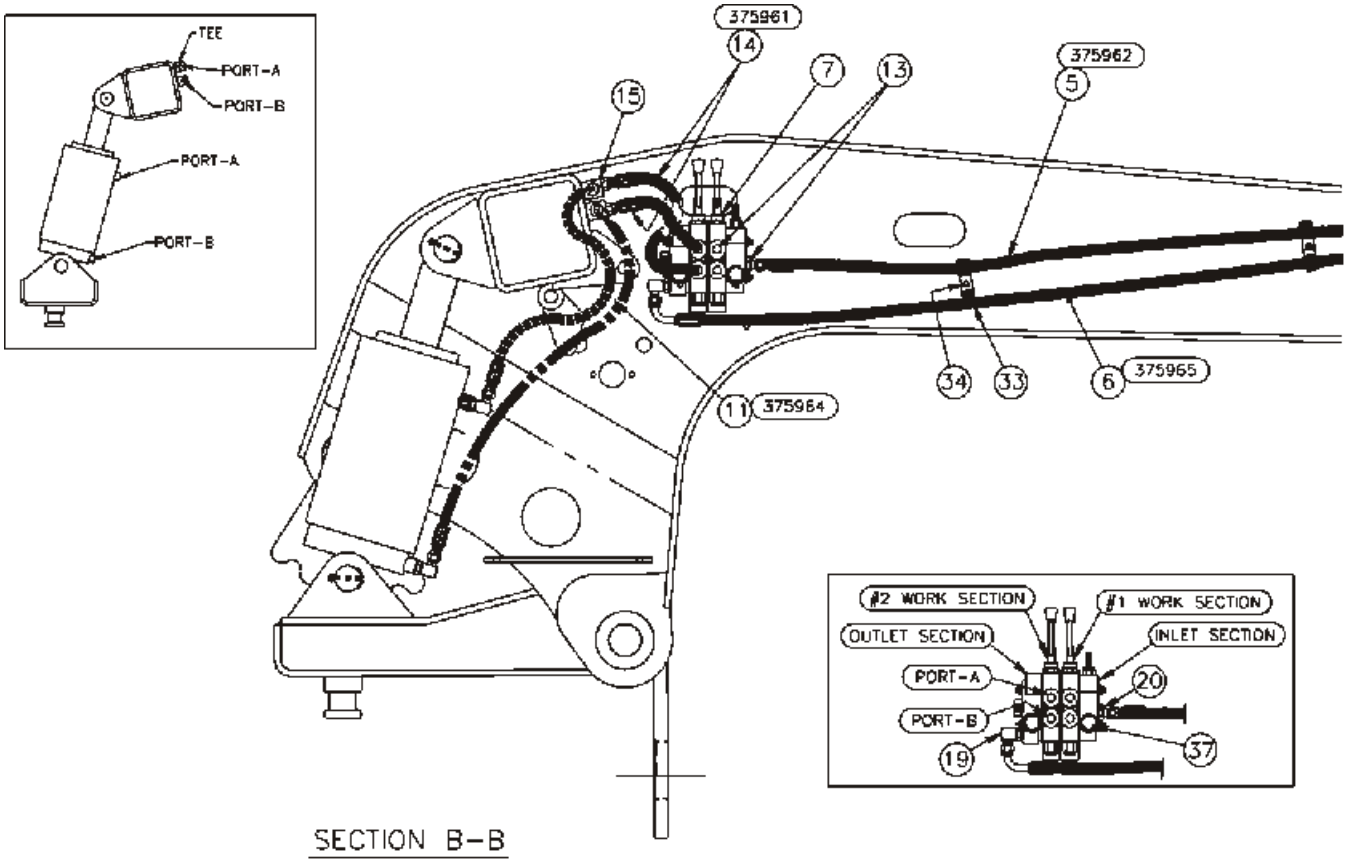
Hydraulic System (Wet Line) 84" Swing Gooseneck

ref. dwg.: 16-6001, pg. 2 of 2



Hydraulic System (Wet Line) 96" Swing Gooseneck

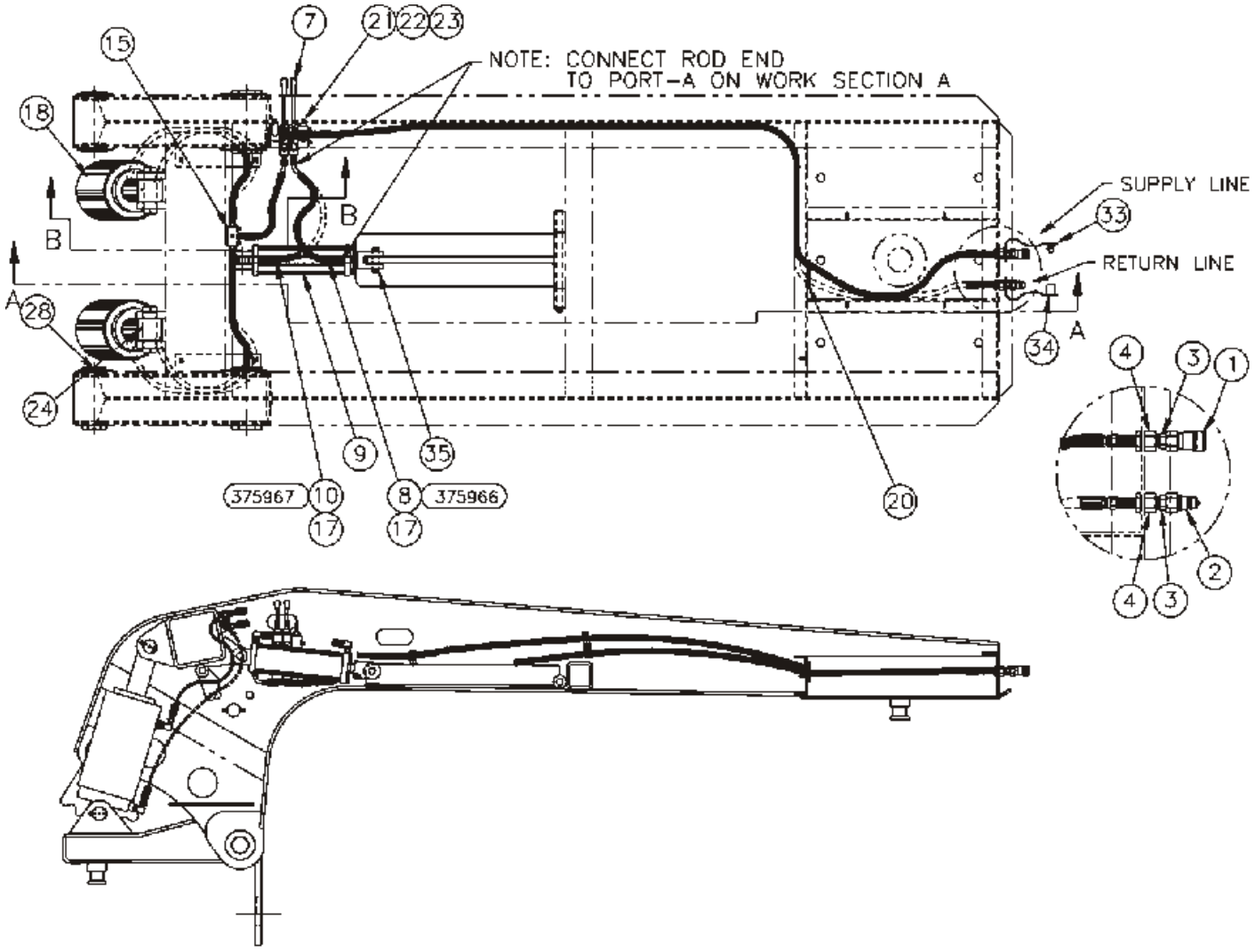
ref. dwg.: 16-6011, pg. 1 of 2



Item	Part #	Description
	16-6011	
1	37-5972	quick coupler
2	37-5971	nipple
3	37-5969	pipe adapter
4	37-5970	bulkhead w/ lock nut
5	37-5968	supply hose, 126"
6	37-5969	return hose, 134"
7	37-0502	control valve
8	37-5966	rod end, 30" (4 x 10)
9	37-0320	cylinder, 4 x 10
10	37-5967	butt end, 24" (4 x 10)
11	37-5964	main cyl top hose, 39"
12	37-5963	main cyl bot hose, 50"
13	37-5978	o-ring, jic
14	37-5961	hose, union, 19"
15	37-5975	tee adapter
16		
17	37-5977	½" - ½", 90 deg. o-ring, jic
18	37-0311	cylinder, 8 x 9
19	37-5976	½" - 3/4", 90 deg. o-ring, jic
20	37-5968	3" rubber grommet
21	37-5981	bolt, 3/8-unc hhcs x 1", grade 8
22	36-0202	3/8 flat washer
23	36-0201	3/8 lock washer
24	37-0245	grease zert, 1/4 ase
25	07-0320	bottom pin, 8 x 9 cyl
26	37-5979	cotter pin, 1/4 x 3
27	07-0321	top pin, 8 x 9 cyl
28	37-5980	grease zert, 1/4-45 deg.
29	37-0832	hose clamp
30	36-0206	1/4-unc lock nut
31		
32		
33	37-5126	dust plug
34	37-5125	dust cap

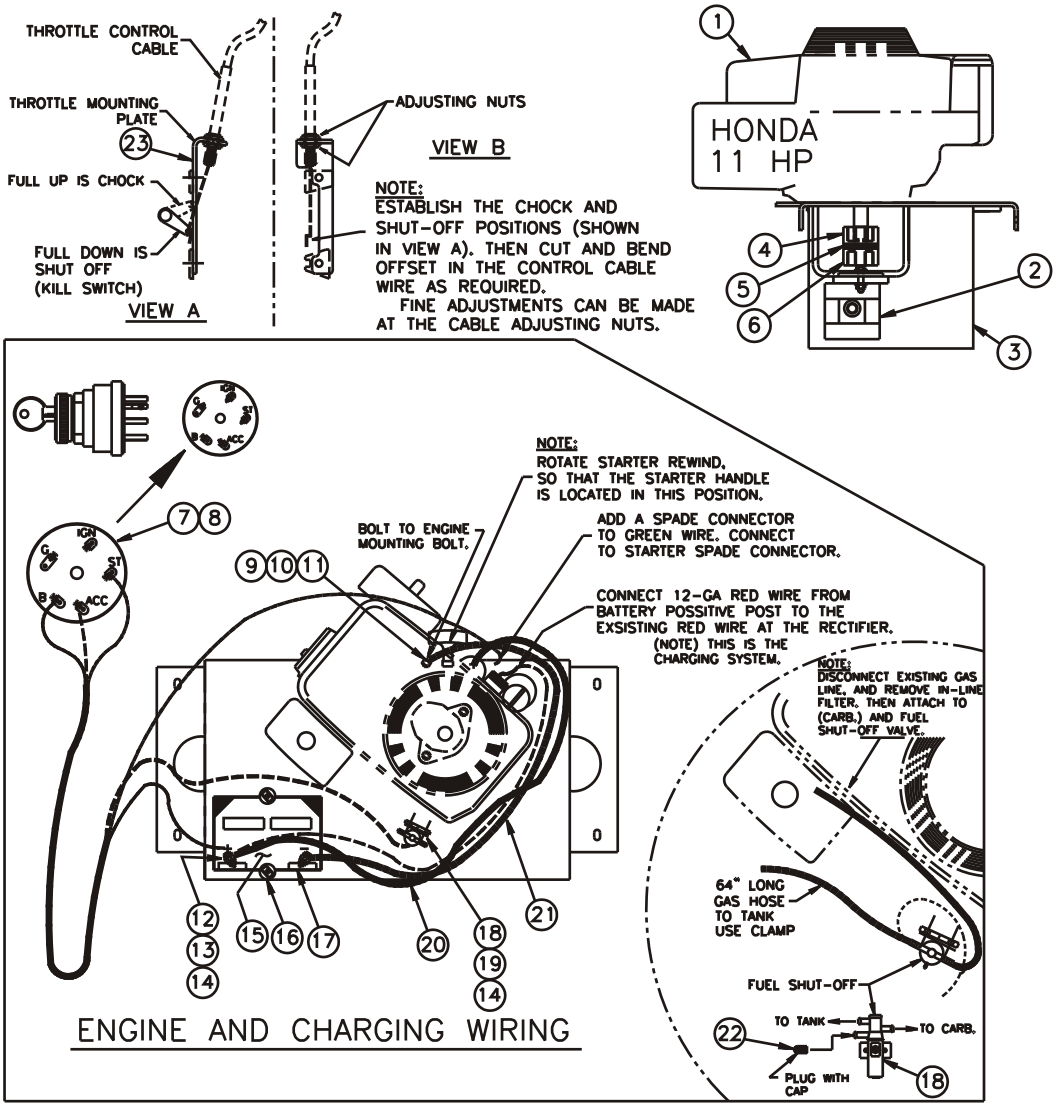
Hydraulic System (Wet Line) 96" Swing Gooseneck

ref. dwg.: 16-6011, pg. 2 of 2



11HP Honda Power Supply, Standard

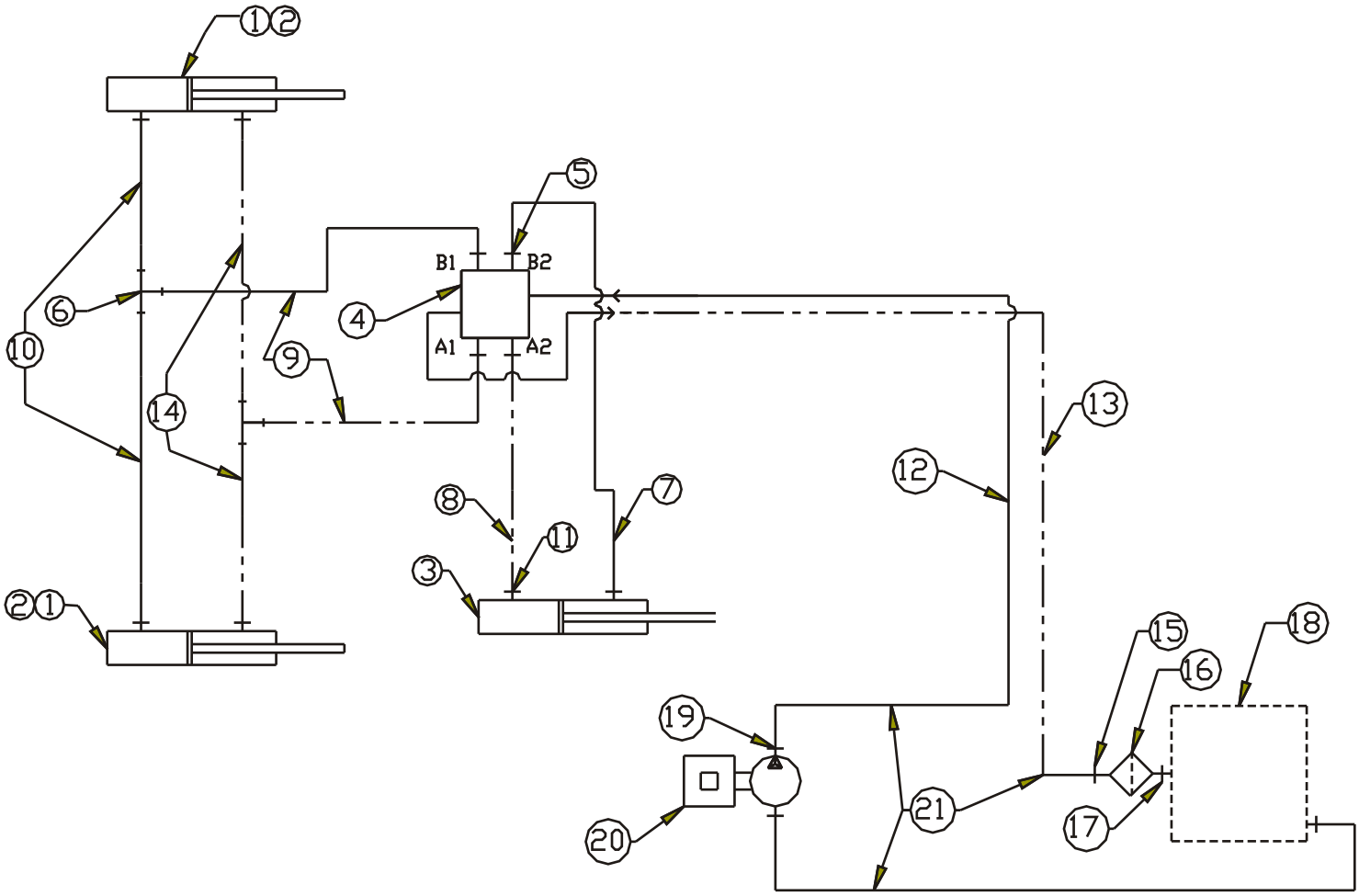
ref. dwg.: 16-6024



Item	Part #	Description
	16-6024	
1	37-6180	11HP Honda
2	37-6182	.31 c.i. pump
3	12-5026	engine mount
4	37-5057	coupler, 1" bore
5	37-5055	coupler spacer
6	37-5058	coupler, .63 bore
7	37-6170	starter switch
8	39-9026	rubber boot
9	36-0081	bolt, HHCS 5/16-unf x 1", grade 5
10	36-0082	bolt, HHCS 5/16-unf x 2", grade 5
11	36-0103	5/16 lock washer
12	36-0017	HHCS 1/4-unc x 1 1/4
13	36-0205	1/4 flat washer
14	36-0206	1/4-unc lock nut
15	35-0215	battery
16	36-0777	J-bolt
17	36-0776	battery hold-down
18	37-5056	fuel shut off
19	36-0207	bolt, HHCS 1/4-unc x 1", grade 5
20	39-1546	red wire, 40"
21	39-1547	black wire, 40"
22	37-5200	5/16 rubber plug
23	06-4311	throttle cable mount
24	37-6168	control cable
25	37-6008	cable end mount
26	06-4225	ignition mount plate

Pony Motor Hydraulic/Mounting, 11HP Honda

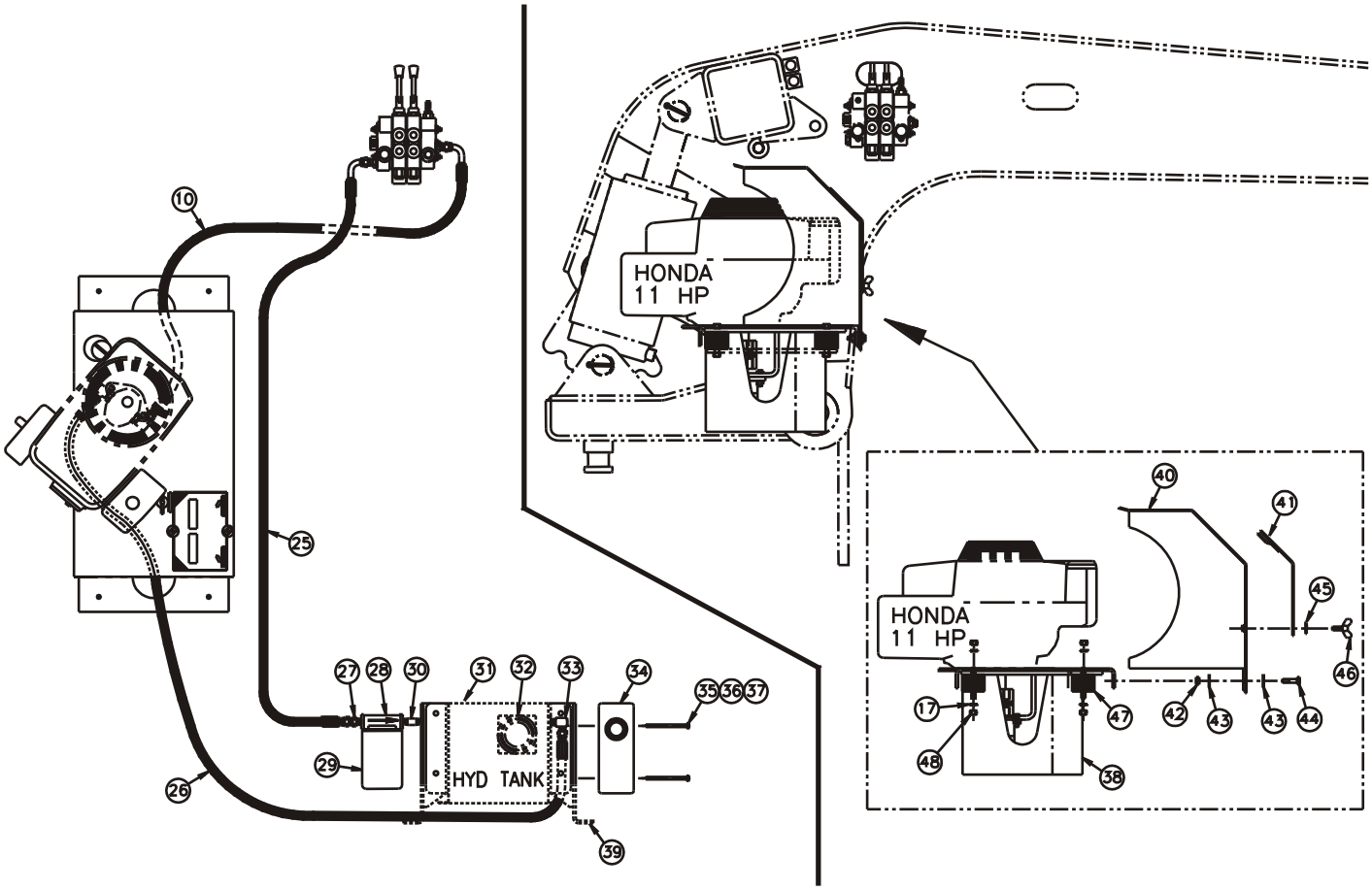
ref. dwg.: 16-6000, pg. 1 of 2

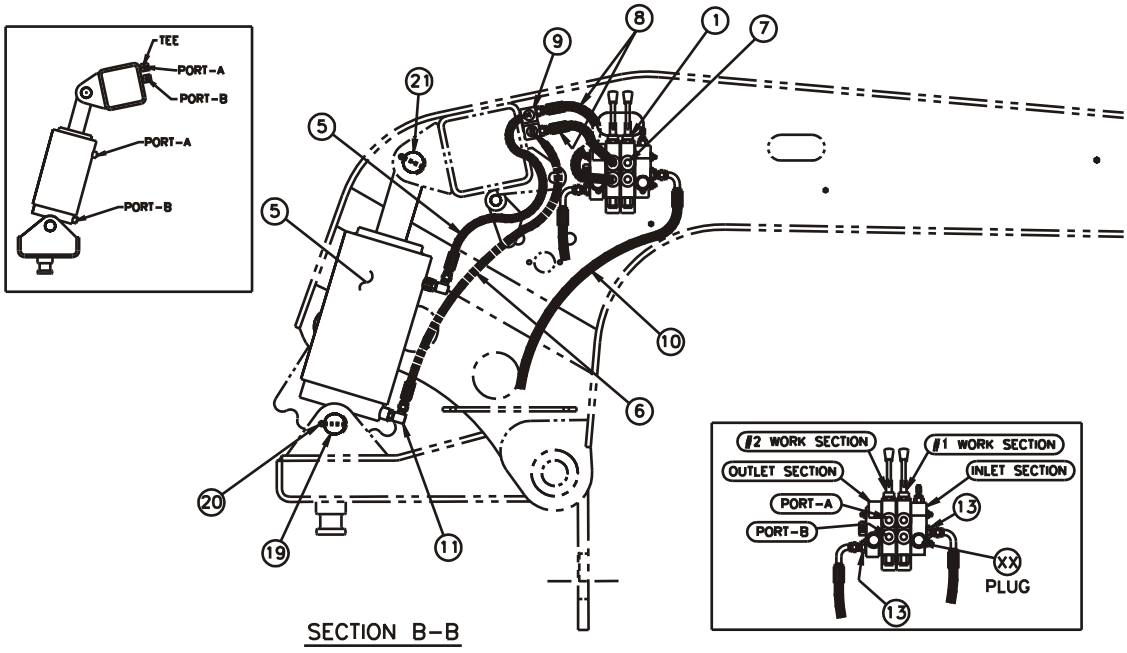


Item	Part #	Description	Item	Part #	
1	37-0311	8”x 8” Cyl	18	12-6440	Hyd reservoir
2	37-0312	9”x 9” Cyl	19	37-6035	90 deg. fitting
3	37-0320	4”x 10” Cyl	20	37-6180	pony motor
4	37-0502	control valve	21	37-5160	hose asm.
5	37-5978	male O-ring fitting			
6	37-5975	male tee			
7	37-5966	female hose asm.			
8	37-5967	female hose asm.			
9	37-5961	female hose asm. union			
10	37-5963	female hose asm.			
11	37-5978	male pipe O-ring fitting			
12	37-5963	female hose asm.			
13	37-5964	female hose asm.			
14	37-5964	female hose asm.			
15	37-5601	90deg. fitting			
16	35-0504	head unit filter			
17	35-0017	pipe adapter nipple			

Pony Motor Hydraulic/Mounting, 11HP Honda

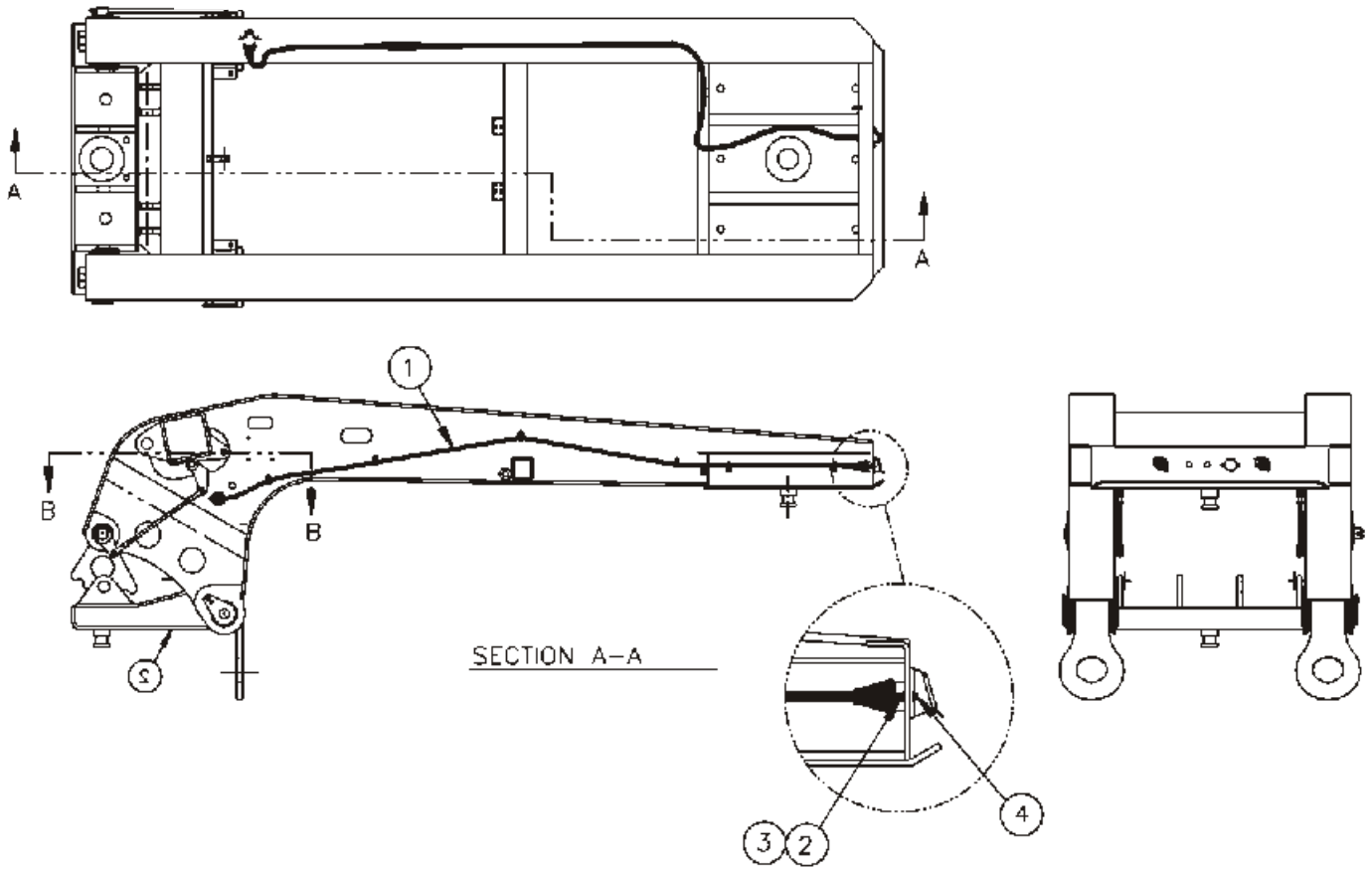
ref. dwg.: 16-6000, pg. 2 of 2





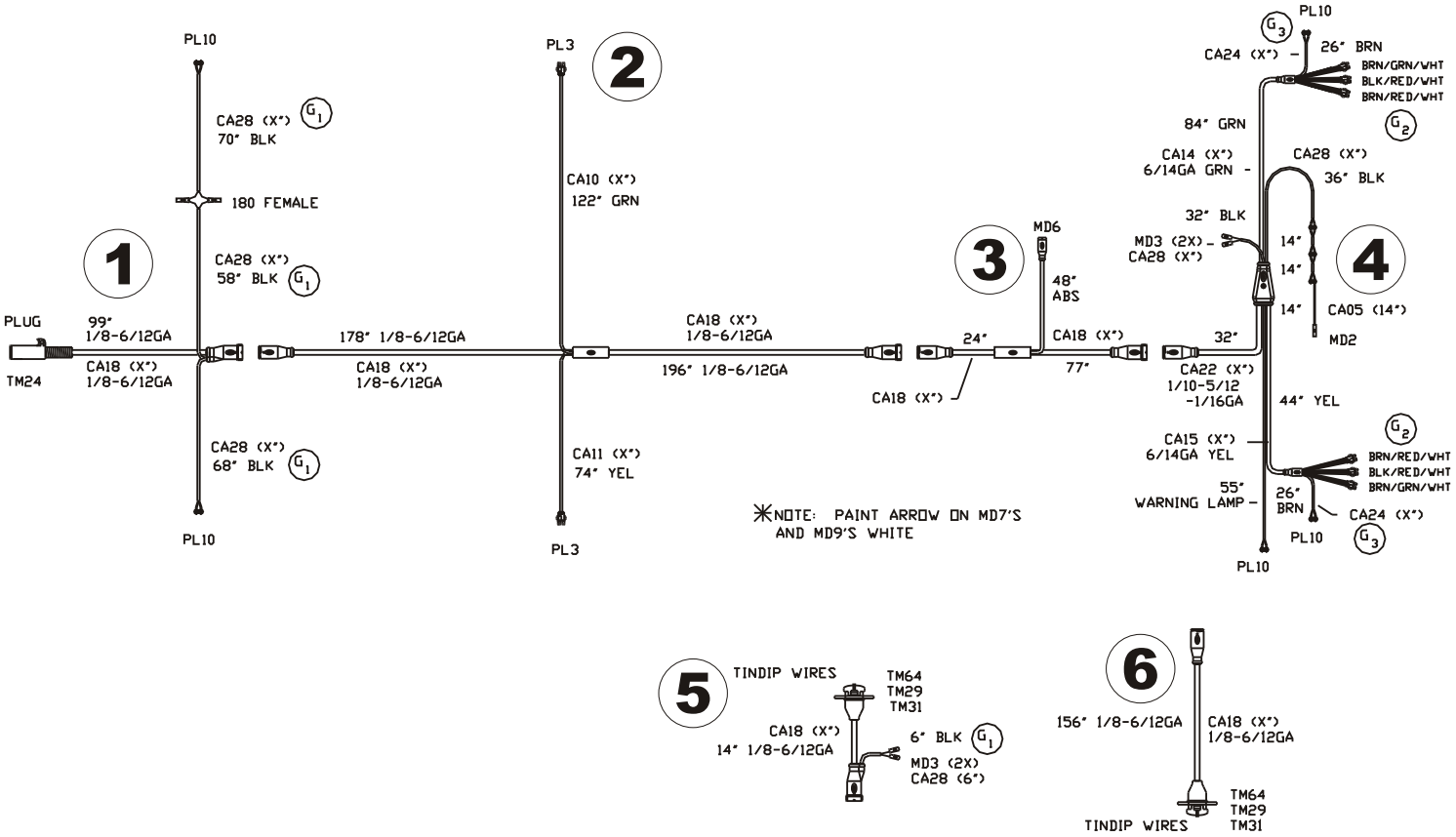
Electrical System, Gooseneck

ref. dwg.: 16-6013



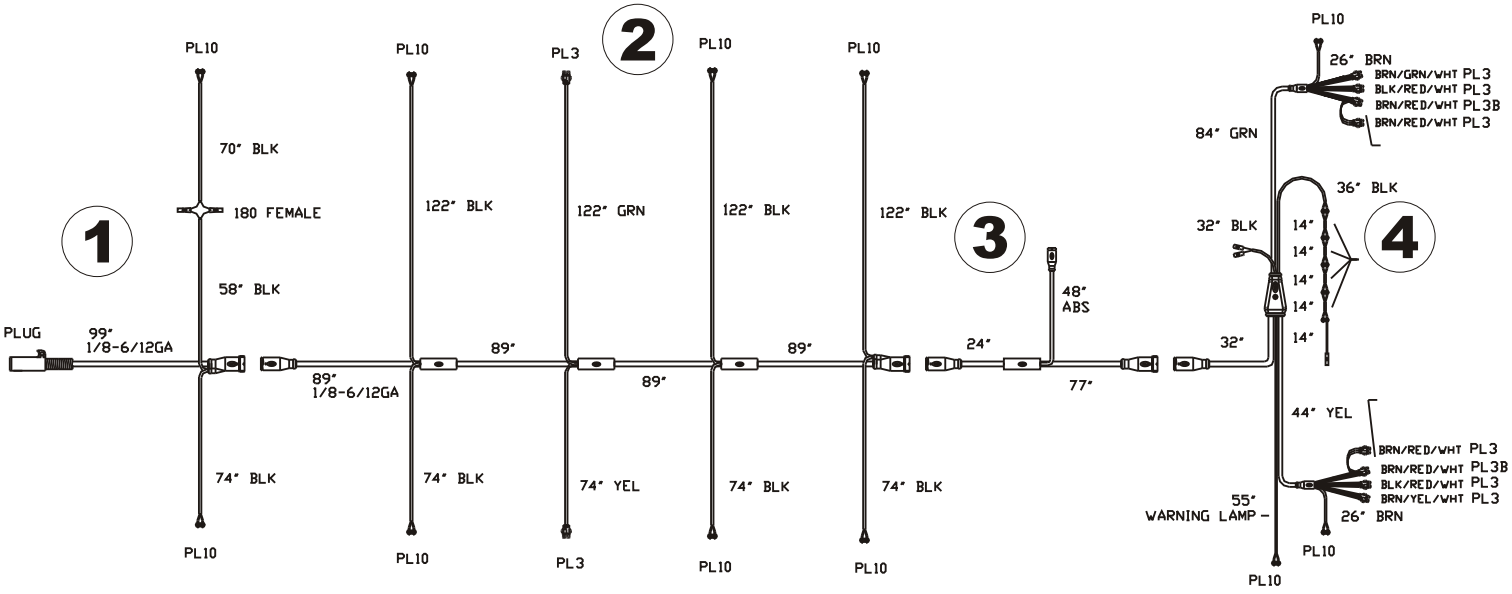
Item	Part #	Description
1	39-7074	harness, complete standerd
2	35-0013	nut, 1/4"-nc
3	36-0016	1/4" lock washer
4	36-0207	HHCS 1/4-unc x 1"
5	39-7180	24" cable extension

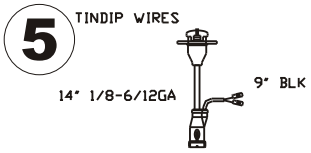
Wiring Harness

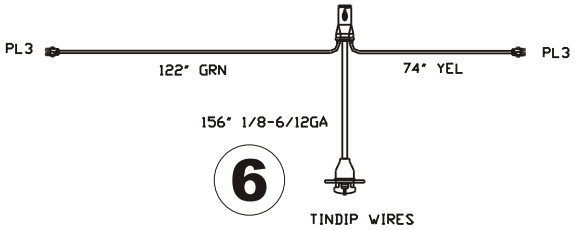


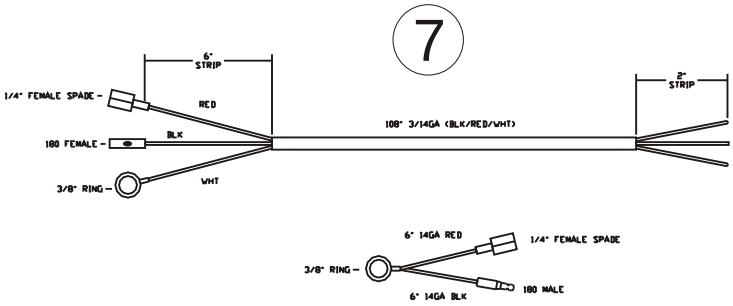
Item	Part #	Description
	39-7074	Standerd Detach light package full wiring harness
1	39-7260	Nose lead
2	39-7261	Middle section
3	39-7262	Tail lead
4	39-7263	Tail section
5	39-7264	Gooseneck front section
6	39-7265	Gooseneck rear section

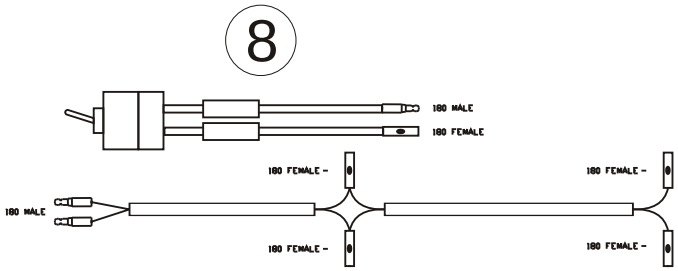
Wiring Harness







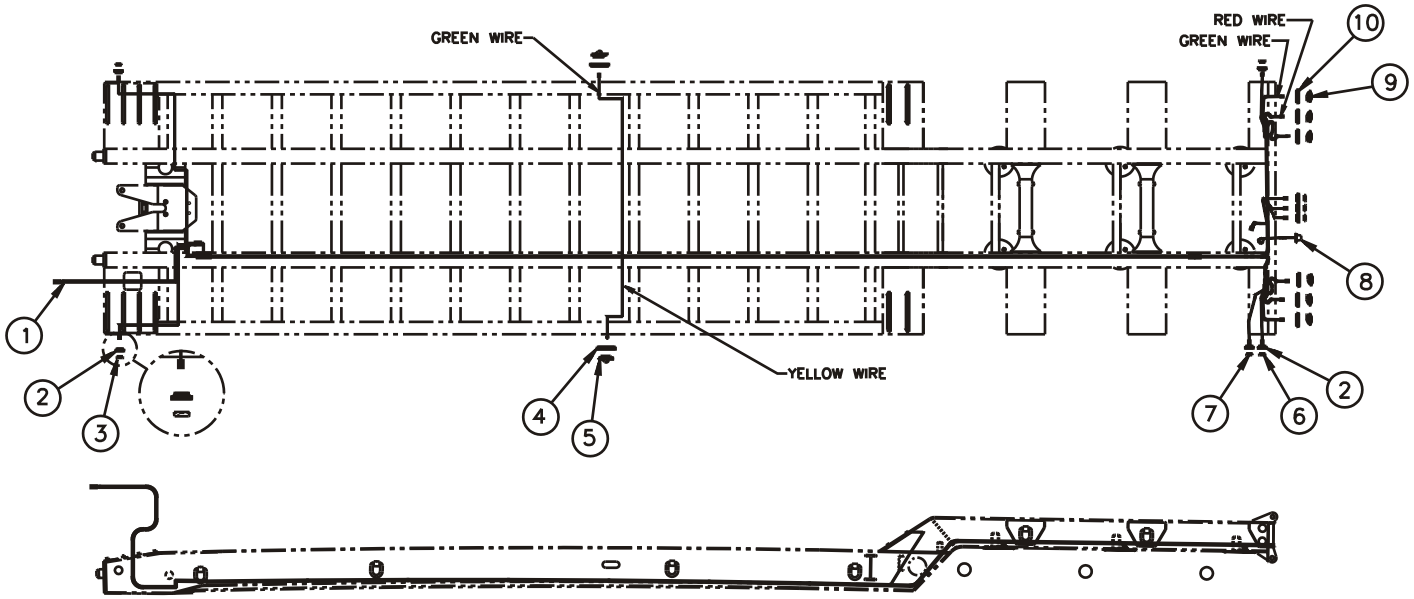


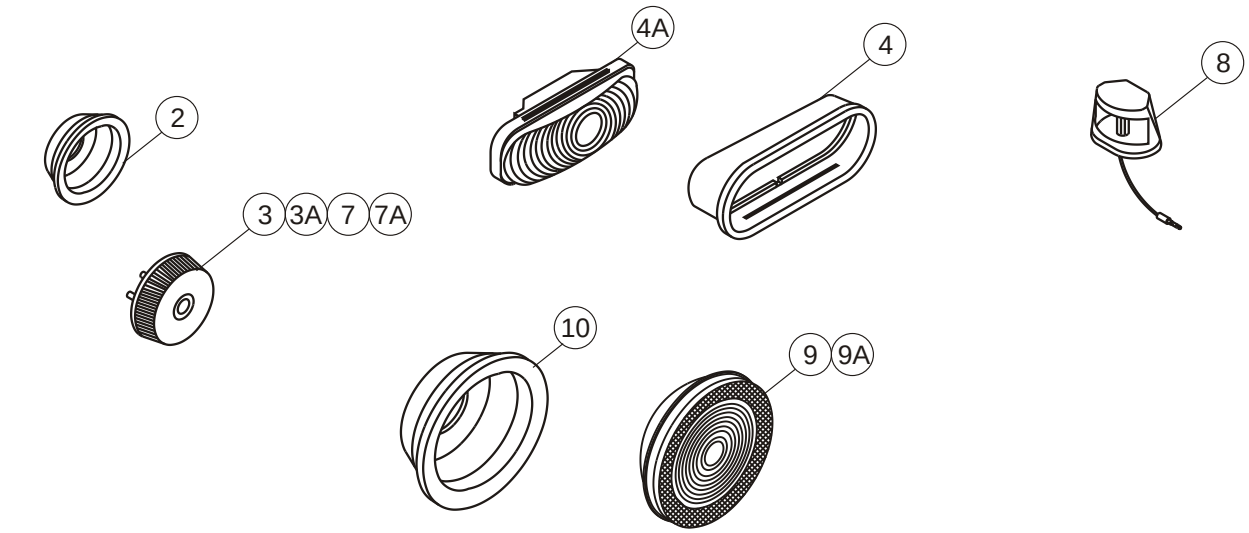


Item	Part #	Description
	39-7064	Detach extra light package full wiring harness
1	39-7071	Nose lead
2	39-7065	Middle section
3	39-7069	Tail lead
4	39-7068	Tail section
5	39-7066	Gooseneck front section
6	39-7067	Gooseneck rear section
7	39-7063	Battery pack flasher kit
8		LED strobe light kit w/mounted switch

Lighting

ref. dwg.: 16-6014

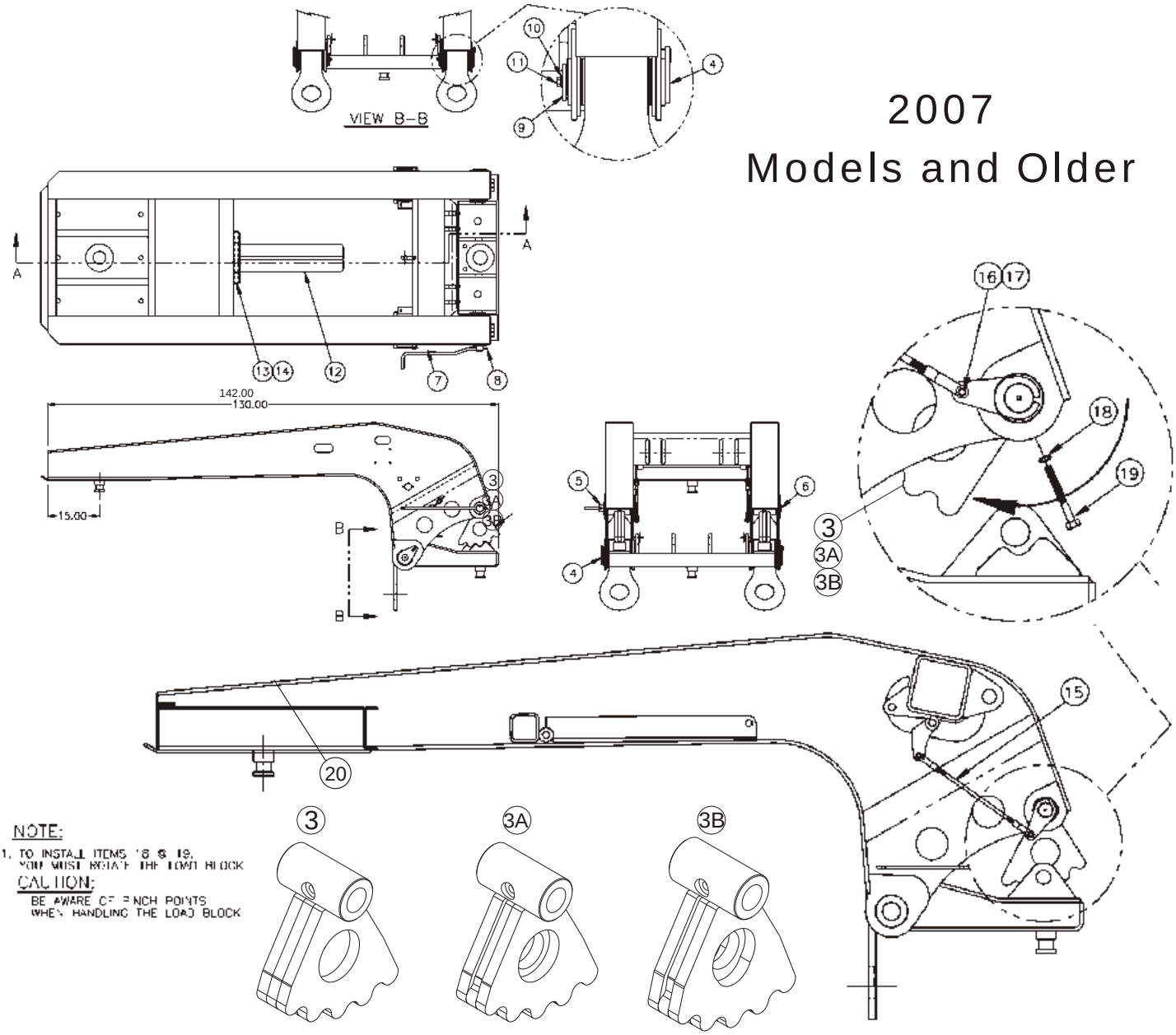




Item	Part #	Description
1	39-7074	wiring harness
2	39-3000	2 ½" round grommet, flush mount
3	39-3007	2 ½" amber marker light
3A	39-2745	2 ½" amber marker light (L.E.D.)
4	39-3001	oval tail light grommet
4A	39-3003	Oval tail light
4B	39-2760	Oval tail light L.E.D.
5	39-3006	mid-ship marker light
6		abs light
7	39-3009	2 ½" red marker light
7A	39-2740	2 ½" red marker light (L.E.D.)
8	39-3011	license light
9	39-3016	4 ½" stop/turn/tail light
9A	39-3016	4 ½" stop/turn/tail light (L.E.D.)
10	39-3022	4 ½" round grommet

84" and 96" Gooseneck Assemblies, Replacement Parts

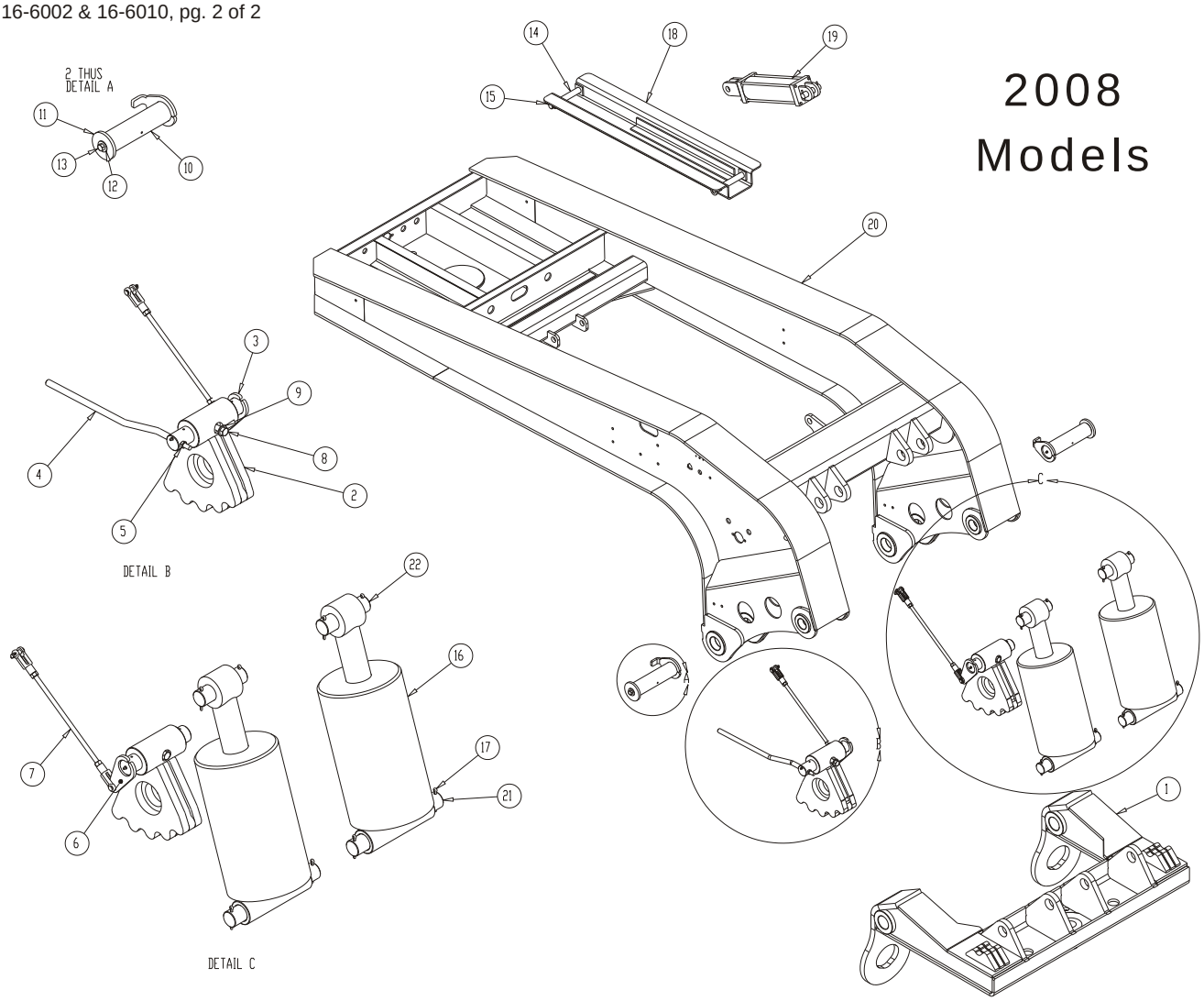
ref. dwg.: 16-6002 & 16-6010, pg. 1 of 2



Item	Part #	Description
3	12-5056	Low Profile load block weldment
3A	12-6165	Standerd load block weldment
3B	12-6177	High lift load block weldment
4	12-5072	pivot pin weldment
5	12-5071	l.h. load block pin weldment
6	12-5070	r.h. load block pin weldment
7	07-0325	load block handle
8	36-0030	nut, ½" ny-lock
9	06-4195	pin cap
10	36-0018	lock washer, ½"
11	36-0807	HHCS ½-unc x 1.00
12	12-5046	lift arm weldment
13	12-5072	lift arm pin weldment
14	37-5982	cotter pin, 1/4 x 2
15	12-5074	linkage rod assembly
16	37-0460	pin, ½ x 1 ½
17	37-5973	cotter pin, 1/8 x 1
18	36-0408	5/8 lock washer
19	37-5974	Hex Head Cap Screw 5/8-unc x 3" plated
20	33-2809	2" king pin

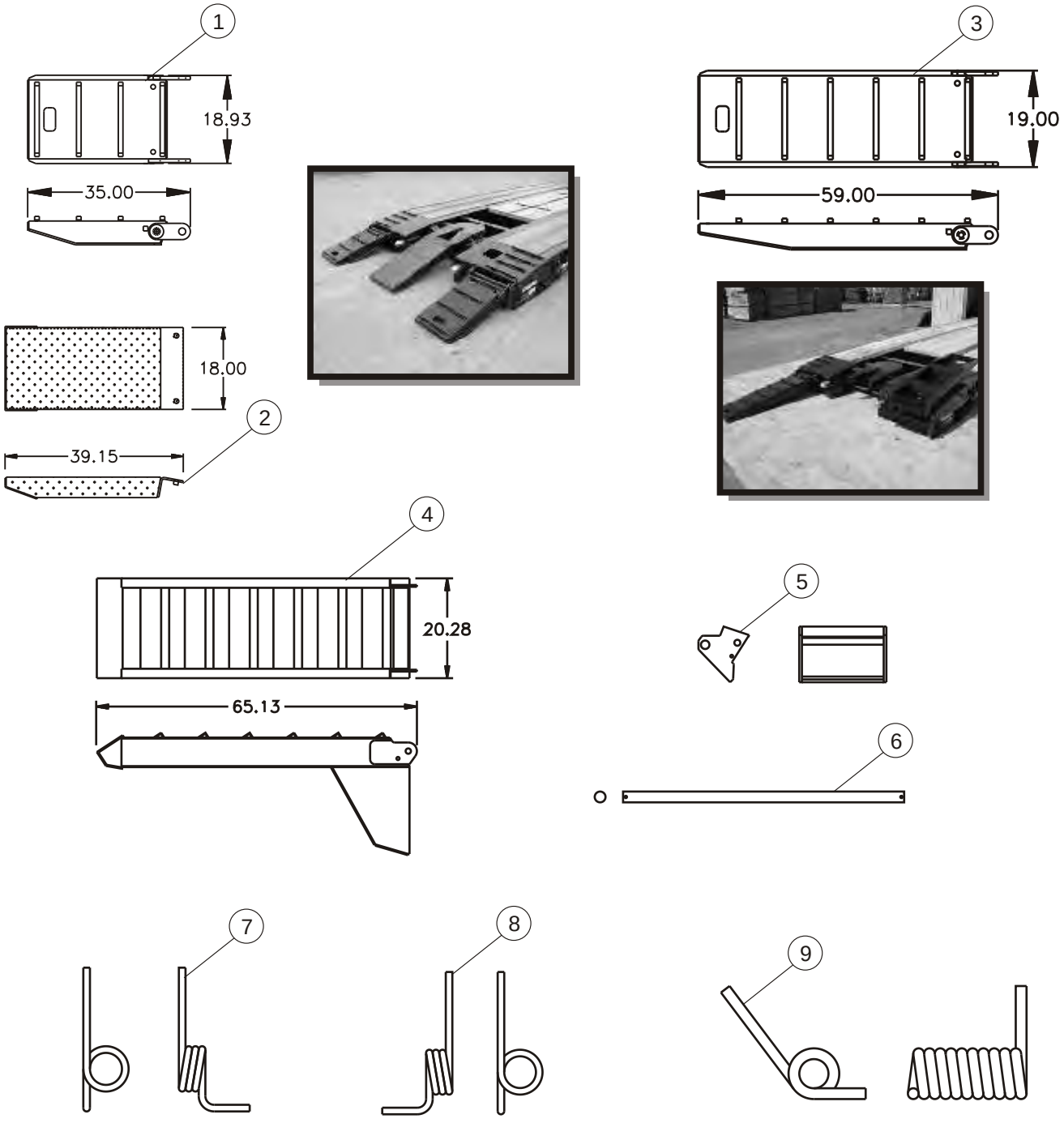
84" and 96" Gooseneck Assemblies, Replacement Parts

ref. dwg.: 16-6002 & 16-6010, pg. 2 of 2



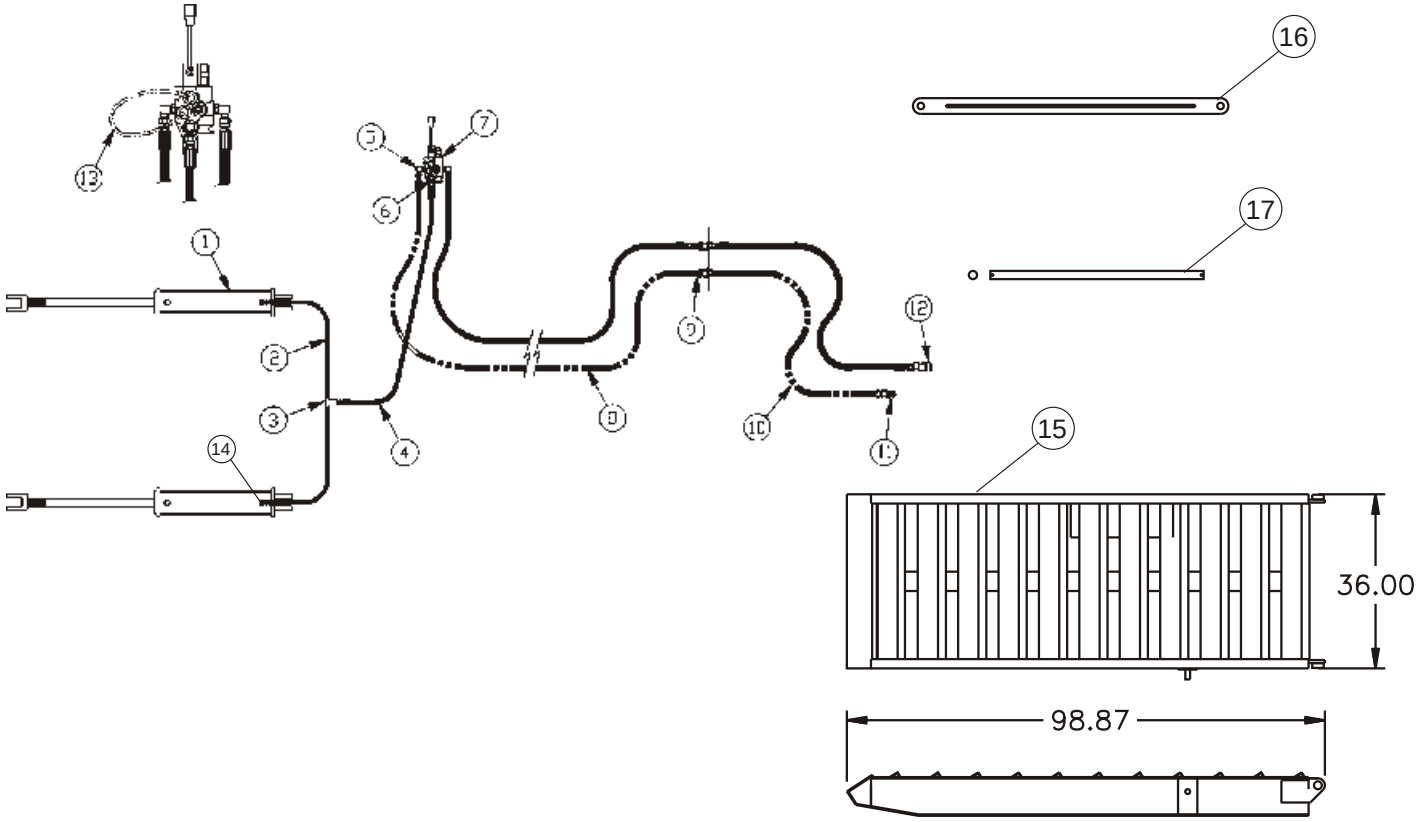
Item	Part #	Description			
1	12-5044	Under Carriage 24” Loaded deck height for 8’6” & 9’ wide models			
	12-5170	Under Carriage 24” Loaded deck height for 9’6” & 10’ wide models			
	12-6662	Under Carriage 20” Loaded deck height for 8’6” & 9’ wide models			
2	12-5056	Low load height block			
	12-6165	Med/Standerd load height block	15	37-0239	Cotter Pin 3/16” x 2”
	12-6177	High load height block	16	37-0312	Cylinder 9” Bore
3	12-6468	LH load block pin		37-0311	Cylinder 8” Bore
4	07-0325	Load block handle	17	37-5979	Cotter Pin 1/4” x 3”
5	35-4008	Lock nut ½”nylock	18	12-6371	Detach shoe
6	12-6469	RH load block pin	19	37-0320	Cylinder 4” x 10”
7	12-5074	Linkage assembly	20		Call Factory with serial number to attain proper fit
8	37-5974	Bolt 5/8”- 11UNC 3”	21	07-0625	Lower Cylinder pin
9	36-0408	Washer 5/8”	22	07-0626	Upper Cylinder pin
10	12-6471	Pivot pin			
11	06-4195	Pin Cap			
12	36-0018	Lock washer ½”			
13	36-0807	Bolt, ½”-13UNC x 1” Gr.8			
14	12-6473	Lift arm pin			

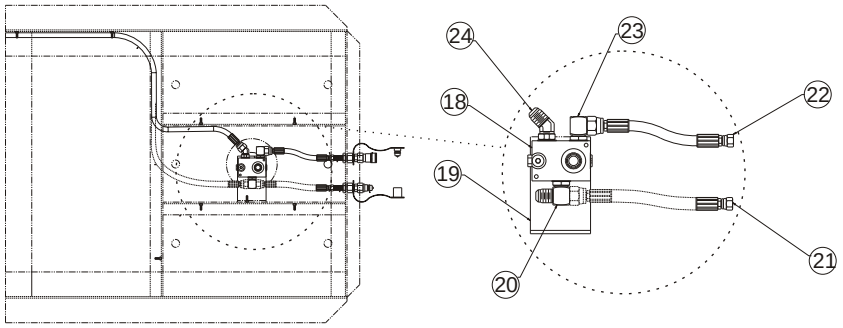
Ramps, Springs and Cantilever



Item	Part #	Description
1	12-5041	standard front loading ramp
2	12-5089	3rd (center) ramp
3	12-5098	front paver ramp
4	12-5075	5 ft. cleat style rear ramp (for use with 30" beavertail)
5	12-5078	cantilever
6	07-0307	ramp rod, stress-proof, 1 ½" x 22 3/8"
	07-0050	cantilever rod, stress-proof, 1 ½" x 41 ½"
	07-0016	ramp rod, 1" x 22"
7	37-0580	ramp helper spring, lift off beavertail, l.h. (3/8")
8	37-0582	ramp helper spring, lift off beavertail, r.h. (3/8")
9	37-0622	ramp helper spring, lift off ground (5/8")
	37-0234	roll pin, 5/16" x 1 ½" (not shown)
	37-0235	roll pin, 5/16" x 3" (not shown)

Hydraulic Ramp System- Single Acting Cylinder

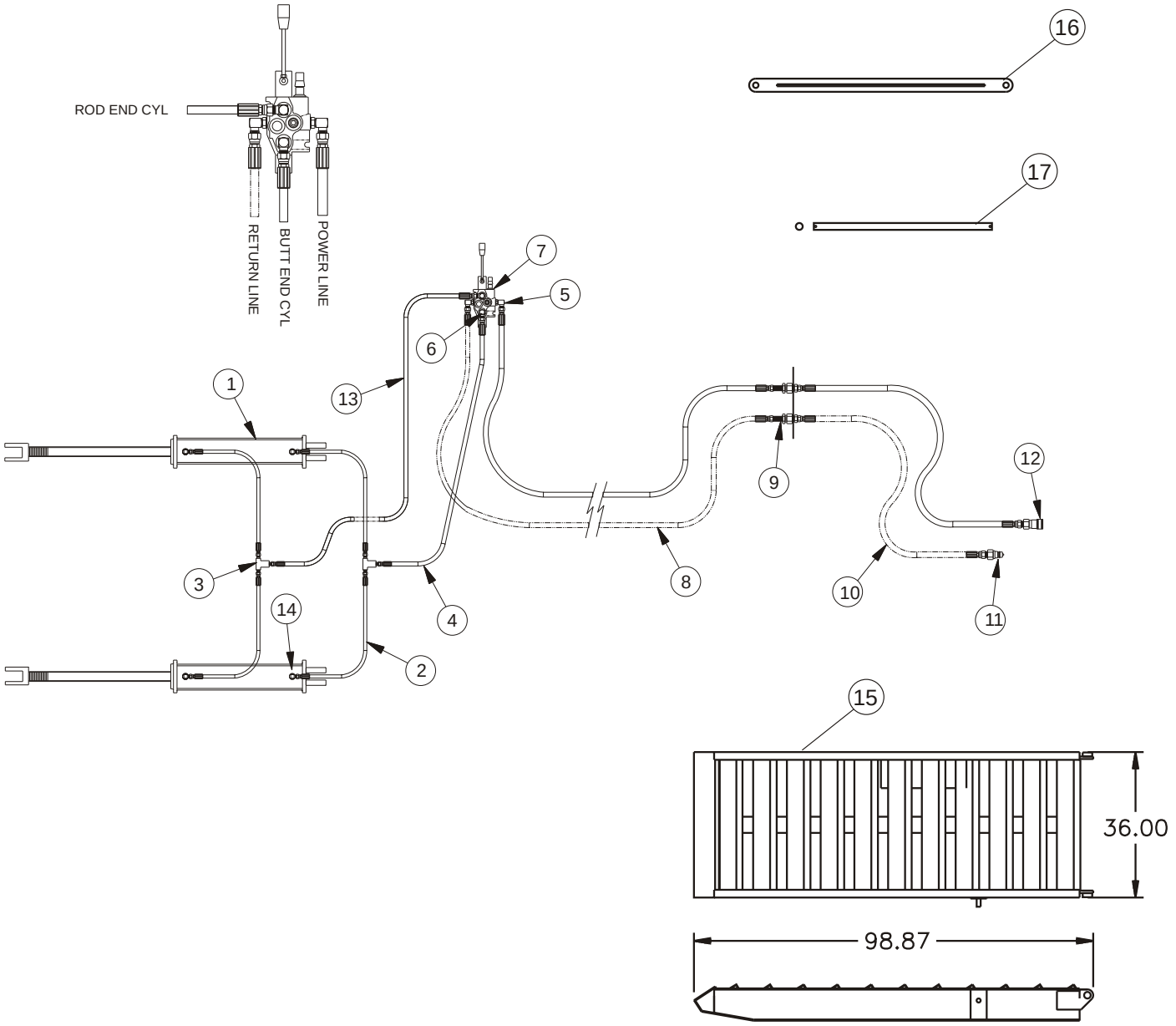




18	37-3502	Hyd Flow Controller
19	06-6033	Flow Controller Mount
20	37-9096	Tee Fitting 12MJ-MJ-MB
21	37-9094	Return Hyd. Hose
22	37-9094	Supply/Power Hyd. Hose
23	37-9103	90deg. Elbow 16MJ-16MB
24	37-9097	45deg. Elbow 12MJ-MB

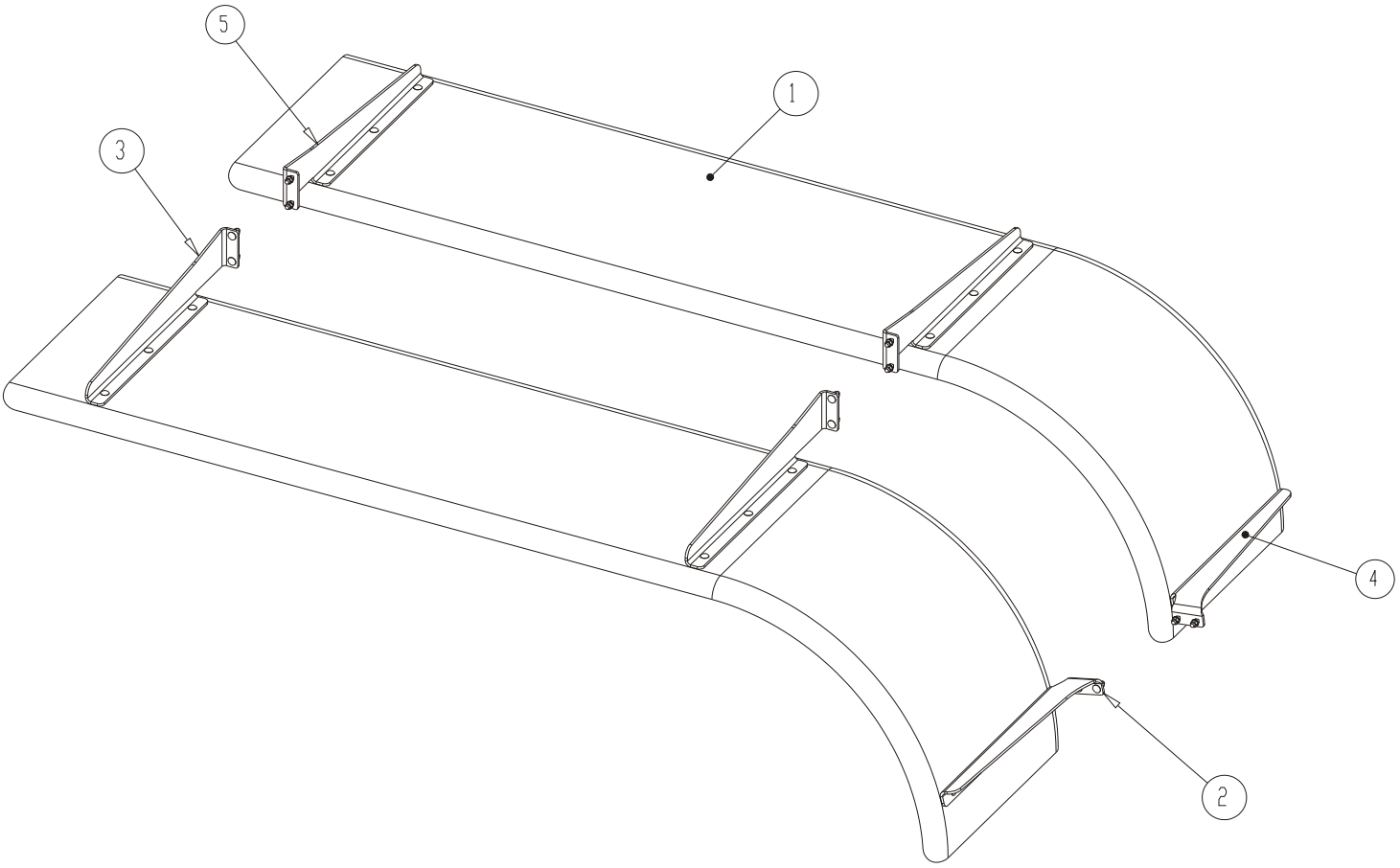
Item	Part #	Description
1	37-0302	cylinder, lower, 3 ½ x 16
2	35-6002	hose assy, cylinder to tee
3	35-6000	tee bulkhead, #6 JIC
4	37-4001	hose tee to valve
5	37-6001	90 deg. elbow, 8MJ-8MB90
6	37-6002	90 deg. elbow, 6MJ-8MB90
7	37-6200	single spool valve
8	37-4003	deck length hose
9	37-5988	bulkhead, 8MJ-8MJBKHD
10	37-4004	pigtail hose
11	37-5971	nipple
12	37-5972	quick coupler
13	37-4005	hose jumper
14	37-6003	fitting, male boss, 6MJ-8MB
15	12-5087	3 ft. x 8 ft. cleat style hydraulic rear ramp (for use with 36" beavertail)
16	12-5092	ramp hold-up
17	07-0327	ramp rod
	37-0235	roll pin, 5/16" x 3" ramp rod keeper (not shown)

Hydraulic Ramp System- Dual Acting Cylinders



Item	Part #	Description
1	37-0302	cylinder, lower, 3 ½ x 16
2	35-6002	hose assy, cylinder to tee
3	35-6000	tee bulkhead, #6 JIC
4	37-4001	hose tee to valve
5	37-6001	90 deg. elbow, 8MJ-8MB90
6	37-6002	90 deg. elbow, 6MJ-8MB90
7	37-6188	single spool float valve
8	37-4003	deck length hose
9	37-5988	bulkhead, 8MJ-8MJBKHD
10	37-4004	pigtail hose
11	37-5971	nipple
12	37-5972	quick coupler
13	37-4006	hyd. hose rod end
14	37-6003	fitting, male boss, 6MJ-8MB
15	12-5087	3 ft. x 8 ft. cleat style hydraulic rear ramp (for use with 36" beavertail)
16	12-5092	ramp hold-up
17	07-0327	ramp rod
	37-0235	roll pin, 5/16" x 3" ramp rod keeper (not shown)

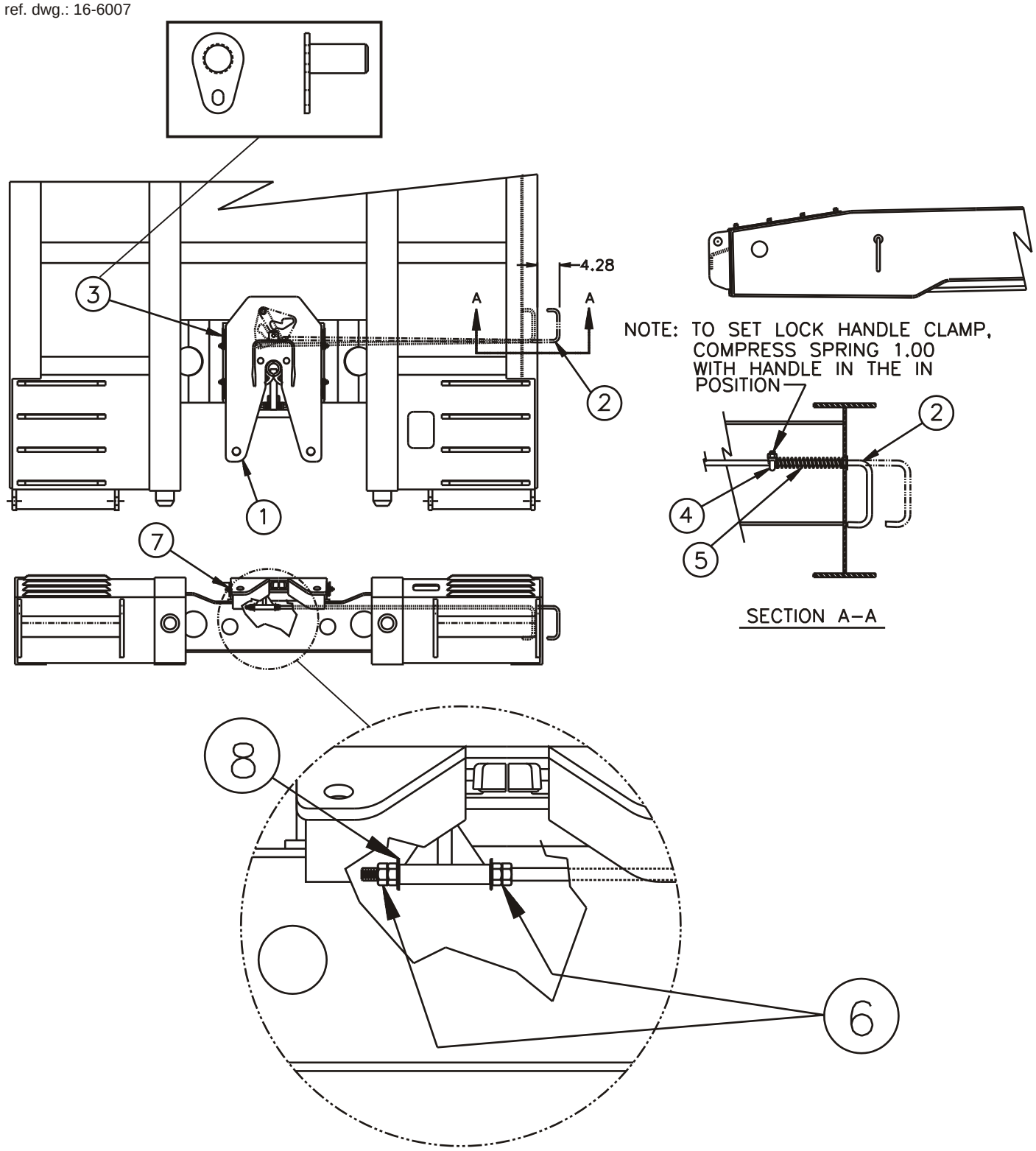
Fenders



Item	Part #	Description
1	37-3034	Gooseneck Fender,, Aluminum
2	06-7073	L.H. Bottom mount
3	06-7098	L.H. Top Mount
4	06-7074	R.H. Bottom Mount
5	06-7099	R.H. Top Mount

5th Wheel Locking Assembly

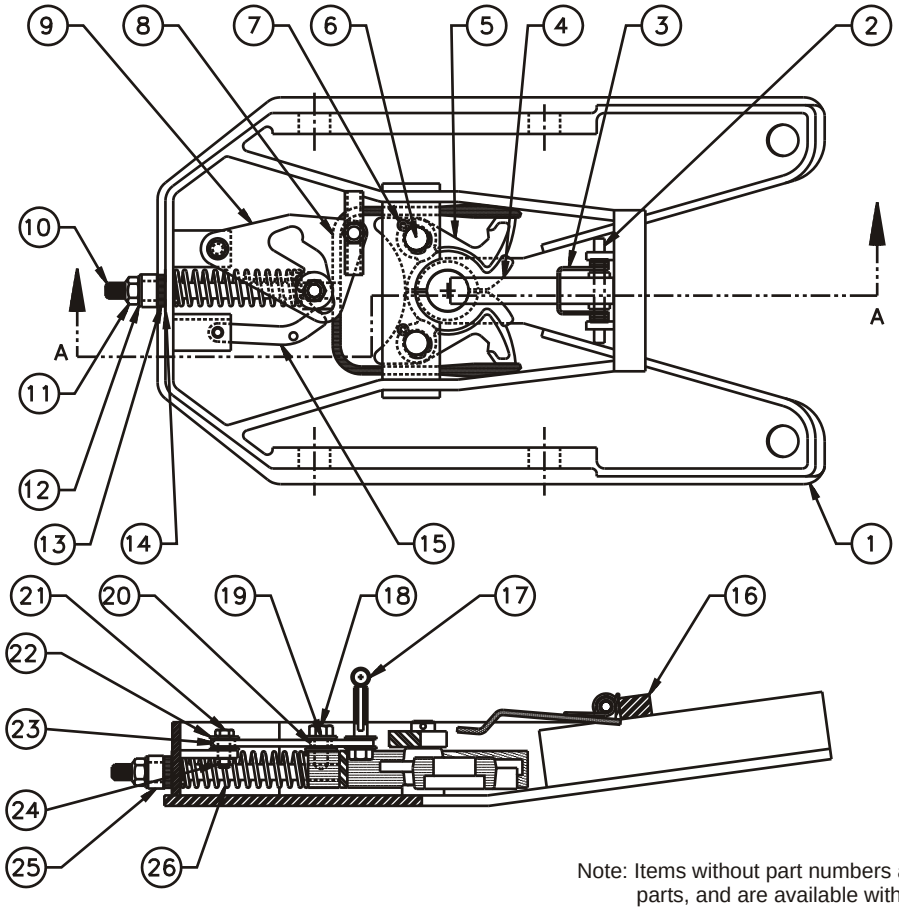
ref. dwg.: 16-6007



Item	Part #	Description
1	16-6006	5th wheel locking assembly
2	12-5086	lock handle assembly
3	12-5068	5th wheel pin assembly
4	37-1120	cable clamp
5		spring (sold with rebuild kit)
6	36-0304	9/16" nut
7	36-0030	½" ny-lock nut

5th Wheel Locking Assembly

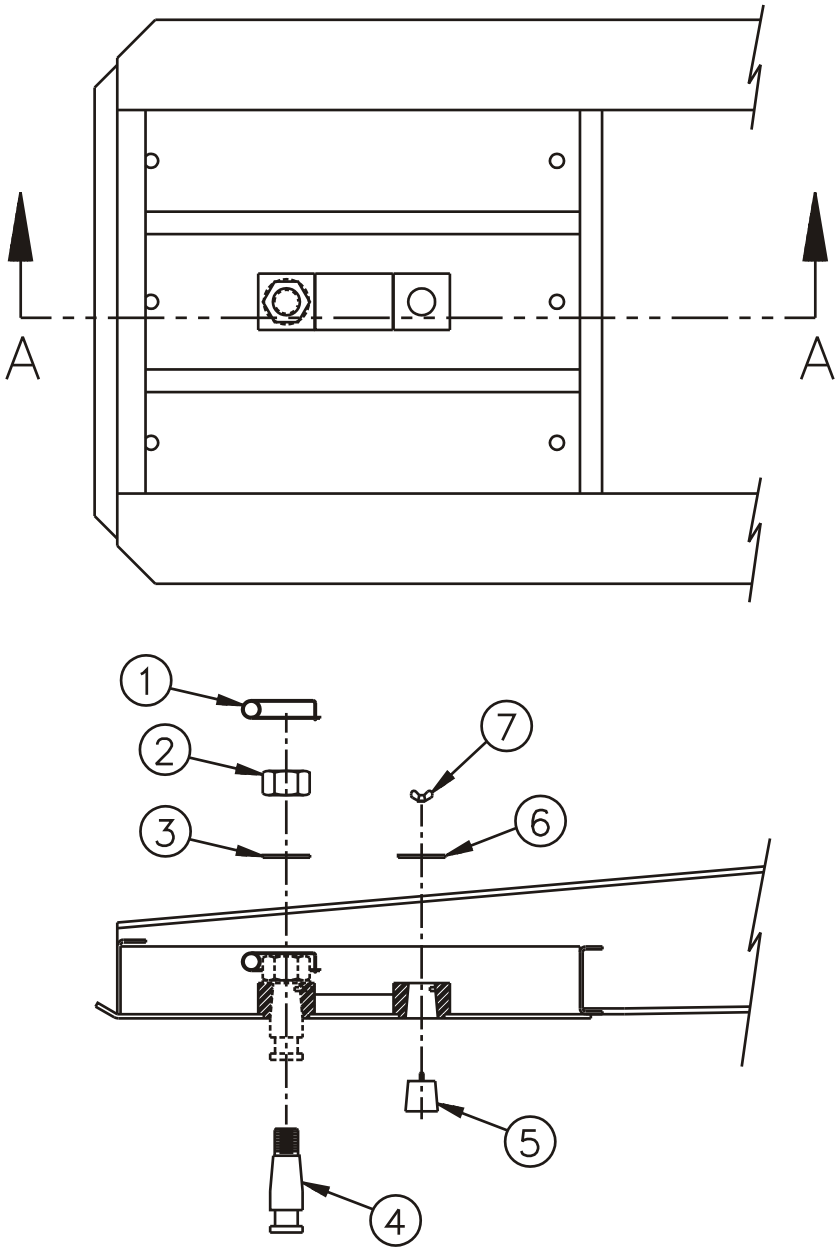
ref. dwg.: 16-6006



Note: Items without part numbers are not replacement parts, and are available with complete assembly only.

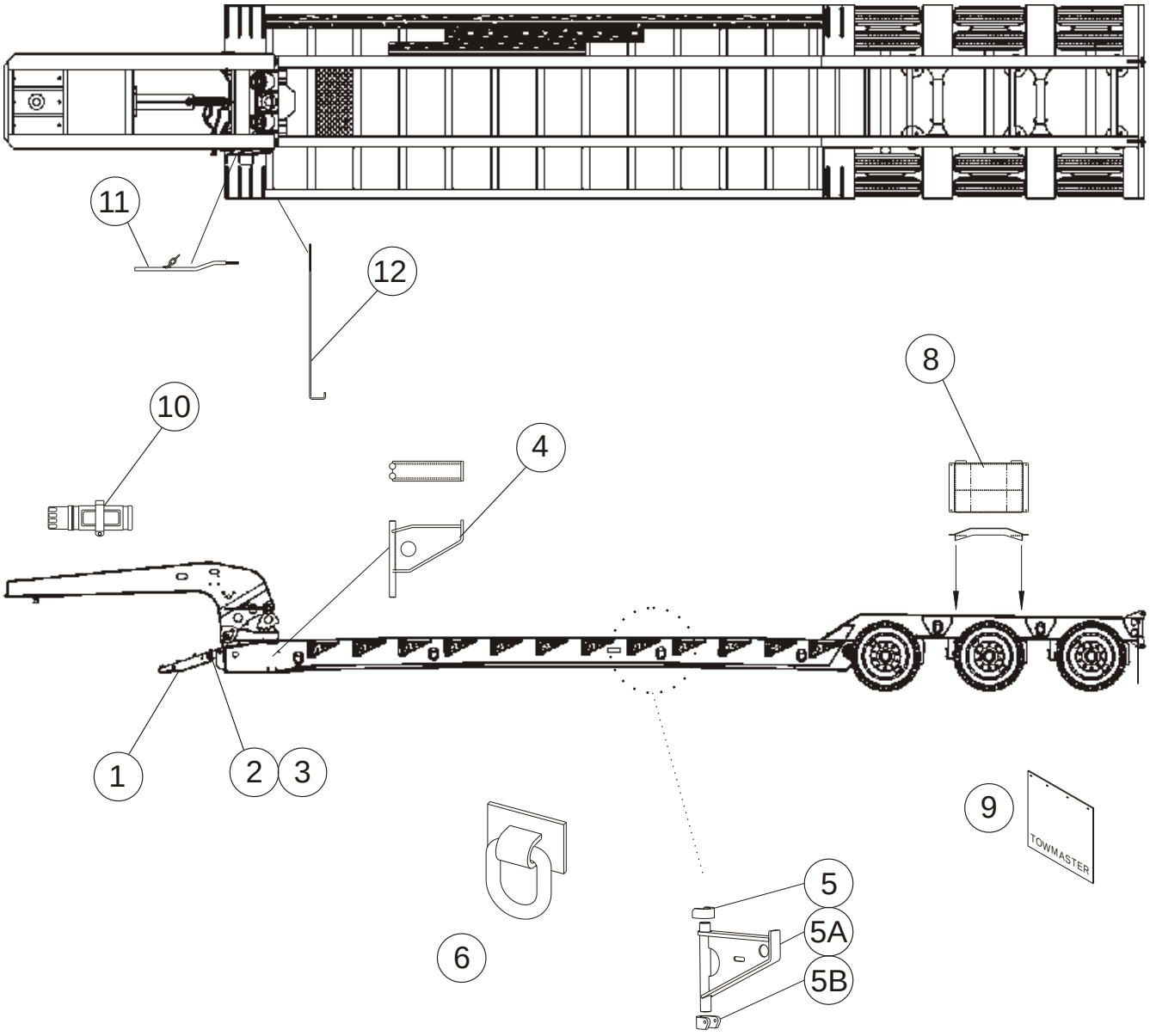
Item	Part #	Description
	16-6006	5th wheel locking assembly (complete)
	37-6600	rebuild kit (includes all items except 1, 16, 17 and 25)
1	12-5042	lock weldment
2		pin
3		torsion spring
4		lock guard
5		lock jaw
6		lock pin
7		cotter pin, 1/4 x 2
8		yoke
9	37-6601	cam plate
10		yoke shaft
11		lock nut, 3/4-16
12		washer, 1 ½ o.d. x 13/16 i.d.
13		rubber washer
14		lock adjustment tag
15		secondary lock
16	12-5043	pivot bar weldment
17	12-5057	tee pivot lock
18		bolt, 5/8-18 x 1 3/4
19		washer
20		roller
21		bolt, ½-10 x 1 3/4
22		washer, 1 3/4 o.d. x 9/16 i.d.
23		roller
24		locknut, ½-20
25	08-1026	spacer block
26		spring

Removable King Pin



Item	Part #	Description
1	37-0121	hair pin
2	36-1050	nut
3	36-1051	washer
4	37-0122	king pin
5	37-0123	plug
6	37-0124	cover plate
7	36-1052	wing nut

Miscellaneous Parts



Item	Part #	Description
1	12-5041	front loading ramp
2	07-0307	ramp rod
3	37-5979	cotter pin
4	12-5025	double out-rigger (front out-rigger)
5	06-5402	Top out-rigger bracket
5A	12-6090	Out-rigger
5B	06-5403	Bottom out-rigger bracket
6	37-4000	40,000lbs capacity
6A	37-4002	35,000lbs capacity
7	12-6315	1" D-ring and clip, with Side rail stiffner
8	Call Factory with trailer serial number	
9	37-0802	Towmaster mud flaps (one pair)
	37-0804	mud flaps, generic (one pair)
10	37-6072	registration holder
11	07-0325	load block handle
12	07-0313	lock handle bar

Decals (Warnings and Cautions)

These decals are located on various parts of your trailer, please be aware of all *DANGER, WARNING, CAUTION and ATTENTION* decals.

Ignoring these decals, or not following proper operating instructions may result in serious injury or death.

45-0240	Kit T-70DTG
45-0241	Kit T-100DTG
45-0242	Kit T-110DTG
45-0115	Kit T-120DTG
45-0017	Towmaster, large neck
45-4150	Titanium, large neck
45-4150	T-70DTG
45-4152	T-100DTG
45-4154	T-110DTG
45-4155	T-120DTG
45-0705	800-462-4517,web address
45-2080	Caution, Warning, Danger
45-3310	Danger,Stand Clear when lowering deck
45-4206	Danger,Stand Clear when lowering ramps
45-3314	Danger,Pinch Point
45-0009A	Warning, Wheel nut torque
45-3301	Waring, Clean glad hand
45-4201	Warning, Disconnect wet line
45-3200	Warning, Secure load by DOT Standards
45-4203	Warning, No side loading
45-3323	Warning, Overload hazard
45-4218	Warning, Axle settings, shims
45-4202	Caution, Outrigger planks
45-0012	Caution, Stinger retainer pin
45-0013	Caution, Lift Axle
45-3322	Caution, Flip axle air suspension dump valve
45-4216	Caution, Adjust shims with load
45-4213	Caution, Proper gooseneck hookups
45-3324	Attention, Outrigger boards used with outrigger
45-2925	Attention, Registration Holder
45-4204	Attention, Selector options
45-1240	Attention, Green Brake
45-1362	Bi-fold ramp operation
45-0014	Suspension dump valve operation
45-4214	Stinger Lock Pin operation
45-1415	Air Brake system wiring
45-4208	"Hydraulic Oil"
45-3312	"Return"
45-3313	"Power"
45-3311	"Lock Handle"
45-4210A	Hyd. ramp operation
45-3402	Detaching neck operation
45-7101	Pony motor operation
45-4217	Air Pressure adjustment operation

Decals (Warnings and Cautions)

452080

DANGER

SERIOUS INJURY AND/OR PROPERTY DAMAGE CAN RESULT IF THIS VEHICLE IS TOWED BEFORE FAMILIARIZING YOURSELF WITH THE MANUFACTURER'S OPERATING INSTRUCTIONS AND CAUTIONS LISTED TO THE RIGHT

CAUTION BEFORE TOWING THIS TRAILER CHECK THAT:

- COUPLER HITCH AND TRAILER BALL ARE THE SAME SIZE
- COUPLER IS LATCHED
- SAFETY CHAINS ARE CRISSCROSSED UNDER TONGUE AND ATTACHED TO TOW VEHICLE
- ALL TRAILER LIGHTING IS WORKING CORRECTLY
- LOAD IS SECURED TO TRAILER FRONT AND REAR
- TONGUE JACK (IF SO EQUIPPED) IS RETRACTED
- TILT PIN IS LATCHED
- WHEEL LUG BOLTS ARE PROPERLY TIGHTENED
- TIRES ARE INFLATED TO PRESSURE INDICATED ON TIRE
- TRAILER BRAKES ARE PROPERLY ADJUSTED AND BREAK-AWAY DEVICE IS ATTACHED TO TOW VEHICLE
- LOAD IS WITHIN TRAILER CAPACITY AND DISTRIBUTED PROPERLY TO MAINTAIN PROPER TONGUE WEIGHT

WARNING

YOU ARE REQUIRED TO COMPLY WITH LOCAL AND STATE REQUIREMENTS REGARDING BRAKES, LICENSING AND AN ADDITIONAL EQUIPMENT THAT MAY BE NECESSARY. CONTACT YOUR STATE MOTOR VEHICLE DEPARTMENT FOR MORE INFORMATION. ALSO REFER TO DOT FEDERAL MOTOR CARRIER SAFETY REGULATIONS §392.9, §393.100 AND §393.102. 452820

453310

DANGER

Stand clear when lowering deck.

454206

DANGER

Stand clear when lowering ramps.

453314

DANGER

PINCH POINTS

Watch your hands!

453314

450009A

WARNING

For proper performance, all new axles should have the following checked at the specific intervals:

Wheel Nut Torque:

Upon delivery, at 10, 25 and 50 miles and weekly thereafter. KEEP THEM TIGHT!

Brake Adjustment:

At 200 miles and 3,000 miles and every 3,000 miles thereafter.

Tire Pressure:

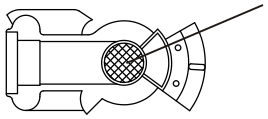
Upon delivery and per tire manufacturer's requirements.

450009A

453301

WARNING

Screen in glad hand must be clean before connecting to tow vehicle.



Keep clean!

453301

Decals (Warnings and Cautions)

454201

WARNING

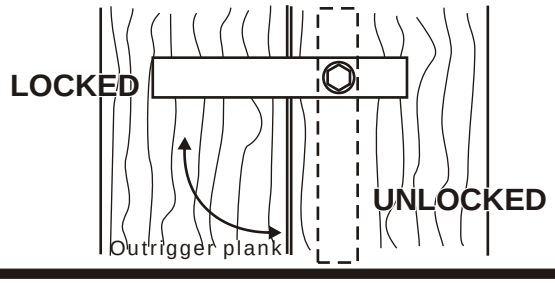
Disconnect wet line from truck before using pony motor!

454201

454202

CAUTION

Outrigger plank storage locks must be in the locked position for traveling.



454202

453200

WARNING

Load must be secured according to D.O.T. standards.

(Follow DOT Federal Motor Carrier Safety Regulations §392.9, §393.100 and §393.102.)

453200

454203

WARNING

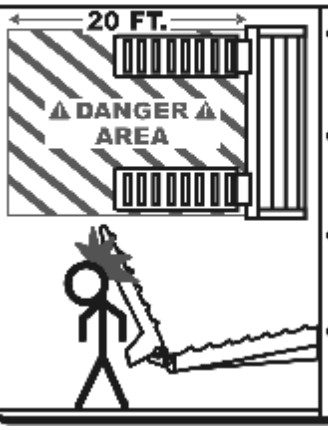
NO SIDE LOADING

454203

450029

DANGER

AVOID SERIOUS INJURY OR DEATH

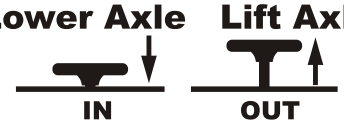


- Ramps can cause serious injury or death
- Stay clear of DANGER AREA when raising and lowering ramps
- Stand at side of trailer when in operation or in use
- Read operation and maintenance manual for further instructions

450029

450013

CAUTION



Lift Axle, Only When Trailer Is Unloaded

450013

Decals (Warnings and Cautions)

453402

HYDRAULIC DETACHABLE OPERATING INSTRUCTIONS

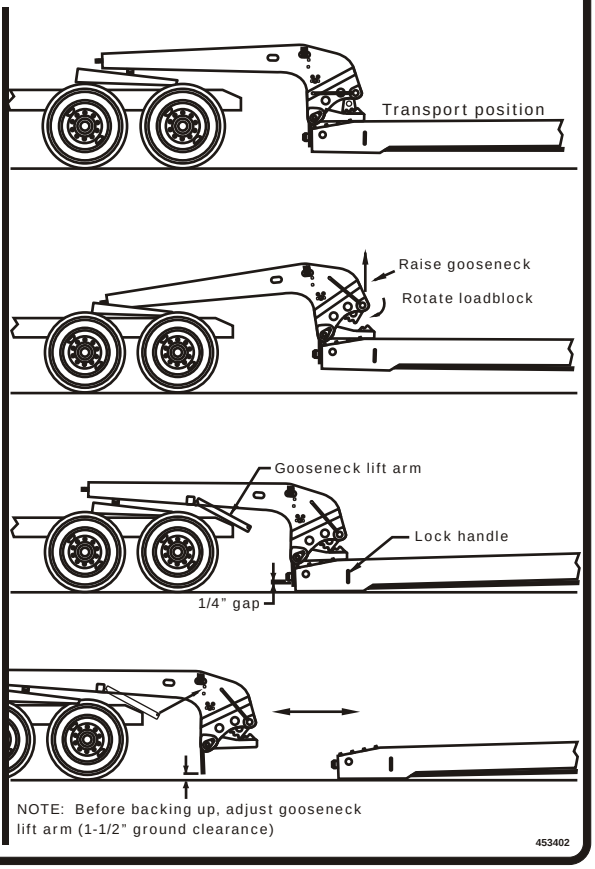
⚠ CAUTION BEFORE OPERATING THIS TRAILER, READ AND UNDERSTAND THE TRAILER OPERATION MANUAL

Detach Instructions

1. Park truck and trailer in a straight line and on as level ground as possible.
2. Start hydraulic system.
3. Detach air and electrical lines, roll up and put them in their storage area.
4. Raise gooseneck until loadblocks can be rotated up.
5. While holding loadblocks in the up position, lower the gooseneck to the ground.
6. Continue lowering gooseneck until there is approximately 1/4" gap below loadpin and loadplate.
7. Lower gooseneck lifting arm to truck frame.
8. Pull lock handle to the unlocked position.
9. Drive forward, adjust lift arm accordingly.

Hookup Instructions

1. Adjust gooseneck height (should be 1.50 dim. under loadplate to ground).
2. Adjust undercarriage (if needed).
3. Back up truck slowly until lock latches.
4. Undercarriage will self-align with trailer (if not, pull ahead and adjust accordingly).
5. Be sure the lock handle is in the locked position.
6. Raise gooseneck/deck until loadblocks can be rotated down to the desired deck height.
7. Lower gooseneck/deck to transport position.
8. Raise gooseneck lift arm.
9. Connect air and electrical lines.



NOTE: Before backing up, adjust gooseneck lift arm (1-1/2" ground clearance)

453402

457101

PONY MOTOR INSTRUCTIONS

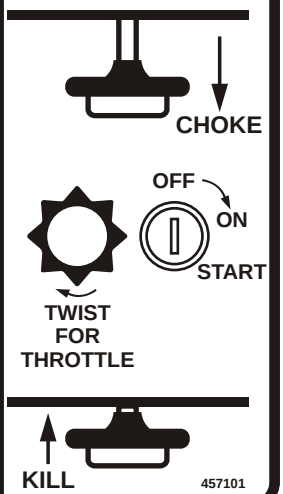
STARTING A COLD ENGINE:
Push button in on control cable head, while holding the control knob and pull cable out until it stops (this is the choke position).

STARING A WARM ENGINE:
DO NOT USE THE CHOKE. Move the control knob slightly past the idle position.

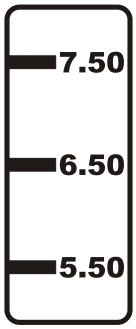
Turn key to the start position and hold it there until engine starts. When the engine starts, allow the engine switch to return to the (ON) position. When engine starts to run rough, turn the control knob clock-wise until engine runs smooth.

DO NOT use the starter for more than 5 seconds or starter damage may occur. If the engine fails to start, release the switch, wait 10 seconds and try starting again.

STOPPING THE ENGINE:
Push the control knob all the way in to the kill position. Do not shut the key off to stop the engine. After engine quits, turn key to the (OFF) position.



45-0015



Decals (Warnings and Cautions)

454217

AIR PRESSURE ADJUSTMENT

To adjust the axle air pressure, pull out the adjustment knob and turn for desired pressure reading. Push in knob to lock in pressure setting.

WITH LOAD

MAXIMUM AXLE AIR PRESSURE

70 psi

EMPTY

MAXIMUM AXLE AIR PRESSURE

20 psi MINIMUM 10 psi

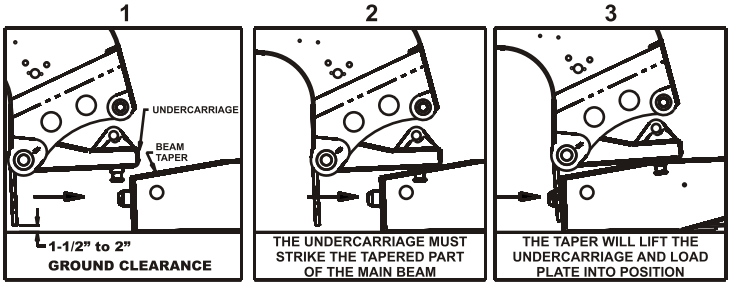
Use this valve to bleed air bags faster.

454213

CAUTION

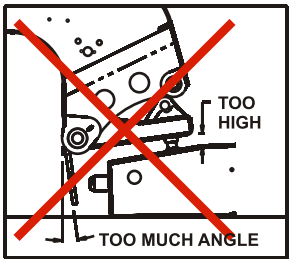
PROPER GOOSENECK HOOKUP

The gooseneck MUST BE properly positioned for re-attachment or damage to equipment may occur. Follow this procedure for proper gooseneck alignment.



WRONG

THIS IS THE INCORRECT WAY TO APPROACH THE MAIN DECK. DAMAGE COULD OCCUR IF THE GOOSENECK APPROACH IS TOO HIGH OR HAS TOO MUCH OF AN ANGLE.



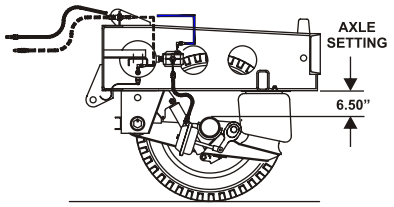
454213

454216

CAUTION

ADJUST SHIMS AS NECESSARY WITH LOAD.

MAINTAIN 6-1/2" AXLE SETTING.



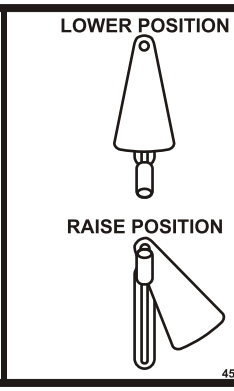
454207

REAR RAMP INSTRUCTIONS

LOWERING RAMPS:
The pony motor does not need to be started to lower the ramps. Hold down the Ramp Control Lever and rotate the lock plate over it. This keeps the hydraulic system open and allows the ramps to lower. Remove the ramp hold-up bars and let the ramps lower. Stand clear when lowering ramps.

The lever MUST BE in the down position while loading and unloading or damage to the hydraulic system may occur.

RAISING RAMPS:
Start the pony motor, rotate the lock plate and lift the lever up to raise the ramps. Attach ramp hold-up bars and shut off the pony motor.



454207

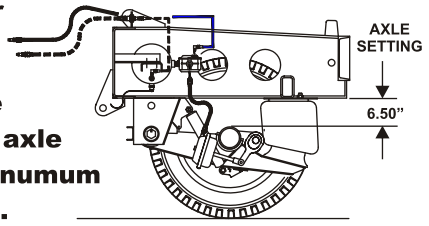
454218

WARNING

INSTRUCTIONS MUST BE FOLLOWED FOR SAFE USE!

In a loaded condition: Add or remove shims to maintain an approximate 6-1/2" axle setting AND a maximum of 70 psi stinger suspension air pressure.

In an unloaded condition: Add or remove shims to maintain an approximate 6-1/2" axle setting AND a maximum of 20 psi and minumum of 10 psi stinger suspension air pressure.



45XXXX

Decals (Warnings and Cautions)

45-3323

⚠ WARNING

OVERLOAD HAZARD

Risk of death due to loss of control

Never exceed gross vehicle weight rating (GVWR)

BEFORE LOADING TRAILER THE FIRST TIME, YOU MUST VERIFY ITS CARGO CAPACITY

1. You must weigh the empty trailer
2. subtract the weight of the empty trailer from the maximum loaded trailer weight (GVWR) (see VIN/Serial No. Tag)
3. DO NOT LOAD TRAILER BEYOND CAPACITY

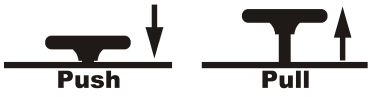
MAXIMUM CARGO WEIGHT + PLUS WEIGHT OF EMPTY TRAILER = (GVWR)

453323

45-3322

⚠ CAUTION

Flip axle air suspension dump valve



Pull valve to release air

Push to pressurize system

45-3322

45-4214

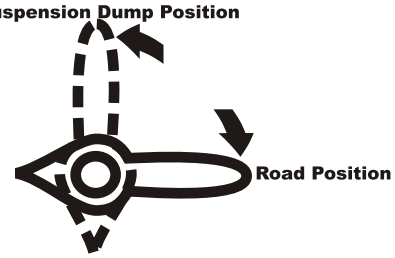
LOCK PIN

PULL TO EXTEND ALIGNMENT PIN

PUSH TO RETRACT ALIGNMENT PIN

45-0014

Suspension Dump Valve



450014

45-3324

ATTENTION

MUST USE OUTRIGGER BOARDS WHENEVER OUTRIGGERS ARE EXTENDED FOR USE.

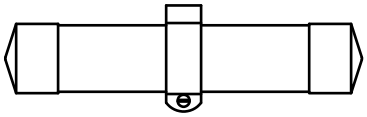
453324

Decals (Warnings and Cautions)

452925

ATTENTION

Registration Holder



Parts and Service Manual enclosed. To receive an additional 6 months warranty of MAIN FRAME only, return your warranty registration within 14 days. See your dealer for details.

452925

454208

HYDRAULIC OIL

453312

RETURN

453313

POWER

453311

LOCK HANDLE

454204

ATTENTION

SELECTOR OPTIONS

IN
Neck Controls

OUT
Rear Ramp Controls

454204

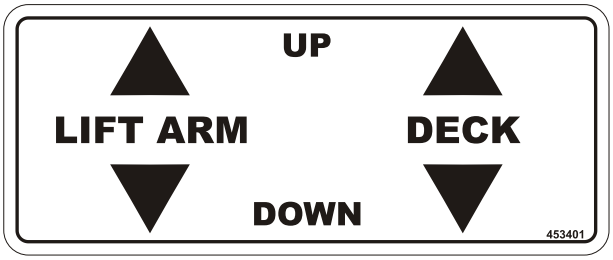
451240

ATTENTION

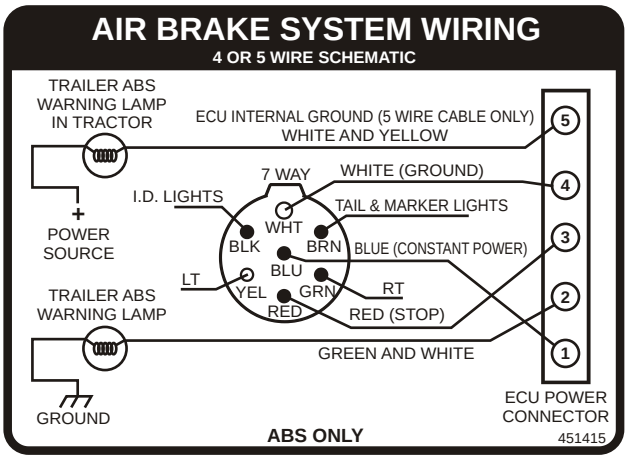
A "green brake" is an unground, unburnished brake. Normal manufacturing tolerances dictate that there is a break-in period required after which the lining will seat into a perfect concentric situation. During this break-in period, the user must be aware

451240

453401



451415



45-4210A

HYDRAULIC RAMP INSTRUCTIONS

LOWERING RAMPS

1.Remove the ramp hold-up bars.
2.To lower the ramps press lever down.

LOADING /UNLOADING TRAILER

The control valve MUST be in the float position
1. Press lever down into float position. (This will allow cylinders to move freely when loading to prevent damage to ramps and trailer).

RAISING RAMPS

1.Switch key ON
2. Lift lever to raise ramps.
3. Install ramp hold up bars.
4.Switch key OFF

454210A

450017

454150

TITANIUM

454151

T-70DTG

454152

T-100DTG

454154

T-110DTG

450705

800-462-4517

towmastertrailers.com

SECTION 5

Misc. Information

Payload Ratings

ALL PAYLOAD RATINGS ARE AT 55+ M.P.H. Trailers are NOT shipped with BRAKE CAB CONTROL equipment. Contact our parts department for information on specialized controllers.

All payload ratings are approximate, and will vary slightly with the actual finished trailer weight. Please see detail specifications for exact Gross Vehicle Weight Rating (GVWR). Trailer payload capacity is defined as the GVWR less the actual trailer weight. Please note that this payload capacity is a maximum to not be exceeded, and may only be achieved when the trailer is carefully loaded so that the gooseneck bears its full rated load.

Payload capacity will be reduced if the trailer is loaded such that the gooseneck bears less than its full rated loading. Care should be taken that moving the load back to reduce gooseneck weight does not overload the axles and tires. The certification tag on the trailer lists the Gross Axle Weight Rating (GAWR), which is the maximum total weight allowed on the axles/tires. Total axle/tire weight allowed is the GAWR times the number of axles. The tag also lists the GVWR.

When selecting a trailer, always allow a capacity safety margin to account for non-uniform loading, growth in load and accessories weight, and the multitude of other unforeseen circumstances that occur in equipment transportation.

GAWR = axles, rims and tires

GVWR = trailer payload capacity plus the trailer weight (tare wt#).

Recommended Outrigger Loadings

PROPER LOADING TECHNIQUE

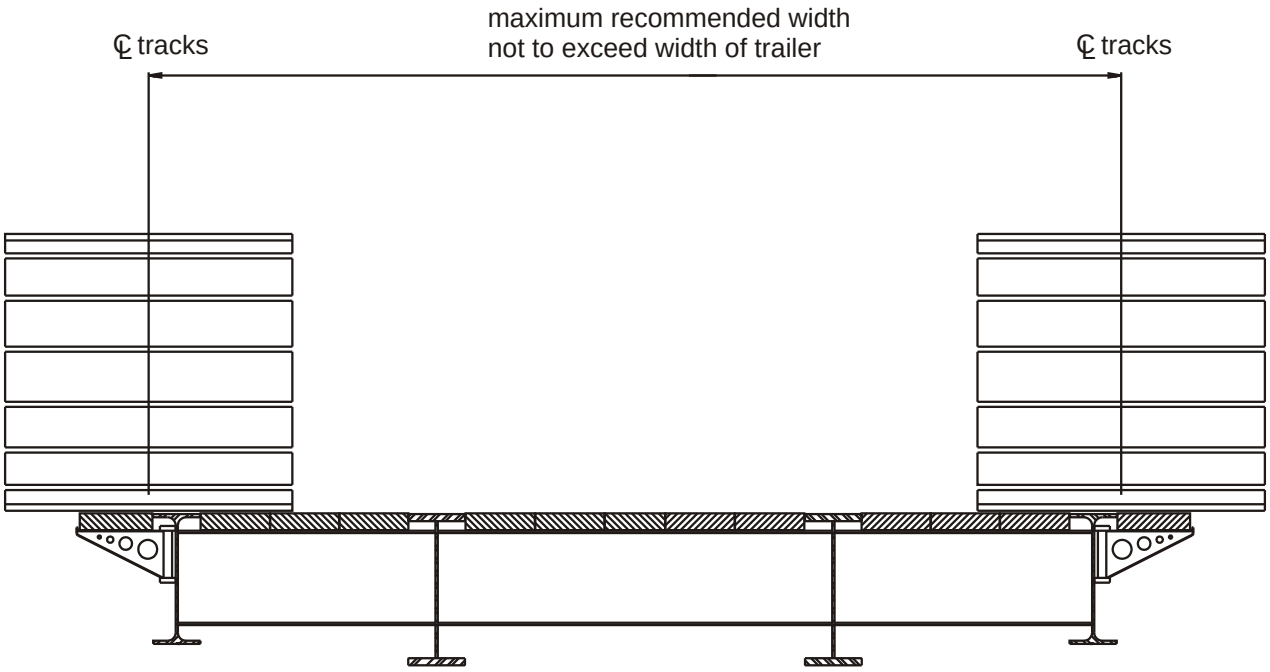
Because outriggers (sometimes called swinging side brackets or extension brackets) are often used to extend the useful width of the deck by approximately 12" on each side (or 24" total), the proper loading technique is very important.

RECOMMENDED PRACTICE

It is recommended that the centerline of the vehicle tracks, tires or grousers be "in-line" or "inboard" of the outside edge of the deck.

!! CAUTION !!

Outrigger brackets are designed for use only with 2" thick boards, so the use of thicker boards and/or loading practices that disregard these recommendations may result in outrigger failures (breakage) and subsequent equipment damage and personal injury.



HEIGHT CONTROL VALVE

OPERATION

As load is applied, the horizontal actuating lever arm moves from **NEUTRAL** position to **UP (intake)** position. As load is removed, the horizontal actuating lever arm moves from **NEUTRAL** position to **DOWN (exhaust)** position. The valve opens and air is allowed to exhaust from air springs bringing the horizontal actuating lever arm back to a neutral position. Optimum performance is achieved when valve is adjusted accurately to the suspension by increasing or decreasing horizontal lever arm length to a point where valve and lever arm approach 45° maximum, up or down from neutral position.

SET-UP

1. Insert vertical link rod through offset dampener link. Do not tighten clamp until final adjustment (discussed below) is made.
2. Insert horizontal lever arm through 5/16" cap screw side of insert to desired length. Tighten 5/16" cap screw to 10 ft. lbs.

   NOTE: The horizontal actuating lever arm can be adjusted in length. The recommended length is 7", however a maximum length of 11-1/2" is acceptable.

   A right or left-hand valve can be achieved by simply rotating the horizontal lever arm 180°.

ADJUSTMENT

1. With vehicle on level ground, build and maintain supply air pressure in excess of 65 P.S.I.
2. Rotate horizontal lever arm **DOWN** to exhaust air springs or rotate **UP** to inflate springs until proper ride height is achieved. Place lever arm at neutral position and insert wood centering pins into valve.
3. Slide vertical link through hole in the offset dampener link ("P" shaped rubber connector). Install vertical link grommet to pin on mounting bracket at axle. Place mounting bracket on axle and attach. Tighten clamp on offset dampener link and remove wood centering pins.
4. **TEST:** Disconnect vertical link grommet from mounting bracket at axle pin. Rotate horizontal lever arm **DOWN** to exhaust air springs about halfway.

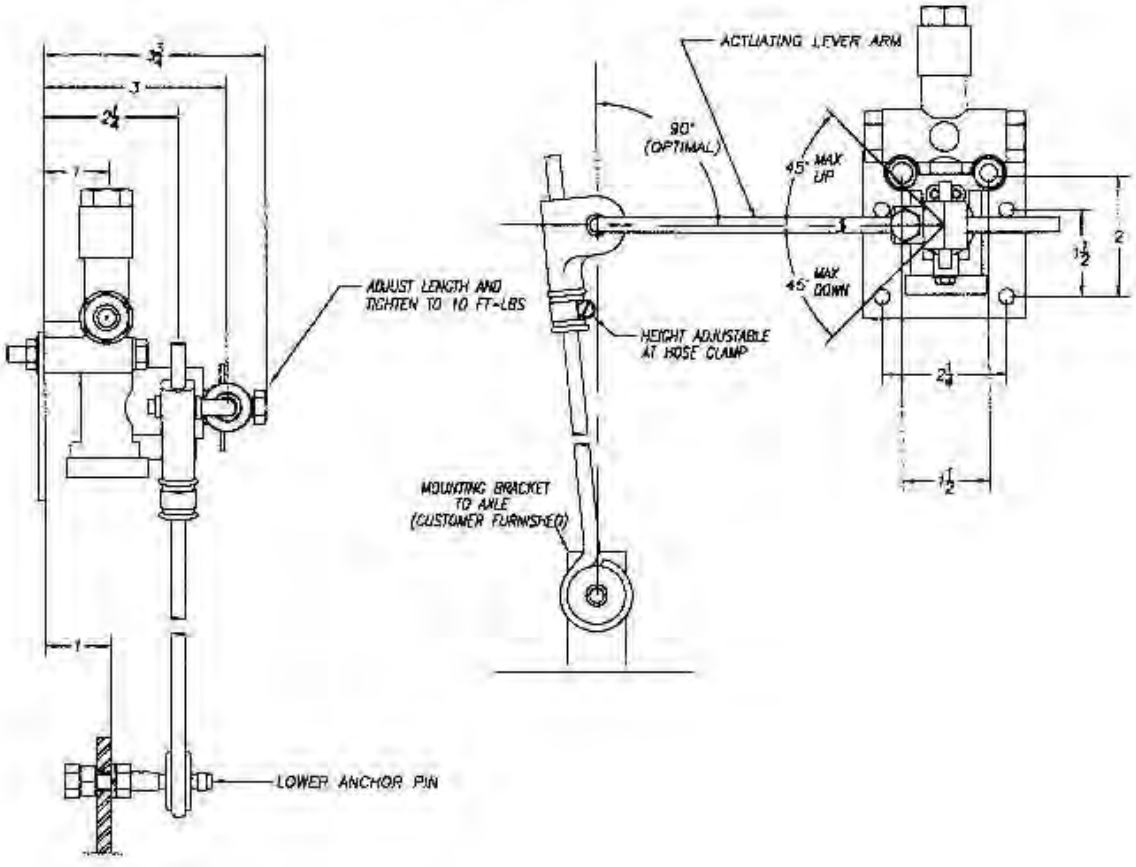
   Rotate horizontal lever arm **UP** until grommet is at axle mounting bracket pin level. Air springs should re-inflate to ride height level.
5. Re-connect grommet to pin. Check to see if air springs are of equal firmness.
6. Trim off excess vertical linkage "stick-out" past the offset dampener link if needed for proper operation. **CAUTION: Vertical link must extend completely through offset dampener at all times.** Also trim excess rod on horizontal lever arm.

VALVE REPLACEMENT

The following steps should be performed **BEFORE** valve is replaced. This will indicate if problem lies elsewhere.

1. Build and maintain supply air pressure in excess of 65 P.S.I.
2. Disconnect lower anchor.
3. Move actuating lever arm up – air should flow into related air springs.
4. Move actuating lever arm to neutral position – air flow should stop.
5. Move actuating lever arm down to exhaust air.
6. Move actuating lever arm to neutral position – air flow should stop.
7. Valve is functional if performance is as noted.

HEIGHT CONTROL VALVE ASSEMBLY



9903C1

NOTICE!

- Suspension fasteners **ARE NOT** at design torque...
- Suspension installer must tighten all fasteners to design torque at time of installation!
- Refer to the suspension drawing and/or the torque chart on this tag for further details.

RIDEWELL SUSPENSION TORQUE CHART

BOLT SIZE	LUBRICATED THREADS		
1 1/2"		1,100 FT. LB.	(1,490 N•m)
1 1/4"		1,000 FT. LB.	(1,350 N•m)
1 1/8"		500 FT. LB.	(680 N•m)
1"	GRADE 5	360 FT. LB.	(490 N•m)
1"	GRADE 8	460 FT. LB.	(625 N•m)
7/8"		350 FT. LB.	(475 N•m)
3/4"	GRADE 5	160 FT. LB.	(220 N•m)
3/4"	GRADE 8	140 FT. LB.	(260 N•m)
5/8"		100 FT. LB.	(135 N•m)
*3/4"		50 FT. LB.	(70 N•m)
*1/2"		25 FT. LB.	(35 N•m)

*AIR SPRING CONNECTION ONLY

After suspension has been in operation for approximately 6,000 miles (10,000 KLMS), all fasteners must be re-tightened to specified torque. Repeat every 50,000 miles (80,000 KLMS). DO NOT OVER TORQUE!

Design torque on all suspension fasteners must be SET AND MAINTAINED BY INSTALLER

910001

RIDEWELL SUSPENSIONS

MONOPIVOT 240 BOLT TORQUE MINIMUM SPECIFICATIONS

ECCENTRIC PIVOT BOLT	1,000 FT. LBS.	(1,350 N•m)
SHOCK BOLT	160 FT. LBS.	(220 N•m)
AIR SPRING CONNECTION-3/4"	50 FT. LBS.	(70 N•m)
AIR SPRING CONNECTION-1/2"	25 FT. LBS.	(35 N•m)
SLOSHING CLAMP BOLT	190 FT. LBS.	(260 N•m)

After suspension has been in operation for approximately 6,000 miles (10,000 KLMS), all fasteners must be re-tightened to specific torque. Repeat every 50,000 miles (80,000 KLMS). DO NOT OVER TORQUE!

See Service Manual for Details

PREVENTIVE MAINTENANCE

DAILY

Visually inspect trailer to be sure it is level and that suspension ride height is correct.
Check for loose or broken parts on or around suspension to prevent any serious problems from occurring.

EVERY 30 DAYS

Check clearances around all moving suspension parts, air springs, tires and shock absorbers. Any signs of interference should be immediately corrected.

Visually inspect axle connection weld and bolt connections to make sure they are secure. Review and correct any signs of wear.

EVERY 90 DAYS & WITH ANNUAL INSPECTION

Check items mentioned above in **DAILY & 30 DAY** inspections.

Also inspect weld integrity at the following connections: suspension to-axle, anti-turn washer, locking plate and hanger-to-frame.

All pivot and clamping connections such as the suspension pivot and the shock mounting must be inspected.

NOTICE!! RIDEWELL CORP. BEARS NO RESPONSIBILITY FOR SUSPENSIONS DAMAGED BY ABUSE OR NEGLECT. IN ADDITION, ANY SUSPENSIONS DRIVEN TO COMPLETE DESTRUCTION WILL NOT BE COVERED BY WARRANTY.

TORQUE SPECIFICATIONS

FASTENER SPECIFICATIONS

PART NAME	SIZE & THREAD	TORQUE
Spindle Outer Nut	2 5/8 - 16 UN	250-400 ft.-lbs.
Cam Brackets	5/16 - 18 Self-tapping	175-225 in.-lbs.
Air Chamber Mounting Bolts	5/8 - 11 UNC	100-115 ft.-lbs.
Dust Shield Mounting	Self-tapping	180-200 in.-lbs.
Brake Lining To Table	Brass Screw 3/8 - 24 UNF	100-150 in.-lbs.
Hub Cap to Hub	1/14 - 20 UNC 5/16 - 18 UNC	96-144 in.-lbs. 144-216 in.-lbs.
Wheel Stud Locknut	3/4 - 16 UNF 7/8 - 14 UNF 1 - 14 UNF	175-200 ft.-lbs. 180-230 ft.-lbs. 200-300 ft.-lbs.
Haldex ABA Control Arm Nut	7/16 - 14 UN	40-50 ft.-lbs.

SUGGESTED PREVENTATIVE MAINTENANCE

Every 1,000 Miles:

☐ Check oil level in wheel hub and inspect wheel for leaks.

15,000 Miles or minimum of twice a year:

☐ Check brake adjustment.

☐ Repack wheel bearings (grease application).

25,000 to 30,000 Miles

☐ Check lining wear and estimate replacement time. Replace with new shoes or reline when thickness of lining is 1/4" at thinnest point, or 1/16" above rivet or bolt head. Replace any cracked, broken or oil-soaked linings immediately.

☐ Inspect camshaft, camshaft spider bushing, and camshaft support bracket bushing for any signs of wear.

☐ Lubricate camshaft bushings.

☐ Inspect brake drums for heat checks, grooves, hot spots, glazing, cracks, and out of round.

100,000 Miles, once a year, or at brake reline:

☐ Replace wheel bearing lubricating oil (if applicable).

☐ Check brake air chambers and slack adjusters.

☐ Inspect brake rollers, roller shafts, anchor pins and bushings and replace if necessary.

☐ Lubricate brake adjusters.

☐ Check shoes for bent shoe ribs, cracks in shoe table welds or ribs, and elongated rivet holes. Replace shoes if any of these conditions exist.

WHEEL BEARINGS

OIL LUBRICATED WHEEL ENDS*:

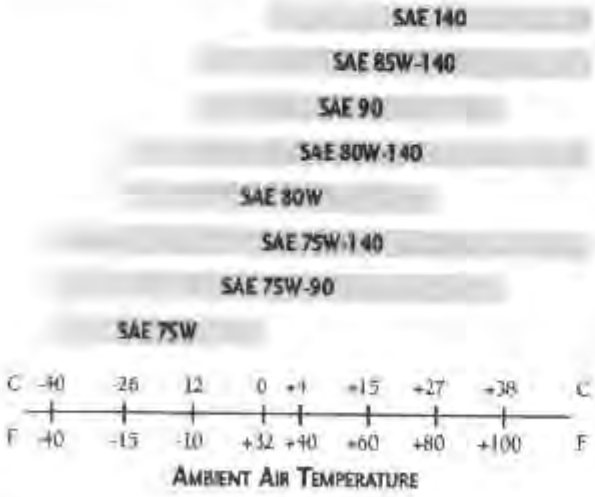
**Note: For unitized wheel ends, please refer to the Spicer RM™ Service Manual*

Oil should be changed at least every 100,000 miles or once a year, and whenever the seals or brakes are replaced. Oil level should be inspected every 1,000 miles. Always allow a few minutes, after adding oil or after vehicle operation, for the oil to settle when establishing the required oil level.

Suggested Oil Properties

Petroleum based or synthetic oils that meet or exceed military specification MIL-L-2105D and API (American Petroleum Institute) service classification GL-1 through GL-5 are the minimum requirements for use in Spicer Trailer Axles.

The table below indicates which SAE viscosities are recommended for various temperature ranges the vehicle will encounter.



WARNING Do not mix motor oil with EP Gear oil, due to possible compatibility problems.

GREASE LUBRICATED WHEEL ENDS:

Grease should be replaced if contaminated or if the hub is removed from the spindle. For normal service, grease should be replaced annually or at 100,000 mile intervals. For severe or off-highway service, grease should be replaced semi annually or at 30,000 mile intervals. Bearings should be packed by machine or by hand methods to ensure grease is forced into the cavities between the rollers, cone and cage of the bearings. The wheel and hub cap should be filled with grease when reassembling.

Suggested Grease Properties

The table below indicates the NLGI[1] Grade of grease recommended under normal loading and operating speeds of 100-1000 rpm. For heavy loads and low speeds, the advice of a lubrication engineer should be obtained.

GREASE GUIDE

SOAP BASED GREASE TYPE	NLGI GREASE GRADE	NOTE
Calcium Complex	#1	Use in extreme cold
Lithium Complex	#2	Normally Preferred

SEMI FLUID SYNTHETIC GREASE TYPE	NLGI GREASE GRADE	NOTE
Mobilith 007 or equivalent	#00	Normally Preferred

[1] *National Lubricating Grease Institute*

WARNING Do not mix lithium, calcium, sodium or barium complex greases due to possible compatibility problems. When changing from one type of grease to another, it is necessary to ensurethat all the old grease has been removed.

WARNING Failure to correctly lubricate bearings - and to maintain proper lubrication - could cause bearing and axle spindle damage, which could result in the wheel locking up or coming off during vehicle operation.

WHEEL BEARING ADJUSTMENT PROCEDURE

Double Nut Arrangement

1. Prior to installing any wheel-end fasteners, make sure the spindle area is free of dirt and debris. As well, make sure all nuts and washers are free of dirt. Clean mating surfaces are important for proper wheel end assembly.

2. After properly installing the bearing cones and wheel end seal onto the spindle, and sliding the wheel end onto the spindle, tighten the inner spindle nut with a torque wrench to 150-200 ft. lbs. to set the bearings and wheel end. **Caution: Do not use an air impact wrench to tighten this nut!**

3. Loosen this inner nut to allow the brake drum to rotate freely. Backing off one (1) full turn is recommended.

4. Retighten the inner spindle nut to 50 ft. lbs. by hand using a torque wrench to position the bearings for final adjustment. **Caution: Do not use an air impact wrench to tighten this nut!**

5. Back the inner spindle nut off 1/4 turn.

6. Install the retaining fastener or fasteners onto the spindle according to the fastener used. If washers are used, be sure they are facing in the right direction and are clean. Make sure any washers with dowels fit properly into the mating holes.

7. Install the outer spindle nut. Using a torque wrench, tighten this nut to 300-400 ft.-lbs. Resulting end play should be .001" to .005".

Note: If end play is not .001" to .005", disassemble and repeat this procedure.

⚠ WARNING FAILURE TO TORQUE THE OUTER LOCK NUT PROPERLY COULD CAUSE THE WHEEL TO COME OFF DURING VEHICLE OPERATION, WHICH COULD RESULT INPROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

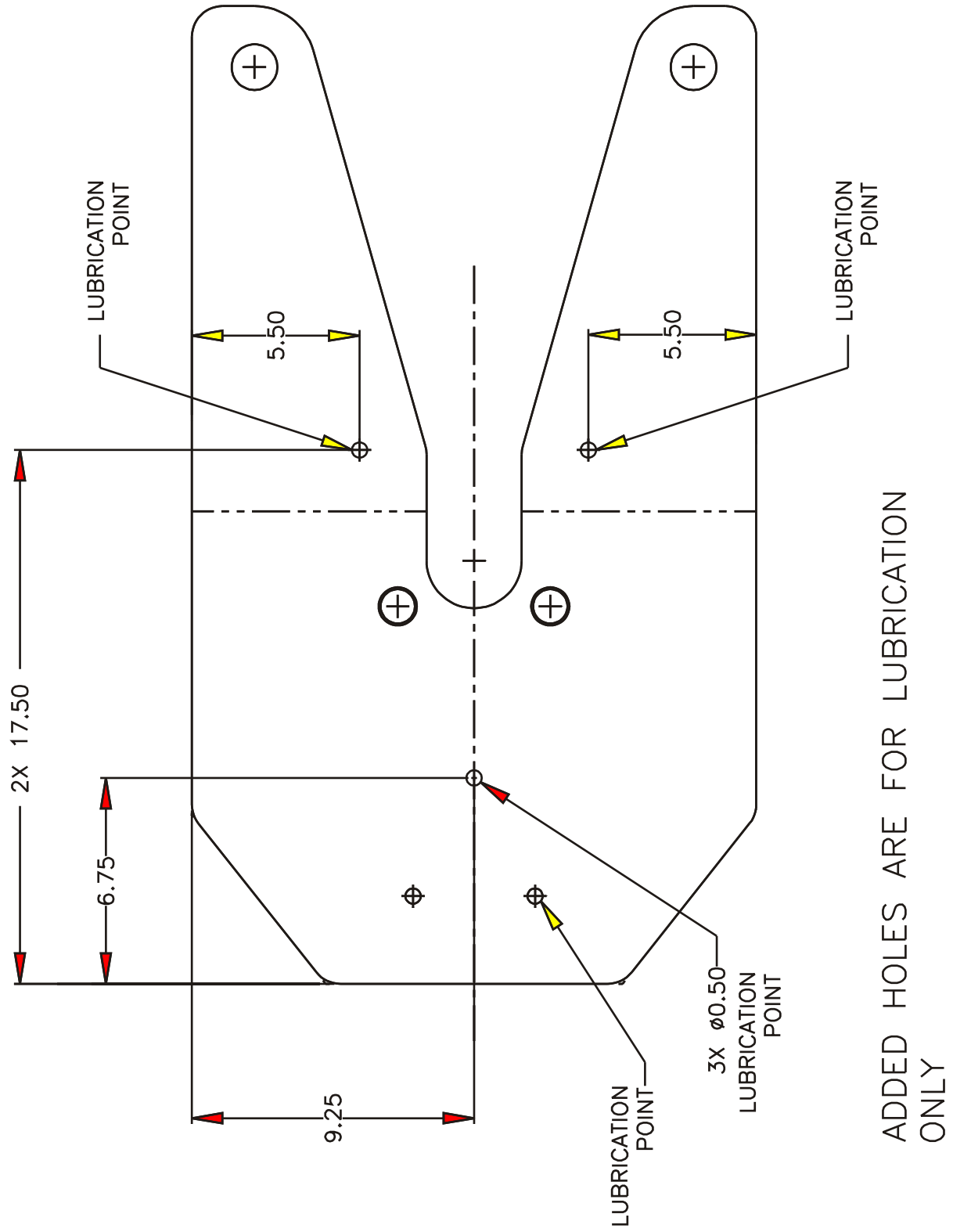
⚠ WARNING IF AN EXTERNAL TANG OR SETSCREW TYPE LOCK WASHER IS USED, IT IS IMPORTANT TO REMEMBER TO BEND THE TABS OVER THE OUTER LOCK NUT, OR TO INSTALL THE SET SCREWS IN THE LOCK WASHER, AFTER THE OUTER NUT HAS BEEN TORQUED. FAILURE TO FOLLOW THIS PROCEDURE COULD RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

Periodic inspection and regular replacement of lubricant is important to obtaining maximum bearing life. Always inspect bearing for damage prior to installation. When installing wheel bearings it is important to ensure both the inside of the wheel hub and bearings are clean. Spicer recommends that seals be replaced when wheels are removed. Extreme care should be taken when reinstalling wheels to prevent damage to the seals.

SPECIFICATIONS

AXLE MODEL	LOCATION	SPICER BEARING CUP NUMBER	SPICER BEARING CONE NUMBER	INDUSTRY STD. CUP NUMBER	INDUSTRY STD. CUP NUMBER	WIDTH	OUTSIDE DIAMETER	INSIDE BORE
D22	Inner	M10HA102	M10HB100	HM218210	HM218248	1.575"	5.787"	3.542"
D22	Outer	M10HA103	M10HB101	HM212011	HM212049	1.500"	4.813"	2.625"
P22	Inner/Outer	M10HA116	M10HB119	HM518410	HM518445	1.383"	6.000"	3.501"

5th Wheel Lock Assembly- Lubrication Hole Template



BRAKE DISASSEMBLY:

1. Release brakes and back off slack adjuster.

2. Remove slack adjuster lock ring and slack adjuster.

3. Remove brake drum.

4. Remove anchor pins and brake shoes.

CAUTION EXCESSIVE POUNDING ON ANCHOR PINS OR CAM ROLLER PINS TO REMOVE OR INSTALL THEM CAN DAMAGE THE PINS AND CAUSE MISALIGNMENT OF THE BRAKE SPIDERS AND BRAKE SHOES. THE USE OF A SOFT HAMMER OR BRASS DRIFT IS RECOMMENDED TO REMOVE OR INSTALL THE ANCHOR PINS IF NECESSARY.

5. Remove brake return springs.

6. Remove camshaft lock ring, spacer washer, and cam shaft.

7. Remove cam roller and shaft (in the case of the cast shoe, remove roller shaft set screw and roller assembly) and anchor pin bushing from shoes.

8. Remove anchor pin bushings, camshaft bushing and seals from spider.

BRAKE ASSEMBLY

1. Install new anchor pin bushings, camshaft bushing and camshaft seals into the spider.

WARNING WHEN INSTALLING CAMSHAFT SEALS, THE SEAL ON THE SLACK ADJUSTER SIDE SHOULD BE INSTALLED WITH SEAL FACING INTO SPIDER. THIS ALLOWS GREASE TO PURGE OUTSIDE THE BRAKE ASSEMBLY WHEN GREASING THE CAMSHAFT BUSHING. FAILURE TO FOLLOW THIS PROCEDURE COULD CAUSE GREASE TO COME INTO CONTACT WITH BRAKE LININGS, CAUSING BRAKE FAILURE.

2. Install cam roller assemblies onto the brake shoes.

3. Install the camshaft into the spider. Install spacer washer and lock ring on cam before sliding the cam through the camshaft support bracket. Install the slack adjuster and the lock ring.

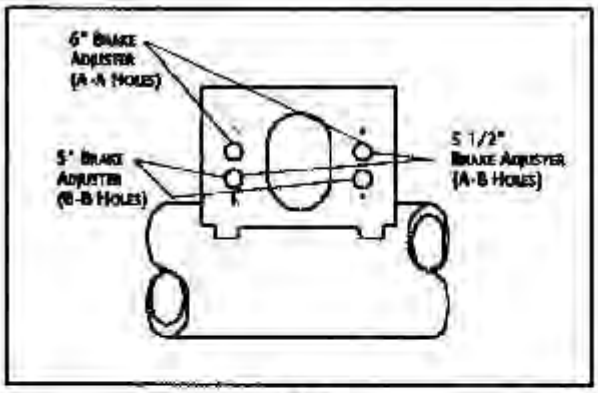


FIG. 4

WARNING WHEN REASSEMBLING BRAKES, SPICER TRAILER PRODUCTS RECOMMENDS THAT THE BRAKE RETURN SPRINGS BE REPLACED WITH NEW SPRINGS TO ASSURE PROPER OPERATION OF THE BRAKE.

4. Install the brake return springs on the brake shoes.

5. Position brake shoes on the spider and insert the anchor pins.

6. If air brake chambers are replaced, the correct mounting holes must be used to correspond to brake adjuster length (See Fig.4).

7. Connect slack adjuster to brake chamber push rod.

8. Adjust brakes as outlined in brake adjustment procedures.

NOTE TO ENSURE BRAKES MEET F.M.V.S.S. 121 PERFORMANCE REQUIREMENTS, SPICER TRAILER PRODUCTS RECOMMENDS THAT ONLY ORIGINAL EQUIPMENT BRAKE COMPONENTS BE USED.

Any questions or comments on the above procedure should be directed to the Spicer Trailer Engineering Department.

Recommended Brake Adjustment Procedure

CAUTION FAILURE TO PROPERLY ADJUST BRAKES COULD CAUSE REDUCED BRAKING PERFORMANCE.

A. Grease cam bracket and spider fittings prior to brake shoe installation.

WARNING CARE MUST BE EXERCISED TO PREVENT GREASE FROM COMING IN CONTACT WITH BRAKE LININGS WHICH COULD CAUSE A REDUCTION IN BRAKING PERFORMANCE. REDUCED BRAKING PERFORMANCE COULD CAUSE AN ACCIDENT RESULTING IN SERIOUS INJURY OR DEATH.

B. Adjust the slack adjuster until the brake lining comes into contact with the brake drum.

1. For green brakes* there should be a slight amount of wheel drag at initial adjustment to compensate for any lining irregularities (high spots, etc.).

"A "green brake" is an unground, unburnished brake. There is a break-in period where the lining will seat into a normal contact pattern with the drum.

2. For burnished or broken-in brakes, back off the slack adjuster to achieve .010" clearance between drum and shoe.

C. Apply brakes using normal truck operating pressure. (Average line pressure should be 90 psi.)

WARNING USE OF AIR PRESSURE IN EXCESS OF 130 PSI COULD RESULT IN FAILURE OF THE AIR CHAMBER OR SPRING BRAKE CHAMBER, WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

1. Check the amount of push rod travel. Maximum should not exceed 2.5" for Type 30 Long Stroke chambers, 2" for Type 30 chambers and 1 3/4" for Type 24 chambers.

   a. Optimum pushrod travel on a green brake* should be under 2".

   b. Optimum pushrod travel on a burnished or broken-in brake should be under 1 3/4".

2. Check the angle between the slack adjuster and push rod. With the brakes applied, the angle should be 90 degrees +/- 5 degrees.

CAUTION WHEN AUTOMATIC BRAKE ADJUSTERS ARE USED, IT IS NECESSARY TO FOLLOW THE INSTALLATION AND ADJUSTMENT PROCEDURERECOMMENDED BY THE AUTOMATIC BRAKE ADJUSTER MANUFACTURER. FAILURE TO FOLLOW THE RECOMMENDED PROCEDURE COULD RESULT IN IMPROPER OPERATION OF THE AUTOMATIC SLACK ADJUSTER, RESULTING IN REDUCED BRAKE PERFORMANCE OR PREMATURE LINING WEAR.

3. For burnished brakes, apply pressure to brakes and check for lining to drum contact. Using a .010" feeler gauge, the lining to drum contact should range from 60 to 100% during brake application.

4. Check to ensure the lining is inside the drum during application. More than .060" protruding out of the drum is not recommended.

D. Rapidly release air pressure from the brakes and confirm that all brakes quickly release to the normal relaxed position.

WARNING

- BRAKE LININGS CONTAIN NON-ASBESTOS FIBERS
- BREATHING BRAKE DUST MAY BE HAZARDOUS TO YOUR HEALTH AND MAY CAUSE SERIOUS RESPIRATORY OR OTHER BODILY HARM.
- AVOID CREATING DUST.
- DON'T REMOVE BRAKE DRUM WITHOUT PROPER PROTECTIVE EQUIPMENT.
- DO NOT WORK ON LININGS WITHOUT PROPER PROTECTIVE EQUIPMENT.
- DO NOT REPLACE LININGS WITHOUT PROPER PROTECTIVE EQUIPMENT.
- DON'T ATTEMPT TO SAND, GRIND, CHISEL, FILE, HAMMER OR ALTER BRAKE LININGS IN ANY MANNER WITHOUT PROPER PROTECTIVE EQUIPMENT.
- FOLLOW O.S.H.A. STANDARDS FOR PROPER PROTECTIVE DEVICES TO BE USED WHEN WORKING WITH BRAKE MATERIALS.

WARNING IT IS CRITICAL THAT ANY BRAKE DRUM REACHING MAXIMUM WEAR DIAMETER, AS CAST ON DRUM, BY TURNING, GRINDING, AND/OR WEARING BE CONSIDERED UNSAFE AND IMMEDIATELY REPLACED. IN ORDER TO AVOID SERIOUS INJURY OR DEATH, ANY BRAKE DRUM EXCEEDING THIS DIMENSION IS CONSIDERED A SAFETY HAZARD. IF IN DOUBT, CONTACT THE BRAKE DRUM MANUFACTURER.

A "green brake" is an unground, unburnished brake. Normal manufacturing tolerances dictate that there is a break-in period required after which the lining will seat into a perfect concentric situation. During this break-in period, the user must be aware that additional brake adjustments will be mandatory to achieve optimum braking performance.

Portions of this manual were used with the expressed authority of Dexter Axle, but Dexter Axle is not responsible for the accuracy of the information contained herein.

Towmaster means; quality, value, dependability.

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47-9401 : 6/2007