

**Model: 01A1314-0100**  
**Joint Strike Fighter**  
**Custom Towbar**

11/2016 – Rev. 01

**For Spare Parts, Operations & Service Manuals or Service Needs**  
**Scan the QR code or visit [Tronair.com/aftermarket](http://Tronair.com/aftermarket)**



REVISION	DATE	TEXT AFFECTED
OR	08/2007	Original Release
01	11/2016	Revised Parts List

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Tronair towbars/heads must only be used with matching Tronair heads/towbars, and Tronair shear pins.

This product can not be modified without the written approval of Tronair, Inc. Any modifications done without written approval voids all warranties and releases Tronair, Inc., its suppliers, distributors, employees, or financial institutions from any liability from consequences that may occur. Only Tronair OEM replacement parts shall be used.

## 1.0 PRODUCT INFORMATION

### 1.1 DESCRIPTION

The Tronair Model 01A1314-0000 custom designed to tow Joint Strike Fighter aircraft.

The Custom Towbar includes hydraulic operated landing gear to raise and lower the towing head. Additionally, there is a handle and an eyebolt at the end of the towbar for towing. The eyebolt incorporates a compression spring to dampen shock loads during towing.

### 1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

### 1.3 MANUFACTURER

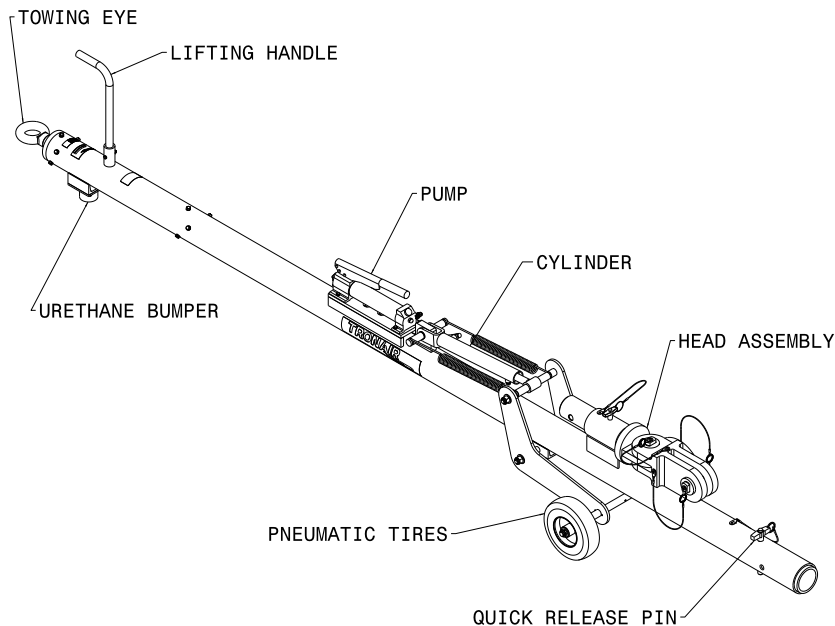
**TRONAIR**, Inc.  
1 Air Cargo Pkwy East  
Swanton, Ohio 43558 USA

Telephone: (419) 866-6301 or 800-426-6301  
Fax: (419) 867-0634  
E-mail: sales@tronair.com  
Website: www.tronair.com

### 1.4 SPECIFICATIONS

Maximum Aircraft Gross Weight.....125,000 lbs (56.69 metric tons)  
Length .....196 13/16 in (499.9 cm) Overall  
Width .....23 11/16 in (60.2 cm)  
Height .....26 3/4 in (67.9 cm)  
Weight .....245 lbs (111.1 kg)  
Finish .....Powder Coat

### 1.5 FEATURES



### 1.6 OPTIONAL FEATURE KITS

- **K-3272 – Shock Assembly Kit:** Replaces the standard 2 3/16" diameter eyebolt (Z-4753, reference section 5.2 Parts List) with a 2 7/8" diameter eyebolt for use with the larger tug pintle pins.
- **K-3785 – Impact Caster Kit:** Replaces the standard urethane bumper (Z-5611, reference section 5.2 Parts List) with two heavy duty shock absorbing casters for easier towbar maneuvering.

## 2.0 SAFETY INFORMATION

### 2.1 GENERAL

The Tronair Model 01A1314-0000 Multi-Head Towbar is used for towing aircraft only.

To insure safe operations please read the following statements and understand their meaning. Also refer to your equipment manufacturer's manual for other important safety information. This manual contains safety precautions which are explained below. Please read carefully.



**WARNING!** Warning is used to indicate the presence of a hazard that can cause **severe personal injury, death, and/or substantial property damage** if the Warning Notice is ignored.

**CAUTION!** Caution is used to indicate the presence of a hazard which will or can cause **minor personal injury or property damage** if the Caution Notice is ignored.



**WARNING!**

**A damaged or bent towbar should not be used. Towbar should be repaired or replaced.**



**WARNING!**

**Towbars should be used with category 1 tugs ONLY in accordance with AHM 995 "Functional specifications for an aircraft tractor" Using a category 2 or higher tug may result in excessive loads and stresses being applied to the towbar and/or the aircraft. These excessive loads may cause failure of the towbar which could cause damage to the aircraft or personal injury.**

## 3.0 TRAINING

### 3.1 TRAINING REQUIREMENTS

The employer of the operator is responsible for providing a training program sufficient for the safe operation of the towbar.

### 3.2 TRAINING PROGRAM

The employer provided operator training program should cover safety procedures concerning use of the towbar in and around the aircraft at the servicing location.

### 3.3 OPERATOR TRAINING

The operator training should provide the required training for safe operation of the towbar.

**NOTE: Maintenance and Trouble Shooting are to be performed by the skilled and trained technician.**

## 4.0 OPERATION

### 4.1 TOWBAR CHECKLIST

**Tronair recommends towbar inspections at least once a week.**

- ☐ Check towing eye for bending, excessive wear and deformity. If any are located, remove towbar from service and contact Tronair for repair.
- ☐ Check towing eye mounting bolts. Ensure the fasteners are tight and not missing. Tighten to 25 ft-lbs or replace as required.
- ☐ Ensure the towing eye does not move or turn by hand; if the towing eye can turn this may indicate that the centering pin within the shock assembly may be broken and repairs are needed. Contact Tronair for repairs.
- ☐ Check the shock assembly for preload on the spring by pulling on the towing eye. If the shock can be moved by hand this may indicate the spring is worn out, contact Tronair for repairs.
- ☐ Check the rubber skid at the towing eye end. Ensure that all fasteners are tight and not missing. Tighten or replace as required. If the bumper is split or excessively worn, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect the lifting handle for damage. Contact Tronair or your Tronair distributor for repair or replacement if required.
- ☐ Inspect the towbar tube for cracks, gouges greater than 1/16", and bends or deformities. If any are located, remove towbar from service and contact Tronair for repair.
- ☐ Inspect the pump for hydraulic leaks. Replace seals if any leaks exist. Contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect hydraulic fittings and hose for leaks. If any hydraulic leaks exist, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect cylinder for hydraulic leaks. If any hydraulic leaks exist, contact Tronair or your Tronair distributor for replacement seals.
- ☐ Check extension springs. Extend cylinder to full stroke and open relief valve on pump. The extension springs should retract the cylinder completely. If not, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect cylinder mounting pins for bending or damage. Ensure the springs are engaged on them. If pins are bent or damaged, contact Tronair or your Tronair distributor for replacement.
- ☐ Check the towbar undercarriage for unusual wear or damage. Inflate the pneumatic tires to the proper pressure; repair any air leaks or replace if needed. Ensure the wheels can rotate freely, and wheel rims and tire axle are not bent. Ensure mounting fasteners are tight and not missing. Tighten or replace as required. Grease tire axle every 90 days.
- ☐ Inspect towbar undercarriage side plates for bending or damage. If any exist, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect towing head attachment ball-lok pin for bending or unusual wear. Verify the factory supplied pin is used. Contact Tronair for replacement if required. Use only Tronair specified ball-lok pins.
- ☐ Ensure the towing head attachment ball-lok pin is connected to the towbar via its lanyard. Replace lanyard if missing.
- ☐ Inspect all steel components for signs of rust. Touch up with paint as required.

### 4.2 USAGE PROCEDURE

#### 4.2.1 Aircraft Attachment



#### **CAUTION!**

**It is recommended that your towbar be attached to the aircraft first, and then connected to the tug to avoid possible aircraft damage.**

- Ensure the multi-head is locked in place using its locking mechanism.

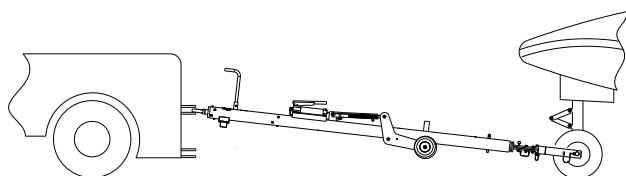
#### 4.2.2 Tug Attachment



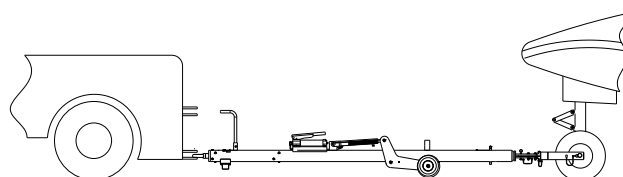
#### **CAUTION!**

**Damage to the towbar or aircraft can result from an excessive towbar angle during towing operations. Reference Figure 1.**

- Use a pintle height so that the towbar is as level as possible during towing. Also, the pintle hook height should prevent contact of the towbar with the ground during towing.



**Incorrect  
(Excessive Towbar Angle)**



**Correct**

**FIGURE 1**

## 4.2.3

### Couplers



#### CAUTION!

Damage to the towbar or aircraft can result while towing with the following types of couplers:

- Lift Head
- Vertical Side Swing Latch
- Standard Duty Latch
- Swivel Hook

The couplers listed above are known to cause binding and failure in the lunette eye. Indicators of binding are wear on outside diameter of the eyebolt and indentation on the inside diameter of the eyebolt. **Reference Figure 2.**

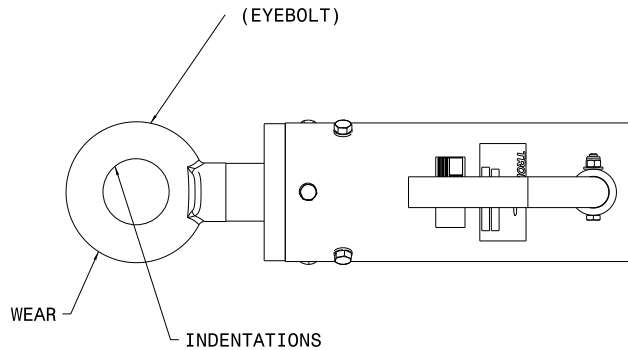


FIGURE 2

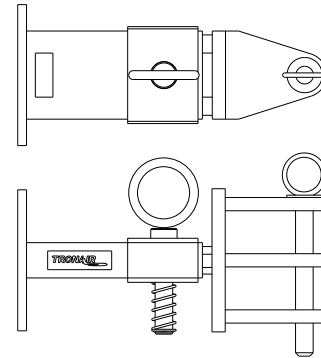


FIGURE 3

01-1950-5000 Standard Telecoupler

Tronair recommends a telecoupler pintle hook arrangement. This arrangement is known to eliminate binding. Tronair offers a Standard Telecoupler, Model Number 01-1950-5000, for use on tugs. **Reference Figure 3.**

Damage to the towbar and/or aircraft can result by towing or pushing an aircraft with an incorrect size eyebolt or pintle pin. A correct size eyebolt will make contact with the pintle pin. A gap between the eyebolt outside diameter and the coupler face plate should be easily seen. An eyebolt which is too large will cause the eyebolt to make contact with the face plate of the coupler. When the eyebolt is too large for the coupler, a gap between the inside diameter of the eyebolt and the coupler face plate will be seen. **Reference Figure 4.**

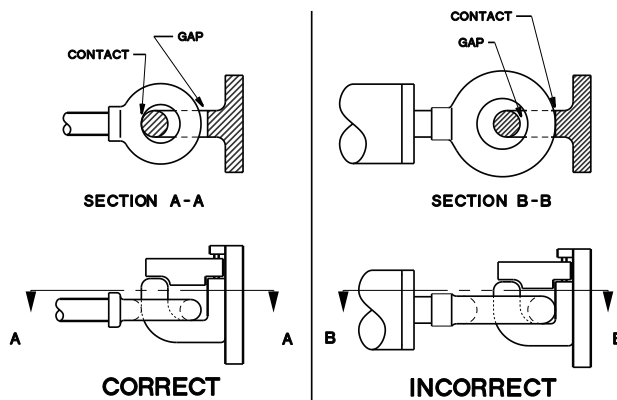


FIGURE 4

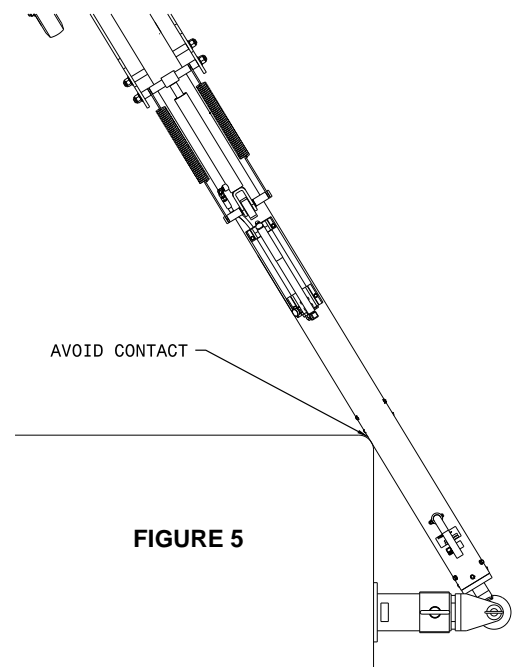


FIGURE 5

To ensure proper towing and pushing, check to make sure the pintle pin diameter is not too long for the eyebolt's inside diameter. An approximate one-half inch ( $\frac{1}{2}$ " ) gap between the pin diameter and the eyebolt should be seen. If any of these conditions are not met, please contact Tronair for information to obtain a new coupler.

## 4.2.4

### Towing Operation

Damage to the towbar or aircraft can result from pushing an aircraft while maintaining too sharp of an angle between the tug and the aircraft. Contact between the towbar weldment and the tug must be avoided. It is recommended that the angle between the tug and towbar not exceed  $90^\circ$ . **Reference Figure 5.**

**5.0 PROVISION OF SPARES****5.1 SOURCE OF SPARE PARTS**

Spare parts may be obtained from the manufacturer:

**TRONAIR, Inc.**

1 Air Cargo Pkwy East

Swanton, Ohio 43558 USA

Telephone: (419) 866-6301 or 800-426-6301

Fax: (419) 867-0634

E-mail: [sales@tronair.com](mailto:sales@tronair.com)

Website: [www.tronair.com](http://www.tronair.com)

For Spare Parts, Operations & Service Manuals or Service Needs:  
Scan the QR code or visit [Tronair.com/aftermarket](http://Tronair.com/aftermarket)

**5.2 RECOMMENDED SPARE PARTS LISTS**

Reference the following page(s) for Replacement Parts and Kits available.

Recommended Spares to be kept on hand:

K-1882.....Kit, Ball Lok-T Pin Replacement

K-3414.....Kit, Wheel (Single) Replacement

K-3524.....Kit, Ball Lok-T Pin Replacement

**6.0 IN-SERVICE SUPPORT**

Contact Tronair, Inc. for technical services and information. See Section 1.3 – Manufacturer.

**7.0 GUARANTEES/LIMITATION OF LIABILITY**

Tronair products are warranted to be free of manufacturing or material defects for a period of one year after shipment to the original customer. This is solely limited to the repair or replacement of defective components. This warranty does not cover the following items:

- a) Parts required for normal maintenance
- b) Parts covered by a component manufacturers warranty
- c) Replacement parts have a 90-day warranty from date of shipment

If you have a problem that may require service, contact Tronair immediately. Do not attempt to repair or disassemble a product without first contacting Tronair, any action may affect warranty coverage. When you contact Tronair be prepared to provide the following information:

- a) Product Model Number
- b) Product Serial Number
- c) Description of the problem

If warranty coverage is approved, either replacement parts will be sent or the product will have to be returned to Tronair for repairs. If the product is to be returned, a Return Material Authorization (RMA) number will be issued for reference purposes on any shipping documents. Failure to obtain a RMA in advance of returning an item will result in a service fee. A decision on the extent of warranty coverage on returned products is reserved pending inspection at Tronair. Any shipments to Tronair must be shipped freight prepaid. Freight costs on shipments to customers will be paid by Tronair on any warranty claims only. Any unauthorized modification of the Tronair products or use of the Tronair products in violation of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied.

The obligations of Tronair expressly stated herein are in lieu of all other warranties or conditions expressed or implied. **Any unauthorized modification of the Tronair products or use of the Tronair products in violations of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied and Tronair disclaims any and all liability for injury (WITHOUT LIMITATION and including DEATH), loss or damage arising from or relating to such misuse.**

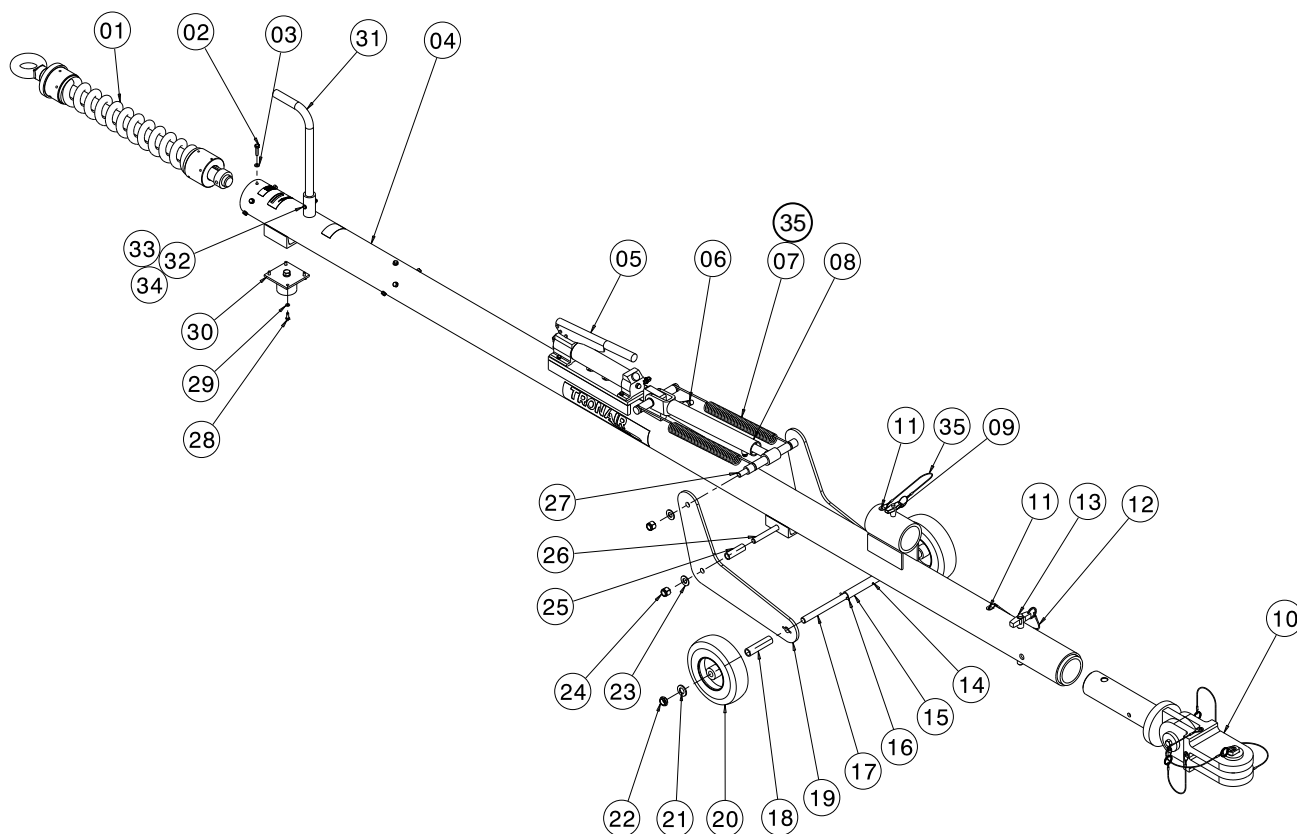
**8.0 APPENDICES**

APPENDIX I Maintenance Schedule



## Parts List

When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	Z-4753	Assembly, Shock	1
2	G-1420-106012	Bolt, Hex Head, Grade 8, $\frac{5}{16}$ -18 x $\frac{3}{4}$ " long	12
3	G-1251-1060R	Lockwasher, $\frac{5}{16}$ Regular	12
4	Z-6184-01 (Reference Only)	Machining, Towbar <span style="float: right;">Not Sold Separately</span>	
5	HC-2118	Hand Pump	1
	K-3732	Kit, Pump Seal Replacement (Not Shown)	1
6	TF-1043-18*22.0	Hose Assembly (#4 Mineral Base)	1
7	H-2664	Extension Spring	2
8	HC-2119	Hydraulic Cylinder	1
	K-3733	Kit, Cylinder Seal Replacement (Not Shown)	1
9	G-1310-0845	Pin, Ball Lok-T, $\frac{1}{2}$ " diameter x 4.8" grip	1
10	X-1153	Head Adapter Assembly	1
11	G-1351-04	Rivet, $\frac{1}{8}$ Open-End Steel	2
12	H-1026*12.0	Assembly, Lanyard	2
13	G-1310-1250	Pin, Ball Lok-T, $\frac{3}{4}$ " diameter x 5" grip	1
14	G-1300-19100	Pin, Roll, $\frac{3}{16}$ " diameter x 1" long	1
15	TR-1796-01	Tube, Landing Gear	1
16	G-1300-19140	Pin, Roll, $\frac{3}{16}$ " diameter x 1 $\frac{1}{2}$ " long	1
17	R-2086	Axle, Landing Gear	1
18	TR-1795-01	Spacer, Wheel	2

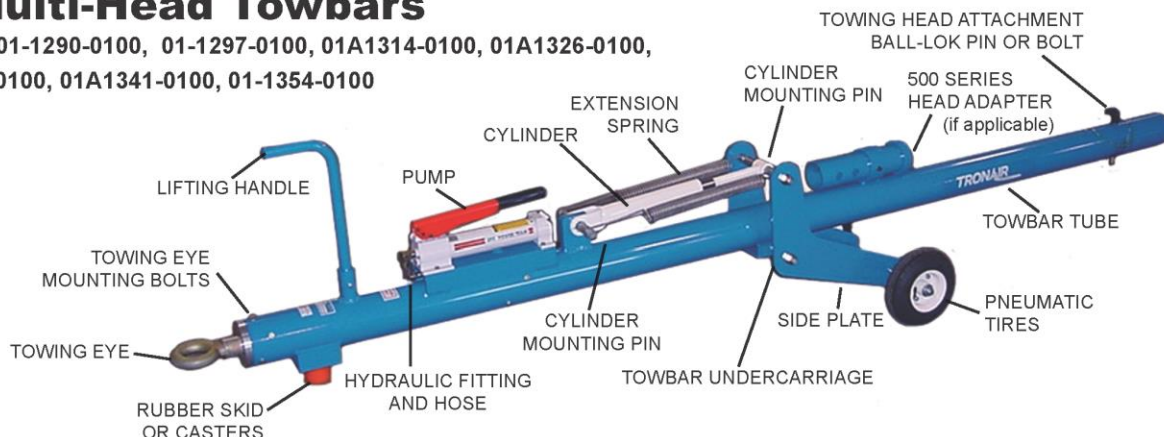
## Parts List

When ordering Replacement Parts/Kits, please specify Model & Serial Number of your product.

Item	Part Number	Description	Qty
19	J-3435-01	Landing Gear Plate	2
20	U-1096	Wheel, Pneumatic Tire	2
21	G-1250-1110N	Flatwasher, ¾ Narrow	2
22	G-1203-1115	Jamnut, ¾-16 Elastic	2
23	G-1250-1100N	Flatwasher, ⅝ Narrow	4
24	G-1202-1105	Stopnut, ⅝ Elastic	4
25	TR-1819-01	Spacer, Wheel	2
26	R-2099	Axle, Landing Gear	1
27	R-2097	Pin, Pivot	1
28	G-1100-105006	Bolt, Hex Head, Grade 5, ¼-20 x ¾" long	4
29	G-1251-1050R	Lockwasher, ¼ Regular	4
30	Z-5611	Assembly, Skid	1
31	TR-1857-01	Tube, Handle	1
32	G-1100-105520	Bolt, Hex Head, Grade 5, ¼-28 x 2" long	1
33	G-1202-1055	Stopnut, ¼-28 Elastic	1
34	G-1250-1050N	Flatwasher, ¼ Narrow	1
35	H-3784	Cable, Spring Safety	2
	<b>K-1882</b>	<b>Kit, Replacement Ball Lok Pin; consists of:</b>	
9	G-1310-0845	Pin, Ball Lok-T, ½" diameter x 4.8" grip	9
11	G-1351-04	Rivet, ⅛ Open-End Steel	11
35	H-1424*12.0	Assembly, Lanyard	35
	<b>K-3274</b>	<b>Kit, Shock Assembly; consists of:</b>	
1	Z-4753	Assembly, Shock	1
2	G-1420-106012	Bolt, Hex Head, Grade 8, ⅝-18 x ¾" long	2
3	G-1251-1060R	Lockwasher, ⅝ Regular	3
	<b>K-3414</b>	<b>Kit, Wheel (single) Replacement; consists of:</b>	
20	U-1096	Wheel, Pneumatic Tire	20
21	G-1250-1110N	Flatwasher, ¾ Narrow	21
22	G-1203-1115	Jamnut, ¾-16 Elastic	22
	<b>K-3524</b>	<b>Kit, Replacement Ball Lok-T Pin; consists of:</b>	
11	G-1351-04	Rivet, ⅛ Open-End Steel	11
12	H-1026*12.0	Assembly, Lanyard	12
13	G-1310-1250	Pin, Ball Lok-T, ¾" diameter x 5" grip	13
	<b>K-3734</b>	<b>Kit, Replacement Skid; consists of:</b>	
28	G-1100-105006	Bolt, Hex Head, Grade 5, ¼-20 x ¾" long	28
29	G-1251-1050R	Lockwasher, ¼ Regular	29
30	Z-5611	Assembly, Skid	30

### Heavy Duty Universal Multi-Head Towbars

Models: 01-1290-0100, 01-1297-0100, 01A1314-0100, 01A1326-0100,  
01-1336-0100, 01A1341-0100, 01-1354-0100



**Tronair recommends towbar inspections at least once a week.**

- ☐ Check towing eye for bending, excessive wear and deformity. If any are located, remove towbar from service and contact Tronair for repair.
- ☐ Check towing eye mounting bolts. Ensure the fasteners are tight and not missing. Tighten to 25 ft-lbs or replace as required.
- ☐ Ensure the towing eye does not move or turn by hand; if the towing eye can turn this may indicate that the centering pin within the shock assembly may be broken and repairs are needed. Contact Tronair for repairs.
- ☐ Check the shock assembly for preload on the spring by pulling on the towing eye. If the shock can be moved by hand this may indicate the spring is worn out, contact Tronair for repairs.
- ☐ Check the rubber skid or casters at the towing eye end. Ensure that all fasteners are tight and not missing. Tighten or replace as required. If the bumper is split or excessively worn, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect the lifting handle for damage. Contact Tronair or your Tronair distributor for repair or replacement if required.
- ☐ Inspect the towbar tube for cracks, gouges greater than 1/16", and bends or deformities. If any are located, remove towbar from service and contact Tronair for repair.
- ☐ Inspect the pump for hydraulic leaks. Replace seals if any leaks exist. Contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect the pump fluid level. Before adding MIL-PRF-5606 hydraulic fluid, ensure that the undercarriage is collapsed.
- ☐ Inspect hydraulic fittings and hose for leaks. If any hydraulic leaks exist, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect cylinder for hydraulic leaks. If any hydraulic leaks exist, contact Tronair or your Tronair distributor for replacement seals.
- ☐ Check extension springs. Extend cylinder to full stroke and open relief valve on pump. The extension springs should retract the cylinder completely. If not, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect cylinder mounting pins for bending or damage. Ensure the springs are engaged on them. If pins are bent or damaged, contact Tronair or your Tronair distributor for replacement.
- ☐ The undercarriage allows towing by a tow vehicle of speeds up to 6 mph (10 km/h)
- ☐ Check the towbar undercarriage for unusual wear or damage. Inflate the pneumatic tires to the proper pressure; repair any air leaks or replace if needed. Ensure the wheels can rotate freely, and wheel rims and tire axle are not bent. Ensure mounting fasteners are tight and not missing. Tighten or replace as required. Grease tire axle every 90 days.
- ☐ Inspect towbar undercarriage side plates for bending or damage. If any exist, contact Tronair or your Tronair distributor for replacement.
- ☐ Inspect head adapter (if applicable) for Tronair 500 series towing heads. Ensure it is not damaged or missing. Contact Tronair or your Tronair distributor for replacement if required.
- ☐ Inspect towing head attachment ball-lok pin or bolt for bending or unusual wear. Verify the factory supplied pin or bolt is used. Contact Tronair for replacement if required. Use only Tronair specified ball-lok pins/fasteners.
- ☐ Ensure the towing head attachment ball-lok pin is connected to the towbar via its lanyard. Replace lanyard if missing.
- ☐ Inspect all steel components for signs of rust. Touch up with paint as required.

INS-1792

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