



# **Operation & Service Manual**

**Model: 01A1106-0000  
Custom Towbar**

**Gulfstream  
GI, GII, GIII, GIV**

**Includes Illustrated Parts List**

11/2002 - AA - Rev. OR

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Custom Towbar  
BAe ATP

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## 1.0 DESCRIPTION

The Tronair Model 01A1106-0000 Custom Towbar is designed for towing Gulfstream GI, GII, GIII, and GIV aircraft. The custom towbar includes an aircraft attachment by machined pins on the towing head to the nose landing gear tow point. There is a handle and eyebolt at the end of the towbar for towing. The eyebolt incorporates a compression spring to dampen shock loads during towing.

### 1.1 SPECIFICATIONS

**Aircraft Application:** Gulfstream GI, GII, GIII, and GIV

**Aircraft Maximum Gross Weight:** 74,600 lbs (33.8 Metric tons)

**Weight:** 120 lbs (54.4 kg)

**Dimensions:**

Width:	36.125 inches (91.8 cm)
Overall Height:	13.55 inches (34.4 cm)
Ground to Aircraft Height:	9.125 inches (23.2 cm)
Length:	143.50 inches (364.5 cm) From eyebolt centerline to aircraft attachment centerline.

**Finish:** Towbar: Blue Powder Coat

**Shear Rating:** Axial: 10,300 lbs (4,672 kg)

## 2.0 SAFETY INFORMATION

### 2.1 GENERAL

The Tronair Model 01A1106-0000 Custom Towbar is used for moving the Gulfstream GI, GII, GIII, and GIV aircraft only.

To ensure safe operation, please read the following statements and understand their meaning. This manual contains safety precautions which are explained as follows. Please read carefully.



**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!** 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.**

### 3.0 OPERATION

#### 3.1 PRELIMINARY CHECKLIST

##### 3.1.1 Towbar:

- Check for dents, cracks or signs of damage.
- Check weld between towbar and handles for cracks.
- Check operation and security of casters.
- Check shear pin to ensure it has not broken; replace if necessary.
- Check air pressure in tires; inflate/deflate as required.
- Check all fastener connections to ensure they are not loose or missing.

##### 3.1.2 Towing Head:

- Check welds between side rails and head rail for cracks:
- Check sliding pin ball lok-T pins. Ensure ball lok-T pins are securely fastened via their lanyards. Ensure ball lok-T pins are not missing.
- Check fasteners between side rails and sliding pin sleeves to ensure they are not loose or missing.
- Check sliding pins for bending. Ensure sliding pins slide freely.

#### 3.2 USAGE PROCEDURE

##### 3.2.1 Aircraft Attachment:



##### CAUTION!

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

- Ensure the head is locked in place using sliding pins.

##### 3.2.2 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.

*3.2.2 Tug Attachment continued on following page.*

### 3.2 USAGE PROCEDURE

#### 3.2.2 Tug Attachment: (con't)

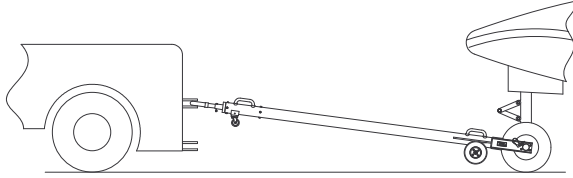


FIGURE 1 – Incorrect

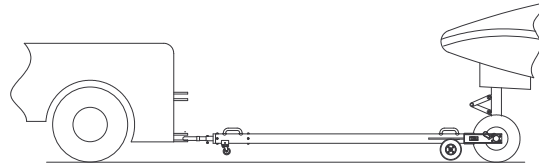


FIGURE 2 – Correct

#### 3.2.3 Couplers:

##### CAUTION!

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



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

The couplers listed above are known to cause binding and failure in the eyebolt. Indicators of binding are wear on outside diameter of the eyebolt and indentation on the inside diameter of the eyebolt. *Reference Figure 3.*

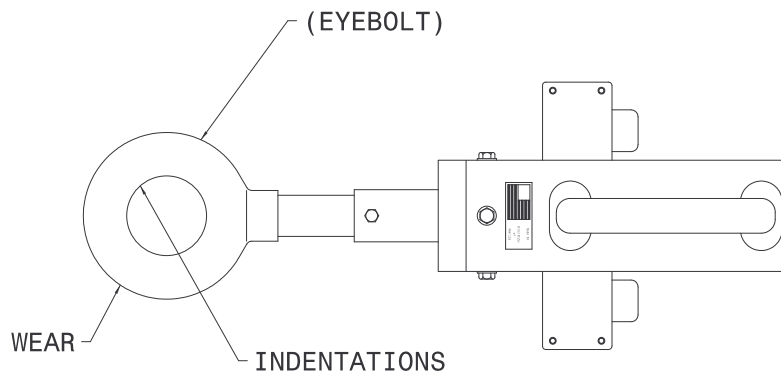


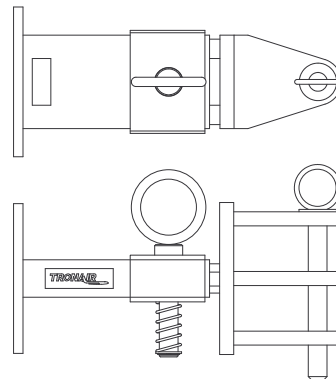
FIGURE 3

3.2.3 Couplers continued on following page.

## 3.2 USAGE PROCEDURE

### 3.2.3 Couplers: (con't)

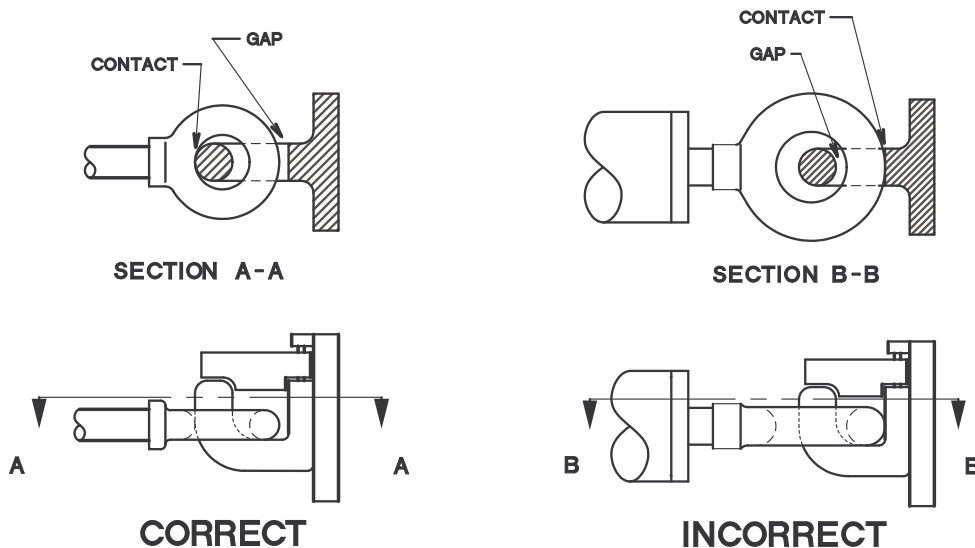
Tronair recommends a telecoupler pintle hook arrangement. This arrangement is known to eliminate binding. Tronair offers a Standard Telecoupler, Model Number 01-1950-5000, for use on tugs. *Reference Figure 4.*



**FIGURE 4**  
**01-1950-5000 Standard Telecoupler**

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 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 (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.



**FIGURE 5**

3.2 Usage Procedure continued on following page.

### 3.2 USAGE PROCEDURE (con't)

#### 3.2.4 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 degrees. **Reference Figure 6.**

### 4.0 TRAINING

#### 4.1 TRAINING REQUIREMENTS

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

#### 4.2 TRAINING PROGRAM

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

#### 4.3 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.*

### 5.0 PROVISIONS OF SPARES

#### 5.1 SPARE PARTS

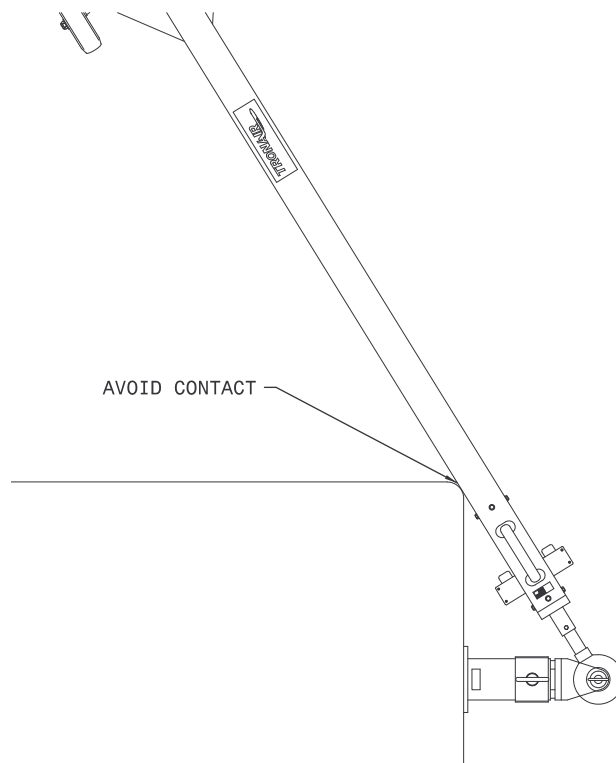
Spare parts may be obtained from the manufacturer:

**TRONAIR, INC.**

1740 Eber Road  
Holland, Ohio 43528-9794 USA  
Telephone: 419-866-6301  
Fax: 419-867-0634  
E-mail Address: mail@tronair.com

#### 5.2 PARTS LIST AND ILLUSTRATIONS

Reference Pages 6 to 8 for ordering information of Replacement Parts and Kits.

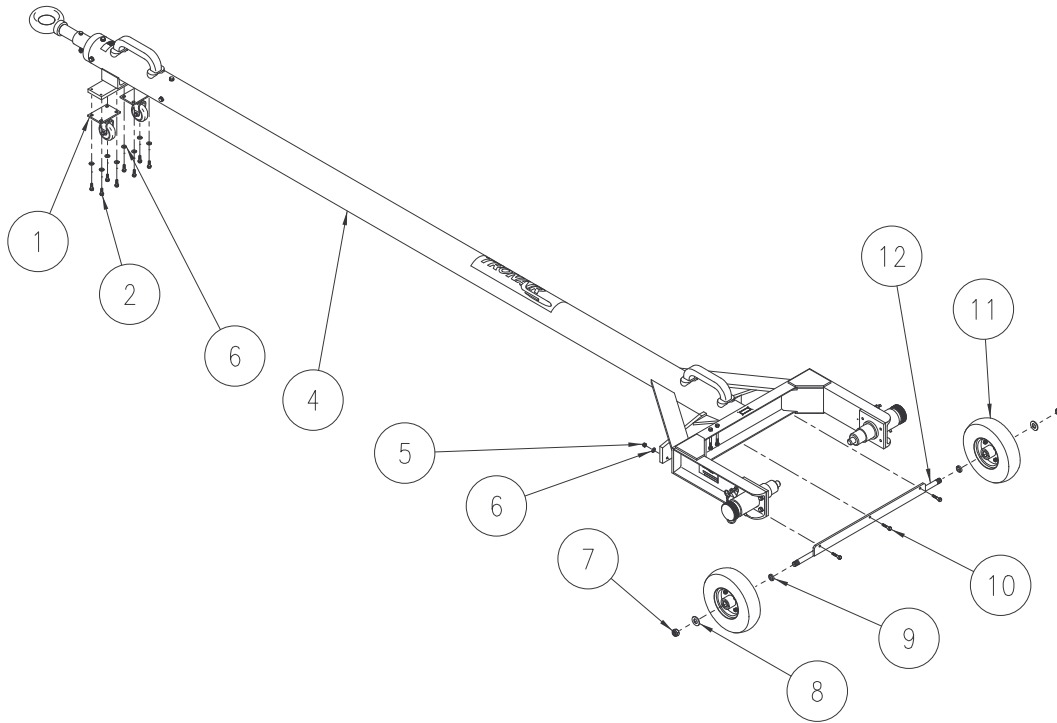


**FIGURE 6**

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## Parts List

**\*\* When ordering Replacement Parts/Kits, please specify Model and Serial Number of your Unit.\*\***



ITEM	PART NUMBER	DESCRIPTION	QTY
4.....	Z-1501-01 (Ref. Only) .....	Weldment, Towbar.....	<i>Not Sold Separately</i>
5.....	G-1202-1055 .....	Stopnut, 1/4-28 Elastic .....	3
6.....	G-1250-1050N .....	Flatwasher, 1/4 Narrow .....	11
10.....	G-1100-105512 .....	Bolt, Hex Head, Grade 5, 1/4-28 x 1 1/4" long .....	3
12.....	Z-1484-01 .....	Weldment, Axle Mounting Bracket .....	1
♦	<b>K-1112</b>	<b>Kit, Wheel; consists of:</b>	
7.....	G-1203-1105 .....	Jamnut, 5/8-18 Elastic .....	1
8.....	G-1250-1050N .....	Flatwasher, 5/8 Narrow .....	1
9.....	TR-1583 .....	Spacer .....	1
11.....	U-1024.....	Wheel .....	1
	<b>K-1114</b>	<b>Kit, Caster; consists of:</b>	
1.....	U-1000.....	Caster .....	2
2.....	G-1100-105004 .....	Bolt, Hex Head, Grade 5, 1/4-20 x 1/2" long .....	8

♦ Use Loctite 271 or equivalent during reassembly.

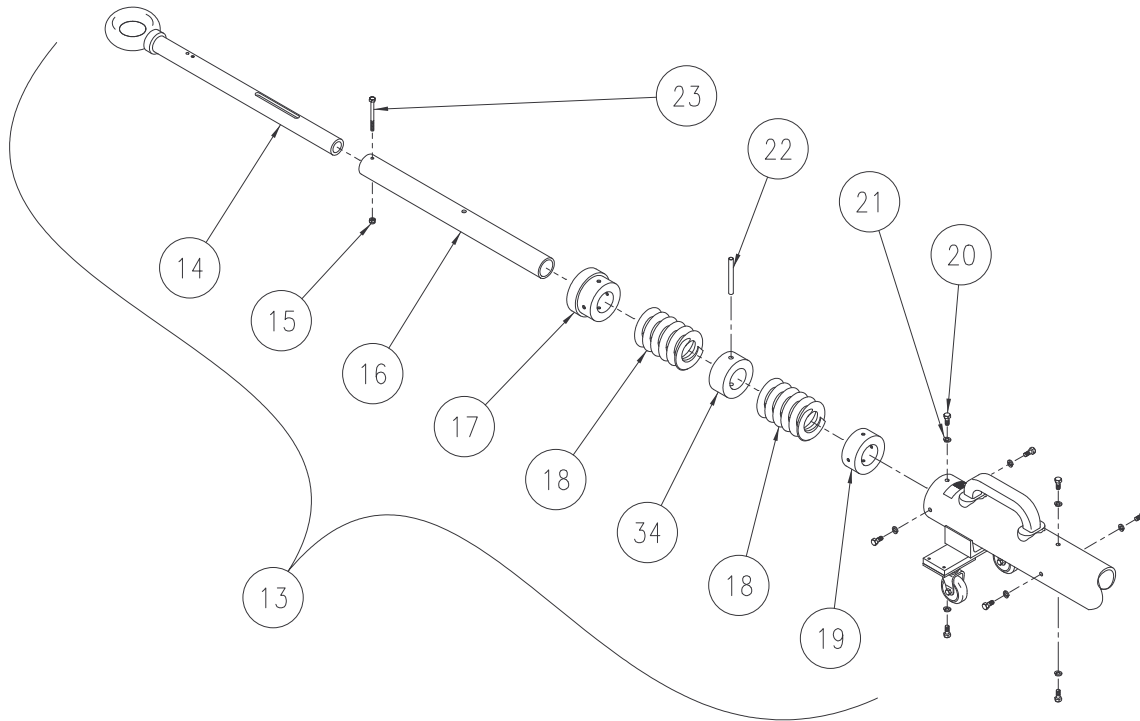
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**\*\* When ordering Replacement Parts/Kits, please specify Model and Serial Number of your Unit.\*\***



ITEM	PART NUMBER	DESCRIPTION	QTY
13 .....	Z-2958-10 .....	Assembly, Shock/Shear.....	1
14 .....	Z-1453-11 .....	Machining, Eyebolt .....	1
15 .....	G-1202-1050 .....	Stopnut, 1/4-20 Elastic .....	1
16 .....	TR-1118-05 .....	Tube, Outer Shear .....	1
17 .....	B-018-02.....	Sleeve, Outer .....	1
18 .....	B-016.....	Spring .....	2
19 .....	B-017-02.....	Sleeve, Inner.....	1
20 .....	G-1420-106006 .....	Bolt, Hex Head, Grade 8, 5/16-18 x 3/4" long.....	8
21 .....	G-1251-1060R.....	Lockwasher, 5/16 Regular .....	8
22 .....	G-1013-06 .....	Pin, Groove (3/8" diameter x 3 1/2" long) .....	1
23 .....	G-1420-105030 .....	Bolt, Shear.....	1

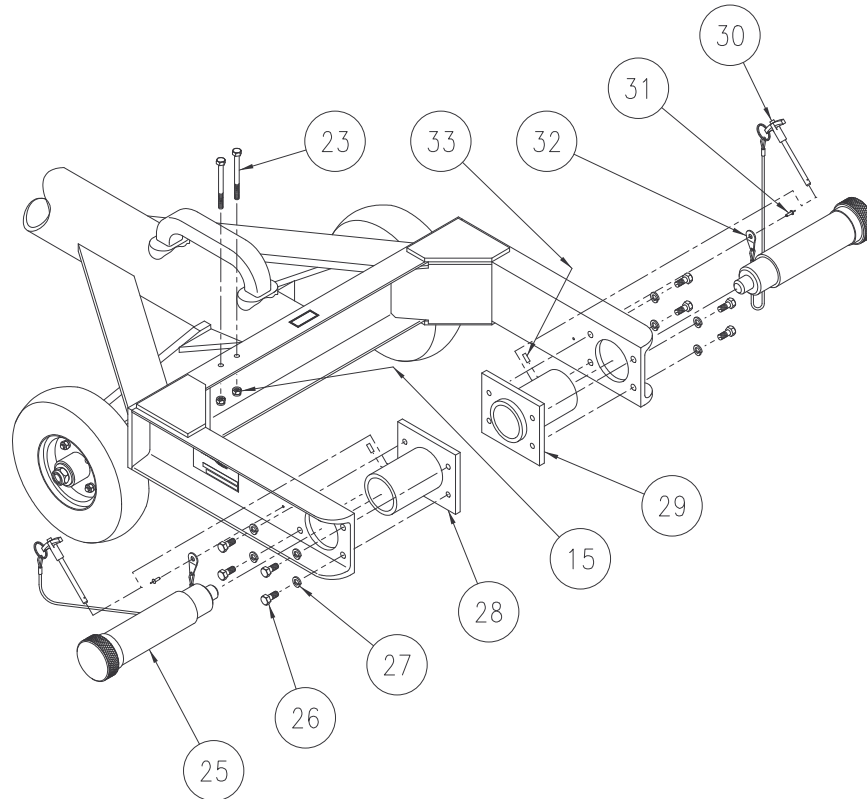
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**\*\* When ordering Replacement Parts/Kits, please specify Model and Serial Number of your Unit.\*\***



ITEM	PART NUMBER	DESCRIPTION	QTY
15 .....	G-1202-1050 .....	Stopnut, 1/4-20 Elastic .....	2
23 .....	G-1420-105030 .....	Bolt, Shear .....	2
25 .....	R-2023 .....	Pin, Sliding .....	2
26 .....	G-1100-106006 .....	Bolt, Hex Head, Grade 5, 5/16-18 x 3/4" long .....	8
27 .....	G-1251-1060R .....	Lockwasher, 5/16 Regular .....	8
28 .....	Z-1359 .....	Weldment, Wear Sleeve .....	1
29 .....	Z-1358 .....	Weldment, Wear Sleeve .....	1
30 .....	G-1310-0525 .....	Pin, Ball Lok-T (5/16" diameter x 2 1/2" long) .....	2
31 .....	G-1351-04 .....	Rivet, 1/8 Open-end Steel .....	2
32 .....	H-1026*07.0 .....	Assembly, Lanyard (7" long) .....	2
33 .....	G-1300-19040 .....	Pin, Roll (3/16" diameter x 3/4" long) .....	2

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## **6.0 IN-SERVICE SUPPORT**

Contact Tronair for technical services and information.

## **7.0 GUARANTEES**

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 warranty does not cover the following items:

- a. Parts required for normal maintenance.
- b. Parts covered by a component manufacturer's warranty.

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 since any action may effect warranty coverage. When you contact Tronair, be prepared to provide the following information:

- c. Product Model Number
- d. Product Serial Number
- e. 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. 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.