



OPERATION & SERVICE MANUAL

**Model: 01-1161-0009
BAe 146
Custom Towbar**



03/2023 – Rev. 09

**For Spare Parts, Operations & Service Manuals or Service Needs
Scan the QR code or visit Tronair.com/aftermarket**



REVISION	DATE	TEXT AFFECTED
07	03/2007	Major Revision
08	07/2007	Modified 2.1 General Warning
09	03/2023	Major revision

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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 01-1161-0009 Custom Towbar is designed for towing BAe 146 Aircraft manufactured by British Aerospace.

These Custom Towbars include pneumatic tires with a urethane bumper at the tug end. There is an eyebolt at the towing end of the towbars which incorporates shear pin to limit locking. Axle adaptors attach to the aircraft tow point.

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

1.1 SPECIFICATIONS

Application.....BAe 146 Aircraft manufactured by British Aerospace
Maximum Aircraft Gross Weight.....97,500 lbs (43.5 Metric ton)
Length142 3/8 in (361.6 cm) From eyebolt centerline to aircraft attachment.
Width22 7/8 in (58 cm)
Tube4 in (10.2 cm) square
Weight145 lbs (65.8 kg)
Finish.....Powder Coat
MaterialSteel

2.0 SAFETY INFORMATION

2.1 GENERAL

The Tronair Model 01-1161-0009 Custom Towbar is used for towing BAe 146 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! 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!

Tronair recommends the use of a towbar with a category 1 or category 2 tug and aircraft not exceeding 75,000 lbs gross weight. Using the towbar with aircraft weighing in excess of this specific limitation 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 (INCLUDING WITHOUT LIMITATION to the aircraft) and/or personal injury OR DEATH. TRONAIR MAKES NO REPRESENTATION, WARRANTY OR GUARANTEE AS TO SUCH MISUSE AND DISCLAIMS ANY AND ALL LIABILITY FOR INJURY, LOSS OR DAMAGE ARISING FROM OR RELATING TO SUCH MISUSE.

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 PRELIMINARY CHECKLIST

4.1.1 Towbar

- Check towing eye mounting bolts. Ensure the fasteners are not loose or missing.
- Check towing eye for bending, excessive wear and deformity.
- Check the ball lok-T pin. Ensure ball lok-T pin is securely attached to towbar via its lanyard. Ensure ball lok-T pin is not missing.



WARNING!

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

- Check casters. Ensure they are not missing or bent
- Check handles. Ensure they are not broken, bent, or missing
- Check bolts. Ensure they are not missing or loose
- Check wheels. Ensure they are flat and that the rim is not bent
- Check axle. Ensure it is not bent
- Check bolts and lanyards. Ensure they are not loose, missing, or stripped
- Ensure bolts and lanyards are attached to the head
- Check shear pin. Ensure it is not bent or deformed
- Check for spares
- Check bushings. Ensure they are not cracked or chipped. Ensure they are secure
- Check pivot bolt. Ensure the nuts tight and there are washers
- Check axle adapter. Ensure it is not bent, the slot is not deformed, and the bolts are tight

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.

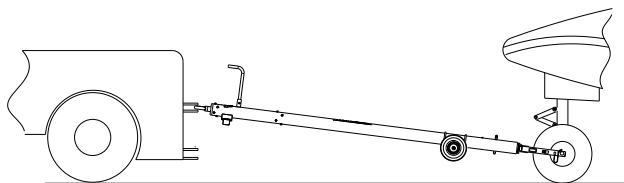
4.2.2 Tug Attachment



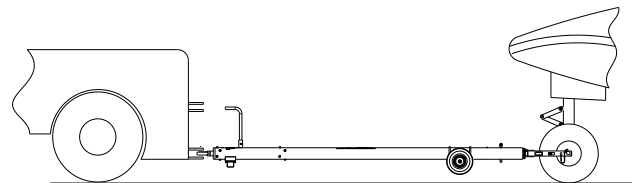
CAUTION!

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
- Standard Duty Latch
- Vertical Side Swing 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.**

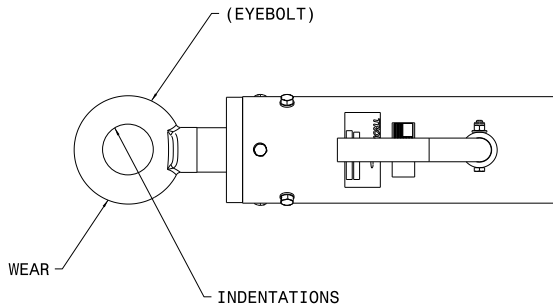


FIGURE 2

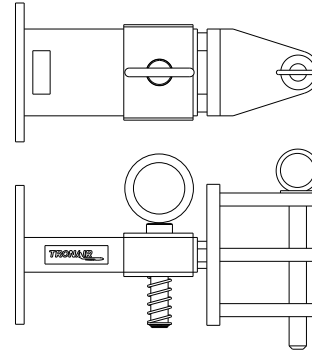


FIGURE 3

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.**

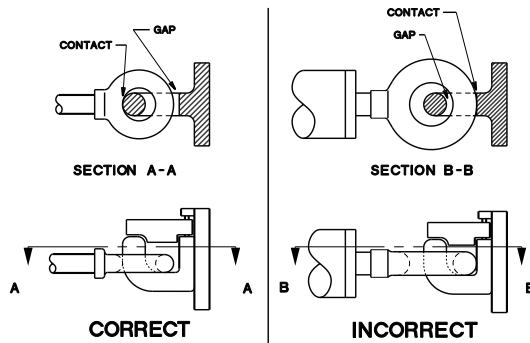


FIGURE 4

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.

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°. **Reference Figure 5.**

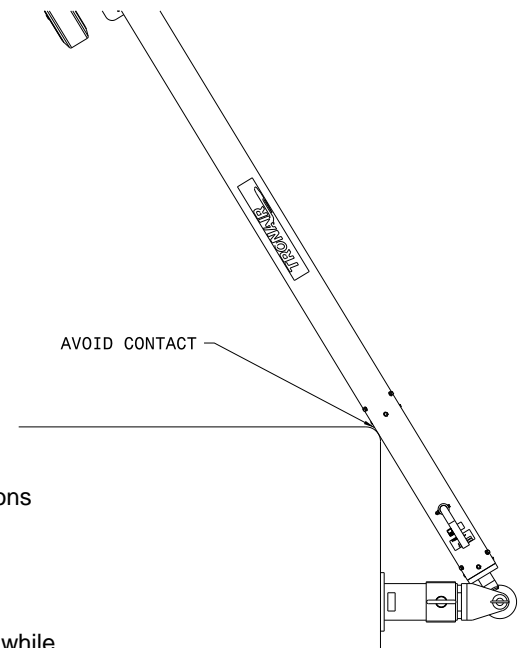


FIGURE 5

5.0 PROVISION OF SPARES

5.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

TRONAIR , Inc.	Telephone: (419) 866-6301 or 800-426-6301
1 Air Cargo Pkwy East	Fax: (419) 867-0634
Swanton, Ohio 43558 USA	E-mail: sales@tronair.com
	Website: www.tronair.com

For Spare Parts, Operations & Service Manuals or Service Needs:
Scan the QR code or visit 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-1550..... Wheel (Single) Replacement
K-1611..... Kit, Sliding Pin Replacement
K-1697..... Kit, Shear Bolt 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:

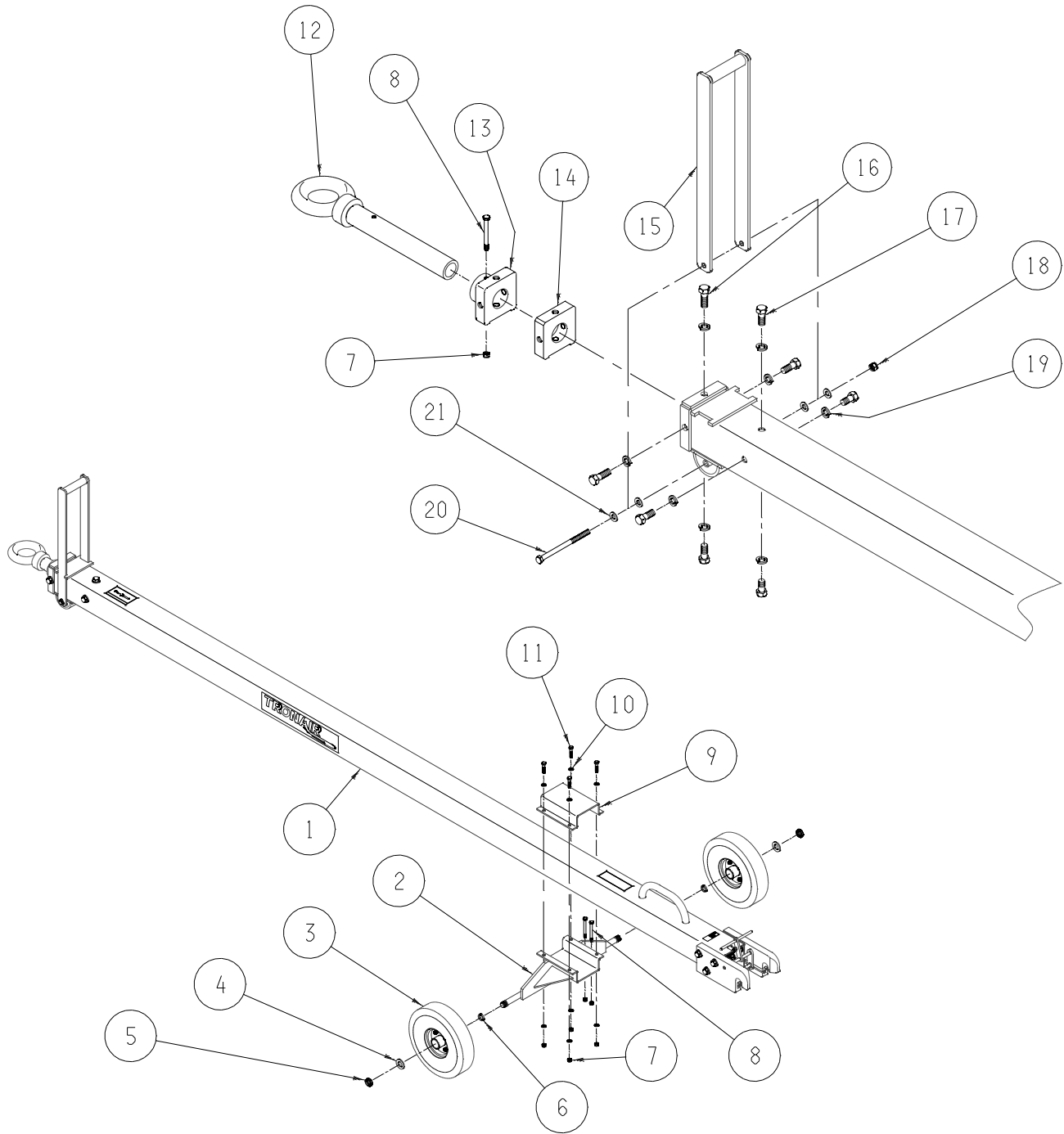
- a) Product Model Number
- b) Product Serial Number
- c) Description of the problem

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.**

Parts List

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



Item	Part Number	Description	Qty
	K-1532	Kit, Shear Tube Replacement; consists of:	
7	G-1202-1065	Stopnut, 5/16-24 Elastic	1
8	G-1110-5-30A	Bolt, Shear	1
12	Z-1315	Tube ,Shear	1
	K-1550	Kit, Wheel (Single) Replacement; consists of:	
3	U-1027	Wheel, Pneumatic Tire	1
4	G-1250-1110N	Flatwasher, 3/4 Narrow	1
5	G-1203-1115	Jamnut, 3/4-16 Elastic	1
6	TR-1585	Spacer, Wheel	1

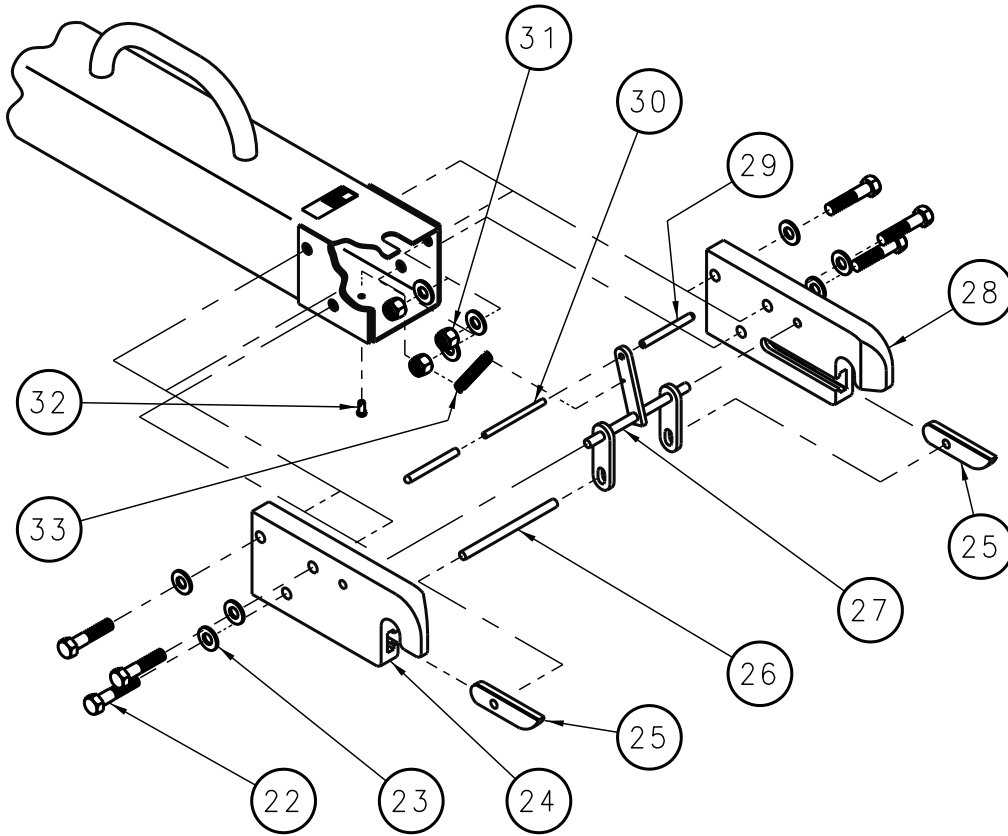
Parts List

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

Item	Part Number	Description	Qty
	K-1551	Kit, Wheel Bracket Replacement; consists of:	
2	Z-1669-01	Weldment, Axle Mounting Bracket	1
4	G-1250-1110N	Flatwasher, 3/4 Narrow	2
5	G-1203-1115	Jamnut, 3/4-16 Elastic	2
6	TR-1585	Spacer, Wheel	2
7	G-1202-1065	Stopnut, 5/16-24 Elastic	4
9	J-1878-01	Tube, Bracket	1
10	G-1250-1060N	Flatwasher, 5/16 Narrow	8
11	G-1100-106514	Bolt, Hex Head, Grade 5, 5/16-24 x 1-1/2" long	4
	K-1653	Kit Mounting Block (Outer) Replacement; consists of:	
7	G-1202-1065	Stopnut, 5/16-24 Elastic	1
8	G-1110-5-30A	Bolt, Shear	1
13	J-1576	Block, Shear Mounting	1
16	G-1100-109512	Bolt, Hex Head, Grade 5, 1/2-20 x 1-1/4" long	4
19	G-1251-1090R	Lockwasher, 1/2 Regular	4
	K-1654	Kit, Mounting Block (Inner) Replacement; consists of:	
14	J-1577	Block ,Mounting	1
17	G-1100-109510	Bolt, Hex Head, Grade 5, 1/2-20 x 1" long	4
19	G-1251-1090R	Lockwasher, 1/2 Regular	4
	K-1655	Kit, Handle Replacement; consists of:	
15	Z-1390-01	Weldment, Handle	1
18	G-1203-1075	Jamnut, 3/8-24 Elastic	1
20	G-1100-107554	Bolt, Hex Head, Grade 5, 3/8-24 x 5" long	1
21	G-1250-1070N	Flatwasher, 3/8 Narrow	4
	K-1653	Kit Mounting Block (Outer) Replacement; consists of:	
7	G-1202-1065	Stopnut, 5/16-24 Elastic	1
8	G-1110-5-30A	Bolt, Shear	1
13	J-1576	Block, Shear Mounting	1
16	G-1100-109512	Bolt, Hex Head, Grade 5, 1/2-20 x 1-1/4" long	4
19	G-1251-1090R	Lockwasher, 1/2 Regular	4
	K-1654	Kit, Mounting Block (Inner) Replacement; consists of:	
14	J-1577	Block ,Mounting	1
17	G-1100-109510	Bolt, Hex Head, Grade 5, 1/2-20 x 1" long	4
19	G-1251-1090R	Lockwasher, 1/2 Regular	4
	K-1655	Kit, Handle Replacement; consists of:	
15	Z-1390-01	Weldment, Handle	1
18	G-1203-1075	Jamnut, 3/8-24 Elastic	1
20	G-1100-107554	Bolt, Hex Head, Grade 5, 3/8-24 x 5" long	1
21	G-1250-1070N	Flatwasher, 3/8 Narrow	4
	K-1697	Kit, Shear Bolt Replacement; consists of:	
7	G-1202-1065	Stopnut, 5/16-24 Elastic	1
8	G-1110-5-30A	Bolt, Shear	1
	K-2255	Kit, Towbar Weldment Replacement; consists of:	
1	Z-1540-01	Weldment, Towbar with Labels	1

Parts List

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



Item	Part Number	Description	Qty
	K-1607	Kit, Axle Adapter Replacement; consists of:	
22	G-1100-109522	Bolt, Hex Head, Grade 5, 1/2-20 x 2-1/4" long	6
23	G-1250-1090N	Flatwasher, 1/2 Narrow	12
24	J-1215	Adapter, Axle	1
28	J-1216	Adapter, Axle	1
32	G-1202-1095	Stopnut, 1/2-20 Elastic	6
	K-1611	Kit, Sliding Pin Replacement; consists of:	
25	J-1213	Bar, Sliding	2
	K-1612	Kit, Actuator Linkage Replacement; consists of:	
25	J-1213	Bar, Sliding	2
26	R-1053	Rod	1
27	Z-1542	Weldment, Actuator	1
29	H-1205	Cover, Handle	2
30	G-1300-25340	Pin, 1/4" diameter x 3-1/2" long, Roll	1
32	G-1302-11	Pin, Clevis	1
34	H-1263	Spring	1



APPENDIX I

Declaration of Conformity



DECLARATION of CONFORMITY

The design, development and manufacture is in accordance with European Community guidelines

Custom Towbar
01-1161-0009

Relevant provisions complied with by the machinery:
2006/42/EC

Relevant standards complied with by the machinery:
EN ISO 12100-1

Identification of person empowered to sign on behalf of the Manufacturer:

A handwritten signature in black ink that reads "Patrick Finch". The signature is written in a cursive style and is positioned above a horizontal line.

Quality Assurance Representative



Tronair, Inc.
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Swanton, OH 43558

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