



OPERATION & SERVICE MANUAL

Model: 01-1300-0000
Custom Towbar
Falcon 10, 20, 100, 200

01/2005 – Rev. 01

For Spare Parts, Operations & Service Manuals or Service Needs
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OR	02/2004	Original Release
01	01/2004	pg 1 Modified specifications Modified illustrations Added 1.3 Optional Feature Kits pg 2 Modified towbar checklist pg 4 & 5 Modified illustrations pg 7 Modified illustrations and added items 39 – 42
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Tronair towbars/heads must only be used with matching Tronair heads/towbars, and Tronair shear pins.

This product cannot 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 01-1300-0000 custom Towbar is designed for towing Falcon 10, 20, 100, 200 Aircraft manufactured by Dassault-Brequet.

The towbar has an aircraft attachment by machined hooks on the towing head to the nose landing gear tow point. There is a handle and an eyebolt at the end of the towbar for 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
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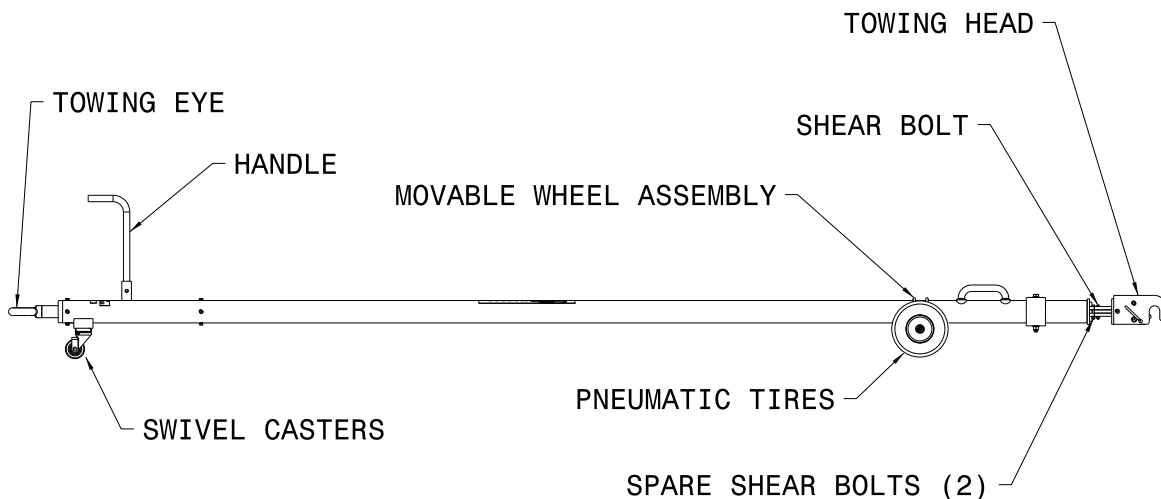
1.4 SPECIFICATIONS

Aircraft Application	Falcon 10/20/100/200 Aircraft manufactured by Dassault-Brequet
Maximum Aircraft Gross Weight.....	30,000 lbs (13.6 Metric tons)
Length	176 11/16 in (448.8 cm) From eyebolt centerline to aircraft attachment centerline
Width	21 7/8 in (55.6 cm)
Height.....	7 7/16 in (18.9 cm) From ground level to aircraft attachment pins
Weight.....	140 lbs (63.5 kg)
Material	Aluminum Towbar Steel Towing Head
Finish.....	Blue Powder Coat



CAUTION!
 Towbar does not include axial shear protection.

1.5 FEATURES



Model 01-1300-0000 Features

1.6 OPTIONAL FEATURE KITS

K-2048 Shock Assembly Kit replaces the standard 2 3/16 inch diameter eyebolt (Z-1895, reference section 5.2, Parts List) with a 2 7/8 inch diameter eyebolt for use with the larger tug pintle pins.

2.0 SAFETY INFORMATION**2.1 USAGE AND SAFETY INFORMATION**

The Tronair Model 01-1300-0000 Custom Towbar is used for moving the Falcon 10, 20, 100, 200 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 **can or will 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 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**

- 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, 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.
- 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.
- Check casters for damage; ensure the swivels operate freely and the bearings are not missing. Replace if needed.
- Ensure the caster mounting fasteners are tight and not missing. Tighten or replace as required.
- Check the caster mounting plate and channel for bends or breaks. If any are located, remove towbar from service and contact Tronair for repair. Inspect welds, contact Tronair if repairs are needed.
- Inspect the front and rear lifting handles. Repair or replace the handle if it is missing or damaged. Inspect the welds, contact Tronair if repairs are needed. Ensure the mounting fasteners are tight and not missing. Tighten or replace as required.
- 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. Torque U-bolt nuts to 35 ft-lbs. Grease tire axle every 90 days.
- Inspect towing head attachment fasteners for bending or unusual wear. Verify the factory supplied bolt is used. Contact Tronair or your Tronair distributor for replacement if required. Use only Tronair specified bolts.
- Inspect for weld cracks. If found remove the towbar multi-head from service and contact Tronair for repair.
- Inspect all head weldment members for bending. If found, remove the towbar from service and contact Tronair for repair.
- Inspect the shear plates for bending. If found remove the towbar multi-head from service and contact Tronair for repair.
- Inspect the axle adaptors for bending and excessive wear. If found, remove the towbar from service and contact Tronair for replacement.
- Check the axle adaptor mounting fasteners. Ensure they are tight and not missing. Tighten or replace as required.
- Inspect the axle locking mechanism. Ensure that it springs back to positively hold the aircraft towing pins. If it does not, contact Tronair for replacement/repair.
- Check the shoulder bolt connections through the shear plates. Verify they are not clamping the shear plates together. There should not be any clamping force applied to the shear plates so the assembly functions properly. If required, back the stopnut off to remove any clamping force applied.
- Inspect the shear pin. If the shear pin is bent, broken, or missing contact Tronair or your Tronair distributor for replacement. Tronair recommends purchasing spare shear pins for rapid replacement, use only Tronair specified shear pins.
- Inspect the shear pin bushings. If the shear pin bushings are cracked or chipped, contact Tronair or your Tronair distributor for replacement, use only Tronair specified shear pin bushings.
- Inspect all steel components for signs of rust. Touch up with paint as required.

**WARNING!**

Towing an aircraft using a towbar with a broken or missing shear pin may cause damage to the aircraft.

4.2 USAGE PROCEDURE

4.2.1 Aircraft Attachment



CAUTION!

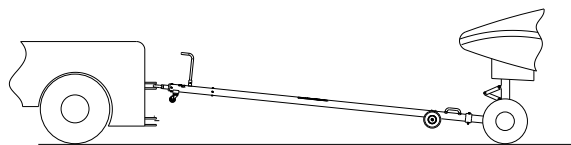
It is recommended that your towbar to attached to the aircraft first, and then connected to the tug to avoid possible aircraft damage.

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.



**Incorrect
Excessive Towbar Angle**



Correct

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.

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 eyebolt. Indicators of binding are wear on outside diameter of the eyebolt and indentation on the inside diameter of the eyebolt. **Reference Figure 2.**

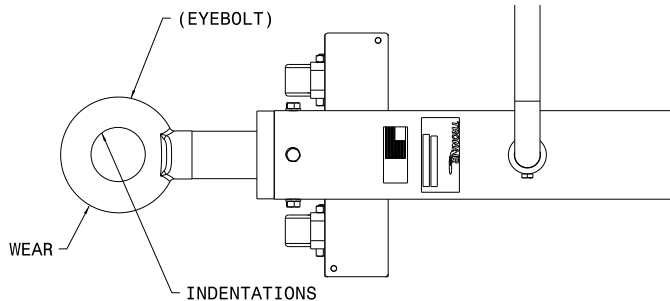


FIGURE 2

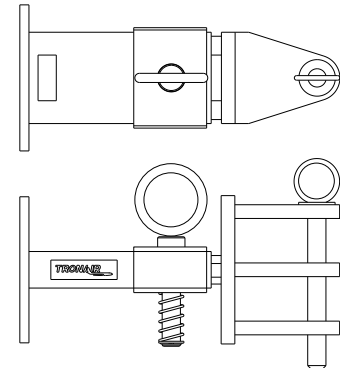


FIGURE 3
 01-1950-5000 Standard Telecoupler

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.**

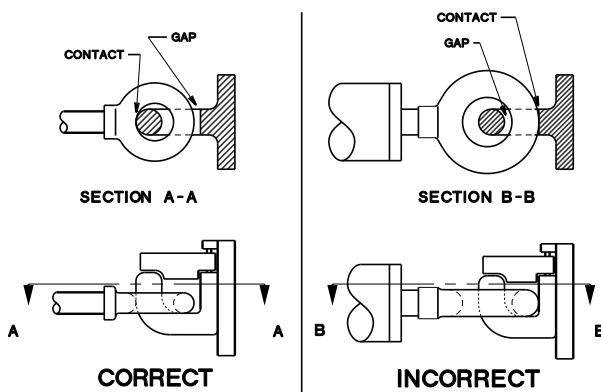


FIGURE 4

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.

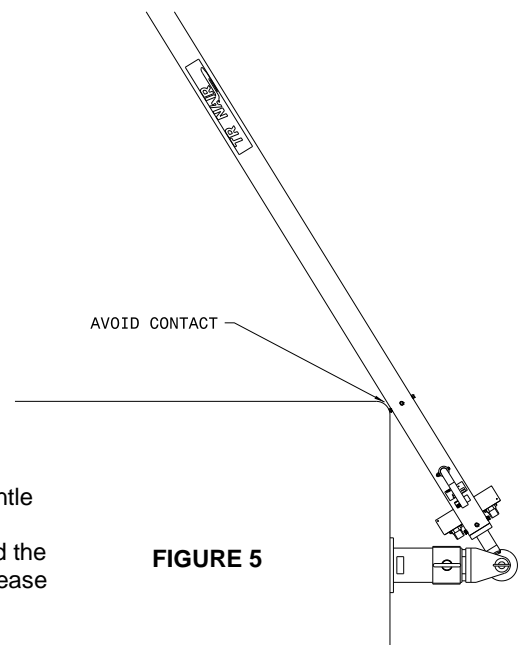


FIGURE 5

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.**

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

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:

U-1000 Swivel Caster

U-1024 Wheel, Pneumatic Tire

TR-1857-00 Tube, Handle

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:

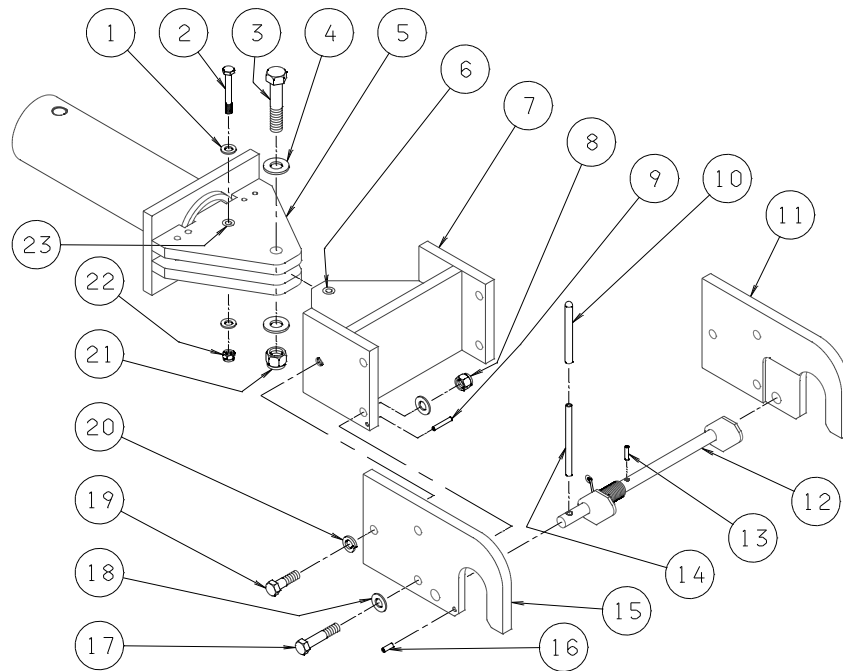
- a) Product Model Number
- b) Product Serial Number
- c) Description of the problem

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

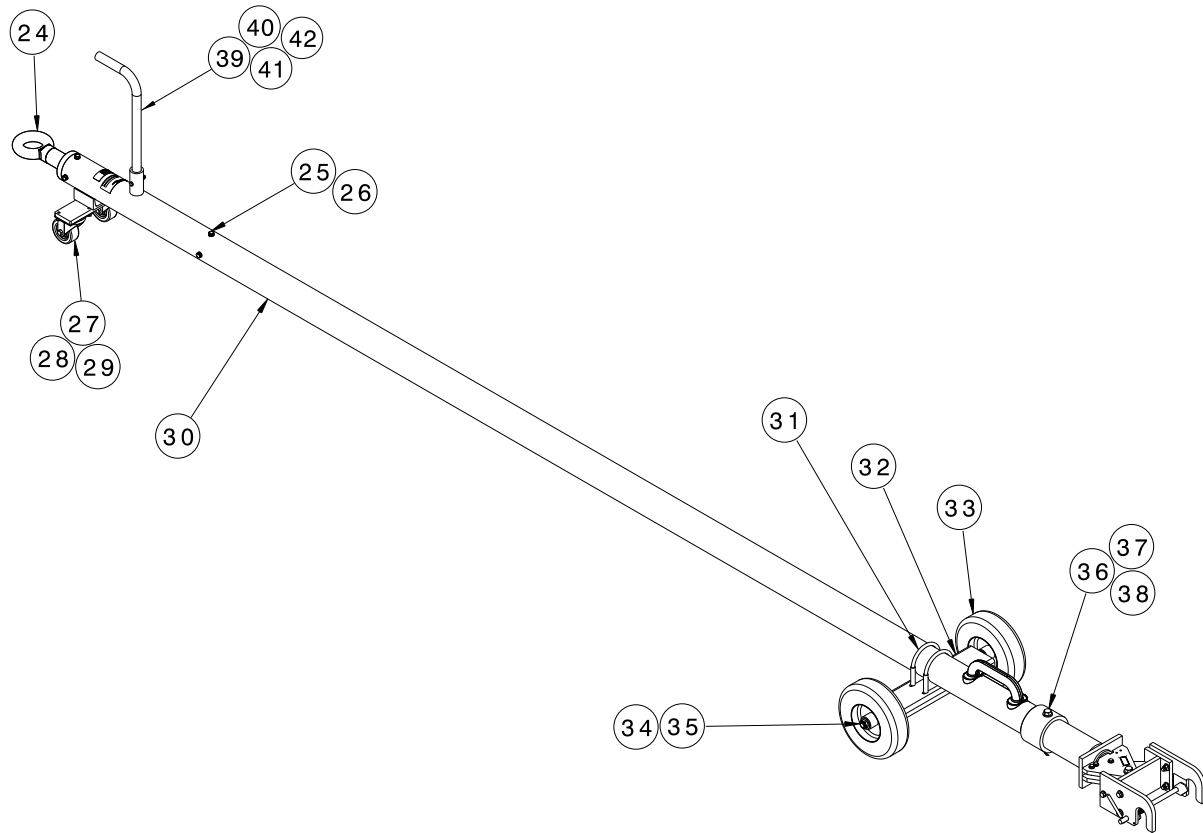
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	G-1250-1050N	Flatwasher, ¼ Narrow	2
2	G-1110-4-20	Bolt, AN 4	1
3	G-1110-109524	Bolt, ½-20 x 1¾" long, Hex Head, Grade 5	1
4	G-1250-1090N	Flatwasher, ½ Narrow	2
5	Z-1853-01	Machining, Shear Plate	1
6	H-1725-03	Bushing	1
7	Z-0010	Weldment, Head	1
8	G-1202-1075	Stopnut, 3/8-24 Elastic	4
9	G-1300-16050	Pin, Roll	1
10	H-1205	Cover, Handle	1
11	J-2664	Adapter, Axle	1
12	Z-0019	Weldment, Axle Locking	1
13	G-1300-16050	Pin, Roll	1
14	G-1300-25340	Pin, Roll	1
15	J-2663	Adapter, Axle	1
16	G-1300-18040	Pin, Roll	1
17	G-1100-107516	Bolt, 3/8-24 x 1¾" long, Hex Head, Grade 5	4
18	G-1250-1070N	Flatwasher 3/8 Narrow	8
19	G-1100-107510	Bolt, 3/8-24 x 1" long, Hex Head, Grade 5	2
20	G-1251-1070R	Lockwasher 3/8 Regular	2
21	G-1202-1070	Stopnut, 3/8-16 Elastic	1
22	G-1202-1055	Stopnut, ¼-28 Elastic	1
23	H-1724-03	Bushing	2

Parts List

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



Item	Part Number	Description	Qty
24	Z-1895	Assembly, Shock	1
25	G-1420-106006	Bolt, 5/16-18 x 3/4" long, Hex Head, Grade 8	8
26	G-1251-1060R	Lockwasher, 5/16	8
27	U-1000	Caster, Swivel	2
28	G-1100-106004	Bolt, 5/16-18 x 1/2" long, Hex Head, Grade 5	4
29	G-1251-1060R	Lockwasher, 5/16 Regular	4
30	Z-5727-00	Machining, Towbar	1
31	H-1537-07	Clamp, Muffler	2
32	Z-5643-00	Weldment, Axle Mounting	1
33	U-1024	Wheel with Pneumatic Tire	2
34	G-1250-1100N	Flatwasher, 5/8 Narrow	4
35	G-1203-1105	Jamnut, 5/8-18 Elastic	2
36	G-1100-109554	Bolt, 1/2-20 x 5 1/2" long, Hex Head, Grade 5	1
37	G-1250-1090N	Flatwasher, 1/2 Narrow	2
38	G-1202-1095	Stopnut, 1/2-20 Elastic	1
39	TR-1857-00	Tube, Handle	1
40	G-1100-105520	Bolt, 1/4 - 28 x 2" long, Hex Head, Grade 5	1
41	G-1250-1050N	Flatwasher, 1/4 Narrow	1
42	G-1202-1055	Stopnut, 1/4 - 28 Elastic	1