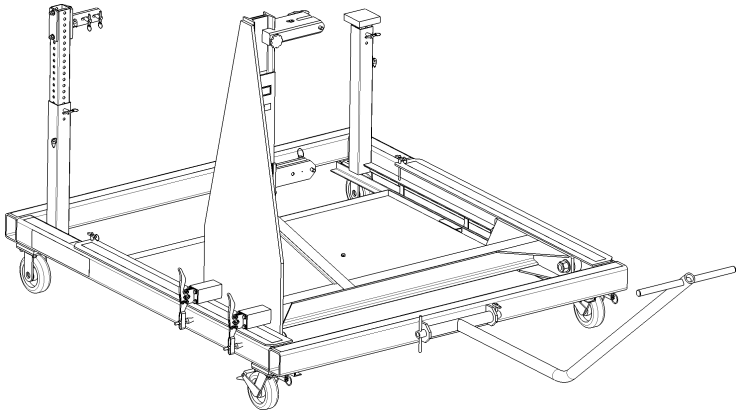
OPERATION & SERVICE MANUAL



Model: 08-2034-0010
Engine Work Stand

CE

02/2003 – Rev. 01

Includes Illustrated Parts Lists

Tronair, Inc.
1 Air Cargo Pkwy East
Swanton, OH 43558

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Email: sales@tronair.com

REVISION	DATE	TEXT AFFECTED
01	02/2003	Revision

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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 engine work stand incorporates the following quality features:

- Heavy-duty steel construction
- Easily maneuverable
- Swivel caster wheel brakes
- Oil pan to capture excess fluid
- Easily converts to accept left or right hand engines
- Multiple Engine Adaptability (Engine adapter kits sold separately.)

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

1.3 MANUFACTURER

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

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1.4 USAGE

This stand allows full access to the engine for maintenance purposes by utilizing the same attach points used on the aircraft. In order to adapt the engine to the stand, the appropriate adapter kit must be used. Refer to the table below to select the correct adapter kit.

The purpose of this engine stand is to allow mechanics easy access to any part of the engine system during engine inspection and maintenance procedures. A “three-point” mounting system via front mounting pads and rear support post on the engine stand make access to the engine possible.

When service on rear of engine is required (fan duct or thrust reverser), the engine may be supported using only the front mounts.

AVAILABLE ENGINE ADAPTER KITS

Engine Kit Number	Description	Front Mount	Qty	Rear Mount	Qty
K-2685	PW-530A Engine	Z-3799	2	Z-3798	1
K-2769	PW-545A Engine	Z-3792	2	Z-3796	1
K-2770	TFE-731 Engine	Z-3790	2	Z-3801	1
K-2776	JT15D-1 Engine	Z-3815	2	Z-3817	1
K-3068	PW-535 Engine	Z-3792	2	Z-4332	1
K-3152	PW-306A Engine PW-306C Engine	Z-6118 Z-4751	1 1	Z-4508	1
K-3618	PW-308A Engine	Z-5471	2	Z-5474	1

NOTE: Engine Kits include the correct number of Front and Rear Mounts.

1.5 SPECIFICATIONS

Weight: 625 lbs
Length: 74.19 inches (without Towbar)
Width: 69.5 inches
Height: 60.25 inches

2.0 ASSEMBLY INSTRUCTIONS

This product should be assembled and/or repaired using good workmanship practices and proper tools.

2.1 ASSEMBLY STEPS

The main post assembly and rear mounting support are reversible for mounting left or right hand engines. The engine stand is designed to handle various length engines by way of a roller-mounted main post assembly that provides an adjustment range of 19¾ to 50½ inches from the rear engine attach point. The rear attach post height is fully adjustable through 22 inches in one-half inch increments.

2.1.1 Install Beam Assembly

a. Remove rail pins.
b. Orientate beam assembly for left or right hand engine.
c. Rotate beam assembly to allow the lead rollers to travel into the support rails in the base and tilt main post assembly until the main post assembly is in the vertical position. (See ***Figure 1***).
d. Roll main post assembly forward until located in approximate position for engine to be mounted.

Re-install rail pins.

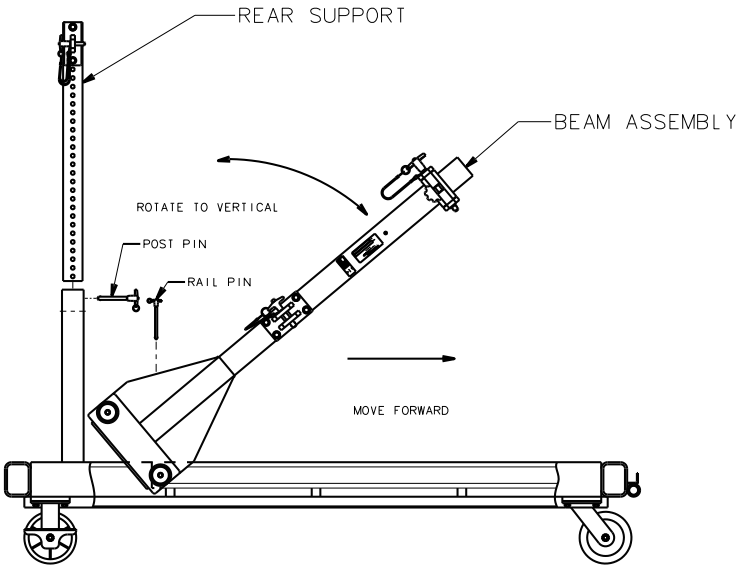


FIGURE 1

2.1.2 Install Rear Engine Support Post

a. Locate rear engine support post for left or right hand engine, as required.
b. Locate rear support at approximate engine attachment height and pin into place with post pin.

2.2 PRE-USE CHECKS

Refer to the parts list and illustration attached to identify and assure that all parts are present.

Generally, check the entire unit to assure the tightness of all nuts and bolts, etc.

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 unit.

3.2 TRAINING PROGRAM

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

3.3 OPERATOR TRAINING

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

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

4.0 OPERATION

1. The engine stand requires use of specific engine adapter kits (not included with engine stand).
2. Attach appropriate sling (not included with engine stand) to engine and remove from aircraft according to the manufacturer's instructions.
3. Attach the front and rear mounting adapters to the engine. (See ***Figure 2***)
4. Lock caster brakes and swivel locks on stand.
5. Align the engine with the beam assembly on the engine stand. Be sure that the front of the engine is positioned toward the beam assembly.
6. Carefully move engine into stand and make the final position adjustment of the main post assembly relative to the fixed rear post location.
7. Attach front and rear engine mount adapters to the engine stand attach points. Make all final adjustments to allow for good engine positioning on engine stand.
8. Engage toggle clamps.
9. Slowly lower sling to transfer weight of the engine to the stand. Remove sling from engine and work area.
10. To remove engine, re-attach sling and reverse steps outlined above.

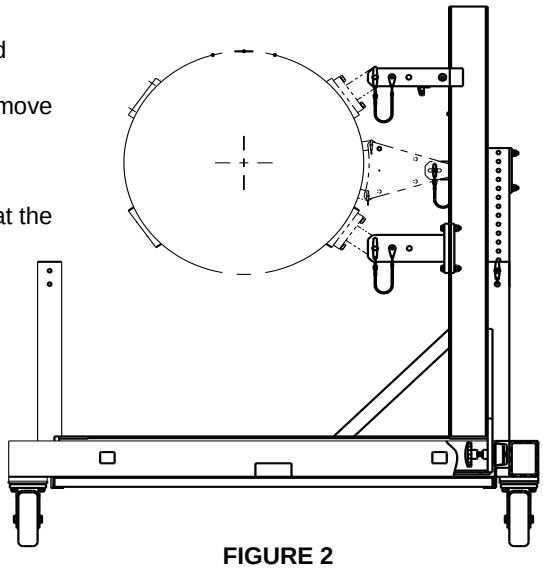


FIGURE 2

5.0 MAINTENANCE

5.1 PERIODIC INSPECTION

A qualified inspector shall perform a complete inspection at the following intervals

SERVICE	INTERVAL	
Normal	Yearly	Inspect equipment at site of use. Operation with various weights within the rated load limit, or uniform loads less than 65 percent of rated load.
Heavy	Semi-Annual	Inspect equipment at site of use unless external conditions indicate that disassembly should be done to permit detailed inspection. Operation within the rated load limit that exceeds normal service.
Severe	Quarterly	Inspect equipment at site of use unless external conditions indicate that disassembly should be done to permit detailed inspection. Operation at normal or heavy service under abnormal operating conditions.
Special/ Infrequent	As recommended by a qualified person before the first such use and as directed by the qualified person for any subsequent uses	

1. Before each use visually inspect unit to ensure all components are present and functional
   - All bolts & nuts are secure
   - Check for wear on t-handle ball-lok pins. Replace as necessary
   - All casters & locks are operational
   - No bent or, broken components

WARNING!

Ensure stand components are free of damage and or excessive wear. Never use stand if any component is bent or broken

2. Periodically:
   - Lubricate swivel caster bearing race and caster wheels with multi-purpose grease
   - Lubricate flange bearing assembly with multi-purpose grease
   - Adjust toggle clamp spindles as required to ensure clamping

3. Annually:
   a. Safely perform load test

5.2 LOAD TEST

It is recommended to send Equipment to Manufacturer or Authorized Service Center for Recertification.

The rated capacity shall not be more than 80 percent of the maximum load sustained during the test. Test loads shall not be more than 125 percent of the rated capacity unless otherwise recommended by the manufacturer. Test weights shall be accurate to within -5 percent, +0 percent of stipulated values.

1. Overall visual inspection.
2. Install test weight equivalent to500 lbs
3. Hold the load for two (2) minutes.
4. Remove load and visually inspect stand for any signs of wear or failure

6.0 PROVISION OF SPARES

6.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

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

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

6.2 RECOMMENDED SPARE PARTS LISTS

Reference the following page for Replacement Parts available.

7.0 GAURANTEES/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:

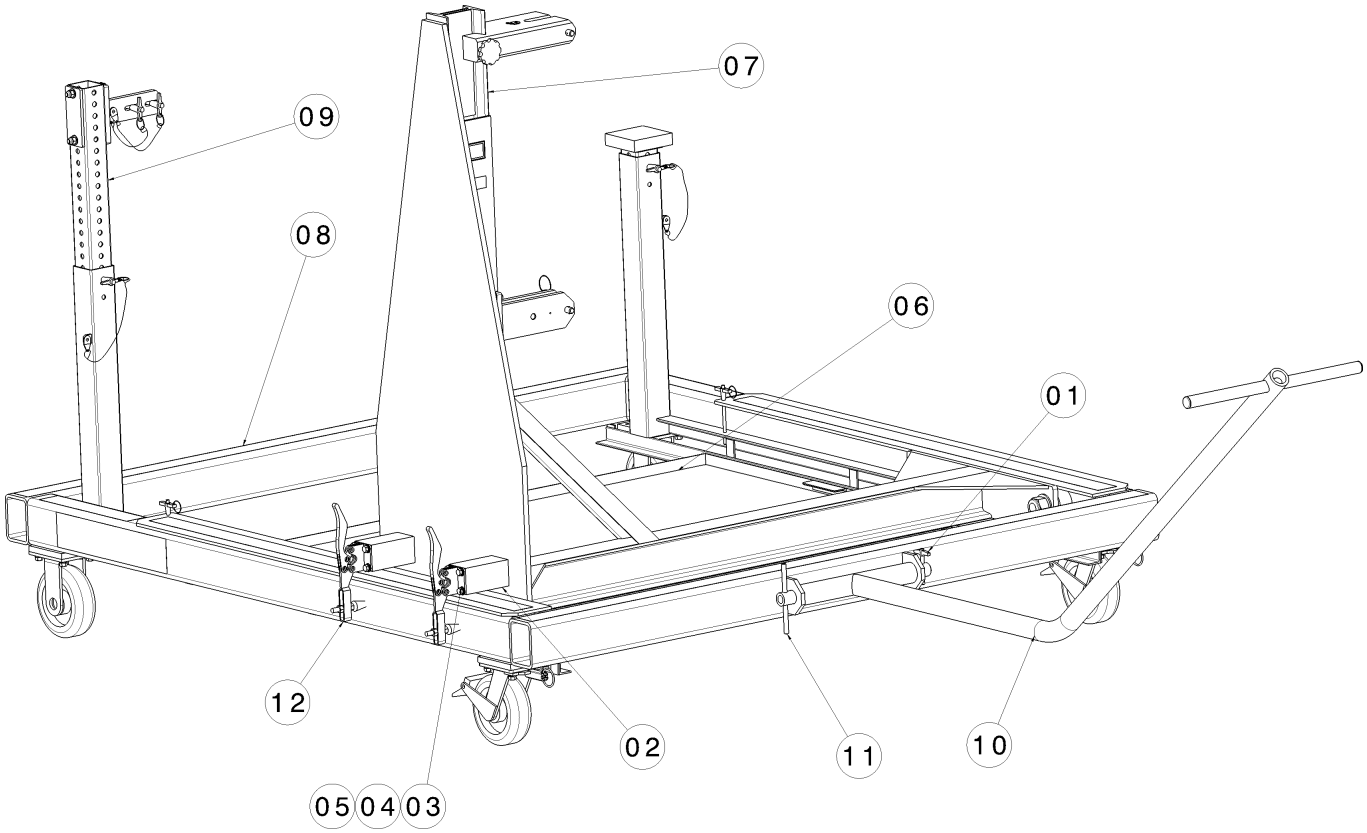
a) Product Model Number
b) Product Serial Number
c) Description of the problem

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

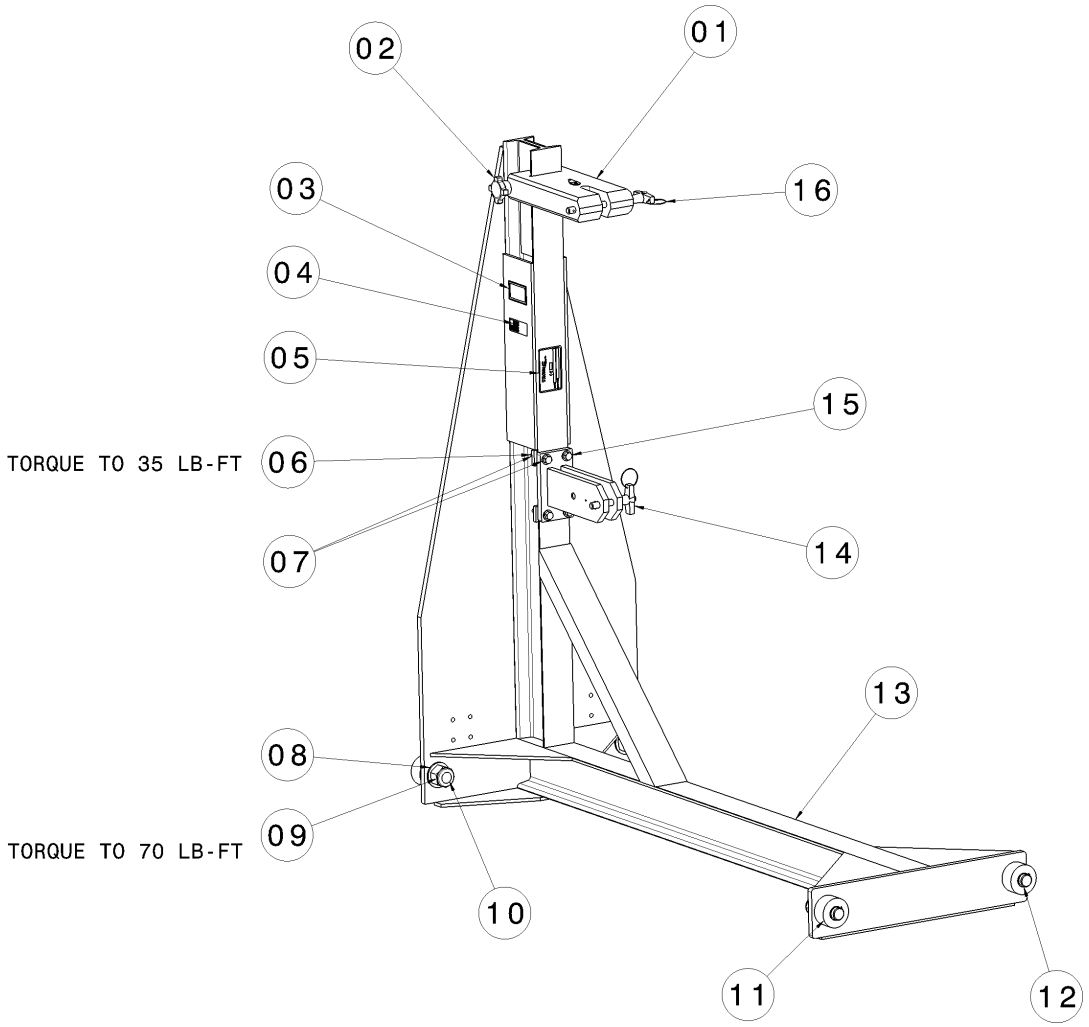
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	G-1310-0415	Pin, T-Handle Ball Lock	1
2	J-3386	Spacer, Toggle Clamp	2
3	G-1250-1060N	Flatwasher, Narrow 5/16	16
4	G-1251-1060R	Lockwasher, Helical Spring, 5/16	16
5	G-1100-106010	Bolt, Hex Head, Grade 5, 5/16-24 X 1.0” Long	16
6	Z-4511	Assembly, Oil Pan	1
7	Z-5472	Assembly, Beam	1
8	Z-5476	Assembly, Base	1
9	Z-3809	Assembly, Rear Post	1
10	Z-5478-01	Weldment, Drawbar	1
11	Z-5479	Weldment, Drawbar Pin	1
12	H-2605	Clamp, Toggle	2

Parts List

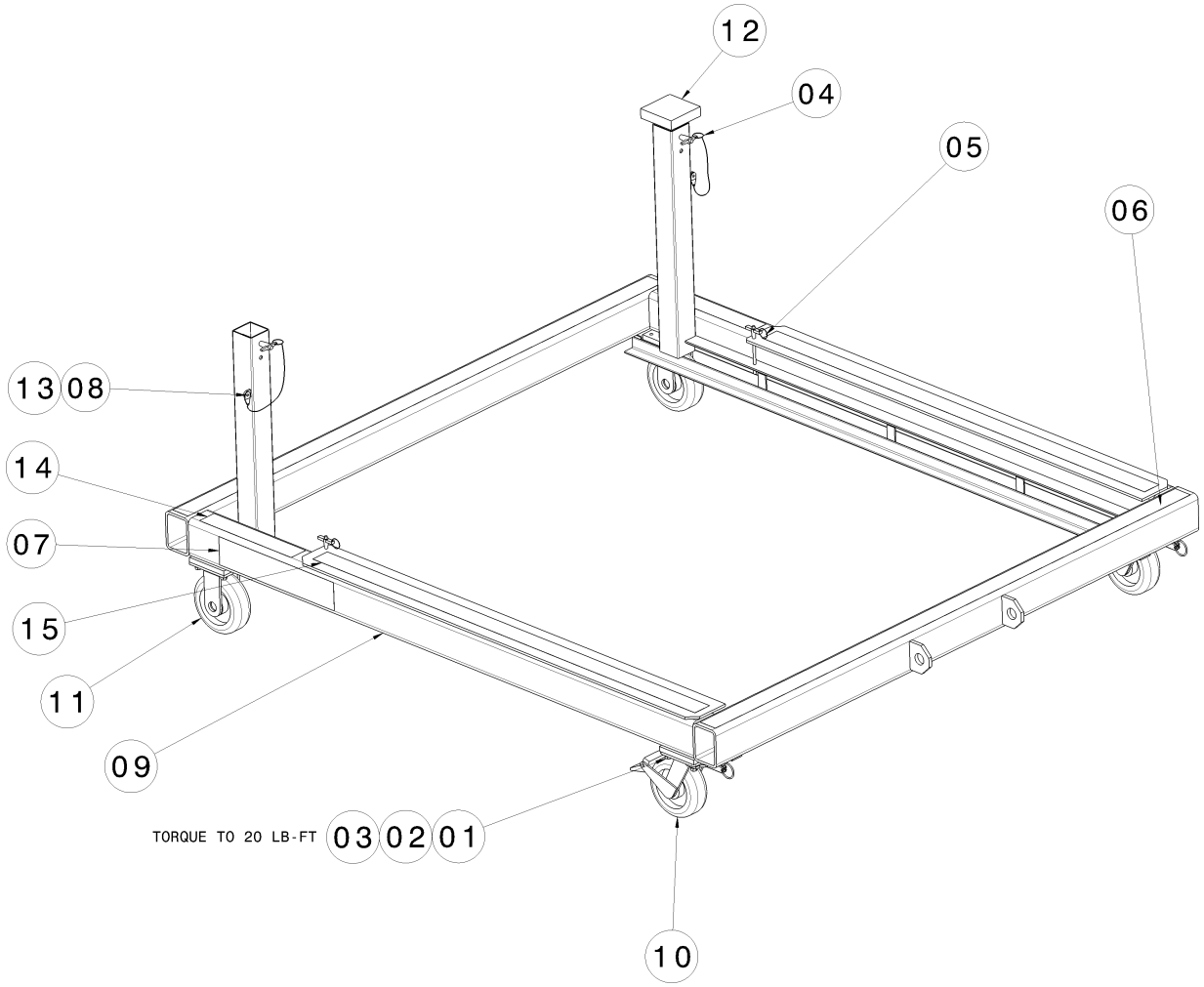
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	J-3502	Plate, Upper Mount	1
2	H-2704	Knob, Hand	1
3	V-1963	Label, Working Load 2,000 lbs	1
4	V-1001	Label, Made in USA	1
5	V-1779	Label, CE Serial Number	1
8	G-1250-1130N	Flatwasher, 1" Narrow	4
9	G-1202-1125	Stopnut, 1-14 Elastic	4
10	R-2136	Axle	4
11	R-2135	Roller	4
12	G-1392-100-S	Ring, Retaining External	4
13	Z-5473-01	Weldment, Beam	1
16	G-1310-0855	Pin, T-Handle Ball Lock, ½ x 5.5" grip	1
	K-2772	**Kit, Lower Support Replacement**; *consists of:*	
6	G-1202-1075	Stopnut, 3/8-24 Elastic	4
7	G-1250-1070N	Flatwasher, 3/8 Narrow	8
14	Z-3806	Assembly, Lower Support	1
15	G-1420-107520	Bolt, Hex Head, Grade 8, 3/8-24 x 2" long	4

Parts List

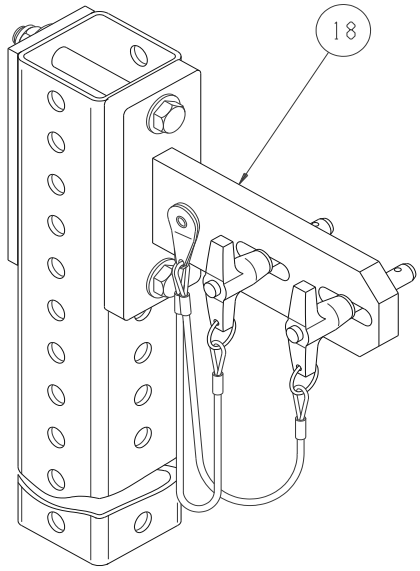
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
4	G-1310-0630	Pin, T-Handle Ball Lock, 3/8" diameter x 3.0" long	2
5	G-1310-0435	Pin, T-Handle Ball Lock, ¼" diameter x 3.5" long	2
6	H-1973-03*065.0	Tread, Anti-Slip, 65" long	4
7	V-1033-02	Label, Tronair	2
8	G-1351-04	Rivet, Open End Steel, 1/8" diameter x 3/16" grip	2
9	Z-5477-01	Weldment, Base	1
12	Z-5033	Assembly, Bumper Pad	1
13	H-1026*07.0	Assembly, Lanyard	2
14	H-1973-03*012.0	Tread, Anti-Slip, 12" long	2
15	H-1973-03*050.0	Tread, Anti-Slip, 50" long	2
	K-3624	**Kit, Rigid Caster (Single) Replacement**; *consists of:*	
1	G-1250-1070N	Flatwasher, 3/8 Narrow	4
2	G-1251-1070R	Lockwasher, 3/8 Regular	4
3	G-1100-107506	Bolt, Hex Head, Grade 5, 3/8-24	4
11	U -1105	Caster, Rigid	1
	K-3625	**Kit, Swivel Caster (Single) Replacement**; *consists of:*	
1	G-1250-1070N	Flatwasher, 3/8 Narrow	4
2	G-1251-1070R	Lockwasher, 3/8 Regular	4
3	G-1100-107506	Bolt, Hex Head, Grade 5, 3/8-24	4
10	U-1106	Caster, Swivel	1

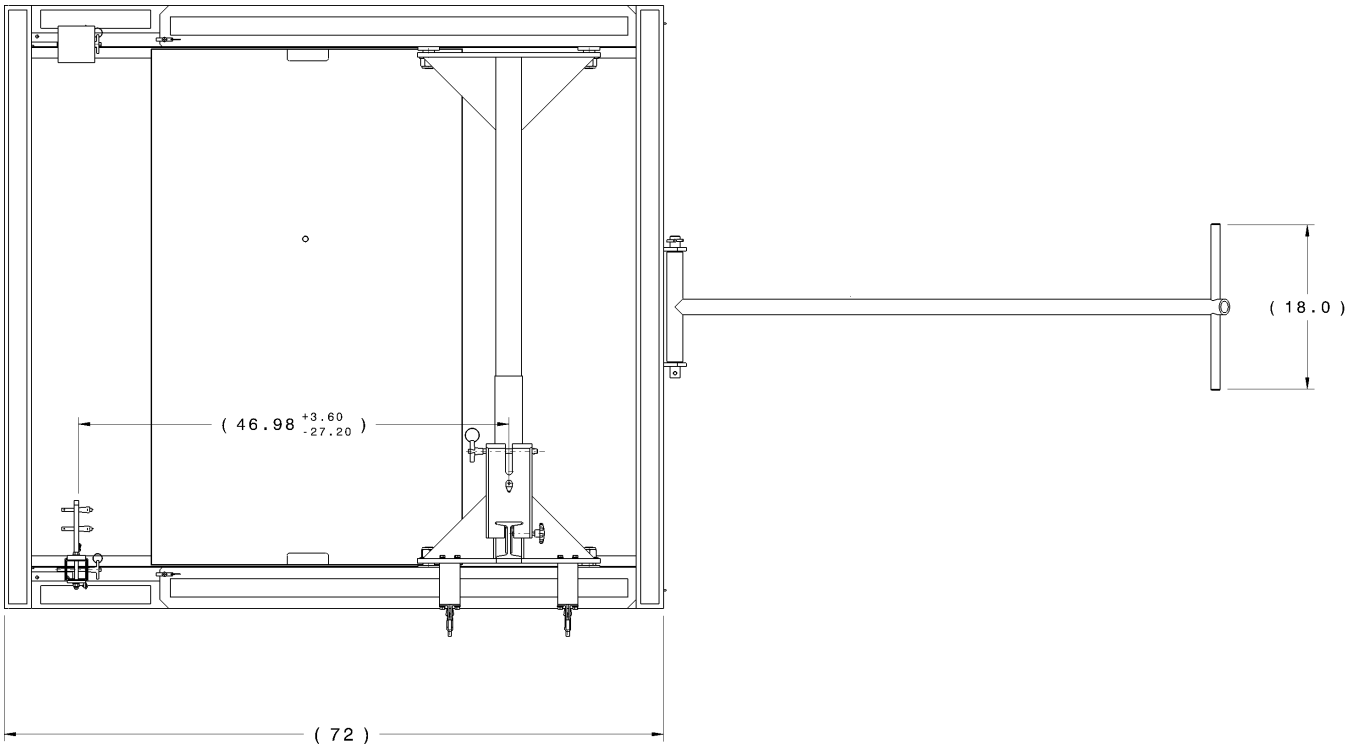
Parts List

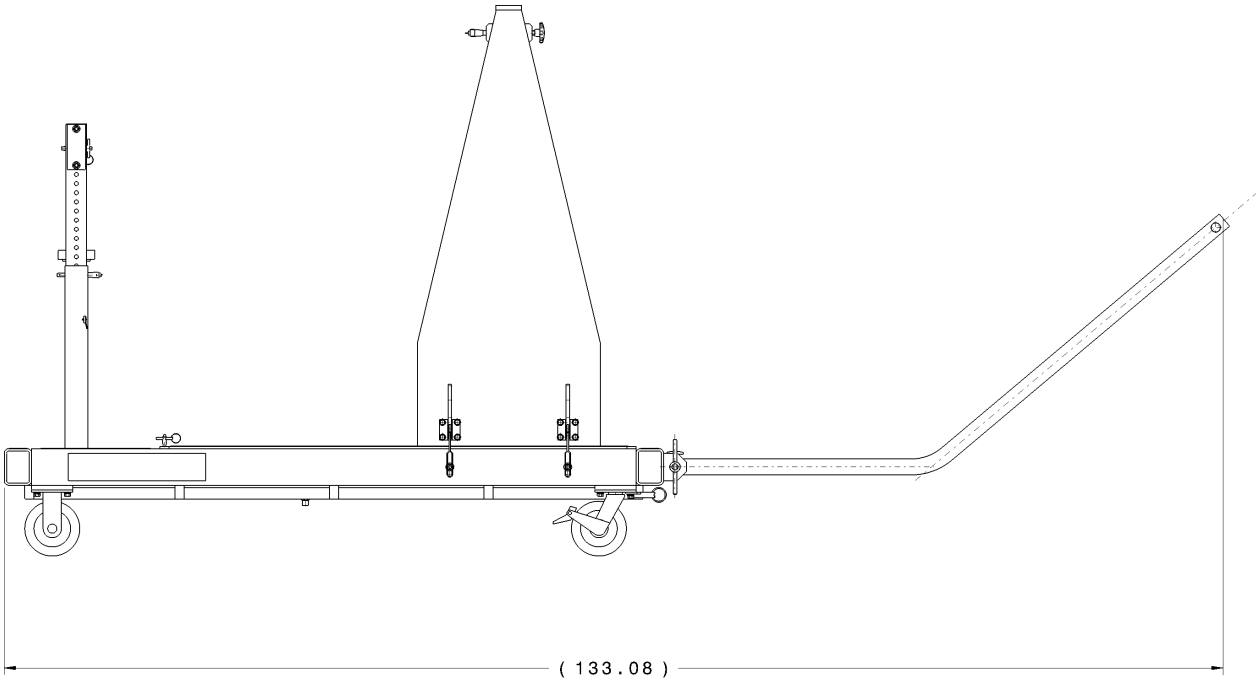
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



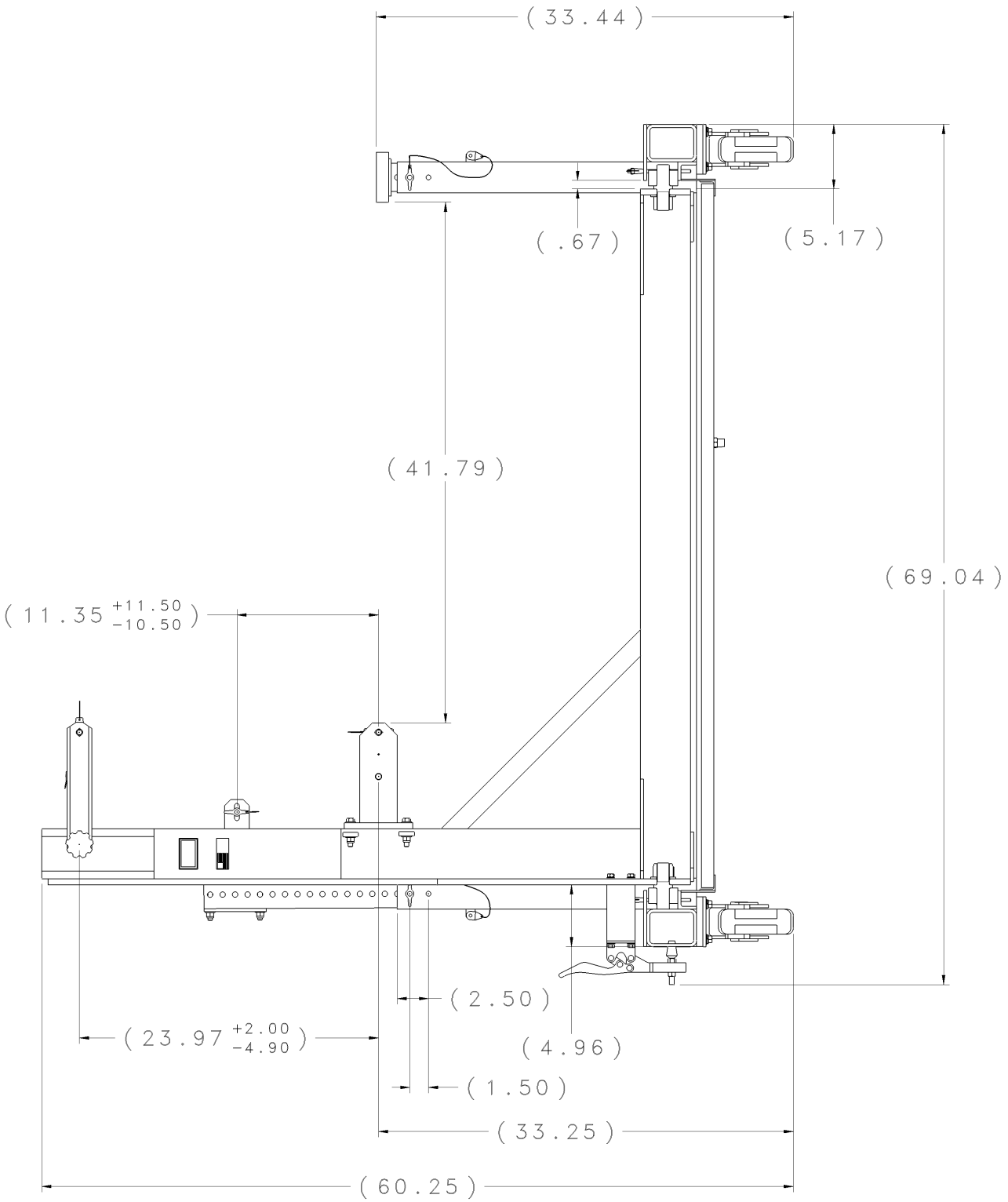
Item	Part Number	Description	Qty
18	**K-2773**	**Kit, Rear Mount Replacement**; consists of:	
	G-1100-107536	Bolt, Hex Head, Grade 5, 3/8-24 x 3 ¾" long	2
	G-1202-1075	Stopnut, 3/8-24 Elastic	2
	G-1250-1070N	Flatwasher, 3/8 Narrow	4
	J-2711	Plate, Bolt	1
	Z-3808	Assembly, Rear Support	1

Outline Dimensions





Outline Dimensions



APPENDIX I

Declaration of Conformity

DECLARATION of CONFORMITY

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

08-2034-0010
Engine Work Stand

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

Relevant standards complied with by the machinery:
EN ISO 12100-1
EN 1915-1:2001 (5.20)

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

Patrick Finch

Quality Assurance Representative

Tronair, Inc.
1 Air Cargo Pkwy East
Swanton, OH 43558

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