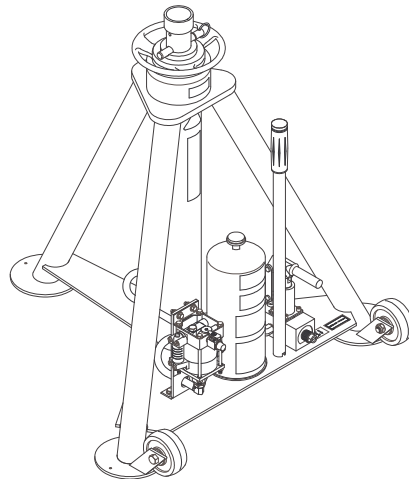




Operation & Service Manual



Model: 02A1036-0111
10 Ton Single Stage Jack
with Air Pump

03/2002 - AA - Rev. 02

Includes Illustrated Parts Lists

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10 Ton Single Stage Jack with Air Pump

1.0 DESCRIPTION

The Tronair 10 Ton Single Stage Jack incorporates the following quality features:

- Steel Construction
- Mechanical ram lock nut that prevents lowering of jack under load
- Quick action mechanical extension
- Single speed, manually operated pump with pressure relief
- Uses standard MIL-H-5606 hydraulic fluid
- Pneumatic pump with a one-fourth inch (1/4 NPT air drive inlet

2.0 USAGE

The purpose of the jack is to lift the aircraft for maintenance. See 3.0 Specifications for capacity of jack.

3.0 SPECIFICATIONS

- Rated Capacity: 20,000 lbs
- Minimum Closed Height: 34 inches
- Mechanical Extension: 14 inches
- Hydraulic Extension: 20 inches
- Maximum Height Obtainable: 70 inches
- Weight: 185 lbs
- Pressure Relief Setting: 2500+250/-0 psig
- BUNA 'N' Seals

4.0 ASSEMBLY INSTRUCTIONS

4.1 GENERAL INSTRUCTION

This product should be assembled and/or repaired using good workmanship practices and proper tools. Bolts and elastic stopnuts should be tightened to a torque not to exceed industry standards for Grade '5' bolts.

All replacement parts must be the same as or equal to the original parts supplied.

4.2 PRE-USE CHECKS

- Refer to the Jack Parts List Illustrations to identify and ensure that all parts are present.
- Generally check over unit to assure the tightness of all nuts, bolts and fittings.
- With rams completely collapsed, check hydraulic fluid level is one and one-half (1½") inches below vent. Replenish with MIL-H-5606 fluid as required.

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5.0 OPERATING INSTRUCTIONS

The user should be familiar with the following statements prior to using the jack:



CAUTION!

1. **NEVER** put hands between the aircraft and the jack pad; as after aircraft has been lowered, struts may have hung up.
2. **NEVER** align jack under aircraft by pounding on jack legs. Dented legs may lead to jack collapse.
3. **ALWAYS** lower ram locking nut(s) after jack is under load. Be sure ram nut(s) is seated fully after jacking.
4. **ALWAYS** raise and lower jacks simultaneously so that aircraft remains level.
5. **ALWAYS** use a tail or nose stand, as applicable, for additional stability.

5.1 JACK INSTRUCTIONS

To Raise Aircraft:

1. Place jack on a hard, level surface.
2. Raise mechanical extension as close to aircraft jack pad as possible.
3. Close pump release valve and operate pump.

NOTE: *Turning the pump relief valve counter-clockwise lowers the jack. Turning the pump release valve clockwise stops the jack's descent and allows it to be raised.*

4. If air pump is to be used, be sure shop air needle valve is closed and attach shop air (125 PSI Maximum) to needle valve. Slowly open needle valve. Close needle valve when ram reaches required height.
5. Lower ram locknuts as aircraft is raised.



WARNING!

The ram locknuts are user operated safety devices. Failure to utilize these locknuts may result in personal injury or death.

To Lower Aircraft:

1. Lower all jacks simultaneously.
2. If ram locking nut(s) is tight, raise jack slightly to release nut(s).
3. Loosen pump release valve slightly to slowly lower aircraft. Raise locking nut(s) as jack ram(s) lower.

NOTE: *When using the jack during a washing or cleaning operation, the jack should be completely covered to protect it from cleaning solution, dirt and/or foreign material which might get on or between the ram and cylinder causing damage to the seals and O-rings.*



CAUTION!

Do not place hands on top of jack near ram locknuts while lowering jack. Pinch points exist between top of jack and threads on ram.

Always wear safety glasses while operating this equipment.

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6.0 MAINTENANCE

GENERAL

- All maintenance and/or repair work should be done using good workmanship practices and proper tools.
- The work area should be clean and free of dirt.
- When O-rings and backup rings are removed, every effort should be made to avoid the contact of tools with the critical surfaces of parts. Surface deformities could cause degradation of seals and failure.
- It is good practice to replace both O-rings and back-up rings once removed. Cut and damaged O-rings normally result in fluid leakage.
- If cylinder bore is found to be rusty, it may be honed to a maximum diameter of 3.257 inches and a surface finish of 16 micro inches. If pitting in the bore cannot be removed by this process, the jack cylinder must be replaced before the jack can be returned to service.
- At this time, flush old hydraulic fluid and dirt from overall system and replenish with new, clean hydraulic fluid.

90-Day Routine Maintenance

If jack is not being used on a regular basis, every 90 days the jack should be fully extended and retracted to exercise the seals and to prevent rust build up on the cylinder inside diameter. While ram is extended, clean the threads and spray with DoALL RPM, LPS, or equivalent that is water repellent and will not harm BUNA "N" O-rings.

6.1 SERVICING JACK

To Disassemble Jack:

1. Remove mounting plate (Item 39) by unscrewing four (4) socket head cap screws (Item 38).
2. Raise ram assembly (Item 41) to the point where it can be lifted from the jack cylinder.

To Re-assemble Jack:

1. Re-assemble in reverse order of above.

NOTE: *Torque four (4) socket head cap screws (Item 38) to 44 ft-lbs.*

2. Spray inside diameter of cylinder and outside diameter of ram (Items 1 & 41) with DoALL RPM, LPS or equivalent water repellent that will not harm the BUNA "N" O-rings to protect surfaces from rusting when not in use.

NOTE: *To minimize air entrapment under the ram, raise the oil level in the cylinder to chamfer of the cylinder prior to ram insertion.*

6.0 Maintenance continued on following page.

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6.0 MAINTENANCE

6.2 REMOVING AND SERVICING PUMP

NOTE: *If pump is found faulty, call the factory for replacement or replace seals as follows:*

1. Review Appendix I: HC-1752 Hand Pump Illustrated Parts List.
2. Clamp suction (push on) hose and remove hose from pump.
3. Uncouple fitting of hydraulic hose from pump.
4. Remove pump from jack.
5. Remove cotter pin (Item 18) from clevis pin.
6. Remove four (4) socket head cap screws.
7. Remove flanges.
8. Remove tube assembly (Item 16).
9. Replace O-rings and backup ring. (See Appendix I: HC-1752 Pump Parts List for kits available).
10. Re-assemble in reverse order.

6.3 JACK FUNCTION LOAD TEST

NOTE: *If function load testing is required:*

1. Take all necessary precautions to prevent injury.
2. Always jack against a load and never against the jack itself.
3. Do not exceed a test load equal to the jack rated capacity plus 10%.

6.4 PNEUMATIC PUMP

See Appendix II: Haskel MLP-20/46D Pump information for complete parts list and repair information.

7.0 TROUBLE SHOOTING

RAM WILL NOT RISE OR RISES ERRATICALLY

PROBABLE CAUSE	CORRECTIVE ACTION
High pressure leaks (at joint, plugs or tubing)	Re-tighten or repair
Leaky discharge check valve	Pump rapidly to dislodge; Or repair pump
Leaky ram O-ring packing	Replace packing
Leaky release valve	Tighten release valve
Leaky pump O-ring packing	Repair pump
Lack of oil	Refill reservoir check system for leaks
Sticking inlet check valve	Pump rapidly to dislodge; Or repair pump
Closed air vent	Open air vent
Air under ram	Bleed system

7.0 Trouble Shooting continued on following page.



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7.0 TROUBLE SHOOTING

JACK WILL NOT LOWER

PROBABLE CAUSE	CORRECTIVE ACTION
Ram locknut not in correct position	Rotate nut to top of ram
Broken pump release valve	Repair pump
Bent ram	Replace suspected ram assembly

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Parts List

When ordering Replacement Parts/Kits, please specify model & serial number of your unit.

Reference Parts List Illustrations on Pages 8 - 10.

REPLACEMENT PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY
2	H-1009-01	Assembly, Handle	1
7	TF-1043-06*18.0	Assembly, Hose	1
12	N-2016-05-S	Tee, Run Swivel Nut, 3/8-37° JIC	1
13	N-2004-15-S	Elbow, Extra Long Male	1
36	HJ-553	Ring, Ram Protection	1
37	H-2331	Nut	1
38	G-1151-107206	Screw, Socket Head Cap, 3/8-16 x 3/4" long	4
39	TR-1756	Plate, Mounting	1
43	HJ-557	Pad, Jack	1
44	G-1300-25200	Pin, Roll, 1/4" diameter x 2" long	1
45	HJ-225-03	Shaft, Extension	1
46	G-1318-1033	Pin, Model "D", 5/8" diameter x 3.3" long	1
49	K-1685	Kit, Repair Fluid Seal (Ref. Haskel MLP-20/46D)	
50	K-1686	Kit, Repair Air Seal (Ref. Haskel MLP-20/46D)	
51	28442	Lubricant, Haskel Seal (Ref. Haskel MLP-20/46D)	

All other parts available in Replacement Kits only.

REPLACEMENT KITS

PART NUMBER	DESCRIPTION	QTY
K-1050	Kit, Replacement Ram Seal; consists of:	
- Item 40	HJ-554 Ring, Guide	1
- Item 47	HC-2020-336 Ring, Backup	1
- Item 48	HC-2000-336 O-ring	1
K-1165	Kit, Replacement Wheel (Set); consists of:	
- Item 3	G-1203-1095 Jamnut, 1/2-20 Elastic	2
- Item 4	U-1002 Wheel	2
- Item 5	G-1100-109526 Bolt, Hex Head, Grade 5, 1/2-20 x 2-3/4" long	2
K-1987	Kit, Replacement Hand Pump; consists of:	
- Item 6	N-2410-11 Elbow, 90° Male, 3/8 NPT	1
- Item 8	N-2001-08-S-B Elbow, Straight Thread, SAE #6 x 3/8-37° JIC	1
- Item 9	HC-1752 Pump, Hand	1
- Item 10	G-1251-1070R Lockwasher, 3/8 Regular	2
- Item 11	G-1100-107010 Bolt, Hex Head, Grade 5, 3/8-16 x 1" long	2
- Item 16	TF-1047-01*09.0 Hose, 1/4" I.D. Gray	1

Replacement Kits List continued on following page.



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Parts List

When ordering Replacement Parts/Kits, please specify model & serial number of your unit.

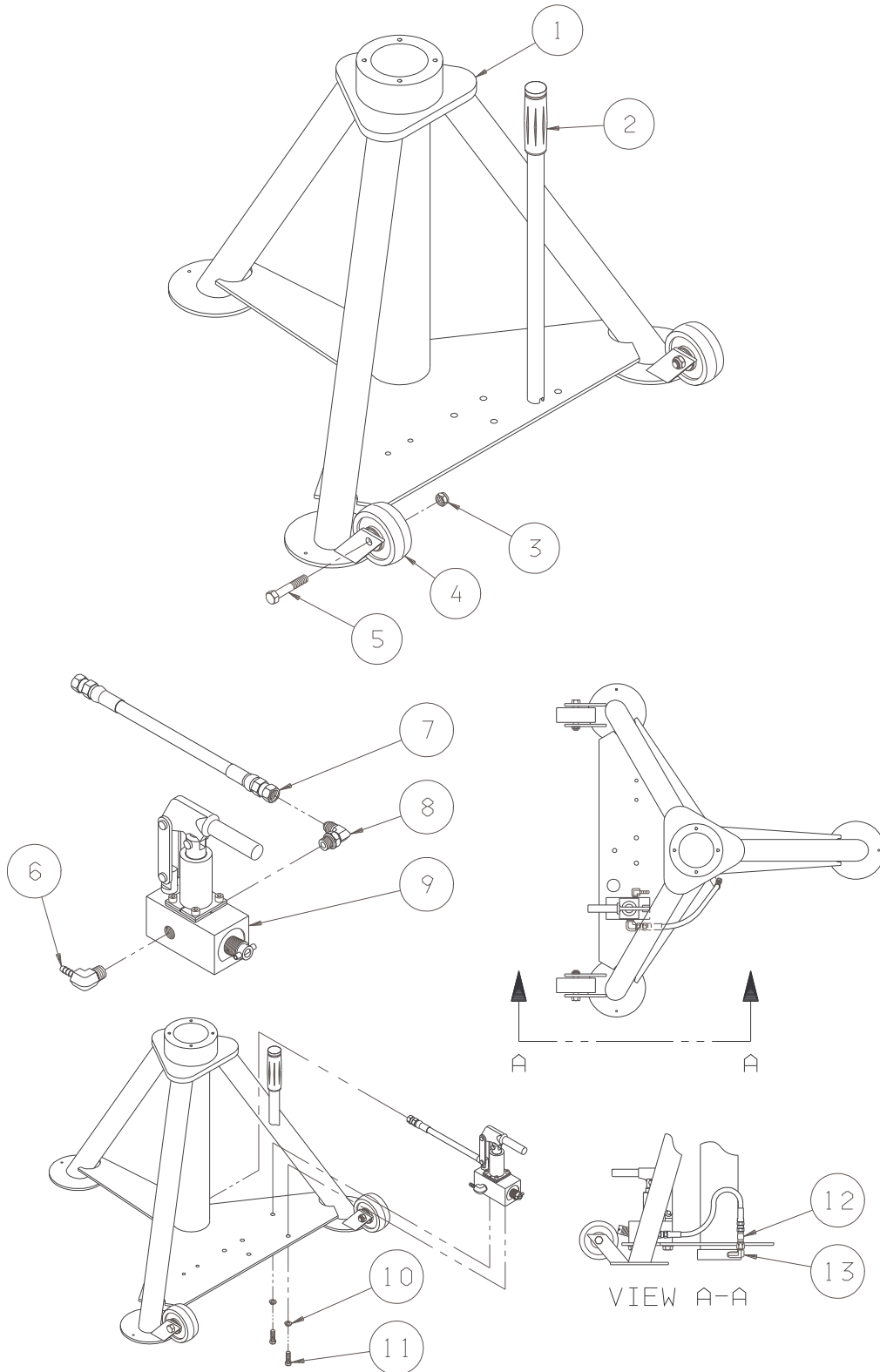
Reference Parts List Illustrations on Pages 8 - 10.

REPLACEMENT KITS

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
K-2592-02	Kit, Replacement Ram and Jack Stop; consists of:	
- Item 41	HJ-586-02 Assembly, Ram	1
- Item 42	TR-1505 Stop, Jack	1
K-2788	Kit, Replacement Reservoir; consists of:	
- Item 14	N-2412-04 Connector, Straight Male, 1/8 NPT	2
- Item 15	N-2208-01-S Tee, Male Branch, 1/8 NPT	1
- Item 16	TF-1047-01*09.0 Hose, 1/4" I.D. Gray	1
- Item 17	H-1045 Breather	1
- Item 18	Z-1539-02-01 Weldment, Reservoir (with Labels)	1
- Item 19	G-1202-1050 Stopnut, 1/4-20 Elastic	3
- Item 20	G-1250-1050N Flatwasher, 1/4 Narrow	3
K-3077	Kit, Replacement Air Pump; consists of:	
- Item 21	TF-1043-03*16.0 Assembly, Hose	1
- Item 22	G-1202-1055 Stopnut, 1/4-28 Elastic	4
- Item 23	G-1250-1050N Flatwasher, 1/4 Narrow	8
- Item 24	TF-1047-01*07.0 Hose, 1/4" I.D. Gray	1
- Item 25	J-3415-01 Bracket, Air Pump	1
- Item 26	N-2210-04-S Reducer, Pipe Thread	1
- Item 27	N-2410-01 Elbow, 90° Male	1
- Item 28	G-1100-106512 Bolt, Hex Head, Grade 5, 5/16-24 x 1-1/4" long	2
- Item 29	G-1250-1060N Flatwasher, 5/16 Narrow	4
- Item 30	G-1202-1065 Stopnut, 5/16-24 Elastic	2
- Item 31	H-1174 Pump, Air	1
- Item 32	N-2005-08-S Elbow, 90° Male	1
- Item 33	G-1100-105510 Bolt, Hex Head, Grade 5, 1/4-28 x 1" long	2
- Item 34	H-1173 Valve, Plug	1
- Item 35	H-1536-19 Caplug, Tapered	1
K-3474	Kit, Replacement Jack Weldment; consists of:	
- Item 1	Z-5117-01 Weldment, Jack (with Labels)	1

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Parts List Illustrations

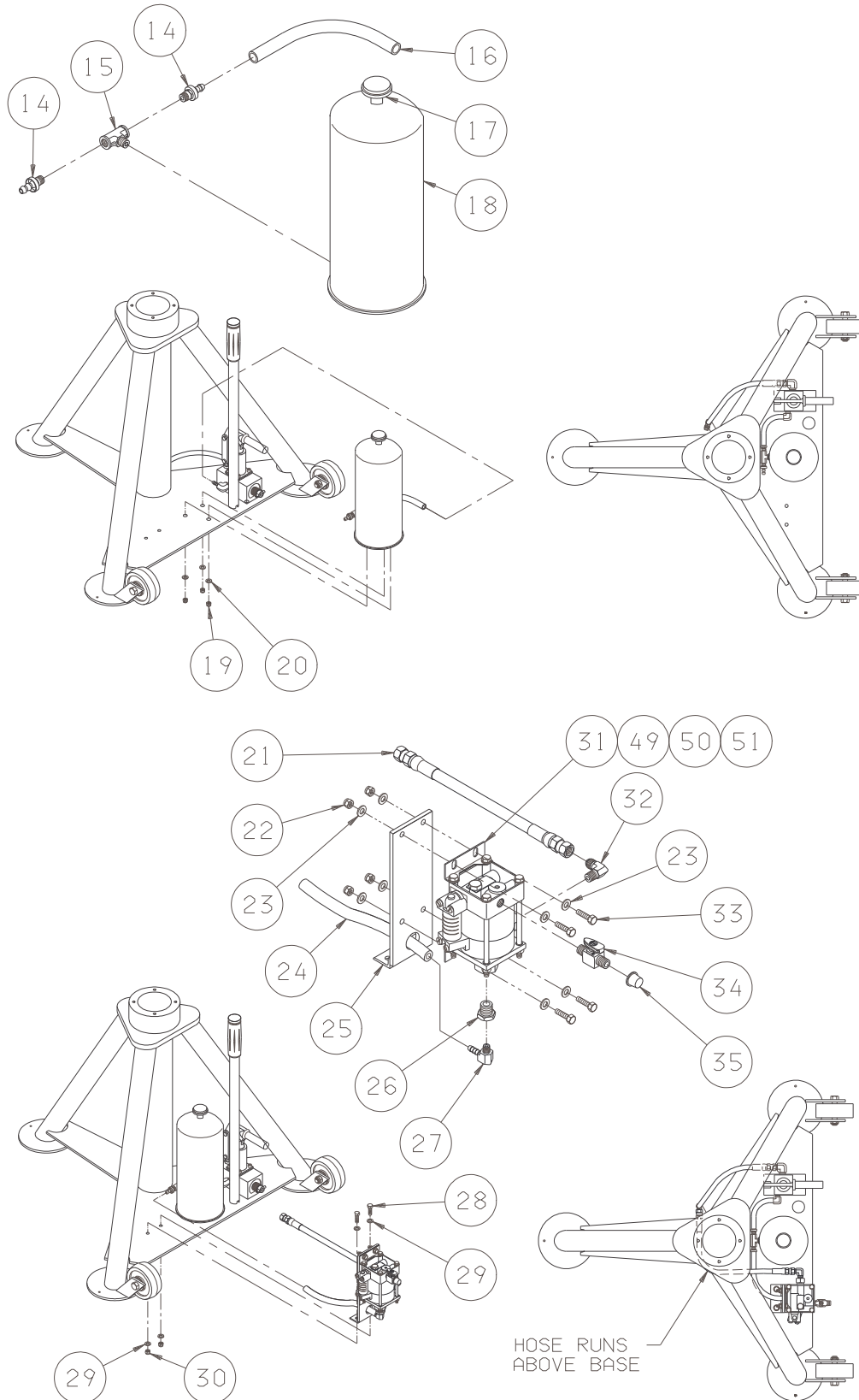


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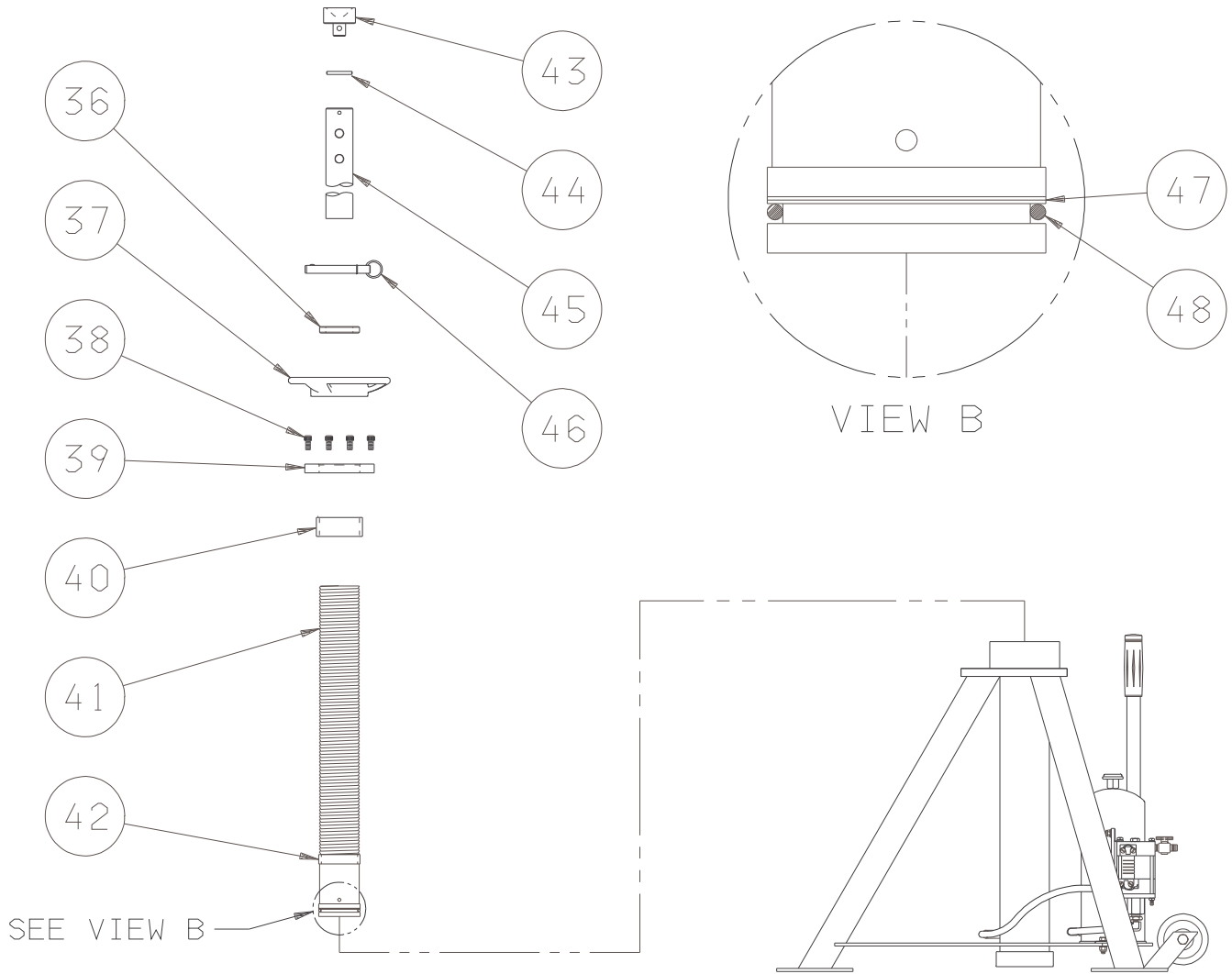


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Parts List Illustrations





APPENDIX I

**HC-1752
2500 PSI
Hand Pump
Parts List**



APPENDIX III

**MSDS
Hydraulic Fluid
(MIL-H-5606)**



APPENDIX II

**Haskel
MLP-20/46D
Technical Specifications
&
Performance Data
&
Drawings 28550**