

**Model: 06-5074-0500**  
**Hydraulic Service Unit**



07/2015 – Rev. 02

**For Spare Parts, Operations & Service Manuals or Service Needs**  
**Scan the QR code or visit [Tronair.com/aftermarket](http://Tronair.com/aftermarket)**



REVISION	DATE	TEXT AFFECTED
01	11/2010	Original Release
02	07/2015	Major 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

Hydraulic Service Unit (HSU)

### 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

### 1.4 FUNCTION

The Tronair Hydraulic Service Unit (HSU) is a compact unit designed to provide a source of clean, pressurized fluid for filling reservoirs, bleeding brakes and other maintenance functions.

### 1.5 SPECIFICATIONS

Tank Capacity .....8 gallon  
Max. Pressure .....5000 psig  
Fluid .....MIL-PRF-5606, MIL-PRF-83282  
Filtration .....3 Micron  
Weight .....65 lbs

### 1.6 FEATURES

- 15 foot hose
- Calibrated digital pressure gauge
- Pump provides high flow and high pressure capability
- 4 way valve for testing double acting cylinder
- Air drive relief pre-set 90 psi relief valve

## 2.0 PREPARATION FOR USE

The HSU is shipped fully assembled, and only the following steps are required to make the unit operational.

- Service reservoir - fill reservoir with appropriate clean fluid.
- Adjust handle height to suitable height.

Remove Air From HSU System By:

- Flow fluid by regulating input shop air to the hydraulic pump.

## 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 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

To use your HSU, follow the steps below:

1. Securely attach hose(s) to the aircraft.
2. Select output hose #1 or #2 by rotating handle pointer to selected hose.
3. Transfer hydraulic fluid by actuating the hydraulic pump by applying regulated shop air.

When Service Has Been Completed:

1. Close air shutoff valve.
2. Move selector valve to appropriate position to relieve pressure in both hoses.
3. Disconnect hose(s) from aircraft.
4. Install hose end dust plug.

## 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

### 5.2 RECOMMENDED SPARE PARTS LISTS

Reference the following page(s) for Replacement Parts and Kits available.

## 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.**

## 8.0 APPENDICES

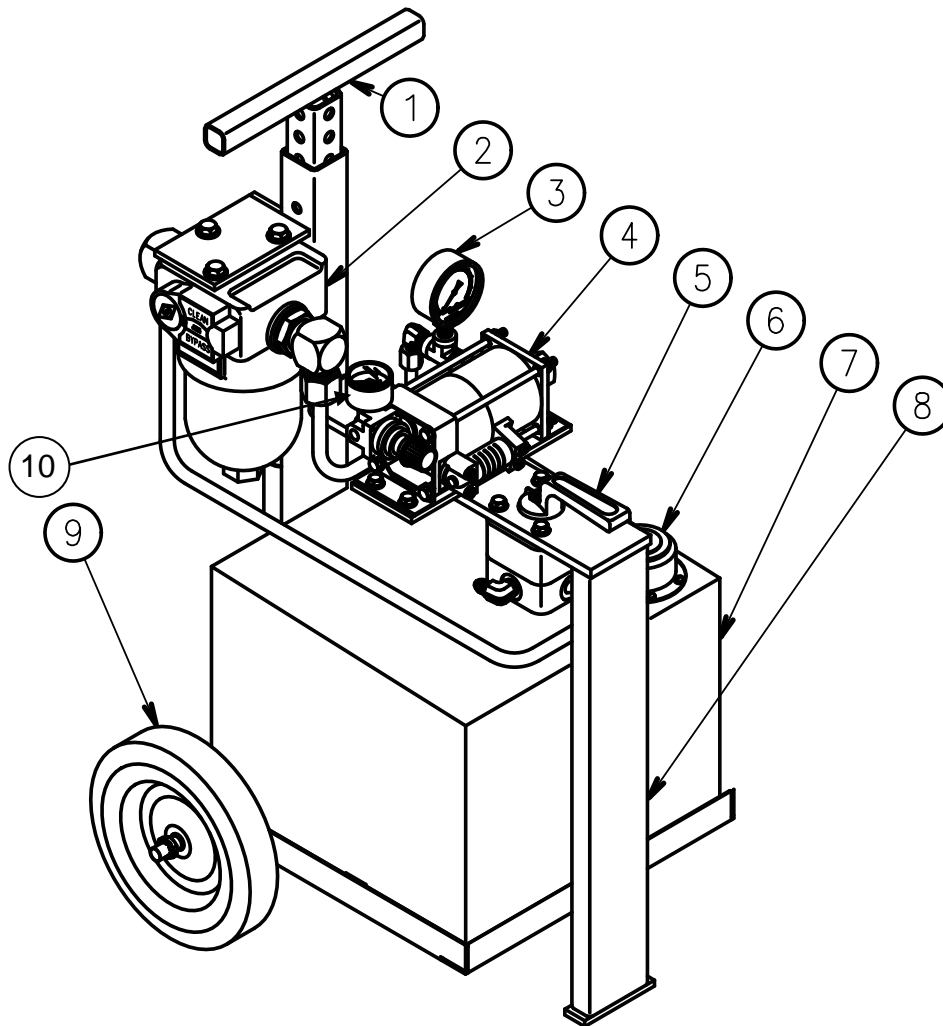
APPENDIX I Instrument Certification Notice

APPENDIX II Haskel MLP-20/46D Technical Specifications & Performance Data

APPENDIX III Declaration Of Conformity

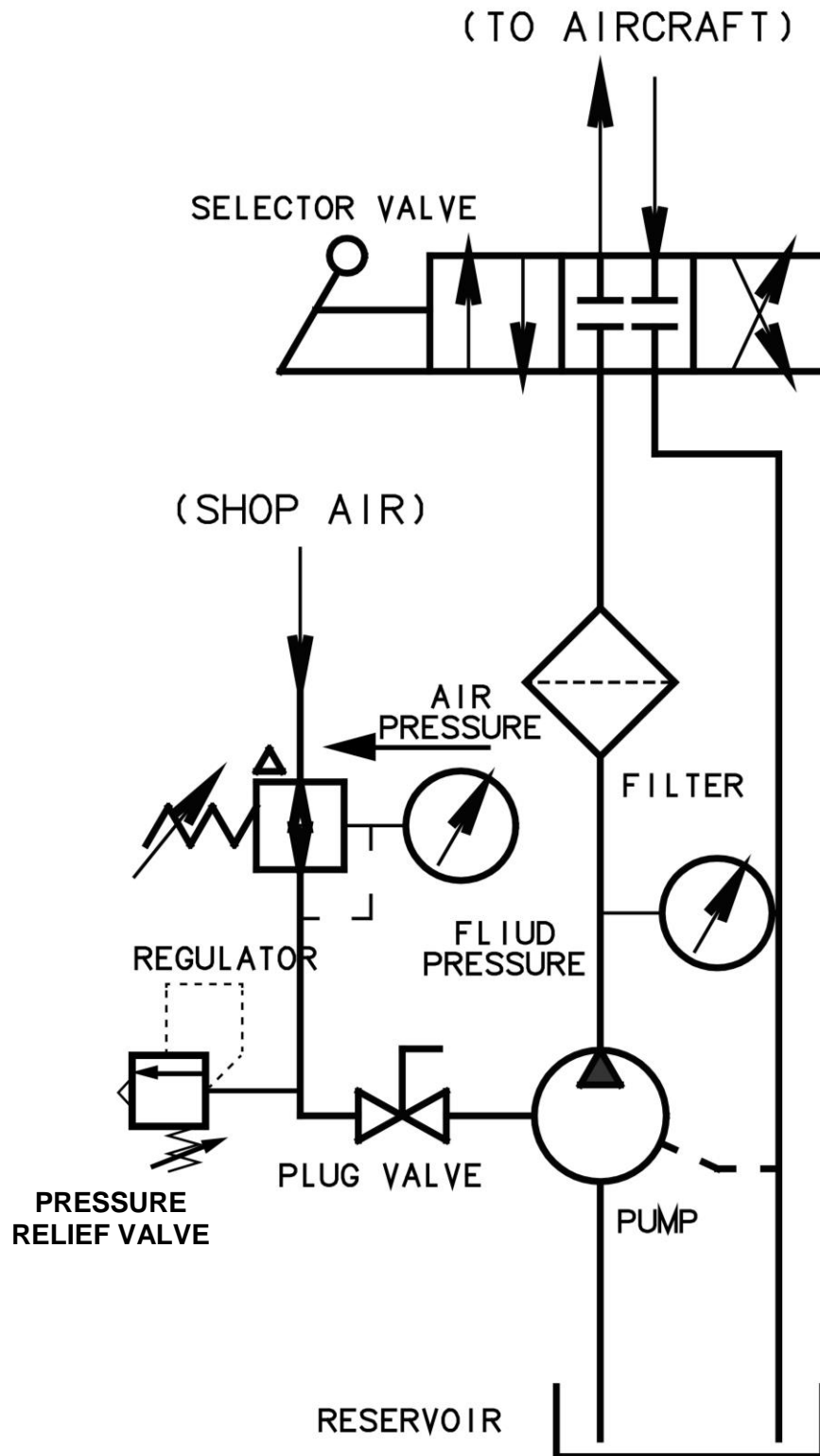
**Parts List**

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



Item	Part Number	Description	Qty
1	Z-1083-01	HANDLE, UNIT	1
2	HC-1675	FILTER ASSEMBLY	1
	K-2318	KIT, ELEMENT	1
3	H-2604	PRESSURE GAUGE	1
4	H-2796	PUMP, AIR	1
5	HC-1046-02	SELECTOR VALVE	1
6	HC-1030	BREATHER	1
7	H-1802-A1	TANK	1
8	Z-1201-A1	FRAME	1
9	U-1001-01	WHEEL	2
10	PC-1017-02-90	PRESSURE RELIEF VALVE	1
N/S	TF-1038-14*180	HOSE ASSEMBLY	2
N/S	TF-1047-01*06.5	HOSE, PUMP SUCTION	1
N/S	TF-1047-01*10.0	HOSE, BLEED	1
N/S	PC-1017-02-90	VALVE, SAFETY	1
N/S	HC-1831	GAUGE, PRESSURE 0-160 PSI	1

### Hydraulic Schematic









**APPENDIX I**

**Instrument  
Certification  
Notice**





## Instrument Certification Notice

The gauge Certificates of Calibration supplied for the gauge(s) on this unit contain the calibration data for the actual instrument calibrated, along with the calibration date of the **STANDARD** used to perform the calibration check.

The due date for re-calibration of the instrument should be based upon the date the instrument was placed in service in your facility. Re-calibration should be done on a periodic basis as dictated by the end user's quality system or other overriding requirements.

Note that Tronair, Inc. does not supply certificates of calibration on flow meters or pyrometers unless requested at the time of placed order. These instruments are considered reference indicators only and are not critical to the test(s) being performed on the aircraft.





**APPENDIX II**

**Haskel  
Air Pump  
Technical Specifications  
& Performance Data**

**\*\*\***

**Drawing 28550**



# Haskel

## Technical Specifications & Performance Data

# 1/3 HP PUMP SERIES

## M, MS, MCPV, MDSTV, 29723 models

### INTRODUCTION

This brochure should be read in conjunction with Catalog MLP-46 and the assembly drawings when supplied as part of the O/M manual with a pump.

### INSTALLATION

The Haskel pump can be mounted in any position and be secured by the two mounting brackets. Alternatively, the hydraulic inlet can be directly mounted to a tank top. However, models with separation chamber construction (all MD, MCPV and 29723 models) should be mounted vertically so that any fluid leakage from the chamber vent port will not migrate into the air drive section. Pump can be mounted in a horizontal position providing the vent port is facing down. Do not pipe vent port back to fluid source.

### AIR DRIVE SYSTEM

Other gases such as Nitrogen, CO<sub>2</sub>, Natural Gas – even Sour Gas can be used as alternatives to compressed air when properly modified.

The air drive requires a minimum pressure of 25 psi (1.72 bar) to actuate the air cycling valve spool. However, 40 psi is the recommended minimum for long term reliable operation. The maximum air drive pressure is 125 psi (8.6 bar). It is not necessary or desirable to use an airline lubricator. The air drive section of all Haskel liquid pumps are prelubricated at the time of assembly with Haskel lubrication 28442. The air drive requires no other means of lubrication. Install an air line filter and pressure regulator with a minimum of 1/4" npt port size. Also review air system upstream and eliminate any restrictions to provide 1/4" minimum inside diameter. Install a shut-off/speed control valve, 1/4" npt, at pump inlet port.

### HYDRAULIC SYSTEM

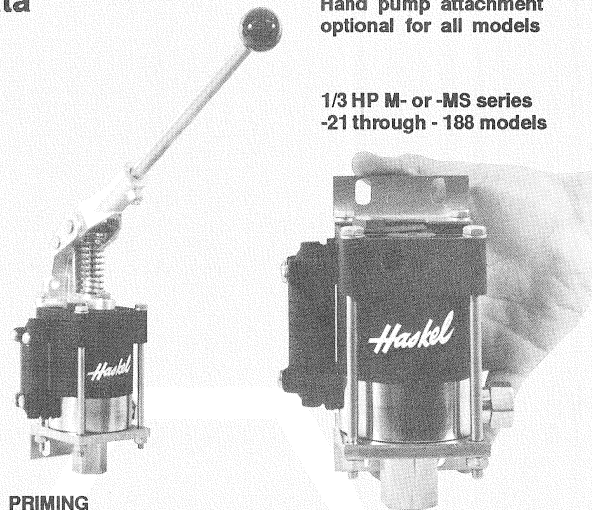
**Note:** Inlet fluid supply piping should not be less than 1/4" I.D. restricting the fluid supply will result in lower outlet flow rates and cause pump to cavitate.

Larger piping should be used with heavy fluids or if suction lift is over 3 feet.

**Caution:** Do not loosen liquid inlet or liquid outlet fittings of pump to facilitate make up of piping connections. These fitting must be tight to avoid leakage or damage. A suction filter must be installed in liquid inlet line. 100 x 100 mesh in normally ample to protect the pump seals and check valves.

Hand pump attachment  
optional for all models

1/3 HP M- or -MS series  
-21 through -188 models



### PRIMING

Install a valve of suitable working pressure to the pump outlet that is capable of being used as an air bleed to start up. Open air control valve slowly. Allow pump to cycle for approximately fifteen seconds pumping fluid through the valve. If adequately primed, close the valve. The pump will cycle slower and then stall due to increase in output resistance. If pump does not stall, open the valve and repeat the procedure.

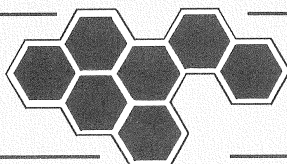
### OPERATION

The pump model number indicates the ratio between the area of the of the air piston and the liquid piston.

The liquid outlet pressure can be controlled quite accurately by regulating the air drive pressure. The pump will cycle rapidly initially and as it approaches an output pressure equal to the ratio times the air drive pressure, it will gradually slow down and finally "stall".

Where it is necessary to obtain maximum outlet flow rates up to a predetermined pressure, a Haskel Air Pilot Switch should be installed at the pump outlet to automatically stop the pump at the final pressure. The airline regulator should be set at 125 psi (8.6 bar). A Haskel relief valve to prevent over pressurization should also be fitted as a safety precaution.

**Note:** A hand pump attachment can be fitted (for precision control or use without compressed air power) on all models.



*Our products are backed by outstanding technical support, an excellent reputation for reliability, and world-wide distribution.*

## MAINTENANCE (Continued from page 1)

Disconnect pump from system and remove to a clean, well lit work bench with access to vice, tools, seal kits and spares. All parts removed for inspection should be washed in a suitable de-greasing agent such as Stoddard solvent or equivalent. Inspect all moving parts for wear or scratches. Damaged parts should be replaced. It is recommended that all seals and O-rings are replaced. Specially packed seal kits are available for:

Air Drive P/N 17178 (common to all standard models)

HYDRAULIC SECTION	Model No.
P/N 17179 (plus ratio no.)	M-21 thru -188
P/N 26410 (plus ratio no.)	MS-21 thru -188
P/N 28247 (plus ratio no.)	MCPV-21 thru -110
P/N 51104 (plus ratio no.)	29723-21 thru -110
P/N 27901	MDTV-5, MDSTV-5
P/N 53694	M-5
P/N 28696	M-7
P/N 28695	M-12
P/N 51239	MS-7
P/N 51240	MS-12

### Air Drive Section

The air piston has a spring return. Care should be taken when dismantling to prevent the spring from causing the top cap to fly off. The most common cause of air drive malfunction is O-ring 568011-21 on the end of spool 17157. Inspect this first and replace if necessary prior to retesting before further disassembly of air drive. Spool 17157 is most easily removed by removing the muffler upper cap and carefully opening the air drive valve to push the spool and sleeve assembly out with compressed air. The spool and sleeve can be contained by holding a cloth over the exhaust port. The air piston, air barrel, cycling valve and sleeve should be relubricated on assembly with Haskel Silicone Grease P/N 28442. Torque the tie rod nuts evenly to 50 in. lbs.

### Hydraulic Section

If dismantled for inspection and parts replacement use following torque values on re-assembly.

- Inlet check valve — ratios -7, -12 to 95 ft. lbs.
- Inlet check valve — ratios -21, -36 to 50 ft. lbs.
- Inlet check valve — ratios -71, -110, -188 to 125 ft. lbs.
- Outlet check valves — all ratios to 50 ft. lbs.

When ordering spare parts advise pump serial no., model no., spare part no., and description.

## TROUBLE SHOOTING GUIDE

### Pump will not cycle, pump bypasses air.

- Inadequate air
  - a. See comments on: Air drive systems, page 1 and air drive section, on this page.
- Contaminated air system
  - b. Remove sleeve and cycling spool (under upper cap of

muffler). Clean, inspect and lubricate with Haskel Lubricant 28442.

### False cycle, leak from pilot exhaust (top center of cap).

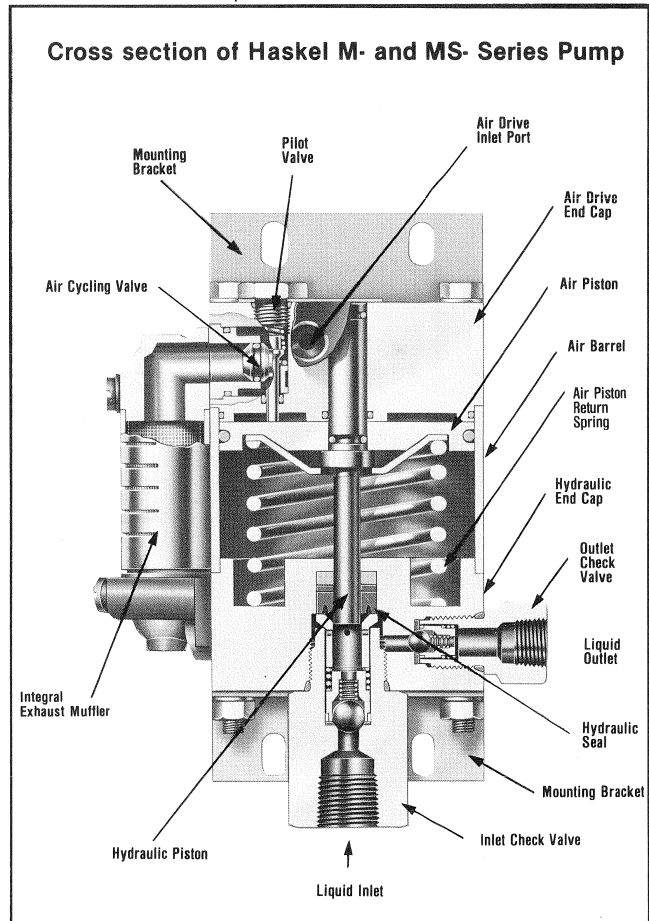
- Leakage of pilot system.
- Install new air section seal kit.

### Pump cycles without pumping or does not stall.

- Check valve(s) not seating or leak in system.
- Inspect check valve(s). First inlet check and then outlet check.

### Pump fluid appears at muffler (or vent port on separation models).

- High pressure seal leakage.
- Install new liquid section seal kit.



## LIMITED WARRANTY

Haskel manufactured products are warranted free of original defects in material and workmanship for a period of one year from date of shipment to first user. This warranty does not include packings, seals, nor failures caused by lack of proper maintenance; incompatible fluids; foreign materials in the driving media; in the pumped media; or application of pressures beyond catalog ratings. Products believed to be originally defective may be returned, freight prepaid, for repair and/or replacement to the distributor, authorized service representative, or to the factory. If upon inspection by the factory or authorized service representative, the problem is found to be originally defective material or workmanship, repair or replacement will be made at no charge for labor or materials, F.O.B. the point of repair or replacement. Permission to return under warranty should be requested before shipment and include the following; the original purchase date, purchase order number, serial number, model number, or other pertinent data to establish warranty claim, and to expedite the return or replacement to the owner.

If pump has been disassembled and reassembled in a facility other than Haskel, warranty is void if it has been improperly reassembled or substitute parts have been used in place of factory manufactured parts.

Any modification to any Haskel product which you have made or may make in the future has been and will be at your sole risk and responsibility, and without Haskel's approval or consent. Haskel disclaims any and all liability, obligation, or responsibility for the modified product; and for any claims, demands, or causes of action for damage or for personal injuries resulting from the modification and/or use of such a modified Haskel product.

HASKEL'S OBLIGATION WITH RESPECT TO ITS PRODUCTS SHALL BE LIMITED TO REPLACEMENT, AND IN NO EVENT SHALL HASKEL BE LIABLE FOR ANY LOSS OR DAMAGE, CONSEQUENTIAL OR SPECIAL, OF WHATEVER KIND OR NATURE, OR ANY OTHER EXPENSE WHICH MAY ARISE IN CONNECTION WITH OR AS A RESULT OF SUCH PRODUCTS OR THE USE OR INCORPORATION THEREOF IN A JOB. THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EXPRESS WARRANTIES AND NO IMPLIED WARRANTIES WHETHER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, OTHER THAN THOSE EXPRESSLY SET FORTH ABOVE, SHALL APPLY TO HASKEL PRODUCTS.

### HASKEL INTERNATIONAL INC., INDUSTRIAL TECHNOLOGIES DIVISION

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Tel: 818-843-4000 Fax: 818-556-2549

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North East Asia Sales Office: Toowong, Qld. 4066 \* Australia

Tel: 61-7-3277-9174 Fax: 61-7-3277-9121

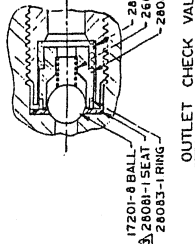
Australia Sales Office: Toowong, Qld. 4066 \* Australia

Tel: 61-7-3277-9118 Fax: 61-7-3277-6129

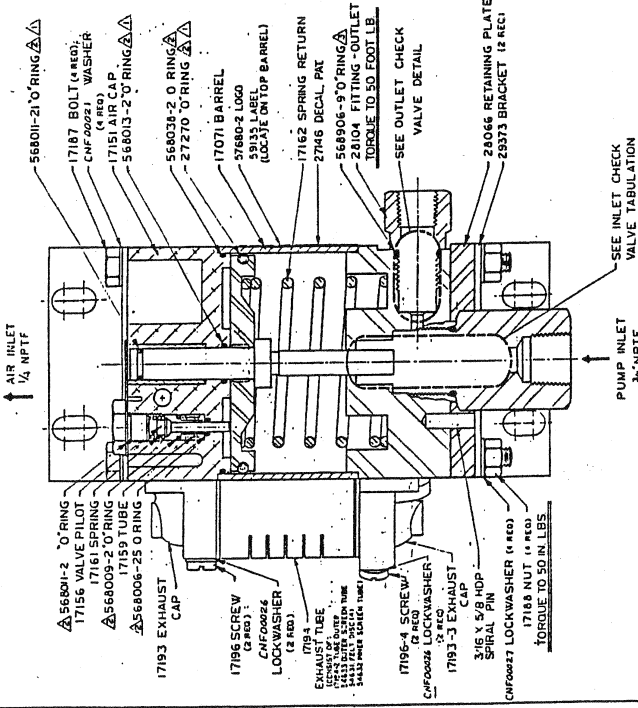
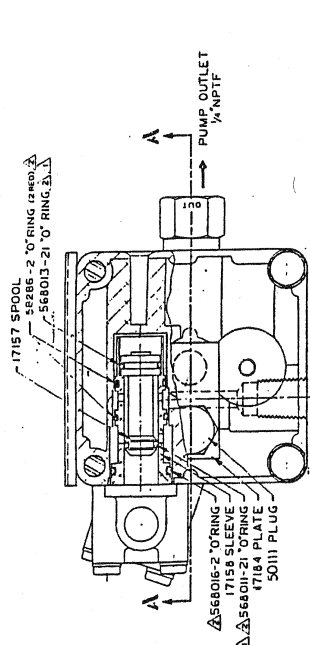


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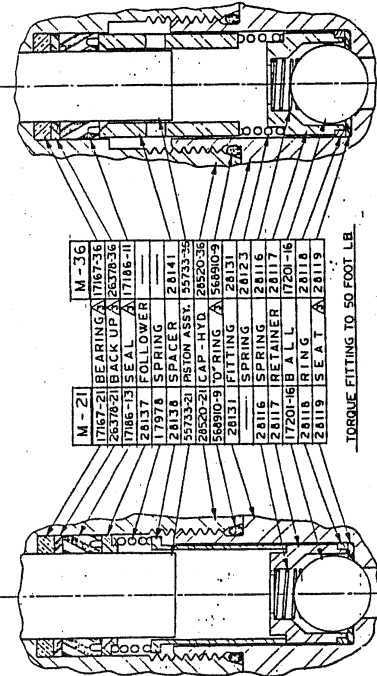
OUTLET CHECK VALVE



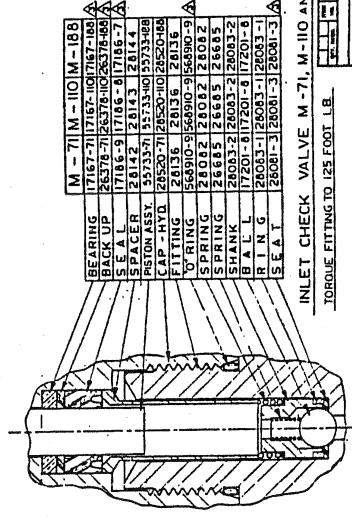
CROSS SECTION: A-A

- 55743-XX TOOL MAY BE USED TO INSTALL MTD SERL.
- THESE PARTS ARE INCLUDED IN 17179-XX HYDRAULIC SECTION SEALS KIT.
- THESE PARTS ARE INCLUDED IN 17178 AIR DRIVE SEALS KIT.
- APPLY VERY LIGHT COATING OF HASKEL LUBRICANT PN 50866 TO DYNAMIC SEALS IN AIR DRIVE SECTION.

NOTE:



INLET CHECK VALVE M-21 AND M-36



INLET CHECK VALVE M-71, M-110 AND M-188

CONTROL COPY  
LOCATION # 1

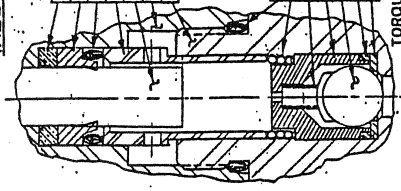
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ASSEMBLY DRAWING  
MODEL M PUMP  
E 81400 28550

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3	REVISED TO SHOW M-50
4	REVISED TO SHOW M-50

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INLET CHECK VALVE  
M-50



BEARING	M-50
SEAL	57639
O-RING	56740-00
SPACER	56811-2
PISTON ASSY	55733-50
CAP HYD.	51892-50
FITTING	50703
O-RING	568910-9
SPRING	56788
SPRING	26685
CAGE	56786
BALL	26130-12
RING	56739
SEAT	56741

TORQUE FITTING TO 70 FT/LB.

CONTROL COPY  
LOCATION # 1

<p>Model</p> <p>ASSEMBLY DRAWING MODEL "M" PUMP</p>	<p>28550</p>
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THIS DRAWING IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.



**APPENDIX III**

**Declaration  
Of  
Conformity**





## DECLARATION of CONFORMITY

Fluid Servicing Unit  
06-5074-0500

Relevant provisions complied with by the machinery:  
98/37/EEC

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

A handwritten signature in black ink, reading "Patrick Finch". The signature is written in a cursive style with a large initial 'P' and 'F'. It is positioned above a solid horizontal line that spans the width of the signature area.

Quality Assurance Representative