M-D Pneumatics®

**M-D Pneumatics®**
**Rotary Positive Displacement**
**Transport Blower**

Manual 2023 Rev K May 2025 p/n 002023 0000

**WARNING: Do Not Operate Before Reading Manual**

# T855/T855RS/T1055
# OPERATOR'S MANUAL

Models
T855 T855RS T1055

800.825.6937 | www.md-kinney.com

*Original Instructions*

**Disclaimer Statement:**
All information, illustrations and specifications in this manual are based on the latest information available at the time of publishing. The illustrations used in this manual are intended as representative reference views only. Products are under a continuous improvement policy. Thus, information, illustrations and/or specifications to explain and or exemplify a product, service or maintenance improvement may be changed at any time without notice.



Product information and specifications subject to change.

# Table of Contents

# 01 INTRODUCTION

**CONGRATULATIONS** on the purchase of a new **M-D Pneumatics® Transport Blower**. Please examine the blower for shipping damage, and if any damage is found, report it immediately to the carrier. If the blower is to be installed at a later date, make sure it is stored in a clean, dry location and rotated monthly. Make sure covers are kept on all openings. If the blower is stored outdoors, be sure to protect it from weather and corrosion.

M-D Pneumatics Transport Blowers are built to exacting standards and, if properly installed and maintained, will provide many years of reliable service. Read and follow every step of these instructions when installing and maintaining the blower.

**NOTE: Record the blower model and serial numbers of the machine in the OPERATING DATA form on the inside back cover of this manual. Use this identification on any replacement part orders, or if service or application assistance is required.**

# 02 SAFETY

## GRAPHIC CONVENTIONS IN THIS MANUAL

The following hazard levels are referenced within this manual:

**⚠ DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

**⚠ WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

**⚠ CAUTION**

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

***NOTICE***

*Indicates a situation that can cause damage to equipment, personal property, and/or the environment or cause the equipment to operate improperly.*

**NOTE: Indicates a procedure, practice, or condition that should be followed in order for the equipment to function in the manner intended.**

**⚠ CAUTION**

Read manual before operation or bodily harm may result. Attention should be given to the safety related sections of this manual.

## SAFETY INSTRUCTIONS

1. Do not operate before reading the enclosed instruction manual.
2. Use adequate protection, warning and safety equipment necessary to protect against hazards involved in installation and operation of this equipment.





**NOTICE**

*The above safety instruction tags were attached to your unit prior to shipment. Do not remove, paint over or obscure in any manner. Failure to heed these warnings could result in serious bodily injury to the personnel operating and maintaining this equipment.*

**⚠ WARNING**

- Keep hands and clothing away from rotating machinery, inlet and discharge openings.
- Blower and drive mounting bolts must be secured.
- Drive belts and coupling guards must be in place.
- Noise level may require ear protection.
- Blower heat can cause burns if touched.

## Safety Precautions

For equipment covered specifically or indirectly in this operator's manual, it is important that all personnel observe safety precautions to minimize the chances of injury. Among many considerations, the following should particularly be noted:

- Rotating shafts can be dangerous. You can snag clothes, skin, hair, hands, etc. This can cause serious injury or death.
- Do not work under the vehicle while the engine is running.
- Do not work on a shaft (with or without a guard) while the engine is running.
- Do not engage or disengage driven equipment by hand from under the vehicle while the engine is running.
- In order to avoid becoming entangled, install the power take off and/or shaft behind the frame rail, tanks, battery box, etc.
- If power take off and/or shaft are still exposed after installation, install a guard.
- Install a support strap when servicing a drive shaft to prevent personal injury.

A SERIOUS OR FATAL INJURY CAN OCCUR:

- If you lack proper training
- If you fail to follow proper procedures
- If you do not use proper tools and safety equipment
- If you assemble drive line components improperly
- If you use incompatible drive line components
- If you use worn out or damaged drive line components
- If you use drive line components in a non-approved application

This manual contains safety instructions. Read, understand and follow this manual.

- Get proper training
- Learn and follow safe operating procedures
- Use proper tools and safety equipment
- Use proper components in good condition

# 03

# T855RS

## RS ADVANCED TECHNOLOGY FEATURES & BENEFITS

This section is for items specific to blowers enhanced with M-D Pneumatics RS Advanced Technology. **Please see remainder of this manual for all other blower specifications as well as safety warnings and precautions.**

T855RS Advanced Technology transport blowers are designed for the loading and unloading of cement, fly ash, powders, crushed limestone, sand, and granular materials. They offer customers:

- Widest range of flow of any blower on the transport market
- Reduces offload times by as much as 25%
- Can run quieter than many other blowers thanks to lower operating speeds
- Less net fuel consumption
- Vacuum performance to 18" Hg
- Operates slower yet moves more product
- Operates cooler, less oil changes when M-D Pneumatics premium lubricants are used
- Overall longer life
- Abradable / formable coating on rotor lobes reduces and tightens clearances; reduces slip

  ***See Figure 3-1***

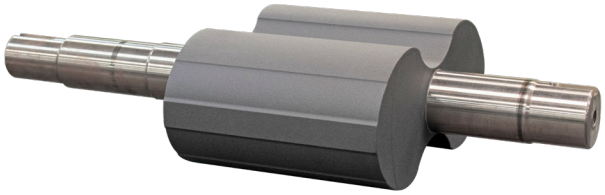


*Figure 3-1 – T855RS Rotor with RS Advanced Technology Coating*

**NOTICE**

*Use caution when working around rotors as damage to the coating could result in loss of performance. Ensure inlet only receives filtered clean air.*

*Figure 3-2 – T855RS with Optional Mounting Plate Adaptor*

# 04 INSTALLATION

## SAFETY CHECKLIST

Complete this checklist before operating the blower.

**TRUCK NUMBER** _____

**GEARBOX NUMBER** _____

**P.T.O. NUMBER** _____

**P.T.O. RATIO** _____

**BLOWER MODEL NUMBER** _____

**BLOWER SERIAL NUMBER** _____

**DATE INSTALLED** _____

**INSPECTED BY** _____

- ❑ Is ratio and horsepower correct for PTO?
- ❑ Mount PTO as per manufacturer's recommendations and refill transmission.
- ❑ Ensure oil levels are at the center of the sight glass when blower is not running.
- ❑ Without drive line connected, can the blower be rotated by hand?
- ❑ Is the drive line installed at the correct angle and phase with all fasteners secured?
- ❑ Ensure PTO rotates blower in the correct direction indicated by arrow.
- ❑ Ensure air inlet filter is connected and located away from truck exhaust.
- ❑ Remove Camlock dust cap, and discharge piping open to atmosphere.
- ❑ With tractor engine at idle, slowly engage PTO. Check for correct rotation.
- ❑ Slowly bring blower up to operating speed.
- ❑ Check for vibration, mechanical noise, oil leaks and mounting integrity.
- ❑ Stop blower, connect blower discharge hose to trailer, and run blower at operating pressure of trailer for 15 minutes at normal speed.
- ❑ Does relief valve allow 15 psig (1 bar g) pressure for safety of trailer?
- ❑ Does engine maintain correct RPM throughout test?
- ❑ Shut down machine. Check Shur-Melt® plugs, relief valve, filter, piping, and oil sumps for integrity.
- ❑ Is correct engine speed label visible in cab?

**⚠ WARNING**

The blower and accessories will become hot enough to cause serious skin burns on contact.

Rotating machinery is dangerous.

Always wear ear protection when near an operating blower.

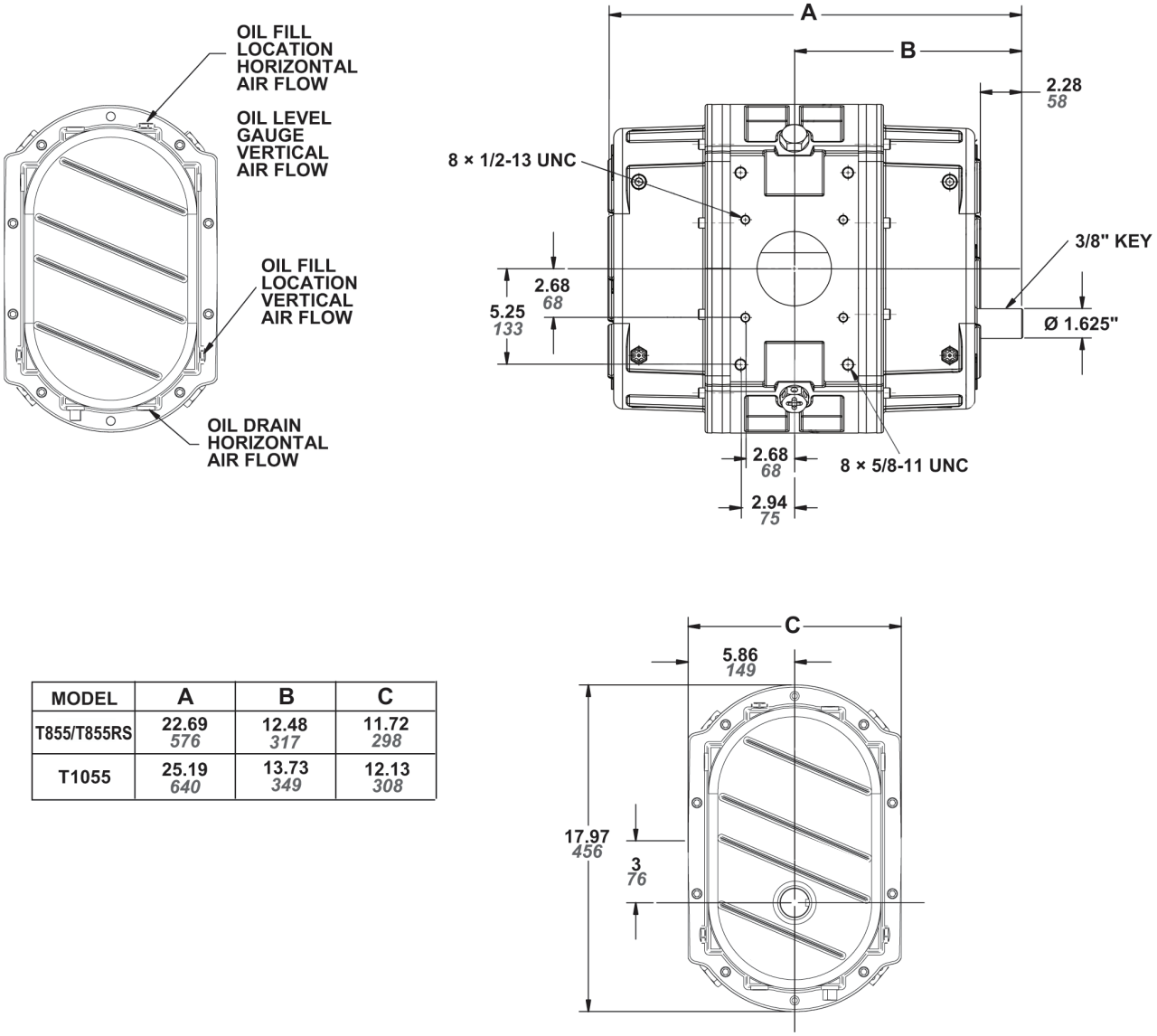
## SPECIFICATIONS

| MODEL | AIR FLOW RANGE | MAXIMUM PRESSURE | MAXIMUM VACUUM | RPM RANGE |
|---|---|---|---|---|
| T855 | 250 – 1,000 CFM (424 – 1,699 m³/h) | 20 psig (1.37 bar g) | 17 inch-Hg (575 Mbar) | 1,000 – 3,000 (Pressure) |
| | | | | 750 – 3,000 (Vacuum) |
| T1055 | 450 – 1,300 CFM (765 – 2,209 m³/h) | 18 psig (1.24 bar g) | 17 inch-Hg (575 Mbar) | 1,200 – 3,000 (Pressure & Vacuum) |
| T855RS | 121– 1,010 CFM (206 – 1,716 m³/h) | 20 psig (1.37 bar g) | 18 inch-Hg (609 Mbar) | 600 – 3,000 (Pressure & Vacuum) |
| **NOTE: Reduce the maximum operating pressure by 1 psi (0.068 bar) for each 2,000 feet (610 m) of elevation above sea level. Example: At an elevation of 4,000 feet (1,219 m), the maximum working pressure of the blower will decrease by 2 psi (0.137 bar).** | | | | |

*Table 4-1 – Specifications*

# OUTLINE DRAWINGS

Dimensions shown are not on a controlled document and as such are subject to change. Certified drawings are available through your local M-D Pneumatics Transport Blower Channel Partner. Dimensions are shown in inches and millimeters.




| MODEL | A | B | C |
|---|---|---|---|
| T855/T855RS | 22.69<br>*576* | 12.48<br>*317* | 11.72<br>*298* |
| T1055 | 25.19<br>*640* | 13.73<br>*349* | 12.13<br>*308* |

*Figure 4-1 – Outline Drawings*

# T855 / T855RS / T1055 VENT HOLES

Each transport blower is supplied with 4 vent plugs that should be installed in the top four vent holes once the final mounting orientation of the blower is determined.

Another option (not included), depending on mounting bracket space, is to use 90° elbows with or without flexible tubing. If you choose to use vent plugs, then follow the subsequent instructions. The exact plug location will vary based on the mounting position.

The image below shows one option for the vent hole locations on a horizontal airflow mount.

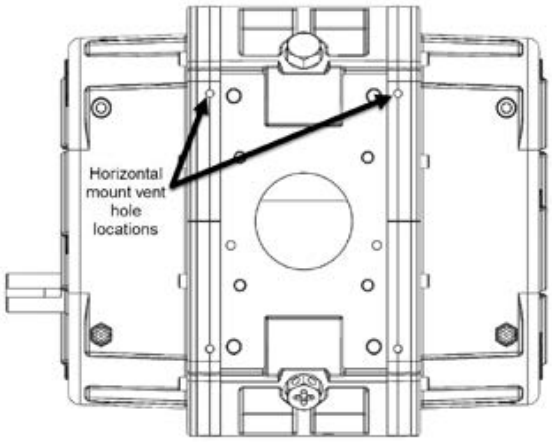



*Figure 4-2 – Mounting Configuration*

In this mounting configuration (***See Figure 4-2***), the four holes (two are shown and two are on the opposite side top) could have plugs added to them. This would leave the four holes on the bottom of the unit open or 90° 1/8" NPT elbows that face down.

Four vent holes should always be open to air. You can plug all the holes on the bracket side, then use four 90° elbows on the non-bracket side (horizontal mount). Or you can plug two on each end plate at the top side and leave two on each end plate at the bottom open.

**⚠ CAUTION**

Never plug all the vent holes or serious damage to seals and bearings will result. Four vent holes (two per side or all four on one side) must always be open.

*Figure 4-3 – Alternate plug configuration: Horizontal mount with holes plugged on the bracket side*

*Figure 4-4 – Alternate plug configuration: Horizontal mount with street elbows*

## PTO SELECTION FOR TRANSMISSION

Blower speed and pressure require adequate horsepower and torque. ***See Performance Curves on page 14***.

Engine speed and blower speed require the adequate ratio PTO be installed for proper blower operation.

## ENGINE SPEED

Keep engine speed constant when the blower is in the operating cycle. Install a constant-speed governor or throttle control system to ensure proper blower operation.

## PRESSURE RELIEF VALVE

Size the pressure relief valve for the correct air flow and pressure rating. Install the valve as close to the blower as possible and before the check valve.

Ensure that pipe compound is used on the threads of the male end of the relief valve to seal against air leakage.

**NOTICE**

*An undersized or improperly set relief valve will cause the blower to operate at higher temperatures. This can cause the blower to overheat, causing irreparable damage.*

## AIR FILTER

Select a filter suitable for the air flow requirement of the application. Use air filters on food and plastic products to prevent contamination.

**NOTICE**

*An undersized air filter will cause the blower to operate at higher temperatures. This can cause blower to overheat, causing irreparable damage.*

## SUCTION AND DISCHARGE PIPING

All piping should be free and clear of any welding slag or foreign material.

The suction piping requirement is a minimum of 5 in. (127 mm) diameter for proper flow to the blower.

Discharge piping is a minimum of 4 in. (102 mm) diameter.

**NOTICE**

*Do not use a rubber elbow in the suction line during vacuum operation. The elbow will fail causing the blower to overheat. This will cause damage to the blower.*

## MOUNTING BRACKET

To reduce stress on the blower housing, be sure to properly mount the blower with the correct bracket.

# T855 & T855RS OPTIONAL MOUNTING ADAPTOR PLATE

The Adaptor Plate allows easy conversion from other manufacturer's blowers that utilize L-style brackets and 3" NPT plumbing.

**NOTE: The T855 & T855RS can be mounted in vertical or horizontal flow configurations.**

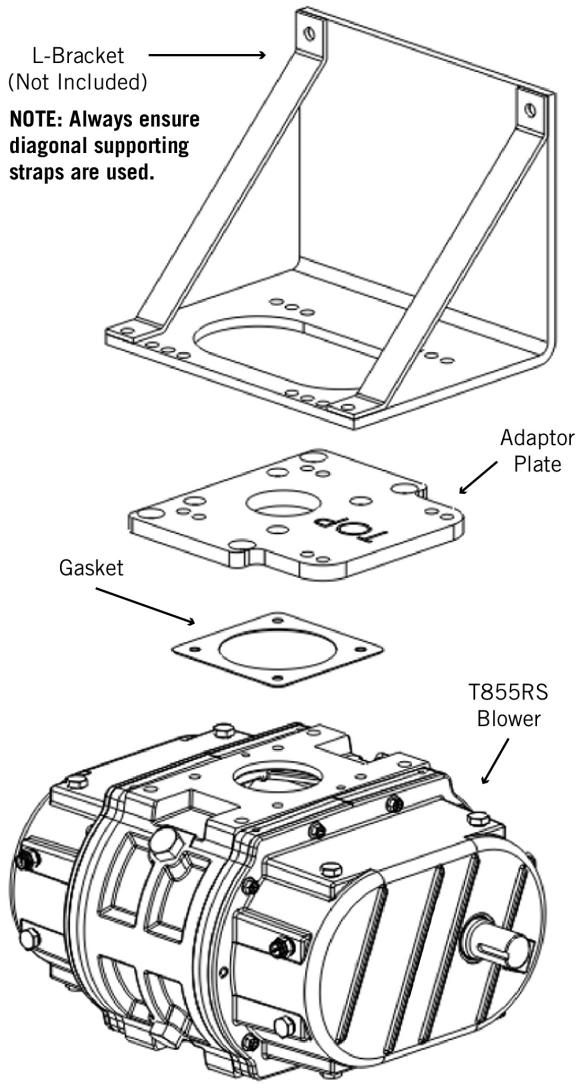



*Figure 4-5 – Optional Mounting Adaptor Plate Kit Exploded Part Diagram with T855RS*

## Mounting Adaptor Plate Kit: 61590

Steps for installation:

1. Place the gasket over the 4 aligning bolt holes at the discharge (top) port.
2. Attach Adaptor Plate to the T855RS blower by placing it on top of the blower and gasket.
3. Secure the Adaptor Plate to the blower using the four 5/8"-11 x 1-1/4" Flat Socket Head Cap Screws and four 1/2" -13 x 1-1/4" Flat Socket Head Cap Screws.
4. Attach the blower / adaptor assembly to the L-Bracket using four 5/8"-18 x 1-1/4" Hex Head Screws with the Split Lock Washer between the screw head and top of the L-Bracket.

**NOTICE**

*Use removable threadlocker during installation of the 5/8"-18 bolt in combination with the split lock washer.*

**NOTE: Includes plate, mounting bolts, and gasket.**

Contact M-D Pneumatics or your authorized M-D Pneumatics distributor for more details or inquiries.

## Torque Values

| Bolt Size | Torque (in.-lbs.) |
|---|---|
| 1/2"-13 | 80 |
| 5/8"-11 | 150 |
| 5/8"-18 | 170 |

**NOTICE**

*Always ensure the diagonal straps are used on the L-bracket (not provided by M-D Pneumatics).*

*Do not overtighten the discharge fitting into the plate. Overtightening can damage the plate and the blower.*

*Use only bolts / hardware included with the adaptor plate. Using old bolts may damage plate due to differences in thread.*

## CHECK VALVE

Minimum restriction for application. Mount downstream of the relief valve. Size the valve for maximum air flow (CFM or $m^3$/hr).

## MUFFLERS AND DISCHARGE FILTRATION

Minimum restriction for application. Mount downstream of the relief valve.

## VACUUM VALVE

Size for proper air flow and vacuum rating.

This valve should be located before the blower inlet filter. This valve is normally mounted on the trailer.

**NOTICE**

*To properly protect the blower from overheating when vacuum loading, install a vacuum valve.*

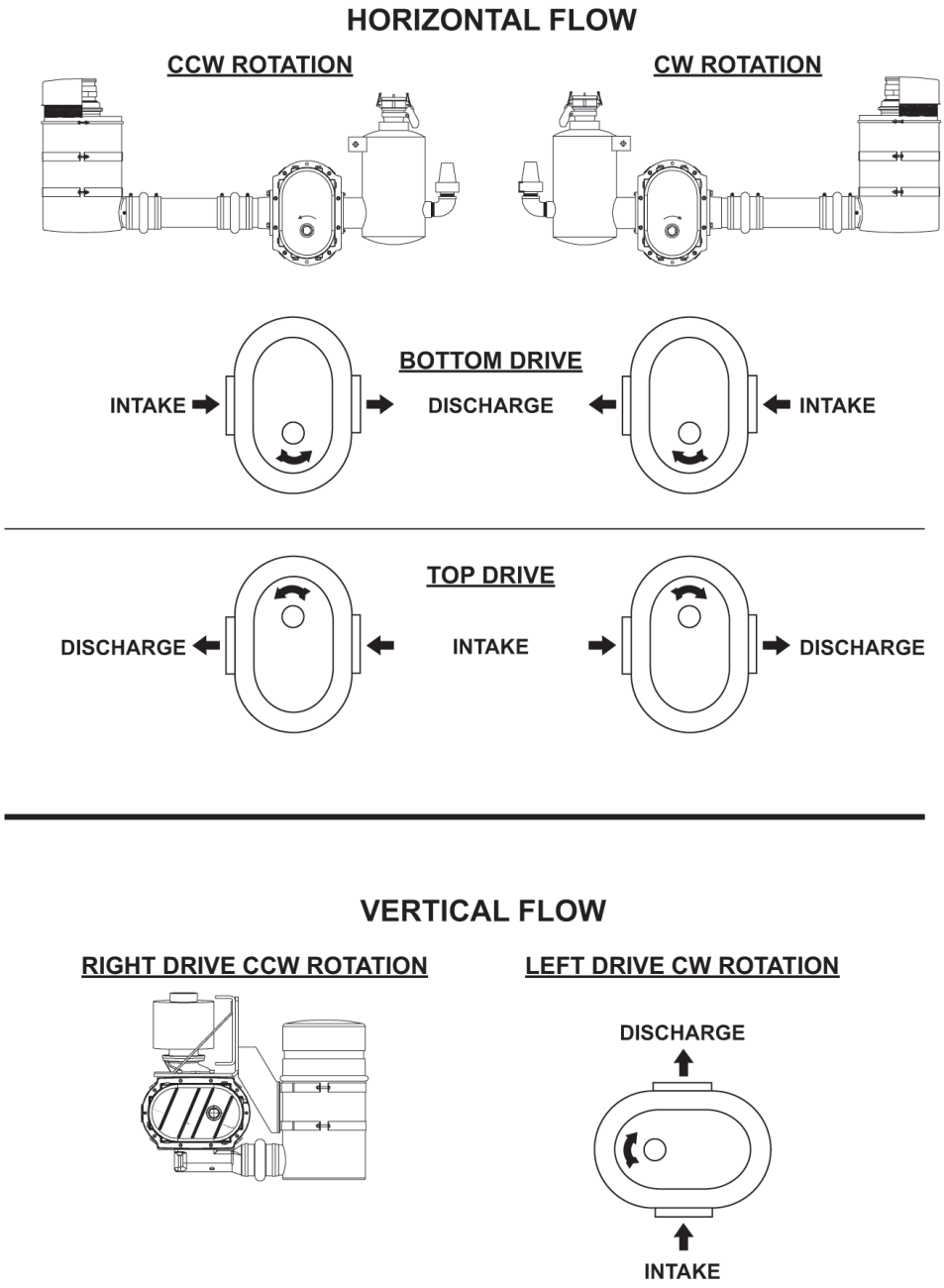



*Figure 4-6 – Flow Direction and Rotation*

# PERFORMANCE CURVES

## PERFORMANCE CURVES (US)

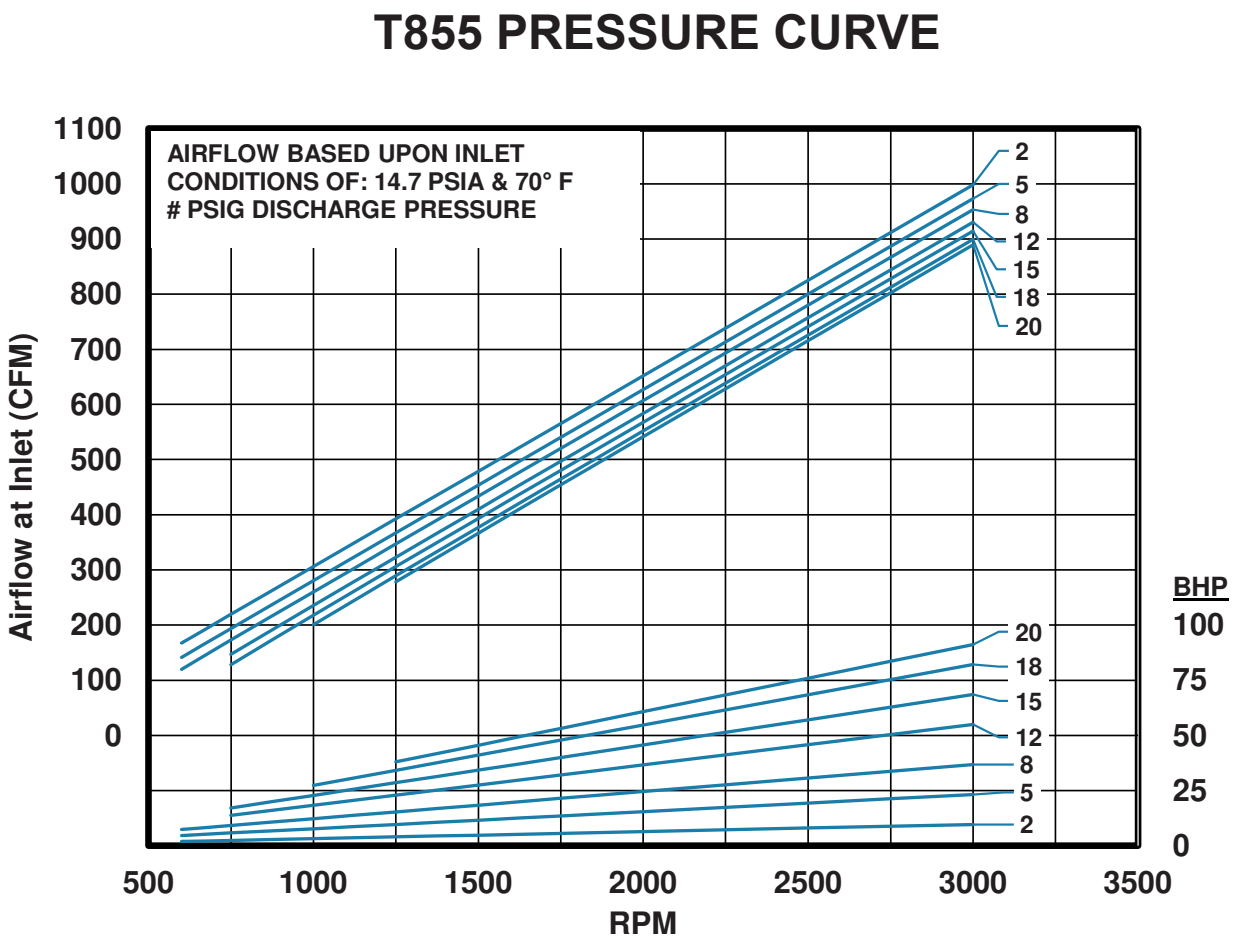



*Figure 4-7– T855 Pressure Curve (US)*

# T855 VACUUM CURVE

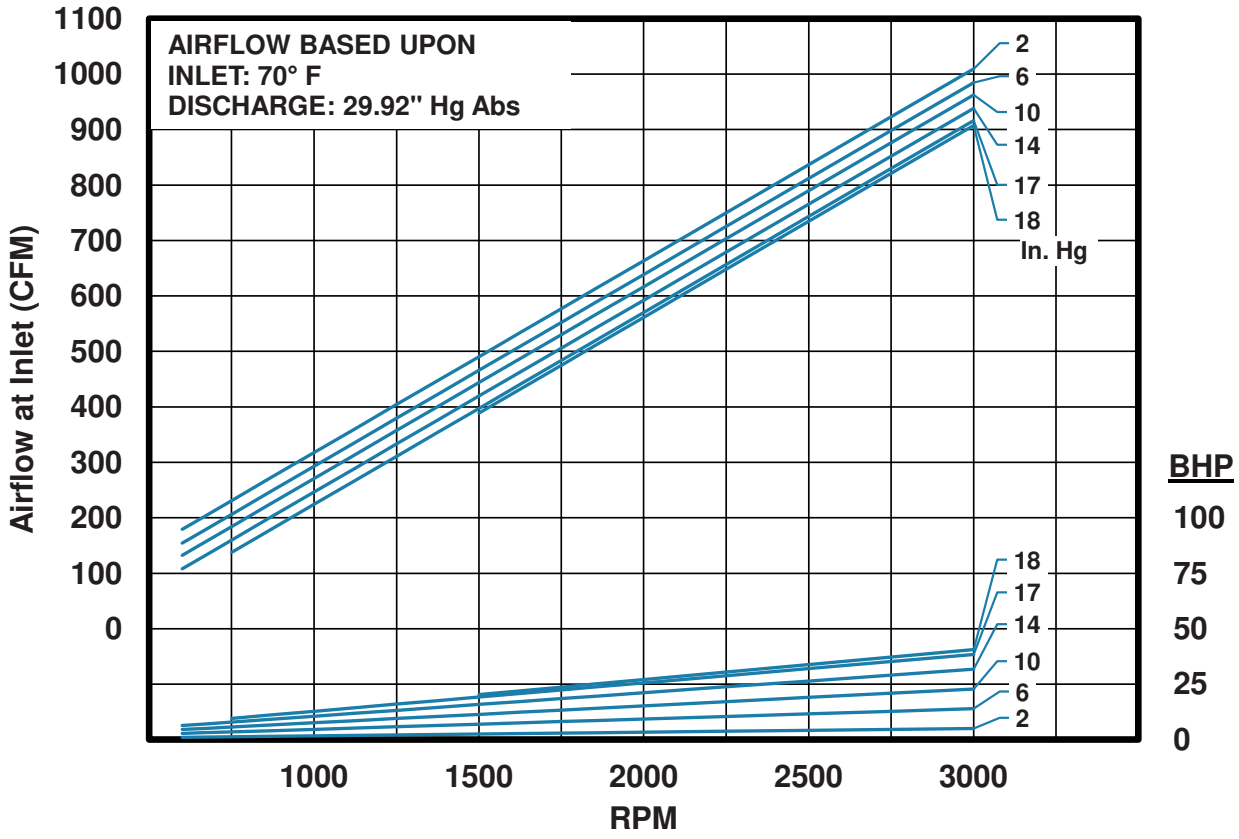



*Figure 4-8 – T855 Vacuum Curve (US)*

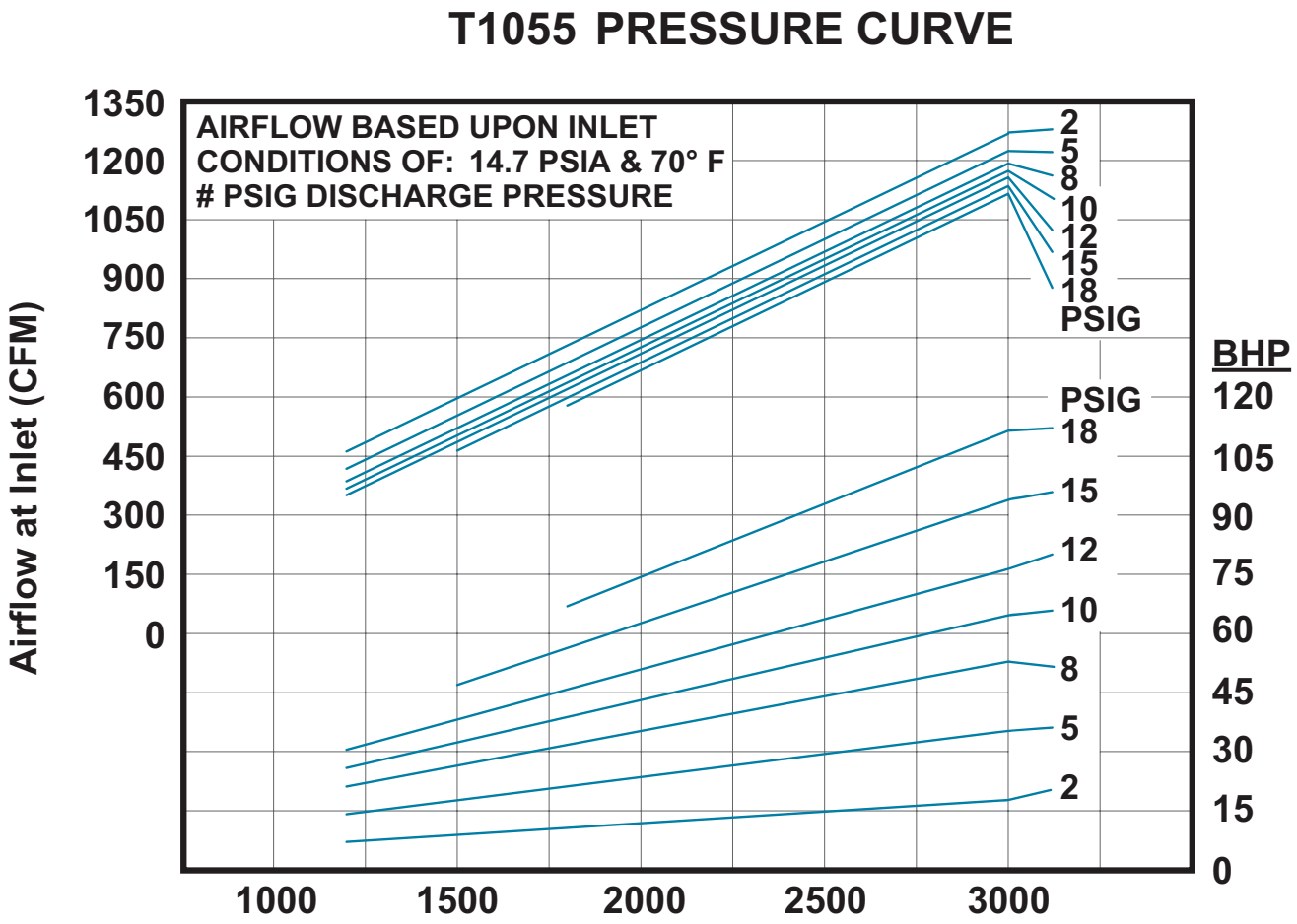



*Figure 4-9 – T1055 Pressure Curve (US)*

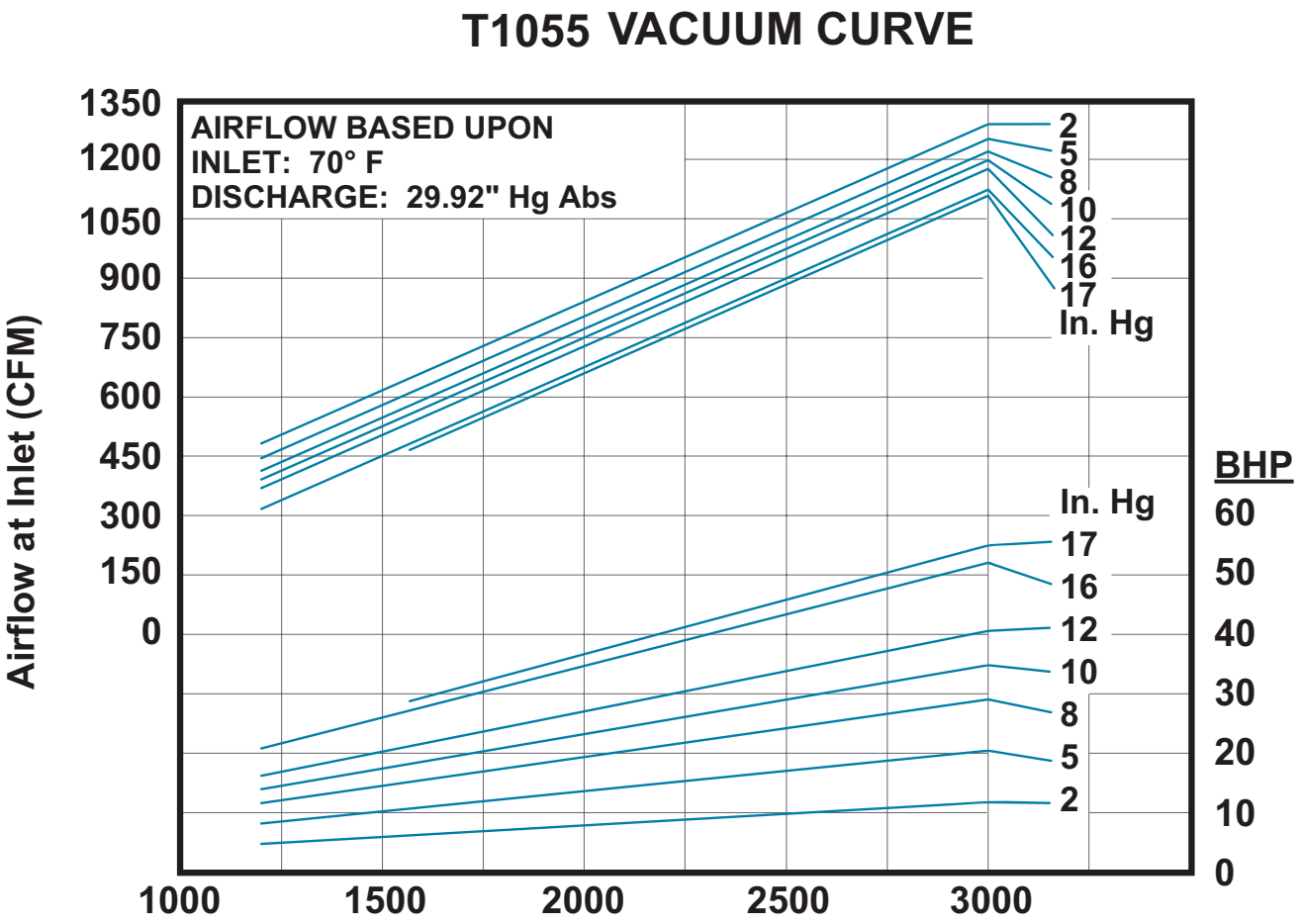



*Figure 4-10 – T1055 Vacuum Curve (US)*

## PERFORMANCE CURVES (METRIC)

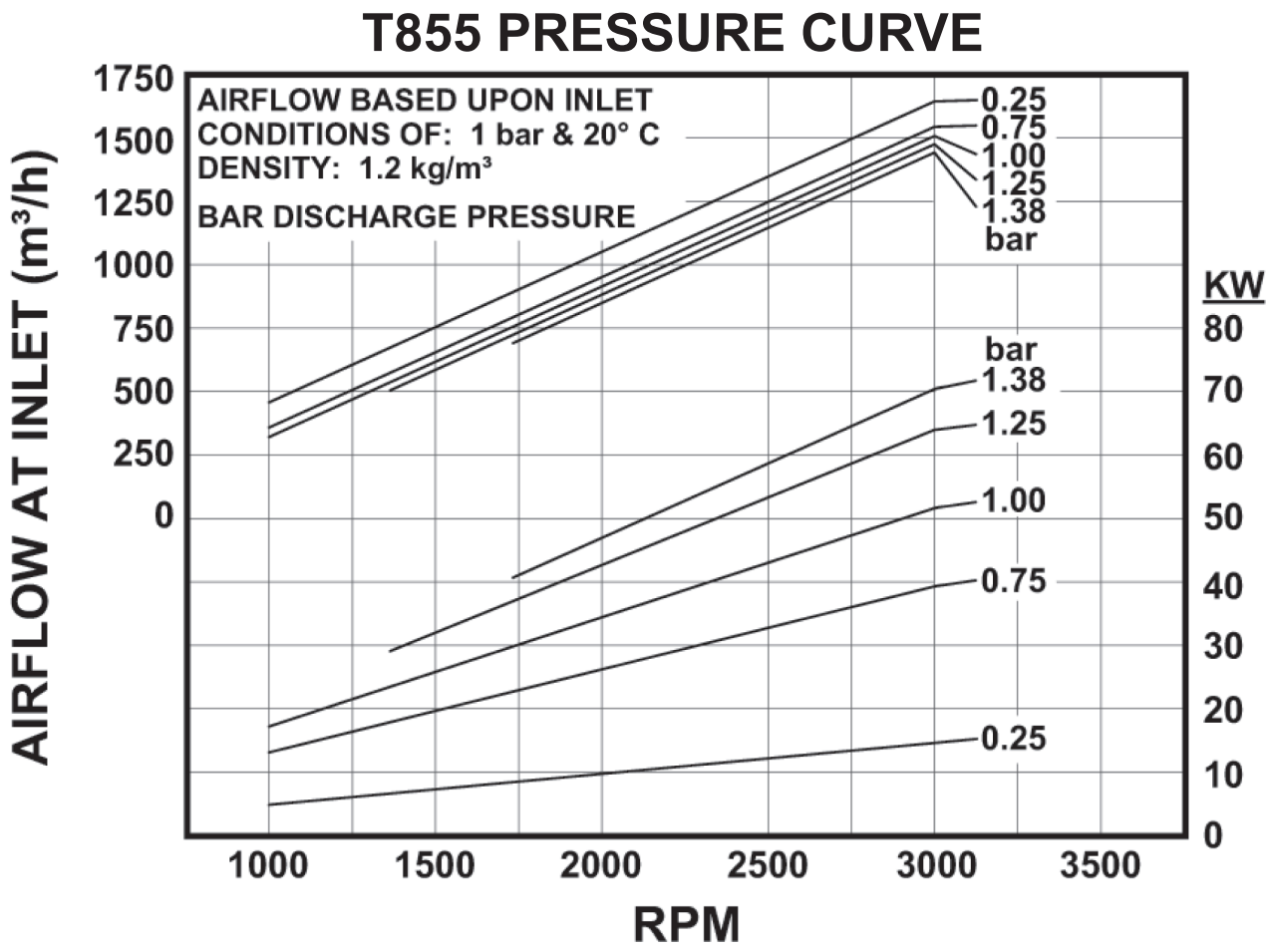



*Figure 4-11 – T855 Pressure Curve (Metric)*

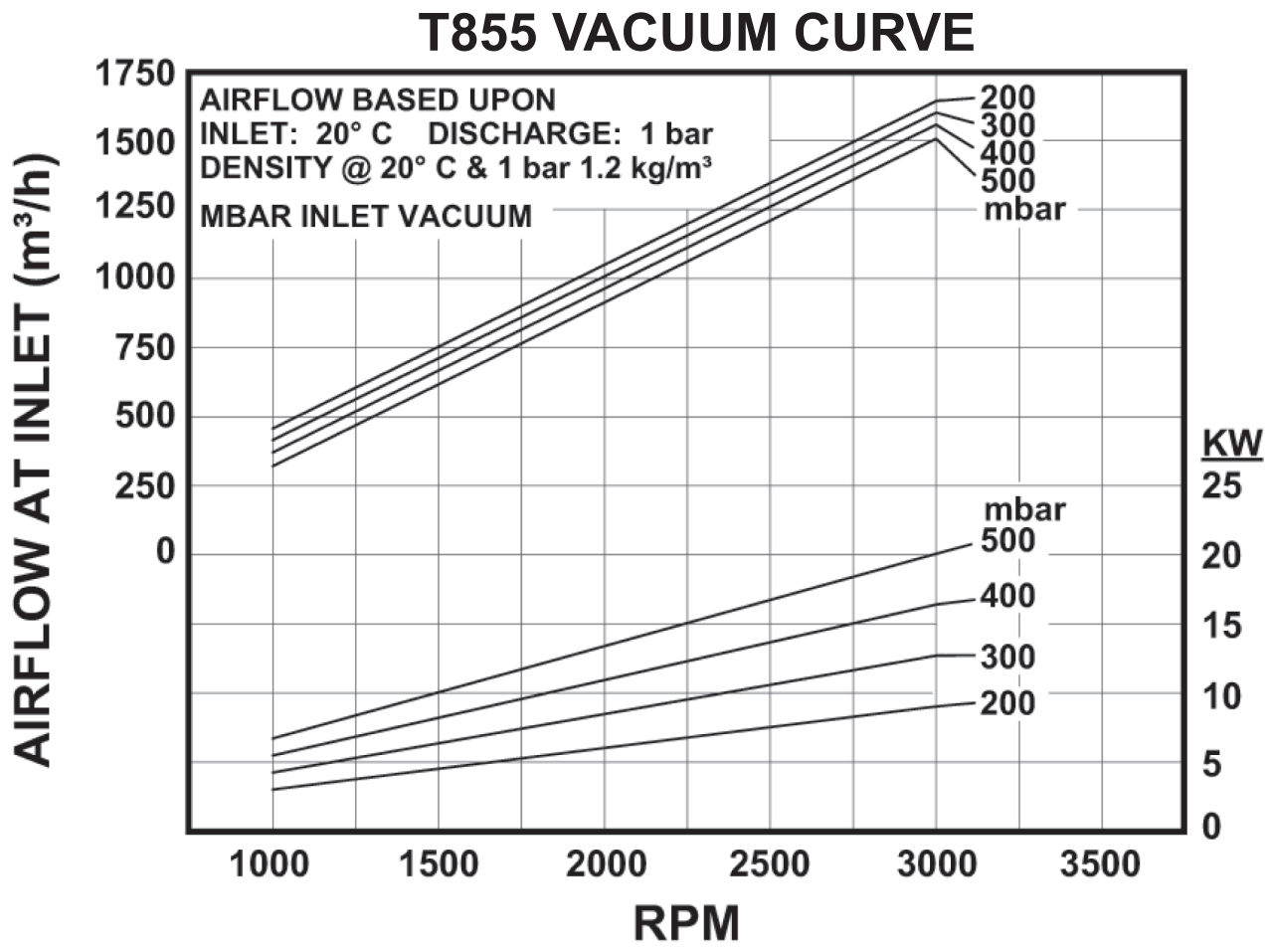



*Figure 4-12 – T855 Vacuum Curve (Metric)*

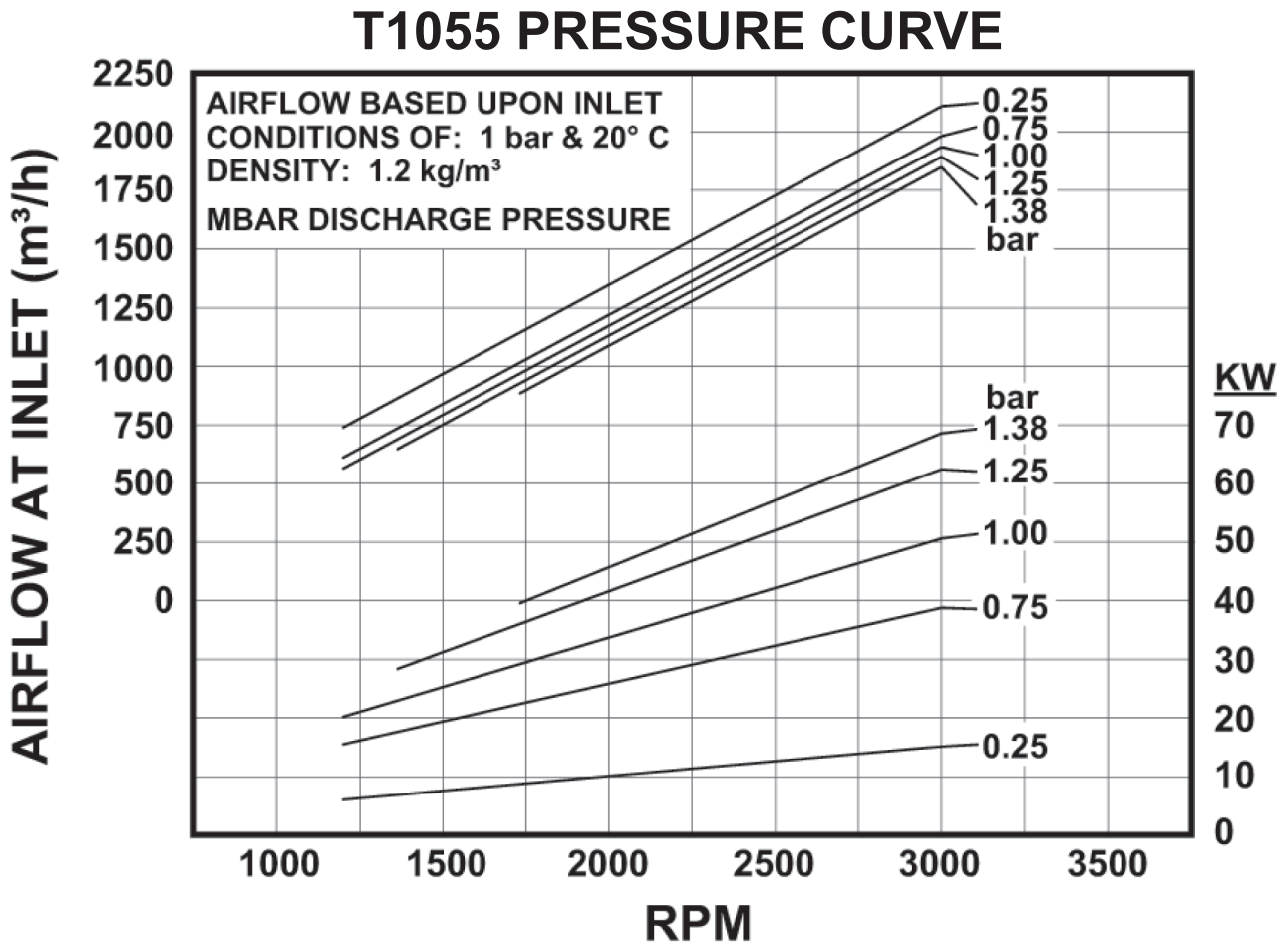



*Figure 4-13 – T1055 Pressure Curve (Metric)*

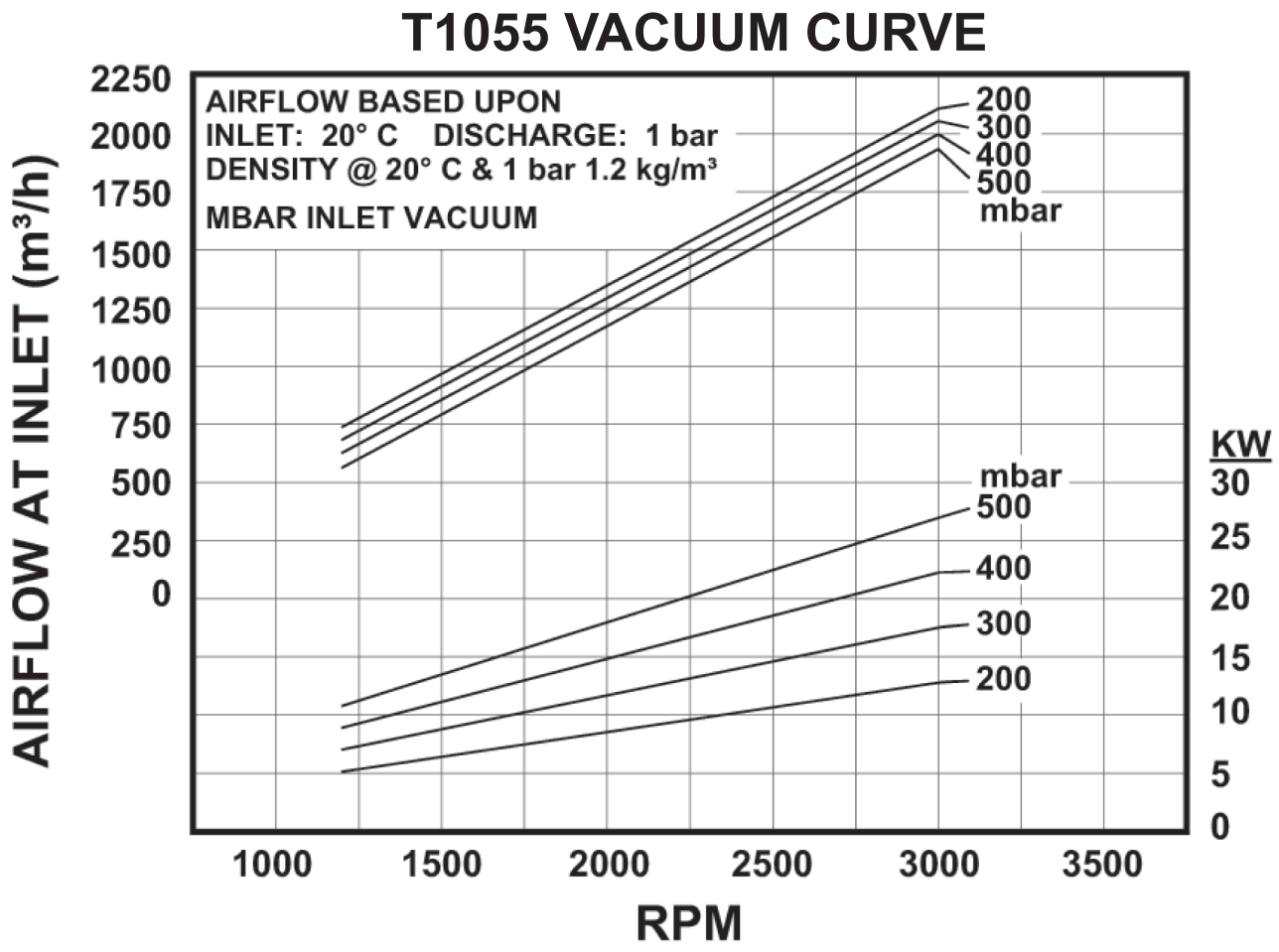



*Figure 4-14 – T1055 Vacuum Curve (Metric)*

# SPECIFICATIONS

| T855 with RS Advanced Technology™ Pressure Operating Parameters | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RPM | 2 PSIG | | 7 PSIG | | 12 PSIG | | 16 PSIG | | 18 PSIG | | 20 PSIG | |
| | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 600 | **167.5** | **1.9** | **127.0** | **6.5** | | | | | | | | |
| 750 | **219.5** | **2.4** | **179.6** | **8.1** | **147.2** | **13.7** | | | | | | |
| 1000 | 306.0 | 3.2 | 266.7 | 10.8 | 235.6 | 18.3 | **212.2** | **24.4** | **200.6** | **27.4** | | |
| 1250 | 392.5 | 4.0 | 353.5 | 13.5 | 323.1 | 22.9 | 300.5 | 30.5 | **289.4** | **34.2** | **278.4** | **38.0** |
| 1500 | 479.0 | 4.8 | 440.2 | 16.2 | 410.2 | 27.5 | 388.1 | 36.5 | 377.3 | 41.1 | **366.7** | **45.6** |
| 1750 | 565.6 | 5.6 | 526.8 | 18.9 | 497.1 | 32.1 | 475.3 | 42.6 | 464.7 | 47.9 | **454.3** | **53.2** |
| 2000 | 652.1 | 6.4 | 613.4 | 21.5 | 583.8 | 36.6 | 562.3 | 48.7 | 551.8 | 54.8 | 541.6 | 60.8 |
| 2500 | 825.1 | 8.1 | 786.5 | 26.9 | 757.2 | 45.8 | 735.9 | 60.9 | 725.7 | 68.4 | 715.6 | 76.0 |
| 3000 | 998.1 | 9.7 | 959.6 | 32.3 | 930.4 | 55.0 | 909.3 | 73.1 | 899.2 | 82.1 | 889.2 | 91.2 |

*Table 4-1 – T855RS Pressure Operating Parameters*

| T855 with RS Advanced Technology™ Vacuum Operating Parameters | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPM | 2" Hg | | 10" Hg | | 12" Hg | | 17" Hg | | 18" Hg | |
| | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 600 | **179.2** | **1.0** | **132.4** | **4.6** | **120.8** | **5.5** | | | | |
| 750 | 231.1 | 1.3 | 184.3 | 5.7 | 172.7 | 6.8 | **137.8** | **9.6** | | |
| 1000 | 317.6 | 1.7 | 270.8 | 7.6 | 259.2 | 9.1 | **224.3** | **12.8** | | |
| 1250 | 404.1 | 2.1 | 357.3 | 9.5 | 345.7 | 11.4 | **310.8** | **16.0** | | |
| 1500 | 490.6 | 2.5 | 443.8 | 11.4 | 432.2 | 13.6 | 397.3 | 19.2 | **388.6** | **20.3** |
| 1750 | 577.1 | 2.9 | 530.3 | 13.3 | 518.7 | 15.9 | 483.8 | 22.4 | **475.1** | **23.7** |
| 2000 | 663.6 | 3.4 | 616.8 | 15.2 | 605.2 | 18.2 | 570.3 | 25.6 | **561.6** | **27.1** |
| 2500 | 836.6 | 4.2 | 789.8 | 19.0 | 778.2 | 22.7 | 743.3 | 32.0 | **734.6** | **33.9** |
| 3000 | 1009.6 | 5.1 | 962.8 | 22.8 | 951.2 | 27.3 | 916.3 | 38.4 | **907.6** | **40.6** |

*Table 4-2 – T855RS Vacuum Operating Parameters*

Blue cell coloring indicates new T855RS performance capability parameters vs T855 standard.

# LUBRICATION

Every M-D Pneumatics blower is factory-tested, oil-drained, and shipped dry. Fill both oil reservoirs to the proper level before operation.

Every M-D Pneumatics Transport Blower is supplied with one gallon of MD PLUS full synthetic oil. Before filling the blower, check ***Table 4-2*** to confirm the amount of oil required.

For applications requiring food-grade lubricant, use only MD FG full synthetic oil.

## Filling Procedure

To ensure the proper oil level, always use this filling procedure:

1. Remove the fill plugs from both gear end and drive end plates.
2. Slowly pour oil through fill until oil appears in the oil sight glass. **Bring the oil level to the center of the sight glass.**
3. Verify the oil level is at the proper level in both the gear end and drive end sight glasses.
4. Replace the fill plugs that were removed in step 1.

***NOTICE***

*Never mix oil types or grades in a M-D Pneumatics Transport Blower. Mixing lubricants in the blower will result in gear and bearing failure.*

**⚠ CAUTION**

Do not start the blower until you are certain that oil is in BOTH ends of the blower. Check BOTH sight glasses to ensure that oil levels are correct before starting. Operation of the blower without proper lubrication will cause the blower to fail and void its warranty.

**⚠ WARNING**

NEVER ATTEMPT TO CHANGE OIL WHILE THE BLOWER IS IN OPERATION. Failure to heed this warning will result in damage to equipment and/or serious personal injury. Oil level must be checked while the blower is not running and truck is parked on a level surface.

**SHUR-MELT™ Thermal Relief Plugs**

All T855, T855RS, and T1055 blowers are equipped with two patented thermal relief plugs. Upon temperature activation, the plugs will relieve 5 to 6 PSIG to protect the blower from damage. When replacing these plugs, you must ensure that a plug is installed on each end of the blower for complete protection.

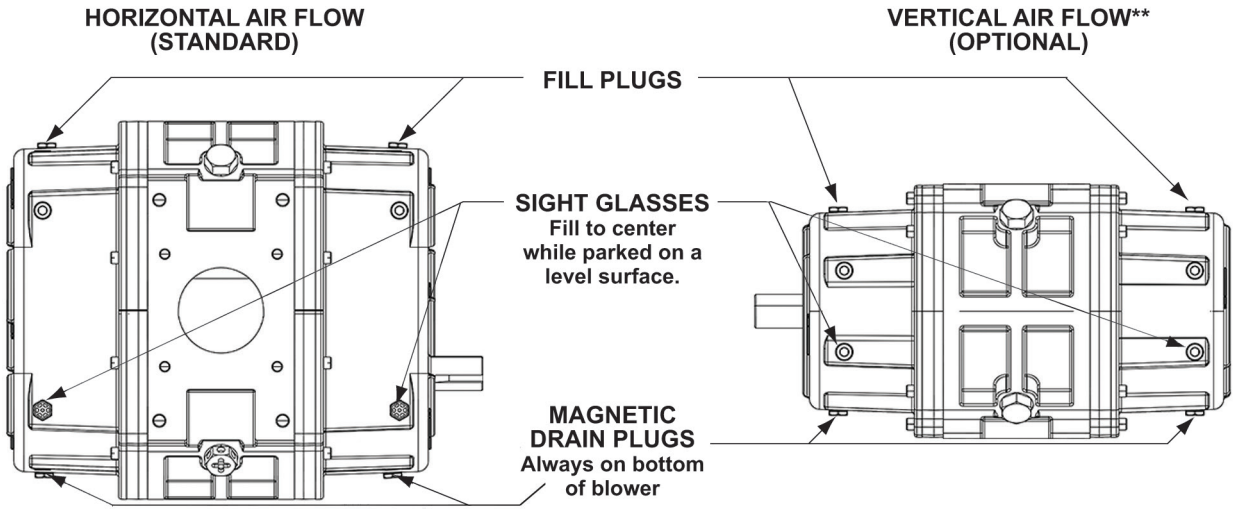



*Figure 4-6 – Oil Fill Locations*

**NOTE: M-D Pneumatics MD oil is available from your authorized M-D Pneumatics Transport Channel Partner.**

| | HORIZONTAL AIR FLOW (STANDARD) | VERTICAL AIR FLOW (OPTIONAL) |
|---|---|---|
| Drive end | 1.06 qt (1.0 L) (34 oz) | 1.68 qt (1.59 L) (54 oz) |
| Non-drive (gear) end | 1.0 qt (0.95 L) (32 oz) | 1.75 qt (1.66 L) (56 oz) |

*Table 4-3 – Lubrication Capacities*

**NOTE: Oil capacities are based on filling from dry condition. Less oil may be needed depending on emptiness of oil reservoirs after draining.**

**NOTE: T855 and T855RS blowers use the same oil capacities.**

# 05 OPERATION

1. Inspect the blower mounting, drive line, PTO, and air filter for damage.
2. Remove the camlock dust cap and connect the hot air hose.
3. Follow the trailer instructions regarding product hose connection and valve operation.
4. Slowly engage PTO with the engine at idle, bring it up to operating speed, and lock the engine at the recommended speed (shown in the cab).
5. Unload the trailer as per trailer manufacturer's recommendation. Do not exceed the maximum tank pressure.
6. While discharging, visually check the blower for vibration, mechanical noise or excessive heat.
7. If the relief valve is opening, adjust the proportioning valve to reduce the tank pressure.
8. Reduce pressure to zero as per the trailer manufacturer's instructions.
9. Disengage PTO. No cool-down period is required.
10. Disconnect the blower hose and replace the camlock dust cap.

**⚠ WARNING**

**The blower and accessories will become hot enough to cause serious skin burns on contact.**

**Rotating machinery is dangerous.**

**Always wear ear protection when near an operating blower.**

***NOTICE***

*Do not run at slower RPM to cool unit down. Slower RPM will produce heat.*

# 06 MAINTENANCE

## REGULAR MAINTENANCE

A well-designed maintenance program will add years of service to the blower.

Check a newly installed blower frequently during the first month of operation, especially lubrication. Check the oil level and add oil as needed. Complete oil changes are recommended annually, or more frequently depending on the operating conditions. The following is recommended as a minimum maintenance program. An oil analysis program is recommended.

| DAILY | WEEKLY | MONTHLY | SEMIANNUALLY | AS NEEDED |
|---|---|---|---|---|
| 1. Check and maintain oil level, and add oil as necessary.<br>2. Check air filter restriction indicator. | 1. Clean the air filter. A clogged air filter can seriously affect the efficiency of the blower and cause overheating and oil usage.<br>2. Check the relief valve to make sure it is operating properly. | 1. Inspect the entire system for leaks.<br>2. Inspect the condition of the oil and change if necessary. | 1. Inspect the drive line bearings. | 1. Change oil as needed. Approximately every 1,000 hours.*<br>**T855RS has an oil change interval of up to 4,000 hours depending on operating conditions.* |

## BLOWER SERVICE & REPAIR

M-D Pneumatics transport blowers are manufactured and assembled to exacting standards to ensure optimum performance and longevity. M-D Pneumatics recommends that only factory trained technicians perform major overhauls on its transport blowers. Call us or visit our website for the location of trained channel partners or to schedule a repair at our factory repair center.

# 07

# DISASSEMBLY AND REASSEMBLY

## DISASSEMBLY

**NOTE: Before removing any parts, match-mark each component with a punch. This will allow the blower to be reassembled in the same position. Match-mark the covers, end plates, housing, cover extension, and both rotors.**

**NOTE: RS blowers should only be serviced by qualified MDK distributors.**

1. Remove oil drain plugs and vent plugs from both ends of the blower.

2. Remove the drive key from the drive shaft. Remove the gear end cover. Remove the drive end cover. This is best accomplished by using two small pry bars at the dowel pins. Tap on the cover with a mallet while putting pressure on the cover with the pry bar. The cover will slowly move off the dowel pins. Inspect the seal area on the drive shaft for grooves and burrs. Remove the drive shaft seal from the drive end cover. Remove the oil slinger assemblies.

3. Remove the bolts and washers from the rotor shafts on the gear end. Remove the timing gear from the rotor shaft by using a gear puller ***(see Figure 6-1)***. Rotate the timing gear to the right and left, 3 teeth each direction from the timing marks on the face of the gears, as the gear is being removed. Inspect the gear teeth for wear and pitting. Inspect the rotor shaft keyway for wear and damage.

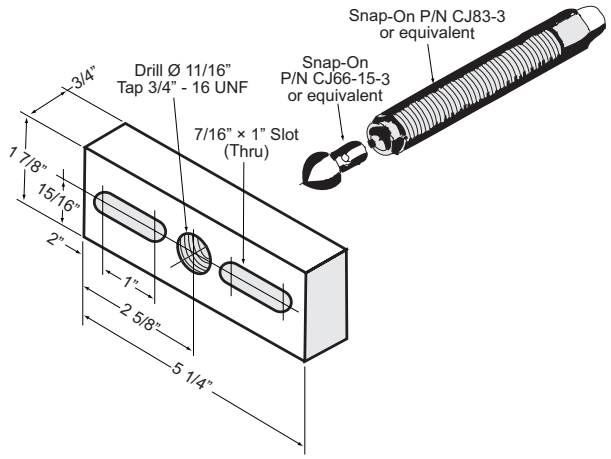



*Figure 6-1 – Gear Puller*

**NOTICE**

*Blower rotors must rotate freely in order for timing gears to be removed correctly. If blower rotors do not move freely both timing gears must be pulled simultaneously. If gears are removed improperly, this will cause damage to the rotor keyways and possibly to the timing gears.*

4. Remove the bolts from the from the bearing retainers from both drive and driven rotors.

5. Use jacking screws on the end plate from the housing. The rotors will be removed from the housing when the gear end end plate is removed. Use a gear puller and attach to the gear end plate with the center of the puller in

the center of the rotor shaft. Apply pressure, pushing the rotor away from the end plate. Repeat this process until both rotors have been removed. Remove the inner sleeve of the seal housing from the rotor shafts with a puller. Inspect and clean the seal area on the rotor shaft.

6. Remove the bearing holders, seal housing, slingers, bearing shield, and bearing shims from end plate. Use a hammer and bar to drive the bearing and seal housing from the end plates. Inspect the bearing wear pattern and seal for wear and heat marks. Clean all parts before inspecting. Check the rotor bearings for proper spinning. Check the seal fits of the seal housing on the rotor shaft. Check the bearing bores and seal bores in the end plate for spinning of bearings and seal housings.

# ASSEMBLY

The components in ***Table 6-1*** are available as a kit from MD Pnuematics Vacuum & Blower Systems. These components are replaced during a normal blower overhaul. These parts, at minimum, should be on hand prior to assembly.

| DESCRIPTION | QTY |
|---|---|
| Bearing, Ball 2 Row | 2 |
| Bearing Roll Cylinder | 2 |
| Breather, 1/2” NPT | 2 |
| Gasket, Port, T855/T1055 | 2 |
| Seal Assembly Piston Ring/Lip | 4 |
| Seal, Triple Lip, Viton | 1 |
| Timing Adjustment Shim | Multiple |

*Table 6-1 – Overhaul Kit*

## Gear End Assembly

1. Check all parts to make sure the parts are clean and free of burrs or nicks that may have occurred when the blower was being disassembled. Check the repair kit for the correct parts needed to complete the assembly of the unit. Make sure you have the proper tooling and training required to assemble the blower. Take the time to read and completely understand the instruction manual before you begin.

2. Seat the rotors on a fixture with the gear end of the rotors upward and in the “T” position, as shown in ***Figure 6-2***. Place a set of 0.006 in. shims on each rotor. Make sure the drive rotor is in the correct location for the proper flow and rotation required for the application.

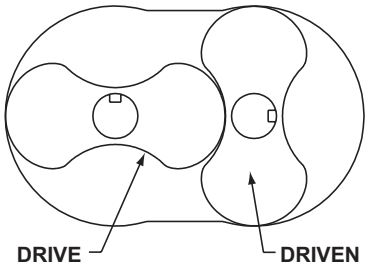



*Figure 6-2 – Correct Positioning of Rotor Keyways for Assembly*

**NOTE: Use Loctite thread sealant on all bolts and capscrews that are assembled without lock washers.**

3. Install the end plate onto the rotor. Make sure the shims on the rotor are still in place. Using a seal pressing tool (see ***Figure 8-1*** for detail), press the seal assembly onto the rotor shafts. Press the oil shield onto the rotor shafts.

4. Lay a straightedge across the top of the rotor shafts. Put a depth micrometer on the straightedge and measure the distance to the bearing shoulder on the end plate and the distance to the inner seal housing shoulder. Calculate the difference. This will be the amount of bearing shim needed for the proper clearance on the gear end. Install bearing retainers after pressing the bearings in on both drive and driven sides.

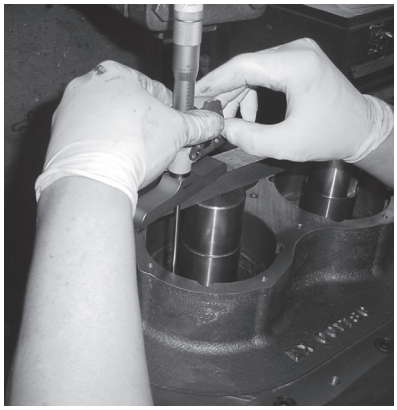


*Figure 6-3 – Using Depth Micrometer to Determine End Clearance*

5. Install the housing to the gear end end plate, and tighten the bolts to secure the end plate to the housing. Check the gear end clearance between the rotors and end plate.

**NOTE: Install the bearing retaining washer at this time if the blower requires retainers. Then, check the gear end clearance of the unit.**

6. Install the gear key into the keyway of each rotor. Make sure the keyways are in the correct position for the timing gears, as shown in ***Figure 6-4***.

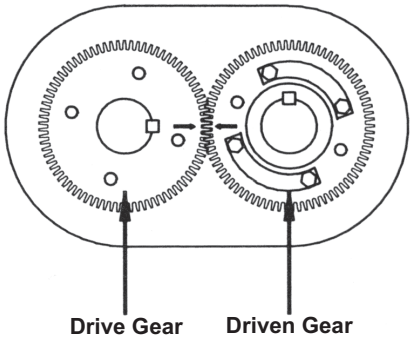



*Figure 6-4 – Timing Marks Matched*

Press the timing gear assembly onto the rotor with the timing marks aligned on the gear as shown in ***Figure 6-5***.

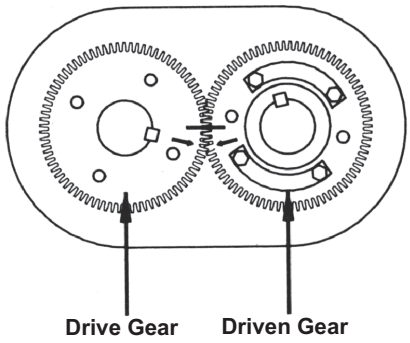



*Figure 6-5 – Timing Marks Advanced 3 Teeth (Reference Marks Matched)*

Install the rotor shaft washer and tighten. Check the gear end clearance and record it.

**NOTE: If gear end clearances change, bearing shims may need to added or removed to maintain proper clearances.**

## Drive End Assembly

1. Remove the blower from the fixture and turn until the drive shaft is facing upward. With a straightedge placed on the blower housing, check the clearance between the rotor and the straight edge using feeler gauges. Make sure the drive end has the proper clearances.

2. Place the end plate onto the blower housing. Tighten the end plate securely to the housing. Press the seal assembly onto the rotor until the assembly bottoms on the rotor. Continue the process until both seal assemblies are installed. Press the oil shield into place.

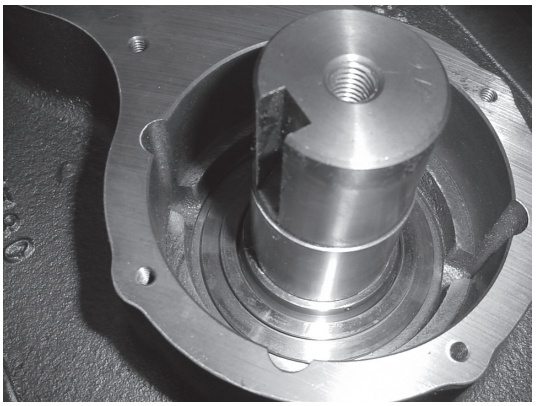


*Figure 6-6 – Seal Assembly Installed into End Plate*

3. Install the bearing shields into the end plate. Press the bearing into the end plate until the bearing bottoms to the shoulder of the end plate. Install bearing retainer on drive rotor only.

4. Install the drive end spacer onto the rotor shafts. Position the oil slinger assembly onto the drive shaft of the blower. Install the oil slinger assembly onto the driven rotor. Install rotor washer and bolt. Tighten the bolt securely to the shaft.

5. Apply sealant. Install the drive cover onto the endplate. Tighten the cover securely to cover the endplate. Install the drive shaft seal into the drive cover.

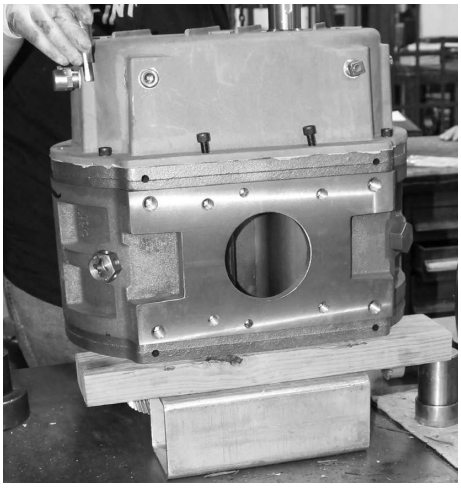


*Figure 6-7 – Endplate Cover Installed Drive End*

6. Install the pipe plugs and oil sight glasses into their proper locations, which are determined by the direction of flow of the blower.

**NOTICE**

*When installing drive shaft seal, use care not to damage the lip of the seal on the keyway of the drive shaft. Make sure keyway is free of burrs and sharp edges.*

## Checking Interlobe Clearance

1. The outer gear shell is fastened to the inner hub with four cap screws and located with two dowel pins. Adding and removing shims between the gear shell and the inner hub moves the gear shell axially. The helix causes the gear to rotate, which changes the clearance between the rotor lobes. Adding a shim of 0.030 in. thickness will change the rotor lobe clearance by approximately 0.009 in.

   The timing shim is formed from a number of 0.003 in. shims that have been laminated together. They are easily peeled off as necessary or added to correct timing. Use feeler gauges to check the clearance at AA (right-hand reading) and BB (left-hand reading) ***(see Figure 6-1)***. The clearance should be adjusted so they are as equal between all lobes as possible – usually between 0.002 and 0.003 in. For best results, use feeler gauges no larger than 0.006 in.

   Example: If AA reading is 0.020 in. and BB reading is 0.008 in., by removing 0.021 in. shims the reading will change 0.006 in. AA should read 0.014 in. and BB should read 0.014 in.

   Remember to place timing marks on center and match when removing or installing a gear (see ***Figure 6-4*** and ***Figure 6-5***).

**NOTE: Once timing of the rotor has been completed, check tip-port and tip-dowel clearance and record along with gear end and drive end clearances. Tip-dowel location is when the tip of the rotor is lined up with the dowel pins in the housing. Check the clearance as close to the dowel as possible.**

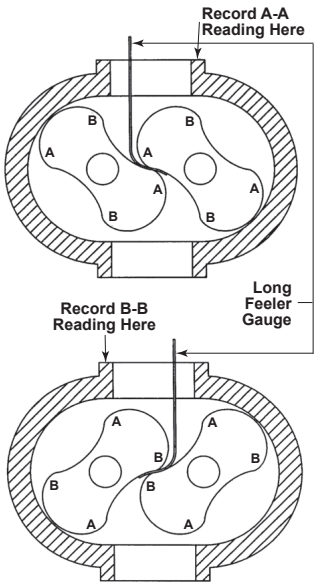



*Figure 6-8 – Checking Interlobe Clearance*

2. Install the rotor washer and bolt on the gear end rotor shafts. Tighten securely and install the O-ring into the cover. Install the gear end cover to cover the extension, and tighten the bolts so the cover is fastened securely to the cover extension.

3. Install the pipe plugs and sight glasses to the proper location. The direction of flow of the blower will determine their location.

# 08

# ASSEMBLY CLEARANCES

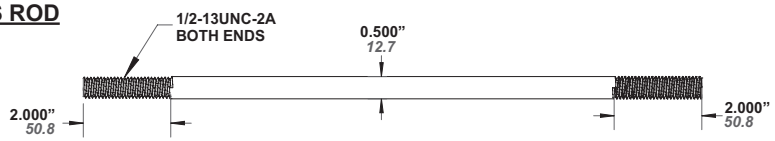
| MODEL | GEAR END | DRIVE END | SUM OF GEAR END + DRIVE END | INTERLOBE | TIP-PORT | TIP-DOWEL |
|---|---|---|---|---|---|---|
| T855 | 0.004 – 0.009 in. (0.10 – 0.23 mm) | 0.013 – 0.018 in. (0.33 – 0.46 mm) | 0.021 – 0.022 in. (0.53 – 0.56 mm) | 0.013 – 0.017 in. (0.33 – 0.43 mm) | 0.006 – 0.010 in. (0.15 – 0.25 mm) | 0.003 – 0.007 in. (0.08 – 0.19 mm) |
| T1055 | 0.004 – 0.009 in. (0.10 – 0.23 mm) | 0.015 – 0.020 in. (0.38 – 0.51 mm) | 0.023 – 0.024 in. (0.58 – 0.61 mm) | 0.013 – 0.017 in. (0.33 – 0.43 mm) | 0.006 – 0.010 in. (0.15 – 0.25 mm) | 0.003 – 0.007 in. (0.08 – 0.19 mm) |

**NOTE: RS blowers should only be serviced by qualified MDK distributors.**

# 09

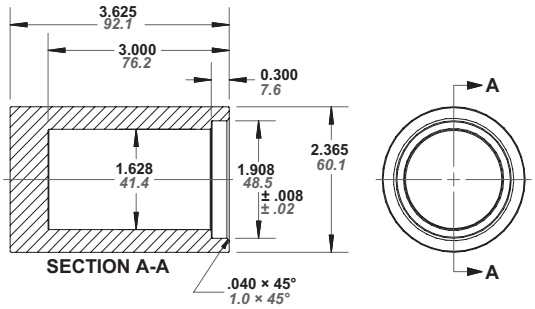
# SPECIAL TOOL DRAWINGS

## HYDRAULIC PRESS ROD

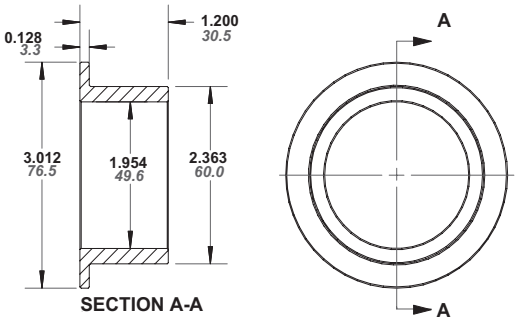



**MATERIAL:**
TOOL STEEL
HEAT TREATED
TO 40-42 Rc

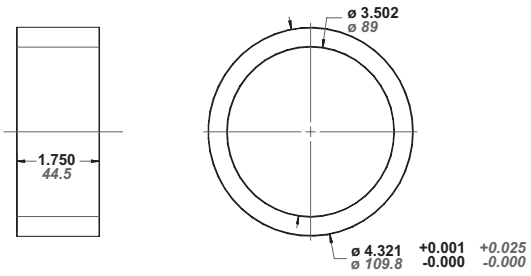
## DRIVE SHAFT SEAL TOOL



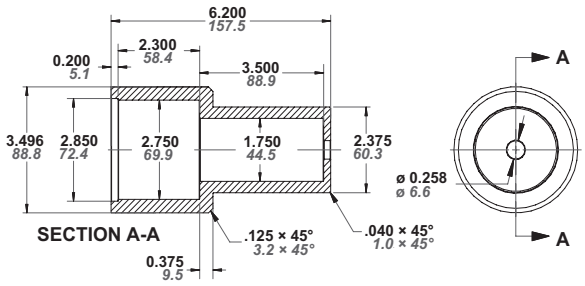

## CLEARANCE SETTING SPACER



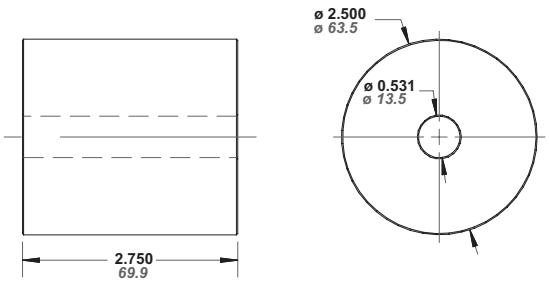

## END PLATE PRESS TOOL



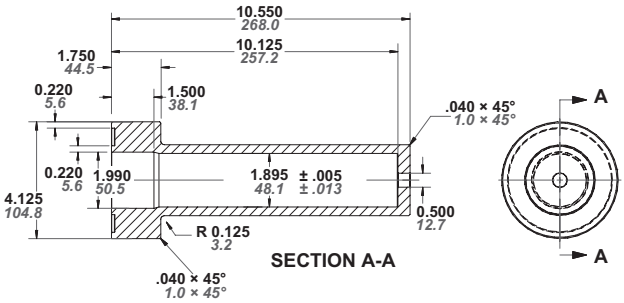

## END PLATE SEAL PRESS TOOL



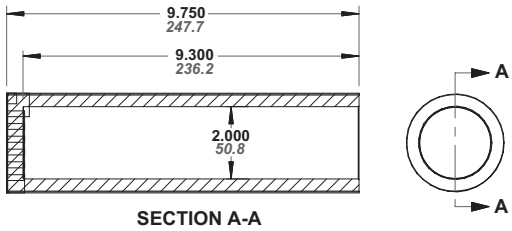
## GEAR PRESS SPACER



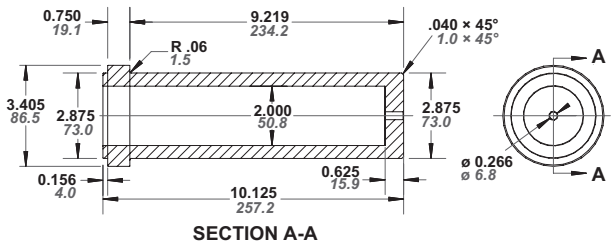

## LONG SHAFT BEARING PRESS TOOL




## PISTON CARRIER & SLINGER INSTALLATION TOOL




## ROTOR SHAFT LIP SEAL PRESSING TOOL



# 10 RECOMMENDED LUBRICANTS

## RECOMMENDED LUBRICANTS FOR BLOWERS AND VACUUM BOOSTERS

Positive displacement blowers and vacuum boosters require proper lubrication for bearings, seals and gears to operate effectively and efficiently. Oil is distributed from the oil reservoir to the critical components by means of oil slingers that are attached to the rotor shaft. In certain models of CP Series blowers, a high-performance grease rated for high temperatures is used on the drive-end bearings.

MD full synthetic lubricants are recommended for blowers and vacuum boosters. MD lubricants are specifically formulated using unique additives that provide maximum protection and extend the life of your product over mineral oils or semi-synthetic lubricants.

**⚠ WARNING**

Do not overfill the oil sumps. Overfilling can result in gear damage or oil leaks.

**⚠ CAUTION**

Units are shipped without oil in the sumps. Ensure adequate oil has been added before operating.

MD oils are suitable for a wide range of operating temperatures that are based on model, operating speed and discharge temperature of the product.

## FOR OXYGEN-ENRICHED SERVICE

Blowers and vacuum boosters operated in oxygen enriched applications should only use non-flammable, PFPE full synthetic lubricants. Blowers and vacuum boosters used in hydrogen service should only MD full synthetic oil

**NOTE: Oxygen-enriched service only applicable for PD Plus blowers and vacuum boosters.**

**⚠ CAUTION**

M-D Pneumatics and Kinney does not accept responsibility for damage caused by use of lubricants that are not recommended by M-D Pneumatics and Kinney.

| MD BLOWER & BOOSTER LUBRICANTS SPECIFICATIONS: | | | | |
|---|---|---|---|---|
| **PRODUCTS** | **MD ONE** | **MD PLUS** | **MD MAX** | **MD FG** |
| **VISCOSITY INDEX** | 150 | 154 | 157 | 141 |
| **@40°C, CST** | 99.1 | 231.7 | 340.9 | 99.3 |
| **@100°C, CST** | 14.4 | 27.6 | 37.2 | 13.9 |
| **FLASH POINT °F (°C)** | 510 (266) | 480 (249) | 491 (255) | 515 (268) |
| **POUR POINT °F (°C)** | - 44 (-43) | -49 (-45) | -54 (-48) | -60 (-51) |

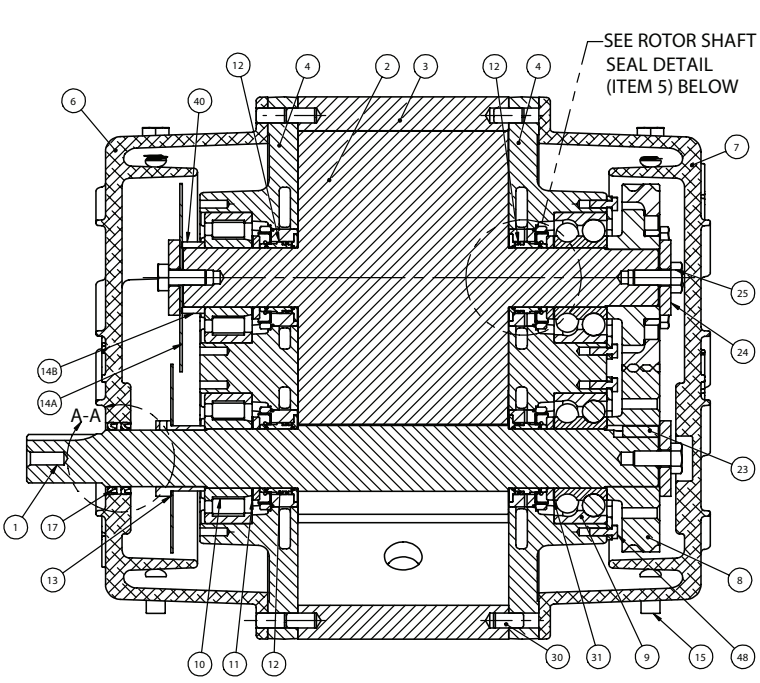
**NOTE: MD One Vapor Pressure: (mm Hg) 100ºF <0.00004; 200ºF <0.00018**

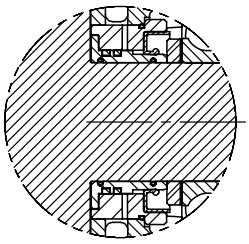
| MD BLOWER & BOOSTER LUBRICANTS OPTIONS | | | | | |
|---|---|---|---|---|---|
| **MD OIL TYPE** | **1 QUART** | **1 GALLON** | **5 GALLON** | **55 GALLON BARREL** | **CASE 12 QUARTS** |
| **MD ONE** | 16444-MD1-Q | 16444-MD1-G | 16444-MD1-5G | 16444-MD1-B | 16444-MD1-Q-C |
| **MD PLUS** | 16444-MD2-Q | 16444-MD2-G | 16444-MD2-5G | 16444-MD2-B | 16444-MD2-Q-C |
| **MD MAX** | 16444-MD3-Q | 16444-MD3-G | 16444-MD3-5G | 16444-MD3-B | 16444-MD3-Q-C |
| **MD FG** | 16444-MD1-Q-FG | 16444-MD1-G-FG | 16444-MD1-5G-FG | 16444-MD1-B-FG | 16444-MD1-Q-C-FG |

# 11

# ASSEMBLY DRAWING AND PARTS LIST

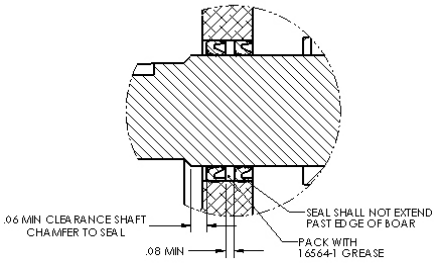
## ASSEMBLY DRAWING



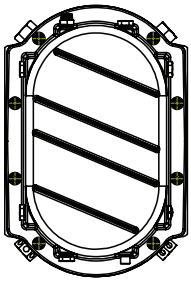
ROTOR SHAFT SEAL DETAIL (ITEM 5)

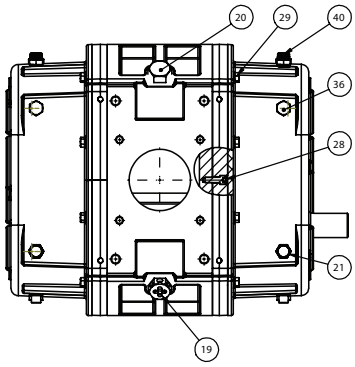
STANDARD PISTON/SLINGER SEAL ASSEMBLY

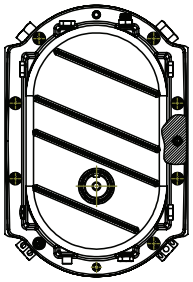



A-A
SCALE 1 : 1

**DRIVE SHAFT SEAL DETAIL**







# PARTS LIST

Parts list for T855 / T855RS / T1055

| ITEM NO. | PART DESCRIPTION | QTY | PART NO. |
|---|---|---|---|
| 1 | ROTOR DRIVE (T855) | 1 | 61258-121 |
| | ROTOR DRIVE (T855RS) | | RS61258-121 |
| | ROTOR DRIVE (T1055) | | 61289-121 |
| 2 | ROTOR DRIVEN (T855) | 1 | 61259-121 |
| | ROTOR DRIVEN (T855RS) | | RS61259-121 |
| | ROTOR DRIVEN (T1055) | | 61290-121 |
| 3 | HOUSING (T855 / T855RS) | 1 | 61238-101 |
| | HOUSING (T1055) | | 61313-101 |
| 4 | ENDPLATE | 2 | 61575-101 |
| 6 | COVER DRIVE END | 1 | 61573-128 |
| 7 | COVER GEAR END | 1 | 61574-128 |
| 8 | GEAR ASSEMBLY | 1 | 61282 |
| 9 | BALL BEARING | 2 | 30238-5310 |
| 10 | ROLL BEARING | 2 | 30410-2310 |
| 11 | SHIM, BEARING | 2 | 17024-25 |
| 12 | SEAL ASSEMBLY | 4 | 18131-6D |
| 13 | OIL SLINGER ASSEMBLY | 1 | 16928-2 |
| 14A | SLINGER,DRIVEN | 1 | 16927-4 |
| 14B | SPACER | 1 | 16926-4 |
| 15 | MAGNETIC PLUG | 2 | 90242-MDK |
| 17 | LIP SEAL | 2 | 16924 |
| 19 | PLUG | 2 | 92278-MDK |
| 20 | PLUG | 2 | 93361 |
| 21 | OIL SIGHT GAGE | 2 | 93334-050 |
| 23 | KEY TIMING GEAR | 2 | 61370-MDK |
| 24 | ROTOR SHAFT WASHER | 3 | 60026 |
| 25 | HEX HEAD SCREW | 3 | 90170-125 |
| 28 | HEX HEAD SCREW | 20 | 90174-100 |
| 29 | FLANGE HEAD SCREW | 16 | 90174-050 |
| 30 | DOWEL PIN | 6 | 91458-100 |
| 31C | SHIM, BEARING | 2 | 17024-3 |
| 31D | SHIM, BEARING | 4 | 17024-4 |
| 31E | SHIM, BEARING | 2 | 17024-5 |
| 36 | PLUG | 10 | 91572 |
| 40 | BREATHER BUSHING ASSY | 2 | 61047-A50 |
| 42 | NAME PLATE | 1 | 18491-1 |
| 43 | DOWEL | 2 | 61224-162 |
| 44 | KEY | 1 | 8268-MDK |
| 45 | LOCK SCREW | 2 | 61225 |
| 47 | SET SCREW | 2 | 80043-12 |
| 48 | HEX HEAD SCREW | 8 | 90354-075 |
| 49 | BEARING RETAINER | 2 | 61576 |

61580-MDK Service Kit for T855 / T855RS / T1055

| ITEM NO. | PART DESCRIPTION | QTY | PART NO. |
|---|---|---|---|
| 9 | BALL BEARING | 2 | 30238-5310 |
| 10 | ROLL BEARING | 2 | 30410-2310 |
| 11 | SHIM, BEARING | 2 | 17024-25 |
| 12 | SEAL ASSEMBLY | 4 | 18131-6D |
| 17 | LIP SEAL | 2 | 16924 |
| 40 | BREATHER BUSHING ASSY | 2 | 61047-A50 |
| 31C | SHIM, BEARING | 2 | 17024-3 |
| 31D | SHIM, BEARING | 4 | 17024-4 |
| 31E | SHIM, BEARING | 2 | 17024-5 |
| 23 | KEY TIMING GEAR | 2 | 61370-MDK |
| | ADJUSTABLE SHIM | 1 | 60044-MDK |
| | PORT GASKET | 2 | 61518 |
| | LOCK SCREW | 2 | 61225 |
| | FLANGE HEAD SCREW | 18 | 90174-050 |

61484 Service Kit for T850 / T1050

| ITEM NO. | PART DESCRIPTION | QTY | PART NO. |
|---|---|---|---|
| ALL PARTS LISTED ABOVE FOR 61580 SERVICE KIT ARE INCLUDED, AS WELL AS THE FOLLOWING: | | | |
| 61287 | GASKET, T850 | 2 | |

61590 Mounting Adaptor Plate Kit for T855 / T855RS

| ITEM NO. | PART DESCRIPTION | QTY | PART NO. |
|---|---|---|---|
| | ADAPTOR PLATE | 1 | 61587 |
| | BOLT KIT | 1 | 61589 |
| | GASKET | 1 | 61518 |

# WARRANTY – TRANSPORT BLOWERS

Subject to the terms and conditions hereinafter set forth and set forth in General Terms of Sale, M-D Pneumatics (the Seller) warrants products and parts of its manufacture, when shipped, and its work (including installation and startup) when performed, will be of good quality and will be free from defects in material and workmanship. This warranty applies only to Seller's equipment, under use and service in accordance with Seller's written instructions, recommendations and ratings for installation, operating, maintenance and service of products, for a period as stated in the table below. Because of varying conditions of installation and operation, all guarantees of performance are subject to plus or minus 5% variation. (Non-standard materials are subject to a plus or minus 10% variation)

| PRODUCT TYPE | WARRANTY DURATION |
|---|---|
| **New** | 18 months from date of shipment, or 12 months after initial startup date, whichever occurs first |
| **Remanufactured** | 12 months from date of shipment, or 12 months after initial startup date, whichever occurs first |
| **Repair** | 12 months from date of shipment, or remaining warranty period, whichever is greater |

THIS WARRANTY EXTENDS ONLY TO BUYER AND/OR ORIGINAL END USER, AND IN NO EVENT SHALL THE SELLER BE LIABLE FOR PROPERTY DAMAGE SUSTAINED BY A PERSON DESIGNATED BY THE LAW OF ANY JURISDICTION AS A THIRD PARTY BENEFICIARY OF THIS WARRANTY OR ANY OTHER WARRANTY HELD TO SURVIVE SELLER'S DISCLAIMER.

All accessories furnished by Seller but manufactured by others bear only that manufacturer's standard warranty.

All claims for defective products, parts, or work under this warranty must be made in writing immediately upon discovery and, in any event within one (1) year from date of shipment of the applicable item and all claims for defective work must be made in writing immediately upon discovery and in any event within one (1) year from date of completion thereof by Seller. Unless done with prior written consent of Seller, any repairs, alterations or disassembly of Seller's equipment shall void warranty. Installation and transportation costs are not included and defective items must be held for Seller's inspection and returned to Seller's Ex-works point upon request.

THERE ARE NO WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE.

After Buyer's submission of a claim as provided above and its approval, Seller shall at its option either repair or replace its product, part, or work at the original Ex-works point of shipment, or refund an equitable portion of the purchase price.

The products and parts sold hereunder are not warranted for operation with erosive or corrosive material or those which may lead to build up of material within the product supplied, nor those which are incompatible with the materials of construction. The Buyer shall have no claim whatsoever and no product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action nor for problems resulting from build-up of material within the unit nor for problems due to incompatibility with the materials of construction.

Any improper use, operation beyond capacity, substitution of parts not approved by Seller, or any alteration or repair by others in such manner as in Seller's judgment affects the product materially and adversely shall void this warranty.

No employee or representative of Seller other than an Officer of the Company is authorized to change this warranty in any way or grant any other warranty. Any such change by an Officer of the Company must be in writing.

The foregoing is Seller's only obligation and Buyer's only remedy for breach of warranty, and except for gross negligence, willful misconduct and remedies permitted under the General Terms of Sale in the sections on CONTRACT PERFORMANCE, INSPECTION AND ACCEPTANCE and the PATENTS Clause hereof, the foregoing is BUYER'S ONLY REMEDY HEREUNDER BY WAY OF BREACH OF CONTRACT, TORT OR OTHERWISE, WITHOUT REGARD TO WHETHER ANY DEFECT WAS DISCOVERED OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT OR WORK. In no event shall Buyer be entitled to incidental or consequential damages. Any action for breach of this agreement must commence within one (1) year after the cause of action has occurred.

January 2005

# OPERATING DATA FORM / PRODUCT REGISTRATION

It is to the user's advantage to have the requested data filled in below and available in the event a problem should develop in the blower or the system. This information is also helpful when ordering spare parts.

Model No. _____ V-Belt Size _____ Length _____

Serial No. _____ Type of Lubrication _____

Start-up Date _____ _____

Pump RPM _____ Operating Vacuum _____

Pump Sheave Diameter _____ Any Other Special Accessories Supplied or in Use:

Motor Sheave Diameter _____ _____

Motor RPM _____ HP _____ _____

PTO Manufacturer _____ _____

PTO Model _____ _____

PTO Ratio _____ _____

**NOTES:** _____

_____

_____

_____

## IMPORTANT

All blowers manufactured by M-D Pneumatics are date coded at time of shipment. In order to assure you of the full benefits of the product warranty, please complete, tear out and return the product registration card. You may also register your product online at www.mdpneumatics.com or contact Customer Service.

M-D Pneumatics®

**For Service & Repair, Technical Support, or Product Sales contact:**

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05/25