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INTRODUCTION

This manual introduces the warranty policy, safe operation, safe maintenance, parts, and other aspects of the gunite machine.

Reading and understanding this operation manual will help maximize performance and reliability, and help minimize dangers, improper operation, and repair costs. Contact REED Customer Service for additional replacement manuals.

Everyone involved with the operation, maintenance, inspection, and repair of gunite machine **MUST READ** and **UNDERSTAND** this manual.

The operation manual is applicable to a **STANDARD EQUIPPED GUNITE MACHINE**. It is possible some gunite machines are supplied with various options and specialized equipment.

All safety guidelines, product descriptions, illustrations, and specifications found throughout this manual were in effect at the time the manual was released for printing. It should be noted ***REED* RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN OR TO MAKE ADDITIONS TO OR IMPROVEMENTS IN THE PRODUCT WITHOUT IMPOSING ANY OBLIGATIONS UPON ITSELF TO INSTALL THEM ON PRODUCTS PREVIOUSLY MANUFACTURED.**

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WARRANTY

REED warrants each of its new pneumatic spraying machines to be free of defects in material and workmanship under normal use and service for a period of twelve (12) months from date of delivery to initial user or 1000 pumping hours, whichever comes first.

The warranty is issued **ONLY** to the **INITIAL USER**. The warranty period begins when the product is delivered to the initial user or when first put into service, whichever occurs first. Said warranty is void if the machine is subjected to misuse, neglect, accident or abuse.

REED's obligation under this warranty is limited to correcting without charge, at its factory, any parts or parts thereof which shall be returned to its factory, transportation prepaid and upon ***REED***'s examination proves to have been originally defective. Correction of such defects by repair or replacement shall constitute fulfillment of all obligations to the initial user. This warranty does not include labor or transportation charges unless specifically identified and authorized in writing by ***REED***. Nor does the warranty apply to any unit upon which repairs or unauthorized alterations have been made.

This warranty does not apply to normal maintenance service or to normal replacement of certain machine parts, which are subject to normal wear (such as feed bowls, wear plates, wear pads, liners, delivery systems, etc.). ***REED*** makes no warranty in respect to trade accessories or outside vendor components, such being subject to the warranties of their respective manufacturers.

THIS IS A LIMITED WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no event shall ***REED*** be liable for incidental, general or consequential damages, loss or any expense directly or indirectly related and resulting from use or lack of use caused by delay in delivery, parts failure, or any other causes associated with the product use. No person, firm or corporation is authorized to assume for ***REED*** any other liability in connection with the sale of ***REED*** products.

Effective February 1, 2010

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WARRANTY CLAIM FORM

Claim Number:	Date:
Distributor Account Number:	End User Account Number:
Distributor:	End User:
Address:	Address:
City: State: Zip:	City: State: Zip:
Phone ( )	Phone ( )
Pump Model: Pump Serial Number:	In Service Date:_____ Hours of Operation: Failure Date: Repair Date:

Do not send part(s) until requested by ***REED*** or until claim is approved. All parts requested to be returned must have a Return Authorization Number provided by ***REED*** and shipping freight prepaid. Parts must ship within 30 days from ***REED*** request.
Return Authorization Number: Ship Date:

Part Number	Description	Qnty	Unit Price	Total Price	Replacement Part Invoice No.

Failure Description and Cause:

REED Comments:

Claim Value Approved:$_____ Claim Value Denied:$
REED Print Name, Sign, and Date:

Dealer Print Name, Sign, and Date:

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PRODUCT DESCRIPTION

The ***REED*** Gunite Machine is a dry mix pneumatic spraying machine designed specifically for the purpose of inducing granular materials into a compressed air stream. The material is then conveyed by the air through a hose line delivery system to a nozzle, where water is introduced which then mixes with the dry material and air and then is sprayed from the nozzle for the specific application. The machine is of a simple design, compact, lightweight, and is of a rugged construction to withstand the work environment surrounding the many applications of dry mix spraying.

The gunite machine utilizes as its main power source an air or electric powered motor. The air supply for operations of the air motor is provided by an external compressed air source. The air/electric motor through an oil bath spur gear arrangement is used to rotate the feed wheel or bowl. A means is provided to vary the rotating speed for the feed wheel, which in turn varies the output feed rate.

In operation, dry or damp material is placed into the hopper where it is allowed to freely fall through openings and down into the “U” shaped pockets of the feed wheel. As the feed wheel rotates, the material loaded pockets pass under a molded rubber sealing pad which is set tight against the top portion of the feed wheel. The rubber pad and back-up plate each contain two (2) specifically designed openings. One is used as an inlet for the compressed air and the other is used as an outlet for the air material mixture. These openings are designed to align with the “U”-shaped pockets of the feed wheel. As the loaded pockets pass under the pad and line up with the openings, the compressed air which is directed to the inlet opening of the pad then pushes the material from the pockets of the feed bowl and up through the pads outlet opening where it travels through the gooseneck and into the delivery hose and nozzle. With the constant even rotation of the feed bowl, the material can be exhausted into the hose in a steady flow.

When equipped with an air motor, protection of the air motor and other related components against premature wear is provided by an air filter and lubricator. The filter is used to remove any liquids and solids from the incoming compressed air. The lubricator is used to induce a controlled oil flow into the air stream where it is atomized into an airborne oil fog which is carried to the air motor.

Controls for operation of the unit are at the machine. They include the ability to turn on and regulate the air power to the motor and feed bowl, to monitor the pressure of the systems and adjust the pad clamps.

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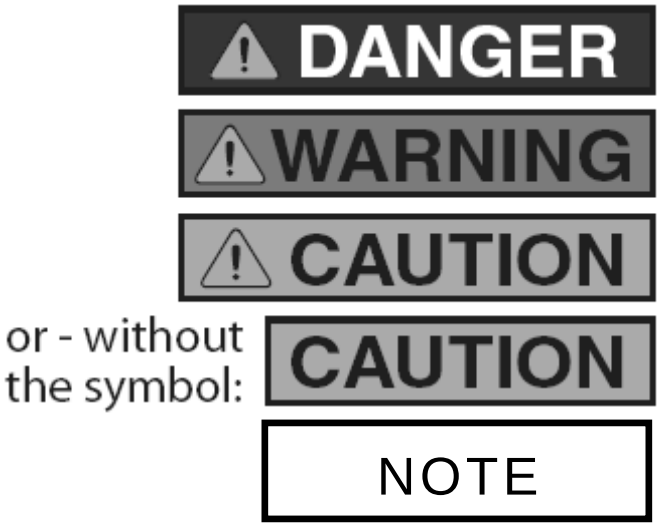
SAFETY
SAFETY ALERT SYMBOLS AND SIGNAL WORDS

The following safety alert symbols, signals, and explanations are intended to warn the operator of hazardous and potentially hazardous situations.

The triangle with the exclamation point inside is used to alert the operator to an important safety point, and is called a safety alert symbol. One of the following signal words will appear after the safety alert symbol:



If the safety alert symbol is followed by the signal word **DANGER**, the safety alert symbol indicates a hazardous situation which, if not avoided, **WILL** lead to death or serious injury.

If the safety alert symbol is followed by the signal word **WARNING**, the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

If the safety alert symbol is followed by the signal word **CAUTION**, the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **COULD** result in minor to moderate injury.

The signal word **CAUTION**, but without safety alert symbol means the safety symbol alert addresses a hazard which, if not avoided, **COULD** cause damage to equipment or property.

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READ AND UNDERSTAND MANUAL

Everyone involved with the operation, maintenance, inspection, and repair of the gunite machine **MUST READ** and **UNDERSTAND** this manual.

The accompanying Safety Manual is attached at the end of this manual.

Use Only Qualified, Experienced, and Trained Personnel
Wearing Protective Equipment At All Times

For Safe Use, Maintenance, Inspection, and Repair,
Only Operate, Maintain, Inspect, and Repair
In Accordance With This Operation Manual and the Safety Manual

Performance and Safety Features Must Never Be Altered, Disconnected, or Removed

Contact ***REED*** Technical Support and Service When Assistance Is Required

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PERSONAL SAFETY PRECAUTIONS

WARNING

- Be fully rested for work and clear of personal issues, accidents can occur when the body is on the job, but the mind is not
- Arrive to work on time, accidents can be caused by rushing through procedures

* Breathing mask needed when cement dust (or other toxic dust) is present in the air.

Figure 1
Personal Protective Equipment (P.P.E.)

- Dress in appropriate apparel and Personal Protective Equipment (P.P.E.)
  - Hard Hat
  - Safety Glasses or Goggles
  - Snug Fitting Clothes
  - Gloves
  - Steel Toed Shoes
  - Hearing Protection
  - Breathing Mask (for Toxic Dust)
  - Work Gloves
  - Steel Tool Boots
  - Rubber Gloves (when handling concrete)
  - Rubber Boots (when standing in concrete)

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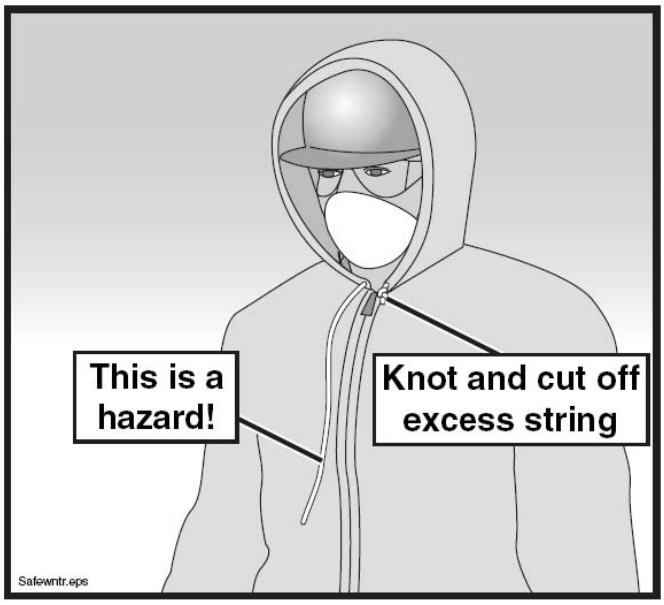

Figure 2
No strings attached

- Do NOT wear clothing with strings, fringes, or other external tightening means that could be caught in moving parts

- Do NOT wear jewelry, athletic shoes, sandals, and shorts

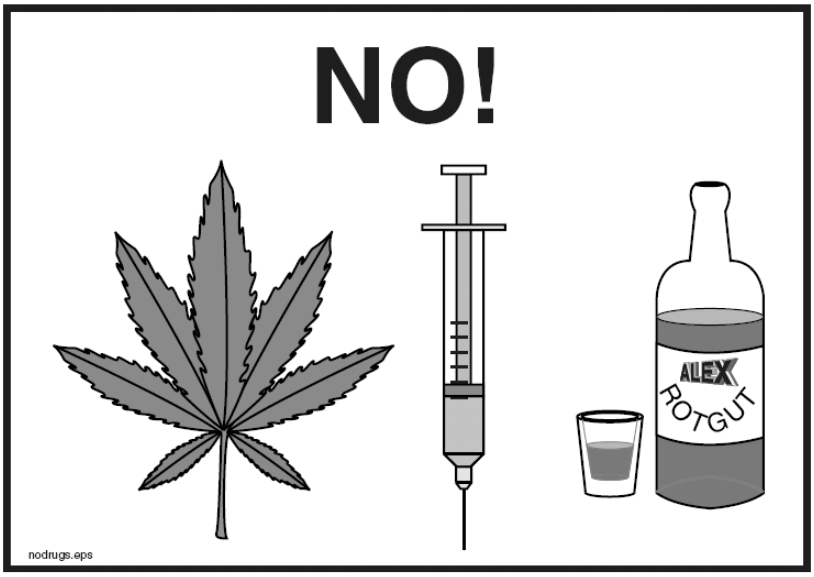

Figure 3
Your co-workers depend upon you for their safety

- NEVER go to work or work on, around or near a piece of machinery when under the influence of drugs or alcohol. Also, be cautious of “over the counter” drugs, which may have warnings regarding side-effects and operating machinery.

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JOBSITE SAFETY PRECAUTIONS

Everyone involved with the operation, maintenance, inspection, and repair of the gunite machine **MUST READ** and **UNDERSTAND** this manual.

Many different dangerous conditions and situations are possible at a jobsite. Be alert to these warnings to prevent dangerous working conditions. Do not overlook these possible hazards, not limited to the following:

- Keep work area clear of unauthorized personnel
- Level machine on uneven terrain and slopes
- Do not operate machine in traffic lanes.
- Always place cones and barricades around the unit.
- Don’t clean, lubricate, and/or make maintenance adjustments while unit is in operation
- Keep safety decals and operation instructions legible
- Do not alter or disconnect safety devices
- Use whip-check cables or chain safety couplings on air supply hoses
- Use only sturdy & safe lifting devices, platforms and scaffolding, equipped with safety rails, for those spraying operations that are performed off the ground
- Never remove the hopper screen and put your hands into the hopper
- Report items that need attention or require service

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SAFETY DECALS

Safety decals are placed at appropriate areas on the gunite machine to be constant warnings of dangers. Know and adhere to the information they provide. Contact ***REED*** Customer Service for complimentary replacements of safety decals, shipping charges may apply.

WARNING
ALWAYS WEAR SAFETY GLASSES
WHEN OPERATING THIS MACHINE

WARNING!

The wear pad area of this machine is extremely dangerous when the wear pad and Pad back-up assembly are removed.

It is essential that strict safety procedures be followed before performing any work in the wear pad area.

If maintenance must be performed in this area then proceed as follows:

(1) Shut off power.
air / electric

(2) Disconnect air feed line or electric cord.

Work in the wear pad area can now be per- formed safety.

Upon completion of this work, reconnect air feed line or electric cord, and restore power.

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SAFETY DECALS CONTINUED

WARNING!

The inside of the hopper of this machine has moving parts which are extremely dangerous.

It is essential that strict safety procedures be followed before any work is done inside the hopper.

The screen on the hopper is bolted in a closed position to restrict access. If maintenance must be performed inside the hopper, proceed as follows:

(1) Shut off power.
air / electric

(2) Disconnect air feed line or electrical cord.

(3) Remove bolts securing the hopper screen

Work inside the hopper may now be performed safely.

Upon completion of this work, replace the bolts and secure the hopper screen in a closed position. Reconnect air feed line or electrical cord and restore power.

CAUTION DO NOT LIFT THIS MACHINE BY HOPPER HANDLES. USE SLINGS UNDER MACHINE.

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SAFETY DECALS CONTINUED

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OPERATOR QUALIFICATIONS

Making the choice for an operator and nozzleman is a vital decision as it affects safety and productivity. The gunite machine has been thoroughly inspected and tested by the ***REED*** Quality Control prior to shipment. The design of the unit incorporates several built-in safety features and also allows for an average skilled person to readily become proficient in the safe operation of the gunite machine. The unit is a pressurized material pump and can be potentially DANGEROUS in the hands of untrained and/or careless operators**.**

Knowing the characteristics of the machine and function of the controls are important to safe, proper operation and use.

Everyone involved with the operation, maintenance, inspection, and repair of the gunite machine **MUST READ** and **UNDERSTAND** this manual.

- The first requirement for any user/operator is to obtain a thorough understanding of the operating characteristics and limitations of the machine regardless of their prior experience with similar type equipment
- Only qualified and trained personnel who have been authorized must be allowed to operate the ***REED*** gunite machine
- Individuals who cannot **READ** and **UNDERSTAND** the signs, warnings, notices and operating instructions that are part of the job, in the language in which it is printed **MUST NOT BE ALLOWED** to operate the gunite machine
- Know and follow all cautions, warnings, and operating instructions on the machine
- Repair and adjustments must only be made by qualified and trained personnel
- No modification is to be made to the machine without prior written consent of the ***REED*** Customer Service Department
- Attach a **SIGN-OFF** sheet on the unit to enable the operator to report any damage, defects, problems, or accidents to his work supervisor
- Understand and obey all applicable local and federal government statues and regulations applying to safe operation and use of material pumping machines

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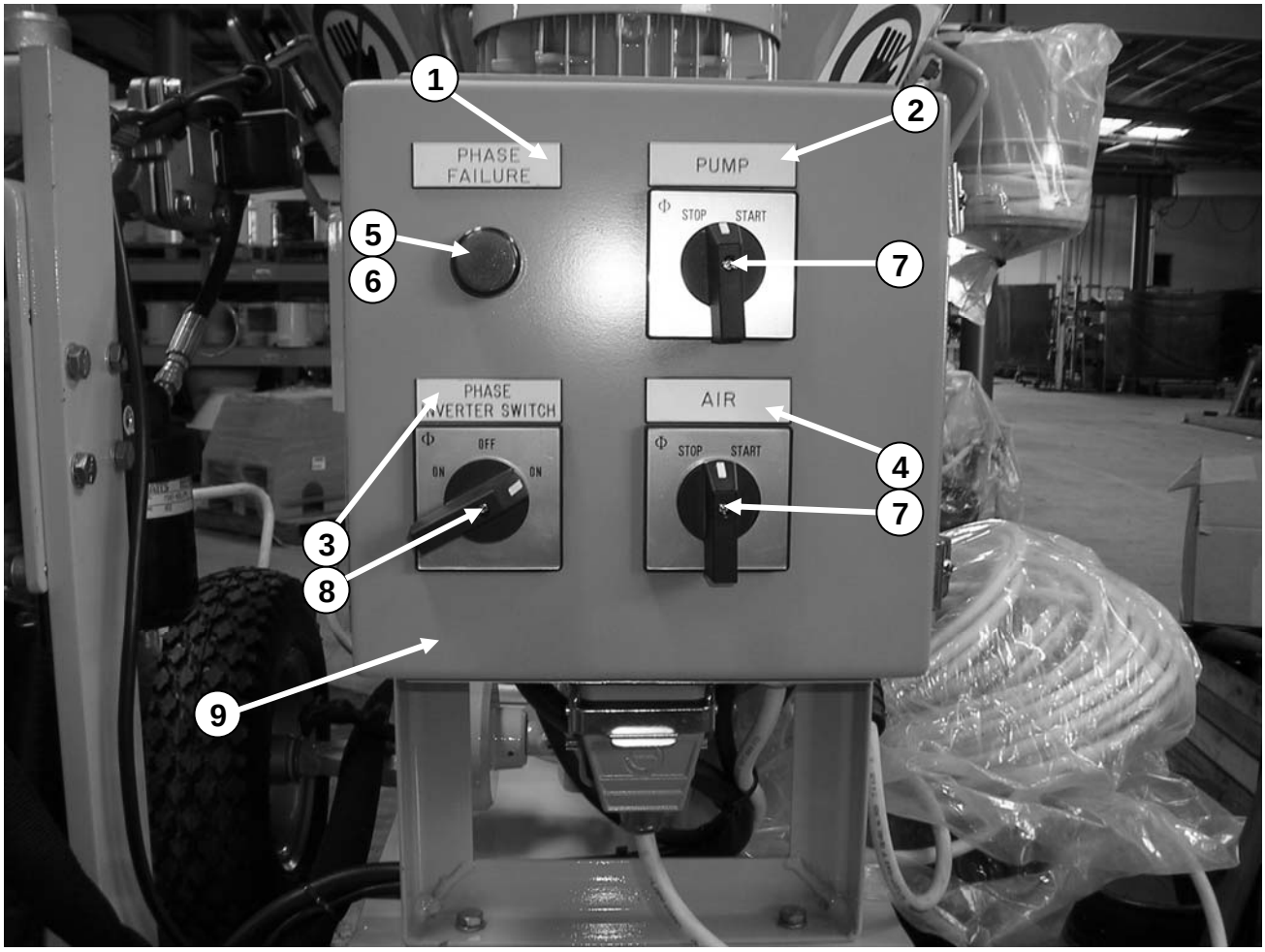
SOVE V07 MANUAL SUPPLEMENT

CONTROL BOX



Materials

Find#	Qty	Part#	Description
1	1	20203	Nameplate-Phase Failure
2	1	20204	Nameplate-Pump
3	1	20205	Nameplate-Phase Inverter
4	1	20206	Nameplate-Air
5	1	20117	Light-lens
6	1	20115	Light-Ind. Body
7	2	20108	Switch-Panel
8	1	20107	Switch-Phase Inverter
9	1	20295	Machined-Box

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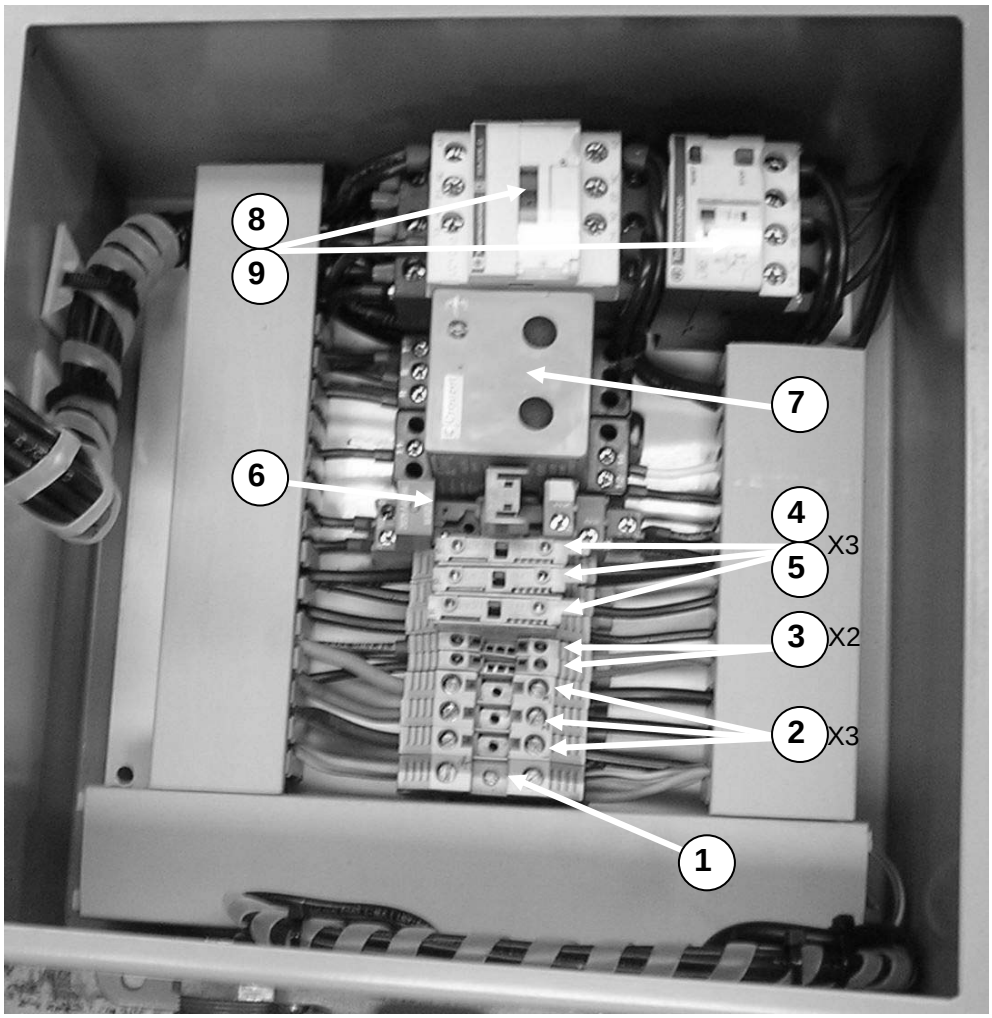
CONTROL BOX CONTINUED



Materials

Find#	Qty	Part#	Description
1	1	20114	Terminal GND
2	3	20112	Terminal
3	2	20113	Terminal
4	3	20110	Fuse
5	3	20109	Fuse holder
6	1	20111	Relay
7	1	20163	Relay –Phase-Seq
8	1	20122	Contactor
9	1	20118	Relay –overload

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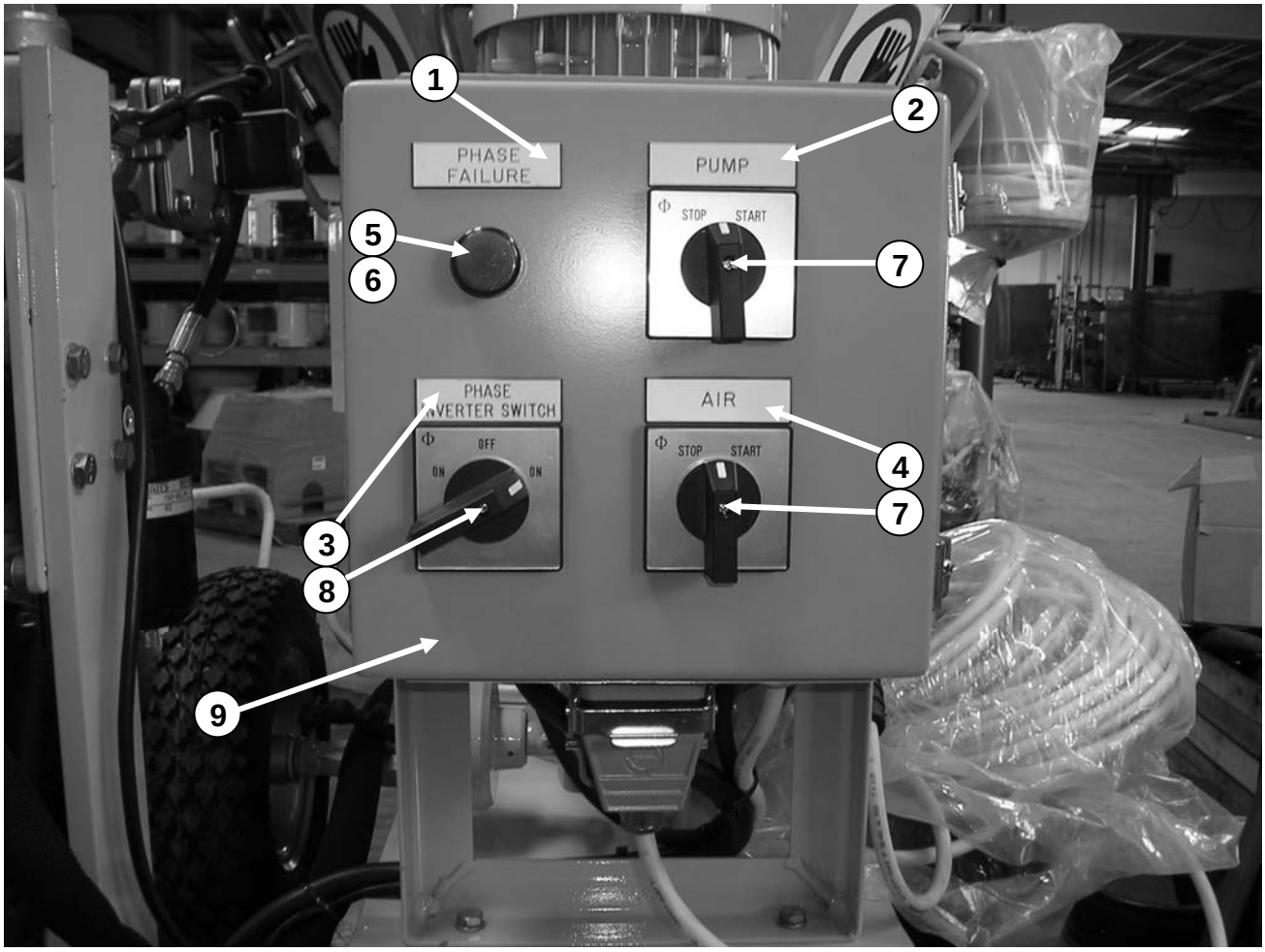
CONTROL BOX CONTINUED



Materials

Find#	Qty	Part#	Description
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2	1	20204	Nameplate-Pump
3	1	20205	Nameplate-Phase Inverter
4	1	20206	Nameplate-Air
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6	1	20115	Light-Ind. Body
7	2	20108	Switch-Panel
8	1	20107	Switch-Phase Inverter
9	1	20295	Machined-Box

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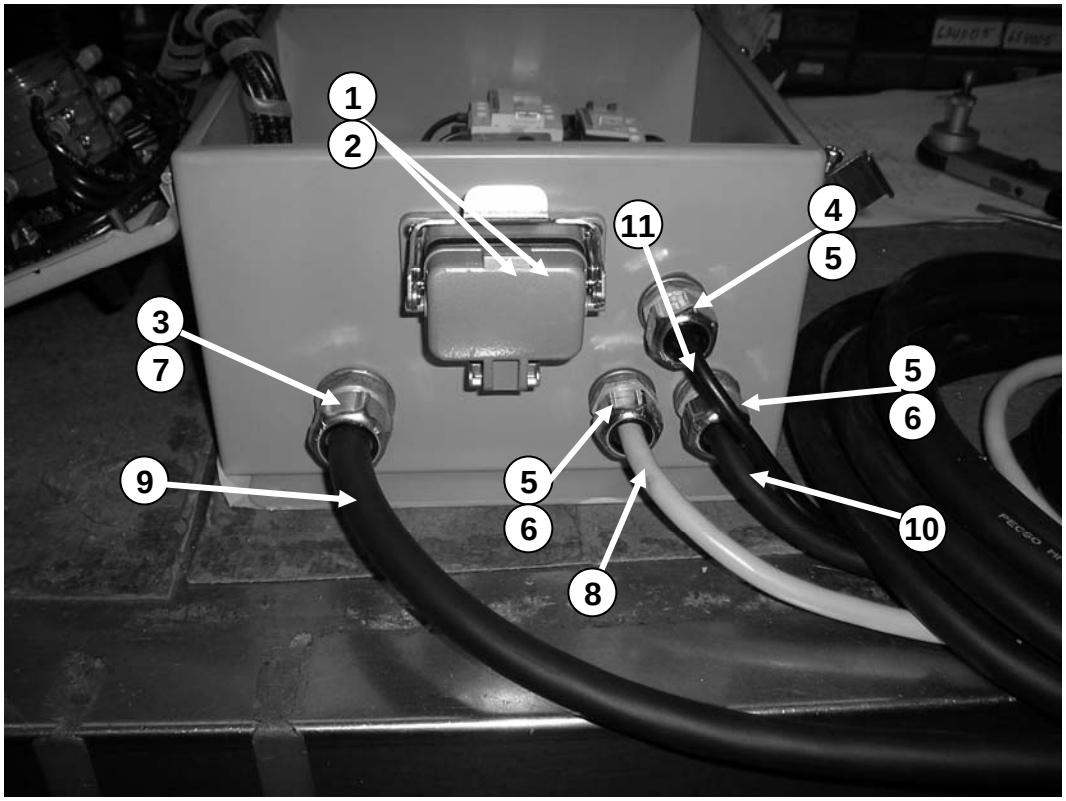
CONTROL BOX CONTINUED



Materials

Find#	Qty	Part#	Description
1	1	20152	Conn. Base-Latch 6P
2	1	20153	Conn. Insert, 6P Fem, 16A
3	1	72896	Strain Relief T&B
4	1	10522	Strain Relief
5	3	10528	Nut-1/2” Bonding type
6	2	10523	Strain Relief
7	1	30241	Locknut-Elec. Conduit ¾
8	1	20406	Cable-Prox P/N for 20406
9	1	20167	Cable, 10AWG-4C, BLK
10	1	20168	Cable, 16AWG-4C, BLK
11	1	20169	Cable, 18AWG-3C, BLK

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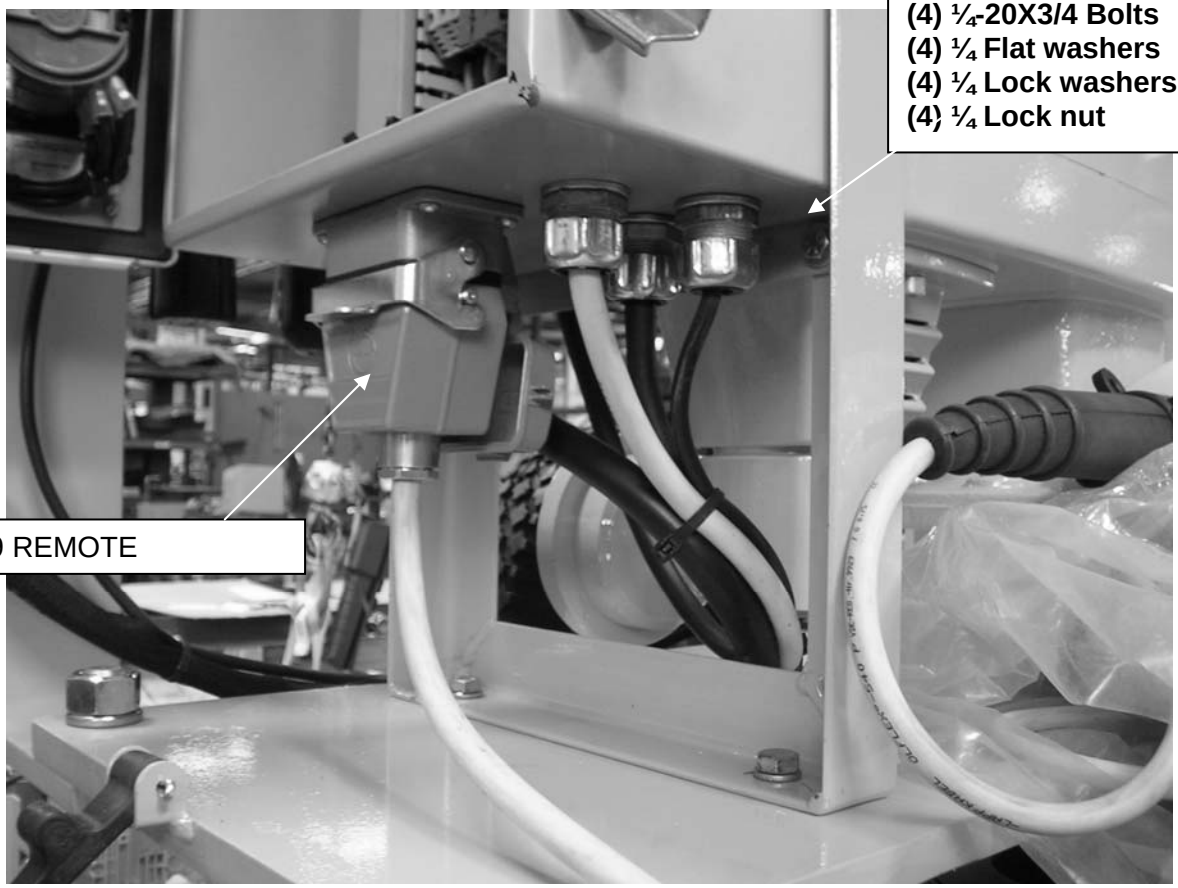
CONTROL BOX CONTINUED

HARDWARE:
(4) ¼-20X3/4 Bolts
(4) ¼ Flat washers
(4) ¼ Lock washers
(4) ¼ Lock nut



20489 REMOTE

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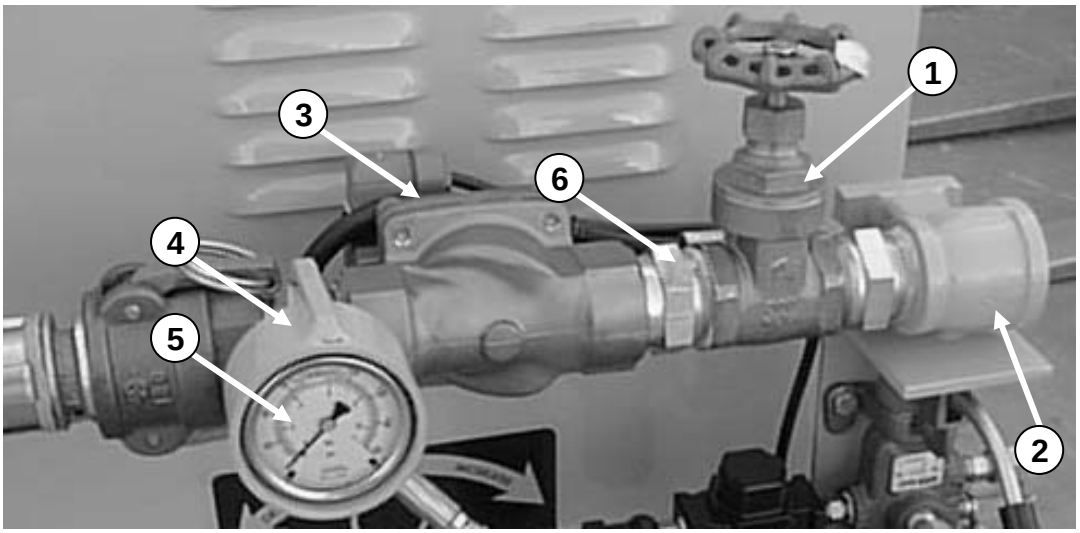
AIR VALVE



Materials

Find#	Qty	Part#	Description
1	1	10199	VALVE-1-1/4 IN DYNA-QUIP COMBO
2	1	20257	AIR INLET SUPPORT NGEAR WELD
3	1	20285	VALVE-AIR PILOT OPER. CTRL.
4	1	13165	GUARD WELD-AIR GAUGE
5	1	13017	GAUGE-AIR 0-160 PSI
6	2	10340	ADAPTER MP20-MP20 HEX

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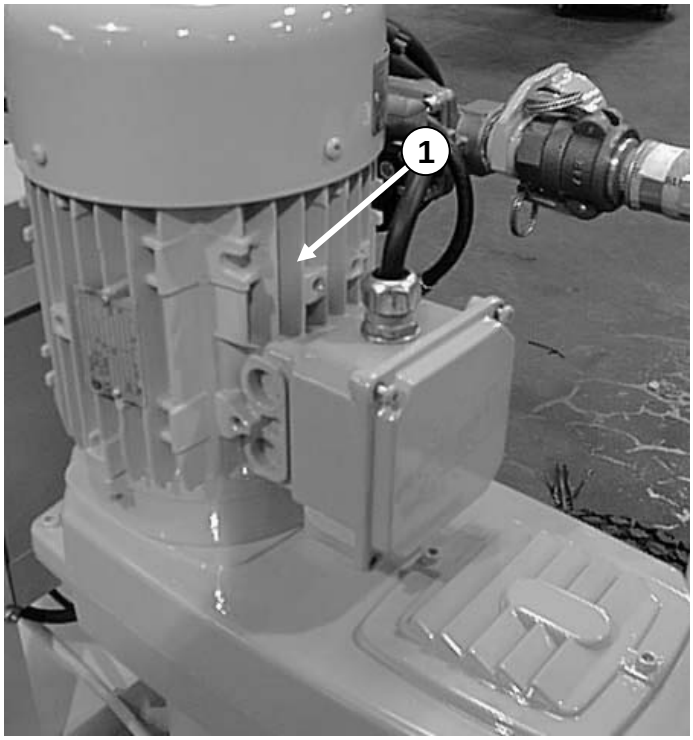
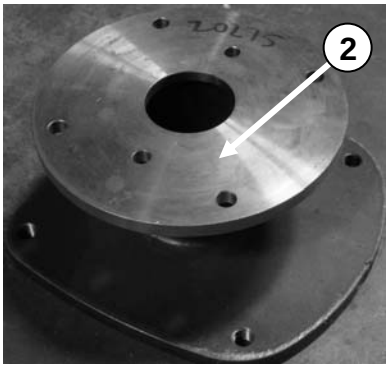
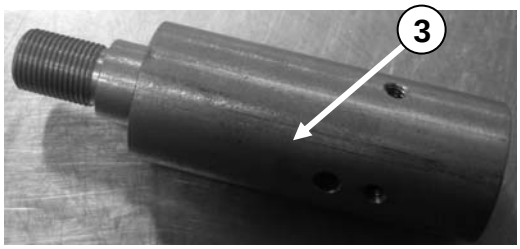
MOTOR AND SHAFT ADAPTORS







Materials

Find#	Qty	Part#	Description
1	1	20279	MOTOR NGEAR 3P/3HP/50-60HZ/220-380
2	1	20275	MOTOR ADAPTER WELD.
3	1	20271	SHAFT ADAPTER-BLIND KEY WAY

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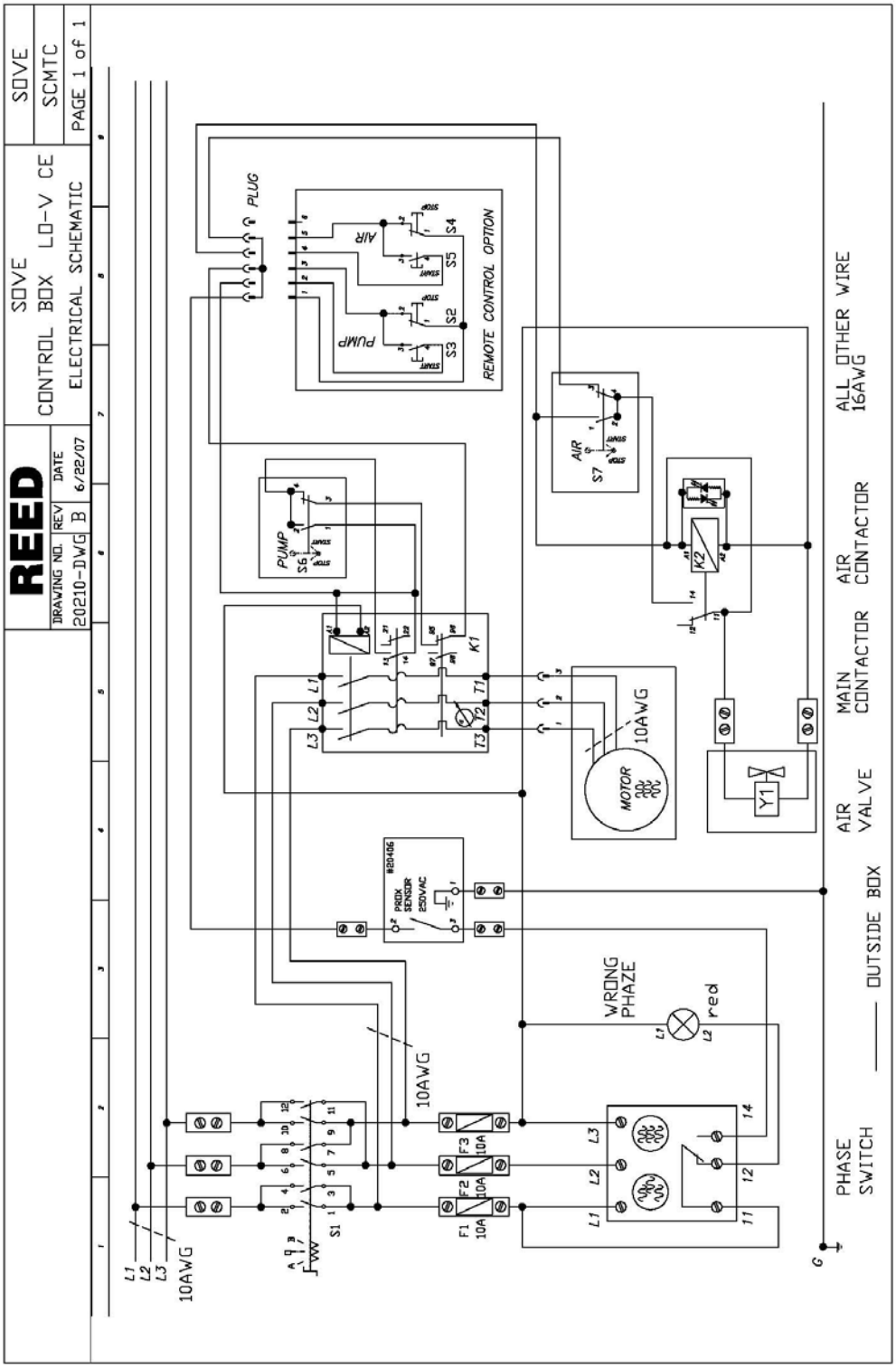
ELECTRICAL SCHEMATIC



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SOVA V07 MANUAL

PRE-OPERATION INSPECTION

The **CONDITION** of the unit prior to start-up is a very **IMPORTANT** factor as it directly affects the operator's safety as well as those around him. It should be a common practice that the operator performs a general inspection of the ***REED*** **GUNCRETE** ***SOVA™ SERIES 7***, before each day's operation.

The purpose of the operator's inspection is to keep the equipment in **PROPER** working condition and to **DETECT** any sign of malfunction during normal operations between scheduled maintenance checks.

DOWNTIME is **COSTLY** and can possibly be prevented by taking a few minutes prior to start-up to do a thorough walk around inspection. This inspection must be performed each day before the unit is operated. Report any damage or faulty operation immediately. If need be, attach a sign on the machine which states--------**DO NOT OPERATE**-------. Repair any discrepancies before use.

Some of the major items to be considered for your inspection include the following:

1. OVERALL MACHINE CONDITION

- External structural damage
- Hopper screen in place
- Lock pins, chains, and retainers in place
- Wheel nuts tight
- Decals, placards, warning signs legible
- Unit is clean and free of concrete build-up
- Feed wheel wear surface is clean and flat
- Wear pad in good condition
- Gooseneck liner is in good condition
- Agitator secure, in good condition

2. AIR SYSTEM

- Loose or damaged hoses, tubing, fittings
- Air leaks
- Air valves and control levers

3. DRIVE SYSTEM

- Air motor secure
- Gear box oil at proper level
- Condition of feed wheel, seals, and wear pad
- Pad adjustment secure
- Outlet nozzle secure
- Adjustment knobs tight

⚠ *C A U T I O N*

Defective components, structural damage, missing parts or equipment malfunctions jeopardize the SAFETY of the operator and other personnel and can cause extensive damage to the machine. A poorly MAINTAINED machine can become the greatest OPERATIONAL HAZARD you may encounter.

GETTING ACQUAINTED
(UNIT FAMILIARIZATION)

As previously indicated, it is important from a **SAFE** operational standpoint that you , the **OPERATOR**, know your machine. This means the function of each control as to what happens when it is activated, how it might interact with other functions and any limitations which might exist. A **GOOD UNDERSTANDING** of the controls and capabilities will enhance operation and assure maximum operating efficiency and **SAFETY**.

These next few pages will assist you in **GETTING ACQUAINTED** with **the MODEL *SOVA™ SERIES 7***. Carefully study them.

HOPPER AND PAD INSTALLATION
(SEE PART SECTION GROUP 40)

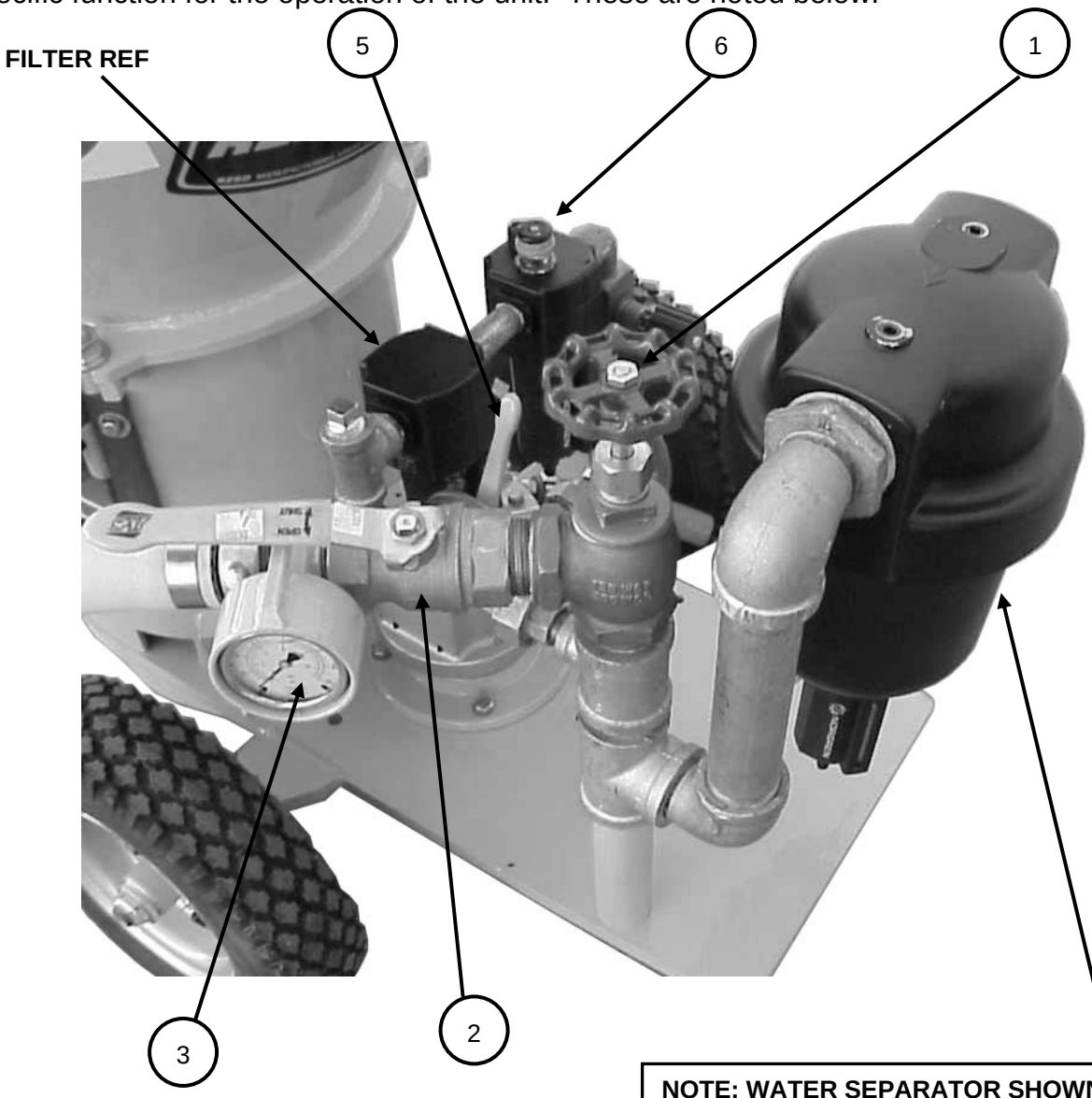
NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

BASE GEAR INSTALLATION
(SEE PART SECTION GROUP 30)

AIR INLET AND VALVE INSTALLATION
(SEE PART SECTION GROUP 50)

CONTROL AND COMPONENT FAMILIARIZATION

The ***SOVA™ SERIES 7* GUN** is equipped with various controls and adjustment knobs. The controls are located at easily accessible points on the machine and each is dedicated to a specific function for the operation of the unit. These are noted below.



NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

1. THROTTLE VALVE – FEED BOWL

This is a globe type valve and is used to throttle (adjust) the air flow through the feed bowl for exhausting of the material. The throttle valve can be adjusted for a minimum to maximum air flow. Turn knob counterclockwise to **INCREASE** air flow and clockwise to **DECREASE** air flow.

2. MATERIAL FEED VALVE

This is a quarter turn valve used to control the air flow **(ON-OFF)** through the feed bowl. This permits the operator to turn the air on-off without disturbing the setting of the throttle valve. Valve is closed **(OFF)** with handle turned perpendicular to the pressure line and open **(ON)** with the handle turned in a parallel position to the pressure line.

3. PRESSURE GAUGE – 160 PSI (11.2 Bar)

This air pressure gauge is used to indicate the air pressure being directed to the feed wheel.

4. THROTTLE VALVE – AIR MOTOR

This is a needle type valve and is used to throttle (adjust) the air flow to the air motor for its operation. The throttle valve can be adjusted for a minimum to maximum air flow. Turn knob counterclockwise to **INCREASE** air flow which in turn increases the RPM of the motor and feed bowl and clockwise to **DECREASE** the air flow or speed.

5. AIR MOTOR VALVE

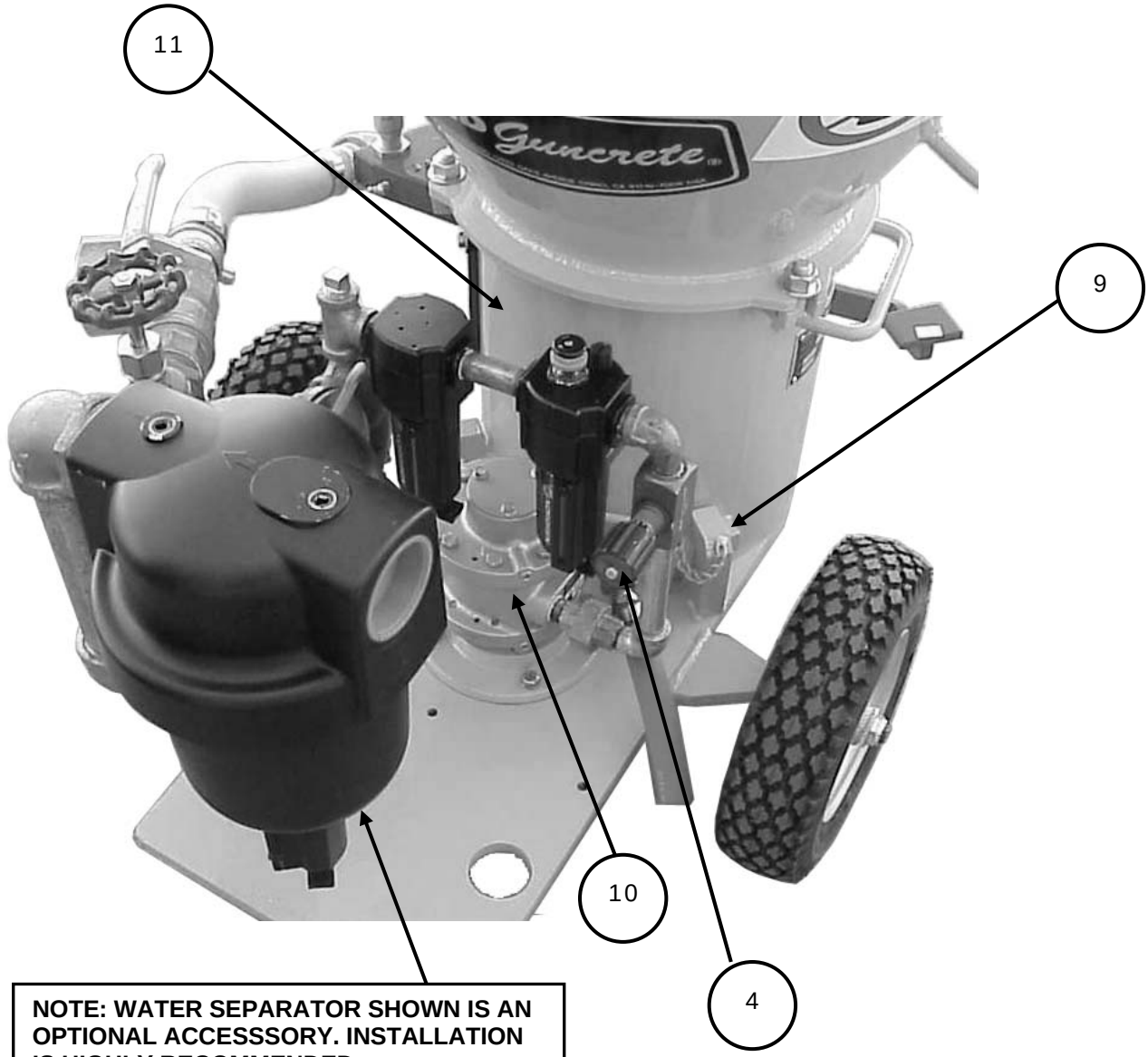
This is a quarter turn valve used to control the air flow **(ON-OFF)** to the feed bowl. This allows the air to be turned on-off, starting-stopping of motor, without disturbing the setting of the air motor throttle valve. Valve is closed **(OFF)** with handle turned perpendicular to the pressure line and open **(ON)** with handle turned in a parallel position to the pressure line.

6. LUBRICATOR

Located on the air supply line to the air motor is an air filter and lubricator. These components are installed as protection for the air motor. The lubricator is equipped with a means to adjust the drip rate of oil into the air system. The top of the lubricator is equipped with the adjustment knob. Turn knob counterclockwise to **INCREASE** feed rate, clockwise to **DECREASE** feed rate. Adjust oil drip to two (2) drops per minute as a start. Drops are visible through the sight glass.

7. PAD ADJUSTMENT KNOBS

Three (3) knobs are located on top of the pad housing at the gooseneck. These knobs are used to adjust the sealing wear pad. The left knob adjusts the exhaust side of the sealing pad; the center knob adjusts the rear of the pad and the right knob adjusts the right side of the pad. Turn knob clockwise to increase pressure on pad and counterclockwise to decrease pressure on pad.



NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

8. PAD HOUSING SEAL KNOB

Located just beneath the gooseneck is one (1) clamping knob. This knob is used to apply the necessary pressure to the curved outside surface of the rubber pad

9. FEED WHEEL HOUSING LOCK

The feed wheel housing is secured to the base by use of heavy duty lugs. To remove the feed wheel housing, it is necessary to rotate the housing to free the locking lugs. To facilitate the breaking loose and rotation, a kick bar or foot pedal is provided. Pushing down on lever will apply pressure to locking lug, rotating housing.

10. AIR MOTOR

The ***SOVA™ SERIES 7*** is equipped with a 5HP designated 8AM air motor. The motor is designed and manufactured to ***REED*** specifications and offer precise speed control for operational power of the feed wheel which is highly important in that it permits an even flow of material through the delivery hose as required for the application. The 8AM motor is of the four (4) vane type and is suitable for most general gunning applications.

11. FEED WHEEL HOUSING

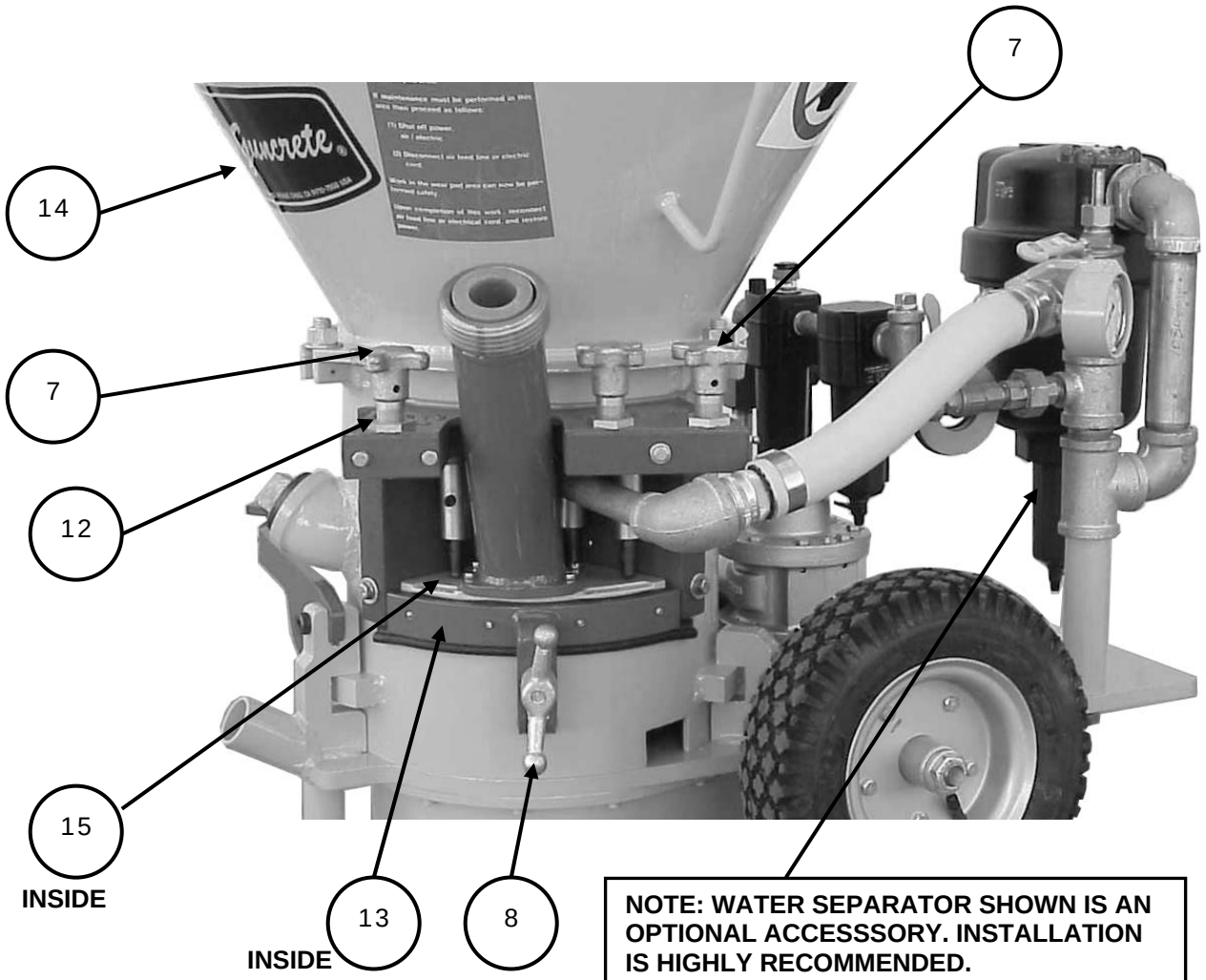
The feed wheel housing is the circular tube like component that locks to the base plate assembly and is used to enclose the feed bowl. It is also used as the support or mounting structure for the hopper.

In an effort to prevent the leakage of material and dust to areas under the feed bowl, a felt seal is used. The feed wheel housing contains, on it's inside, a retainer ring. The retainer ring is used to hold the felt seal in place. The felt seal which is saturated in oil is installed in the ring and is used to close the gap between the outer surface of the feed bowl and feed wheel housing.

12. PAD HOUSING

The pad housing is the pie wedge like component that is mounted to the feed wheel housing and seals off a portion of housing preventing a direct entrance of falling material into the area.

The pad housing assembly consists of the pad clamping mechanism, which applies pressure for a positive pad seal, a pad back-up plate to which the inlet manifold and gooseneck are installed and a pad seal clamping system.



13. FEED BOWL

The feed bowl is that component which resembles a bowl on the outside and contains a number of pockets on the inside. The bowls normally used on the ***SOVA™ SERIES 7*** are the 16 and 18 pocket and usually the application, type of material and size of aggregate will determine which feed bowl will be best suited

14. HOPPER

The hopper is installed on top of the feed wheel housing and is used to contain the material as it works its way into the feed bowl. The refractory hopper is a continuous feed type with a screen and a bag breaker. The unit is equipped with a shot pre mix 2-blade agitator.

15. ROCK SHEAR

The rock shear, if used, is installed in the pad housing assembly. The rock shear is used to strike off material/rocks to an even level of the feed wheel before entering the pad area.

OPERATION INSTRUCTIONS

Having **READ** and **UNDERSTOOD** the previous pages on **SAFETY** and **CONTROL FAMILIARIZATION**, you are now in a position to learn how to operate the ***REED*** **GUNCRETE *SOVA™ SERIES 7***. If you have not read the previous pages, we suggest you do so before proceeding.

⚠ *C A U T I O N*

For your own SAFETY and others around you, it is your RESPONSIBILITY to insure the unit is in proper working condition. Check out the unit by using the PRE-OPERATION INSPECTION notes previously identified.

⚠ *W A R N I N G*

OBSERVE ALL SAFETY PRECAUTIONS WHILE OPERATING THIS MACHINE.

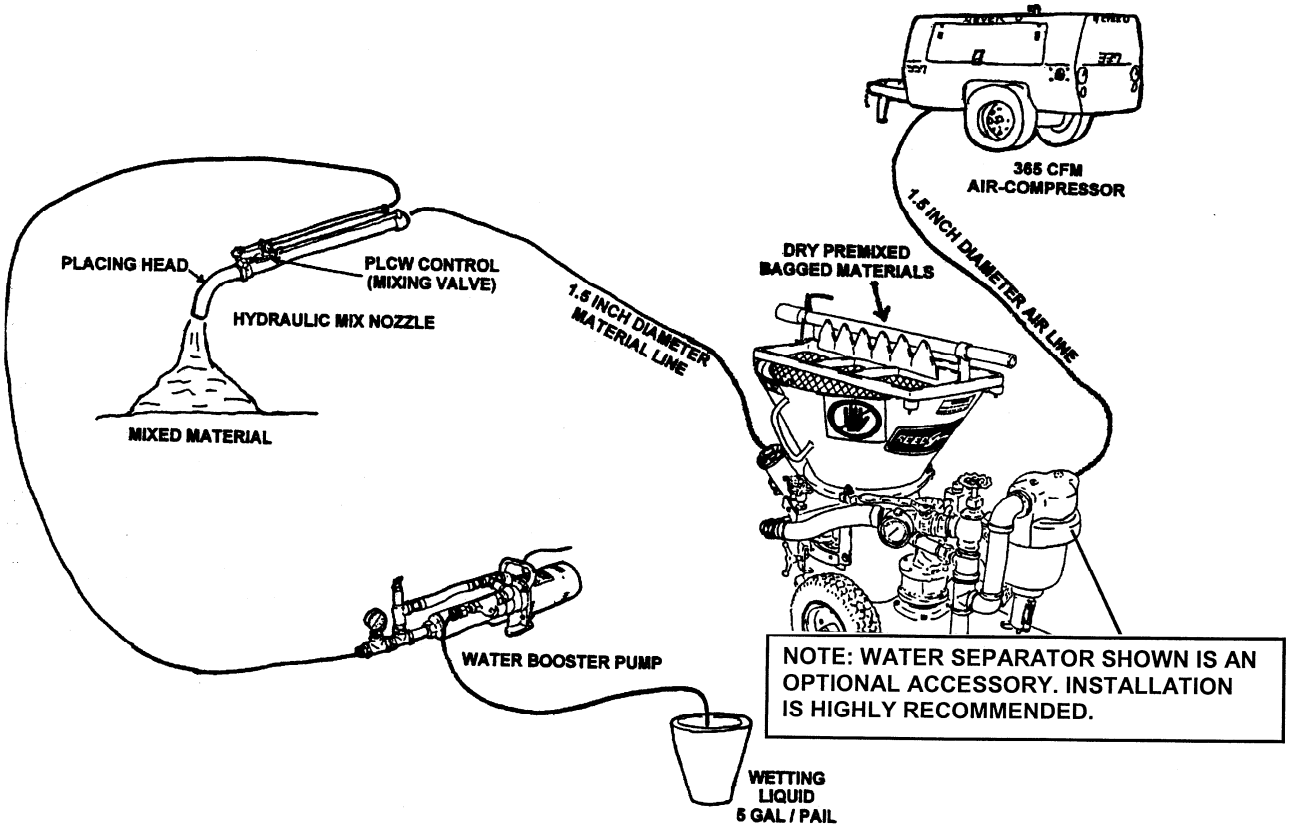
SET UP AT JOB SITE

Your first and primary concern when arriving at the job site is to insure the machine can be safely operated and it will afford the maximum production efficiency without jeopardizing safety.

- The machine should be located on as level ground as is possible.
- Keep a sufficient distance away from slopes, pits, trenches, and excavations that could breakaway.
- Remove handle bar from front of machine and store. If necessary, place blocks under front leg to provide a firm footing on ground.

N O T E

The SOVA™ utilizes compressed air to drive the motor and to convey the material through the hose. As a result, the production and efficiency of the machine is highly dependent on the amount of available compressed air. This needs to be taken into consideration before starting a job. Refer to specifications "GENERAL SECTION" of this manual for suggested requirements.



START-UP OF THE UNIT

- Check that all valves are in the "**OFF**" position.

Connect the main source air line from compressor to inlet on manifold. The diameter of the air supply line should be at least equal to the diameter of the conveying line. Make sure connection is tight and secure with safety chain or cable if required.

- Attach material hose to gooseneck and tighten.
- The nozzleman should install on the material hose the nozzle complete with water hook-up to its source.
- Add material to the hopper and alert nozzleman that system is ready.
- On the signal from the nozzleman, fully open material feed valve and **SLOWLY** turn on the feed bowl throttle air valve to the material hose to desired air flow.
- The nozzleman will then slowly turn on the water at the nozzle.
- Fully open the main shut-off valve for the motor, then slowly open the air motor throttle valve.
- Material should now be flowing and nozzleman will then give the necessary signals for the desired air flow and material feed rate.
- Check the oil feed rate from the lubricator to the air motor. Adjust if necessary.
- As spraying continues, maintain a steady flow of material to the nozzle.

SHUT-DOWN OF MACHINE

It is important that the machine be shut down in the proper manner to eliminate the possibility of complications on restart.

- Stop the feed wheel rotation first. This is accomplished by shutting off the **AIR MOTOR VALVE** (to air motor) without disturbing the throttle valve.
- Permit the air from the main line to continue to flow to the gooseneck and material hose until all material has been blown out. Shut off **MATERIAL FEED VALVE** to system.
- Following this, the nozzleman may now shut-off the water at the nozzle.
- As water is being turned off, hold nozzle and point down toward ground to prevent any water leakage from running back into the material hose.
- Shut down main source of air.

OPERATIONAL TROUBLESHOOTING TIPS

This Operational Troubleshooting Tips section is designed to assist you in recognizing the symptom, providing a probable cause and suggested corrective action. The items listed are based on logical symptoms from our experience as well as that of our users.

A. SYMPTOM – EXCESSIVE AIR BLOWING UP AND OUT OF HOPPER

CORRECTIVE ACTION

* Adjust rubber pad pressure by tightening the three (3) adjustment knobs to provide a positive seal.

* Inspect rubber sealing pad. It may need to be replaced.

* Check installation of rubber wear pad. Make sure rubber portion is down against top of feed wheel.

* Top of feed wheel may be worn and needs to be resurfaced or replaced.

* Foreign material may be clamped or lodged between steel feed bowl and wear pad. This would permit air to blow between the two (2) parts and escape into hopper.

* Agitator not securely tightened.

N O T E

If the above condition is allowed to continue without remedy, premature failure of the rubber pad or feed bowl will occur and as a result will create even more noticeable discharge of air back into the hopper or atmosphere. Do not confuse pocket exhaust with seal failure. Pocket exhaust is rhythmic puffing which should not cause material to be blown out of the hopper.

B. SYMPTOM – INSUFFICIENT VOLUME TO THE NOZZLE

CORRECTIVE ACTION

*Pad not completely seated in the pad housing. Pad must be inserted far enough into pad housing to allow the inlet and outlet ports of the pad to align with the feed wheel pockets. When pads are removed, wear patterns should be regularly checked to assure the sealing portions of the rubber face are in alignment with the outer rim, the center divider and the inside hub portion of the feed bowl.

*Inadequate air supply or pressure

C. SYMPTOM – EXCESS MATERIAL LEAKING TO THE GROUND FROM AROUND FEED BOWL ON LOWER EDGE OF FEED WHEEL HOUSING

CORRECTIVE ACTION

*Felt ring inside wheel housing is not pushed down close enough to the top of the feed wheel.

*Check condition of felt seal. It may be hard and dry from the lack of regular cleaning and oiling. Adjust felt pressure. See **ADJUSTMENT SECTION.**

D. SYMPTOM – SURGING MATERIAL THROUGH THE HOSE AND NOZZLE.

CORRECTIVE ACTION

*Feed wheel spinning too fast resulting in too much material being discharged into material hose for the amount of air being used. Adjust RPM of feed wheel or increase air.

*Some pockets in the feed wheel may be plugged.

*The pockets in the feed wheel may be too large for the small diameter hoses.

*Material may have a high moisture content causing the material to bridge above feed wheel causing material to feed sporadically.

* Insufficient air supply.

*Uneven feed rate maintained into the hopper by material loading system.

E. SYMPTOM – FEED WHEEL RUNNING TOO SLOW OR STOPS

CORRECTIVE ACTION

*Insufficient air supply to motor. Check air motor valve that it is fully opened. Check motor throttle valve that it is set properly.

*Check that compressor is of sufficient size for the intended operation.

*Check air filter at motor that it is not plugged.

*Check for possible obstruction in feed wheel.

*The air muffler is iced, restricting the air flow through the motor. If it is necessary to remove the muffler, make sure a plug or cap is installed during service in its place to prevent the entrance of foreign material into the motor.

*Check the pressure on the pad clamp that it is not too tight.

*Vanes in air motor may be worn out. Never operate motor without the air filter or lubricator in proper working condition.

F. SYMPTOM – EXCESS REBOUND WHEN SPRAYING

CORRECTIVE ACTION

*Using a poor nozzle spraying technique. Water to cement ratio is out of balance. Improper angle or distance to work face.

*Plugged water ring or water chamber in the nozzle assembly.

*Imbalance of sand, water, and cement ratio.

*Mixture too dry or wet

*Contamination of the mix and/or water.

*Excessive large aggregate, fiber, or wire mesh.

G. SYMPTOM – HOSE BLOCKAGE

CAUSE – Often the cause of hose blockage is the result of:

*Using oversize material

*Operating with an insufficient supply of air

*Feeding the hose too much material

*A prehydration of the material inside the hose

*Not clearing the hose after turning off material feed

*Sharp bends or kinks in the hose

*Improper coupling of hose ends

*Faulty hose (Liner separation from outer hose jacket.)

CORRECTIVE ACTION – CLEARING A HOSE BLOCKAGE

When a line blockage occurs, turn off air and start searching for the point of blockage beginning at the nozzle and working back toward the machine. The hose will continue to be soft from the nozzle to the point of blockage. When blockage has been found bend or pound on the hose careful not to damage hose at that point to free the blockage. Slowly turn on the air.

⚠ *W A R N I N G*

Exercise EXTREME CARE when attempting to blow the material clear using air. ALWAYS have the nozzle end securely held and have a person at the machine who will be ready to cut back on the air if and when required.

H. SYMPTOM – INSUFFICIENT COMPRESSED AIR

CORRECTIVE ACTION – HOW MUCH AIR IS ENOUGH?

Most problems occurring on the average gunning jobs are the result of improper application of air or insufficient amount of air.

*Make sure the compressor is of adequate size, is properly adjusted and capable of producing maximum capacity.

*Multiple compressors may be used to gain the required volume of air. In this situation, the compressors should be arranged so that they discharge into a certified central air receiver. From this a single air line of proper size can then be run from receiver to machine.

*Always supply the machine with the same size air supply hose as the material hose being used for gunning. Multiple small hoses often do not have the carrying capacity of a single larger hose.

*Make sure all valves are open between the air source and machine. Check that supply line is free of kinks or blockages.

*Run material hoses from the machine to the nozzle in as straight a line as is possible. This will improve the flow characteristics and reduce wear.

*Exercise caution when coupling hoses that no foreign objects are present or restrictions at point of connection.

*Always use good premium hose specially manufactured for gunning applications.

*The amount of air flow being received can be tested for proper volume as follows when flow meter or orifice testers are not available:

*With hopper empty of material and having the pad loosely clamped, open main air valve to full open position.

*Open the air motor main valve and the throttle valve to full open.

*The air motor should reach full RPM without hesitation. If air motor does not come to full RPM, the air supply to the machine is marginal. This condition could result in a marked decrease in the volume of material introduced into the air stream within the machine and out of the material hose.

PREVENTATIVE MAINTENANCE

How good is any of the equipment you own? It is only as good as it is **MAINTAINED**. Even the finest equipment manufactured requires attention and care. The ***REED*** **GUNCRETE** ***SOVA™ SERIES 7*** **MACHINE** is no different. A good well planned and carried out preventative maintenance program will enhance a properly operating unit as well as the safety of those operating and using the equipment.

It is very important to establish a good maintenance program. Costly repairs and loss of revenue can often be avoided by planning ahead, setting a regular schedule and exercising good preventative maintenance techniques.

N O T E

All points noted herein regarding the maintenance and checks are not intended to replace any local or regional regulations which may pertain to this type of equipment. It should also be noted that the list and schedule is not considered to be inclusive.

⚠ *C A U T I O N*

It is your responsibility to always insure that the applicable safety precautions are strictly observed when performing the inspections and maintenance checks. Make certain any components that are found to be defective are replaced or those in need of adjustment or repair are correct before operating the machine.

SCHEDULED INSPECTION

The main purpose of accomplishing scheduled inspections is to identify and detect any potential malfunction before it can expand into a major problem. In so doing, it will help ensure a good safe unit performance.

1. FRAME AND RELATED COMPONENTS

- Frame integrity, visually check welds for cracks
- Rear wheel mounting, spindle nut tight
- Front support stand in good condition

NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

1. HOPPER

- Visually check for structural damage, cracked welds
- Check condition of screen, attaching hardware
- Check condition of mounting hardware
- Check condition of agitator, structural damage

2. MAIN OPERATING PARTS

- Inspect feed wheel for damage
- Check feed wheel top for excessive wear
- Wear pad fits properly, installed properly, good seal
- Visually check gooseneck, mounting, connection
- Check pad clamping system
- Inspect felt seal and replace if necessary.

3. AIR MOTOR AND GEAR CASE

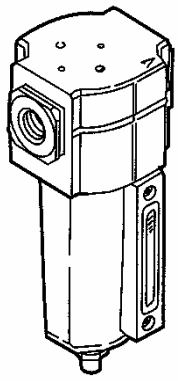
- Check oil level in gear case
- Air motor mounting secure
- Connections to motor are tight
- Check condition of air filter
- Check condition of air motor lubricator

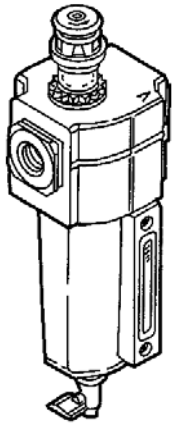
4. CONTROLS AND INSTRUMENTS

- All valves open or close easily
- All piping and hose connections are secure and tight

GENERAL MAINTENANCE AND SERVICE

The ***REED SOVA™ SERIES 7*** is equipped with several components that because of the application require frequent attention. Rapid wear and probable component breakdown will result if the unit is operated with inadequate service.

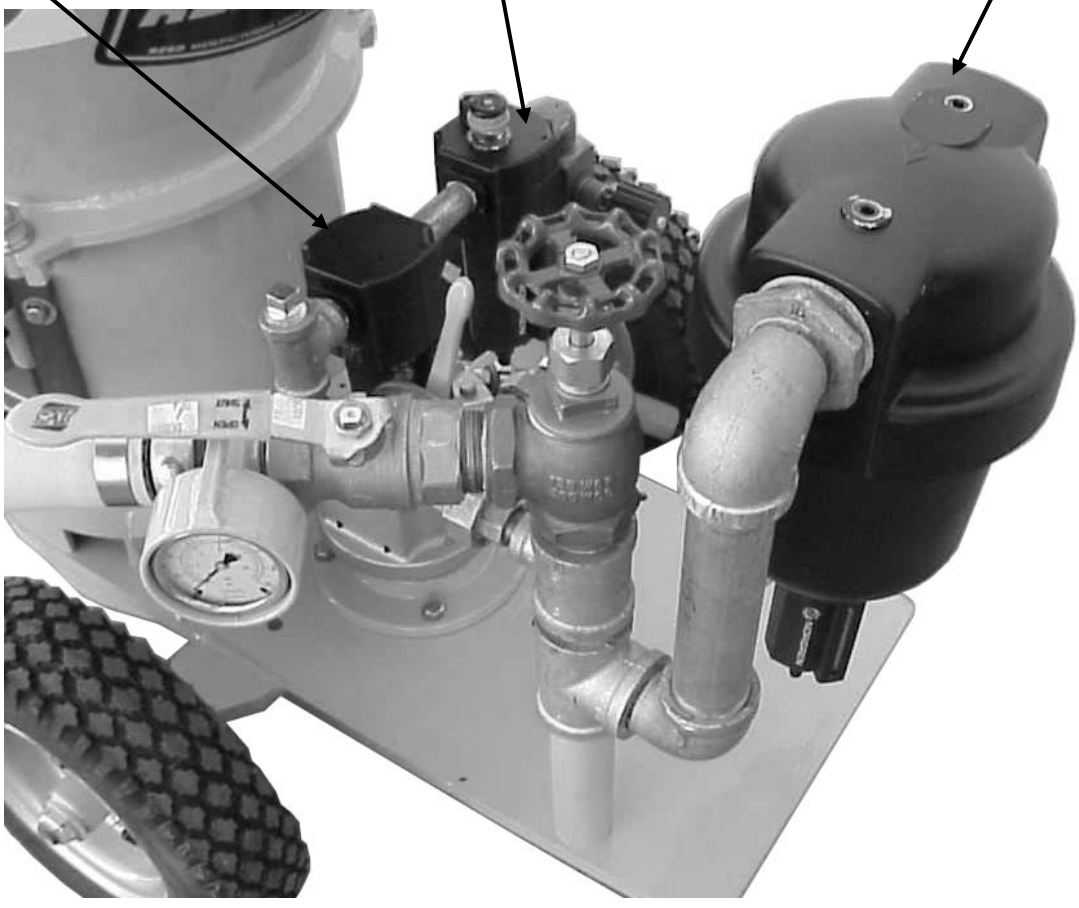




NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

FILTER – AIR MOTOR

AIR MOTOR LUBRICATOR



FILTER – AIR MOTOR

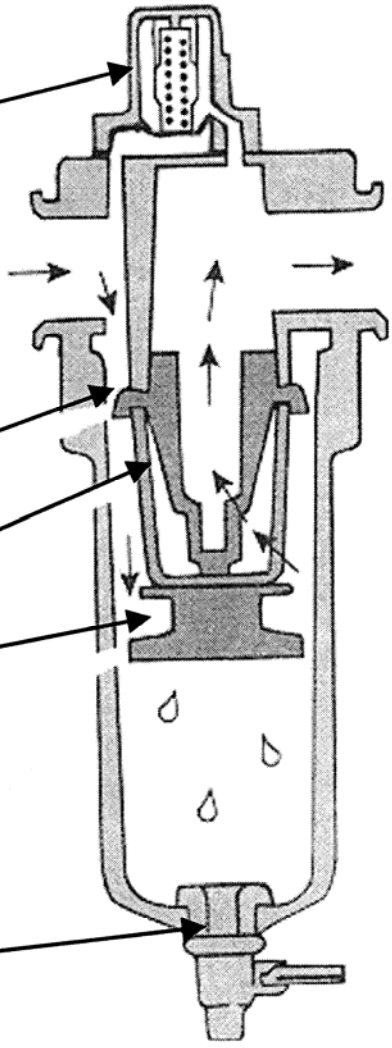
OPTIONAL SERVICE LIFE INDICATOR
Senses air pressure upstream and downstream from the filter element. The indicator shows green when the pressure drop is below 5 psid. As pressure differential increases across the filter element with retention of solid particles, the indicator changes from green to red. When the indicator shows more red than green, the pressure differential is in excess of 10 psid and the element should be replaced.

LOUVERS
Air entering the filter is guided into a swirling pattern by the louvers. Coarse solid particles and liquids are forced to the bowl wall by centrifugal force and drop to the bottom.

FILTER ELEMENT
Removes most solid particles.

BAFFLE
Creates a quiet zone at the bowl bottom and prevents air turbulence from picking up liquids and returning them to the air stream.

MANUAL OR AUTOMATIC DRAIN
Dumps accumulated liquids.



SECTION VIEW

SERVICING

*Keep accumulated liquids below baffle on general purpose units and below element on oil removal units.

*Replace filter element when dirty or when service indicator (if so equipped) shows approximately one-half red/green.

*Reassemble filter, however, **DO NOT OVERTIGHTEN BAFFLE** when replacing element or stud will be stripped from top casting.

AIR MOTOR LUBRICATOR

Oil-Fog Lubricators inject a fog of oil into a flowing stream of compressed air to automatically provide the proper internal lubrication of one air operated tool or other device. Oil is injected only when there is an air flow through the lubricator.

The lubricator reservoir (5) is pressurized through the charge valve (4). Whenever there is an air flow through the lubricator, the flexible flow sensor (3) in the lubricator throat creates a small pressure drop that is proportional to the rate of air flow. The drop in pressure is sensed in the sight-feed dome (2) through the nozzle passage (7). This establishes a pressure drop across the needle valve orifice (6) which aspirates oil upward thr6 the siphon tube (9) into the sight-feed dome where it drips into the nozzle passage and then into the lubricator throat. The adjusting knob (1) controls the oil drip rate. The oil drops are atomized by the air flowing through the lubricator throat and are carried downstream as oil-fog. All the drops visible in the sight-feed dome are delivered downstream to the device being lubricated. The proportional control afforded by the flow sensor provides a nearly constant oil-to-air density ratio over a wide range of air flows. The check ball (8) keeps the siphon tube full of oil during periods of no air flow.

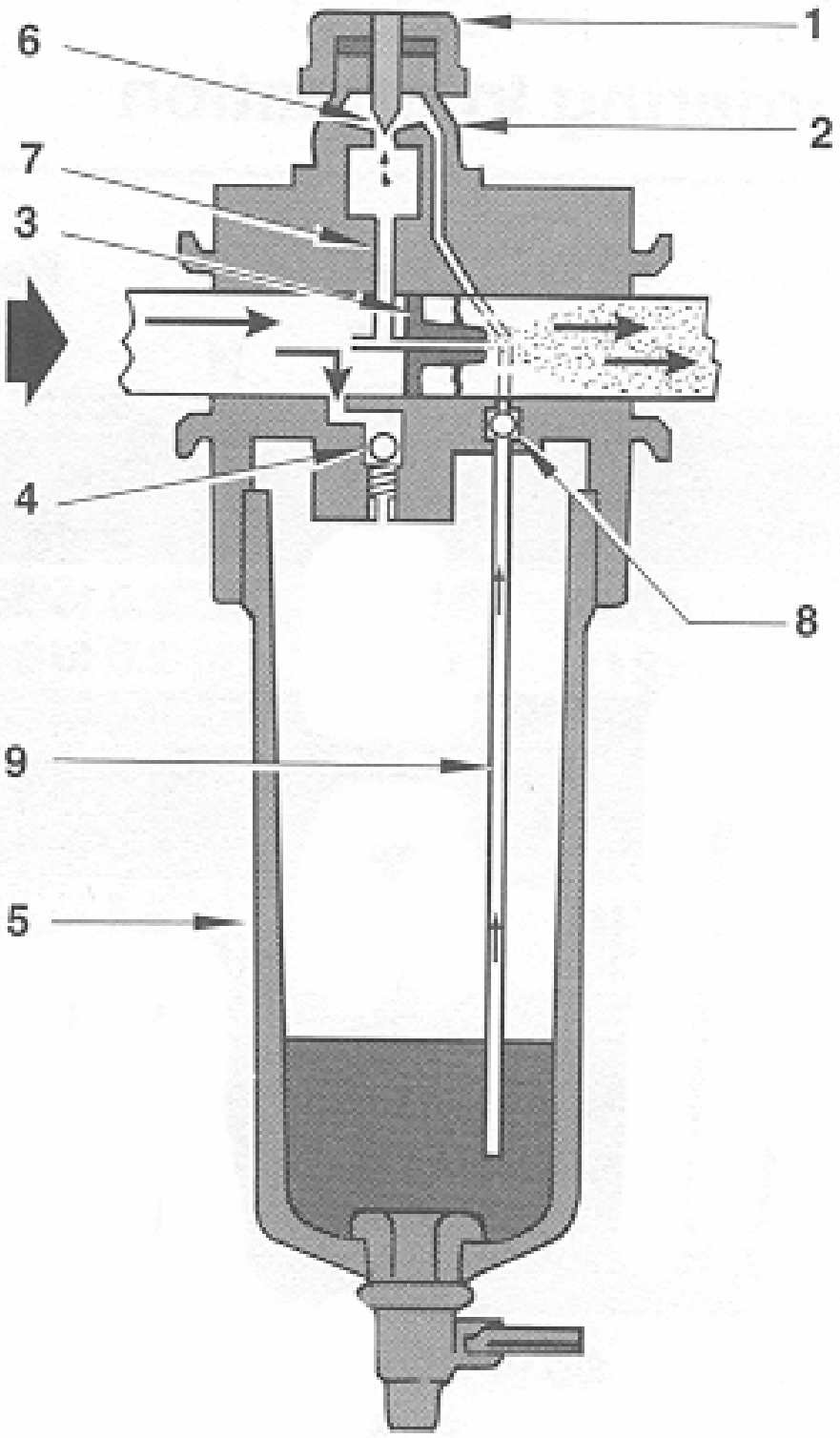
The charge valve (4) controls the rate of reservoir pressurization and allows depressurization for refilling without shutting off the air pressure. When the oil fill plug (not shown) is loosened, a bleed orifice is exposed which reduces the reservoir pressure. This pressure causes the charge valve (4) to close and restrict air flow into the reservoir to eliminate blow-back when adding fresh oil. When the fill plug is replaced, the reservoir repressurizes through the charge valve. The charge valve opens when inlet pressure is reached. The charge valve is not used with bidirectional lubricators and lubricators having 2 or 5 gallon reservoirs. These lubricators cannot be refilled under pressure unless the lubricator is equipped with an optional quick-fill cap or remote fill device.

SERVICING

Fill reservoir with a light, misting type oil suitable for compressed air tools.

ADJUSMENT

Turn adjustment on sight feed dome to increase or decrease oil delivery. Monitor the device being lubricated and readjust if needed.

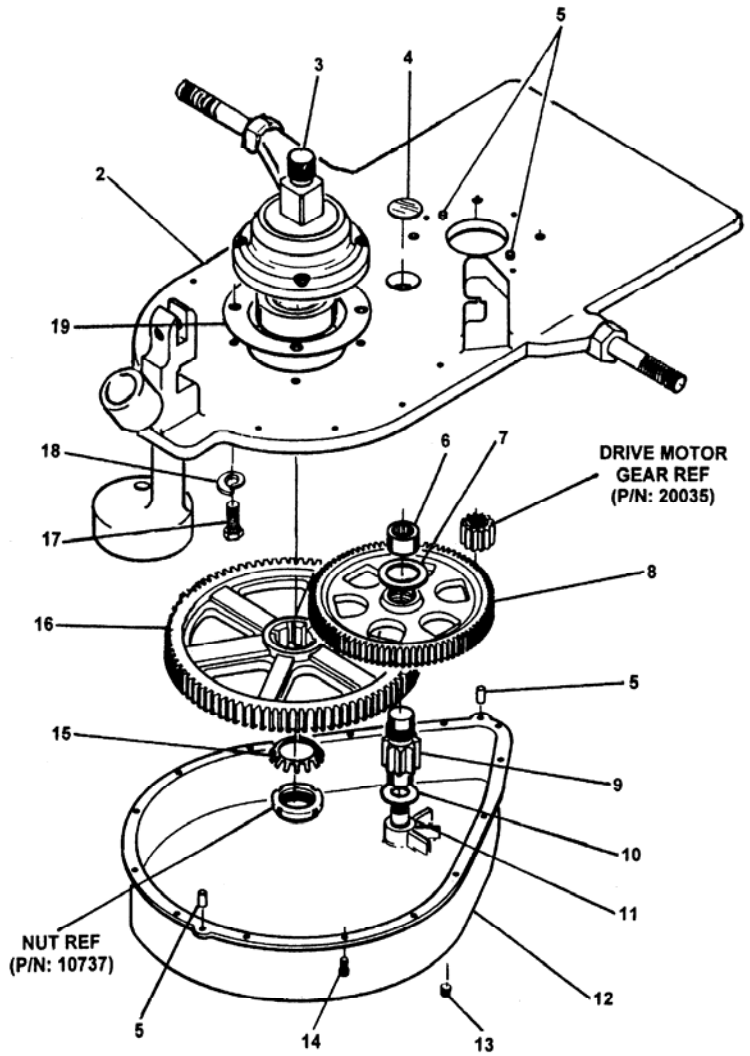


AIR MOTOR LUBRICATOR SECTION VIEW

GEAR CASE

Under and part of the baseplate is a transmission or gear case used to transmit the power from the air motor to the feed wheel for its rotation. The gears are lubricated by running continuously in oil. Based on this, it is important that the level in the gear case be maintained to its proper level. The gear case should be kept at least one-half (1/2) full.

Interval – Check level once a week, sooner if above average usage occurs.
Lubricant – Shell 90 weight gear oil or equal



-1 Assembly, Base Gear
2 • Weldment, Base Plate
3 • Assembly, Drive Spindle
4 • Cover, Bearing
5 • Pin, Dowel
6 • Bearing, Top
7 • Washer, Thrust
8 • Gear, Idler
9 • Gear, Idler Pinion
10 • Washer, Pan Thrust
11 • Bearing, Bottom
12 • Pan, Gear
13 • Plug, Drain
14 • Screw, Gear Pan
15 • Washer, Lock
16 • Gear, Bull
17 • Screw, Hex
18 • Washer, Lock
19 • Gasket, Spindle Housing

Remove motor cover housing making gear case vent cap accessible. Remove vent cap and check level. Add oil if required. Replace vent cap.

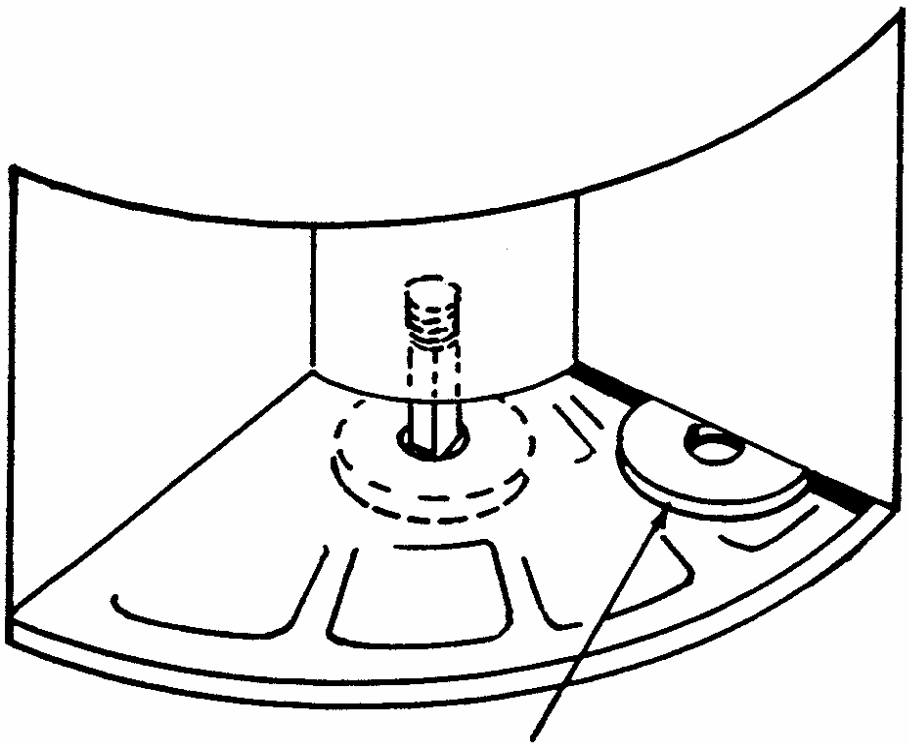
ADJUSTMENTS

In the coarse of using the machine as well as in cleaning, operation, and maintaining, periodic adjustments may be required to continue the factory type performance. The following is offered to assist in accomplished these functions.

RISER PLATE INSTALLATION

The top surface of the feed wheel is a wear surface which will need to eventually be reground for continued use or replaced totally. As the top surface wears or is resurfaced, the feed wheel needs to be raised to now minimize the space caused by grinding and once again provide a good seal.

To raise the bowl, riser plates can be installed underneath the bowl. At the delivery of each machine, a set of three (3) plates, each of different thickness, thick, medium, and thin are furnished. The plates are double dish blanchard ground parts and may be used in any combination required to elevate the feed wheel to the proper position. Do no substitute with anything less than those furnished by ***REED***.

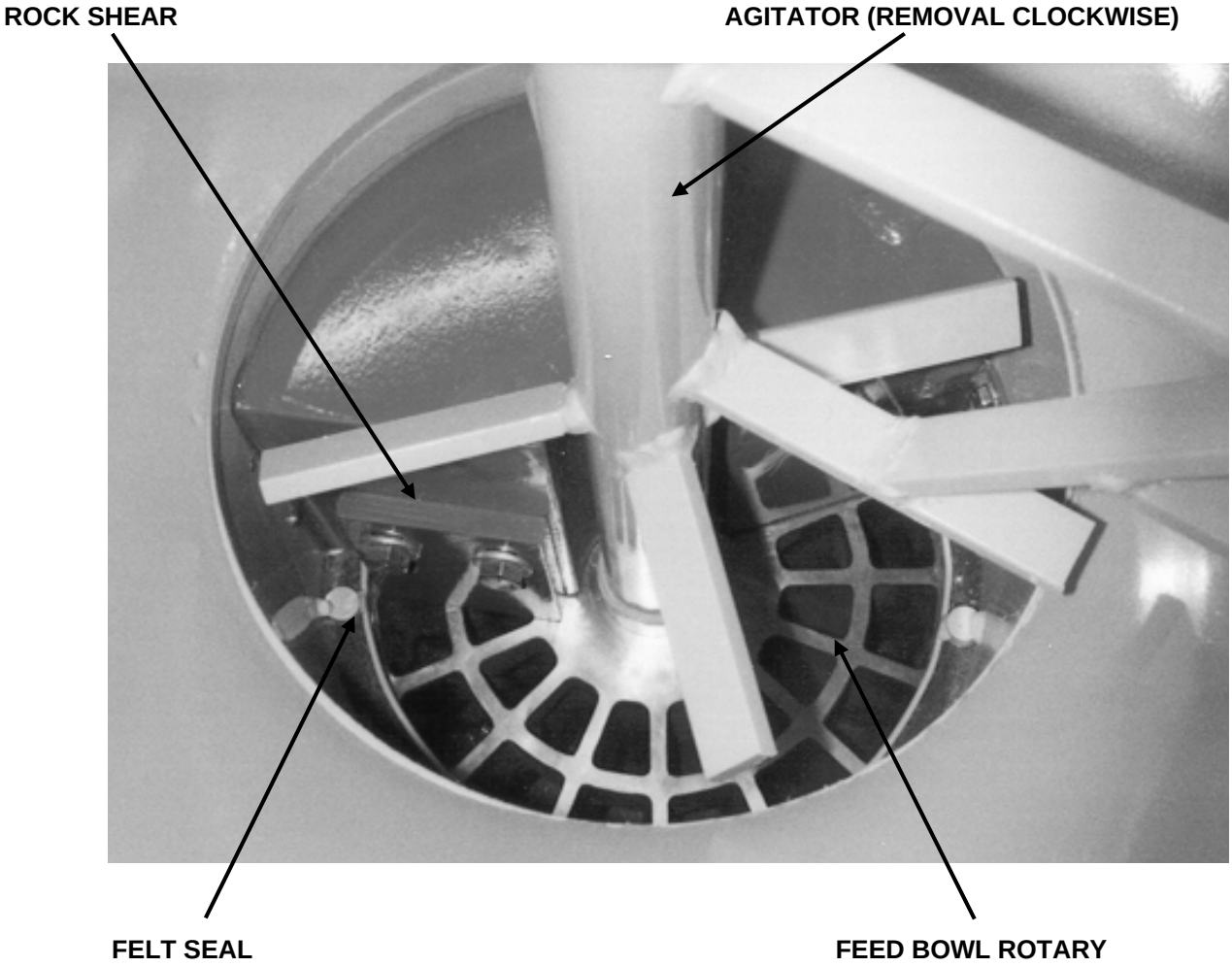


**FOR CHECKING ONLY,
IF THIN RISER PLATE SLIDES IN HERE,
RISER PLATE SHOULD BE PLACED
UNDER FEED BOWL.**

To determine the required riser, insert one of the plates, thick or thin, between the pad housing and the top surface of the feed wheel or wear plate. After making this check, proceed to install the same thickness of riser under the feed wheel.

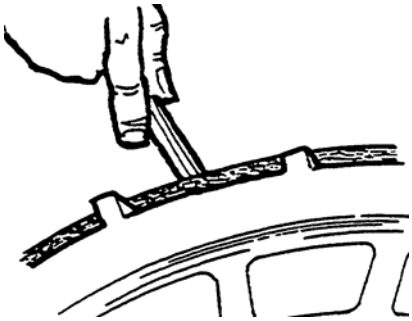
N O T E

When a machine has been in use for a period of time, riser plates may have already been installed. These are often difficult to see on the spindle shaft. To dislodge the existing riser plate from the spindle hub, tap lightly around the outer diameter of the hub with a soft faced hammer or mallet until separation of the plates occurs.



FELT SEAL

Inside the feed wheel housing is a felt seal ring that is used to retain the felt seal in position. The purpose of this felt seal is to prevent material from escaping out of the bottom of the housing assembly. Before installing felt seal, lubricate the seal with oil then install in ring and pack felt seal down from inside hopper.

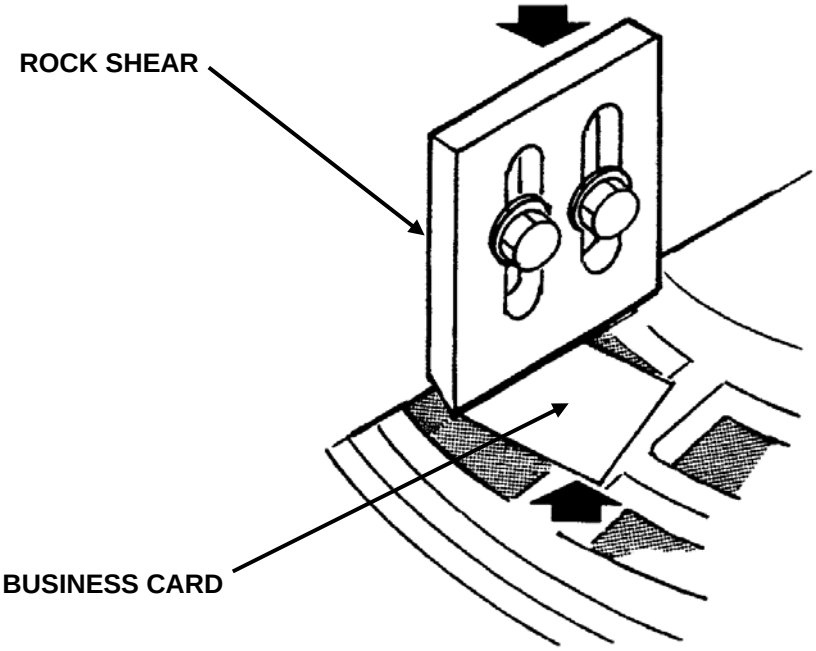


FELT SEAL BEING ADJUSTED TO WEAR PLATE

ROCK SHEAR

Installed on the top side of the feed wheel is a rock shear. The purpose of the rock shear is to act as a wiper in keeping large aggregate from being lodged between the wheel and the rubber pad thus providing increased life of the pad.

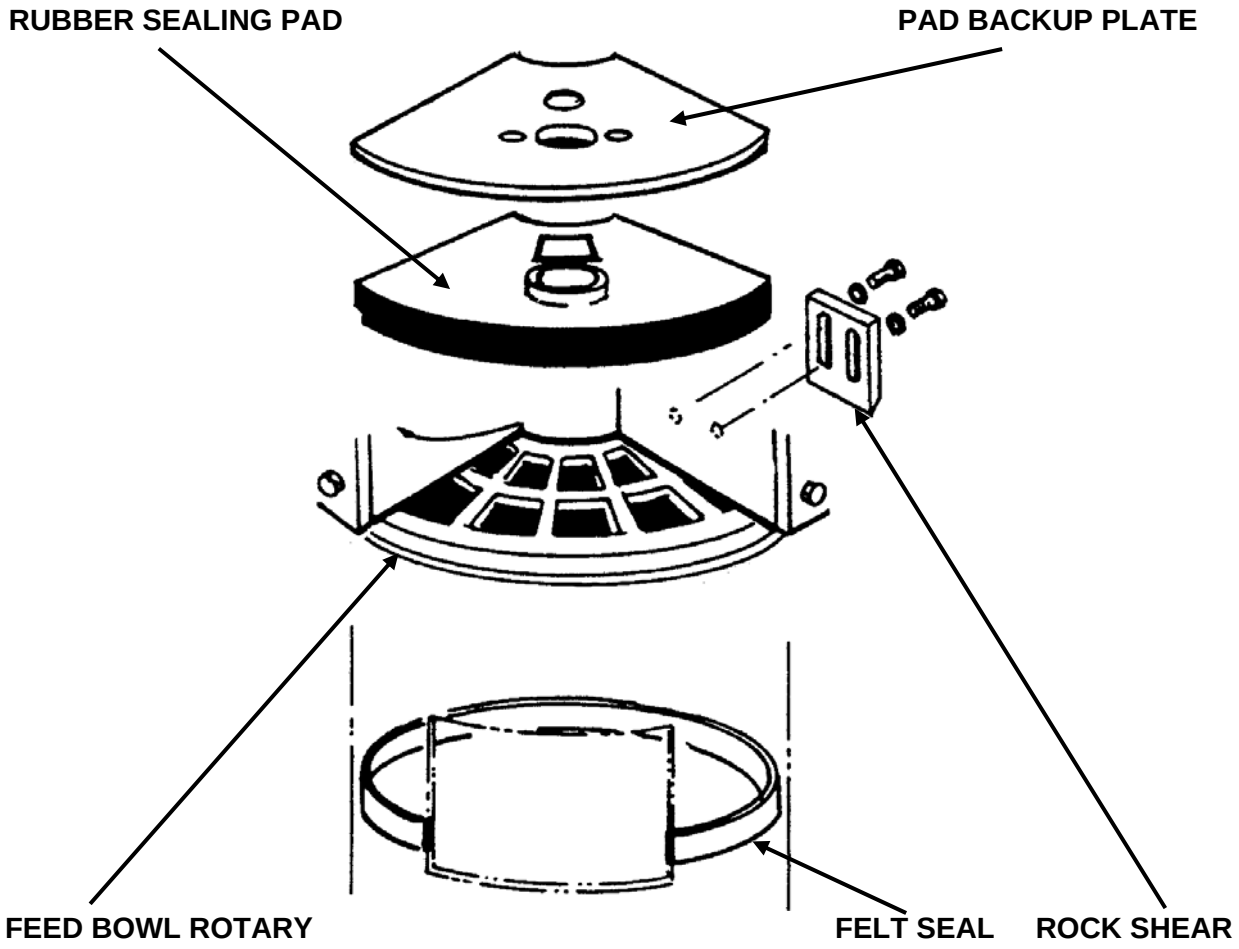
The rock shear is adjustable and should be positioned as close as possible to the top of the wheel without allowing to scrape directly on the feed bowl. A common practice is to use a business card as a gauge, placing it between the rock shear and the feed wheel. Then tighten bolts starting with the lower bolts first.



RUBBER SEALING PAD

This component is a major ingredient in the operation of the machine. It is used to seal off all the pockets loaded with material, except for one, allowing the air to be directed to the intake opening of the feed wheel and exhausting the material air mixture through the outlet and into the gooseneck. It is a seal, thus the match up of the rubber pad to the back up plate is crucial.

- Make sure the inlet and outlet openings of the rubber pad match the openings of the feed wheel.
- The rubber flange ring on top of the pad must fit snugly into the corresponding round hole in the back up plate.
- Make sure that the inlet pipe or nipple attached to the threaded hole in the back up plate is not protruding beyond the underside of the plate (threaded in too far). If nipple protrudes beyond the under surface, it will prevent the sealing pad from mating flat with the back up plate.
- Install wear pad with grease for ease of installation.



PAD ADJUSTMENT

As noted previously, the rubber pad acts as a seal between the back-up assembly and top surface of the feed wheel. As a result, the control of excessive dusting during operation and the efficiency for successful gunning is very dependent on the adjustment of the pad.

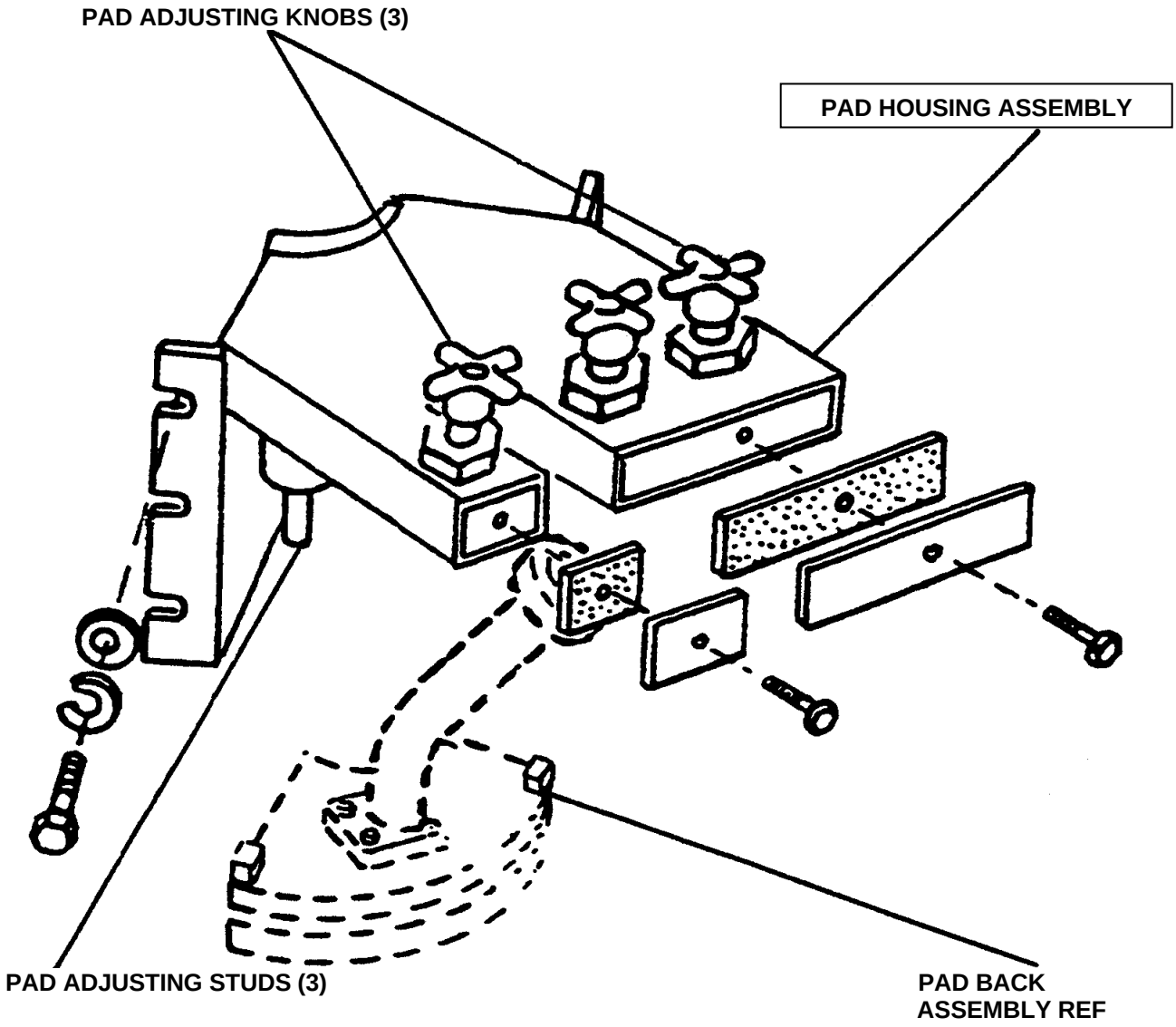
The adjustment of the pad is accomplished by the use of the adjustment mechanism located on top of the pad housing. This mechanism consists of three (3) knobs each containing a chain and sprocket arrangement for control of the pad adjusting stud. In directly facing the gooseneck-pad housing, the left hand knob is used to adjust the left or exhaust side of the sealing pad. The center knob is used to adjust the rear of the pad and the right hand knob is used to adjust the right side of the pad. Turn knob **CLOCKWISE** to apply pressure moving studs **DOWNWARD**. Turn knob **COUNTERCLOCKWISE** to **RAISE** adjusting studs, to relieve pressure.

N O T E

The initial pad adjustment should be done before the material hose is connected to the outlet or gooseneck and with vertical pad clamps loose.

To adjust the new wear pads:

- Adjust all three (3) adjusting studs **DOWNWARD** turning knobs **CLOCKWISE** until each stud contacts the top surface of the pad.
- Proceed then to turn **CENTER** knob **CLOCKWISE** 1¼ turns to move stud downward.
- Adjust **LEFT** knob 1¼ turns **CLOCKWISE**.
- Adjust **RIGHT** knob 1¼ turns **CLOCKWISE**.
- Make final adjustment and tighten the vertical pad clamps.
- The sealing rubber pad is now secure and the pad housing is ready for start-up.



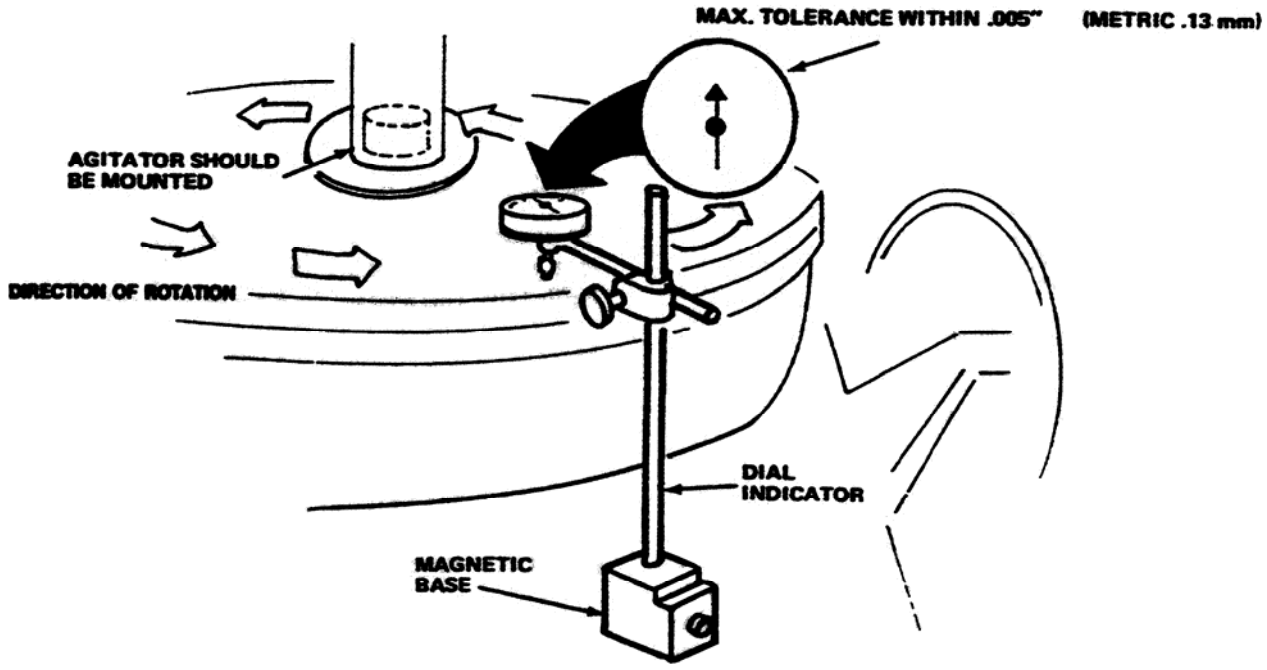
N O T E

Final adjustment to each adjusting stud may be necessary after machine is in operation. Every effort should be made to keep DOWNWARD PRESSURE adjustments on the sealing pad EQUAL on the three (3) studs.

Keep in mind that improper adjustments of downward pressure to one side of the pad over the opposite side, causes excessive wear to the rubber sealing surface and thus results in increased wear. This condition can also allow the pressurized air to escape free from under the sealing pad in the area of least downward pressure. This air blasting, coupled with particles of material or sand can quickly eat into the metal surface and destroy it.

THE FEED BOWL

The top surface is originally ground with a slight concave dish radiating from the center to the outside edge, measuring 0.002 inches (0.05 mm) to 0.005 inches (0.13 mm). The bottom surface of the feed bowl must be maintained free of any disfiguration. This bottom surface is used to locate the part in the grinder when it becomes necessary to resurface the top face. If there are severe knicks on the bottom surface of the feed bowl that cannot be removed evenly with a file, then we recommend lightly filing the top surface free of burrs and knicks and place the top surface down in the grinder and Blanchard grind the bottom surface first. Then turn the feed bowl over and dish the top surface.

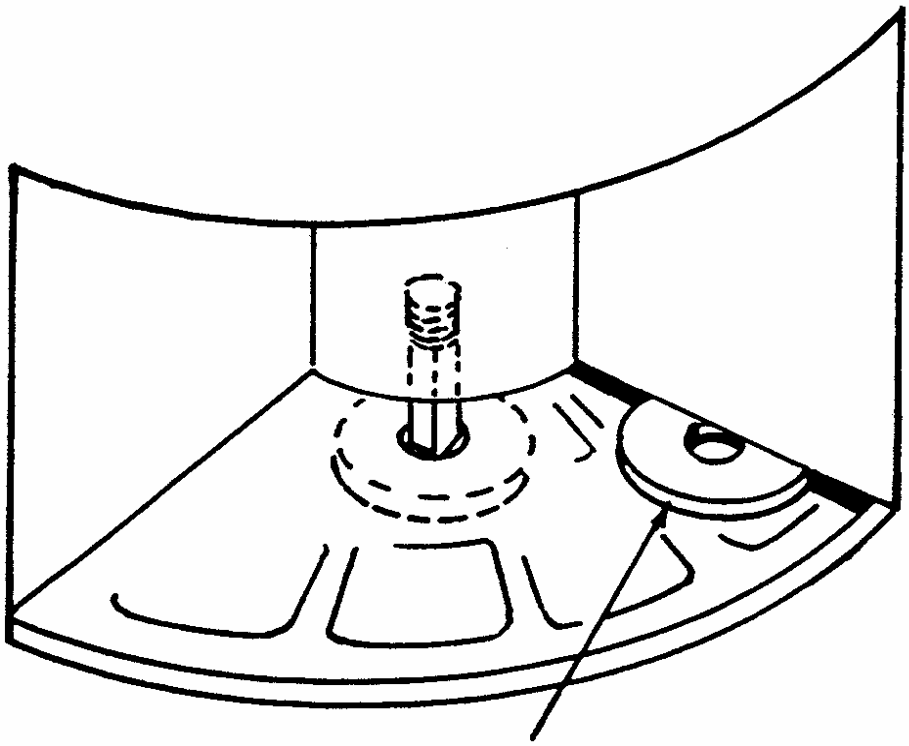


THE RUBBER SEALING PADS

The best method of reconditioning rubber pads is also done on a Blanched grinder. Some ***REED*** owners report that they get an acceptable reconditioning job by freezing the pad and refacing the frozen rubber on motorized wood plane. Others report they do acceptable refacing with an extremely sharp knife blade that is kept well lubricated with oil during the trimming of the high ridges of rubber. ***REED*** pads with imbedded bosses must be resurfaced by grinding. Mill or grind the bosses down 1/16 inches (1.5 mm) after removing the rubber required to make the face flat and smooth. The rubber face of the pad must be kept parallel to the steel back side of the pad.

RISER PLATES

Riser plates are specially manufactured and precision ground parts. No substitute should be used to raise the feed wheel assembly to its proper position. These parts are not subject to wear and consequently need not be reconditioned but they must be thoroughly cleaned prior to installing. Knicks or burrs should be removed with a file. Riser plates are only used to position the feed wheel assembly to its proper operating height.

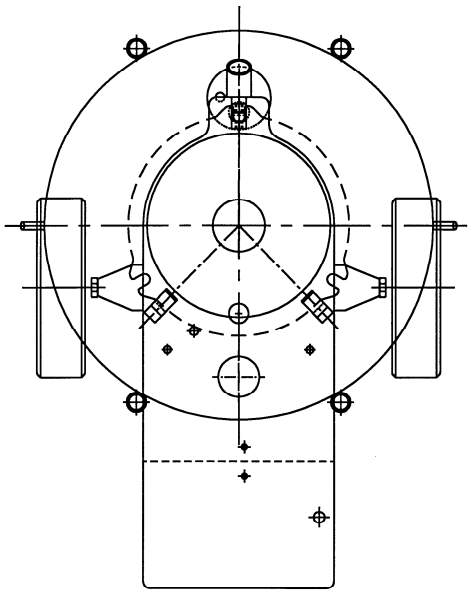


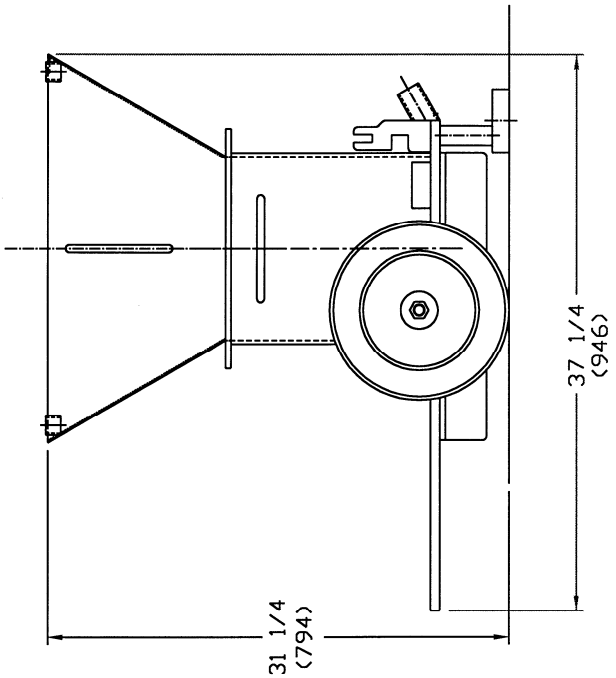
**FOR CHECKING ONLY,
IF THIN RISER PLATE SLIDES IN HERE,
RISER PLATE SHOULD BE PLACED
UNDER FEED BOWL.**

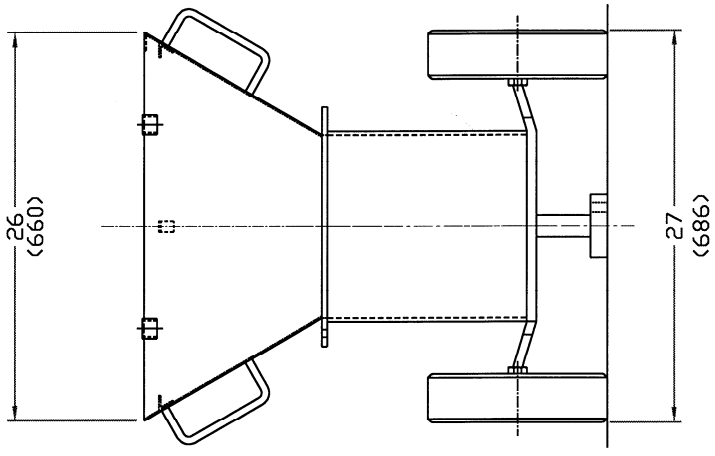
THE FEED WHEEL ASSEMBLY

After riser plates and feed bowls are manufactured they are checked at the factory for proper tolerances. Riser plates, feed bowls are mounted on a spindle. They are secured in place with an agitator. The assembly is rotated and checked with dial indicator as in the adjacent drawing. After reconditioning these parts it is advisable to check the final assembly in the same manner.

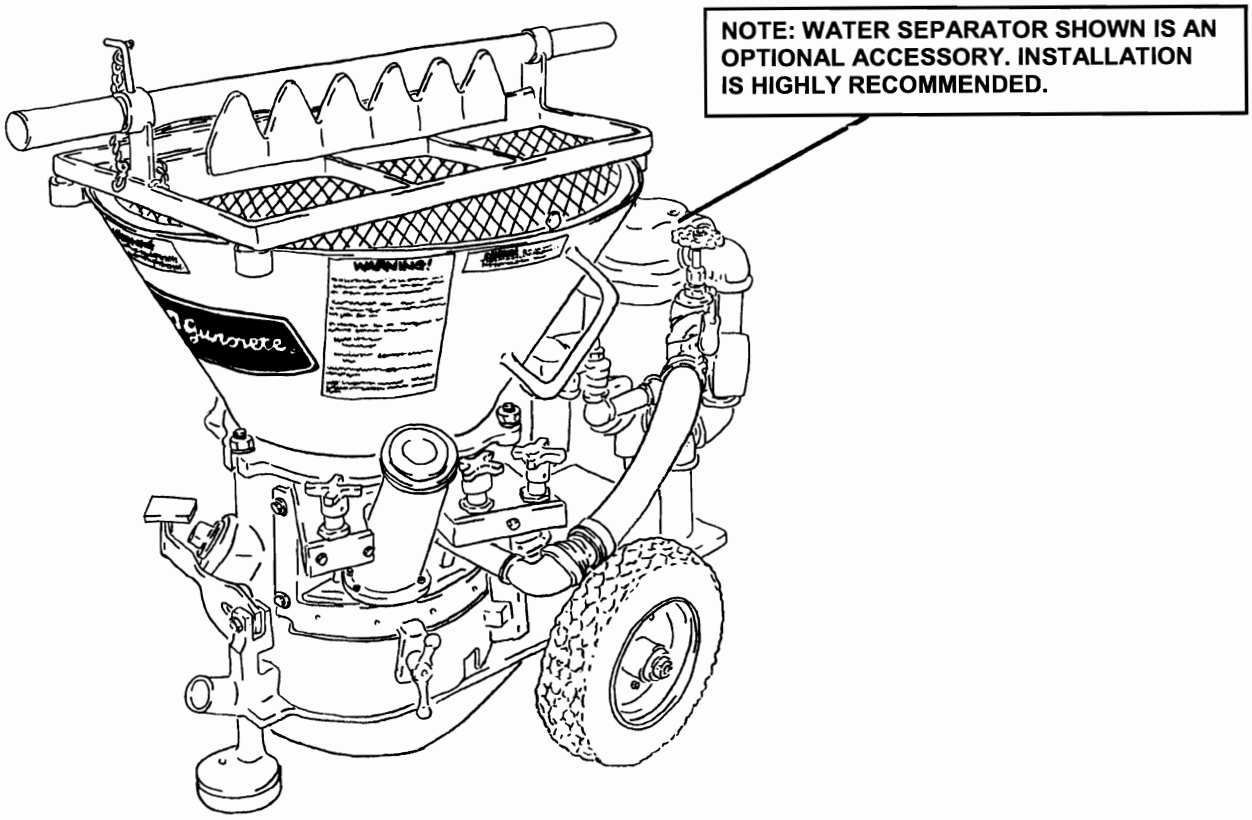
D I M E N S I O N S







***REED** PNEUMATIC SPRAYING MACHINE* **MODEL *SOVA™ SERIES 7* ILLUSTRATED PARTS MANUAL** CONTAINS THE FOLLOWING GROUPS AND FIGURES:

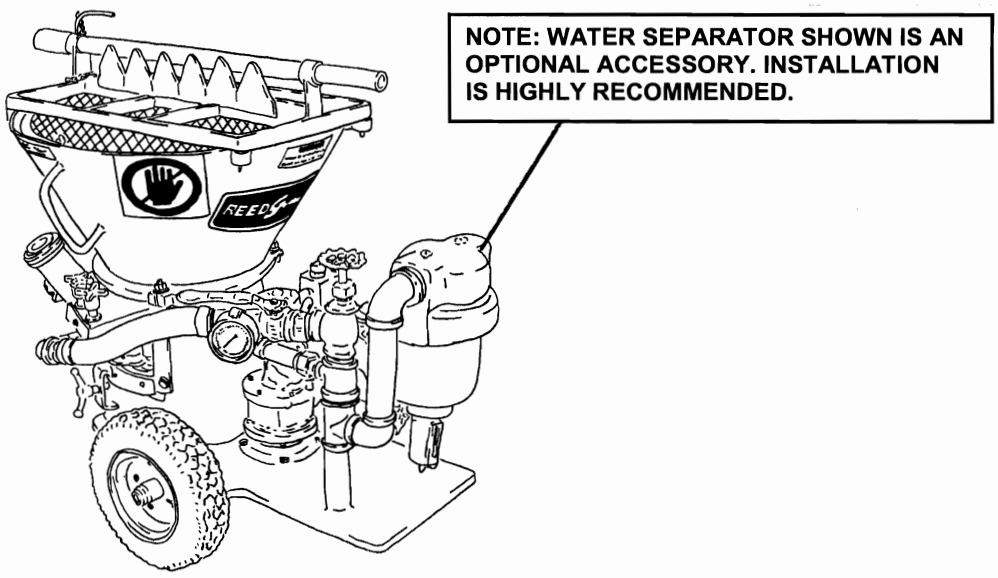


GROUP 40 HOPPER AND PAD INSTALLATION

GROUP 50 AIR MOTOR AND AIR INLET INSTALLATION

GROUP 60 ACCESSORIES INSTALLATION

GROUP 70 OPTIONAL INSTALLATION



I. PURPOSE

This parts manual is prepared, issued and/or revised by ***REED*** Manufacturing, for the exclusive use of its customers and is intended for use in provisioning, requisitioning, storing and issuing replaceable ***REED*** model ***SOVA™ SERIES 7*** *PNEUMATIC SPRAYING MACHINE.* The contents are proprietary to ***REED*** and are subject to change without notice. The use of any part of this document by any other person or persons or for any other purpose without the written consent of ***REED*** is expressly prohibited. In addition, ***REED*** expressly disclaims any and all responsibility arising in or any way related to such ***REED***'s prior written consent thereto.

The parts number content of this document, arrangement and breakdown sequence of items is compatible with Military Standard (**MS**) and Air Transport Association Specification (**ATA**).

II. GENERAL SYSTEM OF ASSEMBLY ORDER – Detailed Parts List (Refer to Next Page)

1. This area refers to the corresponding illustration

MODEL – GROUP – FIGURE – PAGE

A. MODEL shows which is ***REED***'s model number.

B. GROUP should be divided with:

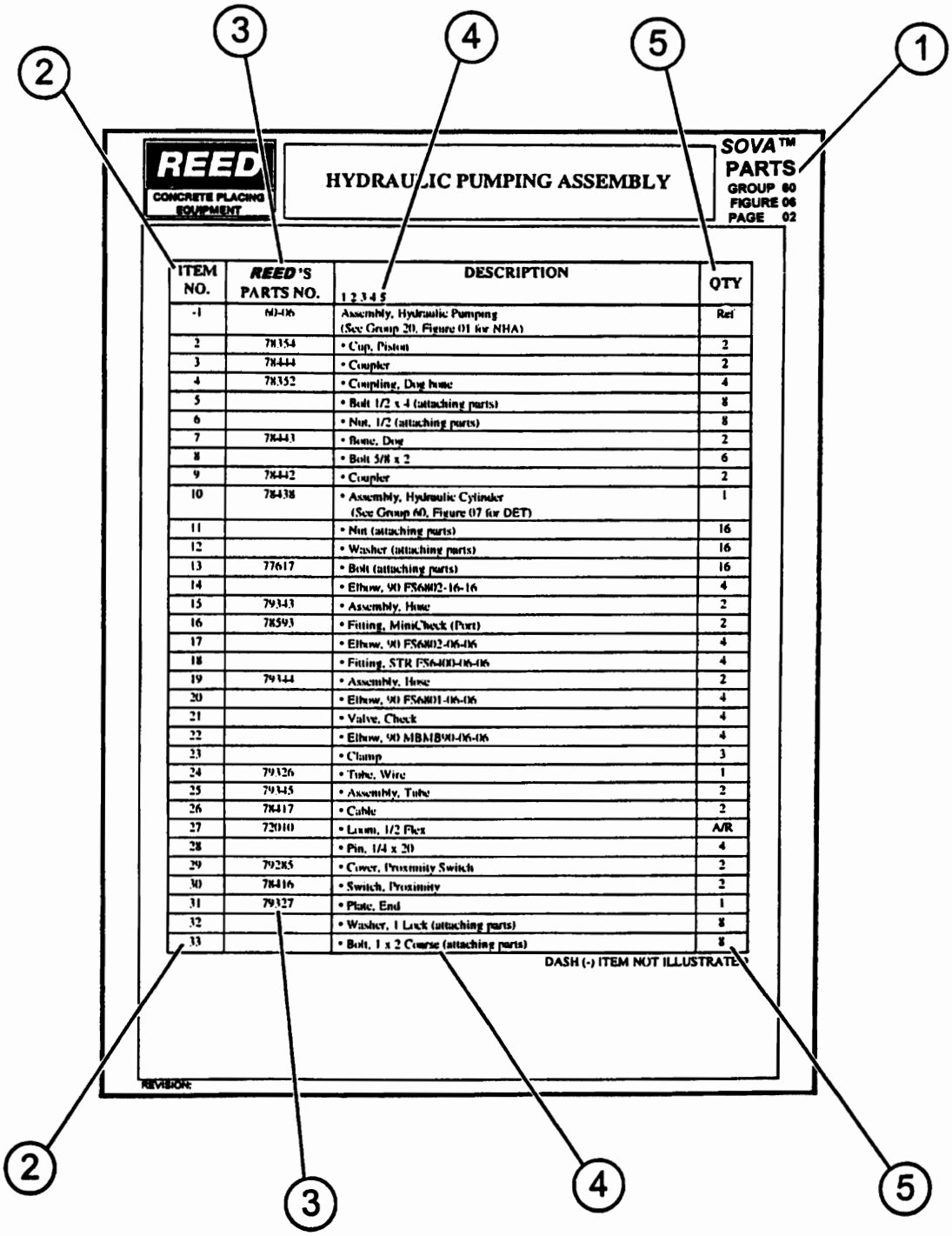
00	MODEL ***SOVA™*** **SERIES 7** ILLUSTRATED PARTS MANUAL
10	FINAL INSTALLATION
30	BASE GEAR INSTALLATION
40	HOPPER AND PAD INSTALLATION
50	AIR MOTOR AND AIR INLET INSTALLATION
60	ACCESSORIES INSTALLATION
70	OPTIONAL INSTALLATION

C. FIGURE belong to the group. Please see page of contents and each group.

D. PAGE numbers follow to the right of each figure number.

2. The **ITEM NUMBER** corresponds to the item number shown for the part in illustration. Parts with item number proceeded by a dash (such as: -1, -5, -12 etc.) are not illustrated.

3. PARTS NUMBERS that carry a ***REED*** part number.


1
2
3
4
5
REED
CONCRETE PLACING EQUIPMENT
HYDRAULIC PUMPING ASSEMBLY
SOVA™ PARTS
GROUP 60
FIGURE 06
PAGE 02
ITEM NO.
REED'S PARTS NO.
DESCRIPTION
1 2 3 4 5
QTY
-1 60-06 Assembly, Hydraulic Pumping (See Group 20, Figure 01 for NHA) Ref
2 78354 • Cup, Piston 2
3 78444 • Coupler 2
4 78352 • Coupling, Dog hose 4
5 • Bolt 1/2 x 4 (attaching parts) 8
6 • Nut, 1/2 (attaching parts) 8
7 78443 • Hose, Dog 2
8 • Bolt 5/8 x 2 6
9 78442 • Coupler 2
10 78438 • Assembly, Hydraulic Cylinder (See Group 60, Figure 07 for DET) 1
11 • Nut (attaching parts) 16
12 • Washer (attaching parts) 16
13 77617 • Bolt (attaching parts) 16
14 • Elbow, 90 FS6802-16-16 4
15 79343 • Assembly, Hose 2
16 78593 • Fitting, MiniCheck (Port) 2
17 • Elbow, 90 FS6802-06-06 4
18 • Fitting, STR FS6400-06-06 4
19 79344 • Assembly, Hose 2
20 • Elbow, 90 FS6801-06-06 4
21 • Valve, Check 4
22 • Elbow, 90 MBMB90-06-06 4
23 • Clamp 3
24 79326 • Tube, Wire 1
25 79345 • Assembly, Tube 2
26 78417 • Cable 2
27 72010 • Loom, 1/2 Flex A/R
28 • Pin, 1/4 x 20 4
29 79285 • Cover, Proximity Switch 2
30 78416 • Switch, Proximity 2
31 79327 • Plate, End 1
32 • Washer, 1 Lock (attaching parts) 8
33 • Bolt, 1 x 2 Course (attaching parts) 8
DASH (-) ITEM NOT ILLUSTRATED
REVISION:

4. DESCRIPTION

A. The **INDENTURE SYSTEM** used in the parts list shows the relationship of one part to another. For a given item, the number of indentures depicts the relationship of the item to the components of the item as follows:

1 2 3 4 5
Assembly (or **I**nstallation)
- **D**etail part of assembly
- **S**ub-assembly
- **A**ttaching parts for sub-assembly
- • **D**etail part of sub-assembly
- • **S**ub-sub-assembly
- • **A**ttaching parts for sub-sub-assembly
- • • **D**etail part of sub-sub-assembly
- • • **S**ub-sub-sub-assembly
- • • **A**ttaching parts of sub-sub-sub-assembly
- • • • **D**etail part of sub-sub-sub-assembly

B. "See Group 20, Figure 01 For **NHA**"
Identifies the illustrated parts chapter location; indicates where the Next Higher Assembly (**NHA**) of the item shown.

C. "See Group 60, Figure 07 For **DET**"
Identifies the illustrated parts chapter location; indicates where the item and its Detailed Breakdown (**DET**) is shown.

D. "See Group 30, Figure 05 for **REF**" or "See Vendor Chapter For **REF**"
Identifies the illustrated parts chapter where the part is, and if listed and illustrated in Vendor Chapter. It is used as a cross-reference (**REF**).

5. QUANTITY

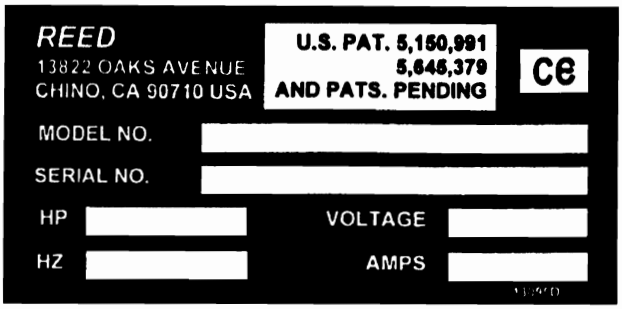
A. Reference (**REF**) indicates the items that is listed previously in the Next Higher Assembly (**NHA**) and then again in this figure.

B. As Required (**A/R**) indicates the parts that is used in a quantity as required.

C. A number entry indicates the quantity of the part used in its next higher application.

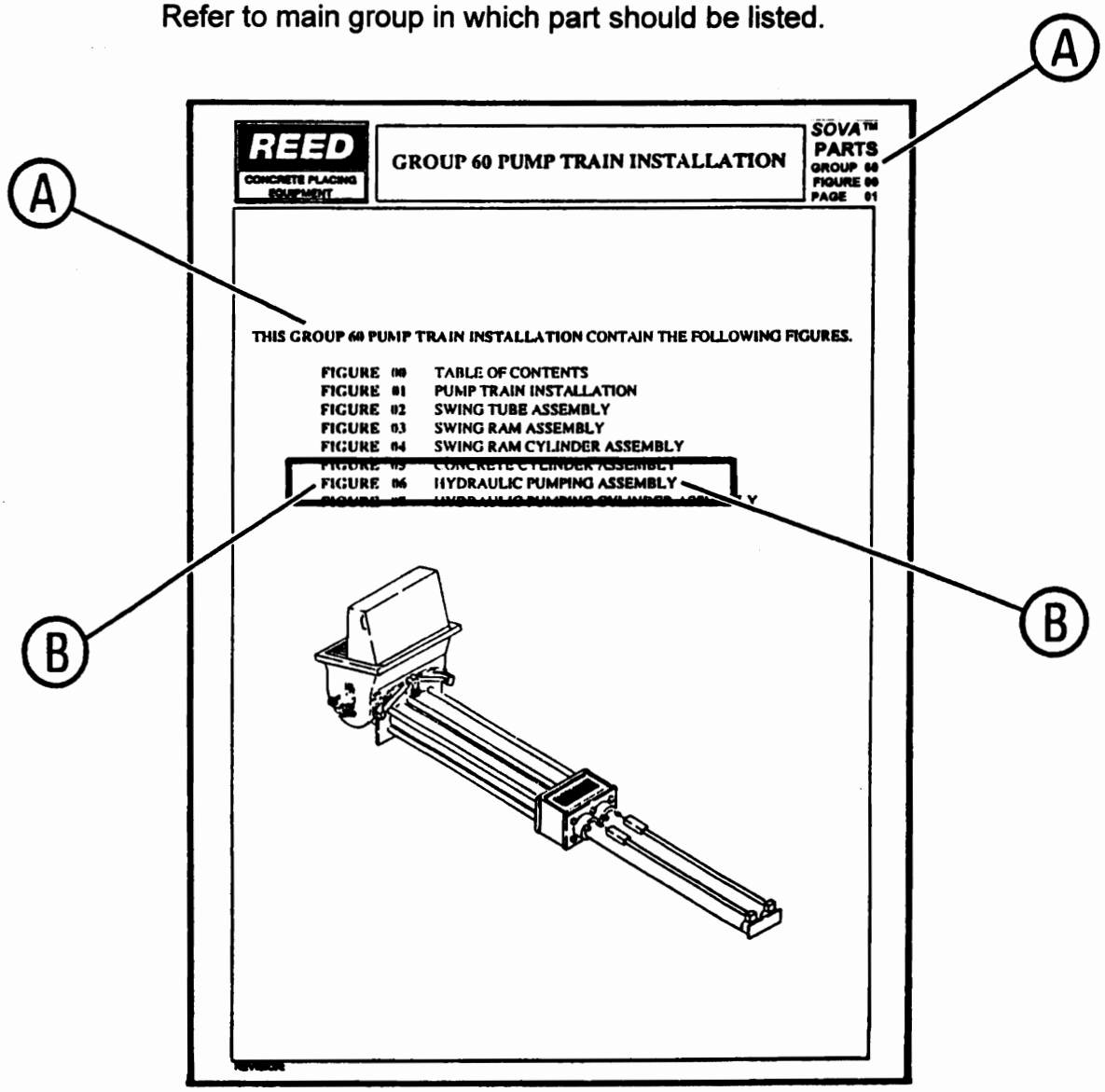
6. Functionally related assemblies are illustrated in phantom (_____) but not listed on the detail parts list page.

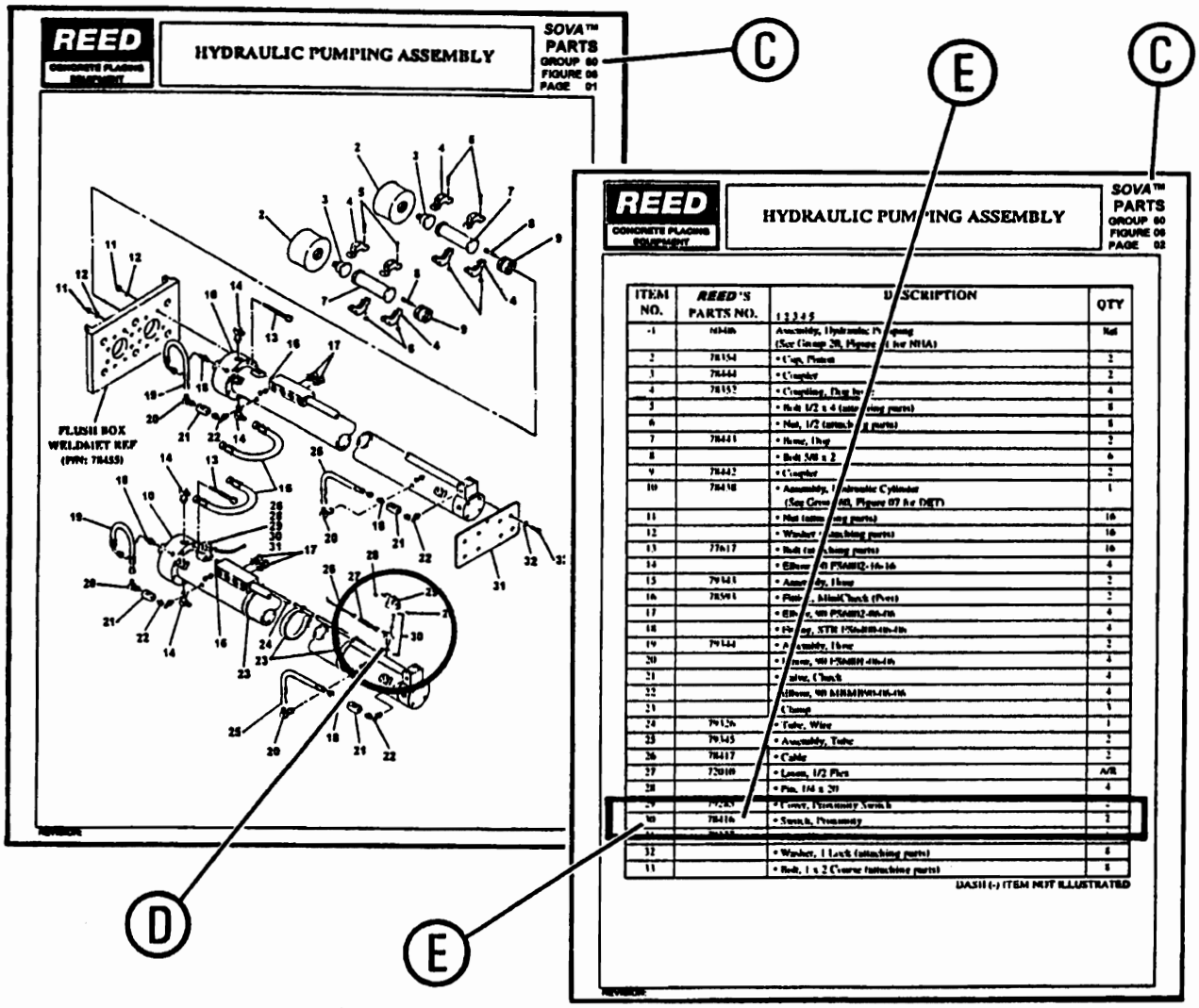
1. Always give serial number of *PNEUMATIC SPRAYING MACHINE* **MODEL *SOVA*™ SERIES 7** (Refer to each unit nameplate shown below). NOTE: This manual is being released to cover unit starting with serial number **00-3680-SR7** to current production. Some components used on earlier units differ from current productions. Where this occurs, the part is identified by a serial number.



2. Always specify part number and complete name of parts ordered.

   A. Turn to table of content in the desired Installation. Refer to main group in which part should be listed.





B. Find title of figure in which the part should be shown. Note figure number.

C. Turn to corresponding page, find the group and figure.

D. Check your required part and its attaching parts and match with illustration page.

E. Refer to corresponding item number in the part list page.
Part numbers are located in the part number column.

F. When ordering variable or optional miscellaneous parts which are not found this in parts chapter, follow the above outlined procedure of how to order parts.

1). When applicable, give model and serial number of the component for which parts are desired.

2). In a specific, difficult to describe situation, a marked-up photograph or detailed sketch would be helpful.

3. Do not designate quantity by "set". State specifically how many parts are wanted.

4. Always give complete address and full shipping instructions. Specify shipping instructions, truck freight, air freight, United Parcel Service (UPS), or FedEx and DHL are available in designated areas.

5. TO ORDER

A. BY MAIL

Attention: Parts Department
REED
13822 Oaks Avenue
Chino, CA. 91710

B. BY FAX

(909) 287 - 2141

C. BY PHONE

(909) 287 - 2100

6. Parts return without authorization will not be accepted. If it is necessary to return parts for any reason, written authorization may be obtained from ***REED*** Parts Department, Chino, CA. 91710. A Parts Return Authorization form is provided when ***REED*** deems its necessary to have the part returned for evaluation. The form is issued by the Warranty of Parts Department of ***REED.***

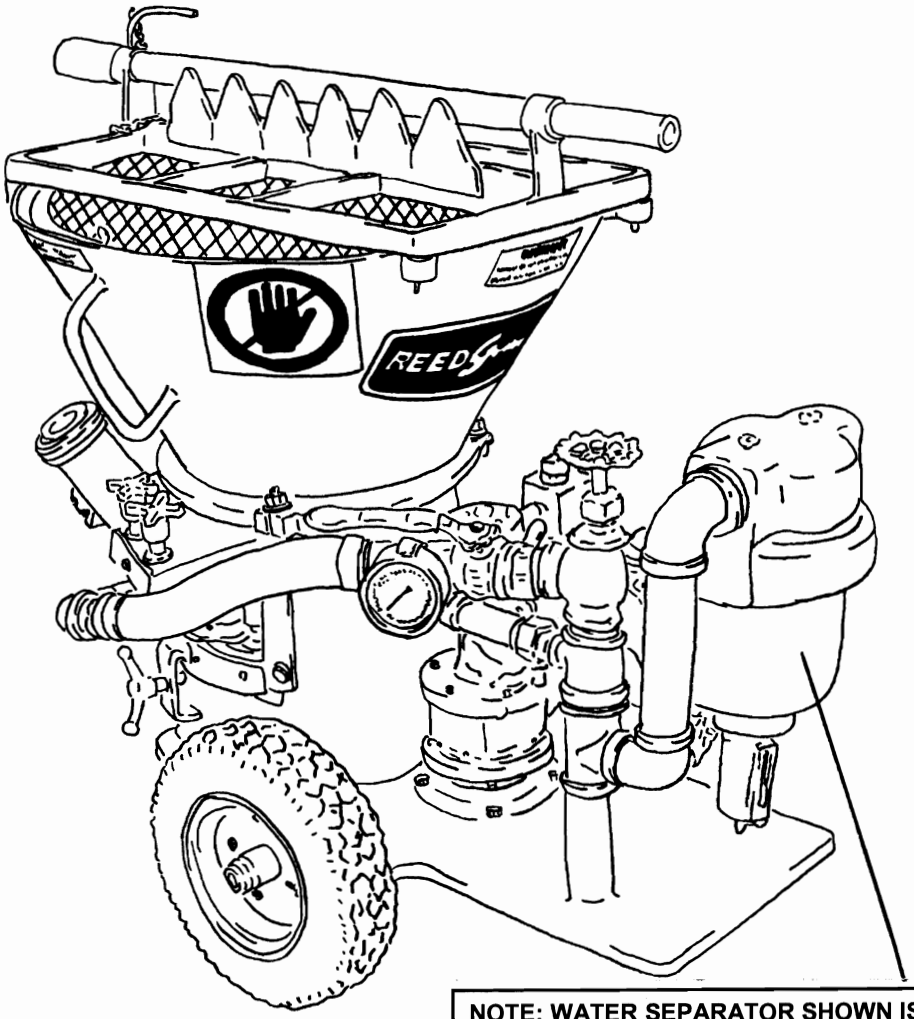
A. The form will be filled by ***REED*** unless requesting necessary information and you will receive a copy as well as shipping tag.

B. Attach shipping tag to part insert return original invoice.

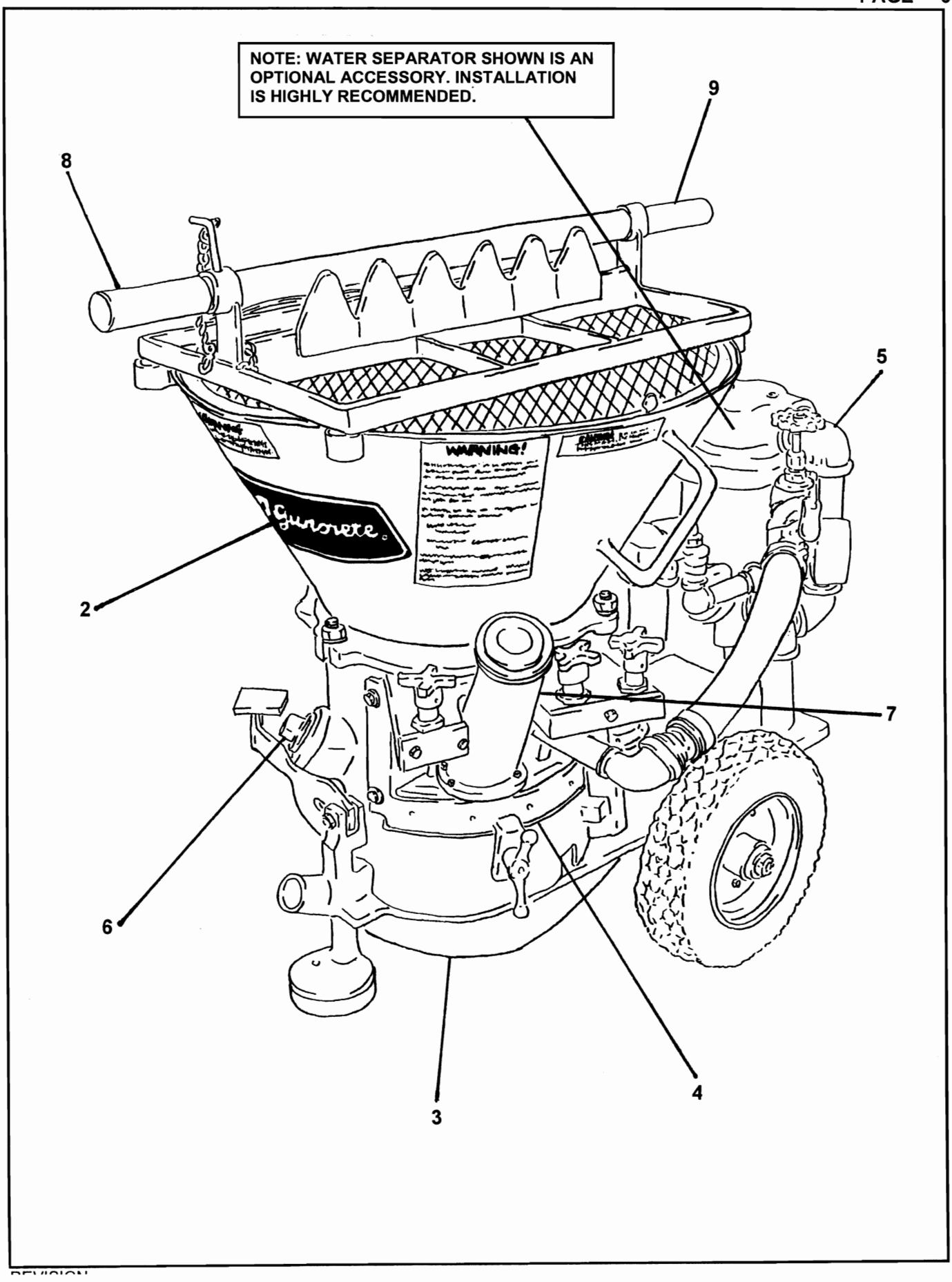
C. Ship part to ***REED*** **PREPAID**.

D. Part must be returned to ***REED*** within 30 days from date of authorization.

REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 10 FINAL INSTALLATION
CONTAINS THE FOLLOWING FIGURES:

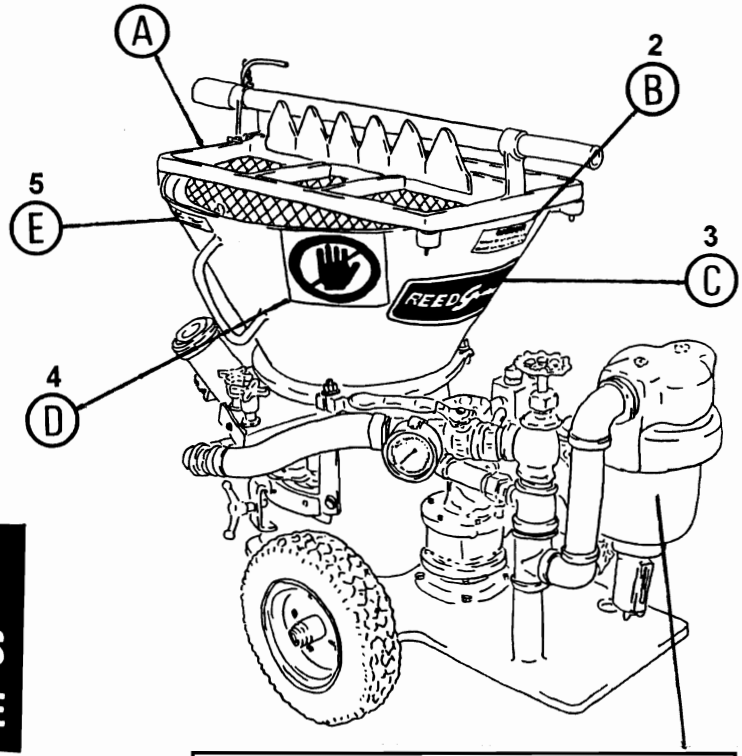


NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.


NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.
9
8
5
WARNING!
2
7
6
4
3

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	***SOVA-V06***	Installation, ***SOVA*™ SERIES 6** Final	Ref
2	20434	• Assembly, Decal (See Group 10, Figure 02 for DET)	1
3	30-01	• Installation, Base Gear (See Group 30, Figure 01 for DET)	1
4	40-01	• Installation, Hopper and Pad (See Group 40, Figure 01 for DET)	1
5	50-01	• Installation, Air Motor and Air Inlet (See Group 50, Figure 01 for DET)	1
6	60-01	• Installation, Accessories (See Group 60, Figure 01 for DET)	1
7	70-01	• Installation, Optional (See Group 70, Figure 01 for DET)	1
8	10899	• Grip, Handle	1
9	10914	• Handle, 35"	1

DASH (-) ITEM NOT ILLUSTRATED

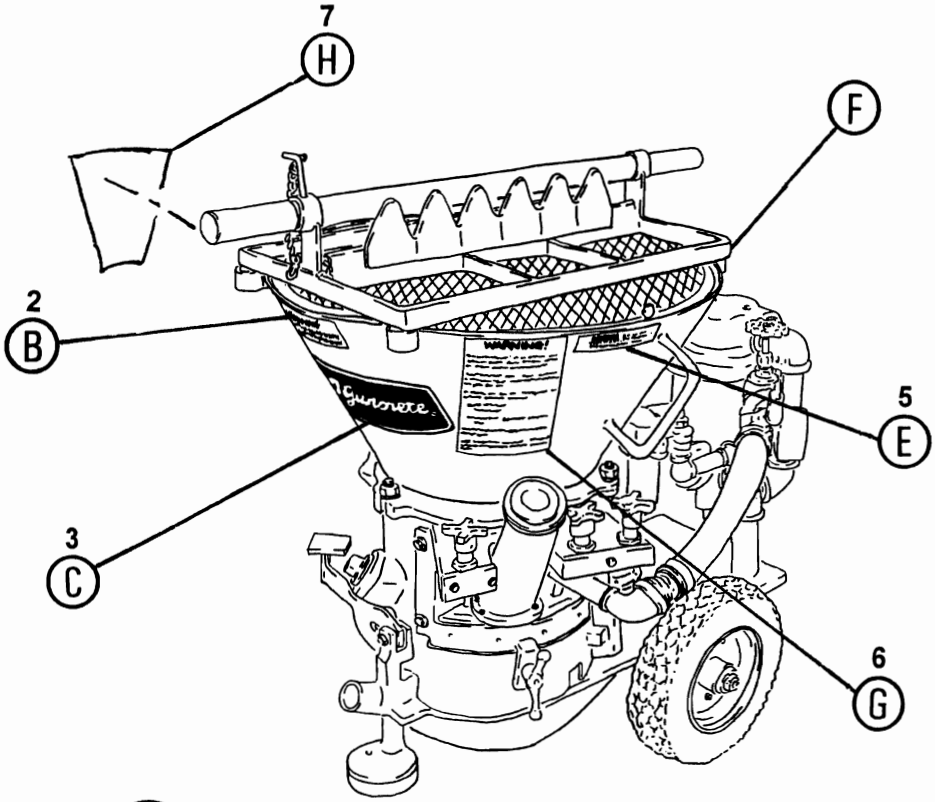


WARNING
ALWAYS WEAR SAFETY GLASSES WHEN OPERATING THIS MACHINE

2

NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

B



A

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20434	Assembly, Decal (See Group 10, Figure 01 for NHA)	Ref
2	10838	• Decal, **WARNING**, Safety Glasses	2
3	10833	• Decal, ***REED Guncrete***	2
4	75005	• Decal, **DANGER**, Do not Put Your Hands	2
5	10842	• Decal, **CAUTION**, Do Not Lift this Machine by Hopper Handle	4
6	10839	• Decal, **WARNING**, The Wear Pad Area of this Machine is	2
7	10840	• Decal, **WARNING**, The Inside Hopper of this Machine has	2
8	13095	• Nameplate, Guns Serial Number	1

DASH (-) ITEM NOT ILLUSTRATED

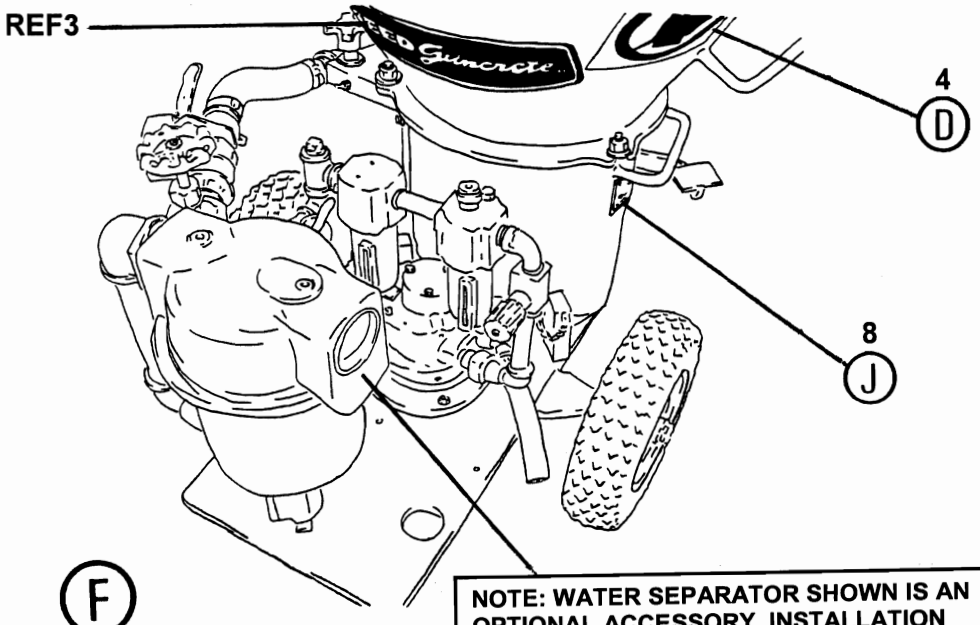
4

D

CAUTION DO NOT LIFT
THIS MACHINE BY HOPPER HANDLES.
USE SLINGS UNDER MACHINE.

5

E



F

NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

WARNING!

The wear pad area of this machine is extremely dangerous when the wear pad and Pad back-up assembly are removed.

It is essential that strict safety procedures be followed before performing any work in the wear pad area.

If maintenance must be performed in this area then proceed as follows:

(1) Shut off power.
Air / electric

(2) Disconnect air feed line or electric cord.

Work in the wear pad area can now be performed safety.

Upon completion of this work, reconnect air feed line or electric cord, and restore power.

WARNING!

The inside of the hopper of this machine has moving parts which are extremely dangerous.

It is essential that strict safety procedures be followed before any work is done inside the hopper.

The screen on the hopper is bolted in a closed position to restrict access. If maintenance must be performed inside the hopper, proceed as follows:

(1) Shut off power.
air / electric

(2) Disconnect air feed line or electrical cord.

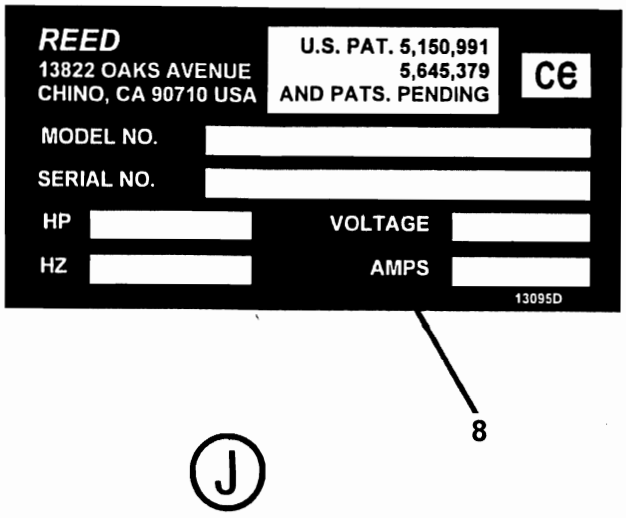
(3) Remove bolts securing the hopper screen

Work inside the hopper may now be performed safety.

Upon completion of this work, replace the bolts and secure the hopper screen in a closed position. Reconnect air feed line or electrical cord and restore power.

7

(H)



ITEM NO.	*REED* 'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20434	Assembly, Decal (See Group 10, Figure 01 for NHA)	Ref
2	10838	• Decal, **WARNING**, Safety Glasses	2
3	10833	• Decal, ***REED Guncrete***	2
4	75005	• Decal, **DANGER**, Do not Put Your Hands	2
5	10842	• Decal, **CAUTION**, Do Not Lift this Machine by Hopper Handle	4
6	10839	• Decal, **WARNING**, The Wear Pad Area of this Machine is	2
7	10840	• Decal, **WARNING**, The Inside Hopper of this Machine has	2
8	13095	• Nameplate, Guns Serial Number	1

DASH (-) ITEM NOT ILLUSTRATED

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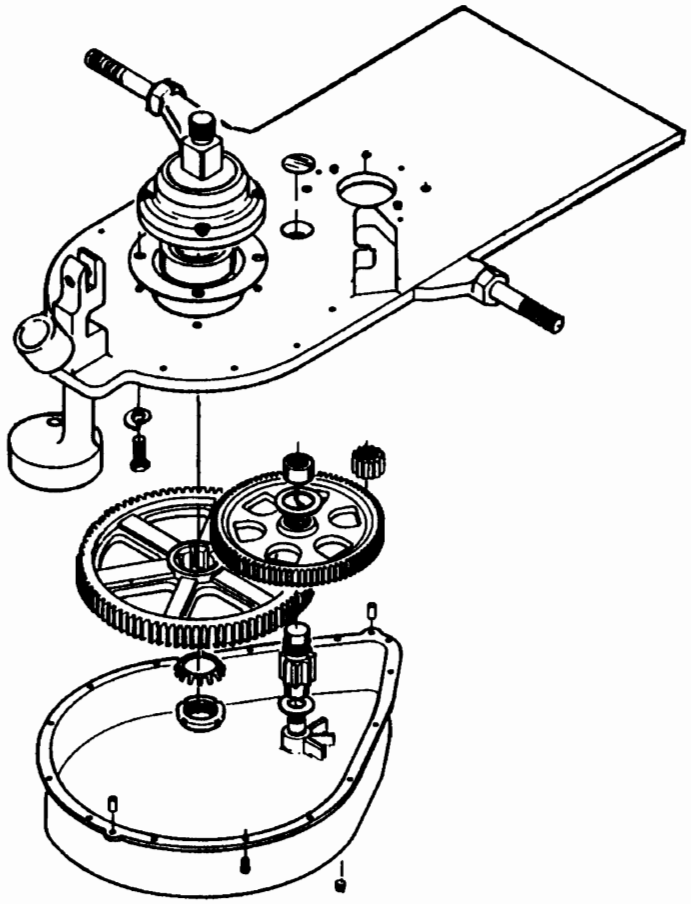
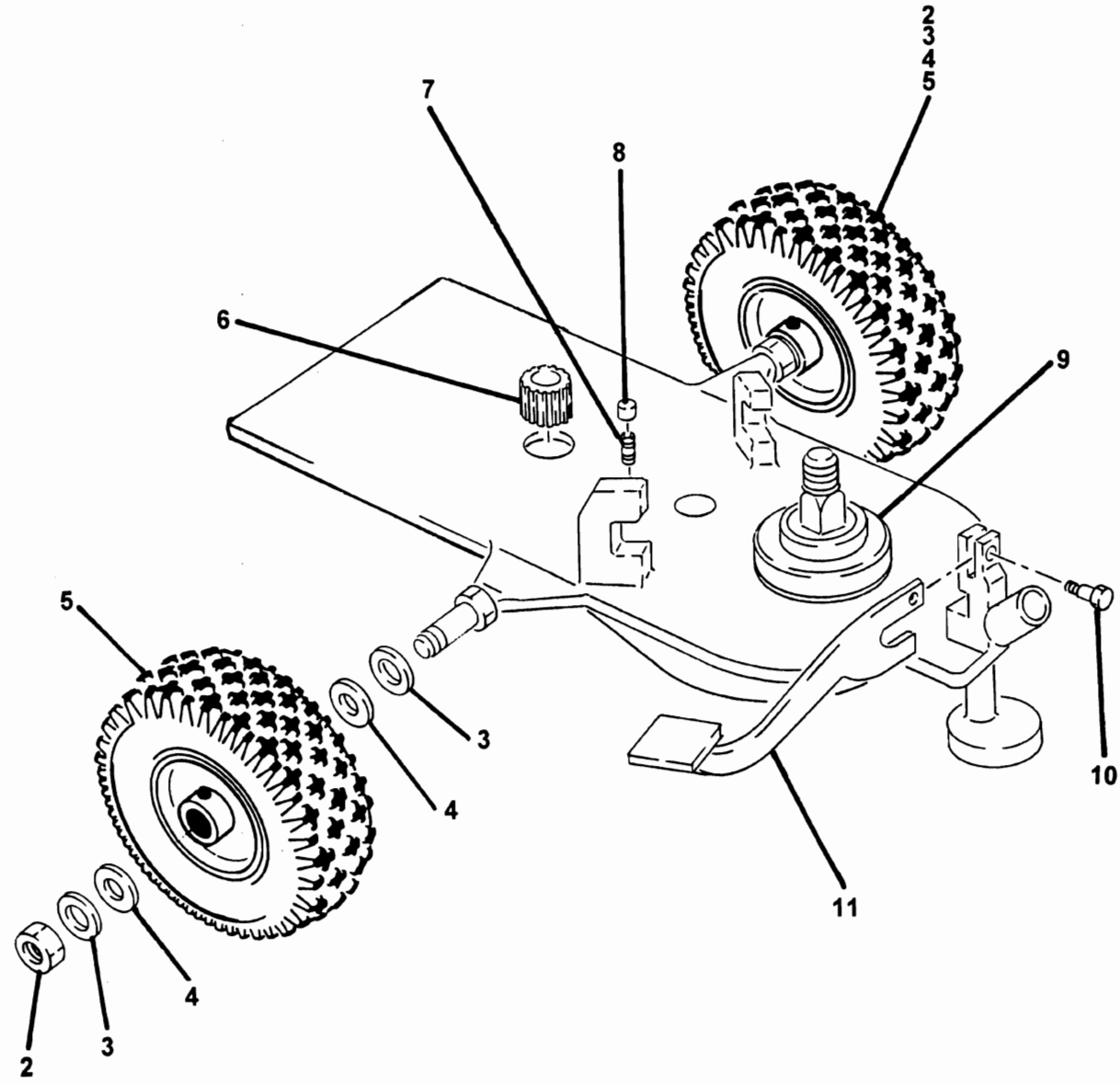
REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 30 BASE GEAR INSTALLATION
CONTAINS THE FOLLOWING FIGURES:



BASE INSTALLATION

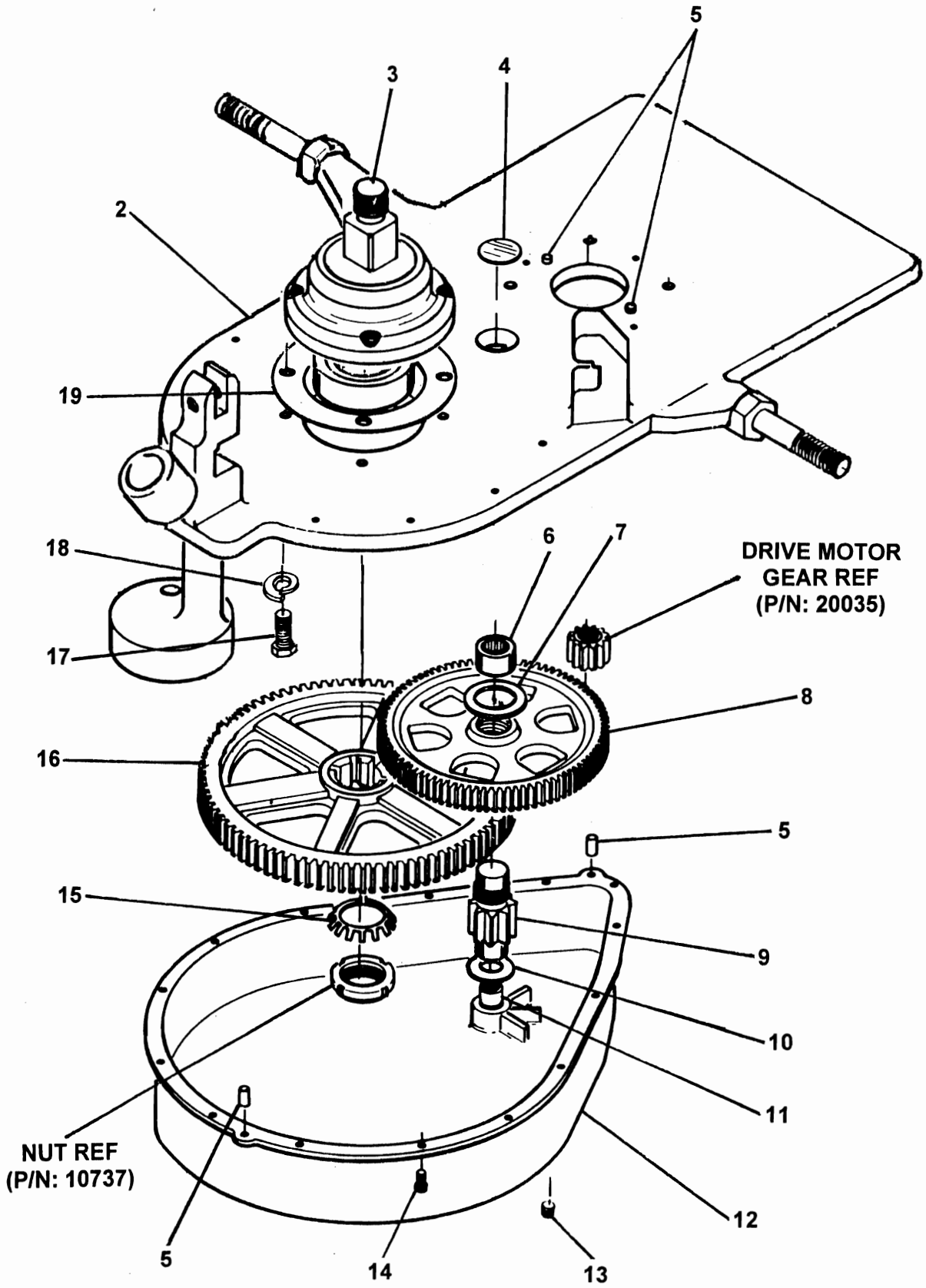


REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	30-01	Installation, Base (See Group 10, Figure 01 for NHA)	Ref
2	10738	• Nut, Flex Lock	2
3		• Washer, Flat	4
4	10714	• Washer, Felt	4
5	20052	• Assembly, Wheel and Tire	2
-5A	13321	• • Bearing, Wheel	1
6	20035	• Gear, Motor Drive	1
7	10707	• Pipe, Oil Filler	1
8	10706	• Cap, Oil Filler	1
9	20442	• Assembly, Base Gear (See Group 30, Figure 02 for DET)	1
10	10735	• Bolt, Shoulder	1
11	20058	• Weldment, Kicker	1

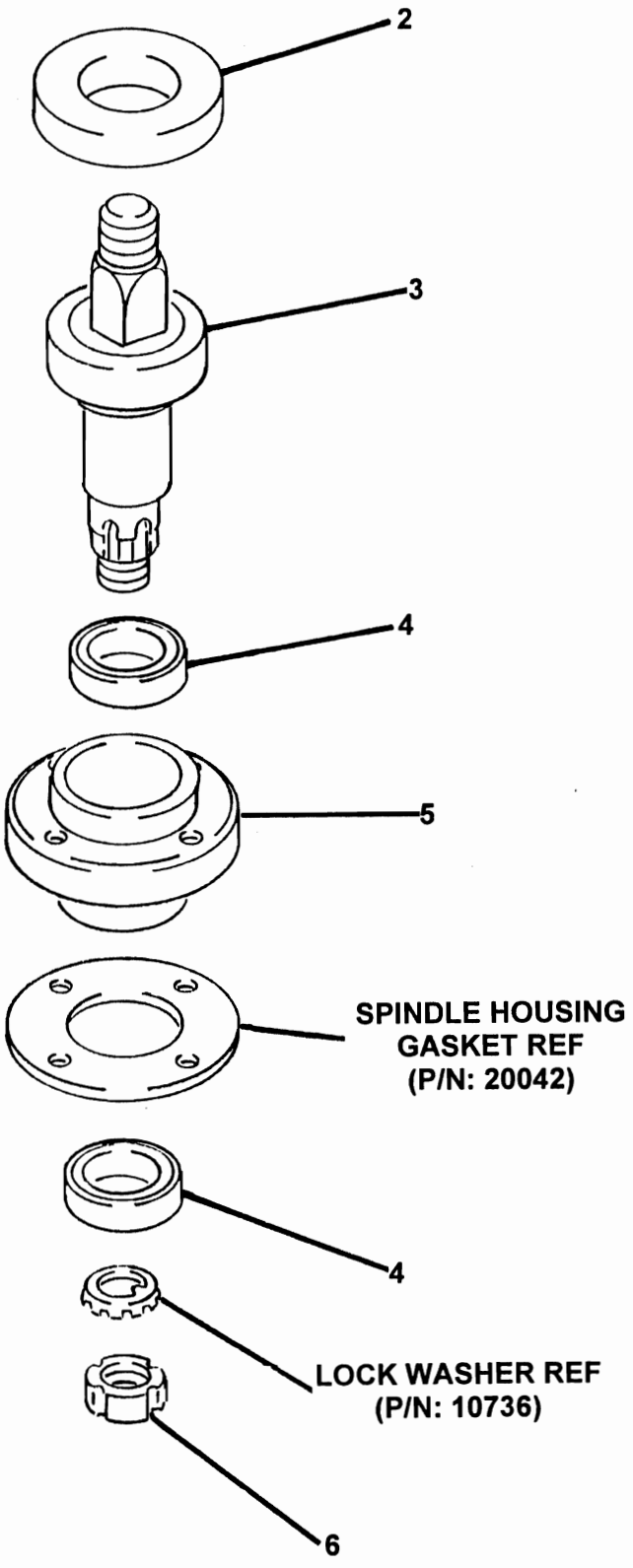
DASH (-) ITEM NOT ILLUSTRATED

BASE GEAR ASSEMBLY



ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20478	Assembly, Base Gear (See Group 30, Figure 01 for NHA)	Ref
2	20476	• Weldment, Base Plate	1
3	20149	• Assembly, Drive Spindle (See Group 30, Figure 03 for DET)	1
4	20411	• Cover, Bearing	1
5	80360	• Pin, Dowel	4
6	20036	• Bearing, Top	1
7	20038	• Washer, Thrust	1
8	20034	• Gear, Idler	1
9	20033	• Gear, Idler Pinion	1
10	20039	• Washer, Pan Thrust	1
11	20037	• Bearing, Bottom	1
12	20025	• Pan, Gear	1
13	74745	• Plug, Drain	1
14	80253	• Screw, Gear Pan	14
15	10736	• Washer, Lock	1
16	20030	• Gear, Bull	1
17	80121	• Screw, Hex	4
18	80072	• Washer, Lock	4
19	20042	• Gasket, Spindle Housing	1
		DASH (-) ITEM NOT ILLUSTRATED	

DRIVE SPINDLE ASSEMBLY



ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20149	Assembly, Drive Spindle (See Group 30, Figure 02 for NHA)	Ref
2	20029	• Seal, Spindle	1
3	20026	• Hub, Spindle	1
4	20027	• Bearing, Upper Spindle	2
5	20028	• Housing, Spindle	1
6	10737	• Nut, Lock	1

DASH (-) ITEM NOT ILLUSTRATED

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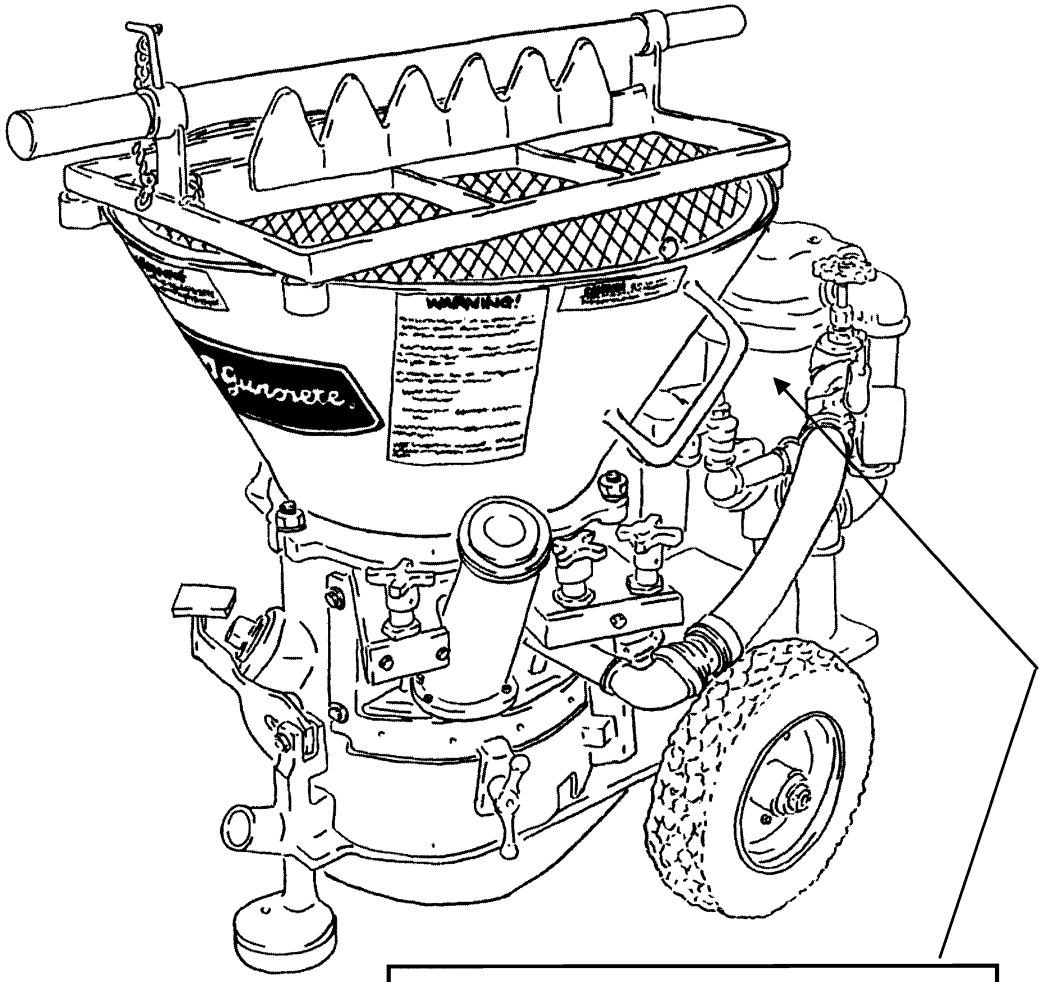
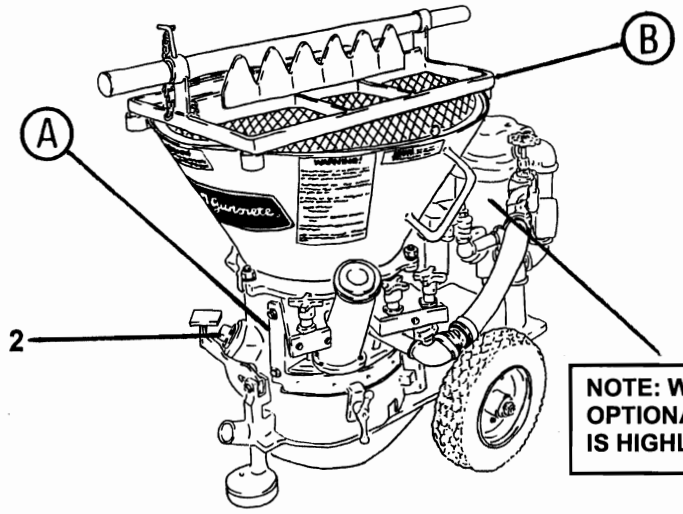
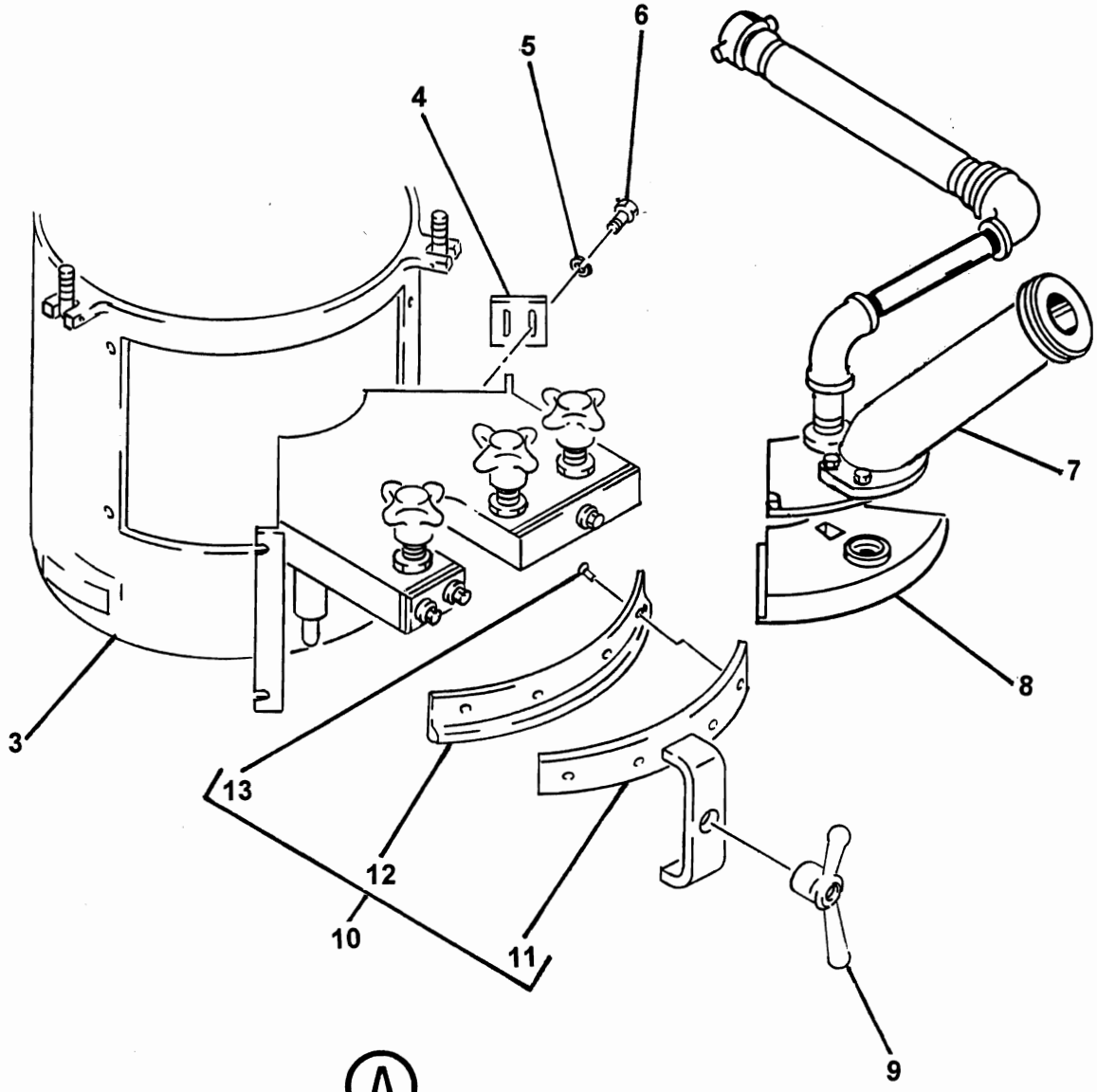
REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 40 HOPPER AND PAD INSTALLATION
CONTAINS THE FOLLOWING FIGURES:



NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSSORY. INSTALLATION IS HIGHLY RECOMMENDED.

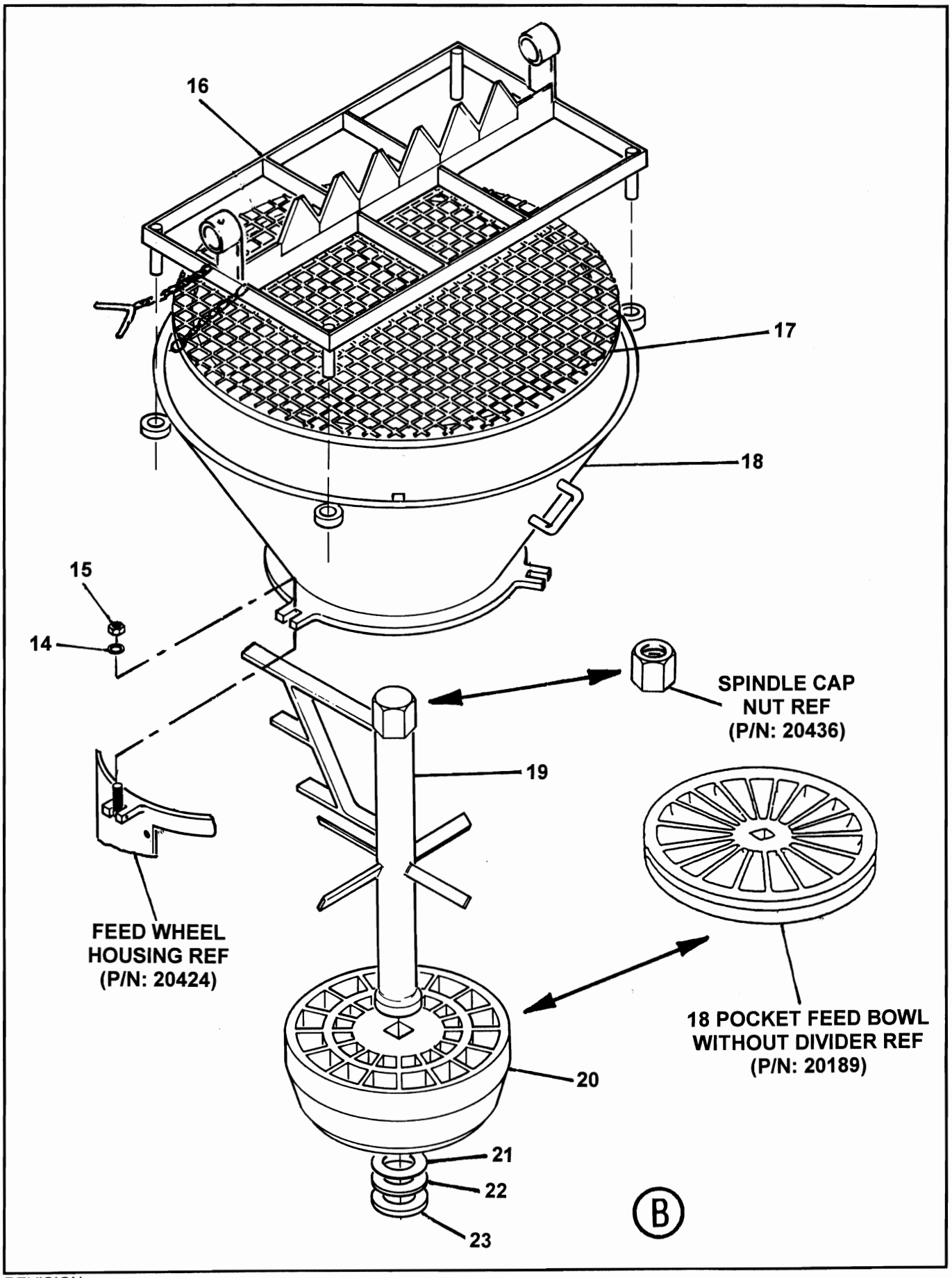


NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.



ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	40-01	Assembly, Hopper and Pad (See Group 10, Figure 01 for NHA)	Ref
2	11005	• Plug, Pipe	1
3	20422	• Installation, Feed Wheel pad housing (See Group 40, Figure 02 for DET)	1
4	20388	• Shear, Rock	1
5		• Washer, Flat (attaching parts)	2
6		• Bolt, Hex (attaching parts)	2
7	20483-1Y	• Assembly, 1 1/2 Inch Liner Type Pad Backup (See Group 40, Figure 06 for DET)	1
8	20090	• Wearpad, Rubber Mold	1
9	60051	• Nut, Pad Clamp wing	1
10	20430	• Assembly, Pad Clamp	1
11	20432	• • Weldment, Pad Clamp	1
12	20069	• • Rubber, Pad Clamp	1
13	80355	• • Rivet, Pop (attaching parts)	4
14		• Washer, Flat	3
15		• Nut, Hex	3
16	20426	• Weldment, Bag Breaker	1
17	10907	• Weldment, 3/4" Screen	1
18	20077	• Weldment, Hopper	1
19	20098	• Weldment, Agitator	1
20	20089	• Bowl, 16 Pocket with Divider Feed	1
21	20172	• Plate, Thin Riser	A/R
22	20173	• Plate, Medium Riser	A/R
23	20174	• Plate, Thick Riser	A/R

DASH (-) ITEM NOT ILLUSTRATED


16
17
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14
SPINDLE CAP
NUT REF
(P/N: 20436)
19
FEED WHEEL
HOUSING REF
(P/N: 20424)
18 POCKET FEED BOWL
WITHOUT DIVIDER REF
(P/N: 20189)
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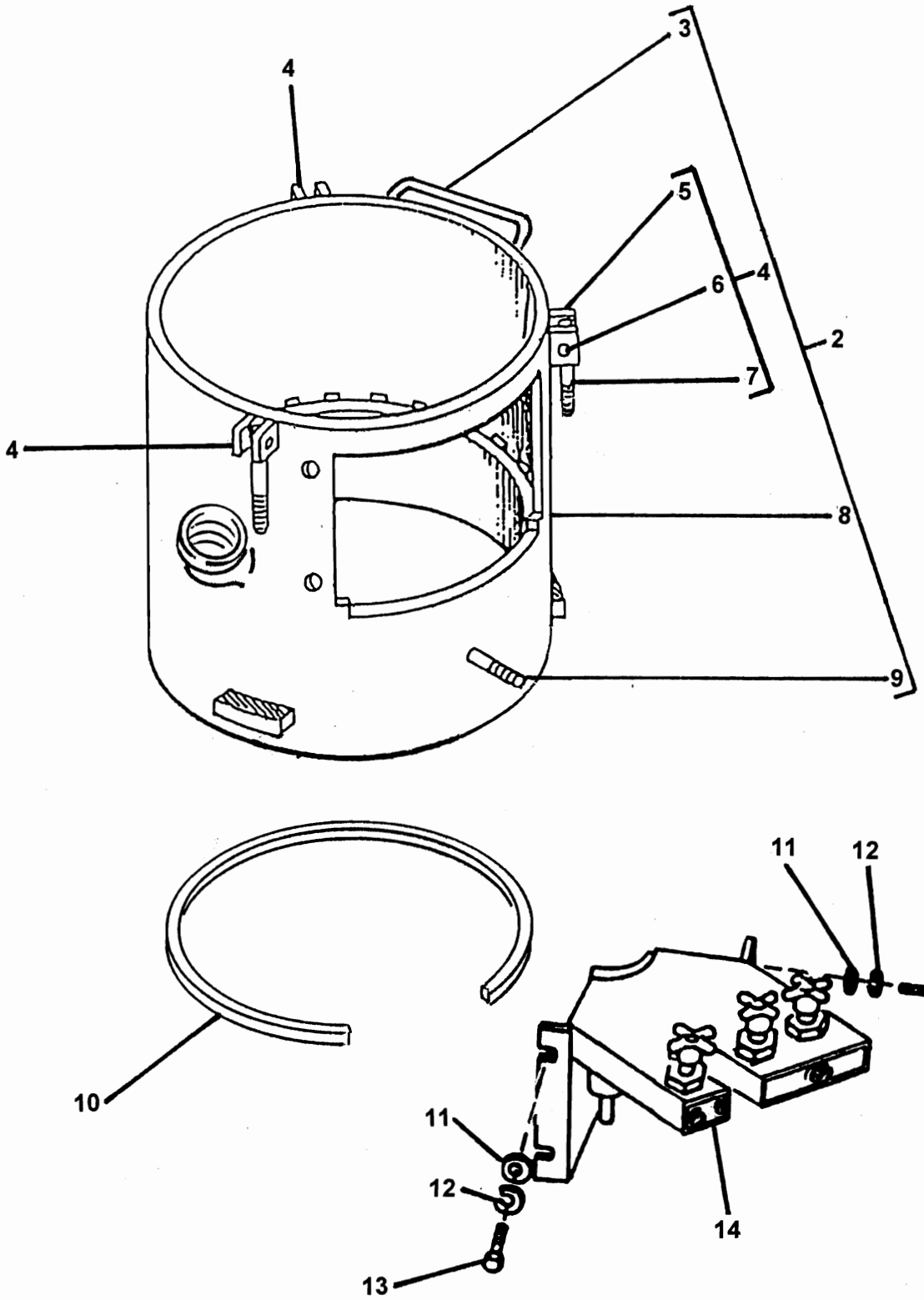
21
22
23
B

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	40-01	Assembly, Hopper and Pad (See Group 10, Figure 01 for NHA)	Ref
2	11005	• Plug, Pipe	1
3	20422	• Installation, Feed Wheel pad housing (See Group 40, Figure 02 for DET)	1
4	20388	• Shear, Rock	1
5		• Washer, Flat (attaching parts)	2
6		• Bolt, Hex (attaching parts)	2
7	20483-1Y	• Assembly, 1 1/2 Inch Liner Type Pad Backup (See Group 40, Figure 06 for DET)	1
8	20090	• Wearpad, Rubber Mold	1
9	60051	• Nut, Pad Clamp wing	1
10	20430	• Assembly, Pad Clamp	1
11	20432	• • Weldment, Pad Clamp	1
12	20069	• • Rubber, Pad Clamp	1
13	80355	• • Rivet, Pop (attaching parts)	4
14		• Washer, Flat	3
15		• Nut, Hex	3
16	20426	• Weldment, Bag Breaker	1
17	10907	• Weldment, 3/4" Screen	1
18	20077	• Weldment, Hopper	1
19	20098	• Weldment, Agitator	1
20	20089	• Bowl, 16 Pocket with Divider Feed	1
21	20172	• Plate, Thin Riser	A/R
22	20173	• Plate, Medium Riser	A/R
23	20174	• Plate, Thick Riser	A/R

DASH (-) ITEM NOT ILLUSTRATED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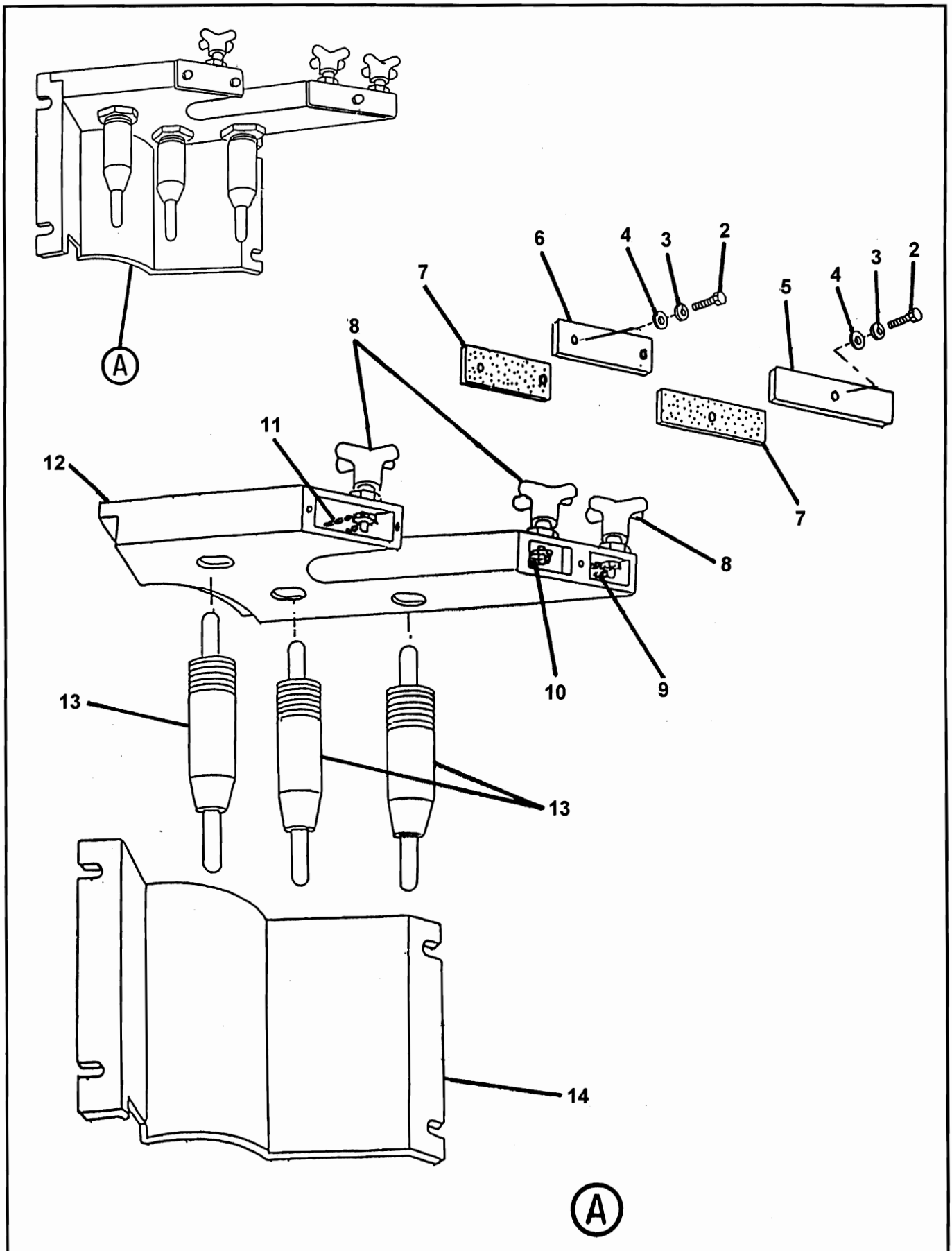
FEED WHEEL
PAD HOUSING INSTALLATION

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20422	Installation, Feed Wheel Pad Housing (See Group 40, Figure 01 for NHA)	Ref
2	20424	• Assembly, Feed Wheel Housing	1
3	10926	• • Handle, D	1
4	20066	• • Assembly, Swing Bolt	3
5	10927	• • • Bracket, Swing Bolt	1
6	80297	• • • Pin, Spring	1
7	20154	• • • Bolt , Swing	1
8	20423	• • Housing, Feel Wheel	1
9	10928	• • Stud, Clamp	2
10	20158	• • Seal, Felt	1
11	80074	• Washer, Flat	6
12	80044	• Washer, SPL Lock	6
13	80151	• Bolt, Hex	6
14	20155	• Assembly, Pad Housing (See Group 40, Figure 02 for DET)	1

DASH (-) ITEM NOT ILLUSTRATED

PAD HOUSING ASSEMBLY

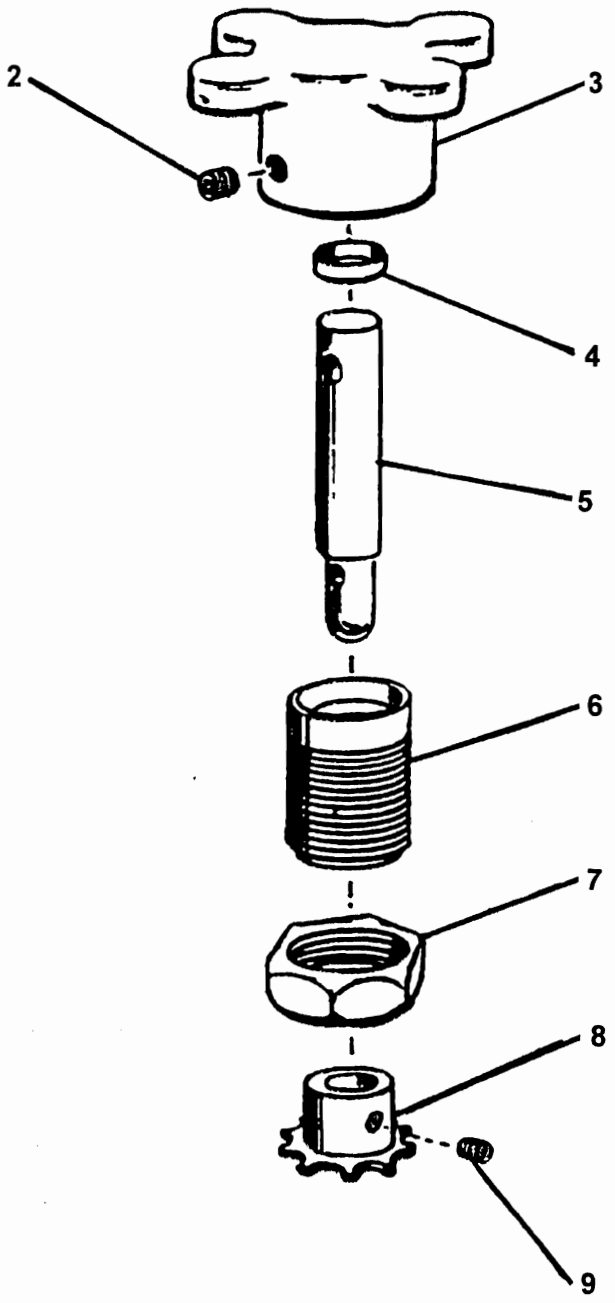


REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20155	Assembly, Pad Housing (See Group 40, Figure 02 for NHA)	Ref
2	80091	• Screw, Hex Cap	3
3		• Washer, SPL Lock	3
4		• Washer, Flat	3
5	10074	• Weldment, Pad Housing Chain Cover Large	1
6	20014	• Weldment, Pad Housing Chain Cover Small	1
7	20182	• Gasket, Pad Housing	A/R
8	20187	• Assembly, Knob Guide (See Group 40, Figure 04 for DET)	3
9	10094	• Chain, Pad Adjusting Long	1
10	10093	• Chain, Pad Adjusting Medium	1
11	10092	• Chain, Pad Adjusting Short	1
12	20213	• Top, Pad Housing	1
13	20188	• Assembly, Pad Adjusting Stud (See Group 40, Figure 05 for DET)	1
14	20214	• Bottom, Pad Housing	1

DASH (-) ITEM NOT ILLUSTRATED

KNOB GUIDE ASSEMBLY

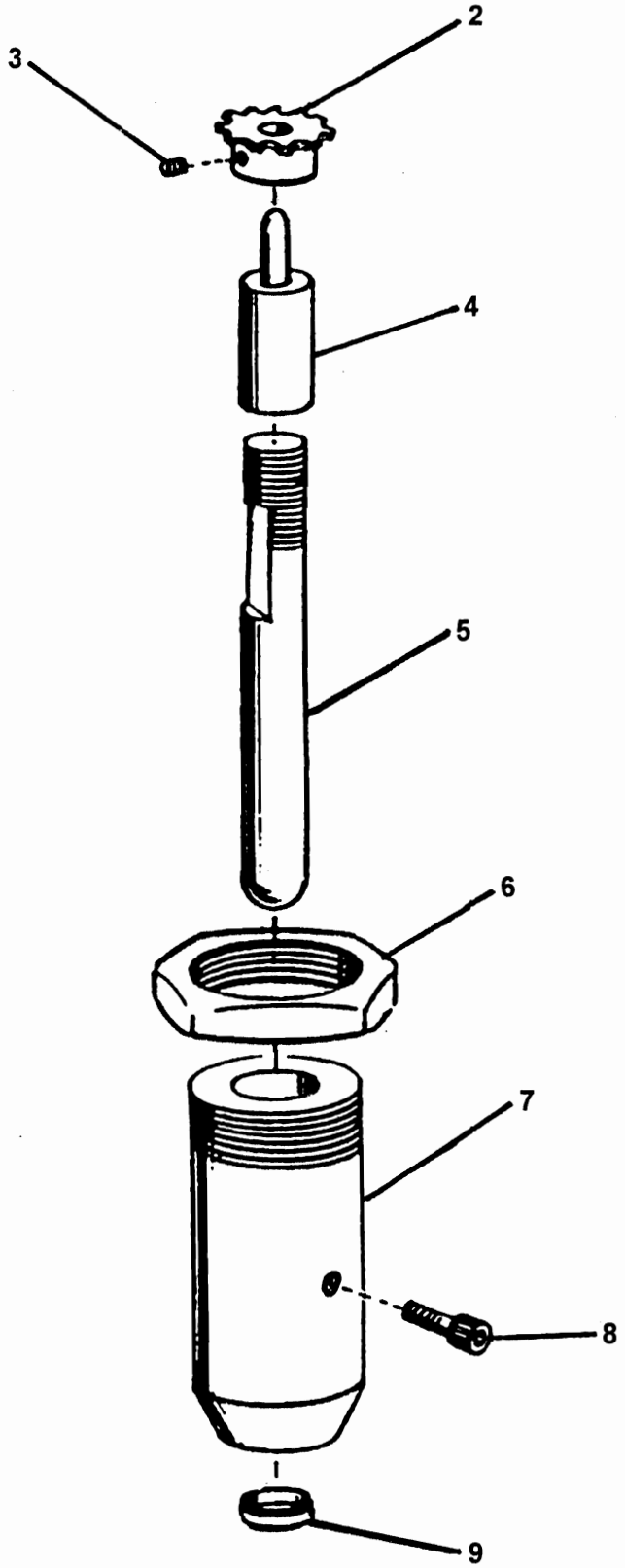


KNOB GUIDE ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20187	Assembly, Knob Guide (See Group 40, Figure 03 for NHA)	Ref
2	80370	• Screw, Socket Set	1
3	20003	• Knob, Pad Adjusting	1
4	20002	• Seal, Pad Adjusting Stud	1
5	20021	• Stud, Pad Adjusting Knob	1
6	20020	• Guide, Pad Adjusting Knob	1
7	20005	• Nut, Pad Adjusting Jam	1
8	20004	• Sprocket, Pad Adjusting Chain	1
9	80369	• • Screw, Socket Set	1

DASH (-) ITEM NOT ILLUSTRATED

PAD ADJUSTING STUD ASSEMBLY

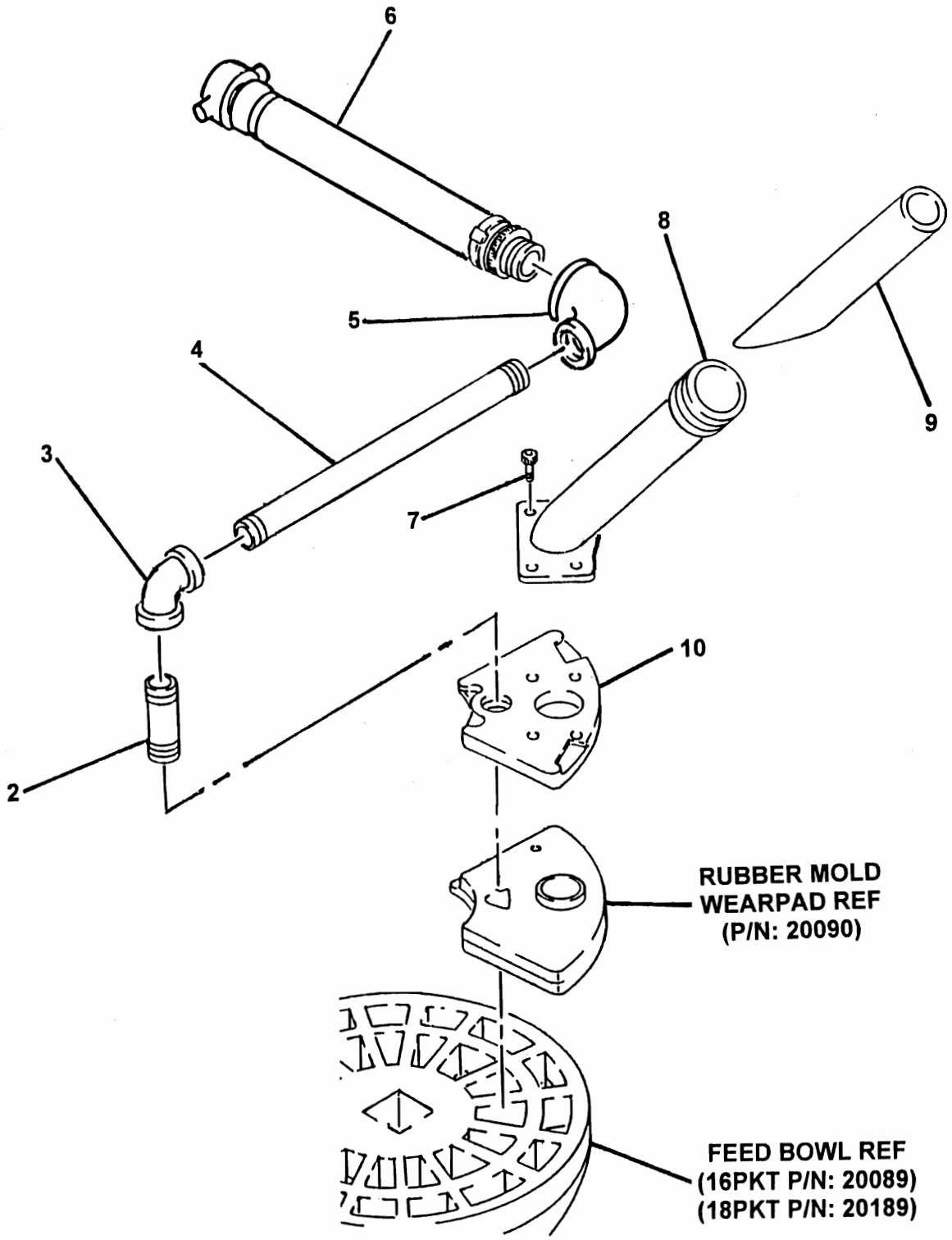


PAD ADJUSTING STUD ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20188	Assembly, Pad Adjusting Stud (See Group 40, Figure 03 for NHA)	Ref
2	20004	• Sprocket, Pad Adjusting Chain with Set Screw	1
3	80370	• • Screw, Socket Set	1
4	20018	• Stud, Pad Adjusting Pusher	1
5	20016	• Stud, Pad Adjusting	1
6	20001	• Nut, Pad Adjusting Jam	1
7	20017	• guide, Pad Adjusting Stud	1
8	80252	• Screw, Socket Head Cap	1
9	20002	• Seal, Pad Adjusting Stud	1

DASH (-) ITEM NOT ILLUSTRATED

1.5 INCH LINER TYPE
PAD BACKUP ASSEMBLY



REVISION:

1.5 INCH LINER TYPE PAD BACKUP ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20483-1Y	Assembly, 1.5 Inch Liner Type Pad Backup (See Group 40, Figure 01 for NHA)	Ref
2	20144	• Nipple, Shot	1
3	20143	• Elbow, 90	1
4	20125	• Nipple, Long	1
5	20145	• Elbow, Reducer	1
6	13305	• Assembly, Crossover Hose	1
7	80270	• Screw, Phillister Head Shot	4
8	10042	• Weldment, 1.5 Inch Liner type Goose Neck	1
9	13312	• Liner, 1.5 Inch Goose Neck	1
10	20092	• Plate, Pad Backup	1

DASH (-) ITEM NOT ILLUSTRATED

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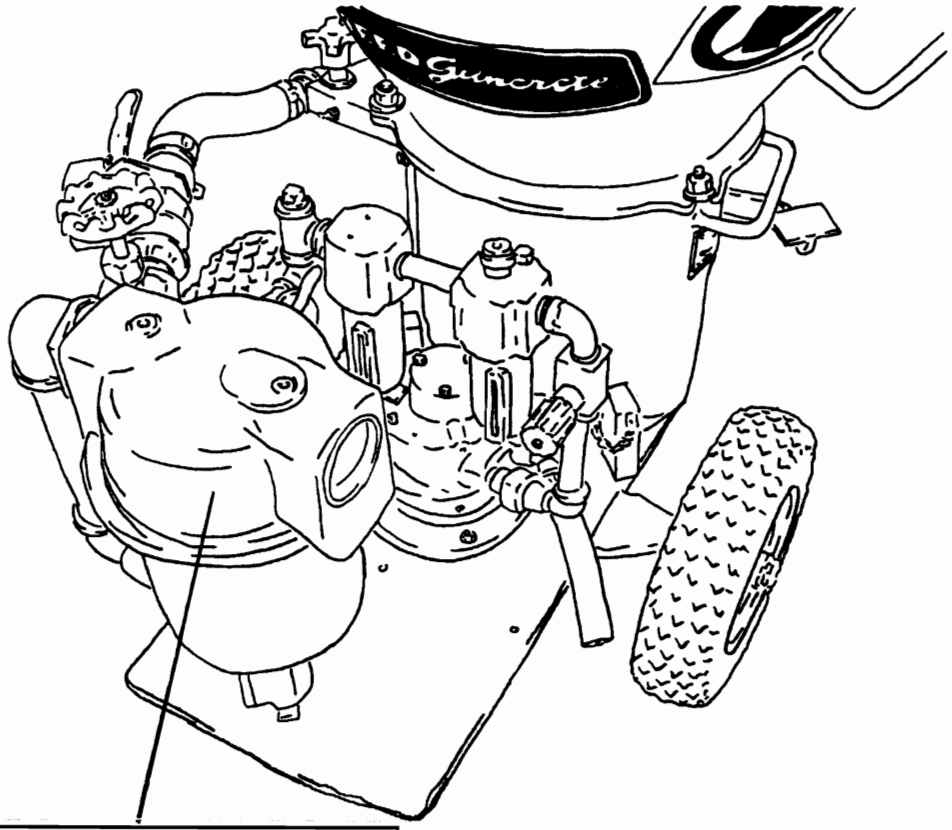
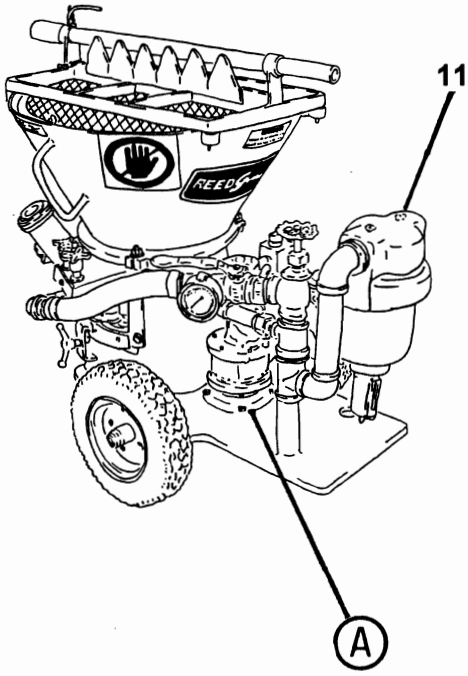
REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 50 AIR MOTOR/AIR INLET INSTALLATION
CONTAINS THE FOLLOWING FIGURES:

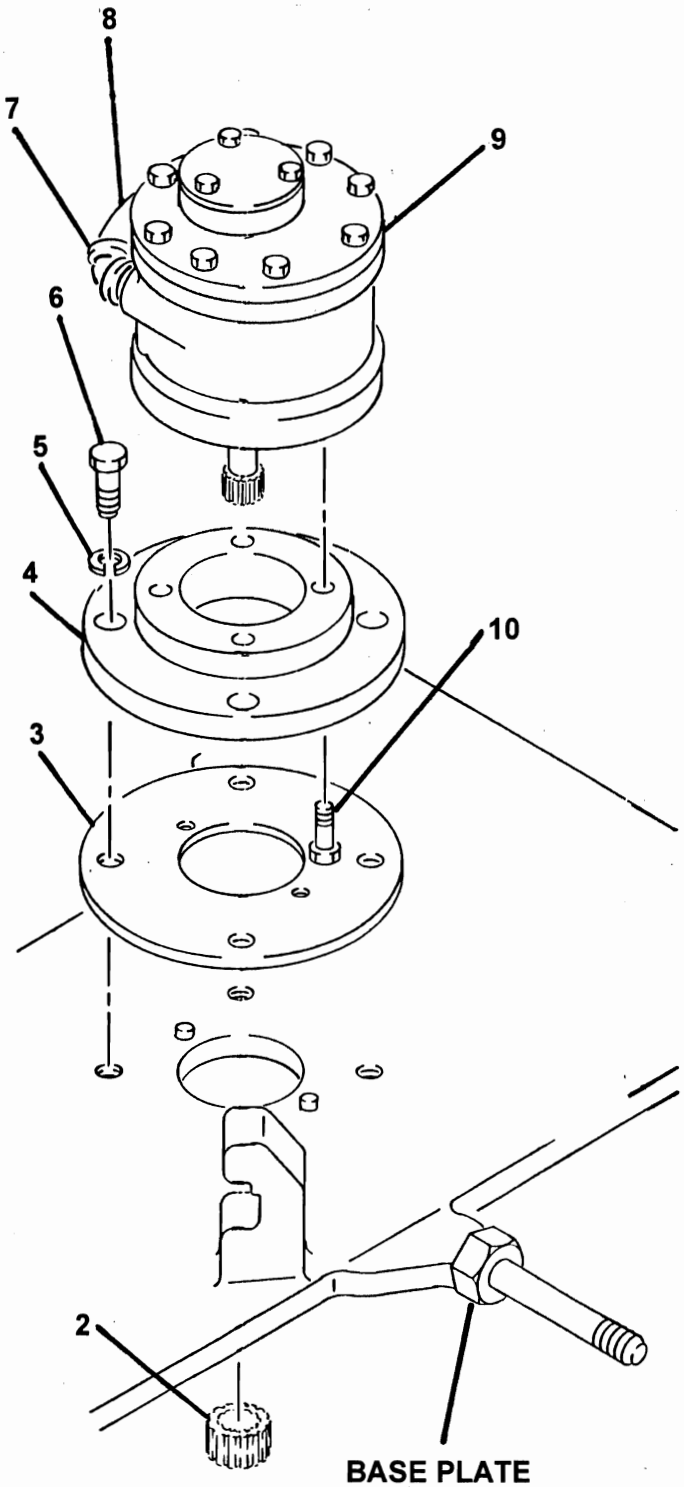


NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

AIR MOTOR AND AIR INLET INSTALLATION

NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.



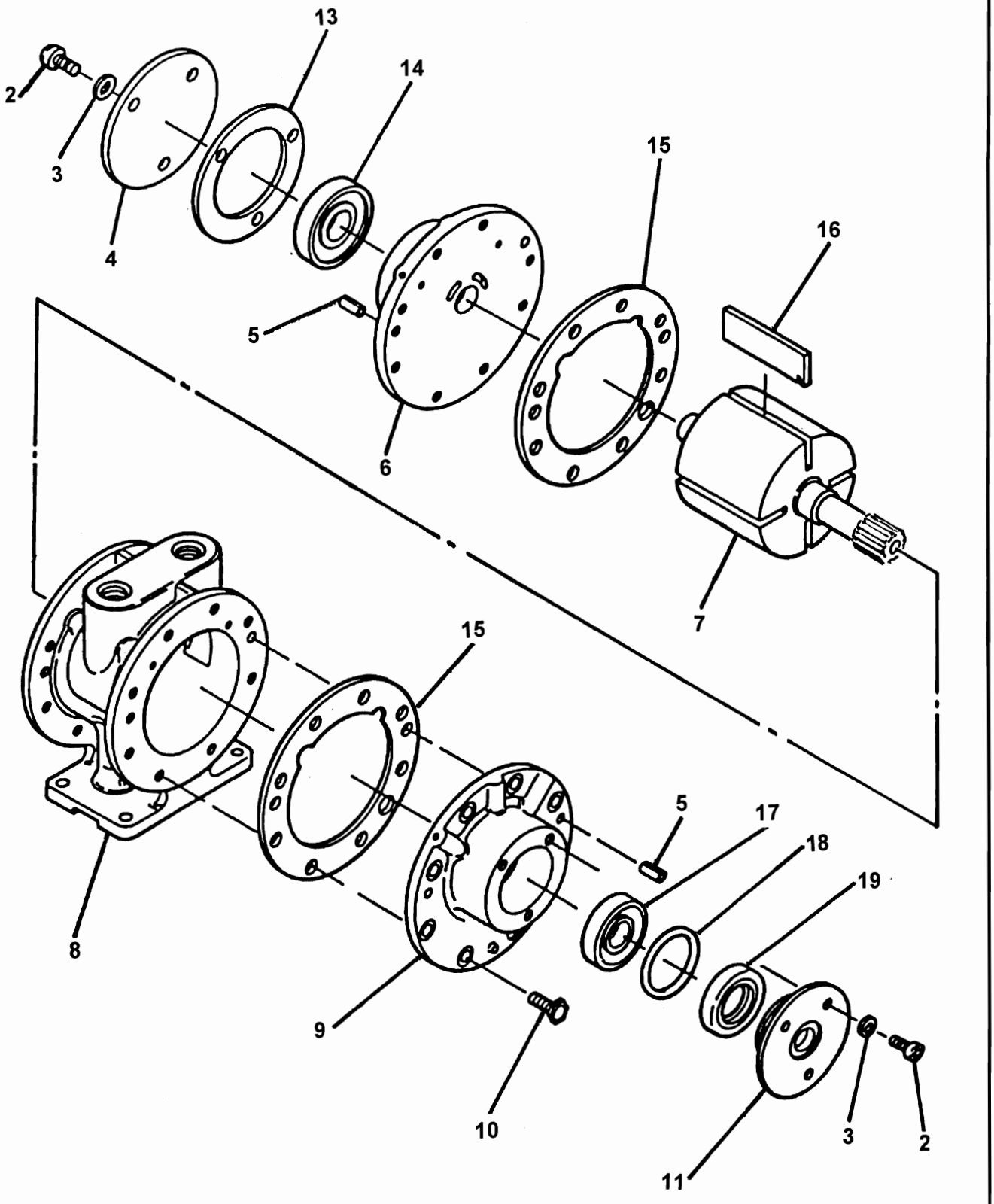


A

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	50-01	Installation, Air Motor and Air Inlet (See Group 10, Figure 01 for NHA)	Ref
2	20035	• Gear, Drive Motor	1
3	20194	• Gasket, Adapter Ring	1
4	20051	• Plate, Air Motor Adapter	1
5	80074	• Washer, Lock	4
6	80151	• Bolt, Hex	4
7	11075	• Elbow, 45	1
8	13306	• Assembly, Exhaust Hose	1
9	10600	• Assembly, Air Motor (See Group 50, Figure 02 for DET)	1
10	80250	• Screw, Socket	4
11	20468	• Assembly, Air Inlet (See Group 50, Figure 03 for DET)	1

DASH (-) ITEM NOT ILLUSTRATED

AIR MOTOR ASSEMBLY



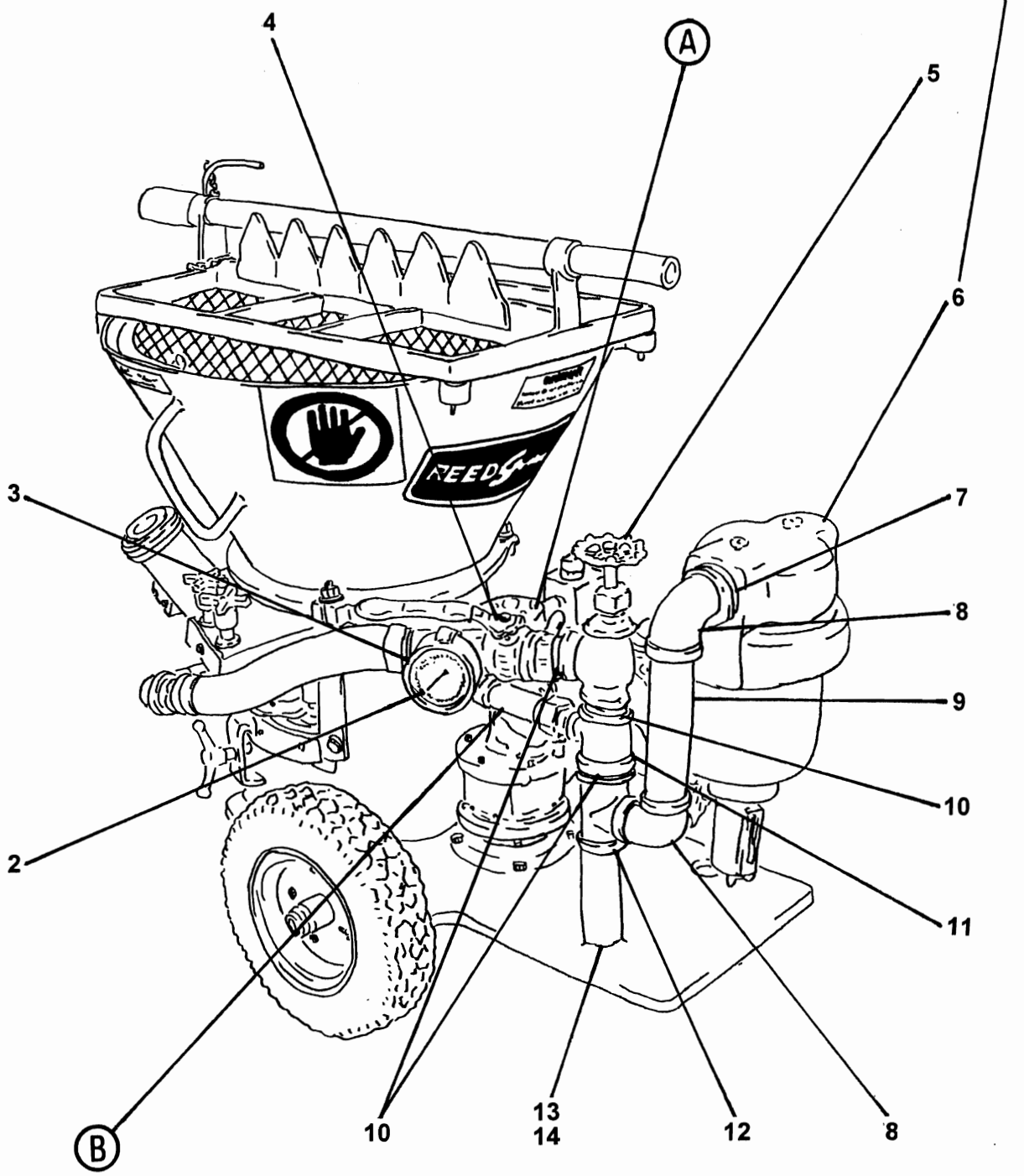
REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	10600	Assembly, Air Motor (See Group 50, Figure 01 for NHA)	Ref
2		• Screw, Cap	6
3		• Washer, Lock	6
4		• Cap, Dead End	1
5		• Pin, Dowel	4
6		• Plate, Dead End	1
7		• Assembly, Rotor	1
8		• Body, Air Motor	1
9		• Plate, Drive End	1
10		• Bolt, Hex	8
11		• Cap, Drive End	1
-12	10605	• Kit, Repair	1
13		• • Gasket, Dead End Cap	1
14		• • Bearing, Dead End	1
15	10601	• • Gasket, Body Spacer	2
16	10602	• • Vane	4
17		• • Bearing, Drive End	1
18		• • O-Ring	1
19		• • Seal, Shaft	1

DASH (-) ITEM NOT ILLUSTRATED

AIR INLET ASSEMBLY

NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

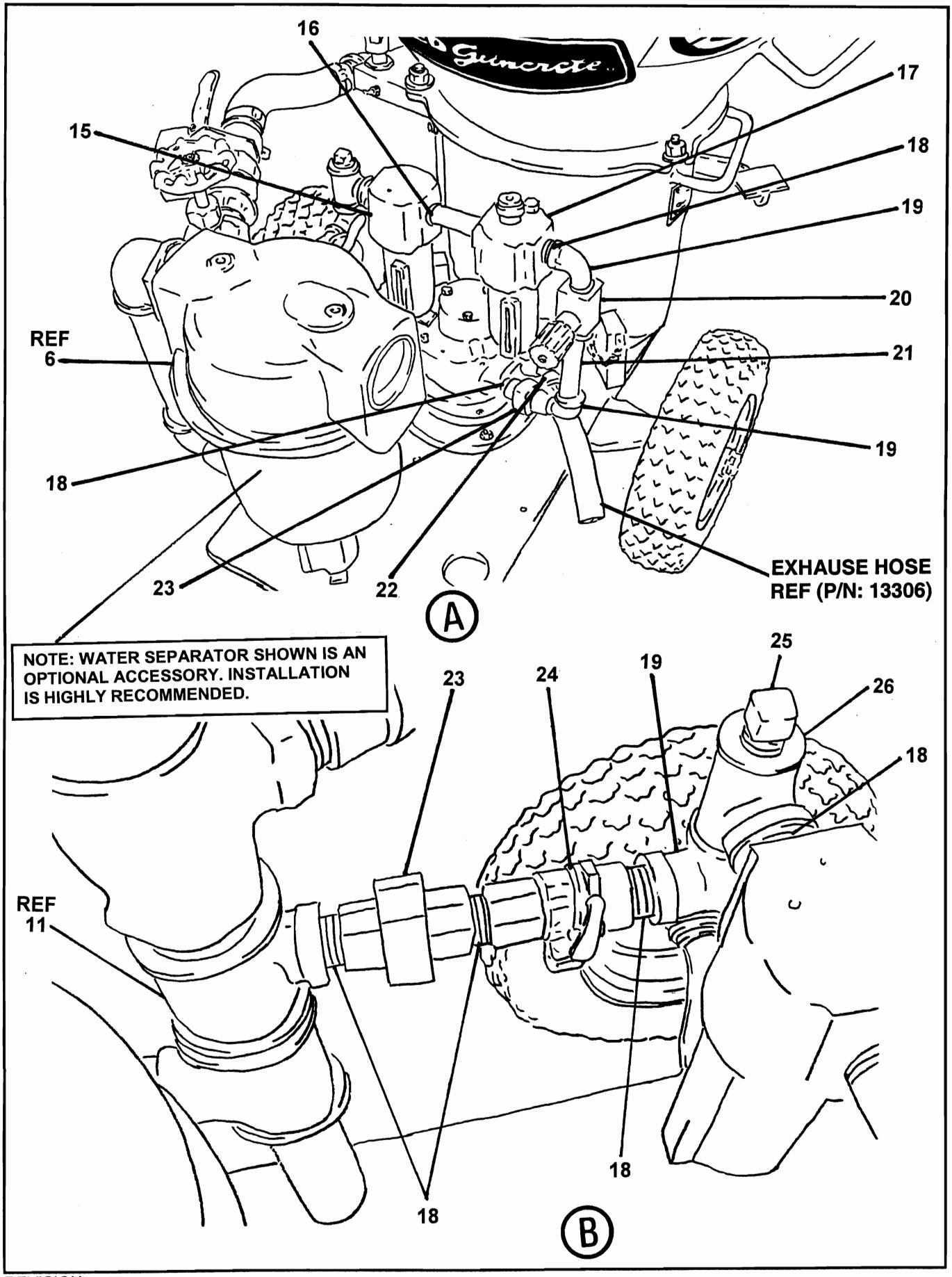


REVISION:

AIR INLET ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20468	Assembly, Air Inlet (See Group 50, Figure 01 for NHA)	Ref
2	13017	• Gauge, 0 – 160 PSI Air	1
3	13165	• Weldment, Air Gauge Guard	1
4	10290	• Valve, Air Control	1
5	10295	• Valve, Brass Angle	1
6	10314	• Filter, Air (See Group 50, Figure 04 for DET)	1
7	10587	• Bushing, Hex	1
8	78524	• Elbow, 90 Street	2
9	10229	• Nipple	1
10	10265	• Nipple, Close	3
11	10205	• Tee	1
12	10299	• Tee	1
13	10002	• Support, Air Inlet	1
14		• Bolt, Hex	1
15	13300	• Filter, Air	1
16	10298	• Nipple	1
17	13302	• Lubricator, Air	1
18	10268	• Nipple, Close	6
19	10204	• Street, L	3
20	20438	• Valve, Needle	1
21	10212	• Nipple, Black Pipe	1
22	11075	• Elbow, 45	1
23	10271	• Union, Galv	2
24	10270	• Valve, Brass Ball	1
25	10297	• Plug, Galv	1
26	10505	• Tee	1

DASH (-) ITEM NOT ILLUSTRATED


16
17
15
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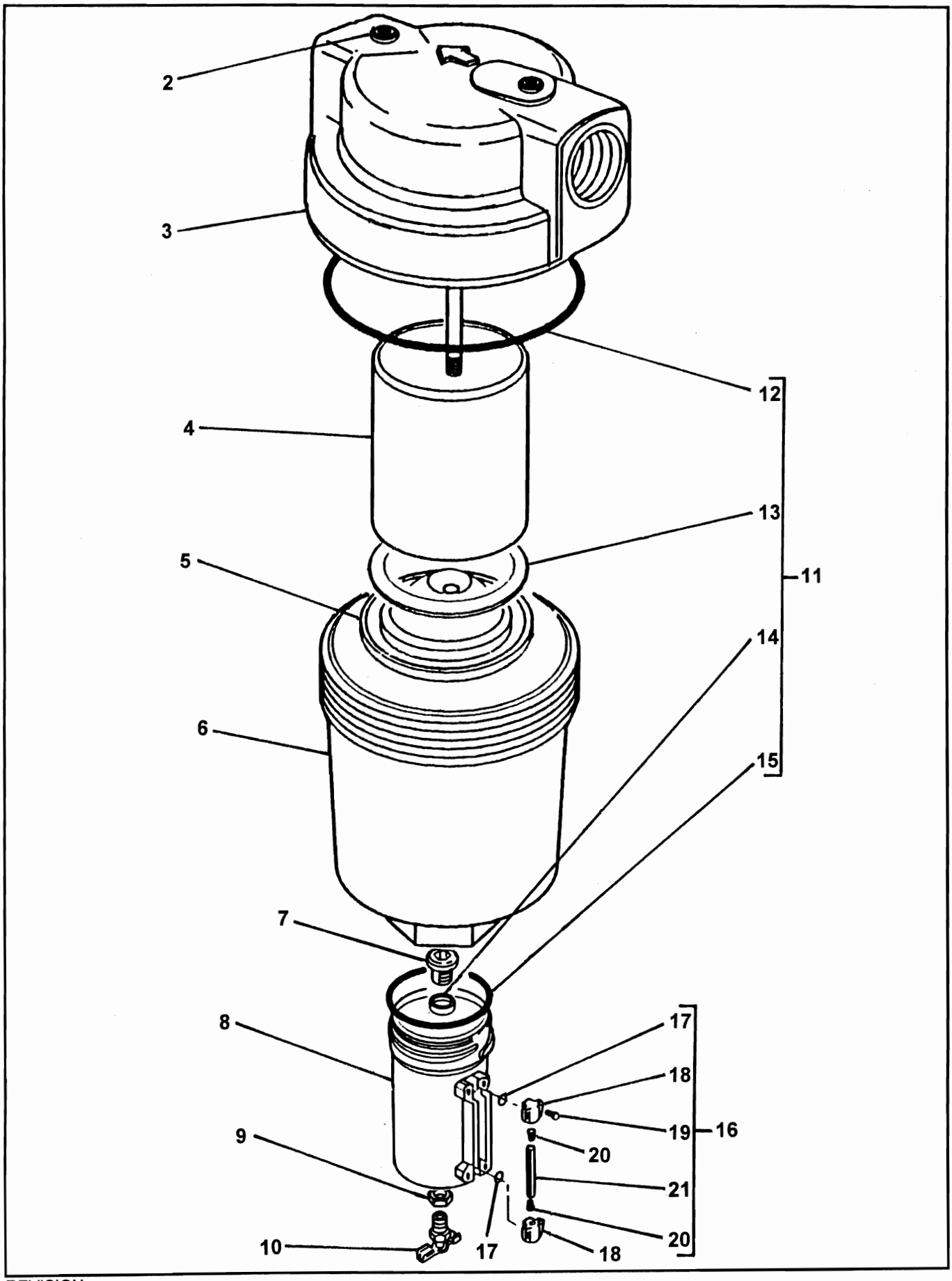
19
20
REF
6
21
19
18
23
22
EXHAUSE HOSE
REF (P/N: 13306)
A
NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.
25
23
24
19
26
18
REF
11
18
18
B

AIR INLET ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20468	Assembly, Air Inlet (See Group 50, Figure 01 for NHA)	Ref
2	13017	• Gauge, 0 – 160 PSI Air	1
3	13165	• Weldment, Air Gauge Guard	1
4	10290	• Valve, Air Control	1
5	10295	• Valve, Brass Angle	1
6	10314	• Filter, Air (See Group 50, Figure 04 for DET)	1
7	10587	• Bushing, Hex	1
8	78524	• Elbow, 90 Street	2
9	10229	• Nipple	1
10	10265	• Nipple, Close	3
11	10205	• Tee	1
12	10299	• Tee	1
13	10002	• Support, Air Inlet	1
14		• Bolt, Hex	1
15	13300	• Filter, Air	1
16	10298	• Nipple	1
17	13302	• Lubricator, Air	1
18	10268	• Nipple, Close	6
19	10204	• Street, L	3
20	20438	• Valve, Needle	1
21	10212	• Nipple, Black Pipe	1
22	11075	• Elbow, 45	1
23	10271	• Union, Galv	2
24	10270	• Valve, Brass Ball	1
25	10297	• Plug, Galv	1
26	10505	• Tee	1

DASH (-) ITEM NOT ILLUSTRATED

AIR FILTER ASSEMBLY



REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	10314	Sub-Assembly, Optional Air Filter (See Group 50, Figure 03 for NHA)	Ref
2		• Plug	2
3		• Head, Filter	1
4	10385	• Element, Sintered Bronze Filter	1
5		• End, Cap	1
6		• Body, Intermediate	1
7		• Bolt, Drain	1
8		• Bowl, Manual Drain	1
9		• Nut, Retaining	1
10		• Petcock, Drain	1
11	10386	• Kit, Seal	1
12		• • O-Ring	1
13		• • Washer	1
14		• • Seal	1
15		• • O-Ring	1
16	10387	• Kit, Sight Glass	1
17		• • O-Ring	2
18		• • Bracket, Sight Glass	2
19		• • Screw	2
20		• • Holder	2
21		• • Glass, Sight	1

DASH (-) ITEM NOT ILLUSTRATED

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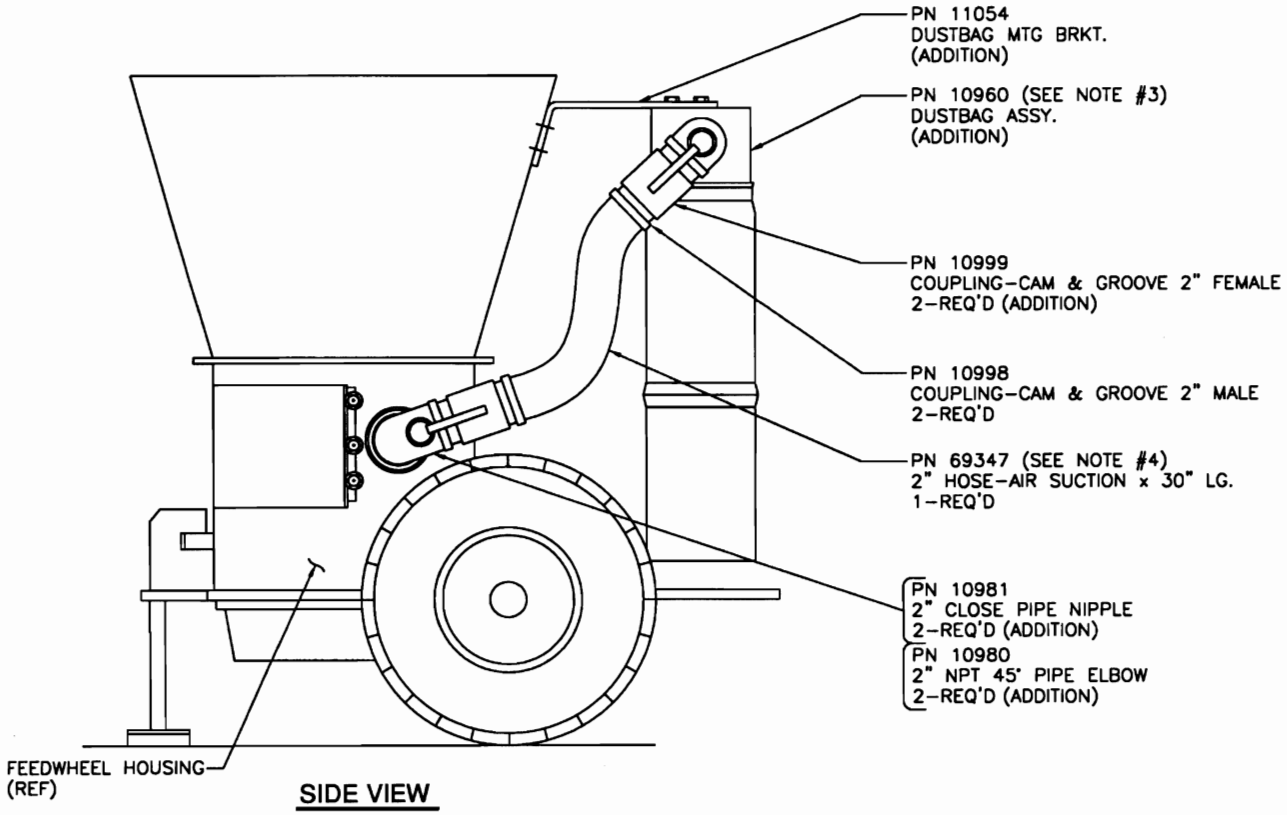
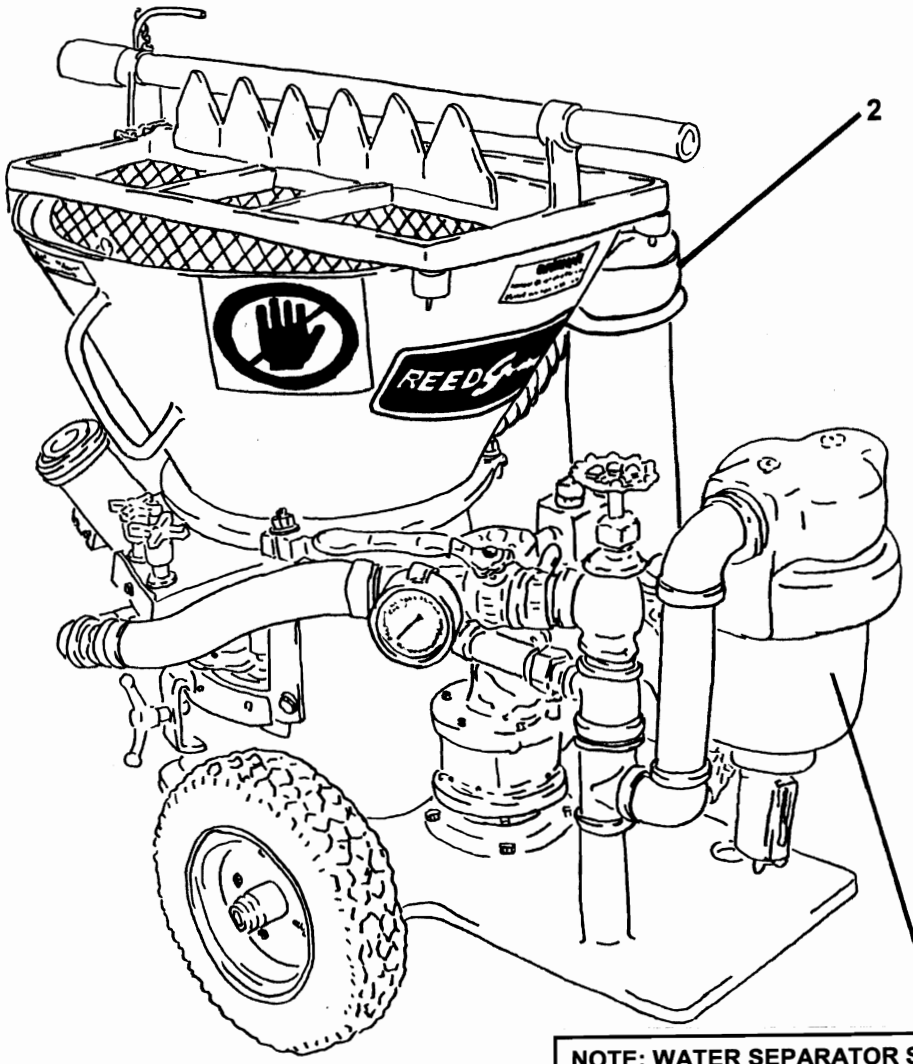
REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 60 ACCESSORIES INSTALLATION
CONTAINS THE FOLLOWING FIGURES:



SIDE VIEW

ACCESSORIES INSTALLATION

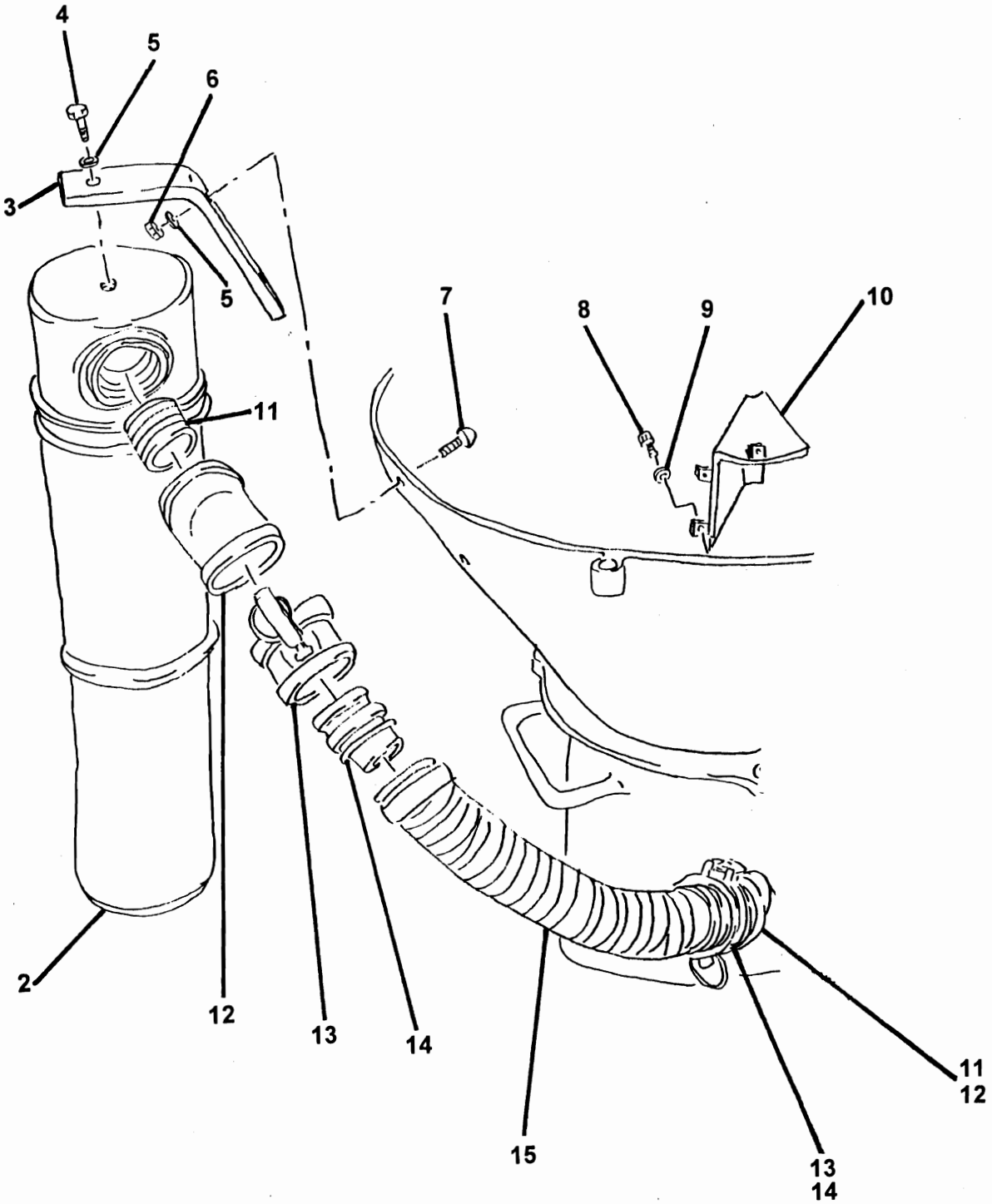


NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	60-01	Installation, Accessories (See Group 10, Figure 01 for NHA)	Ref
2	20224	• Assembly, Dust Bag (See Group 60, Figure 02 for DET)	1

DASH (-) ITEM NOT ILLUSTRATED

DUST BAG ASSEMBLY



REVISION:

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20224	Installation, Dust Bag and Support (See Group 60, Figure 01 for NHA)	Ref
2	10960	• Sub-Assembly, Dust Bag	1
3	11054	• Bracket, Dust Bag Mounting	1
4		• Bolt, Hex	1
5		• Washer, Flat	3
6		• Nut, Hex	2
7		• Screw, Flat	2
8		• Bolt, Hex	3
9		• Washer, Flat	3
10	20227	• Weldment, Dust Bag	1
11	10981	• Nipple, Close Pipe	2
12	10980	• Elbow, 45	2
13	10998	• Coupling, Male	2
14	10999	• Coupling, Female	2
15	69347	• Hose, Air Suction	1

DASH (-) ITEM NOT ILLUSTRATED

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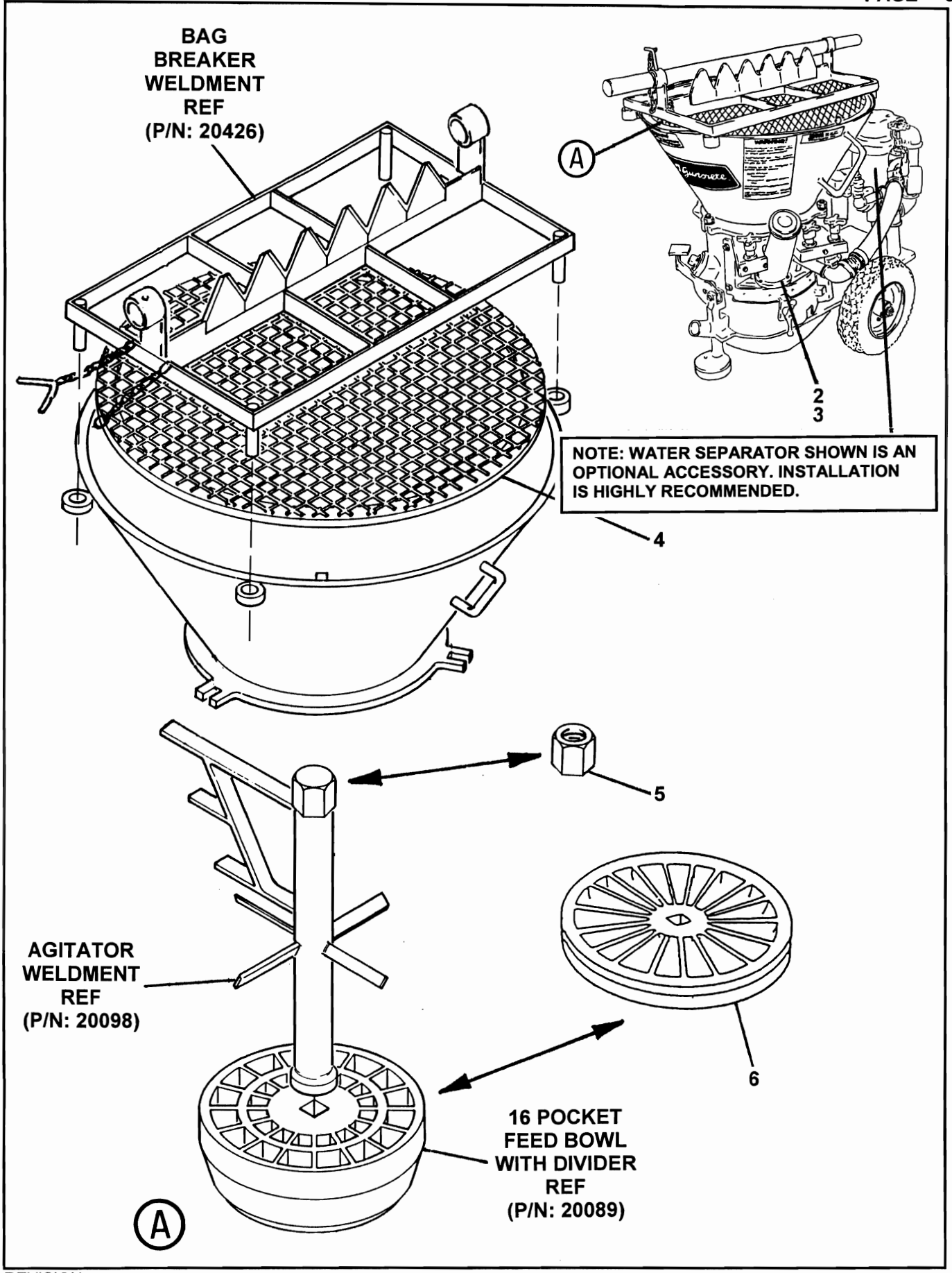
REED *PNEUMATIC SPRAYING MACHINE* ***MODEL SOVA SERIES 7***
ILLUSTRATED PARTS MANUAL GROUP 70 OPTIONAL INSTALLATION
CONTAINS THE FOLLOWING FIGURES:

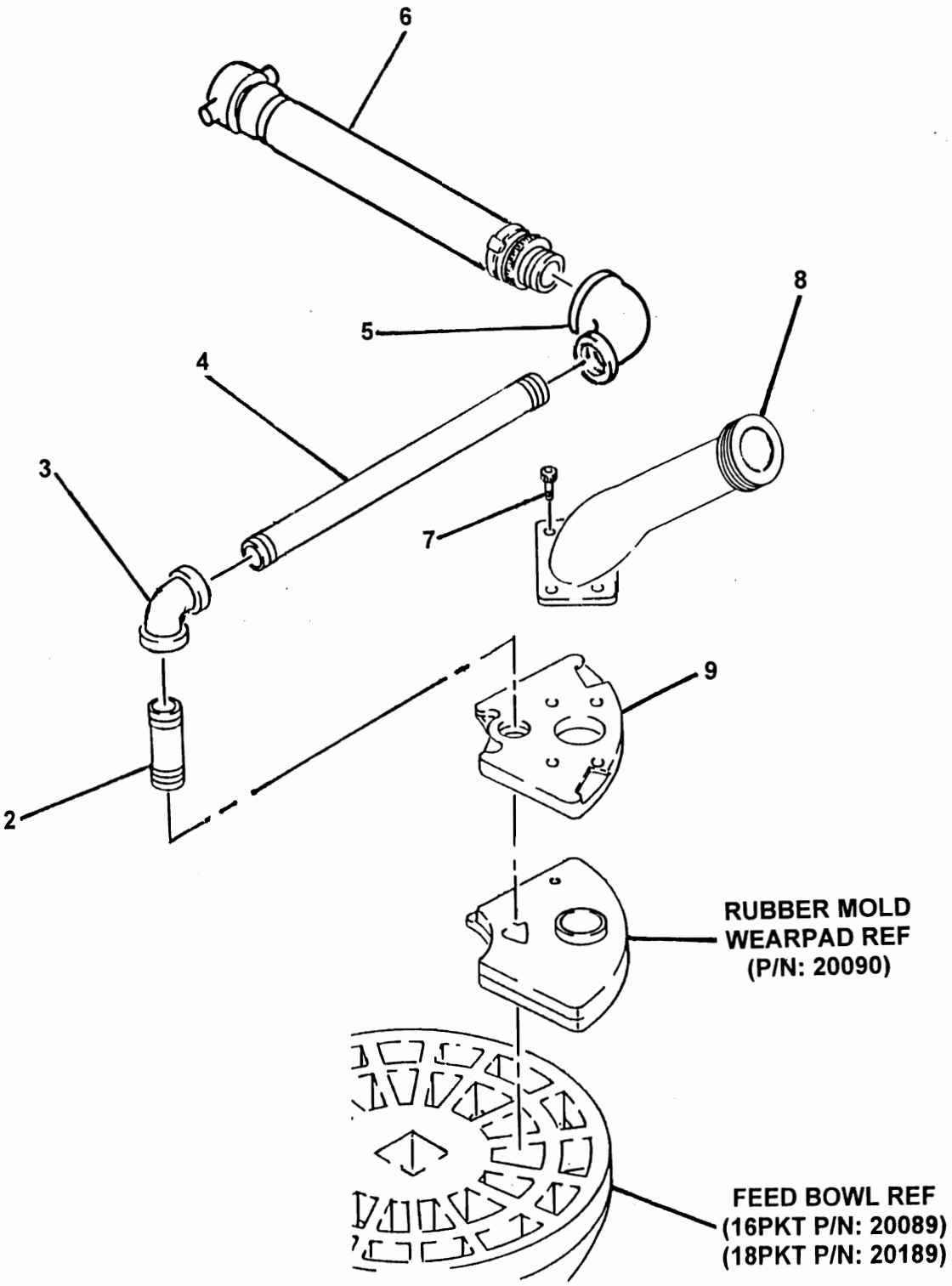
NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.


BAG
BREAKER
WELDMENT
REF
(P/N: 20426)
A
2
3
NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.
4
5
AGITATOR
WELDMENT
REF
(P/N: 20098)
6
16 POCKET
FEED BOWL
WITH DIVIDER
REF
(P/N: 20089)
A

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	70-01	Installation, Optional (See Group 10, Figure 01 for NHA)	Ref
2	20469	• Assembly, 1.5 Inch Coarse Thread Pad Backup (See Group 70, Figure 02 and for DET)	1
3	20470	• Assembly, 1.25 Inch Coarse Thread Pad Backup (See Group 70, Figure 03 and for DET)	1
4	20084	• Weldment, 5/8 Inch Screen	1
5	20436	• Nut, Spindle Cap	1
6	20189	• Bowl, 18 Pocket without Divider Feed	1

DASH (-) ITEM NOT ILLUSTRATED

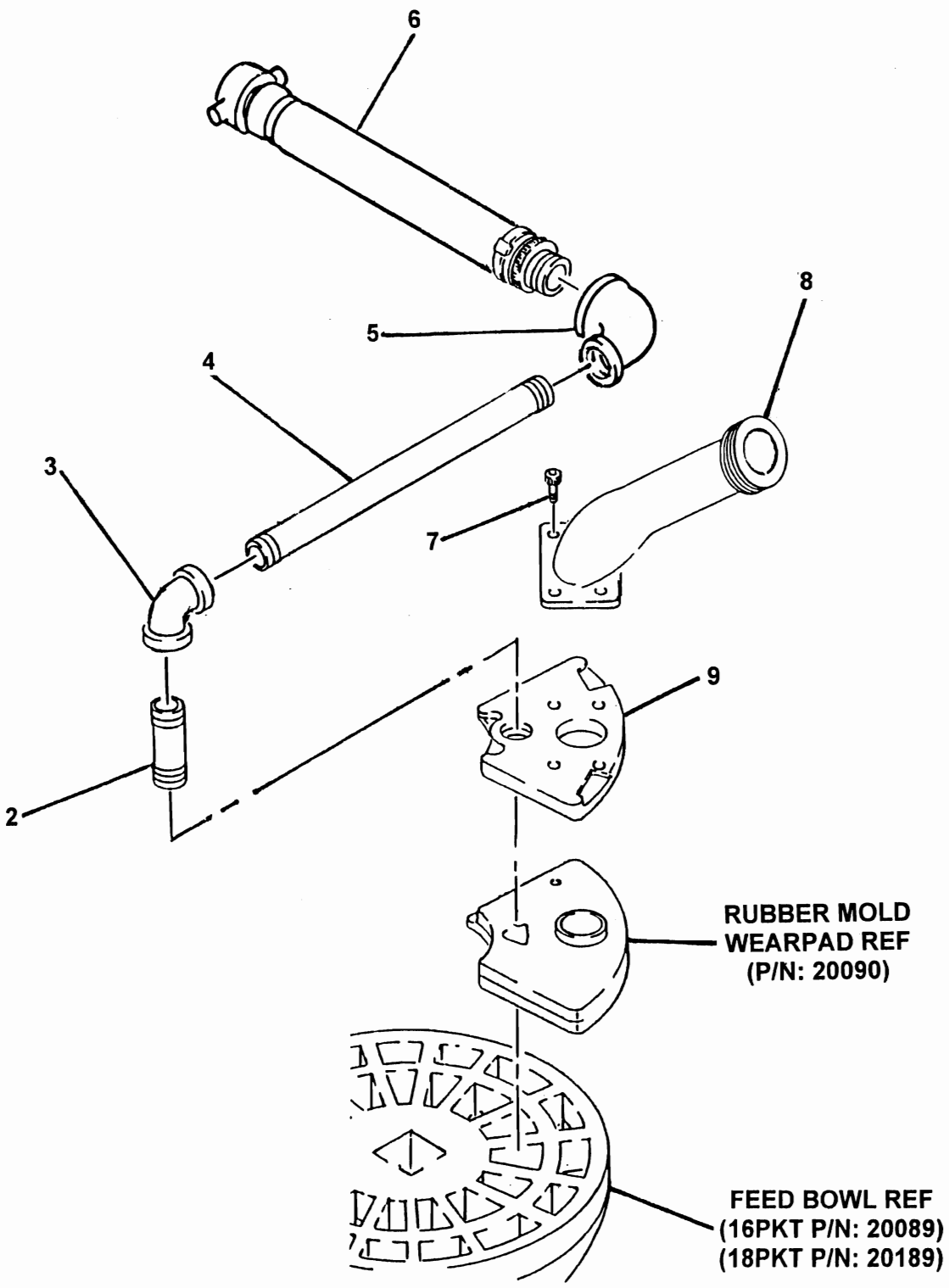
1.5 INCH COARSE THREAD PAD BACKUP ASSEMBLY



ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20469	Assembly, 1.5 Inch Coarse Thread Pad Backup (See Group 70, Figure 01 for NHA)	Ref
2	20144	• Nipple, Shot	1
3	20143	• Elbow, 90	1
4	20125	• Nipple, Long	1
5	20145	• Elbow, Reducer	1
6	13305	• Assembly, Crossover Hose	1
7	80270	• Screw, Phillister Head Shot	4
8	10044	Weldment, 1.5 Inch Coarse Thread Goose Neck	1
9	20092	• Plate, Pad Backup	1

DASH (-) ITEM NOT ILLUSTRATED

1.25 INCH COARSE THREAD PAD BACKUP ASSEMBLY



1.25 INCH COARSE THREAD PAD BACKUP ASSEMBLY

ITEM NO.	*REED*'S PARTS NO.	DESCRIPTION 1 2 3 4 5	QTY
-1	20470	Assembly, 1.25 Inch Coarse Thread Pad Backup (See Group 70, Figure 01 for NHA)	Ref
2	20144	• Nipple, Shot	1
3	20143	• Elbow, 90	1
4	20125	• Nipple, Long	1
5	20145	• Elbow, Reducer	1
6	13305	• Assembly, Crossover Hose	1
7	80270	• Screw, Phillister Head Shot	4
8	10043	Weldment, 1.25 Inch Coarse Thread Goose Neck	1
9	20092	• Plate, Pad Backup	1

DASH (-) ITEM NOT ILLUSTRATED

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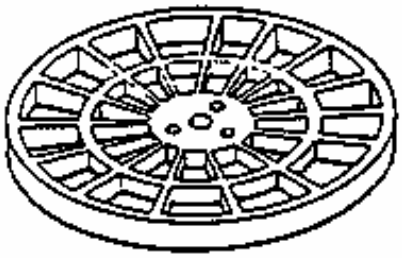
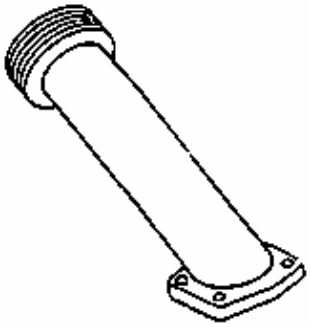
GUNITE ACCESSORY CATALOG
TOOLS, SUPPLIES, AND PARTS





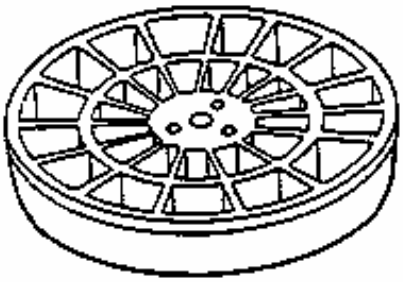


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TABLE OF CONTENTS

UPDATED 10/09/2008

TERMS AND CONDITIONS

PRICES, DESIGNS AND TERMS AND CONDITIONS OF SALE ARE SUBJECT TO CHANGE WITHOUT NOTICE.

ALL MATERIAL IS CAREFULLY EXAMINED, COUNTED, AND PACKED BY EXPERIENCED EMPLOYEES. CLAIMS FOR CORRECTIONS MUST BE MADE WITHIN 10 DAYS OF RECEIPT OF GOOD. OUR RESPONSIBILITY CEASES WHEN GOODS ARE DELIVERED TO CARRIER IN GOOD CONDITION AND ITS RECEIPT OBTAINED. CARRIERS ARE RESPONSIBLE FOR GOODS LOST, DAMAGED, OR DELAYED IN TRANSIT. FOR YOUR OWN PROTECTION, HAVE TRANSPORTATION COMPANY'S AGENT VERIFY DAMAGES, SHORTAGES, OR DELAYS AND NOTE THEM ON FREIGHT BILL OVER HIS SIGNATURE.

- ALL WEIGHTS ARE APPROXIMATE SHIPPING WEIGHTS AND SUBJECT TO CHANGE WITHOUT NOTICE.
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13822 OAKS AVENUE
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SPARE PARTS LIMITED

WARRANTY

REED warrants each of its replacement parts to be free of defects in material and workmanship under normal use and service for a period of sixty (60) days from date of delivery.

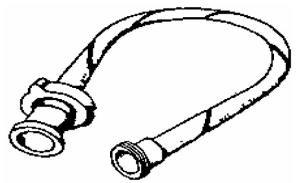
The warranty periods begins when the part is delivered to the initial buyer. Said warranty is void if the machine/parts is subject to misuse, neglect, accident or abuse.

REED'S obligation under this warranty is limited to correcting without charge, at its factory, any parts or parts thereof which shall be returned to its factory, transportation prepaid and upon ***REED'S*** examination proves to have been originally defective. Correction of such defects by repair or replacement shall constitute fulfillment of all obligations to the buyer. This warranty does not include labor or transportation charges unless specifically identified and authorized in writing by ***REED***. Nor does the warranty apply to any part upon which repairs or unauthorized alterations have been made.

This warranty does not apply to normal maintenance service or to normal replacement of certain parts which are subject to normal wear (such as feed bowls, wear plates, wear pads, liners, delivery systems, filters, wear rings, piston cups, etc.). ***REED*** makes no warranty in respect to trade accessories or outside vendor components, such being subject to the warranties of their respective manufacturers.

THIS IS A LIMITED WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no event shall ***REED*** be liable for incidental, general or consequential damages, loss or any expense directly or indirectly related and resulting from use or lack of use caused by delay in delivery, parts failure, or any other causes associated with the use of the part. No person, firm or corporation is authorized to assume for ***REED*** any other liability in connection with the sale of ***REED*** products.

REED

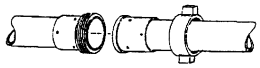


GUNITE MATERIAL HOSE

COUPLED "COARSE"	COUPLED "FINE"	NOT COUPLED	DESCRIPTION	I.D.(IN.)	O.D(IN.)	WGT./FT Lbs.
N/A	40526	40525	STATIC CONDUCTING WITH STURDY BLACK JACKET	1	1.81	0.90
40532	40531	40530	STATIC CONDUCTING WITH STURDY BLACK JACKET	1.25	2.06	1.22
40537	40502	40535	STATIC CONDUCTING WITH STURDY BLACK JACKET	1.5	2.44	1.54
40452	N/A	40451	NON-STATIC CONDUCTING WITH TAN GUM RUBBER	2	2.94	1.91
40448	N/A	40449	STATIC CONDUCTING WITH TAN JACKET	2	2.94	1.91
40538	N/A	40489	STATIC CONDUCTING WITH TAN JACKET	2.5	3.47	2.38

UPDATED 4/6/2006

COUPLINGS AND ADAPTERS

CATEGORY	PART#	DESCRIPTION
COUPLING ASSEMBLIES 	11007	2½" COUPLING ASSEMBLY – COARSE
	11006	2" COUPLING ASSEMBLY – COARSE
	11004	1½" COUPLING ASSEMBLY – FINE (2 3/8" O.D)
	11003	1½" COUPLING ASSEMBLY – FINE (2½" O.D.)
	11012	1½" COUPLING ASSEMBLY – COARSE (2 3/8" O.D.)
	11011	1½" COUPLING ASSEMBLY – COARSE (2½" O.D.)
	11002	1¼" COUPLING ASSEMBLY – FINE
	11010	1¼" COUPLING ASSEMBLY – COARSE
	11001	1" COUPLING ASSEMBLY – FINE
	11000	¾" COUPLING ASSEMBLY - FINE

CATEGORY	PART#	DESCRIPTION
HOSE ENDS 	11047	2½" MALE HOSE END – COARSE
	11046	2" MALE HOSE END – COARSE
	11043	1½" MALE HOSE END – FINE (2½" O.D.)
	11044	1½" MALE HOSE END – FINE (2 3/8" O.D.)
	11049	1½" MALE HOSE END – COARSE (2½" O.D.)
	11050	1½" MALE HOSE END – COARSE (2 3/8" O.D.)
	11042	1¼" MALE HOSE END – FINE
	11048	1¼" MALE HOSE END – COARSE
	11041	1" MALE HOSE END – FINE
	11040	¾" MALE HOSE END - FINE
	11022	2½" FEMALE HOSE END
	11021	2" FEMALE HOSE END

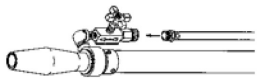
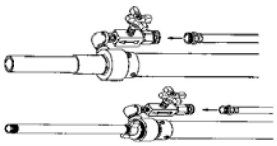
COUPLINGS AND ADAPTERS

CATEGORY	PART#	DESCRIPTION
HOSE ENDS (CONT.) 	11018	1½" FEMALE HOSE END
	11019	1½" FEMALE HOSE END
	11023	1¼" FEMALE HOSE END – COARSE
	11017	1¼" FEMALE HOSE END – FINE
	11016	1" FEMALE HOSE END
	11015	¾" FEMALE HOSE END

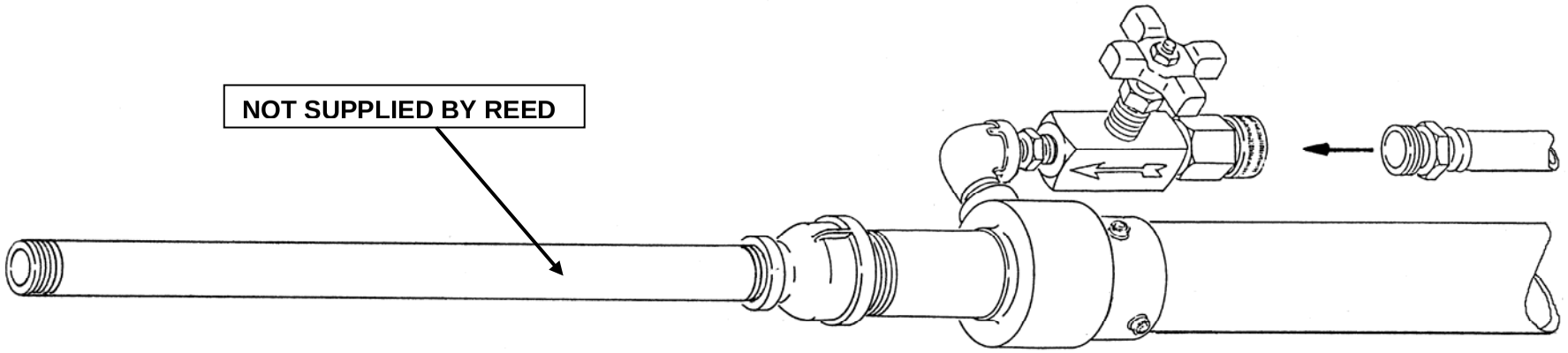
CATEGORY	PART#	DESCRIPTION
COUPLING NUTS (NOT SHOWN)	11034	2½" COUPLING NUT – COARSE
	11033	2" COUPLING NUT – COARSE
	11031	1½" COUPLING NUT – FINE
	11037	1½" COUPLING NUT – COARSE
	11030	1¼" COUPLING NUT – FINE
	11036	1½" COUPLING NUT – COARSE

CATEGORY	PART#	DESCRIPTION
GOOSENECK ADAPTERS	12085	1¼" COARSE TO 1¼" FINE (USED TO REDUCE DOWN TO 1" OR ¾" HOSE)
	12087	2" TO 2½" (USE TO INCREASE TO 2½" HOSE)
	12088	2" TO 1½" (USE TO REDUCE DOWN TO 1½")
	40078	1¼" TO 1½" (USE TO INCREASE TO 1½")

NOZZLE ASSEMBLIES AND ACCESSORIES

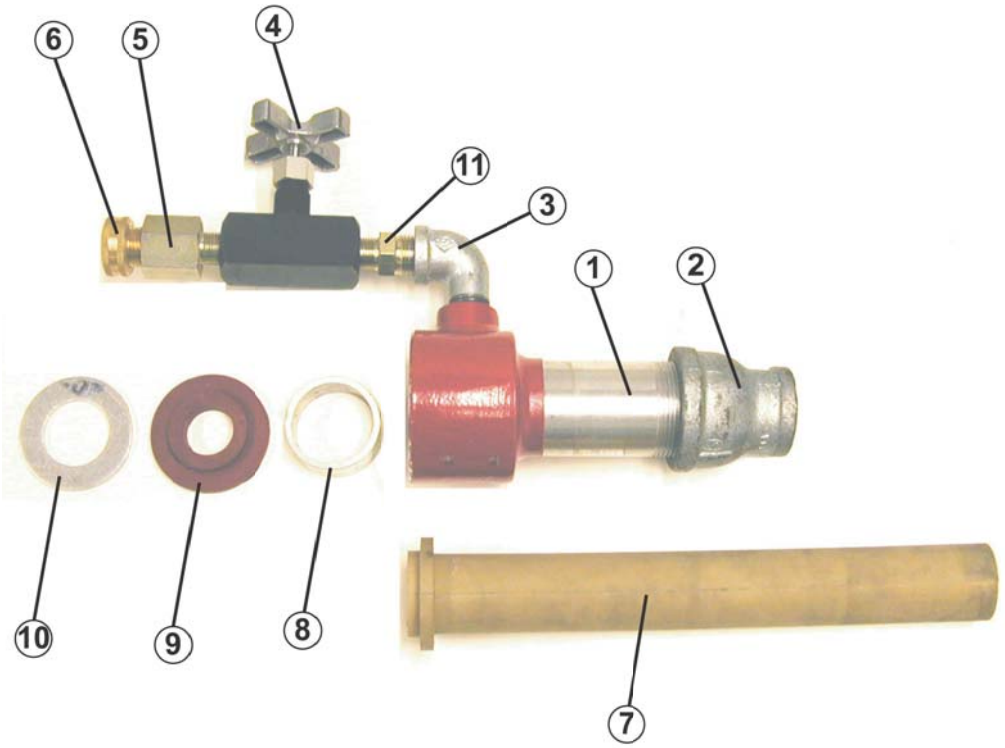
CATEGORY	PART#	DESCRIPTION
NOZZLE ASSEMBLIES 	12006	2½" NOZZLE ASSEMBLY – STANDARD – COARSE
	12005	2" NOZZLE ASSEMBLY – STANDARD – COARSE
	12010	1½" NOZZLE ASSEMBLY – STANDARD – COARSE
	12009	1¼" NOZZLE ASSEMBLY – STANDARD - FINE
	12009	1¼" NOZZLE ASSEMBLY – STANDARD - COARSE
	11980	2" HYDRO NOZZLE ASSEMBLY – MINE VERSION – (10 FOOT), COARSE
	40539	2" HYDRO NOZZLE ASSEMBLY – COARSE
	12092	2" HYDRO NOZZLE ASSEMBLY(DBL WATER RING)
	12036	1½" HYDRO NOZZLE ASSEMBLY - COARSE
	11981 12092	1¼" HYDRO NOZZLE ASSEMBLY - COARSE
	12001	1" NOZZLE ASSEMBLY – FINE
	12000	¾" NOZZLE ASSEMBLY-FINE
	11801	1" LANCE NOZZLE ASSEMBLY – FINE
	12022	1½" DOUBLE BUBBLE NOZZLE ASSEMBLY – COARSE
	12021	1¼" DOUBLE BUBBLE NOZZLE ASSEMBLY – COARSE
	12078	1½" DOUBLE BUBBLE HYDRO NOZZLE ASSEMBLY – COARSE

UPDATED 10/09/2008



GENERAL NOTES:

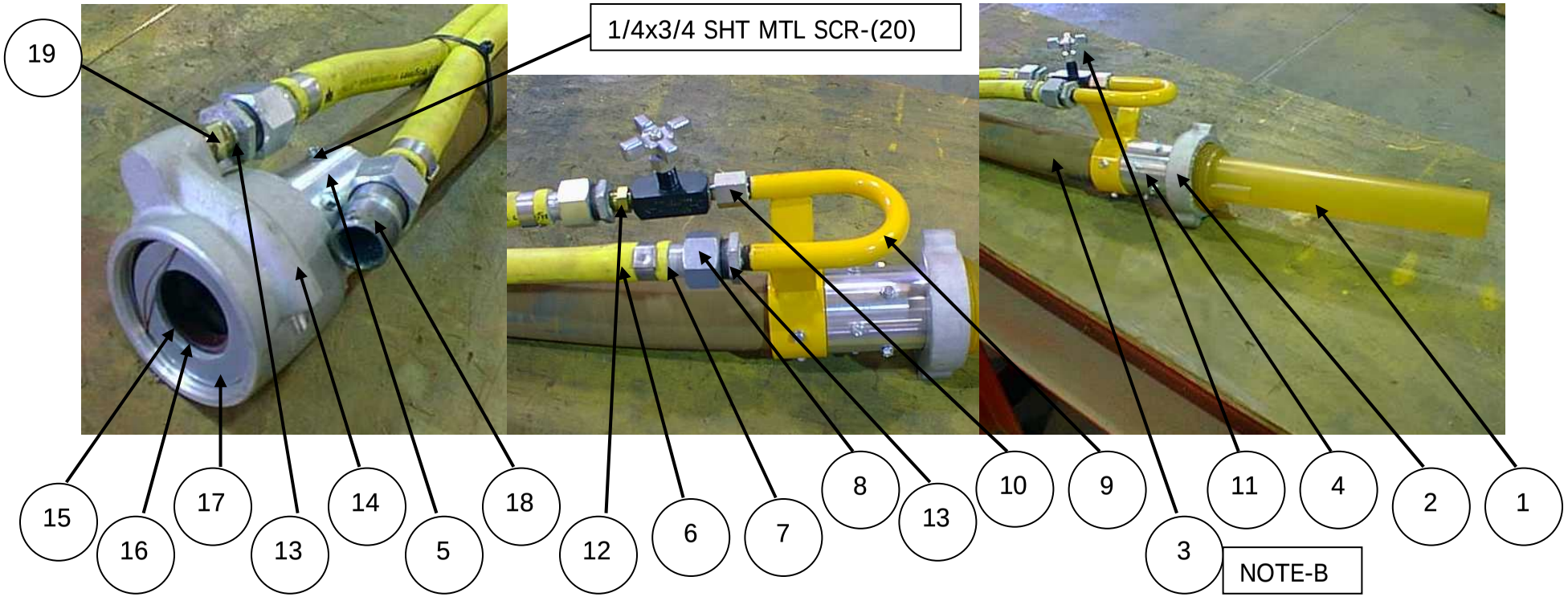
ON ITEM #7-PN 12041 LINER IS TO BE TRIMMED SHORT TO FIT INSIDE THE BELL REDUCER.



BILL of MATERIALS

 # 1-PN 11813 BODY-NOZZLE, LANCE (QTY-1)
 # 2-PN 11810 BELL REDUCER 1 1/2" TO 1" (QTY-1)
 # 3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
 # 4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
 # 5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
 # 6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
 # 7-PN 12041 LINER-1" NOZZLE (QTY-1)
 # 8-PN 12064 WATER RING-1" (QTY-1)
 # 9-PN 12070 WASHER-BACKUP "FINE" (QTY-1)
#10-PN 12080 WASHER-RETAINER 1 1/4" (QTY-1)
#11-PN NPN MP-MP-8-6 STR FITTING (QTY-1)

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	TITLE: NOZZLE-LANCE ASSY-FINE DRAWN BY: EYBARRA 8/25/03		PART NUMBER 11801 SHT 1 OF 1	REV



#1- PN 12004 NOZZLE TIP-2 “
#2- PN 11033 NUT-COUPLING CRSE 2”
#3- PN 40449 HOSE-2” GUNCRETE
#4- PN 11021 END-HOSE-CRSE 2”
#5- PN 11046 END-HOSE MALE-CRSE 2”
#6- PN 11986 HOSE-GORILLA 1 3/16 X 3/4
#7- PN 11989 HOSE BARB-3/4 MINE TYPE
#8- PN 11987 NUT-SPUD 1” MINING
#09- PN 12063 HANDLE-HYDRO NOZ
#10- PN 74675 REDUCER-1/2 X 3/8
#11- PN 11029 VALVE NEEDLE 3/8
#12- PN 74890 ADAPTOR-1/2 NTPM X 3/8 NPTM
#13- PN 10225 REDUCER-1 1/2
#14- PN 12056 BODY-NOZZLE 2” CRSE
#15- PN 12066 RING-2” WATER
#16- PN 12074 WASHER-BACKUP 2” CRSE
#17- PN 12083 WASHER-RETAINER 2”
#18- PN 10232 NIPPLE-1” X 2”
#19- ADAPTER-1/2MP X 1/2MP

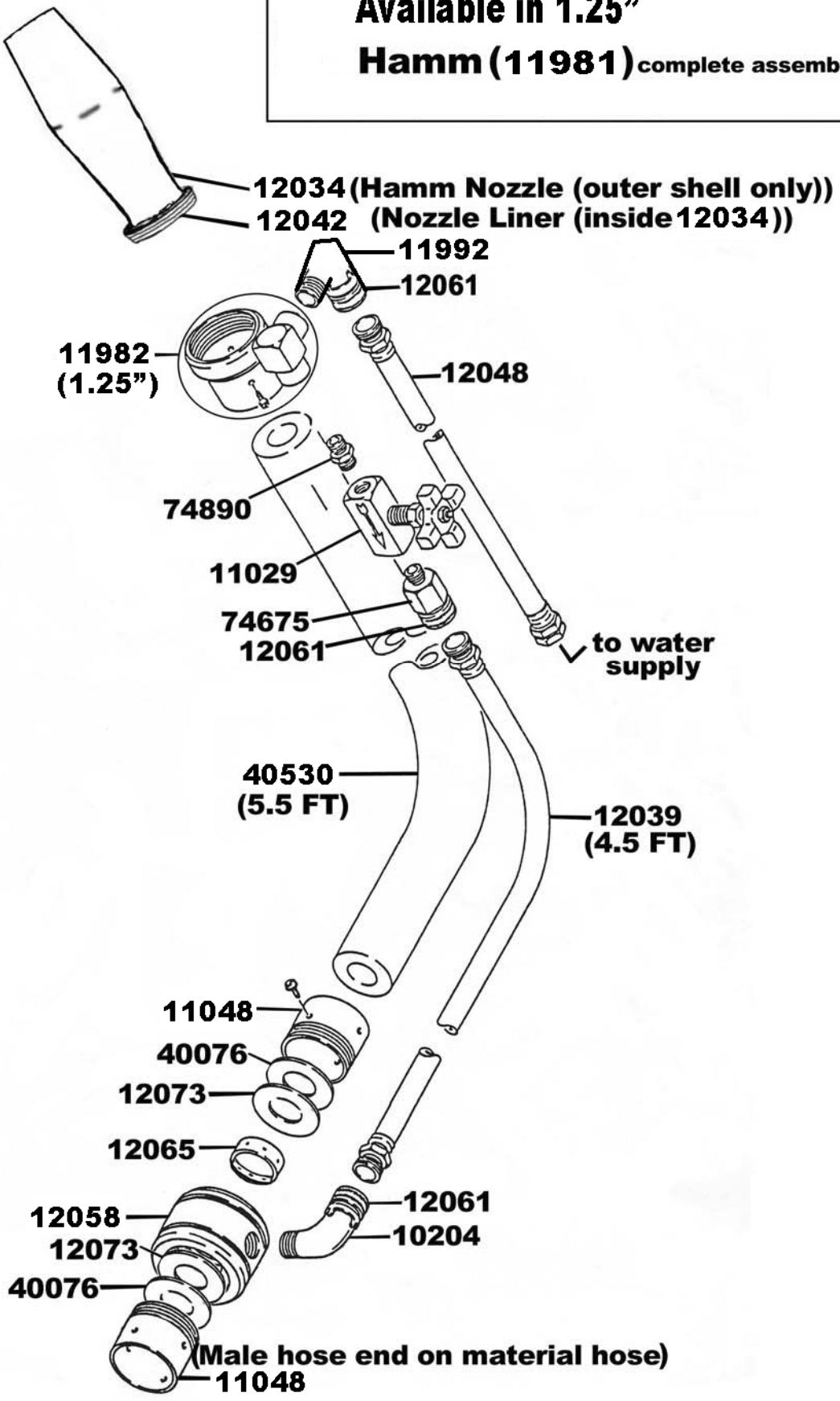
HOSE ASSEMBLY NOTES:
A. HOSE O/A LENGTH TO BE 10 FT.
B. THIS END OF HOSE TO PROTRUDE 1/16” PAST PN 11021 FOR SEAL.

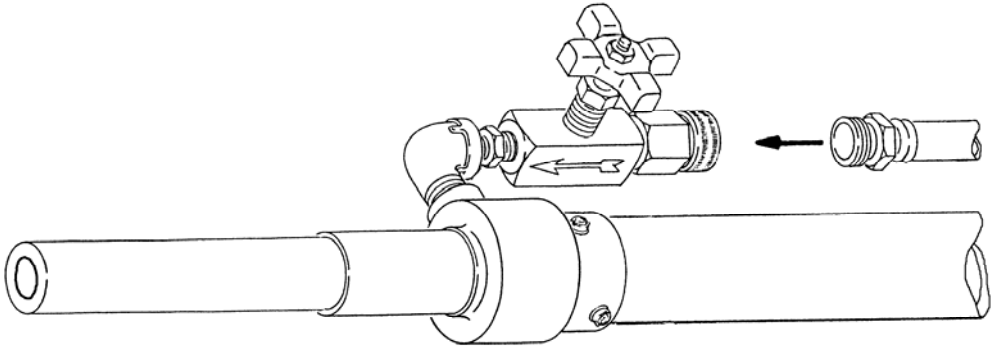
REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	**TITLE: HYDRO-NOZZLE ASSY-2 IN** **DRAWN BY:** EYBARRA 7/7/2000	ECN# 202 7/7/00 EMY	PART NUMBER 11980 SHT 1 OF 1	REV A

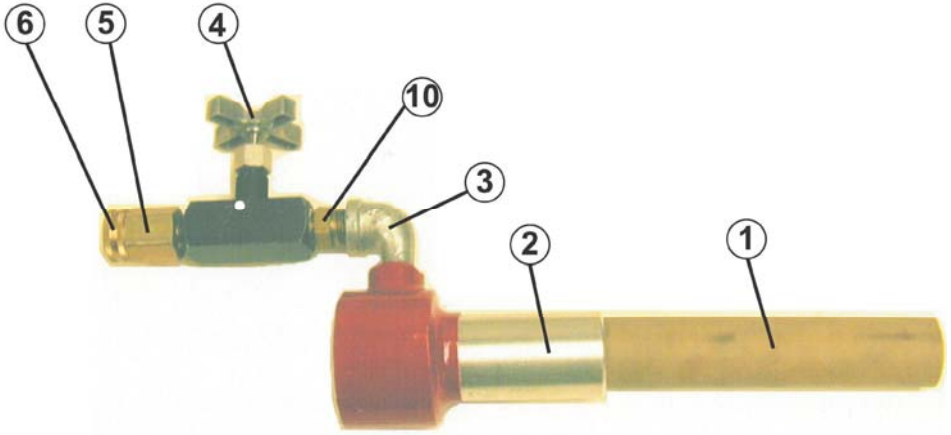
HYDRO NOZZLE (5.5 FEET)

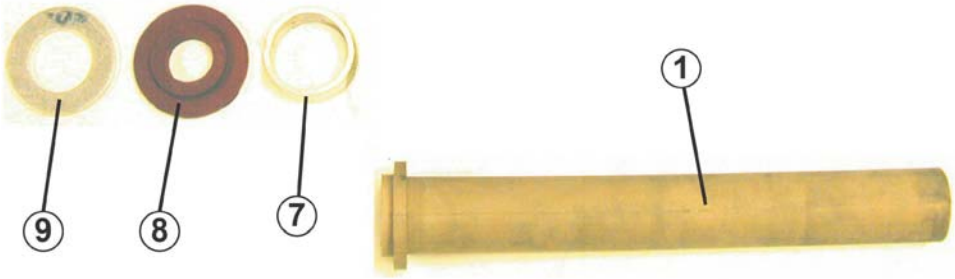
Available in 1.25”

Hamm (11981) complete assembly





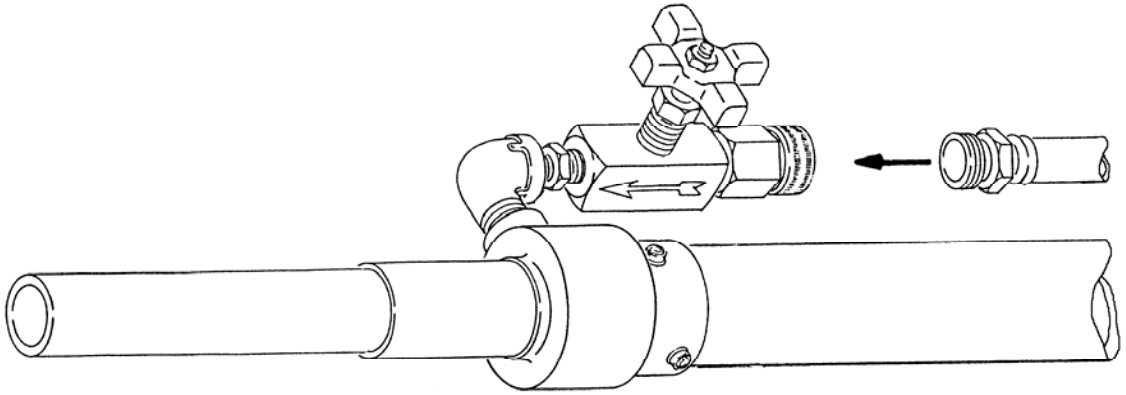


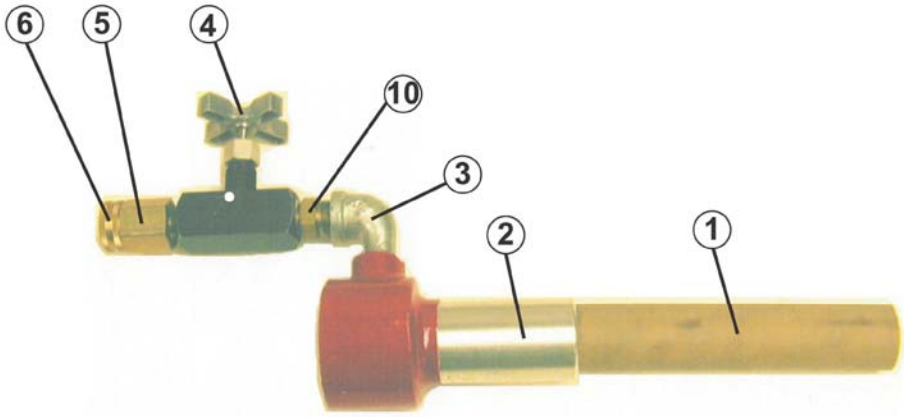


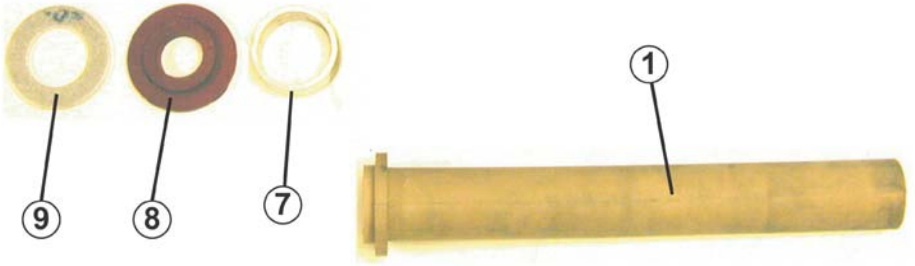
BILL of MATERIALS

#	2-PN 12052 BODY-NOZZLE 3/4" & 1" FINE (QTY-1)
#	3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
#	4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
#	5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
#	6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
#	7-PN 12064 WATER RING-1" (QTY-1)
#	8-PN 12070 WASHER-BACKUP "FINE" (QTY-1)
#	9-PN 12080 WASHER-RETAINER 1 1/4" (QTY-1)
#10	PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	TITLE: NOZZLE ASSY-FINE 3/4" DRAWN BY: EYBARRA 9/02/03		PART NUMBER 12000 SHT 1 OF 1	REV



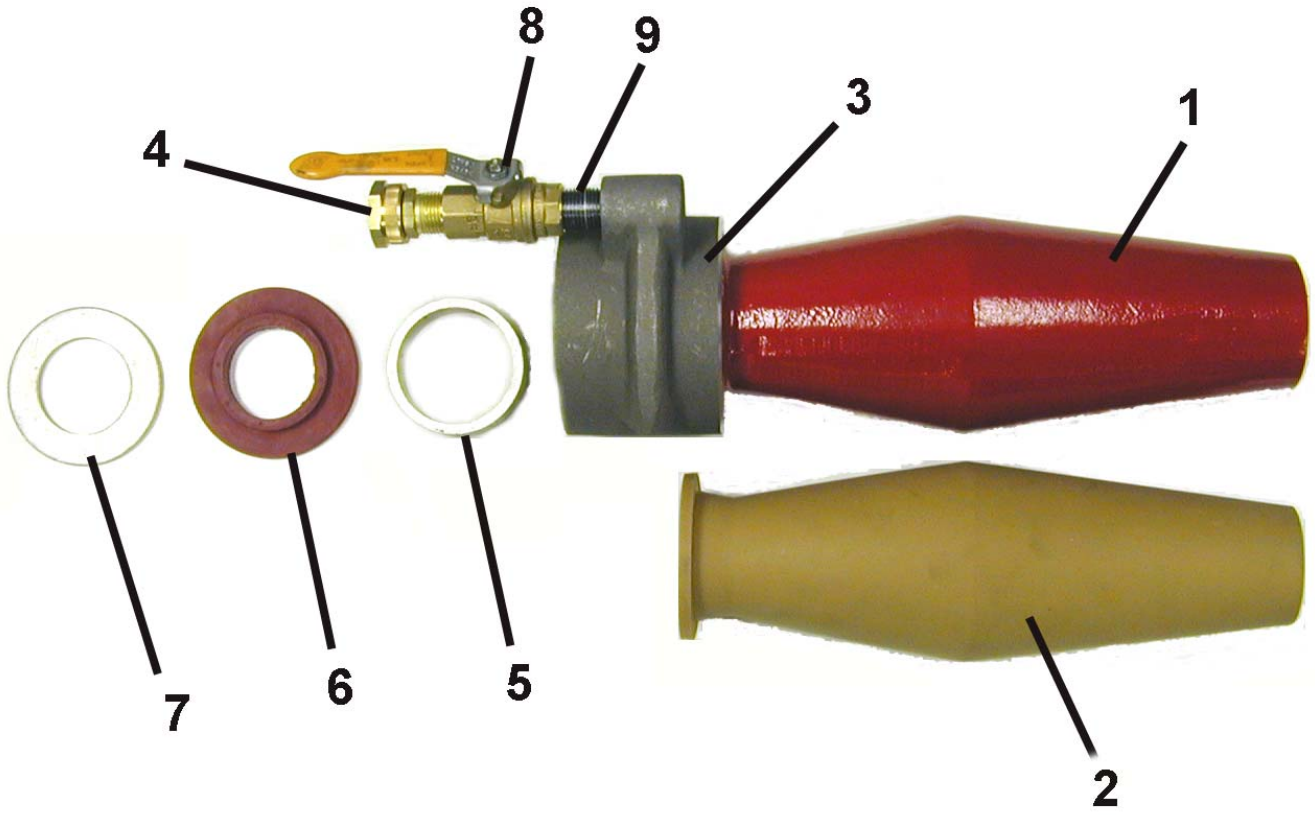


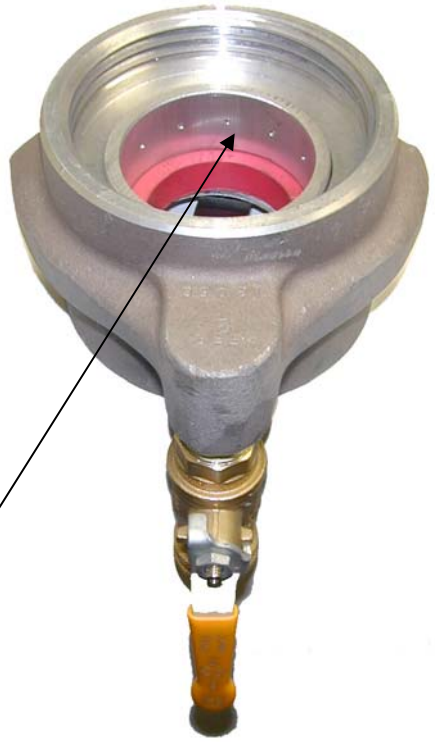


BILL of MATERIALS

#	1-PN 12041 LINER-1” NOZZLE (QTY-1)
#	2-PN 12052 BODY-NOZZLE 1” FINE (QTY-1)
#	3-PN 10204 STREET ELBOW 90 -1/2” (QTY-1)
#	4-PN 11029 VALVE NEEDLE-3/8” (QTY-1)
#	5-PN 74675 REDUCER-1/2” TO 3/8” (QTY-1)
#	6-PN 12061 ADAPTER-1/2” TO 3/4” (QTY-1)
#	7-PN 12064 WATER RING-1” (QTY-1)
#	8-PN 12070 WASHER-BACKUP “FINE” (QTY-1)
#	9-PN 12080 WASHER-RETAINER 1 1/4” (QTY-1)
#10	PN 74890 ADAPTER-1/2” x 3/8” (QTY-1)

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	TITLE: NOZZLE ASSY-FINE 1” DRAWN BY: EYBARRA 8/26/03		PART NUMBER 12001 SHT 1 OF 1	REV





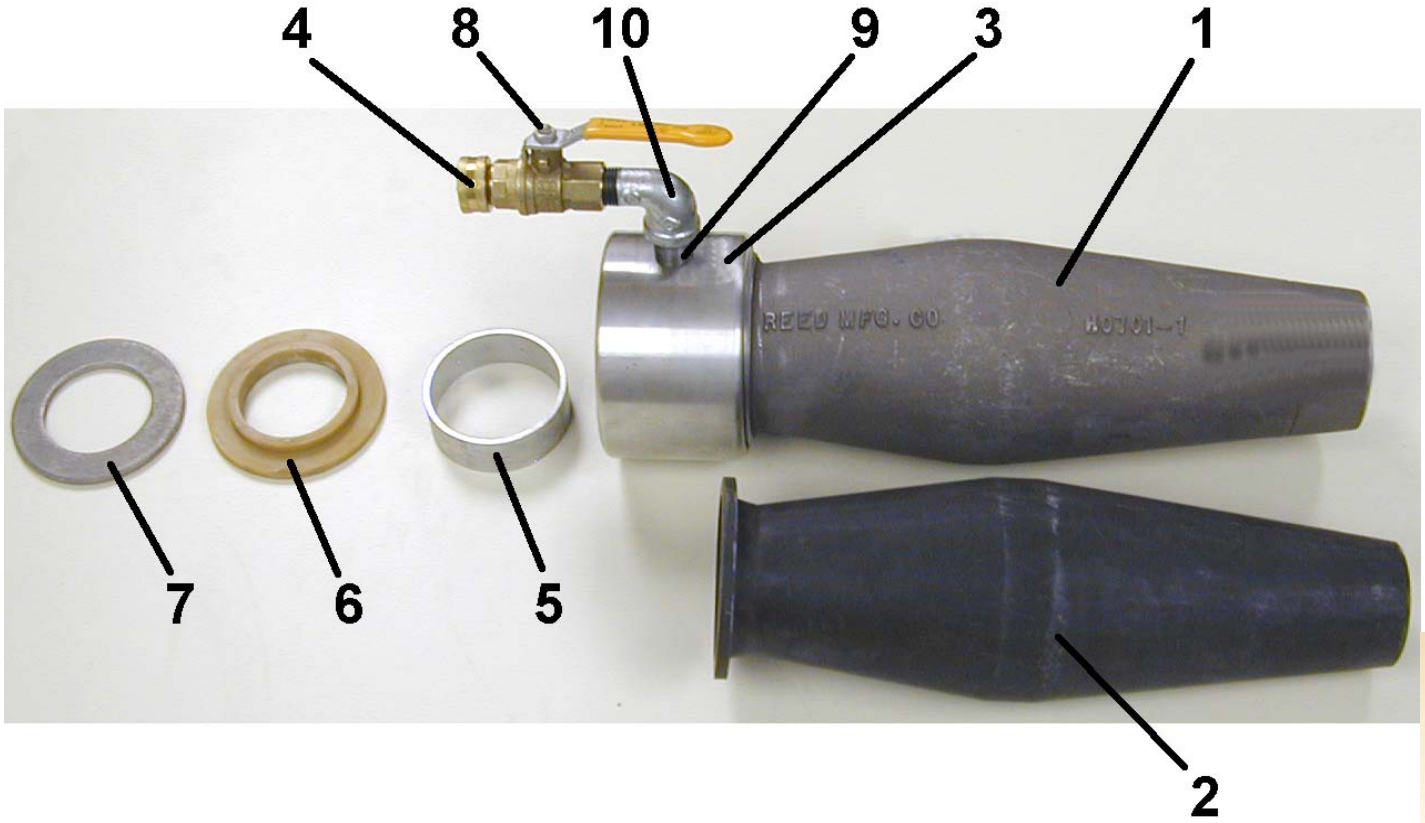
BILL of MATERIALS

1-PN 12032 BARREL-2” NOZZLE (QTY-1)
2-PN 12044 LINER-2” NOZZLE (QTY-1)
3-PN 12056 BODY-NOZZLE 2” CRSE (QTY-1)
4-PN 12061 ADAPTER-1/2” MALE NPT TO 3/4”FM (QTY-1)
5-PN 12066 RING-2” WATER (QTY-1)
6-PN 12074 WASHER-BACKUP 2” CRSE (QTY-1)
7-PN 12083 WASHER-RETAINER 2” CRSE ALUM (QTY-1)
8-PN 10270 BALL VALVE-1/2” (QTY-1)
9-PN 10268 CLOSE PIPE NIPPLE-1/2” (QTY-1)

WATER RING INSTALLATION INSTRUCTIONS

ITEM #5 WATER RING IS INSERTED INTO ITEM #3 NOZZLE BODY FROM THE NOZZLE BARREL END. (METHOD DONE SINCE 9/1990)

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	TITLE: NOZZLE ASSY-CRSE 2” DRAWN BY: EYBARRA 11/19/04	ECN #979 11/19/04-EMY	PART NUMBER 12005 SHT 1 OF 1	REV A



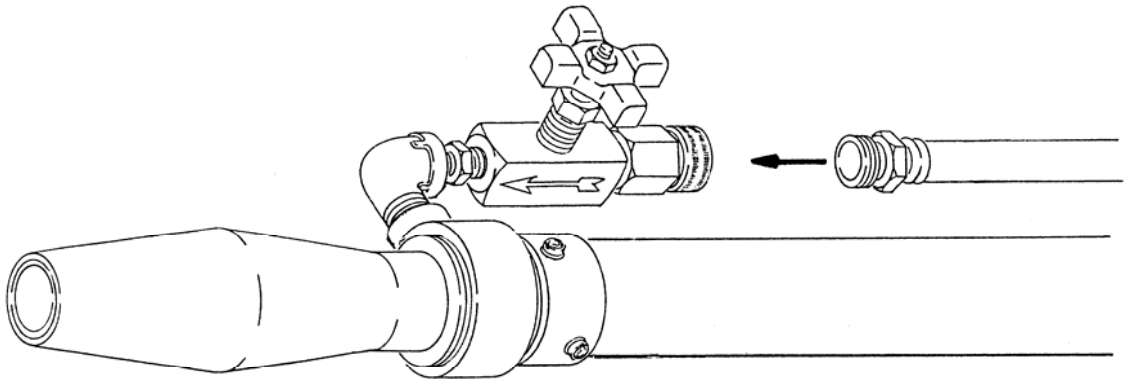
BILL of MATERIALS

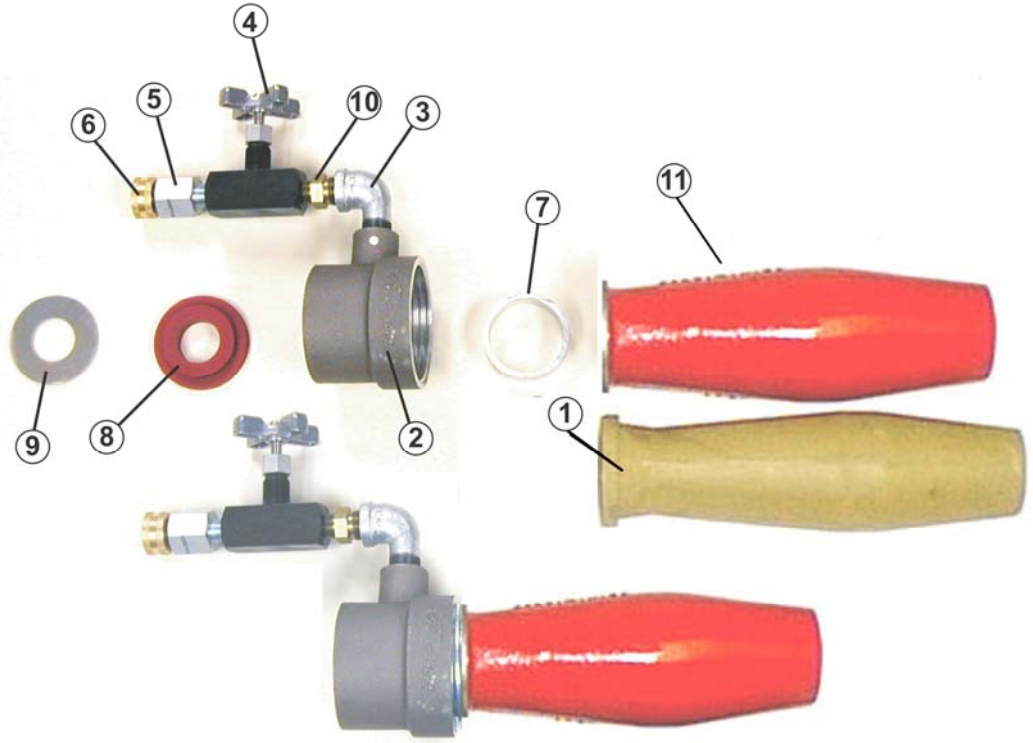
1-PN 12033 BARREL-2 1/2" NOZZLE (QTY-1)
2-PN 12045 LINER-2 1/2" NOZZLE (QTY-1)
3-PN 12057 BODY-NOZZLE 2 1/2" CRSE (QTY-1)
4-PN 12061 ADAPTER-1/2" MALE NPT TO 3/4"FM (QTY-1)
5-PN 12067 RING-2 1/2" WATER (QTY-1)
6-PN 12075 WASHER-BACKUP 2 1/2" CRSE (QTY-1)
7-PN 12084 WASHER-RETAINER 2 1/2" CRSE (QTY-1)
8-PN 10270 BALL VALVE-1/2" (QTY-1)
9-PN 10268 CLOSE PIPE NIPPLE-1/2" (QTY-1)
10-PN 10204 STREET ELBOW-90-1/2" (QTY-1)

WATER RING INSTALLATION INSTRUCTIONS

ITEM #5 WATER RING IS INSERTED INTO ITEM #3 NOZZLE BODY FROM THE NOZZLE BARREL END

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	TITLE: NOZZLE ASSY-CRSE 2 1/2" DRAWN BY: EYBARRA 11/14/07	ECN #1241 11/16/07-EMY	PART NUMBER 12006 SHT 1 OF 1	REV





BILL of MATERIALS

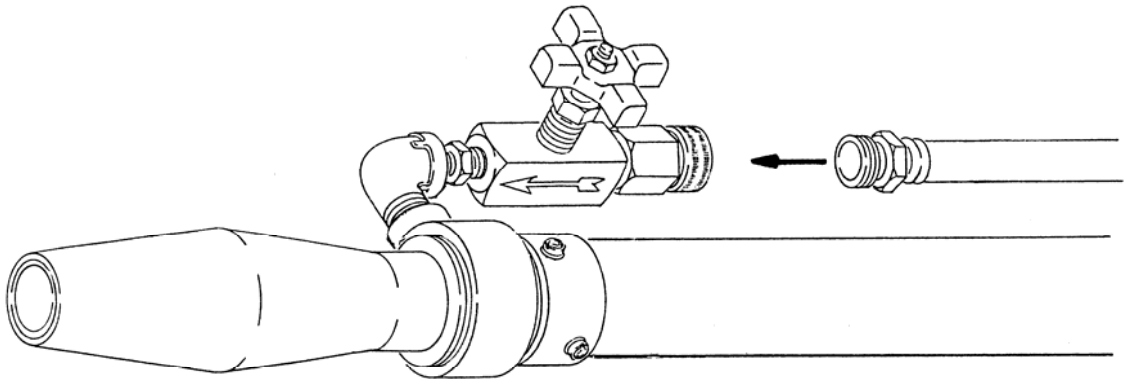
#	2-PN 12058 BODY-NOZZLE 1 1/4" CRSE (QTY-1)
#	3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
#	4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
#	5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
#	6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
#	7-PN 12065 WATER RING-1 1/4" & 1 1/2" (QTY-1)
#	8-PN 12069 WASHER-BACKUP 1 1/4" CRSE (QTY-1)
#	9-PN 12079 WASHER-RETAINER 1 1/4" (QTY-1)
#10	PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)
#11	PN 12035 BARREL-NOZZLE CRSE 1 1/2" (QTY-1)

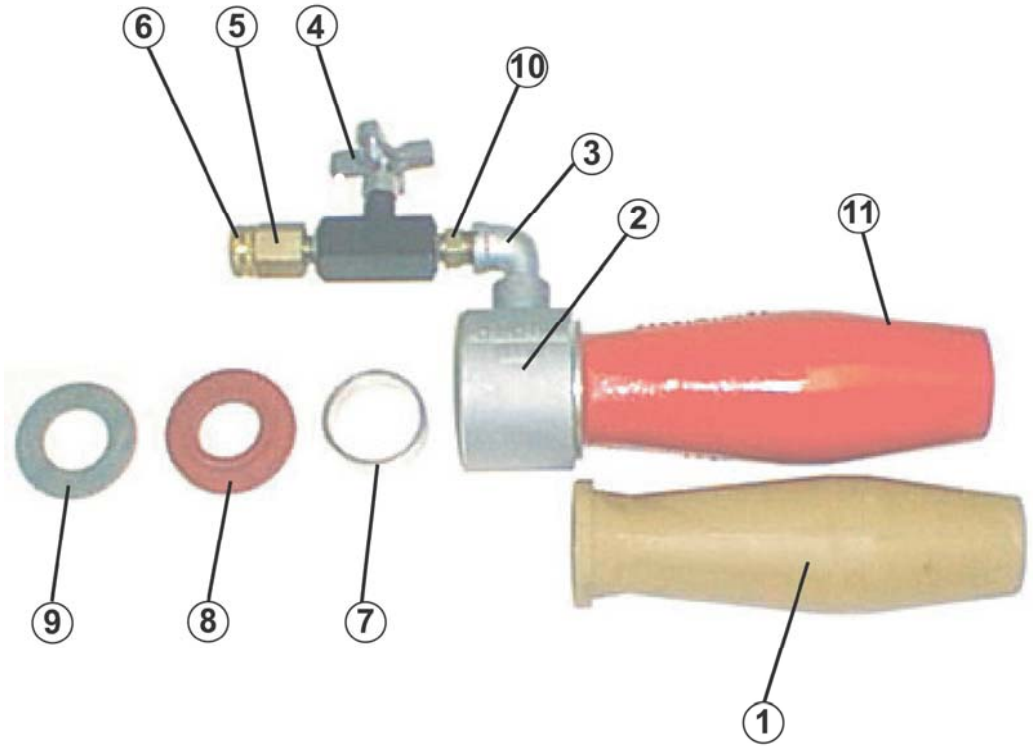
REED CONCRETE PLACING EQUIPMENT
CHINO, CA 91710

TITLE: NOZZLE ASSY-COARSE 1 1/4"
DRAWN BY: EYBARRA 10/9/2008

PART NUMBER
12009
SHT 1 OF 1

REV





BILL of MATERIALS

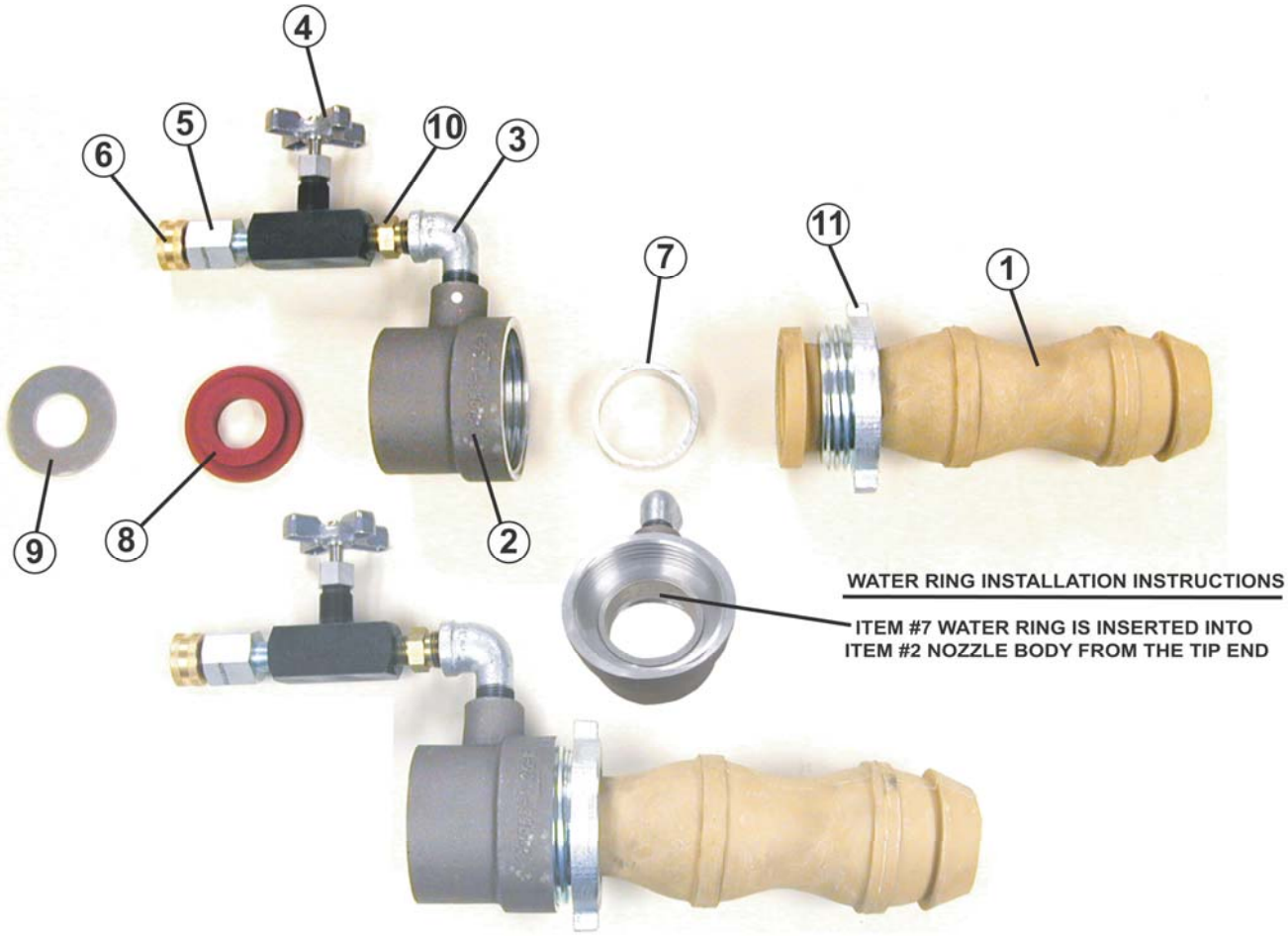
#	1-PN 12043 LINER-1 1/2" NOZZLE (QTY-1)
#	2-PN 12059 BODY-NOZZLE 1 1/2" CRSE (QTY-1)
#	3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
#	4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
#	5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
#	6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
#	7-PN 12065 WATER RING-1 1/4" & 1 1/2" (QTY-1)
#	8-PN 12073 WASHER-BACKUP 1 1/2" CRSE (QTY-1)
#	9-PN 40076 WASHER-RETAINER 1 1/2" (QTY-1)
#10	PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)
#11	PN 12035 BARREL-NOZZLE CRSE 1 1/2" (QTY-1)

REED CONCRETE PLACING EQUIPMENT
CHINO, CA 91710

TITLE: NOZZLE ASSY-COARSE 1 ½"
DRAWN BY: EYBARRA 8/29/03

PART NUMBER
12010
SHT 1 OF 1

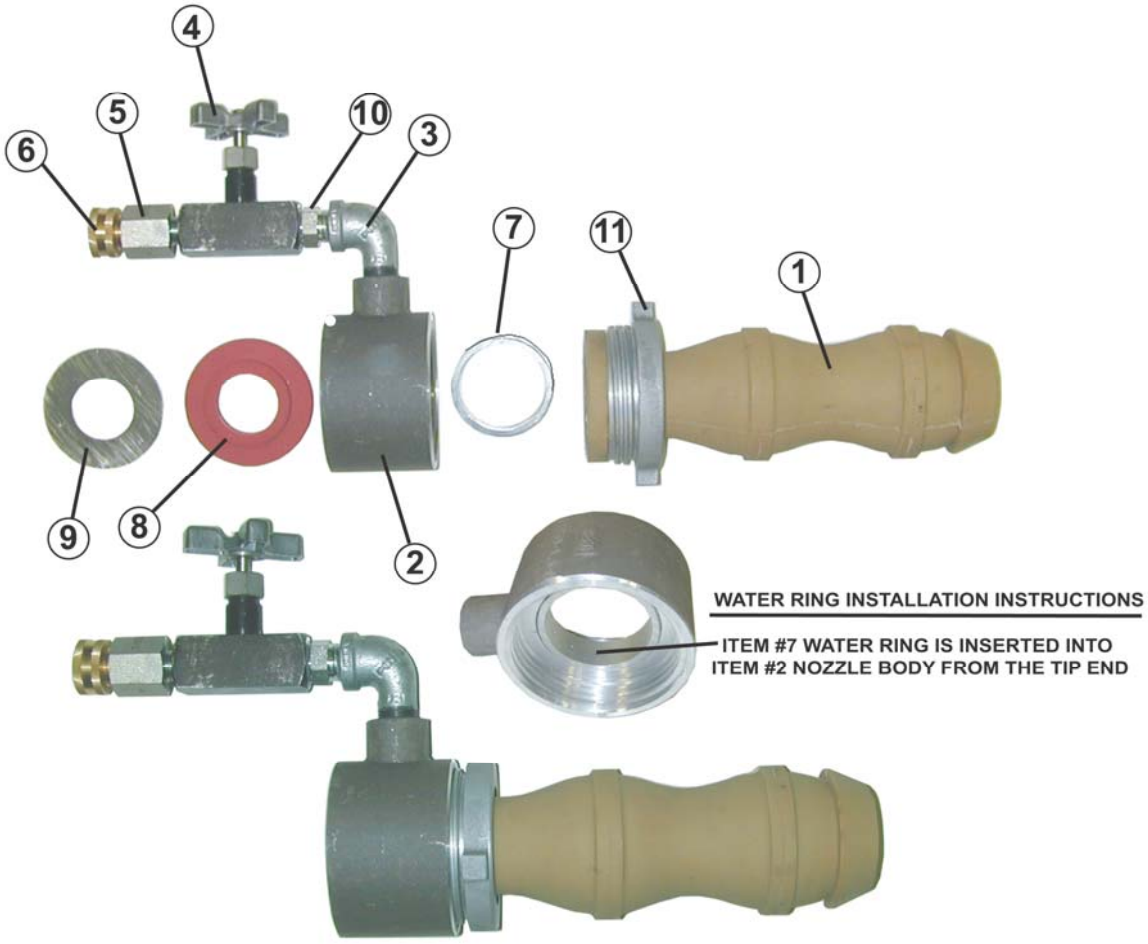
REV



BILL of MATERIALS

- # 1-PN 12047 TIP-1 1/4" DOUBLE BUBBLE (QTY-1)
- # 2-PN 12058 BODY-NOZZLE 1 1/4" CRSE (QTY-1)
- # 3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
- # 4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
- # 5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
- # 6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
- # 7-PN 12065 WATER RING-1 1/4" & 1 1/2" (QTY-1)
- # 8-PN 12069 WASHER-BACKUP 1 1/4" CRSE (QTY-1)
- # 9-PN 12079 WASHER-RETAINER 1 1/4" (QTY-1)
- #10-PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)
- #11-PN 12091 NUT-D.B. RETAINER (QTY-1)\

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	**TITLE:** NOZZLE ASSY 1 1/4" DB **DRAWN BY: EYBARRA 11/16/2007**	ECN#1241 11/16/07-EMY	PART NUMBER 12021 SHT 1 OF 1	REV



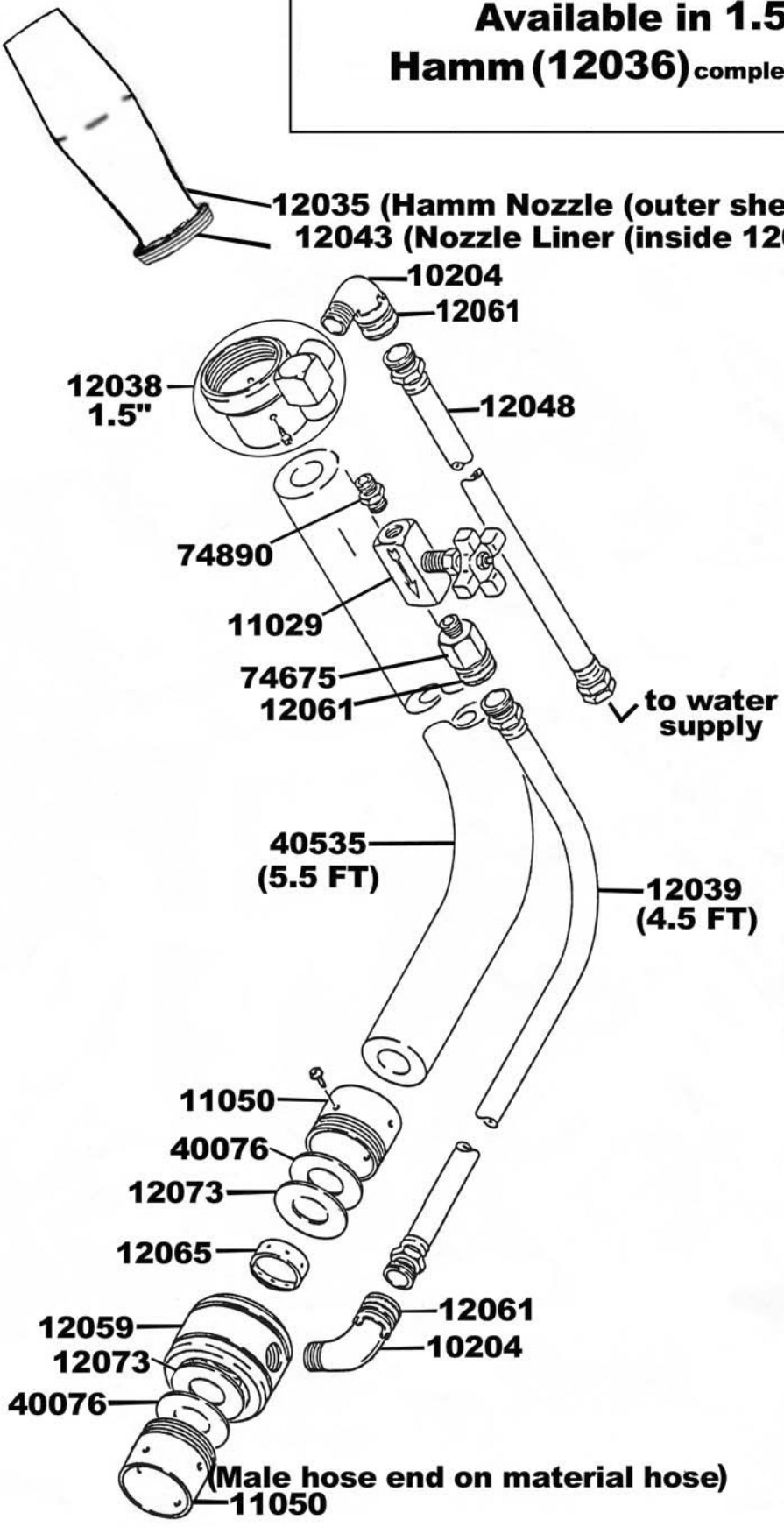
BILL of MATERIALS

1-PN 12047 TIP-1 1/4" DOUBLE BUBBLE (QTY-1)
2-PN 12059 BODY-NOZZLE 1 1/2" CRSE (QTY-1)
3-PN 10204 STREET ELBOW 90 -1/2" (QTY-1)
4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-1)
7-PN 12065 WATER RING-1 1/4" & 1 1/2" (QTY-1)
8-PN 12073 WASHER-BACKUP 1 1/2" CRSE (QTY-1)
9-PN 40076 WASHER-RETAINER 1 1/2" (QTY-1)
#10-PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)
#11-PN 12091 NUT-D.B. RETAINER (QTY-1)\

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	**TITLE:** NOZZLE ASSY 1 1/2" DB DRAWN BY: EYBARRA 10/09/2008		PART NUMBER 12022 SHT 1 OF 1	REV

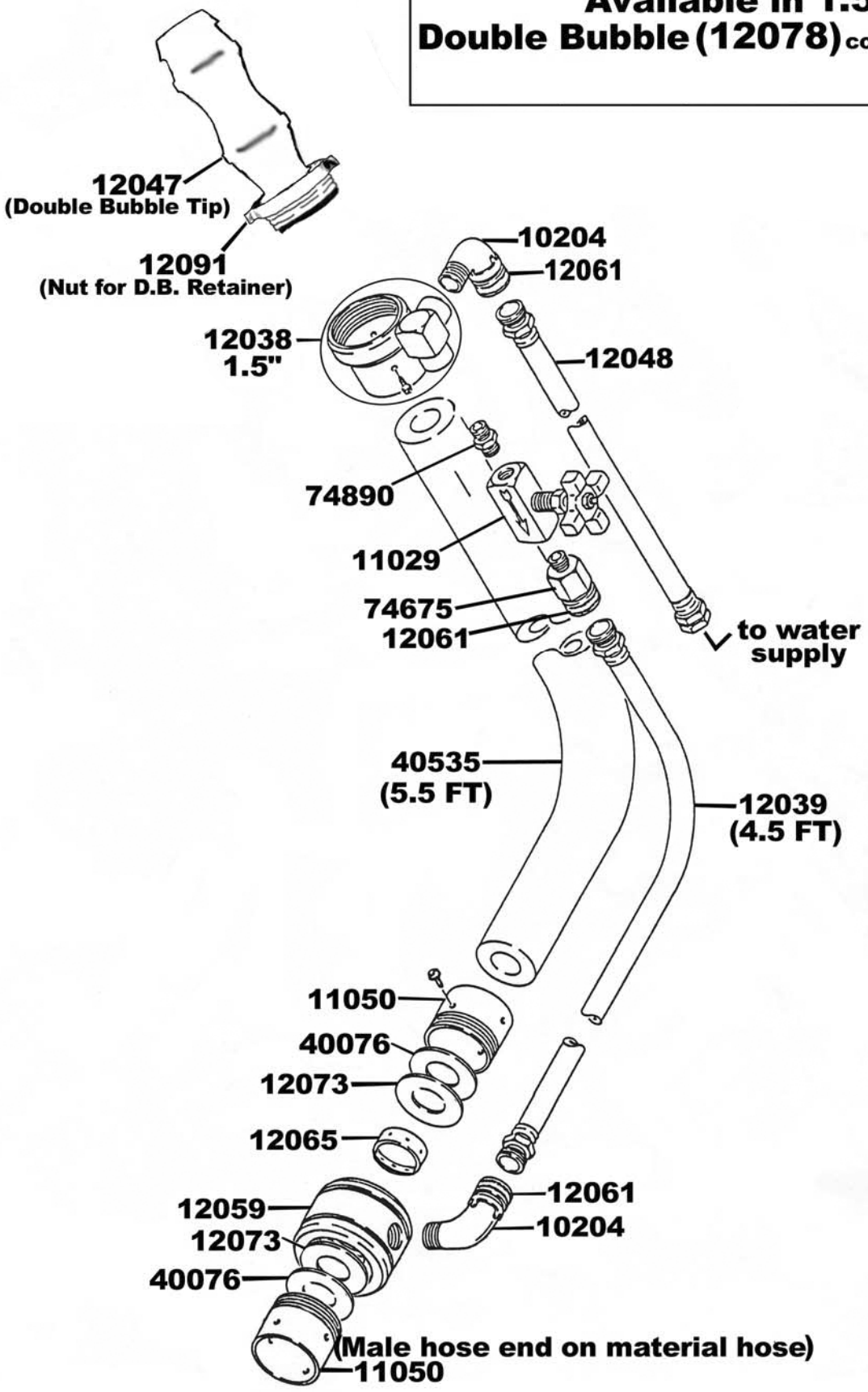
HYDRO NOZZLE (5.5 FEET)

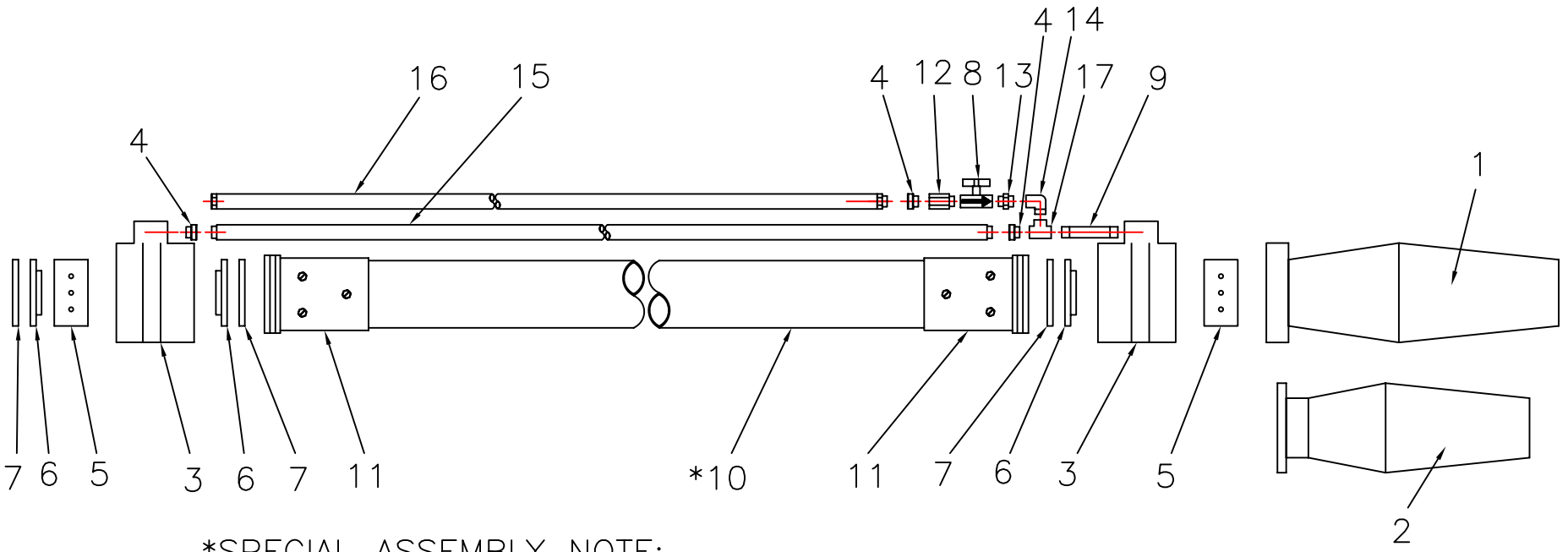
Available in 1.5"
Hamm (12036) complete assembly



HYDRO NOZZLE (5.5 FEET)

Available in 1.5"
Double Bubble (12078) complete assembly





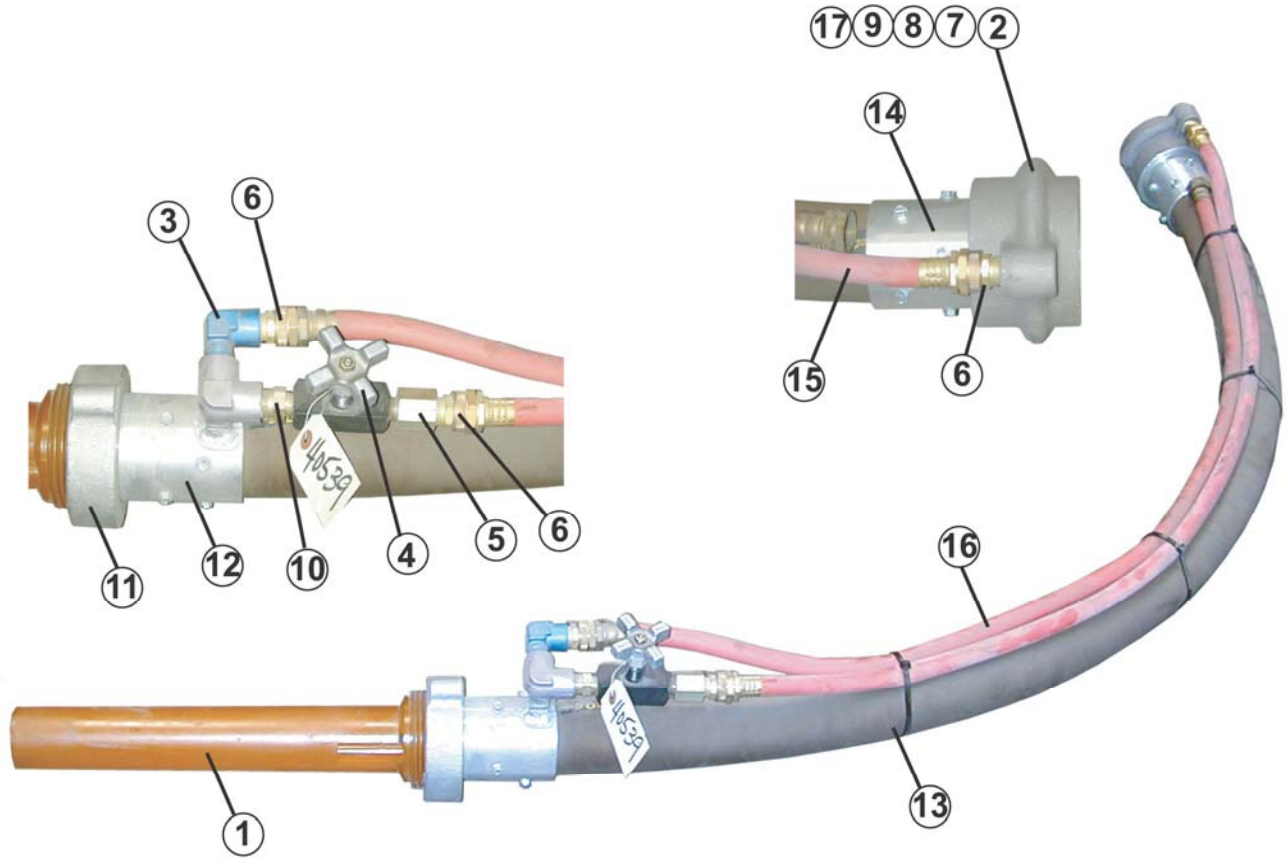
*SPECIAL ASSEMBLY NOTE:

*MUST CUT TO FIT AT ASSY IN RELATION TO ITEM #15 HOSE ASSY

BILL OF MATERIALS

 # 1-PN 12032 BARREL-2" NOZZLE (QTY-1)
 # 2-PN 12044 LINER-2" NOZZLE (QTY-1)
 # 3-PN 12056 BODY-NOZZLE 2" CRSE (QTY-2)
 # 4-PN 12061 ADAPTER-1/2" MALE NPT TO 3/4"FM (QTY-3)
 # 5-PN 12066 RING-2" WATER (QTY-2)
 # 6-PN 12074 WASHER-BACKUP 2" CRSE (QTY-3)
 # 7-PN 12083 WASHER-RETAINER 2" CRSE ALUM (QTY-3)
 # 8-PN 11029 NEEDLE VALVE-3/8" (QTY-1)
 # 9-PN 10298 PIPE NIPPLE-1/2" X 3" (QTY-1)
#10-PN 40449 HOSE, 2 IN GUNCRETE CONDUCT.(QTY-5.5FT)
#11-PN 11046 END-HOSE,MALE-CRSE 2"(QTY-2)
#12-PN 74675 REDUCER-1/2 NPTF X 3/8 NPTM (QTY-1)
#13-PN 74890 ADAPTOR-1/2 NPTM X 3/8 NPTM (QTY-1)
#14-PN 10204 STREET ELBOW 1/2" 90(QTY-1)
#15-PN 12039 HOSE ASSY-(WATER) 4.5FT (QTY-1)
#16-PN 12048 WATER HOSE ASSY-1/2" (QTY-1)
#17-PN 10204 TEE 1/2"(QTY-1)

REED	CONCRETE PLACING EQUIPMENT CHINO, CA 91710		BY	DATE	TITLE	PART NUMBER	REV
		DRAWN	EYBARRA	8/25/06	*HYDRO NOZZLE ASSY-2"x5.5FT-(DBL WATER RING)*	12092	



BILL of MATERIALS

- # 1-PN 12004 TIP-2" (QTY-1)
- # 2-PN 12056 BODY-NOZZLE 2" CRSE (QTY-1)
- # 3-PN 11992 ST. ELBOW 90 ALUM-1/2" (QTY-1)
- # 4-PN 11029 VALVE NEEDLE-3/8" (QTY-1)
- # 5-PN 74675 REDUCER-1/2" TO 3/8" (QTY-1)
- # 6-PN 12061 ADAPTER-1/2" TO 3/4" (QTY-3)
- # 7-PN 12066 WATER RING-2" (QTY-1)
- # 8-PN 12074 WASHER-BACKUP 2" CRSE (QTY-2)
- # 9-PN 12083 WASHER-RETAINER 2 CRSE" (QTY-1)
- #10-PN 74890 ADAPTER-1/2" x 3/8" (QTY-1)
- #11-PN 12091 NUT-D.B. RETAINER (QTY-1)
- #12-PN 11995 HOSE END WELD-2" HYD NOZZLE (QTY-1)
- #13-PN 40449 HOSE, 2" GUNCRETE CONDUCTIVE (QTY-5.5FT)
- #14-PN 11046 END-HOSE, MALE-CRSE 2" (QTY-1)
- #15-PN 12039 HOSE ASSY-(WATER) 4.5FT (QTY-1)
- #16-PN 12048 WATER HOSE ASSY-1/2" (QTY-1)
- #17-PN 74679 PLUG-1/4NPT SOCKET HEAD (QTY-2)

REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	**TITLE:** HYDRO NOZZLE ASSY-2 INCH FRONT VALVE DRAWN BY: EYBARRA 10/09/2008	PART NUMBER 40539 SHT 1 OF 1	REV

GUNITE TOOLS AND SUPPLIES

CATEGORY	PART#	DESCRIPTION

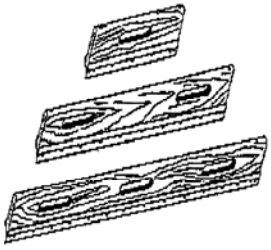
CATEGORY	PART#	DESCRIPTION
SPIROLET NOZZLE 	40821	2” NOZZLE TIP
	(OTHER SIZES AND ASSEMBLIES AVAILABLE UPON REQUEST)	

CATEGORY	PART#	DESCRIPTION
AIR HOSE	40591	2” X 50’ COUPLED WITH DIXON BOSS FITTINGS – 150 PSI
	40593	1½” X 50’ COUPLED WITH DIXON BOSS FITTINGS – 150 PSI

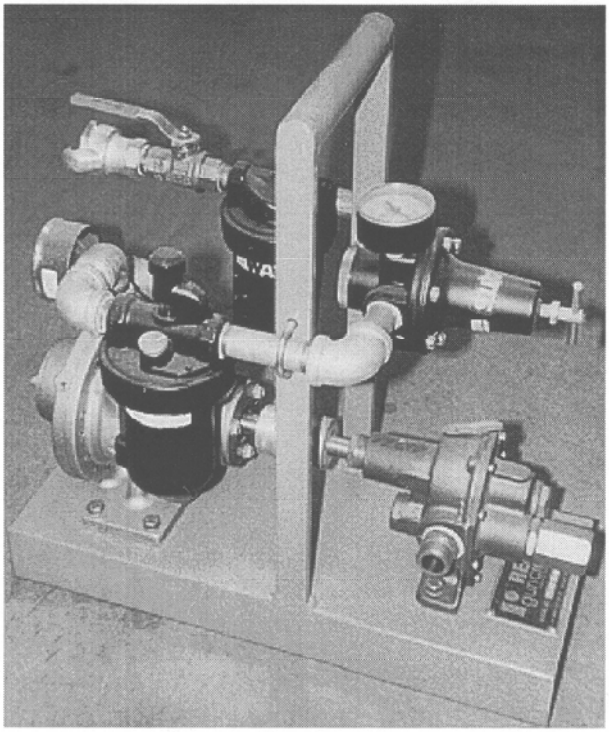
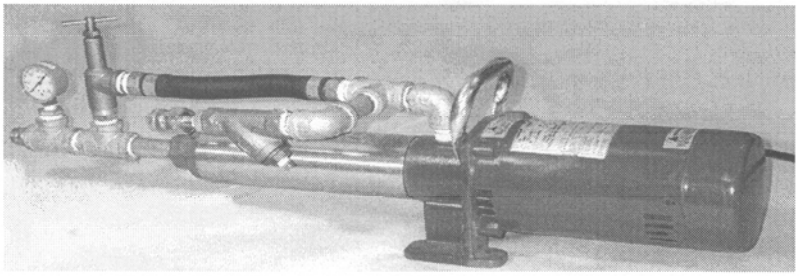
CATEGORY	PART#	DESCRIPTION
WATER/AIR HOSE	40590	¾” X 50’ COUPLED WITH BRASS WATER FITTINGS – 150 PSI
	40589	¾” WATER COUPLINGS (LONG STEM)

CATEGORY	PART#	DESCRIPTION
SHOOTING WIRE	40600	.0348 SHOOTING WIRE (SOLD BY THE POUND) (AVERAGE WEIGHT PER ROLL – 46-48 LBS)
	40601	16½ GAUGE TIE WIRE (3.5 LBS ROLL)

GUNITE TOOLS AND SUPPLIES

CATEGORY	PART#	DESCRIPTION
GUNITE TOOLS	40615	24" GUNITE CUTTING ROD
	40620	36" GUNITE CUTTING ROD
	40625	48" GUNITE CUTTING ROD
	40635	24" STRAIGHT FRESNO – SQUARE ENDS
	40640	24" STRAIGHT FRESNO – ROUND ENDS
	40645	24" CURVED FRESNO – STRAIGHT ENDS
	40650	24" CURVED FRESNO – ROUND ENDS
	40655	30" STRAIGHT FRESNO – STRAIGHT ENDS
	40660	30" STRAIGHT FRESNO – ROUND ENDS
	40665	30" CURVED FRESNO – STRAIGHT ENDS
	40670	30" CURVED FRESNO – ROUND ENDS
	40675	6' WOOD FRESNO HANDLE
	40680	12" X 5" METAL FINISHING TROWEL
	40685	12" X 4" METAL FINISHING TROWEL
	40690	5" X 2" MARGIN TROWEL
	40695	12" X 4" WOOD FLOAT
	40700	14" X 4" WOOD FLOAT
	40705	16" X 3½" WOOD FLOAT

BOOSTER PUMPS

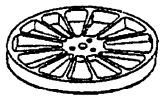
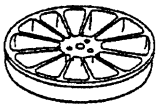
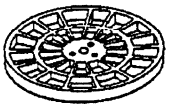
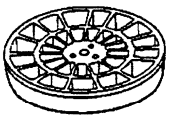
CATEGORY	PART#	DESCRIPTION
AIR DRIVEN 	4025	ROTARY GEAR, POSITIVE DISPLACEMENT PUMP, MAXIMUM DISCHARGE PRESSURE: 120 PSI (8.3 BAR), MAXIMUM SUCTION LIFT: 20 FEET (6M), ADJUSTABLE DISCHARGE PRESSURE RELIEF, PIPE SIZE: ¾" (19mm) USED PRIMARILY IN GUNNING APPLICATIONS TO PROVIDE STABLE WATER PRESSURE AT NOZZLE.
ELECTRIC DRIVEN 		MODEL BP250, PRESSURE TO 250 PSI (17.5 BAR), CAPACITIES TO 8 GPM (30.3 LPM), POWER SOURCE: ELECTRIC STANDARD, 115 OR 230 VOLT/60Hz, 1 PHASE, BY-PASS PRESSURE RELIEF VALVE ASSEMBLY, PIPE SIZE: ¾" NPT

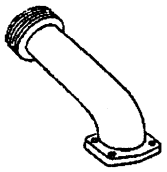
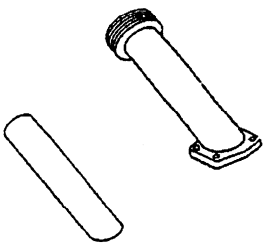
SAFETY DECALS

CATEGORY	PART#	QTY	DESCRIPTION
	10838	2	WARNING – SAFETY GLASSES
	10833	2	REED GUNCRETE
	10839	1	WARNING WEAR PAD
	10840	1	WARNING – INSIDE HOPPER
	10842	2	CAUTION – DO NOT LIFT HANDLES
	75005	2	NO HANDS SYMBOLS

RECOMMENDED SPARE PARTS - LOVA/LOHE

PART#	DESCRIPTION	QTY
10796	12 PKT W/DIVIDERS WEAR PLATE	2
10797	12 PKT W/DIVIDERS FEED BOWL	1
10336	WEAR PAD	60
10798	12 PKT DIVIDERLESS WEAR PLATE	2
10799	12 PKT DIVIDERLESS FEED BOWL	1
10336	WEAR PAD	60
10802	15 PKT LA WEAR PLATE	2
10803	15 PKT LA FEED BOWL	1
10336	WEAR PAD	60
10800	15 PKT STANDARD WEAR PLATE	2
10801	15 PKT STANDARD FEED BOWL	1
10338	WEAR PAD	60
10805	20 PKT WEAR PLATE	2
10806	20 PKT FEED BOWL	1
10338	WEAR PAD	60
10807	21 PKT WEAR PLATE	2
10808	21 PKT FEED BOWL	1
10339	WEAR PAD	60
10809	30 PKT FEED BOWL	1
10339	WEAR PAD	60
10042	1 1/2" L.T. GOOSENECK	1
13312	1 1/2" GOOSENECK LINER	5
10043	1 1/4" SOLID GOOSENECK	1
10044	1 1/2" SOLID GOOSENECK	1
10045	2" SOLID GOOSENECK	1
10046	2" L.T. GOOSENECK	1
10958	2" GOOSENECK LINER	5
10605	8AM AIR MOTOR REPAIR KIT	1
10606	16AM AIR MOTOR REPAIR KIT	1

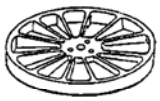
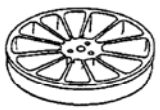
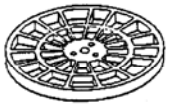
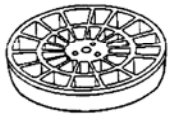
RECOMMENDED SPARE PARTS - LOVA/LOHE

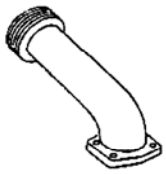
PART#	DESCRIPTION	QTY
10825	RISER PLATE - MEDIUM	2
10826	RISER PLATE - THICK	2
10827	RISER PLATE - THIN	2
10728	SPINDLE STUD	6
10005	FELT SEAL	5
10013	ROCK SHEAR - WIDE	1
10014	ROCK SHEAR - NARROW	1
	ADDITIONAL PARTS FOR LOHE	
10618	VARIABLE SPEED BELT (NORDGEAR MOTOR ASSEMBLY)	1
10102	VARIABLE SPEED BELT (BALDOR MOTOR)	1

NOTE: WEAR PATE, FEED BOWL AND GOOSENECK WILL BE DETERMINED BY THE MACHNE SYSTEM SETUP.

RECOMMENDED SPARE PARTS
LOVA/LOHE SERIES IV

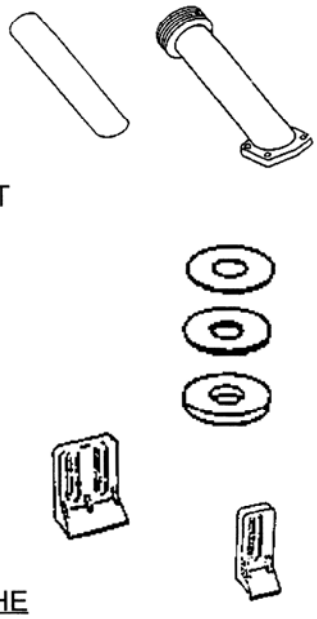
PART#	DESCRIPTION	QTY
10796	12 PKT W/DIVIDERS WEAR PLATE	2
10797	12 PKT W/DIVIDERS FEED BOWL	1
10783	12 PKT ROTARY FEED WHEEL	1
10336	WEAR PAD	60
10798	12 PKT DIVIDERLESS WEAR PLATE	2
10799	12 PKT DIVIDERLESS FEED BOWL	1
10336	WEAR PAD	60
10802	15 PKT LA WEAR PLATE	2
10803	15 PKT LA FEED BOWL	1
10780	15 PKT LA ROTARY FEED WHEEL	1
10336	WEAR PAD	60
10800	15 PKT STANDARD WEAR PLATE	2
10801	15 PKT STANDARD FEED BOWL	1
10781	15 PKT STANDARD ROTARY FEED WHEEL	1
10338	WEAR PAD	60
10805	20 PKT WEAR PLATE	2
10806	20 PKT FEED BOWL	1
10779	20 PKT ROTARY FEED WHEEL	1
10338	WEAR PAD	60
10807	21 PKT WEAR PLATE	2
10808	21 PKT FEED BOWL	1
10778	21 PKT ROTARY FEED WHEEL	1
10339	WEAR PAD	60
10809	30 PKT FEED BOWL	1
10339	WEAR PAD	60
10042	1 1/2" L.T. GOOSENECK	1
13312	1 1/2" GOOSENECK LINER	5
10043	1 1/4" SOLID GOOSENECK	1
10044	1 1/2" SOLID GOOSENECK	1
10045	2" SOLID GOOSENECK	1



RECOMMENDED SPARE PARTS
LOVA/LOHE SERIES IV

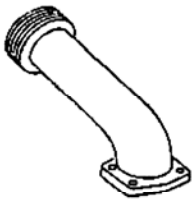
PART#	DESCRIPTION	QTY
10046	2" L.T. GOOSENECK	1
10958	2" GOOSENECK LINER	5
10605	8AM AIR MOTOR REPAIR KIT	1
10606	16AM AIR MOTOR REPAIR KIT	1
10825	RISER PLATE - MEDIUM	2
10826	RISER PLATE - THICK	2
10827	RISER PLATE - THIN	2
10728	SPINDLE STUD	6
10005	FELT SEAL	5
10013	ROCK SHEAR - WIDE	1
10014	ROCK SHEAR - NARROW	1
	<u>ADDITIONAL PARTS FOR LOHE</u>	
10618	VARIABLE SPEED BELT (NORDGEAR MOTOR ASSEMBLY)	1
10102	VARIABLE SPEED BELT (BALDOR MOTOR)	1



<u>NOTE:</u> WEAR PATE, FEED BOWL AND GOOSENECK WILL BE DETERMINED BY THE MACHNE SYSTEM SETUP.

RECOMMENDED SPARE PARTS - SOVA/SOVE

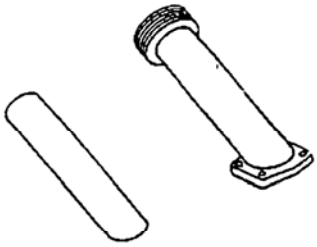
PART#	DESCRIPTION	QTY
20089	16 POCKET FEED BOWL	1
20189	18 POCKET FEED BOWL	1
10042	1 1/2" L.T. GOOSENECK	1
13312	1 1/2" GOOSENECK LINER	5
10044	1 1/2" SOLID GOOSENECK	1
10043	1 1/4" SOLID GOOSENECK	1
20090	WEAR PAD	50
20172	RISER PLATE - THIN	2
20173	RISER PLATE - MEDIUM	2
20174	RISER PLATE - THICK	2
20388	ROCK SHEAR	1
20158	FELT SEAL	5
10605	8AM AIR MOTOR REPAIR KIT	1
10618	VARIABLE SPEED BELT	1
	(ELECTRIC DRIVE ONLY)	1



NOTE: **FEED BOWL AND GOOSENECK WILL BE DETERMINED BY THE MACHNE SYSTEM SETUP.**

RECOMMENDED SPARE PARTS - 209A/209E

PART#	DESCRIPTION	QTY
20089	16 POCKET FEED BOWL	1
20189	18 POCKET FEED BOWL	1
10042	1 1/2" L.T. GOOSENECK	1
13312	1 1/2" GOOSENECK LINER	5
10044	1 1/2" SOLID GOOSENECK	1
10043	1 1/4" SOLID GOOSENECK	1
20090	WEAR PAD	50
20172	RISER PLATE - THIN	2
20173	RISER PLATE - MEDIUM	2
20174	RISER PLATE - THICK	2
20388	ROCK SHEAR	1
20158	FELT SEAL	5
10965	DUST BAG	1
10605	8AM AIR MOTOR REPAIR KIT	1
10618	VARIABLE SPEED BELT	1
	(ELECTRIC DRIVE ONLY)	1



NOTE: **WEAR PATE, FEED BOWL AND GOOSENECK WILL BE DETERMINED BY THE MACHNE SYSTEM SETUP.**

RECOMMENDED SPARE PARTS - 215A/215E

PART#	DESCRIPTION	QTY
10780	15 PKT LA ROTARY FEED WHEEL	1
10333	WEAR PAD	60
10781	15 PKT STANDARD ROTARY FEED WHEEL	1
10334	WEAR PAD	60
10778	20 PKT ROTARY FEED WHEEL	1
10334	WEAR PAD	60
10783	12 PKT ROTARY FEED WHEEL	1
10333	WEAR PAD	60
10042	1 1/2" L.T. GOOSENECK	1
13312	1 1/2" GOOSENECK LINER	5
10043	1 1/4" SOLID GOOSENECK	1
10044	1 1/2" SOLID GOOSENECK	1
10045	2" SOLID GOOSENECK	1
10046	2" L.T. GOOSENECK	1
10958	2" GOOSENECK LINER	5
10323	DUST BAG	1
10325	DUST BAG CLAMP	1
10825	RISER PLATE - MEDIUM	2
10826	RISER PLATE - THICK	2
10827	RISER PLATE - THIN	2
10728	SPINDLE STUD	6
13011	FELT SEAL	5
10606	16AM AIR MOTOR REPAIR KIT	1
13223	ROCK SHEAR - WIDE	1
13224	ROCK SHEAR - NARROW	1
10618	VARIABLE SPEED BELT (ELECTRIC DRIVE ONLY)	1







NOTE: WEAR PATE, FEED BOWL AND GOOSENECK WILL BE DETERMINED BY THE MACHNE SYSTEM SETUP.

LOVA 8 TO LOVA 16 CHANGEOVER

PART#	DESCRIPTION	QTY
10603	16AM AIR MOTOR	1
10035	16AM ADAPTER PLATE	1
10036	16AM GASKET	1
10345	MUFFLER WELDMENT	1
10304	1 1/4" X 90 DEGREE ELBOW	1
10265	1 1/4" NIPPLE	1
10344	LOCKWASHER	1
10088	16AM AIR INLET ASSEMBLY	1
NPN	1 X 3/8" DOWEL PIN	2
NPN	1 X 1/16" HEX SCREW	4

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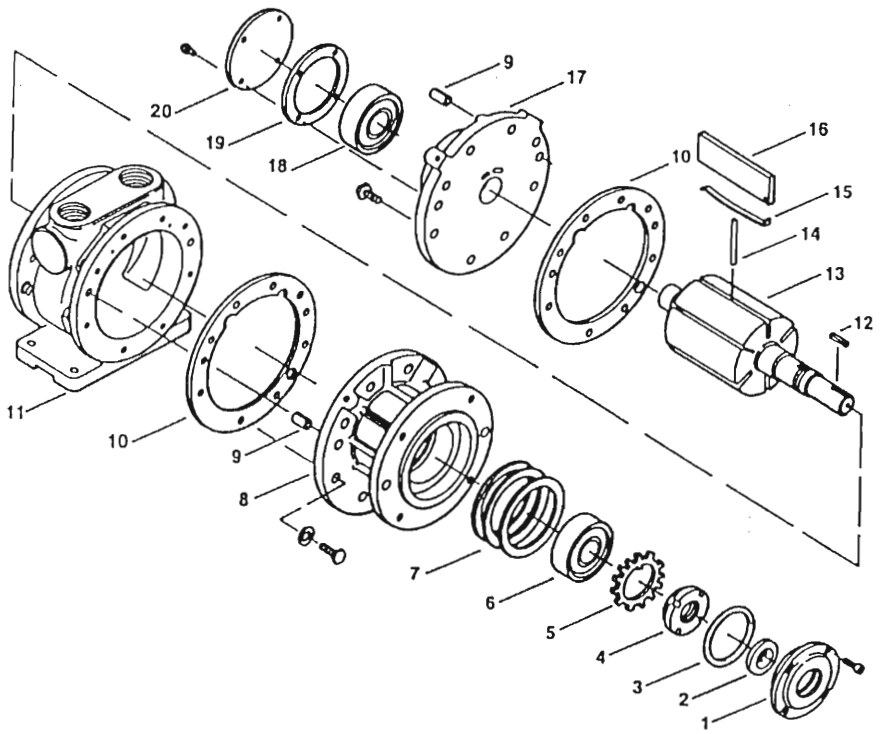
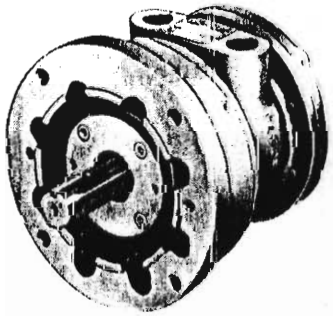
***REED** PNEUMATIC SPRAYING MACHINE MODEL **SOVA SERIES 7** **VENDOR SECTION** CONTAINS THE FOLLOWING FIGURES:*

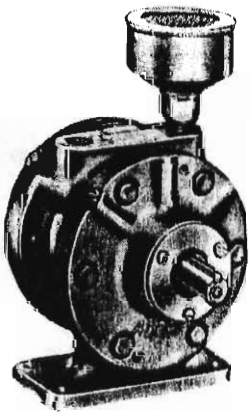
NOTE: WATER SEPARATOR SHOWN IS AN OPTIONAL ACCESSORY. INSTALLATION IS HIGHLY RECOMMENDED.

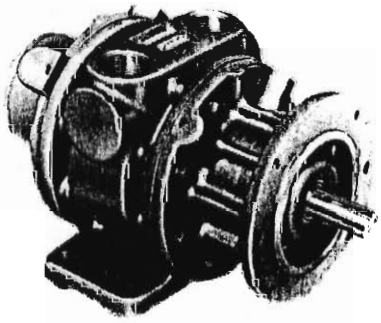


GAST®

6AM, 8AM, and 16AM LUBRICATED AIR MOTORS OPERATION & MAINTENANCE TECHNICAL MANUAL







This is the hazard alert symbol: ⚠ When you see this symbol, be aware that personal injury or property damage is possible. The hazard is explained in the text following the symbol. Read the information carefully before proceeding.

The following is an explanation of the three different types of hazards:

⚠**DANGER** Severe personal injury or death will occur if hazard is ignored.
⚠ **WARNING** Severe personal injury or death can occur if hazard is ignored.
⚠ **CAUTION** Minor injury or property damage can occur if hazard is ignored.

GENERAL INFORMATION

The air motor is designed to be driven by compressed air and under no circumstances be driven with any other gases. The air motor must not be driven by fluids, particles, solids or any substance mixed with air, particularly combustible substances likely to cause explosions.
⚠ **DANGER** Do not drive with flammable or explosive gases.
⚠ **CAUTION** The air motor is designed for air only. Do not allow corrosive gases or particulate material to enter the motor. Water vapor, oil-based contaminants, or other liquids must be filtered out.

Ambient temperature should not exceed 121°C (250°F).

INSTALLATION

The muffler is shipped with the air motor, but not installed. Install a moisture trap and filter in the air line ahead of motor. For efficiency of output and control of speed, use air lines the same size or in the next pipe size larger than the intake port of the motor. A single rotation motor will operate properly in only one direction. A reversible motor will work equally in both directions. A 4-way valve which can be connected by piping to both air ports of the motor will make reversing possible. When coupling or connecting the motor to a driven member, avoid any end or side thrust on the shaft and especially do not hammer on the shaft itself or on the coupling or pulley you might attach.

LUBRICATION - USE A DETERGENT SAE #10 AUTOMOTIVE ENGINE OIL (GAST PART #AD220)

An automatic air line lubricator, must be installed in the air line just ahead of the air motor. The lubricator should be adjusted to feed one drop of oil for every 50-75 CFM of air going through the motor. Air consumption figures for various models at various speeds and airline pressures can be obtained from your local Gast representative or the factory. Lubrication is necessary for all internal moving parts and rust prevention. Excessive moisture in the air line can cause rust formation in the motor and might also cause ice to form in the muffler due to expansion of air through the motor. The moisture problem can be corrected by installing a moisture separator in the line and also by installing an aftercoolor between the compressor and air receiver.

MOUNTING THE AIR MOTOR

⚠ **WARNING** Beware of any exposed or movable parts. Proper guards should be in place to prevent severe personal or property damage.
The air motor should be mounted on a solid base plate, preferably of metal which in turn should be anchored to a shelf, the floor, or other machinery.

OPERATION

⚠**WARNING** Solid or liquid material exiting the unit can cause eye or skin damage. Keep away from air stream.
⚠**WARNING** Always disconnect the air supply before servicing.
⚠ **CAUTION** Do not allow the air motor to "run free" at high speeds with no loads. Excessive internal heat build up, loss of internal clearances and rapid motor damage will result. See table below for air motor limitations.
⚠**WARNING** These models will exceed 85 db(A)sound level at some operating loads and speeds. Hearing protection should be worn when in close proximity to these models.

Air Motor Performance Limits

Motor Size	Maximum R.P.M.	Maximum Pressure psig	Maximum Torque lb.-inch	Maximum Air Consumption cfm
6AM	3000	100	115	130
8AM	2500	100	190	175
16AM	2000	100	375	280

Maximum Torque and Air Consumption can vary depending on specific operating conditions.

STARTING

The starting torque is less than the running torque and could vary depending on the position at which the vanes stop in relation to the air intake port. The speed and torque can be regulated by using a pressure regulator or a simple shut-off valve to obtain desired power and conserve air.

SHUTDOWN AND STORAGE PROCEDURE

1. Turn off air intake supply and remove plumbing.
2. Remove air motor from the connecting machinery.
3. Use clean, dry air at low pressure to "flush out" condensates, such as water.

⚠**WARNING** Solid or liquid material exiting the unit can cause eye or skin damage. Keep away from the air stream.

4. Re-lubricate the air motor with a squirt of oil in the chamber. Rotate the shaft by hand several times.
5. Plug or cap each port. The unit is now ready for storage.

SERVICING

If unit requires more than installation of a service kit, it is usually quickest and least expensive to send the unit in for repair.

⚠ **WARNING** To prevent explosive hazard DO NOT drive this air motor with combustible gases. Injury and/or property damage can result.

⚠ **WARNING** DO NOT USE KEROSENE OR OTHER COMBUSTIBLE SOLVENTS.

⚠ **WARNING** Eye protection is REQUIRED. Keep face away from exhaust port and do not flush unit with flammable solvent.

⚠ **WARNING** Foreign material exiting the air motor can be hazardous.

⚠ **CAUTION** Do not drive the air motor in excess of the recommended speeds.

If the motor is sluggish or inefficient, try flushing with solvent*.

-To flush a unit, disconnect air line and muffler and add several teaspoons or spray solvent directly into the motor.

-Rotate the shaft by hand in both directions for a few minutes, reconnect the air line and slowly apply pressure until there is no trace of solvent in exhaust air.

-Flush unit in a well ventilated area.

-Re-lubricate the motor with a squirt of oil in the chamber.

NOTE: If the vanes need replacing or foreign materials are present in motor chamber, an experienced mechanic may remove the end plate opposite the drive shaft end. DO NOT PRY WITH A SCREWDRIVER. It will dent the surface of the plate and body causing leaks.

A puller tool should be used which will remove the endplate while maintaining the position of the shaft. New vanes should have the edge with the corners cut on angle or the notched edge (if reversible) towards the bottom of the vane slot.

*Recommended solvent for air motors and lubricated pumps is Gast Flushing solvent part # AH255B ,
Loctite Safety Solvent, or Inhibisol Safety Solvent.

Air Motor Clearance Chart

US/IMPERIAL (IN) / METRIC (mm)		
Model	Total End Clearance	Top Clearance
6AM	0.0035 / 0.0889	0.0015 / 0.0381
8AM	0.0048 / 0.1219	0.0015 / 0.0381
16AM	0.0060 / 0.1524	0.0015 / 0.0381

GAST WARRANTY

REGARDLESS OF CAUSE, if a product you buy from Gast does not work right, Gast will repair or replace it once, at no charge, for up to one year from the date of shipment from the factory.

In the course of repair or replacement, Gast may send you written recommendations on how to prevent a problem from happening again. Gast reserves the right to withdraw this warranty if you do not follow these recommendations. Customer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls and gasoline engines, which Gast obtains from other manufacturers. A motor or engine carries only the warranty of the company that makes it.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE. GAST'S LIABILITY IS IN ALL CASES LIMITED TO THE REPLACEMENT PRICE OF ITS PRODUCT. GAST SHALL NOT BE LIABLE FOR ANY OTHER DAMAGES, WHETHER CONSEQUENTIAL, INDIRECT, OR INCIDENTAL, ARISING FROM THE SALE OR USE OF ITS PRODUCTS.

Gast's sales personnel may modify this warranty, but only by signing a specific, written description of any modifications.

Troubleshooting Guide

Reason	Low Torque	Low Speed	Won't Run At All	Runs Hot	Runs Good Then Slows Down
Dirt, foreign material	X	X	X		
Internal rust	X	X	X		
Misalignment	X	X	X	X	X
Insufficient air pressure	X	X			
Too small of airline		X			
Restricted exhaust		X			X
Poor lubrication	X	X	X	X	
Jammed machine	X	X	X		X
Compressor too small		X			X
Compressor too far from unit		X			X

IMPORTANT INFORMATION

⚠ **WARNING** Gast air-powered gearmotors are not self locking. In applications where a brake is required for safety, in case of air pressure failure, contact your Distributor.

Before starting a stored unit or re-starting an inactive unit, the oil level should be returned to the proper level. See Recommended Oil Chart.

SPECIFICATIONS FOR GR11 GEAR REDUCERS:

Speed Range: (Reducer output Shaft) 33.3 RPM to 400 RPM
Gear Reduction: 15:1
Maximum Allowable End Thrust: (Reducer output Shaft) 100 lbs. with 0 overhung load.
Maximum Allowable Overhung Load: (Reducer output Shaft) Ranges from 100 lbs. at 400 RPM with 0 end thrust to 200 lbs. at 33.3 RPM with 0 end thrust.

SPECIFICATIONS FOR GR20 GEAR REDUCERS:

Speed Range: (Reducer ouput Shaft) 30 RPM to 300 RPM
Gear Reduction: 10:1
Maximum Allowable End Thrust: (Reducer output Shaft) Ranges from 200 lbs. at 300 RPM with 0 overhug load to 800 lbs. at 30 RPM with overhung load.
Maximum Allowable Overhung Load: (Reducer output Shaft) Ranges from 200 lbs. at 300 RPM with 0 end thrust to 600 lbs. at 33.3 RPM with 0 end thrust.

SPECIFICATIONS FOR GR25 GEAR REDUCERS:

Speed Range: (Reducer ouput Shaft) 20 RPM to 200 RPM
Gear Reduction: 15:1
Maximum Allowable End Thrust: (Reducer output Shaft) Ranges from 135 lbs. at 200 RPM with 0 overhung load to 535 lbs. at 20 RPM.
Maximum Allowable Overhung Load: (Reducer output Shaft) Ranges from 135 lbs. at 200 RPM with 0 end thrust to 400 lbs. at 20 RPM.

WORM GEAR REDUCERS

IMPORTANT INFORMATION

A breather plug is shipped along with the gear reducer. It must be installed in place of the top pipe plug (used for shipping), to allow proper venting.

⚠ **CAUTION** Operation without venting can cause internal pressure to build and will damage internal parts of the gear reducer.

Before starting a stored unit or re-starting an inactive unit, the oil level should be returned to the proper level.

RECOMMENDED OIL FOR GEARBOX

To assist in selection of proper lubrication we have listed names by company. For service, parts, or repair of the WORM GEAR REDUCER, contact the manufacturer shown on the gear reducer label.

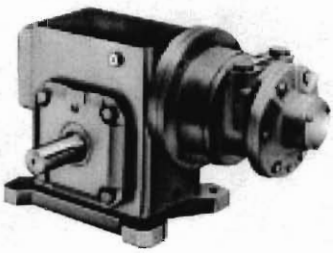
MANUFACTURER	50 to 125°F (10 to 52°C) Ambient Temperature AGMA Compound No. 8
Amoco	American Cyl. Oil 680
Cities Service Oil Co.	Citgo Cyl. Oil 680-7
Gulf Oil Corporation	Senate 680
Mobil Oil Company	Extra HECLA, Super C.O. or Mobil Gear 680
Kendall	Kendco 206 Comp.
Texaco Incorporated	Honor Cyl. Oil 680 or Meropa 680
Shell Oil Company	Valvata Oil J-680 or Omala 680
Unocal	Steaval C-200

LUBRICATED AIR MOTORS

OPERATION & MAINTENANCE MANUAL

Model 2AM Shown

Model 4AM Shown



Model 6AM Shown

Model 16AM Shown

Thank you for purchasing this Gast product. It is manufactured to the highest standards using quality materials. Please follow all recommended maintenance, operational and safety instructions and you will receive years of trouble free service.

IMPORTANT: PLEASE READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE.

General Information

- **Clearances:**

Model	Total End Clearance (in/mm)	Top Clearance (in/mm)
1AM/1 UP	0.0020/0.0508	0.0015/0.0381
2AM	0.0025/0.0635	0.0015/0.0381
2AM *	0.0025/0.0635	0.0025/0.0635
4AM	0.0035/0.0889	0.0015/0.0381
4AM *	0.0035/0.0889	0.0025/0.0635
6AM	0.0035/0.0889	0.0015/0.0381
8AM	0.0048/0.1219	0.0015/0.0381
16AM	0.0060/0.1524	0.0015/0.0381

* Models with the last three digits greater than 500 (ie 2AM XXX-501)

- **Vane Life:** Depends upon speed, operating pressure and motor maintenance.
- **Operating Pressure:** 100 psi or below (7 bar)

Product Use Criteria:

- Operate at temperature up to 250°F (121°C).
- Protect unit from dirt and moisture.
- Use ONLY compressed air to drive motor.
- Air lines connected to motor should be the same size or the next size larger than the intake port for efficient output and speed control.
- Protect all surrounding items from exhaust air.
- Bearings are grease packed.
- Use Gast #AD220 or a detergent SAE#10 automotive engine oil for lubricating.

GAST
A Unit of IDEX Corporation

ISO 9001 & 14001 CERTIFIED

www.gastmfg.com

Your safety and the safety of others is extremely important.

We have provided many important safety messages in this manual and on your product. Always read and obey all safety messages.

This is the safety alert symbol. This symbol alerts you to hazards that can kill or hurt you and others. The safety alert symbol and the words "DANGER" and "WARNING" will precede all safety messages. These words mean:

⚠ DANGER

You will be killed or seriously injured if you don't follow instructions.

⚠ WARNING

You can be killed or seriously injured if you don't follow instructions.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the safety instructions are not followed.

INSTALLATION

Correct installation is your responsibility. Make sure you have the proper installation conditions and that the specified installation clearances are available.

⚠ WARNING

Injury Hazard

Install proper guards as needed.

Failure to follow this instruction can result in burns or other serious injury.

Mounting

This product can be installed in any orientation. Mount the motor to a solid base plate that is mounted to a stable, rigid operating surface. Install a pressure regulator or simple shut-off valve to control motor.

Connection

Check the direction of the motor airflow. A single rotation motor will operate properly only in one direction. Install a filter in the air line before the connection to the motor. Connect lines to motor in the proper direction. A reversible motor will work equally well in both directions. Connecting a 4-way valve with piping to both air ports of the motor will make reversing possible.

Do not add any thrust to the end or side of the shaft when making connections. Do not use a hammer on the shaft or connections.

Accessories

A muffler is shipped with the air motor (except 16AM) but is not installed. Consult your Gast representative for additional filter recommendations. Install a moisture trap and filter in the air line ahead of the motor. For the most efficient output and control of speed, use air lines that are the same size or the next pipe size larger than the motor intake port.

An automatic air line lubricator should be installed 18" or as close as possible in the air line just ahead of the motor. Adjust the lubricator to feed one drop of oil for every 50-75 CFM of air moving through the motor. Air consumption at various speeds and pressures are available from your local Gast representative or the factory.

OPERATION

⚠ WARNING

Injury Hazard

Air stream from product may contain solid or liquid material that can result in eye or skin damage.

Do Not use combustible gases to drive this motor.

Wear hearing protection. Sound level from motor may exceed 85db(A).

Failure to follow these instructions can result in burns, eye injury or other serious injury.

It is your responsibility to operate this product at recommended speeds, loads and room ambient temperatures. Do not run the motor at high speeds with no load. This will result in excessive internal heat that may cause motor damage.

The starting torque is less than the running torque. The starting torque will vary depending upon the position of the vanes when stopped in relation to the air intake port.

Use a pressure regulator and/or simple shut-off valve to regulate the motor's speed and torque. This will provide the required power and will conserve air.

MAINTENANCE

⚠ WARNING

Injury Hazard

Disconnect air supply and vent all air lines.

Wear eye protection when flushing this product.

Air stream from product may contain solid or liquid material that can result in eye or skin damage.

Flush this product in a well ventilated area.

Do Not use kerosene or other combustible solvents to flush this product.

Failure to follow these instructions can result in burns, eye injury or other serious injury.

It is your responsibility to regularly inspect and make necessary repairs to this product in order to maintain proper operation.

Lubrication

Use Gast #AD220 or a detergent SAE #10 automotive engine oil for lubricating. Lubricating is necessary to prevent rust on all moving parts. Excessive moisture in the air line may cause rust or ice to form in the muffler when air expands as it passes through the motor. Install a moisture separator in the air line and an after cooler between compressor and air receiver to help prevent moisture problems.

Manual Lubrication

Shut the air motor down and oil after every 8 hours of operation. Add 10-20 drops of oil to the air motor intake port.

Automatic Lubrication

Adjust inline oiler to feed 1 drop of oil per minute for high speed or continuous duty usage. Do Not overfeed oil or exhaust air may become contaminated.

Check intake and exhaust filters after first 500 hours of operation. Clean filters and determine how frequently filters should be checked during future operation. This one procedure will help assure the product's performance and service life.

Flushing

Flushing this product to remove excessive dirt, foreign particles, moisture or oil that occurs in the operating environment will help to maintain proper vane performance. Flush the motor if it is operating slowly or inefficiently.

Use only Gast #AH255B Flushing Solvent. DO NOT use kerosene or ANY other combustible solvents to flush this product.

1. Disconnect air line and muffler.
2. Add flushing solvent directly into motor. If using liquid solvent, pour several tablespoons directly into the intake port. If using Gast #AH255B, spray solvent for 5-10 seconds into intake port.
3. Rotate the shaft by hand in both directions for a few minutes.
4. **You must wear eye protection for this step.** Cover exhaust with a cloth and reconnect the air line. Slowly apply pressure until there is no trace of solvent in the exhaust air.
5. Listen for changes in the sound of the motor. If motor sounds smooth, you are finished. If motor does not sound like it is running smoothly, installing a service kit will be required. (See "Service Kit Installation").

Check that all external accessories such as relief valves or gauges are attached and are not damaged before operating product.

Shutdown

It is your responsibility to follow proper shutdown procedures to prevent product damage.

1. Turn off air intake supply.
2. Disconnect plumbing.
3. Remove air motor from connected machinery.
4. **Wear eye protection.** Keep away from air stream.
   Use clean, dry air to remove condensation.
5. Lubricate motor with a small amount of oil in chamber. Rotate shaft by hand several times.
6. Plug or cap each port.
7. Coat output shaft with oil or grease.
8. Store motor in a dry environment.

SERVICE KIT INSTALLATION

Gast will NOT guarantee field-rebuilt product performance. For performance guarantee, the product must be returned to a Gast authorized service facility.

Service kit contents vary. Most contain vanes, end cap gasket, body gasket, bearings and a muffler element or felt.

Major and Minor Rebuilds

Tool kits which include a more in-depth rebuild manual are available through your Gast distributor. These kits include the tools required to remove and reassemble end plates, bearings and shaft seals, and to set the proper end clearance. The rebuild manual also includes step by step instructions, including illustrations, to help achieve a successful rebuild. Gast Manufacturing, Inc. highly recommends using the air motor rebuild manual and tool kit when attempting a minor or major rebuild to your Gast air motor.

Minor Rebuild:

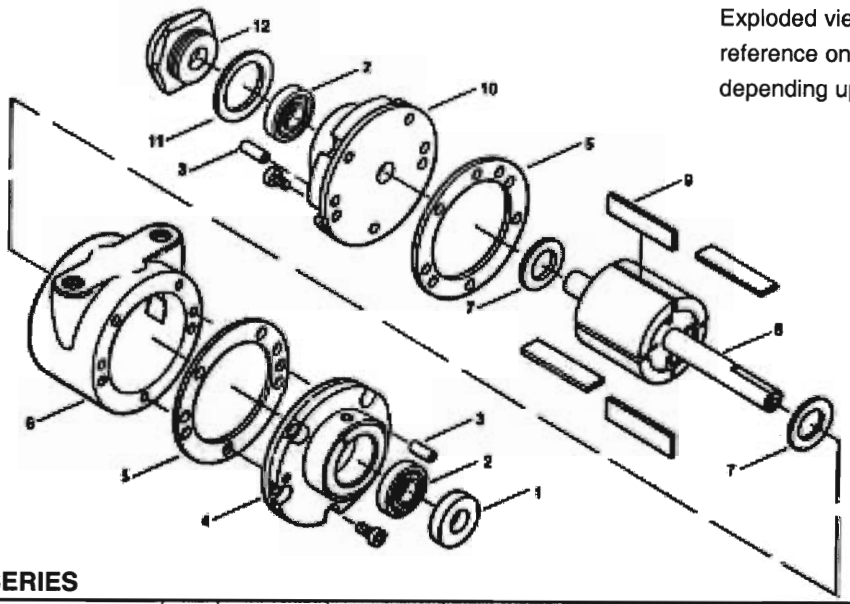
1. Remove the end cap.
2. Remove dead end plate bolts.
3. Remove dead end plate. (Use factory issued tool, do not use screwdriver to remove the end plate.
4. Remove the dowel pins from the body and push back into end plate until flush or just below the machined surface of the end plate.
5. Remove vanes.
6. Clean parts. Check for scoring on the end plate and rotor assembly. If scoring exists, send unit to a Gast authorized service facility.
7. **Lubricated models only:** Lightly oil and reinstall vanes.
8. Place the proper end plate gasket on the end plate. If the original is damaged, replace with a new one supplied in the Service Kit.
9. Place the dead end plate on the body.
10. Press the bearing onto the shaft using a factory supplied bearing pusher.
11. Tap dowel pins into body and install end plate bolts. Tighten bolts to 75-100 in-lbs.
12. Set end clearance as required by model:
    1AM-4AM and NL22-NL52 models - use the bearing taper from kit to lightly tap on inner race of the dead end bearing to free up and center the rotor in the body.
    6AM-8AM models - lightly strike the drive end shaft with a soft hammer to push the rotor away from the drive end plate. The rotor must NOT rub on either end plate.
13. Reattach end cap.
14. **If the air motor is lubricated**, apply a few drops of Gast #AD220 lubricant into ports. Rotate shaft by hand for a few rotations.

Major Rebuild:

1. Remove the end cap.
2. Remove dead end plate bolts.

3. Remove dead end plate. (Use factory issued tool, do not use screwdriver to remove the end plate.)
4. Remove the dowel pins from the body and push back into end plate until flush or just below the machined surface of the dead end plate.
5. Remove rotor using an arbor press.
6. Remove vanes and ejection mechanism if reversible. (Ejection mechanisms may consist of vane springs, pins, caps or cam rings.)
7. Remove shaft seal and bearings from drive end plate and bearing from dead end plate. (Use factory issued tool.)
8. Do Not remove drive end plate bolts or drive end plate.
9. Clean parts. Check for scoring on the end plates and rotor assembly. If scoring exists, send unit to a Gast authorized service facility.
10. **For reversible models only:**
    1AM and 1UP models - place a new cam ring between the rotor and the drive end plate.
    2AM and 4AM models - place springs and caps in rotor.
    6AM, 8AM and 16AM models - install push pins.
11. Place the drive shaft of the rotor assembly through the drive end plate. Press the drive bearing onto the drive shaft using a factory supplied bearing pusher.
12. Using the bearing taper from the Tool Kit, lightly tap on inner race of the drive end bearing to snug up rotor to drive end plate.
13. Install new vanes as required by model:
    All single rotation units - the angle cuts on the vane face to center of the rotor.
    Reversible units 2AM and 4AM - the notch on vane faces to center of the rotor.
    6AM, 8AM and 16AM models - install the vane spring lip into the notch at one end of the vane and place in rotor vane slot with spring facing pushpin.
14. Place the proper end plate gasket on the body of dead end. If the original is damaged, replace with a new one supplied in the service kit.
    If your air motor uses O-rings, place the new O-rings in the body groove. Some models do not use end plate gaskets or O-rings.
15. Place the dead end plate on the body.
16. Install the dead end bearing and press into place with bearing pusher tool from tool kit.
17. Install the dowel pins.
18. Fully tighten the remaining bolts to 75-100 in-lbs.
19. Set end clearance as required by model:
    1AM-4AM and NL22-NL52 models - use the bearing taper from the Tool Kit and lightly tap on the inner race of the dead end bearing to free up and center the rotor in the body.
    6AM-8AM models - lightly strike the drive end shaft with a soft hammer to push the rotor away from the drive end plate. The rotor must NOT rub on either end plate.
20. Apply a small amount of grease to bearing seal and install the drive end bearing seal by pressing flush with bearing pushing tool from Tool Kit.
21. Reattach end cap.
22. **If the air motor is lubricated**, apply a few drops of Gast #AD220 lubricant into ports and rotate shaft by hand for a few rotations.

EXPLODED PRODUCT VIEW, PARTS & ORDERING INFORMATION



Exploded views are shown for reference only. Units may vary depending upon specific model.

1AM SERIES

REF#	DESCRIPTION	QTY	1AM-NCC-12	1AM-NCW-14	1AM-NRV-39A	1AM-NRV-56	1AM-NRV-60	1AM-NRV-63A
1 Δ	SEAL	1	AC190A	AC190A	AC190A	AC190A	AC190A	AC190A
2 Δ	BEARING	2	AG549	AG549	AG549	AG549	AG549	AG549
3	DOWEL PIN	4	D324A	D324A	D324A	D324A	D324A	D324A
4	DRIVE END PLATE	1	AC537	AC539	AC520	AC520D	AC520D	AC520
5 ΔΔ	SHIMS	2	AC527B	AC527B	AC527B	AC527B	AC527B	AC527B
6	BODY	1	AC521	AC521	AC191	AC191	AC191	AC191
7	CAM RING	2			AC195	AC195	AC195	AC195
8	ROTOR ASSEMBLY	1	AC524	AC536	AC193	AC187	AC607	AC193B
9 Δ	VANE	4 8	AC205A	AC205A	AC259A	AC259A	 AC259A	 AC259A
10	DEAD END PLATE	1	AC538	AC540	AC192	AC192	AC192	AC192
11 Δ	END CAP GASKET	1	AC229	AC229	AC229	AC229	AC229	AC229
12	DEAD END CAP	1	AC228A	AC228A	AC228A	AC228A	AC228A	AC228A
*** Δ	MUFFLER	1	AF350	AF350	AF350	AF350	AF350	AF350
***	FOAM	1	AG896	AG896	AG896	AG896	AG896	AG896
***	SERVICE KIT	1	K200	K200	K201	K201	K278	K278

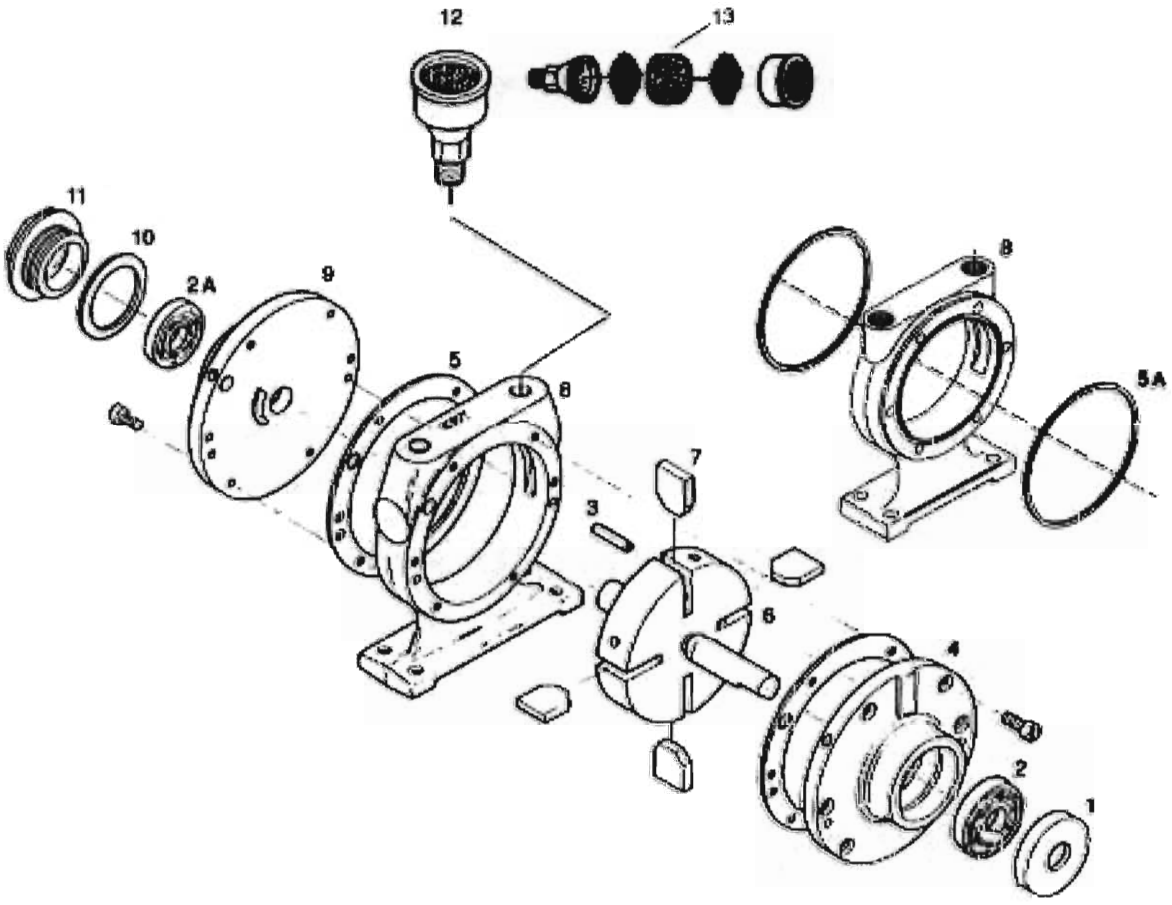
1UP SERIES

REF#	DESCRIPTION	QTY	1UP-NCC-1A	1UP-NCW-2A	1UP-NRV-3A	1UP-NRV-4	1UP-NRV-10	1UP-NRV-11
1 Δ	SEAL	1	AC190A	AC190A	AC190A	AC190A	AC190A	AC190A
2 Δ	BEARING	2	AG549	AG549	AG549	AG549	AG549	AG549
3	DOWEL PIN	4	D324A	D324A	D324A	D324A	D324A	D324A
4	DRIVE END PLATE	1	AC616	AC520B	AC520	AC520D	AC520	AC520D
5 ΔΔ	SHIMS	2	AC527B	AC527B	AC527B	AC527B	AC527B	AC527B
6	BODY	1	AE899	AE899	AE898	AE898	AE898	AE898
7	CAM RING	2			AC195	AC195	AC195	AC195
8	ROTOR ASSEMBLY	1	AE896	AE895	AE897	AF746	AE319	AE333
9 Δ	VANE	4 8	AE893	AE893	AE894	AE894	 AE894	 AE894
10	DEAD END PLATE	1	AC617	AC192A	AC192	AC192	AC192	AC192
11 Δ	END CAP GASKET	1	AC229	AC229	AC229	AC229	AC229	AC229
12	DEAD END CAP	1	AC228A	AC228A	AC228A	AC228A	AC228A	AC228A
*** Δ	MUFFLER	1	AF350	AF350	AF350	AF350	AF350	AF350
***	FOAM	1	AG896	AG896	AG896	AG896	AG896	AG896
***	SERVICE KIT	1	K285	K285	K286	K286	K298	K298

*** Item not shown.
Δ Denotes parts included in the Service Kit.
ΔΔ Parts used on models manufactured prior to 1998.
Parts listed are for stock models. For specific OEM models, please consult the factory.
When corresponding about or ordering parts, please give complete model and serial numbers.

EXPLODED PRODUCT VIEW, PARTS & ORDERING INFORMATION

Exploded views are shown for reference only. Units may vary depending upon specific model.

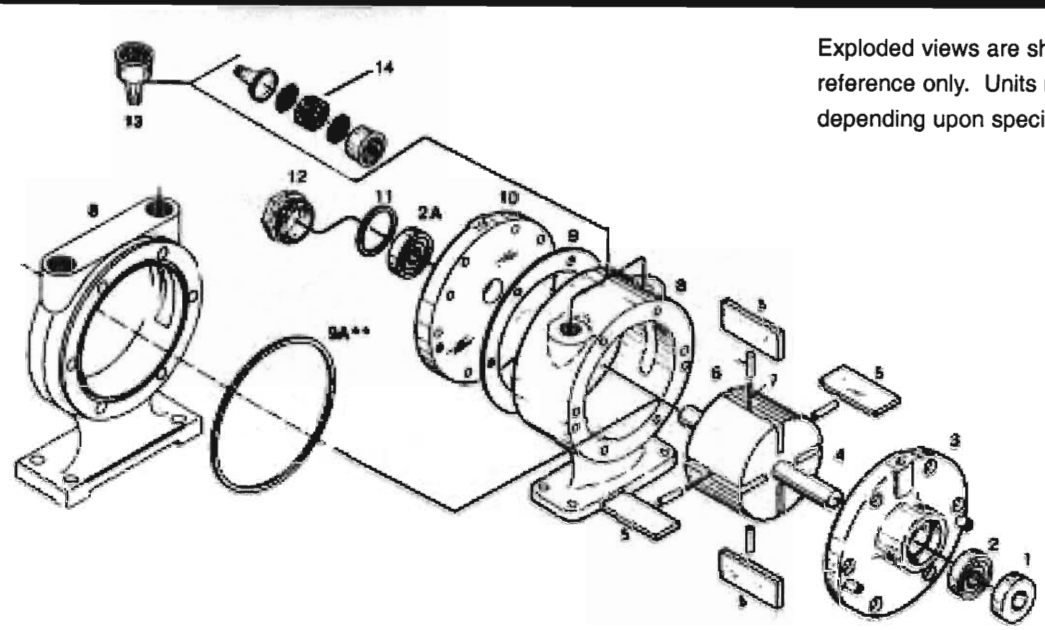


2AM SERIES

REF#	DESCRIPTION	QTY	2AM-FCC-1	2AM-NCW-7A	2AM-FCW-13	2AM-NCC-16	2AM-NCC-43A	2AM-ACC-88 METRIC
1 Δ	SHAFT SEAL	1	AA466B	AA466B	AA466B	AA466B	B2328	B2328
2 Δ	DRIVE END BEARING	1	AA299J	AA299J	AA299J	AA299J	AB519	AB519
2A Δ	DEAD END BEARING	1	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J
3	DOWEL PIN	4	AB162	AB162	AB162	AB162	AB162C	AB162C
4	DRIVE END PLATE	1	AC720	AC726	AC722	AC724	AG708	AK425A
5 Δ **	SHIMS	2	B330	B330	B330	B330	B330	B330
6	ROTOR ASSEMBLY	1	AA470A	AA489A	AA489A	AA470A	AM449A	AM449B
7 Δ	VANE	4	AA13B	AA13B	AA13B	AA13B	AA13B	AA13B
8	BODY	1	AA477	AA467	AA477	AA467	AA467	AA467F
9	DEAD END PLATE	1	AC721	AC723	AC723	AC721	AC721	AB622N
10 Δ	END CAP GASKET	1	AA46	AA46	AA46	AA46	AA46	AA46
11	END CAP	1	AM307D	AM307D	AM307D	AM307D	AM307D	AM307D
12	MUFFLER ASSEMBLY	1	AC980	AC980	AC980	AC980	AC980	AC980
13	MUFFLER FELT	1	AC983	AC983	AC983	AC983	AC983	AC983
***	SERVICE KIT	1	K202	K202	K202	K202	K203A	K203A

*** Item not shown.
** #AL484 (5A) O-ring replaces shim on some models.
Δ Denotes parts included in the Service Kit.
Parts listed are for stock models. For specific OEM models, please consult the factory.
When corresponding or ordering parts, please give complete model and serial numbers.

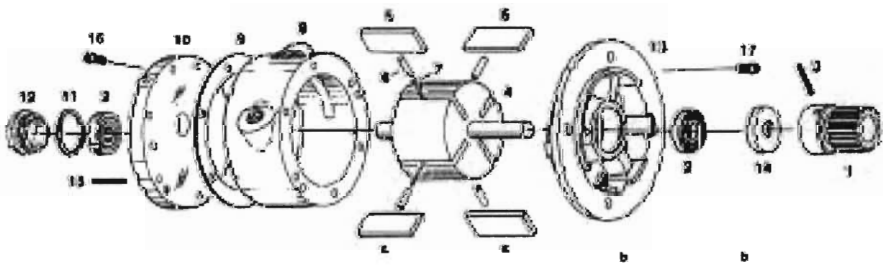
EXPLODED PRODUCT VIEWS, PARTS & ORDERING INFORMATION



Exploded views are shown for reference only. Units may vary depending upon specific model.

4AM SERIES

REF#	DESCRIPTION	QTY	4AM-FRV-13C	4AM-NRV-22B	4AM-FRV-24	4AM-NRV-50C	4AM-NRV-54A	4AM-NRV-70C	4AM-ARV-119 METRIC	4AM-ARV-120 METRIC
1 Δ	SHAFT SEAL	1	AA466B	AA466B	AA466B (2)	B2328	AA466B	B2328	B2328	B2328
2 Δ	DRIVE END BEARING	1	AA299J	AA299J	AA299J	AB519	AA299J	AB519	AB519	AB519
2A Δ	DEAD END BEARING	1	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J
3	DRIVE END PLATE	1	AC727	AC665	AC727	AG707	AC665	AG707	AK425A	AK425A
4	ROTOR ASSEMBLY	1	AB617	AB617	AM426	AM455A	AM411	AM319A	AM455C	AM455B
5 Δ	VANE	4 8	AB876	AB876	AB876	AB876	AB876	AB876	AB876	AB876
6 Δ	PUSH PINS	4 8	AM467	AM467	AM467	AM467	AM467	AM467	AM467	AM467
7 Δ	VANE SPRING	2 4	AM466	AM466	AM466	AM466	AM466	AM466	AM466	AM466
8	BODY	1	AM425	AM410	AM425	AM410	AM410	AM410	AM410M	AM410M
9 Δ **	SHIMS	2	B330	B330	B330	B330	B330	B330	B330	B330
10	DEAD END PLATE	1	AC728	AC728	AC727	AC728	AC728	AC728	AB622M	AB622M
11 Δ	END CAP GASKET	1	AA46	AA46		AA46	AA46	AA46	AA46	AA46
12	DEAD END CAP	1	AM307D	AM307D		AM307D	AM307D	AM307D	AM307D	AM307D
13	MUFFLER ASSEMBLY	1	AC980	AC980	AC980	AC980	AC980	AC980	AC980	AC980
14 Δ	MUFFLER FELT	1	AC983	AC983	AC983	AC983	AC983	AC983	AC983	AC983
***	SERVICE KIT	1	K205	K205	K205G	K206A	K279	K280A	K206C	K206B



4AM SERIES

REF#	DESCRIPTION	QTY	4AM-RV-75
1	GEAR STD.	1	AA294
2 Δ	BEARING	2	AA299J
3	PIN	1	AA297
4	ROTOR	1	AA293
5 Δ	VANE	4	AB876
6 Δ	SPRING PIN	4	AM467
7 Δ	SPRINGS	2	AM466
8	BODY	1	AM410
9 Δ	SHIMS	2	B330
10	DEAD END PLATE	1	AC728
11 Δ	END CAP GASKET	1	AA46
12	END CAP	1	AM307D
13	DRIVE END PLATE	1	AA424
14	SEAL	1	AA466B
15	DOWEL PINS	4	AB162
16	1/4-28 x .50 PFHMS	6	BB631
17	1/4-28 x .625 SHCS	6	BB634
***	SERVICE KIT	1	K205

*** Item not shown.
** #AL484 (9A) O-ring replaces shims on some models.
Δ Denotes parts included in the Service Kit.

Parts listed are for stock models. For specific OEM models, please consult the factory. When corresponding or ordering parts, please give complete model and serial numbers.

EXPLODED PRODUCT VIEW, PARTS & ORDERING INFORMATION

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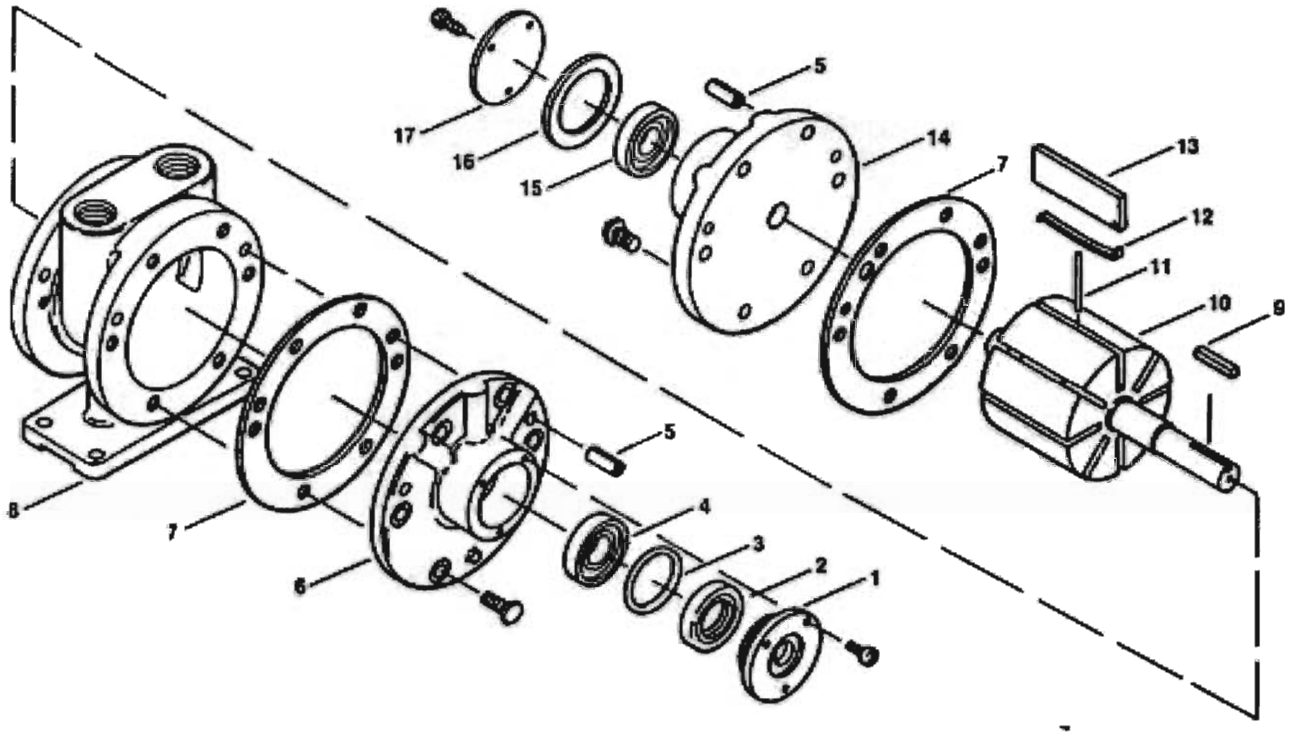


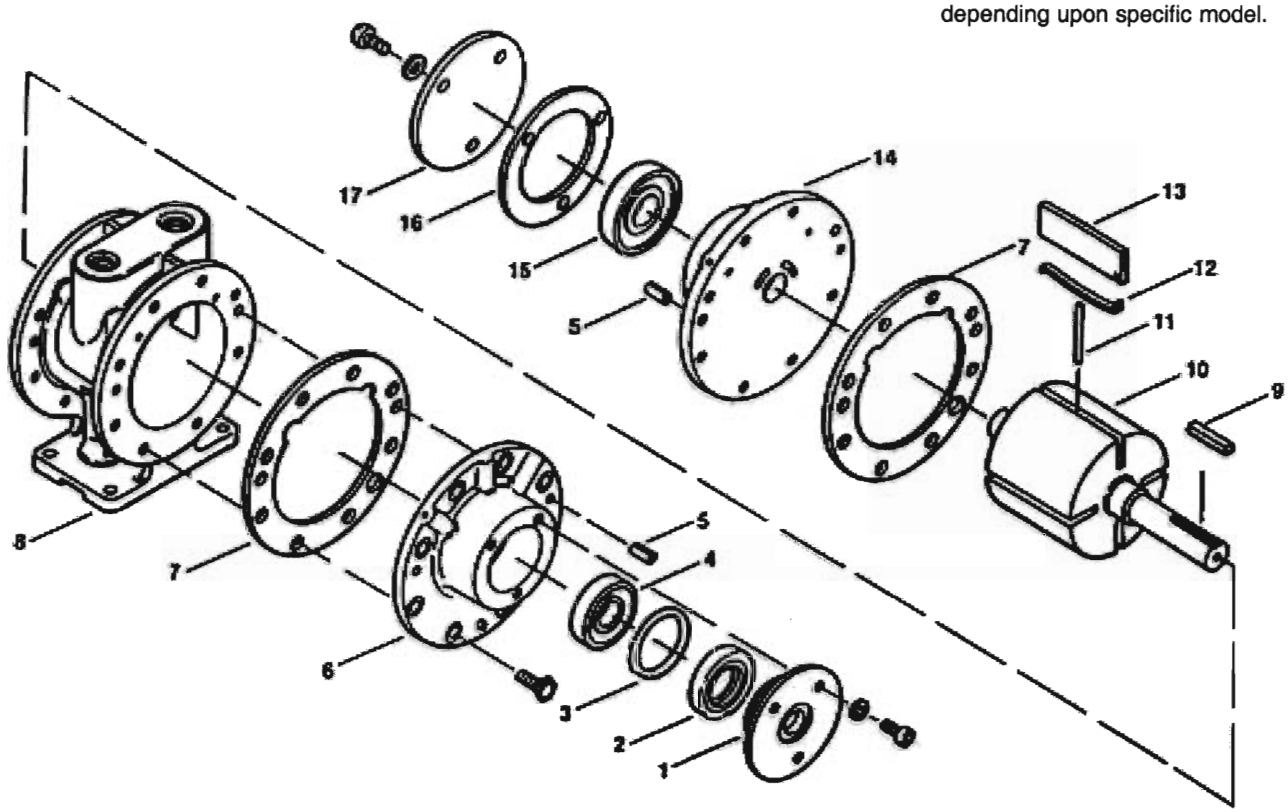
6AM SERIES

REF#	DESCRIPTION	QTY	6AM-FRV-5A	6AM-NRV-7A	6AM-NRV-22A NEMA	6AM-FRV-23A	6AM-ARV-54	6AM-ARV-55	6AM-NRV-11A
1	DRIVE END CAP	1	AD642A	AD642A	AD642A	AD642A	AC988	AC988	AD642A
2 Δ	SHAFT SEAL	1	AC849	AC849	AC849	AC849	AK423	AK423	AC849
3 Δ	O-RING	1	AD649	AD649	AD649	AD649	AC989	AC989	AD649
4 Δ	DRIVE END BEARING	1	AD638A	AD638A	AD638A	AD638A	AC894B	AC894B	AD638A
5	DOWEL PIN	4	AB162	AB162	AB162C	AB162	AB162C	AB162C	AB162C
6	DRIVE END PLATE	1	AD651	AD666	AD667	AD651	AK424	AK424	AD667
7 Δ	BODY GASKET	2	AD641	AD641	AD641	AD641	AD641	AD641	AD641
8	BODY	1	AD650A	AD665	AD665	AD650A	AD665D	AD665D	AD665
9	KEY	1	AB136	AB136	AB136	AB136	AK422	AK422	AB136
10	ROTOR ASSEMBLY	1	AD652	AD652	AC398	AC779	AD648E	AD648D	AD648
11 Δ	PUSH PIN	2	AD655A	AD655A			AD655A		AD655A
		4			AD655A	AD655A		AD655A	
12 Δ	VANE SPRING	4	AD692	AD692			AD692		AD692
		8			AD692	AD692		AD692	
13 Δ	VANE	4	AD691	AD691			AD691		AD691
		8			AD691	AD691		AD691	
14	DEAD END PLATE	1	AD651	AD651	AD651	AD651	AD651	AD651	AD651
15 Δ	DEAD END BEARING	1	AB519	AB519	AB519	AB519	AB519	AB519	AB519
16 Δ	END CAP GASKET	1	AD644	AD644	AD644	AD644	AD644	AD644	AD644
17	DEAD END CAP	1	AD643	AD643	AD643	AD643	AD643	AD643	AD643
***	MUFFLER ASSEMBLY	1	AC990	AC990	AC990	AC990	AC990	AC990	AC990
***	MUFFLER FELT	1	AC993	AC993	AC993	AC993	AC993	AC993	AC993
***	SERVICE KIT	1	K208	K208	K281	K281	K281A	K281B	K208

*** Item not shown.
Δ Denotes parts included in the Service Kit.
Parts listed are for stock models. For specific OEM models, please consult the factory.
When corresponding or ordering parts, please give complete model and serial numbers.

EXPLODED PRODUCT VIEW, PARTS & ORDERING INFORMATION

Exploded views are shown for reference only. Units may vary depending upon specific model.



8AM SERIES

REF#	DESCRIPTION	QTY	8AM-FRV-2B	8AN-NRV-5B	8AM-NRV-28A	8AM-FRV-30A	8AM-NRV-32A	8AM-NRV-42A	8AM-ARV-70 METRIC	8AM-ARV-71 METRIC
1	DRIVE END CAP	1	AC835A	AC835A	AC988	AC835A	AC988	AC835A	AC988	AC988
2 Δ	SHAFT SEAL	1	AC839	AC839	AB936	AC839	AB936	AC839	AK420	AK420
3 Δ	O-RING	1	AC808	AC808	AC989	AC808	AC989	AC808	AC989	AC989
4 Δ	DRIVE END BEARING	1	AA735B	AA735B	AB927	AA735B	AB927	AA735B	AB927	AB927
5	DOWEL PIN	4	AB162	AB162	AB162	AB162	AB162	AB162	AB162	AB162
6	DRIVE END PLATE	2	AC964	AC963	AC965	AC964	AC965	AC963	AK421	AK421
7 Δ	BODY GASKET	2	AC888	AC888	AC888	AC888	AC888	AC888	AC888	AC888
8	BODY	1	AC877A	AC878C	AC878C	AC877A	AC878C	AC878C	AC878G	AC878G
9	KEY	1	AB136D	AB136D	AB136D	AB136D	AB136D	AB136D	AK668	AK668
10	ROTOR ASSEMBLY	1	AC977	AC977	AC986	AC977A	AC986A	AC977A	AC986D	AC986C
11 Δ	PUSH PIN	2 4	AC879	AC879	AC879	AC879	AC879	AC879	AC879	AC879
12 Δ	VANE SPRING	4 8	AC817	AC817	AC817	AC817	AC817	AC817	AC817	AC817
13 Δ	VANE	4 8	AC816	AC816	AC816	AC816	AC816	AC816	AC816	AC816
14	DEAD END PLATE	1	AC964	AC964	AC964	AC964	AC964	AC964	AC964	AC964
15 Δ	DEAD END BEARING	1	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B
16 Δ	END CAP GASKET	1	AC837	AC837	AC837	AC837	AC837	AC837	AC837	AC837
17	DEAD END CAP	1	AC836	AC836	AC836	AC836	AC836	AC836	AC836	AC836
***	MUFFLER ASSEMBLY	1	AC990	AC990	AC990	AC990	AC990	AC990	AC990	AC990
***	MUFFLER FELT	1	AC993	AC993	AC993	AC993	AC993	AC993	AC993	AC993
***	SERVICE KIT	1	K210	K210	K211	K283	K282	K283	K282A	K282B

*** Item not shown.
Δ Denotes parts included in the Service Kit.
Parts listed are for stock models. For specific OEM models, please consult the factory.
When corresponding or ordering parts, please give complete model and serial numbers.

EXPLODED PRODUCT VIEW, PARTS & ORDERING INFORMATION

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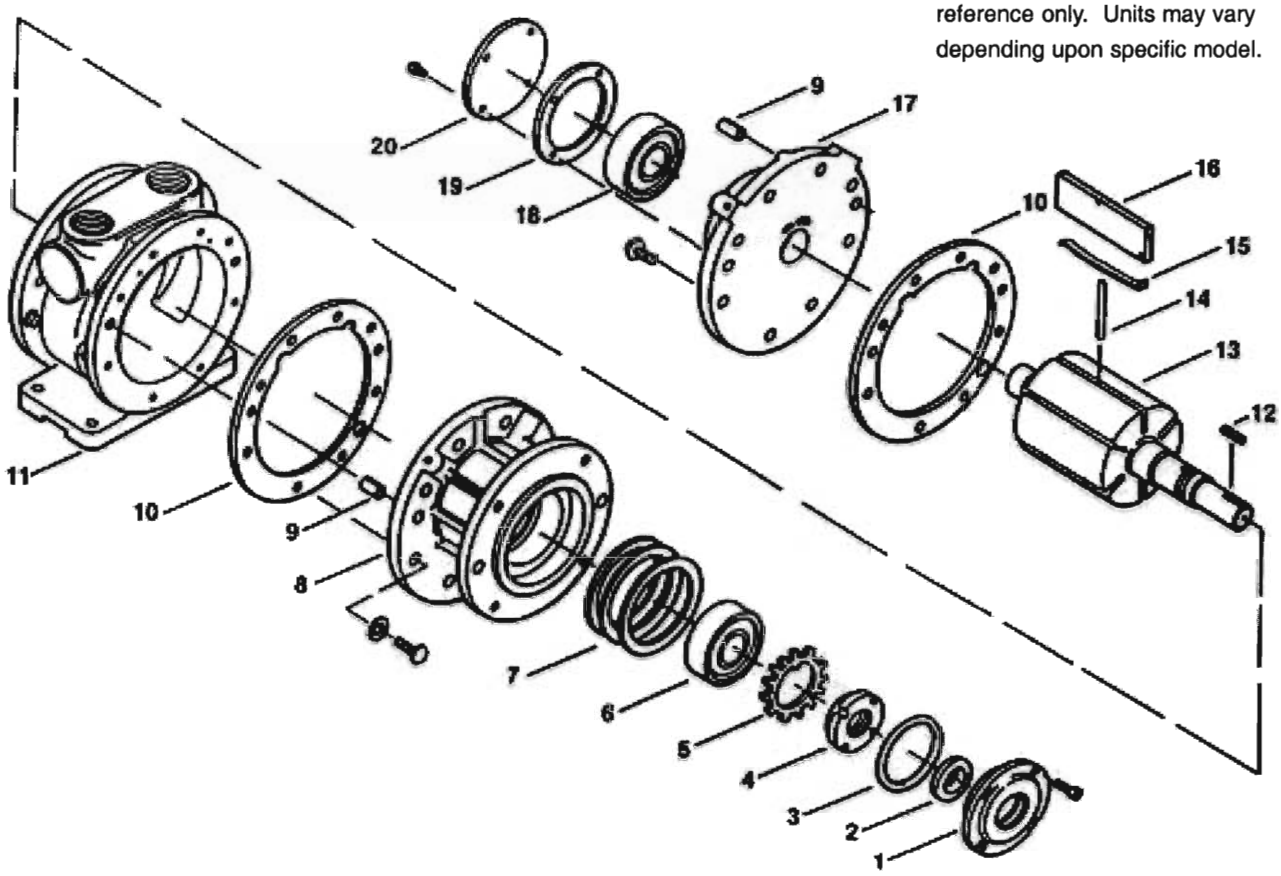


16AM SERIES

REF#	DESCRIPTION	QTY	16AM-FCC-2	16AM-FRV-2	16AM-FRV-13	16AM-FCW-28
1	DRIVE END CAP	1	AD816	AD816	AD816	AD816
2 Δ	SEAL	1	AC627	AC627	AC627	AC627
3 Δ	O-RING	1	AD823	AD823	AD823	AD823
4	LOCKNUT	1	AD784	AD784	AD784	AD784
5 Δ	LOCKWASHER	1	AD712	AD712	AD712	AD712
6 Δ	DRIVE END BEARING	1	AB777A	AB777A	AB777A	AB777A
7	SPACER		AD786	AD786	AD786	AD786
8	DRIVE END PLATE	1	AD771A	AD820A	AC323	
9	DOWEL PIN	4	AB162A	AB162A	AB162A	AB162A
10 Δ	SPACER GASKET	2	AD788	AD788	AD788	
11	BODY	1	AD770	AD819	AD819	AD770B
12	DRIVE KEY	1	AC628	AC628	AB136D	AC628
13	ROTOR ASSEMBLY	1	AD775	AD794	AE807	
14 Δ	PUSH PIN	3		AD822	AD822	
15 Δ	VANE SPRING	6		AD796A	AD796A	
16 Δ	VANE	6	AD781	AD795	AD795	AD781
17	DEAD END PLATE	1	AD773A	AD821A	AD821A	
18	DEAD END BEARING	1	AD802	AD802	AD802	AD802
19	END CAP GASKET	1	AG406	AG406	AG406	AG406
20	DEAD END CAP	1	AG405	AG405	AD405	AG405
***	SERVICE KIT	1	K212	K213	K213	K212

*** Item not shown.
Δ Denotes parts included in the Service Kit.
Parts listed are for stock models. For specific OEM models, please consult the factory.
When corresponding or ordering parts, please give complete model and serial numbers.

STANDARD & WORM GEAR REDUCERS - OPERATING AND MAINTENANCE INSTRUCTIONS

General Information:

The product nameplate specifies all information required when ordering parts or requests for information. The type of lubricant required for unit is also specified on the nameplate.

Product Use Criteria:

- All worm gear reducers require that the air motor be mounted so that the intake and exhaust piping is at a 90° angle to the centerline of the reducer output shaft.
- Gear motors are NOT self-locking. If a brake is required for safety (for air pressure failure, etc.) contact your Gast representative.
- Worm gear reducers are shipped with a plug in the top pipe plug. The plug must be removed and the breather plug installed for proper operation.
- Operating an air motor without venting will create internal pressure build-up which can damage the internal parts of gear motor.
- Check the oil level in units which have been stored or not operated for a period of time.
- Gear motors require proper lubrication. Insufficient oil level can cause loss of performance, damage or failure of the gear motor.

Gear Reducer Specifications

Model	GR11	GR20	GR25
Speed Range (Reducer Output Shaft)	33.3 to 400 RPM	30 to 300 RPM	20 to 200 RPM
Gear Reduction	15:1	10:1	15:1
Maximum Allowable End Thrust With Zero Overhung Load. (Reducer Output Shaft)	100 lbs./45,4 kg	200 lbs/90,8 kg @300 RPM to 800 lbs/363,2 kg at 30 RPM	250 lbs/113,5 kg at 200 RPM to 800 lbs/363,2 kg at 20 RPM
Maximum Allowable Overhung Load With Zero End Thrust. (Reducer Output Shaft)	100 lbs/45,4 kg at 333 RPM to 200 lbs/90,8 kg at 33.3 RPM	200 lbs/90,8 kg at 300 RPM to 600 lbs/272,4 kg at 30 RPM	200 lbs/90,8 kg at 200 RPM to 600 lbs/272,4 kg at 20 RPM
Lubrication	Use a 300 ssu at 100°F/38°C turbine quality lubricant – Gast #AG292A, Gulf Harmony 53, Shell Tellus 33, Socony DTE heavy medium or Humble Nuto 53. **For horizontal operation,** remove both plugs and add oil to top hole until other hole overflows. **For vertical operation,** fill to overflow point of uppermost hole.		

Worm Gear Reducer Series A-F Gear Reducer Specifications

All output shafts are in the standard location.

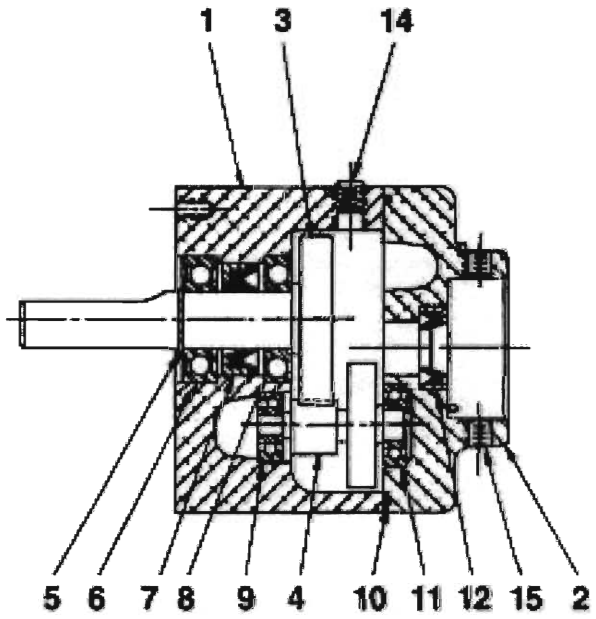
Model	Air Motor	Ratio
AG803	4AM	20:1
AG805	4AM	40:1
AG807	4AM	60:1
AG809	6AM	10:1
AG811	6AM	20:1
AG816	8AM	20:1

Service, Parts or Repair

For service, parts or repair of the worm gear reducer, contact the manufacturer listed on the nameplate.

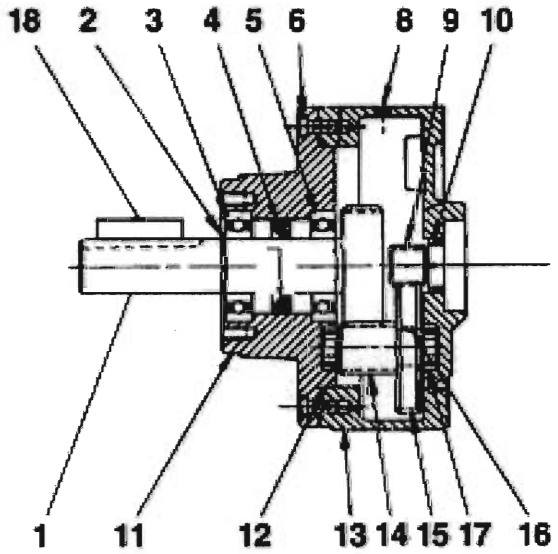
Change output shaft direction

1. Remove drain plug and drain oil from unit.
2. Remove end cover and seal cage cap screws. While supporting output shaft, remove end cover and shims from unit. Keep shims with cover.
3. Remove output shaft and seal cage together from extension side. Keep shims with seal cage.
4. Insert seal cage, shims and sub-assembly into housing from the side opposite from which they were removed.
5. Insert seal cage cap screws and tighten with light pressure.
6. Assemble end cover with shims. Insert end cover cap screws and tighten with light pressure.
7. Turn high speed shaft in both directions to check that gear train is running freely.
8. Cross-tighten seal cage and end cover cap screws.



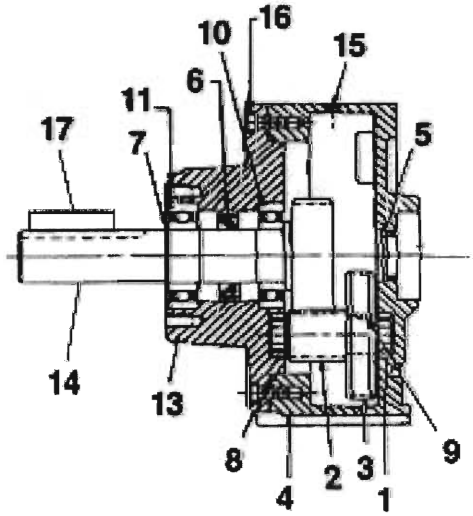
GR11 SERIES

REF# NO.	DESCRIPTION	QTY	PART
1	GEAR HOUSING	1	AC737
2	GEAR HOUSING COVER	1	AC736
3	GEAR SHAFT	1	AC739
4	CLUSTER GEAR	1	AC738
5	SNAP-RING	1	AE189
6	BEARING	1	AE196A
7	SEAL	1	AA517A
8	BEARING	1	AA498
9	BEARING	1	AE195
10	O-RING	1	AD823
11	BEARING	1	AE197
12	SEAL	1	AA623D
13	SCREWS	4	BB542
14	PIPE PLUG	2	BA500
15	SET SCREW	2	BB626
***	DOWEL PIN	2	AE882



GR20 SERIES

REF# NO.	DESCRIPTION	QTY	PART
1	GEAR SHAFT - OUTPUT	1	AE848
2	RETAINING RING	1	AE853
3	BEARING	1	AE858
4	OIL SEAL	1	AE852
5	BEARING	1	AE857
6	SCREW	6	BB652
***	DOWEL PIN	2	AF482
8	MAGNETIC DRAIN PLUG	2	AH471
9	GEAR - INPUT	1	AA294
10	OIL SEAL	1	AE851
11	HOUSING COVER	1	AE849
12	O-RING	1	AE854
13	GEAR HOUSING	1	AE850
14	GEAR SHAFT	1	AE845
15	GEAR - INTERMEDIATE	1	AE846
16	KEY	1	AE855
17	BEARING	2	AG549
18	KEY	1	AC628



GR25 SERIES

REF# NO.	DESCRIPTION	QTY	PART
1	BEARING	2	AG549
2	GEAR SHAFT	1	AE845
3	GEAR INTERMEDIATE	1	AE846
4	GEAR HOUSING	1	AE850
5	SEAL	1	AE851
6	SEAL	1	AE852
7	RETAINING RING	1	AE853
8	O-RING	1	AE854
9	KEY	1	AE855
10	BEARING	1	AE857
11	BEARING	1	AE858
***	DOWEL PIN	2	AF482
13	HOUSING COVER	1	AH278
14	GEAR SHAFT - OUTPUT	1	AH279
15	MAGNETIC DRAIN PLUG	2	AH471
16	SCREWS	6	BB652
17	KEY	1	AC628

*** Item not shown.

WARRANTY

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorized Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Incorporated, PO Box 97, Benton Harbor Michigan USA 49023-0097 or an authorized Service Center (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. Gast's warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.

THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATA, OR PERSON. GAST'S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.

GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labor charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER'S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY IS LIMITED SOLELY, AT GAST'S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NONCONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENT SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.

Unauthorized extensions of warranties by the customer shall remain the customer's responsibility.

CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.

This warranty can be modified only by authorized Gast personnel by signing a specific, written description of any modifications.

MAINTENANCE RECORD

DATE	PROCEDURE PERFORMED

PART NO. 45-200 D170PL (Rev. K)

TROUBLESHOOTING CHART

Problem					
Low Torque	Low Speed	Won't Run	Runs Hot	Runs Well Then Slows Down	Reason & Remedy For Problem.
●	●	●			Dirt or foreign material present. Inspect and clean.
●	●	●			Internal rust. Inspect and clean.
●	●	●	●	●	Vanes misaligned. Realign vanes.
●	●				Low air pressure. Increase pressure.
	●				Air line too small. Install larger line(s).
	●			●	Restricted exhaust. Inspect and repair.
●	●	●		●	Motor is jammed. Disassemble and repair.
	●			●	Air source inadequate. Inspect and repair.
	●			●	Air source too far from motor. Reconfigure setup.

AUTHORIZED SERVICE FACILITIES

Gast Manufacturing Inc.
2550 Meadowbrook Road
Benton Harbor, MI 49022
TEL: 269-926-6171
FAX: 269-925-8288
www.gastmfg.com

Gast Manufacturing Inc.
505 Washington Avenue
Carlstadt, NJ 07072
TEL: 201-933-8484
FAX: 201-933-5545
www.gastmfg.com

Air-Oil Products Corp.
301 30th Street NE 31,#112
Auburn, WA 98002
TEL: 800-282-2672
FAX: 877-808-4601
www.air-oil.com

Brenner Fiedler & Assoc
13824 Bentley Place
Cerritos, CA 90701
TEL: 800-843-5558
TEL: 310-404-2721
FAX: 310-404-7975
www.brenner-fiedler.com

D & F Distributors
1144 Indy Court
Evansville, IN 47725
TEL: 812/867-2441
FAX: 812/867-6822
www.dfdistrib.com

John Henry Foster Co.
4700 Lebourget Drive
St. Louis, MO 63134-0820
TEL: 314-427-0600
TEL: 1-800-444-0522
FAX: 314-427-3502
www.jhf.com

Hydraulic & Pneumatic Sales
11100 Park Charlotte Blvd.
Charlotte NC 28273
TEL: 704-588-3234
FAX: 704-588-1569
www.hpsales.com

James E. Watson & Co.
29 Doran Ave.
Marietta, GA 30060
Ph. 770/422-1154
www.jwatsonco.com

Wainbee Limited
5789 Coopers Avenue
Mississauga, Ontario
Canada L4Z 3S6
TEL: 905-568-1700
FAX: 905-568-0083
http://www.wainbee.ca

Wainbee Limited
215 boul Brunswick
Pointe Claire, Quebec
Canada H9R 4R7
TEL: 514-697-8810
FAX: 514-697-3070
http://www.wainbee.ca

Gast Manufacturing Co., Ltd.
Beech House
Knaves Beech Business Centre
Loudwater, High Wycombe
Bucks, England HP10 9SD
TEL: 011-44 1628 532600
FAX: 011-44 1628 532470
http://www.gastltd.com

Japan Machinery Co., Ltd
Central PO Box 1451
Tokyo, 100-91 Japan
TEL: 813 3573 5421
FAX: 813 3571 7865
or: 81-3-3571-7896
www.japanmachinery.com

NORGREN

L74M, L74C

Installation & Maintenance Instructions

Micro-Fog® and Oil-Fog Tool Lubricators

L74★ - ★★★ - ★★★

Type	Port	Thread Form	Air Flow Direction	Drain	Bowl	Options
C....Oil-Fog	3....3/8"	A....PTF	E....Bi-directional (Oil-fog only)	E....Closed bottom	A....Optional 1 litre (1 quart US) metal	N....None
M...Micro-Fog	4....1/2"	B....ISO Rc taper	P....Uni-directional	Q....Manual, 1/4 turn	D....Metal with plastic liquid level indicator	P....Pyrex sight-feed dome
	6....3/4"	G....ISO G parallel		R....Remote fill	P....Transparent with guard	Q....Quick fill nipple
					R....Metal with Pyrex liquid level indicator	

TECHNICAL DATA

Fluid: Compressed air
Maximum pressure:
- Transparent bowl: 10 bar (150 psig)
- Metal bowl: 17 bar (250 psig)

Operating temperature*:
- Transparent bowl: -20° to +50°C (0° to +125°F)
- Metal bowl: -20° to +80°C (0° to +175°F)

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Start point (minimum flow required for lubricator operation) at 6,3 bar (90 psig) inlet pressure: 0,94 dm^3/s (2.5 scfm)

Typical flow with 6,3 bar (90 psig) inlet pressure and 0,5 bar (7 psig) pressure drop: 70 dm^3/s (148 scfm)

Nominal bowl size:
- Standard: 0,2 litre (7 fluid ounce)
- Optional: 1 litre (1 quart US)

Manual drain connection: 1/8"

Materials:
- Body: Aluminum
- Bowl:
  - Transparent with guard: Polycarbonate, steel guard
  - Metal: Aluminum
  - Metal bowl liquid level indicator lens:
    - 0,2 litre (7 fluid ounce): Transparent nylon
    - 1 litre (1 quart US): Pyrex
- Sight-Feed dome: Transparent nylon
- Elastomers: Neoprene and nitrile

REPLACEMENT ITEMS

Service kit (includes items circled on exploded view) 4382-700
Liquid level lens kit
- 0,2 litre (7 fluid ounce) bowl (34, 36, 37, 38, 45, 47, 48, 49) 4380-050
- 1 litre (1 quart US bowl) (61, 65, 67 thru 70).....2273-22

Manual drain (18, 19, 20) (28, 29, 30) 619-50

INSTALLATION

1. Shut-off air pressure. Install lubricator in air line -
   - vertically (reservoir down),
   - with air flow in direction of arrow on body,
   - Micro-fog and Oil-fog Uni-directional models: upstream of cycling valves.
   - Oil-fog Bi-directional models: upstream or downstream of cycling valves.
   - as close as possible to the device being lubricated,
   - Oil-Fog Models - Not more than 5,2m (15 feet) from the device being lubricated, and at the same height or higher than the device.
2. Connect piping to proper ports using pipe thread sealant on male threads only. Do not allow sealant to enter interior of unit.
3. Push reservoir, or reservoir with guard, into body and turn fully clockwise before pressurizing.

RECOMMENDED LUBRICANTS

Use a good quality, light, misting type oil for compressed air tools. See Norgren publication N/AL.8.900.935.

FILL RESERVOIR (OIL-FOG LUBRICATORS)

Remove fill plug (2), add oil, and reinstall fill plug. Fill plug can be removed and oil added without shutting off air pressure to the lubricator. Fill to maximum fill line on transparent reservoirs. Oil level must always be visible in lens on metal reservoirs. **DO NOT OVERFILL.**

FILL RESERVOIR (MICRO-FOG LUBRICATORS)

Shut off inlet air pressure and reduce pressure in reservoir to zero. Remove fill plug (2), add oil, and reinstall fill plug. ***Do not remove the fill plug when the reservoir is pressurized, as oil will blow out the fill plug hole.*** Micro-fog lubricators can be filled under pressure only if equipped with the optional quick fill cap (4), which requires a quick fill connector and oil pump. Fill to maximum fill line on transparent reservoirs. Oil level must always be visible in lens on metal reservoirs. **DO NOT OVERFILL.**

NOTE: Oil fill plug (2) seals easily. Tighten finger-tight only.

ADJUSTMENT

1. Turn on system pressure.
2. Adjust lubricator drip rate only when there is a constant rate of air flow thru the lubricator. Monitor drip rate thru sight feed dome (6).
3. **Oil-Fog Lubricators** - Determine the average rate of flow thru the lubricator. Turn green rotator in sight feed dome (6) to obtain one drop per minute for each 5 dm^3/s (10 scfm). For example, if the average flow is 19 dm^3/s (40 scfm), set the drip rate at 4 drops per minute. Turn rotator counterclockwise to increase and clockwise to decrease the drip rate. Total travel of rotator is 320°.
4. **Micro-Fog Lubricators** - Determine the average rate of flow thru the lubricator. Turn red rotator in sight feed dome (6) to obtain the recommended drops per minute. See ***Drip Rate Chart.*** Turn rotator counterclockwise to increase and clockwise to decrease the drip rate. Total travel of rotator is 320°.

Drip Rate Chart for Micro-Fog Lubricators

Flow - dm^3/s (scfm)	Drops per Minute
2.4 (5)	10
5 (10)	11
9 (20)	13
14 (30)	15
19 (40)	17
24 (50)	19
28 (60)	22
34 (70)	24
38 (80)	26
43 (90)	28
48 (100)	30

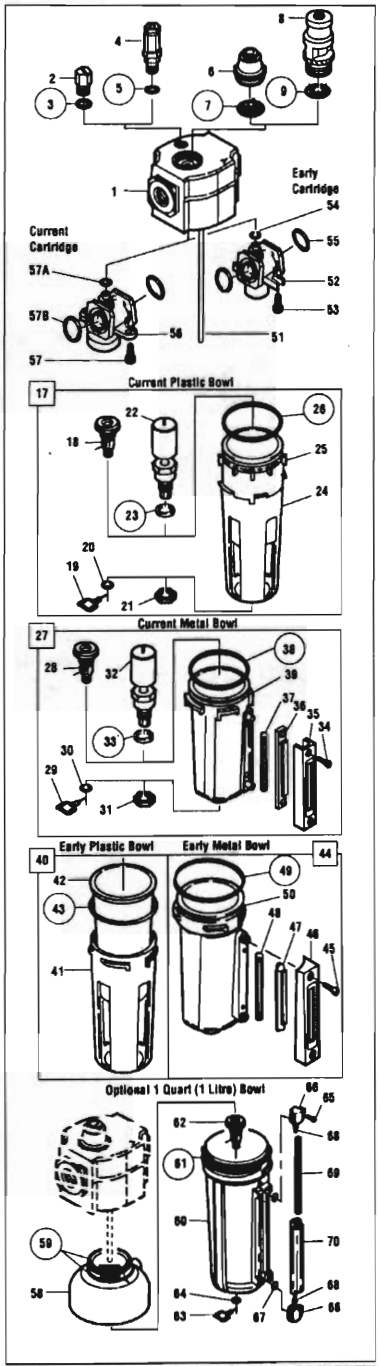
5. Monitor the device being lubricated for a few days following initial adjustment. Adjust the drip rate if the oil delivery at the device appears either excessive or low.

DISASSEMBLY

1. Shut off inlet pressure. Reduce pressure in inlet and outlet lines to zero. Loosen fill plug (2).
2. Remove reservoir - push into body and turn counterclockwise.
3. Disassemble in general accordance with the item numbers on exploded view. Do not remove the manual drain unless replacement is necessary. Remove and replace drain assembly only if drain malfunctions. Do not remove siphon tube (51). Remove and replace cartridge assemblies (52 thru 57B) only if lubricator malfunctions.

CLEANING

1. Clean plastic reservoir with warm water only. Clean other parts using warm water and soap.
2. Dry parts. Blow out internal passages in body with clean, dry compressed air.
3. Inspect parts. Replace parts found to be damaged. If plastic reservoir shows signs of cracking or cloudiness, replace with a metal reservoir.



NORGREN

L74M, L74C

Installation & Maintenance Instructions

ASSEMBLY

1. Lubricate o-rings, the portion of the manual drain body (18, 28) that contacts the bowl, and the hole in the manual drain body that accommodates the stem of drain valve (19, 29) with o-ring grease.
2. Assemble lubricator as shown on exploded view. Early and current cartridge assemblies (items 52 and 56) are not interchangeable. Always replace a used cartridge with an identical cartridge. Early cartridges have a slotted tab (52); current cartridges have a hole in the tab (56).
3. Assemble the 1 litre (1 quart) liquid indicator parts (65, 66, 67, 68, 69, 70) to reservoir. Apply a 0.9 to 1.8 kg (2 to 4 pound) clamping force to upper and lower sight glass brackets (66). Tighten screws (65).
4. Torque Table

	N-m (Inch-Pounds)
2 (fill plug), 4 (quick fill cap)	1,1 to 1,6 (10 to 14)
6, 8 (Dome) and 21, 31 (Nut)	2,3 to 2,8 (20 to 25)
34, 45 (Screw)	1,7 to 2,3 (15 to 20)
53, 57 (Screw)	1,1 to 1,6 (10 to 14)
65 (Screw)	0,9 to 1,1 (8 to 10)

5. Push reservoir, or reservoir with guard, into body and turn fully clockwise.

WARNING

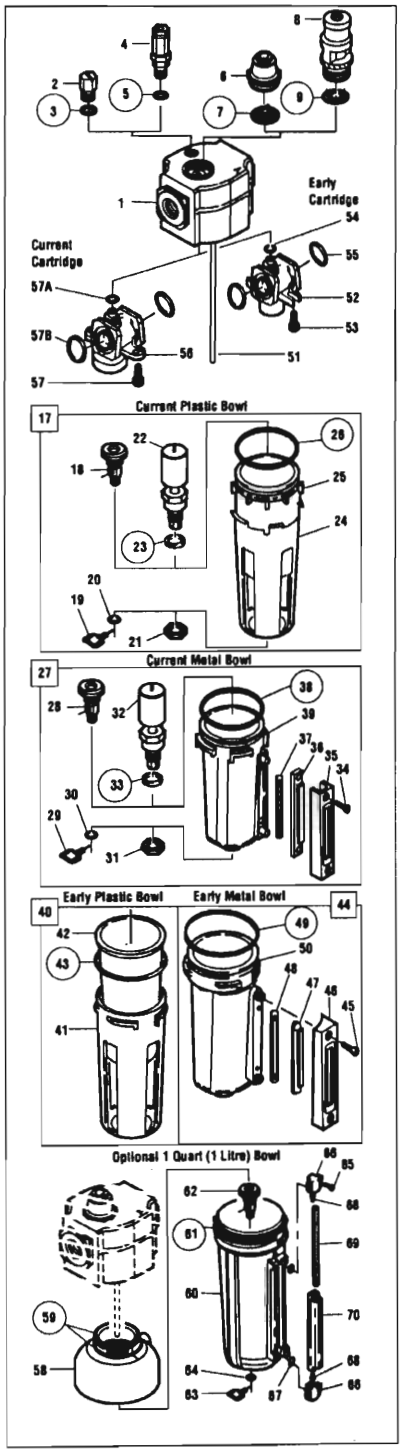
These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under ***Technical Data***.

Polycarbonate plastic reservoirs can be damaged and possibly burst if exposed to such substances as certain solvents, strong alkalies, compressor oils containing ester-based additives or synthetic oils. Fumes of these substances in contact with the polycarbonate reservoir, externally or internally, can also result in damage. Clean with warm water only

Use metal reservoir in applications where a plastic reservoir might be exposed to substances that are incompatible with polycarbonate.

In lubrication applications some oil mist may escape from the point of use to the surrounding atmosphere. Users are referred to safety and health standards for limiting oil mist contamination and utilization of protecting equipment

Before using these products with fluids other than air, for nonindustrial applications, or for life-support systems consult Norgren.



NORGREN

F74G

Installation & Maintenance Instructions

General Purpose Filter
F74G - ★★★ - ★★★

Port	Thread Form	Service Indicator	Drain	Bowl	Element
3....3/8"	A....PTF	D....With mechanical service indicator	A....Automatic	D....Metal with liquid level indicator	1....5 µm
4....1/2"	B....ISO Rc taper	E....With electrical service indicator *	Q....Manual, 1/4 turn	P....Transparent with guard	2....25 µm
6....3/4"	G....ISO G parallel	N....Without indicator			3....40 µm

* See Norgren publication IM-900-920 for specifications and electrical wire connections of the optional electric service indicator.

TECHNICAL DATA

Fluid: Compressed air
Maximum pressure:
- Transparent bowl: 10 bar (150 psig)
- Metal bowl: 17 bar (250 psig)

Operating temperature*:
- Transparent bowl: -20° to +50°C (0° to +125°F)
- Metal bowl: -20° to +80°C (0° to +175°F)

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Particle removal: 5 µm, 25 µm, or 40 µm filter element
Air quality: Within ISO 8573-1, Class 3 and Class 5 (particulates)
Typical flow with a 40 µm element at 6,3 bar (90 psig) inlet pressure and 0,5 bar (7 psig) pressure drop: 83 dm^3/s (176 scfm)
Nominal bowl size: 0,2 litre (7 fluid ounce)
Manual drain connection: 1/8"
Automatic drain connection: 1/8"
Automatic drain operating conditions (float operated):
- Bowl pressure required to close drain: Greater than 0,3 bar (5 psig)
- Bowl pressure required to open drain: Less than 0,2 bar (3 psig)
- Minimum air flow required to close drain: 1 dm^3/s (2 scfm)
- Manual operation: Depress pin inside drain outlet to drain bowl

Materials:
- Body: Aluminum
- Bowl:
  - Transparent with guard: Polycarbonate, steel guard
  - Metal: Aluminum
  - Metal bowl liquid level indicator lens: Transparent nylon
- Element: Sintered polypropylene
- Elastomers: Neoprene and nitrile
- Mechanical service indicator materials:
  - Body: Transparent nylon
  - Internal parts: Acetal
  - Spring: Stainless steel
  - Elastomers: Nitrile

REPLACEMENT ITEMS

Service kit (includes items circled on exploded view)	4380-700
Liquid level lens kit (34, 36, 37, 38)	4380-050
Filter element, 5µm (52)	4338-04
Filter element, 25µm (52)	4338-07
Filter element, 40µm (52)	4338-05
Manual drain (18, 19, 20) (28, 29, 30)	619-50
Automatic drain (21, 22, 23) (31, 32, 33)	
1/8 NPT outlet	3000-10
G 1/8 outlet	3000-97
Mechanical service Indicator (1)	5797-50
Electrical service Indicator (7)	4020-51R

INSTALLATION

1. Shut-off air pressure. Install filter in air line -
   - vertically (bowl down),
   - with air flow in direction of arrow on body,
   - upstream of regulators, lubricators, and cycling valves,
   - as close as possible to the air supply when used as a main line filter,
   - as close as possible to the device being serviced when used as a final filter.
2. Connect piping to proper ports using pipe thread sealant on male threads only. Do not allow sealant to enter interior of unit.
3. Flexible tube with 3mm (0.125") minimum I.D. can be connected to the automatic drain. Avoid restrictions in the tube.
4. Push bowl, or bowl with guard, into body and turn fully clockwise before pressurizing.

SERVICING

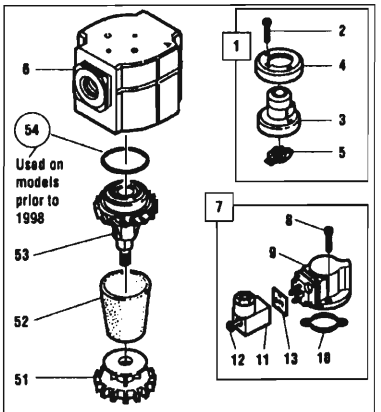
1. Open manual drain to expel accumulated liquids. Keep liquids below baffle (51).
2. Clean or replace filter element when dirty, when optional mechanical service indicator shows approximately all red, or when optional electrical service indicator provides an electrical output.

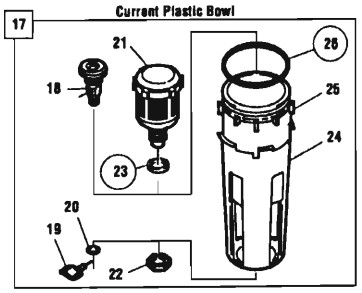
DISASSEMBLY

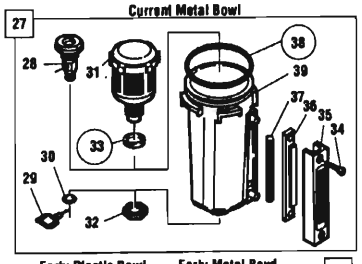
1. Filter can be disassembled without removal from air line.
2. Shut off inlet pressure. Reduce pressure in inlet and outlet lines to zero.
3. Remove bowl - push into body and turn counterclockwise.
4. Disassemble in general accordance with the item numbers on exploded view. Do not remove the drains or the service indicators (1, 7) unless replacement is necessary. Remove and replace only if they malfunction.

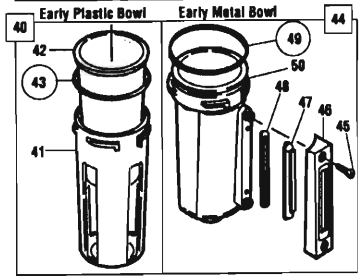
CLEANING

1. Clean plastic bowl (25, 42) and lens (3, 36, 47) with warm water only. Do not submerge electrical service indicator (7) in water. Clean indicator (7) with dry, clean cloth. Clean other parts with warm water and soap.
2. Rinse and dry parts. Blow out internal passages in body (6) with clean, dry compressed air. Blow air through filter element (52) from inside to outside to remove surface contaminants.
3. Inspect parts. Replace those found to be damaged. Replace plastic bowl with a metal bowl if plastic bowl shows signs of cracking or cloudiness.









NORGREN

F74G

Installation & Maintenance Instructions

General Purpose Filter
F74G - ★★★ - ★★★

Port	Thread Form	Service Indicator	Drain	Bowl	Element
3....3/8"	A....PTF	D....With mechanical service indicator	A....Automatic	D....Metal with liquid level indicator	1....5 µm
4....1/2"	B....ISO Rc taper	E....With electrical service indicator *	Q....Manual, 1/4 turn	P....Transparent with guard	2....25 µm
6....3/4"	G....ISO G parallel	N....Without indicator			3....40 µm

* See Norgren publication IM-900-920 for specifications and electrical wire connections of the optional electric service indicator.

ASSEMBLY

1. Lubricate o-rings, the portion of the manual drain body (18, 28) that contacts the bowl, and the hole in the manual drain body that accommodates the stem of drain valve (19, 29) with o-ring grease.
2. Assemble filter as shown on the exploded view.
3. Arrows on indicator (3, 9) and body (6) must point in same direction. Screw baffle (51) onto center-post (53) until contact is made with element (52), then tighten an additional 1/4 turn. Push bowl, or bowl with guard, into body and turn fully clockwise.
4. Torque Table

	Torque in N-m (Inch-Pounds)
2, 8 (Screw)	2,8 to 3,9 (25 to 35)
22, 32 (Nut)	2,3 to 2,8 (20 to 25)
34, 45 (Screw)	1,7 to 2,3 (15 to 20)
53 (Center-post)	2,0 to 2,7 (18 to 24)

CAUTION

Water vapor will pass through these units and could condense into liquid form downstream as air temperature drops. Install an air dryer if water condensation could have a detrimental effect on the application.

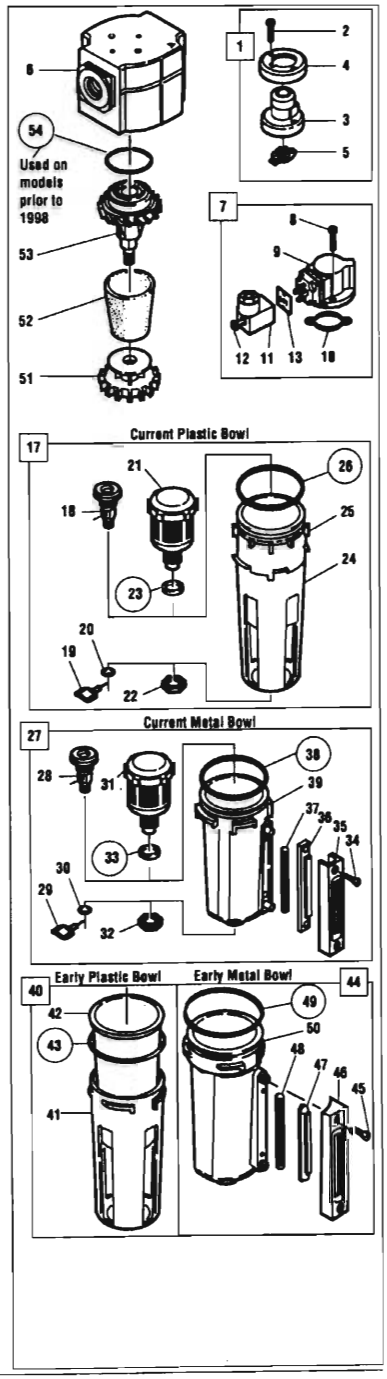
WARNING

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under ***Technical Data***.

Polycarbonate plastic bowls can be damaged and possibly burst if exposed to such substances as certain solvents, strong alkalies, compressor oils containing ester-based additives or synthetic oils. Fumes of these substances in contact with the polycarbonate bowl, externally or internally, can also result in damage. Clean with warm water only.

Use metal bowl in applications where a plastic bowl might be exposed to substances that are incompatible with polycarbonate.

Before using these products with fluids other than air, for nonindustrial applications, or for life-support systems consult Norgren.



NORGREN

F18

18 Series
General Purpose Filter
1 1/2" and 2" Port Sizes

- **Protects air operated devices by removing liquid and solid contaminants**
- **Highly visible, prismatic liquid level indicator lens**
- **Can be disassembled without removal from the air line**
- **Two gauge ports on top of body for installation of pressure gauges**
- **Optional visual service indicator turns from green to red when the filter element needs to be cleaned or replaced**
- **Optional electrical service indicator also available**

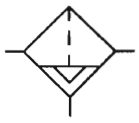
Technical Data

Fluid: Compressed air
Maximum pressure: 17 bar (250 psig)
Operating temperature*: -20° to +80°C (0° to +175°F)
* Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Particle removal: 5 μm, 25 μm, 40 μm or 100 μm filter element
Air quality: Within ISO 8573-1, Class 3 and Class 5 (particulates)
Typical flow with a 40 μm element at 6,3 bar (90 psig) inlet pressure and 0,5 bar (7 psig) pressure drop: 765 dm^3/s (1 625 scfm)
Nominal bowl size: 0,2 litre (7 fluid ounce)
Manual drain connection: 7/16-24 UNS male for 1/4" tube nut and ferrule (1/4 turn drain only)
Automatic drain connection: 1/8"
Automatic drain operating conditions:
Minimum pressure: 0,7 bar (10 psig).
Drain opens when bowl pressure drops below 0,2 bar (3 psig).
Minimum air flow: 1 dm^3/s (2 scfm) required to close drain.
Materials:
Body: Aluminium
Intermediate body: Aluminium
Bowl: Aluminium
Metal bowl liquid level indicator: Transparent nylon
Filter element: Sintered bronze
Elastomers: Neoprene and nitrile

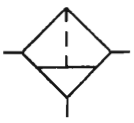
Ordering Information

See *Ordering Information* on following pages.

ISO Symbols



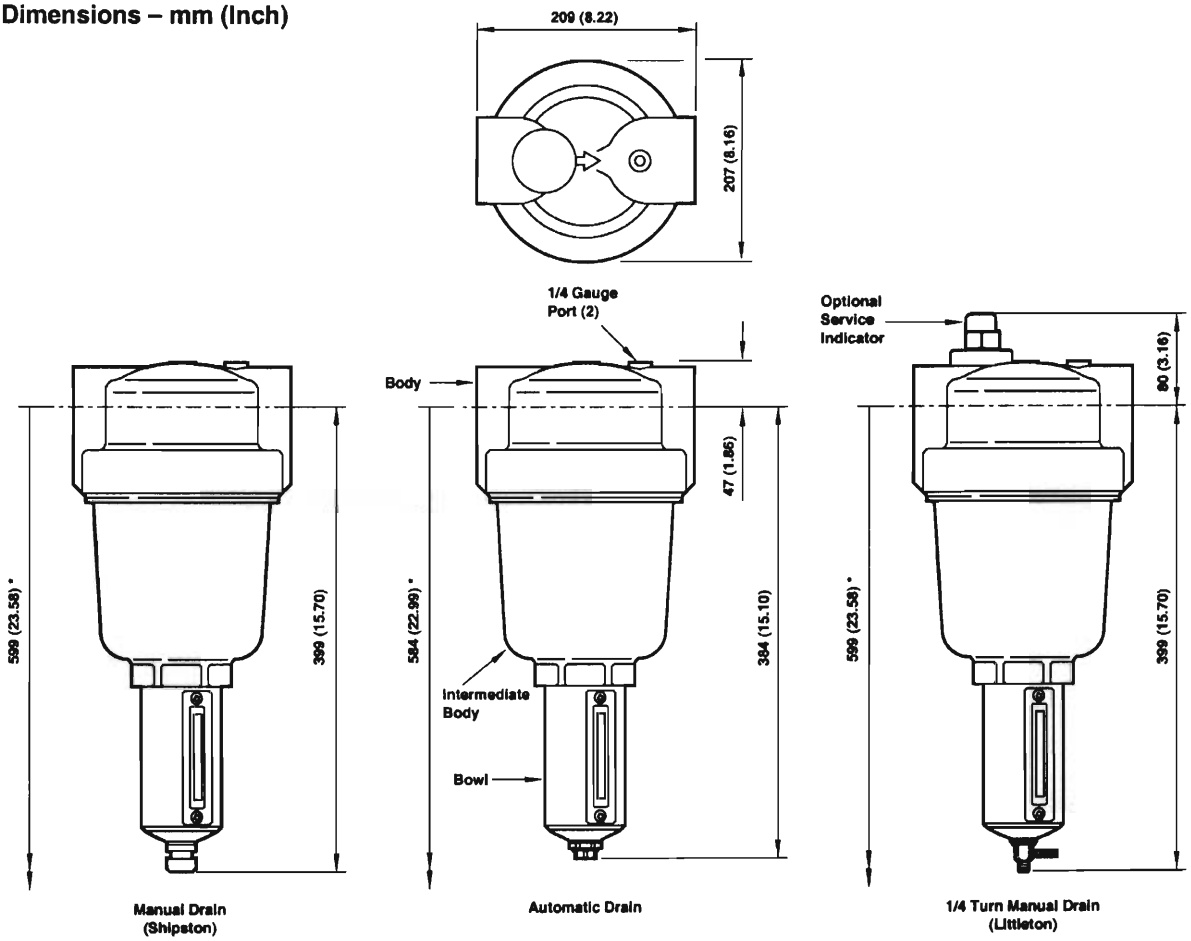
Automatic drain



Manual drain

F18

Dimensions – mm (Inch)



* Minimum clearance required to remove intermediate body and bowl.

Service Kits

Item	Type	Part Number
Service kit	Seal & Gasket	4945-50
Replacement elements	5 µm	5882-11
	25 µm	5882-12
	40 µm	5882-13
	100 µm	5882-14
Service life indicator (Littleton)	Visual	5797-50
	Electrical	4020-51
Liquid level lens kit	Prismatic	4380-050
Replacement drains	Automatic (1/8 NPT outlet)	3000-10
	Automatic (G1/8 outlet)	3000-97
	Manual quarter turn	619-50
	Manual	684-84

Service kit contains body o-ring, element gasket, automatic drain gasket, and bowl o-ring.

SPECIFICATIONS
Fluids: Compressed air
Maximum inlet pressure: 250 psig (17.2 bar)
Maximum temperature: 175°F (79°C)
Automatic drain minimum operating pressure: 10 psig (0.69 bar). The drain is open when the filter is not pressurized. It closes when the bowl is pressurize to approximately 5 psig (0.35 bar).
Color code for mechanical service indicator:
Green: Pressure drop less than 4 psid (0.3 bar)
Green & Red: Pressure drop between 4 and 10 psid (0.3 and 0.7 bar)
Red: Pressure drop greater than 10 psid (0.7 bar)

NOTE

Water vapor will pass through these units and could condense into liquid form downstream as air temperature drops. Install a NORGREN air dryer if water condensation could have a detrimental effect on the application.

MATERIALS OF CONSTRUCTION
Body: Aluminum
Intermediate body: Aluminum
Bowl: Aluminum
Bowl sight glass: Transparent nylon
Elastomers: Neoprene and nitrile
Filter element: Sintered bronze
Optional service indicator :
Body: Transparent nylon
Internal Parts: Acetal
Spring: Stainless steel
Elastomers: Nitrile

INSTALLATION (See Exploded View on next page)
1. Air line piping should be same size as filter ports. Locate filter in air line upstream of regulators and lubricators, with drain at bottom and air flow in direction of arrow on body. If used as a main line filter, install as close as possible to the air supply; if used as a final filter, install as close as possible to the device being serviced.
2. Connect piping to proper ports using pipe thread sealant on male threads only. Do not allow sealant to enter interior of filter.
3. Connect flexible tubing with 1/8" minimum I.D. to the automatic drain connection (1/8" NPTF) Avoid restrictions in the drain line.
4. Before applying air pressure make sure bowls (41, 42, 48) are tight. See steps 6 and 7 of ***Reassembly.***

SERVICING (See Exploded View on next page)
1. Drain filters with manual drain to keep accumulated liquids below end cap (28). Automatic drains can be operated manually by depressing the needle inside drain outlet.
2. Clean or replace filter element when plugged or dirty, or when the optional service indicator shows approximately all red.

DISASSEMBLY (See Exploded View on next page)
1. Shut off inlet pressure and reduce pressure in filter to zero. Filter can be disassembled without removal from air line.
2. Push current bowl (41) and 1996 bowl (42) into intermediate body and turn counterclockwise to remove.
3. Unscrew early bowl configuration (48) to remove.
4. Unscrew end cap (28).
5. Disassemble in general accordance with the item numbers on exploded view. Do not disassemble the drains or the service indicators unless replacement is necessary. Remove and replace drains only if they malfunction.

WARNING

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under ***Specifications.***

Do not use models with service life indicator where the lens might be exposed internally or externally to substances incompatible with polycarbonate or nylon.

Before using these products with fluids other than air, for nonindustrial applications, or for life-support systems consult NORGREN.

CLEANING

1. Clean nylon indicator (12) with warm water only. Clean other parts using warm water and soap.
2. Dry parts and blow out internal passages in body (23) using clean, dry compressed air. Blow air through element (26) from inside to outside to dislodge surface contaminants. Replace element when plugged.
3. Inspect parts. Replace those found to be damaged.

REASSEMBLY

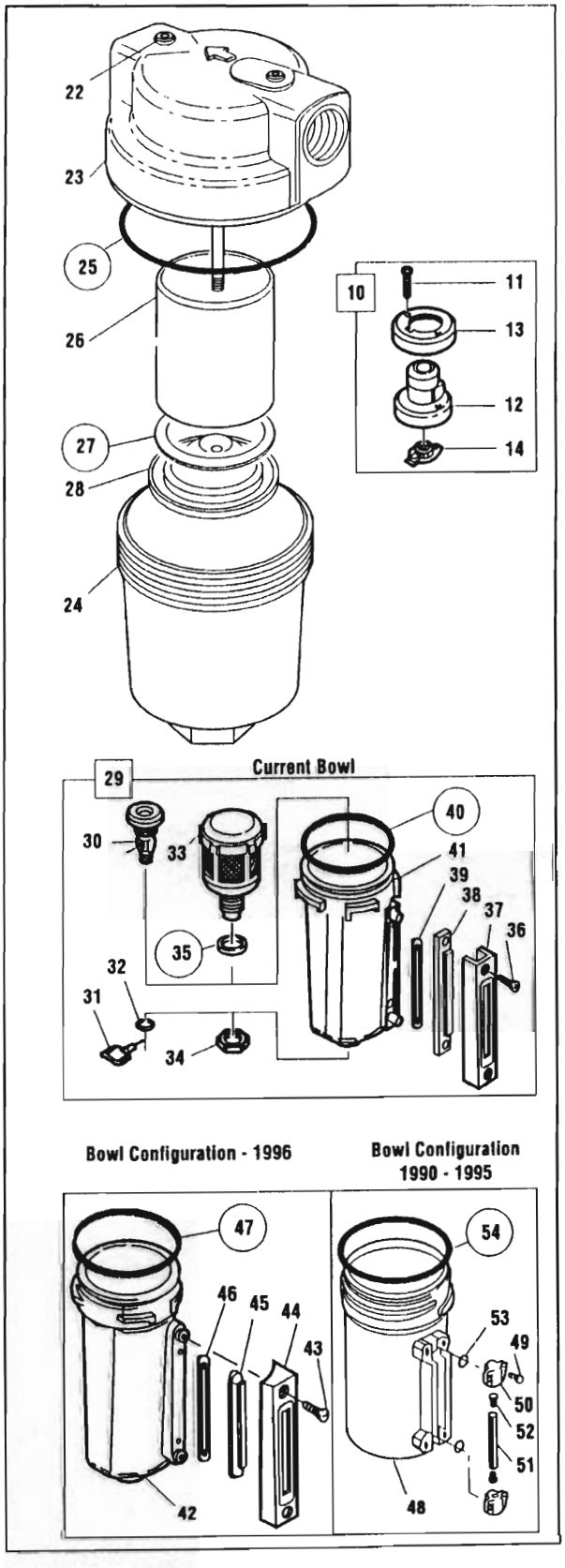
1. Lubricate all o-rings, the portion of the manual drain body (30) that contacts the bowl, and the hole in manual drain body (30) that accommodates the stem of drain valve (31) with a good quality o-ring grease. Lubricate threads on metal bowl and intermediate body with a small amount of anti-seize compound.
2. Arrows on indicator (12) and body (23) must point in same direction. Tighten screws (11) to 25-to-35 inch-pounds.
3. Assemble filter as shown on exploded view. Install element (26) with the largest end against the end cap (28). Torque end cap (28) to 70-to-75 inch-pounds. Torque intermediate body to approximately 12 foot-pounds (snug with two hands).
4. Press drain (30) thru hole from inside of bowl. Place retainer o-ring (32) over drain, then position in groove. Press drain valve (31) thru hole in drain (30).
5. Tighten drain retaining nut (34) to 20-to-25 inch-pounds.
6. **Current Bowl and Bowl Configuration 1996.** Tighten screws (36, 43) to 15-to-30 inch-lbs. Push bowl into intermediate body and turn fully clockwise.
7. **Bowl Configuration 1990 - 1995.** Assemble sight glass components (49 thru 53) to bowl. Apply a 2-to-4 pound clamping force to upper and lower sight glass brackets (50) to pull brackets together. Tighten screws (49) to 8-to-10 inch-lbs. Turn bowl into intermediate body (24) until stop (approximately 5 turns), then unscrew no more than one full turn to position sight glass for best visibility.

REPLACEMENT ITEMS *

Filter Element (14)

5µm	5882-11
25µm	5882-12
40µm	5882-13
75µm	5882-14
Seal kit -includes items circled on exploded view	5945-50
Sight glass kit (current bowl) (36, 38, 39, 40)	4380-050
Sight glass kit (1990-1995 Bowl) (49, 51, 52, 53, 54)	2273-20
Automatic drain (33, 34, 35)	3000-10
Manual drain (30, 31, 32)	619-50

* Repair kits are universal and may contain items not used on you product. Always replace used parts with identical parts from the kit.



AS WE MAKE IMPROVEMENTS TO THE ***REED*** PNEUMATIC SPRAYING MACHINE MODEL ***SOVA SERIES 7***, WE LIKE TO SUPPLY YOU, THE CUSTOMER, WITH UPDATED INFORMATION WHICH APPLIES TO YOUR MACHINE.

THIS SECTION IS PROVIDED AS A PLACE TO STORE SERVICE BULLETINS AS YOU RECEIVE THEM FROM ***REED*** **LLC.**

SERVICE BULLETIN 001
WARRANTY PROGRAM

BULLETIN NO: SB 001
DATE: FEBRUARY 5, 1998
TO: ALL ***REED*** DEALERS
SUBJECT: ***REED*** **WARRANTY PROGRAM**

Each ***REED*** Concrete Placing Trailer Pump, Truck Mounted Boom Pump and Dry-mix Spraying Gun, undergoes before delivery a thorough Quality Assurance inspection, a performance check and final testing. However, even with these precautions the possibility exists that after delivery, for some reason, a component may fail.

This is the reason for warranty. If this should happen to one of your machines during the first 12 months or 1000 pumping hours after delivery, there is a good chance the failed component could be replaced under warranty.

REED has updated and formalized its **WARRANTY PROGRAM** and this bulletin is issued to make all dealers aware of the program.

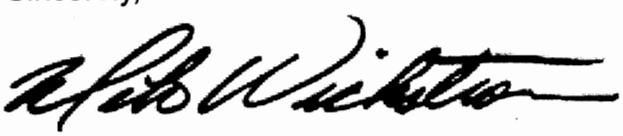
Enclosed is a supply of our new **WARRANTY CLAIM** forms. From this point on, all warranty claims must be submitted on these forms. Also, please find a description of the program, coverage and how to make a claim and its submission. We suggest you give this some careful attention. Briefly some noteworthy items are:

- Do not return any failed part unless requested by ***REED***.
- Purchase the replacement part through normal channels from ***REED***. Submit your claim noting the invoice number of the replacement part. Upon approval of the claim, a credit will be issued.
- Every effort will be made to process a claim within 2 weeks form receipt except for those occasions where the part is to be returned.

Should questions arise during your review, please do not hesitate to contact us.

We appreciate the opportunity to be of service.

Sincerely,



Mike Wickstrom
Service Manager

REVISION:

WARRANTY PROGRAM POLICY

REED Pneumatic Spraying Machine Model ***SOVA*** is designed and engineered to perform as stated on published specifications. Only quality materials and workmanship are used in the manufacture of these products. As a back up for the product manufactured by ***REED***, a guarantee against defects in design and workmanship of components is provided for each machine.

The ***REED*** guarantee/warranty states, ion general, that ***REED*** will replace free of charge any components found to be defective within the time frame of the warranty period. There are exceptions to some components which are not the responsibility of ***REED***. These are noted elsewhere.

A formal printed policy is available and depicts in more detail the warranty and description. However, for your ready reference the following is offered.

A. WARRANTY PERIOD

- ALL CONCRETE PLACING MACHINES
  The warranty period is for twelve (12) months from date of delivery to initial user or 1000 pumping hours whichever comes first.

- NEW PARTS WARRANTY

  For parts sold through the ***REED*** Parts Department the warranty is ninety (90) days from invoice ship date.

- REPLACEMENT WARRANTY PARTS

  Replacement parts provided under the terms of the machine warranty are for the warranty period applicable to the unit in which they were installed as if such parts were original components of the machine.

B. WARRANTY COVERAGE

- DEFECTIVE PARTS
  Unless otherwise authorized the replacement part **MUST** be **PURCHASED** from ***REED***. Once warranty claim is received and approved, ***REED*** will provide credit to the dealer/user for their cost of the replacement part as invoiced by ***REED***.

- LABOR

  No labor time and related compensation will be provided by ***REED*** to dealers/users or others to perform work under this warranty policy.

- TRAVEL TIME

  No travel time, mileage or other expenses will be compensated by ***REED*** to dealers/ users or others to perform work under this warranty policy.

- FREIGHT, IMPORT DOCUMENTATION, CUSTOM DUTY

  Any expense incurred for freight, import duty and documentation will not be reimbursed by ***REED*** in association with the warranty policy.

C. EXCLUSIONS

- CHASSIS AND RELATED COMPONENTS (TRUCK MOUNTED UNITS)

  The warranty for the chassis is handled by the chassis manufacturer and their dealer network. Prior to putting the truck in service it is suggested you contact the nearest manufacturer dealership.

- ENGINE - TRAILER UNITS

  The engine warranty is handled by the engine manufacturer and their dealer network. The terms and conditions of their warranty will apply. Contact the local engine dealer for specifics on warranty of the engine.

- NORMAL WEAR

  This pertains to items that have failed as a result of normal wear and tear to the product including but not limited to material cylinder and hydraulic cylinder piston components, delivery systems, pins, chains, bushings, seals, concrete pump wear parts, brakes, filter elements, fluids and tires.

- DAMAGES

  Caused by transport of equipment or parts improper setup or installation, operator error, improper operation or storage, environmental conditions, accidents, improper mechanical techniques employed by anyone or any other cause other than a structural defect in materials or workmanship.

- MAINTENANCE

  Caused by failure to perform any scheduled maintenance or routine maintenance as specified in technical manual on any structural or mechanical component.

- MODIFICATIONS

  Any non-authorized changes or modifications of any kind to the product. Any modification must be authorized and approved in writing by ***REED*** Engineering Department.

- ABUSE

  Any accidental or intentional abuse of product including but not limited to neglect, loading beyond capacity or any operation of the equipment beyond the limits set forth by ***REED*** documentation and as depicted in the appropriate technical manual.

D.SUBMISSION OF CLAIM BY DEALER/USER

Should a component failure be encountered during the warranty period and should it fall within the guidelines of the ***REED*** **WARRANTY POLICY** the following procedure is to be followed to claim warranty:

1. REPLACEMENT PART

- Obtain the replacement part by ordering it form the **REED PARTS DEPARTMENT** through normal channels. You will be **INVOICED** for the part.

- If the part has been previously ordered form ***REED*** and is in your replacement stock inventory you may choose to use that part.

2. COMPLETE THE CLAIM FORM

   REED has supplied you with a pre-numbered Warranty Claim Form which consists of four (4) parts. This and only this form is **ACCEPTABLE. DUPLICATE** copies of the form are **NOT ACCEPTABLE**. If you do not have the proper form, contact the ***REED*** Service Department. They will send you a supply.

SERVICE BULLETIN 001
WARRANTY PROGRAM

REED

WARRANTY CLAIM

13822 OAKS AVENUE
CHINO, CA 91710-7008 909-287-2100

NO. 3054

Date: (1)

Distributor Account Number: (2)
Distributor:
Address:
City:
State: Zip Code:
Phone: ( )

End User Account Number: (3)
End User:
Address:
City:
State: Zip Code:
Phone: ( )

MACHINE PUMP DATA

Model (4) Serial No. (5) In Service Date (6)
Hours of Operation (7) Failure Date (8) Repair Date (9)

NOTE - Hold deficient part(s) until requested by *REED* or until claim is approved. All parts requested to be returned must have a return authroization number provided by *REED* shipped freight prepaid.Parts must ship within 30 days from *REED* request.

RETURN AUTHORIZATION NO. (10) SHIP DATE (11)

PART NUMBER	DESCRIPTION (12)	QTY.	NET PRICE	TOTAL PRICE	*REED* REPLACEMENT PART INVOICE NO. (13)

Describe Failure and How it Occurred (14)

REED comments

Claim Approved for

$

REED Use - Claim Approved ☐ Denied ☐

Signed Date

Dealer Signature (15)

Date

REVISION:

The following instructions are offered for completing the **WARRANTY CLAIM FORM.** Refer to sample of form. Circled numbers on form correspond to items below. **FILL IN:**

1. Date your claim is written
2. Distributor name and address
3. End user name and address
4. Model number of unit affected
5. Serial number of unit affected
6. Date unit was first placed in service
7. Hours (from hourmeter) of operation at time of failure
8. Date when failure occurred
9. Date when unit was repaired
10. Return Authorization number as received from ***REED*** Service Department. This will only apply when failed component is requested to be returned by ***REED***.
11. Date when failed part is shipped back to ***REED***.
12. List ***REED*** part number, description of part, quantity and price of part.
13. List ***REED*** invoice number sent to you when replacement part was purchased.
14. Briefly describe failure and how it occurred.
15. Dealers signature and date

The claim form **MUST BE COMPLETELY FILLED OUT**. Claims lacking specific, accurate information will be returned **UNPROCESSED**. If additional room is needed to describe the failure or to list the parts used, attach a separate sheet and identify those sheets with the **SAME WARRANTY CLAIM NUMBER.**

3. SUBMITTING TO ***REED***

When all appropriate data has been entered on the claim and signed, proceed as follows:

- Remove copies of form marked **"DEALER"** (yellow) and **"RETURN AUTHORIZATION"** (green). The Dealer copy is for your records and the Return Authorization copy is to be retained in the event ***REED*** requests the return of the part.

- Mail the "***REED***" copy (white) and **"ACCOUNTING"** copy (pink) along with any backup data such as a copy of the replacement part **INVOICE** to ***REED***. **DO NOT FAX COMPLETE FORM** and send only **FORM ORIGINALS.**

E. RETURN OF FAILED COMPONENT

Depending on the type of part and circumstances surrounding the component failure, the possibility exists that ***REED*** may request that the failed part be returned to them for investigation and evaluation purposes or to apply for warranty from the manufacturer of the part.

- Upon receipt of your warranty claim and before claim is approved, ***REED*** will inform you in writing if the part is to be returned. On this correspondence a **RETURN AUTHORIZATION** number will be given you.

- This number is to be written in the appropriate area on the **RETURN AUTHORIZATION** copy (green) of the warranty form. Include this copy as part of your packing slip. Also write the number on a tag and attach to the part.

- Parts requested to be returned must be shipped back to ***REED*** within 30 days form issuing of the **RA** number. Failure to do so will cause warranty claim to be **DENIED**.

- Returned parts are to be properly packaged and shipped freight **PREPAID.**

- Any parts received by ***REED*** without the **PROPER RA** number will be shipped back at **DEALER/USER EXPENSE.**

- If claim is approved and no request to return parts from ***REED*** has been made, then parts can be discarded.

F. APPROVAL/DENIAL OF CLAIM

Every effort will be made to process the warranty claim within 2 weeks from receipt.

- APPROVAL

Once your claim has been approved by ***REED***, the pink copy will be forwarded to our Accounting Department. They in turn will issue a credit against the invoice for the replacement purchased part.

In the meantime a fax or notification will be sent to you indicating the claim and the amount approved.

- DENIAL

If your warranty claim is denied for any reason, a fax or notification will be sent to you indicating reasons for denial. Should you have any dispute with the decision, you have the right to have the decision reconsidered. You must present your arguments in **WRITING** within 15 days of your receipt of the claim denial.

REED

WARRANTY CLAIM NO. 3054
13822 OAKS AVENUE
CHINO, CA 91710-7008 909-287-2100
Date: (1)

Distributor Account Number
Distributor (2)
Address
City
State Zip Code
Phone: ( )

End User Account Number
End User (3)
Address
City
State Zip Code
Phone: ( )

MACHINE PUMP DATA
Model (4) Serial No. (5) In Service Date (6)
Hours of Operation (7) Failure Date (8) Repair Date (9)
NOTE - Hold deficient part(s) until requested by ***REED*** or until claim is approved. All parts requested to be returned must have a return authroization number provided by ***REED*** shipped freight prepaid. Parts must ship within 30 days from ***REED*** request.
RETURN AUTHORIZATION NO. (10) SHIP DATE (11)

PART NUMBER	DESCRIPTION (12)	QTY.	NET PRICE	TOTAL PRICE	***REED*** REPLACEMENT PART INVOICE NO. (13)

Describe Failure and How it Occurred (14)

REED comments

Claim Approved for
$

REED Use - Claim Approved ☐ Denied ☐
Signed Date

Dealer Signature (15)
Date