



Instruction Manual

Alfa Laval GJ A8



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Standard Machines
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The information herein is correct at the time of issue but may be subject to change without prior notice

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1. Safety

Unsafe practices and other important information are emphasized in this manual. Warnings are emphasized by means of special signs.

Always read the manual before using the tank cleaning machine!

1.1 Important information

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the tank cleaning machine.

NOTE

Indicates important information to simplify or clarify procedures.

1.2 Warning signs

General warning:



Dangerous electrical voltage:



Caustic agents:



1. Safety

All warnings in the manual are summarized on this page.

Pay special attention to the instructions below so that severe personal injury and/or damage to the tank cleaning machine are avoided.

1.3 Safety precautions

Installation:

Always read the technical data thoroughly. (See chapter 6 Technical Data)



Any tank-cleaning machine can develop a static electricity charge while in operation.



If the tank being cleaned contains a combustible liquid or vapor having a risk of ignition or explosion, it is imperative to have the Alfa Laval Gamajet properly grounded using the provided location on the unit.

Operation:

Always read the technical data thoroughly. (See chapter 6 Technical Data)



Necessary precautions must be taken if leakage occurs as this can lead to hazardous situations.

Always handle lye and acid with great care.



When an Alfa Laval Gamajet is operating, there should be covers over every tank opening.

These covers should be sealed well enough to withstand the full force of the jet striking the cover plate.

If the cleaning solution were hot, corrosive, or toxic, a leak would present a serious hazard to any personnel in the immediate vicinity or to any exposed electrical equipment.



Warning: Any tank-cleaning machine can develop a static electricity charge while in operation. If the tank being cleaned contains a combustible liquid or vapor having a risk of ignition or explosion, it is imperative to have the Alfa Laval Gamajet properly grounded using the provided location on the unit.

Maintenance:

Always read the technical data thoroughly. (See chapter 6 Technical Data).



Never service the tank cleaning machine when it is hot.

Always use Alfa Laval genuine spare parts.

Transportation of the tank cleaning machine:

Always drain the tank cleaning machine head and accessories of any liquid

Always use original packaging or similar during transportation.

2. Introduction

2.1 Description

The Alfa Laval GJ A8 is a fluid-driven (turbine-driven) 360° rotary nozzle machine designed for cleaning the interior surfaces of a variety of medium to large tanks and vessels. It is powered entirely by the cleaning solution; it requires no electricity, compressed air or lubricant for operation. The Alfa Laval GJ A8 is designed primarily for portable service; however, the unit may also be permanently installed in a vessel. If the Alfa Laval GJ A8 is permanently mounted inside a tank, we strongly recommend inspecting the unit every few hundred hours of operation. (See Section 3 - Preventative Maintenance for more information.)

WARNING: Under no conditions, whatsoever, should the Alfa Laval GJ A8 ever be immersed in anything, unless you have prior approval from Alfa Laval Gamajet Cleaning Systems, Inc. Failure to comply with this restriction will void the warranty!

In order to handle the broadest possible range of applications, the stainless steel Alfa Laval GJ A8 is available with dual or triple nozzles, and an extensive selection of nozzle sizes, stators (non-rotating turbine), and O-ring materials. Alfa Laval GJ A8 nozzles are available in six interchangeable sizes - 1/4", 9/32", 5/16", 3/8", 7/16" and 1/2". The Alfa Laval Gamajet wash cycle time can be adjusted for special applications by changing the stator, and nozzle size. Interchangeable stators and nozzle sizes are available for either low or high pressures and/or flow rates. A complete description of the technical specifications and materials of construction of the Alfa Laval GJ A8 is contained in the manual.

3. Installation

Read the instructions carefully and pay special attention to the warnings! Always check the tank cleaning machine before operation.

3.1 Unpacking/delivery

Step 1

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

1. Complete Cleaning Machine
 2. Delivery note
-

Step 2

Remove any packing material

Step 3

Inspect the tank cleaning machine for visible transport damage.

Inspection!

3. Installation

Read the instructions carefully and pay special attention to the warnings! Always check the tank cleaning machine before operation.

3.2 Installation

Step 1



Always read the technical data thoroughly.

(See chapter 6 Technical Data)

Step 2

Assembly

Every Alfa Laval Gamajet is operationally tested before shipment and is ready to run after unpacking. No assembly is required prior to use. The Alfa Laval Gamajet has been configured to meet the operating conditions (at the Alfa Laval Gamajet, not at the pump) given to us, e.g. pressure, flow, temperature, cycle time, etc.

Note: Any change to the originally supplied operating conditions will affect the performance of the Gamajet accordingly.

Step 3

Inlet Connections

The Alfa Laval GJ A8 is supplied with a 1-1/2" Tri-Clamp connection. It can also be supplied with a combination 1-1/2" NPT female/2" quick disconnect male inlet connection or a 2" FNPT connection. It is recommended that when using the NPT connection the mating male thread be wrapped with PTFE pipe joint tape prior to mounting. This will minimize any chance of leakage and will make subsequent removal much easier.

Step 4

Mounting

Before mounting the Alfa Laval GJ A8, make sure the supply line has been adequately flushed. When using the Tri-Clamp connections, the clamp connection must be tight. If possible, high pressure bolt-on clamps are preferred. If it is supplied with a combination-type collar as described above, it should be mounted on a rigid 1-1/2" pipe using an adjustable or pipe wrench. In most applications, the Alfa Laval GJ A8 will be mounted in the upright position (inlet connection pointing up); however, the Alfa Laval Gamajet will function at any orientation. We do not recommend attaching the machine to a hose while in the inverted or horizontal orientation. This form of mounting is not rigid and, thus, will not maintain the Alfa Laval Gamajet's position should the unit become unbalanced due to clogging of the nozzles. In addition, we do not recommend using a Triple Nozzle machine with a flexible supply line. The dynamic imbalance of the Triple Nozzle will affect the Alfa Laval Gamajet's performance accordingly.

Warning: When attaching the Alfa Laval GJ A8 onto the supply pipe, **ALWAYS** use the wrench on the Collar at the top/inlet of the unit. Never use a wrench on Stem or Tee Housing to tighten the unit onto the pipe. Doing so risks internally damaging the machine.

3. Installation

Read the instructions carefully and pay special attention to the warnings! Always check the tank cleaning machine before operation.

Step 5

Location inside Tank

Generally, a single Alfa Laval Gamajet should be positioned in the approximate center of the vessel in order to equalize the cleaning radius in all directions. Some vessels may have specific cleaning problems such as coils or heavy deposits such as the liquid level line (bathtub ring). In these situations the Alfa Laval Gamajet should be located closer to the difficult area for the best cleaning results.

Tanks with internal mechanisms or structures such as an agitator shaft, impellers or baffles will require careful positioning to minimize the "shadow effect" on areas which do not receive direct jet impact. Sometimes, more than one machine, or, more than one placement of a single machine, may be necessary to completely avoid shadow problems.

Step 6

Entry Openings

When using the Alfa Laval GJ A8, the vessels being cleaned must provide entry openings large enough to avoid interference during insertion and removal. Refer to table in Appendix A for more information.

Step 7

Vessel Drainage

If it is necessary to clean the floor of a vessel, remember that standing liquid will diminish the effectiveness of the jet by covering any soils underneath. Wherever possible, the tank floor should be pitched toward the drain and the drainage opening should be large enough to eliminate or reduce any liquid buildup or puddling. If gravity alone is insufficient, a scavenger or stripper pump should be connected to the drain to suck out the excess wash fluid. In extreme cases, it may be necessary to use smaller nozzles on the Alfa Laval Gamajet, or even to operate it intermittently to allow time for draining.

Step 8

Filters and Strainers

All tank cleaning systems should be equipped with a filter or strainer that will trap solids 1/16" or larger, as these will not pass through the Alfa Laval Gamajet. These large particles will not harm the machine, but they can become caught in one of the internal passages of the machine and cause it to stop turning or reduce its cleaning effectiveness due to a loss of flow. It will then be necessary to disassemble the Alfa Laval Gamajet and remove the blockage.

In recirculating (closed-loop) cleaning or any other application where the cleaning solution may carry abrasive solids in suspension, adequate filtration is a must. These particles can be extremely destructive to the Alfa Laval Gamajet, pumps, valves, and other system components. Filters, properly installed and maintained, will more than pay for themselves with lower overall operating costs in these applications. Furthermore, to ensure that clogged filters or strainers are cleaned, we recommend using automatic self-cleaning models.

3. Installation

Read the instructions carefully and pay special attention to the warnings! Always check the tank cleaning machine before operation.

Step 9

Capacity Of Supply Pump

The Alfa Laval GJ A8 can be used with either a centrifugal or positive displacement (constant volume), PD, style pump. In most cases, if the Alfa Laval GJ A8 is to be used with a centrifugal pump, the Alfa Laval GJ A8 should be configured so that the pump will operate close to its best efficiency point. The end user must, therefore, take all of the plumbing, elevation, and Alfa Laval GJ A8 pressure/flow rate requirements into account.

If a PD style pump (i.e. piston pump, plunger pump, or mechanical diaphragm pump, etc.) will supply the wash fluid to the Alfa Laval GJ A8 a different set of rules apply. PD pumps are fixed volume pumps whose flow rate is dependent upon the speed of the pump; the pumps also have a pressure rating which is the maximum operating pressure. Note: Do not confuse the maximum operating pressure of a PD pump with the actual operating pressure. The actual operating pressure is dictated by the fixed flow rate of the pump, the Alfa Laval GJ A8 and the plumbing system. If a PD pump is used, the Alfa Laval GJ A8 should be sized to, first, match the flow capability of the pump and, second, not exceed the pump's maximum operating pressure (taking the pressure rating of the plumbing system into account, also).

WARNING: For high-pressure applications (over 250 psig), the pressure of the system must "ramp up" to its operating pressure. If the system experiences a pressure spike or pressure increases at a rate of more than 250 psig per second, the machine may be damaged and parts will wear out prematurely. Damage resulting from this phenomenon is not covered by the warranty.

3.3 Recycling Information

• Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps.
- Wood and cardboard boxes can be reused, recycled or used for energy recovery.
- Plastics should be recycled or burnt at a licensed waste incineration plant.
- Metal straps should be sent for material recycling.

• Maintenance

- All metal parts should be sent for material recycling.

• Scrapping

- At end of use, the equipment must be recycled according to relevant, local regulations. Beside the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.
-

4. Operation

Read the instruction carefully and pay special attention to the warnings!

4.1 Operation/Control

Step 1



Always read the technical data thoroughly. See chapter 6 Technical Data

CAUTION

Alfa Laval cannot be held responsible for incorrect operation/control.

Step 2



Never touch the tank cleaning machine or the pipelines when pumping hot liquids.

Step 3

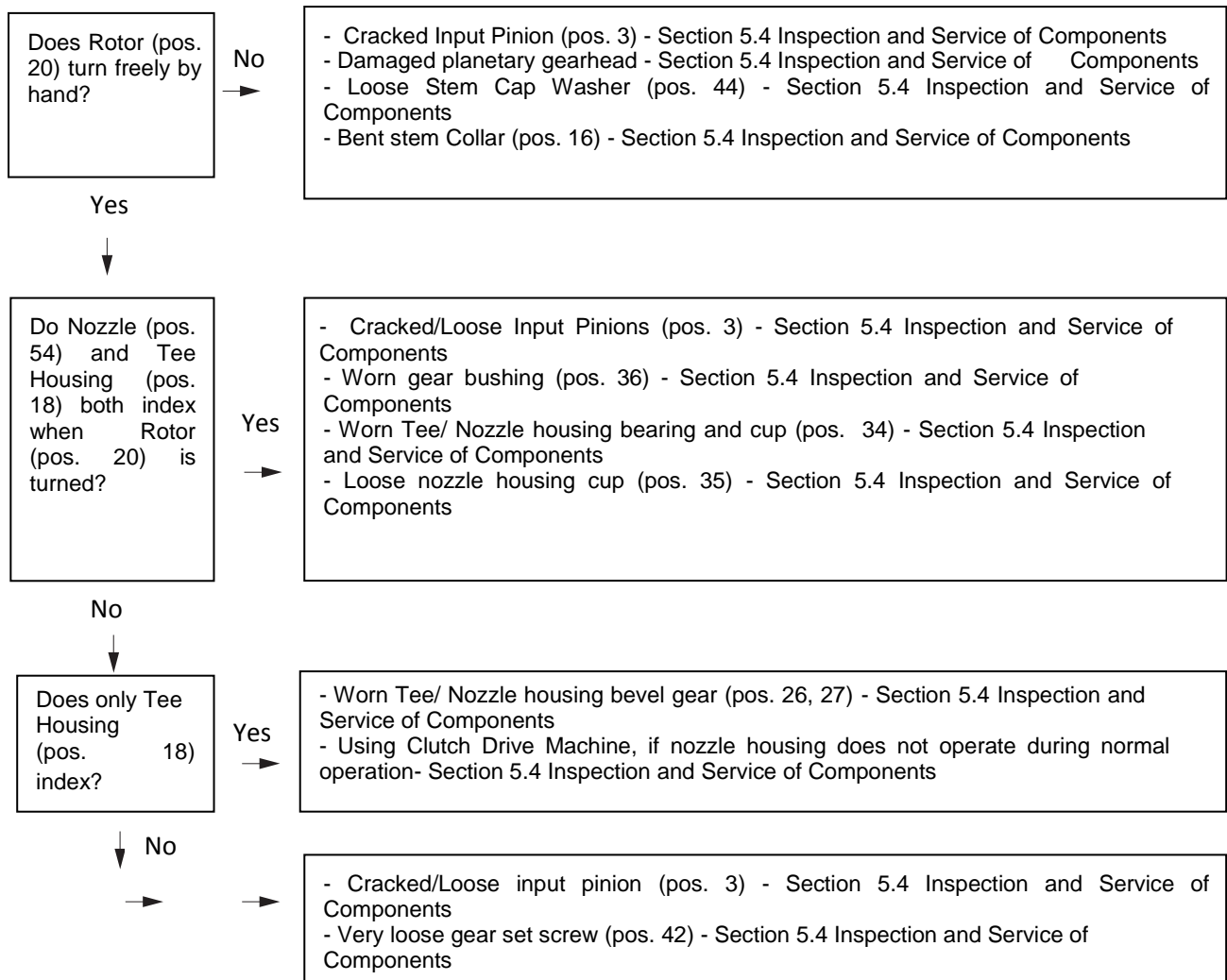
Initial Startup

Every Alfa Laval GJ A8 that ships is accompanied by a Birth Certificate. This document indicates how the Alfa Laval GJ A8 performed in our testing tank before it shipped based on the operating conditions supplied to Alfa Laval Gamajet. To ensure the longest possible life of the Alfa Laval GJ A8, please verify the operating conditions and, most importantly, the machine's cycle time. The cycle time can be measured by, first, picking a fixed point inside of a vessel as a reference and, second, timing how long it takes the same nozzle to pass back over that point in the vessel. (This, naturally, will not be the exact same spot because the spray pattern is indexing.) The measured time in seconds directly corresponds to the machines full cycle time in minutes. In other words, a single 10-second rotation translates to a 10 minute full cycle time.

4. Operation

*Pay attention to possible faults
Read the instructions carefully*

4.2 Trouble Shooting



4. Operation

*Pay attention to possible faults
Read the instructions carefully*

Step 1

INSUFFICIENT FLOW

The Alfa Laval Gamajet was configured to meet certain operating conditions supplied to us, such as flow rate (GPM), pressure (PSI), temperature, chemical content of the wash fluid, cycle time, etc. If the Nozzle size is too small and/or the opening at the bottom of the Stator is too large, the Tee Housing will not turn.

Look for restrictions in the fluid supply such as a clogged filter, kinked hose, or deposits in the piping.

Step 2

TIGHT CLEARANCES

A newly overhauled Alfa Laval GJ A8 may fail to operate when first returned to service. If the machine seems otherwise fine, try running it with at least one Nozzle Tip removed. The reduction in pressure and additional flow will invariably be enough to overcome the extra resistance of new Bearings and Seals. A few minutes of operation should loosen the clearances enough for the machine to run normally with the Nozzles remounted.

Step 3

DEBRIS INSIDE

Loosen the Collar Set Screw (45), and remove the Collar (55), then lift out the Stator (56). Look for and remove any debris caught in the passageways of Stator and Rotor (20). Remove any material wound around the Rotor Shaft (30). In addition check for any debris caught in the outlet holes of the Stem (17), the nose of the Tee Housing (18), the Nozzle Housing (54), and the Nozzles (57).

4. Operation

*Pay attention to possible faults
Read the instructions carefully*

4.3 Cleaning Solution Leakage

- Worn Bearings
Excessive leakage from the Tee Housing or Nozzle Housing usually indicates worn Housing Bearings, (34). Inspect them for wear, and replace as required.
 - Worn Bearing Cups
Inspect the Bearing Cups (35) for excessive wear (grooved or scored). Replace any that show distinct grooves.
 - Worn Bearing Contact Surfaces
Inspect the Bearing contact surfaces of the Stem (17) and the nose of the Tee Housing (18). If these are worn or grooved, new Bearings will be ineffective. Replace the damaged parts as required.
 - Leak On Either Side of Bearing Housing
Verify that the Stem Cap SHCS (43) are tight. If tight, inspect the Stem Collar (16), Rotor Shaft Upper Bearing Housing (31), and Stem (17) for nicks or burrs. File, if necessary.
 - Worn Stem Collar O-Rings
Severe leakage between the Inlet Collar (55) and Stem Collar (16) may indicate worn or damaged Stem Collar O-rings (46) and (47). Remove the Stem Collar as described in Section 2, and inspect the O-rings for signs of damage or wear.
-

4. Operation

*Pay attention to possible faults
Read the instructions carefully*

4.4 Poor Cleaning Performance

- **Inadequate Flow and Pressure**
Check the pressure at the Alfa Laval Gamajet inlet under actual operating conditions. The supply piping and hoses must be large enough to handle the flow rate required for the nozzle size being used to ensure adequate pressure.

Insufficient pressure may also result from line losses when the machine is far from the pump, so the line size must be increased accordingly for long runs. Although the Alfa Laval Gamajet will rotate at low flow rates, effective cleaning may require considerably more flow. Proper mechanical operation (the unit turns) is NOT the same thing as effective cleaning (the soils have been removed)!
 - **Chemical Concentration and Temperature**
Verify that the cleaning solution is the correct compound and in the concentration needed for the deposit being cleaned. If heating is necessary, also check that the solution is at the proper temperature.
 - **Plugged Nozzles**
Unscrew the Nozzles (57) and inspect for any debris.
 - **Slow or no Rotation of the Housings**
This will result in partial or erratic washing coverage. Refer to previous sections for more information.
 - **Alfa Laval Gamajet Configuration**
Determine if the deposit being cleaned requires greater jet impact or longer jet dwell time (slower rotation) for more thorough scrubbing. Confirm that the Alfa Laval Gamajet nozzle size, turbine, and gearing are correct for the specific application. Contact Alfa Laval Gamajet for assistance, if needed.
 - **Inadequate Drainage**
Ensure that the vessel drains the effluent or used wash fluid as fast as it's being sprayed in through the Alfa Laval Gamajet. The floor of the vessel should be sloped or pitched toward the drain and the drainage opening should be large enough to gravity-drain the effluent from the vessel. If you still have puddling (build-up of the wash fluid so it covers the floor and shields the residues underneath), use some form of pump to suck out the effluent.
-

4. Operation

The Tank Cleaning machine is designed for cleaning in place (CIP). CIP = Cleaning In Place. Study the instructions carefully and pay special attention to the warnings! NaOH = Caustic Soda, HNO₃ = Nitric acid.

4.5 Recommended Cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



always use rubber gloves!



Always use protective goggles!

Step 2



Never touch the pump or the pipelines when sterilizing.

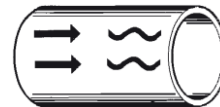
Danger of burns!

Step 3



Always rinse well with clean water after using a cleaning agent.

Always rinse!



Clean Water Cleaning agent

NOTE

Cleaning agents must be stored/disposed of in accordance with current regulations/directives.

5. Maintenance

*Maintain the Tank Cleaning Machine with care. Read the instructions carefully and pay special attention to the warnings!
Always keep Minor spare parts kit in stock.*

5.1 General Maintenance

Step 1



Always read the technical data thoroughly. (see chapter 7 technical Data)

Step 2

Recommended spare parts:

Order service kits from the service kits list

(See 7.8 Minor Service Kit & 7.9 Major Service Kit)

Ordering spare parts:

Contact your local Alfa Laval Sales Company.

5. Maintenance

Maintain the Tank Cleaning Machine with care. Read the instructions carefully and pay special attention to the warnings! Always keep Minor spare parts kit in stock.

5.2 General dismantling set up

Step 1

NOTE

A rigorously implemented preventative maintenance program will significantly reduce repair costs over the life of the Alfa Laval Gamajet. The foundation of such a program is regularly scheduled inspections to discover and replace worn or damaged parts before they can cause the failure of other, more costly, components. The inspection intervals required will depend on the severity of the application, but a complete internal inspection at 100 hours of operation is recommended initially.

Step 2

STORAGE

The Alfa Laval Gamajet should be washed out with clean water after each use to remove any foreign material or soft substances left in the machine that may harden during storage and cause the Alfa Laval Gamajet to seize or lock up. A clean water rinse through the Alfa Laval Gamajet will also wash out any residues of chemical cleaners or recirculated wash water that could adversely affect the seals and O-rings during prolonged contact in storage. The best position to store the Alfa Laval Gamajet is to stand it up with the inlet connection facing down.

Step 3

EXTERNAL INSPECTION INTERVALS

Before every shift, the Stator (56) and the Nozzles (57) should be inspected for debris. Examine the Stator by loosening the Collar Set Screw (45) and removing the main section of the machine from the Collar (55). Note: One does not have to remove the Inlet Collar (55) from the supply pipe when performing this check; simply, loosen the set screw #850 and unthread the body from the (55). Look into each Nozzle for signs of debris or build-up.

Step 4

INTERNAL INSPECTION INTERVALS

An interval of 100 hours is recommended initially. If all of the components are found to be in acceptable condition after the first 100 hours, the Alfa Laval Gamajet may then be inspected and routine preventative maintenance should be performed every 300 to 500 hours or 500-700 hours of operation, depending on the severity of use.

Step 5

TIPS

All the Bearings, Bushings, and O-rings are wear parts. Ideally, they should all be replaced, as a group, every 300 to 500 hours of operation, depending on the severity of use. If just one bearing is worn or damaged, replace both it and its mate, not just the worn or damaged part. Be sure to check the (35) cups for scoring or grooves. Replace as needed.

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

5.3 General dismantling

Step 1

Inlet Collar

Loosen the Collar Set Screw (45) with the 1/8" Hex Key.

Unthread the Collar (55) and remove the Stator (56).

Tip: If (55) does not unthread easily, remove (45) and spray a generous amount of liquid lubricant into the threaded hole. Turn (55) back and forth to slowly unthread. Forcing the (55) off of the unit without the use of a lubricant may gall the threads on the (55) and/or (16).

Step 2

Base Assembly

Remove the Acorn Nuts (1), with a 1/2" Hex Socket and Ratchet, and Base (23) from the Tee Housing (18). Remove the Cup Point Set Screws (2) with a 5/32" Hex Key. The (2) set screws may unthread when the (1) Acorn Nuts are removed.

Remove the Nut (52) with an 11/32" socket and Lockwasher (51) from the Output Shaft (22).

Using slotted screwdriver, remove the Idlers Shafts (24), Idler Gear Assemblies (25), and the Output Pinion (21).

Step 3

Stem Collar

Unscrew the SHCS (43) with 5/32" Hex Key, and remove them along with the Lockwashers (44).

Pull the Stem Collar (16) from the Rotor Shaft Upper Bearing Housing (31).

Step 4

Gear Train Assembly

Remove the Gear Train Assembly from the body by tapping on the Output Shaft (22) at the Base end of the machine with the handle of a screw driver.

Step 5

Nozzle Housing

Remove the Nameplate Screws (19) with a 5/16" socket.

Pull the Nozzle Housing (54) off the nose of the Tee Housing (18).

Remove the Bearing (31). **Tip:** Use a screwdriver on both sides of the flange of (34) to aid in removal.

Step 6

Tee Housing

Using a 1/8" slotted screwdriver, remove the Ring Gear Retaining Ring (29), and Pullout the Ring Gear (20).

Unscrew the SHCS (43) using a 5/32" Hex Key, and remove the Lockwashers (44) and Idler Shaft Base (33).

Tip: if the (33) is difficult to remove, screw the SHCS (43) (removed in Step 2.2.2) back into (33) and use them for leverage. Or, using two slotted screwdrivers, pry between the Tee Housing (18) and Stem (17).

Pull the (18) from the (17).

Pry/Pull the lower Tee Housing Bearing (34) and Tee Housing Bevel Gear (26) from (17).

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

5.4 Inspection and Service of Components

Drawing 1

Stator

Inspect all the openings through the Stator (56) to be sure that they are clear and free of debris.

Drawing 2, 3, 4, 5

Base Assembly

Inspect the Output Pinion (21) and Idler Gears (25) for worn, damaged, or sharp/pointed teeth. Check for signs of scoring and wear on the Idler Shafts (24).

Examine the Idler Gear Bushings (36) on the Idler Gears and the Idler Shaft Bushing (37) on the Base for signs of wear. The inside diameter of the (36) should not exceed **0.260"**. This can be measured with a plug gauge or a letter size G drill bit. The inside diameter of the (37) should not exceed **0.255"**. If Bushings need to be replaced remove them with a small slotted screwdriver or razor blade, then tap replacements into place. Make sure the underside of the bearing's flange is flush with the metal.

Drawing 8

Stem Collar

Inspect the Small and Large Stem Collar O-rings, (46) and (47), for deterioration (hardening or deformation) or damage and replace if necessary.

Drawing 16- 19

Planetary Gear Train Assembly

General Disassembly and Inspection

Turn to (drawing 16): Unscrew the Nut (52) with an 11/32" socket and remove it with the Lockwasher (51) from the Rotor Shaft (30). Remove the Rotor (20) from (30). Use a slotted screwdriver for assistance. Check that the Carbide Bushing pressed into (20) protrudes slightly.

Turn to (drawing 17, 18): Remove the Rotor Shaft Upper Bearing Housing (31) by pulling and twisting it. Check that the (38) Carbide Bushing pressed into the top of (31) protrudes slightly.

Turn to (drawing 19): Pull and twist the Output Shaft Bearing Housing (32) from (5).

Remove the Output Shaft (22). Inspect the Output Shaft (22) for signs of scoring and wear.

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Drawing 17, 20

Gearhead & Rotor Shaft Assembly

Turn to (drawing 20): Inspect the Gearhead by rotating the Rotor Shaft (30) by hand. If the (30) does not turn smoothly in both directions, or feels stuck, return the entire Alfa Laval Gamajet unit to Alfa Laval Tank Equipment Inc. for service.

Turn to (drawing 17): Inspect the 4 holes around the base of the 46 Tooth Ring Gear (5), making sure they are clear and free of debris.

WARNING: Proceed in a cautious manner when performing any work to the Planetary Gearhead due to the complexity and size of the internal parts.

If the gears rotate freely, no further inspection is required.

In order to further disassemble the Gearhead, (5) must be removed.

First, remove both of the Internal Rings using a 1/8" Slotted Screwdriver. Keeping the Gearhead horizontal, remove the Planetary Output Shaft Washer, (12) and the Top Planetary Large Washer, (14).

Carefully holding the gear train together from the input and output sides, turn the Gearhead vertical, with the input side facing down.

Set the Gearhead on a solid flat surface, pulling one's thumb or finger out of the way, and keeping pressure on the Planetary Gear Output Shaft, (13). The input side set of planetary gears should now be inside (5) and resting on the solid flat surface.

Slowly lift up on (5), being careful not to lift any of the gears along with it. If a set of gears feels caught, sometimes rotating (13) clockwise and counterclockwise will help clear the stuck piece out of position.

Take the Planet Gears, 19 Tooth, (7), and Planet Gear Washer, (8) off of their respective Planet Carrier Plates, (10). Inspect (7) for hairline cracks, and worn, damaged, or sharp/pointed teeth. If there is any wear, replace all of the gears (including the Planet Gear Pinions, (11)) along with their Planet Gear Bushings, (6), (8), and the Inter-Tier Planetary Washers, (53).

Inspect (53) for wear. Replace both if there is any wear on them.

Inspect the Input Pinion (3) for hairline cracks on the end face or for worn, damaged, or sharp/pointed teeth. The assembly of (3), the Rotor Shaft Carbide Thrust Washer (40) and (30) should be tight (circular scoring on the top of the Rotor (20) and underside of Stator (56) is an indication of (3) slippage). Press (3) back onto (30) if it has slipped, or replace if cracked.

Check for signs of scoring and wear on the gear of (30). Check the shaft's black coating for cracks or chips.

Check the (40) for cracks or chips in the black coating, and, replace if necessary.

Inspect (5) for hairline cracks, worn, damaged, or sharp/pointed teeth. Replace (5) if there is any wear.

Drawing 18, 21

Input Shaft Bearing Housing

Turn to (drawing 21): Inspect the Input Shaft Carbides, (38), for wear, cracks or chips. The alignment of the Bearings can be checked by placing (30) through both carbides. If there is difficulty inserting or rotating (30), or the (38)s are worn as noted above replace the entire Input Shaft Bearing Housing Assembly.

Turn to (drawing 18): Inspect O-Ring, 2-026, (15). If there is any deterioration (hardening or deformation) or damage, replace as necessary.

Drawing 19

Output Shaft Bearing Housing

Inspect the Output Shaft Upper Carbide Bushing, (39), for wear, hairline cracks, or chips, replace as necessary.

The alignment of (39) can be checked by inserting (22) and rotating it. If there is any deviation from center, either the bearing is cocked or worn. Replace the entire Output Shaft Housing Assembly if this is the case.

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Drawing 11- 13

Nozzle Housing

Turn to (drawing 12): Unscrew the Nozzles (57) with an open-end wrench and inspect for debris inside the (57) and Stream Straightener (58). The inside diameter of (57) must be smooth, round, and free of damage (especially any nicks) for maximum jet impact. Replace worn or oversized nozzles if the original flow rate is required.

Turn to (drawing 13): Inspect the Nozzle O-rings (38) for deterioration (hardening or deformation) or damage, replace if necessary.

Turn to (drawing 12): Inspect Nozzle Housing Bevel Gear (27) for wear such as sharp/pointed or broken teeth. Also, check that (27) does not spin relative to the Nozzle Housing (54). If the teeth are damaged or (27) can be rotated, loosen both of the Bevel Gear Set Screws (42), and remove (27) from (54). When reinstalling the (27), ensure that the (42) are aligned with the dimples on the (54) by removing one of the (42) and visually aligning the threaded hole in the gear with the dimple. Also, the Drive Pin (49) should line up with the slot in the back of the (27).

Turn to (drawing 11): Inspect the Housing Bearings, (34). Replace any that are broken, cracked, or deeply scored. Clean any deposits from the exterior of both pieces and check (34) fit in the Nozzle Housing Bearing Cups (35). While they should turn freely, to avoid shortening the life of the Bevel Gears the (34) should be replaced if the thickness of the flange is less than 0.115".

Turn to (drawing 12): Clean any deposits from (35) and examine for excessive wear. Light scoring is acceptable, but the Cups should be replaced if they are grooved in the seal contact area. A good maintenance program will require replacing many seals, therefore, it may be worthwhile to make or obtain press tools for pressing (35) out of (54). The press tools are available from Alfa Laval Tank Equipment Inc. Before installing new (35), clean the housing bores and remove any burrs resulting from (35) removal. Press them in so that their flanges are flush against (54).

Drawing 5, 12, 15

Tee Housing

Turn to (drawing 5): Inspect the Tee Housing (18) for damage to the keyway that engages the Ring Gear (28). If the Ring Gear was difficult to remove, check to see if (18) is out-of-round (as the result of an external blow, such as dropping) where the Gear seats.

Turn to (drawing 15): Check the water outlets on the nose and the CIP holes of (18); they should be free of debris.

Inspect the Tee Housing Bevel Gear (26) for worn, damaged or sharp/pointed teeth.

Turn to (drawing 5): Inspect (28) for worn, damaged or sharp/pointed teeth, and for damage to the key that engages the slot in (18).

Turn to (drawing 15): Inspect the Tee Housing Bearings and Seals (34). Replace any that are broken, cracked, or deeply scored. Clean any deposits from the exterior of both pieces and check the fit of (34) in the Tee Housing Bearing Cups (35). While they should turn freely, to avoid shortening the life of the Bevel Gears (34) should be replaced if the thickness of the flange is less than 0.115".

Turn to (drawing 12): Clean any deposits from (35) and examine for excessive wear. Light scoring is acceptable, but the Cups should be replaced if they are grooved in the seal contact area. A good maintenance program will require replacing many (35), therefore, it may be worthwhile to make or obtain press tools for pressing (35) out of (18). The press tools are available from Alfa Laval Tank Equipment Inc. Before installing new (35), clean the housing bores and remove any burrs resulting from (35) removal. Lubricate the outside of the new (35) and press them in so that their flanges are flush against (18).

Drawing 15, 22

Stem

Inspect the water outlets of the Stem (17); they should be free of debris.

Check the Clutch O-ring, (50), for deterioration (hardening or deformation) or damage and replace if necessary.

If the machine is pin drive, the Drive Pin, (49), should be securely in the (17).

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

5.5 Reassembly

General Notes

All parts must be cleaned thoroughly before reassembling. Any deposits remaining on the parts can cause difficult disassembly the next time the Alfa Laval Gamajet needs servicing.

Apply a dab of a Teflon-based anti-seize compound, except when otherwise noted, to all threads when reassembling; this will prevent galling of threads and ease any future disassembly.

Whenever lubrication of O-rings is required for assembly, lithium-based soap grease (Calypsol SF 3-097) is acceptable, for Viton®, Zalak®, and Kalrez® O-rings. Silicon based grease **MUST** be used for EP O-rings. In either case food grade grease may be used.

Refer to previous illustrations or the exploded views in Appendix B for clarification during reassembly.

Drawing 11, 15, 22, 23

Stem

Turn to (drawing 15, 22): Place (26) back onto the Stem (17). If the machine is pin drive, the slot in the (26) should line up with the Drive Pin (49) in the (17). Slide the first Tee Housing Bearing (34), flange down, onto (17).

Turn to (drawing 11, 23): Align the Bearing Locating Pin (48) with the hole in underside of (34). Ensure that the flange of (34) is flush with (26).

Drawing 5, 14, 15

Tee Assembly

Turn to (drawing 15): Push the Tee Housing (18) over the Stem (17) until it is fully seated.

Tip: First, Place the second Tee Housing Bearing (34) into (33), aligning its hole with the Bearing Locating Pin (48). Now, invert the (18)/ (17) assembly and place it over (34)/ (33) assembly. This technique ensures correct alignment of (34) and (48).

Turn to (drawing 14): Apply pressure to (33) to drive it and (34) into (18).

Align the through holes of (33) with the threaded holes in the top of the (17). Screw the four SHCS (43) with their Lockwashers (44) into place using a 5/32" Hex Key, tightening them in a star pattern.

Turn to (drawing 5): Insert the Ring Gear (28) into (18), being sure to align the key and keyway of the two components.

Reinstall the Ring Gear Retaining Ring (29).

Drawing 10, 11, 12

Nozzle Housing

Turn to (drawing 11): Place the first Housing Bearing (34) onto the nose of the Tee Housing (18). Ensure that the Bearing Locating Pin (48) and hole in back of (34) are aligned.

Turn to (drawing 12): Using an open-end wrench, screw the Nozzles (57) into the Nozzle Housing (54).

Push (54) assembly onto the nose of (18). Ensure that the Bevel Gears mesh properly.

Turn to (drawing 11): Place the second (34) into the Name Plate (19), aligning (48) with the hole in back of (34).

Turn to (drawing 10): (54). Align the threaded portion of (19) with the threaded hole of (18) and screw in (19) using a 3/16" Screwdriver.

5. Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Drawing 9, 17

Gear Train

Place the Planet Gear Washers, (8), on each of the Idler Posts, (9), on each Planet Carrier Plate, (10), and Planetary Gear Output Shaft, (13).

Place each Planet Gear, 19 Teeth, (7), over (8) on (9). One side of the Planet Gear Bushing, (6), will protrude through (7) more than the other. The side that protrudes more faces (8).

Assemble the gear tiers as shown in Section 5.4. Gearhead and Rotor Shaft Assembly, making sure to put an Inter-Tier Planetary Washer, (53), between the tiers.

Place the Top Planetary Washer, (14), in 46 Teeth Planetary Ring Gear, (5). Snap in the Internal Snap Ring, (4), into (5), over (14).

Holding the gear stack vertically, with (13)'s shaft facing down, bring the (5) assembly over the stack. Note the orientation of the fluid holes in (5). It may help to engage (7)s into (5) by rolling shaft back and forth on (13) between thumb and forefinger.

With all gear stacks fully in the (5) assembly, turn the assembly over. Place the Planetary Output Shaft Washer, (12), inside (5), on top of (13). Snap the second (4) into (5), over (12).

Insert the Input Shaft, (30), into the Input Shaft Bearing Housing, (31). Place the Rotor, (20), over (30)'s shaft. Put on the Lockwasher, (51), and then screw on the Rotor Nut, (52) using an 11/32" Socket and Ratchet.

Align the Input Pinion, 8 Tooth, (3), with the (7) gears on the input side of the (5) assembly. Snap the (31) assembly in place, being sure that the pin in (31) is aligned with the slot in the (5) assembly. Be sure that the (31) assembly is fully seated in the (5) assembly.

Put the Transition Output Shaft, (22), through Output Shaft Bearing Housing, (32).

Snap the (32) assembly into the (5) assembly, making sure that (13) fully seats in the slot in (22), the pin in the (32) assembly is aligned with the slot in the (5) assembly. Be sure the (32) assembly is fully seated in the (5) assembly.

Turn to (drawing 9): Insert this assembly into the Stem (17), aligning the through holes of (31) with the threaded holes in (17).

Drawing 6, 7

Stem Collar

Turn to (drawing 7): Place the Stem Collar (16) on Rotor Shaft Upper Bearing Housing (31), making sure the screw holes are aligned.

Turn to (drawing 6): Using a 5/32" Hex Key, screw the SHCS (44) with their Lockwashers (43) through (16) and (31) and into the Stem (17). Tighten in a cross pattern.

Drawing 2, 3, 4

Base assembly

Turn to (drawing 3): Place the Output Pinion (21), round opening down, onto the Output Shaft (22).

Thread the Idler Shafts (25) into their respective holes in the Idler Shaft Base (33).

Turn to (drawing 4): Install the Idler Gears (25), Idler Gear Bushing (36) down, onto (24).

Tip: Twisting the Tee Housing (18) slightly will help (25) drop into place.

Turn to (drawing 3): Tighten the Nut (52) and the Lockwasher (51) onto (22) with an 11/32" socket.

Turn to (drawing 2): Put the Base (23) back into (18).

Using a 1/4" Hex Key, screw the SHCS and Lockwashers (59) into (33).

Drawing 1

Stator and inlet collar

Using one of the Hex Keys, rotate the Rotor (20). It should spin fairly easily and its veins must not strike the walls of the Stem Collar (16). Continue turning the Rotor. The Nozzle and Tee Housing will slowly rotate if everything has been assembled correctly. Insert the Stator (56) into (16). Lubricate the Small and Large Collar O-rings, (46) and (47).

Apply a generous amount of an anti-seize compound (ensuring that it is compatible with the O-ring material used in the Alfa Laval GJ A8) to the threads of the Inlet Collar (55). Screw on the (55) (hand-tight only), and tighten the Collar Set Screw (45) with a 1/8" Hex Key.

6. Technical Data

It is important to observe the technical data during installation, operation and maintenance. Inform personnel about the technical data.

6.1 Technical Data

The PF Tank Cleaning Machine is a highly efficient machine at a range of pressures and flows. The instruction manual is part of the delivery. Read the instructions carefully.

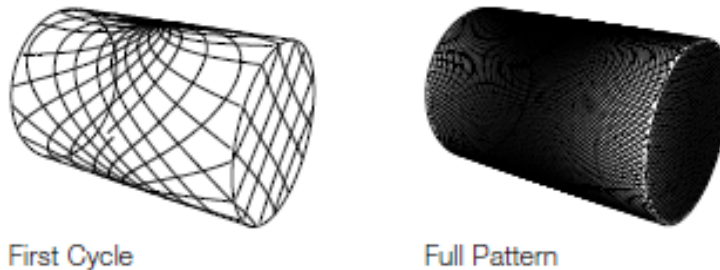
TECHNICAL DATA

Lubricant Food grade
Max. throw length 14 - 26 m (45-85 ft.)

Pressure

Working pressure 3 - 28+ bar (40 - 400+ PSI)
Recommended pressure 4 - 20 bar (50 - 300 PSI)

Cleaning Pattern



The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the cleaning.

Certificate

2.1 material certificate

PHYSICAL

DATA Materials

1.4404 (316L), PPS, PTFE, FKM (EPDM and FFKM available).

Temperature

Max. working temperature 95°C (203°F)
Max. ambient temperature 140°C (284°F)
Weight 6.5 kg (14.5 lbs.)

Connections

Standard thread 1½" Rp (BSP) or NPT, female
Available option 2" Rp (BSP) or NPT, female

Options

Electronic rotation sensor to verify 3D coverage.

Caution

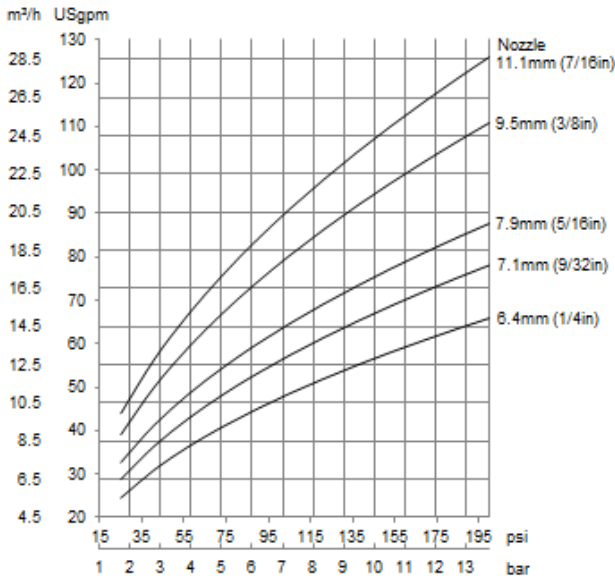
Do not use for gas evacuation or air dispersion.

7. Technical Data

It is important to observe the technical data during installation, operation and maintenance. Inform personnel about the technical data.

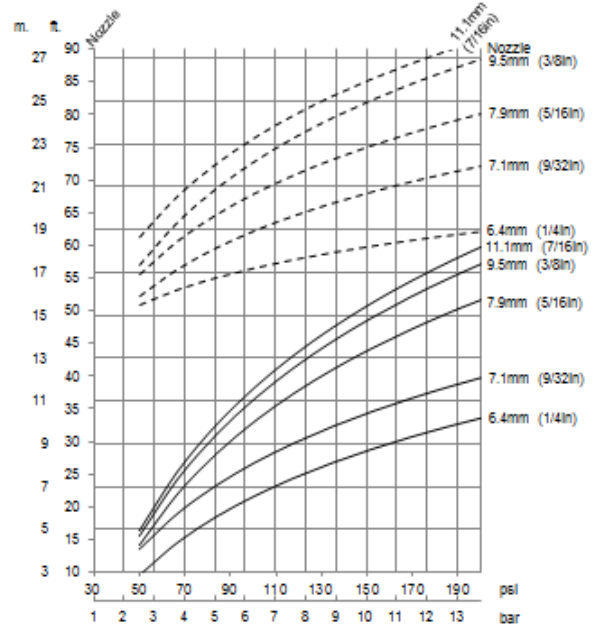
6.2 Performance Data

Flow Rate



Inlet Pressure

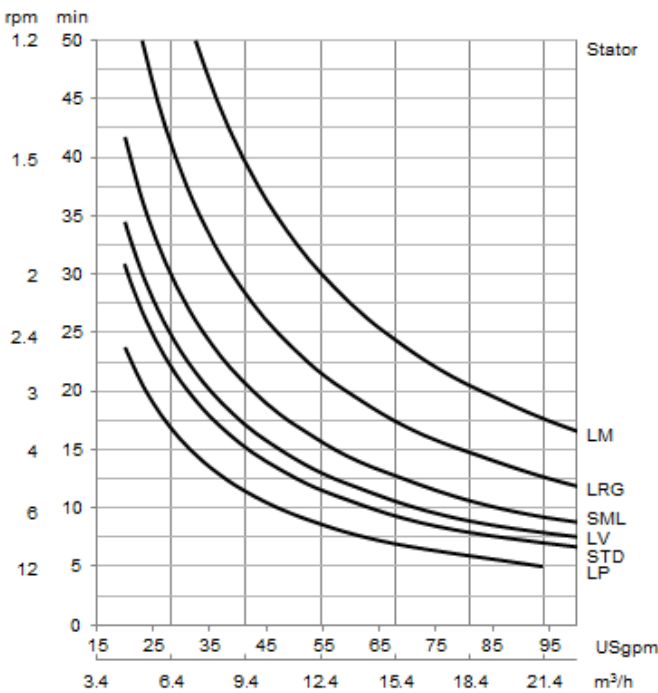
Impact Throw Length



Inlet Pressure

- - - Wetting, --- Impact cleaning

Cleaning Time



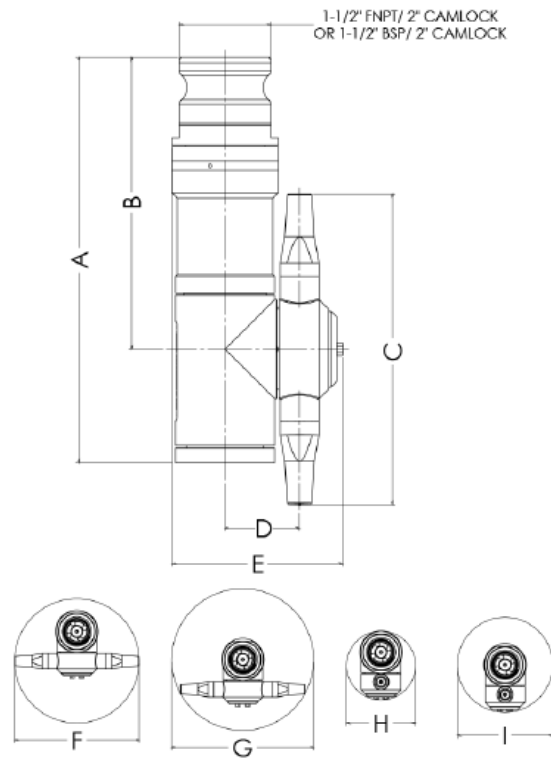
Flow Rate

7. Technical Data

It is important to observe the technical data during installation, operation and maintenance. Inform personnel about the technical data.

6.3 Dimensions

Dimensions



Dimensions

	A	B	C	D	E	F	G	H	I
mm	281	202	215	51	118	216	248	121	165
in	11.05	7.95	8.46	2.02	4.64	8.50	9.76	4.76	6.50

7. Technical Data

It is important to observe the technical data during installation, operation and maintenance. Inform personnel about the technical data.

6.4 Trax Simulation Tool

Standard Design

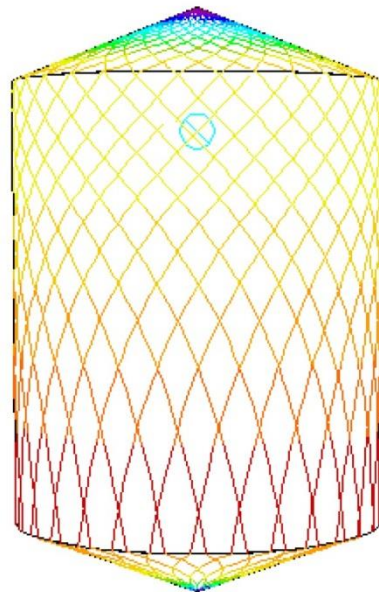
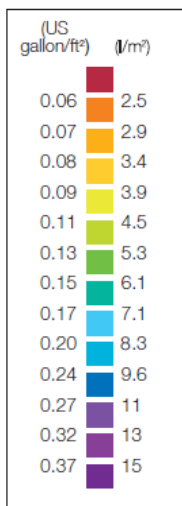
The choice of nozzle diameters can optimize jet impact length and flow rate at the desired pressure. As standard documentation, the Alfa Laval GJ A8 can be supplied with a "Declaration of Conformity" for material specifications.

TRAX simulation tool

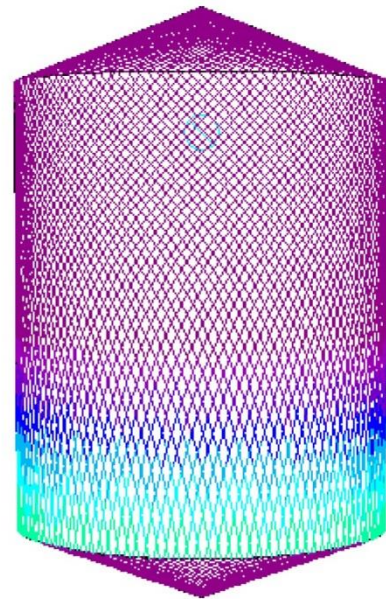
TRAX is a unique software that simulates how the Alfa Laval GJ A8 performs in a specific tank or vessel. The simulation gives information on wetting intensity, pattern mesh width and cleaning jet velocity. This information is used to determine the best location of the tank cleaning device and the correct combination of flow, time, and pressure to implement.

A TRAX demo containing different cleaning simulations covering a variety of applications can be used as a reference and documentation for tank cleaning applications. The TRAX demo is free and available upon request.

Wetting Intensity



D12.2m (480"), H19.6m (770"),
2xØ7.94mm (2xØ5/16") Time = 3.1 min.

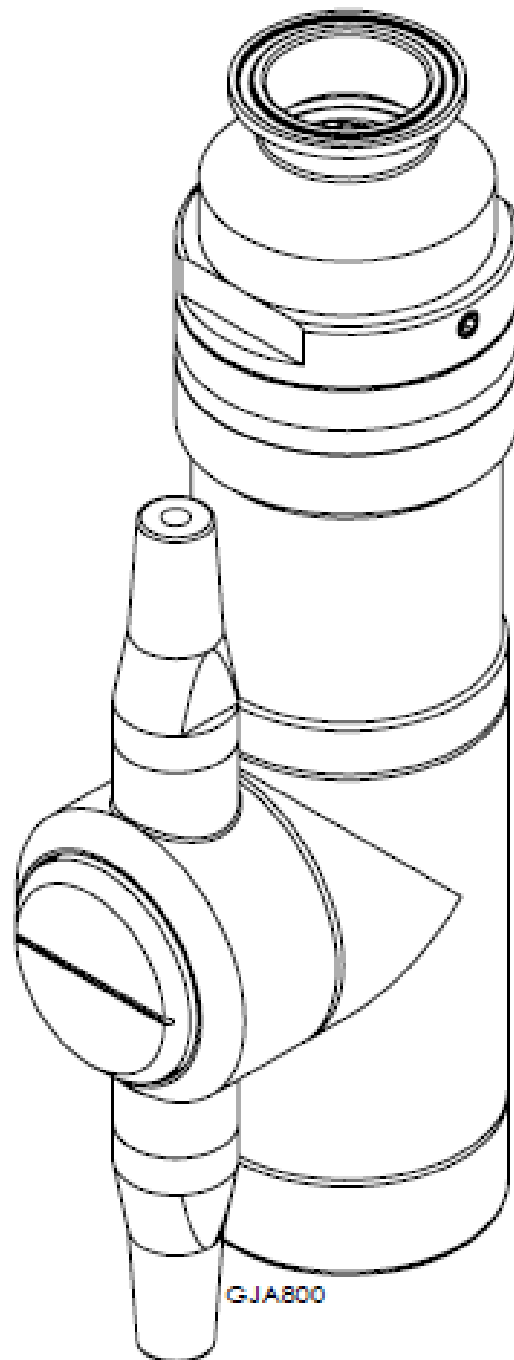


D12.2m (480"), H19.6m (770"), 2xØ7.94mm
(2xØ5/16") Time = 3.1 min.

7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

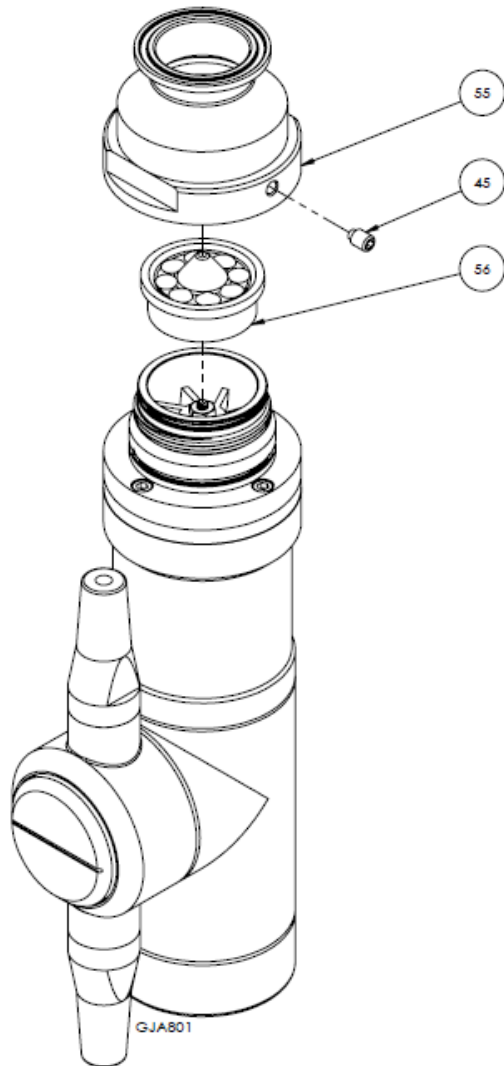
7.1 GJ A8 View



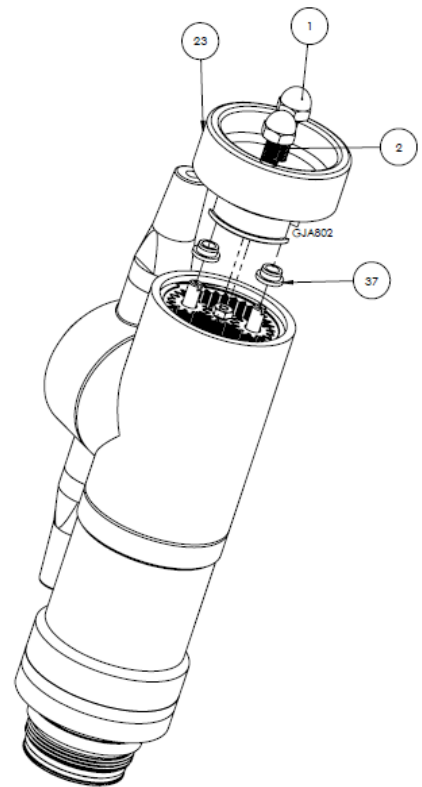
7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

7.2 Assembly Drawings - 1 & 2



Drawing 1 – Collar Removal

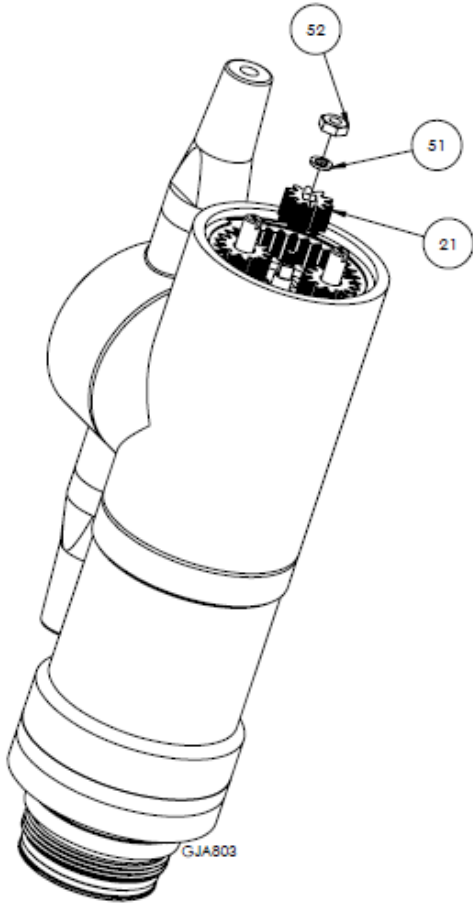


Drawing 2 – Base Assembly

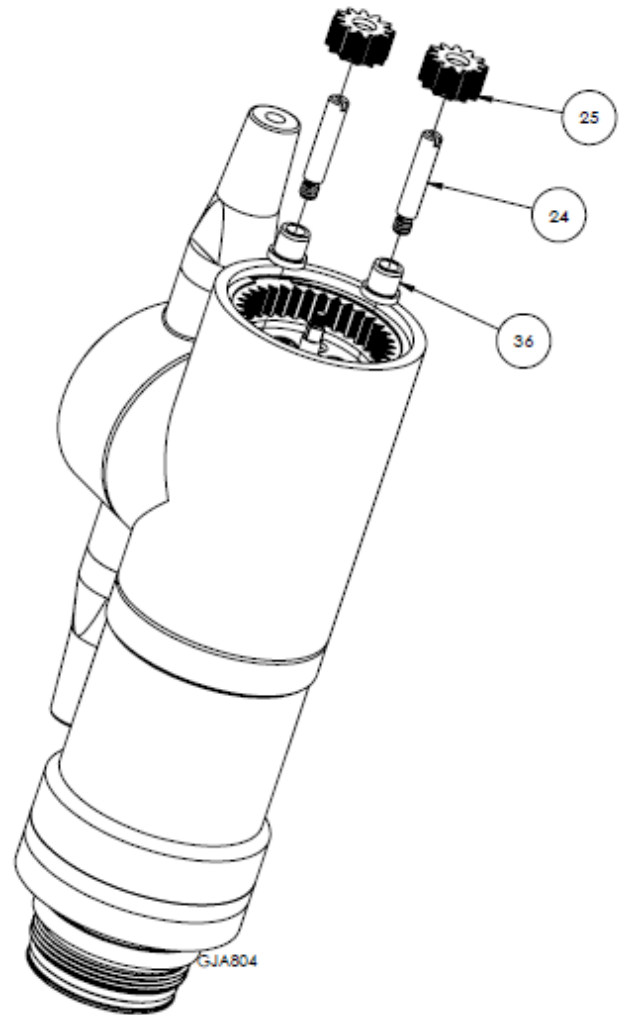
7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

7.3 Assembly Drawings – 3, 4, 5 & 6



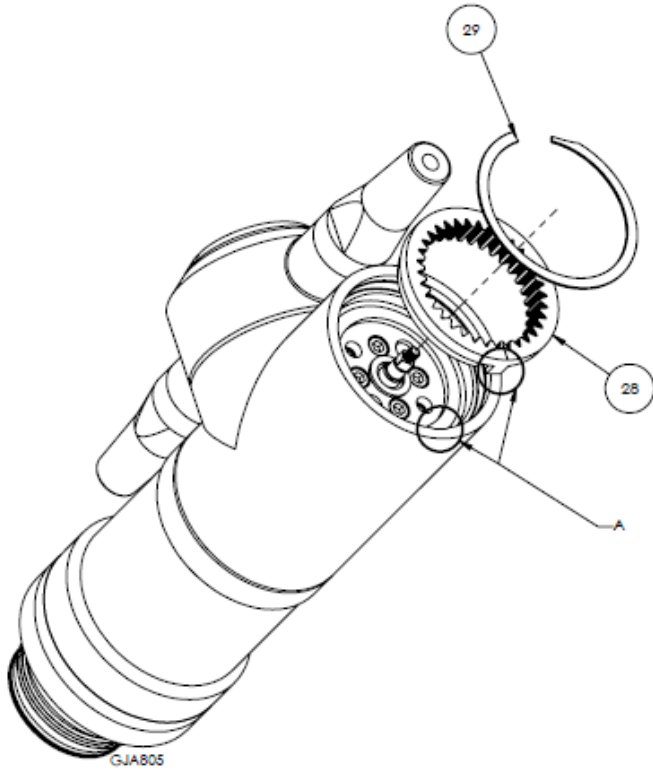
Drawing 3 – Base Assembly Removal



Drawing 4 – Base Assembly Removal

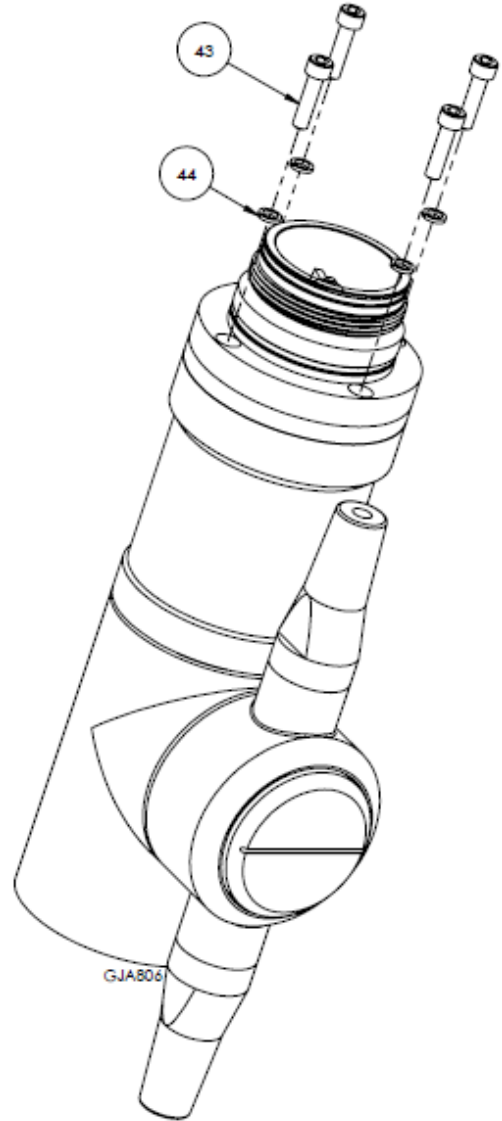
7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine



Drawing 5 – Base Assembly Removal

A: Align the flats and press flush

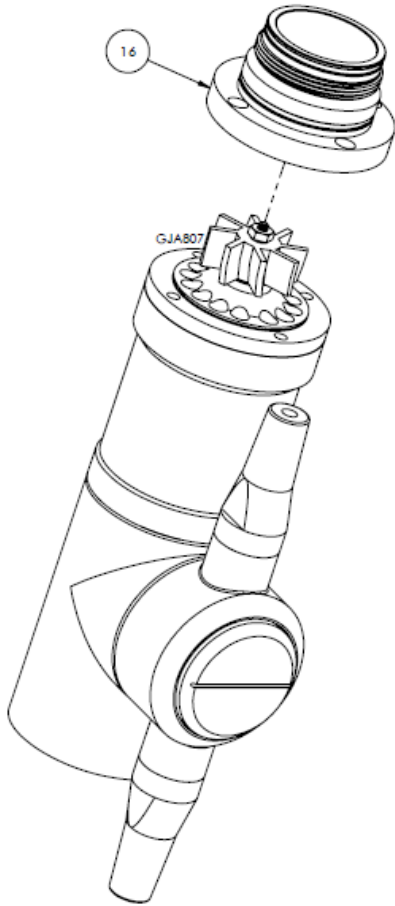


Drawing 6 – Stem Collar Removal

7. Parts List and Service Kits

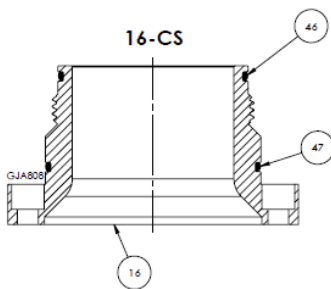
The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

7.4 Assembly Drawings – 7, 8, 9, 10, 11, 12 & 13

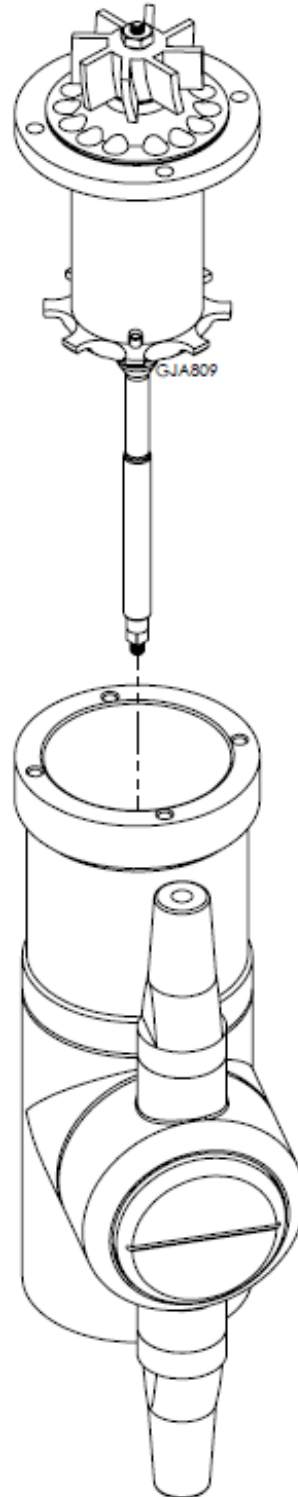


Drawing 7 – Stem Collar Removal

A : Drawing 8



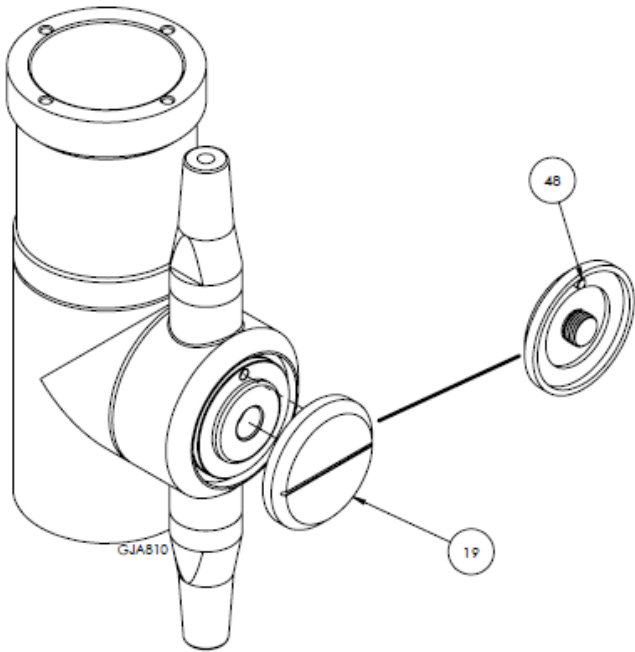
Drawing 8 – 20-CS



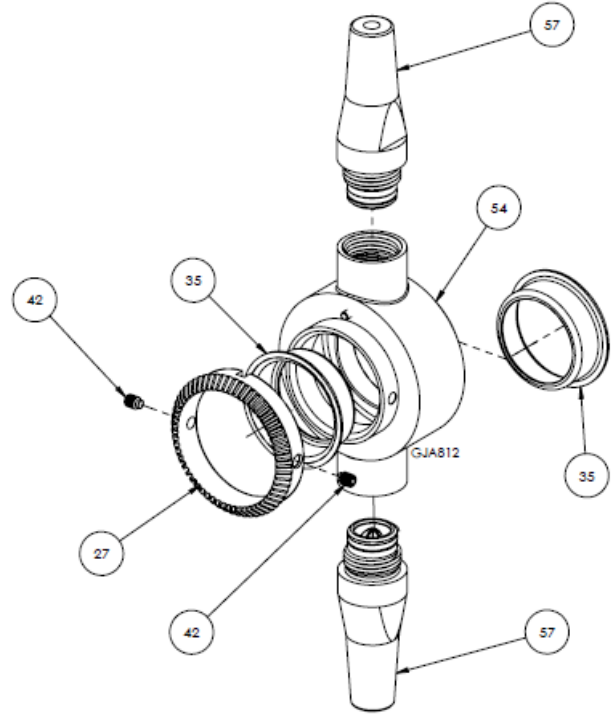
Drawing 9 – Gear Train Removal

7. Parts List and Service Kits

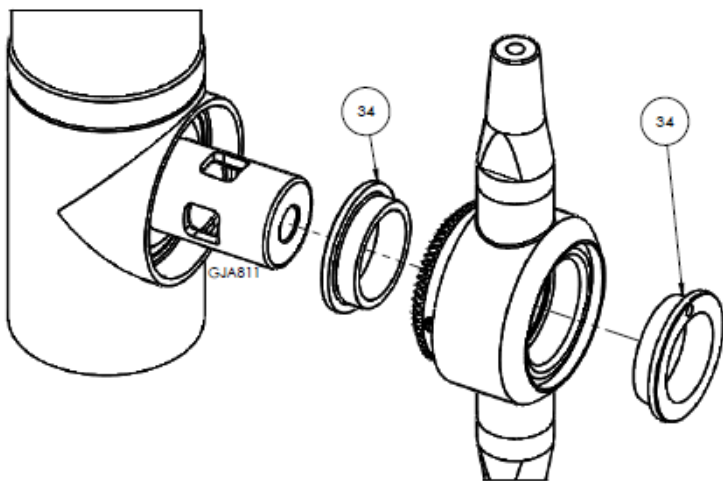
The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine



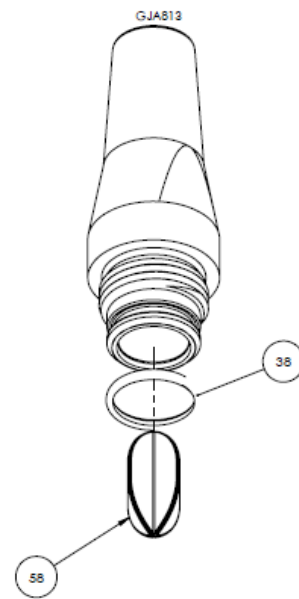
Drawing 10 – Nozzle Housing Removal



Drawing 12 – Nozzle Housing Removal



Drawing 11 – Nozzle Housing Removal

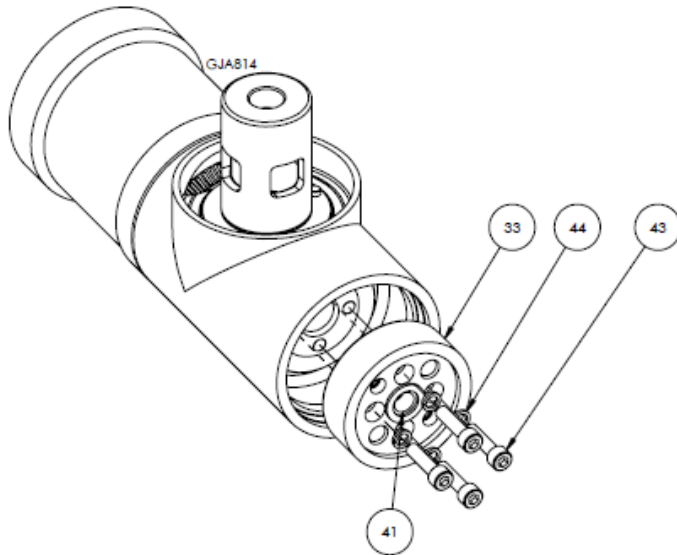


Drawing 13 – Nozzle Dis-Assembly

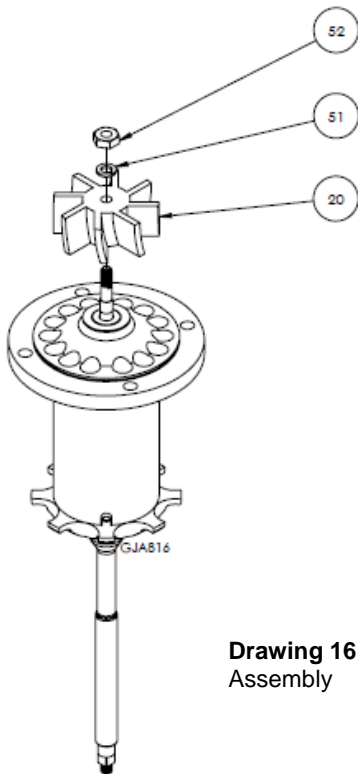
7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

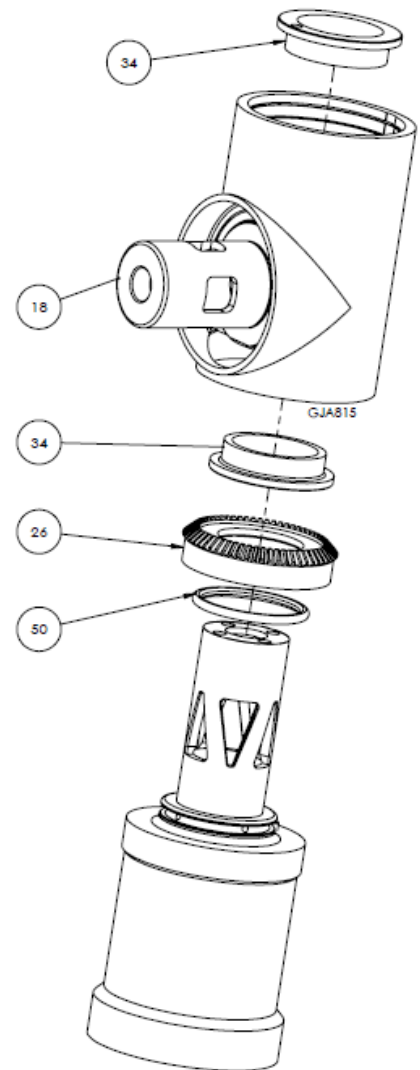
7.5 Assembly Drawings – 14, 15, 16 & 17



Drawing 14 – Tee Housing Assembly



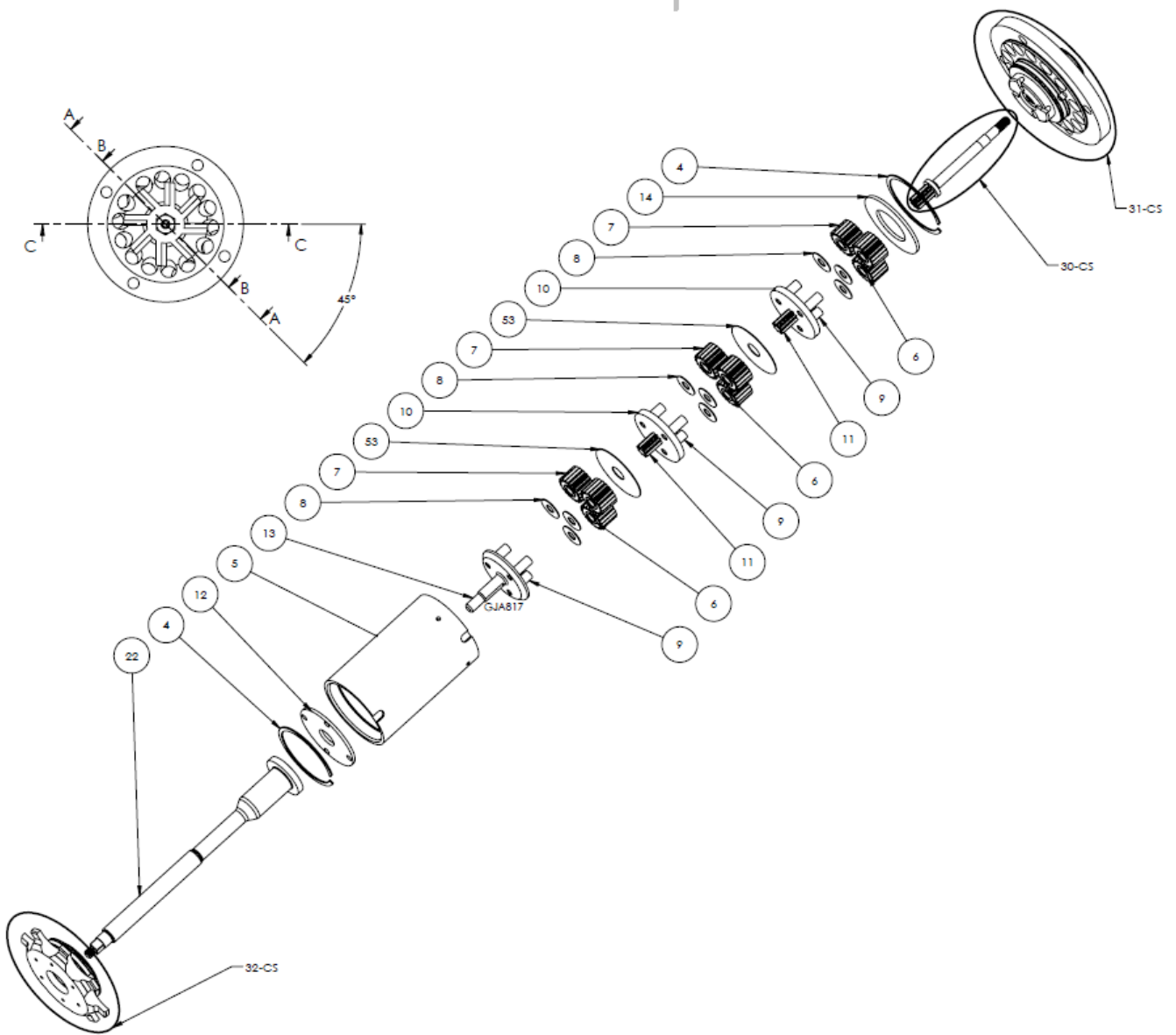
Drawing 16 – Geartrain Dis-Assembly



Drawing 15 – Tee Housing Assembly

7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

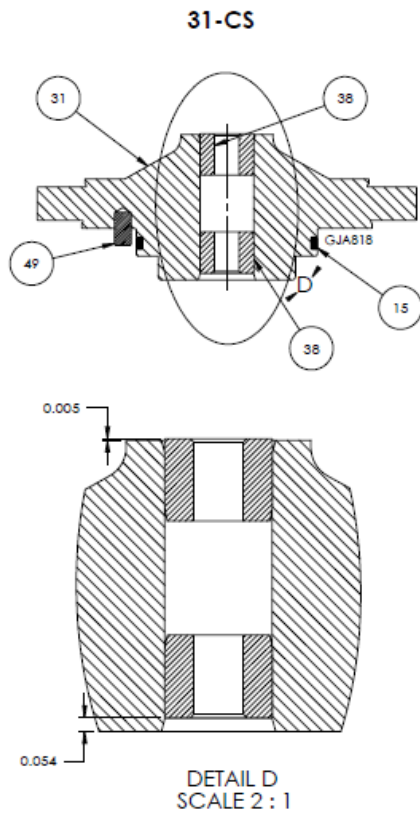


Drawing 17 – Geartrain Dis-Assembly

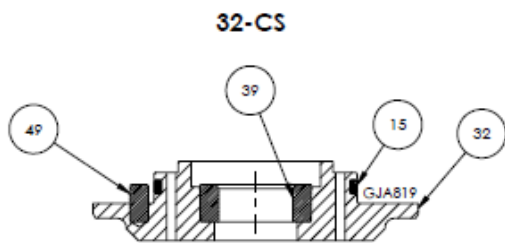
7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine

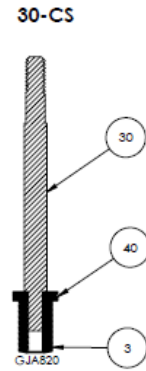
7.6 Assembly Drawings – 18, 19, 20, 21, 22 & 23



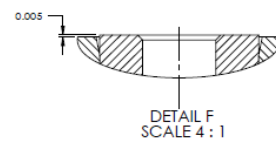
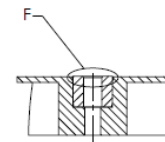
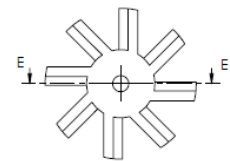
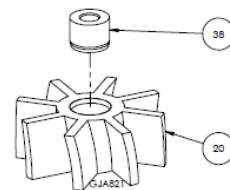
Drawing 18 – Input Shaft Upper Bearing Housing



Drawing 19 – Output Shaft Bearing Housing



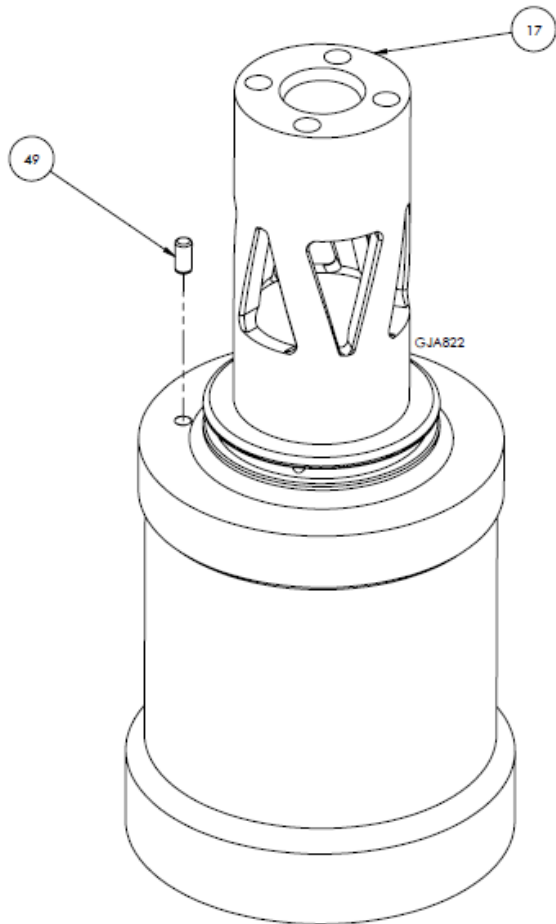
Drawing 20 – Input Shaft



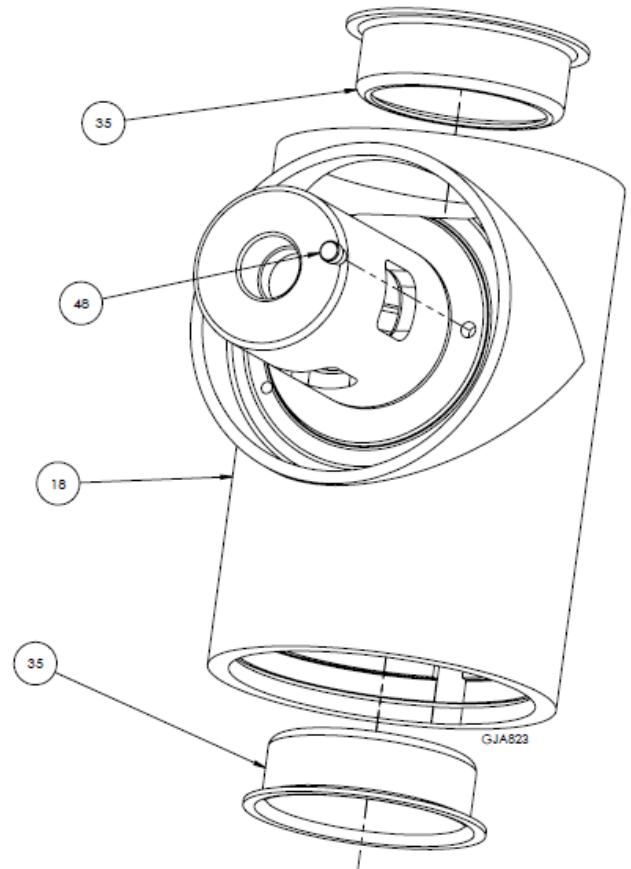
Drawing 21 – Rotor Dis-Assembly

7. Parts List and Service Kits

The drawing shows Alfa Laval GJ A8 Tank Cleaning Machine



Drawing 22 – Stem Dis-Assembly



Drawing 23 Tee Housing Dis-Assembly

7. Parts List and Service Kits

7.7 Parts List

Pos.	AL No.	Gamajet No.	Description	No.
1	9614602601	E174	ASEPTIC 8 ACORN NUT	2
2	9614602401	E167	ASEPTIC 8 SET SCREW	2
3	9614601201	E112	INPUT PINION	1
4	9614601301	E121	PLANETARY GEARHEAD SNAP RING	2
5	9614601401	E125	PLANETARY RING GEAR	1
6	9614601601	E127	PLANET GEAR BUSHING	9
7	9614601701	E128	PLANET GEAR	9
8	9614601801	E129	PLANET GEAR WASHER	9
9	9614601901	E130	PLANET GEAR IDLER SHAFT	9
10	9614602001	E137	PLANET CARRIER PLATE	2
11	9614602101	E138	PLANET GEAR PINION	2
12	9614602201	E140	PLANETARY OUTPUT SHAFT WASHER	1
13	9614602301	E141	PLANETARY OUTPUT SHAFT	1
14	9614602501	E170	PLANETARY INPUT SHAFT WASHER	1
15	9614602701	E175	GEARHEAD O-RING - EPDM	2
16	9614602901	E802	GJ VIII STEM COLLAR	1
17	9614603001	E803FT	GJ VIII STEM - HV	1
18	9614603102	E804FT	GJ VIII TEE HOUSING	1
19	9614603901	E806FT	GJ VIII NAMEPLATE - HV	1
20	9614605101	E810	GJVIII ROTOR	1
21	9614605301	E811	GJ VIII OUTPUT PINION	1
22	9614605501	E812F	OUTPUT SHAFT	1
23	9614606001	E814FT	GJ VIII BASE	1
24	9614606101	E815	GJ VIII IDLER SHAFT	2
25	9614606201	E816	GJ VIII IDLER GEAR	2
26	9614606401	E817	GJ VIII TEE HSG BEVEL GEAR	1
27	9614606801	E818HV	GJ VIII NH BEVEL GEAR	1
28	9614607101	E820	GJ VIII RING GEAR	1
29	9614607201	E821	GJ VIII RG RETAINING RING	1

7. Parts List and Service Kits

30	9614607301	E822	GJ VIII ROTOR SHAFT	1
31	9614608002	E828F	INPUT SHAFT BEARING HOUSING	1
32	9614608202	E829F	GJ VIII OS BEARING HOUSING	1
33	9614608401	E830HV	GJ VIII IDLER SHAFT BASE	1
34	9614608602	E831FT	ASEPTIC 8 TEE HOUSING BEARING	4
35	9614608701	E832	GJ VIII TH BEARING CUP	4
36	9614608902	E837FT	GJ VIII IDLER GEAR BUSHING	2
37	9614609002	E838FT	GJ VIII IDLER SHAFT BUSHING	2
38	9614609101	E839	GJ VIII ROTOR & RS CARBIDE BRG	3
39	9614609201	E840	GJ VIII OS UPPER CARBIDE BUSH	1
40	9614609301	E841	GJ VIII RS CARBIDE THRST WASH	1
41	9614609401	E842	GJ VIII OS LOWER CARBIDE BRNG	1
42	9614609601	E845	GJ VIII OS & BG SET SCREW	2
43	9614609701	E846	GJ VIII STEM/ISB/S CAP SCREWS	8
44	9614609801	E847	GJ VIII STEM/ISB/S CAP WASHER	8
45	9614610101	E850	GJ VIII COLLAR SET SCREW	1
46	9614610802	E862E	GJ VIII COLLAR STEM SM O-RING	1
47	9614610902	E863E	GJ VIII COLLAR STEM LG O-RING	1
48	9614611001	E864	GJ VIII BEARING LOCATING PIN	4
49	9614611101	E866	GJ VIII NH DRIVE PIN	3
50	9614611402	E870E	GJ VIII HV-8 CLUTCH O-RING	1
51	9614678201	8-544	GJ V RS / VIII R&P PIN LW	2
52	9614678301	8-545	GJ V ROT/ VIII R&O PIN NUT	2
53	9614601501	E126	INTER-TIER PLANETARY WASHER	2
54	9614603501	E805DHSVFT	GJ VIII DUAL NOZZLE HOUSING	1
55	9614604905	E808-TC	COLLAR	1
56.1	9614605001	E809LM	GJ 8 STATOR LM E809LM	1
56.2	9614605002	E809LRG	GJ 8 STATOR LARGE E809LRG	1
56.3	9614605003	E809LV	GJ 8 STATOR LV E809LV	1
56.4	9614605004	E809SMALL	GJ 8 STATOR SMALL E809SMALL	1
57.1	9614604201	E807ASEHV1/4	GJ 8 NZ AS E807ASEHV1/4	2
57.2	9614604202	E807ASEHV3/8	GJ 8 NZ AS E807ASEHV3/8	2
57.3	9614604203	E807ASEHV5/16	GJ 8 NZ ASSY E807ASEHV5/16	2
57.4	9614604204	E807ASEHV7/16	GJ 8 NZ AS E807ASEHV7/16	2

7. Parts List and Service Kits

57.5	9614604205	E807ASEHV9/32	GJ 8 NZ AS E807ASEHV9/32	2
57.6	9614604206	E807ASVHV1/4	GJ 8 NZ AS E807ASVHV1/4	2
57.7	9614604207	E807ASVHV3/8	GJ 8 NZ AS E807ASVHV3/8	2
57.8	9614604208	E807ASVHV5/16	GJ 8 NZ AS E807ASVHV5/16	2
57.9	9614604209	E807ASVHV7/16	GJ 8 NZ AS E807ASVHV7/16	2
57.11	9614604210	E807ASVHV9/32	GJ 8 NZ AS E807ASVHV9/32	2
57.12	9614604211	E807ASVHVL	GJ 8 L NZ AS E807ASVHVL	2
57.13	9614604212	E807ASZHV1/4	GJ 8 NZ AS E807ASZHV1/4	2
57.14	9614604213	E807ASZHV3/8	GJ 8 NZ AS E807ASZHV3/8	2
57.15	9614604214	E807ASZHV5/16	GJ 8 NZ AS E807ASZHV5/16	2
57.16	9614604215	E807ASZHV7/16	GJ 8 NZ AS E807ASZHV7/16	2
57.17	9614604216	E807ASZHV9/32	GJ 8 NZ AS E807ASZHV9/32	2
58	9614610701	E860-HV	STREAM STRAIGHTENER	2 OR 3
59	9614610001	E849	BASE LOCKWASHER	2
60	9614605701	E813FT	ASEPTIC 8 PLANETARY GEARHEAD	1
61.1	9614677702	8539EP	GJ V GB NS/VIII RSLBH O-RING	3
61.2	9614677701	8539	GJ V GB NS/VIII RSLBH O-RING	3

7. Parts List and Service Kits

7.8 Minor Service Kit

Article no: EA8EPDMKIT ALFA LAVAL GJ A8 KIT - EPDM

Pos. no.	Part No.	Gamajet Part No.	Description	No.	
34	9614608602	E831FT	ASEPTIC 8 TEE HOUSING BEARING	4	pcs.
36	9614608902	E837FT	GJ VIII IDLER GEAR BUSHING	2	pcs.
37	9614609002	E838FT	GJ VIII IDLER SHAFT BUSHING	2	pcs.
46	9614610802	E862E	GJ VIII COLLAR STEM SM O-RING	1	pcs.
47	9614610902	E863E	GJ VIII COLLAR STEM LG O-RING	1	pcs.
61.1	9614677702	8539EP	GJ V GB NS/VIII RSLBH O-RING	3	pcs.
50	9614611402	E870E	GJ VIII HV-8 CLUTCH O-RING	1	pcs.
53	9614601501	E126	INTER-TIER PLANETARY WASHER	2	pcs.
6	9614601601	E127	PLANET GEAR BUSHING	9	pcs.
8	9614601801	E129	PLANET GEAR WASHER	9	pcs.
15	9614602701	E175	GEARHEAD O-RING - EPDM	2	pcs.

Article no: EA8VITONKIT ALFA LAVAL GJ A8 KIT - VITON

Pos. no.	Part No.	Gamajet Part No.	Description	No.	
34	9614608602	E831FT	ASEPTIC 8 TEE HOUSING BEARING	4	pcs.
36	9614608902	E837FT	GJ VIII IDLER GEAR BUSHING	2	pcs.
37	9614609002	E838FT	GJ VIII IDLER SHAFT BUSHING	2	pcs.
46	9614610801	E862	GJ VIII COLLAR STEM SM O-RING	1	pcs.
47	9614610901	E863	GJ VIII COLLAR STEM LG O-RING	1	pcs.
61.2	9614677701	8539	GJ V GB NS/VIII RSLBH O-RING	3	pcs.
50	9614611401	E870	GJ VIII HV-8 CLUTCH O-RING	1	pcs.
53	9614601501	E126	INTER-TIER PLANETARY WASHER	2	pcs.
6	9614601601	E127	PLANET GEAR BUSHING	9	pcs.
8	9614601801	E129	PLANET GEAR WASHER	9	pcs.
15	9614602703	E175V	GEARHEAD O-RING - VITON	2	pcs.

7. Parts List and Service Kits

7.9 Major Service Kit

Article no: EA8MAJEPDMKIT ALFA LAVAL GJ A8 MAJOR KIT - EPDM				
Pos. no.	Part No.	Gamajet Part No.	Description	No.
34	9614608602	E831FT	ASEPTIC 8 TEE HOUSING BEARING	4 pcs.
36	9614608902	E837FT	GJ VIII IDLER GEAR BUSHING	2 pcs.
37	9614609002	E838FT	GJ VIII IDLER SHAFT BUSHING	2 pcs.
46	9614610802	E862E	GJ VIII COLLAR STEM SM O-RING	1 pcs.
47	9614610902	E863E	GJ VIII COLLAR STEM LG O-RING	1 pcs.
61.2	9614677702	8539EP	GJ V GB NS/VIII RSLBH O-RING	3 pcs.
50	9614611402	E870E	GJ VIII HV-8 CLUTCH O-RING	1 pcs.
53	9614601501	E126	INTER-TIER PLANETARY WASHER	2 pcs.
6	9614601601	E127	PLANET GEAR BUSHING	9 pcs.
8	9614601801	E129	PLANET GEAR WASHER	9 pcs.
15	9614602701	E175	GEARHEAD O-RING - EPDM	2 pcs.
3	9614601201	E112	INPUT PINION	1 pcs.
21	9614605301	E811	GJ VIII OUTPUT PINION	1 pcs.
60	9614605701	E813FT	ASEPTIC 8 PLANETARY GEARHEAD	1 pcs.
24	9614606101	E815	GJ VIII IDLER SHAFT	2 pcs.
25	9614606201	E816	GJ VIII IDLER GEAR	2 pcs.
30	9614607301	E822	GJ VIII ROTOR SHAFT	1 pcs.
35	9614608701	E832	GJ VIII TH BEARING CUP	4 pcs.
40	9614609301	E841	GJ VIII RS CARBIDE THRST WASH	1 pcs.
34	9614608602	E831FT	ASEPTIC 8 TEE HOUSING BEARING	4 pcs.
36	9614608902	E837FT	GJ VIII IDLER GEAR BUSHING	2 pcs.
37	9614609002	E838FT	GJ VIII IDLER SHAFT BUSHING	2 pcs.

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