



GLACIER[®]

PURIFICATION SYSTEMS

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Model ACS 2000+

4 GPM at 60 PSI
2000 cc Dirt Capacity

Installation Instructions

Parts List

Service Instructions



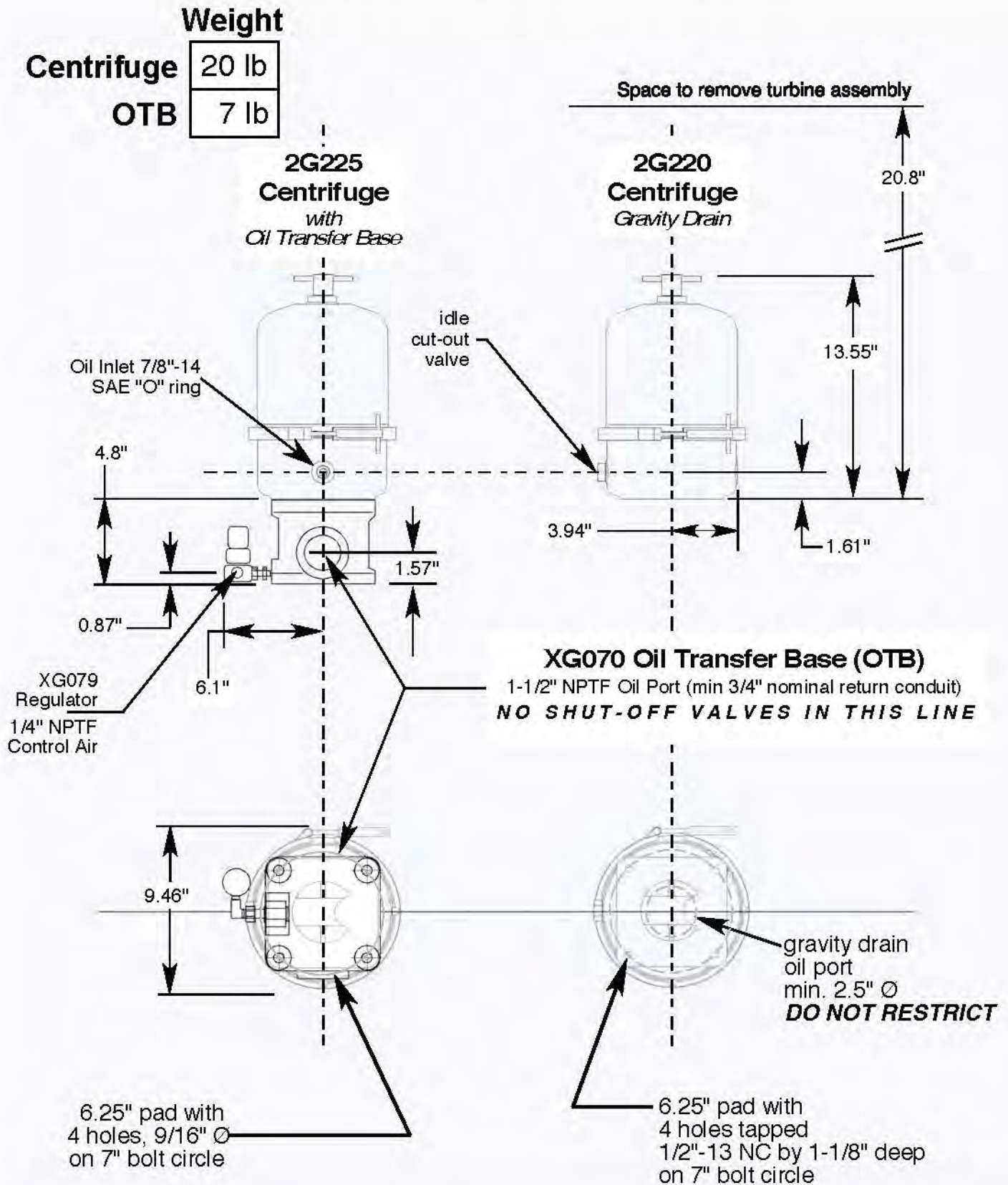
GLACIER[®]
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Service & Install

ACS 2000+ Centrifuge

— Installation Dimensions —



ACS 2000+ Centrifuge

— Installation Instructions —

Oil Supply to Centrifuge

Oil for the centrifuge should come from the source with the highest pressure and temperature, typically just downstream of the lube oil pump. Use a 1/2" Ø sch 80 pipe or #10 hose for the supply conduit installing a full-opening ball valve at the inlet, allowing service while avoiding engine or system shutdown. Preferred inlet pressure is 60 to 80 psig, but the ACS 2000+ centrifuge will operate effectively at 40 to 100 psig (2.7 to 6.5 bar). Below 35 psig, the internal idle cut-out valve will close, preventing oil demand during low speed operation of the supply pump.

Clean Oil Return to Sump

Gravity Drainage (tank top mount or into engine sump):
For gravity-drain installation the centrifuge must be close-coupled to the sump with an unrestricted 2.0" I.D. drain which must return fluid above the normal sump level. The drain line must be level or sloped downward from the centrifuge outlet, free of sharp bends or traps. A modified crankcase door can provide both a functional sump drain and centrifuge mounting. Be sure the sump side of the drain opening is clear and that the drain oil does not impinge on moving parts of the engine. Securely mount the centrifuge using four 1/2" bolts & washers supplied. Special mounting assemblies and installation kits are available from Glacier.

Oil Transfer Base (for remote mounting of centrifuge):

The air-operated control of PN XG070 Oil Transfer Base (OTB) allows installation of the ACS 2000+ centrifuge onto a base plate or deck or any location convenient for service of the unit, above or below the sump level. Install the XG078 seal in the OTB top groove before positioning the centrifuge onto the OTB. Mount the centrifuge to the OTB using four 1/2" capscrews and washers. Securely mount the centrifuge & OTB assembly using four bolts & nuts of your choice.

With the OTB, use the minimum length of #12 hose or 3/4" Ø schedule 80 pipe for the clean oil drain line to the sump. Locate this connection above the oil level if possible; oil fill openings or drilled-and-tapped holes into the sump are alternatives. A below-oil-level return point demands use of a 3/4" Ø swing or low-opening pressure check valve to prevent backflow during centrifuge service. Request PN XG085 check valve from Glacier.

Shut-off valves must never be used in the return path of an OTB-equipped centrifuge.

OTB Air Supply Requirements:

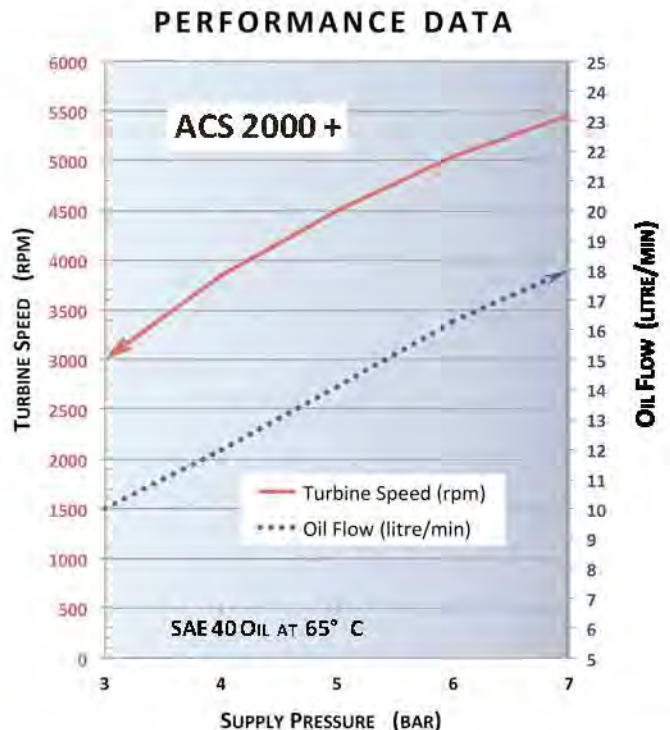
The float & valve system in the OTB maintain proper oil level for maximum centrifuge speed and efficiency. Compressed air to operate it can be obtained from any air source less than 90 psi and the 0.02 SCFM air consumption is nearly too small to measure.

For all OTB installations where pressurized sources are used, Glacier Purification Systems recommends use of the XG082 air regulation kit. This regulates air supplies up to 400 psi, making it practical for engines with air starters. The kit includes a pre-filter on the inlet.

In the absence of compressed air, it may possible to use engine turbo boost as a supply; in this case, the OTB will perform properly when the boost pressure exceeds 2 psi. For details explaining this alternative air source contact Glacier.

Mechanical Considerations

The ACS 2000+ centrifuge is a high speed device & should be securely mounted to prevent excessive vibration. Operation up to 15 degrees from vertical is permitted. Pump/motor units can be matched to supply pressurized oil to the centrifuge when a supply source is unavailable; in that case, contact Glacier for more details.



ACS 2000+ Centrifuge

— Service Instructions —

ACS 2000+ Routine Service Instructions

1. Shut off oil supply & allow centrifuge turbine assembly to come to a complete stop.
2. Shut off control air if OTB is installed. Open safety drain cock on side of the Oil Transfer Base (OTB), making certain unit is not pressurized. If cock is under pressure, locate the source and remove before proceeding. Check especially for unauthorized shut-off valves in the drain line to the sump and remove if found.
3. Remove cover clamp, unscrew cover nut and remove cover assembly.
4. Partially withdraw centrifuge turbine assembly from the base assembly & allow oil to drain from nozzles before removing completely.
5. Position the ACS 2000 service kit, PN 2G263 into a vise.
6. Place turbine assembly between the service kit arms so it straddles the square tube and rotation is prevented. Using the 1 13/16" hex socket in the kit, unscrew the rotor cover nut, allowing the turbine assembly to separate into three sections, the turbine cover, the turbine tube and the turbine base. The turbine base can be dislodged from the tube & collected dirt by impact of a rubber mallet on the top of the bearing tube.
6. Remove the inlet baffle from the rotor base (using a flathead screwdriver to pry carefully as necessary).
7. Remove the paper insert & dirt cake from the turbine components with supplied kit spatula. Wipe out bowl with solvent or fuel and discard insert; ensure all surfaces of turbine cover, baffle and turbine base are thoroughly cleaned and free of debris.
8. Replace turbine cover and base seals.
9. Locate the baffle into the turbine base and re-assemble the turbine tube onto the rotor base; ensure tube fits properly over base seal.
10. Fit fresh paper insert into the rotor tube
11. Complete the re-assembly of the turbine by replacing rotor cover onto the bearing tube, then tighten the turbine.

cover nut, maximum torque of 19-24 ft-lbs (this nut will tighten in service).

12. Reposition turbine assembly onto centrifuge spindle and confirm it spins freely.
13. Replace the cover-to-base seal.
14. Reposition cover onto base assembly and tighten cover nut by hand. Make sure that the cover seats on the base assembly evenly all around so that the cover seal is properly compressed. Reposition the cover clamp and tighten T-handle by hand. This clamp must be securely fitted during operation of the centrifuge.
15. Close safety drain cock and open air supply on the OTB, if applied. Open oil supply to centrifuge. With unit running, check all connections and joints for leaks. Repeat assembly if vibration is excessive. Make repairs or replacements as required.

ACS 2000+ Long-Term Maintenance

1. Examine spindle journals for damage or excessive wear. If excessive wear or play is evident (greater than 0.010 inches clearance on either journal bearing), the bearing tube assembly and/or the spindle assembly should be replaced. Depending on conditions, wear can occur on the spindle journals and the bearing I.D.'s, requiring replacement of either or both assemblies.
2. Inspect the idle cut-out valve assembly and mating bore in the filter base. The piston should move freely in the bore. Correct problems or reinstall new parts in repair kit PN 2G257.
3. If the OTB is used, check the control mechanism by using a thin wire with a hook formed on one end to engage the float arm on the bracket side. Raise the float. Air should flow into the OTB through the air cartridge. Air flow should stop when the float is lowered. If air control is defective, replace air cartridge or float assembly as diagnosis reveals.

Note: All centrifuge turbines are correctly balanced before leaving the factory. An out-of-balance condition can occur as a result of uneven build-up of dirt in the bowl or as a result of excessive bearing or spindle journal wear.



ACS 2000+ Centrifuge

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Part Number Description

Centrifuge Systems	
2G220	ACS 2000 G Centrifuge
2G225	ACS 2000 L Centrifuge & OTB
XG070	Base, Oil Transfer (OTB)

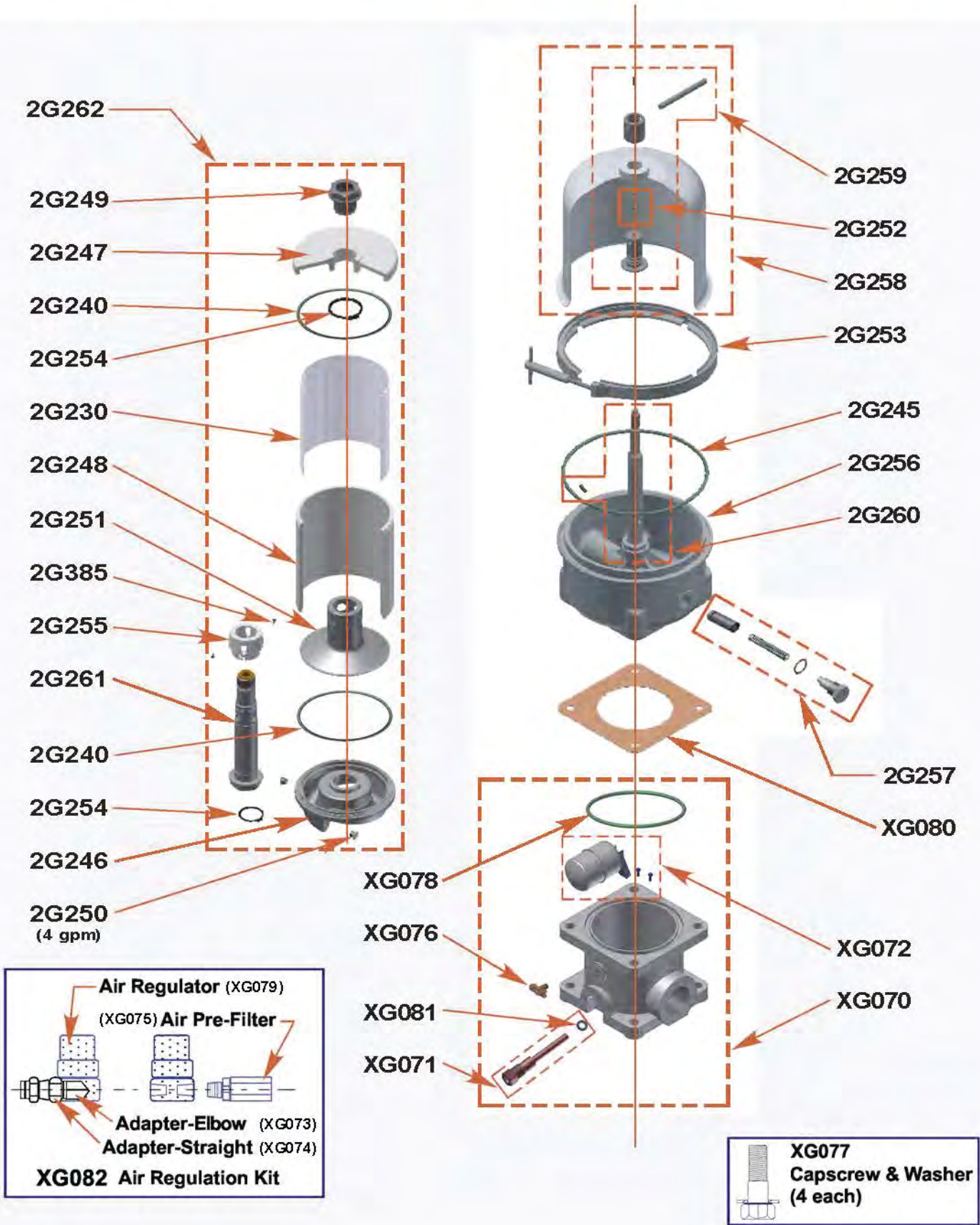
Rotating Components	
2G262	Turbine Assembly
2G249	Turbine Cover Nut
2G247	Turbine Cover
2G240	O-Ring, Turbine Base & Cover, viton®
2G254	Snap Ring, Cover Nut
2G230	Insert, Turbine, pkg of 25
2G248	Turbine Cylinder
2G251	Baffle, outlet
2G385	Screw, pan head
2G255	Diffuser, inlet flow
2G261	Bearing Tube Assembly
2G254	Snap Ring, Bearing Tube
2G246	Turbine Base
2G250	Nozzle, Turbine (4 gpm)
2G264	Nozzle, Turbine (6 gpm)

Centrifuge Housing & Base	
2G259	Cover Nut Assembly
2G252	Seal, Cover Nut, viton®
2G258	Cover Assembly
2G253	Clamp, cover
2G245	O-Ring, Centrifuge Cover, viton®
2G260	Spindle Assembly
2G256	Centrifuge Base Assembly
2G257	Cut Out Valve Kit
XG080	Gasket, base

Oil Transfer Base (OTB)	
XG072	Float Assembly
XG078	O-Ring, Level Control Base, viton®
XG076	Valve, air vent
XG071	Cartridge, Air Valve & Washer Seal
XG081	Washer Seal
XG077	Capscrew & Washer (4 ea)

Air Supply Items	
XG082	Kit, Air Regulation
XG079	Regulator, Air Pressure
XG075	Air Pre-Filter
XG073	Adapter, JIC to pipe
XG074	Adapter, elbow, JIC to pipe

ACS 2000+ Parts Explosion



Service & Install