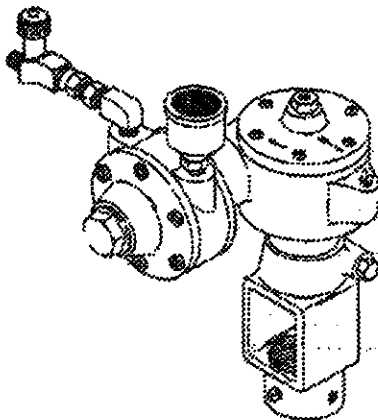


QS-5001 AIR MOTOR DRIVE

IMPORTANT: Read and follow all instructions and **SAFETY PRECAUTIONS** before using this equipment. Retain for future reference.



DESCRIPTION

The QS-5001 air motor covered in this service bulletin is designed to drive paint agitators when connected to a source of clean, dry, air pressure. Maximum air input 100 PSI.

QS-5001 standard duty air motor drive, 1/4 h.p., 15:1 ratio, 20 to 120 RPM for pressure tank agitator. Includes air adjusting valve with necessary hose and fittings for hookup to tank regulator. Overall height 8", width 7-3/4".



WARNING

High pressure can cause serious injury. Pressure is maintained in a pressure tank after the system has been shut down. Before attempting removal of fill plug or cover, relieve tank pressure.

Pressure Relief Procedure

1. Turn off the main air supply to the tank.
2. Close air inlet valve located on tank air manifold.
3. Bleed off air in the tank by turning the relief valve handle counterclockwise. Wait until all the air has escaped through the valve before removing the pressure tank cover or fill plug.
4. Leave the air relief valve open until you have reinstalled the cover or fill plug.

INSTALLATION

QS-5001 Installation onto Pressure Tank with Agitator. (Refer to Figure 1.)

1. Place support (13) over agitator bearing housing in tank lid and tighten in place. Tighten setscrew (15) in either screw hole.
2. Set air motor drive on support (13) so that gear box shaft (36) engages agitator shaft. Tighten cap screw (14).
3. For single regulation proceed as follows:
 - a. Remove air inlet valve from regulator on tank and install service tee (1) in regulator.
 - b. Reinstall air inlet valve in service tee (1).
 - c. Install nipple (2) in service tee (1). Install hose assembly (3) between nipple and air adjusting valve (4) on air motor.
4. For double regulation proceed as follows:
 - a. Remove plug from main line port of lower regulator and install nipple (2).
 - b. Install hose assembly (3) between nipple (2) and air adjusting valve (4) on air motor.

OPERATION

Open valve to main air line; then slowly open air adjusting valve until agitator turns. To extend air motor life, adjust air pressure setting to run motor at about one revolution per second. The agitator should be run continuously while using the tank.

PREVENTIVE MAINTENANCE

Air Motor Lubrication

CAUTION

Failure to properly lubricate the air motor will result in premature motor failure and will void warranty.

Lubricate air motor daily by adding 4 or 5 drops of SAE 10 weight oil into air inlet fitting.

Periodically - Remove air adjusting valve and air strainer and flush motor with a clean suitable solvent. Remove trapped particles from screen in air inlet and clean air strainer felt.

Air Motor Gear Box Lubrication

Every 2 Days - Remove oil fill plug and check oil level. If oil level is low, add 140-weight SAE Gear Oil or a high quality worm gear lubricant. Replace pipe plug and tighten to 20 foot-pounds (27 N-m) of torque.

Note

Gear box oil is most easily drained just after motor operation, while oil is still warm.

Approx. 1/8" Gap
 (top of oil level to
 bottom of fill hold)



Note

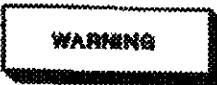
Do not overfill. Overfilling may cause oil to leak out of vent cap on top of gear box.

SAFETY PRECAUTIONS

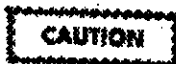
This manual contains important information that all users should know and understand before using the equipment. This information relates to **USER SAFETY** and **PREVENTING EQUIPMENT PROBLEMS**.

To help you recognize this information, we use the following terms to draw your attention to certain equipment labels and portions of this Service Bulletin.

Please pay special attention to any label or information that is highlighted by one of these terms:



Important information to alert you to a situation that might cause serious injury if instructions are not followed.






Important information that tells how to prevent damage to equipment, or how to avoid a situation that might cause minor injury.

Note

Information that you should pay special attention to.



The following hazards may occur during the normal use of this equipment. Please read the following chart.

HAZARD	CAUSE	SAFEGUARDS
<p>Fire</p> 	<p>Solvents and coatings can be highly flammable or combustible, especially when sprayed.</p>	<ol style="list-style-type: none"> 1. Adequate exhaust must be provided to keep the air free of accumulations of flammable vapors. 2. Smoking must never be allowed in the spray area. 3. Fire extinguishing equipment must be present in the spray area.
<p>Explosion Hazard - Pressure Tank Rupture</p> 	<p>Making changes to pressure tank will weaken it.</p>	<ol style="list-style-type: none"> 1. Never drill into, weld or modify tank in any way. Carefully follow all instructions for motor drive installation. 2. Do not adjust, remove, or tamper with the safety valve. If replacement is necessary, use the same type and rating of valve.
<p>Explosion Hazard - Incompatible Materials</p> 	<p>Halogenated hydrocarbon solvents - for example: methylene chloride and 1,1,1 - Trichloroethane are not chemically compatible with the aluminum that might be used in many system components. The chemical reaction caused by these solvents reacting with aluminum can become violent and lead to an equipment explosion.</p>	<p>Aluminum is widely used in spray application equipment - such as material pumps, cups, regulators, valves, etc. Check all equipment items before use and make sure they can be used safely with these solvents. Read the label or data sheet for the material you intend to spray. If in doubt as to whether or not a coating or cleaning material is compatible, contact your material supplier. Any other type of solvent may be used with aluminum equipment.</p>

After first 250 hours of operation, remove gear box and drain gear oil. Refill gear box with 140-weight SAE Gear Oil or a high quality worm gear lubricant. Replace pipe plug and tighten to 20 foot-pounds (27 Nm) of torque.

6 Months or 2500 Operating Hours - Replace gear oil according to instructions above. Replace gear oil more often if environment causes oil to become contaminated during use.

REPLACEMENT OF PARTS

Removal of Air Motor and Gear Box (Refer to Figure 1 - typical assembly.

Follow pressure relief procedure (Pg. 1) before removing or loosening any components.

2. Turn off valve to main air supply and disconnect air adjusting valve (4) at nipple (5).
3. Loosen upper cap screw (14) and remove air motor and gear box assembly from support (13).

Air Motor (Refer to Figure 2.

Holes must be drilled for new dowel pins (22) after assembling front plate (27) on new body (26) for alignment of parts.

Do not pry front plate (27) or end plate (21) from air motor body (26) with a screwdriver; this will dent the surface of the body and plates, causing leaks. A puller tool should be used to remove the plate from the motor body while maintaining the position of the shaft.

Always install two new gaskets (23) when reassembling air motor.

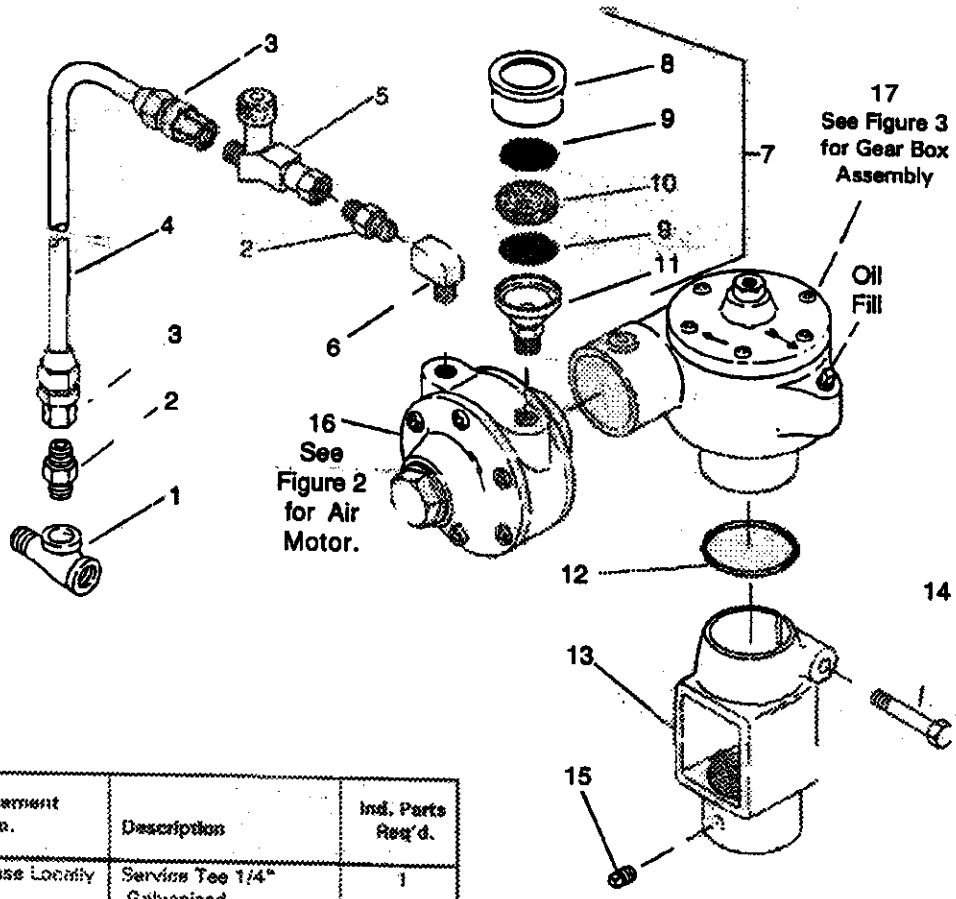
Assemble the end plates to the body using an arbor press with a pusher acting on both races of the bearing while rigidly supporting the opposite (drive) end of the shaft.

Gear Box (Refer to Figure 3.)

Remove oil fill plug (38) or cover plate (34) and drain gear box lubricant.

2. Remove setscrews (41) and gear box (17, Figure 1) from air motor (16, Figure 1).
3. Disassemble gear box per exploded view, Figure 3. Discard gaskets (37 and 42). Do not remove oil seal (40) unless leakage or seal damage is indicated.
4. If oil seal (40) was removed, inspect seal seating bore in housing (39). Remove any burrs or contaminants from seal seating bore. Burrs or contaminants could distort new oil seal during installation.
5. Inspect gear and shaft assembly (36) for wear grooves, burrs, or contamination of seal seating area. If seal seating area is damaged, shaft must be repaired or replaced.
6. Inspect all other parts for wear spots, chipping, or other damage. Replace damaged or worn parts.
7. If oil seal (40) is being replaced, inspect new seal for damage before installing. Use arbor press to install seal. Press fixture diameter must be close fit with gear box bore diameter to avoid damage to seal. Install with inner casing and sealing lip toward bottom of bore. Drive seal squarely into bore to avoid warping. Check that seal is fully seated all around at bottom of bore.
8. Reassemble gear box per exploded view. Install new gaskets (37 and 42). Just prior to assembling gear box with air motor, apply a small dab of thread locking compound (31) to threads of set screws (41). Connect motor and gear box and torque set screws (41) to 60 inch-pounds (6.8 Nm), minimum. Refill gear box per gear box lubrication instructions.

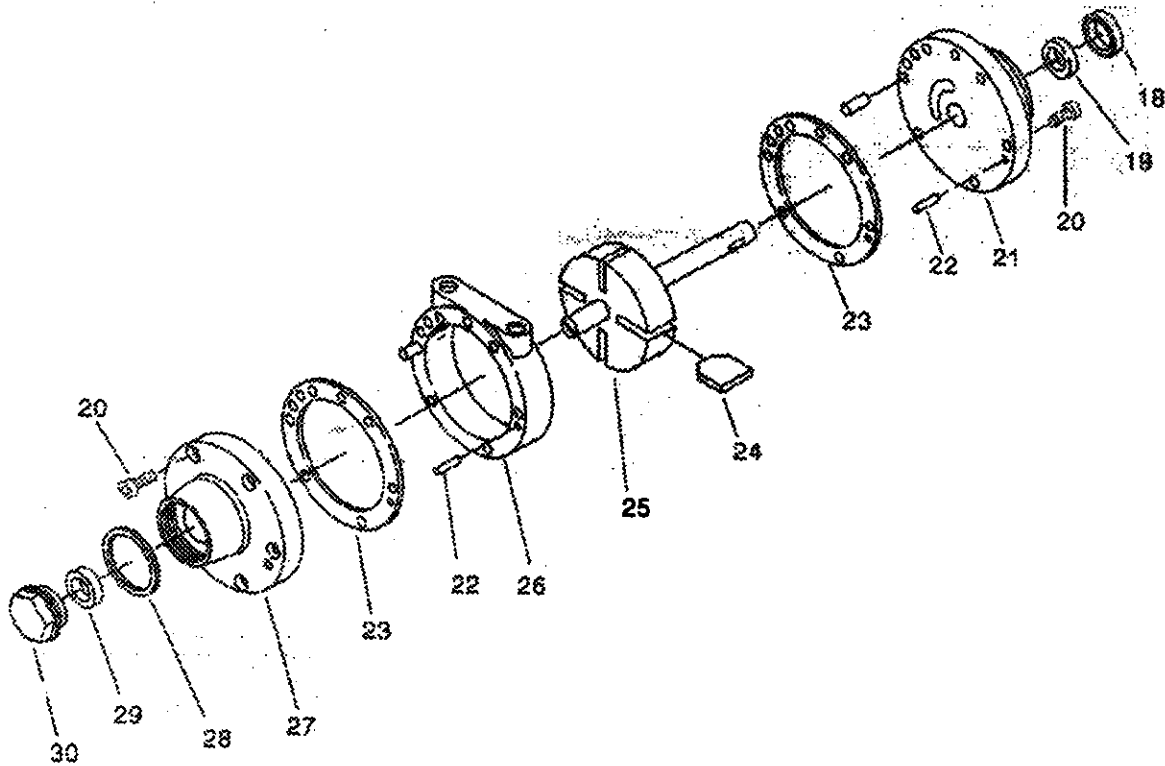
FIGURE 1 GEAR DRIVE AIR MOTOR
QS-5001 (STANDARD DUTY)



Ref No.	Replacement Part No.	Description	Ind. Parts Req'd.
1	Purchase Locally	Service Tee 1/4" Galvanized	1
2	H-2008	Nipple 1/4" NPS(M) x 1/4" NPT (M)	2
3	P-HC-4523	Hose Connection	2
4	H-1857	Hose 1-1/2 ft.	1
5	HAV-500	Air Adjusting Valve 1/4" NPS(M) X 1/4" NPS(F)	1
6	Purchase Locally	Street Elbow 1/4" (M) x 1/4" (F) NPT	1
7	350-401	Air Strainer Assy.	1
8	---	Strainer Cap	1
9+	---	Screen	2
10+	---	Felt	1
11	---	Strainer Body	1
12	32243-133	Washer	1
13	QS-70-2	Support	1
14	Purchase Locally	Hex Head Cap. Screw 3/8"-16 x 2"	1
15	Purchase Locally	Square Head Set-screw 1/4-20 x 3/8"	1
16	---	Air Motor (Figure 2)	REF
17	---	Gear Box (Figure 3)	REF

- Included in KK-5001-1 Air Motor Repair Kit (See Pg. 5 for additional items provided in kit.)
- + Ref. No. (9) 2 ea. and Ref. No. (10) 4 ea. included in KK-5006 Strainer Screen and Felt Kit.

FIGURE 2
QS-4016 AIR MOTOR

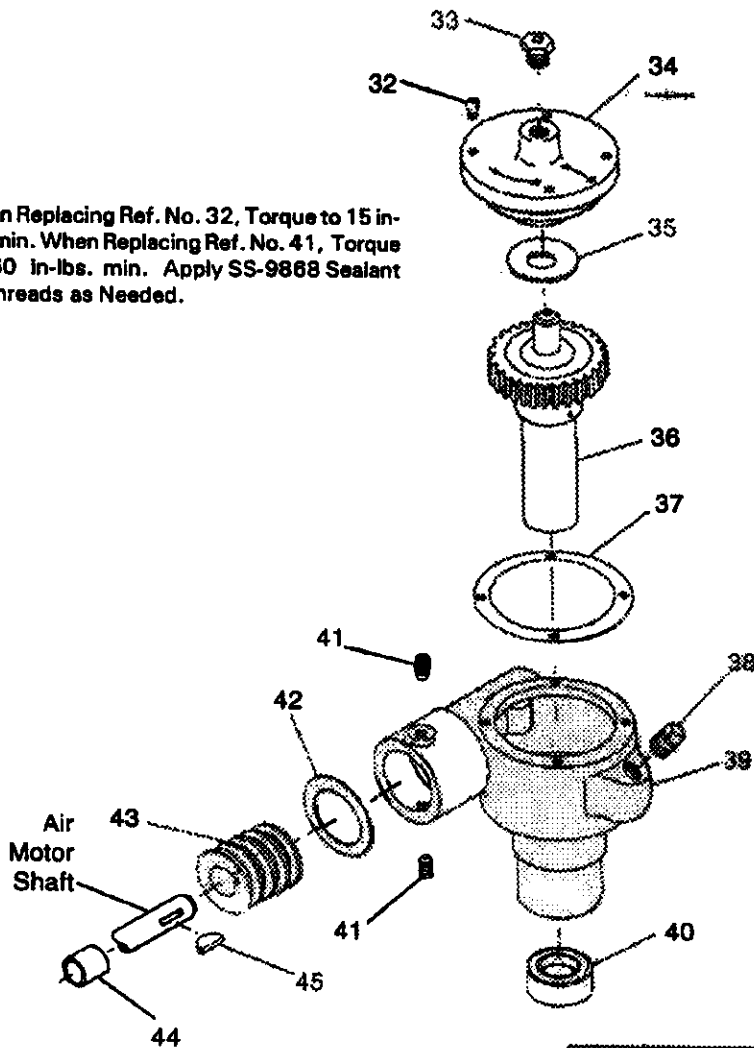


Ref No.	Replacement Part No.	Description	Ind. Parts Req'd.
18	QS-336	Oil Seal	1
19	QS-197	Bearing	1
20	Purchase Locally	Machine Screw 1/4-28 x 1/2	12
21	QS-334	End Plate	1
22	QS-189-1-K10	Dowel Pin (Kit of 10)	4
23*	PT-59-K10	End Plate Gasket Kit (Kit of 10)	2
24*	---	Vane	4
25	QS-442	Rotor and Shaft	1
26	QS-335	Body	1
27	QS-333	Front Plate	1
28*	---	End Cap Gasket	1
29	PT-58	Bearing	1
30	QS-190	End Cap	1

* Parts available in Air Motor Repair Kit. Order KK-5001-1

FIGURE 3 GEAR BOX ASSEMBLY

When Replacing Ref. No. 32, Torque to 15 in-lbs. min. When Replacing Ref. No. 41, Torque to 60 in-lbs. min. Apply SS-9868 Sealant to Threads as Needed.



Ref No.	Replacement Part No.	Description	Ind. Parts Req'd.
31	---	Thread Locking Compound - not shown	---
32 +	---	Fillister Head Machine Screw 10-24 x 5/8"	4
33	QS-106	Pressure Relief Fitting	1
34	QS-37-1	Cover Plate	1
35 +	---	Washer	1
36	QS-416-1	Gear and Shaft Assy	1
37 +	---	Gasket	1
38	Purchase Locally	Pipe Plug 1/4", Galvanized	1
39	QS-36-1	Housing	1
40 +	---	Oil Seal	1
41 +	---	Cup Point Set-Screw 5/16-18 x 3/8"	2
42 +	---	Gasket	1
43	QS-59	Worm Gear	1
44 +	---	Spacer	1
45 +	---	Key, No. 5, 5/8" x 1/8"	1

+ Parts included in KK-5010 Gear Box Kit.

AIR MOTOR DRIVE SERVICE CHECKS

CONDITION	CAUSE	CORRECTION
A. Air motor sluggish or inefficient.	<ol style="list-style-type: none">1. Air motor needs cleaning.2. Motor vanes need replacing or contaminants present in motor chamber, Figure 2.3. Low oil level in gear box, Figure 3.4. Gear and shaft assembly (36) and/or worm gear (43) worn, Figure 3.5. Air motor bearing (19 or 29) worn, Figure 2.	<ol style="list-style-type: none">1. Disassemble and clean per parts replacement instructions.2. Disassemble, clean motor per parts replacement instructions. Replace worn vanes.3. Add oil per lubrication instructions.4. Replace worn parts per parts replacement instructions.5. Replace bearings per parts replacement instructions.
B. Oil leakage from gear box.	<ol style="list-style-type: none">1. Seal (40, Figure 3) worn.	<ol style="list-style-type: none">1. Replace seal per parts replacement instructions.

SERVICE BULLETIN REVISIONS

Refer to the following chart for Part No./Literature changes

Part No. Changes			
Old Part No.	New Part No.	Interchangeability	Literature Changes
KK-5001-2 Air Motor Repair Kit	KK-5001-1 Air Mtr. Repair Kit	Directly.	1. Revised Figure 2.
PT-77-K10 End Plate O-Ring	PT-59-K10 End Plate Gasket Kit	Directly.	

WARRANTY

This product is covered by DeVilbiss' 1 Year Limited Warranty. See SB-1-000 which is available upon request.

ITW DeVilbiss Worldwide Sales and Service

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