KINETROL - ROTARY 1/4 TURN ACTUATOR
DOUBLE ACTING

ACTUATOR SEAL REPLACEMENT INSTRUCTIONS

KINETROL-ACTUATOR
ROTARY ¼ TURN
Seal Replacement Instruction

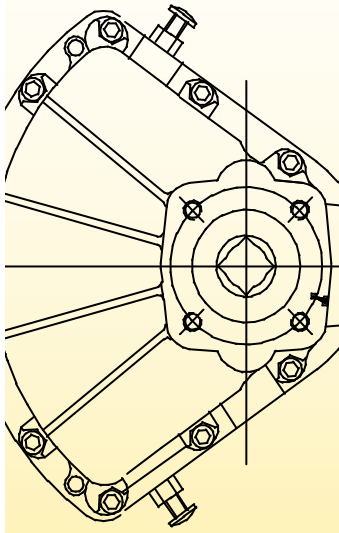
1. DISMANTLING ACTUATOR (see exploded drawing/parts list)

CAUTION:	Before dismantling, check there are no burrs on square drive shafts. If there are, remove to avoid damage to bearings and shaft seals during removal of case halves. In the case of spring return actuators, remove spring unit (according to following section) before opening actuator case.

1.1 All models: loosen, but do not remove, all case screws
1.2 Separate case halves by connecting air line to inlet port and blowing them apart. Procedure is safe although producing a "bang". Pull off one case half.

CAUTION:	**Do NOT hammer diecast castings or shaft end. It will damage internal sealing surfaces.**

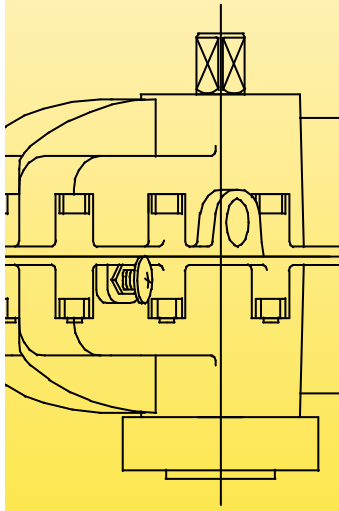
1.3 Clean both case halves removing silicone rubber sealant. Clean joint surfaces of case flange with surgical spirit.
1.4 Replace and lubricate shaft seals.
1.5 Undo vane nuts and bolts (if fitted) and remove old expanders and seals from vane. Take care not to damage side plates. Clean vane. Some later models use nuts on one side of vane with bolts on other side.



2. REASSEMBLY VANE– Vane sub assembly with studs

2.1 Check studs are tight through vane and equal length each side (if studs are fitted). If not, apply Loctite to thread and relocate correctly in vane.
2.2 Model 16 & 18: Apply SILASTIC 732 RTV sealant around bottom of studs (to prevent air leakage through seal on vane stud holes).
2.3 Fit new seal over studs after checking profile matches vane profile.
2.4 Fit seal expander – the hole in it shaped like vane outline shows correct way round – teeth pointing away from vane.
2.5 Fit side plate over studs.
2.6 Fit new nuts to studs after applying Loctite medium strength sealant to threads.
2.7 Tighten nuts to following torques:

01	6	lbf.ins	0,68	Nm	09	20	lbf.ins	2,26	Nm
02	6	lbf.ins	0,68	Nm	10	20	lbf.ins	2,26	Nm
03	6	lbf.ins	0,68	Nm	12	30	lbf.ins	3,39	Nm
05	8	lbf.ins	0,9	Nm	14	30	lbf.ins	3,39	Nm
07	8	lbf.ins	0,9	Nm	16	60	lbf.ins	6,78	Nm
08	20	lbf.ins	2,26	Nm	18	50	lbf.ins	5,65	Nm



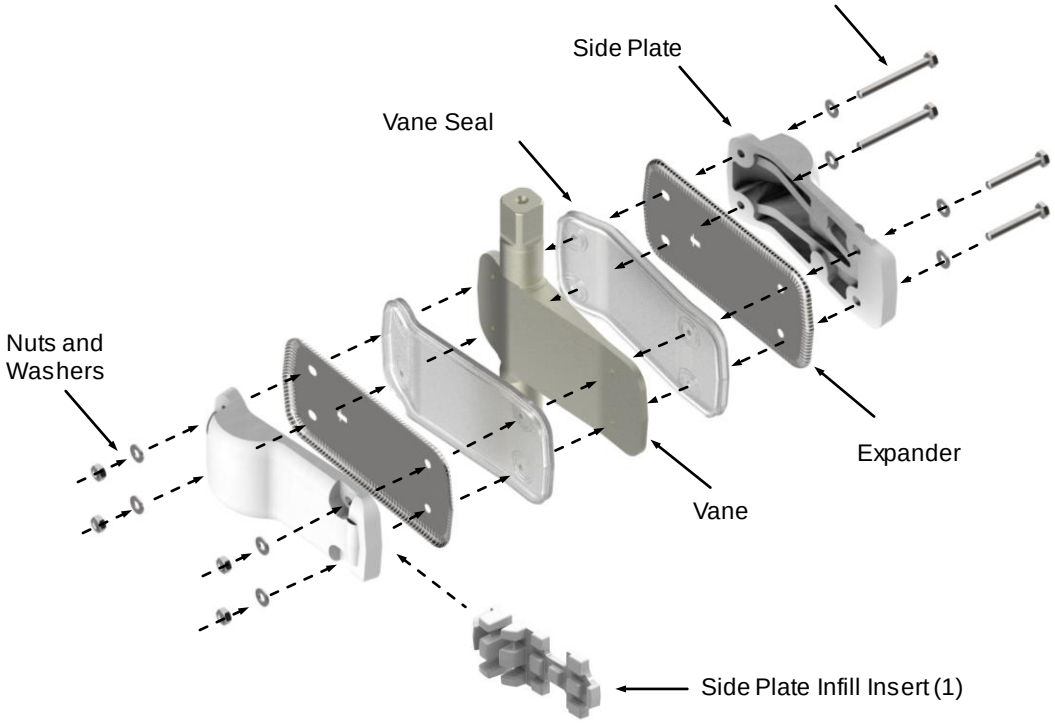
3. REASSEMBLY VANE– Vane sub assembly with hex head bolts

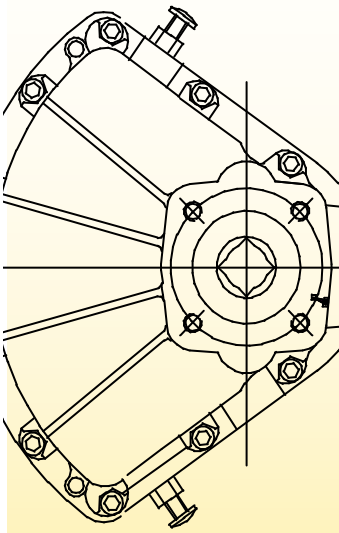
3.1 Check vane for any obvious defects and make sure it is free of burrs, then place vane in cradle and place face down an a bench or hold in a vice.
3.2 Fit Side plate Infill Insert (1) into Side plates (07 only) Push hex headed bolts with plain washer through side plate, expander (teeth facing towards head of bolt) and seal (base of seal away from bolt head).
3.3 After checking that expander and seal are right way round - expander has vane shaped hole, seal has shaft centre line marked - thread first few threads of each bolt into vane.
3.4 While holding up side plate, expander and seal, apply a low strength anaerobic adhesive to bolt thread.
3.5 Screw bolts down and tighten to torques given below.
3.6 Turn vane over then fit seal, expander and side plate over end of bolts. Check orientation as before.
3.7 Screw nuts down thread.
3.8 Position vane assembly in coupling on bench, hold head of bolt with a spanner, torque up nut to torque specified in section 2.7.

01B	6	lbf.ins	0,68	Nm
07	8	lbf.ins	0,90	Nm
08	20	lbf.ins	2,26	Nm
09	20	lbf.ins	2,26	Nm
10	15	lbf.ins	1,70	Nm

12	30	lbf.ins	3,36	Nm
14	30	lbf.ins	3,36	Nm
15	30	lbf.ins	3,36	Nm
16	40	lbf.ins	4,52	Nm

Explosion View





4. RE-ASSEMBLING ACTUATOR

4.1 Coat bearing bushes and inside both case halves with molybdenum disulphide grease or grease supplied by KINETROL.

4.2 Lightly and evenly coat joint face on each case half with INSTANT GASKET sealant available from Kinetrol (SP057) or SILASTIC 732 RTV sealant obtainable from ironmongers, etc. may be used as a substitute.

CAUTION:	EXCESS SEALANT, if extruded inside case, WILL IMPAIR OPERATION OF SEALS.

Remove all excess sealant especially from inside edge.

4.3 Insert vane into one case half, turning it to ease square on drive shaft through shaft seal. Watch that lip seals at ends of vane easily work down into case without damage.

4.4 Fit remaining case half on top of the other, turning it to ease square through shaft seal.

CAUTION:	Check that lip seals are not trapped at case joint face when Viton seals are fitted. Ensure minimal time delay to closing of case once sealant has been applied

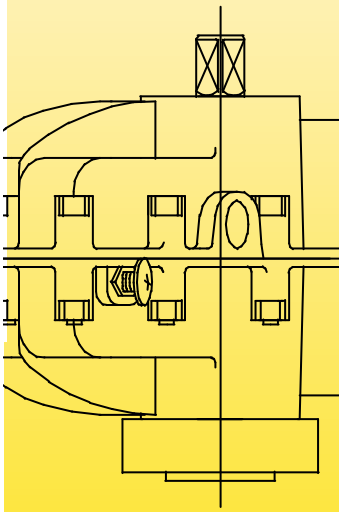
4.5 Tighten case screws to the following torques:

01	6	lbf.ins	0,68	Nm
02	10	lbf.ins	1,13	Nm
03	10	lbf.ins	1,13	Nm
05	20	lbf.ins	2,26	Nm
07	20	lbf.ins	2,26	Nm
08	60	lbf.ins	6,78	Nm
09	60	lbf.ins	6,78	Nm

10	80	lbf.ins	8,96	Nm
12	100	lbf.ins	11,30	Nm
14	120	lbf.ins	13,60	Nm
15	225	lbf.ins	25,40	Nm
16	860	lbf.ins	97,20	Nm
18	1140	lbf.ins	128,80	Nm

4.6 Rotate vane manually to check movement and wipe away sealant extruded internally.

4.7 Allow setting time for sealant before applying test air pressure.



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