

Introduction:

Maintenance on a IA motion actuator must be executed by trained staff only. Only original spare parts are to be used. Maintenance is made at the own risk of the user.

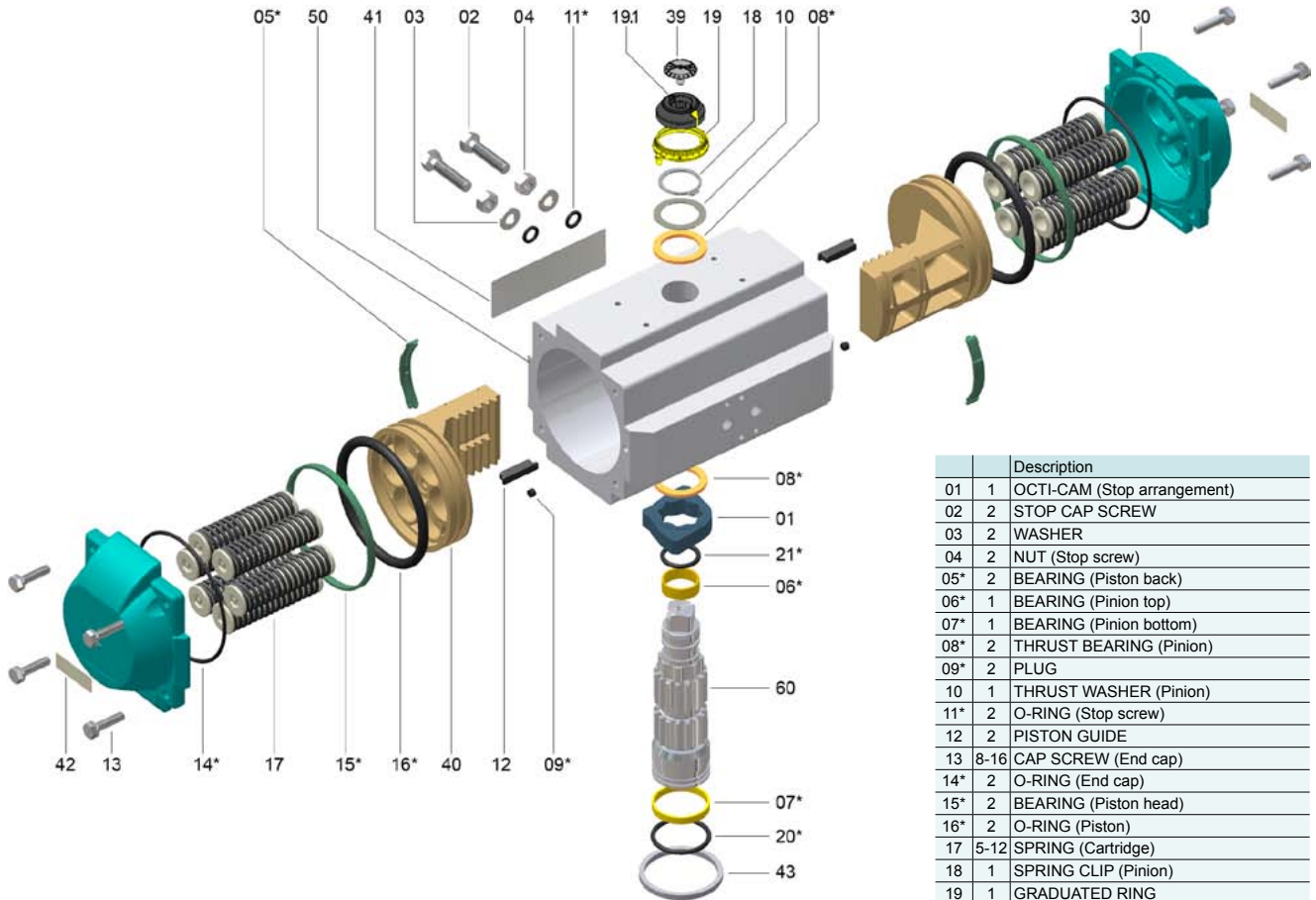
The actuators are factory lubricated for the life of the actuator in normal working conditions. The standard lubricant is suitable for use from - 40°C to + 80°C.

For low (LT) and high (HT) temperature service, where special grease is required please contact InterApp.

Recommended lubricant for standard working conditions:

- Dow Corning Molykote® G-2003

Parts list:



		Description
01	1	OCTI-CAM (Stop arrangement)
02	2	STOP CAP SCREW
03	2	WASHER
04	2	NUT (Stop screw)
05*	2	BEARING (Piston back)
06*	1	BEARING (Pinion top)
07*	1	BEARING (Pinion bottom)
08*	2	THRUST BEARING (Pinion)
09*	2	PLUG
10	1	THRUST WASHER (Pinion)
11*	2	O-RING (Stop screw)
12	2	PISTON GUIDE
13	8-16	CAP SCREW (End cap)
14*	2	O-RING (End cap)
15*	2	BEARING (Piston head)
16*	2	O-RING (Piston)
17	5-12	SPRING (Cartridge)
18	1	SPRING CLIP (Pinion)
19	1	GRADUATED RING
19.1	1	POSITION INDICATOR
20*	1	O-RING (Pinion bottom)
21*	1	O-RING (Pinion top)
30	2	END CAP
39	1	CAP SCREW (Indicator)
40	2	PISTON
41	1	IDENTIFICATION LABEL
42	2	END CAP LABEL
43	1	SPIGOT (Only on request)
50	1	BODY
60	1	DRIVE SHAFT

* Suggested spare parts for maintenance

Storage;

If the actuator is not for immediate use, the following precaution must be taken for storage:

- Store the actuator in a clean and dry environment and at temperature between -20°C and +40°C.
- It is recommended that the actuator be stored in its original box.
- Do not remove the plastic plugs on air supply ports.

DISASSEMBLY

When disassembly of actuator is required for maintenance, firstly remove the actuator from the valve. Before performing any disassembly operations it is important to verify that the actuator is not pressurised.

Always use caution and double check that the ports 2 and 4 are vented and are free from any accessory and/or device. When the actuator is a spring return unit, make sure that the actuator is in the failed position and with pistons completely inwards before disassembling.

A) Removal of position indicator and graduated ring (Part N° 19,19.0,19.1), figure 01:

- Remove cap screw (39) if fitted.
- Lift position indicator (19 or 19.1) off shaft, it may be necessary to pry gently with a screwdriver.
- Lift, if necessary, the graduated ring (19.0) off the body, it may be necessary to pry gently with a screwdriver.

B) Removal of stop cap screws (Part N° 02), figure 02:

- Remove both stop cap screws together with nut (04) and washer (03).
- Remove stop screw o-rings (11) and discard if replacing all soft parts.

C) End caps disassembly (Part N° 30), figure 03:

- End caps disassembly for spring return actuators (disassemble one end cap at a time).

Unscrew the end cap bolts (13) in the sequence shown in figure 03, until the end-caps are free from springs force (for IA050 20-23 turns of the screws, for IA100 to IA800 4-5 turns of the screws).

Then completely unscrew the screws and remove the end-cap and the springs.

If there is still force on the end-caps after unscrewing as indicated above, this may indicate that spring cartridge is damaged or that the pistons are not completely closed, so any further disassembly should be discontinued. Further disassembly of the end caps may result in injury.

- End caps disassembly for double acting actuators (disassemble one end cap at a time)

Unscrew the end cap bolts (13) in the sequence shown in figure 03, until the screws are completely unscrewed and the end caps are free.

- Remove the o-rings (14) using a screwdriver. Discard soft parts if replacing.
- Only for actuators with adjustment 50% or 100%, remove the nut 04R, the washers 03R and o-rings 11R and discard soft parts if replacing.

D) Pistons disassembly (Part N° 40), figure 04:

- Holding the body (50) in a vice or similar device, rotate the drive shaft (60) until the pistons (40) are released.

Caution: air pressure should not be used to remove the pistons from the body.

- Remove o-rings (16) using a screwdriver. Remove the piston back (05) and piston head (15) bearings.
- Discard bearings when replacing all soft components.

E) Drive shaft disassembly (Part N° 60), figure 05:

- If necessary, remove the graduated ring (19.0) with a screwdriver, remove the spring clip (18) using snap-ring pliers or screwdriver for spiral rings, remove the thrust washer (10) and the external thrust bearing (08). Apply downward force to top of drive shaft (60), until it is partially out of the bottom of the body when it is possible to remove the internal thrust bearing (08) and the octi-cam (01), then push the pinion (60) completely out of the body.

If pinion is not easily removed, gently tap the top of the shaft with a plastic hammer.

- Remove top (06) and bottom (07) pinion bearings and top (20) and bottom (21) pinion o-rings.
- Discard bearings (06) and (07), internal and external thrust washer (08) and o-rings (20) and (21) if replacing the soft components.

All the components disassembled and not replaced will have to be cleaned and inspected for wear and before reassembly, if necessary, also replace the plugs (09).

ASSEMBLY

A) Drive shaft assembly (Part N° 60), figures 06, 07 and 07A:

- Install top (06) and bottom (07) bearings, grease and insert the bottom (20) and top (21) pinion o-rings onto the shaft.
- Grease the outside surface of the drive shaft as shown in figure 06.
- Insert partially the drive shaft (60) in the body (50), install octi-cam (01) in the correct position (for standard assembly or for lock-out) as shown in figures 07 and 07A, related to the bottom and top of the drive shaft and the rotation of the actuator when energised. Install the internal thrust bearing (08). Insert completely the drive shaft in the body.
- Fit external thrust bearing (08), thrust washer (10) and then external spring clip (18) using snap ring pliers or screwdriver for spiral rings.

B) Pistons assembly (Part N° 40), figures 08, 09, 10 and 11:

- Grease and install o-rings (16), piston back (05) and piston head (15) bearings.
- Grease the internal surface of the body (50) and the piston (40) rack teeth.
- Insert the female connection of the drive shaft (60) in a properly fixed coupling.
- Ensure that the octi-cam is in the right position as shown in figure 09.
- For standard rotation assembly type "ST" (clockwise to close), rotate the body (50) about 40-45° clockwise from top view, as shown in figure 10.
- Insert and press the two pistons (40) simultaneously inside the body (50) until the pistons are engaged, then rotate the body anticlockwise from top view until the stroke is completed.
- Ensure that with pistons completely closed, the rotation obtained referred to the axis of the body is about over 0° and that the dimension "A" on both sides is the same as shown in figure 11.

C) End cap assembly (Part N° 30), figures 12, 13 and 14:

- Assemble one end cap at a time.
- Lubricate the body.
- For spring return actuators, insert the springs in each end cap according to the desired configuration, as shown in figure 12 and related tables. For models IA100→IA800 B insert spring cartridges as shown in figure 13.
- Fit end cap o-ring seal (14) into the groove on both end caps.
- Fit end caps onto the body (50), verifying that the o-ring remains in the groove.
- Only for actuators with 50% or 100% stroke adjustment, ensure that the adjustment screws 221G/222G are completely screwed into the end-cap.
- Insert the cap screws (13) and tighten each only partially. Complete tightening by making 1-2 turns for each screw in the sequence shown in figure 14 until tightening is completed. See the table for screw tightening torque.

D) Assembly of stop cap screws (Part 02) and stroke adjustment for models ia050 B→ IA800 B, figures 15 and 16:

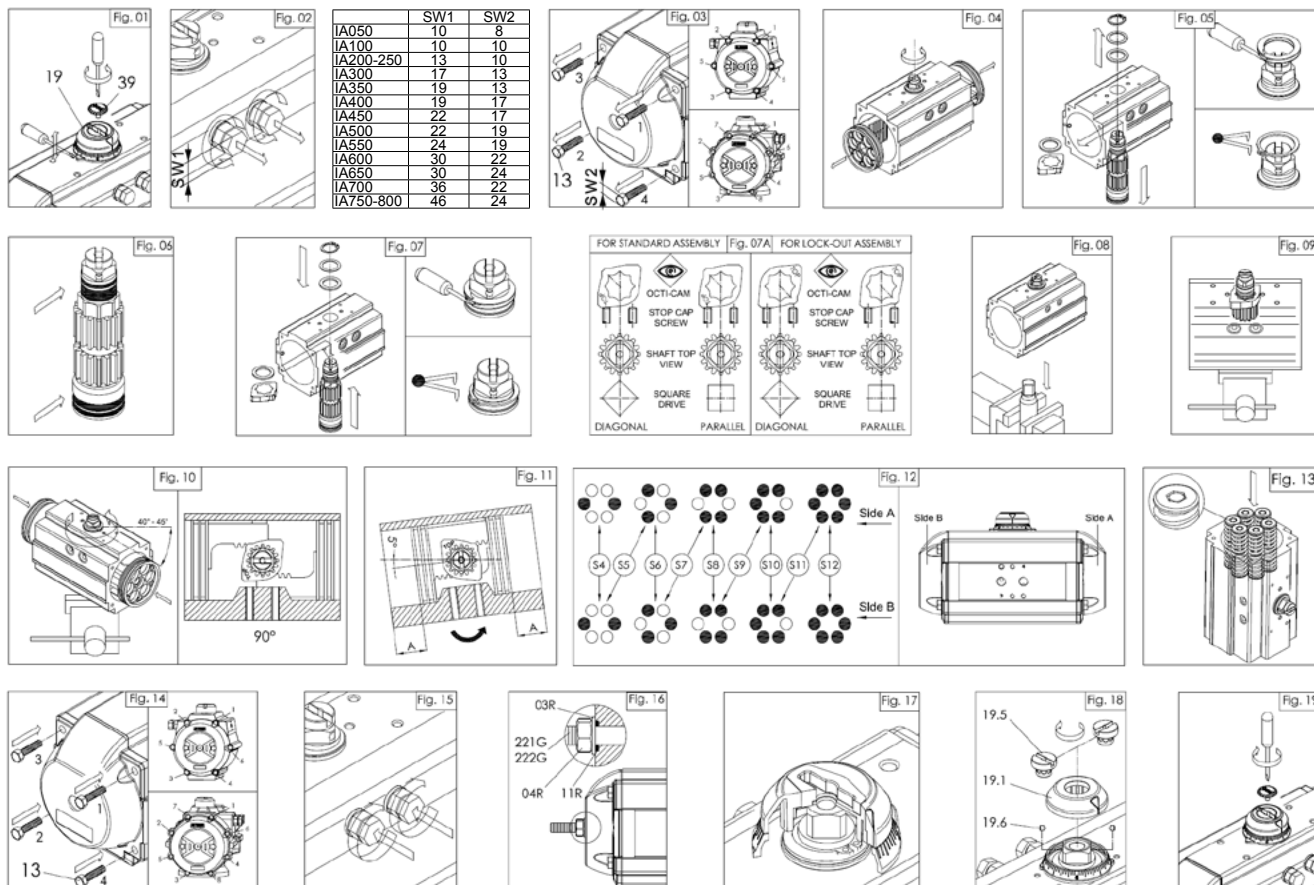
- Insert on both stop screws (02) the nut (04), the washer (03) and the o-ring (11).
- Fit the stop cap screws (02) in the body.
- Stroke adjustment for actuators with standard type "ST" rotation / assembly (clockwise to close).
- Stroke adjustment in close position: with the actuator in close position 0°, screw or unscrew the right (from top view) stop cap screw until the desired stop position is achieved. Then tighten the stop adjustment nut (04) to lock it in place.
- Stroke adjustment in open position: with the actuator in open position 90°, screw or unscrew the left (from top view) stop cap screw until the desired stop position is achieved. Then tighten the stop adjustment nut (04) to lock it in place.

For spring return actuators, it could be necessary to make rotation tests to verify the correct stroke adjustment in open position.

- Only for actuators with adjustment 50% or 100%, fit on end-cap adjustment screws 221G/222G the o-rings 11R, the washers 03R and the nuts 04R. To adjust the stroke in open position: with the actuator in partially or totally open position, screw or unscrew the end-cap adjustment screw 221G/222G until the desired position is achieved. It is important that the two end-cap adjustment screws are both in contact with the pistons. Then lock the nuts 04R.

E) Assembly of graduated ring and position indicator (Part N° 19,19.0,19.1), figures 17,18 and 19:

- Fix the graduated ring (19.0) to the body.
- If necessary, correctly position the "Top Adaptor" (19.5) and lock it with the proper screws (19.6).
- Insert the indicator (19 or 19.1) making sure that it indicates the correct actuator position.
- Screw the indicator screw (39) if assembled.



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