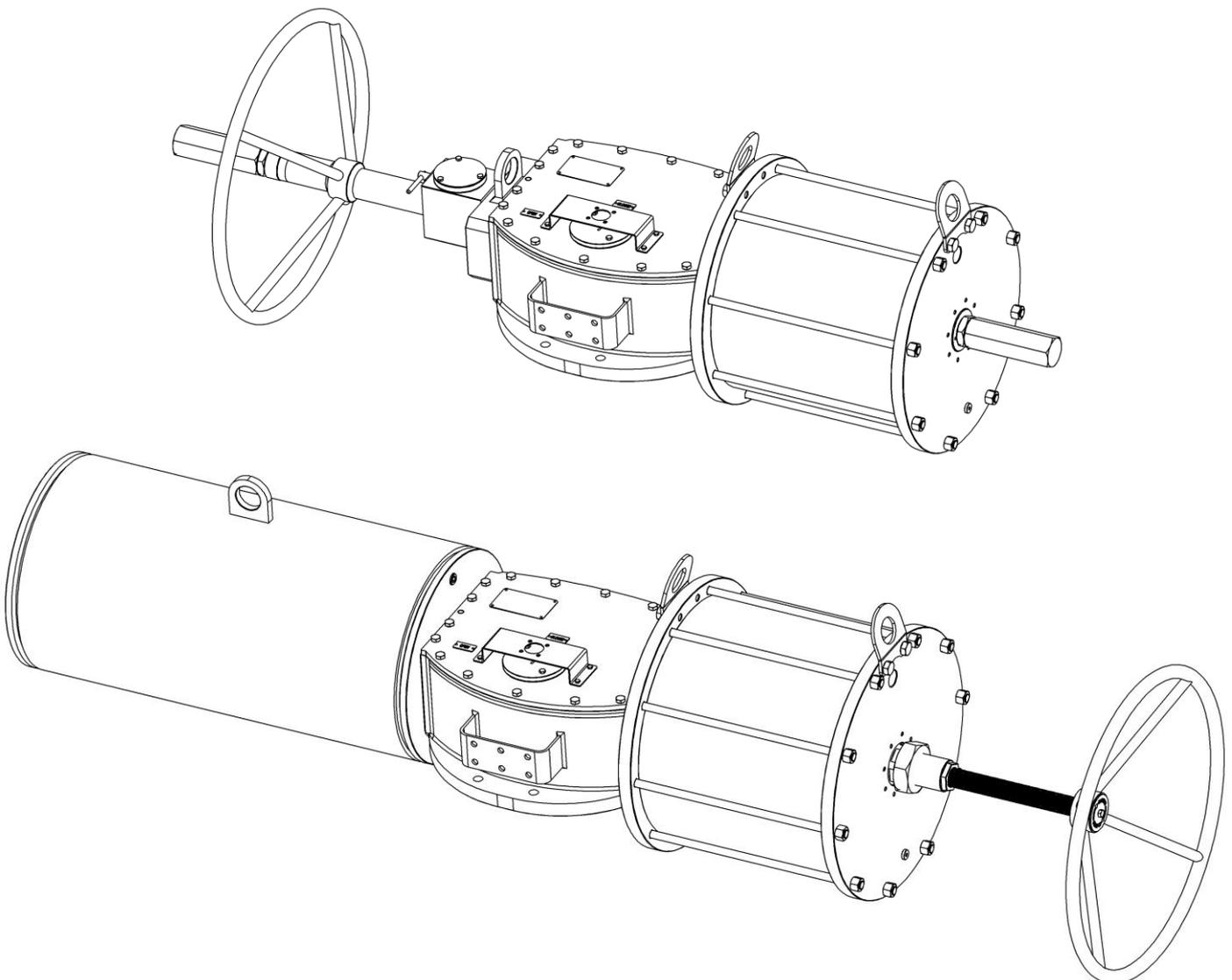


# INSTALLATION, COMMISSIONING AND MAINTENANCE USER MANUAL

## GHDP – SERIES

### MANUAL HANDWHEEL OVERRIDE



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## **USE AND STORAGE OF THIS MANUAL**

The user manual has to be considered as an integral part of the pressure equipment supplied and must be kept until final disposal of the equipment.

The manual must be always available for consulting near where the equipment is located and conserved in dry dust free environment.

In case of loss of this manual the customer can require a copy of this, specifying serial number, actuator type, date, version and year of supply as indicated on the actuators name plate.

## **INTRODUCTION**

Read completely this manual before start any operation with or on the Actuatech GHDP Manual Handwheel Override.

This manual is produced to enable a competent user to install, operate, adjust, inspect and maintain the manual handwheel override of the Actuatech GHDP Series actuator. Users are responsible to follow the instructions in this manual as well as any additional documentation that has been supplied regarding the actuator or accessories supplied by Actuatech S.p.A. . Should further information or guidance relating to the safe use of GHDP manual handwheel override be required, it will be provided on request. Users are also responsible to be familiar with and follow any relevant legislation or statutory provisions regarding health and safety.

It is the user's responsibility to ensure that the equipment is operated in a safe manner and that any personnel working with or on the equipment are properly trained for the work they are performing and are also aware of their responsibilities relating to health and safety in the workplace. It is extremely important that precautions are taken to avoid spark or static discharge in any areas of potentially explosive atmosphere.

All Actuatech actuators are tested prior to despatch.

## **PRESENTATION**

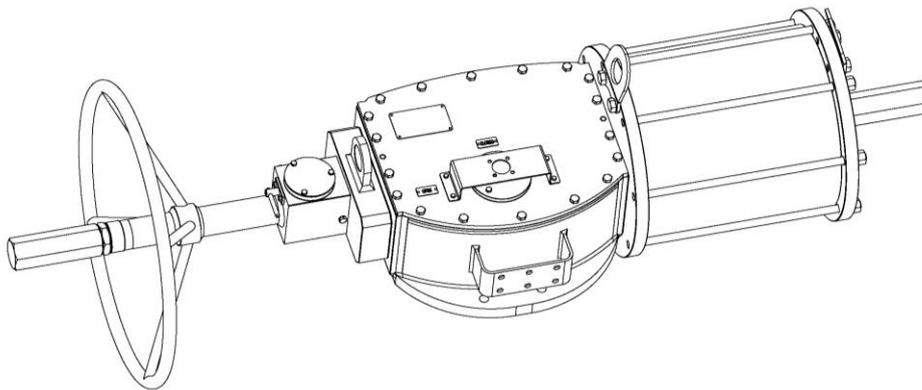
### **DESCRIPTION OF GHDP MANUAL HANDWHEEL OVERRIDE**

The GHDP Manual Handwheel Override is a self-contained system for manual operation of double acting and spring return pneumatic actuators.

The unit consists of two main components, the manual handwheel and the jackscrew/nut assembly.

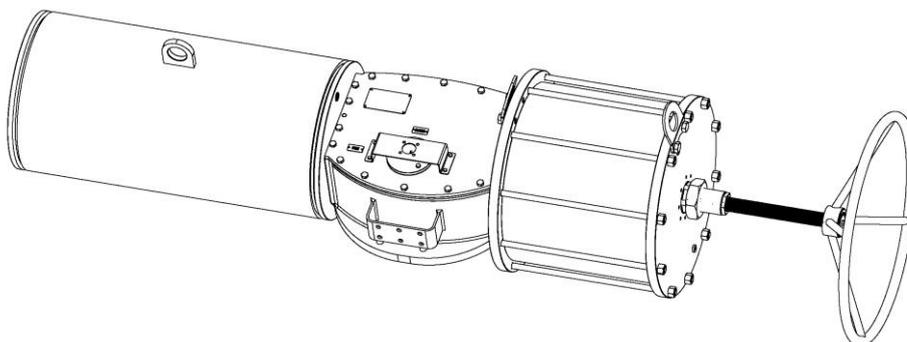
#### **A - DOUBLE-ACTING PNEUMATIC ACTUATOR WITH MANUAL HANDWHEEL OVERRIDE**

The GHDP manual handwheel system can supply high forces to either direction if the position of the selector is on engage position. In particular, rotating clockwise the handwheel, the actuator will rotate towards the position of "closed valve", while turning it counterclockwise, the actuator will rotate to the position of "open valve". However, if the selector is in disengaged position, the actuator will only work with pneumatic actuation.



#### **B - SPRING-RETURN PNEUMATIC ACTUATOR WITH MANUAL HANDWHEEL OVERRIDE**

The GHDP manual handwheel system can supply high force only in one direction, while in the opposite direction the force is made by the spring. In particular, rotating clockwise the handwheel, the actuator will rotate towards the position of "closed valve", while turning it counterclockwise, the actuator will rotate to the position of "open valve". However, if the jackscrew is in completely back position, the actuator will only work with pneumatic actuation.



## **INSTALLATION**

The standard position for GHDP actuator with manual handwheel override is parallel to the pipeline. In case is necessary to mount in different position, please consult the Actuatech technical department.

## **MAINTENANCE**

### **A - DOUBLE-ACTING MANUAL HANDWHEEL OVERRIDE**

The Actuatech manual handwheel override normally has no need to maintenance.

However, it is advisable to keep the unit clean so as to ensure the functionality in case of emergency.

In case of other necessity, please contact Actuatech technical department.

### **B - SPRING-RETURN MANUAL HANDWHEEL OVERRIDE**

The Actuatech manual handwheel override normally has no need to maintenance.

However, it is advisable to keep the unit clean so as to ensure the functionality in case of emergency, and,

in particular, to avoid the formation of dirt or other debris on the maneuvering screw which may make it difficult to operate the manual emergency activation.

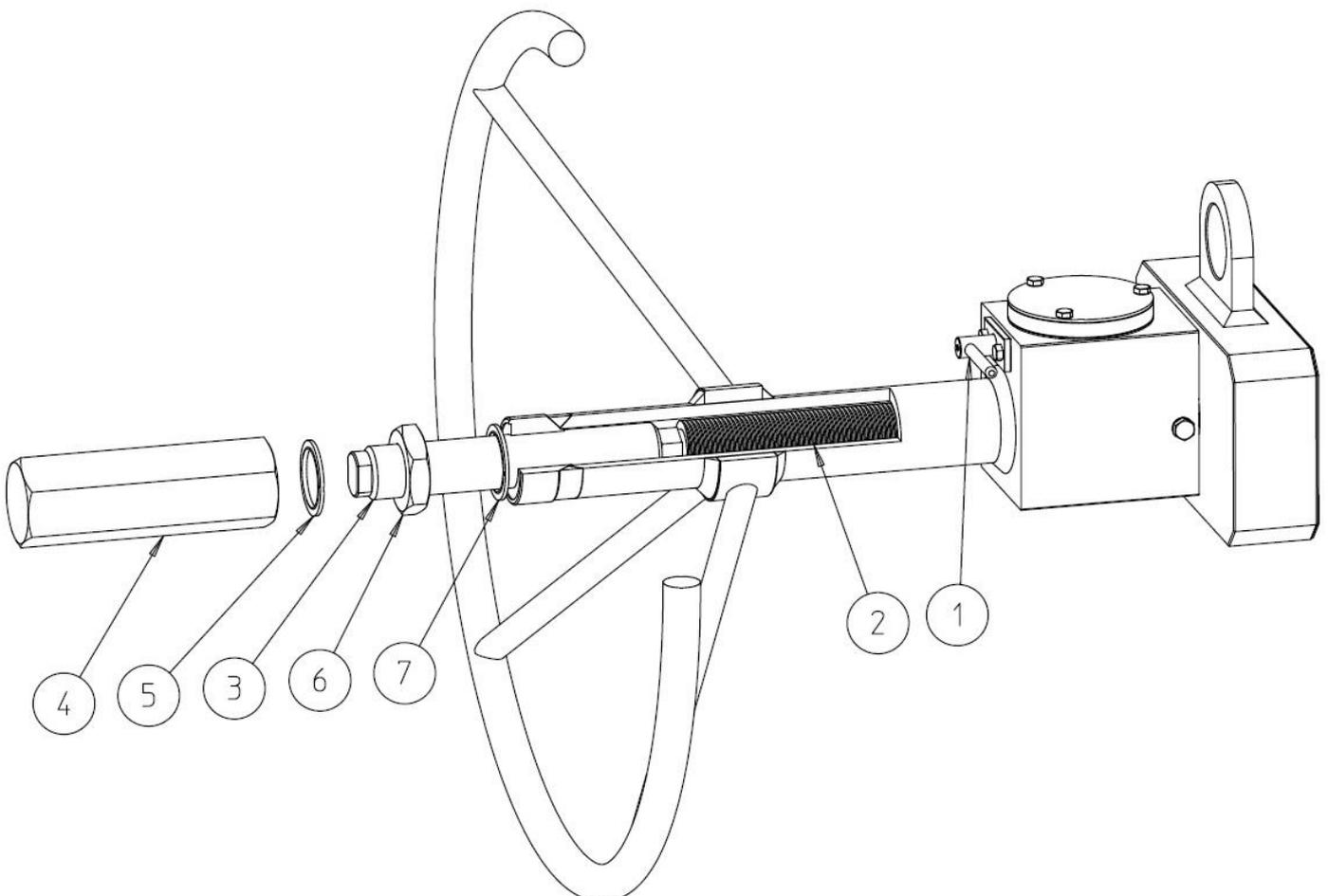
In case of necessity, please contact Actuatech technical department.

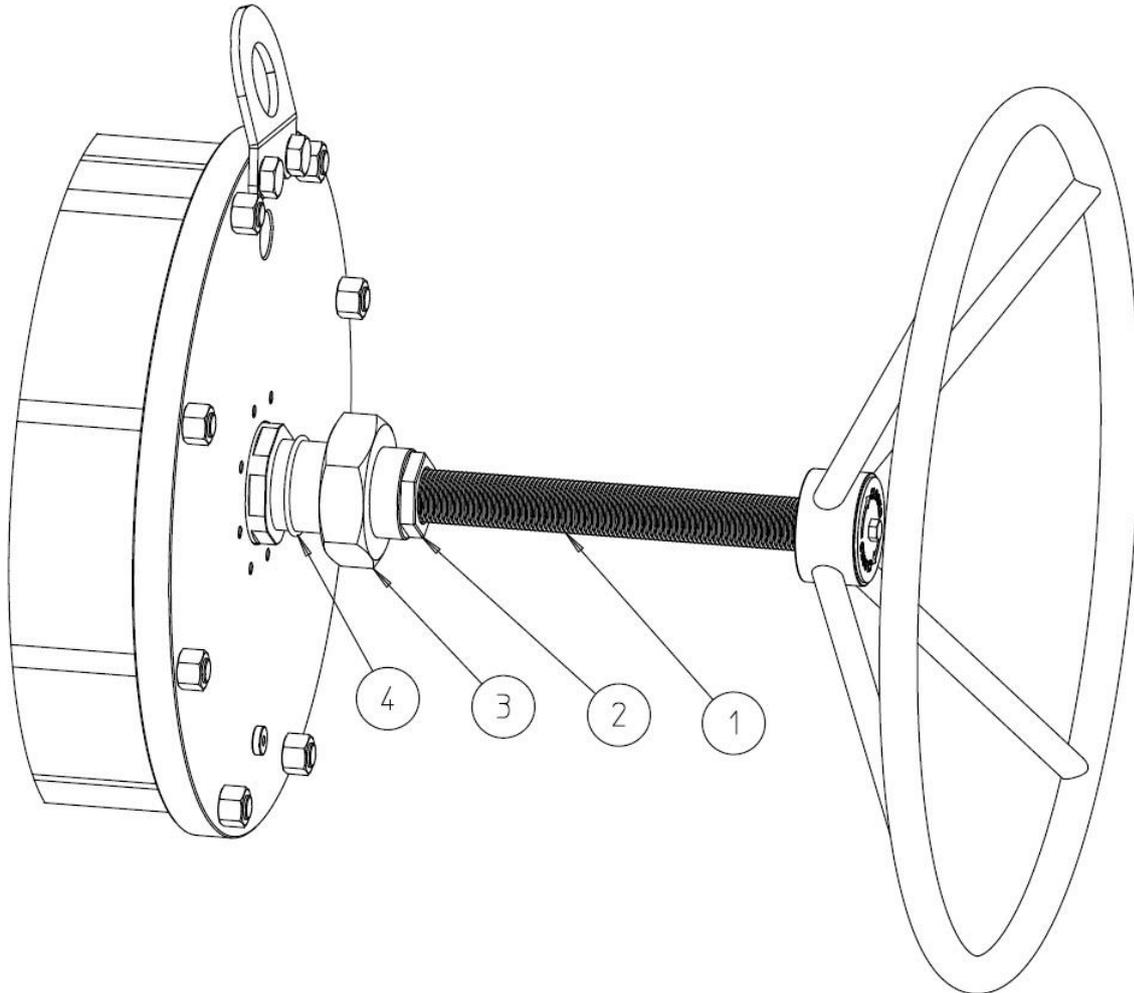
## **SETTING OF MANUAL HANDWHEEL OVERRIDE STOP POSITION**

### **A - DOUBLE-ACTING PNEUMATIC ACTUATOR WITH MANUAL HANDWHEEL OVERRIDE**

The setting of the manual handwheel override stop position is performed by adjusting the screw which is inserted at the end of the tube of the handwheel block as follows:

1. The "Engage/Disengage" Selector (1) must be in the "Disengaged" position.
2. Apply pressure to outboard side of pneumatic cylinder to make the jackscrew (2) reaches the stop setting screw (3).
3. Remove the supply pressure.
4. Remove the stop bolt cover (4) the sealing washer (5) and loosen the stop nut (6) with sealing washer (7).
5. Screw the stop setting screw (3) to reduce the actuator angular stroke or unscrew the stop setting screw (3) to increase the actuator angular stroke.
6. Tighten the stop nut (6) ensuring sealing washer (7) is properly centred on the stop setting screw and fitted in the machined recess in the housing tube flange.
7. Operate a complete cycle of the actuator stroke.
8. Verify that the adjustment is correct; otherwise repeat from the step 1.
9. Reinstall the stop bolt cover (4) ensuring sealing washer (5) is properly centred on the stop setting screw (3) and fitted in the machined recess in the stop bolt cover (4).





## **B - SPRING-RETURN PNEUMATIC ACTUATOR WITH MANUAL HANDWHEEL OVERRIDE**

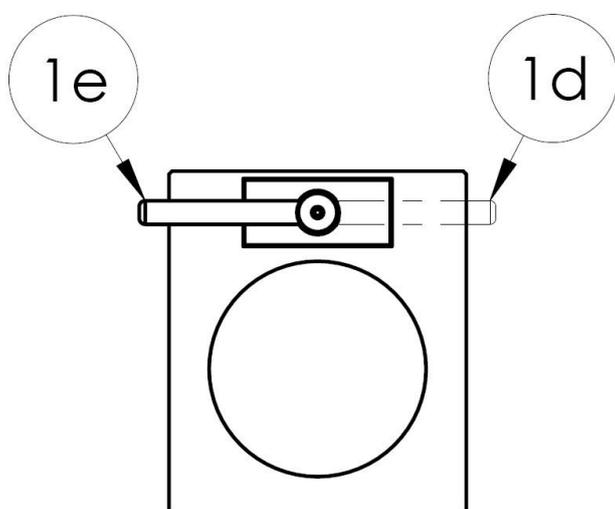
The setting of the manual handwheel override stop position is performed by adjusting the bronze nut which is inserted into the end flange of the pneumatic cylinder as follows:

1. The Jackscrew (1) must be in fully retracted position.
2. Apply (low) pressure to outboard side of pneumatic cylinder to remove load from the bronze nut (2) of the manual handwheel override.
3. Loosen the stop nut (3) with O-Ring (4).
4. Screw the bronze nut (2) to reduce the actuator angular stroke or unscrew the bronze nut (2) to increase the actuator angular stroke.
5. Tighten the stop nut (3) ensuring O-Ring (4) is in the right position.
6. Operate a complete cycle of the actuator stroke.
7. Remove the supply pressure.
8. Verify that the adjustment is correct; otherwise repeat from the step 1.

## **OPERATING INSTRUCTIONS**

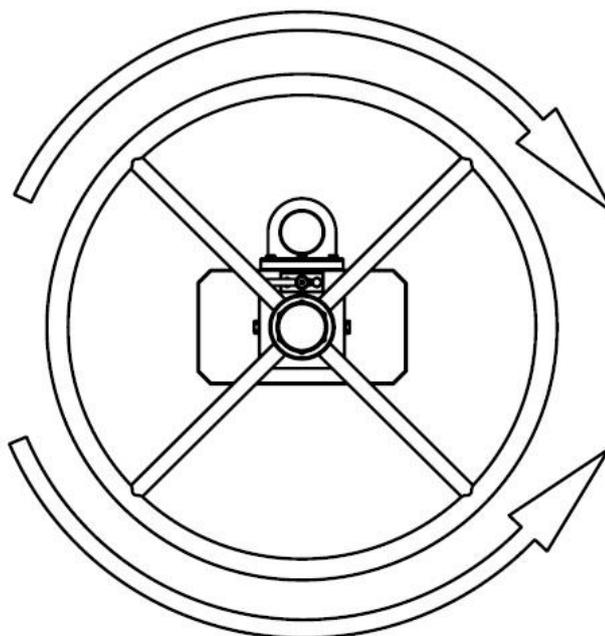
### **A - DOUBLE-ACTING MANUAL HANDWHEEL OVERRIDE**

1. Before engaging the manual handwheel ensure that there's no supply pressure in the actuator.
2. To start operating the manual handwheel, the "Engage/Disengage" Selector must be in the "Engage" position (1e). While turning the "Engage/Disengage" Selector lever, rotate the handwheel a quarter turn clockwise and a quarter counterclockwise to ensure the lead nut maneuver has correctly engaged the maneuver screw.
3. Rotating clockwise the handwheel, the actuator will rotate towards the position of "closed valve", while turning it counterclockwise, the actuator will rotate to the position of "open valve".
4. When manual operation is complete, return the "Engage/Disengage" Selector to the "Disengage" position (1d) to allow the actuator to freely work with pneumatic actuation.



ENGAGE/DISENGAGE  
SELECTOR DETAIL

CLOSE VALVE

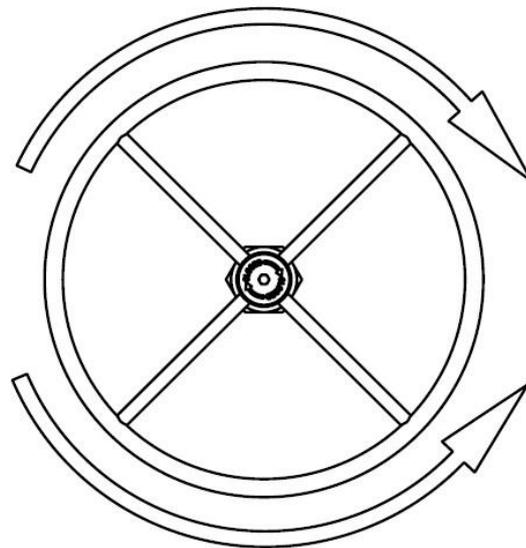


OPEN VALVE

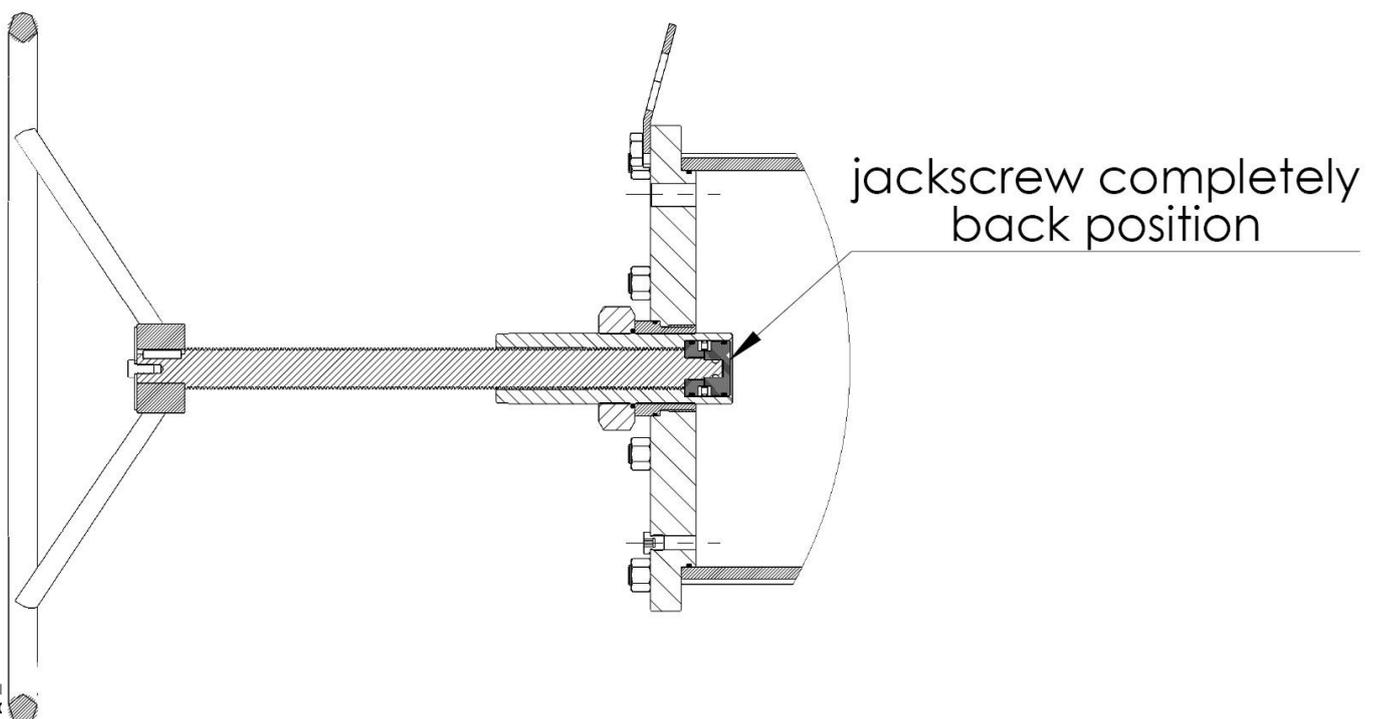
## B - SPRING-RETURN MANUAL HANDWHEEL OVERRIDE

1. Rotating clockwise the handwheel, the actuator will rotate towards the position of "closed valve", while turning it counterclockwise, the actuator will rotate to the position of "open valve".
2. To allow the actuator to work only with pneumatic actuation the jackscrew must be brought in completely back position.

# CLOSE VALVE



# OPEN VALVE



## **SPECIFICATIONS**

### **1 - LUBRICATION**

Usually it is not necessary to lubricate the actuator, because its mechanism is lubricated for life.

The following greases are used by Actuatech S.p.A. to lubricate the mechanical components and are recommended for future lubrication (all the greases are silicon free):

#### **PISTON – CYLINDER – SPRING-RETURN MANUAL HANDWHEEL OVERRIDE lubrication**

**MANUFACTURER:** TECNOLUBE SEAL

**TRADE NAME:** SYNTHY POLYMER 402

**COLOR:** BLUE

**OIL TYPE:** SYNTHETIC

#### **SCOTCH-YOKE MECHANISM – HOUSING – GUIDE BAR – DOUBLE-ACTING MANUAL HANDWHEEL OVERRIDE lubrication**

**MANUFACTURER:** MOLYKOTE

**TRADE NAME:** P1500

**COLOR:** WHITE

**OIL TYPE:** SEMI-SYNTHETIC

#### **NOTE:**

**The above described grease type is for lubrication of scotch yoke standard actuators (–20°C +80°C).**

## **WARNINGS**

See the 'GHDP ACTUATOR SERIES - ACTUATECH USER MANUAL' for general warnings.

It is the responsibility of the user to ensure that the following conditions are respected:

1. Don't use the manual handwheel override for any other uses other than which it has been designed.
2. Follow regular maintenance schedule (please consult "Maintenance" section).
3. Before doing any maintenance operation on the actuator it is imperative to ensure that no pressure remains inside the cylinder or other part of actuator.
4. Before doing any maintenance operation on the actuator it is imperative to verify that the consumer materials (oil and/or grease) respect the 'Specification' unit.
5. Actuatech S.p.A. cannot be responsible for any damage to people, animals or things due to an improper use of the product.
6. Actuatech S.p.A. declines any responsibility for the products repaired by companies not authorised by Actuatech S.p.A.

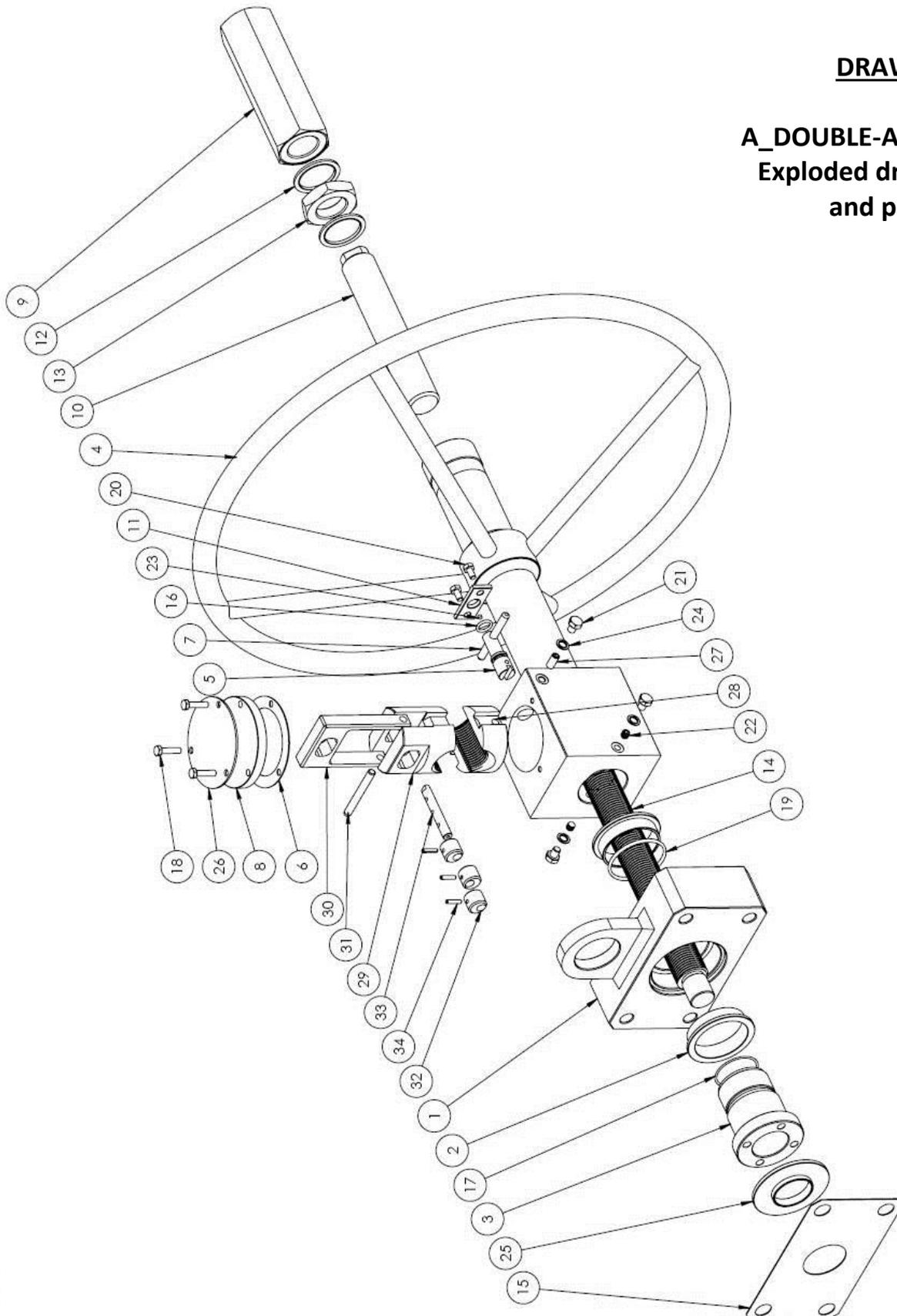
Other extra-warnings linked to the particular installation of the actuator must be taken into account by the installer.

## TROUBLESHOOTING

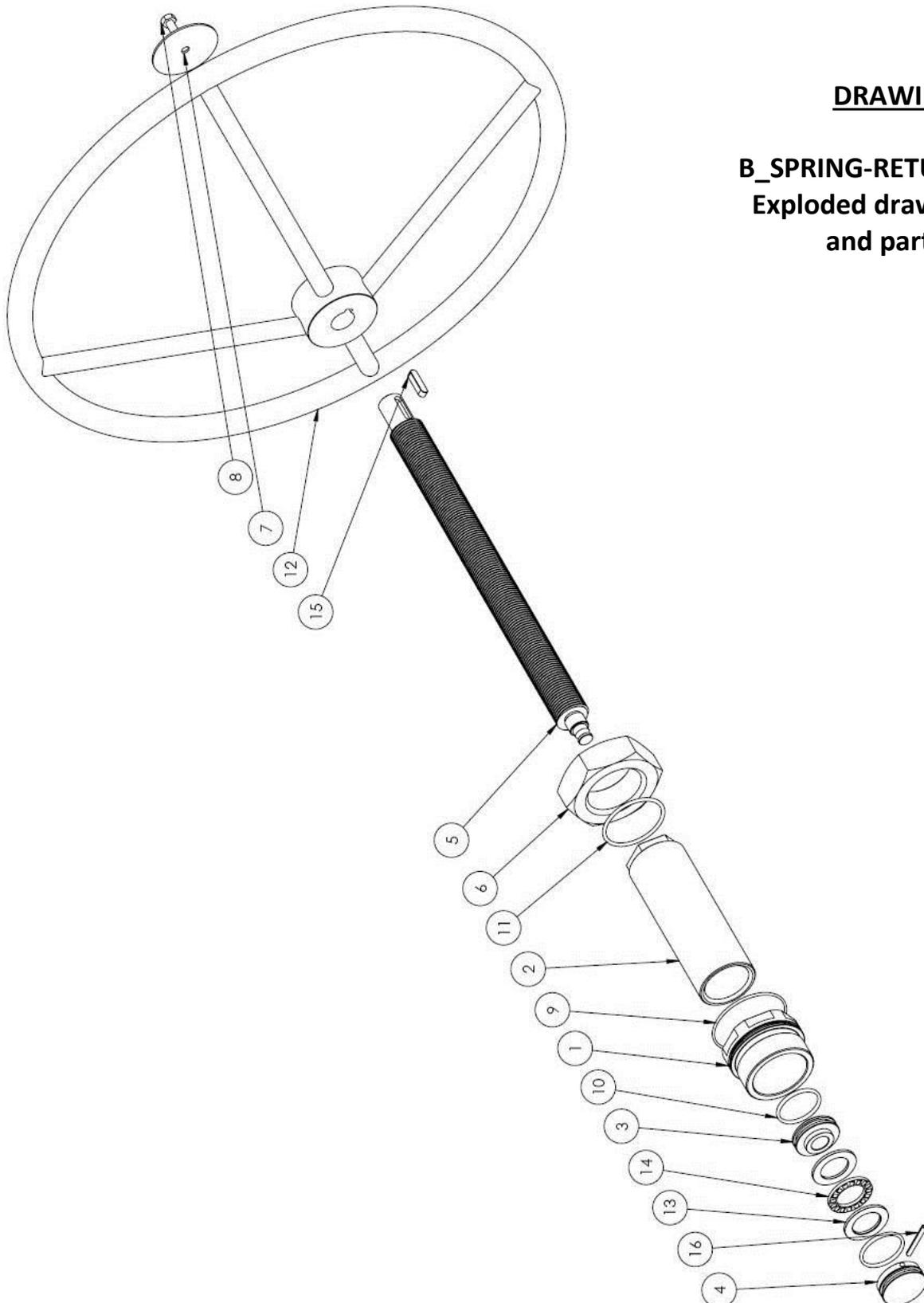
NOTICED FAULT	POSSIBLE CAUSE	SUGGESTED REMEDY
<b>APPARENT TORQUE DECREASE or FAILURE HANDWHEEL EMERGENCY ACTIVATION.</b>	Worn or encrusted jackscrew/nut thread.	In case of Spring Return actuator, remove the encrustations and verify the condition of the jackscrew thread. If it is impossible to identify and solve the problem this way, or in case of Double Acting actuator, consult Actuatch technical department for instructions.
	Wrong position of the Engage/Disengage Selector on the handwheel unit (M2).	Verify and set the correct position of the Selector before operate the Handwheel (see 'Operate Instructions' unit).
	Internal Manual Handwheel Unit failures.	Consult Actuatch technical department for instructions.
	Wrong valve sizing.	Check the required valve torque (valve manufacturer's documentation) and the provided actuator torque (Actuatch documentation).
	Increased valve torque.	Check the valve manufacturer's documentation.
<b>STROKE NOT COMPLETED.</b>	Setting of mechanical stops and/or limit switches not correct.	See the "Setting of angular stroke" unit.
	Defective valve.	Check the valve manufacturer's documentation.
<b>IRREGULAR STROKE MOVEMENT.</b>	Worn or encrusted jackscrew/nut thread.	In case of Spring Return actuator, remove the encrustations and verify the condition of the jackscrew thread. If it is impossible to identify and solve the problem this way, or in case of Double Acting actuator, consult Actuatch technical department for instructions.
	Worn components.	Consult Actuatch technical department for instructions.
	Worn or stucked valve.	Check the valve manufacturer's documentation.

**DRAWINGS**

**A\_DOUBLE-ACTING  
Exploded drawing  
and part list**



Num. Item	Description	Material	Quantity
1	Manual Override Inner Flange	Carbon Steel	1
2	Flange Bushing	Bronze	2
3	Connection Ring	Carbon Steel	1
4	Wheel Body Block	Carbon Steel	1
5	Shaft	Carbon Steel	1
6	Paper Seal	Paper	1
7	Shaft Lever	Carbon Steel	1
8	Wheel Body Cap	Carbon Steel	1
9	Stop Bolt Cover	Alloy Steel	2
10	Stop Setting Screw	Alloy Steel	2
11	Shaft Plate	Carbon Steel	1
12	Sealing Washer	Alloy Steel+NBR	4
13	Stop Nut	Alloy Steel	2
14	Maneuver Screw	Alloy Steel	1
15	Paper Seal	Paper	1
16	O-Ring	NBR	1
17	O-Ring	NBR	1
18	Screw	Stainless Steel	3
19	O-Ring	NBR	1
20	Screw	Alloy Steel	2
21	Screw	Alloy Steel	3
22	Fixing Screw	Alloy Steel	2
23	Fixing Screw	Alloy Steel	1
24	Sealing Washer	Alloy Steel+NBR	3
25	Centering Ring	Alloy Steel	1
26	Instruction Label	Alloy Steel	1
27	Positioning Screw	Alloy Steel	1
28	Inferior Lead Nut Maneuver	Bronze	1
29	Superior Lead Nut Maneuver	Bronze	1
30	Lead Nut Support	Stainless Steel	1
31	Pin	Steel Alloy	1
32	Cam Disc	Carbon Steel	3
33	Cam Pin	Carbon Steel	1
34	Elastic Pin	Spring Steel	3



**DRAWINGS**

**B\_SPRING-RETURN**  
**Exploded drawing**  
**and part list**

Num.Item	Description	Material	Quantity
1	Reduction Ring	Alloy Steel	1
2	Lead Nut Maneuver	Bronze	1
3	Rear push disc	Alloy Steel	1
4	Front push disc	Alloy Steel	1
5	Maneuver Screw	Alloy Steel	1
6	Stop Nut	Alloy Steel	1
7	Instruction Label	Stainless Steel	1
8	Screw	Stainless Steel	1
9	O-Ring	NBR	2
10	O-Ring	NBR	1
11	Handwheel For Maneuver	Carbon Steel	1
12	Washer For Roller Bearing	Alloy Steel	2
13	Roller Bearing	Alloy steel	1
14	Key	Alloy Steel	1
15	Elastic Pin	Spring Steel	1