

# KOSO HAMMEL DAHL

CONTROL VALVES

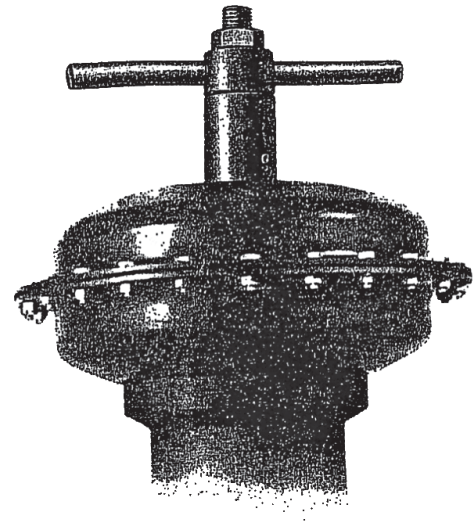
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## Installation, Maintenance & Operating Instructions

### IMO - LS Type 2

Type 2 Limit Stop for Linear Spring  
Diaphragm Actuators



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Read these instructions carefully before installation or servicing.

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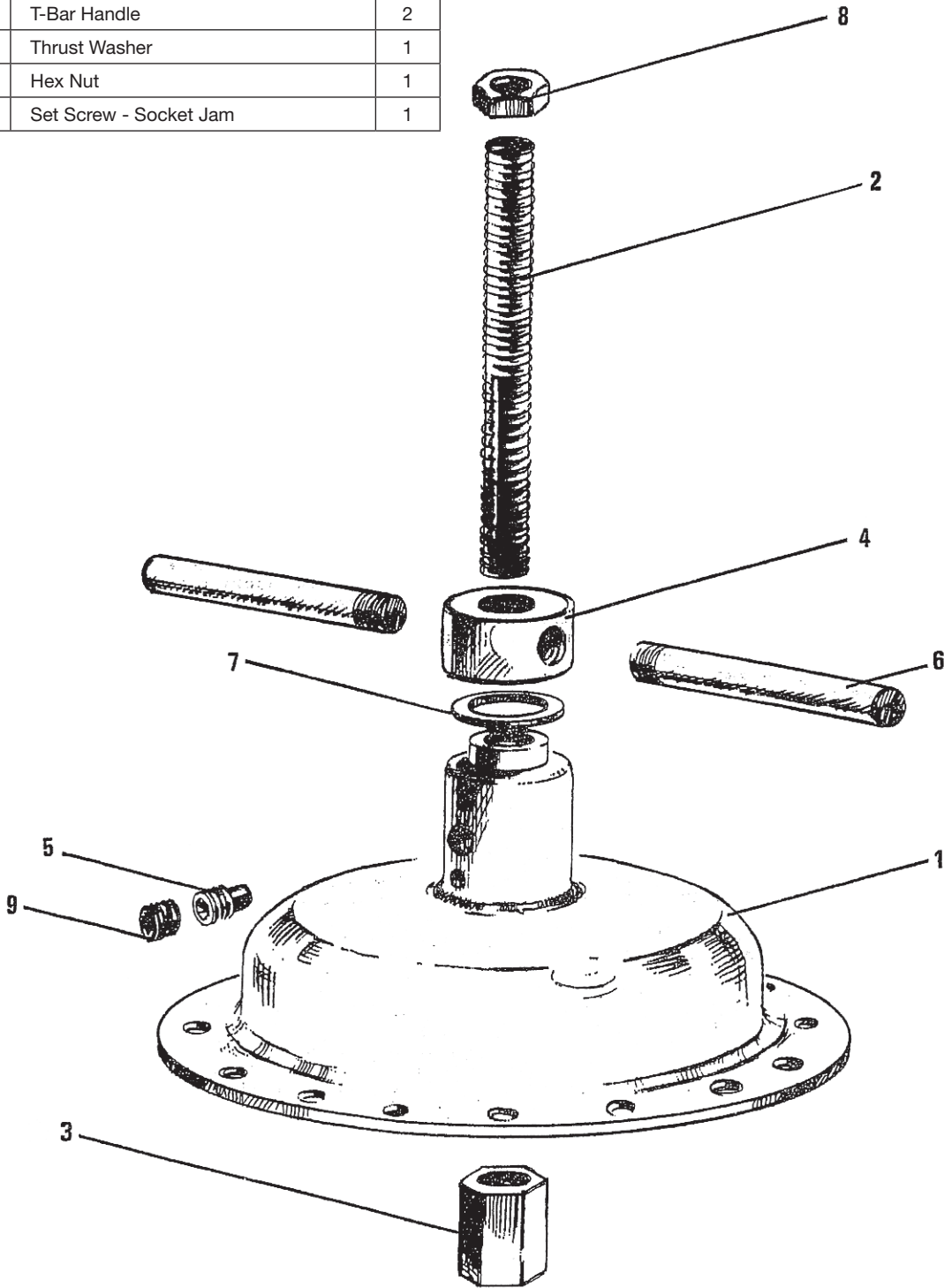
### **WARNING !**

**FOR YOUR SAFETY AND PROTECTION, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO DOING ANY WORK ON THE ACTUATOR:**

1. Service pressure must be shut off.
2. Bleed the service line.
3. Remove the service line connectors from the actuator.
4. Do not start any disassembly until the actuator is depressurized.
5. Wear any protective clothing or equipment normally required when working with the media involved.
6. If disassembly of the actuator goes beyond what is covered in the IMO, refer to the IMO applicable to the actuator or accessory.

### Parts

Item No.	Description	Qty.
1	Limit Stop Diaphragm Case Assembly	1
2	Jacking Screw	1
3	Stem Nut	1
4	T Bar Hub	1
5	Set Screw - Dog Point	1
6	T-Bar Handle	2
7	Thrust Washer	1
8	Hex Nut	1
9	Set Screw - Socket Jam	1



## PRINCIPLES OF OPERATION

The Type 2 limit stop is used with reverse acting linear actuators only. It is used to limit stem extension. The pneumatic force and the limit stop force are opposed by the spring force.

Ideally, the actuator would be positioned pneumatically prior to setting the Type 2 limit stop to limit stem extension. This would provide for adjustment under “no load” conditions. The Type 2 limit stop, however, does have the capability of adjustment working against any spring force which may be applied in diaphragm case sizes up to and including 140 in<sup>2</sup> (RD size).

## INSTALLATION

Installing the Type 2 limit stop on a reverse acting linear actuator involves almost complete disassembly and reassembly of the actuator. For that reason, reference is made to IMO-Type R which contains instructions for actuator disassembly and reassembly. Deviations from these instructions would occur in reassembly as follows:

1. The limit stop stem nut (3) would be substituted for the actuator spring stem hex nut (A19)
2. The limit stop jacking screw (2) would be screwed into the top of the limit stop stem nut (3) taking care to fully engage but not to tighten up in a manner which would prevent independent turning of the jacking screw (2).
3. The limit stop diaphragm case assembly (1) would be substituted for the standard upper diaphragm case (A4).
4. The jacking screw (2) would be rotated so that it's milled slot would line up with the  $\frac{3}{8}$ " tapped hole in the diaphragm case assembly hub.
5. The dog point set screw (5) should then be installed and bottomed in the previously referenced  $\frac{3}{8}$ " tapped hole so as to engage the milled slot in the jacking screw (2), and then backed off one full turn.
6. The dog point set screw (5) is then locked in position by installation of the socket jam set screw (9).
7. The two “T” bars (6) are screwed tightly into the threaded holes in the sides of the “T” bar hub (4).
8. Place the thrust washer (7) over the protruding jacking screw (2) and down to interface with the top of the diaphragm case assembly (1).
9. Place the “T” bar hub subassembly (4) and (6) down on the jacking screw (2), and turn until it makes contact with the thrust washer (7).
10. Install the  $\frac{7}{8}$ " – 14 hex nut (8).

The actuator may now be adjusted in accordance with IMO-Type R, after which the limit stop may be positioned to limit stem extension as desired. This may be done by positioning the actuator pneumatically

and turning the “T” bar under no load conditions until contact is made with the thrust washer (7), or it may be done manually with pneumatic pressure on the diaphragm.

## DISASSEMBLY

1. Remove and pneumatic pressure on the diaphragm.
2. Remove the  $\frac{7}{8}$ " – 14 hex nut (8).
3. Back off and remove the “T” bar subassembly (6) and (4).
4. Back off and remove the socket jam set screw (9) and the dog point set screw (5).
5. Back off and remove the jacking screw (2).

Further disassembly would be in accordance with IMO-Type R.

## LUBRICATION

Any good petroleum base grease will be satisfactory. The items that should be greased are the jacking screw (2) and the thrust washer (7).

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