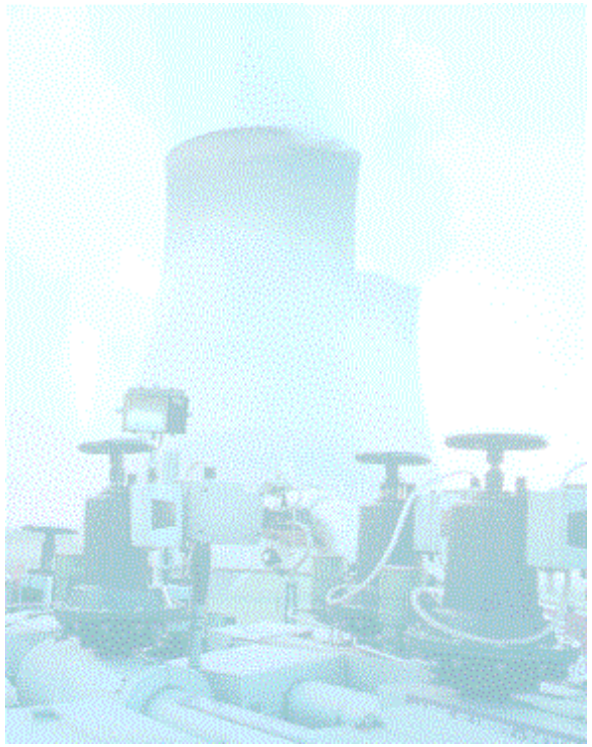
Saunders

IDV Actuation Maintenance



Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

* **SAFETY**- refer to General valve Maintenance Safety Precautions.

Prior to any maintenance on a valve please refer to applicable C.O.S.H.H. Regulations or Health and Safety Data relating to the line media. Be aware of all hazards and risks associated with the work task to be performed

When full maintenance becomes necessary this will be carried out when the plant is shutdown, or when the valve in question can be isolated from the rest of the system.

Relieve the system pressure and make sure all line media has drained and the system has been flushed.

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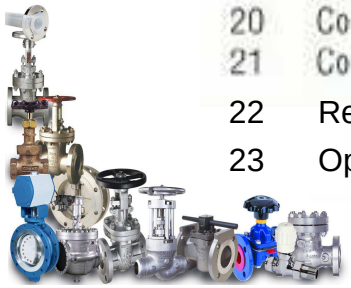
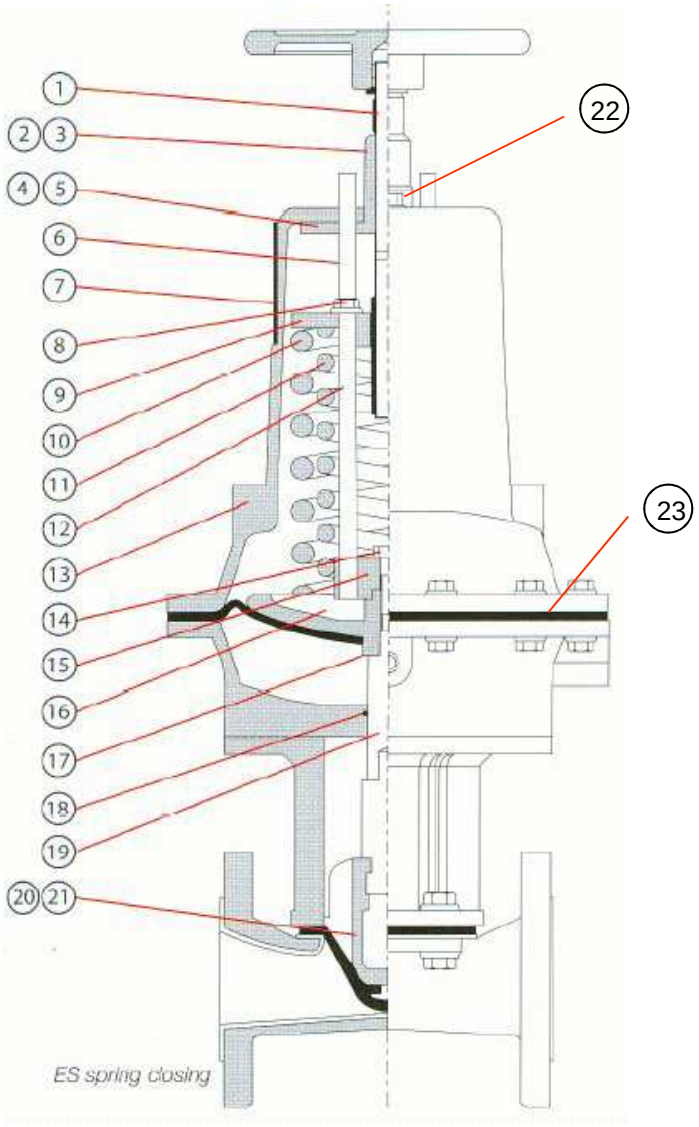
MATERIALS OF CONSTRUCTION ES (SC)		
Item	Component	Material
1	Handwheel Spindle	Mild steel
2	Locking bush	Mild steel
3	Locking bush screw	Steel
4	Reinforcing plate	Forged steel
5	Cover seal	PVC
6	Indicator sleeve	PVC
7	Slot seal	PVC
8	Lifting rod locknut	Steel
9	Upper spring plate	Forged steel
10	Outer spring	Steel
11	Inner spring	Steel
12	Lifting rod	Mild steel
13	Cover	Silicon Alumin
14	Lifting plate screw	Steel
15	Lifting plate	Mild steel
16	Diaphragm plate	Forged steel
17	Clamp washer	Mild steel
18	Lower cylinder o ring	Rubber
19	Master spindle	Stainless steel
20	Compressor pin	Steel
21	Compressor	Cast iron
22	Reinforcing plate screw	Mild steel
23	Operating diaphragm	Rubber





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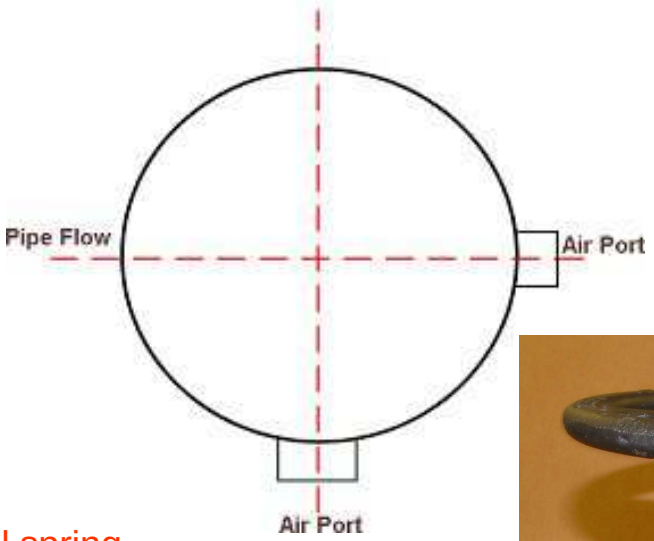
Before removing actuator from installation Note air port connection position in relation to bonnet position with pipeline. The diagram shows factory set position.

The position maybe changed by the customer during installation.



SAFETY NOTE: Release initial spring compression by turning hexagon drive / manual override anti-clockwise until valve reaches fully open position

Remove handwheel and bush

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Note – Record dimension ‘X’ between locking bush and top face of reinforcing plate

This dimension is the pre-set position which should be repeated when re-assembly takes place.

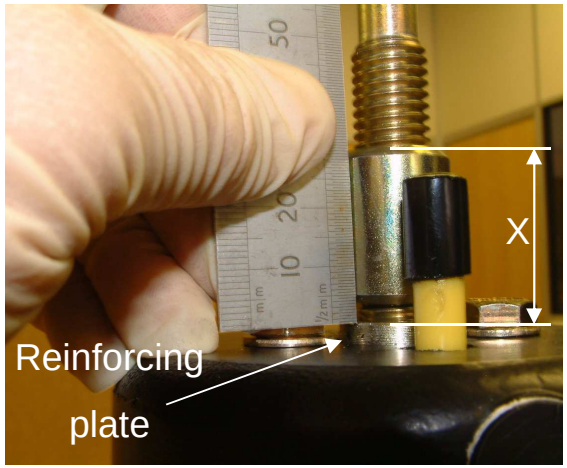
The handwheel spindle performs two functions

1) Manual override

2) Spring compression setting against line pressure

By repeating its pre-set position will compress the springs to close against the original line pressure.

Note: Any increase or decrease in line pressure will require further adjustment



Slacken grub screw in locking bush anti-clockwise

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Remove handwheel spindle locking bush, from handwheel spindle

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Remove both reinforcing plate fixing screws.

Remove cylinder/cover nuts, bolts & washers

SAFETY NOTE: This procedure should not be undertaken if the spring tension removal has not been followed

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

To remove cover lift vertically to clear spring pack

Remove spring pack by holding operating diaphragm to the lower cylinder & turn spring pack anti clockwise (This will detach the spring pack from the spindle)

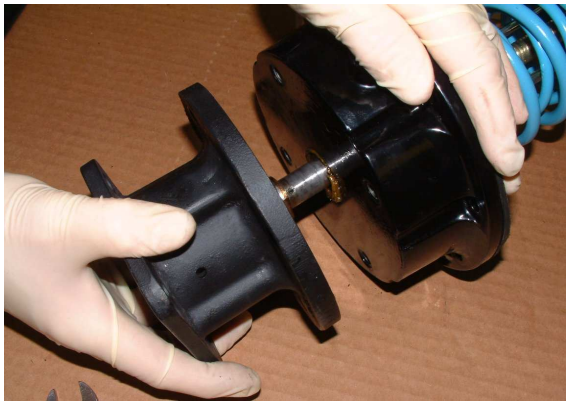
Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

If difficulty is experienced, the following procedure should be adopted.

1

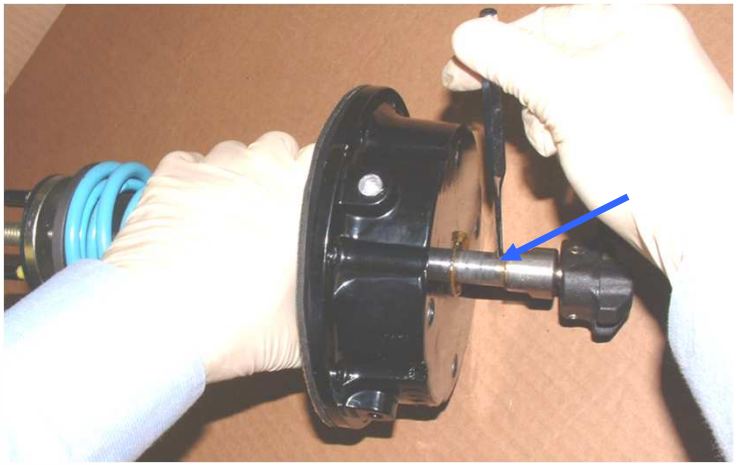
Remove bonnet securing screws.

2



Remove bonnet from spindle compressor assembly

3



Hold master spindle secure using pin punch located in the master spindle. Turn spring pack in a anti-clockwise direction to remove.

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Spring pack detachment from spindle

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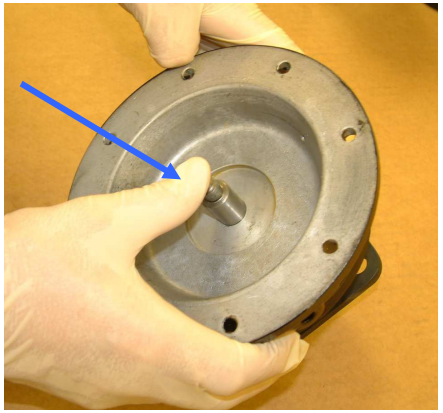
Remove operating diaphragm from spindle

Lift to remove clamp washer from spindle

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Apply pressure to spindle and push through lower cylinder to remove



Spindle/compressor assembly removed from bonnet.

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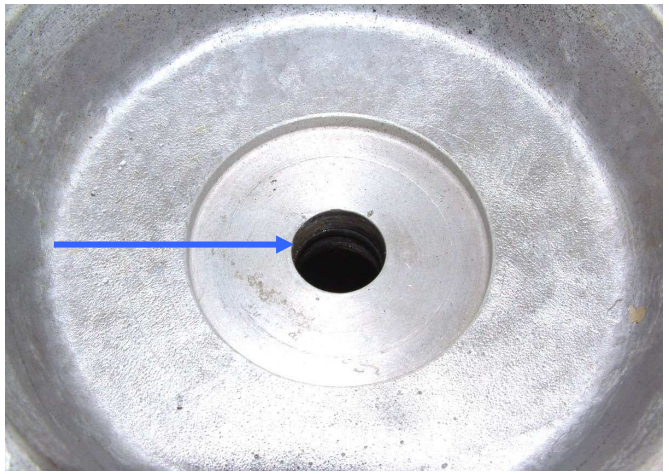
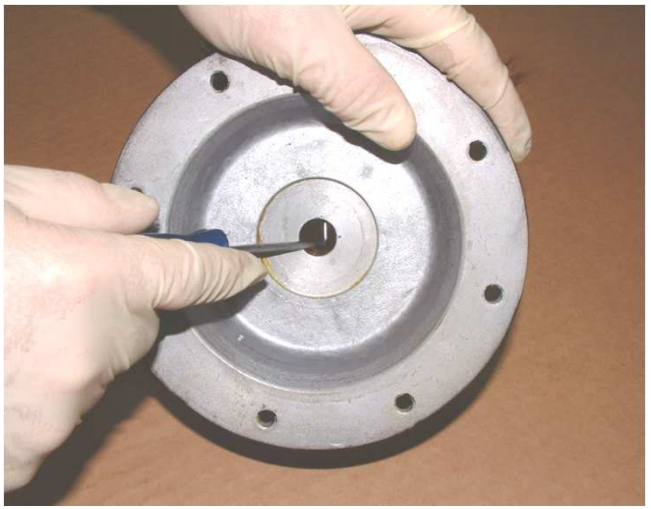
The ‘O’ ring is now exposed in the bonnet neck.



Remove ‘O’ ring



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‘O’ ring replacement

Lightly grease ‘O’ ring using a good quality Lithium based grease

Fit ‘O’ ring into lower cylinder ‘O’ ring groove.

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Remove securing screws from bonnets

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

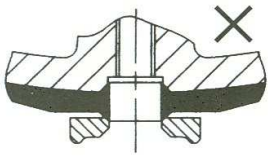
Refit spindle assembly/compressor (master spindle and spindle adaptor)

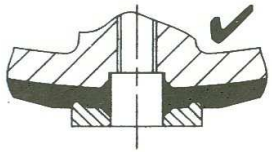
Lightly grease spindle using a good quality lithium based grease

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Refit clamp washer to spindle. To aid this procedure stand lower cylinder upright on bonnet

Care should be taken to position correctly.





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To re-fit check diaphragm. Marking should be facing up to make contact with the diaphragm plate. Locate in cylinder in natural moulded position.

Care should be taken that it is not pinched around the spindle sealing area

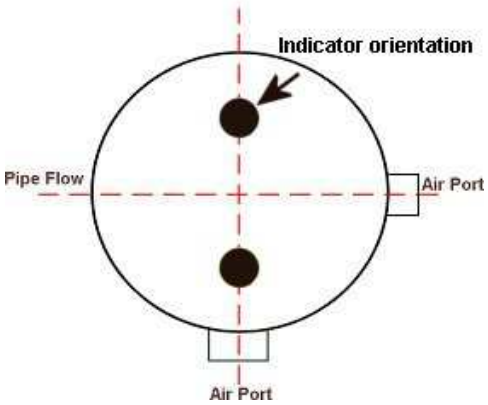
To refit diaphragm to spindle angle diaphragm, turn and push to locate

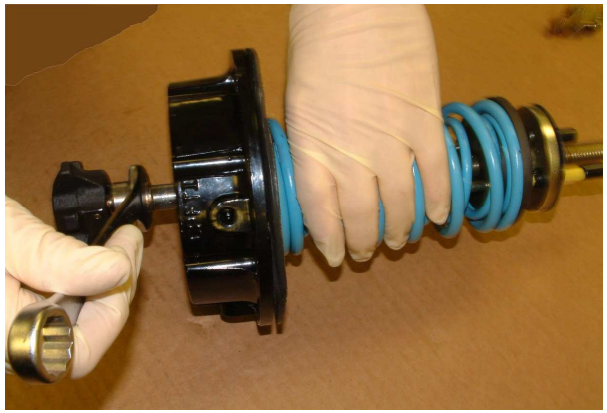
Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

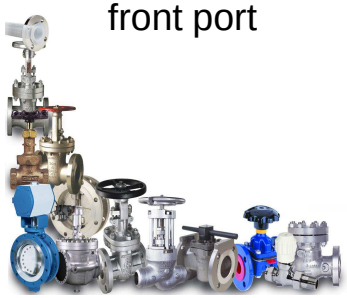
Refit spring pack

Hold spindle assembly with spanner.

Position cylinder ports front and right Align operating diaphragm boltholes with lower cylinder boltholes. Hold secure and turn spring pack clockwise to tighten. Ensure indicators align with front port







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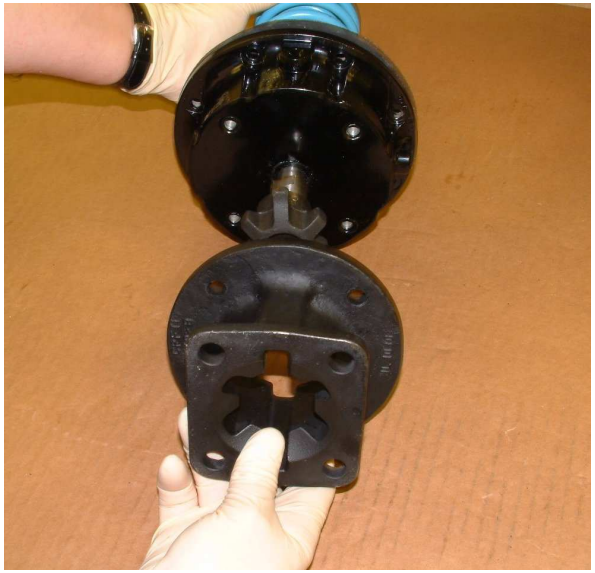
Align compressor with bonnet and front port



Refit bonnet to lower cylinder using securing screws.

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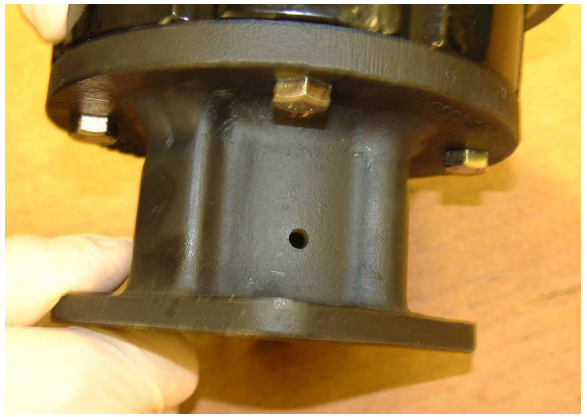
Note: Check bonnet breather hole is completely clear.



Refit cover. Slot cover to align with front port.

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

To re-fit bring the reinforcing plate to the underside of the cover by rotating the spindle clockwise. This procedure will lower the cover to aid assembly.

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Align boltholes with cover, operating diaphragm and lower cylinder.

Refit fasteners, washers and nuts and secure. Tighten in opposite diagonals. GMP.

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Refit both reinforcing plate screw to top of cover.

Refit locking bush to handwheel spindle

Dismantling of Type ‘A’ & ‘KB’ Spring Closing Modular ES Actuator Models ES61 – ES64.

Position locking bush to the recorded preset position.

Secure locking bush to handwheel spindle by re-tightening grub screw.

Refit handwheel and bush.