

Maintenance & Commissioning  
Literature for  
**HPR10**  
*Gas Pressure Regulators*  
*1" Size*

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## COMMISSIONING

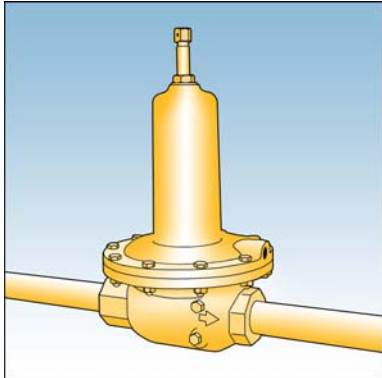


Fig. 1

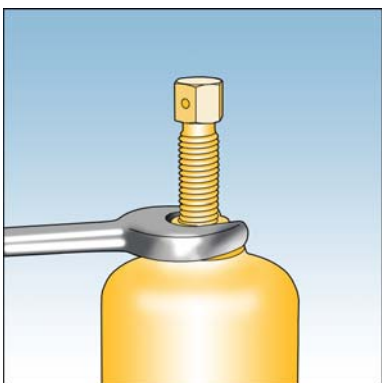


Fig. 2

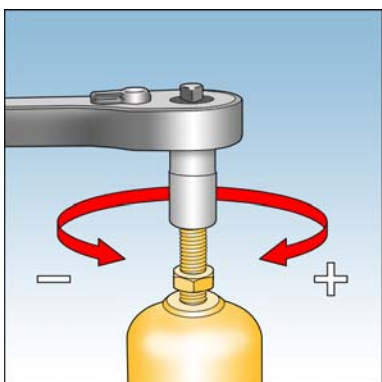


Fig. 3

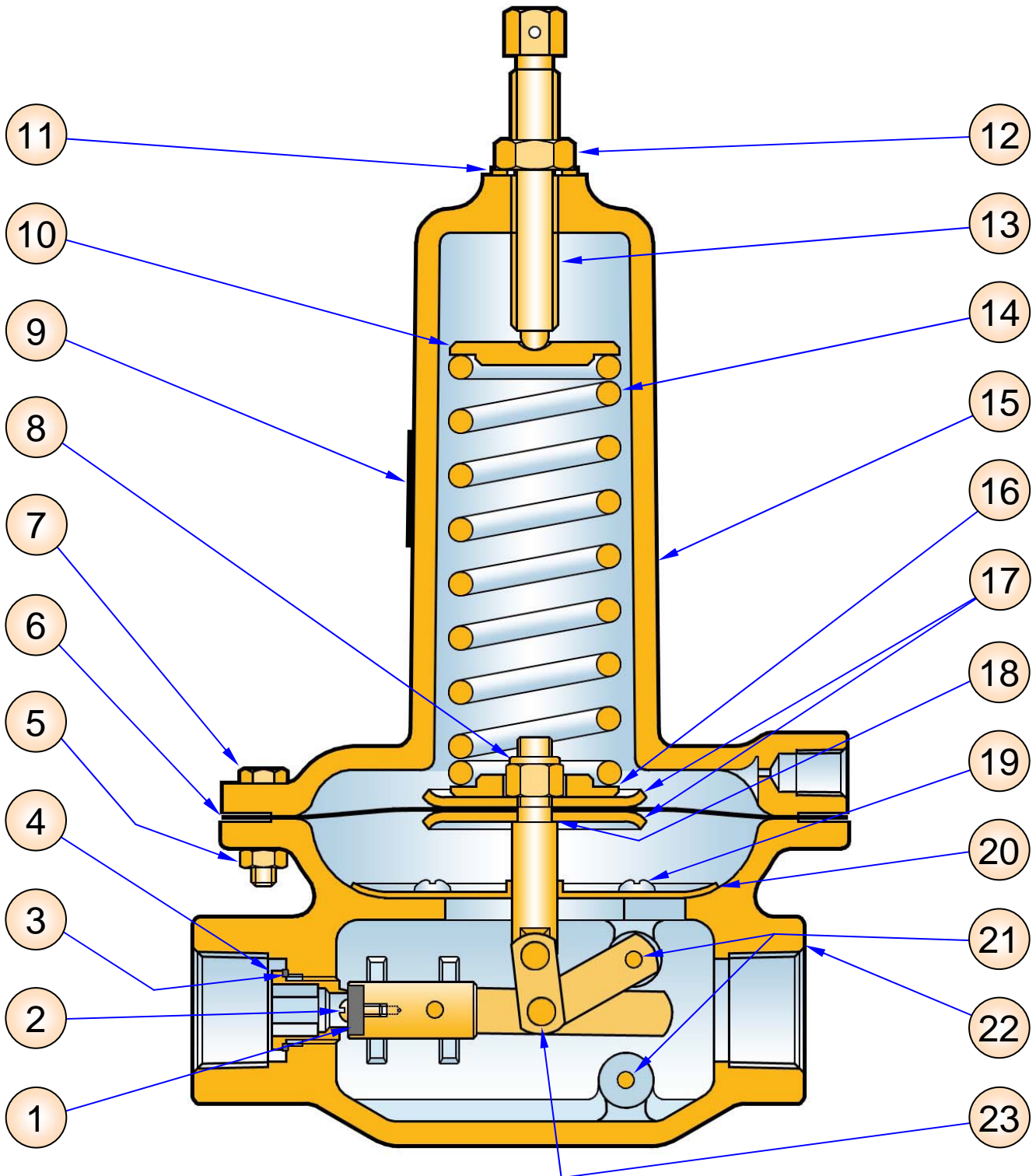
## OPERATING INSTRUCTIONS

**WARNING!** Incorrect installation, adjustment, modification, operation and maintenance may cause injury or damage.  
Read instructions before use. This equipment must be installed in accordance with the rules in force.

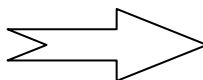
- 1) The unit should not be installed in a corrosive environment.
- 2) The ambient temperature (surface temperature) should be within the limits stated on the regulator catalogue.
- 3) Check the maximum allowable pressure on the regulator nameplate against the installation specification.
- 4) Remove the protection from the inlet and outlet ports and vent.
- 5) Ensure that the installation pipework is thoroughly clean.
- 6) The direction of gas flow must be the same as the arrows on the regulator body. See Fig. 1.
- 7) Install regulator into pipework.
- 8) It is advised that a slam shut device is fitted in the installation to protect downstream equipment.

## SETTING THE OUTLET PRESSURE.

- 1) Turn off inlet and outlet valves.
- 2) Loosen locknut (19mm A/F) on spring adjusting stem. See Fig. 2.
- 3) Connect suitable spanner (15mm A/F) to hexagon of spring adjusting stem. See Fig. 3.
- 4) Open outlet valve.
- 5) Turn anticlockwise to reduce pressure on the loading spring.
- 6) Slowly open inlet valve.
- 7) Reset under pressure cut of valve if fitted into system.
- 8) Increase loading on the spring by turning the spring adjusting screw clockwise until the required outlet pressure is obtained.
- 9) Commission downstream appliance(s).
- 10) Trim the outlet pressure of the regulator, if necessary, when normal working flow rates have been achieved.
- 11) Tighten locknut.



Direction of Flow



## PARTS LIST

Diagram Reference Sheet No. DHPR10, DHPR15, DHPR30 and DHPR35

ITEM	DESCRIPTION	Part No.	No Off	USED ON
1	VALVE SEAT DISC	I070041P020	1*	HPR10,15,30 & 35
2	SCREW, ROUND HEAD SLOTTED	I078003P005	1*	HPR10,15,30 & 35
3	VALVE GASKET	I070176P013	1*	HPR10,15,30 & 35
4	VALVE SEAT 3/8" ORIFICE	I070116P006	1	HPR10,15,30 & 35
5	1/4" - 20 UNC FULL NUT	JNHCFZ	10	HPR10 & 15
6	MAIN DIAPHRAGM	I070014P026	1*	HPR10 & 15
7	1/4" UNC x 1 1/8" HEX SET SCREW	JSNCUHHNZ	10	HPR10 & 15
8	3/8" - 24 UNF NUT	JNEEDZ	1	HPR10,15,30 & 35
9	LABEL	J7806-027	1	HPR10,15,30 & 35
10	UPPER SPRING FOLLOWER	I070863P001	1	HPR10,15,30 & 35
11	WASHER ADJUSTING SCREW	I078142P003	1*	HPR10,15,30 & 35
12	1/2" UNC LOCKNUT	JNHGLZ	1	HPR10,15,30 & 35
13	PRESSURE ADJUSTING SCREW	I070868P001	1	HPR10,15,30 & 35
14	LOADING SPRING	See Table Below	1	HPR10 & 15
15	TOP COVER Machined	I070510+	1	HPR10,15,30 & 35
16	LOWER SPRING FOLLOWER	I071336P001	1	HPR10,15,30 & 35
17	DIAPHRAGM PLATE	I070012P011	2*	HPR10 & 15
18	WASHER DIAPHRAGM STEM	I070176P002	1*	HPR10,15,30 & 35
19	No10 x 3/8" SELF TAP SCREWS	JSQ10EXPPZ	2	HPR10,15,30 & 35
20	GUIDE PLATE DIAPHRAGM STEM	I071752P001	1	HPR10,15,30 & 35
21	CONNECTING PIN ASSEMBLY	I071335G001	2	HPR10,15,30 & 35
22	1" BODY Machined	I070481+	1	HPR10,15,30 & 35
	3/4" BODY Machined	I070477+	1	HPR10,15,30 & 35
23	TOGGLE ASSEMBLY	I070356G001	1*	HPR10,15,30 & 35
24	M6 FULL NUT	JNA6FZ	10	HPR 30 & 35
25	M6 x 35 HEX SET SCREW	JSA635HHNZ	10	HPR 30 & 35
26	LOADING SPRING	See Table Below	1	HPR 30 & 35
27	DIAPHRAGM PLATE	I519119	2	HPR 30 & 35
28	REDUCING RING	I519120	1	HPR 30 & 35
29	SPACER RING	I519121	1	HPR 30 & 35
30	MAIN DIAPHRAGM	I519122	1*	HPR 30 & 35

Items marked "\*" in parts lists are contained in Spares Kits (See table below)

## SPRINGS

### Loading Springs for HPR10 - 15

Spring Range		Part No.	Colour Code
Bar	PSI		
0.17 - 0.34	2.5 - 5	I071421P009	Red / Black
0.34 - 1.0	5 - 15	I071421P011	Green / Black
1.0 - 1.7	15 - 25	I071421P012	Yellow / Black
1.0 - 2.8	15 - 40	I071421P014	Blue / Black

### Loading Springs for HPR30 - 35

Spring Range		Part No.	Colour Code
Bar	PSI		
1.7 - 5.0	25 - 72.5	I071421P011	Green / Black
5.0 - 8.0	72.5 - 116	I071421P013	-----

## SPARES KITS

Part No.	Description
SKHPR10-01	Spares Kit for HPR10 & HPR15
SKHPR30-01	Spares Kit for HPR30 & HPR35

## CONVERSION KITS

Note: To convert HPR 10-15 to HPR 30-35

Part No.	Description
CKHPR30-01	Range 1.7 - 5.0 Bar / 25 - 72.5 PSI
CKHPR30-02	Range 5.0 - 8.0 Bar / 72.5 - 116 PSI

## MAINTENANCE

### Maintenance Instructions for HPR10 Regulator

Diagram Reference Sheet No. DHPR10

Parts List Reference Sheet No. PLHPR10

#### Dismantling Procedure:

1. Loosen locknut (12) and remove pressure adjusting screw (13) and washer (11).
2. Undo and remove ten nuts (5) and set screws (7) and carefully remove top cover (15).
3. Take off upper spring follower (10), loading spring (14) and lower spring follower (16).
4. Undo and remove diaphragm clamping nut (8) and take off upper and lower diaphragm plates (17) and diaphragm (6).
5. Take out guide plate clamping screws (19) and remove guide plate (20).
6. Undo and withdraw upper connecting pin (21), there is no need to disturb the lower connecting pin.
7. Lift out toggle assembly (23).
8. Inspect face of valve seat disc (1) for wear and damage. A complete toggle assembly (23) is included in the soft spares kit so further disassembly is not required.
9. Unscrew and remove valve seat orifice (4) and valve gasket (3).

#### Rebuilding procedure:

Note: Inspect diaphragm, valve disc and gaskets and replace where necessary (a soft spares kit is available for this purpose).

1. Install the toggle assembly (23) into body (22).
2. Apply thread sealant with PTFE to thread of upper connecting pin (21).
3. Insert upper connecting pin (21) through upper hole in body (22), align with hole in link of toggle assembly (23) and tighten to seal.
4. Place guide plate (20) over diaphragm stem of toggle assembly (23) with concave face upwards, and align hole with screw holes in body (22).
5. Secure using two screws (19) tightened to 68 Nm  $\pm$ 7 Nm.
6. Apply a single bead of thread sealant with PTFE to shoulder of diaphragm stem of toggle assembly (23).
7. Install diaphragm stem washer (18) and rotate twice 360° to spread sealant.
8. Apply a single bead of thread sealant with PTFE to diaphragm stem (23) above washer (18).
9. Place lower diaphragm plate (17) with convex side uppermost over diaphragm stem of toggle assembly (23) and rotate twice 360° to spread sealant.
10. Install diaphragm (6) with patterned face upward, upper diaphragm plate (17) – with convex side toward diaphragm (6) – and diaphragm clamping nut (8) over diaphragm stem of toggle assembly (23). Align holes in diaphragm (6) with holes in body (22).
11. Tighten diaphragm clamping nut (8) to 170 Nm  $\pm$ 14 Nm. When tightened the diaphragm holes must move freely an equal distance either side of the flange holes.
12. Place lower spring follower (16), with spigot upwards, over clamping nut (8).
13. Carefully position loading spring (14) over lower spring follower (16).
14. Insert spigot of upper spring follower (10) into top of loading spring (14).
15. Lower top cover (15) over loading spring (14) ensuring that holes align with cover (15), diaphragm (6) and body (22).
16. Replace ten set screws (7) and nuts (5) and tighten evenly to 135 Nm  $\pm$ 14 Nm.

Rebuilding procedure continued:

17. Ensure that locknut (12) is assembled to pressure adjusting screw (13).
18. Place the adjusting screw washer (11) on top of cover (15) and thread the pressure adjusting screw (13) through washer and into top cover (15) until it makes contact with the upper spring follower (10) and seats in the central depression.
19. Insert the valve seat orifice (3) through the valve gasket (4).
20. Apply thread sealant with PTFE to thread of the valve seat orifice (3) and insert into body (22) tightening to 40 Nm  $\pm$ 7 Nm.