

Models

22971CR-50/22971CRH-50

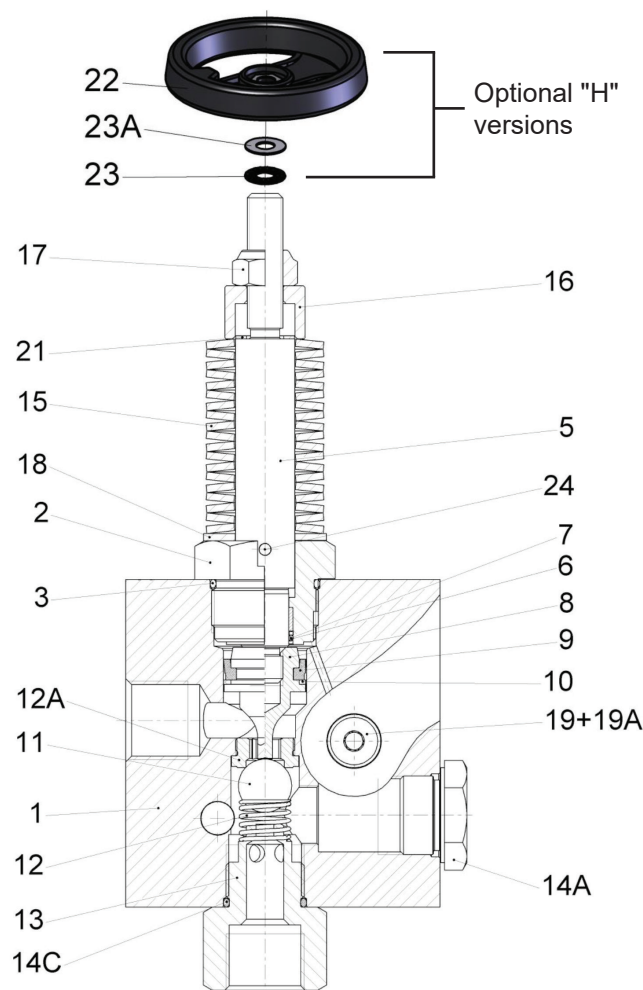
22973CR-50/22973CRH-50

Regulator,

316 Stainless Steel

	Nominal Pressure		Operating Pressure		Min Flow Rate	Max Flow Rate	Water Temperature
Model	PSI	bar	PSI	bar	GPM (l/min)	GPM (l/min)	°F (°C)
22971C-50	5220	360	580-1740	40-120	2.1 (8)	35.6 (135)	160 (70)
22973C-50	5220	360	580-4060	40-280	2.1 (8)	35.6 (135)	160 (70)

****When ordering handwheel versions add "H" to model number**



Item	Part #	Description	Qty.
1	12232-0100	Valve Body	1
2	06960	Guide Plug Assembly	1
3*	07332	O-Ring	1
5	12242-0400	Piston Rod	1
6*	07853	O-Ring	1
7*	06961	Support Ring	1
8	12206-0400	Piston	1
9*	05005	Cup, 28mm	1
10*	05015	Backup ring, 28mm	1
11*	12207-0400	Ball	1
12*	12216	Valve Spring	1
12A*	03862	Seat	1
13	12243-0400	Fitting	1
14A	13150-0100	Plug	1
14C*	07035	O-Ring	1
15	12218	Spring, Yellow (22971CR-50)	21
15	08512	Spring, Orange (22973CR-50)	19
16	12245	Spacer Sleeve	1
17	12246	Self-Locking Hexagon Nut	1
18	12223	Washer, Spring	1
19	07423-0400	Plug	4
19A	07755-0100	Gasket, Steel	4
21	06822	Spacer Disc, 1.0 mm	3
22	06774	Spoked Handwheel ("H" versions)	1
23	06775	Axial Needle Bearing ("H" versions)	1
23A	06776	Disc ("H" versions)	1
24	12247	Serrated Pin	1
*	09461R	Repair Kit	

Tool List and Torque Specifications

Item	Tool Needed	Torque	Lubrication Information
2	M36x1.5	18 ft.-lbs. (25 Nm)	
3 / 6 / 7 / 9 / 10			Silicone Grease
8	M12		Loctite 243
12A	M20x1	22 ft.-lbs. (30 Nm)	Loctite 243
13	3/4" BSP	18 ft.-lbs. (25 Nm)	
14A / 14C / 19A			Gear Oil
19	1/4" BSP	70 ft.-lbs. (8 Nm)	
23			Grease SHD 220

Fields of application

The fields of application of these unloader types correspond to the specifications in the assembly instructions Giant Industries Unloader.

Ambient conditions

Ambient temperature: $41^{\circ}\text{F} < T_{\text{Amb.}} < 86^{\circ}\text{F}$
Ambient temperature: $5^{\circ}\text{C} < T_{\\text{Amb.}} < 30^{\circ}\text{C}$

Safety Instructions



Observe direction of flow. The bypass must under no circumstances be closed or fitted with any shut-off device.



Continuous bypass operation without releasing the water can cause the liquid to heat up which in turn could damage the unit and endanger persons.

Possible preventive measures:

- 1.) Limit the bypass duration (maximum temperature 158°F or 70°C); the duration is to be calculated by the operator and in conjunction with the operating conditions.
- 2.) Use fittings (e.g. thermal relief valve on water inlet) to avoid heat increase.

Installation / Putting into Operation

Bypass line

The bypass line must be laid in a flow favorable way.

The cross section of the bypass line must at least correspond to the outlet cross section of the valve.

Outlet (G+NPT)	1/4	1/2	3/4	1
Min. $\varnothing$ (mm)	8	8	15	17

Installation and Adjustment of Pressure

Adjusting Pressure

1. Valve should be tension free, i.e. loosen nut (17) or hand wheel (22) so that the piston rod can be moved manually.
2. Spring set is to be tensioned by the nut (17) while pump is running with open gun (in case of more guns, all have to be open) until required operating pressure is reached and no more water runs out on bypass side.

If the nozzle hole is suited to the exact flow rate and pump pressure, water should not run via the bypass when required operating pressure is reached.



If the nozzle hole is too small to allow all the fluid to run through the hole after the required operating pressure has been reached, on no account is the valve to be adjusted higher than the maximum operating pressure of the pump. In this case, the bypass is to be left partially open.

It is therefore advisable to have suitable nozzles installed.

The spacer discs (21) which are under the spacer sleeve (16) are there to keep the adjusted pressure within limits. These discs are not to be removed.



Valves are NOT SET when delivered. They become a SAFETY COMPONENT only after adjustment on the machine by trained personnel.

Operation

For informations, see assembly instructions Giant Industries Unloader

Maintenance and Servicing

For the type of thread locker used and the required tightening torques, observe the table in the exploded view.

Special tools required

No special tools are required for assembly.

Renewal of Piston Seals

Screw guide plug (2) out of casing and remove (tool size 17mm) piston body (8).

Remove guide plug (2) from the piston rod (5).

Cut out worn seals.

Carefully slide o-ring (6) and support ring (7) onto piston rod. **Note order of installation.**

Cut and remove sleeve support ring (10) and sleeve (9) from piston (8). Check casing (1) surfaces and guide plug (2). Dirt or damage quickly wears out seals.

Grease all parts lightly with Silicone before reinstalling.

To Check Valves

Kick-Back Valve: Remove fitting (13) on the outlet side (size 36mm) and check whether valve plate (14) and seat (12A) are worn out. Check O ring (14C) for damage.

Bypass valve: Remove fitting (13) on the outlet side, check ball (11) and seat (12A) for damage. Valve seats can be screwed out with an allen wrench (size 12mm).



If the valve body (12A) is worn, the ball (11) must be impinged carefully against the sealing edges of the valve seat (12A).

If required, supplementary assembly instructions can be requested from the manufacturer Giant Industries.

Spare Parts

When **ordering spare parts**, please specify **unloader number and year of manufacture**.

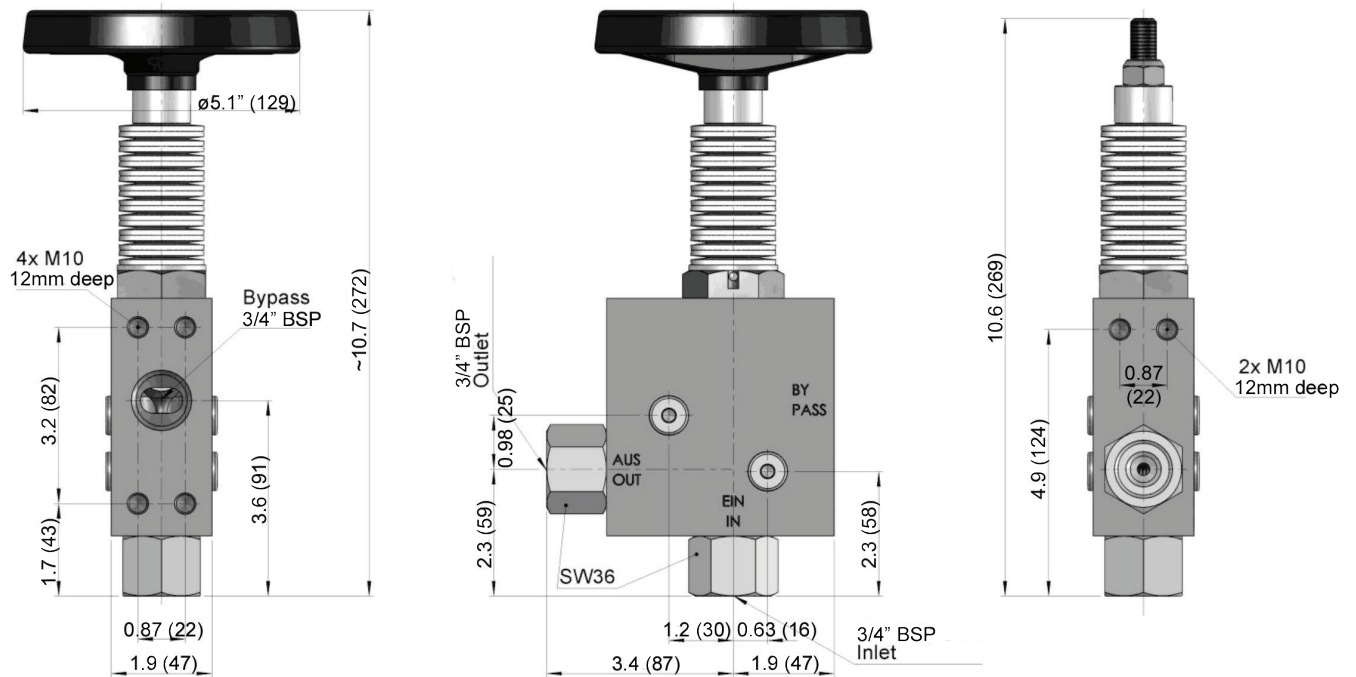
Malfunctions / Remedy

For information, see assembly instructions Giant Industries

Materials Used

Casing:	AISI 316L
Piston Body:	AISI 316 L / AISI 316Ti
Piston Rod:	AISI 440B
Valves:	High Grade Stainless Steel
Seals:	Nitrile Fabric
O Rings:	Nitrile

Dimensions - Inches (mm)



(unloader version shown)



WARNING: This product might contain a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov

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Performance Under Pressure

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