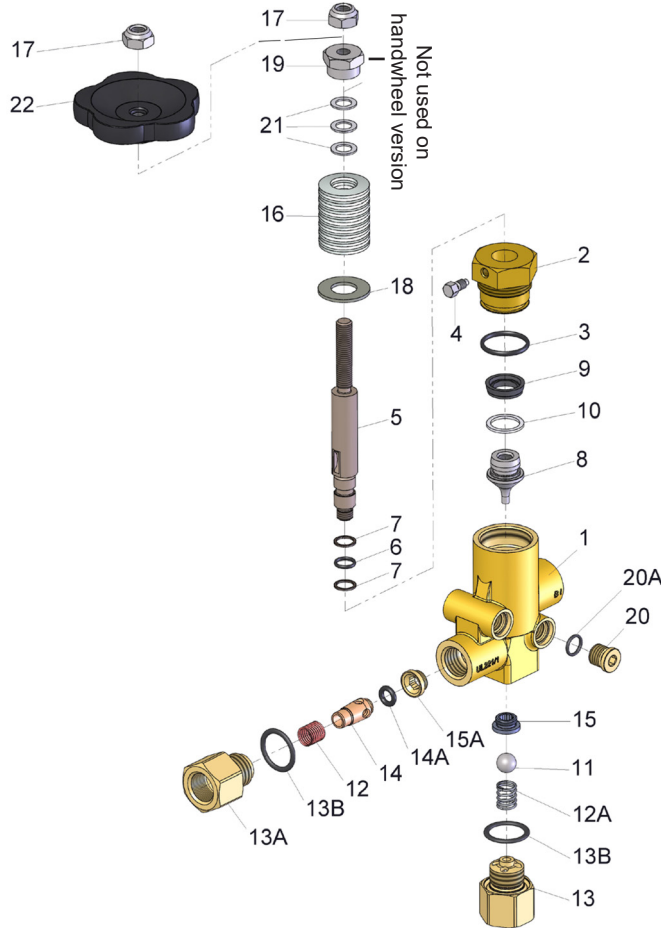


# Models

# Unloader/Regulator

## 22910A-22913A / 22910AR-22913AR



### Spare Parts List

Item	Part #	Description	Qty.
1	12112	Valve Body	1
2	12003	Guide Plug	1
3**	12004	O-ring, Valve Cap	1
4	12005	Set Screw with Journal	1
5	12016	Piston Rod	1
6**	11507	O-ring, Valve Stem	1
7**	11508	Back-up ring, Valve Stem	2
8	12015	Piston Body	1
9**	04006	Cup (23mm)	1
10**	04018	Back-up ring, Piston	1
11+	12089	Ball, Inlet	1
12+	12090	Spring, Outlet Valve	1
12A+	12011	Spring, Inlet	1
13	12111	Inlet Adapter	1
13A	12091	Spring Retainer, Outlet Valve	1
13B**	12092	O-ring, Spring Retainer	2
14+	12093	Outlet Valve	1
14A**	12094	O-ring, Outlet Valve	1
15+	12095	Seat, Inlet Valve (S.S.)	1
15A+	12096	Seat, Outlet Valve (Brass)	1
16	22829	Spring, Silver, 1.5mm	17
16	22830	Spring, Yellow, 1.5mm	14
16	22831Y	Spring, Yellow, 1.75mm	3
16	22831	Spring, Red, 1.75mm	17
16	22835	Spring, Orange, 2mm	15
17	12021	Self-Locking Nut	1
19	12022	Adjusting Nut	1
		(except handwheel versions)	1
20	06685	Plug, 1/4"	4
20A**	12017	O-ring, Plug	4
21	06686	Spacer Disc, 1.0 mm	max. 5
22	06430	Handwheel (optional)	1
*	12099	Seal Repair Kit	
+	09530	Complete Repair Kit	

The bottom three springs are the same thickness as p/n 22831, but all the springs are painted yellow.

† When ordering handwheel, add "H" at the end of the unloader/regulator number.

### OPERATING CONDITIONS

**Maximum Flow:** ..... 13.2 GPM (50 L/min)  
**Minimum Flow:** ..... 1.3 GPM (5.0 L/min)  
**Max. Temp:** ..... 160 °F (70 °C)  
**Inlet Port:** ..... 1/2" FNPT  
**Outlet Port:** ..... 1/2" FNPT  
**Bypass:** ..... 1/2" BSP

Pressure Range			
Model	PSI	Bar	Spring Color
22910A	360-800	25-55	Silver
22911A	360-1450	25-100	Yellow
22912A	360-2000	25-140	Red
22913A	725-3000	50-200	Orange

Item No.	Thread	Torque Amount	Lubrication
2	M33x1.5	18 ft.-lbs. (25 Nm)	
3 / 6 / 7 / 9 / 10			Silicone grease
8	M10		Loctite 243
15 / 15A	1/4" BSP	132 in.-lbs. (15 Nm)	Loctite 270
13 / 13A	1/2" BSP	18 ft.-lbs. (25 Nm)	
13B / 14A / 20A			Gear Oil
20	1/4" BSP	71 in.-lbs. (8 Nm)	

**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°F (5°C) < T Amb. < 86°F (30°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 with a maximum temperature of 160°F (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-favourable 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. ø (mm)	8	8	15	17

**Installation and Adjustment of Pressure**

Adjusting Pressure UL221 (H)

1. Valve should be tension-free, i.e. loosen nut (17) and adjusting nut (19) so that the piston rod can be moved manually.
2. Spring set and adjusting nut (19) - as well as nut (17) on spiral spring design - are to be tensioned while pump is running and 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, 21A) which are under the adjusting nut (19) 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

**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 valve body (1) and remove hexagon screw (4). Remove piston body (8) by removing with aluminium pliers or tongs (do not use a hard tool). Cut out worn seals.

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

Clip sleeve support ring (10) and sleeve (9) onto piston body. Check valve body surfaces and guide plugs (dirt or damage wear seals out quickly).

Fasten piston body onto piston rod with Loctite 270. Grease all parts lightly with Silicone before reinstalling.

**To Check Valves**

Remove plug (13A) and check whether kick-back valve taper (14) or kick-back valve plate (14) and kick-back valve body (15A) are worn out. Check O-ring (14A) for damage.

Remove bypass valve plug (13) and examine ball (11) and bypass valve body (15) for damage. Valve seats can be screwed out with an inside hexagon key (size 8).

If the bypass valve seat (15) is worn, the ball (11) must be impressed carefully against the sealing edges of the valve body.

Glue in new valve seats with Loctite 270. Allow to dry for 60 minutes before putting into operation.

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

**Spare Parts**

When ordering spare parts, please specify unloader type, unloader number, year of manufacture, and spare parts code no.

This data can be found on the nameplate and in the spare parts list.

**Malfunctions / Remedy**

For informations, see assembly instructions Giant Industries.

**Materials Used**

- Casing: Special Brass
- Piston Body: AISI 431
- Piston Rod: AISI 303
- Valves: High-Grade Stainless Steel
- Seals: Nitrile Fabric
- O-Rings: Nitrile



**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](http://www.P65Warnings.ca.gov)



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DEFECT	CAUSE	REMEDY
Valve switches repeatedly when gun is closed.	Leaky gun.	Repair gun.
	Leaky pressure pipe.	Seal pressure pipe.
	Leaky cup.	Change cup (9).
Leaky piston rod.	Worn out kick-back valve seat or O-ring.	Change kick-back valve seat (15A) and O-Ring (14A). Examine valve seat.
	Defective O-Ring/ support Ring.	Change piston rod seals (6,7) and examine surface of guide plugs.
Leaky bypass at nominal pressure.	Nozzle too small, too much water.	Install larger nozzle.
	Worn out bypass valve ball.	Examine and change as necessary, ball (11), and bypass valve seat (15).
Pressure gauge shows high pressure fluctuations when shutting off gun.	Valve set too high above operating pressure.	Turn back adjusting nut (19) and hexagon nut (17).
	Dirty valve.	Clean valve (removing lime deposits etc.) Grease parts before reinstalling.