

## How to replace a pressure washer pump



**Step 1** Take old pump off. (This may be more difficult than it sounds.) Note type of shaft, (Straight or tapered) and size of shaft. (3/4", 1", 24mm, etc.) Order correct pump for your application. Make sure engine is capable of 3700 RPM when not under a load.



**Step 2** Make sure keyway fits tight in the shaft slot. Spread a bead of 100% Silicone Rubber all the way around the shaft. Pull recoil rope until keyway is at the top.



**Step 3** Turn hollow shaft on pump with a wrench or metal ruler so keyway lines up with the keyway on the shaft of the engine.

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**Step 4** When sliding pump onto shaft make sure with finger that the keyway doesn't slip out of it's slot.



**Step 5** If the pump has a set screw to lock down the keyway, make sure the pump is pushed on all the way then tighten the set screw with the proper allen wrench. The allen wrench can be in the set screw before pushing the pump onto the shaft.



**Step 6** Tighten 4 bolts with lock washers evenly until they are tight.

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# How to set the unloader valve

There are many steps to properly set the unloader valve on a pressure washer. I will attempt to cover the proper procedure for a few of the most common unloader valves. Before I begin the step by step procedure, I will go over the basic concept. There is an ideal spring tension for each unloader on a given pressure washer that will result in max. pressure when the gun is engaged, and min. spike in pressure when the gun trigger is released. Your goal is to find this ideal setting. Some unloaders will also let you adjust the pressure to less than this max. setting to safely wash cars, screens, or wood to name a few things and then return to the max. setting without going over that point where releasing this gun trigger would result in a dangerous pressure spike.

## PULSAR3KHPEZ (AL605, AL606, & AL607 are quite similar)



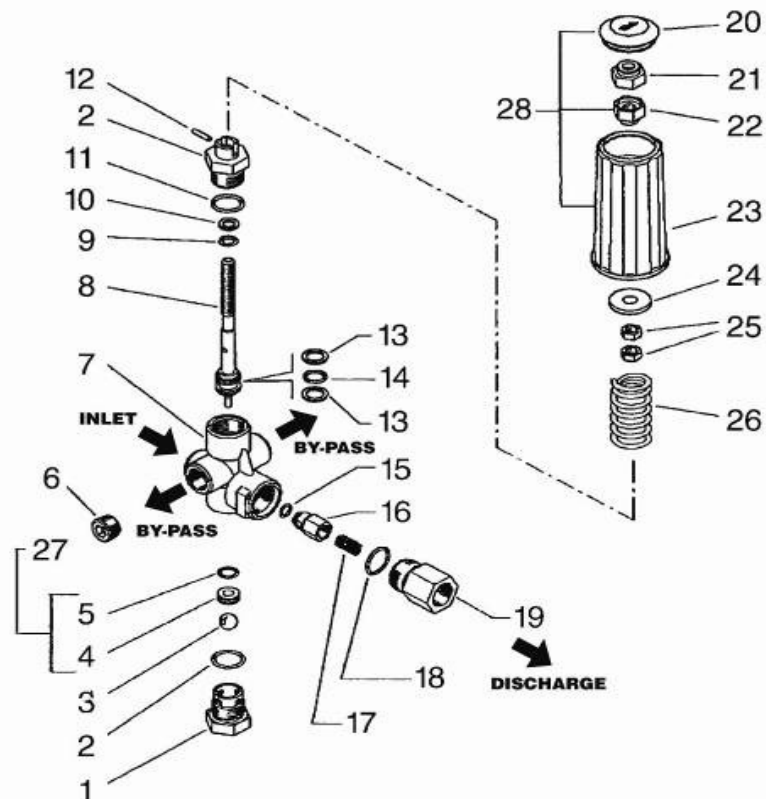
- 1 Make sure the engine or motor is spinning at the proper rpm. 3700 before a load or 3400 when under a load.
- 2 Use a **new** high pressure tip of the proper size orifice for your pressure washer.
- 3 Remove the cap (20) & nylock nut (21) off the top of the unloader and spin the black plastic pressure adjusting knob (23) off. Also remove the thin washer (24) and the spring (26). What you now see should be a threaded piston rod (8) with two locking nuts (25).
- 4 Lock the two nuts (25) together with wrenches @ 3 threads off the bottom and put the spring washer (24) and black adjusting knob (23) back on. Clip a pressure gauge assembly in between the Pump and high pressure hose in such a way you can see it while triggering the gun and tightening the adjusting knob (23). Turn the water on. Before you start the machine, trigger the gun until all the air is out of the pump and just water is coming out. While watching the gauge, trigger the gun and begin to tighten down on the Knob (23). If the nuts are set a bit too low, while tightening down on the spring you will reach a point where you will reach maximum pressure with the gun engaged, and when you let go of the gun trigger the pressure will only spike up about 6 to 9%. This is the spot you want the nuts to stop the adjusting knob. If you crank down more on the spring you won't get any more working pressure with the trigger engaged but when you let go of the trigger you will get a high spike pressure that is dangerous and could damage your pump. You never want more than a 10% spike in pressure when you let go of the trigger. For example, if you're setting the working pressure to 3500 PSI when you let go of the trigger the pressure should not exceed 3850 PSI.
- 5 To help break in the unloader engage the gun trigger and let go about 20 times. This will help so the unloader won't hang up.
- 6 With the machine running, continue to take the adjusting knob (23), washer (24), and spring (26) off and move the nuts (25) higher or lower on the piston rod (8) until you find the spot where when you bottom out the adjusting knob (23) on the 2 nuts (25) you get maximum pressure with the gun engaged, and minimum spike when you let go of the trigger. When you find this spot, take off the adjusting knob (23), washer (24), and spring (26) and tighten the two nuts (25) firmly together with a set of wrenches and replace the spring (26), washer (24) and adjusting knob (23). Crank down the knob (23) until it bottoms out on the two nuts (25) and recheck pressure and spike pressure. If all is still well screw the nylock nut (21) onto the top of the piston rod (8) until the rod is just through the nylon and pop the cap (20) back on top of the adjusting knob (23). Now while the gun is engaged you can adjust the pressure by turning the adjusting knob (23) between the two nuts (25) and the nylock (21) on top. If you adjust the unloader without the gun engaged, when you do engage the trigger parts in the unloader move rather violently and could damage the unloader.

## PARTS LIST

PULSAR3KHPEZ – Y60.0006.90

### UNLOADER VALVE

No.	Part No.	Description	Kit	Qty.
1	Y60.0063.31	Ball Housing Fitting	*	1
2	Y10.3068.01	O-ring, 1.78 x 17.17 mm	*	2
3	Y14.7461.00	SS Ball, 13/32	*	1
4	Y60.0254.51	Seat	*	1
5	Y10.3059.01	O-Ring	*	1
6	Y60.0025.31	Brass Plug, 3/8 NPT	*	1
7	Y60.0057.35	Brass Body, NPT	*	1
8	Y60.0061.23	SS Piston Rod	*	1
9	Y10.3170.08	O-ring, 2.62 x 7.6 mm	*	1
10	Y10.4020.00	Backup Ring	*	1
11	Y60.0064.31	Brass Piston Housing	*	1
12	Y15.1021.00	Locking Pin	*	1
13	Y10.4021.00	Backup Ring	*	2
14	Y10.3175.08	O-ring, 2.62 x 10.77 mm	*	1
15	Y10.3213.08	O-ring, 3 x 6 mm	*	1
16	Y60.0052.31	Check Valve	*	1
17	Y60.0053.31	SS Check Valve Spring	*	1
18	Y10.3070.02	O-ring, 1.78 x 18.77 mm	*	1
19	Y60.0059.31	Outlet Fitting, 3/8 NPT-F	*	1
20	Y60.0002.84	Cap	*	1
21	Y11.4589.10	Zinc Nut, M8	*	1
22	Y60.0001.31	Nut, M8	*	1
23	Y60.0003.84	Knob	*	1
24	Y14.3720.40	Washer	*	1
25	Y11.4573.31	Brass Nut, M8 x 1, 25 x 4.5 mm	*	2
26	Y60.0033.61	Blue Spring	*	1
27	Y60.0259.20	Seat Assembly (pos. 4+5)	*	1
28	Y60.0004.24	Plastic Cap Assembly (pos. 20+22+23)	*	1
*	Y60.0054.24	REPAIR KIT		



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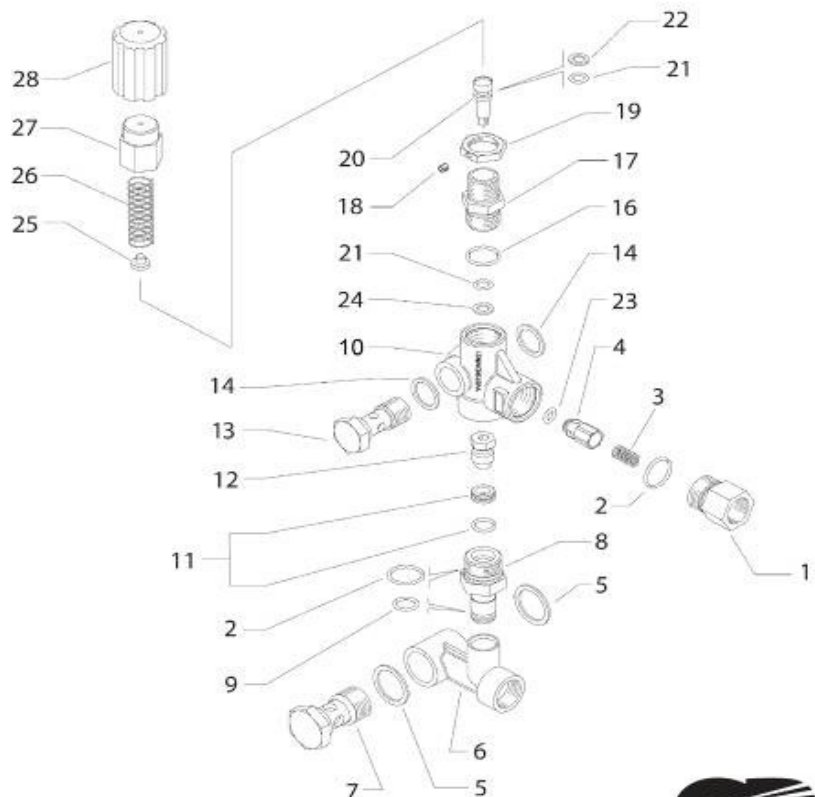
## YVB75KDM-N Unloader (YVB135KDM is similar)



- 1 Make sure the engine or motor is spinning at the proper rpm. 3700 before a load or 3400 when under a load.
- 2 Use a **new** high pressure tip of the proper size orifice for your pressure washer.
- 3 Clip a pressure gauge assembly (w/QC's) in between the Pump and high pressure hose in such a way you can see it while triggering the gun and tightening the black knob (28). Turn the water on. Before you start the machine, trigger the gun until all the air is out of the pump and just water is coming out. Start the engine. While watching the gauge, trigger the gun and begin to tighten down on the black knob (28). While tightening down on the black knob (28) you will reach a point where you will reach maximum pressure with the gun engaged, and when you let go of the gun trigger the pressure will only spike up about 5 to 9%. This is the spot you want the black knob (28) to be. If you crank down more on the spring you won't get any more working pressure with the trigger engaged but when you let go of the trigger you will get a high spike pressure that is dangerous and could damage your pump. You never want more than a 10% spike in pressure when you let go of the trigger. For example, if you're setting the working pressure to 3500 PSI when you let go of the trigger the pressure should not exceed 3850 PSI. Take off the black knob (28), loosen the set screw (18) and turn the ring nut (19) counter clockwise until it touches the brass cap (27). Tighten the set screw (18) in the ring nut (19) and replace the black knob (28).
- 4 To help break in the unloader engage the gun trigger and let go about 20 times. This will help so the unloader won't hang up.
- 5 Now while the gun is engaged you can adjust the pressure by turning the adjusting knob. If you adjust the unloader without the gun engaged, when you do engage the trigger parts in the unloader move rather violently and could damage the unloader.

## PARTS LIST

No.	Part No.	Description	Kit	Qty.
	YKITVB7	Repair Kit	*	
1.	Y60005831	Outlet Fitting, 3/8 BSP		1
2.	Y10307002	O-Ring, .739 x .070	*	2
3.	Y60005351	SS Spring, .453 x .028		1
4.	Y60005231	Hex Check Valve		1
5.	Y14410100	Gasket, 1/2" BSP		2
6.	Y60078335	Manifold, 1/2" BSPP-F		1
7.	Y60100861	Hollow Screw, 1/2", Zinc		1
8.	Y60079131	Seat holder, L 16 mm		1
9.	Y10310996	O-Ring, .406 x .095 Viton		1
10.	Y60078435	Brass Valve Body		1
11.	Y60025451	SS Seat, 8.5 mm	*	1
12.	Y60170821	SS Shutter M6	*	1
13.	Y60100761	Hollow Screw, 3/8 BSPP		1
14.	Y14410000	Gasket, 3/8 BSP		2
16.	Y10306801	O-ring, .676 x .070	*	1
17.	Y60070831	Piston Housing		1
18.	Y16210000	Set Screw, M4 x 4		1
19.	Y60101831	Ring Nut, M18 x 1		1
20.	Y60070451	SS Piston		1
21.	Y10316900	O-Ring, .237 x .104	*	2
22.	Y10402300	Backup Ring, .433 x .251		1
23.	Y10321300	O-Ring, .237 x .119		1
24.	Y10402400	Backup Ring, .451 x .276		1
25.	Y60031061	Spring Seat, Zinc Plated		1
26.	Y60031361	White Spring		1
27.	Y60030431	Brass Cap		1
28.	Y60031584	Plastic Knob		1



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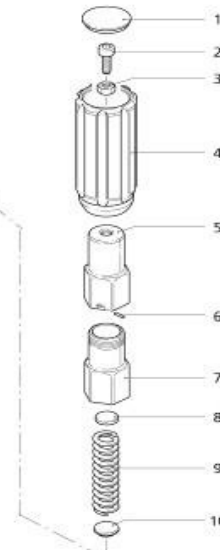
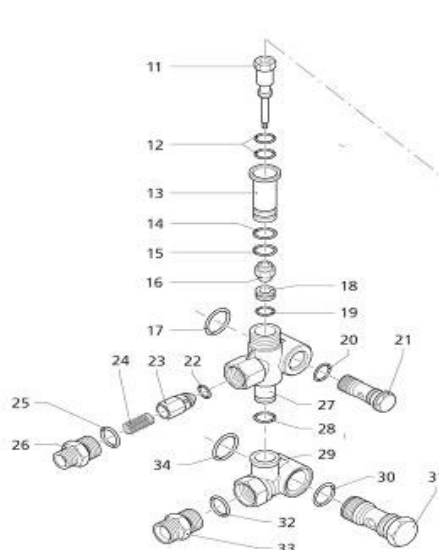
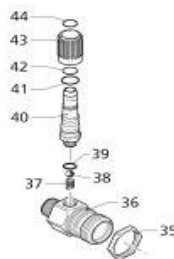
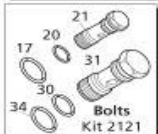
## AR20992 Unloader (AR20242 & AR20821 are similar)

- 1 Make sure the engine or motor is spinning at the proper rpm. 3700 before a load or 3400 when under a load.
- 2 Use a **new** high pressure tip of the proper size orifice for your pressure washer.
- 3 Remove the cap (1) off the top of the unloader.
- 4 Clip a pressure gauge assembly (w/QC's) in between the Pump and high pressure hose in such a way you can see it while triggering the gun and tightening the pressure adjusting bolt (2). Turn the water on. Before you start the machine, trigger the gun until all the air is out of the pump and just water is coming out. Place a 1/2" deep well socket into the top of the unloader over the locking nut (3). Clamp a small vice grip onto the outside of the socket. Put a 6mm T handle allen wrench into the top of the socket where the ratchet wrench normally would go until it is into the head of the adjusting bolt (2). Spin the locking nut (3) counter clockwise until it is touching the head of the adjusting bolt (2). Start the engine. While watching the gauge, trigger the gun and begin to tighten down the bolt (2). You will reach a point where you will reach maximum pressure with the gun engaged, and when you let go of the gun trigger the pressure will only spike up about 5 to 9%. This is the spot you want the adjusting bolt (2) to be. If you crank down more on the bolt (2) you won't get any more working pressure with the trigger engaged but when you let go of the trigger you will get a high spike pressure that is dangerous and could damage your pump. You never want more than a 10% spike in pressure when you let go of the trigger. For example, if you're setting the working pressure to 3500 PSI when you let go of the trigger the pressure should not exceed 3850 PSI. While holding the T handle of the allen wrench so it won't move, turn the locking nut (3) clockwise until it bottoms out and is tight. Recheck the pressure and spike pressure. If all is still well Put the cap (1) on the top of the unloader and you're done.
- 5 To help break in the unloader engage the gun trigger and let go about 20 times. This will help so the unloader won't hang up.
- 6 Now while the gun is engaged you can adjust the pressure by turning the unloader knob (4). If you adjust the unloader without the gun engaged, when you do engage the trigger parts in the unloader move rather violently and could damage the unloader.

## PARTS BREAKDOWN

VR 3/B

### Repair Kits



Pos	Code	Description	Qty.	Pos	Code	Description	Qty.	Pos	Code	Description	Qty.
1	1560580	Cap	1	16	2260070	By-pass jet	1	30	880270	O-Ring ø17.17x1.78	1
2	320360	Bolt M8x22	1	17	2260190	O-Ring ø20.29x2.62	1	31	2260420	Inlet bolt 1/2" G	1
3	1660210	Nut M8	1	18	2260080	Seat	1	32	480440	O-Ring ø17.13x2.62	1
4	1560400	Unloader knob	1	19	1260740	O-Ring ø10.77x2.62	1	33	1540050	Suction fitting	1
5	1560420	Bolt	1	20	390080	O-Ring ø11.91x2.62	1	34	1540630	O-Ring ø23.47x2.62	1
6	1080070	Pin	1	21	2260180	Thread bolt 3/8" G	1	35	1560510	Lock nut	1
7	2260120	Spring guide	1	22	1560150	O-Ring ø5.94x3.53	1	36	1560530	Injector body 3/8" G 2.1	1
8	2260140	Upper plate	1	23	1560100	Shutter valve	1	37	1560520	Spring	1
9	1560350	Spring	1	24	1560140	Spring	1	38	1250280	Ball	1
10	2260130	Lower plate	1	25	180101	O-Ring ø17.5x2	1	39	480480	O-Ring ø4.48x1.78	1
11	2260060	Piston	1	26	1560111	Adaptor 3/8" G - Steel	1	40	1560650	Hose barb (adjustable)	1
12	2260100	O-Ring ø6.02x2.62	2	27	2260170	Valve housing	1	41	800560	O-Ring ø8.73x1.78	1
13	2260040	Piston guide	1	28	390080	O-Ring ø11.91x2.62	1	42	480560	O-Ring ø6.75x1.78	1
14	740290	O-Ring ø14x1.78	1	29	1540440	By-pass housing 1/2" NPT	1	43	1560670	Detergent regulator knob	1
15	394280	O-Ring ø12.42x1.78	1	30	1540470	By-pass housing 1/2" G	1	44	1560660	Ring	1