DATA SHEET
PRESSURE REGULATOR

CAT PUMPS®
The Pumps with Nine Lives

Stainless Steel Models: 704555, 704738, 704742, 704743, 707104



Photo for guidance only - appearance may vary

FEATURES

- Lightweight design for easy installation.
- Unique design assures consistent pressure for multiple pump- or multi-consumer installations.
- Adjusting nut allows easy pressure adjustment.
- No external moving parts. Stainless Steel, PEEK and NBR internal parts for temperature, wear and liquid compatibility.

SPECIFICATIONS		U.S. Measure	Metric Measure
Model 704743			
Flow Range		0-37 gpm	0-140 lpm
Pressure Range		580-2176 psi	40-150 bar
Max. Temperature		176°F	80°C
Inlet		3/4" BSP(F)	3/4" BSP(F)
Outlet		3/4" BSP(F)	3/4" BSP(F)
Bypass		1" BSP(F)	1" BSP(F)
Weight		8.2 lbs.	3.7 kg
Dimensions		10.35 x 2.52"	263 x 64 mm
Model 704738			
Dimensions		0-68.7 gpm	0-260 lpm
Pressure Range		580-2248 psi	40-150 bar
Max. Temperature		176°F	80°C
Inlet		1" BSP(F)	1" BSP(F)
Outlet		1" BSP(F)	1" BSP(F)
Bypass		1 1/4" BSP(F)	1 1/4" BSP(F)
Weight		9.5 lbs.	4.3 kg
Dimensions		10.35 x 3.78"	263 x 96 mm
Model 704742			
Dimensions		0-103 gpm	0-390 lpm
Pressure Range		580-2248 psi	40-150 bar
Max. Temperature		176°F	80°C
Inlet		1 1/4" BSP(F)	1 1/4" BSP(F)
Outlet		1 1/4" BSP(F)	1 1/4" BSP(F)
Bypass		1 1/2" BSP(F)	1 1/2" BSP(F)
Weight		9.7 lbs.	4.4 kg
Dimensions		10.35 x 3.78"	263 x 96 mm
Model 707104			
Dimensions		0-68.7 gpm	0-260 lpm
Pressure Range		1015-3626 psi	70-250 bar
Max. Temperature		194°F	90°C
Inlet		1" BSP(F)	1" BSP(F)
Outlet		1" BSP(F)	1" BSP(F)
Bypass		1 1/4" BSP(F)	1 1/4" BSP(F)
Weight		9.5 lbs.	4.3 kg
Dimensions		10.35 x 3.78"	263 x 96 mm
Model 704555			
Dimensions		0-103 gpm	0-390 lpm
Pressure Range		1015-3626 psi	70-250 bar
Max. Temperature		194°F	90°C
Inlet		1 1/4" BSP(F)	1 1/4" BSP(F)
Outlet		1 1/4" BSP(F)	1 1/4" BSP(F)
Bypass		1 1/2" BSP(F)	1 1/2" BSP(F)
Weight		9.7 lbs.	4.4 kg
Dimensions		10.35 x 3.78"	263 x 96 mm

SELECTION

This pressure regulator is designed for systems with single or multiple pumps, solenoid (gate) valves, nozzles, and standard or "weep" guns.

Note: For multiple pump systems, it is best to use a pressure regulator not a pressure sensitive regulating unloader!

This regulator should meet both the desired system flow (combined nozzle flow rate requirement) and the desired system pressure.

Note: Operation below the minimum flow of the regulator causes the regulator to cycle or chatter. Operation above the maximum flows of the regulator causes premature regulator wear, regulator cycling and prevents attaining desired system pressure.

INSTALLATION

This regulator operates properly when mounted in any direction; however, it is preferred to keep the plumbing to a minimum and the pressure adjusting nut easily accessible. The best mounting location is directly on the pump discharge manifold head. Flexible, high pressure hose (minimum single wire braid) should be at least the size of the regulator ports when plumbing to and from the regulator.

Since this is a flow through design regulator, the inlet and discharge connections are interchangeable and are located on the sides. An arrow on the label indicates liquid flow in either direction. Port size varies with each size of regulator (see specifications). Plumb into one side for inlet flow from pump and plumb opposite side to the discharge line with spray guns, solenoid (gate) valves or nozzles.

The by-pass connection of this regulator is located on the bottom. An arrow on the label indicates the direction of flow. Port size varies with each size of regulator (see specifications). By-pass liquid is directed out this port and can be routed to a reservoir (preferred method), or to a drain or back to the pump inlet.

OPERATION

This pressure regulator maintains established system pressure in the discharge line and at the pump head when the trigger gun is closed or solenoid (gate) valve is closed or the nozzle is clogged, thus by-passing all unrequired flow. Squeezing the trigger gun or opening the solenoid (gate) valve allows for a quick return to established system pressure without delay.

PRESSURE ADJUSTMENT

1. Setting and adjusting the regulator pressure must be done with the system "on".
2. Start the system with regulator backed off to the lowest pressure setting (counterclockwise direction).
3. Squeeze the trigger and read the pressure on the gauge at the pump.

Note: Do not read the pressure at the gun or nozzle.

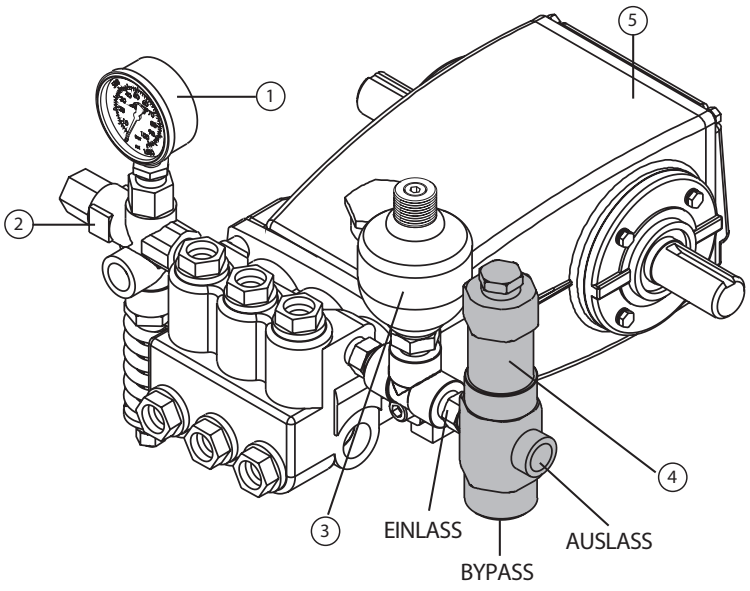
4. If more pressure is desired, release the trigger, turn brass adjusting nut one quarter turn in clockwise direction.
5. Squeeze the trigger and read the pressure.
6. Repeat this process until desired system pressure is attained.
7. Once the desired system pressure is reached, stop turning the brass adjusting nut.
8. If desired system pressure cannot be reached, review TROUBLESHOOTING chart.
9. When servicing existing systems, back off adjusting nut.
10. Follow adjustment procedures as stated above.

Note: Do not adjust regulators pressure setting to compensate for a worn nozzle. Check the nozzle as part of the regular maintenance and replace if worn.

Note: A secondary pressure safety relief device (i.e. pop-off valve, safety valve) should be used along with this pressure regulator. The pressure relief valve setting must be approximately 10% above the required system pressure.

TYPICAL REGULATOR INSTALLATION

1. Pressure Gauge
2. Relief Valve
   Shown as a secondary relief valve
3. Pulsation Dampener
4. Pressure Regulator
5. Triplex Plunger Pump



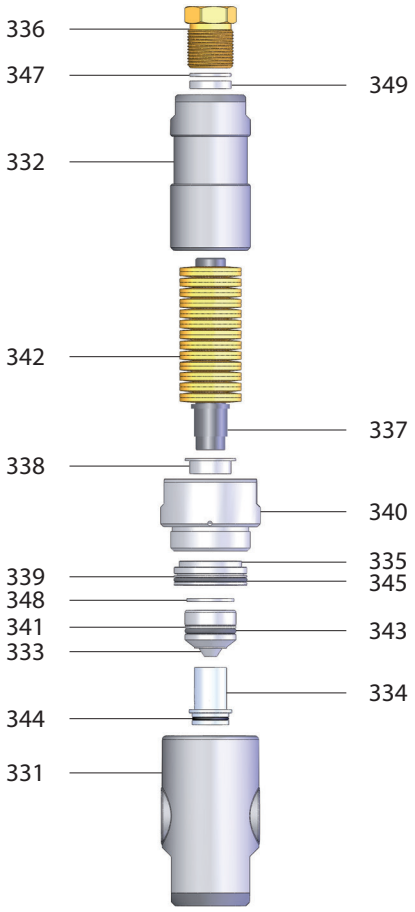
TROUBLESHOOTING

Cycling/Chattering	• Air in system, poor connections. • Inlet seals in pump worn. • O-ring in gun worn.
System will not build up to pressure	• Nozzle worn. • Improper nozzle size for system specs. • Foreign material trapped in seat.
Pressure drop	• Nozzles worn. • Piston and seat in regulator worn. • Air in system, poor connections. • Insufficient flow to pump. • Filter clogged. Check and clean regularly. • Fatigued or broken spring washers.
Pressure spikes while in by-pass	• Excessive pressure adjustment made for worn nozzle. REPLACE NOZZLE. Reset system pressure..
Leakage from regulator vent hole	• O-ring around piston worn. Service with O-ring Kit. • Piston Retainer scored. Service with O-ring kit and or top slots replace retainer. • Fatigued or broken spring washers.

PRESSURE READING

Approximate Pressure Reading at Gauge	Gauge Between Pump/Regulator	Gauge Between Regulator/Gun-Nozzle-Valve
System in operation (gun open)	System pressure	System pressure

EXPLODED VIEW



PARTS LIST

Item	Description	Material	Article No. 709653 Repair kit for 704743	Article No. 704734 Repair kit for 704738, 707104	Article No. 704735 Repair kit for 704742, 704555	Article No. 709654 Repair kit for 704743	Article No. 709656 Repair kit for 704738, 704742, 707104, 704555
331	Valve Body, lower	Cast 316					
332	Valve Body, upper	Cast 304					
333	Piston, PEEK	PEEK	x	x	x		
334	Seat	SS316	x	x	x		
335	Cylinder	SS316	x	x	x		
336	Pressure adjustment screw	Brass					
337	Pin	SS304					
338	Bushing	Plastic	x	x	x		
339	Teflon ring, 27.7x32x1	PTFE	x	x	x	x	x
340	BV Adapter	Cast 304					
341	Teflon ring, 15.8x21.9x1.2	PTFE	x	x	x	x	x
342	Spring washer -150bar resp. -250bar	High Tension Steel					
343	O-Ring, 26.57x3.53	NBR 90	x	x	x	x	x
344	O-Ring, 20.35x1.78	NBR 90	x			x	x
	O-Ring, 24x2	NBR 90		x	x		
345	O-Ring, 42.52x2.62	NBR 90	x	x	x	x	x
347	2 mm washer	SS304					
348	Washer	SS304		x	x		
349	5 mm washer	SS304					

⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.de or can be requested directly from CAT PUMPS.