

# Operating Manual

## HPP14 FLEX Hydraulic Power pack

From serial  
number 16324

Revised  
06.21.2021

### Prior to Operation

We thank you for choosing a Rhino® Powerpack.

Please note that the power-pack is delivered without hydraulic oil, and therefore it must be filled up with hydraulic oil prior to operation.

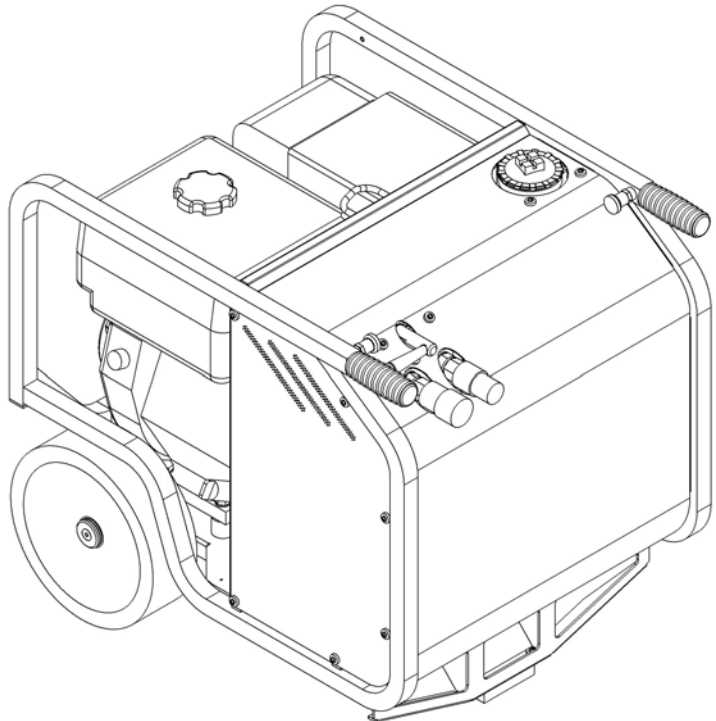
To ensure smooth operation and long-lasting performance of your new powerpack, we recommend that you study this operating manual carefully and pay special attention to the

### Safety and Service Precautions

We hope you will be satisfied with your new Rhino® Hydraulic Power Pack.

Best regards,

Rhino® Tool Company



Rhino Tool Co. Inc.  
1134 West South St.  
P.O. Box 111  
Kewanee, IL 61443

Tel: 309.853.5555 main  
Tel: 866.707.1808 toll-free  
Fax: 309.856.5905

service@rhinotool.com  
www.rhinotool.com



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## Safety Precautions

1. Always use protective earplugs. The powerpack complies with the EU noise limits, but by daily long-lasting operation there is a risk of hearing defects.
2. Always connect hoses before starting.
3. Never add fuel and oil when the engine is running.
4. In case of non-operation or performance of service, always turn off the engine.
5. Never start the engine without side covers.
6. Operation of the powerpack without tool connected and with lever at "ON" may cause overheating of the system and damage to the powerpack.
7. When lifting the powerpack from a vehicle, we recommend the use of a crane.
8. The pressure relief valve is set at 2200 psi (150 bar) from our plant. Never set it higher.
9. Always use filters with by-pass. The use of filters without by-pass may blow the hydraulic hoses and the filter cover.

## Filling Up Hydraulic Oil

- To fill up with hydraulic oil, loosen the filter cover on top of the powerpack.
- Remove the filter element (see photo), and fill up with oil. When oil is showing at the bottom of the filter unit, there is enough oil on the powerpack.
- Insert the filter element again, mount the cover and the powerpack is ready for use.

*Please note: When connecting new extension hoses, it is necessary to fill up with extra 2 litres of oil. Therefore always top up the powerpack when connecting new extension hoses.*



## Technical Data

### Hydraulics

The Rhino® HPP14 open centre hydraulic powerpack is designed in accordance with the EHTMA categories C and D, which prescribe a minimum performance of 5 g.p.m. (20 l.p.m.) at 2000 psi (138 bar) and 8 g.p.m (30 l.p.m.) at 2000 psi (138 bar), respectively.

With manual flow adjustment. This powerpack can be set to 5 or 8 g.p.m (20 to 30 l.p.m.) on the front of the powerpack.

The powerpack is mounted with a pressure relief valve to avoid a too high pressure. Furthermore, the very efficient air cooling protects the powerpack against overheating.

<b>Oil flow</b>	5 g.p.m (20 l.p.m.) at 2500 r.p.m. 8 g.p.m (30 l.p.m.) at 3600 r.p.m.
<b>Working pressure nominal</b>	1750 psi (120 bar)
<b>Pressure relief valve</b>	Set at 2200 psi (150 bar)
<b>Pump</b>	Gear pump
<b>Oil temperature</b>	Max. 160°F (70° C)
<b>Hydraulic oil tank capacity</b>	Min. 1.6 gal (6 litres) max. 2.1 gal (8 litres)
<b>Petrol tank capacity</b>	1.7 gal (6.5 litres)
<b>Hydraulic system compl.</b>	2.4 gal (9 litres)
<b>Filter system (filter element)</b>	25 Micron with by-pass
<b>Engine</b>	Vanguard 400 14 HP (gross power) 4-stroke gas (petrol) with oil alert system Gas (Petrol) - normal or unleaded Engine oil 0.3 gal (1.1 litres)
<b>Guaranteed sound power level L<sub>WA</sub></b>	101 dB
<b>Sound pressure level 1 m L<sub>PA</sub></b>	89 dB
<b>Dimensions (LxWxH)</b>	28" x 23-1/2" x 25-3/8" (710x595x645mm)
<b>Weight, without hydraulic oil</b>	179 lbs (81 kg)

# Starting Instructions

Please observe the starting instructions on the front of the powerpack.

## Start:

- Check engine oil level
- Check hydraulic oil level at sight glass
- Connect hoses and tool
- Switch fuel tap to "ON"
- Activate choke
- Turn ignition switch to "1"
- Pull recoil starter
- Move the lever to the desired flow

## Stop:

- Move the lever to "OFF"
- Turn off the ignition switch
- Turn the fuel tap to "OFF"

## Powerpack with adjustable flow:

The desired oil flow can be set on the front of the powerpack. A marking is engraved in the lever.

Turn the lever to the right until the marking is opposite the required flow

The pressure relief valve setting will be the same on all flows.



## Service, Maintenance and Hydraulic Settings

Service/Maintenance	Daily	Weekly	Yearly
Engine oil	Check		1 x replacement
Hydraulic oil	Check		1 x replacement
Hydraulic oil filter *)			1 x replacement
Check hoses		(tighten up if needed)	
Air filter			1 x replacement
Fuel filter			1 x replacement

\*Use only filters with by-pass

### Hydraulic Settings

Check the working pressure by means of test equipment. The test equipment must comprise of a pressure gauge, a flow meter and a valve for adjustment of pressure.

The pressure relief valve is placed on the right side of the valve block.

1. Connect the test equipment, start the powerpack and move the lever to "ON". Then close the valve - the pressure gauge must show 2200 psi (150 bar).

Adjust the pressure relief valve by loosening the lock nut and turning the adjustment screw in or out. "In" increases the pressure, and "out" decreases the pressure.

Retighten the lock nut after adjustment.

2. When the pressure relief valve has been adjusted correctly, the working pressure must be set at 1450 psi (100 bar) by means of the valve on the test equipment. At 1450 psi (100 bar), the oil flow should be 5(8) g.p.m. (20 (30) l. p.m.)

On the powerpack with adjustable flow, the flow is regulated by adjusting the position of the throttle cable.

If correct pressure/oil flow cannot be achieved by following the above instructions, the powerpack must be re-adjusted. If the pressure/oil flow is then still incorrect, the pump is defective and must be replaced.



## Oil Types

The Rhino® powerpack uses standard hydraulic oil, i.e. all types of mineral oil and biodegradable oil, which comply with the following values:

<b>Ambient temperature range</b>	Below 50°F (10 °C)	50 ... 86°F (10 ... 30°C)	Above 86°F (30°C)
<b>Recommended oil viscosity grade</b>	VG 32	VG 46	VG 68

<b>Recommended oil cleanliness</b>	ISO 4406 /19/16 / NAS 1638 10	
<b>Permitted viscosity</b>	cSt	10 – 600
<b>Viscosity index</b>	Minimum	100
<b>Oil temperature area</b>	°F/°C	-4 to 158 (-20 to 70)





### **General Warranty Conditions & Limitations on Liability**

Rhino Tool Company, Inc. ("Rhino") warrants to the original purchaser, purchasing the Equipment in new condition, in original packaging from an authorized dealer that its Hydraulic Tool(s) will be free from defects in workmanship and materials (the "Limited Warranty"). The Limited Warranty shall survive for twelve (12) months with regard to all other components, excluding the Honda 13 HP engine and Vanguard 18 HP engine for which Rhino provides no warranty and for which the warranty is provided by American Honda Motor Co., Inc and by Briggs and Stratton Corporation respectively and the shall be the sole warranty applicable thereto. This Limited Warranty is non-transferable.

In the event of a warranty claim, the Hydraulic Tool(s) must be returned freight prepaid to Rhino or delivered in person to a Registered Rhino Servicing Dealer within the applicable warranty period with proof of original purchase provided. Rhino's obligation under this Limited Warranty is expressly limited to the repair or replacement, at Rhino's election, of such defective Hydraulic Tool(s), which is proved to be defective upon inspection by a Rhino-certified/authorized technician.

This Limited Warranty does not extend to a Hydraulic Tool(s) which has been subject to misuse, neglect, or accident, nor does it extend to any Hydraulic Tool(s) which has been repaired, altered, or serviced by unauthorized persons. This Limited Warranty does not cover any damage or adjustments required to any Hydraulic Tool(s) if such damage or adjustment is caused by the use of supplies, parts, or attachments not sold or approved by Rhino.

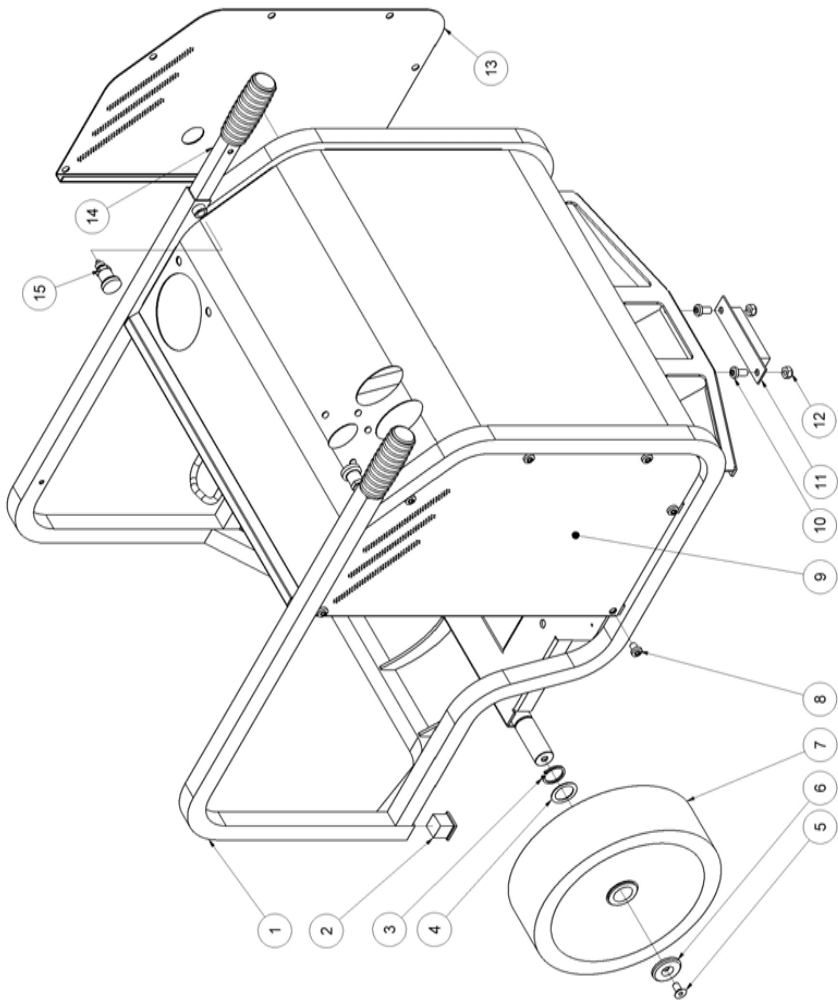
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# **HPP14 FLEX spare parts list** **From serial No. 16324**



**Fig. 1**

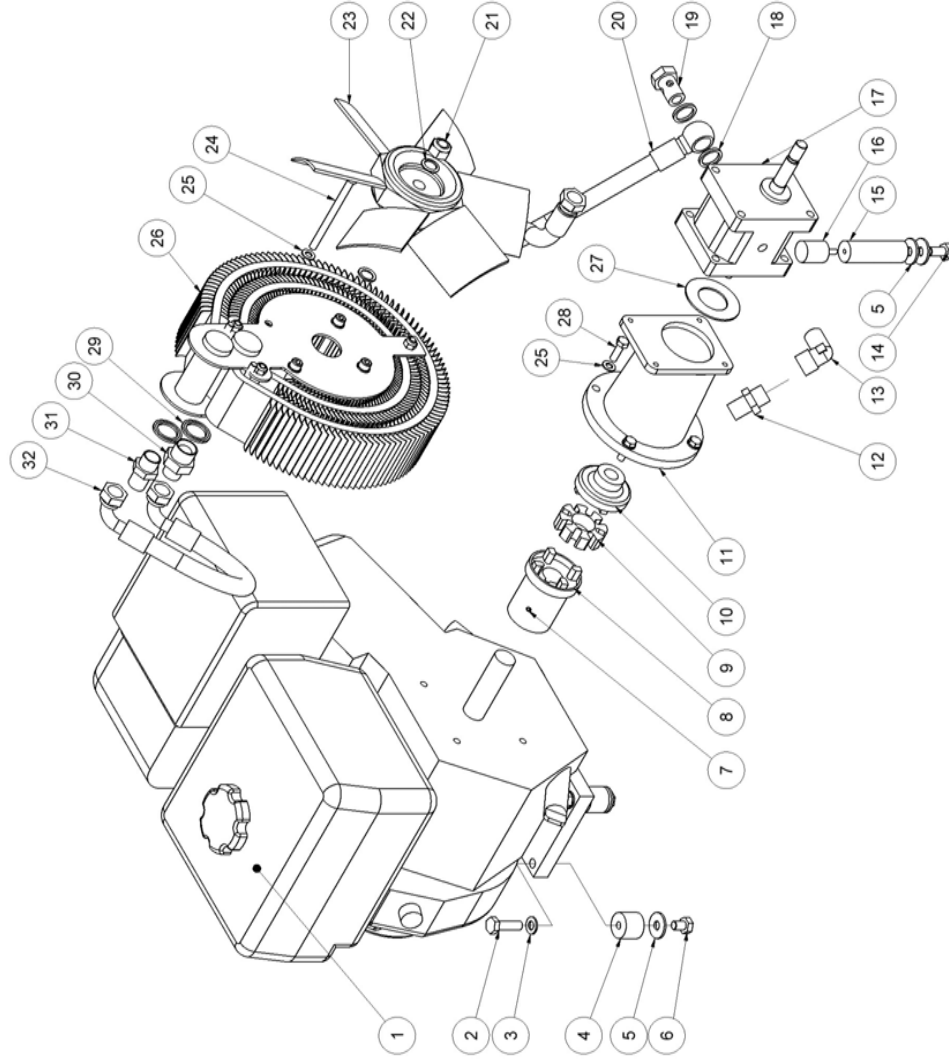


Pos.	Part No.	Description	Pcs.
1	R8223316	Chassis complete HPP13/13 FLEX	1
2	R7721125	Tube plug 25x25	2
3	R7621098	Retaining ring 25x2	2
4	R7621100	Shim ring 25/35/1 mm	2
5	R7632539	Screw M8x16	2
6	R8223321	Wheel lock	2
7	R7721139	Flat-free rubber wheel	2
8	R7621042	Screw M8x10	12
9	R8223320	Side cover Right	1
10	R7621044	Screw M8x16	2
11	R8721095	Rubber foot	1
12	R7621010	Lock nut M8	2
13	R8223319	Side cover Left	1
14	R9022429	Pull-out handle w/rubber grip	2
15	R7721197	Bolt (Loctite 243)	2

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Fig. 2

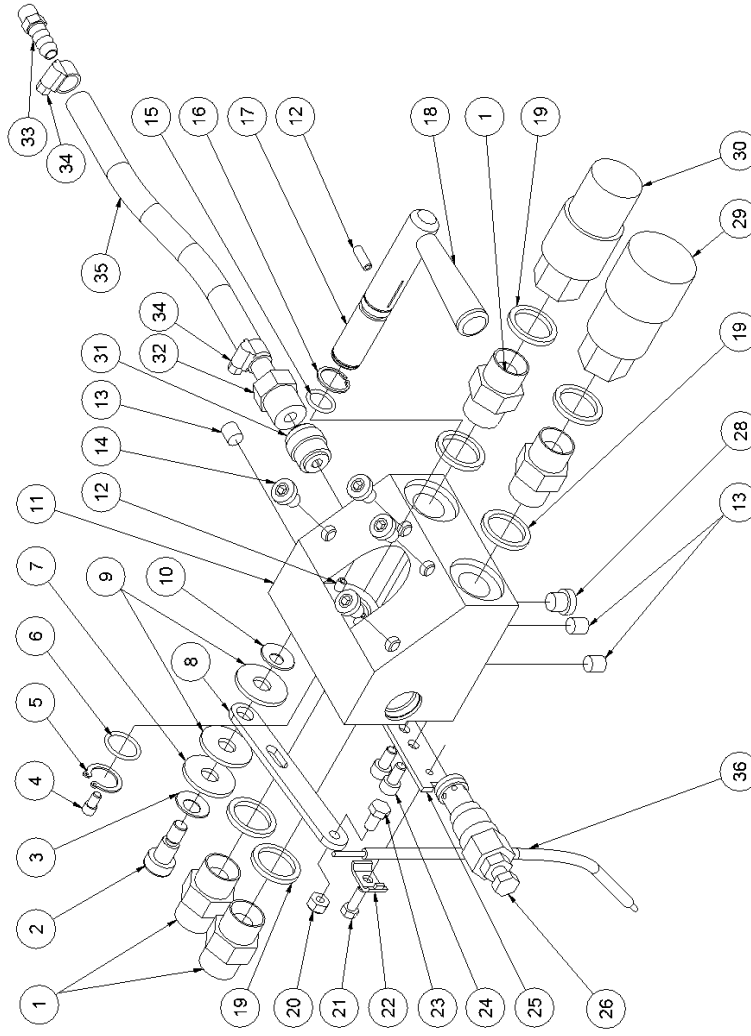


Pos.	Part No.	Description	Pcs.
-	R9021667	Seal Kit for hydraulic pump	1
1	R7323505	Engine 14 HP Vanguard	1
2	R7621163	Screw M10x35	4
3	R7621172	Washer M10	4
4	R8722356	Rubber damper ø30x25	4
5	R7621034	Washer M10	6
6	R7623324	Screw M10x14	4
7	R7621032	Set screw M6x8 (Loctite 243 - 5 Nm)	1
8	R7421066	Coupling engine part	1
9	R7421083	Rubber coupling	1
10	R7421067	Coupling pump (20 Nm)	1
11	R7421068	Coupling housing	1
12	R7421080	Hose fitting 3/4"x1/2" (Loctite 542)	1
13	R7421060	Angle nipple 1/2" (Loctite 542)	1
14	R7621334	Screw M10x20 (Loctite 243)	1
15	R8221174	Supporting leg	1
16	R8721166	Rubber damper M6x18 (Loctite 638)	1
17	R7421077	Pump 8.3 ccm	1
18	R7521072	Seal ring 1/2"	2
19	R7421062	Banjo bolt 1/2" (80 Nm)	1
20	R8721084	Feed line w/banjo	1
21	R7621111	Nut M14x1.5 (40 Nm)	1
22	R7621117	Spring washer M14	2
23	R8321561	Fan ø280-6	1
24	R7621043	Screw M8x110 (Loctite 243 - 15 Nm)	4
25	R7621171	Washer M8	8
26	R2121103	Cooler complete	1
27	R9922133	Centering washer	1
28	R7621038	Screw 5/16" UNFx25 (Loctite 243 - 20 Nm)	4
29	R7521118	Seal ring 3/4"	2
30	R7421582	Hose fitting 3/4"x1/2"	1
31	R7421079	Hose fitting 3/4"x1/2"	1
32	R8721630	Cooler pressure hose	1

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**Fig. 3**

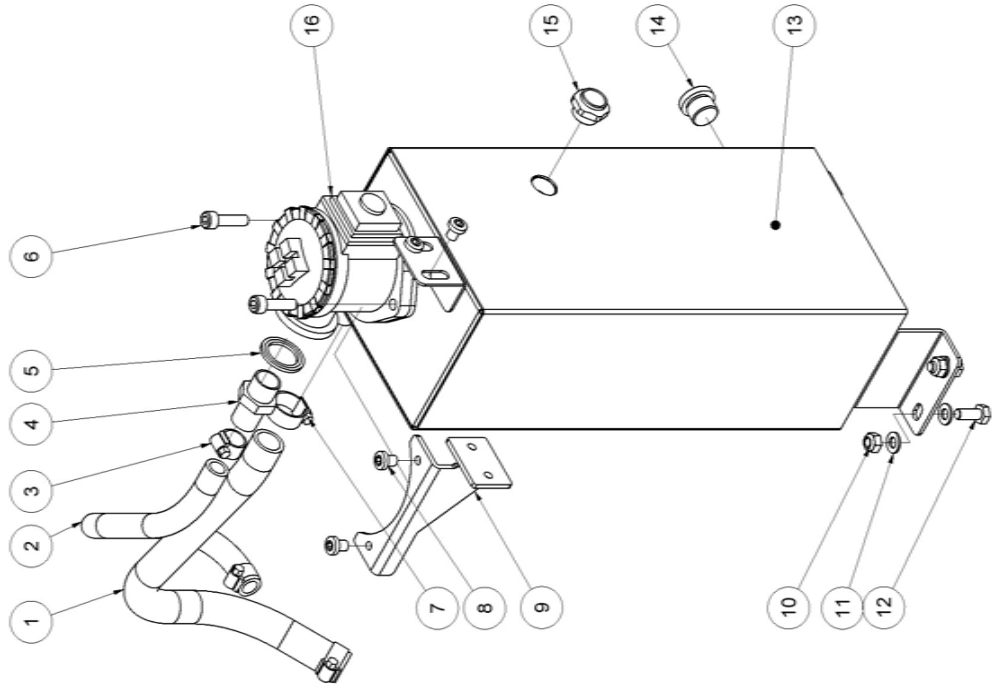


Pos.	Part No.	Description	Pcs.
-	R2123508	Valve block complete HPP14 FLEX	1
1	R7421063	Fitting 1/2"x1/2" BSP	4
2	R7621647	Shoulder bolt ø10/M8x12 (Loctite 638 - 20 Nm)	1
3	R7621648	Disc spring ø10.2/ø20x0.8	1
4	R8621658	Screw M5x8 (Loctite 638)	1
5	R7621606	Retaining ring A17	1
6	R7521609	O-ring 17x2 mm	1
7	R7621809	Washer 10x30x2	1
8	R8221650	Eccentric plate (Grease with copper paste)	1
9	R7621649	Nylon washer ø10.5/30/2.5	2
10	R7621651	Disc spring ø8.2/ø20x1.0	1
11	R8221731	Valve block	1
12	R7621050	Roll pin ø5x14	3
13	R7621037	Pipe plug 1/8" (Loctite 243)	3
14	R7621044	Screw M8x16	4
15	R7521608	O-ring 13x2 mm	1
16	R7621607	Retaining ring AV17	1
17	R8223498	Spool	1
18	R7721094	Lever ON/OFF (Loctite 243)	1
19	R7521072	Seal ring 1/2"	6
20	R7621029	Nut M6	1
21	R9921656	Screw M5	1
22	R9921657	Cable clamp	1
23	R8221652	Screw	1
24	R7621653	Screw M6x12 (Loctite 243)	2
25	R8221655	Cable plate	1
26	R7421587	Pressure relief valve (40 Nm)	1
28	R7621323	Threaded plug 1/8" w/seal	1
29	R7401142	Q.R. coupling 1/2" BSP female	1
30	R7401141	Q.R. coupling 1/2" BSP male	1
31	R7421733	Check valve	1
32	R7421735	Hose fitting 3/8"x1/2" (Loctite 542)	1
33	R7421734	Hose fitting 3/8"x1/8"	1
34	R7421740	Hose clip 3/8"	2
35	R9021738	Hose 3/8"	1
36	R9022064	Throttle cable complete	1

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**Fig. 4**



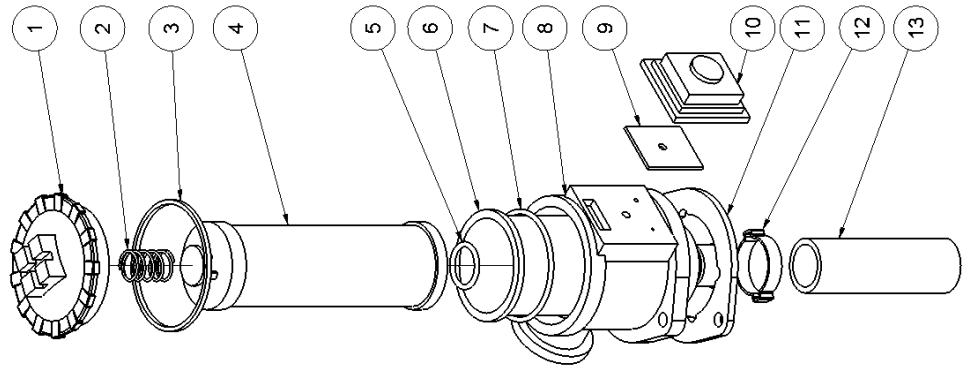
Pos.	Part No.	Description	Pcs.
1	R8721071	3/4" hose	1
2	R8721070	1/2" hose	1
3	R7421081	Hose clip 1/2"	2
4	R7421079	Hose fitting 1/2"x3/4"	1
5	R7521118	Seal ring 3/4"	1
6	R7621045	Screw M8x30 (Loctite 243)	2
7	R7421082	Hose clip 3/4"	2
8	R7621042	Screw M8x10	4
9	R8223318	Tank Bracket	1
10	R7621010	Lock nut M8	4
11	R7621171	Washer M8	8
12	R7632766	Screw M8x20	4
13	R8223317	Hydraulic tank	1
14	R7621075	Threaded plug 1/2" w/seal	1
15	R7721099	Sight glass 1/2" w/seal	1
15	R7621049	Screw M8x45	1
16	R8421092	Filter complete (See fig.5)	1



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**Fig. 5**



Pos.	Part No.	Description	Pcs.
1	R9421189	Filter cover	1
2	R9421193	Filter spring	1
4	R9421502	Seal f/filter cover (Also included in 9421188)	1
5	R9421190	Filter element	1
5	-	O-ring ø3x22 (Included in 9421188)	1
6	-	Filter cup	1
7	-	O-ring ø3x60 (Included in 9421188)	1
8	-	Filter housing	1
9	R9422041	Ventilation filter	1
10	R9422042	Cover f/ventilation filter	1
11	-	Seal (Included in 9421188)	1
12	R7621789	Hose clamp	1
13	R9022043	Filter hose	1
-	R9421188	Seal kit filter (Pos. 3, 5, 7 and 11)	1
-	R8421092	Filter complete (Pos. 1-13)	1

# **HPP14 FLEX spare parts list** **From serial No. 16324** **Labels**

Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

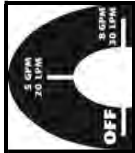


Fig. nr.	Part No.	Description	Pcs.
1	8921128	Gas / Petrol	1
2	000280	RHINO name	1
3	8921053	Starting instructions gas/petrol	1
4	8923507	HPP14	1
5	8921793	Flow 20-30 lpm – 5-8 gpm	1
			1





**Rhino Tool Co. Inc. 1134 West South St.  
P.O. Box 111  
Kewanee, IL 61443**

**Tel: 309.853.5555 main  
Tel: 866.707.1808 toll-free  
Fax: 309.856.5905**

**[service@rhinotool.com](mailto:service@rhinotool.com)  
[www.rhinotool.com](http://www.rhinotool.com)**