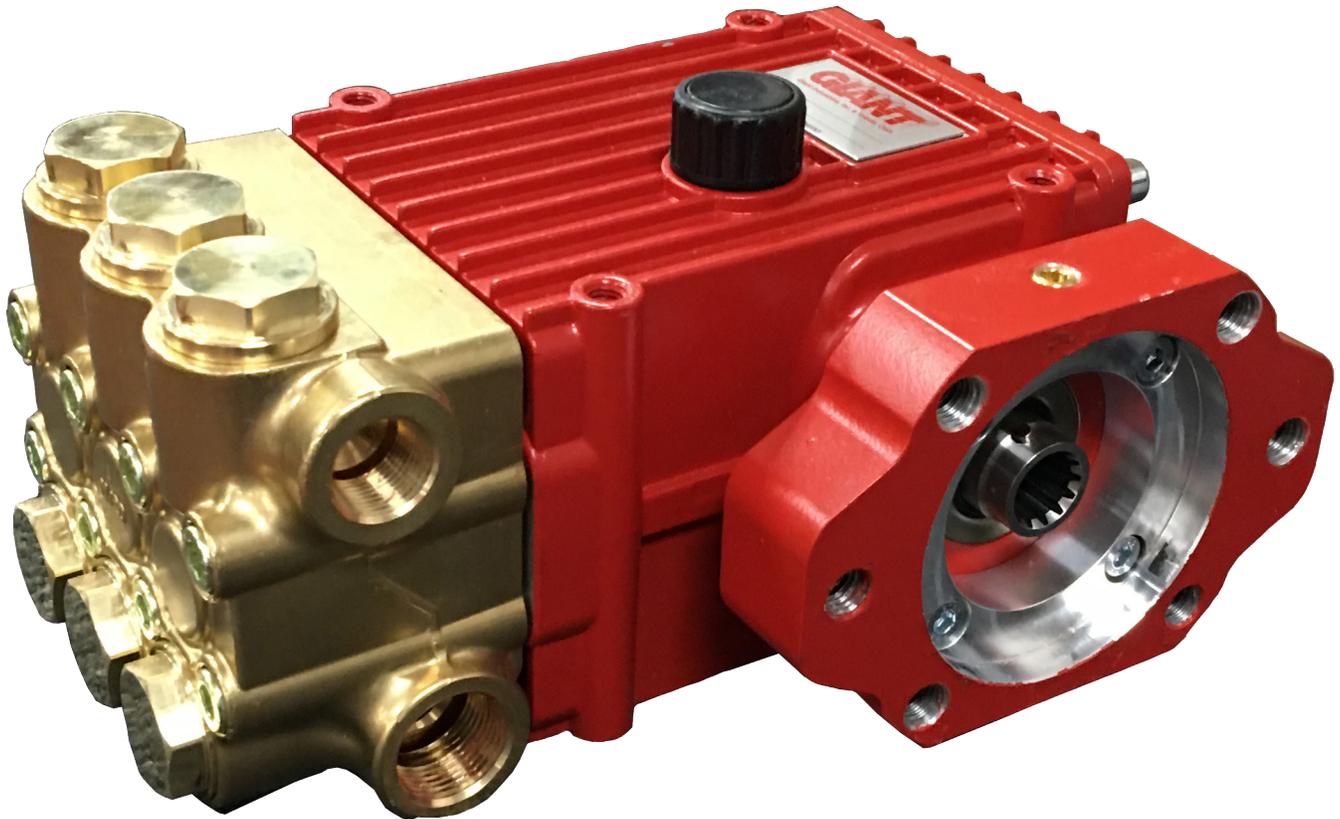


Models P420H and P422H

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service Manual



GIANT
Performance Under Pressure

Updated 03/26

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INSTALLATION INSTRUCTIONS

Performance

	Power Required	Pressure	Max. Speed	Max. Flow	Max. Temp.	Plunger \varnothing	Plunger Stroke	Weight	NPSHR
Model	BHP (kW)	PSI (bar)	RPM	GPM (l/min)	°F (°C)	in (mm)	in (mm)	lbs. (kg)	ft. of head (mWs)
P422	19.2 (13.2)	2610 (180)/ 3000 (200)*	1450	9.9 (37.3)	160 (70)	0.87 (22)	0.94 (24)	38.3 (17.4)	30.5 (9.3)
P420	17.7 (14.3)	2175 (150)	1450	12.8 (48.4)	160 (70)	0.98 (25)	0.94 (24)	38.3 (17.4)	30.5 (9.3)

*Intermittent duty only

Performance data for intermittent operation, data for continuous operation on request.

For information on intermittent operation and calculating of the performance data, see the Giant Industries assembly instructions.

The crankshaft of this series has internal teeth 13T 16/32 (Spline SAE J498b 30° Class 5) for attachment to a hydraulic motor.

A speed sensor M12x1 can be retrofitted.

NPSHR / Inlet pressure

Required NPSH refers to water at 68 °F (20 °C) at maximum permissible pump speed.

Maximum inlet pressure: 29 PSI (2 bar)

Level of noise emission

Emission sound pressure level: ≤ 88 dB(A)

Fields of application

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

Ambient conditions

Ambient temperature: $41\text{ °F} < T_{\text{Amb.}} < 86\text{ °F}$

Ambient temperature: $5\text{ °C} < T_{\text{Amb.}} < 30\text{ °C}$

Oil filling

- Filling quantity: 30.4 fl.oz. (0.9 l)
- Quality: Industrial gear oil **ISO VG 220** or automotive gear oil **SAE 90 GL4 (Giant's p/n 01154)**
- Intervals: first oil change after **50 operating hours** then every **500 operating hours**, but at the latest after **12 months**

Installation/ Putting into Operation To Turn Drive Shaft to the Other Side

Remove the valve casing.

Turn the seal adaptors (20) by 180° also so that the leakage holes are underneath.

Remount valve casing rotated by 180°.

Interchange plug (5B) and oil dipstick (2) with each other.

Turn crankcase cover (3) by 180°.

Direction of pump rotation

When looking at crankshaft with valve casing mounted on left-hand side, counterclockwise direction of rotation.

When looking at crankshaft with valve casing mounted on right-hand side, clockwise direction of rotation.

Suction line filter

Recommended mesh size 150 μm .

Materials Used

Valve Casing: Special Brass

Plunger: Solid Ceramic

Valves: High-Grade Stainless Steel

Seals: Nitrile with fabric reinforcing

O-Rings: Nitrile

OPERATING INSTRUCTIONS

Operation

For informations, see assembly instructions Giant Industries.

Maintenance and Servicing

For the type of threadlocker used and the required tightening torques, observe the table on page 5.

Special tools required

The following special tools are required for assembly:

- Fitting sleeve TOOL-13
- Pull-out tool size 2

Suction and Discharge Valves

Screw out plugs (32) with a 12-point socket wrench.

Check suction and discharge valves that are under the plugs by taking out the valves with a pair of flat tongs and then taking them apart. Examine valve plate (28) and valve seat (27). Coat the plug thread (32) with threadlocker. Tighten the plugs to the required torque. Take care to reassemble in correct sequence.

Seals and Plunger pipe

Loosen screws (34) and remove valve casing (26) by pulling it off over the plungers. Remove seal adaptors (20) out of the valve casing (26).

Remove drip-return ring (25), support ring (24) and grooved seal (23) out valve casing (26). Remove grooved seal (23B) together with support ring (24) out of seal adaptor (20). Wet new seals and O-rings thinly with silicone grease or mineral oil and insert carefully. Pay attention to the installation position of the seals.

Check O-rings (21) and replace if necessary.



The grooved seal (23) or respectively grooved seal pack (23) on the high-pressure side is to be fitted carefully into the valve casing (26) using TOOL-13

Alternatively, the seal can also be carefully fitted into the valve casing using a screwdriver. Under no circumstances must the seal surface in the valve casing or the seal lip be damaged.

Check plunger surfaces (16). Damaged surfaces cause hard wear on seals. Lime deposits or similar on the plunger must be removed.



Plunger surface must not be damaged in the process.

In the case of lime deposits in the pump, care must be taken that the drip-return bores in parts (25) and (26) ensure trouble-free drip-return.

If the plunger pipe (16B) is worn out, loosen tension screw (16C) and remove together with plunger pipe.

Check and clean contact surface on plunger (16A), check oil scraper(16H), fit new plunger pipe.

Cover thread of tension screw (16C) with a thin coat of thread locker and tighten carefully to the required torque.

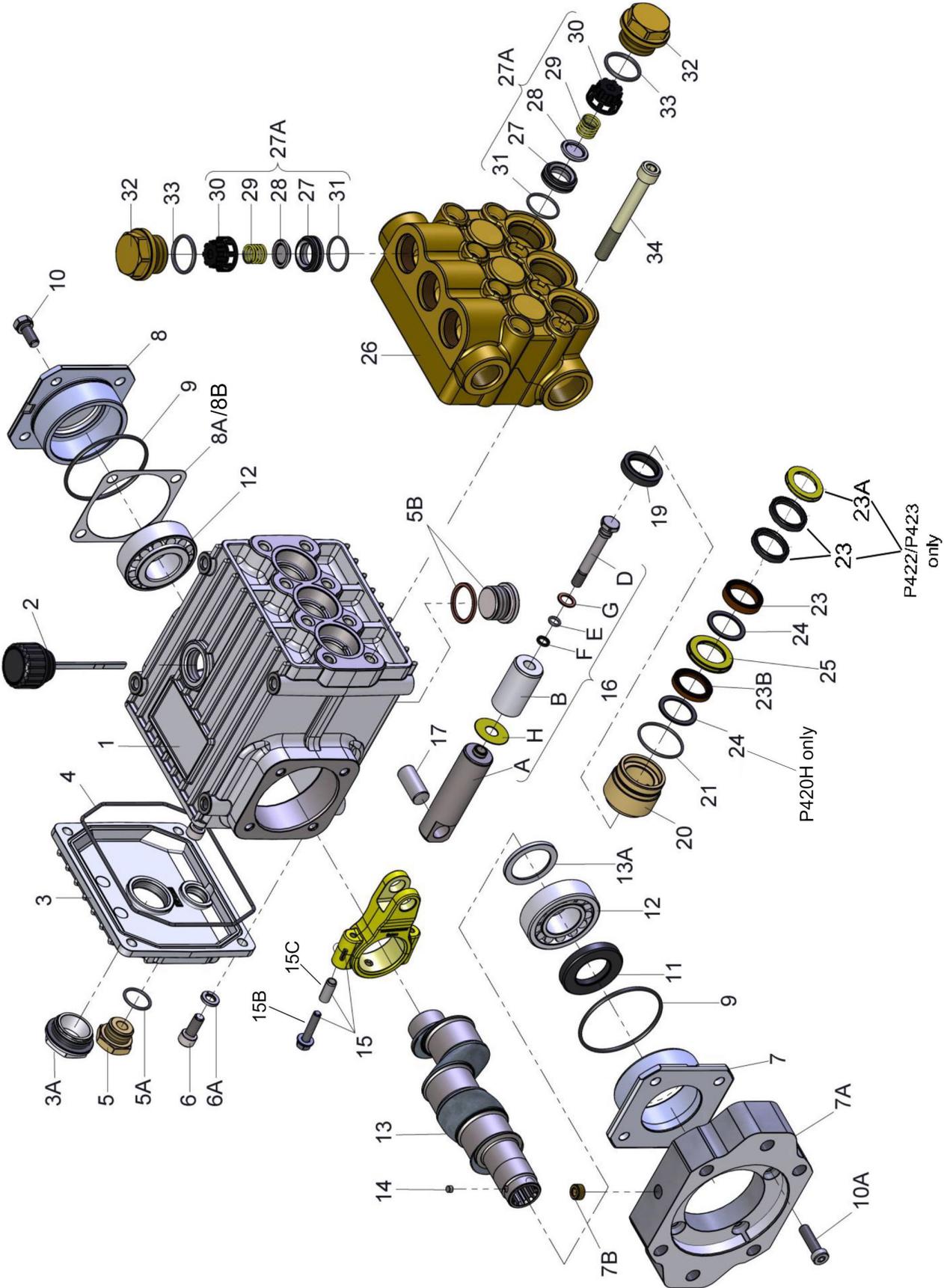


Under no circumstances should threadlocker get between the plunger pipe (16B) and the centring neck on the plunger (16A). Tensioning of the plunger pipe due to eccentric tightening of the tensioning screw or due to dirt or damage to the contact surface can lead to breakage of the plunger pipe.

When assembling, tighten the screws (34) to the required torque.

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

EXPLODED VIEW - P420H and P422H PUMPS



P420H and P422H SPARE PARTS LIST

ITEM	PART	DESCRIPTION	QTY.	ITEM	PART	DESCRIPTION	QTY.
1	08377	Crankcase	1	16B	08398	Plunger Pipe, 25mm (P420H)	3
2	08378	Oil Fill Plug with Gasket	1	16B	06247	Plunger Pipe, 22mm (P422H)	3
3	06479	Crankcase cover	1	16D	08399	Tensioning Screw	3
3A	07186	Oil Sight Glass w/ Gasket	1	16E	07023	O-Ring	3
4	08380	O-Ring	1	16F	07203	Backup Ring	3
5	07109	Oil Drain Plug	1	16G	07258	Copper Washer	3
5A	06015	Gasket for Oil Drain Plug	1	16H	06431	Oil Scraper	3
5B	08092	Plug with Gasket	1	17	06790	Crosshead Pin	3
6	01010	Screw	4	19	05444	Oil Seal	3
6A	01011-0400	Spring Washer	4	20	05443	Seal Case (P420H)	3
7	04739	Bearing Cover, Open	1	20	05601	Seal Case (P422H)	3
7A	03266	Motor Flange	1	21	07266	O-Ring	3
7B	03267	Plug, M12 x 1	1	23	12254	V-Sleeve, 25mm (P420H)	3
8	05291	Bearing Cover, Closed	1	23	06249	V-Sleeve with Support Ring, 22mm (P422H)	3
8A	05292	Shim	1-3	23A	06251	Spacer Ring (P422H)	3
8B	05293	Shim (May not be present)	1-3	23B	12255	Weep Seal (P420H)	3
9	01016	O-Ring	2	23B	13390	Weep Seal (P422H)	3
10	07114	Screw with Washer	8	24	08376	Pressure Ring (P420H)	6
10A	07774	Hexagon Socket Screw	4	24	06252	Pressure Ring (P422H)	3
11	07459	Radial Shaft Seal	1	25	08394	Weep Return Ring (P420H)	3
12	05350	Taper Roller Bearing	2	25	06254	Weep Return Ring (P422H)	3
13	03268	Crankshaft	1	26	08395	Manifold	1
13A	04742	Spacer Ring	1	27A	08408	Valve Assembly (27-31)	6
14	03269	Magnet	1	27	08370	Valve Seat	6
15	08390	Connecting Rod Assembly	3	28	06791-0100	Valve Plate	6
15B	05349	Connecting Rod Screw	6	29	06377-0100	Valve Spring	6
15C	05348	Adapter Sleeve	6	30	08372	Valve Spring Retainer	6
16	05351	Plunger Assembly, P420H (16A-16H)	3	31	07212	O-Ring	6
16	05353	Plunger Assembly, P422H (16A-16H)	3	32	08373	Plug	6
16A	05352	Plunger Base	3	33	07214	O-Ring	6
				34	08396	Cap Screw	8

P420H and P422H REPAIR KITS

Plunger Packing Kit

P420H - # 09140

Item	Part #	Description	Qty
21	07266	O-Ring	3
23	12254	V-Sleeve	3
23B	12255	Weep Seal	3
24	08376	Pressure Ring	6

Plunger Packing Kit

P422H - # 09295

Item	Part #	Description	Qty
21	07266	O-Ring	3
23	06249	V-Sleeve with Support Ring	3
23B	13390	Weep Seal	3
24	06252	Pressure Ring	3

Valve Assembly Kit

09143

Item	Part #	Description	Qty.
27A	08408	Valve Assembly, Complete	6
33	07214	O-Ring	6

Oil Seal Kit

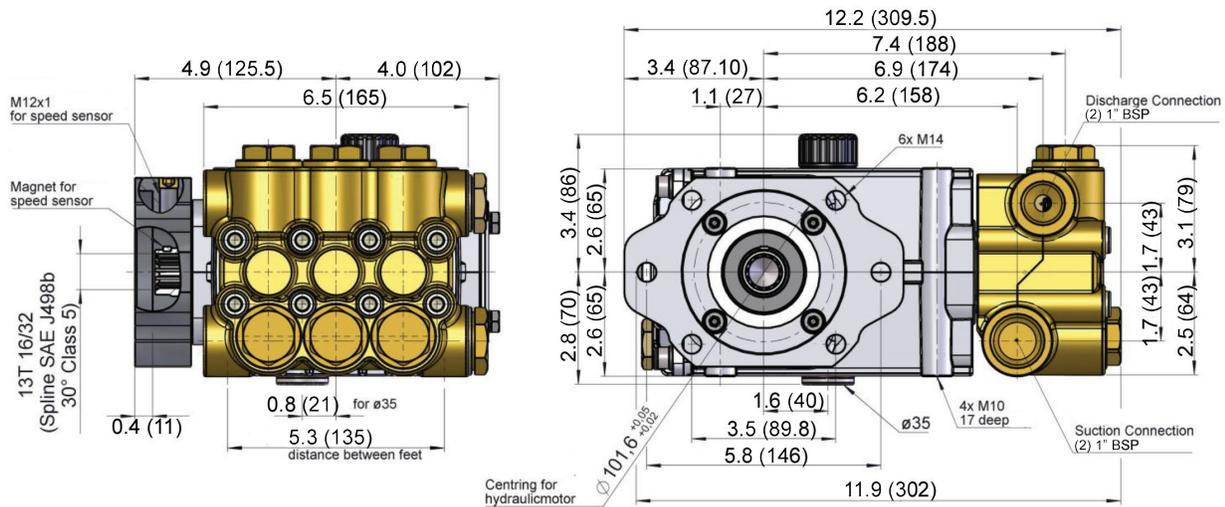
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Item	Part #	Description	Qty
19	05444	Oil Seal	3

P420H and P422H Torque Specifications

Item	Lubrication Information	Torque Amount
3A	Loctite 5910	106 in.-lbs. (12 Nm)
5		59 ft.-lbs. (80 Nm)
5B		59 ft.-lbs. (80 Nm)
6		110 in.-lbs. (12.5 Nm)
10		132 in.-lbs. (15 Nm)
10A		132 in.-lbs. (15 Nm)
15		97 in.-lbs. (11 Nm)
16D	Loctite 243	21 ft.-lbs. (28 Nm)
32	Loctite 243	125 ft.-lbs. (170 Nm)
34	Lightly Oil Threads	30 ft.-lbs. (40 Nm)

Dimensions - P420H and P422H - Inches (mm)



GIANT INDUSTRIES LIMITED WARRANTY

Giant Industries, Inc. pumps and accessories are warranted by the manufacturer to be free from defects in workmanship and material as follows:

1. Five (5) years from the date of shipment for all pumps used in portable pressure washers with NON-SALINE, clean water applications.
2. Two (2) years from the date of shipment for Giant pumps used in car wash applications.
3. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
4. Six (6) months from the date of shipment for all rebuilt pumps
5. Ninety (90) days from the date of shipment for all Giant accessories.

This warranty is limited to repair or replacement of pumps and accessories of which the manufacturer's evaluation shows were defective at the time of shipment by the manufacturer. The following items are NOT covered or will void the warranty:

1. Defects caused by negligence or fault of the buyer or third party.
2. Normal wear and tear to standard wear parts.
3. Use of repair parts other than those manufactured or authorized by Giant.
4. Improper use of the product as a component part.
5. Changes or modifications made by the customer or third party.
6. The operation of pumps and or accessories exceeding the specifications set forth in the Operations Manuals provided by Giant Industries, Inc.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Giant Industries which are deemed to be defective due to workmanship or failure of material. A Returned Goods Authorization (R.G.A.) number and completed warranty evaluation form is required prior to the return to Giant Industries of all products under warranty consideration. Call (419)-531-4600 or fax (419)-531-6836 to obtain an R.G.A. number.

Repair or replacement of defective products as provided is the sole and exclusive remedy provided hereunder and the MANUFACTURER SHALL NOT BE LIABLE FOR FURTHER LOSS, DAMAGES, OR EXPENSES, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES DIRECTLY OR INDIRECTLY ARISING FROM THE SALE OR USE OF THIS PRODUCT.

THE LIMITED WARRANTY SET FORTH HEREIN IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATION, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY THE MANUFACTURER.



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

GIANT
Performance Under Pressure

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