

MAGNUM 180
MAGNUM 190
MAGNUM 210
MAGNUM 225

Tractor with CVT Transmission

from PIN ZARH06086

SERVICE MANUAL

Part number 84386820

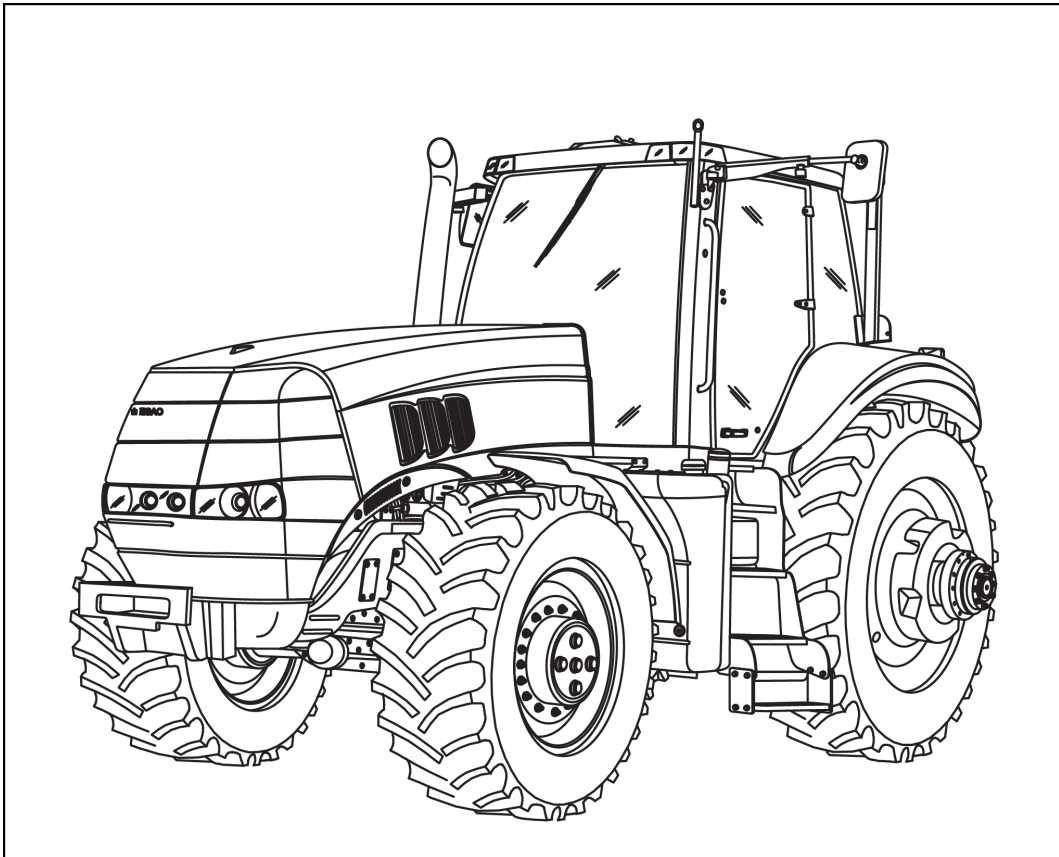
English

November 2010





SERVICE MANUAL



Magnum 180 [ZARH06086 -]
Magnum 190 [ZARH06086 -]
Magnum 210 [ZARH06086 -]
Magnum 225 [ZARH06086 -]

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FRAME AND CAB E

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INTRODUCTION

Torque

Magnum 180, Magnum 190, Magnum 210

Decimal hardware

Grade 5 bolts, nuts and studs

Size	Nm	lb in/lb ft
1/4 in	12 - 15 Nm	108 - 132 lb in
5/16 in	23 - 28 Nm	204 - 252 lb in
3/8 in	48 - 57 Nm	420 - 504 lb in
7/16 in	73 - 87 Nm	54 - 64 lb ft
1/2 in	109 - 130 Nm	80 - 96 lb ft
9/16 in	149 - 179 Nm	110 - 132 lb ft
5/8 in	203 - 244 Nm	150 - 180 lb ft
3/4 in	366 - 439 Nm	270 - 324 lb ft
7/8 in	542 - 651 Nm	400 - 480 lb ft
1 in	787 - 944 Nm	580 - 696 lb ft
1-1/8 in	1085 - 1193 Nm	800 - 880 lb ft
1-1/4 in	1519 - 1681 Nm	1120 - 1240 lb ft
1-3/8 in	1980 - 2278 Nm	1460 - 1680 lb ft
1-1/2 in	2631 - 2983 Nm	1940 - 2200 lb ft

Grade 8 bolts, nuts and studs

Size	Nm	lb in/lb ft
1/4 in	16 - 20 Nm	144 - 180 lb in
5/16 in	33 - 39 Nm	288 - 348 lb in
3/8 in	61 - 73 Nm	540 - 648 lb in
7/16 in	95 - 114 Nm	70 - 84 lb ft
1/2 in	149 - 179 Nm	110 - 132 lb ft
9/16 in	217 - 260 Nm	160 - 192 lb ft
5/8 in	298 - 358 Nm	220 - 264 lb ft
3/4 in	515 - 618 Nm	380 - 456 lb ft
7/8 in	814 - 976 Nm	600 - 720 lb ft
1 in	1220 - 1465 Nm	900 - 1080 lb ft
1-1/8 in	1736 - 1953 Nm	1280 - 1440 lb ft
1-1/4 in	2468 - 2712 Nm	1820 - 2000 lb ft
1-3/8 in	3227 - 3688 Nm	2380 - 2720 lb ft
1-1/2 in	4285 - 4827 Nm	3160 - 3560 lb ft

NOTE: Use thick nuts with Grade 8 bolts.

Metric hardware

Grade 8.8 bolts, nuts and studs

Size	Nm	lb in/lb ft
4 mm	3 - 4 Nm	24 - 36 lb in
5 mm	7 - 8 Nm	60 - 72 lb in
6 mm	11 - 12 Nm	96 - 108 lb in
8 mm	26 - 31 Nm	228 - 276 lb in
10 mm	52 - 61 Nm	456 - 540 lb in
12 mm	90 - 107 Nm	66 - 79 lb ft
14 mm	144 - 172 Nm	106 - 127 lb ft
16 mm	217 - 271 Nm	160 - 200 lb ft
20 mm	434 - 515 Nm	320 - 380 lb ft
24 mm	675 - 815 Nm	500 - 600 lb ft
30 mm	1250 - 1500 Nm	920 - 1100 lb ft
36 mm	2175 - 2600 Nm	1600 - 1950 lb ft

INTRODUCTION

Grade 10.9 bolts, nuts and studs

Size	Nm	lb in/lb ft
4 mm	4 - 5 Nm	36 - 48 lb in
5 mm	9 - 11 Nm	84 - 96 lb in
6 mm	15 - 18 Nm	132 - 156 lb in
8 mm	37 - 43 Nm	324 - 384 lb in
10 mm	73 - 87 Nm	54 - 64 lb ft
12 mm	125 - 150 Nm	93 - 112 lb ft
14 mm	200 - 245 Nm	149 - 179 lb ft
16 mm	310 - 380 Nm	230 - 280 lb ft
20 mm	610 - 730 Nm	450 - 540 lb ft
24 mm	1050 - 1275 Nm	780 - 940 lb ft
30 mm	2000 - 2400 Nm	1470 - 1770 lb ft
36 mm	3500 - 4200 Nm	2580 - 3090 lb ft

Grade 12.9 bolts, nuts and studs

Size	Nm	lb in/lb ft
Typically the torque values specified for grade 10.9 hardware can be used satisfactorily on grade 12.9 hardware.		

Steel hydraulic fittings

37° flare fitting

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
inch	mm			
6.4 mm	1/4 in	7/16-20 in	8 - 16 Nm	72 - 144 lb in
7.9 mm	5/16 in	1/2-20 in	11 - 22 Nm	96 - 192 lb in
9.5 mm	3/8 in	9/16-18 in	14 - 34 Nm	120 - 300 lb in
12.7 mm	1/2 in	3/4-16 in	20 - 57 Nm	180 - 504 lb in
15.9 mm	5/6 in	7/8-14 in	34 - 79 Nm	300 - 696 lb in
19.0 mm	3/4 in	1-1/16-12 in	54 - 108 Nm	40 - 80 lb ft
22.2 mm	7/8 in	1-3/16-12 in	81 - 135 Nm	60 - 100 lb ft
25.4 mm	1 in	1-5/16-12 in	102 - 158 Nm	75 - 117 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	169 - 223 Nm	125 - 165 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	285 - 338 Nm	210 - 250 lb ft

Straight threads with O-ring

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
inch	mm			
6.4 mm	1/4 in	7/16-20 in	16 - 26 Nm	144 - 228 lb in
7.9 mm	5/16 in	1/2-20 in	22 - 34 Nm	192 - 300 lb in
9.5 mm	3/8 in	9/16-18 in	34 - 54 Nm	300 - 480 lb in
12.7 mm	1/2 in	3/4-16 in	57 - 91 Nm	540 - 804 lb in
15.9 mm	5/6 in	7/8-14 in	79 - 124 Nm	58 - 92 lb ft
19.0 mm	3/4 in	1-1/16-12 in	108 - 174 Nm	80 - 128 lb ft
22.2 mm	7/8 in	1-3/16-12 in	136 - 216 Nm	100 - 160 lb ft
25.4 mm	1 in	1-5/16-12 in	159 - 253 Nm	117 - 187 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	224 - 357 Nm	165 - 264 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	339 - 542 Nm	250 - 400 lb ft

Split flange mounting bolts

Size	Nm	lb in/lb ft
5/16-18 in	20 - 27 Nm	180 - 240 lb in
3/8-16 in	27 - 34 Nm	240 - 300 lb in
7/16-14 in	47 - 61 Nm	420 - 540 lb in
1/2-13 in	74 - 88 Nm	55 - 65 lb ft
5/8-11 in	190 - 203 Nm	140 - 150 lb ft

INTRODUCTION

Nominal SAE dash size	O-ring face seal end		O-ring boss end fitting or lock nut					
	Tube outside diameter		Thread size	Nm	lb in/lb ft	Thread size	Nm	lb in/lb ft
mm	in							
-4	6.4 mm	1/4 in	9/16-18 in	14 - 16 Nm	120 - 144 lb in	7/16-20 in	23 - 27 Nm	204 - 240 lb in
-6	9.5 mm	3/8 in	11/16-16 in	24 - 27 Nm	216 - 240 lb in	9/16-18 in	34 - 41 Nm	300 - 360 lb in
-8	12.7 mm	1/2 in	13/16-16 in	43 - 54 Nm	384 - 480 lb in	3/4-16 in	61 - 68 Nm	540 - 600 lb in
-10	15.9 mm	5/8 in	1-14 in	62 - 76 Nm	552 - 672 lb in	7/8-14 in	81 - 88 Nm	60 - 65 lb ft
-12	19.0 mm	3/4 in	1-3/16-12 in	90 - 110 Nm	65 - 80 lb ft	1-1/16-12 in	115 - 122 Nm	85 - 90 lb ft
-14	22.2 mm	7/8 in	1-3/16-12 in	90 - 110 Nm	65 - 80 lb ft	1-13/16-12 in	129 - 136 Nm	95 - 100 lb ft
-16	25.41 mm	1.0 in	1-7/16-12 in	125 - 140 Nm	92 - 105 lb ft	1-5/16-12 in	156 - 169 Nm	115 - 125 lb ft
-20	31.8 mm	1-1/4 in	1-11/16-12 in	170 - 190 Nm	125 - 140 lb ft	1'-5/6-12 in	201 - 217 Nm	150 - 160 lb ft
-24	38.1 mm	1-1/2 in	2-12 in	200 - 254 Nm	150 - 180 lb ft	1-7/8-12 in	258 - 271 Nm	190 - 200 lb ft

Capacities

Magnum 180, 190, 210 and 225

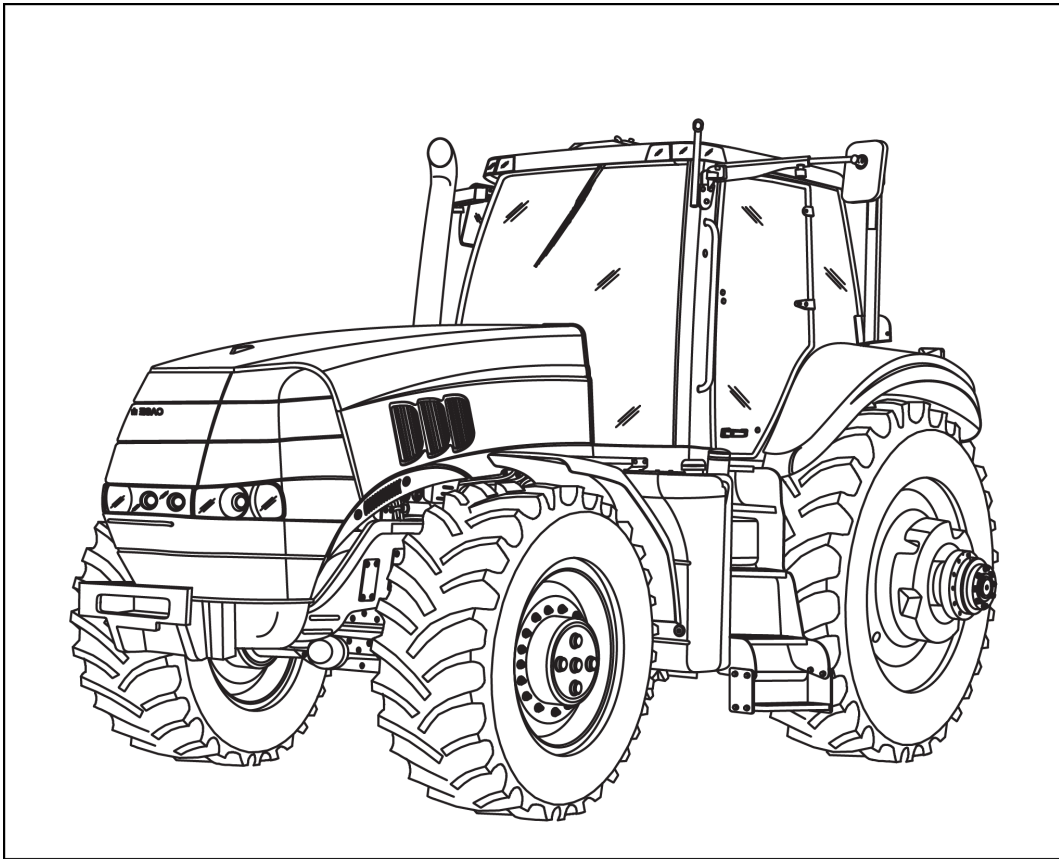
System	Metric	U.S.	Imperial
Engine Oil			
No filter change	16 l	4.23 US gal	3.52 UK gal
With filter change	16.5 l	4.36 US gal	3.63 UK gal
Cooling system	23.65 l	6.25 US gal	5.2 UK gal
Transmission/hydraulic system			
Full Powershift	85 l	22.5 US gal	18.7 UK gal
CVT	100 l	26.4 US gal	22.0 UK gal
Mechanical front drive (MFD)			
4 pin – 10 bolt axle*			
Differential	12.3 l	13 US qt	21.6 UK pt
Planetary (each)	1.4 l	3 US pt	2.4 UK pt
4 pin – 12 bolt axle*			
Differential	11 l	11.6 US qt	21.6 UK pt
Planetary (each)	2.3 l	2.4 US qt	2.0 UK qt
Fuel tank	446 l	118 US gal	98.25 UK gal
DEF/AdBlue® tank	56.8 l	15 US gal	56.8 l (12.5 UK gal)
MFD gearbox	275 ml	9.3 US fl oz	9.7 UK fl oz

* Pin and bolt quantity are determined by observing the wheel ends.



SERVICE MANUAL

HYDRAULIC - PNEUMATIC - ELECTRICAL - ELECTRONIC SYSTEMS



Magnum 180
Magnum 190
Magnum 210
Magnum 225

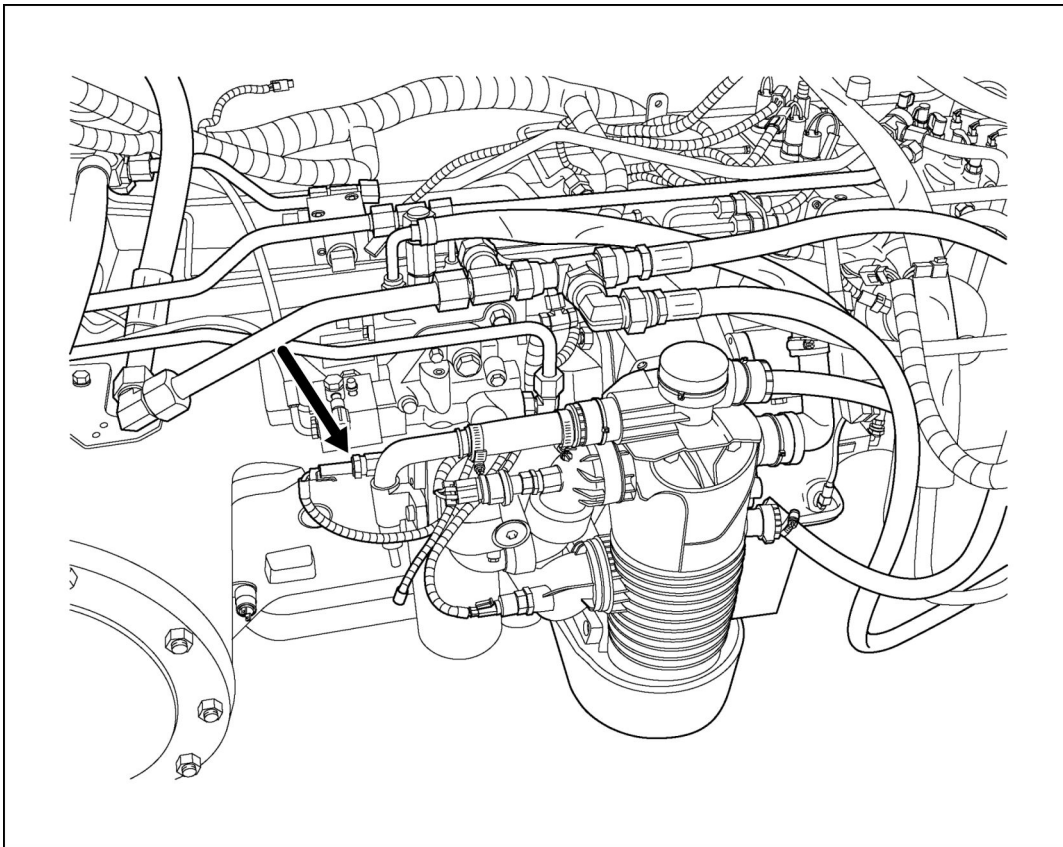
Charge pump - Pressure test

Magnum 225 [ZARH06086 -] CVT Transmission, Magnum 180, Magnum 190, Magnum 210

Special Tools: Use pressure adapter kit **380000464** and hydraulic pressure test kit **380000240** for this test. Use an appropriate low pressure gauge for the charge pressure reading. A flowmeter **380001806** and **19 mm (0.75 in)** hoses with a minimum working pressure of **21000 kPa (3000 psi)** are required for this test.

NOTE: Make sure the proper maintenance schedule for the hydraulic system filters has been maintained, prior to running test.

1. To perform this test:
 - Remove the charge pressure switch and adapter.
 - Install the quick release coupler and the quick release fitting from kit.
 - Install the low pressure gauge from kit.

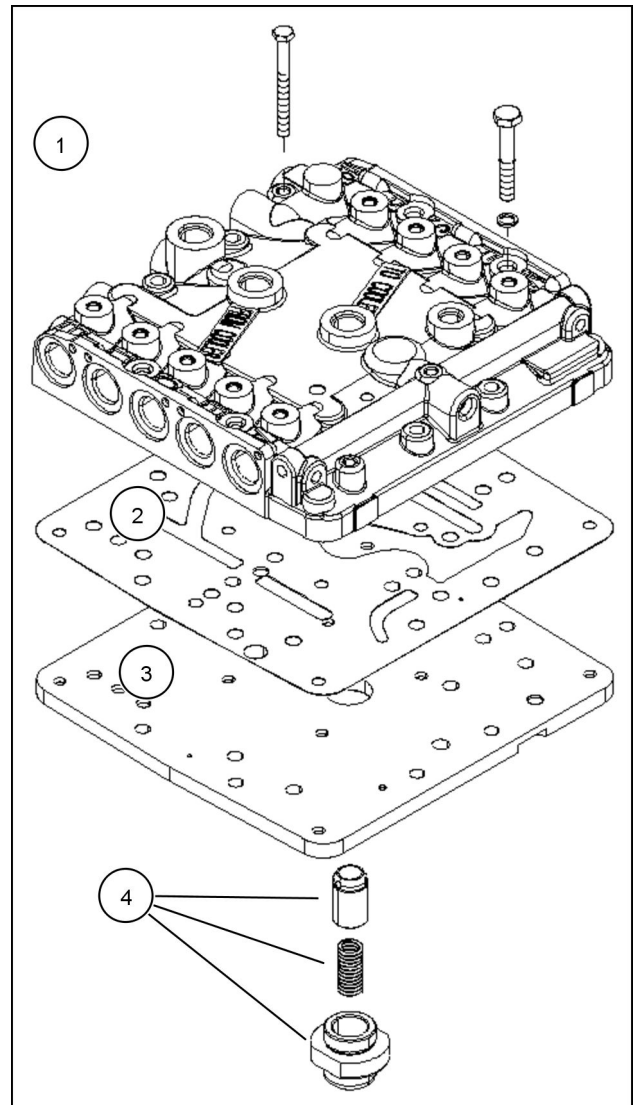


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2. Set up the remote loop:
 - Set variable flow controls to the maximum flow position for the remote valves.
 - Set the valve timer control to the maximum time position.
 - Install the flowmeter into the first remote section. Place the remote valve control lever in the detent retract position.
 - Set the flowmeter load valve at minimum pressure – turned out counterclockwise.
 - Start and run the engine at **1500 RPM**.
 - Use a piece of cardboard to block air flow across the oil cooler to help heat the oil to **49 °C (120 °F)**.

3. Maintain the engine speed at **1500 RPM**. Move the remote lever between the “retract” and “neutral” position. The charge pressure reading should maintain a minimum pressure of **160 kPa (23 psi)**. If the pressure reading falls below **160 kPa (23 psi)**, replace the hydraulic oil filters and check the main filter assembly **300 kPa (43 psi)** and **80 kPa (12 psi)** check valve assemblies on the main filter assembly. . The check valve assemblies are built into the main filter assembly. Make sure a check is not stuck open or damaged. After replacing filter and inspecting check valves retest the charge pressure.

4. If after retest the charge pressure is still below specification, inspect the maximum pressure lube relief valve (4). The maximum pressure lube relief valve is located on the underside of the transmission control valve (1) manifold plate (3).



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5. If the maximum pressure lube relief valve is stuck open or damaged, repair or replace as necessary.
6. If the maximum pressure lube relief valve is good and charge pressure remains low, disassemble and inspect charge pump.

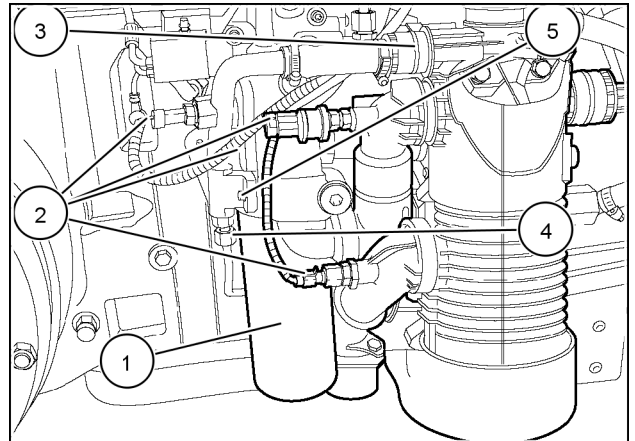
Charge pump - Remove

Magnum 225 [ZARH06086 -] CVT Transmission, Magnum 180, Magnum 190, Magnum 210

Prior operation:

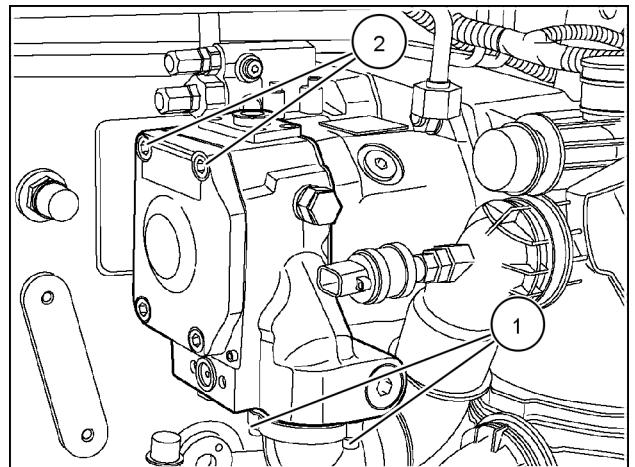
Control valve Priority/Regulator valve - Remove (A.10.A)

1. Remove the external components from the charge pump:
 - Remove the charge pump filter (1).
 - Unplug the harness connectors (2) and move harness aside.
 - Cut the tie strap and remove the locking clip (3).
 - Disconnect the tube (4).
 - Remove the two bolts (5).
 - Remove the tube assembly.



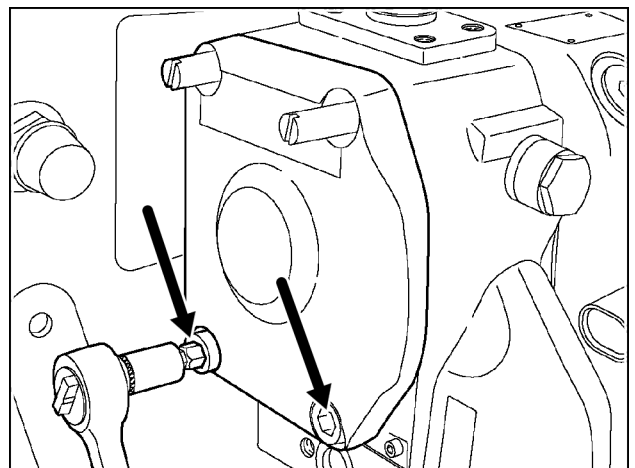
RCPH09CCH040AAC 1

2. Remove the two bolts (1) for the oil suction pipe as shown. Remove the two top bolts (2) for the rear cover of the charge pump, and install two guide pins.



RCPH09CCH091AAC 2

3. Remove the two bottom bolts, and remove the charge pump from the high pressure pump.



RCPH09CCH092AAC 3

Next operation:

Charge pump - Install (A.10.A)

Charge pump - Install

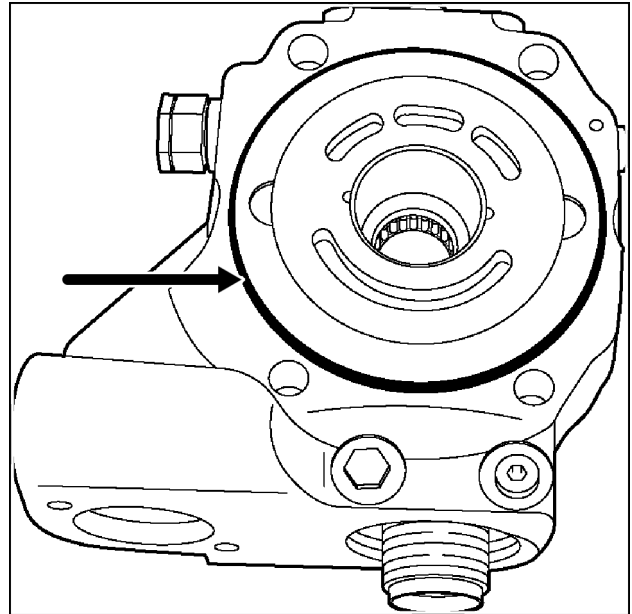
Magnum 225 [ZARH06086 -] CVT Transmission, Magnum 180, Magnum 190, Magnum 210

Prior operation:

Charge pump - Remove (A.10.A)

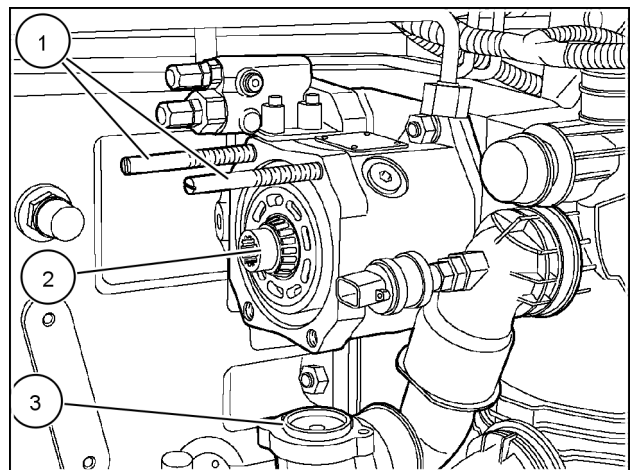
1. Lubricate a new O-ring with petroleum jelly, and install the O-ring on the pump.

NOTE: Be sure all surfaces are clean, free of any debris.



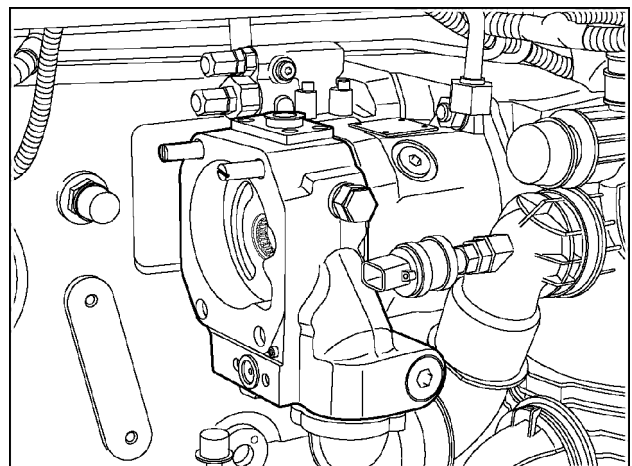
RCPH09CCH084AAC 1

2. Install two guide pins (1) and the coupling (2) on the high pressure pump. Remove the cap from the oil tube and check that the seal (3) is in place.



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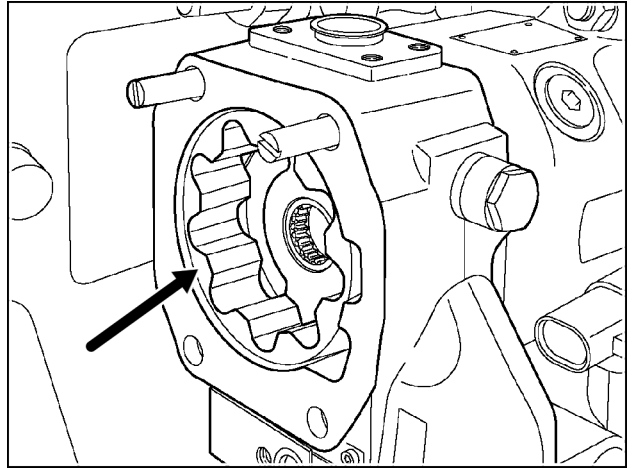
3. Install the charge pump on the guide pins and high pressure pump.



RCPH09CCH085AAC 3

4. Install the rotor housing in the charge pump housing.

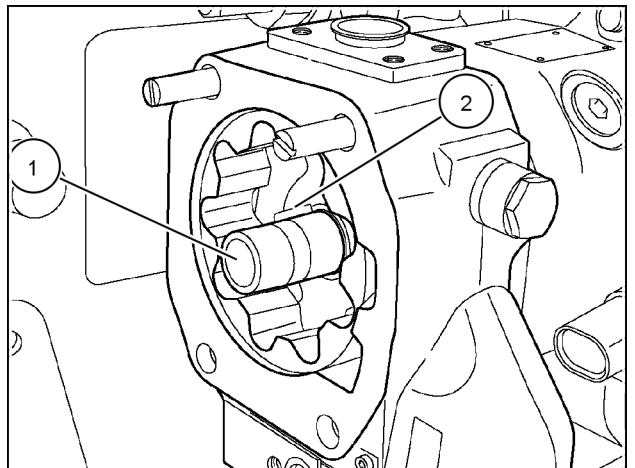
NOTE: When reassembling the pump, the punched dot markings on the rotor and rotor housing must face to the outside of the pump housing.



RCPH09CCH086AAC 4

5. Install the shaft (1) and key (2).

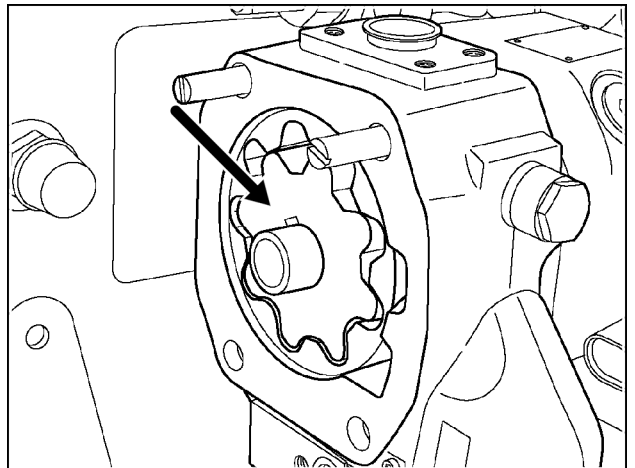
NOTE: Be sure the spline end of the shaft is inserted into the coupling.



RCPH09CCH087AAC 5

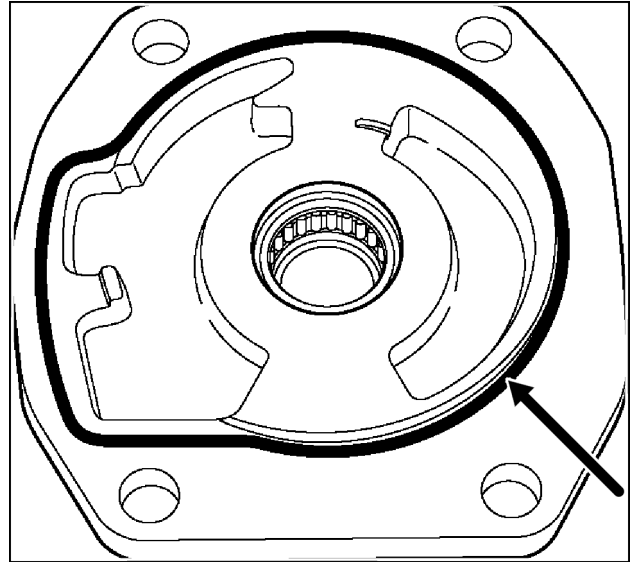
6. Install the pump rotor on the shaft.

NOTE: When reassembling the pump, the punched dot markings on the rotor and rotor housing must face to the outside of the pump housing.



RCPH09CCH088AAC 6

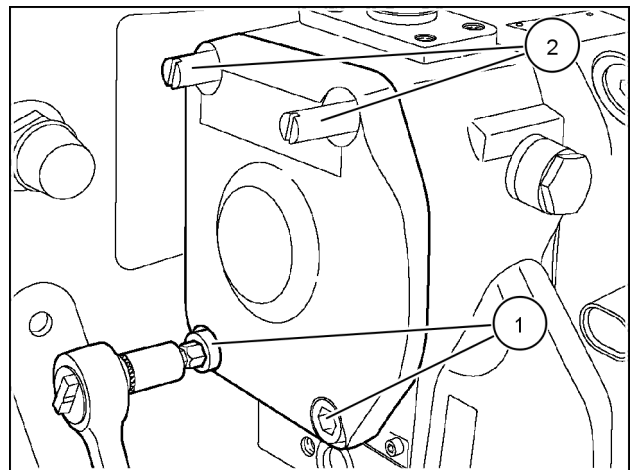
7. Lubricate a new O-ring with petroleum jelly, and install the O-ring on the end plate. .



RCPH09CCH089AAC 7

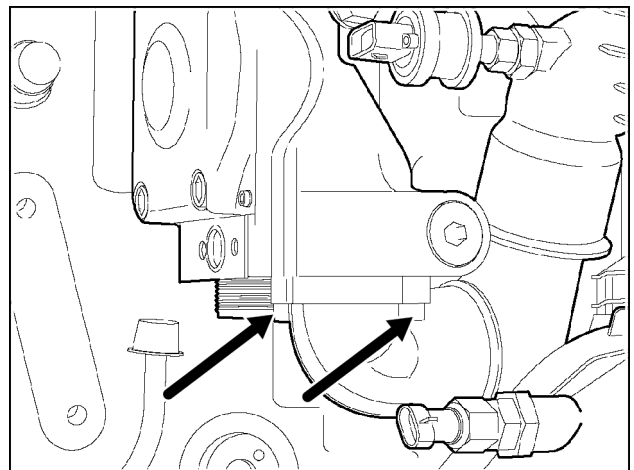
8. Instal the two lower bolts (1) to hold the charge pump in place. Remove the two guide pins (2) and install the two upper bolts. Torque the four bolts to **50 - 62 N·m (36.9 - 45.7 lb ft)**.

NOTE: The spline end of the shaft must be installed in the coupling before the bolts are tightened.



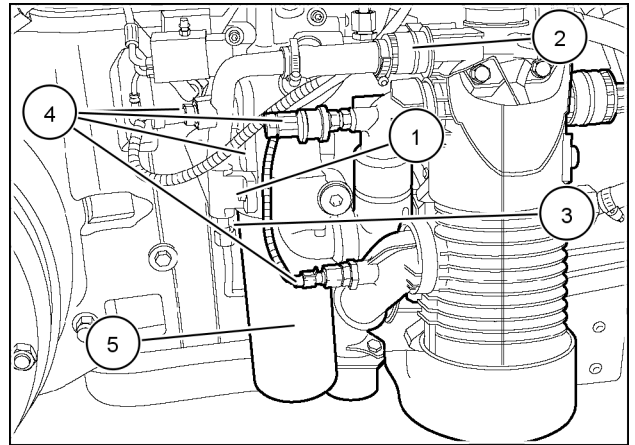
RCPH09CCH092AAC 8

9. Install the two bolts for the suction tube and tighten.



RCPH09CCH090AAC 9

10. Attach tube to connector at the top (2) and secure with two bolts (1). Install the clip lock and secure with tie strap (2). Connect tube nut to the fitting (3), install the electrical harness and connect as marked during disassembly (4). Install the charge pump filter (5).



RCPH09CCH040AAC 10

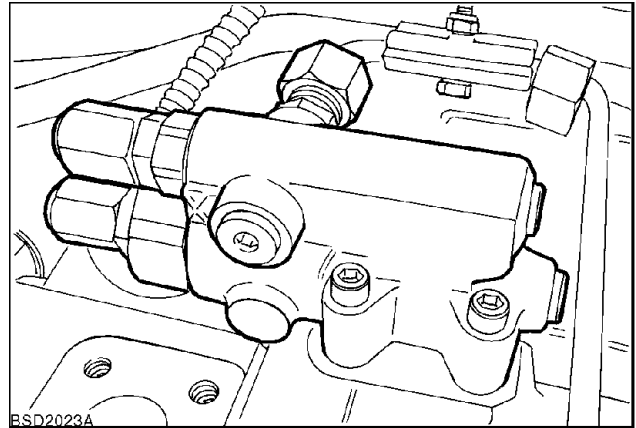
Next operation:
Control valve Priority/Regulator valve - Install (A.10.A)

Compensator - Overhaul

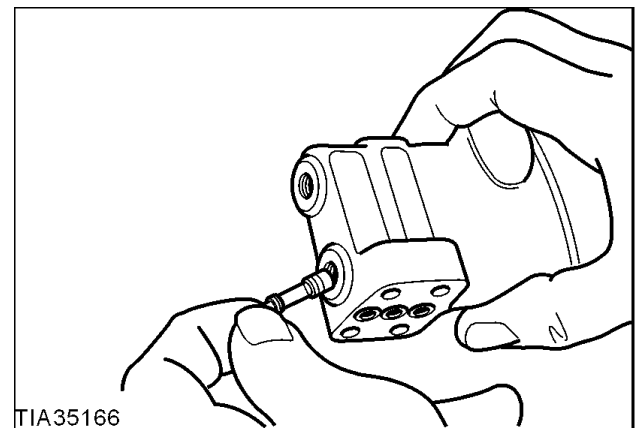
Magnum 225 [ZARH06086 -] CVT Transmission, Magnum 180, Magnum 190, Magnum 210

1. Disconnect load sense line connection and remove pressure and flow compensating valve assembly. Remove the tamper proof caps, carefully unscrew each adjuster and remove the component parts. Refer to the exploded view for the compensator. To ensure correct reassembly keep the component parts for each valve separate.

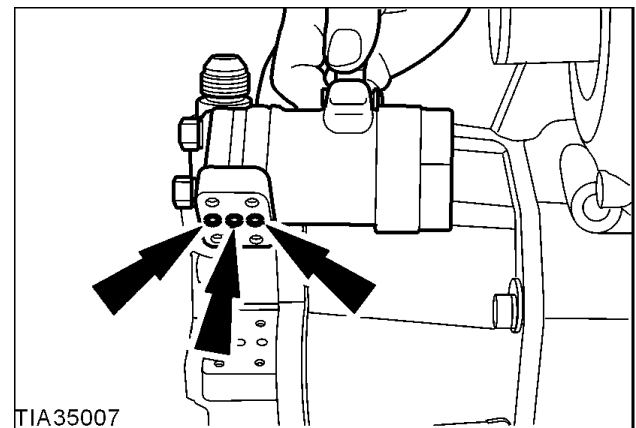
NOTICE: Due to extreme spring pressure within valves DO NOT remove rear plugs until the adjusters have been removed.



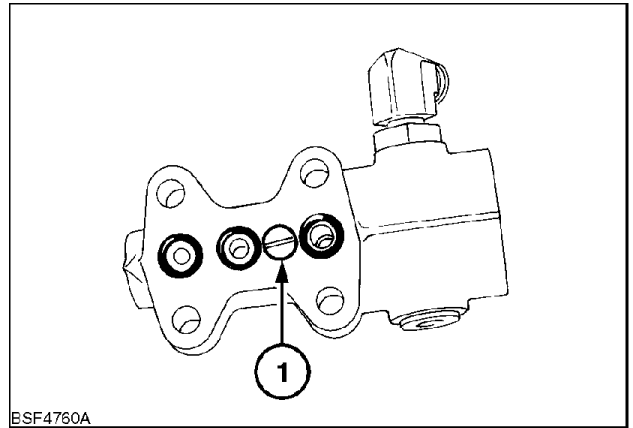
2. Reassembly of the valves follows the removal procedure in reverse. On reassembly observe the following :-
Wash all components in a suitable solvent.
Examine all components for wear or damage. If the spools are damaged it is necessary to replace the complete valve assembly.
Lubricate all parts with clean hydraulic oil.
To aid reassembly of pressure and flow compensating valves, the spools should be inserted into the rear of the housing.
Tighten all plugs and locknuts to the correct torque as detailed in Specifications.



3. When installing valve on pump ensure all 'O' ring seals are correctly installed. Pressure test the pump and adjust the pressure and flow compensating valves to the correct specification.



NOTE: If the damper screw (1) is removed for any reason it should be reinstalled in alignment with the three ports and should be fixed into position using a suitable thread lock and seal product. Failure to adjust this screw correctly could reduce the efficiency of the system.



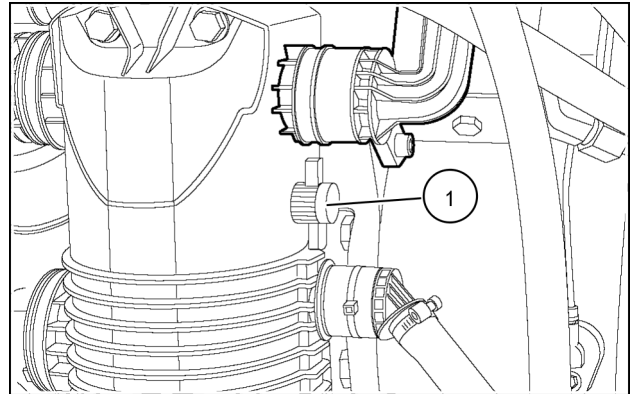
ESF4760A

BSF4760A 4

Filter - Remove - Transmission main filter

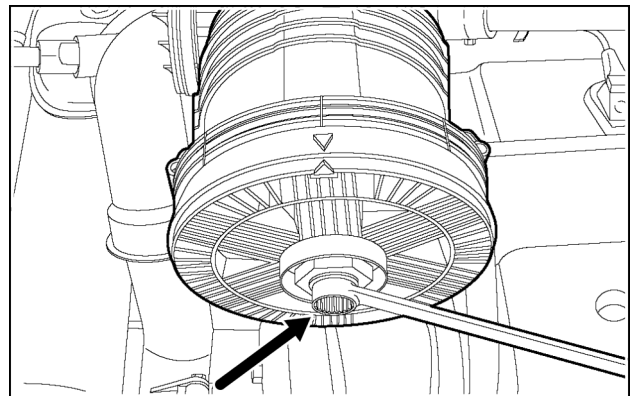
Magnum 225, Magnum 180, Magnum 190, Magnum 210

1. Open the air bleed valve **(1)** three-quarter turn to allow air into the filter: most of the oil should drain back into the hydraulic system.



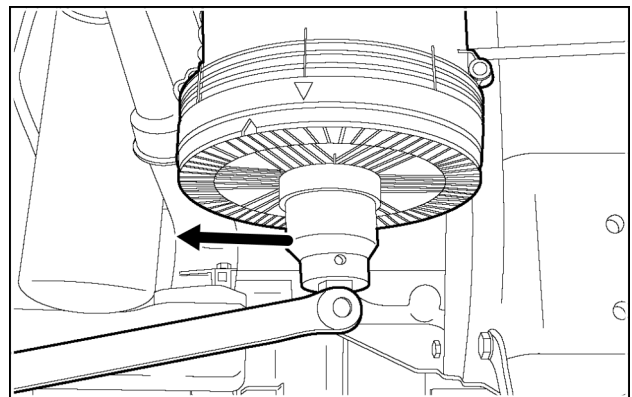
RCPH08CCH669AAB 1

2. Be prepared to collect some hydraulic fluid in a suitable container. Wait a few minutes and then remove the **19 mm** plug **(1)** from the filter casing. Drain the fluid into a suitable container.



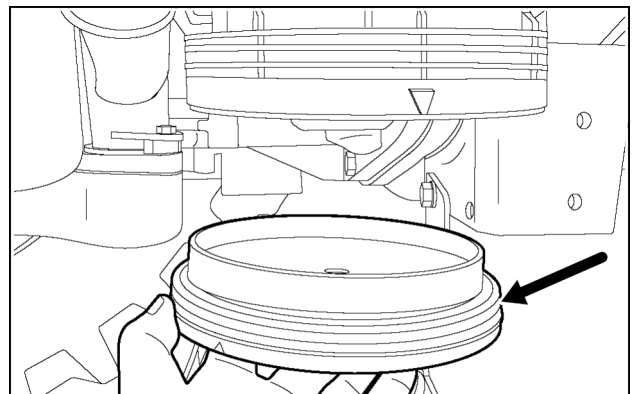
RCPH08CCH671AAB 2

3. Using a **41 mm (1 5/8 in)** socket or ring spanner, remove the filter support plate by turning approximately **45 °** to the left.



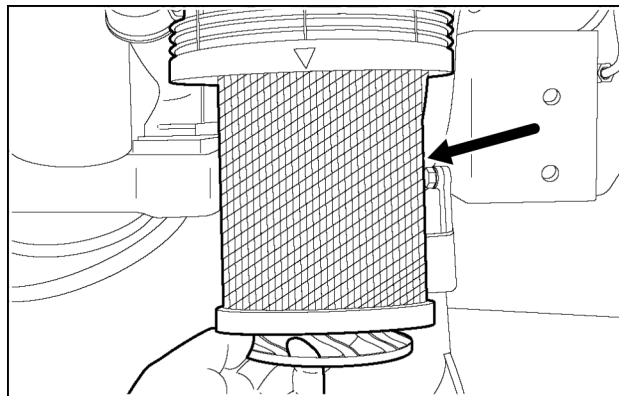
RCPH08CCH672AAB 3

4. Remove the filter support plate.



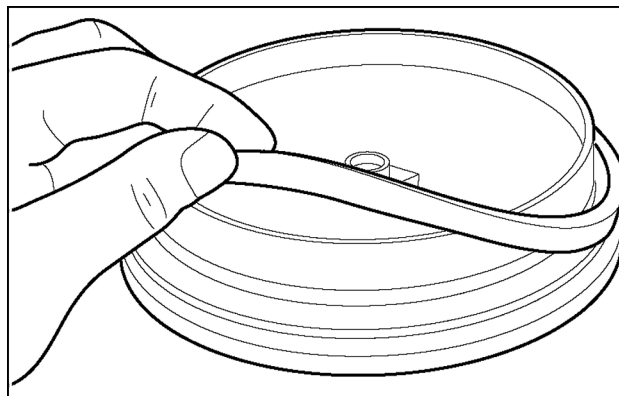
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5. Remove the filter cartridge and discard properly.



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6. Inspect the support cover seal. Replace as necessary.



RCPH08CCH676AAB 6

Next operation:
Filter - Install Transmission main filter (A.10.A)

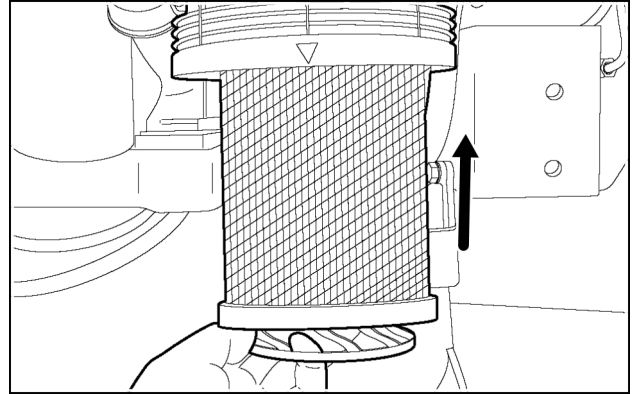
Filter - Install Transmission main filter

Magnum 225, Magnum 180, Magnum 190, Magnum 210

Prior operation:

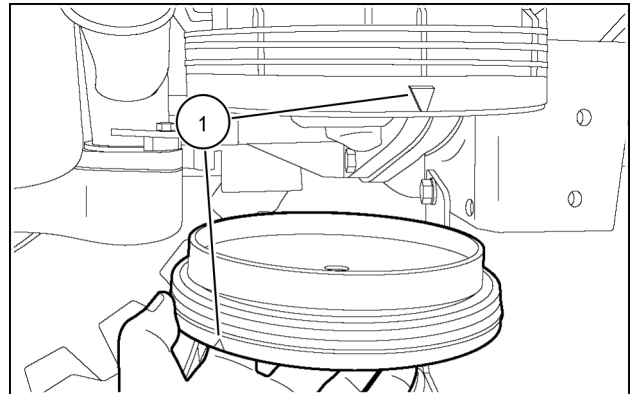
Filter - Remove - Transmission main filter (A.10.A)

1. Install the new filter cartridge in the canister.



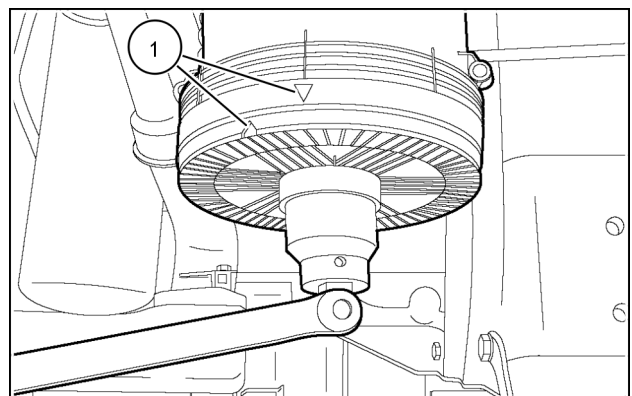
RCPH08CCH674AAB 1

2. With the alignment arrows (1) about 45° apart, install the cover and turn clockwise by hand to tighten.



RCPH08CCH673AAB 2

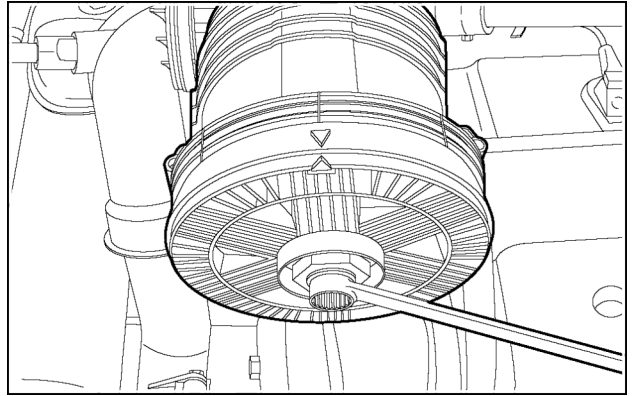
3. Use a 41 mm (1 5/8 in) socket or ring spanner to tighten the support plate until the arrows (1) are aligned.



RCPH08CCH672AAB 3

4. Reinstall the drain plug and tighten.

NOTE: Do not over tighten.



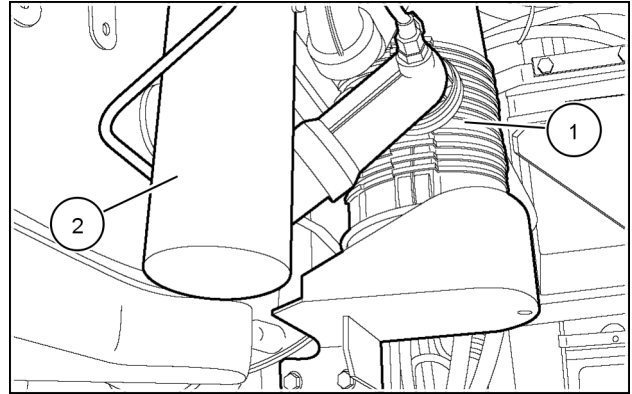
RCPH08CCH671AAB 4

5. Start the engine and check the filter for any leaks. Shut off the engine and check transmission oil level. Add transmission oil **AKCELA NEXPLORE (MAT 3525)** as required.

Filter - Remove - Charge or vane pump filter

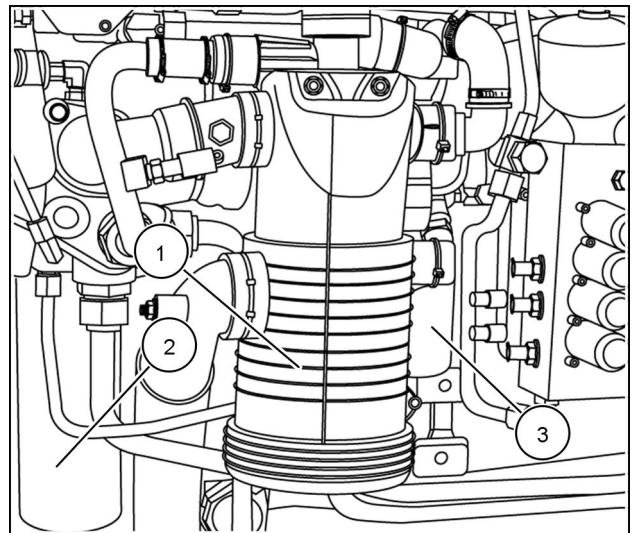
Magnum 225, Magnum 180, Magnum 190, Magnum 210

On tractors with a Powershift transmission, there are two filters, the main filter (1) which has a replaceable cartridge, and the charge pump filter (2) which is a disposable type. The filters are located on the right side of the transmission. Before changing the charge filter (2) at 600 hours, clean the area around the mounting plate and filter. Turn the filter counterclockwise to remove it; dispose the filter properly.



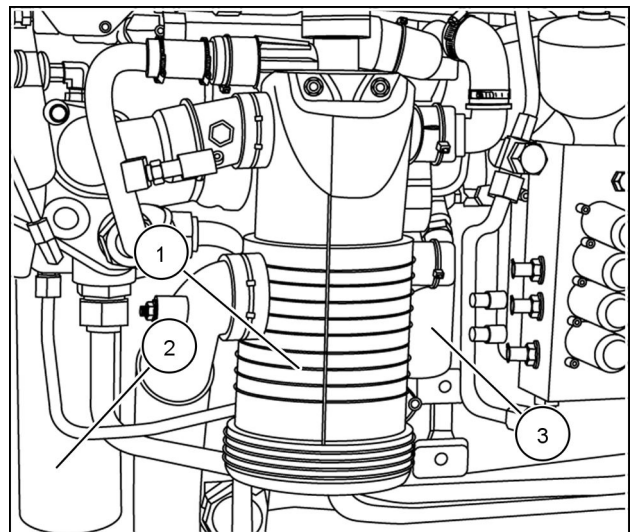
RCPH08CCH668AAB 1

On tractors with a CVT transmission, there are four filters: the main filter (1) (1200 hours) which has a replaceable cartridge, the charge pump filter (2) (600 hours) which is a disposable type, the vane pump filter (3) (600 hours) which is a disposable type, and the lubrication filter (not shown) which is serviced by the dealer at 1200 hours or two years.



RCPH09CCH500BAA 2

1. The filters are located on the right side of the transmission. Before changing the charge filter (2) and vane filter (3) at 600 hours, clean the area around the mounting plate and filter. Turn the filter counterclockwise to remove it; dispose the filter properly.



RCPH09CCH500BAA 3

Next operation:
Filter - Install - Charge or vane pump filter (A.10.A)

Filter - Install - Charge or vane pump filter

Magnum 225, Magnum 180, Magnum 190, Magnum 210

Prior operation:

Filter - Remove - Charge or vane pump filter (A.10.A)

1. To install a new filter:
 - A. Clean the filter mounting surface.
 - B. Apply a thin coat of oil on the new filter seal, and install the filter.
 - C. Tighten until the seal contacts the mounting surface, then tighten an additional three-quarter to one full turn. Do not overtighten.
 - D. Start the engine and check the filter for any leaks. Shut off the engine and check transmission oil level. Add transmission oil **AKCELA NEXPLORE (MAT 3525)** as required

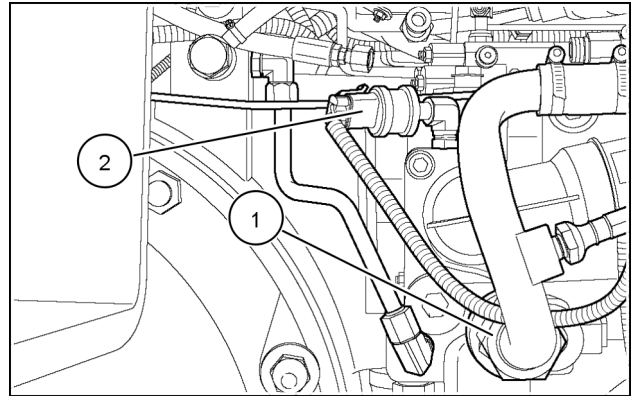
Filter - Remove - Main filter assembly

Magnum 225, Magnum 180, Magnum 190, Magnum 210

Prior operation:

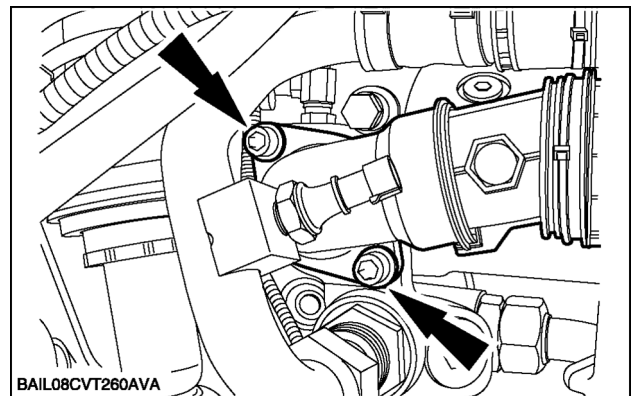
Filter - Remove - Transmission main filter (A.10.A)

1. On the left hand side of the filter assembly, disconnect the hydraulic charge line (1).
2. Disconnect the harness connector (2) to the sensor.



RCPH09CCH430AAA 1

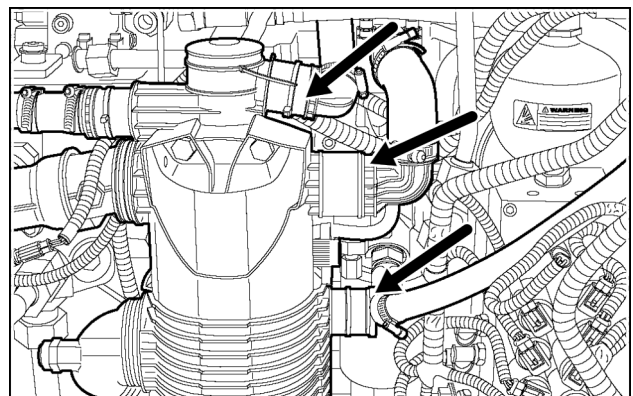
3. Disconnect the hydraulic pipe.



BAIL08CVT260AVA

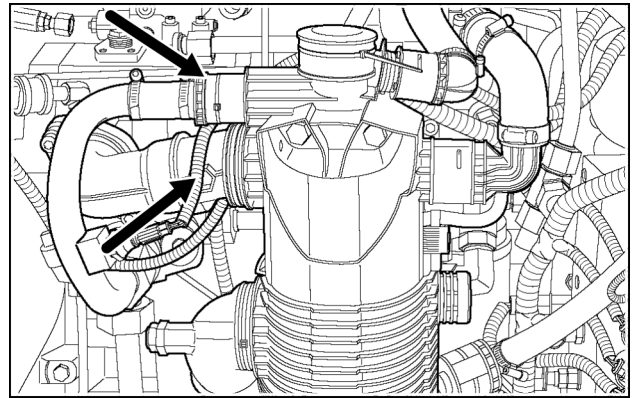
BAIL08CVT260AVA 2

4. Cut the tie straps from the three connectors on the right hand side of the filter assembly.
5. Remove the locking strap from each connector.
6. Separate the hydraulics lines at the connectors from the assembly.



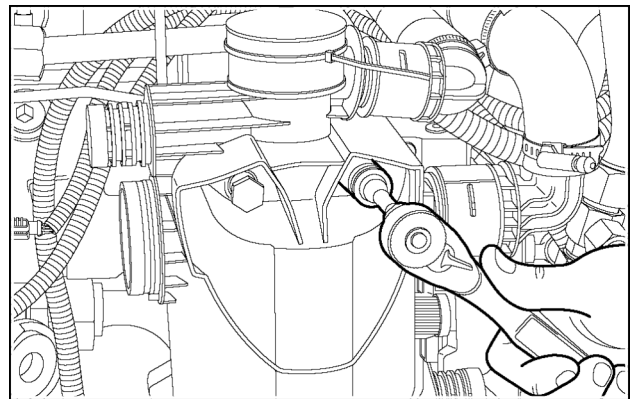
RCPH09CCH434AAA 3

7. Cut the tie straps securing the two connectors on the left hand side of the filter assembly.
8. Remove the locking strap from each connector.
9. Separate the hydraulics lines at the connectors from the assembly.



RCPH09CCH435AAA 4

10. Loosen the retaining bolts and remove the filter assembly.



RCPH09CCH437AAA 5

Next operation:
Filter - Install - Main filter assembly (A.10.A)

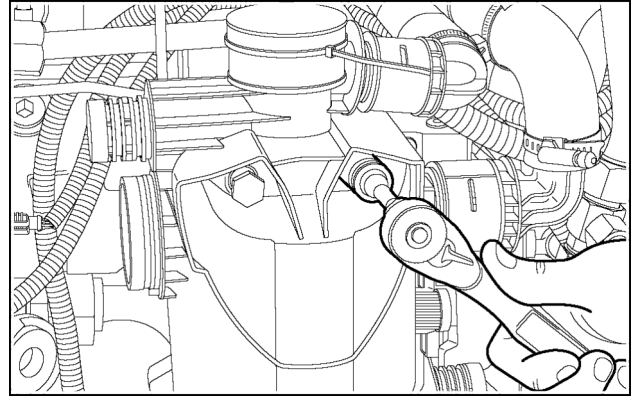
Filter - Install - Main filter assembly

Magnum 225, Magnum 180, Magnum 190, Magnum 210

Prior operation:

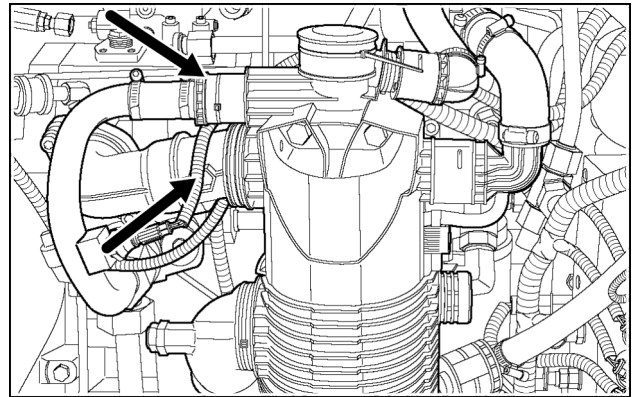
Filter - Remove - Main filter assembly (A.10.A)

1. Install the filter assembly on the axle housing with the bolts removed earlier.
2. Torque the bolts to **40 N·m (30 lb ft)**.



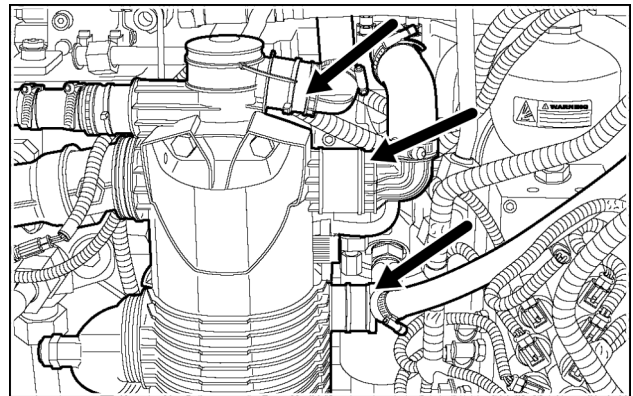
RCPH09CCH437AAA 1

3. Connect the hydraulic lines to the connectors on the left hand side of the filter assembly.
4. Install the locking strap for each connector.
5. Install a new tie strap on each connector.



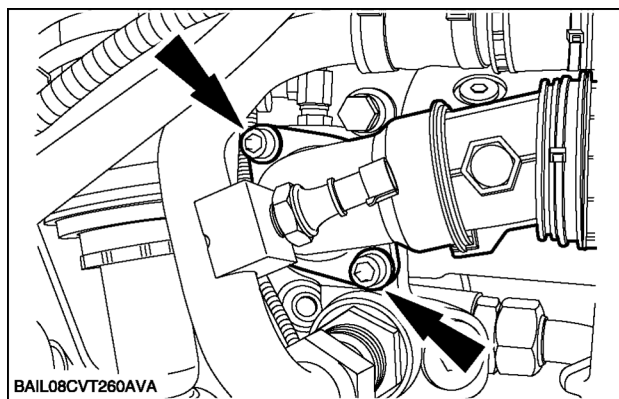
RCPH09CCH435AAA 2

6. Connect the hydraulic lines to the three connectors on the right hand side of the filter assembly.
7. Install the locking strap for each connector.
8. Install a new tie strap on each connector.



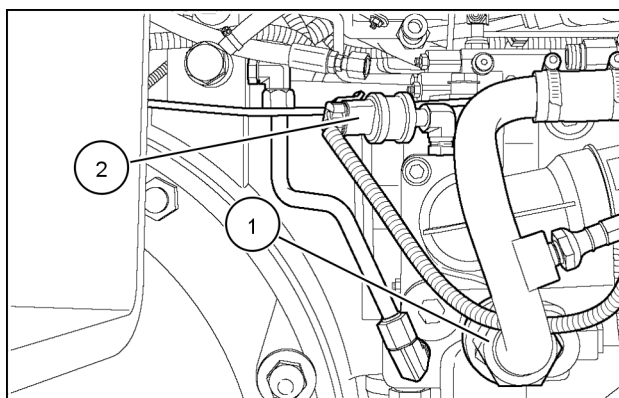
RCPH09CCH434AAA 3

9. On the left hand side of the filter assembly, connect the hydraulic pipe.



BAIL08CVT260AVA 4

10. Connect the hydraulic charge line (1).
11. Connect the harness connector (2) to the sensor.



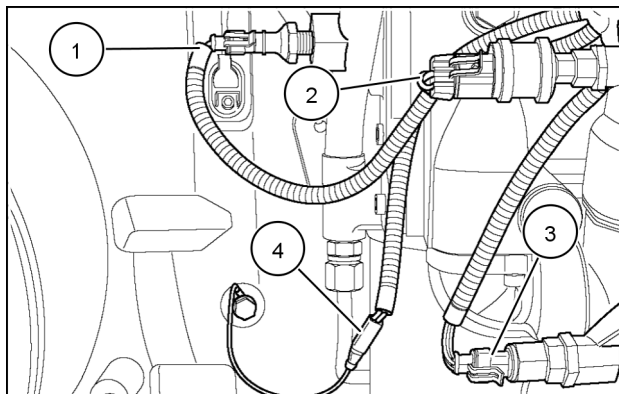
RCPH09CCH430AAA 5

Filter - Remove - Main hydraulic

Magnum 225, Magnum 180, Magnum 190, Magnum 210

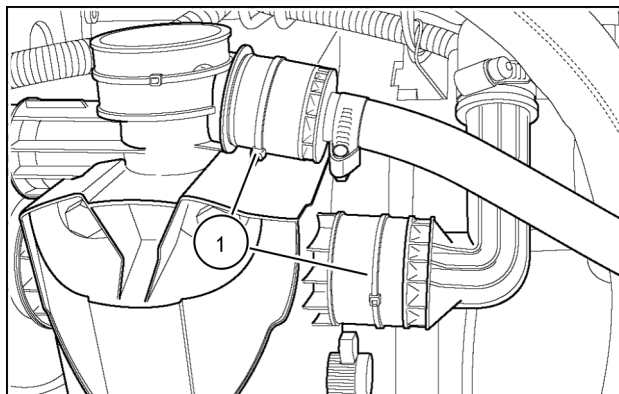
NOTE: Clean the hose connections thoroughly before disassembly.

1. Disconnect the harness connectors at locations (1), (2) and (3). Disconnect the ground wire (4). Move the harness out of the way.



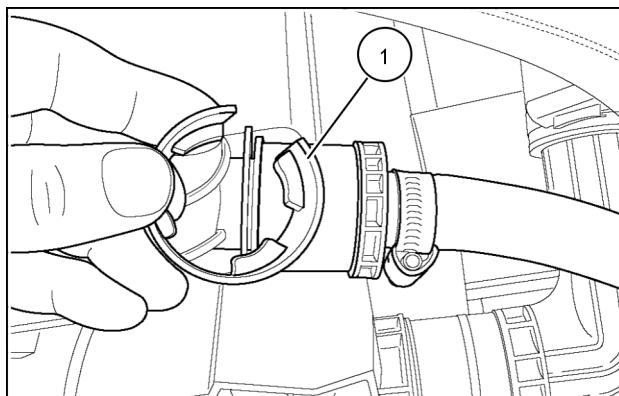
RCPH10CCH211AAB 1

2. At the right hand side of the filter assembly, remove the tie straps (1).



RCPH10CCH212AAB 2

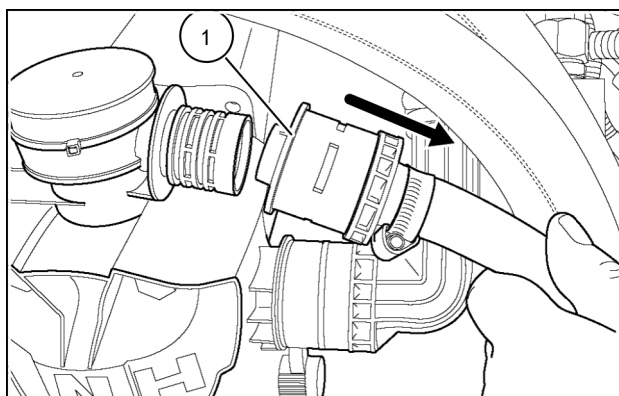
3. Remove the locking ring (1) from the upper hose assembly.



RCPH10CCH213AAB 3

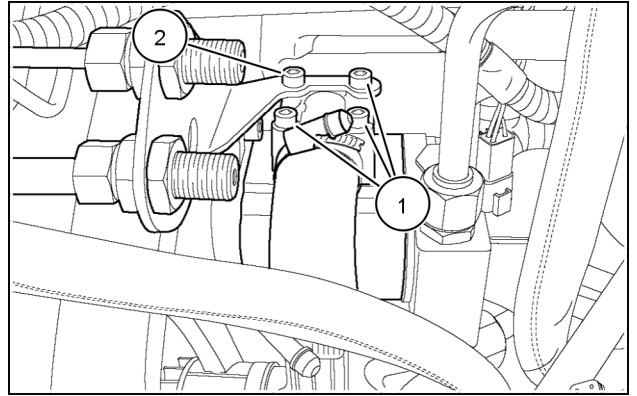
4. Disconnect the hose assembly (1) by pulling straight out.

NOTE: A small screw driver or pry bar may be used to gently pry the hose assembly away from the filter housing.



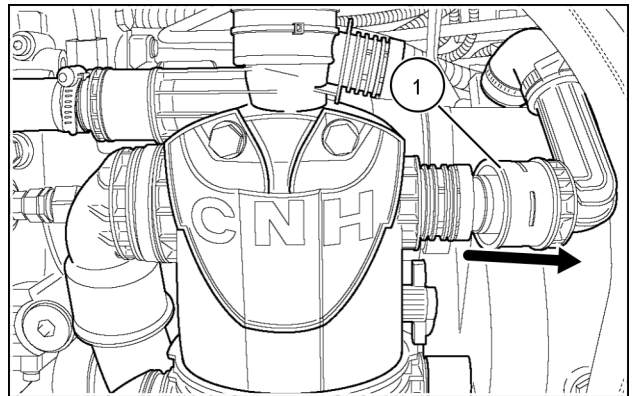
RCPH10CCH214AAB 4

5. Remove the bolts (1) securing the charge pump inlet hose adaptor. Loosen (but do not remove) the bolt (2).



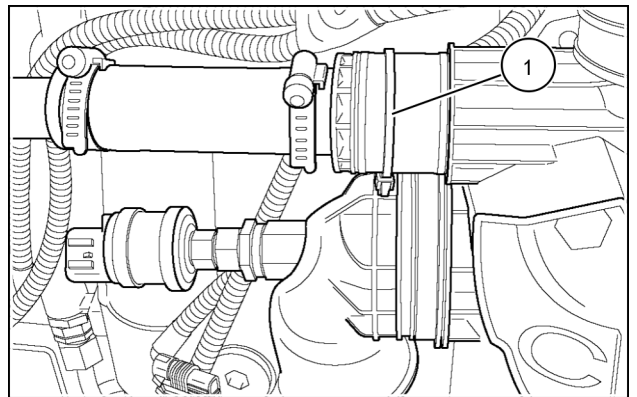
RCPH10CCH215AAB 5

6. Remove the locking ring (not shown). Disconnect the hose assembly (1) from the filter housing.



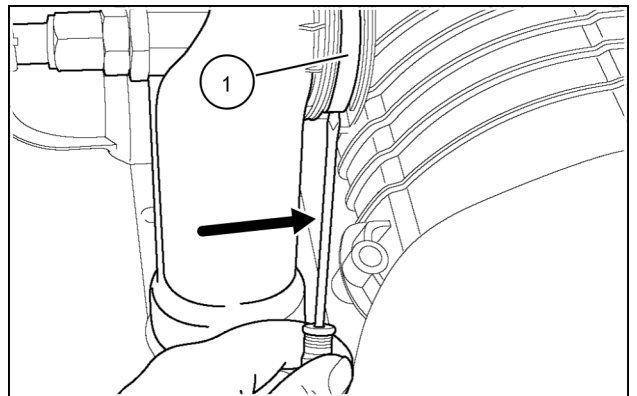
RCPH10CCH216AAB 6

7. Remove the tie strap (1) from the top left hand hose assembly.



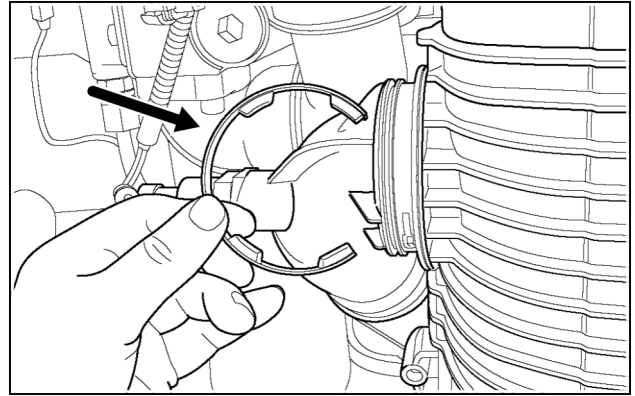
RCPH10CCH217AAB 7

8. With the aid of a small screw driver, dislodge the locking ring (1) from the center hose. Repeat for the bottom hose.



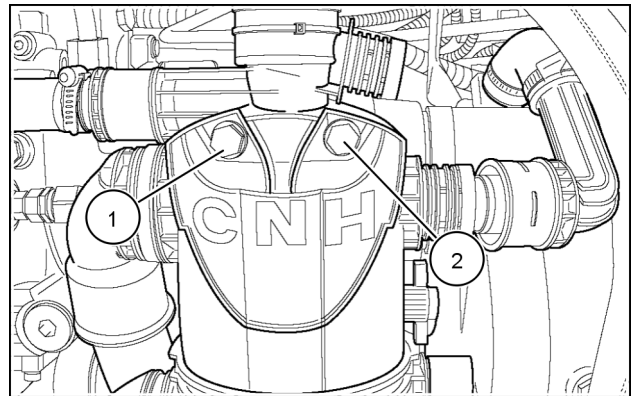
RCPH10CCH218AAB 8

9. Remove the locking ring. Repeat for the bottom hose.



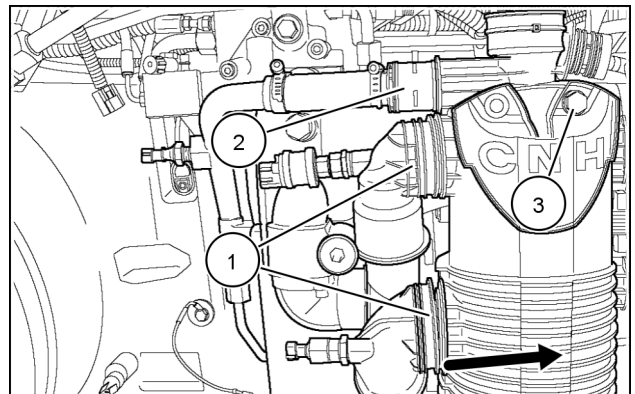
RCPH10CCH219AAB 9

10. Remove the left hand bolt (1) from the filter housing. Loosen (but do not remove) the right hand bolt (2).



RCPH10CCH216AAB 10

11. Pivot the filter housing and at the same time loosen the center and lower hose connections (1). Remove the upper hose locking ring (2) and dislodge the hose. Support the filter housing and remove the bolt (3). Remove the filter housing assembly.



RCPH10CCH220AAB 11

Next operation:
Filter - Install - Main hydraulic (A.10.A)

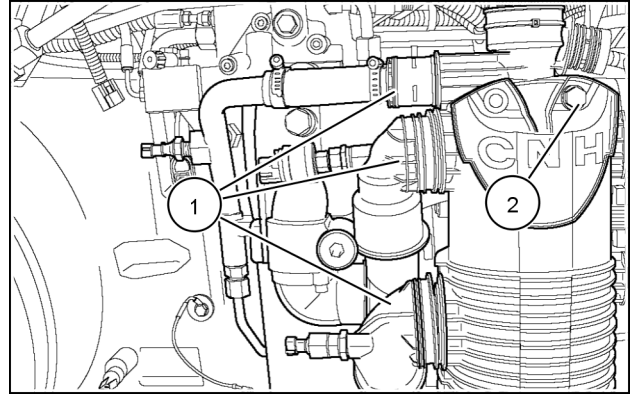
Filter - Install - Main hydraulic

Magnum 180, Magnum 190, Magnum 210

Prior operation:

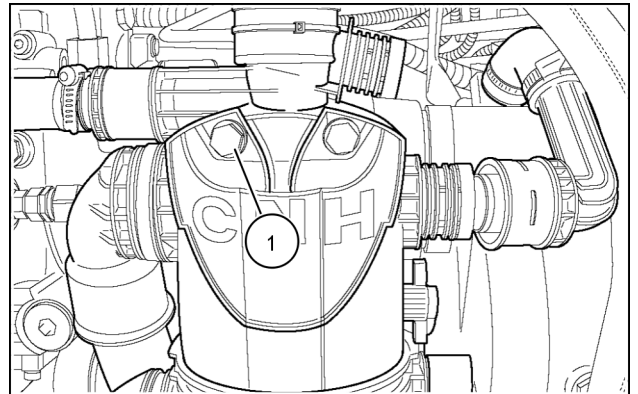
Filter - Remove - Main hydraulic (A.10.A)

1. Align the filter housing with the hose fittings on the left side. Engage the hoses (1). Install the right hand bolt (2) removed earlier.



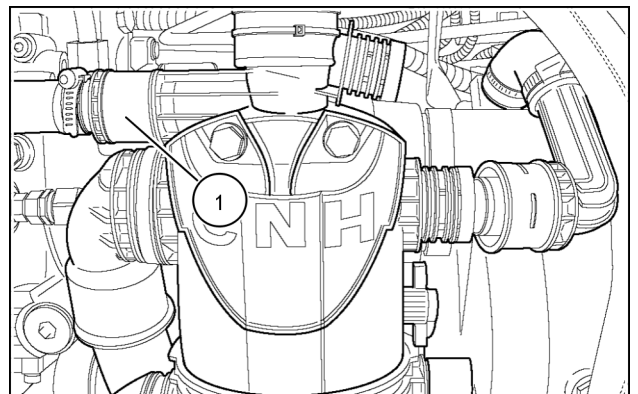
RCPH10CCH220AAB 1

2. Install the bolt (1) removed earlier. Tighten both bolts.



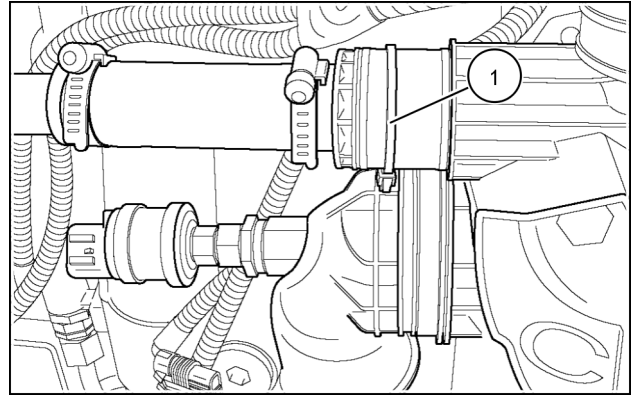
RCPH10CCH216AAB 2

3. Install the top hose locking ring (1).



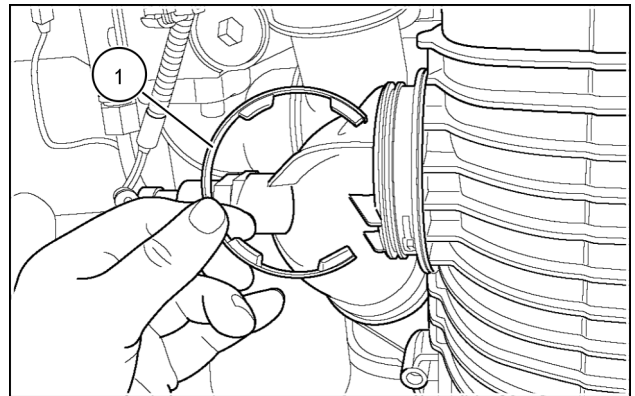
RCPH10CCH216AAB 3

4. Secure the locking ring with a plastic tie strap (1).



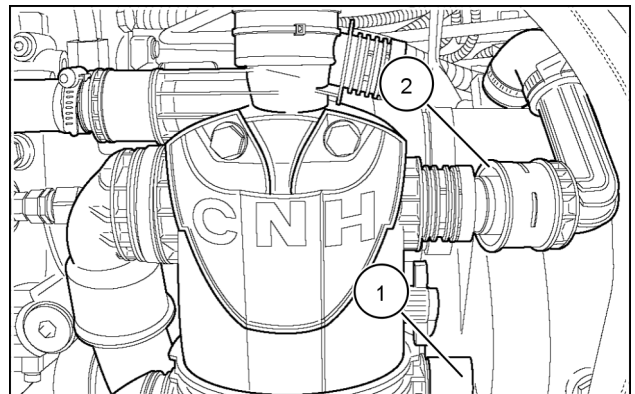
RCPH10CCH217AAB 4

5. Install the locking ring (1) for the center hose fitting and the lower hose locking ring.



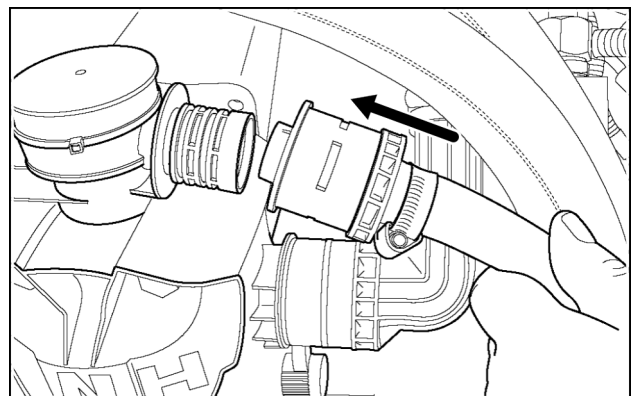
RCPH10CCH219AAB 5

6. Connect the lower hose (1) (not shown) to the right side of the filter housing. Install the locking ring. Connect the center hose (2). Install the locking ring.



RCPH10CCH216AAB 6

7. Connect the upper hose .



RCPH10CCH214AAB 7



Suggest:

If the above button click is invalid.

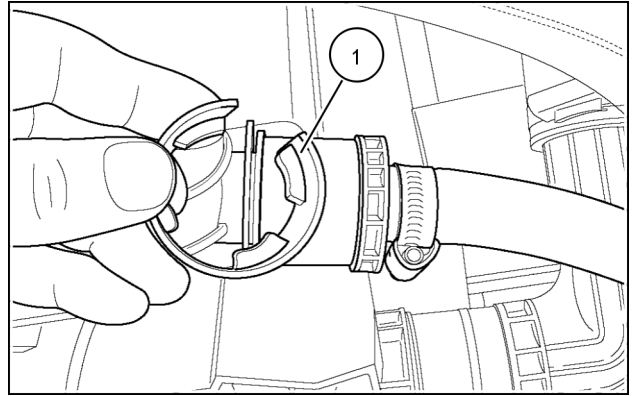
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first, and then click the above link

to download the complete manual.

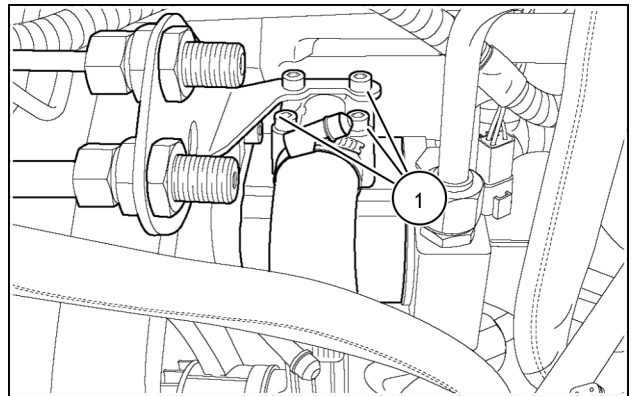
Thank you so much for reading

8. Install the locking ring (1).



RCPH10CCH213AAB 8

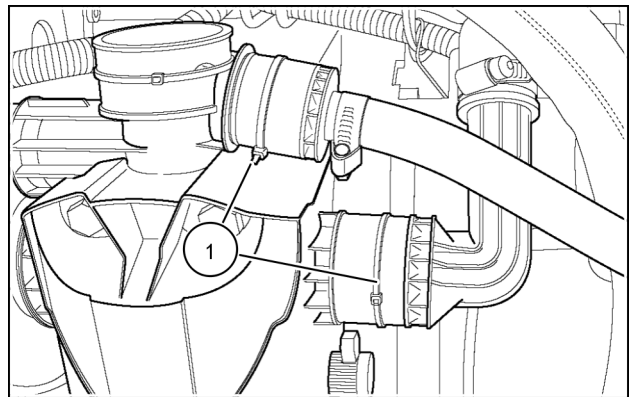
9. Using the bolts removed earlier (1), secure the inlet housing adaptor to the charge pump. Tighten the bolts.



RCPH10CCH215AAB 9

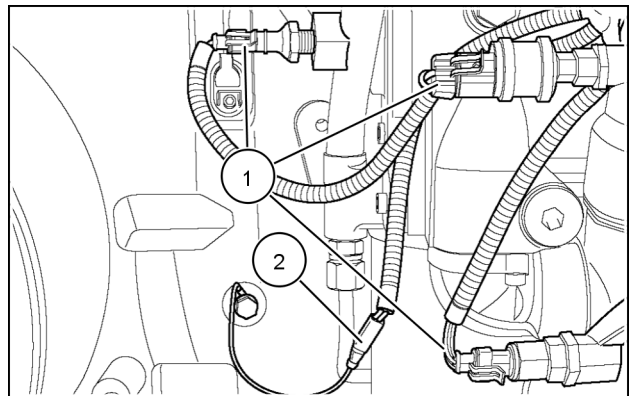
10. Install tie straps (1) to the locking rings on the right hand side (lower fitting not shown).

NOTE: Tie straps prevent the locking rings from disengaging.



RCPH10CCH212AAB 10

11. Connect the harness connectors (1) and the ground wire connectors (2).



RCPH10CCH211AAB 11

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