SERVICE MANUAL

PowerStar™ 90 / PowerStar™ 100 / PowerStar™ 110 / PowerStar™ 120
Tier 4B (final)
Tractor

PIN ELRT5100PJLE50082 and above

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Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.216] Fuel tanks 10.2

[10.206] Fuel filters 10.3

[10.202] Air cleaners and lines 10.4

[10.254] Intake and exhaust manifolds and muffler 10.5

[10.500] Selective Catalytic Reduction (SCR) exhaust treatment 10.6

[10.501] Exhaust Gas Recirculation (EGR) exhaust treatment 10.7

[10.400] Engine cooling system 10.8

[10.414] Fan and drive 10.9

[10.310] Aftercooler 10.10

[10.304] Engine lubrication system 10.11

Clutch 18

[18.100] Clutch mechanical release control 18.1

[18.104] Clutch hydraulic release control 18.2

[18.110] Clutch and components 18.3

[18.112] Slip clutch or flywheel damper 18.4

Transmission 21

[21.114] Mechanical transmission 21.1

[21.130] Mechanical transmission external controls 21.2

[21.100] Mechanical transmission hydraulic components 21.3

[21.112] Power shuttle transmission 21.4

[21.110] Master clutch housing 21.5

[21.134] Power shuttle transmission external controls 21.6

[21.104] Power shuttle transmission hydraulic components 21.7

[21.154] Power shuttle transmission internal components 21.8

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[21.160] Creeper 21.9
[21.162] Reverser 21.10
[21.109] Transmission cooler and lines 21.11
[21.118] Transmission/Rear drive 21.12
[21.148] Transmission/Rear drive internal components 21.13
Four-Wheel Drive (4WD) system 23
[23.202] Electro-hydraulic control 23.1
[23.314] Drive shaft 23.2
Front axle system 25
[25.100] Powered front axle 25.1
[25.102] Front bevel gear set and differential 25.2
[25.108] Final drive hub, steering knuckles, and shafts 25.3
[25.400] Non-powered front axle 25.4
Rear axle system 27
[27.100] Powered rear axle 27.1
[27.106] Rear bevel gear set and differential 27.2
[27.120] Planetary and final drives 27.3
Power Take-Off (PTO) 31
[31.101] Rear mechanical control 31.1
[31.104] Rear electro-hydraulic control 31.2
[31.110] One-speed rear Power Take-Off (PTO) 31.3
[31.114] Two-speed rear Power Take-Off (PTO) 31.4
Brakes and controls 33
[33.202] Hydraulic service brakes 33.1
[33.110] Parking brake or parking lock 33.2
[33.224] Trailer brake pneumatic control 33.3
Hydraulic systems 35

MidWestTech | New Holland PowerStar 90, 100, 110, 120 Tier 4B Tractor Service Manu... Order the manual at mid-west-tech.com >

[35.304] Combination pump units 35.1
[35.204] Remote control valves 35.2
[35.100] Main lift system 35.3
[35.114] Three-point hitch control valve 35.4
[35.116] Three-point hitch cylinder 35.5
Hitches, drawbars, and implement couplings 37
[37.100] Drawbars and towing hitches 37.1
[37.108] Rear three-point hitch external controls 37.2
[37.110] Rear three-point hitch 37.3
[37.120] Rear three-point hitch linkage 37.4
Steering 41
[41.101] Steering control 41.1
[41.106] Tie rods 41.2
[41.200] Hydraulic control components 41.3
[41.216] Cylinders 41.4
Wheels 44
[44.511] Front wheels 44.1
[44.520] Rear wheels 44.2
Cab climate control 50
[50.100] Heating 50.1
[50.104] Ventilation 50.2
[50.200] Air conditioning 50.3
Electrical systems 55
[55.100] Harnesses and connectors 55.1
[55.525] Cab engine controls 55.2
[55.015] Engine control system 55.3
[55.201] Engine starting system 55.4
[55.301] Alternator 55.5

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	Part to tighten	Thread	Tightening torque
1	Tie rod ball joint nut	M18 x 1.5	**129 – 160 N·m (95.15 – 118.01 lb ft)**
2	Cylinder pipe bracket bolt	M6 x 1.0	**8.5 – 10.5 N·m (6.27 – 7.74 lb ft)**
3	King pin bolt	M10 x 1.25	**55 – 87 N·m (40.57 – 64.17 lb ft)**
4	Steering cylinder screw	M18 x 60	**358 – 442 N·m (264.05 – 326 lb ft)**
5	Lube fitting	M14 x 1.5	**13 – 16 N·m (9.59 – 11.80 lb ft)**
6	Differential cover bolt	M12 x 1.25	**130 – 144 N·m (95.88 – 106.21 lb ft)**
7	Tie rod lenght securing nut	M18 x 1.5	**111 – 137 N·m (81.87 – 101.05 lb ft)**
8	Tie rod ball joint	M22 x 1.5	**240 – 296 N·m (177.01 – 218.32 lb ft)**
9	Cylinder pipe bolt	M14 x 1.5	**40 – 48 N·m (29.50 – 35.40 lb ft)**
10	Differential cover bolt	M12 x 1.25	**130 – 144 N·m (95.88 – 106.21 lb ft)**
11	Nut of half shaft bush retention screw	M12 x 1.25	**77 – 93 N·m (56.79 – 68.59 lb ft)**
12	Bevel pinion nut	M35 x 1.5	**380 – 420 N·m (280.27 – 309.78 lb ft)**
13	Half shaft bush retention screw (*)	M12 x 1.25	**10 – 20 N·m (7.38 – 14.75 lb ft)**
14	Steering stop nut	M18 X 2.5	**80 – 90 N·m (59 – 66.38 lb ft)**
15	Planet carrier retention screw	M10 x 1.25	**55 – 87 N·m (40.57 – 64.17 lb ft)**
16	Oil drain magnetic plug	M22 x 1.5	**55 – 66 N·m (40.57 – 48.68 lb ft)**
17	Hub screw	M10 x 1.25	**75 – 82 N·m (55.32 – 60.48 lb ft)**
18	Nut bearing lock	M95 x 2.0	**40 – 60 N·m (29.50 – 44.25 lb ft)**
19	Bevel crown bolt (*)	M12 x 1.25	**119 – 131 N·m (87.77 – 96.62 lb ft)**
20	Bearing cup bolt	M12 x 1.25	**116 – 144 N·m (85.56 – 106.21 lb ft)**
21	Oil fill and level plug	M22 x 1.5	**55 – 66 N·m (40.57 – 48.68 lb ft)**

***NOTE:** (*) Apply LOCTITE® 243™ on the thread.*

Powered front axle - Special tools

List of specific tools required for the various operations described in this section.

380001613 Front axle and engine support bracket
380001623 Splined pinion wrench
380001624 Pinion nut wrench
380000248 Tool for adjusting bevel pinion bearings
380000249 Universal gauge for positioning of front bevel drive pinion
380000252 Ring nut wrench for front differential housing bearing adjustment
380000295 Ring nut wrench for front shaft wheel hub bearing assembly
380000286 Wheel hub seal locking set (version without front brakes)
380000287 Wheel hub seal key (version with front brakes)
380000265 Puller for front axle swivel pin
380000234 Puller for front axle swivel pin bearing outer race
380000235 Tool for checking front axle bearing roll torque
380500128 Universal kit for testing oil pressure for front axle differential lock engagement
380001625 Pivot group guide pin

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Wiring harnesses - Measure Digital multi-meter

NOTE: *This section is only intended as a general guide to using a digital multimeter. Always refer to the manufactures operators manual for correct operation.*

A multimeter is an electronic measuring device. The different types of measurement that can be made depend upon the make and model of the multi--meter. Most types of multimeter have the capacity to measure:

- Current (A), alternating (ac) or direct (dc)
- Resistance (Ω)
- Voltage (V) in alternating or direct (dc)

Continuity (sound emitted):

More expensive multimeters have other functions, such as the capacity to measure frequency (Hz) and test diodes



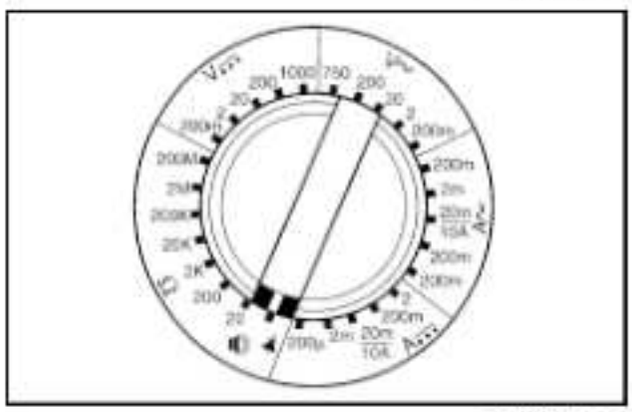
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General Operation:

Before proceeding with a test, decide on what is going to be measured (Voltage, Current etc.). Rotate the dial until the pointer is within the relevant zone. Within each zone there are different scales.

The scale that is selected will represent the maximum value that the multimeter will read. Always select a scale which is greater than the value that you intend to measure.

If you are unsure of the value to be measured, always select the highest scale and then reduce the scale once you have an idea of the measured value.



SEZ55CAP9A-51 2

Why are there different scales ?

The closer that the scale is to the measured value, the more accurate the reading will be; e.g. If measuring the voltage of a battery with the scale set at **200 V**, the reading will be accurate to the nearest. **12 V** However, if the scale is set to **20 V**the meter may give a more accurate reading of **12.27 V**.

Giga	G	1,000,000,000	10^{9}
Mega	M	1,000,000	10^{6}
Kilo	K	1,000	10^{3}
milli	m	0.001	10^{-3}
micro	µ	0.000 001	10^{-6}
nano	n	0.000 000 001	10^{-9}
pico	p	0.000 000 000 001	10^{-12}

SEZ55CAP9A-2 3

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1070 - Electronic Draft Control (EDC) - ram configuration not set

Control Module: CCU

NOTE: *When the cause of the error code has been rectified, clear the error code and test the system for normal operation.*

Possible failure modes:

1. Hydraulic ram configuration has not been set.

Solution:

1. Configure the hydraulic ram(s).
   A. Using the H3, Channel 1, set the hydraulic ram option for the correct ram configuration on the machine:
   'A r0' (one internal ram), for **60.0 L/min** (**15.9 US gpm**) and **80 l/min** (**21.1 US gpm**) pumps.
   'A r2' (one internal ram and two external ram's), for **60.0 L/min** (**15.9 US gpm**) and **80 l/min** (**21.1 US gpm**) pumps.
   'b r0' (one internal ram), only for **60.0 L/min** (**15.9 US gpm**) pumps.
   'b r2' (one internal ram and two external ram's), only for **60.0 L/min** (**15.9 US gpm**) pumps.

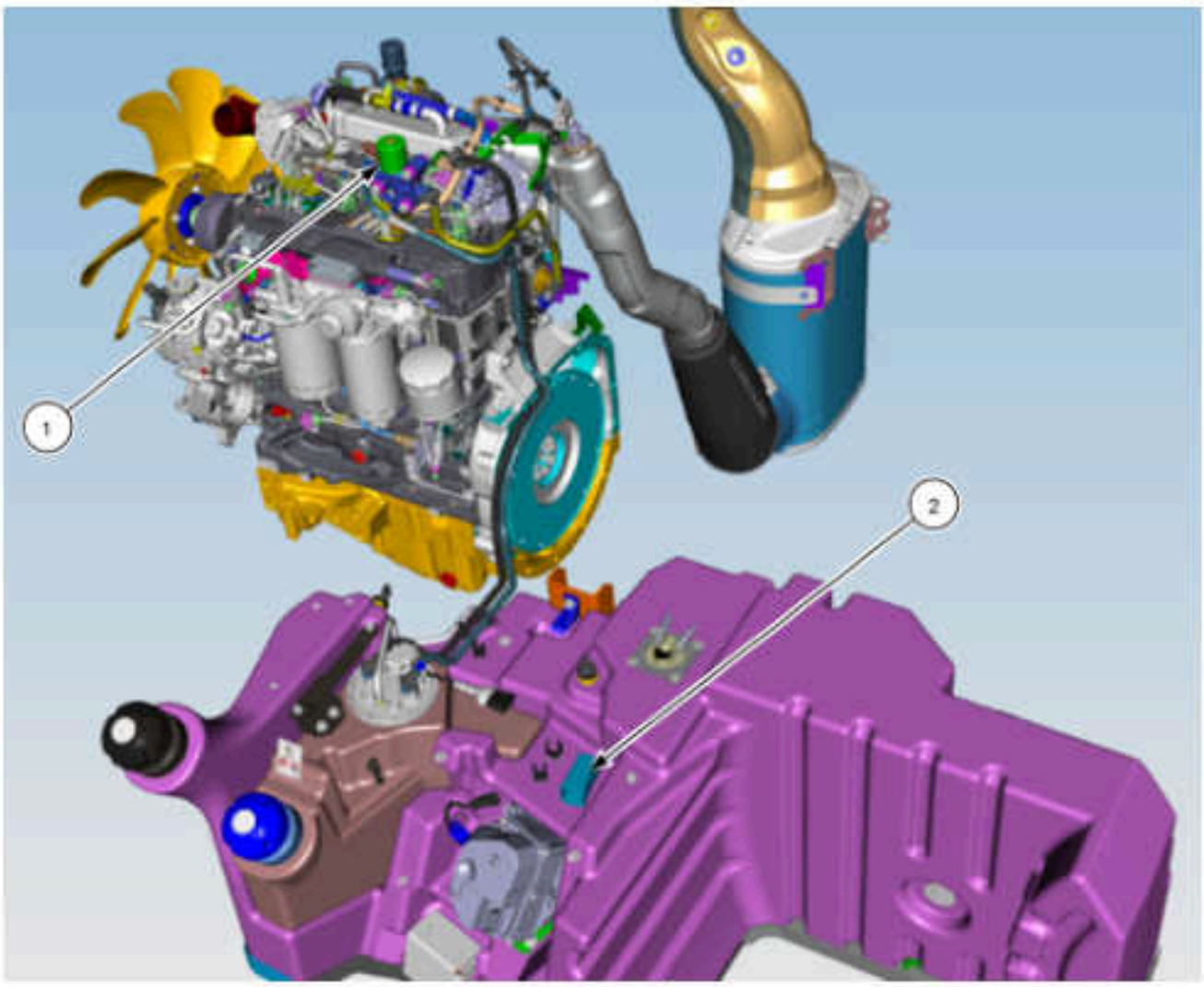
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Selective Catalytic Reduction (SCR) exhaust treatment - Overview AdBlue heater control

The heating control system contains a complex heating strategy module:

- To ensure defrosting of the DNOx system components.
- To heat the system after defrosting was completed.
- To avoid the system is freezing again during driving.

Given that the aqueous urea solution generally used as AD Blue freezes at **-11 °C**, it is necessary to provide a heating device to liquefy the solution in order to be able to inject it into the exhaust line in the event of starting or use in freezing conditions.

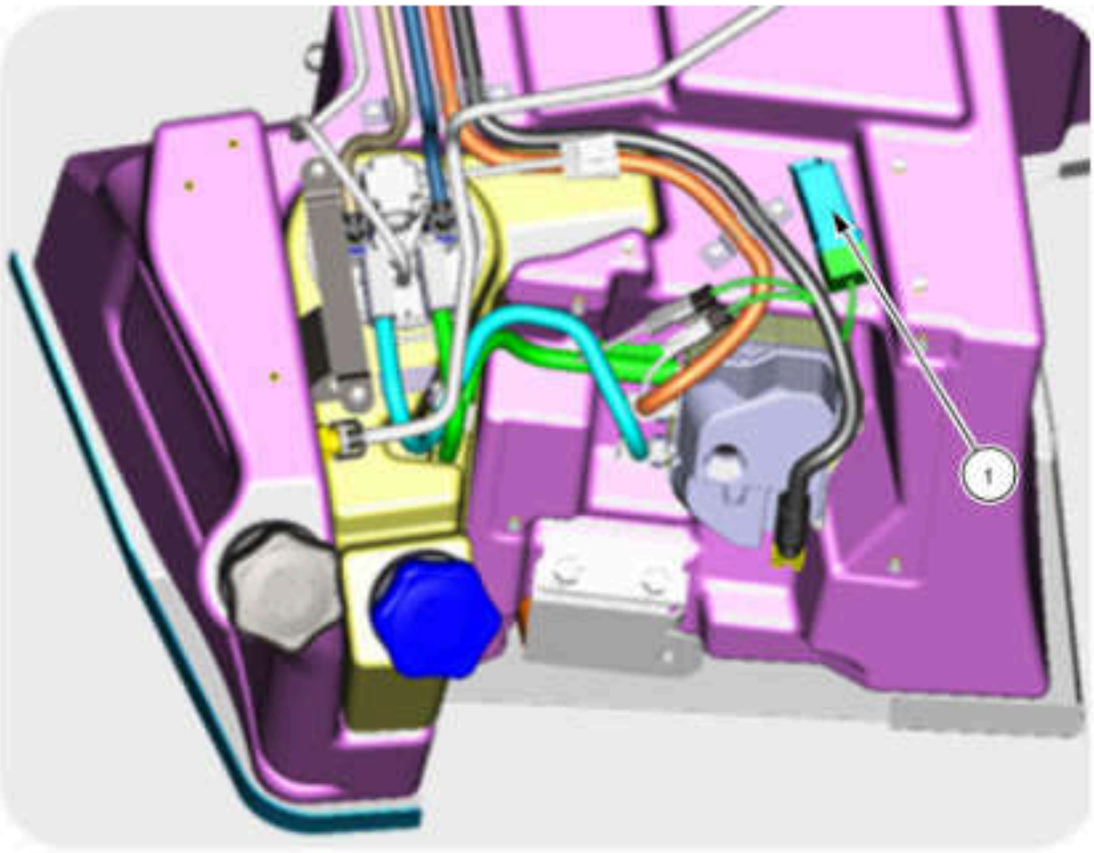


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1	Coolant control valve
2	Heater control unit

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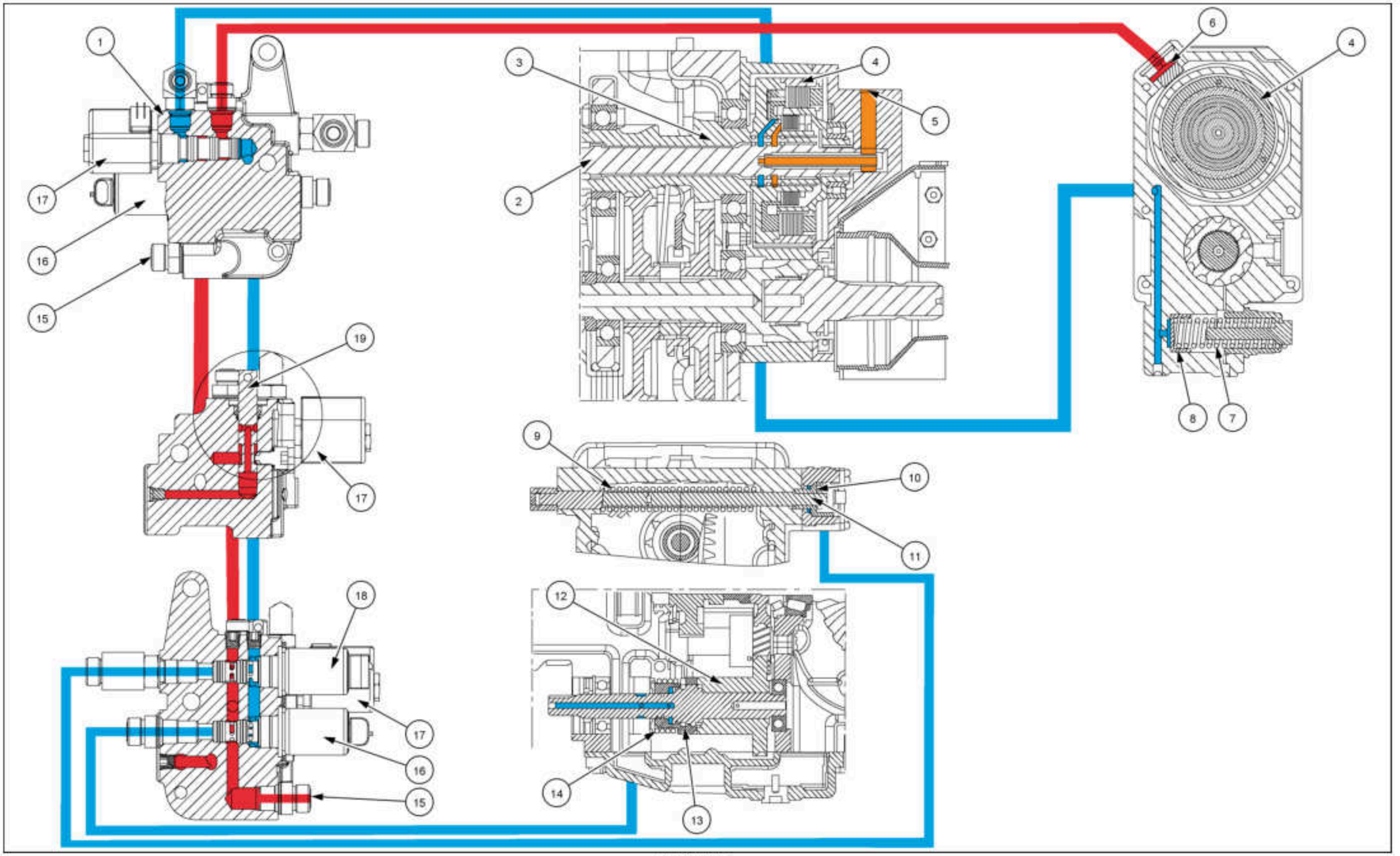
Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA heater control unit - Static description



MDIL177RD1759FA 1

- Supply module and Ad Blue lines (Pressure, suction, backflow) heating is controlled and monitored by the Heater Control Unit **(1)**
- HCU-PC contains a CAN interface for communication with engine control unit (ECU)
- The power stages inside HCU-PC are activated based on command from engine control unit (ECU)
- HCU-PC provides information about diagnostic, currents and voltages via CAN interface to the engine control unit

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