SERVICE MANUAL

T4.80F
T4.90F
T4.100F
T4.110F
T4.80LP
T4.90LP
T4.100LP
T4.110LP
Tractor

PIN ZHLH00094 and above

Part number 51523358
English
August 2018

NEW HOLLAND AGRICULTURE

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Electronically controlled hydraulic lift data

Diameter of arm lifting shaft **(5)**, **Rear three-point hitch - Sectional view (55.415) Figure 3** at the bushings:	
right-hand side	**54.968 – 54.999 mm (2.1641 – 2.1653 in)**
left-hand side	**47.973 – 47.998 mm (1.8887 – 1.8897 in)**
Internal diameter of bushings fitted on lift body:	
right-hand side **(4)**, **Rear three-point hitch - Sectional view (55.415) Figure 3**	**55.098 – 55.182 mm (2.1692 – 2.1725 in) (1)**
left-hand side **(6)**	**48.097 – 48.184 mm (1.8936 – 1.8970 in) (1)**
Clearance between lifting arm shaft and relative right-hand side bushings	**0.099 – 0.213 mm (0.0039 – 0.0084 in)**
Clearance between lifting arm shaft and relative left-hand side bushings	**0.099 – 0.208 mm (0.0039 – 0.0082 in)**
Interference between bushings and relative seats	**0.064 – 0.160 mm (0.0025 – 0.0063 in)**
End float of shaft complete with lift arms	**0.2 – 1.4 mm (0.0078 – 0.0551 in)**

(1) Value to be obtained after obtaining interference fit without grinding operations.

Rear three-point hitch - Torque

Parts to be tightened	Thread	Tightening torque
Implement hitching device		
Flex bar seal support retaining bolts	-	**64 N·m (47.20 lb ft)**
Lateral stabiliser strut support retaining bolts	M16 x 1.5	**221 N·m (163.00 lb ft)**
Pick−up hitch hook support retaining bolts	M16 x 1.5	**221 N·m (163.00 lb ft)**

Rear three-point hitch - Special tools

Hydraulic lift tools

NOTICE: *The operations described in this section can only be carried out with ESSENTIAL tools indicated by an X. To work safely and efficiently and obtain the best results, it is also necessary to use the recommended specific tools listed below and certain other tools, which are to be made according to the drawings included in this manual.*

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Wiring harnesses - Electrical schematic sheet 44 SH-044_CLI-MATE_CAT_4

T4.100F With cab [ZHLH01567 -]	APAC --- MEA --- WE
T4.100LP With cab [ZHLH04188 -]	APAC --- MEA --- WE
T4.110F With cab [ZHLH00094 -]	APAC --- MEA --- WE
T4.110LP With cab [ZHLH01989 -]	APAC --- MEA --- WE
T4.80F With cab [ZHLH01907 -]	APAC --- MEA --- WE
T4.80LP With cab [ZHLH04222 -]	APAC --- MEA --- WE
T4.90F With cab [ZHLH01868 -]	APAC --- MEA --- WE
T4.90LP With cab [ZHLH03821 -]	APAC --- MEA --- WE

Type	Component	Connector / Link
ECU	**A-018** - HVAC ECU (ECU)	**X-850** - HVAC ECU [A-018] (47915928)
ECU	**A-019** - Roof HVAC 4 (ECU)	**X-862** - ROOF HVAC 4 [A-019] (84289208)
ECU	**A-020** - ROOF HVAC 3# (ECU)	**X-866** - ROOF HVAC 3# [A-020] (41118303)
Connector		**X-850** - HVAC ECU [A-018] (47915928)
Connector		**X-862** - ROOF HVAC 4 [A-019] (84289208)
Connector		**X-866** - ROOF HVAC 3# [A-020] (41118303)

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The engine will be running off the Camshaft speed sensor during the single ended test, if it isn't already (based on the fault code type). The engine can also be very hard to start when running exclusively off the camshaft speed sensor. The ECU must detect a few revolutions of the shaft to be able to use this information to start the engine.

Test type	From	To	Expected Results
1. Voltage (AC) - Single ended connection at low RPM (**1000 – 1100 RPM**)	Crankshaft speed sensor pin P	Crankshaft speed sensor connector pin N	Approx. **16 – 18 volts** (AC)
2. Voltage (AC) - Single ended connection at high RPM (**2000 – 2200 RPM**)	Crankshaft Speed Sensor pin P	Crankshaft speed sensor connector pin N	Approx. **32 – 34 volts** (AC)
3. Voltage (AC) - In-line connection at low RPM (**1000 – 1100 RPM**)	Crankshaft Speed Sensor pin P	Crankshaft speed sensor connector pin N	Approx. **10 – 12 volts** (AC)
4. Voltage (AC) - In-line connection at high RPM (**2000 – 2200 RPM**)	Crankshaft Speed Sensor pin P	Crankshaft speed sensor connector pin N	Approx. **14 – 17 volts** (AC)

A. If the voltage test is successful, continue to step **6**.

B. If the voltage test was not successful for any of the single ended connections, replace the sensor, as required.

C. If the voltages encountered during testing are low and the sensor was replaced on a prior diagnostic procedure of this type, check that the crankshaft speed sensor is installed correctly.

D. If the voltage test was successful for the single ended connections and not for any of the in-line connections, leave the connector disconnected and continue to step **5**.

5. Check for faulty wiring. Turn the ignition key switch to OFF. Perform continuity tests between terminals P, N and the **X-939** connector on engine wiring harness (ECU). Flex the wiring harness during the test to check for any intermittent operation. To access terminals P, N, use the test probe labelled "Coolant/Fuel Temp Sensor" from the Tier II (NEF) **380040185** diagnostic repair kit. Also, use the **0.4 mm** (**0.017 in**) diameter test probes from the repair kit when connecting the multimeter to the **X-939** connector. Make sure the multi-meter's test probe resistance is taken into account when taking continuity measurements. See the test table below.

   Important Note: Check and verify that the vehicle status is correct. Otherwise the ECU could be damaged during removal of the main connectors.

Test type	From	To	Expected Results
1. Continuity.	Crankshaft Speed Sensor pin N	The **X-939** connector of the engine wiring harness, pin 44	Approx. **0 – 0.10 ohms**
2. Continuity.	The **X-965** connector of the crankshaft speed sensor, pin P	The **X-939** connector of the engine wiring harness, pin 59	Approx. **0 – 0.10 ohms**
3. Short circuit	The **X-939** connector of the engine wiring harness, pin 44	The **X-939** connector of the engine wiring harness, pin 59	Open Circuit

   A. If continuity/shorts test is successful, go to step **6**.

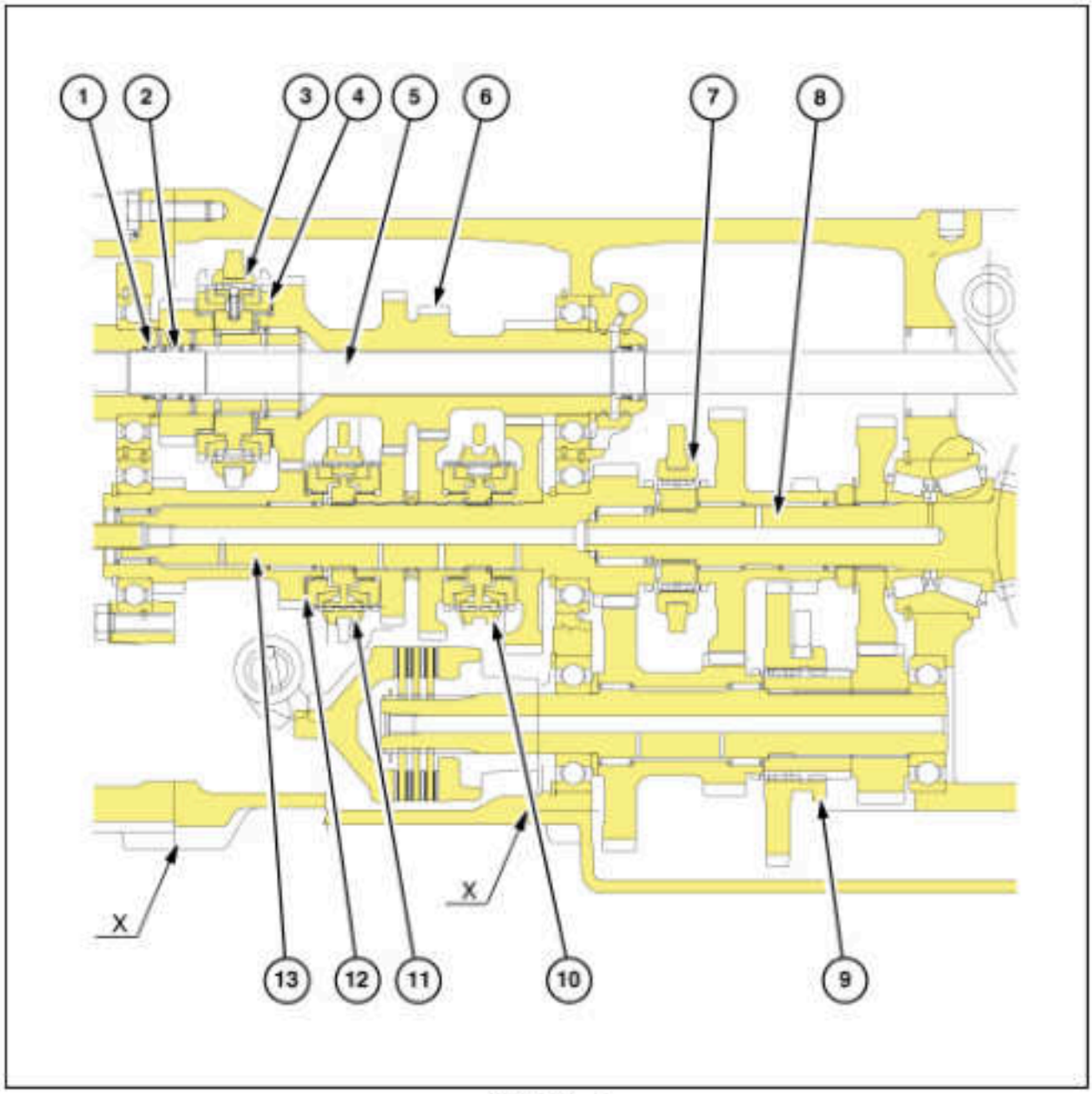
   B. If continuity/shorts test is unsuccessful,Repair or replace damaged parts, as required.

6. Check the voltages and ground continuity on the engine control unit (ECU). Use product schematic. Turn the ignition key switch to OFF. Disconnect the **X-937**connector from the engine control unit. Turn the ignition key switch to ON to check the voltage at the appropriate pins defined in the table below. Turn the ignition key switch to OFF to check the continuity at the appropriate pins defined in the table below. Use the **0.4 mm** (**0.017 in**) diameter test probes from the diagnostic repair kit Tier II (NEF) **380040185** to connect the digital multimeter (DMM) to the **X-937** connector. When taking any continuity measurements, make sure that the resistance on the digital multimeter test probes are taken into account.

   Important note:

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Transmission internal parts - Sectional view

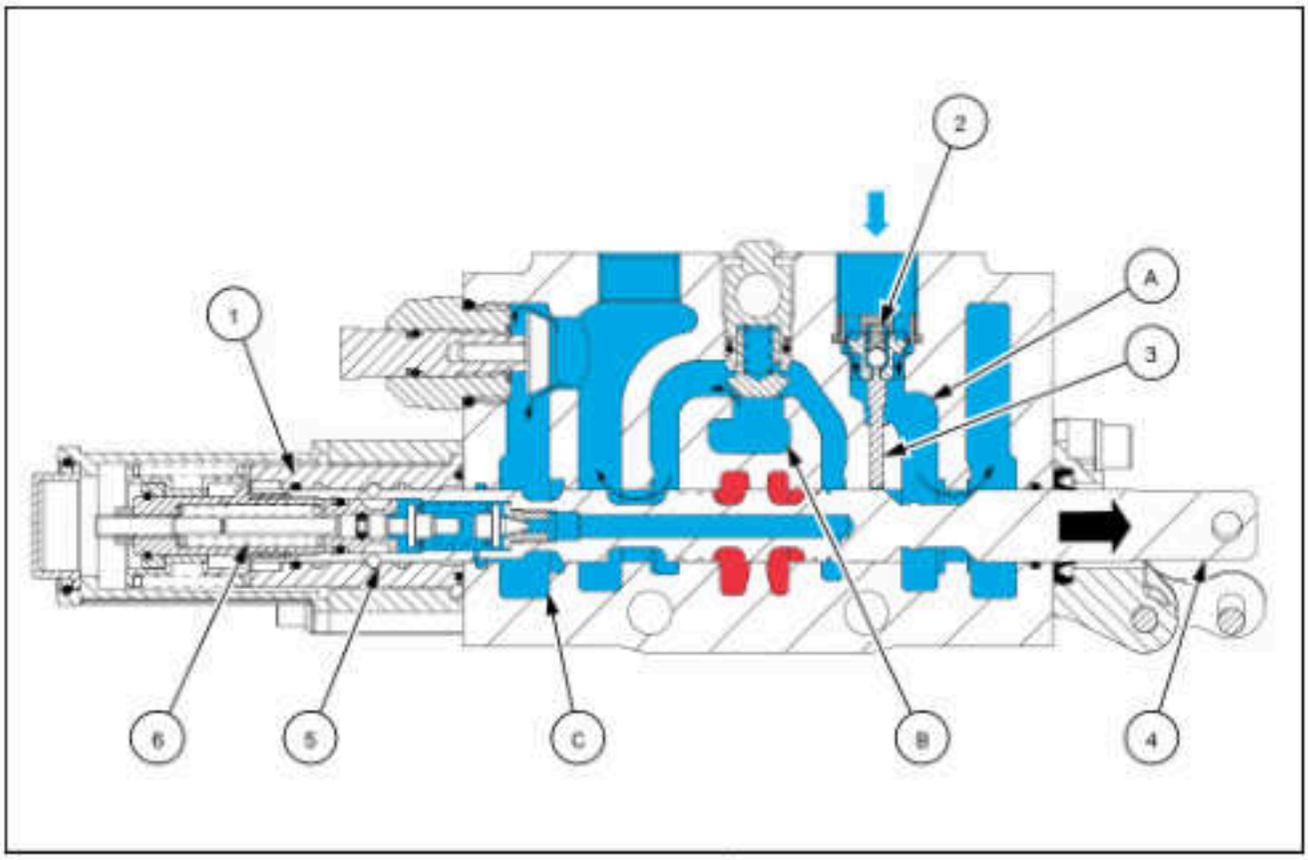


Longitudinal cross-sectional view of gearbox and gear range

1. Seal
2. Power take-off shaft support roller bearings
3. Reverser control synchroniser
4. Gearbox driving gear clearance adjusting thickness
5. Power take-off shaft
6. Gearbox driving gear
7. Selector sleeve for high or medium-low speeds
8. Bevel pinion shaft
9. Selector sleeve for low or medium-high speeds
10. Synchroniser for 1st and 2nd speed
11. Synchroniser for 3rd and 4th speed
12. Gearbox driven shaft gear clearance adjusting thickness
13. Gearbox driven shaft

NOTE: *On assembly apply a bead of sealing compound to the surfaces X as indicated on* ***Transmission drive housing - Reseal (21.114)****.*

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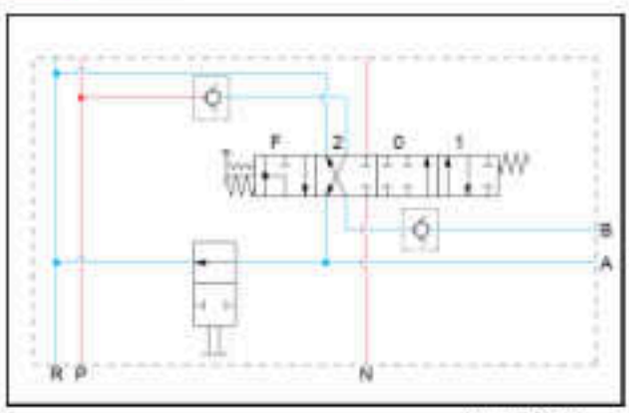
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Control valve phase - Lever in position "2"

Pressurized oil (**190 bar** (**2755 psi**)

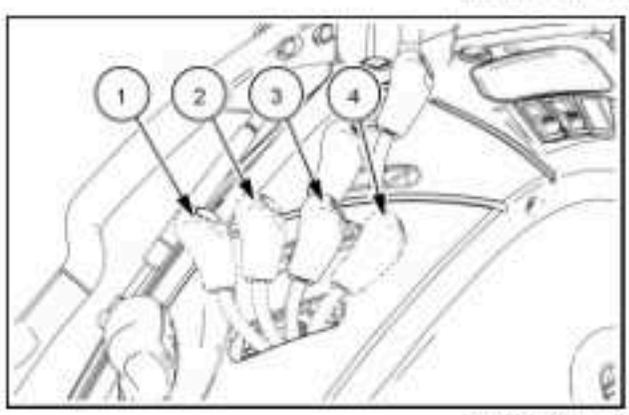
Exhaust oil

Pushing the control lever in the cab the control valve spool **(4)** moves in the direction of the arrow: the locking balls **(5)** enter in the stop point in the support **(1)**, remaining locked by the thrust of the spring **(6)**, and hold the spool. The spool displacement connects the oil supply line **(B)** directly to the exhaust in transmission through the line **(C)**. The pin **(3)**, pressed by the spool **(4)**, keeps the non-return valve **(2)** open, allowing the oil to be exhausted in the transmission through the "+" port and the line **(A)**.
At the end of the operation manually return the spool **(4)** in the neutral position operating on the control lever in the cab.



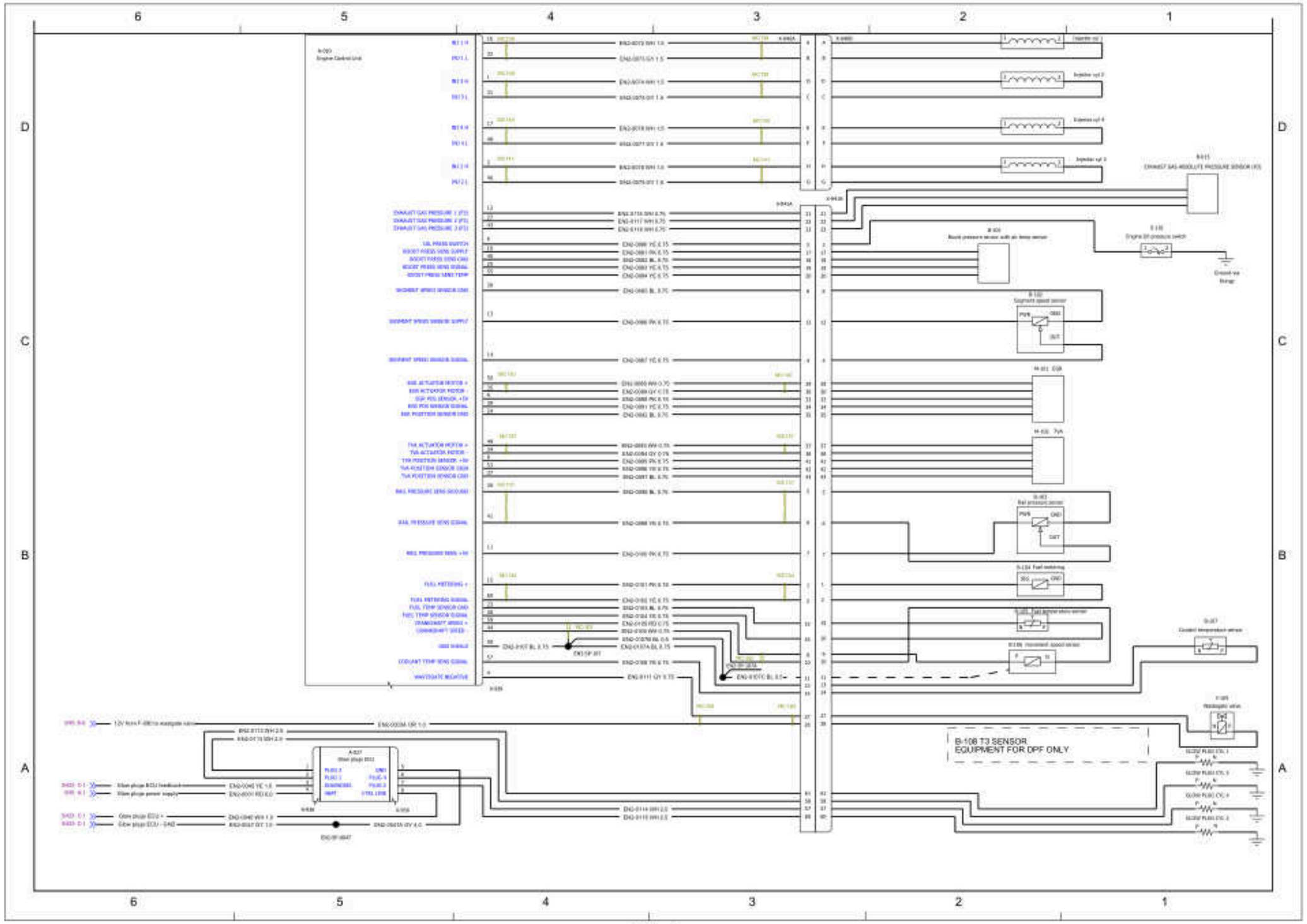
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- Floating position **(1)** (not available with single-acting control valve)
- Lowering or retraction position **(2)**
- Neutral position **(3)**
- Lifting or extension position **(4)**



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