SERVICE MANUAL

T4.75F / T4.85F / T4.95F / T4.105F
Tier 3
Tractor

T4.75F with cab PIN ZDJD1 0166 and above; T4.75F without cab PIN ZDJD1 0836 and above;
T4.85F with cab PIN ZDJD1 1099 and above; T4.85F without cab PIN ZDJD1 1022 and above;
T4.95F with cab PIN ZDJD1 0640 and above; T4.95F without cab PIN ZDJD1 0215 and above;
T4.105F with cab PIN ZDJD1 1527 and above; T4.105F without cab PIN ZDJD1 1911 and above

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(*) See content for specific models

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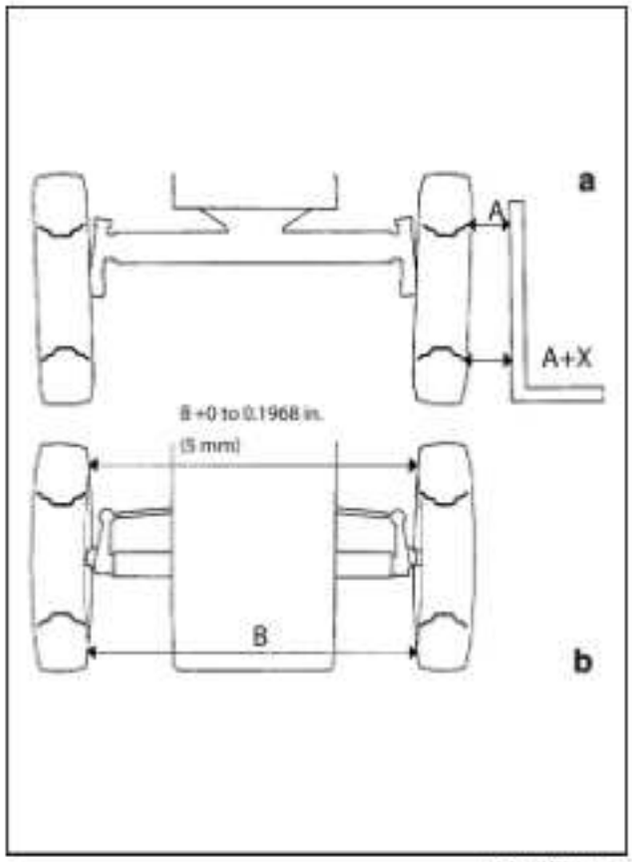
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Front wheels - Toe in adjust

Checking the alignment of the leading wheels

Check the alignment of the leading wheels, bearing in mind that for driving in a straight line, the wheels must be at an angle of 2° to the ground, corresponding to a difference of approximately **15 mm** (**0.5905 in**), for **16 in** rims, between the top and bottom edges of the rim (fig. **1** – a).
When driving in a straight line, the wheels must also be parallel to longitudinal axis of the tractor, or have a maximum of **5 mm** (**0.1968 in**) toe-in at the front, as measured between the edges of the rims.



To check the toe-in exactly, proceed as follows:

1. Inflate the front tyres to a pressure of **2.5 bar** (**36.25 psi**).
2. Place the steering wheel at mid-travel, with one spoke along the tractor centre line.
3. Check if wheels are parallel to the tractor centre line.
4. On the horizontal plane passing between the centres of the wheels, measure the distance **(B)** between the front inside edges of the rims (see Fig. **1** – b).
5. On the horizontal plane passing between the centres of the wheels, measure the distance between the rear inside edges of the rims, checking that the distance is equal to **(B)** or exceeds it by up to a maximum of **5 mm** (**0.1968 in**).
6. If necessary, correct the toe-in by adjusting the end of the transverse steering tie-rod.

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Wiring harnesses - Electrical schematic sheet 17 - Power-Shuttle 16+16 or 32+16 (splitter) circuit (dashboard side)

T4.105F Without cab [ZDJD11911 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement
T4.75F Without cab [ZDJD10836 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement — NA
T4.85F Without cab [ZDJD11022 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement
T4.95F Without cab [ZDJD10215 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement

Component	Description
C−9	Power-Shuttle transmission system connection (24 PIN)
C−21	Power-Shuttle system connection (6 PIN)
MOD−150	Power-Shuttle control unit
SW−151	Clutch pedal switch
SW−152	Power-Shuttle control lever
SEN−153	Clutch pedal sensor
GND−155	Dashboard Power-Shuttle ground
C−167	Connection for CAN line (4 PIN)

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4810-Proportional valve X-Axis: Valve MMX-A solenoid open circuit

T4.105F With cab [ZDJD11527 -]	NA
T4.75F With cab [ZDJD10166 -]	NA
T4.85F With cab [ZDJD11099 -]	NA
T4.95F With cab [ZDJD10640 -]	NA

Control Module : Mid mount control unit

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:

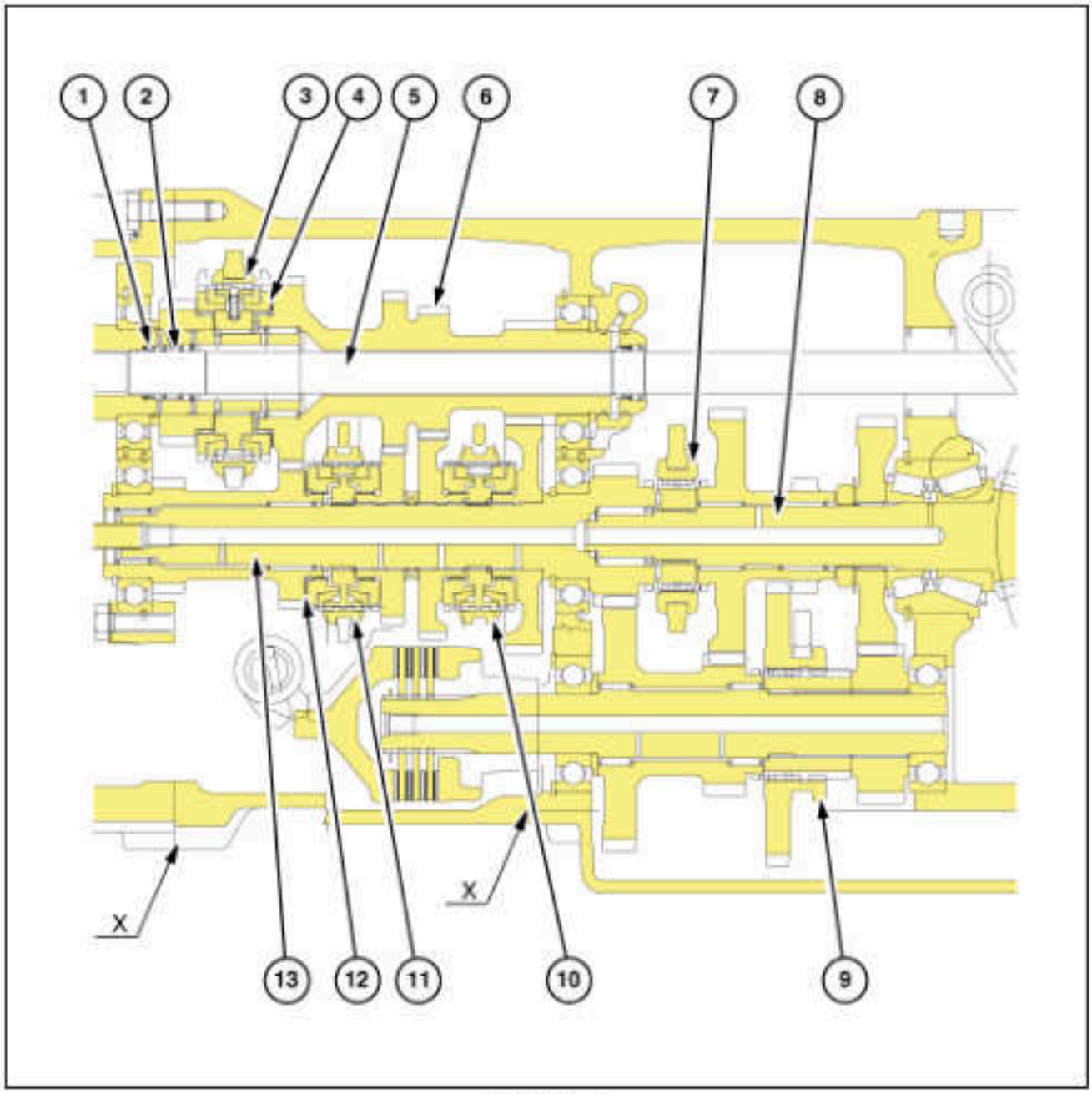
1. Faulty connector
2. Faulty wiring harness
3. Faulty MMX-A solenoid valve
4. Faulty mid mount control unit

Solution:

1. Check the MMX-A solenoid valve connector **SOL−03**, the inline harness connector **C–4006** and the mid mount control unit connector **MOD–4007**.
   A. Ensure the connectors are connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as required.
   B. If the connectors are okay, continue to step **2**
2. Check the solenoid valve.
   A. Disconnect connector **SOL−03**. Measure the resistance between the component side of connector **SOL−03** pin 1 and pin 2. If the resistance value indicated is not between **4.5 Ω** and **5.0 Ω** replace the solenoid.
   B. If the resistance is between **4.5 Ω** and **5.0 Ω**, continue to step **3**
3. Check for an open circuit.
   A. Disconnect connector **MOD–4007**. Check for an open circuit between:
   MOD–4007 pin 12 (GL) and **SOL−03** pin 1 (GL)
   MOD–4007 pin 13 (GN) and **SOL−03** pin 2 (GN)
   If an open circuit is detected, repair or replace the harness as required.
   B. If no wiring harness problems are indicated, download the correct version of software. If the error occurs again, replace the mid mount control unit.

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Transmission internal parts - Sectional view



MGJ11F995GB 1

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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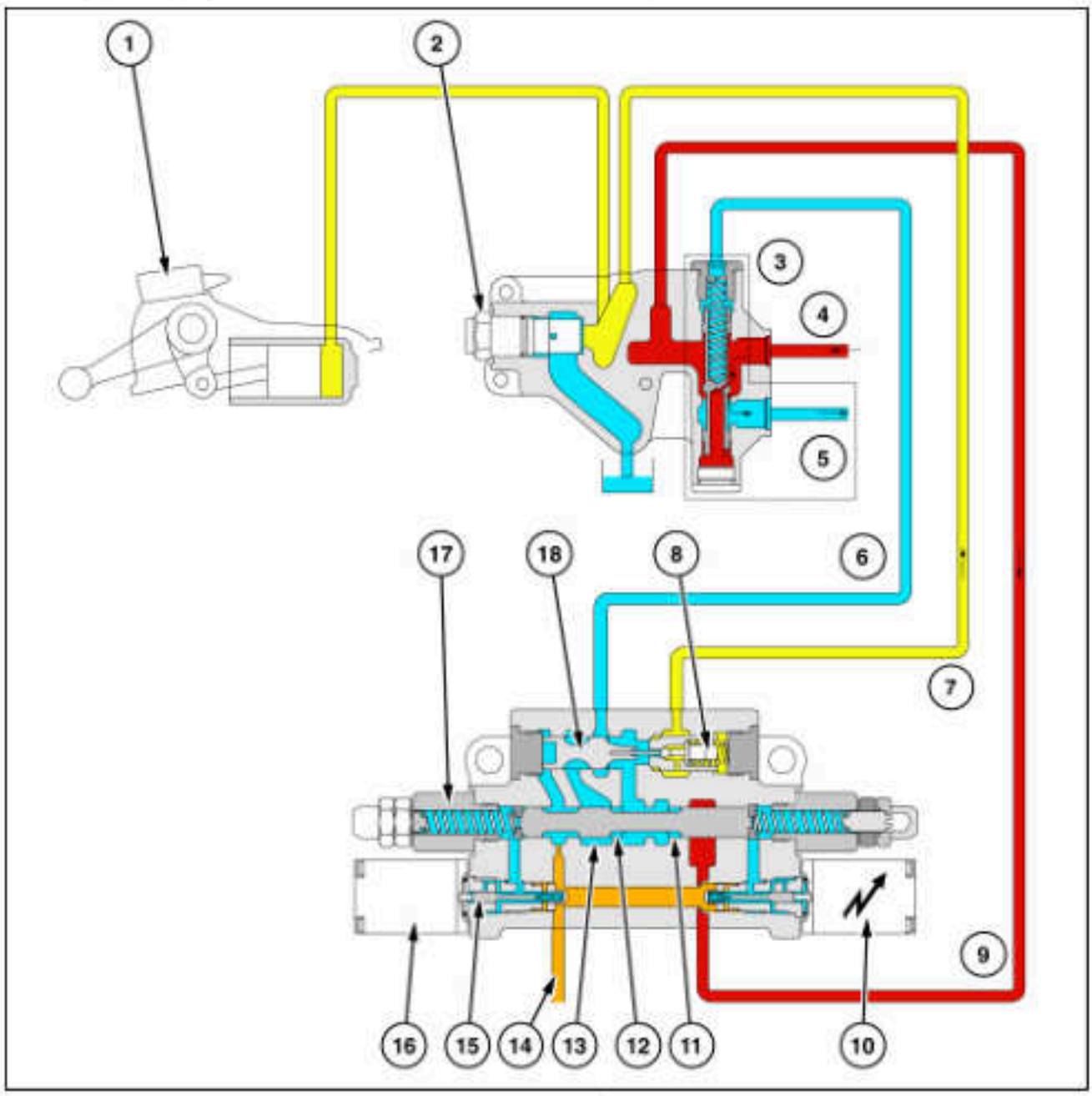
Main lift system - Dynamic description

Neutral phase

When in neutral, the electronically controlled hydraulic lift microprocessor does not send lifting or lowering signals to the control solenoid valves, and the elastic force applied, by each spring **(17)** to each end of the control valve block pin, maintains the pin in the central neutral position, preventing the oil from the pump from arriving at the hydraulic lift.

When the control valve block pin is in the neutral position, the right-hand end of the lift valve **(16)** and the pipe (**(14)**, low pressure circuit) are in communication with the rear transmission casing discharge. Under these conditions, the hydraulic lift non-return valve **(8)** remains closed and the oil in the hydraulic lift cylinder **(1)** is stopped, thereby maintaining the lift arms in a stationary position.

When the hydraulic lift is in the neutral position, the oil delivery flow from the pump flows through the hole on the load maintaining valve **(3)**, overcoming the spring resistance and moving the valve so as to allow communication between the pump delivery oil compartment **(4)** and the discharge **(5)** in the rear transmission casing. Under these conditions, the entire hydraulic pump flow returns to the rear transmission casing.



Electronic draft control functional diagram. Neutral phase.

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Wiring harnesses - Electrical schematic sheet 31 - Electronic control unit input/output wiring diagram Power-Shuttle/Dual Command (2 speed Powershift) 32+16 / 44+16 (SB)

T4.105F With cab [ZDJD11527 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement — NA Rear lifter - Electronic control
T4.75F With cab [ZDJD10166 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement — NA Rear lifter - Electronic control
T4.85F With cab [ZDJD11099 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement — NA Rear lifter - Electronic control
T4.95F With cab [ZDJD10640 -]	NA Differential lock - Electro-hydraulic — NA Four-Wheel Drive (4WD) - Automatic engagement — NA Rear lifter - Electronic control

Position	Description
(1)	Battery (**BAT−83−A**)
(2)	Ignition switch (SW–19)
(3)	Starter relay (RLY–13)
(4)	Starter motor (**M−85**)
(5)	Clutch pedal potentiometer (SEN–153)
(6)	Shuttle lever (**SW−152**), composed of three switches:
(A)	Common switch - neutral position (starting), forward/reverse position 12VD supply to the two clutches A and B.
(B)	Switch with forward gear diagnostics.
(C)	Switch with reverse gear diagnostics.
(7)	Clutch pedal switch (**SW−151**), view in starting position (pedal pressed and shuttle level on neutral), with pedal released and shuttle lever engaged (not on neutral) it supplies current to the control unit (12VD) that will supply the forward and reverse clutches.
(8)	Supply line to the sensors and potentiometers of **5 V** that the control unit provides directly
(9)	Control unit supply: 12 VD - from clutch pedal switch. 12 VF and 12 VP - directly from the fuses.
(10)	Forward gear clutch A solenoid (**SOL−146**)
(11)	Reverse gear clutch B solenoid (**SOL−147**)
(12)	Synchronizer movement solenoid in dual command (2 Speed Powershift) mode (**SOL−139**)
(13)	Synchronizer movement solenoid in shuttle mode (**SOL−139**)
(14)	Discharge solenoid (**SOL−140**).
(15)	Gear lever (**SW−183**) with buttons:
(A)	HI used to select fast speed.
(B)	LO used to select slow speed.
(C)	DUMP used to change gears, within the same range, without pressing the clutch pedal.
(16)	Control unit ground type
(17)	Ground that the control unit supplies to the various sensors (observe the triangular end, on all the sensors where at a pin and marked with this symbol they receive ground straight from the control unit).
(18)	CAN BUS line wires input, inside the control unit there is the terminator (resistance **120 Ω**).
(19)	Parking lock switch (**SW−1200**)
(20)	Transmission temperature sensor (**SEN−148**)
(21)	Shuttle synchronizer position potentiometer / dual command (2 Speed Powershift) (**SEN−203**). In the starting phase the control unit moves the synchro (dual command (2-Speed Powershift) / Power-Shuttle) to the opposite side from where it is at starting. From the movement of the synchronizer, controlled by the potentiometer. This sends a signal to the control unit that understands the power steering pump that supplies the clutch pack oil works properly.
(22)	Range lever position switch (**SW−141**)
(23)	Gear lever position switch (**SW−142**)
(24)	Creeper unit position switch (**SW−143**)
NOTE: *A) The numbers in brackets are the correspondence with the sensors, switches, of the diagram.* *B) On the control unit the connectors are identified with CN1b and corresponds to connector* ***MOD−150****.*	

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