SERVICE MANUAL

T4.75F / T4.85F / T4.95F / T4.105F
T4.75LP / T4.85LP / T4.95LP / T4.105LP

Tractor

Part number 47888360
English
July 2016

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Spring length under load of **31.7 - 35 N (6.97 - 7.87 lb)**	**34 mm (1.339 in)**
Control valve return spring **(10) Hitch control valve - Sectional view (35.100) Figure 1**	
Spring free length	**44 mm (1.732 in)**
Spring length under load of **103 - 114.7 N (23.16 - 25.79 lb)**	**29 mm (1.142 in)**
Arm descent speed control valve spring **(13) Hitch control valve - Sectional view (35.100) Figure 1**	
Spring free length	**34 mm (1.339 in)**
Spring length under load of **67 - 73 N (15.06 - 16.41 lb)**	**27 mm (1.063 in)**
Intervention speed control valve spring **(11) Hitch control valve - Sectional view (35.100) Figure 1**	
Spring free length	**14.5 mm (0.571 in)**
Spring length under load of **65 - 71 N (14.61 - 15.96 lb)**	**11 mm (0.433 in)**
(1) Value to be obtained after obtaining interference fit without grinding operations (2) During assembly the control valve block pins and control valves are carefully selected so as to obtain the required clearance	

Rear three-point hitch - General specification

Implement hitching device data

Type	Three-point linkage
Category	1st and 2nd
Draft control	By means of lower arms with flex bar
Maximum liftable load from horizontal arm link ends with three-point linkage connected to upper hole on top link and full length of lifting stroke	**2600 kg (5732 lb)**
Maximum lifting load with centre of gravity **610 mm** from the lower arm link ends for the full length of lifting stroke (with top link connected to upper hole on support)	**2310 kg (5093 lb)**
Flex bar diameter	**24.867 - 24.900 mm (0.979 - 0.980 in)**
End float of flex bar	**1.5 - 5.42 mm (0.059 - 0.213 in)**

Rear three-point hitch - Torque

Parts to be tightened	Thread	Tightening torque
Lift Lift intervention speed adjustment valve cap **(C_1)** (**Rear three-point hitch - Torque (37.110) Figure 1**)	–	**54 N·m (39.83 lb ft)**
Control valve block pin spring cap **(C_3)**	–	**54 N·m (39.83 lb ft)**
Bolts securing control valve block to lift **(C_3)**	M8 x 1.25	**26 N·m (19.18 lb ft)**
Bolts securing union to control valve block **(C_4)**	–	**44 N·m (32.45 lb ft)**
Check valve return **(C_5)**	M24 x 1.5	**83 N·m (61.22 lb ft)**
Cylinder safety valve **(C_6)**	M20 x 1.5	**83 N·m (61.22 lb ft)**
Control valve cap **(C_7)**	M20 x 1.5	**54 N·m (39.83 lb ft)**
Lift cylinder retaining bolts		
Front **(C_8)**	M14 x 1.5	**157 N·m (115.80 lb ft)**
Upper **(C_{10})**	M16 x 1.5	**260 N·m (191.77 lb ft)**
Bolts securing lift to rear transmission housing **(C_9)**	M12 x 1.25	**98 N·m (72.28 lb ft)**
Control lever quadrant cover stud bolts **(C_{11})**	–	**49 N·m (36.14 lb ft)**
Nuts for lever quadrant cover stud bolts **(C_{12})**	M8 x 1.25	**25 N·m (18.44 lb ft)**

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Electrical system - Component identification - Electrical circuit Components (functional order)

T4.105F With cab [ZDJD11527 -]	MEA — WE
T4.105LP With cab [ZFJD00717 -]	MEA — WE
T4.75F With cab [ZDJD10166 -]	MEA — WE
T4.75LP With cab [ZFJD01559 -]	MEA — WE
T4.85F With cab [ZDJD11099 -]	MEA — WE
T4.85LP With cab [ZFJD01714 -]	MEA — WE
T4.95F With cab [ZDJD10640 -]	MEA — WE
T4.95LP With cab [ZFJD01191 -]	MEA — WE

Component	Description
Alternator	
ALT-84-B	Alternator
ALT-84-C	
Audio devices	
AUD-60	RH speaker
AUD-61	LH speaker
AUD-118	Audible beep
Battery	
BAT-83-A	Battery
BAT-83-B	
BAT-83-E	
Connections	
C-1-A	Front side connection - engine (24 PIN)
C-2-A	Cab system connection (8 PIN)
C-2-B	
C-3	Trailer brake circuit intermediate connection (4 PIN)
C-5	Front lights connection
C-6-A	Transmission system connection (24 PIN)
C-8	Trailer brake circuit main connection (4 PIN)
C-9	Power-Shuttle transmission system connection (24 PIN)
C-13	Front P.T.O. and lift system connection (13 PIN)
C-14	Seven-pin socket connection
C-14-A	**ISO** seven-pin socket
C-14-B	North American seven-pin socket
C-15	Gearbox neutral connection
C-16	Electronic thermostarter connection (6 PIN)
C-18	Rear electronic lift connection (8 PIN)
C-21	Power-Shuttle system connection (6 PIN)
C-24	Digital instrument connection
C-28	Diagnostics connection
C-31	Connection for battery cut out circuit on engine
C-41	Seat connection
C-62	Fan unit connection
C-166	Brake lights signal test connection
C-167	Connection for CAN line (4 PIN)
C-216	Connection of fitting for hydraulic variant
C-650	Electrohydraulic unit solenoid valve connection
C-1000	Hydraulic adjustment circuit connection
Jumpers	
CB-31	Battery cut out circuit jumper
Fuses	
F-26	**25 A** maxi-fuse (**40 A** for North America)
F-160	**125 A** maxi-fuse
F-168	**50 A** mega-fuse (cab)
F-169	**50 A** mega-fuse

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2362-Clutch a not calibrated

Control Module : Power Shuttle control unit

Context:
Poor performance of the uncalibrated clutch. The tractor goes forwards, but the movement could be jerky.

Possible failure modes:

1. Transmission not calibrated
2. Clutch A solenoid valve trouble
3. Hydraulic circuit trouble
4. Mechanical failure
5. ECU fault

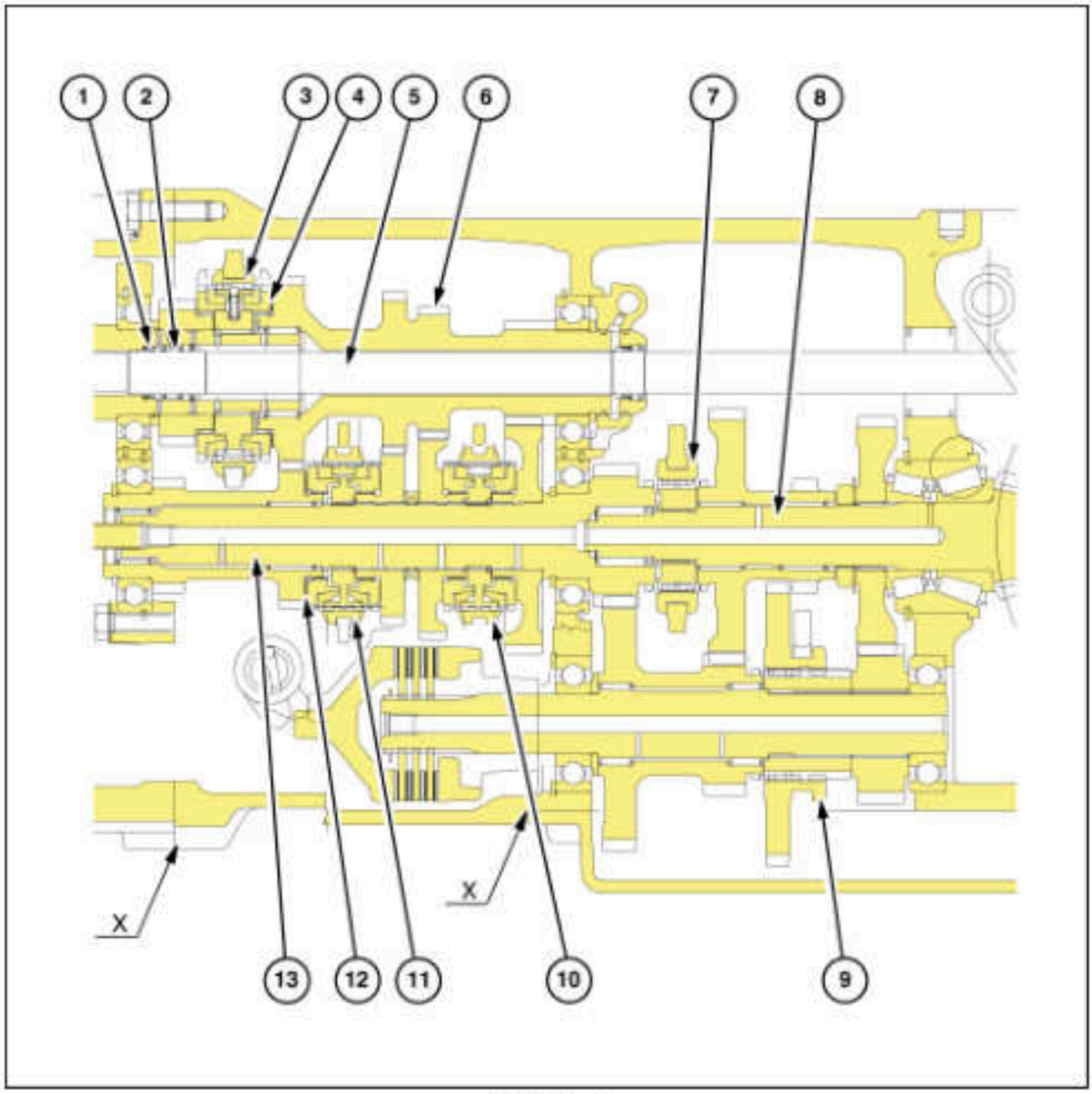
Solution:

1. When the cause of the fault code has been rectified, clear the fault code and test the system for normal operation. Check whether the transmission has been calibrated.
   A. If the transmission has not been calibrated since replacing the control unit or since using H8 (deleting EEPROM memory) run the transmission calibration procedure.
   Enter the HH menu, select the program H1 then proceed with calibration, without tool **380000843**, to access calibration, press and hold down HOME on the dashboard while starting the machine.
   B. If the transmission has been calibrated, download the correct level of the software and run the calibration procedure again. If the fault reoccurs again, continue to step **2**.
2. Check for other error codes being displayed.
   A. If other error codes are displayed, continue with these tests.
   B. If no other error code is displayed, continue to step **3**.
3. Check the solenoid valve of the broken clutch.
   A. Remove the solenoid, clean or replace as required.
   B. If the error code is still displayed, continue to step **4**.
4. Check the clutch pack pressures.
   A. If the pressures indicated are approximately **16 bar**, possible mechanical fault within the transmission. If the pressures of all the clutches are low, continue to hydraulic troubleshooting procedures.
   B. If the pressures indicated are not approximately **16 bar** on one or more of the clutches there may be an internal leak in the transmission.

   NOTE: *For a description of the HH menus, refer to* ***Electronic modules - Configure (55.640)****.*

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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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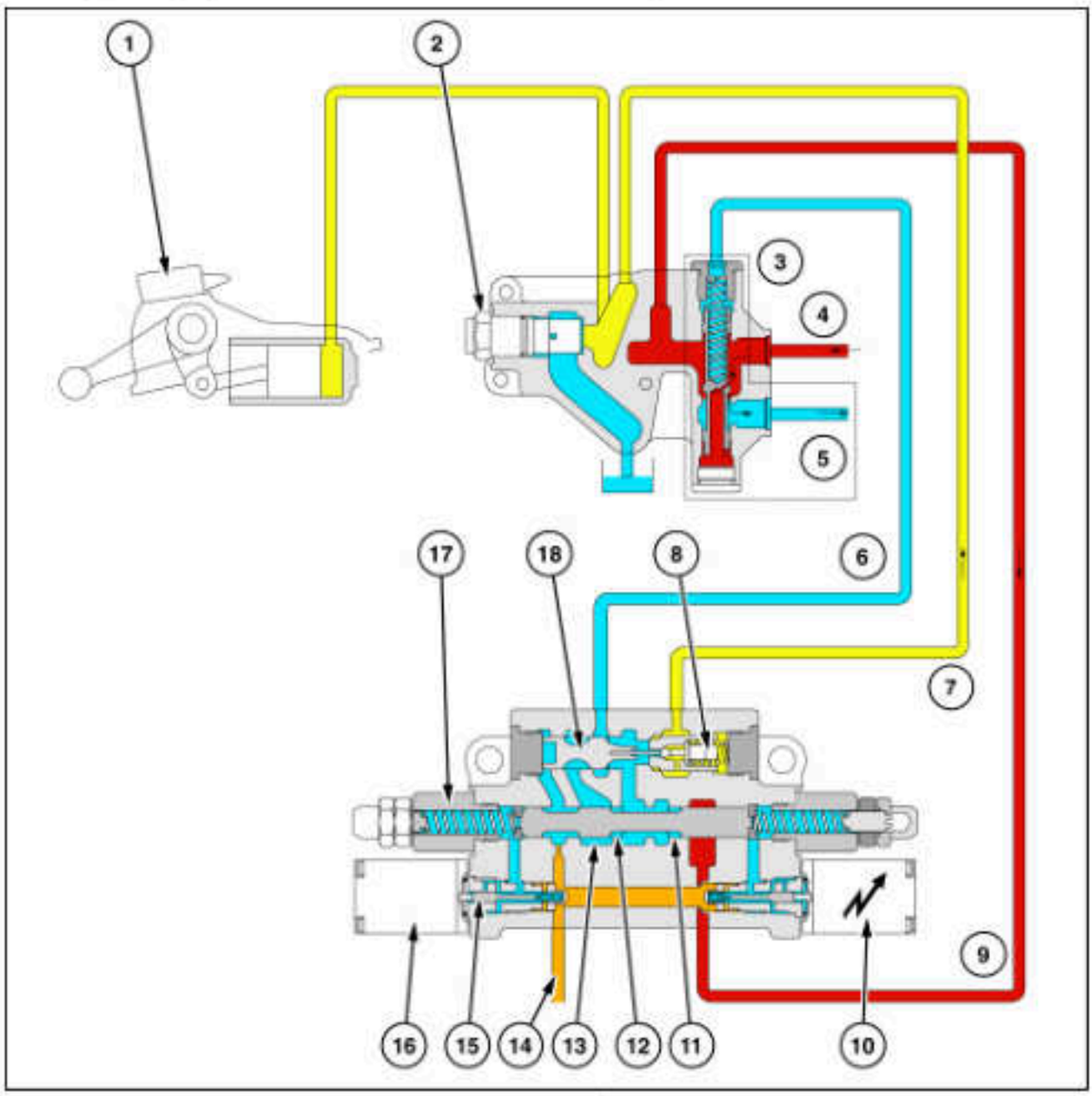
Main lift system - Dynamic description

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

Position		Description
(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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