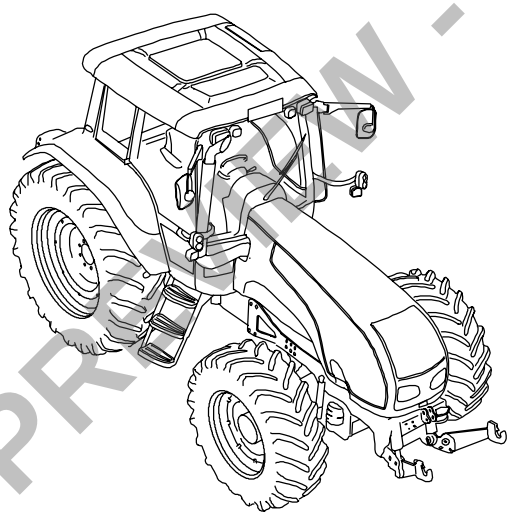
VALTRA

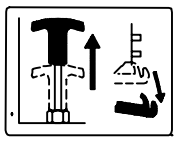
M120 M130
M150
T120 T130
T140, T160
T170 T180
T190

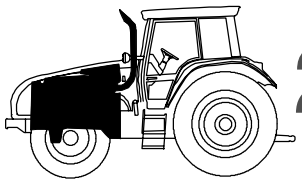


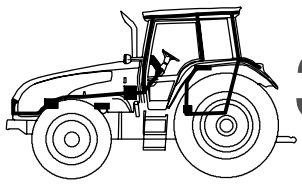
Service Manual

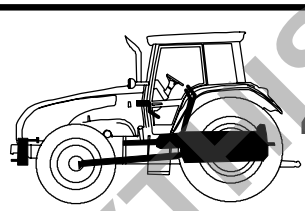
Tractors

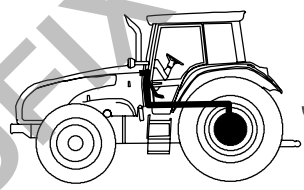
Valtra Inc.
FIN–44200 Suolahti, FINLAND
Phone +358 2045501
Telefax +358 204550387
www.valtra.com

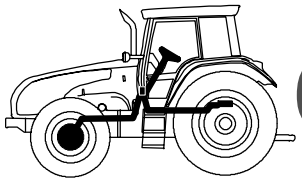

10 General

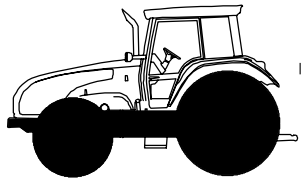

20 Engine

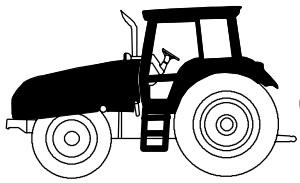

30 Electrical system

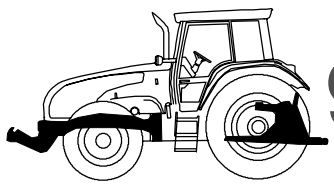

40 Power transmission

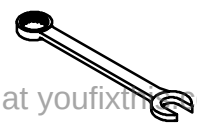

50 Brakes


60 Front axle and steering system


70 Frame and wheels


80 Cab and shields


90 Hydraulics


100 Tools

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

10. General

11. Layout

12. Construction

13. Maintanance

14. General technical specifications

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Maintenanceschedule

The same numbering system as used on the detached maintenance schedule are placed in brackets where applicable.

Daily maintenance

1. Check engine oil level.
2. Check coolant level, radiator fins and front grilles of the engine cover.
3. Check for oil and fluid leaks.

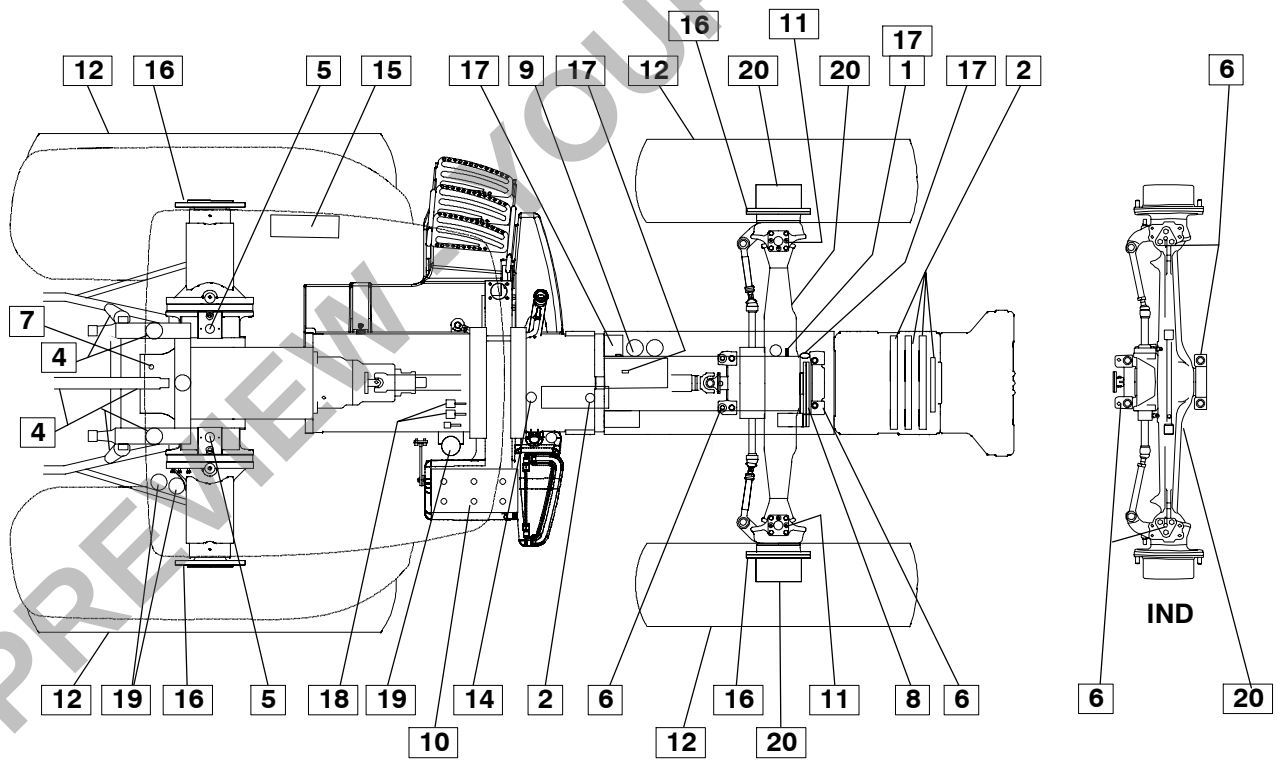
Weekly maintenance

4. Grease three–point linkage and towing device (towing devices are available as extra equipment).
5. Grease brake mechanism (high pressure grease).
6. Grease front axle mounting nipples (all models) and steering knuckles of industrial axle.
7. Check oil level in transmission and hydraulics.
8. Check belt/belts tightness (replace belts if necessary).
9. Check fuel system prefilter and sediment bowl.
10. Check electrolyte level in battery.
11. Grease the drive shaft joint nipples of the agricultural front axle.
12. Check tyre/tire pressure.

Every 500 hours

13 Grease door hinges.
14. Check brake fluid level.
15. Clean cab ventilation air filter (more often when needed).
16. Check wheel nuts tightness.
17. Change engine oil and filter (or yearly), in extremely dusty conditions at 250–hour.
18. Check brake pedal free travel.
19. Change pressure filters of the transmission and hydraulics and also hydraulic return oil filter or if the filter indicator lamp illuminates.
20. Check oil level in front axle differential and hubs.

NOTE: When carrying out servicing you must follow the service intervals, you must also do all previously mentioned items. For example, when doing 500 hours service you must also do the servicing required at weekly and daily.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Recommended fuel and lubricants

All volumes are with filters.

Part of machine	Valtra–grade	SAE–grade	API–grade	Volume, when changing (liter)
Engine – T180, T190	Valtra Engine E	10W–30: –20°C...+30°C 15W–40: –10°C...+40°C	CG–4 CH–4	19
Hydraulic system and transmission	Valtra Transmission	HT 60: –30°C...+30°C HT 100: –10°C...+40°C	GL–4 (G2–98)	45 (55 max) (extra max 65)
Industrial front axle – differential	Valtra Axle	80W–90	GL–5 (LS)	7
– hub reduction gears				2x1.5
Front PTO (extra equipment) – T180, T190	Shell Donax TX			2.2
Fuel tank	Diesel fuel which conforms to EN 590 norm			165
– Extra fuel tank				170
Cooling system – T180, T190	water + anti freeze agent (standard ASTM D3306–86a or BS 6580:1985)			31
Brake fluid reservoir	Brake fluid SAE J1703			0,3
Windscreen washer	Washer fluid			11

Part of machine	Valtra–grade	SAE–grade	API–grade	Volume, when changing (liter)
Engine – T120–T170	Valtra Engine E	10W–30: –20°C...+30°C 15W–40: –10°C...+40°C	CG–4 CH–4	19
Hydraulic system and transmission	Valtra Transmission	HT 60: –30°C...+30°C HT 100: –10°C...+40°C	GL–4 (G2–98)	45 (55 max) (extra max 65)
Powered front axle – differential	Valtra Axle	80W–90	GL–5 (LS)	8
– hub reduction gears				2x1
– differential industrial axle (standard on T140–T170)				6
– hub reduction gears ind. axle (standard on T140–T170)				2x1.5
Front PTO (extra equipment) – T120–T170	Shell Donax TX			2.2
Fuel tank	Diesel fuel			165
– Extra fuel tank				170
Cooling system – T120, T130	water + anti freeze agent (standard ASTM D3306–86a or BS 6580:1985)			28
– T140				30
– T160, T170				27
Brake fluid reservoir	Brake fluid SAE J1703			0,3
Windscreen washer	Washer fluid			11

PREVIEW - YOUFIXTHIS.COM

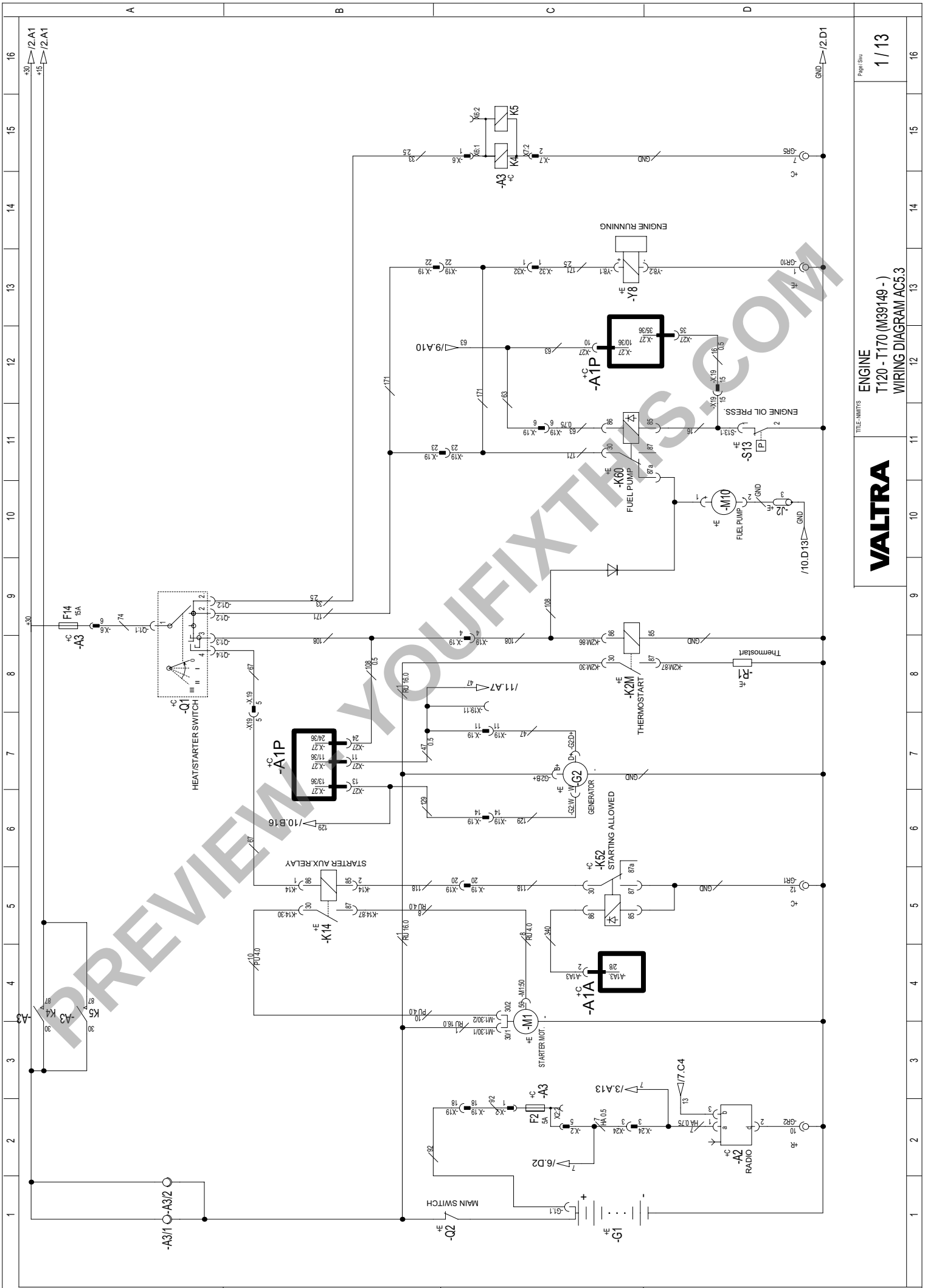
Download full manual at youfixthis.com

Tractor model	T120	T130	T140	T160	T170	T180	T190
Engine type	66 ET	66 ET	66ETA	66ETA	74 ETA	74ETA	74ETA
Compression pressure (MPa)	16,5:1	16,5:1	16,5:1	16,5:1	16,5:1	16,5:1	16,5:1
Oil pressure, normal (kPa)	250–400	250–400	250–400	250–400	250–400	250–400	250–400
Oil pressure, min. (kPa)	100	100	100	100	100	100	100
Clearance, induction valve (mm)	0,35	0,35	0,35	0,35	0,35	0,35	0,35
Clearance, exhaust valve (mm)	0,35	0,35	0,35	0,35	0,35	0,35	0,35
Injector opening pressure (MPa)	27	27	27	27	27	27	27
Injector setting pressure (MPa)	27,8	27,8	27,8	27,8	27,8	27,8	27,8
Fitting position º BTDC (static)	5º	5º	5º	5º	5º	5º	5º
Engine speed, idle (rpm)	850	850	850	850	850	850	850
Engine max. speed (rpm)	2400	2500	2000	2300	2300	2300	2300
Battery voltage (V)	12	12	12	12	12	12	12
Capacity (Ah)	174	174	174	174	174	174	174
Acceleator pedal free play (mm)							
PTO output at 540 rpm/min. (kW)							
PTO output at 1000 rpm/min. (kW)	71	82	89	99	104	116	129
Brake pedal free play (mm)	70–80	70–80	70–80	70–80	70–80	70–80	70–80
Parking brake free play (mm)							
Toe–in (mm)	0–2	0–2	0–2	0–2	0–2	0–2	0–2
Ratio, front axle/rear axle, 40km/h)	1,309	1,309	–	1,327	1,327	1,327	1,327
Ratio, front axle/rear axle, 50km/h)	1,315	1,315	1,320	1,320	1,320	1,320	1,320
Max. working pressure (steering, MPa)	14	14	14	14	14	14	14
Low pressure circuit max. pressure (MPa)	1,8	1,8	1,8	1,8	1,8	1,8	1,8
Low pressure circuit pump capacity							
at max. engine speed (l/min.)	28	28	25	30	30	30	30
High pressure circuit max. pressure (MPa)	19,6	19,6	19,6	19,6	19,6	19,6	19,6
Shock valve opening pressure							
of pump avautumispaine (MPa)	23	23	23	23	23	23	23
High pressure circuit pump capacity							
at max. engine speed (l/min.)	91	91	82	87	87	87	87
Hydraulic linkage max. lifting force (kN)	77	77	77	77	77	77	77
Capacities (l)							
Engine	6,6	6,6	6,6	6,6	7,4	7,4	7,4
Cooling system	28	28	30	27	27	31	31
Air conditioning	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Transmission	45	45	45	45	45	45	45
Fillings (l)							
Differential	8	8	6/8	6/8	6/8	6/8	6/8
Poles	2x1	2x1	2x1,5	2x1,5	2x1,5	2x1,5	2x1,5
Fuel tank	165	165	165	165	165	165	165
Filters service (change) intervals (h)							
Oil filter	500	500	500	500	500	500	500
Fuel filter	1000	1000	1000	1000	1000	1000	1000
Air filter	1000	1000	1000	1000	1000	1000	1000
Safety filter	1000	1000	1000	1000	1000	1000	1000
Prefilter	1000	1000	1000	1000	1000	1000	1000
Recirculation filter	1000	1000	1000	1000	1000	1000	1000
Pressure filters	500	500	500	500	500	500	500
Return oil filter	500	500	500	500	500	500	500
Transmission housing breather	1000	1000	1000	1000	1000	1000	1000
Tightening torques (Nm)							
Cylinder head bolts and nuts	1)	1)	1)	1)	1)	1)	1)
Main bearing screws	200	200	200	200	200	200	200
Connecting rod screws	40+90°	40+90°	40+90°	40+90°	40+90° ≥	40+90°	40+90°
Flywheel housing screws (M12/M10)	110/60	110/60	110/60	110/60	110/60	110/60	110/60
Crankshaft nut	1000	1000	1000	1000	1000	1000	1000
Exhaust manifold screws	50	50	50	50	50	50	50
Injector nozzle sleeve	60	60	60	60	60	60	60
Injector attaching nuts (on studs)	15	15	15	15	15	15	15
Wheel nuts	550	550	550	550	550	550	550
Rim–wheel disc	310	310	310	310	310	310	310

1) 80 Nm + 90° + 90°

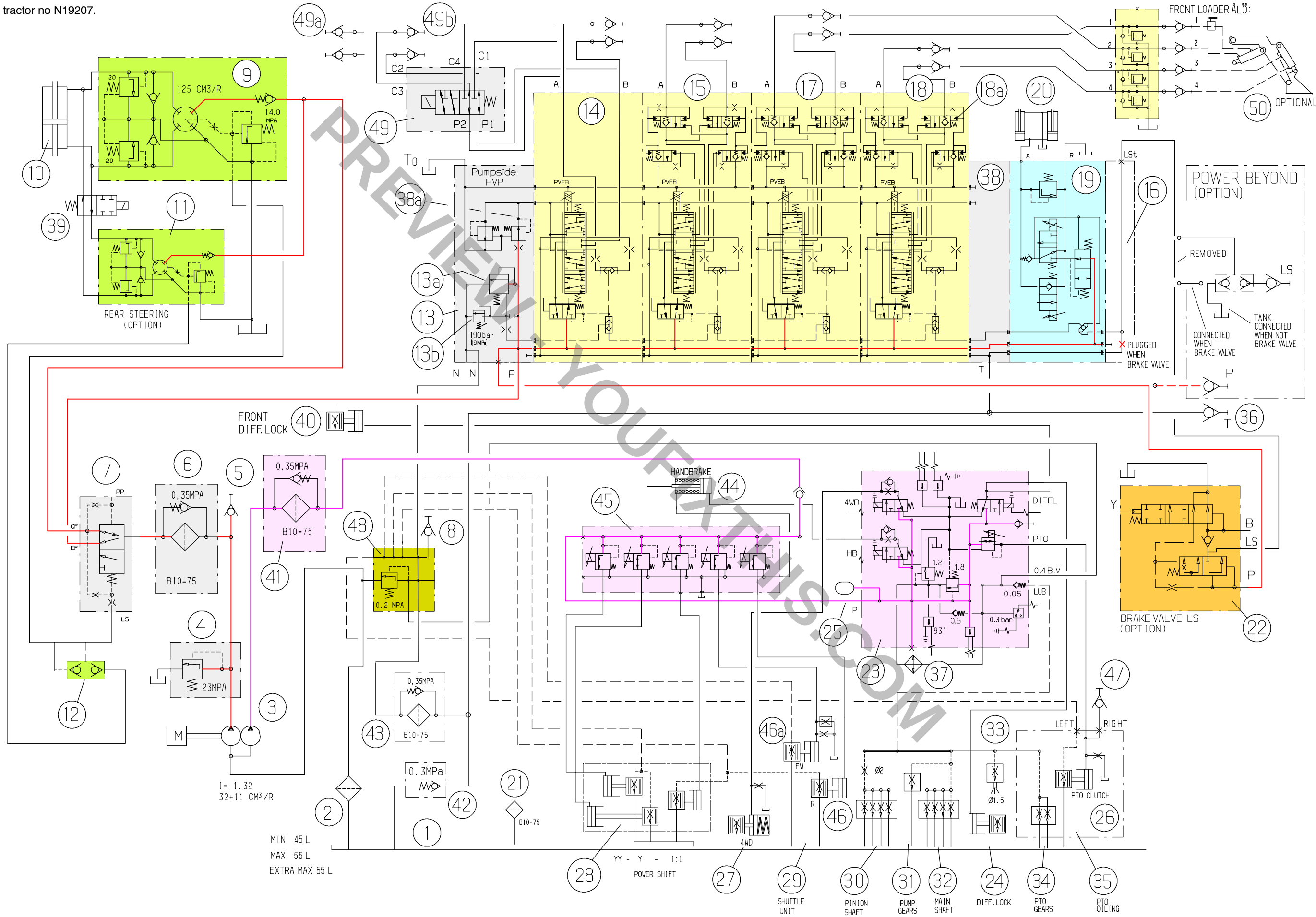
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



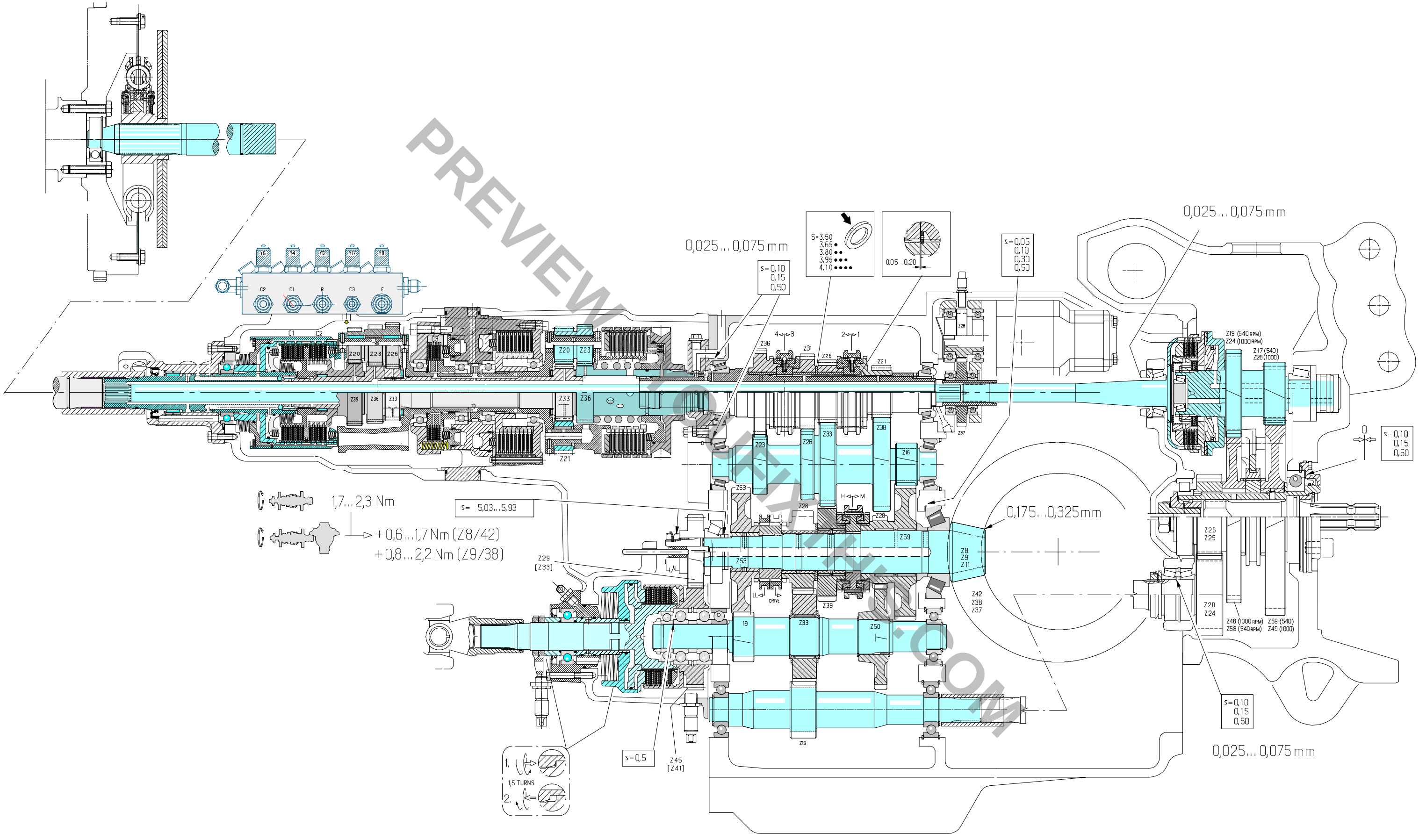
Download full manual at youfixthis.com

From T–series tractor no N19207.



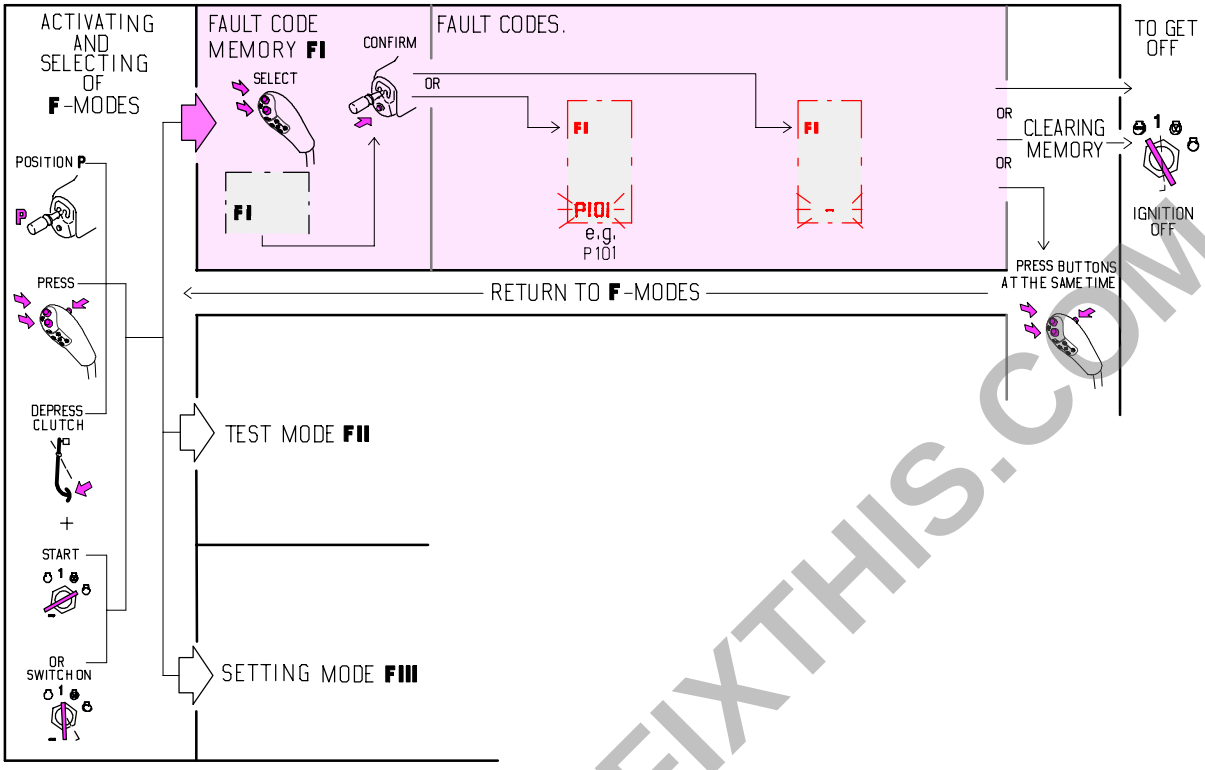
PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com



Download full manual at youfixthis.com

Fault memory mode FI



FI: Fault code memory mode
For fault codes have been made a memory where can be checked and removed appeared fault codes. The memory stores three latest fault codes and their running hours (according to the control unit hour counter “L”, not an exact value).
When the fault code memory has been activated, the display shows in the lower part of the display the fault codes stored in the memory. The fault codes are visible in a correct order so that after the activation there is an oldest code in the display. This fault code is visible two seconds and after this is shown the running hours of the code. The running hours are shown also two seconds.

If there are many codes in the memory, a line is shown one second between each codes. Then the next code and the running hours are shown. When all codes and running hours have been shown, the first code appears again in the display. The codes are shown until the current is switched off or the DPS pre–programming button is pressed over 4 seconds.
If there is no codes in the memory, the line is blinking in the lower part of the display. The fault code memory can be emptied by pressing the DPS pre–programming button over 4 seconds, after which the codes disappear and the line starts to blink.

Fault code list:

Fault code no.	Fault description	Fault level
A128*	Fault in the position sensor supply voltage for front clutch pedal (**B16**) and rear clutch pedal (**B1W**)	3
A311* **A312***	Fault in the gearbox oil temperature sensor (**B14**)	3
A313*	Fault in the signal for front gas pedal position sensor (**B15**)	3
A314*	Fault in the signal for front clutch pedal position sensor (**B16**)	3
A326*	Fault in the supply voltage for **TC1** control unit	4
A351*	Fault in the signal for rear clutch pedal position sensor (**B1W**)	3
d116	Fault in the DPS up–down push buttons (**S23**)	1
d117*	Fault in the forward (**S40**) and reverse driving direction (**S41**) reed relays	4
d118	Fault in PTO lever limit switches (**S28** and **S29**)	2
d123*	Fault in the forward (**S40**) or reverse driving direction (**S41**) and parking brake (**S15**) reed relays	4
d127*	Fault in the control current for the parking brake solenoid (**Y18**)	3
d129	Fault in the front (**S23**) and rear DPS (**S4W**) pre–programming buttons	1
d130	Fault in rear PTO switches (**S25**), (**S1A**) and (**S2A**)	2
d133*	Fault in the front (**S9**) and rear (**S2W**) clutch pedal limit switches	3

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Fault tracing chart

Fault	Probable cause	Remedy
The steering wheel is hard to turn, but the steering is otherwise normal	1. No hydraulic pressure. The pump or the pump drive faulty	Repair the fault
	2. Non–return valve (3 fig. 5) leaking or ball in wrong position.	Replace the ball or check its position
	3. Pressure–limiting valve jammed in open position	Repair the pressure–limiting valve (or clean it)
	4. Considerable friction in the mechanical parts of the steering system.	Lubricate the steering system bearings and joints, repair if necessary. Check the steering column clearance
Continual correction of the steering wheel is necessary. The steering wheel will not assume a neutral position.	1. Leaf springs have no force or are broken	Change the leaf springs
	2. Steering column and steering valve are not in line.	Line up the steering column with the centre line of the steering valve
	3. Too little play or no play at all between the steering column and the connecting piece.	Adjust the clearance
The steering wheel will not assume the neutral position, tends to turn itself=motor effect)	1. Dirt, burrs or swarf between the inner and outer slides.	If possible clean the slides, otherwise change the complete housing or the whole steering valve
	2. Jamming between the inner and outer slides caused by too high fluid pressure	Clean the whole steering system
	3. Leaf springs broken or have no spring pressure.	Adjust the pressure–limiting valve to the prescribed pressure
		Change the leaf springs
Road wheels turn in the wrong direction	1. Hoses to steering cylinder are reversed	Change the hoses round
	2. Wrong setting of rotor shaft or rotor set, see figure	Correct the setting
Steering force too low (or only to one side)	1. Steering pressure too low	Correct the pump pressure of the pressure–limiting valve
	2. Worn seal on steering cylinder piston	Change the piston seal
	3. Too large internal leakage in steering valve	Change or recondition the steering valve
	4. Shock valve faulty	Recondition shock valve
	5. Abnormal superstructure for use of machine	Compare with machine of standard version
Abnormally large ”play” in steering wheel	1. Groove for cross pin worn or broken	Change rotor shaft
	2. Play in universal joint on steering column	Change the universal joint
	3. Leaf springs broken or have no spring force	Change the leaf spring
Road wheels vibrate	1. Air in the steering cylinder	Bleed the steering system
	2. Wear in the mechanical connections or wheel bearings	Change worn parts
The steering wheel is subject to severe shocks when steering wheel is turned or the steering wheel tries to move the opposite way (=tends to twist out of the hands)	1. Faulty setting of rotor shaft and rotor set	
Shocks from road wheels while driving	1. Non–return valve (2 fig. 5) faulty	Change steering valve
Steering too slow	1. Too little oil in the system	Check oil level and oil pressure flow from the pump
	2. Pipe lines partly clogged	Clean or repair
	3. worn steering valve	Change or recondition the steering valve
	4. Abnormal superstructure or use of machine	Compare with machine of standard version

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Technical specifications

Model	T 120	T 130	T 140
Designation	66 ET	66 ET	66 ETA
Type	Four - stroke direct injection diesel engine		
Turbocharged and intercooler	yes	yes	yes, intercooler
Number of cylinders	6	6	6
Numbering of cylinders (fr. front)	1–2–3–4–5–6	1–2–3–4–5–6	1–2–3–4–5–6
Cylinder bore, mm	108	108	108
Stroke, mm	120	120	120
Cylinder displacement, dm^3	6,6	6,6	6,6
Compression ratio	16,5:1	16,5:1	16,5:1
Max. output, DIN kW/(hp)/r/min (ISO 14396)	88/(120/2200)	99/(135/2200)	106,5/(145/1800)
Max Torque, Nm/r/min (ISO 14396)	505/1400	550/1400	655/1100
Max. no load speed, r/min	2400	2400	2000
Low idling speed, r/min	850	850	850

Model	T 160	T 170
Designation	66 ETA	74 ETA
Type	Four - stroke direct injection diesel engine	
Turbocharged and intercooler	yes, intercooler	yes, intercooler
Number of cylinders	6	6
Numbering of cylinders (fr. front)	1–2–3–4–5–6	1–2–3–4–5–6
Cylinder bore, mm	108	108
Stroke, mm	120	134
Cylinder displacement, dm^3	6,6	7,4
Compression ratio	16,5:1	16,5:1
Max. output, DIN kW/(hp)/r/min (ISO 14396)	117,5/(160/2100)	125/(170/2100)
Max Torque, Nm/r/min (ISO 14396)	650/1400	655/1400
Max. no load speed, r/min	2300	2300
Low idling speed, r/min	850	850

Engine type designations

66 ETA

Equipped with intercooler
- A = air–to–air
- I = air–to–water

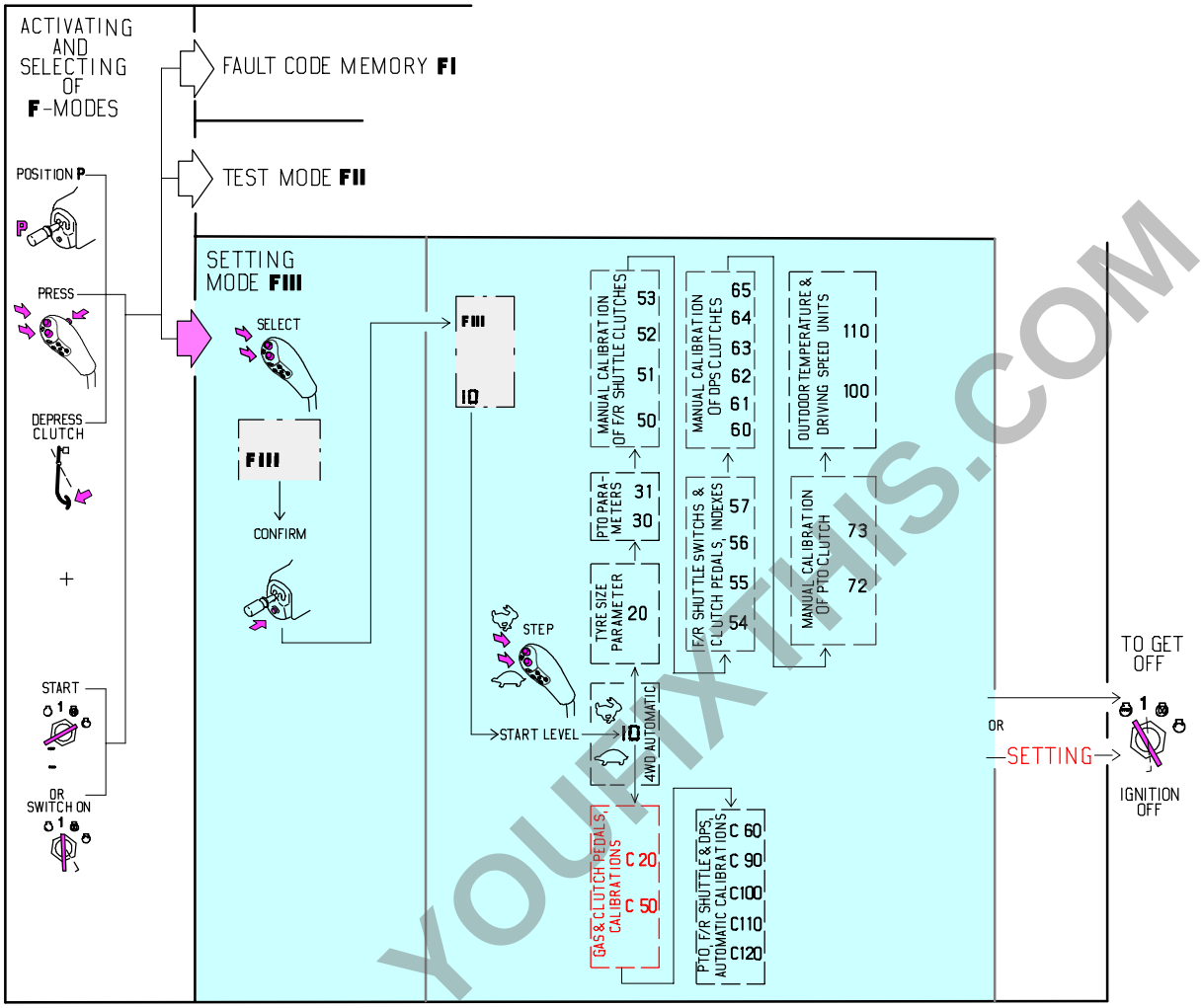
Turbocharged engine
- W = by–pass turbo
- T = standard turbo

Basic type
- 74 = cylinder displacement, decilitres
- E = electronic engine management
- D = mechanical injection pump

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Calibration mode FIII of the clutch and gaspedal (c 20–c 50)



Before calibration the following points must be observed:
– Transmission oils are in the operating temperature. (**+30°C...+60°C**).
– Engine revs are at the low idling speed.

Points to calibration:

In display	Name	Carrying–out the calibration
C 20	Clutch pedal calibration (B16)	Depress the clutch pedal **gently** and **evenly** to the bottom and keep the pedal in bottom for a while, at which time the control unit reads values in the calibrating points and saves them in memory. After the successfully calibration digits **01** appear in the two RH side digits. If the calibration has failed, **Interruption code** appears**.** Then the old values remain in the memory. Begin the calibration again.
C 50	Gas pedal calibration (B15)	Set the mechanical gears in neutral (engine at low idling). Raise the engine revs evenly and gently with the throttle lever up to max. revs during about 10 seconds, however all the time the revs must go up. When the max. revs have been reached, **wait about 3 seconds** and press the HiShift button. At which time the control unit reads values in the calibrating points and saves them in a memory. Lower to the low idling speed. After the successful calibration digits **01** appear in the two RH side segments. If the calibration has failed, **Interruption code** appears**.** Begin the calibration again and raise once again the revs slower during 12–15 seconds with the hand gas lever. When you approach max. revs can the depressing of the pedal be slowed a bit

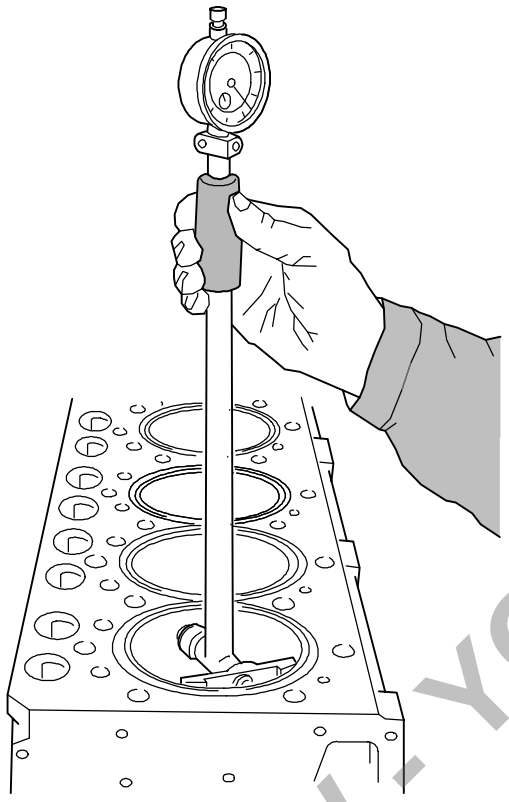
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Cylinder block

Measuring cylinder liner wear

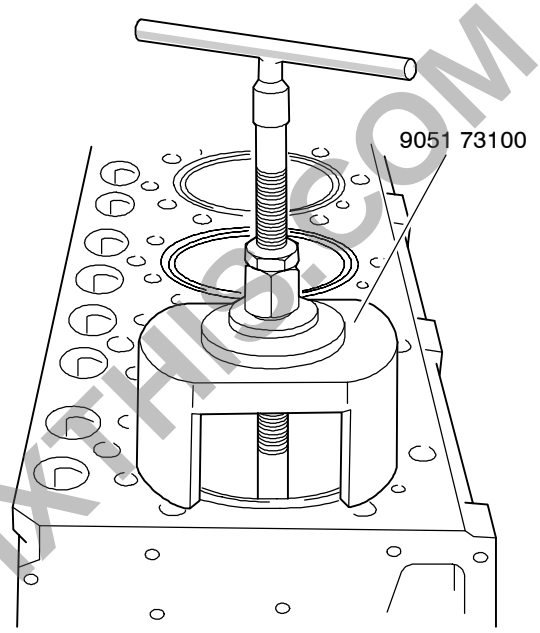
1. Using a micrometer set the dial gauge to zero using a new cylinder liner indicating the initial dimension of the bore. See “**Technical data**”, point “**Cylinder liners**”.
2. Clean the inner surface of the cylinder liner thoroughly before measurement.



3. Perform the measurement crosswise at the liner top end, lower end and middle.
4. Check the gauge reading for maximum wear and ovalness (compare with rated).

Removing cylinder liner

1. If the cylinder liners are to be used again they should be marked so that they can be fitted in the same position.



2. Remove the cylinder liners using cylinder liner puller 9051 73100.

Checking cylinder block

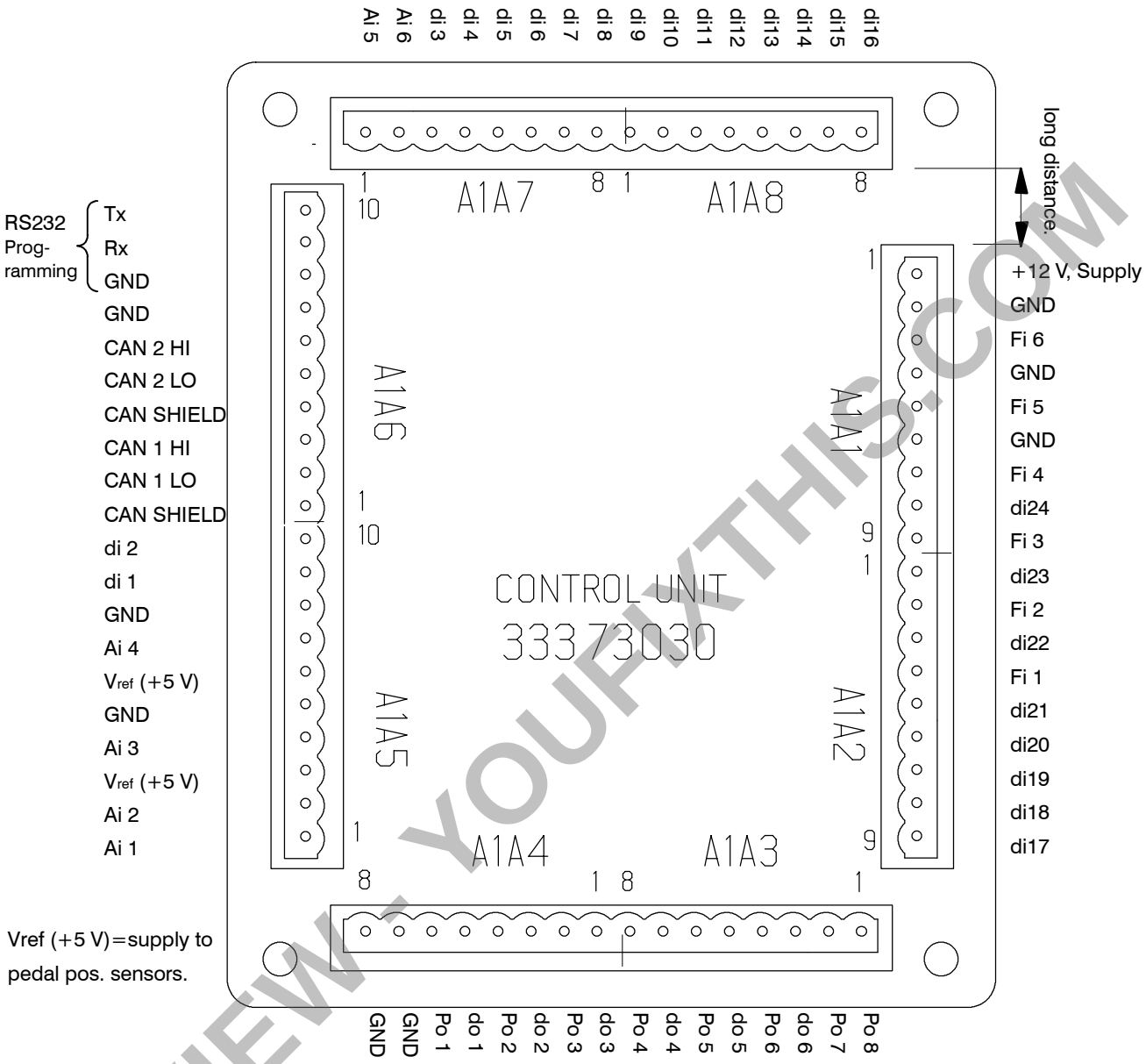
1. Clean the cylinder block and all oil ways.
2. Check the cooling channels and remove the scale and sediment to ensure engine cooling.
3. Check the tightness of the cup plugs and threaded plugs in the cylinder block as well as the condition of the cylinder block and sealing faces.
4. Measure the wear of the camshaft bearing points (compare with rated).

Note! If it is necessary to machine the upper face of the cylinder block, the pistons must be shortened by the same dimension. Observe the valve disc spaces on the piston upper face.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Connectors of the TC1 control unit



Vref (+5 V)=supply to pedal pos. sensors.

DIGITAL INPUTS:
di 1=DPS up (S23)
di 2=DPS down (S23)
di 3=HiShift (S45)
di 4=PTO start in cab (S25)
di 5=seat switch (S60)
di 6=clutch pedal, front (S9)
di 7= DPS Auto1/Auto2 (S47)
di 8= DPS auto/manual (S47)
di 9 = Forwards F, front (S40)
di10=Rearwards R, rear (S41)
di11=DPS pre–progr. front (S51)
di12=PTO speed 1 (S28)
di13=PTO speed 2 (S29)
di14=direction of seat (S3W)
di15=PTO standby (S25)
di16=Parking brake, front (S15)
di17= PTO start, mudguard (S1A, S2A)
di18= Forwards F, rear (S5W)
di19= Rearwards R, rear (S6W)
di20=Clutch pedal, rear (S2W)
di21=DPS pre–progr., rear (S7W)
di22=Parking brake, rear (S9W)
di23=traction control (S76)
di24=Brake pedal switches (S10, S20, S9W)

ANALOG INPUTS:
Ai 1=outdoor temp (B17)
Ai 2=oil temp (B14)
Ai 3=Gas pedal, signal (B15)
Ai 4=front clutch pedal, signal (B16)
Ai 5=rear clutch pedal, signal (B1W)
Ai 6=reserve

FREQUENCY INPUTS:
Fi 1=engine speed (B11)
Fi 2=gearbox speed (B6)
Fi 3=reserve
Fi 4=shuttle speed 1 (B12)
Fi 5=shuttle speed 2 (B13)
Fi 6=PTO speed (B7)

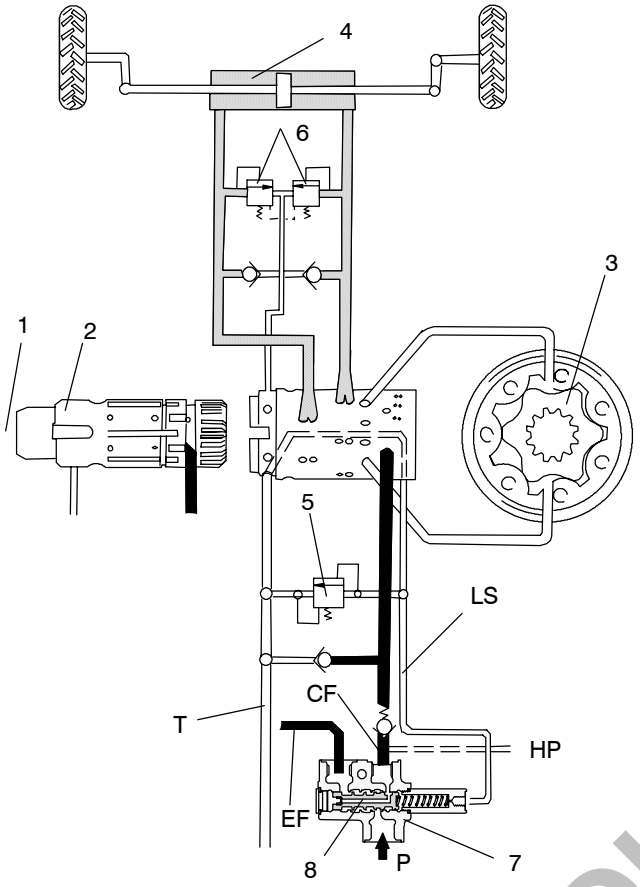
DIGITAL OUTPUTS:
do 1=LCD display (P6)
do 2=LCD display (P6)
do 3=LCD display (P6)
do 4=LCD display (P6)
do 5=parking brake (Y18)
do 6=rear PTO indicator light (H10)

OUTPUTS TO PROPORTIONAL VALVES:
Po 1=DPS solenoid 1 (Y4)
Po 2=DPS solenoid 2 (Y6)
Po 3=DPS solenoid 3 (Y17)
Po 4=F solenoid (Y11)
Po 5=R solenoid (Y12)
Po 6=PTO solenoid (Y2)
Po 7=starter interlock (K52)
Po 8=4WD automatics (K27), (S30)

DATA TRANSFERRING CHANNELS:
CAN SHIELD
CAN 1 LO
CAN 1 HI
CAN SHIELD
CAN 2 LO
CAN 2 HI
GND=RS232 programming (X43)
Rx=RS232 programming (X43)
Tx=RS232 programming (X43)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

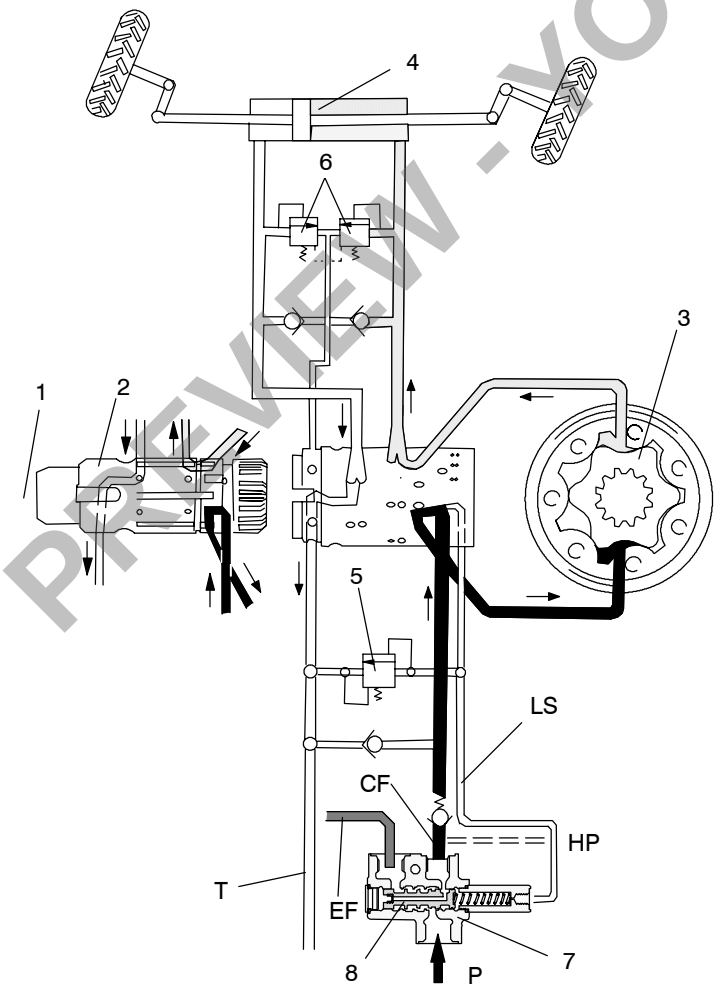


Steering wheel is not turned

1. Steering wheel
2. Spool valve
3. Rotor
4. Steering cylinder
5. Pressure–limiting valve (14 MPa)
6. Shock valves (19,5 MPa)
7. Priority valve
8. Priority valve slide

P=From pump
T=To tank
CF=Pressure oil to steering valve
EF=Pressure oil to working hydraulics
HP=Low–pressure oil from servo valve block, **–660070**
LS=Load sensing line

In this figure the steering wheel is not turned. LS line is unpressurized and the slide (8) in the priority valve directs oil pressure to the line EF (to the working hydraulics)



Steering wheel is turned to the right

1. Steering wheel
2. Spool valve
3. Rotor
4. Steering cylinder
5. Pressure–limiting valve (14 MPa)
6. Shock valves (19,5 MPa)
7. Priority valve
8. Priority valve slide

P=From pump
T=To tank
CF=Pressure oil to steering valve
EF=Pressure oil to working hydraulics
HP=Low–pressure oil from servo valve block, **–660070**
LS=Load sensing line

In this figure the steering wheel is turned and the pipe LS is pressurized and pushes the slide (8) so that pressure from pump P is directed to the steering valve (pipe CF) and further to the steering cylinder. The pressure limiting valve (5) regulates the steering system pressure at 14 MPa.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

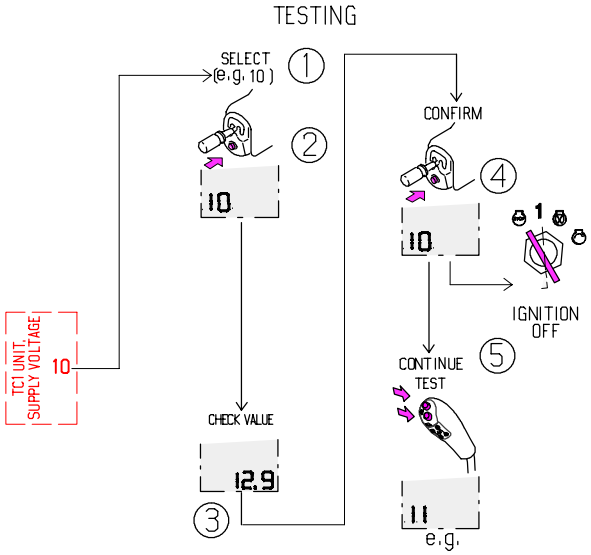
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Example: Test of TC1 control unit supply voltage.

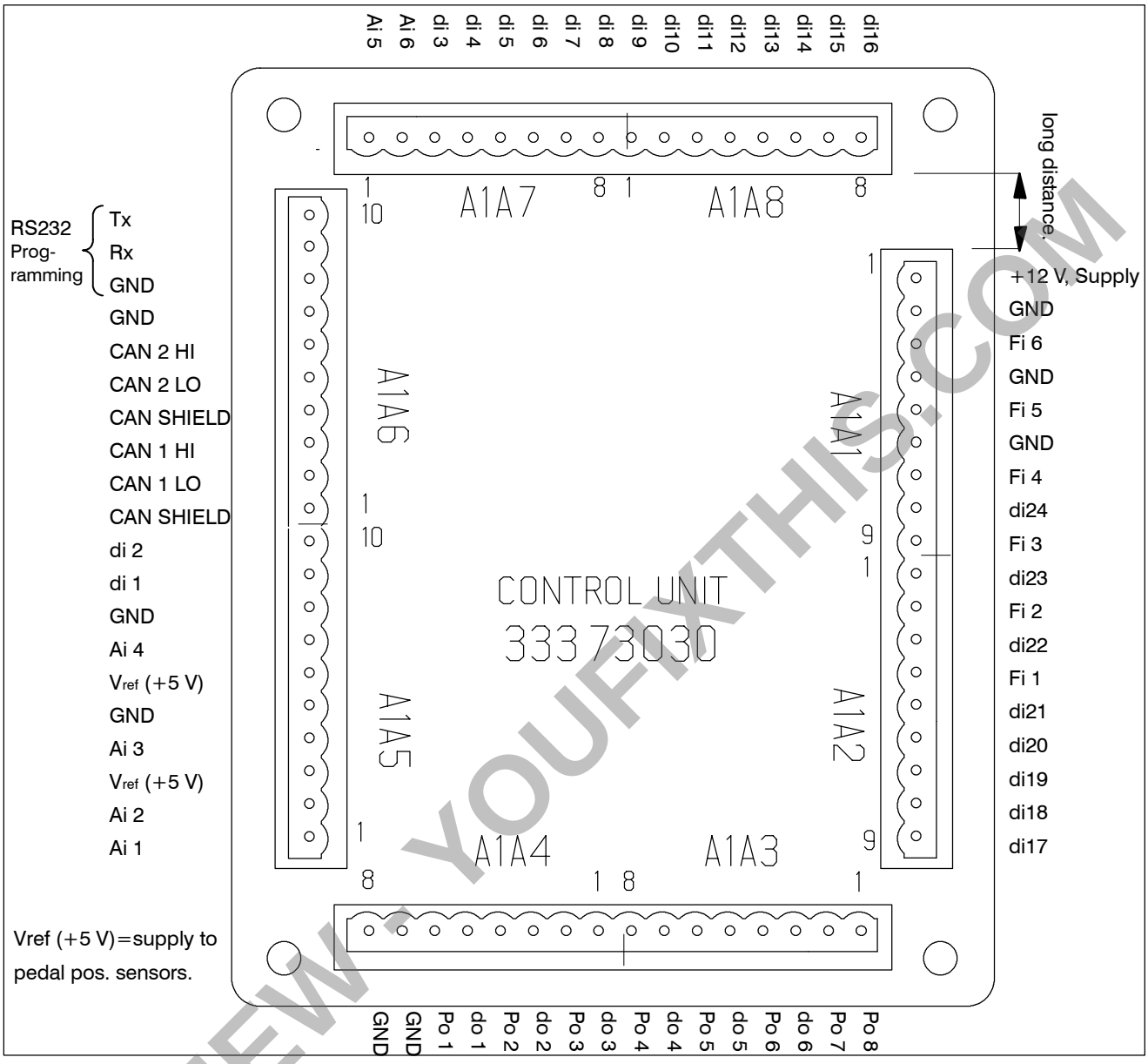


1. Select test point with the DPS buttons.
2. Confirm test point with the DPS pre–programming button.
3. Check value.
4. When value has been checked, confirm testning with the DPS pre–programming button.
5. If needed, select new test point with the DPS buttons or escape from the test mode by switching off current.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Connectors of the TC1 control unit



Vref (+5 V)=supply to pedal pos. sensors.

DIGITAL INPUTS:
di 1=DPS up (S23)
di 2=DPS down (S23)
di 3=HiShift (S45)
di 4=PTO start in cab (S25)
di 5=seat switch (S60)
di 6=clutch pedal, front (S9)
di 7= DPS Auto1/Auto2 (S47)
di 8= DPS auto/manual (S47)
di 9 = Forwards F, front (S40)
di10=Rearwards R, rear (S41)
di11=DPS pre–progr. front (S51)
di12=PTO speed 1 (S28)
di13=PTO speed 2 (S29)
di14=direction of seat (S3W)
di15=PTO standby (S25)
di16=Parking brake, front (S15)
di17= PTO start, mudguard (S1A, S2A)
di18= Forwards F, rear (S5W)
di19= Rearwards R, rear (S6W)
di20=Clutch pedal, rear (S2W)
di21=DPS pre–progr., rear (S7W)
di22=Parking brake, rear (S9W)
di23=traction control (S76)
di24=Brake pedal switches (S10, S20, S9W)

ANALOG INPUTS:
Ai 1=outdoor temp (B17)
Ai 2=oil temp (B14)
Ai 3=reserve
Ai 4=front clutch pedal, signal (B16)
Ai 5=rear clutch pedal, signal (B1W)
Ai 6=reserve

FREQUENCY INPUTS:
Fi 1=engine speed (B11)
Fi 2=gearbox speed (B6)
Fi 3=reserve
Fi 4=shuttle speed 1 (B12)
Fi 5=shuttle speed 2 (B13)
Fi 6=PTO speed (B7)

DIGITAL OUTPUTS:
do 1=LCD display (P6)
do 2=LCD display (P6)
do 3=LCD display (P6)
do 4=LCD display (P6)
do 5=parking brake (Y18)
do 6=rear PTO indicator light (H10)

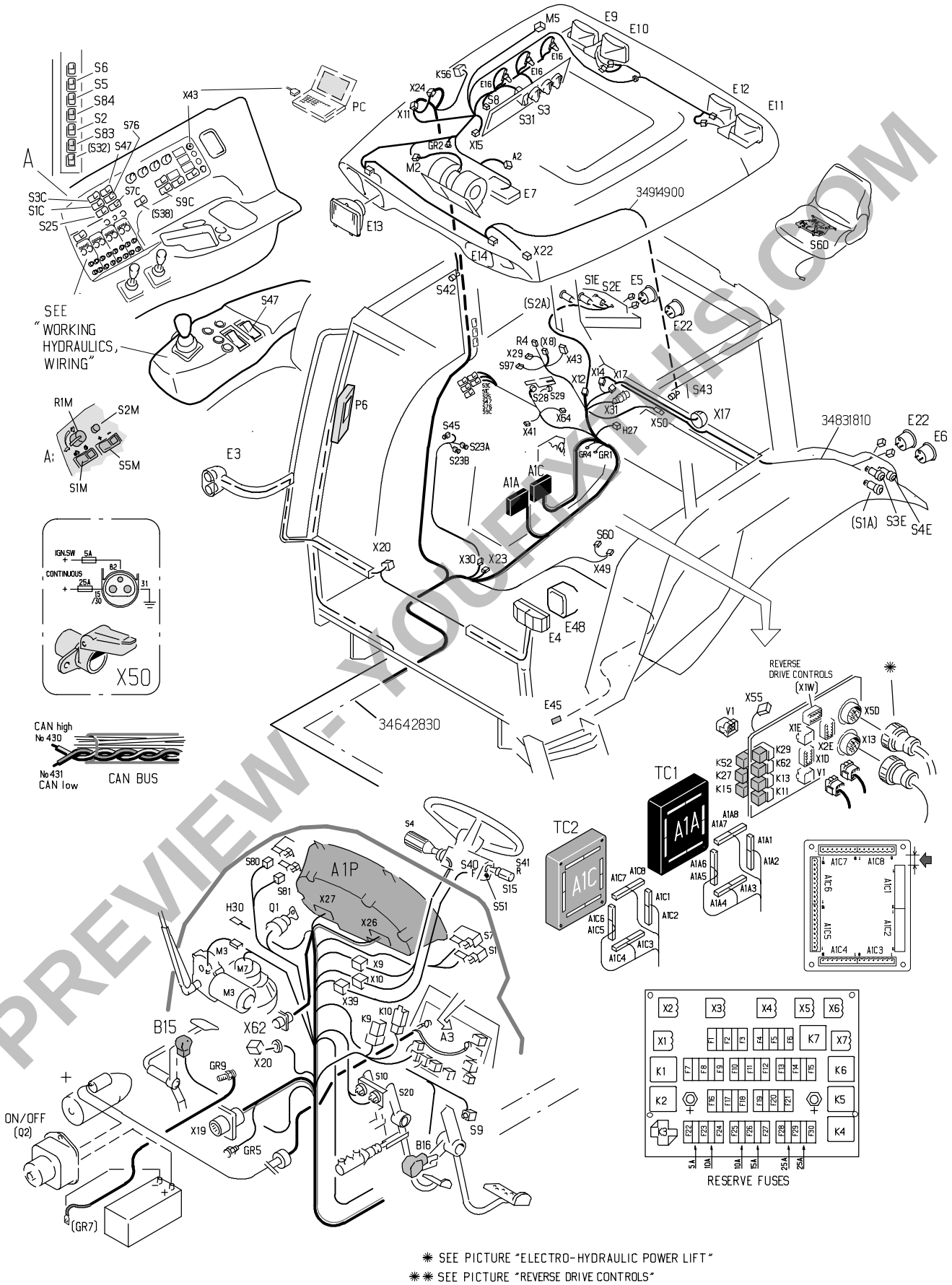
OUTPUTS TO PROPORTIONAL VALVES:
Po 1=DPS valve 1 (Y4)
Po 2=DPS valve 2 (Y6)
Po 3=DPS valve 3 (Y17)
Po 4=F valve (Y11)
Po 5=R valve (Y12)
Po 6=PTO valve (Y2)
Po 7=starter interlock (K52)
Po 8=4WD automatics (K27), (S30)

DATA TRANSFERRING CHANNELS:
CAN SHIELD
CAN 1 LO
CAN 1 HI
CAN SHIELD
CAN 2 LO
CAN 2 HI
GND=RS232 programming (X43)
Rx=RS232 programming (X43)
Tx=RS232 programming (X43)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

The electrical equipments of the cab



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

The active signal range is from 33% to 70% of battery voltage, with the neutral position being defined at 50%. The outer most, at each end of the supply signal, is for error detection purposes.

Limit screws for the flow adjustment

With these screws, under the plastic covers, the maximum oil flow can be ”adjusted” individually, from increase (+) and decrease (–) direction as follows:

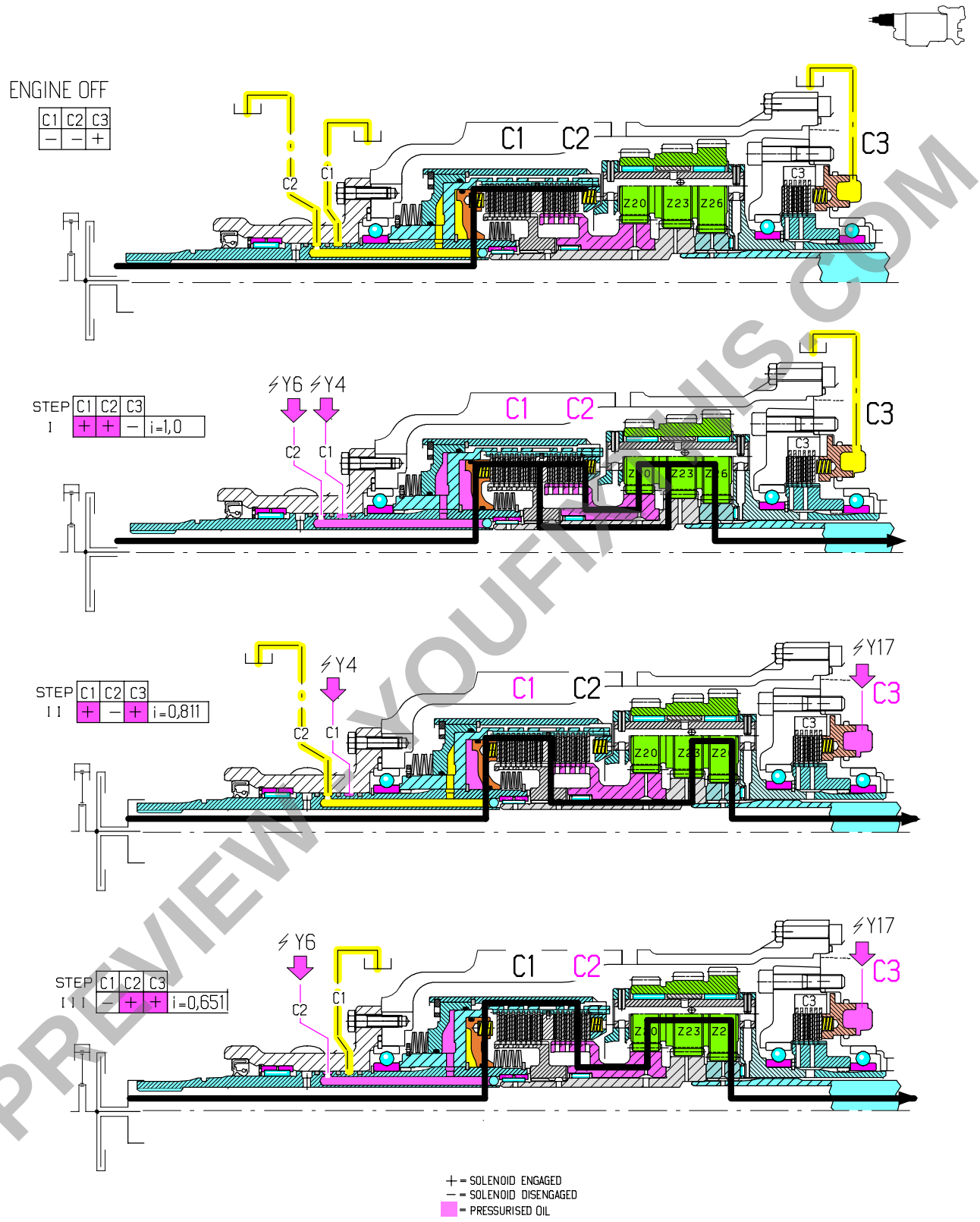
– when turning the selected screw with the screwdriver in a clockwise direction, the maximum oil output will be limited to certain level (see diagram, bleu zones)
– When using the control lever of the selected direction, after the certain point (adjusted before), the output does not increase any more, even if the lever is turned more.

These operations with limit screws effect only the control of the valve oil flow made by the control lever.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

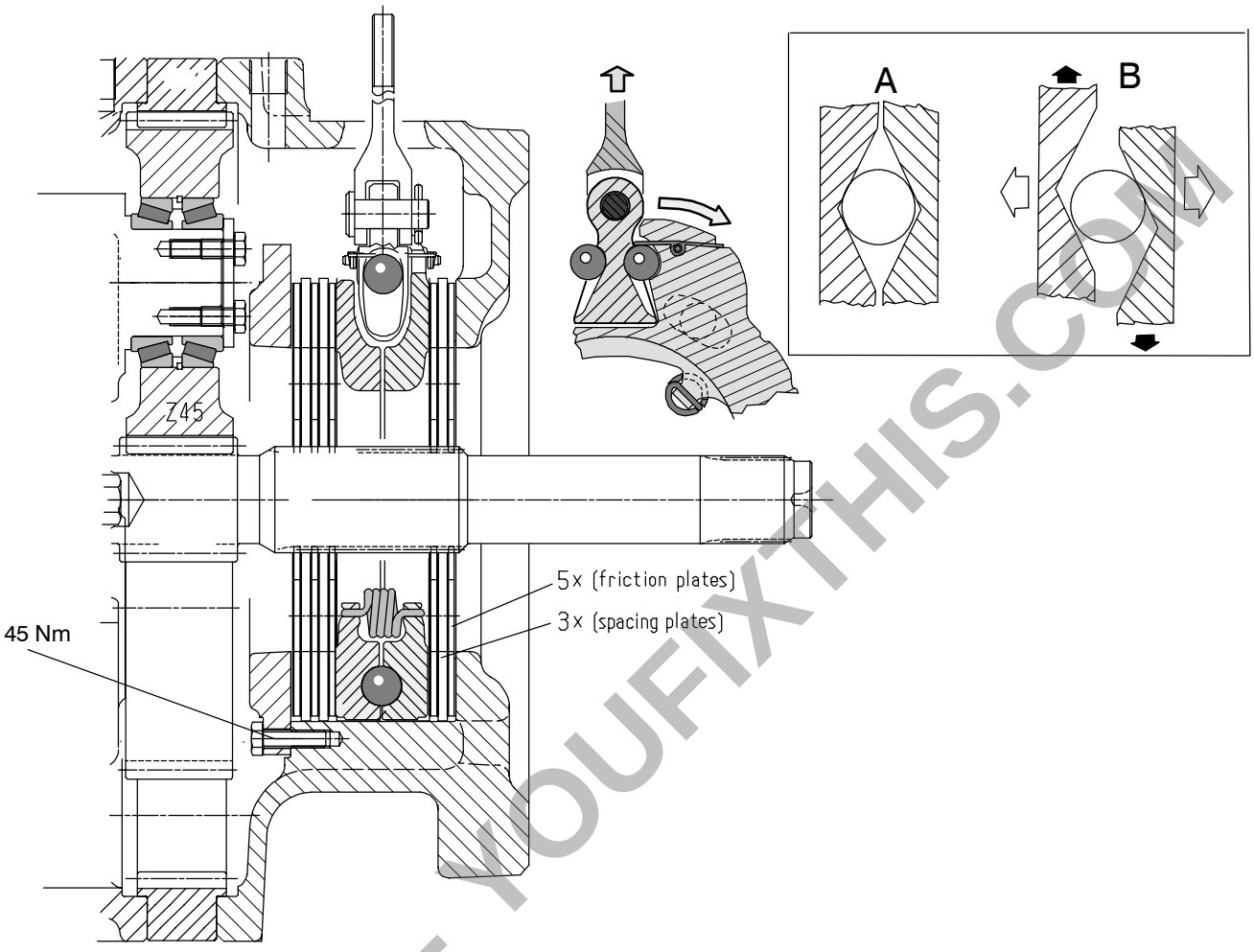
Function of the DPS



PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com

Brake mechanism (with final drives 700)



Brake mechanism in tractors which has final drives 700

In connection with final drives 700 the brake mechanism is different. In this system the application plate pressing force agains the brake discs is obtained by the tapered part, sides of which press the steel balls which turns the application plates causing the brake force.

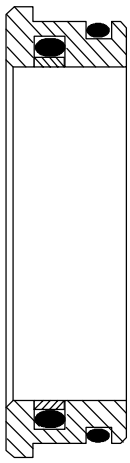
There is not an anchor bolt in the lower part of the brakes, as in connection with final drives 300 – 650. In final drives 700 there are sholders in the intermediate discs and in the application plates which engage in the notches casted in the rear axle housing.

The brake discs are fitted on the drive shaft splines so that the holes in the discs are tried to place almost in the same line in order to facilitate free oil flow.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

6. Change the piston seal and the o–ring in the axle housing groove.



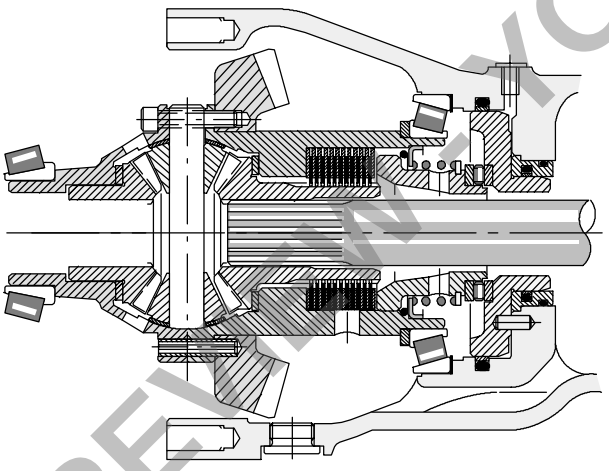
7. Change the metal ring sealing rings.

8. Apply grease to the sealing rings..

9. Push the metal ring with its seals into its location fully home. Fit the piston together with its dowel. Fit the differential bearing race and shims, if removed..

10. Fit the thrust bearing ring into the piston recess. Fix it, if necessary, with a little grease.

11. Fit the other thrust bearing ring and its roller ring onto the differential. Fix with grease, if needed.



12. Fit the differential unit into the axle housing so that the drive shaft splines guide into the differential side gear.

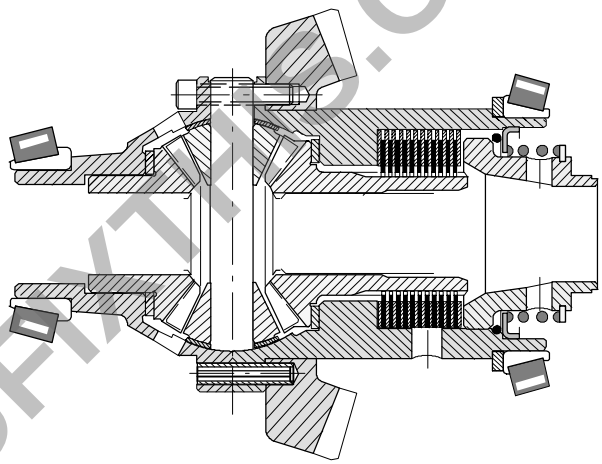
13. Check and grease the axle section o–ring. Place the axle sections to the correct position and tighten the bolts to a torque of **190 Nm**.

14. Rotate the hub by hand. It must rotate quite easily.

15. Connect the tie rod to the steering arm (**160 Nm**). Fit the front wheel (**550 Nm**). Fill the axle housing with oil. Test–run the tractor and assure that the lock functions. Check for leaks.

Changing the disc pack

1. Remove the differential.



2. Remove the pressure sleeve snap ring and the spring (not necessary).

3. Pull out the pressure sleeve together with the spring seat and the o–ring behind it.

4. Take away the disc pack.

5. Oil new discs. Fit by turns steel disc and friction disc into the differential housing. First and last the steel disc (11 friction discs and 12 steel discs).

Note! It is better to change the whole disc back than separate discs.

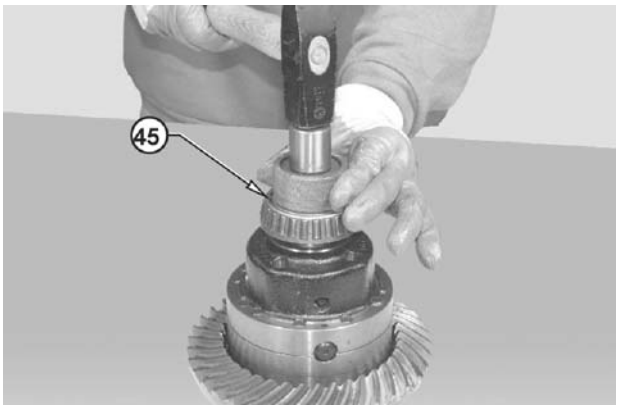
6. Place the pressure sleeve on the disc pack. Fit the o–ring (fit a new o–ring, if the earlier one was damaged).

7. Fit the spring seat, spring and the spring snap ring (if removed).

8. Fit the differential unit.

PREVIEW YOUFIXTHIS.COM

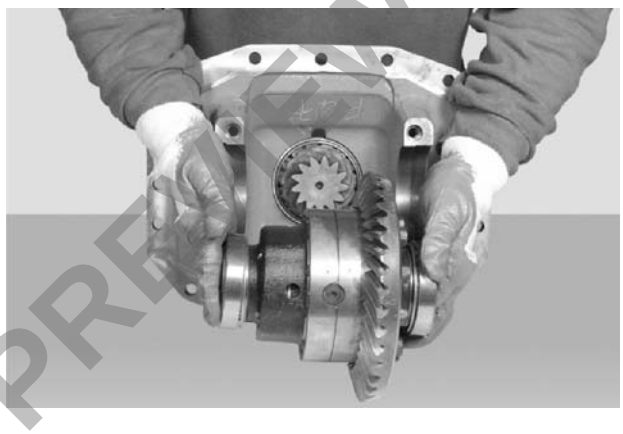
Download full manual at youfixthis.com



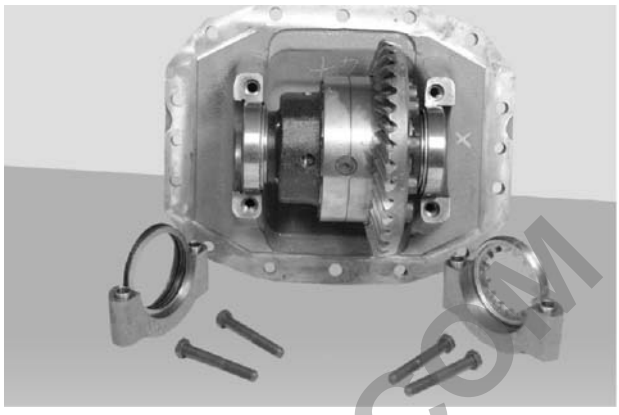
INSTALLATION OF THE DIFFERENTIAL UNIT
Using a driver with an adequate diameter, install the first bearing (45).

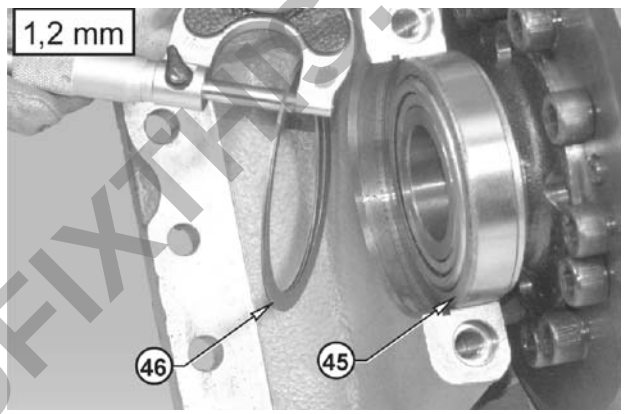


Turn the unit upside down and install the second bearing (23).
CAUTION! Pay particular attention; position a shim with adequate diameter in order to engage the internal ring of bearing without engaging the cage.

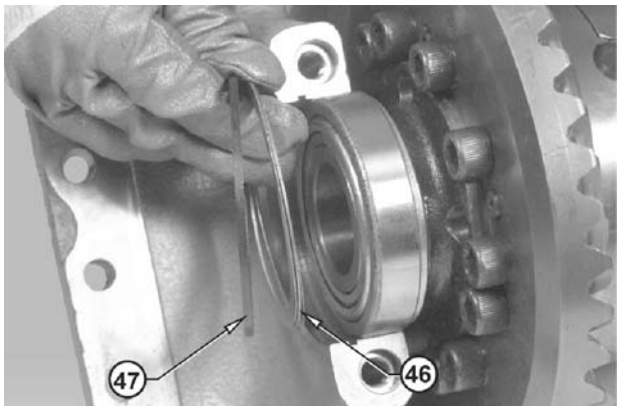


Insert complete differential.
ATTENTION! Do not damage the gearwheel.

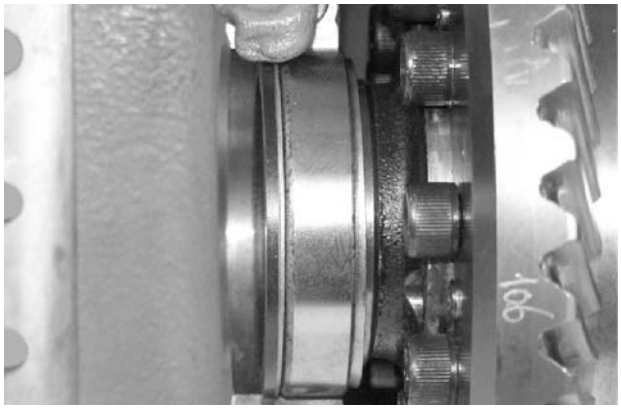




SETTING OF THE CROWN WHEEL AND PINION
Insert the thrust block of the bearing (45) opposite side of the crown wheel shims 1,2 mm (S)(46) about.



Install the shims **S** (46).
NOTE: Check to be at end of stroke.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 754 pages

The full manual includes:

- All 754 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Valtra M120, M130, M150, T120, T130, T140, T160, T170, T180, T190 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual