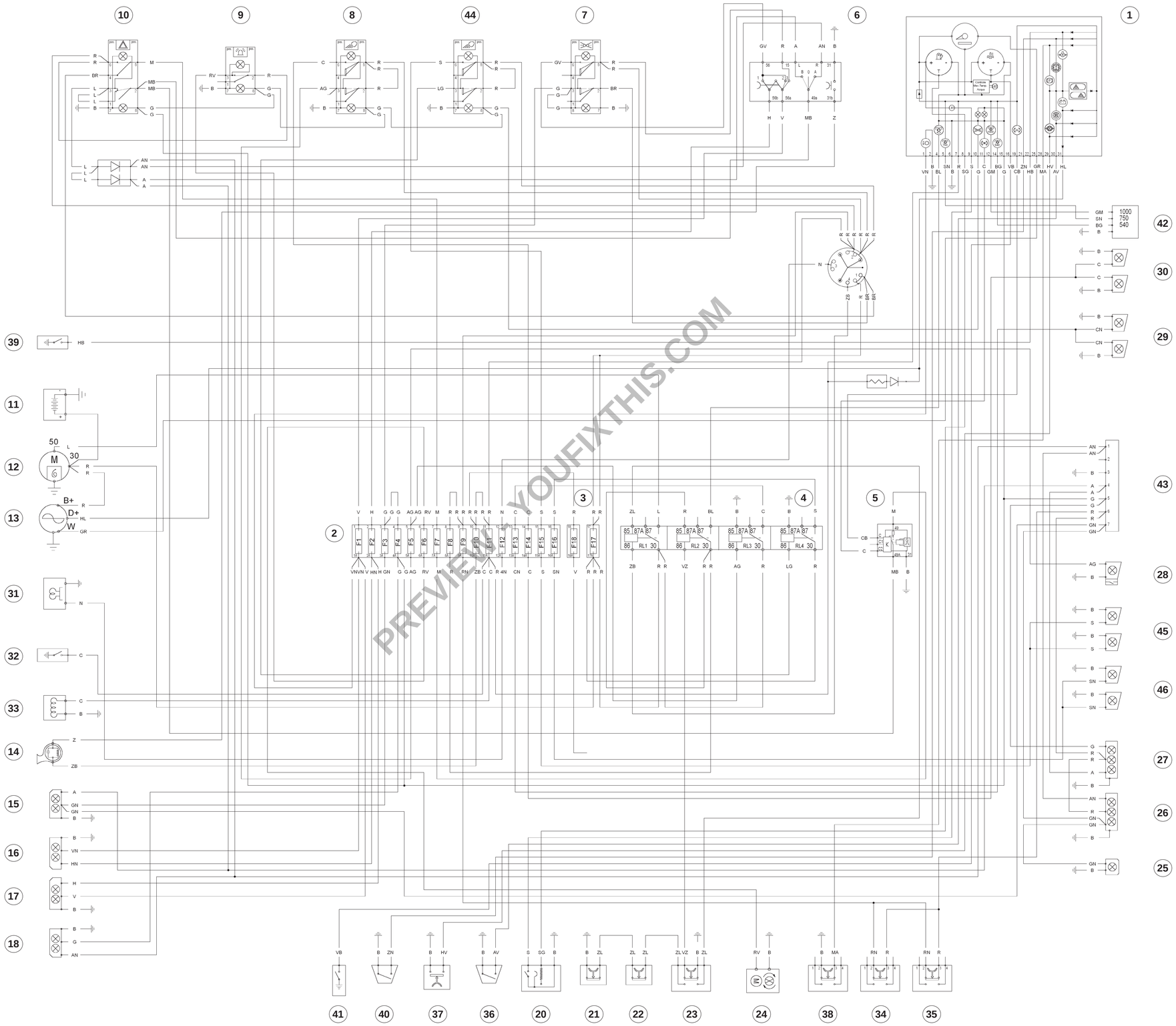
General description

2-3 Main wiring diagram



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Fig.12-10

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General description

1-3 Hydraulic circuit (C tractors)

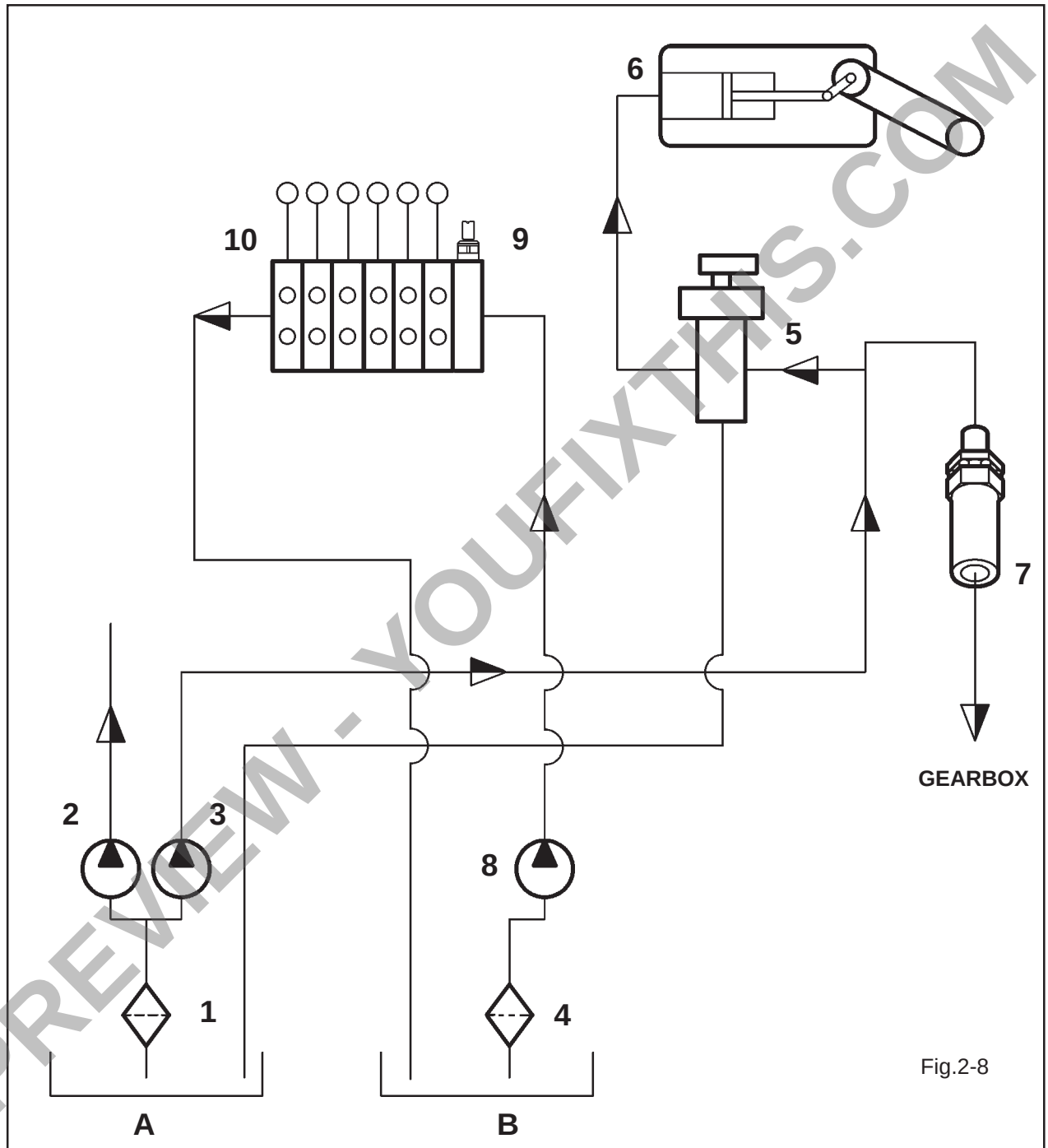


Fig.2-8

1 - Oil filter
2 - Gear pump (low pressure)
3 - Gear pump (high pressure)
4 - Oil filter
5 - Power lift valve system
6 - Hydraulic power lift
7 - 1.5 bar governor valve
8 - Gear pump
9 - Maximum valve
10 - Auxiliary control valves

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Sect. 7 - Table of bolt driving torques

MATERIAL	8.8		10.9		12.9	
BOLT	Z	B	Z	B	Z	B
M 8 x 1	25	27	36	38	43	46
M 8 (1.25)	23	25	33	35	40	42
M 10 x 1.25	50	55	70	75	85	90
M 10 (1.5)	46	50	66	70	80	85
M 12 x 1.25	90	97	127	135	143	155
M 12 (1.75)	82	86	115	120	138	145
M 14 x 1.5	142	153	200	215	240	260
M 14 (2)	130	140	182	195	220	235
M 16 x 1.5	215	230	300	320	360	390
M 16 (2)	200	215	280	300	340	360
M 18 x 1.5	310	330	435	470	520	560
M 18 (2.5)	270	295	385	415	460	495
M 20 x 1.5	430	460	610	660	720	770
M 20 (2.5)	390	415	550	585	660	705
3/8" -24 UNF	44	47	62	67	75	80
3/8" -16 UNC	40	43	56	60	68	72
1/2" -20 UNF	105	112	147	157	175	190
1/2" -13 UNC	95	102	135	145	160	173
9/16" -18 UNF	150	160	210	225	250	270
9/16" -12 UNC	135	145	190	205	230	245
5/8" -18 UNF	205	215	285	305	345	365
5/8" -11 UNC	185	200	260	280	315	335
3/4" -16 UNF	355	380	500	535	600	645
3/4" -10 UNC	325	345	455	490	550	585

Torque values in Nm Z = galvanized bolt B = burnished bolt

TORQUING TOLERANCES

Critical assembly	**+5% / -5%**
Important assembly	**+5% / -15%**
Secondary assembly	**+5% / -30%**

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1004-40/42/1004-40T engine timing

3-2 How to find the compression TDC of cylinder N°1

1 - Fix a temporary pointer on the cover of the valvegear housing with its tip near to the outer edge of the pulley or damper of the drive shaft (**6**).

2 - Slacken off the packing gland bolts that fix the injectors.

3 - Demount the rocker arm cover.

4 - Turn the drive shaft clockwise from in front until the rod of the intake valve tappet of the rear cylin- der is about to close.

5 - Remove the spring clamp and the spacer from the front part of the rocker arm shaft. Unscrew the bolts of the two front pedestals of the rocker arm shaft and remove the front rocker arm. Tighten the bolts of the rocker arm shaft pedestals.

6 - Demount the springs from the front valve using - Perkins tool **PD 6118B** - and adapter **PD 6118-7** for the pedestal stud bolts or adapter **PD 6118-8** for the pedestal fixing bolts.

NOTE: hold the valve in place if the drive shaft is turned to an excessive extent.

7 - Allow the valve to be retained by the top part of the piston.

8 - Fix a dial comparator with its feeler resting on the top part of the valve stem (**7**) in order to make a reading.
Slowly turn the drive shaft clockwise from the front until the pointer of the comparator stops turning clockwise. Make a suitable mark on the pulley or damper of the drive shaft in order to align it with the temporary pointer.
Continue to turn the drive shaft in the same direction until the pointer of the comparator starts to move in an anti-clockwise direction. Now make another mark on the pulley or damper to align them with the pointer.

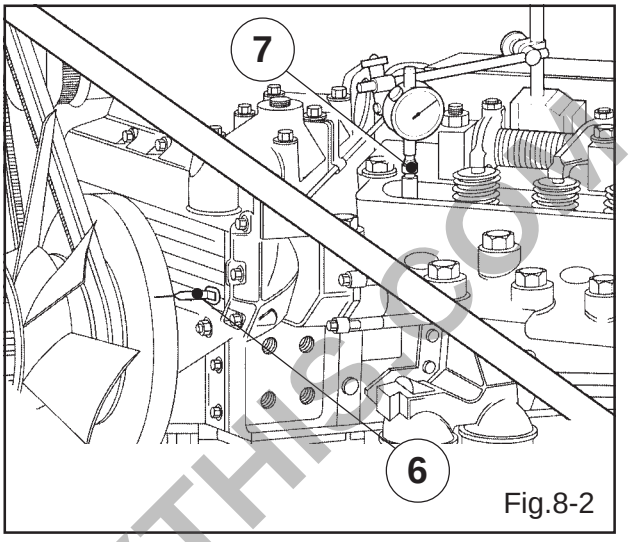


Fig.8-2

Mark the central point between the two marks on the pulley or on the damper and eliminate the other two.

9 - Turn the drive shaft through **45°** in an anti-clockwise direction from the front and then clockwise until the mark on the pulley or damper aligns with the pointer. Piston N° **1** will now be at **TDC** of its compression stroke.

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Inspections, adjustments and troubleshooting

3-4 Troubleshooting

FAULTS	PROBABLE CAUSES	REMEDIES
The power lift fails to lift in no-load mode	- Servo valve (10 Fig.16-9) locked in the open position	- Make sure that the part is free to slide and that it is tight
	- The pump fails to deliver oil as it is no longer primed	- Prime the pump by filling it and the inlet pipe with transmission oil
The power lift fails to lift the implement or is slow in lifting	- Clogged filter on the intake	- Demount and clean the filter
	- Inefficient pump	- Replace the pump
	- Imperfect servo valve seal (10 Fig.16-9)	- Check the seal
	- Calibration valve (5) or safety valve (12 Fig.16-9) with low setting	- Check and calibrate the two valves
	- Lower retention ring of the valve system faulty	- Replace the ring
	- Leaking discharge valve (1 Fig.16-9) - Diverter retention rings faulty	- Check and overhaul the discharge valve - Replace the rings
	- Implement too heavy	- Change the implement or move the hitch nearer
The power lift fails to keep the implement in the raised position	- Defective non-return ball seal (11 Fig.16-9)	- Subject the valve system to hydraulic bench tests to locate the leaks
	- Leaking discharge valve (1 Fig.16-9) - Leaking safety valve (12 Fig.16-9) - Upper retention ring of the valve system faulty	- Check the discharge valve and replace it if necessary - Check and overhaul the safety valve - Replace the ring
	- Faulty diverter retention ring	- Replace the ring
	- Faulty seals on the lifting cylinder piston	- Replace the ring
	- Aluminium plugs to shut the machining holes on the lift cover and cylinder	- Replace the plugs

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Tractor identification & technical specifications

2-2 Weights and dimensions

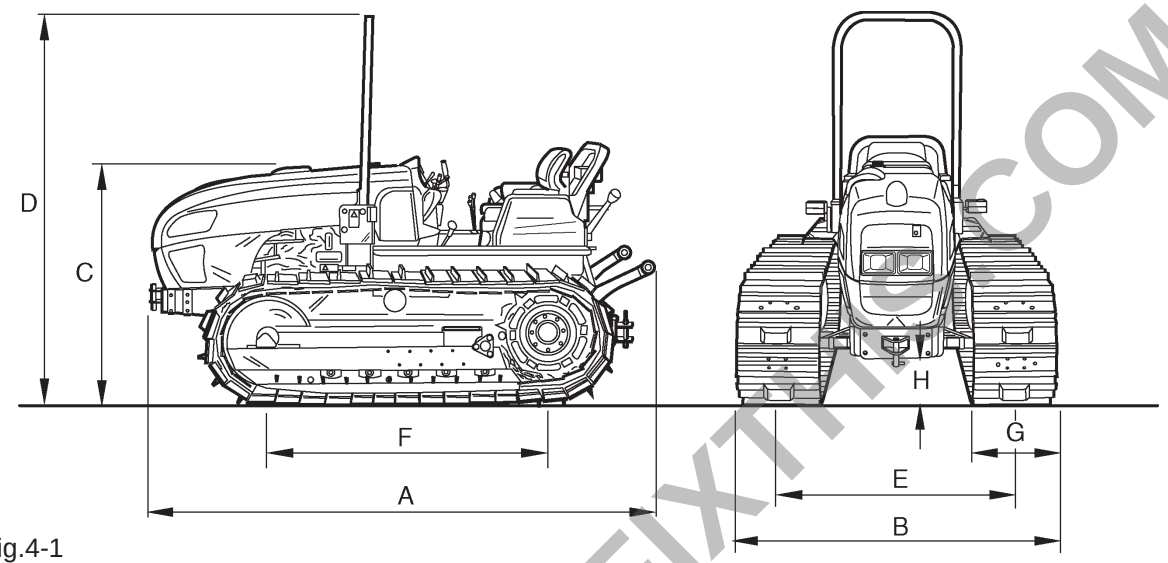


Fig.4-1

General specifications

ST = Narrow
L = Wide

	70			80			90		
	CF		CFL	CF		CFL	CF		CFL
	ST	L	L	ST	L	L	ST	L	L
-With shoes mounted ..... mm	310	360	360	360	360	360	360	360	360
Weights									
-In running order with hydraulic power lift, three-point hitch and safety frame, without ballast and road pads ..... kg	4080	4130	4130	4160	4160	4260	4200	4300	4370
Dimensions									
A- Max. length (with ballast and with links lifted) ..... mm	3500	3500	3500	3500	3500	3500	3500	3500	3500
B- Width (with 310 - 360 shoes) ..... mm	1410	1460	1660	1460	1460	1700	1460	1700	1760
C- Height at bonnet ..... mm	1170	1170	1170	1170	1170	1170	1170	1170	1170
D- Height at safety frame ..... mm	2320	2320	2320	2320	2320	2320	2320	2320	2320
E- Track ..... mm	1100	1100	1300	1100	1100	1300	1100	1300	1300
F- Wheelbase ..... mm	1650	1650	1650	1650	1650	1650	1650	1650	1650
G- Shoe width ..... mm	310	360	360	360	360	400*	360	400*	450*
H- Ground clearance ..... mm	270	270	270	270	270	270	270	270	270

*OPTIONAL available on request

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Pre-delivery inspections and maintenance

4-3 Routine maintenance guide

PERFORM THE FOLLOWING OPERATIONS		EVERY					AS indicated
ASSY	DESCRIPTION	Daily or as required (4)	100 HOURS	250 HOURS	500 HOURS	1000 (1) HOURS	Servicing points (Fig.23-1)
LUBRICATION	Perform general lubrication	○					17
	Lubricate swinging support of three-point hitch		○				20
	Lubricate disengaging bearing of PTO clutch		○				21
ENGINE	Check engine oil level	○					1
	Change engine oil			□			22
	Change engine oil filter			□			23
	Check valve clearance *				□		28
	Clean engine breather pipe *: every 2000 hours						37
FUEL SYSTEM	Clean fuel filter bowl	△					2
	Replace fuel filter cartridge				□		29
	Check injector settings and injection pump *					□	30
	Dry air filter: clean drain valve	△					3
	Dry air filter: clean or change cartridge	△					4
	Drain sludge from fuel tank					△	31
COOLING SYSTEM	Check coolant level in radiator	○					5
	Clean radiator fins	△					6
	Wash out cooling circuit					△	32
TRANSMISSION HYDRAULIC POWER LIFT	Change gearbox oil and oil in rear side final drive housings	○					7-10
	Change oil in gearbox (2), and oil in rear side final drive housings					□	33-36
	Clean power lift and transmission oil filter			△			24
	Clean transmission oil radiator (if installed)	△					9
	Check and adjust free travel of main clutch and brake	▽					12
	Check and adjust free travel of PTO clutch	○					-
STEERING CLUTCHES -BRAKES	Replace manipulator oil filter			□			26
	Adjust free travel of brake pedals	▽					11
AUXILIARY HYDRAULIC CIRCUIT	Check oil level in auxiliary reservoir	○					8
	Check and clean auxiliary circuit oil filter			△			25
	Change oil in auxiliary circuit reservoir					□	34
ELECTRICAL SYSTEM	Check level of electrolyte in battery	○					13
	Check fan belt tension	▽					14
	Check efficiency of alternator and starter motor *					□	35
TRACK FRAMES OTHERS	Check for leaks from the rollers and chain	○					18
	Grease the pivot pins and front and rear suspensions	○					19
	Check chain tension			○			28
	Check tightness of safety frame fixing bolts and nuts and bolts in general	○					16-17

REFERENCE MARKS FOR THE OPERATIONS

○ Inspection, filling, lubrication.
□ Replacement. △ Cleaning or washing. ▽ Adjustment.
□ Operations that must be carried out by the Dealer or Agent.

* The operations marked with an asterisk must be carried out by the Dealer or Agent.

NOTES

(1) *Operation to be carried out once a year.*

(2) *Change the oil in the gearbox for the first time after 500 hours. After this, change it after every 1000 hours service.*

(3) ***ATTENTION:*** *To safeguard the steering clutch circuit and brakes, clean the filter for the first time after 50 hours. After this, it should be cleaned after every 500 hours service.*

(4) ***ATTENTION:*** *Use your own discretion and experience when deciding the actual intervals for variable interval service and maintenance operations. Always remember however, that it is better to perform them too often than not often enough.*

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Front engine line

3B-2 Wiring diagram

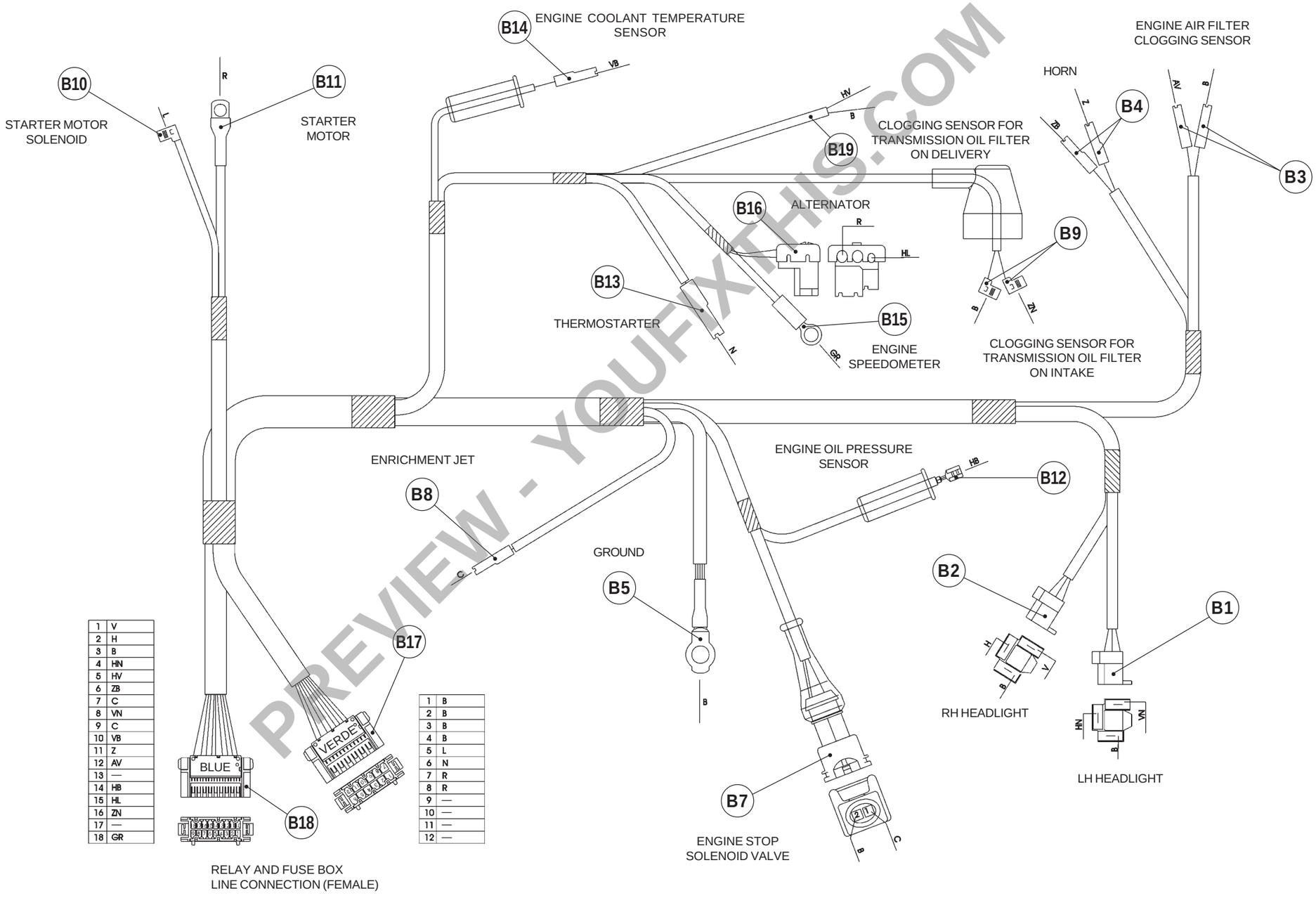


Fig.30-10

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Sect.1 - General description

1-1 Low pressure hydraulic circuit

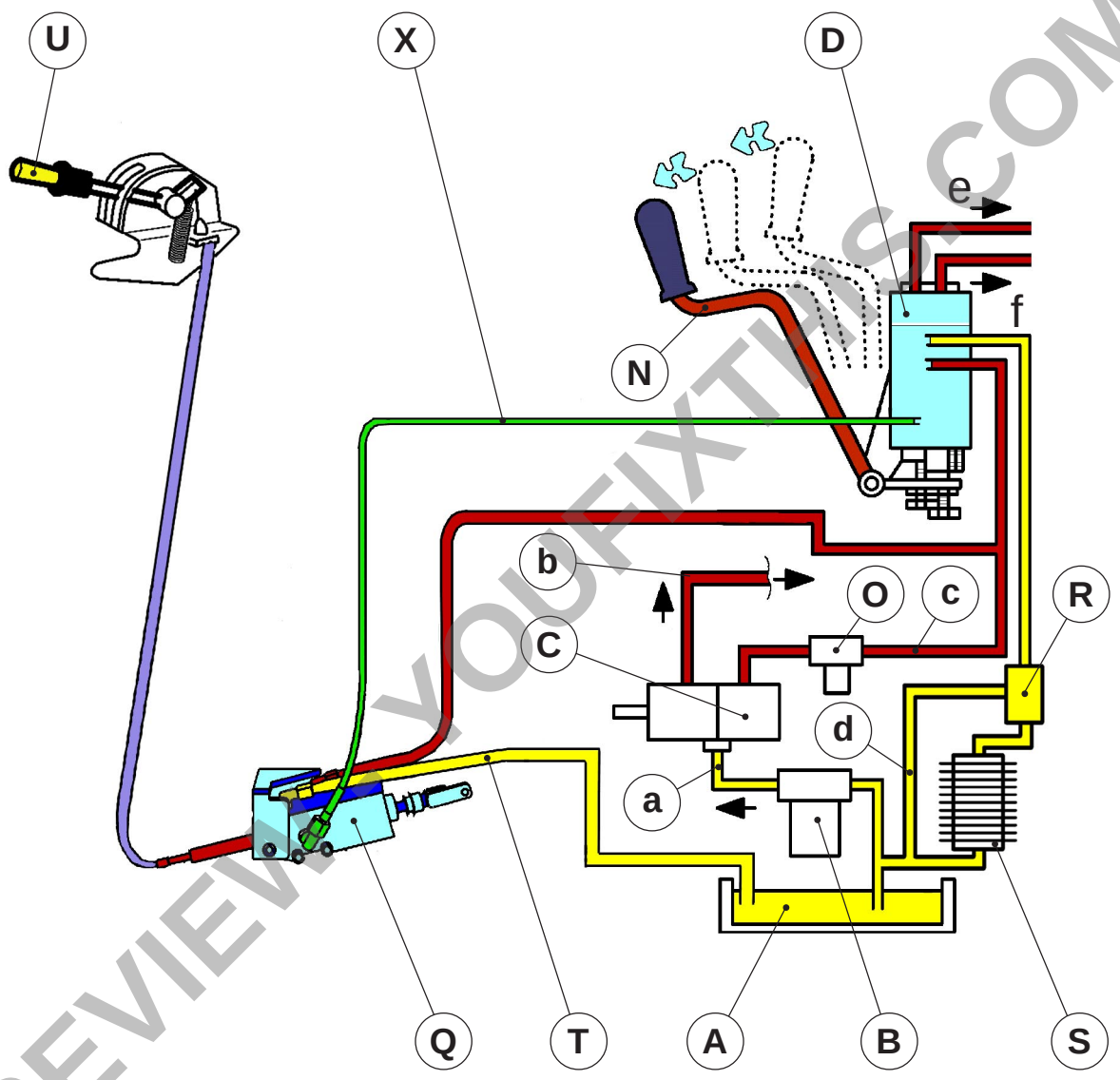


Fig.1-7

COMPONENTS

A- Gearbox housing
B- Suction filter
C- Double pump
D- Manipulator
N- Steering clutch and brake lever
O- Delivery filter
Q- Servo clutch
R- Thermostatic valve
S- Radiator
U- Servo clutch timing system lever

PIPES

a- Pump suction
b- Power lift valve system pump delivery
c- Manipulator and servo clutch timing system pump delivery
d- Return to housing
e- Brake piston supply
f- Steering clutch disengaging piston supply

T- Discharge
X- Pilot line

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Driving torques

DESCRIPTION	Thread	DRIVING TORQUE	
		Nm	kgfm
Cylinder head			
Cylinder head fixing bolts	1/2 UNF	see p. 3-10	
Fixing components, tappet plug supports:			
- Aluminium supports	M12	40	4.1
- Cast iron and sintered steel supports	M12	75	7.6
Flanged nuts, plastic tappet covers	M12	20	2.1
Flanged nuts, aluminium tappet covers	M12	30	3.0
Bolts fixing intake manifold to cylinder head	M10	44	4.5
Bolts between exhaust manifold and cylinder head	M10	44	4.5
Fixing bolts of engine lifting bracket	M10	44	4.5
Piston and connecting rods			
Connecting rod nuts	1/2 UNF	125	12.7
Connecting rod fixing bolts	1/2 UNF	155	15.8
Bolts for positionable unions of piston cooling jets	3/8 UNF	27	2.7
Drive shaft			
Main bearing fixing bolts	5/8 UNF	265	27.0
Drive shaft pulley fixing bolts	7/16 UNF	115	11.8
Viscous damper fixing bolts on drive shaft pulley	M12	75	7.6
Flanged bolts between viscous damper and drive shaft pulley	M8	35	3.6
Flanged bolts between stuck damper and drive shaft pulley	M8	35	3.6
Bolts fixing rear splash guard casing to cylinder block	M8	22	2.2
Flanged bolts of bridge on cylinder block	M6	16	1.6
Flanged bolts of rear splash guard casing on bridge	M6	13	1.3
Torx bolts of splash guard casing on bridge	M8	18	1.9
Flanged bolt of intermediate gear hub of balancer ass'y	M12	93	9.5
Nut of balancer ass'y counterweight gear	1/2 UNF	82	8.4
Bolts fixing rear housing cover	M10	54	5.5
Bolts fixing balancer ass'y to cylinder block	M10	30	3.1
Bolts fixing oil pump to balancer housing	M8	27	2.8
Bolts fixing balancer to cylinder block	M10	54	5.5

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1004-40/42/1004-40T engine timing

3-3 How to check the camshaft timing

1 - Move cylinder number **1** to **TDC** of its compression stroke.

2 - Remove the dial comparator from intake valve number 1 and mount the valve spring and rocker arm. Make sure that the bolts of the rocker arm shaft pedestals have been tightened to the correct torque value.

3 - Turn the drive shaft clockwise from the front until the intake valve of the rear cylinder has fully opened.

4 - Ensure that the play of the intake valve of cylinder **N° 1** is **1.5 mm**.

5 - Turn the drive shaft clockwise until the tappet rod of the intake valve of cylinder number **1** just shuts. Having obtained this position, check whether the mark on the drive shaft pulley or damper is **+/-2.5°** from the temporary pointer. Use the following formula to find the measurement that corresponds to **2.5°** on the pulley or damper.

$$\frac{\text{CXP}}{360}$$

C = circumference of the pulley or damper
P = **2.5 degrees**

6 - If timing is more than **2.5°** off-size, the gears of the valve system will have probably not been aligned in the correct way.

Note: one tooth of the camshaft gear corresponds to **23 mm** on the circumference of a **203 mm** diameter pulley. If the damper mounted is larger, a tooth of the camshaft gear corresponds to **35 mm** on the circumference of a **310 mm** diameter damper or **37 mm** on the circumference of a **327 mm** diameter damper.

7 - Turn the drive shaft clockwise from the front until the intake valve of the rear cylinder has fully opened.
Adjust the play of the intake valve of cylinder **N° 1** to **0.20 mm**.

8 - Fit the rocker arm cover back on.

9 - Remove the temporary pointer from the valve gear housing and the timing mark from the pulley or damper.

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Check-control and troubleshooting

EXAMPLE OF AN ELECTRICAL FAULT

Type of tractor: Trekker 90 C

Diagnosis: the brake lights do not work

Troubleshooting:

1 - Make sure that fuse F9 is functional and replace it if necessary

NOTE: *it is always advisable to identify the cause of the overload and to eliminate it before changing the fuse.*

2 - Make sure that the lights (X Fig.174-10) operate correctly.

3 - Make sure that the switches (R5 Fig.175-10), in contact with the brake pedals, operate correctly. Using a tester, check that:
switch pressed = CIRCUIT CLOSED
switch released = CIRCUIT OPEN

4 - Check that the switches activate when the pedals are lightly pressed.

5 - If the switches operate correctly, conduct the continuity tests described on the previous page between the terminals of the electrical circuit that powers the brake lights. The path followed by the electrical signal can be identified by means of the indications given in Section 3 and the wiring diagram.
In this particular case, the connectors are the following:
- connectors (E7)(E16) for the brake lights
- connector (E6) for rear line connection (female)
- connector (F6) for rear line connection (male)
- faston terminals (F2) for the rh rear light
- faston terminals (F3) for the lh rear light

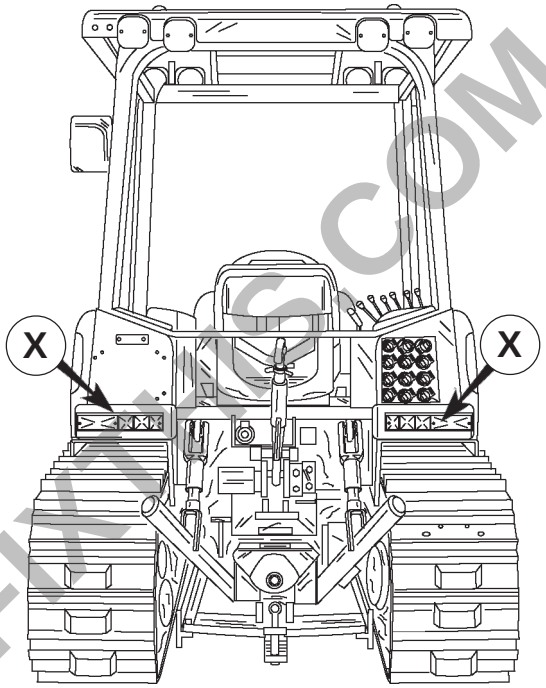


Fig.174-10

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Tractor identification & technical specifications

2-3 Engine specifications

Engine		70C-CF-CFL	80C-CF-CFL
Type		Perkins 4-stroke Diesel engine with direct injection	
Model		1004-40	1004-42
Fuelling		Natural	Natural
Number of cylinders		4	4
Bore	mm	100	103
Stroke	mm	127	127
Swept volume	liters	3990	4.233
Compression ratio		18.5 : 1	18.5 : 1
Power (DIN 70020)	HP/kW	67/49	78/57
ISO power rating	HP/kW	68/50	80/58,5
Max. speed under load	RPM	2200	2200
Max. speed with no load	RPM	2310	2310
Max. torque (DIN 70020)	Nm	263	284
Max. torque speed	RPM	1300	1400
Idling speed	RPM	750	750
Valve gear			
Type		Overhead valves controlled by tappets	
Tappet gap with engine cold			
Intake	mm	0,20	0,20
Exhaust	mm	0,45	0,45
Fuel system			
Fuel pump		AC - DELCO	
Injection pump		Lsx rotary	
Filter on injection pump delivery		C.A.V	
Injection order		1-3-4-2	1-3-4-2
Injectors		Perkins	Perkins
Injector pressure setting	Bar	-	290
Cold starting device		Thermostarter	
Air filter		dry, with two elements removable for maintenance	

* Trekker 70C, only for certain export markets

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Pre-delivery inspections and maintenance

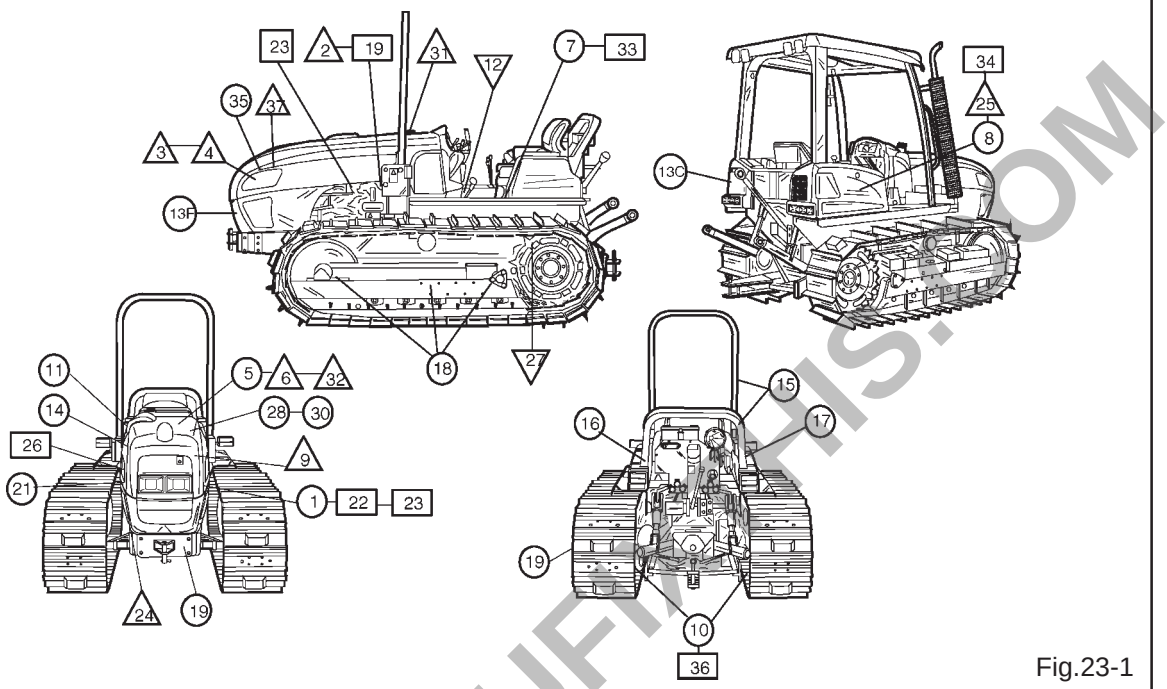


Fig.23-1

Maintenance and service points

DAILY OR WITH VARIABLE FREQUENCY (4)

1. Check engine oil level.
2. Clean fuel filter.
3. Air filter: drain valve.
4. Air filter: clean or replace cartridge.
5. Engine coolant level.
6. Clean fins of engine coolant radiator and transmission oil radiator.
7. Oil level in gearbox, hydraulic power lift circuit.
8. Oil level in supplementary hydraulic circuit (C versions).
9. Clean transmission oil radiator fins.
10. Oil level in rear final drives.
11. Adjust brake pedals.
12. Adjust main clutch and brake pedals.

13C. Battery acid level.

13F. Battery acid level - Orchard version.

14. Alternator and fan belt tension.
15. Check safety frame fixing bolts.
16. Check tightness of nuts and bolts in general.
17. General greasing and lubricating.
18. Check for leaks from rollers, track idlers and chains.
19. Grease pivot pins and front and rear suspensions.

EVERY 100 HOURS

20. Lubricate three-point hitch.
21. Lubricate PTO clutch thrust bearing.

EVERY 200 HOURS

22. Change engine oil.
23. Change engine oil filter.
24. Clean oil filter of transmission and hydraulic power lift circuit **(3)**.
25. Clean auxiliary hydraulic circuit oil filter (C versions).
26. Change steering clutch circuit oil filter.
30. Check chain tension.

EVERY 500 HOURS

28*. Check valve clearance.
29. Replace fuel filter.

EVERY 1,000 HOURS (1)

30*. Check injection pump and injector settings.
31. Drain sludge from fuel tank.
32. Flush out engine cooling circuit.
33. Change oil in transmission and hydraulic circuit **(2)**.
34. Change oil in auxiliary hydraulic circuit (C versions).
35. Check efficiency of alternator and starter motor.
36. Change oil in rear final drives.

EVERY 2,000 HOURS

37*. Clean engine breather pipe.

NOTE: See Routine Maintenance Guide for notes **(1)**, **(2)**, **(3)**, **(4)**.
* Operations marked with an asterisk must be carried out by the Dealer or Agent.

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Fuse-relay line

3C-2 Wiring diagram

NOTE: *all connectors are viewed from the cable input side.*

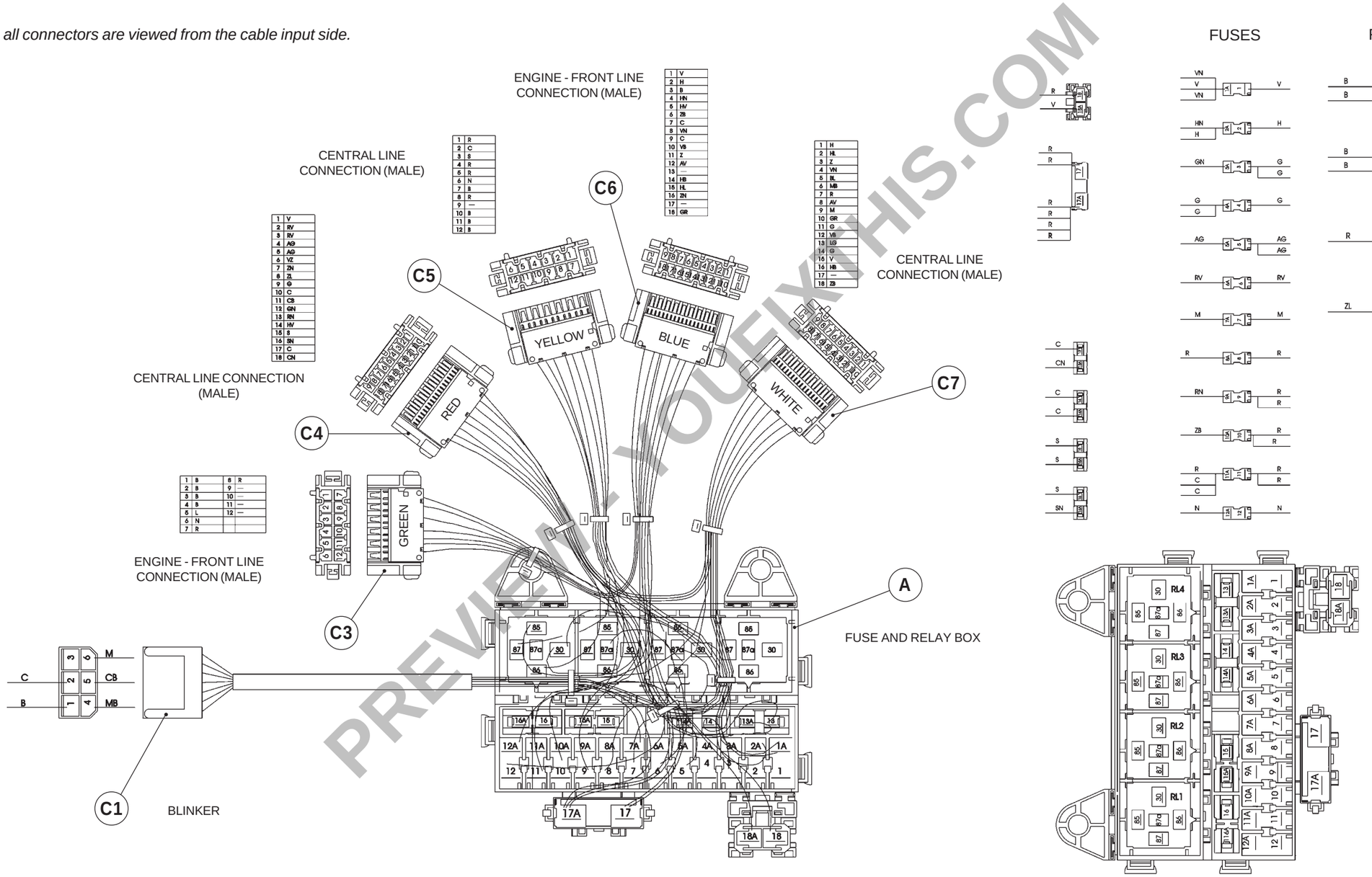


Fig.55-10

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Sect.1 - General description

1-1 Hydraulic circuit (CF tractors)

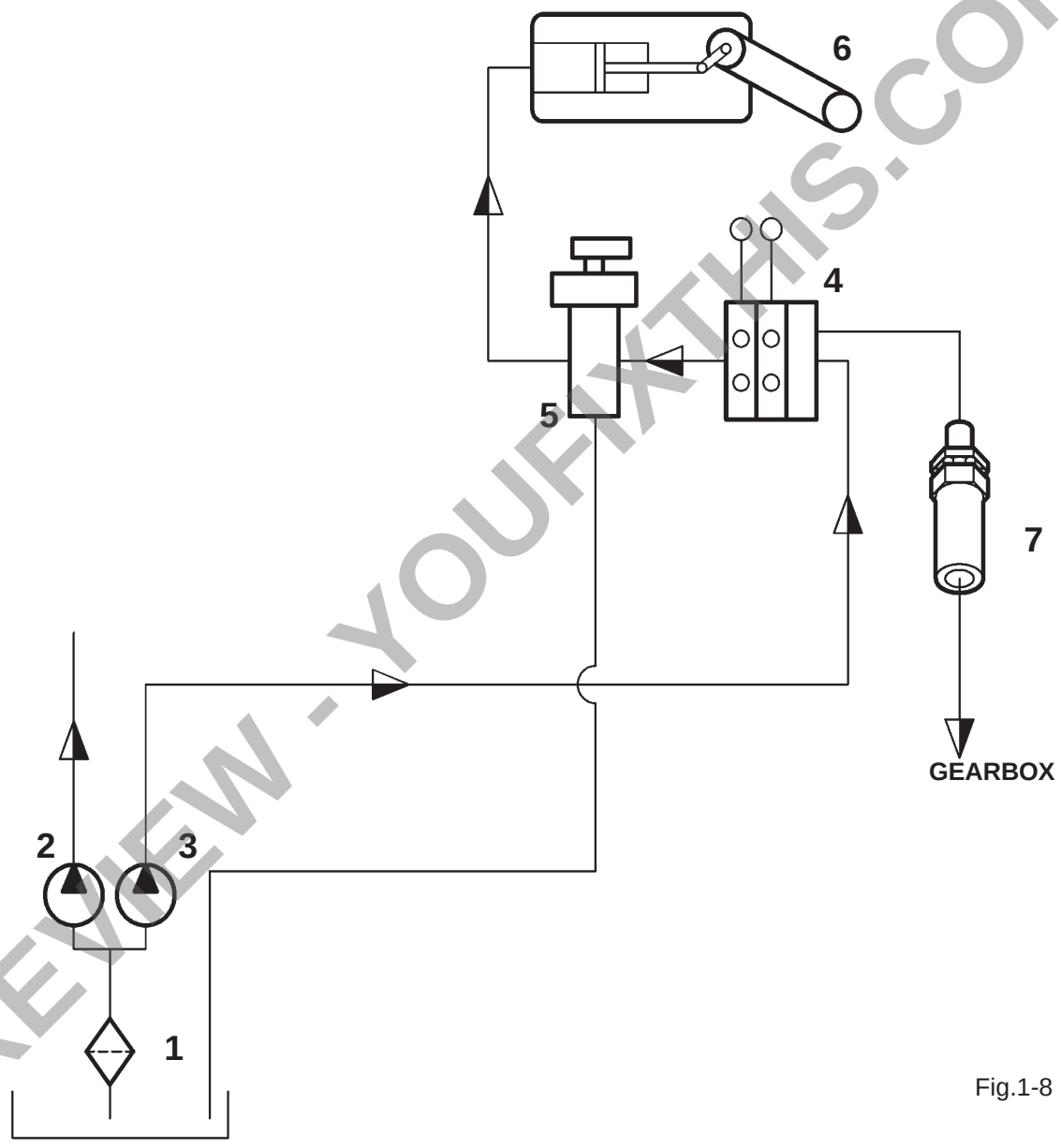


Fig.1-8

1- Oil filter
2- Gear pump (low pressure)
3- Gear pump (high pressure)
4- Auxiliary control valves
5- Power lift valve system
6- Hydraulic power lift
7- 1.5 bar governor valve

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Driving torques

DESCRIPTION	Thread	DRIVING TORQUE	
		Nm	kgfm
Valve gear housing and respective control			
Bolts that fix valve gear housing to cylinder block	M8	22	2.2
Bolts that fix valve gear housing to cylinder block	M10	44	4.5
Intermediate gear hub fixing bolts	M10	44	4.5
Camshaft gear fixing bolts	M12	95	9.5
Bolts that fix cover to valve gear housing	M8	22	2.2
Valve gear housing cover nuts	M8	22	2.2
Cylinder block			
Fixing bolts mounted in place of piston cooling jets	3/8 UNF	27	2.7
Fuelling system			
High pressure pipe nuts	M12	22	2.2
Bolt for positionable union of return pipe	M8	9	0.9
Injector unit packing gland bolt	-	40	4.1
Fixing bolts for injection pump gear	M10	28	2.8
Torx bolts for injection pump gear	M10	22	2.2
Fuel pump fixing bolts	M8	22	2.2
Nute for injection pump flange	M8	22	2.2
Retainer screw for Bx VE injection pump	M10	27	2.8
retainer screw for DP 200 injection pump	10 A/F	10	1
Lubrication system			
Lubricating oil sump plug	3/4 UNF	34	3.5
Bolts fixing oil pump to front bearing cap	M8	22	2.2
Oil pump cover fixing bolts	M8	28	2.9
Lubricating oil sump retainers	M8	22	2.2
Cooling system			
Coolant pump driving pulley nut (type AP, AQ, AS engines)	M8	22	2.2
Bolts fixing fan control housing to valve gear housing	M10	44	4.5
Bolts fixing fan control pulley to hub	M8	22	2.2
Bolts fixing fan control pulley to hub	M10	44	4.5
Fan fixing bolts	M8	22	2.2
Oil radiator union connecting to oil filter head	3/4 UNF	58	5.8
Fixing bolts between coolant pump and pump housing (type AS engine)	M8	29	2.9
Bolt between cassette type cooler and oil filter head	3/4 UNF	37	3.7

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Inspection, overhaul and adjustment

3-2 Adjustments

3-2.1 CLUTCH ADJUSTMENT

1 - Fit tool **01 FRI GL** on to the clutch, inserting it on to plate (4) and fitting on the PTO plate (10).

2 - Mount the assembly formed in this way on to the flywheel. Make sure you center the two plates perfectly by turning tool **01 FRI GL**.

3 - Tighten the clutch fixing bolts to the flywheel and apply Loctite 243 to them.

4 - Check the height of the levers (8-16) and their coplanarity using tool **01 FRI GL** which can be set in two positions: one position allows the height of levers (16) to be adjusted by means of the adjuster nut (21) while the overturned position allows the height of levers (8) to be adjusted by means of screw (20) and nut (18).

5 - After the parts have been adjusted, lock the nut (21) and clinch it, then tighten nut (18 Fig.7-3) against the pressure plate (17).

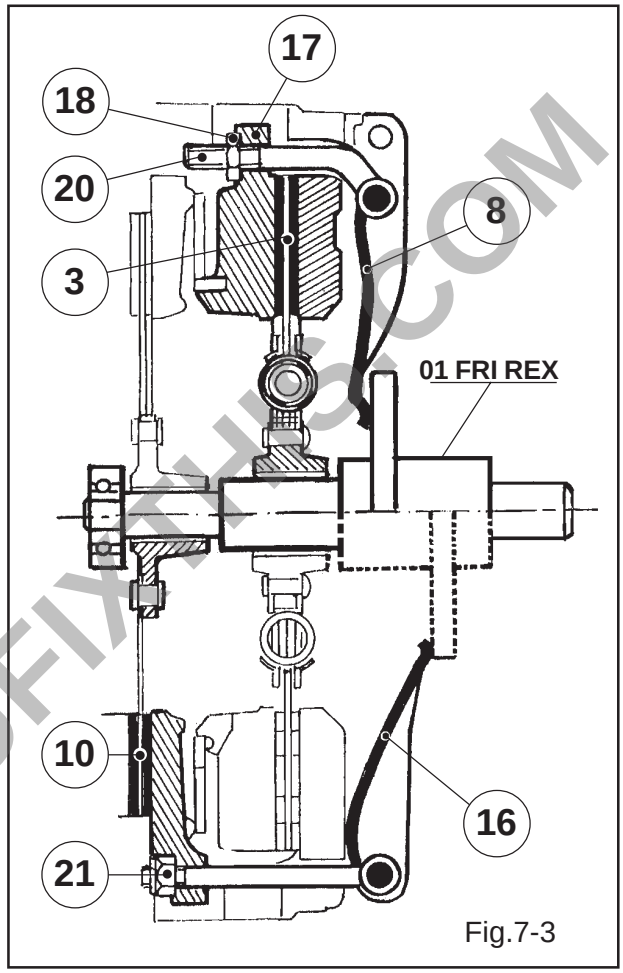


Fig.7-3

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