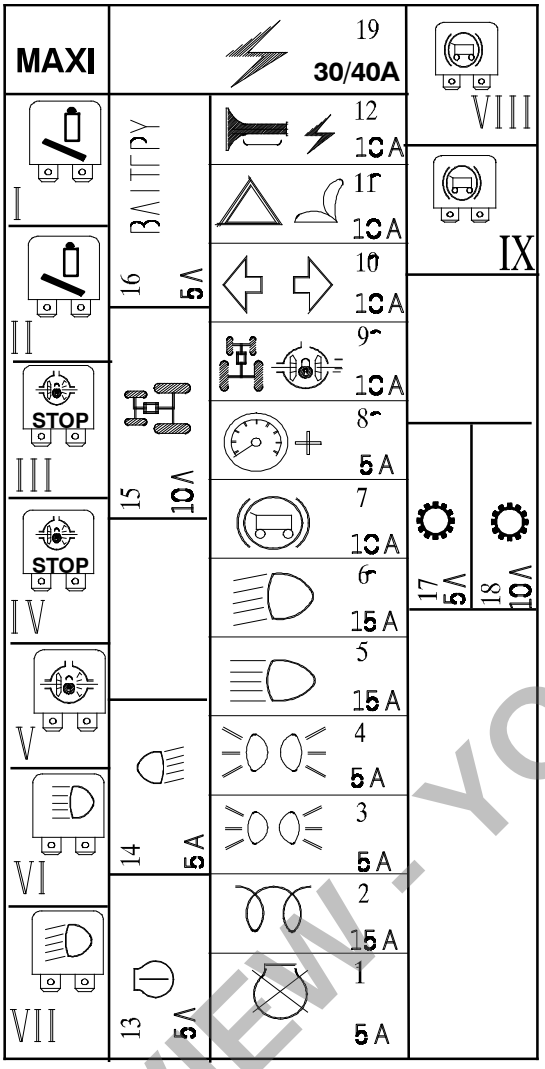
FUSES AND RELAYS LAYOUT

DANGER: *If electrical system relays need to be changed, check that correct spare parts are used and that they are fitted in the correct positions. The use of structurally or functionally different relays - even if interchangeable - could seriously compromise tractor control with dangerous results.*



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VERSION 1 (without cab) - Fig. 73

2WD models with differential lock and mechanical lift, predisposed for:
- Digital display
- 40A socket
- NASO circuit
- Trailer brake

I. Right-hand tie rod hydraulic adjustment circuit.
II. Not used.
III. Not used.
IV. Brake lights circuit.
V. Not used.
VI. Full beam headlight circuit.
VII. Dipped beam headlight circuit.
VIII. Trailer brake circuit.
IX. Trailer brake circuit.

VERSION 2 (without cab) - Fig. 73

2WD models with electro-hydraulic differential lock and mechanical lift, predisposed for:
- Power-Shuttle
- Digital display
- 40A socket
- NASO circuit
- Trailer brake

I. Right-hand tie rod hydraulic adjustment circuit.
II. Not used.
III. Not used.
IV. Brake lights circuit.
V. Not used.
VI. Full beam headlight circuit.
VII. Dipped beam headlight circuit.
VIII. Trailer brake circuit.
IX. Trailer brake circuit.

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ERROR CODE DISPLAY

Any eventual errors stored by the electronic control unit during tractor use can be checked using the instrument. To display the codes, follow the instructions noted below;

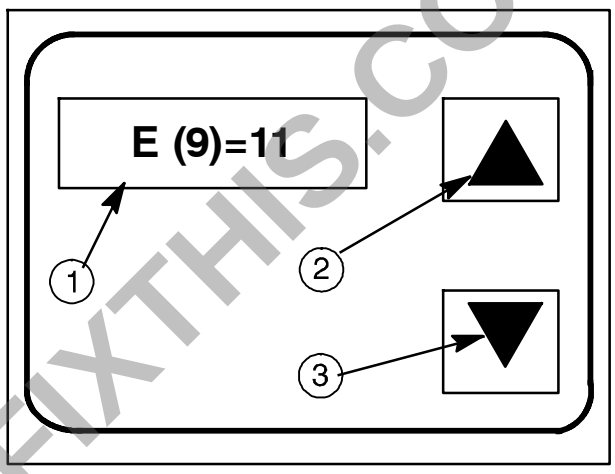
- connect the instrument as described on page 2-28;
- move the shuttle lever (**1**) fig. 44 to the reverse drive position;
- press, and hold down, the push button (**2**) with the arrow pointing upwards;
- turn the starter key to the second position (ready for starting), the display (**1**), will show a numerical code (error code - if present). Now release the push button.

By pressing the push button (**2**) with the arrow pointing upwards again, any other errors detected during tractor use can be checked.

The instrument will display up to a maximum of 9 errors.

Press, and hold down, the push button (**3**) with the arrow pointing downwards for at least 5 seconds in order to delete the data stored in the control unit. Work with the tractor, checking operation as described previously.

If the instrument shows the same errors that were previously deleted or new errors, contact NEW HOLLAND specialised personnel.



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U..... ERROR CODES

CODE	CAUSE	SOLUTION
U 19	Oil temperature below 50°F (10° C) (*)	Bring oil temperature to 68 ÷ 122°F (20° ÷ 50°C)
U 20	Incorrect starting procedure	Press and release the clutch pedal
U 21	Engine speed below 1200 rpm	Bring the speed to between 1400 and 1200 rpm
U 22	Engine speed above 1400 rpm	Bring the speed to between 1400 and 1200 rpm
U 23	Shuttle lever in neutral	Engage the Shuttle lever in the forward position
U 24	Range gear lever in neutral	Put the range gear lever in position C
U 25	Main gear lever in neutral	Engage the gear lever in 1st
U 26	Clutch pedal is not fully released	Release the clutch lever
U 27	HI (B) clutch calibration value below 230mA	Replace solenoid
U 28	HI (B) clutch calibration value above 480mA	Check solenoid valve assembly Check the hydraulic pressure on the HI circuit
U 29	LO (A) clutch calibration value below 230mA	Replace solenoid
U 30	LO (A) clutch calibration value above 480mA	Check solenoid valve assembly Check the hydraulic pressure on the LO circuit
U 31	Tractor moving	Apply the handbrake
U 32	HI-LO synchroniser not engaged	Check with **HD** menu

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LUBRICATION AND MAINTENANCE TABLE

The numbers in the second column are with reference to the operations and illustrations in the following pages of this section.

Hours of work		Maintenance operation	Functional check	Fill-up level	Cleaning	Greasing	Adjustment	Replacement	Page
Flexible maintenance	1	Adjust engine clutch					●		3-7
	2	Adjust fan belt					●		3-8
	3	Adjust compressor belt					●		3-8
	4	Outlet valve, dry air filter			●				3-9
	5	Windscreen washer tank		●					3-9
With warning light ON	6	Main cartridge, dry air filter			●				3-10
	7	Brake fluid reservoir	●	●					3-11
Every 10 hours	8	Oil sump	●	●					3-12
	9	Radiator expansion tank (model TN90F)	●	●					3-12
	10	Cab air filters			●				3-13
	11	Air conditioning dehydration filter			●				3-13
	12	Condenser			●				3-14
Every 50 hours	13	Front axle pivot - 4WD				●			3-15
	14	Transmission shaft - 4WD				●			3-15
	15	Steering cylinder 2WD				●			3-15
	16	Rear wheel hubs				●			3-16
	17	Lift and linkage				●			3-16
	18	Steering cylinders - 4WD				●			3-16
	19	Stub axle: right and left hand sides - 2WD				●			3-17
	20	Front axle pivot 2WD				●			3-17
	21	Fuel filter (condensation drain)			●				3-17
	22	Front lift arms shaft				●			3-18
	23	Front power take-off coupling				●			3-18

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WEIGHTS

Model	TN65F		TN75F		TN90F			
	2-WD	4-WD	2-WD	4-WD	2-WD	4-WD	2-WD	4-WD
Without ballast: (kg) lb								
without cab .	(2350) 5181	(2550) 5622	(2450) 5401	(2650) 5842	(2500) 5112		(2700) 5952	
with cab	(2500) 5112	(2700) 5952	(2600) 5732	(2800) 6173	(2650) 5842		(2850) 6283	
Fully ballasted: (kg) lb								
without cab .	(2500) 5112	(2700) 5952	(2600) 5732	(2800) 6173	(2650) 5842		(2850) 6283	
with cab	(2650) 5842	(2850) 6283	(2750) 6063	(2950) 6504	(2800) 6173		(2900) 6393	

ENGINE

Model	TN65F	TN75F	TN90F
Engine type	IVEC0		
with clutch: -11"	8045.05C.231	8045.05B.241	8045.25S.231
Injection pump	BOSCH		
Diesel cycle, 4-stroke direct injection:			
- naturally aspirated ...	YES	YES	-
- turbo-charged	-	-	(GARRET TA 2505)
Number of cylinders	4		
Diameter and stroke mm	104 X 115 (3.94 X 4.52 in)		
Total displacement .. cm^3	3908		
Compression ratio	17 : 1		16.5 : 1
Engine max. power DGM/ DIN: ..... kW ..... Hp	47.8 65	55.9 76	64.7 88
Engine max. power DGM/ ISO: ..... kW ..... Hp	50 68	57 77.5	67 91.1
Torque increase (%)	28	27	32
Corresponding ..... rpm	2300		
Maximum torque . ..... rpm	1400		
Dynamic equaliser with counter-rotation masses	YES		

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ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
The engine will not start or is difficult to start	Incorrect starting procedure	See starting procedure
	Fuel level low or empty	Check fuel level
	Air in fuel system	Bleed fuel system
	Engine oil viscosity not right	Use oil of right viscosity
	Fuel not suitable for ambient temperature	Use correct type of fuel for temperature conditions
	Fuel system contaminated	Clean system
	Fuel filter clogged	Replace filter element
	Fuel injector fault	Contact your dealer
The engine does not run properly and/or cuts out	Fuel system contaminated	Clean system
	Fuel injector fault	Contact your dealer
Engine does not reach maximum power	Engine overload	Change to lower gear or reduce load
	Air filter clogged	Carry out maintenance on air filter
	Incorrect fuel type	Use the right fuel
	Low engine operating temperature	Check thermostat
	Fuel injector fault	Have your dealer check the injectors
	Implement incorrectly set	See equipment manual

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OPERATING INSTRUCTIONS

CAUTION: *Before starting the engine and moving the tractor, follow the instructions noted below:*

— *do not start or operate the tractor in an enclosed area.*

— *before starting the engine, check that all controls are in neutral.*

— *all controls must only be operated from the driving position.*

— *stop the engine before carrying out any service or maintenance operations on the tractor.*

— *use the steps provided for entering and leaving the tractor.*

— *keep the guards properly fitted.*

— *when driving on roads, indicate all intentions to stop, turn or slow down.*

— *use the appropriate warning devices to signal the presence of a slow-moving vehicle.*

STARTING THE ENGINE

a. If the tractor has not been used for some time, or is started up for the first time in low outside temperature conditions, operate the fuel pump starting lever approximately twenty times and allow the engine to run for 5÷10 seconds with the injection pump in the «stop» position.

b. Press down the clutch pedal, place the shuttle control lever in neutral to close the starting safety device switch.

c. Move the throttle lever to approximately the half-way position.

d. Turn the starter key to position **C** (fig. 1, page 2-3). Release the key as soon as the engine starts.

STARTING AND STOPPING

STARTING IN LOW OUTSIDE TEMPERATURE CONDITIONS

CAUTION**:** *When the outside temperature is low and the engine is cold, cover the radiator before starting so that the engine coolant can quickly reach the correct temperature. Then remove the cover. Also note the following warnings:*

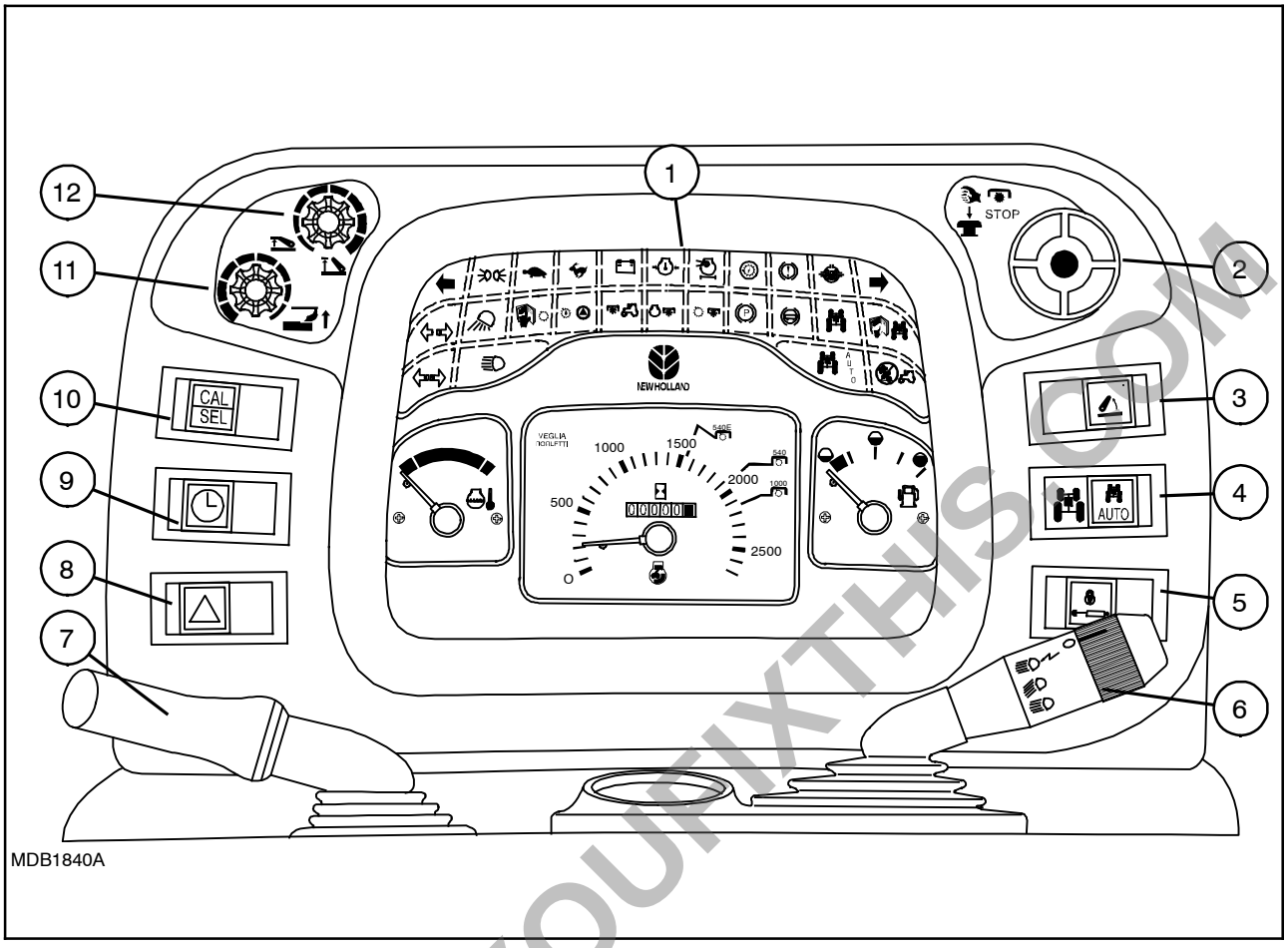
— *in order not to run the battery down, any single engine starting attempt should not last longer than 15 seconds; if, however, the engine fires but does not start, repeat up to a maximum time of 30 seconds.*

— *wait at least one minute between attempts to start the engine;*

— *It is advisable not to make more than six attempts to start the engine to avoid excessive battery run-down.*

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Analogue control panel

1. Indicator light panel.
2. Front Power take-off control.
3. Front lift arms raise switch.
4. Automatic front wheel drive mode switch.
5. Rear horizontal arms stabiliser rods adjustment control switch.
6. Light control lever with horn incorporated.
7. Power Shuttle control lever.
8. Flashing hazard warning lights switch.
9. Clock adjustment switch.
10. Dashboard electronic mode selection switch.
11. Front lift working depth adjustment knob.
12. Front lifting arms upper limit adjustment knob.

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VERSION 3 (with cab) Fig. 74

2WD models with differential lock and mechanical lift, predisposed for:

- Digital display
- 40A socket
- NASO circuit
- Trailer brake

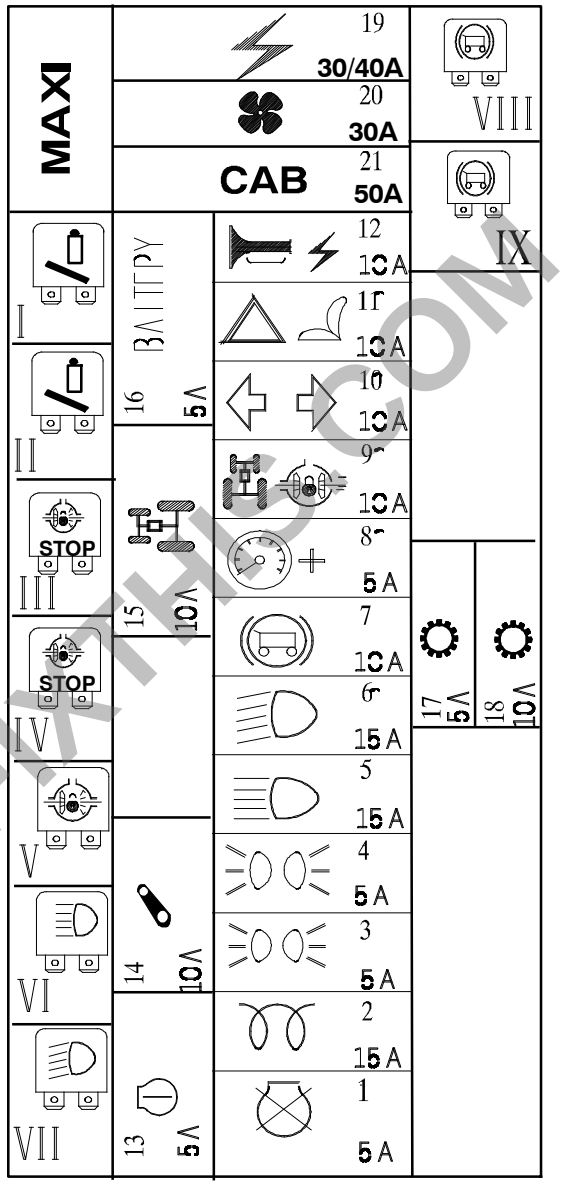
I. Right-hand tie rod hydraulic adjustment circuit.
II. Not used.
III. Not used.
IV. Brake lights circuit.
V. Not used.
VI. Full beam headlight circuit.
VII. Dipped beam headlight circuit.
VIII. Trailer brake circuit.
IX. Trailer brake circuit.

VERSION 4 (with cab) Fig. 74

2WD models with electro-hydraulic differential lock and mechanical lift, predisposed for:

- Power-Shuttle
- Digital display
- 40A socket.
- NASO circuit
- Trailer brake

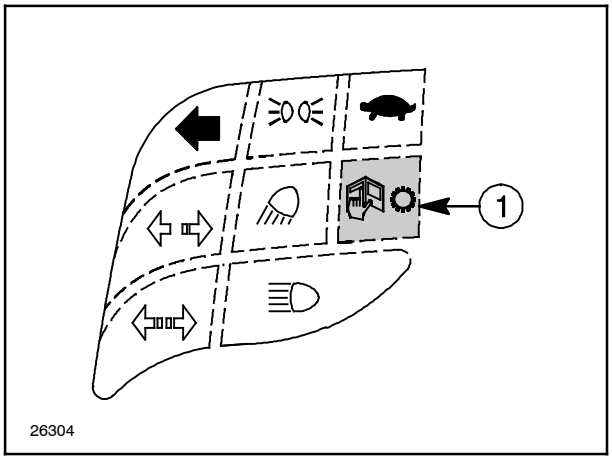
I. Right-hand tie rod hydraulic adjustment circuit.
II. Not used.
III. Not used.
IV. Differential lock and brake light circuit.
V. Differential lock and brake light circuit.
VI. Full beam headlight circuit.
VII. Dipped beam headlight circuit.
VIII. Trailer brake circuit.
IX. Trailer brake circuit.



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POWER-SHUTTLE ERROR CODE SIGNALS

Any eventual anomalies that are detected will be indicated by the illuminated signal (**1**) fig. 46.

The number of flashes (**1**) identifies the error code in six phases:

1) 5 flashes in rapid succession to indicate imminent transmission of the error code;

2) 2 second pause;

3) n... flashes to indicate the first figure of the error code;

4) 1 second pause**;**

5) n... flashes to indicate the second figure of the error code;

6) 3 second pause.

- Example of the interpretation of error code number 21 -

1st phase	2nd phase	3rd phase	4th phase	5th phase	6th phase
●●●●●	pause	●●	pause	●	pause
code transmission warning	2s	first figure 2	1s	second figure 1	3s
		error code composition 21			

CAUTION: *The system indicates eventual error codes according to the degree of gravity.*
If an error occurs that compromises system operation, this error code will take priority over the indication of other codes, which will be stored in the system.
Once the fault has been repaired, the system will then display any other error codes that are active.

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Hours of work		Maintenance operation	Functional check	Fill-up level	Cleaning	Greasing	Adjustment	Replacement	Page
Every 300 hours	24	Oil change, engine sump						●	3-19
	25	Battery	●	●					3-19
	26	Fuel filter						●	3-19
	25	Fuel pump filter			●				3-20
	26	Transmission oil filter and services						●	3-20
	27	HI-LO/POWER-SHUTTLE oil filter						●	3-20
	28	Engine oil filter						●	3-21
	29	Air filter (external cartridge) models TN65F-TN75F			●				3-21
	30	Air filter (external cartridge) models TN90F			●				3-21
	31	Transmission and lift	●	●					3-22
	32	4WD front axle housing	●	●					3-22
	33	Transmission handbrake	●				●		3-22
	34	4WD front axle hubs	●	●					3-23
	35	Front wheels 2WD				●			3-23
	36	4WD front stub axle hubs				●			3-23
Every 900 hours	37	Engine valves	●				●		3-24
Every 1200 hours or every year	38	Cab air filters						●	3-25
	39	Air filter (internal and external cartridges)						●	3-25
	40	Fuel tank			●				3-25
Every 1200 hours or every 2 years	41	Injectors	●				●		3-26
	42	4WD front axle housing oil						●	3-26
	43	4WD front axle lateral hubs oil						●	3-26
	44	Engine cooling system						●	3-27
	45	Transmission and lift oil						●	3-29
General maintenance	Bleed fuel system								3-30
	Bleed brake system 2WD models								3-31
	Bleed brake system 4WD models with front brakes								3-32
	Electrical system								3-34
	Notes on bodywork maintenance								3-54
	Tractor storage								3-55

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TIMING SYSTEM

With overhead valves	Timing data
Inlet:	
– start before TDC	12°
– end after BDC.	31°
Exhaust:	
– start before BDC	50°
– end after TDC	16°
Valve clearance, timing inspection: . . . . . mm	0.45
valve clearance, engine cold:	
– inlet and exhaust . . . . . mm	0.30 ± 0.05

FUEL SYSTEM

Double–diaphragm fuel pump on injection pump supply line.

Rotary injection pump with centrifugal speed governor,
operating at all speeds and incorporating automatic advance . . . . . type BOSCH–VE4

Fuel filtering:

- mesh filter in the fuel pump;
- replaceable cartridge filter on the injection pump feed line with water separator. Fuel sediment filter (optional).

Double cartridge dry air filter, with centrifugal pre–filter and automatic dust extractor.

Engine injection pump:	**TN65F**	**TN75F**	**TN90F**
Before TDC. of cylinder No. 1 during compression stroke	9° ± 0,5°		3° ± 0.5°

Injectors:	**TN65F**	**TN75F**	**TN90F**
– order of injection	1 – 3 – 4 – 2		
– number of injection nozzles:	5		
– calibration: bar	260 ÷ 272		

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ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine does not reach maximum power (cont.)	Implement incorrectly set	See equipment manual
	Valve clearance wrong	Check and adjust
	Idling speed too low	Contact your dealer
Abnormal engine knocking	Oil level low	Top up fluid level
	Oil pressure low	Contact your dealer
Low engine operating temperature	Thermostat malfunction	Replace thermostat
Oil pressure low	Oil level low	Add oil as required
	Oil grade or viscosity wrong	Drain and refill with oil of correct grade and viscosity
Excessive oil consumption	Oil level too high	Reduce oil level
	Oil viscosity wrong	Use oil of correct viscosity
	Oil leaking	Repair leaks
	Breather pipe filter clogged	Replace breather pipe filter
Engine overheating	Radiator core clogged	Clean
	Engine overload	Change to lower gear or reduce load
	Engine oil level low	Top up fluid level
	Coolant level low	Top up fluid level in expansion tank. Check system for leaks
	Radiator cap defective	Replace cap
	Fan belt slipping or worn	Check tensioning device. If necessary, replace the belt

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