U..... ERROR CODES

CODE	CAUSE	REMEDY
U 19	Oil temperature below10° C (50° F) (*)	Bring oil temperature to 20–50° C (68–122° F)
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 control lever in neutral	Engage the Shuttle lever in the forward position
U 24	Range gear lever in neutral	Engage the range gear lever in position C
U 25	Gear lever in neutral	Engage the gear lever in 1a
U 26	Clutch pedal not fully released	Release the clutch pedal
U 27	Hi (B) clutch calibration value below 230mA	Replace the solenoid valve
U 28	Hi (B) clutch calibration value above 480mA	Make sure that the solenoid valve has been fitted correctly Check the hydraulic pressure on the Hi circuit
U 29	Lo (A) clutch calibration value below 230mA	Replace the solenoid valve
U 30	Lo (A) clutch calibration value above 480mA	Make sure that the solenoid valve has been fitted correctly 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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ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
The engine will not start, or starts with difficulty	Starting procedure incorrect	See starting procedure
	Fuel level low or empty	Check fuel level
	Air in fuel system	Bleed fuel system
	Incorrect engine oil viscosity	Correct oil viscosity
	Fuel not suited for ambient temperature	Use correct type of fuel for temperature conditions
	Fuel system contaminated	Clean system
	Fuel filter clogged	Replace filter element
	Fuel injector/s fault	Contact your NEW HOLLAND dealer
The engine functions incorrectly and/or cuts out	Fuel system contaminated	Clean system
	Fuel injector/s fault	Contact your NEW HOLLAND dealer
The 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 correct fuel
	Low engine running temperature	Check thermostat
	Fuel injector/s fault	Have your dealer check the injectors
	Implement incorrectly set	See implement manual

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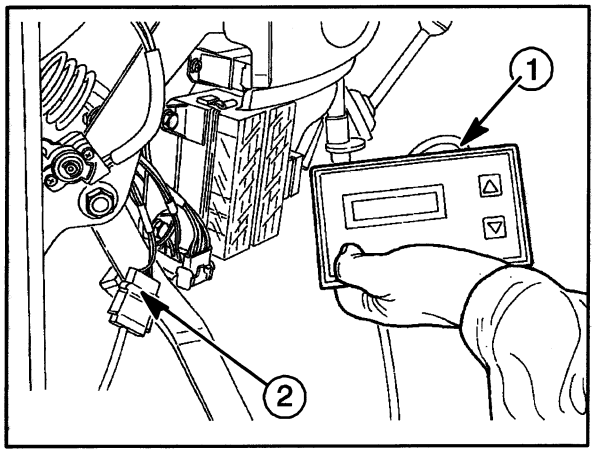
ENGINE

Model	TN55D	TN65D	TN75D
Engine type ..... with clutch: –11"	IVECO		
	8035.05B.231 8035.05B.229 8035.05B.529 (USA)	8035.05R. 241 8035.05R.239 8035.05R.539 (USA)	8035.25.231 8035.25.229 8035.25.529 (USA)
Injection pump	BOSCH		
4–stroke diesel direct injection:			
– naturally aspirated ..	YES	YES	–
– turbo–charged	–	–	(GARRET TA 2505)
Number of cylinders	3		
Bore and stroke ... mm	104 X 115 (3.94 X 4.52 in)		
Total displacement .. cm^3	2930 (178.79 $in^{3)}$		
Compression ratio	17 : 1		16.5 : 1
Engine max. power DGM/ DIN: ..... kW CV	 37 50	 44 60	 53 72
Torque increase (%) .	29	20	36
Corresponding rpm ..... rpm	2300		
Maximum torque rpm ..... rpm	1400		

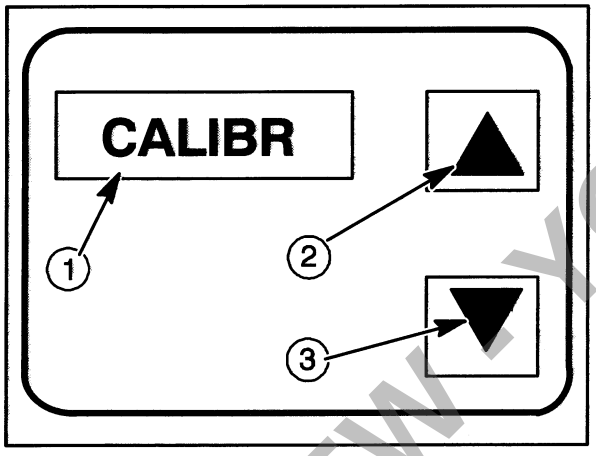
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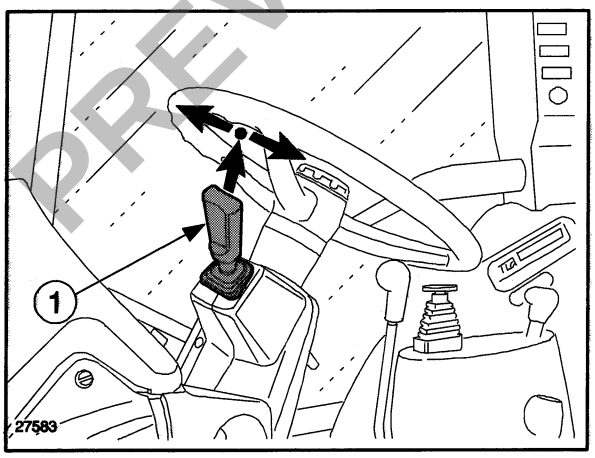
HI–LO CLUTCH CALIBRATION



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52

In order to maintain the hydraulic system in optimal conditions, clutch calibration must be carried out periodically, and after the following replacement operations:

- control unit replacement;
- solenoid valve replacement.

Carry out calibration operations according to the instructions listed below:

1. park the tractor in an obstacle–free area, switch off the engine and apply the handbrake;
2. remove the left–hand side panel on the dashboard;
3. find the black connector (**2**) fig. 50 and connect the calibration instrument(**1**) fig. 50;
4. keep push buttons (**2** and **3**) fig. 51 pressed down and start the engine;
5. after a few seconds, the display (**1**) fig. 51 will show the message "**CALIBR**"

CAUTION: *Before starting the engine, move the shuttle lever to the neutral position and make sure that there are no people or objects in the vicinity of the tractor.*

6. release the push buttons (**2** and **3**), fig. 51 and, after a few seconds, the display (**1**) will show the transmission oil temperature (optimal temperature 50–60^0 C (122–140^0 F);
7. take the engine to approx. 1300 rpm, engage the first gear, select slow range **C**, move the shuttle lever (**1**) fig. 52 forwards and release the clutch pedal;
8. press the push button (**3**) fig. 51 with the arrow pointing downwards to calibrate the **LO** clutch, the display (**1**) fig 51 will show a number that will increase rapidly. When the number stops and begins to flash, the **LO** clutch is calibrated.

NOTE: *If, during calibration operations, the instrument detects an anomaly, the display (**1**) fig 51 will show a numerical code, preceded by the letter "**U**" (error code). In this event, consult the table on page 2–50.*

On completion of calibration operations, switch off the engine in order to store the new transmission control values.

NOTE: *For **HI** clutch calibration, proceed as described in point **8** using the push button (**2**) fig. 51 with the arrow pointing upwards.*

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LUBRICATION AND MAINTENANCE TABLE

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

Hours of work	Operation Number	Maintenance operations	Functional check	Fill–up	Cleaning	Lubrication	Adjustment	Renewal	Page
Flexible maintenance	1	Adjust engine clutch					●		3–7
	2	Windscreen washer tank		●					3–7
	3	Adjust fan belt					●		3–8
	4	Adjust compressor belt					●		3–8
	5	Outlet valve dry air filter			●				3–8
With warning light on	6	Main cartridge dry air filter			●				3–9
	7	Brake fluid reservoir	●	●					3–10
Every 10 hours	8	Oil sump	●	●					3–11
	9	Radiator expansion tank (TN90D/S model)	●	●					3–11
	10	Cab air filters			●				3–12
	11	Air conditioning dehydration filter			●				3–12
	12	Condenser			●				3–13
Every 50 hours	13	Rear wheel hubs				●			3–14
	14	Lift and implement linkage				●			3–14
	15	4WD steering cylinders				●			3–14
	16	4WD front axle pivots				●			3–15
	17	Transmission shaft (SUPERSTEER 4WD)				●			3–15
	18	Front axle pivot (Standard 4WD)				●			3–15
Every 50 hours	19	2WD steering cylinder				●			3–16
	20	Stub axle: right and left hand sides, 2WD				●			3–16
	21	2WD front axle joint				●			3–16
	22	Fuel filter (condensation drain)			●				3–17
	23	Tyre pressures	●						3–17

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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.

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 2–4). Release the key as soon as the engine starts.

HOW TO START AND STOP

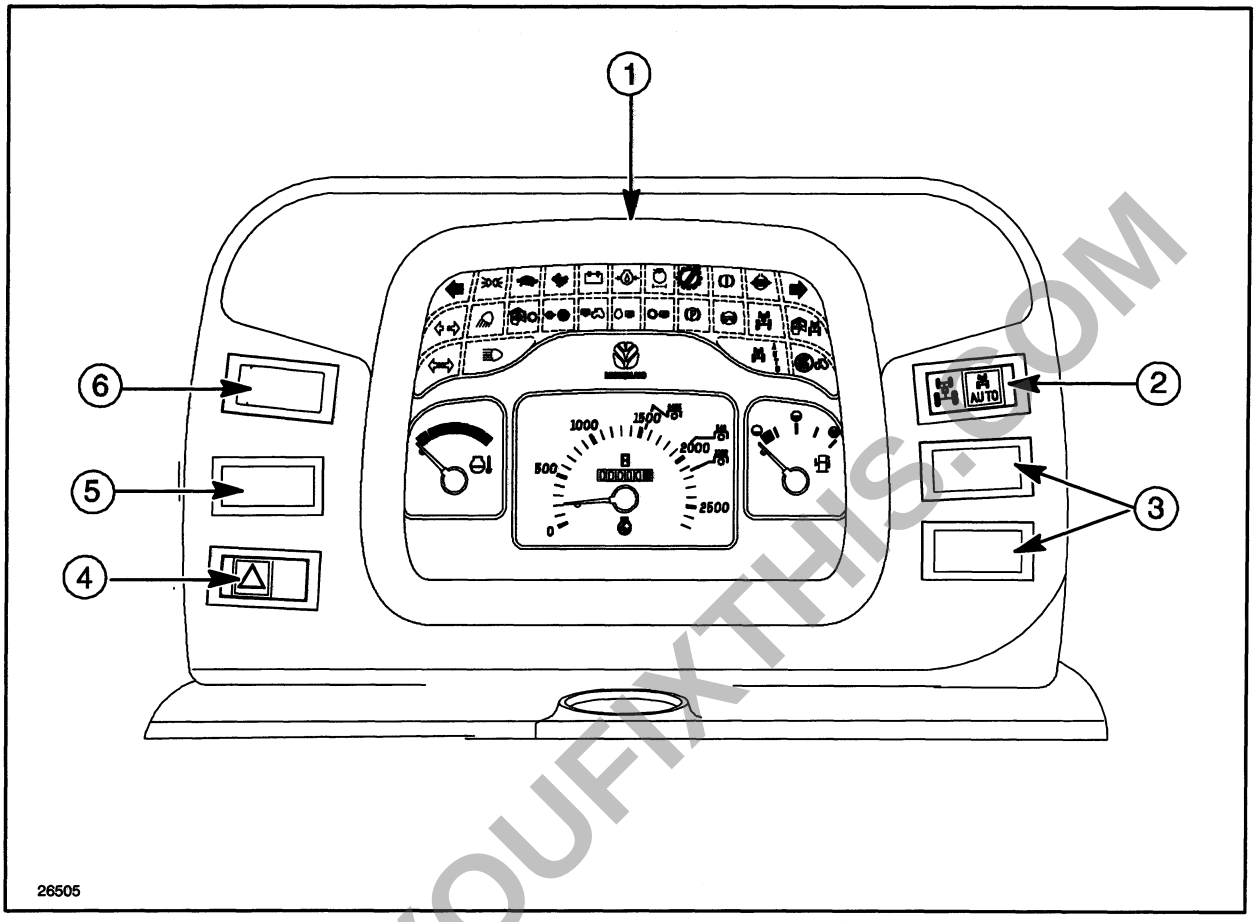
STARTING IN LOW OUTSIDE TEMPERATURE CONDITIONS

WARNING: *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:*

- *to avoid running down the battery, any single engine starting attempt should not last longer than 15 seconds; if, however, the engine fires but does not start, continue the attempt up to a maximum of 30 seconds.*
- *wait for at least one minute between each attempt to start the engine;*
- *to avoid excessively running down the battery, do not make more than six attempts to start the engine.*

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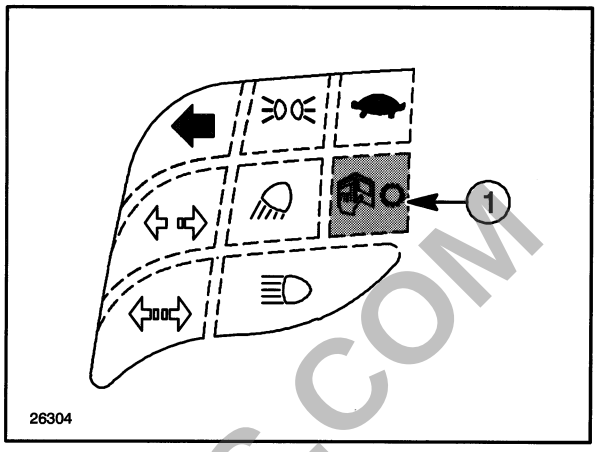
Analogue control panel

1. Central analogue instrument panel
2. Automatic four–wheel drive mode switch.
3. Not used.
4. Flashing hazard warning lights.
5. Not used.
6. Not used.

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POWER–SHUTTLE ERROR CODE SIGNALS



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Any eventual anomalies that are detected will be indicated by the illuminated signal (**1**) fig. 54.

The indicator light (**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) no. ... flashes to indicate the first figure of the error code;

4) 1 second pause;

5) no. ... flashes to indicate the second figure of the error code;

6) 3 second pause.

– Example of the interpretation of error code number 21 –

1^ phase	2^ phase	3^ phase	4^ phase	5^ phase	6^ 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 severity.*
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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ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
The engine does not reach maximum power (cont.)	Implement incorrectly set	See implement manual
	Incorrect valve clearance	Check and adjust
	Idling speed too low	Contact your NEW HOLLAND dealer
Abnormal engine knocking	Oil level low	Fill up with oil
	Oil pressure low	Contact your NEW HOLLAND dealer
Low engine operating temperature	Thermostat fault	Replace thermostat
Oil pressure low	Oil level low	Add oil as required
	Incorrect oil grade or viscosity	Drain and refill with correct oil grade and viscosity
Excessive oil consumption	Oil level too high	Reduce oil level
	Unsuitable oil viscosity	Use specified oil viscosity
	External oil leaks	Repair leaks
	Breather pipe filter clogged	Replace breather pipe filter
Engine overheating	Radiator core clogged	Clean
	Excessive engine load	Change to lower gear or reduce load
	Engine oil level low	Fill up with oil
	Coolant level low	Fill to fluid level in expansion tank. Check system for leaks
	Radiator cap defective	Replace cap
	Fan belt slipping or worn	Check tensioner. Replace belt if worn

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TIMING

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 (0.017 in)
valve clearance, engine cold:	
– inlet and exhaust ..... mm	0.30 ± 0.05 (0.012 ± 0.0019 in)

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 filtration:

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

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

Air filter with self–cleaning device:	TN55D/S	TN65D/S	TN75D/S
Before TDC of cylinder No. 1 during compression stroke ...	9° ± 0.5°		6° ± 0.5°

Injectors:	TN55D/S	TN65D/S	TN75D/S
– order of injection	1 – 2 – 3		
– number of injection nozzles:	5		
– setting:			
. bar	260 to 272		
. psi	3771 to 3858		

LUBRICATION

Pressurised, by gear pump.
Oil filtration: pressurised through pump intake mesh and replaceable cartridge filter on engine intake.
Engine lubrication pressure:

– engine speed 2300 rpm ..... bar 2.9 to3.9
psi ..... 41.24 to 55.47

Engine oil cooled by a heat exchanger using engine coolant.

COOLING

Water, pressurised circulation by centrifugal pump.

Radiator with 3 lines of vertical copper pipes for TN55D, TN65D and 4 lines of vertical copper pipes for model TN75D.

Cooling fan fitted on same shaft as water pump.

Water circulation from engine to radiator thermostatically controlled.

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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;

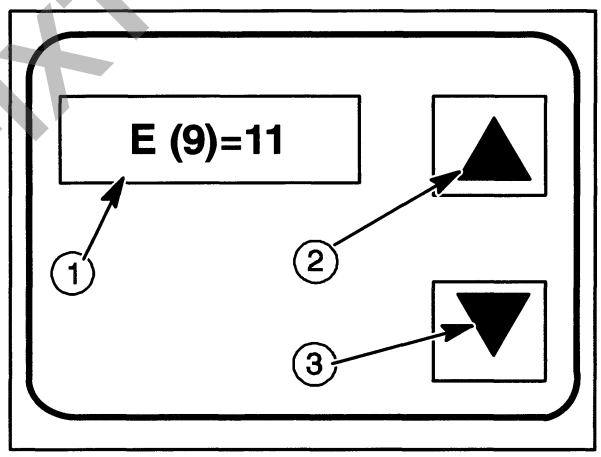
- connect the instrument as described on page 2–48;
- move the shuttle lever (**1**) fig. 52 to the reverse drive position;
- press, and hold down, the push button (**2**) with the arrow pointing upwards;
- turn the starter key to the second position (ready for starting), the display (**1**), will show a numerical code (error code). 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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Hours of work	Operation Number	Maintenance operations	Functional check	Fill-up	Cleaning	Lubrication	Adjustment	Renewal	Page
Every 300 hours	24	Oil change, engine sump						●	3-18
	25	Battery	●	●					3-18
	26	Fuel filter						●	3-18
	27	Fuel pump filter			●				3-19
	28	Transmission oil filter and services						●	3-19
	29	HI-LO/POWER-SHUTTLE oil filter						●	3-19
	30	Engine oil filter						●	3-20
	31	Air filter (external cartridge)			●				3-20
	32	Transmission and lift	●	●					3-20
	33	4WD front axle housing	●	●					3-21
	34	Transmission handbrake	●				●		3-21
	35	4WD front axle final drives	●	●					3-21
	36	2WD front wheels				●			3-22
	37	4WD front axle joints				●			3-22
Every 900 hours	38	Engine valves	●				●		3-22
Every 1200 hours or every year	39	Cab air filters						●	3-23
	40	Air filter (internal and external cartridges)						●	3-23
	41	Fuel tank			●				3-23
Every 1200 hours or every 2 years	42	4WD front axle housing oil (Standard)						●	3-24
	43	4WD front axle housing oil (Supersteer)						●	3-24
	44	4WD front axle lateral hubs oil						●	3-24
	45	Injectors	●				●		3-25
Every 1200 hours or every 2 years	46	Engine cooling system						●	3-26
	47	Transmission and lift oil						●	3-28
General maintenance		Bleed fuel system							3-29
		Bleed brake system 2WD models							3-30
		Bleed brake system 4WD models with front brakes							3-31
		Electrical system							3-33
		Notes on bodywork maintenance							3-42
		Tractor storage							3-43

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