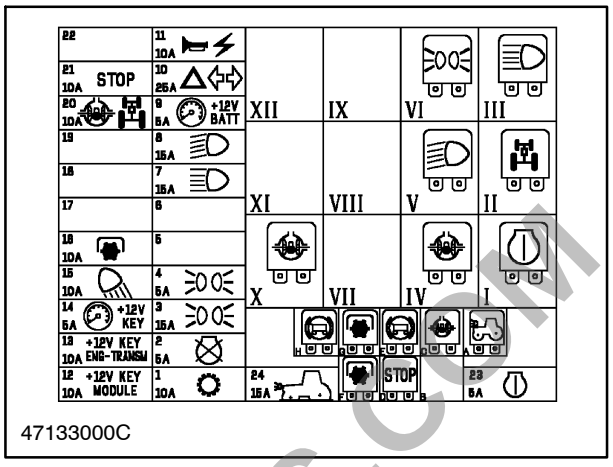
VERSION 1

Relay Layout for Standard Models with ROPS

I. 70A engine start-up relay.
II. Electrohydraulic FWD and brake lights circuit relay.
III. Full beam headlights relay.
IV. Differential lock relay.
V. Dipped beam headlights relay.
VI. Side/tail lights relay
VII. Not used.
VIII. Not used.
IX. Not used.
X. Differential lock, four-wheel drive and brake lights circuit relay.
XI. Not used.
XII. Not used.
A. Corner lights relay.
B. Not used.
C. Differential lock circuit relay.
D. Brake lights circuit relay.
E. Trailer brake circuit relay (ISO only).
F/G. Not used.
H. Trailer brake circuit relay (ISO only).



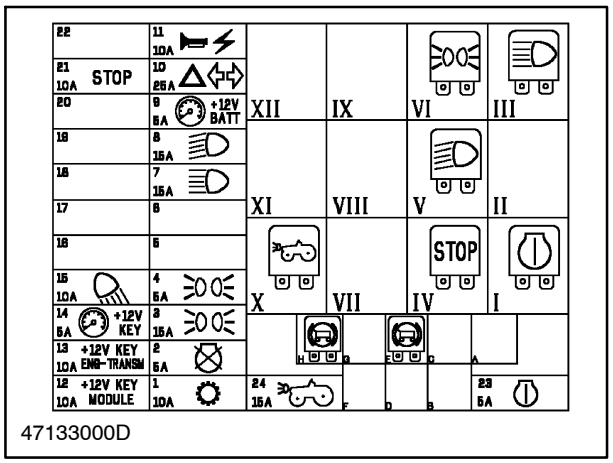
47133000C

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VERSION 2

Relay Layout for Deluxe Models with ROPS and Power Shuttle Gearbox 24+24

I. 70A engine start-up relay.
II. Not used.
III. Full beam headlights relay.
IV. Brake lights relay.
V. Dipped beam headlights relay.
VI. Side/tail lights circuit relay.
VII. Not used.
VIII. Not used.
IX. Not used.
X. Corner lights relay.
XI. Not used.
XII. Not used.
A. Not used.
B. Not used.
C. Not used.
D. Not used.
E. Trailer brake circuit relay (ISO only).
F. Electro-hydraulic PTO circuit relay.
G. Electro-hydraulic PTO circuit relay.
H. Trailer brake circuit relay (ISO only).



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FAULT CODES DESCRIPTION

CODE	FAULT	RECOVERY
2011	Tension too low at clutch pedal potentiometer	Shuttle lever operation complete cycle
2012	Tension too high at clutch pedal potentiometer	Shuttle lever operation complete cycle
2013	High and Low speed pushbuttons pressed simultaneously.	Fault automatically cancelled when problem solved
2014	“Tension too high at G” gear switch	Fault manually cancelled
2015	“Tension too low at G” gear switch	Fault manually cancelled
2016	“Tension too high at R1” range switch	Fault manually cancelled
2017	“Tension too low at R1” range switch	Fault manually cancelled
2018	“Tension too high at R2” range switch	Fault manually cancelled
2019	“Tension too low at R2” range switch	Fault manually cancelled
2021	Wiring fault. Open circuit	Fault manually cancelled
2022	Short circuit on clutch A solenoid valve	Fault manually cancelled
2023	Short circuit on clutch B solenoid valve	Fault manually cancelled
2024	Clutches not calibrated	Fault manually cancelled
2025	Engine RPM too high	Fault manually cancelled
2026	Clutch D not calibrated	Fault automatically cancelled when problem solved
2027	Clutch C not calibrated	Fault automatically cancelled when problem solved
2028	Clutch B not calibrated	Fault automatically cancelled when problem solved
2029	Clutch A not calibrated	Fault automatically cancelled when problem solved
2031	Short circuit on clutch C solenoid valve	Fault manually cancelled
2032	Short circuit on clutch D solenoid valve	Fault manually cancelled
2033	No pressure on clutch A solenoid valve	Clutch pedal operation complete cycle
2034	Wheel speed too low	
2035	Wheel speed too high	
2036	Engine rpm too low	

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Setting the Ground Speed Display

If rear tires of a different size are to be installed, with a difference in radius of more than 13 mm (0.5 in.) compared to the standard ones, it will be necessary to recalibrate the electronic control module so as to get the display of a specific ground speed. For recalibration, use one of the following procedures:

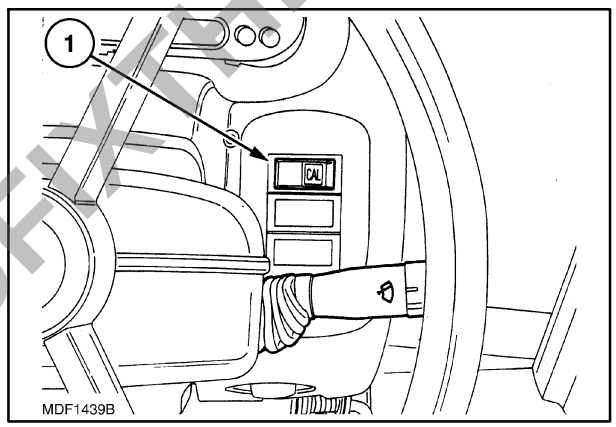
Check that the tires are at the right inflation pressure for the load to transport (see the tables of the tire inflation pressures and permissible loads in section 3 of this manual).

Select a dry, compact and level surface (preferably concrete) and measure out a section exactly 328 ft. (100 m) long. Mark the start and end of this section with chalk.

Automatic Setting with the CAL Button (TLA Standard models)

Park the tractor at a short distance from the first line marked out and, with the engine running, keep the CAL button, 1, pressed for 3 seconds to enter the calibration mode. The function monitor, 1, displays SETUP_MENU. After approximately two seconds the display will show CAL. Pressing the CAL button again, will select the CAL auto ready mode.

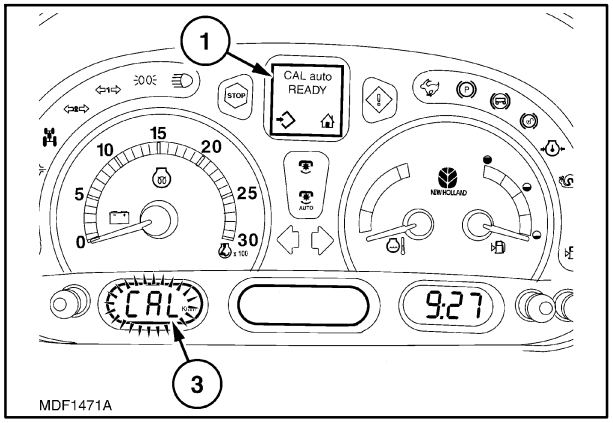
NOTE: *The setting procedure can be cancelled at any time by pressing the brightness control button or turning the ignition key OFF.*



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Select a suitable gear to provide a speed higher than 3 Km/h (1.8 MPH) and begin moving. Press the CAL button to select CAL auto ready before crossing the start line. When the central portion of the front tires passes over the start line marked out with chalk, press and release the CAL button. The speed display, 3, will blink with CAL auto ON.

When the central portion of the front tires passes over the end line, press the CAL button again and hold. The function monitor, 1, will show CAL auto OK for successful automatic calibration. If the calibration is not successful, the function monitor will show KO. Press the CAL button again to quit the setting mode and go back to the main menu.



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LUBRICATION AND MAINTENANCE TABLE

The operation numbers in the second column reference the operations and illustrations 0n the following pages of this section.

Hours of work	Operation Number	Maintenance operation	Functional check	Fill-up level	Cleaning	Greasing	Adjustment	Replacement	Page
With warning light ON	1.	Air Filter Valve			●				4-8
	2.	Air Filter Main Cartridge			●				4-8
	3.	Brake Reservoir		●					4-9
	4.	Fuel Filter			●				4-10
Every 10 hours	5.	Engine Oil Sump	●	●					4-11
	6.	Radiator Expansion Tank	●	●					4-11
	7.	Battery	●						4-12
	8.	Windscreen Washer Tank	●	●					4-12
	9.	Cab Air Filters			●				4-13
	10.	Air-conditioning Dehydration Filter (Cab)	●						4-13
	11.	Air Conditioner Condenser (Cab)	●						4-14
	12.	Fuel Pre-filter	●					●	4-14
Every 50 hours	13.	Rear Wheel Hubs				●			4-15
	14.	Lift and Implement Linkage Device				●			4-15
	15.	Tow Hitch				●			4-15
	16.	FWD Steering Cylinders				●			4-16
	17.	FWD Front Axle Rear Pivot				●			4-16
	18.	FWD Front Axle Front Pivot				●			4-17
	19.	2WD Steering Cylinder				●			4-17
	20.	2WD Right-hand Stub Axle				●			4-17
	21.	2WD Left-hand Stub Axle				●			4-18
	22.	2WD Front Axle Pivot				●			4-18
Every 300 hours	23.	Hydraulic Circuit Oil Filter						●	4-19
	24.	Power Shuttle Oil Filter						●	4-19
	25.	Air Filter External Cartridge	●	●					4-19
	26.	V-belt Inspection	●						4-20

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ENGINE DATA

Engine Type
- TL80A (Naturally Aspirated) F4CE0404C
- TL90A (Turbocharged) F4CE0454E
- TL100A (Turbocharged) F4CE0454D

– Injection pump . . . . . BOSCH

– Number of cylinders 4

– Piston bore . . . . . 104 mm (4.0944 in)

– Piston stroke . . . . . 132 mm (5.1968 in)

– Total displacement . . . . . 4485 cm^3 (273.67 in^3)

– Compression ratio 17.5:1

– Power at flywheel DGM/DIN:
- TL80A . . . . . 60 KW (82 HP)
- TL90A . . . . . 67 KW (91 HP)
- TL100A . . . . . 73.5 KW (100 HP)

– Rated speed . . . . . 2500 rpm

– Maximum torque at 1400 rev/min:
- TL80A . . . . . 320 N·m (236 lb-ft)
- TL90A . . . . . 350 N·m (258 lb-ft)
- TL100A . . . . . 370 N·m (272 lb-ft)

– Torque rise:
- TL80A, TL90A 37
- TL100A 35

– Low idle speed . . . . . 700 ± 50 rpm

– High idle speed . . . . . 2700 ± 50 rpm

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 . . . . . BOSCH VE–type.

Fuel filtering:
– mesh filter in the fuel pump.
– replaceable cartridge filter on the injection pump feed line with water separator.

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SECTION 3
FIELD OPERATION

⚠ WARNING ⚠

In order to prevent accidents and safeguard the operator, carefully read the use and safety instructions before starting the engine and using the tractor.

Read this section of the operator's manual carefully before using the tractor. This is particularly important if the tractor is to be used correctly as it contains all the information required on the layout and use of the tractor controls.

Even if you already have experience in using other makes of tractor, this section of the manual especially must be studied carefully and thoroughly.

After reading this section in full, ensure that you are fully familiar with the layout and use of the controls. Ensure too that you know the specifications of the tractors in question.

Never start the engine and tractor if you have not already familiarized yourself with all the controls.

Finding out once the tractor is moving may be too late.

If you have any doubts about any functional aspect of the tractor, contact you NEW HOLLAND dealer.

Particular attention needs to be paid to the tractor's running-in period, to obtain the best operating reliability and service life for which it is designed and built.

With regard to the reliability and service life of your tractor, read Section 4 completely.

Section 4 contains details of all the lubrication and general maintenance operations to be carried out on the tractor.

Section 8 contains tractor data and specifications.

⚠ 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

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 to 10 seconds with the injection pump in the «stop» position.

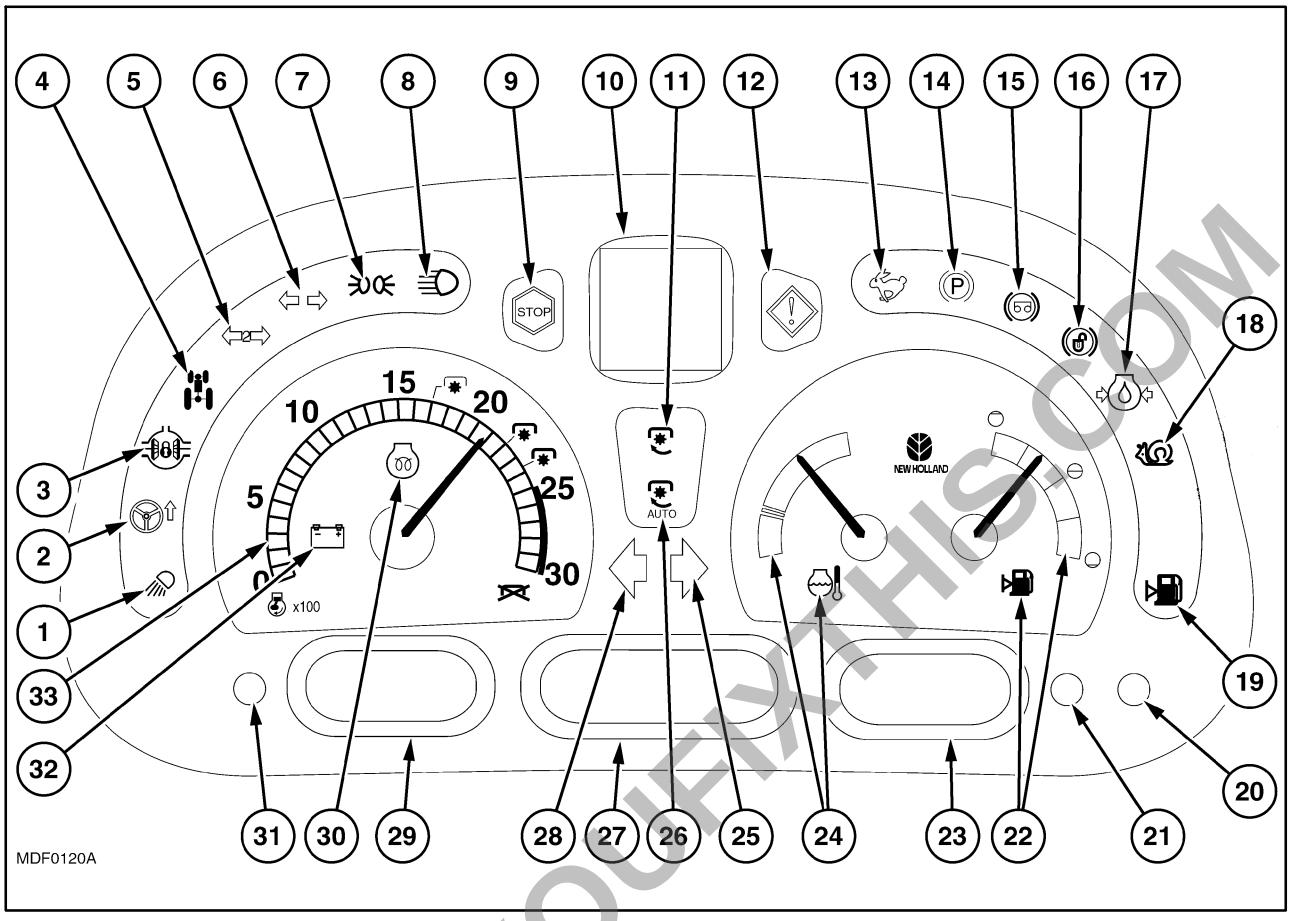
Press down the clutch pedal, place the shuttle control lever in neutral to close the starting safety device switch.

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

Turn the starter key to the ON position. then release the key as soon as the engine starts.

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CONTROL PANEL

INDICATOR AND WARNING LIGHTS

The indicator lights on the control panel inform you of the operational condition of the machine. Some of these indicate faults arising during operation. An indicator light coming on may be followed by a continuous or intermittent buzzer. Depending on the severity of the trouble, the alarm will sound as described here.

Critical Alarm

The alarm sounds continuously followed by the **red** blinking warning light coming on. The tractor **must** immediately be stopped. The alarm sounds until the fault is corrected or the engine switched off. The handbrake and PTO indicator lights stay on steady.

Non-critical Alarm

Intermittent acoustic alarm sounds for 5 seconds accompanied by the **relative** indicator light coming on. A fault or an error has occurred, but the operator can keep on working. Correct the fault as soon as possible.

Requesting Assistance

A two-pulse alarm signal is emitted for 1 second to warn the operator that specific assistance is required. The alarm keeps on sounding until the operator performs the required assistance or switches off the tractor's engine.

General Alarm

A general alarm signal is emitted if the operator tries to perform operations that are not permitted, for instance driving the tractor with the handbrake engaged, with the relevant warning light on the dashboard coming on.

WARNING AND INDICATOR LIGHTS

1. **Work lights** (amber) – This indicator light comes on when the work lights are switched on.
2. **Indicator not active**
3. **Differential lock** (amber) – This indicator light comes on when the differential lock is engaged.

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FUSES VERSION 1

Fuse Layout for Standard Models with ROPS

Fuses	Amps	PROTECTED CIRCUITS
1	10	ECM circuit (+ key).
2	5	Engine cut-out electromagnet.
3	15	Front right-hand and rear right-hand side lights, 2-pin NASO 7-pole connector.
4	5	Front left-hand and rear left-hand side lights, controls and instruments lighting.
5	–	Not used.
6	–	Not used.
7	15	Full beam headlights.
8	15	Dipped beam headlights.
9	5	+12V battery, handbrake circuit.
10	25	Direction indicators and hazard lights.
11	10	Horn, 8A power socket.
12	10	+12V key lights circuit, seat safety circuit.
13	10	+ 12V services key, engine cut-out electromagnet.
14	5	+ Instrument cluster.
15	10	Rear work light.
16	10	PTO circuit.
17	–	Not used.
18	–	Not used.
19	–	Not used.
20	10	Differential lock circuit, four-wheel drive circuit.
21	10	Brake lights, seat safety circuit.
22	–	Not used.
23	5	Starter safety circuit.
24	15	Grille corner lights circuit.

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FAULT CODES DESCRIPTION

2037	Circuit open on clutch pedal switch / position over 15%	Clutch pedal operation complete cycle
2038	Solenoid valve or clutch B driver in short circuit	Fault manually cancelled
2039	Circuit open on clutch B solenoid valve or short circuit to ground	Fault manually cancelled
2041	Circuit open on clutch A solenoid valve or short circuit to ground	Fault manually cancelled
2042	Solenoid valve or clutch A driver in short circuit to +12V	Fault manually cancelled
2043	No clutch B pressure	Clutch pedal operation complete cycle
2047	Setting too high on clutch pedal switch	Fault manually cancelled
2048	Setting too low on clutch pedal switch	Fault manually cancelled
2049	Wheel speed sensor too low	Fault manually cancelled
2051	Temperature transmitter open	Fault automatically cancelled when problem solved
2052	Short circuit on temperature transmitter	Fault automatically cancelled when problem solved
2053	5V sensors power supply voltage too high	Fault manually cancelled
2054	5V sensors power supply voltage too low	Fault manually cancelled
2055	Tension too high at Shuttle lever forward gear switch	Fault manually cancelled
2056	Tension too low at Shuttle lever forward gear switch	Fault manually cancelled
2057	Tension too high at Shuttle lever reverse gear switch	Fault manually cancelled
2058	Tension too low at Shuttle lever reverse gear switch	Fault manually cancelled
2059	Shuttle lever switches fault	Shuttle lever operation complete cycle
2065	Circuit open on clutch C solenoid valve or short circuit to ground	Fault manually cancelled
2066	Circuit open on clutch D solenoid valve or short circuit to ground	Fault manually cancelled
2067	Solenoid valve or clutch D driver in short circuit to +12V	Fault manually cancelled
2068	Solenoid valve or clutch C driver in short circuit to +12V	Fault manually cancelled
2069	Wheel speed sensor tension too low	

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Automatic Calibration with the Numerical Keypad (TLA Deluxe models)

With the ignition key “ON”, keep Menu/Enter key, 2, pressed for 3 seconds. The function monitor will display SETUP_MENU, which will pass on to CAL after 2 seconds. With key, 1, scroll to the CAL auto menu.

Press the Menu/Enter key again, the function monitor will display CAL auto ready. Select a suitable gear to provide a speed higher than 3 km/h (1.8 MPH) and begin moving.

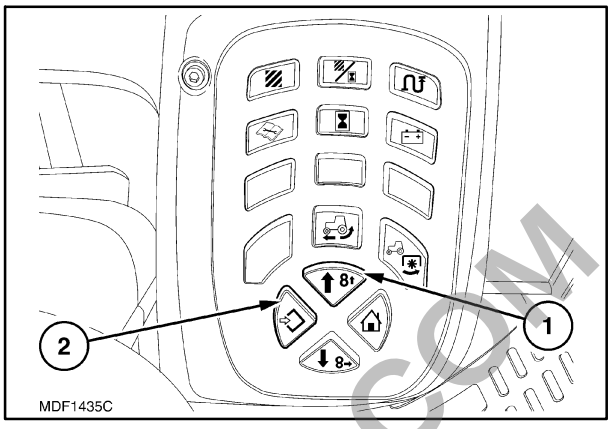
When the central portion of the front tires pass over the start line marked out with chalk, press and release the Menu/Enter key.

The ground speed display, 2, will start blinking with CAL and the function monitor will display a four-digit number that gradually increases as the tractor moves forward. The function monitor will also show CAL auto ON.

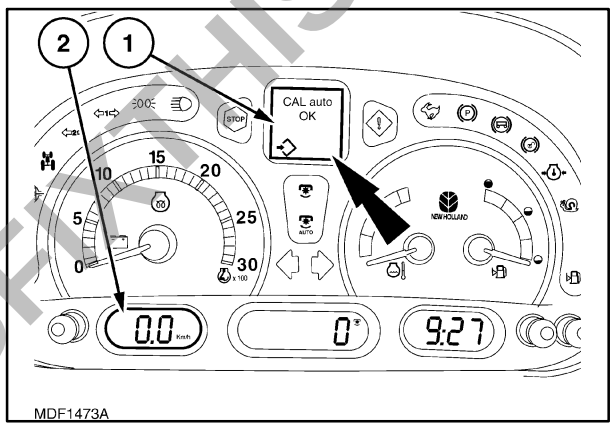
When the central portion of the front tires pass over the end line, press the Menu/Enter key again and hold.

The function monitor, 1, will display the new radius of the rear tires, consisting of a four-digit number between 1000 and 8000. The function monitor will also display CAL auto OK if calibration was completed successfully. Press the Menu/Enter key to save the calibration.

If the function monitor displays CAL auto KO, then repeat the calibration.



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Hours of work	Operation Number	Maintenance operation	Functional check	Fill-up level	Cleaning	Greasing	Adjustment	Replacement	Page
Every 300 hours	27.	Transmission and Lift		●					4-20
	28.	FWD Front Axle Housing		●					4-20
	29.	Transmission Handbrake	●						4-21
	30.	FWD Front Axle Final Drives		●					4-21
	31.	2WD Front Wheels				●			4-22
	32.	FWD Front Axle Stubs				●			4-22
Every 600 hours	33.	Engine Oil/Filter						●	4-23
	34.	Fuel Filter						●	4-24
Every 1200 hours or annually	35.	Cab Air Filters						●	4-25
	36.	Air Filter Main Cartridge and Safety Cartridge						●	4-25
	37.	Fuel Tank			●				4-25
Every 1200 hours or every 2 years	38.	FWD Front Axle Housing						●	4-26
	39.	FWD Front Axle Final Drives						●	4-26
	40.	Engine Valves					●		4-26
	41.	Transmission and Lift Oil						●	4-27
	42.	Engine Cooling System	●	●	●			●	4-28
Every 1800 hours	43.	Fuel Injectors					●		4-31
General maintenance	Brake System Air Bleeding								4-32
	Clutch Pedal Adjustment								4-33
	Compressor Belt Tension Adjustment								4-34
	Electrical System General Information								4-35
	Bodywork Recommendations								4-48
	Lubricants and Fluids Table								4-49

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Rear Transmission

9/43 bevel gear pair ratios and differential with pedal controlled locking device and automatic release. Epicyclic final drives.

Power Take-off

Fully independent, in two versions: 540 rpm; and 540/1000 rpm with engine at:

- 2199 rpm (Power take-off 540 rpm)
- 2381 rpm (Power take-off 1000 rpm)

Manual control: clutch control lever, take-off engage lever.

Direction of rotation with tractor seen from behind: clockwise.

HYDRAULIC LIFT

Operates in:

- draft control;
- position control;
- mixed position and draft control;
- float mode.

Draft control is through the link arms by means of a torsion bar.

The link-arms are raised and lowered using a pushbutton-operated device (Lift -O-Matic)

HYDRAULIC LIFT OIL PUMP

Oil supply is from the transmission by gear pump operated directly by the engine:

- corresponding rated output: . . . . . 55 l/m (14.5 g/m)
- pressure relief valve setting: . . . . . bar 190 (psi 2755)

Maximum Weight Limits

With vertical rods pivoting in the rear hole of the horizontal arms and three-point linkage connected to upper hole of top link, with working pressure at 90% maximum pressure:

- at link ends of horizontal arms: . . . . . kg 2780 (lb. 6131.63)
  models TL80A (with additional jack) . . . . . kg 3950 (lb. 8712.21)
  models TL90A and TL100A (with two additional jacks) . . . . . kg 4690 (lb. 10939.89)
- with center of gravity at 610 mm from link ends: . . . . . kg 2790 (lb. 6153.68)
  models TL80A (with additional jack) . . . . . kg 3150 (lb. 6947.71)
  models TL90A and TL100A (with two additional jacks) . . . . . kg 3450 (lb. 7609.39)

Maximum Weight Limits

With vertical rods pivoting in the rear hole of the horizontal arms and three-point linkage connected to upper hole of top link, with maximum working pressure:

- at link ends of horizontal arms: . . . . . kg 3860 (lb. 8513.70)
  models TL80A (with additional jack) . . . . . kg 4800 (lb. 10.586)
  models TL90A and TL100A (with two additional jacks) . . . . . kg 5740 (lb. 12660.27)
- with center of gravity at 610 mm from link ends: . . . . . kg 3510 (lb. 7741.73)
  models TL80A (with additional jack) . . . . . kg 4360 (lb. 9616.51)
  models TL90A and TL100A (with two additional jacks) . . . . . kg 5210 (lb. 11491.29)

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