3 - CONTROLS/INSTRUMENTS

ACCESS TO OPERATOR'S PLATFORM

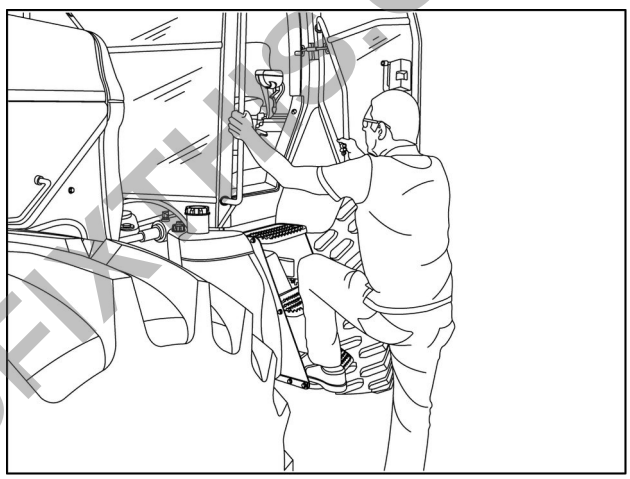
Cab - Access/Exit

⚠ WARNING

Fall hazard!
Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps.
Failure to comply could result in death or serious injury.

W0141A

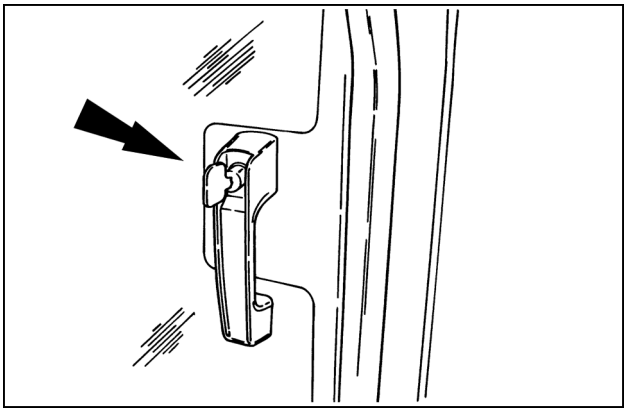
Your tractor is equipped with a door, steps, and grab rails on both sides of the cab. The door you use to enter the cab will be determined by the direction that the seat and console are facing. When mounting or dismounting the tractor, use the hand rails and steps provided.



RAIL13TR02373AA 1

Cab door lock

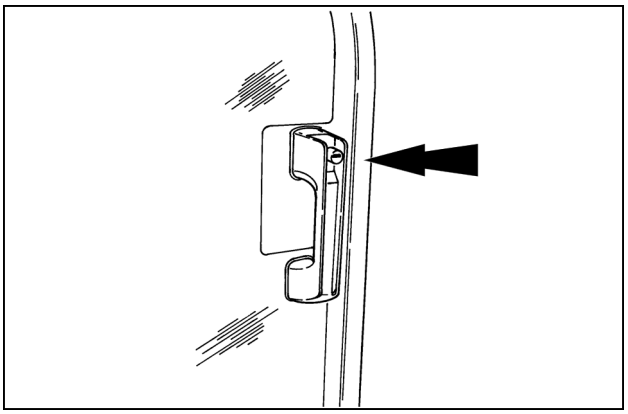
Use the key to lock or unlock the cab door from the outside.



RAIL13TR01960AA 2

Control handle - outside

Push in on the handle button to open the cab door. The door is equipped with a dampener for opening.



RAIL13TR01961AA 3

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4 - OPERATING INSTRUCTIONS

COMMISSIONING THE UNIT

Before starting the engine

⚠ WARNING

Inhalation/asphyxiation hazard!
Make sure there is proper ventilation before starting the engine.
Failure to comply could result in death or serious injury.

W0091A

⚠ WARNING

Hazard to bystanders!
ALWAYS make sure the work area is clear of bystanders and domestic animals before starting this procedure. Know the full area of movement of the machine. Do not permit anyone to enter the area of movement during this procedure.
Failure to comply could result in death or serious injury.

W0245A

⚠ WARNING

Unexpected machine movement!
Before starting the engine, move all operating controls to neutral or park lock position. This prevents accidental movement of the machine or start up of power-driven equipment.
Failure to comply could result in death or serious injury.

W0302A

First tractor use

Before starting your tractor for the first time, make the following checks:

- Make sure the tractor is properly lubricated and greased as described in the maintenance section of this manual.
- Check the engine oil level, engine coolant level, and transmission oil. See the maintenance section of this manual.
- Check that the tractor fuel tank is filled with clean fuel that meets the specifications given in this manual.
- Check the fuel system, cooling system and engine for leaks.
- Remove any water or sediment from the water trap of the fuel tank and primary filter.
- Check the air pressure in the tires and check the wheel bolt torque.
- Make sure the power takeoff guard is in the proper position.

Daily inspection

- Walk around and visually inspect the tractor daily. Check for such items as hoses or wires rubbing against other components, oil leaks, trash buildup, loose bolts or anything that would affect the normal operation of the tractor.
- Inspect the exhaust system and repair if leaking, failed, or damaged.
- Make any necessary corrections before operating the tractor.

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MAINTENANCE CHART

Maintenance Chart

Maintenance action	Cleaning	Check	Replace	Grease	Drain fluid	Change fluid	Page no.
When indicator lamp lights							
Air filter outer element			■				**7-20**
Every 10 hours or daily							
Engine coolant level (Note 1)		■					**7-22**
Engine oil level		■					**7-23**
Hydraulic hoses, tubes, and fittings		■					**7-23**
Radiator, oil cooler and air conditioner condenser			■				**7-24**
Brake fluid reservoir level (Note 1)		■					**7-24**
Daily cleaning			■				**7-25**
Every 50 hours							
Cab-end axle oil level (Note 1)		■					**7-26**
Windshield washer fluid level		■					**7-26**
Upper and lower articulation pin		■					**7-27**
Front and rear steering cylinder pins		■					**7-28**
Engine-end axle oscillation pivot		■					**7-29**
Fuel filter/water seperator (Note 3)		■					**7-30**
Cab air filters		■					**7-31**
Tire pressure and condition		■					**7-31**
Park brake linkage adjustment		■					**7-32**
Three-point hitch		■					**7-33**
Driveline articulation steady bearings		■					**7-34**
First 300 hours							
Engine oil and filters			■				**7-35**
Every 300 hours							
Engine air intake connections		■					**7-37**
Driveline articulation slip yokes		■					**7-38**
Engine accessory drive belt		■					**7-39**
Wheel hardware torque		■					**7-40**
Every 500 hours							
Engine-end axle oil level (Note 1)		■					**7-41**
Fuel filters (Note 3)			■				**7-41**
Every 600 hours							
Engine oil and filters (Note 2)			■				**7-42**
Battery connections		■					**7-42**
Battery electrolyte level		■					**7-44**
Starter connections		■					**7-44**
Fuel tank hoses and connections		■					**7-45**
Hydraulic oil filter (Note 1)			■				**7-45**
Hydrostatic oil filter (Note 1)			■				**7-46**
Auxiliary hydraulic drive filter (if equipped) (Note 1)			■				**7-46**
Auxiliary hydraulic return filter (if equipped) (Note 1)			■				**7-47**

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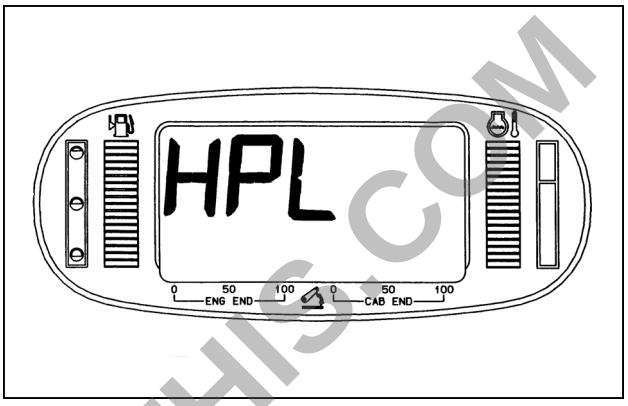
8 - TROUBLESHOOTING

FAULT CODE RESOLUTION

Three-point hitch

There are eight three-point hitch error codes the display will show if there is a concern with one of the three point hitch circuits or components. If any or these errors occur, the upper area of the monitor will display “HPL” “ERR” and the number of the error. If these codes appear, contact your NEW HOLLAND dealer with the fault code number.

Error code	Cause
1	Required calibration
2	Rockshaft pot-wiper open or shorted
3	Command pot-wiper circuit open or shorted
4	Lower rate pot-wiper open or shorted
5	Lower solenoid valve circuit open or shorted
6	Raise solenoid valve circuit open or shorted
7	Potentiometer supply shorted
8	Low battery voltage



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9 - SPECIFICATIONS

General specifications

Articulated frame	
Articulation	**45 °**
Oscillation	**10 °**

Cab	
Type	Module enclosed Rollover Protective Structure (ROPS)
Glass	Tinted safety
Isolation	Rubber mounts (4)
Doors	2

Engine	
Make	NEW HOLLAND NEF turbocharged and intercooled
Number of cylinders	6
Bore	**104 mm** (**4.1 in**)
Stroke	**132 mm** (**5.2 in**)
Displacement	**6.7 l** (**409 in³**)
Compression ratio	17.5:1
Firing order	1–5–3–6–2–4
Idle speed	**850 - 950 RPM**
Rated speed	**2200 RPM**
Maximum no load speed (high idle)	**2430 RPM**
Engine air intake type	Dual element with exhaust aspiration
Injection pump type (distributor)	Bosch
Timing (before top dead center)	**2 °** ± **5 °** (refer to valve decal)
Injector crack-off pressure	**270 bar** (**3915 psi**)

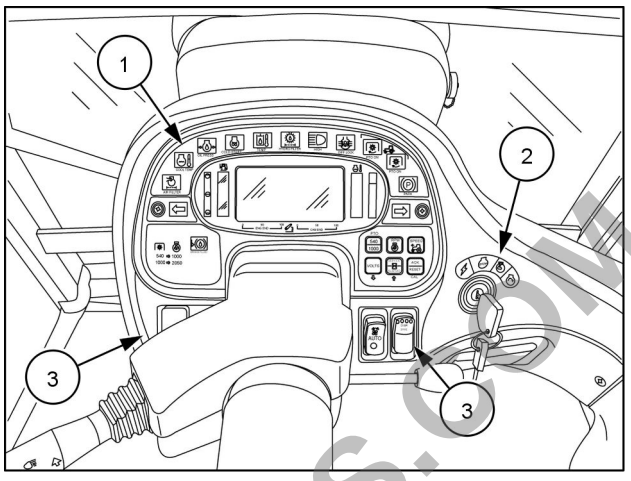
Cooling system		
Type		Pressurized with full-flow bypass and recovery tank
Thermostats		2
	Start to open at	**81 °C** (**178 °F**)
	Fully open at	**96 °C** (**205 °F**)
Cooling system pressure cap		**1 bar** (**14.5 psi**)
Fan		
	Type	Plastic composite 9 blade
	Size	**550 mm** (**21.6 in**)

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Front console controls

The front console contains the electronic instrument control system **(1)**, the key switch **(2)**, and the lower console switches **(3)**.



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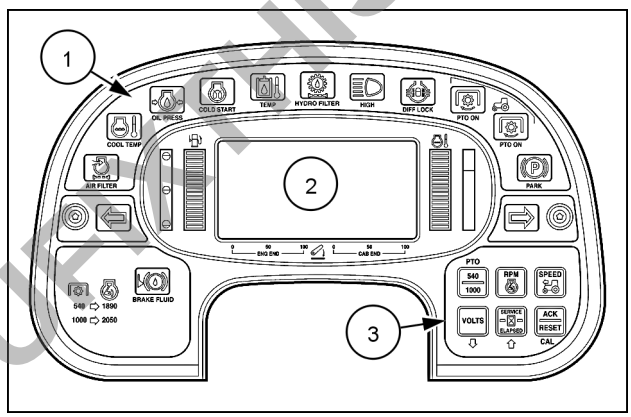
Electronic instrument control system

The tractor is equipped with an electronic instrument control system, which provides the operator with information concerning tractor functions. The system provides audible and visual alarms to alert the operator of concerns with the tractor's operating systems.

The electronic instrument control system is comprised of a main instrument control panel as well as various senders and switches located throughout the tractor. The electronic instrument control system has three main areas:

1. The indicator light display
2. The display monitor
3. Control pad

Refer to electronic instrument control system later in this section for full details.



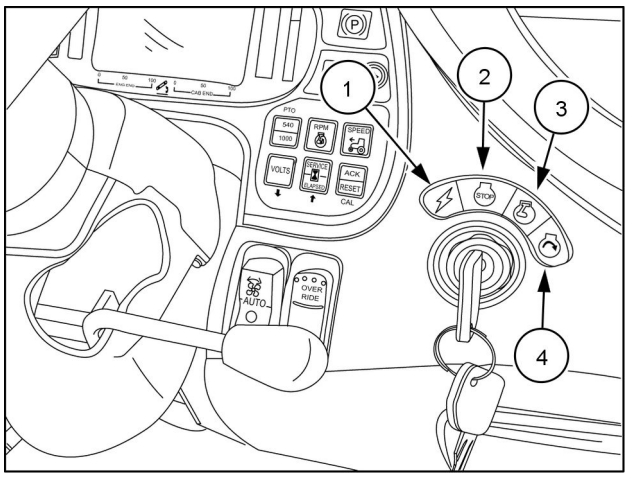
RAIL13TR02100AA 2

Key switch

The key switch has four positions:

1. Accessory: Electrical accessories can be used when the engine is not running. Turn the key to the left (counterclockwise) to get to the accessory position.
2. Stop: Engine and electrical functions remain off.
3. Run: Turns the electrical system on and is the normal operating position of the switch with the engine running.
4. Engine Start: Cranks the engine. After the engine has started, release the key from the start position and allow the switch to return to the run position.

NOTICE: *The switch has a built-in starter protection feature. If the switch is rotated to the start position, and then released to the run position, it will be necessary to rotate the switch to the stop position in order to make another attempt at starting the tractor. This will prevent accidental engagement of the engine starting motor when the engine is already running.*



RAIL13TR02376AA 3

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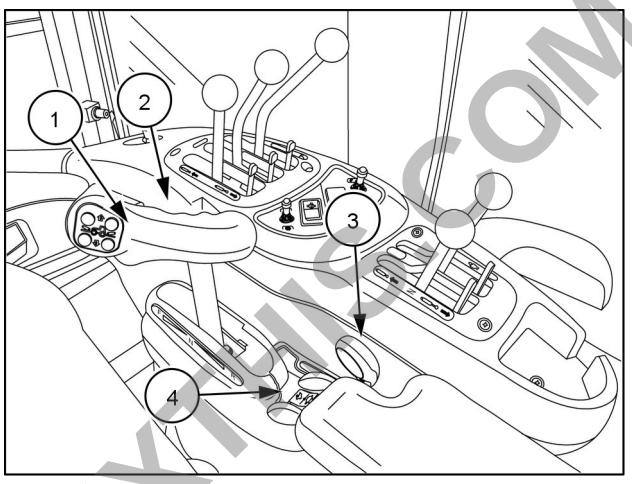
MOVING THE UNIT

Hydrostatic system operation

Moving the unit

Your tractor is equipped with a hydrostatic drive system. Read this entire section before attempting to move the unit.

1. Start the engine and run at low idle for a few minutes to allow oil to circulate.
2. Select the desired speed range **(4)** (see following for recommendations).
3. Set the throttle **(3)** to the desired RPM's.
4. Engage the foot brake.
5. Disengage the park brake.
6. Press the neutral lock switch **(2)** and slowly push the Forward-Neutral-Reverse (FNR) lever forward as you release the foot brake. The machine will start to move forward. Move the FNR lever forward from neutral to increase the speed, and move the lever backward toward neutral to decrease the speed.



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The hydrostatic drive system has eight speed ranges. The speed range should be determined by the operation being performed. The following is an overview of the specific operations and recommended range selections and operating characteristics.

Loader operations:

1. Set the desired speed range (1st or 2nd recommended).
2. Place the throttle lever in the maximum RPM position.
3. Move the Forward-Neutral-Reverse (FNR) lever forward to place the tractor in motion.
4. Approach the pile and if necessary, continue to move the FNR lever to the full forward position.
5. Push into the pile until the tractor forward motion stops or the bucket is full.
6. Move the FNR lever to reverse to back up.

NOTE: *As the tractor moves into the pile and the load increases, the hydrostatic system automatically adjusts to a lower range if a higher range was selected. As the tractor moves away from the pile, the system automatically returns to the operator selected range.*

Field work and roading operations:

Select the range that provides the maximum desired speed. Refer to ground speeds in **9-1**. Use the range switch to select the desired speed, not the FNR lever position. For maximum performance, place the FNR lever in the full forward position. The advantage of this procedure is if more power is needed to climb a hill, the system automatically adjusts. Some speed is lost as more torque is developed.

When approaching a stop, move the FNR lever toward neutral and apply the tractor service brake.

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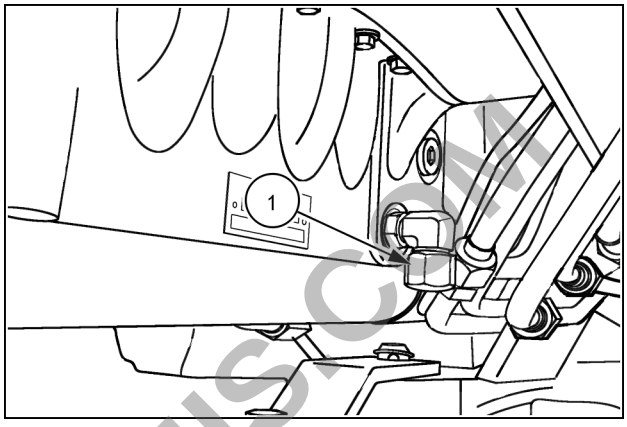
First 300 hours

Engine oil and filters

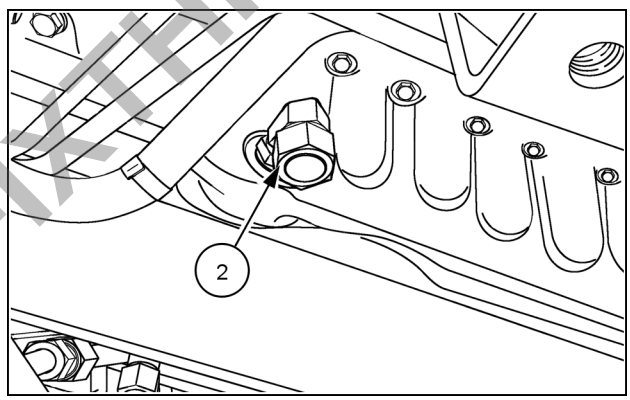
1. Park the tractor on level ground and stop the engine. Engage the park brake.

NOTE: *For best results change the oil and filter while the engine is still warm to the touch from operation (not hot).*

2. Place a suitable container under each fitting and remove the left side **(1)** and right side **(2)** engine oil drain plugs.
3. Replace the drain plugs after the oil has drained and torque plug to **41 N·m** (**30 lb ft**).

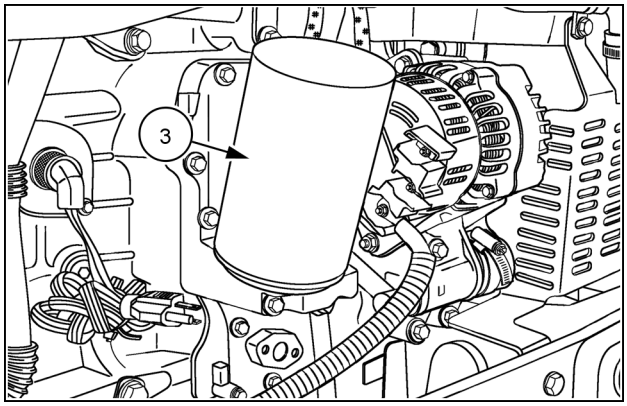


RAIL13TR01932AA 1



RAIL13TR02123AA 2

4. Place a container under the oil filter assembly.
5. Clean the oil filter area. Remove the oil filter **(3)** and discard.
6. Clean the filter mounting surface.
7. Apply a thin film of clean oil on the new oil filter sealing ring and install the filter. Turn the filter until the sealing ring contacts the mounting surface, then tighten an additional 3/4 to 1 full turn. Do not overtighten.



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SYMPTOM(S)

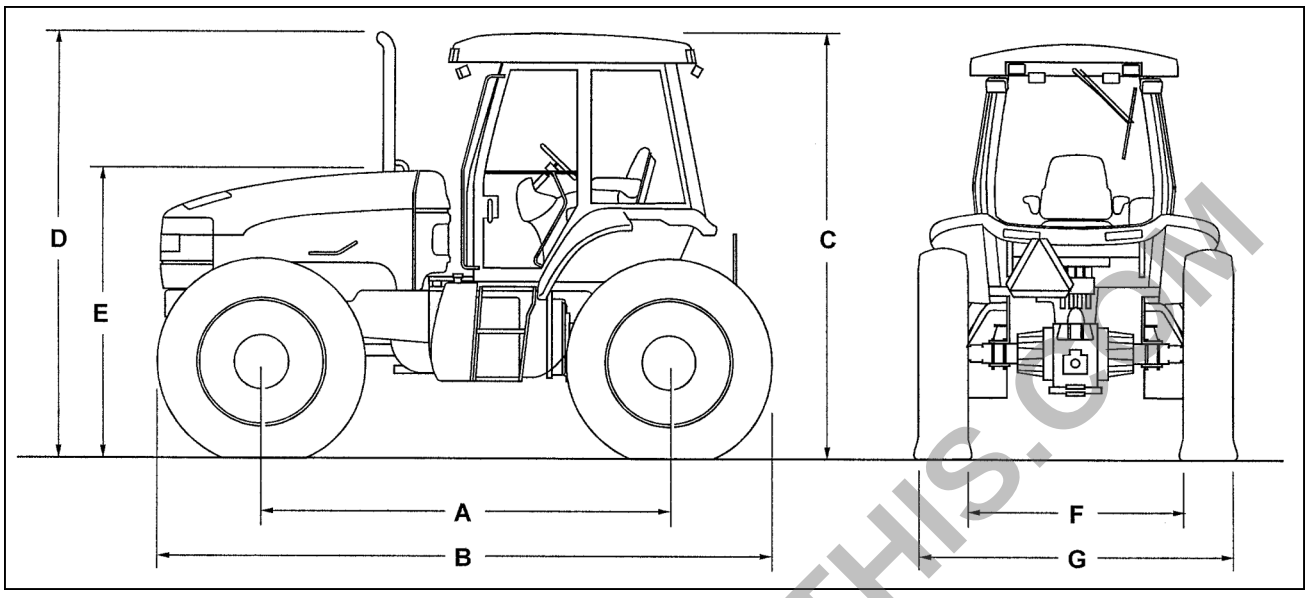
Engine

Symptom	Probable cause	Corrective action
Engine will not start or starts hard.	Parking brake not engaged.	Engage parking brake.
	Hydrostatic Forward/Neutral/Reverse (FNR) lever not in neutral.	Place FNR lever in neutral.
	Power Take-Off (PTO) switch “on”.	Move PTO switch to “off”.
	Auxiliary hydraulic drive control switch in the “on” position.	Turn control switch to the “off” position.
	Operator's rotating console not latched securely to the engine-end or cab-end.	Rotate console and lock into position.
	Incorrect starting procedure.	Review starting procedure.
	Low or no fuel.	Check fuel level.
	Air in fuel lines.	Bleed fuel system.
	Incorrect engine oil viscosity.	Use correct viscosity oil.
	Incorrect fuel for operating temperature.	Use correct type fuel for temperature conditions.
	Contaminated fuel system.	Clean system.
	Clogged fuel filter.	Replace filter element.
	Malfunctioning fuel injector (s).	Contact your NEW HOLLAND dealer.
	Malfunctioning fuel solenoid or solenoid relay.	Contact your NEW HOLLAND dealer.
	Clogged air filter.	Replace air filter, refer to **7-52** for instructions.
Engine runs rough and/or stalls.	Clogged fuel filter.	Replace filters, refer to **7-41** for instructions.
	Clogged air filter.	Replace air filter, refer to **7-52** for instructions.
	Engine cylinder temperature too low for clean fuel burn.	Refer to cold weather starting on **4-9**.
	Contaminated fuel system.	Clean fuel system.
	Defective fuel solenoid.	Contact NEW HOLLAND dealer.
	Manfunctioning fuel injector (s).	Contact NEW HOLLAND dealer.
Engine does not appear to develop full power.	Engine overloaded.	Shift to lower transmission range or reduce load.
	Air cleaner restricted.	Service air cleaner.
	Clogged fuel filter.	Replace filters, refer to **7-41** for instructions.
	Incorrect type of fuel.	Use correct fuel.
	Engine overheated.	See “Engine overheats” in this section.
	Low engine operating temperature.	Contact NEW HOLLAND dealer.
	Implement incorrectly adjusted.	See implement Operator’s manual.
	Malfunctioning fuel injector (s).	Contact NEW HOLLAND dealer.
	High idle speed is low.	Contact NEW HOLLAND dealer.
Engine knocks.	Low oil level.	Add correct grade and amount of oil.
	Low oil pressure.	Contact NEW HOLLAND dealer.
	Engine overheated.	See “Engine overheats” in this section.
Low engine operating temperature.	Low engine operating temperature.	Contact NEW HOLLAND dealer.
	Low engine operating temperature.	Contact NEW HOLLAND dealer.
	Low engine operating temperature.	Contact NEW HOLLAND dealer.

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Vehicle dimensions and maximum weights



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A	Wheelbase (center of axle to center of axle)	**2997 mm** (**118 in**)
B	Length	**4440 mm** (**174.8 in**)
C	Cab height	**3119 mm** (**122.8 in**)
D	Exhaust height	**3094 mm** (**121.8 in**)
E	Hood height	**2078 mm** (**81.8 in**)
F	Maximum inside tire dimension	**1145 mm** (**45.1 in**)
G	Overall width	**1965 - 2474 mm** (**77.4 - 97.4 in**)

All dimensions are with 480/85 R34 tires and assume loaded tractor Clearance under:	
Differentials	**526 mm** (**20.7 in**)

Drawbar (rails)	**510 mm** (**20.1 in**)
Turning radius to center line of tractor	**3620 mm** (**142.5 in**)

Weights	
Maximum operating weight	**9979 kg** (**22000 lb**)
Maximum cab-end axle load	**6260 kg** (**13800 lb**)
Maximum engine-end axle load	**5443 kg** (**12000 lb**)

Ground speeds

Forward or reverse with 480/85 R34 tires		
	Range 1	**0 - 10.8 km/h** (**0 - 6.7 mph**)
	Range 2	**0 - 12.4 km/h** (**0 - 7.7 mph**)
	Range 3	**0 - 13.3 km/h** (**0 - 8.3 mph**)
	Range 4	**0 - 14.6 km/h** (**0 - 9.1 mph**)
	Range 5	**0 - 16.6 km/h** (**0 - 10.3 mph**)
	Range 6	**0 - 18.7 km/h** (**0 - 11.6 mph**)
	Range 7	**0 - 26.1 km/h** (**0 - 16.2 mph**)
	Range 8	**0 - 31.7 km/h** (**0 - 19.7 mph**)

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2 - SAFETY INFORMATION

Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual and on machine safety signs, you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. The color associated with DANGER is RED.

WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury. The color associated with WARNING is ORANGE.

CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. The color associated with CAUTION is YELLOW.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation that, if not avoided, could result in machine damage or property damage. The color associated with Notice is BLUE.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine damage or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information that clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

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