SERVICE MANUAL

W270C / W300C

Wheel Loader

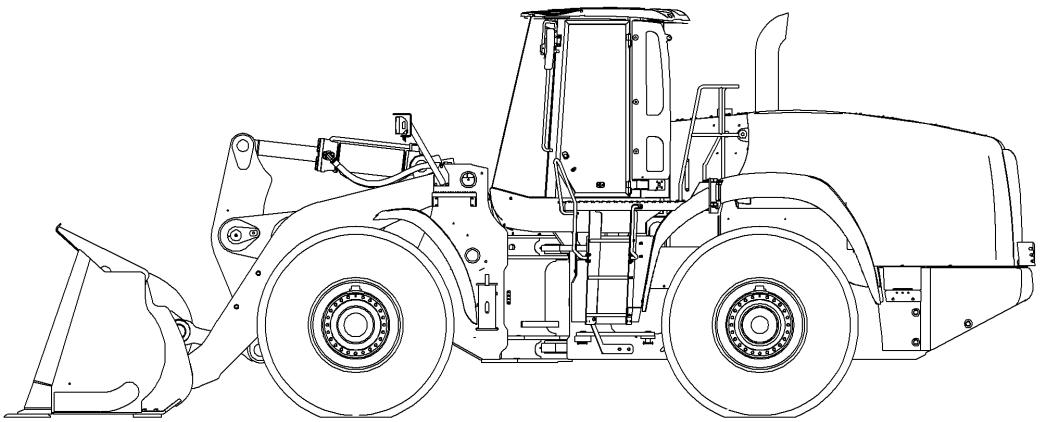
Tier 4

Print No. 84547255C

NEW HOLLAND CONSTRUCTION

NEW HOLLAND CONSTRUCTION

SERVICE MANUAL



W270C
W300C

Contents

INTRODUCTION

International symbols – Conversion factors

Metric to U.S.

	Multiply	By	To obtain
Area	Sq. meter	10.763 91	Square foot
	Hectare	2.471 05	Acre
Force	Newton	3.596 942	Ounce force
	Newton	0.224 809	Pound force
Length	Millimeter	0.039 370	Inch
	Meter	3.280 840	Foot
	Kilometer	0.621 371	Mile
Mass	Kilogram	2.204 622	Pound
Mass/Area	Kilogram/hectare	0.000 466	Ton/acre
Mass/Energy	gr/kW/hr.	0.001 644	lbs/hp/hr.
Mass/Volume	Kg/cubic meter	1.685 555	lb/cubic yd.
Power	Kilowatt	1.341 02	Horsepower
Pressure	Kilopascal	0.145 038	lb/sq. inch
	Bar	14.50385	lb/sq. inch
Temperature	Degree C	1.8 x C +32	Degree F
Torque	Newton meter	8.850 748	lb/inch
	Newton meter	0.737 562	lb/foot
Velocity	Kilometer/hr.	0.621 371	Miles/hr.
Volume	Cubic centimeter	0.061 024	Cubic inch
	Cubic meter	35.314 66	Cubic foot
	Cubic meter	1.307 950	Cubic yd.
	Milliliter	0.033 814	Ounce (US fluid)
	Litre	1.056 814	Quart (US liquid)
	Litre	0.879 877	Quart (Imperial)
	Litre	0.264 172	Gallon (US liquid)
	Litre	0.219 969	Gallon (Imperial)
Volume/time	Litre/min.	0.264 172	Gallon/min. (US liquid)
	Litre/min.	0.219 969	Gallon/min. (Imperial)

U.S. to Metric

	Multiply	By	To obtain
Are	Square foot	0.092 903	Square meter
	Acre	0.404 686	Hectare
Force	Ounce force	0.278 014	Newton
	Pound force	4.448 222	Newton
Length	Inch	25.4 *	Millimeter
	Foot	0.304 8 *	Meter
	Mile	1.609 344 *	Kilometer
Mass	Pound	0.453 592	Kilogram
	Ounce	28.35	Gram
Mass/Area	Ton/acre	2241 702	Kilogram/hectare
Mass/Energy	lb/hp/hr	608.277 4	gr/kW/hr
Mass/Volume	lb/cubic yd.	0.593 276	kg/cubic meter
Powe	Horsepower	0.745 700	Kilowatt
Pressure	lbs/sq. in.	6.894 757	Kilopascal
	lbs/sq. in.	0.069	Bar
	lbs/sq. in.	0.070 303	Kg/sq. cm
Temperature	Degree F	1.8 F - 32	Degree C
Torque	Pound/inch	0.112 985	Newton meter
	Pound/foot	1.355 818	Newton meter
Velocity	Miles/hr.	1.609 344 *	Kilometer/hr.

	Multiply	By	To obtain
Volume	Cubic inch	16.387 06	Cubic centimeter
	Cubic foot	0.028 317	Cubic meter
	Cubic yard	0.764.555	Cubic meter
	Ounce (US fluid)	29.573 53	Milliliter
	Quart (US liquid)	0.946 353	Litre
	Quart (Imperial)	1.136 523	Litre
	Gallon (US)	3.785 412	Litre
	Gallons (Imperial)	4.546 092	Litre
Volume/time:	Gallon/min.	3.785 412	Litre/min.

* = exact

Torque

Decimal hardware

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both **UNC** and **UNF** threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts and Studs	
	
1/4 in	12 - 15 N·m (106 - 133 lb in)
5/16 in	23 - 28 N·m (204 - 248 lb in)
3/8 in	48 - 57 N·m (425 - 504 lb in)
7/16 in	73 - 87 N·m (54 - 64 lb ft)
1/2 in	109 - 130 N·m (80 - 96 lb ft)
9/16 in	149 - 179 N·m (110 - 132 lb ft)
5/8 in	203 - 244 N·m (150 - 180 lb ft)
3/4 in	366 - 439 N·m (270 - 324 lb ft)
7/8 in	542 - 651 N·m (400 - 480 lb ft)
1.0 in	787 - 944 N·m (580 - 696 lb ft)
1-1/8 in	1085 - 1193 N·m (800 - 880 lb ft)
1-1/4 in	1519 - 1681 N·m (1120 - 1240 lb ft)
1-3/8 in	1980 - 2278 N·m (1460 - 1680 lb ft)
1-1/2 in	2631 - 2983 N·m (1941 - 2200 lb ft)

Grade 8 Bolts, Nuts and Studs	
	
1/4 in	16 - 20 N·m (142 - 177 lb in)
5/16 in	33 - 39 N·m (292 - 345 lb in)
3/8 in	61 - 73 N·m (540 - 646 lb in)
7/16 in	95 - 114 N·m (70 - 84 lb ft)
1/2 in	149 - 179 N·m (110 - 132 lb ft)
9/16 in	217 - 260 N·m (160 - 192 lb ft)
5/8 in	298 - 358 N·m (220 - 264 lb ft)
3/4 in	515 - 618 N·m (380 - 456 lb ft)
7/8 in	814 - 976 N·m (600 - 720 lb ft)
1.0 in	1220 - 1465 N·m (900 - 1081 lb ft)
1-1/8 in	1736 - 1953 N·m (1280 - 1440 lb ft)
1-1/4 in	2468 - 2712 N·m (1820 - 2000 lb ft)
1-3/8 in	3227 - 3688 N·m (2380 - 2720 lb ft)
1-1/2 in	4285 - 4827 N·m (3160 - 3560 lb ft)

NOTE: *Use thick nuts with Grade 8 bolts.*

Metric hardware

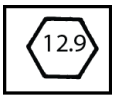
Use the following torques when specifications are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used.

Grade 8.8 Bolts, Nuts and Studs	
	
M4	**3 - 4 N·m (27 - 35 lb in)**
M5	**7 - 8 N·m (62 - 71 lb in)**
M6	**11 - 12 N·m (97 - 106 lb in)**
M8	**26 - 31 N·m (230 - 274 lb in)**
M10	**52 - 61 N·m (460 - 540 lb in)**
M12	**90 - 107 N·m (66 - 79 lb ft)**
M14	**144 - 172 N·m (106 - 127 lb ft)**
M16	**217 - 271 N·m (160 - 200 lb ft)**
M20	**434 - 515 N·m (320 - 380 lb ft)**
M24	**675 - 815 N·m (498 - 601 lb ft)**
M30	**1250 - 1500 N·m (922 - 1106 lb ft)**
M36	**2175 - 2600 N·m (1604 - 1918 lb ft)**

Grade 10.9 Bolts, Nuts, and Studs	
	
M4	**4 - 5 N·m (35 - 44 lb in)**
M5	**9 - 11 N·m (80 - 97 lb in)**
M6	**15 - 18 N·m (133 - 159 lb in)**
M8	**37 - 43 N·m (327 - 381 lb in)**
M10	**73 - 87 N·m (54 - 64 lb ft)**
M12	**125 - 150 N·m (92 - 111 lb ft)**
M14	**200 - 245 N·m (148 - 181 lb ft)**
M16	**310 - 380 N·m (229 - 280 lb ft)**
M20	**610 - 730 N·m (450 - 538 lb ft)**
M24	**1050 - 1275 N·m (774 - 940 lb ft)**
M30	**2000 - 2400 N·m (1475 - 1770 lb ft)**
M36	**3500 - 4200 N·m (2581 - 3098 lb ft)**

Grade 12.9 Bolts, Nuts and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

Steel hydraulic fittings

37°flare fitting		
Tube OD hose ID	**Thread size**	**Torque**
6.4 mm (0.25 in)	7/16-20	8 - 16 N·m (71 - 142 lb in)
7.9 mm (0.31 in)	1/2-20	11 - 22 N·m (97 - 195 lb in)
9.5 mm (0.37 in)	9/16-18	14 - 34 N·m (124 - 300 lb in)
12.7 mm (0.50 in)	3/4-16	20 - 57 N·m (177 - 504 lb in)
15.9 mm (0.63 in)	7/8-14	34 - 79 N·m (301 - 699 lb in)
19.0 mm (0.75 in)	1-1/16-12	54 - 108 N·m (40 - 80 lb ft)
22.2 mm (0.87 in)	1-3/16-12	81 - 135 N·m (60 - 100 lb ft)
25.4 mm (1.00 in)	1-5/16-12	102 - 158 N·m (75 - 117 lb ft)
31.8 mm (1.25 in)	1-5/8-12	169 - 223 N·m (125 - 164 lb ft)
38.1 mm (1.50 in)	1-7/8-12	285 - 338 N·m (210 - 249 lb ft)

Split flange mounting bolts	
Size	**Torque**
5/16-18	20 - 27 N·m (177 - 239 lb in)
3/8-16	27 - 34 N·m (239 - 301 lb in)
7/16-14	47 - 61 N·m (416 - 540 lb in)
1/2-13	74 - 88 N·m (55 - 65 lb ft)
5/8-11	190 - 203 N·m (140 - 150 lb ft)

Straight threads with O-ring		
Tube OD hose ID	**Thread size**	**Torque**
6.4 mm (0.25 in)	7/16-20	16 - 26 N·m (142 - 230 lb in)
7.9 mm (0.31 in)	1/2-20	22 - 34 N·m (195 - 301 lb in)
9.5 mm (0.37 in)	9/16-18	34 - 54 N·m (301 - 478 lb in)
12.7 mm (0.50 in)	3/4-16	57 - 91 N·m (504 - 805 lb in)
15.9 mm (0.63 in)	7/8-14	79 - 124 N·m (699 - 1097 lb in)
19.0 mm (0.75 in)	1-1/16-12	108 - 174 N·m (80 - 128 lb ft)
22.2 mm (0.87 in)	1-3/16-12	136 - 216 N·m (100 - 159 lb ft)
25.4 mm (1.00 in)	1-5/16-12	159 - 253 N·m (117 - 187 lb ft)
31.8 mm (1.25 in)	1-5/8-12	224 - 357 N·m (165 - 263 lb ft)
38.1 mm (1.50 in)	1-7/8-12	339 - 542 N·m (250 - 400 lb ft)

Steel hydraulic fittings

O-ring face seal end				O-ring boss end fitting or lock nut	
Nom. SAE dash size	Tube OD	Thread size	Torque	Thread size	Torque
–4	6.4 mm (0.25 in)	9/16-18	14 - 16 N·m (124 - 142 lb in)	7/16-20	23 - 27 N·m (204 - 239 lb in)
–6	9.5 mm (0.37 in)	11/16-16	24 - 27 N·m (212 - 239 lb in)	9/16-18	34 - 41 N·m (301 - 363 lb in)
–8	12.7 mm (0.50 in)	13/16-16	43 - 54 N·m (381 - 478 lb in)	3/4-16	61 - 68 N·m (540 - 602 lb in)
–10	15.9 mm (0.63 in)	1-14	62 - 76 N·m (549 - 673 lb in)	7/8-14	81 - 88 N·m (60 - 65 lb ft)
–12	19 mm (0.75 in)	1-3/16-12	90 - 110 N·m (66 - 81 lb ft)	1-1/16-12	115 - 122 N·m (85 - 90 lb ft)
–14	22.2 mm (0.87 in)	1-3/16-12	90 - 110 N·m (66 - 81 lb ft)	1-3/16-12	129 - 135 N·m (95 - 100 lb ft)
–16	25.4 mm (1.00 in)	1-7/16-12	125 - 140 N·m (92 - 103 lb ft)	1-5/16-12	156 - 169 N·m (115 - 125 lb ft)
–20	31.8 mm (1.25 in)	1-11/16-12	170 - 190 N·m (125 - 140 lb ft)	1-5/8-12	203 - 217 N·m (150 - 160 lb ft)
–24	38.1 mm (1.50 in)	2-12	200 - 254 N·m (148 - 187 lb ft)	1-7/8-12	258 - 271 N·m (190 - 200 lb ft)

Basic instructions

Coolant solution

Put only ethylene-glycol coolant solution in the cooling system. Use good quality ethylene-glycol that has a high boiling point with no additives to prevent leakage. Do not use non-approved anti-rust additives. Anti-rust additives and ethylene-glycol can mix and work against each other, reducing anti-corrosion protection, forming deposits in the cooling system, and causing damage to the cooling system and radiator. Contact your Dealer who can supply you with the suitable coolant solution.

Anti-freeze/Anti-corrosion

Use anti-freeze in all seasons to protect the cooling system from corrosion and risk of freezing. For areas where the ambient temperature is over **-36 °C** (**-32.8 °F**) use a blend of 50% ethylene-glycol based anti-freeze.

For areas where the temperature is below **-36 °C** (**-32.8 °F**) - it is advisable to use a blend of 40% water and 60% anti-freeze.

Fuel

Use diesel fuel suitable for the ambient temperature conditions (**ASTM D975**).

Use fuel which is to **ASTM** (American Society for Testing and Materials) **D975** standard (North America). In Europa, fuel must comply with specification standard **EN 590** or ITS EQUIVALENT.

Use grade No. 2 fuel. The use of other types of fuel can result in a loss of power of the engine and may cause high fuel consumption.

In very low ambient temperatures, use a mixture of fuels No. 1 and No. 2 as necessary. Consult your fuel supplier for appropriate fuel supply.

If the temperature falls below the fuel cloud point (point at which wax begins to form) the wax crystals will cause power loss or will prevent the engine from starting.

In cold weather, fill the fuel tank at the end of the day's work in order to prevent the formation of condensation.

Engine oil

NEW HOLLAND AMBRA UNITEK CJ-4 ENGINE OIL SAE 15W-40 is recommended for your engine. This oil insures correct lubrication of your engine in all working conditions. See **General specification ()** to choose the correct oil for climate/temperatures.

If **NEW HOLLAND AMBRA UNITEK CJ-4 ENGINE OIL SAE 15W-40** cannot be obtained, use only oil of the **API CI4** category.

NOTE: *Do not put any performance additive or other additive in the sump. Oil change intervals shown in this manual are based on tests carried out utilizing NEW HOLLAND CONSTRUCTION lubricants.*

LELI12WL30004AA 1

Fuel storage

Prolonged storage of fue l can lead to the accumulation of impurities and condensation in the fuel. Engine trouble can often be traced to the presence of water in the fuel.

The storage tank must be placed outside and the temperature of the fuel should be kept as low as possible. Drain off water and impurities regularly.

Hydraulic fluid

NEW HOLLAND AMBRA HYDROSYSTEM 46 HV is specifically designed for high pressure applications and for NEW HOLLAND CONSTRUCTION hydraulic systems. Your NEW HOLLAND CONSTRUCTION Dealer can provide hydraulic fluid to fulfill different climate/temperature conditions. Refer to the **General specification ()**.

Transmission component oil

Extreme pressure oil should be used for enclosed transmission components. Choose an oil that is manufactured for your climate/temperature conditions such as **NEW HOLLAND AMBRA MULTI G 134™ HYDRAULIC TRANSMISSION OIL**. See **General specification ()**.

Grease

The type of grease to use depends on ambient temperature such as: **NEW HOLLAND AMBRA GR 75 MD**.

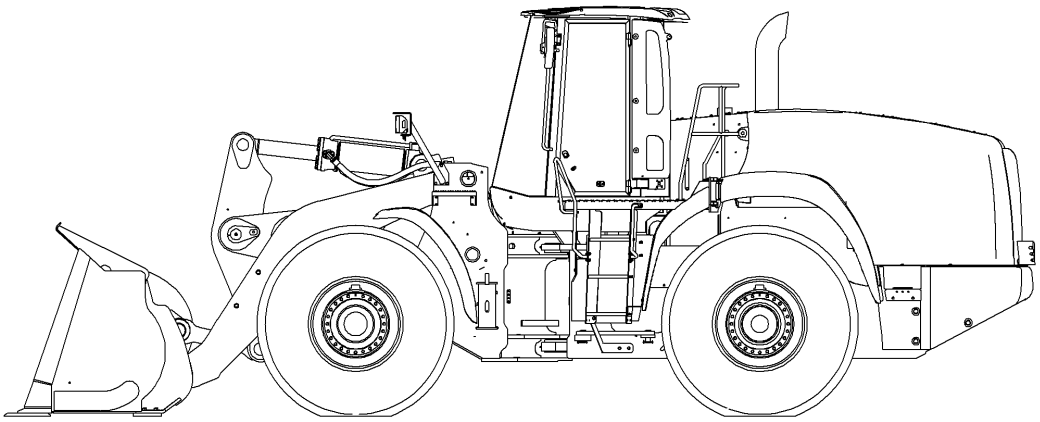
Environment

Before you service this machine and dispose of oil, fluids, and lubricants, obey environmental regulations. Do not drain oil or fluids on to the ground or into containers that leak. Check with your local environmental, recycling center or your Dealer for correct disposal information.

NEW HOLLAND CONSTRUCTION

SERVICE MANUAL

Engine



W270C
W300C

Engine - General specification

		Engine W/4 speed trans.
A.	Idle RPM	**870 - 930 RPM**
	Alternate low idle	**570 - 630 RPM**
	Alternate accelerated idle	**1170 - 1230 RPM**
B.	Maximum no load	**2162 - 2212 RPM**
C.	Converter stall	1st gear **1970 RPM** - 2nd/4th gear **2075 RPM**
D.	Hydraulic stall	**1885 - 2195 RPM**
E.	Converter & hydraulic stall	**1665 RPM**

NOTE: *Hydraulic stall and converter & hydraulic stall RPM values are read while the lift arms are rising with the bucket held rolled back and the engine at WOT in max power mode.*

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

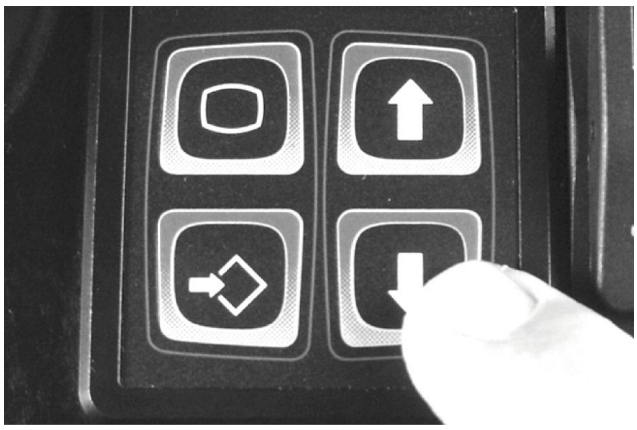
Engine - Overview – Stall tests

Instrument cluster displays

1. With the engine running, press the up or down key and scroll through the information screens and trip screens. The following sequence is using the down key only.

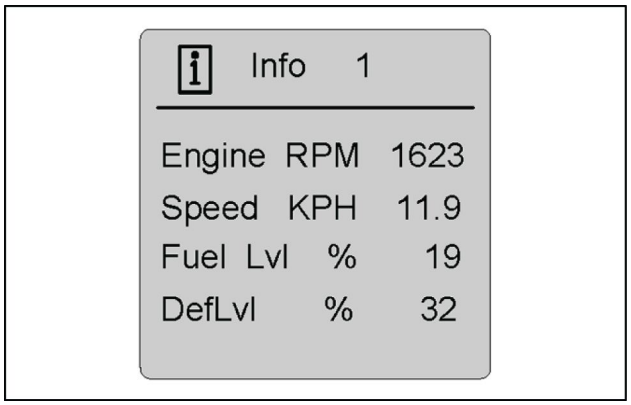
NOTE: *Pressing the escape key will return the LCD back to the normal driving screen.*

2. From the driving screen push the down arrow, as shown.



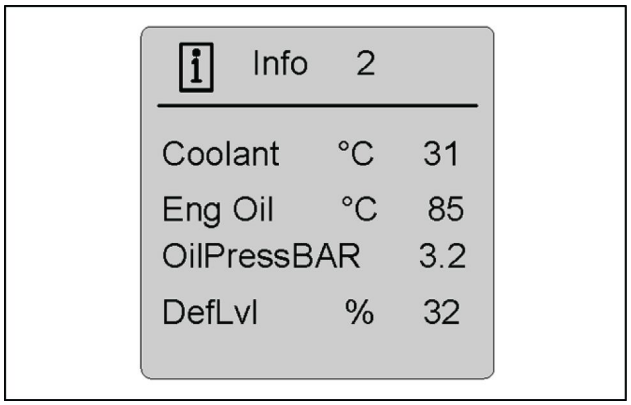
LEPH12WL30050AA 1

3. “Info 1” is the first information screen using the down arrow from the driving screen. It displays engine RPM’s, speed, fuel level, and the Urea level.



LELI12WL30051AA 2

4. “Info 2” will be displayed next. The “Info 2” screen will display coolant temperature, turbocharger air temperature, engine oil temperature in either Fahrenheit or Celsius, and the Urea level.



LELI12WL30052AA 3