

# NEBRASKA TRACTOR TEST 2190A NEW HOLLAND WORKMASTER 50 DIESEL 8 SPEED

## POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—545 rpm)</b>					
46.39 (34.60)	2600	3.72 (14.09)	0.561 (0.341)	12.46 (2.46)	Fuel used during active exhaust regeneration - na (see note 1 page 2)
<b>Standard Power Take-off Speed(540 rpm)</b>					
46.56 (34.72)	2576	3.70 (13.99)	0.555 (0.338)	12.60 (2.48)	

## VARYING POWER AND FUEL CONSUMPTION

46.39 (34.60)	2600	3.72 (14.09)	0.561 (0.341)	12.46 (2.46)	Air temperature
39.85 (29.72)	2626	3.48 (13.16)	0.610 (0.371)	11.46 (2.26)	72°F (22°C)
30.35 (22.63)	2664	2.95 (11.16)	0.679 (0.413)	10.30 (2.03)	Relative humidity
20.36 (15.18)	2682	2.43 (9.18)	0.834 (0.507)	8.39 (1.65)	10%
10.26 (7.65)	2702	1.94 (7.34)	1.322 (0.804)	5.29 (1.04)	Barometer
0.66 (0.49)	2711	1.53 (5.79)	16.245 (9.882)	0.43 (0.08)	28.85"Hg (97.70 kPa)

Maximum Torque - 112lb.-ft. (151 Nm) at 1750 rpm  
 Maximum Torque rise - 19.1%  
 Torque rise at 2080 engine rpm - 8%  
 Power increase at 2576 engine rpm - 0.1%

## TRACTOR SOUND LEVEL WITHOUT CAB

	Front Wheel Drive Engaged	Disengaged
	dB(A)	dB(A)
At no load in 3rd (L3) gear	88.8	88.6
Bystander in 8th (H4) gear		81.8

Horizontal distances of drawbar hitch point behind rear wheel axis - 27.6" (700 mm), 31.5" (800 mm)

## TIRES AND WEIGHT

**Rear Tires**—No., size, ply & psi (kPa)  
**Front Tires**—No., size, ply & psi (kPa)  
**Height of Drawbar**  
**Static Weight with operator**—Rear  
 — Front  
 — Total

## Tested Without Ballast

Two 18.4-24; 8:18 (125)  
 Two 12.5/80-18; 10; 28 (195)  
 18.0 in (455 mm)  
 2895 lb (1313 kg)  
 2175 lb (987 kg)  
 5070 lb (2300 kg)

**Location of tests:** Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832

**Dates of tests:** February 20 - 21, 2018

**Manufacturer:** CNH Ind India Private LTD Plot No. 3, Udyog Kendra, Greater Noida India

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8400 Fuel weight 6.994 lbs/gal (0.838 kg/l) Oil SAE 10W40 API service classification CJ-4 Transmission and hydraulic lubricant New Holland Ambra Multi G 134 fluid Front axle lubricant New Holland Ambra Multi G 134 fluid Total time engine was operated 9.0 hours

**ENGINE:** Make FCA Diesel Type three cylinder vertical with turbocharger and air to air intercooler Serial No. 50D01977 Crankshaft lengthwise Rated engine speed 2600 Bore and stroke 3.701" x 4.213" (94.0 mm x 107.0 mm) Compression ratio 17.5 to 1 Displacement 136 cu in (2228 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Fuel filter one paper element Fuel cooler radiator for pump return fuel Exhaust regenerative aftertreatment system consisting of DOC (diesel oxidation catalyst) and DPF (diesel particulate filter) integrated within an underhood muffler with horizontal exhaust to the right side Cooling medium temperature control thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 24.5 - 26.3 lb/h (11.1 - 11.9 kg/h) High idle: 2700 - 2800 rpm Turbo boost: nominal 16.0 - 18.9 psi (110 - 130 kPa) as measured 17.4 psi (120 kPa)

**CHASSIS:** Type front wheel assist Serial No. FR5328108 Tread width rear 56.5" (1435 mm) front 60.0" (1525 mm) Wheelbase 77.2" (1960 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.83 (2.94) second 2.75 (4.43) third 4.07 (6.55) fourth 5.60 (9.01) fifth 6.64 (10.68) sixth 10.00 (16.09) seventh 14.76 (23.75) eighth 20.31 (32.68) reverse 1.93 (3.11), 2.91 (4.69), 4.30 (6.92), 5.92 (9.52), 7.02 (11.29), 10.56 (17.00), 15.60 (25.10), 21.46 (34.53) Clutch single dry disc operated by foot pedal Brakes single wet disc operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2575 engine rpm Unladen tractor mass 4895 lb (2220 kg)

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 2705 lbs (12.0kN)(at frame)  
3608 lbs (16.0kN)(at link ends)  
**two outlet sets combined**

i) Sustained pressure of the open relief valve: 2577 psi (178 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 11.7 GPM(44.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 11.4 GPM(43.0 l/min)  
Delivery pressure: 2067 psi (143 bar)  
Power: 13.7 HP (10.2 kW)  
**single outlet set**

ii) Pump delivery rate at minimum pressure and rated engine speed: 11.6 GPM(44.0 l/min)

iii) Pump delivery rate at maximum hydraulic power: 11.2 GPM(42.5 l/min)  
Delivery pressure: 2016 psi (139 bar)  
Power: 13.2 HP (9.8 kW)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1:** The engine in this tractor has a automatic control for the regeneration process that could not be manually overridden. This test sequence was not done.

**NOTE 2:** The performance results on this report were obtained from tests carried out on the Case IH Farmall 50A Diesel.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor fell 1.7% short of meeting the manufacturer's remote hydraulic flow claim of 11.9 GPM (45 lpm).

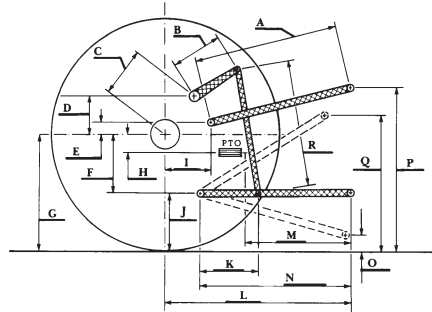
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2190A**, September 20, 2018.

Roger M. Hoy  
Director

M.F. Kocher  
P.J. Jasa  
J.D. Luck  
Board of Tractor Test Engineers

### HITCH DIMENSIONS AS TESTED - NO LOAD

	inch	mm
A	26.8	680
B	9.1	230
C	1.6	40
D	1.1	28
E	15.2	385
F	5.9	150
G	25.6	650
H	0.6	14
I	7.2	183
J	19.7	500
K	13.6	345
L	34.8	885
M	21.7	551
N	30.1	765
O	9.1	230
P	43.7	1110
Q	35.4	900
R	19.5	495



### RECOMMENDED CITATION FORMAT:

NTTL.(2018). Nebraska Tractor test 2190A for New Holland Workmaster 50 Diesel.

Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>



**New Holland Workmaster 50 Diesel**  
Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln