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Test 1556: Kubota L4150 FWD and 2WD Diesel 8-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA TRACTOR TEST 1556—KUBOTA L4150 4WD DIESEL ALSO KUBOTA L4150 DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)	
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb		
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed — Two hours (PTO Speed —626 rpm)									
40.64 (30.30)	2600	2.522 (9.548)	0.433 (0.263)	16.11 (3.174)	188 (86.7)	57 (14.1)	75 (23.8)	28.94 (97.71)	
Standard Power Take-off Speed (540 rpm) — One Hour									
40.22 (29.99)	2244	2.349 (8.891)	0.407 (0.248)	17.12 (3.373)	194 (90.0)	57 (14.1)	75 (23.8)	28.89 (97.56)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
35.37 (26.37)	2661	2.224 (8.419)	0.439 (0.267)	15.90 (3.133)	183 (83.9)	58 (14.4)	75 (23.9)	..... .....
0.00 (0.00)	2805	0.787 (2.980)	..... .....	..... .....	177 (80.3)	58 (14.2)	75 (23.6)	..... .....
18.06 (13.47)	2718	1.432 (5.422)	0.553 (0.336)	12.61 (2.484)	180 (82.2)	58 (14.2)	75 (23.9)	..... .....
41.46 (30.92)	2600	2.555 (9.673)	0.430 (0.261)	16.23 (3.197)	188 (86.7)	58 (14.4)	75 (23.9)	..... .....
9.18 (6.84)	2762	1.075 (4.071)	0.817 (0.497)	8.53 (1.681)	178 (81.1)	58 (14.4)	76 (24.2)	..... .....
26.85 (20.02)	2694	1.811 (6.855)	0.470 (0.286)	14.83 (2.921)	181 (82.8)	58 (14.4)	75 (23.9)	..... .....
Av Av	21.82 (16.27)	2706	1.648 (6.237)	0.527 (0.320)	13.24 (2.609)	181 (82.8)	58 (14.4)	75 (23.9)	28.87 (97.50)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 5th (H1) Gear											
32.68 (24.37)	3101 (13.79)	3.95 (6.36)	2601	9.74	2.488 (9.417)	0.531 (0.323)	13.14 (2.588)	190 (87.8)	58 (14.4)	73 (22.5)	28.71 (96.95)
75% of Pull at Maximum Power — Ten Hours 5th (H1) Gear											
27.21 (20.29)	2438 (10.84)	4.19 (6.74)	2678	7.21	2.125 (8.044)	0.545 (0.331)	12.81 (2.523)	181 (82.7)	35 (1.6)	40 (4.5)	29.09 (98.24)
50% of Pull at Maximum Power — Two Hours 5th (H1) Gear											
18.81 (14.02)	1625 (7.23)	4.34 (6.98)	2708	4.84	1.699 (6.432)	0.630 (0.383)	11.07 (2.180)	181 (82.8)	34 (0.8)	38 (3.3)	28.93 (97.69)
50% of Pull at Reduced Engine Speed — Two Hours 6th (H2) Gear											
18.81 (14.03)	1625 (7.23)	4.34 (6.99)	2020	4.84	1.420 (5.374)	0.526 (0.320)	13.25 (2.611)	181 (82.8)	35 (1.7)	40 (4.4)	28.91 (97.62)
MAXIMUM POWER IN SELECTED GEARS											
22.58 (16.84)	4257 (18.93)	1.99 (3.20)	2693	14.77			3rd (L3) Gear	182 (83.3)	47 (8.3)	55 (12.8)	28.77 (97.15)
32.54 (24.27)	4129 (18.36)	2.96 (4.76)	2601	14.39			4th (L4) Gear	185 (85.0)	49 (9.4)	57 (13.9)	28.77 (97.15)
33.98 (25.34)	3217 (14.31)	3.96 (6.38)	2600	9.53			5th (H1) Gear	186 (85.6)	58 (14.4)	70 (21.1)	28.74 (97.05)
34.50 (25.73)	2366 (10.52)	5.47 (8.80)	2599	6.84			6th (H2) Gear	186 (85.6)	53 (11.7)	61 (16.1)	28.75 (97.08)
32.50 (24.23)	1316 (5.85)	9.26 (14.91)	2599	3.73			7th (H3) Gear	186 (85.3)	51 (10.6)	59 (15.0)	28.76 (97.12)

Department of Agricultural Engineering

Dates of Test: March 22 to April 3, 1985

Manufacturer: KUBOTA, LTD., 2-47 Shikitsuhigashi 1-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 48.3 (rating taken from oil company's inspection data) Specific gravity converted to 60/60°F (15/15°C) 0.8376 Fuel weight 6.974 lbs/gal (0.836 kg/l) Oil SAE 20W API service classification CC, CD, SE To motor 2.033 gal (7.696 l) Drained from motor 1.875 gal (7.097 l) Transmission and hydraulic lubricant Shell Donax TD or equivalent Front axle lubricant SAE 80/90 gear oil Total time engine was operated 45.5 hours.

ENGINE: Make Kubota Diesel Type five cylinder vertical Serial No. F2302-DI-DC-32717 Crankshaft lengthwise Rated rpm 2600 Bore and stroke 3.35" × 3.23" (85 mm × 82 mm) Compression ratio 18 to 1 Displacement 142 cu in (2326 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Fuel filter one paper element Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat.

CHASSIS: Type front wheel assist Serial No. L4150DT-50827 Tread width rear 52" (1320 mm) to 76" (1930 mm) front 56" (1420 mm) Wheel base 76.4" (1940 mm) Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.2" (766 mm) Vertical distance above roadway 33.2" (844 mm) Horizontal distance from center of rear wheel tread 0.3" (7 mm) to the right Hydraulic control system direct engine drive Transmission selective gear fixed ratio Advertised speeds mph (km/h) first 1.1 (1.7) second 1.4 (2.3) third 2.4 (3.8) fourth 3.6 (5.8) fifth 4.6 (7.4) sixth 6.1 (9.9) seventh 10.1 (16.2) eighth 15.4 (24.9) reverse 1.1 (1.7), 1.4 (2.3), 2.3 (3.8), 3.6 (5.8), 4.5 (7.3), 6.1 (9.8), 10.0 (16.1), 15.3 (24.7) Clutch single dry disc operated by foot pedal Brakes multiple wet disc operated by two foot pedals which can be locked together Steering power assist Turning radius (on concrete surface with brake applied) right 118" (3.0 m) left 118" (3.0 m) (on concrete surface without brake) right 138" (3.5 m) left 138" (3.5 m) Turning space diameter (on concrete surface with brake applied) right 244" (6.2 m) left 244" (6.2 m) (on concrete surface without brake) right 283" (7.2 m) left 283" (7.2 m) Power take-off 540 rpm at 2244 engine rpm Unladen tractor mass 4350 lb (1973 kg).

LUGGING ABILITY IN 5th (H1) GEAR

Crankshaft Speed rpm	2600	2327	2077	1821	1553	1308
Pull—lbs (kN)	3217 (14.31)	3551 (15.80)	3799 (16.90)	3917 (17.42)	3949 (17.57)	3913 (17.41)
Increase in Pull %	0	10	18	22	23	22
Power—Hp (kW)	33.98 (25.34)	33.00 (24.61)	30.96 (23.09)	27.75 (20.69)	23.79 (17.74)	19.84 (14.80)
Speed—Mph (km/h)	3.96 (6.38)	3.49 (5.61)	3.06 (4.92)	2.66 (4.28)	2.26 (3.64)	1.90 (3.06)
Slip %	9.53	11.06	12.58	13.37	13.76	13.66

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Maximum Available Power—Two Hours	94.0	93.5
75% of Pull at Maximum Power—Ten Hours		94.0
50% of Pull at Maximum Power—Two Hours		93.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 8th (H4) gear		84.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp·hr (kg/kW·h)	Hp·hr/gal (kW·h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 5th (H1) Gear											
32.70 (24.39)	2962 (13.17)	4.14 (6.66)	2600	7.41	2.495 (9.445)	0.532 (0.324)	13.11 (2.582)	192 (88.6)	58 (14.4)	74 (23.3)	28.66 (96.78)

MAXIMUM POWER IN SELECTED GEARS

27.68 (20.64)	5166 (22.98)	2.01 (3.23)	2668	15.00	3rd (L3) Gear			184 (84.2)	46 (7.8)	53 (11.7)	28.78 (97.19)
33.85 (25.24)	3073 (13.67)	4.13 (6.65)	2599	7.61	5th (H1) Gear			186 (85.6)	57 (13.9)	67 (19.4)	28.74 (97.05)
33.64 (25.09)	2224 (9.89)	5.67 (9.13)	2601	5.52	6th (H2) Gear			186 (85.6)	55 (12.8)	64 (17.8)	28.75 (97.08)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 14.9-28; 6; 14 (95)	Two 14.9-28; 6; 14 (95)
	Ballast	350 lb (159 kg)	None
	—Liquid (each)	378 lb (171 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-20; 6; 32 (220)	Two 9.5-20; 6; 32 (220)
	Ballast	None	None
	—Liquid (each)	192 lb (87 kg)	None
Height of Drawbar		16.5 in (420 mm)	16.5 in (420 mm)
Static Weight with Operator	—Rear	4230 lb (1919 kg)	2775 lb (1259 kg)
	—Front	2135 lb (968 kg)	1750 lb (794 kg)
	—Total	6365 lb (2887 kg)	4525 lb (2053 kg)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2475 (17060)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	193 (89)	
Location	pump inlet	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	I	*not measured
LOAD lbs (kg)	2654 (1204)	
TIME sec	2.37	
HITCH POINT MOVEMENT in (mm)		
Lowest position	10.3 (262)	
Top of timed range	32.3 (820)	
Highest position	32.7 (831)	
LOAD CG MOVEMENT in (mm)		
Lowest position	9.8 (249)	
Top of timed range	33.6 (852)	
Highest position	34.3 (871)	

*Implement load capacity for transport purposes not specified by manufacturer.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 126°F (52.2°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1556, June 14, 1985.

LOUIS I. LEVITICUS

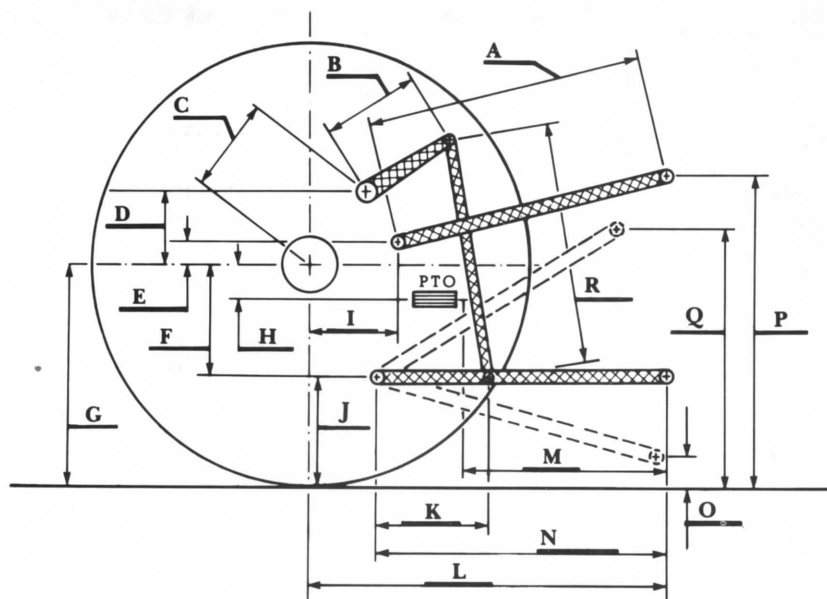
Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

T. L. THOMPSON

Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	23.3	591
B	9.5	240
C	11.6	294
D	11.0	279
E	10.6	269
F	7.1	180
G	24.3	617
H	0.5	13
I	11.9	301
J	17.2	437
K	14.6	370
L	35.2	894
M	20.3	517
N	31.1	790
O	8.0	203
P	35.3	895
Q	32.4	823
R	19.6	498



Kubota L4150 4WD Diesel