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Test 1286: Kubota L185 DT Diesel

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1286 — KUBOTA L185 DT DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—622 rpm)								
15.45 (11.52)	2800	1.177 (4.454)	0.529 (0.322)	13.13 (2.586)	224 (106.5)	67 (19.2)	81 (27.1)	28.870 (97.490)
Standard Power Take-off Speed (540 rpm)—One Hour								
14.16 (10.56)	2431	1.049 (3.971)	0.514 (0.313)	13.49 (2.658)	220 (104.6)	66 (18.7)	79 (26.0)	28.875 (97.507)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
13.53 (10.09)	2885	1.003 (3.796)	0.514 (0.313)	13.50 (2.658)	216 (102.5)	66 (18.9)	78 (25.3)	....
0.00 (0.00)	3046	0.350 (1.325)	....	....	194 (89.7)	66 (18.9)	78 (25.6)	....
7.02 (5.24)	2997	0.666 (2.520)	0.658 (0.400)	10.55 (2.078)	211 (99.4)	67 (19.4)	80 (26.7)	....
15.43 (11.51)	2799	1.193 (4.516)	0.536 (0.326)	12.94 (2.548)	223 (106.1)	68 (20.0)	82 (28.1)	....
3.54 (2.64)	3016	0.493 (1.865)	0.966 (0.587)	7.19 (1.416)	203 (95.0)	68 (20.0)	82 (27.8)	....
10.35 (7.72)	2944	0.830 (3.142)	0.556 (0.338)	12.47 (2.457)	210 (98.9)	69 (20.6)	84 (28.6)	....
Av 8.31	**2948**	**0.756**	**0.631**	**11.00**	**210**	**67**	**81**	**28.887**
Av (6.20)		***(2.861)***	***(0.384)***	***(2.167)***	***(98.6)***	***(19.6)***	***(27.0)***	***(97.546)***

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Maximum Available Power—Two Hours 6th Gear											
12.15 (9.06)	1219 (5.42)	3.74 (6.01)	2797	9.88	1.189 (4.500)	0.679 (0.413)	10.22 (2.013)	230 (109.7)	74 (23.3)	87 (30.3)	28.530 (96.342)
75% of Pull at Maximum Power—Two Hours 6th Gear											
10.05 (7.49)	951 (4.23)	3.96 (6.38)	2907	8.02	0.955 (3.614)	0.659 (0.401)	10.53 (2.074)	219 (103.6)	67 (19.4)	68 (20.0)	28.620 (96.645)
50% of Pull at Maximum Power—Two Hours 6th Gear											
6.87 (5.13)	623 (2.77)	4.14 (6.66)	2958	5.54	0.760 (2.877)	0.767 (0.467)	9.04 (1.782)	223 (105.8)	75 (23.6)	91 (32.8)	28.465 (96.122)
50% of Pull at Reduced Engine Speed—Two Hours 7th Gear											
6.77 (5.05)	613 (2.73)	4.14 (6.66)	2058	5.23	0.633 (2.395)	0.648 (0.394)	10.70 (2.108)	224 (106.4)	77 (24.7)	91 (32.8)	28.455 (96.088)
MAXIMUM POWER IN SELECTED GEARS											
10.63 (7.92)	1871 (8.32)	2.13 (3.43)	2905	14.97	4th Gear			219 (103.6)	67 (19.4)	69 (20.6)	28.660 (96.781)
12.18 (9.08)	1651 (7.34)	2.77 (4.45)	2796	13.23	5th Gear			226 (107.8)	72 (22.2)	82 (27.8)	28.560 (96.443)
12.58 (9.38)	1261 (5.61)	3.74 (6.02)	2799	9.71	6th Gear			225 (107.2)	70 (21.1)	76 (24.4)	28.580 (96.510)
12.40 (9.25)	837 (3.72)	5.55 (8.94)	2798	6.65	7th Gear			227 (108.3)	71 (21.7)	79 (26.1)	28.570 (96.477)

LUGGING ABILITY IN 6th GEAR

Crankshaft Speed rpm	2799	2518	2240	1954	1682	1390
Pull—lbs (kN)	1261 (5.61)	1294 (5.76)	1340 (5.96)	1344 (5.98)	1370 (6.09)	1329 (5.91)
Increase in Pull %	0	3	6	7	9	5
Power—Hp (kW)	12.58 (9.38)	11.56 (8.62)	10.61 (7.91)	9.27 (6.91)	8.10 (6.04)	6.51 (4.85)
Speed—Mph (km/h)	3.74 (6.02)	3.35 (5.39)	2.97 (4.78)	2.59 (4.16)	2.22 (3.57)	1.84 (2.95)
Slip %	9.71	10.12	10.45	10.45	10.77	10.28

Department of Agricultural Engineering

Dates of Test: August 25 to September 15, 1978

Manufacturer: KUBOTA, LTD 22 Fundae-cho 2 chome Naniwa-ku, Osaka, Japan.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 50.4 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8335 **Fuel weight** 6.940 lbs/gal *(0.832 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CD **To motor** 0.799 gal *(3.024 l)* **Drained from motor** 0.643 gal *(2.434 l)* **Transmission and final drive lubricant** SAE 80 **Total time engine was operated** 61.0 hours.

ENGINE: Make Kubota Diesel **Type** 2 cylinder vertical **Serial No.** Z751-A07779 **Crankshaft** lengthwise **Rated rpm** 2800 **Bore and Stroke** 3.0" x 3.23 *(76 mm x 82 mm)* **Compression ratio** 21 to 1 **Displacement** 45.3 cu in *(743 ml)* **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one spin on paper cartridge **Muffler** vertical **Cooling medium temperature control** thermosyphon.

CHASSIS: Type front wheel assist **Serial No.** L185DT-50916 **Tread width** rear 40.6" *(1030 mm)* front 39.4" *(1000 mm)* **Wheel base** 57.7" *(1465 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 25.7 *(652 mm)* Vertical distance above roadway 27.2" *(690 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.8 *(1.2)* second 1.0 *(1.6)* third 1.4 *(2.3)* fourth 2.5 *(4.0)* fifth 3.3 *(5.2)* sixth 4.2 *(6.8)* seventh 6.1 *(9.8)* eighth 11.3 *(18.2)* reverse 1.3 *(2.1)*, 5.5 *(8.9)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 90" *(2.29 m)* left 90" *(2.29 m)* (on concrete surface without brake) right 122" *(3.10 m)* left 122" *(3.10 m)* **Turning space diameter** (on concrete surface with brake applied) right 183" *(4.65 m)* left 183" *(4.65 m)* (on concrete surface without brake) right 247" *(6.27 m)* left 247" *(6.27 m)* **Power take-off** 540 rpm at 2431 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	(Front-Wheel Drive Disengaged) dB(A)
Maximum Available Power—Two Hours	91.5	91.0
75% of Pull at Maximum Power—Ten Hours	90.5	90.5
50% of Pull at Maximum Power—Two Hours	89.5	89.0
50% of Pull at Reduced Engine Speed—Two Hours	87.5	85.5
Bystander in 8th gear	—	79.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 6th Gear											
12.15 *(9.06)*	1156 *(5.14)*	3.94 *(6.34)*	2800	7.18	1.176 *(4.451)*	0.671 *(0.408)*	10.34 *(2.036)*	228 *(108.9)*	71 *(21.4)*	86 *(30.0)*	28.920 *(97.659)*
75% of Pull at Maximum Power—Ten Hours 6th Gear											
9.96 *(7.43)*	902 *(4.01)*	4.14 *(6.67)*	2906	6.02	0.973 *(3.683)*	0.678 *(0.412)*	10.24 *(2.017)*	221 *(104.9)*	74 *(23.5)*	81 *(27.4)*	28.547 *(96.399)*
50% of Pull at Maximum Power—Two Hours 6th Gear											
6.89 *(5.14)*	600 *(2.67)*	4.31 *(6.94)*	2955	3.87	0.793 *(3.000)*	0.798 *(0.485)*	8.70 *(1.714)*	222 *(105.6)*	73 *(22.5)*	91 *(32.5)*	28.865 *(97.473)*
50% of Pull at Reduced Engine Speed—Two Hours 7th Gear											
6.97 *(5.20)*	605 *(2.69)*	4.32 *(6.95)*	2062	3.75	0.663 *(2.509)*	0.660 *(0.402)*	10.51 *(2.071)*	224 *(106.7)*	72 *(22.2)*	91 *(32.5)*	28.840 *(97.388)*
MAXIMUM POWER IN SELECTED GEARS											
7.97 *(5.94)*	2322 *(10.33)*	1.29 *(2.07)*	2970	14.96	3rd Gear			221 *(105.0)*	67 *(19.4)*	68 *(20.0)*	28.660 *(96.781)*
12.29 *(9.16)*	2161 *(9.61)*	2.13 *(3.43)*	2803	13.87	4th Gear			224 *(106.7)*	67 *(19.4)*	68 *(20.0)*	28.650 *(96.747)*
12.52 *(9.34)*	1594 *(7.09)*	2.95 *(4.74)*	2799	9.86	5th Gear			224 *(106.7)*	69 *(20.6)*	82 *(27.8)*	28.910 *(97.625)*
12.65 *(9.43)*	1205 *(5.36)*	3.94 *(6.33)*	2799	7.41	6th Gear			224 *(106.7)*	64 *(17.8)*	73 *(22.8)*	28.900 *(97.591)*
12.03 *(8.97)*	779 *(3.46)*	5.79 *(9.32)*	2799	4.95	7th Gear			224 *(106.7)*	66 *(18.9)*	77 *(25.0)*	28.910 *(97.625)*

LUGGING ABILITY IN 6th GEAR

Crankshaft Speed rpm	2799	2518	2244	1956	1675	1382
Pull—lbs *(kN)*	1205 *(5.36)*	1244 *(5.54)*	1292 *(5.75)*	1283 *(5.71)*	1303 *(5.80)*	1266 *(5.63)*
Increase in Pull %	0	3	7	6	8	5
Power—Hp *(kW)*	12.65 *(9.43)*	11.70 *(8.73)*	10.79 *(8.04)*	9.33 *(6.96)*	8.09 *(6.03)*	6.49 *(4.84)*
Speed—Mph *(km/h)*	3.94 *(6.33)*	3.53 *(5.68)*	3.13 *(5.04)*	2.73 *(4.39)*	2.33 *(3.75)*	1.92 *(3.09)*
Slip %	7.41	7.63	7.89	7.72	8.07	7.80

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 9.5/9-24; 4; 14 *(95)*	Two 9.5/9-24; 4; 14 *(95)*
Ballast	—Liquid (each)	120 lb *(54 kg)*	None
	—Cast Iron (each)	374 lb *(170 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6-14; 4; 28 *(195)*	Two 6-14; 4; 28 *(195)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	148 lb *(67 kg)*	None
Height of Drawbar		15 in *(380 mm)*	15 in *(380 mm)*
Static Weight with Operator—Rear		2230 lb *(1012 kg)*	1242 lb *(563 kg)*
—Front		1185 lb *(537 kg)*	890 lb *(404 kg)*
—Total		3415 lb *(1549 kg)*	2132 lb *(967 kg)*

procedure. Temperature at injection pump was 135°F *(57.4°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1286.**

L. I. LEVITICUS
Engineer-in-Charge

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Kubota L185 DT Diesel

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