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## Test 1284: Kubota L245 DT Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1284 — KUBOTA L245 DT 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—622 rpm)								
22.35 (16.66)	2801	1.643 (6.221)	0.510 (0.310)	13.60 (2.679)	217 (102.6)	62 (16.7)	75 (23.8)	29.050 (98.097)
Standard Power Take-off Speed (540 rpm)—One Hour								
20.15 (15.02)	2431	1.406 (5.324)	0.484 (0.295)	14.33 (2.822)	212 (100.2)	62 (16.7)	75 (23.9)	29.065 (98.148)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
19.94 (14.87)	2941	1.465 (5.547)	0.510 (0.310)	13.61 (2.681)	201 (93.9)	62 (16.9)	78 (25.8)	..... .....
0.00 (0.00)	3064	0.501 (1.898)	..... .....	..... .....	183 (83.9)	62 (16.7)	79 (26.1)	..... .....
10.18 (7.59)	3002	0.938 (3.551)	0.640 (0.389)	10.85 (2.137)	186 (85.6)	62 (16.7)	80 (26.4)	..... .....
22.26 (16.60)	2802	1.651 (6.251)	0.515 (0.313)	13.48 (2.655)	214 (101.4)	62 (16.7)	81 (27.2)	..... .....
5.14 (3.83)	3033	0.718 (2.716)	0.969 (0.589)	7.17 (1.412)	182 (83.6)	62 (16.4)	81 (27.2)	..... .....
15.15 (11.30)	2979	1.206 (4.565)	0.552 (0.336)	12.56 (2.475)	190 (87.8)	62 (16.7)	82 (27.5)	..... .....
Av 12.11 Av (9.03)	2970	1.080 (4.088)	0.619 (0.376)	11.21 (2.209)	193 (89.4)	62 (16.7)	80 (26.7)	29.067 (98.154)

## DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Maximum Available Power—Two Hours 7th Gear											
18.15 (13.54)	1175 (5.23)	5.79 (9.32)	2798	8.81 (6.262)	1.654 (0.385)	0.632 (0.385)	10.97 (2.162)	211 (99.4)	70 (20.8)	88 (31.1)	28.895 (97.574)
75% of Pull at Maximum Power—Two Hours 7th Gear											
14.72 (10.98)	886 (3.94)	6.23 (10.03)	2954	7.08 (5.250)	1.387 (0.398)	0.654 (0.398)	10.61 (2.091)	194 (90.0)	74 (23.3)	91 (32.8)	28.820 (97.321)
50% of Pull at Maximum Power—Two Hours 7th Gear											
10.41 (7.76)	604 (2.69)	6.46 (10.40)	2986	4.74 (4.205)	1.111 (0.450)	0.741 (0.450)	9.37 (1.846)	187 (86.1)	75 (23.9)	97 (36.1)	28.795 (97.236)
50% of Pull at Reduced Engine Speed—Two Hours 8th Gear											
10.47 (7.81)	608 (2.70)	6.46 (10.40)	1727	4.40 (3.439)	0.909 (0.366)	0.602 (0.366)	11.53 (2.271)	201 (93.9)	74 (23.1)	98 (36.7)	28.765 (97.135)

## MAXIMUM POWER IN SELECTED GEARS

15.54 (11.58)	1903 (8.47)	3.06 (4.93)	2954	14.97	5th Gear	189 (87.2)	65 (18.3)	76 (24.4)	28.890 (97.557)
18.17 (13.55)	1789 (7.96)	3.81 (6.13)	2800	14.03	6th Gear	205 (96.1)	66 (18.9)	77 (25.0)	28.880 (97.523)
18.55 (13.83)	1204 (5.33)	5.78 (9.30)	2799	9.10	7th Gear	205 (96.1)	66 (18.9)	79 (26.1)	28.870 (97.490)

## LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2799	2517	2234	1958	1682	1393	1120
Pull—lbs (kN)	1204 (5.33)	1228 (5.46)	1278 (5.69)	1304 (5.80)	1326 (5.90)	1326 (5.90)	1205 (5.36)
Increase in Pull %	0	2	6	8	10	10	0
Power—Hp (kW)	18.55 (13.83)	16.97 (12.65)	15.61 (11.64)	13.86 (10.33)	12.03 (8.97)	9.94 (7.42)	7.30 (5.44)
Speed—Mph (km/h)	5.78 (9.30)	5.18 (8.34)	4.58 (7.37)	3.99 (6.41)	3.40 (5.47)	2.81 (4.52)	2.27 (3.65)
Slip %	9.10	9.41	9.68	10.12	10.20	10.20	9.24

Department of Agricultural Engineering

Dates of Test: August 25 to September 9, 1978

Manufacturer: KUBOTA, LTD 22, Funade-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 1.239 gal (4.690 l) Drained from motor 1.051 gal (3.977 l) Transmission and final drive lubricant SAE 80 Total time engine was operated 54.0 hours.

**ENGINE:** Make Kubota Diesel Type 3 cylinder vertical Serial No. DH1101-A-10977 Crankshaft lengthwise Rated rpm 2800 Bore and Stroke 3.0" x 3.23 (76 mm x 82 mm) Compression ratio 21 to 1 Displacement 68 cu in (1115 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 thermostat.

**CHASSIS:** Type front wheel assist Serial No. L245DT-52496 Tread width rear 41.1 (1045 mm) to 55.3" (1405 mm) front 39.8" (1010 mm) Wheel base 61.2" (1555 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 26.9 (683 mm) Vertical distance above roadway 31.3" (795 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 (1.3) second 1.0 (1.7) third 1.5 (2.4) fourth 2.6 (4.2) fifth 3.4 (5.5) sixth 4.5 (7.2) seventh 6.4 (10.3) eighth 11.9 (19.1) reverse 1.4 (2.2), 5.8 (9.4) 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 98" (2.49 m) left 98" (2.49 m) (on concrete surface without brake) right 130" (3.30 m) left 130" (3.30 m) Turning space diameter (on concrete surface with brake applied) right 200" (5.08 m) left 200" (5.08 m) (on concrete surface without brake) right 264" (6.71 m) left 264" (6.71 m) Power take-off 540 rpm at 2431 engine rpm.

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

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	(Front-Wheel Drive Disengaged)
		dB(A)
Maximum Available Power—Two Hours	94.0	92.5
75% of Pull at Maximum Power—Ten Hours	97.5	91.5
50% of Pull at Maximum Power—Two Hours	94.5	91.5
50% of Pull at Reduced Engine Speed—Two Hours	96.0	87.5
Bystander in 8th gear	—	80.0

### 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	
<b>Maximum Available Power—Two Hours 7th Gear</b>											
18.10 (13.50)	1121 (4.99)	6.06 (9.75)	2798	6.28	1.664 (6.300)	0.638 (0.388)	10.88 (2.143)	208 (97.5)	74 (23.3)	86 (29.7)	28.905 (97.608)
<b>75% of Pull at Maximum Power—Ten Hours 7th Gear</b>											
14.91 (11.12)	858 (3.82)	6.52 (10.49)	2957	4.61	1.397 (5.288)	0.650 (0.396)	10.67 (2.102)	195 (90.8)	71 (21.6)	89 (31.9)	28.871 (97.493)
<b>50% of Pull at Maximum Power—Two Hours 7th Gear</b>											
10.22 (7.62)	572 (2.54)	6.70 (10.79)	2993	3.12	1.109 (4.197)	0.753 (0.458)	9.22 (1.817)	186 (85.6)	75 (23.9)	92 (33.3)	28.850 (97.422)
<b>50% of Pull at Reduced Engine Speed—Two Hours 8th Gear</b>											
10.45 (7.79)	584 (2.60)	6.71 (10.79)	1733	2.81	0.920 (3.483)	0.611 (0.372)	11.36 (2.237)	200 (93.3)	75 (23.9)	94 (34.4)	28.835 (97.371)
<b>MAXIMUM POWER IN SELECTED GEARS</b>											
15.28 (11.39)	2419 (10.76)	2.37 (3.81)	2970	14.97	4th Gear			189 (87.2)	64 (17.8)	73 (22.8)	28.880 (97.523)
18.00 (13.42)	2255 (10.03)	2.99 (4.82)	2798	13.76	5th Gear			202 (94.4)	66 (18.9)	77 (25.0)	28.880 (97.523)
18.33 (13.67)	1698 (7.55)	4.05 (6.52)	2802	10.28	6th Gear			204 (95.6)	70 (21.1)	77 (25.0)	28.890 (97.557)
18.48 (13.78)	1144 (5.09)	6.06 (9.75)	2799	6.32	7th Gear			196 (90.8)	67 (19.4)	72 (22.2)	28.890 (97.557)

### LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2799	2521	2246	1950	1675	1394	1118
Pull—lbs (kN)	1144 (5.09)	1175 (5.23)	1225 (5.45)	1246 (5.54)	1281 (5.70)	1286 (5.72)	1187 (5.28)
Increase in Pull %	0	3	7	9	12	12	4
Power—Hp (kW)	18.48 (13.78)	17.06 (12.72)	15.80 (11.78)	13.85 (10.33)	12.16 (9.07)	10.12 (7.55)	7.50 (5.59)
Speed—Mph (km/h)	6.06 (9.75)	5.45 (8.76)	4.84 (7.78)	4.17 (6.71)	3.56 (5.73)	2.95 (4.75)	2.37 (3.81)
Slip %	6.32	6.61	6.80	7.09	7.28	7.28	6.71

### TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Two 11.2/10-24; 4; 14 (95)	Two 11.2/10-24; 4; 14 (95)
Ballast	—Liquid (each)	181 lb (82 kg)	None
	—Cast Iron (each)	377 lb (171 kg)	None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Two 7-16; 4; 26 (180)	Two 7-16; 4; 26 (180)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	147 lb (67 kg)	None
<b>Height of Drawbar</b>		16.5 in (420 mm)	16.5 in (420 mm)
<b>Static Weight with Operator—Rear</b>		2512 lb (1139 kg)	1396 lb (633 kg)
	—Front	1280 lb (581 kg)	986 lb (447 kg)
	—Total	3792 lb (1720 kg)	2382 lb (1080 kg)

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 143°F (61.7°C). Four 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 1284.

L. I. LEVITICUS  
Engineer-in-Charge

G. W. STEINBRUEGGE  
W. E. SPLINTER  
K. VON BARGEN  
Board of Tractor Test Engineers



**Kubota L245 DT Diesel**