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## Test 1407: Kubota L275 4WD and L275 Diesel 8-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1407 — KUBOTA L275 4WD DIESEL ALSO KUBOTA L275 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—582 rpm)								
23.42 (17.46)	2600	1.649 (6.242)	0.493 (0.300)	14.21 (2.797)	214 (101.2)	68 (20.1)	75 (23.8)	28.977 (97.850)

Standard Power Take-off Speed (540 rpm)—One Hour								
23.01 (17.16)	2412	1.580 (5.981)	0.481 (0.293)	14.57 (2.869)	214 (101.3)	68 (20.0)	75 (24.1)	28.935 (97.709)

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

20.50 (15.29)	2678	1.468 (5.557)	0.502 (0.305)	13.96 (2.751)	205 (96.1)	68 (20.0)	75 (23.9)	.....
0.00 (0.00)	2862	0.527 (1.995)	.....	.....	183 (83.9)	68 (20.0)	75 (23.9)	.....
10.55 (7.87)	2752	0.946 (3.581)	0.628 (0.382)	11.15 (2.198)	187 (85.8)	68 (19.7)	75 (23.9)	.....
23.53 (17.55)	2601	1.670 (6.322)	0.497 (0.302)	14.09 (2.776)	212 (100.0)	69 (20.6)	75 (23.9)	.....
5.34 (3.98)	2795	0.723 (2.737)	0.949 (0.577)	7.39 (1.454)	185 (84.7)	69 (20.3)	75 (23.9)	.....
15.64 (11.66)	2724	1.211 (4.584)	0.543 (0.330)	12.91 (2.544)	189 (87.2)	69 (20.6)	75 (23.9)	.....
<b>Av 12.59</b> <b>Av (9.39)</b>	<b>2735</b>	<b>1.091</b> <b>(4.130)</b>	<b>0.607</b> <b>(0.369)</b>	<b>11.55</b> <b>(2.274)</b>	<b>193</b> <b>(89.6)</b>	<b>68</b> <b>(20.2)</b>	<b>75</b> <b>(23.9)</b>	<b>28.903</b> <b>(97.602)</b>

## 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 6th Gear											
18.86 (14.07)	1462 (6.50)	4.84 (7.79)	2599	7.48	1.623 (6.144)	0.603 (0.367)	11.62 (2.289)	195 (90.6)	54 (11.9)	68 (19.7)	29.070 (98.165)
75% of Pull at Maximum Power—Ten Hours 6th Gear											
15.68 (11.69)	1146 (5.10)	5.13 (8.26)	2699	5.46	1.416 (5.361)	0.633 (0.385)	11.07 (2.181)	183 (83.9)	62 (16.9)	70 (21.2)	28.756 (97.105)
50% of Pull at Maximum Power—Two Hours 6th Gear											
10.83 (8.07)	768 (3.42)	5.29 (8.51)	2728	3.62	1.088 (4.119)	0.704 (0.428)	9.95 (1.960)	180 (82.2)	69 (20.6)	85 (29.2)	28.745 (97.068)
50% of Pull at Reduced Engine Speed—Two Hours 7th Gear											
10.82 (8.07)	767 (3.41)	5.29 (8.51)	1602	3.33	0.856 (3.241)	0.555 (0.337)	12.63 (2.489)	193 (89.2)	71 (21.4)	90 (31.9)	28.720 (96.983)

## MAXIMUM POWER IN SELECTED GEARS

18.09 (13.49)	2717 (12.09)	2.50 (4.02)	2668	14.88	4th Gear			180 (81.9)	49 (9.4)	56 (13.3)	29.060 (98.131)
18.99 (14.16)	2395 (10.65)	2.97 (4.79)	2599	12.76	5th Gear			190 (87.5)	51 (10.6)	62 (16.7)	29.080 (98.199)
19.70 (14.69)	1526 (6.79)	4.84 (7.79)	2601	7.53	6th Gear			187 (85.8)	51 (10.6)	58 (14.4)	29.070 (98.165)
18.78 (14.00)	828 (3.68)	8.50 (13.68)	2599	4.22	7th Gear			185 (85.0)	52 (11.1)	63 (17.2)	29.090 (98.233)

## LUGGING ABILITY IN 6th GEAR

Crankshaft Speed rpm			2601	2331	2080	1827	1550	1308
Pull—lbs (kN)			1526 (6.79)	1682 (7.48)	1790 (7.96)	1877 (8.35)	1905 (8.47)	1870 (8.32)
Increase in Pull %			0	10	17	23	25	23
Power—Hp (kW)			19.70 (14.69)	19.30 (14.39)	18.15 (13.54)	16.65 (12.41)	14.31 (10.67)	11.88 (8.86)
Speed—Mph (km/h)			4.84 (7.79)	4.30 (6.92)	3.80 (6.12)	3.33 (5.35)	2.82 (4.53)	2.38 (3.83)
Slip %			7.53	8.23	9.10	9.52	9.69	9.52

## Department of Agricultural Engineering

**Dates of Test:** September 17 to October 2, 1981

**Manufacturer:** KUBOTA LTD, 2-47 Shikitsu higashi, 1-chome, Naniwa-ku, Osaka, Japan

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 46.3 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8417 Fuel weight 7.008 lbs/gal (0.840 kg/l) Oil SAE 20-20W API service classification SB/SE-CA/CD To motor 1.232 gal (4.664 l) Drained from motor 1.101 gal (4.169 l) Transmission and hydraulic lubricant SAE 20 hydraulic transmission oil Front axle lubricant SAE 80 Total time engine was operated 48.5 hours.

**ENGINE:** Make Kubota Diesel Type three cylinder vertical Serial No. D1302-A-01544 Crankshaft lengthwise Rated rpm 2600 Bore and stroke 3.23" × 3.23" (82 mm × 82 mm) Compression ratio 21 to 1 Displacement 79.3 cu in (1299 ml) Starting system 12 volt Lubrication pressure Air cleaner one paper element Oil filter one full flow cartridge Fuel filter one paper element Muffler vertical Cooling medium temperature control one thermostat.

**CHASSIS:** Type front wheel assist Serial No. L275DT-10209 Tread width rear 40.6" (1030 mm) to 55.1" (1400 mm) front 43.3" (1100 mm) Wheel base 64.6" (1640 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 29.9" (760 mm) Vertical distance above roadway 29.1" (740 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 0.9 (1.4) second 1.3 (2.1) third 2.2 (3.6) fourth 3.0 (4.8) fifth 3.6 (5.8) sixth 5.5 (8.8) seventh 9.3 (15.0) eighth 12.4 (20.0) reverse 0.8 (1.2), 1.2 (1.9), 2.0 (3.2), 2.7 (4.3), 3.2 (5.2), 4.9 (7.9), 8.4 (13.5) Clutch dual plate 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 106" (2.7 m) left 106" (2.7 m) (on concrete surface without brake) right 122" (3.1 m) left 122" (3.1 m) Turning space diameter (on concrete surface with brake applied) right 217" (5.5 m) left 217" (5.5 m) (on concrete surface without brake) right 256" (6.5 m) left 256" (6.5 m) Power take-off 540 rpm at 2412 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 codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 149°F (64.8°C). Four gears were chosen between 15% slip and 10 mph (16.1 km/h).

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	dB(A)	Disengaged dB(A)
Maximum Available Power—Two Hours	91.5	89.5
75% of Pull at Maximum Power—Ten Hours		89.0
50% of Pull at Maximum Power—Two Hours		88.5
50% of Pull at Reduced Engine Speed—Two Hours		85.0
Bystander in 8th gear		77.0

### 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 6th Gear											
18.57 (13.85)	1382 (6.15)	5.04 (8.11)	2598	5.48	1.623 (6.144)	0.613 (0.373)	11.44 (2.253)	197 (91.7)	54 (12.2)	70 (20.8)	29.045 (98.081)

### MAXIMUM POWER IN SELECTED GEARS

16.86 (12.57)	3302 (14.69)	1.91 (3.08)	2683	14.91	3rd Gear			179 (81.4)	46 (7.8)	50 (10.0)	29.040 (98.064)
19.34 (14.42)	1440 (6.41)	5.04 (8.10)	2597	5.55	6th Gear			184 (84.2)	51 (10.6)	61 (16.1)	29.080 (98.199)

### TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 11.2-24; 4; 14 (95)	Two 11.2-24; 4; 14 (95)
	—Liquid (each)	200 lb (91 kg)	None
	—Cast Iron (each)	330 lb (149 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 7-16; 4; 26 (180)	Two 7-16; 4; 26 (180)
	—Liquid (each)	None	None
	—Cast Iron (each)	185 lb (84 kg)	None
Height of Drawbar		15 in (380 mm)	15 in (380 mm)
Static Weight with Operator—Rear		2615 lb (1186 kg)	1555 lb (705 kg)
		1440 lb (653 kg)	1070 lb (485 kg)
		4055 lb (1839 kg)	2625 lb (1190 kg)



**Kubota L275 4WD Diesel**

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1407.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers