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Test 1371: Kubota L305 DT Diesel 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1371 — KUBOTA L305 DT DIESEL

ALSO KUBOTA L305 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—597 rpm)								
26.21 (19.54)	2800	1.979 (7.491)	0.527 (0.320)	13.24 (2.608)	215 (101.6)	58 (14.2)	75 (23.8)	28.830 (97.355)
Standard Power Take-off Speed (540 rpm)—One Hour								
25.14 (18.75)	2534	1.818 (6.882)	0.504 (0.307)	13.83 (2.724)	214 (101.2)	58 (14.4)	75 (23.7)	28.845 (97.405)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
22.74 (16.96)	2858	1.677 (6.348)	0.515 (0.313)	13.56 (2.672)	202 (94.2)	58 (14.4)	75 (23.9)	..... .....
0.00 (0.00)	3034	0.598 (2.264)	..... .....	..... .....	184 (84.2)	58 (14.4)	75 (23.9)	..... .....
11.77 (8.78)	2960	1.088 (4.119)	0.645 (0.392)	10.82 (2.132)	189 (87.2)	58 (14.4)	75 (23.9)	.....
26.36 (19.66)	2800	1.995 (7.552)	0.528 (0.321)	13.21 (2.603)	212 (99.7)	58 (14.4)	75 (23.6)	.....
5.98 (4.46)	3003	0.839 (3.176)	0.978 (0.595)	7.14 (1.404)	185 (85.0)	59 (15.0)	75 (23.9)	..... .....
17.49 (13.04)	2930	1.376 (5.209)	0.549 (0.334)	12.71 (2.503)	191 (88.3)	59 (15.0)	75 (23.6)	..... .....
Av 14.06 Av (10.48)	2931	1.262 (4.777)	0.626 (0.381)	11.14 (2.194)	194 (89.8)	58 (14.6)	75 (23.8)	28.837 (97.377)

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 (H2) Gear											
21.78 (16.24)	1956 (8.70)	4.17 (6.72)	2799 (7.393)	6.61 (7.393)	1.953 (7.393)	0.626 (0.381)	11.15 (2.196)	203 (94.7)	56 (13.3)	69 (20.6)	28.910 (97.625)
75% of Pull at Maximum Power—Ten Hours 6th (H2) Gear											
18.27 (13.62)	1555 (6.92)	4.40 (7.09)	2898 (7.09)	4.85 (6.213)	1.641 (6.213)	0.627 (0.381)	11.13 (2.192)	192 (88.7)	53 (11.8)	67 (19.4)	28.812 (97.297)
50% of Pull at Maximum Power—Two Hours 6th (H2) Gear											
12.54 (9.35)	1034 (4.60)	4.55 (7.32)	2952 (7.32)	3.50 (5.019)	1.326 (5.019)	0.738 (0.449)	9.46 (1.863)	185 (85.0)	47 (8.3)	48 (8.9)	29.005 (97.946)
50% of Pull at Reduced Engine Speed—Two Hours 7th (H3) Gear											
12.60 (9.40)	1036 (4.61)	4.56 (7.34)	2060 (7.34)	3.40 (4.205)	1.111 (4.205)	0.615 (0.374)	11.35 (2.235)	185 (85.0)	46 (7.5)	48 (8.9)	29.030 (98.030)
MAXIMUM POWER IN SELECTED GEARS											
13.92 (10.38)	3918 (17.43)	1.33 (2.14)	2945 (7.393)	14.89	3rd (L3) Gear			187 (85.8)	44 (6.7)	46 (7.8)	28.950 (97.760)
22.10 (16.48)	3401 (15.13)	2.44 (3.92)	2801 (7.393)	12.25	4th (L4) Gear			194 (89.7)	48 (8.9)	54 (12.2)	28.950 (97.760)
22.90 (17.08)	2750 (12.23)	3.12 (5.03)	2801 (7.393)	9.26	5th (H1) Gear			193 (89.2)	52 (11.1)	62 (16.7)	28.940 (97.726)
22.96 (17.12)	2068 (9.20)	4.16 (6.70)	2800 (7.393)	6.95	6th (H2) Gear			192 (88.6)	50 (10.0)	58 (14.4)	28.960 (97.794)
22.47 (16.75)	1372 (6.10)	6.14 (9.88)	2801 (7.393)	4.37	7th (H3) Gear			193 (89.4)	54 (12.2)	65 (18.3)	28.930 (97.692)
LUGGING ABILITY IN 6th (H2) GEAR											
Crankshaft Speed rpm			2800	2519	2231	1943	1662	1396	1105		
Pull—lbs (kN)			2068 (9.20)	2216 (9.86)	2302 (10.24)	2343 (10.42)	2395 (10.65)	2419 (10.76)	2283 (10.15)		
Increase in Pull %			0	7	11	13	16	17	10		
Power—Hp (kW)			22.96 (17.12)	22.01 (16.41)	20.18 (15.05)	17.88 (13.33)	15.59 (11.63)	13.21 (9.85)	9.95 (7.42)		
Speed—Mph (km/h)			4.16 (6.70)	3.73 (6.00)	3.29 (5.29)	2.86 (4.60)	2.44 (3.93)	2.05 (3.30)	1.63 (2.63)		
Slip %			6.95	7.35	7.64	7.74	8.12	8.22	7.64		

Department of Agricultural Engineering

Dates of Test: October 7-24, 1980

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.9 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8378 Fuel weight 6.976 lbs/gal (0.836 kg/l) Oil SAE 20-20W API service classification SB/SE-CA/CD To motor 1.500 gal (5.679 l) Drained from motor 1.382 gal (5.230 l) Transmission and final drive lubricant SAE 80 or tractor hydraulic fluid Front axle lubricant SAE 90 Total time engine was operated 41.5 hours

ENGINE: Make Kubota Diesel Type three cylinder vertical Serial No. D1301-DA-01341 Crankshaft lengthwise Rated rpm 2800 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 paper cartridge Fuel filter one paper cartridge Muffler vertical Cooling medium temperature control one thermostat

CHASSIS: Type front wheel assist Serial No. L305DT-10249 Tread width rear 50.2" (1275 mm) to 66.1" (1680 mm) front 48.2" (1225 mm) Wheel base 72.8" (1850 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 31.4" (798 mm) Vertical distance above roadway 32.7" (830 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 1.1 (1.8) third 1.6 (2.5) fourth 2.9 (4.7) fifth 3.6 (5.8) sixth 4.7 (7.6) seventh 6.8 (10.9) eighth 12.7 (20.4) reverse 1.4 (2.3), 6.2 (9.9) Clutch dual plate dry disc operated by foot pedal Brakes wet disc operated by two foot pedals which can be locked together Steering power assist Turning radius (on concrete surface with brake applied) right 110" (2.8 m) left 110" (2.8 m) (on concrete surface without brake) right 150" (3.8 m) left 150" (3.8 m) Turning space diameter (on concrete surface with brake applied) right 228" (5.8 m) left 228" (5.8 m) (on concrete surface without brake) right 307" (7.8 m) left 307" (7.8 m) Power take-off 540 rpm at 2534 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 procedure. Temperature at injection pump was 135°F (57.3°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.0	93.5
75% of Pull at Maximum Power—Ten Hours		91.5
50% of Pull at Maximum Power—Two Hours		91.5
50% of Pull at Reduced Engine Speed—Two Hours		89.5
Bystander in 8th (H4) gear		81.5

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)			
					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	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (H2) Gear											
21.43 (15.98)	1859 (8.27)	4.32 (6.96)	2800	5.47	1.953 (7.393)	0.636 (0.387)	10.97 (2.162)	202 (94.2)	56 (13.3)	70 (20.8)	28.875 (97.507)

MAXIMUM POWER IN SELECTED GEARS

15.85 (11.82)	4397 (19.56)	1.35 (2.18)	2924	14.85	3rd (L3) Gear			189 (86.9)	46 (7.8)	51 (10.6)	28.960 (97.794)
22.47 (16.76)	2597 (11.55)	3.25 (5.22)	2800	7.67	5th (H1) Gear			195 (90.3)	53 (11.7)	64 (17.8)	28.930 (97.692)
22.26 (16.60)	1938 (8.62)	4.31 (6.93)	2801	5.80	6th (H2) Gear			196 (90.8)	51 (10.6)	60 (15.6)	28.950 (97.760)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 13.6-24; 4; 14 (95)	Two 13.6-24; 4; 14 (95)
Ballast	—Liquid (each)	400 lb (181 kg)	None
	—Cast Iron (each)	500 lb (227 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 8.3-16; 4; 22 (150)	Two 8.3-16; 4; 22 (150)
Ballast	—Liquid (each)	85 lb (39 kg)	None
	—Cast Iron (each)	50 lb (23 kg)	None
Height of Drawbar		14 in (355 mm)	14 in (355 mm)
Static Weight with Operator—Rear		3700 lb (1678 kg)	1900 lb (862 kg)
	—Front	1660 lb (753 kg)	1390 lb (630 kg)
	—Total	5360 lb (2431 kg)	3290 lb (1492 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1371**.

LOUIS I. LEVITICUS
Engineer-in-Charge

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



Kubota L305 DT Diesel

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