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Test 1283: Kubota L245 Diesel

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1283 — KUBOTA L245 DIESEL

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)								
22.06	2802	1.663	0.523	13.26	219	63	75	29.013
(16.45)		*(6.294)*	*(0.318)*	*(2.613)*	*(104.0)*	*(17.1)*	*(23.7)*	*(97.974)*
Standard Power Take-off Speed (540 rpm)—One Hour								
20.11	2430	1.438	0.496	13.98	218	63	75	29.030
(14.99)		*(5.444)*	*(0.302)*	*(2.754)*	*(103.3)*	*(17.1)*	*(23.8)*	*(98.030)*
Auxiliary Power Take-Off Speed (700 rpm)—One Hour								
20.37	2422	1.438	0.490	14.16	210	63	75	29.040
(15.19)		*(5.444)*	*(0.298)*	*(2.790)*	*(99.0)*	*(17.0)*	*(23.9)*	*(98.064)*
Auxiliary Power Take-off Speed (1000 rpm)—One Hour								
20.33	2410	1.434	0.489	14.18	211	62	75	29.055
(15.16)		*(5.427)*	*(0.298)*	*(2.794)*	*(99.4)*	*(16.7)*	*(23.9)*	*(98.114)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
19.27	2880	1.414	0.509	13.63	198	64	76	.....
(14.37)		*(5.351)*	*(0.310)*	*(2.686)*	*(91.9)*	*(17.5)*	*(24.7)*	.....
0.00	2996	0.501	.....	.....	181	62	76	.....
(0.00)		*(1.898)*	.....	.....	*(82.8)*	*(16.9)*	*(24.2)*	.....
9.89	2957	0.942	0.661	10.50	184	62	77	.....
(7.38)		*(3.567)*	*(0.402)*	*(2.068)*	*(84.7)*	*(16.7)*	*(25.0)*	.....
22.22	2799	1.664	0.520	13.35	213	62	78	.....
(16.57)		*(6.300)*	*(0.316)*	*(2.630)*	*(100.6)*	*(16.9)*	*(25.6)*	.....
5.01	2988	0.722	1.000	6.94	180	62	78	.....
(3.73)		*(2.733)*	*(0.608)*	*(1.367)*	*(82.2)*	*(16.7)*	*(25.3)*	.....
14.70	2928	1.180	0.557	12.46	187	63	79	.....
(10.96)		*(4.467)*	*(0.339)*	*(2.454)*	*(86.1)*	*(17.2)*	*(26.1)*	.....
Av 11.85	**2925**	**1.071**	**0.627**	**11.07**	**190**	**63**	**77**	**29.067**
Av (8.84)		***(4.053)***	***(0.381)***	***(2.180)***	***(88.1)***	***(17.0)***	***(25.1)***	***(98.154)***

DRAWBAR PERFORMANCE

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 7th Gear											
17.83	1162	5.75	2800	9.24	1.660	0.646	10.74	207	66	83	29.010
(13.30)	*(5.17)*	*(9.26)*			*(6.284)*	*(0.393)*	*(2.116)*	*(96.9)*	*(18.6)*	*(28.1)*	*(97.962)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
14.95	916	6.12	2899	6.71	1.398	0.649	10.70	196	69	85	28.825
(11.15)	*(4.08)*	*(9.85)*			*(5.291)*	*(0.395)*	*(2.108)*	*(90.8)*	*(20.4)*	*(29.2)*	*(97.338)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
10.15	601	6.33	2950	5.18	1.108	0.758	9.16	185	65	85	28.945
(7.57)	*(2.67)*	*(10.19)*			*(4.194)*	*(0.461)*	*(1.805)*	*(85.0)*	*(18.3)*	*(29.4)*	*(97.743)*
50% of Pull at Reduced Engine Speed—Two Hours 8th Gear											
10.13	602	6.31	1702	4.81	0.884	0.606	11.46	190	65	85	28.900
(7.55)	*(2.68)*	*(10.16)*			*(3.346)*	*(0.368)*	*(2.257)*	*(87.5)*	*(18.3)*	*(29.2)*	*(97.591)*
MAXIMUM POWER IN SELECTED GEARS											
16.37	2067	2.97	2874	14.93	5th Gear			191	68	72	28.840
(12.21)	*(9.20)*	*(4.78)*						*(88.1)*	*(20.0)*	*(22.2)*	*(97.388)*
18.14	1797	3.79	2800	14.18	6th Gear			204	64	78	29.040
(13.53)	*(7.99)*	*(6.09)*						*(95.6)*	*(17.8)*	*(25.6)*	*(98.064)*
18.66	1219	5.74	2799	9.43	7th Gear			201	62	72	29.030
(13.92)	*(5.42)*	*(9.24)*						*(93.6)*	*(16.7)*	*(22.2)*	*(98.030)*

Department of Agricultural Engineering

Dates of Test: August 25 to September 5, 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 *(0.834 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CD **To motor** 1.231 gal *(4.659 l)* **Drained from motor** 1.039 gal *(3.933 l)* **Transmission and final drive lubricant** SAE 80 **Total time engine was operated** 41.5 hours.

ENGINE Make Kubota Diesel **Type** 3 cylinder vertical **Serial No.** DH1101-A-10976 **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** horizontal **Cooling medium temperature control** thermostat.

CHASSIS: Type Standard **Serial No.** L245-51281 **Tread width** rear 41.1" *(1045 mm)* to 55.3" *(1405 mm)* front 37.8" *(960 mm)* to 51.6" *(1310 mm)* **Wheel base** 63" *(1600 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 26.6" *(675 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 95" *(2.41 m)* left 95" *(2.41 m)* (on concrete surface without brake) right 106" *(2.69 m)* left 106" *(2.69 m)* **Turning space diameter** (on concrete surface with brake applied) right 193" *(4.90 m)* left 193" *(4.90 m)* (on concrete surface without brake) right 216" *(5.49 m)* left 216" *(5.49 m)* **Power take-off** 540 rpm at 2430 engine rpm, 700 rpm at 2422 engine rpm and 1000 rpm at 2410 engine rpm.

LUGGING ABILITY IN RATED GEAR 7th

Crankshaft Speed rpm	2799	2520	2243	1953	1678	1397	1118
Pull—lbs *(kN)*	1219 *(5.42)*	1247 *(5.54)*	1281 *(5.70)*	1262 *(5.61)*	1257 *(5.59)*	1277 *(5.68)*	1186 *(5.28)*
Increase in Pull %	0	2	5	4	3	5	−3
Power—Hp *(kW)*	18.66 *(13.92)*	17.11 *(12.76)*	15.60 *(11.64)*	13.32 *(9.93)*	11.37 *(8.48)*	9.60 *(7.16)*	7.17 *(5.35)*
Speed—Mph *(km/h)*	5.74 *(9.24)*	5.15 *(8.28)*	4.57 *(7.35)*	3.96 *(6.37)*	3.39 *(5.46)*	2.82 *(4.54)*	2.27 *(3.65)*
Slip %	9.43	9.70	10.04	10.13	9.96	10.13	9.43

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	93.5
50% of Pull at Maximum Power—Two Hours	91.0
50% of Pull at Reduced Engine Speed—Two Hours	89.5
Bystander in 8th gear	80.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—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)	382 lb *(173 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 5.00-15; 4; 32 *(220)*	Two 5.00-15; 4; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	186 lb *(84 kg)*	None
Height of Drawbar		16.5 in *(420 mm)*	16.5 in *(420 mm)*
Static Weight with Operator—Rear		2524 lb *(1145 kg)*	1398 lb *(634 kg)*
—Front		1170 lb *(531 kg)*	798 lb *(362 kg)*
—Total		3694 lb *(1676 kg)*	2196 lb *(996 kg)*

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 142°F *(61.2°C)*. Three 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 **1283.**

L. I. LEVITICUS
Engineer-in-Charge

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Kubota L245 Diesel

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