1-1-1980

Test 1372: Kubota L345 DT Diesel 8-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1372 —KUBOTA L345 DT DIESEL
ALSO KUBOTA L345 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—597 rpm)								
29.35 *(21.89)*	2800	2.296 *(8.691)*	0.546 *(0.332)*	12.78 *(2.519)*	202 *(94.3)*	62 *(16.8)*	75 *(23.8)*	28.770 *(97.152)*
Standard Power Take-off Speed (540 rpm)—One Hour								
28.80 *(21.48)*	2532	2.256 *(8.540)*	0.547 *(0.332)*	12.76 *(2.515)*	206 *(96.7)*	63 *(17.4)*	75 *(23.9)*	28.745 *(97.068)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
25.46 *(18.99)*	2858	1.961 *(7.423)*	0.537 *(0.327)*	12.98 *(2.558)*	193 *(89.4)*	63 *(17.2)*	75 *(23.6)*	....
0.00 *(0.00)*	3023	0.710 *(2.688)*	....	....	185 *(84.7)*	64 *(17.8)*	76 *(24.2)*	....
13.13 *(9.79)*	2946	1.277 *(4.834)*	0.678 *(0.413)*	10.28 *(2.025)*	188 *(86.7)*	64 *(17.5)*	74 *(23.1)*	.....
30.20 *(22.52)*	2801	2.447 *(9.263)*	0.565 *(0.344)*	12.34 *(2.431)*	200 *(93.1)*	64 *(17.8)*	75 *(23.6)*	....
6.66 *(4.97)*	2988	0.972 *(3.679)*	1.018 *(0.619)*	6.85 *(1.351)*	188 *(86.7)*	65 *(18.1)*	76 *(24.2)*	....
19.56 *(14.59)*	2926	1.613 *(6.106)*	0.575 *(0.350)*	12.13 *(2.389)*	190 *(87.8)*	65 *(18.1)*	75 *(23.6)*	....
Av 15.84 *Av (11.81)*	**2924**	**1.497** *(5.667)*	**0.659** *(0.401)*	**10.58** *(2.084)*	**191** *(88.1)*	**64** *(17.7)*	**75** *(23.7)*	**28.713** *(96.961)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

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 (H2) Gear											
25.27 *(18.84)*	2058 *(9.15)*	4.61 *(7.41)*	2802	6.66	2.365 *(8.953)*	0.653 *(0.397)*	10.68 *(2.105)*	194 *(89.7)*	56 *(13.3)*	73 *(22.5)*	28.945 *(97.743)*
75% of Pull at Maximum Power—Ten Hours 6th (H2) Gear											
20.92 *(15.60)*	1626 *(7.23)*	4.83 *(7.77)*	2889	5.18	1.935 *(7.326)*	0.645 *(0.392)*	10.81 *(2.130)*	186 *(85.7)*	41 *(4.7)*	47 *(8.2)*	28.929 *(97.689)*
50% of Pull at Maximum Power—Two Hours 6th (H2) Gear											
14.43 *(10.76)*	1089 *(4.84)*	4.97 *(8.00)*	2928	3.67	1.577 *(5.969)*	0.762 *(0.464)*	9.15 *(1.802)*	185 *(84.7)*	46 *(7.5)*	49 *(9.4)*	29.010 *(97.962)*
50% of Pull at Reduced Engine Speed—Two Hours 7th (H3) Gear											
14.37 *(10.71)*	1084 *(4.82)*	4.97 *(8.00)*	2038	3.52	1.218 *(4.612)*	0.592 *(0.360)*	11.79 *(2.323)*	186 *(85.3)*	54 *(11.9)*	62 *(16.7)*	29.005 *(97.946)*
MAXIMUM POWER IN SELECTED GEARS											
14.76 *(11.01)*	3795 *(16.88)*	1.46 *(2.35)*	2929	15.00	3rd (L3) Gear			187 *(85.8)*	47 *(8.3)*	56 *(13.3)*	28.650 *(96.747)*
25.39 *(18.93)*	3588 *(15.96)*	2.65 *(4.27)*	2800	13.25	4th (L4) Gear			191 *(88.1)*	48 *(8.9)*	59 *(15.0)*	28.650 *(96.747)*
26.00 *(19.39)*	2829 *(12.58)*	3.45 *(5.55)*	2800	9.25	5th (H1) Gear			191 *(88.3)*	48 *(8.9)*	59 *(15.0)*	28.650 *(96.747)*
26.72 *(19.93)*	2168 *(9.65)*	4.62 *(7.44)*	2799	6.25	6th (H2) Gear			190 *(87.8)*	42 *(5.6)*	49 *(9.4)*	28.640 *(96.713)*
25.39 *(18.94)*	1409 *(6.27)*	6.76 *(10.88)*	2799	4.51	7th (H3) Gear			190 *(87.8)*	48 *(8.9)*	59 *(15.0)*	28.650 *(96.747)*

LUGGING ABILITY IN 6th (H2) GEAR

Crankshaft Speed rpm	2799	2530	2233	1956	1678	1380
Pull—lbs *(kN)*	2168 *(9.65)*	2288 *(10.18)*	2343 *(10.42)*	2390 *(10.63)*	2462 *(10.95)*	2311 *(10.28)*
Increase in Pull %	0	6	8	10	14	7
Power—Hp *(kW)*	26.72 *(19.93)*	25.38 *(18.92)*	22.88 *(17.07)*	20.42 *(15.23)*	18.00 *(13.42)*	13.97 *(10.42)*
Speed—Mph *(km/h)*	4.62 *(7.44)*	4.16 *(6.70)*	3.66 *(5.90)*	3.20 *(5.16)*	2.74 *(4.41)*	2.27 *(3.65)*
Slip %	6.25	6.75	6.97	6.97	7.18	6.75

Department of Agricultural Engineering

Dates of Test: October 7-21, 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** 2.029 gal *(7.682 l)* **Drained from motor** 1.828 gal *(6.918 l)* **Transmission and final drive lubricant** SAE 80 or tractor hydraulic fluid **Front axle lubricant** SAE 90 **Total time engine was operated** 43.5 hours

ENGINE: Make Kubota Diesel **Type** four cylinder vertical **Serial No.** V1501-DA-03568 **Crankshaft** lengthwise **Rated rpm** 2800 **Bore and stroke** 3.00″ × 3.23″ *(76 mm × 82 mm)* **Compression ratio** 21 to 1 **Displacement** 90.7 cu in *(1487 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.** L345DT-11371 **Tread width** rear 46.1″ *(1170 mm)* to 66.1″ *(1680 mm)* front 49.0″ *(1245 mm)* **Wheel base** 76.6″ *(1945 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 35.2″ *(893 mm)* Vertical distance above roadway 34.6″ *(880 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 *(1.5)* second 1.2 *(1.9)* third 1.7 *(2.7)* fourth 3.2 *(5.1)* fifth 3.9 *(6.3)* sixth 5.1 *(8.2)* seventh 7.4 *(11.8)* eighth 13.7 *(22.1)* reverse 1.6 *(2.6)*, 6.7 *(10.8)* **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 118″ *(3.00 m)* left 118″ *(3.00 m)* (on concrete surface without brake) right 150″ *(3.80 m)* left 150″ *(3.80 m)* **Turning space diameter** (on concrete surface with brake applied) right 244″ *(6.20 m)* left 244″ *(6.20 m)* (on concrete surface without brake) right 307″ *(7.80 m)* left 307″ *(7.80 m)* **Power take-off** 540 rpm at 2532 engine rpm.

REPAIRS and ADJUSTMENTS: During preliminary drawbar tests the front wheel drive linkage was found to be inoperative due to a mispositioned spring clip. After putting the clip in the correct position, the tests were continued.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	92.5	93.0
75% of Pull at Maximum Power—Ten Hours		92.0
50% of Pull at Maximum Power—Two Hours		91.5
50% of Pull at Reduced Engine Speed—Two Hours		89.0
Bystander in 8th (H4) gear		82.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp * *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption 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 (H2) Gear											
25.02 *(18.66)*	1976 *(8.79)*	4.75 *(7.64)*	2799	5.04	2.383 *(9.021)*	0.664 *(0.404)*	10.50 *(2.068)*	193 *(89.2)*	55 *(12.8)*	72 *(22.2)*	28.925 *(97.675)*
MAXIMUM POWER IN SELECTED GEARS											
17.77 *(13.25)*	4528 *(20.14)*	1.47 *(2.37)*	2910	14.83	3rd (L3) Gear			187 *(85.8)*	45 *(7.2)*	54 *(12.2)*	28.670 *(96.814)*
26.33 *(19.63)*	2078 *(9.24)*	4.75 *(7.65)*	2800	5.10	6th (H2) Gear			195 *(90.3)*	55 *(12.8)*	72 *(22.2)*	28.930 *(97.692)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 6; 16 *(110)*	Two 13.6-28; 6; 16 *(110)*
Ballast	—Liquid (each)	350 lb *(159 kg)*	None
	—Cast Iron (each)	470 lb *(213 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-16; 6; 26 *(180)*	Two 9.5-16; 6; 26 *(180)*
Ballast	—Liquid (each)	100 lb *(45 kg)*	None
	—Cast Iron (each)	80 lb *(36 kg)*	None
Height of Drawbar		17 in *(430 mm)*	17 in *(430 mm)*
Static Weight with Operator—Rear		3635 lb *(1649 kg)*	1995 lb *(905 kg)*
—Front		1800 lb *(816 kg)*	1440 lb *(653 kg)*
—Total		5435 lb *(2465 kg)*	3435 lb *(1558 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 134°F *(56.9°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 **1372.**

LOUIS I. LEVITICUS
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Kubota L345 DT Diesel

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