11-13-1985

Test 1586: Kubota L2550 2WD and 4WD Diesel 8-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1586—KUBOTA L2550 4WD DIESEL
ALSO KUBOTA L2550 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 — 610 rpm)								
23.98 *(17.88)*	2600	1.470 *(5.564)*	0.430 *(0.261)*	16.32 *(3.214)*	196 *(91.3)*	58 *(14.3)*	75 *(23.9)*	28.75 *(97.10)*
Standard Power Take-off Speed (541 rpm) — One Hour								
24.24 *(18.07)*	2304	1.467 *(5.553)*	0.425 *(0.258)*	16.52 *(3.254)*	210 *(98.7)*	55 *(13.0)*	76 *(24.3)*	28.77 *(97.14)*
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
21.26 *(15.85)*	2708	1.343 *(5.084)*	0.443 *(0.270)*	15.83 *(3.118)*	189 *(86.9)*	55 *(12.5)*	75 *(23.9)*	....
0.00 *(0.00)*	2847	0.466 *(1.765)*	....	....	179 *(81.7)*	54 *(12.2)*	74 *(23.3)*	....
10.88 *(8.12)*	2779	0.851 *(3.222)*	0.548 *(0.334)*	12.79 *(2.519)*	181 *(82.8)*	55 *(12.5)*	74 *(23.3)*	....
24.21 *(18.06)*	2600	1.463 *(5.537)*	0.424 *(0.258)*	16.55 *(3.261)*	195 *(90.6)*	55 *(12.8)*	76 *(24.4)*	....
5.54 *(4.13)*	2822	0.642 *(2.429)*	0.813 *(0.494)*	8.63 *(1.700)*	180 *(81.9)*	56 *(13.1)*	75 *(23.9)*	....
16.17 *(12.06)*	2752	1.074 *(4.064)*	0.466 *(0.283)*	15.06 *(2.967)*	183 *(83.9)*	55 *(12.8)*	75 *(23.9)*	....
Av 13.01	**2751**	**0.973**	**0.525**	**13.37**	**184**	**55**	**75**	**28.76**
Av (9.70)		***(3.683)***	***(0.319)***	***(2.634)***	***(84.6)***	***(12.6)***	***(23.8)***	***(97.13)***

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 (H-2) Gear											
19.76 *(14.74)*	1421 *(6.32)*	5.22 *(8.40)*	2600	8.00	1.490 *(5.640)*	0.529 *(0.322)*	13.27 *(2.613)*	191 *(88.3)*	47 *(8.3)*	58 *(14.2)*	29.10 *(98.25)*
75% of Pull at Maximum Power — Ten Hours 6th (H-2) Gear											
16.12 *(12.02)*	1089 *(4.84)*	5.55 *(8.93)*	2745	7.27	1.302 *(4.927)*	0.566 *(0.344)*	12.39 *(2.440)*	185 *(84.9)*	38 *(3.5)*	39 *(3.9)*	29.00 *(97.92)*
50% of Pull at Maximum Power — Two Hours 6th (H-2) Gear											
11.11 *(8.28)*	726 *(3.23)*	5.74 *(9.23)*	2773	5.19	1.053 *(3.986)*	0.665 *(0.404)*	10.55 *(2.078)*	184 *(84.2)*	35 *(1.4)*	36 *(1.9)*	29.00 *(97.93)*
50% of Pull at Reduced Engine Speed — Two Hours 7th (H-3) Gear											
11.11 *(8.29)*	727 *(3.23)*	5.73 *(9.22)*	1766	5.35	0.890 *(3.370)*	0.562 *(0.342)*	12.48 *(2.458)*	184 *(84.4)*	35 *(1.7)*	36 *(2.2)*	29.01 *(97.95)*
MAXIMUM POWER IN SELECTED GEARS											
15.29 *(11.40)*	2446 *(10.88)*	2.34 *(3.77)*	2751	14.78	4th (L-4) Gear			184 *(84.4)*	41 *(5.0)*	45 *(7.2)*	28.84 *(97.39)*
19.81 *(14.77)*	2080 *(9.25)*	3.57 *(5.75)*	2600	12.30	5th (H-1) Gear			188 *(86.4)*	42 *(5.6)*	50 *(10.0)*	29.14 *(98.40)*
20.23 *(15.08)*	1452 *(6.46)*	5.22 *(8.41)*	2602	7.89	6th (H-2) Gear			189 *(87.2)*	45 *(7.2)*	54 *(12.2)*	29.12 *(98.33)*
18.64 *(13.90)*	825 *(3.67)*	8.48 *(13.64)*	2600	4.84	7th (H-3) Gear			191 *(88.1)*	43 *(6.1)*	51 *(10.6)*	29.13 *(98.37)*

LUGGING ABILITY IN 6th (H-2) GEAR

Crankshaft Speed rpm	2602	2342	2084	1813	1564	1299
Pull—lbs *(kN)*	1452 *(6.46)*	1664 *(7.40)*	1839 *(8.18)*	1893 *(8.42)*	1904 *(8.47)*	1854 *(8.25)*
Increase in Pull %	0	15	27	30	31	28
Power—Hp *(kW)*	20.23 *(15.08)*	20.56 *(15.33)*	19.92 *(14.85)*	17.75 *(13.24)*	15.40 *(11.48)*	12.50 *(9.32)*
Speed—Mph *(km/h)*	5.22 *(8.41)*	4.63 *(7.46)*	4.06 *(6.54)*	3.52 *(5.66)*	3.03 *(4.88)*	2.53 *(4.07)*
Slip %	7.89	9.41	10.59	11.00	11.16	10.75

Department of Agricultural Engineering

Dates of Test: October 28 to November 13, 1985

Manufacturer: KUBOTA, LTD., 2-47 Shikitsu-higashi, 1-chome, Naniwaku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F *(15/15°C)*** 0.8424 **Fuel weight** 7.014 lbs/gal *(0.841 kg/l)* **Oil SAE** 20W **API service classification** CC-CD-SE **To motor** 1.152 gal *(4.360 l)* **Drained from motor** 1.107 gal *(4.189 l)* **Transmission and final drive lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80-90 gear oil **Total time engine was operated** 46.5 hours.

ENGINE: Make Kubota Diesel **Type** three cylinder vertical **Serial No.** D1402-DI-A-11759 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.35″ × 3.23″ *(85 mm × 82 mm)* **Compression ratio** 18 to 1 **Displacement** 85.1 cu in *(1395 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.** L2550D-51311 **Tread width** rear 40.6″ *(1030 mm)* to 55.1″ *(1400 mm)* front 44.1″ *(1120 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 29.7″ *(755 mm)* Vertical distance above roadway 29.0″ *(737 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 1.3 *(2.0)* third 2.0 *(3.2)* fourth 2.8 *(4.5)* fifth 4.4 *(7.0)* sixth 6.1 *(9.8)* seventh 9.5 *(15.4)* eighth 13.5 *(21.7)* reverse 0.8 *(1.3)*, 1.1 *(1.8)*, 1.8 *(2.9)*, 2.5 *(4.0)*, 3.9 *(6.3)*, 5.5 *(8.8)*, 8.6 *(13.8)* **Clutch** dual dry disc in combination with PTO operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 90″ *(2.3 m)* left 90″ *(2.3 m)*(on concrete surface without brake) right 98″ *(2.5 m)* left 98″ *(2.5 m)* **Turning space diameter** (on concrete surface with brake applied) right 189″ *(4.8 m)* left 189″ *(4.8 m)*(on concrete surface without brake) right 205″ *(5.2 m)* left 205″ *(5.2 m)* **Power take-off** 541 rpm at 2304 engine rpm **Unladen tractor mass** 2575 lb *(1168 kg)*.

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Engaged dB(A)	Disengaged
Maximum Available Power—Two Hours	91.0	91.0
75% of Pull at Maximum Power—Ten Hours		91.0
50% of Pull at Maximum Power—Two Hours		89.5
50% of Pull at Reduced Engine Speed—Two Hours		86.5
Bystander in 8th (H-4) gear		83.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption 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 (H-2) Gear											
19.96 *(14.88)*	1381 *(6.14)*	5.42 *(8.72)*	2600	5.04	1.483 *(5.613)*	0.521 *(0.317)*	13.46 *(2.651)*	192 *(88.9)*	49 *(9.4)*	60 *(15.6)*	29.05 *(98.10)*
MAXIMUM POWER IN SELECTED GEARS											
14.61 *(10.89)*	3278 *(14.58)*	1.67 *(2.69)*	2754	14.78	3rd (L-3) Gear			184 *(84.4)*	44 *(6.7)*	51 *(10.6)*	28.82 *(97.32)*
20.31 *(15.14)*	2014 *(8.96)*	3.78 *(6.09)*	2601	7.83	5th (H-1) Gear			187 *(86.1)*	41 *(5.0)*	49 *(9.4)*	29.15 *(98.44)*
20.19 *(15.05)*	1396 *(6.21)*	5.42 *(8.73)*	2601	5.09	6th (H-2) Gear			193 *(89.2)*	49 *(9.4)*	60 *(15.6)*	29.05 *(98.10)*

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)*
Ballast	—Liquid (each)	192 lb *(87 kg)*	None
	—Cast Iron (each)	210 lb *(95 kg)*	None
Front Tires	—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)	148 lb *(67 kg)*	None
Height of Drawbar		13 in *(330 mm)*	13 in *(330 mm)*
Static Weight with Operator	—Rear	2360 lb *(1070 kg)*	1555 lb *(705 kg)*
	—Front	1490 lb *(676 kg)*	1195 lb *(542 kg)*
	—Total	3850 lb *(1746 kg)*	2750 lb *(1247 kg)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2250 *(15510)*	
Location	lift cylinder	
Hydraulic oil temperature °F *(°C)*	169 *(76)*	
Location	hydraulic filter	

	Maximum Lift Capacity		Lift Capacity for Transport
QUICK ATTACH	no		
CATEGORY	I		*not measured
LOAD lbs *(kg)*	1956	*(887)*	
TIME sec	2.66		
HITCH POINT MOVEMENT in *(mm)*			
Lowest position	12.1	*(307)*	
Top of timed range	32.1	*(815)*	
Highest position	** 32.4	*(822)*	
LOAD CG MOVEMENT in *(mm)*			
Lowest position	11.3	*(287)*	
Top of timed range	38.0	*(965)*	
Highest position	38.5	*(978)*	

*Implement load capacity for transport purposes not specified by manufacturer.
** The observed power range, 20.3 in.*(515 mm)* is less than the minimum power range for Cat I, 22 in. *(559 mm)* specified by ASAE Standard S217.10

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 and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 116°F *(46.7°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 No. **1586,** December 4, 1985.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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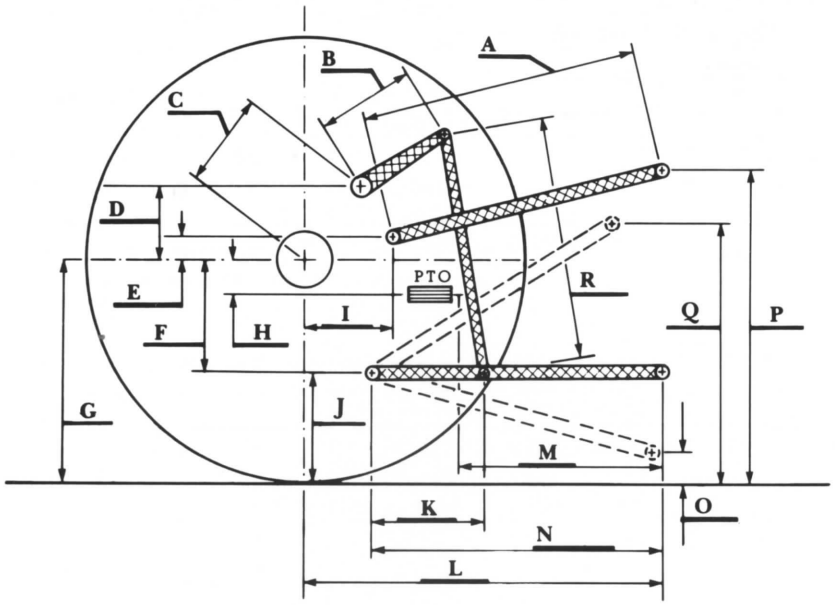
Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	*mm*
A	24.8	*629*
B	9.1	*230*
C	12.0	*305*
D	12.0	*305*
E	9.9	*251*
F	3.4	*85*
G	19.3	*488*
H	−0.6	*−16*
I	4.7	*120*
J	15.9	*403*
K	11.2	*285*
L	29.2	*742*
M	22.4	*569*
N	24.8	*630*
O	6.4	*162*
P	33.9	*860*
Q	29.5	*749*
R	17.0	*432*

Kubota L2550 4WD Diesel

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