5-22-1986

Test 1595: Kubota M5030DT and M5030 Diesel 16-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1595—KUBOTA M5030DT DIESEL
ALSO KUBOTA M5030 DIESEL
16 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 — 640 rpm)								
49.77 (37.12)	2600	3.029 (11.466)	0.427 (0.260)	16.43 (3.237)	185 (84.9)	70 (21.1)	75 (23.8)	28.77 (97.16)
Standard Power Take-off Speed (540 rpm) — One Hour								
48.94 (36.49)	2195	2.832 (10.721)	0.406 (0.247)	17.28 (3.404)	189 (87.0)	68 (19.7)	76 (24.2)	28.72 (96.97)
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
42.80 (31.92)	2629	2.657 (10.057)	0.435 (0.265)	16.11 (3.173)	184 (84.4)	67 (19.4)	75 (23.9)	....
0.00 (0.00)	2733	0.881 (3.336)	....	....	164 (73.3)	68 (19.7)	75 (23.9)	....
21.66 (16.15)	2663	1.651 (6.251)	0.535 (0.325)	13.12 (2.584)	169 (75.8)	68 (20.0)	76 (24.2)	....
49.75 (37.10)	2601	3.008 (11.385)	0.424 (0.258)	16.54 (3.258)	186 (85.3)	67 (19.4)	75 (23.6)	....
10.97 (8.18)	2696	1.275 (4.826)	0.815 (0.496)	8.60 (1.695)	165 (73.6)	68 (19.7)	75 (23.6)	....
32.35 (24.13)	2651	2.131 (8.065)	0.462 (0.281)	15.18 (2.991)	183 (83.6)	68 (20.0)	75 (23.9)	....
Av 26.26	**2662**	**1.934**	**0.516**	**13.58**	**175**	**68**	**75**	**28.78**
Av (19.58)		***(7.320)***	***(0.314)***	***(2.675)***	***(79.4)***	***(19.7)***	***(23.8)***	***(97.19)***

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 13th (H-H-1) Gear											
41.10 (30.65)	3160 (14.06)	4.88 (7.85)	2600	10.42	2.995 (11.337)	0.511 (0.311)	13.72 (2.703)	185 (85.0)	56 (13.3)	67 (19.4)	29.03 (98.03)
75% of Pull at Maximum Power — Ten Hours 13th (H-H-1) Gear											
33.09 (24.68)	2410 (10.72)	5.15 (8.29)	2643	7.01	2.480 (9.388)	0.525 (0.320)	13.34 (2.629)	185 (85.0)	59 (14.8)	71 (21.4)	28.87 (97.47)
50% of Pull at Maximum Power — Two Hours 13th (H-H-1) Gear											
22.71 (16.94)	1607 (7.15)	5.30 (8.53)	2664	4.99	1.947 (7.369)	0.601 (0.366)	11.67 (2.299)	179 (81.4)	58 (14.4)	73 (22.8)	28.95 (97.76)
50% of Pull at Reduced Engine Speed — Two Hours 14th (H-H-2) Gear											
22.70 (16.92)	1606 (7.14)	5.30 (8.53)	2148	4.84	1.711 (6.478)	0.529 (0.322)	13.26 (2.612)	180 (82.2)	58 (14.2)	71 (21.4)	28.92 (97.64)
MAXIMUM POWER IN SELECTED GEARS											
32.07 (23.91)	4592 (20.42)	2.62 (4.21)	2639	14.99	11th (H-L-3) Gear			182 (83.1)	55 (12.8)	62 (16.7)	28.73 (97.02)
39.92 (29.77)	4165 (18.53)	3.59 (5.78)	2598	13.25	12th (H-L-4) Gear			185 (84.7)	55 (12.8)	64 (17.8)	28.73 (97.02)
42.00 (31.32)	3213 (14.29)	4.90 (7.89)	2601	10.05	13th (H-H-1) Gear			184 (84.4)	56 (13.3)	66 (18.9)	29.03 (98.03)
41.88 (31.23)	2525 (11.23)	6.22 (10.01)	2599	7.58	14th (H-H-2) Gear			184 (84.4)	55 (12.8)	63 (17.2)	29.03 (98.03)

LUGGING ABILITY IN 13th (H-H-1) GEAR

Crankshaft Speed rpm	2601	2347	2079	1823	1559	1290
Pull—lbs (kN)	3213 (14.29)	3594 (15.99)	3880 (17.26)	4075 (18.13)	4145 (18.44)	4045 (17.99)
Increase in Pull %	0	12	21	27	29	26
Power—Hp (kW)	42.00 (31.32)	41.61 (31.03)	39.19 (29.22)	35.55 (26.51)	30.73 (22.92)	24.95 (18.61)
Speed—Mph (km/h)	4.90 (7.89)	4.34 (6.99)	3.79 (6.10)	3.27 (5.26)	2.78 (4.47)	2.31 (3.72)
Slip %	10.05	11.74	13.05	14.42	14.80	14.42

Department of Agricultural Engineering

Dates of Test: May 12 to 22, 1986

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)*** 0.8422 **Fuel weight** 7.012 lbs/gal *(0.840 kg/l)* **Oil SAE** 10W-30 **API service classification** SF-SE-CC **To motor** 2.960 gal *(11.203 l)* **Drained from motor** 2.733 gal *(10.347 l)* **Transmission and final drive lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80/90 gear oil **Total time engine was operated** 39.0 hours.

ENGINE: Make Kubota Diesel **Type** six cylinder vertical **Serial No.** S2802-DI-A-40393 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.35″ × 3.23″ *(85 mm × 82 mm)* **Compression ratio** 19 to 1 **Displacement** 170.3 cu in *(2791 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat.

CHASSIS: Type front wheel assist **Serial No.** M5030DT-50036 **Tread width** rear 59.9″ *(1521 mm)* to 75.6″ *(1920 mm)* front 52.4″ *(1330 mm)* to 59.8″ *(1520 mm)* **Wheel base** 79.1″ *(2010 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 32.4″ *(822 mm)* Vertical distance above roadway 33.2″ *(844 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 0.3 *(0.4)* second 0.3 *(0.5)* third 0.5 *(0.9)* fourth 0.7 *(1.2)* fifth 1.0 *(1.5)* sixth 1.2 *(1.9)* seventh 1.5 *(2.4)* eighth 1.9 *(3.0)* ninth 2.0 *(3.2)* tenth 2.7 *(4.4)* eleventh 3.1 *(5.0)* twelfth 4.3 *(6.9)* thirteenth 5.6 *(9.0)* fourteenth 6.9 *(11.2)* fifteenth 11.7 *(18.8)* sixteenth 17.5 *(28.1)* reverse 0.3 *(0.6)*, 1.3 *(2.1)*, 2.0 *(3.2)*, 7.5 *(12.0)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 126″ *(3.2 m)* left 126″ *(3.2 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 268″ *(6.8 m)* left 268″ *(6.8 m)*(on concrete surface without brake) right 311″ *(7.9 m)* left 311″ *(7.9 m)* **Power take-off** 540 rpm at 2195 engine rpm **Unladen tractor mass** 4960 lb *(2250 kg)*.

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	95.0	94.0
75% of Pull at Maximum Power—Ten Hours		93.5
50% of Pull at Maximum Power—Two Hours		93.5
50% of Pull at Reduced Engine Speed—Two Hours		93.0
Bystander in 16th (H-H-4) gear		86.5

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 13th (H-H-1) Gear											
41.27 *(30.78)*	2976 *(13.24)*	5.20 *(8.37)*	2600	6.75	2.988 *(11.310)*	0.508 *(0.309)*	13.81 *(2.721)*	186 *(85.6)*	58 *(14.4)*	71 *(21.7)*	29.00 *(97.93)*
MAXIMUM POWER IN SELECTED GEARS											
37.39 *(27.88)*	6004 *(26.71)*	2.34 *(3.76)*	2616	14.97	10th (L-H-4) Gear			184 *(84.4)*	56 *(13.3)*	66 *(18.9)*	28.72 *(96.98)*
40.74 *(30.38)*	3933 *(17.49)*	3.88 *(6.25)*	2601	8.56	12th (H-L-4) Gear			185 *(85.0)*	56 *(13.3)*	65 *(18.3)*	28.72 *(96.98)*
42.08 *(31.38)*	3030 *(13.48)*	5.21 *(8.38)*	2599	6.61	13th (H-H-1) Gear			184 *(84.4)*	55 *(12.8)*	64 *(17.8)*	29.03 *(98.03)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 14.9-28; 6; 20 *(140)*	Two 14.9-28; 6; 20 *(140)*
Ballast	—Liquid (each)	405 lb *(184 kg)*	None
	—Cast Iron (each)	508 lb *(230 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-22; 6; 29 *(200)*	Two 9.5-22; 6; 29 *(200)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	580 lb *(263 kg)*	None
Height of Drawbar		15 in *(380 mm)*	15 in *(380 mm)*
Static Weight with Operator	—Rear	4910 lb *(2227 kg)*	3085 lb *(1399 kg)*
	—Front	3210 lb *(1456 kg)*	2050 lb *(930 kg)*
	—Total	8120 lb *(3683 kg)*	5135 lb *(2329 kg)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2625 *(18100)*	
Location	remote outlet	
Hydraulic oil temperature °F *(°C)*	187 *(86)*	
Location	pump inlet	
	Maximum Lift Capacity	**Lift Capacity for Transport**
QUICK ATTACH	no	
CATEGORY	1	*not measured
LOAD lbs *(kg)*	3318 *(1505)*	
TIME sec	1.27	
HITCH POINT MOVEMENT in *(mm)*		
Lowest position	8.0 *(203)*	
Top of timed range	30.0 *(762)*	
Highest position	33.6 *(853)*	
LOAD CG MOVEMENT in *(mm)*		
Lowest position	10.6 *(269)*	
Top of timed range	30.8 *(782)*	
Highest position	34.8 *(884)*	

*Implement load capacity for transport purposes not specified by manufacturer.

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 was maintained at 121°F *(49.2°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. **1595,** July 8, 1986.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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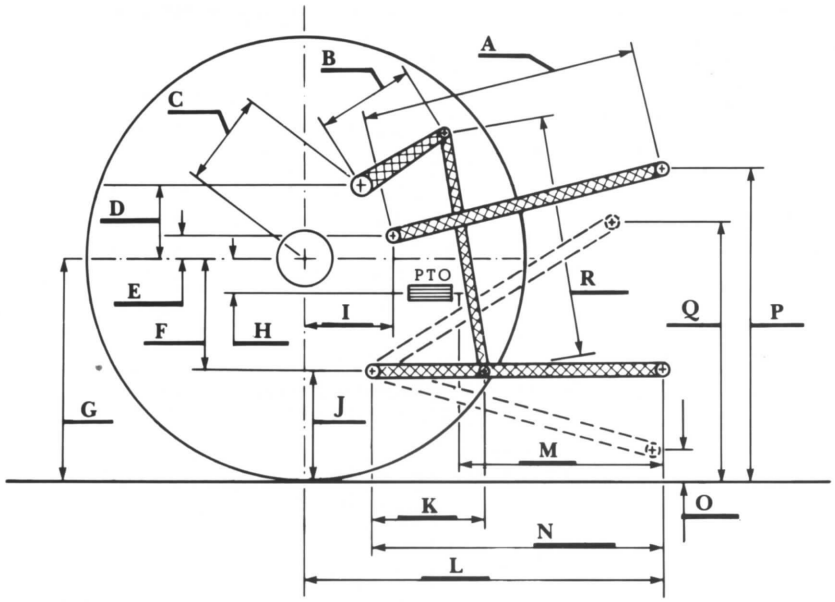
Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	*mm*
A	25.6	*651*
B	9.0	*230*
C	12.2	*311*
D	11.9	*303*
E	12.6	*321*
F	6.9	*176*
G	24.7	*627*
H	0.8	*21*
I	12.3	*313*
J	17.8	*451*
K	16.4	*416*
L	37.9	*962*
M	22.2	*564*
N	33.3	*845*
O	8.0	*203*
P	35.8	*908*
Q	34.8	*883*
R	21.4	*543*

Kubota M5030DT Diesel

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