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Test 1369: Kubota M5500 DT and M5500 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1369 — KUBOTA M5500 DT DIESEL

ALSO KUBOTA M5500 DIESEL

16 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—643 rpm)								
53.99 (40.26)	2400	3.516 (13.310)	0.454 (0.276)	15.35 (3.025)	200 (93.3)	58 (14.6)	75 (23.8)	28.803 (97.265)
Standard Power Take-off Speed (540 rpm)—One Hour								
49.18 (36.67)	2015	3.032 (11.477)	0.430 (0.262)	16.22 (3.195)	201 (93.7)	58 (14.3)	75 (23.9)	28.830 (97.355)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
47.57 (35.47)	2488	3.126 (11.833)	0.459 (0.279)	15.21 (2.998)	190 (87.5)	58 (14.4)	76 (24.4)	..... .....
0.00 (0.00)	2578	1.333 (5.046)	..... .....	..... .....	180 (81.9)	58 (14.4)	75 (23.6)	..... .....
24.36 (18.17)	2548	1.983 (7.506)	0.568 (0.345)	12.29 (2.421)	186 (85.3)	59 (14.7)	75 (23.9)	.....
54.72 (40.80)	2400	3.544 (13.416)	0.452 (0.275)	15.44 (3.041)	195 (90.3)	59 (14.7)	75 (23.9)	..... .....
12.26 (9.14)	2566	1.595 (6.038)	0.908 (0.552)	7.68 (1.514)	180 (81.9)	59 (15.0)	76 (24.4)	..... .....
36.19 (26.99)	2524	2.494 (9.441)	0.481 (0.293)	14.51 (2.859)	187 (85.8)	59 (15.0)	77 (25.0)	..... .....
Av Av	29.18 (21.76)	2.346 (8.881)	0.561 (0.341)	12.44 (2.450)	186 (85.4)	59 (14.7)	76 (24.2)	28.845 (97.405)

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 13th (HH1) Gear											
45.12 (33.65)	3068 (13.65)	5.52 (8.88)	2400	6.18	3.458 (13.091)	0.535 (0.325)	13.05 (2.570)	196 (90.8)	60 (15.3)	83 (28.1)	28.810 (97.287)
75% of Pull at Maximum Power—Ten Hours 13th (HH1) Gear											
37.66 (28.08)	2401 (10.68)	5.88 (9.47)	2511	4.31	2.949 (11.165)	0.546 (0.332)	12.77 (2.515)	184 (84.7)	48 (8.6)	64 (17.8)	29.040 (98.064)
50% of Pull at Maximum Power—Two Hours 13th (HH1) Gear											
25.75 (19.20)	1602 (7.12)	6.03 (9.70)	2540	3.01	2.329 (8.818)	0.631 (0.384)	11.05 (2.177)	179 (81.7)	47 (8.1)	59 (15.0)	29.155 (98.452)
50% of Pull at Reduced Engine Speed—Two Hours 14th (HH2) Gear											
25.82 (19.25)	1601 (7.12)	6.05 (9.73)	2090	2.91	2.007 (7.597)	0.542 (0.330)	12.87 (2.534)	179 (81.4)	48 (8.6)	63 (16.9)	29.110 (98.300)
MAXIMUM POWER IN SELECTED GEARS											
41.45 (30.91)	6287 (27.97)	2.47 (3.98)	2469	14.92	10th (LH4) Gear			182 (83.3)	41 (5.0)	49 (9.4)	29.140 (98.401)
44.08 (32.87)	5883 (26.17)	2.81 (4.52)	2400	12.76	11th (HL3) Gear			185 (85.0)	45 (7.2)	56 (13.3)	29.160 (98.469)
45.50 (33.93)	4242 (18.87)	4.02 (6.47)	2402	8.55	12th (HL4) Gear			189 (87.2)	58 (14.4)	76 (24.4)	28.840 (97.388)
46.96 (35.02)	3197 (14.22)	5.51 (8.87)	2400	6.29	13th (HH1) Gear			186 (85.6)	53 (11.7)	65 (18.3)	28.860 (97.456)
46.38 (34.58)	2559 (11.38)	6.80 (10.94)	2401	4.97	14th (HH2) Gear			191 (88.1)	58 (14.4)	78 (25.6)	28.840 (97.388)
LUGGING ABILITY IN 13th (HH1) GEAR											
Crankshaft Speed rpm			2400	2159	1911	1679	1442	1189	953		
Pull—lbs (kN)			3197 (14.22)	3387 (15.07)	3511 (15.62)	3623 (16.12)	3782 (16.82)	3865 (17.19)	3784 (16.83)		
Increase in Pull %			0	6	10	13	18	21	18		
Power—Hp (kW)			46.96 (35.02)	44.58 (33.24)	40.76 (30.39)	36.81 (27.45)	32.84 (24.49)	27.63 (20.61)	21.72 (16.20)		
Speed—Mph (km/h)			5.51 (8.87)	4.94 (7.94)	4.35 (7.01)	3.81 (6.13)	3.26 (5.24)	2.68 (4.31)	2.15 (3.46)		
Slip %			6.29	6.59	7.06	7.29	7.64	7.87	7.75		

Department of Agricultural Engineering

Dates of Test: October 4-16, 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** 2.262 gal (8.564 l) **Drained from motor** 2.124 gal (8.041 l) **Transmission and final drive lubricant** SAE 80 or tractor hydraulic fluid **Front axle lubricant** SAE 80/90 **Total time engine was operated** 40.0 hours

ENGINE: Make Kubota Diesel **Type** three cylinder vertical **Serial No.** D3000-A-5549 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.134" × 4.528" (105 mm × 115 mm) **Compression ratio** 17.0 to 1 **Displacement** 182 cu in (2987 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: **Type** front wheel assist **Serial No.** M5500DT-10503 **Tread width** rear 51.2" (1300 mm) to 74.8" (1900 mm) front 57.1" (1450 mm) **Wheel base** 80.9" (2055 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 36.5" (928 mm) Vertical distance above roadway 36.4" (925 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 0.6 (0.9) fourth 0.8 (1.2) fifth 1.0 (1.6) sixth 1.2 (2.0) seventh 1.7 (2.7) eighth 2.0 (3.3) ninth 2.1 (3.4) tenth 2.7 (4.4) eleventh 3.4 (5.5) twelfth 4.7 (7.5) thirteenth 6.2 (10.0) fourteenth 7.6 (12.2) fifteenth 12.8 (20.5) sixteenth 17.4 (28.0) reverse 0.4 (0.6), 1.4 (2.3), 2.2 (3.5), 8.2 (13.2) **Clutch** dry single disc operated by foot pedal **Brakes** wet multiple disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 135.8" (3.45 m) left 135.8" (3.45 m) (on concrete surface without brake) right 161.4" (4.10 m) left 161.4" (4.10 m) **Turning space diameter** (on concrete surface with brake applied) right 271.7" (6.90 m) left 272.4" (6.92 m) (on concrete surface without brake) right 322.8" (8.20 m) left 322.8" (8.20 m) **Power take-off** 540 rpm at 2015 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.5	94.0
75% of Pull at Maximum Power—Ten Hours		94.0
50% of Pull at Maximum Power—Two Hours		93.0
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 16th (HH4) gear		83.5

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 13th (HH1) Gear											
44.06 (32.86)	2885 (12.84)	5.73 (9.22)	2400	4.51	3.422 (12.955)	0.542 (0.330)	12.87 (2.536)	199 (92.5)	61 (16.1)	87 (30.3)	28.785 (97.203)

MAXIMUM POWER IN SELECTED GEARS

35.76 (26.66)	7751 (34.48)	1.73 (2.78)	2501	14.96	8th (HL2) Gear			179 (81.4)	38 (3.3)	46 (7.8)	29.130 (98.368)
45.81 (34.16)	3007 (13.38)	5.71 (9.19)	2399	4.60	13th (HH1) Gear			188 (86.4)	55 (12.8)	71 (21.7)	28.850 (97.422)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-28; 6; 18 (125)	Two 16.9-28; 6; 18 (125)
	—Liquid (each)	700 lb (318 kg)	None
	—Cast Iron (each)	470 lb (213 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 6; 20 (140)	Two 9.5-24; 6; 20 (140)
	—Liquid (each)	180 lb (81 kg)	None
	—Cast Iron (each)	255 lb (116 kg)	None
Height of Drawbar		19.5 in (495 mm)	19.5 in (495 mm)
Static Weight with Operator—Rear		5550 lb (2518 kg)	3210 lb (1456 kg)
—Front		3160 lb (1433 kg)	2290 lb (1039 kg)
—Total		8710 lb (3951 kg)	5500 lb (2495 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 157°F (69.3°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h). This tractor did not meet manufacturer's claim of 55.3 HP (41.25 kW) PTO power.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1369.

LOUIS I. LEVITICUS
Engineer-in-Charge

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



Kubota M5500 DT Diesel