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Test 1597: Kubota M7030DT and M7030 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1597—KUBOTA M7030DT DIESEL ALSO KUBOTA M7030 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 — 637 rpm)									
68.87 (51.35)	2400	4.169 (15.780)	0.425 (0.258)	16.52 (3.254)	190 (87.7)	67 (19.3)	75 (23.8)	29.02 (98.00)	
* Standard Power Take-off Speed (540 rpm) — One Hour									
64.38 (48.01)	2036	3.693 (13.980)	0.402 (0.245)	17.43 (3.434)	189 (87.4)	67 (19.5)	75 (23.9)	29.01 (97.95)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
59.55 (44.41)	2442	3.610 (13.667)	0.425 (0.259)	16.49 (3.249)	183 (83.9)	68 (19.7)	76 (24.2)	..... .....
0.00 (0.00)	2539	1.266 (4.793)	..... .....	..... .....	174 (78.6)	68 (19.7)	75 (23.6)	..... .....
30.38 (22.65)	2494	2.301 (8.712)	0.531 (0.323)	13.20 (2.600)	179 (81.7)	68 (19.7)	75 (23.6)	..... .....
68.83 (51.33)	2400	4.141 (15.675)	0.422 (0.257)	16.62 (3.275)	189 (87.2)	68 (20.0)	76 (24.2)	..... .....
15.36 (11.46)	2518	1.801 (6.817)	0.822 (0.500)	8.53 (1.680)	175 (79.2)	68 (20.0)	75 (23.9)	..... .....
45.12 (33.65)	2469	2.905 (10.995)	0.451 (0.275)	15.53 (3.060)	182 (83.1)	68 (19.7)	74 (23.3)	..... .....
Av Au	36.54 (27.25)	2477 (10.110)	2.671 (0.312)	0.513 (2.695)	13.68 (2.695)	180 (82.3)	68 (19.8)	75 (23.8)	28.98 (97.85)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel gal/hr (l/h)	Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power — Two Hours 13th (H-H-1) Gear											
56.52 (42.15)	4036 (17.95)	5.25 (8.45)	2400	8.83	4.028 (15.249)	0.500 (0.304)	14.03 (2.764)	186 (85.3)	65 (18.3)	74 (23.1)	28.96 (97.78)
75% of Pull at Maximum Power — Ten Hours 13th (H-H-1) Gear											
45.96 (34.27)	3143 (13.98)	5.48 (8.83)	2446	6.58	3.330 (12.604)	0.508 (0.309)	13.80 (2.719)	184 (84.2)	64 (17.7)	69 (20.4)	28.99 (97.88)
50% of Pull at Maximum Power — Two Hours 13th (H-H-1) Gear											
31.66 (23.61)	2095 (9.32)	5.67 (9.12)	2485	4.97	2.645 (10.013)	0.586 (0.356)	11.97 (2.358)	180 (82.2)	63 (17.2)	66 (18.9)	28.88 (97.51)
50% of Pull at Reduced Engine Speed — Two Hours 14th (H-H-2) Gear											
31.62 (23.58)	2093 (9.31)	5.67 (9.12)	1992	4.36	2.239 (8.474)	0.496 (0.302)	14.13 (2.783)	182 (83.3)	66 (18.9)	81 (26.9)	28.91 (97.61)
MAXIMUM POWER IN SELECTED GEARS											
43.69 (32.58)	5896 (26.23)	2.78 (4.47)	2443	14.81	11th (H-L-3) Gear			181 (82.8)	60 (15.6)	62 (16.7)	28.95 (97.76)
53.52 (39.91)	5229 (23.26)	3.84 (6.18)	2400	12.25	12th (H-L-4) Gear			183 (83.9)	62 (16.7)	64 (17.8)	28.95 (97.76)
58.49 (43.62)	4190 (18.64)	5.23 (8.42)	2400	9.01	13th (H-H-1) Gear			186 (85.3)	61 (16.1)	70 (21.1)	28.88 (97.52)
58.31 (43.48)	3305 (14.70)	6.62 (10.65)	2399	7.14	14th (H-H-2) Gear			185 (85.0)	61 (16.1)	71 (21.7)	28.89 (97.56)
LUGGING ABILITY IN 13th (H-H-1) GEAR											
Crankshaft Speed rpm				2400	2164	1917	1686	1437	1197		
Pull—lbs (kN)				4190 (18.64)	4485 (19.95)	4653 (20.70)	4824 (21.46)	4906 (21.82)	4839 (21.52)		
Increase in Pull %				0	7	11	15	17	15		
Power—Hp (kW)				58.49 (43.62)	55.85 (41.65)	50.96 (38.00)	46.11 (34.39)	39.73 (29.63)	32.71 (24.39)		
Speed—Mph (km/h)				5.23 (8.42)	4.67 (7.52)	4.11 (6.61)	3.58 (5.77)	3.04 (4.89)	2.53 (4.08)		
Slip %				9.01	10.12	10.69	11.48	11.92	11.81		

Department of Agricultural Engineering

Dates of Test: May 14 to June 2, 1986

Manufacturer: KUBOTA LTD., 2-47 Shikitsuhigashi, 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) 0.8423 Fuel weight 7.013 lbs/gal (0.840 kg/l) Oil SAE 10W-30 API service classification SF-SE-CC To motor 2.482 gal (9.394 l) Drained from motor 2.294 gal (8.684 l) Transmission and final drive lubricant Shell Donax TD or equivalent Front axle lubricant SAE 80/90 gear oil Total time engine was operated 39.5 hours.

ENGINE: Make Kubota Diesel Type four cylinder vertical Serial No. V4000-3A-40442 Crankshaft lengthwise Rated rpm 2400 Bore and stroke 4.13" × 4.53" (105 mm × 115 mm) Compression ratio 17 to 1 Displacement 243 cu in (3983 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow paper cartridge Fuel filter one paper element and water separator Muffler vertical Cooling medium temperature control one thermostat.

CHASSIS: Type front wheel assist Serial No. M7030DT-50040 Tread width rear 63.4" (1610 mm) to 75.2" (1910 mm) front 57.9" (1470 mm) to 61.8" (1570 mm) Wheel base 89.0" (2260 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" (926 mm) Vertical distance above roadway 37.8" (959 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 1.3 (2.0) seventh 1.6 (2.5) eighth 1.9 (3.1) ninth 2.1 (3.4) tenth 2.9 (4.6) eleventh 3.3 (5.3) twelfth 4.5 (7.2) thirteenth 5.9 (9.5) fourteenth 7.3 (11.7) fifteenth 12.3 (19.7) sixteenth 18.0 (29.0) reverse 0.3 (0.5), 1.2 (1.9), 1.9 (3.0), 7.0 (11.3) 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 138" (3.5 m) left 138" (3.5 m) (on concrete surface without brake) right 165" (4.2 m) left 165" (4.2 m) Turning space diameter (on concrete surface with brake applied) right 287" (7.3 m) left 287" (7.3 m) (on concrete surface without brake) right 343" (8.7 m) left 343" (8.7 m) Power take-off 540 rpm at 2036 engine rpm Unladen tractor mass 6025 lb (2733 kg).

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Maximum Available Power—Two Hours	95.0	95.5
75% of Pull at Maximum Power—Ten Hours		95.0
50% of Pull at Maximum Power—Two Hours		93.0
50% of Pull at Reduced Engine Speed—Two Hours		91.0
Bystander in 16th (H-H-4) gear		87.5

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)			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 (H-H-1) Gear											
56.83 (42.38)	3891 (17.31)	5.48 (8.81)	2400	6.41	4.014 (15.195)	0.495 (0.301)	14.16 (2.789)	188 (86.4)	67 (19.2)	79 (25.8)	28.94 (97.71)

MAXIMUM POWER IN SELECTED GEARS

48.71 (36.32)	7424 (33.02)	2.46 (3.96)	2421	14.80	10th (L-H-4) Gear			182 (83.3)	65 (18.3)	69 (20.6)	28.95 (97.76)
55.38 (41.30)	5106 (22.71)	4.07 (6.55)	2400	8.37	12th (H-L-4) Gear			183 (83.9)	63 (17.2)	66 (18.9)	28.95 (97.76)
58.92 (43.94)	4043 (17.98)	5.47 (8.80)	2400	6.63	13th (H-H-1) Gear			186 (85.3)	61 (16.1)	69 (20.6)	28.88 (97.52)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-30; 6; 18 (125)	Two 16.9-30; 6; 18 (125)
Ballast	—Liquid (each)	575 lb (261 kg)	None
	—Cast Iron (each)	515 lb (234 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 6; 30 (205)	Two 9.5-24; 6; 30 (205)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	512 lb (232 kg)	None
Height of Drawbar		17 in (430 mm)	17 in (430 mm)
Static Weight with Operator —Rear		5910 lb (2681 kg)	3730 lb (1692 kg)
	—Front	3495 lb (1585 kg)	2470 lb (1120 kg)
	—Total	9405 lb (4266 kg)	6200 lb (2812 kg)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2600 (17930)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	188 (87)	
Location	pump inlet	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	2	*not measured
LOAD lbs (kg)	4480 (2032)	
TIME sec	2.06	
HITCH POINT MOVEMENT in (mm)		
Lowest position	12.1 (307)	
Top of timed range	36.1 (917)	
Highest position	36.1 (917)	
LOAD CG MOVEMENT in (mm)		
Lowest position	12.3 (312)	
Top of timed range	36.9 (937)	
Highest position	37.0 (940)	

*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 145°F (62.7°C). Four gears were chosen between 15% slip and 10 mph (16.1 km/h). During final inspection, it was found that the exhaust valve seat of cylinder No. 4 was pitted.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1597, July 8, 1986.

LOUIS I. LEVITICUS

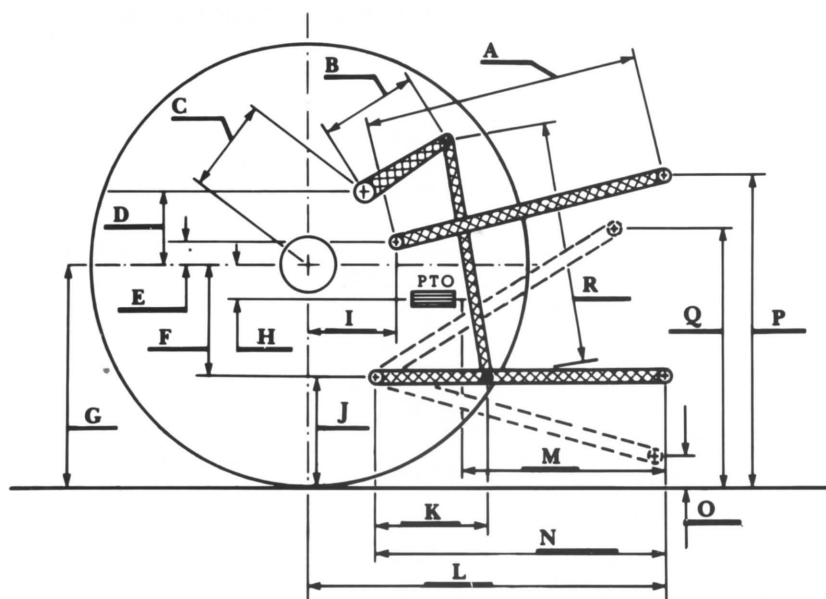
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	27.5	699
B	9.8	250
C	12.2	311
D	11.9	303
E	12.6	321
F	6.9	176
G	26.5	674
H	0.8	21
I	12.3	313
J	19.6	498
K	18.4	468
L	40.0	1015
M	24.1	613
N	35.6	903
O	8.0	203
P	38.6	981
Q	34.0	864
R	23.6	600



Kubota M7030DT Diesel