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Test 1348: Kubota M4500DT and M4500 Diesel 16-Speed

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NEBRASKA TRACTOR TEST 1348 — KUBOTA M4500DT DIESEL
ALSO KUBOTA M4500 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—640 rpm)											
49.72 (37.07)	2600	3.460 (13.098)	0.491 (0.299)	14.37 (2.831)	222 (105.8)	55 (12.9)	75 (23.8)	28.943 (97.737)			
Standard Power Take-Off Speed (540 rpm)—One Hour											
44.49 (33.17)	2192	2.928 (11.085)	0.465 (0.283)	15.19 (2.993)	223 (106.3)	54 (12.2)	75 (23.9)	28.930 (97.692)			
VARYING POWER AND FUEL CONSUMPTION—Two Hours											
42.87 (31.97)	2638	2.935 (11.112)	0.484 (0.294)	14.60 (2.877)	206 (96.7)	54 (12.2)	75 (23.9)				
0.00 (0.00)	2787	0.981 (3.715)			184 (84.4)	54 (12.2)	75 (23.9)				
22.08 (16.46)	2716	1.856 (7.027)	0.594 (0.361)	11.89 (2.343)	188 (86.7)	54 (12.2)	75 (23.9)				
50.59 (37.73)	2600	3.522 (13.331)	0.492 (0.299)	14.37 (2.830)	217 (102.8)	56 (13.1)	75 (23.9)				
11.13 (8.30)	2740	1.376 (5.210)	0.873 (0.531)	8.09 (1.593)	184 (84.4)	56 (13.6)	75 (23.9)				
32.74 (24.42)	2685	2.370 (8.973)	0.511 (0.311)	13.81 (2.721)	192 (88.6)	56 (13.6)	75 (23.9)				
Av Av	26.57 (19.81)	2694	2.174 (8.228)	0.578 (0.351)	12.22 (2.408)	195 (90.6)	55 (12.8)	75 (23.9)	28.917 (97.649)		
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 (HH-1) Gear											
40.85 (30.46)	3102 (13.80)	4.94 (7.95)	2600	9.96	3.434 (12.999)	0.594 (0.361)	11.90 (2.343)	210 (98.9)	59 (15.0)	68 (20.0)	28.935 (97.709)
75% of Pull at Maximum Power—Ten Hours 13th (HH-1) Gear											
33.21 (24.79)	2389 (10.63)	5.22 (8.40)	2660	6.96	2.765 (10.466)	0.587 (0.357)	12.02 (2.369)	191 (88.3)	59 (15.0)	69 (20.6)	28.877 (97.513)
50% of Pull at Maximum Power—Two Hours 13th (HH-1) Gear											
23.06 (17.20)	1601 (7.12)	5.40 (8.69)	2691	4.77	2.142 (8.107)	0.656 (0.399)	10.77 (2.121)	187 (85.8)	60 (15.3)	66 (18.6)	28.990 (97.895)
50% of Pull at Reduced Engine Speed—Two Hours 14th (HH-2) Gear											
23.10 (17.23)	1599 (7.11)	5.42 (8.72)	2211	4.53	1.876 (7.102)	0.574 (0.349)	12.31 (2.425)	188 (86.4)	62 (16.7)	73 (22.5)	28.990 (97.895)
MAXIMUM POWER IN SELECTED GEARS											
33.75 (25.17)	4812 (21.40)	2.63 (4.23)	2679	14.99	11th (HL-3) Gear			186 (85.6)	54 (12.2)	56 (13.3)	29.010 (97.962)
41.17 (30.70)	4335 (19.28)	3.56 (5.73)	2600	13.21	12th (HL-4) Gear			194 (90.0)	55 (12.8)	57 (13.9)	28.990 (97.895)
41.96 (31.29)	3187 (14.18)	4.94 (7.95)	2600	9.90	13th (HH-1) Gear			199 (92.8)	55 (12.8)	58 (14.4)	28.940 (97.726)
42.50 (31.69)	2588 (11.51)	6.16 (9.91)	2600	7.63	14th (HH-2) Gear			204 (95.6)	57 (13.9)	65 (18.3)	28.940 (97.726)
LUGGING ABILITY IN 13th (HH-1) GEAR											
Crankshaft Speed rpm			2600	2343	2080	1824	1558	1298	1027		
Pull—lbs (kN)			3187 (14.18)	3319 (14.76)	3409 (15.16)	3549 (15.79)	3675 (16.35)	3795 (16.88)	3625 (16.12)		
Increase in Pull %			0	4	7	11	15	19	14		
Power—Hp (kW)			41.96 (31.29)	39.21 (29.24)	35.60 (26.55)	32.36 (24.13)	28.42 (21.19)	24.25 (18.08)	18.46 (13.77)		
Speed—Mph (km/h)			4.94 (7.95)	4.43 (7.13)	3.92 (6.30)	3.42 (5.50)	2.90 (4.67)	2.40 (3.86)	1.91 (3.07)		
Slip %			9.90	10.22	10.64	11.05	11.77	12.37	11.77		

Department of Agricultural Engineering

Dates of Test: May 12—22, 1980

Manufacturer: KUBOTA LTD, 22 Funade-cho,
2-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°) 0.8482 Fuel weight 7.062 lbs/gal
(0.846 kg/l) Oil SAE 20-20W API service classi-
fication SB/SE-CA/CD To motor 2.682 gal
(10.151 l) Drained from motor 2.586 gal (9.788 l)
Transmission and final drive lubricant SAE 80
Total time engine was operated 38.5 hours.

ENGINE Make Kubota Dsl Type six cylinder
vertical Serial No. S2600-A-1622 Crankshaft
lengthwise Rated rpm 2600 Bore and stroke
3.23" × 3.23" (82 mm × 82 mm) Compression ratio
21 to 1 Displacement 158.5 cu in (2598 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.
M4500DT-10788 Tread width rear 51.2" (1300
mm) to 74.8" (1900 mm) front 55.9" (1420 mm)
Wheel base 79.5" (2020 mm) Center of gravity
(without operator or ballast, with minimum tread,
with fuel tank filled and tractor serviced for oper-
ation) Horizontal distance forward from center-
line of rear wheels 35.2" (895 mm) Vertical distance
above roadway 39.3" (999 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) sec-
ond 0.3 (0.5) third 0.5 (0.9) fourth 0.7 (1.2) fifth
1.0 (1.6) sixth 1.2 (1.9) seventh 1.5 (2.4) eighth 1.8
(3.0) ninth 2.0 (3.2) tenth 2.8 (4.4) eleventh 3.1
(5.0) twelfth 4.2 (6.8) thirteenth 5.6 (9.1) four-
teenth 6.9 (11.0) fifteenth 11.6 (18.6) sixteenth
15.8 (25.4) reverse 0.3 (0.5), 1.3 (2.0), 2.0 (3.2), 7.4
(11.9) Clutch single dry disc operated by foot
pedal Brakes multiple wet 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
122" (3.10 m) left 122" (3.10 m) (on concrete sur-
face without brake) right 153.5" (3.90 m) left
153.5" (3.90 m) Turning space diameter (on con-
crete surface with brake applied) right 252" (6.40
m) left 252" (6.40 m) (on concrete surface without
brake) right 315" (8.00 m) left 315" (8.00 m) Power
take-off 540 rpm at 2192 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

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
165°F (73.8°C). Four gears were chosen between
15% slip and 10 mph (16.1 km/h).

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	91.5	90.5
75% of Pull at Maximum Power—Ten Hours	–	90.0
50% of Pull at Maximum Power—Two Hours	–	90.0
50% of Pull at Reduced Engine Speed—Two Hours	–	88.0
Bystander in 16th (HH-4) gear	–	79.5

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 (HH-1) Gear											
41.09 (30.64)	2966 (13.19)	5.20 (8.36)	2601	6.93	3.345 (12.664)	0.575 (0.350)	12.28 (2.419)	213 (100.3)	60 (15.6)	71 (21.4)	28.915 (97.642)

MAXIMUM POWER IN SELECTED GEARS

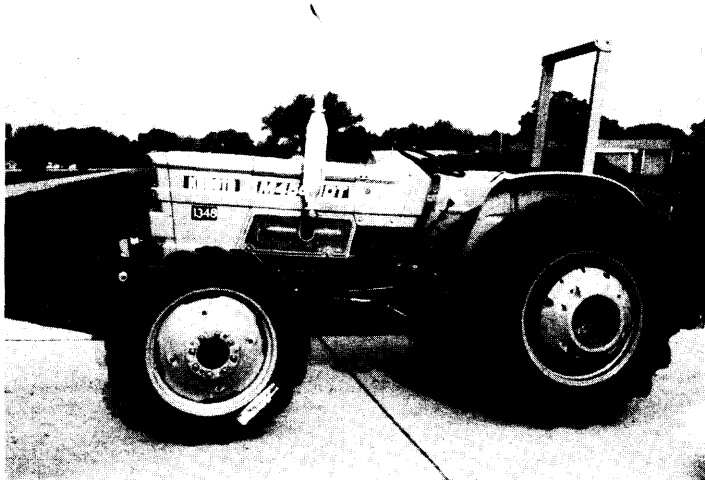
36.68 (27.35)	5932 (26.39)	2.32 (3.73)	2638	14.96	10th (LH-4) Gear			191 (88.1)	54 (12.2)	56 (13.3)	29.010 (97.962)
42.53 (31.71)	3077 (13.69)	5.18 (8.34)	2598	7.05	13th (HH-1) Gear			203 (94.7)	56 (13.3)	61 (16.1)	28.940 (97.726)
42.00 (31.32)	2452 (10.91)	6.42 (10.34)	2601	5.59	14th (HH-2) Gear			204 (95.3)	56 (13.3)	63 (17.2)	28.940 (97.726)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 14.9-28; 6; 16 (110)	Two 14.9-28; 6; 16 (110)
	—Liquid (each)	520 lb (236 kg)	None
	—Cast Iron (each)	475 lb (215 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 6; 18 (125)	Two 9.5-24; 6; 18 (125)
	—Liquid (each)	None	None
	—Cast Iron (each)	323 lb (146 kg)	None
Height of Drawbar		18 in (455 mm)	18 in (455 mm)
Static Weight with Operator—			
		5020 lb (2277 kg)	3030 lb (1375 kg)
		2780 lb (1261 kg)	2135 lb (968 kg)
		7800 lb (3538 kg)	5165 lb (2343 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1348**.

LOUIS I. LEVITICUS
Engineer-in Charge

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



Kubota M4500DT Diesel