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## Test 1496: Kubota M4950DT and M4950 Diesel 12-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1496 — KUBOTA M4950DT DIESEL ALSO KUBOTA M4950 DIESEL 12 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)								
49.57 (36.96)	2600	3.583 (13.563)	0.506 (0.308)	13.83 (2.725)	189 (87.1)	68 (19.7)	75 (24.0)	28.820 (97.321)

Standard Power take-off Speed (540 rpm)—One Hour								
45.47 (33.91)	2194	3.094 (11.712)	0.476 (0.290)	14.70 (2.895)	191 (88.3)	68 (19.9)	75 (24.1)	28.810 (97.287)

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

42.76 (31.89)	2639	3.104 (11.750)	0.508 (0.309)	13.78 (2.714)	182 (83.6)	68 (20.0)	76 (24.4)	.....
0.00 (0.00)	2759	1.157 (4.380)	.....	.....	180 (81.9)	69 (20.6)	76 (24.7)	.....
21.90 (16.33)	2701	2.049 (7.756)	0.655 (0.398)	10.69 (2.105)	181 (82.8)	67 (19.4)	74 (23.3)	.....
49.59 (36.98)	2600	3.605 (13.646)	0.509 (0.310)	13.75 (2.710)	188 (86.7)	68 (19.7)	74 (23.6)	.....
11.05 (8.24)	2726	1.599 (6.053)	1.013 (0.616)	6.91 (1.361)	180 (82.2)	68 (20.3)	76 (24.4)	.....
32.55 (24.27)	2678	2.564 (9.706)	0.551 (0.335)	12.70 (2.501)	183 (83.9)	67 (19.4)	74 (23.3)	.....
<b>Av 26.31</b> <b>Av (19.62)</b>	<b>2684</b>	<b>2.346</b> <b>(8.881)</b>	<b>0.624</b> <b>(0.380)</b>	<b>11.21</b> <b>(2.209)</b>	<b>182</b> <b>(83.5)</b>	<b>68</b> <b>(19.9)</b>	<b>75</b> <b>(24.0)</b>	<b>28.777</b> <b>(97.174)</b>

## 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	wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 8th (C-2) Gear											
40.16 (29.95)	3207 (14.27)	4.70 (7.56)	2598	7.69	3.495 (13.229)	0.609 (0.370)	11.49 (2.264)	189 (87.2)	67 (19.2)	78 (25.6)	29.030 (98.030)
75% of Pull at Maximum Power—Ten Hours 8th (C-2) Gear											
32.13 (23.96)	2456 (10.92)	4.91 (7.90)	2655	5.63	2.883 (10.914)	0.628 (0.382)	11.15 (2.196)	187 (85.8)	66 (19.1)	73 (22.8)	29.024 (98.010)
50% of Pull at Maximum Power—Two Hours 8th (C-2) Gear											
22.16 (16.52)	1659 (7.38)	5.01 (8.06)	2694	5.11	2.394 (9.061)	0.756 (0.460)	9.26 (1.824)	181 (82.8)	47 (8.3)	52 (10.8)	29.165 (98.486)
50% of Pull at Reduced Engine Speed—Two Hours 10th (D-1) Gear											
22.20 (16.55)	1659 (7.38)	5.02 (8.08)	1560	4.79	1.736 (6.572)	0.547 (0.333)	12.79 (2.519)	185 (84.7)	50 (9.7)	59 (15.0)	29.140 (98.401)

## MAXIMUM POWER IN SELECTED GEARS

31.60 (23.56)	5292 (23.54)	2.24 (3.60)	2653	14.80	5th (B-2) Gear			188 (86.7)	60 (15.6)	68 (20.0)	28.740 (97.051)
39.55 (29.49)	4822 (21.45)	3.08 (4.95)	2597	12.39	6th (B-3) Gear			189 (87.2)	58 (14.4)	64 (17.8)	28.740 (97.051)
41.22 (30.73)	4318 (19.21)	3.58 (5.76)	2600	10.47	7th (C-1) Gear			190 (87.5)	58 (14.4)	64 (17.8)	28.740 (97.051)
41.43 (30.89)	3316 (14.75)	4.68 (7.54)	2600	8.02	8th (C-2) Gear			189 (87.2)	56 (13.3)	62 (16.7)	28.720 (96.983)
40.15 (29.94)	2305 (10.25)	6.53 (10.51)	2596	6.01	9th (C-3) Gear			189 (86.9)	59 (15.0)	66 (18.9)	28.740 (97.051)
39.66 (29.57)	1780 (7.92)	8.35 (13.45)	2598	4.85	10th (D-1) Gear			190 (87.8)	59 (15.0)	67 (19.4)	28.740 (97.051)

Department of Agricultural Engineering

Dates of Test: September 23 to October 18, 1983

Manufacturer: KUBOTA LTD, 2-47 Shikitsu  
higashi, 1-chome, Naniwa-ku, Osaka, Japan

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel  
Cetane No. 47.0 (rating taken from oil company's  
inspection data) Specific gravity converted to 60°/  
60° (15°/15°) 0.8404 Fuel weight 6.998 lbs/gal  
(0.839 kg/l) Oil SAE 20-20W API service classi-  
fication SE-SF, CC-CD To motor 3.198 gal  
(12.108 l) Drained from motor 2.602 gal  
(9.851 l) Transmission and hydraulic lubricant  
Shell Donax TD or equivalent Front axle lubri-  
cant SAE 80/90 gear oil Total time engine was  
operated 64.0 hours.

**ENGINE:** Make Kubota Diesel Type six cylin-  
der vertical Serial No. S2800-A-19880 Crank-  
shaft lengthwise Rated rpm 2600 Bore and  
stroke 3.35" × 3.23" (85 mm × 82 mm) Compression  
ratio 21 to 1 Displacement 170 cu in (2791  
ml) Starting system 12 volt Lubrication pressure  
Air cleaner one paper element Oil filter one full  
flow paper cartridge Fuel filter one paper ele-  
ment Muffler vertical Cooling medium tempera-  
ture control one thermostat.

**CHASSIS:** Type front wheel assist Serial No.  
M4950DTF-U50143 Tread width rear 55.9"  
(1420 mm) to 79.5" (2020 mm) front 55.9" (1420  
mm) to 63.8" (1620 mm) Wheel base 82.3" (2090  
mm) Center of gravity (without operator or bal-  
last, with minimum tread, with fuel tank filled and  
tractor serviced for operation) Horizontal distance  
forward from center-line of rear wheels 35.8" (910  
mm) Vertical distance above roadway 35.5" (902  
mm) Horizontal distance from center of rear wheel  
tread 0" (0 mm) to the right/left Hydraulic control  
system direct engine drive Transmission selec-  
tive gear fixed ratio Advertised speeds mph (km/  
h) first 0.9 (1.5) second 1.2 (1.9) third 1.6 (2.6)  
fourth 2.1 (3.3) fifth 2.6 (4.3) sixth 3.6 (5.8)  
seventh 4.1 (6.6) eighth 5.2 (8.4) ninth 7.1 (11.5)  
tenth 9.0 (14.5) eleventh 11.5 (18.5) twelfth 15.7  
(25.3) reverse 0.7 (1.1), 1.5 (2.4), 3.0 (4.8), 6.6  
(10.6) Clutch single plate 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 130" (3.3 m) left  
130" (3.3 m) (on concrete surface without brake)  
right 158" (4.0 m) left 158" (4.0 m) Turning space  
diameter (on concrete surface with brake applied)  
right 276" (7.0 m) left 276" (7.0 m) (on concrete  
surface without brake) right 332" (8.4 m) left 332"  
(8.4 m) Power take-off 540 rpm at 2194 engine  
rpm.

**REPAIRS and ADJUSTMENTS:** No repairs or  
adjustments.

# LUGGING ABILITY IN 8th (C-2) GEAR

Crankshaft Speed rpm	2600	2344	2079	1818	1561	1296	1031
Pull—lbs (kN)	3316 (14.75)	3467 (15.42)	3824 (17.01)	4040 (17.97)	4170 (18.55)	4226 (18.80)	4017 (17.87)
Increase in Pull %	0	5	15	22	26	27	21
Power—Hp (kW)	41.43 (30.89)	38.89 (29.00)	37.70 (28.11)	34.60 (25.80)	30.53 (22.76)	25.63 (19.11)	19.50 (14.54)
Speed—Mph (km/h)	4.68 (7.54)	4.21 (6.77)	3.70 (5.95)	3.21 (5.17)	2.75 (4.42)	2.27 (3.66)	1.82 (2.93)
Slip %	8.02	8.34	9.20	9.84	10.26	10.47	9.84

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	dB(A)	Disengaged dB(A)
Maximum Available Power—Two Hours	93.5	93.5
75% of Pull at Maximum Power—Ten Hours		93.5
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		87.5
Bystander in 12th (D-3) gear		81.5

# 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	wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 8th (C-2) Gear											
40.25 (30.01)	3085 (13.72)	4.89 (7.87)	2599	5.95	3.445 (13.040)	0.599 (0.364)	11.68 (2.301)	191 (88.1)	67 (19.2)	81 (27.2)	28.990 (97.895)

# MAXIMUM POWER IN SELECTED GEARS

32.20 (24.01)	6750 (30.03)	1.79 (2.88)	2647	14.98	4th (B-1) Gear			187 (86.1)	59 (15.0)	65 (18.3)	29.060 (98.131)
40.75 (30.39)	3126 (13.90)	4.89 (7.87)	2599	6.01	8th (C-2) Gear			189 (86.9)	64 (17.8)	72 (22.2)	29.020 (97.996)

# TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
<b>Rear Tires</b>	—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)	500 lb (227 kg)	None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Two 8.3-24; 6; 26 (180)	Two 8.3-24; 6; 26 (180)
	—Liquid (each)	110 lb (50 kg)	None
	—Cast Iron (each)	68 lb (31 kg)	None
<b>Height of Drawbar</b>		13.5 in (345 mm)	13.5 in (345 mm)
<b>Static Weight with Operator—Rear</b>		5370 lb (2436 kg)	3330 lb (1511 kg)
—Front		2825 lb (1281 kg)	2470 lb (1120 kg)
—Total		8195 lb (3717 kg)	5800 lb (2631 kg)

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 131°F (54.9°C). Six 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. 1496.

LOUIS I. LEVITICUS  
Engineer-in-Charge

K. VON BARGEN  
W. E. SPLINTER  
L. L. BASHFORD  
Board of Tractor Test Engineers



**Kubota M4950DT Diesel**

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Irwin T. Omtvedt, Dean and Director