2010

Test 1979: Kubota M100X

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1979
KUBOTA M100X DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—637 rpm)					
85.15 *(63.50)*	2601	5.61 *(21.22)*	0.461 *(0.280)*	15.19 *(2.99)*	
Maximum Power (1 hour)					
87.20 *(65.02)*	2401	5.46 *(20.66)*	0.438 *(0.266)*	15.97 *(3.15)*	
Standard Power Take-off Speed(540 rpm)					
85.61 *(63.84)*	2205	5.22 *(19.75)*	0.426 *(0.259)*	16.41 *(3.23)*	
VARYING POWER AND FUEL CONSUMPTION					
85.15 *(63.50)*	2601	5.61 *(21.22)*	0.461 *(0.280)*	15.19 *(2.99)*	Air temperature
74.28 *(55.39)*	2671	5.17 *(19.58)*	0.487 *(0.296)*	14.36 *(2.83)*	73°F *(24°C)*
56.40 *(42.06)*	2702	4.24 *(16.04)*	0.526 *(0.320)*	13.31 *(2.62)*	Relative humidity
37.85 *(28.23)*	2726	3.36 *(12.70)*	0.620 *(0.377)*	11.28 *(2.22)*	15%
19.13 *(14.27)*	2752	2.52 *(9.53)*	0.920 *(0.560)*	7.60 *(1.50)*	Barometer
1.73 *(1.29)*	2781	1.71 *(6.49)*	6.935 *(4.218)*	1.01 *(0.20)*	28.90"Hg *(97.87 kPa)*

Maximum torque - 217 lb.-ft. *(294 Nm)* at 1600 rpm
Maximum torque rise - 25.9%
Torque rise at 2103 rpm - 20%

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in 8th(7L) gear	73.4	73.7
Bystander in 16th (8H) gear		81.0

TIRES AND WEIGHT

	Tested without ballast
Rear tires–No., size, ply & psi *(kPa)*	Two 18.4R30;**;20 *(140)*
Front tires–No., size, ply & psi *(kPa)*	Two 12.4R24;***;24 *(165)*
Height of drawbar	16.5 in *(420 mm)*
Static weight with operator– Rear	5580 lb *(2531 kg)*
– Front	3375 lb *(1531 kg)*
– Total	8955 lb *(4062 kg)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of tests: October 29 - November 4 , 2010

Manufacturer: Kubota Corporation, Sakai Plant, 64, Ishizu-Kitamachi, Sakai-ku, Sakai-City, Osaka, Japan

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8402 **Fuel weight** 6.996 lbs/gal *(0.838 kg/l)* **Oil SAE** 10W-30 **API service classification** CF-4 **Transmission and hydraulic lubricant** Kubota Super UDT 2 fluid **Front axle lubricant** Kubota Super UDT 2 fluid **Total time engine was operated:** 11.0 hours

ENGINE: Make Kubota Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** *AQ2561* **Crankshaft** lengthwise **Rated engine speed** 2600 **Bore and stroke** 3.937 x 4.724" *(100.0 mm x 120.0 mm)* **Compression ratio** 17.5 to 1 **Displacement** 230 cu in *(3769 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prestrainer **Fuel cooler** radiator for pump return fuel **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 37.5 - 40.1 lb/h *(17.0 -18.2 kg/h)* **High idle:** 2750 - 2800 rpm **Turbo boost:** nominal 10.2-11.6 psi *(70-80 kPa)* as measured 10.7 psi *(74 kPa)*

CHASSIS: Type front wheel assist **Serial No.** 50440 **Tread width** rear 60.0" *(1525 mm)* to 81.1" *(2060 mm)* front 62.2" *(1580 mm)* to 66.1" *(1680 mm)* **Wheelbase** 95.9" *(2435 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (8) range operator controlled power shift **Nominal travel speeds mph *(km/h)*** first 1.18 *(1.90)* second 1.47 *(2.36)* third 1.83 *(2.95)* fourth 2.16 *(3.47)* fifth 2.88 *(4.64)* sixth 3.59 (*5.78)* seventh 4.12 *(6.63)* eighth 4.49 *(7.23)* ninth 5.13 *(8.25)* tenth 5.28 *(8.50)* eleventh 6.41 *(10.32)* twelfth 7.54 *(12.14)* thirteenth 10.08 *(16.22)* fourteenth 12.55 *(20.20)* fifteenth 15.70 *(25.27)* sixteenth 18.46 *(29.70)* reverse 1.19 *(1.91)*, 1.48 *(2.38)*, 1.85 *(2.98)*, 2.17 *(3.50)*, 2.91 *(4.68)*, 3.62 *(5.83)*, 4.16 *(6.69)*, 4.53 *(7.29)*, 5.18 *(8.33)*, 5.33 *(8.58)*, 6.47 *(10.41)*, 7.61 *(12.24)*, 10.17 *(16.36)*, 12.65 *(20.37)*, 15.83 *(25.48)*, 18.62 *(29.97)*

HYDRAULIC PERFORMANCE

CATEGORY: II		
Quick Attach: None		
OECD Static test		
Maximum force exerted through whole range:	4041 lbs	*(18.0 kN)*
	7344 lbs	*(21.3 kN)* (with 2 assist cylinders)
i) Sustained pressure of the open relief valve:	2759 psi	*(190 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	18.2 GPM	*(68.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	15.3 GPM	*(58.0 l/min)*
Delivery pressure:	2402 psi	*(166 bar)*
Power:	21.5 HP	*(16.0 kW)*

THREE POINT HITCH PERFORMANCE(SAE Static test)

Observed maximum pressure psi. *(bar)*	2800 *(193)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	166 *(74)*
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2520 psi *(174 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	6264	5643	5279	5602	5211
" " " " " " *(kN)*	*(27.9)*	*(25.1)*	*(23.5)*	*(24.9)*	*(23.2)*

SAE Static Test—System pressure 2520 psi *(174 Bar)*(2 assist cylinders)

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(913)*
Lift force on frame lb	12420	10688	10116	10764	9702
" " " " " " *(kN)*	*(55.2)*	*(47.5)*	*(45.0)*	*(47.9)*	*(43.2)*

Clutch wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2205 engine rpm or 1000 rpm at 2389 engine rpm **Unladen tractor mass** 8780 lb *(3983 kg)*

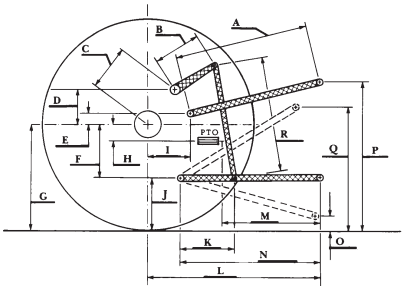
REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the fuel pump inlet was maintained at 129°F *(54°C)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1979,** December 6, 2010.

Roger M. Hoy
Director

M.F. Kocher
D.R. Keshwani
J.A. Smith
Board of Tractor Test Engineers



	OECD test inch	OECD test *mm*	SAE test inch	SAE test *mm*
A	30.0	*763*	29.6	*752*
B	9.8	*250*	9.8	*250*
C	12.2	*310*	12.2	*310*
D	11.9	*302*	11.9	*302*
E	11.2	*285*	11.2	*285*
F	6.9	*176*	6.9	*176*
G	32.3	*820*	32.3	*820*
H	0.8	*20*	0.8	*20*
I	10.8	*274*	10.8	*274*
J	25.4	*644*	25.4	*644*
K	20.0	*508*	20.0	*508*
L	40.0	*1015*	40.0	*1015*
M	23.4	*594*	23.4	*594*
N	35.4	*900*	35.4	*900*
O	7.9	*200*	7.9	*200*
P	49.4	*1254*	44.4	*1127*
Q	33.1	*840*	33.1	*840*
R	27.8	*705*	27.8	*705*

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