

# 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—637 rpm)</b>					
85.15 (63.50)	2601	5.61 (21.22)	0.461 (0.280)	15.19 (2.99)	
<b>Maximum Power (1 hour)</b>					
87.20 (65.02)	2401	5.46 (20.66)	0.438 (0.266)	15.97 (3.15)	
<b>Standard Power Take-off Speed(540 rpm)</b>					
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)	Disengaged dB(A)
At no load in 8th(7L) gear	73.4	73.7
Bystander in 16th (8H) gear		81.0

#### TIRES AND WEIGHT

**Rear tires**—No., size, ply & psi (kPa)  
**Front tires**—No., size, ply & psi (kPa)  
**Height of drawbar**  
**Static weight with operator**—Rear  
 —Front  
 —Total

**Tested without ballast**  
 Two 18.4R30; \*\*,20 (140)  
 Two 12.4R24; \*\*\*,24 (165)  
 16.5 in (420 mm)  
 5580 lb (2531 kg)  
 3375 lb (1531 kg)  
 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.** 50444 **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	(18.0kN)
	7344 lbs	(21.3 kN) (with 2 assist cylinders)
i) Sustained pressure of the open relief valve:	2759psi	(190bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	18.2GPM	(68.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	15.3GPM	(58.0 l/min)
Delivery pressure:	2402psi	(166 bar)
Power:	21.5 HP	(16.0kW)

## 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.

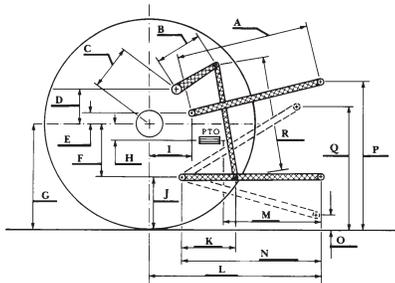
**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the fuel pump inlet was maintained at 129°F (54°C).

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		SAE test	
	inch	mm	inch	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



**KUBOTAM100X DIESEL**

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln