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2013

## Test 2063: Kubota M110GX

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 2063

## KUBOTA M110GX DIESEL

### 24 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					
<b>Rated Engine Speed—(PTO speed—637 rpm)</b>					
97.50 (72.71)	2601	6.08 (23.03)	0.439 (0.267)	16.03 (3.16)	Fuel used during active exhaust regeneration - 0.05 gal (0.17 l) (see note 1 p.2)
<b>Standard Power Take-off Speed(541 rpm)</b>					
91.71 (68.39)	2205	5.42 (20.53)	0.416 (0.253)	16.91 (3.33)	
VARYING POWER AND FUEL CONSUMPTION					
97.50 (72.71)	2601	6.08 (23.03)	0.439 (0.267)	16.03 (3.16)	Air temperature
83.89 (62.56)	2635	5.53 (20.93)	0.463 (0.282)	15.17 (2.99)	74°F (23°C)
63.89 (47.64)	2668	4.62 (17.48)	0.508 (0.309)	13.83 (2.72)	Relative humidity
43.13 (32.17)	2702	3.72 (14.07)	0.606 (0.368)	11.61 (2.29)	4%
21.83 (16.28)	2729	2.78 (10.52)	0.895 (0.544)	7.85 (1.55)	Barometer
1.43 (1.06)	2761	1.85 (6.99)	9.103 (5.537)	0.77 (0.15)	29.00"Hg (98.21 kPa)
Maximum torque - 237 lb.-ft. (321 Nm) at 1601 rpm					
Maximum torque rise - 20.2%					
Torque rise at 2082 rpm - 14%					

#### TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive	
	Engaged	Disengaged
	dB(A)	dB(A)
At no load in 13th(M5) gear	72.8	72.8
Bystander in 24th(H8) gear	---	79.4

#### 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 18.4R34; \*\*: 12 (85)  
 Two 13.6R24; \*\*: 12 (85)  
 18.5 in (470 mm)  
 6215 lb (2819 kg)  
 3330 lb (1511 kg)  
 9545 lb (4330 kg)

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

**Dates of tests:** June 6 - December 10, 2013

**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) 0.8442 Fuel weight 7.029 lbs/gal (0.842 kg/l) Oil SAE 15W-40 API service classification CJ-4 Transmission and hydraulic lubricant Kubota Super UDT 2 fluid Front axle lubricant SAE 90 gear oil Total time engine was operated 12.0 hours

**ENGINE: Make** Kubota Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** 2DC0281 **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 and aspirator **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 **Fuel cooler** radiator for pump return fuel **Exhaust** regenerative particulate filter integrated within a underhood muffler with a vertical outlet **Cooling medium temperature control** one thermostat

**ENGINE OPERATING PARAMETERS: Fuel rate:** 41.2 - 43.7 lb/h (18.7 - 19.8 kg/h) **High idle:** 2700 - 2800 rpm **Turbo boost:** nominal 10.2-12.3 psi (70 - 85 kPa) as measured 11.3 psi (78 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** M110GX50591 **Tread width** rear 60.2" (1530 mm) to 80.3" (2040 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 0.52 (0.83) second 0.63 (1.02) third 0.75 (1.21) fourth 0.91 (1.46) fifth 1.08 (1.73) sixth 1.32 (2.12) seventh 1.56 (2.51) eighth 1.89 (3.04) ninth 2.19 (3.53) tenth 2.69 (4.33) eleventh 3.18 (5.11) twelfth 3.85 (6.20) thirteenth 4.56 (7.35) fourteenth 5.59 (9.00) fifteenth 6.06 (9.76) sixteenth 6.60 (10.62) seventeenth 7.42 (11.95) eighteenth 8.01 (12.90) nineteenth 8.77 (14.11) twentieth 10.64 (17.13) twenty-first 12.62 (20.31) twenty-second 15.44 (24.86) twenty-third 18.24 (29.35) twenty-fourth 22.13 (35.62) electronically limited

## HYDRAULIC PERFORMANCE

### CATEGORY: II

Quick attach: None

OECD Static test

Maximum force exerted through whole range: lift cylinders  
6734 lbs (30.0 kN) (2 x 70 mm)  
8613 lbs (38.3 kN) (2 x 80 mm)

i) Sustained pressure of the open relief valve: 2852 psi (197 bar)  
ii) Pump delivery rate at minimum pressure and rated engine speed: 19.1 GPM (72.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 18.1 GPM (68.4 l/min)  
Delivery pressure: 2497 psi (172 bar)  
Power: 26.3 HP (19.6 kW)

reverse 0.52 (0.84), 0.64 (1.03), 0.76 (1.22), 0.92 (1.48), 1.09 (1.75), 1.33 (2.14), 1.57 (2.53), 1.91 (3.07), 2.21 (3.56), 2.71 (4.36), 3.20 (5.15), 3.88 (6.25), 4.60 (7.41), 5.64 (9.08), 6.12 (9.85) 6.66 (10.72), 7.49 (12.05), 8.08 (13.01), 8.84 (14.23), 10.73 (17.27), 12.73 (20.48), 15.58 (25.07), 18.39 (29.60) 22.32 (35.93) electronically limited **Clutch** multiple wet disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2205 engine rpm **Unladen tractor mass** 9370 lb (4250 kg)

**NOTE 1:** The manufacturer declares that the average time between active regenerations is 24 hours, while operated in Auto Filter Cleaning Mode, at rated speed, full load, under steady state conditions.

**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. This tractor did not meet the manufacturer's 3 point lift of claims of 6834 lbs (3100 kg) with 2 x 70 mm lift cylinders nor 9447 lbs (4285 kg) with 2 x 80 mm lift cylinders. For the maximum power tests, the fuel temperature at the fuel filter was maintained at 103°F (39°C).

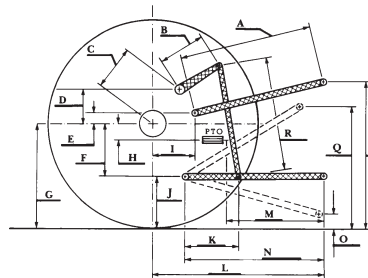
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2063**, January 13, 2014.

Roger M. Hoy  
Director

M.F. Kocher  
S. Pitla  
J.D. Luck  
Board of Tractor Test Engineers

### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	29.7	755
B	11.8	300
C	17.1	434
D	16.7	425
E	13.6	346
F	6.9	176
G	32.3	820
H	1.0	25
I	10.7	273
J	25.4	644
K	18.4	468
L	40.0	1015
M	23.4	594
N	35.4	900
O	9.1	230
P	49.4	1254
Q	34.6	880
R	28.9	735



Kubota M110GX Diesel