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January 1997

Test 1742: Belarus 8345, 8011, 8045 and 8311

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1742—SUMMARY 242

BELARUS 8345 DIESEL

ALSO BELARUS 8011, 8045 and 8311 DIESEL

14 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—955 rpm)					
75.40 (56.23)	2200	4.96 (18.78)	0.464 (0.282)	15.19 (2.99)	

VARYING POWER AND FUEL CONSUMPTION

75.40 (56.23)	2200	4.96 (18.78)	0.464 (0.282)	15.19 (2.99)	Air temperature
66.76 (49.78)	2289	4.26 (16.12)	0.449 (0.273)	15.67 (3.09)	74°F (23°C)
50.56 (37.70)	2307	3.37 (12.74)	0.469 (0.285)	15.02 (2.96)	Relative humidity
34.17 (25.48)	2328	2.47 (9.35)	0.509 (0.310)	13.83 (2.72)	55%
16.98 (12.66)	2346	1.79 (6.77)	0.742 (0.451)	9.49 (1.87)	Barometer
0.97 (0.72)	2353	1.32 (5.00)	9.568 (5.820)	0.74 (0.15)	28.56"Hg (96.72 kPa)

Maximum Torque 211 lb.-ft. (286 Nm) at 1400 rpm
Maximum Torque Rise 17.1%
Torque rise at 1800 engine rpm – 8%

DRAWBAR PERFORMANCE (Unballasted—Front Drive in Automatic mode) FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th(4H) Gear									
68.30 (50.93)	3660 (16.28)	7.00 (11.26)	2209	3.30	0.514 (0.313)	13.69 (2.70)	179 (82)	62 (17)	28.61 (96.88)
75% of Pull at Maximum Power—8th(4H) Gear									
53.47 (39.87)	2749 (12.23)	7.30 (11.74)	2292	2.98	0.511 (0.311)	13.77 (2.71)	175 (79)	43 (6)	29.23 (98.98)
50% of Pull at Maximum Power—8th(4H) Gear									
35.98 (26.83)	1835 (8.16)	7.36 (11.84)	2297	2.35	0.580 (0.353)	12.15 (2.39)	173 (78)	43 (6)	29.22 (98.95)
75% of Pull at Reduced Engine Speed—10th(6L) Gear									
53.48 (39.88)	2750 (12.23)	7.29 (11.74)	1779	2.82	0.492 (0.300)	14.30 (2.82)	178 (81)	43 (6)	29.23 (98.98)
50% of Pull at Reduced Engine Speed—10th(6L) Gear									
36.07 (26.90)	1836 (8.16)	7.37 (11.86)	1787	2.35	0.508 (0.309)	13.86 (2.73)	174 (79)	43 (6)	29.22 (98.95)

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

Dates of Test: October 23-November 7, 1997

Manufacturer: Minsk Tractor Works, 29
Dolgobrodskaya Minsk, Belarus 220668

FUEL OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 50.6 **Specific gravity converted to 60°/60° F (15°/15°C)** 0.8459 **Fuel weight** 7.043
lbs/gal (0.844 kg/l) **Oil SAE 10W-30 API service classification SH To motor** 2.825 gal (10.694 l)
Drained from motor 2.683 gal (10.155 l)
Transmission and final drive lubricant SAE 80W90 gear lubricant Front axle lubricant SAE 80W90 gear lubricant Hydraulic lubricant SAE 10 Total time engine was operated 21.0 hours.

ENGINE: Make MTZ Diesel **Model** D-243
Type four cylinder vertical **Serial No.** 323068
Crankshaft lengthwise **Rated rpm** 2200 **Bore and stroke** (as specified) 4.331" × 4.921" (110.0 mm × 125.0 mm) **Compression ratio** 16.0 to 1
Displacement 290 cu in (4750 ml) **Starting system** 24 volt **Lubrication** pressure **Air cleaner** oil bath and precleaner **Oil filter** full flow centrifugal
Oil cooler radiator for crankcase oil **Fuel filter** one paper element and one cleanable screen **Muffler** vertical **Cooling medium temperature control** one thermostat.

ENGINE OPERATING PARAMETERS: fuel rate: 32.2-35.6 lb/h (14.6-16.1 kg/h) **high idle:** 2350-2400 rpm

CHASSIS: Type front wheel assist **Serial No.** 001237 **Tread width** rear 60.0" (1524 mm) to 82.7" (2100 mm) front 60.0" (1524 mm) to 70.9" (1800 mm)
Wheel base 96.5" (2450 mm) **Hydraulic control system** direct engine drive with throwout lever (engaged during test) **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.58 (2.54) second 2.09 (3.37) third 2.67 (4.30) fourth 3.56 (5.73) fifth 4.58 (7.37) sixth 5.42 (8.72) seventh 6.05 (9.74) eighth 7.18 (11.55) ninth 7.79 (12.54) tenth 9.24 (14.87) eleventh 10.31 (16.60) twelfth 12.22 (19.66) thirteenth 17.18 (27.65) fourteenth 22.72 (36.57) reverse 3.33 (5.36), 4.40 (7.08), 5.67 (9.12), 7.48 (12.05) **Clutch** single dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together
Steering hydrostatic **Power take-off** 540 rpm at 2077 engine rpm or 1000 rpm at 2310 engine rpm
Unladen tractor mass 8640 lb (3919 kg).

DRAWBAR PERFORMANCE
(Unballasted—Front Drive in Automatic mode)
MAXIMUM POWER IN SELECTED GEARS

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)
					lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	cool- ing med	Air dry bulb	
3rd(2L) Gear									
54.54 (40.67)	8520 (37.90)	2.40 (3.86)	2289	14.80	0.573 (0.348)	12.30 (2.42)	177 (80)	42 (6)	29.24 (99.02)
4th(2H) Gear									
63.52 (47.36)	7251 (32.25)	3.28 (5.29)	2202	8.41	0.551 (0.335)	12.77 (2.52)	177 (81)	62 (17)	28.58 (96.78)
5th(3L) Gear									
66.16 (49.34)	5662 (25.18)	4.38 (7.05)	2204	5.11	0.530 (0.322)	13.29 (2.62)	178 (81)	61 (16)	28.58 (96.78)
6th(4L) Gear									
66.60 (49.67)	4754 (21.15)	5.25 (8.46)	2208	4.06	0.527 (0.320)	13.37 (2.63)	180 (82)	60 (16)	28.58 (96.78)
7th(3H) Gear									
67.85 (50.60)	4327 (19.25)	5.88 (9.46)	2206	3.67	0.516 (0.314)	13.65 (2.69)	179 (82)	61 (16)	28.60 (96.85)
8th(4H) Gear									
68.30 (50.93)	3660 (16.28)	7.00 (11.26)	2209	3.30	0.514 (0.313)	13.69 (2.70)	179 (82)	62 (17)	28.61 (96.88)
9th(5L) Gear									
67.07 (50.01)	3296 (14.66)	7.63 (12.28)	2204	2.90	0.523 (0.318)	13.46 (2.65)	178 (81)	61 (16)	28.61 (96.88)
10th(6L) Gear									
66.27 (49.42)	2740 (12.19)	9.07 (14.60)	2204	2.51	0.532 (0.324)	13.24 (2.61)	178 (81)	61 (16)	28.61 (96.88)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Automatic dB(A)	2WD dB(A)
At 75% load in 7th(3H) Gear	86.7	87.1
Bystander in 14th(7H) Gear	—	91.1

TIRES AND WEIGHT

Rear Tires—No., size, ply & psi (kPa)
Front Tires—No., size, ply & psi (kPa)

Tested Without Ballast

Two 16.9R38; **, 16 (110)
Two 360/70R20; **, 18 (125)

Height of Drawbar

20.0 in (510 mm)

Static Weight with Operator—Rear
—Front
—Total

5946 lb (2697 kg)
2860 lb (1297 kg)
8806 lb (3994 kg)

REPAIRS AND ADJUSTMENTS: The engine side panels were removed during the testing sequence to prevent overheating.

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 injection pump inlet was maintained at 174° F (79° C). The performance figures on this summary were taken from a test conducted under the OECD Code II restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor No. **1742**, Summary 242, November 20, 1997.

LOUIS I. LEVITICUS

Engineer-in-Charge

L.L. BASHFORD

R.D. GRISIO

M.F. KOCHER

Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
(Unballasted—Front Drive Disengaged)
FUEL CONSUMPTION CHARACTERISTICS

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)
					lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	cool- ing med	Air dry bulb	
Maximum Power—8th(4H) Gear									
68.19 (50.85)	3673 (16.34)	6.96 (11.20)	2198	3.48	0.515 (0.313)	16.67 (2.69)	179 (81)	62 (17)	28.61 (96.88)
75% of Pull at Maximum Power—8th(4H) Gear									
53.70 (40.04)	2750 (12.23)	7.32 (11.79)	2303	3.09	0.521 (0.317)	13.53 (2.66)	176 (80)	43 (6)	29.23 (98.98)
50% of Pull at Maximum Power—8th(4H) Gear									
36.39 (27.13)	1839 (8.18)	7.42 (11.94)	2318	2.39	0.587 (0.357)	12.00 (2.36)	173 (78)	43 (6)	29.23 (98.98)
75% of Pull at Reduced Engine Speed—10th(6L) Gear									
53.70 (40.05)	2739 (12.18)	7.35 (11.83)	1796	3.09	0.497 (0.302)	14.18 (2.79)	177 (81)	43 (6)	29.23 (98.98)
50% of Pull at Reduced Engine Speed—10th(6L) Gear									
36.32 (27.09)	1848 (8.22)	7.37 (11.87)	1788	2.39	0.507 (0.308)	13.89 (2.74)	174 (79)	43 (6)	29.23 (98.98)
MAXIMUM POWER IN SELECTED GEARS									
4th(2H) Gear									
59.06 (44.04)	7043 (31.33)	3.14 (5.06)	2265	14.71	0.564 (0.343)	12.49 (2.46)	176 (80)	41 (5)	29.25 (99.05)
5th(3L) Gear									
65.38 (48.75)	5664 (25.19)	4.33 (6.97)	2206	6.46	0.537 (0.327)	13.12 (2.58)	177 (80)	60 (16)	28.58 (96.78)
6th(4L) Gear									
65.69 (48.99)	4723 (21.01)	5.22 (8.39)	2203	4.55	0.537 (0.326)	13.12 (2.59)	179 (82)	60 (16)	28.58 (96.78)
7th(3H) Gear									
67.70 (50.48)	4353 (19.36)	5.83 (9.39)	2199	4.09	0.521 (0.317)	13.52 (2.66)	179 (81)	61 (16)	28.59 (96.82)
8th(4H) Gear									
68.19 (50.85)	3673 (16.34)	6.96 (11.20)	2198	3.48	0.515 (0.313)	13.67 (2.69)	179 (81)	62 (17)	28.61 (96.88)
9th(5L) Gear									
66.82 (49.83)	3299 (14.67)	7.60 (12.23)	2199	3.01	0.526 (0.320)	13.39 (2.64)	178 (81)	61 (16)	28.61 (96.88)
10th(6L) Gear									
66.45 (49.55)	2758 (12.77)	9.04 (14.54)	2199	2.62	0.526 (0.320)	13.38 (2.64)	178 (81)	61 (16)	28.61 (96.88)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range:

4536 lbs (20.2 kN)

i) Opening pressure of relief valve:

NA

Sustained pressure of the open relief valve:

2740 psi (189 bar)

ii) Pump delivery rate at minimum pressure:

13.3 GPM (50.3 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

11.9 GPM (45.0 l/min)

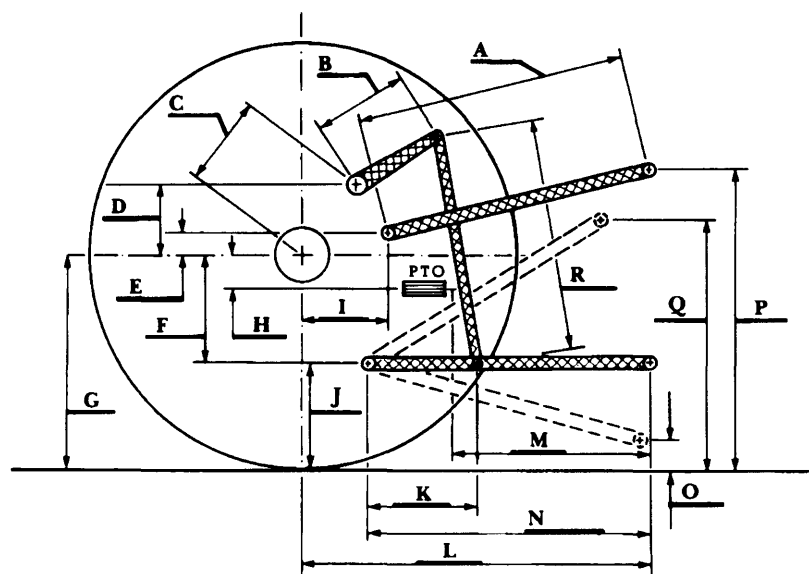
Delivery pressure:

2410 psi (166 bar)

Power:

16.7 HP (12.6 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	21.8	552
B	10.2	266
C	17.3	439
D	10.6	270
E	6.0	152
F	10.4	264
G	31.3	795
H	4.8	122
I	19.0	483
J	20.9	531
K	18.2	462
L	38.9	988
M	22.5	572
N	31.7	805
O	8.0	203
P	45.0	1141
Q	32.1	816
R	20.8	527



Belarus 8345 Diesel

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