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January 1996

Test 1715: Belarus 532 and 530 Diesel 9-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1715—SUMMARY 210

BELARUS 532 DIESEL

ALSO BELARUS 530 DIESEL

9 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—560 rpm)					
55.32 (41.25)	1700	3.55 (13.42)	0.450 (0.273)	15.60 (3.07)	
Standard Power Take-off Speed (540 rpm)					
52.71 (39.31)	1639	3.37 (12.77)	0.449 (0.273)	15.62 (3.08)	

VARYING POWER AND FUEL CONSUMPTION

55.32 (41.25)	1700	3.55 (13.42)	0.450 (0.273)	25.60 (3.07)	Air temperature
48.48 (36.15)	1749	3.04 (11.50)	0.439 (0.267)	15.96 (3.14)	
36.51 (27.22)	1764	2.31 (8.75)	0.444 (0.270)	13.80 (3.11)	Relative humidity
24.55 (18.30)	1778	1.80 (6.80)	0.513 (0.312)	13.66 (2.69)	
12.65 (9.43)	1800	1.28 (4.86)	0.712 (0.433)	9.85 (1.94)	Barometer
0.46 (0.34)	1835	0.77 (2.92)	11.719 (7.129)	0.60 (0.12)	

Maximum Torque 177 lb.-ft. (240 Nm) at 1199 rpm

Maximum Torque Rise 3.4%

Torque rise at 1402 engine rpm 2%

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—5th Gear									
47.98 (35.78)	3990 (17.75)	4.51 (7.26)	1717	7.69	0.531 (0.323)	13.22 (2.60)	181 (83)	68 (20)	29.08 (98.48)
75% of Pull at Maximum Power—5th Gear									
37.52 (27.98)	2970 (13.21)	4.74 (7.63)	1759	5.37	0.509 (0.310)	13.76 (2.71)	174 (79)	70 (21)	29.06 (98.41)
50% of Pull at Maximum Power—5th Gear									
25.72 (19.18)	1987 (8.84)	4.85 (7.81)	1777	3.80	0.582 (0.354)	12.06 (2.38)	170 (76)	68 (20)	28.96 (98.07)
75% of Pull at Reduced Engine Speed—6th Gear									
37.54 (27.99)	2963 (13.18)	4.75 (7.65)	1510	5.43	0.506 (0.308)	13.86 (2.73)	177 (81)	70 (21)	29.06 (98.41)
50% of Pull at Reduced Engine Speed—6th Gear									
25.71 (19.17)	1984 (8.83)	4.86 (7.82)	1518	3.72	0.540 (0.328)	13.00 (2.56)	171 (77)	68 (20)	28.96 (98.07)

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

Dates of Test: September 9-23, 1996

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

FUEL OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 53.9 **Specific gravity converted to 60°/60° F (15°/15°C)** 0.8422 **Fuel weight** 7.012
lbs/gal (0.840 kg/l) **Oil SAE 10W30 API service classification** SH/CG-4 **To motor** 2.734 gal (10.351 l) **Drained from motor** 2.343 gal (8.867 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** 23.0 hours.

ENGINE: Make MTZ Diesel Model D-50P
Type four cylinder vertical **Serial No.** 229591
Crankshaft lengthwise **Rated rpm** 1700 **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** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner **Oil filter** full flow centrifugal **Oil cooler** radiator for crankcase oil
Fuel filter two paper elements **Muffler** vertical
Cooling medium temperature control one thermostat and radiator shutter.

ENGINE OPERATING PARAMETERS: fuel
rate: 24.2-25.8 lb/h (13.0-13.8 kg/h) **high idle:**
1825-1875 rpm

CHASSIS: Type front wheel assist **Serial No.** 264468 **Tread width** rear 62.6" (1590 mm) to 82.7" (2100 mm) front 59.5" (1510 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 1.14 (1.83) second 1.95 (3.14) third 3.31 (5.33) fourth 4.07 (6.55) fifth 4.82 (7.76) sixth 5.64 (9.08) seventh 6.93 (11.15) eighth 8.21 (13.21) ninth 15.27 (24.57) reverse 2.42 (3.90), 4.13 (6.65) **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 1633 engine rpm **Unladen tractor mass** 7072 lb (3208 kg).

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

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)
2nd Gear									
29.11 (21.70)	6315 (28.09)	1.73 (2.78)	1766	14.81	0.588 (0.358)	11.93 (2.35)	169 (76)	60 (16)	29.09 (96.51)
3rd Gear									
45.56 (33.97)	5940 (26.42)	2.88 (4.63)	1707	13.76	0.553 (0.336)	12.68 (2.50)	181 (83)	66 (19)	29.09 (96.51)
4th Gear									
47.48 (35.40)	4813 (21.41)	3.70 (5.95)	1705	9.67	0.532 (0.324)	13.18 (2.60)	182 (83)	66 (19)	29.09 (96.51)
5th Gear									
47.98 (35.78)	3990 (17.75)	4.51 (7.26)	1717	7.69	0.531 (0.323)	13.22 (2.60)	181 (83)	68 (20)	29.08 (98.48)
6th Gear									
47.90 (35.72)	3374 (15.01)	5.32 (8.57)	1706	6.26	0.531 (0.323)	13.20 (2.60)	182 (83)	70 (21)	29.08 (98.48)
7th Gear									
47.81 (35.65)	2702 (12.02)	6.64 (10.68)	1709	5.11	0.529 (0.322)	13.25 (2.61)	182 (83)	71 (22)	29.08 (98.48)
8th Gear									
47.93 (35.75)	2281 (10.14)	7.88 (12.69)	1701	4.33	0.533 (0.324)	13.15 (2.59)	181 (83)	71 (22)	29.07 (98.44)

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 injection pump inlet was maintained at 160° F (71° 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. **1715**, Summary 210, October 16, 1996.

LOUIS I. LEVITICUS

Engineer-in-Charge

L.L. BASHFORD

R.D. GRISSO

M.F. KOCHER

Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Automatic dB(A)	2WD dB(A)
At 75% load in 5th Gear	98.5	97.5
Bystander in 9th Gear	—	89.5

TIRES AND WEIGHT

Rear Tires—No., size, ply & psi (kPa)

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

Tested Without Ballast

Two 16.9-30; 6; 16 (110)

Two 11.2R16; 8; 20 (140)

Height of Drawbar

16.5 in (420 mm)

Static Weight with Operator—Rear

4704 lb (2134 kg)

—Front

2534 lb (1149 kg)

—Total

7238 lb (3283 kg)

DRAWBAR PERFORMANCE
(Unballasted—Front Drive in 2WD 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/kWh)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—6th Gear									
47.01 (35.06)	3401 (15.13)	5.18 (8.34)	1700	9.51	0.537 (0.327)	13.05 (2.57)	177 (81)	69 (21)	29.08 (98.48)
75% of Pull at Maximum Power—6th Gear									
37.14 (27.70)	2499 (11.12)	5.57 (8.97)	1757	5.85	0.510 (0.310)	13.74 (2.71)	174 (79)	70 (21)	29.06 (98.41)
50% of Pull at Maximum Power—6th Gear									
25.41 (18.95)	1670 (7.43)	5.71 (9.19)	1776	4.48	0.578 (0.351)	12.14 (2.39)	169 (76)	70 (21)	29.06 (98.41)
75% of Pull at Reduced Engine Speed—7th Gear									
37.10 (27.67)	2502 (11.13)	5.56 (8.95)	1429	5.85	0.501 (0.305)	14.00 (2.76)	180 (82)	70 (21)	29.06 (98.41)
50% of Pull at Reduced Engine Speed—7th Gear									
25.40 (18.94)	1672 (7.44)	5.70 (9.17)	1442	4.54	0.531 (0.323)	13.22 (2.60)	173 (78)	70 (21)	29.06 (98.41)
MAXIMUM POWER IN SELECTED GEARS									
4th Gear									
44.27 (33.01)	4707 (20.94)	3.53 (5.68)	1707	14.89	0.558 (0.339)	12.57 (2.48)	175 (79)	58 (14)	29.10 (98.54)
5th Gear									
46.03 (34.32)	4010 (17.84)	4.31 (6.94)	1703	12.00	0.547 (0.333)	12.83 (2.53)	182 (83)	67 (19)	29.08 (98.48)
6th Gear									
47.01 (35.06)	3401 (15.13)	5.18 (8.34)	1700	9.51	0.537 (0.327)	13.05 (2.57)	177 (81)	69 (21)	29.08 (98.48)
7th Gear									
47.28 (35.26)	2706 (12.04)	6.55 (10.54)	1708	7.31	0.533 (0.324)	13.15 (2.59)	180 (82)	70 (21)	29.08 (98.48)
8th Gear									
47.95 (35.76)	2274 (10.12)	7.91 (12.73)	1706	5.33	0.534 (0.325)	13.14 (2.59)	180 (82)	71 (22)	29.08 (98.48)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

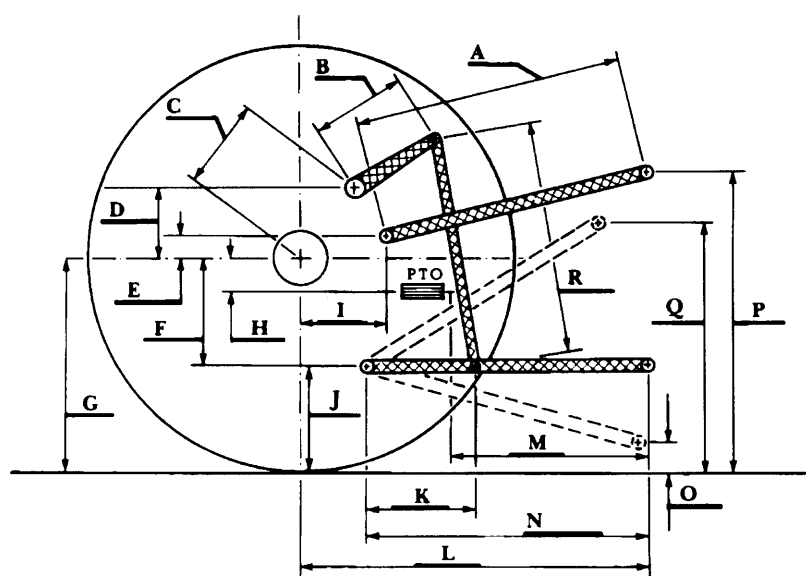
CATEGORY: II

Quick Attach: none

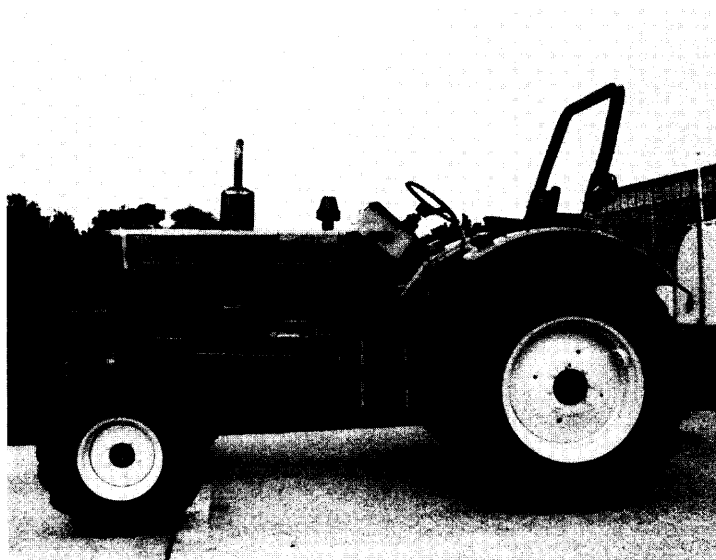
Maximum Force Exerted Through Whole Range: 3125 lbs (13.9 kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure with relief valve open: 2820 psi (194 bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 11.4 GPM (43.2 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 7.8 GPM (29.5 l/min)
- Delivery pressure: 2250 psi (155 bar)
- Power: 10.2 HP (7.6 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	22.0	559
B	10.2	266
C	17.3	439
D	10.6	270
E	6.0	152
F	10.4	264
G	27.4	695
H	4.8	122
I	19.0	483
J	17.0	431
K	18.2	462
L	38.9	988
M	22.5	572
N	31.7	805
O	8.0	203
P	41.0	1041
Q	31.8	806
R	17.8	452



Belarus 532 Diesel

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