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Test 1655: Belarus 572, 505, 525 and 570 Diesel 18-Speeds

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1655—BELARUS 572 DIESEL
ALSO BELARUS 505, 525 and 570 DIESEL
18 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F *(°C)* Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed — Two hours (PTO Speed—596 rpm)								
61.24	1800	3.58	0.408	17.12	182	59	75	28.74
(45.67)		*(13.54)*	*(0.248)*	*(3.37)*	*(83)*	*(15)*	*(24)*	*(97.31)*
Standard Power Take-off Speed — (540 rpm)—One Hour								
59.41	1632	3.39	0.399	17.53	187	60	76	28.70
(44.30)		*(12.83)*	*(0.243)*	*(3.45)*	*(86)*	*(16)*	*(25)*	*(97.19)*
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
54.79	1898	3.15	0.402	17.37	176	62	79	.....
(40.86)		*(11.94)*	*(0.245)*	*(3.42)*	*(80)*	*(17)*	*(26)*	.....
0.32	1944	0.93	20.333	0.34	152	62	80	.....
(0.24)		*(3.51)*	*(12.368)*	*(0.07)*	*(66)*	*(17)*	*(26)*	.....
27.82	1930	1.89	0.476	14.70	164	63	80	.....
(20.75)		*(7.16)*	*(0.289)*	*(2.90)*	*(73)*	*(17)*	*(27)*	.....
61.69	1793	3.54	0.401	17.44	185	61	78	.....
(46.00)		*(13.39)*	*(0.244)*	*(3.44)*	*(85)*	*(16)*	*(26)*	.....
14.06	1939	1.40	0.698	10.02	159	63	81	.....
(10.48)		*(5.31)*	*(0.424)*	*(1.97)*	*(71)*	*(17)*	*(27)*	.....
41.47	1913	2.50	0.421	16.60	168	63	81	.....
(30.93)		*(9.46)*	*(0.256)*	*(3.27)*	*(76)*	*(17)*	*(27)*	.....
Av 33.36	**1903**	**2.24**	**0.468**	**14.92**	**167**	**62**	**80**	**28.67**
Av (24.88)		***(8.46)***	***(0.285)***	***(2.94)***	***(75)***	***(17)***	***(27)***	***(97.10)***

DRAWBAR PERFORMANCE
(Front Drive in Automatic Mode)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power — Two Hours 11th (5H) Gear											
53.49	3729	5.38	1799	3.48	3.54	0.463	15.11	178	51	58	28.64
(39.89)	*(16.59)*	*(8.66)*			*(13.40)*	*(0.281)*	*(2.98)*	*(81)*	*(11)*	*(14)*	*(96.99)*
75% of Pull at Maximum Power — Ten Hours 11th (5H) Gear											
44.00	2866	5.76	1906	2.48	2.99	0.475	14.73	178	54	66	28.69
(32.81)	*(12.75)*	*(9.26)*			*(11.31)*	*(0.289)*	*(2.90)*	*(81)*	*(12)*	*(19)*	*(97.15)*
50% of Pull at Maximum Power — Two Hours 11th (5H) Gear											
29.64	1917	5.80	1909	1.96	2.30	0.542	12.91	171	63	76	28.58
(22.10)	*(8.53)*	*(9.33)*			*(8.69)*	*(0.329)*	*(2.54)*	*(77)*	*(17)*	*(24)*	*(96.77)*
50% of Pull at Reduced Engine Speed — Two Hours 16th (8H) Gear											
29.62	1916	5.80	1120	1.85	1.94	0.457	15.28	189	65	81	28.57
(22.09)	*(8.52)*	*(9.33)*			*(7.34)*	*(0.278)*	*(3.01)*	*(87)*	*(18)*	*(27)*	*(96.73)*

Department of Biological Systems Engineering

Dates of Test: October 16- 25, 1991

Manufacturer: MINSK TRACTOR WORKS, MTZ, Minsk USSR

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 53.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F *(15/15°C)*** 0.8395 **Fuel weight** 6.990 lbs/gal *(0.838 kg/l)* **Oil SAE** 10W-30 **API service classification** SG, CE **To motor** 2.836 gal *(10.737 l)* **Drained from motor** 2.711 gal *(10.264 l)* **Transmission and final drive lubricant** SAE 90 gear lubricant **Hydraulic lubricant** SAE 30 **Total time engine was operated** 41.0 hours.

ENGINE: Make MTZ **Model** D242 Diesel **Type** four cylinder vertical **Serial No.** 725296 **Crankshaft** lengthwise **Rated rpm** 1800 **Bore and stroke** (as specified) 4.331″ × 4.921″ *(110 mm × 125.0 mm)* **Compression ratio** 16 to 1 **Displacement** 290 cu in *(4750 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** oil bath with 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 and radiator shutter.

ENGINE OPERATING PARAMETERS: fuel rate: maximum 25.1 lb/h *(11.4 kg/h)* **high idle:** not to exceed 1950 rpm.

CHASSIS: Type front wheel assist **Serial No.** 258820 **Tread width** rear 56.7″ *(1440 mm)* to 82.7″ *(2100 mm)* front 53.1″ *(1350 mm)* to 70.9″ *(1800 mm)* **Wheel base** 96.5″ *(2450 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 36.9″ *(937 mm)* Vertical distance above roadway 40.4″ *(1025 mm)* Horizontal distance from center of rear wheel tread 0.4″ *(11 mm)* to the right **Hydraulic control system** direct engine drive with throwout lever (engaged during test) **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.0 *(1.6)* second 1.3 *(2.1)* third 1.7 *(2.7)* fourth 2.2 *(3.6)* fifth 2.9 *(4.6)* sixth 3.5 *(5.6)* seventh 3.8 *(6.1)* eighth 4.2 *(6.7)* ninth 4.7 *(7.4)* tenth 4.9 *(7.9)* eleventh 5.5 *(8.8)* twelfth 6.0 *(9.7)* thirteenth 6.5 *(10.4)* fourteenth 7.1 *(11.4)* fifteenth 7.9 *(12.8)* sixteenth 9.4 *(15.1)* seventeenth 13.2 *(21.2)* eighteenth 17.4 *(28.1)* reverse 2.0 *(3.4)*, 2.8 *(4.4)*, 3.5 *(5.7)*, 4.7 *(7.5)* **Clutch** single dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 156″

MAXIMUM POWER IN SELECTED GEARS

47.73 *(35.59)*	9321 *(41.46)*	1.92 *(3.09)*	1807	14.66	4th (2H) Gear	169 *(76)*	49 *(9)*	54 *(12)*	28.65 *(97.02)*
53.00 *(39.52)*	7329 *(32.60)*	2.71 *(4.36)*	1799	5.78	5th (3L) Gear	170 *(77)*	49 *(9)*	54 *(12)*	28.65 *(97.02)*
53.94 *(40.22)*	5945 *(26.44)*	3.40 *(5.48)*	1803	4.73	6th (4L) Gear	191 *(88)*	61 *(16)*	72 *(22)*	28.58 *(96.78)*
54.94 *(40.97)*	5632 *(25.05)*	3.66 *(5.89)*	1798	4.52	7th (3H) Gear	190 *(88)*	59 *(15)*	68 *(20)*	28.57 *(96.75)*
54.32 *(40.51)*	5032 *(22.38)*	4.05 *(6.51)*	1798	4.02	8th (5L) Gear	188 *(86)*	57 *(14)*	64 *(18)*	28.57 *(96.75)*
54.99 *(41.00)*	4552 *(20.25)*	4.53 *(7.29)*	1797	3.66	9th (4H) Gear	190 *(88)*	59 *(15*	69 *(21)*	28.58 *(96.78)*
55.01 *(41.02)*	4342 *(19.31)*	4.75 *(7.65)*	1798	3.66	10th (6L) Gear	179 *(81)*	41 *(5)*	49 *(9)*	29.26 *(99.09)*
55.09 *(41.08)*	3830 *(17.04)*	5.39 *(8.68)*	1798	3.22	11th (5H) Gear	179 *(81)*	40 *(4)*	47 *(8)*	29.26 *(99.09)*
54.65 *(40.76)*	3495 *(15.55)*	5.86 *(9.44)*	1794	2.93	12th (7L) Gear	184 *(84)*	42 *(6)*	51 *(11)*	29.25 *(99.05)*
54.48 *(40.63)*	3222 *(14.33)*	6.34 *(10.21)*	1799	2.71	13th (6H) Gear	177 *(80)*	40 *(4)*	47 *(8)*	29.26 *(99.09)*
53.79 *(40.11)*	2886 *(12.84)*	6.99 *(11.25)*	1798	2.56	14th (8L) Gear	182 *(83)*	42 *(6)*	52 *(11)*	29.25 *(99.05)*
53.63 *(39.99)*	2568 *(11.42)*	7.83 *(12.60)*	1799	2.26	15th (7H) Gear	184 *(84)*	58 *(14)*	65 *(18)*	28.57 *(96.75)*
52.03 *(38.80)*	2096 *(9.32)*	9.31 *(14.98)*	1801	1.88	16th (8H) Gear	182 *(83)*	58 *(14)*	66 *(19)*	28.57 *(96.75)*

LUGGING ABILITY IN 11th (5H) GEAR

Crankshaft Speed rpm	1798	1619	1435	1257	1071	902
Pull—lbs *(kN)*	3830 *(17.04)*	4201 *(18.69)*	4565 *(20.31)*	4720 *(21.00)*	4626 *(20.58)*	4448 *(19.79)*
Increase in Pull %	0	10	19	23	21	16
Power—Hp *(kW)*	55.09 *(41.08)*	54.20 *(40.41)*	52.05 *(38.82)*	47.10 *(35.12)*	39.37 *(29.36)*	31.92 *(23.80)*
Speed—Mph *(km/h)*	5.39 *(8.68)*	4.84 *(7.79)*	4.28 *(6.88)*	3.74 *(6.02)*	3.19 *(5.14)*	2.69 *(4.33)*
Slip %	3.22	3.37	3.95	3.95	3.95	3.66

TRACTOR SOUND LEVEL	Without cab dB(A)	With cab dB(A)
Maximum Available Power—Two Hours	91.0	83.5
75% of Pull at Maximum Power—Ten Hours	91.0	82.0
50% of Pull at Maximum Power—Two Hours	90.0	82.5
50% of Pull at Reduced Engine Speed—Two Hours	87.5	81.0
Bystander in 18th (9H) gear	82.5	86.5

DRAWBAR PERFORMANCE

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %		Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
MAXIMUM POWER IN SELECTED GEARS									
MAXIMUM POWER (4WD MODE)									
54.51 *(40.65)*	3781 *(16.82)*	5.41 *(8.70)*	1802	2.57	11th (5H) Gear	191 *(88)*	60 *(16)*	70 *(21)*	28.58 *(96.78)*
MAXIMUM PULL (2WD MODE)									
49.53 *(36.93)*	7410 *(32.96)*	2.51 *(4.03)*	1806	13.84	5th (3L) Gear	173 *(78)*	49 *(9)*	54 *(12)*	28.65 *(97.02)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 15.5-38P; 8; 24 *(165)*	Two 15.5-38P; 8; 24 *(165)*
Ballast	—Liquid (each)	635 lb *(288 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2-20; 8; 20 *(140)*	Two 11.2-20; 8; 20 *(140)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	5 lb *(2 kg)*	None
Height of Drawbar		15.0 in *(380 mm)*	15.0 in *(380 mm)*
Static Weight with Operator—Rear		7060 lb *(3202 kg)*	5790 lb *(2626 kg)*
—Front		3366 lb *(1527 kg)*	3356 lb *(1522 kg)*
—Total		10426 lb *(4729 kg)*	*9146 lb *(4148 kg)*

(3.96 m) left 191″ *(4.85 m)* (on concrete surface without brake) right 175″ *(4.45 m)* left 215″ (5.46 m) **Turning space diameter** (on concrete surface with brake applied) right 323″ *(8.20 m)* left 393″ *(9.98 m)* (on concrete surface without brake) right 361″ *(9.17 m)* left 441″ *(11.20 m)* **Power take-off** 540 rpm at 1632 engine rpm **Unladen tractor mass** 8310 lb *(3770 kg)*.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

***NOTE:** Tractor is shipped with rear weights—168 lb *(76 kg)* and front weight package—492 lb *(223 kg)*.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and and Nebraska test procedures. Startup was delayed twice due to malfunction in the starter circuit. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 151°F *(66°C)*. Thirteen gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1655,** November 25, 1991.

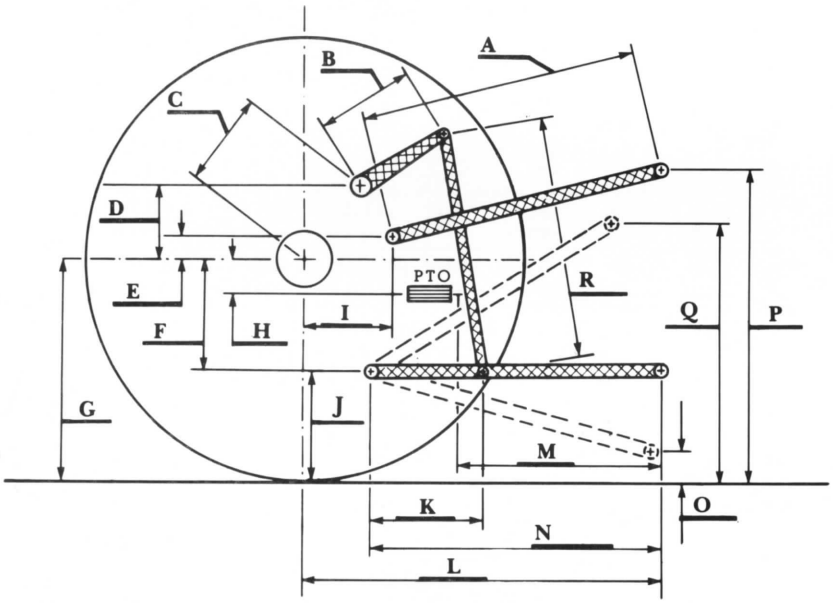
LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
L. L. BASHFORD
Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2840	*(19570)*
Location	remote outlet	
Hydraulic oil temperature °F *(°C)*	154	*(68)*
Location	hydraulic reservoir	

	Maximum Lift Capacity	
QUICK ATTACH	No	
CATEGORY	II	
LOAD lbs *(kg)*	4366	*(1980)*
TIME sec	2.90	
HITCH POINT MOVEMENT in *(mm)*		
Lowest position	12.0	*(305)*
Top of timed range	36.0	*(914)*
Highest position	36.2	*(919)*
LOAD CG MOVEMENT in *(mm)*		
Lowest position	11.3	*(287)*
Top of timed range	42.0	*(1067)*
Highest position	42.2	*(1072)*



Hitch Dimensions as Tested — No Load

	inch	*mm*
A	24.1	*612*
B	10.2	*259*
C	17.6	*447*
D	10.6	*269*
E	6.3	*160*
F	9.6	*244*
G	29.3	*744*
H	4.6	*117*
I	19.0	*483*
J	19.7	*500*
K	18.0	*457*
L	42.8	*1087*
M	26.0	*660*
N	33.9	*861*
O	8.0	*203*
P	38.7	*983*
Q	35.0	*889*
R	19.5	*495*

Belarus 572 Diesel

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