1-1-1978

Test 1282: Steiger Tiger III ST-450 and ST-470 6-Speed (Diesel)

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1282 — STEIGER TIGER III ST-450
ALSO STEIGER TIGER III ST-470
6 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

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 3rd Gear											
356.58 (265.90)	20385 (90.68)	6.56 (10.56)	2100	4.07	25.143 (95.178)	0.491 (0.299)	14.18 (2.794)	183 (83.6)	59 (14.7)	69 (20.6)	29.090 (98.233)
75% of Pull at Maximum Power—Ten Hours 3rd Gear											
309.97 (231.15)	16024 (71.28)	7.25 (11.67)	2300	3.14	24.408 (92.395)	0.549 (0.334)	12.70 (2.502)	183 (83.7)	68 (19.8)	74 (23.3)	28.904 (97.604)
50% of Pull at Maximum Power—Two Hours 3rd Gear											
211.79 (157.93)	10653 (47.39)	7.46 (12.00)	2345	2.32	20.050 (75.898)	0.660 (0.401)	10.56 (2.081)	182 (83.3)	71 (21.4)	73 (22.8)	28.685 (96.865)
50% of Pull at Reduced Engine Speed—Two Hours 4th Gear											
211.84 (157.97)	10633 (47.30)	7.47 (12.02)	1574	2.20	14.527 (54.989)	0.478 (0.291)	14.58 (2.873)	182 (83.1)	76 (24.2)	86 (29.7)	28.655 (96.764)

MAXIMUM POWER IN SELECTED GEARS

334.41 (249.37)	42610 (189.54)	2.94 (4.74)	2108	14.71	1st Gear	187 (86.1)	77 (25.0)	92 (33.3)	28.660 (96.781)
364.37 (271.71)	28268 (125.74)	4.83 (7.78)	2098	5.61	2nd Gear	185 (84.7)	62 (16.7)	75 (23.9)	29.050 (98.097)
372.61 (277.85)	21296 (94.73)	6.56 (10.56)	2100	4.03	3rd Gear	185 (84.7)	62 (16.7)	75 (23.9)	29.070 (98.165)
363.98 (271.42)	13761 (61.21)	9.92 (15.96)	2100	2.57	4th Gear	184 (84.4)	62 (16.7)	75 (23.9)	29.030 (98.030)

LUGGING ABILITY IN RATED GEAR 3rd (See Remarks)

Crankshaft Speed rpm	2100	1894	1677	2056	2014	1979	1941
Pull—lbs (kN)	21296 (94.73)	24446 (108.74)	28150 (125.22)	27406 (121.91)	30896 (137.43)	34776 (154.69)	39182 (174.29)
Increase in Pull %	0	15	32	29	45	63	84
Power—Hp (kW)	372.61 (277.85)	383.36 (285.87)	387.31 (288.82)	331.71 (247.36)	321.34 (239.62)	307.16 (229.05)	276.89 (206.48)
Speed—Mph (km/h)	6.56 (10.56)	5.88 (9.46)	5.16 (8.30)	4.54 (7.30)	3.90 (6.28)	3.31 (5.33)	2.65 (4.26)
Slip %	4.03	4.67	5.45	5.45	6.07	7.58	9.90

DRAWBAR PERFORMANCE AT 1700 RPM

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 3rd Gear											
369.76 (275.73)	26491 (117.84)	5.23 (8.42)	1700	5.45	23.745 (89.883)	0.448 (0.272)	15.57 (3.068)	184 (84.4)	60 (15.3)	74 (23.1)	29.095 (98.249)

MAXIMUM POWER IN SELECTED GEARS

333.96 (249.03)	42715 (190.01)	2.93 (4.72)	2100	14.71	1st Gear	188 (86.4)	77 (25.0)	92 (33.3)	28.660 (96.781)
373.91 (278.82)	36850 (163.92)	3.81 (6.12)	1700	8.25	2nd Gear	186 (85.3)	62 (16.7)	75 (23.9)	29.040 (98.064)
385.74 (287.65)	27654 (123.01)	5.23 (8.42)	1700	5.45	3rd Gear	185 (85.0)	62 (16.7)	75 (23.9)	29.060 (98.131)
385.51 (287.47)	18158 (80.77)	7.96 (12.81)	1699	3.47	4th Gear	185 (85.0)	62 (16.7)	75 (23.9)	29.030 (98.030)

Department of Agricultural Engineering

Dates of Test: July 6-13, 1978

MANUFACTURER: STEIGER TRACTOR INC., 3101 First Avenue North Fargo, North Dakota 58102.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 50.4 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8371 **Fuel weight** 6.970 lbs/gal *(0.837 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 13.582 gal *(51.413 l)* **Drained from motor** 11.579 gal *(43.831 l)* **Transmission lubricant** SAE 10 Hydraulic transmission oil **Final Drive Lubricant** SAE 80W-90 **Total time engine was operated** 39.0 hours

ENGINE: Make Cummins Diesel **Type** 6 cylinder vertical with turbocharger and intercooler **Serial No.** 31104356 **Crankshaft** lengthwise **Rated rpm** 2100 & 1700 **Bore and stroke** 6.25″ × 6.25″ *(158.8 mm × 158.8 mm)* **Compression ratio** 15.5 to 1 **Displacement** 1150 cu in *(18845 ml)* **Cranking system** 24 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two full flow cartridges and one bypass element **Oil cooler** engine coolant heat exchangers for crankcase and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type four wheel drive with duals **Serial No.** 130-0014 **Tread width** rear 85.5″ *(2172 mm)* and 160.8″ *(4048 mm)* front 85.5″ *(2172 mm)* and 160.8″ *(4084 mm)* **Wheel base** 150″ *(3810 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 93.5″ *(2375 mm)* Vertical distance above roadway 40.5″ *(1029 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio torque converter with automatic lockup and full range power shift **Advertised speeds mph *(km/h)*** first 3.3 *(5.3)* second 4.9 *(7.8)* third 6.5 *(10.4)* fourth 9.7 *(15.6)* fifth 13.1 *(21.0)* sixth 19.5 *(31.3)* reverse 2.5 *(4.1)* **Clutch** none **Brakes** single disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake applied) right 334″ *(8.48 m)* left 329″ *(8.36 m)* **Turning space diameter** (on concrete surface without brake) right 697″ *(17.70 m)* left 684″ *(17.37 m)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	2100 RPM dB(A)	1700 RPM dB(A)
Maximum Available Power—Two Hours	76.5	75.5
75% of Pull at Maximum Power—Ten Hours	76.5	
50% of Pull at Maximum Power—Two Hours	76.5	
50% of Pull at Reduced Engine Speed—Two Hours	75.0	
Bystander in 5th gear	96.0	

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 14 *(95)*; outer 12 *(85)*	Four 30.5L-32; 10; inner 14 *(95)*; outer 12 *(85)*
Ballast	—Liquid (each inner)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 30.5L-32; 10; inner 16 *(110)*; outer 14 *(95)*	Four 30.5L-32; 10; inner 16 *(110)*; outer 14 *(95)*
Ballast	—Liquid (each inner)	2322 lb *(1053 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		20.0 in *(510 mm)*	20.0 in *(510 mm)*
Static Weight with Operator	—Rear	16470 lb *(7471 kg)*	16470 lb *(7471 kg)*
	—Front	30900 lb *(14016 kg)*	26255 lb *(11909 kg)*
	—Total	47370 lb *(21487 kg)*	42725 lb *(19380 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 142°F *(61.1°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The transmission went into torque converter mode after the second step of the lugging run, resulting in increased engine speed.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1282.**

LOUIS I. LEVITICUS
Engineer-in Charge

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Steiger Tiger III ST-450

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