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Test 1229: Allis-Chalmers 7580 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1229 — ALLIS-CHALMERS 7580 DIESEL

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)	
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb		
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—996 rpm)									
186.35 (138.96)	2550	12.584 (47.636)	0.473 (0.288)	14.81 (2.917)	200 (93.4)	55 (12.6)	75 (23.9)	29.243 (98.750)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
164.38 (122.58)	2645	11.729 (44.397)	0.500 (0.304)	14.02 (2.761)	196 (90.8)	54 (12.5)	74 (23.6)	..... .....
0.00 (0.00)	2777	4.102 (15.529)	..... .....	..... .....	180 (81.9)	53 (11.7)	71 (21.7)	..... .....
84.69 (63.16)	2726	8.089 (30.619)	0.669 (0.407)	10.47 (2.063)	187 (86.1)	53 (11.7)	71 (21.7)	..... .....
186.39 (138.99)	2550	12.645 (47.866)	0.475 (0.289)	14.74 (2.904)	200 (93.1)	55 (12.8)	75 (23.9)	..... .....
42.80 (31.92)	2755	6.239 (23.617)	1.021 (0.621)	6.86 (1.352)	182 (83.1)	54 (11.9)	70 (21.4)	..... .....
125.37 (93.49)	2690	9.844 (37.265)	0.550 (0.335)	12.74 (2.509)	190 (87.8)	53 (11.7)	70 (21.1)	..... .....
Av Av	100.61 (75.02)	2690	8.775 (33.216)	0.611 (0.372)	11.47 (2.259)	189 (87.1)	54 (12.0)	72 (22.2)	29.220 (98.672)

DRAWBAR PERFORMANCE

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)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 8th (4SL) Gear											
153.70 (114.62)	12393 (55.13)	4.65 (7.48)	2549	3.69	12.579 (47.615)	0.573 (0.349)	12.22 (2.407)	187 (85.8)	54 (12.2)	64 (17.8)	28.860 (97.456)
75% of Pull at Maximum Power—Ten Hours 8th (4SL) Gear											
127.26 (94.90)	9713 (43.20)	4.91 (7.91)	2668	2.83	11.169 (42.279)	0.615 (0.374)	11.39 (2.245)	178 (81.2)	39 (4.0)	47 (8.2)	28.849 (97.419)
50% of Pull at Maximum Power—Two Hours 8th (4SL) Gear											
86.42 (64.44)	6428 (28.59)	5.04 (8.11)	2707	1.81	9.189 (34.782)	0.745 (0.453)	9.40 (1.853)	178 (80.8)	55 (12.8)	66 (18.9)	28.865 (97.473)
50% of Pull at Reduced Engine Speed—Two Hours 12th (2FL) Gear											
86.16 (64.25)	6426 (28.58)	5.03 (8.09)	1848	1.93	6.976 (26.408)	0.567 (0.345)	12.35 (2.433)	176 (80.0)	31 (−0.5)	34 (1.1)	29.165 (98.486)
MAXIMUM POWER IN SELECTED GEARS											
108.08 (80.60)	23310 (103.69)	1.74 (2.80)	2686	14.93	2nd (1SH) Gear			179 (81.4)	40 (4.4)	47 (8.3)	28.890 (97.557)
160.09 (119.38)	14367 (63.91)	4.18 (6.72)	2549	4.30	7th (1FH) Gear			184 (84.4)	52 (11.1)	55 (12.8)	28.920 (97.659)
160.58 (119.75)	12946 (57.58)	4.65 (7.49)	2549	3.69	8th (4SL) Gear			183 (83.9)	47 (8.3)	52 (11.1)	28.930 (97.692)
157.42 (117.39)	10178 (45.27)	5.80 (9.33)	2550	2.84	10th (4SH) Gear			185 (85.0)	50 (10.0)	57 (13.9)	28.910 (97.625)
160.79 (119.90)	8727 (38.82)	6.91 (11.12)	2550	2.29	12th (2FL) Gear			186 (85.3)	51 (10.6)	58 (14.4)	28.900 (97.591)
154.44 (115.17)	6051 (26.92)	9.57 (15.40)	2549	1.73	15th (3FL) Gear			185 (85.0)	52 (11.1)	60 (15.6)	28.890 (97.557)

Department of Agricultural Engineering

Dates of Test: October 26 to November 8, 1976

Sound Retest: March 21, 1978

Manufacturer: Allis-Chalmers Corporation, P.O. Box 512, Milwaukee, Wisconsin 53201

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 51.8 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° (15.6°/15.6°)** 0.8414 Fuel weight 7.006 lbs/gal (0.841 kg/l) Oil SAE 30 API service classification SE-CD To motor 4.084 gal (15.460 l) Drained from motor 2.942 gal (11.137 l) Transmission and final drive lubricant Allis-Chalmers Power Fluid 821 Total time engine was operated 53.5 hours

ENGINE Make Allis-Chalmers Diesel **Type** 6 cylinder vertical with turbocharger and inter-cooler **Serial No.** 3D-42983 **Crankshaft** lengthwise **Rated rpm** 2550 **Bore and stroke** 4.25" × 5.0" (107.95 mm × 127.00 mm) **Compression ratio** 16 to 1 **Displacement** 426 cu in (6974 ml) **Cranking system** 12 volt **Lubrication pressure** Air cleaner primary and safety paper elements with aspirator Oil filter two full flow paper spin-on cartridges and by-pass processed wood fiber element Oil cooler engine coolant heat exchanger for crankcase oil and radiator for transmission oil Fuel filter paper snap-on cartridge Muffler vertical Cooling medium temperature control two thermostats

CHASSIS: Type 4WD with duals **Serial No.** 7580 1039 **Tread width** rear 68" (1730 mm) to 115" (2920 mm) front 68" (1730 mm) to 115" (2920 mm) **Wheel base** 126" (3200 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 73.2" (1858 mm) Vertical distance above roadway 43.2" (1097 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 with partial (2) range operator controlled power shift **Advertised speeds mph (km/h)** first 1.5 (2.4) second 1.9 (3.1) third 3.1 (5.0) fourth 3.4 (5.5) fifth 3.8 (6.1) sixth 4.2 (6.8) seventh 4.2 (6.8) eighth 4.7 (7.6) ninth 5.2 (8.4) tenth 5.8 (9.3) eleventh 6.3 (10.1) twelfth 6.9 (11.1) thirteenth 7.8 (12.6) fourteenth 8.5 (13.7) fifteenth 9.5 (15.3) sixteenth 10.6 (17.1) seventeenth 11.7 (18.8) eighteenth 13.0 (20.9) nineteenth 14.2 (22.9) twentieth 17.6 (28.3) reverse 2.8 (4.5), 3.5 (5.6) 6.4 (10.3), 7.9 (12.7) **Clutch** multiple wet disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated by foot pedal

LUGGING ABILITY IN RATED GEAR 8th (4SL)

Crankshaft Speed rpm	2549	2294	2040	1783	1516	1293
Pull—lbs (kN)	12946 (57.58)	15070 (67.04)	16129 (71.75)	16811 (74.78)	16077 (71.51)	14719 (65.47)
Increase in Pull %	0	16	25	30	24	14
Power—Hp (kW)	160.58 (119.75)	166.80 (124.38)	157.94 (117.78)	143.15 (106.75)	116.83 (87.12)	91.64 (68.33)
Speed—Mph (km/h)	4.65 (7.49)	4.15 (6.68)	3.67 (5.91)	3.19 (5.14)	2.73 (4.39)	2.33 (3.76)
Slip %	3.69	4.60	4.90	5.34	5.20	4.60

TRACTOR SOUND LEVEL WITH CAB

	Acousta I dB(A)	Acousta II dB(A)
Maximum Available Power—Two Hours	79.0	79.5
75% of Pull at Maximum Power—Ten Hours	79.5	81.0
50% of Pull at Maximum Power—Two Hours	78.0	80.5
50% of Pull at Reduced Engine Speed—Two Hours	76.0	77.5
Bystander in 20th (5FH) gear	92.5	

TIRES, BALLAST AND WEIGHT

Rear Tires	—No., size, ply & psi (kPa)
Ballast	—Liquid (each)
	—Cast Iron (each side)
Front Tires	—No., size, ply & psi (kPa)
Ballast	—Liquid (inner tires)
	—Cast Iron (each side)

With Ballast
Four 23.1-30; 8; 16 (110)
None
150 lb (68 kg)

Without Ballast
Four 23.1-30; 8; 16 (110)
None
None

Four 23.1-30; 8; 16 (110)
525 lb (238 kg)
70 lb (32 kg)

Four 23.1-30; 8; 16 (110)
None
None

Height of Drawbar

Static Weight with Operator—Rear
—Front
—Total

20.5 in (530 mm)

20.5 in (530 mm)

10160 lb (4609 kg)

9860 lb (4472 kg)

14840 lb (6731 kg)

13650 lb (6192 kg)

25000 lb (11340 kg)

23510 lb (10664 kg)

Steering hydrostatic and articulated **Turning radius** (on concrete surface with brake applied) right 240.6" (6.11 m) left 240.6" (6.11 m) **Turning space diameter** (on concrete surface without brake) right 486.2" (12.35 m) left 486.2" (12.35 m) **Power take-off** 996 rpm at 2550 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

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 132°F (55.6°C). Six gears were chosen between 15% slip and 15 mph (24.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1229**.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



Allis-Chalmers 7580 Diesel