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Test 1308: Allis-Chalmers 7045 Powershift Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1308

ALLIS-CHALMERS 7045 POWERSHIFT DIESEL

12 SPEED

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—1021 rpm)								
146.88 (109.53)	2300	9.950 (37.664)	0.471 (0.287)	14.76 (2.908)	192 (88.9)	60 (15.3)	75 (24.1)	28.987 (97.884)
Standard Power Take-off Speed (1000 rpm)—One Hour								
146.67 (109.37)	2253	9.828 (37.201)	0.466 (0.284)	14.92 (2.940)	191 (88.3)	58 (14.6)	75 (24.0)	28.980 (97.861)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
130.58 (97.37)	2404	9.328 (35.309)	0.497 (0.302)	14.00 (2.758)	184 (84.4)	58 (14.4)	75 (23.9)	..... .....
0.00 (0.00)	2547	3.552 (13.445)	..... .....	..... .....	176 (79.7)	58 (14.7)	75 (23.9)	..... .....
67.80 (50.56)	2496	6.487 (24.556)	0.666 (0.405)	10.45 (2.059)	181 (82.8)	58 (14.7)	74 (23.6)	..... .....
146.64 (109.35)	2300	9.953 (37.675)	0.472 (0.287)	14.73 (2.902)	188 (86.7)	58 (14.4)	75 (23.9)	..... .....
34.15 (25.46)	2524	5.039 (19.074)	1.027 (0.625)	6.78 (1.335)	176 (79.7)	58 (14.4)	75 (23.9)	..... .....
99.87 (74.47)	2454	7.944 (30.071)	0.544 (0.337)	12.57 (2.477)	183 (83.9)	58 (14.4)	75 (23.9)	..... .....
Av <i>Av</i>	79.84 2454	7.050 2454	0.615 0.615	11.32 11.32	181 181	58 58	75 75	28.980 28.980

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 5th (1F) Gear											
123.35 (91.98)	9380 (41.72)	4.93 (7.94)	2300	5.29	9.806 (37.120)	0.553 (0.337)	12.58 (2.478)	188 (86.7)	59 (14.7)	75 (23.6)	28.565 (96.460)
75% of Pull at Maximum Power—Ten Hours 5th (1F) Gear											
102.69 (76.57)	7277 (32.37)	5.29 (8.52)	2430	3.82	8.768 (33.190)	0.594 (0.361)	11.71 (2.307)	186 (85.6)	58 (14.6)	70 (21.1)	28.406 (95.923)
50% of Pull at Maximum Power—Two Hours 5th (1F) Gear											
70.67 (52.70)	4832 (21.50)	5.48 (8.83)	2486	2.56	7.346 (27.806)	0.723 (0.440)	9.62 (1.895)	180 (81.9)	62 (16.7)	66 (18.9)	28.340 (95.700)
50% of Pull at Reduced Engine Speed—Two Hours 7th (2F) Gear											
70.77 (52.78)	4840 (21.53)	5.48 (8.82)	1802	2.52	5.603 (21.211)	0.551 (0.335)	12.63 (2.488)	184 (84.2)	55 (12.5)	59 (14.7)	28.415 (95.953)
MAXIMUM POWER IN SELECTED GEARS											
98.94 (73.78)	15449 (68.72)	2.40 (3.87)	2436	14.76	2nd (2S) Gear			183 (83.6)	65 (18.3)	70 (21.1)	28.300 (95.565)
118.05 (88.03)	13534 (60.20)	3.27 (5.26)	2299	10.67	3rd (3S) Gear			188 (86.7)	57 (13.9)	74 (23.3)	28.630 (96.679)
122.50 (91.35)	10598 (47.14)	4.33 (6.98)	2300	6.23	4th (4S) Gear			191 (88.3)	57 (13.9)	73 (22.8)	28.640 (96.713)
127.17 (94.83)	9699 (43.14)	4.92 (7.91)	2297	5.37	5th (1F) Gear			189 (87.2)	55 (12.8)	70 (21.1)	28.680 (96.848)
119.92 (89.43)	8233 (36.62)	5.46 (8.79)	2299	4.49	6th (5S) Gear			186 (85.6)	57 (13.9)	74 (23.3)	28.620 (96.645)
127.61 (95.16)	6916 (30.76)	6.92 (11.14)	2300	3.52	7th (2F) Gear			185 (85.0)	57 (13.9)	74 (23.3)	28.610 (96.612)
119.52 (89.13)	6422 (28.56)	6.98 (11.23)	2300	3.44	8th (6S) Gear			192 (88.6)	57 (13.9)	74 (23.3)	28.600 (96.578)
122.54 (91.38)	4766 (21.20)	9.64 (15.52)	2298	2.36	9th (3F) Gear			189 (87.2)	58 (14.4)	74 (23.3)	28.580 (96.510)

Department of Agricultural Engineering

Dates of Test: May 3-8, 1979

MANUFACTURER: ALLIS-CHALMERS CORPORATION, P.O. Box 512, Milwaukee, Wisconsin 53201

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 49.0 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8359 **Fuel weight** 6.960 lbs/gal (0.834 kg/l) **Oil SAE 30 API service classification** SE/CD **To motor** 3.991 gal (15.106 l) **Drained from motor** 2.908 gal (11.007 l) **Transmission and final drive lubricant** AC Power Fluid 821 **Total time engine was operated** 36.5 hours

ENGINE Make Allis-Chalmers Diesel **Type** Six cylinder vertical with turbocharger **Serial No.** 70-00969 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 4.25" × 5.00" (108.0 mm × 127.0 mm) **Compression ratio** 16 to 1 **Displacement** 426 cu in (6981 ml) **Cranking system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements with centrifugal precleaner **Oil filter** two paper cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil and radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** two thermostats

CHASSIS: Type standard with duals **Serial No.** 7045 S 2012 **Tread width** rear 66" (1676 mm) to 144" (3658 mm) front 62" (1575 mm) to 90" (2286 mm) **Wheel base** 106" (2692 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 27.8" (706 mm) Vertical distance above roadway 36.1" (917 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 (6) range operator controlled power shift **Advertised speeds mph (km/h)** first 2.0 (3.2) second 2.7 (4.3) third 3.7 (6.0) fourth 4.7 (7.6) fifth 5.3 (8.5) sixth 5.8 (9.3) seventh 7.3 (11.7) eighth 7.3 (11.7) ninth 10.0 (16.1) tenth 12.6 (20.3) eleventh 15.6 (25.1) twelfth 19.7 (31.7) reverse 3.2 (5.1), 8.5 (13.7) **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 145.5" (3.70 m) left 143" (3.63 m) (on concrete surface without brake) right 199" (5.05 m) left 196" (4.97 m) **Turning space diameter** (on concrete surface with brake applied) right 295" (7.49 m) left 291" (7.39 m) (on concrete surface without brake) right 420" (10.68 m) left 415" (10.55 m) **Power take-off** 1000 rpm at 2253 engine rpm and 540 rpm at 2230 engine rpm..

LUGGING ABILITY IN 5th (1F) GEAR

Crankshaft Speed rpm	2297	2070	1843	1608	1409	1158
Pull—lbs (kN)	9699 (43.14)	10922 (48.59)	12085 (53.76)	12194 (54.24)	12030 (53.51)	11146 (49.58)
Increase in Pull %	0	13	25	26	24	15
Power—Hp (kW)	127.17 (94.83)	127.75 (95.26)	123.94 (92.43)	109.03 (81.31)	94.40 (70.39)	72.62 (54.15)
Speed—Mph (km/h)	4.92 (7.91)	4.39 (7.06)	3.85 (6.19)	3.35 (5.40)	2.94 (4.74)	2.44 (3.93)
Slip %	5.37	6.15	7.68	7.83	7.68	6.77

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	76.0
75% of Pull at Maximum Power—Ten Hours	75.5
50% of Pull at Maximum Power—Two Hours	76.5
50% of Pull at Reduced Engine Speed—Two Hours	73.5
Bystander in 12th (6F) gear	88.0

TIRES, BALLAST AND WEIGHT

Rear Tires		With Ballast	Without Ballast
Ballast	—No., size, ply & psi (kPa)	Four 20.8-38; 8; 14 (95)	Four 20.8-38; 8; 14 (95)
	—Liquid (each)	1088 lb (493 kg)	None
	—Cast Iron (each)	None	None
Front Tires			
Ballast	—No., size, ply & psi (kPa)	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
	—Liquid (each)	None	None
	—Cast Iron (each)	20 lb (9 kg)	None
Height of Drawbar		19 in (485 mm)	19 in (485 mm)
Static Weight with Operator—Rear		15120 lb (6858 kg)	10770 lb (4885 kg)
Front		3870 lb (1755 kg)	3830 lb (1737 kg)
Total		18990 lb (8614 kg)	14600 lb (6623 kg)

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 return was 151°F (66.1°C). Eight 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 **1308**.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



Allis-Chalmers 7045 Powershift Diesel