1-1-1982

Test 1446: Allis-Chalmers and Deutz-Allis 8010 Powershift Diesel 12-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1446
ALLIS CHALMERS 8010 POWERSHIFT DIESEL
ALSO DEUTZ ALLIS 8010 POWERSHIFT DIESEL
12 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—1021 rpm)								
107.38 *(80.07)*	2300	7.261 *(27.486)*	0.472 *(0.287)*	14.79 *(2.913)*	186 *(85.4)*	68 *(19.7)*	75 *(23.7)*	28.920 *(97.659)*
Standard Power Take-off Speed (1000 rpm)—One Hour								
109.55 *(81.69)*	2252	7.297 *(27.622)*	0.465 *(0.283)*	15.01 *(2.957)*	186 *(85.6)*	64 *(17.9)*	77 *(24.8)*	29.020 *(97.996)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
95.80 *(71.44)*	2415	6.835 *(25.873)*	0.498 *(0.303)*	14.02 *(2.761)*	182 *(83.1)*	64 *(17.8)*	78 *(25.3)*	....
0.00 *(0.00)*	2540	2.615 *(9.899)*	....	....	171 *(77.2)*	64 *(17.8)*	78 *(25.3)*	....
49.27 *(36.74)*	2484	4.654 *(17.617)*	0.659 *(0.401)*	10.59 *(2.085)*	180 *(82.2)*	64 *(18.1)*	78 *(25.3)*	....
109.01 *(81.29)*	2301	7.235 *(27.387)*	0.463 *(0.282)*	15.07 *(2.968)*	186 *(85.6)*	64 *(17.5)*	79 *(26.1)*	....
24.92 *(18.58)*	2512	3.626 *(13.726)*	1.015 *(0.617)*	6.87 *(1.354)*	172 *(78.1)*	62 *(16.9)*	76 *(24.7)*	....
73.00 *(54.44)*	2452	5.670 *(21.463)*	0.542 *(0.330)*	12.88 *(2.536)*	182 *(83.1)*	64 *(17.5)*	75 *(23.9)*	....
Av 58.67 *Av (43.75)*	**2451**	**5.106** *(19.328)*	**0.607** *(0.369)*	**11.49** *(2.264)*	**179** *(81.6)*	**64** *(17.6)*	**77** *(25.1)*	**29.060** *(98.131)*

DRAWBAR PERFORMANCE

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 7th (2F) Gear											
91.46 *(68.21)*	5559 *(24.73)*	6.17 *(9.93)*	2300	6.96	7.277 *(27.547)*	0.555 *(0.338)*	12.57 *(2.476)*	184 *(84.2)*	68 *(19.7)*	70 *(21.1)*	29.170 *(98.503)*
75% of Pull at Maximum Power—Ten Hours 7th (2F) Gear											
73.95 *(55.15)*	4163 *(18.52)*	6.66 *(10.72)*	2426	4.80	6.442 *(24.385)*	0.607 *(0.370)*	11.48 *(2.262)*	183 *(84.0)*	70 *(20.8)*	72 *(22.2)*	29.086 *(98.219)*
50% of Pull at Maximum Power—Two Hours 7th (2F) Gear											
50.97 *(38.01)*	2777 *(12.35)*	6.88 *(11.08)*	2465	3.20	5.341 *(20.219)*	0.731 *(0.445)*	9.54 *(1.880)*	185 *(84.7)*	74 *(23.1)*	82 *(27.8)*	28.975 *(97.844)*
50% of Pull at Reduced Engine Speed—Two Hours 9th (3F) Gear											
51.09 *(38.10)*	2777 *(12.35)*	6.90 *(11.10)*	1792	3.00	4.302 *(16.284)*	0.587 *(0.357)*	11.88 *(2.340)*	188 *(86.7)*	75 *(23.9)*	88 *(31.1)*	28.930 *(97.692)*
MAXIMUM POWER IN SELECTED GEARS											
73.67 *(54.94)*	9102 *(40.49)*	3.04 *(4.88)*	2421	14.81	3rd (3S) Gear			177 *(80.6)*	64 *(17.8)*	65 *(18.3)*	29.150 *(98.435)*
84.42 *(62.95)*	8624 *(38.36)*	3.67 *(5.91)*	2299	13.95	4th (4S) Gear			182 *(83.1)*	65 *(18.3)*	66 *(18.9)*	29.160 *(98.469)*
90.91 *(67.79)*	7984 *(35.51)*	4.27 *(6.87)*	2300	11.17	5th (1F) Gear			183 *(83.9)*	66 *(18.9)*	67 *(19.4)*	29.160 *(98.469)*
83.62 *(62.36)*	6476 *(28.81)*	4.84 *(7.79)*	2299	8.43	6th (5S) Gear			184 *(84.2)*	66 *(18.9)*	68 *(20.0)*	29.160 *(98.469)*
93.01 *(69.36)*	5658 *(25.17)*	6.16 *(9.92)*	2299	6.99	7th (2F) Gear			184 *(84.4)*	66 *(18.9)*	68 *(20.0)*	29.170 *(98.503)*
85.19 *(63.53)*	5103 *(22.70)*	6.26 *(10.08)*	2300	6.19	8th (6S) Gear			183 *(83.9)*	66 *(18.9)*	67 *(19.4)*	29.150 *(98.435)*
92.91 *(69.29)*	4004 *(17.81)*	8.70 *(14.01)*	2298	4.68	9th (3F) Gear			184 *(84.4)*	66 *(18.9)*	67 *(19.4)*	29.150 *(98.435)*

Department of Agricultural Engineering

Dates of Test: August 30-September 10, 1982

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8376 **Fuel Weight** 6.974 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W-40 **API service classification** SF-CD **To motor** 3.140 gal *(11.888 l)* **Drained from motor** 2.872 gal *(10.870 l)* **Transmission and final drive lubricant** Allis Chalmers Power Fluid 821 **Total time engine was operated** 40.0 hours.

ENGINE: Make Allis Chalmers Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 49-18702 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 3.875″ × 4.25″ *(98.4 mm × 107.9 mm)* **Compression ratio** 15.5 to 1 **Displacement** 301 cu in *(4933 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** two full flow paper cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, raditor for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type standard **Serial No.** 8010S 1408 **Tread width** rear 59″ *(1499 mm)* to 97″ *(2463 mm)* front 60″ *(1524 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 30.6″ *(777 mm)* Vertical distance above roadway 40.4″ *(1026 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 powershift **Advertised speeds mph *(km/h)*** first 1.8 *(2.9)* second 2.5 *(4.0)* third 3.5 *(5.6)* fourth 4.4 *(7.1)* fifth 4.9 *(7.9)* sixth 5.4 *(8.7)* seventh 6.8 *(11.0)* eighth 6.8 *(11.0)* ninth 9.3 *(15.0)* tenth 11.8 *(19.0)* eleventh 14.6 *(23.5)* twelfth 18.4 *(30.0)* reverse 2.9 *(4.7)*, 7.9 *(12.7)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** multiple wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 144.5″ *(3.67 m)* left 145.5″ *(3.70 m)* (on concrete surface without brake) right 166.2″ *(4.22 m)* left 167.2″ *(4.25 m)* **Turning space diameter** (on concrete surface with brake applied) right 312.5″ *(7.94 m)* left 314.5″ *(7.99 m)* (on concrete surface without brake) right 356.0″ *(9.04 m)* left 358.0″ *(9.09 m)* **Power take-off** 540 rpm at 2230 engine rpm and 1000 rpm at 2252 rpm.

LUGGING ABILITY IN 7th (2F) GEAR

Crankshaft Speed rpm	2299	2071	1847	1612	1383	1154
Pull—lbs	5658	6264	6394	6573	6271	5495
(kN)	*(25.17)*	*(27.86)*	*(28.44)*	*(29.24)*	*(27.89)*	*(24.44)*
Increase in Pull %	0	11	13	16	11	–3
Power—Hp	93.01	91.83	83.35	74.48	61.22	45.32
(kW)	*(69.36)*	*(68.48)*	*(62.16)*	*(55.54)*	*(45.65)*	*(33.79)*
Speed—Mph	6.16	5.50	4.89	4.25	3.66	3.09
(km/h)	*(9.92)*	*(8.85)*	*(7.87)*	*(6.84)*	*(5.89)*	*(4.98)*
Slip %	6.99	7.93	8.22	8.50	8.08	7.07

TRACTOR SOUND LEVEL WITH CAB	**dB(A)**
Maximum Available Power—Two Hours	79.5
75% of Pull at Maximum Power—Ten Hours	79.0
50% of Pull at Maximum Power—Two Hours	77.5
50% of Pull at Reduced Engine Speed—Two Hours	75.0
Bystander in 12th (6F) gear	87.5

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-38; 8; 18 *(125)*	Two 18.4-38; 8; 18 *(125)*
Ballast	—Liquid (each)	None	None
	—Test Equip. (each)	178 lb *(81 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 8; 44 *(305)*	Two 10.00-16; 8; 44 *(305)*
Ballast	—Liquid (each)	None	None
	—Test Equip. (each)	100 lb *(45 kg)*	None
Height of Drawbar		20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator	—Rear	9335 lb *(4234 kg)*	8980 lb *(4073 kg)*
	—Front	3850 lb *(1746 kg)*	3650 lb *(1656 kg)*
	—Total	13185 lb *(5980 kg)*	12630 lb *(5729 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. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 151°F *(66.1°C)*. Seven 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. **1446.**

Report reissued. Supplemental sales permit for Deutz Allis 8010 Powershift Diesel, September 1985.

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Allis Chalmers 8010 Powershift Diesel

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