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Test 1305: Deutz DX-90 Diesel 15-Speed

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NEBRASKA TRACTOR TEST 1305 — DEUTZ DX-90 DIESEL
ALSO DEUTZ-FAHR DX-90 DIESEL
15 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—1111 rpm)								
84.47	2300	5.196	0.428	16.26	air	62	75	29.013
(62.99)		(19.670)	(0.260)	(3.202)	cooled	(16.5)	(23.8)	(97.974)
Standard Power Take-off Speed (1000 rpm)—One Hour								
80.82	2071	4.912	0.423	16.45	air	62	75	29.040
(60.26)		(18.595)	(0.257)	(3.241)	cooled	(16.4)	(24.1)	(98.064)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
73.11	2348	4.372	0.416	16.72	air	62	75	.....
(54.51)		(16.550)	(0.253)	(3.294)	cooled	(16.4)	(23.9)	.....
0.00	2454	1.281	.....	.....	air	62	75	.....
(0.00)		(4.847)	.....	.....	cooled	(16.7)	(23.9)	.....
37.58	2404	2.738	0.507	13.73	air	62	75	.....
(28.02)		(10.364)	(0.308)	(2.704)	cooled	(16.4)	(23.9)	.....
86.10	2301	5.316	0.430	16.20	air	61	75	.....
(64.21)		(20.124)	(0.261)	(3.191)	cooled	(16.1)	(23.9)	.....
18.98	2428	1.953	0.716	9.72	air	62	75	.....
(14.15)		(7.393)	(0.436)	(1.914)	cooled	(16.4)	(23.9)	.....
55.69	2375	3.527	0.441	15.79	air	61	75	.....
(41.53)		(13.351)	(0.268)	(3.110)	cooled	(16.1)	(23.9)	.....
Av 45.24	**2385**	**3.198**	**0.492**	**14.15**	air	**61**	**75**	**29.063**
Av (33.74)		***(12.105)***	***(0.299)***	***(2.787)***	cooled	***(16.3)***	***(23.9)***	***(98.143)***

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) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (1S) Gear											
69.95	5294	4.95	2299	7.81	5.066	0.504	13.81	air	60	67	28.660
(52.16)	(23.55)	(7.97)			(19.177)	(0.307)	(2.720)	cooled	(15.6)	(19.4)	(96.781)
75% of Pull at Maximum Power—Ten Hours 9th (1S) Gear											
57.50	4157	5.19	2361	6.02	4.085	0.494	14.07	air	60	70	28.918
(42.87)	(18.49)	(8.35)			(15.464)	(0.301)	(2.772)	cooled	(15.8)	(21.2)	(97.652)
50% of Pull at Maximum Power—Two Hours 9th (1S) Gear											
40.05	2783	5.40	2407	4.05	3.234	0.562	12.39	air	58	61	28.750
(29.87)	(12.38)	(8.68)			(12.241)	(0.342)	(2.440)	cooled	(14.2)	(15.8)	(97.084)
50% of Pull at Reduced Engine Speed—Two Hours 12th (5Z) Gear											
39.82	2761	5.41	1517	3.98	2.623	0.458	15.18	air	58	64	28.725
(29.69)	(12.28)	(8.70)			(9.929)	(0.279)	(2.990)	cooled	(14.4)	(17.5)	(97.000)
MAXIMUM POWER IN SELECTED GEARS											
52.37	8786	2.24	2353	14.78	4th (1Z) Gear			air	60	70	28.650
(39.05)	(39.08)	(3.60)						cooled	(15.6)	(21.1)	(96.747)
68.41	8723	2.94	2299	14.32	5th (4L) Gear			air	60	69	28.640
(51.02)	(38.80)	(4.73)						cooled	(15.6)	(20.6)	(96.713)
69.52	7618	3.42	2298	12.46	6th (2Z) Gear			air	52	68	29.070
(51.84)	(33.88)	(5.51)						cooled	(11.1)	(20.0)	(98.165)
69.66	6949	3.76	2300	10.81	7th (5L) Gear			air	52	67	29.080
(51.95)	(30.91)	(6.05)						cooled	(11.1)	(19.4)	(98.199)
71.41	6153	4.35	2300	9.24	8th (3Z) Gear			air	52	66	29.090
(53.25)	(27.37)	(7.00)						cooled	(11.1)	(18.9)	(98.233)
72.74	5533	4.93	2298	8.20	9th (1S) Gear			air	51	65	29.100
(54.24)	(24.61)	(7.93)						cooled	(10.6)	(18.3)	(98.266)
74.19	4260	6.53	2300	6.12	10th (4Z) Gear			air	52	68	29.070
(55.32)	(18.95)	(10.51)						cooled	(11.1)	(20.0)	(98.165)
73.65	3542	7.80	2300	4.94	11th (2S) Gear			air	52	68	29.060
(54.92)	(15.76)	(12.55)						cooled	(11.1)	(20.0)	(98.131)
73.22	3374	8.14	2299	4.66	12th (5Z) Gear			air	52	68	29.060
(54.60)	(15.01)	(13.10)						cooled	(11.1)	(20.0)	(98.131)

Department of Agricultural Engineering

Dates of Test: April 18-25 1979

Manufacturer: KLOCKNER-HUMBOLDT -DEUTZ, AG 5, Cologne 80, West Germany.

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°)*** 0.8357 **Fuel weight** 6.958 lbs/gal *(0.834 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 3.555 gal *(13.456 l)* **Drained from motor** 2.883 gal *(10.912 l)* **Transmission and final drive lubricant** SAE 20W20 **Total time engine was operated** 46.0 hours

ENGINE: Make Deutz Diesel **Type** five cylinder vertical **Serial No.** 6027267 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 3.94" × 4.72" *(100 mm × 120 mm)* **Compression ratio** 17 to 1 **Displacement** 287 cu in *(4710 ml)* **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with centrifugal precleaner **Oil filter** one paper cartridge **Oil cooler** radiator for crankcase oil, radiator for hydraulic oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** air cooled.

CHASSIS: Type standard **Serial No.** 7618 0434 **Tread width** 63.0" *(1600 mm)* to 78.7" *(2000 mm)* front 58.1" *(1476 mm)* to 77.8" *(1976 mm)* **Wheel base** 100.7" *(2558 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 33.5" *(851 mm)* Vertical distance above roadway 37.8" *(962 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 **Advertised speeds mph *(km/h)*** first 1.3 *(2.1)* second 2.0 *(3.3)* third 2.5 *(4.0)* fourth 2.7 *(4.3)* fifth 3.6 *(5.8)* sixth 4.1 *(6.6)* seventh 4.4 *(7.1)* eighth 5.0 *(8.1)* ninth 5.6 *(9.1)* tenth 7.3 *(11.8)* eleventh 8.6 *(13.9)* twelfth 9.0 *(14.4)* thirteenth 10.6 *(17.0)* fourteenth 15.5 *(25.0)* fifteenth 18.6 *(30.0)* reverse 3.3 *(5.3)*, 5.0 *(8.1)*, 6.2 *(10.0)*, 9.0 *(14.4)*, 11.0 *(17.7)* **Clutch** single dry disc operated by foot pedal **Brakes** double dry disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 153.5" *(3.90 m)* left 148.7" *(3.78 m)* (on concrete surface without brake) right 170.4" *(4.33 m)* left 165.7" *(4.21 m)* **Turning space diameter** (on concrete surface with brake applied) right 316.4" *(8.04 m)* left 306.9" *(7.80 m)* (on concrete surface without brake) right 350.2" *(8.90 m)* left 340.8" *(8.66 m)* **Power take-off** 1000 rpm at 2071 engine rpm and 540 rpm at 2057 engine rpm.

LUGGING ABILITY IN 9th (1S) GEAR

Crankshaft Speed rpm	2298	2069	1840	1606	1379	1142
Pull—lbs *(kN)*	5533 *(24.61)*	5866 *(26.10)*	6164 *(27.42)*	6128 *(27.26)*	5999 *(26.68)*	5770 *(25.66)*
Increase in Pull %	0	6	11	11	8	4
Power—Hp *(kW)*	72.74 *(54.24)*	69.00 *(51.45)*	64.13 *(47.82)*	55.72 *(41.55)*	46.90 *(34.97)*	37.49 *(27.96)*
Speed—Mph *(km/h)*	4.93 *(7.93)*	4.41 *(7.10)*	3.90 *(6.28)*	3.41 *(5.49)*	2.93 *(4.72)*	2.44 *(3.92)*
Slip %	8.20	8.78	9.30	9.17	9.05	8.65

TRACTOR SOUND LEVEL WITH CAB	EUROPEAN MADE CAB dB(A)	AMERICAN MADE CAB dB(A)
Maximum Available Power—Two Hours	81.5	83.5
75% of Pull at Maximum Power—Ten Hours	81.0	80.0
50% of Pull at Maximum Power—Two Hours	80.0	80.5
50% of Pull at Reduced Engine Speed—Two Hours	78.0	79.5
Bystander in 15th (5S) gear	—	89.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-34; 6; 16 *(110)*	Two 18.4-34; 6; 16 *(110)*
Ballast	—Liquid (each)	815 lb *(370 kg)*	None
	—Cast Iron (each)	720 lb *(327 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	70 lb *(32 kg)*	None
Height of Drawbar		24.5 in *(620 mm)*	24.5 in *(620 mm)*
Static Weight with Operator—Rear		9700 lb *(4400 kg)*	6630 lb *(3007 kg)*
	—Front	3450 lb *(1565 kg)*	3310 lb *(1502 kg)*
	—Total	13150 lb *(5965 kg)*	9940 lb *(4509 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

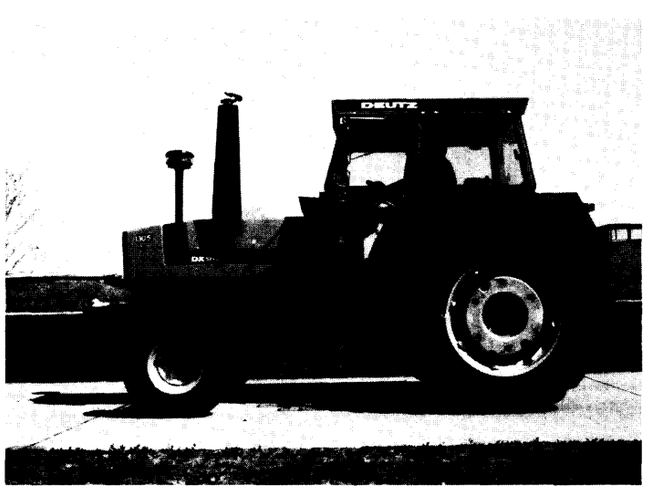
REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 170°F *(76.9°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

NOTE: Supplemental permit for Deutz-Fahr DX-90 granted November 1982.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1305.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Deutz DX-90 Diesel

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