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January 1979

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

## 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	
<b>Maximum Available Power—Two Hours 9th (1S) Gear</b>											
69.95 (52.16)	5294 (23.55)	4.95 (7.97)	2299	7.81	5.066 (19.177)	0.504 (0.307)	13.81 (2.720)	air cooled	60 (15.6)	67 (19.4)	28.660 (96.781)
<b>75% of Pull at Maximum Power—Ten Hours 9th (1S) Gear</b>											
57.50 (42.87)	4157 (18.49)	5.19 (8.35)	2361	6.02	4.085 (15.464)	0.494 (0.301)	14.07 (2.772)	air cooled	60 (15.8)	70 (21.2)	28.918 (97.652)
<b>50% of Pull at Maximum Power—Two Hours 9th (1S) Gear</b>											
40.05 (29.87)	2783 (12.38)	5.40 (8.68)	2407	4.05	3.234 (12.241)	0.562 (0.342)	12.39 (2.440)	air cooled	58 (14.2)	61 (15.8)	28.750 (97.084)
<b>50% of Pull at Reduced Engine Speed—Two Hours 12th (5Z) Gear</b>											
39.82 (29.69)	2761 (12.28)	5.41 (8.70)	1517	3.98	2.623 (9.929)	0.458 (0.279)	15.18 (2.990)	air cooled	58 (14.4)	64 (17.5)	28.725 (97.000)
<b>MAXIMUM POWER IN SELECTED GEARS</b>											
52.37 (39.05)	8786 (39.08)	2.24 (3.60)	2353	14.78	4th (1Z) Gear			air cooled	60 (15.6)	70 (21.1)	28.650 (96.747)
68.41 (51.02)	8723 (38.80)	2.94 (4.73)	2299	14.32	5th (4L) Gear			air cooled	60 (15.6)	69 (20.6)	28.640 (96.713)
69.52 (51.84)	7618 (33.88)	3.42 (5.51)	2298	12.46	6th (2Z) Gear			air cooled	52 (11.1)	68 (20.0)	29.070 (98.165)
69.66 (51.95)	6949 (30.91)	3.76 (6.05)	2300	10.81	7th (5L) Gear			air cooled	52 (11.1)	67 (19.4)	29.080 (98.199)
71.41 (53.25)	6153 (27.37)	4.35 (7.00)	2300	9.24	8th (3Z) Gear			air cooled	52 (11.1)	66 (18.9)	29.090 (98.233)
72.74 (54.24)	5533 (24.61)	4.93 (7.93)	2298	8.20	9th (1S) Gear			air cooled	51 (10.6)	65 (18.3)	29.100 (98.266)
74.19 (55.32)	4260 (18.95)	6.53 (10.51)	2300	6.12	10th (4Z) Gear			air cooled	52 (11.1)	68 (20.0)	29.070 (98.165)
73.65 (54.92)	3542 (15.76)	7.80 (12.55)	2300	4.94	11th (2S) Gear			air cooled	52 (11.1)	68 (20.0)	29.060 (98.131)
73.22 (54.60)	3374 (15.01)	8.14 (13.10)	2299	4.66	12th (5Z) Gear			air cooled	52 (11.1)	68 (20.0)	29.060 (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 pre-cleaner **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 ( <i>kN</i> )	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 ( <i>kW</i> )	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 ( <i>km/h</i> )	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
<b>Rear Tires</b>	Two 18.4-34; 6; 16 (110)	Two 18.4-34; 6; 16 (110)
Ballast	815 lb (370 kg)	None
	—Liquid (each)	None
	—Cast Iron (each)	None
<b>Front Tires</b>	Two 10.00-16; 6; 32 (220)	Two 10.00-16; 6; 32 (220)
Ballast	None	None
	—Liquid (each)	None
	—Cast Iron (each)	None
<b>Height of Drawbar</b>	24.5 in (620 mm)	24.5 in (620 mm)
<b>Static Weight with Operator—Rear</b>	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**