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January 1981

## Test 1404: Deutz DX-130 Diesel 24-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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NEBRASKA TRACTOR TEST 1404 — DEUTZ DX-130 DIESEL  
ALSO DEUTZ-FAHR DX-130 DIESEL  
24 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Air Cooling medium	Air wet bulb	Barometer dry bulb	inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1110 rpm)								
121.27 (90.43)	2300	7.313 (27.683)	0.423 (0.257)	16.58 (3.267)	air cooled	59 (15.0)	75 (23.8)	29.290 (98.908)
Standard Power Take-off Speed (1000 rpm)—One Hour								
121.36 (90.50)	2071	6.884 (26.059)	0.398 (0.242)	17.63 (3.473)	air cooled	58 (14.4)	75 (23.9)	29.280 (98.874)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
105.11 (78.38)	2345	6.524 (24.696)	0.435 (0.265)	16.11 (3.174)	air cooled	58 (14.4)	75 (23.9)	..... .....
0.00 (0.00)	2478	1.845 (6.984)	..... .....	..... .....	air cooled	58 (14.4)	75 (23.9)	..... .....
53.53 (39.92)	2390	4.118 (15.588)	0.539 (0.328)	13.00 (2.561)	air cooled	57 (13.6)	74 (23.1)	..... .....
121.10 (90.30)	2300	7.307 (27.660)	0.423 (0.257)	16.57 (3.265)	air cooled	59 (14.7)	78 (23.3)	..... .....
27.41 (20.44)	2434	2.932 (11.099)	0.750 (0.456)	9.35 (1.842)	air cooled	58 (14.2)	76 (24.4)	..... .....
79.63 (59.38)	2366	5.372 (20.335)	0.473 (0.288)	14.82 (2.920)	air cooled	58 (14.4)	76 (24.4)	..... .....
Av Av	64.46 (48.07)	2385 (17.727)	4.683 (0.310)	13.77 (2.712)	air cooled	58 (14.3)	76 (24.2)	29.277 (98.863)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			
					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	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 15th (3MH) Gear											
102.63 (76.53)	6460 (28.73)	5.96 (9.59)	2300	4.95	7.260 (27.480)	0.496 (0.302)	14.14 (2.785)	air cooled	51 (10.6)	65 (18.3)	29.330 (99.040)
75% of Pull at Maximum Power—Ten Hours 15th (3MH) Gear											
83.15 (62.00)	4985 (22.17)	6.25 (10.07)	2380	3.62	6.346 (24.023)	0.535 (0.325)	13.10 (2.581)	air cooled	52 (11.2)	64 (18.0)	29.220 (98.672)
50% of Pull at Maximum Power—Two Hours 15th (3MH) Gear											
56.86 (42.40)	3335 (14.84)	6.39 (10.29)	2407	2.51	5.048 (19.108)	0.622 (0.378)	11.26 (2.219)	air cooled	54 (11.9)	62 (16.7)	28.890 (97.557)
50% of Pull at Reduced Engine Speed—Two Hours 20th (2HH) Gear											
56.69 (42.27)	3326 (14.80)	6.39 (10.28)	1455	2.43	3.835 (14.517)	0.474 (0.288)	14.78 (2.912)	air cooled	61 (16.1)	74 (23.1)	28.870 (97.490)
MAXIMUM POWER IN SELECTED GEARS											
94.03 (70.12)	14406 (64.08)	2.45 (3.94)	2362	14.82	6th (1ML) Gear			air cooled	49 (9.4)	55 (12.8)	28.910 (97.620)
98.31 (73.31)	13745 (61.14)	2.68 (4.32)	2301	13.40	7th (3LH) Gear			air cooled	50 (10.0)	55 (13.3)	28.900 (97.591)
98.53 (73.47)	11985 (53.31)	3.08 (4.96)	2300	11.08	8th (1MH) Gear			air cooled	50 (10.0)	62 (16.7)	29.340 (99.077)
98.91 (73.76)	11867 (52.79)	3.13 (5.03)	2300	10.68	9th (4LL) Gear			air cooled	50 (10.0)	62 (16.7)	29.350 (99.111)
101.68 (75.83)	10441 (46.44)	3.65 (5.88)	2301	8.49	10th (2ML) Gear			air cooled	50 (10.0)	63 (17.2)	29.360 (99.144)
101.42 (75.63)	9466 (42.11)	4.02 (6.47)	2302	7.35	11th (4LH) Gear			air cooled	49 (9.4)	61 (16.1)	29.370 (99.178)
103.35 (77.07)	8365 (37.21)	4.63 (7.46)	2301	6.26	12th (2MH) Gear			air cooled	49 (9.4)	61 (16.1)	29.370 (99.178)
105.63 (78.77)	8330 (37.05)	4.76 (7.65)	2301	6.19	13th (3ML) Gear			air cooled	49 (9.4)	60 (15.6)	29.380 (99.212)
104.22 (77.72)	7005 (31.16)	5.58 (8.98)	2301	5.14	14th (1HL) Gear			air cooled	49 (9.4)	60 (15.6)	29.380 (99.212)
105.57 (78.72)	6642 (29.55)	5.96 (9.59)	2300	4.99	15th (3MH) Gear			air cooled	50 (10.0)	64 (17.8)	29.330 (99.043)
103.77 (77.38)	5712 (25.41)	6.81 (10.96)	2302	4.07	16th (4ML) Gear			air cooled	49 (9.4)	62 (16.7)	29.370 (99.178)
103.04 (76.84)	5534 (24.62)	6.98 (11.24)	2300	3.92	17th (1HH) Gear			air cooled	50 (10.0)	62 (16.7)	29.370 (99.178)
103.31 (77.04)	4791 (21.31)	8.09 (13.01)	2299	3.30	18th (2HL) Gear			air cooled	50 (10.0)	62 (16.7)	29.360 (99.144)

Department of Agricultural Engineering

Dates of Test: September 14-22, 1981

Manufacturer: KLOCKNER-HUMBOLDT  
-DEUTZ, AG 5000 Cologne 80, West Ger-  
many

FUEL, OIL AND TIME: Fuel No. 2 Diesel  
Cetane No. 46.3 (rating taken from oil company's  
inspection data) Specific gravity converted to 60°/  
60° (15°/15°) 0.8417 Fuel weight 7.008 lbs/gal  
(0.840 kg/l) Oil SAE 30 API service classifica-  
tion SE-SF/CC-CD To motor 4.910 gal (18.588 l)  
Drained from motor 3.504 gal (13.263 l) Trans-  
mission lubricant SAE 20W20 Total time engine  
was operated 37.0 hours

ENGINE: Make Deutz Diesel Type 6 cylinder  
vertical with turbocharger Serial No. 6339251  
Crankshaft lengthwise Rated rpm 2300 Bore  
and stroke 4.02" × 4.92" (102 mm × 125 mm)  
Compression ratio 15.5 to 1 Displacement 374  
cu in (6128 ml) Starting system 12 volt Lubrica-  
tion pressure Air cleaner two paper elements  
with centrifugal precleaner Oil filter one paper  
cartridge Oil cooler radiator for crankcase oil,  
radiator for hydraulic oil, radiator for transmis-  
sion oil Fuel filter two paper cartridges Muffler  
vertical Cooling medium temperature control  
thermo-hydraulic fan.

CHASSIS: Type standard with duals Serial  
No. 76320092 Tread width 63.0" (1600 mm) to  
126" (3200 mm) front 63.0" (1600 mm) to 86.6"  
(2200 mm) Wheel base 105.8" (2688 mm) Center  
of gravity (without operator or ballast, with mini-  
mum tread, with fuel tank filled and tractor serv-  
iced for operation) Horizontal distance forward  
from center-line of rear wheels 30.2" (767 mm)  
Vertical distance above roadway 40.2" (1020 mm)  
Horizontal distance from center of rear wheel  
tread 0.4" (10 mm) to the left Hydraulic control  
system direct engine drive Transmission selec-  
tive gear fixed ratio with partial (2) range operator  
controlled powershift Advertised speeds mph  
(km/h) first 1.4 (2.2) second 1.7 (2.8) third 2.0 (3.2)  
fourth 2.4 (3.9) fifth 2.5 (4.0) sixth 2.8 (4.5)  
seventh 3.1 (5.0) eighth 3.5 (5.7) ninth 3.5 (5.7)  
tenth 4.0 (6.4) eleventh 4.4 (7.0) twelfth 4.9 (8.0)  
thirteenth 5.1 (8.3) fourteenth 5.9 (9.5) fifteenth  
6.3 (10.2) sixteenth 7.2 (11.5) seventeenth 7.3  
(11.8) eighteenth 8.4 (13.5) nineteenth 8.8 (14.2)  
twentieth 10.4 (16.8) twenty-first 10.7 (17.3) twenty-  
second 13.2 (21.3) twenty-third 14.9 (24.0)  
twenty-fourth 17.9 (28.8) reverse 3.5 (5.6), 4.3  
(6.9), 4.9 (8.0), 6.1 (9.8), 6.3 (10.1), 7.8 (12.5), 8.8  
(14.1), 10.9 (17.5) Clutch dry disc hydraulically  
operated by foot pedal Brakes caliper disc hy-  
draulically operated by two foot pedals which can  
be locked together Steering hydrostatic Turning  
radius (on concrete surface with brake applied)  
right 161.4" (4.1 m) left 157.5" (4.0 m) (on concrete  
surface without brake) right 181.1" (4.6 m) left  
189.0" (4.8 m) Turning space diameter (on con-  
crete surface with brake applied) right 328.7"  
(8.35 m) left 324.8" (8.25 m) (on concrete surface  
without brake) right 378.0" (9.60 m) left 393.7"  
(10.00 m) Power take-off 1000 rpm at 2071 en-  
gine rpm and 540 rpm at 2057 engine rpm.

LUGGING ABILITY IN 15th (3MH) GEAR						
Crankshaft Speed rpm	2300	2071	1836	1607	1384	1141
Pull—lbs (kN)	6642 (29.55)	7172 (31.90)	7583 (33.73)	8052 (35.82)	8213 (36.53)	7691 (34.21)
Increase in Pull %	0	8	14	21	24	16
Power—Hp (kW)	105.57 (78.72)	102.33 (76.31)	95.56 (71.26)	88.49 (65.99)	77.56 (57.83)	60.17 (44.87)
Speed—Mph (km/h)	5.96 (9.59)	5.35 (8.61)	4.73 (7.61)	4.12 (6.63)	3.54 (5.70)	2.93 (4.72)
Slip %	4.99	5.29	5.59	5.89	6.19	5.74

TRACTOR SOUND LEVEL WITH CAB		dB(A)
Maximum Available Power—Two Hours		82.5
75% of Pull at Maximum Power—Ten Hours		82.0
50% of Pull at Maximum Power—Two Hours		82.0
50% of Pull at Reduced Engine Speed—Two Hours		80.0
Bystander in 24th (4HH) gear		83.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-38; 8; 14 (95)	Four 18.4-38; 8; 14 (95)
Ballast	—Liquid (each inner)	842 lb (383 kg)	None
	—Cast Iron (each inner)	770 lb (349 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	232 lb (105 kg)	None
Height of Drawbar		25.5 in (645 mm)	25.5 in (645 mm)
Static Weight with Operator—Rear		13225 lb (5999 kg)	10000 lb (4536 kg)
—Front		4405 lb (1998 kg)	3940 lb (1787 kg)
—Total		17630 lb (7997 kg)	13940 lb (6323 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 codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 129°F (53.9°C). Thirteen gears were chosen between 15% slip and 10 mph (16.1 km/h).

**NOTE:** Supplemental permit for Deutz-Fahr DX-130 granted November 1982.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1404**.

LOUIS I. LEVITICUS  
Engineer-in Charge

K. VON BARGEN  
W. E. SPLINTER  
L. L. BASHFORD  
Board of Tractor Test Engineers



Deutz DX-130 Diesel

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Roy G. Arnold, Director