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Test 1576: Deutz-Fahr DX 6.50 Diesel and Deutz-Allis 7120 Diesel 24-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1576—DEUTZ-FAHR DX 6.50 DIESEL ALSO DEUTZ ALLIS 7120 DIESEL 24 SPEED

Department of Agricultural Engineering

Dates of Test: September 9 to 17, 1985

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

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—1039 rpm)									
122.06 (91.02)	2300	7.410 (28.049)	0.426 (0.259)	16.47 (3.245)	200 (93.5)	65 (18.3)	75 (24.0)	29.13 (98.37)	
Standard Power Take-off Speed (1000 rpm) — One Hour									
123.15 (91.84)	2215	7.181 (27.183)	0.409 (0.249)	17.15 (3.378)	203 (94.8)	66 (18.6)	75 (23.6)	29.04 (98.06)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
107.32 (80.03)	2379	6.767 (25.618)	0.442 (0.269)	15.86 (3.124)	195 (90.3)	66 (18.6)	75 (23.9)	..... .....
0.00 (0.00)	2468	1.660 (6.283)	..... .....	..... .....	188 (86.7)	66 (18.9)	75 (23.6)	..... .....
54.68 (40.78)	2425	4.342 (16.436)	0.557 (0.339)	12.59 (2.481)	168 (75.3)	67 (19.2)	75 (23.6)	..... .....
122.59 (91.42)	2300	7.375 (27.917)	0.422 (0.257)	16.62 (3.275)	192 (88.9)	66 (18.9)	75 (23.6)	..... .....
27.61 (20.59)	2452	3.183 (12.048)	0.808 (0.492)	8.68 (1.709)	171 (76.9)	66 (18.9)	76 (24.2)	..... .....
81.50 (60.77)	2408	5.553 (21.019)	0.478 (0.291)	14.68 (2.891)	175 (79.2)	66 (18.9)	75 (23.6)	..... .....
Av Av	65.62 (48.93)	2405	4.813 (18.220)	0.514 (0.313)	13.63 (2.686)	181 (82.9)	66 (18.9)	75 (23.8)	29.08 (98.20)

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

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 13th (3ML) Gear											
104.05 (77.59)	7719 (34.34)	5.05 (8.13)	2300	5.83	7.329 (27.744)	0.494 (0.300)	14.20 (2.797)	192 (88.9)	67 (19.2)	70 (20.8)	28.79 (97.20)
75% of Pull at Maximum Power — Ten Hours 13th (3ML) Gear											
83.93 (62.59)	5858 (26.06)	5.37 (8.65)	2406	4.31	6.465 (24.473)	0.540 (0.329)	12.98 (2.557)	162 (71.9)	52 (11.3)	53 (11.9)	29.30 (98.95)
50% of Pull at Maximum Power — Two Hours 13th (3ML) Gear											
57.24 (42.68)	3906 (17.37)	5.50 (8.84)	2421	2.69	5.041 (19.081)	0.618 (0.376)	11.36 (2.237)	159 (70.3)	60 (15.6)	62 (16.7)	29.10 (98.25)
50% of Pull at Reduced Engine Speed — Two Hours 19th (4MH) Gear											
57.25 (42.69)	3907 (17.38)	5.50 (8.84)	1397	2.69	3.843 (14.547)	0.471 (0.286)	14.90 (2.935)	183 (83.9)	61 (16.1)	63 (17.2)	29.08 (98.18)

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 46.9 (rating taken from oil company's
inspection data) Specific gravity converted to 60°/
60°F (15°/15°C) 0.8423 Fuel weight 7.013 lbs/gal
(0.840 kg/l) Oil SAE 15W-40 API service classi-
fication CD-SF To motor 4.800 gal (18.169 l)
Drained from motor 3.570 gal (13.514 l) Trans-
mission lubricant SAE 15W-40 engine oil Front
axle lubricant SAE 90 EP transmission oil Total
time engine was operated 44.5 hours.

ENGINE: Make Klockner-Humboldt-Deutz
Diesel Type six cylinder vertical with turbocharger
Serial No. 7094949 Crankshaft lengthwise Rated
rpm 2300 Bore and stroke 4.02" × 4.92" (102 mm
× 125 mm) Compression ratio 15.5 to 1 Displace-
ment 374 cu in (6128 ml) Starting system 12 volt
Lubrication pressure Air cleaner two paper ele-
ments and centrifugal precleaner Oil filter one
full flow cartridge Oil cooler radiator for crank-
case oil, radiator for hydraulic oil, radiator for
transmission oil Fuel filter one paper cartridge
Muffler vertical Cooling medium temperature
control variable speed fan controlled by exhaust
temperature sensor.

CHASSIS: Type front wheel assist Serial No.
7441 0761 Tread width rear 70.9" (1800 mm) to
86.6" (2200 mm) front 70.9" (1800 mm) to 78.7"
(2000 mm) Wheel base 106.4" (2703 mm) Center of
gravity (without operator or ballast, with mini-
mum tread, with fuel tank filled and tractor ser-
viced for operation) Horizontal distance forward
from center-line of rear wheels 36.8" (934 mm)
Vertical distance above roadway 39.6" (1006 mm)
Horizontal distance from center of rear wheel tread
0.1" (3 mm) to the left Hydraulic control system
direct engine drive Transmission selective gear
fixed ratio with partial (2) range operator con-
trolled powershift Advertised speeds mph (km/h)
first 1.5 (2.4) second 1.8 (2.9) third 2.0 (3.2) fourth
2.4 (3.9) fifth 2.5 (4.1) sixth 3.0 (4.9) seventh 3.2
(5.1) eighth 3.6 (5.8) ninth 3.7 (6.0) tenth 4.0 (6.5)
eleventh 4.5 (7.2) twelfth 5.0 (8.1) thirteenth 5.3
(8.6) fourteenth 6.2 (9.9) fifteenth 6.6 (10.6) six-
teenth 7.5 (12.0) seventeenth 7.6 (12.2) eighteenth
8.3 (13.3) nineteenth 9.2 (14.8) twentieth 10.3 (16.5)
twenty-first 10.8 (17.4) twenty-second 13.4 (21.6)
twenty-third 15.5 (25.0) twenty-fourth 18.6 (30.0)

MAXIMUM POWER IN SELECTED GEARS

95.79 (71.43)	13633 (60.64)	2.63 (4.24)	2334	14.87	6th (1ML) Gear	181 (82.8)	63 (17.2)	65 (18.3)	28.81 (97.29)
98.36 (73.35)	13344 (59.36)	2.76 (4.45)	2298	13.89	7th (3LH) Gear	183 (83.9)	64 (17.8)	66 (18.9)	28.81 (97.29)
100.26 (74.77)	11509 (51.19)	3.27 (5.26)	2299	10.11	8th (4LL) Gear	184 (84.2)	64 (17.8)	67 (19.4)	28.81 (97.29)
101.18 (75.45)	11133 (49.52)	3.41 (5.49)	2301	9.53	9th (1MH) Gear	184 (84.2)	65 (18.3)	67 (19.4)	28.80 (97.25)
102.62 (76.52)	10264 (45.66)	3.75 (6.03)	2300	8.50	10th (2ML) Gear	186 (85.6)	65 (18.3)	67 (19.4)	28.80 (97.25)
102.09 (76.13)	9177 (40.82)	4.17 (6.71)	2300	7.07	11th (4LH) Gear	188 (86.7)	65 (18.3)	67 (19.4)	28.80 (97.25)
103.77 (77.38)	8180 (36.39)	4.76 (7.66)	2300	6.14	12th (2MH) Gear	189 (87.2)	65 (18.3)	68 (20.0)	28.79 (97.22)
105.49 (78.66)	7811 (34.75)	5.06 (8.15)	2299	5.67	13th (3ML) Gear	185 (85.0)	58 (14.4)	62 (16.7)	29.10 (98.27)
103.81 (77.41)	6577 (29.26)	5.92 (9.53)	2299	4.55	14th (1HL) Gear	183 (83.9)	58 (14.4)	62 (16.7)	29.10 (98.27)
105.04 (78.33)	6191 (27.54)	6.36 (10.24)	2299	4.22	15th (3MH) Gear	184 (84.4)	58 (14.4)	62 (16.7)	29.11 (98.30)
102.15 (76.17)	5283 (23.50)	7.25 (11.67)	2300	3.49	16th (4ML) Gear	181 (82.8)	58 (14.4)	62 (16.7)	29.11 (98.30)
102.52 (76.45)	5189 (23.08)	7.41 (11.92)	2300	3.32	17th (1HH) Gear	181 (82.5)	58 (14.4)	62 (16.7)	29.12 (98.33)
101.81 (75.92)	4724 (21.01)	8.08 (13.01)	2300	3.24	18th (2HL) Gear	182 (83.1)	59 (15.0)	62 (16.7)	29.12 (98.33)

LUGGING ABILITY IN 13th (3ML) GEAR

Crankshaft Speed rpm	2299	2072	1838	1609	1387	1156
Pull—lbs (kN)	7811 (34.75)	9222 (41.02)	10130 (45.06)	10379 (46.17)	9980 (44.39)	9218 (41.00)
Increase in Pull %	0	18	30	33	28	18
Power—Hp (kW)	105.49 (78.66)	110.85 (82.66)	106.82 (79.65)	95.41 (71.15)	79.47 (59.26)	61.70 (46.01)
Speed—Mph (km/h)	5.06 (8.15)	4.51 (7.25)	3.95 (6.36)	3.45 (5.55)	2.99 (4.81)	2.51 (4.04)
Slip %	5.67	6.76	7.83	8.28	7.68	7.07

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Available Power—Two Hours	79.5	79.5
75% of Pull at Maximum Power—Ten Hours		79.0
50% of Pull at Maximum Power—Two Hours		78.5
50% of Pull at Reduced Engine Speed—Two Hours		77.0
Bystander in 23rd (4HL) gear	87.0	

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

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)	Temp. °F (°C)	Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power — Two Hours 13th (3ML) Gear											
101.36 (75.59)	7818 (34.77)	4.86 (7.83)	2300	9.16	7.336 (27.771)	0.508 (0.309)	13.82 (2.722)	195 (90.3)	68 (20.0)	72 (21.9)	28.75 (97.07)

MAXIMUM POWER IN SELECTED GEARS

93.99 (70.09)	10734 (47.75)	3.28 (5.28)	2365	14.93	9th (1MH) Gear	185 (85.0)	65 (18.3)	67 (19.4)	28.80 (97.25)
103.56 (77.23)	7919 (35.23)	4.90 (7.89)	2302	8.39	13th (3ML) Gear	184 (84.4)	58 (14.4)	62 (16.7)	29.10 (98.27)
103.63 (77.27)	6267 (27.88)	6.20 (9.98)	2299	6.34	15th (3MH) Gear	181 (82.8)	58 (14.4)	62 (16.7)	29.11 (98.30)

reverse 2.8 (4.5), 3.5 (5.6), 3.8 (6.1), 4.7 (7.6), 5.0 (8.0) 6.2 (9.9), 7.0 (11.2), 8.6 (13.9), **Clutch** dual dry disc hydraulically power actuated by foot pedal **Brakes** caliper disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 161" (4.09 m) left 161" (4.09 m)(on concrete surface without brake) right 183.5" (4.66 m) left 183.5" (4.66 m) **Turning space diameter** (on concrete surface with brake applied) right 339" (8.61 m) left 339" (8.61 m)(on concrete surface without brake) right 384" (9.75 m) left 384" (9.75 m) **Power take-off** 540 rpm at 2192 engine rpm and 1000 rpm at 2215 engine rpm **Unladen tractor mass** 11950 lb (5421 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 and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 125 °F (51.6°C). Thirteen gears were chosen between 15% slip and 10 mph (16.1 km/h). The cooling air temperature was measured in the air-stream between the two rearmost cylinders.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1576, October 30, 1985.

Report reissued. Supplemental sales permit for Deutz Allis 7120 Diesel, December, 1986.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD

Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 20.8-38; 8; 18 (125)	Two 20.8-38; 8; 18 (125)
	—Liquid (each)	958 lb (435 kg)	None
	—Cast Iron (each)	962 lb (436 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 16.9-28; 6; 18 (125)	Two 16.9-28; 6; 18 (125)
	—Liquid (each)	None	None
	—Cast Iron (each)	812 lb (369 kg)	None
Height of Drawbar		26 in (660 mm)	26 in (660 mm)
Static Weight with Operator	—Rear	11800 lb (5352 kg)	7960 lb (3611 kg)
	—Front	5795 lb (2629 kg)	4170 lb (1891 kg)
	—Total	17595 lb (7981 kg)	12130 lb (5502 kg)

THREE POINT HITCH PERFORMANCE

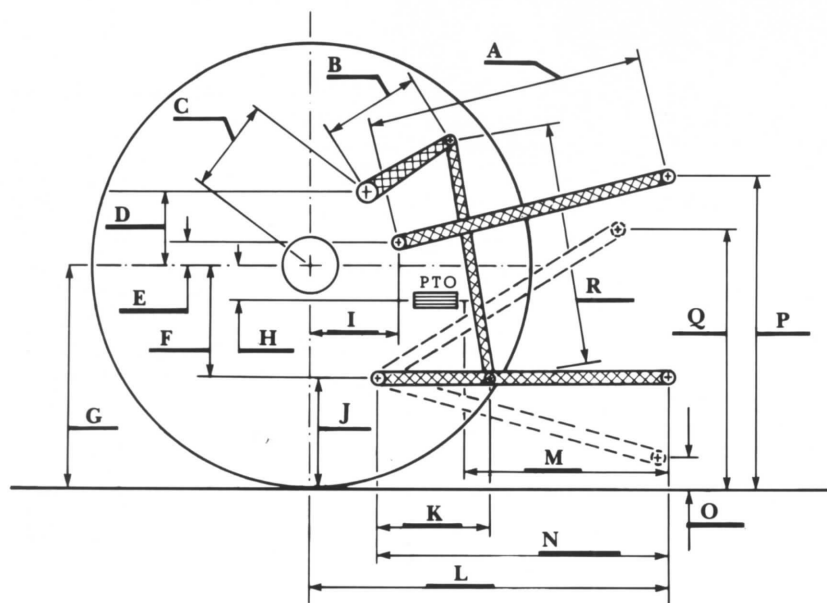
Observed Maximum Pressure psi (kPa)	2675 (18440)
Location	remote outlet
Hydraulic oil temperature °F (°C)	147 (64)
Location	dipstick

	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	III	*not measured
LOAD lbs (kg)	8968 (4068)	
TIME sec	3.35	
HITCH POINT MOVEMENT in (mm)		
Lowest position	10.7 (272)	
Top of timed range	33.7 (856)	
Highest position	** 34.1 (866)	
LOAD CG MOVEMENT in (mm)		
Lowest position	10.5 (267)	
Top of timed range	35.7 (907)	
Highest position	36.3 (922)	

*Implement load capacity for transport purposes not specified by manufacturer.

** The observed power range, 23.4 in. (594 mm) is less than the minimum power range for Cat III, 26 in. (660 mm) specified by ASAE Standard S217.10

** The observed highest position, 34.1 in. (866 mm) is less than the minimum height for highest position for Cat III, 40 in. (1016 mm) specified by ASAE Standard S217.10



Hitch Dimensions as Tested — No Load

	inch	mm
A	27.0	686
B	12.6	320
C	16.9	428
D	16.2	412
E	9.7	247
F	10.2	260
G	32.5	825
H	6.5	164
I	14.7	374
J	22.3	565
K	23.8	605
L	43.4	1102
M	22.6	575
N	37.6	955
O	8.0	203
P	44.3	1124
Q	34.5	876
R	34.6	879



Deutz-Fahr DX 6.50 Diesel

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