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January 1972

## Test 1105: Deutz D100 06 Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1105 - DEUTZ D100 06 DIESEL

Department of Agricultural Engineering  
 Dates of Test: August 22 to September 5, 1972  
 Manufacturer: KLOCKNER-HUMBOLDT-  
 DEUTZ A.G., COLOGNE, WEST GERMANY

## POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temperature Degrees F			Barometer inches of Mercury
		Gal per hr	Lb per hp-hr		Cooling medium	Air wet bulb	Air dry bulb	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1066 rpm)</b>								
105.04	2400	7.235	0.480	14.52	air-cooled	68	75	28.797
<b>Standard Power Take-Off Speed (1000 rpm)—One Hour</b>								
101.19	2250	7.032	0.484	14.39	air-cooled	68	75	28.780
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
93.49	2509	5.733	0.427	16.31	air-cooled	67	74	.....
0.00	2586	1.714	.....	.....	air-cooled	65	71	.....
47.35	2543	3.519	0.518	13.46	air-cooled	66	73	.....
105.13	2400	7.245	0.480	14.51	air-cooled	68	76	.....
23.86	2563	2.584	0.754	9.23	air-cooled	68	75	.....
70.59	2527	4.488	0.443	15.73	air-cooled	68	75	.....
<b>Av 56.74</b>	<b>2521</b>	<b>4.214</b>	<b>0.517</b>	<b>13.46</b>	<b>air-cooled</b>	<b>67</b>	<b>74</b>	<b>28.783</b>

## DRAWBAR PERFORMANCE

Hp	Drawbar pull lbs	Speed miles per hr	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury
				Slip of drivers %	Gal per hr		Lb per hp-hr	Cooling med	Air wet bulb	

### VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

<b>Maximum Available Power—Two Hours—11th Gear (Z4)</b>											
88.87	5747	5.80	2400	5.86	7.322	0.573	12.14	A-cooled	65	76	28.900
<b>75% of Pull at Maximum Power—Ten Hours—11th Gear (Z4)</b>											
72.41	4317	6.29	2562	4.32	5.355	0.515	13.52	A-cooled	68	72	28.872
<b>50% of Pull at Maximum Power—Two Hours—11th Gear (Z4)</b>											
48.09	2828	6.38	2554	2.74	4.109	0.595	11.70	A-cooled	62	67	28.990
<b>50% of Pull at Reduced Engine Speed—Two Hours—12th Gear (N4)</b>											
48.30	2830	6.40	1996	2.49	3.356	0.483	14.39	A-cooled	72	85	28.950

### MAXIMUM POWER WITH BALLAST

77.70	9979	2.92	2495	14.74	8th Gear (N2)	air-cooled	72	83	28.980
89.83	9421	3.58	2396	10.33	9th Gear (Z3)	air-cooled	65	76	28.910
90.29	7130	4.75	2401	7.12	10th Gear (N3)	air-cooled	65	76	28.910
90.92	5875	5.80	2400	5.90	11th Gear (Z4)	air-cooled	67	75	28.830
90.66	4511	7.54	2397	4.33	12th Gear (N4)	air-cooled	65	76	28.910
91.13	3597	9.50	2401	3.19	13th Gear (Z5)	air-cooled	65	76	28.910

### VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 11th Gear (Z4)

Pounds	5875	6035	6313	6400	6389	6357
Horsepower	90.92	83.66	77.64	68.92	59.02	48.87
Crankshaft Speed rpm	2400	2156	1918	1683	1444	1201
Miles Per Hour	5.80	5.20	4.61	4.01	3.46	2.88
Slip of Drivers %	5.90	6.21	6.21	6.52	6.52	6.52

### TRACTOR SOUND LEVEL

	dB(A)
Maximum Available Power 2 Hours	100.5
75% of Pull at Max. Power 10 Hours	99.5
50% of Pull at Max. Power 2 Hours	100.0
50% of Pull at Reduced Engine Speed 2 Hours	94.5
Bystander—16th Gear (N6)	89.5

### TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>		
Ballast	Two 20.8-38; 8; 16	Two 20.8-38; 8; 16
Cast Iron	1030 lb each	None
<b>Front Tires</b>		
Ballast	Two 11.00-16; 6; 24	Two 11.00-16; 6; 24
Cast Iron	None	None
Height of drawbar	310 lb each	None
Static weight with operator—rear	23½ inches	24½ inches
front	10870 lb	5430 lb
total	3570 lb	2950 lb
	14440 lb	8380 lb

L. F. LARSEN, Engineer-in-Charge  
 G. W. STEINBRUEGGE, Chairman; W. E. SPLINTER; D. E. LANE—  
 Board of Tractor Test Engineers

**FUEL, OIL AND TIME** Fuel No. 2 Diesel Cetane No. 54.5 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8365 Weight per gallon 6.965 lb Oil SAE 30 API service classification SB/SE-CA/CD To motor 4.277 gal Drained from motor 2.795 gal Transmission and final drive lubricant SAE 20 Total time engine was operated 51½ hours

**ENGINE** Make Deutz Diesel Type 6 cylinder air-cooled Serial No. 5049767 571/6 Crankshaft Mounted lengthwise Rated rpm 2400 Bore and stroke 3.94" x 4.72" Compression ratio 17 to 1 Displacement 345 cu. in. Cranking system 12-volt electric Lubrication pressure Air cleaner dry replaceable paper element with automatic dust unloader Oil filter replaceable pleated paper cartridge Oil Cooler radiator in-cooling system Fuel filter replaceable primary paper element and replaceable secondary paper cartridge Muffler was used Cooling medium temperature control air-cooled

**CHASSIS** Type standard Serial No. 7927/1869 Tread width rear 64" to 84" front 56" to 76" Wheel base 100.4" 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 32" Vertical distance above roadway 35" Horizontal distance from center of rear wheel tread 1" to the left Hydraulic control system direct engine drive Transmission selective gear fixed ratio partially synchronized

Advertised speeds mph first 0.7 second 0.8 third 1.0 fourth 1.3 fifth 1.6 sixth 2.1 seventh 2.5 eighth 3.2 ninth 3.9 tenth 5.0 eleventh 6.0 twelfth 7.7 thirteenth 9.6 fourteenth 12.3 fifteenth 15.2 sixteenth 19.4 reverse 0.9, 1.4, 2.1, 3.4, 5.2, 8.1 & 12.9 Clutch dry disc dual clutch operated by foot pedal and hand lever for PTO Brakes internal expanding shoes operated hydraulically by two foot pedals than can be locked together Steering hydraulic with power assist, Turning radius (on concrete surface with brake applied) right 161 left 161 (on concrete surface without brake) right 182 left 182 Turning space diameter (on concrete surface with brake applied) right 338 left 338 (on concrete surface without brake) right 378 left 378 Belt pulley 1380 rpm at 2400 engine rpm diam 11" face 7" Belt speed 3970 fpm Power take-off 1000 rpm at 2250 engine rpm.

**REPAIRS AND ADJUSTMENTS:** During maximum drawbar run in 13th gear (Z5) the left rear wheel weights fell off. These were replaced and the bolts holding the right rear wheel weights were rechecked. Following this a short occurred in the instrument panel. This was corrected and the test continued.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. First, second, third, fourth, fifth, sixth and seventh gears were not run as it was necessary to limit the pull in eighth gear because of excessive slippage. Fourteenth, fifteenth and sixteenth gears were not run as test procedure requires only six travel speeds.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1105.

The University of Nebraska Agricultural Experiment Station  
 E. F. Frolik, Dean; H. W. Ottoson, Director; Lincoln, Nebraska