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Test 1228: Ford 1600 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1228 — FORD 1600 DIESEL

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—692 rpm)									
23.02 (17.16)	2500	1.649 (6.242)	0.502 (0.305)	13.96 (2.750)	194 (90.1)	55 (12.7)	75 (23.8)	29.153 (98.446)	
Standard Power Take-off Speed (540 rpm)—One Hour									
19.78 (14.75)	1953	1.399 (5.295)	0.495 (0.301)	14.14 (2.785)	204 (95.4)	54 (12.5)	74 (23.3)	29.145 (98.418)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
19.77 (14.74)	2526	1.401 (5.302)	0.496 (0.302)	14.11 (2.780)	186 (85.3)	55 (12.8)	74 (23.6)	..... .....
0.00 (0.00)	2644	0.441 (1.670)	..... .....	..... .....	170 (76.7)	54 (12.2)	74 (23.3)	..... .....
10.10 (7.54)	2584	0.895 (3.389)	0.620 (0.377)	11.29 (2.224)	174 (79.2)	55 (12.8)	75 (23.9)	..... .....
23.02 (17.17)	2500	1.653 (6.259)	0.503 (0.306)	13.92 (2.743)	196 (90.8)	55 (12.8)	75 (23.9)	..... .....
5.10 (3.80)	2608	0.685 (2.594)	0.941 (0.573)	7.44 (1.466)	172 (77.5)	55 (12.8)	75 (23.9)	..... .....
14.94 (11.14)	2546	1.097 (4.151)	0.514 (0.313)	13.62 (2.683)	177 (80.6)	55 (12.8)	76 (24.2)	..... .....
Av Av	12.16 (9.06)	2568 (3.894)	1.029 (0.361)	0.593 (0.361)	11.82 (2.328)	179 (81.7)	55 (12.7)	75 (23.8)	29.133 (98.379)

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	
Maximum Available Power—Two Hours 7th (1-H) Gear											
18.09 (13.49)	1700 (7.56)	3.99 (6.42)	2499	9.05	1.606 (6.080)	0.622 (0.378)	11.26 (2.219)	168 (75.6)	46 (7.5)	55 (12.5)	29.005 (97.946)
75% of Pull at Maximum Power—Ten Hours 7th (1-H) Gear											
14.67 (10.94)	1314 (5.85)	4.19 (6.74)	2556	6.67	1.281 (4.851)	0.612 (0.372)	11.45 (2.255)	165 (73.6)	38 (3.2)	44 (6.8)	29.075 (98.182)
50% of Pull at Maximum Power—Two Hours 7th (1-H) Gear											
10.23 (7.63)	882 (3.92)	4.35 (7.00)	2596	4.53	1.053 (3.986)	0.721 (0.438)	9.72 (1.914)	164 (73.1)	28 (-2.1)	30 (-1.3)	29.020 (97.996)
50% of Pull at Reduced Engine Speed—Two Hours 8th (2-H) Gear											
10.38 (7.74)	894 (3.98)	4.36 (7.01)	1856	4.43	0.875 (3.310)	0.590 (0.359)	11.88 (2.339)	163 (72.8)	39 (3.9)	48 (8.6)	28.990 (97.895)
MAXIMUM POWER IN SELECTED GEARS											
11.78 (8.78)	2634 (11.72)	1.68 (2.70)	2546	14.93	4th (1-M) Gear			166 (74.2)	46 (7.8)	57 (13.9)	28.870 (97.490)
16.22 (12.09)	2630 (11.70)	2.31 (3.72)	2510	14.85	5th (2-M) Gear			170 (76.4)	46 (7.8)	57 (13.9)	28.870 (97.490)
17.93 (13.37)	2057 (9.15)	3.27 (5.26)	2498	11.28	6th (3-M) Gear			169 (76.1)	44 (6.7)	53 (11.7)	29.020 (97.996)
18.50 (13.79)	1738 (7.73)	3.99 (6.42)	2500	9.07	7th (1-H) Gear			168 (75.6)	44 (6.7)	52 (11.1)	29.030 (98.030)
18.53 (13.82)	1206 (5.36)	5.76 (9.28)	2499	6.11	8th (2-H) Gear			168 (75.6)	45 (7.2)	54 (12.2)	29.010 (97.962)
17.94 (13.38)	840 (3.74)	8.01 (12.88)	2500	4.22	9th (3-H) Gear			166 (74.4)	45 (7.2)	54 (12.2)	29.000 (97.929)

LUGGING ABILITY IN RATED GEAR 7th (1-H)

Crankshaft Speed rpm	2500	2245	1994	1750	1500	1241
Pull—lbs (kN)	1738 (7.73)	1798 (8.00)	1907 (8.48)	1840 (8.19)	1820 (8.10)	1802 (8.02)
Increase in Pull %	0	3	10	6	5	4
Power—Hp (kW)	18.50 (13.79)	17.08 (12.74)	15.96 (11.90)	13.60 (10.14)	11.53 (8.60)	9.47 (7.06)
Speed—Mph (km/h)	3.99 (6.42)	3.56 (5.73)	3.14 (5.05)	2.77 (4.46)	2.38 (3.82)	1.97 (3.17)
Slip %	9.07	9.59	10.44	9.85	9.85	9.59

Department of Agricultural Engineering

Dates of Test: October 15 to 22, 1976

Manufacturer: ISHIKAWAJIMA-HARIMA
Heavy Industries Company, Ltd., Tokyo 100,
Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 51.8 (rating taken from oil company's
typical inspection data) **Specific gravity converted
to 60°/60° (15°/15°)** 0.8412 **Fuel weight** 7.004 lbs/
gal (0.841 kg/l) **Oil SAE 30 API service classifi-
cation** SB/SE-CA/CD **To motor** 1.255 gal
(4.751 l) **Drained from motor** 1.023 gal (3.872 l)
Transmission and final drive lubricant SAE 90
Total time engine was operated 43 hours

ENGINE Make Ishikawajima-Shibaura Diesel
Type 2 cylinder vertical **Serial No.** LE 892-22236
Crankshaft lengthwise **Rated rpm** 2500 **Bore
and stroke** 3.54" × 3.94" (90.00 mm × 100.00 mm)
Compression ratio 21 to 1 **Displacement** 77.6 cu
in (1272 ml) **Cranking system** 12 volt **Lubrica-
tion pressure** **Air cleaner** oil bath steel wool **Oil
filter** full flow paper screw-on cartridge **Fuel fil-
ter** paper element **Muffler** vertical **Cooling
medium temperature control** thermostat

CHASSIS: Type standard **Serial No.**
U-103874 **Tread width** rear 48" (1212 mm) to 60"
(1535 mm) front 43" (1085 mm) to 60" (1535 mm)
Wheel base 62.6" (1590 mm) **Center of gravity**
(without operator or ballast, with minimum tread,
with fuel tank filled and tractor serviced for oper-
ation) Horizontal distance forward from center-
line of rear wheels 24.8" (630 mm) Vertical distance
above roadway 26.2" (665 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 0.8 (1.2) sec-
ond 1.1 (1.7) third 1.5 (2.4) fourth 2.0 (3.2) fifth
2.8 (4.5) sixth 3.8 (6.1) seventh 4.6 (7.4) eighth 6.4
(10.3) ninth 8.7 (14.0) reverse 1.2 (1.9), 3.2 (5.1),
7.2 (11.6) **Clutch** single plate dry disc operated by
foot pedal **Brakes** expanding shoe operated by
two pedals which can be locked together **Steering
mechanical** **Turning radius** (on concrete surface
with brake applied) right 98" (2.49 m) left 98" (2.49
m) (on concrete surface without brake) right 107"
(2.72 m) left 107" (2.72 m) **Turning space diame-
ter** (on concrete surface with brake applied) right
204" (5.18 m) left 204" (5.18 m) (on concrete sur-
face without brake) right 224" (5.69 m) left 224"
(5.69 m) **Power take-off** 540 rpm at 1953 engine
rpm.

REPAIRS and ADJUSTMENTS: Throttle lever
control linkage was tightened following PTO tests.

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 inlet
was 133°F (56.1°C). Six gears were chosen between
15% slip and 15 mph (24.1 km/h). One scratch was
found on rear cylinder during final inspection.

TRACTOR SOUND LEVEL WITHOUT CAB		dB(A)
Maximum Available Power—Two Hours		95.5
75% of Pull at Maximum Power—Ten Hours		93.0
50% of Pull at Maximum Power—Two Hours		92.5
50% of Pull at Reduced Engine Speed—Two Hours		88.5
Bystander in 9th (3-H) gear		81.5
TIRES, BALLAST AND WEIGHT		
Rear Tires		
—No., size, ply & psi (kPa)	Two 11.2-24; 4; 14 (100)	Two 11.2-24; 4; 14 (100)
Ballast		
—Liquid (each)	250 lb (113 kg)	None
—Cast Iron (each)	200 lb (91 kg)	None
Front Tires		
—No., size, ply & psi (kPa)	Two 5.00-15; 4; 40 (280)	Two 5.00-15; 4; 40 (280)
Ballast		
—Liquid (each)	None	None
—Cast Iron (each)	125 lb (57 kg)	None
Height of drawbar		
	19 in (480 mm)	19 in (480 mm)
Static weight with operator—rear		
front	2750 lb (1247 kg)	1850 lb (839 kg)
total	1090 lb (495 kg)	840 lb (381 kg)
	3840 lb (1742 kg)	2690 lb (1220 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1228**.

LOUIS I. LEVITICUS
Engineer-in Charge

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



Ford 1600 Diesel