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January 1975

Test 1178: Leyland 2100 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1178 – LEYLAND 2100 DIESEL

POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Degrees F	Air wet bulb	Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
88.40	2100	5.578	0.438	15.85	204	63	75	29.037
83.30	1818	5.113	0.426	16.29	213	65	75	29.015
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
77.94	2180	4.923	0.438	15.83	190	65	76	.....
0.00	2385	1.664	.....	.....	170	65	78	.....
40.61	2264	3.147	0.538	12.90	176	65	78	.....
87.73	2100	5.666	0.418	15.48	207	66	79	.....
20.58	2312	2.373	0.800	8.67	172	66	79	.....
59.62	2220	3.929	0.457	15.17	183	66	80	.....
Av 47.75	2243	3.617	0.526	13.20	183	65	78	29.005

DRAWBAR PERFORMANCE

Hp	Draw-bar pull lbs	Speed miles per hr	Crankshaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F	Air wet bulb	Air dry bulb	Barometer inches of Mercury
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VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

Maximum Available Power—Two Hours—6th Gear (3-Hi)											
73.24	5545	4.95	2102	7.57	5.565	0.527	13.16	195	63	66	28.690
75% of Pull at Maximum Power—Ten Hours—6th Gear (3-Hi)											
59.07	4190	5.29	2196	5.44	4.463	0.524	13.24	182	65	68	28.735
50% of Pull at Maximum Power—Two Hours—6th Gear (3-Hi)											
40.90	2762	5.55	2259	3.50	3.638	0.617	11.24	174	59	59	28.725
50% of Pull at Reduced Engine Speed—Two Hours—7th Gear (4-Lo)											
40.58	2756	5.52	1586	3.86	2.935	0.502	13.82	174	59	59	28.725

MAXIMUM POWER WITH BALLAST

65.99	8617	2.87	2113	14.86	4th Gear (2-Hi)	185	61	64	28.720
73.34	7248	3.79	2101	10.07	5th Gear (3-Lo)	191	61	64	28.720
75.70	5741	4.95	2100	7.74	6th Gear (3-Hi)	192	60	63	28.720
74.33	3856	7.23	2104	5.14	7th Gear (4-Lo)	194	61	64	28.720
74.12	2999	9.27	2103	3.93	8th Gear (4-Hi)	189	62	64	28.710

VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—6th Gear (3-Hi)

Pounds Pull	5741	6150	6292	6545	6568	6613	6352
Horsepower	75.70	72.34	65.88	59.66	51.11	42.87	32.89
Crankshaft Speed rpm	2100	1885	1681	1472	1258	1049	835
Miles Per Hour	4.95	4.41	3.93	3.42	2.92	2.43	1.94
Slip of Drivers %	7.74	8.40	8.40	8.92	8.92	8.92	8.53

TRACTOR SOUND LEVEL (with cab)

	dB(A)
Maximum Available Power 2 Hours	93.5
75% of Pull at Max. Power 10 Hours	91.5
50% of Pull at Max. Power 2 Hours	90.5
50% of Pull at Reduced Engine Speed 2 Hours	88.5
Bystander 10th Gear (5-Hi)	90.5

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi	Two 18.4-34; 8; 16
Ballast	—Liquid	365 lb each
	—Cast Iron	810 lb each
Front Tires	—No., size, ply & psi	Two 9.00-16; 10; 46
Ballast	—Liquid	None
	—Cast Iron	1000 lb each
Height of drawbar	15½ inches	16 inches
Static weight with operator—rear	8690 lb	6340 lb
front	4570 lb	2570 lb
total	13260 lb	8910 lb

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
H. W. Ottoson, Director

Department of Agricultural Engineering

Dates of Test: May 3 to May 30, 1975

Manufacturer: BRITISH LEYLAND (UK)
LIMITED, BATHGATE, WEST LOTHIAN,
SCOTLAND

FUEL, OIL AND TIME Fuel No 2 Diesel
Cetane No 51.7 (rating taken from oil company's
typical inspection data) Specific gravity converted to 60°/60° 0.8336 Weight per gallon
6.941 lb Oil SAE 20W-20 API service classification CC, SE and MS To motor 2.600 gal
Drained from motor 1.854 gal Transmission
and final drive lubricant SAE 20W-20 Total
time engine was operated 43 hours.

ENGINE Make Leyland Type 6 cylinder
vertical Serial No 6/98NT/1716/255 Crankshaft
Mounted lengthwise Rated rpm 2100
Bore and stroke 3.86" x 4.92" Compression
ratio 16.8 to 1 Displacement 344.7 cu in
Cranking system 12 volt electric Lubrication
pressure Air cleaner cyclonic dry type with dust
evacuator valve and replaceable element Oil
filter replaceable paper element Fuel filter two
replaceable paper elements Muffler horizontal
with vertical stack Cooling medium temperature
control thermostat.

CHASSIS Type standard Serial No 2100N/
1303/-191305 Tread width rear 64" to 84"
front 56" to 80" Wheel base 90" 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 34.8" Vertical
distance above roadway 30.5" Horizontal
distance from center of wheel tread 0" to the
right/left Hydraulic control system direct engine
drive Transmission selective gear fixed ratio
Advertised speeds mph first 1.6 second 2.0
third 2.5 fourth 3.2 fifth 4.0 sixth 5.1 seventh
7.2 eighth 9.2 ninth 15.3 tenth 19.3 Reverse
4.6 and 5.9 Clutch single disc operated by foot
pedal Brakes multiple wet disc operated by
hand lever and hydraulically operated by two
foot pedals or compensating center foot pedal
Steering hydrostatic Turning radius (on concrete
surface with brake applied) right 148.5"
left 150.5" (on concrete surface without brake)
right 158.5" left 161" Turning space diameter
(on concrete surface with brake applied) right
317" left 318" (on concrete surface without
brake) right 341" left 340" Power take-off 1000
rpm at 1818 engine rpm and 1155 at 2100 engine
rpm.

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.

First, second and third gears were not run as
it was necessary to limit the pull in fourth gear
to avoid excessive wheel slippage.

Ninth gear was not run as it exceeded 15
miles per hour.

Fuel temperature at injection pump return
was 150 degrees F.

The tractor did not meet manufacturers claim
of 90 PTO horsepower.

We, the undersigned, certify that this is a true
and correct report of official Tractor Test 1178.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers