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January 1975

Test 1176: Leyland 255 Diesel 10-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1176 - LEYLAND 255 DIESEL 10 SPEED

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 | |
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | | | | |
| Rated Engine Speed—Two Hours (PTO Speed—655 rpm) | | | | | | | | |
| 47.91 | 2199 | 3.193 | 0.463 | 15.00 | 185 | 64 | 75 | 28.887 |
| Standard Power Take-off Speed (540 rpm)—One Hour | | | | | | | | |
| 43.85 | 1813 | 2.671 | 0.423 | 16.42 | 185 | 65 | 75 | 28.880 |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | |
| 42.40 | 2289 | 3.017 | 0.194 | 14.05 | 183 | 66 | 76 | |
| 0.00 | 2477 | 1.232 | | | 172 | 66 | 76 | |
| 22.02 | 2376 | 2.200 | 0.693 | 10.01 | 175 | 66 | 77 | |
| 48.29 | 2198 | 3.203 | 0.460 | 15.08 | 186 | 66 | 79 | |
| 11.21 | 2422 | 1.798 | 1.113 | 6.23 | 173 | 65 | 79 | |
| 32.32 | 2327 | 2.632 | 0.565 | 12.28 | 181 | 65 | 80 | |
| Av 26.04 | 2348 | 2.347 | 0.626 | 11.10 | 178 | 66 | 77 | 28.880 |

DRAWBAR PERFORMANCE

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

VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

| | | | | | | | | | | | |
|---|------|------|------|------|-------|-------|-------|-----|----|----|--------|
| Maximum Available Power—Two Hours—6th Gear (3-Hi) | | | | | | | | | | | |
| 40.50 | 3351 | 4.53 | 2199 | 7.08 | 3.170 | 0.543 | 12.78 | 188 | 72 | 79 | 28.695 |
| 75% of Pull at Maximum Power—Ten Hours—6th Gear (3-Hi) | | | | | | | | | | | |
| 33.61 | 2604 | 4.84 | 2294 | 4.90 | 2.845 | 0.588 | 11.81 | 187 | 73 | 87 | 28.420 |
| 50% of Pull at Maximum Power—Two Hours—6th Gear (3-Hi) | | | | | | | | | | | |
| 23.60 | 1743 | 5.08 | 2367 | 3.26 | 2.485 | 0.731 | 9.50 | 179 | 71 | 78 | 28.455 |
| 50% Pull at Reduced Engine Speed—Two Hours—7th Gear (4-Lo) | | | | | | | | | | | |
| 23.52 | 1747 | 5.05 | 1659 | 3.55 | 1.729 | 0.510 | 13.60 | 182 | 76 | 88 | 28.470 |

MAXIMUM POWER WITH BALLAST

| | | | | | | | | | |
|-------|------|------|------|-------|-----------------|-----|----|----|--------|
| 33.42 | 5891 | 2.13 | 2285 | 14.99 | 3rd Gear (2-Lo) | 185 | 72 | 83 | 28.460 |
| 40.63 | 5776 | 2.64 | 2199 | 13.73 | 4th Gear (2-Hi) | 185 | 68 | 74 | 28.680 |
| 42.54 | 4591 | 3.48 | 2199 | 9.67 | 5th Gear (3-Lo) | 186 | 69 | 75 | 28.680 |
| 42.86 | 3544 | 4.53 | 2200 | 7.08 | 6th Gear (3-Hi) | 185 | 67 | 72 | 28.680 |
| 43.00 | 2449 | 6.58 | 2198 | 4.84 | 7th Gear (4-Lo) | 186 | 70 | 76 | 28.690 |
| 42.36 | 1879 | 8.46 | 2199 | 3.84 | 8th Gear (4-Hi) | 185 | 70 | 76 | 28.680 |

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

| | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Pounds Pull | 3514 | 3738 | 3974 | 4110 | 4225 | 4368 | 4316 |
| Horsepower | 42.86 | 40.37 | 38.09 | 34.73 | 30.10 | 25.73 | 20.25 |
| Crankshaft Speed rpm | 2200 | 1974 | 1762 | 1550 | 1319 | 1096 | 872 |
| Miles Per Hour | 4.53 | 4.05 | 3.59 | 3.15 | 2.67 | 2.21 | 1.76 |
| Slip of Drivers % | 7.08 | 7.44 | 8.02 | 8.60 | 8.71 | 9.17 | 9.05 |

TRACTOR SOUND LEVEL (with cab) dB(A)

| | |
|---|------|
| Maximum Available Power 2 Hours | 97.5 |
| 75% of Pull at Max. Power 10 Hours | 97.5 |
| 50% of Pull at Max. Power 2 Hours | 97.5 |
| 50% of Pull at Reduced Engine Speed 2 Hours | 96.0 |
| Bystander 10th Gear (5Hi) | 82.5 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|-----------------------|--------------------|--------------------|
| Rear Tires | —No., size, ply & psi | Two 16.9-28, 8; 16 | Two 16.9-28, 8; 16 |
| Ballast | —Liquid | None | None |
| | —Cast Iron | 970 lb each | None |
| Front Tires | —No., size, ply & psi | Two 7.50-15, 6; 28 | Two 7.50-16, 6; 28 |
| Ballast | —Liquid | None | None |
| | —Cast Iron | 185 lb each | None |
| Height of drawbar | | 19 inches | 19 inches |
| Static weight with operator—rear | | 5930 lb | 3990 lb |
| front | | 2680 lb | 2310 lb |
| total | | 8610 lb | 6300 lb |

Department of Agricultural Engineering

Dates of Test: May 6 to May 22, 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, MS To motor 2.368 gal Drained from motor 1.949 gal Transmission and final drive lubricant SAE 20W-20 Total time engine was operated 50½ hours.

ENGINE Make Leyland Dsl. **Type** 4 cylinder vertical **Serial No** 4/98DT/1679/4727 **Crankshaft mounted** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.858" x 4.921" **Compression ratio** 17.8 to 1 **Displacement** 230 cu in **Cranking system** 12 volt electric **Lubrication pressure** **Air cleaner** two stage with replaceable dry paper element and centrifugal precleaner **Oil filter** one full flow replaceable paper element **Fuel filter** two replaceable paper elements **Muffler** vertical **Cooling medium temperature control** thermostat.

CHASSIS Type standard **Serial No** 255N/306952/-191800 **Tread width** rear 52" to 80" front 52" to 76" **Wheel base** 80.25" **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 28.2" Vertical distance above roadway 34.2" Horizontal distance from center of rear wheel tread 0" to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph** first 1.4 second 1.8 third 2.3 fourth 2.9 fifth 3.6 sixth 4.6 seventh 6.6 eighth 8.3 ninth 13.9 tenth 17.6 reverse 4.2, 5.4 **Clutch** single disc operated by foot pedal **Brakes** multiple dry disc operated by hand lever and two foot pedals that can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 135.5" left 126" (on concrete surface without brake) right 149" left 145.5" **Turning space diameter** (on concrete surface with brake applied) right 280" left 265" (on concrete surface without brake) right 308" left 292" **Power take-off** 540 rpm at 1813 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 and second gears were not run as it was necessary to limit the pull in third gear to avoid excessive wheel slippage.

Fuel temperature at injection pump was 139 degrees F.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1176.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers