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January 1940

Test 360: Allis-Chalmers Model HD-7W (Wide Tread)

Tractor Museum

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UNIVERSITY OF NEBRASKA + AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 360

Dates of test: October 15 to 21, 1940.

Name and model of tractor: ALLIS-CHALMERS HD-7W (Wide Tread)

Manufacturer: Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S,

| H. P. | Crank shaft speed R.P.M. | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Barometer Inches of Mercury |
|-------|-----------------------------------|--------------------|--------------------------|-------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
| | | Gal. per hr. | H. P. hr. per gal. | Lb. per H. P. hr. | | Cool- ing med. | Air | |

TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 68.68 | 1499 | 4.835 | 14.20 | 0.493 | 0.000 | 164 | 66 | 29.065 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

*TEST D - ONE HOUR

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 60.52 | 1499 | 4.330 | 13.98 | 0.501 | 0.000 | 185 | 56 | 29.145 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 60.36 | 1500 | 4.331 | 13.94 | 0.503 | -- | 187 | 59 | -- |
| 1.81 | 1612 | 1.464 | 1.24 | 5.669 | -- | 160 | 61 | -- |
| 32.36 | 1581 | 2.850 | 11.35 | 0.617 | -- | 191 | 61 | -- |
| 66.39 | 1484 | 4.729 | 14.04 | 0.499 | -- | 175 | 63 | -- |
| 15.88 | 1556 | 2.136 | 7.43 | 0.943 | -- | 171 | 60 | -- |
| 46.52 | 1523 | 3.492 | 13.32 | 0.526 | -- | 183 | 60 | -- |
| 37.22 | 1542 | 3.167 | 11.75 | 0.596 | 0.000 | 178 | 61 | 29.180 |

D R A W B A R H O R S E P O W E R T E S T S

| H. P. | Draw bar pull pounds | Speed miles per hr. | Crank shaft speed R.P.M. | Slip on drive wheels % | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Barometer Inches of Mercury |
|-------|-------------------------------|------------------------------|-----------------------------------|------------------------------------|--------------------|---------------------|---------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
| | | | | | Gal. per hr. | H.P. per gal. | Lb. per H.P. hr. | | Cool- ing med. | Air | |

TESTS F AND G - 100% MAXIMUM LOAD

| | | | | | | | | | | |
|-------|-------|------|------|------|-------|--------------|-------|-----|----|--------|
| 57.31 | 12171 | 1.77 | 1502 | 4.43 | ----- | Not Recorded | ----- | 178 | 80 | 28.825 |
| 57.29 | 8570 | 2.51 | 1499 | 1.86 | ----- | " " | ----- | 176 | 75 | 28.925 |
| 55.56 | 6167 | 3.38 | 1499 | 2.36 | ----- | " " | ----- | 170 | 65 | 29.250 |
| 51.19 | 3311 | 5.80 | 1501 | 0.81 | ----- | " " | ----- | 170 | 70 | 29.215 |

*TEST H - TEN HOURS - Second - GEAR

| | | | | | | | | | | | |
|-------|------|------|------|------|-------|-------|-------|-------|-----|----|--------|
| 45.45 | 6753 | 2.52 | 1500 | 1.24 | 4.015 | 11.32 | 0.619 | 0.000 | 170 | 71 | 28.850 |
|-------|------|------|------|------|-------|-------|-------|-------|-----|----|--------|

*Formerly called RATED LOAD; see REMARKS 4, page 3.

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Copy of Report of Official Tractor Test No. 300

FUEL, OIL, AND TIME

Fuel Commercial diesel fuel Weight per gallon 7.01 pounds

Oil: S.A.E. No. 20 To motor 3.168 gal. Drained from motor 2.777 gal.

Total time motor was operated 49 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.84 Second 2.55

Third 3.45 Fourth 5.82 Reverse 2.19

Belt pulley: Diam. 12" Face 8-3/4" R.P.M. 1031 Belt speed 3240 f.p.m.

Clutch: Make Atwood Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 14,175 Pounds

MOTOR

Make General Motors Serial No. 3711064 Type 3 cylinder, vertical,
2 cycle diesel

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 4-1/4" x 5" Rated R.P.M. 1500

Port diameter valves: Inlet Multiple ports Exhaust 1-1/4"

Fuel Injection System: Make General Motors

Governor: Make Handy Type Variable speed, centrifugal
Oil-washed, crimped wire filter

Air Cleaner: Make United Type with United pre-cleaner

Oil Filter: Combination full flow Purolator metal element and partial flow AC

renewable absorption type element

Cooling medium temperature control: Bishop and Babcock thermostat
and Pines radiator shutters

CHASSIS

Type Tracklayer Serial No. HD7W-176 Drive Enclosed gear

Tread width: 63" Measured length of track 18.4973'

Cleats: Type Integral with shoes No. per track 34

Size 2" high x 18" long

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Copy of Report of Official Tractor Test No. 360

REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on page 1 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with fuel pumps as set and sealed by the manufacturer and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with the same setting.

| | <u>DRAWBAR</u> | <u>BELT</u> |
|---|----------------|-------------|
| 2. Observed maximum horsepower (tests F & B) | 57.29 | 68.68 |
| 3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.) | 60.10 | 71.08 |
| 4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings) | 45.08 | 60.42 |

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 360.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers