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January 1935

Test 239: Allis-Chalmers Model M

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 239

Dates of test: August 1 to 9, 1935.
 Name and model of tractor: ALLIS-CHALMERS "M"
 Manufacturer: Allis-Chalmers Manufacturing Co., Springfield, Ill.
 Manufacturer's rating: NOT RATED.

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

H. P.	:Crank : :shaft :	Fuel Consumption			Water Consumption			Temp. : :Deg. F. :	:Barometer :Inches of :Mercury
		:speed : :R.P.M.,	:Gals. : :per	:H. P. : :hrs. per	:Lbs.per: :H. P. :	:Cool- : :ing	:In : :fuel		
:	:	:hour	:Gal.	:hour	:	:	:	:	:

TEST B 100% MAXIMUM LOAD. TWO HOURS

35.05 : 1200 : 4.164 : 8.42 : 0.830 : 0.000 : 0.000 : 0.000 : 189 : 77 : 28.625

TEST C OPERATING MAXIMUM LOAD. ONE HOUR

34.62 : 1201 : 3.629 : 9.54 : 0.733 : 0.000 : 0.000 : 0.000 : 186 : 75 : 28.600

TEST D RATED LOAD. ONE HOUR

31.78 : 1199 : 3.247 : 9.79 : 0.714 : 0.000 : 0.000 : 0.000 : 190 : 82 : 28.595

TEST E *VARYING LOAD. TWO HOURS

31.62	: 1196	: 3.189	: 9.92	: 0.705	: --	: --	: --	: 190	: 83	: --
0.82	: 1351	: 1.305	: 0.63	: 11.122	: --	: --	: --	: 185	: 84	: --
17.25	: 1296	: 2.077	: 8.31	: 0.842	: --	: --	: --	: 188	: 86	: --
31.38	: 1169	: 3.197	: 9.82	: 0.712	: --	: --	: --	: 190	: 91	: --
8.63	: 1310	: 1.820	: 4.74	: 1.474	: --	: --	: --	: 189	: 92	: --
24.71	: 1255	: 2.768	: 8.93	: 0.783	: --	: --	: --	: 190	: 93	: --
19.07	: 1263	: 2.467	: 7.73	: 0.905	: 0.000	: 0.000	: 0.000	: 188	: 92	: 28.565

*20 minute runs. Last line is average for two hours.

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 :	Speed : :miles	Crank : :shaft :	Slip : :on :	Fuel Consumption		Water: :used :	Temp. : :Barometer
					: H. P. : :Gal.:	: Lbs. : :per		
:	:pull : :pounds:	:per :hour	:speed : :R.P.M.:	:drive: :wheels:	:Gal. : :per	:per :H.P. :	:per :hour	:med. : :

TEST F 100% MAXIMUM LOAD. Second GEAR.

28.66 : 3450 : 3.12 : 1204 : 3.74:-----Not Recorded-----: 181 : 80: 28.770

TEST G OPERATING MAXIMUM LOAD

27.43	: 5009	: 2.05	: 1203	: 8.96:-----Not Recorded-----	: 206	: 107:	28.770
28.44	: 3421	: 3.12	: 1200	: 3.36:-----"	: 183	: 83:	28.770
25.45	: 2358	: 4.05	: 1201	: 3.12:-----"	: 192	: 97:	28.780
23.22	: 5576	: 1.56	: 1204	: 15.82:-----"	: 196	: 108:	28.770

TEST H RATED LOAD, TEN HOURS. Second GEAR.

22.61 : 2709 : 3.13 : 1201 : 3.12:3.087: 7.32 : 0.954 : 0.022 : 188 : 93 : 28.750

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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. UM2602 Type 4 cylinder, vertical
 Head I Mounting crankshaft lengthwise
 Bore and stroke: 4 3/8" x 5" Rated R.P.M. 1200
 Port Diam. Valves: Inlet 1 3/4" Exhaust 1 1/2"
 Belt pulley: Diam. 12" Face 8 3/4" R.F.M. 960
 Magneto: Bendix-Scintilla Model C-4
 Carburetor Zenith Model K-5 Size 1 1/4"
 Governor: Own No. None Type Centrifugal
 Air Cleaner: Vortex Type Oil washed wire filter
 Lubrication: Pressure

CHASSIS: Type Tracklayer Serial No. M3120 Drive Enclosed gear
 Clutch: Rockford Type Single plate Operated by hand
 Advertised speeds, miles per hour: First 2.23 Second 3.20
 Third 4.15 Fourth 1.83 Reverse 2.55
 Measured length of track 15.614 foot Face 12"
 Lugs: Type Cloats intogral with shoes No. per track 31
 Size 12" x 1 5/8"
 Seat Upholstered
 Total weight as tested (with operator) 6855 pounds.

FUEL AND OIL:

Fuel: Distillate Weight per gallon 6.99
 Oil: S.I.E. Viscosity No. 40 The oil was drained
 once: at the end of
 Total oil to motor 1.942 gallons the test.
 Total drained from motor 1.804 gallons
 Total time motor was operated 50 hours

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

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 carburetor set for 100% maximum horsepower and these figures were used in determining the ratings recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests C, D, E, G, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 98.8% of maximum horsepower.

Observed maximum horsepower (tests B & F) Drawbar 28.66 Belt 35.05

Sea level (calculated) maximum horsepower Drawbar 30.38 Belt 37.22
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 22.79 Belt 31.64
 (As recommended by A.S.A.E. and S.A.E. codes.)

The 100% maximum belt and drawbar tests were not included in reports issued from 1928 to 1934 inclusive, except in those cases where the 100% maximum setting was used throughout the complete test.

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 239.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

E. B. Lewis

Board of Tractor Test Engineers