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January 1936

Test 272: Caterpillar Model 30 (Gasoline)

Tractor Museum

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 272

Dates of test : October 13 to 23, 1936.
 Name and model of tractor: CATERPILLAR THIRTY (Gasoline).
 Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.
 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 : Gals. : H. P. : : R.P.M. : per : : hour :	Lbs. per: : H.P. : : hour :	Water Consumption : per hour gallons :	Temp. : : Deg. F. : : Cool- : : ing : med. :	Barometer : Inches of : Mercury :
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TEST B 100% MAXIMUM LOAD. TWO HOURS

39.15:	1400 :	4.776 :	8.20 :	0.745 :	0.000 :	0.000 :	0.000 :	187 :	65 :	28.820
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TEST C OPERATING MAXIMUM LOAD. ONE HOUR

37.81:	1401 :	4.286 :	8.82 :	0.693 :	0.000 :	0.000 :	0.000 :	187 :	66 :	28.830
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TEST D RATED LOAD. ONE HOUR

34.90:	1400 :	4.064 :	8.59 :	0.711 :	0.000 :	0.000 :	0.000 :	183 :	65 :	28.835
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TEST E *VARYING LOAD. TWO HOURS

34.73:	1402 :	4.051 :	8.57 :	0.713 :	-- :	-- :	-- :	183 :	65 :	--
0.73:	1513 :	2.018 :	0.36 :	16.890 :	-- :	-- :	-- :	170 :	65 :	--
18.04:	1461 :	3.177 :	5.68 :	1.076 :	-- :	-- :	-- :	175 :	65 :	--
36.78:	1363 :	4.159 :	8.84 :	0.691 :	-- :	-- :	-- :	183 :	65 :	--
9.34:	1483 :	2.612 :	3.58 :	1.709 :	-- :	-- :	-- :	173 :	65 :	--
26.18:	1446 :	3.668 :	7.14 :	0.856 :	-- :	-- :	-- :	177 :	64 :	--
20.97:	1445 :	3.281 :	6.39 :	0.956 :	0.000 :	0.000 :	0.000 :	177 :	65 :	28.860

*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 : : per : hour :	Crank : : shaft : : speed : : R.P.M. : : wheels : : % :	Slip : : on : : drive : : wheels : : % :	Fuel Consumption : H. P. : : Lbs. : : Gal. : : per : : per : : hour : : gal. :	Water: : used : : Gal. : : per : : per : : hour : : hour :	Temp. : : : : Cool- : : ing : : Air : : Mercury :	Barometer : Inches of : Mercury :
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TEST F 100% MAXIMUM LOAD. Second GEAR.

35.05 :	5775 :	2.28 :	1400 :	3.44 :	-----	Not Recorded	-----	175 :	36 :	28.995
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TEST G OPERATING MAXIMUM LOAD

30.99 :	7211 :	1.61 :	1401 :	5.39 :	-----	Not Recorded	-----	171 :	34 :	29.050
31.48 :	5186 :	2.28 :	1398 :	3.33 :	-----	"	"	171 :	35 :	28.980
31.60 :	4105 :	2.89 :	1399 :	2.52 :	-----	"	"	172 :	39 :	28.990
30.54 :	3147 :	5.64 :	1399 :	1.69 :	-----	"	"	170 :	41 :	28.990
29.09 :	2045 :	5.34 :	1400 :	0.99 :	-----	"	"	171 :	38 :	29.000

TEST H RATED LOAD. TEN HOURS. Second GEAR.

26.59 :	4346 :	2.29 :	1398 :	2.52 :	3.714 :	7.16 :	0.853 :	0.000 :	175 :	47 :	29.105
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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 6G413WSP Type 4 cylinder, vertical
 Head I Mounting Crankshaft lengthwise
 Bore and stroke: 4 1/4" x 5 1/2" Rated R.P.M. 1400
 Port Diam. Valves: Inlet 1 13/16" Exhaust 1 1/2"
 Belt pulley: Diam. 12" Face 8 1/2" R.P.M. 840
 Magneto Eisemann Model CM-4
 Carburetor Zenith Model K5A Size 1 1/4"
 Governor Own Type Centrifugal
 Air Cleaner: Donaldson Type Oil-washed wire-screen filter
 Lubrication Pressure

CHASSIS: Type Tracklayer Serial No. 6G413WSP Drive Enclosed gear
 Clutch Own Type Single-plate, dry Operated by Hand
 Advertised speeds, miles per hour: First 1.7 Second 2.4
 Third 3.0 Fourth 3.7 Fifth 5.4 Reverse 1.9
 Measured length of track 17.458 feet Face 13"
 Lugs: Type Cleats integral with shoes No. per track 31
 Size 2" high x 13" face
 Seat Upholstered

Total weight as tested (with operator) 9950 pounds.
 FUEL AND OIL: Fuel Gasoline Weight per gallon 6.11 pounds.

Oil: S.A.E. Viscosity No. 30
 Total oil to motor 2.972 gallons
 Total drained from motor 2.784 gallons
 Total time motor was operated 47 hours

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REPAIRS AND ADJUSTMENTS

Corrosion caused the governor control rod to stick in the governor bottle during the rated load drawbar test. The corrosion was apparently due to condensed crankcase vapor.

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 as 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 96.6% of maximum horsepower.

Observed maximum horsepower (tests F & B) Drawbar 35.05 Belt 39.15

Sea level (calculated) maximum horsepower Drawbar 35.33 Belt 40.83
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 26.50 Belt 34.71
 (As recommended by A.S.A.E. and S.A.E. codes)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 272.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers