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Test 1554: Massey-Ferguson 1040 Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1554—MASSEY FERGUSON 1040 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)	
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb		
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed — Two hours (PTO Speed —578 rpm)									
27.73 (20.68)	2500	2.164 (8.193)	0.544 (0.331)	12.81 (2.524)	186 (85.7)	58 (14.3)	75 (23.9)	28.94 (97.73)	
*	Standard Power Take-off Speed (540 rpm) — One Hour								
25.80 (19.24)	2334	1.987 (7.523)	0.537 (0.327)	12.98 (2.557)	184 (84.5)	57 (13.8)	75 (23.8)	28.92 (97.66)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
24.47 (18.25)	2596	2.005 (7.588)	0.571 (0.347)	12.21 (2.405)	180 (82.2)	57 (13.6)	75 (23.6)	..... .....
0.00 (0.00)	2680	0.779 (2.947)	..... .....	..... .....	167 (74.7)	57 (13.6)	75 (23.9)	..... .....
12.47 (9.30)	2643	1.338 (5.064)	0.748 (0.455)	9.32 (1.836)	170 (76.4)	57 (13.9)	75 (23.9)	..... .....
28.27 (21.08)	2502	2.168 (8.207)	0.535 (0.325)	13.04 (2.569)	185 (85.0)	56 (13.3)	76 (24.2)	..... .....
6.26 (4.67)	2653	1.058 (4.006)	1.178 (0.717)	5.92 (1.166)	168 (75.3)	56 (13.3)	75 (23.9)	..... .....
18.48 (13.78)	2615	1.639 (6.204)	0.618 (0.376)	11.28 (2.221)	171 (77.2)	57 (13.6)	75 (23.6)	..... .....
Av Av	14.99 (11.18)	2615	1.498 (5.669)	0.697 (0.424)	10.01 (1.972)	173 (78.5)	56 (13.6)	75 (23.8)	28.91 (97.62)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 10th (H2) Gear											
21.80 (16.25)	1483 (6.60)	5.51 (8.87)	2500	6.63	2.165 (8.196)	0.693 (0.421)	10.07 (1.983)	173 (78.3)	45 (7.2)	51 (10.6)	28.72 (96.97)
75% of Pull at Maximum Power — Ten Hours 10th (H2) Gear											
17.95 (13.39)	1150 (5.12)	5.85 (9.42)	2614	5.20	1.884 (7.132)	0.732 (0.445)	9.53 (1.877)	172 (77.6)	43 (6.2)	52 (11.2)	28.77 (97.15)
50% of Pull at Maximum Power — Two Hours 10th (H2) Gear											
12.26 (9.14)	768 (3.41)	5.99 (9.64)	2640	3.95	1.563 (5.916)	0.889 (0.541)	7.84 (1.545)	170 (76.7)	38 (3.1)	43 (6.1)	29.09 (98.22)
50% of Pull at Reduced Engine Speed — Two Hours 11th (H3) Gear											
12.25 (9.14)	767 (3.41)	5.99 (9.65)	1855	3.79	1.217 (4.608)	0.693 (0.422)	10.06 (1.983)	168 (75.6)	44 (6.7)	53 (11.4)	29.05 (98.08)

MAXIMUM POWER IN SELECTED GEARS

21.17 (15.79)	2795 (12.43)	2.84 (4.57)	2575	14.68	8th (M4) Gear			174 (78.6)	48 (8.9)	60 (15.6)	28.96 (97.79)
22.32 (16.64)	2233 (9.93)	3.75 (6.03)	2501	10.42	9th (H1) Gear			173 (78.1)	44 (6.7)	49 (9.4)	28.74 (97.05)
22.57 (16.83)	1533 (6.82)	5.52 (8.89)	2502	6.53	10th (H2) Gear			173 (78.3)	43 (6.1)	48 (8.9)	28.76 (97.12)
21.43 (15.98)	1002 (4.46)	8.02 (12.91)	2500	4.33	11th (H3) Gear			173 (78.3)	44 (6.7)	50 (10.0)	28.73 (97.02)

LUGGING ABILITY IN 10th (H2) GEAR

Crankshaft Speed rpm	2502	2241	2001	1755	1506	1247	998
Pull—lbs (kN)	1533 (6.82)	1534 (6.82)	1614 (7.18)	1866 (8.30)	2041 (9.08)	2100 (9.34)	1978 (8.80)
Increase in Pull %	0	0	5	22	33	37	29
Power—Hp (kW)	22.57 (16.83)	20.23 (15.08)	18.94 (14.12)	18.95 (14.13)	17.59 (13.12)	14.90 (11.11)	11.32 (8.44)
Speed—Mph (km/h)	5.52 (8.89)	4.94 (7.96)	4.40 (7.08)	3.81 (6.13)	3.23 (5.20)	2.66 (4.28)	2.15 (3.45)
Slip %	6.53	6.63	6.84	8.14	9.22	9.70	9.03

Department of Agricultural Engineering

Dates of Test: March 14 - 26, 1985

Manufacturer: TOYOSHA COMPANY, LTD., 55
Joshiji-16, Kadoma City, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 48.3 (rating taken from oil company's
inspection data) Specific gravity converted to 60/
60°F (15/15°C) 0.8376 Fuel weight 6.974 lbs/gal
(0.836) kg/l Oil SAE 30 API service classification
SE, SF, CC To motor 0.971 gal (3.675 l) Drained
from motor 0.919 gal (3.480 l) Transmission and
final drive lubricant Massey Ferguson Permatran
III fluid Total time engine was operated 41.0
hours.

ENGINE: Make Toyosha Diesel Type three cyl-
inder vertical Serial No. 3S200255 Crankshaft
lengthwise Rated rpm 2500 Bore and stroke 3.622"
× 3.937" (92 mm × 100 mm) Compression ratio
23 to 1 Displacement 121.7 cu in (1994 ml) Start-
ing system 12 volt Lubrication pressure Air cleaner
one paper element Oil filter one full flow car-
tridge Fuel filter one paper cartridge and sedi-
ment bowl Muffler vertical Cooling medium
temperature control one thermostat.

CHASSIS: Type front wheel assist Serial No.
40298 Tread width rear 45.3" (1150 mm) to 63.6"
(1615 mm) front 47.2" (1200 mm) Wheel base 68.9"
(1750 mm) Center of gravity (without operator or
ballast, with minimum tread, with fuel tank filled
and tractor serviced for operation) Horizontal dis-
tance forward from center-line of rear wheels 30.6"
(777 mm) Vertical distance above roadway 28.1"
(715 mm) Horizontal distance from center of rear
wheel tread 0.1" (2 mm) to the left Hydraulic con-
trol system direct engine drive Transmission se-
lective gear fixed ratio Advertised speeds mph
(km/h) first 0.4 (0.6) second 0.5 (0.8) third 0.7 (1.2)
fourth 1.0 (1.6) fifth 1.2 (1.9) sixth 1.7 (2.7) sev-
enth 2.4 (3.8) eighth 3.3 (5.3) ninth 4.2 (6.8) tenth
6.0 (9.6) eleventh 8.5 (13.6) twelfth 11.6 (18.6)
reverse 0.7 (1.1), 2.3 (3.7), 8.2 (13.2) Clutch single
dry disc operated by foot pedal Brakes multiple
wet disc operated by two foot pedals which can be
locked together Steering power assist Turning ra-
dius (on concrete surface with brake applied) right
112" (2.84 m) left 112" (2.84 m) (on concrete surface
without brake) right 125" (3.18 m) left 125" (3.18
m) Turning space diameter (on concrete surface
with brake applied) right 232" (5.89 m) left 232"
(5.89 m) (on concrete surface without brake) right
258" (6.55 m) left 258" (6.55 m) Power take-off 540
rpm at 2334 engine rpm Unladen tractor mass
3620 lb (1642 kg).

REPAIRS AND ADJUSTMENTS: No repairs
or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Maximum Available Power—Two Hours	88.5	88.0
75% of Pull at Maximum Power—Ten Hours		90.0
50% of Pull at Maximum Power—Two Hours		89.5
50% of Pull at Reduced Engine Speed—Two Hours		88.0
Bystander in 12th (H4) gear		78.5

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power * Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 10th (H2) Gear											
20.91 (15.59)	1364 (6.07)	5.75 (9.25)	2500	4.94	2.165 (8.196)	0.722 (0.439)	9.66 (1.902)	173 (78.3)	45 (7.2)	52 (10.8)	28.70 (96.90)
MAXIMUM POWER IN SELECTED GEARS											
19.93 (14.86)	3501 (15.57)	2.13 (3.44)	2585	14.78	7th (M3) Gear			173 (78.3)	47 (8.3)	58 (14.4)	29.01 (97.96)
22.11 (16.49)	2090 (9.29)	3.97 (6.39)	2501	7.48	9th (H1) Gear			172 (77.8)	44 (6.7)	49 (9.4)	28.74 (97.05)
21.65 (16.15)	1413 (6.29)	5.75 (9.25)	2501	4.94	10th (H2) Gear			173 (78.3)	43 (6.1)	48 (8.9)	28.77 (97.15)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 13.6-24; 4; 14 (195)	Two 13.6-24; 4; 14 (195)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	435 lb (198 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 8-16; 4; 22 (150)	Two 8-16; 4; 22 (150)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	22 lb (10 kg)	None
Height of Drawbar		15 in (380 mm)	15 in (380 mm)
Static Weight with Operator —Rear		3060 lb (1388 kg)	2190 lb (993 kg)
—Front		1655 lb (751 kg)	1610 lb (730 kg)
—Total		4715 lb (2139 kg)	3800 lb (1723 kg)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	1875 (12930)	
Location	lift cylinder	
Hydraulic oil temperature °F (°C)	145 (63)	
Location	pump inlet	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	I	*not measured
LOAD lbs (kg)	1734 (787)	
TIME sec	1.88	
HITCH POINT MOVEMENT in (mm)		
Lowest position	11.0 (279)	
Top of timed range	32.0 (813)	
Highest position	** 32.0 (813)	
LOAD CG MOVEMENT in (mm)		
Lowest position	11.9 (302)	
Top of timed range	30.3 (770)	
Highest position	30.9 (784)	

*Implement load capacity for transport purposes not specified by manufacturer.

**The observed power range, 21 in (534 mm) is less than the minimum power range for Cat I, 22 in (559 mm) specified by ASAE Standard S217.10.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 146°F (63.3°C). Four gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No.1554, June 13, 1985.

LOUIS I. LEVITICUS

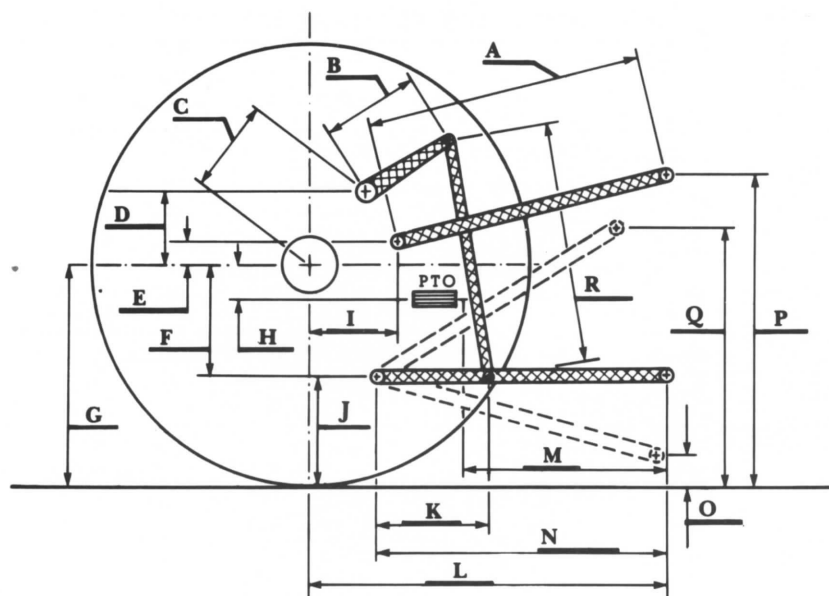
Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

T. L. THOMPSON

Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	19.5	495
B	10.6	270
C	15.5	393
D	15.2	386
E	16.1	409
F	5.3	135
G	21.7	551
H	1.8	47
I	12.3	312
J	16.4	417
K	15.4	390
L	32.2	819
M	21.8	554
N	25.6	650
O	8.0	203
P	34.4	874
Q	30.8	782
R	23.0	584



Massey Ferguson 1040 Diesel

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 Institute of Agriculture and Natural Resources
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 Irvin T. Omtvedt, Dean and Director