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CENTRE NATIONAL
DU MACHINISME AGRICOLE
DU GÉNIE RURAL
DES EAUX ET DES FORÊTS

GROUPEMENT ANTONY
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Division Tracteurs et Travail du Sol

TEST REPORT N° 7532 DATE : 29th may 1989

OECD TEST OF AN AGRICULTURAL TRACTOR (RESTRICTED CODE) 50.12

Reference texts : O.E.C.D. Code II

OECD approval
N°: 1193 Restricted Code
Date : 17th may 1989



Tested equipment	
Nature	: TRACTOR
Make	: MASSEY FERGUSON
Model	: B 710/2
Trade name	: 3680
Number of driving wheels	: 2
Type	: standard

Submitted for tests by	
Name	: MASSEY FERGUSON S.A.
Address	: avenue Blaise Pascal
	BP 307
	60026 BEAUVAIS CEDEX
Tel : 44.89.33.33	Telex : 140396 F

This test report may only be duplicated as a whole

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1. GENERALITIES

Tractor manufacturer's name and address : MASSEY FERGUSON S.A, BP 307 avenue Blaise Pascal 60026 BEAUVAIS

Submitted for tests by : MASSEY FERGUSON S.A.

Selected for tests by the manufacturer with the agreement of CEMAGREF

Date of arrival of the equipment in CEMAGREF : 13th march 1989

Place of running in : BEAUVAIS

Duration of running in : 20 h

2. SPECIFICATIONS

2.1 Tested tractor

Make : MASSEY FERGUSON
Model : B 710/2
Trade name : 3680
Number of driving wheels : 2
Type : standard
Serial number : ※ B 710/2 - V 083040 ※
1st serial number : V 083040

2.2 Engine

2.2.1 Identification

Make : VALMET
Model : 612 DS
Type : 4 strokes, direct injection diesel
Serial number : U 065140

2.2.2 Cylinders

Number : 6
Disposition : vertical, in line
Bore/stroke : 108/134 mm
Capacity : 7400 cm^3
Compression ratio : 15/1
Arrangement of valves : overhead in line
Cylinders liners : wet

2.2.3 Supercharging

Make : HOLSET
Model : turbo-compressor
Type : H1 E
Supercharging pressure : 1,3 bar

2.2.4 Fuel system

Fuel feed system : piston fuel feed pump
Make, type and model of fuel filter : CAV 2 FASL 58638045
Capacity of fuel tank : 260 l (315 with auxiliary fuel tank)
Make, type and model of injection pump : BOSCH in line, PES6A 95 D 320 RS 2684/BG
Serial number : 1060 AU C2178 - 2R
Manufacturer's setting of injection pump : 101-106 mm^3/stroke (at rated engine speed and full load)
Injection pump timing : 24° before T.D.C.
Make, type and model of injectors : BOSCH - DLLA 150 S 1029
Injection pressure : 230 bars

2.2.5 Governor

Make : CAV
Type : mechanical, incorporated into fuel injection pump
Governed range of engine speed : 900 - 2420 rev/min

2.2.6 Rated engine speed : 2200 rev/min

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2.2.7 Air cleaner

Pre-cleaner : . Make : DONALDSON
. Type and model : cyclone incorporated into main
. Location : under bonnet

Main : . Make : DONALDSON
. Type and model : dry, FLB 12 - 0297
. Location : under bonnet

Maintenance indicator : lamp on desk board

2.2.8 Lubrication system

Type of feed pump : gear
Total oil capacity including filter : 21,2 l
Oil change period : 250 h
Type and number of filter : 1 cartridge
Filter change period : 300 h
Recommended oil : see "fuel and lubricants used in test"

2.2.9 Cooling system

Type of coolant : water or water anti-freeze mixture
Type of pump : centrifugal
Description of fan
. Belt-driven
. Number of fan blades : 9
. Fan diameter : 560 mm
Coolant capacity : 29,7 l (expansion tank 2/3)
Type of temperature control : thermostatic
Surpressure system : 0,5 bar

2.2.10 Starting system

Safety device : electrical switch under clutch pedal
Make : LUCAS
Type and model : pre-engaged M 127
Power : 2,8 kW
Cold starting aid : thermostart CAV

2.2.11 Electrical system

Voltage : 12 V
Generator :
. Make : VALEO
. Type and model : alternator 70 A
. Power : 840 W
Batteries
. Number : 2 (FULMEN 465 temperate climate - FULMEN 505 cold climate)
. Rating : 420 A for 60 s at -18 °C (465) - 550 A for 60 s at -18 °C (505)

2.2.12 Exhaust system

Make : LUCHAIRE
Type : perforated
Location : under hood
Hight of outlet above ground : 2905 mm

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2.3 Steering wheels

Number : 2
Location : front axle
Tyres :
- . Size : 14L - 16.1
- . Ply rating : 6
- . Type of casing : cross ply
- . Maximum permissible load on each tyre : 12,9 kN (with inflation pressure 200 kPa)

Track widths : 1543 - 1622 - 1644 - 1724 - 1746 - 1826 - 1848 - 1927 - 1949 - 2028 - 2051 - 2130 - 2153
2231 - 2254 - 2333 mm
Method of adjustment : telescopic

2.4 Driving wheels

Number : 2
Location : rear
Tyres :
- . Size : 20.8 - 42
- . Ply rating : 10
- . Type of casing : cross ply
- . Maximum permissible load on each tyre : 36,3 kN (with inflation pressure 160 kPa)

Track width : 1871 - 1922 - 2074 - 2125 mm
Method of adjustment : lugs

2.5 Wheelbase : 2940 mm

2.6 Transmission

2.6.1 Clutch (travel and power take-off)

Mak : VALEO
Type : dry, twin plates clutch
Number of plates : 2
Diameter of plates : 305 mm
Method of operation (for travel) : foot pedal

2.6.2 Gear box

Make : MASSEY FERGUSON
Type and model : mechanically operated gear shift, speedshift as an option
Number of speeds : 8 (8x2 with speedshift)
Available option : creeper

2.6.3 Rear axle and final drives

Make : MASSEY FERGUSON
Type and model : crown wheel and pinion and inboard epicyclic reduction
Differential lock :
- . Type and model : mechanical hydraulically actuated
- . Method of engagement : electrical switch
- . Method of disengagement : when brake pedal is depressed

2.6.4 Front axle

Make : MASSEY FERGUSON
Type and model : telescopic

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2.6.5 Transmission oils

Capacity :

. Gear box :)
) 88 l
. Hydraulic system :)

. Rear axle final drives : 5 l (each)

Change period : 1200 h

Filter change period : 600 h

Type of oil filter : 20 µ with by-pass
Recommended oils : see "fuel and lubricants used in tests"

2.6.6 Total ratios and travelling speeds

Group	Gear	Number of engine revolutions for one revolution of driving wheels	Nominal travelling speed (*) at rated engine speed (km/h)
T	1	228,993	3,231
	2	132,316	5,591
	3	106,698	6,934
	4	79,881	9,261
T (rear)	1	190,827	3,877
	2	110,263	6,709
	3	88,915	8,320
	4	66,568	11,114
T + S	1	171,745	4,308
	2	99,237	7,455
	3	80,024	9,245
	4	59,911	12,348
T + S (rear)	1	143,120	5,169
	2	82,698	8,946
	3	66,687	11,094
	4	49,926	14,818
R	1	92,733	7,978
	2	53,583	13,807
	3	43,208	17,122
	4	32,349	22,870
R (rear)	1	77,277	9,573
	2	44,652	16,568
	3	36,007	20,546
	4	26,957	27,444
R + S	1	69,549	10,637
	2	40,187	18,409
	3	32,406	22,829
	4	24,261	30,493
R + S (rear)	1	57,958	12,765
	2	33,489	22,091
	3	27,005	27,395
	4	20,218	36,592

T : Turtle - R : Rabbit - S : speedshift
(*) Calculated with a tyre dynamic index radius of 892 mm (ISO 4251/1 - 1984)

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Division Tracteurs et Machines Agricoles

ERRATUM - TEST REPORT N° 7532
MASSEY FERGUSON 3680 (2 RD)

OECD APPROVAL
N° 1193 Restricted Code
Date 17th may 1989

2.7 Main power take-off

2.7.1 General specifications
Independant
Hydraulic multiplate clutch
Engagement by electrical switch
Number of shafts : 1
Method of changing power take-off speed : by replacing the 540 rev/min shaft by the 1000 rev/min shaft and vice-versa

2.7.2 Power take-off proportional to engine speed

540 rev/min

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 6 (in accordance with ISO R 500 - 1979)
Height above ground : 767 mm with tyres 20.8-42
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 550 mm

Power take-off speed : 596 rev/min
for rated engine speed : 2200 rev/min

Engine speed : **1992** rev/min
for standard power take-off speed : 540 rev/min

Engine to power take-off ratio : **3,69**
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

1000 rev/min

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 21 (in accordance with ISO R 500 - 1979)
Height above ground : 767 mm with tyres 20.8-42
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 499 mm

Power take-off speed : 1053 rev/min
for rated engine speed : 2200 rev/min

Engine speed : 2090 rev/min
for standard power take-off speed : 1000 rev/min

Engine to power take-off ratio : 2,09
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

2.7.3 Power take-off proportional to ground speed : **none**

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2.7 Main power take-off

2.7.1 General specifications

Independant

Hydraulic multiplate clutch

Engagement by electrical switch

Number of shafts : 1

Method of changing power take-off speed : by replacing the 540 rev/min shaft by the 1000 rev/min shaft and vice-versa

2.7.2 Power take-off proportional to engine speed

540 rev/min

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 6 (in accordance with ISO R 500 - 1979)
Height above ground : 767 mm with tyres 20.8-42
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 550 mm

Power take-off speed : 596 rev/min
for rated engine speed : 2200 rev/min

Engine speed : 1996 rev/min
for standard power take-off speed : 540 rev/min

Engine to power take-off ratio : 3,62
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

1000 rev/min

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 21 (in accordance with ISO R 500 - 1979)
Height above ground : 767 mm with tyres 20.8-42
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 499 mm

Power take-off speed : 1053 rev/min
for rated engine speed : 2200 rev/min

Engine speed : 2090 rev/min
for standard power take-off speed : 1000 rev/min

Engine to power take-off ratio : 2,09
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

2.7.3 Power take-off proportional to ground speed : none

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2.8 Power lift

Make : MASSEY FERGUSON
Type : top link, electronic position, draft or mixed control
Type and number of cylinders : 2, single acting
Type of linkage lock for transport : hydraulic lock
Relief valve pressure setting : 188 bars
Opening pressure of cylinder safety valve : 200 bars
Lift pump type : gears
Transmission between pump and engine : mechanical
Make and number of filters : 1 - PUROLATOR
Time between oil changes : 1200 h
Time between filter changes : 600 h
Oil capacity : 88 l
Site of oil reservoir : transmission housing
Type and number of tapping points : 2 - on lift cover
Maximum volume of oil available to external cylinders : 34 l
Recommended oil : see "fuel and lubricants used in test"

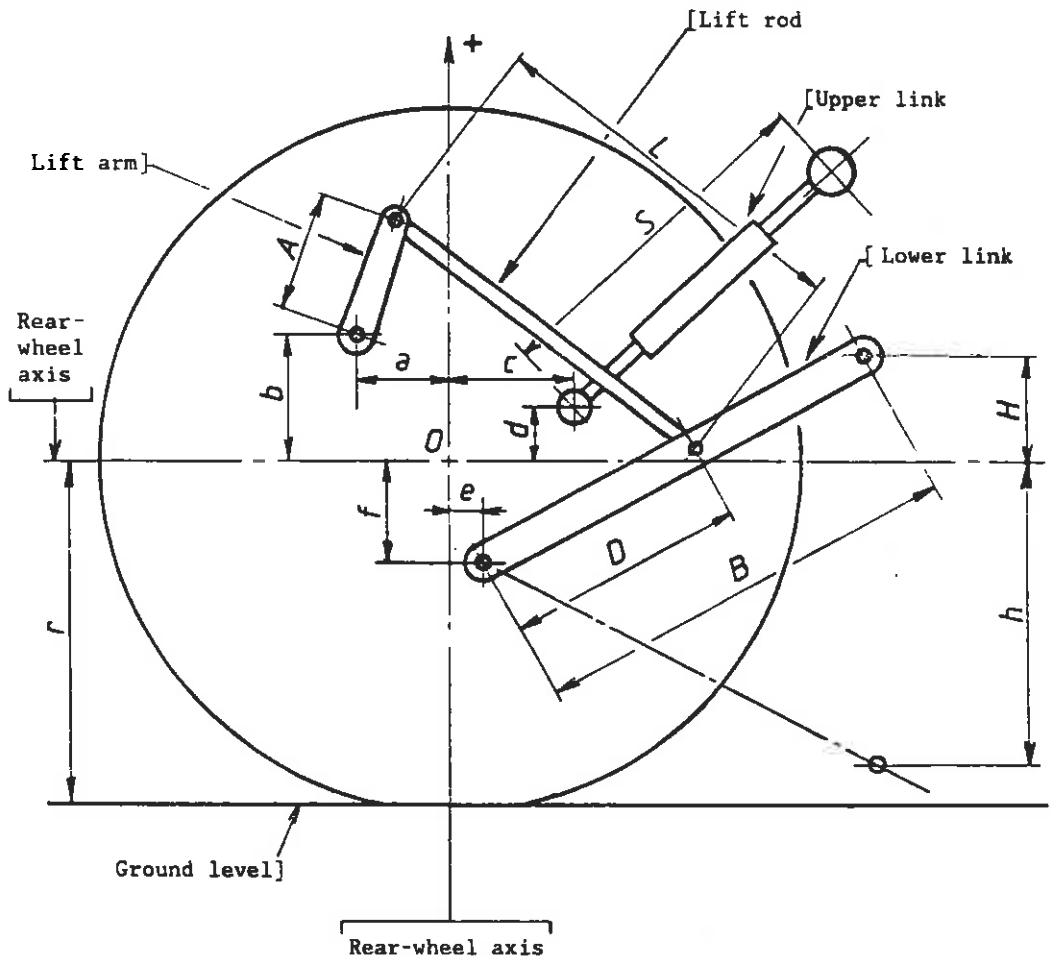
2.9 Three-point linkage

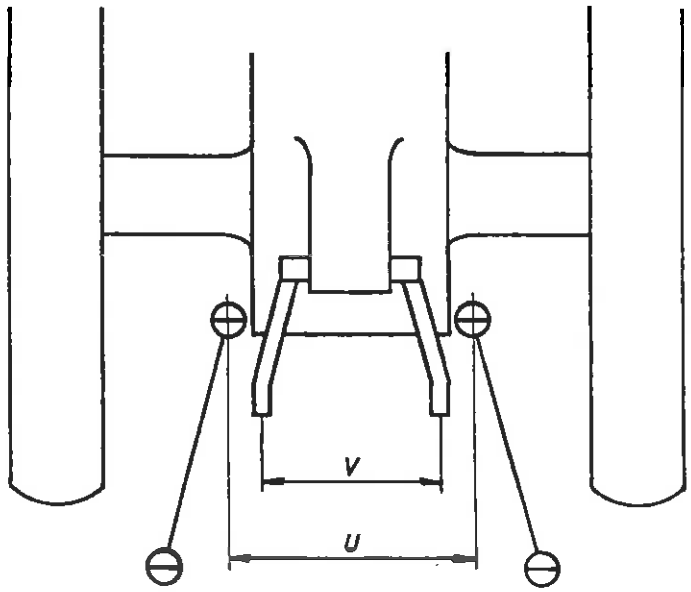
Catégory : II - III (in accordance with ISO 730 - 1977)
Category adapter : yes

Linkage dimensions (mm)				Settings used for test
Rear tyres : dynamic index radius		(r)	892	
Front tyres : loadede radius		(r')	422	
Length of lift arms		(A)	362	
Length of lower links		(B)	975	
Distance of lift arm pivot point from rear wheels centre line	horizontally	(a)	185,8	
	vertically	(b)	431,8	
Horizontal distance between the two lower link points		(u)	511	
Horizontal distance between the two lift arm end point		(v)	870	
Length of upper link		(S)	from 666 to 786	775
Distance of upper link pivot point from rear wheels centre	horizontally	(c)	428	
	vertically	(d)	121|179|237	179
Distance of lower link pivot point from rear wheels centre	horizontally	(e)	224	
	vertically	(f)	300	
Distance of lower link points to lift rod pivot points on lower link		(D)	525	
Length of lift rods		(L)	from 677 to 855	855
Height of lower hitch points relative to the rear wheels centre				
- in low position		(h)	from 324 to 722	675
- in high position		(H)	from 0 to 328	45
Height of lower hitch points when locked in transport position			from 857 to1185	/

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2.10 Linkage geometry





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2.11 Swinging drawbar

Height above ground : . maximum : 596 mm
. minimum : 596 mm
Type of adjustment : none
Distance of hitch point from rear axle centre : 897 mm to rear
Distance of hitch point from power take-off shaft end : . vertically : 347 mm (540 RPM) 397 mm (1000 RPM)
. horizontally : 297 mm
Lateral adjustment : 306 mm (left and right hand)
Distance of pivot point from rear axle horizontally : 227 mm to rear
Diameter drawbar pin hole : 30 mm

2.12 Trailer hitch

Height above ground : . maximum : 1007 mm
. minimum : 836 mm
Distance of hitch point from rear axle centre : 751 mm
Distance of hitch point from power take-off shaft end :
. vertically : from 69 to 240 mm
. horizontally : 200 mm (540 RPM) - 250 mm (1000 RPM)
Maximum vertical permissible load : 20 kN
Diameter of pin hole : 30 mm

2.13 Linkage drawbar

Height above ground : . maximum : 1185 mm
. minimum : 170 mm
Horizontal distance to power take-off shaft end : 640 mm (540 RPM) - 690 mm (1000 RPM)
Number of holes : 9
Distance between holes : 80 mm
Hole diameter : 25 mm
Thickness and width of drawbar : 30/80 mm

2.14 Steering

Method of operation : hydrostatic steering system, gearbox housing mounted on gear pump
Make : DANFOSS
Model : OSPC - LS
Type : load-sensing with integral system relief valves, anti-chock and anti-cavitation valves
Working pressure : 15,7 to 16,2 MPa
Oil capacity : 88 l
Oil change period : 1200 h
Filter change period : 600 h
Recommended oil : see "fuel and lubricants used in test"

2.15 Brakes

2.15.1 Service brake

Make : MASSEY FERGUSON and GIRLING
Model : oil-immersed, 486,5 cm^2 friction area on each brake
Type : single disk brake, hydraulicaly actuated - W/O ASBOSTOS DISK BORG-WARNER
Method of operation : hydraulic master cylinder - hydraulic slave annular piston
independant or dependant operation of twin pedals (which can be latched)

2.15.2 Parking brake

Type : SIRMAC - HUSCO, 4 disk
Method of operation : hand lever - cable and rod

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2.15.3 Trailer brake

Make : BOSCH
Type : hydraulically actuated valve to regulate oil flow and pressure to the trailer brakes
proportional and progressive trailer/tractor braking effort is achieved by linking their services together via a sensive valve
Method of operation : automatic, as the right hand side tractor brake pedal is depressed
Maximum braking pressure : 130-150 bars
Maximum flow : 32 l/min

2.16 Protective structure specifications

2.16.1 Spécifications

Manufacturer's name : MASSEY FERGUSON S.A.
Trade name : 3000 - D
Type of structure : . cab
. tiltable : no
Description : see test report number 6257
OECD approval number : CSS 077/2

2.16.2 Driver's seat

Make : GRAMMER DS 85H/90 AR
Type of suspension : parallelogram
Type of damping : gas cylinder
Range of adjustment . longitudinal : 150 mm
. vertical : 60 mm

2.16.3 Miscellaneous

Passenger's seat : either factory fitted or as an accessory
Location : left of the operator
Number of places : 1

2.17 Lighting

Unrestricted beam angle of head light in plan view

	Height above ground of centre (mm)	Size (mm)	Distance from outside edge of tractor to centre at 2174 mm track width (mm)
Headlights	1281,5	167 x 107	950
Sidelights	1761	120 x 80	442
Rearlights	1830	300 x 62	316
Reflectors	742	98 x 62	561

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3. CONDITIONS DURING TEST

3.1 Overall dimensions

LENGTH	WIDTH		HEIGHT	
	min	max	exhaust silencer	at top of protective structure
m	m	m	m	
5,165	2,391	2,442	2,891	2,891

3.2 Ground clearance : 443 mm limited by drawbar bracket

3.3 Track setting : . front : 1848 mm
. rear : 1871 mm

3.4 Tractor mass (kg)

(without driver, with tanks full and with cab)

Front	Rear	Total
1855	3885	5740

3.5 Fuel

. Type : Diesel Oil (in accordance to AFNOR standard NFM 15-008)
. Gravity at 15°C : 0,842

3.6 Recommended and used during test lubricants

Engine oil :
. Make : BP
. Type : SUPER TOU - MIL L 2104-C
. Viscosity : 10 W 30

Transmission, hydraulic and steering oil :
. Make : BP
. Type : SUPER TOU - MIL L 2104-C
. Viscosity : 10 W 30

Rear final drives oil :
. Make : BP
. Type : HYPO GEAR OIL
. Viscosity : EP 80 W 90

Grease : BP AGRICHARGE

Number of lubrication points : 10

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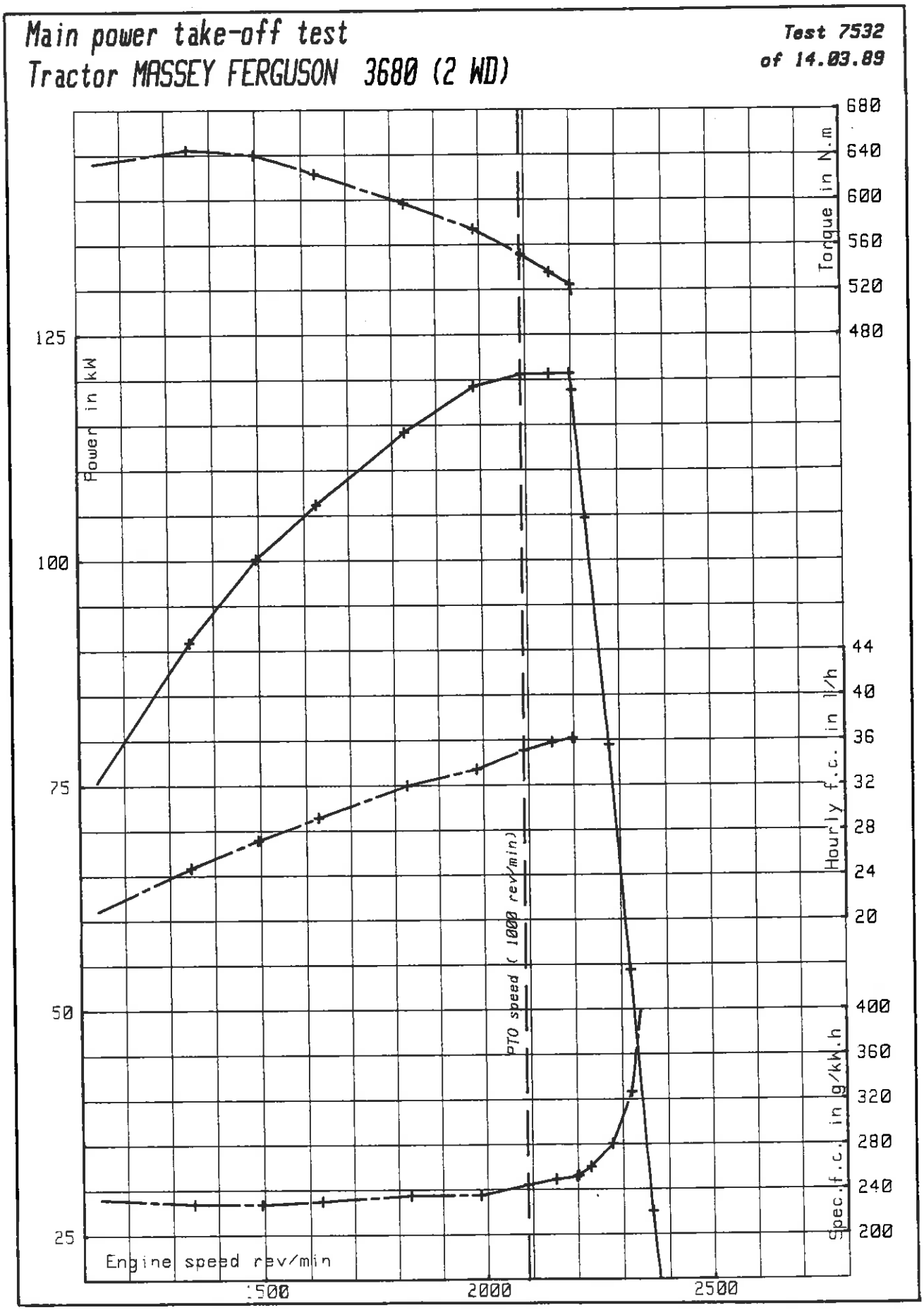
4. COMPULSORY TESTS RESULTS

4.1 Main power take-off performance

Location and date of tests : ANTONY, 14th march 1989
Type of dynamometer : SCHENCK W780

Power	Speed		Fuel consumption		Specific
	engine	power take-off	hourly	specific	energy
kW	rev/min		l/h	g/kWh	kWh/l
MAXIMUM POWER - TWO HOURS TEST					
120,7	2199	1052	36,15	252	3,34
MAXIMUM POWER AT RATED ENGINE SPEED					
120,7	2199	1052	36,15	252	3,34
PART LOADS (governor control being set for maximum power at rated engine speed) (1) Torque corresponding to 85% of the torque at maximum power at rated engine speed					
104,7	2230	1067	32,41	261	3,23
(2) 75% of the torque defined in (1)					
79,5	2278	1090	26,53	281	3,00
(3) 50% of the torque defined in (1)					
54,4	2320	1110	21,13	327	2,57
(4) 25% of the torque defined in (1)					
27,6	2364	1131	15,55	475	1,77
(5) Unloaded					
-	2416	1156	10,26	-	-
MAXIMUM POWER AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)					
120,7	2091	1000	35,04	245	3,44
PART LOADS (governor control being set for maximum power at standard power take-off speed) (6) Torque corresponding to 85% of the torque at maximum power at standard power take-off speed					
105,2	2144	1026	31,28	250	3,36
(7) 75% of the torque defined in (6)					
80,7	2190	1048	25,62	267	3,15
(8) 50% of the torque defined in (6)					
54,6	2236	1070	20,25	313	2,63
(9) 25% of the torque defined in (6)					
28,3	2279	1091	14,88	443	1,90
(10) Unloaded					
-	2337	1118	9,29	-	-

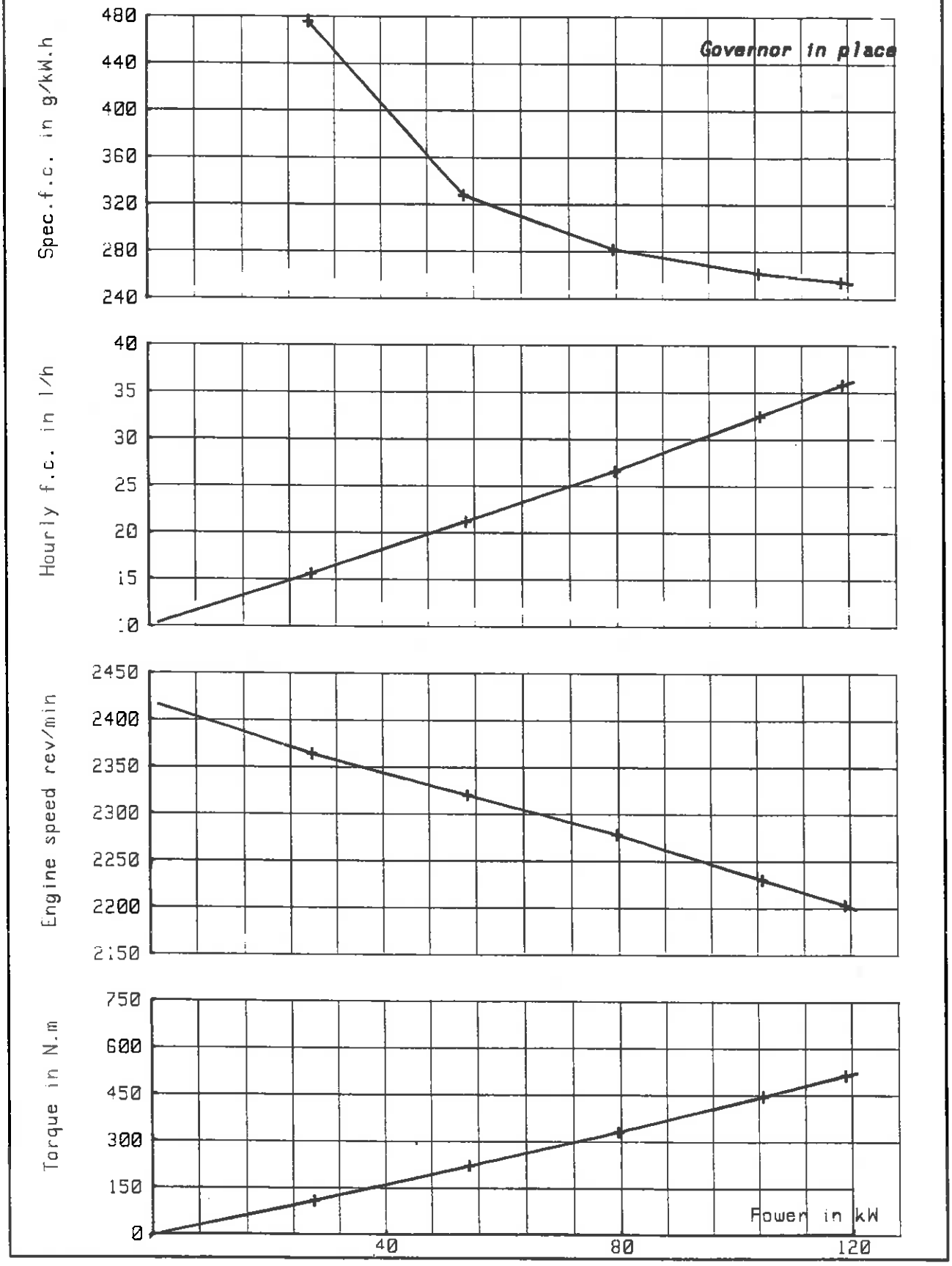
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Main power take-off test
Tractor MASSEY FERGUSON 3680 (2 WD)
Test 7532
of 14.03.89
Power in kW
125
100
75
50
25
Torque in N.m
680
640
600
560
520
480
Hourly f.c. in l/h
44
40
36
32
28
24
20
Spec.f.c. in g/kW.h
400
360
320
280
240
200
PTO speed (1000 rev/min)
Engine speed rev/min
1500
2000
2500

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Main power take-off test
Tractor MASSEY FERGUSON 3680 (2 WD)

Test 7532
of 14.03.89



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4.1 Main power take-off performance (continued)

Other results

No load, maximum engine speed : 2416 rev/min
Equivalent crakshaft torque at maximum power at rated engine speed : 524,4 N.m
Maximum equivalent crankshaft torque : 644,5 N.m at 1347 rev/min

Mean atmospheric conditions

Témperature : 23 °C
Pressure : 1021 mbar
Relative humidity : 48 %

Maximum temperatures

Coolant : 86 °C
Engine oil : 108 °C
Fuel : 43 °C
Air intake : 25 °C

Fuel consumption at variyng load

Charge	Governor control being set for maximum power at rated engine speed		Governor control being set for maximum power at standard pto speed	
	at 85% (1)	at 50% of 85% (2)	at 85% (1)	at 50% of 85% (2)
Hourly consumption (l/h)	32,41	21,13	31,28	20,25
Standard specific consumption (g/kWh)	261	327	250	313

(1) 85% of the torque corresponding to maximum power for the position of the governor hand lever
(2) 50% of the torque defined in (1)

4.2 Lifting force and hydraulic power

Date : 24th march 1989

4.2.1 Power lift test

Hydraulic fluid : see "fuel and lubricants used in tests"

		at the hitch point	on the frame
Height of lower hitch point above ground in low position	mm	217	222
Vertical movement	mm	720	730
Maximum force exerted through full range	kN	53,8	50,2
Corresponding pressure of hydraulic fluid	bar	165	165
Moment about rear axle	kN.m	64,6	90,8
Maximum tilt angle of mast over range of lift	degree	/	2°

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4.2.1 Power lift test (continued)

Lifting height (1)	mm	-375	-355	-300	-200	0	+100	+250	+345	+380
Lifting force (2)	at the hitch point kN	53,8	54,2	55,6	57,9	60,6	61,6	62,7	62,8	-
	at the frame kN	-	60,1	59,6	59,2	59,0	57,9	55,3	53,5	50,2

(1) Lifting height relative to the horizontal plane including the lower link pivot points
(2) The values of force measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting or to maximum power delivered by the hydraulic system, whichever is lower.

4.2.2 Hydraulic power test

Tapping point used for test : auxiliary service connection
Sustained pressure with relief valve open : 185 bars
Pump delivery rate at minimum pressure : 56,3 l/min

		corresponding to maximum hydraulic power	corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting
Pressure	bars	170	166
Flow rate	l/min	47,3	48,0
Power	kW	13,4	13,3

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4.3 Drawbar performance (unballasted tractor)

Date and location of test : 23rd march 1989, Antony

Type of track : Tarmacadam

Height of drawbar above ground : 0,87 m

Tyres	Front	Rear
. Size :	14L - 16.1	20.8 - 42
. Inflation pressure (bar) :	2,0	1,0

Atmospheric conditions :

. Temperature : 11°C
. Pressure : 1023 mbar
. Relative humidity : 35 %

Gear ratio	Travelling speed km/h	Drawbar pull kN	Power kW	Engine speed rev/min	Wheelslip %	Specific consumption g/kWh	Specific energy kW/l	Temperatures (1) °C	(2) °C	(3) °C
MAXIMUM POWER IN TESTED GEAR										
1 T	3,07	51,7	44,1	2339	14	402	2,09	40	80	85
1 T + S	4,01	51,0	58,8	2307	13	357	2,36	41	78	90
2 T	5,40	51,2	76,8	2274	11	317	2,66	43	79	93
3 T	6,50	51,4	92,8	2228	11	293	2,87	45	81	94
2 T + S	7,02	50,3	98,1	2209	10	284	2,96	46	80	90
1 R	7,65	48,6	103,3	2209	9	277	3,04	41	82	94
3 T + S	9,04	43,0	108,0	2186	6	277	3,04	43	80	97
4 T	9,05	43,4	109,1	2186	6	259	3,25	41	82	98
1 R + S	10,46	38,0	110,4	2169	5	259	3,25	43	79	97
4 T + S	12,05	32,6	109,1	2138	4	267	3,15	38	79	95
2 R	13,47	29,3	109,6	2130	4	264	3,19	40	80	96
TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS (i) Maximum drawbar power in tested gear										
1 R + S	10,46	38,0	110,4	2169	5	259	3,25	43	79	97
(ii) 75% of pull at maximum power										
1 R + S	10,99	28,7	87,6	2250	3	284	2,97	41	79	96
(iii) 50% of pull at maximum power										
1 R + S	11,33	18,8	59,3	2309	3	364	2,31	43	81	96
(iv) Higher gear same pull as in (i) reduced engine speed										
4 T + S	10,94	28,8	87,5	1933	3	247	3,40	41	78	92
(v) Higher gear as in (ii) reduced engine speed										
4 T + S	11,35	19,2	60,5	1988	3	291	2,89	43	78	94
(iv) Higher gear same pull as in (i) reduced engine speed										
2 R	10,82	28,3	85,1	1718	3	256	3,29	41	78	95
(v) Higher gear as in (ii) reduced engine speed										
2 R	11,42	19,7	62,5	1789	3	255	3,31	45	82	94

(1) Fuel temperature - (2) Coolant temperature - (3) Engine oil temperature

CEMAGREF

5. OPTIONAL TESTS RESULTS

5.1 Measurement of external noise level

Date of test : 23rd march 1989
Type of sound level meter : BRUEL & KJAER 2209
Type of track : Tarmacadam
Gear : 4 R + S
Travelling speed before acceleration : 25,4 km/h
Sound level : 85 dB(A)

6. REPAIRS AND ADJUSTMENTS DURING TESTS

none

Le Technicien chargé des essais	L'Ingénieur responsable des essais	Le Chef de la Division Tracteurs Travail du Sol
M.HOCQUEL	E.HUGO	J.F.GOUPILLON

This test report was approved for publication by the requester of the test

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