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

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Division Tracteurs et Travail du Sol

TEST REPORT **N° 7903** **DATE 6th August 1990**

OECD TEST OF AN AGRICULTURAL TRACTOR (RESTRICTED CODE) 50.12

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



OECD Approval

N° 1266 Restricted Code

Date 29th June 1990

Tested equipment	
Nature	: TRACTOR
Make	: MASSEY FERGUSON
Model	: B 515/2
Trade name	: 3655 (3660 for NAO)
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 : 7th february 1990

Place of running in : BEAUVAIS

Duration of running in : 20 h

2. SPECIFICATIONS

2.1 Tested tractor

Make : MASSEY FERGUSON
Model : B 515/2
Trade name : 3655 (3660 for NAO)
Number of driving wheels : 2
Type : standard
Serial number : P 345 024
1st serial number : P 345 024

2.2 Engine

2.2.1 Identification

Make : PERKINS
Model : 1006-6 T 4
Type : 4 strokes, direct injection diesel , supercharged
Serial number : YB 31236 U 504 791 S

2.2.2 Cylinders

Number : 6
Disposition : vertical, in line
Bore/stroke : 100/127 mm
Capacity : 5985 cm^3
Compression ratio : 16/1
Arrangement of valves : overhead
Cylinders liners : dry

2.2.3 Supercharging

Make : AIRESEARCH (GARRET)
Model : turbo-compressor
Type : 452024
Supercharging pressure : 115 kPa

2.2.4 Fuel system

Fuel feed system : diaphragm fuel feed pump
Make, type and model of fuel filter : CAV 2 FAS 58488130, dual element with water trap
Capacity of fuel tank : 260 l
Make, type and model of injection pump : CAV, DPS 963, rotative
Serial number : 24190 ADG
Manufacturer's setting of injection pump : 77 mm^3/stroke (at rated engine speed and full load)
Injection pump timing : 17° before T.D.C.
Make, type and model of injectors : CAV, EGGI 680 1093
Injection pressure : 250 bars

2.2.5 Governor

Make : CAV
Type : mechanical, incorporated into fuel injection pump
Model : DPA
Governed range of engine speed : 1000 - 2310 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 10 - 0070
. Location : under bonnet

Maintenance indicator : Lamp on desk board

2.2.8 Lubrication system

Type of feed pump : gear
Total oil capacity including filter : 19 l
Oil change period : 400 h
Type and number of filter : 2 cartridges
Filter change period : 400 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
. Puller
. Number of fan blades : 7
. Fan diameter : 504 mm
Coolant capacity : 25 l
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 : M 127, pre-engaged
Power : 2,8 kW
Cold starting aid : thermostart

2.2.11 Electrical system

Voltage : 12 V, negative earth
Generator :
. Make : VALEO
. Type and model : alternator, 70 AMS
. Power : 840 W
Batteries
. Number : 2
. Rating : 80 Ah at 20 hours
. Cold starting : 420 A for 60 s at -18 °C

2.2.12 Exhaust system

Make : LUCHAIRE
Type : perforated
Model : 110
Location : under hood with vertical stack pipe
Hight of outlet above ground : 2905 mm

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2.3 Steering wheels

Number : 2
Location : front axle
Tyres : GOOD YEAR
- . Size : 11.00 - 16
- . Ply rating : 8
- . Type of casing : cross ply
- . Maximum permissible load on each tyre : 13,1 kN (with inflation pressure 180 kPa)

Track width : 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 axle
Tyres : GOOD YEAR
- . Size : 20.8 - 38
- . Ply rating : 8
- . Type of casing : cross ply
- . Maximum permissible load on each tyre : 30 kN (with inflation pressure 130 kPa)

Track width : 1588 - 1680 - 1780 - 1880 - 1980 - 2080 - 2180 mm
Method of adjustment : lugs

2.5 Wheelbase : 2777 mm

2.6 Transmission

2.6.1 Clutch (travel only)

Mak : VALEO
Type : dry, single plate clutch, pulled type
Number of plates : 1
Diameter of plates : 350 mm
Method of operation (for travel) : foot pedal

2.6.2 Gear box

Make : MASSEY FERGUSON
Type and model : basic gearbox to be manual (4 x 2 speeds)
Arrangement : mechanically operated gear shift, speedshift as an option
Number of speeds : 16 forward, 16 reverse, all in all 32 speeds
Available option : creeper

2.6.3 Rear axle and final drives

Make : MASSEY FERGUSON
Type and model : crown wheel and pinion and outboard epicyclic gear 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 : not driven, telescopically adjustable

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2.6.5 Transmission oils

Capacity :

. Gear box : }
. Hydraulic system : } 88 l
. Rear axle final drives : }

Change period : 1200 h

Filter change period : 600 h

Type of oil filter : removable cartridge in metallic filter elements

Recommanded 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 of 2200 rev/min (km/h)
T	1	304,317	2,330
	2	193,545	3,664
	3	141,796	5,001
	4	102,083	6,947
T (rear)	1	253,603	2,796
	2	161,291	4,397
	3	118,166	6,001
	4	85,071	8,336
T + S	1	240,784	2,945
	2	153,138	4,698
	3	112,193	6,321
	4	80,770	8,779
T + S (rear)	1	200,653	3,534
	2	127,615	5,557
	3	93,494	7,585
	4	67,309	10,535
R	1	87,901	8,067
	2	55,905	12,684
	3	40,957	17,314
	4	29,486	24,049
R (rear)	1	73,252	9,681
	2	46,588	15,221
	3	34,132	20,776
	4	24,572	28,859
R + S	1	69,549	10,196
	2	44,233	16,031
	3	32,406	21,882
	4	23,330	30,395
R + S (rear)	1	57,958	12,235
	2	36,861	19,238
	3	27,005	26,259
	4	19,442	36,474

T : Turtle - R : Rabbit - S : Speedshift
(*) Calculated with a tyre dynamic index of 855 mm (ISO 4251/1 - 1984)

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2.7 Main power take-off

2.7.1 General specifications

Independant

Wet hydraulic multiplate clutch

Engagement by lever with electrical switch located at the middle of the upper RH side console

Number of shafts : 1

Method of changing power take-off speed : speed and spline change achieved by physically replacing the 540 rev/min shaft by the 1000 rev/min 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 : 779 mm with tyres 20.8-38
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 : 779 mm with tyres 20.8-38
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 498 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 hydraulic stystem : open centre system
Type and number of cylinders : 2, single acting, diameter 89 mm
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 tank : transmission housing
Type and number of tapping points : 3 - on lift cover
Maximum volume of oil available to external cylinders : 34 l
Recommended oil : see "fuel and lubricants used in test"

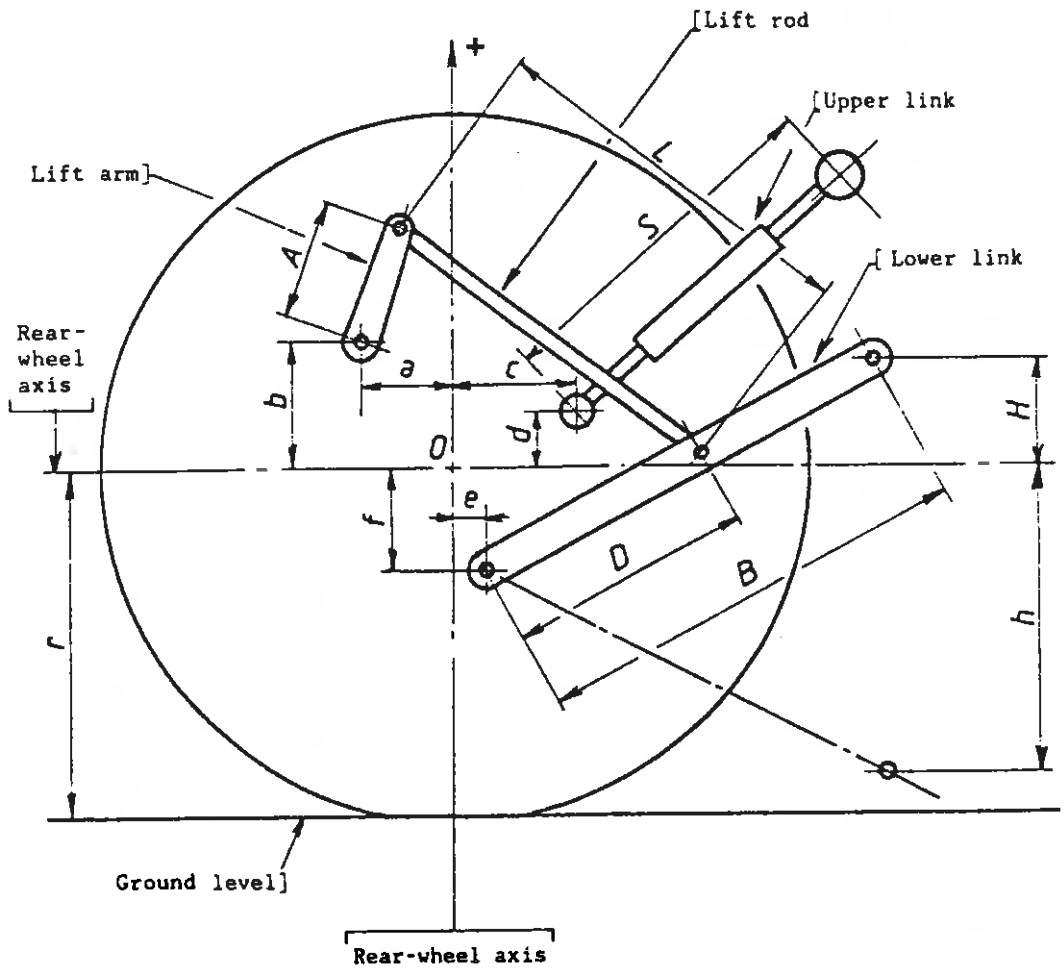
2.9 Three-point linkage

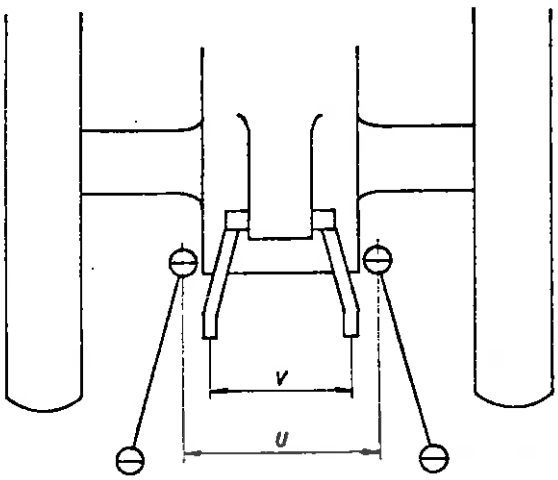
Category : II - III (in accordance with ISO 730/1 - 1977)
Category adapter : yes
Controls : Position control by linear sensor measuring the rockshaft position
Draft control by pin sensors at each lower link

Linkage dimensions (mm)				Settings used for test
Rear tyres : dynamic index radius		(r)*	855	
Front tyres : loaded radius		(r')	450	
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)	185,4	
	vertically	(b)	431,8	
Horizontal distance between the two lower link points		(u)	511	
Horizontal distance between the two lift arm end point		(v)	610	
Length of upper link		(S)	from 666 to 786	750
Distance of upper link pivot point from rear wheels centre	horizontally	(c)	428	
	vertically	(d)	179|237	237
Distance of lower link pivot point from rear wheels centre	horizontally	(e)	225	
	vertically	(f)	-300	
Distance of lower link points to lift rod pivot points on lower link		(D)	525	
Length of lift rods		(L)	from 675 to 865	855
Height of lower hitch points relative to the rear wheels centre				
- in low position		(h)	from 722 to 324	670
- in high position		(H)	from 0 to 328	30
Height of lower hitch points when locked in transport position			from 855 to1183	/

* Assuming (r) : tyre dynamic index radius of ISO 4251/1-1984

2.10 Linkage geometry





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2.11 Swinging drawbar

Height above ground : . maximum : 462 mm
. minimum : 462 mm
Type of adjustment : none
Distance of hitch point from rear axle centre, horizontally : 898 mm to rear
Distance of hitch point from power take-off shaft end : . vertically : 234 mm
. horizontally : 355 mm (540)/400 mm (1000)
Maximun permissible load : . vertically 30 kN
. horizontally 100 kN
Lateral adjustment : 250 mm (left and right hand)
Distance of pivot point from rear axle horizontally : 128 mm to rear
Diameter drawbar pin hole : 32 mm

2.12 Trailer hitch

Height above ground : . maximum : 1000 mm
. minimum : 760 mm
Distance of hitch point from rear axle centre, horizontally : 749 mm
Distance of hitch point from power take-off shaft end :
. vertically : from 1 to 240 mm
. horizontally : 251 mm
Maximum vertical permissible load : 30 kN (static load)
Diameter of pin hole : 30 mm

2.13 Linkage drawbar

Height above ground : . maximum : 1051 mm
. minimum : 261 mm
Horizontal distance to power take-off shaft end : 650 mm (540) and 700 mm (1000)
Number of holes : 9
Distance between holes : 80 mm
Hole diameter : 24 mm
Thickness and width of drawbar : 30/80 mm

2.14 Front towing hitch

Vertical height at centre of clevis : 848 mm
Width of clevis : 340 mm
Diameter of pin hole : 32 mm

2.15 Steering

Method of operation : hydrostatic steering system, gear box housing mounted on gear pump
Make : DANFOSS steering unit
Model : OSPC - ON
Type : open center type with integral system relief valves, anti-shock end 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 "fuels and lubricants used in test"

2.16 Brakes

2.16.1 Service brake

Make : MASSEY FERGUSON and GIRLING
Model : oil-immersed, 652 cm² friction area on each brake
Type : single disk brake, hydraulic actuated Girling hydraulic master cylinder
MF hydraulic slave annular piston.
Method of operation : independant or dependant operation of twin pedals (which can be latched)

2.16.2 Parking brake

Make and Type : SIRMAC - HUSCO
Method of operation : hand lever - cable and rod

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2.16.3 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 : 15 l/min

2.17 Protective structure specifications

2.17.1 Specifications

Manufacturer's name : MASSEY FERGUSON S.A.
Trade name : 3000 - C
Type of structure : . cab
. tiltable : no
CEMAGREF test : 7727
OECD approval number : CSS 057/8

Description : see test report

2.17.2 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

2.17.3 Miscellaneous

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

2.18 Lighting

Unrestricted beam angle of head light in plan view in accordance with French regulation

	Height above ground of centre (mm)	Size (mm)	Distance from outside edge of tractor to centre at 2180 mm track width (mm)
Headlights	1237	167 x 107	991
Sidelights	1775	120 x 80	410
Rearlights	1844	300 x 62	289
Reflectors	754	98 x 62	557

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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	
4,649	2,088	2,488	2,905	2,905

3.2 Ground clearance : 428 mm limited by drawbar bracket

3.3 Track setting : . front : 1622 mm
. rear : 1680 mm

3.4 Tractor mass (kg)

(with driver, with tanks full and with cab)

Front	Rear	Total
1670	3690	5360

3.5 Fuel

. Type : Diesel Oil (in accordance to AFNOR standard NFM 15-008)
. Gravity at 15°C : 0,853

3.6 Recommended and used during test lubricants

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

Transmission oils }
Hydraulic fluid } Make : BP
Steering oil } Type : Agrotrans
Final drives } Classification : GL4
Front differential } Viscosity : 80 W 90
and final drives }

Grease : BP AGRICHARGE

Number of lubrication points : 10

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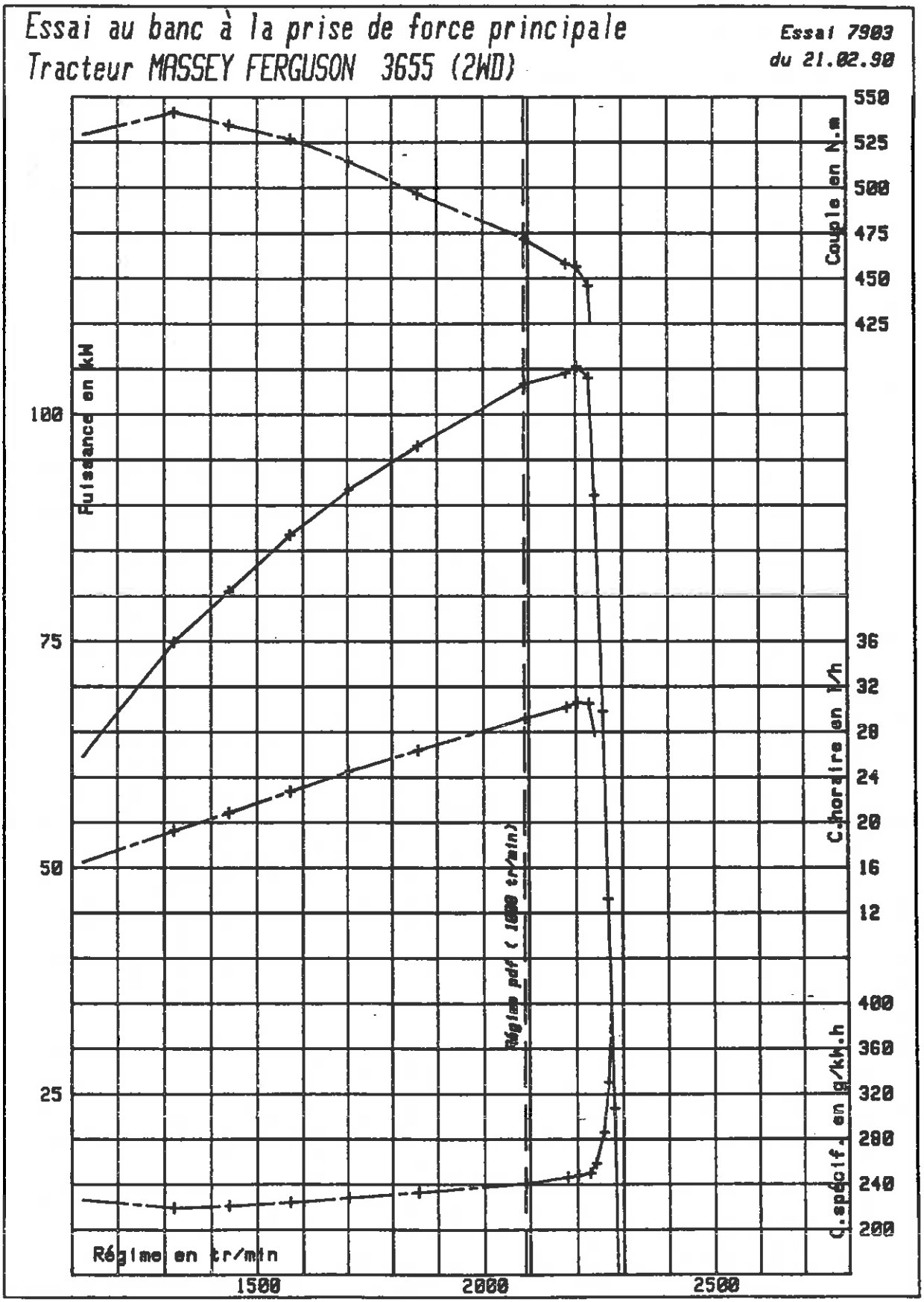
4. COMPULSORY TESTS RESULTS

4.1 Main power take-off performance

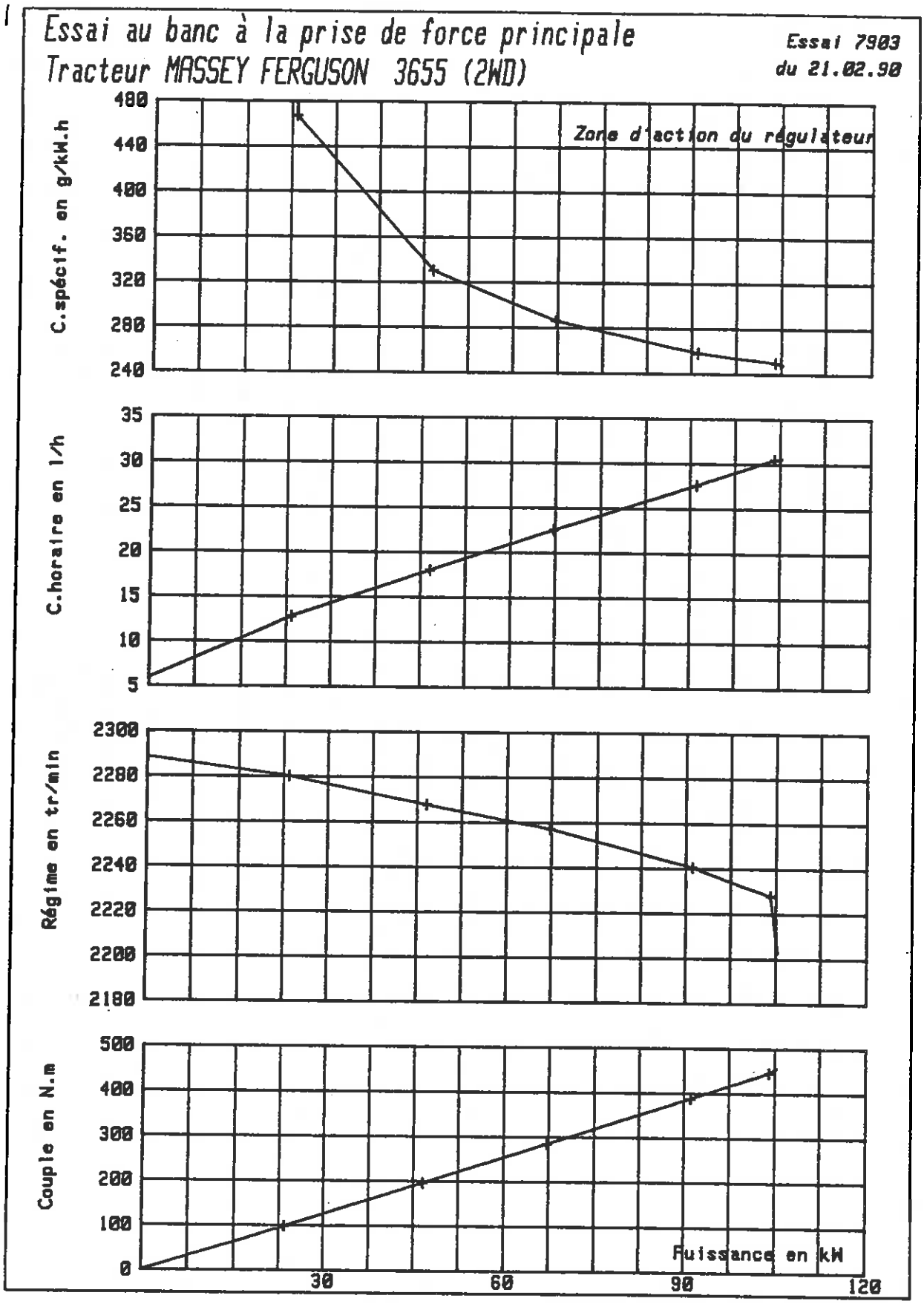
Location and date of tests : ANTONY, 21st february 1990
Type of dynamometer : SCHENCK W780

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					
105,3	2203	1054	30,61	248	3,44
MAXIMUM POWER AT RATED ENGINE SPEED					
105,3	2203	1054	30,61	248	3,44
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					
91,1	2240	1072	27,61	259	3,30
(2) 75% of the torque defined in (1)					
67,2	2257	1080	22,57	286	2,98
(3) 50% of the torque defined in (1)					
46,6	2268	1085	18,05	330	2,58
(4) 25% of the torque defined in (1)					
23,4	2280	1091	12,83	467	1,83
(5) Unloaded					
-	2289	1095	5,95	-	-
MAXIMUM POWER AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)					
103,4	2092	1001	29,21	241	3,54
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					
88,7	2100	1005	25,77	248	3,44
(7) 75% of the torque defined in (6)					
66,8	2119	1014	21,20	271	3,15
(8) 50% of the torque defined in (6)					
45,3	2134	1021	16,42	308	2,76
(9) 25% of the torque defined in (6)					
22,6	2146	1027	11,64	440	1,94
(10) Unloaded					
-	2159	1033	5,54	-	-

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Essai au banc à la prise de force principale
Tracteur MASSEY FERGUSON 3655 (2WD)
Essai 7903
du 21.02.90
Puissance en kW
Couple en N.m
C.horaire en l/h
C.spécif. en g/kW.h
Régime pdf (1000 tr/min)
Régime en tr/min
100
75
50
25
550
525
500
475
450
425
36
32
28
24
20
16
12
400
360
320
280
240
200
1500
2000
2500

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Essai au banc à la prise de force principale
Tracteur MASSEY FERGUSON 3655 (2WD)
Essai 7903
du 21.02.90
Zone d'action du régulateur
C.spécif. en g/kW.h
480
440
400
360
320
280
240
C.horaire en l/h
35
30
25
20
15
10
5
Régime en tr/min
2300
2280
2260
2240
2220
2200
2180
Couple en N.m
500
400
300
200
100
0
Puissance en kW
30
60
90
120

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4.1 Main power take-off performance (continued)

Other results

No load, maximum engine speed : 2289 rev/min
Equivalent crakshaft torque at maximum power at rated engine speed : 456,5 N.m
Maximum equivalent crankshaft torque : 541,6 N.m at 1321 rev/min

Mean atmospheric conditions

Temperature : 19 °C
Pressure : 1130 mbar
Relative humidity : 38 %

Maximum temperatures

Coolant : 102 °C
Engine oil : 125 °C
Fuel : 30 °C
Air intake : 21 °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)	27,61	18,05	25,77	16,42
Standard specific consumption (g/kWh)	259	330	248	308

(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 : 13th and 16th march 1990

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	190	204
Vertical movement	mm	695	711
Maximum force exerted through full range	kN	57,6	55,8
Corresponding pressure of hydraulic fluid	bar	171	171
Moment about rear axle	kN.m	69,1	101,0
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	-365	-357	-300	-200	-100	0	+100	+200	+330	+354
Lifting force (2)	at the hitch point kN	57,6	57,9	58,0	60,7	62,3	64,0	65,4	66,6	66,7	/
	at the frame kN	/	62,6	61,4	61,6	61,1	60,4	59,7	57,7	56,0	55,8

(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

4.2.2.1 Hydraulic pump (lift and auxiliary service connection number 3)

Tapping point used for test : auxiliary service connection
Sustained pressure with relief valve open : 189 bars
Pump delivery rate at minimum pressure : 50,6 l/min

		corresponding to maximum hydraulic power	corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting
Pressure	bars	173	171
Flow rate	l/min	45,5	45,7
Power	kW	13,1	13,0

4.2.2.2 Hydraulic pump (auxiliary service connection number 1 and 2)

Tapping point used for test : auxiliary service connection
Sustained pressure with relief valve open : 188 bars
Pump delivery rate at minimum pressure : 56,0 l/min

		corresponding to maximum hydraulic power	corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting
Pressure	bars	173	169
Flow rate	l/min	44,4	44,5
Power	kW	12,8	12,5

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OECD-no. 1266 R

max. difference in fuel consumption within drawbar power measurements at max. engine power: 9 %
between drawbar and p.t.o. power: 13 %

4.3 Drawbar performance (unballasted tractor)

Date and location of test : 23rd march 1990, Antony

Type of track : Tarmacadam

Height of drawbar above ground : 0,850 m

Tyres	Front	Rear
. Size :	11.00 - 16	20.8 - 38
. Inflation pressure (bar) :	2,5	1,0

Atmospheric conditions :

. Temperature : 14 °C
. Pressure : 1023 mbar
. Relative humidity : 50 %

PTO: max 26,1 kg/h

Gear ratio	Travelling speed km/h	Drawbar pull kN	Power kW	Engine speed rev/min	Wheelslip %	Specific consumption kg/h g/kWh	Specific energy kW/l	Temperatures (1) °C	(2) °C	(3) °C
MAXIMUM POWER IN TESTED GEAR										
1 T	2,08	42,8	24,7	2274	15	517	1,65	36	81	98
1 T + S	2,65	42,1	31,0	2270	15	471	1,81	36	81	100
2 T	3,29	41,5	37,9	2266	15	423	2,02	36	82	102
2 T + S	4,14	42,0	48,3	2257	15	380	2,25	36	84	102
3 T	4,44	41,2	50,8	2255	15	374	2,28	37	84	104
3 T + S	5,64	41,2	64,5	2245	15	22,0 341	2,50	37	84	101
4 T	6,16	41,9	71,7	2238	14	23,3 325	2,63	37	84	105
1 R	7,16	41,5	82,5	2236	12	23,7 287	2,97	32	82	107
4 T + S	7,88	38,0	83,2	2222	11	25,2 303	2,82	32	84	106
1 R + S	9,33	33,2	86,0	2207	9	22,7 264	3,23	30	85	107
2 R	11,87	26,5	87,4	2199	7	23,3 267	3,20	30	87	108
2 R + S	15,27	20,2	85,7	2190	5	24,9 291	2,93	37	84	108
3 R	16,86	18,3	85,7	2228	5	23,7 277	3,08	38	82	107
TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS (i) Maximum drawbar power in tested gear					max. engine power					
2 R	11,87	26,5	87,4	2199	5	267	3,20	34	84	110
(ii) 75% of pull at maximum power										
2 R	12,42	19,9	68,7	2245	5	308	2,77	31	84	102
(iii) 50% of pull at maximum power										
2 R	12,73	13,5	47,7	2259	3	382	2,23	30	83	100
(iv) Higher gear same pull as in (ii) reduced engine speed										
2 R + S	12,43	20,1	69,4	1781	5	267	3,20	31	84	102
(v) Higher gear as in (iii) reduced engine speed										
2 R + S	12,80	13,3	47,3	1799	3	319	2,67	31	81	95
(vi) Higher gear same pull as in (i) reduced engine speed										
3 R	12,67	13,4	47,2	1647	2	280	3,05	32	81	95

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

CEMAGREF

5. OPTIONAL TESTS RESULTS

5.2 Measurement of external noise level

Date of test : 23rd march 1990
Type of sound level meter : BRUEL & KJAER 2209
Type of track : Tarmacadam
Gear : 4 R + S
Travelling speed before acceleration : 23,8 km/h
Sound level : 83 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
N.HOCQUEL	E.HUGO	J.F.GOUPILLON

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

Diffusion 1990	
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