CEMAGREF

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

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Division Tracteurs et Machines Agricoles

TEST REPORT N° 9317

DATE : 26th october 1992

OECD TEST OF AN AGRICULTURAL TRACTOR (RESTRICTED CODE) 50.3

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

OECD Approval
N° 1408 Restricted Code
Date : 26th october 1992



Tested equipment	
Nature	: TRACTOR
Make	: MASSEY FERGUSON
Model	: B 315/4
Trade name	: 3635-4
Number of driving wheels	: 4
Type	: standard

Submitted for tests by

Name : MASSEY FERGUSON S.A.
Address : avenue Blaise Pascal
BP 307
60026 BEAUVAIS CEDEX

Phone : 44.89.33.33 **Fax** : 44.89.34.18

This test report may only be duplicated as a whole

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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

Place of running in : BEAUVAIS

Duration of running in : 20 h

Date of arrival of the equipment in CEMAGREF : 15th may 1992

SPECIFICATIONS

2.1 Tested tractor

Make : MASSEY FERGUSON
Model : B 315/4
Trade name : 3635-4
Number of driving wheels : 4
Type : standard
Serial number : S 338 006
1st serial number : S 338 006

2.2 Engine

2.2.1 Identification

Make : PERKINS
Model : 1006-6 T7
Type : 4 strokes - Direct injection diesel turbocharged
Serial number : U 535 436 V

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 : SCHWITZER
Model : turbo compressor
Type : S 2 B 17622 AE/1.0009
Supercharging pressure : 0,74 bar

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 : 230 l (+ 60 l in option)
Make, type and model of injection pump : CAV, DPA 937, rotative
Serial number : 27192 JJG
Manufacturer's setting of injection pump : 63 ± 2 mm^3/stroke (at rated engine speed and full load)
Injection pump timing : 18° before TDC
Make, type and model of injectors : CAV, PL 9048CF AG
Injection pressure : 220 bars

2.2.5 Governor

Make : CAV
Type : DPA
Model : mechanical, incorporated into fuel injection pump
Governed range of engine speed : 850 - 2310 rev/min

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2.2.6 Rated engine speed : 2200 rev/min

2.2.7 Air cleaner

Pre-cleaner : . Make : DONALDSON
. Type and model : cyclone incorporated into main
. Location of air intake : in front of engine and under bonnet

Main : . Make : DONALDSON
. Type and model : dry FBL 10 - 007
. Location : in front of engine and 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 : pre-engaged M 127
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 : 980 W
Batteries
. Number : 2
. Rating : 80 Ah each at 20 hours rating
. Cold starting capacity : 420 A for 60 s at -18°C

2.2.12 Exhaust system

Make : LUCHAIRE
Type : perforated
Model : 107
Location : under bonnet with vertical stack pipe
Height of outlet above ground : 2905 mm

2.3 Transmission

2.3.1 Clutch (travel)

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

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2.3 Transmission (continued)

2.3.2 Gear box

Make : MASSEY FERGUSON
Type and model : mechanically operated gear shift, speedshift as an option
Arrangement : basic gear box to be manual
4 gears with speed shift,
2 ranges and one reverse groupe
Number of speeds : 16 forward gears and 16 reverse gears
Available option : creeper

2.3.3 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

2.3.4 Front axle

Make : GKN
Type and model : crown wheel and pinion and outboard epicyclic gear reduction
Differential lock : automatic
Driven : from main shaft

2.3.6 Total ratios and travelling speeds

Range	Gear	Overall gear ratios	Nominal travelling speed (*) at rated engine speed of 2200 rev/min km/h
T forward	1	299,965	2,364
	2	190,776	3,717
	3	139,768	5,074
	4	100,622	7,047
T reverse	1	249,976	2,837
	2	158,984	4,460
	3	116,476	6,088
	4	83,854	8,457
T forward + S	1	237,340	2,988
	2	150,947	4,698
	3	110,588	6,412
	4	79,615	8,907
T reverse + S	1	197,783	3,585
	2	125,789	5,637
	3	92,157	7,695
	4	66,346	10,688
L forward	1	86,644	8,184
	2	55,105	12,869
	3	40,371	17,565
	4	29,064	24,398
L reverse	1	72,205	9,821
	2	45,922	15,442
	3	33,644	21,077
	4	24,221	29,277
L forward + S	1	68,555	10,344
	2	43,601	16,264
	3	31,943	22,200
	4	22,997	30,836

T : Turtle L : rabbit S : speed shift
(*) Calculted for dynamic index ratio of 20.8 R 38 : 855 mm (ISO 4251/1-1984)

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2.3.6 Total ratios and travelling speeds (continued)

Range	Gear	Overall gear ratios	Nominal travelling speed (*) at rated engine speed of 2200 rev/min km/h
L	1	57,129	12,413
reverse	2	36,334	19,517
	3	26,619	26,640
+ S	4	19,164	37,003

T : Turtle L : rabbit S : speed shift
(*) Calculted for dynamic index ratio of 20.8 R 38 : 855 mm (ISO 4251/1-1984)

Number of revolutions of front wheels for one revolution of rear wheels : 1,345

2.4 Main power take-off

2.4.1 General specifications

Type : rear independant power take-off (wet, hydraulic, multiplate clutch)

Engagement by lever with electrical switch located at the middle of the upper right hand 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

2.4.2 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 : 1993 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 types 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 : 1053 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

2.4.3 Power take-off proportional to ground speed : None

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2.5 Power lift

Make : MASSEY FERGUSON
Type : top link, electronic position, draft or mixed control, 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 : gear
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 : 2 - on lift cover
Maximum volume of oil available to external cylinders : 34 l
Recommended oil : see "fuel and lubricants used in test"

2.6 Three-point linkage

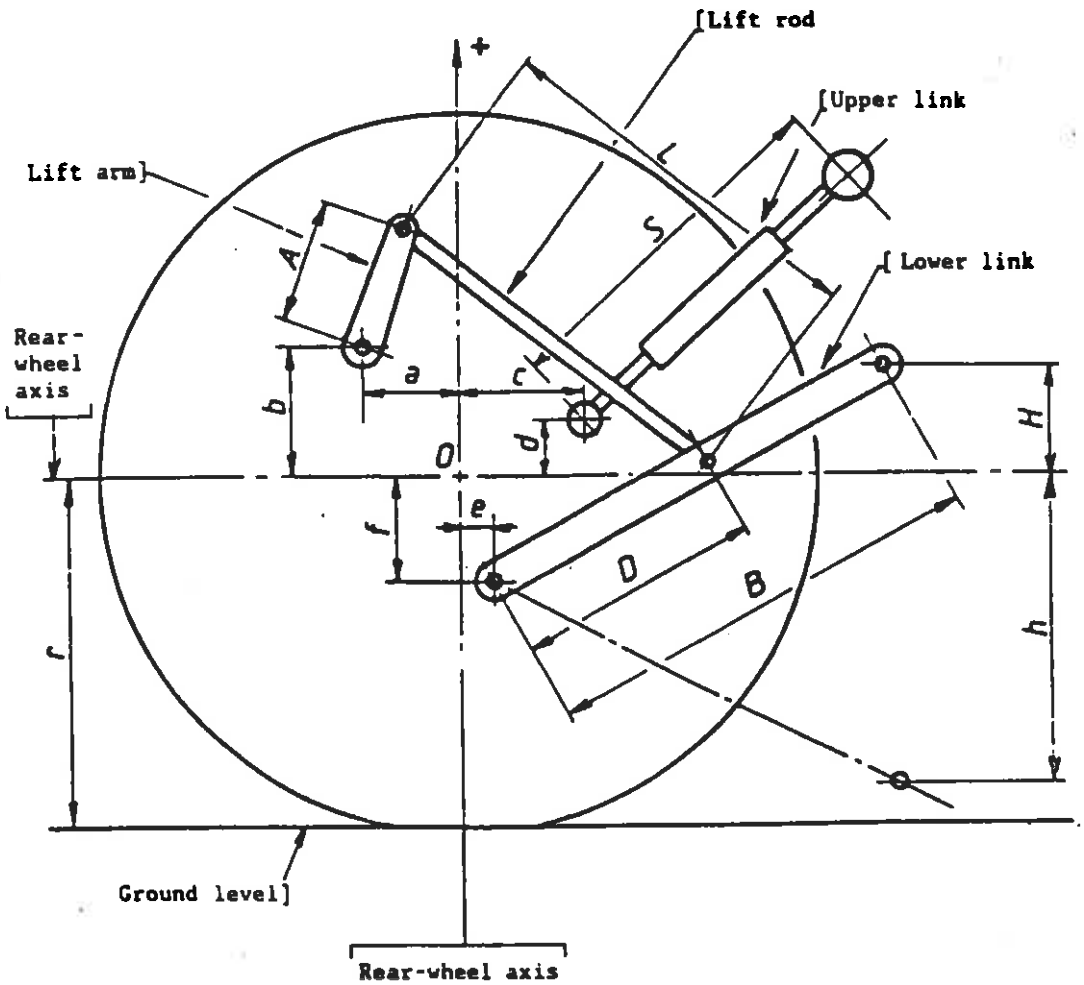
Category : II - III (in accordance with ISO 730/I-1977 art.II)
Category adapter : by changing the rockshafts
Controls : . position control by linear sensor measuring the rockshaft position
. draft control by pin sensors at each lower link

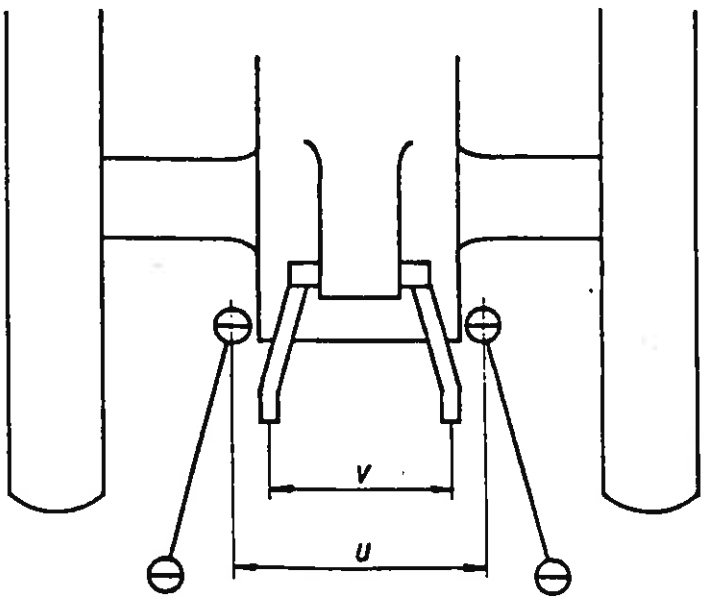
Linkage dimensions (mm)				Settings used for test
Rear tyres : dynamic index radius	20.8 R 38	(r)	855	
Front tyres : dynamic index radius	16.9 R 28	(r')	670	
Length of lift arms		(A)	362	
Length of lower links		(B)	975	
Distance of lift arm pivot point from rear wheels centre line	horizontally	(a)	185,4	
	vertically	(b)	431,8	
Horizontal distance between the two lower link points		(u)	511	
Horizontal distance between the two lift arm end points		(v)	610	
Length of upper link		(S)	from 760 to 950	795
Distance of upper link pivot point from rear wheels centre	horizontally	(c)	428	
	vertically	(d)	179|237	179
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	845
Height of lower hitch points relative to the rear wheels centre				
- in low position		(h)	from 324 to 722	603
- in high position		(H)	from 0 to 328	17
Height of lower hitch points when locked in transport position (*)			from 855 to 1183	

(*) Assuming the dynamic index radius = 855 mm (ISO 4251/1-1984)

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2.7 Linkage geometry





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2.8 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
Distance of hitch point from power take-off shaft end : . vertically : 234 mm
. horizontally : 355 mm (540 RPM) - 400 mm (1000 RPM)
Lateral adjustment : 250 mm right and left hands
Distance of pivot point from rear axle horizontally : 128 mm to rear
Diameter drawbar pin hole : 32 mm
Maximum permissible load : .vertically 20 kN
.horizontally 100 kN

2.9 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 above maximum : 240 mm
minimum : 1 mm
. horizontally : 201 mm (540 RPM) - 251 mm (1000 RPM)
Diameter of pin hole : 30 mm
Maximum vertical permissible load : 30 kN

2.10 Linkage drawbar

Height above ground : . maximum : 1183 mm
. minimum : 261 mm
Horizontal distance to power take-off shaft end : 650 mm (540 RPM) - 700 mm (1000 RPM)
Number of holes : 9
Distance between holes : 80 mm
Hole diameter : 24 mm
Thickness and width of drawbar : 30 X 80 mm

2.11 Front towing hitch

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

2.12 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"

2.13 Brakes

2.13.1 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)

2.13.2 Parking brake

Make and type : SIRMAC - HUSCO - 4 disks
Method of operation : hand lever - cable and rod

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2.13.3 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 : 30 l/min

2.14 WHEELS

2.14.1 Number and location

. Front : 2 steering and driving
. Rear : 2 driving

2.14.2 Wheelbase : 2763 mm

2.14.3 Track width adjustment

	Minimum mm	Maximum mm	Adjustment method
Front	1686	2171	Lugs
Rear	1588	2180	Lugs

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 : 9279
OECD approval number : CSS 057/11

Description : see test report

2.17.2 Driver's seat

Make : GRAMMER DS 85H/90 AR or LS 95H1/90 AR
Type of suspension : parallelogram parallelogram
Type of damping : gas cylinder compressed air
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

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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

3. CONDITIONS DURING TEST

3.1 Overall dimensions

LENGTH m	WIDTH		HEIGHT	
	min m	max m	exhaust silencer m	at top of protective structure
4,649	2,088	2,488	2,905	2,905

3.2 Ground clearance : 428 mm limited by drawbar bracket

3.3 Tractor mass (kg)

(with or without driver but with tanks full and cab)

	Without driver kg	With driver kg
Front	2115	2130
Rear	3800	3860
Total	5915	5990

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3.4 Tyres and track width specifications

	Front	Rear	
Tyres :	GOOD YEAR	GOOD YEAR	
. dimensions	16.9 R 28	20.8 R 38	
. ply rating	8	10	
. type of casing	radial	radial	
. maximum load (tyre manufacturer's)	21,8	35	kN
. maximum load (tractor manufacturer's)	21,8	35	kN
. inflation pressure (tyre manufacturer's)	1,8	1,3	bar
. dynamic radius index	670	855	mm
Chosen track width :	1968	1880	mm

3.5 Oils and lubrication recommended and used during tests

Engine oil . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 MIL L 2104 D
Transmission oils . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 MIL L 2104 D
Final drives oils . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 MIL L 2104 D
Front differential and final drives . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 MIL L 2104 D
Hydraulic fluid . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 API GL 4
Steering oil . Type . Viscosity . Classification	BP TERRAC MANAGER 10 W 30 API GL 4

- Grease : BP TERRAC CHARGE

. Number of lubrication points : 10

3.6 Fuel

. Type : Diesel Oil (in accordance to AFNOR standard NFM 15 - 008)
. Gravity at 15°C : 0,851
. Viscosity : (NFT 60.100) : 4,84 cSt

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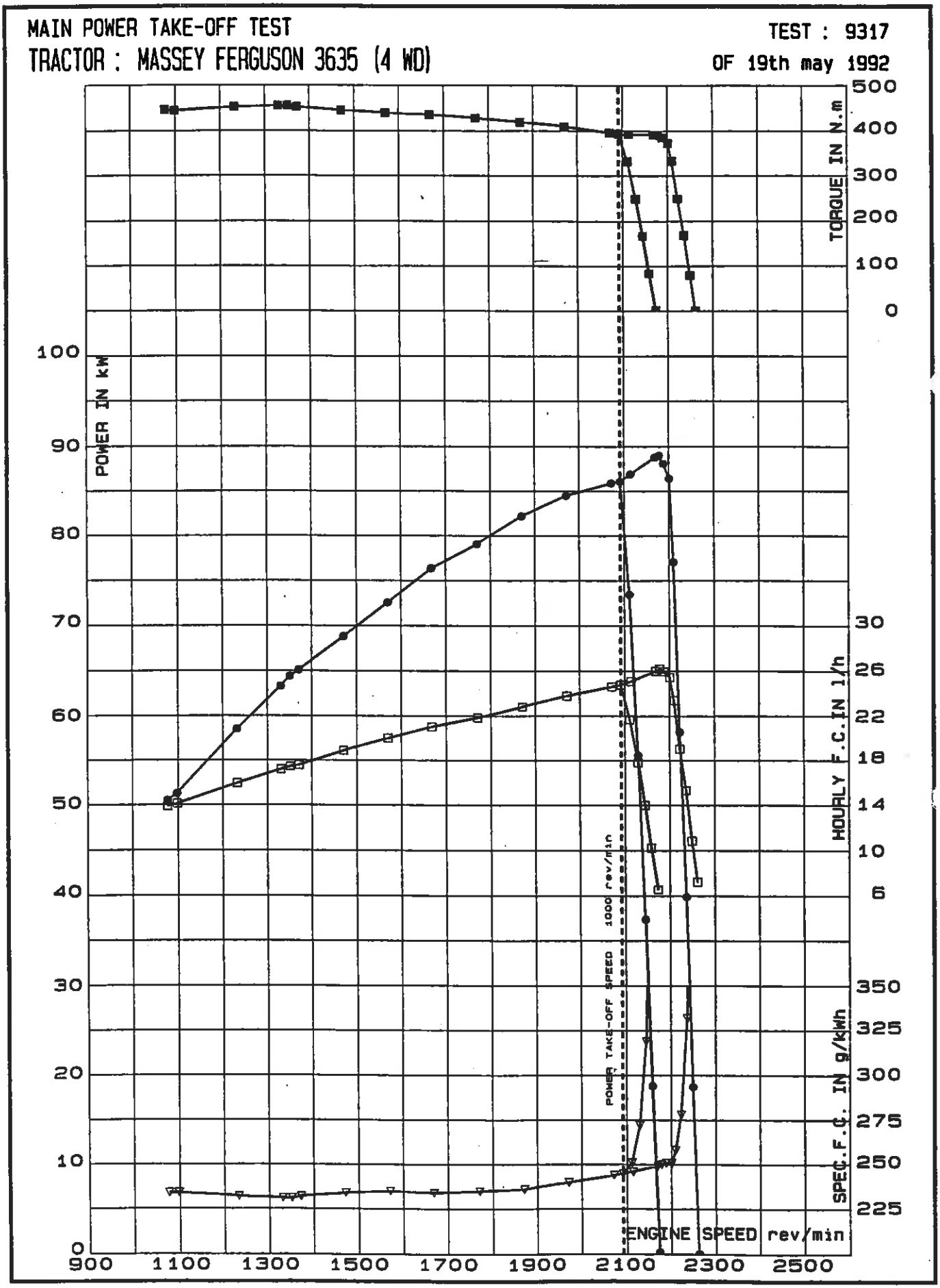
4. COMPULSORY TESTS RESULTS .

4.1 Main power take-off performance

Location and date of tests : Antony , of 19th may 1992
Type of dynamometer : SCHENCK W400

Power	Speed		Fuel consumption			Specific
	Engine	Power take-off	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kWh/l
MAXIMUM POWER - TWO HOURS TEST						
89,0	2178	1042	22,28	26,18	250	3,40
MAXIMUM POWER AT RATED ENGINE SPEED						
89,0	2178	1042	22,28	26,18	250	3,40
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 .						
77,1	2210	1057	19,91	23,40	258	3,29
(2) 75% of the torque defined in (1) .						
58,2	2223	1063	16,21	19,05	278	3,06
(3) 50% of the torque defined in (1) .						
39,9	2237	1070	13,05	15,33	332	2,60
(4) 25% of the torque defined in (1) .						
18,7	2250	1076	9,22	10,84	494	1,72
(5) Unloaded						
-	2262	1082	6,17	7,25	-	-
MAXIMUM POWER AT STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
86,1	2091	1000	21,09	24,78	245	3,47
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						
73,5	2111	1010	18,45	21,68	251	3,39
(7) 75% of the torque defined in (6) .						
55,6	2129	1018	15,16	17,81	272	3,12
(8) 50% of the torque defined in (6) .						
37,4	2144	1026	11,93	14,02	319	2,67
(9) 25% of the torque defined in (6) .						
18,8	2158	1032	8,71	10,23	462	1,84
(10) Unloaded						
-	2173	1039	5,58	6,56	-	-

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MAIN POWER TAKE-OFF TEST
TRACTOR : MASSEY FERGUSON 3635 (4 WD)
TEST : 9317
OF 19th may 1992
POWER IN kW
TORQUE IN N.m
HOURLY F.C.IN l/h
SPEC.F.C. IN g/kWh
POWER TAKE-OFF SPEED 1000 rev/min
ENGINE SPEED rev/min
0
10
20
30
40
50
60
70
80
90
100
900
1100
1300
1500
1700
1900
2100
2300
2500
0
100
200
300
400
500
6
10
14
18
22
26
30
225
250
275
300
325
350

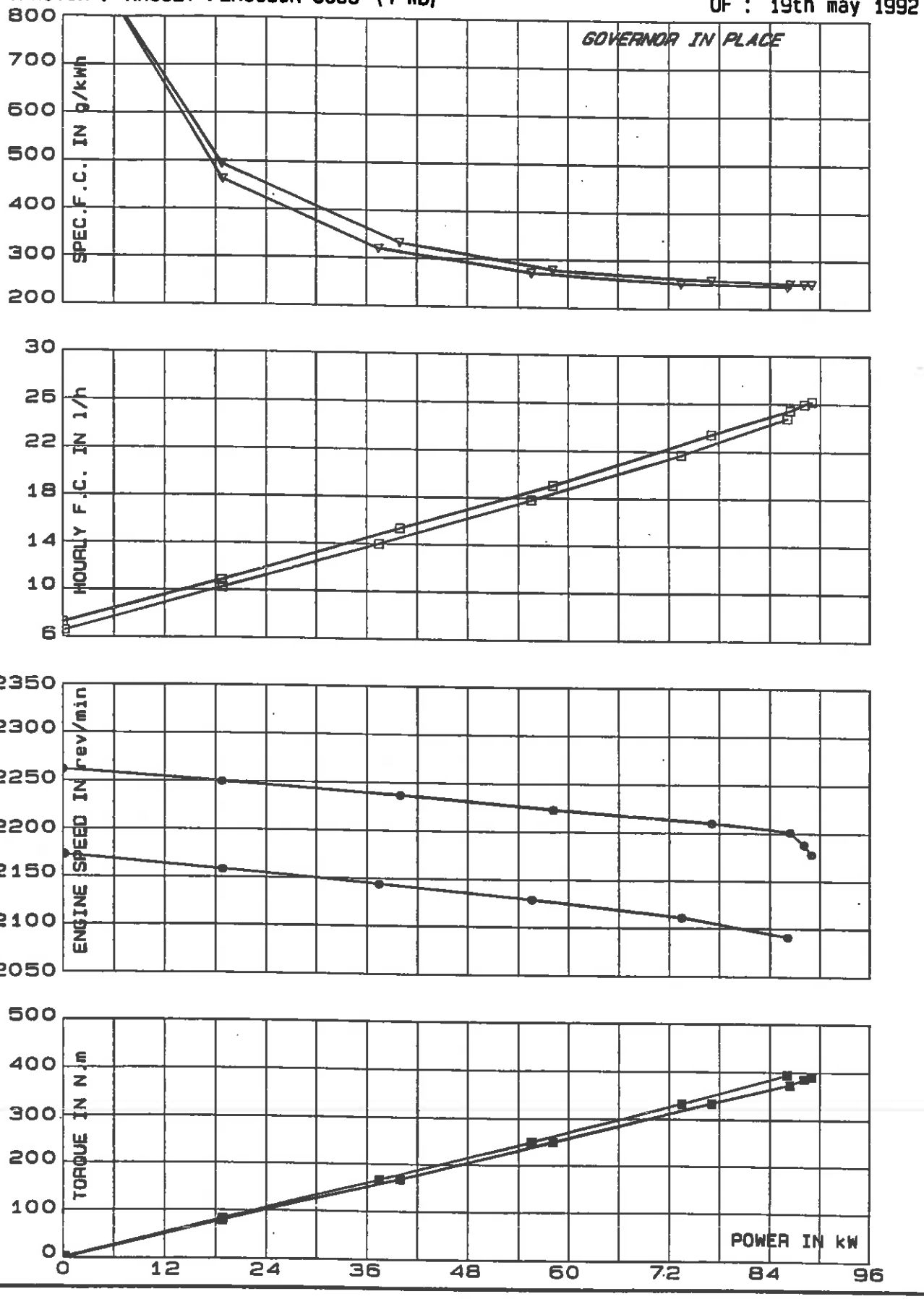
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MAIN POWER TAKE-OFF TEST

TRACTOR : MASSEY FERGUSON 3635 (4 WD)

TEST : 9317

OF : 19th may 1992



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4.1 Main power take-off performance (continued)

Other results

No load, maximum engine speed : 2262 rev/min

Equivalent crankshaft torque at maximum power : 390,9 N.m

Maximum equivalent crankshaft torque : 455,9 N.m at 1330 rev/min

Mean atmospheric conditions

Temperature : 25 °C

Pressure : 1014 mbar

Relative humidity : 29 %

Maximum temperatures

Coolant : 87 °C

Engine oil : 102 °C

Fuel : 36 °C

Air intake : 30 °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)	23,40	15,33	21,68	14,02
Standard specific consumption (g/kWh)	258	332	251	319

(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)

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4.2 Lifting force and hydraulic power

Date : 22nd june 1992

4.2.1 Hydraulic power test

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

- Tapping point used for test : auxiliary service connection
- Sustained pressure with relief valve open : 181 bars
- Pump delivery rate at minimum pressure : 50,0 l/min

	Flow rate l/min	Pressure bars	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	44,8	162	12,1
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	45,6	160	12,2

4.2.1.2 Hydraulic pump (auxiliary service connections number 2)

- Tapping point used for test : auxiliary service connection
- Sustained pressure with relief valve open : 181 bars
- Pump delivery rate at minimum pressure : 55,6 l/min

	Flow rate l/min	Pressure bars	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	42,3	165	11,6
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	42,3	165	11,6

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4.2 Lifting force and hydraulic power

4.2.2 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	252	224
Vertical movement	mm	620	716
Maximum force exerted through full range	kN	47,8	44,4
Corresponding pressure of hydraulic fluid	bar	162	162
Moment about rear axle	kN.m	56,6	79,5
Maximum tilt angle of mast over range of lift	degree	/	11 °

4.2.2 Power lift test

Lifting height (1)	mm	-331	-303	-200	-100	0	+100	+200	+300	+317	+385
Lifting force (2)	at the hitch point kN	-	47,8	49,0	50,6	53,2	54,8	55,5	57,6	54,5	-
	at the frame kN	47,7	47,2	47,5	47,8	48,1	47,9	46,7	46,2	45,6	44,4

Corresponding pressure : 162 bars

(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

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4.3 Drawbar performance (unballasted tractor)

Date and location of test : 3rd june 1992 Antony

Type of track : Tarmacadam
Height of drawbar above ground : 0,52 m

Tyres	Front	Rear
. Size :	16.9 R 28	20.8 R 38
. Inflation pressure (bar) :	2,1	1,1

Atmospheric conditions :
- . Temperature : 16°C
- . Pressure : 1003 mbar
- . Relative humidity : 56 %

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	2,15	57,1	34,1	2238	15	407	2,09	40	82	92
1 T + S	2,68	56,8	42,3	2229	15	374	2,28	40	84	91
2 T	3,32	56,7	52,3	2232	15	356	2,39	40	85	96
2 T + S	4,15	56,3	65,0	2231	15	327	2,61	40	83	97
3 T	4,48	56,2	69,9	2219	15	321	2,65	45	85	98
3 T + S	6,13	44,8	76,3	2207	8	296	2,87	40	85	100
4 T	6,80	40,8	77,0	2207	7	293	2,91	45	84	99
1 L	7,93	35,1	77,2	2228	6	290	2,93	39	83	99
4 T + S	8,71	31,5	76,3	2198	5	296	2,87	40	85	100
1 L + S	10,23	27,2	77,5	2213	5	291	2,93	42	86	97
2 L	12,79	21,5	76,5	2204	4	297	2,87	40	82	93
2 L + S	16,03	16,7	74,2	2191	5	304	2,80	45	87	101
3 L	17,17	15,5	74,0	2186	5	298	2,85	39	85	98

CEMAGREF

4.3 Drawbar performance (unballasted tractor) (continued)

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
TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS (1) Maximum drawbar power in tested gear										
1 L + S	10,23	27,2	77,5	2213	5	291	2,93	42	86	97
(2) 75% of pull at maximum power at rated engine speed										
1 L + S	10,48	20,4	59,2	2204	4	315	2,70	42	86	96
(3) 50% of pull at maximum power at rated engine speed										
1 L + S	10,67	13,7	40,5	2231	3	369	2,30	42	85	95
(4) next higher gear at reduced engine speed, same pull and travelling speed as in (2)										
2 L	10,48	20,4	59,4	1783	4	281	3,04	41	82	93
(5) next higher gear at reduced engine speed, same pull and travelling speed as in (3)										
2 L	10,71	13,7	40,7	1803	3	314	2,71	40	81	93
(6) Maximum drawbar power in selected gear nearest to 7,5 km/h										
4 T	6,80	40,8	77,0	2180	7	293	2,91	45	84	99
(7) 75% of pull at maximum power										
4 T	7,03	30,5	59,5	2217	5	312	2,73	45	84	98
(8) 50% of pull at maximum power										
4 T	7,18	20,4	40,6	2231	4	359	2,37	45	84	98
(9) Higher gear at reduced engine speed; same pull and travelling speed as in (7)										
1 L	7,03	30,4	59,6	1910	5	282	3,02	39	83	97
(10) Higher gear at reduced engine speed; same pull and travelling speed as in (8)										
1 L	7,18	20,2	40,3	1919	4	313	2,72	39	82	97

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

CEMAGREF

OPTIONAL TESTS RESULTS

5.2 Measurement of external noise level

Date of test : 5th june 1992
Type of sound level meter : BRUEL & KJAER 2209
Type of track : Tarmacadam
Gear : 4 L + S
Travelling speed before acceleration : 24,5 km/h
Sound level : 87 dB(A)

REPAIRS AND ADJUSTMENTS DURING TESTS

none

Le Technicien chargé des essais	L'Ingénieur responsable des essais	Le Chef de la Division Tracteurs et Machines Agricoles
M.HOCQUEL	E.HUGO	J.F.GOUPILLON

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

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