CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO PER LA MECCANIZZAZIONE AGRICOLA
Strada delle Cacce, 73 - 10135 TORINO (Italia)

Report No. 2058/T/1996
OECD 1418

TEST IN ACCORDANCE WITH THE OECD FULL
CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS

TRACTORS: Make: **NEW HOLLAND**

Model: **FIAT 39-66 S/12/I 30 km/h Version** Approval number: 1418/2

Model: **FORD 3235/12/I 30 km/h Version** Approval number: 1418/3

Type: **2 WD**



Manufactured by: NEW HOLLAND ITALIA S.p.A. - MODENA (Italy)

Date and location of tests: May 1996 - TORINO (Italy)

This report has been approved by the O.E.C.D. Co-ordinating Center (CEMAGREF, France) as being in accordance with the O.E.C.D. Tractor Test Code.

Date of approval: 3rd July 1996

PRELIMINARY REMARK

The tractor models contained in this test report is built to be used without additional ballast and therefore drawbar tests has been conducted only in the unballasted condition.

The NEW HOLLAND FIAT 39-66S (2 WD) and NEW HOLLAND FORD 3235 (2 WD) differ from FIATGEOTECH FIAT 39-66/12/I (2 WD), already approved with O.E.C.D. No. 1418 FULL CODE in dated 28th December 1992, only for the following items:

- trade name;
- colour;
- exhaust silencer;
- manufacturer (he changed its social denomination from FIATGEOTECH S.p.A. to NEW HOLLAND ITALIA S.p.A.)

Checks have been made in order to verify the external noise level of tractors with the new type of silencer. As it changed more than 1 dBA respect of the value stated for FIATGEOTECH FIAT 39-66/12/I (2 WD), the new value have been put on page 22.

Checks have been made in order to verify whether the changing of exhaust silencer affected the results of the performance tests of engine and power take-off more than 5%. As the change of performances we found was lower than 5% respect of the values stated for FIATGEOTECH FIAT 39-66/12/I (2 WD), the old values have been put on pages 17 and 23.

This bulletin is based on engineering tests in accordance with O.E.C.D. Tractor Code.
It does not contain an evaluation of performance of the tractor on pratical farm work.

The NEW HOLLAND tractors are manufactured in following variants:

1. FIAT 39-66S/12 model with 12 forward and 4 reverse speeds (4x4 gear units)

2. FIAT 39-66S/12/I model with 12 forward and 12 reverse speeds (4x3x2 gear units)

3. FIAT 39-66S/20 model with 20 forward and 8 reverse speeds (4x4 + 3x4 gear units)

4. FORD 3235/12 model with 12 forward and 4 reverse speeds (4x4 gear units)

5. FORD 3235/12/I model with 12 forward and 12 reverse speeds (4x3x2 gear units)

36. FORD 3235/20 model with 20 forward and 8 reverse speeds (4x4 + 3x4 gear units)

Checks have been carried out on NEW HOLLAND FIAT 39-66S (2 WD)

In this report all performance characteristics are given corresponding to the International System of Units.

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- Tractor manufacturer's name and address:	NEW HOLLAND ITALIA S.p.a. Viale delle Nazioni, 55 MODENA - Italy
- Location of tractor assembly	
- Submitted for test by:	Manufacturer
- Selected by:	Manufacturer with agreement by IMA
- Place of running-in:	MODENA (Italy)
- Duration of running-in:	Appr. 70 hours
- Location of test:	IMA - Torino (Italy)

1 SPECIFICATION OF TRACTOR

1.1 IDENTIFICATON

- Make/Model/Type:	NEW HOLLAND ITALIA S.p.A., FIAT 39-66S/12/I, wheeled tractor, unit construction, two wheel driven
- Number of driving wheels:	2
- Serial No.:	001085508
- 1st serial No.:	001085000

1.2 ENGINE

- Make/Model/Type:	FIAT, 8035.06, 4-stroke Diesel engine, direct injection, water cooled, naturally aspirated
- Serial No.:	270271

1.2.1 Cylinders

- Number/disposition:	3, vertical, in-line
- Bore/stroke:	100 x 115 mm
- Capacity:	2710 cm^3
- Compression ratio:	17 : 1
- Arrangement of valves:	overhead
- Cylinder liners:	replaceable cast iron dry cylinder liners

1.2.2 Supercharging

- Make/Model/type:	none
- Pressure:	--- MPa

1.2.3 Fuel system

- Fuel feed system:	CORONA model, APM 45 FVI type fuel feed pump (optionally FISPA model, 4066.03/A type)

- Make/Model/Type of fuel filter(s):	1 wire-mesh filter on pump suction side and 1 CAV filter with replaceable cartridge and sediment bowls on pressure side of injection pump
- Capacity of fuel tank:	42 dm^3
- Make/Model/Type of injection pump:	CAV DPS DSA 699 rotating plunger injection pump (optionally BOSCH VEL 163-2 rotating plunger pump)
- Serial No.:	29915EKF
- Manufacturer's production setting of injection pump:	
· Flow rate:	39 mm^3/stroke at rated engine speed and full load corresponding to 8.68 dm^3/h
· Timing:	0° ± 1° before TDC
- Make/Model/Type of injectors:	BOSCH multihole injectors DLLA 124S (optionally OMAP OLL 124S)
- Injection pressure:	23±0.8 MPa
- Make/Model/Type of carburettor:	none

1.2.4 Governor

- Make/Model/Type:	CAV, centrifugal variable speed governor, mechanical, incorporated in injection pump (optionally BOSCH centrifugal variable speed governor, mechanical type, incorporated in injection pump)
- Governed range of engine speed:	from 650 to 2800 rev/min
- Rated engine speed:	2500 rev/min

1.2.5 Air cleaner

- Pre-cleaner:	
· Make/Model/Type:	FIAT, 8323083 WMF type, cyclone
· Location of air intake	Air inlet under bonnet in front of engine
- Main cleaner:	
· Make/Model/Type:	FIAT, oil bath air filter, 18518.218 type. Oil capacity: 0.7 l
· Location of air intake	there is the pre-cleaner
- Maintenance indicator:	Electrical device with a red advising lamp on the instruments panel

1.2.6 Lubrication system

- Type of feed pump:	forced feed with gear pump
- Type of filter(s):	wire mesh type filter on pump suction and replaceable cartridge type on pressure side pump of oil to the engine.
- Number of filters	2

1.2.7 Cooling system

- Type of coolant:	pressurized water
- Type of pump:	centrifugal pump
- Specification of fan:	propeller fan driven by engine shaft
- Number of fan blades:	6

- Fan diameter:	340 mm
- Coolant capacity:	12 l
- Type of temperature control:	thermometer
- Superpressure system:	radiator cap

1.2.8 Starting system

- Make/Model/Type:	MARELLI, electrical, 12 V 2.5 kW, or as option BOSCH make, 12 V 2.5 kW, pinion coupling solenoid operated
- Starter motor power rating:	2.5 kW
- Cold starting aid:	thermostart
- Safety device:	operable only when the engine clutch is disengaged.

1.2.9 Electrical System

- Voltage:	12 V, negative earth.
- Generator:	Alternator
· Make/Model/Type:	MARELLI, AA 125 type, three phase, 14 V, or BOSCH, G1 type, three phase, 14 V
· Power:	540 W
- Battery:	One lead acid type; MARELLI, 6ATM30 type
· Rating:	100 Ah at 20 hours rating

1.2.10 Exhaust Silencer

- Make/Model/type:	Own, DGM-SA 1692 (optionally FIAT: DGM-SA 748 and DGM-SA 1057) interface type with internal perforated pipe; square shape 95 x 95 mm, 675 mm length.
- Location:	Vertical position on engine left side, maximum height above ground 2420 mm

1.3 TRANSMISSION TO WHEELS

1.3.1 Clutch

- Make/Model/Type:	LUK or OMG make, dry dual disc clutch, one for p.t.o. and the other for gear box; but indipendently operated
- Number of plates:	2
- Diameter of plates	280 mm
- Method of operation:	pedal operated for gear box drive and hand lever operated for P.T.O. drive.

1.3.2 Gearbox:

- Make/Model/Type:	Own make, mechanical syncronized type with constant mesh gears
- Arrangement:	three mechanical in series gear units: the first with four speeds, the second with (normal, medium, high) the third with two positions to select the forward or the reverse speeds; each unit is operated by own lever.
- Number of gears:	12 forward and 12 reverse
- Available option:	
· Arrangement:	three series gear units: the first with four speeds, the second with four positions to select the gear groups (normal, medium, high, reverse), the

third with two positions to engage or disengage on additional drive creeper gear to have 2 more forward ranges (low, superlow) and 1 more reverse range (low).

· Number of gears: 20 forward and 8 reverse speeds
· Arrangement: two series gear units: the first with four speeds, the second with four positions to select the gear groups (normal, medium, high and reverse).
· Number of gears: 12 forward and 4 reverse

1.3.3 Rear axle and final drives

- Make/Model/Type: Own make, mechanical type with Gleason crown wheel and pinion and epycicloidal final drives
- Differential Lock
· Make/Model/Type: bevel gear type differential with mechanical pedal operated
· Method of engagement: by pedal
· Method of disengagement: self-disengaging lock

1.3.4 Front axle and final drives

- Make/Model/Type: Own make,not driven
- Differential Lock
· Make/Model/Type: none
· Method of engagement: none
· Method of disengagement: none

1.3.5 Total ratios and travelling speeds

NEW HOLLAND FIAT 39-66S/12

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16
I	High	65.151	8.82
II		40.945	14.03
III		32.185	17.85
IV		20.197	28.45
I	Reverse	157.084	3.66
II		98.721	5.82
III		77.600	7.41
IV		48.696	11.80

(*) Calculated with a tyre dynamic radius index of 610 mm (ISO 4251/1-1992)

NEW HOLLAND FIAT 39-66S/12/I

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16
I	High	65.151	8.82
II		40.495	14.03
III		32.185	17.85
IV		20.197	28.45
I	Reverse normal	432.564	1.33
II		271.838	2.11
III		213.679	2.69
IV		134.090	4.29
I	Reverse medium	167.628	3.43
II		105.347	5.45
III		82.809	6.94
IV		51.965	11.06
I	Reverse high	65.737	8.74
II		41.313	13.91
III		32.474	17.70
IV		20.379	28.20

(*) Calculated with a tyre dynamic radius index of 610 mm (ISO 4251/1-1992)

NEW HOLLAND FIAT 39-66S/20

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	Super low	1665.460	0.35
II		1046.680	0.55
III		822.747	0.70
IV		516.298	1.11
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Low	645.432	0.89
II		405.627	1.42
III		318.843	1.80
IV		200.085	2.87
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	High	65.151	8.82
II		40.945	14.03
III		32.185	17.85
IV		20.197	28.45
I	Reverse low	610.274	0.94
II		383.534	1.50
III		301.478	1.91
IV		189.185	3.04
I	Reverse	157.084	3.66
II		98.721	5.82
III		77.600	7.41
IV		48.695	11.80

(*) Calculated with a tyre dynamic radius index of 610 mm (ISO 4251/1-1992)

1.4 POWER TAKE OFF

1.4.1 Main power take-off:

- Type: independent
- Method of engagement: p.t.o. driven by 2nd plate of dual disc clutch
- Number of shaft: 1
- Method of changing power take-off shaft ends and speeds: hand lever operated.

1.4.1.1 Power take-off proportional to engine speed

540 rev/min

- Location: at rear of tractor
- Diameter of power take-off shaft end: 34.9 mm
- Number of splines: 6, in conformity with ISO No.500/1991
- Height above ground 610 mm
- Distance from the median plane of tractor 0 mm
- Distance behind rear wheel axis 230 mm
- P.T.O. speed at rated engine speed 614 rev/min
- Engine speed at standard power take-off speed 2199 rev/min
- Ratio of rotation speeds (engine speed/p.t.o. speed): 4.071
- Power restriction none
- Direction of rotation (viewed from tractor rear) clockwise

1.4.1.2 P.t.o. proportional to ground speed:

540 rev/min

- Location and method of engagement:	at rear of tractor, engaged and disengaged by hand lever
- Travelling distance for one revolution of p.t.o. shaft:	0.508 m
- No. of p.t.o. shaft revolutions for one revolution of rear driving wheels:	7.4
- Direction of rotation with forward gear engaged (viewed from behind tractor)	clockwise

1.5 POWER LIFT

- Make/Model/Type:	Own make, Draft and position control operated by two indipendent levers; lift-o-matic device to raise and to low in a fast way lower links.
- Type of hydraulic system:	open centre system
- Type and number of cylinders:	Single acting cylinder with 100 mm bore and 128 mm stroke
- Type of linkage lock for tansport:	hydraulic
- Relief valve pressure setting	18 ± 1 MPa
- Opening pressure of anti-shock valve	22 ± 0.5 MPa
- Opening pressure of cylinder safety valve:	There are no cylinder safety valves
- Lift pump type:	hydraulic power lift in unit construction. Own make gear pump A 31, directly driven by engine; delivery 32.8 l/min at rated engine speed
- Trasmission between pump and engine:	mechanical
- Type and number of filters:	1, replaceable paper cartridge.
- Site of oil resevoir:	rear transmission cast housing
- Type, number and locations of tapping points:	Maximum 2 tapping point at rear of tractor.
- Maximum volume of oil available to external cylinder:	9 l

1.6 THREE-POINT LINKAGE

- Category:	2nd, implement attachment with three point linkage, in conformity with I.S.O. STANDARD 730/I-1990
- Category adepter:	none

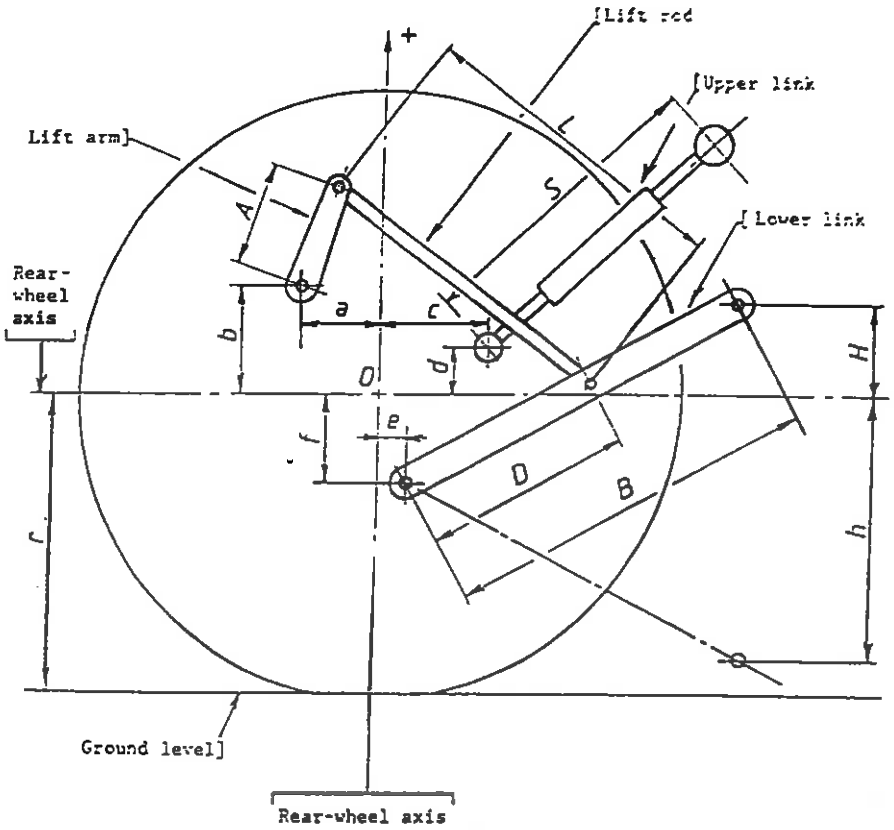


Figure 1.1

Lift test - Linkage geometry

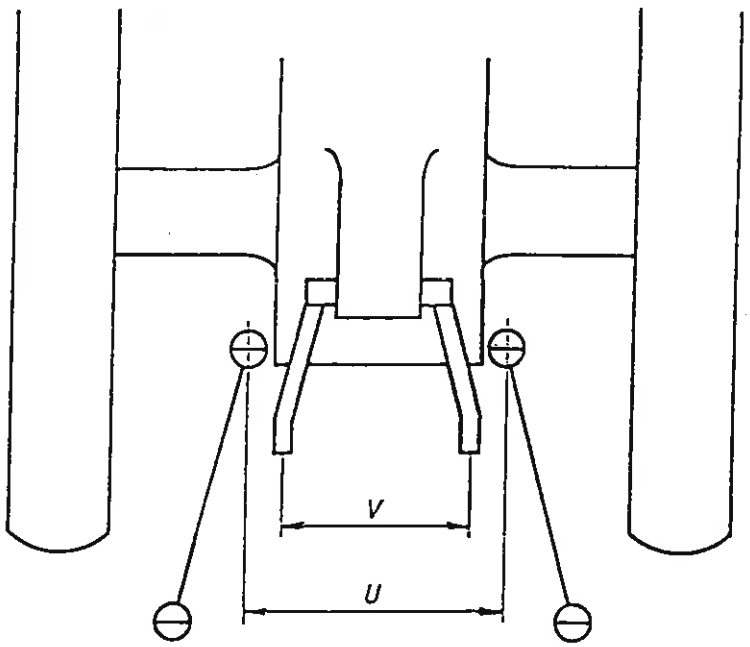


Figure 1.2

Lift test - Linkage geometry

Dimension of linkage geometry (when connected to the standard frame)

		Dimension or range mm	Setting used in compulsory test mm
Length of lift arms	(A)	230	230
Length of lower links	(B)	840	840
Distance of lift arm pivot point from rear wheel axis: - horizontally	(a)	- 7	- 7
- vertically	(b)	260	260
Horizontal distance between the 2 lower link points	(u)	360	360
Horizontal distance between the 2 lift arm end points	(v)	430	430
Length of upper link	(S)	from 645 to 920	680
Distance of upper link pivot point from rear wheel axis: - horizontally	(c)	115 - 130	115
- vertically	(d)	210 - 280	280
Distance of lower link pivot point from rear wheel axis: - horizontally	(e)	- 7	- 7
- vertically	(f)	150	150
Distance of lower link pivot points to lift rod pivot points on lower links	(D)	370	370
Length of lift rods	(L)	from 420 to 520	465
Heigth of lower hitch points relative to the rear wheel axis:			
- in low position	(h)	from 580 to 605	410
- in high position	(H)	from 155 to 355	150
Height above ground of lower hitch points when locked in transport position (*)		Any height within lift range	-

Table 1.2 - **Dimension of linkage geometry** (when connected to the standard frame)

(*) Assuming the dynamic radius index: 610 mm (ISO 4251/1-1992)

1.7 SWINGING DRAWBAR none

1.8 TRAILER HITCH

- Type : own make; clevis type
- Hole diameter: 28 mm dia

- Height above ground	
· min:	450
· max:	750
- Distance of hitch point from rear-wheel axis, horizontally:	420 mm
- Distance of hitch point from power take-off shaft end:	
· vertically:	from 160 mm below to 140 mm above
· horizontally:	180 mm behind
- Maximum vertical permissible load:	9.3 kN according to italian legislation

1.9 HOLED DRAWBAR

- Number of holes:	7
- Distance between holes:	80 mm
- Hole diameter:	28 mm
- Thickness/width of the drawbar:	32 mm/80 mm
- Height above ground with tyres 13.6 R 28	
· minimum:	45 mm
· maximum:	945 mm
- Horizontal distance behind power take-off shaft end:	603 mm

1.10 STEERING

- Make/Model/Type:	own make, distributor DANFOSS make, OSPC 100, hydrostatic control with independent hydraulic circuit; One metal cartridge filter in oil reservoir.
- Method of operation:	
· pump:	gear pump FIAT C 25, 19 l/min delivery at rated engine speed
· rams:	one double acting cylinder directly acting on front axle, transversaly mounted, bore 48 mm, stroke 200 mm, piston rod 22 mm
- working pressure:	10.0 MPa

1.11 BRAKES

1.11.1 Service brake

- Make/Model/Type:	own make, oil bath disc brake type axle shaft mounted two discs 162 mm dia, 4.7 mm thickness
- Method of operation:	mechanically acting on rear differential half shaft; operated by 2 indipendent pedals locked together for road drive
- Trailer braking take-off:	hydraulic traile braking take off available as optional.

1.11.2 Parking brake:

- Type:	own make,
- Method of operation:	hand lever operated; it operates the same brake as the foot brake; the final part of the parking brake linkage is the same of service brake.

1.12 WHEELS

Steering wheels

- Number: 2
- Location: at front, two tyres with steel plate discs and rims

Driving wheels

- Number: 2
- Location: at rear, two tyres with steel plate discs and rims
- Wheelbase: 2000 mm
- Track width adjustment:

	Minimum mm	Maximum mm	Adjustement method
Front	1260	1830	manual, estending axle and placing disc bulge facing either inward or outward
Rear	1300	1800	manual placing disc bulge facing either inward or outward

1.13 PROTECTIVE STRUCTURE: none

1.14 SEAT

1.14.1 Driver's seat

- Make/Model/Type: KAB make, XH2 model, upholstered seat with back rest
- Type of suspension: adjustable spring
- Type of damping: shock absorber
- Range of adjustment:
  - longitudinal: 180 mm in three positions.
  - vertical: from 360 mm to 580 mm in a continuous way

1.14.2 Optional driver's seat: none

1.14.3 Passenger seat: none

1.15 LIGHTING:

	Height above ground of centre (*) mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1025	140 x 90	220
Sidelights	1330	115 x 35	685
Rearlights	1330	80 x 60	610
Reflectors 1st pair	1200	90 x 55	700

(*) with tyres: 6.50 - 16 front - 13.6 R 28 rear

2. TEST CONDITIONS

2.1 OVERALL DIMENSIONS

	Length	Width		Height to top of exhaust silencer
		mini	maxi	
	mm	mm	mm	mm
Ballasted	-	-	-	-
Unballasted	3250	1640	2140	2420

2.2 GROUND CLEARANCE

(unballasted tractor): 375 mm

- Clearance-limiting part: below swinging drawbar frame

2.3 TRACTOR MASS

Mass (with full fuel tank):

	Unballasted	
	Without driver kg	With driver kg
Front	650	670
Rear	1070	1125
Total	1720	1795

2.4 BALLASTS

none

2.5 TYRES AND TRACK WIDTH SPECIFICATIONS

	Front	Rear
Tyres: - dimensions - ply rating - type - maximum load - inflaction pressure (tyre manufacturer's) - dynamic radius index	PIRELLI 6.50 - 16 8 ply diagonal 735 kg (30 km/h) 420 KPa 350 mm	PIRELLI 13.6 R 28 123 A8 radial 1660 kg (30 km/h) 160 KPa 610 mm
Chosen track width:	1260 mm	1300 mm

Tyre matching			
At front		At rear	
6.50 - 16	8 ply	13.6 R 28	123 A8
5.50 - 16	6 ply	12.4 - 28	6 ply
6.00 - 16	6 ply	14.9 - 28	6 ply
6.00 - 16	6 ply	12.4 - 32	6 ply

2.6 OILS AND LUBRICANTS

2.6.1 Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	11.7	200	400
Gear box with hydraulic system, rear transmission	40.8	1600	400
Steering system	1.8	1600	400
Final reduction	7.8	1600	-

2.6.2 Specifications (SAE, API, MIL-L, ISO)

	Recommended	Used during test
Engine oil - Type: - Viscosity: - Classification:	FIAT AMBRA SUPER SAE 15 W 40 MIL-L-2104 C	As recommended
Gear box, hydraulic system and trasmission oils - Type: - Viscosity: - Classification	FIAT TUTELA MULTI F SAE 15 W 40 MIL-L-2104 C or API-CD	As recommended
Steering oil - Type: - Viscosity: - Classification:	FIAT TUTELA MULTI F SAE 20 W 40 MIL-L-2104 C or API-CD	As recommended
Final reduction - Type: - Viscosity: - Classification:	FIAT TUTELA MULTI F SAE 20 W 40 MIL-L-2104 C or API-CD	As recommended

2.6.3 Grease: FIAT TUTELA G9

Number of lubrication points: 12

2.7 FUEL

- Type: ESSO DIESEL oil, in conformity with national standard.

- Density at 15° C: 0.845 g/cm^3

3. COMPULSORY TEST RESULTS

3.1 Main power take off performance

- Date and location of tests: 24th August 1992, I.M.A., TORINO, ITALY
- Type of dynamometer: PARASITIC CURRENTS, BORGHI & SAVERI FA 300-30 SP

Power	Speed		Fuel consumption			Specific
	Engine	P.t.o.	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO HOUR TEST						
26.68	2500	614	7.25	8.68	272	3.07
3.1.2 POWER AT RATED ENGINE SPEED						
26.74	2500	614	7.20	8.62	269	3.10
3.1.3 STANDARD POWER TAKE OFF SPEED (540 ± 10 rev/min)						
25.14	2200	540	6.40	7.66	255	3.28
3.1.4 PART LOADS						
3.1.4.1 the torque corresponding to maximum power at rated engine speed						
26.74	2500	614	7.20	8.62	269	3.10
3.1.4.2 85% of torque obtained in 3.1.4.1						
24.44	2689	661	7.05	8.44	288	2.89
3.1.4.3 75% of torque defined in 3.1.4.2						
18.39	2697	662	5.85	7.01	318	2.62
3.1.4.4 50% of torque defined in 3.1.4.2						
12.37	2721	668	4.75	5.69	384	2.17
3.1.4.5 25% of torque defined in 3.1.4.2						
6.22	2735	672	3.85	4.61	619	1.35
3.1.4.6 unloaded						
----	2742	674	3.30	3.95	----	----
3.1.5 PART LOADS AT STANDARD POWER TAKE OFF SPEED (540 ± 10 rev/min)						
3.1.5.1 the torque corresponding to maximum power						
25.19	2200	540	6.40	7.66	254	3.29
3.1.5.2 85% of torque obtained in 3.1.5.1						
23.20	2383	585	6.05	7.25	261	3.20
3.1.5.3 75% of torque defined in 3.1.5.2						
17.44	2389	587	5.05	6.05	290	2.88
3.1.5.4 50% of torque defined in 3.1.5.2						
11.78	2420	594	4.10	4.91	348	2.40
3.1.5.5 25% of torque defined in 3.1.5.2						
5.95	2444	600	3.20	3.83	538	1.55
3.1.5.6 unloaded						
----	2465	606	2.35	2.81	----	----

- No load maximum engine speed: 2742 rev/min
- Torque (equivalent crankshaft) at maximum power:
  - at rated engine speed 102.1 Nm
  - at standard power take-off speed 109.1 Nm

- Maximum torque (equivalent crankshaft) 128.6 Nm
  (engine speed: 1300 rev/min)

Mean atmospheric conditions	
Temperature	26 °C
Pressure:	99.70 kPa
Relative humidity:	75 %
Maximum temperatures	
Coolant:	83 °C
Engine oil:	111 °C
Fuel:	27 °C
Engine air intake:	27 °C

3.2 HYDRAULIC POWER AND LIFTING FORCE

- Date of tests: 12th October 1992

3.2.1 HYDRAULIC POWER TEST

- Sustained pressure with relief valve open: 20.1 MPa
- Pump delivery rate at minimum pressure: 35 l/min

	Flow rate l/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power	34.0	18.1	10.05
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	34.0	20.1	11.17

- Tapping point used for test: at rear of tractor
- Temperature of hydraulic fluid: 65 °C
- Opening pressure of the unloading valve: --- MPa
- Closing pressure of the unloading valve: --- MPa

3.2.2 POWER LIFT TEST

- Linkage settings for test - see Table 1.1 and Figure 1.1

	at the hitch point		on the frame	
Height of lower hitch points above ground in down position	200	mm	200	mm
Vertical movement	560	mm	650	mm
Maximum corrected force exerted through full range	13.90	kN	11.25	kN
Corresponding pressure of hydraulic fluid	18.0	MPa	18.0	MPa
Moment about rear-wheel axis	-	kNm	16.23	kNm
Maximum tilt angle of mast from vertical	- degress		6 degress	

Lifting heights relative to the horizontal plane including the lower link pivot points										
mm	- 260	- 200	- 100	- 50	0	+ 50	+ 100	+ 200	+ 300	+ 350
Lifting forces										
at the hitch points kN	13.90	14.75	15.90	16.30	16.60	16.75	16.75	16.70	16.40	-
Corresponding pressure: 18.0 MPa										
at the frame kN	14.00	14.80	15.25	15.25	15.15	15.00	14.80	14.20	12.25	11.25
Corresponding pressure: 18.0 MPa										

3.3 DRAWBAR PERFORMANCE

Date of tests: 10th - 11th September 1992
Type of track: concrete
Tyre size - front: 6.50 - 16 8 ply
- rear: 13.6 R 28 123 A8

	Height of hitch above ground	Tyre inflation pressure	
		Front	Rear
Unballasted	620 mm	420 KPa	160 KPa

Gear no. and group	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed rev/min	Slip of wheels %	Specific fuel consumption g/kWh	Specific energy kWh/l	Temperature			Atmospheric conditions		
								Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure mbar
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
I Normal	1.23	4.59	1420	2735	15.0	-	-	26	81	108	17.5	90	994.0
II Normal	1.96	7.71	1420	2731	15.0	-	-	26	81	108	17.5	92	994.0
III Normal	2.47	9.79	1425	2714	15.0	-	-	26	81	108	17.5	94	994.0
I Medium	3.15	12.41	1420	2705	15.0	443	1.88	27	82	110	17.5	94	994.0
IV Normal	3.92	15.34	1410	2695	14.8	438	1.91	27	82	110	17.5	96	994.0
II Medium	4.93	19.31	1410	2664	14.9	378	2.21	27	82	110	17.5	96	994.0
III Medium	6.32	22.56	1285	2504	11.0	330	2.53	27	83	111	17.5	96	994.0
I High	8.15	23.43	1035	2495	6.3	309	2.70	28	83	111	17.5	94	994.0
IV Medium	10.65	22.78	770	2505	3.6	325	2.57	28	83	111	17.5	94	994.0
II High	13.55	22.77	605	2505	3.4	321	2.60	28	84	112	17.5	95	994.0
3.3.2 FIVE-HOUR TESTS													
3.3.2.1 FIVE-HOUR TEST at 75% of pull at maximum power													
III Medium	7.08	18.99	965	2685	4.9	340	2.46	28	83	112	18.5	85	994.6
3.3.2.2 FIVE-HOUR TEST at pull corresponding to 15% wheelslip - with 250 kg as additional ballast													
IV Normal	4.29	16.93	1420	2700	-	-	-	29	84	113	23.0	70	994.6

Oil consumption during ten hours tests 3.1.1 and 3.1.2: 25 g/h

Tests 3.3.2.2 was carried out with additional ballast; so, the not quoted figures are irrelevant

3.4 TURNING AREA AND TURNING CIRCLE

- Wheel equipment: front: 6.50 - 16 8 ply rear: 13.6 R 28 123 A8
- Track width front: 1260 mm rear: 1300 mm

	With brakes		Without brakes	
	Right-hand m	Left-hand m	Right-hand m	Left-hand m
Radius of turning area	3.07	2.95	3.48	3.36
Radius of turning circle	2.98	2.86	3.39	3.27

3.5 LOCATION OF CENTRE OF GRAVITY

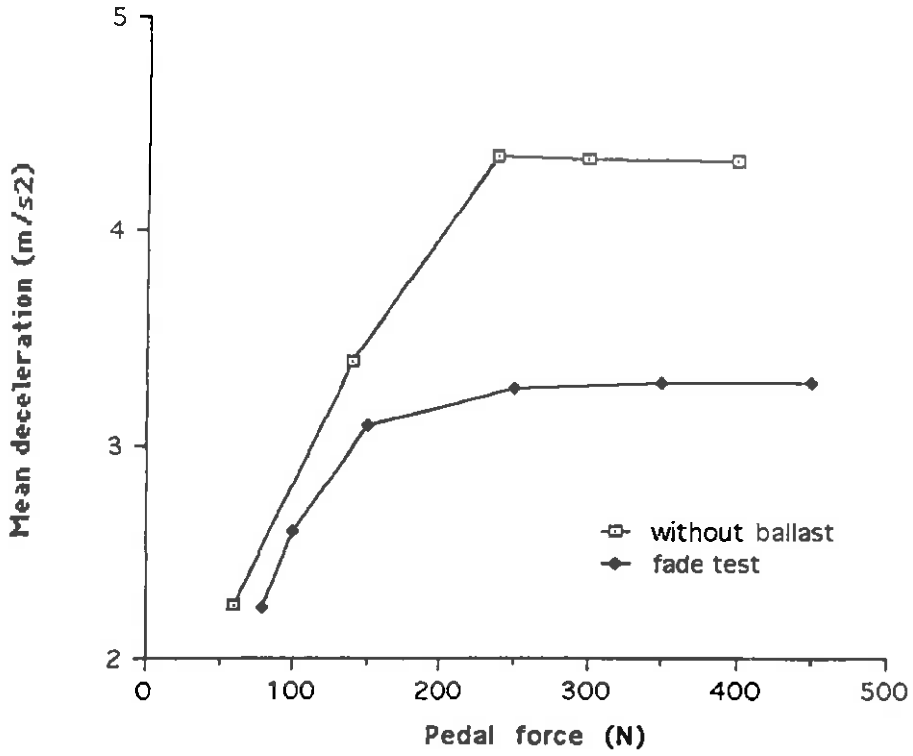
- Height above ground: 740 mm
- Distance forward from the vertical plane containing the axis of the rear wheels: 757 mm
- Distance from the median plane of the tractor: to the left 0 mm

3.6 BRAKING

- Date of tests: 26th October 1992
- Type of track: asphalt
- Type of decelometer: PEISELER
- Tractor masses during test:

	front axle kg	rear axle kg	total kg
Unballasted	2.98	2.86	3.39

3.6.1 Cold service braking device test - 6.2 Fade test



3.6.1 Cold service braking device test

	Ballasted tractor	Unbalasted tractor
Speed before application of brakes (km/h)	29.50	29.50

3.6.2 Fade test

- Maximum deviation of the tractor from its original course: none
- Abnormal vibration: none
- Brake heating method: by means of towing the tractor for 1 km at 22.2 km/h with a towing force of 1.80 kN

3.6.3 Parking braking device test

	Uphill	Downhill
Braking device control force	25.0 daN	23.0 daN

3.7 MEASUREMENT OF EXTERNAL NOISE LEVEL

- Date of tests: 17th May 1996
- Sound level meter, Make/Model/Type: RION make, NA 29 E model, impulse precision
- Type of track: asphalt

3.7.1 Results of test with DGM-SA 1692 model

- Gear number: IV High
- Travelling speed before acceleration: 21.35 km/h
- Sound level: 85.0 dB(A)

4. OPTIONAL TESTS RESULTS

4.1. ENGINE PERFORMANCE

- Date and location of tests: 22nd July 1992, I.M.A., TORINO, ITALY
- Type of dynamometer: PARASITIC CURRENTS, BORGHI & SAVERI FA 300-30 SP

Power	Speed	Fuel consumption			Specific
	Engine	Hourly		Specific	energy
kW	rev/min	kg/h	l/h	g/kWh	kWh/l
4.1.1 MAXIMUM POWER - TWO HOUR TEST					
28.75	2500	7.21	8.63	251	3.33
4.1.2 POWER AT RATED ENGINE SPEED					
28.75	2500	7.21	8.63	251	3.33
4.1.3 POWER TAKE OFF SPEED (540 ± 10 rev/min)					
26.32	2200	6.43	7.70	244	3.42
4.1.4 PART LOADS 4.1.4.1 the torque corresponding to maximum power at rated engine speed					
28.75	2500	7.21	8.63	251	3.33
4.1.4.2 85 % of torque obtained in 4.1.4.1					
26.10	2670	7.00	8.38	268	3.11
4.1.4.3 75 % of torque defined in 4.1.4.2					
19.64	2678	5.76	6.90	293	2.85
4.1.4.4 50 % of torque defined in 4.1.4.2					
13.21	2702	4.85	5.81	367	2.27
4.1.4.5 25 % of torque defined in 4.1.4.2					
6.66	2724	3.71	4.44	557	1.50
4.1.4.6 unloaded					
----	2745	3.28	3.93	----	----

- No load maximum engine speed: 2745 rev/min
- Torque at maximum power (2 hours): 109.8 N/m
- Maximum torque: 134.4 N/m at 1300 rev/min of the engine

Mean atmospheric conditions	
Temperature	28 °C
Pressure:	99.30 kPa
Relative humidity:	65 %
Maximum temperatures	
Coolant:	82 °C
Engine oil:	103 °C
Fuel:	29.5 °C
Engine air intake:	28.5 °C

5. **REPAIRS** = none

6. **REMARKS** = none

The Head of the Section

R. MARENGO

The Director

P. REDOLFI

Torino, 25th May 1996

NEW HOLLAND 39-668/12/I



FIG. 1 - POWER TAKE-OFF TEST

NEW HOLLAND 39-66S/12/I

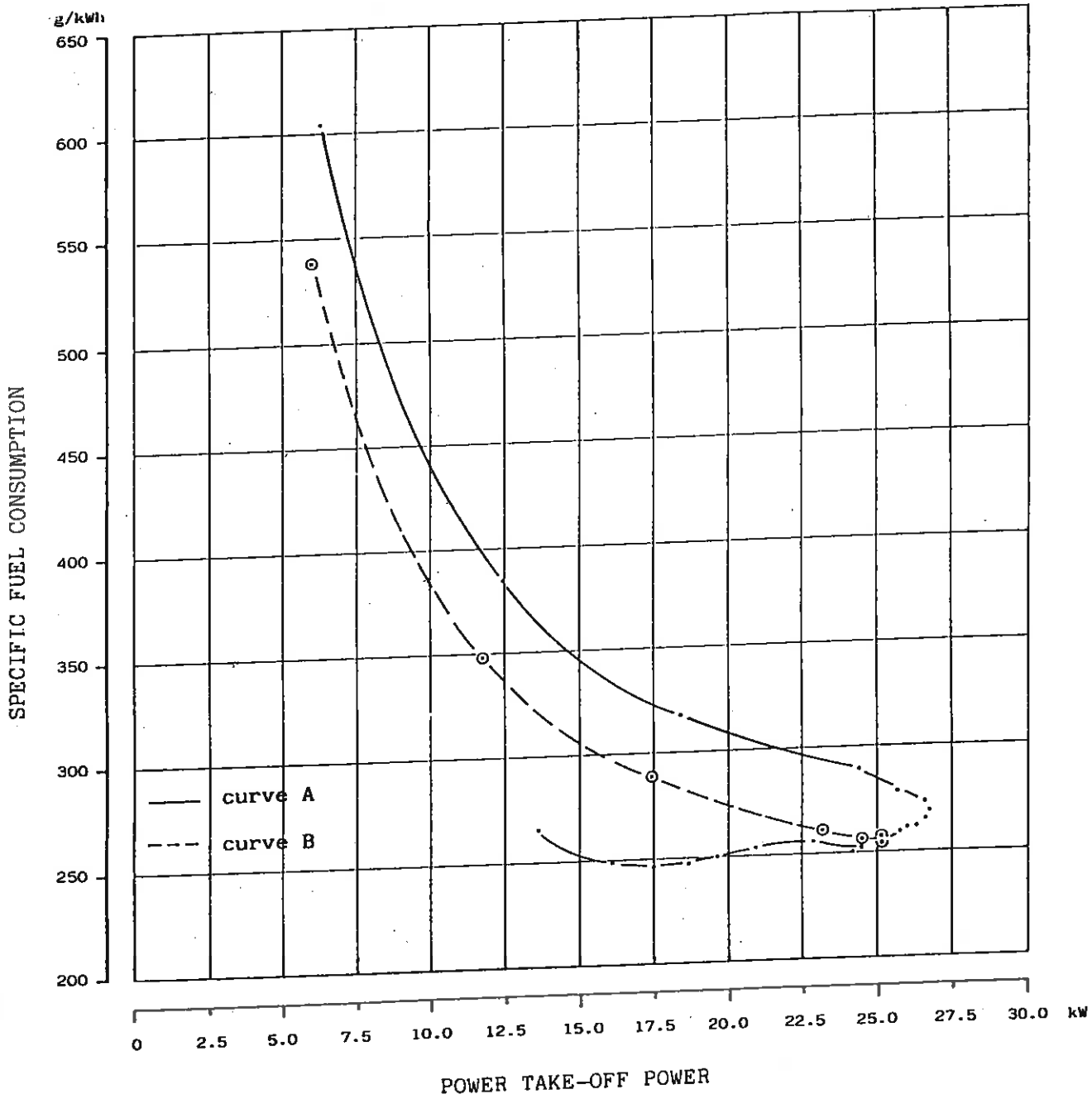


Fig. 2 - POWER TAKE-OFF TEST

NEW HOLLAND 39-66S/12/I

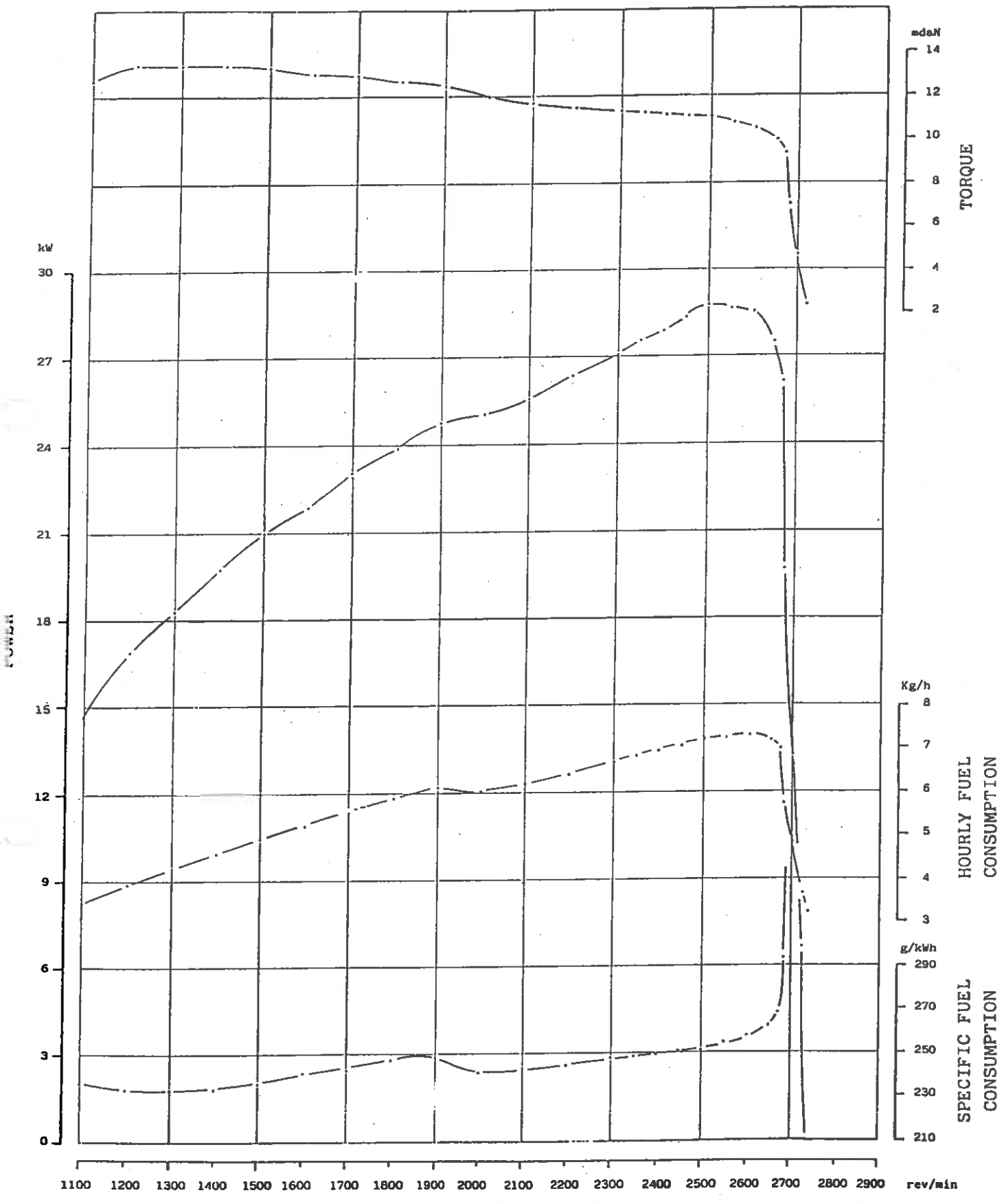


Fig. 3 – ENGINE TEST

NEW HOLLAND 39-668/12/I

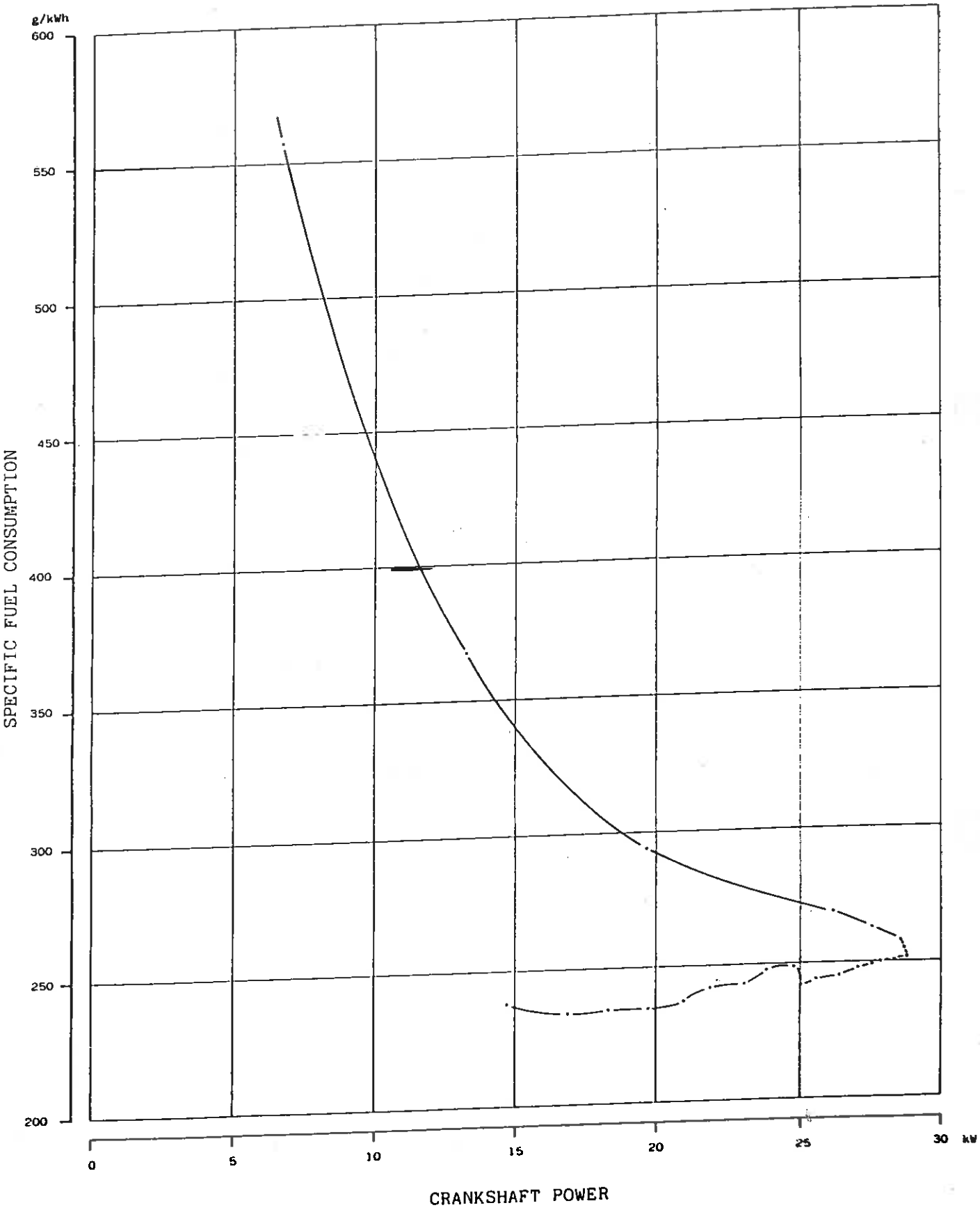


Fig. 4 – ENGINE TEST

NEW HOLLAND 39-66S/12/I

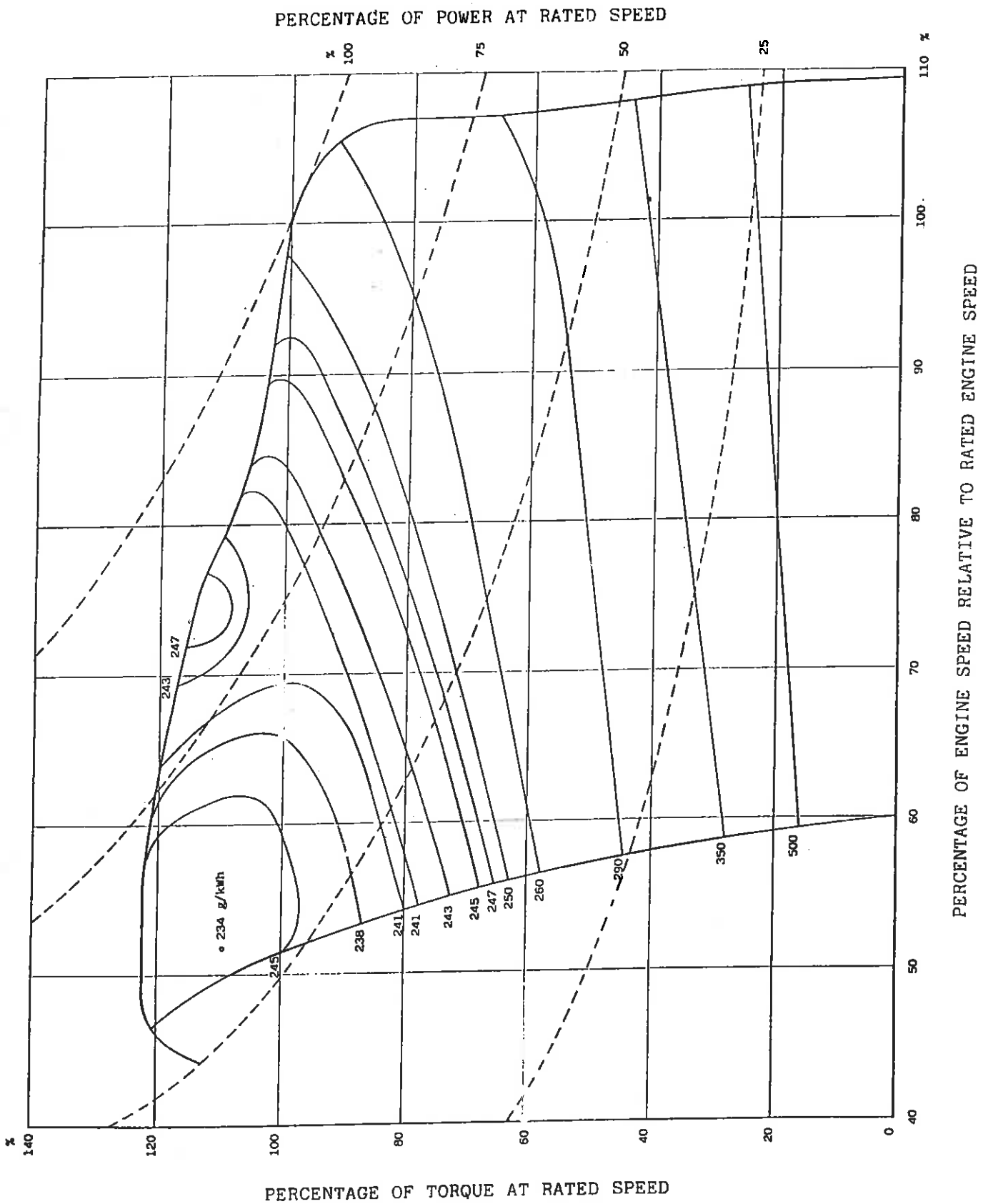


Fig. 5 – ENGINE SPEED