ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

CASE INTERNATIONAL 2120 V "4WD"
TEST no. 052.

O.E.C.D. no. 1272

Test in accordance with the O.E.C.D. Restricted Standard Code for the official testing of agricultural tractors.



Report test of: CASE INTERNATIONAL 2120 V "4WD"

Submitted for test by: JI CASE GmbH
Industriestr. 39-40, 4040 Neuss
GERMANY

Date of O.E.C.D. approval: 04.09.1990
Period of test: April 1990

ISMA - SOP Treviglio - Via Milano,43 - (BG) - ITALY

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The tractor CASE INTERNATIONAL 2120 V, serial no. CGC 58102523, Code 581 ABAGAE had been tested in 2 variants:
As model 2120 V "4WD" and as model 2120 V "2WD".

Model 2120 V "2WD" was converted into model 2120 V "4WD" by mounting the front axle drive and by exchange of front axle and steering.

All stated dimensions and tests referred to tyre sizes 6.50/16 (8 ply) at front and 11.2/28 (6 ply) at rear, as well as to track widths 965 mm at front and 800 mm at rear.

- Tractor manufacturer
. Name: JI CASE GmbH;
. Address: Industriestr. 39-40, 4040 Neuss GERMANY; ;
- Location of tractor assembly: CARRARO S.p.A. ROVIGO ITALY;
- Submitted for test by: the manufacturer;
- Selected by: the manufacturer with the agreement of ISMA;
- Place of running in: Campodarsego (PD) - ITALY;
- Duration of running: 50 hours.
- Location of test: I.S.M.A. Via Milano, 43 - Treviglio (BG) ITALY

I - SPECIFICATION OF TRACTOR

TRACTOR

- Make: CASE INTERNATIONAL;
- Model: 2120 V "4WD";
- Type: Wheeled tractor, unit construction, all wheels drive tractor;
- Number of driving wheels: 4;
- Serial number: CGC 58102523, Code: 581 ABAGAE;
- First serial number: CGC 58100001, Code: 581 ACAGAE.

ENGINE

- Make: SAME;
- Model: 1000.3A/45;
- Type: aircooled 4 stroke diesel engine direct injection;
- Serial number: 07635.

Cylinders

- Number/disposition: 3, vertical in line;
- Bore/stroke: 105/115,5 mm;
- Capacity: 3000 cm^3;
- Compression ratio: 17.1 / 1;
- Arrangement of valves: overhead;
- Cylinder liners: without liners.

Supercharging none.

Fuel system

- Fuel feed system: AC corone fuel feed pump;
- Make, model and type of fuel filter: FIAMM FNA 160/00;
- Capacity of fuel tank: 60 dm³ ;
- Make, model and type of injection pump: BOSCH PFR 1K 90A 503, immersed pump, one per cylinder, without serial number, in line injection pump;
- Manufacturer's production setting of injection pump:
  .flow rate: 42+/-2 mm³ /stroke at rated speed and full load corresponding to 8.96 dm³/h;
  .timing: 18+/-0.5 before TDC;
- Make, model and type of injectors: BOSCH KBE 58 S 4/4;
- Injectors pressure: 18 +/-1 MPa.

Governor

- Make: SAME;
- Model: 065.1652.4;
- Type: mechanical variable speed;
- Governor range of engine speed: from 675 to 2551 rev/min.;
- Rated engine speed: 2350 rev/min.

Air cleaner

- Main filter
  . make: VF VIRGIS;
  . model: 1530236C1;
  . type: dry paper element filter;
  . location: behind of engine;
- Maintenance indicator: with the warning lamp on the dashboard;

Lubrication system

- Type of feed pump: forced feed from gear pump;
- Total oil capacity including filter: 6.7 dm³ ;
- Oil change period: 150 hrs;
- Type of filter: FIAMM FT 4803 IN;
- Number: 1 ;
- Filter change period: 300 hrs;
- Oil specifications: see page 18.

Cooling system

- Type and detail: air cooling with axial blower;
- Specification of fan: propeller fan driven by engine shaft;
- Number of fan blades: 13;
- Fan diameter: 220 mm;
- Type of temperature control: none.
- Warming indicator: with the warning lamp on the dashboard.

Starting system

- Make: BOSCH;
- Model: JF R 12 V;
- Type: electromagnetic engagement;
- Starter motor power rating:2.4 kW;
- Safety device: preventig engine from starting in gear;
- Starting system for low temperatures: none.

Electrical equipement

- Voltage: 12 V;
- Generator:
  . make: BOSCH;
  . model: K1 R 14V 55A;
  . type: alternator;
  .power: 630 W;
- Battery: 1 lead acid;
  .capacity: 100 Ah at 20 hours.

Exhaust system

- Make: IMA SAF;
- Model: 1967893C1;
- Type: at chamber reflection absorption;
- Location: on the left hand side of engine cowling, horizontal position;
- Height of outlet above ground: 480 mm.

TRANSMISSION

Clutch: utilized only for travelling of tractor.

- Make: OMG;
- Model: 121947;
- Type: double disk dry clutch;
- Number of plates: 2;
- Plates diameter: 280 mm;
- Control system: by pedal for transmission, by lever for p.t.o.;

Gear box

- Make: CARRARO;
- Model: 121947;
- Type: mechanical no-syncromesh speed change gear;
- Arrangement: four speeds forward with three ranges of speed and one reverse group;
- Number of speeds : 12 forward and 12 reverse;
- Available options: 8 forward and 8 reverse.

Rear axle and final drives

- Make: CARRARO;
- Model: 120698/1;
- Type: bevel gear differential and epicyclic reduction final drives.

Differential lock

- Make: CARRARO;
- Model: 120698/1;
- Type: mechanical;
- Control system: engaged or disengaged by pedal.

Front axle and final drives

- Make: CARRARO;
- Model: 124120;
- Type: central shaft with bevel gear drive, differential and epicylic reduction gear final drives;

Differential lock

- none.

Transmission lubrication

- Gear box, rear axle, final drives, power lift and hydraulic system (in common);
  . total capacity including filter: 38 dm^3;
  . change period: 1000 hrs;
  . filter change period: 1000 hrs;
- Front axle and final drive:
  . total capacity: 4.6 dm^3;
  . change period: 1000 hrs;

- Recommended oil: see page 18.

Total rations and speeds

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed at a rated engine speed of 2350 rev/min (*) (km/h)
	FORWARD		
1	S	1140.223	0.44
2	S	769.196	0.65
3	S	526.198	0.95
4	S	374.442	1.34
1	N	244.283	2.05
2	N	164.982	3.03
3	N	112.753	4.44
4	N	80.238	6.24
1	F	56.375	8.87
2	F	38.071	13.14
3	F	26.019	19.23
4	F	18.516	27.02
	REVERSE		
1	S	1359.167	0.37
2	S	917.696	0.54
3	S	627.336	0.80
4	S	446.429	1.12
1	N	291.274	1.72
2	N	196.702	2.54
3	N	134.432	3.72
4	N	95.668	5.23
1	F	67.216	7.44
2	F	45.393	11.02
3	F	31.023	16.13
4	F	22.077	22.66

(*) Calculated with a tyre dynamic radius index of 565 mm.
ISO 4251/1 - 1984)
- Number of revolutions of front wheels for one revolution of rear wheels: 1.6392.

OWER TAKE-OFF

Power take-off proportional to engine speed

- Type: independent, at rear of tractor, in tractor's median plane, engaged or disengaged by hand lever.
  Driven by multiplate wet clutch independent from travel clutch; ISO Standard 500-1979;
- Number of shafts: 1;
- Method of changing of speed: speed selction by external hand lever;
- Location : at rear of tractor;

	P.T.O.
- Height above ground (with tyre size 11.2/28) ..	565 mm
- Distance from the median plane of the tractor ..	0 mm
- Distance behind rear axle.....	387 mm
- Direction of rotation (viewed facing driving end):	clockwise

) 540 rev/min

- Dimension: ISO Standard 500-1979 type 1 (35 mm - 6 splines);
- PTO speed at rated engine speed .....: 600 rev/min;
- Engine speed at standard power take-off speed: 2115 rev/min;
- Ratio of rotation speeds (engine speed/pto speed): 3.916666;
- Maximum power and torque transmissible: 55 kW and 97 daNm.

2) 1000 rev/min

- Dimension: ISO Standard 500-1979 type 2 (35 mm - 21 splines);
- PTO speed at rated engine speed .....: 1116 rev/min;
- Engine speed at standard power take-off speed: 2105 rev/min;
- Ratio of rotation speeds (engine speed/pto speed): 2.105734;
- Maximum power and torque transmissible: 55 kW and 52 daNm.

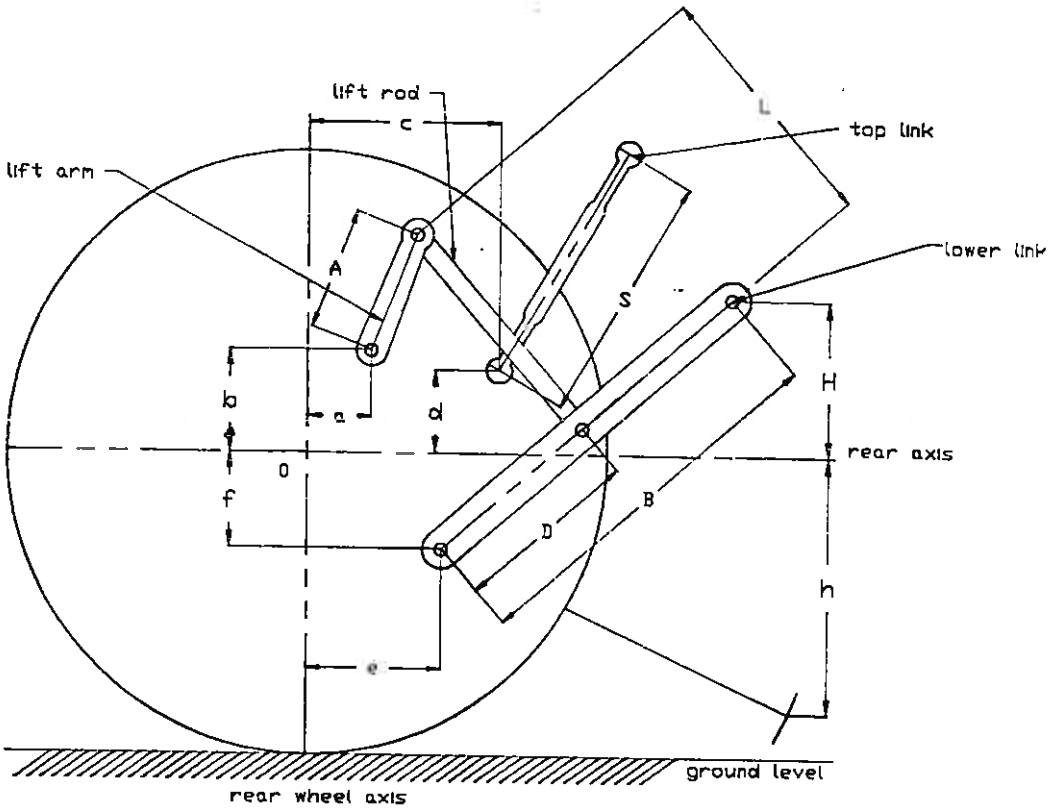
Power take-off proportional to ground speed : none.

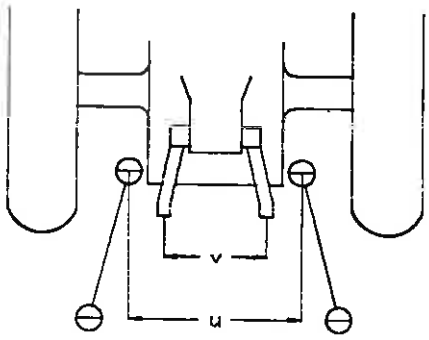
POWER LIFT

- Make: MITA;
- Model: M 60 SRF;
- Type: load sensing;
- Type of hydraulic system: open centre system;
- Type and number of cylinders: 1 internal hydraulic jack at simgle effect;
- Type of lock for transport: mechanical, with screwed tie rods that lock the lower links;
- Relief valve pressure setting: 18 +/- 1 MPa;
- Opening pressure of anti-shock valve: 20 MPa;
- Lift pump type: hydraulic rotary pump, driven by engine shaft;
- Transmission between pump and engine: mechanical;
- Type and number of filters: 1, repeaceable paper cartridge;
- Changing: when the filter clogging warning lamp is lighted;
- Oil capacity: 38 dm^3 in common with gear box;
- Site of oil reservoir : gear box;
- Position, type and No. of additional oil plugs: 4 ways distributor at rear of tractor;
- Maximum volume of oil available to external cylinders: 4 dm^3 ;
- Recommended oil: see page 18.

Three-point linkage

- Category: 1 in conformity with ISO 730/1 - 1977;
- Category adapter: none.


lift rod
c
L
top link
lift arm
A
lower link
S
H
b
a
d
rear axis
0
f
B
D
h
e
ground level
rear wheel axis


v
u

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

		Dimension or range (mm)	Settings used in test (mm)
Length of lift arms	(A)	260	260
Length of lower links	(B)	820	820
Distance of lift arm :horizontally	(a)	25	25
Pivot point from rear :vertically	(b)	306	306
wheel axis (behind)			
Horizontal distance between the 2 lower link points	(u)	429	429
Horizontal distance between the 2 lift arm and points	(v)	345	345
Length of upper link	(S)	from 500 to 780	647
Distance of upper link :horizontally	(c)	244	244
pivot point from rear :vertically	(d)	243	243
wheel axis			
Distance of lower link :horizontally	(e)	72	72
pivot point from rear :vertically	(f)	192	192
wheel axis			
Distance of lower link pivot point to lift rod pivot points on lower links	(D)	490	490
Length of lift rods	(L)	from 500 to 670	593
Height of lower hitch points relative to the rear wheel axis			
- in Low position	(h)	from 177 to 539	365
- in High position	(H)	from 60 to 309	185
Height above ground of lower hitch points when locked in transport position (*)			750

(*) Assuming the dynamic radius index = 565 mm (ISO 4251/1 - 1984)

SWINGING DRAWBAR : not fitted.

HOLED DRAWBAR : not fitted.

TRAILER HITCH

- Type: J.I CASE;
- Hole diameter: 28 mm;
- Height above ground: 327 min. - 687 max. mm;
- Distance of hitch point from rear wheel axis, horizontally: 515 mm;
- Distance of hitch point from power take-off shaft end
  . vertically : below 238 mm, above 122 mm;
  . horizontally : 130 mm;
- Maximum vertical permissible load: 1471 daN.

STEERING

- Specification: hydrostatic steering with SAVER SUNDESTRAND gear pump, one steering cylinder at double effect acting directly on front axle.
- Make: DANFOSS;
- Model: OSPC 80 LS with priority valve OLSA 40;
- Type: hydrostatic;
- Working pressure: 1.1 MPa;
- Oil capacity: 17 dm^3, in common whit hydraulic system;
- Oil change period: 1000 hrs;
- Filter change period: 1000 hrs;
- Recommended oil: see page 18.

BRAKES

Service brake

- Make: SIRMAC;
- Model: 1967573C1;
- Type: oil immersed multiplate disc, 4 per side total 8 discs, mounted before each epicyclic reduction gear. SK Welman HDT 303 lining material, rear disc diameter 165,25 mm;
- Method of operation: mechanical acting with 2 pedals;
- Trailer braking take-off: none.

Parking brake

- Type: mechanical acting ao the service brake;
- Method of operation: mechanically by hand lever.

Steering brake : divided pedal of service brake for normal use locked together.

STEERING WHEELS

- Number: 2;
- Location : at front;
- Track widths: 875 min. - 1039 max. mm;
- Regulation: changing the position of the rims with respect to the disc.

DRIVING WHEELS

- Number: 4;
- Location: 2 at front and 2 at rear;
- Rear track widths: 800 min. 1298 max. mm;
- Regulation: changing the position of the rims with respect to the disc.

WHEELBASE: 1945 mm.

ROLL - BAR

Specifications

- NFU approval number: 013101;
- Make: CARRARO;
- Model: X 260-4;
- Type: tiltable;
- Manufacturer's name: CARRARO S.p.A.;
  . address: Via Olmo, 29 - Campodarsego (PD) ITALY;
- Protective device: roll-bar tiltable.

Materials used in the construction and dimensions

See N.F.U. (France) Test Report on Protective Structures.

DRIVER'S SEAT

- Make: SIFRA;
- Model: 15 M;
- Type: upholstered seat;
- Type of suspension: adjustable spring;
- Type of damping: shock absorber;
- Range of adjustment, longitudinal 210 mm;
  vertical ... 100 mm.

PASSENGER'S SEAT : none.

LIGHTING

Lighting system in accordance with E.E.C. 78/933

	Height above ground of centre with tyre (*) (mm)	Size (mm)	Distance from out side edge of tractor to centre at 800 mm track width (mm)
Headligths	1018	155*90	416
Front park. lights	1358	120*40	53.5
Front finger post	1398	120*40	53.5
Rear park. lights	1398	120*40	53.5
Rear finger post	1358	120*40	53.5
Stop	1398	120*40	53.5
Reflectors	1103	88*52	122.5

(*) Tyre size: 6.50/16 front - 11.2/28 rear.

TEST CONDITIONS

Overall dimensions with tyres 6.50/16 front and 11.2/28 rear

	Length (mm)	Width (mm) min	Width (mm) max	Height (mm) at top of protect. struc.
Without ballast	3450	990	1645	2309

. Ground clearance (unballasted tractor): 236 mm;
. Clearance-limiting part: front axle.

Tractor mass (with tanks full, with frame, water in tyres none)

	Units	Front	Rear	Total
Without driver				
Without ballast	kg	955	1125	2080
With ballast	kg	-	-	-
With driver				
Without ballast	kg	965	1190	2155
With ballast	kg	-	-	-

Ballast

	no. of weights	total weight (kg)	water (kg)
front	-	-	-
rear	-	-	-
additional	-	-	-

Tyres and track width specifications

	front	rear
- Tyres		
. dimensions	6.50/16	11.2/28
. ply rating	8	6
. type	implement	radial
. maximum load (tyre manufacturer's) daN	760	1094
. maximum load (tractor manufact.) daN	760	1094
. inflation pressure (tyre manufact.)kPa	275	180
. dynamic radius index .....mm	350	565
- Chosen track width .....mm	965	800
- Tyres on request	-	pr
	-	pr
	-	pr

Oils, lubrication and fuel
Capacity and change interval

	capacity dm³	oil change h	filter change h
Engine	6.7	150	300
Gear box	38	1000	1000
Front axle and final drives ...	4.6	1000	-
Rear axle and final drives	in common with gear box		
Hydraulic system	"	"	
Other (steering, etc.)	"	"	

Fuel and lubricants recommended and used in tests

Fuel
- Type: AGIP DIESEL, DIN 51601;
  (in accordance with the national standard)
- Specific gravity at 15° C: 0.828 g/cm³.

Engine oil
- Type: AGIP 15/W40 Super Diesel;
- Viscosity: 15.6 cSt;
- Classification: API SE-CD.

Transmission oil

	front axle and final drive	rear axle, final drive and gear box
-Type -Viscosity -Viscosity index -Classification	ELF BF12 10.50 cSt 146	ELF BF12 10.50 cSt 146

Hydraulic fluid
- Type: ELF BF12;
- Viscosity: 10.50 cSt;
- Classification:

Steering oil
- Type: ELF BF12;
- Viscosity: 10.50 cSt;
- Classification:

Grease
- Type:ESSO BEACON 2;
- Number of lubrication points: 15.

II - TEST RESULTS

A. COMPULSORY TESTS RESULTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

- Date and location of test: 03.04.1990 - I.S.M.A. TREVIGLIO (BG) ITALY
- Type of dynamometer: ZOELLNER 350 AC

Power	Speed		Fuel consumption			Specific Energy
	Engine	P.T.O.	Hourly	Specific		
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
MAXIMUM POWER - 2 HOUR TEST						
30.4	2345	599	8.96	7.42	244	3.39
POWER AT RATED ENGINE SPEED						
30.4	2345	599	8.96	7.42	244	3.39
STANDARD POWER TAKE-OFF SPEED (540 +/- 10 rev/min)						
29.3	2116	540	8.37	6.93	236	3.50
PART LOADS						
i) The torque corresponding to maximum power at rated engine speed						
30.4	2345	599	8.96	7.42	244	3.39
ii) 85% of torque obtained in i)						
25.2	2454	626	7.93	6.57	241	3.43
iii) 75% of torque defined in ii)						
20.5	2471	631	6.86	5.68	277	2.99
iv) 50% of torque defined in ii)						
13.7	2493	636	5.65	4.68	342	2.42
v) 25% of torque defined in ii)						
7.0	2525	645	4.60	3.81	544	1.52
vi) unloaded						
0	2551	651	3.19	2.64	-	-

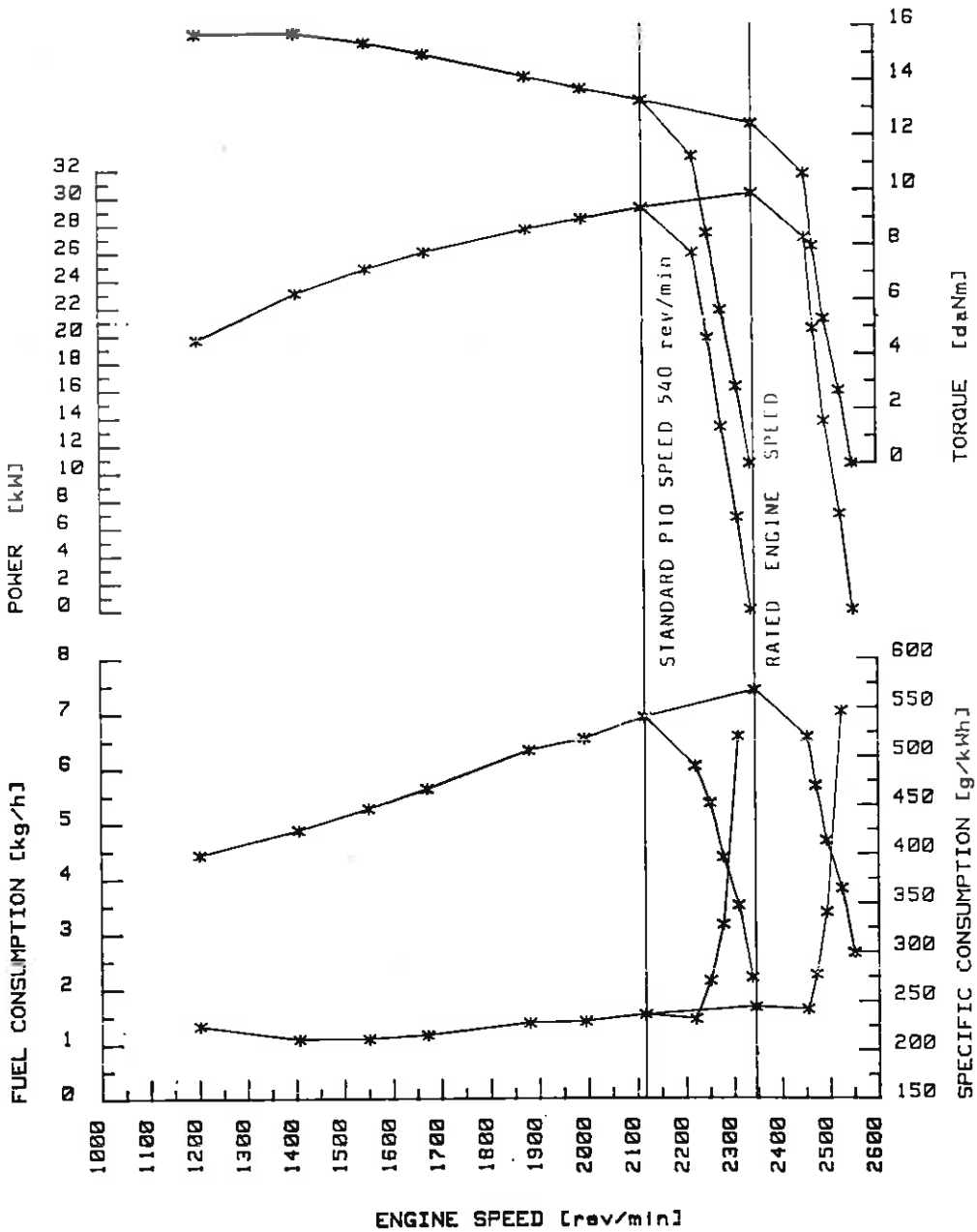
PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 rev/min)

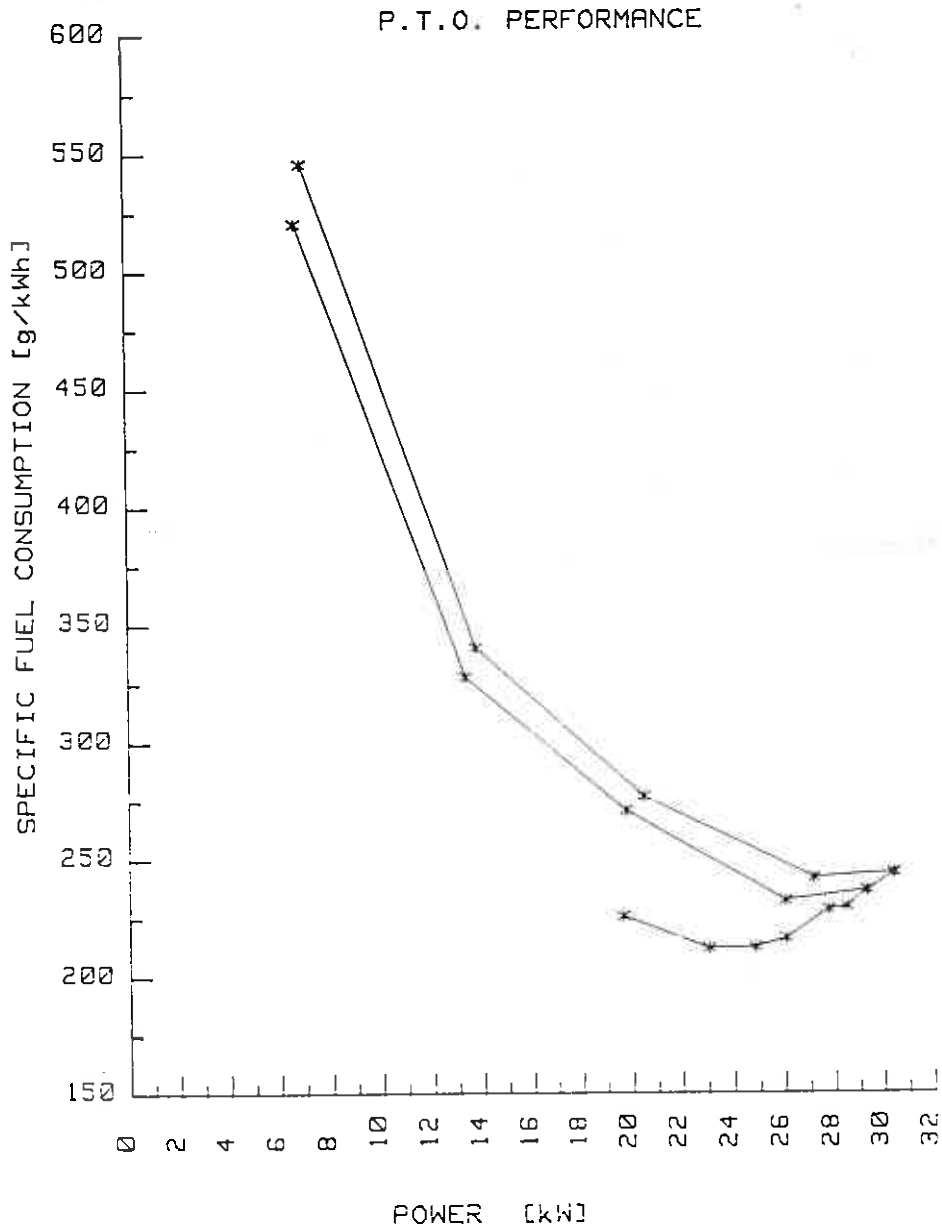
Power	Speed		Fuel consumption			Specific
	Engine	P.T.O.	Hourly		Specific	Energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
i) The torque corresponding to maximum power available						
29.3	2116	540	8.37	6.93	236	3.50
ii) 85% of torque obtained at maximum power						
26.1	2220	567	7.29	6.04	231	3.58
iii) 75% of torque defined in ii)						
19.8	2251	575	6.48	5.36	271	3.06
iv) 50% of torque defined in ii)						
13.3	2278	582	5.27	4.37	329	2.52
v) 25% of torque defined in ii)						
6.7	2310	590	4.23	3.50	523	1.58
iv) unloaded						
0	2338	597	2.66	2.20	-	-

STANDARD SPECIFIC FUEL CONSUMPTION: 241/342/231/329 g/kWh

- No load maximum engine speed: 2551 rev/min
- Torque (1) at maximum power: 12.39 daNm
- Maximum torque (1) (engine speed: 1406 rev/min) 15.67 daNm
- Mean atmospheric conditions: Temperature ..... 21 C°
  Pressure ..... 99.0 kPa
  Relat. humidity ... 84 %
- Maximum temperatures: Coolant ..... 84 C°
  Engine oil ..... 116 C°
  Fuel ..... 27 C°
  Engine air intake ..... 23 C°

(1) The torque is the equivalent crankshaft torque.


POWER [kW]
FUEL CONSUMPTION [kg/h]
TORQUE [daNm]
SPECIFIC CONSUMPTION [g/kWh]
STANDARD PTO SPEED 540 rev/min
RATED ENGINE SPEED
ENGINE SPEED [rev/min]


P.T.O. PERFORMANCE
SPECIFIC FUEL CONSUMPTION [g/kWh]
600
550
500
450
400
350
300
250
200
150
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
POWER [kW]

) POWER LIFT AND HYDRAULIC POWER TEST

- Date and location of tests: 04.04.1990 - ISMA Treviglio (BG)

2.1 POWER LIFT

		at hitch point	on the frame
leight of lower hitch point above ground in down position	mm	200	200
ertical movement	mm	550	664
laximum corrected force xerted trough full range	daN	2628	2060
orresponding pressure of ydraulic fluid	MPa	18.0	18.0
loment about rear axle	daNm	2344	3094
laximum tilt angle of mast ver range of lift	degress	--	6

ifting heights relative to the horizontal lower links

m	-200	-173	-100	0	100	200	300	377	400	446	500
ifting forces at hitch points											
aN	---	2753	2766	2760	2730	2649	2630	2628	---	---	---
ifting forces at test frame											
aN	---	2688	2600	2550	2354	2256	2109	---	2075	2060	---

.2) HYDRAULIC POWER TEST

ustained pressure with relief valve open: 18.0 MPa;
ump delivery rate at min pressure: 39.7 l/min;

ydraulic power	kW	flow rate l/min	pressure MPa	oil temp. °C
t 90% of the actual relief alve setting	8.7	33.3	16.0	65
aximum	9.5	37.7	15.5	65

opening pressure of the relief valve: 16.0 MPa

apping point used for test : at rear of tractor;
ydraulic fluid: see page 18.

3) DRAWBAR PERFORMANCE

- Date of test: 12.04.1990
- Type of track: concrete
- Type and size of tyres front: 6.50/16 - 8 ply
  rear : 11.2/28 - 6 ply

Height of drawbar above ground: 395 mm (unballasted)

Tyre inflation pressure: unballasted .front: 275 kPa .rear: 180 kPa

3.1) MAXIMUM POWER IN TESTED GEARS (unballasted tractor)

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of whell	Specific ener.cons.	Specific fuel cons.	Temperatures			Atm. cond.	
								cool.eng.		temp.	hum.	pres
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	%	kPa
1S	1.6	1452	0.4	2517	15	0.334	2500	21	53	91	23	73 100.4
2S	2.4	1466	0.6	2516	15	0.490	1709	22	53	91	23	73 100.1
3S	3.7	1472	0.9	2507	15	0.711	1163	22	54	93	23	73 100.1
4S	4.8	1452	1.2	2503	15	0.828	1000	24	53	94	25	72 100.2
1N	7.3	1455	1.8	2484	15	1.141	726	24	52	94	25	73 100.1
2N	10.7	1432	2.7	2482	15	1.551	533	24	52	93	25	72 100.3
3N	16.0	1478	3.9	2454	15	1.905	437	23	53	93	26	72 100.3
4N	20.8	1390	5.4	2351	13	2.286	361	23	53	92	26	70 100.2
1F	22.0	943	8.4	2347	5	2.445	337	24	53	93	25	70 99.8
2F	19.2	541	12.8	2351	2	2.110	391	24	53	93	26	71 100.0

4) TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of wheel	Specific ener.cons.	fuel	Temperatures cool.	eng.	temp.	Atm. cond hum.	pres
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	KPa
4.1) Selected gear at maximum power													
1F	22.0	943	8.4	2347	5	2.445	337	24	53	93	25	70	99.8
4.1.1) 75% of pull at maximum power at rated speed													
1F	17.5	708	8.9	2449	3	2.160	383	22	52	91	26	71	99.9
4.1.2) 50% of pull at maximum power at rated speed													
1F	12.1	472	9.2	2473	1	1.729	479	23	54	92	25	71	100.0
4.1.3) next higher gear giving the same pull as in 4.1.1 red. eng. speed													
2F	17.5	710	8.9	1645	3	2.500	331	22	54	93	25	70	100.2
4.1.4) next higher gear giving the same pull as in 4.1.2. red. eng. speed													
2F	12.1	475	9.2	1660	1	2.086	397	24	52	92	25	70	100.1

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of wheel	Specific ener.cons.	fuel	Temperatures cool.	eng.	Atm. cond temp.	hum.	pres
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	KP

4.2) Selected gear nearest to 7.5 Km/h

4N	20.8	1390	5.4	2351	13	2.286	361	23	53	92	26	70	100.2

4.2.1) 75% of pull at maximum power at rated speed

4N	17.7	1044	6.1	2455	6	2.240	367	23	52	93	25	73	100.4

4.2.2) 50% of pull at maximum power at rated speed

4N	12.2	695	6.3	2470	3	1.794	459	24	54	92	25	73	100.2

4.2.3) next higher gear giving the same pull as in 4.2.1 red. eng. speed

1F	17.7	1044	6.1	1748	6	2.682	311	23	53	93	26	73	99.8

4.2.4) next higher gear giving the same pull as in 4.2.2 red. eng. speed

1F	12.1	690	6.3	1736	3	2.123	388	23	52	92	25	73	99.9

REPAIRS AND REMARKS: none.

TEST CARRIED OUT BY
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