OECD Approval No. : 2/2 267
Date of approval : 2nd September, 2005

Report on test in accordance with
OECD STANDARD CODE 2
for the Official Testing of Agricultural and Forestry Tractors



Agricultural Tractor

JOHN DEERE 5203 (2 WD) TRACTOR

PY 5203 U – 30 km/h

Manufactured by	:	**M/s John Deere Equipment Private Limited, Gat # 166 – 167 and 271 – 291, Off Pune – Nagar Road, Taluk – Shirur, Sanaswadi, Pune- 412 208, INDIA**
Submitted for test by	:	**The manufacturer**
Report No.	:	**T- 536/1023/12/OECD**
Date	:	**November, 2005**

GOVERNMENT OF INDIA
Ministry of Agriculture, (Deptt. of Agriculture and Co-opn.)
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This is a report on a tractor test in accordance with **OECD STANDARD CODE 2** for the Official Testing of Agricultural and Forestry Tractors.

It does not contain an evaluation of the tractor on practical work.

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In this report units of all performance characteristics are given corresponding to the international system of units.

The relationship to the Technical System of Units is given by the following conversions:								
Force	1	kN	=	1000	N	=	102	Kgf
Powers	1	kW		1000	W	=	1, 36	Ps
Pressures	1	Mpa	=	10	bar	=	10, 2	Kgf/cm²
	100	kPa	=	1000	mbar	=	750, 1	mm of Hg

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Statement

The information opposite each item in the specification portion of this report has been validated by the Testing Station. An item marked [C] indicates to the test report user that the information declared by the manufacturer has been checked whereas an item marked [D] indicates that the manufacturer's declaration has been endorsed.

[C]	Tractor manufacturer's name and address	:	M/s John Deere Equipment Private Limited, Gat # 166 to 167 and 271 to 291, Off Pune-Nagar Road, Sanaswadi, Taluk – Shirur, PUNE- 412 208, INDIA
[D]	Location of tractor assembly	:	Gat # 166 to 167 and 271 to 291, Off Pune-Nagar Road, Sanaswadi, Taluk – Shirur, PUNE- 412 208, INDIA
[D]	Submitted for test by	:	The manufacturer
[C]	Selected for test by	:	The manufacturer
[D]	Place of running-in	:	Gat # 166 – 167 and 271 – 291 Sanaswadi, Pune- 412 208, INDIA
[D]	Duration of running-in	:	30 hours
[C]	Location of test	:	Government of India, Central Farm Machinery Training and Testing Institute, P.O.- Tractor Nagar, BUDNI – 466445 (M.P.), INDIA

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1

[C]	Make of tractor	:	John Deere
[C]	Model (trade name)	:	John Deere 5203
[C]	Type	:	2WD, Agricultural tractor

1.1.2 Numbers:

[D]	1st Serial No. or prototype	:	PY 5203 U 000 001
[C]	Serial No.	:	PY 5203 U 002 003

1.1.3 Other specification (if applicable):

[D]	Model(s) for other countries	:	**None**
[C]	Transmission type or gear ranges	:	9-Speed, mechanical, constant mesh, collar shift
[C]	Speed version	:	30 km/h
[D]	Manufacturer identification or Technical type no.	:	PY 5203 U

1.2 Engine:

[C]	Make	:	John Deere
[C]	Model	:	3029 DPY 13
[C]	Type	:	Four stroke, water cooled, direct injection diesel engine
[C]	Serial No.	:	PY 3029 D 118586

1.2.1	**Cylinders:**		
[C]	Number and disposition	:	Three, vertical, in-line
[D]	Bore/Stroke	:	106.5mm/110 mm
[D]	Capacity	:	2900 cm^3
[D]	Compression ratio	:	17.8:1
[D]	Arrangement of valves	:	Over head
[D]	Cylinder liners	:	Wet
1.2.2	**Supercharging:**		**Not Provided**
1.2.3	**Fuel system:**		
[C]	Fuel feed system	:	Vane type pump
	Filter(s):		
[C]	Make	:	John Deere
[C]	Model	:	RE 62418
[C]	Type	:	Paper element filter
[C]	Number	:	One
[D]	**Capacity of fuel tank**	:	68 dm^3
	Injection pump:		
[C]	Make	:	Stanadyne
[C]	Model	:	E4 DB4 327-5915
[C]	Type	:	Rotary
[C]	Serial Number	:	10799495
	Manufacturer's production setting of injection pump:		
[D]	Flow rate (rated engine speed & full load)	:	12.42 dm^3/h
[D]	Timing	:	14.5±1 degree before TDC (dynamic)
	Injectors:		
[D]	Make	:	Stanadyne
[D]	Model	:	RE 50833
[D]	Type	:	Pencil
[D]	Injection pressure	:	23.79 to 24.48 MPa
1.2.4	**Governor:**		
[D]	Make	:	Stanadyne
[D]	Model	:	D4 DB4 327-5915
[D]	Type	:	All speed type
[D]	Governed range of engine speed	:	800 - 2650 rev/min.
[C]	Rated engine speed	:	2400 rev/min.

1.2.5 Air cleaner:

Pre-cleaner:

[C]	Make	:	Donaldson
[C]	Model	:	Not declared
[C]	Type	:	Cyclone type, integrated with main air cleaner.
[C]	Location of air intake	:	Forward of radiator, under the bonnet

Main cleaner:

[C]	Make	:	Donaldson
[C]	Model	:	Not declared
[C]	Type	:	Dry paper element with addition safety cartridge
[C]	Maintenance indicator	:	Warning light on dash board

1.2.6 Lubricating System:

[D]	Type of feed pump	:	Gear pump
[C]	Type of filter(s)	:	Full flow, replaceable cartridge
[C]	Number of filter(s)	:	One

1.2.7 Cooling System:

[C]	Type of coolant	:	Water- antifreeze mixture
[D]	Type of pump	:	Centrifugal pump

Specification of fan:

[C]	Number of fan blades	:	7
[C]	Fan diameter	:	405mm
[D]	Total coolant capacity	:	9.5 dm^3
[C]	Type of temperature control	:	Thermostat
[D]	Superpressure system	:	98 kPa

1.2.8 Starting system:

[C]	Make	:	BOSCH
[C]	Model	:	000 1223
[C]	Type	:	Electrical, solenoid operated
[D]	Starter motor power rating	:	2.5 kW
[C]	Cold starting aid	:	None
[C]	Safety device	:	Starting inoperable unless main gear shifting lever is in neutral position.

1.2.9 Electrical System:

[C]	Voltage	:	12 V

Generator:

[C]	Make	:	Denso
[C]	Model	:	RE 72915
[C]	Type	:	Alternator
[D]	Power	:	0.48 kW

Battery:

[C]	Number	:	One
[D]	Rating	:	80 Ah at 20 hours discharge rate

1.2.10 Exhaust System:

[D]	Make	:	JD
[C]	Model	:	None
[C]	Type	:	Expansion chamber
[C]	Location	:	On LHS of engine

1.3 Transmission:

1.3.1 Clutch (Travel and power take off):

[D]	Make	:	LUK India
[D]	Model	:	Not declared
[D]	Type	:	Dry
[D]	Number of plate (s)	:	Two
[D]	Diameter of plate (s)	:	280mm
[C]	Method of operation:		
	- Travel	:	By a pedal on LHS
	- PTO	:	By a hand lever on LHS of driver's seat

1.3.2 Gear Box:

[D]	Make	:	John Deere
[D]	Model	:	S Transmission
[D]	Type	:	Constant mesh, collar shift

Description:

		Forward	Reverse
[C]	Number of gears	3	1
[C]	Number of ranges	3 (A, B, C)	3 (A, B, C)
[C]	Total of arrangements	9	3

[D]	Available options	:	None

1.3.3 Rear axle and final drives:

[D]	Make	:	John Deere
[D]	Model	:	Not declared
[D]	Type	:	Bevel gear drive with bevel gear differential and planetary final drives.

Differential lock:

[D]	Type	:	Dog clutch
[C]	Method of engagement	:	By depressing a pedal on RHS
[C]	Method of disengagement	:	By releasing the above pedal

1.3.4 Front axle and final drives:

[D]	Make	:	John Deere
[D]	Model	:	**Not declared**
[D]	Type	:	3 piece
	Differential lock	:	**Not applicable**

1.3.5 Total ratios and traveling speeds:

	Movement	GEAR	RANGE	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed of 2400 rev/min, (km/h)
	1	2	3	4	5
[C]	Forward	1	A	271.3	2.13
[C]		2	A	187.9	3.08
[C]		3	A	124.9	4.64
[C]		1	B	96.7	5.99
[C]		2	B	67.1	8.63
[C]		3	B	44.6	12.99
[C]		1	C	41.8	13.86
[C]		2	C	29.0	20.00
[C]		3	C	19.3	30.07
[C]	Reverse	-	A	161.3	3.59
[C]		-	B	57.6	10.05
[C]		-	C	24.9	23.30
Calculated with a tyre dynamic radius index of 640mm (ISO 4251-1-1998)					

1.4 Power take-off:

1.4.1. Main Power Take-Off:

[C]	Type	:	Independent
[C]	Method of engagement	:	Mechanical, by a hand lever
[C]	Number of shafts	:	One
[C]	Method of changing power take-off shaft ends and speeds	:	None

1.4.1.1 Power take-off proportional to engine speed:

Power take-off at 540 (rev/min):

[C]	- Location	:	At rear of tractor
[C]	- Diameter of power take-off shaft end	:	34.73mm
[C]	- Number of splines		6
[C]	- Height above ground	:	630 mm
[C]	- Distance from the median plane of the tractor	:	0 mm
[C]	- Distance behind rear wheel axis	:	425 mm
[C]	- PTO speed at rated engine speed	:	545 rev/min.
[C]	- Engine speed at standard power take-off speed	:	2376 rev/min.
[C]	Ratio of rotation speeds (Engine speed/ PTO speed	:	4.4:1
[D]	Power restriction	:	None
[D]	Maximum torque transmissible	:	980 Nm
[C]	Direction of rotation (viewed from rear of tractor)	:	Clockwise

1.4.1.2	**Power take-off proportional to ground speed**	:	**Not applicable**
1.4.2	**Optional power take-off**	:	**None**
1.5	**Hydraulic power-lift:**		
[D]	Make	:	Mita Herig
[C]	Model	:	**None**
[C]	Type of hydraulic system	:	Open centre
[C]	Type and number of cylinders	:	Single acting, one
[C]	Type of linkage lock for transport	:	Hydraulic, locking of valve lever
[D]	Relief valve pressure setting (tolerance)	:	19.5±0.3 MPa
[D]	Opening pressure of cylinder safety valve	:	23.5±0.5 MPa
[D]	Lift pump type	:	Gear type
[D]	Transmission between pump and engine	:	Gear drive
[D]	Number and Type of filters	:	One, spin-on cartridge
[C]	Site of oil reservoir	:	Transmission housing

Type, number and location of tapping points:

[C]	- Type	:	Quick coupling
[C]	- Number	:	One
[C]	- Location	:	Behind the operator's seat
[D]	- Maximum volume of oil available to external cylinders	:	38 dm^3

1.6 Three point linkage:

[C] Category : 2 (Not in conformity of ISO 730-1:1994 + corr.1: 1995 and ISO 730-2:1979)

[C] Category adapter : None

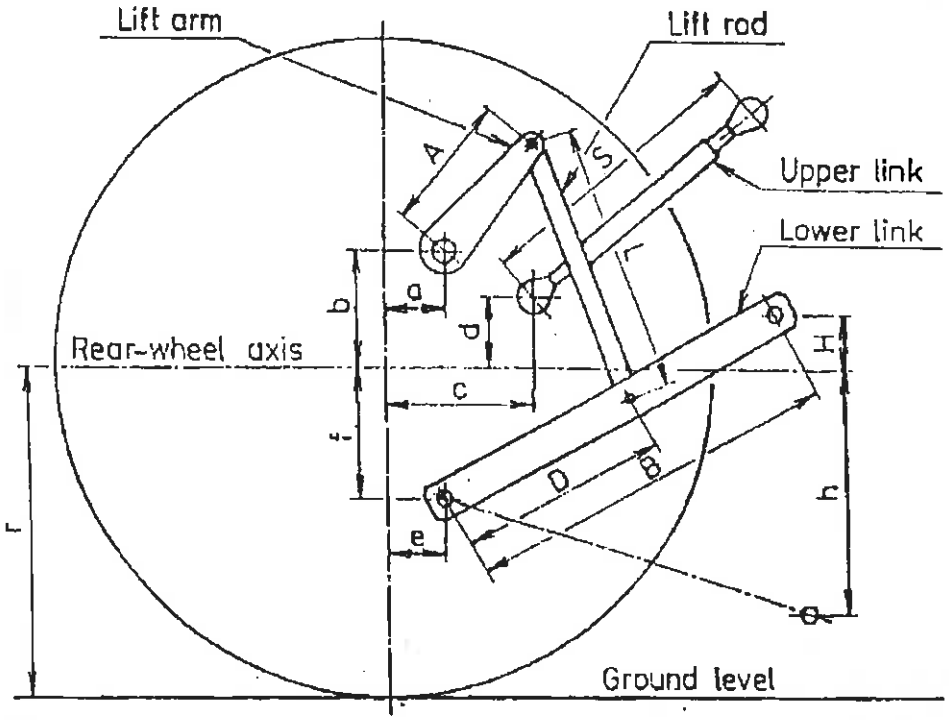


Fig. 1 .1

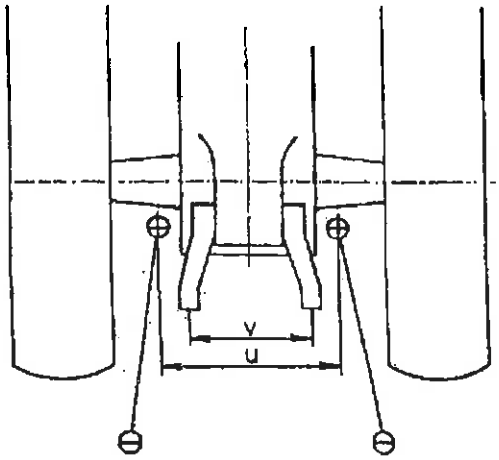


Fig. 1.2

Table: Linkage Geometry dimensions (Ref. Fig. 1.1 and 1.2):

			Dimension or range, mm	Settings used during test, mm
[C]	Length of lift arms:	(A)	280	280
[C]	Length of lower links:	(B)	815	815
	Distance of lift arm pivot point from rear-wheel axis:			
[C]	- Horizontally	(a)	175	175
[C]	- Vertically	(b)	300	300
[C]	Horizontal distance between the 2 lower link points:	(u)	400	400
[C]	Horizontal distance between the 2 lift arm end points:	(v)	525	525
[C]	Length of upper link:	(S)	500 to 700	560
	Distance of upper link pivot point from rear wheel axis:			
[C]	- Horizontally	(c)	405, 410, 415	410
[C]	- Vertically	(d)	335, 300, 265	300
	Distance of lower link pivot point from rear wheel axis:			
[C]	- Horizontally	(e)	150	150
[C]	- Vertically	(f)	175	175
[C]	Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	410	410
[C]	Length of lift rods:	(L)	From 485 to 575	505
	Height of lower hitch points relative to the rear-wheel axis:			
[C]	- in low position	(h)	From -600 to -400	-440
[C]	- in high position	(H)	From 100 to 280	240
[C]	Height above ground of lower hitch points when locked in transport position (*)	-	Any height within lift range	

(*) Assuming r=640mm, tyre dynamic radius index of ISO:4251-1:1998

1.7	**Swinging drawbar:**		
[C]	- Type	:	Hole
[C]	- Height above ground	:	405 mm
[C]	- Type of adjustment	:	Fixed
[C]	- Distance of hitch point from rear wheel axis, horizontally	:	805, 765, 595 mm
	Distance of hitch point from power take-off shaft end:		
[C]	- Vertically	:	225 mm
[C]	- Horizontally	:	380,340, 170 mm
	Lateral adjustment (centre of clevis):		
[C]	- Right hand	:	245 mm
[C]	- Left hand	:	245 mm
[C]	- Distance of pivot point from rear-wheel axis, horizontally	:	350 mm
[C]	- Diameter of drawbar pinhole	:	33 mm
[D]	- Maximum vertical permissible load	:	10.98 kN at short position and 7.45kN at fully extended position.
1.8	**Trailer hitch**	:	**Not provided**
1.9	**Holed drawbar**	:	**Not provided**
1.10	**Steering:**		
[D]	Make	:	Danfoss
[D]	Model	:	**Not declared**
[D]	Type	:	Open centre
[D]	Method of operation	:	Hydrostatic
[D]	Pump(s)	:	Gear
[D]	Ram(s)	:	Double acting
[D]	Working pressure	:	13.0 MPa
1.11	**Brakes:**		
1.11.1	**Service brake:**		
[D]	Make	:	John Deere
[D]	Model	:	**None**
[D]	Type	:	Wet disc
[C]	Method of operation	:	Hydraulic, Independent or coupled pedal operation.
[C]	Trailer braking take-off	:	**None**
1.11.2	**Parking brake:**		
[C]	Type	:	Park pawl, in transmission
[C]	Method of operation	:	By shifting speed shift lever in 'PARK' position.
1.12	**Wheels:**		
	Number		
[C]	Front	:	Two, (steering)
[C]	Rear	:	Two, (driving)
[C]	Wheel base	:	2065 mm

Track width adjustment:

		Minimum [mm]	Maximum [mm]	Adjustment method
[C]	Front	1430	2090	Front axle is extendable
[C]	Rear	1305	1835	Reversing wheels and offset lug rims

1.13 Protective structure:

[D]	Make	:	John Deere
[D]	Model	:	RE 179676
[D]	Type	:	Foldable
[D]	Manufacturer's name & address	:	Industrials JOHN DEERE S.A.DEC.V Blud. Diaz ordaz # 500 Garza Garcia, NL Mexico 66210
	Protective device		
[D]	- Cab/frame/roll guard/other	:	Roll guard
[D]	- Tiltable/not Tiltable	:	Tiltable
	OECD approval:		
[D]	- Approval Number	:	**None**
[D]	- Date of approval	:	**Not applicable**
[D]	Nos. of minor modification certificates, if any	:	**Not applicable**

1.14 Seat:

1.14.1 Driver's seat:

[C]	Make	:	**Not specified**
[C]	Model	:	**Not specified**
[C]	Type	:	Cushioned
[C]	Seat and steering wheel reversible	:	No
[C]	Type of suspension	:	Helical coil spring
[C]	Type of damping	:	Hydraulic shock absorber
	Range of adjustment:		
[C]	Longitudinally	:	±75 mm
[C]	Vertically	:	NIL
[C]	Safety belt	:	provided

1.14.2 Optional driver's seat(s) : **Not provided**

1.14.3 Passenger seat : **Not provided**

1.15 Lighting:

		Height above ground of centre	Size	Distance from outside edge of lights to median plane of tractor
		[mm]	[mm]	[mm]
[C]	Head lights	1215	160 x 100	221
[C]	Side lights	1770	140 x 90	558
[C]	Rear lights	1650	165 x 70	564
[C]	Reflectors	1520	75 x 25	528

2. TEST CONDITIONS

2.1 Overall dimensions (unballasted tractor)

Length	Width		Height at top of	
	Minimum	Maximum	Protective structure	Exhaust pipe
[mm]	[mm]	[mm]	[mm]	[mm]
3500	1695	2225	2422	2280

2.2 Ground clearance (unballasted tractor) : 350 mm

Clearance – limiting part : Swinging drawbar mounting bracket

2.3 Tractor Mass

	Unballasted	
	Without driver	With driver
	[kg]	[kg]
Front	805	810
Rear	1335	1405
Total	2140	2215

2.4 Tyres and track width specifications:

Tyres		Front	Rear
- Dimensions		7.50-16	14.9-28
- Ply rating		6 PR	8 PR
- Type		Pneumatic Diagonal	Pneumatic Diagonal
- Maximum load (tyre manufacturer's)	kN	7.4	15.8
- Maximum load (tractor manufacturer's)	kN	7.4	15.8
- Inflation pressure (tyre manufacturer's)	kPa	280	140
- Dynamic radius index	mm	384	640
Chosen track width	mm	1435	1420

2.5 Fuel:

Type : High speed diesel conforming to IS: 1460-2000

Density at 15 °C : 0.841 g/cm^3

2.6 Oils and lubrication:

2.6.1 Capacity and change interval:

	Capacity, (dm^3)	Oil change, (h)	Filter change, (h)
Air cleaner	N.A.	N.A.	Once in a year
Engine oil sump	8.5	First change after 100 hours of operation and subsequently after 250 hours of operation	First change after 100 hours of operation and subsequently after 250 hours of operation.
Gear box, steering service brake and rear axle	36.0	1000	--
Hydraulic	In common with gear box		First change after 100 hours of operation and subsequently after 250 hours of operation.

2.6.2 Specifications:

	Recommended	Used during test
Engine oil:		
Type	SAE 15 W - 40	As recommended
Viscosity	12.5 to 16.3 cSt @ 100°C	
Classification	API CF4	

Transmission, Hydraulic fluid, Steering oil, Service brake and Rear axle:		
Type	JDM J 20C	As recommended
Viscosity	23 Cst at 65°C	
Classification	--	

2.6.3 Grease:

Number of lubricating points:
Grease nipples : 12
Grease cups : Nil

3 COMPULSORY TESTS RESULTS

3.1 Main power take-off:

Date and location of tests : 22.02.2005, C.F.M.T. & T.I., Budni (M.P.) India
Type of dynamometer bench : Fuchino, Eddy current

Power, (kW)	Speed			Fuel consumption			Specific Energy, (kWh/l)
	Engine	PTO	Fan	Hourly		Specific	
	(rev/min)			(l/h)	(kg/h)	(g/kWh)	
1	2	3	4	5	6	7	8
3.1.1 Maximum Power – Two-Hour Test:							
37.9	2376	540	2418	11.76	9.89	261	3.22
3.1.2 Power at Rated Engine Speed (2400 rev/min) :							
37.7	2400	545	2446	11.82	9.94	264	3.19
3.1.3 Standard Power Take-Off Speed [540 ± 10 (rev/min)] :							
37.9	2376	540	2418	11.76	9.89	261	3.22
3.1.4 Part Loads:							
3.1.4.1 The torque corresponding to maximum power at rated engine speed :							
37.7	2400	545	2446	11.82	9.94	264	3.19
3.1.4.2 85 % of torque obtained in 3.1.4.1 :							
33.5	2512	571	2562	10.77	9.06	270	3.11
3.1.4.3 75 % of torque defined in 3.1.4.2 :							
25.5	2548	579	2599	8.81	7.41	291	2.89

1	2	3	4	5	6	7	8
3.1.4.4	**50 % of torque defined in 3.1.4.2 :**						
17.2	2565	583	2616	7.13	6.00	349	2.41
3.1.4.5	**25 % of torque defined in 3.1.4.2 :**						
8.6	2587	588	2639	4.88	4.10	477	1.76
3.1.4.6	**Unloaded :**						
0.9	2596	590	2648	3.47	2.92	3244	0.26
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 :**						
37.9	2376	540	2418	11.76	9.89	261	3.22
3.1.5.2	**85 % of torque obtained in 3.1.5.1 :**						
32.8	2420	550	2468	10.31	8.67	264	3.18
3.1.5.3	**75 % of torque defined in 3.1.5.2 :**						
25.0	2451	557	2500	8.44	7.10	284	2.96
3.1.5.4	**50 % of torque defined in 3.1.5.2 :**						
16.8	2473	562	2522	6.68	5.62	335	2.51
3.1.5.5	**25 % of torque defined in 3.1.5.2 :**						
8.5	2499	568	2549	4.64	3.90	459	1.83
3.1.5.6	**Unloaded :**						
0.9	2512	571	2562	3.28	2.76	3067	0.27
3.1.6	**PART LOADS AT DIFFERENT ENGINE SPEEDS**						
3.1.6.1	**maximum power at rated engine speed :**						
37.7	2400	545	2446	11.82	9.94	264	3.19
3.1.6.2	**80% of power obtained in 3.1.6.1 at max. speed setting :**						
30.2	2521	573	2571	9.88	8.31	275	3.06
3.1.6.3	**80% of power obtained in 3.6.1.1 with governor control set to 90% of rated engine speed :**						
30.1	2160	491	2203	8.92	7.50	249	3.37
3.1.6.4	**40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed :**						
15.0	2160	491	2203	5.33	4.48	299	2.81
3.1.6.5	**60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed :**						
22.6	1439	327	1468	6.23	5.24	232	3.63
3.1.6.6	**40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed :**						
15.0	1439	327	1468	4.32	3.63	242	3.47

No load maximum engine speed : 2596 rev/min

Torque (equivalent crankshaft) at maximum power:

-At rated engine speed : 150.0 Nm
-At 2 - hour test : 152.3 Nm

Maximum torque (equivalent crankshaft) : 187.7 Nm
(Engine speed : 1298 (rev/min)

Mean atmospheric conditions:
-Temperature : 25°C

-Pressure : 98.6 kPa

-Relative humidity : 49%

Maximum temperatures:

-Coolant : 91°C

-Engine oil : 102°C

-Fuel : 31°C

-Engine air intake : 20°C

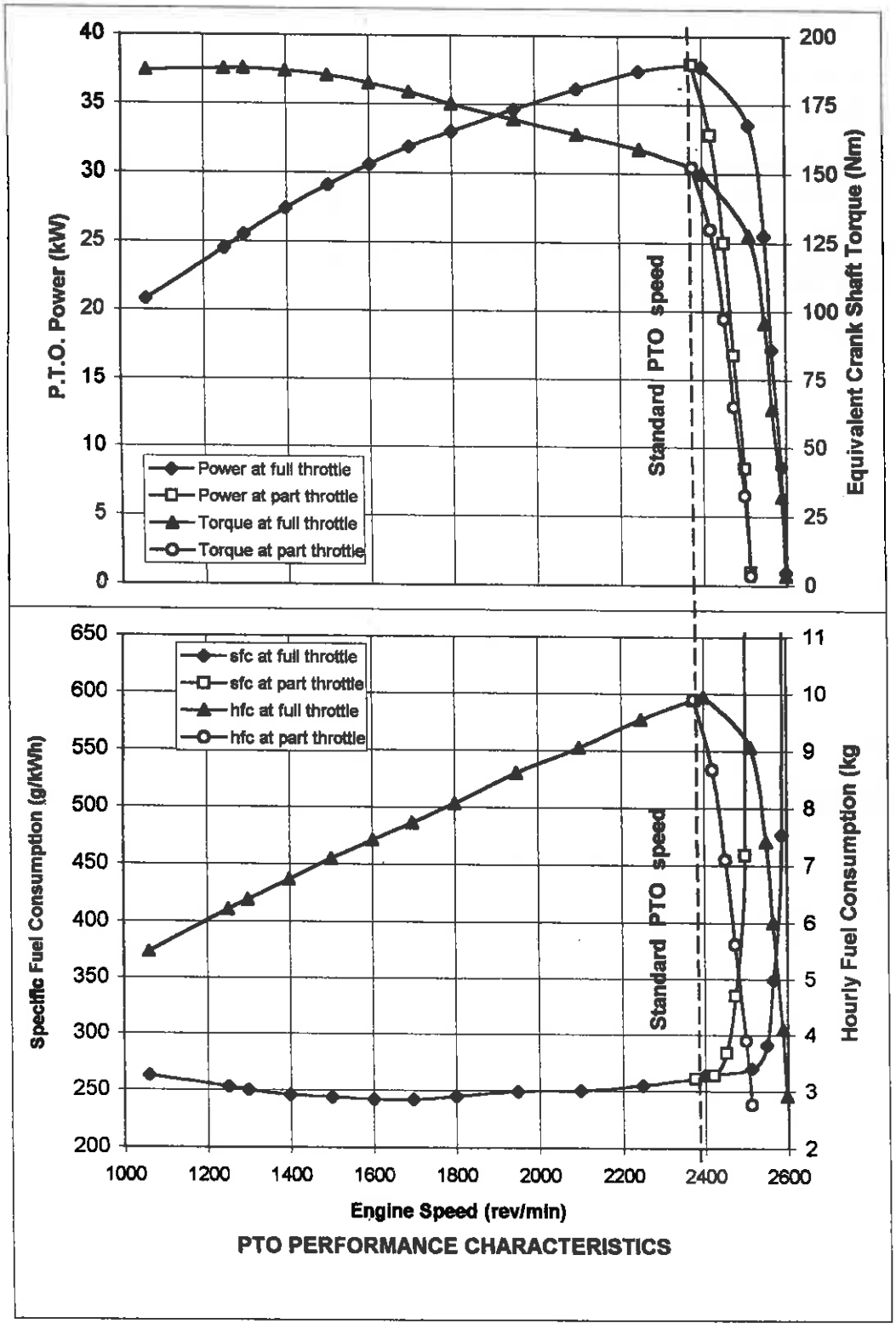
3.2 Hydraulic power and lifting force:
Date of tests : 18.03.2005 and 07.04.2005

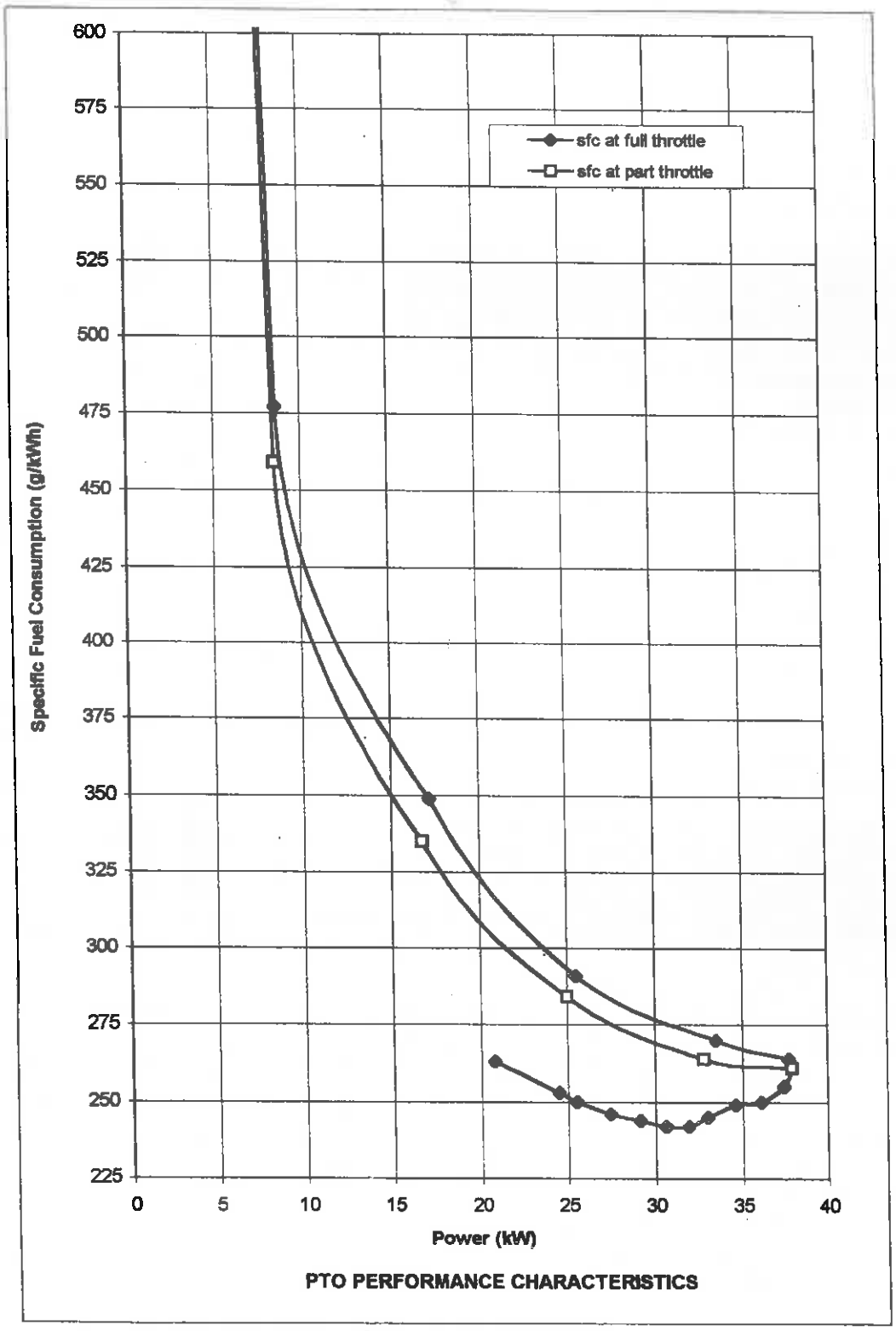
3.2.1 Hydraulic Power Test:

3.2.1.1 Hydraulic Fluid Data:
- Hydraulic fluid type : JDM J 20C

- Viscosity index : Not specified

- Viscosity at 65 °C : 23 Cst


P.T.O. Power (kW)
Equivalent Crank Shaft Torque (Nm)
Standard PTO speed
Power at full throttle
Power at part throttle
Torque at full throttle
Torque at part throttle
Specific Fuel Consumption (g/kWh)
Hourly Fuel Consumption (kg
sfc at full throttle
sfc at part throttle
hfc at full throttle
hfc at part throttle
Engine Speed (rev/min)
PTO PERFORMANCE CHARACTERISTICS


sfc at full throttle
sfc at part throttle
Specific Fuel Consumption (g/kWh)
600
575
550
525
500
475
450
425
400
375
350
325
300
275
250
225
0
5
10
15
20
25
30
35
40
Power (kW)
PTO PERFORMANCE CHARACTERISTICS

3.2.1.2 Compulsory Reporting (Test Results):

		Press-ure, MPa	Reservoir oil Temp. °C		Engine speed, rev/min	Flow rate, l/min	Power, kW
			Min	Max.			
1	2	3	4	5	6	7	8
1	Rated Engine speed (Manufacturer's specification)	--	--	--	2400	--	--
2.	Maximum (sustained) pressure with relief valve open as measured at the coupler. Pump stalled- No	17.9	60	66	2548	0.0	0.0
3.	Flow rate corres-ponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power.	16.1	66		2548	43.50	11.7
4.	Maximum available flow and maximum power from one coupler pair	16.2	63		2548	43.4	11.7
5.	Maximum available flow and maximum power from coupler pairs operating simultaneously (flow through two or in over coupler pair if required)	**Not applicable**	**Not applicable**		**Not applicable**	**Not applicable**	**Not applicable**

3.2.2 Power Lift Test:

- Linkage settings for test - **See Table at Page 8, and Fig. 1.1 & 1.2**

	At hitch point	On the frame
Height of lower hitch points above ground in down position	200mm	200mm
Vertical movement: - Without lifting force - With lifting force	 660mm 610mm	 660mm 615mm
Maximum corrected force exerted through full range	16.6 kN	13.2 kN
Corresponding pressure of hydraulic fluid	16.1 MPa	16.1 MPa
Moment about rear wheel axle	16.0 kN-m	20.8 kN-m
Maximum tilt angle of mast from vertical	--	10.7 degree

Lifting height relative to the horizontal plane including the lower link pivot points.												
mm	-260	-200	-100	0	+100	+200	+300	+325	+340	+345	+350	+355
Lifting forces (the values of the force measured have been corrected to correspond to a hydraulic pressure equivalent to 90% of actual relief valve pressure setting of the hydraulic lift system.)												
At the hitch point in (kN)	16.6	18.4	19.3	20.0	20.4	21.3	21.5	--	21.9	22.2	20.8	--
Corresponding pressure **16.1** MPa												
At the frame in (kN)	19.1	19.3	19.0	18.0	17.0	16.0	14.3	13.7	--	--	13.4	13.2
Corresponding pressure **16.1** MPa												

3.3 Drawbar power test (unballasted tractor):

Date(s) of tests : 14.03.2005 and 15.03.2005
Type of track : Concrete
Rolling radius of rear tyres : 650.6mm

Height of drawbar above ground, (mm)	Tyre inflation pressure	
	Front	Rear
	kPa	kPa
550	196.1	88.3

DRAWBAR TEST RESULTS

Gear Number, Group & Range	Draw-bar power, kW	Draw-bar pull, kN	Speed, km/h	Engine speed, rev/ min	Fan speed rev/ min	Slip of wheels (%)	Specific fuel cons-umpt-ion, g/kWh	Specific Energy, kWh/l	Temperature, (°C)			Atmospheric conditions		
									Fuel	Cool-ant	Eng-ine oil	Temp °C	R.H. %	Pres-sure kPa
3.3.1	**Maximum power in tested gears (unballasted tractor):**													
1A	9.0	16.2	1.98	2569	2620	14.7	508	1.66	42	90	97	33	31	97.2
2A	12.7	15.9	2.89	2565	2616	13.7	422	2.00	42	92	97	32	30	97.2
3A	19.1	16.1	4.26	2528	2579	14.3	384	2.19	41	94	94	32	28	97.3
1B	24.7	16.3	5.46	2506	2454	14.2	343	2.45	40	95	94	30	36	97.3
2B	30.6	13.7	8.05	2405	2453	8.5	301	2.79	41	95	98	32	39	97.5
3.3.2	**Fuel Consumption:**													
3.3.2.1	In selected gear at maximum power at rated engine speed:													
2B	30.6	13.7	8.05	2405	2453	8.5	301	2.79	41	95	98	32	39	97.5
3.3.2.1.1	75% of pull corresponding to maximum power at rated engine speed:													
2B	24.8	10.3	8.68	2517	2567	5.8	307	2.74	42	94	99	32	37	97.5
3.3.2.1.2	50% of pull corresponding to maximum power at rated engine speed													
2B	17.5	7.1	8.93	2537	2558	3.7	348	2.42	42	93	97	32	37	97.4
3.3.2.1.3	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.1.1													
*3B	24.9	10.4	8.66	1671	1704	5.8	262	3.21	43	95	96	32	35	97.4
3.3.2.1.4	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.1.2													
3B	17.6	7.1	8.89	1678	1712	3.8	258	3.26	43	93	95	32	35	97.4
3.3.2.2	In selected gear nearest to 7.5 km/h at rated engine speed:													
2B	30.6	13.7	8.05	2405	2453	8.5	301	2.79	41	95	98	32	39	97.5
3.3.2.2.1	75% of pull corresponding to maximum power at rated engine speed:													
2B	24.8	10.3	8.68	2517	2567	5.8	307	2.74	42	94	99	32	37	97.5
3.3.2.2.2	50% of pull corresponding to maximum power at rated engine speed:													
2B	17.5	7.1	8.93	2537	2588	3.7	348	2.42	42	93	97	32	37	97.4
3.3.2.2.3	Next higher gear at reduced engine speed : Same pull and traveling speed as in 3.3.2.2.1													
3B	24.9	10.4	8.66	1671	1704	5.8	262	3.21	43	95	96	32	35	97.4
3.3.2.2.4	Next higher gear at reduced engine speed : Same pull and traveling speed as in 3.3.2.2.2													
3B	17.6	7.1	8.89	1678	1712	3.8	258	3.26	43	93	95	32	35	97.4

*Maximum power in the gear '3B' was not measured because forward speed in this gear exceeded the safe limit of testing equipment. It was, however, possible to operate the tractor in the condition as given in 3.3.2.1 and 3.3.2.1.4.

4. MEASUREMENT OF EXTERNAL NOISE (Optional test)

Date of test	:	28.04.2005
Make and Model of sound level meter	:	CYGNET- 2021
Type of track	:	Concrete
Gear number	:	3 C
Travelling speed before acceleration		24.24 kmph
Sound level	:	83 dB (A)

5. REPAIR AND ADJUSTMENTS DURING TESTS: --NONE--

6. REMARKS

1. The maximum power was observed as 37.9 kW against the declaration of 44.0 kW.
2. The rated power was observed as 37.7 kW against the declaration of 42.0 kW.
3. At maximum power the specific fuel consumption was observed as 261 g/kwh against the declaration of 231 g/kwh.
4. The maximum equivalent crankshaft torque was observed as 187.7 Nm against the declaration of 209 Nm.

TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA

TESTING AUTHORITY

P.K. PANDEY	**R.K. SINGHAI**	**S.C. JAIN**
SENIOR TEST ENGINEER	SENIOR TEST ENGINEER	DIRECTOR

Draft Test report compiled by: **Mr. Manohar Mandal,** Senior Technical Assistant