OECD Approval No. : 2/2 266
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 5103 (2 WD) TRACTOR

PY 5103 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- 535/1022/11/OECD**
Date	:	**November, 2005**

GOVERNMENT OF INDIA
Ministry of Agriculture, (Deptt. of Agriculture and Co-opn.)
CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE
P.O. Tractor Nagar, BUDNI (M.P.) 466 445
E-mail : fmti-mp@hub.nic.in
Web site : dacnet.nic.in/cfmtti

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
Power	1	kW	=	1000	W	=	1,36	Ps
Pressure	1	MPa	=	10	bar	=	10,2	kgf/cm^2
	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 5103
[C]	Type	:	2WD, Agricultural Tractor

1.1.2 Numbers:

[D]	1st Serial No. or prototype	:	PY 5103 U 00 0001
[C]	Serial No.	:	PY 5103 U 00 2864

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 5103 U

1.2 Engine:

[C]	Make	:	John Deere
[C]	Model	:	3029 DPY 12
[C]	Type	:	Four stroke, water cooled, direct injection diesel engine
[C]	Serial No.	:	PY 3029 D 118553

1.2.1	**Cylinders:**		
[C]	Number and disposition	:	Three, vertical, in-line
[D]	Bore/Stroke	:	106.5 mm/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 pumps:		
[C]	Make	:	Stanadyne
[C]	Model	:	F4 DB4327 - 5910
[C]	Type	:	Rotary
[C]	Serial Number	:	10826999
	Manufacturer's production setting of injection pump:		
[D]	Flow rate (rated engine speed & full load)	:	11.34 dm^3/h
[D]	Timing	:	14 ± 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	:	E3 DB4327-5562
[D]	Type	:	All speed type
[D]	Governed range of engine speed	:	800 to 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 additional safety cartridge
[C]	Maintenance indicator		Warning light on dashboard

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	:	405 mm
[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	:	RE 501 - 347
[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	:	0.58 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 depressing 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 drive

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]	Mode	:	**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 onerevolution of the driving wheels	Nominal traveling speed (*) at rated engine speed of 2400 rev/min, (km/h)
	1	2	3	4	5
[C]	Forward	1	A	271.5	2.03
[C]		2	A	187.8	2.94
[C]		3	A	124.9	4.42
[C]		1	B	96.7	5.71
[C]		2	B	67.0	8.23
[C]		3	B	44.5	12.40
[C]		1	C	41.8	13.19
[C]		2	C	29.0	19.02
[C]		3	C	19.2	28.70
[C]	Reverse	--	A	161.2	3.42
[C]		--	B	57.6	9.59
[C]		--	C	24.9	22.19

* Calculated with a tyre dynamic radius index of 610mm (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 : 34.78mm
[C] - Number of splines 6
[C] - Height above ground : 585 mm
[C] - Distance from the median plane of the tractor : 0 mm
[C] - Distance behind rear wheel axis : 430 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 : 4.40:1
[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. 1:1994+1:1995 and ISO 730-2:1979)
[C]	Category adapter	:	None

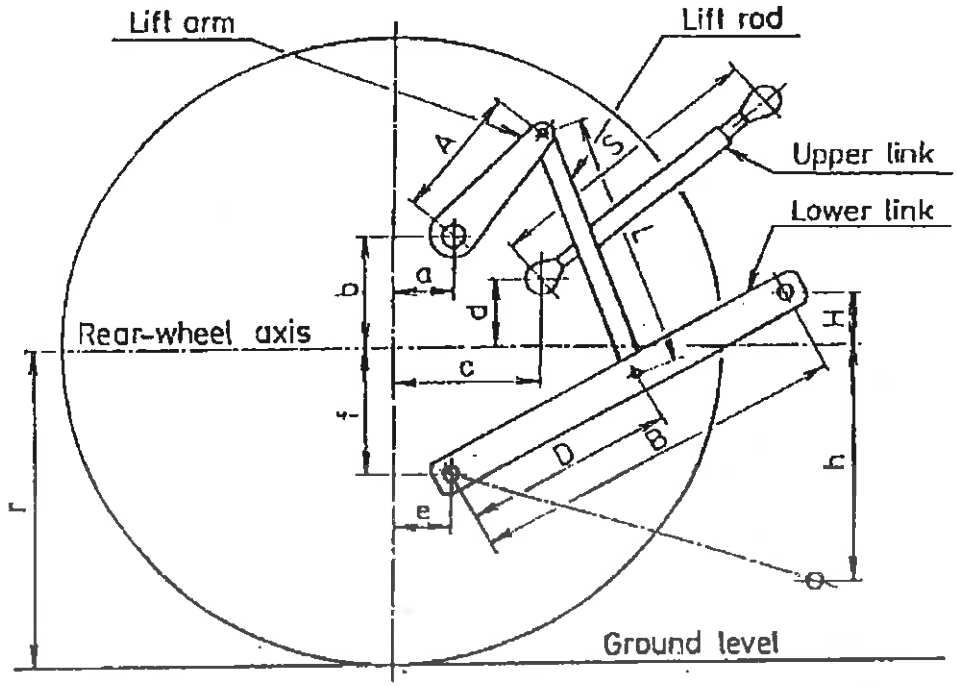


Fig. 1.1

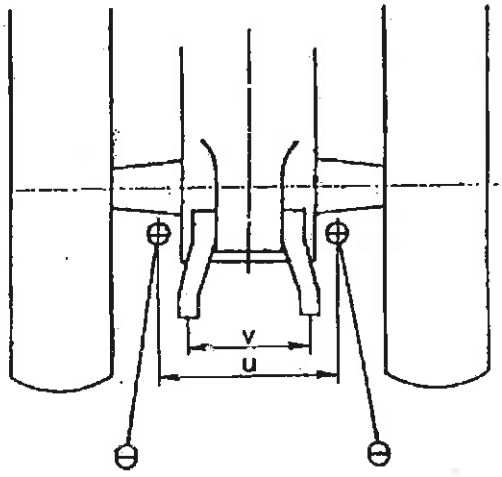


Fig. 1.2

Table: Linkage Geometry dimensions (Ref. fig. 1.1 & 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)	830	830
	Distance of lift arm pivot point from rear-wheel axis:			
[C]	- Horizontally	(a)	185	185
[C]	- Vertically	(b)	310	310
[C]	Horizontal distance between the 2 lower link points:	(u)	400	400
[C]	Horizontal distance between the 2 lift arm end points:	(v)	530	530
[C]	Length of upper link:	(S)	500 - 690	565
	Distance of upper link pivot point from rear wheel axis:			
[C]	- Horizontally	(c)	400, 415 & 420	415
[C]	- Vertically	(d)	335,300 & 265	300
	Distance of lower link pivot point from rear wheel axis:			
[C]	- Horizontally	(e)	155	155
[C]	- Vertically	(f)	170	170
[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 480 to 565	480
	Height of lower hitch points relative to the rear-wheel axis:			
[C]	- in low position	(h)	From - 610 to - 430	-430
[C]	- in high position	(H)	From 80 to 240	240
[C]	Height above ground of lower hitch points when locked in transport position (*)	--	Any height within lift range	

(*) Assuming r=610mm, tyre dynamic radius index of ISO: 4251-1:1998

1.7	**Swinging drawbar:**		
[C]	- Type	:	Hole
[C]	- Height above ground	:	355 mm
[C]	- Type of adjustment	:	Fixed
[C]	- Distance of hitch point from rear wheel axis, horizontally	:	820, 780 and 610mm
	Distance of hitch point from power take-off shaft end:		
[C]	- Vertically	:	230 mm
[C]	- Horizontally	:	390,350 and 180 mm
	Lateral adjustment (centre of clevis)		
[C]	- Right hand	:	240 mm
[C]	- Left hand	:	240 mm
[C]	- Distance of pivot point from rear-wheel axis, horizontally	:	355 mm
[C]	- Diameter of drawbar pinhole	:	33 mm
[D]	- Maximum vertical permissible load	:	10.98 kN at short position and 7.45 kN 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	:	2060 mm

Track width adjustment:

		Minimum [mm]	Maximum [mm]	Adjustment method
[C]	Front	1430	2050	Front axle is extendable
[C]	Rear	1320	1820	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	:	GRAMMER
[C]	Model	:	**Not specified**
[C]	Type	:	Cushioned
[C]	Seat and steering wheel reversible	:	No
[C]	Type of suspension	:	Helical coil springs
[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	220
[C]	Side lights	1740	140 x 90	560
[C]	Rear lights	1620	165 x 70	562
[C]	Reflectors	1680	75 x 25	528

2. TEST CONDITIONS

2.1 Overall dimensions (unballasted tractor)

Length [mm]	Width		Height at top of	
	Minimum [mm]	Maximum [mm]	Protective structure [mm]	Exhaust pipe [mm]
3490	1670	2170	2380	2280

2.2 Ground clearance (unballasted tractor) : 310 mm

Clearance – limiting part : Swinging drawbar mounting bracket

2.3 Tractor Mass:

	Unballasted	
	Without driver	With driver
	[kg]	[kg]
Front	800	810
Rear	1310	1375
Total	2110	2185

2.4 Tyres and track width specifications:

Tyres		Front	Rear
- Dimensions		7.50-16	13.6-28
- Ply rating		6 PR	8 PR
- Type		Pneumatic Diagonal	Pneumatic Diagonal
- Maximum load (tyre manufacturer's)	kN	7.4	10.8
- Maximum load (tractor manufacturer's)	kN	7.4	10.8
- Inflation pressure (tyre manufacturer's)	kPa	280	97
- Dynamic radius index	mm	384	610
- Chosen track width	mm	1430	1420

2.5 Fuel:

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

Density at 15 °C : 0.829 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 every 250 hours of operation	First change after 100 hours of operation and subsequently after every 250 hours of operation
Gear box, steering, service brake and rear axle	36	1000	--
Hydraulic	In common with gear box		First change after 100 hours of operation and subsequently after every 250 hours of operation

2.6.2 Specifications:

	Recommended	Used during test
Engine:		
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 : 11

Grease cups : Nil

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off:

Date and location of tests : 16.02.2005 at C.F.M.T. & T.I., Budni (M.P.) India

Type of dynamometer bench : FUCHINO ESF 1000

Power, (kW)	Speed			Fuel consumption			Specific Energy, (kWh/l)
	Engine	PTO	Fan	Hourly		Specific	
	(rev/min)			l/h	kg/h	g/kWh	
3.1.1	**Maximum Power – Two-Hour Test:**						
37.1	2292	521	2084	12.01	9.96	268	3.09
3.1.2	**Power at Rated Engine Speed (2400 rev/min) :**						
36.1	2400	545	2182	11.72	9.72	269	3.08
3.1.3	**Standard Power Take-Off Speed [540 ± 10 (rev/min)] :**						
36.3	2376	540	2160	11.85	9.82	271	3.06
3.1.4	**Part Loads:**						
3.1.4.1	**The torque corresponding to maximum power at rated engine speed :**						
36.1	2400	545	2182	11.72	9.72	269	3.08
3.1.4.2	**85 % of torque obtained in 3.1.4.1 :**						
31.4	2460	559	2236	10.34	8.57	273	3.04
3.1.4.3	**75 % of torque defined in 3.1.4.2 :**						
24.0	2504	569	2276	8.53	7.07	294	2.81
3.1.4.4	**50 % of torque defined in 3.1.4.2 :**						
16.3	2543	578	2312	6.37	5.28	324	2.56
3.1.4.5	**25 % of torque defined in 3.1.4.2 :**						
8.2	2570	584	2336	4.61	3.82	466	1.78
3.1.4.6	**Unloaded :**						
1.0	2587	588	2352	3.35	2.78	2780	0.30
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 :**						
36.3	2376	540	2160	11.85	9.82	271	3.06
3.1.5.2	**85 % of torque obtained in 3.1.5.1 :**						
31.4	2416	549	2196	10.16	8.42	268	3.09
3.1.5.3	**75 % of torque defined in 3.1.5.2 :**						
24.0	2460	559	2236	8.43	6.99	291	2.85
3.1.5.4	**50 % of torque defined in 3.1.5.2 :**						
16.3	2504	569	2276	6.13	5.08	312	2.66
3.1.5.5	**25 % of torque defined in 3.1.5.2 :**						
8.3	2530	575	2300	4.56	3.78	455	1.82
3.1.5.6	**Unloaded :**						
1.0	2552	580	2320	3.27	2.71	2710	0.31

1	2	3	4	5	6	7	8
3.1.6	**PART LOADS AT DIFFERENT ENGINE SPEEDS**						
3.1.6.1	**maximum power at rated engine speed:**						
36.1	2400	545	2182	11.72	9.72	269	3.08
3.1.6.2	**80% of power obtained in 3.1.6.1 at max. speed setting :**						
28.9	2473	562	2248	9.61	7.97	276	3.01
3.1.6.3	**80% of power obtained in 3.6.1.1 with governor control set to 90% of rated engine speed :**						
28.9	2160	491	1964	8.95	7.42	257	3.23
3.1.6.4	**40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed :**						
14.5	2160	491	1964	5.15	4.27	296	2.82
3.1.6.5	**60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed :**						
21.6	1439	327	1308	6.24	5.17	239	3.46
3.1.6.6	**40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed :**						
14.4	1439	327	1308	4.32	3.58	248	3.33

No load maximum engine speed : 2587rev/min

Torque (equivalent crankshaft) at maximum power:

-At rated engine speed : 143.6 Nm

-At 2 - hour test : 154.5 Nm

Maximum torque (equivalent crank-shaft) (Engine speed: 1399 (rev/min) : 175.2 Nm

Mean atmospheric conditions:

-Temperature : 25°C

-Pressure : 97.9 kPa

-Relative humidity : 53%

Maximum temperatures:

-Coolant : 100 °C

-Engine oil : 111°C

-Fuel : 36°C

-Engine air intake : 25°C

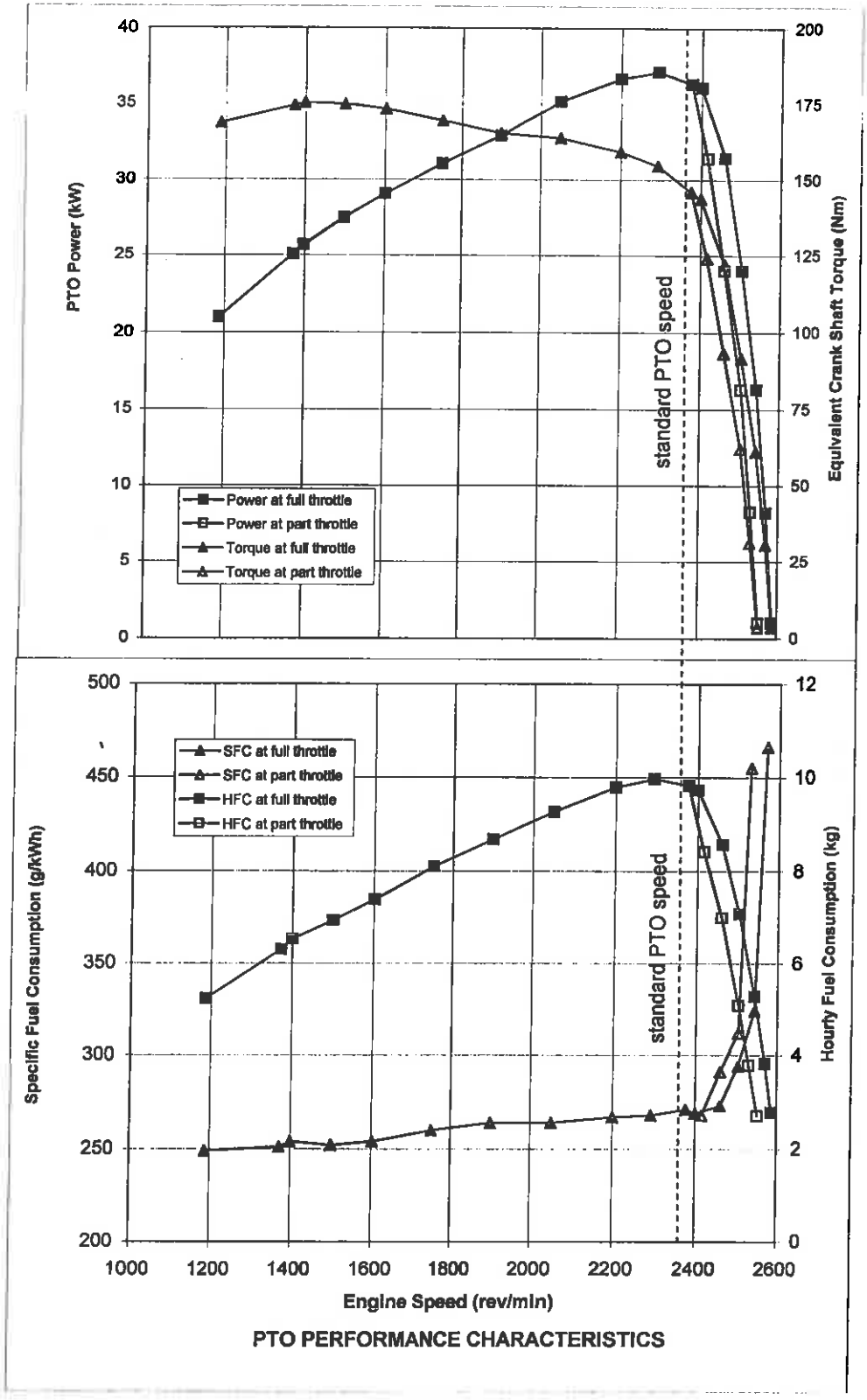
3.2 Hydraulic power and lifting force:

Date of tests : 10.03.2005,11.03.2005, 14.03.2005 and 27.05.2005

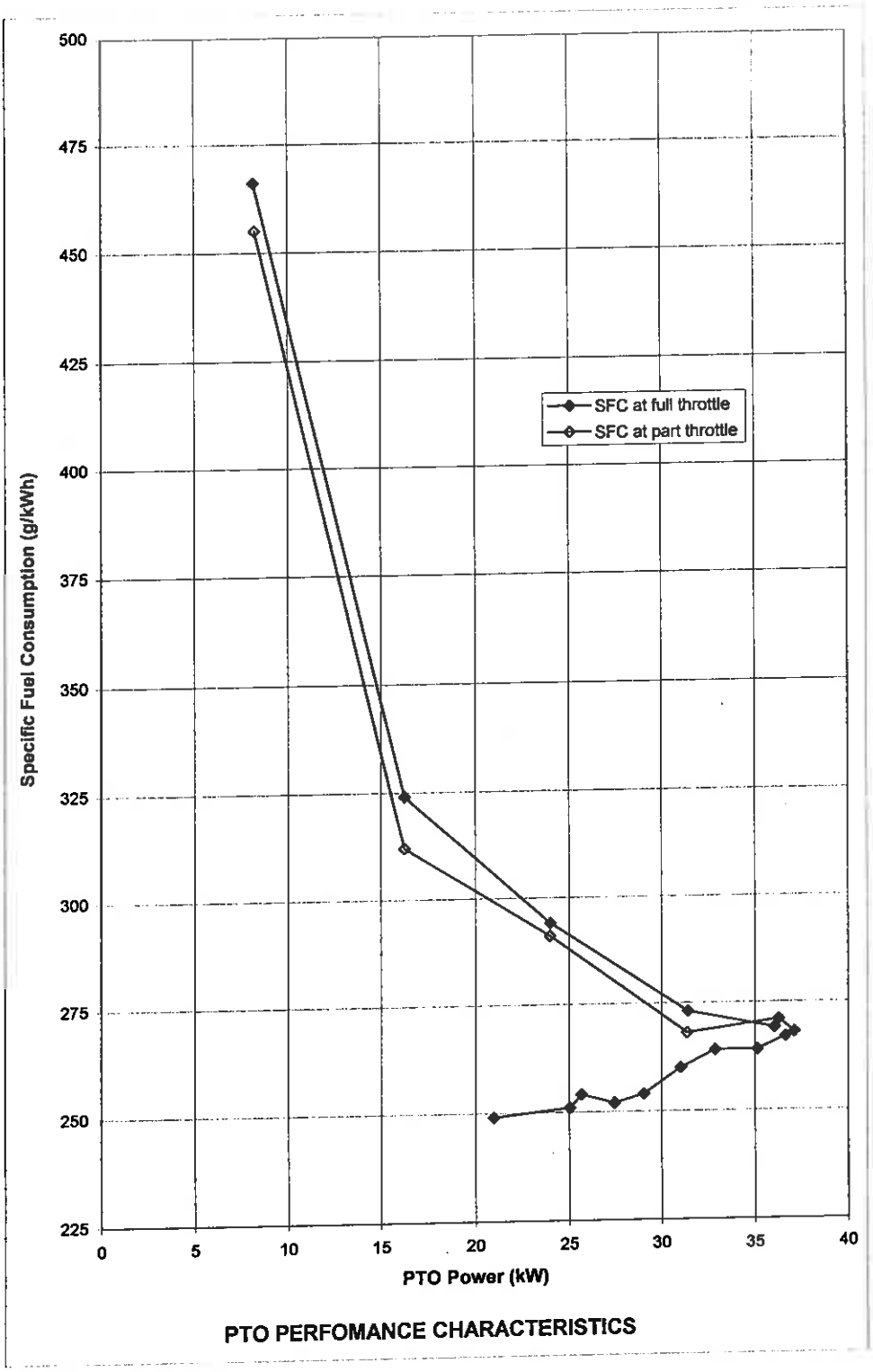
3.2.1 Hydraulic Power Test:

3.2.1.1 Hydraulic Fluid Data:

- Hydraulic fluid type : JDM J 20C
- Viscosity index (ISO 3448 + Corr1: 1993) : **Not specified**
- Viscosity at 65 °C : 23 cst



PTO PERFORMANCE CHARACTERISTICS



PTO PERFOMANCE 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	18.8	60	70	2534	--	--
3.	Flow rate corres-ponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power.	16.9	64		2534	35.25	10.0
4.	Maximum available flow and maximum power from one coupler pair	16.2	64		2534	42.80	11.5
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	180mm	180mm
Vertical movement: - Without lifting force - With lifting force	 660mm 625mm	 660mm 635mm
Maximum corrected force exerted through full range	20.1 kN	11.2 kN
Corresponding pressure of hydraulic fluid	16.9 MPa	16.9 MPa
Moment about rear wheel axle	19.8 kNm	17.9 kNm
Maximum tilt angle of mast from vertical	--	13 degree

Lifting height relative to the horizontal plane including the lower link pivot points:													
mm	- 245	-200	-100	0	+100	+200	+300	+320	+345	+370	+380	+385	+390
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)	20.1	20.8	21.6	21.9	22.2	21.5	21.5	21.7	21.9	22.1	21.4	--	--
Corresponding pressure **16.9** Mpa:													
At the frame in (kN)	19.2	19.7	19.1	18.6	17.6	16.1	14.5	14.2	--	13.0	12.7	11.5	11.2
Corresponding pressure **16.9** MPa													

3.3 Drawbar power test (unballasted tractor):

Date(s) of tests : 21.03.2005 & 22.03.2005

Type of track : Concrete

Rolling radius of rear tyres : 623.9 mm

Height of drawbar above ground, (mm)	Tyre inflation pressure	
	Front	Rear
	kPa	kPa
550	200	95

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-ump-tion, 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):**													
A1	8.1	15.63	1.87	2544	2313	15.0	503	1.65	44	88	94	34	22	97.1
A2	12.1	16.12	2.70	2528	2298	14.8	414	2.01	41	88	92	32	24	97.2
A3	18.4	16.68	3.96	2483	2257	15.4	373	2.22	40	91	94	31	25	97.2
B1	23.1	16.28	5.10	2460	2236	14.9	343	2.42	37	91	92	31	27	97.3
B2	30.5	14.72	7.45	2403	2185	11.8	326	2.54	31	92	87	21	36	97.4
3.3.2	**Fuel Consumption:**													
3.3.2.1	In Selected gear at Maximum power at rated engine speed:													
B2	30.5	14.70	7.46	2407	2188	11.6	323	2.56	34	92	87	28	30	97.4
3.3.2.1.1	75% of pull corresponding to maximum power at rated engine speed:													
B2	24.4	11.02	7.97	2466	2242	7.9	317	2.62	36	90	94	29	30	97.3
3.3.2.1.2	50% of pull corresponding to maximum power at rated engine speed:													
B2	17.1	7.35	8.35	2510	2282	5.1	347	2.39	38	89	91	29	30	97.3
3.3.2.1.3	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.1.1:													
B3 *	24.6	11.03	8.04	1651	1501	7.8	273	3.03	38	96	89	30	29	97.3
3.3.2.1.4	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.1.2:													
B3	17.1	7.35	8.35	1665	1514	5.1	276	3.01	39	90	88	30	29	97.3
3.3.2.2	In Selected gear nearest to 7.5 km/h at rated engine speed:													
B2	30.5	14.70	7.46	2407	2188	11.6	323	2.56	34	92	87	28	30	97.4
3.3.2.2.1	75% of pull corresponding to maximum power at rated engine speed:													
B2	24.4	11.02	7.97	2466	2242	7.9	317	2.62	36	90	94	29	30	97.3
3.3.2.2.2	50% of pull corresponding to maximum power at rated engine speed:													
B2	17.1	7.35	8.35	2510	2282	5.1	347	2.39	38	89	91	29	30	97.3
3.3.2.2.3	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.2.1:													
B3	24.6	11.03	8.04	1651	1501	7.8	273	3.03	38	96	89	30	29	97.3
3.3.2.2.4	Next higher gear at reduced engine speed: Same pull and traveling speed as in 3.3.2.2.2:													
B3	17.1	7.35	8.35	1665	1514	5.1	276	3.01	39	90	88	30	29	97.3

* **Maximum power in the gear '3B' was not measured because forward speed in this gear exceeded the safety limit of testing equipment. It was however, possible to operate the tractor in the condition as given in 3.3.2.1.3 and 3.3.2.1.4.**

4. MEASUREMENT OF EXGTERNAL NOISE (Optional test)

Date of test	:	28.04.2005
Make and Model of sound level meter	:	CYGNET - 2021
Type of track	:	Concrete
Gear number	:	C3
Travelling speed before acceleration	:	23.61 Km/h
Sound level	:	83 dB(A)

5. REPAIR AND ADJUSTMENTS PRIOR TO TESTS

----None----

6. REMARKS

1. At maximum pto power the specific fuel consumption was observed as 268 g/kWh against the declaration of 235 g/kWh.
2. The maximum hydraulic power was measured as 11.5 kW against the declaration of 13.65 kW.

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. P.P. Rao, Assistant Engineer (T)