OECD Approval No. : 2/2 268
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 5303 (2 WD) TRACTOR

PY 5303 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- 537/1024/13/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
Power	1	kW	=	1000	W	=	1.36	Ps
Pressure	1	kPa	=	10	bar	=	10.2	kgf/cm^2
	100	MPa	=	1000	mbar	=	750.1	mm of Hg

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TABLE OF CONTENTS

		PAGE No.
1.	**SPECIFICATIONS OF TRACTOR**	01
2.	**TEST CONDITIONS**	11
3.	**COMPULSORY TEST RESULTS**	13
3.1	Main power take-off	13
3.2	Hydraulic power and lifting force	15
3.3	Drawbar power test (unballasted tractor)	19
4.	**MEASUREMENT OF EXTERNAL NOISE (OPTIONAL TEST)**	21
5.	**REPAIR AND ADJUSTMENTS DURING TESTS**	21
6.	**REMARKS**	21

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 to 167 and 271 to 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 Denomination:

[C]	Make of tractor	:	John Deere
[C]	Model (trade name)	:	John Deere 5303
[C]	Type	:	2 WD, Agricultural Tractor

1.1.2 Numbers:

[D]	1st Serial No. or prototype	:	PY 5303 U000001
[C]	Serial No.	:	PY 5303 U002299

1.1.3 Other specification (if applicable):

[D]	Model(s) for other countries	:	**None**
[C]	Transmission type or gear ranges	:	Mechanical, constant mesh, collar shift, (9-speed)
[C]	Speed version	:	30 km/h
[D]	Manufacturer identification or Technical type number	:	PY 5303 U

1.2 Engine:

[C]	Make	:	John Deere
[C]	Model	:	3029 TPY 11
[C]	Type	:	Four stroke, water cooled, direct injection, diesel engine
[C]	Serial No.	:	PY 3029 T 1101 994

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:**		
[C]	Make	:	Borg Warner
[D]	Model	:	S1B032
[D]	Type	:	Non waste gated-48/07B-B47MM 10.70
[D]	Pressure	:	0.103MPa at rated speed
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	:	D4 DB4 327-5562
[C]	Type	:	Rotary
[C]	Serial Number	:	10786865
	Manufacturer's production setting of injection pump:		
[C]	Flow rate (rated engine speed & full load)	:	15.01 dm^3/h
[D]	Timing	:	15.5±1 degree before TDC (dynamic)
	Injectors:		
[D]	Make	:	Stanadyne
[D]	Model	:	RE 50833
[D]	Type	:	Pencil
[D]	Injection pressure	:	25.4 to 26.1 MPa
1.2.4	**Governor:**		
[D]	Make	:	Stanadyne
[D]	Model	:	E3 DB4 327 - 5562
[D]	Type	:	All speed type
[D]	Governed range of engine speed	:	800 to 2650 rev/min
[D]	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 provided on dashboard
1.2.6	**Lubricating System:**		
[D]	Type of feed pump	:	Gear type
[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
[D]	Fan diameter	:	406mm
[D]	Total coolant capacity	:	9.5 dm^3
[C]	Type of temperature control	:	Thermostat
[D]	Super pressure system	:	98 kPa
1.2.8	**Starting system:**		
[C]	Make	:	BOSCH
[C]	Model	:	0 001 223 502
	Type		Electrical, solenoid operated
[D]	Starter motor power rating	:	2.5 kW
[C]	Cold starting aid	:	None
[C]	Safety device	:	Starter will not operate if speed shift lever is in neutral position and PTO lever is in OFF position respectively
1.2.9	**Electrical System:**		
[C]	Voltage	:	12 V
	Generator:		
[C]	Make	:	DENSO
[C]	Model	:	RE 72 915
[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:

[C] Make : JD

[C] Model : None

[C] Type : Expansion chamber

[C] Location : On left hand side 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

[C]	Description	Forward	Reverse
[C]	Number of gears	3	1
[C]	Number of ranges	3 (A, B and C)	3 (A, B and 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:

Make : John Deere

Model : **Not declared**

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	2.23
[C]		2	A	187.6	3.23
[C]		3	A	124.9	4.86
[C]		1	B	96.8	6.26
[C]		2	B	67.0	9.05
[C]		3	B	44.5	13.61
[C]		1	C	41.8	14.49
[C]		2	C	28.9	20.96
[C]		3	C	19.2	31.51
[C]	Reverse	--	A	161.5	3.75
[C]		--	B	57.5	10.54
[C]		--	C	24.9	24.36

"Calculated with a tyre dynamic radius index of 670 mm (ISO 4251-1:1998)

1.4 Power take-off:

1.4.1. Main Power Take-Off:

[C] Type : Independent

[C] Method of engagement : Mechanically, 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	:	670 mm
[C]	- Distance from the median plane of the tractor	:	0 mm
[C]	- Distance behind rear wheel axis	:	435 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**	:	**None**
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]	- Number	:	01
[C]	- Type	:	Quick coupling
[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**

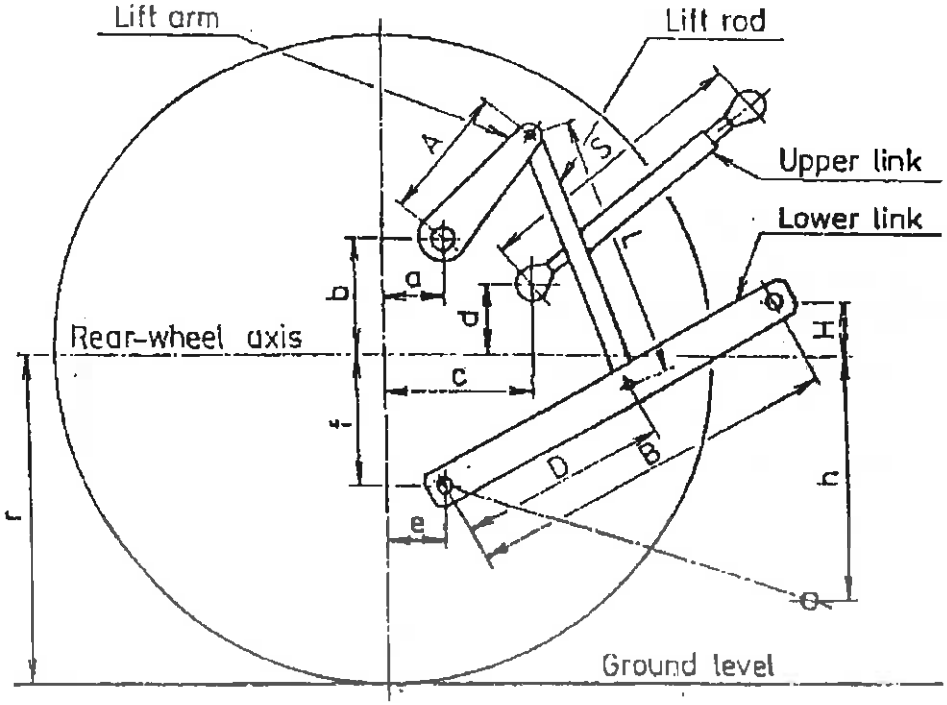


Fig. 1 .1

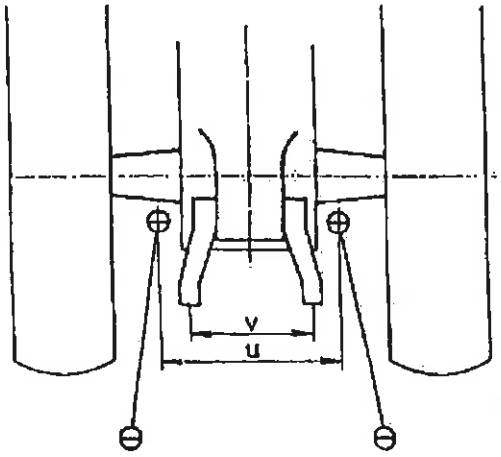


Fig. 1.2

Table: Linkage Geometry dimensions:

			Dimension or range, (mm)	Settings used during test,(mm)
[C]	Length of lift arms:	**(A)**	275	275
[C]	Length of lower links:	**(B)**	830	830
	Distance of lift arm pivot point from rear-wheel axis:			
[C]	- Horizontally	**(a)**	180	180
[C]	- Vertically	**(b)**	310	310
[C]	Horizontal distance between the 2 lower link points:	**(u)**	405	405
[C]	Horizontal distance between the 2 lift arm end points:	**(v)**	525	525
[C]	Length of upper link:	**(S)**	From 500 to 635	580
	Distance of upper link pivot point from rear wheel axis:			
[C]	- Horizontally	**(c)**	400, 405 and 410	405
[C]	- Vertically	**(d)**	285, 320 and 355	320
	Distance of lower link pivot point from rear wheel axis:			
[C]	- Horizontally	**(e)**	165	165
[C]	- Vertically	**(f)**	265	265
[C]	Distance of lower link pivot points to lift rod pivot points on lower links:	**(D)**	415	415
[C]	Length of lift rods:	**(L)**	From 425 to 570	515
	Height of lower hitch points relative to the rear-wheel axis:			
[C]	- in low position	**(h)**	From -380to-590	- 470
[C]	- in high position	**(H)**	From 110 to 295	220
[C]	Height above ground of lower hitch points when locked in transport position (*)	-	Any height within lift range	

(*) Assuming r=670mm, tyre dynamic radius index of ISO: 4251-1:1998

1.7	**Swinging drawbar:**		
[C]	- Type	:	Hole
[C]	- Height above ground	:	450 mm
[C]	- Type of adjustment	:	Fixed
[C]	- Distance of hitch point from rear wheel axis, horizontally	:	715 mm, 865mm and 905 mm
	Distance of hitch point from power take-off shaft end:		
[C]	- Vertically	:	220 mm
[C]	- Horizontally	:	280,430 and 470 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	:	365 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 type
[D]	Ram(s)	:	Double acting cylinder
[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	:	2040 mm

Track width adjustment:

		Minimum [mm]	Maximum [mm]	Adjustment method
[C]	Front	1430	2050	Front axle is extendable
[C]	Rear	1415	1815	Reversing wheels and offsetting wheel disc on rim lugs.

1.13	**Protective structure:**	:	
[D]	Make	:	John Deere
[D]	Model	:	RE 179676
[D]	Type	:	Foldable
[D]	Manufacturer's name & address	:	INDUSTRIAS JOHN DEERE S.A. DEC.V. Blvd.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	:	**None**
[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	:	± 85 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	1205	160 x 100	220
[C]	Side lights	1790	140 x 90	558
[C]	Rear lights	1675	165 x 70	560
[C]	Reflectors	1730	75 x 24	526

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]
3515	1865	2275	2440	2280

2.2 Ground clearance (unballasted tractor) : 380 mm

Clearance – limiting part : Swinging drawbar-mounting bracket.

2.3 Tractor Mass:

	Unballasted	
	Without driver	With driver
	[kg]	[kg]
Front	810	820
Rear	1410	1475
Total	2220	2295

2.4 Tyres and track width specifications:

Tyres		Front	Rear
- Dimensions		7.50-16	16.9-28
- Ply rating		6 PR	8 PR
- Type		Pneumatic, Diagonal	Pneumatic, Diagonal
-Maximum load (tyre manufacturer's)	kN	7.4	18.0
- Maximum load (tractor manufacturer's)	kN	7.4	18.0
- Inflation pressure (tyre manufacturer's)	kPa	280	130
- Dynamic radius index	mm	384	670
- Chosen track width mm	mm	1430	1415

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 oil	**Not applicable**	**Not applicable**	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	38	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 @ 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 : 24.02.2005,C.F.M.T. & T. I., Budni (M.P.) India

Type of dynamometer bench : Fuchino ESF 1000, 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:**						
44.9	2451	557	2483	13.81	11.62	259	3.25
3.1.2	**Power at Rated Engine Speed (2400 rev/min) :**						
44.4	2398	545	2431	13.46	11.32	255	3.30
3.1.3	**Standard Power Take-Off Speed [540 ± 10 (rev/min)] :**						
44.3	2376	540	2407	13.41	11.28	255	3.30

1	2	3	4	5	6	7	8
3.1.4 **3.1.4.1**	**Part Loads:** **The torque corresponding to maximum power at rated engine speed :**						
44.4	2398	545	2431	13.46	11.32	255	3.30
3.1.4.2	**85 % of torque obtained in 3.1.4.1:**						
39.4	2504	569	2537	12.76	10.73	272	3.09
3.1.4.3	**75 % of torque defined in 3.1.4.2:**						
29.9	2534	576	2567	10.37	8.72	292	2.88
3.1.4.4	**50 % of torque defined in 3.1.4.2:**						
20.2	2561	582	2594	8.18	6.88	341	2.47
3.1.4.5	**25 % of torque defined in 3.1.4.2:**						
10.1	2583	587	2617	6.14	5.16	511	1.64
3.1.4.6	**Unloaded:**						
0.9	2609	593	2643	3.76	3.16	3511	0.24
3.1.5 **3.1.5.1**	**Part Loads at Standard Power Take-Off Speed [540 ± 10 (rev/min)] :** **The torque corresponding to maximum power:**						
44.3	2376	540	2407	13.41	11.28	255	3.30
3.1.5.2	**85 % of torque obtained in 3.1.5.1:**						
38.1	2402	546	2433	11.91	10.02	263	3.20
3.1.5.3	**75 % of torque defined in 3.1.5.2:**						
29.1	2446	556	2478	9.76	8.21	282	2.98
3.1.5.4	**50 % of torque defined in 3.1.5.2:**						
19.6	2473	562	2505	7.78	6.54	334	2.52
3.1.5.5	**25 % of torque defined in 3.1.5.2:**						
9.9	2499	568	2531	5.72	4.81	486	1.73
3.1.5.6	**Unloaded:**						
0.9	2534	576	2567	3.42	2.88	3200	0.26
3.1.6 **3.1.6.1**	**PART LOADS AT DIFFERENT ENGINE SPEEDS:** **Maximum power at rated engine speed:**						
44.4	2398	545	2431	13.46	11.32	255	3.30
3.1.6.2	**80% of power obtained in 3.1.6.1 at max. speed setting:**						
35.5	2512	571	2545	11.66	9.81	276	3.05
3.1.6.3	**80% of power obtained in 3.6.1.1 with governor control set to 90% of rated engine speed :**						
35.5	2160	491	2188	10.45	8.79	247	3.40

1	2	3	4	5	6	7	8
3.1.6.4	**40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed :**						
17.7	2160	491	2189	6.35	5.34	301	2.79
3.1.6.5	**60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed:**						
26.6	1439	327	1458	7.50	6.31	237	3.55
3.1.6.6	**40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed:**						
17.8	1439	327	1458	5.33	4.48	252	3.34

No load maximum engine speed : 2609 rev/min

Torque (equivalent crankshaft) at maximum power:

-At rated engine speed : 176.8 Nm

-At 2 - hour test : 174.8 Nm

Maximum torque (equivalent crankshaft) : 218.6 Nm

Engine speed, (rev/min) : 1399

Mean atmospheric conditions:

-Temperature : 25°C

-Pressure : 98.5 kPa

-Relative humidity : 42%

Maximum temperatures:

-Coolant : 102 °C

-Engine oil : 111°C

-Fuel : 32°C

-Engine air intake : 24 °C

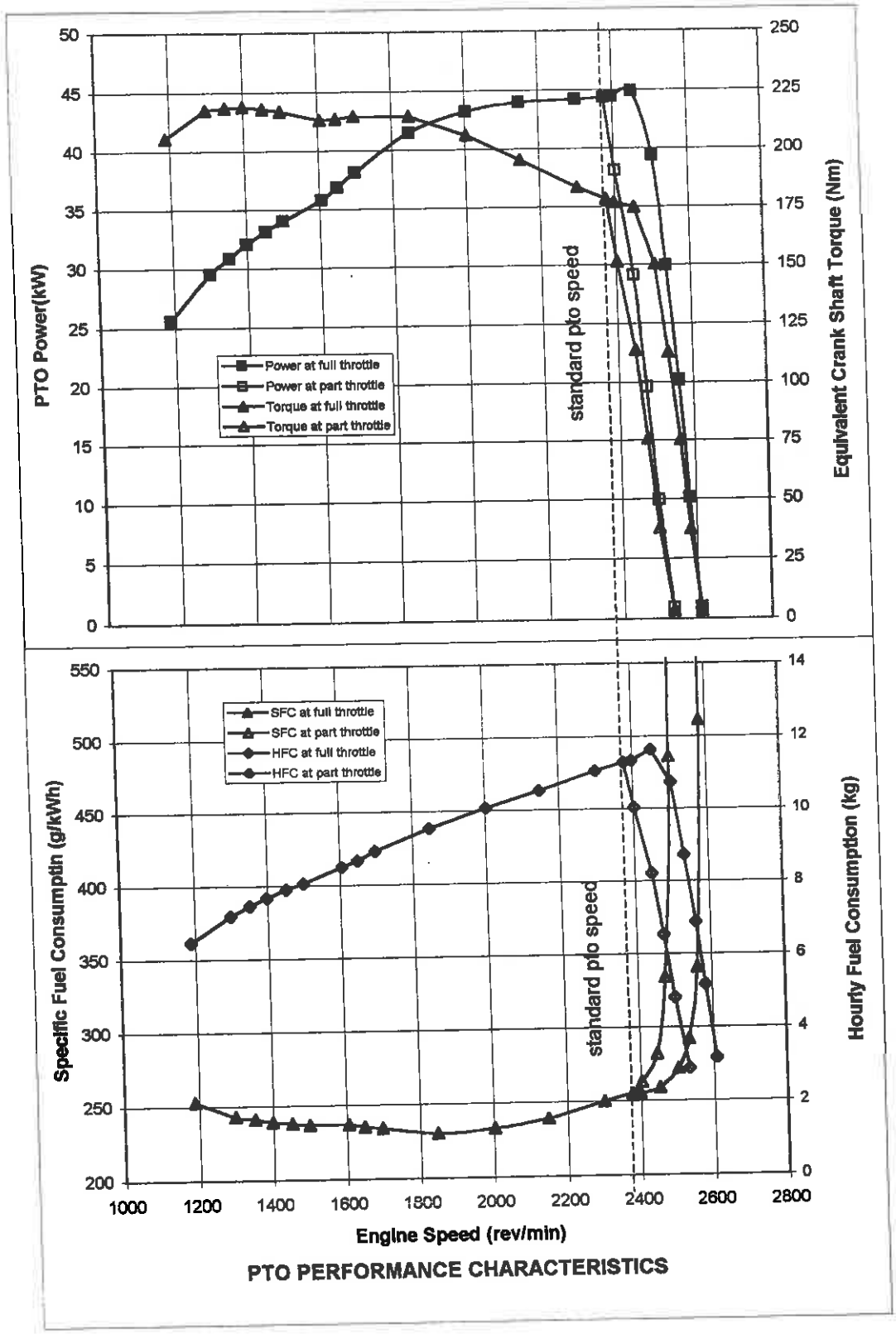
3.2 Hydraulic power and lifting force:

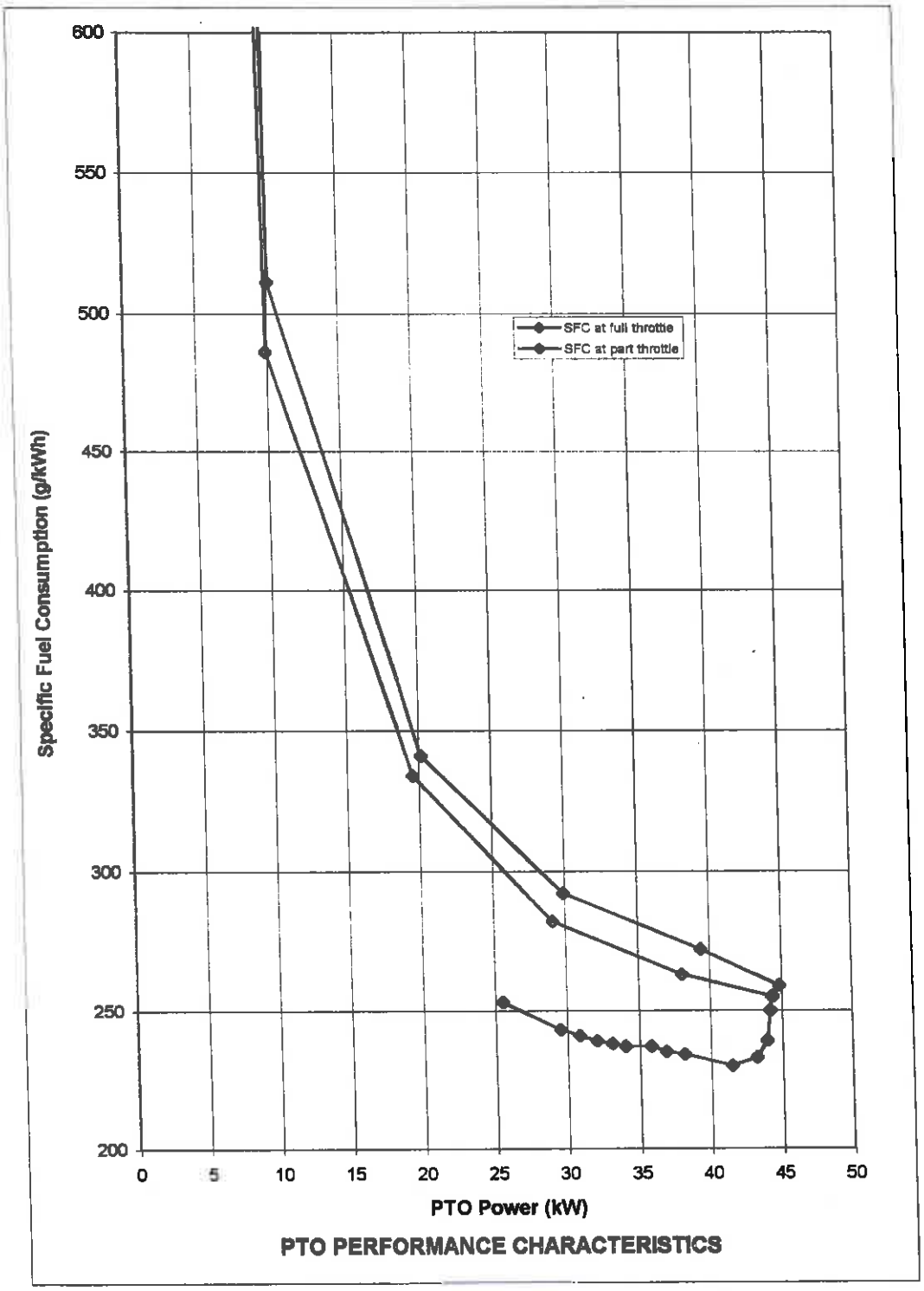
Date of tests : 15.03.2005 and 16.03.2005

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


PTO Power(kW)
Equivalent Crank Shaft Torque (Nm)
Power at full throttle
Power at part throttle
Torque at full throttle
Torque at part throttle
standard pto speed
Specific Fuel Consumptin (g/kWh)
Hourly Fuel Consumption (kg)
SFC at full throttle
SFC at part throttle
HFC at full throttle
HFC at part throttle
standard pto speed
Engine Speed (rev/min)
PTO PERFORMANCE CHARACTERISTICS


600
550
500
450
400
350
300
250
200
Specific Fuel Consumption (g/kWh)
SFC at full throttle
SFC at part throttle
0
5
10
15
20
25
30
35
40
45
50
PTO 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	17.3	60	70	2565	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.	15.6	70		2570	41.00	10.7
4.	Maximum available flow and maximum power from one coupler pair	15.7	68		2570	40.97	10.7
5.	Maximum available flow and maximum power from coupler pairs operating simultaneously (flow through two or more coupler pairs 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	660mm	660mm
- With lifting force	645mm	655mm
Maximum corrected force exerted through full range	17.4 kN	13.0 kN
Corresponding pressure of hydraulic fluid	15.6 MPa	15.6 MPa
Moment about rear wheel axle	17.3 kN-m	20.9 kN-m
Maximum tilt angle of mast from vertical	--	8.2 degree

Lifting height relative to the horizontal plane including the lower link pivot points.

mm	-320	-310	-200	-100	0	100	200	230	240	280	290	305	325	330	335
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)	--	17.4	18.2	19.1	19.4	19.8	19.3	19.5	--	19.5	--	--	--	19.7	19.5
Corresponding pressure 15.6 Mpa															
At the frame in, (kN)	18.8	--	18.1	17.5	16.7	15.9	14.4	--	14.4	--	13.7	13.0	13.1	13.5	13.0
Corresponding pressure 15.6 MPa															

3.3 Drawbar power test (unballasted tractor):

Date(s) of tests : 12.04.2005

Type of track : Concrete

Rolling radius of rear tyres : 679.6 mm

Height of drawbar above ground,mm	Tyre inflation pressure	
	Front	Rear
	kPa	kPa
500	200	85

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 (%)	Spec-ific fuel cons-Umpt-ion g/kWh	Spec-ific Ene-rgy 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	10.7	18.68	2.06	2576	2612	15.2	558	1.51	35	90	99	30	16	99.2
2A	15.3	18.52	2.97	2560	2593	14.9	467	1.80	34	91	101	28	17	99.2
3A	23.0	18.68	4.43	2533	2566	14.8	392	2.15	32	92	102	27	17	99.2
1B	29.2	18.55	5.67	2494	2526	14.1	352	2.39	36	93	102	30	17	99.2
2B	35.0	14.88	8.46	2431	2463	9.0	320	2.63	32	94	104	26	17	99.2
3.3.2	**Fuel Consumption:**													
3.3.2.1	In selected gear at maximum power at rated engine speed:													
2B	34.8	15.04	8.33	2405	2436	9.5	318	2.64	35	94	102	30	17	99.2
3.3.2.1.1	75% of pull corresponding to maximum power at rated engine speed													
2B	28.2	11.33	8.96	2512	2545	6.8	340	2.47	36	94	106	30	16	99.2
3.3.2.1.2	50% of pull corresponding to maximum power at rated engine speed													
2B	19.4	7.53	9.29	2539	2572	4.3	395	2.13	36	92	105	30	16	99.2
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	28.3	11.34	8.98	1667	1689	6.4	283	2.97	35	97	102	30	16	99.2
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	19.7	7.64	9.29	1699	1721	4.9	297	2.83	37	92	100	30	17	99.2
3.3.2.2	In selected gear nearest to 7.5 km/h at rated engine speed													
1B	29.2	18.55	5.67	2494	2526	14.1	352	2.39	36	93	102	30	17	99.2
3.3.2.2.1	75% of pull corresponding to maximum power at rated engine speed													
1B	23.9	14.00	6.14	2532	2565	8.4	361	2.33	36	92	104	30	17	99.2
3.3.2.2.2	50% of pull corresponding to maximum power at rated engine speed													
1B	16.5	9.26	6.40	2554	2587	5.3	417	2.02	36	92	104	30	17	99.2
3.3.2.2.3	Next higher gear at reduced engine speed : Same pull and traveling speed as in 3.3.2.2.1													
2B	23.6	13.91	6.11	1745	1768	8.4	287	2.93	37	93	100	30	18	99.2
3.3.2.2.4	Next higher gear at reduced engine speed : Same pull and traveling speed as in 3.3.2.2.2													
2B	16.9	9.40	6.48	1789	1812	5.3	304	2.77	37	91	98	31	18	99.2

- Maximum power in the gear "3B" was not measured because forward speed in this gear exceeded the safety limits 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 EXTERNAL NOISE (Optional test)

Date of test	:	28. 04. 2005
Sound level meter:		
- Make & Model of sound level meter	:	CYGNET-2021
Type of track	:	Concrete
Gear number	:	3 C
Travelling speed before acceleration	:	25.44 km/h
Sound level	:	82 dB (A)

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

6. REMARKS

1. The maximum power and rated power were measured as 44.9 kW and 44.4 kW against the declaration of 50 kW and 48 kW respectively by the manufacturer.

2. The specific fuel consumption corresponding to maximum power was measured as 259 g/kwh against the declaration of 232 g/kwh by the manufacturer.

3. The maximum equivalent crankshaft torque was measured as 218.6 Nm against the declaration of 240 Nm by the manufacturer.

4. The maximum lift angle of mast from vertical was measured as 8 degrees against the requirement of minimum 10 degrees.

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. Chakradhar V. Chimote, Senior Technical Assistant

Hari/Dongre/John Deere 5303 oecd