OECD Approval No. : 1/1.990
Date of approval : 10th July, 2002

Report on test in accordance with
OECD STANDARD CODE 1
for the Official Testing of Agricultural and Forestry Tractors



Agricultural Tractor

TAFE 4010 DE (2 WD) TRACTOR

Manufactured by	:	**M/s Tractors and Farm Equipment Ltd.,** **35, Mahatma Gandhi Road,** **Nungambakkam,** **CHENNAI – 600 034** **Tamil Nadu, INDIA**
Submitted for test by	:	**The manufacturer**
Report No.	:	**T- 445/891/05/OECD**
Date	:	**July, 2002**

GOVERNMENT OF INDIA
Ministry of Agriculture, (Deptt. of Agriculture and Co-opn.)
CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE
Tractor Nagar.P.O., BUDNI (M.P.) 466 445

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Tractor manufacturer's name and address	:	M/s Tractors and Farm Equipment Ltd., P.B. No. 3302, 35, Mahatma Gandhi Road, Nungambakkam, CHENNAI - 600 034, INDIA
Location of tractor assembly	:	M/s Tractors and Farm Equipment Ltd., Hazur Gardens, SEMBIAM, CHENNAI - 600 011, INDIA
Submitted for test by	:	The manufacturer
Selected for test by	:	The manufacturer with agreement of the testing station.
Place of running-in	:	At manufacturer's works
Duration of running-in	:	Engine - 12 h Transmission - 20 h
Location of test	:	Government of India, Central Farm Machinery Training & Testing Institute, P.O. Tractor Nagar, 466 445 Budni (Madhya Pradesh), INDIA

1. SPECIFICATIONS OF TRACTOR

1.1	**Identification:**		
1.1.1	Make	:	TAFE
	Model	:	4010 DE
	Type	:	2 WD
	1st Serial No.	:	146545
	Serial No.	:	152978
1.1.2	Numbers:		
	1st Serial No.	:	146545
	Serial No.	:	152978
1.1.3	Other specification	:	Not applicable
1.2	**Engine:**		
	Make	:	Simpsons
	Model	:	S 325.2
	Type	:	Four stroke, direct injection, naturally aspirated, water cooled diesel engine.
	Serial No.	:	45617
1.2.1	**Cylinders:**		
	Number	:	Three
	Disposition	:	Inline
	Bore/Stroke	:	91.4/127 mm
	Capacity	:	2500 cm^3
	Compression ratio	:	18.5:1
	Arrangement of valves	:	Overhead
	Cylinder liners	:	Dry

1.2.2	**Supercharging**	:	Not provided
1.2.3	**Fuel system:**		
	Fuel feed system	:	Gravity and force feed
	Filters:		
	Make	:	MICO LIC BOSCH, India
	Model	:	0450 117012
	Type	:	Primary cloth and secondary paper element.
	Number	:	Two
	Capacity of fuel tank	:	45 dm^3
	Injection pump:		
	Make	:	MICO LIC BOSCH, India
	Model	:	F 002 A OZ181, PES 3A 90 D 320 RS 2984
	Type	:	Inline, plunger
	Serial Number	:	08508482
	Manufacturer's production setting of injection pump:		
	- Flow rate	:	7.64 dm^3/h
	- Timing	:	5 degree before TDC
	Injectors:		
	Make	:	MICO LIC BOSCH, India
	Model	:	None
	Type	:	P, multihole
	Injection pressure	:	23 + 0.8 MPa
1.2.4	**Governor:**		
	Make	:	MICO LIC BOSCH, India
	Model	:	RSV 350-1000 A2C 1204R
	Type	:	Mechanical, variable speed with advanced timer.
	Governed range of engine speed	:	700 to 2200 rev/min.
	Rated engine speed	:	2000 rev/min.
1.2.5	**Air cleaner:**		
	Pre-cleaner	:	Not provided
	Main cleaner:		
	Make	:	Own make
	Model	:	Not specified
	Type	:	Dry, paper element
	Location of air intake	:	In front of radiator under the bonnet.
	Maintenance indicator	:	Provided on the Instrument panel

1.2.6 Lubricating System:

Type of pump	:	Rotary, lobe
Type of filter(s)	:	Full flow, paper element
Number of filter(s)	:	One

1.2.7 Cooling System:

Type of coolant	:	Ethylene Glycol + water in the ratio of 1:3
Type of pump	:	Centrifugal

Specification of fan:

Type	:	Suction
Number of fan blades	:	4
Fan diameter	:	390 mm
Coolant capacity	:	10.5 dm^3
Type of temperature control	:	Thermostat
System pressure	:	50 kPa

1.2.8 Starting system:

Make	:	LUCAS, TVS, INDIA
Model	:	3 SM 114
Type	:	Pre-engaged solenoid
Starter motor power rating	:	2.2 kW
Cold starting aid	:	Glow plug provided in air intake manifold
Safety device	:	Neutral safety switch provided

1.2.9 Electrical System:

Voltage	:	12 V

Generator:

Make	:	LUCAS TVS, INDIA
Model	:	A 115-28
Type	:	Ventilated Alternator
Power	:	0.43 kW
Battery:		
Number	:	One
Rating	:	75 Ah. at 20 hours

1.2.10 Exhaust System:

Make	:	Own make
Model	:	None
Type	:	Down draft , horizontal
Location	:	Silencer provided below the LHS foot rest.

1.3 Transmission:

1.3.1 Clutch (Travel and power take-off):

Make	:	Amalgamations Repco
Model	:	None
Type	:	Dry, friction disc
Number of plates	:	Two
Diameter of plates	:	305 mm (travel) and 254 mm (PTO)
Method of disengagement	:	Mechanically actuated by pedal.

1.3.2 Gear Box:

Make	:	Own make
Model	:	None
Type	:	Mechanical, sliding mesh gears
Description	:	Central shift arrangement.

	Forward	Reverse
Number of gears	4	1
Number of ranges/groups	2	2
Total of arrangements	8	2

Available options : High/Low

1.3.3 Rear axle and final drives:

Make : Own make

Model : None

Type : Semi floating, final reduction through crown wheel and bevel pinion.

Differential lock:

Type : Mechanical coupling

Method of engagement : By depressing a pedal on RHS of the operator's seat.

Method of disengagement : Self disengagement.

1.3.4 Front axle and final drives:

Make	:	Own make
Model	:	None
Type	:	Telescopic without final drive.
Differential lock	:	Not provided

1.3.5 Total ratios and travelling speeds:

Gear No.	Range	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed of 2000 rev/min (km/h)
		Forward	Forward
L1	Low	200.86	2.21
L2	Low	136.94	3.25
L3	Low	100.28	4.44
L4	Low	74.72	5.95
H1	High	50.25	8.85
H2	High	34.26	12.98
H3	High	25.09	17.73
H4	High	18.69	23.80
		Reverse	Reverse
RL	Low	147.50	3.02
RH	High	36.90	12.05

(*) Calculated with a tyre dynamic radius index of 590 mm(ISO 4251:1998).

1.4 Power take-off:

1.4.1. Main Power Take-Off:

Type	:	Independent
Method of engagement	:	Positive engagement by hand lever provided on LHS.
Type of clutch	:	Dry friction disc.
Number of shafts	:	One
Method of changing power take-off shaft ends and speeds	:	Fixed speed

1.4.1.1 Power take-off proportional to engine speed:

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

Location	:	At rear of the tractor
Diameter of power take-off shaft end	:	34.73 mm
Number of splines	:	6, in conformity with ISO:500-1991
Height above ground	:	460 mm
Distance from the median plane of the tractor	:	0 mm
Distance behind rear axle centre	:	295 mm
Max. torque transmissible	:	882.6 Nm
Direction of rotation (viewed from shaft end)	:	Clockwise

PTO type	PTO speed (rev/min)	Engine speed (rev./min)	Engine/PTO transmission ratio	Power restriction
540	540	1790	3.313	None
	604	2000		

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:

Make : Own make
Model : None
Type : Hydraulic 3 point hitch, position & draft control
Type of hydraulic system : Open centre
Type and number of cylinders : Single acting, one
Type of linkage lock for transport : Lock for control lever on control quadrant
Relief valve pressure setting (tolerance) : 19 - 22.5 MPa
Opening pressure of cylinder safety valve : Safety valve not provided
Lift pump type : Reciprocating piston
Transmission between pump and engine : Gear drive.
Type and number of filters : Wire mesh strainer at suction, one
Site of oil reservoir : In transmission case
Type, number and location of tapping points:
- Type : Threaded female
- Number : Four
- Location : Two on top of lift cover, one at left hand side and one at right hand side of the lift cover.

Maximum volume of oil available to external cylinders : 10 dm^3

1.6 Three point linkage:

- Category : 1 of ISO standard 730 -1:1994 + Cor.1:1995(Ref. Fig.1.1 and 1.2) and ISO:730-2:1979
- Category adapter : None

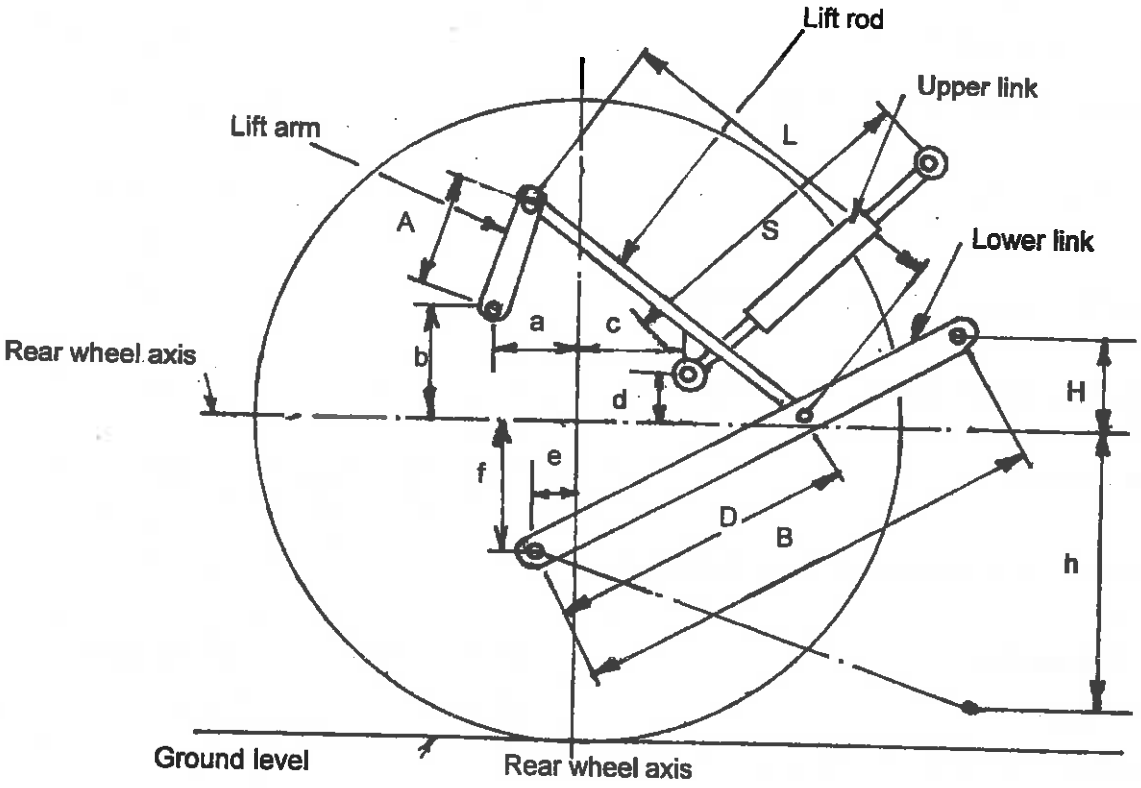


Figure 1.1
Lift test – Linkage geometry

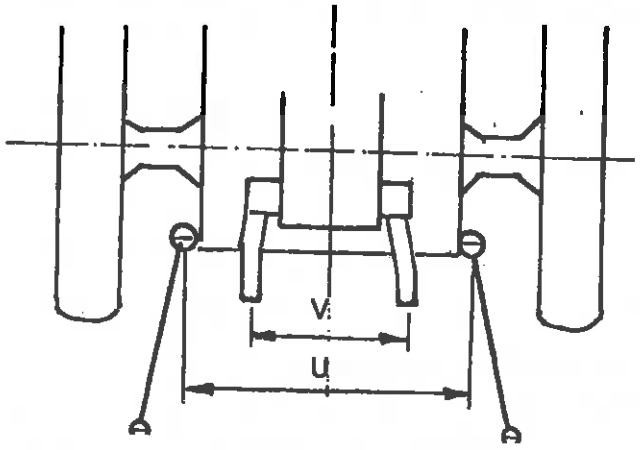


Figure 1.2
Lift test – Linkage geometry

		Dimension or range mm	Settings used in test mm
Length of lift arms:	(A)	260	260
Length of lower links:	(B)	875	875
Distance of lift arm pivot point from rear-wheel axis:			
- horizontally	(a)	195	195 forward
- vertically	(b)	230	230
Horizontal distance between the 2 lower link points:	(u)	505	505
Horizontal distance between the 2 lift arm end points:	(v)	535	535
Length of upper link:	(S)	From 590 to 835	700
Distance of upper link pivot point from rear wheel axis:			
- horizontally	(c)	130	130 behind
- vertically	(d)	270	270
Distance of lower link pivot point from rear wheel axis:			
- horizontally	(e)	45	45 forward
- vertically	(f)	110	110 below
Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	590, 650 & 725	590
Length of lift rods:	(L)	570	570
Height of lower hitch points relative to the rear-wheel axis:			
- in low position	(h)	435	435
- in high position	(H)	303	303
Height above ground of lower hitch points when locked in transport position (*)	-	893	893

(*) Assuming r = 590 mm rear tyre (tyre 12.4-28) dynamic radius index (ISO:4251-1:1998)

Table 1.1
Dimensions of linkage geometry when connected to the standard frame

1.7 Swinging drawbar(optional):

Type	:	Clevis
Height above ground		
- Maximum	:	380 mm
- Minimum	:	285 mm
Type of adjustment	:	By reversing the swinging drawbar hitch.
Distance of hitch point from rear-wheel axis,		
- Horizontal	:	513 mm
Distance of hitch point from power take-off shaft end:		
- Vertical	:	80 mm to 175 mm
- Horizontal	:	218 mm
Lateral adjustment (centre of clevis):		
- Right hand	:	125 mm
- Left hand	:	125 mm
Distance of pivot point from rear-wheel axis,		
- Horizontal	:	130 mm forward
Diameter of drawbar pin hole	:	26 mm
Maximum vertical permissible load:		
- at 356 mm from PTO shaft	:	7.56 kN
- at 254 mm from PTO shaft	:	9.79 kN

1.8 Trailer hitch (Optional): Not provided

1.9 Holed drawbar (Optional):

Number of holes	:	07
Distance between holes	:	80 mm
Hole diameter	:	25 mm
Thickness/Width of drawbar	:	38 mm/76 mm
Height above ground:		
- Minimum	:	435 mm
- Maximum	:	893 mm
Horizontal distance to power take-off shaft end (rear) lower links in horizontal position.	:	535 mm

1.10 Steering:

Make	:	ROSS
Model	:	None
Type	:	Hydrostatic
Method of operation	:	Steering wheel operated with hydraulic power
- Pump (s)	:	1, Gear pump
- Ram (s)	:	2, double acting
- Working pressure	:	11.0 MPa

1.11 Brakes:

1.11.1 Service brake:

Make	:	Brakes India Ltd.
Model	:	None
Type	:	Mechanical internal expanding shoe.
Method of operation	:	Independently/combined foot operated with interlocking arrangement for simultaneous operation.
Trailer braking take-off (hydraulic or air brake)	:	None

1.11.2 Parking brake:

Type	:	Mechanical linkage
Method of operation	:	Pull type hand lever operation on LHS

1.12 Wheels:

Number:		
- Front	:	2 steering
- Rear	:	2 driving
Wheel base	:	1935 mm

Track width adjustment:

	Minimum (mm)	Maximum (mm)	Adjustment method
Front	1230	1830	Changing the position of front axle
Rear	1320	1920	Changing the position of wheel disc on the rim lugs and reversing the wheel disc .

1.13 Protective structure : Not provided

1.14 Seat:

1.14.1 Driver's seat:

Make	:	Harita Grammar
Model	:	None
Type	:	Cushioned
Seat and steering wheel reversible	:	No
Type of suspension	:	Coil spring
Type of damping	:	Hydraulic shock absorber
Range of adjustment:		
- Longitudinal	:	56 mm
- Vertically	:	50 mm
Safety belt	:	Not fitted

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

1.14.3 Passenger seat : Not fitted

1.15 Lighting:

	Height above ground of centre	Size	Distance from outside edge of lights to median plane of tractor
	(mm)	(mm)	(mm)
Head lights	985	165 x 110	225
Side lights	1425	115 x 35	557
Rear lights	1370	115 x 70	553
Reflectors (Rear mudguards)	1275	50 ϕ	480
Flashers	1425	115 x 35	553

2. TEST CONDITIONS

2.1 Overall dimensions:

	Length	Width		Height at top of seat
		minimum	maximum	
	(mm)	(mm)	(mm)	(mm)
Unballasted	3185	1635	2300	1460
Ballasted	3405	2010	2300	1460

2.2 Ground clearance (unballasted tractor):

Ground clearance	:	335 mm
Clearance – limiting part	:	Gear box

2.3 Tractor Mass:

	Ballasted		Unballasted	
	Without driver	With driver	Without driver	With driver
	(kg)	(kg)	(kg)	(kg)
Front	850	860	680	690
Rear	1700	1765	970	1035
Total	2550	2625	1650	1725

2.4 Ballast

Front: 1 Front bracket : 20 kg
4 weights, total : 100 kg

Rear: 10 weights, total : 560 kg
Water in the tyres : 220 kg

2.5 Tyres and track width specifications:

		Front	Rear
Tyres:			
- dimensions		6.00 x 16	12.4 x 28
- ply rating		6	8
- type		Pneumatic, ribbed	Pneumatic, traction
- maximum load (tyre manufacturer's)	kN	5.60	15.10
- maximum load (tractor manufacturer's)	kN	4.25	10.91
- inflation pressure (tyre manufacturer's)	kPa	230	118
- dynamic radius index	mm	342	590
Chosen track width	mm	1360	1320

2.6 Fuel:

Type : High speed diesel fuel conforming to IS:1460-1998

Density at 15 °C : 0.839 g/cm^3

2.7 Oils and lubrication:

2.7.1 Capacity and change interval:

	Capacity (dm^3)	Oil change (h)	Filter change (h)
Engine sump	6.0	First - 50 Subsequent - 200	First - 50 Subsequent - 200
Gear box, rear axle final drive and hydraulic system.	29.0	First - 100 Subsequent - 600	–
Power steering	1.5	No change	1 year

2.7.2 Specifications:

	Recommended	Used during test
Engine oil:		
- Type - Viscosity - Classification	HD X 30 10 – 12 cSt at 100°C SAE 30	As recommended
Transmission oil:		
- Type - Viscosity	HD 90 16 – 18 cSt at 100 °C	As recommended
Hydraulic fluid :		
- Type - Viscosity	HD 90 16 – 18 cSt at 100 °C	As recommended
Steering oil:		
- Type - Viscosity	Castrol (G M Type A) 7 – 8.4 cSt at 100°C	As recommended

2.7.3 Grease:

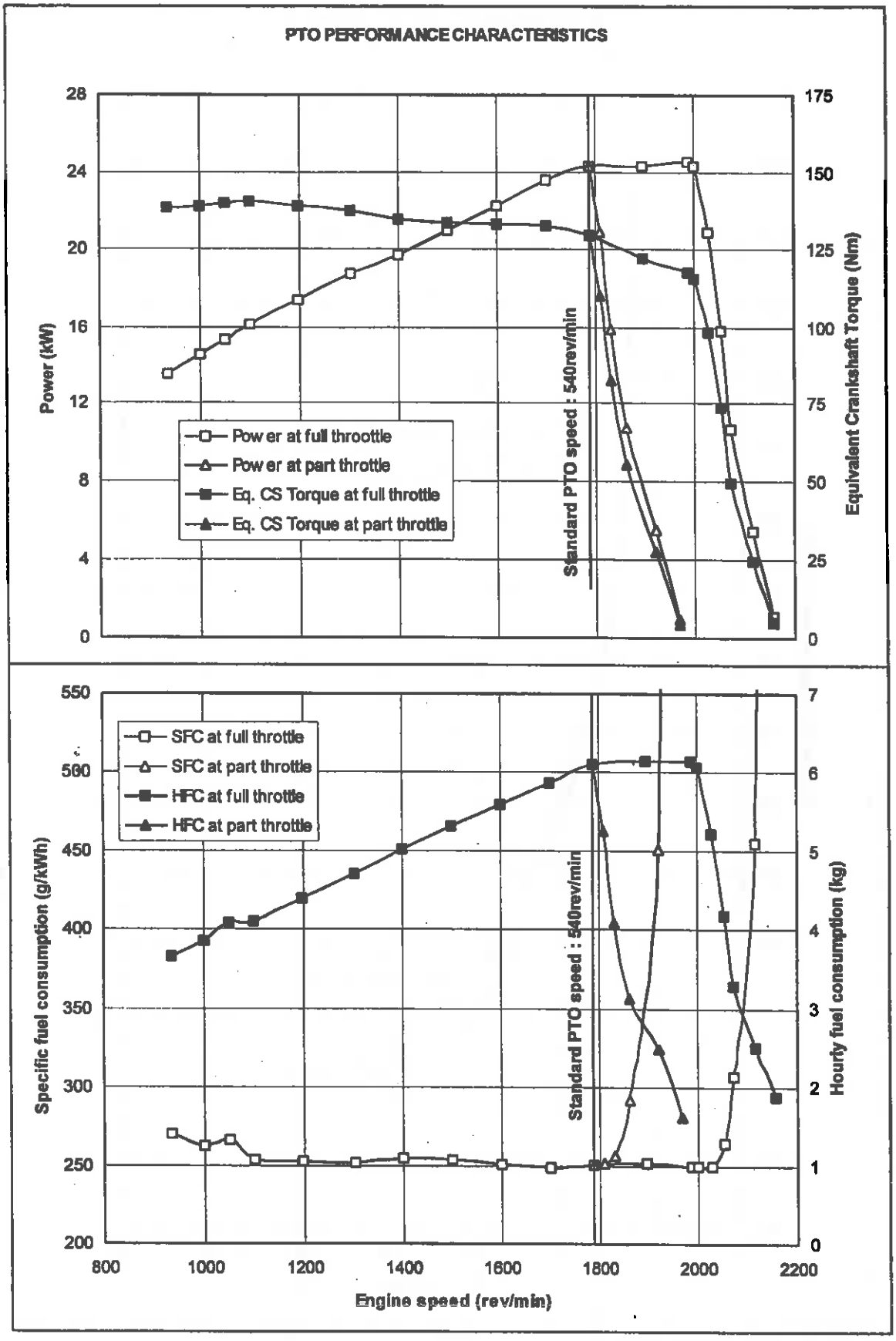
Number of lubricating points : 09

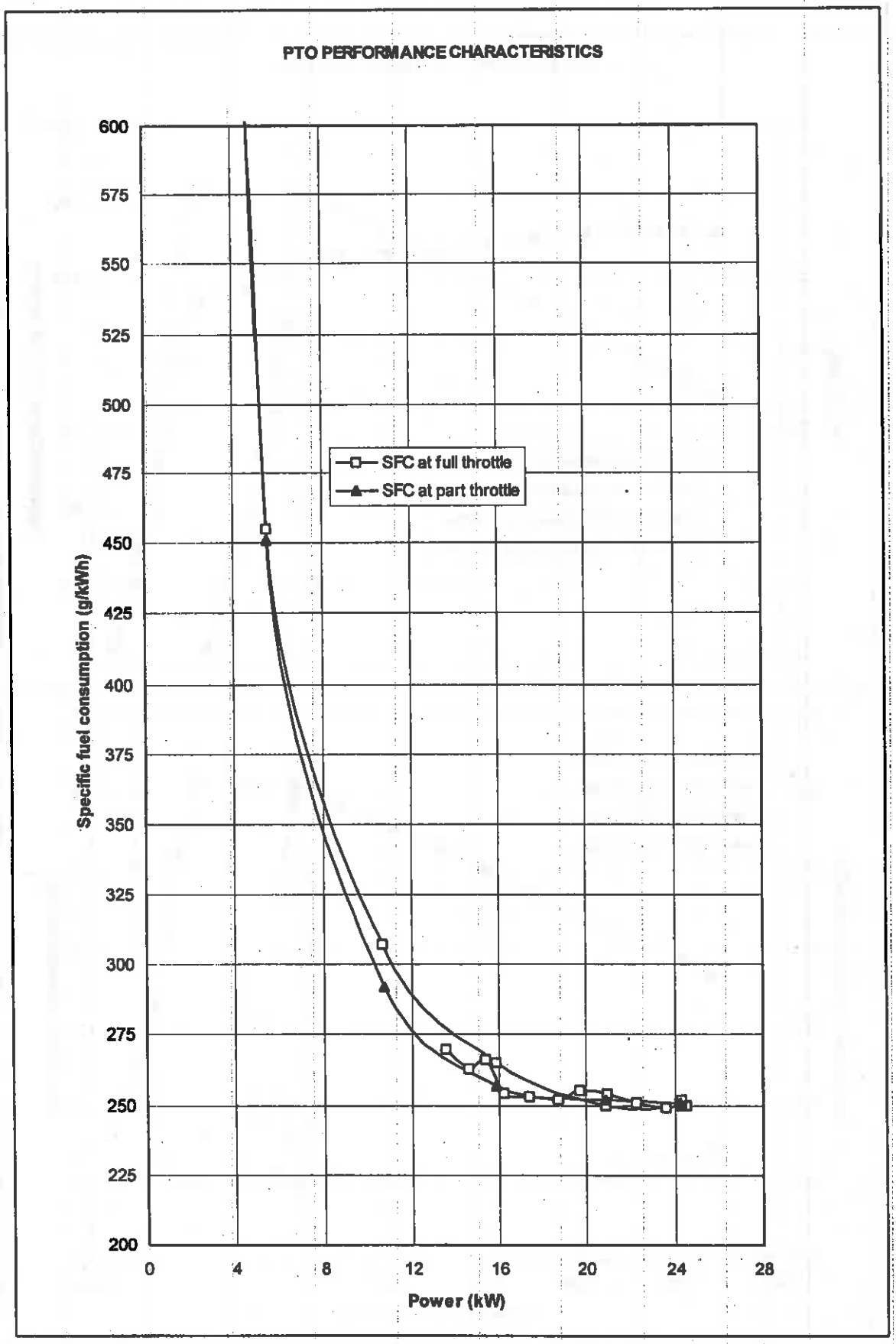
3. COMPULSORY TESTS RESULTS

3.1 Main power take-off:

- Date and location of tests : 17-05-2001 at CFMT&TI, BUDNI
- Type of dynamometer bench : FUCHINO EDDY CURRENT

Power	Speed		Fuel consumption			Specific energy
	Engine	P.T.O.	Hourly		Specific	
kW	min.$^{-1}$(rev/min)		l/h	kg/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO HOURS TEST						
24.5	1988	600	7.31	6.14	250	3.36
3.1.2 POWER AT RATED ENGINE SPEED(2000 rev/min)						
24.3	2001	604	7.23	6.07	250	3.36
3.1.3 STANDARD POWER TAKE-OFF SPEED [540 ± 10 (rev/min)]						
24.3	1789	540	7.26	6.09	251	3.34
PART LOADS						
3.1.4.1 The torque corresponding to maximum power at rated engine speed						
24.3	2001	604	7.23	6.07	250	3.36
3.1.4.2 85 % of torque obtained in 3.1.4.1						
20.9	2028	612	6.23	5.23	250	3.35
3.1.4.3 75 % of torque defined in 3.1.4.2						
15.8	2054	620	4.99	4.19	265	3.17
3.1.4.4 50 % of torque defined in 3.1.4.2						
10.7	2071	625	3.91	3.28	307	2.73
3.1.4.5 25 % of torque defined in 3.1.4.2						
5.5	2117	639	2.98	2.50	455	1.84
3.1.4.6 Unloaded						
1.1	2157	651	2.23	1.87	1716	0.49
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 :						
24.3	1789	540	7.26	6.09	251	3.34
3.1.5.2 85 % of torque obtained in 3.1.5.1						
20.9	1809	546	6.27	5.26	252	3.33
3.1.5.3 75 % of torque defined in 3.1.5.2						
15.9	1832	553	4.86	4.08	257	3.27
3.1.5.4 50 % of torque defined in 3.1.5.2						
10.8	1862	562	3.74	3.14	292	2.88
3.1.5.5 25 % of torque defined in 3.1.5.2						
5.5	1922	580	2.97	2.49	451	1.85
3.1.5.6 Unloaded						
0.9	1968	594	1.93	1.62	1742	0.48


PTO PERFORMANCE CHARACTERISTICS
Power (kW)
Equivalent Crankshaft Torque (Nm)
Standard PTO speed : 540rev/min
Power at full throttle
Power at part throttle
Eq. CS Torque at full throttle
Eq. CS 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
200
0
4
8
12
16
20
24
28
Power (kW)

Other results:

- No load maximum engine speed : 2157 rev/min

Torque (equivalent crankshaft) at maximum power:

- At rated engine speed : 115.9 Nm
- At 2 - hour test : 117.9 Nm

Maximum torque (equivalent crankshaft) (Engine speed : 1100 rev/min) : 140.4 Nm

Means atmospheric conditions:

Temperature : 23 °C
Pressure : 97.3 kPa
Relative humidity : 77%

Maximum temperatures:

Coolant : 85 °C
Engine oil : 107 °C
Fuel : 41 °C
Engine air-intake : 38 °C

3.2 Hydraulic power and lifting force:

Date of test(s) : 29.6.2001, 05.07.2001 and 06.07.2001

3.2.1 Hydraulic Power Test:

- Tapping point used for test : External circuit
- Temperature of hydraulic fluid if different from 65 ± 5 °C : None
- Opening pressure of the unloading valve : Not applicable
- Closing pressure of the unloading valve : Not applicable

Sustained pressure with relief valve open : 24 MPa

Pump stalled : Not applicable for open centre system.

Pump delivery rate at minimum pressure : 17.9 l /min

	Flow rate (l / min)	Pressure (MPa)	Power (kW)
Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	7.6	21.6	2.74
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	15.8	19.0	5.00

3.2.2 Power Lift Test:

3.2.2.1 Standard setting (Ref. Table 1.1 and Fig. 1.1 & 1.2)

		At hitch point	On the frame
Height of lower hitch points above ground in down position	(mm)	310	315
Vertical movement without lifting forces	(mm)	735	735
with lifting forces	(mm)	650	650
Maximum corrected force exerted through full range	(kN)	13.74	12.81
Corresponding pressure of hydraulic fluid	(MPa)	24.02	24.31
Moment about rear wheel axle	(kNm)	11.40	18.45
Maximum tilt angle of mast from vertical	(Degrees)	–	8.5

Lifting height relative to the horizontal plane including the lower link pivot points.															
mm	-310	-200	-100	0	+100	+200	+250	+255	+290	+295	+300	+305	+315	+325	+340
At the hitch point (kN)	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.)														
	13.74	15.06	16.38	17.16	17.86	18.14	18.62	–	18.94	19.19	–	19.23	19.24	19.28	19.37
	Corresponding pressure 21.6 MPa														
At the frame (kN)	12.81	14.10	14.82	15.23	15.43	15.07	–	14.96	14.98	–	14.92	–	–	14.78	14.39
	Corresponding pressure 21.6 MPa														

3.3 Drawbar power test (Unballasted and ballasted tractor):

Date of tests : 04.09.2001, 05.09.2001 & 13.09.2001 to 15.09.2001

Type of track : Concrete

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	550	230	118
Ballasted	550	230	118

DRAWBAR PERFORMANCE TEST

Gear number and range	Power	Draw-bar pull	Speed	Engine speed	Slip of wheels	Specific fuel Consum-ption	Speci-fic energy	Temperature				Atmospheric conditions		
								Fuel	Cool-ant	Eng-ine oil	Trans-mission oil	Temp.	Rela-tive humi-dity	Press-ure
	kW	kN	km/h	rev/ min	%	g/kWh	kWh/l	°C	°C	°C	°C	°C	%	kPa
3.3.1	**MAXIMUM POWER IN TESTED GEARS - (Unballasted tractor):**													
L1	6.3	10.9	2.08	2086	15.1	459	1.78	34	79	105	70	32	78	97.5
L2	9.4	11.2	3.03	2074	15.2	381	2.15	31	79	100	53	31	77	97.5
L3	12.1	10.6	4.08	2043	15.1	339	2.40	39	80	109	87	34	75	97.1
L4	16.2	10.7	5.43	2027	15.0	320	2.54	40	83	110	77	35	73	97.1
H1	20.0	8.5	8.49	2013	10.6	291	2.80	38	81	92	60	35	73	97.1
H2	19.3	5.5	12.61	1987	8.2	301	2.69	45	83	110	68	31	80	97.3
3.3.2	**MAXIMUM POWER IN TESTED GEARS (ballasted tractor):**													
L1	9.8	17.8	1.99	2052	14.9	360	2.26	40	80	108	88	36	71	97.1
L2	14.3	17.8	2.90	2031	14.8	319	2.55	41	81	110	88	36	68	97.1
L3	18.9	18.3	3.73	1913	15.1	317	2.57	40	84	112	86	35	69	97.1
L4	19.9	13.9	5.16	1875	10.6	299	2.72	40	88	110	77	35	71	97.2
H1	20.2	8.5	8.51	1988	6.8	269	3.01	43	84	112	78	34	75	97.3
H2	19.8	5.7	12.51	1995	7.0	290	2.82	36	83	102	61	34	75	97.3
3.3.3	**FIVE-HOUR TESTS**													
3.3.3.1	**FIVE-HOUR TEST at 75% of the pull corresponding to maximum power at rated speed (Ballasted tractor)***													
L3	15.9	13.7	4.16	2025	10.3	303	2.70	30 to 39	82	105 to 112	60 to 96	28 to 35	74 to 86	97.4 to 97.5
3.3.3.2	**FIVE-HOUR TEST at pull corresponding to 15% wheel slip (Ballasted tractor)***													
L2	14.3	17.8	2.88	2027	–	321	2.54	31 to 40	80 to 82	104 to 112	57 to 97	30 to 37	68 to 81	97.5 to 97.8

The oil consumption during the tests 3.3.3.1 & 3.3.3.2 was not measurable by dipstick.

* Apart from the ballast stated at page No. 12 , Para 2.4 no other additional ballast was used during test.

3.4 Turning area and turning circle:

	Without brakes	
	Left-hand	Right-hand
	(m)	(m)
Radius of turning area	3.43	3.49
Radius of turning circle	3.28	3.34

3.5 Location of centre of gravity:

Height above ground : 813 mm

Distance forward from the vertical plane containing the axis of the rear wheels : 774 mm

Distance from the median longitudinal plane of the tractor (to the right side) : 2.0 mm

3.6 Braking performance:

Date of tests : 05.09.2001 and 07.09.2001

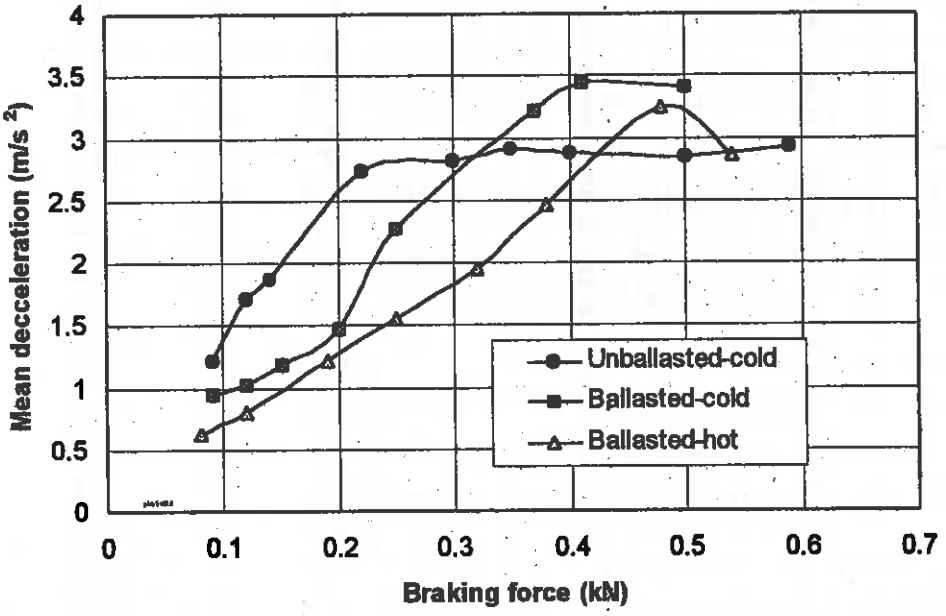


Figure
Cold service braking device test and fade test

3.6.1 Cold service braking device test:

Unballasted Tractor			
Speed before application of brakes	Braking device control force	Mean deceleration	Stopping distance
(km/h)	(kN)	(m/s^2)	(m)
26.64	0.09	1.22	22.40
	0.12	1.71	16.00
	0.14	1.88	14.60
	0.22	2.74	10.00
	0.30	2.82	9.70
	0.35	2.91	9.40
	0.40	2.88	9.50
	0.50	2.85	9.60
	0.59	2.93	9.34
Ballasted Tractor			
26.10	0.09	0.94	28.1
	0.12	1.03	25.6
	0.15	1.19	22.01
	0.20	1.48	17.75
	0.25	2.27	11.57
	0.37	3.22	8.2
	0.41	3.44	7.7
	0.50	3.41	7.7

3.6.2 Fade test:

Speed before application of brakes	Braking device control force	Mean deceleration	Stopping distance
26.10	0.08	0.63	41.99
	0.12	0.80	32.67
	0.19	1.22	21.53
	0.25	1.55	16.97
	0.32	1.96	13.40
	0.38	2.47	10.64
	0.48	3.25	8.08
	0.54	2.86	9.18