Report on test in accordance with
O.E.C.D. STANDARD CODE I for the Official
Testing of Agricultural Tractor Performance

FULL CODE

O.E.C.D. Approval No. : 1/1868

Date of approval : 8th December, 1999



Agricultural Tractor
TONG YANG T390(4WD)

Manufactured by : TONG YANG MOOLSAN CO., Ltd.
604-9, Namsan-dong, Changwon-city,
Kyungsangnam-do, Republic of KOREA

NATIONAL AGRICULTURAL MECHANIZATION RESEARCH INSTITUTE
249, Seodun-dong, Kwonson-gu, Suwon-city, Kyunggi-do, Republic of Korea

This is a report on a tractor test in accordance with the OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance(C(87)53(Final), Code 1) and amendments (C(90)79, C(92)52, C(93)52, C(93)133, C(95)17) and C(99)23).

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

Report No. : 99-M-5-2

Duration of test : March 1999 till June 1999

Date of approval : 8th December, 1999

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE Ⅰ.

In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces	1 kgf	=	9.80665 N
Powers	1 PS	=	0.7355 kW
Pressures	1 kgf/ ㎠	=	98.0665 kPa

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Printed in the Republic Of KOREA, February 2000 ; NAMRI

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- Tractor manufacturer's name and address : TONG YANG MOOLSAN Co., Ltd. 604-9, Namsan-dong, Changwon-city, Kyungsangnam-do, Korea
- Location of tractor assembly : 604-9, Namsan-dong, Changwon-city, Kyungsangnam-do, Korea
- Submitted for test by : The manufacturer
- Selected for test by : The manufacturer in agreement with the test station
- Place of running-in : TONG YANG MOOLSAN Co., Ltd.
- Duration of running-in : Engine and tractor 69 hours
- Location of test : NAMRI

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

- Make : Tong Yang
- Model : T390
- Type : Wheeled tractor, unit construction
- Number of driving wheels : 4
- Serial No. : S 02 0050
- 1st Serial No. : S 02 0001

1.2 Engine

- Make : Kubota
- Model : V1903
- Type : 4 stroke, water cooled, indirect diesel, naturally aspirated
- Serial No. : V1903-27101

1.2.1 Cylinders

- Number/disposition : 4, Vertical, in-line
- Bore/stroke : 80 / 92.4 ㎜
- Capacity : 1857 ㎤
- Compression ratio : 23.0 : 1
- Arrangement of valves : Overhead
- Cylinder liners (wet or dry) : None

1.2.2 Supercharging

None

1.2.3 Fuel system

- Fuel feed system : Force feed type

- Fuel filters
  - ·Make : Samo
  - ·Model : 36573112000
  - ·Type : Replaceable element
- Capacity of fuel tank : 35 dm^3
- Injection pump
  - ·Make : Nihon Denso
  - ·Model : PFR 4M
  - ·Type : Bosch, in line
- Serial No. : None
- Manufacturer's production setting of injection pump
  - ·Flow rate : 8.83± 0.4dm'/h at rated engine speed and full load
  - ·Timing : 18 degrees before T.D.C
- Injectors
  - ·Make : Nihon Denso
  - ·Model : DNOPD95
  - ·Type : Multi-hole
- Injection pressure : 13.7 MPa

1.2.4 Governor
- Make : Kubota
- Model : None
- Type : Variable speed governor, mechanically acting
- Governed range of engine speed : From 800± 50 to 2950± 50 rev/min
- Rated engine speed : 2800 rev/min

1.2.5 Air cleaner
- Pre-cleaner
  - ·Make : None
  - ·Model : None
  - ·Type : None
  - ·Location of air intake : None
- Main cleaner
  - ·Make : Poong-Yang
  - ·Model : 14501032000
  - ·Type : Cyclone type, dry
  - ·Location of air intake(in case of no pre-cleaner) : Under the bonnet, in front of the radiator
- Maintenance indicator : None

1.2.6 Lubrication system

- Type of feed pump :	Rotor type
- Type of filter(s) :	Full flow, replaceable canister
- Number of filters :	1

1.2.7 Cooling system

- Type of coolant :	Water or water and antifreeze solution
- Type of pump :	Centrifugal
- Specification of fan :	Belt driven, puller
·Number of fan blades :	7
·Fan diameter :	380 mm
- Coolant capacity :	8.5 dm³(Radiator 3.9 dm³ + Engine 4.6 dm³)
- Type of temperature control :	Wax type thermostat
- Superpressure system :	107.9 kPa, at radiator cap

1.2.8 Starting system

- Make :	Nihon Denso
- Model :	15461-63014
- Type :	Electrical, pre-engaged, solenoid operated
- Starter motor power rating :	1.4 kW
- Cold starting aid :	Electrical glow plug
- Safety device :	Starting operable only when main clutch pedal fully depressed

1.2.9 Electrical system

- Voltage :	12 V
- Generator	
·Make :	Daewoo
·Model :	219210
·Type :	3 phase generator
·Power :	0.6 kW
- Battery of accumulators	
·Number :	1
·Rating :	110Ah at 20 hours rating

1.2.10 Exhaust system

- Make :	Sae-Shin
- Model :	14611055200
- Type :	Silencer
- Location :	Under bonnet, left hand side in front of engine

1.3 TRANSMISSION

1.3.1 Clutch (travel alone)

- Make : Seo-Jin
- Model : 14601212000
- Type : Dry single plate clutch
- Number of plates : 1
- Diameter of plates : 225 mm
- Method of operation : Mechanically actuated by pedal

1.3.2 Gear box

- Make : Own make
- Model : None
- Type : Mechanical
- Description : 4 main gear with constant-mesh (1st.-2nd.) and synchro-mesh (3rd.-4th.), 3 range gear with constant-mesh and 1 creeper gear

	Forward	Reverse
Number of gears	4	4
Number of ranges	4	4
Total of arrangements	16	16

※ The creeper gear is not to be used for heavy drawbar work,

- Available options : None

1.3.3 Rear axle and final drives

- Make : Own make
- Model : 14613000000
- Type : Bevel gear type differential and helical gear type final drives
- Differential lock
  - ·Type : Mechanical
  - ·Method of engagement : Mechanically actuated by foot pedal
  - ·Method of disengagement : Self-disengagement by spring

1.3.4 Front axle and final drives

- Make : Seil
- Model : 14614003000
- Type : Bevel gear type differential and bevel gear type final drives
- Differential lock : Not available

1.3.5 Total ratios and travelling speeds

Gear No	Group or range	Number of engine revolutions for one revolution of driving wheels		Nominal travelling speed(*) at rated engine speed to 2800 rev/min (km/h)	
		Forward	Reverse	Forward	Reverse
1	LL-1	1425.50	1425.50	0.41	0.41
2	LL-2	1045.36	1045.36	0.57	0.57
3	LL-3	765.54	765.54	0.77	0.77
4	LL-4	565.67	565.67	1.04	1.04
5	L-1	462.82	462.82	1.28	1.28
6	L-2	339.40	339.40	1.74	1.74
7	L-3	248.55	248.55	2.38	2.38
8	L-4	183.66	183.66	3.22	3.22
9	M-1	176.49	176.49	3.35	3.35
10	M-2	129.43	129.43	4.57	4.57
11	M-3	94.78	94.78	6.24	6.24
12	M-4	70.04	70.04	8.44	8.44
13	H-1	57.30	57.30	10.32	10.32
14	H-2	42.02	42.02	14.07	14.07
15	H-3	30.77	30.77	19.21	19.21
16	H-4	22.74	22.74	25.99	25.99

(*) Calculated with rear tyre dynamic radius index of 560 mm(ISO 4251/1-1992).

Number of revolutions of front wheels for one revolution of rear-wheels : 1.547

Range selection : LL = Creep, L = Low, M = Medium, H = High

1.4 POWER TAKE-OFF

1.4.1 Main power take-off

- Type : Independent
- Method of engagement : Operated electrohydraulical by push button, Driven by wet multiplate clutch
- Number of shafts : 1
- Method of changing power take-off shaft ends and speeds : Speed change manually by hand lever

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 rev/min

- Location : Rear of tractor
- Diameter of power take-off shaft end : 35 mm
- Number of splines : 6, in conformity with ISO 500/1991
- Height above ground : 560 mm

- Distance from the median plane of the tractor : 0 mm
- Distance behind rear-wheel axis : 278 mm
- PTO speed at rated engine speed(2800rev/min) : 588 rev/min

PTO speed at rated engine speed(2800rev/min)			
1st	2nd	3rd	4th
588rev/min	705rev/min	1058 rev/min	1322 rev/min

- Engine speed at standard power take-off speed : 2573 rev/min
- Ratio of rotation speeds (engine speed / p.t.o speed) : 4.765 : 1
- Power restriction : None
- Maximum torque transmissible : None
- Direction of rotation(viewed from behind 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

- Make : Own make
- Model : 14615000000
- Type : Hydraulic, position, draft and mixed control
- Type of hydraulic system : Open center system
- Type and number of cylinders : 1, Single acting
- Type of linkage lock for transport : Hydraulic
- Relief valve pressure setting : $15.7 \pm {}^{0.5}_{0}$ MPa
- Opening pressure of cylinder safety valve : Not fitted
- Lift pump type : Gear pump
- Transmission between pump and engine : Driven by engine cam shaft
- Type and number of filters : 1 strainer and 2 cartridges
- Site of oil reservoir : Transmission housing
- Type, number and location of tapping points : SAE 3/8" hydraulic female coupler, 4 sets, rear of tractor
- Maximum volume of oil available to external cylinders : None

1.6 Three-point linkage

- Category : 1, in conformity with ISO 730/1-1994
- Category adapter : None

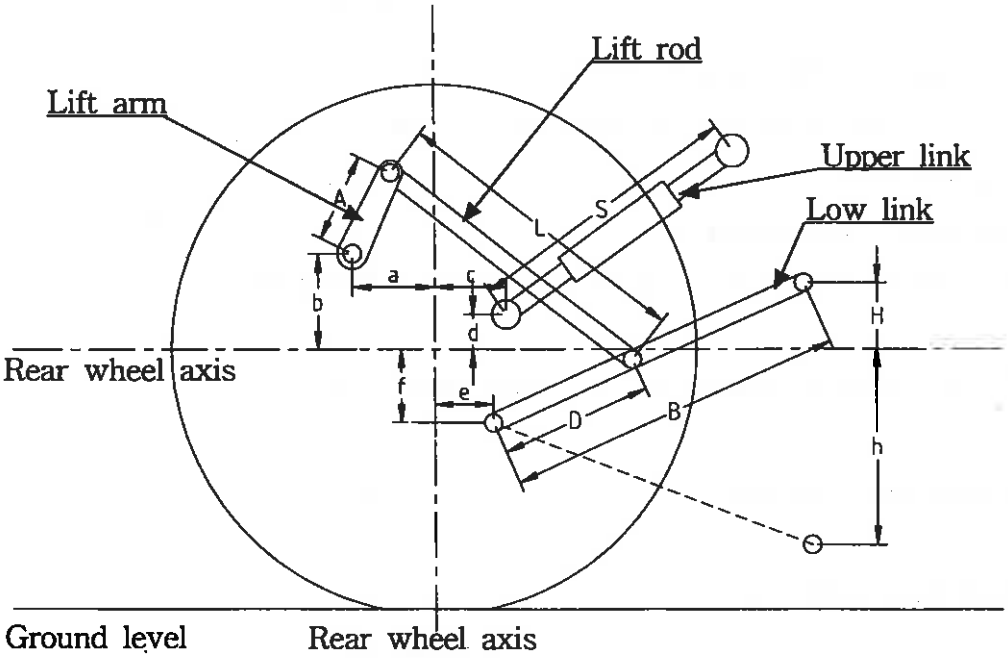


Figure 1.1 Linkage geometry

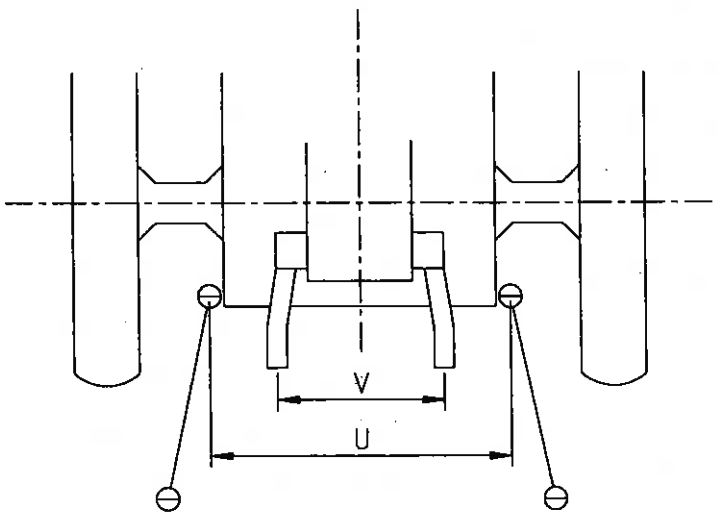


Figure 1.2 Linkage geometry

			Dimension or range (mm)	Settings used in test (mm)
Length of lift arms		(A)	260	260
Length of lower links		(B)	691	691
Distance of lift arm pivot point from rear-wheel axis	horizontally	(a)	49	49
	vertically	(b)	207	207
Horizontal distance between the 2 lower link points		(u)	395	395
Horizontal distance between the 2 lift arm end points		(v)	400	400
Length of upper link		(S)	from 480 to 750	492
Distance of upper link pivot point from rear wheel axis	horizontally	(c)	320	320
	vertically	(d)	from 200 to 290	245
Distance of lower link pivot point from rear wheel axis	horizontally	(e)	133	133
	vertically	(f)	155	155
Distance of lower link pivot point to lift rod pivot points on lower links		(D)	from 400 to 550	400
Length of lift rods		(L)	from 440 to 500	440
Height of lower hitch points relative to the rear-wheel axis				
- in low position		(h)	from 110 to 470	365
- in high position		(H)	from 145 to 270	195
Height above ground of lower hitch points when locked in transport position(*)			Any height within lifting range	

(*)Assuming r = 560mm tyre dynamic radius index of ISO 4251/1-1992

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

1.7 Swinging drawbar : None

1.8 Trailer Hitch

- Type	Fixed clevis on the rear of transmission housing
- Hole diameter :	28 mm
- Height above ground :	347 mm
- Distance of hitch point from rear-wheel axis, horizontally :	318 mm
- Distance of hitch point from power take-off shaft end	
·Vertically :	161 mm
·Horizontally :	40 mm
- Maximum vertical permissible load :	8.4 kN

1.9 Holed drawbar : None

1.10 Steering

- Make :	Sumitomo Eaton
- Model :	ORBITROL UBS110B16AWD
- Type :	Hydrostatic
- Method of operation :	Steering wheel operated and full hydraulic power
·Pump :	Gear pump
·Ram :	1, double acting ram actuated directly on front axle
- Working pressure :	From 10.0 to 10.8 MPa

1.11 Brakes

1.11.1 Service brake

- Make :	Jin-Myoung
- Model :	15643102602F
- Type :	Oil-immersed multiplate discs, 4 per side
- Method of operation :	Operated by 2 foot pedals which can be locked together
- Trailer braking take-off :	None

1.11.2 Parking brake

- Type :	Mechanical in common with service brake
- Method of operation :	Depressed by pedals and ratched by hand lever

1.12 Wheels

- Number	
·Front :	2, steering and driving
·Rear :	2, driving
- Wheelbase :	1780 mm

- Track width adjustment :

	Minimum mm	Maximum mm	Adjustment method
Front	1200	1412	By reversing wheels and offset lug rims
Rear	1170	1480	

1.13 Protective structure

- Make : Own make
- Model : TSF43
- Type : 2 posts configuration attached to the rear
- Manufacturer's name and address : TONG YANG MOOLSAN Co., Ltd
  604-9, Namsan-dong, Changwon-city,
  Kyungsangnam-do, Korea
- Protective device : Rollguard, not tiltable
- OECD approval
  - ·Approval number : None
  - ·Date of approval : None
  - ·Nos. of minor modification certificates, if any : None

1.14 Seat

1.14.1 Driver's seat

- Make : Young Jin
- Model : 15606112005G
- Type : Upholstered seat with back rest
- Seat and steering wheel reversible : No
- Type of suspension : Not available
- Type of damping : Not available
- Range of adjustment
  - ·Longitudinal : 120 mm
  - ·Vertical : Fixed
- Safety belt : Yes

1.14.2 Optional driver's seat : None

1.14.3 Passenger seat : None

1.15 Lighting

	Height above ground of center	Size	Distance from outside edge of lights to median plane of tractor
	mm	mm	mm
Head lights	950	150× 90	218
Side lights	1425	78× 78	656
Rear lights	1320	190× 70	627
Reflectors	1320	50× 50	550

2. TEST CONDITIONS

2.1 Overall dimensions

	Length	Width		Height at top of	
		minimum	maximum	protective structure	exhaust silencer(*)
	mm	mm	mm	mm	mm
Ballasted	3350	1516	1840	2250	800
Unballasted	3270	1516	1840	2250	800

(*) The exhaust silencer is on the left hand side under bonnet.

2.2 Ground clearance (unballasted tractor) : 340 mm

- Clearance-limiting part : Front axle housing

2.3 Tractor mass

- Mass(with frame)

	Ballasted		Unballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	811	823	708	721
Rear	934	997	962	1024
Total	1745	1820	1670	1745

2.4 Ballast

	Weights		Water
	Number	Total mass	
		kg	kg
Front	1	75	-
Rear	-	-	-
Optional	-	-	-

2.5 Track specifications : None

2.6 Tyres and track width specifications

	Front	Rear
Tyres		
·dimensions	8-16	13.6-24
·ply rating	4	6
·type	Diagonal	Diagonal
·maximum load (tyre manufacturer's)	4.66 kN	13.14 kN
·maximum load (tractor manufacturer's)	4.66 kN	13.14 kN
·inflation pressure (tyre manufacturer's)	157 kPa	157 kPa
·dynamic radius index	366 mm	560 mm
Chosen track width	1200 mm	1170 mm

2.7 Fuel

- Type : Diesel fuel No 2, in conformity with Korean Standards(KS M 2620)
- Density at 15℃ : 0.824 g/㎤

2.8 Oils and lubricants

2.8.1 Capacity and change interval

	Capacity	Oil change	Filter change
	dm³	h	h
Engine	9	200	400
Gear box, rear axle, steering and final drives in common with hydraulic system	29	300	300
Front axle and final drives	8	600	-

2.8.2 Specifications

	Recommended	Used during test
Engine oil ·Type : ·Viscosity : ·Classification :	Delo 400, SAE 15W-40 14.0 cSt at 100 ℃ API-CF-4	Same
Transmission oil, Hydraulic fluid, Steering oil ·Type : ·Viscosity : ·Classification :	TONG YANG THF500 9.2 cSt at 100 ℃ API GL-4	Same

2.8.3 Grease

- Number of lubrication points : 7

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

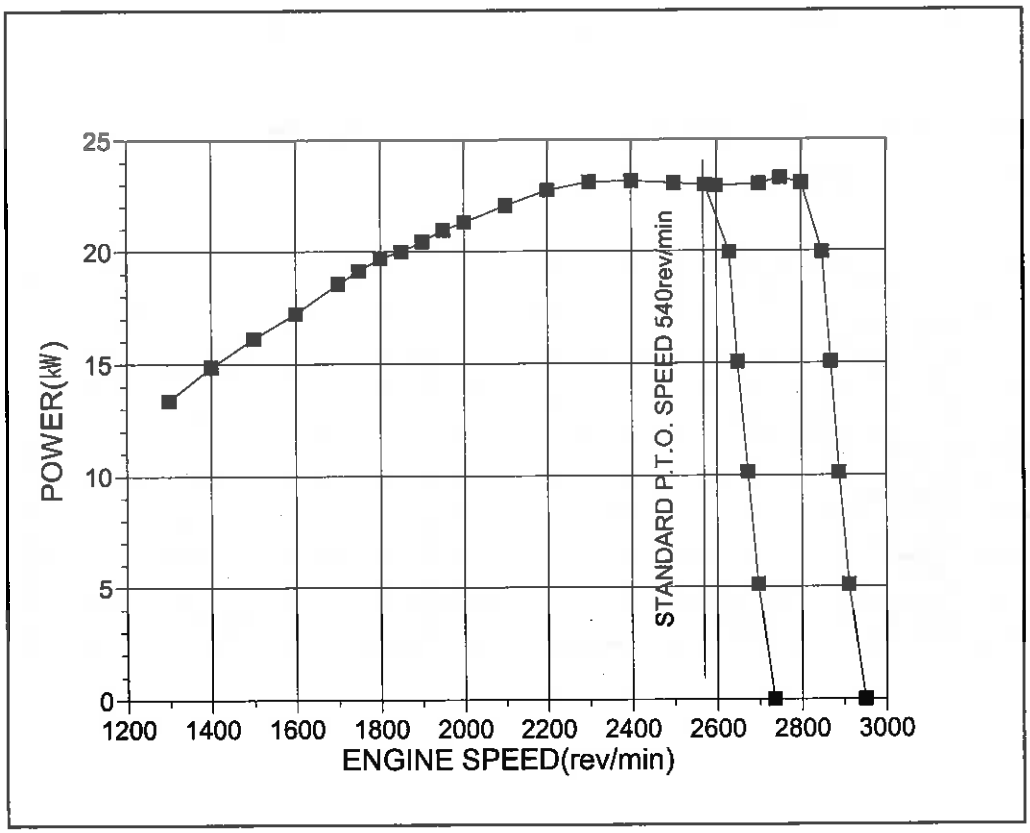
- Date and location of tests : 2nd April to 8th April, 1999, NAMRI, Konjiam
- Type of dynamometer : Eddy current, FROUD AG250

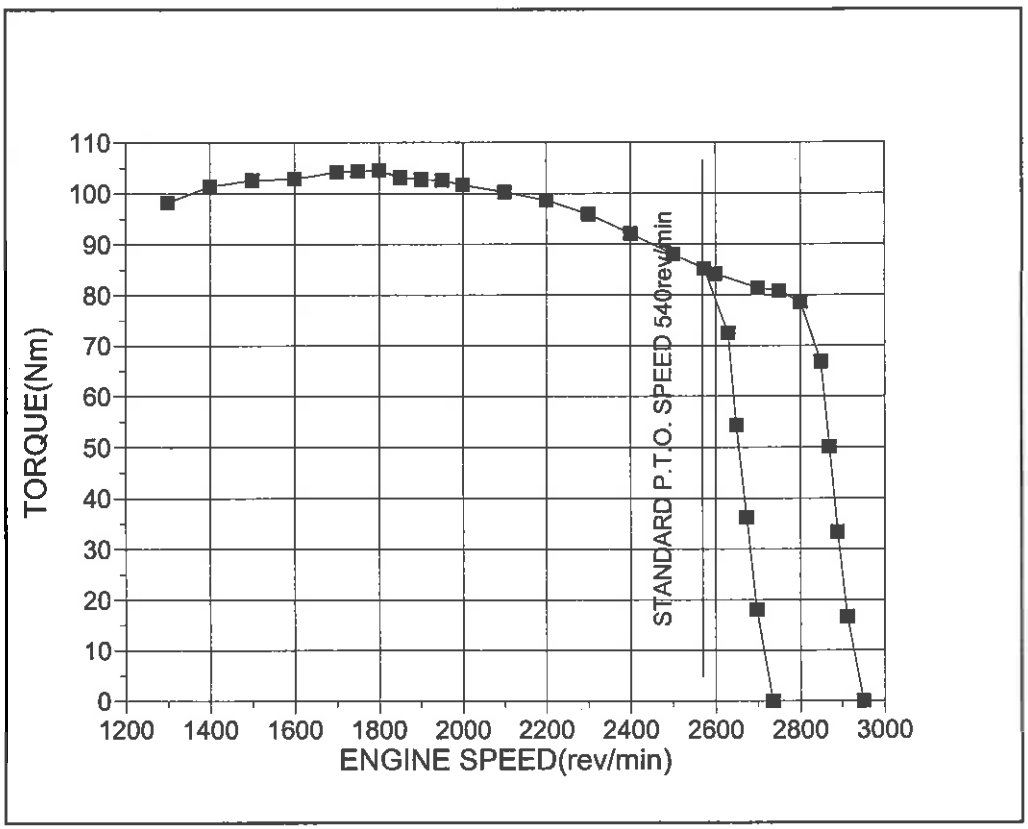
Power	Speed		Fuel consumption			Specific energy
	Engine	P.T.O	Hourly		Specific	
kW	rev/min		kg/h	ℓ /h	g/kWh	kWh/ℓ
3.1.1 MAXIMUM POWER - 2 HOURS TEST						
23.3	2750	577	6.93	8.41	298	2.766
3.1.2 POWER AT RATED ENGINE SPEED						
23.1	2800	588	6.98	8.47	303	2.721
3.1.3 STANDARD POWER TAKE-OFF SPEED (540± 10 rev/min)						
23.0	2573	540	6.62	8.04	288	2.858
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed						
23.1	2800	588	6.98	8.47	303	2.721
3.1.4.2 85% of torque obtained in 3.1.4.1						
19.9	2849	598	6.37	7.73	320	2.578
3.1.4.3 75% of torque defined in 3.1.4.2						
15.1	2869	602	5.35	6.49	355	2.319
3.1.4.4 50% of torque defined in 3.1.4.2						
10.1	2888	606	4.40	5.34	435	1.893
3.1.4.5 25% of torque defined in 3.1.4.2						
5.1	2911	611	3.53	4.28	692	1.191
3.1.4.6 Unloaded						
0	2950	619	2.73	3.31	-	-
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 available						
23.0	2573	540	6.62	8.04	288	2.858
3.1.5.2 85% of torque obtained in 3.1.5.1						
20.0	2630	552	6.07	7.36	304	2.710
3.1.5.3 75% of torque defined in 3.1.5.2						
15.1	2649	556	5.05	6.13	335	2.460
3.1.5.4 50% of torque defined in 3.1.5.2						
10.1	2673	561	4.11	4.99	405	2.032
3.1.5.5 25% of torque defined in 3.1.5.2						
5.1	2697	566	3.24	3.93	634	1.300
3.1.5.6 Unloaded						
0	2735	574	2.42	2.94	-	-

- No load maximum engine speed : 2950 rev/min
- Torque (equivalent crankshaft) at maximum power
  - ·At rated engine speed : 78.6 Nm
  - ·At 2 hours test : 80.8 Nm
- Maximum torque(equivalent crankshaft) : 104.5 Nm
  (engine speed : 1800 rev/min)

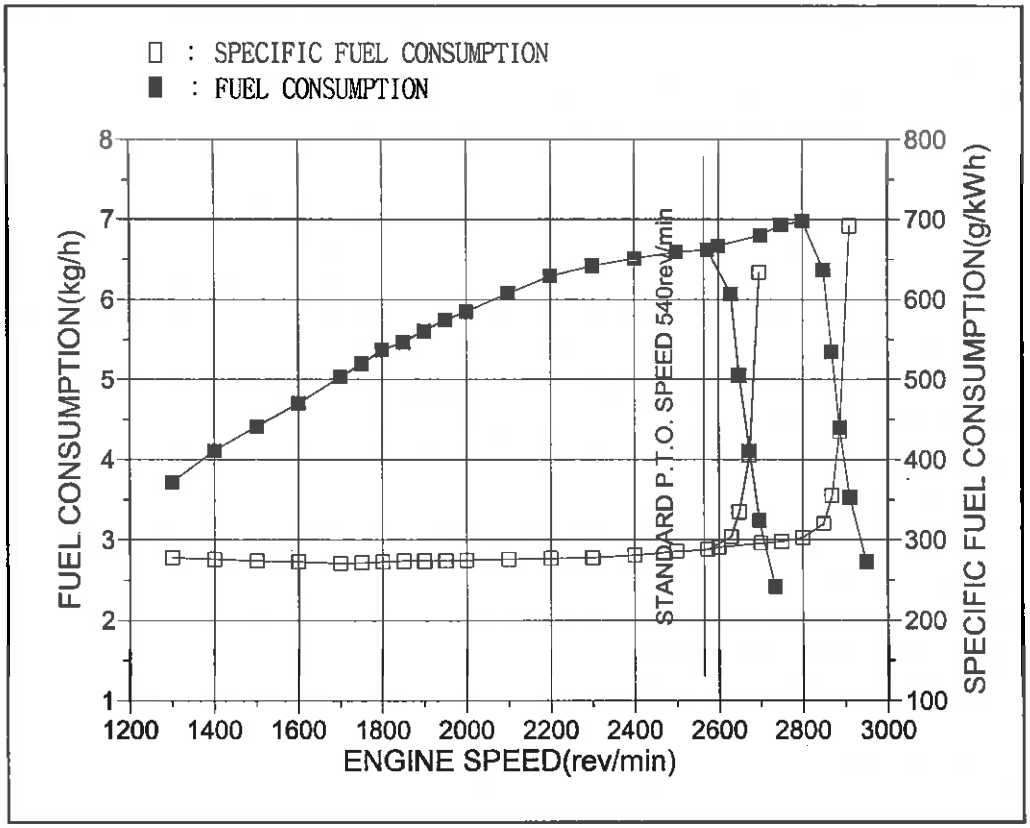
Mean atmospheric conditions	
Temperature	18 ℃
Pressure	100 kPa
Relative humidity	45 %
Maximum temperatures	
Coolant	85 ℃
Engine oil	108 ℃
Fuel	37 ℃
Engine air intake	21 ℃

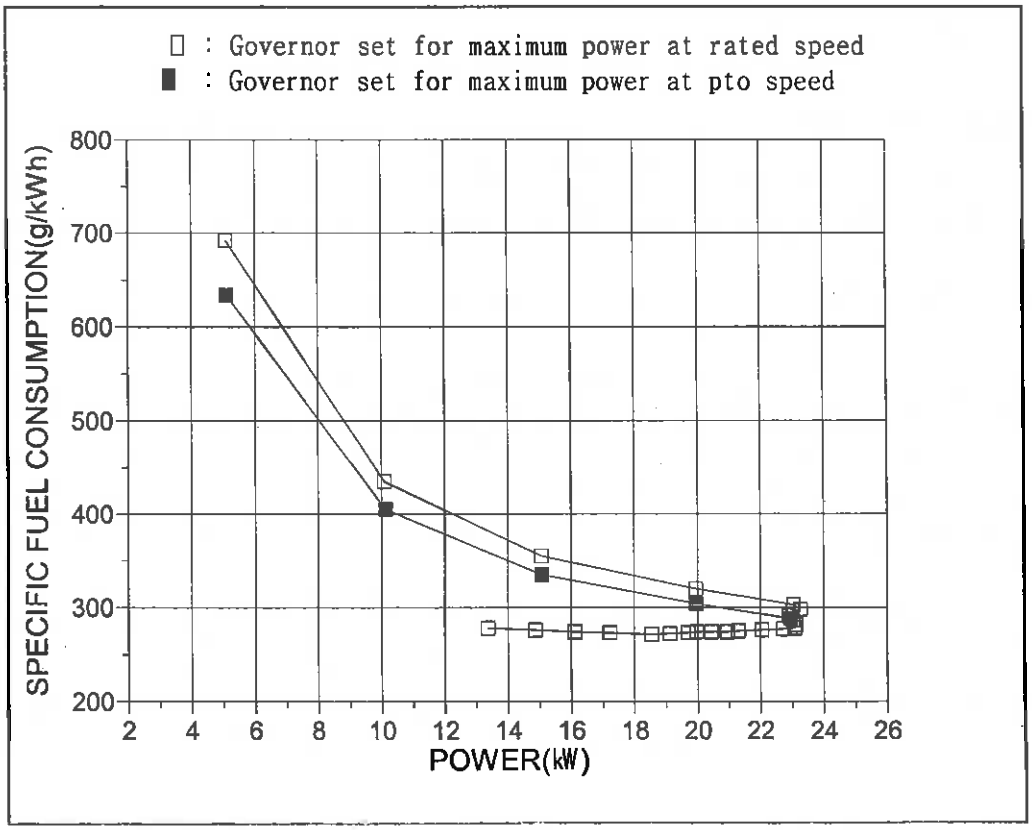
POWER TAKE - OFF PERFORMANCE CURVES





POWER TAKE - OFF PERFORMANCE CURVES





3.2 HYDRAULIC POWER AND LIFTING FORCE

- Date of tests : 14th April ~ 16th April, 1999

3.2.1 Hydraulic power test

- Sustained pressure with relief valve open : 15.70 MPa
- Pump delivery rate at minimum pressure : 36.68ℓ /min

	Flow rate	Pressure	Power
	ℓ /min	MPa	kW
Flow rate corresponding to a hydraulic pressure equivalent To 90% of the actual relief valve pressure setting and Corresponding hydraulic power	9.88	14.1	2.33
Flow rate and hydraulic pressure corresponding to Maximum hydraulic power	32.85	9.8	5.37

- Tapping point used for test : Rear of tractor
- Temperature of hydraulic fluid if different from 65± 5℃ : None
- Opening pressure of the unloading valve : Not available
- Closing pressure of the unloading valve : Not available

3.2.2 Power lift test

- Linkage settings for test - Table 1.1 and Figures 1.1 and 1.2

	At the hitch point	On the frame
Height of lower hitch point above ground in down position	195 mm	195 mm
Vertical movement Without lifting forces with lifting forces	 560 mm 545 mm	 730 mm 664 mm
Maximum corrected force exerted through full range	14.79 kN	9.37 kN
Corresponding pressure of hydraulic fluid	14.1 MPa	14.1 MPa
Moment about rear-wheel axis	12.19 kNm	13.44 kNm
Maximum tilt angle of mast from vertical	-	14 °

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-224	-210	-200	-100	0	100	200	300	335	400	440
Lifting forces(the values of force measured shall be corrected to corresponding to a hydraulic Pressure equivalent to 90% of the actual relief valve pressure setting of the hydraulic Lifting system)											
At the hitch points, Corresponding pressure 14.1 MPa											
kN	-	16.00	16.20	16.95	17.60	18.05	17.78	17.34	14.79	-	-
At the frame, Corresponding pressure 14.1 MPa											
kN	13.36	-	13.70	13.86	13.69	12.89	12.08	11.08	-	9.84	9.37

3.3 DRAWBAR PERFORMANCE

- Date of tests : 18th June ~ 22nd June, 1999
- Type of track : Asphalt

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	395	157	157
Ballasted	395	157	157

Gear number and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			Atmospheric conditions		
								Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/ℓ	°C	°C	°C	°C	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
L-4	9.40	11.55	2.93	2882	15.0	521	1.581	53	86	103	29	51	100.5
M-1	9.86	11.67	3.04	2875	15.0	499	1.653	52	87	104	29	51	100.4
M-2	13.20	11.50	4.13	2860	15.0	434	1.900	53	88	104	30	52	100.4
M-3	17.70	11.48	5.55	2817	15.0	389	2.116	53	87	105	30	52	100.5
M-4	19.23	8.75	7.91	2752	8.6	356	2.312	52	87	104	29	53	100.5
H-1	19.90	7.26	9.87	2751	6.6	345	2.390	51	86	103	28	51	100.4
H-2	19.81	5.13	13.89	2750	3.7	345	2.387	51	86	101	28	51	100.4
3.3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)(†)													
L-1	3.93	12.08	1.17	2915	15.1	903	0.912	56	85	105	30	42	100.4
L-2	5.39	12.20	1.59	2900	15.0	716	1.151	55	85	104	29	43	100.2
L-3	7.29	12.09	2.17	2889	15.0	587	1.404	57	86	105	29	43	100.4
L-4	9.94	12.24	2.92	2877	15.0	496	1.661	56	87	105	30	42	100.2
M-1	10.38	12.30	3.04	2872	15.0	477	1.729	55	86	104	30	42	100.4
M-2	13.89	12.11	4.13	2857	15.0	420	1.960	56	87	103	31	43	100.4
M-3	18.20	11.94	5.49	2751	14.0	377	2.188	57	88	104	30	42	100.4
M-4	19.20	8.70	7.95	2750	8.2	358	2.305	56	88	105	30	42	100.2
H-1	19.87	7.21	9.93	2750	6.2	346	2.384	56	89	105	30	41	100.4
H-2	19.59	5.08	13.89	2750	3.7	350	2.355	56	90	104	29	42	100.4
3.3.3 FIVE-HOUR TESTS													
3.3.3.1 FIVE-HOUR TEST at 75% of pull at maximum power (at rated engine speed)													
M-4	13.95	6.53	7.70	2687	6.1	302	2.728	56	90	104	30	43	100.4
3.3.3.2 FIVE-HOUR TEST at pull corresponding to 15% wheelslip with additional ballast : 40 kg													
M-2	13.98	12.18	4.13	2857	(*)	(*)	(*)	56	90	103	30	42	100.4

(†) The creeper gears(LL-1, LL-2, LL-3, LL-4) are not to be used for heavy drawbar work.

(*) Those figures not quoted are irrelevant due to the additional ballast.

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2 : 3.3 g/h

3.4 TURNING AREA AND TURNING CIRCLE

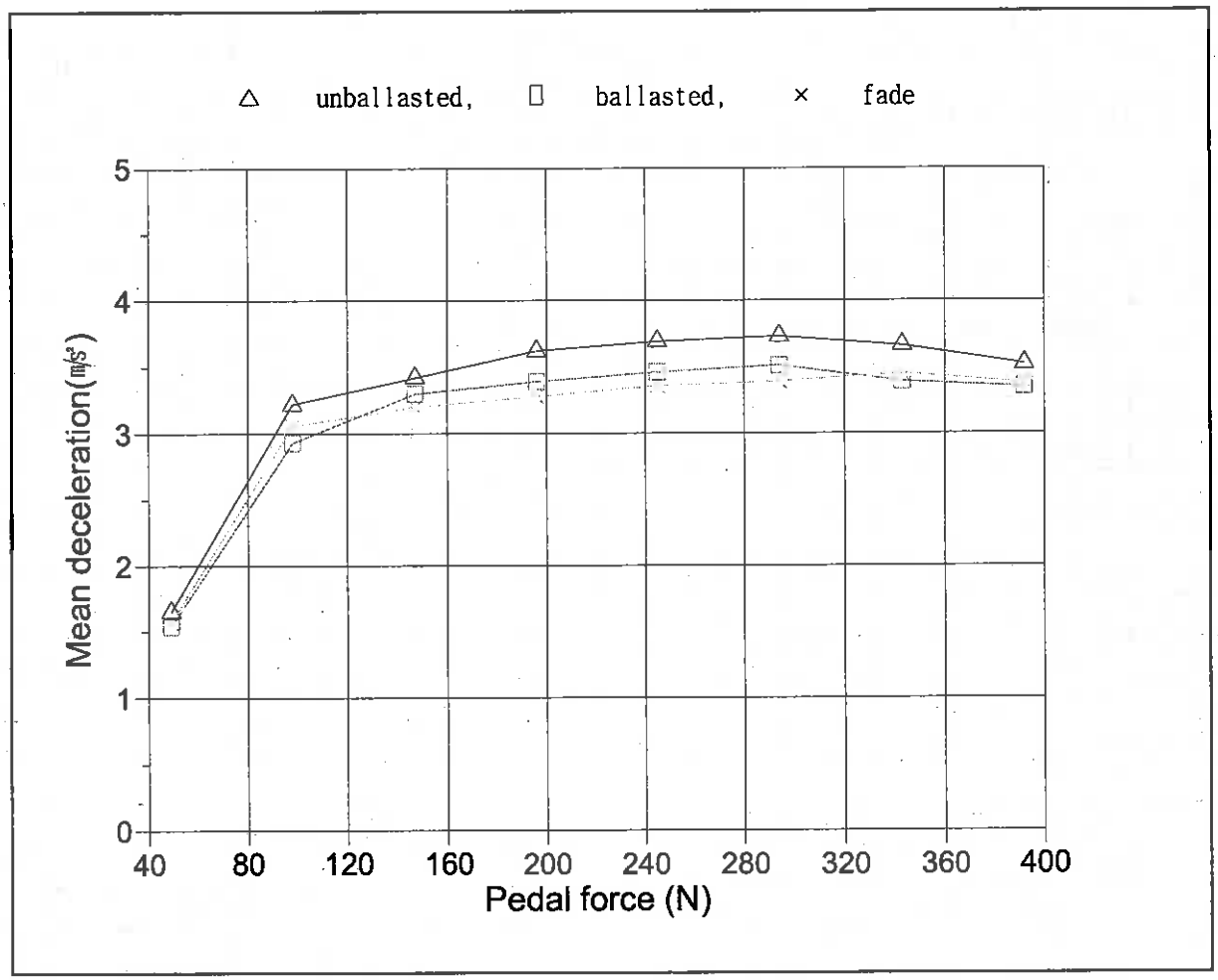
	With brakes		Without brakes	
	Right-hand	Left-hand	Right-hand	Left-hand
	mm	mm	mm	mm
Radius of turning area	2915	2915	3215	3215
Radius of turning circle	2775	2775	3075	3075

3.5 LOCATION OF CENTER OF GRAVITY

- Height above ground : 778 mm
- Distance from the vertical plane containing the axis of the rear wheels : 735 mm
- Distance from the median longitudinal plane of the tractor, to the right side : 10 mm

3.6 BRAKING

- Date of tests : 26th June ~ 28th June, 1999
- Type of track : Asphalt



COLD SERVICE BRAKING DEVICE TEST AND FADE TEST

3.6.1 Cold service braking device test

	Speed before application of brakes	Braking device control force	Mean deceleration
	km/h	kN	m/s²
Ballasted tractor	28.40	0.050 0.100 0.150 0.195 0.245 0.295 0.345 0.390	1.54 2.93 3.30 3.39 3.46 3.51 3.39 3.35
Unballasted tractor	28.48	0.050 0.100 0.150 0.195 0.245 0.295 0.345 0.375	1.65 3.22 3.42 3.62 3.69 3.73 3.66 3.52

- Maximum deviation of tractor from its original course : None
- Abnormal vibration : None
- Brake heating method : None

3.6.2 Fade Test

Speed before application of brakes	Braking device control force	Mean deceleration
km/h	KN	m/s²
28.40	0.050 0.100 0.150 0.195 0.245 0.295 0.345 0.375	1.57 3.06 3.20 3.28 3.36 3.39 3.45 3.38

- Maximum deviation of tractor from its original course : None
- Abnormal vibration : None
- Brake heating method : Driven with brakes applied for 1km at 80% of maximum speed with a pedal force corresponding to a deceleration of 1m/s²

3.6.3 Parking braking device test

	Uphill	Downhill
Braking device control force	324 N	324 N

3.7 Measurement of external noise level

- Date of tests : 29th April ~ 30th April, 1999
- Sound level meter, make/model : Bruel & kjaer, 2236
- Type of track : Asphalt
- Gear number : 16 (H-4) gear
- Travelling speed before acceleration : 21.1 km/h
- Sound level : 79.2 dB(A)

4. REPAIRS None

5. REMARKS None