Report on test in accordance with
O.E.C.D. STANDARD CODE 1 for the Official
Testing of Agricultural Tractor Performance

FULL CODE

O.E.C.D. Approval No. : 1/1 964
Date of approval : 17th July 2001



Agricultural Tractor

TONG YANG T431(4WD)

Manufactured by : TONG YANG MOOLSAN Co., Ltd.
604-9 Namsan-dong, Changwon-si,
Gyeongsangnam-do, Republic of KOREA

NATIONAL AGRICULTURAL MECHANIZATION RESEARCH INSTITUTE
249, Seodun-dong, Gwonseon-gu, Suwon-si, Gyeonggi-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. : 01-M-5-1
Duration of test : January 2001 till May 2001
Date of approval : 17th July 2001

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE 1.

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

1. SPECIFICATIONS OF TRACTOR

1.1 IDENTIFICATION

- Make :	TONG YANG
- Model :	T431
- Type :	Wheeled tractor, unit construction
- Number of driving wheels :	4
- Serial No. :	T 12 0412
- 1st Serial No. :	T 08 0001

1.2 ENGINE

- Make :	KUBOTA
- Model :	V2203
- Type :	4-stroke. water cooled, indirect diesel, naturally aspirated
- Serial No. :	V2203-248270

1.2.1 Cylinders

- Number/disposition :	4 / vertical, in-line
- Bore/stroke :	87 / 92.4 mm
- Capacity :	2197 ㎤
- Compression ratio :	21.0 : 1
- Arrangement of valves :	Overhead valve
- Cylinder liners(wet or dry) :	None

1.2.2 Supercharging : None

1.2.3 Fuel system

- Fuel feed system :	Forced feed type
- Fuel filters	
· Make :	SAM-O
· Model :	36573112000
· Type :	Replaceable paper element

- Capacity of fuel tank :	43.5 dm³
- Injection pump	
· Make :	NIHON DENSO
· Model :	PFR 4M
· Type :	BOSCH, in line
· Serial No. :	None
- Manufacturer's production setting of injection pump	
· Flow rate :	9.58±0.48 dm³/h at rated engine speed and full load
· Timing :	25 degrees before T.D.C
- Injectors	
· Make :	NIHON DENSO
· Model :	DNOPD95
· Type :	Throttle
- Injection pressure :	14.3 MPa

1.2.4 Governor

- Make :	KUBOTA
- Model :	None
- Type :	Mechanical, centrifugal ball
- Governed range of engine speed :	800±50 to 2800±50 rev/min
- Rated engine speed :	2600 rev/min

1.2.5 Air cleaner

- Pre-cleaner	None
· Make :	
· Model :	
· Type :	
· Location of air intake :	
- Main-cleaner	
· Make :	POONG-YANG
· Model :	14501032000
· Type :	Dry paper element filter
- Location of air intake :	Under the bonnet, in front of the radiator
- Maintenance indicator :	None

1.2.6 Lubrication system

- Type of feed pump :	Rotor
- 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 :	5
· Fan diameter :	380 mm

- Coolant capacity : 8.5 dm³
- Type of temperature control : Wax pellet 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 : Electric glow plug, 12 V
- 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 : 110 Ah at 20 hours rating

1.2.10 Exhaust system
- Make : JIN-HONG
- Model : 16791132005
- Type : Silencer
- Location : Outside cabin, left hand side of engine cowling

1.3 TRANSMISSION

1.3.1 Clutch(travel alone)
- Make : SAE-JIN
- Model : 14601212000
- Type : Dry single plate
- Number of plates : 1
- Diameter of plates : 260 mm
- Method of operation : Mechanically actuated by pedal

1.3.2 Gear box
- Make : TONG YANG
- Model : None
- Type : Mechanical

- Arrangement : 4 main gears with constant-mesh and synchro-mesh, 3 range gears with constant-mesh, and synchro-mesh type forward/reverse gear with shuttle lever, 16 forward and 16 reverse gears

	Forward	Reverse
Number of gears	4	4
Number of ranges	3	3
Creep gear(engaged/disengaged)	1	1
Total of arrangements	16	16

※ The creeper gears are not to be used for heavy drawbar work.

- Available options : None

1.3.3 Rear axle and final drives

- Make : TONG YANG
- Model : 146113000000
- Type : Bevel gear differential and helical gear final drives
- Differential lock
  - Type : Mechanical
  - Method of engagement : Mechanically actuated by pedal
  - Method of disengagement : Self-disengagement by spring

1.3.4 Front axle and final drives

- Make : SEIL
- Model : 16504001000
- Type : Bevel gear differential and bevel gear final drives
- Differential lock :
  - Type : None
  - Method of engagement : None
  - Method of disengagement : None

1.3.5 Total ratios and travelling speeds

Gear No	Group or range	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed(*) at rated engine speed of 2600 min^{-1}(rev/min) km/h	
		Forward	Reverse	Forward	Reverse
1	LL-1	1756.76	1925.93	0.33	0.30
2	LL-2	1256.04	1375.66	0.46	0.42
3	LL-3	925.27	1011.67	0.62	0.57
4	LL-4	706.52	771.51	0.81	0.74
5	L-1	582.96	637.25	0.98	0.90
6	L-2	415.34	454.55	1.38	1.26
7	L-3	306.60	335.48	1.87	1.71
8	L-4	233.60	255.65	2.45	2.24
9	M-1	210.53	230.50	2.72	2.49
10	M-2	150.03	164.14	3.82	3.49
11	M-3	110.73	121.16	5.18	4.73
12	M-4	84.39	92.33	6.79	6.21
13	H-1	62.56	68.44	9.17	8.38
14	H-2	44.57	48.77	12.87	11.76
15	H-3	32.90	36.00	17.43	15.93
16	H-4	25.07	27.43	22.87	20.90
(*)Calculated with a tyre dynamic radius index of 585 mm(not in conformity with ISO 4251/1-1998)					

Number of revolutions of front wheels for one revolution of rear-wheels : 1.590
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 : Engaged or disengaged by push button. Driven by wet multiplate clutch.
- Number of shafts : 1(for 540 and 1000 rev/min)
- Method of changing power take-off shaft speeds : Manually by hand lever

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 min^{-1}(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 : 572 mm
- Distance from the median plane of the tractor : 0 mm
- Distance behind rear-wheel axis : 280 mm

- PTO speed at rated engine speed, and engine speed at standard power take-off speed:

PTO speed (rev/min)	Engine speed (rev/min)	Engine/PTO transmission ratio
587	2600	4.4293
540	2392	

- Power restriction : None
- Maximum torque transmissible : None
- Direction of rotation(viewed from behind tractor) : Clockwise

Power take-off at 750 min^{-1}(rev/min)

- Location : Rear of tractor
- Diameter of power take-off shaft end : 35 mm
- Number of splines : 6, not in conformity with ISO 500/1991
- Height above ground : 572 mm
- Distance from the median plane of the tractor : 0 mm
- Distance behind rear-wheel axis : 280 mm
- PTO speed at rated engine speed, and engine speed at standard power take-off speed:

PTO speed (rev/min)	Engine speed (rev/min)	Engine/PTO transmission ratio
705	2600	3.6879
750	2766	

- Power restriction : None
- Maximum torque transmissible : None
- Direction of rotation(viewed from behind tractor) : Clockwise

Power take-off at 1000 min^{-1}(rev/min)

- Location : Rear of tractor
- Diameter of power take-off shaft end : 35 mm
- Number of splines : 6, not in conformity with ISO 500/1991
- Height above ground : 572 mm
- Distance from the median plane of the tractor : 0 mm
- Distance behind rear-wheel axis : 280 mm
- PTO speed at rated engine speed, and engine speed at standard power take-off speed:

PTO speed (rev/min)	Engine speed (rev/min)	Engine/PTO transmission ratio
1057	2600	2.4598
1000	2460	
1321	2600	1.9682

- 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 :	TONG YANG
- Model :	14615000000
- Type :	Hydraulic 3-point hitch
- 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 :	14.7 $_{0}^{+0.5}$ MPa
- Opening pressure of cylinder safety valve :	None
- Lift pump type :	Gear pump
- Transmission between pump and engine :	Driven by cam shaft
- Type and number of filters :	1 strainer, 1 replaceable paper element and 1 replaceable canister, total 3
- 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 ISO730-1:1994+Cor.1:1995
- Category adapter : None

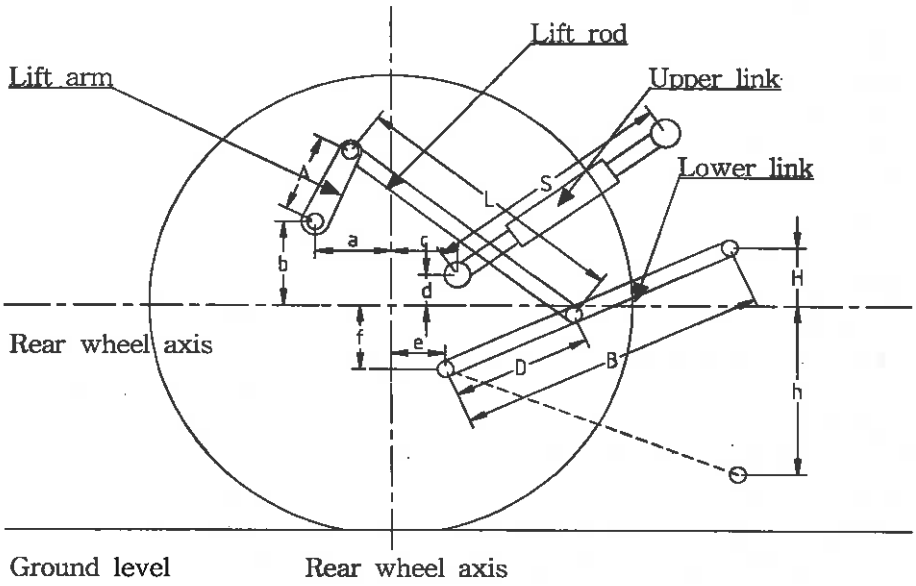


Figure 1.1

Lift test-Linkage geometry

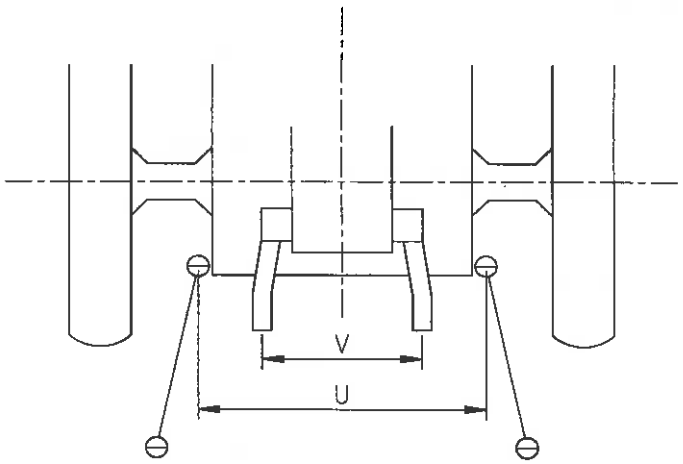


Figure 1.2

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)	700	700
Distance of lift arm pivot point from rear-wheel axis :			
- horizontally	(a)	50	50
- vertically	(b)	207	207
Horizontal distance between the 2 lower link points:	(u)	400	400
Horizontal distance between the 2 lift arm end points:	(v)	315	315
Length of upper link:	(S)	from 480 to 700	496
Distance of upper link pivot point from rear wheel axis:			
- horizontally	(c)	270	270
- vertically	(d)	from 100 to 180	150
Distance of lower link pivot point from rear wheel axis:			
- horizontally	(e)	133	133
- vertically	(f)	140	140
Distance of lower link pivot point to lift rod pivot points on lower links:	(D)	from 355 to 500	376
Length of lift rods:	(L)	from 440 to 500	470
Height of lower hitch points relative to the rear-wheel axis:			
- in low position	(h)	from 180 to 492	439
- in high position	(H)	from 106 to 352	175
Height above ground of lower hitch points when locked in transport position(*)		Any height within lifting range	
(*)Assuming r = 585mm tyre dynamic radius index, not in conformity with ISO 4251/1-1998			

Table 1.1

Dimensions of linkage geometry when connected to the standard frame

1.7 SWINGING DRAWBAR : None

1.8 TRAILER HITCH :

- Type : Clevis
- Hole diameter : 28.5 mm
- Height above ground : 440 mm
- Distance of hitch point from rear-wheel axis, horizontally : 318 mm
- Distance of hitch point from power take-off shaft end
  - Vertically : 133 mm
  - Horizontally : 40 mm
- Maximum vertical permissible load: 8.4 kN

1.9 HOLED DRAWBAR : None

1.10 STEERING

- Make : SUMITOMO EATON
- Model : Orbitrol UBS110B08AWD
- Type : Hydrostatic
- Method of operation
  - Pump(s) : Gear pump
  - Ram(s) : 1, double acting ram
- Working pressure : 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 two 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 : Ratched by depressing pedal

1.12 WHEELS

- Number
  - Front : 2, steering and driving
  - Rear : 2, driving
- Wheelbase : 1975 mm
- Track width adjustment :

	Minimum	Maximum	Adjustment method
	mm	mm	
Front	1245	1245	-
Rear	1260	1370	By reversing wheels and offset lug rims

1.13 PROTECTIVE STRUCTURE :

- Make : TONG YANG
- Model : TSC431
- Type : Cab
- Manufacturer's name and address : TONG YANG MOOLSAN Co., Ltd. 604-9 Namsan-dong, Changwon-si, Gyeongsangnam-do, KOREA
- Protective device : Cab/not tiltable
- OECD approval
  - Approval number : None
  - Date of approval : None

1.14 SEAT

1.14.1 Driver's seat

- Make : TAE-KWANG
- Model : 16996122000
- Type : Cushion seat with back rest
- Seat and steering wheel reversible : No
- Type of suspension : Spring
- Type of damping : None
- Range of adjustment
  - Longitudinally : 170 mm
  - Vertically : Shock-absorbing regulation device
- Safety belt : Yes

1.14.2 Optional driver's seat(s) : 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
Headlights	970	150×95	218
Sidelights	1340	120×65	656
Rearlights	1340	120×65	627
Reflectors	1380	80×80	550

2. TEST CONDITIONS

2.1 OVERALL DIMENSIONS

	Length	Width		Height at top of	
		minimum	maximum	protective structure	exhaust pipe
	mm	mm	mm	mm	mm
Ballasted	3600	1500	1815	2320	1963
Unballasted	3360	1500	1815	2320	1963

2.2 GROUND CLEARANCE(unballasted tractor) : 360 mm

- Clearance-limiting part : Drawbar frame

2.3 TRACTOR MASS

	Ballasted		Unballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	1086	1097	844	857
Rear	1063	1127	1120	1182
Total	2149	2224	1964	2039

2.4 BALLAST

	Weights		Water
	Number	Total mass	
		kg	kg
Front	7	185	-
Rear	-	-	-
Optional	-	-	-

2.5 TRACK SPECIFICATIONS : None

2.6 TYRES AND TRACK WIDTH SPECIFICATIONS

	Front	Rear
Tyres :		
dimensions	9.5-16	13.6-26
ply rating	6	8
type	Diagonal	Diagonal
maximum load(tyre manufacturer's)	7.06 kN	14.01 kN
maximum load(tractor manufacturer's)	7.06 kN	14.01 kN
inflation pressure(tyre manufacturer's)	206 kPa	157 kPa
dynamic radius index	395 mm	585 mm
Chosen track width	1245 mm	1260 mm

2.7 FUEL

- Type : Diesel fuel No. 2 in conformity with Korean Standard(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 and final drives in common with hydraulic system	29	300	300
Front axle and final drives	8	600	-

2.8.2 Specifications

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

2.8.3 Grease :

- Number of lubrication points : 10

3. COMPULSORY TESTS RESULTS

3.1 MAIN POWER TAKE-OFF

- Date and location of tests : 6th to 10th April 2001, NAMRI, Gonjiam
- Type of dynamometer bench : Eddy Current, FROUD AG 250

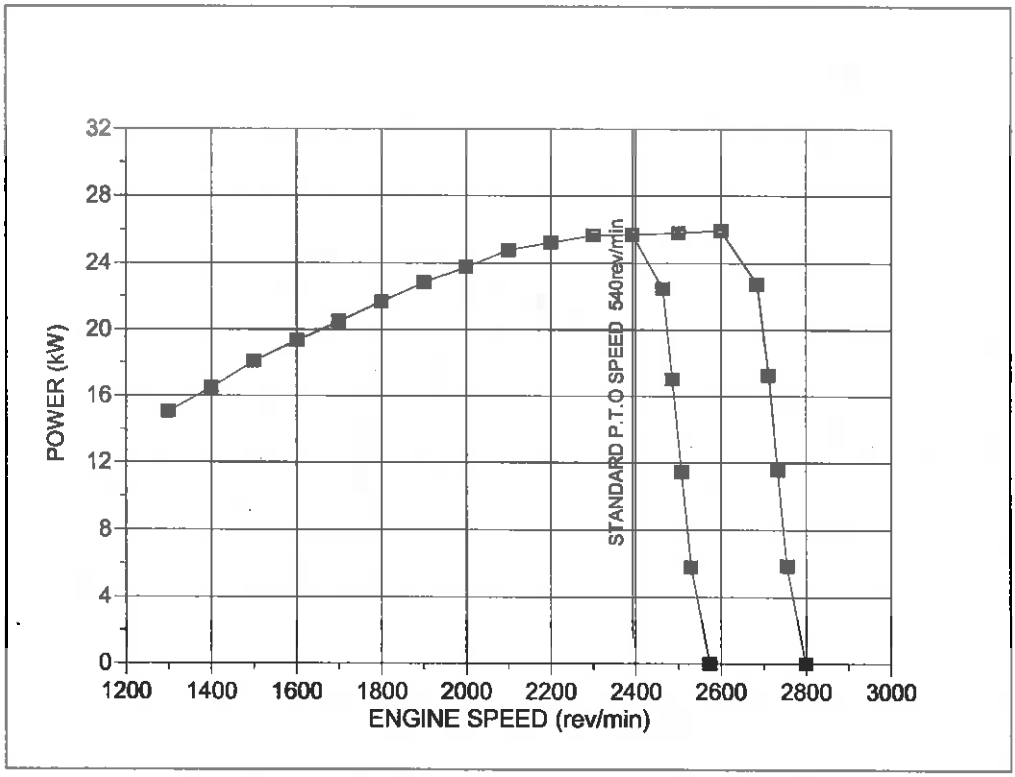
Power	Speed		Fuel consumption			Specific energy
	Engine	P.T.O	Hourly		Specific	
kW	rev/min	rev/min	kg/h	ℓ/h	g/kWh	kWh/ℓ
3.1.1 MAXIMUM POWER - TWO-HOUR TEST						
25.94	2600	587	7.98	9.69	308	2,679
3.1.2 POWER AT RATED ENGINE SPEED						
25.94	2600	587	7.98	9.69	308	2,679
3.1.3 STANDARD POWER TAKE-OFF SPEED (540±10 rev/min)						
25.68	2392	540	7.73	9.38	301	2,739
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed						
25.94	2600	587	7.98	9.69	308	2,679
3.1.4.2 85% of torque obtained in 3.1.4.1						
22.76	2684	606	7.27	8.82	319	2,580
3.1.4.3 75% of torque defined in 3.1.4.2						
17.24	2711	612	6.08	7.38	353	2,337
3.1.4.4 50% of torque defined in 3.1.4.2						
11.59	2733	617	4.98	6.04	430	1,918
3.1.4.5 25% of torque defined in 3.1.4.2						
5.84	2755	622	3.94	4.79	675	1,220
3.1.4.6 Unloaded						
0	2799	632	3.03	3.67	-	-
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						
25.68	2392	540	7.73	9.38	301	2,739
3.1.5.2 85% of torque obtained in 3.1.5.1						
22.47	2463	556	7.03	8.53	313	2,634
3.1.5.3 75% of torque defined in 3.1.5.2						
17.00	2485	561	5.58	6.77	328	2,513
3.1.5.4 50% of torque defined in 3.1.5.2						
11.44	2507	566	4.55	5.52	398	2,071
3.1.5.5 25% of torque defined in 3.1.5.2						
5.77	2529	571	3.57	4.34	619	1,330
3.1.5.6 Unloaded						
-	2573	581	2.66	3.23	-	-

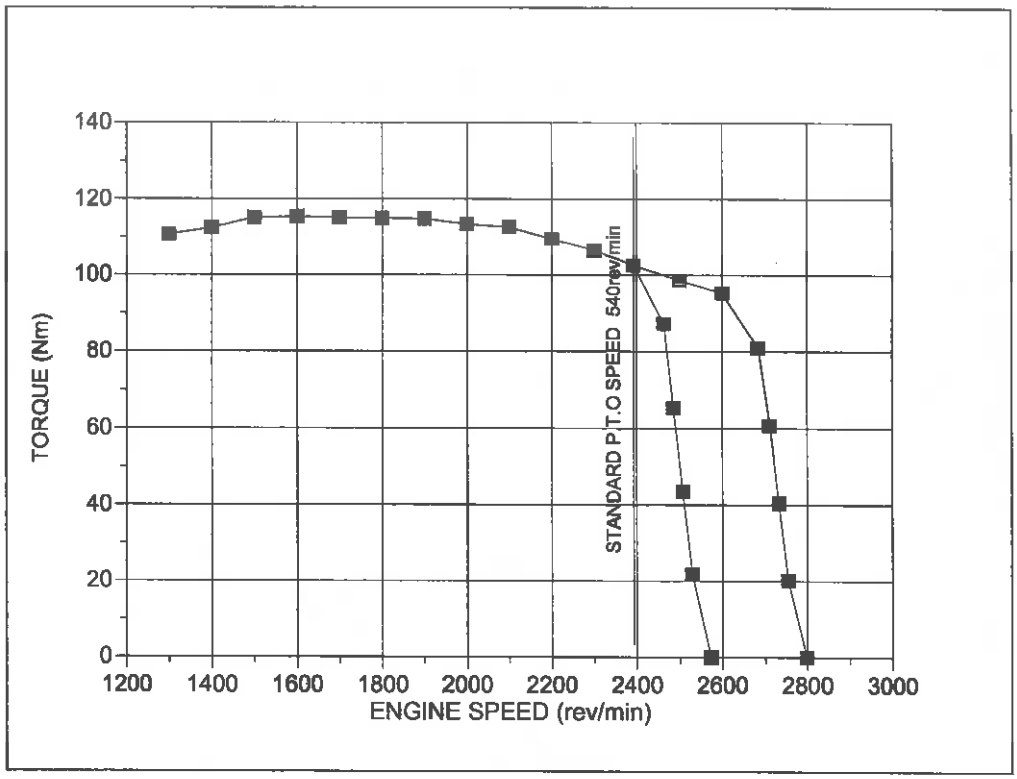
- No load maximum engine speed : 2799 rev/min
- Torque (equivalent crankshaft) at maximum power
  - At rated engine speed : 95.3 Nm
  - At 2-hour test : 95.3 Nm
- Maximum torque (equivalent crankshaft) : 115.4 Nm

(engine speed : 1600 min^{-1} (rev/min))

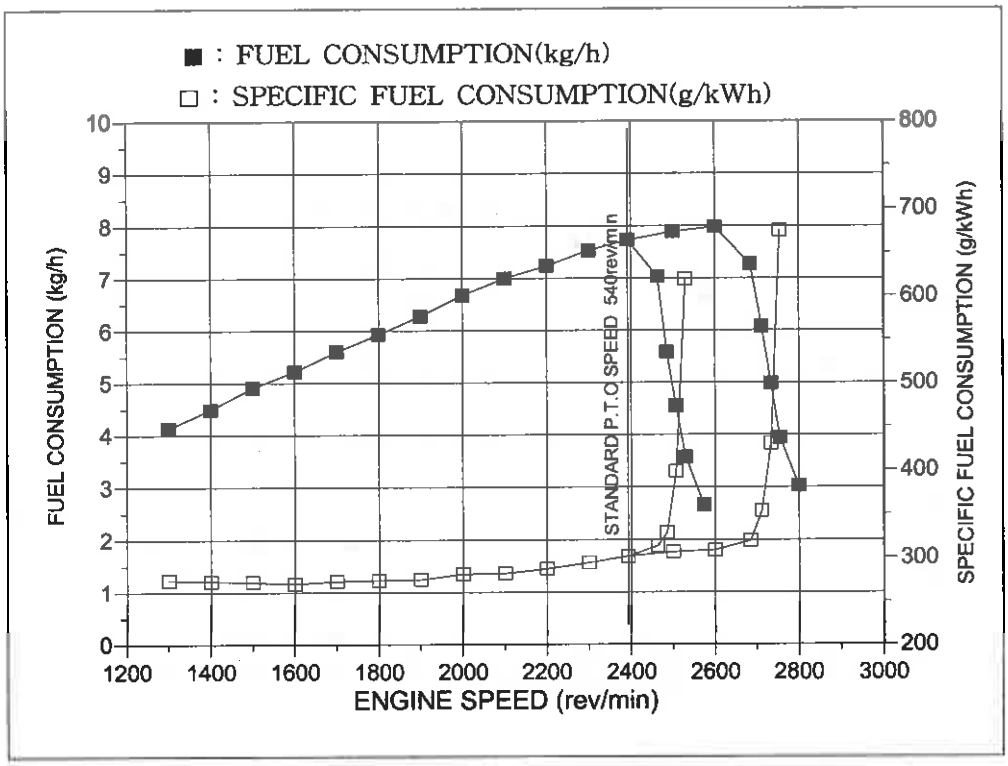
Mean atmospheric conditions	
Temperature	28 ℃
Pressure	100.5 kPa
Relative humidity	38 %
Maximum temperatures	
Coolant	95 ℃
Engine oil	115 ℃
Fuel	40 ℃
Engine air intake	30 ℃

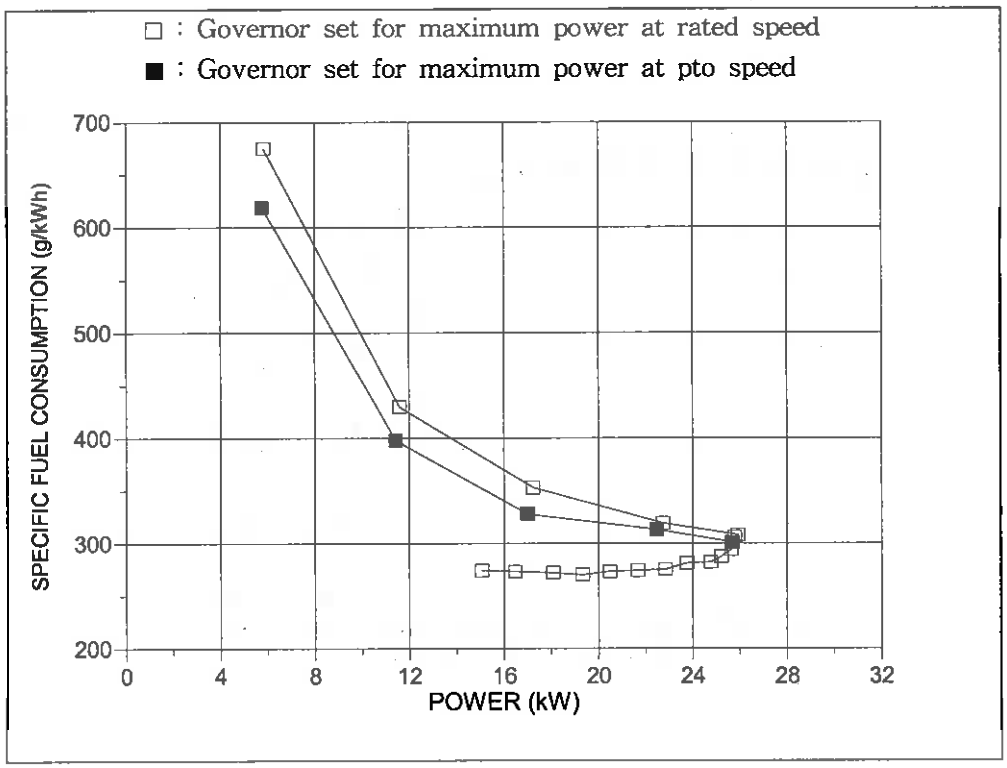
POWER TAKE - OFF PERFORMANCE CURVES





POWER TAKE - OFF PERFORMANCE CURVES





3.2 HYDRAULIC POWER AND LIFTING FORCE

- Date of tests : 25th to 26th April 2001

3.2.1 Hydraulic power test

- Sustained pressure with relief valve open : 14.81 MPa
- Pump stalled : Not applicable, open center system
- Pump delivery rate at minimum pressure : 33.06 ℓ/min

	Flow rate ℓ/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power	19.58	13.34	4.35
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	29.95	12.55	6.26

- Tapping point used for test : Rear of tractor
- Temperature of hydraulic fluid, if different from 65±5℃ : None
- Opening pressure of the unloading valve : None
- Closing pressure of the unloading valve : None

3.2.2 Power lift test

- Linkage settings for tests - see Table 1.1 and Figure 1.1 and 1.2

	At the hitch point	On the frame
Height of lower hitch point above ground in down position	146 mm	146 mm
Vertical movement without lifting forces with lifting forces	 614 mm 569 mm	 759 mm 711 mm
Maximum corrected force exerted through full range	13.80 kN	10.35 kN
Corresponding pressure of hydraulic fluid	13.34 MPa	13.34 MPa
Moment about rear-wheel axis	11.49 kNm	14.93 kNm
Maximum tilt angle of mast from vertical	-	11 °

Lifting heights relative to the horizontal plane including the lower link pivot point											
mm	-331	-300	-299	-200	-100	0	100	200	270	300	380
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 point, corrected to 13.34 MPa											
kN	-	-	13.80	14.66	15.46	15.94	16.11	16.18	14.16	-	-
At the frame, corrected to 13.34 MPa											
kN	12.85	13.22	-	13.37	13.16	12.59	12.07	11.61	-	10.98	10.35

3.3 DRAWBAR POWER TEST(ballasted and unballasted tractor)

- Date of tests : 20th to 24th April 2001
- Type of track : Asphalt

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	370	206	157
Ballasted	370	206	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	Tempe-rature	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-1	3.36	12.85	0.94	2762	15.1	1144	0.720	30	92	109	21	65	100.9
L-2	4.77	12.96	1.32	2752	15.1	865	0.953	30	93	110	22	63	100.9
L-3	6.59	13.33	1.78	2742	15.1	673	1.225	29	92	108	21	62	100.8
L-4	9.27	14.28	2.34	2730	15.1	543	1.517	29	93	109	21	65	100.8
M-1	9.94	13.92	2.57	2724	15.0	517	1.593	27	92	108	20	66	100.9
M-2	12.66	12.71	3.59	2708	15.0	474	1.737	28	94	110	21	64	100.9
M-3	16.72	12.42	4.85	2687	15.0	426	1.933	28	93	109	20	65	100.8
M-4	20.34	11.54	6.35	2603	12.3	398	2.073	29	92	110	21	64	100.8
H-1	23.31	9.34	8.99	2601	7.3	347	2.373	29	93	109	21	63	100.9
H-2	22.89	6.25	13.18	2598	4.2	353	2.334	28	92	107	22	62	100.8
3.3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)													
L-1	3.67	14.06	0.94	2762	15.1	1062	0.776	33	96	112	22	60	100.2
L-2	5.22	14.25	1.32	2751	15.1	806	1.022	34	97	113	23	58	100.2
L-3	7.35	14.83	1.78	2740	15.1	637	1.294	32	95	110	22	60	100.4
L-4	9.66	14.92	2.33	2725	15.0	537	1.535	30	93	108	21	63	100.4
M-1	10.96	15.35	2.57	2719	15.0	491	1.678	28	93	108	21	64	100.2
M-2	14.17	14.14	3.61	2705	15.0	431	1.910	27	92	107	20	65	100.2
M-3	18.61	13.83	4.85	2679	15.0	400	2.061	28	94	109	22	63	100.4
M-4	21.92	12.28	6.43	2602	11.6	369	2.231	30	96	110	23	61	100.2
H-1	23.71	9.32	9.15	2600	6.3	342	2.410	32	98	112	23	59	100.4
H-2	23.32	6.35	13.22	2597	3.6	347	2.378	30	96	109	22	61	100.4
3.3.3 FIVE-HOUR TEST													
3.3.3.1 FIVE-HOUR TEST at 75% of pull at maximum power at rated engine speed													
H-1	18.79	6.96	9.71	2693	3.8	361	2.283	33	97	111	22	60	100.2
3.3.3.2 FIVE-HOUR TEST at pull corresponding to 15% wheelslip with additional ballast(†) : - kg													
M-3	18.58	13.81	4.84	2677	15.0	400	2.061	32	96	110	23	58	100.2

※ The creeper gears are not to be used for heavy drawbar work.

(†) Test 3.3.3.2 was carried out without additional ballast.

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2 : 16.8 g/h

3.4 TURNING AREA AND TURNING CIRCLE

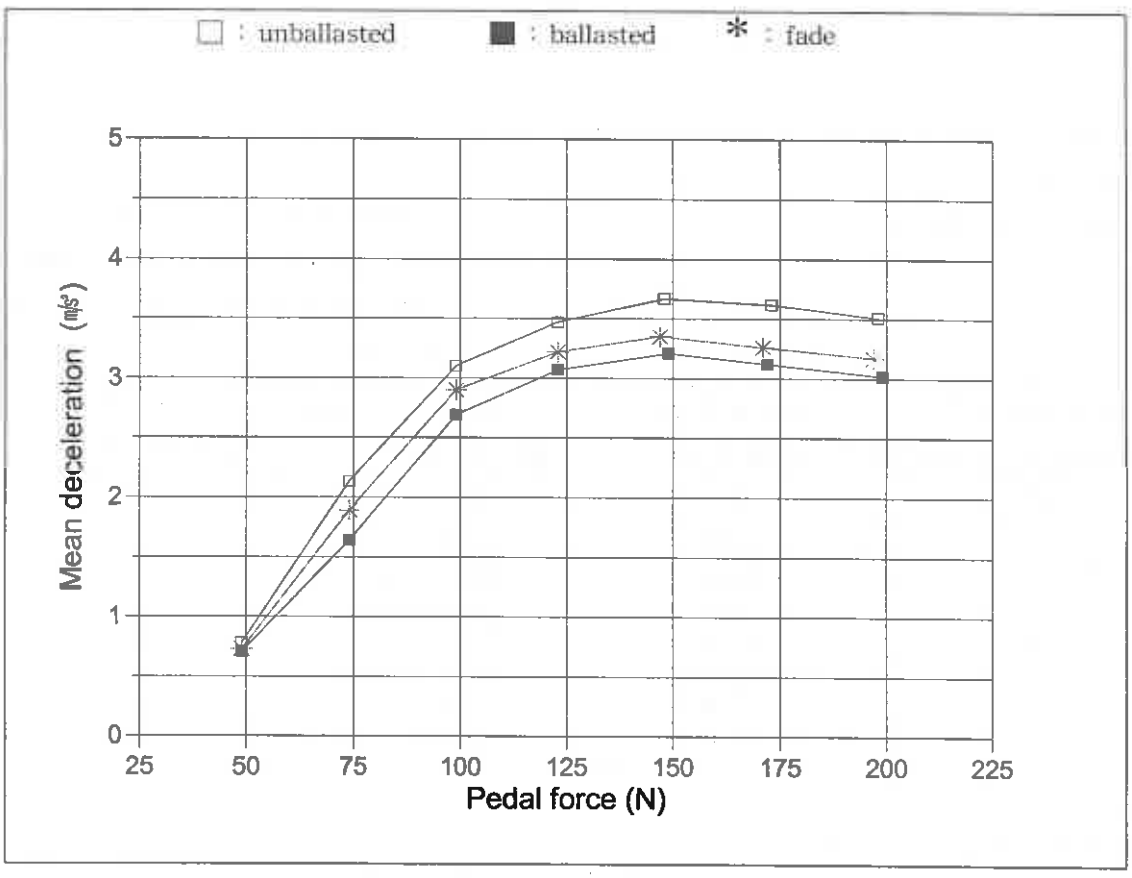
	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	3.49	3.54
Radius of turning circle	3.37	3.42

3.5 LOCATION OF CENTER OF GRAVITY

- Height above ground : 874 mm
- Distance from the vertical plane containing the axis of the rear-wheels : 830 mm
- Distance from the median longitudinal plane of the tractor, to the left : 6 mm

3.6 BRAKING

- Date of tests : 27th to 28th April 2001



3.6.1 Cold service braking device test

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

	Speed before application of brakes	Braking device control force	Mean deceleration	Minimum stopping distance without locking wheels
	km/h	kN	m/s²	m
ballasted tractor	25.60	0.049 0.074 0.099 0.123 0.149 0.172 0.199	0.71 1.64 2.69 3.07 3.21 3.12 3.02	7.88
Unballasted tractor	24.97	0.049 0.074 0.099 0.123 0.148 0.173 0.198	0.78 2.13 3.10 3.47 3.67 3.62 3.51	6.56

3.6.2 Fade Test

- Maximum deviation of tractor from its original course : None
- Abnormal vibration : None
- Brake heating method : Driven with brakes applied for 1km at 80%(20.64 km/h) of maximum speed with a pedal force corresponding to deceleration of 1m/s².

Speed before application of brakes	Braking device control force	Mean deceleration	Minimum stopping distance without locking wheels
km/h	kN	m/s²	m
25.79	0.049 0.074 0.099 0.123 0.147 0.171 0.197	0.73 1.89 2.90 3.22 3.35 3.26 3.17	7.67

3.6.3 Parking braking device test

	Uphill	Downhill
Braking device control force	0.37 kN	0.37 kN

3.7 MEASUREMENT OF EXTERNAL NOISE

- Date of tests : 28th April 2001
- Sound level meter, make/model/type : Brüel and kjær, 2236
- Type of track : Asphalt
- Gear number : 16 (H-4) gear
- Travelling speed before acceleration : 19.3 ㎞/h
- Sound level : 83.3 dB(A)

4. OPTIONAL TESTS RESULTS

None

5. REPAIRS

None

6. REMARKS

None

7. ANNEX

None