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

O.E.C.D. Approval No. **1636** **FULL CODE**



Agricultural Tractor
KUBOTA M4700DT(4WD) 30km/h Version

Manufactured by:
KUBOTA Corporation, TSUKUBA Plant
Aza, Sakanoshinden, Yawaramura, Tsukubagun, IBARAKI, Japan

INSTITUTE OF AGRICULTURAL MACHINERY
BIO-ORIENTED TECHNOLOGY RESEARCH ADVANCEMENT INSTITUTION
(I A M - B R A I N)
OMIYA, Japan

This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractor Performance(Code I). It does not contain the evaluation of the tractor performance on practical work. This report has been approved by the O.E.C.D. Coordinating Center (C.E.M.A.G.R.E.F., France) as being in accordance with the O.E.C.D. STANDARD CODE.

Test No.:	H8-T001
Duration of Test:	June till August, 1996
Date of Approval:	October 4th, 1996

Make:	KUBOTA
Model:	M4700DT
Type:	4WD
Serial number:	M470-50623
1st Serial number:	M470-50001

In this report all performance characteristics are given corresponding to the International Systems of Units.
The reference to the former used Technical Systems of Units is given by the following relations:

Forces	1 kgf	=	9.80665 N
Powers	1 PS	=	0.7355 kW
	1 HP	=	0.7453 kW
Pressures	1 kgf/cm^2	=	98.0665 kPa

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GENERALITIES

Tractor manufacturer's name and address:	KUBOTA Corporation, Tsukuba Plant Aza, Sakanoshinden, Yawaramura, Tsukubagun, IBARAKI, JAPAN
Location of tractor assembly:	-Ditto-
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with agreement by BRAIN
Place of running-in:	KUBOTA Corporation, Tsukuba Plant
Duration of running-in:	Engine and tractor 53 h
Location of test:	BRAIN

SPECIFICATIONS OF TRACTOR

TRACTOR

Make:	KUBOTA
Model:	M4700DT
Type:	Four-wheel drive, unit construction
Number of driving wheels:	Four
Serial Number:	M470-50623
1st Serial Number:	M470-50001

ENGINE

Identification

Make:	Own make
Model:	F2803-LA
Type:	4-Cycle diesel engine with indirect injection, water cooled, naturally aspirated
Serial No.:	F2803-131190

Cylinders

Number:	Five
Disposition:	Vertical, in-line
Bore/Stroke:	87.0/92.4 mm
Capacity:	2746 cm^3
Compression ratio:	23:1
Arrangement of valves:	Over head
Cylinder Liners:	None

Fuel System

Fuel feed system:	Forced feed type(Diaphragm pump)
Filters	
Make:	TAIYO GIKEN KOGYO. Co., LTD.
Model:	1552143016
Type:	Replaceable paper element type
Number:	One

Capacity of fuel tank:	65 litters
Injection pump	
Make:	NIPPON DENSO Co., LTD
Model:	ND-PFR5M575A2ND568
Type:	Bosch type M
Serial Number:	3R(16484)
Manufacturer's production setting of injection pump	
Flow rate	10.8±0.8 dm³/h at rated engine speed and full load
Timing:	18～20 degrees before T.D.C.
Injectors	
Make:	NIPPON DENSO Co., LTD
Model:	DNOPD 95
Type:	Throttle Type
Injection pressure:	13.7～14.7 MPa

Governor

Make:	Own make
Type:	Mechanical(All speed governor)
Governed range of engine speed:	From 900 to 2820 rev/min
Rated engine speed:	2600 rev/min

Air cleaner

Pre-cleaner:	Not fitted
Make:	-
Model:	-
Type:	-
Location of air intake:	-
Main cleaner	
Make:	NIPPON DONALDSON Co., LTD.
Model:	-
Type:	Dry dual paper element
Location of air intake:	Under the bonnet, in front of the radiator
Maintenance indicator:	Not fitted

Lubrication system

Type of feed pump:	Forced feed (Trochoidal pump)
Type of filter:	Replaceable paper element, cartridge type
Number:	One

Cooling system

type of coolant:	50/50 solution of permanent antifreeze and clean water
Type of pump:	Centrifugal
Specification of fan:	Axial
Number of fan blades:	Five
Fan diameter:	380 mm
Coolant capacity:	6.2 dm³
Type of temperature control:	Wax type thermostat
System pressure:	88.3 kPa

Starting system

Make:	NIPPON DENSO Co., LTD
Model:	ND228000-1000
Type:	Solenoid engaged type
Starter motor power rating:	1.4 kW
Cold starting aid:	Electrical glow plug
Safety device:	Operable only with sub change lever disengaged and PTO clutch disengaged

Electrical system

Voltage:	12 Volts
Generator	
Make:	NIPPON DENSO Co., LTD.
Model:	ND100211-4650
Type:	Three phase generator
Power:	40 Amps
Battery	
Number:	One
Rating:	615 Cold cranking Amps. (68 Ah at 5 hours)

Exhaust system

Make:	NELSON Industries Inc.
Type:	Multi chamber absorption-expansion
Location:	Vertical on the left side of tractor

TRANSMISSION TO WHEELS

Clutch(travel)

Make:	EXEDY Corporation
Model:	D707 00F
Type:	Dry single
Number of plates:	One
Diameter of plates:	275 mm
Method of disengagement:	Operated by foot pedal

Gear box

Make:	Own make
Type:	Mechanical
Arrangement:	Constant mesh 4 speed gears with main lever, Constant mesh high speed (H) and Synchromesh type forward / reverse (L/R) with sub lever.
Number of gears:	Totally 8 forward and 4 reverse speeds
Available options:	Not fitted on the test tractor. Additional one constant mesh creeper gear Totally 12 forward / 4 reverse speeds

Rear axle and final drives

Make:	Own make
Type:	Bevel gear type differential and planetary gear type final drives

Differential lock

Type:	Mechanical, dog clutch
Method of engagement:	Operated by foot pedal
Method of disengagement:	Self disengagement

Front axle and final drives

Make:	Own make
Type:	Bevel gear type differential and planetary gear type final drives
Differential lock	Not fitted

Total ratios and travelling speeds (tested tractor)

Gear Number	Range	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed(*) at rated engine speed of 2600 rev/min [km/h]	
		Forward	Reverse	Forward	Reverse
1	1-L	251.549	196.331	2.55	3.27
2	2-L	185.867	145.067	3.45	4.42
3	3-L	122.141	95.330	5.25	6.72
4	4-L	82.000	64.000	7.82	10.01
5	1-H	68.365	-	9.38	-
6	2-H	50.514	-	12.69	-
7	3-H	33.195	-	19.31	-
8	4-H	22.286	-	28.76	-

(*) Calculated with a tyre dynamic radius index (ISO 4251/1-1992) 654 mm

Number of revolutions of front wheels for one revolution of rear wheels: 1.4412

Total ratios and travelling speeds (with creep range; not tested tractor)

Gear Number	Range	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed(*) at rated engine speed of 2600 rev/min [km/h]	
		Forward	Reverse	Forward	Reverse
1	1-C	1783.790	-	0.36	-
2	2-C	1318.023	-	0.49	-
3	3-C	866.129	-	0.74	-
4	4-C	581.481	-	1.10	-
1	1-L	251.549	196.331	2.55	3.27
2	2-L	185.867	145.067	3.45	4.42
3	3-L	122.141	95.330	5.25	6.72
4	4-L	82.000	64.000	7.82	10.01
5	1-H	68.365	-	9.38	-
6	2-H	50.514	-	12.69	-
7	3-H	33.195	-	19.31	-
8	4-H	22.286	-	28.76	-

(*) Calculated with a tyre dynamic radius index (ISO 4251/1-1992) 654 mm

Number of revolutions of front wheels for one revolution of rear wheels: 1.4412

POWER TAKE-OFF

Main power take-off

Type:	Independent P.T.O.
Method of engagement:	By means of hydraulically actuated wet multi-plate clutch with hand lever
Number of shafts:	One (540 rev/min, 1000 rev/min)
Method of changing power take-off shafts ends and speeds:	Speed change by shifting gear select lever

Power take-off proportional to engine speed

540 rev/min one speed (not fitted in tested tractor)

Location:	At rear of tractor
Diameter of power take-off shaft end:	35 mm
Number of splines:	Six, in conformity with ISO 500 /1991
Height above ground:	638 mm
Distance from the median plane of the reactor:	0 mm
Distance behind rear axle center:	315 mm
Power take-off speed at rated engine speed (2600 rev/min):	612 rev/min
Engine speed at standard power take-off speed (540 rev/min):	2295 rev/min
Ratio of rotation speeds (engine speed / p.t.o. speed):	4.25
Power restriction and maximum torque:	31.3 kW, 664.1 Nm
Direction of rotation (viewed from shaft end):	Clockwise

540 / 1000 rev /min two speeds (fitted in tested tractor)

Location:	At rear of tractor	
Diameter of power take-off shaft end:	35 mm	
Number of splines:	Six, in conformity with ISO 500 /1991	
Height above ground:	638 mm	
Distance from the median plane of tractor:	0 mm	
Distance behind rear axle center:	377 mm	
Power take-off speed at rated engine speed:	540 rpm:	609 rev/min
	1000 rpm:	1052 rev/min
Engine speed at standard power take-off speed:	540 rpm:	2307 rev/min
	1000 rpm:	2470 rev/min
Ratio of rotation speed (engine speed / p.t.o. speed):	540 rpm:	4.273
	1000 rpm:	2.471
Direction of rotation (viewed from shaft end):	Clockwise	

Power take-off proportional to ground speed — Not fitted

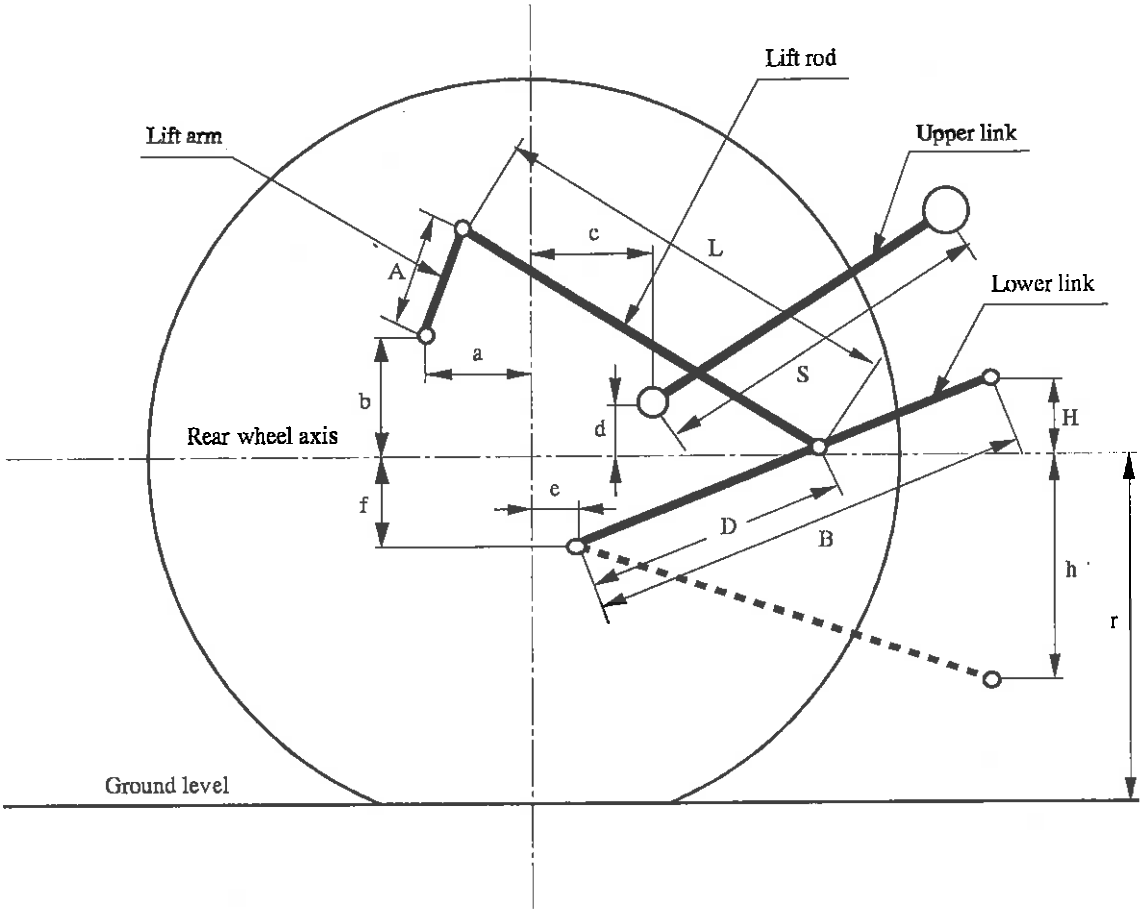
POWER LIFT

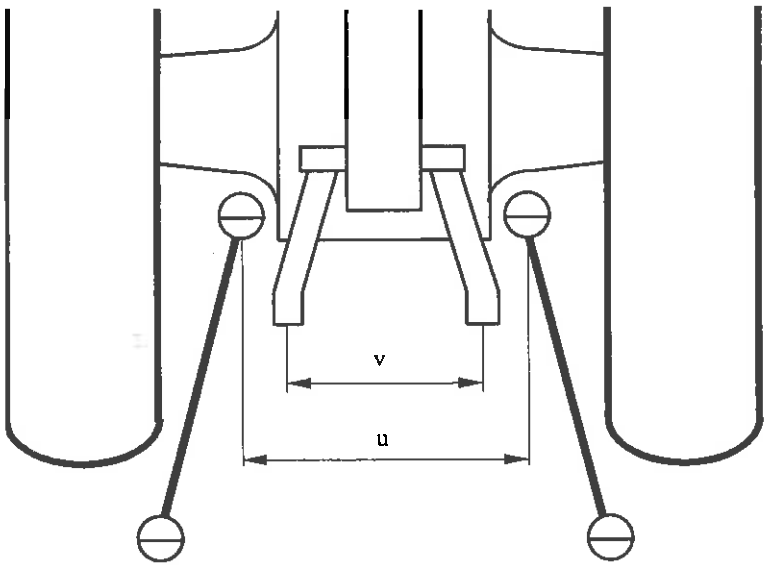
Make:	Own make
Type:	Hydraulic three point hitch (position, draft and mix control)
Type of hydraulic system:	Open center system
Type and number of cylinders:	Single acting, one
Type of linkage lock for transportation:	Hydraulically closed by throttle valve
Relief valve pressure setting for lifting:	From 18.6 to 19.12 Mpa
Opening pressure of cylinder safety valve:	From 21.1 to 22.6 MPa
Lift pump type:	Gear type
Transmission between pump and engine:	Gear drive
Type and number of filters:	Paper cartridge type, two
Site of oil reservoir:	In rear transmission case
Type, number and location of tapping points:	SAE 1/2". Hydraulic female coupler, two sets, at rear of tractor
Maximum volume of oil available to external cylinders:	Hydraulic oil should be added for external hydraulic circuit

Three point linkage

Category:	II (in accordance with ISO 730 /2-1979)

Linkage geometry





Dimensions of linkage geometry (when connected to the standard frame)

Linkage			Dimension of range [mm]	Settings used in test [mm]
Length of lift arms		(A)	241	241
Length of lower links		(B)	790	790
Distance of lift arm pivot point from rear-wheel axis	horizontally	(a)	-95	-95
	vertically	(b)	278	278
Horizontal distance between the two lower link points		(u)	339	339
Horizontal distance between the two lift arm end points		(v)	464	464
Length of upper link		(S)	from 476 to 710	577
Distance of upper link pivot point from rear wheel axis	horizontally	(c)	301 301 301 301	301
	vertically	(d)	300 270 240 210	210
Distance of lower link pivot point from rear wheel axis	horizontally	(e)	104	104
	vertically	(f)	197	197
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	395	395
Length of lift rods (actual length)		(L)	from 489 to 559	530
Height of lower hitch points relative to the rear wheel axis				
- in low position		(h)	474	474
- in high position		(H)	129	129
Height above ground of lower hitch points when locked in transport position (*)			from 748 to 873	790

(*) Assuming r=tire dynamic radius index (ISO 4251/1-1992) 654 mm

SWINGING DRAWBAR

Type:	Bar type, clevice type (as option)
Height above ground (tire size 14.9-28)	446 mm at top surface of bar
Distance of hitch point from rear wheel Axis, horizontally:	690 mm
Distance of hitch point power take-off shaft end	
Vertically:	192 mm at top surface of bar
Horizontary:	540 rpm one speed PTO: 374.5 mm 540 / 1000 rpm two speed PTO: 313 mm
Lateral adjustment (center of clevis)	
Right hand:	117 mm
Left hand:	117 mm
Distance of pivot point from rear wheel axis,	
Horizontally:	195 mm
Diameter of drawbar pin hole:	26.5 mm
Maximum vertical permissible load:	9.8 kN

HOLED DRAWBAR

Not fitted

TRAILER HITCH

Not fitted

STEERING

Make:	SUMITOMO EATON HYDRAULICS CO., LTD.
Model:	WFS 135B16ANB
Type:	Hydrostatic, load reaction type
Method of operation:	Steering wheel operated and full hydraulic power
Pump:	Gear type
Ram:	Balanced type cylinder
Working pressure:	From 13.2 to 13.9 MPa

BRAKES

Service brake

Make:	Own make
Type:	Multiple wet disks operated by tow foot pedals which can be locked together
Method of operation:	Independent or combined pedal
Trailer breaking take-off:	Not fitted

Parking brake

Type:	Mechanical acting type
Method of operation:	Pull type brake handle (Ratchet applicable only while stepping on the service brake at a certain force)

WHEELS

Number
- Front: Two, steering and driving
- Rear: Two, driving

Wheelbase: 2000 mm

Track width adjustment

	Minimum [mm]	Maximum [mm]	Adjusted method
Front	1330	1430	Changing by offset of rims
Rear	1320	1720	Changing by turning wheels and offset of rims

PROTECTIVE STRUCTURE

Make: KUBOTA
Model: SFM -54
Protective device: Rear Roll Bar, not tiltable
O.E.C.D. approval number: CSS 0388/2 with Seat INCORPORATED 163246
Date of approval: 26th August 1996

DRIVER'S SEAT

Make: Seats Inc.
Model: 163246
Type of suspension: Coil spring
Type of damping: Oil dumping
Range of adjustment
- Longitudinal: 151 mm
- Vertical: 58 mm

LIGHTING

	Height above ground of center [mm]	Size	Distance from outside edge of lights to median plane of tractor [mm]
Headlights	940	145 × 90	217
Sidelights	-	-	-
Rearlights	1365	104 × 79	614
Reflectors	1365	37 × 37	605
Flashers	1510	ϕ 120 × 70	733

TEST CONDITIONS

Overall dimensions

	Length [mm]	Width		Height	
		minimum [mm]	maximum [mm]	At top of protective structure [mm]	Exhaust silencer [mm]
Unballasted	3420	1705	2105	2355	2250
Ballasted	3808	1921	2105	2350	2245

Ground clearance: 420 mm
Clearance-limiting part: Bracket Drawbar

Tractor mass

	Ballasted		Unballasted	
	Without driver [kg]	With driver [kg]	Without driver [kg]	With driver [kg]
Front	1284	1293	740	749
Rear	1637	1703	1102	1168
Total	2921	2996	1842	1917

Ballast

Front:	1 bracket	44 kg
	8 weights, total	360 kg
Rear:	6 weights, total	310 kg
	Water in the tires	365 kg

Tires and track width specifications

	Front	Rear
Tires:		
- dimension	9.5-22	14.9-28
- ply rating	6	6
- type	cross-ply	cross-ply
- maximum load [kN]	8.83	15.79
- inflation pressure [kPa]	196	137
- dynamic radius index [mm]	478	654
Chosen track width [mm]:	1330	1320

Oils and lubrication

- Capacity and change interval

	Capacity [dm3]	Oil change [h]	Filter change [h]
Engine	8.0	100	200
Gear box including rear axle, final drive (front and rear), hydraulic system and power steering	40	600	200
Front axle	8	600	-
Service brake	-	-	-

- Specifications

	Recommended	Used During test
Engine oil: Viscosity Classification	Below -23℃ : SAE 5W or 10W-30 From -23℃ to 0℃ : SAE 10W or 10W-30 From 0℃ to 25℃ : SAE 20W or 10W-30 Above 25℃ : SAE 30W or 10W-30 API grade CC or CD	SAE 10W-30
Transmission oils, Hydraulic fluid and Steering oil Viscosity Classification	SAE 75W/80 (ISO VG 56) API grade GL-3	SAE 75W/80 (ISO VG 56) API grade GL-3

Grease:

Number of lubrication points: Twelve

Fuel

Type: Diesel fuel No.2 in conformity with JIS

Density at 15℃: 0.832 g/cm3

COMPULSORY TESTS RESULTS

1 MAIN POWER TAKE-OFF

Date and location of tests: 19 th June, 1996, BRAIN, Omiya
Type of dynamometer: Eddy current, SCHENCK W400

Power	Speed		Fuel consumption			Specific Energy
	engine	Power take-off	hourly		specific	
[kW]	[rev/min]		[kg/h]	[l/h]	[g/kW・h]	[kW・h/l]
1.1 Maximum power - 2-hours test						
31.5	2600	608	9.03	10.85	287	2.903
1.2 Power at rated engine speed						
31.5	2600	608	9.03	10.85	287	2.903
1.3 Standard power take-off speed (540 rev/min)						
31.4	2307	540	8.49	10.21	270	3.075
1.4 Part loads (governor control being set for maximum power at rated engine speed) 1.4.1 The torque corresponding to maximum power at rated engine speed						
31.5	2600	608	9.03	10.85	287	2.903
1.4.2 85% of torque obtained in 1.4.1						
27.4	2660	622	8.19	9.84	299	2.785
1.4.3 75% of torque defined in 1.4.2						
20.7	2687	629	6.84	8.22	330	2.518
1.4.4 50% of torque defined in 1.4.2						
13.9	2709	634	5.61	6.74	404	2.062
1.4.5 25% of torque defined in 1.4.2						
7.03	2733	639	4.44	5.34	632	1.316
1.4.6 Unloaded						
0	2766	647	3.34	4.02	-	-
1.5 Part loads (governor control being set for maximum power at standard power tale-off speed) 1.5.1 The torque corresponding to maximum power at standard power take-off speed						
31.4	2307	540	8.49	10.21	270	3.075
1.5.2 85% of torque obtained in 1.5.1						
27.2	2350	550	7.50	9.02	276	3.016
1.5.3 75% of torque obtained in 1.5.2						
20.7	2384	558	6.18	7.43	299	2.768
1.5.4 50% of torque obtained in 1.5.3						
13.9	2411	564	4.99	6.00	359	2.317
1.5.5 25% of torque obtained in 1.5.4						
7.06	2439	571	3.85	4.63	545	1.525
1.5.6 Unloaded						
0	2480	580	2.79	3.35	-	-

Other results

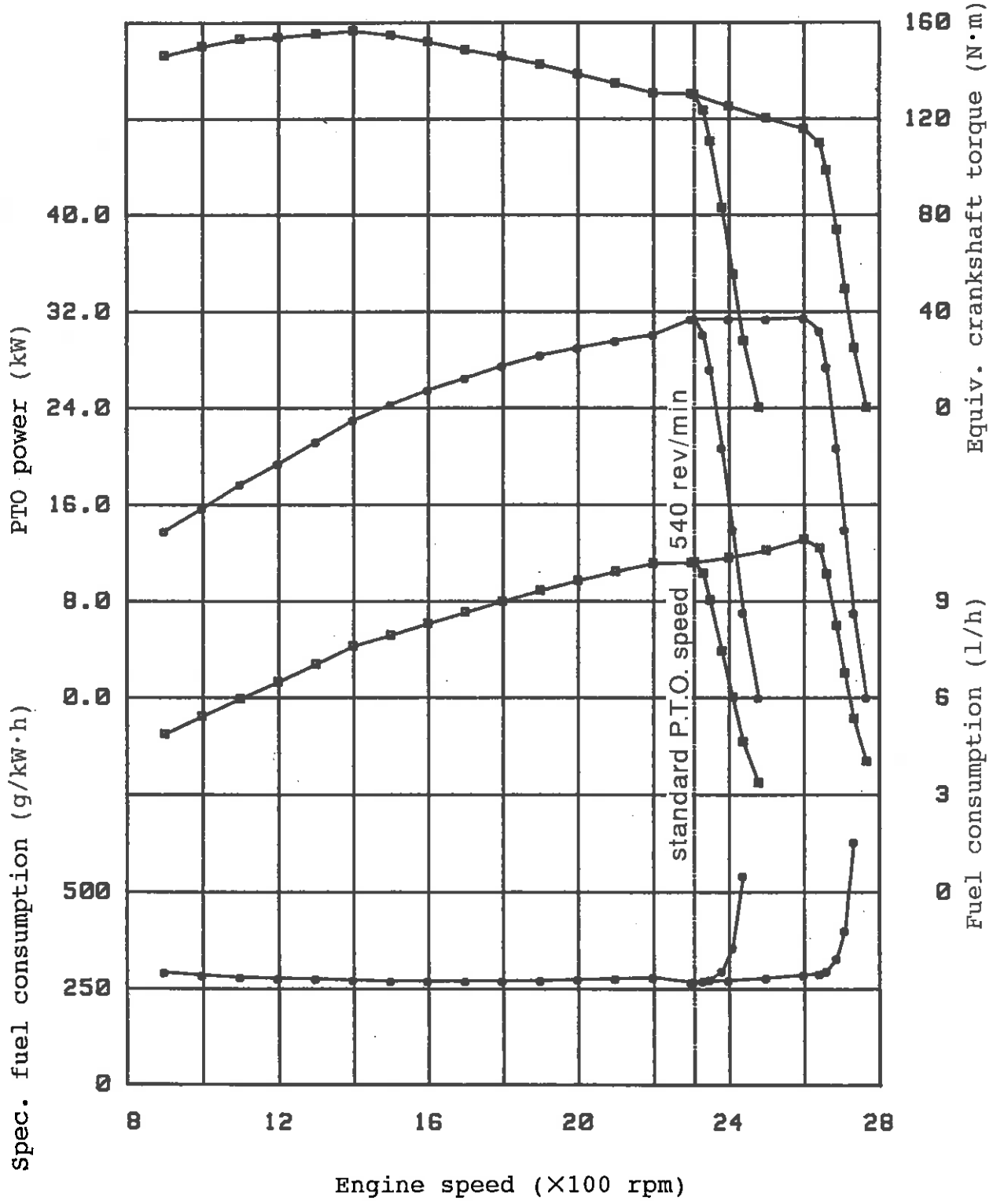
No load maximum engine speed:	2766 rev/min
Torque (equivalent crankshaft) at maximum power:	115.6 N•m
Torque (equivalent crankshaft) at rated engine speed:	115.6 N•m
Maximum torque (equivalent crankshaft): (engine speed: 1400 rev/min)	156.6 N•m

Mean atmospheric conditions

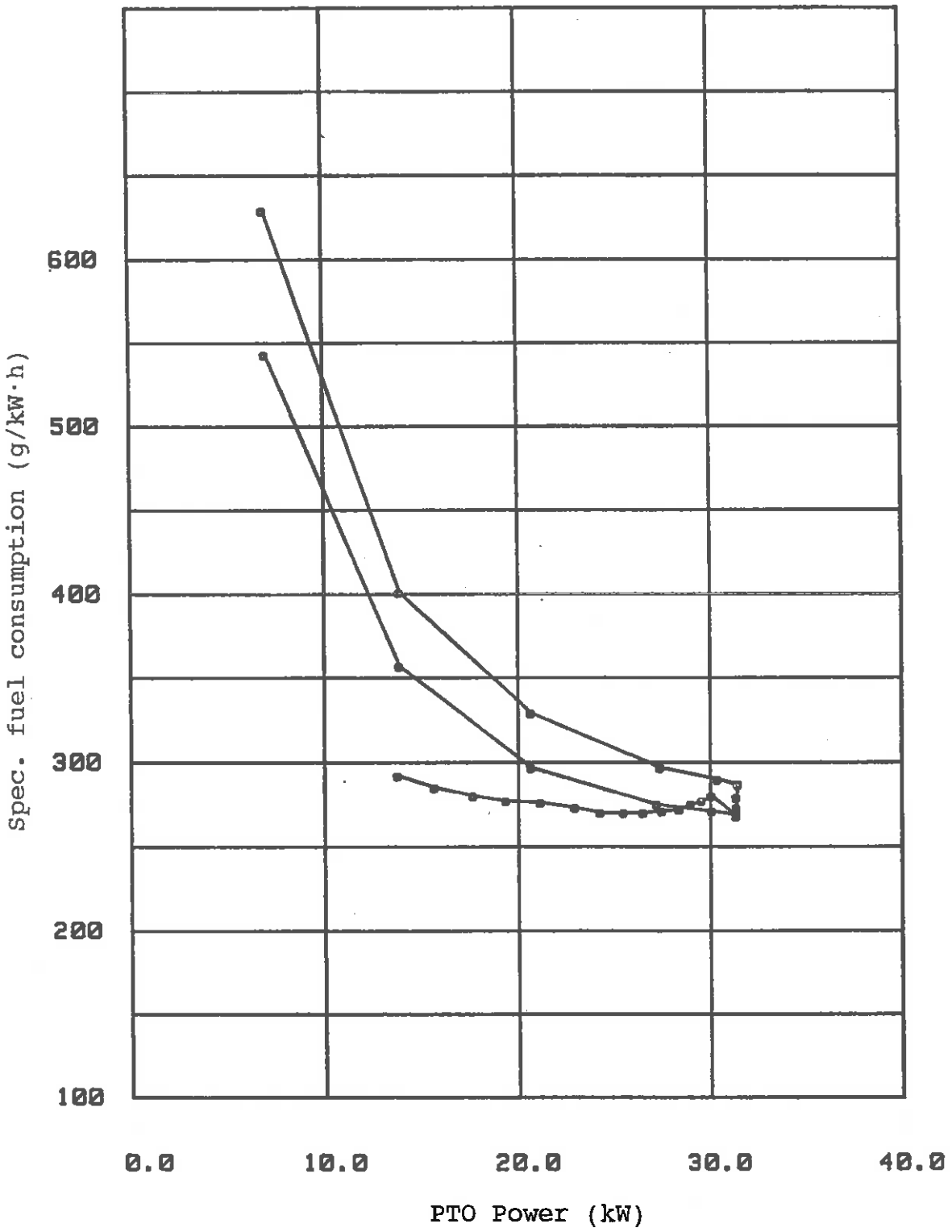
Temperature:	21 ℃
Pressure:	98.8 kPa
Relative humidity:	43 %

Maximum temperatures

Coolant:	91 ℃
Engine oil:	107 ℃
Fuel:	22 ℃
Engine air intake:	24 ℃



POWER TAKE-OFF PERFORMANCE



POWER TAKE-OFF PERFORMANCE

2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 20th June, 1996

2.1 HYDRAULIC POWER TEST

2.1.1 Auxiliary service coupling (standard flow rate)

Tapping point used for test: Auxiliary service connection
(can be measured by transferring circuit)

Sustained pressure with relief valve open: 18.9 Mpa
Pump delivery rate at minimum pressure: 38.5 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	26.2	17.1	7.47
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	31.0	15.2	7.85

2.2 POWER LIFT TEST

		At hitch point	On the frame
Height of lower hitch points above ground in down position [mm]		192	177
Vertical movement	without lifting forces [mm]	595	697
	with lifting forces [mm]	568	652
Maximum corrected force exerted though full range (**) [kN]		14.71	12.65
Corresponding pressure of hydraulic fluid [MPa]		17.1	17.1
Moment about rear wheel axle [kN•m]		-	19.03
Maximum tilt angle mast from vertical [Degrees]		-	10

Lifting height (*) [mm]		-277	-262	-200	-100	0	100	200	300	306	375
Lifting force (**)	at the hitch point [kN]	-	14.71	16.23	17.46	18.04	18.39	18.44	18.44	18.49	-
	at the frame [kN]	15.00	-	15.93	16.15	15.88	15.33	14.39	13.59	-	12.63

(*) Lifting heights relative to the horizontal plane including the lower link pivot points.

(**) The values of force measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting.

3. DRAWBAR PERFORMANCE

Date of tests: 31 st July, 1 st, 2 nd and 5 th August, 1996
Type of track: Concrete

			front	rear			
Tire size:	front:	9.5-22	Tyre inflation pressure: ballasted:	196 kPa	137 kPa	Height of drawbar above ground: unballasted:	478 mm
	rear:	14.9-28	unballasted:	196 kPa	137 kPa	ballasted:	470 mm

Gear No. and range	Power [kW]	Drawbar pull [kN]	Travelling speed [km/h]	Engine speed [rev/min]	Slip of wheels [%]	Specific fuel consumption [g/kW•h]	Specific energy [kW•h/l]	Temperature			Atmospheric condition		
								Fuel [°C]	Coolant [°C]	Engine oil [°C]	Temperature [°C]	Relative humidity [%]	Pressure [kPa]
3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
L-1	10.4	16.18	2.30	2705	15.0	507	1.646	54	82	94	34	52	101.3
L-2	13.9	16.11	3.10	2694	15.1	454	1.839	54	82	94	34	52	101.3
L-3	20.9	16.17	4.66	2660	15.0	398	2.098	54	78	92	34	52	101.3
L-4	25.5	12.70	7.23	2609	9.8	353	2.357	52	76	92	34	52	101.3
H-1	25.4	10.29	8.89	2600	7.2	360	2.321	53	82	97	34	52	101.3
H-2	24.8	7.27	12.27	2602	5.4	372	2.243	53	84	92	34	52	101.3
3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)													
L-1	14.5	23.15	2.26	2690	15.0	453	1.843	47	80	102	33	60	101.2
L-2	19.5	23.16	3.03	2666	15.0	408	2.047	48	79	97	33	60	101.2
L-3	24.9	18.84	4.76	2600	10.1	362	2.306	48	76	98	33	60	101.2
L-4	25.9	12.63	7.38	2600	6.5	348	2.398	47	77	99	33	60	101.2
H-1	25.8	10.29	9.01	2600	4.8	357	2.339	46	84	102	33	60	101.2
H-2	24.8	7.27	12.29	2596	3.9	368	2.268	43	82	94	33	60	101.2
3.3.1 FIVE HOURS TEST at 75 % of pull at maximum power													
L-4	20.4	9.47	7.77	2671	4.2	372	2.243	51	8	108	29	69	101.0
3.3.2 FIVE HOURS TEST at pull corresponding to 15 % wheelslip													
L-2	19.5	23.16	3.03	2666	15.0	408	2.047	54	94	111	32	55	101.1

(*) Oil consumption during ten hours duration of tests 3.3.1 and 3.3.2: 7.0 g/h

4 TURNING AREA AND TURNING CIRCLE

Front wheel drive disengaged

	With brakes		Without brakes	
	left-hand [m]	right-hand [m]	left-hand [m]	right-hand [m]
Radius of turning area	2.98	2.98	3.26	3.27
Radius of turning circle	3.20	3.20	3.50	3.51

Front wheel drive engaged

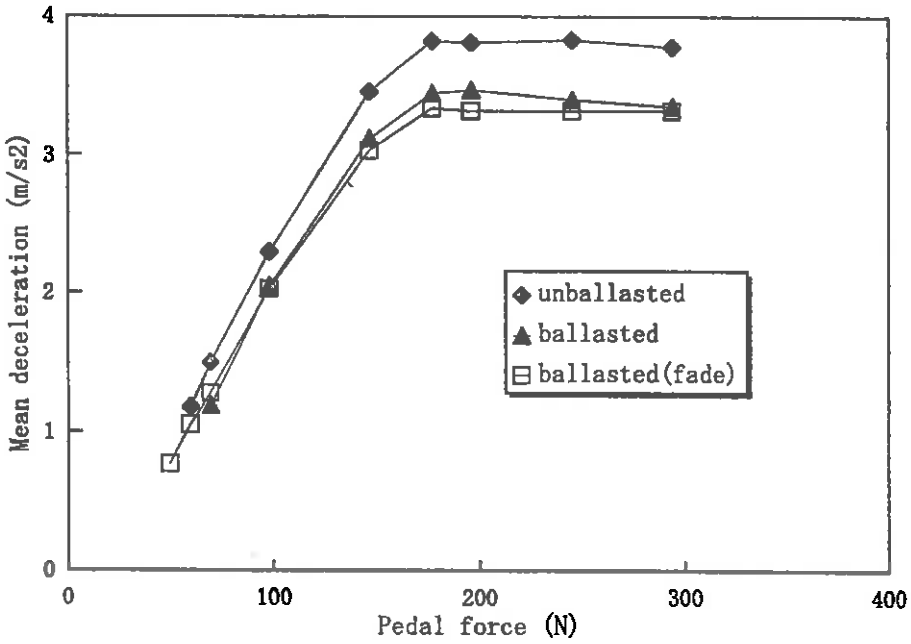
	With brakes		Without brakes	
	left-hand [m]	right-hand [m]	left-hand [m]	right-hand [m]
Radius of turning area	2.93	2.91	3.70	3.70
Radius of turning circle	3.17	3.15	3.99	3.99

5 LOCATION OF CENTER OF GRAVITY

Height above ground:	785 mm
Distance forward from the vertical plane containing the axis of the rear-wheels:	781 mm
Distance from the median plane of the tractor (to the right):	3 mm

6 BRAKING (front wheel drive disengaged)

Date of tests: 1 st and 6 th, August, 1996



COLD SERVICE BRAKING DEVICE TEST AND FADE TEST

6.1 COLD SERVICE BRAKING DEVICE TEST

	Ballasted tractor	Unballasted tractor
Speed before application of brakes [km/h]	29.4	30.3

6.2 FADE TEST

Speed before application of brakes:	29.4 km/h
Maximum deviation of tractor from its original course:	None
Abnormal vibration:	None
Brake heating method:	By means of towing the tractor for 1 km at 23.5 km/h with the towing force of 2.94 kN

6.3 PARKING BRAKING DEVICE TEST

	Ballasted tractor on 18% slope	
	uphill	downhill
Braking device control force [N]	559	333

7 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests:	21 st June,1996
Sound level meter	
Make:	RION
Model:	NA-61
Type:	Precision sound level meter
Type of track:	Concrete
Gear number:	H-4
Travelling speed before acceleration:	23.8 km/h
Sound level:	85 dB(A)

REPAIRS AND ADJUSTMENTS DURING TESTS

None

REMARKS

None