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. **1455 FULL CODE**



Agricultural Tractor

KUBOTA M7580DT (4WD)

Manufactured by:
KUBOTA Corporation, SAKAI Plant
64 Ishizukitamachi, Sakai-city, OSAKA, Japan

BIO-ORIENTED TECHNOLOGY RESEARCH ADVANCEMENT INSTITUTION
(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(C(87)53(Final),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.:	92001/O.E.C.D.
Duration of Test:	November till December, 1992
Date of Approval:	17th June, 1993

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
	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 2-47, Shikitsuhigashi 1-chome, Naniwa-ku OSAKA, 556 JAPAN
Location of tractor assembly:	64 Ishizukitamachi, Sakai City
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with agreement by BRAIN
Place of running-in:	KUBOTA Corporation, Sakai Plant
Duration of running-in:	Engine and tractor 51 h
Location of test:	BRAIN

SPECIFICATIONS OF TRACTOR

TRACTOR

Make:	KUBOTA
Model:	M7580DT
Type:	Agricultural Tractor
Number of driving wheels:	Four
Serial Number:	M758-50062
1st Serial Number:	M758-50001

ENGINE

Identification

Make:	Own make
Model:	V4302
Type:	4-cycle diesel engine with direct injection, water cooled
Serial Number:	V4302-92044

Cylinders

Number:	Four
Disposition:	Vertical, in-line
Bore/stroke:	105 / 125mm
Capacity:	4329 cm^3
Compression ratio:	17.5 : 1
Arrangement of valves:	Overhead
Cylinder liners	Replaceable, dry

Supercharging: Not applicable

Fuel system

Fuel feed system:	Forced feed type(Diaphragm pump)
Filters	
Make:	TSUCHIYA Manufacturing Co.,LTD.
Model:	1663143011
Type:	Replaceable paper element cartridge type

Number:	One
Capacity of fuel tank:	105 liters
Injection pump	
Make:	MIKUNI Precision Co.,LTD.
Model:	DPK J3943F000N
Type:	Distributor type
Serial Number:	0244HK
Manufacturer's production setting of injection pump	
Flow rate	17.6±0.8 dm^3/h at rated engine speed and full load
Timing:	12 degrees before T.D.C.
Injectors	
Make:	MIKUNI Precision Co.,LTD.
Model:	BDLL140S6655
Type:	Hole type
Injection pressure:	22.6 MPa

Governor

Make:	MIKUNI Precision Co.,LTD.
Type:	All speed mechanical governor
Governed range of engine speed:	From 600 to 2590 rev/min
Rated engine speed:	2400 rev/min

Air cleaner

Pre-cleaner:	Optional, not fitted in tested tractor
Make:	TSUCHIYA Manufacturing Co.,LTD.
Model:	98312-031
Type:	Cyclone type
Location of air intake:	Above the bonnet
Main cleaner	
Make:	TSUCHIYA Manufacturing Co.,LTD.
Model:	A1052-036
Type:	Dry paper double element
Location of air intake:	Under the bonnet, in front of the radiator
Maintenance indicator:	Electrical vacuum sensor at easy checker

Lubrication system

Type of feed pump:	Forced feed (Gear pump)
Type of filter:	Full flow replaceable cartridge paper element type
Number:	One

Cooling system

Type of coolant:	50/50 solution of permanent antifreeze and clear water
Type of pump:	Centrifugal
Specification of fan:	Axial
Number of fan blades:	Six
Fan diameter:	420 mm
Coolant capacity:	14.5 dm^3
Type of temperature control:	Wax type thermostat
System pressure:	88.3 kPa

Starting system

Make:	NIPPON DENSO
Model:	ND128000-6861
Type:	Solenoid engaged type
Starter motor power rating:	2.5 kW
Cold starting aid:	Electrical glow plug
Safety device:	Operable only with main clutch pedal operated and P.T.O. clutch disengaged

Electrical system

Voltage:	12 Volts
Generator	
Make:	NIPPON DENSO
Model:	ND100211-7260
Type:	Three phase generator
Power:	0.72 kW
Battery	
Number:	One
Rating:	925 Cold Cranking Amps. (72 Ah at 5 hours)

Exhaust system

Make:	Own make
Type:	Multi chamber absorption-expansion
Location:	Vertical on the left side of tractor

TRANSMISSION TO WHEELS

Clutch(travel)

Make:	DAIKIN SEISAKUSHO
Model:	C66700
Type:	Dry single
Number of plates:	One
Diameter of plates:	325 mm
Method of disengagement:	Operated by foot pedal

Gear box

Make:	Own make
Type:	Mechanical
Arrangement:	Synchromesh 6 speed gears with main lever, constant mesh 2 speeds (H / L)gears with sub lever, Synchromesh type forward/reverse shuttle with shuttle lever.
Number of gears:	Totally 12 forward and 12 reverse speeds
Available options:	Not fitted on the tested tractor. Additional constant mesh creeper gear "C", adding 12 forward and 12 reverse speeds. Dual speed(Hi/Lo) transmission version, totally 24 forward and 24 reverse speeds. Dual speed(Hi/Lo) with constant mesh creeper gear transmission version, totally 36 forward/36 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	
Type:	Mechanical, dog clutch
Method of engagement:	Operated by foot pedal
Method of disengagement:	Self disengagement
Available options:	"Bi-speed turn" system; mechanism of increase speed of front tyre in turning, 1.64 times faster than the standard 4WD front tyre speed.

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 2400 rev/min (km/h)	
		Forward	Reverse	Forward	Reverse
1	L-1	469.745	463.034	1.43	1.45
2	L-2	357.006	351.906	1.88	1.91
3	L-3	251.920	248.321	2.67	2.71
4	L-4	211.889	208.862	3.17	3.22
5	L-5	161.035	158.735	4.17	4.24
6	L-6	113.634	112.010	5.92	6.00
7	H-1	91.658	90.348	7.33	7.44
8	H-2	69.660	68.665	9.65	9.79
9	H-3	49.155	48.453	13.68	13.87
10	H-4	41.344	40.753	16.26	16.50
11	H-5	31.422	30.973	21.39	21.70
12	H-6	22.172	21.856	30.32	30.76

(*)Calculated with a tyre dynamic radius index of 743 mm (ISO 4251/1-1984)

Number of revolutions of front wheels
for one revolution of rear wheels: 1.39027
2.27499 (in turning with "Bi-speed turn" switch on)

Total ratios and travelling speeds (with dual speed and 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 2400 rev/min (km/h)	
		Forward	Reverse	Forward	Reverse
1	C-1-Lo	3506.387	3456.295	0.192	0.195
2	C-1-Hi	2620.935	2583.493	0.256	0.260
3	C-2-Lo	2664.854	2626.785	0.252	0.256
4	C-2-Hi	1991.911	1963.455	0.337	0.342
5	C-3-Lo	1880.441	1853.578	0.357	0.363
6	C-3-Hi	1405.582	1385.502	0.478	0.485
7	C-4-Lo	1581.633	1559.038	0.425	0.431
8	C-4-Hi	1182.230	1165.341	0.569	0.577
9	C-5-Lo	1202.040	1184.868	0.559	0.567
10	C-5-Hi	898.495	885.659	0.748	0.759
11	C-6-Lo	848.214	836.097	0.793	0.804
12	C-6-Hi	634.018	624.961	1.06	1.08
1	L-1-Lo	628.443	619.465	1.07	1.09
2	L-1-Hi	469.745	463.034	1.43	1.45
3	L-2-Lo	477.616	470.793	1.41	1.43
4	L-2-Hi	357.006	351.906	1.88	1.91
5	L-3-Lo	337.028	332.213	2.00	2.02
6	L-3-Hi	251.920	248.321	2.67	2.71
7	L-4-Lo	283.473	279.423	2.37	2.41
8	L-4-Hi	211.889	208.862	3.17	3.22
9	L-5-Lo	215.439	212.362	3.12	3.17
10	L-5-Hi	161.035	158.735	4.17	4.24
11	L-6-Lo	152.024	149.852	4.42	4.49
12	L-6-Hi	113.634	112.010	5.92	6.00
13	H-1-Lo	122.623	120.871	5.48	5.56
14	H-1-Hi	91.658	90.348	7.33	7.44
15	H-2-Lo	93.193	91.862	7.21	7.32
16	H-2-Hi	69.660	68.665	9.65	9.79
17	H-3-Lo	65.761	64.822	10.22	10.37
18	H-3-Hi	49.155	48.453	13.68	13.87
19	H-4-Lo	55.312	54.522	12.15	12.33
20	H-4-Hi	41.344	40.753	16.26	16.50
21	H-5-Lo	42.037	41.436	15.99	16.22
22	H-5-Hi	31.422	30.973	21.39	21.70
23	H-6-Lo	29.663	29.239	22.66	22.99
24	H-6-Hi	22.172	21.856	30.32	30.76

(**)Calculated with a tyre dynamic radius Index of 743 mm (ISO 4251/1-1984)

Number of revolutions of front wheels
for one revolution of rear wheels: 1.39027
2.27499 (in turning with "Bi-speed turn" switch on)

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)
Available option:	1000 rev/min (Speed change by replacing power take-off shaft)

Power take-off proportional to engine speed

540 rev/min

Location:	At rear of tractor
Diameter of power take-off shaft end:	35 mm
Number of splines:	6, In conformity with ISO 500/1979, SAE J1170
Height above ground:	716 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear wheel axle:	412 mm
Power take-off speed at rated engine speed (2400 rev/min):	637 rev/min
Engine speed at standard power take-off speed:	2035 rev/min
Ratio of rotation speeds (engine speed / p.t.o. speed):	3.769
Power restriction and maximum torque:	53.7 kW, 977 N·m
Direction of rotation (viewed facing driving end):	Clockwise

1000 rev/min(as option)

Location:	At rear of tractor
Diameter of power take-off shaft end:	35 mm
Number of splines:	21, In conformity with ISO 500/1979, SAE J1170
Height above ground:	716 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear wheel axle:	421 mm
Power take-off speed at rated engine speed (2400 rev/min):	1005 rev/min
Engine speed at standard power take-off speed:	2389 rev/min
Ratio of rotation speeds (engine speed / p.t.o. speed):	2.389
Direction of rotation (viewed facing driving end):	Clockwise

Power take-off proportional to ground speed — Not fitted

POWER LIFT

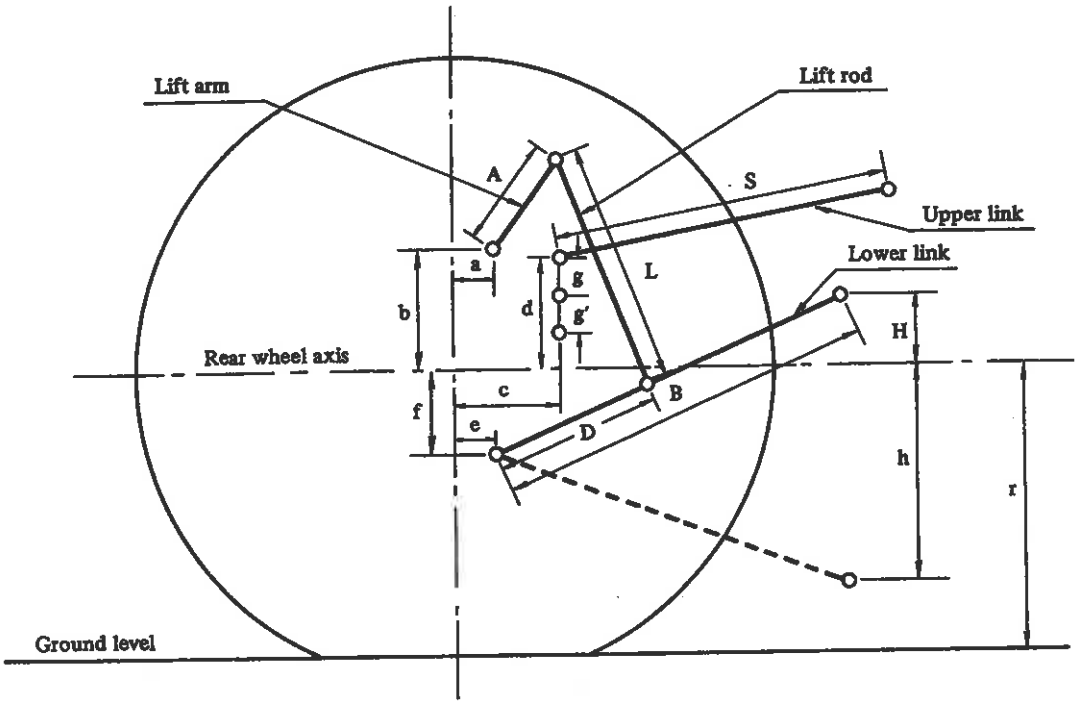
Make:	Own make
Type:	Hydraulic three point hitch (position, draft and mix control)
Type of hydraulic system:	Open center system

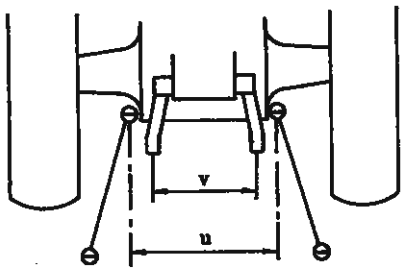
Type and number of cylinders:	Single acting, One
Type of linkage lock for transport:	Hydraulically closed by throttle valve
Lift pump type:	Gear pump
Relief valve pressure setting for lifting:	From 19.12 to 19.61 MPa
Opening pressure of cylinder safety valve:	From 23.0 to 24.5 MPa
Another pump for auxiliary service:	Gear pump, it is possible to use together with the pump for lift, in this case, twice flow rate is capable to obtain.
Relief valve pressure setting for auxiliary service:	From 17.7 to 18.1 MPa
Transmission between pump and engine:	Drive shaft
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 730/1-1977 / SAE J715)

Linkage geometry





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

Linkage dimensions (mm)				Settings used in test (mm)
Length of lift arms		(A)	250	
Length of lower links		(B)	900	
Distance of lift arm pivot point from rear wheel axis	horizontally	(a)	70	
	vertically	(b)	303	
Horizontal distance between the two lower link points		(u)	374	
Horizontal distance between the two lift arm end points		(v)	535	
Length of upper link		(S)	from 660 to 895	702
Distance of upper link pivot point from rear wheel axis	horizontally	(c)	313, 313, 313	313
	vertically	(d)	321, 276, 231	276
Distance of lower link pivot point from rear wheel axis	horizontally	(e)	115	
	vertically	(f)	176	
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	402, 457, 512	457
Length of lift rods		(L)	from 545 to 685	615
Height of lower hitch points relative to the rear wheel axis				
– in low position		(h)	from 277 to 796	552
– in high position		(H)	from –7 to 267	150
Height above ground of lower hitch points when locked transport position (*)			from 736 to 1010	

(*) Assuming the dynamic radius index = 743 mm (ISO 4251/1–1984)

SWINGING DRAWBAR

Type:	Bar type, clevis type(as option)
Height above ground(tyre size 18.4R34)	Reversible, 429 mm and 577 mm at top surface of bar
Distance of hitch point from rear wheel axis, horizontally:	772 mm and 822 mm
Distance of hitch point from power take-off shaft end	
Vertically:	289 mm and 139 mm at top surface of bar
Horizontally:	360 mm and 410 mm
Lateral adjustment (center of clevis)	
Right hand:	145 mm
Left hand:	145 mm
Distance of pivot point from rear wheel axis, horizontally:	215 mm
Diameter drawbar pin hole:	28 mm
Maximum vertical permissible load:	12.7 kN

TRAILER HITCH Not fitted

HOLED DRAWBAR Not fitted

STEERING

Make:	SUMITOMO EATON HYDRAULICS Co.,LTD
Model:	WDS120B14B4B
Type:	Hydrostatic, load reaction type
Method of operation:	Hydraulic steering system
Pump:	Gear type
Ram:	Balanced type cylinder
Working pressure:	From 11.8 to 12.5 MPa

BRAKES

Service brake

Make:	Own make
Type:	Hydraulic (master cylinder) acting, oil-immersed disk type, three disks on each differential half shaft
Method of operation:	Independent or combined pedal
Trailer braking take-off:	Not fitted

Parking brake

Type:	Mechanical acting oil-immersed cam-disk type
Method of operation:	Pull type brake handle

WHEELS

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

Wheelbase: 2300 mm

Track width adjustment

	Minimum (mm)	Maximum (mm)	Adjustment method
Front	1540	1740	Changing by turning wheels and offset of rims
Rear	1520	2020	Changing by turning wheels and offset of rims(Offset type wheel)

PROTECTIVE STRUCTURE

Manufacturer's name: Own make
Model: IC 65
Protective device: Cab, no tiltable

DRIVER'S SEAT

Make: TACHI-S Co.,LTD
Model: M1-5
Type of suspension: Coil spring
Type of damping: Oil dumping
Range of adjustment
- Longitudinal: 120 mm
- Vertical: 38 mm

LIGHTING

	Height above ground of center (mm)	Size (mm)	Distance from outside edge of lights to median plane of tractor (mm)
Headlights	1131	120×120	258
Taillights	1527	104×79	702
Reflectors	1527	40×40	697
Flashers	2547	¢120×70	733
Auxiliary lights	2539	125×85	521

TEST CONDITIONS

Overall dimensions

	Length (mm)	Width		Height	
		min (mm)	max (mm)	at top of protective structure (mm)	exhaust silencer (mm)
Ballasted	4270	2620	2620	2604	2505
Unballasted	3910	2011	2511	2622	2510

Ground clearance: 450 mm
Clearance-limiting part: Drawbar frame

Tractor mass(with cab)

	Ballasted		Unballasted	
	Without driver (kg)	With driver (kg)	Without driver (kg)	With driver (kg)
Front	1987	1992	1325	1338
Rear	2823	2893	1986	2048
Total	4810	4885	3311	3386

Ballast

Front:	1 bracket	90 kg
	10 weights, total	486 kg
Rear:	4 weights, total	252 kg
	water in the tyres	671 kg

Tyres and track width specifications

	Front	Rear
Tyres:		
-dimension	12. 4-24	18. 4-30
-ply rating	8	6
-type	cross-ply	cross-ply
-maximum load (kN)	13. 88	20. 77
-inflation pressure (kPa)	220	110
-dynamic radius index (mm)	545	743
Chosen track width (mm) :	1620	1620

Oils and lubrication

-Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	16. 3	200	400
Gear box including rear axle, final drive (front and rear), hydraulic system and power steering	50	600	200
Front axle	21. 2	600	-
Service brake	0. 3	600	-

-Specifications

	Recommended	Used during test
Engine oil:	Below -23℃ : SAE 5W or10W-30	
Viscosity	From -23℃ to 0℃ : SAE 10W or10W-30	SAE 10W-30
	From 0℃ to 25℃ : SAE 20W or 10W-30	
	Above 25℃ : SAE 30W or 10W-30	
Classification	API - CC or CD	API - CC
Transmission oils, Hydraulic fluid and Steering oil		SAE 75W/80
Viscosity	SAE 75W/80	API - GL 3
Classification	API - GL 3	

Grease:

Number of lubrication points: Fourteen

Fuel

Type: Diesel fuel No. 2 in conformity with JIS

Density at 15℃: 0.8347 g/cm^3

COMPULSORY TESTS RESULTS

1. MAIN POWER TAKE-OFF

Date and location of tests: 2nd December, 1992, 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						
54.8	2400	637	14.68	17.59	268	3.115
1.2 Power at rated engine speed						
54.8	2400	637	14.68	17.59	268	3.115
1.3 Standard power take-off speed(540 rev/min)						
51.4	2035	540	12.88	15.43	251	3.331
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						
54.8	2400	637	14.68	17.59	268	3.115
1.4.2 85 % of torque obtained in 1.4.1						
47.8	2464	654	13.23	15.85	277	3.016
1.4.3 75 % of torque defined in 1.4.2						
36.3	2494	662	10.82	12.97	298	2.799
1.4.4 50 % of torque defined in 1.4.2						
24.5	2525	670	8.81	10.55	359	2.322
1.4.5 25 % of torque defined in 1.4.2						
12.3	2539	673	6.72	8.05	546	1.528
1.4.6 Unloaded						
0	2552	677	4.87	5.84	-	-
1.5 Part loads (governor control being set for maximum power at standard power take off speed) 1.5.1 The torque corresponding to maximum power at standard power take-off speed						
51.4	2035	540	12.88	15.43	251	3.331
1.5.2 85 % of torque obtained in 1.5.1						
44.8	2088	554	11.30	13.54	252	3.309
1.5.3 75 % of torque defined in 1.5.2						
34.2	2126	564	9.22	11.05	270	3.095
1.5.4 50 % of torque defined in 1.5.2						
23.2	2160	573	7.31	8.75	315	2.651
1.5.5 25 % of torque defined in 1.5.2						
11.7	2186	580	5.48	6.57	468	1.781
1.5.6 unloaded						
0	2201	584	3.63	4.35	-	-

Other results

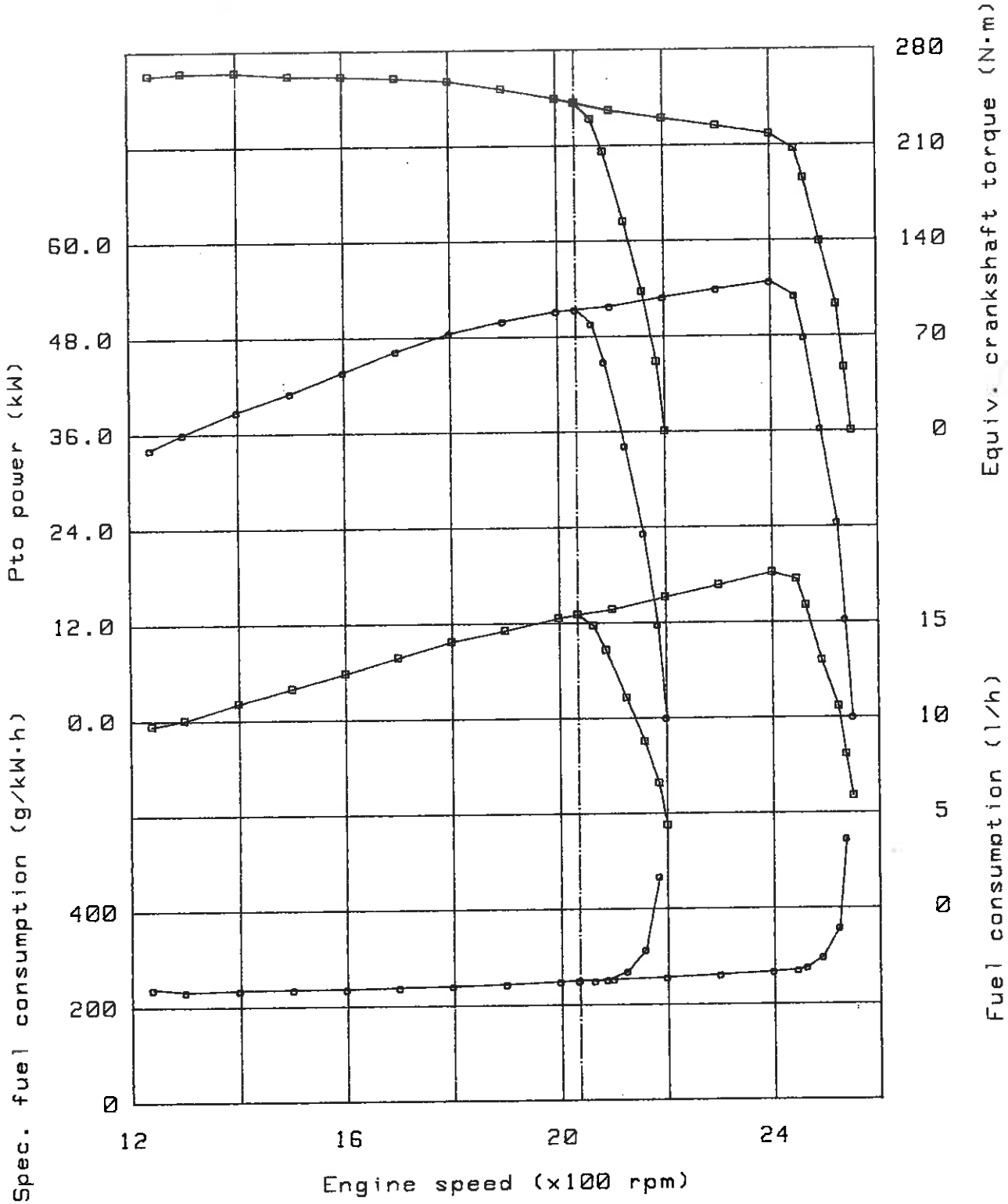
No load maximum engine speed:	2552 rev/min
Torque (equivalent crankshaft) at maximum power:	217.8 N•m
Torque (equivalent crankshaft) at rated engine speed:	217.8 N•m
Maximum torque (equivalent crankshaft): (engine speed: 1400 rev/min)	264.5 N•m

Mean atmospheric conditions

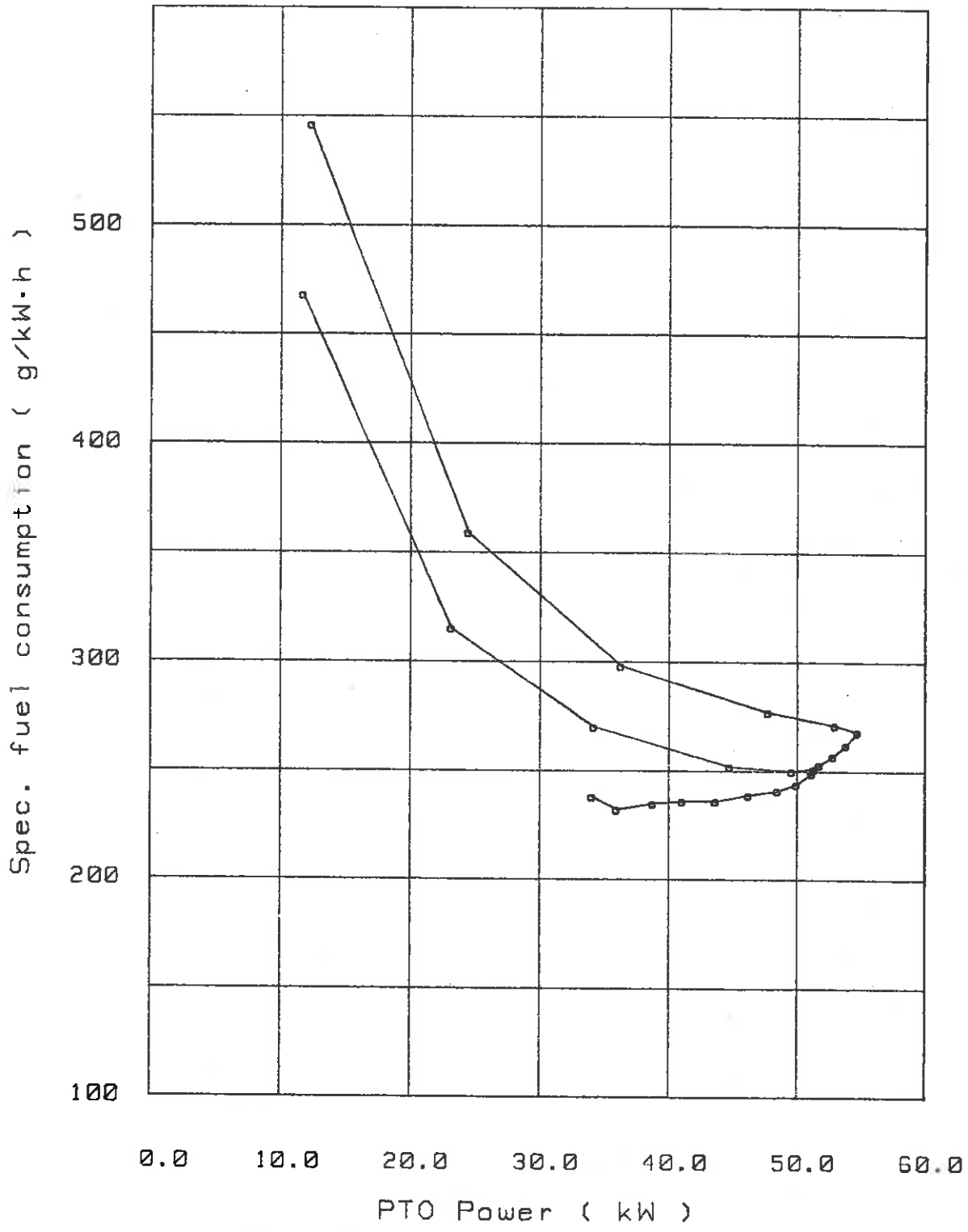
Temperature:	20 ℃
Pressure:	102.0 kPa
Relative humidity:	35 %

Maximum temperatures

Coolant:	86 ℃
Engine oil:	128 ℃
Fuel:	53 ℃
Engine air intake:	23 ℃



POWER TAKE-OFF PERFORMANCE



POWER TAKE-OFF PERFORMANCE

2. HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 30th November and 2nd December, 1992

2.1 HYDRAULIC POWER TEST

2.1.1 Auxiliary service coupling (standard flow rate)

Tapping point used for test: Auxiliary service connection
Sustained pressure with relief valve open: 18.04 MPa
Pump delivery rate at minimum pressure: 44.0 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	40.8	16.28	11.11
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	40.3	17.06	11.47

2.1.2 Auxiliary service coupling (twice flow rate)

Tapping point used for test: Auxiliary service connection
Sustained pressure with relief valve open: 18.04 MPa
Pump delivery rate at minimum pressure: 82.9 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	57.4	16.28	15.59
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	78.7	14.91	19.56

2.1.3 Lift pump

Tapping point used for test: Auxiliary service connection (can be measured by transferring circuit)
Sustained pressure with relief valve open: 19.61 MPa
Pump delivery rate at minimum pressure: 40.3 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	38.3	17.65	11.25
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	37.3	18.63	11.55

2.2 POWER LIFT TEST

		at hitch point	on the frame
Height of lower hitch points above ground in down position	(mm)	186	119
Vertical movement without lifting forces	(mm)	702	873
with lifting forces	(mm)	674	841
Maximum corrected force exerted through full range (**)	(kN)	19.35	15.70
Corresponding pressure of hydraulic fluid	(MPa)	17.65	17.65
Moment about rear wheel axle	(kN•m)	–	25.51
Maximum tilt angle of mast from vertical	(Degrees)	–	10

Lifting height (*) (mm)		-445	-400	-376	-300	-200	-100	0	100	200	298	300	396
Lifting force (**)	at the hitch point (kN)	–	–	19.35	19.84	21.22	21.75	22.11	22.38	22.33	22.47	–	–
	at the frame (kN)	16.59	16.64	–	17.58	17.90	17.90	17.71	17.18	16.72	–	16.10	15.70

(*) 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: 7th,8th and 10th December, 1992
Type of track: concrete
Tyre size: front: 12.4–24
rear 18.4–30

		Tyre inflation pressure	
	Height of drawbar above ground	Front	Rear
Unballasted	510 mm	220 kPa	110 kPa
Ballasted	520 mm	220 kPa	110 kPa

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			Atomospheric condition		
								Fuel (℃)	Coolant (℃)	Engine oil (℃)	Temperature (℃)	Relative humidity (%)	Pressure (kPa)
3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
L–1	10.8	30.10	1.29	2521	15.0	662	1.262	20	78	101	10	74	102.1
L–2	13.8	29.33	1.70	2514	15.0	560	1.491	20	76	100	10	74	102.1
L–3	19.8	29.82	2.39	2501	15.0	471	1.772	20	76	100	10	74	102.1
L–4	23.4	29.75	2.84	2495	15.0	437	1.911	18	77	104	10	74	102.1
L–5	30.7	29.76	3.72	2479	14.9	382	2.183	18	77	104	10	74	102.1
L–6	42.8	28.48	5.40	2447	11.5	341	2.449	18	77	104	10	74	102.1
H–1	47.2	24.78	6.86	2389	7.1	323	2.581	15	78	102	10	74	102.1
H–2	48.0	18.38	9.40	2409	4.1	315	2.647	19	78	104	10	74	102.1
H–3	46.4	12.22	13.68	2405	1.4	330	2.529	18	78	106	10	74	102.1
3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)													
L–1	14.7	41.34	1.28	2512	15.0	531	1.573	21	78	108	11	63	102.3
L–2	19.4	41.53	1.68	2504	15.0	450	1.856	21	78	108	11	63	102.3
L–3	27.2	41.54	2.35	2482	15.0	404	2.068	21	78	108	11	63	102.3
L–4	31.9	41.15	2.79	2472	14.9	369	2.260	21	78	108	11	63	102.3
L–5	41.8	40.19	3.75	2439	12.0	350	2.383	18	81	108	11	63	102.3
L–6	46.1	30.28	5.48	2370	6.6	316	2.640	18	81	108	11	63	102.3
H–1	47.0	24.25	6.97	2373	4.2	311	2.686	16	77	92	11	63	102.3
H–2	46.7	17.90	9.40	2384	2.3	316	2.643	16	77	92	11	63	102.3
3.3.1 FIVE HOURS TEST at 75 % of pull at maximum power													
H–1	37.4	18.19	7.41	2468	0.7	332	2.544	20	80	118	14	67	102.3
3.3.2 FIVE HOURS TEST at pull corresponding to 15 % wheelslip													
L–4	31.5	41.15	2.75	2470	15.0	378	2.210	28	82	118	18	54	102.3

Oil consumption during ten hours duration of tests 3.3.1 and 3.3.2: 11.2 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	3.58	3.60	4.03	4.03
Radius of turning circle	3.84	3.86	4.34	4.33

Front wheel drive engaged

	With brakes		Without brakes	
	left-hand (m)	right-hand (m)	left-hand (m)	right-hand (m)
Radius of turning area	3.37	3.38	4.45	4.46
Radius of turning circle	3.70	3.71	4.81	4.82

5 LOCATION OF CENTER OF GRAVITY

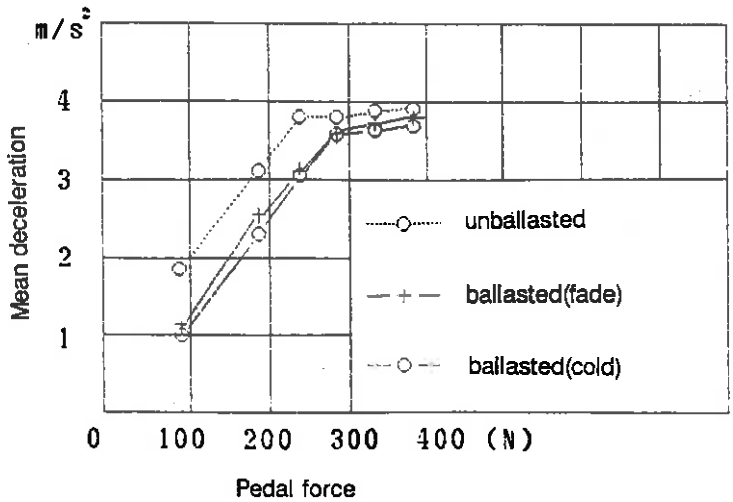
Height above ground: 985 mm
Distance forward from the vertical plane containing the axis of the rear-wheels: 909 mm
Distance from the median plane of the tractor (to the right): 1 mm

6 BRAKING (front wheel drive disengaged)

Date of tests: 4th December, 1992

Tractor mass during brake test(with driver)

	Front (kg)	Rear (kg)	Total (kg)
Ballasted	1987	3124	5111
Unballasted	1351	2104	3455



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)	31.1	32.2

6.2 FADE TEST

Speed before application of brakes: 31.1 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 25 km/h with a towing force of 50 kN

6.3 PARKING BRAKING DEVICE TEST

	Ballasted tractor on 18 % slope	
	uphill	downhill
Braking device control force (N)	147	147

7 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 1st December, 1992
Sound level meter
- Make: RION
- Model: NA-61
- Type: Precision sound level meter
- Type of track: Concrete
- Gear number: H-6
- Travelling speed before acceleration: 23.9 km/h
- Sound level: 88 dB(A)

REPAIRS AND ADJUSTMENTS DURING TESTS

None

REMARKS

None