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. **1/1804** **FULL CODE**



Agricultural Tractor
KUBOTA M8200DT (4WD)

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

INSTITUTE OF AGRICULTURAL MACHINERY
BIO-ORIENTED TECHNOLOGY RESEARCH ADVANCEMENT INSTITUTION
(IAM-BRAIN)
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.:	H 10-T002
Duration of Test:	October, 1998
Date of Approval:	21 st January, 1999
Make:	KUBOTA
Model:	M8200DT
Type:	4WD
Serial number:	M820-50353
1 st serial number:	M820-50001

In this report all performance characteristics are given corresponding to the international system 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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Printed in **JAPAN**

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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 hours
Location of test:	BRAIN

1. SPECIFICATIONS OF TRACTOR

1.1 IDENTIFICATION

Make:	KUBOTA
Model:	M8200DT
Type:	Four-wheel drive, unit construction Agricultural tractor
Number of driving wheels:	Four
Serial Number:	M820-50353
1st Serial Number:	M820-50001

1.2 ENGINE

Make:	Own make
Model:	V3300-TE
Type:	4-cycle diesel engine with indirect injection and exhaust turbo super-charger, water cooled
Serial Number:	WN0353

1.2.1 Cylinders

Number:	Four
Disposition:	Vertical, in-line
Bore/Stroke:	98.0/110 mm
Capacity:	3318 cm^3
Compression ratio:	21.8:1
Arrangement of valves:	Valve in head
Cylinder liners:	No cylinder lines

1.2.2 Supercharging

Make:	MITSUBISHI HEAVY INDUSTRIES, LTD
Model:	TD04
Type:	Exhaust gas turbine
Pressure:	0.07 MPa

1.2.3 Fuel System

Fuel feed system:	Forced feed type (diaphragm pump)
Filters	
Make:	TAIYO GIKEN KOGYO Co., LTD.
Model:	16541-43352
Type:	Replaceable metal element, cartridge type
Number:	One
Capacity of fuel tank:	90 dm^3
Injection pump	
Make:	DENSO Corporation
Model:	ND-PFR4M75A1ND706
Type:	Bosch type M
Serial Number:	-
Manufacturer's production setting of injection pump	
Flow rate:	19.0 dm^3/h ± 5 % at rated engine speed and full load
Timing:	15 ~ 17 degrees before T.D.C.
Injectors	
Make:	DENSO Corporation
Model:	DNOPD 31
Type:	Throttle type
Injection pressure:	13.7 ~ 14.7 MPa

1.2.4 Governor

Make:	Own make
Model:	-
Type:	Mechanical (all speed governor)
Governed range of engine speed:	From 750 to 2800 rev/min
Rated engine speed:	2600 rev/min

1.2.5 Air cleaner

Pre-cleaner:	Not fitted
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:	Mechanical type

1.2.6 Lubrication system

Type of feed pump:	Forced lubrication (trochoidal pump)
Type of filter:	Replaceable paper element
Number:	One

1.2.7 Cooling system

Type of coolant:	50/50 solution of permanent antifreeze and clean water
Type of pump:	Centrifugal
Specification of fan	
Type:	Axial type
Number of fan blades:	Seven
Fan diameter:	430 mm
Coolant capacity:	9.0 dm^3
Type of temperature control:	Wax type thermostat
System pressure:	88.3 kPa

1.2.8 Starting System

Make:	MITSUBISHI ELECTRIC Corporation
Model:	M008T70971
Type:	Solenoid engaged type
Starter motor power rating:	12 V, 2.5 kW
Cold starting aid:	Electrical glow plug
Safety device:	Operable only with shuttle lever in neutral and PTO clutch disengaged

1.2.9 Electrical system

Voltage:	12 V
Generator	
Make:	MITSUBISHI ELECTRIC Corporation
Model:	A7TA1677
Type:	Three phase generator
Power:	45 Amps
Battery	
Number:	One
Rating:	92 Ah at 5 hours rating

1.2.10 Exhaust system

Make:	Calsonic Corporation
Model:	1B814-20000
Type:	Multi chamber absorption-expansion
Location:	Inside of the bonnet

1.3 TRANSMISSION

1.3.1 Clutch (travel alone)

Make: EXEDY Corporation
Model: D715 00F
Type: Dry single plate-single stage
Number of plates: One
Diameter of plates: 300 mm
Method of disengagement: Operated by foot pedal

1.3.2 Gear box

Make: Own make
Model: -
Type: Mechanical
Description:

	Forward	Reverse
Number of gears	Main gear shift with 4 speeds: (1 st ~ 4 th) Synchromesh 4 speed gears Shuttle gear shift with 2 speed gears: Synchromesh 2 speed gears, forward (F)/ reverse (R)	
Number of ranges	Range gear shift with 2 speeds: constant mesh 2 speed gears, low (L)/ high (H)	
Total of arrangements	8 speeds	8 speeds

Available options: Additional one constant mesh creeper gear
Totally 12 forward / 12 reverse speeds

1.3.3 Rear axle and final drives

Make: Own make
Type: Bevel gear type differential, planetary gear type final drives
Model: -
Differential lock
- Type: Mechanical, dog clutch
- Model: -
- Method of engagement: Operated by foot pedal
- Method of disengagement: Self disengagement

1.3.4 Front axle and final drives

Make: Own make
Type: Bevel gear type differential, planetary gear type final drives
Differential lock
- Type: Mechanical, dog clutch
- Model: -
- Method of engagement: Operated by foot pedal
- Method of disengagement: Self disengagement

1.3.5 Total ratios and travelling speeds (tested tractor)

G ear 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	288.37	291.06	2.41	2.38
2	2-L	187.06	188.79	3.71	3.67
3	3-L	121.04	122.53	5.73	5.66
4	4-L	89.63	90.47	7.74	7.67
5	1-H	70.15	70.79	9.89	9.80
6	2-H	45.50	45.92	15.24	15.11
7	3-H	29.53	29.81	23.49	23.27
8	4-H	21.80	22.01	31.82	31.51

(*) Calculated with a tyre dynamic radius index (ISO 4251-1:1992) of 708 mm (tyre: 18.4-28).

Number of revolutions of front wheels for one revolution of rear wheels: 1.399

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

G ear 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	1725.99	1742.08	0.40	0.40
(2)	2-C	1119.56	1130.01	0.62	0.61
(3)	3-C	726.68	733.41	0.95	0.95
(4)	4-C	536.46	541.46	1.29	1.28
1	1-L	288.37	291.06	2.41	2.38
2	2-L	187.06	188.79	3.71	3.67
3	3-L	121.04	122.53	5.73	5.66
4	4-L	89.63	90.47	7.74	7.67
5	1-H	70.15	70.79	9.89	9.80
6	2-H	45.50	45.92	15.24	15.11
7	3-H	29.53	29.81	23.49	23.27
8	4-H	21.80	22.01	31.82	31.51

(*) Calculated with a tyre dynamic radius index (ISO 4251-1:1992) of 708 mm (tyre: 18.4-28).

Number of revolutions of front wheels for one revolution of rear wheels: 1.399

1.4 POWER TAKE-OFF

1.4.1 Main power take-off

Type:	Independent PTO
Method of engagement:	By means of hydraulically actuated wet multi-plate clutch with hand lever
Number of shafts:	One, fixed
Method of changing power take-off shafts ends speeds:	Fixed speed

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 rev/min (fitted on 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/SAE J1170
Height above ground:	692 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear axle center:	360 mm
Direction of rotation (viewed from shaft end):	Clockwise

PTO type	PTO speed [rev/min]	Engine speed [rev/min]	Engine/PTO transmission ratio	Power restriction [kW]
540	540 637	2205 2600	4.083	54.4

1.4.1.2 Power take-off proportional to ground speed — Not fitted

1.4.2 Optional power take-off

Type:	Independent PTO
Method of engagement:	By means of hydraulically actuated wet multi-plate clutch with hand lever
Number of shafts:	One, fixed
Method of changing power take-off shafts ends speeds:	Constant mesh 2 speeds

1.4.2.1 Power take-off proportional to engine speed

Power take-off at 540/750 rev/min 2 speeds (not fitted on 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/SAE J1170
Height above ground:	692 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear axle center:	417 mm
Direction of rotation (viewed from shaft end):	Clockwise

PTO type	PTO speed [rev/min]	Engine speed [rev/min]	Engine/PTO transmission ratio	Power restriction [kW]
540	540 690	2035 2600	3.769	none
750	750 924	2109 2600	2.813	none

1.4.2.2 Power take-off proportional to ground speed — Not fitted

1.5 HYDRAULIC POWER LIFT

Make:	Own make
Type:	Hydraulic 3-point hitch (position, draft and mix control)
Model:	-
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
Relief valve pressure setting (tolerance):	18.6 ~ 19.1 MPa
Opening pressure of cylinder safety valve:	21.1 ~ 22.6 MPa
Lift pump type:	Gear type
Transmission between pump and engine:	Gear drive (gear: injection pump cam shaft 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	
type:	ISO-5675, SAE-J1036, ASAE R366, hydraulic female coupler
number:	One to three sets
location:	At rear of tractor
Maximum volume of oil available to external cylinders:	Hydraulic oil should be added for external hydraulic circuit

1.6 THREE POINT LINKAGE

Category:	2, in conformity with category 2 of ISO 730-1:1994 and ISO 730-2:1979

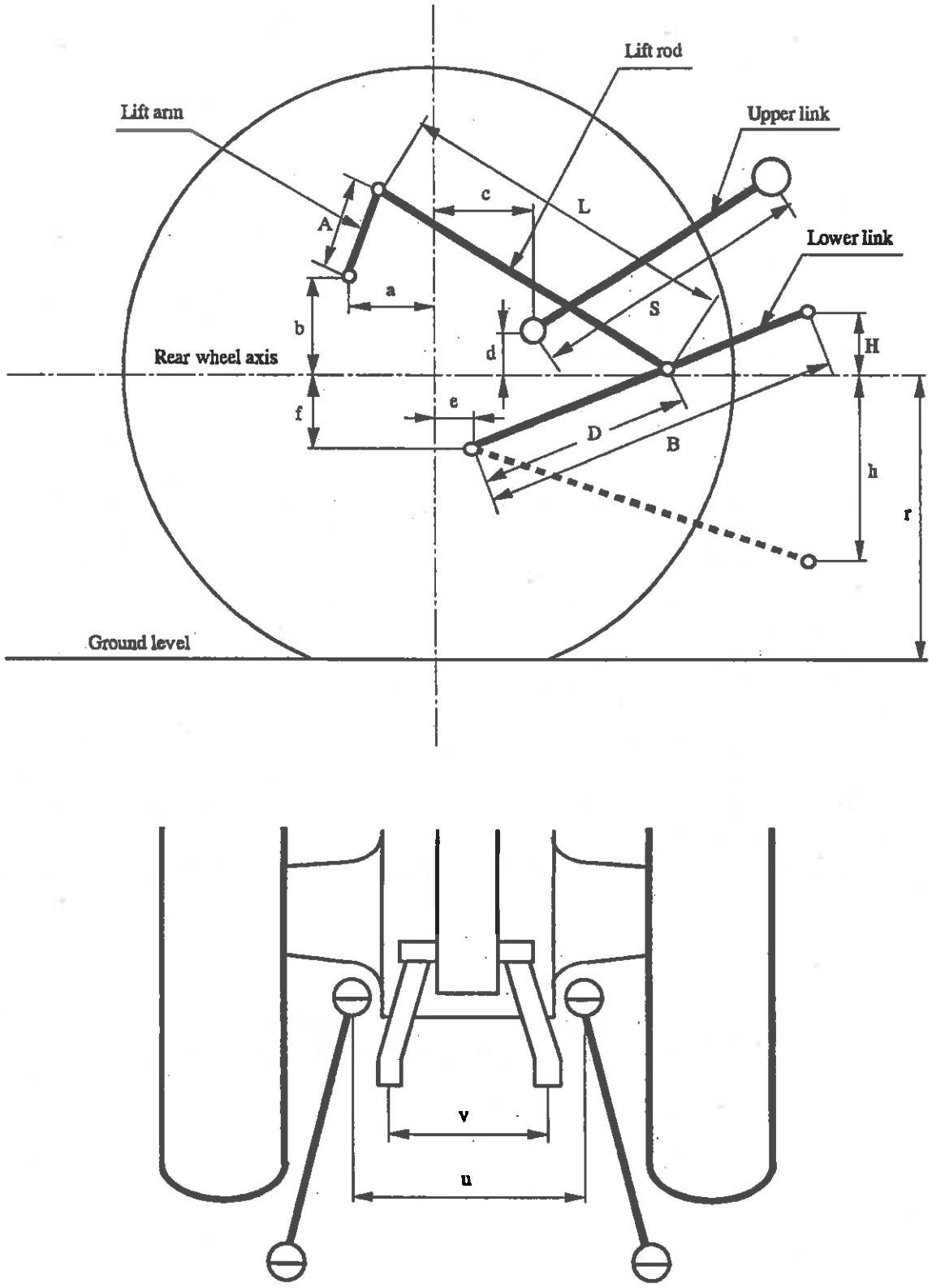


Figure
Lift test - Linkage geometry

		Dimension of range [mm]	Settings used in test [mm]
Length of lift arms	(A)	250	250
Length of lower links	(B)	860	860
Distance of lift arm pivot point from rear-wheel axis:			
- horizontally	(a)	-70	-70
- vertically	(b)	291	291
Horizontal distance between the two lower link points	(u)	403	403
Horizontal distance between the two lift arm end points	(v)	535	535
Length of upper link	(S)	from 590 to 855	660
Distance of upper link pivot point from rear wheel axis:			
- horizontally	(c)	313	313
- vertically	(d)	309 268 237	309
Distance of lower link pivot point from rear wheel axis:			
- horizontally	(e)	115	115
- vertically	(f)	176	176
Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	396	396
Length of lift rods (actual length):	(L)	from 545 to 685	558
Height of lower hitch points relative to the rear wheel axis:			
- in low position	(h)	from 450 to 665	533
- in high position	(H)	from 0 to 254	209
Height above ground of lower hitch points when locked in transport position(*)		from 708 to 962	917
(*) Assuming r = rear tyre dynamic radius index (ISO 4251-1:1992): 708 mm (tyre: 18.4-28)			

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

1.7 SWINGING DRAWBAR

Type:	Bar type, clevis type (as option)
Height above ground	482 mm at top surface of bar (tyre size 18.4-28, r = 708 mm)
Type of adjustment:	-
Distance of hitch point from rear-wheel axis, horizontally:	710 mm
Distance of hitch point from power take-off shaft end vertically:	210 mm at top surface of bar
horizontally:	540 rpm one speed power take-off: 350 mm (540/750 rev/min two speed power take-off: 402 mm)
Lateral adjustment (center of clevis)	
right hand:	103 mm (12 °)
left hand:	103 mm (12 °)
Distance of pivot point from rear-wheel axis, horizontally:	215 mm
Diameter of drawbar pin hole:	33.5 mm
Maximum vertical permissible load:	14.7 kN

1.8 TRAILER HITCH

Not fitted

1.9 HOLED DRAWBAR

Not fitted

1.10 STEERING

Make:	SUMITOMO EATON HYDRAULICS Co., Ltd.
Model:	WVQ150Z23AUD
Type:	Hydrostatic power steering
Method of operation:	Steering wheel operated and full hydraulic power
Pump:	Independent hydraulic pump
Ram:	Balanced type cylinder
Working pressure:	17.5 MPa

1.11 BRAKES

1.11.1 Service brake

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

1.11.2 Parking brake

Type:	Mechanical acting type
Method of operation:	Brake lever type (combined foot pedal)

1.12 WHEELS

Number: Four
Front: Two, steering and driving
Rear: Two, driving
Wheelbase: 2250 mm
Track width adjustment:

	Minimum [mm]	Maximum [mm]	Adjustment method
Front	1420	1520	Changing offset of rims
Rear	1520	1920	Changing by turning wheels and offset of rims

1.13 PROTECTIVE STRUCTURE

Make: Own make
Model: KUBOTA SFM-F90
Type: Two-post foldable ROPS
Protective device: Rear roll bar
OECD approval
Approval number: 4/0 565
Date of approval: 1 st February, 1999

1.14 SEAT

1.14.1 Driver's seat
Make: Seats In Corporated
Model: 163246-6, 176710
Type: -
Seat and steering wheel reversible: No
Type of suspension: Coil spring
Type of dumping: Oil dumping
Range of adjustment
Longitudinal: 127 mm
Vertical: 33.5 mm
Safety belt: Not fitted

1.14.2 Optional driver's seat Not fitted

1.14.3 Passenger seat Not fitted

1.15 LIGHTING

	Height above ground of center [mm]	Size [mm]	Distance from outside edge of lights to median plane of tractor [mm]
Headlights	1005	147 x 90.3	215
Sidelights	-	-	-
Rear lights	1539	190 x 75.3	717
Reflectors	1539	41.7 x 41.7	635
Flashers	1663	ϕ 119.7 x 70	763

2. TEST CONDITIONS

2.1 OVERALL DIMENSIONS

	Length [mm]	Width		Height	
		Minimum [mm]	Maximum [mm]	Protective structure [mm]	Exhaust silencer [mm]
Unballasted	3805	2009	2409	2476	2323
Ballasted	4190	2039	2439	2458	2305

2.2 GROUND CLEARANCE

Ground clearance:	430 mm
Clearance-limiting part:	Bracket drawbar

2.3 TRACTOR MASS

	Ballasted		Unballasted	
	Without driver [kg]	With driver [kg]	Without driver [kg]	With driver [kg]
Front	1657	1670	951	963
Rear	2615	2677	1803	1866
Total	4272	4347	2754	2829

2.4 BALLAST

Front:	1 bracket	90 kg
	10 weights, total	450 kg
Rear:	4 weights, total	272 kg
	Water in the tyres	706 kg

2.5 TYRES AND TRACK WIDTH SPECIFICATIONS

		Front	Rear
Tyres:			
- dimension		11.2-24	18.4-28
- ply rating		6	6
- type		cross-ply	cross-ply
- maximum load (tyre manufacture's)	[kN]	10.4	20.5
- inflation pressure	[kPa]	157	108
- dynamic radius index	[mm]	518	708
Chosen track width	[mm]	1420	1520

2.6 FUEL

Type: Diesel fuel No. 2 in conformity with JIS
Density at 15 °C: 0.839 g/cm^3

2.7 OILS AND LUBRICATION

2.7.1 Capacity and change interval

	Capacity [dm^3]	Oil change [h]	Filter change [h]
Engine	10.7	200	400
Gear box Rear axle Final drive (rear) Hydraulic system Power steering	52.0	600	300
Front differential case	5.0	600	-
Front axle gear case Final drive (front)	3.5	600	-
Service brake	-	-	-

2.7.2 Specifications

	Recommended		Used during test
Engine oil	API grade CD		
Type:	Below 0 °C:	SAE 10W, 10W-30, 10W-40	
Viscosity:	From 0 °C to 25 °C:	SAE 20, 10W-30, 10W-40	SAE 10W-30
Classification:	Above 25 °C:	SAE 30,10W-30, 10W-40	
Transmission oils Hydraulic fluid Steering oil Type: Viscosity: Classification:	API grade GL-3 SAE 75W/80 (ISO VG46)		API grade GL-3 SAE 75W/80 (ISO VG46)

2.7.3 Grease

Number of lubrication points: Eleven, grease nipple
Multipurpose type grease

3. COMPULSORY TESTS RESULTS

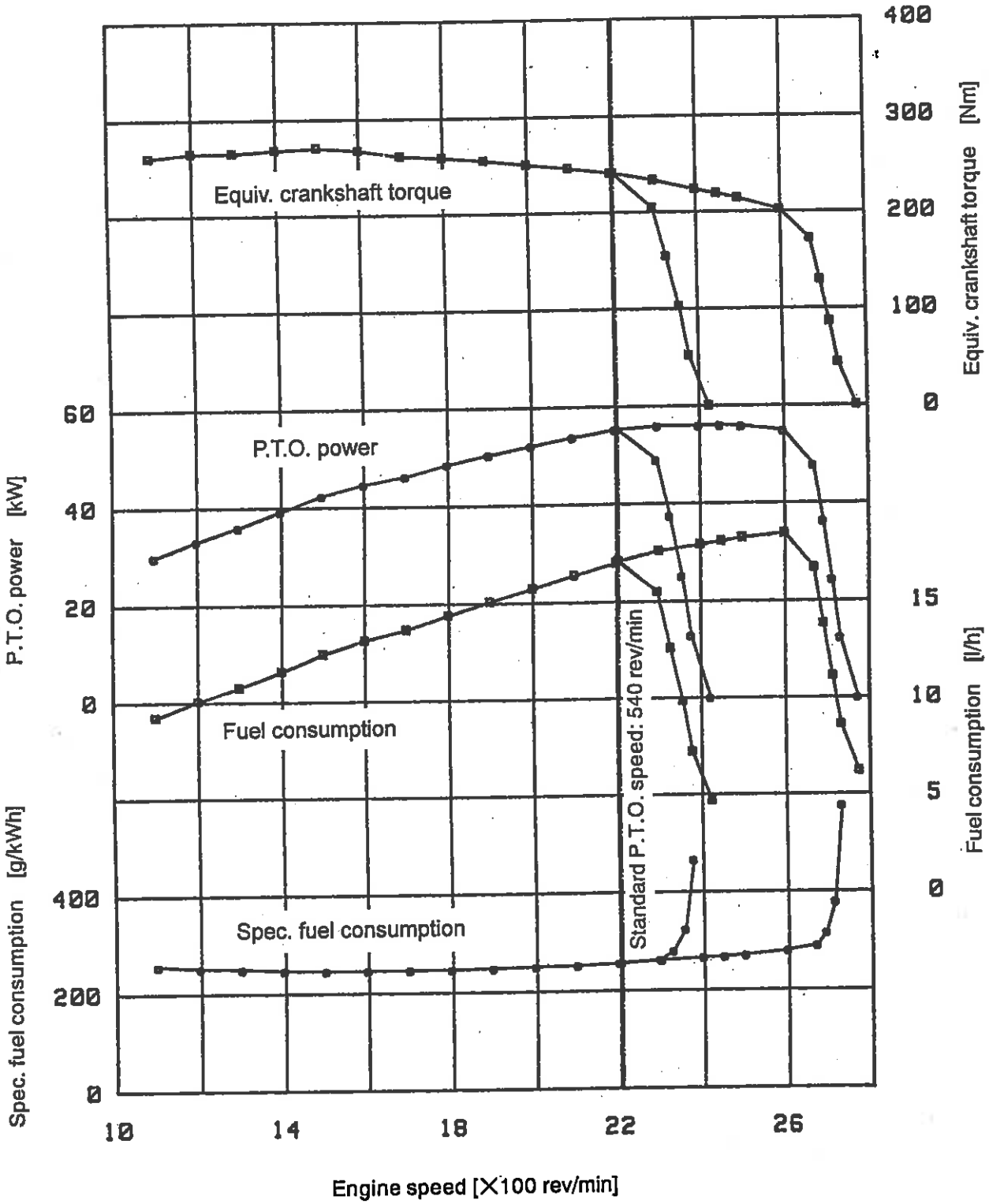
3.1 MAIN POWER TAKE-OFF

Date and location of tests: 21 st, October, 1998, BRAIN, Omiya
Type of dynamometer: Eddy current, SCHENCK W400

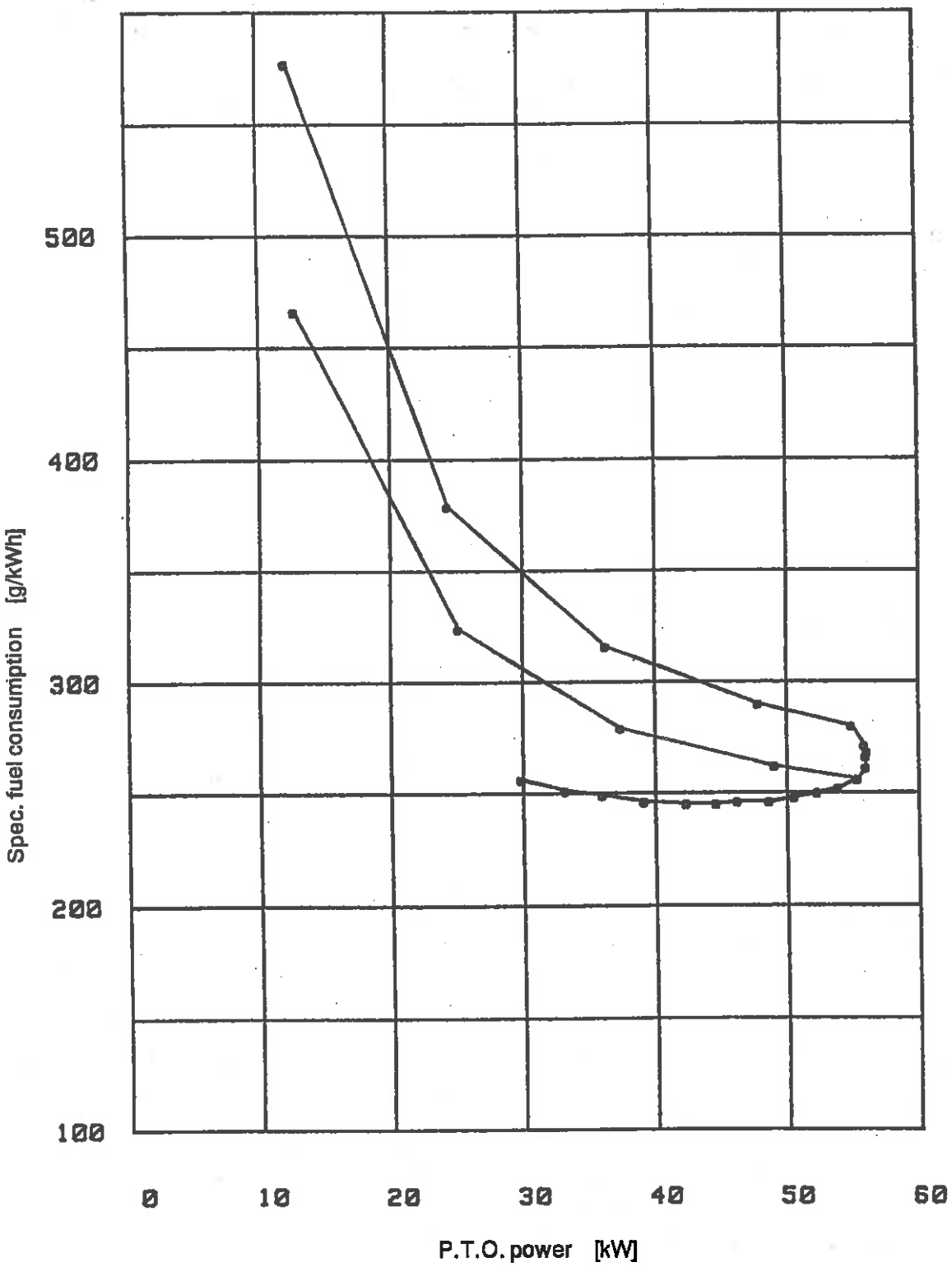
Power	Speed		Fuel Consumption			Specific energy
	Engine	P.T.O.	Hourly		Specific	
[kW]	[rev/min]		[kg/h]	[l/h]	[g/kWh]	[kWh/l]
3.1.1 MAXIMUM POWER - TWO-HOUR TEST						
56.0	2450	600	15.15	18.06	271	3.101
3.1.2 POWER AT RATED ENGINE SPEED						
54.9	2600	637	15.49	18.46	282	2.974
3.1.3 STANDARD POWER TAKE-OFF SPEED (540 rev/min)						
55.4	2205	540	14.33	17.08	259	3.244
3.1.4 PART LOADS AT RATED ENGINE SPEED						
3.1.4.1 The torque corresponding to maximum power at rated engine speed						
54.9	2600	637	15.49	18.46	282	2.974
3.1.4.2 85% of torque obtained in 3.1.4.1						
47.9	2670	654	14.00	16.69	292	2.870
3.1.4.3 75% of torque defined in 3.1.4.2						
36.3	2693	660	11.55	13.77	318	2.636
3.1.4.4 50% of torque defined in 3.1.4.2						
24.4	2714	665	9.32	11.11	382	2.196
3.1.4.5 25% of torque defined in 3.1.4.2						
12.3	2733	669	7.17	8.54	583	1.440
3.1.4.6 Unloaded						
0	2774	679	5.16	6.15	-	-
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 rev/min)						
3.1.5.1 The torque corresponding to maximum power at standard power take-off speed						
55.4	2205	540	14.33	17.08	259	3.244
3.1.5.2 85% of torque obtained in 3.1.5.1						
49.1	2297	563	12.98	15.47	264	3.174
3.1.5.3 75% of torque defined in 3.1.5.2						
37.4	2328	570	10.54	12.56	282	2.978
3.1.5.4 50% of torque defined in 3.1.5.2						
25.2	2357	577	8.23	9.81	327	2.569
3.1.5.5 25% of torque defined in 3.1.5.2						
12.8	2379	583	6.02	7.17	470	1.785
3.1.5.6 Unloaded						
0	2424	594	3.91	4.66	-	-

Other results

No load maximum engine speed:	2774 rev/min
Torque (equivalent crankshaft) at maximum power	
At rated engine speed:	201.6 Nm
At 2-hour test:	218.3 Nm
Maximum torque (equivalent crankshaft): (engine speed: 1500 rev/min)	269.8 Nm
Mean atmospheric conditions	
Temperature:	19 °C
Pressure:	101.4 kPa
Relative humidity:	88 %
Maximum temperatures	
Coolant:	92 °C
Engine oil:	108 °C
Fuel:	24 °C
Engine air intake:	19 °C



POWER TAKE-OFF PERFORMANCE



POWER TAKE-OFF PERFORMANCE

3.2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 23 rd, October, 1998

3.2.1 HYDRAULIC POWER TEST

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: 44.9 l/min

Temperature of hydraulic fluid: 61 °C

	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	30.3	17.1	8.64
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	38.8	16.3	10.54

3.2.2 POWER LIFT TEST

		At hitch point	On the frame
Height of lower hitch points above ground in down position	[mm]	175	130
Vertical movement without lifting forces	[mm]	739	915
with lifting forces	[mm]	710	875
Maximum corrected force exerted through full range (*)	[kN]	17.49	15.45
Corresponding pressure of hydraulic fluid	[MPa]	17.1	17.1
Moment about rear wheel axle	[kNm]	17.05	24.49
Maximum tilt angle mast from vertical	[Degrees]	-	10

Lifting heights(**)[mm]		-380	-335	-300	-200	-100	0	+100	+200	+300	+375	+400	+495
Lifting force (*)	at the hitch point [kN]	-	17.49	18.28	19.45	20.44	21.14	21.63	21.98	22.63	23.29	-	-
	at the frame [kN]	15.84	-	16.55	17.21	17.50	17.68	17.39	16.84	16.24	-	15.80	15.45

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

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

3.3 DRAWBAR POWER TEST

Date of test: 22 nd, 26 th, 28 th and 29 th October, 1998

Type of track: Concrete

Tyre size: front: 11.4-24 rear: 18.4-28

Tyre inflation pressure: unballasted: front 157 kPa rear 108 kPa; ballasted: front 157 kPa rear 108 kPa

Height of drawbar above ground: unballasted: 465 mm; ballasted: 465 mm

Gear number and range	Power [kW]	Drawbar pull [kN]	Speed [km/h]	Engine speed [rev/min]	Slip of wheels [%]	Specific fuel consumption [g/kWh]	Specific energy [kWh/l]	Temperature Fuel [°C]	Temperature Coolant [°C]	Temperature Engine oil [°C]	Atmospheric conditions Temperature [°C]	Atmospheric conditions Relative humidity [%]	Atmospheric conditions Pressure [kPa]
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
1 - L	15.4	26.12	2.12	2702	15.2	540	1.555	31	83	97	23	55	102.2
2 - L	24.0	26.38	3.28	2685	15.1	423	1.984	33	83	101	23	50	102.1
3 - L	36.4	26.21	5.00	2656	15.0	363	2.314	33	84	104	23	51	102.1
4 - L	45.9	26.55	6.23	2453	15.0	332	2.524	22	84	102	19	66	102.2
1 - H	49.6	21.00	8.50	2460	9.4	308	2.721	24	84	103	19	66	102.1
2 - H	49.8	13.05	13.75	2453	4.5	305	2.752	26	84	105	20	63	102.1
3 - H	45.4	7.47	21.89	2463	1.9	337	2.490	30	84	99	22	56	102.2
3.3.2 MAXIMUM POWER IN TESTED GEARS (ballasetd tractor)													
1 - L	21.5	36.41	2.12	2696	15.0	450	1.863	26	83	103	21	50	101.8
2 - L	32.9	37.01	3.20	2669	15.1	379	2.212	27	84	105	21	45	101.8
3 - L	46.5	36.36	4.61	2455	14.3	328	2.553	30	85	106	23	43	101.8
4 - L	49.4	26.27	6.77	2459	7.2	317	2.646	20	83	103	17	61	101.8
1 - H	50.9	20.85	8.78	2444	5.2	301	2.785	22	83	104	18	58	101.8
2 - H	49.2	12.75	13.90	2448	2.6	309	2.713	24	84	107	19	55	101.8
3.3.3 FIVE HOUR TEST at 75 % of pull at maximum power													
4 - L	40.6	19.70	7.42	2641	5.5	338	2.479	40	84	110	32	24	101.4
3.3.4 FIVE HOUR TEST at pull corresponding to 15 % wheelslip													
2 - L	32.9	37.01	3.20	2669	15.1	379	2.212	43	83	108	27	44	101.5

(*) Oil consumption during ten hours duration of test 3.3.3 and 3.3.4: 36.2 g/h

3.4 TURNING AREA AND TURNING CIRCLE

3.4.1 Front wheel drive disengaged

	With brakes		Without brakes	
	Left-hand [m]	Right-hand [m]	Left-hand [m]	Right-hand [m]
Radius of turning area	3.63	3.64	4.09	4.11
Radius of turning circle	3.43	3.44	3.83	3.85

3.4.2 Front wheel drive engaged

	With brakes		Without brakes	
	Left-hand [m]	Right-hand [m]	Left-hand [m]	Right-hand [m]
Radius of turning area	3.59	3.64	4.57	4.58
Radius of turning circle	3.34	3.39	4.28	4.29

3.5 LOCATION OF CENTER OF GRAVITY

Height above ground: 805 mm
Distance forward from the vertical plane containing the axis of the rear-wheels: 767 mm
Distance from the median plane of the tractor (to the left): 1 mm

3.6 BRAKING (front wheel drive disengaged)

Date of tests: 22 nd, October, 1998

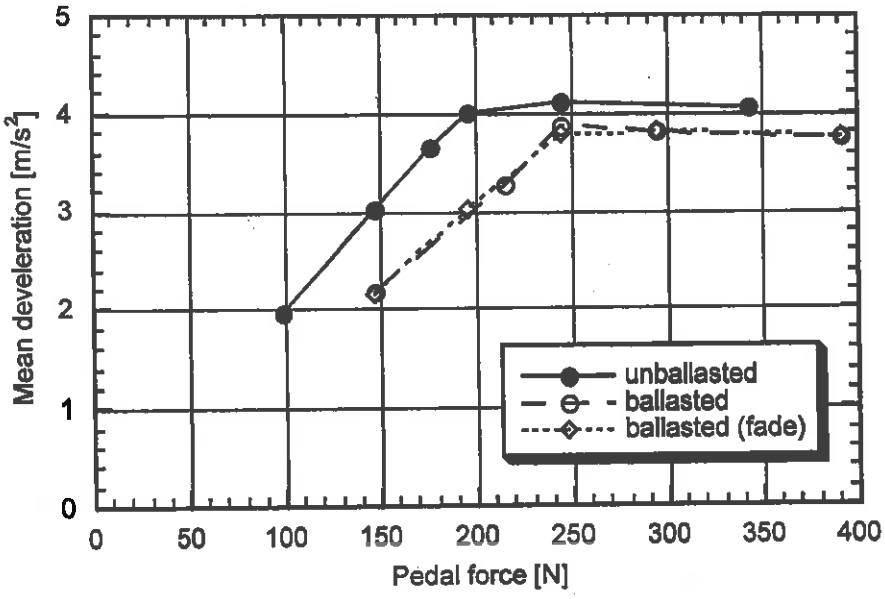


Figure
COLD SERVICE BRAKING DEVICE TEST AND FADE TEST

3.6.1 Cold service braking device test

	Speed before application of brakes [km/h]	Braking device control force [N]	Mean deceleration [m/s²]
Ballasted tractor	33.0	147	2.17
		216	3.27
		245	3.86
		294	3.80
		392	3.76
Unballasted tractor	33.3	98	1.96
		147	3.01
		177	3.65
		196	3.99
		245	4.10
		343	4.04

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

3.6.2 Fade test

Speed before application of brakes [km/h]	Braking device control force [N]	Mean deceleration [m/s^2]
33.0	147	2.16
	196	3.02
	245	3.79
	294	3.80
	392	3.76

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 26.4 km/h with the towing force of 4.19 kN

3.6.3 Parking braking device test

		Ballasted tractor on 18 % slope	
		Uphill	Downhill
Braking device control force	[N]	333	353

3.7 EXTERNAL NOISE LEVEL

Date of tests: 20 th, October, 1998
Sound level meter
Make: RION Corporation
Model: NL-14
Type: Precision integrating sound level meter
Type of track: Concrete
Gear number: 4-H
Travelling speed before acceleration: 25.0 km/h
Sound level: 82 dB(A)

REPAIRS AND ADJUSTMENTS DURING TESTS

None

REMARKS

None