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

O.E.C.D. Approval No.

935 Restricted Code

KUBOTA L345-IIDT

Manufactured by: KUBOTA, Ltd.
TSUKUBA Plant
Ibaraki, JAPAN



Test No. 84001/O.E.C.D.

Date of Test: January, 1985

Date of Approval: 20th May, 1985

Institute of Agricultural Machinery

1-40-2 Nisshin Omiya Saitama 330 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.

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

This report has been approved by the O.E.C.D. Coordinating Centre (C.E.M.A.G.R.E.F., France) as being in accordance with the O.E.C.D. STANDARD CODE.

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 N =0.102 kgf or 1 kgf =9.81 N
Powers	1 kW =1.36 PS or 1 PS =0.736 kW
Pressures	1 MPa =10.2 kgf/cm² or 1 kgf/cm²=98.1 kPa
	1000 hPa =750.1 mmHg

All rights including the right of translation, reprint and photomechanical copying-also excerpts-reserved by the INSTITUTE OF AGRICULTURAL MACHINERY.

Printed in JAPAN

TABLE OF CONTENTS

Page No.

I. SPECIFICATIONS OF TRACTOR 2

II. TEST RESULTS 16

A. COMPULSORY TEST RESULTS 16

1) MAIN POWER TAKE-OFF PERFORMANCE 16

2) LIFTING FORCE AND HYDRAULIC POWER 20

3) MAXIMUM POWER, TRANSMISSION AND FUEL CONSUMPTION AT THE DRAWBAR 22

B. OPTIONAL TEST RESULTS 23

1) BRAKING 23

REPAIRS AND ADJUSTMENTS DURING TESTS 24

REMARKS 24

Tractor manufacturer	
Name :	KUBOTA, Ltd. TSUKUBA Plant
Address :	Yawara, Tsukuba-gun, Ibaraki, JAPAN
Submitted for test by :	The manufacturer
Selected for test by :	The manufacturer with agreement by IAM
Place of running-in :	KUBOTA, Ltd. TSUKUBA Plant
Duration of running-in :	70 hrs

I. SPECIFICATIONS OF TRACTOR

TRACTOR	
Make :	KUBOTA
Trade name :	L345-IIDT
Model :	L345-IIDT
Type :	Wheeled tractor, four-wheel driven, unit construction
Serial No. :	L345-IIDT-50493
lst serial No. :	L345-IIDT-50001
ENGINE	
Make :	KUBOTA
Model :	V1702-DA
Type :	4-stroke diesel engine with indirect injection, water cooled
Serial No. :	V1702-DA-1611
Cylinders	
Number and disposition :	4, Vertical, in-line
Bore/stroke :	82 mm × 82 mm
Capacity :	1732 cm³
Compression ratio :	21 : 1
Arrangement of valves :	Over head
Cylinder liners :	Replaceable, dry
Fuel system	
Feed system :	Forced feed type
Filters	
Make :	TAIYO GIKEN
Type :	Replaceable paper element with sediment bowl

Model :	—
Number :	1
Capacity of fuel tank :	33. 5 ℓ
Injection pump	
Make :	NIPPON DENSO
Type :	In-line type
Model :	ND-PFR4M55/2ND182
Serial No. :	—
Manufacturer' s production setting of injection pump	
Flow rate :	21. 5 to 24. 5㎣/stroke at rated engine speed and full load
Injection timing :	23 to 25° BTDC
Injection nozzles	
Make :	NIPPON DENSO
Type :	Throttle type
Model :	ND-DN12SD12
Injection pressure :	$13.7^{+1.0}_{-0}$ MPa
Governer	
Make :	KUBOTA
Type :	Mechanical
Model :	—
Governed range of speed :	650 to 3050 rev/min
Rated engine speed :	2800 rev/min
Air cleaner	
Pre-cleaner	Not fitted
Make :	—
Model :	—
Type :	—
Location of air intake :	—
Main-cleaner	
Make :	NIPPON DONALDSON
Model :	82A06-8040
Type :	Dry paper element cyclone type
Oil capacity :	—
Location :	In front of radiator under the bonnet
Maintenance indicator :	Pressure sensing type, RBX 00-2252, −6.23 kPa for indication

Lubrication system

Type of feed pump :	Trochoidal
Total oil capacity including filter :	9.1 ℓ
Oil filters	
Type :	Full flow replaceable cartridge paper element type
Number :	1
Changing period :	150 hrs
Oil specifications :	See end of chapter "Specifications"
Oil changing period :	75 hrs

Cooling system

Coolant :	Water
Specification of pump	
Type :	Centrifugal type
Model :	—
Specification of fan	
Description :	Axial type
Number of fan blades :	7
Fan diameter :	375 mm
Coolant capacity :	7.1 ℓ
Type of temperature control :	Thermostat of wax type
System pressure :	88 kPa

Starting system

Safty device :	Operable only with clutch pedal operated
Make :	NIPPON DENSO
Type :	Solenoid engaged type
Model :	ND028000-6240
Starter motor power rating :	12 V, 1.4 kW
Cold starting aid :	Electrical glow plug

Electrical equipement

Voltage :	12 V
Generator	
Make :	NIPPON DENSO
Type :	Three-phase alternator
Model :	ND121000-0980
Power :	420 W, 35 A

Battery	
Number :	1
Rating :	100 Ah at 20 hours rating

Exhaust system

Make :	KUBOTA
Type :	Multi-chamber absorption-expansion type
Model :	—
Location :	Vertical on the left side of tractor
Height of outlet above ground :	2060 mm
Option :	Silencer under the tractor body and posterior discharge, not fitted in tests

TRANSMISSION

Clutch (Travel and power take-off)

Make :	DAIKIN SEISAKUSHO
Type :	Double-acting with 2 plates; Dry dual disk
Model :	—
Number of disks :	2
Diameter of disks :	225 mm each
Method of operation :	The clutch for travel disengaged with clutch pedal halfway pressed, the clutch for travel and power take-off drive disengaged with pedal fully pressed; Using clutch stopper, the clutch for travel disengaged with pedal fully pressed

Gear box

Make :	KUBOTA
Type :	Mechanical
Model :	—
Arrangement :	4 speed gears with main lever, lst and 4th gears with constant mesh and 2nd and 3rd gears with sliding mesh; 2 speed gears with sub lever, H and L gears with sith sliding mesh; Totally 8 forward and 2 reverse speeds

Rear axle and final drives

Make :	KUBOTA
Type :	Bevel gear type differential and spur

geartype final drives

Model : —

Differential lock

Type : Mechanical

Model : —

Method of engagement : Operated by foot pedal

Method of disengagement : Self disengaged

Front axle and final drives

Make : KUBOTA

Type : Bevel gear type differential and final drives

Model : —

Differential lock : Not fitted

Transmission oils

Capacity : 31 ℓ in gear box including rear axle, final drives and power lift; 2.5 ℓ in front axle differential case and 0.7 ℓ each in final gear case

Changing period : Each 300 hrs

Filter changing period : Not specified

Type of filters: Metal net

Recommended oil : See end of chapter "Specifications"

Total ratios and speeds

Gear No.	Group	Number of engine revolutions for one revolution of the rear wheels	Nominal travelling speed (km/h) at rated engine speed 2800 (rev/min) km/h
Forward			
1	L 1	467.34	1.38
2	L 2	359.49	1.79
3	L 3	250.47	2.57
4	L 4	144.49	4.45
5	H 1	100.62	6.40
6	H 2	77.40	8.31
7	H 3	53.93	11.93
8	H 4	31.11	20.69
Reverse			
1	L R	274.90	2.34
2	H R	59.19	10.87

—Tyre size : 13.6-28

—Tyre radius index : 610 mm

POWER TAKE-OFF

Main power take-off

Type :	Semi-independent type
Method of engagement :	Operated by foot pedal
Number of shafts :	1
Method of changing power take-off shaft end and speeds :	Changing gears with hand lever

Power take-off proportional to engine speed

540 rev/min

Position :	At rear of tractor in median plane
Diameter of power take-off shaft end :	35 mm
Number of splines :	6 to ISO 500/SAE J1170
Height above ground with tyre size :	575 mm with 610 mm tyre radius index
Distance from the median plane of the tractor :	0 mm
Distance behind rear axle center :	114 mm
Power take-off speed at rated engine speed (2800 rev/min) :	585 rev/min
Engine speed at standard power take-offspeed (540 rev/min) :	2585 rev/min
Ratio of rotation speeds (engine/PTO) :	4.79
Power restriction and maximum torque :	25 kW and 441 N·m
Direction of rotation (viewed from shaft end) :	Clockwise

1000 rev/min

Position :	At rear of tractor in median plane
Diameter of power take-off shaft end :	35 mm
Number of splines :	6 to ISO 500/SAE J1170
Height above ground with tyre size :	575 mm with 610 mm tyre radius index
Distance from the median plane of the tractor :	0 mm
Distance behind rear axle center :	114 mm
Power take-off speed at rated engine speed (2800 rev/min) :	1149 rev/min
Engine speed at standard power take-off speed (1000 rev/min) :	2437 rev/min
Ratio of rotation speed (engine/PTO) :	2.44

Direction of rotation (viewed from shaft end) :	Clockwise

Power take-off proportional to ground speed

Not fitted

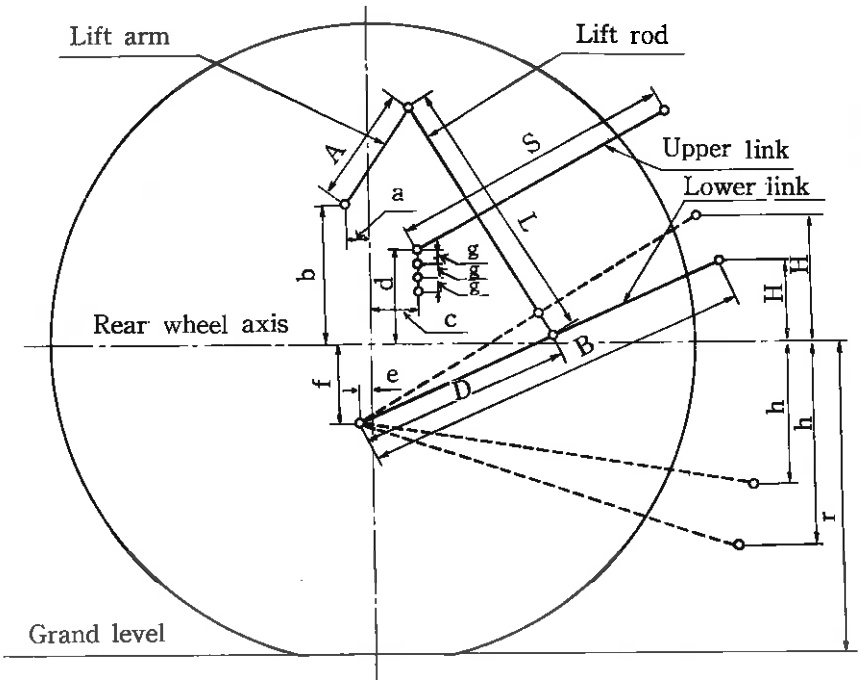
POWER LIFT

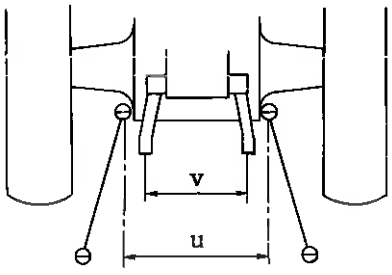
Make :	KUBOTA
Type :	Hydraulic, open center system, position and draft control
Make and number of cylinders :	KUBOTA, 1 cylinder, single acting
Type of linkage lock for transport :	Hydraulically closed by throttle valve
Relief valve pressure setting :	13.2 to 14.4 MPa
Opening pressure of cylinder safty valve :	Cylinder safty valve not fitted
Lift pump type :	Gear type
Transmission between pump and engine :	Gear
Type and number of filters :	Metal net type, 1, cleaning period 200 hrs
Type and number of oil tapping points :	Thread boss and flange type, 2
Maximum volume of oil available to external cylinders:	Hydraulic oil should be added for external hydraulic circuit
Oil capacity :	See "transmission oils"
Recommended oil :	See end of chapter "Specifications"

Three point linkage

Category :	I to ISO 730/SAE J715f; Ditance from power take-off shaft end to hitch points is not in accordance with ISO 730; Minimum height for highest position of mast adjustment is not in accordance with SAE J715f

Detailed figures of powerlift





The setting for the lifting test

Rear tyre (size 13.6-28 6PR) radius index		(r)	610 mm
Front tyre (size 8-18 4PR) radius index			400 mm[1)]
Length of lift arms		(A)	240 mm
Length of lower links		(B)	820 mm
Distance of lift arm pivot point			
from rear wheel center line	horizontally	(a)	49 mm
	vertically	(b)	285 mm
Horizontal distance between			
the 2 lower link points		(u)	285 mm
Horizontal distance between			
the 2 lift arm end points		(v)	364 mm
Length of upper link		(S)	530 to 850 mm
Distance of upper link pivot point			
from rear wheel center line	horizontally	(c)	95 mm
	vertically	(d,g)	197 mm, 30 mm
Distance of lower link pivot point			
from rear wheel center	horizontally	(e)	29 mm
	vertically	(f)	160 mm
Distance of lower link pivot points			
to lift rod pivot points on lower links		(D)	440 mm
Length of lift rods		(L)	495 and 550 mm
Height of lower hitch points ;			
-in low position		(h)	290 and 420 mm
-in high position		(H)	170 and 260 mm
relative to the rear wheel center line			
situated 610 mm above the ground level			
Height of lower hitch points set for the			
lifting test		(h')	420 mm
		(H')	170 mm
Height of lower hitch points when			
locked in transport position			Any height within lift range

[1)] Front tyre radius index 400 mm is in National regulation (JIS)

SWINGING DRAWBAR

Type :	Clevis
Height above ground (tyre size 13.6-28)	
maximum :	488 mm at the center of clevis
minimum :	383 mm at the center of clevis
Type of adjustment :	Changing by turning clevis
Distance of hitch point from rear axle axis, horizontally :	418.5 and 468.5 mm
Distance of hitch point from power take-off shaft end	
vertically :	87 and 192 mm at the center of clevis
horizontally :	304.5 and 354.5 mm rearward
Lateral adjustment (center of clevis)	
right :	17°
left :	17°
Distance of pivot point from rear axle axis, horizontally :	38.5 mm
Diameter of drawbar pin hole :	25 mm

HOLED DRAWBAR

Number of holes :	7
Distance between holes :	80 mm
Hole diameter :	29 mm
Thickness/width of the drawbar :	25 mm thickness and 75 mm width
Height above ground, minimum :	203 mm at the surface of the bar
maximum :	883 mm at the surface of the bar
Horizontal distance to power take-off shaft end (rear) :	677 mm

STEERING

Make :	NIPPON POWER STEERING
Type :	Power-assisted type with single drug link
Model :	PQG 1060
Method of operation :	Steering wheel operated and hydraulically power assisted
Pump :	Gear type
Ram :	Integral type
Working pressure :	10.3 MPa
Oil capacity :	1.7 ℓ
Oil changing period :	Not specified

Filter changing period :	Not specified
Recommended oil :	See end of chapter "Specification"

BRAKES

Service brake

Make :	KUBOTA
Type :	Mechanical acting oil-immersed disk type; 2 disks on each differential half shaft; Each 210 mm disk diameter
Model :	—
Method of operation :	Independent or combined pedal operated
Trailer braking take-off :	Not fitted

Parking brake :

Type :	In common with service brake
Method of operation :	Operated by foot pedal with ratchet

STEERING WHEELS

Number :	2
Position :	Front
Tyres	
Size :	8-18
Ply rating :	4
Type of casing :	Crossply
Maximum permissible load on each tyre :	515 kg
pressure :	157 kPa
Track width :	1185 mm only
Method of adjustment :	—

DRIVING WHEELS

Number :	2
Position :	Rear
Tyres	
Size :	13.6-28
Ply rating :	6
Type of casing :	Crossply
Maximum permissible load on each tyre :	1355 kg

Corresponding inflation pressure :	157 kPa
Track widths :	1215, 1310, 1330, 1430, 1505 and 1600 mm
Method of adjustment :	Changing by turning wheels and offset of rims

WHEEL BASE : 1945 mm

DRIVER'S SEAT

Make :	NANBA PRESS INDUSTRY
Type of suspension :	Parallelogram spring type
Type of damping :	Not fitted
Range of adjustment,	
longitudinal :	160 mm
vertical :	Not adjustable

MISCELLANEOUS

Mudguard seat :	Not fitted

LIGHTING

In accordance with EEC directives

	Height above ground of center with tyres: 8-18 at front and 13.6-28 at rear mm	Size mm	Distance from outside edge of tractor to center at 1215 mm track width mm
Head lights	1105	120 dia.	570
Side lights	1380	120×40	305
Rear lights	1380	120×40	305
Flashers	1435	120×70	305
Reflectors	675 1240	60 dia. 60 dia.	390 320

TEST CONDITIONS

Overall dimensions **(without ballast aud without protective structure)**

with tyre size :	8-18 at front, 13. 6-28 at rear
Length :	1945 mm
Width minimum :	1550 mm
maximum :	1935 mm
Overall height at the top of exhaust silencer :	2100 mm
Ground clearance :	370 mm
Clearance-limiting part :	Front differential case

Track setting

Front :	1185 mm
Rear :	1215 mm

Tractor mass (with tanks full, without driver and without ballast) :

Front :	644 kg
Rear :	763 kg

Fuel and lubricants used in tests (recommended and used during tests)

Fuel		
Type :	Diesel oil	
Density at 15℃ :	0.860 g/cm³	
Oils	Used during tests	Recommended
Engine oil		
Type :	API grade CC, SAE 10W-30	API grade CC or CD, Below 0℃ SAE 10W or 10W-30 0℃ to 25℃ SAE 20 or 10W-30 Above 25℃ SAE 30 or 10W-30
Viscosity :	66.07 cSt at 40℃	
Transmission oil		
Type :	API grade GL-4, SAE 75W	API grade GL-4, SAE 75W
Viscosity :	54.75 cSt at 40℃	
Hydraulic fluid :	In common with transmission oil	
Rear axle oil :	In common with transmission oil	
Front axle oil		
Type :	API grade GL-3, SAE 80W	API grade GL-4 SAE 80 or 90
Viscosity :	62.03 cSt at 40℃	
Steering oil :		
Type :	API grade GL-4 SAE 75W	API grade GL-4 SAE 75W
Viscosity :	54.75 cSt at 40℃	
Recommended grease:	NLGI grade No.1	
Numder of lubrication points :	10	

II. TEST RESULTS

A. COMPULSORY TEST RESULTS

1) MAIN POWER TAKE-OFF PERFORMANCE

- Date and location of tests : 22nd January 1985, IAM, Omiya
- Type of dynamometer : DC electrical, MEIDENSHA EB-DHI
- Gear number of PTO : L (540 rev/min)

Power	Speed		Fuel consumption			Specific Energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	ℓ/h	kg/h	g/kW·h	kW·h/ℓ
MAXIMUM POWER 2-hour test						
22.6	2800	585	8.00	6.88	304	2.82
POWER AT RATED ENGINE SPEED						
22.6	2800	585	8.00	6.88	304	2.82
STANDARD POWER TAKE-OFF SPEED (540 rev/min)						
21.5	2584	540	7.37	6.33	295	2.92
PART LOADS						
i) the torque corresponding to the maximum power at rated engine speed (1)						
22.6	2800	585	8.00	6.88	304	2.82
ii) 85% of torque obtained in i)						
19.5	2838	593	7.04	6.05	310	2.77
iii) 75% of torque defined in ii)						
14.7	2860	598	5.81	4.99	339	2.53
iv) 50% of torque defined in ii)						
9.9	2891	604	4.67	4.01	404	2.13
v) 25% of torque defined in ii)						
5.0	2909	608	3.56	3.06	617	1.39
vi) unloaded						
0.0	2935	613	2.63	2.26	—	0.00

KUBOTA L345-IIDT

Test No 84001

PART LOADS AT STANDARD POWER TAKE-OFF SPEED

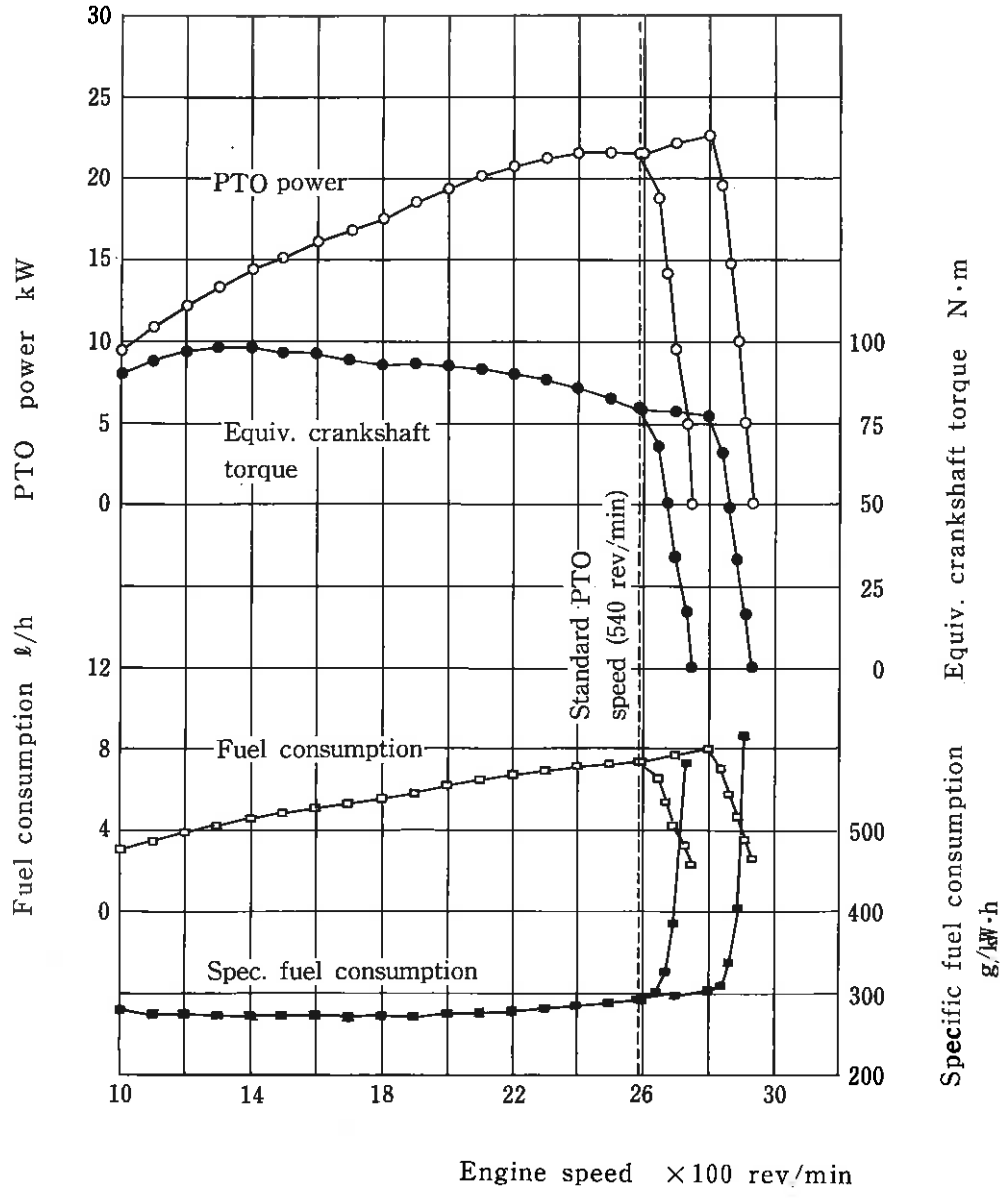
Power	Speed		Fuel consumption			Specific Energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	ℓ/h	kg/h	g/kW·h	kW·h/ℓ
i) the torque corresponding to maximum power available						
21.5	2584	540	7.37	6.33	295	2.92
ii) 85% of torque obtained at maximum power						
18.7	2646	553	6.58	5.66	302	2.84
iii) 75% of torque defined in ii)						
14.1	2670	558	5.39	4.63	328	2.62
iv) 50% of torque defined in ii)						
9.5	2696	563	4.28	3.68	387	2.22
v) 25% of torque defined in ii)						
4.8	2729	571	3.29	2.83	583	1.47
vi) unloaded						
0.0	2746	574	2.33	2.01	—	0.00

STANDARD SPECIFIC FUEL CONSUMPTION : 310/404/302/387 g/kW·h

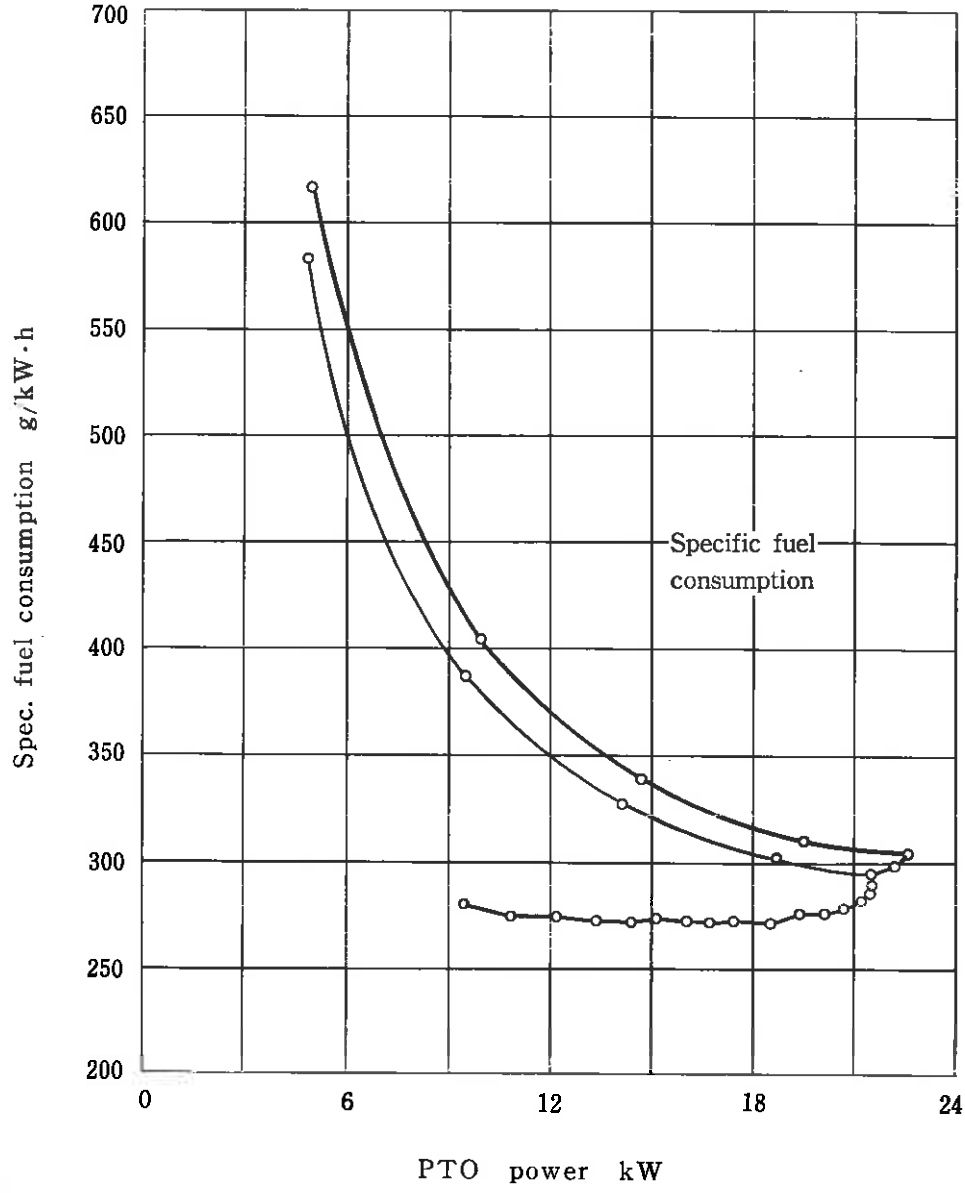
- No load maximum engine speed : 2935 rev/min
- Torque (1) at maximum power : 77.1 N·m
- Maximum torque (1) (engine speed : 1300 rev/min) : 98.0 N·m
- Mean atmospheric conditions : Temperature : 23 ℃
  Pressure : 1016 hpa
  Relative humidity : 15 %
- Maximum temperatures : Coolant : 100 ℃
  Engine oil : 113 ℃
  Fuel : 47 ℃
  Engine air intake : 28 ℃

(1) The torque is the equivalent crankshaft torque.

P T O PERFORMANCE



P T O PERFORMANCE



2) LIFTING FORCE AND HYDRAULIC POWER

Date and location of tests : 23rd January, 1985 IAM Omiya, JAPAN

HYDRAULIC FLUID

Make and type : MARUZEN OIL, API Grade GL-4

Viscosity : 54.75 cSt at 40℃

Viscosity index : 75W

Type of hydraulic system : Open center system

Hydraulic fluid temperature at beginning of test : 63℃

POWER LIFT TEST

	Height of lower hitch point above ground in down pos. mm	Vertical movement mm	Max. corrected force exerted through full range kN	Corresp. pressure of hydraulic fluid MPa	Moment about rear axle kN·m	Max. tilt angle of mast over range of lift Degrees
at hitch points	190	590	7.82	11.3	—	—
on the frame	190	720	6.82	11.3	9.55	14

Main linkage dimensions - See attached drawings and table in specification chapter.

Lifting heights relative to the horizontal plane including the lower link pivot points

mm	−290	−260	−170	−160	−60	−50	0	+40	+70	+140	+190	+240	+310	+330	+430
Lifting forces at hitch points (corresponding pressure 11.3 MPa)															
kN		7.82		9.18	9.80			10.13		10.17		9.93		9.39	
Lifting forces on the test frame (corresponding pressure 11.3 MPa)															
kN	6.82		7.89			8.29			8.24		7.90		7.29		7.02

HYDRAULIC POWER TEST

Sustained pressure with relief valve open : 13.9 MPa
(Pump not stalled)

Pump delivery rate at minimum pressure : 25.4 ℓ/min

Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power ;

Flow rate : 9.3 ℓ/min
Pressure : 12.5 MPa
Power : 1.95 kW

Flow rate and hydraulic pressure corresponding to maximum hydraulic power ;

Flow rate : 20.1 ℓ/min
Pressure : 11.3 MPa
Power : 3.78 kW

Tapping point used for test : Hydraulic cylinder head

3) MAXIMUM POWER, TRANSMISSION AND FUEL CONSUMPTION AT THE DRAWBAR (UNBALLASTED TRACTOR)

Date of tests : 24th January, 1985
Type of track : Concrete
Tyre size : 8-18 4PR at front
13.6-28 6PR at rear
Tyre inflation pressure : 157 kPa at front
157 kPa at rear
Height of drawbar above ground : 498 mm

Gear No.	Power kW	Speed km/h	Drawbar pull kN	Engine speed rev/min	Slip %	Specific energy kW·h/ℓ	Specific fuel consumption g/kW·h	Temperature Fuel ℃	Temperature Coolant ℃	Temperature Engine ℃	Atmospheric condition Temperature ℃	Atmospheric condition Relative humidity %	Atmospheric condition Pressure hPa
(1) MAXIMUM DRAWBAR POWER IN TESTED GEAR													
L1	4.46	1.26	12.75	2889	15.0	1.17	707	12	79	76	4	48	1019
L2	5.73	1.62	12.75	2883	15.0	1.35	616	13	81	78	3	48	1020
L3	8.14	2.30	12.75	2861	15.0	1.74	477	12	81	76	3	48	1020
L4	14.02	3.96	12.75	2837	15.0	2.15	385	14	97	83	2	49	1020
H1	18.41	5.98	11.09	2804	9.7	2.24	370	14	85	89	2	50	1021
H2	18.88	8.06	8.44	2794	6.0	2.26	367	13	96	89	2	50	1022
H3	17.64	11.77	5.40	2798	4.5	2.16	384	10	93	81	2	50	1022

(2) TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS

Selected gear : H1
1) 75% of pull at maximum power : 6.75 ℓ/h
2) 50% of pull at maximum power : 5.71 ℓ/h
3) Higher gear H2 same pull as in 1), reduced engine speed : 5.96 ℓ/h
4) Higher gear H2 same pull as in 2), reduced engine speed : 4.69 ℓ/h

Selected gear : H2
1) 75% of pull at maximum power : 7.13 ℓ/h
2) 50% of pull at maximum power : 5.69 ℓ/h
3) Higher gear H3 same pull as in 1), reduced engine speed : 5.48 ℓ/h
4) Higher gear H3 same pull as in 2), reduced engine speed : 4.34 ℓ/h

B. OPTIONAL TEST RESULT

BRAKING

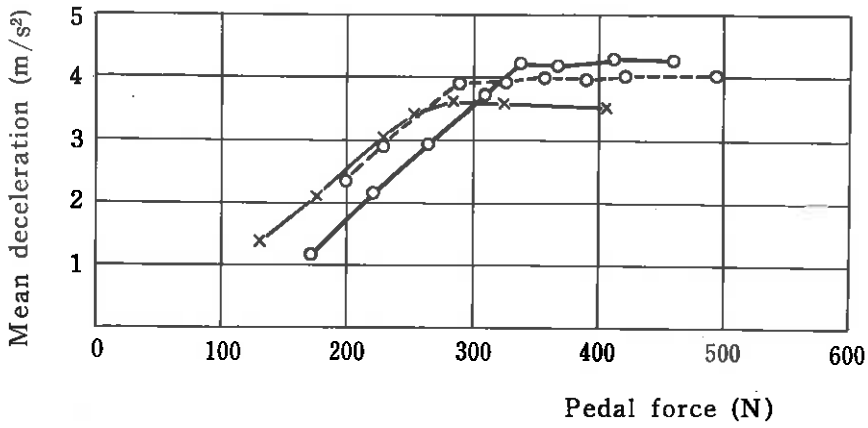
Date of tests : 24th till 25th January, 1985

Tractor masses during tests with driver :	front	rear	total
	kg	kg	kg
without ballast	643	928	1571
with ballast	806	1685	2491

A) Service brake

Type -0- test (without ballast) —×—, Type -I- test (fade) ---○---

Type -0- test (with ballast) —○—



Speed before application of brakes, without ballast: 21.8 km/h

with ballast : 21.6 km/h

The brakes were heated by towing of the tractor for 1 km

Comments on deviation and vibration : None

B) Parking brake

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 1491 kg	
	up	down	up	down
Braking device control force N	260	172	211	152

REPAIRS AND ADJUSTMENTS DURING TESTS : None

REMARKS : None