Report on test in accordance with O.E.C.D. Standard Code 2
for the Official Testing of Agricultural Tractors

O.E.C.D. approval No. : 2/2 384
Date of approval : 24 August 2007



Agricultural Tractor **KIOTI DK65S (4WD)**

Manufactured by : DAEDONG INS. CO. Ltd.
1-12, Buk-ri, Nongong-eub, Dalseong-gun, Daegu-si,
Republic of Korea

NATIONAL INSTITUTE OF AGRICULTURAL ENGINEERING
249, Seodun-dong, Gwonseon-gu, Suwon-si, Gyeonggi-do, Republic of Korea

This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance [C(2000)59/FINAL, and its amendments C(2001)5/FINAL, C(2001)267/FINAL, C(2002)17/FINAL, C(2003)14/FINAL and C(2003)252/FINAL]

Report No. : 06-M-5-16
Date of approval : 24 August 2007

This report has been approved by the OECD Co-ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE 2.

Statement

The information opposite each item has been validated by the Testing Station. An item marked "C" indicates to the test report user that the information declared by the manufacturer has been checked; an item marked "D" that the manufacturer's declaration has been endorsed.

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GENERALITIES

[C]	Tractor manufacturer's name and address:	DAEDONG INS. CO., Ltd. 1-12, Buk-ri, Nongong-eub, Dalseong-gun, Daegu-si, Republic of Korea
[C]	Location of tractor assembly:	Daegu, Republic of Korea
[C]	Submitted for test by:	The manufacturer
[C]	Selected for test by:	The manufacturer
[C]	Place of running-in:	Daegu and Suwon, Republic of Korea
[C]	Duration of running-in:	30 h
[C]	Location of test:	NIAE, Suwon, Republic of Korea

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Denomination

[C]	- Make:	KIOTI
[C]	- Model:	DK65S
[C]	- Type:	4WD, wheel tractor, unit construction

1.1.2 Numbers

[D]	- 1st serial No.:	DC70-00001
[C]	- Serial No.:	FC70-00103

1.1.3 Other specifications

[C]	- Model(s) for other countries:	DK651
[C]	- Transmission type or gears x ranges:	Gear type, 4 gears x 3 ranges
[C]	- Speed version:	30 km/h

1.2 Engine

[C]	- Make:	PERKINS
[C]	- Model:	1103C-33T
[C]	- Type:	Water-cooled 4-stroke diesel engine with direct injection, supercharged
[C]	- Serial No.:	DD38280U044168N

1.2.1 Cylinders

[C]	- Number / disposition:	3 / Vertical in-line
[D]	- Bore / stroke:	105.0 mm / 127.0 mm
[D]	- Capacity:	3300 cm^3
[D]	- Compression ratio:	18.25 : 1
[D]	- Arrangement of valves:	Overhead valves
[D]	- Cylinder liners(wet or dry):	None

1.2.2 Supercharging

[D]	- Make:	Garrett Honeywell
[D]	- Model:	GT25
[D]	- Type:	Exhaust gas turbine
[D]	- Pressure:	Max. 180 kPa

1.2.3 Fuel system

[C]	- Fuel feed system:	Electrical fuel supply pump
	- Fuel filters	
[C]	· Make:	PERKINS
[C]	· Model:	4132A012
[C]	· Type:	Replaceable paper element cartridge
[D]	- Capacity of fuel tank:	100 dm^3
	- Injection pump	
[C]	· Make:	DELPHI
[C]	· Model:	DP210
[C]	· Type:	Rotary
[C]	· Serial No.:	7188-0334
	- Manufacturer's production setting of injection pump	
[C]	· Flow rate:	12.7 L/h ± 5% at rated engine speed 2200 min^{-1} and full load
[D]	· Timing:	0° after TDC
	- Injectors	
[D]	· Make:	DELPHI
[D]	· Model:	2645K017
[D]	· Type:	Multi-hole type
[D]	- Injection pressure:	28.9 - 29.9 MPa

1.2.4 Governor

[C]	- Make:	DELPHI
[C]	- Model:	2643B303
[C]	- Type:	Mechanical
[C]	- Governed range of engine speed:	From 850 ± 50 to 2350 ± 50 min^{-1}
[C]	- Rated engine speed:	2200 min^{-1}

1.2.5 Air cleaner

[C]	- Pre-cleaner:	None
	- Main-cleaner	
[C]	· Make:	NIPPON DONALDSON
[C]	· Model:	T4816-11011
[C]	· Type:	Dry paper element in cartridge
[C]	· Location of air intake:	Under the engine bonnet
[C]	- Maintenance indicator:	Warning lamp in dashboard

1.2.6 Lubrication system

[D]	- Type of feed pump:	Rotor pump
[C	- Type of filter:	Full flow, replaceable paper element cartridge
[C]	- Number of filter:	1

1.2.7 Cooling system

[C]	- Type of coolant:	water-antifreeze solution mixture
[D]	- Type of pump:	Centrifugal
	- Specification of fan	
[C]	· Number of fan blades:	6
[C]	· Fan diameter:	432 mm
[D]	- Coolant capacity:	9.1 dm^3
[C]	- Type of temperature control:	Thermostat
[D]	- Over-pressure system:	88.2 kPa

1.2.8 Starting system

[C]	- Make:	PERKINS
[C]	- Model:	2873K405
[C]	- Type:	Electrical, pre-engaged solenoid-operated motor
[D]	- Starter motor power rating:	3.0 kW
[C]	- Cold starting aid:	Electric glow plug
[C]	- Safety device:	Starting operable only when main clutch pedal fully depressed

1.2.9 Electrical system

[C]	- Voltage:	12 V
	- Generator	
[C]	· Make:	PERKINS
[C]	· Model:	2871-A303
[C]	· Type:	3-phase alternator
[D]	· Power:	1020 VA
	- Battery	
[C]	· Number:	1
[D]	· Rating:	80 Ah at 20 hours rating

1.2.10 Exhaust system

[C]	- Make:	YOUNGIN
[C]	- Model:	T4816
[C]	- Type:	Expansion and absorption type
[C]	- Location:	Under the bonnet, on the right side of the engine

1.3 Transmission

1.3.1 Clutch (Only for travelling)

[D] - Make: Valeo-PyeongHwa

[D] - Model: 33327

[D] - Type: Dry plate

[D] - Number of plate: 1

[D] - Diameter of plate: 325 mm

[C] - Method of operation: Hydraulically actuated by pedal

1.3.2 Gear box

[D] - Make: DAEDONG GEAR

[D] - Model: M22ATM

[D] - Type and description: Syncro-mesh 4 main gears, 3 range gears and synchro-mesh forward / reverse gear with hand lever

	Forward	Reverse
[C] Number of gears	4	4
[C] Number of ranges	3	3
[C] Total of arrangements	12	12

[D] - Available options: None

1.3.3 Rear axle and final drives

[D] - Make: DAEDONG GEAR

[D] - Model: M22ARA

[D] - Type: Bevel gear type differential and planetary gear type final drives

- Differential lock

[D] · Type: Mechanical

[C] · Method of engagement: Engaged during the right one of the two pedals is depressed

[C] · Method of disengagement: disengaged by spring when the pedal is released

1.3.4 Front axle and final drives

[D] - Make: DAEDONG GEAR

[D] - Model: M22AFA

[D] - Type: Differential and bevel gear type final drives

- Differential lock

[D] · Type: Mechanical

[C] · Method of engagement / disengagement: When the right pedal is depressed/released, front axle differential lock engaged/disengaged in common with the rear axle differential lock; When the left pedal is depressed/released, engaged/disengaged independently of the rear axle differential lock

1.3.5 Total ratios and travelling speeds

[C]

Range - Gear	Number of engine revolutions for one revolution of the driving wheels		Nominal traveling speed(*) at rated engine speed of 2200 min^{-1} (km/h)	
	Forward	Reverse	Forward	Reverse
L - 1	1439.02	1469.86	0.383	0.385
L - 2	988.42	1009.60	0.558	0.546
L - 3	731.81	747.49	0.754	0.738
L - 4	461.26	471.15	1.196	1.171
M - 1	297.00	303.36	1.857	1.818
M - 2	204.00	208.37	2.704	2.647
M - 3	151.04	154.27	3.652	3.575
M - 4	95.20	97.24	5.793	5.672
H - 1	64.98	66.37	8.488	8.310
H - 2	44.63	45.59	12.358	12.098
H - 3	33.05	33.75	16.688	16.342
H - 4	20.83	21.28	26.478	25.918
(*) Calculated with the dynamic radius index of 665 mm (ISO 4251-1:1998) L = Low range, M = Medium range , H = High range				

[C] Number of revolutions of front wheels for one revolution of rear-wheels (for 4WD tractors only): 1.495

1.4 Power take-off

1.4.1 Main power take-off

[C] - Type: Independent

[C] - Method of engagement: Multiplate wet type clutch engaged or disengaged by switch on the right-hand side

[C] - Number of shafts: 1

[C] - Method of changing PTO shaft ends: Not changeable

[C] - Method of changing PTO speeds: Two speed changeable, 540 or 1000 min^{-1} by lever on right-hand console

1.4.1.1 PTO proportional to engine speed

PTO at 540 min^{-1}

[C] - Location: Rear of tractor

[C] - Diameter of PTO shaft end: 35 mm

[C] - Number of splines: 6, in conformity with ISO 500:1991 Type 1

[C] - Height above ground: 645 mm

[C] - Distance from the median plane of the tractor: 0 mm

[C]	- Distance behind rear-wheel axis:	450 mm
[C]	- PTO speed at rated engine speed (2200 min^{-1}):	539 min^{-1}
[C]	- Engine speed at standard PTO speed:	2205 min^{-1}
[C]	- Ratio of rotation speeds (engine / PTO):	4.083 : 1
[D]	- Power restriction:	None
[D]	- Maximum torque transmissible:	None
[C]	- Direction of rotation (viewed from behind tractor):	Clockwise

PTO at 1000 min^{-1}

[C]	- Location:	At rear of tractor
[C]	- Diameter of PTO shaft end:	35 mm
[C]	- Number of splines:	6, not in conformity with ISO 500:1991
[C]	- Height above ground:	645 mm
[C]	- Distance from the median plane of the tractor:	0 mm
[C]	- Distance behind rear-wheel axis:	450 mm
[C]	- PTO speed at rated engine speed (2200 min^{-1}):	1073 min^{-1}
[C]	- Engine speed at standard PTO speed:	2050 min^{-1}
[C]	- Ratio of rotation speeds (engine / PTO):	2.05 : 1
[D]	- Power restriction:	None
[D]	- Maximum torque transmissible:	None
[C]	- Direction of rotation (viewed from behind tractor):	Clockwise

1.4.1.2 PTO proportional to ground speed

		540 min^{-1}	1000 min^{-1}
[C]	- Traveling distance for one revolution of PTO shaft:	0.765	0.384
[C]	- Number of PTO shaft revolutions for one revolution of (rear) driving wheels:	5.465	10.886
[C]	- Direction of rotation with forward gear engaged(viewed from behind tractor):	Clockwise	Clockwise

1.4.2 Optional PTO: None

1.5 Hydraulic power lift

[C]	- Make:	DAEHWANG
[C]	- Model:	None
[C]	- Type:	Position and load control

[C]	- Type of hydraulic system:	Open center system
[C]	- Number and type of cylinders:	1, Single acting
[C]	- Type of linkage lock for transport:	Hydraulic
[D]	- Relief valve pressure setting:	18.6 ± 0.5 MPa
[D]	- Opening pressure of cylinder safety valve:	22.5 ± 0.5 MPa
[D]	- Lift pump type:	Gear type
[D]	- Transmission between pump and engine:	Gear
[C]	- Number and type of filters:	1, replaceable paper element cartridge
[C]	- Site of oil reservoir:	In common with transmission and rear axle housing
[C]	- Type, number and location of tapping points:	4 double acting female couplers at rear of tractor 4 double acting female couplers at right-hand side of tractor
[D]	- Maximum volume of oil available to external cylinders:	10 dm^3

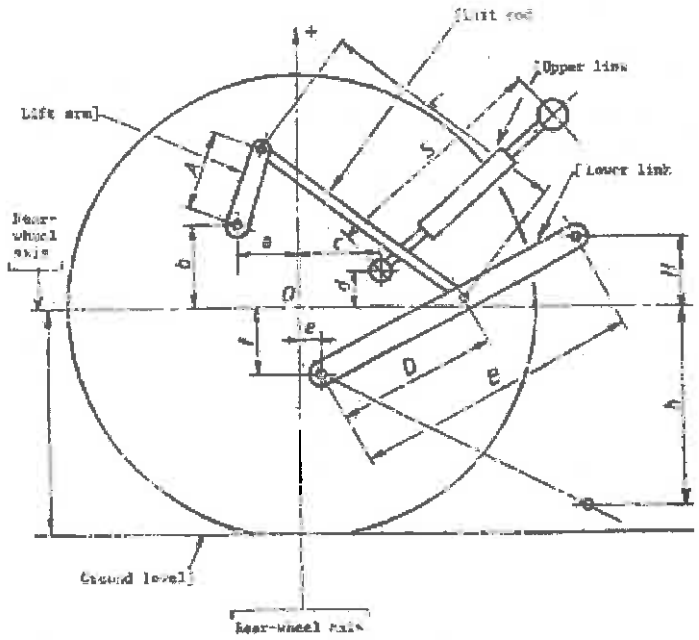
1.6 Three point linkage

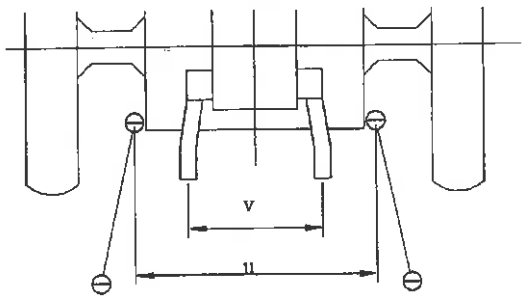
[C]	- Category:	2, in conformity with ISO 730-1:1994 + Cor.1:1995
[C]	- Category adapter:	None

Table 1 Dimensions of linkage geometry when connected to the standard frame

Dimensions of rear implement linkage				Projected lengths in mm	
				Dimension or range	Settings used in test
[C]	Length of lift arms:		(A)	250	250
[C]	Length of lower links:		(B)	850	850
[C]	Distance of lift arm pivot point from rear -wheel axis:	Horizontally Vertically	(a) (b)	63 320	63 320
[C]	Horizontal distance between the 2 lower link points:		(u)	357	357
[C]	Horizontal distance between the 2 lift arm end points:		(v)	526	526
[C]	Length of upper link:		(S)	552 - 858	695
[C]	Distance of upper link pivot point from rear wheel axis:	Horizontally Vertically	(c) (d)	297, 278 , 299 291, 323, 365	297 291
[C]	Distance of lower link pivot point from rear wheel axis:	Horizontally Vertically	(e) (f)	118 179	118 179
[C]	Distance of lower link pivot points to lift rod pivot points on lower links:		(D)	465, 385	385
[C]	Length of lift rods:		(L)	530 - 670	580
[C]	Height of lower hitch points relative to the rear-wheel axis:	in low position in high position	(h) (H)	378 - 592 34 - 314	530 124
[C]	Height above ground of lower hitch points when locked in transport position(*)			Any height within lifting range (Hydraulic transport lock)	

(*) Assuming r = 665 mm tyre dynamic radius index of 14.9-30 tyres on rear axle (ISO 4251-1:1998)





1.7 Swinging drawbar

[C]	- Type:	Clevis
	- Height above ground:	
[C]	· Maximum:	425 mm
[C]	· Minimum:	330 mm
[C]	- Type of adjustment:	Inverting drawbar, longitudinally in three steps
[C]	- Distance of hitch point from rear wheel axis, horizontally:	764 / 814 / 864 mm
	- Distance of hitch point from PTO shaft end	
[C]	· Vertically:	176 / 276 mm
[C]	· Horizontally:	314 / 364 / 414 mm
	- Lateral adjustment (center of clevis)	
[C]	· Right / left hand side:	110 / 120 / 130 mm
[C]	- Distance of pivot point from rear wheel axis, horizontally:	237 mm
[C]	- Diameter drawer pin hole:	26 mm
[D]	- Maximum vertical permissible load:	9.8 kN

1.8 **Trailer hitch:** Not fitted

1.9 **Holed drawbar:** Not fitted

1.10 **Steering**

[D] - Make: Sumitomo Eaton

[D] - Model: VR140P20U4

[D] - Type: Hydrostatic power steering

[D] - Method of operation: By steering wheel and one cylinder acting on steering arm

[D] - Pump(s): 1, gear pump

[D] - Ram(s): 1, double acting ram

[D] - Working pressure: 11.8 MPa

1.11 **Brakes**

1.11.1 Service brake

[D] - Make: JIN MYOUNG

[D] - Model: T4810-26471

[D] - Type Oil-immersed multiplate discs on rear left and right differential shafts

[C] - Method of operation: Right and left brakes operated with two independent hydraulic circuits by pressing separate two foot pedals which can be locked together by means of a pin

[C] - Trailer braking take-off: None

1.11.2 Parking brake

[C] - Type: Mechanically in common with service brake

[C] - Method of operation: By hand lever with ratchet

1.12 **Wheels**

- Number

[C] · Front: 2, steering and driving

[C] · Rear: 2, driving

[C] - Wheelbase: 2048 mm

- Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
[D] Front	1500	1653	By reversing wheels and offset lug rims
[D] Rear	1410	1802	By reversing wheels and offset lug rims

1.13 Protective structure

[C]	- Make:	SAMWOO
[C]	- Model:	SRB650
[C]	- Type:	Rollguard
[C]	- Manufacturer's name and address:	Samwoo Agricultural Machinery Co., LTD 92-11, Paho-dong, Dalseo-gu, Daegu-si, Rep. of Korea
	- Protective device	
[C]	· Rollguard:	Two post roll-over protective structure
[C]	· Tiltable / not tiltable:	Tiltable
[C]	- OECD approval:	None

1.14 Seat

1.14.1 Driver's seat

[C]	- Make:	WOOCHANG
[C]	- Model:	T1814
[C]	- Type:	Upholstered seat with back rest and arm rest
[C]	- Seat and steering wheel reversible:	No
[C]	- Type of suspension:	Spring
[C]	- Type of damping:	None
	- Range of adjustment	
[C]	· Longitudinal:	108 mm
[C]	· Vertical:	None
[C]	- Safety belt:	Yes

1.14.2 Optional driver's seat(s): None

1.14.3 Passenger seat: None

1.15 Lighting

		Height above ground of center mm	Size mm	Distance from outside edge of lights to median plane of tractor mm	Number
[C]	Head light	1270	W 145 x H 90	180	2
[C]	Front working light	1270	Φ 95	240	2
[C]	Side direction light	1195	W 55 x H 100	680	2
[C]	Side working light	1270	W 55 x H 45	680	2
[C]	Rear direction lamp	1580	Φ 84	730	2
[C]	Rear position / stop lamp	1580	Φ 84	630	2
[C]	Rear working light / Back-up lamp	1710	W 150 x H 90	390	1
[C]	Reflector	None	-	-	-

2. TEST CONDITIONS

2.1 Overall dimensions

	Length	Width	Height at top of	
			Protective structure	Exhaust pipe
	mm	mm	mm	mm
Unballasted	3685	1850	2776	725

2.2 Ground clearance (unballasted tractor): 330 mm

Clearance limiting part: Drawbar clevis in lowest position

2.3 Tractor mass (Unballasted, with roll guard)

	Without driver kg	With driver kg
Front	1175	1190
Rear	1770	1830
Total	2945	3020

2.4 Ballast

Not applicable

2.5 Tyres and track width specifications

	Front	Rear
Tyres:		
- Dimensions	11.2-20	14.9-30
- Ply rating	8	8
- Type	Bias ply	Bias ply
- Maximum load (tyre manufacturer's)	10.9 kN	18.9 kN
- Maximum load (tractor manufacturer's)	10.9 kN	18.9 kN
- Inflation pressure (tyre manufacturer's)	235 kPa	176 kPa
- Dynamic radius index (ISO 4251-1:1998)	474 mm	665 mm
Chosen track width	1500 mm	1410 mm

2.6 Fuel

- Type: Diesel fuel No. 2 in conformity with Korean Standard (KS M 2610 : 2005)
- Density at 15 ℃: 0.836 g/cm^3

2.7 Oils and lubricants

2.7.1 Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	6.4	250	250
Transmission, rear axle and final drives, steering, in common with hydraulic system	68	300	300
Front differential case	4.5	300	None
Front axle and final drives	3.5	300	None
Brake	0.54	600	None

	Recommended	Used during test
Engine oil - Type: - Viscosity: - Classification:	SAE 15W-40 105-110 cSt at 40℃ API CD-4	As recommended
Transmission oils, rear axle and final drives, steering, hydraulic fluid steering oil, front differential case front axle and final drives, Brake - Type: - Viscosity: - Classification:	Gear oil, DAEDONG TF65 60-68 cSt at 40℃ API GL-4	As recommended

2.7.3 Number of grease lubrication points: 11

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

- Date and location of tests: 03 January 2007 / NIAE, Suweon, Republic of Korea
- Type of dynamometer bench: Eddy current FROUD AG400

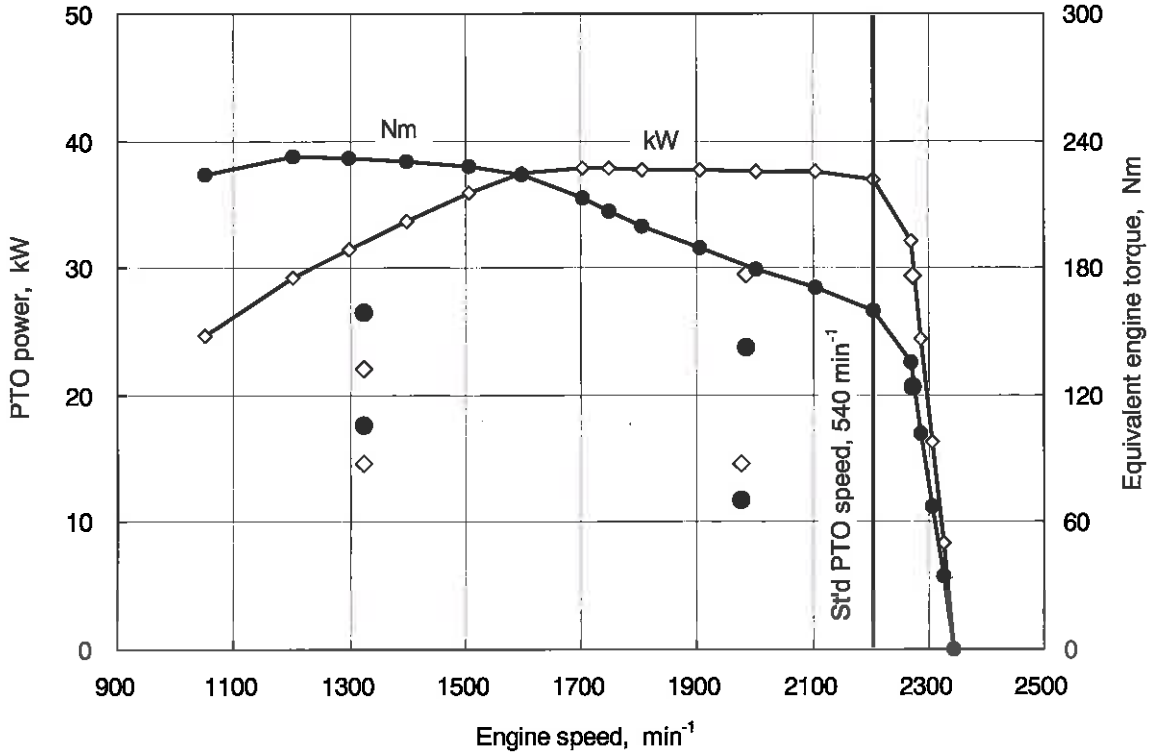
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		specific	
kW	min^{-1}			kg/h	L/h	g/kWh	kWh/L
3.1.1 Maximum power - one-hour test							
37.9	1748	428	2273	9.67	11.57	256	3.27
3.1.2 Power at rated engine speed 2200 min^{-1} and standard p.t.o. speed 540 ± 10 min^{-1}							
36.9	2205	540	2867	10.97	13.12	297	2.81
3.1.3 Part loads 3.1.3.1 the torque corresponding to maximum power at rated engine speed							
36.9	2205	540	2867	10.97	13.12	297	2.81
3.1.3.2 85 % of torque obtained in 3.1.3.1							
32.2	2270	556	2951	10.67	12.76	332	2.52
3.1.3.3 75 % of torque defined in 3.1.3.2							
24.4	2286	560	2972	9.17	10.97	377	2.22
3.1.3.4 50 % of torque defined in 3.1.3.2							
16.3	2307	565	2998	7.72	9.24	472	1.77
3.1.3.5 25 % of torque defined in 3.1.3.2							
8.3	2327	570	3025	6.19	7.40	745	1.12
3.1.3.6 unloaded							
0.0	2344	574	3047	4.28	5.13	-	0.00
3.1.4 Part loads at different engine speeds 3.1.4.1 maximum power at rated engine speed							
36.9	2205	540	2867	10.97	13.12	297	2.81
3.1.4.2 80 % of power obtained in 3.1.4.1 at max. speed setting							
29.4	2271	556	2953	10.07	12.05	343	2.44
3.1.4.3 80 % of power obtained in 3.1.4.1 with governor set to 90 % of rated engine speed							
29.5	1985	487	2581	8.88	10.62	301	2.78
3.1.4.4 40 % of power obtained in 3.1.4.1 with governor set to 90 % of rated engine speed							
14.6	1977	484	2570	6.09	7.29	417	2.00
3.1.4.5 60 % of power obtained in 3.1.4.1 with governor set to 60 % of rated engine speed							
22.1	1325	325	1722	5.61	6.71	254	3.29
3.1.4.6 40 % of power obtained in 3.1.4.1 with governor set to 60 % of rated engine speed							
14.6	1323	324	1720	4.23	5.06	289	2.89

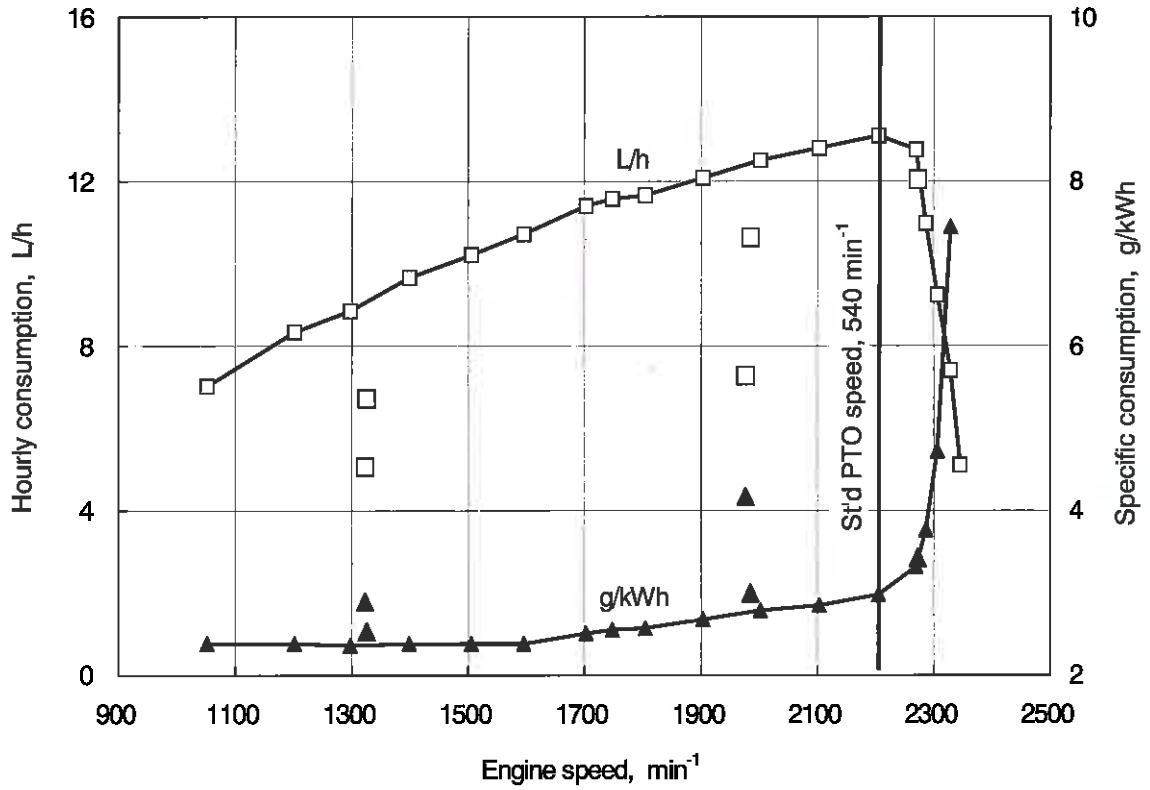
- No load maximum engine speed: 2344 min^{-1}
- Torque(equivalent crankshaft) at maximum power
  - At rated engine speed: 160 Nm
  - At 1-hour test: 207 Nm
- Maximum torque(equivalent crankshaft): 233 Nm at engine speed 1201 min^{-1}

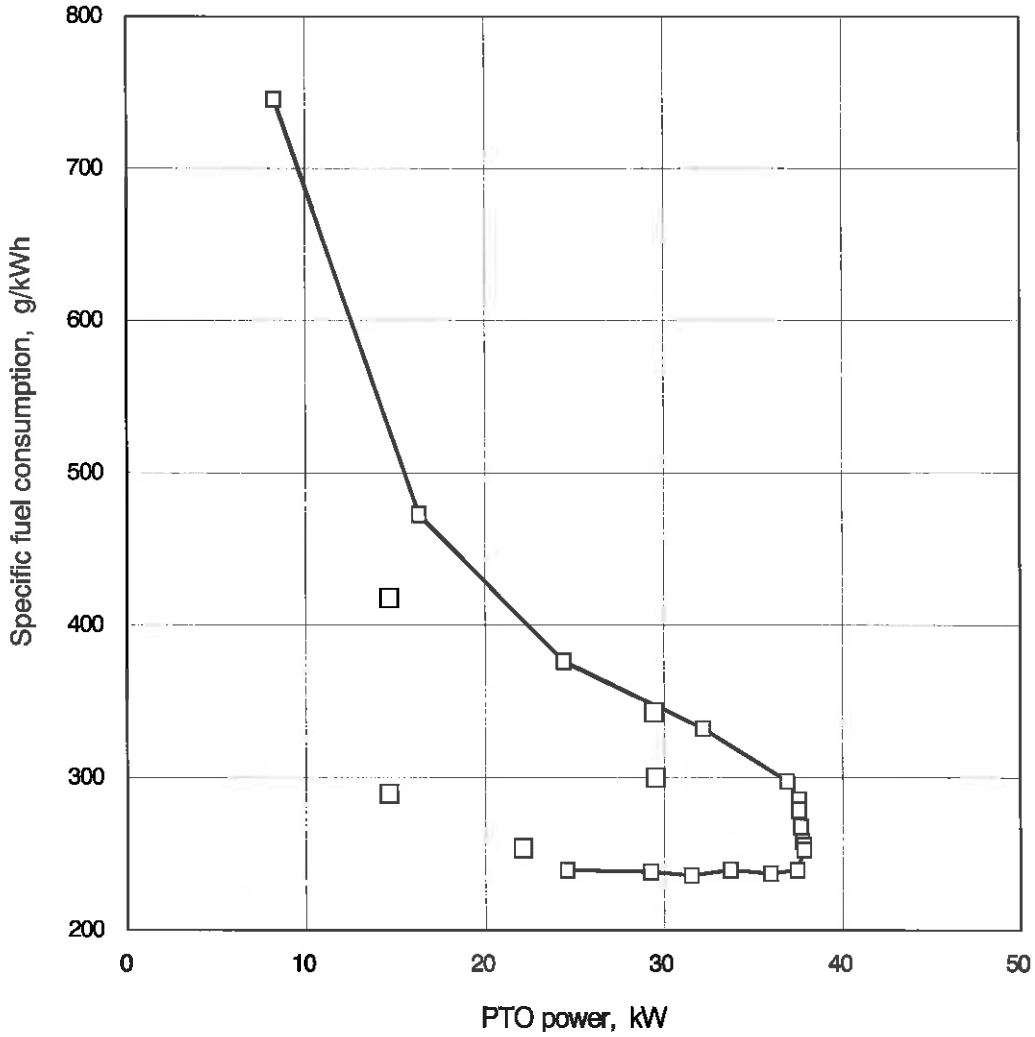
- Mean atmospheric conditions
  - Temperature: 20 ℃
  - Pressure: 101.8 kPa
  - Relative humidity: 20 %

- Maximum temperatures
  - Coolant: 83 ℃
  - Engine oil: 108 ℃
  - Fuel: 39 ℃
  - Engine air intake: 29 ℃

Power take-off curves







3.2 Hydraulic power and lifting force

- Date of tests: 12 January 2007

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

- Hydraulic fluid type: TF65
- Viscosity index (ISO 3448:1992+Corr 1:1993): 150
- Viscosity at 65℃: 26.3 cSt

3.2.1.2 Test results

	Pressure ④	Reservoir oil Temperature℃ (65℃ target)		Engine Speed	Flow rate	Power
	MPa	Min.	Max.	min^{-1}	L/min	kW
Rated Engine Speed	-	-	-	2200	-	-
Number of pair of coupler used	1					
	2					
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: No	② 18.6	63	63	2303	-	-
	② 18.6	66	66	2303	-	-
3.2.1.2.2 Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding power measured at one coupler	② 16.7	③ 63		2303	19.9	5.54
	② 16.7	③ 66		2303	21.6	6.01
3.2.1.2.3 Maximum available power and corresponding flow and available coupler outlet pressure ①	② 14.1	③ 63		2307	40.3	9.47
	② 14.3	③ 65		2307	40.1	9.56

① Calculated maximum power is based on only the coupler outlet pressure (pressure near coupler where oil is exiting from tractor) and does not take into account the return coupler pressure

② Record pressure as measured at the outlet coupler

③ Average test temperature

④ See ISO 789-10:1996 for the specific location of the pressure measurements and other referenced terms

3.2.2 Power lift test

	at the hitch point	at the frame
Height of lower hitch points above ground in down position	135 mm	200 mm
Vertical movement - without lifting forces - with lifting forces	 654 mm 611 mm	 778 mm 736 mm
Maximum corrected force exerted through full range	19.3 kN	14.7 kN
Corresponding pressure of hydraulic fluid	16.7 MPa	16.7 MPa
Moment about rear-wheel axis	18.7 kNm	23.2 kNm
Maximum tilt angle of mast from vertical	-	10°

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	- 351	- 336	- 300	- 200	-100	0	100	200	260	300	400
Lifting forces corrected to 16.7 MPa, 90 % of the actual relief valve pressure setting											
at the hitch points kN	19.3	-	19.4	20.0	20.5	20.9	21.1	20.7	20.7	-	-
at the frame kN	-	16.7	16.8	17.1	17.3	17.2	17.0	16.3	-	15.5	14.7

3.3 Dawbar power and fuel consumption test (unballasted tractor)

- Date of tests: 05 January 2007
- Type of track: Asphalt

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
Unballasted	370 mm	235 kPa	176 kPa

3.3.1 Maximum power in tested gears

Range – Gear	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Tempe-rature	Relative humidity	Pressure
	kW	kN	km/h	min^{-1}	min^{-1}	%	g/kWh	kWh/L	℃	℃	℃	℃	%	kPa
L – 4	6.3	19.9	1.13	2317	3012	15.0	1058	0.79	29	81	100	17	44	101.4
M – 1	9.9	20.2	1.75	2308	3000	15.0	760	1.10	26	82	100	16	44	101.9
M – 2	14.1	19.6	2.56	2296	2985	15.0	593	1.41	28	82	101	16	44	101.9
M – 3	19.2	20.4	3.40	2281	2965	15.0	492	1.70	27	82	102	16	44	101.9
M – 4	27.6	19.6	5.07	2117	2752	15.0	393	2.13	28	82	103	15	45	101.8
H – 1	30.0	17.8	6.08	1705	2217	13.0	311	2.69	30	82	103	13	45	101.8
H – 2	30.5	11.5	9.55	1703	2214	6.4	309	2.71	32	82	104	12	46	101.7
H – 3	29.2	8.0	13.23	1707	2219	3.8	322	2.60	30	82	104	10	48	101.8

3.3.2 Fuel consumption

Range - Gear	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Tempe-rature	Relative humidity	Pressure
	kW	kN	km/h	min^{-1}	min^{-1}	%	g/kWh	kWh/L	℃	℃	℃	℃	%	kPa
3.3.2.1 in selected gear nearest 7.5 km/h, at maximum power at rated engine speed														
H - 1	30.5	13.0	8.46	2200	2860	6.6	362	2.31	29	83	102	10	49	101.8
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
H - 1	24.8	10.0	8.94	2270	2951	4.4	418	2.00	27	82	102	9	50	101.8
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
H - 1	16.7	6.5	9.23	2296	2984	2.4	516	1.62	28	82	103	8	50	101.8
3.3.2.1.3 highest gear setting at reduced engine speed able to achieve both 3.3.2.1.1 and 3.3.2.1.2; same pull and travelling speed as in 3.3.2.1.1														
H - 2	24.9	10.0	8.95	1571	2042	5.1	354	2.36	26	81	100	8	51	101.8
3.3.2.1.4 same gear selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2														
H - 2	16.7	6.5	9.29	1594	2072	2.9	384	2.18	26	80	98	7	51	101.8
3.3.2.2 in selected gear nearest between 7 km/h and 10 km/h at rated engine speed														
H - 2	28.3	8.0	12.74	2200	2860	3.5	391	2.14	25	82	101	7	52	101.8
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
H - 2	22.4	6.0	13.31	2272	2953	2.3	452	1.85	25	82	101	6	54	101.8
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
H - 2	15.2	4.0	13.58	2293	2980	1.3	569	1.47	26	82	102	6	53	101.8
3.3.2.2.3 highest gear setting at reduced engine speed able to achieve both 3.3.2.2.1 and 3.3.2.2.2; same pull and travelling speed as in 3.3.2.2.1														
H - 3	22.4	6.0	13.27	1679	2183	2.4	387	2.16	23	81	100	6	53	101.9
3.3.2.2.4 same gear setting as 3.3.2.2.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2														
H - 3	15.4	4.0	13.64	1702	2212	1.0	418	2.00	22	81	99	5	54	101.9

4. OPTIONAL TESTS RESULTS

4.1 Turning area and turning circle

	Without brakes	
	Right-hand m	Left-hand m
Radius of turning area	4.03	4.03
Radius of turning circle	3.85	3.85

4.2 Location of centre of gravity

- Height above ground: 880 mm
- Distance from the vertical plane containing the axis of the rear-wheels: 807 mm
- Distance from the median longitudinal plane of the tractor: 7 mm (to the left)

4.3 Measurement of external noise

- Date of tests: 05 January 2007
- Sound level meter, make/model/type: Bruel & Kjaer 2236 sound level meter
- Type of track: Asphalt
- Gear number(Range-Gear): H - 4
- Travelling speed before acceleration: 23 km/h
- Sound level: 78.4 dB(A)

4.4 Waterproofing test

- Date of tests: 10 ~ 11 January 2007
- Water level from ground to top: 400 mm
- Gear number (Range - Gear): M - 4, at engine speed 2200 min^{-1}
- Test results

Parts	Checking method	Result
Transmission, rear axle drives, brake, steering	Visual method and crackling method	Passed
Front axle/final drives	Visual method and crackling method	Passed
Clutch housing	Dry type clutch housing was disassembled and checked visually inside for water ingress	Passed

- Statement: The tractor is a waterproof tractor in accordance with the Code

5. REPAIRS & REMARKS None

TEST COMMISSION

Nam Chan-hee, Director
Machinery Utilization & Testing Division, NIAE

Jeong Seong-lim, Test engineer
Machinery Utilization & Testing Division, NIAE

Kim Jong-seon, Test engineer
Machinery Utilization & Testing Division, NIAE