COTTEC

CHINA
OFFICIAL TRACTOR
TEST AND
EVALUATION CENTRE

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OECD TEST REPORT OF Luzhong-804
AGRICULTURAL TRACTOR (CODE 2 - February 2008)

Report on test in accordance with the OECD standard code for the official testing of agricultural and forestry tractor performance



OECD Approval
No.: 2/2 447
Date:Nov.18, 2008

Tested Tractor	Submitted for test by
Make: Luzhong Model: Luzhong -804 Type: 4WD Speed version: 30 km/h	Name: Shandong Weifang Luzhong Tractor Co., Ltd Address: Weifang, Shandong, China Tel: 86 536 8321421 Fax: 86 536 8318240

This report includes 23 pages and may only be duplicated as a whole

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	Note: Units shown below, which appear in ISO 1000:1992; Amdl:1998, shall be stated and followed by national units in parenthesis	
C	Tractor manufacturer's name and address:	Shandong Weifang Luzhong Tractor Co., Ltd Weifang, Shandong, China
D	-Location of tractor assembly:	The manufacturer
D	-Submitted for test by:	The manufacturer
C	-Selected for test by:	The manufacturer with the agreement of the COTTEC
D	-Place of running-in:	COTTEC, Luoyang, Henan, China
D	-Duration of running-in:	50.0 hours
C	-Date, location of test and code version:	From Sep.4 to Sep.22, 2008 COTTEC, Luoyang, Henan, China Code2 - February 2008
	1. SPECIFICATIONS OF TRACTOR	
	1.1 Identification	
	1.1.1 Denomination	
C	- Make of the tractor:	Luzhong
C	-Model (trade name):	Luzhong -804
C	-Type:	4WD
	1.1.2 Numbers	
D	-1st Serial No or prototype:	034756
C	- Serial No.:	034756
	1.1.3 Other Specifications	
D	- Models for other countries:	鲁中-804
C	-Transmission type or gears x ranges:	Mechanical
C	-Speed version:	30 km / h
D	- Manufacturer identification or technical type number: None	
	1.2 Engine	
C	-Make:	China YTO Group Co.,Ltd
C	-Model:	LRC4108T53
C	-Type:	4-stroke,water cooling ,vertical, direct injection
C	-Serial No.:	Y0856047
	1.2.1 Cylinders	
C	-Number:	4
C	-Disposition:	Vertical, in line
D	-Bore/Stroke:	108 mm /135 mm
D	-Capacity:	4947 cm^3
D	-Compression ratio:	17.0
D	-Arrangement of valves:	Overhead, in line
D	-Cylinder liners:	Wet
	1.2.2 Supercharging	None

1. 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.

	1.2.3 Fuel system	
C	-Fuel feed system:	Forced feed type
C	-Make of fuel filter:	Tuoyan technology Co.,Ltd
C	-Model of fuel filter:	CX0708S
C	-Type of fuel filter:	Replaceable paper cartridge
D	-Capacity of fuel tank:	78 dm^3
C	-Make of injection pump:	YiTuo (Luoyang) fuel pump Co.,Ltd
C	-Model/type of injection pump:	ZHBF49540Z-392A, cylinder plunger
C	-Serial No :	B080700075
	-Manufacturer's production setting of injection pump:	
C	. Flow rate (at rated engine speed and full load):	18.0 ± 0.5 dm^3 /h
D	.Timing:	$20^0 \pm 1^0$ before T.D.C.
D	-Make of injectors:	YiTuo (Luoyang) fuel pump Co.,Ltd
D	-Model/type of injectors:	PB86J-01, Multi-hole
D	-Injection pressure:	19.6～20.6 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	YiTuo (Luoyang) fuel pump Co.,Ltd
C	-Model/type:	TA70, Mechanical, centrifugal
C	-Governed range of engine speed:	700～2380 rev/min
C	-Rated engine speed:	2200 rev/min
	1.2.5 Air cleaner	
	-Pre-cleaner	
C	.Make:	Weifang Hanchao
C	.Model/type:	LZT650.11.010, cyclone type, integrated with main cleaner
C	.Location of air intake:	Left-hand side of engine, vertical
C	.Maintenance indicator:	None
	-Main cleaner	
C	.Make:	Weifang Hanchao
C	.Model/type:	LZT650.11.010, oil bath
C	.Location of air intake:	Left-hand side of engine, vertical
C	.Maintenance indicator:	None
	1.2.6 Lubrication system	
D	-Type of feed pump:	Roter
C	-Type of filters:	Replaceable paper cartridge
C	-Number of filters:	1
	1.2.7 Cooling system	
C	-Type of coolant:	Water
D	-Type of pump:	Centrifugal, belt driven
	-Specification of fan or blower:	
C	.Number of fan blades:	7
C	.Fan diameter:	490 mm
D	-Coolant capacity:	15 dm^3
C	-Type of temperature control:	Thermostat
D	-Super pressure system:	None

	1.2.8 Starting system	
C	-Make:	Hubei Shendian
C	-Model/Type:	QD154E, solenoid engaged
D	-Starter motor power rating:	3.7 kW
C	-Cold starting aid:	None
C	-Safety device:	Forward and reverse lever in neutral position
	1.2.9 Electrical system	
C	-Voltage:	12 V (Negative earth)
	-Generator:	
C	.Make:	Hubei Shendian
C	.Model/Type:	JF1521B, altermator, belt driven
D	.Power	0.7 kW
	-Battery of accumulators:	
C	.Number:	1
D	.Rating:	120 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Weifang Baowei silencer Co.Ltd
C	-Model/Type:	LZT650.22.120, interference type silencer with internal perforated pipe
C	-Location:	Right-hand side of the engine, vertical
	1.3 Transmission	
	1.3.1 Clutch (Travel and PTO)	
D	-Make:	Rongcheng Huanghai clutch Co.,Ltd
D	-Model/Type:	LZT650.21.011, dry, dual (for travel and PTO)
D	-Number of plates:	2
D	-Diameter of plates:	318 mm
C	-Method of operation:	Mechanically actuated by pedal
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	LZT700B.37.101, mechanical
	-Description:	8 forward speed gear,2 reverse speed gear, main gear is constant-mesh cylindrical gear, auxiliary gear is constant-mesh cylindrical gear, engaging sleeve gear shifting

		Forward	Reverse
C	Number of groups /ranges	2	2
C	Number of gears	4	1
C	Total of arrangements	8	2

	-Available options	None

	1.3.3 Rear axle and final drives	
D	-Make:	Own make
D	-Model/Type:	LZT700B.38.101, bevel gear type differential and spur gear type final drives
	-Differential lock	
D	.Type:	Mechanical
C	.Method of engagement:	Mechanically actuated by pedal
C	.Method of disengagement:	Mechanically actuated by pedal
	1.3.4 Front axle and final drives	
D	-Make:	Shanghai Huijin automobile tractor accessory Co.,Ltd
D	-Model/Type:	LZT704.31.010, bevel gear type differential and single step epicyclic gear type final drives
	-Differential lock:	None

1.3.5 Total ratios and travelling speeds

	Gear No	Group or range	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed(*) at rated engine speed of 2200 rev/min km/h
C	1	L	180.340	3.06
C	2		134.640	4.10
C	3		84.860	6.50
C	4		63.076	8.74
C	1	H	45.085	12.23
C	2		33.660	16.39
C	3		21.216	26.00
C	4		15.769	34.98
C	R	L	159.125	3.47
		H	39.780	13.86
	(*) Calculated with the dynamic radius index of 665 mm (ISO 4251-1:2005)			

C	-Number of revolutions of front wheels for one revolution of rear-wheels:	1.415
	1.4 Power take-off	
	1.4.1 Main power take-off	
C	-Type:	Semi-independent
C	-Method of engagement:	By hand lever
C	-Number of shafts:	1
C	-Method of changing power take-off shaft ends and speeds:	By hand lever

	1.4.1.1 Power take-off proportional to engine speed	
	Power take-off at 540 rev/min	
C	-Location:	At rear of the tractor
C	-Diameter of power take-off shaft end:	35 mm
C	-Number of splines:	6, in conformity with ISO 500-1:2005, ISO 500-2:2004, ISO 500-3:2004
C	-Height above ground:	652 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	390 mm
C	-PTO speed at rated engine speed:	635 rev/min
C	-Engine speed at standard power take-off speeds	1871 rev/min
C	-Ratio of rotation speeds (engine speed/PTO speed):	3.464
D	-Power restriction:	59.0 kW
D	-Maximum torque transmissible:	1045 Nm
C	-Direction of rotation (viewed from behind tractor):	Clockwise
	Power take-off at 1000 rev/min:	
C	-Location:	At rear of the tractor
C	-Diameter of power take-off shaft end:	35 mm
C	-Number of splines:	6, in conformity with ISO 500-1:2005, ISO 500-2:2004, ISO 500-3:2004
C	-Height above ground:	652 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	390 mm
C	-PTO speed at rated engine speed:	1133 rev/min
C	-Engine speed at standard power take-off speeds	1942 rev/min
C	-Ratio of rotation speeds (engine speed / PTO speed):	1.942
D	-Power restriction:	59.0 kW
D	-Maximum torque transmissible:	565 Nm
C	-Direction of rotation (viewed from behind tractor):	Clockwise
	1.4.1.2 Power take-off proportional to ground speed	None
	1.4.2 Optional power take-off:	None
	1.5 Hydraulic power lift	
C	-Make:	Laizhou Hongyu
C	-Model:	LZT800.55.001
C	-Type:	Hydraulic, three hitch point
C	-Type of hydraulic system:	Open centre system
C	-Type and number of cylinders:	Single acting,1
C	-Type of linkage lock for transport:	Hydraulic
D	-Relief valve pressure setting:	16±0.5 MPa
D	-Opening pressure of cylinder safety valve :	18±0.5 MPa

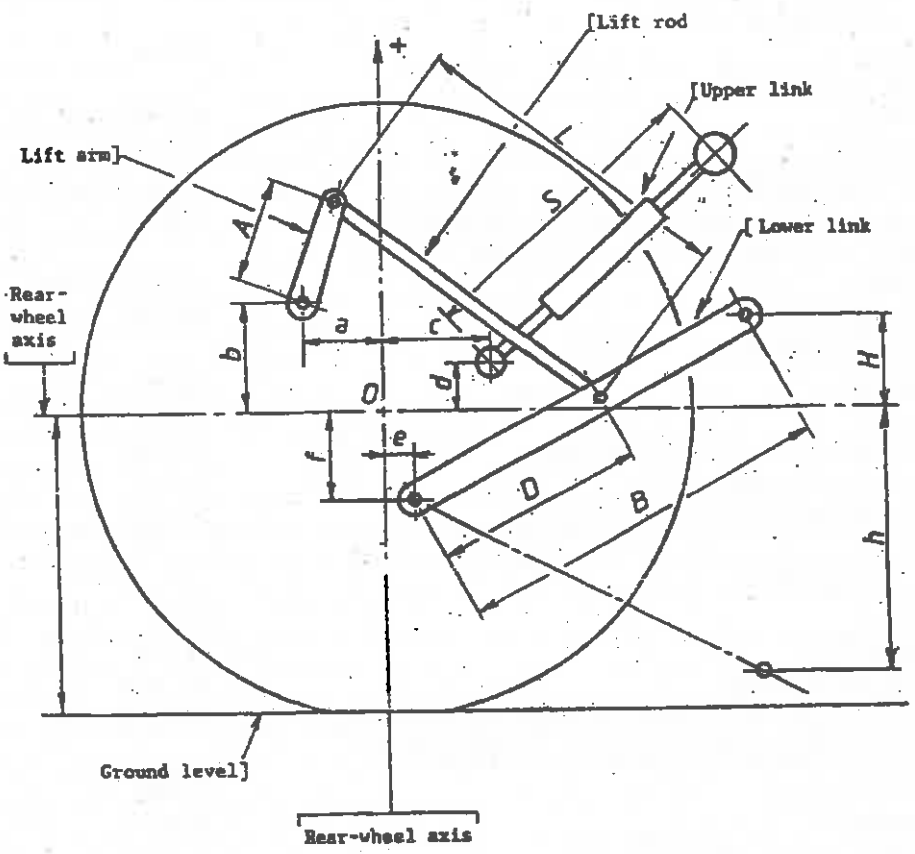
D	-Lift pump type:	Gear pump
D	-Transmission between pump and engine:	Driven by engine cam shaft
C	-Type and number of filters:	Metal net, 1
C	-Site of oil reservoir:	Above the rear axle
C	-Type, number and location of tapping points:	Coupler pairs quick shift adaptor, at rear of tractor
D	-Maximum volume of oil available to external cylinders:	10 dm^3

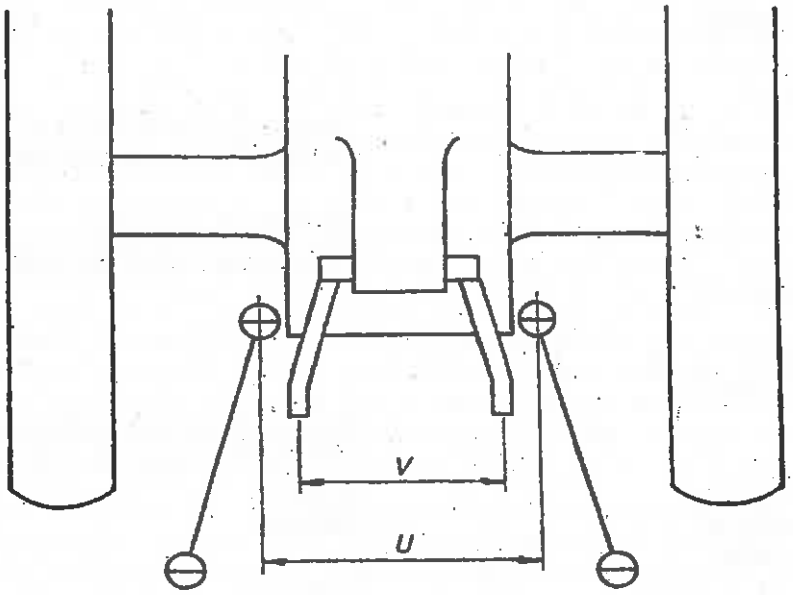
1.6 Three point linkage

C	-Category	2 ,in conformity with ISO730-1:1994+Cor.1:1995
C	-Category Adapter:	None

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

			Dimension or range	Setting used in test
			mm	mm
C	Length of lift arms :	(A)	230	230
C	Length of lower links :	(B)	930	930
	Distance of lift arm pivot point from rear wheel axis:			
C	-Horizontally	(a)	60	60
C	-Vertically	(b)	418	418
C	Horizontal distance between the 2 lower link points:	(u)	526	526
C	Horizontal distance between the 2 lift arms end points:	(v)	605	605
C	Length of upper link:	(S)	From 500 to 720	708
	Distance of upper link pivot point from rear wheel axis:			
C	-Horizontally:	(c)	300	300
C	-Vertically	(d)	245,280,315	315
	Distance of lower link pivot point from rear wheel axis:			
C	-Horizontally:	(e)	50	50
C	-Vertically	(f)	136	136
C	Distance of lower link pivot point to lift rod pivot points on lwer links:	(D)	420	420
C	Length of lift rods:	(L)	From 545 to 698	625
	Height of lower hitch points relative to the rear wheel axis:			
C	-in low position	(h)	From 320 to 625	465
C	-in high position	(H)	From 65 to285	187
C	Height above ground of lower hitch points when locked in transport position (*):		Any height at lift range	Any height at lift range
	(*)Assuming r = 665 mm rear tyre dynamic radius index of ISO 4251-1:2005			





Figures 1.1 Lift test-linkage geometry

	1.7 Swinging drawbar:	
C	-Type:	Clevis
	-Height above ground	
C	.Maximum	435 mm
C	.Minimum	335 mm
C	-Type of adjustment:	By reversing drawbar
C	-Distance of hitch point from rear wheel axis, horizontally:	780 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	200 & 300 mm
C	.Horizontally:	390 mm
	-Lateral adjustment (centre of clevis)	
C	.Right hand:	90 mm
C	.Left hand:	90 mm
C	-Distance of pivot point from rear wheel axis, horizontally:	140 mm
C	-Diameter of drawbar pinhole:	34 mm
D	-Maximum vertical permissible load:	10.0 kN
	1.8 Trailer hitch	
C	-Type:	Fixed
C	-Hole diameter :	34 mm
C	-Height above ground:	580 mm
C	-Distance of hitch point from rear wheel axis, horizontally:	590 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	45 mm
C	.Horizontally:	200 mm
D	-Maximum vertical permissible load:	10.0 kN
	1.9 Holed drawbar:	None
	1.10 Steering	
D	-Make:	Zhenjiang hydraulic accessory Co.Ltd
D	-Model/Type:	LZT650.40.032,hydrostatic steering system
	-Method of operation	
D	.Pump:	HLCB12/10, Gear pump
D	.Ram:	Double acting ram actuating directly on front axle
D	-Working pressure:	7 MPa
	1.11 Brakes	
	1.11.1 Service brake	
D	-Make:	Weifang Chengyuxin mechanism Co,.Ltd
D	-Model/Type:	LZT650.43.011/012, dry, disc, mechanical
C	-Method of operation:	By pedals
C	-Trailer braking take-off:	Hydraulic
	1.11.2 Parking brake	
C	-Type:	Mechanical
C	-Method of operation:	Hand lever with ratchet
	1.12 Wheels	
	-Number	
C	.Front:	2, steering & driving
C	.Rear:	2, driving
C	-Wheelbase:	2278 mm

-Track width adjustment:

		Minimum mm	Maximum mm	Adjustment method
D	Front	1450	1450	None
D	Rear	1365	1796	Reversing wheels and off-set lug rims

1.13 Protective structure

C	-Make:	Own make
C	-Model:	LZT800.46.001
C	-Type:	Rear roll bar
C	-Manufacture's name and address:	Own make
	-Protective device:	
C	-Cab/frame / roll guard / other:	Rear roll bar
C	-Tiltable / not tiltable:	Tiltable
	-OECD approval	None
C	.Approval number:	None
C	.Date of approval:	None
C	.Nos. of minor modification certificates, if any:	None

1.14 Seat

1.14.1 Driver's seat

C	-Make:	Zhangjiagang Shenjie
C	-Model:	700.44.001
C	-Type:	Adjustable suspension
C	-Seat and steering wheel reversible:	No
C	-Type of suspension:	Mechanical
C	-Type of damping:	Spring
	-Range of adjustment:	
C	.Longitudinal:	150 mm
C	.Vertical:	None
C	-Safety belt:	Yes
C	-Type:	Two points seat belt

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
C	Head lights	1150	150×90	208
C	Front direction lights	1160	70×60	298
C	Front position lights	1115	70×40	298
C	Rear direction lights	1450	90×70	768
C	Rear position lights	1450	55×70	678
C	Stop lights	1450	100×70	623
C	Work lights	1615	Φ140	858
C	Rear reflector	1450	55×70	678

2 TEST CONDITIONS

Overall dimensions

	Length	Width		Height at top of	
		Minimum	Maximum	Protective Structure	Exhaust Silencer
	mm	mm	Mm	mm	mm
Ballasted	4350	1794	2225	2537	2628
Unballasted	3935	1794	2225	2540	2632

2.2 Ground Clearance (unballasted tractor): 270 mm
-Clearance limiting part: the hitch pin on swinging drawbar

2.3 Tractor mass
-Mass(with rear roll bar and full fuel tank):

	Unballasted		Ballasted	
	Without driver kg	With driver kg	Without driver kg	With driver kg
Front	1289	1300	1782	1793
Rear	1711	1775	2092	2156
Total	3000	3075	3874	3949

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	18	379	—
Rear	12	495	—
Optional	—	—	—

2.5 Track specifications: **None**

2.6 Tyres and track width specifications

	Front	Rear
Tyres:		
.dimensions	8.3-24	14.9-30
.ply rating	6	10
.type	Cross ply	Cross ply
.maximum load (tyre manufacturer's)	9.0 kN	20.5 kN
.maximum load (tractor manufacturer's)	9.0 kN	20.5 kN
.inflation pressure (tyre manufacturer's)	200～250 kPa	110 kPa
.dynamic radius index	470 mm	665 mm
Chosen track width	1450 mm	1510 mm

2.7 Fuel
-Type: Standard diesel fuel in conformity with GB 10327 (China standard)
-Density at 15 ℃ 0.8523 g/cm^3

2.8 Oils and lubricants

2.8.1 Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	15	250	250
Gear box, rear axle and final drives	50	500	—
hydraulic system	21	500	500
Front axle and final drives	11.5	500	—
Steering	2.5	500	—

2.8.2 Specifications (SAE, API, CCMC, ACEA, Mil.L, ISO)

	Recommended	Used during test
Engine oil .Type: .Viscosity: .Classification:	SAE 10W/30 11.4 cSt at 100 ℃ API-CD	Same as recommended
Transmission oil, Hydraulic fluid, Steering oil, rear axle and final drives oil, Front axle and final drives oil .Type: .Viscosity: .Classification:	SAE 80W/90 9.3 cSt at 100 ℃ API GL-4	Same as recommended

2.8.3 Grease

-Number of lubrication points: 15

3 COMPULSORY TESTS RESULTS

3.1 Main power take-off

-Date and location of tests: Sep.4, 2008, COTTEC

-Type of dynamometer: LPA-Bedienpult 250 Elec. dynamometer

Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O	Fan	Hourly		Specific	
kW	rev/min			kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER-ONE-HOUR TEST							
50.68	1942	1000	2503	14.61	17.14	288.3	2.96
3.1.2 POWER AT RATED ENGINE SPEED							
49.75	2197	1131	2832	15.40	18.07	309.5	2.75
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000±25 or 540±10 rev/min)							
50.68	1942	1000	2503	14.61	17.14	288.3	2.96
3.1.4 PART LOADS							
3.1.4.1 The torque corresponding to maximum power at the rated engine speed							
49.75	2197	1131	2832	15.40	18.07	309.5	2.75
3.1.4.2 85% of torque obtained in 3.1.4.1							
43.14	2241	1154	2889	13.84	16.24	320.8	2.66
3.1.4.3 75% of torque obtained in 3.1.4.2							
32.77	2268	1168	2923	11.74	13.77	358.2	2.38
3.1.4.4 50% of torque obtained in 3.1.4.2							
22.17	2297	1183	2961	9.76	11.45	440.2	1.94
3.1.4.5 25% of torque obtained in 3.1.4.2							
11.17	2328	1199	3001	7.77	9.12	695.5	1.23
3.1.4.6 Unloaded							
1.52	2350	1210	3029	6.08	7.13	—	—

Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O	Fan	Hourly		Specific	
kW	rev/min			kg/h	l/h	g/kWh	kWh/l
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF (1000±25 or 540±10 rev/min)							
3.1.5.1 The torque corresponding to maximum power							
50.68	1942	1000	2503	14.61	17.14	288.3	2.96
3.1.5.2 85% of torque obtained in 3.1.5.1							
43.26	1952	1005	2516	12.59	14.77	291.0	2.93
3.1.5.3 75% of torque obtained in 3.1.5.2							
33.18	1998	1029	2575	10.11	11.86	304.7	2.80
3.1.5.4 50% of torque obtained in 3.1.5.2							
22.56	2031	1046	2618	8.36	9.81	370.6	2.30
3.1.5.5 25% of torque obtained in 3.1.5.2							
11.47	2066	1064	2663	6.37	7.47	555.2	1.54
3.1.5.6 Unloaded							
1.35	2093	1078	2698	4.79	5.62	—	—
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS							
3.1.6.1 Maximum power at rated engine speed							
49.75	2197	1131	2832	15.40	18.07	309.5	2.75
3.1.6.2 80% of power obtained in 3.1.6.1 at max. speed setting							
39.88	2255	1161	2907	13.16	15.44	330.0	2.58
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
39.79	1973	1016	2543	11.85	13.90	297.8	2.86
3.1.6.4 40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
20.02	1975	1017	2546	7.80	9.15	389.6	2.19
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
29.91	1327	683	1711	7.57	8.88	253.1	3.37
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
19.89	1327	683	1711	5.61	6.58	282.0	3.02

-No load maximum engine speed: 2350 rev/min

-Torque(equivalent crankshaft) at maximum power

.At rated engine speed: 216.3 Nm

.At 1-hour test: 249.2 Nm

-Maximum torque (equivalent crankshaft) (engine speed: 1311 rev/min): 295.6 Nm

Mean atmospheric conditions	
Temperature	29 ℃
Pressure	100.0 kPa
Relative humidity	45 %
Maximum Temperature:	
Coolant	84 ℃
Engine oil	95 ℃
Fuel	35 ℃
Engine air intake	39 ℃

3.2 Hydraulic power and lifting force

- Date and location of tests: Sep.5, 2008, COTTEC

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

- Hydraulic fluid type: SAE 80W/90
- Viscosity index (ISO3448+Corr 1:1993): 28.5 mm^2/s at 65 ℃

3.2.1.2 Compulsory Reporting (Test Results):

	Pressure	Reservoir oil Temperature ℃		Engine Speed	Flow rate	Power
	MPa	Min	Max	rev/min	L/min	kW
Rated Engine Speed (Manufactures Specification)				2200		
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes	16.0	60.3	69.3	2335		
3.2.1.2.2 Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	14.4	68.1		2336	30.0	7.20
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair:	13.8	65.7		2338	33.8	7.77
3.2.1.2.4 Maximum available flow and maximum power from coupler pairs operating simultaneously(flow through two or more coupler pairs if required):	13.8	66.3		2339	34.1	7.84

3.2.2 Compulsory power lift test

-Linkage settings for test-see Table 1.1 and Figure 1.1

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	200 mm	145 mm
Vertical movement: without lifting force:	652 mm	810 mm
with lifting force:	617 mm	752 mm
Maximum corrected force exerted through full range	20.81kN	13.70 kN
Corresponding pressure of hydraulic fluid	14.4 MPa	14.4 MPa
Moment about rear wheel axle	20.39 kNm	21.78 kNm
Maximum tilt angle of mast from vertical	—	10.2^0

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-384	-329	-300	-200	-100	0	100	200	288	300	368
Lifting forces (the values of force measured are correspond to a hydraulic pressure equivalent to 90 % of the actual relief value pressure setting of the hydraulic lifting system) At the hitch point, corresponding pressure 14.4 MPa											
kN	—	21.86	22.15	22.38	22.61	22.21	21.88	21.42	20.81	—	—
At the frame, corresponding pressure 14.4 MPa											
kN	19.12	—	19.95	18.99	18.66	17.96	17.19	16.30	—	15.43	13.70

3.3 Compulsory drawbar power and fuel consumption test (unballasted tractor)

-Date and location of tests: Sep.11, 2008, COTTEC

-Type of track: Concrete

Height of drawbar above ground mm	Tyre inflation pressure	
	Front kPa	Rear kPa
580	230	110

Gear number and range	Power	Drawbar pull	Speed	Engine Speed	Fan Speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	kW	kN	km/h	Min^{-1}	Min^{-1}	%	g/kWh	kWh/l	℃	℃	℃	℃	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)														
L1	19.70	26.36	2.69	2275	2932	15.08	540	1.58	35	80	93	28	40	100.1
L2	25.96	26.18	3.57	2252	2903	15.02	499	1.71	35	80	93	28	40	100.1
L3	33.70	23.93	5.07	1943	2505	11.94	438	1.95	35	80	93	28	40	100.1
L4	41.12	20.36	7.27	1945	2507	6.08	361	2.36	36	82	94	28	40	100.1
H1	44.00	15.41	10.28	1945	2507	5.02	337	2.53	36	82	94	29	40	100.1
H2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3.3.2 FUEL CONSUMPTION														
3.3.2.1 In selected gear/speed setting nearest 7.5 km/h, at maximum power at rated engine speed														
L3	33.09	20.26	5.88	2200	2836	9.56	470	1.81	35	80	93	28	40	100.1
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
L3	26.96	15.21	6.38	2284	2944	5.52	502	1.70	35	80	93	28	40	100.1
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
L3	18.69	10.10	6.66	2307	2974	2.59	541	1.58	36	81	94	28	40	100.1
3.3.2.1.3 Next higher gear/ speed setting at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1														
L4	27.18	15.29	6.40	1700	2191	5.26	357	2.39	36	81	94	28	40	100.1
3.3.2.1.4 Same gear as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2														
L4	18.92	10.18	6.69	1745	2249	3.34	412	2.07	36	81	94	28	40	100.1
3.3.2.2 In selected gear/speed setting nearest between 7 km/h and 10 km/h at rated engine speed														
L4	40.63	17.54	8.34	2200	2836	4.59	384	2.22	35	81	93	28	40	100.1
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
L4	32.05	13.23	8.72	2266	2921	3.13	427	2.00	35	82	94	29	40	100.1
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
L4	22.02	8.79	9.02	2300	2965	1.35	492	1.73	35	82	94	29	40	100.1
3.3.2.2.3 Next higher gear/speed setting at reduced engine speed: same pull and travelling speed as in 3.3.2.2.1														
H1	32.34	13.26	8.78	1634	2106	3.31	316	2.70	35	82	95	29	40	100.1
3.3.2.2.4 Same gear as 3.3.2.2.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2														
H1	21.97	8.70	9.09	1670	2153	1.89	365	2.34	35	82	95	29	40	100.1

*Remark: Maximum power in the gear H2 was not measured , because the forward speed in this gear exceeded the safety limit of testing equipment.

4 OPTIONAL TEST RESULTS

4.1 Optional drawbar power and fuel consumption test (ballasted tractor)

-Date and location of tests: Sep.13, 2008, COTTEC

-Type of track: Concrete

Height of drawbar above ground mm	Tyre inflation pressure	
	Front kPa	Rear kPa
577	230	110

Gear number and range	Power	Drawbar pull	Speed	Engine Speed	Fan Speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative hummidity	Pressure
	kW	kN	km/h	Min^{-1}	Min^{-1}	%	g/kWh	kW/l	℃	℃	℃	℃	%	kPa
4.1.1 OPTIONAL MAXIMUM POWER IN TESTED GEARS/SPEED SETTINGS														
L1	21.78	29.15	2.69	2277	2935	15.06	494	1.73	36	81	93	29	35	100.0
L2	28.93	29.09	3.58	2256	2908	15.01	467	1.83	36	81	93	30	35	100.0
L3	36.07	25.71	5.05	1943	2505	12.26	411	2.07	36	81	93	30	35	100.0
L4	42.40	21.14	7.22	1947	2510	6.76	350	2.44	37	81	94	30	35	100.0
H1	46.23	16.27	10.23	1945	2507	5.44	320	2.66	37	82	94	30	35	100.0
H2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4.1.2 OPTIONAL FIVE-HOUR TESTS														
4.1.2.1 FIVE-HOUR TEST at 75% of the pull corresponding to maximum power at rated speed														
H1	35.85	10.57	12.21	2254	2905	2.57	364	2.34	36	81	94	30	35	100.0
4.1.2.2 FIVE-HOUR TEST at pull corresponding to 15% wheel slip , with additional ballast : 0 kg.														
L2	28.87	29.11	3.57	2255	2907	15.03	469	1.82	36	81	93	30	35	100.0

Oil consumption during ten hours duration of tests 4.1.2.1 and 4.1.2.2: 58 g/h

*Remark: Maximum power in the gear H2 was not measured , because the forward speed in this gear exceeded the safety limit of testing equipment.

4.2 Low temperature starting

-Date and location of tests: Sep.22, 2008, COTTEC

-Detail of the starting aids used for the tests, battery included:

-Fuel

.Type -35#

.Octane or cetane number: >50

.Pour-point and other specifications: -30 ℃

-Engine oil

.Type: SAE 10W/30 , API-CD

.Viscosity and other specifications: 11.4 cSt at 100 ℃

-Test results

.Starting procedure used for the tests: The manufacturer's procedure

.Lowest temperature at which the engine started: -10 ℃

4.3 Turning area and turning circle

	Without brakes	
	Right-hand m	Left-hand m
Radius of turning area	5.07	4.78
Radius of turning circle	4.93	4.64

4.4 Location of center of gravity

-Height above ground: 827 mm
-Distance from the vertical plane containing the axis of the rear-wheels: 960 mm
-Distance from the median longitudinal plane of the tractor: -8 mm
-If the angle of suspension of the tractor is less then 20° ,indicate its value: None

4.5 Braking

-Date and location of tests: Sep.18, 2008, COTTEC

4.5.1 Çold service braking device test

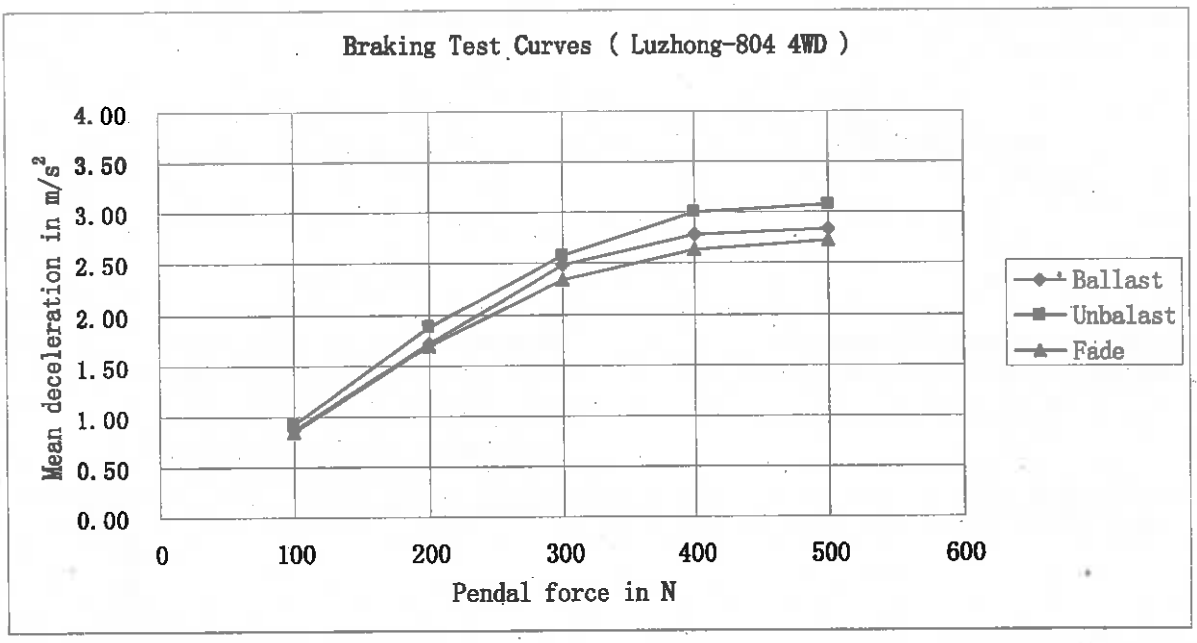
	Speed before application of brakes km/h	Braking device control force kN	Mean deceleration m/s^2	Minimum stopping distance without locking the wheels m
Ballasted tractor	35.3	0.1	0.87	55.2
	35.3	0.2	1.71	28.1
	35.4	0.3	2.48	19.5
	35.4	0.4	2.78	17.4
	35.3	0.5	2.84	16.9
Unballasted tractor	35.4	0.1	0.92	52.4
	35.4	0.2	1.89	25.6
	35.5	0.3	2.59	18.8
	35.4	0.4	3.00	16.1
	35.4	0.5	3.08	15.7

-Maximum deviation of tractor from its original course: 0 mm
-Abnormal vibration: None

4.5.2 Fade test

	Speed before application of brakes km/h	Braking device control force kN	Mean deceleration m/s^2	Minimum stopping distance without locking the wheels m
Ballasted tractor	35.3	0.1	0.84	56.9
	35.3	0.2	1.69	28.4
	35.3	0.3	2.35	20.5
	35.4	0.4	2.64	18.3
	35.4	0.5	2.73	17.7

-Maximum deviation of tractor from its original course: 0 mm
-Abnormal vibration: None
-Brake heating method: Driving



4.5.3 Parking braking device test

	Uphill	Downhill
Braking device control force N	260	250

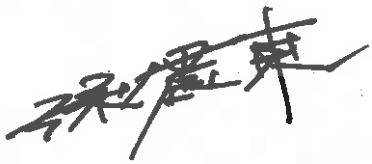
4.6 Measurement of external noise

-Date and location of tests:	Sep.18, 2008, COTTEC
-Sound level meter, make/mode/type:	ONO SOKKI LA-5111
-Type of track:	Concrete
-Gear number:	H4
-Travelling speed before acceleration:	26.6 km/h
-Sound level:	86.9 dB(A)

5. REPAIRS: None

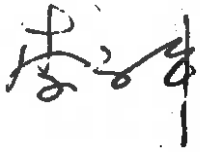
6. REMARKS: None

Director of the COTTEC
Senior engineer



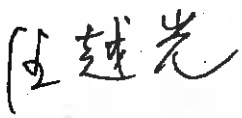
Sun Zhendong

Vice-director of the COTTEC
Senior engineer



Li Jingzhong

Responsible engineer for these tests and editor for the test report publish:
Senior engineer



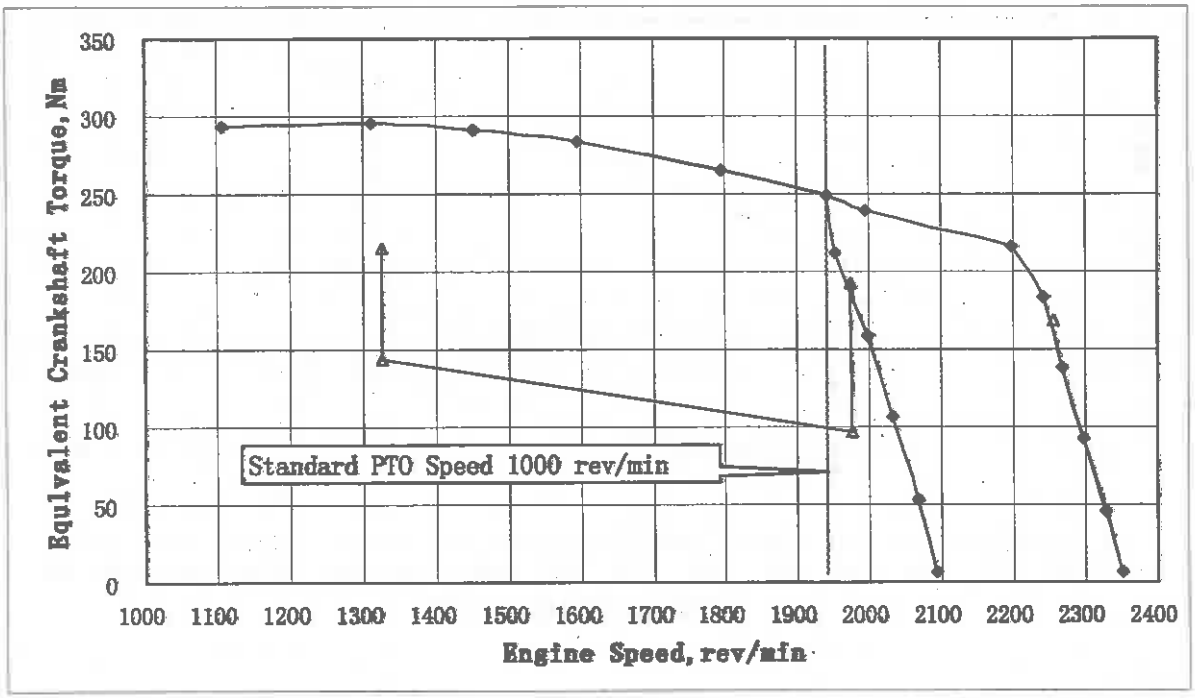
Ren Yueguang

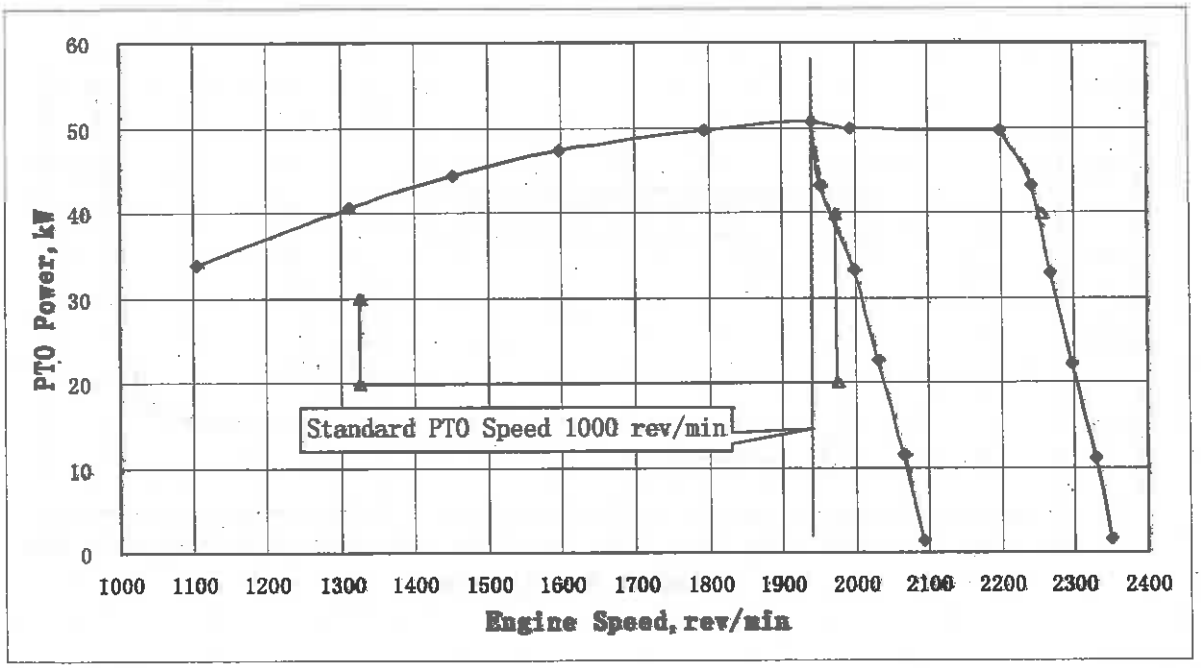
Members of the tractor test board:
Chen Zhiqiang Yan Xiaofang, Gao Bo
Zheng Zhigang, Li Yong, Zhao Jun,
Sun Zhennan, Yang Hongmei,Liu Hui
Sun Panpan,Liu Zhiqiang,Bai Demin,
Yi Xiaodong, Liu Hongqiang,

Date: Oct. 9, 2008

ANNEX I

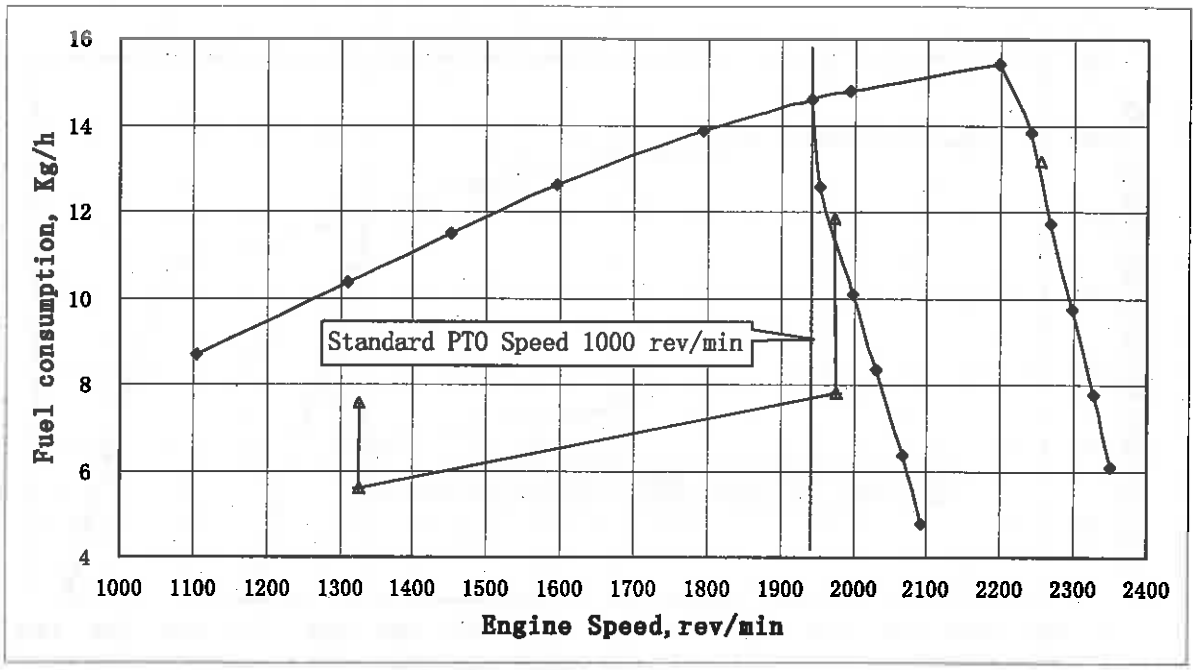
Main power take-off test curves 1

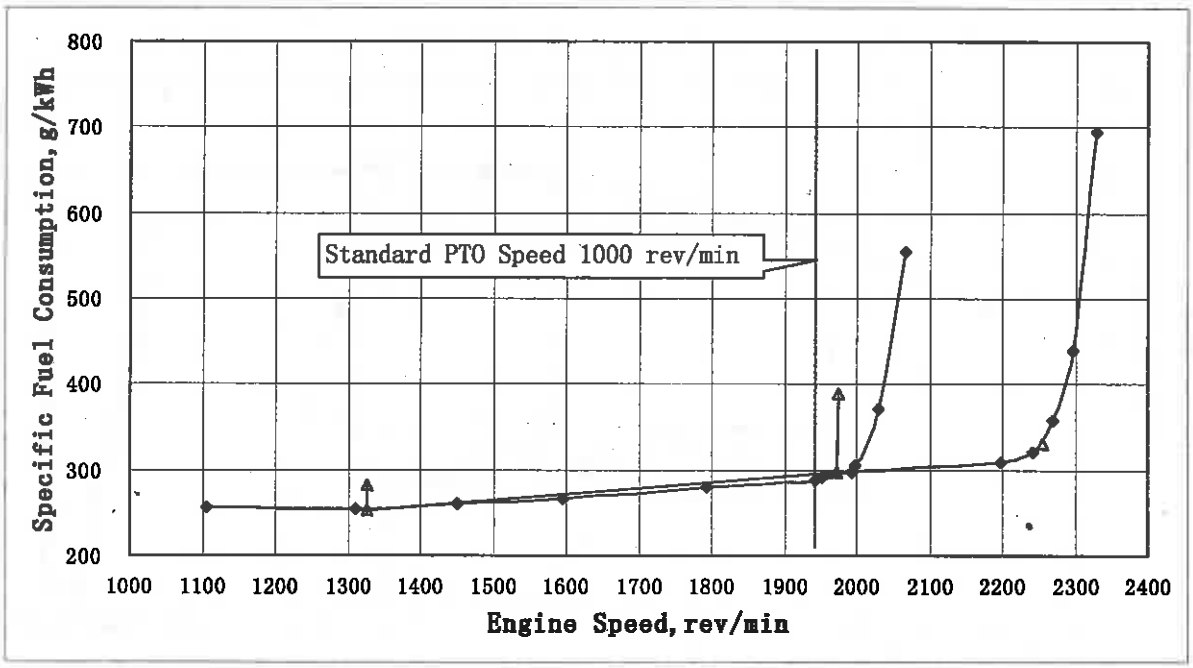




ANNEX II

Main power take-off test curves 2





ANNEX III

Main power take-off test curves 3

