COTTEC

CHINA
OFFICIAL TRACTOR
TEST AND
EVALUATION CENTRE

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OECD TEST REPORT OF TL5040 4WD AGRICULTURAL TRACTOR (CODE 2)

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



OECD Approval
No.: 2/2 437
Date: Sep.30,2008

Tested Tractor
Make: Shanghai New Holland Model: TL 5040 Type: 4WD Speed version: 30 km/h

Submitted for test by
Name: Shanghai New Holland Agricultural Machinery CO. Ltd. Address: Shanghai, China Tel: 86 21 55584500 Fax: 86 21 55057694

This report includes 25 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[1]	Tractor manufacturer's name and address:	Shanghai New Holland Agricultural Machinery CO. Ltd. Shanghai, China
D[1]	-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:	60 hours
C	-Location of test:	COTTEC, Luoyang, Henan, China
	1. SPECIFICATIONS OF TRACTOR	
	1.1 Identification	
	1.1.1 Denomination	
C	- Make of the tractor:	Shanghai New Holland
C	-Model (trade name):	TL5040
C	-Type:	4WD
	1.1.2 Numbers	
D	-1st Serial No or prototype:	07008279
C	- Serial No.:	07008279
	1.1.3 Other Specifications	
D	- Models for other countries:	SNH804
C	-Transmission type or gears x ranges:	Mechanical, 12+4
C	-Speed version:	30 km / h
D	- Manufacturer identification or Technical type number: None	
	1.2 Engine	
C	-Make:	Weifang Weichai Deutz engine co., Ltd
C	-Model:	D226B- 4T
C	-Type:	4-stroke,water cooling ,Vertical, direct injection
C	-Serial No.:	4B070802422
	1.2.1 Cylinders	
C	-Number:	4
C	-Disposition:	Vertical, in line
D	-Bore/Stroke:	105 mm /120 mm
D	-Capacity:	4156 cm^3
D	-Compression ratio:	16.4
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:	Weifang Baowei filter CO. Ltd.
C	-Model of fuel filter:	13020488（1678）
C	-Type of fuel filter:	Mesh cartridge, replaceable
D	-Capacity of fuel tank:	127 dm^3
C	-Make of injection pump:	ASIMCO Nanyue (Heng Yang) Co.,Ltd
C	-Model/type of injection pump:	BH4AD95R, cylinder plunger
C	-Serial No :	156784
	-Manufacturer's production setting of injection pump:	
C	. Flow rate (at rated engine speed and full load):	17.2±0.5 dm^3 /h
D	.Timing:	$(20\sim22)^0$ before T.D.C.
D	-Make of injectors:	BoShi automobile and diesel system CO. Ltd.
D	-Model/type of injectors:	KBEL-S007G / Multi-holes
D	-Injection pressure:	25～26.2 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	ASIMCO Nanyue (Heng Yang) Co.,Ltd
C	-Model/type:	RSV, Mechanical centrifugal
C	-Governed range of engine speed:	750～2700 rev/min
C	-Rated engine speed:	2500 rev/min
	1.2.5 Air cleaner	
	-Pre-cleaner	None
	-Main cleaner	
C	.Make:	Bangbu JinWei Cleaner Co.,Ltd
C	.Model/type:	KW1634B1, Dry air filter paper cartridge, replaceable
C	.Location of air intake:	In front of the radiator and under the engine bonnet
C	.Maintenance indicator:	None
	1.2.6 Lubrication system	
D	-Type of feed pump:	Forced feed by means of gear pump
C	-Type of filters:	Replaceable cartridge
C	-Number of filters:	1
	1.2.7 Cooling system	
C	-Type of coolant:	Water-anti freeze mixture
D	-Type of pump:	Centrifugal, belt driven
	-Specification of fan or blower:	
C	.Number of fan blades:	6
C	.Fan diameter:	490 mm
D	.Coolant capacity:	17.5 dm^3
C	.Type of temperature control:	Thermostat
D	.Super pressure system:	None

	1.2.8 Starting system	
C	-Make:	Weifang Weichai Deutz engine Co., Ltd
C	-Model/Type:	M100R2004SE / Electromagnet operated
D	-Starter motor power rating:	4.0 kW
C	-Cold starting aid:	Preheater
C	-Safety device:	Electrical switch on clutch pedal, forward and reverse lever in neutral position
	1.2.9 Electrical system	
C	-Voltage:	12 V (Negative earth) /
	-Generator:	
C	.Make:	Weifang Weichai Deutz engine co., Ltd
C	.Model/Type:	JFZ180-221, altermator, belt driven
D	.Power	1.0 kW
	-Battery of accumulators:	
C	.Number:	1, lead acid type
D	.Rating:	120 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Own make
C	-Model/Type:	51331499 / interference type with internal perforated pipe
C	-Location:	On the left hand side of engine, under the engine bonnet, with vertical exhaust pipe
	1.3 Transmission	
	1.3.1 Clutch (Travel and Power Take-off)	
D	-Make:	LUK
D	-Model/Type:	5189825 / dry, dual (for travel and PTO)
D	-Number of plates:	6
D	-Diameter of plates:	310 mm
C	-Method of operation:	Mechanically operated by pedal for travel and by hand lever for PTO
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	Not announced / Mechanical synchronized constant mesh gears, direct engagement by hand lever
	-Description:	

		Forward	Reverse
C	Number of groups /ranges	3	1
C	Number of gears	4	4
C	Total of arrangements	12	4

D	-Available options	12+12, mechanical
	1.3.3 Rear axle and final drives	
D	-Make:	Own make
D	-Model/Type:	Bevel gear type differential and single stage epicyclic gear type final drives

	-Differential lock	
D	.Type:	Mechanical
C	.Method of engagement:	Push the device control pedal on the right side of the floor
C	.Method of disengagement:	Push one of the two brake pedals
	1.3.4 Front axle and final drives	
	1.3.4.1 Basic model (fitted on the tested tractor)	
D	-Make:	DANA
D	-Model/Type:	51330557 / bevel gear type differential and single stage epicyclic gear type final drives, without differential lock
	-Differential lock:	None
	1.3.4.2 Optional model (not fitted on the tested tractor)	
D	-Make:	DANA
D	-Model/Type:	51333527 /bevel gear type differential and single stage epicyclic gear type final drives, with differential lock
	-Differential lock	
D	-Type:	Limited slip
D	-Method of engagement:	Automatic
D	- Method of disengagement::	Automatic
	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 2500 rev/min km/h
C		1	L	390.322	1.80
C		2		268.555	2.61
C		3		186.290	3.77
C		4		130.045	5.40
C		1	M	167.116	4.20
C		2		114.981	6.11
C		3		79.760	8.80
C		4		55.678	12.61
C		1	H	70.984	9.89
C		2		48.840	14.38
C		3		33.879	20.73
C		4		23.650	29.69
C		1	R	141.968	4.95
C		2		97.679	7.19
C		3		67.758	10.36
C		4		47.300	14.84
		(*) Calculated with the dynamic radius index of 745 mm (ISO 4251-1:2005)			

C	-Number of revolutions of front wheels for one revolution of rear-wheels: 1.380

	1.4 Power take-off	
	1.4.1 Main power take-off	
C	-Type:	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 exchanging PTO shafts
	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:	729 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	521 mm
C	-PTO speed at rated engine speed:	614 rev/min
C	-Engine speed at standard power take-off speeds	2199 rev/min
C	-Ratio of rotation speeds (engine speed/PTO speed):	4.0714
D	-Power restriction:	None
D	-Maximum torque transmissible:	Engine torque
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:	21, in conformity with ISO 500-1:2005, ISO 500-2:2004, ISO 500-3:2004
C	-Height above ground:	729 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	521 mm
C	-PTO speed at rated engine speed:	1050 rev/min
C	-Engine speed at standard power take-off speeds	2381 rev/min
C	-Ratio of rotation speeds (engine speed / PTO speed):	2.381
D	-Power restriction:	None
D	-Maximum torque transmissible:	Engine torque
C	-Direction of rotation (viewed from behind tractor):	Clockwise
	Power take-off at 750 rev/min (optional) :	
C	-Location:	At rear of the tractor
C	-Diameter of power take-off shaft end:	38 mm
C	-Number of splines:	8, not in conformity with ISO 500-1:2005, ISO 500-2:2004, ISO 500-3:2004
C	-Height above ground:	729 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	521 mm
C	-PTO speed at rated engine speed:	787 rev/min

C	-Engine speed at standard power take-off speeds	2382 rev/min
C	-Ratio of rotation speeds (engine speed / PTO speed):	3.176
D	-Power restriction:	None
D	-Maximum torque transmissible:	Engine torque
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:	Own make
C	-Model:	Not announced
C	-Type:	Hydraulic, three hitch point
C	-Type of hydraulic system:	Open centre system
C	-Type and number of cylinders:	1 single acting internal ram (located inside hydraulic lifter case) plus the option of 2 single acting external rams (located outside hydraulic lifter case)
C	-Type of linkage lock for transport:	Lift-O-matic device
D	-Relief valve pressure setting:	21.5^{0}_{-1} MPa
D	-Opening pressure of anti-shock valve :	$22.0^{+0.5}_{0}$ MPa
D	-Lift pump type:	Gear pump
D	-Transmission between pump and engine:	Driven by engine cam shaft
C	-Type and number of filters:	Cartridge type, 2
C	-Site of oil reservoir:	Transmission housing
C	-Type, number and location of tapping points:	One coupler pair, optional two or three coupler pairs (not fitted on the tested tractor),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 mm	Setting used in test mm
C	Length of lift arms :	(A)	255	255
C	Length of lower links :	(B)	940	940
	Distance of lift arm pivot point from rear wheel axis:			
C	-Horizontally	(a)	191	191
C	-Vertically	(b)	296	296
C	Horizontal distance between the 2 lower link points:	(u)	450	450
C	Horizontal distance between the 2 lift arms end points:	(v)	507	507
C	Length of upper link:	(S)	From 580 to 870	675
	Distance of upper link pivot point from rear wheel axis:			
C	-Horizontally:	(c)	394	394
C	-Vertically	(d)	From 257 to 337	257
	Distance of lower link pivot point from rear wheel axis:			
C	-Horizontally:	(e)	130	130
C	-Vertically	(f)	205	205
C	Distance of lower link pivot point to lift rod pivot points on lwer links:	(D)	From 465 to 540	465
C	Length of lift rods:	(L)	From 510 to 640	605
	Height of lower hitch points relative to the rear wheel axis:			
C	-in low position	(h)	From 340 to 645	545
C	-in high position	(H)	From35 to 290	120
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 = 745 mm rear tyre dynamic radius index of ISO 4251-1:2005			

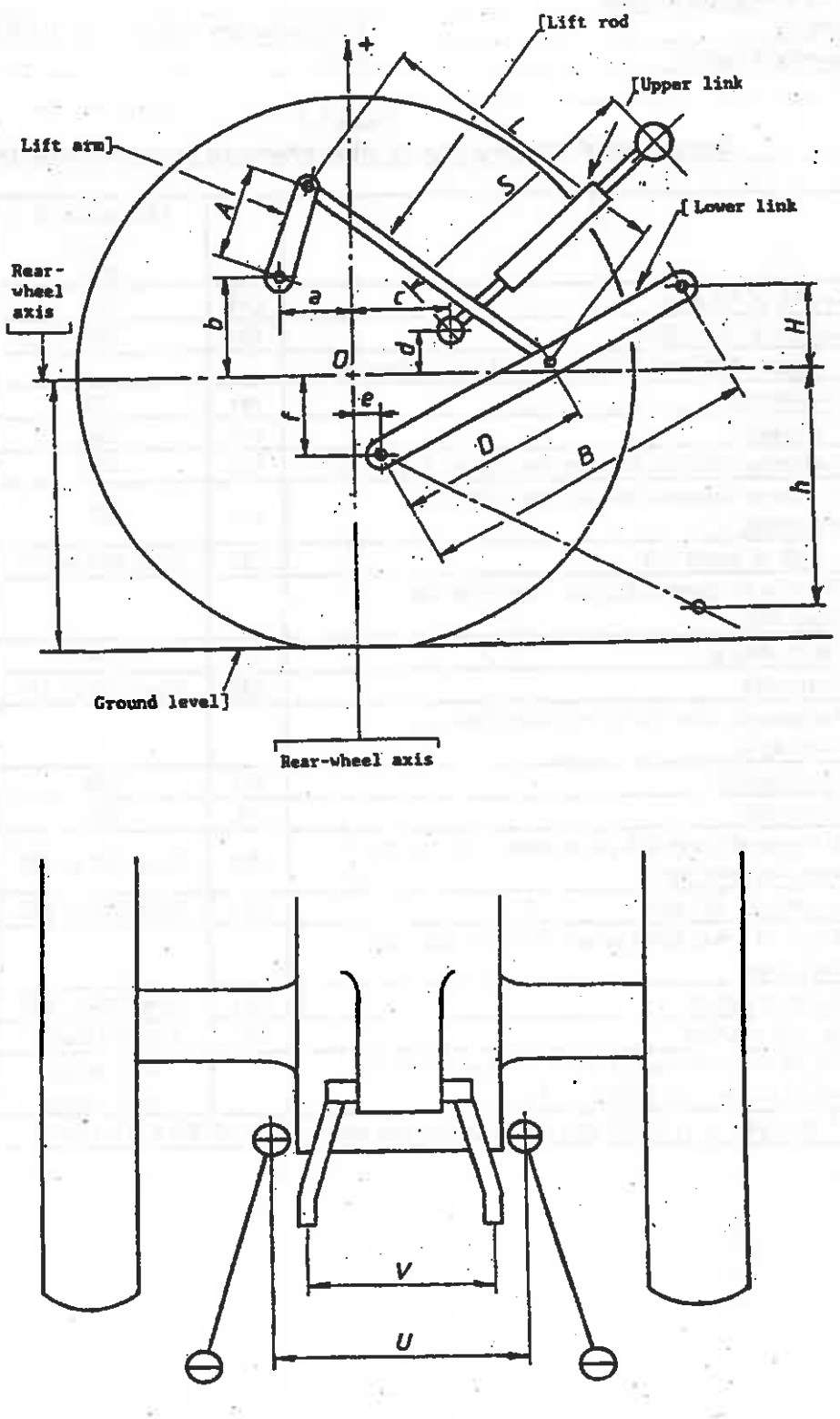


Figure 1.1 Lift test-linkage geometry

	1.7 Swinging drawbar:	
C	-Type:	Clevis
	-Height above ground	
C	.Maximum	479 mm
C	.Minimum	369 mm
C	-Type of adjustment:	By reversing drawbar
C	-Distance of hitch point from rear wheel axis, horizontally:	930 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	250 mm
C	.Horizontally:	409 mm
	-Lateral adjustment (centre of clevis)	
C	.Right hand:	79 mm
C	.Left hand:	79 mm
C	-Distance of pivot point from rear wheel axis, horizontally:	480 mm
C	-Diameter of drawbar pinhole:	33 mm
D	-Maximum vertical permissible load:	12 kN
	1.8 Trailer hitch	
C	-Type:	Fixed
C	-Hole diameter :	29 mm
C	-Height above ground:	507 mm
C	-Distance of hitch point from rear wheel axis, horizontally:	610 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	222 mm
C	.Horizontally:	89 mm
D	-Maximum vertical permissible load:	12 kN
	1.9 Holed drawbar:	None
	1.10 Steering	
D	-Make:	Own make
D	-Model/Type:	51330518 / hydrostatic steering system
	-Method of operation	
D	.Pump:	Gear pump
D	.Ram:	1 double acting ram actuating directly on front axle
D	-Working pressure:	16.5 MPa
	1.11 Brakes	
	1.11.1 Service brake	
D	-Make:	Own make
D	-Model/Type:	5184313 / oil immersed disk brakes, acting on differential shafts
C	-Method of operation:	Operated by pedals, with hydrostatic transmission
C	-Trailer braking take-off:	Hydraulic brake system
	1.11.2 Parking brake	
C	-Type:	Oil immersed disk brakes, acting on differential shafts
C	-Method of operation:	Mechanical , operated by hand level
	1.12 Wheels	
	-Number	
C	.Front:	2, steering and driving
C	.Rear:	2, driving
C	-Wheelbase:	2411 mm

-Track width adjustment:

		Minimum mm	Maximum mm	Adjustment method
D	Front	1425	2104	Changing the position of the rims in relation to the disks
D	Rear	1534	2132	Changing the position of the rims in relation to the disks

1.13 Protective structure

C	-Make:	Own make
C	-Model:	51330858
C	-Type:	Cab
C	-Manufacture's name and address:	Own make
	-Protective device:	
C	-Cab/frame / rollguard / other:	Cab
C	-Tiltable / not tiltable:	Tiltable
	-OECD approval	
C	.Approval number:	4/1 033/1
C	.Date of approval:	Mar.25, 2008
C	.Nos. of minor modification certificates, if any:	None

1.14 Seat

1.14.1 Driver's seat

C	-Make:	Grammer
C	-Model:	204B112
C	-Type:	Adjustable suspension
C	-Seat and steering wheel reversible:	No
C	-Type of suspension:	Mechanical
C	-Type of damping:	Shock absorber
	-Range of adjustment:	
C	.Longitudinal:	150 mm
C	.Vertical:	60 mm
C	-Safety belt:	None

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	1130	150×95	205
C	Front direction lights	1670	115×35	823
C	Front position lights	1635	115×35	823
C	Front work lights	2385	140×70	430
C	Rear direction lights	1505	85×60	888
C	Rear work lights	2490	140×70	900
C	Stop lights	1505	85×60	803
C	Reflectors lights	1505	40×25	800

2 TEST CONDITIONS

Overall dimensions

	Length	Width		Height at top of	
		Minimum	Maximum	Protective Structure	Exhaust Silencer
	mm	mm	mm	mm	mm
Ballasted	4430	2121	2562	2600	2525
Unballasted	4140	1958	2562	2605	2530

2.2 Ground Clearance (unballasted tractor)

-Clearance limiting part: Under the front axle 415 mm

2.3 Tractor mass

-Mass(with cab and full fuel tank):

	Unballasted		Ballasted	
	Without driver kg	With driver kg	Without driver kg	With driver kg
Front	1610	1622	2109	2121
Rear	2149	2212	2319	2382
Total	3759	3834	4428	4503

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	10	385	—
Rear	6	284	—
Optional	—	—	—

2.5 Track specifications: None

2.6 Tyres and track width specifications

	Front	Rear
Tyres:		
.dimensions	12.4-24	16.9-34
.ply rating	8	10
.type	Cross ply	Cross ply
.maximum load (tyre manufacturer's)	14.15 kN	26.00 kN
.maximum load (tractor manufacturer's)	14.15 kN	26.00 kN
.inflation pressure (tyre manufacturer's)	150 kPa	160 kPa
.dynamic radius index	540 mm	745 mm
Chosen track width	1705 mm	1632 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	13.0	300	300
Gear box, rear axle and final drives, in common with hydraulic system	47.5	1200	300
Front axle and final drives	7.0	1200	none
Steering	2.5	900	300

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

	Recommended	Used during test
Engine oil .Type: .Viscosity: .Classification:	AMBRA MASTERGOLD 12.5 cSt at 100 ℃ SAE 15W / 40 API CH-4	As recommended
Transmission oil, hydraulic fluid, steering oil, rear axle and final drives oil, f, front axle and final drives ront axle and final drives oil .Type: .Viscosity: .Classification:	AMBRA MULTI G 11.5 cSt at 100 ℃ SAE 10W / 30 API GL4	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: Mar.11, 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							
51.02	2484	1043	3229	14.38	16.87	281.9	3.02
3.1.2 POWER AT RATED ENGINE SPEED							
50.79	2500	1050	3250	14.43	16.93	284.1	3.00
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000±25 or 540±10 rev/min)							
50.81	2382	1000	3097	13.94	16.36	274.4	3.11
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at the rated engine speed							
50.79	2500	1050	3250	14.43	16.93	284.1	3.00
3.1.4.2 85% of torque obtained in 3.1.4.1							
44.89	2604	1094	3385	13.23	15.52	294.7	2.89
3.1.4.3 75% of torque obtained in 3.1.4.2							
33.84	2617	1099	3402	10.87	12.75	321.2	2.65
3.1.4.4 50% of torque obtained in 3.1.4.2							
22.67	2630	1105	3419	8.78	10.30	387.3	2.20
3.1.4.5 25% of torque obtained in 3.1.4.2							
11.37	2639	1108	3431	6.88	8.07	604.9	1.41
3.1.4.6 Unloaded							
1.52	2652	1114	3448	5.22	6.12	—	—

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							
50.81	2382	1000	3097	13.94	16.36	274.4	3.11
3.1.5.2 85% of torque obtained in 3.1.5.1							
45.41	2506	1052	3258	13.06	15.32	287.6	2.96
3.1.5.3 75% of torque obtained in 3.1.5.2							
34.31	2525	1060	3283	10.61	12.45	309.2	2.76
3.1.5.4 50% of torque obtained in 3.1.5.2							
22.96	2534	1064	3294	8.49	9.96	369.8	2.30
3.1.5.5 25% of torque obtained in 3.1.5.2							
11.54	2547	1070	3311	6.47	7.59	560.8	1.52
3.1.5.6 Unloaded							
1.35	2560	1075	3328	4.83	5.67	—	—
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS							
3.1.6.1 Maximum power at rated engine speed							
50.79	2500	1050	3250	14.43	16.93	284.1	3.00
3.1.6.2 80% of power obtained in 3.1.6.1 at max. speed setting							
40.66	2612	1097	3396	12.30	14.43	302.5	2.82
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
40.52	2242	942	2915	10.98	12.88	270.9	3.15
3.1.6.4 40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
20.24	2245	943	2919	7.05	8.27	348.3	2.45
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
30.52	1502	631	1953	7.54	8.85	247.1	3.45
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
20.30	1499	630	1949	5.44	6.38	267.9	3.18

-No load maximum engine speed: 2652 rev/min
-Torque(equivalent crankshaft) at maximum power
.At rated engine speed: 194.0 Nm
.At 1-hour test: 196.1 Nm
-Maximum torque (equivalent crankshaft) (engine speed: 1486 rev/min): 265.9 Nm

Mean atmospheric conditions	
Temperature	17 ℃
Pressure	100.2 kPa
Relative humidity	40 %
Maximum Temperature:	
Coolant	83 ℃
Engine oil	96 ℃
Fuel	34 ℃
Engine air intake	23 ℃

3.2 Hydraulic power and lifting force

- Date and location of tests: Mar.12, 2008, COTTEC

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

- Hydraulic fluid type: AMBRA MULTI G SAE 10W / 30

-Viscosity index (ISO3448+Corr 1:1993): 25 cSt 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)				2500		
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes	21.5	61.0	69.2	2623		
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	19.4	67.4		2626	35.8	11.58
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair:	18.0	64.5		2638	45.9	13.77
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):	—	—		—	—	—

3.2.2 Compulsory power lift test

3.2.2.1 Test results of one internal ram
-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	155 mm
Vertical movement: without lifting force:	665 mm	810 mm
with lifting force:	608 mm	730 mm
Maximum corrected force exerted through full range	23.95 kN	18.03 kN
Corresponding pressure of hydraulic fluid	19.35 MPa	19.35 MPa
Moment about rear wheel axle	25.63 kNm	30.29 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	-385	-340	-300	-200	-100	0	100	200	268	300	345
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 19.35 MPa											
kN	—	23.95	24.13	25.17	26.56	26.29	25.54	25.33	24.93	—	—
At the frame, corresponding pressure 19.35 MPa											
kN	21.88	—	22.97	23.40	22.65	21.53	20.36	19.15	—	18.34	18.03

3.2.2.2 Optional test results of one internal ram and two external rams
-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	155 mm
Vertical movement: without lifting force:	665 mm	810 mm
with lifting force:	608 mm	730 mm
Maximum corrected force exerted through full range	36.81 kN	26.25 kN
Corresponding pressure of hydraulic fluid	19.35 MPa	19.35 MPa
Moment about rear wheel axle	39.39 kNm	44.10 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	-385	-340	-300	-200	-100	0	100	200	268	300	345
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 19.35 MPa											
kN	—	43.28	43.64	42.63	42.32	40.35	38.63	37.10	36.81	—	—
At the frame, corresponding pressure 19.35 MPa											
kN	38.43	—	38.39	36.59	34.97	32.74	30.27	28.73	—	26.43	26.25

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

-Date and location of tests: Mar.15, 2008, COTTEC

-Type of track: Concrete

Height of drawbar above ground mm	Tyre inflation pressure	
	Front kPa	Rear kPa
507	150	160

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	15.44	34.53	1.61	2636	3427	15.05	543	1.57	33	83	94	17	42	100.2
L2	22.42	34.49	2.34	2625	3413	15.00	461	1.85	33	83	94	17	42	100.2
L3	31.79	34.27	3.34	2605	3387	14.96	408	2.09	33	83	94	17	42	100.2
M1	35.37	34.32	3.71	2597	3376	15.02	390	2.19	33	83	94	17	42	100.2
L4	40.30	29.25	4.96	2485	3231	7.55	361	2.36	33	83	95	17	42	100.2
M2	41.13	26.07	5.68	2484	3229	6.44	354	2.41	34	84	95	17	42	100.2
M3	41.86	17.96	8.39	2480	3224	4.16	347	2.46	34	84	95	17	42	100.2
H1	42.89	16.27	9.49	2480	3224	3.68	339	2.51	34	84	95	17	42	100.2
M4	42.40	12.50	12.21	2483	3228	2.76	343	2.48	34	84	96	17	42	100.2
H2	42.27	10.94	13.91	2484	3229	2.81	344	2.48	34	84	96	17	42	100.2
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														
M3	41.76	17.77	8.46	2500	3250	3.90	351	2.43	34	84	95	17	42	100.2
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
M3	33.25	13.42	8.92	2614	3398	3.05	405	2.10	34	84	95	17	42	100.2
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
M3	22.67	8.94	9.13	2638	3429	2.01	442	1.93	35	84	96	17	42	100.2
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														
H1	33.21	13.36	8.95	2336	3037	2.98	357	2.39	35	85	96	17	42	100.2
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														
H1	22.72	8.90	9.19	2384	3099	2.38	393	2.17	35	85	96	17	42	100.2
3.3.2.2 In selected gear/speed setting nearest between 7 km/h and 10 km/h at rated engine speed														
H1	42.58	16.00	9.58	2500	3250	3.15	344	2.48	35	85	96	16	42	100.2
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
H1	33.84	12.12	10.05	2600	3380	2.58	369	2.31	35	85	96	16	42	100.2
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
H1	23.11	8.15	10.21	2616	3401	1.70	422	2.02	35	86	96	16	42	100.2
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														
M4	33.79	12.08	10.07	2048	2662	2.48	333	2.56	36	86	96	16	42	100.2
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														
M4	23.07	8.11	10.24	2068	2688	1.85	359	2.37	36	86	96	16	42	100.2

4 OPTIONAL TEST RESULTS

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

-Date and location of tests: Mar.16, 2008, COTTEC

-Type of track: Concrete

Height of drawbar above ground mm	Tyre inflation pressure	
	Front kPa	Rear kPa
502	150	160

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	16.24	36.31	1.61	2630	3419	15.06	526	1.62	32	83	90	16	45	100.0
L2	23.46	36.25	2.33	2620	3406	15.01	446	1.91	32	83	90	16	45	100.0
L3	33.60	36.22	3.34	2602	3383	15.01	391	2.18	32	84	92	16	45	100.0
M1	37.41	36.20	3.72	2590	3367	15.01	376	2.27	33	84	92	16	45	100.0
L4	41.50	29.94	4.99	2484	3229	7.35	350	2.44	33	84	92	16	45	100.0
M2	42.00	26.48	5.71	2485	3231	5.54	346	2.46	33	85	92	16	45	100.0
M3	43.03	18.44	8.40	2482	3227	3.90	338	2.52	33	85	93	16	45	100.0
H1	44.40	16.79	9.52	2484	3229	2.98	328	2.60	34	85	93	17	45	100.0
M4	43.83	12.86	12.27	2482	3227	1.96	332	2.57	34	85	93	17	45	100.0
H2	43.50	11.21	13.97	2485	3231	2.05	334	2.55	34	86	94	17	45	100.0
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	35.01	12.48	10.10	2612	3396	2.10	358	2.38	35	86	95	17	45	100.0
4.1.2.2 FIVE-HOUR TEST at pull corresponding to 15% wheelslip , with additional ballast : 0 kg														
L2	23.48	36.28	2.33	2620	3406	15.03	447	1.91	33	84	92	17	45	100.0

Oil consumption during ten hours duration of tests 4.1.2.1 and 4.1.2.2: 32 g/h

4.2 Low temperature starting

-Date and location of tests: Feb.28, 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: AMBRA MASTERGOLD

. Viscosity and other specifications: SAE 15W / 40

-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	5.14	5.03
Radius of turning circle	4.96	4.85

4.4 Location of center of gravity

-Height above ground: 938 mm
-Distance from the vertical plane containing the axis of the rear-wheels: 1020 mm
-Distance from the median longitudinal plane of the tractor: 10 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: Mar.17, 2008, COTTEC

4.5.1 Cold service braking device test

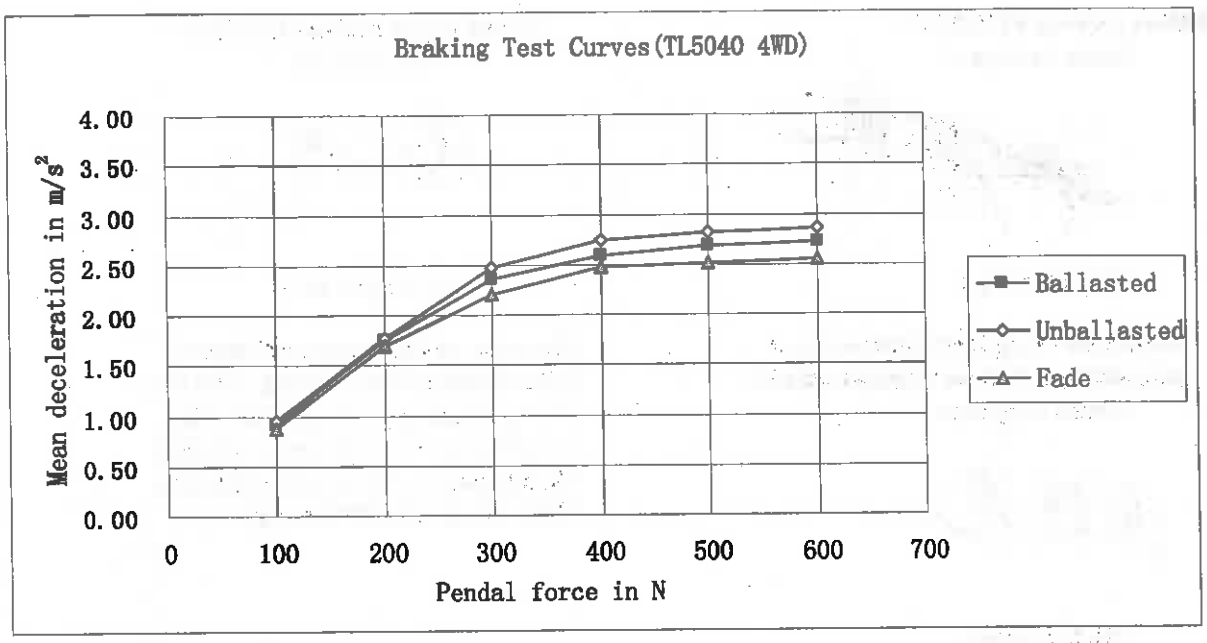
	Speed before application of brakes km/h	Braking device control force kN	Mean deceleration m/s^2	Minimum stopping distance without locking the wheels m
Ballasted tractor	32.0	0.1	0.92	42.9
	32.0	0.2	1.75	22.6
	32.0	0.3	2.37	16.7
	32.0	0.4	2.60	15.2
	32.0	0.5	2.69	14.7
	32.0	0.6	2.72	14.5
Unballasted tractor	32.0	0.1	0.95	41.6
	32.0	0.2	1.78	22.2
	32.0	0.3	2.47	16.0
	32.0	0.4	2.74	14.4
	32.0	0.5	2.82	14.0
	32.0	0.6	2.86	13.8

-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	32.0	0.1	0.87	45.4
	32.0	0.2	1.70	23.2
	32.0	0.3	2.21	17.9
	32.0	0.4	2.48	15.9
	32.0	0.5	2.52	15.7
	32.0	0.6	2.55	15.5

-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	300	280

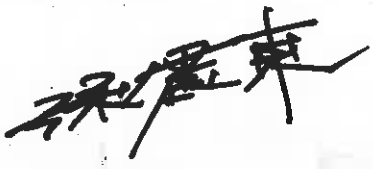
4.6 Measurement of external noise

-Date and location of tests:	Mar.18, 2008, COTTEC
-Sound level meter, make/mode/type:	ONO SOKKI LA-5111
-Type of track:	Concrete
-Gear number:	H4
-Travelling speed before acceleration:	24.0 km/h
-Sound level:	87.2 dB(A)

5. REPAIRS: None

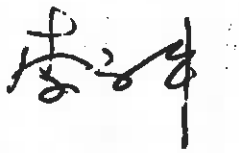
6. REMARKS: None

Director of the COTTEC
Senior engineer



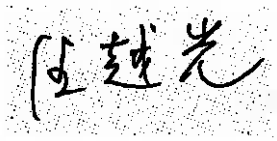
Sun Zhendong

Vice-director of the COTTEC
Senior engineer



Li Jingzhong

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



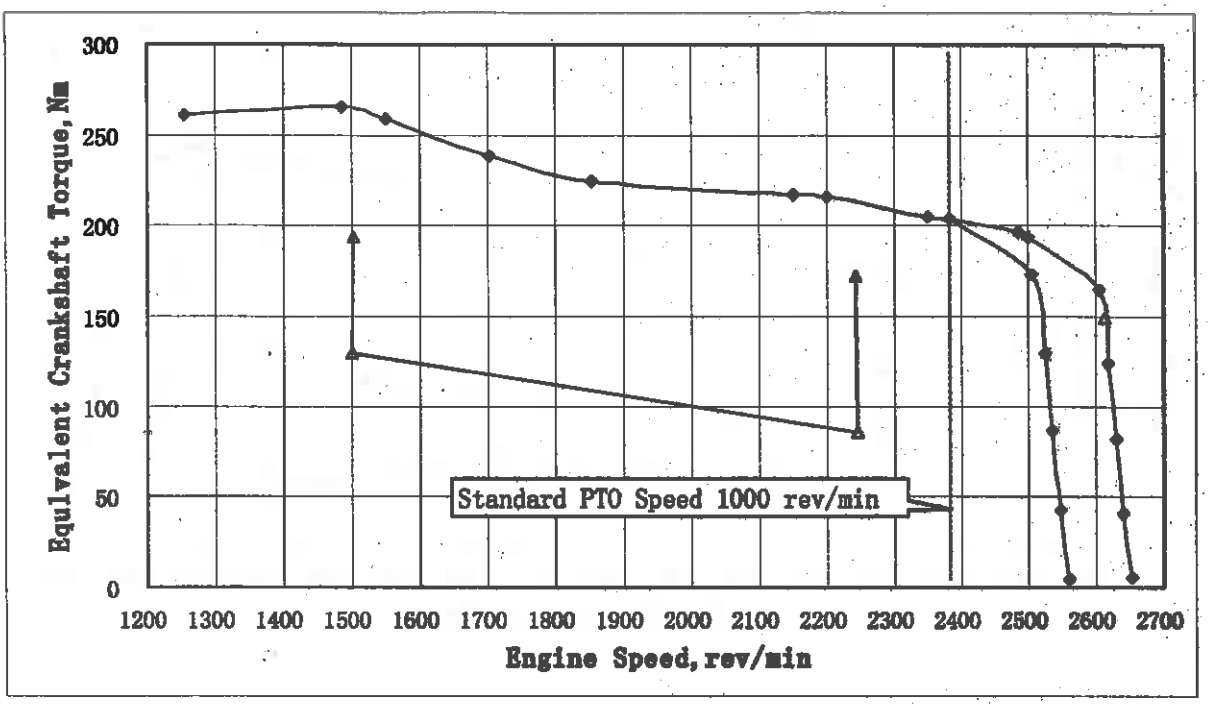
Ren Yueguang

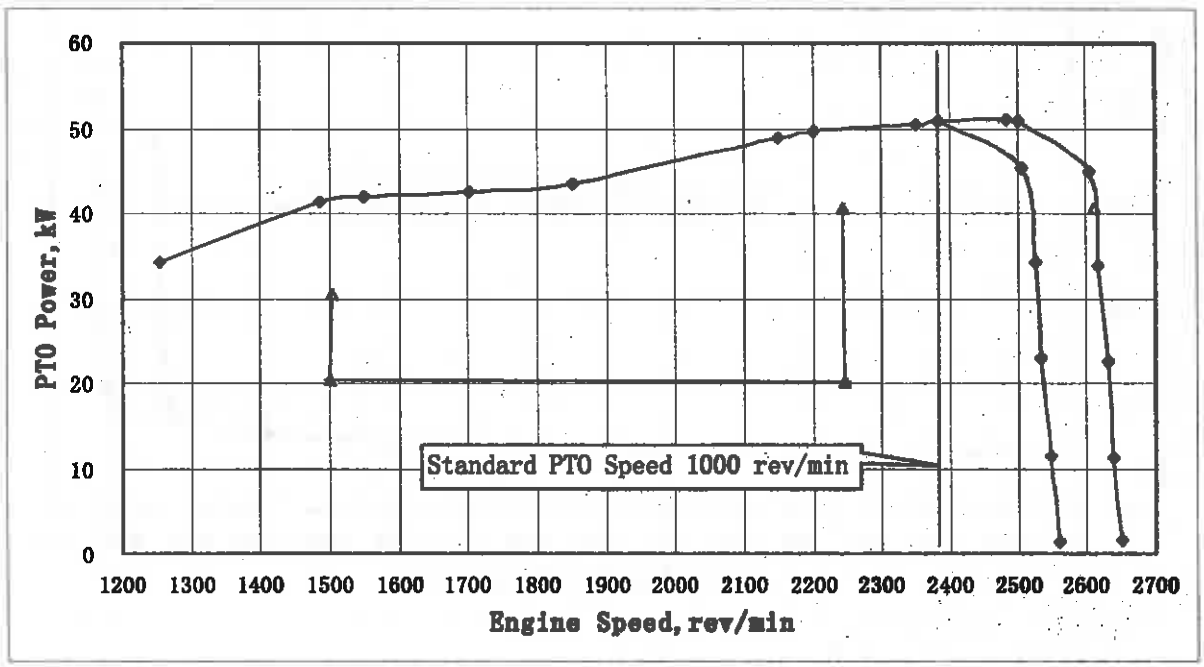
Members of the tractor test board:
Chen Zhiqiang Yan Xiaofang, Gao Bo
Zheng Zhigang, Li Yong, Zhao Jun,
Sun Zhennan, Yang Hongmei,Liu Hui
Sun Panpan,Liu Zhiqiang,Bai Demin,
Yi Xiaodong, Liu Hongqiang,

Date: Apr. 18,2008

ANNEX I

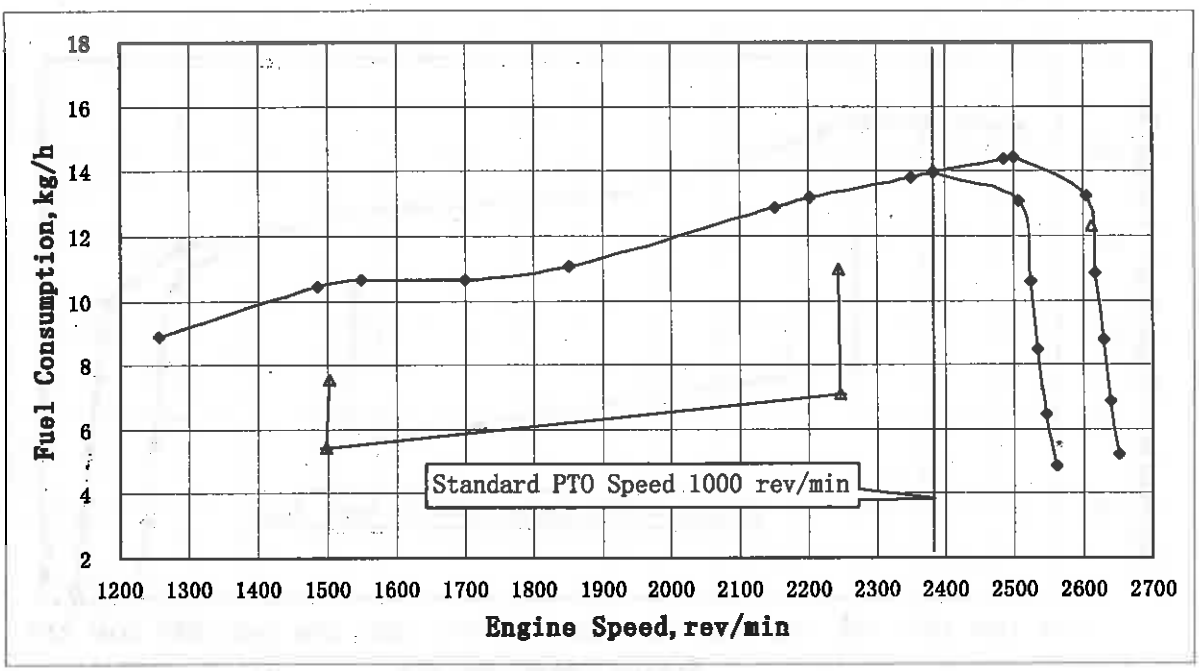
Main power take-off test curves 1

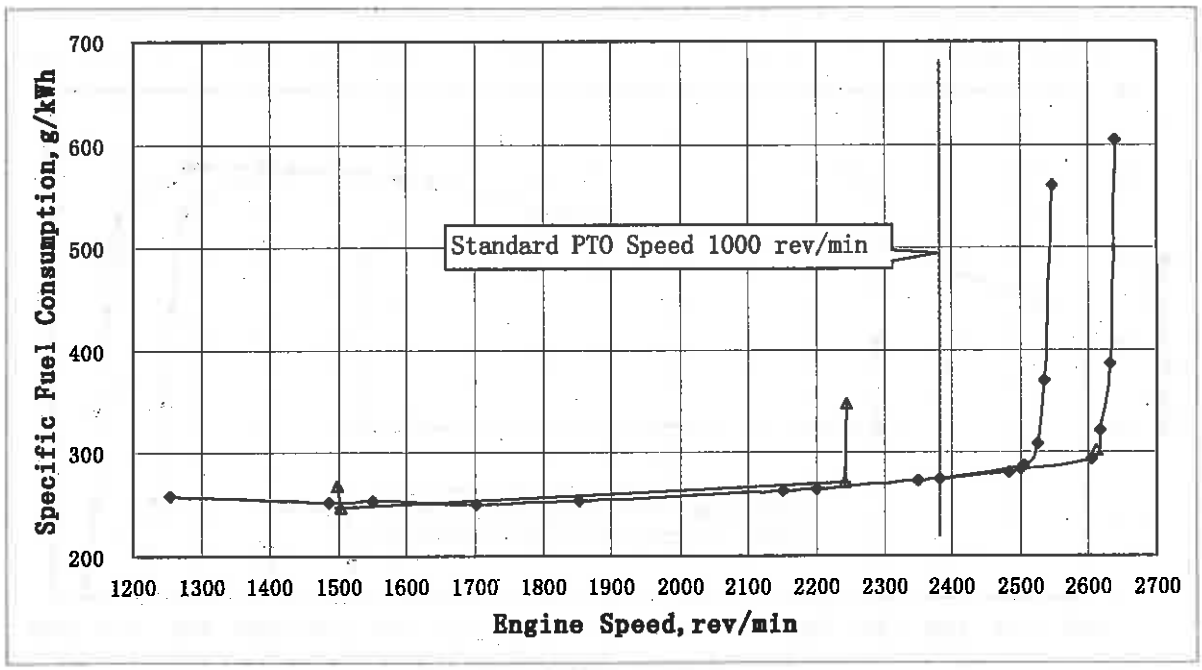




ANNEX II

Main power take-off test curves 2





ANNEX III

Main power take-off test curves 3

