

COTTEC

**CHINA
OFFICIAL TRACTOR
TEST AND
EVALUATION CENTRE**

Address:
Luoyang Tractor Research Institute
Luoyang, Henan, China 471039
Tel: 86 379 62690001
Fax: 86 379 62690002

**OECD TEST REPORT OF YTO-X804(4WD)
AGRICULTURAL TRACTOR (CODE 2)**
Report on test in accordance with the OECD standard code for the official
testing of agricultural tractor performance



**OECD Approval
No.: 2/2 368
Date: Apr. 10, 2007**

Tested Tractor
Make: YTO Model: X804 Type: 4WD Speed version: 30 km/h

Submitted for test by
Name: China Yituo Group Co., Ltd Address: Luoyang, Henan, China Tel: 86 379 64960764, Fax: 86 379 64969800

This report includes 22 pages and may only be duplicated as a whole

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This report has been approved by the O.E.C.D. Co-ordinating Centre(CEMAGREF)
in Antony(France) on April 10,2007, Approved No. 2/2 368

	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:	China Yituo Group Co.,Ltd, Luoyang, Henan, 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 the COTTEC
D	-Place of running-in:	COTTEC, Luoyang, Henan, China
D	-Duration of running-in:	60.0 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:	YTO(Dongfanghong)
C	-Model(trade name):	X804
C	-Type:	4WD
	1.1.2 Numbers	
D	-1 st Serial No or prototype:	0621510
C	- Serial No.:	0621510
	1.1.3 Other Specifications	
D	- Models for other countries:	None
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:	Dongfanghong
C	-Model:	4MBT-77E
C	-Type:	4-stroke, water cooling , Vertical, direct injection
C	-Serial No.:	YM0670404
	1.2.1 Cylinders	
C	-Number:	4
C	-Disposition:	Vertical, in line
D	-Bore/Stroke:	110/125 mm/mm
D	-Capacity:	4750 cm ³
D	-Compression ratio:	17.5

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.

D	-Arrangement of valves:	Overhead,in line
D	-Cylinder liners:	Wet
	1.2.2 Supercharging	None
	1.2.3 Fuel system	
C	-Fuel feed system:	Forced feed type
C	-Make of fuel filter:	Luoyang yuada
C	-Model of fuel filter:	C0708S
C	-Type of fuel filter:	Paper cartridge,replaceable
D	-Capacity of fuel tank:	115 dm ³
C	-Make of injection pump:	China Yituo Group Co.,Ltd
C	-Model/type of injection pump:	BH4PY100Y244B,cylinder plunger
C	-Serial No :	206010149
	-Manufacturer's production setting of injection pump:	
C	. Flow rate(at rated engine speed and full load):	16.5±0.5 dm ³ /h
D	.Timing:	7°±1° before T.D.C.
D	-Make of injectors:	China Yituo Group Co.,Ltd
D	-Model/type of injectors:	PB84P,Long neck,Multi-hole
D	-Injection pressure:	25±0.5 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	Own make
C	-Model/type:	Mechanical,centrifugal
C	-Governed range of engine speed:	600~2538 min ⁻¹ (rev/min)
C	-Rated engine speed:	2400 min ⁻¹ (rev/min)
	1.2.5 Air cleaner	
	-Pre-cleaner	
C	.Make:	Bangbu Air-cleaner Works
C	.Model/type:	BB, Oil bath
C	.Location of air intake:	Above front hood
C	.Maintenance indicator:	None
	-Main-cleaner	
C	.Make:	Bangbu Air-cleaner Works
C	.Model/type:	KY250A,Oil bath
C	.Location of air intake:	Above front hood
C	.Maintenance indicator:	None
	1.2.6 Lubrication system	
D	-Type of feed pump:	Gear Pump
C	-Type of filters:	Full flow,paper cartridge,replaceable
C	-Number of filters:	2
	1.2.7 Cooling system	
C	-Type of coolant:	Water

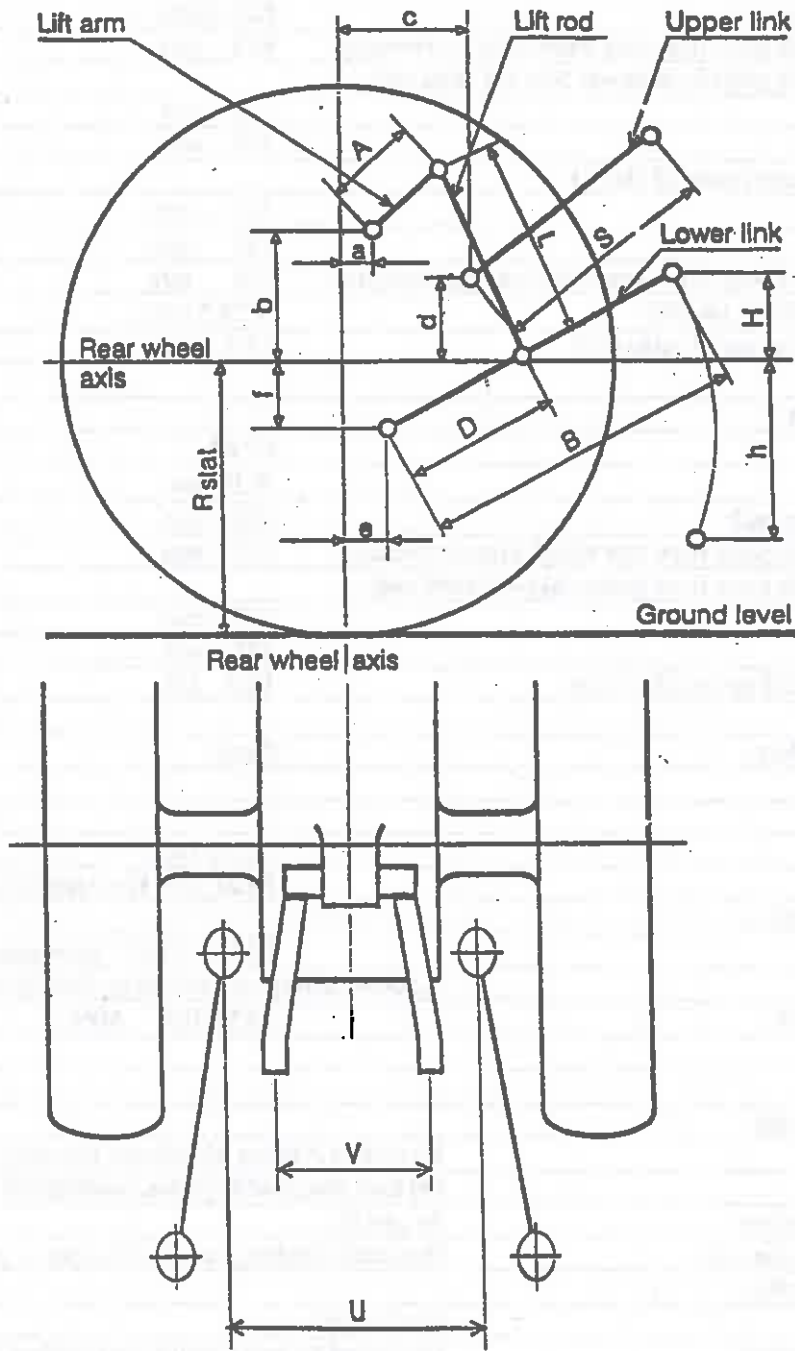
D	-Type of pump:	Centrifugal,belt driven
	-Specification of fan or blower:	
C	.Number of fan blades:	7
C	.Fan diameter:	Φ 490 mm
D	-Coolant capacity:	26.0 dm ³
C	-Type of temperature control:	Thermostat
D	-Superpressure system:	None
	1.2.8 Starting system	
C	-Make:	Hubei Automobile Electrical Machinery Factory
C	-Model/Type:	QD154E,D.C. solenoid engaged
D	-Starter motor power rating:	3.7 kW
C	-Cold starting aid:	Preheater
C	-Safety device:	Automatic return
	1.2.9 Electrical system	
C	-Voltage:	12 (Negative earth) V
	-Generator:	
C	.Make:	Shandong wuyue
C	.Model/Type:	JFZ1521Y,Alternator,belt driven
D	.Power	0.5 kW
	-Battery of accumulators:	
C	.Number:	1
D	.Rating:	200 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Own make
C	-Model/Type:	YTO-X800,expansion type,silencer
C	-Location:	Right-hand side of the engine,vertical
	1.3 Transmission	
	1.3.1 Clutch(Travel and Power Take-off)	
D	-Make:	Shanghai Clutch Works
D	-Model/Type:	Dry,dual clutch for transmission & PTO
D	-Number of plates:	2
D	-Diameter of plates:	310 mm
C	-Method of operation:	Mechanically actuated by pedal
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	YT (3+1)×4, Mechanical
	-Description:	12 forward speed gear,4 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	3	1	
C	Number of gears	4	4	
C	Total of arrangements	12	4	
D	-Available options	Creeper device		
1.3.3 Rear axle and final drives				
D	-Make:	Own make		
D	-Model/Type:	Helical gear type differential and single stage epicyclic gear type final drives		
-Differential lock				
D	.Type:	Mechanical,two planet gear		
C	.Method of engagement:	Mechanically actuated by pedal		
C	.Method of disengagement:	Hydraulic release mechanism,brake by pedal		
1.3.4 Front axle and final drives				
D	-Make:	Own make		
D	-Model/Type:	Helical gear type differential and single stage 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 2400 rev/min km/h
C	1	L1	390.325	1.73
C	2	L2	253.327	2.66
C	3	L3	206.887	3.26
C	4	L4	130.032	5.18
C	5	M1	167.127	4.03
C	6	M2	108.475	6.21
C	7	M3	88.580	7.61
C	8	M4	55.671	12.11
C	9	H1	70.979	9.50
C	10	H2	46.067	14.63
C	11	H3	37.639	17.91
C	12	H4	23.650	28.50
C	R1	R1	150.013	4.49
C	R2	R2	97.381	6.92
C	R3	R3	79.521	8.48
C	R4	R4	49.995	13.48
(*)Calculated with the dynamic radius index of 745 mm(ISO 4251/1-1998).				
C	-Number of revolutions of front wheels for one revolution of rear-wheels: 1.32			
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 speeds:	Manually by exchanging p.t.o. 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 500/1991
C	-Height above ground:	690 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	506 mm
C	-PTO speed at rated engine speed:	643 rev/min
C	-Engine speed at standard power take-off speeds	2016 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	3.733
D	-Power restriction:	60 kW
D	-Maximum torque transmissible:	1075.0 N.m
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, not in conformity with ISO 500/1991
C	-Height above ground:	690 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	506 mm
C	-PTO speed at rated engine speed:	1150 rev/min
C	-Engine speed at standard power take-off speeds	2087 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	2.087
D	-Power restriction:	60 kW
D	-Maximum torque transmissible:	600.0 N.m
C	-Direction of rotation(viewed from behind tractor):	Clockwise
	1.4.1.2 Power take-off proportional to ground speed	
C	-Indicate 540 or 1000 min ⁻¹ (rev/min):	540/1000
C	-Travelling distance for one revolution of take-off shaft:	516/302 mm
C	-Number of power take-off shaft revolutions for one revolution of (rear) driving wheels:	8.90/15.2 rev/min
C	-Direction of rotation with forward gear engaged (viewed from behind tractor):	Clockwise
	1.4.2 Optional power take-off:	
	None	
	1.5 Hydraulic power lift	
C	-Make:	Own make
C	-Model:	DFHX800
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:	19.0±0.5 MPa

D	-Opening pressure of cylinder safety valve :		21.0±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:		Cartridge type, 1	
C	-Site of oil reservoir:		Transmission housing	
C	-Type, number and location of tapping points:		Two coupler pairs quick shift adaptor, At rear of tractor	
D	-Maximum volume of oil available to external cylinders:		16 dm ³	
1.6 Three point linkage				
C	-Category		2 ,in conformity with ISO730-1:1994+Cor.1:1995	
C	-Category Adapter:		None	
			Dimension or range	Setting used in test
			mm	mm
C	Length of lift arms :	(A)	255	255
C	Length of lower links :	(B)	900	900
	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)	500	500
C	Length of upper link:	(S)	From 590 to 740	640
	Distance of upper link pivot point from rear wheel axis:			
C	-Horizontally:	(c)	410	410
C	-Vertically	(d)	From 260 to 300	260
	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 450 to 530	450
C	Length of lift rods:	(L)	From 545 to 670	630
	Height of lower hitch points relative to the rear wheel axis:			
C	-in low position	(h)	From 375 to 635	545
C	-in high position	(H)	From 63 to 280	138
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 4251/1-1998				

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



Figures 1.1
Lift test-linkage geometry

	1.7 Swinging drawbar:	
C	-Type:	Clevis
	-Height above ground	
C	.Maximum	490 mm
C	.Minimum	380 mm
C	-Type of adjustment:	Reversing
C	-Distance of hitch point from rear wheel axis,horizontally:	880 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	189 mm
C	.Horizontally:	374 mm
	-Lateral adjustment(centre of clevis)	
C	.Right hand:	137 mm
C	.Left hand:	137 mm
C	-Distance of pivot point from rear wheel axis,horizontally:	130 mm
C	-Diameter of drawbar pinhole:	Φ 28.5 mm
D	-Maximum vertical permissible load:	12.0 kN
	1.8 Trailer hitch	
C	-Type:	Fixed
C	-Hole diameter :	Φ 34 mm
C	-Height above ground:	563 mm
C	-Distance of hitch point from rear wheel axis,horizontally:	677 mm
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	127 mm
C	.Horizontally:	171 mm
D	-Maximum vertical permissible load:	12.0 kN
	1.9 Holed drawbar:	None
	1.10 Steering	
D	-Make:	Jining Like
D	-Model/Type:	BZZI-125, Hydrostaticsteering system
	-Method of operation	
D	.Pump:	HLCB-D16/12 Gear pump
D	.Ram:	1,double acting ram actuating directly on front axle
D	-Working pressure:	12.5±0.5 MPa
	1.11 Brakes	
	1.11.1 Service brake	
D	-Make:	Hangzhou Podwer Metallurgy Research Institute
D	-Model/Type:	Oil bath,disc,double plates, mechanical
C	-Method of operation:	By pedals
C	-Trailer braking take-off:	Pneumatic braking,operated by tractor pedals
	1.11.2 Parking brake	
C	-Type:	Mechanical
C	-Method of operation:	Depressed by brake pedals and ratched by hand lever
	1.12 Wheels	
	-Number	
C	.Front:	2,steering & driving
C	.Rear:	2,driving
C	-Wheelbase:	2315 mm

-Track width adjustment:				
		Minimum mm	Maximum mm	Adjustment method
D	Front	1630	1960	Reversing wheels and off-set lug rims
D	Rear	1595	2095	Reversing wheels and off-set lug rims
1.13 Protective structure				
C	-Make:	Own make		
C	-Model:	700.45.001		
C	-Type:	Protective Cab		
C	-Manufacture's name and address:	Own make		
-Protective device:				
C	-Cab/frame/rollguard/other:	Cab,		
C	-Tiltable/not tiltable:	Not tiltable		
-OECD approval				
C	.Approval number:	4/0 969		
C	.Date of approval:	Aug. 22,2006		
C	.Nos. of minor modification certificates,if any:	None		
1.14 Seat				
1.14.1 Driver's seat				
C	-Make:	Grammer		
C	-Model:	DS 85H/90		
C	-Type:	Adjustable suspension		
C	-Seat and steering wheel reversible:	No		
C	-Type of suspension:	Mechanical		
C	-Type of damping:	None		
-Range of adjustment:				
C	.Longitudinal:	120 mm		
C	.Vertical:	60 mm		
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
C	Head lights	1250	120×130	290
C	Side lights	1570	110×35	865
C	Rear lights	2655	140×70	560
C	Reflectors	1520	85×30	785
C	Brake lights	1700	100×60	620

2 TEST CONDITIONS

Separate tables may be added to report other test conditions or equipments.

2.1 Overall dimensions

	Length	Width		Height at top of	
		Minimum	Maximum	Protective Structure	Exhaust Silencer
	mm	mm	mm	mm	mm
Ballasted	4310	2075	2575	2705	3060
Unballasted	4015	2050	2550	2730	3080

2.2 Ground Clearance(unballasted tractor)

-Clearance limiting part: Under the front axle 428 mm

2.3 Tractor mass

-Mass(with Cab and full fuel tank):

	Unballasted		Ballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	1605	1618	2136	2149
Rear	2154	2216	2328	2390
Total	3759	3834	4464	4539

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	10	405	—
Rear	6	300	—
Optional	—	—	—

2.5 Track specifications:

None

2.6 Tyres and track width specifications

	Front	Rear
Tyres:		
.dimensions	11.2-28	16.9-34
.ply rating	10	10
.type	Cross ply	Cross ply
.maximum load (tyre manufacturer's)	13.1 kN	26.1 kN
.maximum load (tractor manufacturer's)	13.1 kN	26.1 kN
.inflation pressure(tyre manufacturer's)	98~118kPa	98~118kPa
.dynamic radius index	565 mm	745 mm
Chosen track width	1650 mm	1595 mm

2.7 Fuel

-Type: Standard diesel fuel in conformity with GB 10327(China standard)

-Density at 15 °C 0.8523 g/cm³

2.8 Oils and lubricants**2.8.1 Capacity and change interval**

	Capacity dm ³	Oil change h	Filter change h
Engine	15.0	500	500
Gear box, rear axle and final drives, in common with hydraulic system	49.4	1000	—
Front axle and final drives	8.5	1000	—
Steering	1.2	1000	—

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

	Recommended	Used during test
Engine oil .Type: .Viscosity: .Classification:	SAE10W/30 11.4cSt at 100 °C API-CC	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 9.3cSt at 100 °C API GL-4	Same as recommended

2.8.3 Grease

-Number of lubrication points: 10

3 COMPULSORY TESTS RESULTS**3.1 Main power take-off**

-Date and location of tests:

Jan. 16,2007,COTTEC

-Type of dynamometer:

LPA-Bedienpult 250 Elec. dynamometer:

Power kW	Speed			Fuel consumption			Specific energy kW.h/l
	Engine	P.T.O	Fan	Hourly		Specific	
	min ⁻¹ (rev/min)			kg/h	l/h	g/kW.h	
3.1.1 MAXIMUM POWER-ONE-HOUR TEST							
50.56	2241	1073	2241	14.07	16.51	278.3	3.06
3.1.2 POWER AT RATED ENGINE SPEED							
48.61	2400	1149	2400	14.16	16.61	291.3	2.93
3.1.3 STANDARD POWER TAKE-OFF SPEED(1000±25 or 540±10min⁻¹(rev/min)							
49.63	2089	1000	2089	13.47	15.80	271.4	3.14
3.1.4 PART LOADS							
3.1.4.1 the torque corresponding to maximum power at the rated engine speed							
48.61	2400	1149	2400	14.16	16.61	291.3	2.93
3.1.4.2 85% of torque obtained in 3.1.4.1							
42.27	2459	1177	2459	12.93	15.17	305.9	2.79
3.1.4.3 75% of torque obtained in 3.1.4.2							
31.80	2488	1191	2488	10.65	12.50	334.9	2.55
3.1.4.4 50% of torque obtained in 3.1.4.2							
21.58	2503	1198	2503	8.66	10.16	401.3	2.12
3.1.4.5 25% of torque obtained in 3.1.4.2							
10.86	2519	1206	2519	6.86	8.05	631.7	1.35
3.1.4.6 unloaded							
1.91	2538	1215	2538	5.34	6.27	—	—

Power kW	Speed min ⁻¹ (rev/min)			Fuel consumption			Specific energy kW.h/l
	Engine	P.T.O	Fan	Hourly kg/h	Specific l/h	g/kW.h	
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF[1000±25 or 540±10min⁻¹(rev/min)]							
3.1.5.1 the torque corresponding to maximum power							
49.63	2089	1000	2089	13.47	15.80	271.4	3.14
3.1.5.2 85% of torque obtained in 3.1.5.1							
42.96	2127	1018	2127	11.96	14.03	278.4	3.06
3.1.5.3 75% of torque obtained in 3.1.5.2							
32.79	2166	1037	2166	9.75	11.44	297.3	2.87
3.1.5.4 50% of torque obtained in 3.1.5.2							
22.12	2185	1046	2185	7.64	8.96	345.4	2.47
3.1.5.5 25% of torque obtained in 3.1.5.2							
11.23	2219	1062	2219	5.86	6.88	521.8	1.63
3.1.5.6 unloaded							
1.69	2250	1077	2250	4.40	5.16	—	—
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS							
3.1.6.1 Maximum power at rated engine speed							
48.61	2400	1149	2400	14.16	16.61	291.3	2.93
3.1.6.2 80% of power obtained in 3.1.6.1 at max. speed setting							
38.78	2471	1183	2471	12.21	14.33	314.9	2.71
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
38.83	2152	1030	2152	11.10	13.02	285.9	2.98
3.1.6.4 40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
19.45	2156	1032	2156	7.22	8.47	371.2	2.30
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
29.15	1439	689	1439	7.50	8.80	257.3	3.31
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
19.38	1437	688	1437	5.44	6.38	280.7	3.04

-No load maximum engine speed: 2538 rev/min
 -Torque(equivalent crankshaft) at maximum power
 . At rated engine speed: 193.4 Nm
 . At 1-hour test: 215.4 Nm
 -Maximum torque(equivalent crankshaft) (engine speed:1757 rev/min): 242.2 Nm

Mean atmospheric conditions	
Temperature	17 °C
Pressure	101.1 kPa
Relative humidity	25 %
Maximum Temperature:	
Coolant	71 °C
Engine oil	85 °C
Fuel	24 °C
Engine air intake	21 °C

3.2 Hydraulic power and lifting force

-Date of test:

Jan. 19,2007 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 mm²/s at 65 °C

3.2.1.2 Compulsory Reporting(Test Results):

	Pressure	Reservoir oil Temperature °C		Engine Speed	Flow rate	Power
	Mpa	Min.	Max.	min ⁻¹	L/min	kW
Rated Engine Speed (Manufactures Specification)				2400		
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes	19.00	60.1	69.7	2504		
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	17.10	67.2		2508	30.2	8.61
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair:	15.60	66.3		2520	37.8	9.83
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):	16.00	66.4		2513	38.3	10.21

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	140 mm
Vertical movement: without lifting force:	683 mm	850 mm
	with lifting force:	640 mm
Maximum corrected force exerted through full range	18.22 kN	16.02 kN
Corresponding pressure of hydraulic fluid	17.10 MPa	17.10 MPa
Moment about rear wheel axle	18.77 kN.m	26.27 kN.m
Maximum tilt angle of mast from vertical	—	11.3 ⁰

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-400	-340	-300	-200	-100	0	100	200	300	400	403
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 17.10 MPa											
kN	—	18.22	20.49	23.86	25.04	25.15	26.43	26.83	27.01	—	—
At the frame, Corresponding pressure 17.10 MPa											
kN	16.02	—	19.43	20.84	21.64	21.68	20.71	19.93	18.88	18.35	18.33

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

-Date of tests:

Jan. 17,2007

-Type of track:

Concrete

Height of drawbar above ground	Tyre inflation pressure	
	Front	Rear
mm	kPa	kPa
524	100	100

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	%
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)														
L1	14.89	33.29	1.61	2510	2510	15.08	539	1.58	23	96	86	12	20	101.0
L2	22.66	33.30	2.45	2480	2480	15.12	462	1.84	23	96	86	12	20	101.0
L3	24.93	33.24	2.70	2350	2350	15.02	459	1.86	23	96	86	12	20	101.0
L4	40.15	30.95	4.67	2265	2265	9.24	355	2.40	23	96	86	12	20	101.0
M1	29.96	32.58	3.31	2265	2265	12.84	431	1.98	23	96	86	12	20	101.0
M2	42.31	26.17	5.82	2265	2265	6.16	336	2.54	23	96	86	12	20	101.0
M3	42.80	21.92	7.03	2265	2265	4.74	332	2.57	23	96	86	12	20	101.0
M4	43.23	13.58	11.46	2265	2265	2.28	330	2.58	23	96	86	12	20	101.0
H1	43.73	17.73	8.88	2265	2265	3.60	325	2.62	23	96	86	12	20	101.0
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	42.11	20.54	7.38	2400	2400	3.38	339	2.51	23	96	86	12	20	101.0
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
M3	33.93	15.82	7.72	2480	2480	2.80	362	2.35	23	96	86	12	20	101.0
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
M3	23.11	10.44	7.97	2510	2510	1.17	426	2.00	23	96	86	12	20	101.0
3.3.2.1.3. highest gear/speed setting at reduced engine speed able to achieve both 3.3.2.1.1 and 3.3.2.1.2 ; same pull and traveling speed as in 3.3.2.1.1.														
H1	33.37	15.44	7.78	2000	2000	2.59	301	2.83	23	96	86	12	20	101.0
3.3.2.1.4 same gear/speed selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2														
H1	23.44	10.56	7.99	2060	2060	1.28	334	2.55	23	96	86	12	20	101.0
3.3.2.2 in selected gear/speed setting nearest between 7 km/h and 10 km/h at rated engine speed														
H1	43.46	16.86	9.28	2400	2400	2.98	329	2.59	23	96	86	12	20	101.0
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
H1	32.73	12.30	9.58	2460	2460	2.31	372	2.29	23	96	86	12	20	101.0
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
H1	23.25	8.47	9.88	2510	2510	1.25	428	1.99	23	96	86	12	20	101.0
3.3.2.2.3 highest gear/speed 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														
M4	32.64	12.24	9.60	1940	1940	2.22	315	2.71	23	96	86	12	20	101.0
3.3.2.2.4 same gear/speed setting as 3.3.2.2.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.3														
M4	22.92	8.36	9.87	1990	1990	1.14	359	2.37	23	96	86	12	20	101.0

4 OPTIONAL TEST RESULTS

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

-Date of tests: Jan. 18,2007
 -Type of track: Concrete

Height of drawbar above ground mm	Tyre inflation pressure	
	Front kPa	Rear kPa
520	100	100

Gear number and range	Power kW	Drawbar pull kN	Speed km/h	Engine Speed Min ⁻¹	Fan Speed Min ⁻¹	Slip of wheels %	Specific fuel consumption g/kW.h	Specific energy kW.h/l	Temperature			Atmospheric conditions		
									Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure kPa
4.1.1 OPTIONAL MAXIMUM POWER IN TESTED GEARS/SPEED SETTINGS														
L1	16.21	38.14	1.53	2500	2500	15.10	551	1.55	22	93	84	10	20	101.4
L2	25.03	38.18	2.36	2470	2470	15.04	424	2.01	22	93	84	10	20	101.4
L3	29.29	38.06	2.77	2350	2350	14.96	418	2.04	22	93	84	10	20	101.4
L4	41.65	33.54	4.47	2260	2260	9.25	341	2.50	22	93	84	10	20	101.4
M1	35.09	37.82	3.34	2260	2260	12.08	367	2.32	22	93	84	10	20	101.4
M2	43.78	28.76	5.48	2260	2260	6.10	325	2.62	22	93	84	10	20	101.4
M3	44.02	23.94	6.62	2260	2260	5.05	324	2.63	22	93	84	10	20	101.4
M4	44.52	14.26	11.24	2260	2260	2.30	319	2.67	22	93	84	10	20	101.4
H1	45.69	18.65	8.82	2260	2260	3.42	311	2.74	22	93	84	10	20	101.4
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	35.11	13.25	9.54	2460	2460	2.24	360	2.37	22	94	85	10	20	101.2
4.1.2.2 FIVE-HOUR TEST at pull corresponding to 15% wheelslip, with additional ballast : 0 kg														
L2	25.08	38.10	2.37	2475	2475	14.96	429	1.99	22	95	85	11	20	101.0

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2: 65.0 g/h

4.2 Low temperature starting

-Date of tests: Jan. 20,2007
 -Detail of the starting aids used for the tests, battery included: None
 -Fuel Type: -35#
 .Octane or cetane number: >50
 .Pour-point and other specifications: -30 °C
 -Engine oil Type: SAE20 or 10 W-30
 .Viscosity and other specifications: 11.4cSt at 100 °C
 -Test results
 .Starting procedure used for the tests: The manufacturer's procedure
 .Lowest temperature at which the engine started: -10.0 °C

4.3 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	5.28	5.25
Radius of turning circle	5.10	5.06

4.4 Location of center of gravity

- Height above ground: 1021 mm
- Distance from the vertical plane containing the axis of the rear-wheels: 977 mm
- Distance from the median longitudinal plane of the tractor: -8 mm
- If the angle of suspension of the tractor is less than 20° , indicate its value: None

4.5 Braking

-Date of tests:

Jan 18,2007

4.5.1 Cold service braking device test

	Speed before application of brakes	Braking device control force	Mean deceleration	Minimum stopping distance without locking the wheels
	km/h	kN	m/s^2	m
Ballasted tractor	30.8	0.10	0.98	37.3
	30.8	0.20	1.55	23.6
	30.8	0.30	2.06	17.8
	30.8	0.40	2.51	14.6
	30.8	0.50	2.84	12.9
	30.8	0.60	3.18	11.5
Unballasted tractor	30.8	0.10	1.08	33.9
	30.8	0.20	1.90	19.3
	30.8	0.30	2.44	15.0
	30.8	0.40	2.75	13.3
	30.8	0.50	3.16	11.6
	30.8	0.60	3.42	10.7

-Maximum deviation of tractor from its original course: 0 mm

-Abnormal vibration: None

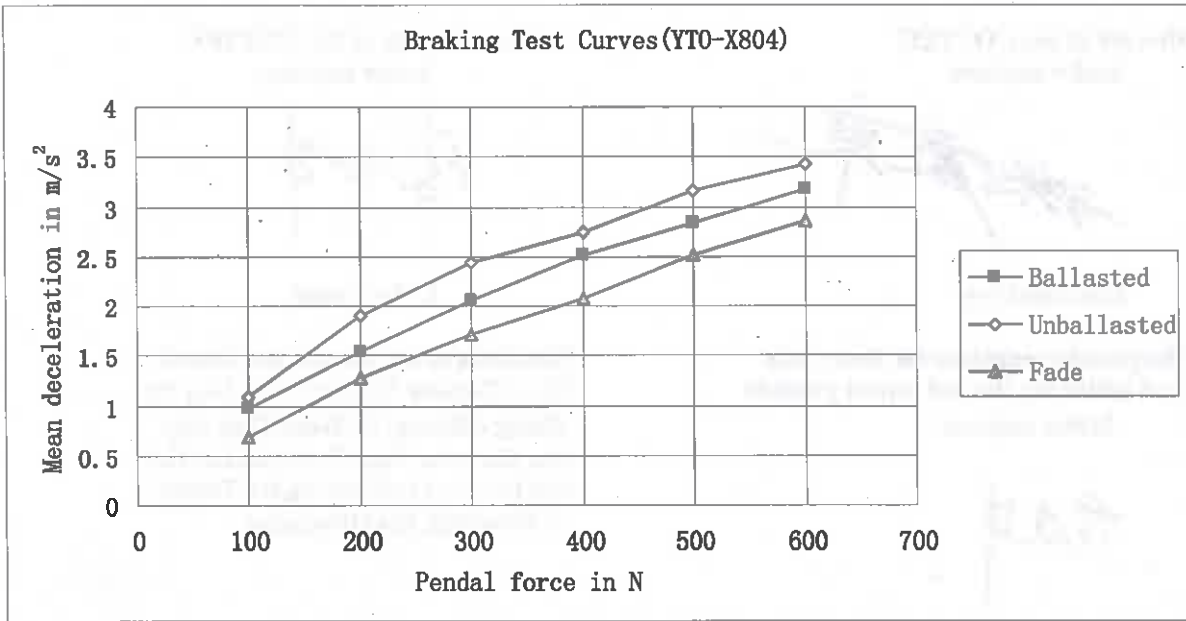
4.5.2 Fade test

Speed before application of brakes	Braking control force	Mean deceleration	Minimum stopping distance without locking the wheels
km/h	kN	m/s^2	m
30.8	0.10	0.69	53.0
30.8	0.20	1.28	28.6
30.8	0.30	1.71	21.4
30.8	0.40	2.08	17.6
30.8	0.50	2.52	14.5
30.8	0.60	2.86	12.8

-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	290	270

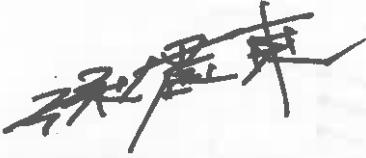
4.6 Measurement of external noise

-Date of tests: Jan. 18,2007
 -Sound level meter, make/mode/type: ONO SOKKI LA-5111
 -Type of track: Concrete
 -Gear number: H4
 -Travelling speed before acceleration: 23.0 km/h
 -Sound level: 86.4 dB(A)

5 REPAIRS None

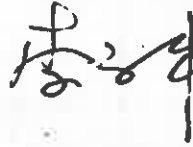
6 REMARKS None

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

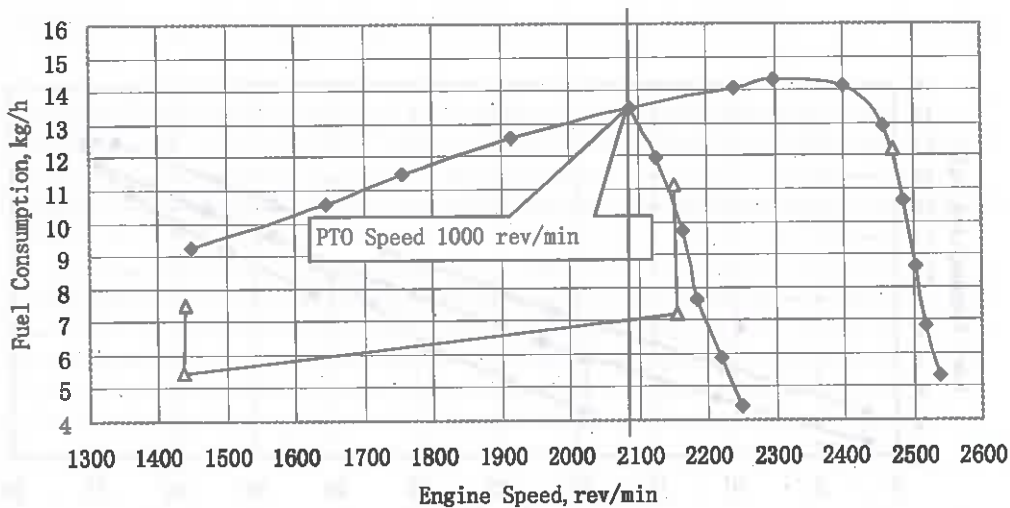
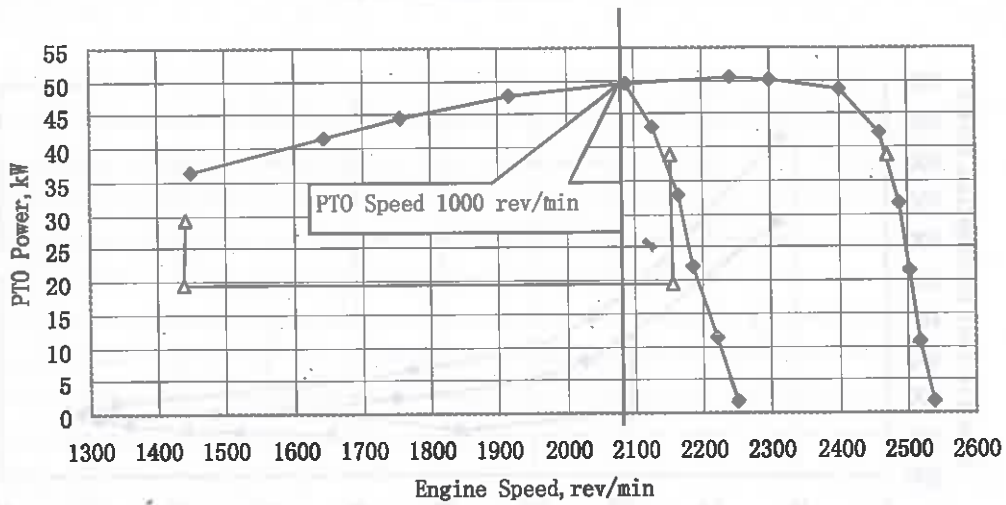
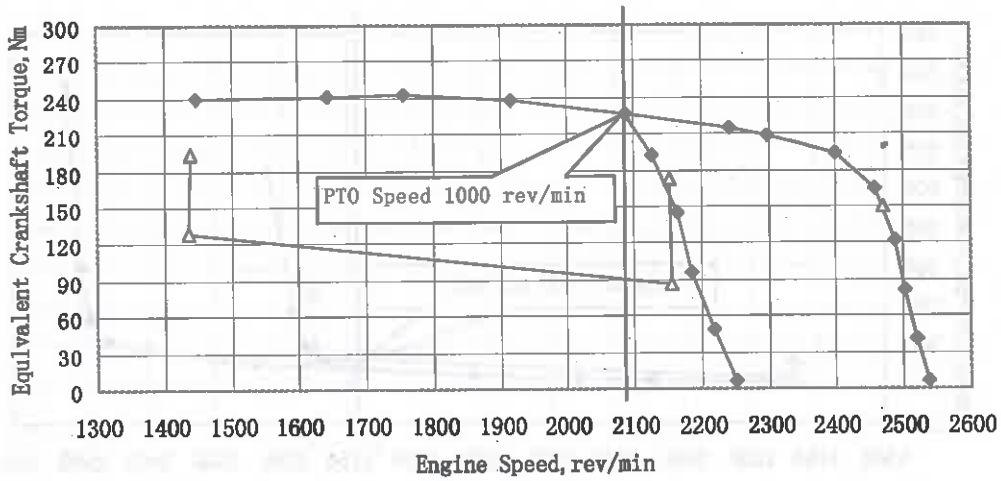


Fan Jianhua

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: Jan. 28, 2007

ANNEX
MAIN POWER TAKE-OFF TEST CURVES 1



ANNEX
MAIN POWER TAKE-OFF TEST CURVES 2

