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 DONGFENG -200(2WD) AGRICULTURAL TRACTOR (CODE 1)

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



OECD Approval
No.: 1/2 310
Date:Jan.23,2006

Tested Tractor	Submitted for test by
Make: Dongfeng Model: 200 Type: 2WD Speed version: 30 km/h	Name:Changzhou Dongfeng Agricultural Machinery Group Co.,Ltd (Changzhou Tractor Plant) Address: Changzhou,Jiangsu, China Tel: 86 519 3256638;3260424 Fax:86 519 3260445

This report includes 21 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 Jan. 23,2006, Approved No. 1/2 310 FULL code.

	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:	Changzhou Dongfeng Agricultural Machinery Group Co.,Ltd (Changzhou Tractor Plant)
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:	50.0 hours
C	-Location of test:	COTTEC, Luoyang, Henan, China
	1. SPECIFICATIONS OF TRACTOR	
	1.1 Identification	
C	- Make of the tractor:	Dongfeng
C	-Model(trade name):	200
C	-Type:	2WD
	1.1.1 Numbers	
D	-1st Serial No or prototype:	059422
C	- Serial No.:	059422
	1.1.2 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:	Yangdong
C	-Model:	Y380T
C	-Type:	4-stroke,water cooling ,Vertical, Vortex,indirect injection
C	-Serial No.:	50800481
	1.2.1 Cylinders	
C	-Number:	3
C	-Disposition:	Vertical, in line
D	-Bore/Stroke:	80/90 mm/mm
D	-Capacity:	1357 cm^3
D	-Compression ratio:	22.5

1. An item marked "C"indicates 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:	Dry
	1.2.2 Supercharging	None
	1.2.3 Fuel system	
C	-Fuel feed system:	Forced feed type
C	-Make of fuel filter:	Chendu Ningliang
C	-Model of fuel filter:	HECX0706
C	-Type of fuel filter:	Paper cartridge,replaceable
D	-Capacity of fuel tank:	28 dm^3
C	-Make of injection pump:	Weifu xishu
C	-Model/type of injection pump:	I pump,Single-acting pistion type
C	-Serial No :	13625
	-Manufacturer's production setting of injection pump:	
C	. Flow rate(at rated engine speed and full load):	5.5 ± 0.3 dm^3 /h
D	.Timing:	$11^0\pm1^0$ before T.D.C.
D	-Make of injectors:	Weifu xishu
D	-Model/type of injectors:	00P21-15A,Single hole,Pintle-type
D	-Injection pressure:	13.0 ± 0.5 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	Weifu xishu
C	-Model/type:	T110,Mechanical,centrifugal
C	-Governed range of engine speed:	700~2786 min^{-1}(rev/min)
C	-Rated engine speed:	2600 min^{-1}(rev/min)
	1.2.5 Air cleaner	
	-Pre-cleaner	
C	.Make:	None
C	.Model/type:	None
C	.Location of air intake:	None
C	.Maintenance indicator:	None
	-Main-cleaner	
C	.Make:	Zhejiang Laixi
C	.Model/type:	KW1025,Dry
C	.Location of air intake:	Above front hood
C	.Maintenance indicator:	None
	1.2.6 Lubrication system	
D	-Type of feed pump:	Roter
C	-Type of filters:	Full flow,paper cartridge,replaceable
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:	6
C	.Fan diameter:	Φ200 mm
D	-Coolant capacity:	7.2 dm^3
C	-Type of temperature control:	Thermostat
D	-Superpressure system:	None
	1.2.8 Starting system	
C	-Make:	Jiangsu Henli
C	-Model/Type:	QD1332CA,D.C. solenoid engaged
D	-Starter motor power rating:	2.0 kW
C	-Cold starting aid:	Preheat plug
C	-Safety device:	Automatic return
	1.2.9 Electrical system	
C	-Voltage:	12 (Negative earth) V
	-Generator:	
C	.Make:	Wujin Wuqi
C	.Model/Type:	JF11C,Altermator,belt driven
D	.Power	0.35 kW
	-Battery of accumulators:	
C	.Number:	1
D	.Rating:	100 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Own make
C	-Model/Type:	DF200,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:	Own make
D	-Model/Type:	Dry,dual clutch for transmission & PTO
D	-Number of plates:	2
D	-Diameter of plates:	225 mm
C	-Method of operation:	Mechanically actuated by pedal
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	DF (4+1)×2, 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

D	-Available options	None
	1.3.3 Rear axle and final drives	
D	-Make:	Own make
D	-Model/Type:	Crown wheel and pinion bevel gear differential and spur gear type final drives external gearing
	-Differential lock	
D	.Type:	Tooth inlayed type
C	.Method of engagement:	Mechanically actuated by pedal
C	.Method of disengagement:	Self-disengagement by spring
	1.3.4 Front axle and final drives	
D	-Make:	Own make
D	-Model/Type:	Balanced arm, telescopic axle
	-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 2600 rev/min km/h
C	1	L	398.3532	1.16
C	2	L	247.3393	1.86
C	3	L	152.5172	3.02
C	4	L	87.4432	5.27
C	5	H	76.8750	5.99
C	6	H	47.7321	9.65
C	7	H	29.4331	15.65
C	8	H	16.8750	27.30
C	R1	L	307.3003	1.50
C	R2	H	59.3036	7.77
	(*)Calculated with the dynamic radius index of 470 mm(ISO 4251/1-1998).			

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

	1.4 Power take-off	
	1.4.1 Main power take-off	
C	-Type:	Semi-independent
C	-Method of engagement:	Mechanically actuated by pedal
C	-Number of shafts:	1
C	-Method of changing power take-off shaft ends 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 500/1991
C	-Height above ground:	517 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	382 mm
C	-PTO speed at rated engine speed:	642 rev/min
C	-Engine speed at standard power take-off speeds	2186 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	4.05
D	-Power restriction and maximum torque (Manufacturer's recommendation):	30.0 kW 493.4 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:	6, not in conformity with ISO 500/1991
C	-Height above ground:	517 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	382 mm
C	-PTO speed at rated engine speed:	1161 rev/min
C	-Engine speed at standard power take-off speeds	2238 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	2.24
D	-Power restriction and maximum torque (Manufacturer's recommendation):	30.0 kW 272.8 N.m
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:	DF200
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:	14.0±0.5 MPa

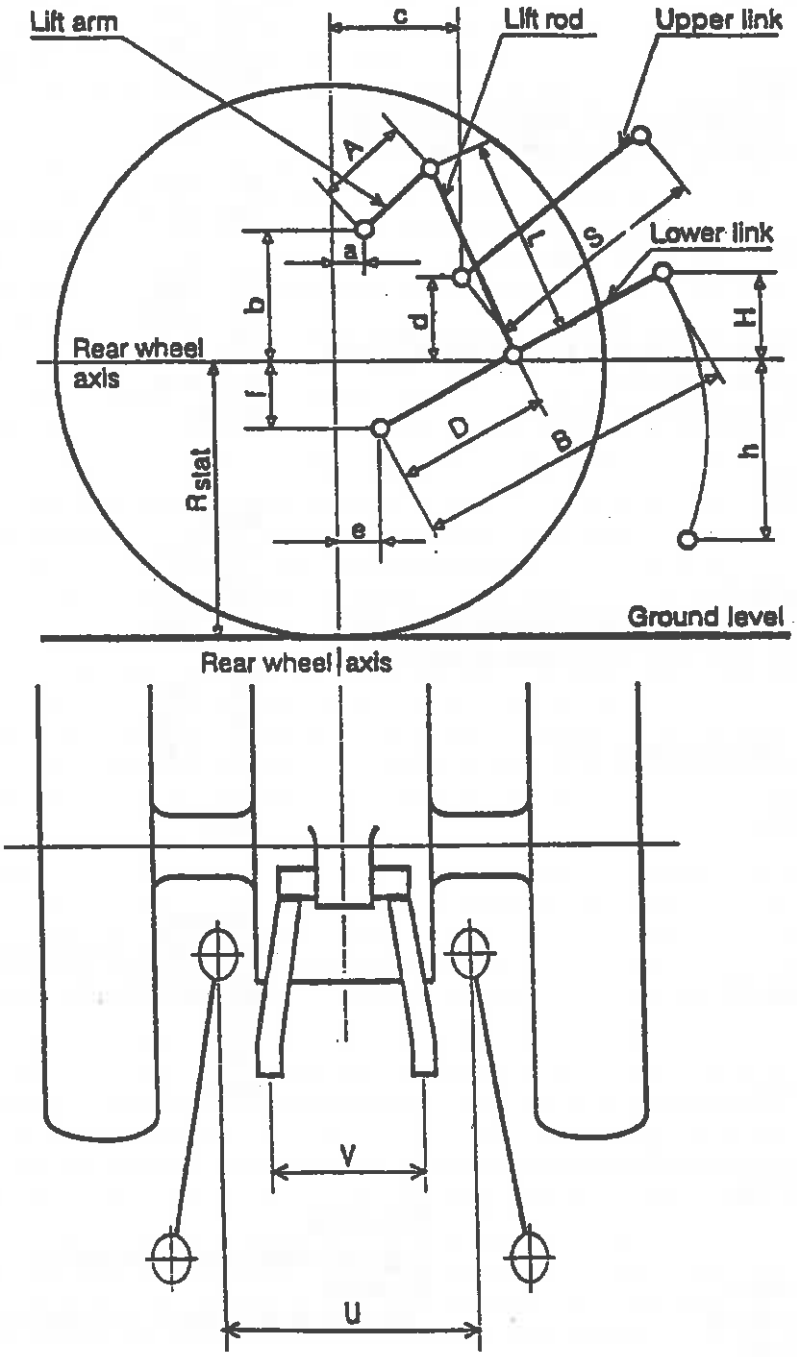
D	-Opening pressure of cylinder safety valve :	None
D	-Lift pump type:	Gear pump
D	-Transmission between pump and engine:	Driven by engine cam shaft
C	-Type and number of filters:	Cartridge type, 1
C	-Site of oil reservoir:	Transmission housing
C	-Type, number and location of tapping points:	1 double acting outlets at the rear
D	-Maximum volume of oil available to external cylinders:	10 dm^3

1.6 Three point linkage

C	-Category	1 ,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)	200	200
C		Length of lower links :	(B)	700	700
		Distance of lift arm pivot point from rear wheel axis:			
C		-Horizontally	(a)	70	70
C		-Vertically	(b)	350	350
C		Horizontal distance between the 2 lower link points:	(u)	321	321
C		Horizontal distance between the 2 lift arms end points:	(v)	294	294
C		Length of upper link:	(S)	From 510 to 760	605
		Distance of upper link pivot point from rear wheel axis:			
C		-Horizontally:	(c)	237	237
C		-Vertically	(d)	248、278、308	308
		Distance of lower link pivot point from rear wheel axis:			
C		-Horizontally:	(e)	155	155
C		-Vertically	(f)	78	78
C		Distance of lower link pivot point to lift rod pivot points on lwer links:	(D)	260、310、360	310
C		Length of lift rods:	(L)	From 375 to 508	480
		Height of lower hitch points relative to the rear wheel axis:			
C		-in low position	(h)	From 35 to 390	314
C		-in high position	(H)	From 265 to 490	303
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=470 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:	Fixed	
	-Height above ground:		
C	.Maximum	429	mm
C	.Minimum	275	mm
C	-Type of adjustment:	Reversing	
C	-Distance of hitch point from rear wheel axis,horizontally:	783	mm
	-Distance of hitch point from power take-off shaft end:		
C	.Vertically:	64	mm
C	.Horizontally:	401	mm
	-Lateral adjustment(centre of clevis)		
C	.Right hand:	36	mm
C	.Left hand:	36	mm
C	-Distance of pivot point from rear wheel axis,horizontally:	174	mm
C	-Diameter of drawbar pinhole:	Φ30 mm	
D	-Maximum vertical permissible load:	6.5kN	
	1.8 Trailer hitch		
C	-Type:	Fixed	
C	-Hole diameter :	Φ30 mm	
C	-Height above ground:	469	mm
C	-Distance of hitch point from rear wheel axis,horizontally:	418	mm
	-Distance of hitch point from power take-off shaft end:		
C	.Vertically:	48	mm
C	.Horizontally:	36	mm
D	-Maximum vertical permissible load:	12	kN
	1.9 Holed drawbar:	**None**	
	1.10 Steering		
D	-Make:	Wanfeng	
D	-Model/Type:	BZZI-E80,Spherical worm and roller	
	-Method of operation	Manual operated	
D	.Pump:	None	
D	.Ram:	None	
D	-Working pressure:	None	
	1.11 Brakes		
	1.11.1 Service brake		
D	-Make:	Own make	
D	-Model/Type:	Dry, 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	

C	.Rear:				2,driving
C	-Wheelbase:				1638 mm
	-Track width adjustment:				
			Minimum mm	Maximum mm	Adjustment method
D		Front	975	1275	Extending telescopic
D		Rear	1020	1320	Reversing wheels and off-set lug rims
	1.13 Protective structure				
C	-Make:				Own make
C	-Model:				DF300
C	-Type:				Rear Roll Bar Frame
C	-Manufacture's name and address:				Own make
	-Protective device				
C	.Cab/frame/rollguard/other:				Frame
C	.Tiltable/not tiltable:				Tiltable
	-OECD approval				
C	.Approval number:				7/S/0 230
C	.Date of approval:				Oct. 11,2005
C	.Nos. of minor modification certificates,if any:				None
	1.14 Seat				
	1.14.1Driver's seat				
C	-Make:				Dongfeng
C	-Model:				280.44C.101
C	-Type:				Fixed
C	-Seat and steering wheel reversible:				No
C	-Type of suspension:				None
C	-Type of damping:				None
	-Range of adjustment:				
C	.Longitudinal:				230 mm
C	.Vertical:				0 mm
C	-Safety belt:				Yes
C	.Type:				Purposeless
	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	845	135×40	233
C		Side lights	840	135×45	304
C		Rear lights	1190	115×75	570
C		Reflectors	1075	65×65	500
C		Brake lights	1075	65×65	500

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	3137	1346	1646	2246	1957
Unballasted	3065	1346	1646	2254	1960

2.2 Ground Clearance(unballasted tractor)

-Clearance limiting part: Under the Drawbar clamping plate 243 mm

2.3 Tractor mass

-Mass(with protective structure and full fuel tank):

	Unballasted		Ballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	438	443	539	544
Rear	789	859	994	1064
Total	1227	1302	1533	1608

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	4	79	—
Rear	8	227	—
Optional	—	—	—

2.5 Track specifications: None

2.6 Tyres and track width specifications

	Front	Rear
Tyres:		
.dimensions	4.00-16	8.3-24
.ply rating	6	6
.type	Stripe pattern	Herringbone pattern
.maximum load (tyre manufacturer's)	3.50 kN	8.15 kN
.maximum load (tractor manufacturer's)	3.50 kN	8.15 kN
.inflation pressure(tyre manufacturer's)	220～250kPa	100～150 kPa
.dynamic radius index	296 mm	470 mm
Chosen track width	975 mm	1220 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	Oil change	Filter change
	dm^3	h	h
Engine	6.0	100	100
Gear box, rear axle and final drives, in common with hydraulic system	20.0	1000	—
Front axle and final drives	—	—	—
Steering	—	—	—

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 ℃ API-CC	Same as recommended
Transmission oil,Hydraulic fluid .Type: .Viscosity: .Classification:	 SAE 85W/90 9.3cSt at 100 ℃ API GL-4	Same as recommended

2.8.3 Grease

-Number of lubrication points: 18

3 COMPULSORY TESTS RESULTS

3.1 Main power take-off

-Date and location of tests: Nov. 9,2005,COTTEC

-Type of dynamometer: LPA-Bedienpult 200 Elec. dynamometer:

Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O	Fan	Hourly		Specific	
kW	min^{-1}(rev/min)			kg/h	l/h	g/kW.h	kW.h/l
3.1.1 MAXIMUM POWER-TWO-HOUR TEST							
14.12	2600	642	4116	4.73	5.55	334.9	2.55
3.1.2 POWER AT RATED ENGINE SPEED							
14.12	2600	642	4116	4.73	5.55	334.9	2.55
3.1.3 STANDARD POWER TAKE-OFF SPEED(1000±25 or 540±10min^{-1}(rev/min)							
13.52	2187	540	3462	4.18	4.90	308.9	2.76
3.1.4 PART LOADS							
3.1.4.1 the torque corresponding to maximum power at the rated engine speed							
14.12	2600	642	4116	4.73	5.55	334.9	2.55
3.1.4.2 85% of torque obtained in 3.1.4.1							
12.41	2689	664	4257	4.42	5.19	356.3	2.39
3.1.4.3 75% of torque obtained in 3.1.4.2							
9.46	2734	675	4328	3.79	4.45	400.8	2.13
3.1.4.4 50% of torque obtained in 3.1.4.2							
6.41	2754	680	4360	3.26	3.82	508.4	1.68
3.1.4.5 25% of torque obtained in 3.1.4.2							
3.20	2774	685	4391	2.68	3.14	835.7	1.02
3.1.4.6 unloaded							
1.22	2786	688	4410	2.36	2.77	—	—

Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O	Fan	Hourly		Specific	
kW	min^{-1}(rev/min)			kg/h	l/h	g/kW.h	kW.h/l
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							
13.52	2187	540	3462	4.18	4.90	308.9	2.76
3.1.5.2 85% of torque obtained in 3.1.5.1							
11.98	2280	563	3609	3.83	4.50	320.0	2.66
3.1.5.3 75% of torque obtained in 3.1.5.2							
9.16	2325	574	3680	3.26	3.82	355.9	2.39
3.1.5.4 50% of torque obtained in 3.1.5.2							
6.21	2365	584	3744	2.70	3.17	434.7	1.96
3.1.5.5 25% of torque obtained in 3.1.5.2							
3.13	2385	589	3775	2.18	2.56	696.7	1.22
3.1.5.6 unloaded							
0.75	2406	594	3809	1.85	2.17	—	—
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS							
3.1.6.1 Maximum power at rated engine speed							
14.12	2600	642	4116	4.73	5.55	334.9	2.55
3.1.6.2 80% of power obtained in 3.1.6.1 at max. speed setting							
11.35	2709	669	4289	4.17	4.89	367.4	2.32
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
11.34	2345	579	3712	3.75	4.39	330.3	2.58
3.1.6.4 40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
5.64	2345	579	3712	2.59	3.03	458.4	1.86
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
8.47	1559	385	2468	2.52	2.96	297.6	2.86
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
5.64	1559	385	2468	1.92	2.25	339.8	2.51

-No load maximum engine speed: 2786 rev/min
-Torque(equivalent crankshaft) at maximum power
.At rated engine speed: 51.9 Nm
.At 2-hour test: 51.9 Nm
-Maximum torque(equivalent crankshaft) (engine speed:1620 rev/min): 66.2 Nm

Mean atmospheric conditions	
Temperature	19 ℃
Pressure	99.6 kPa
Relative humidity	55 %
Maximum Temperature:	
Coolant	76 ℃
Engine oil	100 ℃
Fuel	34 ℃
Engine air intake	33 ℃

3.2 Hydraulic power and lifting force
-Date and location of test: Nov. 18,2005 COTTEC
3.2.1 Hydraulic power test
3.2.1.1 Hydraulic fluid data
- Hydraulic fluid type: SAE 85W/90
-Viscosity index(ISO3448+Corr 1:1993): 9.3cSt at 100 ℃

3.2.1.2 Compulsory Reporting(Test Results):

	Pressure	Reservoir oil Temperature ℃		Engine Speed	Flow rate	Power
	Mpa	Min.	Max.	min^{-1}	L/min	kW
Rated Engine Speed (Manufactures Specification)				2600		
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes	14.00	60	70	2769		
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	12.60	68		2771	10.21	2.14
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair:	10.00	66		2772	18.87	3.15
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 Power lift test

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

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	156 mm	107 mm
Vertical movement: without lifting force:	617 mm	773 mm
with lifting force:	605 mm	740 mm
Maximum corrected force exerted through full range	7.18 kN	5.38 kN
Corresponding pressure of hydraulic fluid	12.6 MPa	12.6 MPa
Moment about rear wheel axle	6.13 kN.m	7.88 kN.m
Maximum tilt angle of mast from vertical	—	12^0

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-285	-236	-200	-100	0	100	200	300	369	400	455
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 12.6 MPa											
kN	—	7.18	7.34	7.66	7.90	7.94	8.04	8.09	8.19	—	—
At the frame, Corresponding pressure 12.6 MPa											
kN	6.21	—	6.60	6.68	6.64	6.45	6.19	5.87	—	5.48	5.38

3.3 Drawbar performance

-Date of tests: Nov. 10～11,2005

-Type of track: Concrete

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	315	220	100
Ballasted	312	220	100

Gear umber and 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/kW.h	kW.h/l	℃	℃	℃	℃	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)														
1	2.25	7.63	1.06	2785	4409	15.07	1193	0.71	20	78	98	18	50	98.9
2	3.57	7.60	1.69	2765	4377	15.01	835	1.02	20	78	98	18	50	98.9
3	5.70	7.55	2.72	2740	4337	14.92	622	1.37	20	78	98	18	50	98.9
4	9.66	7.54	4.61	2670	4227	14.92	467	1.82	20	78	98	18	50	98.9
5	10.93	7.45	5.28	2640	4179	13.74	435	1.96	20	78	99	18	50	98.9
6	11.38	4.44	9.23	2640	4179	6.00	418	2.04	20	78	99	18	50	98.9
3.3.2 MAXIMUM POWER IN TESTED GEARS(ballasted tractor)														
1	2.76	9.55	1.04	2770	4385	14.92	990	0.86	19	77	98	17	48	98.8
2	4.42	9.58	1.66	2755	4361	14.97	702	1.21	19	77	98	17	48	98.8
3	7.04	9.57	2.65	2642	4182	14.97	531	1.61	19	77	98	17	48	98.8
4	11.15	8.49	4.73	2642	4182	10.80	428	1.99	19	77	98	17	48	98.8
5	11.43	7.51	5.48	2642	4182	9.21	418	2.04	19	77	99	17	48	98.8
6	11.52	4.48	9.26	2642	4182	4.88	415	2.05	19	77	99	17	48	98.8
3.3.3 FIVE-HOUR TESTS 3.3.3.1 FIVE-HOUR TEST at 75 % of pull at maximum power(at rated engine speed)														
6	9.07	3.42	9.55	2695	4266	3.80	475	1.79	19	78	99	17	48	99.1
3.3.3.2 FIVE-HOUR TEST at pull corresponding to 15 % wheel slip with additional ballast: 0 kg														
3	7.02	9.50	2.66	2642	4182	14.92	544	1.57	19	77	99	18	48	99.1

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2: 35.5 g/h

3.4 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	2.45	2.46
Radius of turning circle	2.38	2.39

3.5 Location of center of gravity

-Height above ground: 698 mm

-Distance from the vertical plane containing the axis of the rear-wheels: 555 mm

-Distance from the median longitudinal plane of the tractor: 0 mm

-If the angle of suspension of the tractor is less then 20° ,indicate its value: None

3.6 Braking

-Date of tests: Nov. 10,2005

3.6.1 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	28.5	0.10	1.22	25.7
	28.5	0.20	2.12	14.8
	28.5	0.30	2.90	10.8
	28.5	0.35	3.30	9.5
	28.5	0.40	3.52	8.9
	28.5	0.45	3.60	8.7
	28.5	0.50	3.64	8.6
Unballasted tractor	28.5	0.10	1.50	20.9
	28.5	0.20	2.47	12.7
	28.5	0.30	3.33	9.4
	28.5	0.35	3.82	8.2
	28.5	0.40	4.18	7.5
	28.5	0.45	4.24	7.4
	28.5	0.50	4.29	7.3

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

-Abnormal vibration: None

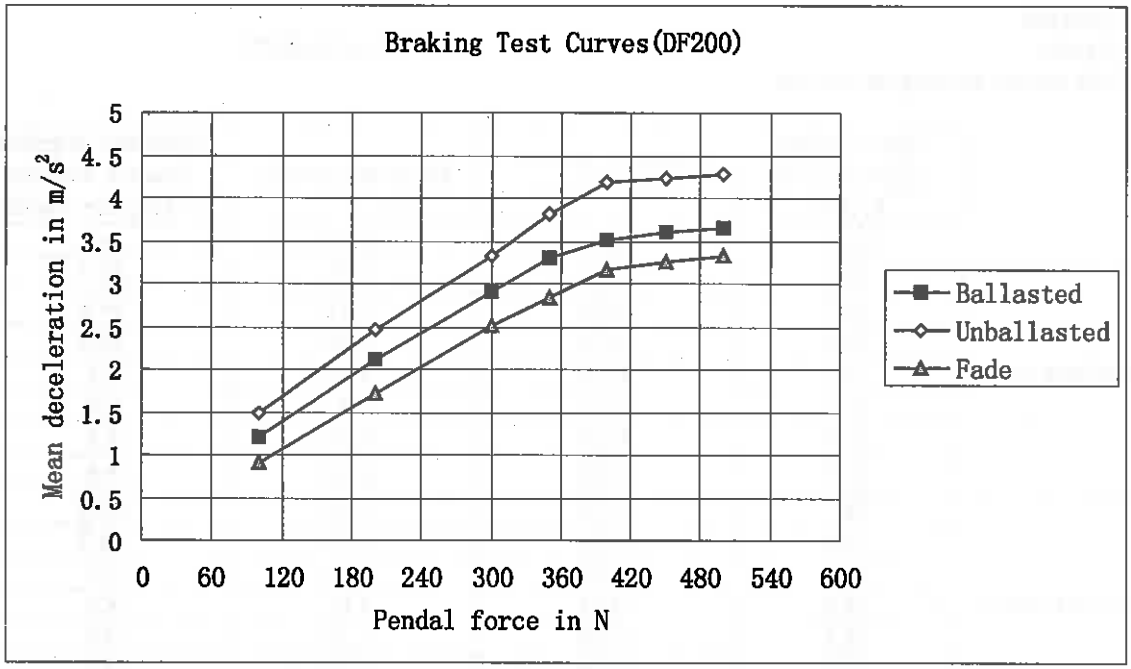
3.6.2 Fade test

Speed before application of brakes	Braking control force	Mean deceleration	Minimum stopping distance without locking the wheels
km/h	kN	m/s^2	m
28.5	0.10	0.90	34.8
28.5	0.20	1.72	18.2
28.5	0.30	2.51	12.5
28.5	0.35	2.84	11.0
28.5	0.40	3.17	9.9
28.5	0.45	3.26	9.6
28.5	0.50	3.33	9.4

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

-Abnormal vibration: None

-Brake heating method: Driving



3.6.3 Parking braking device test

	Uphill	Downhill
Braking device control force N	300	280

3.7 Measurement of external noise

-Date of tests:	Nov.10,2005
-Sound level meter, make/mode/type:	B & K 2209
-Type of track:	Concrete
-Gear number:	8
-Travelling speed before accceleration:	21.4 km/h
-Sound level:	81.6 dB(A)

4 OPTIONAL TEST RESULTS

4.1 Low temperature starting

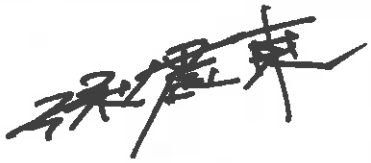
-Date of tests:	Nov. 23,2005
-Detail of the starting aids used for the tests,battery included:	None
-Fuel	
.Type	-35#
.Octane or cetane number:	>50
.Pour-point and other specifications:	-30 ℃
-Engine oil	
.Type:	SAE10W/30
.Viscosity and other specifications:	11.4cSt at 100 ℃
-Test results	
.Starting procedure used for the tests:	The manufacturer's procedure
.Lowest temperature at which the engine started:	-8.0 ℃

5 REPAIRS **None**

6 REMARKS

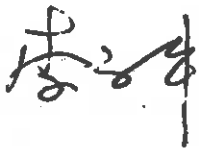
In COTTEC the safety limit speed of drawbar testing equipment is 12 km/h, so we only do drawbar power in the gears which the speed is below 12 km/h.

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

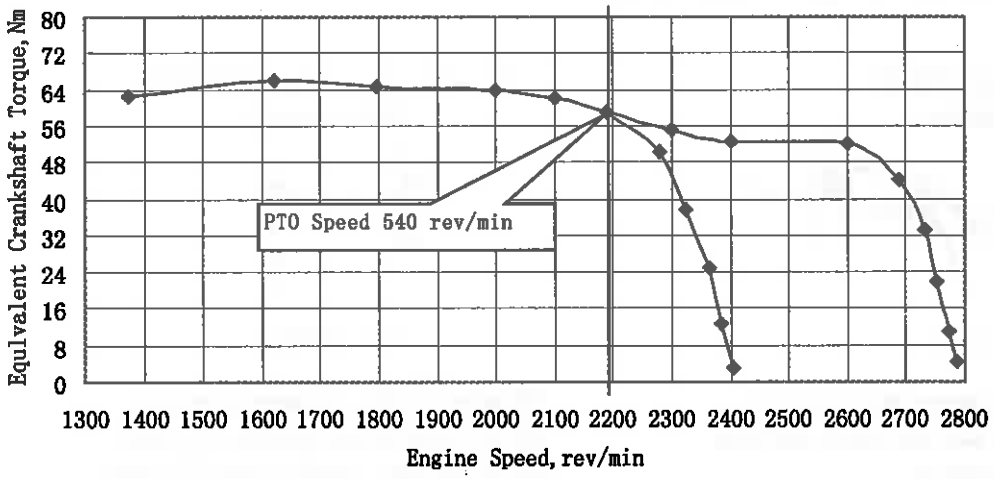


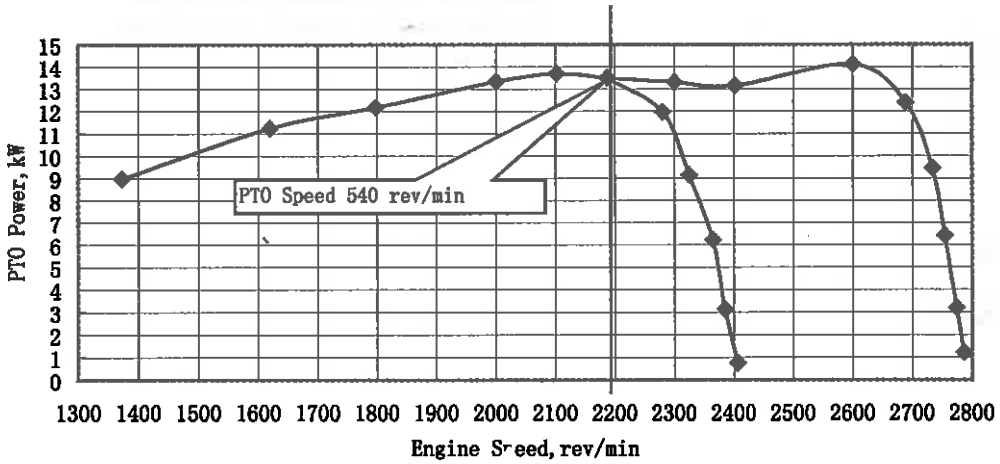
Fan Jianhua

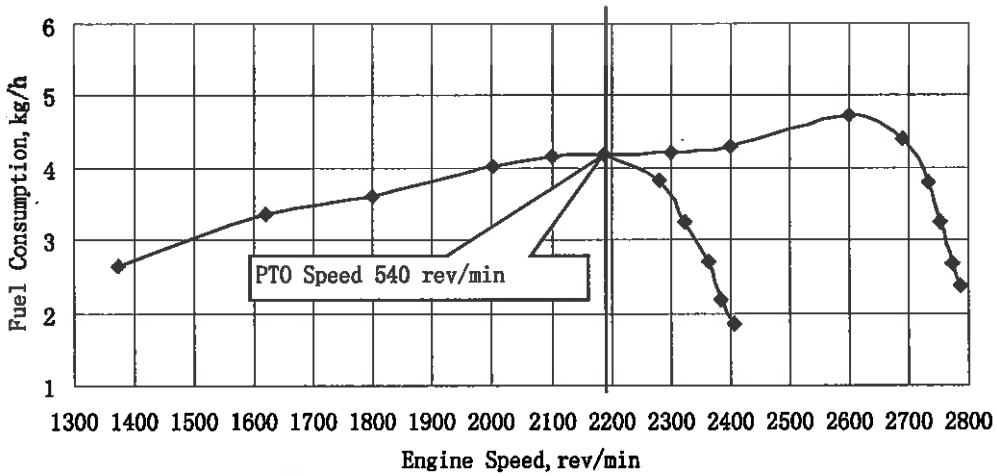
Date: Nov. 28,2005

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

ANNEX
MAIN POWER TAKE-OFF TEST CURVES 1







ANNEX
MAIN POWER TAKE-OFF TEST CURVES 2

