COTTEC

CHINA
OFFICIAL TRACTOR
TEST AND
EVALUATION CENTRE

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OECD TEST REPORT OF HUANGHAI JM504(4WD) 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.1/2 091 Full Code
Date: Nov. 17,2003

Tested Tractor
Make: Huanghai **Model: JM504** **Type: 4WD**

Submitted for test by
Name: Yancheng Tractor Works **Address: Yancheng, Jiangsu, China** **Tel: 86 515 8231150** **Fax:86 515 8230611**

This report includes 24 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 Nov. 17,2003, Approved No.1/2 091 FULL code.

	Note: Units shown below, which appear in ISO 1000:1992; Amdl:1998,shall be stated and followed by national units parentheses, if necessary.	
C[1]	-Tractor manufacturer's name and address:	Yancheng Tractor Works Yancheng, Jiangsu, 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:	49.5 hours
C	-Location of test:	COTTEC, Luoyang, Henan, China
	1. SPECIFICATIONS OF TRACTOR	
	1.1 Identification	
C	1.1.1 - Make of the tractor:	Huanghai
C	-Model(trade name):	JM504
C	-Type:	4WD
	1.1.2 Numbers	
C	-1st Serial No or prototype:	30454002
C	- Serial No.:	30454002
	1.1.3 Other Specifications(if applicable)	
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:	xingchang
C	-Model:	495BT
C	-Type:	4-stroke,water cooling ,direct injection
C	-Serial N°.:	20500381
	1.2.1 Cylinders	
C	-Number:	4
C	-Disposition:	Vertical,in line
D	-Bore/Stroke:	95/105 mm/mm

1. The information opposite each item shall be validated by the Testing Station.An item marked "C" indicates to the test report user that the information declared by the manufacturer has been checked; an item marked "D" that the manufacturer's declaration has been endorsed.For example,the make of the supercharging device is declared by the manufacturer and checked "C" as consistent with the tractor by the testing station,while the pressure of the supercharging device is simply declared "D" by the manufacturer.testing station's markings show compliance with article 8 of Appendix 3 to the Decision.

D	-Capacity:	2977 cm^3
D	-Compression ratio:	18.5
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:	Rixin
C	-Model of fuel filter:	HECX7085
C	-Type of fuel filter:	Paper cartridge,replaceable
D	-Capacity of fuel tank:	35 dm^3
C	-Make of injection pump:	Weifu
C	-Model/type of injection pump:	4I367-85left1200,I Serial, 3-cylinder plunger
C	-Serial N° :	860281
	-Manufacturer's production setting of injection pump:	
C	. Flow rate(at rated engine speed and full load):	10.5 ± 0.5 dm^3 /h
D	.Timing:	$12^0 \sim 14^0$ before T.D.C.
D	-Make of injectors:	Wuxi Ouya
D	-Model/typeof injectors:	153P001F,Long neck,Multi-hole
D	-Injection pressure:	19 ± 0.5 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	Weifu
C	- Model/type:	TQA,Mechanical,centrifugal
C	-Governed range of engine speed:	$750 \sim 2592$ min^{-1}(rev/min)
C	-Rated engine speed:	2400 min^{-1}(rev/min)
	1.2.5 Air cleaner	
	-Pre-cleaner	None
	-Main-cleaner	
C	.Make:	Linhai
C	.Model/type:	395 Oil bath
C	.Location of air intake:	Right hand, MIddle of the Tractor
C	.Maintenance indicator:	None
	1.2.6 Lubrication system	
D	-Type of feed pump:	Roter
C	-Type of filters:	Centrifugal , Full flow
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:	Φ420 mm
D	-Coolant capacity:	12.5 dm^3
C	-Type of temperature control:	Thermostat
D	-Superpressure system:	None
	1.2.8 Starting system	
C	-Make:	Huatai
C	-Model/Type:	QD1401 solenoid engaged
D	-Starter motor power rating:	3.0 kW
C	-Cold starting aid:	Eletrothermic plug
C	-Safety device:	Main shift lever in neutral position
	1.2.9 Electrical system	
C	-Voltage:	12 (Negative earth) V
	-Generator:	
C	.Make:	Huatai
C	.Model/Type:	JF121,Altermator,belt driven
D	.Power	0.20 kW
	-Battery of accumulators:	
C	.Number:	2
D	.Rating:	150 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Own make
C	-Model/Type:	X300,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:	Single plate,Dry,dual clutch for transmission & PTO
D	-Number of plates:	2
D	-Diameter of plates:	250 mm
C	-Method of operation:	Mechanically actuated by pedal
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	HH 4×(2+1), Mechanical
	-Description:	8 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	2	1
C		Number of gears	4	4
C		Total of arrangements	8	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	
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:		**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	L-1	228.1679	2.340
C		2	L-2	155.3230	3.436
C		3	L-3	95.5385	5.588
C		4	L-4	72.7643	7.336
C		5	H-1	50.8044	10.508
C		6	H-2	34.5839	15.436
C		7	H-3	21.2730	25.094
C		8	H-4	16.2021	32.948
C		R1	R1	153.7643	3.471
C		R2	R2	104.6728	5.100
C		R3	R3	64.3846	8.291
C		R4	R4	49.0360	10.886
		(*)Calculted with the dynamic radius index of 590 mm(ISO 4251/1-1998).			

C	-Number of revolutions of front wheels for one revolution of rear-wheels: 1.53

	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:	34.79 mm
C	-Number of splines:	6, in conformity with ISO 500/1991
C	-Height above ground:	577 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	393 mm
C	-PTO speed at rated engine speed:	650 rev/min
C	-Engine speed at standard power take-off speeds	1994 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	3.692
D	-Power restriction and maximum torque (Manufacturer' s recommendation):	34.0 kW 637.2 N.m
C	-Direction of rotation(viewed from behind tractor):	Clockwise
	Power take-off at 1000 rev/min:	None
C	-Location :	At rear of the tractor
C	-Diameter of power take-off shaft end:	34.79 mm
C	-Number of splines:	8, not in conformity with ISO 500/1991
C	-Height above ground:	577 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	393 mm
C	-PTO speed at rated engine speed:	1171 rev/min
C	-Engine speed at standard powertake-off speeds:	2050 rev/mi
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	2.05
D	-Power restriction and maximum torque (Manufacturer' s recommendation):	34.0kW 353.8 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:	Dacheng
C	-Model:	E500
C	-Type:	Partial separated units
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:	18±0.5 MPa

D	-Lift pump type:	CBN-E314 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:	In the hydraulic power lift housing
C	-Type, number and location of tapping points:	Thread,1,Rear of tractor
D	-Maximum volume of oil available toexternal cylinders:	6 dm^3

1.6 Three point linkage

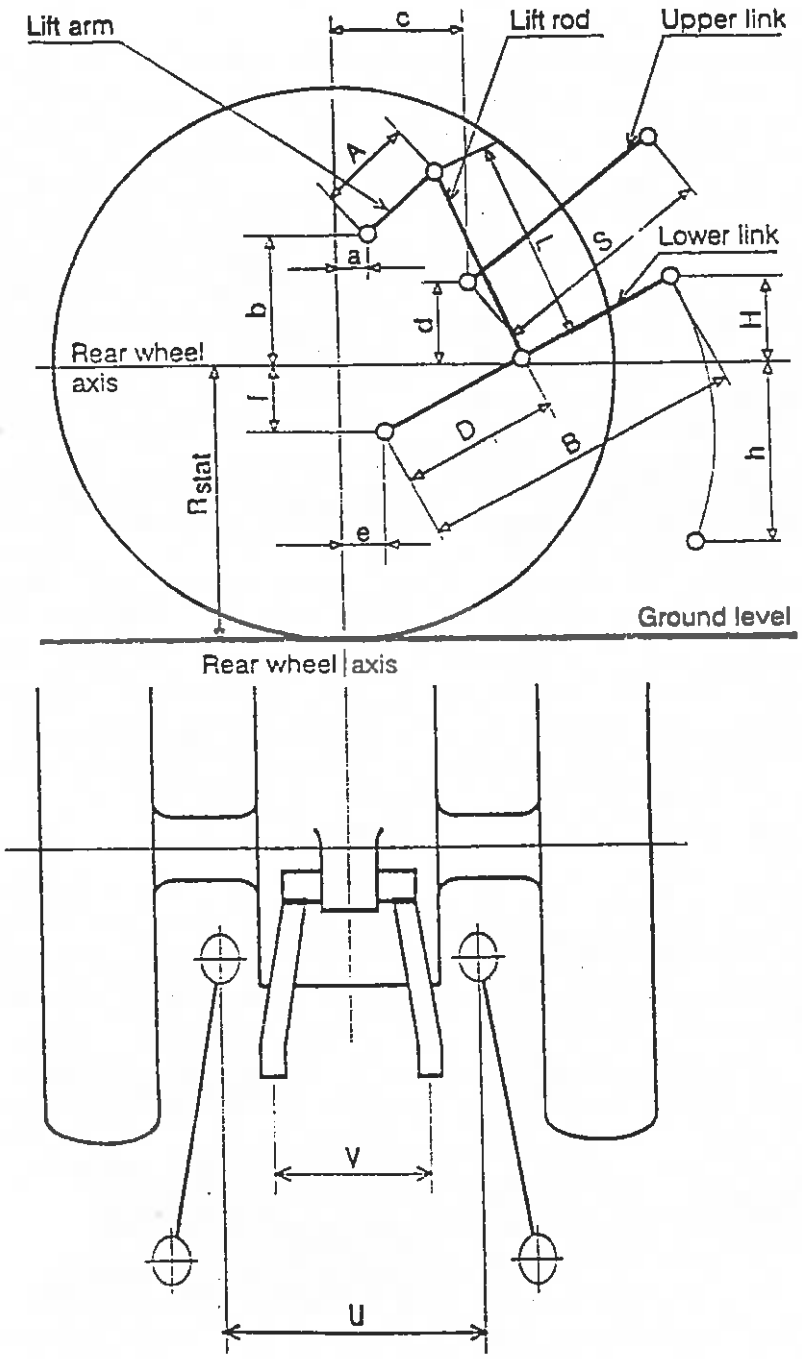
C	-Category:	2,in conformity with ISO730-1:1994+Cor.1:1995 and ISO730-2:1979
C	-Category Adapter:	None

				Dimension or range	Setting used in test	
				mm	mm	
C		Length of lift arms :	(A)	235	235	
C		Length of lower links :	(B)	780	780	
		Distance of lift arm pivotpoint from rear wheel axis:				
C		-Horizontally	(a)	157	157	
C		- Vertically	(b)	358	358	
C		Horizontal distance between the 2 lower link points:	(u)	500	500	
C		Horizontal distance between the 2 lift arms end points:	(v)	485	485	
C		Length of uppe link::	(S)	from 580 to 770	640	
		Distance of upper link pivot point from rear wheel axis:				
C		-Horizontally	(c)	393	393	
C		- Vertically	(d)	from 200 to 260	260	
		Distance of lower link pivot point from rear wheel axis:				
C		-Horizontally	(e)	230	230	
C		- Vertically	(f)	172	172	
C		Distance of lower link pivot point to lift rod pivot points on lwer links:	(D)	340	340	
C		Length of lift rods:	(L)	from 510 to 640	535	
		Height of lower hitch points relative to the rear wheel axis:				
C		-in low position	(h)	from 345 to 685	405	
C		-in high position	(H)	from 68 to 315	270	
C		Height above ground of lower hitch points when locked in transport position:		from 185 to 860	----	
		(*)Assuming r=590 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	479 mm
C	.Minimum	413 mm
C	-Type of adjustment:	
C	-Distance of hitch point from rear wheel axis,horizontally: 754 mm	
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	166 mm
C	.Horizontally:	361 mm
	-Lateral adjustment(centre of clevis)	
C	.Right hand:	164 mm
C	.Left hand:	164 mm
C	-Distance of pivot point from rear wheel axis,horizontally:	314 mm
C	-Diameter of drawbar pinhole:	Φ30 mm
D	-Maximum vertical permissible load:	8.0 kN
	1.8 Trailer hitch	**None**
C	-Type:	None
C	-Hole diameter :	None
C	-Height above ground:	None
C	-Distance of hitch point from rear wheel axis,horizontally: None	
	-Distance of hitch point from power take-off shaft end: None	
C	.Vertically:	None
C	.Horizontally:	None
D	-Maximum vertical permissible load:	None
	1.9 Holed drawbar:	**None**
	1.10 Steering	
D	-Make:	Xinxing
D	-Model/Type:	BZZI-80, Hydrostatic steering system
	-Method of operation	
D	.Pump:	Gear pump
D	.Ram:	1,double acting ram actuating directly on front axle
D	-Working pressure:	8.0 MPa
	1.11 Brakes	
	1.11.1 Service brake	
D	-Make:	Hangzhou Podwer Metallurgy Research Institute
D	-Model/Type:	Oil bath , 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 and driving
C	.Rear:				2,driving
C	-Wheelbase:				2015 mm
	-Track width adjustment:				
			Minimum mm	Maximum mm	Adjustment method
D		Front	1300	1300	None
D		Rear	1200	1600	Reversing wheels and off-set lug rims
	1.13 Protective structure				
C	-Make:				None
C	-Model:				None
C	-Type:				None
C	-Manufacture's name and address:				None
	-Protective device :				None
	-OECD approval				
C	.Approval number:				None
C	.Date of approval:				None
C	.Nos. of minor modification certificates,if any:				None
	1.14 Seat				
	1.14.1Driver's seat				
C	-Make:				Own make
C	-Model:				None
C	-Type:				Adjustable suspension
C	-Seat and steering wheel reversible:				No
C	-Type of suspension:				None
C	-Type of damping:				None
	-Range of adjustment:				
C	.Longitudinal:				100 mm
C	.Vertical:				0 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 centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
C		Head lights	1170	130×70	198
C		Side lights	----	----	----
C		Rear lights	1410	100×70	630
C		Reflectors	1290	32×31	640

2 TEST CONDITIONS

2.1 Overall dimensions

	Lenght mm	Width		Height at top of	
		Minimum mm	Maximum mm	Protective structure mm	Exhaust silencer mm
Ballasted	3965	1830	1830	----	2082
Unballasted	3740	1625	1925	----	2085

2.2 Ground Clearance(unballasted tractor)

-Clearance limiting part: Under the front axle 325 mm

2.3 Tractor mass

-Mass(without protective structure and full fuel tank):

	Unballasted		Ballasted	
	Without driver kg	With driver kg	Without driver kg	With driver kg
Front	895	899	1034	1038
Rear	1095	1166	1435	1506
Total	1990	2065	2469	2544

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	4	103	—
Rear	4	376	—
Optional	—	—	—

2.5 Track specifications: **None**

2.6 Tyres and track width specifications

	Front	Rear
Tyres		
.dimensions	8.3-20	12.4-28
.ply rating	6	8
.type	Cross ply	Cross ply
.maximum load (tyre manufacturer's)	6.81 kN	14.80kN
.maximum load (tractor manufacturer's)	5.39 kN	12.80 kN
.inflation pressure(tyre manufacturer's)	80-120kPa	80-120 kPa
.dynamic radius index	420 mm	590 mm
Chosen track width	1300 mm	1300 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	250	500
Gear box, rear axle and final drives	31.0	500	—
Front axle and final drives	7.0	500	—
Steering	1.3	1000	—
hydraulic system	12.0	1000	

2.8.2 Specifications

	Recommended	Used during test
Engine oil .Type: .Viscosity: .Classification:	 SAE10 W/30 11.4cSt at 100 ℃ API-CC	Same
Transmission oil,Hydraulic fluid,Steering oil .Type: .Viscosity: .Classification:	SAE 80W/90 9.3cSt at 100 ℃ API GL-4	Same

2.8.3 Grease

-Type: ZFG2

-Number of lubrication points: 16

3 COMPULSORY TESTS RESULTS

3.1 Main power take-off

-Date and location of tests: Apr.27,2003,COTTEC

-Type of dynamometer bench: LPA-Bedienpult 250 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							
33.76	2400	650	3200	8.85	10.38	262.1	3.25
3.1.2 POWER AT RATED ENGINE SPEED							
33.76	2400	650	3200	8.85	10.38	262.1	3.25
3.1.3 STANDARD POWER TAKE-OFF SPEED(1000±25 or 540±10min^{-1}(rev/min)							
27.59	1994	540	2659	6.90	8.10	250.1	3.41
3.1.4 PART LOADS							
3.1.4.1 the torque corresponding to maximum power at the rated engine speed							
33.76	2400	650	3200	8.85	10.38	262.1	3.25
3.1.4.2 85% of torque obtained in 3.1.4.1							
30.05	2510	680	3347	8.34	9.79	277.5	3.07
3.1.4.3 75% of torque obtained in 3.1.4.2							
22.90	2548	690	3397	6.92	8.12	302.2	2.82
3.1.4.4 50% of torque obtained in 3.1.4.2							
15.40	2574	697	3432	5.53	6.49	359.1	2.37
3.1.4.5 25% of torque obtained in 3.1.4.2							
7.79	2592	702	3456	4.25	4.99	545.6	1.56
3.1.4.6 unloaded							
1.40	2607	706	3476	3.18	3.73	---	---
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							
27.59	1994	540	2659	6.90	8.10	250.1	3.41
3.1.5.2 85% of torque obtained in 3.1.5.1							
24.86	2112	572	2816	6.66	7.81	267.9	3.18
3.1.5.3 75% of torque obtained in 3.1.5.2							
18.95	2149	582	2865	5.57	6.54	293.9	2.90
3.1.5.4 50% of torque obtained in 3.1.5.2							
12.85	2178	590	2904	4.50	5.28	350.2	2.43
3.1.5.5 25% of torque obtained in 3.1.5.2							
6.48	2197	595	2929	3.48	4.08	537.0	1.59
3.1.5.6 unloaded							
1.01	2223	602	2964	2.63	3.09	---	---

-No load maximum engine speed: 2607 rev/min

-Torque(equivalent crankshaft) at maximum power

. At rated engine speed: 134.3 Nm

.At 2-hour test: 134.3 Nm

-Maximum torque(equivalent crankshaft) : 160.3 Nm

(engine speed:1599 rev/min)

Mean atmospheric conditions	
Temperature	27 ℃
Pressure	99.5 kPa
Relative humidity	40 %
Maximum Temperature:	
Coolant	83 ℃
Engine oil	92 ℃
Fuel	28.6 ℃
Engine air intake	39 ℃

3.2 Hydraulic power and lifting force

-Date and location of test: May 6,2003 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): 9.3cSt at 100 ℃

3.2.1.2 Compulsory Reporting(Test Results):

	Pressure	Reservoir oil		Engine	Flow	Power
	Mpa	Min.	Max.	Rev/min^{-1}	L/min	kW
Rated Engine Speed (Manufactures Specification)				2400		
Maximum(sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes/No	17.5	60	70	2400		
Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	15.8	65		2400	22.4	5.89
Maximum available flow and maximum power from one coupler pair:	16.0	65		2400	22.2	5.92
Maximum available flow and maximum power from coupler pairs operating sim ultaneously(flow through two or more coupler pairs if required):	-----	-----		-----	-----	-----

3.2.2 Power lift test

-Linkage settings for test -Table 1.1 and Figures 1.1

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	185 mm	125 mm
Vertical movement: without lifting force: with lifting force:	 675 mm 652 mm	 937 mm 893 mm
Maximum corrected force exerted throught full rang	15.10 kN	8.85 kN
Corresponding pressure of hydraulic fluid	15.8 MPa	15.8 MPa
Moment about rear wheel axle	15.25 kN.m	14.34 kN.m
Maximum tilt angle of mast from vertical	—	19.3°

Lifting heights relative to the horizontal plane including the lower link pivot points												
mm	-293	-233	-200	-100	0	100	200	300	400	419	500	600
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 15.8 MPa												
kN	—	15.71	16.17	16.34	16.22	15.84	15.57	15.27	15.22	15.10	—	—
At the frame, Corresponding pressure 15.8 MPa												
kN	13.43	—	13.38	13.32	12.92	12.62	12.13	11.38	10.55	—	9.62	8.85

3.3 Drawbar performance

-Date of tests: May 7,2003

-Type of track: Concrete

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	624	100	100
Ballasted	620	100	100

Gear number and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consum-ption	Specific energy	Temperatures			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Tempe-rature	Relative humidity	Press-ure
	kW	kN	km/h	rev/min	rev/min	%	g/kWh	kWh/l	℃	℃	℃	℃	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)														
1	10.49	17.25	2.19	2588	3451	15.28	519	1.62	26	75	78	24	59	100.0
2	15.20	16.99	3.22	2578	3437	15.05	437	1.92	26	75	78	24	59	100.0
3	24.65	17.40	5.10	2522	3363	15.28	372	2.26	26	75	78	24	59	100.0
4	28.20	14.67	6.92	2451	3268	9.72	334	2.51	26	75	78	24	59	100.0
5	27.74	9.80	10.19	2410	3213	5.95	339	2.48	26	75	78	24	59	100.0
3.3.2 MAXIMUM POWER IN TESTED GEARS(ballasted tractor)														
1	11.95	19.65	2.19	2570	3427	14.83	491	1.71	28	76	80	24	59	100.0
2	17.06	19.44	3.16	2592	3456	15.78	413	2.03	28	76	80	24	58	99.9
3	26.09	18.38	5.11	2440	3253	11.24	354	2.37	28	77	80	24	58	99.9
4	26.67	13.62	7.05	2420	3227	7.33	345	2.43	29	77	81	24	58	99.9
5	28.39	9.80	10.43	2440	3253	4.82	328	2.56	29	77	81	24	57	99.9
3.3.3 FIVE-HOUR TESTS														
3.3.3.1 FIVE-HOUR TEST at 75 % of pull at maximum power(at rated engine speed)														
5	23.06	7.56	10.98	2548	3397	3.95	369	2.28	29	79	83	25	57	99.9
3.3.3.2 FIVE-HOUR TEST at pull corresponding to 15 % wheelslip														
2	16.77	18.98	3.18	2595	3460	15.07	416	2.02	29	79	83	25	57	99.9

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2: 56.0 g/h

3.4 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	2.56	2.53
Radius of turning circle	2.46	2.44

3.5 Location of centre of gravity

-Height above ground: 711 mm

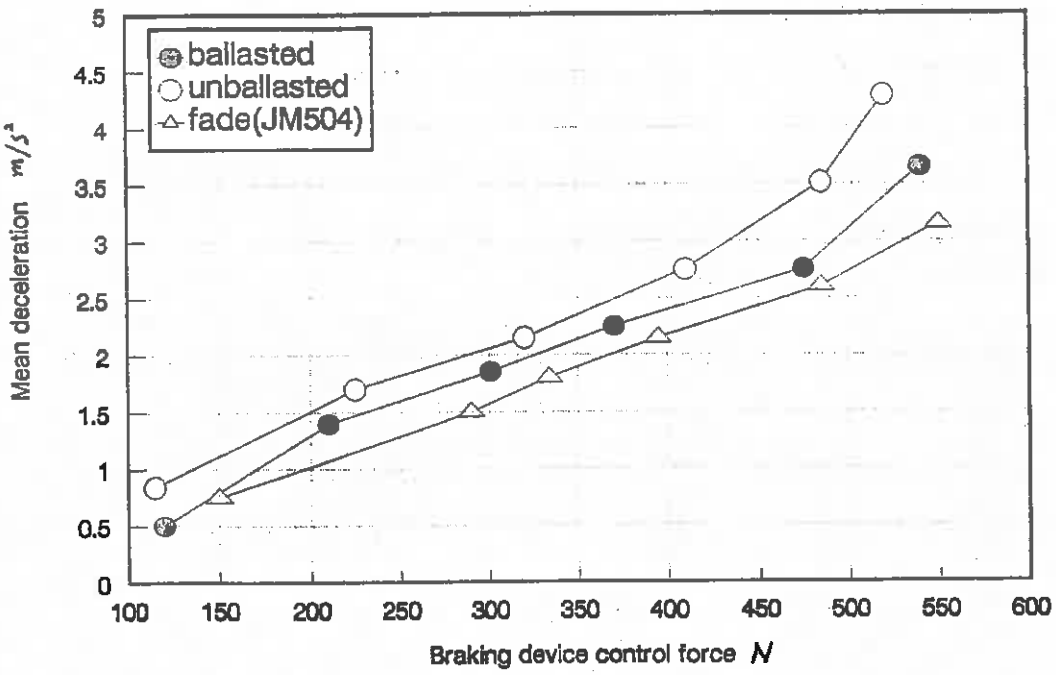
-Distance from the vertical plane containing the axis of the rear-wheels: 877 mm

-Distance from the median longitudinal plane of the tractor: 2 mm

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

3.6 Braking

-Date of tests: May 6,2003



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	35.8	0.150	0.68	72.7
	35.8	0.228	1.02	48.5
	35.8	0.300	1.77	27.9
	35.8	0.365	2.05	24.1
	35.8	0.480	2.73	18.1
	35.8	0.580	3.21	15.4
Unballasted tractor	36.1	0.140	0.85	59.2
	36.1	0.210	1.45	34.7
	36.1	0.315	2.50	20.1
	36.1	0.370	2.65	19.0
	36.1	0.435	3.24	15.5
	36.1	0.545	3.94	12.8

-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
36.1	0.155	0.80	62.8
36.1	0.245	1.10	45.7
36.1	0.315	1.51	33.3
36.1	0.424	2.25	22.3
36.1	0.508	2.53	19.9
36.1	0.585	2.96	17.0

- 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	0.395 kN	0.395 kN

3.7 Measurement of external noise

-Date of tests: May 6,2003

-Sound level meter, make/mode/type: B & K 2209

-Type of track: Concrete

-Gear number: 8(H-4)

-Travelling speed before accceleration: 27.0 km/h

-Sound level: 85.9 dB(A)

4 OPTIONAL TEST RESULTS

4.1 Low temperature starting

-Date of tests: May 9,2003

-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: SAE10 W/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: -10.0 ℃

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

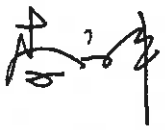
Senior engineer



Guo Qingchen

Vice-director of the COTTEC

Senior engineer

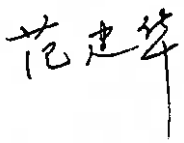


Li Jingzhong

Date: July 30 ,2003

Responsible engineer for these tests:

Senior engineer



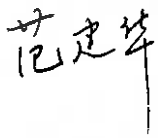
Fan Jianhua

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Wang Dailin	**Zhen zhigang**
Sun Zhennan	**Gao Jian**
Liu Hua	**Liu Hui**

Editor for the test report publish:

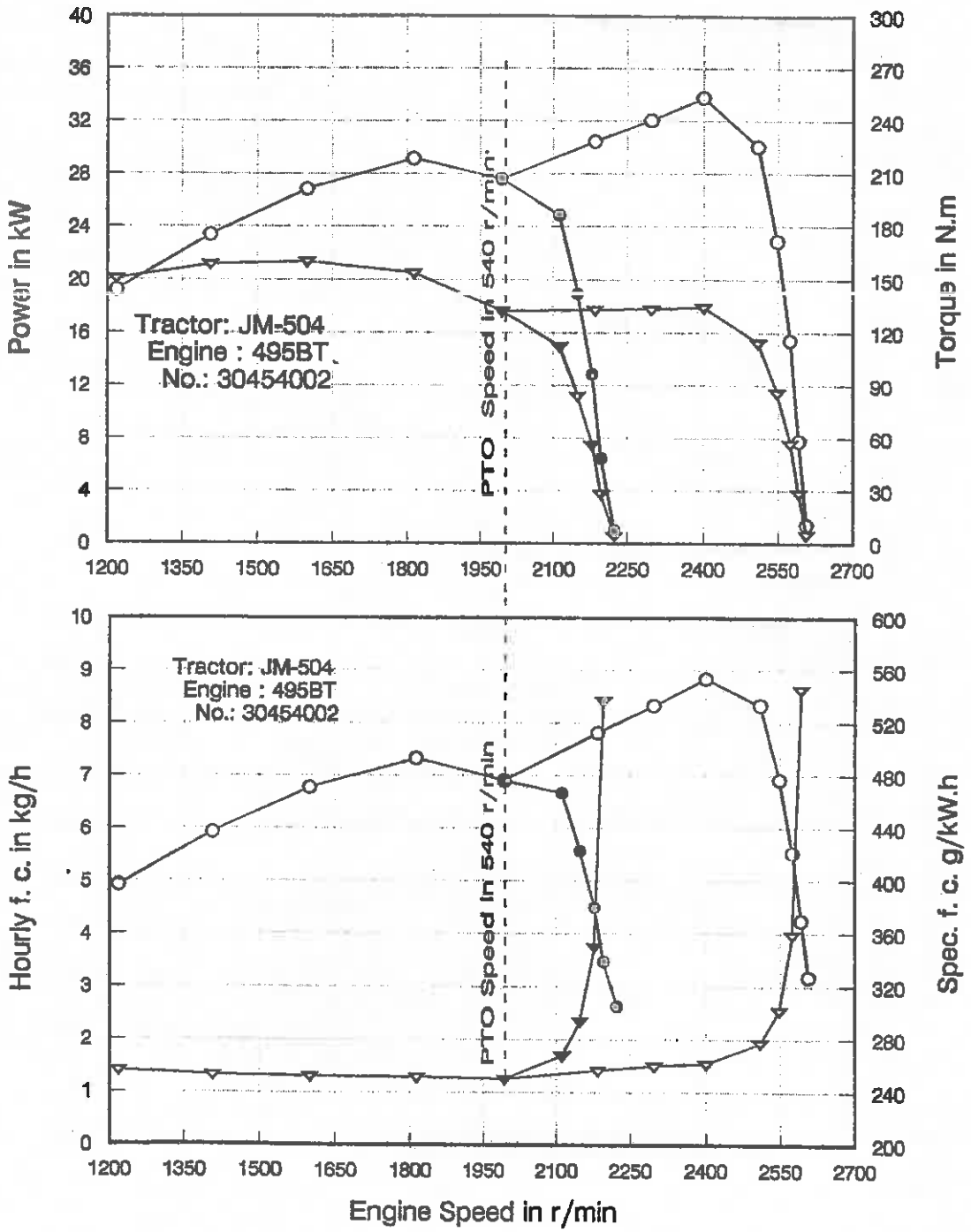
Senior engineer



Fan Jianhua

ANNEX

MAIN POWER TAKE-OFF TEST CURVES 1



ANNEX

MAIN POWER TAKE-OFF TEST CURVES 2

