COTTEC

CHINA
OFFICIAL TRACTOR
TEST AND
EVALUATION CENTRE

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OECD TEST REPORT OF FUTIAN OUBAO FT704(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.1/2 090 Full Code
Date: Nov. 17,2003

Tested Tractor
Make: Futian Oubao
Model: FT704
Type: 4WD

Submitted for test by
Name: Beiqi Futian Weifang Agricultural Equipment Branch Co.
Address: Weifang,shandong, China
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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.1/2 090 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:	Beiqi Futian Weifang Agricultural Equipment Branch Co. Weifang,Shandong, 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	
C	1.1.1 - Make of the tractor:	Futian Oubao
C	-Model(trade name):	FT704
C	-Type:	4WD
	1.1.2 Numbers	
D	-1st Serial N° or prototype:	A004103Y
C	- Serial No.:	A004103Y
	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:	Dongfanghong
C	-Model:	LR4105T68-1
C	-Type:	4-stroke,water cooling ,direct injection
C	-Serial N°.:	Y0307223
	1.2.1 Cylinders	
C	-Number:	4
C	-Disposition:	Vertical,in line
D	-Bore/Stroke:	105/125 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:	4330 cm^3
D	-Compression ratio:	17
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:	Xingxiang yanjin
C	-Model of fuel filter:	C0708S
C	-Type of fuel filter:	Paper cartridge,replaceable
D	-Capacity of fuel tank:	78 dm^3
C	-Make of injection pump:	China Yituo Group Co. Ltd.
C	-Model/type of injection pump:	ZHBF49540Z cylinder plunger
C	-Serial N° :	130
	-Manufacturer's production setting of injection pump:	
C	. Flow rate(at rated engine speed and full load):	14.5±0.5 dm3 /h
D	.Timing:	19^0~21^0 before T.D.C.
D	-Make of injectors:	China Yituo Group Co. Ltd.
D	-Model/typeof injectors:	ZCK150J43000,Long neck,Multi-hole
D	-Injection pressure:	19.6~20.6 MPa
C	-Make/Mode/Type of carburettor:	None
	1.2.4 Governor	
C	- Make:	Lucas Diesel systems
C	- Model/type:	TA,Mechanical,centrifugal
C	-Governed range of engine speed:	700~2376 min^{-1}(rev/min)
C	-Rated engine speed:	2200 min^{-1}(rev/min)
	1.2.5 Air cleaner	
	-Pre-cleaner	None
	-Main-cleaner	
C	.Make:	Bangbu Air-cleaner Works
C	.Model/type:	KW1522,Dry
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:	JX0811A Full flow, Centrifugal
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:	Φ450 mm
D	-Coolant capacity:	15.0 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:	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:	JF1521B,Altermator,belt driven
D	.Power	0.75 kW
	-Battery of accumulators:	
C	.Number:	1
D	.Rating:	165 Ah at 20 hours rating
	1.2.10 Exhaust system	
C	-Make:	Own make
C	-Model/Type:	FT65.22.001,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:	1
D	-Diameter of plates:	269 mm
C	-Method of operation:	Mechanically actuated by pedal
	1.3.2 Gear box	
D	-Make:	Own make
D	-Model/Type:	FT 2×(4+1) , 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		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 2200 rev/min km/h
C		1	L-1	244.7951	2.27
C		2	L-2	138.5748	4.01
C		3	L-3	86.1527	6.45
C		4	L-4	68.6879	8.09
C		5	H-1	61.3338	9.06
C		6	H-2	34.6221	16.05
C		7	H-3	21.5215	25.82
C		8	H-4	17.1773	32.35
C		R1	R1	176.4078	3.15
C		R2	R2	44.0670	12.61
		(*)Calculted with the dynamic radius index of 670 mm(ISO 4251/1-1998).			

C	-Number of revolutions of front wheels for one revolution of rear-wheels: 1.43

	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:	630 mm
C	-Distance from the median plane of the tractor:	0 mm
C	-Distance behind rear wheel axis:	274 mm
C	-PTO speed at rated engine speed:	614 rev/min
C	-Engine speed at standard power take-off speeds:	1936 rev/min
C	-Ratio of rotation speeds (engine speed/p.t.o. speed):	3.6
D	-Power restriction and maximum torque (Manufacturer's recommendation):	45.0 kW 911.8 N.m
C	-Direction of rotation(viewed from behind tractor):	Clockwise
	Power take-off at 1000 rev/min:	None
	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:	FT654.55.001
C	-Type:	Hydraulic,three hitch point
C	-Type of hydraulic system:	Open centre system
C	-Type and number of cylinders:	Single acting,1
C	-Type of linkage lock for transport:	Hydraulic
D	-Relief valve pressure setting:	16±0.5 MPa
D	-Opening pressure of cylinfer 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:	Thread,2, Rear of tractor
D	-Maximum volume of oil available to external cylinders:	4 dm^3

1.6 Three point linkage

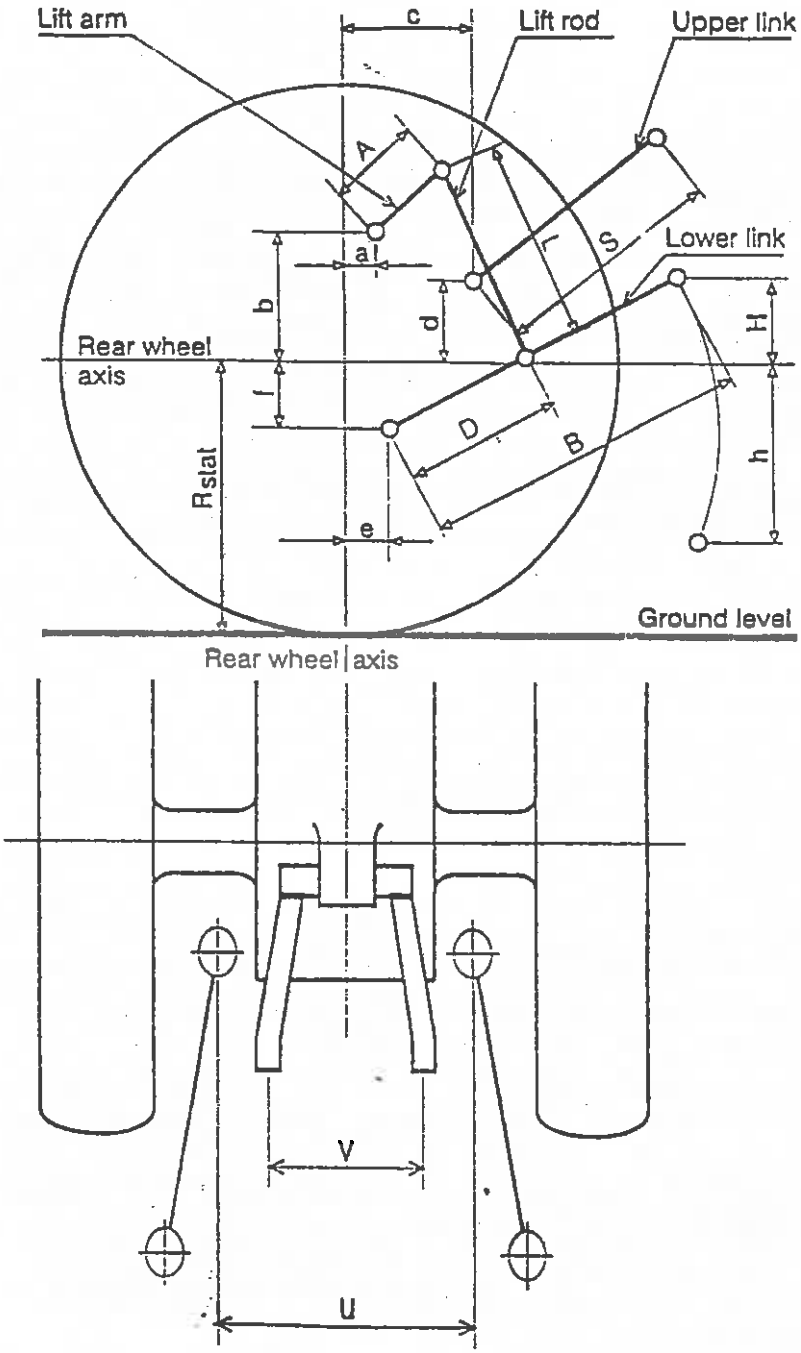
C	-Category:	2,in conformity with ISO730-1:1994+Cor.1:1995 and ISO730-2:1979
C	-Category Adapter:	None

				Dimension or range	Setting used in test	
				mm	mm	
C		Length of lift arms :	(A)	230	230	
C		Length of lower links :	(B)	840	840	
		Distance of lift arm pivotpoint from rear wheel axis:				
C		-Horizontally	(a)	60	60	
C		- Vertically	(b)	418	418	
C		Horizontal distance between the 2 lower link points:	(u)	526	526	
C		Horizontal distance between the 2 lift arms end points:	(v)	615	615	
C		Length of uppe link::	(S)	from 500 to 720	595	
		Distance of upper link pivot point from rear wheel axis:				
C		-Horizontally	(c)	300	300	
C		- Vertically	(d)	from 245 to 315	315	
		Distance of lower link pivot point from rear wheel axis:				
C		-Horizontally	(e)	50	50	
C		- Vertically	(f)	136	136	
C		Distance of lower link pivot point to lift rod pivot points on lwer links:	(D)	420	420	
C		Length of lift rods:	(L)	from 545 to 698	635	
		Height of lower hitch points relative to the rear wheel axis:				
C		-in low position	(h)	from 298 to635	510	
C		-in high position	(H)	from 45 to 315	152	
C		Height above ground of lower hitch points when locked in transport position:		from160 to 822	----	
		(*)Assuming r=670 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	435 mm
C	.Minimum	370 mm
C	-Type of adjustment:	
C	-Distance of hitch point from rear wheel axis,horizontally: 706 mm	
	-Distance of hitch point from power take-off shaft end:	
C	.Vertically:	200 mm
C	.Horizontally:	432 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:	140 mm
C	-Diameter of drawbar pinhole:	Φ34 mm
D	-Maximum vertical permissible load:	12.0 kN
	1.8 Trailer hitch	
C	-Type:	Fixed
C	-Hole diameter :	Φ34 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:	79 mm
C	.Horizontally:	403 mm
D	-Maximum vertical permissible load:	12.0 kN
	1.9 Holed drawbar:	**None**
	1.10 Steering	
D	-Make:	Xinxing
D	-Model/Type:	BZZI-80, Hydrostatic steering system
	-Method of operation	
D	.Pump:	HLCB12/10 Gear pump
D	.Ram:	1,double acting ram actuating directly on front axle
D	-Working pressure:	7.0 MPa
	1.11 Brakes	
	1.11.1 Service brake	
D	-Make:	Hangzhou Podwer Metallurgy Research Institute
D	-Model/Type:	Dry , 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:		2236 mm		
	-Track width adjustment:				
			Minimum mm	Maximum mm	Adjustment method
D		Front	1450	1450	None
D		Rear	1365	1796	Reversing wheels and off-set lug rims
	1.13 Protective structure				
C	-Make:		Own make		
C	-Model:		None		
C	-Type:		Rollguard		
C	-Manufacture's name and address:		Own make		
	-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:		FT650.46.001		
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:		60 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	1155	155×95	220
C		Side lights	1480	53×70	680
C		Rear lights	1630	Φ136	843
C		Reflectors	1480	46×50	680

2 TEST CONDITIONS

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

2.1 Overall dimensions

	Lenght mm	Width		Height at top of	
		Minimum mm	Maximum mm	Protective structure mm	Exhaust silencer mm
Ballasted	4100	1900	2000	2710	2688
Unballasted	3730	1900	2000	2713	2693

2.2 Ground Clearance(unballasted tractor)

-Clearance limiting part: Under the front axle 328 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	1304	1314	1596	1606
Rear	1734	1799	2194	2259
Total	3038	3113	3790	3865

2.4 Ballast

	Weights		Water kg
	Number	Total mass kg	
Front	16	221	—
Rear	12	531	—
Optional	—	—	—

2.5 Track specifications: **None**

2.6 Tyres and track width specifications

	Front	Rear
Tyres		
.dimensions	8.30-24	16.9-28
.ply rating	4	10
.type	Cross ply	Cross ply
.maximum load (tyre manufacturer's)	7.15 kN	17.1 kN
.maximum load (tractor manufacturer' s)	7.15 kN	17.1 kN
.inflation pressure(tyre manufacturer' s)	240kPa	180 kPa
.dynamic radius index	470 mm	670 mm
Chosen track width	1450 mm	1510 mm

2.7 Fuel

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

-Density at 15 ℃ 0.8523 g/cm^3

2.8 Oils and lubricants

2.8.1 Capacity and change interval

	Capacity	Oil change	Filter change
	dm^3	h	h
Engine	15	250	500
Gear box, rear axle and final drives	40	1000	—
Front axle and final drives	11.5	1000	—
Steering	2.5	1000	—
hydraulic system	21	1000	—

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

	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-Number of lubrication points: 17

3 COMPULSORY TESTS RESULTS

3.1 Main power take-off

-Date and location of tests: Apr. 10,2003,COTTEC

-Type of dynamometer: 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							
43.33	2201	614	3001	12.30	14.43	283.9	3.00
3.1.2 POWER AT RATED ENGINE SPEED							
43.33	2201	614	3001	12.30	14.43	283.9	3.00
3.1.3 STANDARD POWER TAKE-OFF SPEED(1000±25 or 540±10min^{-1}(rev/min)							
43.88	1936	540	2640	11.68	13.70	266.3	3.20
3.1.4 PART LOADS 3.1.4.1 the torque corresponding to maximum power at the rated engine speed							
43.33	2201	614	3001	12.30	14.43	283.9	3.00
3.1.4.2 85% of torque obtained in 3.1.4.1							
37.20	2223	620	3031	10.64	12.48	286.0	2.98
3.1.4.3 75% of torque obtained in 3.1.4.2							
28.37	2259	630	3080	8.89	10.43	313.4	2.72
3.1.4.4 50% of torque obtained in 3.1.4.2							
19.17	2287	638	3119	7.20	8.45	375.6	2.27
3.1.4.5 25% of torque obtained in 3.1.4.2							
9.66	2312	645	3153	5.62	6.59	581.8	1.46
3.1.4.6 unloaded							
1.37	2341	653	3192	4.30	5.00	---	---
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							
43.88	1936	540	2640	11.68	13.70	266.2	3.20
3.1.5.2 85% of torque obtained in 3.1.5.1							
38.15	1961	547	2674	10.26	12.04	269.0	3.17
3.1.5.3 75% of torque obtained in 3.1.5.2							
28.87	1997	557	2723	8.49	9.96	294.0	2.90
3.1.5.4 50% of torque obtained in 3.1.5.2							
19.49	2022	564	2757	6.81	7.99	349.4	2.44
3.1.5.5 25% of torque obtained in 3.1.5.2							
9.85	2044	570	2787	5.47	6.42	555.0	1.54
3.1.5.6 unloaded							
1.21	2079	580	2835	4.09	4.80	---	---

-No load maximum engine speed: 2341 rev/min

-Torque(equivalent crankshaft) at maximum power

. At rated engine speed: 188.0 Nm

.At 2-hour test: 188.0 Nm

-Maximum torque(equivalent crankshaft) : 246.9 Nm

(engine speed:1402 rev/min)

Mean atmospheric conditions	
Temperature	20 ℃
Pressure	100.4 kPa
Relative humidity	49 %
Maximum Temperature:	
Coolant	78 ℃
Engine oil	107 ℃
Fuel	25 ℃
Engine air intake	20 ℃

3.2 Hydraulic power and lifting force

-Date and location of test: Apr. 11,2003 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)				2200		
Maximum(sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes/No	16.0	60	70	2200		
Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power	14.4	65		2200	28.8	6.91
Maximum available flow and maximum power from one coupler pair:	12.0	65		2200	34.9	6.98
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	160 mm	102 mm
Vertical movement: without lifting force: with lifting force:	 662 mm 650 mm	 828 mm 808 mm
Maximum corrected force exerted throught full range	20.93 kN	14.13 kN
Corresponding pressure of hydraulic fluid	14.4 MPa	14.4 MPa
Moment about rear wheel axle	18.62 kN.m	21.19 kN.m
Maximum tilt angle of mast from vertical	—	10.2^0

Lifting heights relative to the horizontal plane including the lower link pivot points												
mm	-432	-400	-374	-300	-200	-100	0	100	200	276	300	376
Lifting forces (the values of force measured are correspond to a hydraulic pressure equivalent to 90 % of the actual relief value pressure setting of the hydraulic lifting system) At the hitch point,Corresponding pressure 14.4 MPa												
kN	—	—	22.10	24.89	25.06	24.01	23.45	23.25	22.41	20.93	—	—
At the frame, Corresponding pressure 14.4 MPa												
kN	22.36	22.10	—	21.37	20.93	20.05	18.47	17.23	16.02	—	14.58	14.13

3.3 Drawbar performance

-Date of tests: Apr. 21,2003

-Type of track: Concrete

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	mm	kPa	kPa
Unballasted	588	240	180
Ballasted	586	240	180

Gear numbera nd range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consum -ption	Specific energ	Temperatures			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Tempe-r ature	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)														
L1	13.37	24.07	2.00	2275	3102	14.80	551	1.53	29	83	88	21	51	99.5
L2	23.24	23.90	3.50	2255	3075	14.95	407	2.08	29	83	88	21	51	99.5
L3	33.75	20.08	6.05	2202	3002	6.37	354	2.39	29	83	88	21	53	99.5
L4	35.46	16.37	7.80	2198	2997	3.95	348	2.43	29	84	89	21	52	99.5
H1	34.91	14.17	8.87	2199	2999	3.05	341	2.48	30	84	89	21	55	99.6
3.3.2 MAXIMUM POWER IN TESTED GEARS(ballasted tractor)														
L1	16.21	29.33	1.99	2270	3095	14.90	481	1.76	29	83	85	21	53	99.5
L2	27.55	28.42	3.49	2250	3068	15.00	389	2.17	29	84	85	21	55	99.6
L3	36.50	20.99	6.27	2207	3010	3.78	328	2.58	30	84	84	21	52	99.5
L4	37.37	16.90	7.96	2210	3014	2.44	323	2.62	30	84	84	20	52	99.5
H1	37.48	14.96	9.02	2208	3011	1.70	325	2.60	30	84	84	20	50	99.4
3.3.3 FIVE-HOUR TESTS														
3.3.3.1 FIVE-HOUR TEST at 75 % of pull at maximum power(at rated engine speed)														
H1	28.61	11.23	9.17	2230	3041	0.71	388	2.18	30	84	90	20	56	99.6
3.3.3.2 FIVE-HOUR TEST at pull corresponding to 15 % wheelslip with additional ballast: 0 kg														
L2	27.60	28.31	3.51	2254	3074	14.70	397	2.13	30	84	90	20	58	99.7

Oil consumption during ten hours duration of tests 3.3.3.1 and 3.3.3.2: 58.0 g/h

3.4 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	4.66	4.75
Radius of turning circle	4.51	4.55

3.5 Location of centre of gravity

-Height above ground: 852 mm

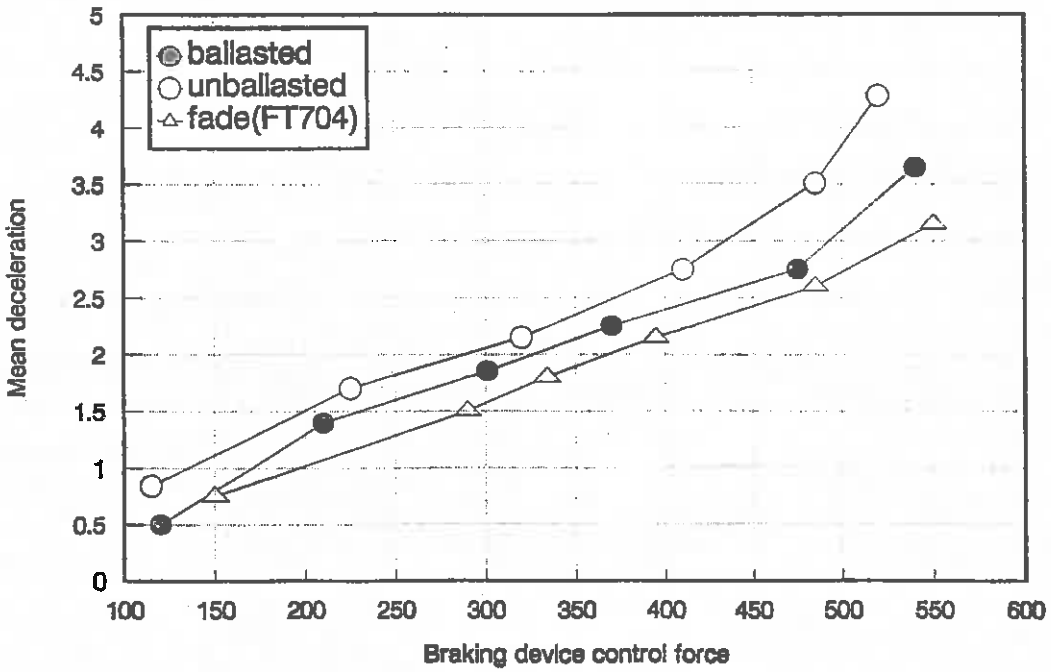
-Distance from the vertical plane containing the axis of the rear-wheels: 950 mm

-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: Apr. 11,2003



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	34.8	0.120	0.51	91.6
	34.8	0.210	1.40	33.4
	34.8	0.301	1.85	25.3
	34.8	0.370	2.25	20.8
	34.8	0.475	2.75	17.0
	34.8	0.540	3.65	12.8
Unballasted tractor	35.1	0.115	0.84	56.6
	35.1	0.225	1.70	28.0
	35.1	0.320	2.15	22.1
	35.1	0.410	2.75	17.3
	35.1	0.485	3.51	13.5
	35.1	0.520	4.28	11.1

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

-Abnormal vibration: None

3.6.2 Fade test

Speed before application of brakes km/h	Braking control force kN	Mean deceleration m/s^2	Minimum stopping distance without locking the wheels
34.8	0.150	0.75	62.3
34.8	0.290	1.50	31.1
34.8	0.334	1.80	26.0
34.8	0.395	2.15	21.7
34.8	0.485	2.60	18.0
34.8	0.550	3.15	14.8

-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	0.40 kN	0.40 kN

3.7 Measurement of external noise

-Date of tests:	Apr. 16,2003	
-Sound level meter, make/mode/type:	B & K 2209	
-Type of track:	Concrete	
-Gear number:	H4	
-Travelling speed before accceleration:	26.0	km/h
-Sound level:	86.0	dB(A)

4 OPTIONAL TEST RESULTS

4.1 Low temperature starting

-Date of tests:	Apr. 28,2003
-Detail of the starting aids used for the tests,battery included:	No.ne
-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 ℃

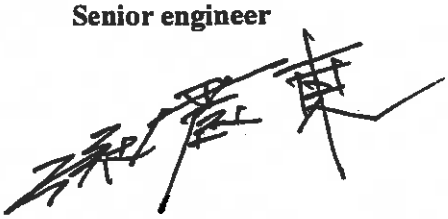
5 REPAIRS **None**

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

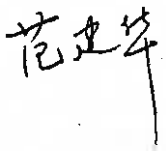
Senior engineer



Sun zhendong

Responsible engineer for these tests:

Senior engineer



Fan Jianhua

Vice-director of the COTTEC

Senior engineer



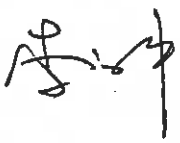
Guo Qingchen

Members of the tractor test board:

Shen Jilan	**Yan Xiaofang**
Wang Dailin	**Liu Hua**
Yanghongmei	**Gao Jian**
Zhen zhigang	**Liu Hui**

Vice-director of the COTTEC

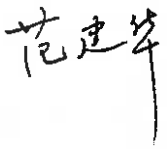
Senior engineer



Li Jingzhong

Editor for the test report publish:

Senior engineer

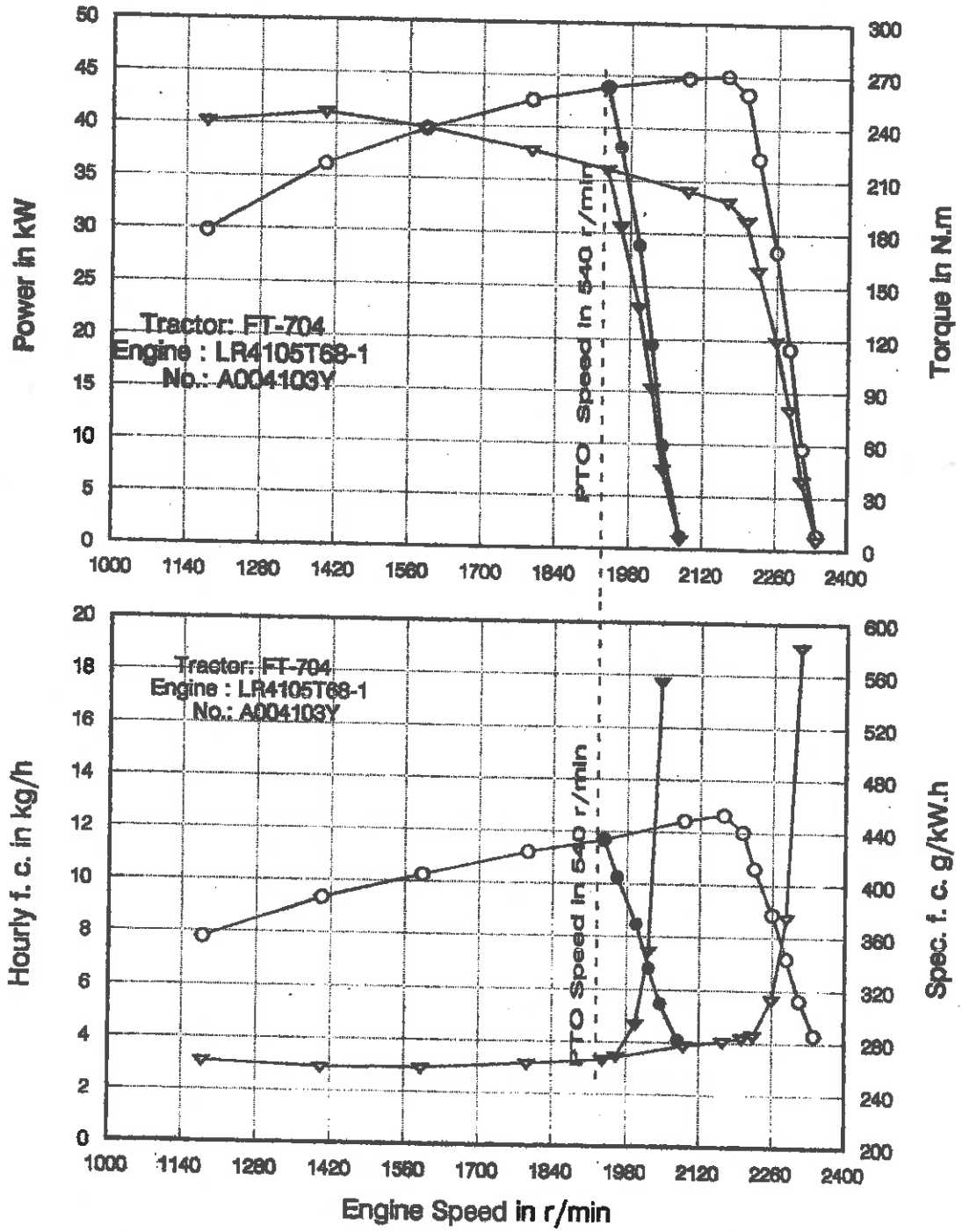


Fan Jianhua

Date: July 12,2003

ANNEX

MAIN POWER TAKE-OFF TEST CURVES 1



ANNEX

MAIN POWER TAKE-OFF TEST CURVES 2

