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Test in accordance with the OECD Restricted Standard Code for the Official Testing of Agricultural Tractors

Case International 485 and 3220 Four-Wheel Drive Tractors with 8 Speed Manual Transmission





Manufactured by: J I Case (Europe) Limited
Wheatley Hall Road
Doncaster
DN2 4PG

Submitted for test by: The manufacturer

Report No: 768 (Original Report No 709)

Date: March 1987 and April 1994

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R94/71925/OECD

STATEMENT REGARDING ALL MODELS AND NEW MODELS

The Case International Model 3220 Four-Wheel Drive is identical to the Model 485 Four-Wheel Drive except with regard to the metal work of the bonnet, lights, cab and the exhaust system.

The new fuel injection system is a direct replacement for the old models and obtains the same delivery characteristics, therefore the original power take-off test is deemed to still be valid.

The new specification of front axle is a direct replacement for the original and gives less than 1% difference in speed, therefore the original drawbar test is deemed to still be valid.

The results contained in this report are those obtained during tests on the Model 385 Two-Wheel Drive.

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Tractor manufacturer's name and address:	J I Case (Europe) Limited Wheatley Hall Road Doncaster DN2 4PG
Location of tractor assembly:	Doncaster
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with the agreement of the testing station
Place of running in:	Doncaster
Duration of running in:	110 hours
Location of test:	Silsoe Research Institute (AFRC)

I. SPECIFICATION OF TRACTOR

TRACTOR	Original Test	[New Model]
Make:	Case International	
Model:	485	[3220]
Type:	Four wheel drive unit construction	
Serial No:		
1st Serial No:	B480011B18002 B4800--B18001	[3220 - JJE0900001]

ENGINE

Make:	J I Case Company, Neuss, Germany
Model:	D179
Type:	4-stroke, naturally aspirated direct injection diesel
Serial No:	179DT2D386857
Ist Serial No:	

Cylinders

Number/disposition:	3, vertical, in-line
Bore/stroke:	98.4 mm x 128.5 mm
Capacity:	2933 cm^3
Compression ratio:	16 : 1
Arrangement of valves:	Overhead
Cylinder liners:	Replaceable, wet

Fuel system	Original Test	[New Model]
Fuel feed system:	Feed pump incorporated in injection pump	
Make, type and model of fuel filter:	Bosch double fuel filter with replaceable elements and water traps	
Capacity of fuel tank:	77 litres	[3220ALP - 112 litres]
Make, type and model of injection pump:	Bosch CR distributor type - EP/VA3/10/H 1090 CR43/3	[VE3/10F 1090 R276/2 Case part 1329100 C1]
Serial No:		
Manufacturer's production setting of injection pump:		
. Flow rate	10.69 l/h to 11.28 l/h at 2180 rev/min and full load at 38° fuel temperature	[58.5 +/- 2 mm^3 per stroke at 1090 rpm pump speed for fuel 0.835/0.845 sg at 15°C]
. Timing	14° before T.D.C	[8° before T.D.C]
Make, type and model of injectors:	Bosch DLLA 150 S 836	
Injection pressure:	22.5 MPa	
Governor		
Make:	Bosch	
Model:	Incorporated in injection pump	
Type:	Mechanical	
Governed range of engine speed:	770 to 2410 rev/min	
Rated engine speed:	2180 rev/min	
Air cleaner		
Pre-cleaner:		
. Make	Coopers	
. Type	Centrifugal	
. Model	In main cleaner body	
. Location of air intake		
Main cleaner:		
. Make	Coopers	
. Type	Dry paper element	
. Model	Case part 3125198 R94	
. Location of air intake	Under bonnnet forward of engine	
Maintenance indicator:	Warning light on instrument panel	

Lubrication system	Original Test	[New Model]
Type of feed pump:	Forced feed from gear pump	
Type of filter:	Mann spin-on full flow with replaceable cartridge and metal strainer sump	
Number:	1	

Cooling system

Type of coolant:	Water and antifreeze solution	
Type of pump:	Impeller	
Specification of fan:	Belt driven puller	
Number of fan blades:	5	
Fan diameter:	457 mm dia	
Coolant capacity:	11.4 l	
Type of temperature control:	Thermostat	
System pressure:	70 kPa	

Starting system

Make:	Bosch	[Magneti Marelli]
Model:	JF	[M127]
Type:	Electrical, pre-engaged, solenoid operated	
Starter motor power rating:	2.7 kW	[2.8 kW]
Cold starting aid:	Thermostart	
Safety device:	The clutch pedal must be fully depressed to actuate the safety start switch.	

Electrical system

Voltage:	12
Generator:	
. Make	Lucas
. Model	A127
. Type	Belt driven
. Power	45A at 6,000 rev/min
Batteries:	
. Rating	1, Chloride 90 Ah at 20-hour rating

Exhaust system	Original Test	[New Model]
Make:	Burgess	
Model:	Case part 82713C1	[Case part 139138 A1]
Type:	Reflex	
Location:	Vertical above bonnet on right-hand side	
Height of outlet above ground:	2360 mm	[2596]

TRANSMISSION TO WHEELS

Clutch

Make:	Laycock
Model:	Case part 92602 C92; or Heavy duty 485026 C3
Type:	Dry, for transmission only
Number of plates:	1
Diameter of plates:	279 mm;
Method of operation:	Hydraulically by foot pedal

Gear box

Make:	Case IH
Model:	Doncaster
Type:	Mechanical synchromesh
Number of gears:	8 forward + 4 reverse
Available options:	Change of gear ratios, 16 forward + 8 reverse, 8 forward + 8 reverse shuttle

Rear axle final drives

Make:	Case IH
Model:	Doncaster
Type:	Crown wheel and pinion, with differential and epicyclic reduction gear final drives

Differential lock:

. Type	Mechanical
. Method of engagement	Pedal operated
. Method of disengagement	Self-disengaging

Front axle and final drives

Make:	ZF	[Carraro]
Model:	ALP 330	[707 S4 or 707 STD 164]
Type:	Crown wheel and pinion, and epicyclic reduction gear final drives	

Differential lock:

. Type	Self locking
. Method of engagement	Pedal operated
. Method of disengagement	Self disengaging

Total ratios and travelling speeds

Gear	Group No	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed at rated engine speed:* 2200 rev/min km/h
Forward			
1	L1	214.931	2.45
2	L2	132.289	3.98
3	L3	97.855	5.37
4	L4	76.073	6.91
5	H1	56.069	9.38
6	H2	34.510	15.24
7	H3	25.527	20.60
8	H4	19.845	26.50
Reverse			
1	R	179.11	2.94
2	R	110.24	4.77
3	R	81.55	6.45
4	R	63.39	8.30

L = Low range H = High range

(*) Calculated with a tyre dynamic radius index of 640 mm (ISO 4251/1-1984)
Number of revolutions of front wheels for one revolution of rear wheels: 1.407

POWER TAKE-OFF

Main power take-off

Type:	Independent
Method of engagement:	By hand lever lever
Number of shafts:	1
Method of changing power take-off speeds:	Manual, lever selection

Clutch

Make:	Case IH
Model:	Doncaster
Type:	Hydraulically engaging wet multi-plate clutch
Number of plates:	5
Diameter of plates:	125 mm

Power take-off proportional to engine speed

540 rev/min

Location:	At rear of tractor
Diameter of power take-off shaft:	34.9 mm
Number of splines:	6 to ISO 500
Height above ground:	620
Distance from the median plane of the tractor:	0
Distance behind rear wheel axis:	400 mm
Pto speed at rated engine speed:	608 rev/min
Engine speed at standard power take-off speed:	1936 rev/min
Ratio of rotation speeds:	3.584:1
Power restriction and maximum torque:	ISO recommendation, 48 kW
Direction of rotation (viewed from behind tractor):	Clockwise

1000 rev/min

Location:	Option - at rear of tractor
Diameter of power take-off shaft:	34.9 mm
Number of splines:	21 to ISO 500
Height above ground:	497 mm
Distance from the median plane of the tractor:	0
Distance behind rear-wheel axis:	400 mm
PTO speed at rated engine speed:	995 rev/min
Engine speed at standard power take-off speed:	2190 rev/min
Ratio of rotation speeds:	2.190 : 1
Direction of rotation (viewed from behind tractor):	Clockwise

POWER LIFT

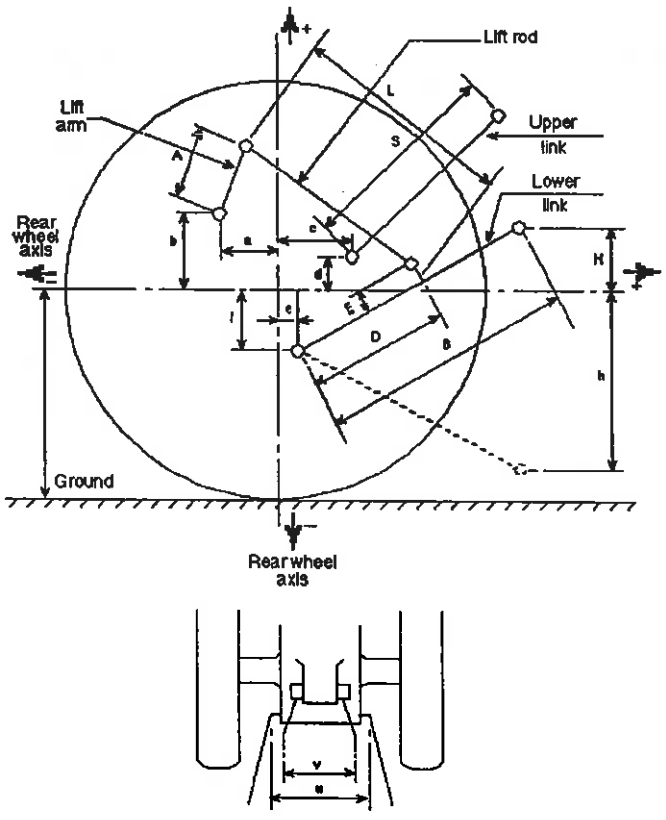
Make:	Case IH
Model:	Doncaster
Type:	Hydraulic
Type and number of cylinders:	One internal single acting
Type of linkage lock for transport:	Hydraulic
Relief valve pressure setting:	17.2 MPa - 18.0 MPa
Opening pressure of cylinder safety valve:	18.6 MPa
Lift pump type:	Plessey, fixed delivery gear
Transmission between pump and engine:	Forward end of pto shaft, independent of main and pto clutches
Type and number of filters:	1 full flow filter to main pump and fine screen to transfer pump
Site of oil reservoir:	Integral with transmission housing
Type, number and location of tapping points:	None
Maximum volume of oil available to external cylinders:	13.6 l, 40.9 l with overfill

AUXILIARY HYDRAULIC SYSTEM

Make:	
Model:	Case IH
Type:	Doncaster
Relief valve pressure setting:	17.2 MPa - 18.0 MPa
Lift pump type:	Plessey, fixed delivery gear
Transmission between pump and engine:	Forward end of pto shaft, independent of main and pto clutches
Type and number of filters:	1 full flow filter to main pump and fine screen to transfer pump
Site of oil reservoir:	Integral with transmission housing
Type and number of tapping points:	3 on double acting auxiliary control valve
Maximum volume of oil available to external cylinders:	13.6 l, 40.9 l with overfill

THREE-POINT LINKAGE

Category:	1 or 2 to ISO 730/1
Category adaptor:	By reversing lower links
Controls:	Draught and position control, floating position, top link sensing



LIFT TEST
Linkage geometry

Fig 2.1

Table 2.1

Dimensions of linkage when attached to the standard frame (ISO 730/3-1982 CAT 2)

			[New] Model Dimensions	Original Test
			Dimensions and range	Setting used on test
Length of lift arms:		(A)	298 mm	298 mm
Length of lower links:		(B)	718 mm	718 mm
Distance of lift arm pivot point from rear wheel centre line:	horizontally: vertically:	(a) (b)	66 mm 288 mm	66 mm 288 mm
Horizontal distance between the two lower link points:		(u)	518 mm	518 mm
Horizontal distance between the two lift arm end points:		(v)	445 mm	445 mm
Length of upper link:		(S)	[533-750] mm	620 mm
Distance of upper link pivot point from rear wheel centre line:	horizontally: vertically:	(c) (d)	279 mm 228 mm	279 mm 228 mm
Distance of lower link pivot point from rear wheel centre line:	horizontally: vertically:	(e) (f)	171 mm 171 mm	171 mm 171 mm
Distance of lower link points to lift rod pivot points on lower link centre line:	horizontally: vertically:	(D) (E)	359 mm on centre line	359 mm on centre line
Length of lift rods:		(L)	[499-613] mm	588 mm
Height of lower hitch points (*) relative to the rear wheel centre line, situated 640 mm above the ground level:				
- in low position		(h)	[210-543] mm	506 mm
- in high position		(H)	[225-390] mm	245 mm
Height of lower hitch points when locked in transport position (*):			Any height within lift range (Hydraulic Transport Lock)	

* Assuming r = tyre dynamic radius index of 640 mm ISO 4251/1-1984

SWINGING DRAWBAR	Drawbar as tested	Pick-up hitch
Type:	Clevis	Hook
Height above ground, maximum:	328 mm	307 mm
,minimum:	213 mm	
Type of adjustment:	Inverting drawbar	
Distance of hitch point from rear-wheel axis, horizontally:	760 mm	500 mm
Distance of hitch point form power take-off shaft ends:		
. Vertically: 540 rev/min shaft:	292 and 407 mm	313 mm
1000 rev/min shaft:	169 and 284 mm	
. Horizontally:	360 mm	100 mm
Lateral adjustment (centre of clevis):		
. Right-hand:	305 mm	
. Left-hand:	305 mm	
Distance of pivot point from rear axles horizontally:	300 mm	
Vertical opening of clevis:	65 mm	
Diameter of drawbar pin hole:	26 mm	35 mm
Maximum vertical permissible load:	13.3 kN	13.3 kN
TRAILER HITCH		
Type:	None fitted	
LINKAGE DRAWBAR		
Type:	None fitted	
FRONT TOWING HITCH	None fitted	

STEERING

Make:	Case IH
Model:	Doncaster
Type:	Hydrostatic, steering wheel coupled to motor unit, power to unit from main hydraulic pump through priority valve/flow divider.
Method of operation:	
. Pump	Plessey, live
. Motor	Danfoss OSPC 100 OR
. Ram	ZF double acting balanced [Carraro double acting balanced]
. Filter	As main hydraulics
Working pressure:	14.5 MPa

BRAKES

Service brake

Make:	Case IH
Model:	Doncaster
Type:	Oil immersed single disc, 1 per side
Method of operation:	Hydraulically actuated, independent or combined, pedal operated
Trailer braking take-off:	Optional

Parking brake

Type:	Mechanical via linkage [Cable]
Method of operation:	Hand lever with ratchet

WHEELS

Number:	4
. Front	2 steering and driving
. Rear	2 driving
Wheelbase:	2113 mm

Track width adjustment:

	Minimum, mm	Maximum, mm	Adjustment method
Front	1365 [1364]	1825 [1824]	By reversing wheels and offset lug rims
Rear	1325 [1425]	1925 [1925]	By reversing wheels and offset lug rims

[ ] - New model

PROTECTIVE STRUCTURE

Make:	Case International	[Timmerman]
Model:	L (Low Profile) or C85 option	[LP (Low Profile) or C85 option]
Type:	Safety cab	[Safety cab]
Manufacturer's name and address:	Case IH, Croix, France	[Tim S.A., B.P. 49 F-59 380 Bergues, France]
Protective device:		
. Rollguard	Safety cab	[Safety cab]
. Tiltable/Not tiltable	Non-tiltable	
OECD approval number:	CSD 0518/17-a,	[CSS 0254]

DRIVER'S SEAT

Make/Model/Type:	Bostrom TS3	[KAB XH2/TS3 or XH2/U1, Grammer DS 85 H/90A, 90AR, LS 95 H1/90AR, DS 44/2H]
Type of suspension:	Torsion bar	[Spring]
Type of damping:	Hydraulic	[Hydraulic]
Range of adjustment:		
. Longitudinal	150 mm	[140 mm]
. Vertical	70mm	[60 mm]

LIGHTING

Unrestricted beam angle of headlight in plan view: 115°

485	Height above ground to centre, mm	Size, mm	Distance from outside edge of tractor to centre, mm
Headlights	1260	150 x 90	762
Sidelights	1597	92 x 70	247
Rear lights	1383	65 x 70	306
Axle reflectors	--	--	--
Reflectors	1383	55 x 70	244

3220	Height above ground to centre, mm	Size, mm	Distance from outside edge to median plane of tractor, mm
Headlights	[1330]	[160 x 90]	[240]
Sidelights	[1530]	[43 x 85]	[742]
Rear lights	[1458]	[105 x 97]	[879]
Axle reflectors	[650]	[80 dia min]	[560]
Cab reflectors	[1328]	[47 x 91]	[879]

II. TEST CONDITIONS

Overall dimensions

Length, mm	Width		Height at top of	
	Minimum, mm	Maximum, mm	Protective structure, mm	Exhaust pipe, mm
3535 mm	1840	2300	2310 [2376]	2360 [2596]

Ground clearance (unballasted tractor) 236 mm

Clearance-limiting part: Drawbar clevis inverted

Tractor mass (with safety cab)

485	Unballasted		Ballasted	
	Without driver, kg	With driver, kg	Without driver, kg	With driver, kg
Front	1143	--	--	--
Rear	1794	--	--	--
Total	2937	--	--	--

Weights and dimensions supplied by manufacturer for EEC type approvals

3220ALP Cab	Unballasted		Ballasted	
	Without driver, kg	With driver, kg	Without driver, kg	With driver, kg
Front	1165	1190	--	--
Rear	1820	1880	--	--
Total	2995	3070	--	--

Tyres and track width specification

	Front	Rear
Tyres . dimensions . ply rating . type	8.3 x 24 6 Radial	12.4 x 32 6 Radial
Maximum load (tyre manufacturer's), kg	810	1355
Maximum load (tractor manufacturer's), kg	810	1355
Inflation pressure (tyre manufacturer's), Bar	3.3	1.7
Dynamic radius index	470	640
Chosen track width (manufacturer's nominal)	1365	1325

Oils and lubrication

Capacity and change interval

	Capacity l	Oil change h	Filter change h
Engine	7.5	200	200
Front axle	5.0	800	None
Final drive (front)	0.6	800	None
Gearbox	34.0 [36.5]	800	200
Rear axle Hydraulic system) Final drives (rear)) Steering Brakes	Integral with gearbox		

Fuels and lubricants used in tests

Fuel

Type: Diesel oil with cetane index of 47 and kinematic viscosity of 2.9 cSt at 40°C within the specification limits of Class D British Standard 2869/1970.

Specific gravity: 0.8653 kg/l at 15°C

Oils	Recommended	Used during test
Engine oil		
Type:	SAE 15W/40	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Transmission oils		
Type:	SAE 15W/30	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Rear final drives		
Type:	SAE 15W/30	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Front differential and final drives		
Type:	SAE 85W-140EP	As recommended
Viscosity:	11.0 cSt at 100°C	
Classification:	MIL-L-2105-C	
Hydraulic brakes		
Type:	SAE 15W/30	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Hydraulic fluid		
Type:	SAE 15W/30	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Steering oil		
Type:	SAE 15W/30	As recommended
Viscosity:	54 cSt at 50°C	
Classification:	MIL-L-2104-C	
Recommended grease:	Consistency 2 lithium	As recommended
Number of lubrication points:	8	

III. TEST RESULTS

A. COMPULSORY TEST RESULTS

1. MAIN POWER TAKE-OFF

Date and location of tests: 4 October 1986
Silsoe Research Institute (AFRC),
Wrest Park, Silsoe, Bedford

Type of dynamometer: Water brake, Heenan & Froude

Power kW	Speed		Fuel consumption			Specific energy kWh/l
	Engine rev/min	P.T.O. rev/min	Hourly kg/h	Hourly l/h	Specific g/kWh	
1.1 MAXIMUM POWER - TWO HOUR TEST						
32.1	2180	608	8.99	10.39	280	3.09
1.2 POWER AT RATED ENGINE SPEED						
32.1	2180	608	8.99	10.39	280	3.09
1.3 STANDARD POWER TAKE-OFF SPEED (540 ± 10 rev/min)						
30.6	1940	540	8.24	9.52	269	3.21
1.4 PART LOADS The torque corresponding to maximum power at rated engine speed						
32.1	2180	608	8.99	10.39	280	3.09
1.4.2 85% of the torque defined in 1.4.1						
27.8	2226	620	7.85	9.07	282	3.06
1.4.3 75% of the torque defined in 1.4.2						
21.0	2247	626	6.56	7.58	312	2.77
1.4.4 50% of the torque defined in 1.4.2						
14.1	2272	633	5.23	6.05	371	2.33
1.4.5 25% of the torque defined in 1.4.2						
7.1	2302	641	4.00	4.63	563	1.53
1.4.6 Unloaded						
0	2329	649	2.93	3.38	--	--

Power kW	Speed		Fuel consumption			Specific energy kWh/l
	Engine rev/min	P.T.O. rev/min	Hourly kg/h	Hourly l/h	Specific g/kWh	
1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEEDS (540 ± 10 rev/min) 1.5.1 The torque corresponding to maximum power						
30.6	1940	540	8.24	9.52	269	3.21
1.5.2 85% of the torque obtained in 1.5.1						
26.2	1949	543	7.10	8.21	271	3.19
1.5.3 75% of the torque obtained in 1.5.2						
19.8	1980	552	5.87	6.78	296	2.92
1.5.4 50% of the torque obtained in 1.5.2						
13.6	2008	560	4.78	5.53	351	2.46
1.5.5 25% of the torque obtained in 1.5.2						
6.8	2028	565	3.59	4.15	529	1.64
1.5.6 Unloaded						
0	2053	572	2.47	2.86	--	--

No load, maximum engine speed: 2329 rev/min

Torque (equivalent crankshaft) at maximum power: 140.2 Nm

Maximum torque (equivalent crankshaft) (engine speed 1440 rev/min): 163.8 Nm

Mean atmospheric conditions:

- Temperature 24°C
- Pressure 1024 m bar
- Relative humidity 34%

Maximum temperatures:

- Coolant 65°C
- Engine oil 78°C
- Fuel 40°C
- Engine air intake 25°C

2. HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 25 September 1986

2.1 Hydraulic power test

Sustained pressure with relief valve open: 17.9 MPa

Pump delivery rate at minimum pressure: 45.7 l/min

	Flow rate l/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power	39.4	16.1	10.5
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	39.7	16.0	10.6

Tapping point used for test: Auxiliary service connection

Temperature of hydraulic fluid if different from 65 ± 5°C – °C

Opening pressure of the unloading valve: -- MPa

Closing pressure of the unloading valve: -- MPa

2.2 Power lift test - (To ISO 730/1)

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	134 mm	134 mm
Vertical movement	751 mm	989 mm
Maximum corrected force exerted through full range	12.1 kN	10.4 kN
Corresponding pressure of hydraulic fluid	16.0 MPa	16.0 MPa
Moment about rear-wheel axis	10.8 kNm	15.6 kNm
Maximum tilt angle of mast over range of lift		22 degrees

Linkage settings for test - see Table 2.1 and Figure 2.1

Lifting heights relative to the horizontal plane including the lower link pivot points										
mm	--	-390	-335	-230	-80	0	100	250	360	525
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system)										
at the hitch points kN	--	--	12.1	13.1	14.6	15.3	16.1	17.4	18.4	--
Corresponding pressure: 16.0 MPa										
at the frame kN	--	10.4	10.6	11.4	12.2	12.5	12.6	12.3	11.8	11.3
Corresponding pressure: 16.0 MPa										

Note: Test was not carried out to ISO 730-1:1990, but to original OECD rules which were in force at the time.

3. DRAWBAR POWER AND FUEL CONSUMPTION TEST (UNBALLASTED TRACTOR, 4 WHEEL DRIVE)

Date and location of tests: 20 October 1986
Silsoe Research Institute (AFRC)
Wrest Park
Silsoe

Type of track: Concrete

	Tyre inflation pressure (kPa)	
Height of drawbar above ground	Front	Rear
264	138	83

Gear and Range	Power	Drawbar Pull	Speed	Engine Speed	Slip of wheels or track	Spec fuel cons	Spec energy	Temperature			Atmospheric conditions		
								Fuel	Coolant	Eng oil	Temp	Rel Humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kwh	kWh/l	Deg.C	Deg.C	Deg.C	Deg.C	%	kPa
3.1 MAXIMUM POWER IN TESTED GEARS													
L1*	16.3	26.2	2.23	2252	11.0	356	2.43	36	76	66	7	60	99.3
L2*	25.7	26.1	3.55	2188	10.9	344	2.52	42	81	66	6	61	99.4
L3	27.4	19.3	5.10	2180	4.8	329	2.63	40	78	66	7	61	99.4
L4	26.9	14.5	6.67	2180	3.2	342	2.53	40	80	66	5	71	99.6
3.2 FUEL CONSUMPTION 3.2.1 In selected gear, at maximum power at rated speed													
L3	27.4	19.3	5.10	2180	4.8	329	2.63	40	78	66	7	61	99.4
3.2.1.1 75% of pull at maximum power at rated speed													
L3	21.8	14.9	5.27	2230	3.5	348	2.49	41	80	66	7	64	99.4
3.2.1.2 50% of pull at maximum power at rated speed													
L3	14.9	9.9	5.43	2256	2.0	399	2.17	40	80	66	7	69	99.5
3.2.1.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.1													
L4	21.7	15.0	5.20	1702	3.5	319	2.71	38	81	66	7	62	99.3
3.2.1.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.2													
L4	14.7	9.9	5.35	1728	2.0	348	2.48	40	77	66	7	61	99.3
3.2.2 In selected gear nearest to 7.5 km/h, at maximum power at rated engine speed													
L4	26.9	14.5	6.67	2180	3.2	342	2.53	40	80	66	5	71	99.6
3.2.2.1 75% of pull at maximum power at rated speed													
L4	21.3	11.2	6.86	2222	2.4	361	2.39	37	80	66	6	67	99.5
3.2.2.2 50% of pull at maximum power at rated speed													
L4	14.4	7.4	7.02	2251	1.5	433	2.00	37	82	66	6	66	99.5
3.2.2.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.1													
H1	21.5	11.3	6.84	1631	2.4	310	2.79	39	77	66	6	63	99.4
3.2.2.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.2													
H1	14.3	7.4	7.03	1659	1.5	355	2.43	37	75	66	6	61	99.4

* Maximum power limited by wheelslip and bounce

Repairs and adjustments during tests: None

Remarks: None

Test carried out at AFRC Engineering by: P.C. Seward, F. Thistlethwaite.

Officer in charge: P.C. Seward

Signed: D.W. Smith Head of Testing Group

R.M. Stayner for the Director

Date: 25th March 1987.

for the Director

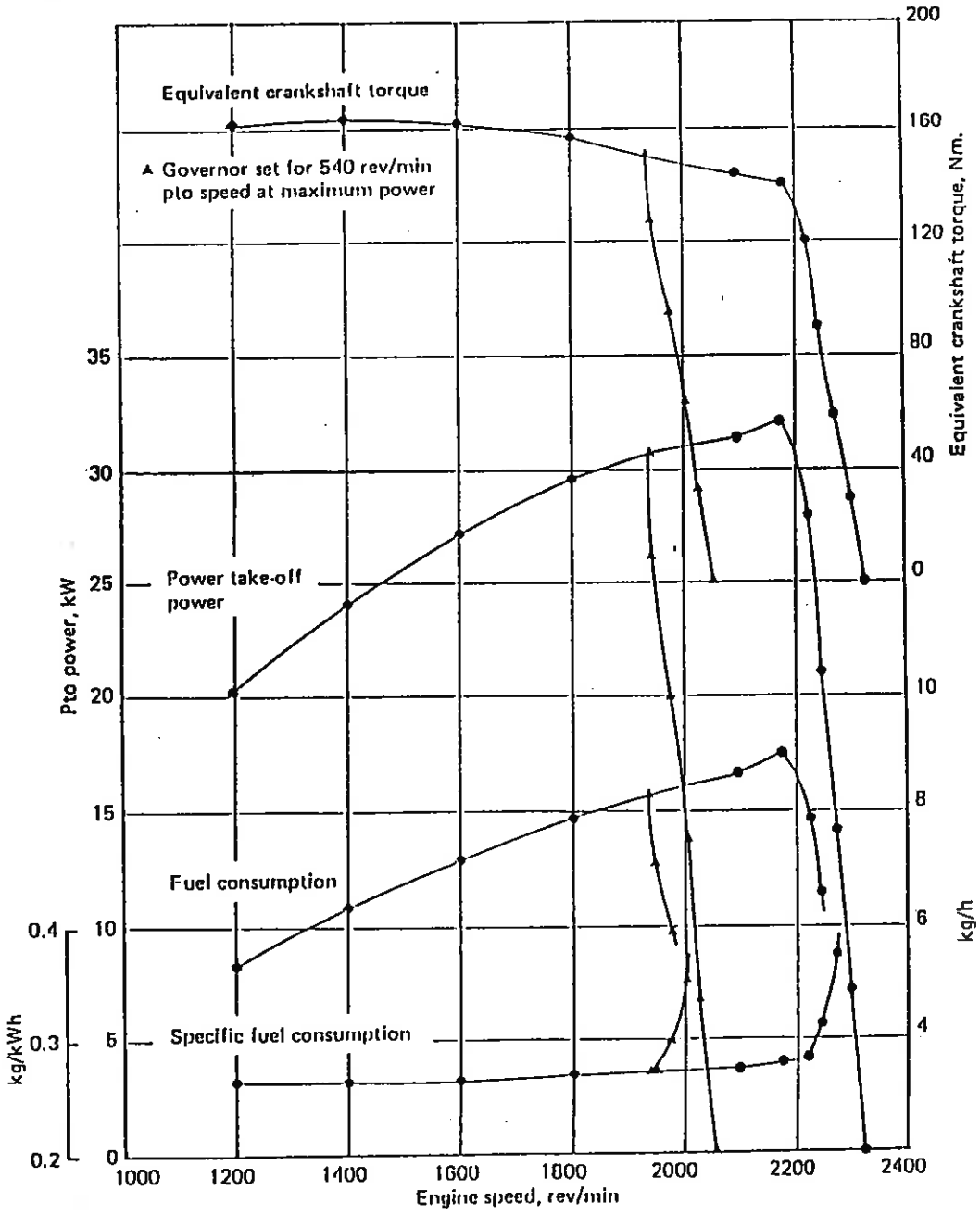
P C Seward
Head of Test Engineering Group

Date: 4/5/94

ANNEX I MAIN POWER TAKE OFF CURVES

PTO POWER TEST - CASE INTERNATION 485, 4 WHEEL DRIVE

Governor set for maximum power at rated speed •
Governor set for maximum power at PTO speed ▲

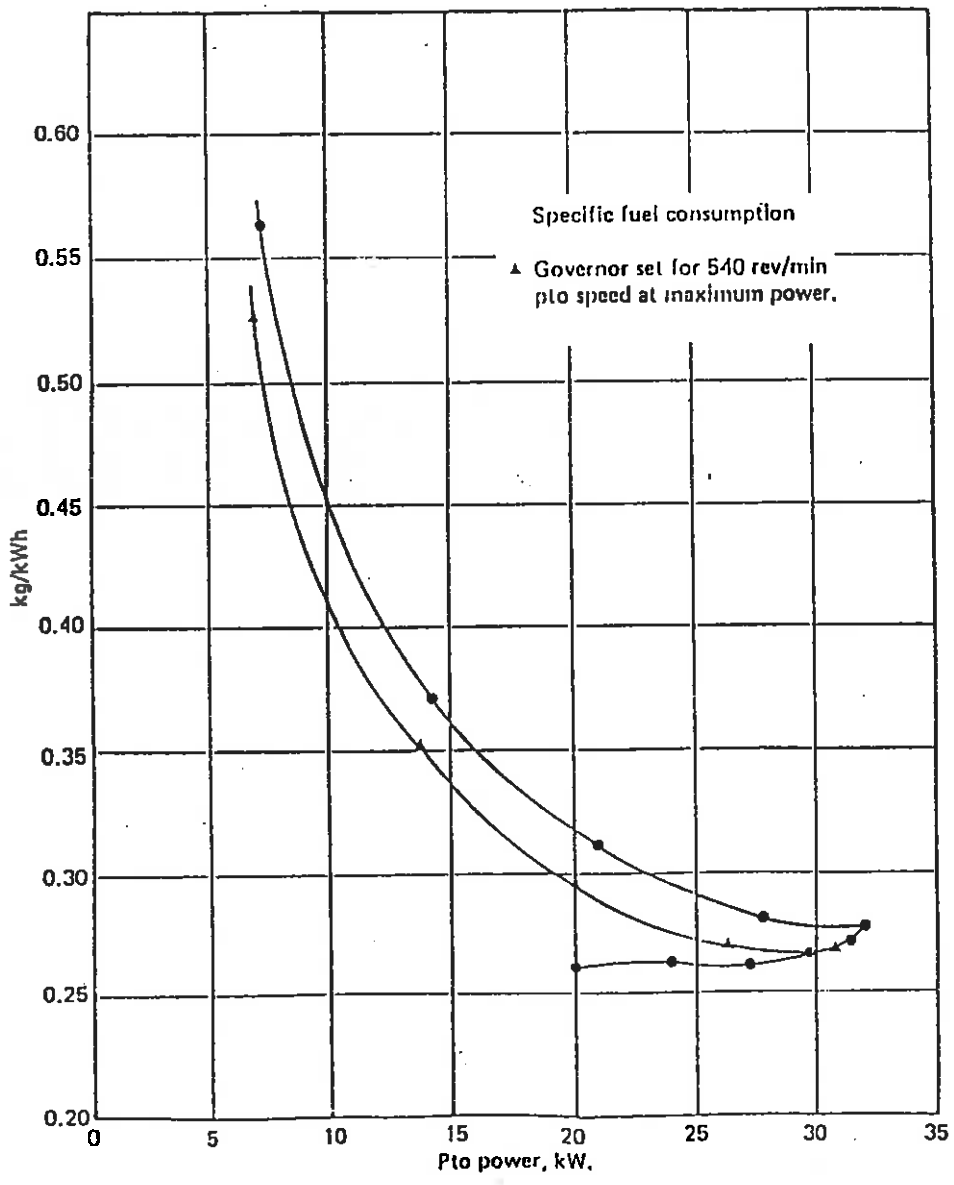


Power take-off test.

ANNEX I MAIN POWER TAKE OFF CURVES

PTO POWER TEST - CASE INTERNATION 485, 4 WHEEL DRIVE

Governor set for maximum power at rated speed •
Governor set for maximum power at PTO speed ▲



Power take-off test