OECD APPROVAL # 1568
(Restricted code)

Date of approval: 27 July, 1995

NEBRASKA TRACTOR TESTING LABORATORY
DEPARTMENT OF BIOLOGICAL SYSTEMS ENGINEERING
INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
UNIVERSITY OF NEBRASKA - EAST CAMPUS
LINCOLN, NEBRASKA 68583-0832, USA

REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

CATERPILLAR CHALLENGER 85C RUBBER TRACKED TRACTOR.



MANUFACTURED BY: Caterpillar Inc.
100 N.E. Adams Street
Peoria, Illinois 61629, USA
NEBRASKA TEST NO. 1687
Test dates: April 4, 1995 through April 7, 1995

This test report provides the results of the tests conducted in accordance with the OECD Restricted Test Code for the Official Testing of Agricultural Tractor Performance - C(87)53 Final - Annex II.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on 27 July, 1995

Caterpillar Challenger 85C[1] Rubber-Tracked Tractor OECD # 1568

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[1] This tractor's engine operates at two power levels. The lower level is operative only in first and second gear and when the tractor is stationary. This feature cannot be controlled by the operator. For test purposes an override switch was installed which enabled both power levels to be transmitted to the PTO.

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SPECIFICATIONS OF TRACTOR

GENERAL	
Manufacturers name/address	Caterpillar Inc. 100 N.E. Adams Street Peoria, Illinois 61629 USA
Location of tractor assembly	Dekalb, IL, USA
Submitted for test by	The manufacturer.
Selected for test by	The manufacturer in agreement with the test station.
Place of running in	Caterpillar proving grounds Peoria Illinois
Duration of running in	140 hours
Location of test	Tractor Testing laboratory University of Nebraska Lincoln, Nebraska, USA
SPECIFICATIONS OF TRACTOR.	
Make/Model/Type	Caterpillar Challenger 85C, Unit construction, Track laying
Number of driving members	Two rubber tracks.
Serial number	9TK1473
1st Serial number	This is the first of the 9TK series
ENGINE.	
Make	Caterpillar
Model	3176B ATAAC
Type[1]	Diesel, direct injection, electronic controlled dual power, turbocharged and air-to-air aftercooled.
Serial Number	43Z01491
Cylinders	
Number/Disposition	6, in-line, vertical
Bore/Stroke	125 mm x 140 mm
Cubic capacity	10308 cm^3
Compression Ratio	16.0 to 1
Arrangement of valves	Overhead
Cylinder liners	Wet, replaceable
Turbocharging	
Make/Model/Type	Schwitzer/S3BS060/radial flow Exhaust gas driven.
Pressure	88 - 128 kPa at rated engine speed and load

[1] This tractor's engine operates at two power levels. The lower level is operative only in first and second gear and when the tractor is stationary. This cannot be controlled by the operator. For test purposes an override switch was installed which enabled both power levels to be transmitted through the PTO and the transmission.

Fuel System	
Fuel Feed system	Engine driven transfer pump
Make/Model/Type of filters	Caterpillar/9M2342/Primary-washer-screen type; 1R0749/Secondary-paper spin-on element
Fuel tank capacity	792 liters
Make/Model/Type of Injection	Caterpillar/Electronically controlled unit injector system
Production setting of pump	
Gears 3 through 10 (HI-set)	56.0 +/- 2.6 kg/h
PTO and gears 1 & 2(LO-set)	52.0 +/- 2.4 kg/h
Make/Model/Type of injectors	Caterpillar part # 101-1619
Injection pressure	152 MPa
Timing	Variable, electronically controlled
Governor	
Make/Model/Type	Caterpillar/ADEM™ Engine Management System/electronic
Governed engine speed range	From 880 to 2300 rev/min
Rated engine speed	2100 rev/min
high-idle speed range	2300 +/- 40 rev/min
Air Cleaner.	
Pre-cleaner	
Make/Model/Type	Donaldson/DAH00-1727/with dust ejector
Air intake location	Above right front fender
Main Cleaner	
Make/Model/Type	Donaldson/ERB140213/Dry, paper dual element
Maintenance indicator	Restriction gage in air intake near air cleaner
Lubrication system.	
Type of feed pump	Gear pump
Type of filters	Spin - on, Caterpillar 1R0716
Number	One
Oil cooler	Heat exchanger with engine coolant
Cooling System.	
Type of coolant	Liquid
Type of pump	Centrifugal, belt driven
Fan specification	
Number of fan blades	8
Fan diameter	914 mm
Coolant capacity	75 liter
Type of temperature control	Thermostat
Superpressure system	48 kPa

Starting system.	
Make/Model/Type of starter	Delco/42MT/Solenoid engaged
Power Rating	5.6 kW
Cold starting aid	Ether spray in intake manifold.
Safety device	Transmission neutral switch.
Electrical System.	
Voltage & grounding.	12 Volt DC;negative ground
Alternator	
Make/Model/Type	Delco Remy/19010178/
Power rating	130 A at 2100 engine rev/min
Batteries	
Number & connection	2-12 V batteries in parallel
Rating	100 Ampere-hours per battery at 20 hour rating.
Exhaust system.	
Make/Model/Type	Donaldson/M120580/expansion chamber, 305 mm diameter
Location	Muffler and exhaust pipe vertical on right front fender
TRANSMISSION	
Clutch. (travel alone)	
Make/Model/Type	Caterpillar, wet disc,integral with transmission, oil cooled
Number of plates	6
Diameter of plates	190 mm
Method of operation	Hydraulic, pedal actuated.
Gear Box. (1)	
Make/Model/Type	Caterpillar, direct drive, full powershift,mechanical
Arrangement	Four rotating countershaft clutches and four stationary planetary clutches
Number of gears	10 forward and 2 reverse, controlled by a single hand lever
Oil cooler	heat exchanger with engine coolant
Available options	none
Rear axle and final drives.	
Make/Model/Type	Caterpillar/outboard single reduction pinion and bull gear
Differential lock	Not applicable

(1) This tractor 's engine operates at two power levels. The lower level is operative only in first and second gear and when the tractor is stationary. This cannot be controlled by the operator. For test purposes an override switch was installed which enabled both power levels to be transmitted through the PTO and the transmission.

Gear ratios and travel speeds.

Gear Number	Number of Engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2100 rev/min [km/h]
1 fwd	93.016	4.51
2 fwd	64.893	6.46
3 fwd	52.682	7.96
4 fwd	46.072	9.10
5 fwd	40.169	10.44
6 fwd	36.754	11.41
7 fwd	32.143	13.04
8 fwd	28.024	14.96
9 fwd	20.670	20.28
10 fwd	14.421	29.07
1 rev	127.344	3.29
2 rev	54.993	7.62

Calculated with a rolling radius of 600 mm. Dynamic radius does not apply to tracks.

POWER - TAKE - OFF.

Main Power-Take-Off.

Type	Independent
Method of engagement	Multiplate wet clutch hydraulically actuated by lever; independent of main drive clutch
Number of shafts	One

Power take-off proportional to engine speed.

1000 rev/min	
Location	Rear of tractor in vertical center plane.
Diameter of shaft	45 mm
Number of splines	20; conforms to ISO 500/1991.
Height above ground	730 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	382 mm
PTO Speed at rated engine spd	1024 rev/min
Engine speed at std PTO spd	2050
Ratio of Engine rpm to PTO rpm	2.05 to 1
Direction of Rotation (viewed facing driving end)	Clockwise.

POWER LIFT.

NOT AVAILABLE ON THIS MODEL

HYDRAULIC SYSTEM

Make/Model/Type	Rexroth/1602-552-360/Stack type Individual flow control spools Closed center system
Make/Model/Type of Pump	Vickers/PVE 21L/Axial piston; pressure and flow compensated
Compensator pressure setting	17.6 ± 0.35 MPa
Relief/safety valve opening pressure	17.6 ± 0.35 MPa
Type of pump drive	Gear driven from transmission
Type/Number of filters	One spin-on cartridge
Location of oil reservoir	Behind cab, left side
Type/Number/Location of tapping points.	ISO-5675 standard/4 pairs/ rear of tractor
Oil cooler	Air-to-oil heat exchanger
Max. oil volume available for external cylinders.	40 liters

SWINGING DRAWBAR.

Type		Oscillating
Height above ground		376 mm
Adjustments		None
Distance of hitch point from rear axle:	horizontal	882 mm
	vertical	177 mm below axle
Distance of hitch point from PTO shaft end:	Vertical	307 mm below shaft
	Horizontal	500 mm
Lateral adjustment;	Right side	431 mm
	Left side	431 mm
Distance of pivot point from rear axle:	horizontal	731 mm
Diameter of drawbar pin hole		50 mm
Maximum vertical static permissible load:		18 kN

STEERING.

Make/Model/Type	Caterpillar/Differential steer
Method of operation	Linde piston pump and motor; steering wheel controlling pilot activated valves
Working pressure	42.0 MPa
Oil cooler	Air-to-oil radiator

BRAKES

Service brake.	
Make/Model/Type	Caterpillar/Multiple wet disc in steering differential
Method of operation	Manual/Hydraulically boosted master cylinder; pedal operated
Trailer braking take-off	None
Parking brake.	
Type	Caliper, dry disc.
Method of operation	Mechanical lever operated

CAB STRUCTURE

Make/Model/Type	Caterpillar/9U1704/Cab
Manufacturers name/address	Caterpillar Inc. 100 N.E. Adams street Peoria, Ill. 61629, USA
Protective device	Cab, not tiltable.
OECD approval number	None. Tested according to ISO 3471-1985

DRIVER'S SEAT.

Make/Model/Type	SEARS/SA13773.901/low profile
Optional seat	None
Type of suspension	Air suspension
Type of damping	Air spring and adjustable oil shocks with three positions.
Range of adjustment	
Longitudinal	178 mm
Vertical	76 mm adjustment plus 80 mm suspension

LIGHTING.

	Height above ground of center [mm]	Size [mmxmm]	Distance from outside edge to median plane of tractor [mm]
Headlights	1447	107x167	1361
Tail lights	1439	110x110	1147
Rear reflectors	1439	110x110	1035
Stop lights	1439	110x110	1261
Rear Work Lights	3184	139x139	676

TEST CONDITIONS.

Overall dimensions.

Length	5894 mm
Width - Minimum	3048 mm
Height - Top of Cab	3240 mm
- Top of exhaust	3668 mm
Ground clearance	378 mm
Clearance-limiting part	Drawbar anchor point

Tractor Mass (with Cab) - Unballasted

	Without driver [kg]	With driver [kg]
Total with full fuel tank	15275	15350

TRACK SPECIFICATIONS.

Track materials	Rubber covered steel cables
Track width and base	762 mm, 2721 mm
Dynamic radius - under drive wheel	526 mm
Track support system	4 bogey axles with pneumatic suspension; oscillating front axle (+/- 3°)
Tread bars Number	8.2 treads/m
Track weight	564 kg each
Track length	8529 mm

Oils and Lubrication.

Capacity and change interval:

	Capacity litre	Oilchange hours	Filter change hours
Engine (w/o filter)	25	250	250
Transmission	57	1000	500
Differential/final drive	209	1000	--
Hydraulic system + steering system	110	1000	1000

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	Caterpillar Fluids	
Viscosity	SAE 15W40	SAE 10W30
Classification	API-CF-4	
Transmission		
Type	Caterpillar Fluids	same
Viscosity	SAE 30W	
Classification	TO-4	
Hydraulic fluid		
Type	Caterpillar Fluids	same
Viscosity	SAE 10W	
Classification	HYDO	
Grease	MPGM NLGI No.2	
Number of lubrication points	4	

Fuel.

Type/grade	Grade 2-D,in conformity with the national standard
Density (Pto test)	0.8355 g/cm³ (kg/l)
(Drawbar test)	Same as Pto test.
Cetane number	50.6
Viscosity	2.39 cSt at 38°C

COMPULSORY TESTS

1. MAIN POWER TAKE OFF

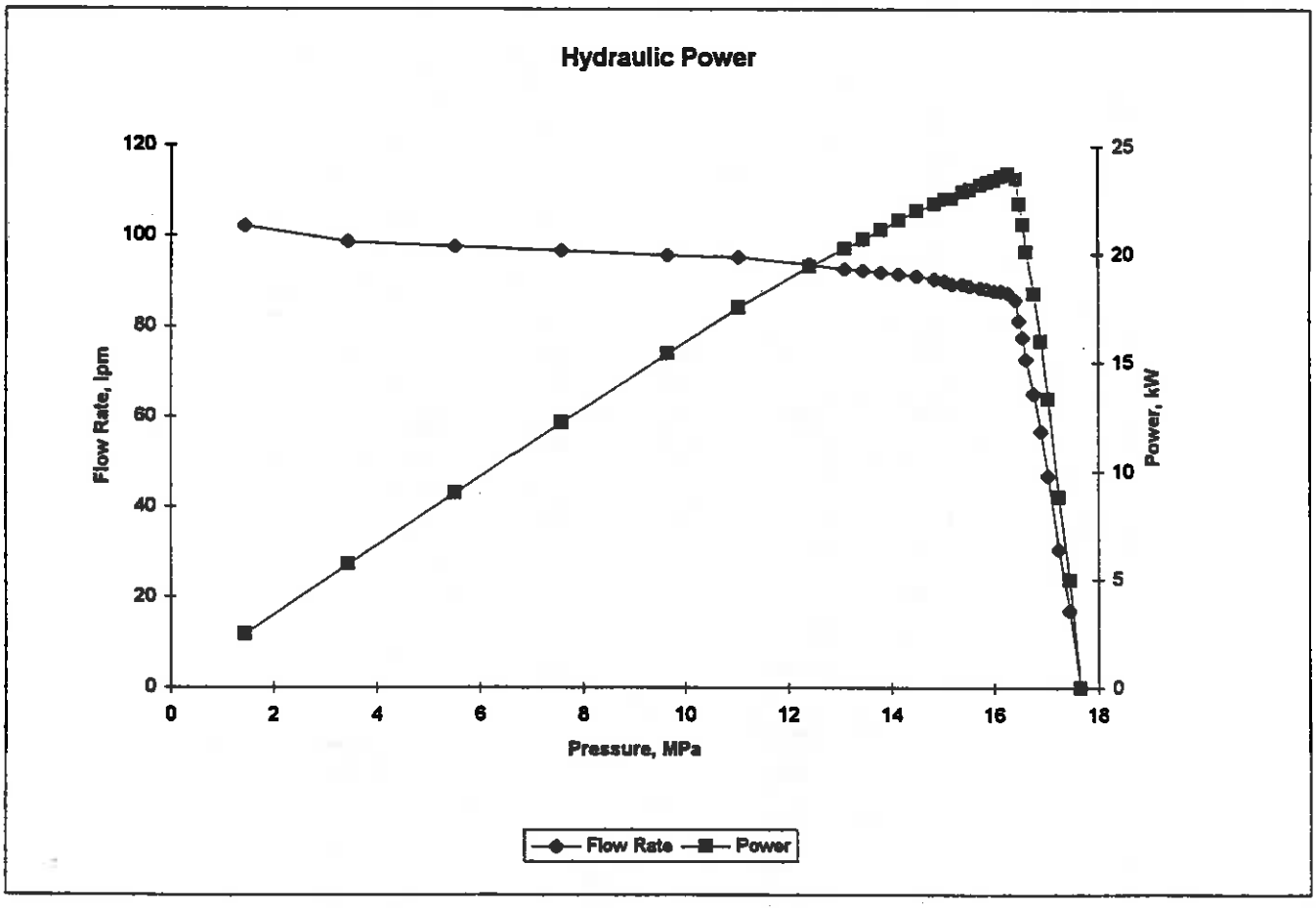
Date: 4-Apr-95 Location: UNL Tractor Test Lab, Lincoln, NE, USA

Type of dynamometer: Eddy current, Eaton Fuel Density: 0.835 kg/l

Power kW / hp	Engine rev/min	PTO rev/min	l/h / gal/h	kg/h / lb/hr	kg/kW-h / lb/hp-h	kW-h/l / hp-h/gal
1.1 Maximum Power - 2 Hours						
227.12 / 304.57	1900	926	62.55 / 16.52	52.25 / 115.20	0.230 / 0.378	3.63 / 18.43
1.2 Power at Rated Engine Speed - 1 hour						
211.84 / 284.08	2101	1024	60.79 / 16.06	50.78 / 111.96	0.240 / 0.394	3.48 / 17.69
1.3 Power at Standard Power Take Off Speed - 1 hour						
216.15 / 289.86	2053	1001	61.13 / 16.15	51.07 / 112.59	0.236 / 0.388	3.54 / 17.95
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
211.84 / 284.08	2101	1024	60.79 / 16.06	50.78 / 111.96	0.240 / 0.394	3.48 / 17.69
1.4.2 85% of torque obtained in 1.4.1						
183.89 / 246.59	2151	1049	54.57 / 14.41	45.59 / 100.50	0.248 / 0.408	3.37 / 17.11
1.4.3 75% of torque defined in 1.4.2						
141.66 / 189.96	2206	1076	45.61 / 12.05	38.10 / 84.00	0.269 / 0.442	3.11 / 15.77
1.4.4 50% of torque defined in 1.4.2						
97.16 / 130.29	2264	1104	36.32 / 9.60	30.35 / 66.90	0.312 / 0.513	2.67 / 13.58
1.4.5 25% of torque defined in 1.4.2						
49.76 / 66.73	2300	1122	26.22 / 6.93	21.91 / 48.30	0.440 / 0.724	1.90 / 9.63
1.4.6 unloaded						
0.80 / 1.07	2300	1121	15.96 / 4.22	13.34 / 29.40	16.753 / 27.542	0.05 / 0.25
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
216.15 / 289.86	2053	1001	61.13 / 16.15	51.07 / 112.59	0.236 / 0.388	3.54 / 17.95
1.5.2 85% of torque obtained in 1.5.1						
191.53 / 256.85	2140	1044	55.71 / 14.72	46.54 / 102.60	0.243 / 0.399	3.44 / 17.45
1.5.3 75% of torque defined in 1.5.2						
148.25 / 198.80	2196	1071	46.75 / 12.35	39.05 / 86.10	0.263 / 0.433	3.17 / 16.10
1.5.4 50% of torque defined in 1.5.2						
101.08 / 135.55	2246	1096	36.66 / 9.68	30.62 / 67.50	0.303 / 0.498	2.76 / 14.00
1.5.5 25% of torque defined in 1.5.2						
50.54 / 67.77	2246	1095	25.74 / 6.80	21.50 / 47.40	0.425 / 0.699	1.96 / 9.97
1.5.6 unloaded						
0.78 / 1.04	2246	1095	15.15 / 4.00	12.66 / 27.90	16.277 / 26.759	0.05 / 0.26

No load maximum engine speed:	2300 rev/min	
Equivalent torque at rated speed:	963 N.m	710 lb-ft
Equivalent torque at maximum power:	1141 N.m	842 lb-ft
(engine speed:	1900 rev/min)	
Maximum equilvanent crankshaft torque:	1297 N.m	957 lb-ft
(engine speed:	1199 rev/min)	
Mean Dry bulb:	23 deg C	74 deg F
Wet bulb:	14 deg C	57 deg F
Relative Humidity	36 %	
Pressure:	98.54 kPa	29.10 in Hg
Maximum Coolant:	90 deg C	194 deg F
Engine Oil:	101 deg C	213 deg F
Fuel:	55 deg C	132 deg F
Air Intake:	38 deg C	101 deg F
Transmission/hydralic oil:	49 deg C	120 deg F
Intake manifold pressure at rated speed:	104 kPa	15.2 psig
Intake manifold pressure at maximum power:	119 kPa	17.2 psig

Date of Test	7-Apr-95		
Location of Test-City-State:	Tractor Test Lab, Lincoln, NE, USA		
Tapping point used for test:	Remote hydraulic outlets		
I. Sustained pressure with pump stalled:			
17.65 MPa			
2560 psig			
II. Pump delivery rate at minumum pressure and rated engine speed:			
102.2 l/min			
27.0 gpm			
III. Flow rate, pressure, power:			
90% of relief valve setting			
88.2 l/min	15.86 MPa	23.3 kW	
23.3 gpm	*2300 psi*	*31.3 hp*	
Maximum hydraulic power:			
87.4 l/min	16.27 MPa	**23.7 kW**	
23.1 gpm	*2360 psi*	*31.8 hp*	
IV. Hydraulic fluid temperature at flow meter			
64.1 °C			
147 °F			



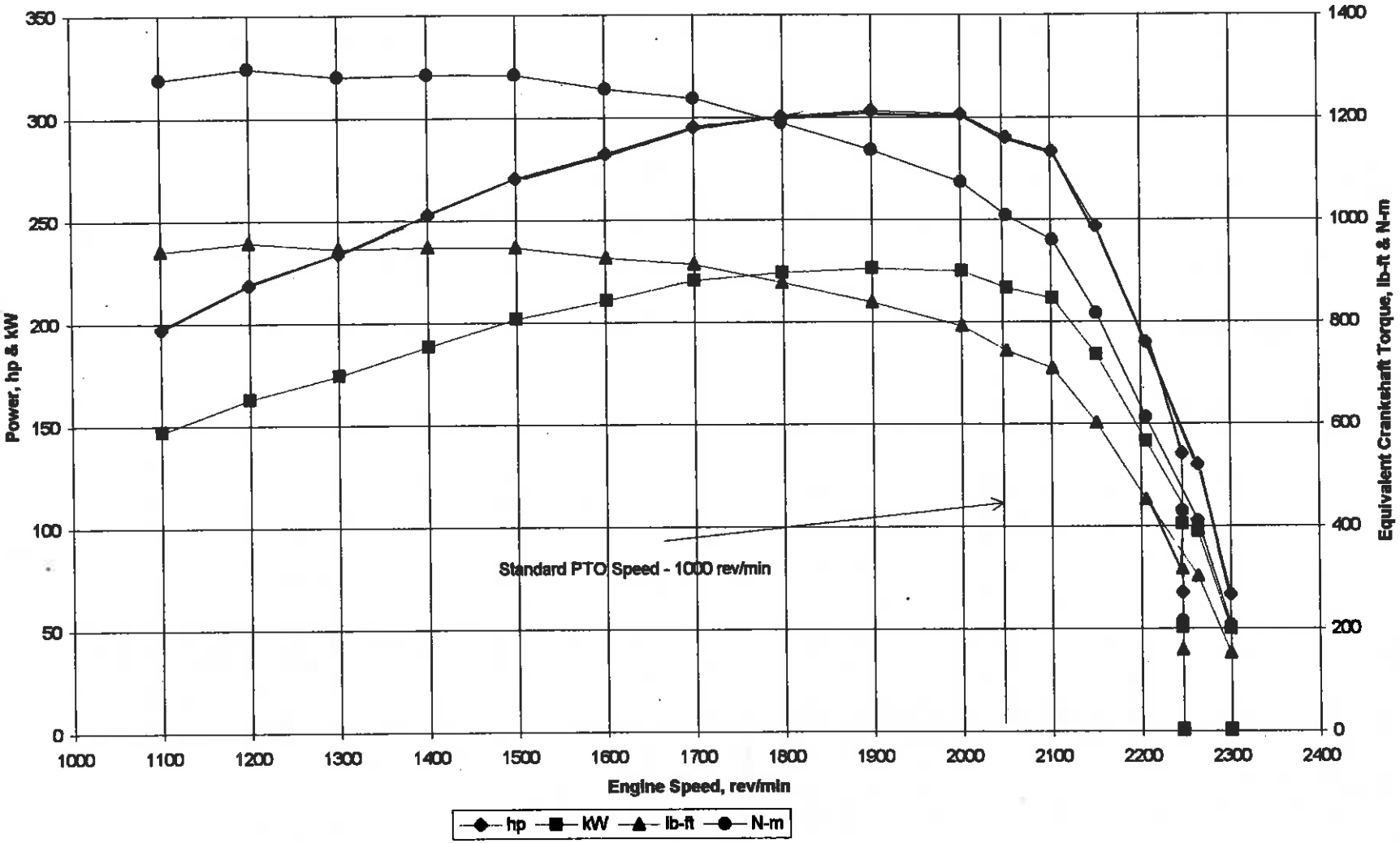
Date of tests:		Apr-6,7-95		Fuel density:		0.835 kg/l								
Type of track:		Concrete		Test number:		1687								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Barom. Press
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted at 2100 rev/min)												Drawbar height:		457 mm
1	160.91	149.78	3.86	2110	14.03%	0.312	2.68	57	89	100	18	14	71%	96.88
2	181.38	105.42	6.20	2092	3.02%	0.277	3.01	57	89	100	19	15	64%	96.82
3	203.14	95.06	7.69	2093	2.36%	0.269	3.11	57	90	101	21	12	35%	97.39
4	203.18	82.36	8.88	2098	1.63%	0.270	3.09	57	90	101	22	12	33%	97.46
5	201.38	70.87	10.23	2099	1.21%	0.271	3.08	55	90	101	19	11	39%	97.49
6	200.41	64.45	11.19	2098	1.10%	0.274	3.05	56	89	101	19	11	33%	97.46
7	197.54	55.50	12.81	2097	0.95%	0.277	3.02	54	90	101	22	12	33%	97.49
8	194.96	47.99	14.62	2084	1.00%	0.281	2.97	56	89	100	22	12	33%	97.53
II. Part loads (unballasted)														
II.1 in selected gear at maximum power														
5	201.38	70.87	10.23	2099	1.21%	0.271	3.08	55	90	101	19	11	39%	97.49
II.1.1 75% of pull at maximum power at rated speed														
5	156.57	53.18	10.60	2166	0.84%	0.291	2.87	58	89	101	22	13	37%	97.32
II.1.2 50% of pull at maximum power at rated speed														
5	107.40	35.41	10.92	2225	0.62%	0.337	2.48	59	89	99	22	13	36%	97.26
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
7	156.70	53.21	10.60	1734	1.00%	0.267	3.13	58	90	100	22	13	37%	97.32
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
7	108.11	35.44	10.98	1791	0.57%	0.299	2.79	58	89	99	22	13	36%	97.26
II.2 in selected gear nearest to 7.5 km/h														
3	203.14	95.06	7.69	2093	2.36%	0.269	3.11	57	90	101	21	12	35%	97.39
II.2.1 75% of pull at maximum power at rated speed														
3	159.52	71.31	8.05	2168	1.37%	0.283	2.95	58	89	101	22	13	37%	97.39
II.2.2 50% of pull at maximum power at rated speed														
3	110.02	47.60	8.32	2229	0.78%	0.328	2.55	59	89	99	22	13	37%	97.32
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
5	158.00	71.44	7.96	1634	1.26%	0.256	3.26	58	90	99	22	13	37%	97.32
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
5	110.98	47.74	8.37	1709	0.73%	0.282	2.97	59	89	99	22	13	37%	97.32

OECD Drawbar Data (US)

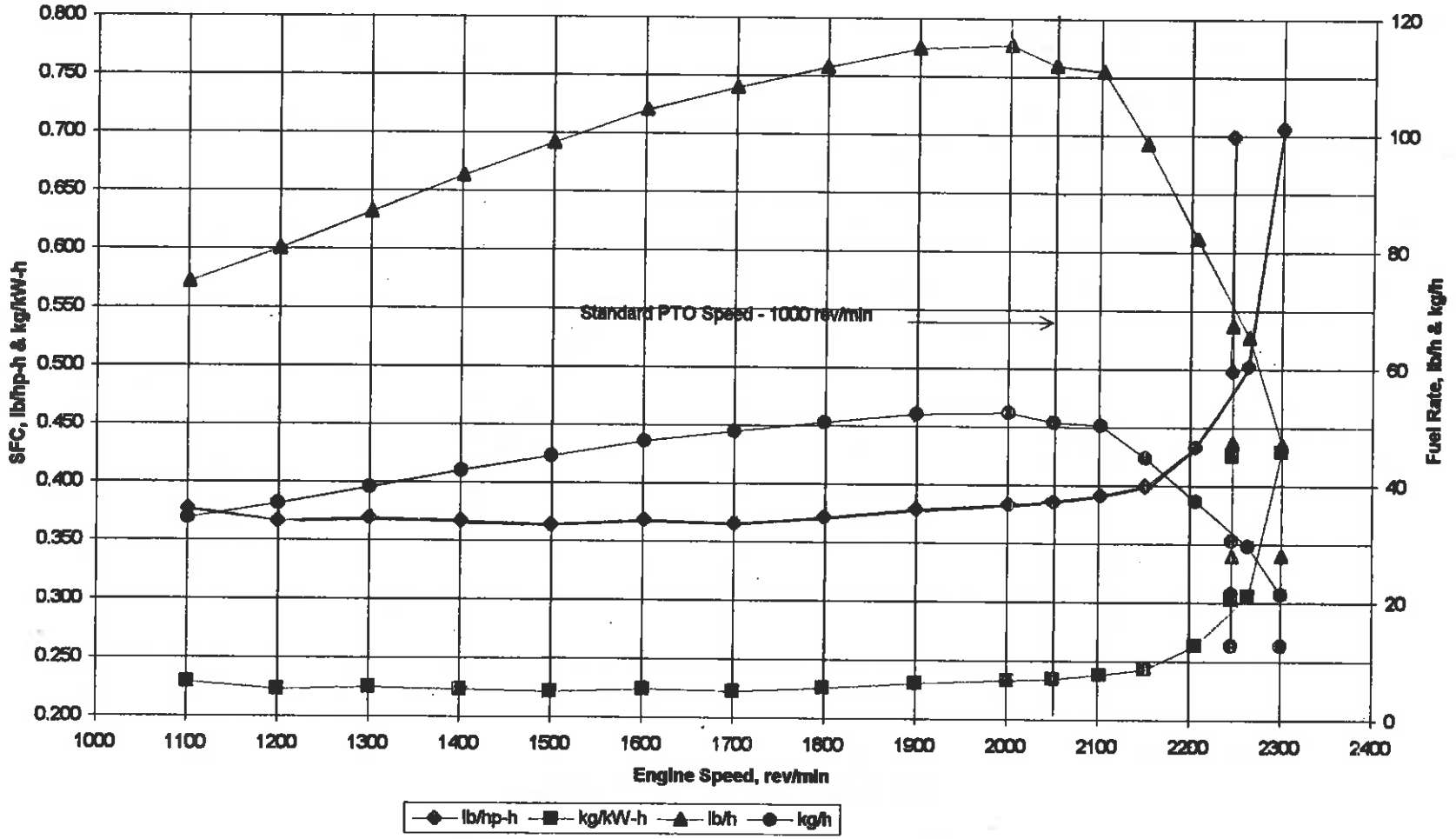
Date of tests:		Apr-6,7-95		Fuel density:		6.972 lb/gal								
Type of track:		Concrete		Test number:		1687								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Barom. Press
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted at 2100 rev/min)												Drawbar height:		18.0 in
1	215.79	33673	2.40	2110	14.03%	0.513	13.60	135	193	212	64	58	71%	28.61
2	243.23	23699	3.85	2092	3.02%	0.456	15.28	135	193	212	67	59	64%	28.59
3	272.42	21371	4.78	2093	2.36%	0.442	15.78	134	194	214	70	54	35%	28.76
4	272.47	18516	5.52	2098	1.63%	0.444	15.71	134	194	214	71	54	33%	28.78
5	270.06	15933	6.36	2099	1.21%	0.446	15.63	132	194	214	66	52	39%	28.79
6	268.75	14489	6.96	2098	1.10%	0.451	15.46	133	193	214	67	52	33%	28.78
7	264.91	12477	7.96	2097	0.95%	0.455	15.31	129	194	214	71	54	33%	28.79
8	261.45	10789	9.09	2084	1.00%	0.462	15.08	133	193	213	71	54	33%	28.80
II. Part loads (unballasted)														
II.1 in selected gear at maximum power														
5	270.06	15933	6.36	2099	1.21%	0.446	15.63	132	194	214	66	52	39%	28.79
II.1.1 75% of pull at maximum power at rated speed														
5	209.96	11956	6.59	2166	0.84%	0.479	14.57	137	193	213	72	56	37%	28.74
II.1.2 50% of pull at maximum power at rated speed														
5	144.03	7960	6.79	2225	0.62%	0.555	12.57	138	193	211	71	55	36%	28.72
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
7	210.14	11963	6.59	1734	1.00%	0.439	15.90	136	194	212	72	56	37%	28.74
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
7	144.98	7967	6.82	1791	0.57%	0.492	14.17	137	193	211	71	55	36%	28.72
II.2 in selected gear nearest to 4.6 mph														
3	272.42	21371	4.78	2093	2.36%	0.442	15.78	134	194	214	70	54	35%	28.76
II.2.1 75% of pull at maximum power at rated speed														
3	213.92	16031	5.00	2168	1.37%	0.466	14.97	136	193	213	72	56	37%	28.76
II.2.2 50% of pull at maximum power at rated speed														
3	147.55	10701	5.17	2229	0.78%	0.538	12.95	139	192	211	72	56	37%	28.74
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
5	211.88	16061	4.95	1634	1.26%	0.422	16.54	136	194	211	72	56	37%	28.74
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
5	148.82	10733	5.20	1709	0.73%	0.463	15.06	138	193	211	72	56	37%	28.74

Test 1687 - Caterpillar Challenger 85C Low Power

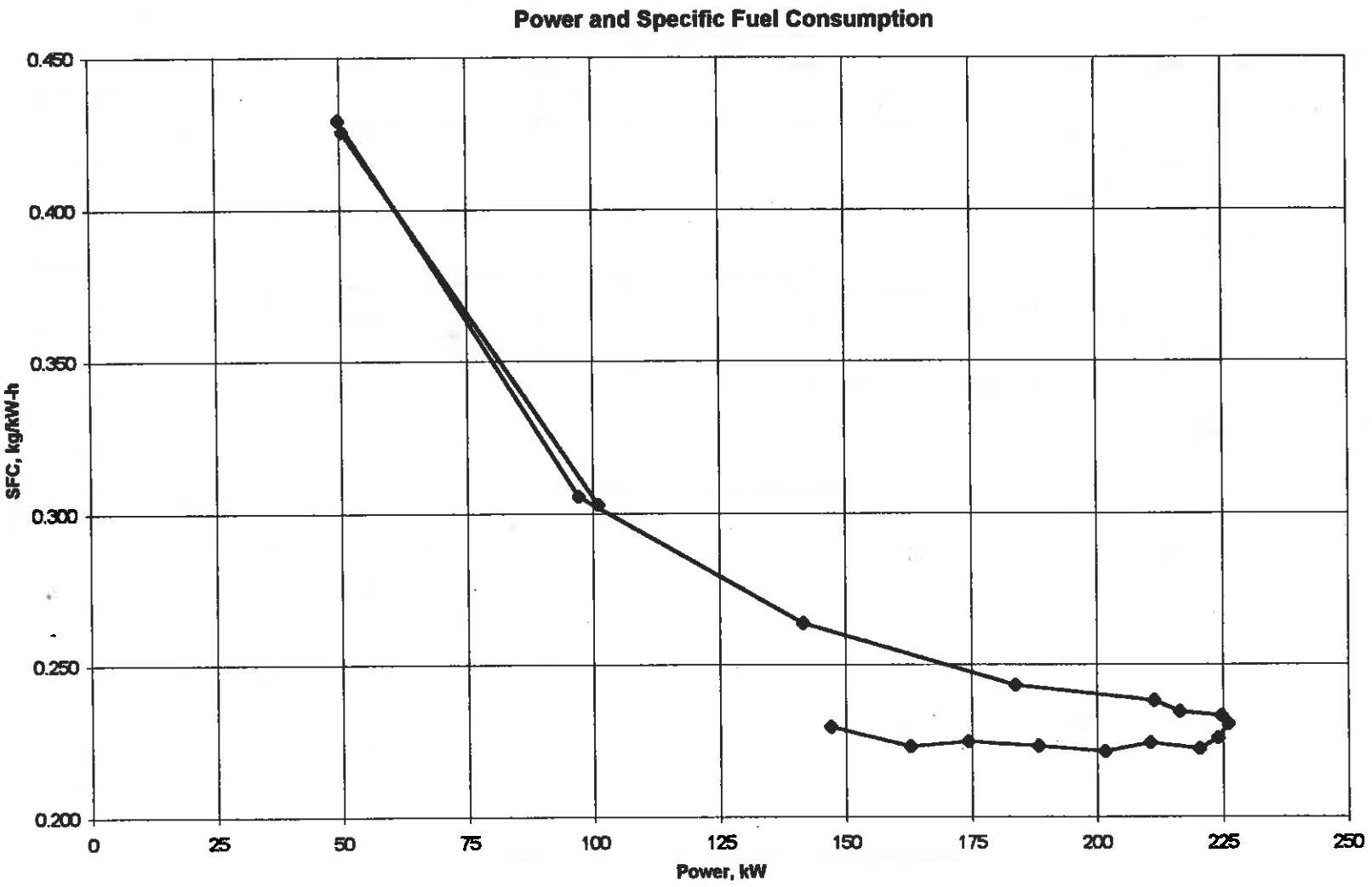
Power and Equivalent Crankshaft Torque



Specific Fuel Consumption and Fuel Rate



Test 1687 - Caterpillar Challenger 85C Low Power



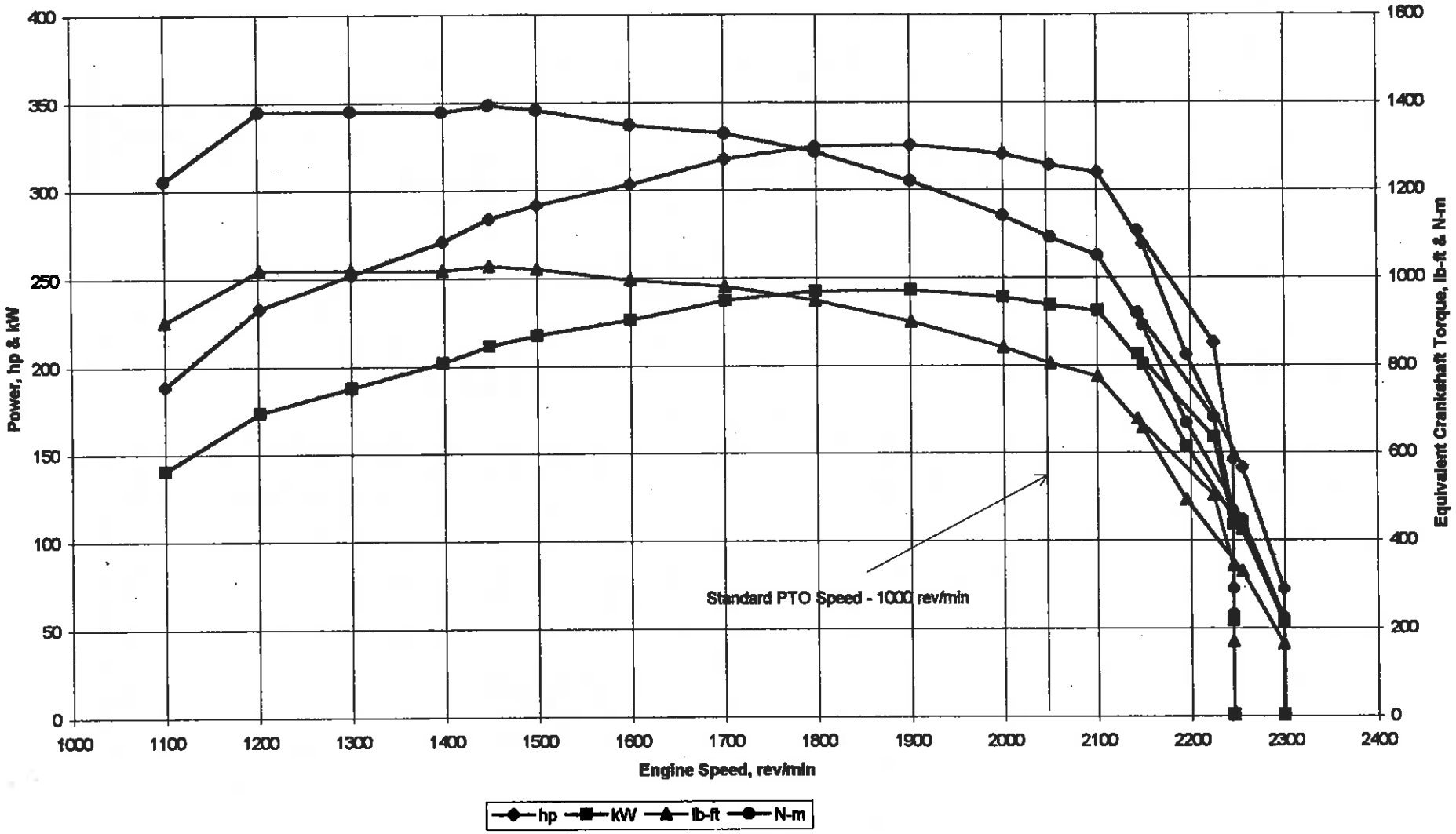
1. MAIN POWER TAKE OFF

Date: 7-Apr-95	Location: UNL Tractor Test Lab, Lincoln, NE, USA					
Type of dynamometer: Eddy current, Eaton				Fuel Density:	0.835 kg/l	
Power kW *hp*	Engine rev/min	PTO rev/min	l/h *gal/h*	kg/h *lb/hr*	kg/kW-h *lb/hp-h*	kW-h/l *hp-h/gal*
1.1 Maximum Power - 2 Hours						
243.05 *325.93*	1900	926	66.94 *17.68*	55.92 *123.29*	0.230 *0.378*	3.63 *18.43*
1.2 Power at Rated Engine Speed - 1 hour						
232.11 *311.26*	2098	1023	65.86 *17.40*	55.03 *121.31*	0.237 *0.390*	3.52 *17.89*
1.3 Power at Standard Power Take Off Speed - 1 hour						
233.99 *313.78*	2049	999	66.28 *17.51*	55.37 *122.07*	0.237 *0.389*	3.53 *17.92*
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
232.11 *311.26*	2098	1023	65.86 *17.40*	55.03 *121.31*	0.237 *0.390*	3.52 *17.89*
1.4.2 85% of torque obtained in 1.4.1						
200.48 *268.85*	2149	1048	58.80 *15.53*	49.12 *108.30*	0.245 *0.403*	3.41 *17.31*
1.4.3 75% of torque defined in 1.4.2						
153.58 *205.96*	2196	1071	48.05 *12.69*	40.14 *88.50*	0.261 *0.430*	3.20 *16.23*
1.4.4 50% of torque defined in 1.4.2						
105.42 *141.37*	2255	1100	38.11 *10.07*	31.84 *70.20*	0.302 *0.497*	2.77 *14.04*
1.4.5 25% of torque defined in 1.4.2						
53.74 *72.07*	2299	1122	27.04 *7.14*	22.59 *49.80*	0.420 *0.691*	1.98 *10.09*
1.4.6 unloaded						
0.80 *1.07*	2299	1122	15.98 *4.22*	13.34 *29.40*	16.750 *27.537*	0.06 *0.25*
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
233.99 *313.78*	2049	999	66.28 *17.51*	55.37 *122.07*	0.237 *0.389*	3.53 *17.92*
1.5.2 85% of torque obtained in 1.5.1						
206.14 *276.43*	2141	1045	59.78 *15.79*	49.94 *110.10*	0.242 *0.398*	3.45 *17.50*
1.5.3 75% of torque defined in 1.5.2						
158.61 *212.70*	2191	1069	49.03 *12.95*	40.96 *90.30*	0.258 *0.425*	3.24 *16.42*
1.5.4 50% of torque defined in 1.5.2						
108.85 *145.97*	2245	1095	38.44 *10.15*	32.11 *70.80*	0.295 *0.485*	2.83 *14.37*
1.5.5 25% of torque defined in 1.5.2						
54.04 *72.47*	2245	1095	25.74 *6.80*	21.50 *47.40*	0.398 *0.654*	2.10 *10.66*
1.5.6 unloaded						
0.78 *1.04*	2245	1095	14.99 *3.96*	12.52 *27.60*	16.102 *26.472*	0.06 *0.26*

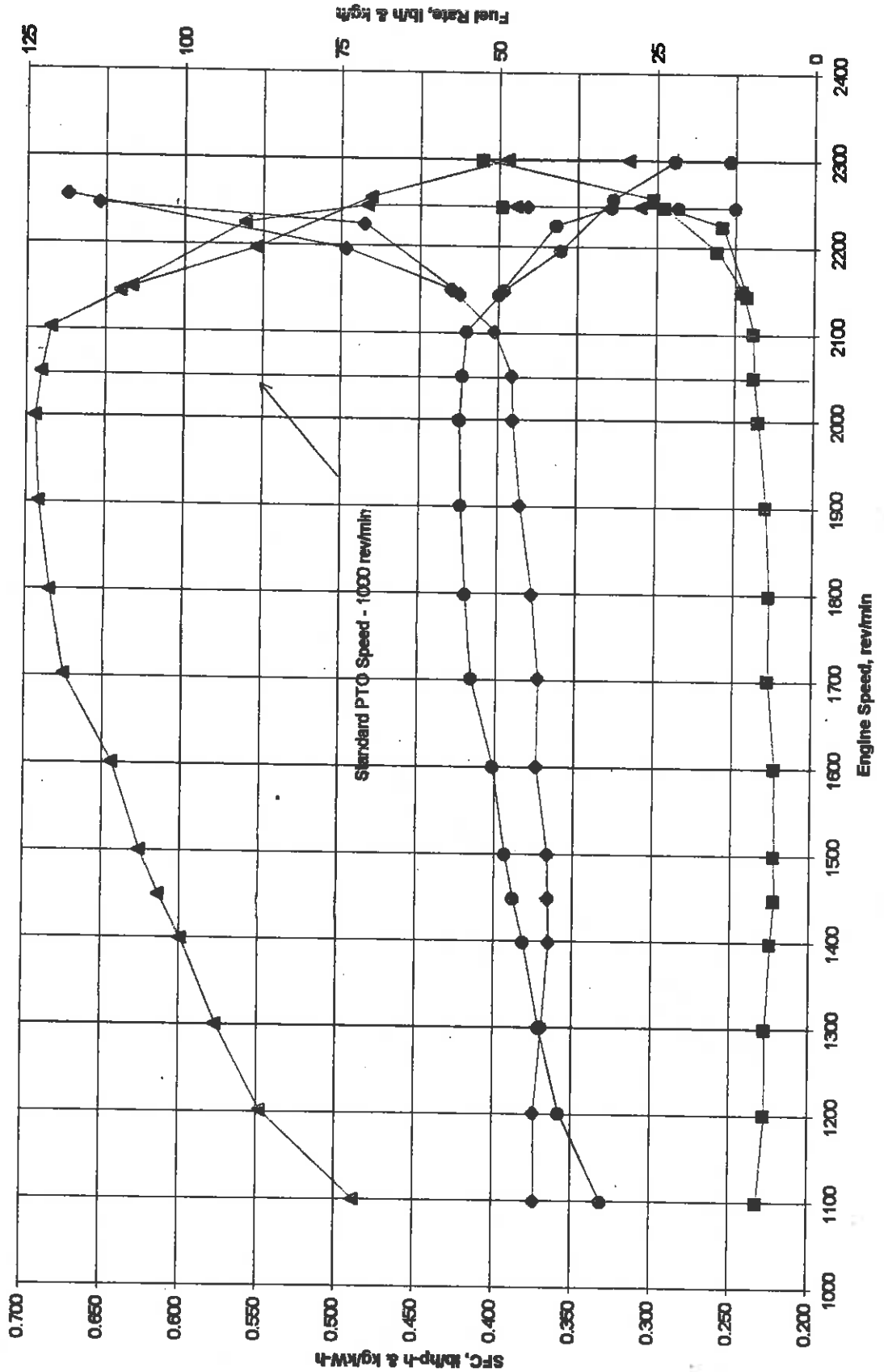
No load maximum engine speed:	2299 rev/min	
Equivalent torque at rated speed:	1057 N.m	*779 lb-ft*
Equivalent torque at maximum power:	1222 N.m	*901 lb-ft*
(engine speed:	1900 rev/min)	
Maximum equilvanent crankshaft torque:	1393 N.m	*1028 lb-ft*
(engine speed:	1449 rev/min)	
Mean Dry bulb:	25 deg C	*77 deg F*
Wet bulb:	16 deg C	*60 deg F*
Relative Humidity	28 %	
Pressure:	96.90 kPa	*28.61 in Hg*
Maximum Coolant:	91 deg C	*195 deg F*
Engine Oil:	101 deg C	*214 deg F*
Fuel:	56 deg C	*133 deg F*
Air intake:	37 deg C	*98 deg F*
Transmission/hydralic oil:	48 deg C	*119 deg F*
Intake manifold pressure at rated speed:	115 kPa	*16.6 psig*
Intake manifold pressure at maximum power:	129 kPa	*18.7 psig*

Test 1687 - Caterpillar Challenger 85C High Power

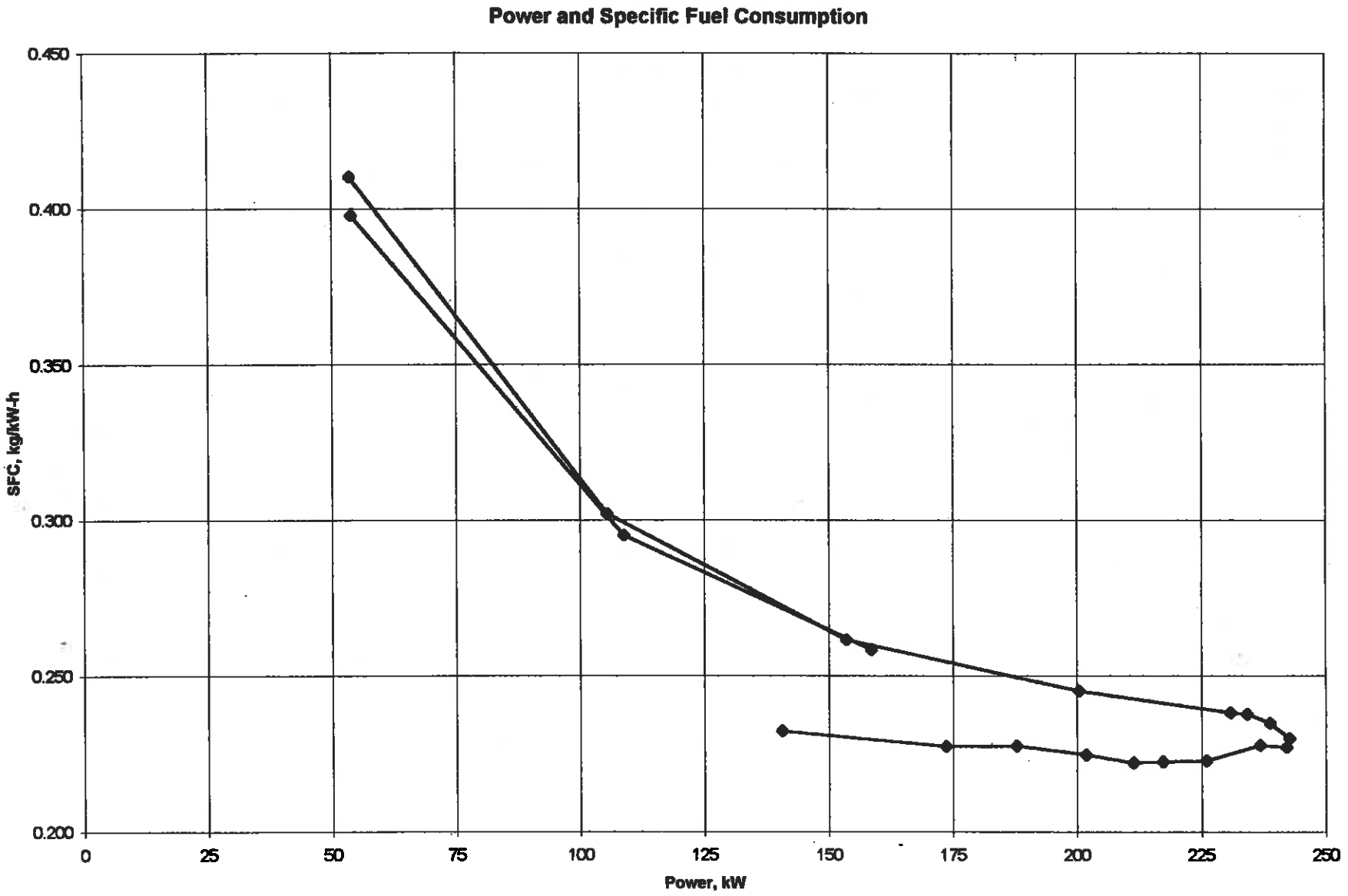
Power and Equivalent Crankshaft Torque



Specific Fuel Consumption and Fuel Rate



Test 1687 - Caterpillar Challenger 85C High Power



OECD Drawbar Data (SI)

Date of tests:	Apr-6,7-95	Fuel density:	0.835 kg/l
Type of track:	Concrete	Test number:	1687

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted at 1900 rev/min)												Drawbar height:		457 mm
1	162.28	149.34	3.91	2110	13.06%	0.309	2.70	56	89	100	18	14	71%	96.88
2	189.09	123.27	5.52	1904	5.12%	0.272	3.08	58	89	100	19	15	64%	96.82
3	211.43	109.79	6.93	1913	3.73%	0.262	3.19	56	90	101	21	12	35%	97.39
4	213.76	95.81	8.03	1912	2.36%	0.260	3.21	57	90	101	22	12	33%	97.46
5	214.61	83.14	9.29	1911	1.63%	0.260	3.22	55	90	101	19	11	39%	97.49
6	213.24	75.26	10.20	1917	1.31%	0.263	3.18	56	90	101	19	11	36%	97.46
7	210.78	65.26	11.63	1907	0.89%	0.264	3.17	55	90	101	22	12	33%	97.53
8	208.23	55.64	13.47	1922	0.89%	0.268	3.12	56	89	101	21	12	35%	97.49

OECD Drawbar Data (US)

Date of tests:	Apr-6,7-95	Fuel density:	6.972 lb/gal
Type of track:	Concrete	Test number:	1687

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Baro. Pres
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted at 1900 rev/min)												Drawbar height:		18.0 in
1	217.62	33574	2.43	2110	13.06%	0.508	13.71	134	193	212	64	58	71%	28.61
2	253.57	27712	3.43	1904	5.12%	0.447	15.61	137	193	212	67	59	64%	28.59
3	283.53	24681	4.31	1913	3.73%	0.431	16.18	134	194	215	70	54	35%	28.76
4	286.66	21538	4.99	1912	2.36%	0.427	16.31	134	194	214	71	54	33%	28.78
5	287.79	18691	5.77	1911	1.63%	0.427	16.33	132	194	214	66	52	39%	28.79
6	285.96	16919	6.34	1917	1.31%	0.432	16.15	133	194	214	67	52	36%	28.78
7	282.66	14671	7.23	1907	0.89%	0.433	16.09	132	194	214	71	54	33%	28.80
8	279.23	12509	8.37	1922	0.89%	0.440	15.84	133	193	213	69	53	35%	28.79

Repairs: None
Remarks: None