O.E.C.D. Report No.: 939

Bundesanstalt für Landtechnik

A-3250 Wieselburg, Austria

Dieseltractor STEYR 317.00

Trade name:

STEYR 8033



Date of approval: 1985 06 17

This report has been approved by the O.E.C.D. Coordinating Centre (CEMAGREF, France) as being in accordance with the O.E.C.D. Test Code

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Tractor manufacturer's name and address:	STEYR-DAIMLER-PUCH AG., Steyr, Austria DONATIM, Adapazari, Turkey
Submitted for test by:	Manufacturer
Selected for test by:	Manufacturer by agreement with BLT-Wieselburg
Place of running-in:	Steyr, Austria
Duration of running-in:	appr. 150 hours

SPECIFICATION OF TRACTOR

TRACTOR:

Make:	STEYR-DAIMLER-PUCH AG. and DONATIM, Adapazari
Trade name:	STEYR 8033
Model:	Diesel-tractor STEYR 317.00
Type:	Wheel tractor, rear-wheel driven, unit construction
Serial No.:	317.00 - 00999 (first serial number)

ENGINE:

Make:	STEYR-DAIMLER-PUCH AG. and DONATIM, Adapazari
Model:	WD 208.40
Type:	4 stroke diesel engine with direct injection
Serial No.:	208.40

Cylinders:

Number/disposition:	2, vertical in line
Bore/stroke:	100/100 mm
Capacity:	1571 cm^3
Compression ratio:	16,1/1
Arrangement of valves:	Overhead valves
Cylinder liners:	Wet liners

Fuel system:

Capacity of fuel tank:	40 l
Fuel feed system:	Fuel feed by gravity
Fuel precleaner:	PUROLATOR, model PFC 220 C8
Make, type and model of fuel filter:	PUROLATOR PFC-233 Filter with water trap and changeable element (PER 247-F)
Service interval:	500 hours changing interval of filter

Make, type and model of injection pump:	BOSCH distributor injection pump VE 2/11 F 1200 RV 9716/445076
Manufacturer's production setting and injection timing:	44^{+0}_{-2} mm^3/stroke at 1200 rev/min and full load Injection timing 12^{+0}_{-1} before TDC at 1 mm pump stroke
Make, type and model of injectors:	FRIEDMANN & MAIER or BOSCH Multi hole injection nozzles D 1 LMK 150/21 (FRIEDMANN & MAIER) DLLA 150s396 (BOSCH)
Injection pressure:	$21{,}6^{+0.6}_{-0}$ MPa (216^{+5}_{-0} bar)

Governor:

Make:	BOSCH
Type:	Variable speed governor, hydraulically acting, incorporated in injection pump
Governed range of engine speed:	From 600 rev/min to 2610 rev/min engine speed

Rated engine speed: 2400 rev/min engine speed

Air cleaner:

Pre-cleaner:

Make:	IFE MANN
Type:	Cyclonic type
Model:	348 039 70 100
Location:	In front of the water-cooler, inside the bonnet

Main cleaner:

Make:	FILTERBAU GMBH.
Type:	Oil bath air cleaner
Model:	331 039 75 171
Location:	Beside the water-pump, inside the bonnet right of the engine

Service intervals:

Cyclonic pre-cleaner:	Changing interval: 500 hours and visual control
Main cleaner:	Oil changing interval: 500 hours or 1 year Oil capacity: 1 l Recommended oil: SAE 20 or SAE 30

Lubrication system:

Type of feed pump:	Gear pump forced lubrication
Total oil capacity including filter:	appr. 5,8 l
Oil change period:	250 hours

Type of filter:	One paper filter cartridge in full flow, MANN W 940 or PUROLATOR PC 31 or KNECHT FO 371/12
Filter change period:	250 hours
Recommended oil:	See paragraph: fuel and lubricants used in tests

Cooling system:

Type of coolant:	Water with longtime frost protection down to -20°C in a cooling system with a tubular radiator
Specification of pump:	Centrifugal pump with double circuit water cooling
Type:	Own make, centrifugal pump, 1 driving belt
Specification of fan:	2 blade fan (dia 420 mm, 1 belt driven)
Coolant capacity:	appr. 9,4 l
Type of temperature control:	Thermostat control with electrical cooling water thermometer
Superpressure system:	Max. 50 kPa (0,5 bar)

Starting system:

Safety device:	Optional, not on tested tractor
Make:	Own make
Type:	Electrically starting block system by engaged gear
Model and starter motor power rating:	BOSCH, solenoid engaged starter motor 12 V, 2,4 kW, 0 001 362 035
Cold starting aid:	Electrically, 1 glow plug in intake pipe BERU model 184 G or BOSCH model A 250 00 1088

Electrical system:

Voltage:	12 V
Generator:	Make: BOSCH 0120 339 526 Type: three phase type Power: 14 V, 28 A = 392 W
Battery:	1 with 12 V, lead acid type Rating: 66 Ah at 20 hours rating

Exhaust system:

Make:	EBERSPÄCHER
Type:	Absorptions-reflexion type
Model:	EBERSPÄCHER 16.47.784.02.0.00
Location:	On the left side of the motor, mouth upwards, 2010 mm above ground
Dimensions of silencer body:	670 mm length, max. diameter of silencer body 100 mm, diameter of exhaust pipe 42 mm

TRANSMISSION:

Clutch:

Main clutch and p.t.o. clutch:

Make:	FICHTEL & SACHS AG.
Model:	DUT 240/240
Type:	Dry double clutch with 2 plates included in the same clutch pressure plate but independent operated, the one acting for the power take-off, the other for the gearbox
Number of plates:	2
Diameter of plates:	240 mm
Method of operation:	Main clutch operated by pedal, p.t.o. clutch operated by hand lever

Gearbox:

Make:	Own make
Type:	Mechanically acting gear box
Model:	317.00
Number of speeds:	4 forward and 4 reverse speeds Optional: 8 forward and 4 reverse speeds with preselector group
Arrangement:	1 lever for group gear (VS, VN, R) 1 lever for the 4 speed gear (1 - 4)

Rear axle and final drives:

Make:	Own make
Type:	Central axle; pinion and bevel gear, lockable bevel gear differential, acting by planetary gears on rear wheels
Model:	317
Differential lock:	Type:mechanically acting from half axle to differential housing Method of engagement: foot lever operated, not lockable Method of disengagement: self-disengaging

Front axle:

Make:	Own make
Type:	Steering axle with mechanically steering Track width not adjustable on the front axle

Transmission oils:

Capacity:

Gear box and rear axle:	appr. 20 l SAE 80 W, API GL- 4 or STUO MIL-L-2104, SAE 15 W - 30, SAE 20 W - 30
Rear axle final drives:	appr. 2,6 l for each planetary gear SAE 80 W, API GL-4 or STUO
Oil changing period:	1000 hours or 2 years

Total ratios and speeds:

Group	Gear no.	Number of engine revolutions for one revolution of driving wheels	Nominal travelling speed at rated engine speed of 2400 rev/min *) km/h
forward fast VS	1	112,08	4,56
	2	58,35	8,76
	3	39,25	13,02
	4	23,78	21,50
reverse R	1	113,81	4,49
	2	59,24	8,63
	3	39,85	12,83
	4	24,14	21,18

Optional:

forward slow VL	1	154,63	3,31
	2	80,49	6,35
	3	54,15	9,44
	4	32,80	15,59

*) Calculated with tyre index radius of 565 mm and test tyre equipment: 11,2/10 - 28 AS

POWER TAKE-OFF:

One p.t.o. shaft, at rear of tractor, in median plane, 295 mm behind rear axle, 457 mm above ground (567 mm tyre stat. radius)
Dimension: ISO R 500, Typ I (35 mm, 6 splines)

Proportional to engine speed (independent) p.t.o.:

Driven by p.t.o. clutch (dry plate type), speed selector, dog clutch, p.t.o. shaft

Speeds:
540/720 rev/min at 1800/2400 rev/min engine speed

Transmission ratio: 3,333
Engine speed resp. p.t.o. speed indication by needle instrument
Direction of rotation: clockwise viewed from driving end

POWER LIFT:

In the rear:	
Make:	Own make
Type:	Open center type; draught control with two-stage pull adjustment and upper link sensing, position control, floating position
Type and number of cylinder:	Single acting hydraulic cylinder Stroke and diameter: 147/75 mm
Type of linkage lock for transport:	Hydraulically by throttle valve
Relief valve pressure setting:	17,5 MPa (175 bar)
Opening pressure of cylinder safety valve:	24,5 MPa (245 bar)
Lift pump type:	Gear type pump
Pump delivery rate at minimum pressure:	24 l/min at 2400 rev/min engine speed
Transmission between pump and engine:	Pump directly driven by engine by gear transmissions
Type and number of filter:	One filter in the suction part of the hydraulic pump
Time between oil changes:	1000 hours
Time between filter changes:	500 hours
Oil capacity:	Own oil supply 10 l (11 l with oil tappings)
Site of oil reservoir:	Hydraulic unit
Type and number of tapping points:	Optional, not on tested tractor Up to 6 tapping points (3 independent oil circuits for double acting cylinders)
Location of tapping points:	270 mm behind rear axle, 530 mm about rear axle, 110 mm right of median plane In accordance to ISO/DIS 5675
Maximum volume of oil available to external cylinders:	5 l in stationary mode
Recommended oil:	SHELL TELLUS 33, SAE 20 W ISO VG 46, ISO VG 68

THREE-POINT-LINKAGE:

In the rear:	Category I/II, in conformity to ISO 730/1 Standard linkage, double hole lift arms Both lift rods are adjustable by threads and additional $\pm$ 33 mm by holes

HOLED DRAWBAR: Fitted in the clevis of the lower links of the three point linkage, category I

Dimensions		Category I
Length	mm	683
Width	mm	80
Thickness	mm	30
Number of holes (with central hole)		5
Hole diameter	mm	33
Distance between holes	mm	130

Height above ground *)	Min.lift,rod length (470 mm)	Max.lift rod length (540 mm)	Vertical movement
Max.mech.advantage Liftarm 192 mm	from 300 to 810 mm	from 110 to 665 mm	510/555 mm
Min.mech.advantage Liftarm 230 mm	from 190 to 825 mm	from +10 to 680 mm	635/670 mm

*) Calculated with tyre stat. radius of 567 mm and lift rod - lift arm coupling point in middle position.

Method of changing: By power lift, lift rod length and changing the lift arm coupling point

Distance to rear axle: 870 mm, lower links 800 mm horizontally

Horizontal distance to power take-off shaft end (rear): 575 mm

TRAILER HITCH:

	Own make
Type:	Fork type
Height above ground:	692/664/640/612/313/285 mm
Distance of hitch point from rear axle axis horizontally:	367 mm
Distance of hitch point from power take-off shaft end:	
vertically:	below 144/172 mm; about 235/207/183/155 mm
horizontally:	rearwards 72 mm
Diameter of coupling pin:	30 mm
Maximum vertical permissible load:	15 kN

TOWING HITCH: Optional, not on tested tractor

	Own make
Type:	Fork type
Height above ground:	487 mm
Distance from front axle:	Frontwards from 453 to 653 mm (dependent from number of front ballast weights)
Diameter of coupling pin:	31 mm

STEERING:

Method of operation:	Steering wheel acting on front wheels
Make:	Own make
Type:	Mechanical steering, worm-and-wheel steering
Model:	DDF 40 050/1 27546
Capacity of oil case:	800 g
Recommended oil:	Mobil Delvac 1130
Oil change period:	-
Number of revolutions of steering wheel for the whole steering lock:	5,3

BRAKES:

Service brake:

Make:	Own make
Type:	Simplex drum brakes 200 mm diameter, 50 mm width
Method of operation:	Pedal operated, mechanically transmission
Trailer braking take-off:	Optional, not on tested tractor In conformity with national regulations

Parking brake:

Type:	Mechanically acting on same drum brakes as service brake 200 mm diameter, 50 mm width
Method of operation:	Hand lever with ratched, mechanically transmission, acting on common linkage with service brake

Steering assistance brake: Operated by divided pedal of service brake, pedals disconnectable by a flap

STEERING WHEELS:

Number:	2, steering function
Location:	In front of tractor
Tyres:	Pneumatics, diagonal carcass 6,00 - 16 AS Front, 6 PR; rim: 4,00 E x 16
	Maximum permissible load on each tyre: 5493 N (560 kp) at 3,4 bar inflation pressure 10990 N (1120 kp) at 4,25 bar inflation pressure with speed limit of 8 km/h
Track width:	1250 mm (1410 mm by reversed wheels)

DRIVING WHEELS:

Number:	2, driving function
Location:	In the rear of tractor
Tyres:	Pneumatics, diagonal carcass 11,2/10 - 28 AS, 6 PR; rim: W 10 x 28
	Maximum permissible load on each tyre: 10940 N (1115 kp) at 1,8 bar inflation pressure 15316 N (1560 kp) at 2,52 bar inflation pressure with speed limit of 8 km/h
Track width:	1350 mm (1300 mm by reversed wheels)

WHEELBASE: 1779 mm

PROTECTIVE STRUCTURE SPECIFICATIONS: Not on tested tractor

DRIVER'S SEAT:

Make and type:	TZDK Türkiye Zirai Donatim Kurumu
Type of suspension:	Parallelogram construction with helical coil springs adjustable to driver's weight
Type of damping:	Hydraulically damping
Range of adjustment, longitudinal:	95 mm
vertical:	Combined with the longitudinal adjustment (14° inclination of the mounting plate)

LIGHTING: Unrestricted beam angle of head light in plane view: 227 mrad (13°)

	*) Height above ground of centre mm	Size mm	**) Distance from outside edge of tractor to centre mm
Head lights	675	130 x 65	665
Side lights	1250	35 x 85	170
Rear lights	1175	35 x 80	170
Brake lights			
Direction indicators front	1250	35 x 80	135
Direction indicators rear	1175	35 x 80	135
Reflectors	1110	60 x 35	155

*) Measured with tyre static radius at rear 567 mm and 342 mm at front
**) With overall width of 1640 mm (measured on the outside edge of the rear wheels

TEST CONDITIONS

Track setting and tyre equipment:

Front: 1250 mm
Rear: 1350 mm

Front wheels:6,00-16 AS Front PR 6;rim:4,00 E x 16
Rear wheels: 11,2/10-28 AS PR 6; rim: W 9 x 28

Overall dimensions:

	Length	Width *)	Height at top of exhaust silencer
	mm	mm	mm
With ballast	3245	1770	2010
Without ballast	3130	1640	2010

*) Measured on the outside edge of the rear wheels

Ground clearance:

Clearance-limiting part:
245 mm below the trailer hitch mounting plate
330 mm below brake linkage parts
360 mm below the transmission
370 mm below the front ballasting weights

Tractor mass and ballasting: (without driver but with tanks full)

		Front	Rear	Total
Without ballast	kg	627	1157	1784
With ballast	kg	910	1442	2352

Ballast:

	Weights		Water kg
	Number	Total mass kg	
Front	4	153	-
Rear	2 + 2	235	2 x 90
Additional	-	-	-

Fuel and lubricants used in tests:

Fuel:	Diesel fuel	
Type:	ELAN, according to DIN 51601	
Specific gravity at 15°C:	0,844 kg/l	

Oils:

	Recommended:	Used during test:
Engine oil:	One range viscosity oil	
Type:	API CC, MIL-L-2104 B	SHELL ROTELLA X 10 W
Viscosity:	SAE 30 summer SAE 20 W/20 winter	
Transmission oils:		
Type:	API GL 4, MIL-L-2105	SHELL SPIRAX EP 80
Viscosity:	SAE 80 W	
Hydraulic fluid:		
Type:	ISO VG 46 ISO VG 68	SHELL TELLUS 33
Recommended grease:	Lithium soap basis NLGI2 (multigrade grease)	
Number of lubrication points:	9	

TEST RESULTS

COMPULSORY TEST:

Main power take-off performance

Date and location of tests: 12.3.1985
Type of dynamometer: SCHENK eddy-current brake W 780

Main test on: ISO R 500, Typ I (DIN 9611) - 540 rev/min

Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
20,52	2400	720	5,47 6,48	266,5	3,166
Standard p.t.o. speed					
17,55	1800	540	4,49 5,32	256	3,297
The speed recommended by the manufacturer for drawbar work					
20,52	2400	720	5,47 6,48	266,5	3,166
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
17,78	2446	734	4,79 5,67	269	3,136
(ii) unloaded					
0	2613	784	1,50 1,78	-	-
(iii) 50 % of the load defined in (i)					
9,26	2550	765	2,97 3,52	321	2,630
(iv) maximum power					
20,52	2400	720	5,47 6,48	266,5	3,166
(v) 25 % of the load defined in (i)					
4,71	2590	777	2,22 2,63	472	1,788
(vi) 75 % of the load defined in (i)					
13,59	2493	748	3,85 4,56	283	2,980

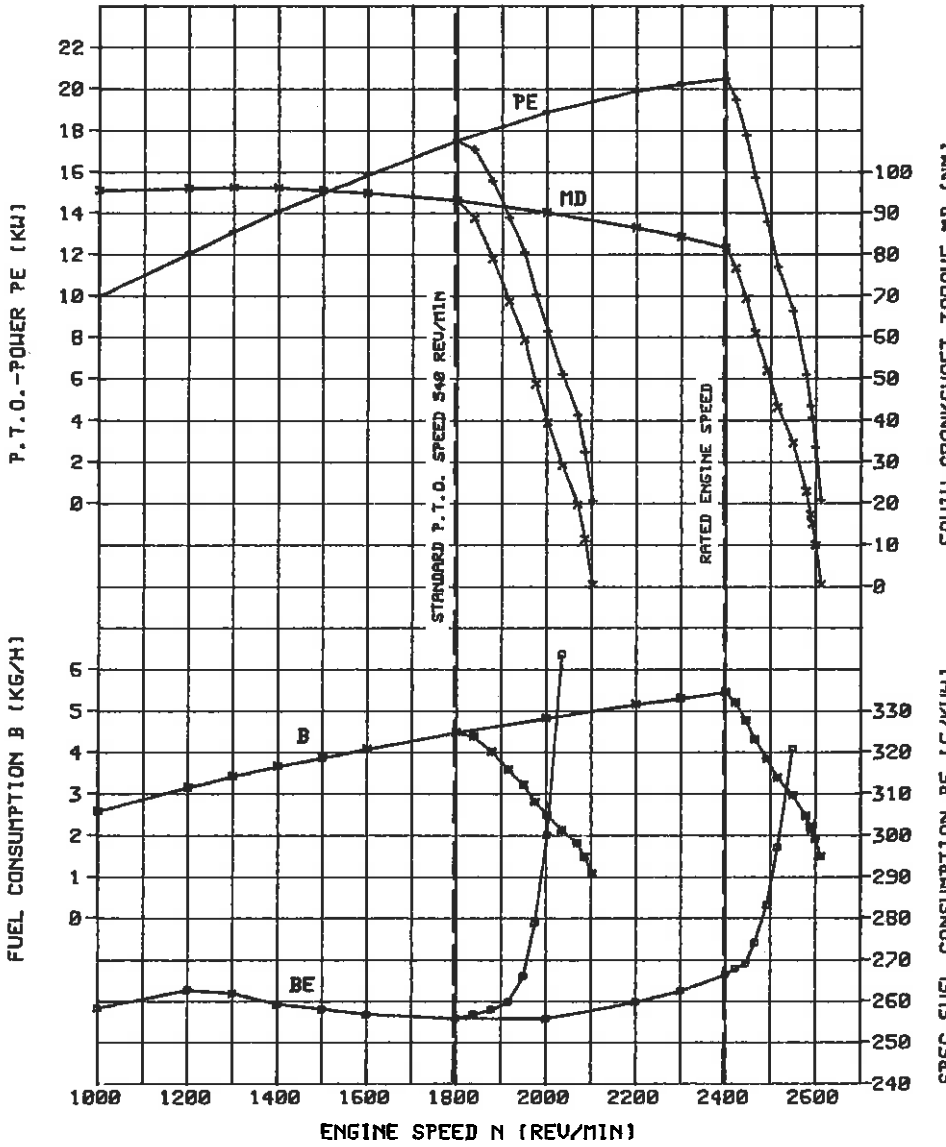
Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % at torque at standard p.t.o. speed					
15,58	1880	564	4,02 4,76	258	3,270
(ii) unloaded					
0	2103	631	1,10 1,30	-	-
(iii) 50 % of the load defined in (i)					
8,30	2003	601	2,49 2,95	300	2,811
(iv) maximum power at standard p.t.o. speed					
17,55	1800	540	4,49 5,32	256	3,297
(v) 25 % of the load defined in (i)					
4,29	2070	621	1,82 2,15	424	1,991
(vi) 75 % of the load defined in (i)					
12,12	1950	585	3,23 3,82	266	3,171
STANDARD SPECIFIC FUEL CONSUMPTION: 269/321 - 258/300 g/kWh					

No load maximum engine speed: 2613 rev/min
Equivalent crankshaft torque
at maximum power: 81,65 Nm
Maximum equivalent crankshaft torque: 96,26 Nm at 1400 rev/min of engine

Mean atmospheric conditions: temperature: 15°C
pressure: 997 mbar
humidity: 78 %

Maximum temperatures: coolant: 87°C
engine oil: 101°C
fuel: 48°C
air intake: 22°C

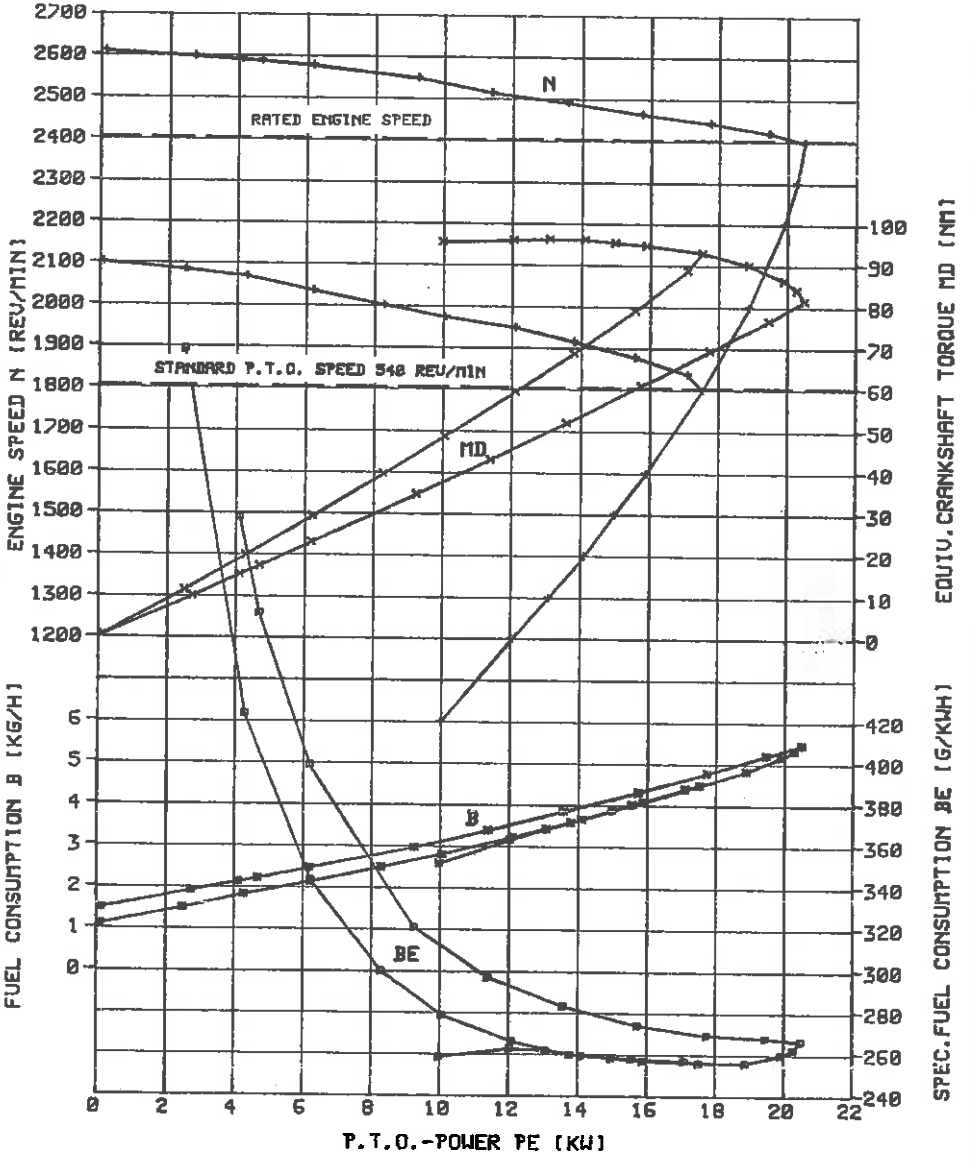
BUNDESANSTALT FUER LANDTECHNIK WIESELBURG/ERLAUF, AUSTRIA PROT.NR.:	P.T.O.-TEST	STEYR-DAIMLER-PUCH TYP 8033 MOT.TYP WD 208.40



ENGINE SER.NR.: 208.40-988	ATM.PRESSURE : 997 MBAR	FUEL TEMP.: 48 C	SIGNATURE
TRAKTOR SER.NR.: 337.17-08999	AIR TEMPER. : 15 C	D.OF TESTS: 1985-03-12	
FUEL , 0.844/15 C	COOLANT TEMP.: 87 C	TEST NO. : 143/ZA 140	
ENGINE OIL , ROTELLA X 10W	OIL TEMP. , 101 C	CURVES NO.: 1	REITHER

13-MAY-85 DVR.:B100846-DL003;MKU116;MKL20-21

BUNDESANSTALT FUER LANDTECHNIK WIESELBURG/ERLAUF, AUSTRIA PROT.NR.:	P.T.O.-TEST	STEYR-DAIMLER-PUCH TYP 8033 MOT.TYP WD 208.40



ENGINE SER.NR.: 208.40-900	ATM.PRESSURE : 997 MBAR	FUEL TEMP.: 40 C	SIGNATURE
TRAKTOR SER.NR.: 337.17-00999	AIR TEMPER. : 15 C	D.OF TESTS: 1985-03-12	
FUEL : B.844/15 C	COOLANT TEMP.: 87 C	TEST NO. : 143/ZA 148	
ENGINE OIL : ROTELLA X 10W	OIL TEMP. : 101 C	CURVES NO.: 2	REITHER

14-MAY-85

Drawbar performance:

Date of tests: 25 - 28.3.1985
Type of track: Concrete
Height of drawbar above ground: 508 mm ballasted, 540 mm unballasted

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmosph. conditions		
								Fuel	Coolant	Engine oil	Temperature	rel.humidity	Pressure
	km/h	kW	N	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	mbar
(i) Maximum power (unballasted) tyre inflation pressure in the front 1,3 bar, in the rear 1,3 bar													
VL 1	2,934	13,16	16146	2504	15	-	-	29	80	78	13	56	985
VS 1	3,875	17,38	16150	2426	15	305,5	2,764	33	81	85	13	55	985
VL 2	5,813	17,56	10857	2400	8,4	311,5	2,710	35	81	87	14	55	985
VS 2	8,221	17,39	7617	2400	6,2	314,5	2,684	36	81	87	11	58	985
VL 3	8,905	17,29	6991	2400	5,7	316	2,668	36	81	88	14	55	985
VS 3	12,443	16,42	4752	2400	4,5	333	2,534	36	81	89	13	56	985
VL 4	14,975	15,84	3808	2400	3,9	345	2,445	36	81	89	12	57	985

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmosph.conditions		
								Fuel	Coolant	Engine oil	Temperature	rel.humidity	Pressure
	km/h	kW	N	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	mbar
(ii) Five-hour-test at 75 % of pull at maximum power													
VL 2	6,131	13,80	8096	2461	5	317	2,661	39	80	96	12	57	984
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (ii)													
VL 1	2,807	16,68	21395	2422	15	319	2,645	46	83	100	15	52	986
(iv) Maximum power (ballasted) tyre inflation pressure in the front 2,5 bar, in the rear 1,8 bar													
VL 1	2,808	16,69	21401	2420	15	320	2,638	27	77	82	4	54	981
VS 1	4,121	17,60	15371	2400	8,8	310,5	2,716	27	77	84	3	55	981
VL 2	5,896	17,69	10799	2400	6,3	309	2,730	29	77	86	2	54	981
VS 2	8,281	17,09	7430	2400	4,6	320	2,637	27	78	87	3	53	981
VL 3	8,944	16,90	6803	2400	4,4	323,5	2,608	29	78	87	3	53	981
VS 3	12,492	15,79	4550	2400	3,2	346,5	2,437	28	78	88	4	53	981

Total oil consumption during 10 hours duration of tests (ii) and (iii): 42 g/h

TURNING SPACE AND TURNING CIRCLE:

Wheel equipment: front: 6,00 - 16 AS Front, PR 6
rear: 11,2/10 - 28 AS, PR 6

Track of wheel: front: 1250 mm
rear: 1350 mm

	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning space	3,20	3,00	3,56	3,49
Radius of turning circle	3,10	2,90	3,47	3,40

LOCATION OF CENTRE OF GRAVITY:

	mm
Height above ground	675
Distance forward from the vertical plane containing the axis of the rear wheels	612
Distance from the median plane of the tractor	to left 9

BRAKING:

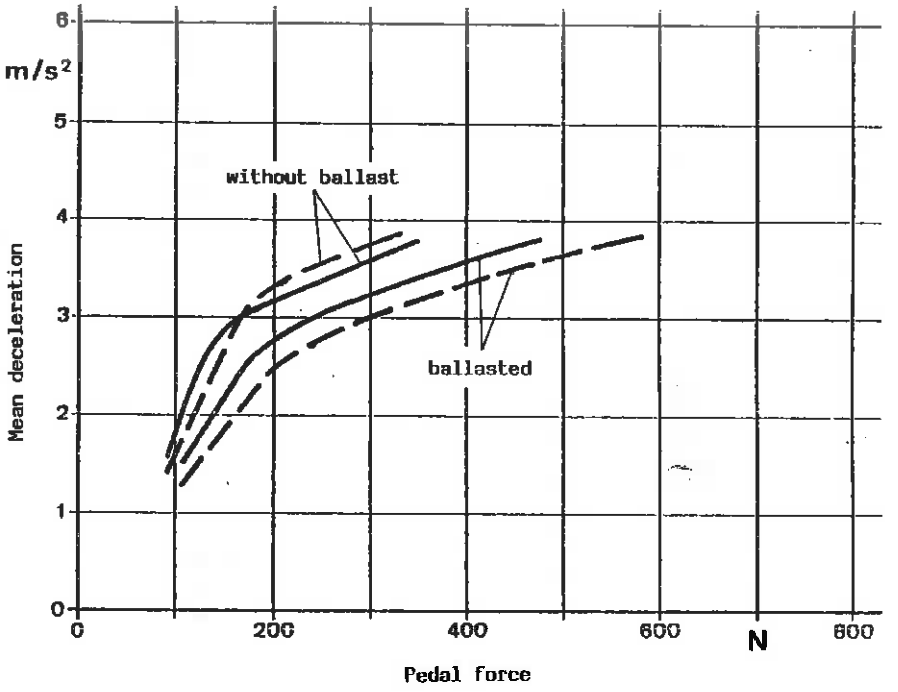
Date of tests: 27.3.1985
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)

Tractor mass during brake tests (with driver).

	Front kg	Rear kg	Total kg
Ballasted	925	1502	2427
Unballasted	642	1217	1859

Service brake:

Type-0-test (cold brakes) ——, Type-I (fade) test — — — —



Speed before application of brakes: 23,4 km/h
The tractor brakes were heated by towing of the tractor for 1 km.

Maximum deviation of tractor from its original course:	None
Abnormal vibration:	None

Parking braking device test:

	Ballasted tractor on 18 %-slope		Unballasted tractor on 12 %-slope with trailer of 1785 kg	
	up	down	up	down
Braking device control force	145 N	145 N	165 N	155 N

MEASUREMENT OF EXTERNAL NOISE LEVEL:

Date of test:	25.3.1985
Type of sound level meter:	BRÜEL & KJAER 2200 and 2308
Type of track:	Concrete
Gear number:	VS 4
Travelling speed before acceleration:	17,3 km/h
Sound level:	87 dB(A)

NOISE MEASUREMENT AT DRIVER'S EAR:

Date of tests:	25.3.1985
Type of sound level meter:	BRÜEL & KJAER 2200 and 2308
Type of track:	Concrete

Gear	Drawbar pull at which the tractor develops the max. sound level	Measured travelling speed	Sound level
-	kN	km/h	dB(A)
VL 1	15,49	2,87	95
VS 1	15,22	3,78	96,6
VL 2	10,16	5,90	96
VS 2	7,22	8,38	96
VS 2 *)	light load	9,17	93
VL 3	6,87	8,92	96,5
VS 3	4,67	12,62	96,5
VL 4	3,61	15,20	96,5
VS 4	light load	21,43	96

*) The VS 2 gear corresponds to the nominal travelling speed nearest to 7,5 **km/h.**

POWER LIFT AND HYDRAULIC PUMP PERFORMANCE:

Date and location of tests: 8.3.1985, Wieselburg, Austria

Hydraulic fluid:

Make and type: SHELL TELLUS 33, SAE 20 W

Viscosity at 50°C: 40 mm^2/s (40 cSt)

Type of hydraulic system: Open center type

Hydraulic fluid temperature at beginning of test: 60°C

Type of linkage lock for transport: Hydraulically by throttle valve

Opening pressure of the cylinder over-pressure safety valve (manufacturers specification): 24,5 MPa (245 bar)

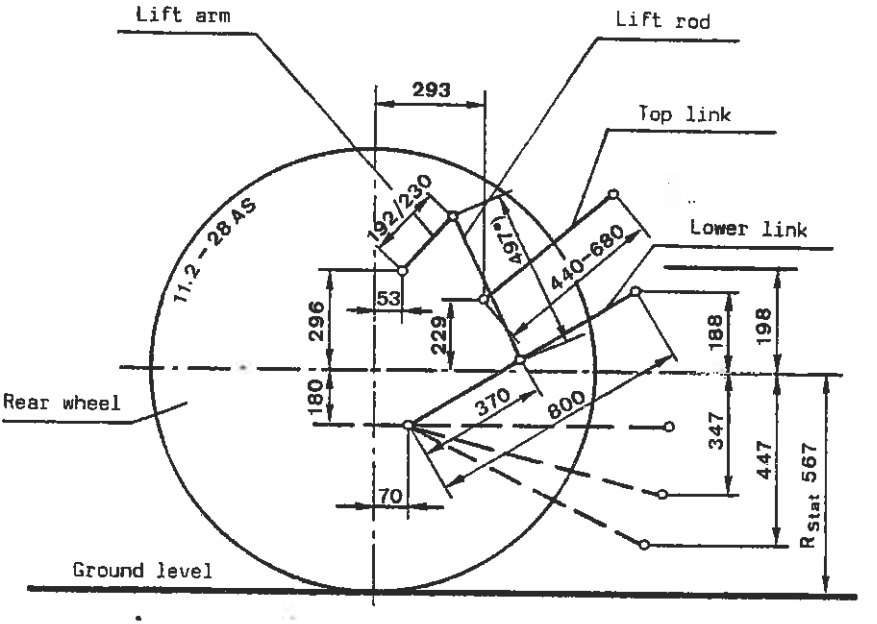
Power lift:

	*) Height of lower hitch point above ground in down position mm	Vertical movement (lift rod length 497 mm) mm	Max. force exerted through full range kN	Corresponding pressure of hydraulic fluid MPa	*) Moment about rear axle kNm	Max. tilt angle of mast over range of lift (+) degrees
At hitch points	220/120	535/645	16,4/14,1	16,7 (167 bar)	14,3/12,3	-
On the frame 460 mm mast height	220/120	535/645	10,9/9,0	16,7 (167 bar)	16,1/13,3	from + 2° to 0° and to +12°

*) Max./min. mechanical advantage

Hydraulic pump performance:

Sustained pressure of the relief valve:	18,0 MPa (180 bar)
Opening pressure of the relief valve:	18,5 MPa (185 bar)
Pump delivery rate at minimum pressure and rated engine speed:	24 l/min
Hydraulic power at 90 % of relief valve setting:	6,50 kW at 16,7 MPa (167 bar)
Pump delivery rate at stated power:	23,4 l/min
Temperature of hydraulic fluid:	60°C



*) Left lift rod adjusteble from 450 - 540 mm length by a thread, right lift rod adjustable from 470 - 580 mm length by gear and thread. Both lift rods are additional adjustable ± 33 mm by holes. Length of the lift rods are measured in middle-position of the holes.

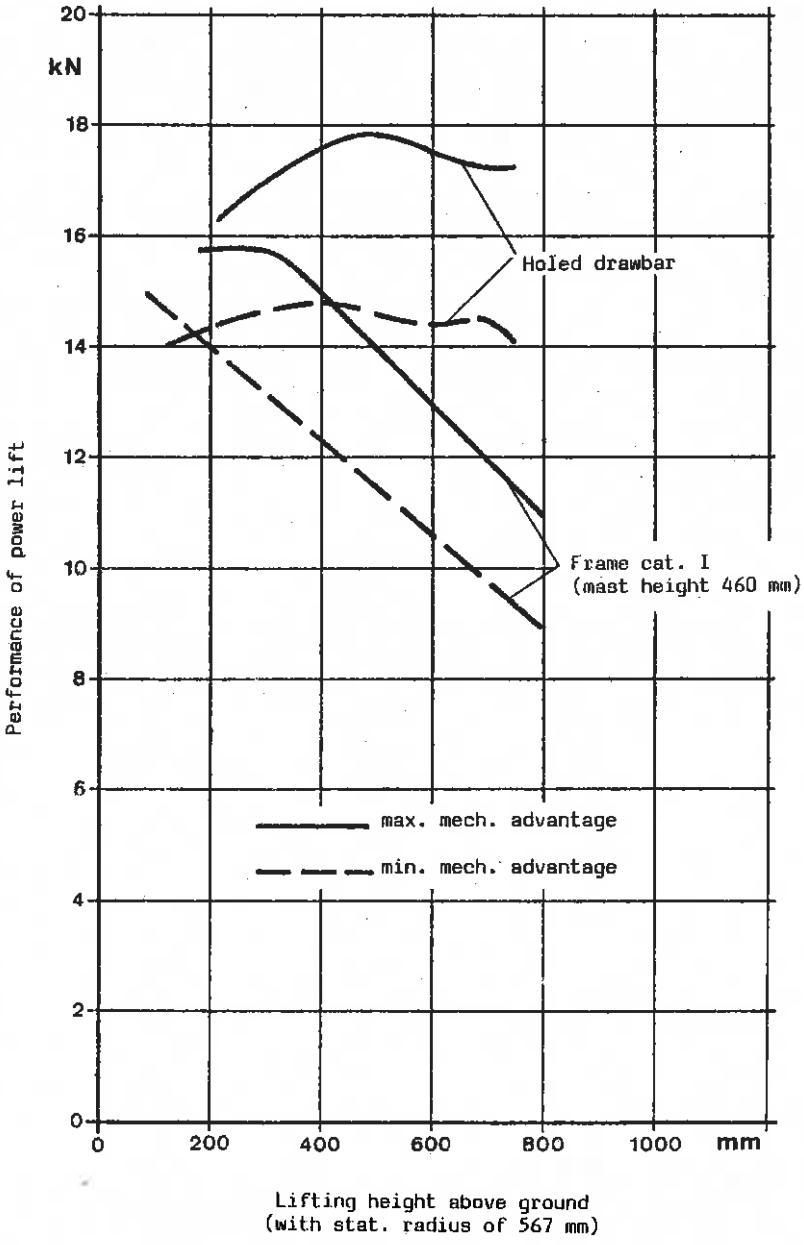
Linkage geometry when connected to the standard frame (mast height 460 mm)

Projected length in side view		Maximum mechanical advantage	Minimum mechanical advantage
Lower links	mm	800	800
Lift arms	mm	193	230
Lift rods	mm	497	497
Top link	mm	570	570
Distance of lift rod connection point from pivot point of lower link	mm	370	570
This dimensions are given relative to the rear wheel centre line, 567 mm above the ground level: Lower link pivot point	mm	70 behind 180 below	70 behind 180 below
Top link pivot point	mm	293 behind 229 above	293 behind 220 above
Lift arm pivot point	mm	53 behind 296 above	53 behind 296 above
Maximum and minimum height of lower link hitch points	mm	188 above to 347 below	198 above to 447 below
Height of lower link hitch points locked in transport position	mm	from 188 above to 347 below	from 198 above to 447 below

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivot point mm		-300	-265	-200	-165	-100	-50	0	+50	+100	+150	+200	+275	+350	+425
Lifting force at the hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	max.mech. advantage				16,4	17,0	17,3	17,5	17,7	17,8	17,8	17,4	17,2	17,2	
	min.mech. advantage		14,1	14,4	14,5	14,6	14,8	14,8	14,8	14,7	14,5	14,4	14,4	14,2	
	Maximum force exerted through whole range: 16,4/14,1 kN (1670/1440 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														
Lifting force at the standard frame 460 mm mast height, 610 mm behind lower links hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	max.mech. advantage			15,7	15,8	15,8	15,6	15,0	14,5	14,0	13,5	12,9	12,3	11,6	10,9
	min.mech. advantage	15,0	14,7	14,2	13,9	13,3	12,8	12,5	12,0	11,6	11,2	10,7	10,0	9,4	9,0
	Maximum force exerted through whole range: 10,9/9,0 kN (1110/920 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														

(0137/85)


20
kN
18
16
14
12
10
8
6
4
2
0
Performance of power lift
Holed drawbar
Frame cat. I
(mast height 460 mm)
max. mech. advantage
min. mech. advantage
0
200
400
600
800
1000
mm
Lifting height above ground
(with stat. radius of 567 mm)

REDUCTION OF POWER DATA TO STANDARD CONDITIONS

According to:

Austrian Standard Ö-Norm V - 5003
German Standard DIN 70020 Teil 6

$$P_{RED} = P_{OECD} \cdot k; \quad \text{where } k = \frac{1013}{B} \cdot \sqrt{\frac{273 + t}{293}}$$

MAIN POWER TAKE OFF PERFORMANCE (page 14 and 15)

Test conditions: Intake air temperature t = 22°C
Atmospheric pressure B = 997 mbar
Resulting reduction coefficient: k = 1,01951

	P_{OECD}	P_{RED}
MAXIMUM POWER 540 rev/min p.t.o.	20,52 kW (27,91 mHP)	20,92 kW (28,45 mHP)

REMARKS: None