O.E.C.D. Report No.: 690

GEPRÜFT

PROT. Nr.

BUNDESVERSUCHS - UND PRÜFUNGSANSTALT
für landwirtschaftliche Maschinen und Geräte,
Wieselburg

Dieseltractor

Trade name:

STEYR 8060

Manufacturers signature:

STEYR 337.20



Date of approval: 1980 09 10

Date of test: 1980 05 14

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

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Tractor manufacturer:	STEYR-DAIMLER-PUCH AG., Steyr, Austria STEYR-HELLAS ABE., Sindos, Greece
Submitted for test by:	Manufacturer
Selected by:	Manufacturer by agreement with BVPA-Wieselburg
Place of running in:	Steyr, Austria
Duration of running in:	120 hours

SPECIFICATION OF TRACTOR

Tractor:

Make:	STEYR-DAIMLER-PUCH AG.
Model:	Diesel-Tractor STEYR 337.20 Trade name: STEYR 8060
Type:	Wheel tractor, rear wheel driven, unit construction
Serial No.:	337.20 - 01001

Engine:

Make:	Own make
Model:	WD 311.41
Type:	4 stroke diesel engine with direct injection
Serial No.:	311.41 - 1002
Cylinders:	3, vertical in line Bore/stroke: 100/110 mm Capacity: 2592 cm^3 Compression ratio: 16,2 Wet liners
Valves:	Overhead valves
Fuel system:	Capacity of fuel tank: appr. 96 l Optional: small tank appr. 64 l Fuel feed by gravity BOSCH fuel filter Dual filter with water trap and changeable elements, model 0450 134 002 Fuel precleaner FJSJ 1/1 Z BOSCH distributor injection pump Prototype model: VA 3/10 H 1200 CRV 3673 Serial model: VA 3/10 H 1200 CR 411 Manufacturers production setting: 48^{+9}_{-2} mm^3/stroke at 2400 rev/min and full load Injection timing: $16^{\pm 1}$ before TDC at 1 mm pump stroke

Fuel system: (cont.)	Injectors: BOSCH Multi hole injection nozzles DLLA 150 SV 13249 or FRIEDMANN & MAIER Multi hole injection nozzles D 1 LMK 150/55 Injection pressure: $21,6^{+0,5}_{0}$ MPa (216^{+5}_{0} bar)
Governor:	BOSCH variable speed governor Hydraulically acting, incorporated in injection pump Range of speed: 600 to 2580 rev/min Rated speed: 2400 rev/min
Air cleaner:	MANN & HUMMEL or PUROLATOR/KNECHT Main-cleaner: Dry type with changeable element and electrical indicator Model: MANN & HUMMEL 45.114.65.414; optional: additional safety element CF 600 PUROLATOR LP 045/1; optional: additional safety element AF 3098 or KNECHT SE 045 Pre-cleaner: Cyclonic type, transparent dust container Model: MANN & HUMMEL 48.030.67.900
Exhaust silencer:	EBERSPÄCHER Reflexion type, at left side of the engine, mouth upwards Model: T 16.47.476.10.0.00 with protective cab 110.01 T 16.47.476.11.0.00 with protective cab 110.02
Lubrication:	Forced lubrication with EATON pump, strainer in sump, paper filter in full flow Oil capacity: appr. 6,3 l Changing interval: 200 hours; paper filter: 400 hours Recommended oil viscosity: SAE 20 W/40 HD, SAE 10 W/30 HD in cold environment (MIL-L-2104 B, MIL-L-46 152)
Cooling system:	Double circuit water cooling with centrifugal pump, pump and 4 blade fan (dia: 420 mm) belt driven Tubular radiator, longtime filling with frostprotection down to -20°C Thermostat control, cooling water thermometer and sight glass for level indication Coolant capacity: appr. 15 l (16,5 l with cab heating) Overpressure: max. 50 kPa (0,5 bar) Joining for warm water heating
Starting system:	Electrically BOSCH solenoid engaged starter, model: 0 001 362 072 JF 12 V, 2,5 kW Cold starting aid: BERU or BOSCH glow plug in intake pipe, BERU model 184 G or BOSCH model A 250 00. 1088

Electrical system:	Voltage: 12 V, negative earth Generator: BOSCH, three phase type model G 1 - 14 V 28 A 22 - 392 W, 0 120 339 526 14 V, 28 A, 392 W Batteries: lead acid type, 1 with 12 V and 135 Ah capacity at 20 hours rating

Transmission:

Clutches:	Clutch: FICHTEL & SACHS Dual plate dry clutch, model DUT 280 - 280/280, both plates 280 mm dia, independent activated or LUK same dimension Main clutch: 280 mm dia, pedal operated P.t.o.-clutch: 280 mm dia, hand lever operated
Gearbox:	Own make, mechanically acting, model 337 Basis model: (optional) reversing gear (FORWARD-REVERSE) combined with 4 speed change gear and reduction gear (ROAD-FIELD) Total: 8 forward and 8 reverse speeds Normal model: (as tested) 2 forward and 1 reverse group gear (FORWARD FAST, FORWARD NORMAL, REVERSE) combined with 4 speed change gear and reduction gear (ROAD-FIELD) Total: 16 forward and 8 reverse speeds Crawler gear model: (optional) Basis model with crawler gear reduction Reduction ratio: 3,398 Total: 16 forward and 16 reverse speeds Optional: synchronised helical 4 speed change gear Optional: top speed 25 km/h or 30 km/h (as tested)
Rear axle and final drive:	Own make, model 337 Central axle; pinion and bevel gear, lockable bevel gear differential, acting by planetary gears on rear wheels Differential lock: mechanically acting, foot lever operated, lockable, self disengaging

Total ratios and speeds

Group	Gear No.	Number of engine revolutions for one revolution of driving wheel		Nominal travelling speed for rated speed of engine *) km/h	
		field L	road S	field L	road S
forward normal VN	1	402,16	120,34	1,44	4,81
	2	209,35	62,64	2,77	9,24
	3	140,82	42,14	4,11	13,74
	4	85,31	25,53	6,79	22,69
forward fast VS	1	327,03	97,86	1,77	5,92
	2	170,24	50,94	3,40	11,37
	3	114,52	34,27	5,06	16,90
	4	69,37	20,76	8,35	27,90
reverse R	1	327,03	97,86	1,77	5,92
	2	170,24	50,94	3,40	11,37
	3	114,52	34,27	5,06	16,90
	4	69,37	20,76	8,35	27,90

*) Calculated with index radius of 640 mm and test tyre equipment 12,4–32 AS

Oil capacity: Gearbox and rear axle: appr. 24,5 l
Final drives: appr. 2,7 l for each planetary gear
Changing interval: 1000 hours or one year
Recommended oil: SAE 90, MIL-L-2105

Power take off: At rear of tractor, in median plane, 295 mm behind rear axle, 530 mm above ground (640 mm tyre index radius)
Dimension: ISO R 500, Type 1 (35 mm, 6 splines)

Proportional to engine speed (independent) p.t.o.:
Driven by p.t.o. clutch (dry plate type), speed selector, p.t.o. shaft
Speeds:
540/ 634 rev/min at 2044/2400 rev/min engine speed
1000/1127 rev/min at 2130/2400 rev/min engine speed
Engine speed resp. p.t.o. speed indication by "Traktormeter"
Direction of rotation: clockwise viewed from driving end

Proportional to ground speed p.t.o.:
Only engageable when reduction gear is on O (NEUTRAL = stationary) or L (FIELD) position. Driven by main clutch (dry plate type), group gear, 4 speed change gear, reduction gear (only in position O or L (FIELD), sliding gear, p.t.o. shaft.

Power take off: (cont.)

Driving mode (reduction gear in L position):
Travelling distance for 1 revolution of p.t.o.:
0,103 m with 640 mm tyre index radius
Number of p.t.o. revolutions for 1 revolution of driving wheel: 38,95

Stationary mode (reduction gear on O position, tractor not driving):
Speeds at 2400 rev/min rated engine speed (rev/min):
30 km/h model as tested

Group gear:	VN	VS	R
Gear No.: 1	286	232	286
2	549	447	549
3	816	664	816
4	1348	1096	1348
Direction of rotation	clockwise	clockwise	anticlockwise
	viewed from driving end		

25 km/h model (not tested)

Group gear:	VN	VS	R
Gear No.: 1	193	232	223
2	370	447	429
3	550	664	638
4	908	1096	1053
Direction of rotation	clockwise	clockwise	anticlockwise
	viewed from driving end		

Middle p.t.o.:

Optional, not on tested tractor
Forward direction, on the left side of the gearbox, 186,5 mm left hand of median plane of tractor, 550 mm above ground, 651 mm before rear axle
Dimension: ISO R 500, Type 1 (35 mm, 6 splines)
No power restriction
Driven by p.t.o. clutch
Speed: 1000/1183 rev/min at 2029/2400 rev/min engine speed
Direction of rotation: anticlockwise viewed from the driving end

Front p.t.o.:

Optional, not on tested tractor
Forward direction, on the left side of the tractor, 310 mm left hand of median plane, 505 mm above ground, 491 mm before front axle
Driven by middle p.t.o. and propellershaft with intermediate bearing
No power restriction
Same speeds and direction of rotation of middle p.t.o.

Belt pulley:

Optional, not on tested tractor
At rear of tractor, perpendicular transmission on rear p.t.o., all speeds of rear p.t.o. engageable
Dimensions: 250 mm dia, 160 mm width
Number of pulley revolutions for 1 revolution of p.t.o.: 2,23

Power lift:

In the rear:

Own make, open center type
Draught control with two stage pull adjustment and upper link sensing, position control, floating position
"STEYR SIMPLEMATIK" standard linkage, categorie I/II, double hole lift arms
BOSCH gear type pump, directly driven by engine
BOSCH control unit
Own oil supply, capacity: 10 l (11 l with oil tappings)
Recommended oil: SAE 20 W
Working cylinder: single acting type, bore/stroke: 75/147 mm

Optional (not on tested tractor):
WALTERSCHEID linkage quick coupler, category II
Oil tappings: up to 3 oil circuits with BOSCH control units for single or double acting cylinders
Capacity of tappings: 6 l

Optional (not on tested tractor):
Increased capacity of oil tappings up to 17 l with 11 l supplementary tank

In the front:

Optional (not on tested tractor)
Three point linkage, category II, open system, hydraulic power lift, disintegrated construction
Oil supply from own control unit and common oil supply with power lift in the rear
Single acting cylinder, bore/stroke: 60/250 mm

Holed drawbar:

Fitted in the clevis of the lower links of the three point linkage, category I or II

Dimensions of the holed drawbar	category I	category II
Number of holes	5	7
Diameter	33	33
Distance	130	115

Holed drawbar:
(cont.)

Height above ground *)		Min. lift rod length (basis adjustment)	Max. lift rod length
Lift arm length:	192 mm	from 470 to 935 mm	from 265 to 790 mm
	230 mm	from 372 to 935 mm	from 160 to 790 mm

*) Calculated with tyre index radius of 640 mm

Method of changing: by power lift, lift rod and lift arm length
Distance of rear axle: 870 mm (lower links horizontally)
Distance relative to p.t.o.: 574 mm

Pull attachement:

Trailer hitch:

Own make
Fork type, model 273 Q

Height above ground:	360/388/693/721 mm
Distance from rear axle:	367/447 mm
Position relative to p.t.o.:	rearwards 72/152 mm
Diameter of coupling pin:	30,5 mm
Max. vertical load:	15 kN

Optional (not on tested tractor):
ROCKINGER automatic coupler model 248
Fork type, height adjustable in 2 positions

Height above ground:	713/701 mm
Distance from rear axle:	494 mm
Position relative to p.t.o.:	rearwards 199 mm
Diameter of coupling pin:	30 mm
Max. vertical load:	15 kN

or ROCKINGER model 273 J
Fork type

Height above ground:	708/667/623/582 mm
Distance from rear axle:	454 mm
Position relative to p.t.o.:	rearwards 159 mm
Diameter of coupling pin:	30,5 mm
Max. vertical load:	15 kN

or ROCKINGER automatic coupler, model 297
Fork type

Height above ground:	711/660/628/577 mm
Distance from rear axle:	462 mm
Position relative to p.t.o.:	167 mm
Diameter of coupling pin:	30 mm
Max. vertical load:	15 kN

Trailer hitch: (cont.)	or own make	
	Fork type (italian equipment)	
	Height above ground:	364/384/689/709 mm
	Distance from rear axle:	327 mm
	Position relative to p.t.o.:	32 mm
	Diameter of coupling pin:	28 mm
	Max. vertical load:	15 kN
Towing hitch:	Fork Type	
	Height above ground:	620 mm
	Distance from front axle:	frontwards 495 mm
	Diameter of coupling pin:	31 mm

Steering:

ZF-SCHWÄBISCH GMÜND
Hydrostatic steering, model ZF 8451
or DANFOSS equivalent model OS PC 80 OR
Own oil circuit, gear pump directly driven by engine
Capacity of oil case: 1,75 l
Recommended oil: Automatic Transmission Fluid (ATF Dexron D or ATF M 2 C 33 E/F)
Delivery rate: 25,2 l/min
Working pressure: 10,0 MPa (100 bar)
Operated by steering wheel, acting on front wheels

Brakes:

Own make

Service brake: Hydraulically acting inner brake (Simplex), 229 mm dia, 60 mm width, acting on differential shafts, pedal operated

Parking brake: Mechanically acting on separate inner brake, 229 mm dia, 30 mm width, acting on differential shafts, activated by hand with ratchet

Steering assistancebrake: Operated by divided pedal of service brake

Optional brake equipment: (not on tested tractor)
Trailer braking valve: high pressure air system, one or combination one or two line system, air compressor V-belt driven
Storage pressure: $1,8^{+0.2}_{-0.0}$ MPa (18^{+2}_{-0} bar)
Working pressure: 0,72 MPa
Storage capacity: 10 l

Wheels:

Front wheels: 2 pneumatics, steering function, diagonal carcass 6,00-16 AS front, PR 6; rim: 4,00 E x 16
Maximum permissible load on each tyre:
5495 N at 3,00 bar inflation pressure
10990 N at 3,90 bar inflation pressure
max. 8 km/h driving speed for front implement working

Front wheel: (cont.)
Track width: 1375, 1475, 1575, 1675, 1775, 1875, 1975 mm changeable by extending the front axle
Optional front wheel equipment:
6,50-16 AS front, PR 6 with rim 4,50 E x 16
7,50-16 AS front, PR 6 with rim 5,50 F x 16

Rear wheels:
2 pneumatics, driving function, diagonal or radial carcass
12,4-32 AS, PR 6; rim: W 10 x 32
Maximum permissible load on each tyre:
13 295 N at 1,7 bar inflation pressure
Track width: 1372 mm (1524 mm by reversing wheels)

Optional rear wheel equipment:
14,9-28 AS, PR 6; rim: W 12 x 28
12,4-36 AS, PR 6; rim: W 11 x 36
13,6-36 AS, PR 6; rim: W 12 x 36
14,9-30 AS, PR 6; rim: W 12 x 30
9,5-36 AS, PR 6; rim: W 8 x 36
12,4-28 AS, PR 6; rim: W 10 x 28

Wheel base: 2035 mm

Lighting:

Unrestricted beam angle of head light in plan view: 92 mrad (5,27°)

	*) Height above ground of centre mm	Dimension mm	**) Distance from outside edge of tractor to centre mm
Head lights	890	135 x 115	710
Side Lights	1460	80 x 65	130
Rear lights	1460	80 x 65	130
Reflectors	1360 640	75 dia	90 415

*) with tyre equipment: 12,4/11-32 AS and 6,00-16 AS front
**) with overall width of 1710 mm

Number of grease points: 19

Driver seat:
BOSTROM
Model XH 2 TS 2; tested on tractor according to national regulation (Prot.Nr. 073/79)
X-lever suspension with torsion springs, adjustable to drivers weight
Hydraulically damping
Horizontal adjustment range: 140 mm
Vertical adjustment range: 70 mm

Driver seat: (cont.)	GRAMMER Model DS 85 H/3; tested on tractor according to national regulation (Prot. Nr. 072/79) X-lever suspension with 2 tension coil springs (force transmission by curve-disc and ball-bearing) Hydraulically damping Horizontal adjustment range: 140 mm Vertical adjustment range: 60 mm
Protective frame:	(as on tested tractor) Own make Model 110.01 Sheet construction with roof, windscreen, front cladding and rubber floor, rubber mounted unit with mudguards integrated Strength tested according to national legislation (identical to OECD-Code)
	Optional: Own make Model 110.02 Same construction, 120 mm lower
Protective cab:	Own make Model 110.11 Same construction as protective frame completely cladded and damped with air ventilation and heater
	or Model 110.12 Same construction, 120 mm lower

CONDITIONS DURING TEST

Tractormass:

Tractor without driver but with tanks full and protective frame

	Front	Rear	Total
Without ballast	865 kg	1555 kg	2420 kg
With ballast	1085 kg	2100 kg	3185 kg

Ballastmass:

	Number of weights	Total mass (excluding water)	Water
Front	5	183 kg	-
Rear	4 + 2	298 kg	284 kg
Additional	-	-	-

Track setting and tyre equipment:

1375 mm at front
1372 mm at rear
Front wheels: 6,00-16 AS front, PR 6
Rear wheels: 12,4/11-32 AS, PR 6

Overall dimensions:

	Length	Width		Height ***)
		max. *)	min. **)	
	mm	mm	mm	mm
With ballast	3670	2290	1710	2360/2460
Without baliast	3490	2290	1710	2360/2460

*) measured on front wheels
**) measured on mudguards of rear wheels
***) measured on top of: safety cab/exhaust pipe with basis tyre equipment

Minimum ground clearance: 360 mm under front axle with basis tyre equipment (6,00-16 AS front)

Fuel and lubricants used in tests:

Fuel:	ELAN Diesel fuel (according to DIN 51601) specific gravity at 20°C: 0,850 kg/l Viscosity at 20°C: 5 mm^2/s (5 cSt) Cetan no.: 50
Engine oil:	MOBIL OIL SPECIAL SAE 10 W-30 HD, MIL-L-2104 A Viscosity at 100°C: 10,6 mm^2/s (10,6 cSt)
Transmission oil:	SHELL SPIRAX 90 HD, MIL-L-2105 B Viscosity at 50°C: 112 mm^2/s (112 cSt)
Hydraulic oil:	SHELL Tellus 33, SAE 20 W Viscosity at 50°C: 40 mm^2/s (40 cSt)

COMPULSORY TESTS

1. Main power take-off performance

Date and location of tests: 1980 04 22, Wieselburg, Austria
Type of dynamometer: SCHENK-eddy current brake - W 780

Main test on: ISO R 500, Type 1 - 540 rev/min - p.t.o.

Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
32,14	2400	634	8,67 10,20	270	3,151
Standard p.t.o. speed					
30,78	2044	540	7,86 9,25	255,5	3,327
The speed recommended by the manufacturer for drawbar work					
32,14	2400	634	8,67 10,20	270	3,151
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
28,02	2460	650	7,88 9,27	281,5	3,020
(ii) unloaded					
-	2570	679	2,75 3,23	-	-
(iii) 50 % of the load defined in (i)					
14,29	2509	663	5,09 5,99	356	2,386
(iv) maximum power					
32,14	2400	634	8,67 10,20	270	3,151
(v) 25 % of the load defined in (i)					
7,28	2551	674	3,86 4,54	530,5	1,603
(vi) 75 % of the load defined in (i)					
21,22	2487	657	6,46 7,60	304,5	2,791

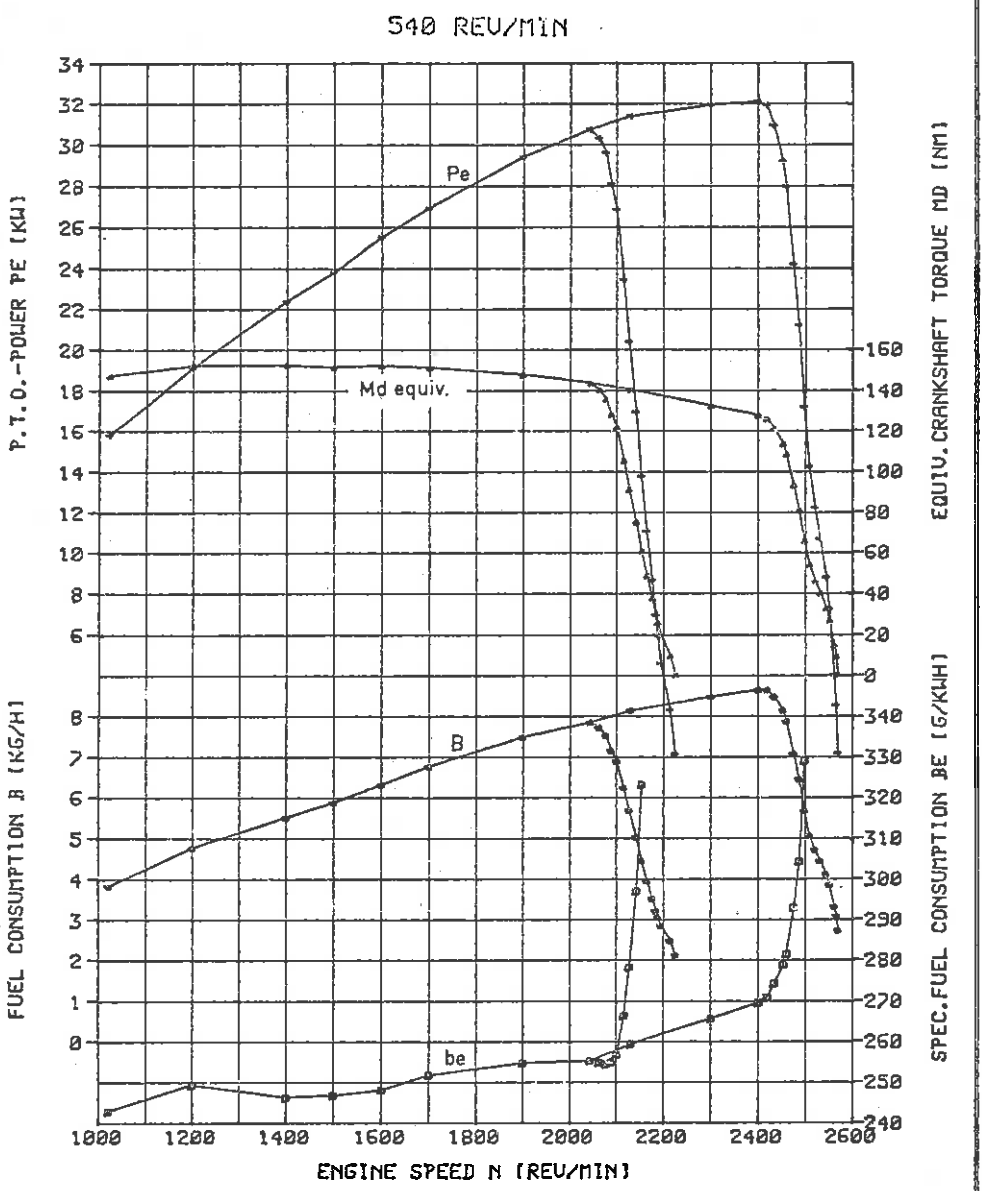
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % of torque at standard p.t.o. speed					
26,89	2101	555	6,91 8,13	257	3,307
(ii) unloaded					
-	2226	588	2,12 2,50	-	-
(iii) 50 % of the load defined in (i)					
13,80	2154	569	4,46 5,25	323,5	2,628
(iv) maximum power at standard p.t.o. speed					
30,78	2044	540	7,86 9,25	255,5	3,327
(v) 25 % of the load defined in (i)					
6,98	2184	577	3,23 3,80	462,5	1,838
(vi) 75 % of the load defined in (i)					
20,43	2127	562	5,69 6,69	278,5	3,054
STANDARD SPECIFIC FUEL CONSUMPTION: 281,5/356/257/323,5 g/kWh					

No load maximum engine speed: 2570 rev/min
Equivalent crankshaft torque
at maximum power: 127,88 Nm
Maximum equivalent crankshaft torque: 152,9 Nm bei 1400 rev/min of engine

Mean atmospheric conditions: temperature: 15°C
pressure: 982 mbar
humidity: 60 %

Maximum temperatures: coolant: 86°C
engine oil: 110°C
fuel: 60°C
air intake: 20°C

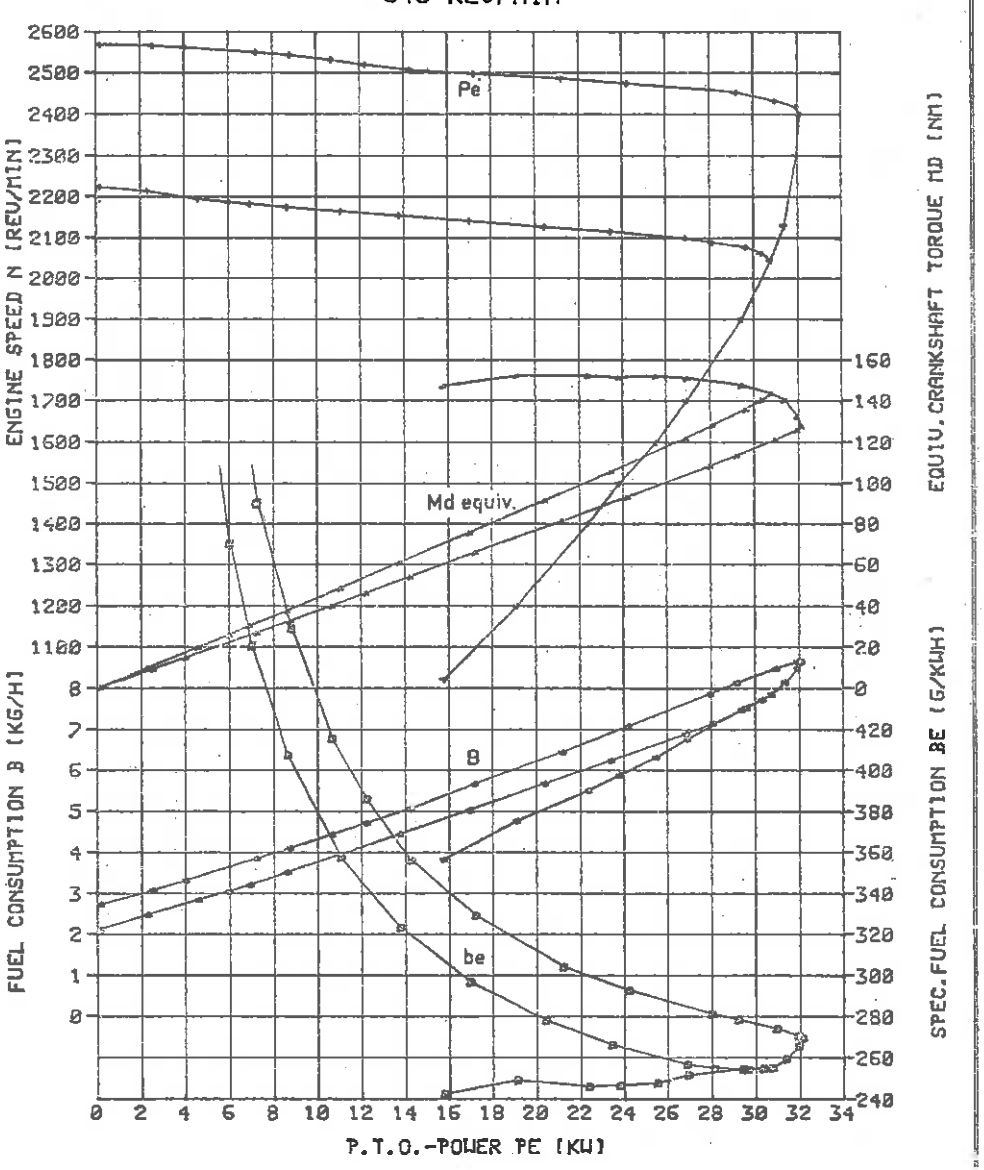
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDU. MASCHINEN U. GERAETE DIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	P.T.O.-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41



ENGINE SER.NR.: 311.41-1002	ATM.PRESSURE : 982 MBAR	FUEL TEMP.: 50 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-22	A. Reitlher
FUEL : 0.85/ 20 C	COOLANT TEMP.: 86 C	TEST NO. : 122/ZA118	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP.: 118 C	CURVES NO.: 1	ING.REITHER

EDV-DL803:MKU001.DA2:MKU20

BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	P.T.O.-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41



ENGINE SER.NR.: 311.41-1382	ATM.PRESSURE : 982 MBAR	FUEL TEMP.: 60 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1081	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-22	A. Reitler
FUEL : B.85/ 20 C	COOLANT TEMP.: 86 C	TEST NO. : 122/2A118	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 118 C	CURVES NO.: 2	ING.REITHER

EDV-DL003:PRO001.DS27.PK020

2. Drawbar performance

Date of tests: 1980 04 23 to 1980 04 25
Type of track: Concrete
Height of drawbar above ground: 540 mm ballasted, 560 mm unballasted

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Fuel consumption		Temperatures			Atmosph. conditions		
						specific	specific	Fuel	Coo-lant	Engine Oil	Tempe-rature	rel.hu-midity	Pres-sure
	km/h	kW	N	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	mbar
(i) Maximum power (ballasted)													
VN1L	1,255	11,16	32010	2462	15	-	-	45	83	101	22	60	982
VS1L	1,535	13,65	32013	2450	15	-	-	45	84	100	21	61	982
VN2L	2,370	21,08	32008	2420	15	2,084	408	46	84	102	20	60	982
VS2L	2,906	25,78	31940	2400	14,6	2,519	337,5	47	83	101	22	59	982
VN3L	3,691	27,12	26453	2401	10,3	2,648	321	47	84	102	22	59	982
VN1S	4,408	27,65	22581	2400	8,4	2,698	315	47	84	101	21	60	982
VS3L	4,654	27,84	21534	2400	8	2,715	313	46	84	102	22	60	982
VS1S	5,525	28,03	18263	2398	6,6	2,732	311	46	85	102	22	59	982
VN4L	6,403	27,69	15567	2400	5,7	2,707	314	45	85	101	22	58	982
VS4L	7,963	26,89	12157	2401	4,7	2,630	323	46	84	100	22	58	982

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Fuel consumption		Temperatures			Atmosph. conditions		
						specific	specific	Fuel	Coo-lant	Engine Oil	Tempe-rature	rel.hu-midity	Pres-sure
	km/h	kW	N	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	mbar
(ii) Five-hour-test at 75 % of pull at maximum power													
VS 1 S	5,730	21,81	13700	2448	5,1	2,270	374,5	51	86	113	25	61	989
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (i)													
VN 2 L	2,376	21,14	32029	2423	15	2,098	405	54	88	113	25	64	992
(iv) Maximum power (unballasted)													
VS 2 L	2,965	20,60	25003	2462	15	-	-	49	84	102	23	68	989
VN 3 L	3,564	24,75	25000	2448	15	2,565	331,5	50	83	101	22	69	989
VN 1 S	4,232	26,76	22764	2400	12	2,616	325	49	83	102	21	69	989
VS 3 L	4,497	27,09	21687	2400	11	2,648	321	49	84	102	21	69	989
VS 1 S	5,387	27,44	18338	2400	8,9	2,681	317	50	85	103	22	70	989
VN 4 L	6,273	27,62	15850	2401	7,6	2,698	315	49	84	104	22	70	989
VS 4 L	7,823	27,71	12750	2398	6,2	2,707	314	50	84	105	22	69	989
VN 2 S	8,722	27,52	11357	2400	5,6	2,690	316	49	83	104	22	70	989

Total oil consumption during 10 hours duration of tests (ii) and (iii): 47,4 g/h

3. Turning space and turning circle

Wheel equipment front: SEMPERIT 6,00-16 AS front, PR 6
rear: SEMPERIT 12,4/11-32 AS, PR 6

Track of wheels front: 1375 mm
rear: 1372 mm

Results	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning space	3,24	3,32	3,59	3,62
Radius of turning circle	3,15	3,23	3,50	3,53

4. Location of centre of gravity

	mm
Height above ground	840
Distance forward from the vertical plane containing the axis of the rear wheels	716
Distance from the median plane, left-hand	0

5. Braking

Date of tests: 1979 07 18 to 1979 08 09
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 15813 (Kombi-Schreiber)
Mass of ballasted tractor: 3260 kg (with driver)

Cold brakes

		Ballasted	Without ballast
Travelling speed of the tractor	km/h	25	25
(i) Deceleration	m/s^2	4,7	4,6
(ii) Stopping distance	m	5,63	6,62
(iii) Force exerted on the brake pedal	N	310	190
(iv) Force exerted on the brake pedal to achieve a deceleration of 2,5 m/s^2	N	190	142

Brake fade characteristics (hot tests)	Ballasted	Unballasted
Deceleration hot / deceleration cold x 100	98	98
Stopping distance cold / Stopping distance hot x 100	88	100
Force on pedal, cold / Force on pedal, hot x 100	60	90
Force on pedal, cold / force on pedal, hot to achieve a deceleration of 2,5 m/s^2 x 100	100	109

Efficiency of handbrake:
Satisfactory facing up and down slope of 16 %
pull on handbrake: 98 N

6. Measurement of ambient noise

Date of tests: 1979 07 23
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
Gear: VS 4 S
Travelling speed before acceleration: 21 km/h
Sound level: 87 dB(A)

7. Noise measurement at the driver's ear level

Date of tests: 1979 07 23
Type of sound level meter and octave filter:
2203 and 1613 BRÜEL & KJAER
Type of track: Concrete

Results of tests: (tractor with protective frame)

Gear	Effective travelling speed	Sound level	
		dB(A)	Noise rating
VN 1 S	5,05 km/h	91	-
VN 4 L *)	6,91 km/h	91	-
VS 3 S	17,25 km/h	91	-
VN 4 S	22,70 km/h	91	-

*) The gear tested corresponds to a travelling speed nearest to 7,5 km/h.

8. Power lift and hydraulic pump performance

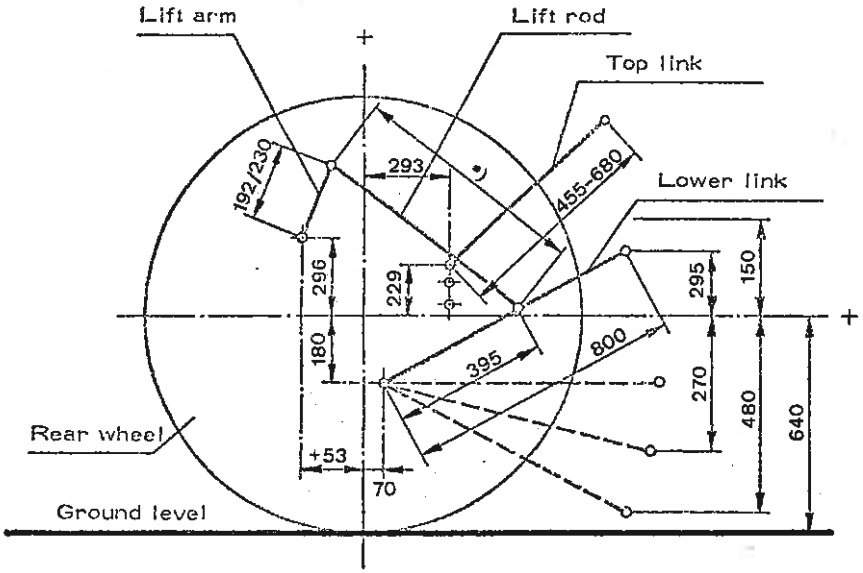
Date and location of tests: 1979 07 18, Wieselburg, Austria
Hydraulic fluid:
Make and type: SHELL Tellus 33, SAE 20 W
Viscositiy at 50°C: 40 mm^2/s (40 cSt)
Typ of linkage lock for transport: hydraulically by throttle valve
Opening pressure of the cylinder over pressure relief valve (manufacturer specification): 24,5 MPa (245 bar)

Pump characteristics:

(i) Opening pressure of the relief valve: 18,3 MPa (183 bar)
sustained pressure by the open relief valve: 17,5 MPa (175 bar)

(ii) Pump delivery rate at minimum pressure and rated engine speed: 24,1 l/min

(iii) Pump delivery rate: 23,5 l/min
delivery pressure: 17,5 MPa (175 bar)
power: 6,85 kW



*) basis adjustment: both lift rods 450 mm
left lift rod: from 415 mm to 523 mm adjustable
right lift rod: from 441 mm to 528 mm adjustable

Linkage geometry when connected to the standard frame

		Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view			
Lower links	mm	800	800
Lift arms	mm	192	230
Lift rods	mm	450	450
Top link	mm		
Distance of lift rod connection point from pivot point of lower link	mm	395	395
The following dimensions are given relative to the rear wheel centre line, situated 640 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 229 above
Lift arm pivot point	mm	53 behind 296 above	53 behind 296 above
Maximum und minimum height of lower link hitch points	mm	295 above 170 below	295 above 270 below
Height of lower link hitch points locked in transport position	mm	from 295 above to 170 below	from 295 above to 270 below

*) index radius

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivoting point mm		-105	-90	0	+10	100	150	200	250	300	400	475	550	635	655
Lifting force at the hitch-points kN (Values for the pressure at maximum hydraulic power, calculated from measurements made at maximum pressure)	max.mech. advantage				21,58	21,34	21,43	21,56	21,55	21,39	20,65	19,62			
	min. mech. advantage		18,98	17,31	17,17	16,43	16,24	16,19	16,28	16,31	16,19	16,38			
	Maximum force exerted throughout whole range: 19,62/16,19 kN														
	Oil pressure: 17,5 MPa (175 bar)														
Lifting force at the frame kN (Values for the pressure at maximum hydraulic power, calculated from measurements made at maximum pressure)	max.mech. advantage				18,00	16,78	16,14	15,45	14,81	14,22	12,75	11,38	10,48	9,61	9,42
	min. mech. advantage	16,92	16,63	15,01	14,89	13,88	13,34	12,70	12,24	11,92	10,45	9,61	9,03	8,34	
	Maximum force exerted throughout whole range: 9,42/8,34 kN														
	Oil pressure: 17,5 MPa (175 bar)														

OPTIONAL TEST

9. Main power take-off performance

Date and location of tests: 1980 04 22, Wieselburg/Austria
Type of dynamometer: SCHENK-eddy current brake - W 780

Main test on: ISO R 500, Type 2 (DIN 9611) - 1000 rev/min p.t.o.

Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
32,80	2400	1127	8,70 10,24	265	3,204
Standard p.t.o. speed 1000 rev/min					
32,00	2130	1000	8,13 9,56	254	3,346
The speed recommended by the manufacturer for drawbar work					
32,80	2400	1127	8,70 10,24	265	3,204
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
28,56	2458	1154	7,88 9,27	276	3,081
(ii) unloaded					
-	2571	1207	2,75 3,23	-	-
(iii) 50 % of the load defined in (i)					
14,62	2511	1179	5,11 6,01	349,5	2,432
(iv) maximum power					
32,80	2400	1127	8,70 10,24	265	3,204
(v) 25 % of the load defined in (i)					
7,43	2552	1198	3,88 4,56	521,5	1,629
(vi) 75 % of the load defined in (i)					
21,65	2486	1167	6,45 7,58	298	2,854

Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	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 % of torque at standard p.t.o. speed					
27,64	2164	1016	7,16 8,42	259	3,281
(ii) unloaded					
-	2296	1078	2,30 2,70	-	-
(iii) 50 % of the load defined in (i)					
14,17	2219	1042	4,60 5,41	324,5	2,618
(iv) maximum power at standard p.t.o. speed					
32,00	2130	1000	8,13 9,56	254	3,346
(v) 25 % of the load defined in (i)					
7,19	2254	1058	3,41 4,01	474	1,792
(vi) 75 % of the load defined in (i)					
20,99	2192	1029	5,84 6,88	278,5	3,052
STANDARD SPECIFIC FUEL CONSUMPTION: 276/349,5/259/324,5 g/kWh					

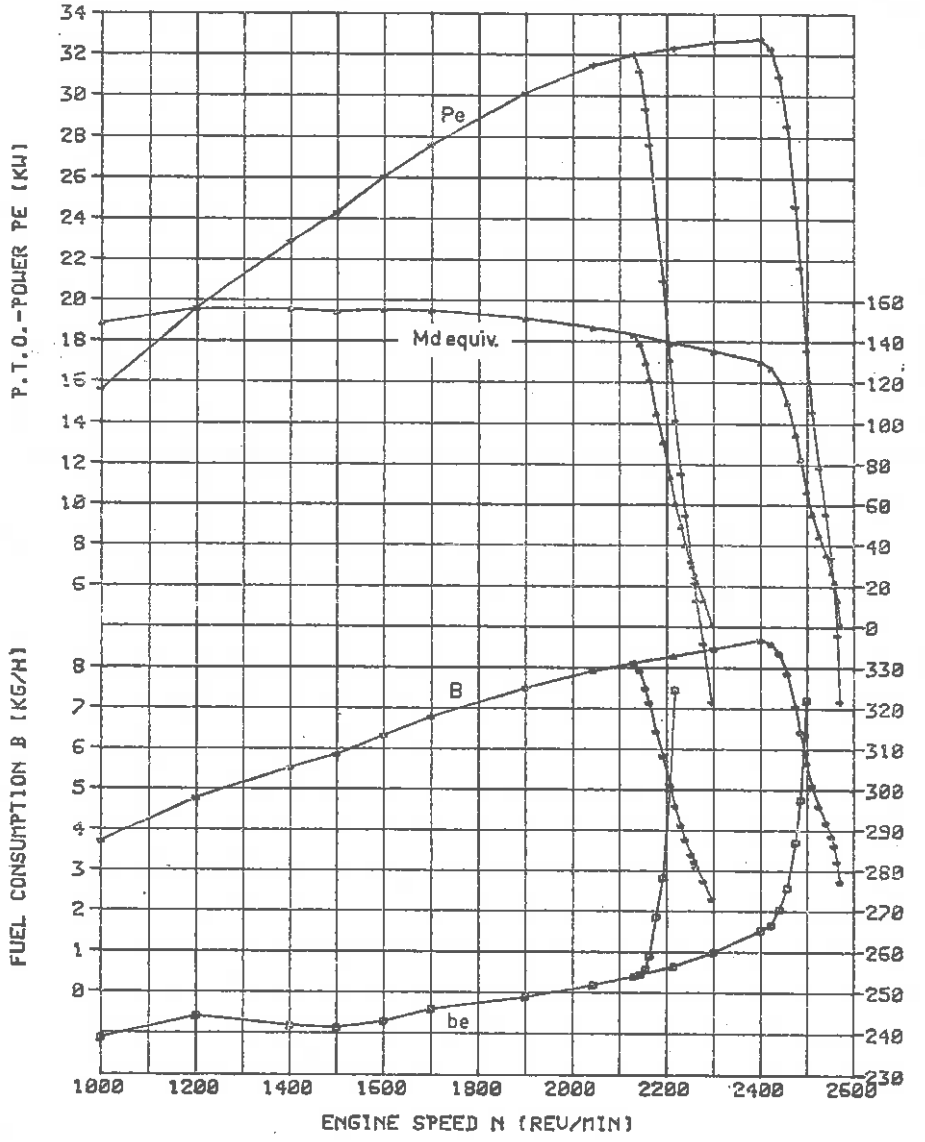
No load maximum engine speed: 2571 rev/min
Equivalent crankshaft torque
at maximum power: 130,5 Nm
Maximum equivalent crankshaft torque: 155,9 Nm at 1400 rev/min of engine

Mean atmospheric conditions: temperature: 15°C
pressure: 982 mbar
humidity: 63 %

Maximum temperatures: coolant: 88°C
engine oil: 108°C
fuel: 62°C
air intake: 20°C

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT. NR.: 066/80	P.T.O.-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT. TYP WD 311.41

1000 REV/MIN

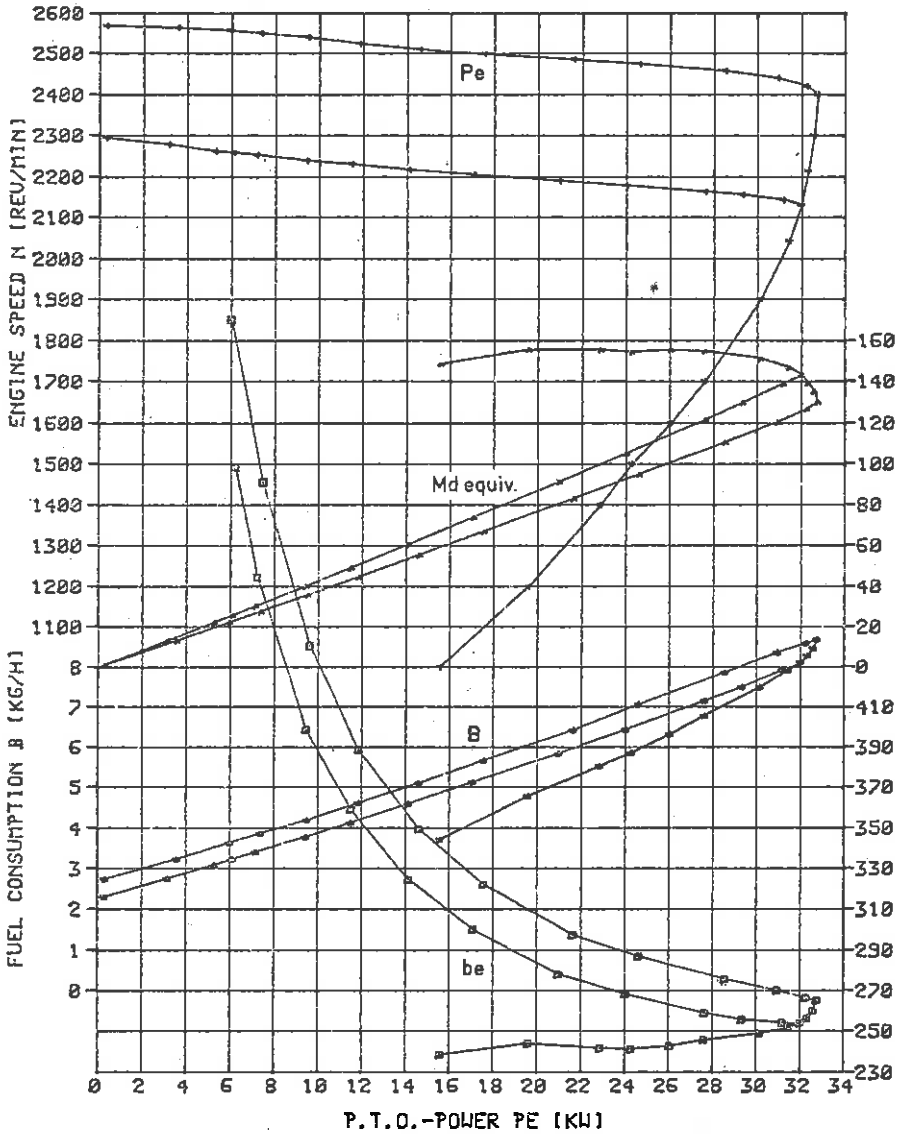


ENGINE SER.NR.: 311.41-1002	ATM. PRESSURE : 982 MBAR	FUEL TEMP.: 68 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-22	A. Reither
FUEL : 0.85/ 28 C	COOLANT TEMP.: 88 C	TEST NO. : 122/ZA118	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 108 C	CURVES NO.: 3	ING. REITHER

EDV-DL803.MKU001.DA2.MKU28

BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	P.T.O.-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41

1000 REV/MIN



ENGINE SER.NR.: 311.41-1002	ATM.PRESSURE : 982 MBAR	FUEL TEMP.: 68 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-22	A. Reitlner
FUEL : 0.85/ 20 C	COOLANT TEMP.: 88 C	TEST NO. : 122/ZA118	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 108 C	CURVES NO.: 4	ING.REITHER

EVO-DL003;MKU001.DA2;MKU20

OPTIONAL TEST

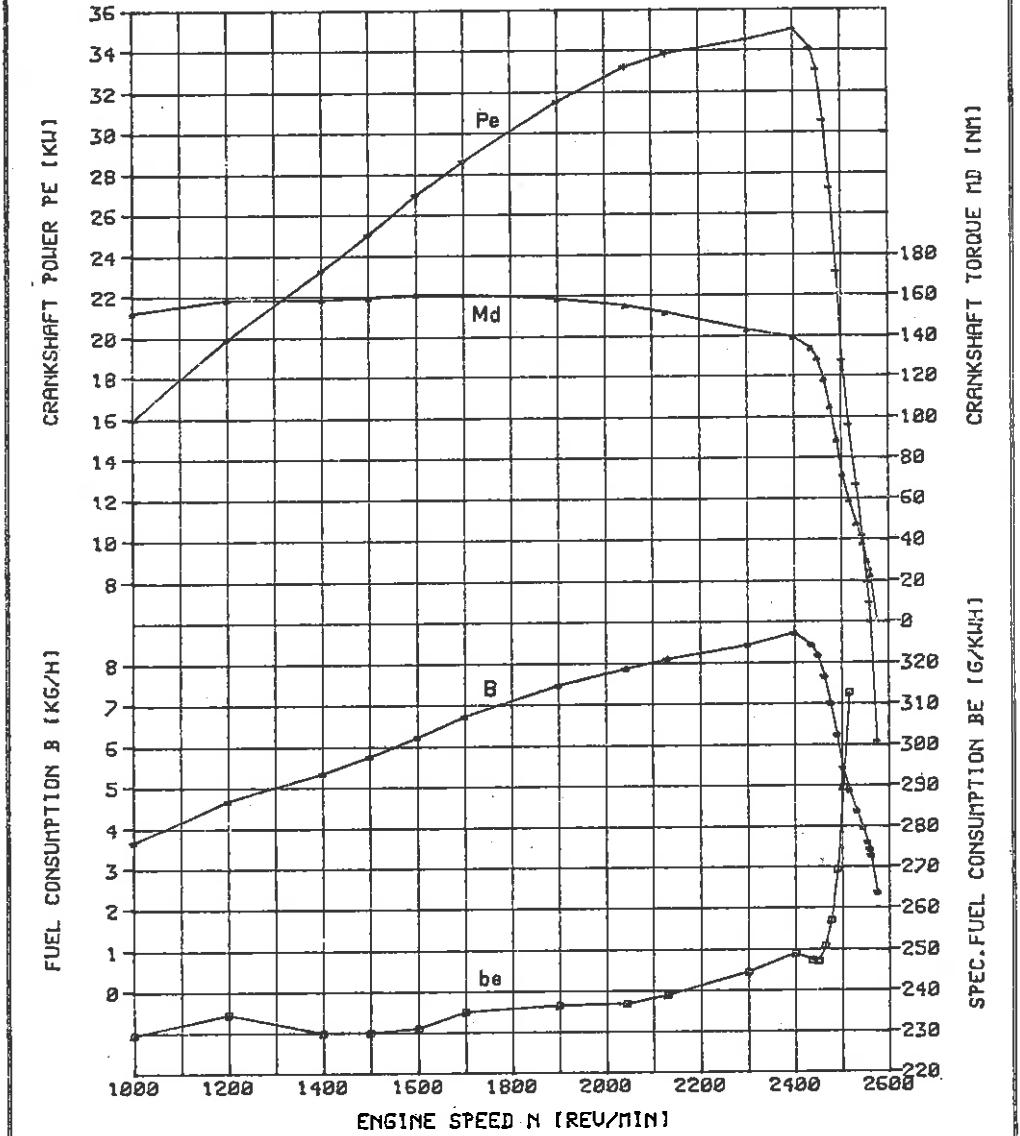
10. Engine performance

Date and location of test: 1980 04 15, Wieselburg/Austria
Type of dynamometer: SCHENK - eddy current brake - W 150

Power	Engine speed	Fuel consumption		
		total	specific	specific
kW	rev/min	kg/h (l/h)	g/kWh	kWh/l
Maximum power - 2 hours test				
35,04	2400	8,73 10,27	249	3,411
Standard p.t.o. speed (540/1000 rev/min)				
33,21	2044	7,87 9,26	237	3,587
33,87	2130	8,09 9,52	239	3,557
The speed recommended by the manufacturer for drawbar work				
35,04	2400	8,73 10,27	249	3,411
Part loads				
(i) 85 % of torque at maximum power				
30,55	2464	7,66 9,02	251	3,388
(ii) unloaded				
-	2575	2,36 2,77	-	-
(iii) 50 % of the load defined in (i)				
15,60	2517	4,88 5,74	313	2,717
(iv) maximum power				
35,04	2400	8,73 10,27	249	3,411
(v) 25 % of the load defined in (i)				
7,92	2555	3,62 4,25	456,5	1,862
(vi) 75 % of the load defined in (i)				
23,16	2490	6,24 7,34	269	3,156

Optimum fuel consumption: 227,3 g/kWh at 14,1 kW and 1008 rev/min
No load maximum engine speed: 2575 rev/min
Torque at maximum power: 139,4 Nm
Maximum torque: 160,9 Nm at 1600 rev/min engine speed
Mean atmospheric conditions: temperature: 15°C
pressure: 990 mbar
relative humidity: 58 %
Maximum temperatures: coolant: 89°C
engine oil: 105°C
fuel: 56°C
engine air intake: 18°C

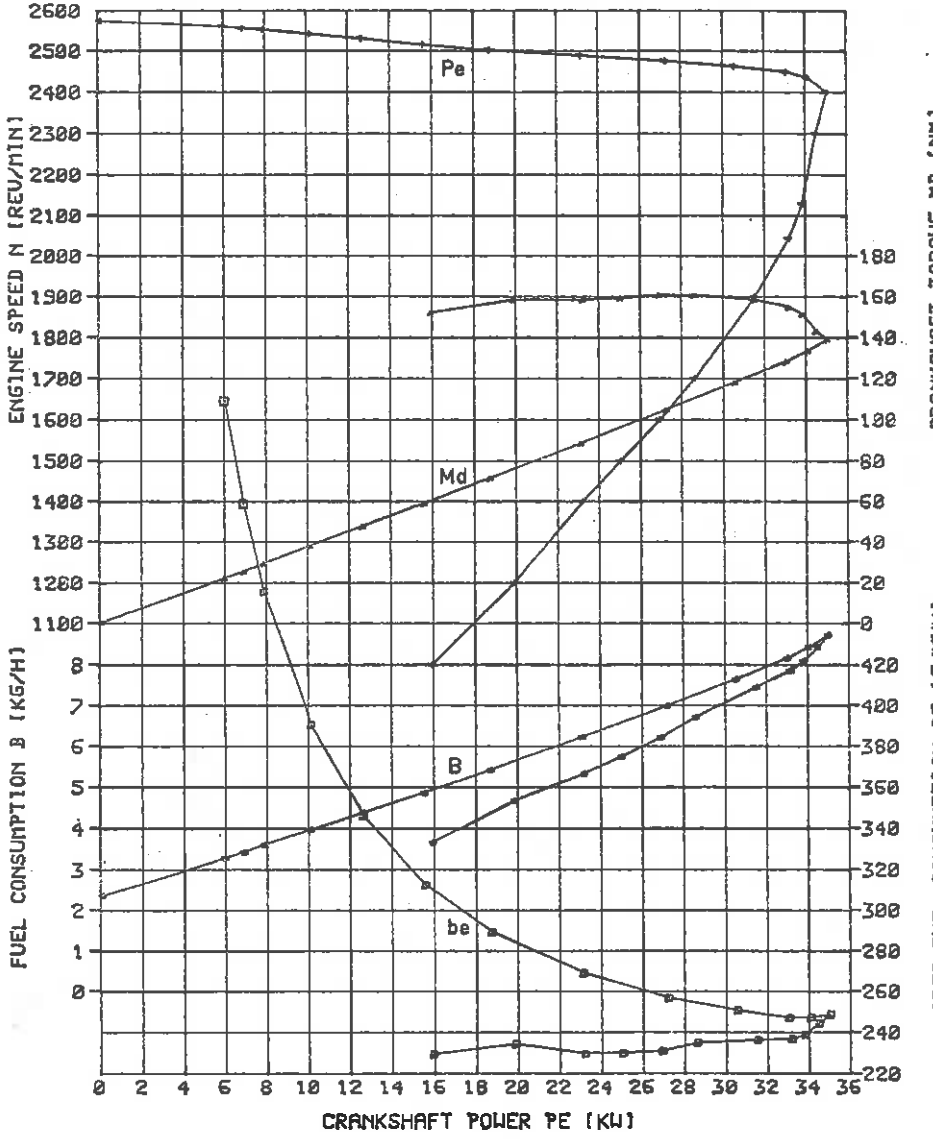
BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	ENGINE-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41



ENGINE SER.NR.: 311.41-1002	ATM.PRESSURE : 990 MBAR	FUEL TEMP.: 56 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-15	A. Reitlher
FUEL : 0.85/ 20 C	COOLANT TEMP.: 89 C	TEST NO. : 122/M170	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 105 C	CURVES NO.: 5	ING.REITHER

EDV-DL003:MKU001.DA2:MKU20

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LAND-U. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	ENGINE-TEST	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41



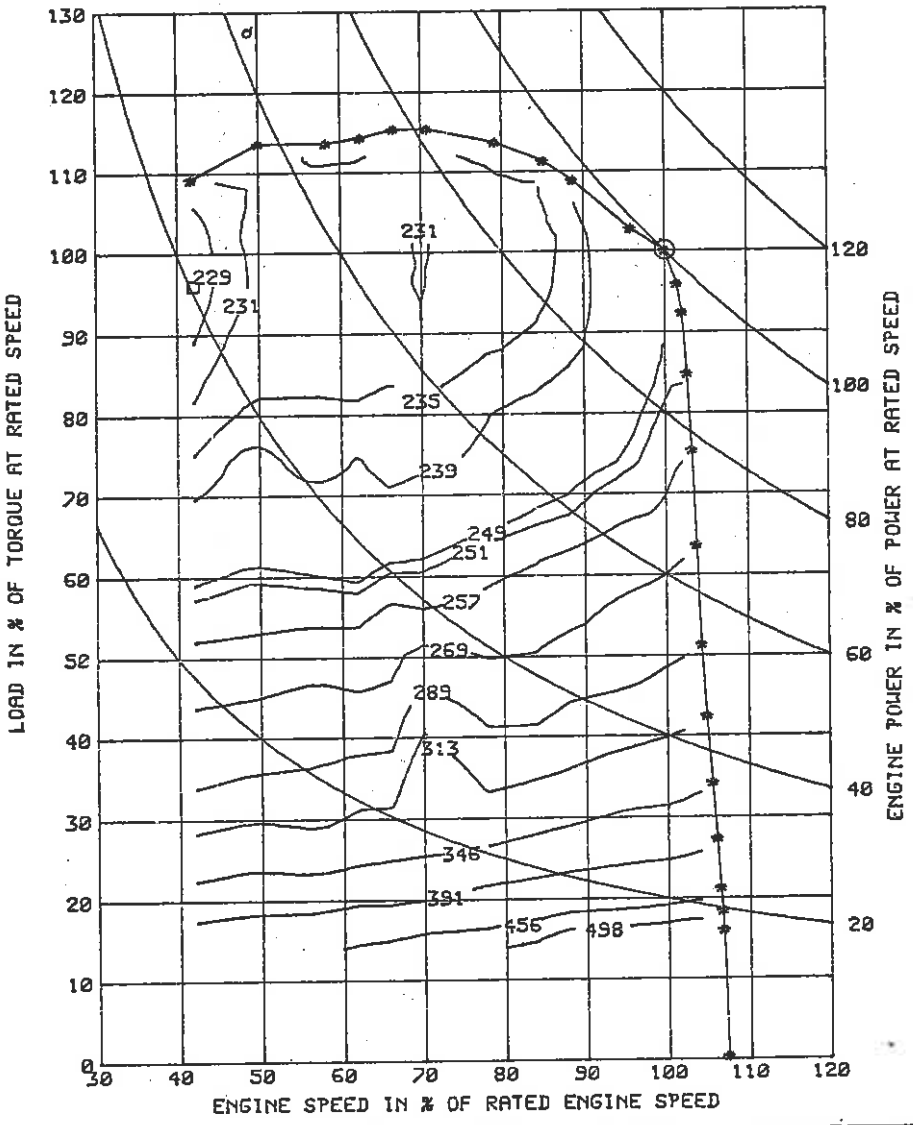
ENGINE SER.NR.: 311.41-1002	ATM.PRESSURE : 990 MBAR	FUEL TEMP.: 56 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-15	A. Reither
FUEL : B.85/ 20 C	COOLANT TEMP.: 89 C	TEST NO. : 122/M120	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 105 C	CURVES NO.: 6	ING.REITHER

EDV-DL.003:PKU001.DA2.PKU20

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDU. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 066/80	ENGINE PERFORMANCE CHARACTERISTICS	STEYR-DIESELTRAKTOR TYP 337.20 (8060) MOT.TYP WD 311.41

□ ....MIN.FUEL CONS. 227.30 G/KWH AT N = 1008. REV/MIN, MD = 133.84 NM, P = 14.1 KW

⊛ ....N = 2400. REV/MIN, MD = 139. NM, P = 35.0 KW



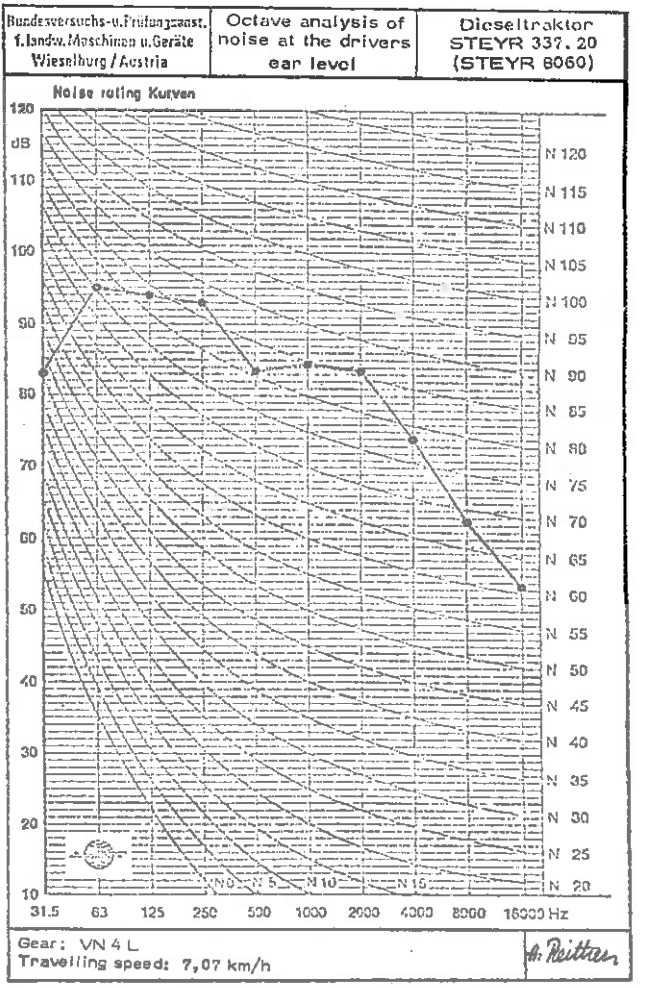
ENGINE SER.NR.: 311.41-1002	ATM. PRESSURE : 998 MBAR	FUEL TEMP.: 56 C	SIGNATURE
TRAKTOR SER.NR.: 337.20-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-04-15	A. Reitlher
FUEL : 0.85/ 20 C	COOLANT TEMP.: 89 C	TEST NO. : 122/M170	
ENGINE OIL : MOBIL SAE 10W-30	OIL TEMP. : 105 C	CURVES NO.: 7	ING. REITLHER

EDV-DL003:MKU001.DA2:MKU04DO

ANNEX

Out of the OECD-Code under responsibility of the Austrian Testing Station

1. OCTAVE ANALYSIS OF NOISE AT THE DRIVERS EAR LEVEL
(to page 21, chapter 7)



2. REDUCTION OF POWER DATA TO STANDARD CONDITIONS

According to:

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

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

A) MAIN POWER TAKE OFF PERFORMANCE (page 14 and 25)

Test conditions: Intake air temperature $t = 20^{\circ}C$
Atmospheric pressure $B = 982$ mbar
Resulting reduction coefficient: $k = 1,031$

	P_{OECD}	P_{RED}
MAXIMUM POWER 540 rev/min	32,14 kW (43,71 mPH)	33,14 kW (45,07 mPH)
MAXIMUM POWER 1000 rev/min	32,80 kW (44,61 mPH)	33,82 kW (46,0 mPH)

B) ENGINE PERFORMANCE (page 29)

Test conditions: Intake air temperature $t = 18^{\circ}C$
Atmospheric pressure $B = 990$ mbar
Resulting reduction coefficient: $k = 1,019$

	P_{OECD}	P_{RED}
MAXIMUM POWER	35,04 kW (47,65 mPH)	35,67 kW (48,51 mPH)