O.E.C.D. Report No.: 711

BUNDESVERSUCHS - UND PRÜFUNGSANSTALT
für landwirtschaftliche Maschinen und Geräte,
Wieselburg

Dieseltractor

Trade name:

STEYR 8070

Manufacturers signature:

STEYR 337.30

Date of approval: 1981 05 14

Date of test: 1979 08 27

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 337.30 Trade name: STEYR 8070
Type:	Wheel tractor, rear wheel driven, unit construction
Serial No.:	337.30 - 01001

Engine:

Make:	Own make
Model:	WD 411.42
Type:	4 stroke diesel engine with direct injection
Serial No.:	411.42 - 1002
Cylinders:	4, vertical in line Bore/stroke: 100/110 mm Capacity: 3456 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 134002 Fuel precleaner FJSJ 1/1Z BOSCH distributor injection pump Prototype model: VA 4/9 H 1200 CRV 3671 Serial model: VA 4/9 H 1200 CR 144-2 Manufacturers production setting: 42^{+0}_{-2} mm^3/stroke at 2400 rev/min and full load Injection timing: 24^{+0}_{-2} before TDC at 1 mm pump stroke

Fuel system: (cont.)	Injectors: BOSCH Multi hole injection nozzles DLLA 150 S 798 or FRIEDMANN & MAIER Multi hole injection nozzles D 1 LMK 150/54 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 2473 mm, 150 mm left side of median plane 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. 9,6 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 glas for level indication Coolant capacity: appr. 15,5 l (17 l with cab heating) Overpressure: max. 50 kPa (0,5 bar) Joining for warm water heating
Starting system:	Electrically BOSCH solenoid engaged starter, model: 0 001 367 011 JF 12 V, 3 kW Cold starting aid: BERU or BOSCH 2 glowplugs 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 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	1,55	5,19
	2	209,35	62,64	2,98	9,97
	3	140,82	42,14	4,43	14,82
	4	85,31	25,53	7,32	24,45
forward fast VS	1	327,03	97,86	1,91	6,38
	2	170,24	50,94	3,67	12,26
	3	114,52	34,27	5,45	18,22
	4	69,37	20,76	9,00	30,08
reverse R	1	327,03	97,86	1,91	6,38
	2	170,24	50,94	3,67	12,26
	3	114,52	34,27	5,45	18,22
	4	69,37	20,76	9,00	30,08

*) Calculated with index radius of 690 mm and test tyre equipment 12,4-36 AS

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

Power take off: At rear of tractor, in median plane, 395 mm behind rear axle, 580 mm above ground (690 mm tyre index radius)
Dimension: ISO R 500, Type 1 (35 mm, 6 splines)

Proportional to engine speed (independent) p.t.o.:
P.t.o. shaft driven by p.t.o. clutch and speed selector
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 "Traktor-meter"
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. P.t.o. shaft driven by main clutch, group gear, 4 speed change gear and reduction gear (only in position O or L (FIELD)).

Power take off: (cont.)

Driving mode (reduction gear in L position):
Travelling distance for 1 revolution of p.t.o.:
0,111 m with 690 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, 580 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, 518 mm above ground, 491 mm before front axle

Front p.t.o.: (cont.)
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, in accordance to ISO 730
BOSCH gear-type pump, directly driven by engine
BOSCH control unit
Own oil supply, capacity: 14 l (15 l with oil tappings)
Recommended oil: SAE 20 W, MIL-L-2104 B
Working cylinder: single acting type, bore/stroke: 85/152 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 threepoint linkage, category I or II

Dimensions of the holed drawbar	category I	category II
Number of holes	5	7
Holes diameter mm	33	33
Distance between holes mm	130	115

Holed drawbar:
(cont.)

Height above ground*)		Min. lift rod length (basis adjustment)	Max. lift rod length
Lift arm length:	200 mm	from 460 to 940 mm	from 240 to 775 mm
	240 mm	from 350 to 915 mm	from 125 to 750 mm

*) Calculated with tyre index radius of 690 mm

Method of changing: by power lift, lift rod and lift arm length
Distance to rear axle: 970 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:	412/440/745/773 mm
Distance from rear axle:	447 mm
Position relative to p.t.o.:	rearwards 52 mm
Diameter of coupling pin:	30,5 mm
Maximum vertical load:	15 kN

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

Height above ground:	753/765 mm
Distance from rear axle:	494 mm
Position relative to p.t.o.:	rearwards 99 mm
Diameter of coupling pin:	30 mm
Maximum vertical load:	15 kN

or ROCKINGER model 273 J
Fork type

Height above ground:	636/677/719/760 mm
Distance from rear axle:	534 mm
Position relative to p.t.o.:	rearwards 139 mm
Diameter of coupling pin:	30,5 mm
Maximum vertical load:	15 kN

or ROCKINGER automatic coupler, model 279
Fork type

Height above ground:	631/682/714/765 mm
Distance from rear axle:	542 mm
Position relative to p.t.o.:	rearwards 147 mm
Diameter of coupling pin:	30 mm
Maximum vertical load:	15 kN

Trailer hitch: (cont.)	or own make	
	Forke type (italian equipment)	
	Height above ground:	416/749/769 mm
	Distance from rear axle:	407 mm
	Position relative to p.t.o.:	rearwards 12 mm
	Diameter of coupling pin:	28 mm
	Maximum vertical load:	15 kN
Towing hitch:	Fork type	
	Height above ground:	632 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 with filter in the oil case, gear pump directly driven by engine
Changing interval of oil and filter: 1000 hours
Capacity of oil case: 1,75 l
Delivery rate: 34,6 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 in 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 lever with ratchet

Steering assistance brake: 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 and 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 mudguards sheet metal with syntheticts parts
6,50-16 AS front, PR 6; rim: 4,50 E x 16
Maximum permissible load on each tyre:
6033 N at 3,1 bar inflation pressure
12066 N at 3,9 bar inflation pressure
max. 8 km/h driving speed for front implement working
Track width: 1375, 1475, 1575, 1675, 1775, 1875 and 1975 mm, changeable by extending the front axle

Front wheels: (cont.)

Optional front wheel equipment:
6,50-20 AS front, PR 6 with rim 5,00 F x 20
7,50-16 AS front, PR 6 with rim 5,50 F x 16
7,50-18 AS front, PR 6 with rim 5,50 F x 18

Rear wheels:

2 pneumatics, driving function, diagonal or radial carcass
sheet metal mudguards integrated in the safety cab
12,4-36 AS, PR 6; rim: W 10 x 36
Maximum permissible load on each tyre:
14130 N at 1,7 bar inflation pressure
Track width: 1372 mm (1524 mm by reversing wheels)

Optional rear wheel equipment:
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
16,9-30 AS, PR 6 or 8; rim: DW 14 x 30

Wheel base: 2155 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	903	135 x 115	710
Side Lights	1530	80 x 65	130
Rear lights	1530	80 x 65	130
Reflectors	1420 695	75 dia	90 415

*) with tyre equipment: 12,4-36 AS and 6,50-16 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. 077/79)
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. 076/79) 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
Safety frame:	(as on tested tractor) Own make Model 110.01 Rubber mounted sheet construction with roof, windscreen, front cladding and rubber floor, without doors, claddings and damping materials, without side and rear glasses and without ventilation and heater. Strength tested according to OECD-Code (identical to Austrian national legislation) OECD-Nr.: CSD 0226/2-b(C) Optional: Own make Model 110.02 Same construction, 120 mm lower Strength tested to national legislation (identical to OECD-Code)
Safety cab:	Own make Model 110.11 Same rubber mounted sheet construction as safety frame with windscreen, front cladding, rubber floor, with damping material, with doors and side and rear glasses and with ventilation and heater. Strength tested according to OECD-Code (identical to Austrian national legislation) OECD-Nr.: CSD 0226/2-a(C) Optional: Model 110.12 Same construction, 120 mm lower Strength tested to national legislation (identical to OECD-Code)

CONDITIONS DURING TEST

Tractormass:

Tractor without driver but with tanks full and safety frame

	Front	Rear	Total
Without ballast	918 kg	1669 kg	2587 kg
With ballast	1149 kg	2219 kg	3368 kg

Ballastmass:

	Number of weights	Total mass (excluding water)	Water
Front	5	183 kg	-
Rear	4 + 2	298 kg	300 kg
Additional	-	-	-

Track setting and tyre equipment:

1475 mm at front
1372 mm at rear
Front wheels: 6, 50-16 AS front, PR 6, rim: 4, 50 E x 16
Rear wheels: 12, 4-36 AS, PR 6, rim: W 10 x 36

Overall dimensions:

	Length	Width		Height ***)
		max. *)	min. **)	
	mm	mm	mm	mm
With ballast	3896	2290	1710	2410/2473
Without ballast	3716	2290	1710	2410/2473

*) 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: 375 mm under front axle with basis tyre equipment (6, 50-16 AS front)

Fuel and lubricants used in tests:

Fuel:	ELAN Diesel fuel (according to DIN 51601) specific gravity used for volumetric measurement: 0,855 kg/l at 15°C 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: 1979 08 27, Wieselburg, Austria
Type of dynamometer: SCHENK-eddy current brake - W 780

Main test on: ISO R 500, Type 1 (DIN 9611) - 540 rev/min

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					
38,29	2400	634	10,26 12,00	268	3,189
Standard p.t.o. speed					
37,18	2044	540	9,57 11,19	257,5	3,320
37,72	2130	563	9,81 11,47	260	3,288
The speed recommended by the manufacturer for drawbar work					
38,29	2400	634	10,26 12,00	268	3,189
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
33,58	2475	654	9,27 10,83	276	3,097
(ii) unloaded					
0	2570	679	3,51 4,10	-	-
(iii) 50 % of the load defined in (i)					
17,11	2525	667	6,16 7,20	360	2,375
(iv) maximum power					
38,29	2400	634	10,26 12,00	268	3,189
(v) 25 % of the load defined in (i)					
8,65	2547	673	4,81 5,64	557	1,535
(vi) 75 % of the load defined in (i)					
25,45	2502	661	7,63 8,91	299,5	2,853

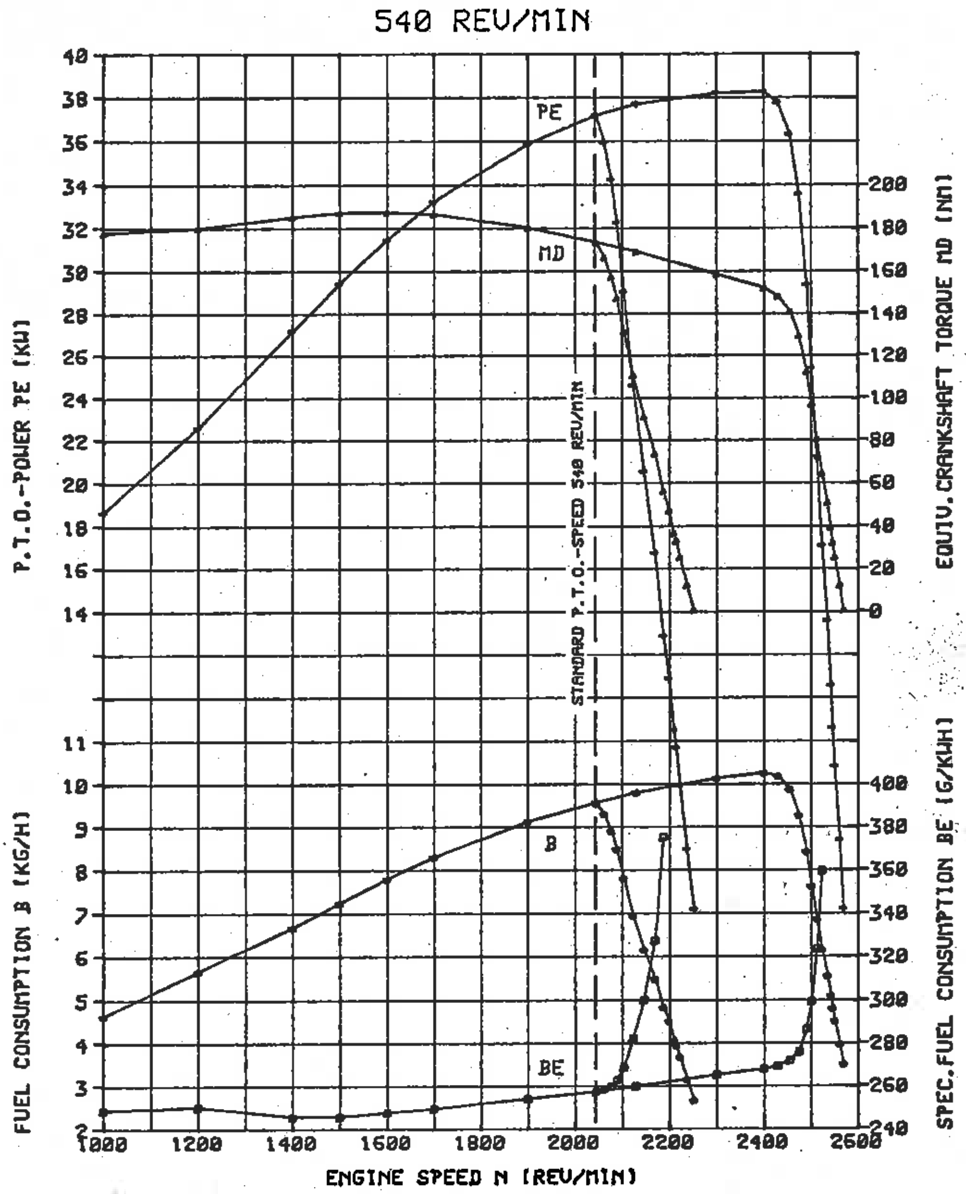
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % of torque at standard p.t.o. speed					
32,30	2089	552	8,49 9,41	263	3,252
(ii) unloaded					
-	2252	595	2,67 3,13	-	-
(iii) 50 % of the load defined in (i)					
16,76	2169	573	5,49 6,43	328	2,608
(iv) maximum power at standard p.t.o. speed					
37,18	2044	540	9,57 11,19	257,5	3,329
(v) 25 % of the load defined in (i)					
8,54	2210	584	4,09 4,77	478,5	1,787
(vi) 75 % of the load defined in (i)					
24,62	2123	561	6,95 8,13	282,5	3,028
STANDARD SPECIFIC FUEL CONSUMPTION: 276/360 - 263/328 g/kWh					

No load maximum engine speed: 2570 rev/min
Equivalent crankshaft torque
at maximum power: 152,4 Nm
Maximum equivalent crankshaft torque: 187,8 Nm at 1600 rev/min of engine

Mean atmospheric conditions: temperature: 20°C
pressure: 986 mbar
humidity: 67 %

Maximum temperatures: coolant: 85°C
engine oil: 116°C
fuel: 65°C
air intake: 27°C

BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 068/80	P.T.O.-TEST	STEYR TYP 337.30 (8070) MOT.TYP WD 411.42

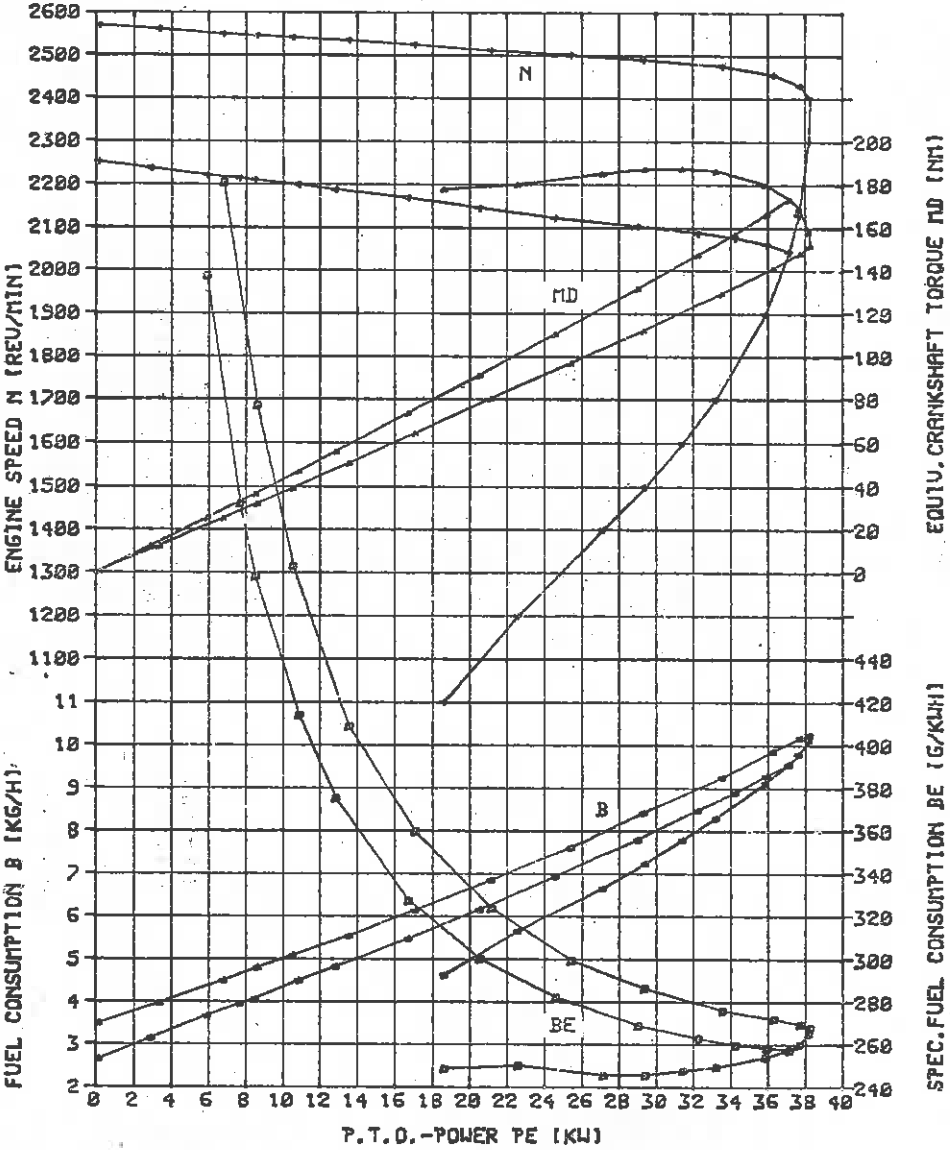


ENGINE SER.NR.: 411.42-1002	ATM.PRESSURE , 986 MBAR	FUEL TEMP.: 65 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-01001	AIR TEMPER. , 20 C	D.OF TESTS: 1979-08-27	A. Reither
FUEL , 0.835/15 C	COOLANT TEMP.: 85 C	TEST NO. : 124/ZA128	
ENGINE OIL : SAE 10W-30	OIL TEMP. ; 116 C	CURVES NO.: 1	REITHER

DUR.:0180846-DL003;MKUA33.DAT;MKU20-21

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT. NR.: 068/80	P.T.O.-TEST	STEYR TYP 337.38 (8070) MOT. TYP WD 411.42

540 REV/MIN



ENGINE SER. NR.: 411.42-1082	ATM. PRESSURE: 996 MBAR	FUEL TEMP.: 65 C	SIGNATURE
TRAKTOR SER. NR.: 337.38-01081	AIR TEMPER.: 28 C	D. OF TESTS: 1979-08-27	A. Reithner
FUEL: 0.855/15 C	COOLANT TEMP.: 85 C	TEST NO.: 121/ZA128	
ENGINE OIL: SAE 10W-30	OIL TEMP.: 116 C	CURVES NO.: 2	REITHER

DUR.;0180846-DL803;MKU033.DAT;MKU28-21

2. Drawbar performance

Date of tests: 1979 10 01 to 04
Type of track: Concrete
Height of drawbar above ground: 575 mm ballasted, 565 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	1,361	12,93	34198	2479	15	–	–	50	80	105	15	74	989
VS1L	1,666	15,83	34205	2467	15	–	–	50	81	104	15	73	989
VN2L	2,567	24,39	34206	2434	15	2,081	415,5	51	82	105	16	73	989
VS2L	3,129	29,73	34200	2412	15	2,492	343	49	80	103	15	74	989
VN3L	3,932	32,00	29309	2400	11,2	2,668	320,5	49	81	106	16	73	989
VN1S	4,720	32,95	25136	2400	8,9	2,747	311	49	80	108	16	74	989
VS3L	4,987	33,10	23893	2400	8,4	2,760	309,5	49	80	109	16	74	989
VS1S	5,926	33,25	20203	2400	7	2,772	308,5	50	81	109	15	74	989
VN4L	6,862	33,20	17419	2400	6,1	2,768	309	50	81	108	16	74	989
VS4L	8,537	32,95	13893	2400	5	2,747	311	50	81	109	16	74	989
VN2S	9,496	32,72	12403	2400	4,6	2,729	313,5	50	81	107	16	73	989

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 1S	6,252	26,32	15154	2475	5,4	2,422	353	55	82	112	18	62	997
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (i)													
VS 2L	3,151	29,93	34205	2415	15	2,501	342	54	82	113	17	64	997
(iv) Maximum power (unballasted)													
VS 2L	3,135	23,86	27398	2420	15	-	-	47	80	102	16	60	985
VN3L	3,764	28,65	27400	2403	15	2,393	357,5	49	80	103	17	59	985
VN1S	4,591	31,37	24604	2400	11,3	2,616	327	50	81	105	17	59	985
VS 3L	4,872	31,79	23488	2400	10,4	2,651	322,5	50	81	106	17	58	985
VS 1S	5,823	32,52	20101	2400	8,5	2,712	315,5	50	80	107	17	58	985
VN4L	6,767	32,60	17343	2400	7,3	2,719	314,5	50	81	107	18	58	985
VS 4L	8,448	32,38	13798	2400	5,9	2,700	316,5	51	81	108	18	59	985
VN2S	9,415	32,12	12283	2400	5,3	2,678	319	51	80	108	19	58	985

Total oil consumption during 10 hours duration of tests (ii) and (iii): 61 g/h

3. Turning space and turning circle

Wheel equipment front: SEMPERIT 6,50-16 AS front, PR 6
rear: SEMPERIT 12,4-36 AS, PR 6

Track of wheels front: 1475 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	3,48	3,53	3,85	3,93
Radius of turning circle	3,30	3,35	3,67	3,75

4. Location of centre of gravity

	mm
Height above ground	868
Distance forward from the vertical plane containing the axis of the rear wheels	753
Distance from the median plane, left-hand	1

5. Braking

Date of tests: 1979 10 01
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 15813 (Kombi-Schreiber)
Mass of ballasted tractor: 3455 kg (with driver)

Cold brakes

		Ballasted	Without ballast
Travelling speed of the tractor	km/h	25	25
(i) Deceleration	m/s^2	4,5	3,5
(ii) Stopping distance	m	5,57	8,64
(iii) Force exerted on the brake pedal	N	200	175
(iv) Force exerted on the brake pedal to achieve a deceleration of 2,5 m/s^2	N	145	150

Brake fade characteristics (hot tests)	Ballasted	Unballasted
Deceleration hot / deceleration cold x 100	100	100
Stopping distance cold / Stopping distance hot x 100	90	110
Force on pedal, cold / Force on pedal, hot x 100	33	92
Force on pedal, cold / force on pedal, hot to achieve a deceleration of 2,5 m/s^2 x 100	50	55

Efficiency of handbrake:
Satisfactory facing up and down slope of 16 %
pull on handbrake: 295 N

6. Measurement of ambient noise

Date of tests: 1979 09 20
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
Gear: VS 4 S
Travelling speed before acceleration: 24 km/h
Sound level: 89 dB(A)

7. Noise measurement at the driver's ear level

Date of tests: 1979 09 20
Type of sound level meter and octave filter:
2203 and 1613 BRÜEL & KJAER
Type of track: Concrete

Results of tests (tractor with safety frame):

Gear	Effective travelling speed	Sound level	
		dB(A)	Noise rating
VN 1 L	1,60 km/h	88,5	-
VS 1 L	1,97 km/h	87,0	-
VN 2 L	3,07 km/h	87,5	-
VS 2 L	3,61 km/h	87,5	-
VN 3 L	4,38 km/h	87,5	-
VS 3 L	5,25 km/h	88,0	-
VN 1 S	4,94 km/h	88,0	-
VS 1 S	6,25 km/h	88,0	-
VN 4 L	7,14 km/h	88,0	-
VS 4 L	8,68 km/h	88,0	-
VN 2 S	9,33 km/h	88,5	-
VS 2 S	11,60 km/h	89,0	-
VN 3 S	14,36 km/h	88,0	-
VS 3 S	17,59 km/h	87,0	-
VN 4 S	23,56 km/h	88,5	-
VS 4 S	29,75 km/h	87,5	-

8. Power lift and hydraulic pump performance

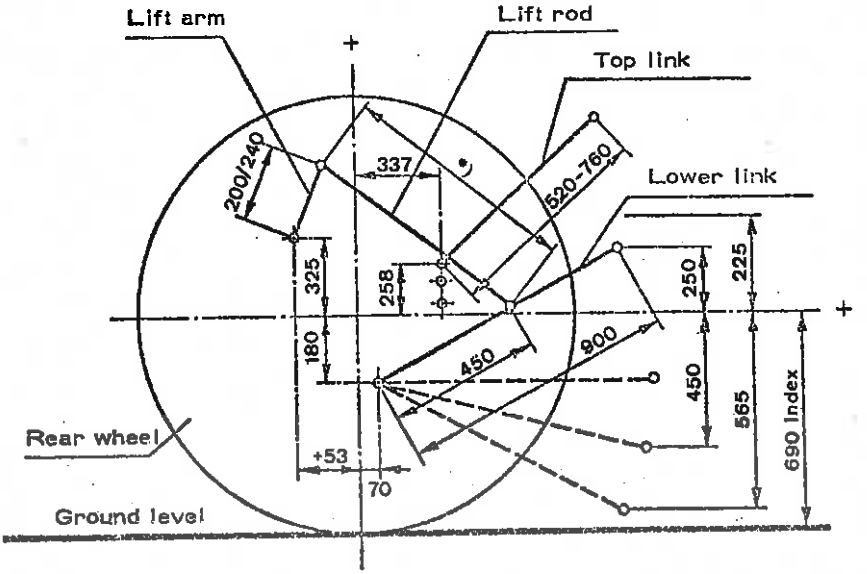
Date and location of tests: 1979 11 07, Wieselburg, Austria
Hydraulic fluid:
Make and type: SHELL Tellus 33, SAE 20 W
Viscosity at 50°C: 40 mm^2/s (40 cSt)
Typ of linkage lock for transport: hydraulically by throttle valve
Opening pressure of the cylinder overpressure relief valve (manufacturer specification): 24,5 MPa (245 bar)

Pump characteristics:

(i) Opening pressure of the relief valve: 18,0 MPa (180 bar)
sustained pressure by the open relief valve: 17,2 MPa (172 bar)

(ii) Pump delivery rate at minimum pressure and rated engine speed: 35,1 l/min

(iii) Pump delivery rate: 34,4 l/min
delivery pressure: 17,2 MPa (172 bar)
power: 9,86 kW



*) basis adjustment: both lift rods 534 mm
left lift rod: from 534 mm to 621 mm adjustbale
right lift rod: from 500 mm to 621 mm adjustable

Linkage geometry when connected to the standard frame

		Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view			
Lower links	mm	900	900
Lift arms	mm	200	240
Lift rods	mm	534	534
Top link	mm	622	622
Distance of lift rod connection point from pivot point of lower link	mm	450	450
The following dimensions are given relative to the rear wheel centre line, situated 690 mm*) above the ground level			
Lower link pivot point	mm	70 behind 180 below	70 behind 180 below
Top link pivot point	mm	337 behind 258 above	337 behind 258 above
Lift arm pivot point	mm	53 behind 325 above	53 behind 325 above
Maximum und minimum height of lower link hitch points	mm	250 above 230 below	225 above 340 below
Height of lower link hitch points locked in transport position	mm	from 250 above to 230 below	from 225 above to 340 below

*) Index radius

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivoting point mm		−155	−135	−100	−55	−30	0	+100	+150	+200	+300	+380	+400	+430	+470
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					29,43	26,59	25,80	25,51	25,36	24,43	23,94	23,94		
	min. mech. advantage	23,44	22,66	22,07	22,02	22,07	22,07	21,58	21,29	20,99	20,45	20,36			
	Maximum force exerted throughout whole range: 23,94/20,36 kN														
	Oil pressure: 17,2 MPa (172 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				26,73	26,00	25,41	23,69	22,81	22,17	20,16	18,54	18,20	17,66	17,36
	min. mech. advantage		24,23	22,27	21,44	20,99	20,50	19,23	18,59	18,00	16,33	15,35	15,12	14,86	
	Maximum force exerted throughout whole range: 17,36/14,86 kN														
	Oil pressure: 17,2 MPa (172 bar)														

OPTIONAL TEST

9. Main power take-off performance

Date and location of tests: 1979 08 27, Wieselburg, Austria
Type of dynamometer: SCHENK-eddy current brake - W 780

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

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					
39,22	2400	1127	10,27 12,02	262	3,262
Standard p.t.o. speed					
38,65	2130	1000	9,86 11,53	255	3,351
38,02	2044	960	9,59 11,22	252,5	3,388
The speed recommended by the manufacturer for drawbar work					
39,22	2400	1127	10,27 12,02	262	3,262
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
34,42	2477	1163	9,33 10,92	271	3,152
(ii) unloaded					
-	2573	1208	3,44 4,02	-	-
(iii) 50 % of the load defined in (i)					
17,55	2526	1186	6,15 7,19	350,5	2,439
(iv) maximum power					
39,22	2400	1127	10,27 12,02	262	3,263
(v) 25 % of the load defined in (i)					
8,85	2547	1196	4,73 5,54	534,5	1,599
(vi) 75 % of the load defined in (i)					
26,08	2503	1175	7,66 8,95	293,5	2,912

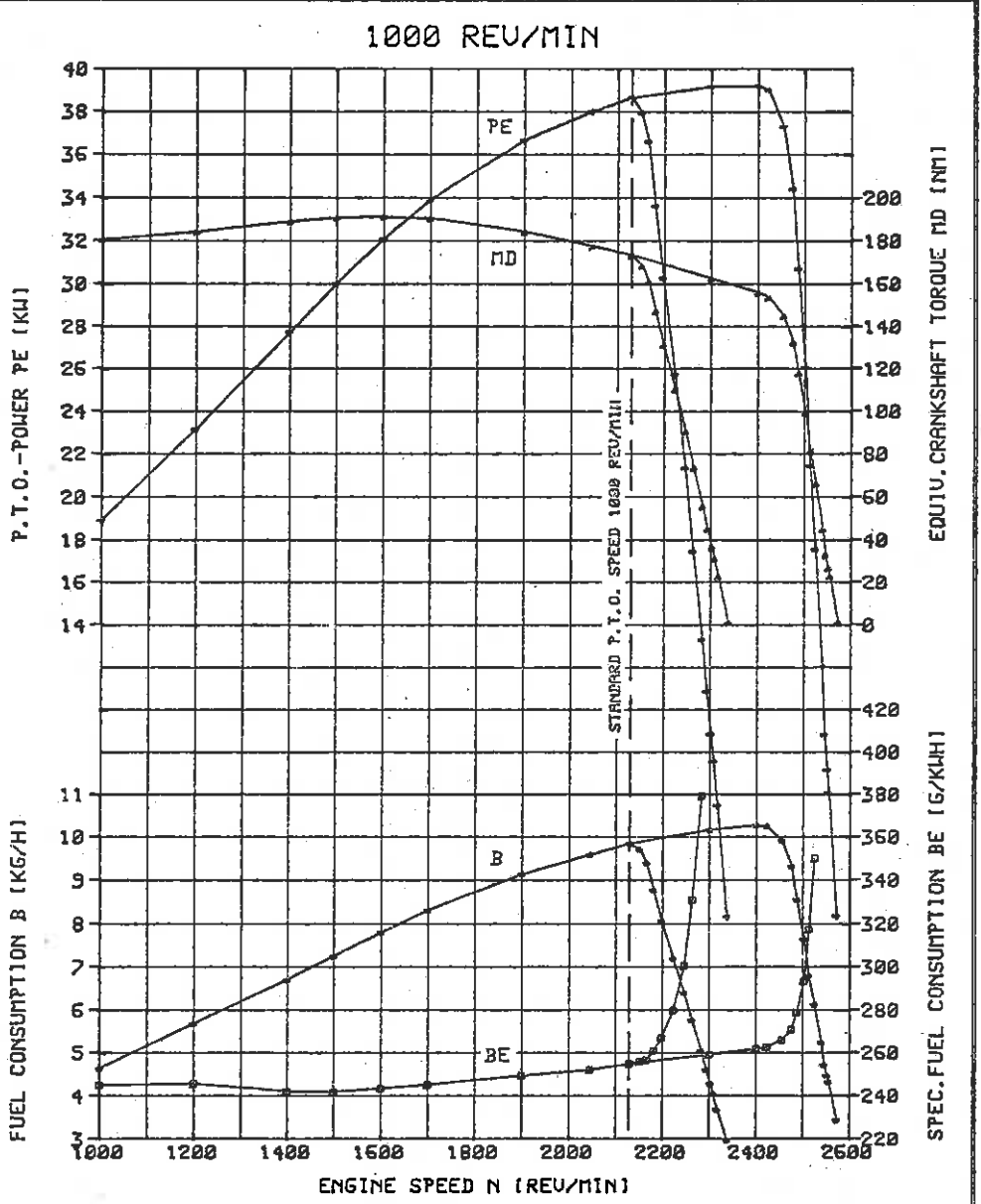
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % of torque at standard p.t.o. speed					
33,64	2181	1024	8,79 10,28	261	3,273
(ii) unloaded					
-	2339	1098	2,97 3,48	-	-
(iii) 50 % of the load defined in (i)					
17,46	2264	1063	5,78 6,76	331	2,58
(iv) maximum power at standard p.t.o. speed					
38,65	2130	1000	9,86 11,53	255	3,35
(v) 25 % of the load defined in (i)					
8,86	2303	1081	4,29 5,01	484	1,766
(vi) 75 % of the load defined in (i)					
25,73	2224	1044	7,21 8,43	280,5	3,050
STANDARD SPECIFIC FUEL CONSUMPTION: 271/350,5 - 261/331 g/kWh					

No load maximum engine speed: 2573 rev/min
Equivalent crankshaft torque
at maximum power: 156 Nm
Maximum equivalent crankshaft torque: 191,4 Nm at 1600 rev/min of engine

Mean atmospheric conditions: temperature: 19°C
pressure: 986 mbar
humidity: 67 %

Maximum temperatures: coolant: 85°C
engine oil: 115°C
fuel: 66°C
air intake: 27°C

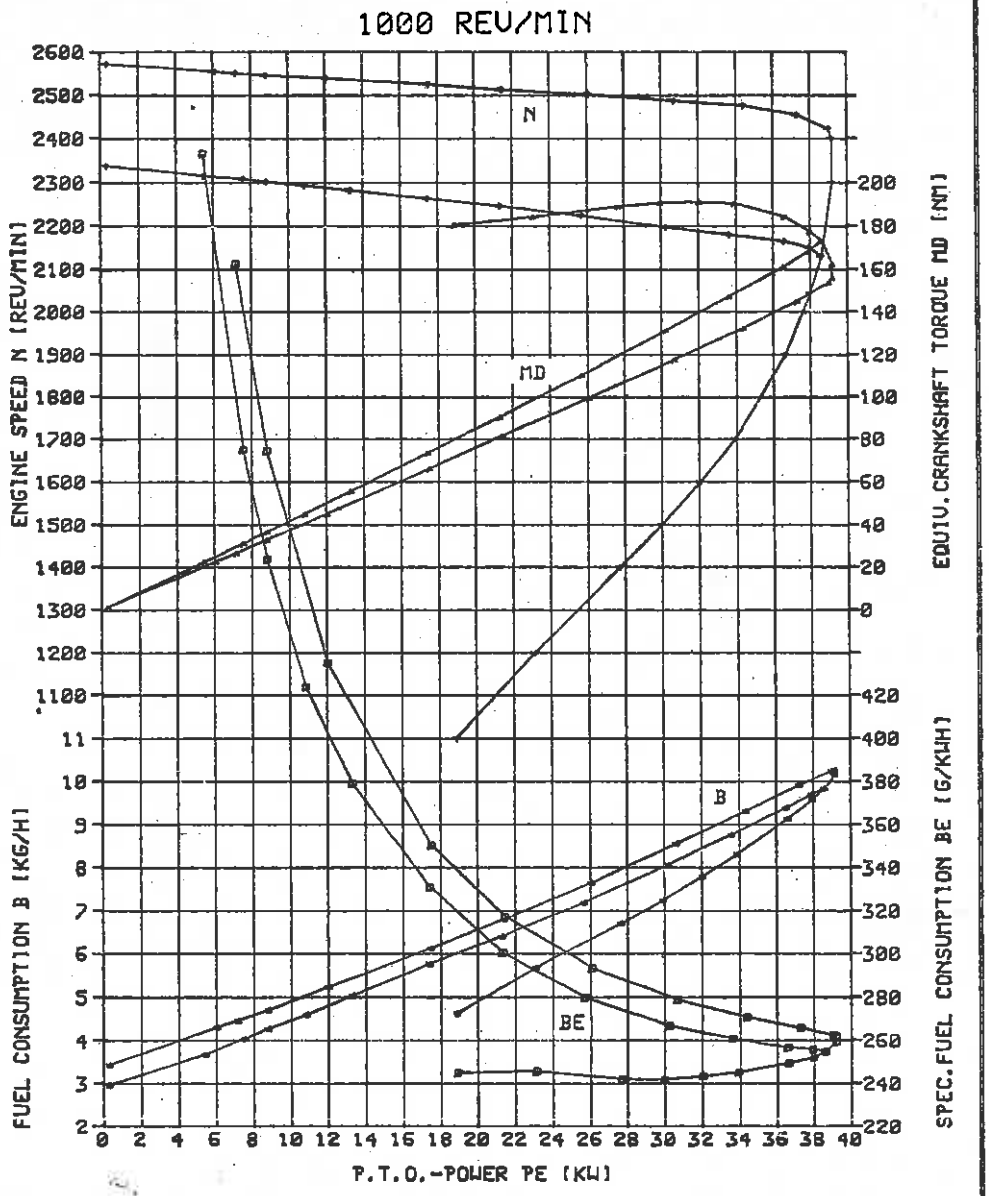
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 068/80	P.T.O.-TEST	STEYR TYP 337.30 (8070) MOT.TYP WD 411.42



ENGINE SER.NR.: 411.42-1002	ATM.PRESSURE : 986 MBAR	FUEL TEMP.: 66 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-81001	AIR TEMPER. : 13 C	D.OF TESTS: 1979-08-27	A. Reitther
FUEL : 0.855/15 C	COOLANT TEMP.: 85 C	TEST NO. : 124/ZA128	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 115 C	CURVES NO.: 3	REITHER

DUR.:0100846-DL003;MKU833.DAT;MKU28-22

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE DIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 068/80	P.T.O.-TEST	STEYR TYP 337.30 (8070) MOT.TYP WD 411.42



ENGINE SER.NR.: 411.42-1002	ATM. PRESSURE : 986 MBAR	FUEL TEMP.: 66 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-81001	AIR TEMPER. : 19 C	D.OF TESTS: 1979-08-27	A. Reitlner
FUEL : 0.855/15 C	COOLANT TEMP.: 85 C	TEST NO. : 124/ZA128	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 115 C	CURVES NO.: 4	REITNER

DUR.:81208846-DL083.MKU033.DAT:MKU28-22

OPTIONAL TEST

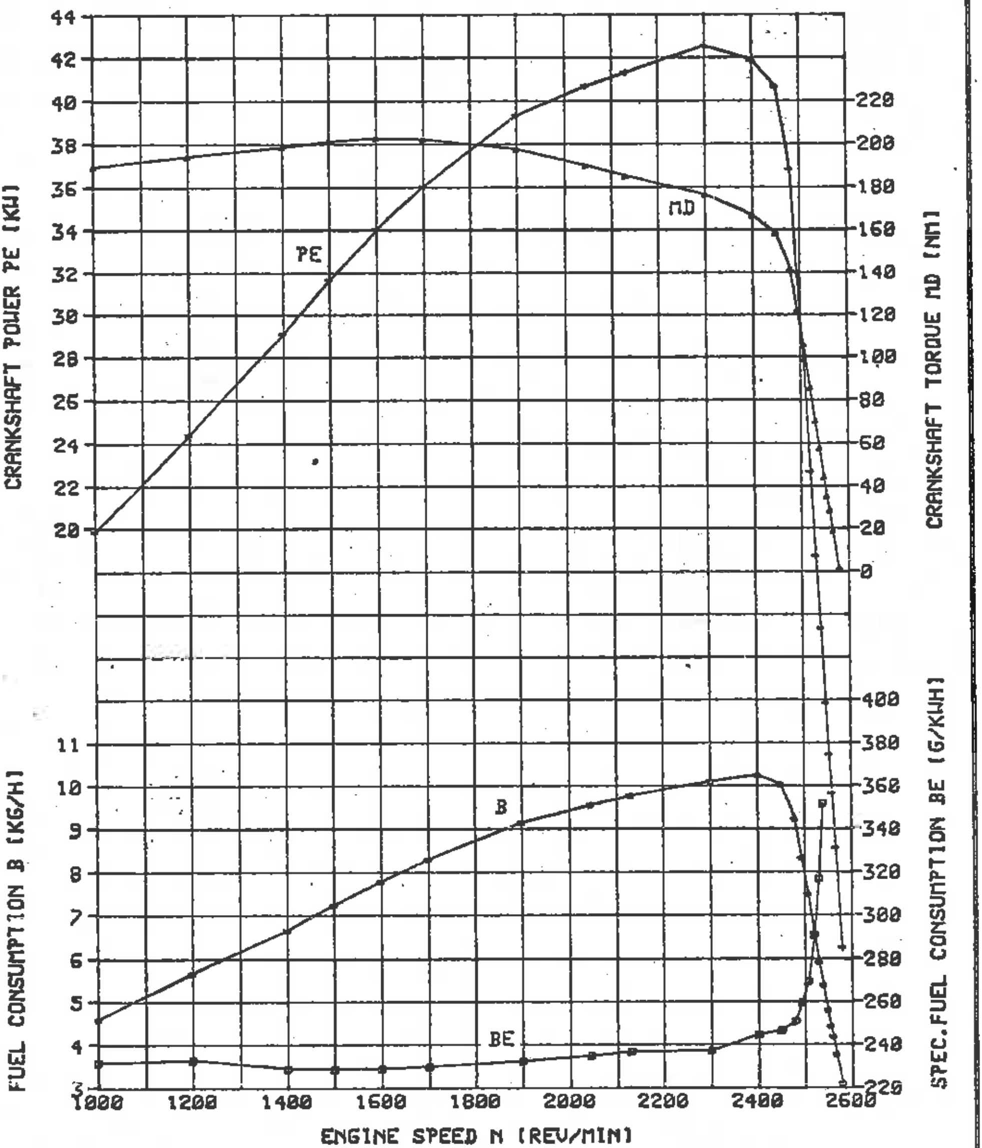
10. Engine performance

Date and location of test: 1979 08 21, Wieselburg, Austria
Type of dynamometer: SCHENK-eddy current brake - W 780

Power	Engine speed	Fuel consumption		
		total	specific	specific
kW	rev/min	kg/h (l/h)	g/kWh	kWh/l
Maximum power - 2 hours test				
41,88	2400	10,25 11,99	245	3,492
Standard p.t.o. speed (540 - 1000 rev/min)				
41,32	2130	9,79 11,45	237	3,607
40,68	2044	9,56 11,18	235	3,636
The speed recommended by the manufacturer for drawbar work				
41,88	2400	10,25 11,99	245	3,492
Part loads				
(i) 85 % of torque at maximum power				
36,83	2480	9,25 10,82	251	3,405
(ii) unloaded				
-	2580	3,12 3,65	-	-
(iii) 50 % of the load defined in (i)				
18,73	2531	5,94 6,94	317	2,695
(iv) maximum power				
41,88	2400	10,25 11,99	245	3,492
(v) 25 % of the load defined in (i)				
9,45	2555	4,44 5,19	470	1,820
(vi) 75 % of the load defined in (i)				
27,83	2507	7,51 8,79	270	3,168

Optimum fuel consumption: 228 g/kWh at 25,2 kW and 1400 rev/min
No load macimum engine speed: 2580 rev/min
Torque at maximum power: 166,6 Nm
Maximum torque: 202,9 Nm at 1600 rev/min of engine
Mean atmospheric conditions: temperature: 20°C
pressure: 988 mbar
relative humidity: 70 %
Maximum temperatures: coolant: 88°C
engine oil: 112°C
fuel: 58°C
engine air intake: 27°C

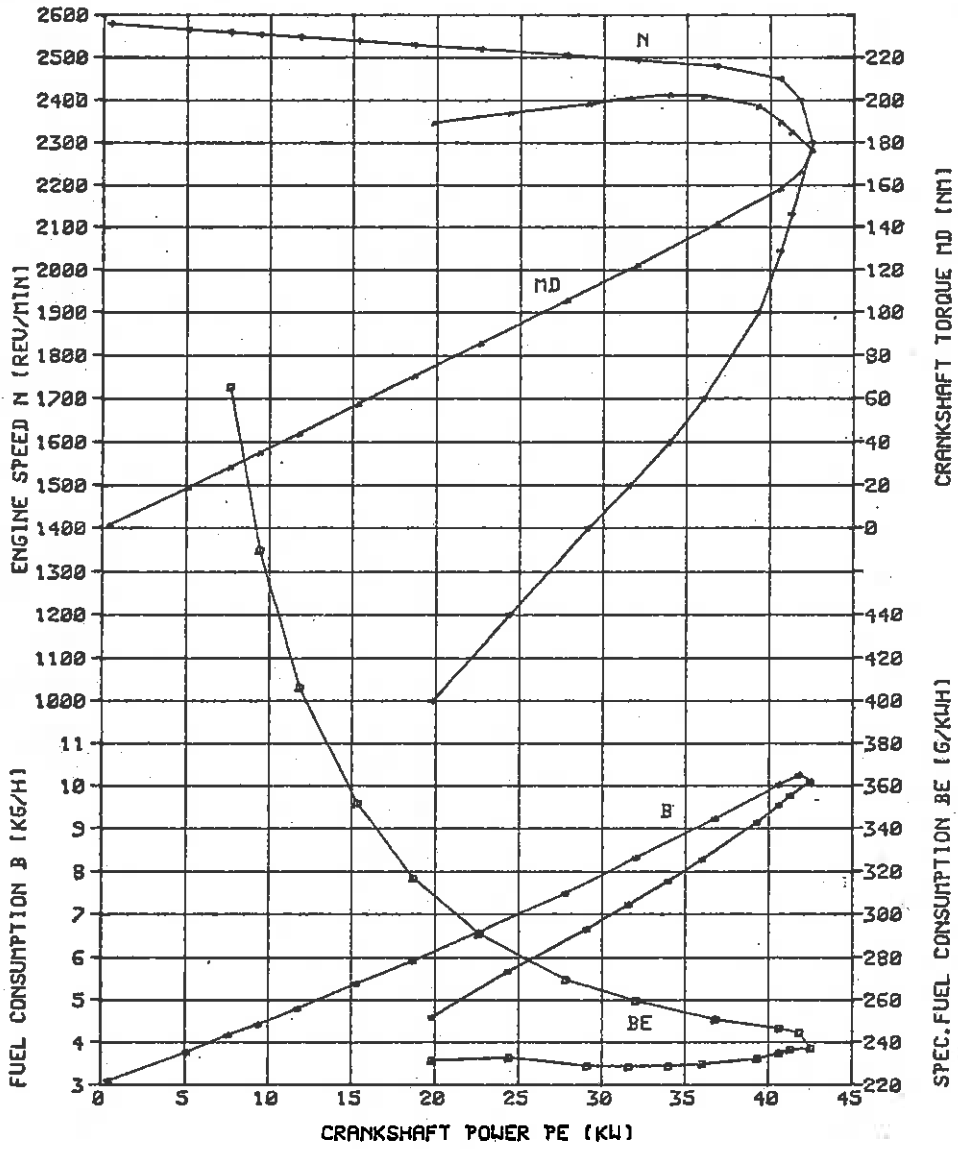
BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 068/80	ENGINE-TEST	STEYR TYP 337.30 (8070) MOT.TYP WD 411.42



ENGINE SER.NR.: 411.42-1802	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 58 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-01001	AIR TEMPER. : 20 C	D.OF TESTS: 1979-08-21	A. Reither
FUEL : 0.855/15 C	COOLANT TEMP.: 88 C	TEST NO. : 124/M172	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 112 C	CURVES NO.: S	REITHER

DUK.:0100046-DLA03;MKU033.DAT;MKU20-KW

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT. NR.: 068/80	ENGINE-TEST	STEYR TYP 337.30 (8070) MOT. TYP WD 411.42



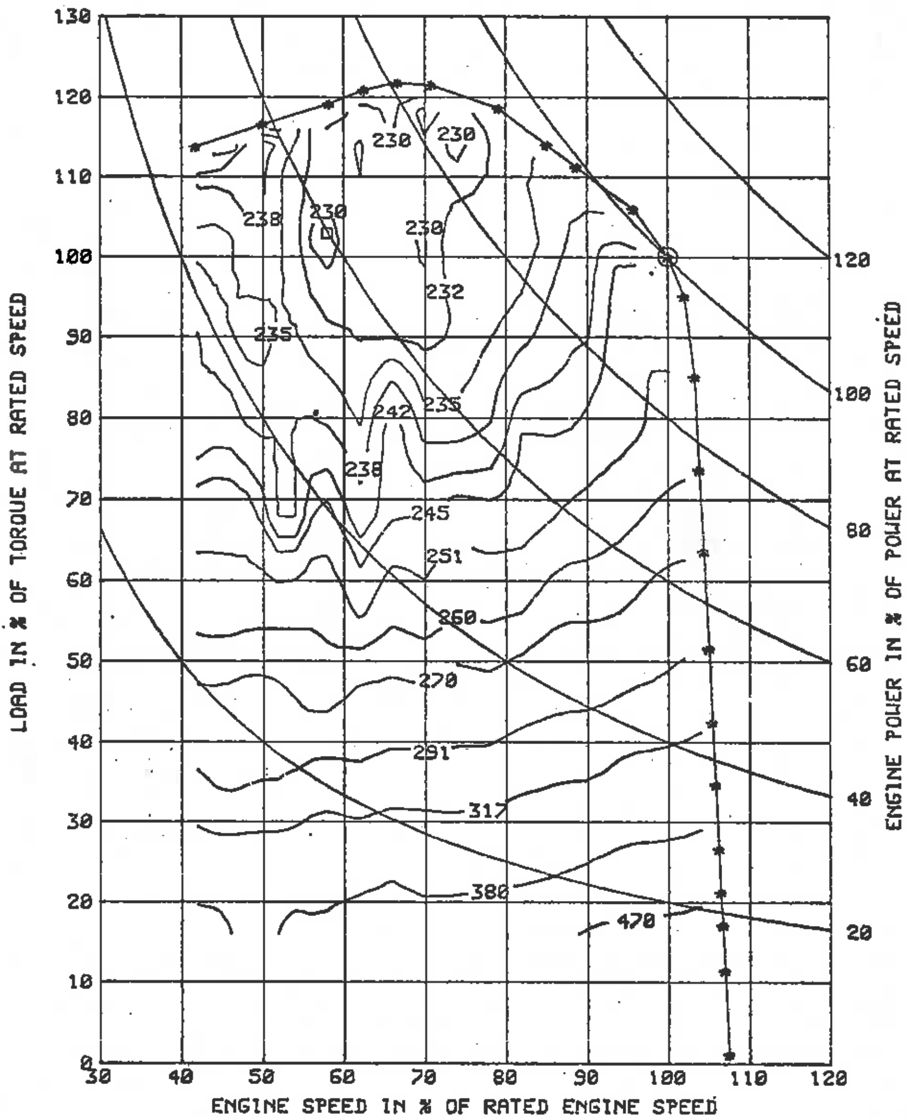
ENGINE SER.NR.: 411.42-1002	ATM. PRESSURE: 988 MBAR	FUEL TEMP.: 58 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-01001	AIR TEMPER.: 20 C	D. OF TESTS: 1979-08-21	A. Reithner
FUEL: 0.855/15 C	COOLANT TEMP.: 88 C	TEST NO.: 124/M172	
ENGINE OIL: SAE 10W-30	OIL TEMP.: 112 C	CURVES NO.: 6	REITHNER

DVR.: 0100846-DL003; MKU033.DAT; MKU20-KW

BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 068/80	ENGINE PERFORMANCE CHARACTERISTICS	STEYR TYP 337.30 (8070) MOT.TYP WD 411.42

□ ....MIN.FUEL CONS. 228.20 G/KWH AT N = 1392. REV/MIN, MD = 171.63 NM, P = 25.0 KW

⊛....N = 2400. REV/MIN, MD = 167. NM, P = 41.9 KW



ENGINE SER.NR.: 411.42-1802	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 58 C	SIGNATURE
TRAKTOR SER.NR.: 337.30-01001	AIR TEMPER. : 28 C	D.OF TESTS: 1979-08-21	A. Reither
FUEL : 0.855/15 C	COOLANT TEMP.: 88 C	TEST NO. : 124/M172	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 112 C	CURVES NO.: 7	REITHER

EDU-IX.003:MKU033.DAT:MKU04MU

ANNEX

REDUCTION OF POWER DATA TO STANDARD CONDITIONS

According to:

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

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

A) MAIN POWER TAKE OFF PERFORMANCE (page 14 and 26)

Test conditions: Intake air temperature
t = 20°C for test of p.t.o. 540 rev/min
t = 19°C for test of p.t.o. 1000 rev/min
Atmospheric pressure B = 986 mbar
Resulting reduction coefficient:
k = 1,0274 for test of p.t.o. 540 rev/min
k = 1,0256 for test of p.t.o. 1000 rev/min

	P_{OECD}	P_{RED}
MAXIMUM POWER 540 rev/min	38,29 kW (52,07 mPH)	39,34 kW (53,50 mPH)
MAXIMUM POWER 1000 rev/min	39,22 kW (53,34 mPH)	40,22 kW (54,70 mPH)

B) ENGINE PERFORMANCE (page 30)

Test conditions: Intake air temperature t = 20°C
Atmospheric pressure B = 988 mbar
Resulting reduction coefficient: k = 1,025

	P_{OECD}	P_{RED}
MAXIMUM POWER	41,88 kW (56,96 mPH)	42,94 kW (58,40 mPH)