O.E.C.D. Report No.: 712

BUNDESVERSUCHS - UND PRÜFUNGSANSTALT
für landwirtschaftliche Maschinen und Geräte,
Wieselburg

Dieseltractor

Trade name:

STEYR 8080

Manufacturers signature:

STEYR 357.10



Date of approval: 1981 05 14

Date of test: 1980 05 07

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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OPTIONAL TEST

Main power take-off performance – 540 rev/min	26
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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 357.10 Trade name: STEYR 8080
Type:	Wheel tractor, rear wheel driven, unit construction
Serial No.:	357.10 - 01001

Engine:

Make:	Own make
Model:	WD 411.86
Type:	4 stroke diesel engine with direct injection and turbo supercharger
Serial No.:	411.86 - 1007
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 134 002 Fuel precleaner FJSJ 1/1 Z BOSCH distributor injection pump Prototype model: VA 4/10 H 1200 CRV 3678 Serialmodel: VA 4/10 H 1200 CR 145-5 Manufacturers production setting: $51^{\pm 0}_{\frac{1}{2}}$ mm^3/stroke at 2400 rev/min and full load Injection timing: $18^{\pm 0}_{\frac{1}{2}}$ before TDC at 1 mm pump stroke

Fuel system: (cont.)	Injectors: BOSCH Multi hole injection nozzles Prototypemodel DLLA 150 SV 11966 Serialmodel DLLA 150 S 798 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
Supercharger:	KÜHNLE, KOPP & KAUSCH Exhaust type turbo-supercharger K 26 - 2460 G - 6.11 Supercharge pressure: appr. 665 mbar without air intercooler
Air cleaner:	MANN & HUMMEL or PUROLATOR/KNECHT Main-cleaner: Dry type with changeable element and electrical indicator Model: MANN & HUMMEL 45.165.65.424 optional: additional safety element CF 700 PUROLATOR LP 060/1 optional: additional safety element AF 099 or KNECHT SE 060 Pre-cleaner: Cyclonic type, transparent dust container Model: MANN & HUMMEL 48.056.67.900
Exhaust silencer:	EBERSPÄCHER Absorption type, at left side of the engine, mouth upwards 2494 mm above ground, 150 mm left of median plane Model: T 16.47.178.04.0.00 with protective frame 110.01 T 16.47.178.05.0.00 with protective frame 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 C, SAE 20W-40 - API CD)
Cooling system:	Double circuit water cooling with centrifugal pump, pump and 4 blade fan (dia: 420 mm) belt driven Turbular radiator, longtime filling with frostprotection down to -20°C Thermostat control, cooling water thermometer and sight glass for level indication Coolant capacity: appr. 15,5 l (17 l with cab heating)

Cooling system: (cont.)	Overpressure: max. 50 kPa (0,5 bar) Joining for warm water heating
Starting system:	Electrically BOSCH solenoid engaged starter, model: 0 001 367 011 - 12 V, 3,0 kW Cold starting aid: BERU or BOSCH 2 glow plugs 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: LAMELLEN- U. KUPPLUNGSBAU BADEN-BADEN Dual plate dry clutch, model LUK (DT 310/310 G), both plates 310 mm dia, independent activated Main clutch: 310 mm dia, pedal operated P. t. o. -clutch: 310 mm dia, hand lever operated
Gearbox:	Own make, mechanically acting, model 357 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: 4,67 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 357 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	357,67	109,61	1,87	6,11
	2	203,55	62,38	3,29	10,73
	3	135,22	41,44	4,95	16,16
	4	83,88	25,71	7,98	26,05
forward fast VS	1	313,14	95,96	2,14	6,98
	2	178,21	54,61	3,76	12,26
	3	118,38	36,28	5,66	18,46
	4	73,44	22,51	9,12	29,75
reverse R	1	464,97	142,49	1,44	4,70
	2	264,62	81,09	2,53	8,26
	3	175,78	53,87	3,81	12,43
	4	109,05	33,42	6,14	20,04

*) Calculated with index radius of 740 mm and test tyre equipment 13,6-38 AS

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

Power take off: At rear of tractor, in median plane, 445,5 mm behind rear axle, 630 mm above ground (740 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 (dry plate type) 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 "Traktormeter" (needle instrument)
Direction of rotation: clockwise viewed from driving end

Power take off: (cont.)

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)).

Driving mode (reduction gear in L position):

Travelling distance for 1 revolution of p.t.o.:
0,07806 m with 740 mm tyre index radius

Number of p.t.o. revolution for 1 revolution of driving wheel: 59,58

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	400	457	308
2	702	802	540
3	1057	1208	813
4	1705	1947	1311
Direction of rotation	clockwise	clockwise	anticlockwise
	viewed from driving end		

25 km/h model (not tested)

Group gear:	VN	VS	R
Gear No.: 1	326	374	308
2	572	657	540
3	862	989	813
4	1389	1594	1311
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, 630 mm above ground, 806 mm before rear axle

Dimension: ISO R 500, Type I (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, 709 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, 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- 46152, API CC
Working cylinder: single acting type,
bore/stroke: 85/152 mm

Optional (not on tested tractor):
WALTERSCHEID linkage quick coupler, category II
Additional working cylinders for increased power lift performance, 35 mm dia and 226 mm stroke each side

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
Holes diameter mm	33	33
Distance between holes mm	130	115

Height above ground*)		Min. lift rod length (basis adjustment)	Max. lift rod length
Lift arm length:	200 mm	from 430 to 955 mm	from 205 to 800 mm
	240 mm	from 320 to 935 mm	from 85 to 790 mm

*) Calculated with tyre index radius of 740 mm

Method of changing: by power lift, lift rod and lift arm length
Distance of rear axle: 985 mm (lower links horizontally)
Distance relative to p.t.o.: 540 mm

Pull attachement:

Trailer hitch:

Own make
Fork type, model 273 Q

Height above ground:	458/486/816/844 mm
Distance from rear axle:	497 mm
Position relative to p.t.o.:	rearwards 51 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:	824/836 mm
Distance from rear axle:	544 mm
Position relative to p.t.o.:	rearwards 99 mm
Diameter of coupling pin:	30 mm
Max. vertical load:	15 kN

or ROCKINGER model 273 J
Fork type

Height above ground:	682/723 mm
Distance from rear axle:	584 mm
Position relative to p.t.o.:	rearwards 139 mm
Diameter of coupling pin:	31 mm
Max. vertical load:	15 kN

Trailer hitch: (cont.)

or ROCKINGER automatic coupler, model 279

Fork type	
Height above ground:	677/728/760/811 mm
Distance from rear axle:	607 mm
Position relative to p.t.o.:	rearwards 162 mm
Diameter of coupling pin:	30 mm
Max. vertical load:	15 kN

or own make

Fork type (italian equipment)	
Height above ground:	462/820/840 mm
Distance from rear axle:	457 mm
Position relative to p.t.o.:	rearwards 12 mm
Diameter of coupling pin:	28 mm
Max. vertical load:	15 kN

Towing hitch:

Fork type	
Height above ground:	653 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
Recommended oil: Automatic Transmission Fluid (ATF Dexron D or ATF M 2 C 33 E/F)
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 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 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
7,50–16 AS front, PR 6; rim: 5,50 F x 16
Maximum permissible load on each tyre:
7310 N at 2,8 bar inflation pressure
14620 N at 3,5 bar inflation pressure
max. 8 km/h driving speed for front implement working
Track width: 1425, 1525, 1625, 1725, 1825, 1925, 2025 and 2125 mm, changeable by extending the front axle

Optional front wheel equipment:
9,00–16 AS front, PR 8 with rim 6,00 F x 16
7,50–18 AS front, PR 8 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
13,6–38 AS, PR 6, rim: W 12 x 38
Maximum permissible load on each tyre:
16 285 N at 1,6 bar inflation pressure
Track width: 1524 mm (1680 mm by reversing wheels) with adjustable rim: 1550, 1650, 1750, 1850 and 1950 mm

Optional rear wheel equipment:
16,9–34 AS, PR 8, rim: DW 16 x 34
Track width: 1524 mm (1680 mm by reversing wheels) with adjustable rim: 1550 – 1850 mm

18,4–30 AS, PR 8, rim: DW 14 x 30
Track width: 1524 mm (1680 mm by reversing wheels) with adjustable rim: 1550 – 1854 mm

Wheel base: 2195 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	980	135 x 115	797
Side Lights	1630	80 x 65	217
Rear lights	1630	80 x 65	217
Reflectors	1522 780	75 dia	177 502

*) with tyre equipment: 13,6–38 AS and 7,50–16 AS front
**) with overall width of 1883 mm

Number of grease points: 19

Driver seat:

BOSTROM
Model XH 2 TS 2; tested on tractor according to national regulation (Prot. Nr. 081/79)
X-lever suspension with torsion springs, adjustable to drivers weight
Hydraulically damping
Horizontal adjustment range: 140 mm
Vertical adjustment range: 70 mm

GRAMMER
Model DS 85 H/3; tested on tractor according to national regulation (Prot. Nr. 080/79)
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 0225/2-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 0225/2-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	1000 kg	1808 kg	2808 kg
With ballast	1226 kg	2463 kg	3689 kg

Ballastmass:

	Number of weights	Total mass (excluding water)	Water
Front	5	183 kg	-
Rear	4 + 2	298 kg	400 kg
Additional	-	-	-

Track setting and tyre equipment:

1425 mm at front
1530 mm at rear
Front wheels: 7,50-16 AS front, PR 6, rim 5,50 F x 16
Rear wheels: 13,6-38 AS, PR 6, rim W 12 x 38

Overall dimensions:

	Length	Width		Height **)
		max. *)	min. *)	
	mm	mm	mm	mm
With ballast	3945	2330	1883	2500/2494
Without ballast	3770	2330	1883	2500/2494

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

Minimum ground clearance: 400 mm under front axle with basis tyre equipment 7,50-16 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: 1980 05 07, 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					
48,29	2400	1127	12,42 14,52	257	3,324
Standard p.t.o. speed - 1000 rev/min					
47,80	2130	1000	11,64 13,61	243,5	3,512
The speed recommended by the manufacturer for drawbar work					
48,29	2400	1127	12,42 14,52	257	3,324
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
41,93	2454	1152	11,32 13,24	270	3,166
(ii) unloaded					
-	2571	1207	3,46 4,05	-	-
(iii) 50 % of the load defined in (i)					
21,49	2516	1181	7,27 8,51	338,5	2,526
(iv) maximum power					
48,29	2400	1127	12,42 14,52	257	3,324
(v) 25 % of the load defined in (i)					
10,87	2545	1195	5,32 6,22	490	1,745
(vi) 75 % of the load defined in (i)					
31,88	2488	1168	9,31 10,88	292	2,928

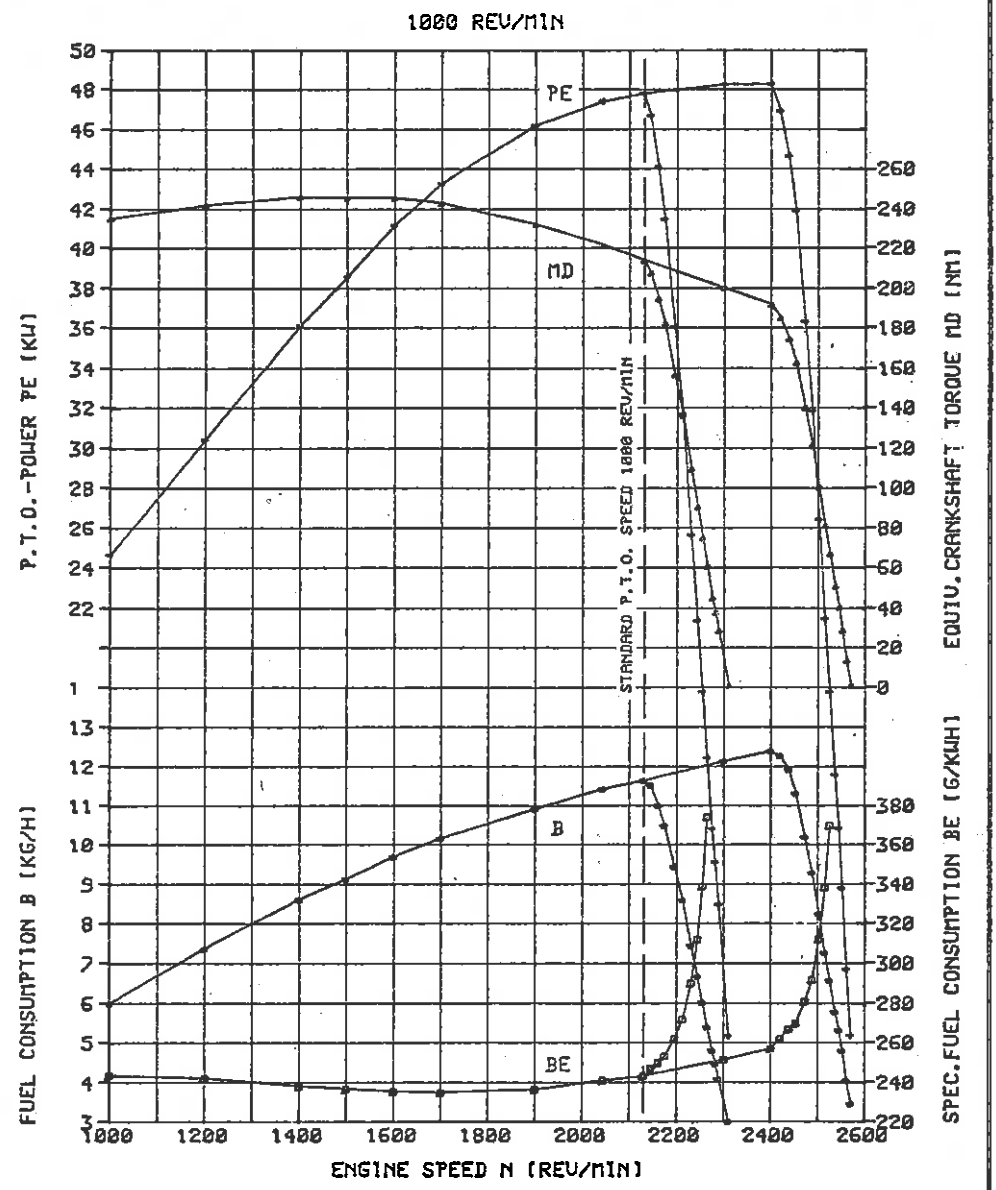
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % of torque at standard p.t.o. speed					
41,50	2175	1021	10,50 12,27	253	3,379
(ii) unloaded					
-	2311	1085	3,02 3,53	-	-
(iii) 50 % of the load defined in (i).					
21,40	2245	1054	6,68 7,80	312	2,741
(iv) maximum power at standard p.t.o. speed					
47,80	2130	1000	11,64 13,61	243,5	3,512
(v) 25 % of the load defined in (i)					
10,85	2277	1069	4,81 5,63	444	1,926
(vi) 75 % of the load defined in (i)					
31,69	2213	1039	8,62 10,08	272	3,143
STANDARD SPECIFIC FUEL CONSUMPTION: 270/338,5 - 253/312 g/kWh					

No load maximum engine speed: 2571 rev/min
Equivalent crankshaft torque
at maximum power: 192,1 Nm
Maximum equivalent crankshaft torque: 246,2 Nm at 1400 rev/min of engine

Mean atmospheric conditions: temperature: 15°C
pressure: 980 mbar
humidity: 61 %

Maximum temperatures: coolant: 89°C
engine oil: 116°C
fuel: 62°C
air intake: 24°C

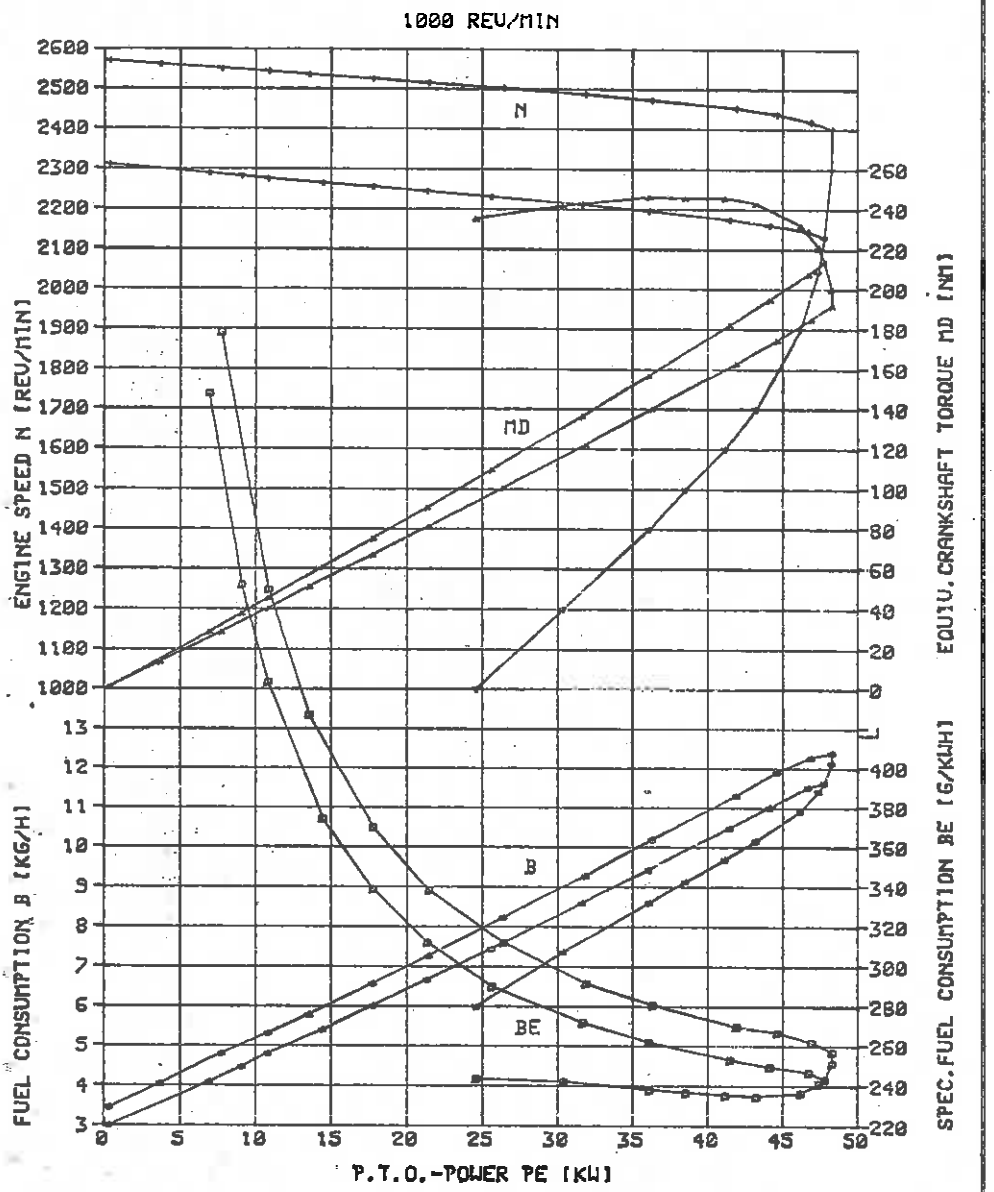
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDU. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	P.T.O.-TEST	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86



ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 62 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1988-05-07	A. Reitlher
FUEL : 0.855/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/ZA122	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 116 C	CURVES NO.: 1	ING.REITHER

DUR.:0100846-DL003;MKU834;MKU20-Z2

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LAND U. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	P.T.O.-TEST	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86



ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 980 MBAR	FUEL TEMP.: 62 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1980-05-07	A. Reither
FUEL : B.BSS/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/2A122	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 116 C	CURVES NO.: 2	ING. REITHER

DUR.:B100846-DL803;MKUB34;MKU20-22

2. Drawbar performance

Date of tests: 1980 05 14, 16 and 17
Type of track: Concrete
Height of drawbar above ground: 580 mm ballasted, 570 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) rear wheel tyre inflation pressure 1,6 bar													
VN1L	1,642	16,70	36619	2480	15	-	-	52	85	104	19	76	981
VS1L	1,865	18,96	36604	2467	15	-	-	52	84	103	20	75	981
VN2L	2,832	28,81	36615	2435	15	2,027	421,5	51	84	102	19	74	981
VS2L	3,208	32,63	36611	2415	15	2,243	381	52	84	102	20	74	981
VN3L	4,404	38,42	31401	2400	10,9	2,636	324	53	84	103	20	73	981
VS3L	5,104	40,41	28503	2400	9,6	2,769	309	52	83	104	19	73	981
VN1S	5,555	41,28	26753	2400	8,9	2,828	302	51	83	104	19	73	981
VS1S	6,429	41,80	23405	2400	7,7	2,859	299	51	82	105	20	70	981
VN4L	7,447	41,16	19898	2400	6,5	2,816	303,5	52	82	105	20	70	981
VS4L	8,600	38,95	16303	2400	5,5	2,674	320	53	83	106	21	69	981

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	6,738	32,85	17552	2470	5,9	2,653	322	58	84	109	22	68	989
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (i)													
VS 2 L	3,220	32,71	36573	2420	15	2,265	377	60	86	113	21	71	984
(iv) Maximum power (unballasted) rear wheel tyre inflation pressure 1,1 bar													
VN 2 L	2,823	23,61	30116	2442	15	–	–	50	85	104	18	70	975
VS 2 L	3,197	26,75	30121	2421	15	–	–	51	84	104	18	70	975
VN 3 L	4,201	34,89	29898	2400	14,5	2,387	358	52	83	103	19	69	975
VS 3 L	4,956	37,80	27457	2400	11,7	2,590	330	53	84	103	21	69	975
VN 1 S	5,407	39,05	25999	2400	10,8	2,676	319,5	54	84	104	21	68	975
VS 1 S	6,293	40,12	22949	2400	9,1	2,745	311,5	53	84	103	20	68	975
VN 4 L	7,327	39,39	19353	2400	7,5	2,699	316,5	53	83	104	20	69	975
VS 4 L	8,485	37,71	15999	2400	6,2	2,588	330,5	52	83	106	21	69	975

Total oil consumption during 10 hours duration of tests (ii) and (iii): 67,2 g/h

3. Turning space and turning circle

Wheel equipment front: 7,50-16 AS front PR 6; rim: 5,50 F x 16
rear: 13,6-38 AS PR 6; rim: W 12 x 38

Track of wheels front: 1425 mm
rear: 1524 mm

Results	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning space	3,50	3,52	3,88	3,84
Radius of turning circle	3,38	3,40	3,76	3,72

4. Location of centre of gravity

	mm
Height above ground	889
Distance forward from the vertical plane containing the axis of the rear wheels	770
Distance from the median plane, left-hand	4

5. Braking

Date of tests: 1979 11 17
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)
Mass of ballasted tractor: 3770 kg (with driver)

Cold brakes

		Ballasted	Without ballast
Travelling speed of the tractor	km/h	25	25
(i) Deceleration	m/s^2	4,7	4,0
(ii) Stopping distance	m	6,87	7,28
(iii) Force exerted on the brake pedal	N	480	345
(iv) Force exerted on the brake pedal to achieve a deceleration of 2,5 m/s^2	N	285	215

Brake fade characteristics (hot tests)	Ballasted	Unballasted
Deceleration hot / deceleration cold x 100	100	100
Stopping distance cold / Stopping distance hot x 100	103	78
Force on pedal, cold / Force on pedal, hot x 100	84	58
Force on pedal, cold / force on pedal, hot to achieve a deceleration of 2,5 m/s^2 x 100	90	70

Efficiency of handbrake:
Satisfactory facing up and down slope of 16 %
pull on handbrake: 166 N

6. Measurement of ambient noise

Date of tests: 1979 11 16
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
Gear: VS 4 S
Travelling speed before acceleration: 23,9 km/h
Sound level: 86 dB(A)

7. Noise measurement at the driver's ear level

Date of tests: 1980 05 27
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	1,99 km/h	87,5	-
VS 1 L	2,14 km/h	88	-
VN 2 L	3,29 km/h	87,5	-
VS 2 L	3,64 km/h	88,5	-
VN 3 L	4,84 km/h	88	-
VS 3 L	4,91 km/h	89,5	-
VN 1 S	5,77 km/h	88,5	-
VS 1 S	6,75 km/h	89,5	-
VN 4 L	8,10 km/h	88,5	-
VS 4 L	9,20 km/h	88,5	-
VN 2 S	10,48 km/h	88,5	-
VS 2 S	11,95 km/h	89	-
VN 3 S	15,85 km/h	89,5	-
VS 3 S	18,19 km/h	90	-
VN 4 S	25,79 km/h	88,5	-
VS 4 S	30,00 km/h	89,5	-

8. Power lift and hydraulic pump performance

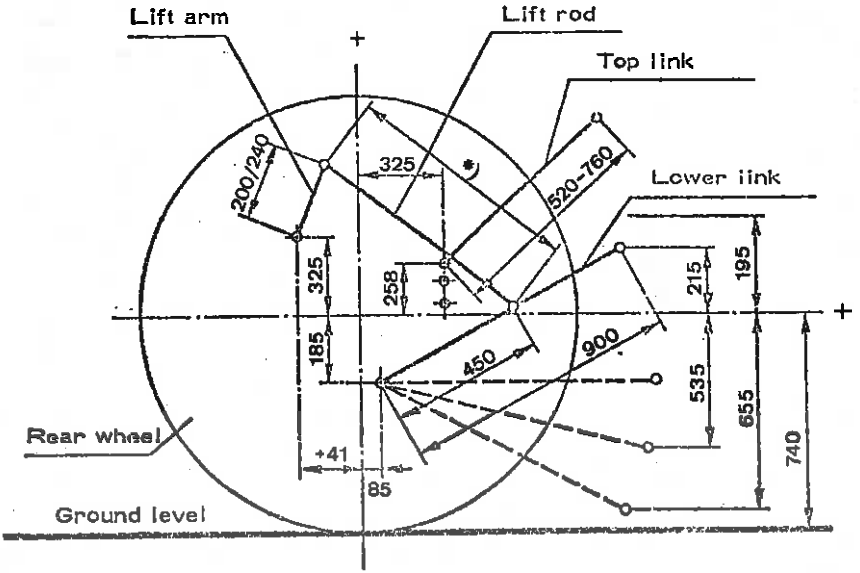
Date and location of tests: 1979 11 07, Wieselburg, Austria
Hydraulic fluid:
Make and type: SHELL Tellus 33, SAE 20 W
Viscosity at 50°C: 40 mm^2/s (40 cSt)
Typ of linkage lock for transport: hydraulically by throttle valve
Opening pressure of the cylinder overpressure relief valve (manufacturer specification): 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 579 mm
left lift rod: from 579 mm to 666 mm adjustable
right lift rod: from 546 mm to 666 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	579		579	
Top link	mm	650		650	
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 740 mm*) above the ground level					
Lower link pivot point	mm	85 behind	185 below	85 behind	185 below
Top link pivot point	mm	325 behind	258 above	325 behind	258 above
Lift arm pivot point	mm	41 behind	325 above	41 behind	325 above
Maximum und minimum height of lower link hitch points	mm	215 above	310 below	195 above	420 below
Height of lower link hitch points locked in transport position	mm	from 215 above to 310 below		from 195 above to 420 below	

*) Index radius

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivoting point mm		-235	-210	-150	-115	-50	0	+50	+100	+150	+200	+250	+300	+355	+405
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			*)	25,11 35,13	24,31 34,54	23,82 34,04	23,32 33,69	22,83 33,35	22,43 32,95	21,98 32,65	21,58 32,41	21,19 32,11	20,74 31,86	
	min. mech. advantage	21,63 30,57	20,84 29,88	20,14 28,98	19,95 28,68	19,65 28,29	19,45 27,99	19,06 27,79	18,56 27,54	18,06 27,39	17,76 27,29	17,52 27,14	17,27 26,99	17,22 26,95	
	Maximum force exerted throughout whole range: 20,74 (31,86) / 17,22 (26,95) 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				25,06 35,04	23,62 33,55	22,63 32,55	21,74 31,56	20,99 30,62	20,35 29,58	19,35 28,43	17,76 27,19	17,07 26,10	16,38 25,16	15,88 24,32
	min. mech. advantage		25,01 30,77	21,74 28,68	21,14 28,39	20,00 28,18	19,21 27,54	18,51 26,89	17,86 16,10	17,17 24,96	16,53 23,82	15,78 22,97	15,23 22,03	14,54 21,19	14,00 20,45
	Maximum force exerted throughout whole range: 15,88 (24,32) / 14,00 (20,45) kN														
	Oil pressure: 17,2 MPa (172 bar).														

*) The recorded values in the second line are made with additional working cylinders.

OPTIONAL TEST

9. Main power take-off performance

Date and location of tests: 1980 05 07, 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					
47,30	2400	634	12,44 14,54	263	3,251
Standard p.t.o. speed					
46,30	2044	540	11,39 13,32	246	3,476
The speed recommended by the manufacturer for drawbar work					
47,30	2400	634	12,44 14,54	263	3,251
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
41,02	2449	647	11,41 13,34	278	3,074
(ii) unloaded					
-	2570	679	3,51 4,11	-	-
(iii) 50 % of the load defined in (i)					
21,05	2513	664	7,31 8,55	347	2,462
(iv) maximum power					
47,30	2400	634	12,44 14,54	263	3,251
(v) 25 % of the load defined in (i)					
10,65	2544	672	5,35 6,26	503	1,700
(vi) 75 % of the load defined in (i)					
31,24	2487	657	9,34 10,93	299	2,860

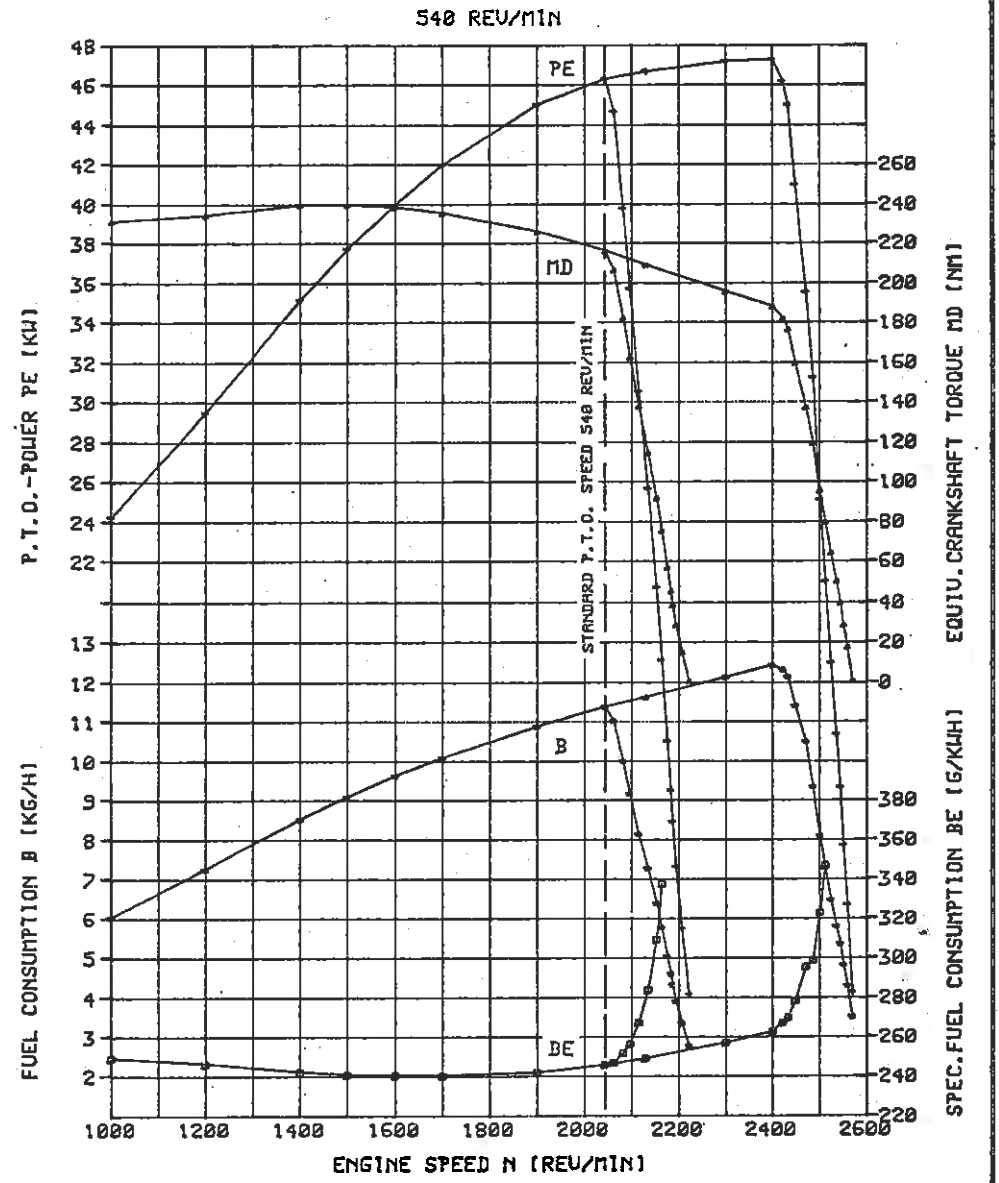
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS Governor hand lever in position giving standard p.t.o. speed at full load					
(i) 85 % of torque at standard p.t.o. speed					
40,10	2082	550	10,03 11,73	250	3,419
(ii) unloaded					
-	2222	587	2,78 3,25	-	-
(iii) 50 % of the load defined in (i)					
20,74	2154	569	6,41 7,49	309	2,766
(iv) maximum power at standard p.t.o. speed					
46,30	2044	540	11,39 13,32	246	3,476
(v) 25 % of the load defined in (i)					
10,50	2184	577	4,61 5,39	439	1,947
(vi) 75 % of the load defined in (i)					
30,55	2116	559	8,16 9,54	267	3,201
STANDARD SPECIFIC FUEL CONSUMPTION: 278/347 - 250/309 g/kWh					

No load maximum engine speed: 2570 rev/min
Equivalent crankshaft torque
at maximum power: 188,2 Nm
Maximum equivalent crankshaft torque: 240 Nm at 1400 rev/min of engine

Mean atmospheric conditions: temperature: 15°C
pressure: 980 mbar
humidity: 56 %

Maximum temperatures: coolant: 89°C
engine oil: 116°C
fuel: 62°C
air intake: 24°C

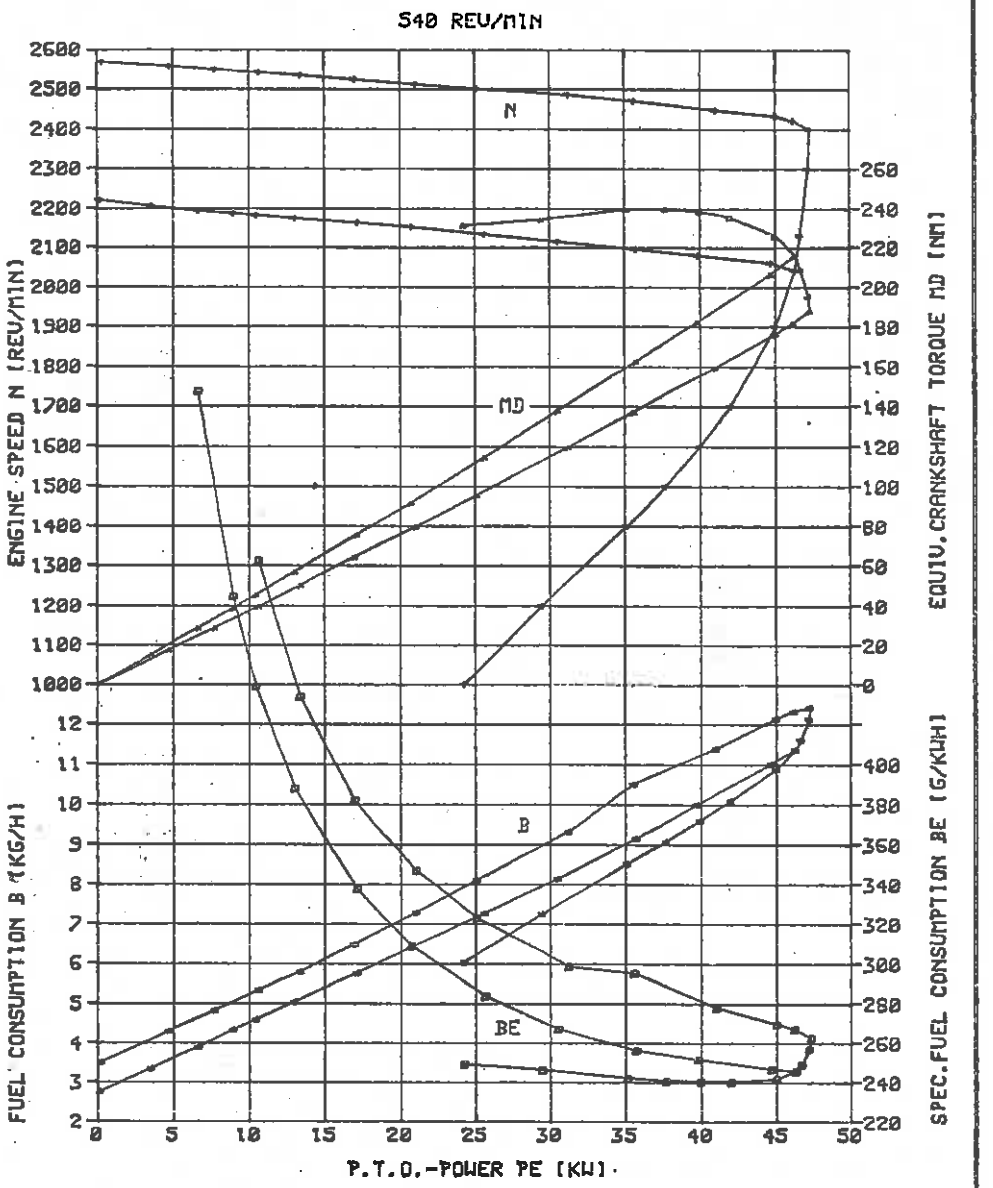
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT. NR.: 070/80	P.T.O.-TEST	STEYR TYP 357.18 (8080) MOT. TYP WD 411.86



ENGINE SER.NR.: 411.86-1087	ATM. PRESSURE : 988 MBAR	FUEL TEMP.: 62 C	SIGNATURE
TRAKTOR SER.NR.: 357.18-1081	AIR TEMPER. : 15 C	D.OF TESTS: 1988-05-07	A. Reither
FUEL : B.BSS/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/ZA122	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 116 C	CURVES NO.: 3	ING. REITHER

DOK.: 8100846-DL003.PKU834.PKU28-21

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LAND.U.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	P.T.O.-TEST	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86



ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 62 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1988-05-07	A. Reither
FUEL : 0.855/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/ZA122	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 116 C	CURVES NO.: 4	ING.REITHER

DVR.:0180846-DL803,MKU834,MKU28-21

OPTIONAL TEST

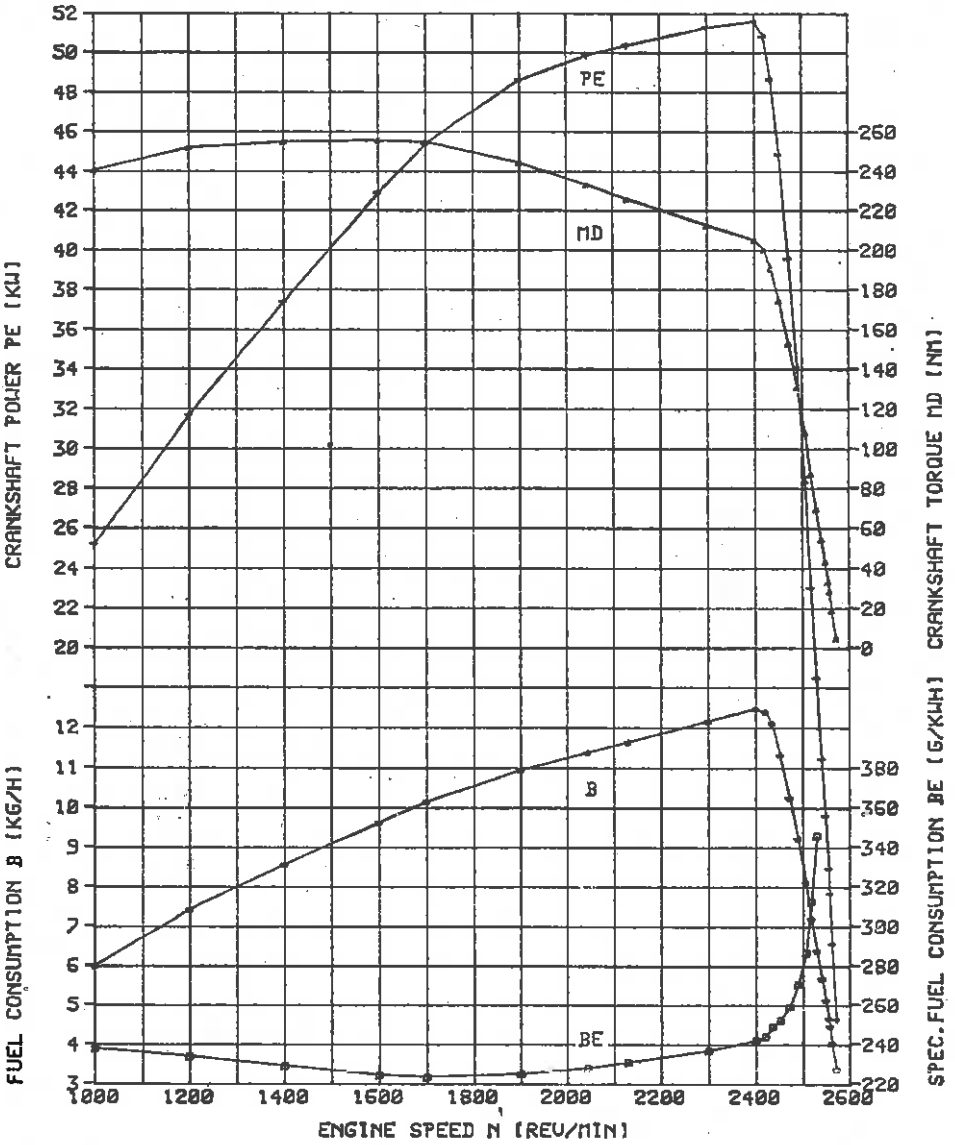
10. Engine performance

Date and location of test: 1979 10 18, 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				
51,60	2400	12,49 14,58	242	3,533
Standard p.t.o. speed (1000/540 rev/min)				
50,37	2130	11,63 13,60	231	3,702
49,87	2044	11,37 13,29	228	3,750
The speed recommended by the manufacturer for drawbar work				
51,60	2400	12,49 14,60	242	3,533
Part loads				
(i) 85 % of torque at maximum power				
44,87	2452	11,31 13,23	252	3,391
(ii) unloaded				
-	2572	3,37 3,94	-	-
(iii) 50 % of the load defined in (i)				
23,04	2519	7,20 8,42	312,5	2,738
(iv) maximum power				
51,60	2400	12,49 14,60	242	3,533
(v) 25 % of the load defined in (i)				
11,60	2549	5,13 5,99	442	1,934
(vi) 75 % of the load defined in (i)				
34,11	2490	9,22 10,79	270,5	3,162

Optimum fuel consumption: 222 g/kWh at 22 kW and 1100 rev/min
No load maximum engine speed: 2572 rev/min
Torque at maximum power: 205,3 Nm
Maximum torque: 255,9 Nm at 1600 rev/min engine speed
Mean atmospheric conditions: temperature: 15°C
pressure: 994 mbar
relative humidity: 86 %
Maximum temperatures: coolant: 89°C
engine oil: 108°C
fuel: 53°C
engine air intake: 18°C

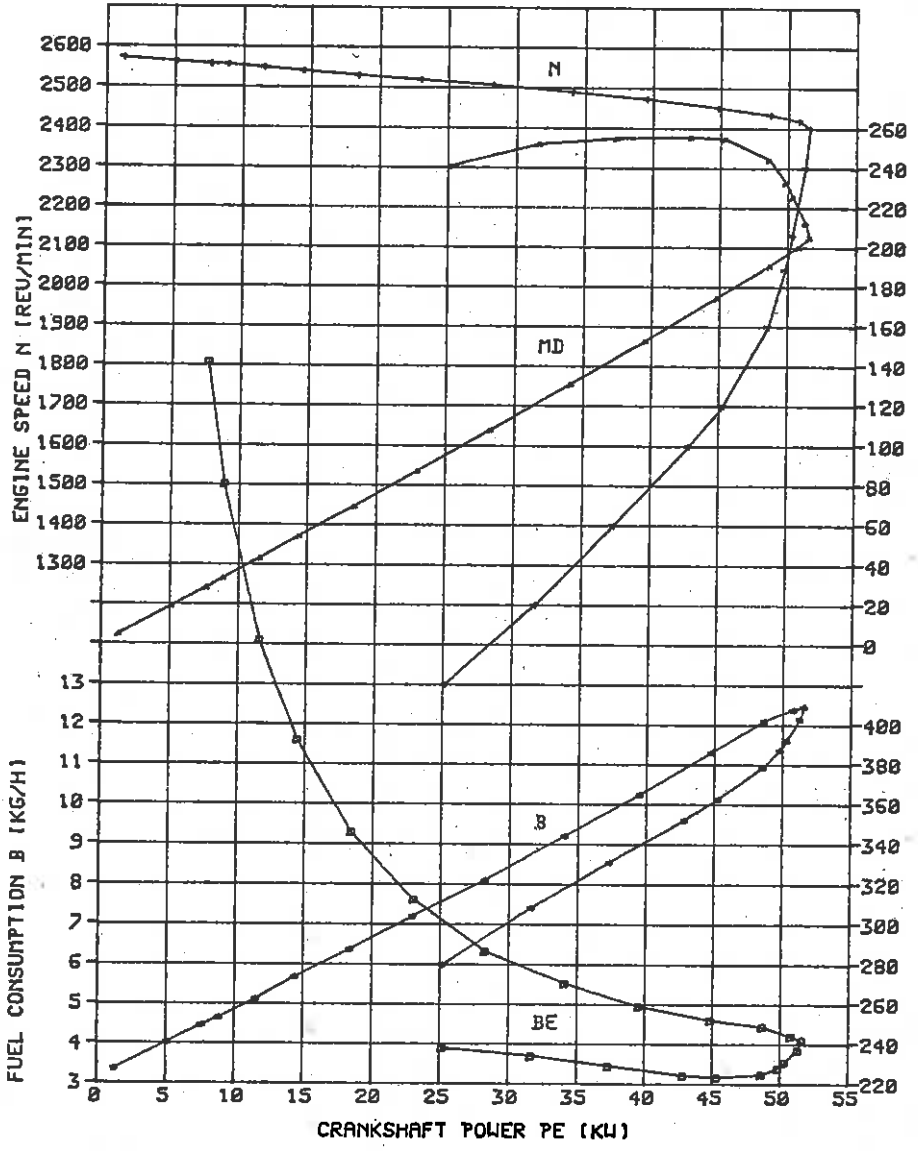
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	ENGINE-TEST	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86



ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 994 MBAR	FUEL TEMP.: 53 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1979-10-10	A. Reitlher
FUEL : 0.855/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/M174	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 100 C	CURVES NO.: 5	ING. REITHER

DUR.:0100846-DL805;MKU834;MKU20-KU

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	ENGINE-TEST	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86



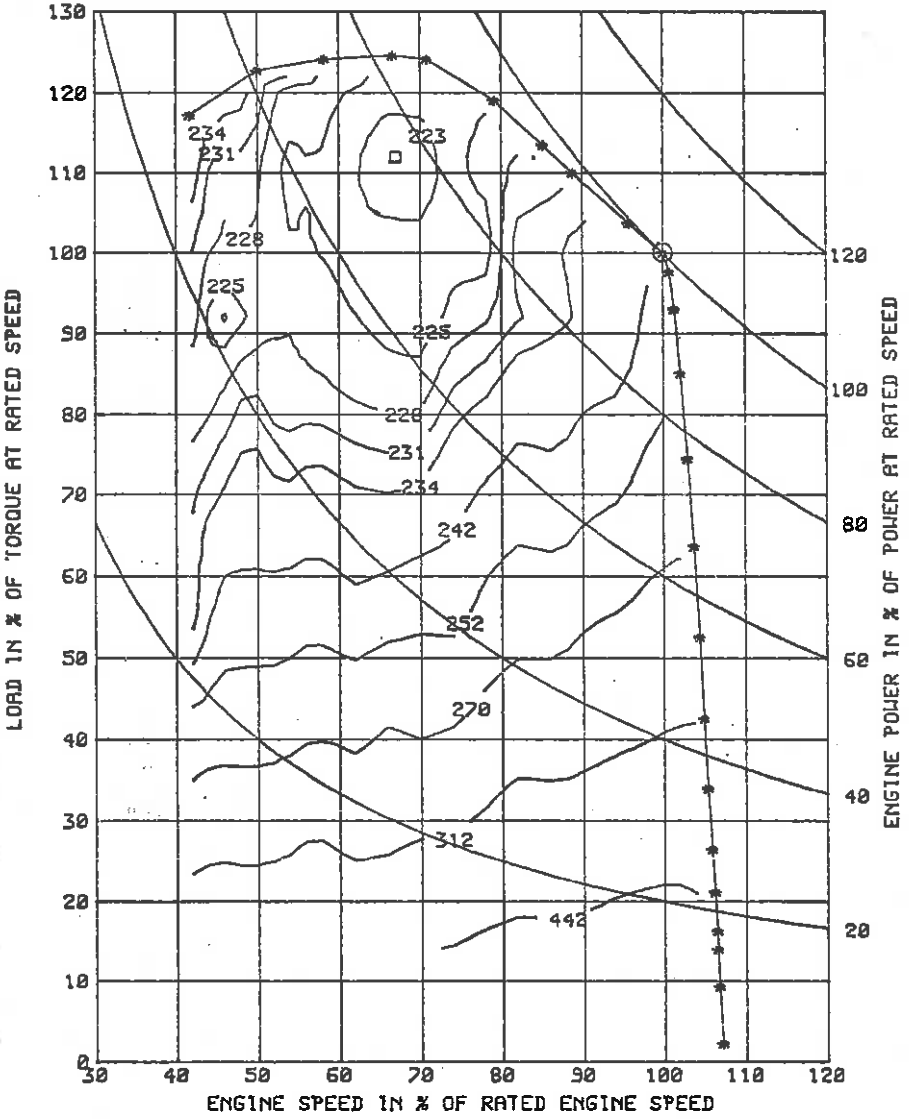
ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 994 MBAR	FUEL TEMP.: 53 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1979-10-18	A. Reither
FUEL : B.855/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/M174	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 108 C	CURVES NO.: 6	ING.REITHER

DUR.:8100846-DL803;MKU834;MKU20-KW

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 070/80	ENGINE PERFORMANCE CHARACTERISTICS	STEYR TYP 357.10 (8080) MOT.TYP WD 411.86

□ ....MIN.FUEL CONS. 221.10 G/KWH AT N = 1608. REV/MIN, MD = 229.95 NM, P = 38.7 KW

⊛ ....N = 2400. REV/MIN, MD = 205. NM, P = 51.6 KW



ENGINE SER.NR.: 411.86-1007	ATM.PRESSURE : 954 MBAR	FUEL TEMP.: 53 C	SIGNATURE
TRAKTOR SER.NR.: 357.10-1001	AIR TEMPER. : 15 C	D.OF TESTS: 1979-10-18	A. Reitlerer
FUEL : B.855/15 C	COOLANT TEMP.: 89 C	TEST NO. : 126/M174	
ENGINE OIL : SAE 10W-30	OIL TEMP. : 108 C	CURVES NO.: 7	ING. REITHER

EDV-DL883:MKU834.DAT:MKU84MV