O.E.C.D. Report No.: 626

GEPRÜFT

PROT. Nr.

BUNDESVERSUCHS - UND PRÜFUNGSANSTALT
für landwirtschaftliche Maschinen und Geräte,
Wieselburg

Diesel-Tractor STEYR 377.05

Trade name:

Diesel-Tractor STEYR 8100a



Date of approval: 1979 02 20

Date of tests: 1978

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

TABLE OF CONTENTS

Page

SPECIFICATION OF TRACTOR 2
CONDITIONS DURING TEST 10

COMPULSORY TESTS

Main power take-off performance 12
Drawbar performance 16
Turning space and turning circle 18
Location of centre of gravity 18
Braking performance 18
Ambient noise 19
Noise at the driver's ear level 19
Power lift and hydraulic pump performance 20
Linkage geometry 21
Performance of power lift 22

ADDITIONAL TEST

Octave-analysis of noise at the driver's ear level 23

ANNEX

Octave analysis of noise at the drivers ear level 27
Reduction of power data to standard conditions 28

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:	52 hours

SPECIFICATION OF TRACTOR

Tractor:

Make:	STEYR-DAIMLER-PUCH AG.
Model:	Diesel-Tractor STEYR 377.05 Trade name: STEYR 8100 a
Type:	Wheel tractor, four wheel driven, unit construction
Serial No.:	377.05 - 999

Engine:

Make:	Own make
Model:	WD 611.40
Type:	4 stroke diesel engine with direct injection
Serial No.:	611.40 - 996
Cylinders:	6, vertical in line Bore/stroke: 100/110 mm Capacity: 5184 cm^3 Compression ratio: 16,2 Wet liners
Valves:	Overhead valves
Fuel dystem:	Capacity of fuel tank: appr. 122 l Fuel feed by gravity BOSCH fuel filter Dual filter with water trap and changeable elements, model 0450 134 002 Fuel precleaner 1 Z 1457 434 002 BOSCH distributor injection pump Prototype-model VA 6/10 H 1150 CRV 3655 (=Serial model VA 6/10 H 1150 CR 160-4) Manufacturers production setting: 42 mm^3/stroke at 2300 rev/min and full load Injection timing: 14° before TDC at 1 mm pump stroke

Fuel system: (cont.)	BOSCH injectors Multi hole injection nozzles DLLA 150 SV 11 966 Injection pressure: 21,6 MPa (216 bar)
Governor:	BOSCH variable speed governor Hydraulically acting, incorporated in injection pump Range of speed: 500 to 2580 rev/min Rated speed: 2300 rev/min
Air cleaner:	MANN & HUMMEL or PUROLATOR Main-cleaner: Dry type with chargeable element and electrical indicator Model: MANN & HUMMEL 45.225.65.424, optional CF 800 (Safety element) PUROLATOR LP 080/1, optional SE 080 (Safety element) Pre-cleaner: Cyclonic type, dust container Model: MANN & HUMMEL 48.056.67.900
Exhaust silencer:	EBERSPÄCHER Reflexion type, at right side of the engine, mouth upwards Modell: T 16.47.675.02.0.00
Lubrication:	Forced lubrication with EATON pump, strainer in sump, paper filter in full flow Oil capacity: appr. 10 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-46152)
Cooling system:	Double circuit water cooling with centrifugal pump, pump and 6 blade fan (dia: 460 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. 18 l (20 l with cab heating) Overpressure: max. 50 kPa (0,5 bar)
Starting system:	Electrically BOSCH screw push starter, model: 000 1 367 005 JF 12 V, 3 kW Cold starting aid: BERU or BOSCH 2 glow plugs in intake pipe, BERU model 184 G 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, 0120 339 526
14 V, 28 A, 392 W
Batteries: 1 with 165 Ah capacity at 20 hours rating

Transmission:

Clutches:

Main clutch: FICHTEL & SACHS
Single plate dry clutch, model G 350 KR, 350 mm dia
pedal operated
P.t.o.-clutch: KLÖCKNER HUMBOLDT DEUTZ
Wet multiplate clutch, 132 mm dia, overload function,
hydraulically engaged, hand switch operated
Front wheel drive clutch: KLÖCKNER HUMBOLDT DEUTZ
Wet multiplate clutch, 135 mm dia,
hydraulically engaged, hand switch operated

Gearbox:

KLÖCKNER HUMBOLDT DEUTZ
Group gear with 3 forward and 1 reverse group combined
with synchronised 4 speed change gear (25 km/h model)
or optional with synchronised 5 speed change gear
(30 km/h model, as tested)
Model: TW 90.20
Totally: 12 (15) forward and 4 (5) reverse speeds

Optional (not on tested tractor):
Super crawler group: 4th forward group of group gear
Torque amplifier group: only on 4 speed change gear
model with optional speed ratios 1,222 or 0,807 (0,807 at
torque-amplifier-30 km/h-model)
hydraulically engaged by wet multiplate clutch

Totally (with all options): 32 forward and 8 reverse speeds

Rear axle and final drive:

KLÖCKNER HUMBOLDT DEUTZ
Central axle with spur gear transmission from differential;
Pinion and bevel gear, bevel gear differential, spur gears,
lockable wheelshafts acting on rear wheels
Differential lock: foot lever operated, lockable

Front axle and final drive:

ZF-PASSAU
Central steering axle
Driving shaft, pinion and bevel gear, bevel gear differential,
half shafts, universal joints, planetary gears in wheel
hubs.
Front wheel drive: hydraulically engaged, hand switch
operated
Optional: Automatically locking differential

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	
forward super crawler K	1 **)	1721,308	0,38	(0,39)
	2 **)	1127,407	0,57	(0,59)
	3 **)	919,541	0,70	(0,73)
	4 **)	634,166	1,02	(1,05)
	5 **)	516,728	1,25	(1,29)
forward slow L	1	322,288	2,00	(2,07)
	2	211,089	3,06	(3,16)
	3	172,169	3,75	(3,88)
	4	118,738	5,44	(5,62)
	5 ***)	96,719	6,68	(6,90)
forward medium Z	1	159,051	4,06	(4,20)
	2	104,174	6,20	(6,42)
	3	84,967	7,60	(7,86)
	4	58,598	11,02	(11,39)
	5 ***)	47,746	13,53	(13,98)
forward fast S	1	75,832	8,52	(8,80)
	2	49,668	13,01	(13,44)
	3	40,510	15,95	(16,48)
	4	27,938	23,12	(23,90)
	5 ***)	22,764	28,38	(29,33)
reverse R	1	129,591	4,98	(5,15)
	2	84,878	7,61	(7,87)
	3	69,229	9,33	(9,64)
	4	47,744	13,53	(13,98)
	5 ***)	38,903	16,60	(17,16)

*) calculated with basis tyre equipment, 16,9-34 AS; index radius: 745 mm (with test tyre equipment 18,4-34 AS; index radius: 770 mm)

**) optional, not on tested tractor

***) optional, on tested tractor

Switching aid circuit:

Aid for p.t.o., front wheel drive and optional equipment (i.e. torque amplifier) switching

Own oil circuit with BOSCH gear pump, directly driven by engine, incorporated in gearbox, oil supply from gearbox

Delivery rate: 23 l/min

Working pressure: 2 MPa (20 bar)

Oil capacity: Gearbox and rear axle: appr. 50 l multipurpose oil
Front axle differential: 5,7 l
Planetary final gears: 0,8 l each
Changing interval: 1000 hours or one year
Recommended oil for gearbox: MIL-L-2104B/MIL-L-46152 (API-CC) or MIL-L-2104C (API-CD)
(SAE 20 W/20, SAE 15 W/30, SAE 20 W/40, STOU)
For differential and planetary gears: MIL-L-2105 B
(SAE 90 HD)

Power take off:

Rear p.t.o.: 2 shafts at rear of tractor, 50 mm right and left hand of median plane, 596/581 mm above ground
Dimension: ISO R 500, Type 1; (35 mm, 6 splines)
ISO R 500, Type 2; (35 mm, 21 splines)
Live p.t.o., common driven by hydraulically engaged multi plate clutch, hand switch operated
Speeds: 540/ 604 rev/min at 2057/2300 rev/min engine speed
1000/1110 rev/min at 2071/2300 rev/min engine speed
Engine speed resp.p.t.o. speed indication by "Traktormeter"
Direction of rotation: clockwise viewed from driving end

Front p.t.o.: Optional (not on tested tractor)

Power lift: Own make, open center type
Draught control with two stage pull adjustment and upper link sensing, position control, floating position
"STEYR SIMPLEMATIK" standard linkage, category II, double hole lift arms
BOSCH gear type pump, directly driven by engine
BOSCH control unit
Own oil supply, capacity: 16 l
Recommended oil: SAE 20 W
Working cylinder: single acting type, bore/stroke: 105/160 mm

Optional (not on tested tractor):
WALTERSCHEID linkage quick coupler, category II
Additional working cylinders for increased power lift performance, 50 mm dia each
Oil tappings: up to three oil circuits with BOSCH control units for single or double acting cylinders

Capacity of tappings: 6 l

Holed drawbar: Fitted in the clevis of the lower links of the threepoint linkage, category II
Number of holes: 7, diameter: 32 mm, distance: 115 mm

Height above ground		Min. lift rod length (basis adjustment)	Max. lift rod length
Lift arm length:	193 mm	from 400 to 955 mm	from 185 to 795 mm
	245 mm	from 270 to 975 mm	from 55 to 815 mm

Method of changing: by power lift, lift rod and lift arm length
Distance to rear axle: 1045 mm (lower links horizontally)
Distance relative to p.t.o.: 520 mm

Pull attachement:

Trailer hitch:

Own make
Fork type, heights adjustable in 4 positions
Height above ground: 863, 833, 793, 763 mm
Distance from rear axle: 668 mm
Position relative to p.t.o.: rearwards 142 mm
Diameter of coupling pin: 31 mm
Maximum vertical load: 15000 N

Optional (not on tested tractor)
ROCKINGER automatic coupler
Fork type, heights adjustable in 4 positions
Heights above ground: 863, 833, 793, 763 mm
Distance from rear axle: 689 mm
Position relative to p.t.o.: rearwards 163 mm
Diameter of coupling pin: spherical 38 mm
Maximum vertical load: 15000 N

ROCKINGER
Fork type, heights adjustable in 8 positions
Height above ground: 910, 850, 810, 770, 730, 670, 630, 590 mm
Distance from rear axle: 669 mm
Position relative to p.t.o.: rearwards 143 mm
Diameter of coupling pin: 31 mm
Maximum vertical load: 15000 N

ROCKINGER automatic coupler
Fork type, heights adjustable in 8 positions
Heights above ground: same heights as above
Distance from rear axle: 696 mm
Position relative to p.t.o.: rearwards 170 mm
Diameter of coupling pin: spherical 38 mm
Maximum vertical load: 15000 N

Towing hitch:

Fork type
Height above ground: 795 mm
Distance from front axle: frontwards 466 mm
Diameter of coupling pin: 32 mm

Steering:

ZF-SCHWÄBISCH GMÜND
Hydrostatic steering, model ZF 8453
Own oil circuit, gear pump directly driven by engine
Capacity of oil case: 2,8 l
Delivery rate: 22 l/min
Working pressure: 10 MPa (100 bar)
Operated by steering wheel, acting on front wheels

Brakes:

Service brake: TEVES, hydraulically acting dry disc brake, acting on differential shafts, pedal operated

Parking brake: KNOTT, mechanically acting drum brake, acting on differential shafts, hand lever with ratchet

Steering assistance brake: Operated by divided pedal of service brake

Optional brake equipment: (not on tested tractor)
Front wheel brake:
TEVES, hydraulically acting dry disc brake on front wheels, pressure air controlled by main braking valve
Trailer braking valve: high pressure air system, one or two line system, air compressor V-belt driven
Storage pressure: 1,8 MPa (18 bar)
Working pressure: 0,72 MPa (7,2 bar)

Wheels:

Front wheels: 2 pneumatics, steering and driving function, diagonal or radial carcass
12,4-24 AS, PR 6; rim: W 11 x 24
Maximum permissible load on each tyre:
11 770 N at 1,70 bar inflation pressure
16 480 N at 2,12 bar inflation pressure and
max. 8 km/h driving speed for front implement working
Track width: 1680 mm (changeable to 1778 mm by reversing wheels)

Optional front wheel equipment:
13,6-24 AS, PR 8 (as on tested tractor); rim: W 11 x 24
Maximum permissible load on each tyre:
15 155 N at 2,00 bar inflation pressure
21 215 N at 2,15 bar inflation pressure
max. 8 km/h driving speed for front implement working
11,2-28 AS, 11,2-24 AS

Rear wheels: 2 pneumatics, driving function, diagonal or radial carcass
16,9-34 AS, PR 8; rim: DW 14 x 34
Maximum permissible load on each tyre:
23 350 N at 1,7 bar inflation pressure
Track width: 1524 mm (1780 mm by reversing wheels)

Optional rear wheel equipment:
18,4-34 AS, PR 8 (as on tested tractor); rim: DW 16 x 34
25 160 N at 1,4 bar inflation pressure
13,6-38 AS, 16,9-38 AS

Wheel base: 2540 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	1063	140 x 125	892
Side Lights	1694	164 x 70	228
Rear lights	1694	164 x 70	228
Reflectors	1508 641	102 x 54 80 dia	188 522

*) with tyre equipment: 12,4-24 AS/16,9-34 AS
**) with overall width of 2075 mm

Number of grease points: 20

Driver seat:

BOSTROM
Model XH 2 TS 2; tested on tractor according to national regulation (Prot. Nr. 130/78)
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. 134/78)
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:

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)

Protective cab: (as on tested tractor)
Own make
Model 110.11 .
Completely cladded and closed protective frame with air ventilation and heater
Strength tested according to national legislation (identical to OECD CODE)

CONDITIONS DURING TEST

Tractormass:

Tractor without driver but with tanks full and protective cab

	Front	Rear	Total
Without ballast	1505 kg	2705 kg	4210 kg
With ballast	2173 kg	3545 kg	5718 kg

Ballastmass:

	Number of weights	Total mass (excluding water)	Water
Front	15	531 kg	–
Rear	6 + 2	377 kg	600 kg
Additional	—	–	–

Track setting and tyre equipment:

1680 mm at front
1524 mm at rear
Front wheels: 13,6 R 24, PR 8
Rear wheels: 18,4–34 AS, PR 8

Overall dimensions:

	Length	Width		Height **)
		max.	min.*)	
	mm	mm	mm	mm
With ballast	4610	2284	2075	2570/2600
Without ballast	4200	2284	2075	2570/2600

*) measured on front wheels
**) measured to top of: protective cab / exhaust pipe with basis tyre equipment

Minimum ground clearance: 390 mm under front axle with basis tyre equipment

Fuel and lubricants used in tests:

Fuel: ELAN Diesel fuel (according to DIN 51 601)
specific gravity at 15°C: 0,855 kg/l for p.t.o. and drawbar tests
0,850 kg/l for engine tests
Viscosity at 20°C: 5 mm^2/s (5 cSt)
Cetane 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: 1978 07 31, 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					
57,10	2200	578	15,01 17,55	263	3,25
Standard p.t.o. speed					
56,48	2056	540	14,65 17,13	259	3,30
57,00 *)	2072 *)	1000 *)	14,66 17,15*)	257 *)	3,32 *)
The speed recommended by the manufacturer for drawbar work					
56,78	2300	604	15,22 17,80	268	3,19
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power					
53,25	2414	634	14,70 17,19	276	3,10
(ii) unloaded					
-	2578	677	5,23 6,12	-	-
(iii) 50 % of the load defined in (i)					
27,55	2498	656	9,59 11,21	348	2,46
(iv) maximum power					
57,10	2200	578	15,01 17,55	263	3,25
(v) 25 % of the load defined in (i)					
13,98	2536	666	7,36 8,61	527	1,62
(vi) 75 % of the load defined in (i)					
40,70	2460	646	12,05 14,09	296	2,89

*) Complementary test on: ISO R 500, type 2 - 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
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					
48,98	2098	551	12,73 14,89	260	3,29
(ii) unloaded					
-	2224	584	3,87 4,52	-	-
(iii) 50 % of the load defined in (i)					
25,32	2167	569	8,10 9,47	320	2,67
(iv) maximum power at standard p.t.o. speed					
56,48	2056	540	14,65 17,13	259	3,30
(v) 25 % of the load defined in (i)					
12,81	2197	577	5,88 6,88	459	1,86
(vi) 75 % of the load defined in (i)					
37,48	2140	562	10,27 12,01	274	3,12
STANDARD SPECIFIC FUEL CONSUMPTION: 276/348/260/320 g/kWh					

No load maximum engine speed: 2578 rev/min

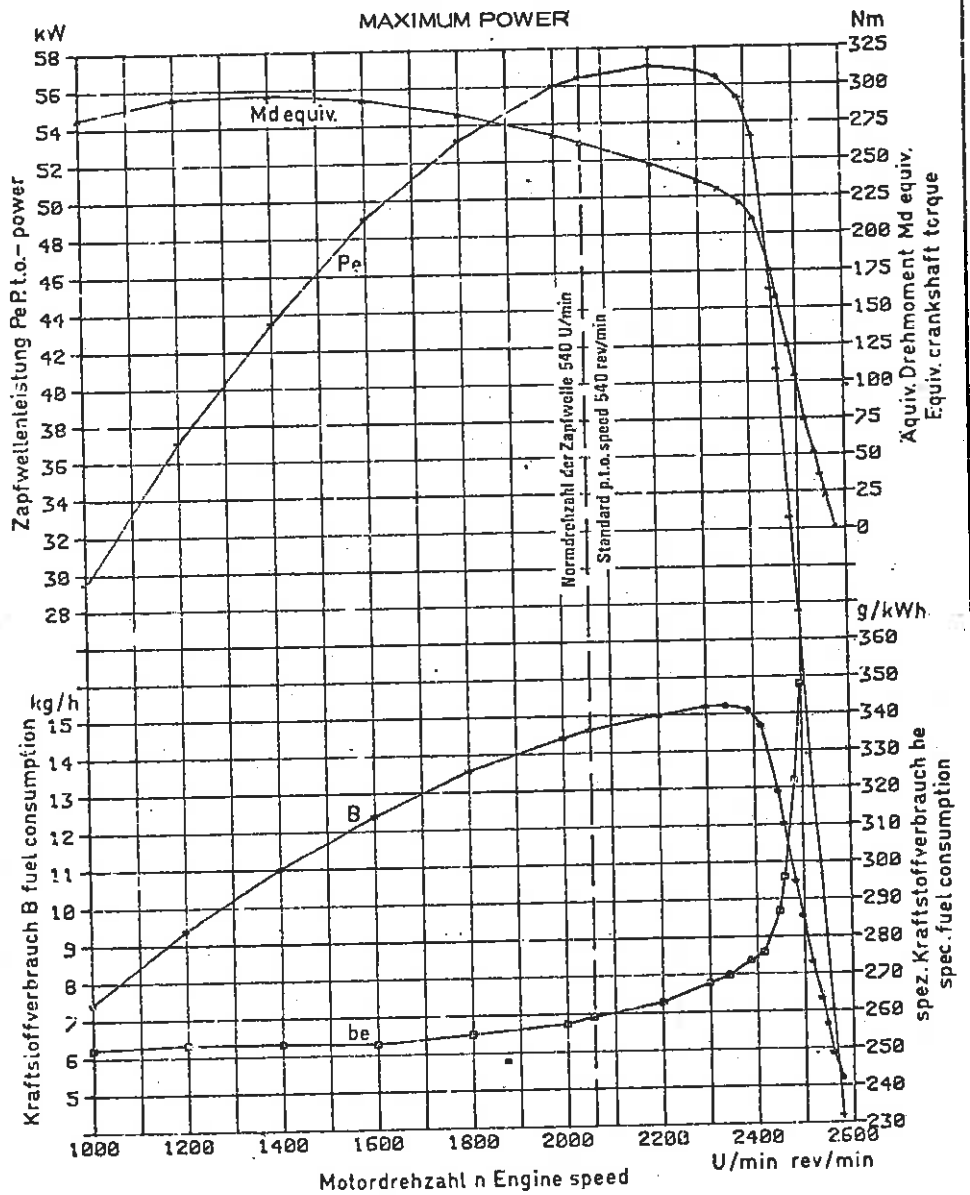
Equivalent crankshaft torque at maximum power: 247,8 Nm at 2200 rev/min of engine

Maximum equivalent crankshaft torque: 297,2 Nm at 1400 rev/min of engine

Mean atmospheric conditions: temperature: 20°C
pressure: 986 mb
humidity: 73 %

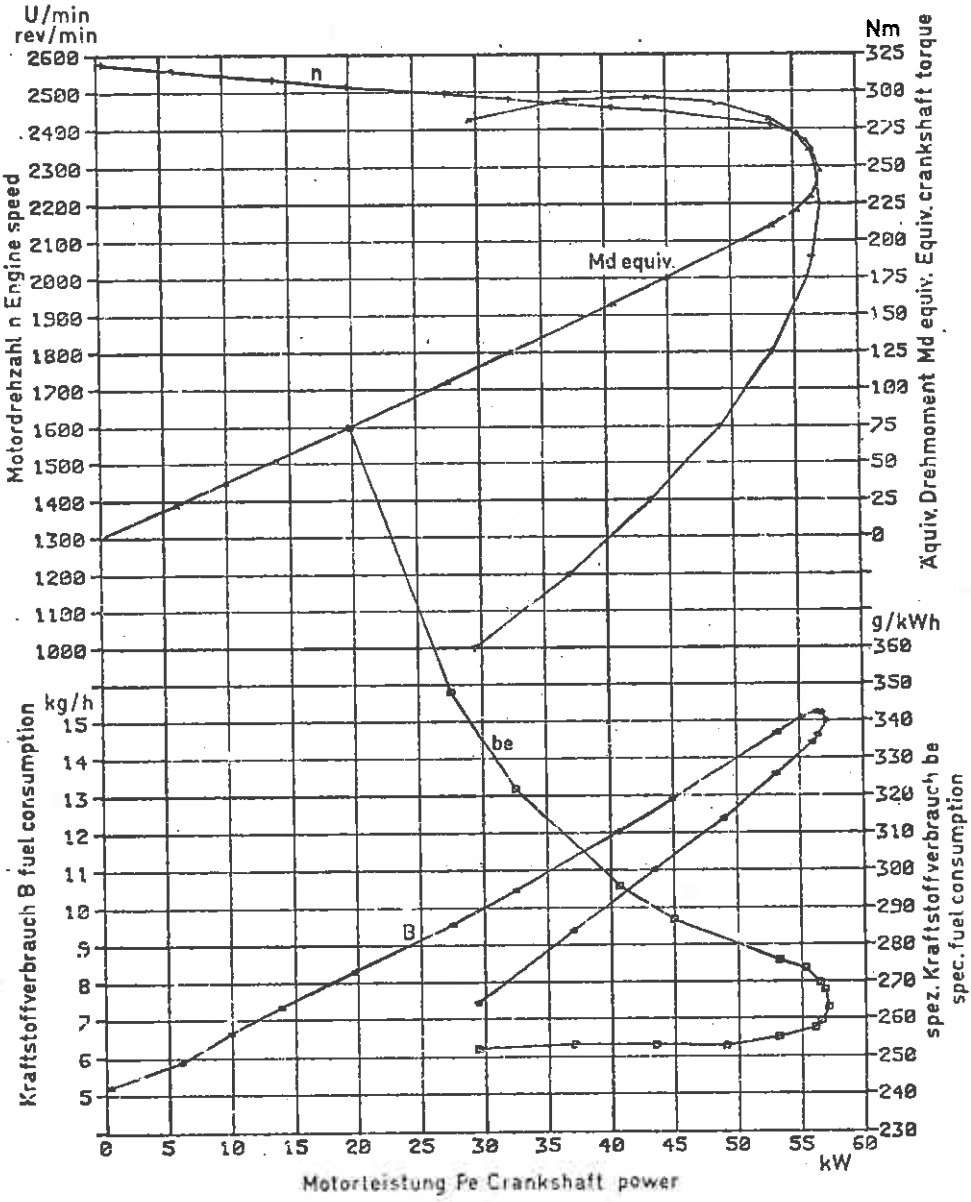
Maximum temperatures: coolant: 95°C
engine oil: 110°C
fuel: 70°C
air intake: 25°C

Bundesversuchs-u.Prüfungsanst. f. landw. Maschinen u. Geräte Wieselburg / Austria Protokoll Nr. 018/79	**Zapfwellenprüfung P.t.o.-test**	Steyr – Dieseltraktor Typ 377.05 (8100a) Mot. Typ STEYR WD 611.40



Engine ser. No. 611.40-996	Atm pressure: 986 mb	Coolant temp.: 95°C	D.of tests: 1978 07 31	Signature
Tractor ser. No. 377.05-999	Air temperature: 25°C	Oil temperature: 110°C	Test No. 116/Za 111	A. Reither
Fuel: 0,855/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 70°C	Curves No. 1	

Bundesversuchs-u.Prüfungsanst. f.landw.Maschinen u.Geräte Wieselburg / Austria Protokoll Nr. 018/79	**Zapfwellenprüfung P.t.o.-test**	Steyr-Dieseltraktor Typ 377.05 (8100a) Mot. Typ STEYR WD 611.40

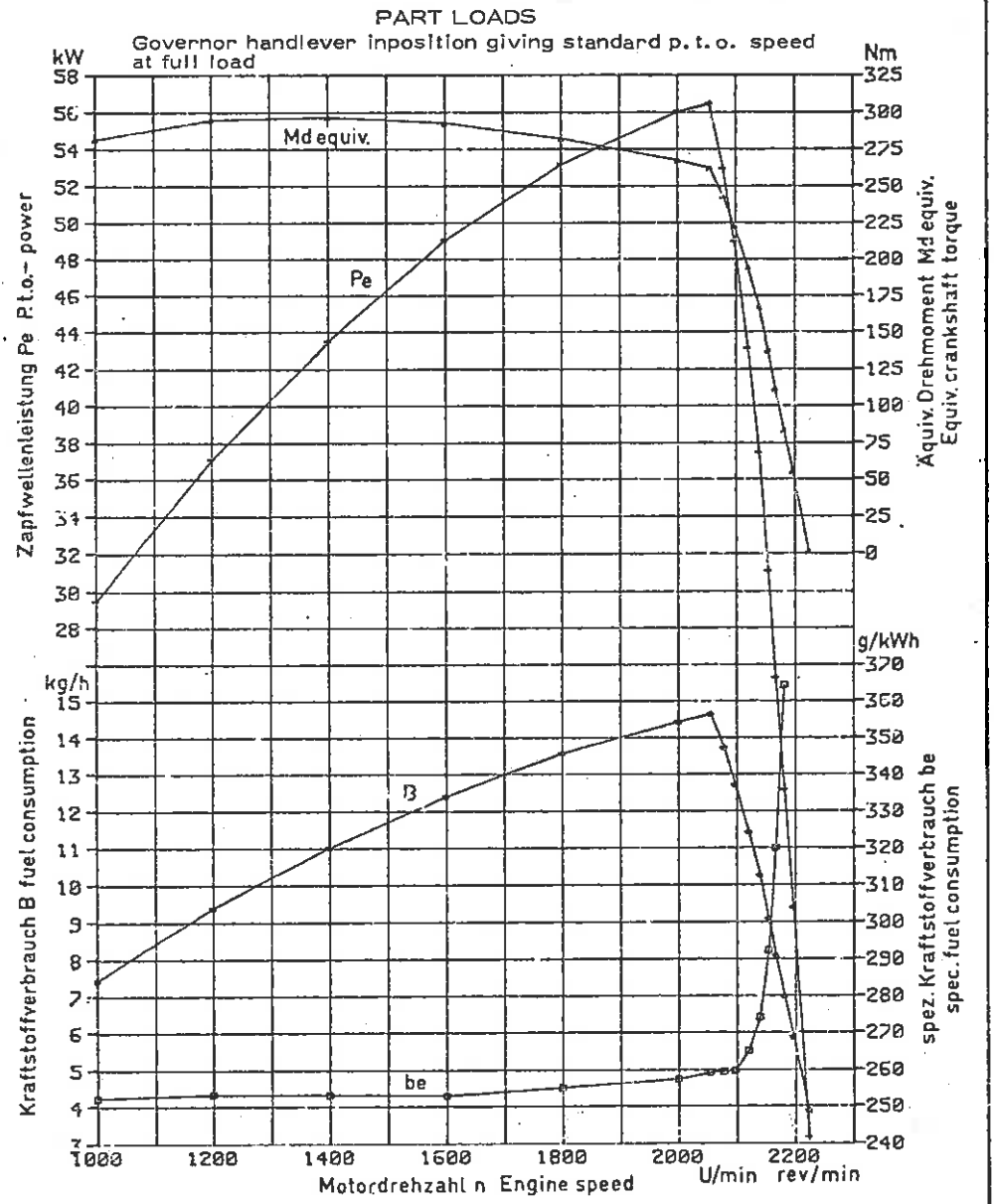


Engine ser.No. 611.40-996	Atm.pressure: 986 mb	Coolant temp.: 95°C	D.of tests: 1978 07 31	Signature
Tractor ser.No. 377.05-999	Air temperature: 25°C	Oil temperature: 110°C	Test No. 116/Za 111	A. Reitlberger
Fuel: 0,855/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 70°C	Curves No. 2	

Bundesversuchs-u.Prüfungsanst. f.landw.Maschinen u.Geräte Wieselburg / Austria Protokoll Nr. 018/79

Zapfwellenprüfung P.t.o.–test

Steyr–Dieseltraktor Typ 377.05 (8100a) Mot.Typ STEYR WD 611.40



Engine ser No. 611.40-996	Atm. pressure: 986 mb	Coolant temp.: 93°C	D.of tests: 1978 07 31	Signature
Tractor ser.No. 377.05-999	Air temperature: 18°C	Oil temperature: 105°C	Test No. 116/Za 111	A. Reitlinger
Fuel: 0,855/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 67°C	Curves No. 2a	

2. Drawbar performance

Date of tests: 1978 07 31 to 1978 08 02
Type of track: Concrete
Height of drawbar above ground: 410 mm ballasted, 400 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	kN	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	mbar
(i) Maximum power (ballasted)													
1 L	1,899	29,82	56,52	2443	15	-	-	60	92	104	23	78	988
2 L	2,843	44,62	56,50	2392	15	2,526	338,5	58	91	103	23	78	988
3 L	3,530	48,50	49,46	2299	11	2,727	313,5	56	90	101	22	78	988
1 Z	3,892	49,19	45,51	2301	9,6	2,766	309	58	89	100	24	78	988
4 L	5,352	50,39	33,90	2300	7,3	2,832	302	58	88	99	23	78	988
2 Z	6,153	50,50	29,54	2300	6,5	2,836	301,5	57	89	95	23	79	988
5 L	6,664	50,38	27,22	2299	6	2,831	302	57	90	96	23	79	988
3 Z	7,639	50,10	23,61	2301	5,4	2,817	303,5	55	90	95	22	78	988
1 S	8,612	49,43	20,66	2300	4,8	2,774	308	55	88	94	22	76	988
4 Z	11,275	47,29	15,10	2301	3,7	2,658	321,5	54	88	93	22	76	988

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	kN	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	mbar
(ii) Five-hour-test at 75 % of pull at maximum power													
2 Z	6,583	40,52	22,16	2422	5,2	2,389	358	61	90	100	24	70	988
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (i)													
2 L	2,837	44,51	56,49	2399	15	2,538	337	61	93	110	26	64	988
(iv) Maximum power (unballasted)													
3 L	3,544	41,67	42,32	2418	15	2,429	352	58	88	101	27	60	986
1 Z	3,798	44,65	42,32	2393	15	2,526	338,5	59	86	101	27	60	986
4 L	5,231	49,40	33,99	2302	9,8	2,776	308	59	87	100	27	59	986
2 Z	6,080	49,91	29,55	2300	8,2	2,803	305	58	88	100	28	59	986
5 L	6,594	50,10	27,35	2301	7,6	2,817	303,5	60	89	101	28	59	986
3 Z	7,587	50,00	23,72	2300	6,6	2,810	304,5	61	90	99	28	58	986
1 S	8,550	49,69	20,92	2299	6	2,791	306,5	60	90	99	28	58	986
4 Z	11,189	48,20	15,51	2301	5	2,710	315,5	60	90	99	28	58	986

Total oil consumption during 10 hours duration of tests (ii) and (iii): 103 g/h

3. Turning space and turning circle

Wheel equipment front: SEMPERIT 13,6 R 24, PR 8
rear: SEMPERIT 18,4-34 AS, PR 8

Track of wheels front: 1680 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	4,47/4,57	4,37/4,47	5,62/5,24	5,62/5,24
Radius of turning circle	4,15/4,25	4,05/4,15	5,30/4,92	5,30/4,92

*) four wheel drive switched: ON / OFF

4. Location of centre of gravity

	mm
Height above ground	950
Distance forward from the vertical plane containing the axis of the rear wheels	884
Distance from the median plane, left-side	6

5. Braking

Date of tests: 1978 07 25 to 1978 08 02
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)
Mass of ballasted tractor: 5793 kg (with driver)

Cold brakes

		Ballasted	Without ballast
Travelling speed of the tractor	km/h	25	25
(i) Deceleration	m/s^2	5,5	6,0
(ii) Stopping distance	m	5,45	4,90
(iii) Force exerted on the brake pedal	N	265	196
(iv) Force exerted on the brake pedal to achieve a deceleration of 2,5 m/s^2	N	88	69

Brake fade characteristics (hot tests)	Ballasted	Unballasted
Deceleration hot / deceleration cold x 100	102	103
Stopping distance cold / Stopping distance hot x 100	92	100
Force on pedal, cold / Force on pedal, hot x 100	95	87
Force on pedal, cold / force on pedal, hot to achieve a deceleration of 2,5 m/s^2 x 100	82	88

Efficiency of handbrake:
Satisfactory facing up and down slope of 16 %
pull on handbrake: 88 N

6. Measurement of ambient noise

Date of tests: 1978 07 19
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
Gear: 5.S
Travelling speed before acceleration: 24 km/h
Sound level: 86 dB(A)

7. Noise measurement at the driver's ear level

Date of tests: 1978 07 19
Type of sound level meter and octave filter: 2203 and 1613 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
(tractor with protective cab)

Gear	Effective travelling speed	Sound level	
		dB(A)	Noise rating
3. Z *)	7,6 km/h	87	88
5. S	29,0 km/h	88	

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

8. Power lift and hydraulic pump performance

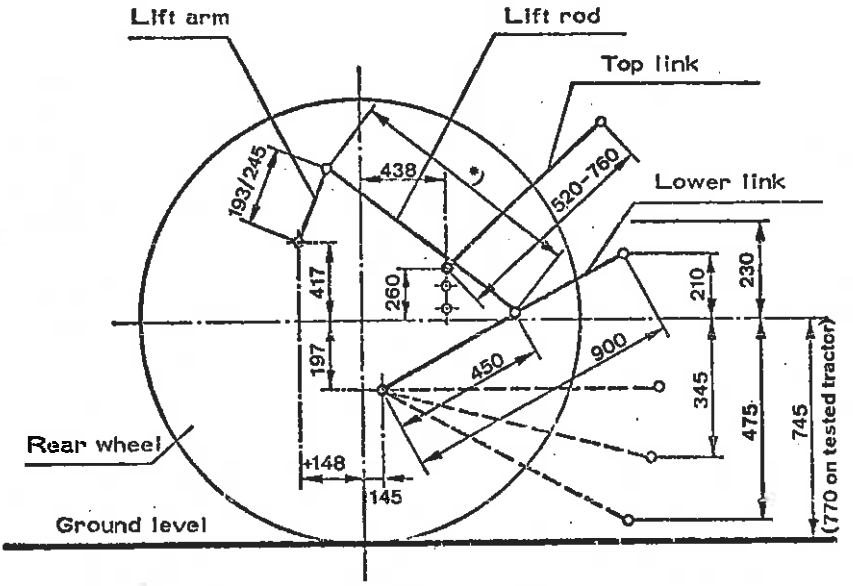
Date and location of tests: 1978 08 16 , Wieselburg, Austria
Hydraulic fluid:
Make and type: SHELL Tellus 33, SAE 20 W
Viscosity at 50°C: 40 mm^2/s (40 cSt)
Typ of linkage lock for transport: hydraulically by throttle valve
Opening pressure of the cylinder over pressure relief valve (manufacturer specification): 24,5 MPa (245 bar)

Pump characteristics:

(i) Opening pressure of the relief valve: 18,2 MPa (182 bar)
sustained pressure by the open relief valve: 17,5 MPa (175 bar)

(ii) Pump delivery rate at minimum pressure and rated engine speed: 35,5 l/min

(iii) Pump delivery rate: 35,5 l/min
delivery pressure: 17,5 MPa (175 bar)
power: 10,35 kW



*) basis adjustment: both lift rods 666 mm
left lift rod: from 666 mm to 756 mm adjustable
right lift rod: from 626 mm to 766 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	193		245	
Lift rods	mm	666		666	
Top link	mm	610		610	
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 745 mm above the ground level *)					
Lower link pivot point	mm	145 behind	197 below	145 behind	197 below
Top link pivot point	mm	438 behind	260 above	438 behind	260 above
Lift arm pivot point	mm	148 behind	417 above	148 behind	417 above
Maximum und minimum height of lower link hitch points	mm	210 above	345 below	230 above	475 below
Height of lower link hitch points locked in transport position	mm	up to 210 above		up to 230 above	

*) 770 mm on tractor tested

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivoting point mm		-278	-253	-200	-148	-143	-100	0	+100	+200	+300	+407	+427	+487	+512
Lifting force at the hitch-points kN	max.mech. advantage				31,65		33,40	36,10	36,95	36,70	36,55	37,50			
(Values for the pressure at maximum hydraulic power, calculated from measurements made at maximum pressure)	min. mech. advantage	26,55 45,60*		28,00 45,65*	28,70 46,20*		29,25 46,80*	29,90 47,25*	30,50 46,40*	29,20 45,35*	29,20 44,60*	29,55 44,15*	29,95 44,10*		
	Maximum force exerted throughout whole range: 31,65/26,55 kN (44,10 kN*)														
	Oil pressure: 17,5 MPa (175 bar)														
Lifting force at the frame kN	max.mech. advantage					32,30	33,00	32,75	31,10	29,25	26,75	24,85		23,30	
(Values for the pressure at maximum hydraulic power, calculated from measurements made at maximum pressure)	min. mech. advantage		30,75 48,65*	29,75 47,60*		28,75 46,65*	28,00 45,35*	26,50 42,15*	24,60 38,85*	22,50 35,80*	20,90 33,00*	19,30 29,50*		18,30 26,75*	17,85 26,20*
	Maximum force exerted throughout whole range: 23,30/17,85 kN (26,20 kN*)														
	Oil pressure: 17,5 MPa (175 bar)														

*) when fitted with additional working cylinders

OPTIONAL TEST

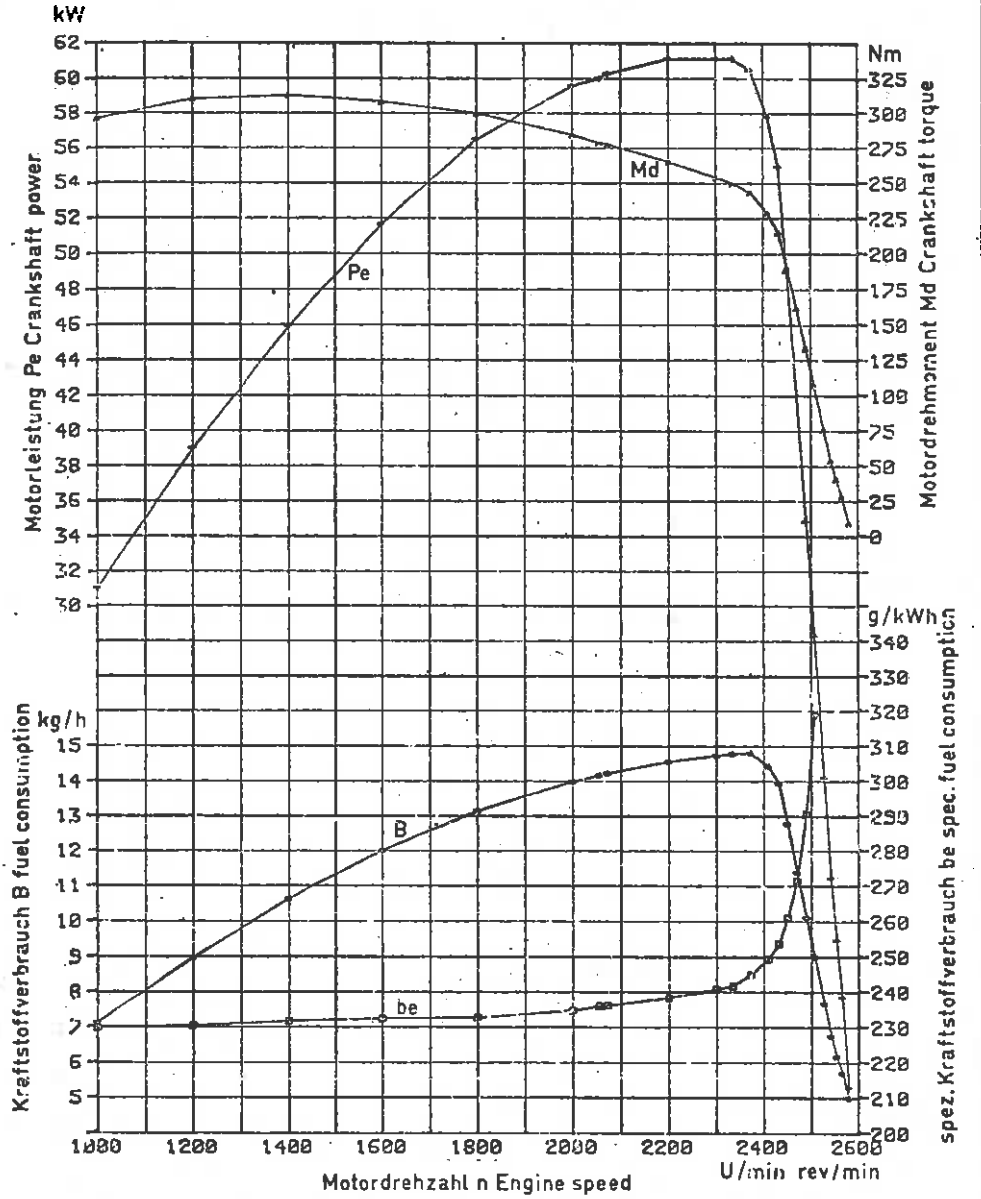
9. Engine performance

Date and location of test: 1978 04 19, 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				
61,18	2300	14,74 17,34	241	3,528
Standard p.t.o. speed (540 rev/min) - 1000 rev/min)				
60,04	2056	14,18 16,68	236	3,599
60,29	2072	14,25 16,76	236	3,597
The speed recommended by the manufacturer for drawbar work				
61,18	2300	14,74 17,34	241	3,528
Part loads				
(i) 85 % of torque at maximum power				
54,96	2432	13,96 16,42	254	3,347
(ii) unloaded				
0	2580	5,00 5,88	-	-
(iii) 50 % of the load defined in (i)				
28,34	2508	9,04 10,63	319	2,666
(iv) maximum power				
61,18	2300	14,74 17,34	241	3,528
(v) 25 % of the load defined in (i)				
14,49	2542	6,77 7,96	467	1,820
(vi) 75 % of the load defined in (i)				
42,00	2471	11,41 13,42	271,5	3,129

Optimum fuel consumption: 229 g/kWh (see page 26)
No load maximum engine speed: 2580 rev/min
Torque at maximum power: 254 Nm at 2300 rev/min
Maximum torque: 313,2 Nm at 1400 rev/min engine speed
Mean atmospheric conditions: temperature: 15°C
pressure: 988 mbar
relative humidity: 69 %
Maximum temperatures: coolant: 84°C
engine oil: 102°C
fuel: 37°C
engine air intake: 20°C

Bundesversuchs-u.Prüfungsanst. f.landw.Maschinen u.Geräte Wieselburg / Austria Protokoll Nr. 018/79	**Motorprüfung Engine-test**	Steyr - Dieseltraktor Typ 377.05 (8100a) Mot. Typ STEYR WD 611.40

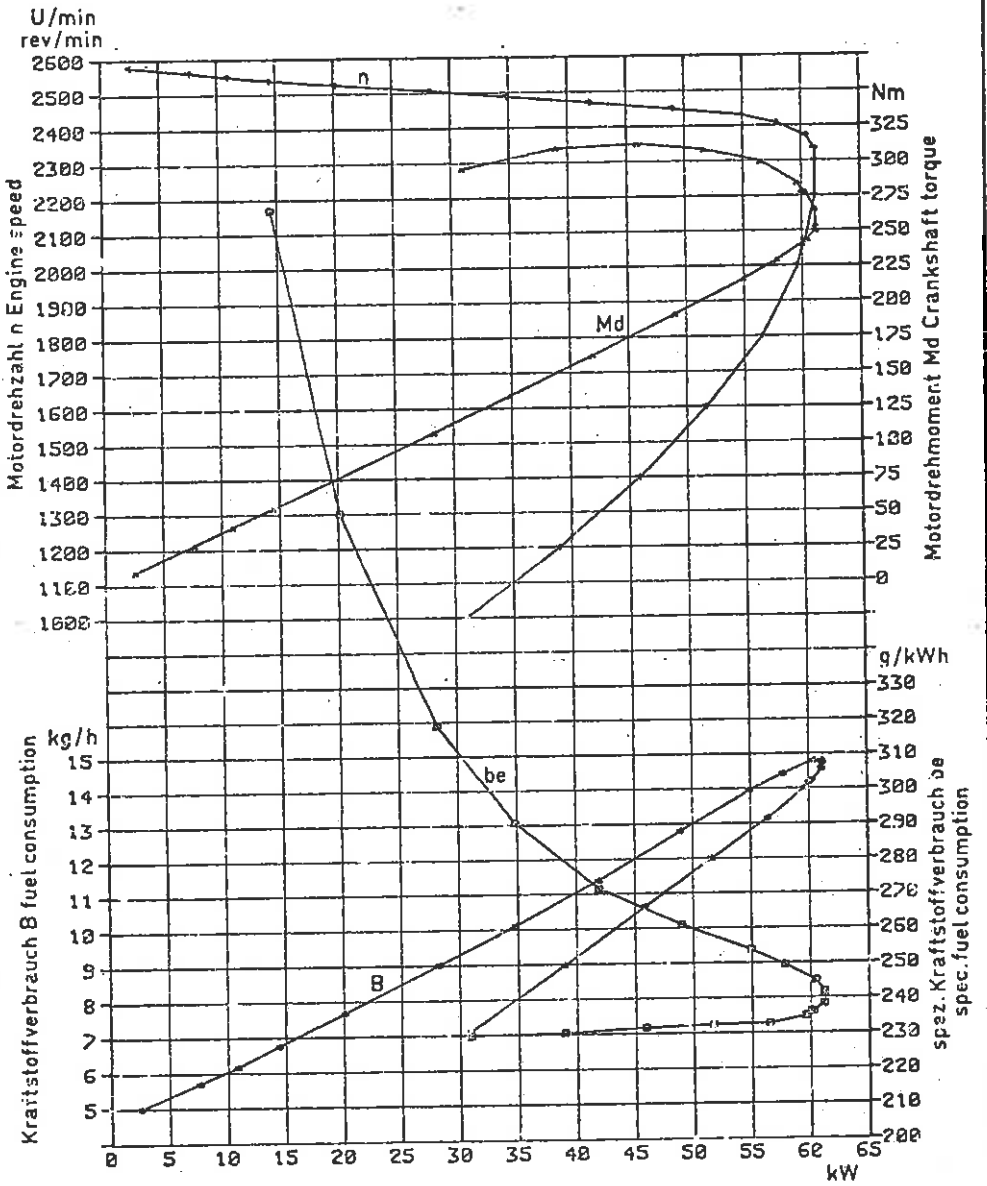


Engine ser.No. 611.40-996	Atm.pressure: 988 mb	Coolant temp.: 84°C	D. of tests: 1978 04 19	Signature
Tractor ser.No 377.05-999	Air temperature: 20°C	Oil temperature: 102°C	Test No. 116/M164	A. Reitter
Fuel: 0,850/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 37°C	Curves No. 3	

Bundesversuchs-u.Prüfungsanst. f.landw.Maschinen u.Geräte Wieselburg / Austria Protokoll Nr. 016/79

Motorprüfung Engine-test

Steyr-Dieseltraktor Typ 377.05 (8100a) Mot. Typ STEYR WD 611.40



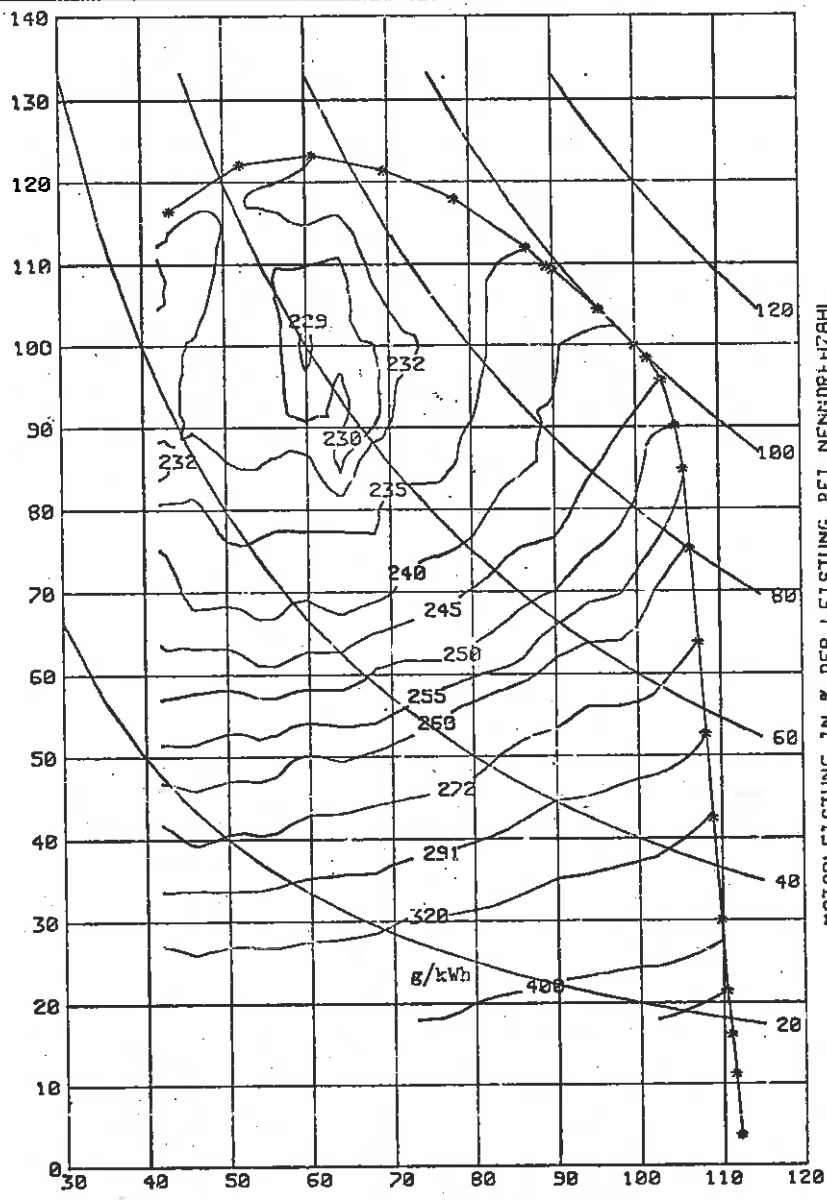
Engine ser. No. 611.40-996	Atm. pressure: 988 mb	Coolant temp.: 84°C	D. of tests: 1978 04 19	Signature
Tractor ser. No. 377.05-999	Air temperature: 20°C	Oil temperature: 102°C	Test No. 116/M164	H. Reitlinger
Fuel: 0,850/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 37°C	Curves No. 4	

Bundesversuchs-u.Prüfungsanst. f.landw.Maschinen u.Geräte Wieselburg / Austria
Protokoll Nr. 018/79

MOTORKENNFELD

ENGINE PERFORMANCE CHARACTERISTICS

Steyr-Dieseltraktor
Typ 377.05 (8100a)
Mot. Typ STEYR WD 611.40



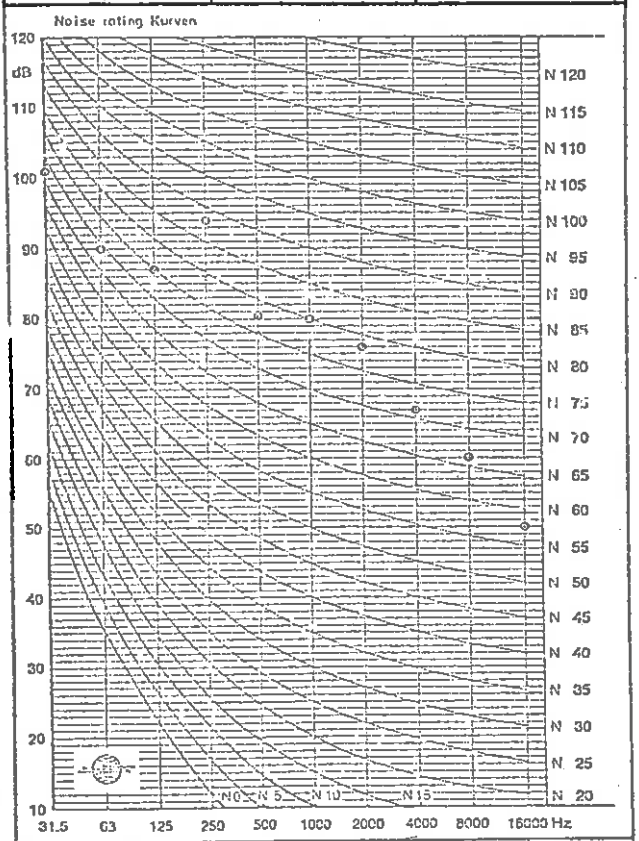
Engine ser. No. 611.40-996	Atm.pressure: 988 mb	Coolant temp.: 84°C	D.of tests: 1978 04 19	Signature
Tractor ser.No. 377.05-999	Air temperature: 20°C	Oil temperature: 102°C	Test No. 116/M164	A. Reitlber
Fuel: 0,850/15°C	Engine oil: Mobil SAE 10W	Fuel temp.: 37°C	Curves No. 5	

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 19, chapter 7)

Bundesversuchs-u.Prüfungsanst. f.Landw.Maschinen u.Geräte Wieselburg / Austria	Octave analysis of noise at the drivers ear level	Dieseltractor STEYR 377.05



Gear: 3 Z Travelling speed: 7,6 km/h	Date of test: 1978 07 19	A. Zeilhuber

2. REDUCTION OF POWER DATA TO STANDARD CONDITIONS

According to:

Austrian Standard Ö-Norm V - 5003
German Standard DIN 70 020 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 12)

Test conditions: Intake air temperature t = 25°C
Atmospheric pressure B = 986 mbar
Resulting reduction coefficient: k = 1,036

	P_{OECD}	P_{RED}
MAXIMUM POWER	57,1 kW (77,7 mHP)	59,2 kW (80,5 mHP)

B) ENGINE PERFORMANCE (page 23)

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	61,2 kW (83,2 mHP)	62,7 kW (85,3 mHP)