GEPRÜFT

PROT.Nr.

O.E.C.D. Report No.: 836

BUNDESVERSUCHS - UND PRÜFUNGSANSTALT
für landwirtschaftliche Maschinen und Geräte,
Wieselburg

Dieseltractor STEYR 397.35

Trade name:

STEYR 8170 a



Date of approval: 1982 06 30

Date of tests: 1981 07 29

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 397.35 Trade name: STEYR 8170a
Type:	Wheel tractor, four-wheel driven, unit construction
Serial No.:	397.35 - 03807/827

Engine:

Make:	Own make
Model:	WD 612.89
Type:	4 stroke diesel engine with direct injection and exhaust turbo supercharger
Serial No.:	612.89 - 1000
Cylinders:	6, vertical in line Bore/stroke: 108/120 mm Capacity: 6596 cm^3 Compression ratio: 16,5 Cast-in cylinder liners
Valves:	Overhead valves
Fuel system:	Capacity of fuel tank: appr. 240 l Fuel feed by pump (incorporated in injection pump) FRIEDMANN & MAIER model: FP/KE 22 AD 254/2 Fuel filter: PUROLATOR Dual-filter with changeable elements model 00601 FRIEDMANN & MAIER in-line pump Model: P 26 T 24 s - 8.82 B II RVF Manufacturers production setting: $78^{:9}_{:2}$ mm^3/stroke at 1100 rev/min (on pump) and full load Injection timing: $30^{:9°}_{:2}$ before TDC

Injectors:
Multi hole injection nozzles
BOSCH
model DLLA 150 S 456
FRIEDMANN & MAIER
model D 1 LMK 150/24

Injection pressure: $21,6^{+0.5}_{-0}$ MPa (216^{+5}_{-0} bar)

Governor: FRIEDMANN & MAIER
Mechanically acting, incorporated in injection pump
Model: R 8 V 20 - 110/106 D - 1
Range of speed: 400 to 2420 rev/min
Rated speed: 2200 rev/min

Optional (not on tested tractor):
Governor, dependend acting with supercharger-pressure
Model: R 8 VL 20 - 110/01

Supercharger: GARRET
Exhaust type turbo-supercharger
Model: T 04 B 49/4656 40-7
Max. supercharge pressure: appr. 830 mbar

Air cleaner: MANN & HUMMEL
Pre-cleaner: cyclonic type with transparent dust container
Model: 48 096 67 900
Main-cleaner: dry type with changeable element, electrically service indication
Model: 45 325 65 444
MANN & HUMMEL paper insert: Model C 20 325/2
PUROLATOR paper insert: Model PM 1709
KNECHT paper insert: Model AG 74

Optional:
Additional safety element
MANN & HUMMEL paper insert: CF 1000
PUROLATOR paper insert: AF 3101
KNECHT paper insert: SE 120

Service intervals:
Main-cleaner paper insert:
cleaning interval: when control-lamp indication
changing-interval: 2000 hours or 1 year
Cyclonic pre-cleaner: cleaning interval 500 hours and visual control
Safety element: changing interval: after 5 main-cleaner paper inserts or if main cleaner insert was defect

Exhaust silencer:	EBERSPÄCHER Absorption type, left side of the engine, mouth upwards 2770 mm above ground, 170 mm left of median plane Model: 16.47.573.01.0.00
Lubrication:	Forced lubrication; Strainer in sump, gear pump, oilcooler, paper filter in full-flow Oil capacity: appr. 14 l Oil and filter changing interval: 250 hours Recommended oil viscosity: summer: SAE 30 or 15 W-40 winter: SAE 20 or 20 W-40 MIL-L-2104 C, API - CD
Cooling system:	Double circuit water cooling with centrifugal pump, pump and 6 blade fan (dia 510 mm) belt driven. Tubular radiator with longtime frost protection (-20°C) Thermostat control, cooling water thermometer and sight glass for level indication. Coolant capacity: appr. 24 l Overpressure: 50 kPa (0,5 bar)
Starting system:	Electrically BOSCH solenoid engaged starter motor Model: 0 001 367 010 JF 12 V 3 kW Cold starting aid: Own make Glow plug in intake pipe
Electrical system:	Voltage: 12 V, negative earth Generator: BOSCH, three phase type, 392 W Model: 0 120 339 526 G 1 - 14 V 28 A 22 Batteries: lead acid type, 2 in parallel connection with totally 176 Ah capacity at 20 hours rating

Transmission:

Clutches:	Main clutch: FICHTEL & SACHS AG. Mechanically acting Single plate dry clutch with torsion antivibrator, 350 mm dia, pedal operated P.t.o. - clutch: Own make Wet multiplate clutch, 135 mm dia, hydraulically engaged, hand-switch-operated Front wheel drive clutch: Own make Wet multiplate clutch, mechanically (spring) engaged and hydraulically disengaged, 132 mm dia, hand-switch operated.

Gearbox:	Own make Mechanically acting Model: TW 1200 Group gear with 3 forward and 1 reverse group combined with a synchronised 4 speed change gear. Totally 12 forward and 4 reverse speeds Optional: (not fitted on tested tractor) Torque amplifier group; speedreduction ratio: 1,25 switched by hydraulically engaged multi plate clutches Crawler gear group, speed reduction 8,44, mechanically engaged. Fitted with both optional groups: Totally 36 forward and 12 reverse speeds
Rear axle and final drive:	Own make, model TW 1200 Rear axle: Central driving type; Pinion and bevel gear, lockable bevel gear differential, planetary final gears Differential-lock: mechanically acting dog clutch, hydraulically engaged, hand-switch operated, electric control lamp, not self disengaging
Front axle and final drive:	Own make Front axle: Central steering axle; Front wheel drive clutch-central propeller shaft, pinion and bevel gear, lockable bevel gear differential, double joints, planetary final gears in wheel hubs. Differential lock: mechanically acting dog clutch, hydraulically engaged, electric control lamp, not self disengaging
Switching aid:	Hydraulically acting Own oil circuit with BOSCH gear pump, directly driven by engine, oil supply common with gearbox, rear axle and hydraulic powerlift. Aid for differential lock switching in rear and front axle, for front wheel drive clutch, p.t.o. clutch and optional equipment (i.e. torque amplifier group) switching. Delivery rate at 1,8 MPa (18 bar) and 2200 rev/min on motor: 41 l/min. Working pressure: $1,8^{\pm 0,2}$ MPa ($18^{\pm 2}$ bar) Common oil filter with hydraulic powerlift circuit.
Oil capacity:	Common oil case for gearbox, rear axle, rear final drives and hydraulic circuits: appr. 85 l multi-purpose oil Changing interval: 1000 hours Recommended oil: Tractor-universal oil SAE 15 W - 30 (STUO) SAE 20 W - 30 (STUO) MIL-L-2104 C API: CD, SE

Front axle differential: appr. 15 l
Front axle planetary final gears: each side appr. 1,5 l
Recommended oil for differential and planetary gears:
SAE 90; API GL 5
MIL-L-2105 B or MIL-L-2105 C

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	
	1	**232,53 *)**	**274,18 **)**	**3,05 *)**	**2,59 **)**
forward	2	165,60	195,26	4,28	3,63
L	3	120,19	141,72	5,90	5,00
	4	86,29	101,75	8,22	6,97
	1	139,70	164,73	5,08	4,30
forward	2	99,49	117,31	7,13	6,05
M	3	72,21	85,15	9,84	8,33
	4	51,84	61,13	13,68	11,60
	1	60,08	76,91	11,80	9,22
forward	2	42,79	54,78	16,57	12,94
S	3	31,05	39,76	22,84	17,83
	4	22,30	28,54	31,81	24,84
	1	132,35	156,06	5,36	4,53
reverse	2	94,25	111,14	7,57	6,38
R	3	68,41	80,66	10,37	8,79
	4	49,11	57,91	14,44	12,24

Travelling speed calculated with test tyre equipment 20.8 R 38 and index radius 855 mm.
*) 30 km/h model as tested **) 25 km/h model not tested

Power take off:

Independent p.t.o. with multi disc clutch, hydraulically engaged, hand switch operated
At rear of tractor, in median plane, 720 mm above ground 445 mm behind rear axle
Dimensions:
1000 rev/min: ISO R 500, Type 2 (35 mm, 21 splines) DIN 9611, Form 2
540 rev/min: ISO R 500, Type 1 (35 mm, 6 splines) DIN 9611, Form 1
P.t.o. end-pieces changeable
Direction of rotation: clockwise, viewed on driving end
Automatically changing of speed
Power restiction for p.t.o. 540 rev/min: 48 kW

Speeds:
540/ 633 rev/min at 1877/2200 rev/min engine speed
1000/1205 rev/min at 1826/2200 rev/min engine speed

Power lift:

Own make, open center type
Draught control with two stage pull adjustment and lower link sensing, position control, floating position.
"STEYR SIMPLEMATIK" standard linkage, category II/III, double hole lift arms, in accordance to ISO 730
BOSCH gear type pump, directly driven by engine, paper filter element, BOSCH control unit
Common oil supply with gearbox and rear axle
Working cylinder: single acting type, bore/stroke: 105/165 mm
Oil tappings: up to 3 oil circuits with BOSCH control units for single or double acting cylinders
Capacity of tappings: 25 l in stationary mode
10 l in driving mode
Changing interval of filter element: 500 hours

Optional:
Additional working cylinders for increased power lift performance on each side; bore/stroke: 70/195 mm

Holed drawbar:

Fitted in the clevis of the lower links of the threepoint linkage, category II
Number of holes: 7, diameter: 33 mm, distance: 115 mm

Height above ground		Min. lift rod length	Max. lift rod length
Lift arm length:	188 mm	from 540 to 1030mm	from 290 to 835 mm
	245 mm	from 420 to 1075mm	from 170 to 885 mm

Method of changing: by power lift, lift rod and lift arm length
Distance to rear axle: 1160 mm (lower links horizontally)
Distance relative to p.t.o.: 575 mm

Pull attachement:

Trailer hitch:

ROCKINGER
Fork type

Height above ground:	895 mm	895 mm
	standard model	automatic model
Model:	271 U 150 H	248 U 150 B
Distance form rear axle:	565/620 mm	565/595 mm
Position relative to p.t.o.:		
	rearwards 20 mm	rearw. 20 mm
Diameter of coupling pin:	31 mm	30 mm
Max. vertical load:	15 kN	15 kN

Swinging drawbar: (Optional, not on tested tractor)
Height above ground (middle): 510 mm (855 mm index radius)
Height of fork: 65 mm
Distance from rear axle: 985/785 mm
Position of pivot point relative to rear axle: 160 mm before
Lateral adjustment: ± 435 mm/± 360 mm (± 22° from median plane)
Diameter of coupling hole: 28 mm

Hitch: (Optional, not on tested tractor)
Height above ground: 527 mm (855 mm index radius)
Distance from rear axle: 550 mm
Position relative to p.t.o.: 35 mm rearwards
Distance of pivot point relative to rear axle: 0 mm
Diameter of hitch hook: 48 mm

Swinging drawbar (in combination with hitch):
Height above ground: 465 mm (855 mm index radius)
Distance from rear axle: 940 mm
Position relative to p.t.o.: 355 mm rearwards
Position of pivot point relative to rear axle: 0 mm

Towing hitch: Fork type
Height above ground: 840 mm
Distance from front axle: 1015 mm frontwards
Diameter of coupling pin: 35 mm

Steering: ZF-SCHWÄBISCH GMÜND
Hydrostatic steering, model 8453
Operated by steering wheel, acting on front wheels
Own oil circuit with filter, gear pump directly driven by enginge
Capacity of oil case: 2,8 l
Delivery rate (2100 rev/min engine): appr. 34 l/min
Working pressure: 10 MPa (100 bar)
Recommended oil: Automatic Transmission-Fluid ATF Dexron D or ATF M 2 C 33 E/F
Changing interval of oil and filter: 2000 hours

Brakes: GIRLING

Service brake: Hydraulically activated, 4-wheel brake, pedal operated
Rear axle: hydraulically acting multi-disc brake in oil bath, 12 acting faces, 200 mm effective diameter
Front axle: hydraulically acting Simplex inner brake
Brake drum: 400 mm dia, 100 mm width
Front axle brakes hydraulically acting, pressure air assisted.
Divided hydraulic circuits for front axle and rear axle.
Recommended fluid for hydraulic brake circuits:
Brake fluid SAE J 1703e or FMVSS 116 DOT 3

Optional (not on tested tractor):
Automatically engaging of four wheel drive when service brake is activated
Electrically - hydraulically acting on front-wheel drive clutch.

Parking brake: Mechanically, acting on wet disc brakes of rear axle, hand operated by handlever with ratchet.
Optional: independent of service brake

Steering assistance brake: Operated by divided pedal of service brake, hydraulically acting on right or left rear wheel.

Trailer braking system: Pressure air system: High pressure air system, one or one and two (three) line system, air-compressor V-belt driven
Storage pressure: $1,8^{+0,2}$ MPa (18^{+2} bar)
Storage volume: 20 l
Working pressure: 0,72 MPa (7,2 bar)

Optional (export to France):
Oil braking system, activated by service brake
Trailer-connection: NFU 16 - 006
100 bar oil pressure at 3 m/s^2 deceleration

Wheels:

Front wheels: 2 pneumatics, steering and driving function, radial carcass
18,4-26 AS, PR 8; rim: DW 16 x 26 - B
Maximum permissible load on each tyre:
22 210 N (2265 kp) at 1,4 bar inflation pressure
Track width: 1900 mm

Rear wheels: 2 pneumatics, driving function, radial carcass
20,8 R 38 AS, PR 8; rim: W 16 x 38 or
W 18 x 38
Maximum permissible load on each tyre:
30 313 N (3090 kp) at 1,3 bar inflation pressure
Track width: 1900 mm

Wheel base: 2760 mm

Lighting:

Unrestricted beam angle of head light in plan view: 0,0919 mrad (5, 27°)

	*) Height above ground of centre mm	Size mm	**) Distance from outside edge of tractor to centre mm
Head lights	1015	140 x 125	1055
Side Lights	1890	190 x 65	270
Rear lights	1820	190 x 65	240
Reflectors	1520 680	100 x 55 75 dia	180 660

*) with tyre equipment 18,4 - 26 AS and 20,8 R 38 AS
**) with overall width of 2420 mm

Number of grease points: 21 (whole tractor)

Driver seat: Tested on tractor STEYR 397.35 according to national regulation

BOSTROM
Model: Viking 301 E low back (Prot. Nr. 005/75)
X-lever suspression with torsion springs, adjustable to drivers weight.
Hydraulically damping
Horizontal adjustment range: 190 mm
Vertical adjustment range: 80 mm

ISRINGHAUSEN
Model: Derby GI 5000 (Prot. Nr. 096/76)
X-lever construction with 2 tension coil springs, adjustable to drivers weight
Hydraulically damping
Horizontal adjustment range: 155 mm
Vertical adjustment range: 3 steps adjustable, independent in the front and rear

GRAMMER
Model: DS 85 H/90 AR (Prot. Nr. 059/80)
X-lever construction with 2 tension coil springs (force transmission by curve-disc and ball bearing)
Hydraulically damping
Horizontal adjustment range: 155 mm
Vertical adjustment range: 3 steps adjustable, inclineable left and right 8°

Safety cab:

Own make

"STEYR-Komfortkabine" model 120.11

Rubber mounted sheet construction with roof, windscreen, front cladding and 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)
Austrian test report Nr. 024/75
OECD-test report Nr. CS 1043

CONDITIONS DURING TEST

Tractormass:

Tractor without driver but with tanks full and safety cab

	Front	Rear	Total
Without ballast	2757 kg	3267 kg	6024 kg
With ballast	3900 kg	4984 kg	8884 kg

Ballastmass:

Optional, heavy ballast, on tested tractor

	Number of weights	Total mass (excluding water)	Water
Front	18	850 kg	-
Rear	20 half-pieces + 2 cover plates	950 kg	1060 kg
Additional	-	-	-

Normal version, not tested

	Number of weights	Total mass (excluding water)	Water
Front	18 + 1	385 kg	-
Rear	4 full-pieces + 2 cover plates	500 kg	1060 kg
Additional	-	-	-

Track setting and tyre equipment:

1900 mm at front
1900 mm at rear
Front wheels: 18,4 - 26 AS, PR 8; rim: DW 16 x 26 - B
Rear wheels: 20,8 R 38 AS PR 8; rim: W 18 x 38

Overall dimensions:

	Length	Width	Height*)
	m	m	m
With ballast	4,980	2,340	2,750
Without ballast	4,980	2,340	2,750

*) measured on top of safety cab

Minimum ground clearance: 480 mm under front axle

Fuel and lubricants used in test:

Fuel: ELAN-Diesel fuel (according to DIN 51601)
specific gravity used for volumetric measurement:
0,848 kg/l at 15°C
Viscosity at 20°C: 5 mm^2/s (5 cSt)
Cetan no.: 50

Engine oil: MOBIL OIL SPECIAL SAE 20 W-40, MIL-L-2104 C
Viscosity at 100°C: 15 mm^2/s (15 cSt)
Viscosity at 50°C: 64 mm^2/s (64 cSt)

Transmission oil and hydraulic oil: Tractor universal oil, MIL-L-2105, API-GL 4
ELAN Austromatic HGN
Viscosity at 40°C: 52 mm^2/s (52 cSt)

COMPULSORY TESTS

1. Main power take-off performance

Date and location of tests: 1981 07 29, Wieselburg, Austria
Type of dynamometer: SCHENK-eddy-current brake - W 780

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

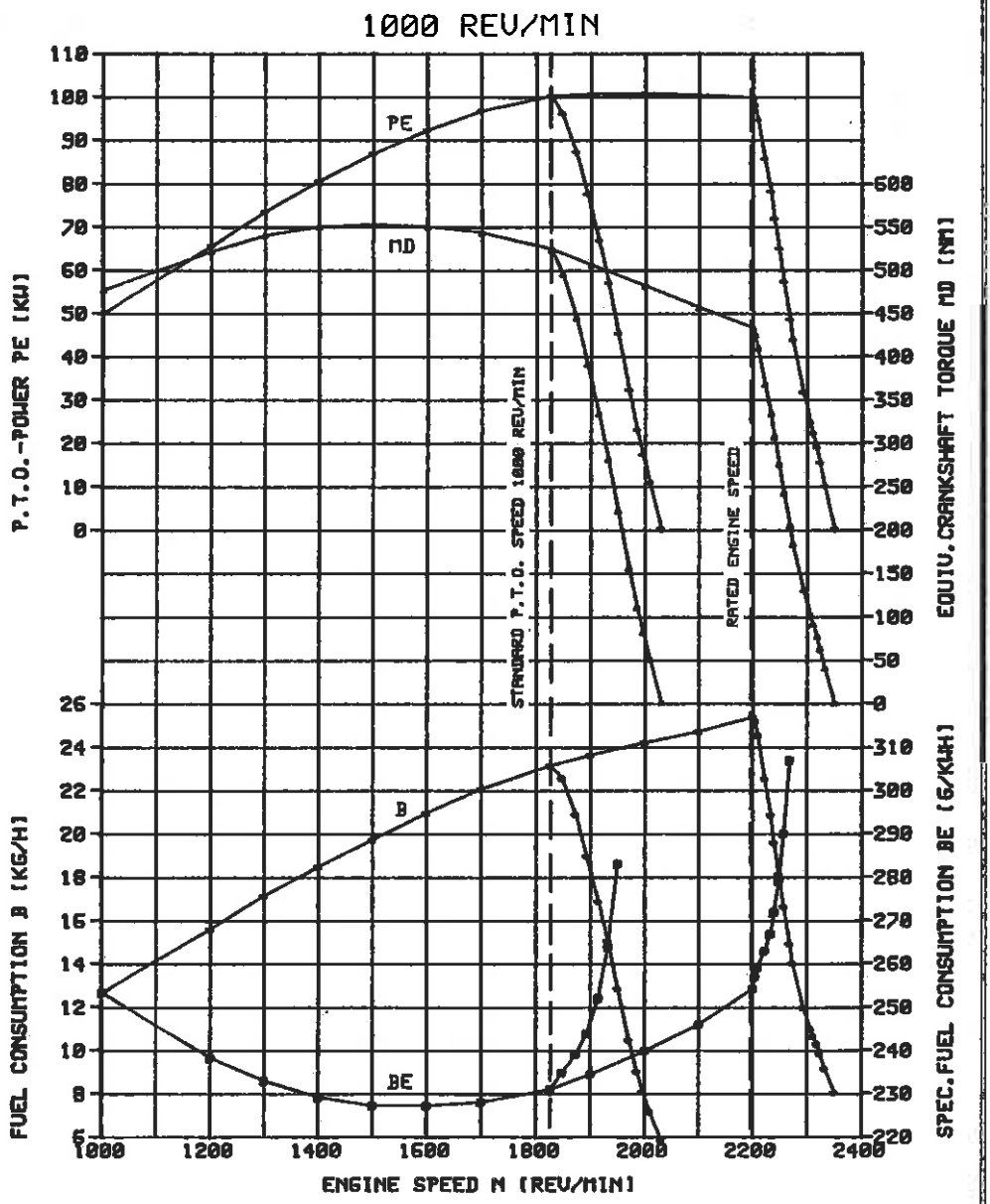
Power	Speed		Fuel consumption		
	engine	p.t.o.	total	specific	specific
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
100,96	2000	1095	24,23 28,58	240	3,533
Standard p.t.o. speed					
100,30	1826	1000	23,17 27,32	231	3,670
The speed recommended by the manufacturer for drawbar work					
99,90	2200	1205	25,39 29,94	254	3,337
PART LOADS Governor hand lever in position giving maximum power					
(i) 85 % of torque at maximum power at rated speed					
85,80	2222	1217	22,57 26,61	263	3,224
(ii) unloaded					
-	2350	1287	8,07 9,52	-	-
(iii) 50 % of the load defined in (i)					
43,89	2273	1245	14,04 16,56	320	2,650
(iv) maximum power at rated engine speed					
99,90	2200	1205	25,39 29,94	254	3,337
(v) 25 % of the load defined in (i)					
22,26	2310	1265	10,69 12,60	480	1,767
(vi) 75 % of the load defined in (i)					
65,06	2248	1231	18,15 21,41	279	3,039

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						
87,47	1873	1026	20,91	24,65	239	3,548
(ii) unloaded						
-	2030	1112	5,90	6,95	-	-
(iii) 50 % of the load defined in (i)						
45,50	1950	1068	12,88	15,19	283	2,996
(iv) maximum power at standard p.t.o. speed						
100,30	1826	1000	23,17	27,32	231	3,670
(v) 25 % of the load defined in (i)						
23,15	1985	1087	9,05	10,67	391	2,169
(vi) 75 % of the load defined in (i)						
67,08	1915	1049	16,91	19,94	252	3,364
STANDARD SPECIFIC FUEL CONSUMPTION: 263/320-239/283 g/kWh						

No load maximum engine speed: 2350 rev/min
Equivalent crankshaft torque
at maximum power at rated engine speed: 433,6 Nm
Maximum equivalent crankshaft torque: 553 Nm at 1500 rev/min of engine

Mean atmospheric conditions:	temperature:	19°C
	pressure:	988mbar
	humidity:	71 %
Maximum temperatures:	coolant:	85°C
	engine oil:	102°C
	fuel:	58°C
	air intake:	25°C

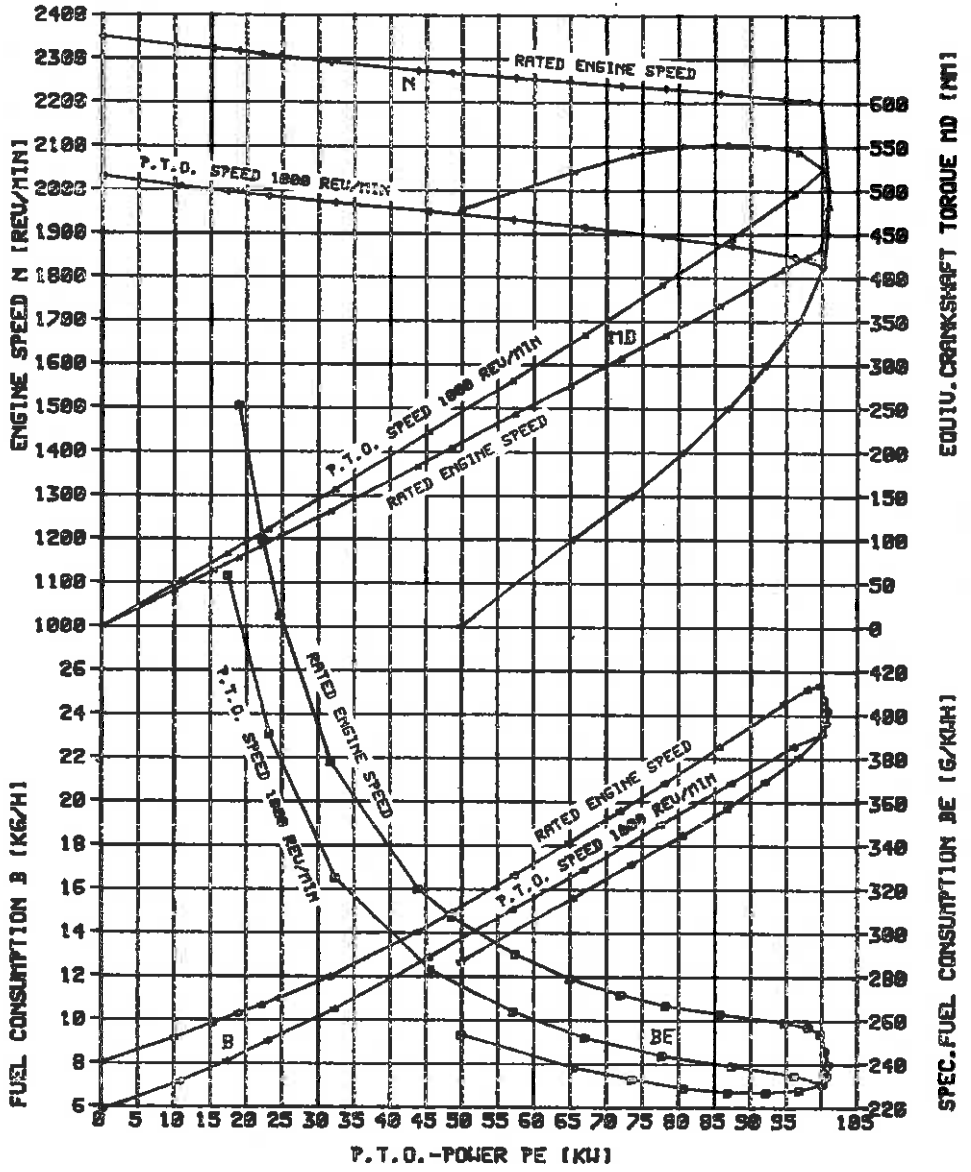
BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.:018/82	P.T.O.-TEST	STEYR TYP 8170 MOT.TYP WD 612.89



ENGINE SER.NR.: 612.89-1000	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 50C	SIGNATURE
TRAKTOR SER.NR.: 357.35-3887	AIR TEMPER. : 19 C	D.OF TESTS: 1981-07-29	
FUEL : 0.840/15 C	COOLANT TEMP.: 85 C	TEST NO. : 135/2A 131	
ENGINE OIL :	OIL TEMP. : 102 C	CURVES NO.: :	REITHER

NR.:018082-1C581.TRK0407.DAT:18028-22

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE KIESELBURG/ERLAUF, AUSTRIA PROT.NR.:818/82	P.T.O.-TEST	STEYR TYP 8170 MOT.TYP WD 612.89



ENGINE SER.NR.: 612.89-1000	ATM. PRESSURE : 988 MBAR	FUEL TEMP.: 38C	SIGNATURE
TRAKTOR SER.NR.: 357,35-3807	AIR TEMPER. : 19 C	D.OF TESTS: 1981-07-28	
FUEL : 0.848/15 C	COOLANT TEMP.: 88 C	TEST NO. : 138/28 131	
ENGINE OIL :	OIL TEMP. : 102 C	CURVES NO.: 2	REITNER

DOK.:C1888#6-D.BES:1#0847.DAT:18828-22

2. Drawbar performance

Date of tests: 1981 09 16
Type of track: Concrete
Height of drawbar above ground: 440 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	N	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	mbar
(i) Maximum power (ballasted) tyre inflation pressure in the front 1,2 bar, in the rear 1,3 bar													
L 1	2,635	56,65	77405	2246	15	2,504	339	45	80	100	17	78	981
L 2	3,648	78,54	77503	2213	15	2,662	318,5	45	80	100	17	78	981
M 1	4,528	85,30	67819	2200	10,4	2,809	302	46	81	99	18	76	981
L 3	5,400	88,32	58880	2200	8,1	2,909	291,5	46	81	100	18	76	981
M 2	6,662	90,34	48819	2200	6,1	2,975	285	46	82	101	19	76	981
L 4	7,770	90,65	41892	2200	4,8	2,986	284	47	82	102	20	75	981
M 3	9,425	90,31	34494	2200	3,6	2,974	285	48	81	102	20	75	981
S 1	11,420	89,28	28144	2200	2,8	2,940	288,5	48	82	103	20	75	981
M 4	13,294	88,00	23831	2200	2,4	2,898	292,5	49	82	103	20	76	981
S 2	16,191	85,62	19036	2200	1,9	2,820	300,5	49	82	103	20	76	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													
L 4	8,046	70,20	31408	2235	3,2	2,897	293	48	82	103	20	72	986
(iii) Five-hour-test at pull corresponding to 15 % wheelslip in test (i)													
L 2	3,652	78,63	77500	2216	15	2,647	320,5	51	84	106	24	58	984
(iv) Maximum power (unballasted) tyre inflation pressure in the front 1,1 bar, in the rear 1,1 bar													
M 1	4,426	70,09	57008	2229	15	-	-	44	82	99	22	83	981
L 3	5,108	80,89	57006	2213	15	2,800	303	42	81	98	21	84	981
M 2	6,489	87,58	48590	2200	10,1	2,884	294	40	81	97	21	85	981
L 4	7,673	88,80	41663	2200	7,8	2,925	290	39	81	99	20	84	981
M 3	9,347	89,44	34446	2200	6	2,946	288	38	80	100	18	84	981
S 1	11,398	89,34	28217	2200	4,6	2,942	288	38	81	101	19	84	981
M 4	13,337	88,69	23940	2200	3,7	2,921	290,5	38	80	100	20	83	981
S 2	16,326	87,09	19205	2200	2,7	2,868	295,5	40	81	100	23	80	981

Total oil consumption during 10 hours duration of tests (ii) and (iii): 149 g/h

3. Turning space and turning circle

Wheel equipment front: 18,4 - 26 AS, PR 8
rear: 20,8 R 38 AS, PR 8

Track of wheels front: 1900 mm
rear: 1900 mm

Results *)	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning space	4,95/5,91	5,01/5,89	6,86/6,76	7,09/6,86
Radius of turning circle	4,71/5,67	4,77/5,65	6,62/6,52	6,85/6,62

*) four wheel drive switched: ON/OFF

4. Location of centre of gravity

	mm
Height above ground	1113
Distance forward from the vertical plane containing the axis of the rear wheels	1234
Distance from the median plane, right side	11

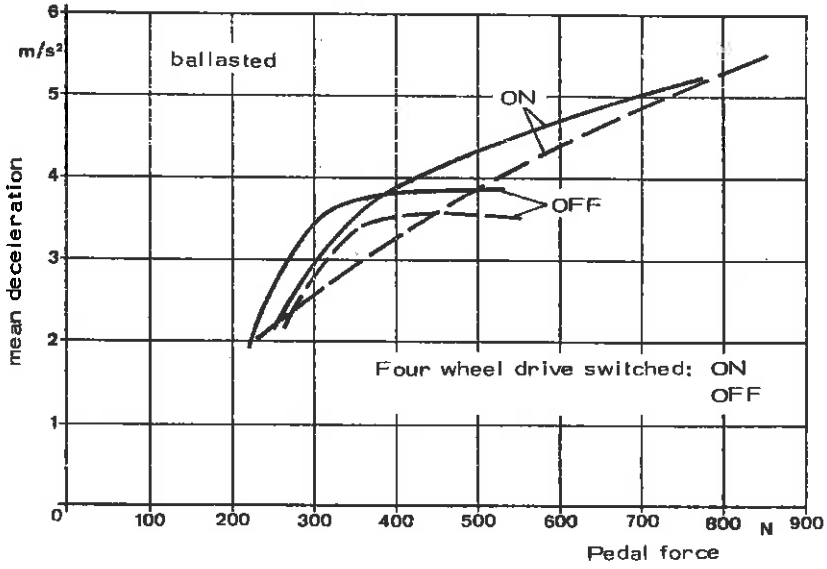
5. Braking

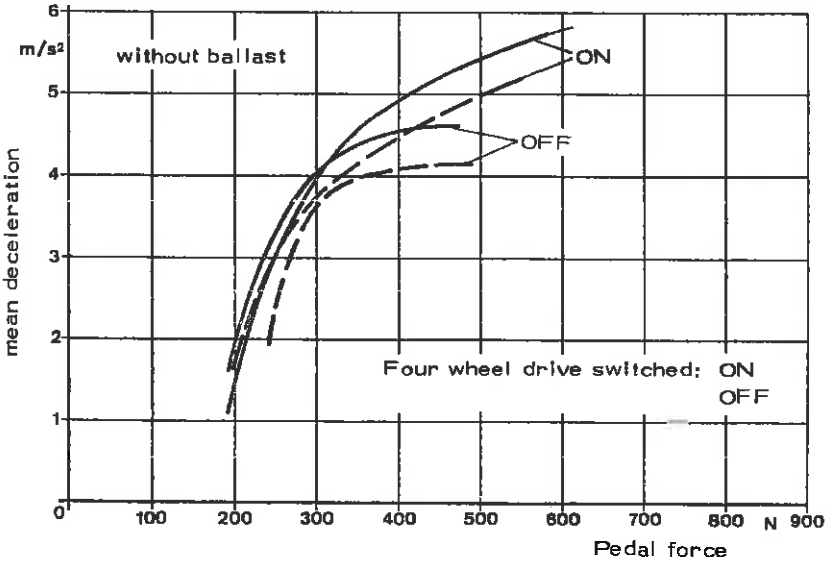
Date of tests: 1981 09 24
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)
Tractor masses during brake tests (with driver):

	Front kg	Rear kg	Total kg
Ballasted	3930	5029	8959
Unballasted	2787	3312	6099

A) Service brake

Four wheel drive switched on and off.
Type-0-test (cold brakes) ———, Type-I (fade) test — — —





Speed before application of brakes: 33,3 km/h
The tractor brakes were heated by towing of the tractor for 1 km.

B) Parking brake

		Ballasted tractor on 18 %-slope		Unballasted tractor on 12 %-slope with trailer of 3000 kg	
		up	down	up	down
Braking device control force	from hold to roll	30 N	30 N	30 N	40 N
	from roll to hold	200 N	200 N	160 N	160 N

6. Measurement of ambient noise level

Date of tests: 1981 03 23
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete

Results of tests:
Gear: S 4
Travelling speed before acceleration: 25 km/h
Sound level: 87 dB(A)

7. Noise measurement at the driver's ear

Date of tests: 1981 09 23
Type of sound level meter: 2203 BRÜEL & KJAER
Type of track: Concrete
Safety cab with all openings closed

Results of tests:

Gear	Drawbar pull at which the tractor develops the max. sound level	Measured travelling speed	Sound level
-	N	km/h	dB(A)
L 1	26 490	3, 14	83
L 2	27 020	4, 38	83
L 3	36 320	5, 81	83, 5
L 4	35 580	7, 97	83, 5
M 1	33 069	5, 06	83
M 2 *)	41 080	6, 29	84
M 3	25 710	9, 76	83
M 4	23 136	13, 3	83, 5
S 1	27 320	11, 4	83, 5
S 2	18 620	16, 2	83
S 3	12 510	22, 4	83, 5
S 4	2 410	33, 2	84

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

8. Power lift and hydraulic pump performance

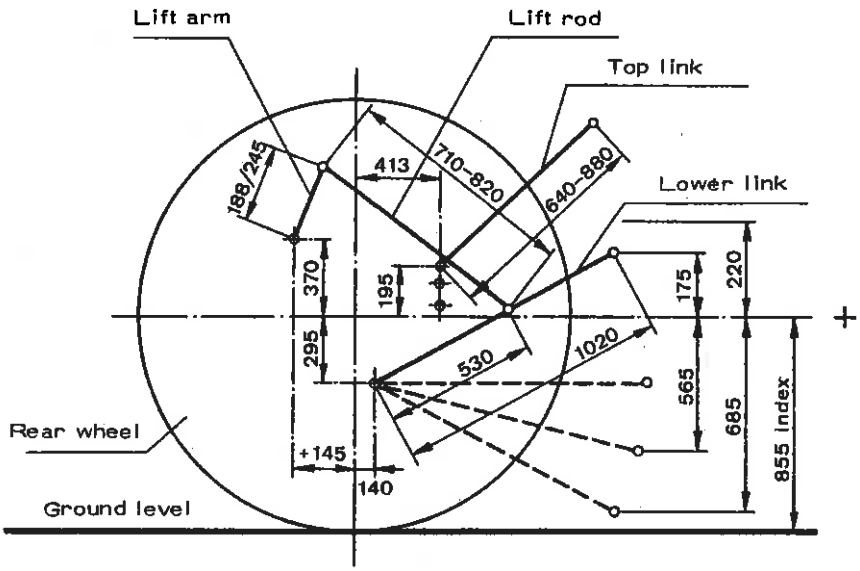
Date and location of tests: 1981 09 18, Wieselburg, Austria
Hydraulic fluid:
Make and type: SHELL Tellus 33, SAE 20 W
Viscosity at 50°C: 40 mm^2/s (40 cSt)
Type of linkage lock for transport: hydraulically by throttle valve
Sustained pressure of the cylinder over pressure relief valve (manufacturer specification): 24, 5 MPa (245 bar)

Pump characteristics:

(i) Sustained pressure of the relief valve: 18,6 MPa (186 bar)
Opening pressure of the relief valve: 17,15 MPa (171,5 bar)

(ii) Pump delivery rate at minimum pressure and rated engine speed: 42 l/min

(iii) Pump delivery rate: 41 l/min
Pressure of hydraulic power calculation (90 % of relief valve setting): 16,74 MPa (167,4 bar)
Hydraulic power: 11,44 kW



Linkage geometry when connected to the standard frame

Projected length in side view			Maximum mechanical advantage	Minimum mechanical advantage
Lower links		mm	1020	1020
Lift arms		mm	188	245
Lift rods		mm	765	765
Top link		mm	735 (460 mm mast height) 745 (560 mm mast height)	735 (460 mm mast height) 745 (560 mm mast height)
Distance of lift rod connection point from pivot point of lower link		mm	530	530
This dimensions are given relative to the rear wheel centre line, 855 mm above the ground level	Lower link pivot point	mm	140 behind 295 below	140 behind 296 below
	Top link pivot point	mm	413 behind 195 above	413 behind 195 above
	Lift arm pivot point	mm	145 behind 370 above	145 behind 370 above
	Maximum and minimum height of lower link hitch points	mm	175 above 565 below	220 above 685 below
	Height of lower link hitch points locked in transport position	mm	from 175 above to 565 below	from 220 above to 685 below

	Moment about rear axle *) kNm		Max. tilt angle of mast over range of lift degrees	
	max. mech. advantage	min. mech. advantage	max. mech. advantage	min. mech. advantage
At hitch points	40,75	33,86 (71,6 **)		
On the frame	63,72	52,52 (107,1 **)	3° (from -3° to 0° and to -2°)	4° (from -4° to 0° and to -4°)

*) calculated with the hydraulic power of 90 % of sustained oil pressure (16,74 MPa (167,4 bar)).

**) with additional working cylinders

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivoting point mm		-250	-225	-175	-125	-75	0	+75	+150	+225	+300	+390	+420	+435	+490
Lifting force at the hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	max. mech. advantage				31,60	33,02	35,13	36,95	38,10	38,67	38,86	38,29			
	min. mech. advantage	25,10 55,33*	25,36 55,61*	26,61 57,43*	27,28 58,77*	28,14 60,11*	29,19 61,74*	29,77 62,79*	30,15 62,51*	30,44 62,22*	30,58 62,41*	30,92 62,80*	31,20 62,80*		
	Maximum force exerted through whole range: 31,60/25,10 (55,33*) kN														
	Calculated oil pressure: 16,74 MPa (167,4 bar)														
Lifting force at the standard frame 460 mm mast height, 610 mm behind lower links hitch-point kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	max. mech. advantage				33,89	34,94	36,00	36,18	35,22	34,07	33,22	32,83	32,74		
	min. mech. advantage		29,39 62,03*	30,15 62,70*	30,15 62,89*	30,06 62,00*	29,67 60,50*	28,81 58,87*	27,85 57,05*	27,00 55,14*	26,32 53,13*	25,46 50,45*	24,98 49,77*	24,90 49,40*	
	Maximum force exerted through whole range: 32,74/24,90 (49,40*) kN														
	Calculated oil pressure: 16,74 MPa (167,4 bar)														
Lifting force at [3] the frame with 560 mm mast height and 610 mm behind lower links hitch-point kN	min. mech. advantage	48,34*	49,60*	51,20*	51,69*	51,78*	51,50*	50,73*	49,77*	48,34*	47,28*	45,46*	44,61*	44,32*	43,55*
	Maximum force exerted through whole range: 43,55 kN														
	Calculated oil pressure: 16,74 MPa (167,4 bar)														

*) when fitted with additional working cylinders

OPTIONAL TEST

Aus OECD Nr 836

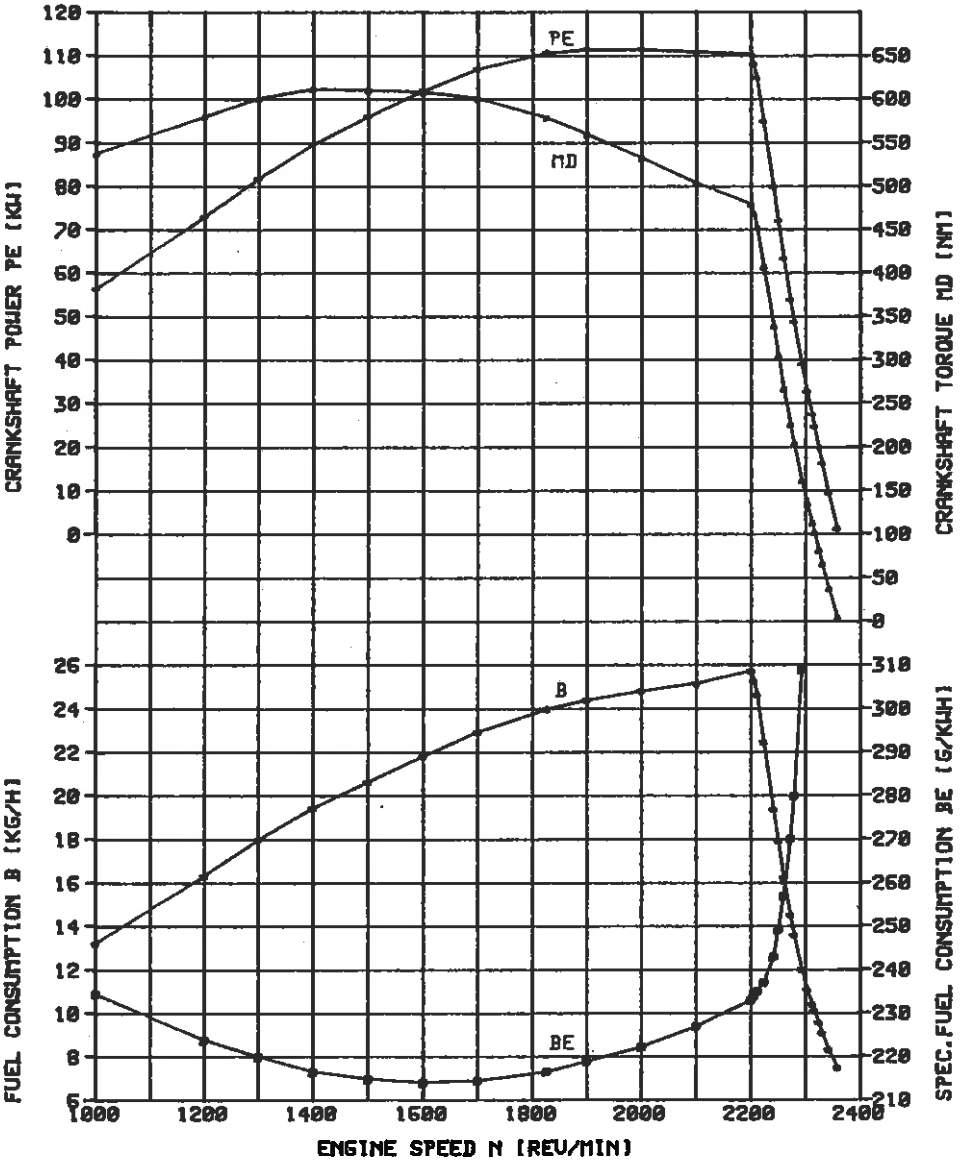
9. Engine performance

Date and location of test: 1981 07 16, 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				
111,60	2000	24,81 29,26	222,5	3,814
Standard p.t.o. speed (1000 rev/min)				
110,75	1826	23,98 28,28	216,5	3,916
The speed recommended by the manufacturer for drawbar work				
110,44	2200	25,74 30,35	233	3,639
Part loads				
(i) 85 % of torque at maximum power				
94,92	2223	22,50 26,53	237	3,577
(ii) unloaded				
-	2358	7,50 8,84	-	-
(iii) 50 % of the load defined in (i)				
48,65	2279	13,62 16,06	280	3,029
(iv) maximum power at rated speed				
110,44	2200	25,74 30,35	233	3,639
(v) 25 % of the load defined in (i)				
24,71	2316	10,14 11,96	410,5	2,066
(vi) 75 % of the load defined in (i)				
72,00	2250	17,93 21,14	249	3,405

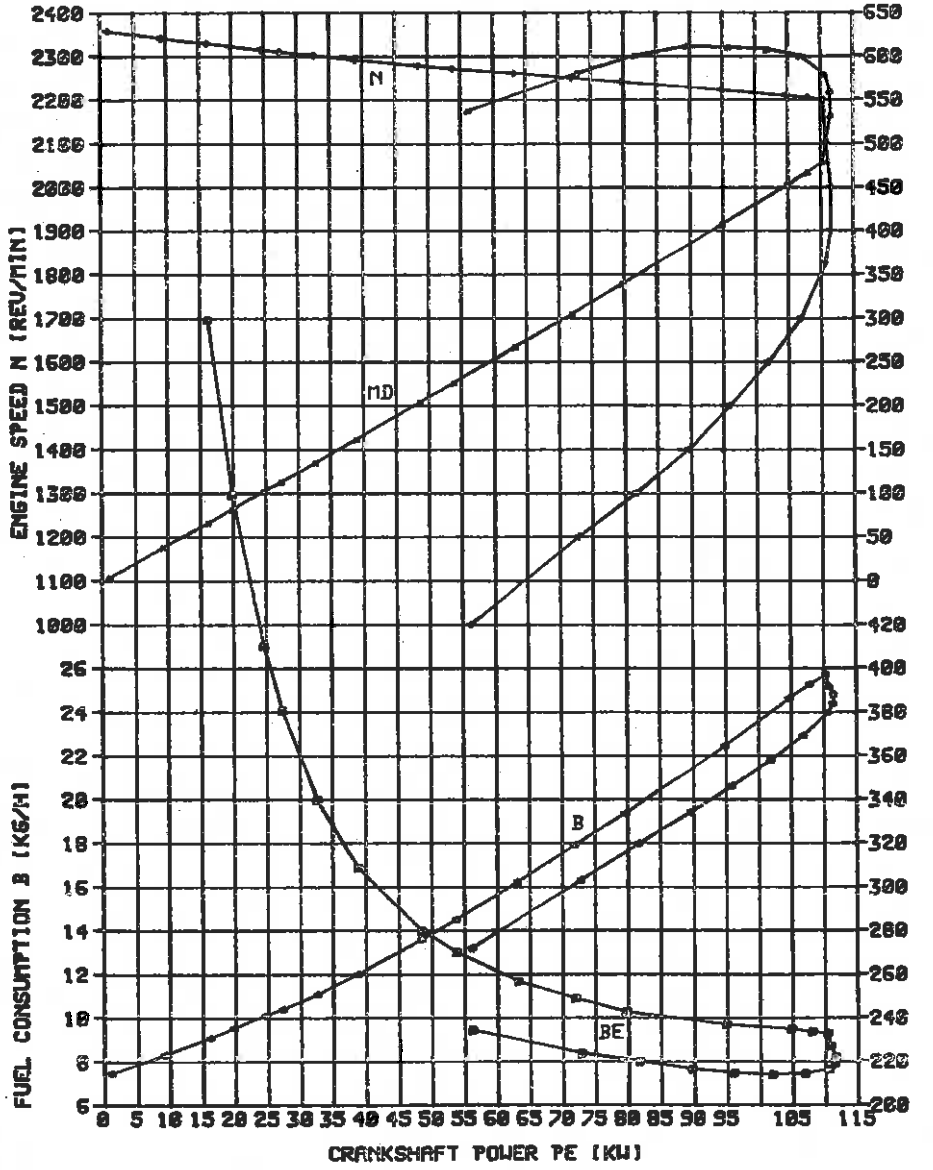
Optimum fuel consumption: 214 g/kWh at 96 to 101,9 kW and 1600 rev/min
No load maximum engine speed: 2358 rev/min
Torque at maximum power at rated engine speed: 479,4 Nm
Maximum torque: 612 Nm at 1400 rev/min of engine
Mean atmospheric conditions: temperature: 23°C
pressure: 988 mbar
relative humidity: 78 %
Maximum temperatures: coolant: 82°C
engine oil: 97°C
fuel: 46°C
engine air intake: 26°C

BUNDESVERSUCHS-U.PRUEFUNGSANST. FUER LANDW.MASCHINEN U.GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.:018/82	ENGINE-TEST	STEYR TYP 8170 MOT.TYP WD 612.89



ENGINE SER.NR.: 612.89-1000	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 40 C	SIGNATURE
TRAKTOR SER.NR.: 397.35-3987	AIR TEMPER. : 23 C	D.OF TESTS: 1981-07-16	
FUEL : 0.849/15 C	COOLANT TEMP.: 82 C	TEST NO. : 135/M 176	
ENGINE OIL :	OIL TEMP. : 99 C	CURVES NO.: 3	REITHER

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE LIEBEFELD/REICHAU, AUSTRIA PROT.NR.: 018/82	ENGINE-TEST	STEYR TYP 8170 MOT.TYP WD 612.89

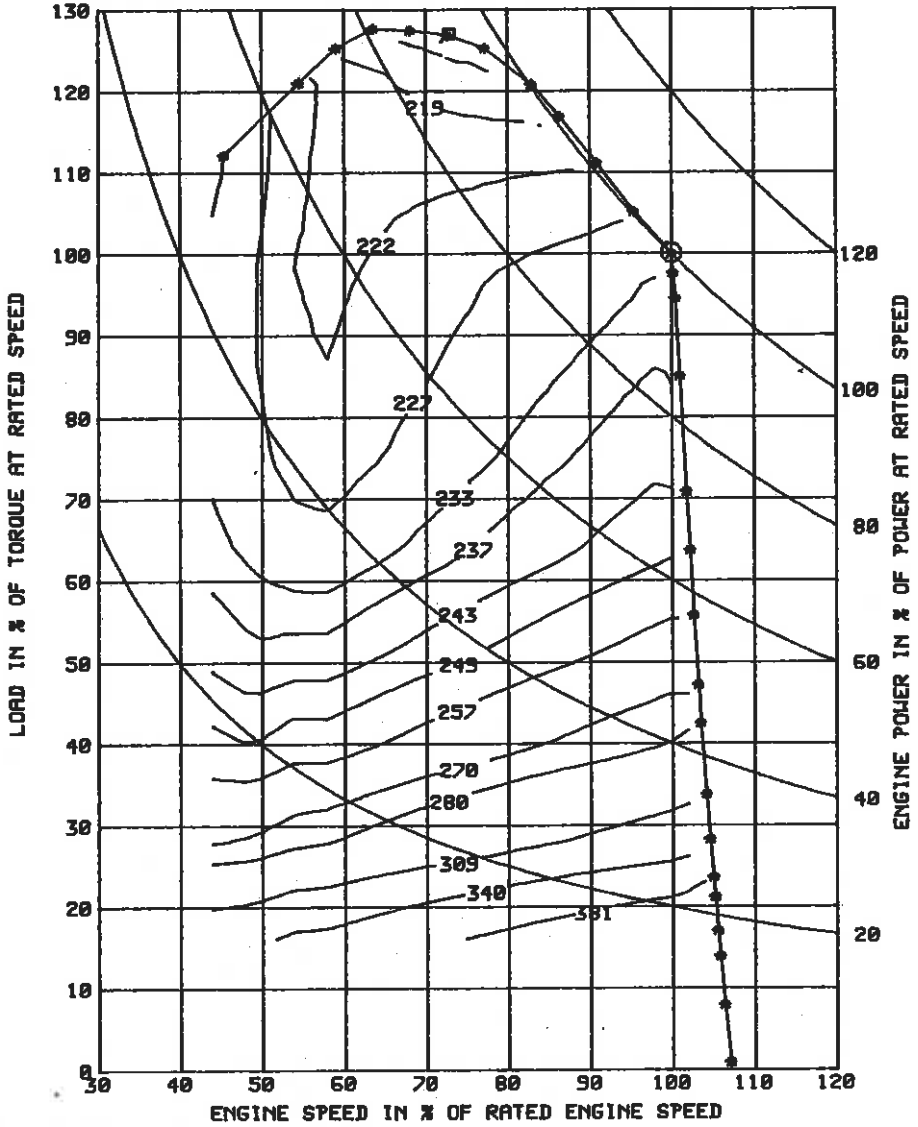


ENGINE SER.NR.: 612.89-1000	ATM.PRESSURE : 988 MMHG	FUEL TEMP.: 40 C	SIGNATURE
TRAKTOR SER.NR.: 397.89-3007	AIR TEMPER. : 22 C	B.OF TESTS: 1981-07-16	
FUEL : B.048/18 C	COOLANT TEMP.: 82 C	TEST NO. : 135/M 176	
ENGINE OIL :	OIL TEMP. : 95 C	CURVES NO.: 4	BRITNER

BUNDESVERSUCHS-U. PRUEFUNGSANST. FUER LANDW. MASCHINEN U. GERAETE WIESELBURG/ERLAUF, AUSTRIA PROT.NR.: 018/82	ENGINE PERFORMANCE CHARACTERISTICS	STEYR TYP 8170 MOT.TYP WD 612.89

D ....MIN.FUEL CONS. 214.00 G/KWH AT N = 1606. REV/MIN, MD = 608.81 NM, P = 102.4 KW

⊛....N = 2200. REV/MIN, MD = 479. NM, P = 110.4 KW



ENGINE SER.NR.: 612.89-1000	ATM.PRESSURE : 988 MBAR	FUEL TEMP.: 40 C	SIGNATURE
TRAKTOR SER.NR.: 337.35-3887	AIR TEMPER. : 23 C	D.OF TESTS: 1981-07-16	
FUEL : 0.840/15 C	COOLANT TEMP.: 82 C	TEST NO. : 135/M 176	
ENGINE OIL :	OIL TEMP. : 95 C	CURVES NO.: 5	REITHER

EIKO-ELEKTRONIK GMBH, A-8605 KAPFENBERG