

O.E.C.D. Report No.: 1067

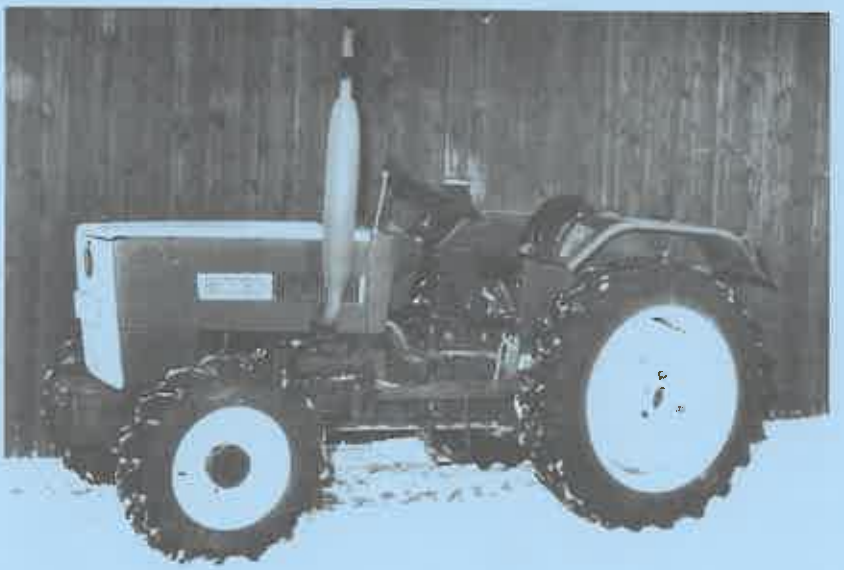
Bundesanstalt für Landtechnik

A-3250 Wieselburg, Austria

Dieseltractor STEYR 317.05

Trade name:

STEYR 8033a



Date of approval: 12.6.1987

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

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Tractor manufacturer's name and address:	STEYR-DAIMLER-PUCH AG., Steyr, Austria DONATIM, Adapazari, Turkey
Location of tractor assembly:	Steyr, Austria
Submittet for test by:	Manufacturer
Selected for test by:	Manufacturer by agreement with BLT-Wieselburg
Place of running-in:	Steyr, Austria
Duration of running-in:	150 hours
Location of test:	Wieselburg, Austria

SPECIFICATIONS OF TRACTOR

TRACTOR:

Make:	STEYR-DAIMLER-PUCH AG. and DONATIM Adapazari
Trade name:	STEYR 8033 a
Model:	Diesel-tractor STEYR 317.05
Type:	Wheel tractor, four-wheel driven, unit construction
Serial no.:	317.05 - 003 (first serial number)

ENGINE:

Make:	STEYR-DAIMLER-PUCH AG. and DONATIM Adapazari
Model:	WD 208.40
Type:	4 stroke diesel engine with direct injection
Serial no.:	208.40 - 003

Cylinders:

Number/disposition:	2, vertical in line
Bore/stroke:	100/100 mm
Capacity:	1571 cm^3
Compression ratio:	16,1/1
Arrangement of valves:	Overhead valves
Cylinder liners:	Wet liners

Fuel system:

Fuel feed system:	Fuel feed by gravity
Fuel precleaner:	MANN P 715 or FILTRE SANAYI, model 307.08.65
Make, model and type of fuel filter:	PUROLATOR PFC-233 or FILTRE SANAYI, model 407.08-73 Dual filter with water trap and changeable elements, filter cartridge (PER 247-F)

Service interval:	500 hours changing interval of filter
Capacity of fuel tank:	40 l
Make, model, type and serial number of injection pump:	BOSCH distributor injection pump VE 2/11 F 1200 RV 9716/445076
Manufacturer's production setting of injection pump, flow rate and timing:	44^{+0}_{-2} mm³/stroke at 1200 rev/min and full load 12^{+00}_{-2} before TDC at 1 mm pump stroke
Make, model and type of injectors:	FRIEDMANN & MAIER or BOSCH Multi hole injection nozzles FRIEDMANN & MAIER D 1 LMK 150/21 BOSCH DLLA 150 S 396
Injection pressure:	$21{,}6^{+0{,}5}_{-0}$ MPa (216^{+5}_{-0} bar)

Governor:

Make:	BOSCH
Type:	Variable speed governor, hydraulically acting, incorporated in injection pump
Governed range of engine speed:	From 600 to 2610 rev/min engine speed

Rated engine speed: 2400 rev/min

Air cleaner:

Pre-cleaner:	
Make:	IFE MANN Filterbau GmbH., model 348 039 70 100 or FILTRE SANAYI, model 307.19.06
Type:	Cyclonic type
Location of air intake:	In front of water-cooler; inside the bonnet
Main-cleaner:	
Make:	IFE MANN Filterbau GmbH., model 331 039 75 171 or FILTRE SANAYI, model 407.19.24
Type:	Oil bath air cleaner
Location:	Beside the water-pump; inside the bonnet right of the engine
Service intervals:	
Cyclonic pre-cleaner:	Cleaning interval: 500 hours
Main-cleaner:	Oil changing interval: 500 hours or 1 year Oil capacity: 1 l Recommended oil: SAE 20 or SAE 30

Lubrication system:

Type of feed pump:	Gear pump forced lubrication
Total oil capacity including filter:	appr. 5,8 l
Oil change period:	250 hours
Type of filter:	One paper filter cartridge in full flow MANN W 940 or PUROLATOR PC 31 or KNECHT FO 371/12 or FILTRE SANAYI 409.07.36
Filter change period:	250 hours
Recommended oil:	See paragraph: Fuel and lubricants used in tests

Cooling system:

Type of coolant:	Water with longtime frost protection down to -20°C in a cooling system with a tubular radiator
Make:	Own make
Type:	Centrifugal pump with double circuit water cooling, 1 driving belt
Specification of fan:	2 blade fan (dia 420 mm; 1 belt driven)
Coolant capacity:	appr. 9,4 l
Type of temperature control:	Thermostat control with electrical cooling water thermometer
Superpressure system:	max. 50 kPa (0,5 bar)

Starting system:

Make:	Own make
Model and starter motor power rating:	BOSCH, 12 V, 2,4 kW, 0 001 362 035 or MAKO, 12 V, 2,4 kW, no. 207.09.02
Type:	Solenoid engaged starter motor, resp. screw push engaged
Cold starting aid:	Electrically, 1 glow plug in intake pipe BERU, model 184 G (0 102 024 402 11 V) BOSCH, model A 250 00 1088 TZDK. Fab. Mües, model 210.09.08
Safety device:	Optional, not on tested tractor Electrically starting block system by engaged gear

Electrical system:

Voltage:	12 V, negative earth
Generator:	Make: BOSCH 0120 339 526 or MAKO 308.09.21 Type: three phase type G 1 - 14 V 28 A 22 Power: 14 V, 28 A = 392 W
Battery:	1 with 12 V, lead acid type Rating: 66 Ah at 20 hours rating

Exhaust system:

Make:	EBERSPÄCHER or TZDK.Fab.Müesesesi
Model:	EBERSPÄCHER 16.47.784.02.0.00 TZDK 50.54.28
Location:	150 mm on the left side of the engine; vertically, mouth upwards forwards, 2020 mm above ground without exhaust valve
Dimensions of silencer body:	740 mm length, max. diameter of silencer 110 mm, diameter of exhaust pipe 42 mm

TRANSMISSION TO WHEELS:

Clutch:

Main clutch and p.t.o. clutch:	For travel and p.t.o.
Make:	FICHTEL & SACHS AG.
Model:	F & S DUT 240/240
Type:	Dry double clutch with 2 plates included in the same clutch pressure plate but independent operated, the one acting for the power-take-off and the other for the gear box
Number of plates:	2
Diameter of plates:	240 mm
Method of operation:	Main clutch operated by pedal, p.t.o. clutch operated by hand lever
Front wheel drive clutch:	Wet multi-plate clutch, 135 mm dia, mechanically acting, hand lever operated

Gearbox:

Make:	Own make
Type:	Mechanically acting gear box
Model:	317
Number of speeds:	4 forward and 4 reverse speeds Optional (on tested tractor): 8 forward and 4 reverse speeds with preselector group
Arrangement:	1 lever for group gear (VS, VN, R) 1 lever for the 4 speed gear (1 - 4)

Rear axle and final drives:

Make:	Own make
Model:	317
Type:	Central axle; pinion and bevel gear, lockable bevel gear differential, acting by planetary gears on rear wheels

Differential lock:	Type: mechanically acting from half axle to differential housing Method of engagement: foot - lever operated, not lockable Method of disengagement: selfdisengaging

Front axle and final drives:

Make:	SIGE-MAILAND
Model:	SIGE 220 S
Type:	Steering and driving axle, central type, integrated steering cylinder Driving shaft, pinion and bevel gear, bevel gear differential, half shafts, universal joints, planetary gears in wheel hubs Front wheel drive: mechanically engaged, hand lever operated
Differential lock:	Not available

Transmission oils:

Capacity:	
Gear box and rear axle:	appr. 20 l SAE 80 W, API GL-4 or STUO MIL-L-2104, SAE 15 W - 30, SAE 20 W - 30
Rear axle final drives:	appr. 2,6 l for each planetary gear SAE 80 W, API GL-4 or STUO
Front axle:	
Front axle differential:	appr. 5,2 l MIL-L-2105 B/C, SAE 90, 85 W 90, API GL-5
Front axle final drives:	appr. 2 x 0,6 l MIL-L-2105 B/C, SAE 90, 85 W 90, API GL-5
Oil changing period:	1000 hours or 2 years

Total ratios and speeds:

Group	Gear no.	Number of engine revolutions for one revolution of driving wheels	Nominal travelling speed at rated engine speed of 2400 rev/min *) km/h
forward fast VS	1	112,08	4,56
	2	58,35	8,76
	3	39,25	13,02
	4	23,78	21,50
reverse R	1	113,81	4,49
	2	59,24	8,63
	3	39,85	12,83
	4	24,14	21,18

Optional: on tested tractor

forward slow VL	1	154,63	3,31
	2	80,49	6,35
	3	54,15	9,44
	4	32,80	15,59

*) Calculated with tyre dynamic radius index of 565 mm and test tyre equipment: 11,2/10 - 28 AS

POWER TAKE-OFF:

Main power take-off:	Independent
Type:	Proportional to engine speed p.t.o. 540 rev/min
Method of engagement:	Hand lever and mechanically engaged, dry discplate
Number of shafts:	1

Power take-off proportional to engine speed:

540 rev/min:	
Location:	At rear of tractor
Diameter of power take-off shaft:	34,9 mm
Number of splines:	6, in conformity with ISO R 500, type I
Height above ground:	455 mm with tyre dynamic radius index of 565 mm

Distance from the median plane of the tractor:	0
Distance behind rear wheel axle:	295 mm
P.t.o. speed at rated engine speed:	720 rev/min
Engine speed at 540 rev/min standard power take-off speed:	1800 rev/min
Ratio of rotation speed (engine speed/ p.t.o. speed):	3,333
Power restriction and max.torque:	None
Direction of rotation (viewed facing driving end):	Clockwise
Belt pulley:	Optional, not on tested tractor
Location:	At rear of tractor, angle transmission on rear p.t.o.
Dimensions of belt pulley:	250 mm diameter, 160 mm width
Number of pulley revolutions for one revolution of p.t.o.:	2,33

POWER LIFT:

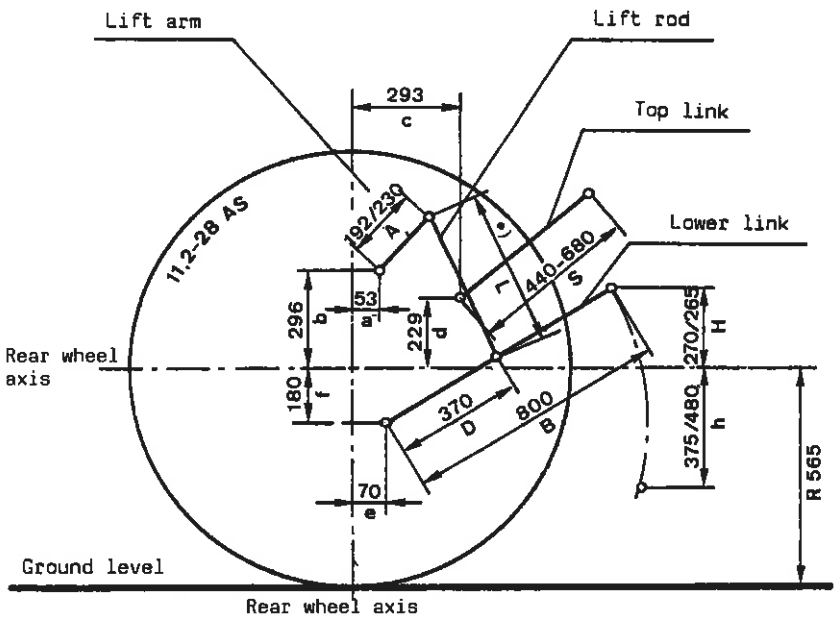
In the rear:	
Make:	STEYR
Type:	Open center type, draught control with two-stage pull adjustment and upper link sensing, position control, floating position
Type and number of cylinders:	Single acting hydraulic cylinder, stroke and diameter: 147/75 mm
Type of linkage lock for transport:	Hydraulically by throttle valve
Relief valve pressure setting:	17,5 MPa (175 bar)
Opening pressure of cylinder safety valve:	24,5 MPa (245 bar)
Lift pump type:	Gear type pump
Pump delivery rate at minimum pressure:	34,6 l/min at 2400 rev/min engine speed, 7,6 l/min tapped countinuously for steering

Transmission between pump and engine:	Pump directly driven by engine
Type and number of filter:	One filter in the suction part of the hydraulic housing
Time between oil changes:	1000 hours
Time between filter changes:	500 hours
Oil capacity:	Own oil supply 10 l (11 l with oil tappings)
Site of oil reservoir:	Hydraulic unit
Type and number of tapping points:	Optional, not on tested tractor Up to 6 tapping points (3 independent oil circuits for double acting cylinders)
Location of tapping points:	270 mm behind rear axle, 530 mm above rear axle, 110 mm right of median plane In accordance td ISO/DIS 5675
Maximum volume of oil available to external cylinders:	6 l in stationary mode
Recommended oil:	SHELL TELLUS S 68, SAE 20 W, ISO VG 68

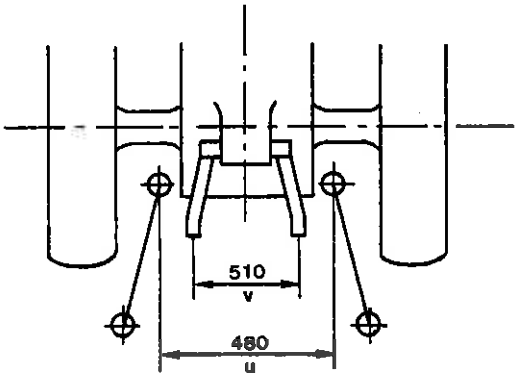
Three-point-linkage:

In the rear:	Category I, in conformity to ISO 730/1 "STEYR SIMPLEMATIK" standard linkage, both lift rods are adjustable by threads and additional ±33 mm by holes

Figures of power lift:



*) Left lift rod adjustable from 447 mm to 530 mm length by a thread, right lift rod adjustable from 415 mm to 530 mm length by gear and thread. All lengths additional adjustable +33 mm and +66 mm by holes. Length of the lift rods are measured in shortest position of the holes.



Linkage geometry (projected lengths):

Rear tyres (size 11,2 - 28 AS) dynamic radius index:		(r)	565 mm
Front tyres (size 7,50 - 16 AS) stat. radius:		(r')	376 mm
Length of lift arms:		(A)	192/230 mm
Length of lower links:		(B)	800 mm
Distance of lift arm pivot point from rear	horizontally	(a)	53 mm
wheel centre line:	vertically	(b)	296 mm
Horizontal distance between the 2 lower link points:		(u)	480 mm
Horizontal distance between the 2 lift arm end points:		(v)	510 mm
Length of upper link:		(S)	from 440 to 680 mm
Distance of upper link pivot point from rear	horizontally	(c)	293 mm
wheel centre line:	vertically	(d)	229 mm
Distance of lower link pivot point from rear	horizontally	(e)	70 mm
wheel centre:	vertically	(f)	180 mm
Distance of lower link pivot points to lift rod pivot points on lower links:		(D)	370 mm
Length of lift rods:	right:	(L)	from 415 to 530 mm
	left:		from 447 to 530 mm
Height of lower hitch points relative to the rear wheel centre line: *)			
- in low position; max.mech./min.mech.		(h)	375/480 mm
- in high position; max.mech./min.mech.		(H)	270/265 mm
Height of lower hitch points when locked in transport position:			Any height within lift range
Length of lift rods during test:			max.mech.advantage: 525 mm min.mech.advantage: 485 mm

*) These data are valid for unloaded power lift and
in the low position with lift rod length 525 mm
in the high position with lift rod length 485 mm

TRAILER HITCH:	Height with tyre 11,2 - 28 AS (565 mm dyn. radius index)
	Own make
Type:	Fork type
Hole diameter:	31 mm
Height above ground:	692/664/640/612/313/285 mm
Distance of hitch point from rear axle axis horizontally:	367 mm
Distance of hitch point from power take-off shaft end:	
vertically:	below 144, 172 mm; above 235/207/183/155 mm
horizontally:	rearwards 72 mm
Maximum vertical permissible load:	15 kN
TOWING HITCH:	
Type:	Fork type
Hole diameter:	31 mm
Height above ground:	525 mm
Distance from front axle:	frontwards from 320 mm to 490 mm (dependent from number of front ballast)
HOLED DRAWBAR:	Category I, fitted in the clevis of the lower links of the three-point linkage
Number of holes (with central hole):	5
Distance between holes:	130 mm
Hole diameter:	33 mm
Thickness/width of drawbar:	30/80 mm
Height above ground,	
min.:	85 mm (lift rod length 530 mm, min.mech.)
max.:	835 mm (lift rod length 447 mm, max.mech.)
Horizontal distance to p.t.o. shaft end (rear):	575 mm
STEERING:	
Make:	DANFOSS or ZF-SCHWÄBISCH GMÜND
Model:	DANFOSS OSPC 80 OR or ZF 8491
Type:	Hydrostatic steering with current divider valve

Method of operation:	Steering wheel acting on front wheels
Pump:	No separate pump, 7,6 l/min constant current from divider valve, common oil circuit with hydraulic
Ram:	Double acting, in block of front axle integrated
Working pressure:	10,0 MPa (100 bar)
Oil capacity:	Common with power lift
Number of revolutions of steering wheel for the whole steering lock:	4,33

BRAKES:

Service brake:

Make:	Own make
Type:	Simplex drum brakes 200 mm diameter, 50 mm width
Method of operation:	Pedal operated, mechanically transmission
Trailer braking take-off:	Optional, not on tested tractor In conformity with national regulations

Parking brake:

Type:	Mechanically acting on same drum brakes as service brake, 200 mm diameter, 50 mm width
Method of operation:	Hand lever with ratched, mechanically transmission, acting on common linkage with service brake

Steering assistance brake: Operated by divided pedal of service brake, pedals disconnectable by a flap

WHEELS:

Number:	front: 2, steering and driving function rear: 2, driving function

WHEELBASE: 1860 mm

PROTECTIVE STRUCTURE: Not on tested tractor

DRIVER'S SEAT:

Make and type:	TZDK Turkey Zirai Donatim Kurumu
Type of suspension:	Parallelogram construction with helical coil springs adjustable to driver's weight
Type of damping:	Hydraulically damping
Range of adjustment, longitudinal:	95 mm
vertical:	Combined with the longitudinal adjustment (14° inclination of the mounting plate)

MISCELLANEOUS:

Additional seat: 1

Location: On the left mudguard

Number of places: 1

LIGHTING: In accordance with Austrian legislation

	*) Height above ground of centre mm	Size mm	**) Distance from outside edge of tractor to centre mm
Head lights	675	130 x 65	665
Side lights	1250	35 x 85	170
Rear lights	1175	35 x 80	170
Brake lights			
Direction indicators front	1250	35 x 80	135
Direction indicators rear	1175	35 x 80	135
Reflectors	1110	60 x 35	155

*) Measured with dyn. radius at rear 565 mm and 370 mm at front
**) With overall width of 1640 mm (measured on the outside edge of the rear wheels)

TEST CONDITIONS

Overall dimensions:

	Length	Width *)	Height at top of exhaust silencer
	mm	mm	mm
With ballast	3250	1535	2020
Without ballast	3175	1535	2020

*) Measured on the outside edges of the rear wheels

Ground clearance:
(unballasted):

Clearance-limiting part: 267 mm under the front axle
250 mm under the four-wheel drive output

Tractor mass: With tanks full

		Without driver	With driver
		kg	kg
Unballasted	Front	749	764
	Rear	1090	1150
	Total	1839	1914
Ballasted	Front	933	948
	Rear	1250	1310
	Total	2183	2258

Ballast:

	Number of weights	Mass total kg	Water kg
Front	4	152	-
Rear	2 + 2	192	-
Additional	-	-	-

Tyres, axles load and track specifications:

Tyres:

	Front wheels	Rear wheels
Dimensions	7,50 - 16 AS rim: 6,00 F x 16	11,2 - 28 AS rim: W 10 x 28
Ply rating	6	6
Type	diagonal carcass	diagonal carcass
Max. load (tyre manufacturer's)	8,73 kN (890 kp)	10,94 kN (1115 kp) or 15,32 kN (1560 kp) with speed limit of 8 km/h
Max. load (tractor manufacturer's)	-	-
Inflation pressure (tyre manufacturer's)	2,25 bar	1,8 or 2,52 bar with overload
Dynamic radius index	370 mm	565 mm
Track width	1246 mm (1318 mm by reversed wheels)	1250 mm (1400 mm by reversed wheels)

Oil and lubrication:

Capacity and change interval:

	Capacity (dm^3)	Oil change (h)	Filter change (h)
Engine	5,8	250	250
Gear box	appr. 20	1000 or 2 years	-
Front axle	5,2 differential drive 2 x 0,6 final drives	1000 or 2 years	-
Rear axle	2 x 2,6 final drives	1000 or 2 years	-
Hydraulic system	10,0 power lift and steering common hydraulic circuit	500	1000
Number of lubrication points	10	to lubricate each 50	

Specifications:

	Recommended:	Used during test:
Engine oil:	One range viscosity oil	
Type:	API CC, MIL-L-2104 B	SHELL ROTELLA X 10 W
Viscosity:	SAE 30 summer SAE 20 W/20 winter	
Transmission oils:		
Type:	API GL-4, MIL-L-2105	SHELL SPIRAX EP 80
Viscosity:	SAE 80 W	
Hydraulic fluid:	Common oil circuit with steering	
Type:	ISO VG 68	SHELL TELLUS S 68
Transmission oil of front axle:		
Type:	API GL-5, MIL-L-2105 B/C	SHELL SPIRAX EP 90
Viscosity:	SAE 90 W	
Recommended grease:	Lithium soap basis NLGI2	
Number of lubrication points:	10	
Fuel:	Diesel fuel	
Type:	ELAN, according to DIN 51601	
Specific gravity at 15°C:	0,844 kg/l	

TEST RESULTS

COMPULSORY TEST:

Main power take-off performance

Date and location of tests: 11.11.1986
Type of dynamometer: SCHENCK eddy-current brake W 780

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

Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
20,45	2400	720	5,89 6,98	288,0	2,930
Power at rated engine speed					
20,45	2400	720	5,89 6,98	288,0	2,930
Standard power take-off speed					
17,55	1800	540	4,96 5,88	282,5	2,985
PART LOADS					
(i) the torque corresponding to maximum power at rated engine speed					
20,45	2400	720	5,89 6,98	288,0	2,930
(ii) 85 % of torque obtained in (i)					
17,98	2483	745	5,07 6,01	282,0	2,992
(iii) 75 % of torque defined in (ii)					
13,63	2510	753	4,09 4,85	300,0	2,810
(iv) 50 % of torque defined in (ii)					
9,23	2550	765	3,24 3,84	350,5	2,404
(v) 25 % of torque defined in (ii)					
4,67	2580	774	2,38 2,82	509,5	1,656
(vi) unloaded					
0	2603	781	1,73 2,05	-	-

Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS AT STANDARD POWER TAKE-OFF SPEED					
(i) The torque corresponding to maximum power available					
17,55	1800	540	4,96 5,88	282,5	2,985
(ii) 85 % of torque obtained at maximum power					
15,58	1880	564	4,04 4,79	256,0	3,253
(iii) 75 % of torque defined in (ii)					
12,09	1946	584	3,25 3,85	269,0	3,140
(iv) 50 % of torque defined in (ii)					
8,32	2010	603	2,56 3,03	308,0	2,746
(v) 25 % of torque defined in (ii)					
4,27	2063	619	1,84 2,18	430,5	1,959
(vi) unloaded					
0	2110	633	1,17 1,39	-	-

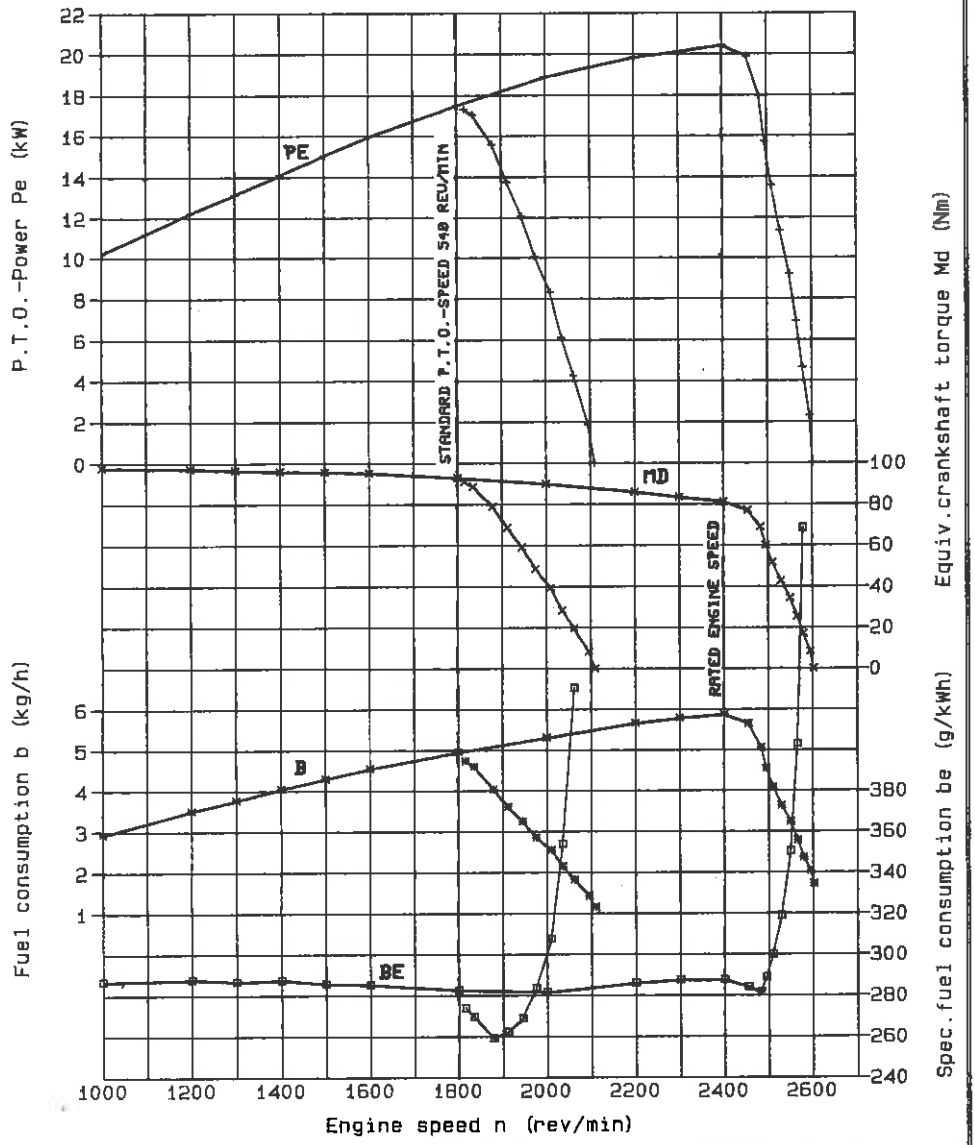
STANDARD SPECIFIC FUEL CONSUMPTION: 282,0/350,5 - 256,0/308,0 g/kWh

No load maximum engine speed: 2603 rev/min
Equivalent crankshaft torque
at maximum power: 81,36 Nm
Maximum equivalent crankshaft torque: 97,97 Nm at 1000 rev/min of engine

Mean atmospheric conditions	temperature:	16°C
	pressure:	999 mbar
	rel. humidity:	85 %
Maximum temperatures.	coolant:	88°C
	engine oil:	100°C
	fuel:	24°C
	engine air intake:	24°C

BUNDESANSTALT FÜR LANDTECHNIK Wieselburg/Erlauf, Austria Prot.Nr.:	P.T.O.-test	STEYR-DIESELTRACTOR TYP 317.00 (8033A) MOT.TYP STEYR WD208.40

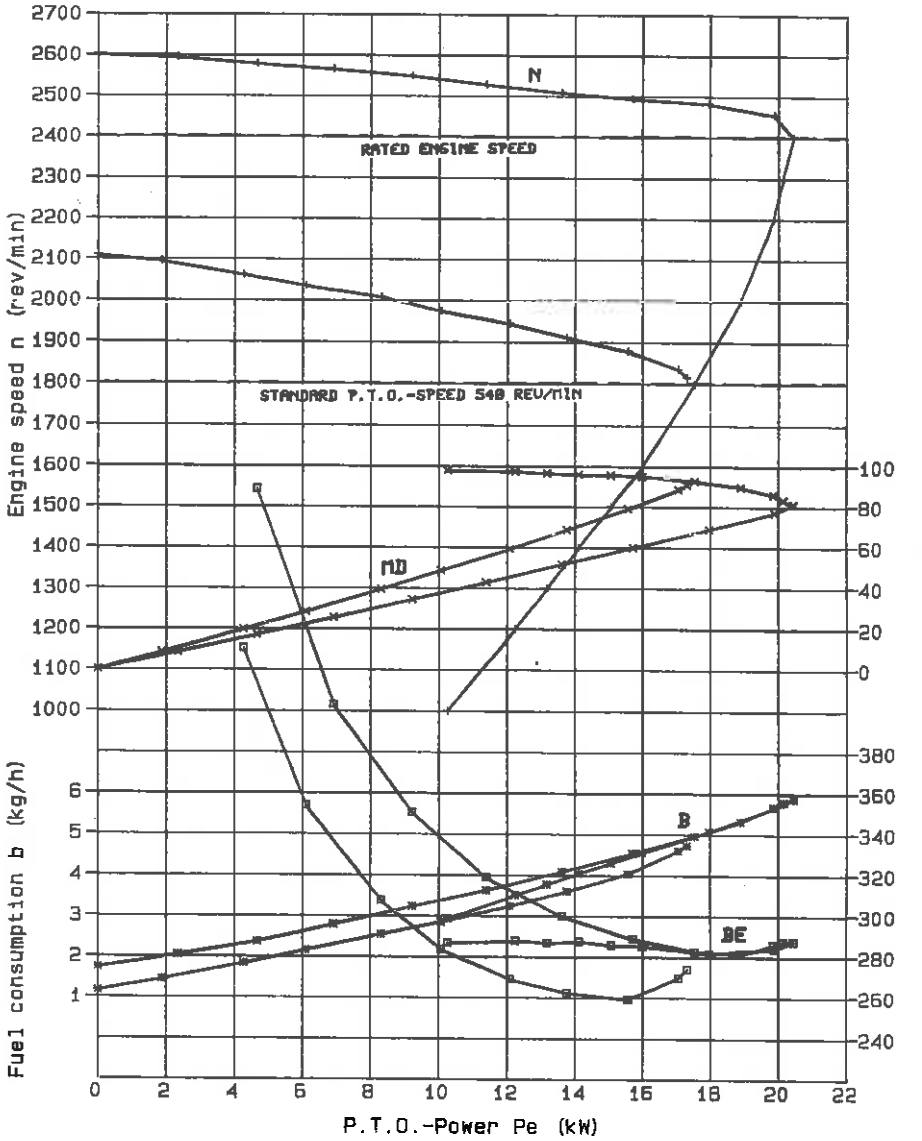
540 rev/min



engine ser.nr. : 208.40 0003	atm. pressure: 999 MBAR	fuel temp. : 24 C	signature
tractor ser.nr.: 317.00 0003	air temper. : 16 C	d.of tests : 1986-11-11	
fuel : 0.844/15 C	coolant temp.: 88 C	test no. :	
engine oil : ROTELLA X 10W	oil temp. : 100 C	curves no. : 1	LUGER

BUNDESANSTALT FÜR LANDTECHNIK Wieselburg/Erlauf, Austria Prot.Nr.:	P.T.O.-test	STEYR-DIESELTRACTOR TYP 317.00 (8033A) MOT.TYP STEYR WD208.40

540 rev/min



engine ser.nr. : 208.40 0003	atm. pressure: 999 MBAR	fuel temp. : 24 C	signature
tractor ser.nr.: 317.00 0003	air temper. : 16 C	d.of tests : 1986-11-11	
fuel : 0.844/15 C	coolant temp.: 88 C	test no. :	
engine oil : ROTELLA X 10W	oil temp. : 100 C	curves no. : 2	LUGER

HYDRAULIC POWER AND LIFTING FORCE:

Date and location of tests:	5.3.1987, Wieselburg, Austria

Hydraulic power test:

Type of hydraulic system:	Open center type with oil current divider valve for hydrostatic steering
Hydraulic fluid temperature at beginning of test:	60°C
Sustained pressure with relief valve open:	18,0 MPa (180 bar)
Pump delivery rate at minimum pressure:	34,6 l/min at 2400 rev/min engine speed for hydraulic and steering
Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power:	
Flow rate:	26,4 l/min at 2400 rev/min
Pressure:	16,7 MPa (167 bar)
Power:	7,3 kW
Flow rate and hydraulic pressure corresponding to maximum hydraulic power:	
Flow rate:	26,4 l/min at 2400 rev/min
Pressure:	17,5 MPa (175 bar)
Power:	7,7 kW
Tapping point used for test:	At rear of tractor
Temperature of hydraulic fluid, if different from 65° ± 5°C:	-
Opening pressure of the unloading valve:	18,5 MPa (185 bar)
Closing pressure of the unloading valve:	18,0 MPa (180 bar)

Power lift test:

	*) Height of lower hitch points above ground in down position mm	*) Vertical movement (on the force measuring points) mm	*) Max. force exerted through full range kN	Corresponding pressure of hydraulic fluid MPa	*) Moment about rear axle kNm	Max.tilt angle of mast over range of lift ⊕ degrees
At hitch points	200/200	490/550	18,30/15,95	16,7 (167 bar)	15,9/13,9	-
On the frame 460 mm mast height	200/200	570/680	13,10/10,25	16,7 (167 bar)	19,4/15,2	from +2° to 0° and to +9°

*) Max./min. mechanical advantage
Lift rod length max.mech.advantage: 525 mm
Lift rod length min.mech.advantage: 485 mm

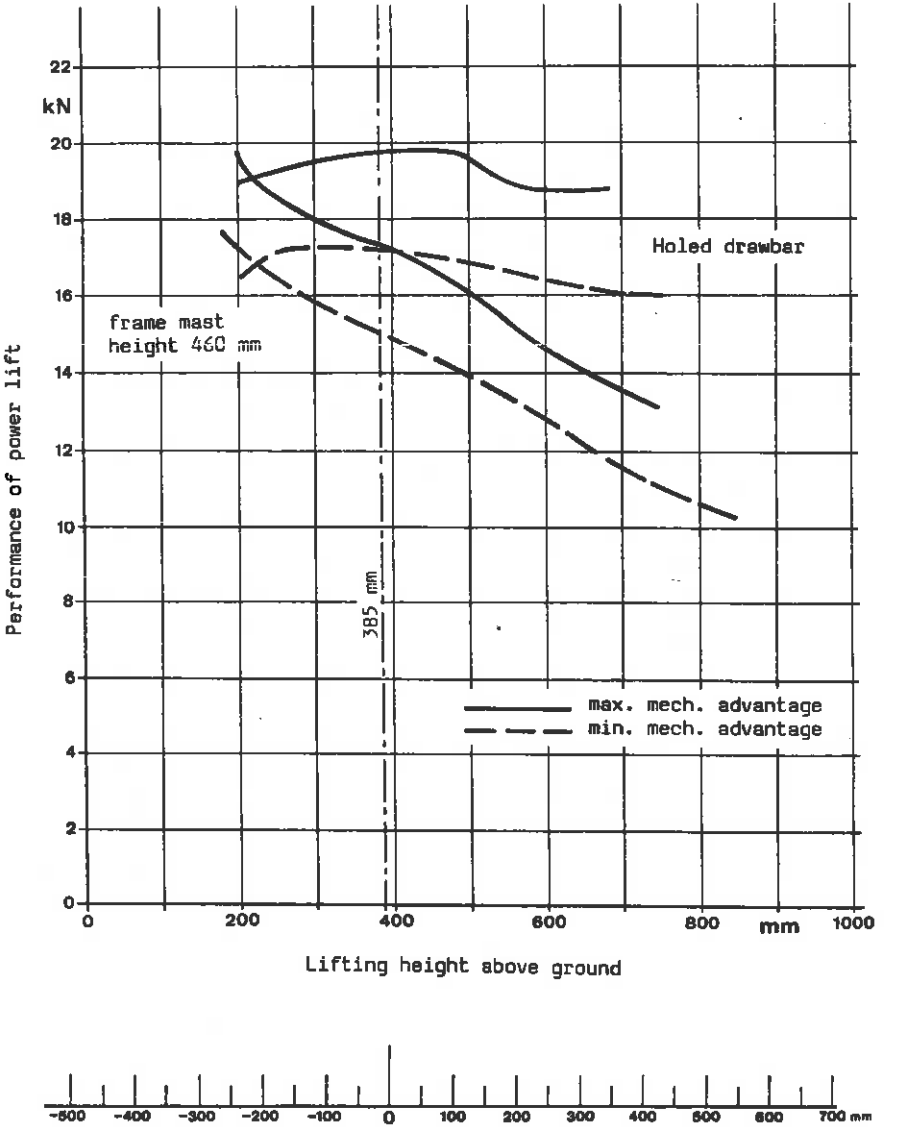
Linkage settings for test: See table and figure in specifications

Performance of power lift

Lifting heights relative to the horizontale plane including the lower link pivot points mm		-205	-190	-175	-120	-60	0	75	150	225	300	355	365	415	460
Lifting force at the hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	*) max.mech. advantage			19,05	19,35	19,60	19,75	19,75	19,15	18,30	18,30				
	*) min.mech. advantage			16,60	17,20	17,30	17,15	17,00	16,70	16,30	16,15	15,95			
	Maximum force exerted through whole range: 18,30/15,95 kN (1865/1625 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														
Lifting force at the standard frame 460 mm mast height, 610 mm behind lower links hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	*) max.mech. advantage		19,70	19,25	18,40	17,80	17,35	16,65	15,60	14,40	13,65	13,15	13,10		
	*) min.mech. advantage	17,60	17,40	17,05	16,30	15,60	15,00	14,30	13,50	12,60	11,70	11,10	11,00	10,60	10,25
	Maximum force exerted through whole range: 13,10/10,25 kN (1335/1045 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														

*) Lift rod length for max.mech.advantage: 525 mm
min.mech.advantage: 485 mm

Performance of power lift:



Height relative to the horizontal plane including the lower link pivot points (dyn. radius index 565 mm)

Drawbar performance

Date of tests: 2.12.1986
Type of track: Concrete
Height of drawbar above ground: 280 mm ballasted and unballasted
Tyres sizes: front 7,50 - 16 AS, rear 11,2 - 28 AS

Gear	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			Atmosph. conditions		
								Fuel	Coolant	Engine oil	Temperature	Rel.humidity	Pressure
	km/h	kW	N	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	mbar
(i) Maximum power (unballasted) tyre inflation pressure in front 1,0 bar, in the rear 1,0 bar													
VL 1	2,938	14,28	17500	2502	15	-	-	10	85	85	4	90	996
VS 1	4,152	16,49	14298	2400	9,2	333,17	2,533	10	85	86	4	89	996
VL 2	5,979	16,53	9950	2400	6,1	332,37	2,539	10	85	85	4	88	996
VS 2	8,397	15,38	6595	2400	4,4	357,22	2,363	10	85	86	4	87	996
VL 3	9,076	15,01	5954	2400	4,1	366,02	2,306	11	85	84	4	86	996
VS 3	12,640	12,99	3700	2400	3,2	422,94	1,996	11	85	84	4	86	996
VL 4:	15,106	11,33	2700	2400	2,8	484,91	1,741	11	85	85	4	85	996

Gear	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			Atmosph. conditions		
								Fuel	Ccolant	Engine oil	Temperature	Rel.humidity	Pressure
	km/h	kW	N	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	mbar
(ii) Maximum power (ballasted) tyre inflation pressure in the front 1,0 bar, in the rear 1,0 bar													
VL 1	2,858	16,37	20612	2400	13,30*)	335,4	2,515	0	84	84	-5	64	995
VS 1	4,208	16,81	14380	2400	7,50	326,6	2,582	1	85	85	-4	64	995
VL 2	5,998	16,47	9885	2400	5,30	333,3	2,530	2	85	85	-5	64	995
VS 2	8,384	15,43	6623	2400	4,00	355,8	2,370	0	83	85	-6	63	995
VL 3	9,061	15,13	6012	2400	3,75	362,9	2,324	2	85	85	-5	63	995
VS 3	12,607	13,12	3746	2400	3,00	418,4	2,015	2	85	86	-5	62	995
VL 4	15,170	11,92	2828	2400	2,59	460,6	1,831	2	82	86	-4	62	995
(iii) Five-hour-test at 75 % of pull at maximum power													
VL 2	6,361	13,30	7525	2515	4,20	256	3,299	12	86	93	0	86	992
(iv) Five-hour-test at pull corresponding to 15 % wheelslip in test (ii)													
VL 1	2,855	16,37	20636	2400	13,30	335,4	2,515	2	83	86	-4	64	995

*) The ballasted tractor was not able to bring 15 % slip.

Total oil consumption during 10 hours duration of tests (iii) and (iv): 40 g/h

TURNING AREA AND TURNING CIRCLE:

Wheel equipment: front: 7,50 - 16 AS, PR 6, rim: 6,00 F x 16
rear: 11,2 - 28 AS, PR 6, rim: W 10 x 28

Track of wheel: front: 1246 mm
rear: 1250 mm

Results	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning area	*2,98/3,16	*2,92/3,18	*3,86/3,61	*3,83/3,59
Radius of turning circle	*3,11/3,29	*3,05/3,31	*3,99/3,74	*3,96/3,72

* four wheel drive switched on

LOCATION OF CENTRE OF GRAVITY:

	mm
Height above ground	666
Distance forward from the vertical plane containing the axis of the rear wheels	735
Distance from the median plane of the tractor, left side	1

BRAKING:

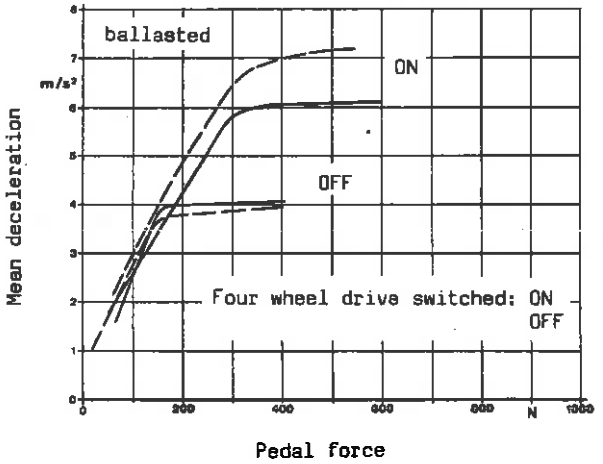
Date of tests: 28.11.1986
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)

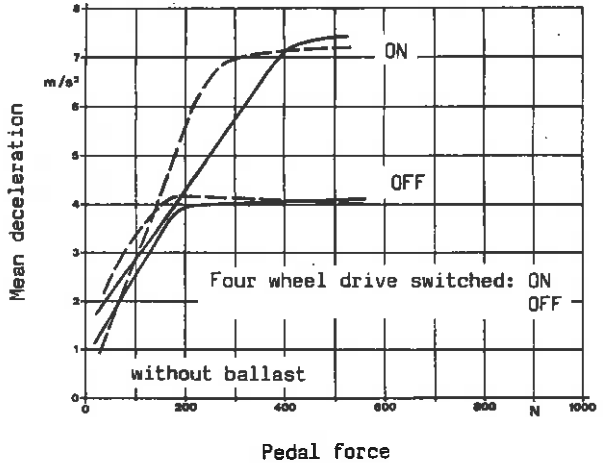
Tractor mass during brake tests (with driver):

	Front kg	Rear kg	Total kg
Ballasted	948	1310	2258
Unballasted	764	1150	1914

Service brake:

Four-wheel-drive switched ON and OFF
Type-0-test (cold brakes)———— , type-I-(fade)test – – – – – – – –





Speed before application of brakes: 22,2 km/h
The tractor brakes were heated by towing of the tractor for 1 km.

Maximum deviation of tractor from its original course:	None
Abnormale vibration:	None

Parking brake device test:

	Ballasted tractor on 18 % slope		Unballasted tractor on 12 % slope with trailer of 1839 kg	
	up	down	up	down
Braking device control force	220/*230 N	320/*330 N	240/*250 N	340/*360 N

*) four-wheel-drive switched on

MEASUREMENT OF EXTERNAL NOISE LEVEL:

Date of tests:	1.12.1986
Type of sound level meter:	BRÜEL & KJAER 2209 and 2308
Type of track:	Concrete
Gear number:	VS 4
Travelling speed before acceleration:	16,13 km/h
Sound level:	88 dB(A)

NOISE MEASUREMENT AT DRIVER'S EAR:

Date of tests:	1.12.1986
Type of sound level meter:	BRÜEL & KAJER 2209 and 2308
Type of track:	Concrete

Gear	Drawbar pull at which the tractor develops the max. sound level	Measured travelling speed	Sound level
-	kN	km/h	dB(A)
Without any safety structure			
VL 1	5,31	1,52	98,0
VS 1	19,51	2,90	98,0
VL 2	9,68	6,00	98,0
VS 2	2,68	8,40	98,0
VL 3	5,57	9,15	98,0
VS 3	3,36	12,70	98,5
VL 4	light load 2,36	14,30	97,5
VS 4	light load 2,36	20,00	98,5
VL 2 *)	light load 2,36	6,59	95,0

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

OPTIONAL TEST

REDUCTION OF POWER DATA TO STANDARD CONDITIONS:

According to:

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

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

P_{RED} = Reduced power to standard conditions
P_{OECD} = Power according to OECD
k = Reduction coefficient, resulting from the formula above

Main power take-off performance (page 18 and 19)

Test conditions:

		540 p.t.o.
Intake air temperature (°C)	t	16
Atmospheric pressure	B	999
Resulting reduction coefficient	k	1,007

	P_{OECD}	P_{RED}
Maximum power 540 rev/min p.t.o.	20,45 kW	20,60 kW

REMARKS: None