O.E.C.D. Report No.: 1079

Bundesanstalt für Landtechnik

A-3250 Wieselburg, Austria

Dieseltractor STEYR 327.05

Trade name:

STEYR 8043 a (4WD)



Date of approval: 21.7.1987

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 8043 a
Model:	Diesel-tractor STEYR 327.05
Type:	Wheel tractor, four-wheel driven, unit construction
Serial no.:	327.05 - 0999

ENGINE:

Make:	STEYR-DAIMLER-PUCH AG. and DONATIM Adapazari
Model:	T - 308-4
Type:	4 stroke diesel engine with direct injection
Serial no.:	T-308-4 *0005*

Cylinders:

Number/disposition:	3, vertical in line
Bore/stroke:	100/100 mm
Capacity:	2355 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 VA 3/90 H 1200 CR 172 0460 393 007
Manufacturer's production setting of injection pump, flow rate and timing:	42^{+0}_{-2} mm^3/stroke at 1200 rev/min and full load $12^{+0°}_{-2°}$ before TDC at 1 mm pump stroke
Make, model and type of injectors:	Multi hole injection nozzles BOSCH DLLA 150 S 396
Injection pressure:	$21{,}6^{+0{,}6}_{-0}$ 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. or FILTRE SANAYI
Model:	IFE MANN: 348 039 70 100 FILTRE SANAYI: 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. or FILTRE SANAYI
Model:	IFE MANN: 331 039 75 171 FILTRE SANAYI: 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. 6 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 lubrications 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:	6 blade fan (dia 420 mm; 1 belt driven)
Coolant capacity:	appr. 10,5 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:	MAKO, 12 V, 2,4 kW, no. 207.09.02
Type:	Screw push engaged starter motor
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: MAKO 63 39 45 31 Type: three phase type AA 125 R 14 V 45 A MK 1 A Power: 14 V, 45 A = 630 W
Battery:	1 with 12 V, lead acid type Rating: 66 Ah at 20 hours rating

Exhaust system:

Make:	Own make or TZDK.Fab. Müessesesi
Model:	Own make: 317.00 54 0005 TZDK 292.54.22
Type:	Reflexion type
Location:	On the left side of the engine; vertically, mouth upwards, 2000 mm above ground
Dimensions of silencer body:	690 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 240/280
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 / 280 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
Model:	317
Type:	Mechanically acting gear box
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) 1 lever to engage the front-wheel-drive

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

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	4,76
	2	58,35	9,14
	3	39,25	13,60
	4	23,78	22,45
reverse R	1	113,81	4,69
	2	59,24	9,01
	3	39,85	13,40
	4	24,14	22,11

Optional: on tested tractor

forward slow VN	1	154,63	3,45
	2	80,49	6,63
	3	54,15	9,86
	4	32,80	16,27

*) Calculated with tyre dynamic radius index of 590 mm and test tyre equipment: 12,4 - 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 1

Height above ground: 480 mm with tyre dynamic radius index of 590 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:

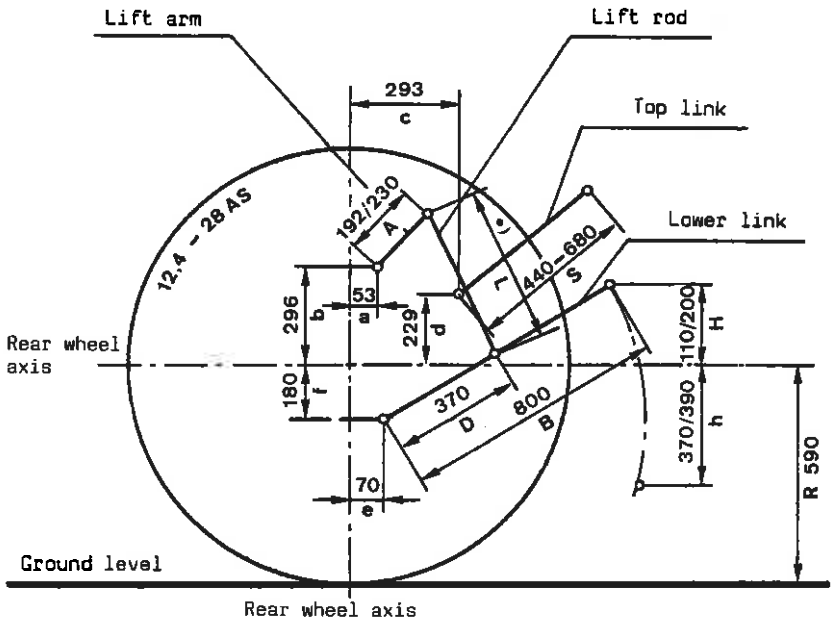
In the rear:	
Make:	STEYR
Type:	Open center type, draught control with two-stage pull adjustment and upper link sensing, position control, floating position
Type and number of cylinders:	Single acting hydraulic cylinder, stroke and diameter: 147/75 mm
Type of linkage lock for transport:	Hydraulically 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, PUROLATOR 377 0075 0066
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 to ISO/DIS 5675
Maximum volume of oil available to external cylinders:	5 l in stationary mode
Recommended oil:	SHELL TELLUS S 68, SAE 20 W, ISO VG 68

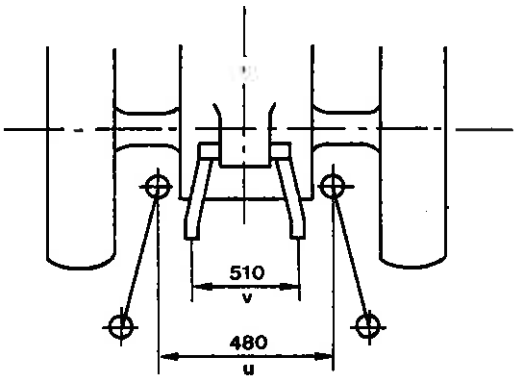
Three-point-linkage:

In the rear:	Category I, in conformity to ISO 730/1 "STEYR SIMPLEMATIK" standard linkage, both lift rods are adjustable by threads and additional $\pm$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 12,4 - 28 AS) dynamic radius index:		(r)	590 mm
Front tyres (size 7,50 - 18 AS) stat. radius:		(r')	403 mm
Length of lift arms:		(A)	192/230 mm
Length of lower links:		(B)	800 mm
Distance of lift arm pivot point from rear wheel centre line:	horizontally	(a)	53 mm
	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 wheel centre line:	horizontally	(c)	293 mm
	vertically	(d)	229 mm
Distance of lower link pivot point from rear wheel centre:	horizontally	(e)	70 mm
	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
		see: "figures of power lift"	
Height of lower hitch points relative to the rear wheel centre line: *)			
- in low position; max.mech./min.mech.		(h)	370/390 mm
- in high position; max.mech./min.mech.		(H)	110/200 mm
Height of lower hitch points when locked in transport position:		Any height within lift range	
Length of lift rods during test:			530/500 mm

*) These data are valid for unloaded power lift.

TRAILER HITCH:	Height with tyre 12,4 - 28 AS (590 mm dyn. radius index)
	Own make
Type:	Fork type
Hole diameter:	31 mm
Height above ground:	715/687/663/635/336/308 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:	520 mm
Distance from front axle:	frontwards from 350 mm to 560 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.:	125 mm (lift rod length 530 mm, min.mech.)
max.:	855 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: 1980 mm

PROTECTIVE STRUCTURE: Not on tested tractor

DRIVER'S SEAT:

Make and type:	TZDK Turkey Zirai Donatim Kurumu
Type of suspendion:	Parallelogram construction with helical coil springs adjustable to driver'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: Optional, not on tested tractor
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	710	120 dia	630
Side lights	1245	35 x 85	140
Rear lights	1230	35 x 85	140
Brake lights			
Direction indicators front	1245	35 x 85	110
Direction indicators rear	1230	35 x 85	110
Reflectors	1170	60 x 35	130

*) Measured with dyn. radius at rear 590 mm and stat. radius 403 mm at front
**) With overall width of 1560 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	3360	1560	2000 *)
Without ballast	3335	1560	2000 *)

*) Measured on the outside edges of the rear wheels

Ground clearance:
(unballasted):

Clearance-limiting part:
290 mm under the front axle
280 mm under the four-wheel drive output
240 mm under the trailer-hitch mounting plate

Tractor mass: With tanks full

		Without driver	With driver
		kg	kg
Unballasted	Front	791	806
	Rear	1182	1242
	Total	1973	2048
Ballasted	Front	965	980
	Rear	1352	1412
	Total	2317	2392

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 - 18 AS Implement rim: 5,50 F x 18	12,4/11 - 28 AS rim: W 10 x 28
Ply rating	6	6
Type	diagonal carcass	diagonal carcass
Max. load (tyre manufacturer's)	9,02 kN (920 kp) or 11,18 kN (1140 kp) with speed limit of 8 km/h	12,51 kN (1275 kp) or 17,51 kN (1785 kp) with speed limit of 8 km/h
Max. load (tractor manufacturer's)	-	-
Inflation pressure (tyre manufacturer's)	2,25 bar or 3,25 bar with overload	1,7 bar or 2,4 bar with overload
Dynamic radius index	stat.radius 403 mm	590 mm
Track width	1272 mm (1338 mm by reversed wheels)	1250 mm (1402 mm by reversed wheels)

Oil and lubrication:

Capacity and change interval:

	Capacity (dm^3)	Oil change (h)	Filter change (h)
Engine	6	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:	0,841 kg/l	

TEST RESULTS

COMPULSORY TEST:

Main power take-off performance

Date and location of tests: 24.3.1987, Wieselburg, Austria
Type of dynamometer: SCHENCK eddy-current brake W 780

Main test on: ISO R 500, type 1 (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					
29,30	2400	720	7,77 9,24	265,2	3,171
Power at rated engine speed					
29,30	2400	720	7,77 9,24	265,2	3,171
Standard power take-off speed					
26,03	1800	540	6,79 8,07	260,9	3,226
PART LOADS					
(i) the torque corresponding to maximum power at rated engine speed					
29,30	2400	720	7,77 9,24	265,2	3,171
(ii) 85 % of torque obtained in (i)					
25,32	2440	732	6,64 7,90	262,2	3,205
(iii) 75 % of torque defined in (ii)					
19,33	2483	745	5,37 6,39	277,8	3,025
(iv) 50 % of torque defined in (ii)					
13,06	2516	755	4,18 4,97	320,1	2,628
(v) 25 % of torque defined in (ii)					
6,60	2546	764	3,09 3,67	468,2	1,798
(vi) unloaded					
0	2583	775	2,14 2,55	-	-

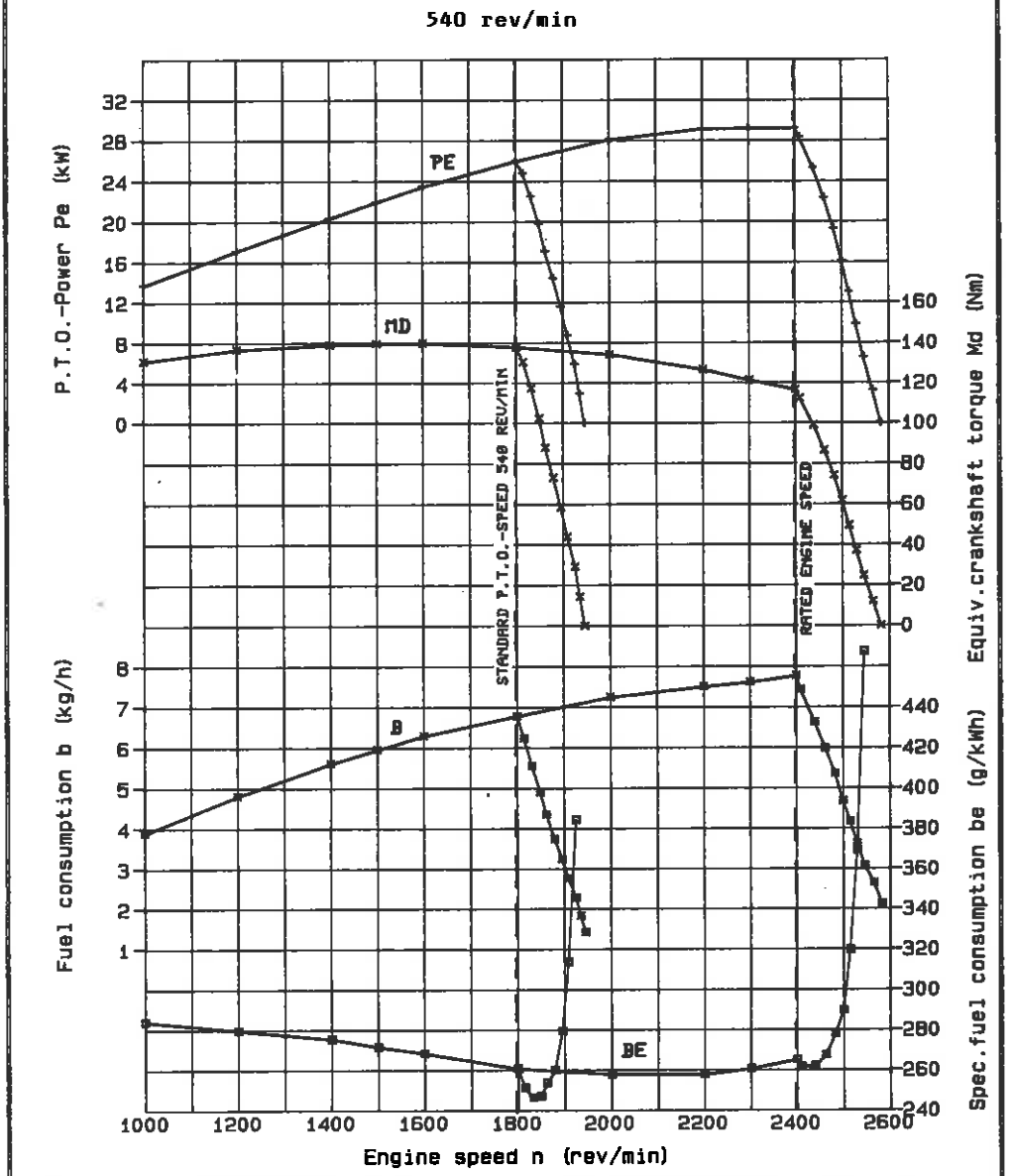
Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS AT STANDARD POWER TAKE-OFF SPEED					
(i) The torque corresponding to maximum power available					
26,03	1800	540	6,79 8,07	260,9	3,226
(ii) 85 % of torque obtained at maximum power					
22,55	1833	550	5,56 6,61	246,6	3,411
(iii) 75 % of torque defined in (ii)					
17,18	1863	559	4,36 5,18	253,8	3,317
(iv) 50 % of torque defined in (ii)					
11,66	1896	569	3,26 3,88	279,6	3,005
(v) 25 % of torque defined in (ii)					
5,92	1926	578	2,28 2,71	385,1	2,185
(vi) unloaded					
0	1946	584	1,43 1,70	-	-

STANDARD SPECIFIC FUEL CONSUMPTION: 262,2/320,1 - 246,6/279,6 g/kWh

No load maximum engine speed: 2583 rev/min
Equivalent crankshaft torque
at maximum power: 116,7 Nm
Maximum equivalent crankshaft torque: 140,2 Nm at 1600 rev/min of engine

Mean atmospheric conditions	temperature:	15°C
	pressure:	986 mbar
	rel. humidity:	75 %
Maximum temperatures.	coolant:	89°C
	engine oil:	99°C
	fuel:	30°C
	engine air intake:	32°C

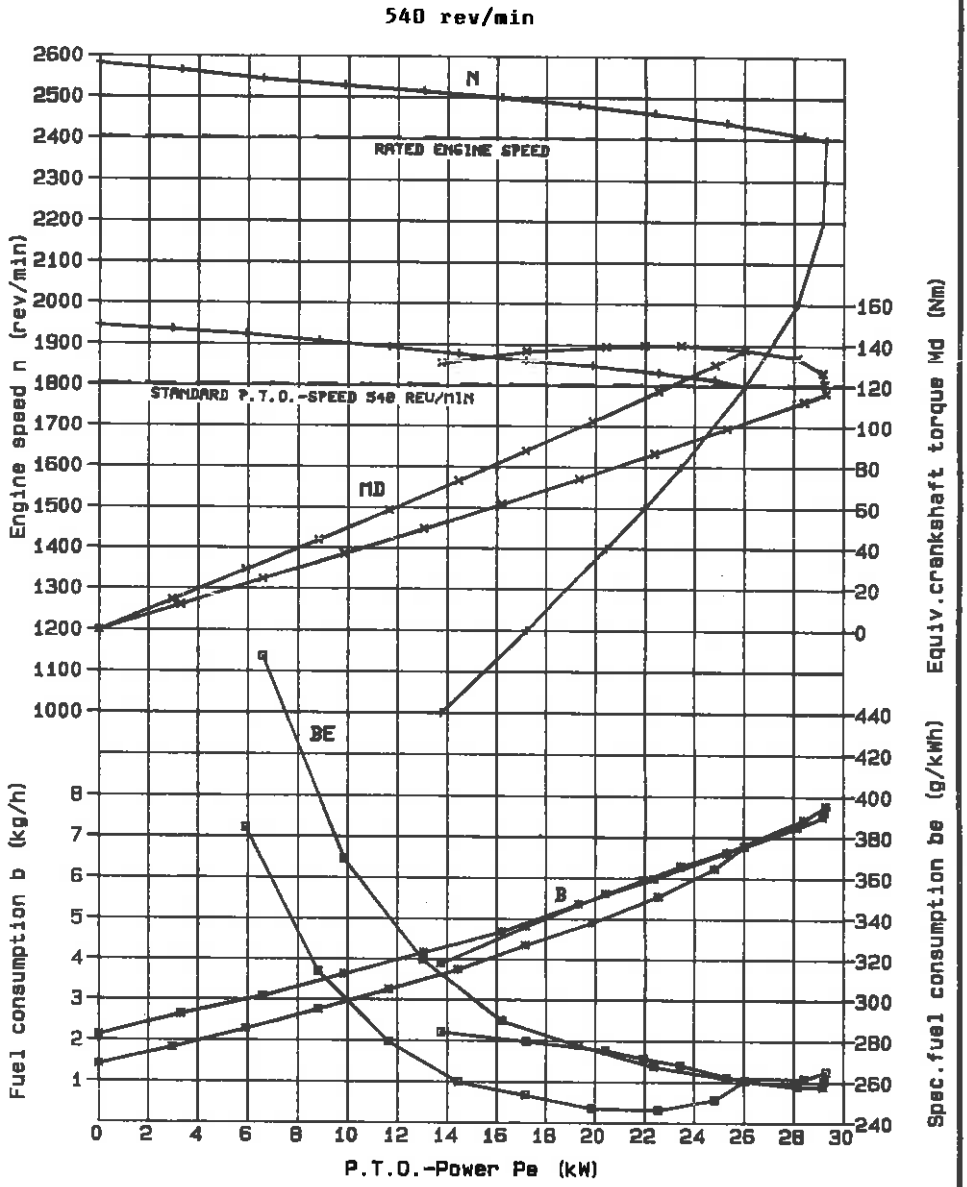
BUNDESANSTALT FÖR LANDTECHNIK Wieselburg/Erlauf, Austria Prot.Nr.:	P.T.O.-test	STEYR-DIESELTRACTOR TYP 327.05 (8043A) MOT.TYP STEYR WD308.47



engine ser.nr. : 308.47-0005	atm. pressure: 986 MBAR	fuel temp. : 30 C	signature
tractor ser.nr.: 327.5-0999	air temper. : 15 C	d.of tests : 1987-03-24	
fuel : 0.841/15 C	coolant temp.: 89 C	test no. :	
engine oil : RIMULA X 10W	oil temp. : 99 C	curves no. : 1	LUBER

21-APR-87 EDV-RK05: MKL - DATEI: MKU180 Z540

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fuel : 0.841/15 C	coolant temp.: 89 C	test no. :	
engine oil : RIMULA X 10W	oil temp. : 99 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	220/200	480/560	17,7/14,7	16,7 (167 bar)	15,4/12,8	-
On the frame 460 mm mast height	220/200	545/650	12,20/9,65	16,7 (167 bar)	18,1/14,3	from +1 to 0° and to +8°
On the frame 510 mm mast height	220/200	580/710	10,75/6,65	16,7 (167 bar)	15,9/9,8	from 0° to 0° and to +10°

*) Max./min.mechanical advantage
Lift rod length max.mech.advantage: 530 mm
Lift rod length min.mech.advantage: 500 mm

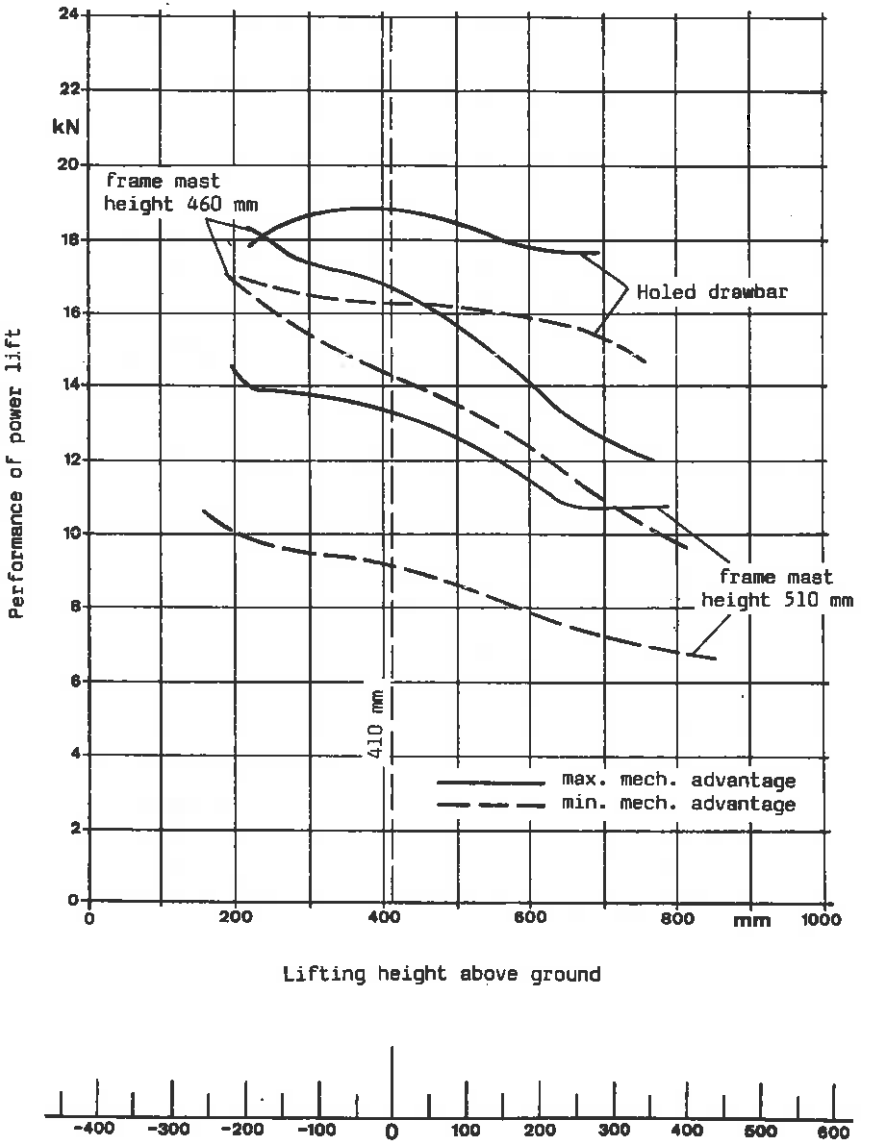
Linkage settings for test: See table and figure in specifications

Performance of power lift

Lifting heights relative to the horizontale plane including the lower link pivot points mm		-245	-205	-185	-160	-100	0	+75	+150	+225	+280	+340	+365	+410	+440
Lifting force at the hitch-points kN (Values for the pressure, calculated with 90 % of sustained oil pressure)	max.mech. advantage			17,95	18,30	18,70	18,80	18,50	18,00	17,70	17,70				
	min.mech. advantage		16,95	16,80	16,65	16,45	16,30	16,10	16,00	15,70	15,45	14,70			
	Maximum force exerted through whole range: 17,70/14,70 kN (1804/1498 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			18,20	17,90	17,25	16,70	15,80	14,75	13,50	12,70	12,20			
	min.mech. advantage		16,60	16,35	16,00	15,30	14,30	13,65	12,90	11,85	11,10	10,40	10,20	9,65	
	Maximum force exerted through whole range: 12,20/9,65 kN (1244/984 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														
Lifting force at the frame with 510 mm mast height and 610 mm behind lower links hitch-points kN	max.mech. advantage		14,20	13,95	13,90	13,70	13,30	12,70	11,95	11,00	10,75	10,75	10,75		
	min.mech. advantage	10,50	9,95	9,80	9,70	9,50	9,15	8,70	8,20	7,60	7,35	6,95	6,85	6,70	6,65
	Maximum force exerted through whole range: 10,75/6,65 kN (1096/678 kp)														
	Calculated oil pressure: 16,7 MPa (167 bar)														

Lift rod length for max.mech.advantage: 530 mm
min.mech.advantage: 500 mm

Performance of power lift:



Height relative to the horizontal plane including the lower link pivot points (dyn. radius index 590 mm)

Drawbar performance

Date of tests: 24.4.1987
Type of track: Concrete
Height of drawbar above ground: 280 mm ballasted and unballasted
Tyres sizes: front 7,50 - 18 AS; rear 12,4 - 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 the front 1,4 bar, in the rear 1,2 bar													
VN 1	3,136	15,73	18055	2483	15,0	341,4	2,462	19	85	92	9	71	991
VS 1	4,255	21,34	18055	2442	15,0	311,2	2,701	20	87	92	15	70	991
VN 2	6,152	24,13	14118	2400	10,4	322,0	2,611	20	87	94	14	70	991
VS 2	8,806	24,28	9928	2400	7,0	320,0	2,628	19	87	94	12	70	991
VN 3	9,554	23,83	8978	2400	6,5	326,1	2,579	19	86	94	12	69	991
VS 3	13,392	23,04	6194	2400	4,9	337,2	2,494	19	87	94	10	70	991
VN 4	16,153	22,14	4935	2400	4,1	350,9	2,396	20	87	94	10	70	991

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
(ii)	Maximum power (ballasted) tyre inflation pressure in the front 1,5 bar, in the rear 1,2 bar												
VN 1	3,096	18,60	21632	2461	15,0	322,6	2,609	20	87	93	12	64	1005
VS 1	4,244	24,51	20790	2400	13,3	317,0	2,653	17	86	92	6	66	1005
VN 2	6,264	24,58	14130	2400	8,1	316,1	2,660	17	86	92	16	66	1005
VS 2	8,845	24,23	9863	2400	5,9	320,7	2,622	15	87	92	6	66	1005
VN 3	9,576	23,90	8986	2400	5,5	325,1	2,587	14	86	92	9	64	1005
VS 3	13,385	22,60	6079	2400	4,2	343,8	2,446	14	86	92	9	64	1005
VN 4	16,135	21,26	4744	2400	3,6	365,5	2,301	14	86	92	6	66	1005
(iii)	Five-hour-test at 75 % of pull at maximum power												
VN 2	6,538	19,25	10598	2467	4,1	307,6	2,734	23	87	94	8	62	991
(iv)	Five-hour-test at pull corresponding to 15 % wheelslip in test (ii)												
VN 1	3,091	18,57	21628	2459	15,0	322,4	2,608	20	87	93	9	70	989

Total oil consumption during 10 hours duration of tests (iii) and (iv): 124 g = 12,4 g/h

TURNING AREA AND TURNING CIRCLE:

Wheel equipment: front: 7,50 - 18 AS, PR 6, rim: 5,50 F x 18
rear: 12,4 - 28 AS, PR 6, rim: W 10 x 28

Track of wheel: front: 1225 mm
rear: 1245 mm

Results	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning area	3,00/3,25	2,99/3,22	4,06/3,78	4,04/3,74
Radius of turning circle	3,13/3,38	3,12/3,35	4,19/3,91	4,17/3,87

Four wheel drive switched: ON/OFF

LOCATION OF CENTRE OF GRAVITY:

	mm
Height above ground	661
Distance forward from the vertical plane containing the axis of the rear wheels	777
Distance from the median plane of the tractor, left-side	7

BRAKING:

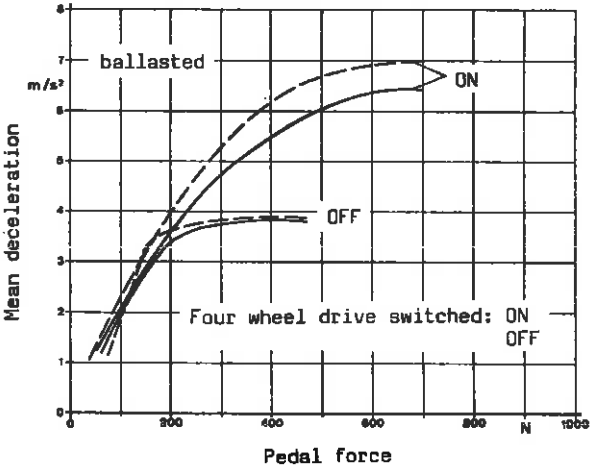
Date of tests: 23.4.1987
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)

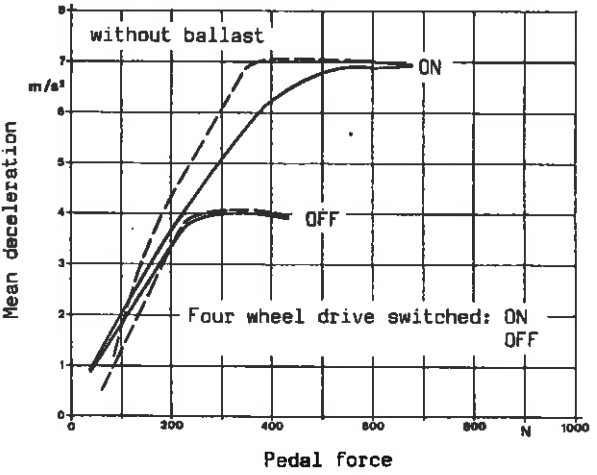
Tractor mass during brake tests (with driver):

	Front kg	Rear kg	Total kg
Ballasted	980	1412	2392
Unballasted	806	1242	2048

Service brake:

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





Speed before application of brakes: 23,9 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 1973 kg	
	up	down	up	down
Braking device control force	100/*100 N	100/*100 N	115/*115 N	115/*115 N

* Four wheel drive switched on

MEASUREMENT OF EXTERNAL NOISE LEVEL:

Date of tests: 27.4.1987

Type of sound level meter: BRÜEL & KJAER 2209 and 2308

Type of track: Concrete

Gear number: VS 4

Travelling speed before acceleration: 18,75 km/h

Sound level: 87,5 dB(A)

NOISE MEASUREMENT AT DRIVER'S EAR:

Date of tests: 27.4.1987

Type of sound level meter: BRÜEL & KJAER 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)
VN 1	18,8	3,09	98,8
VS 1	17,8	4,30	100,5
VN 2	13,0	6,27	101,0
VN 2 *)	light load 2,1	7,08	92,5
VS 2	9,2	8,90	101,5
VN 3	8,7	9,56	101,0
VS 3	5,7	13,40	101,0
VN 4	4,6	16,23	101,5
VS 4	light load	22,20	100,5

*) The VN 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 und 19)

Test conditions:

		540 p.t.o.
Intake air temperature (°C)	t	15
Atmospheric pressure	B	986
Resulting reduction coefficient	k	1,0185

	P_{OECD}	P_{RED}
Maximum power 540 rev/min p.t.o.	29,30 kW	29,84 kW

REMARKS: None