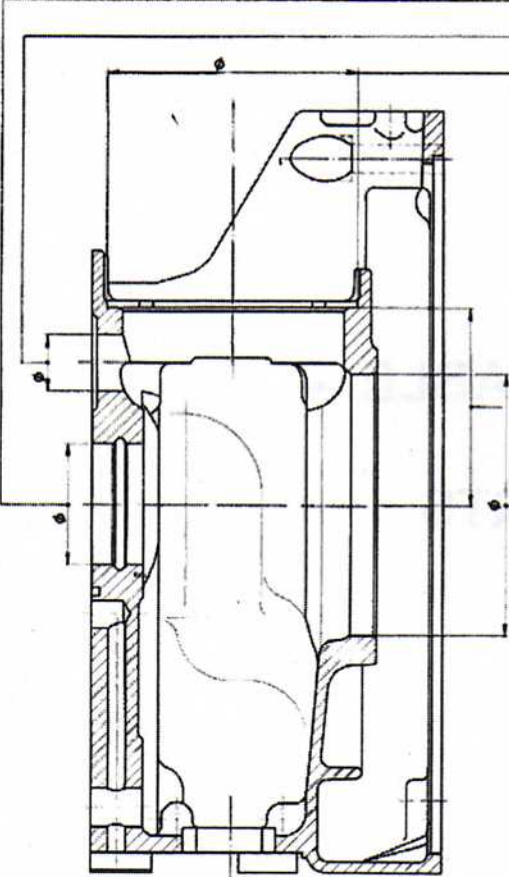
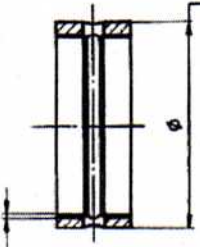
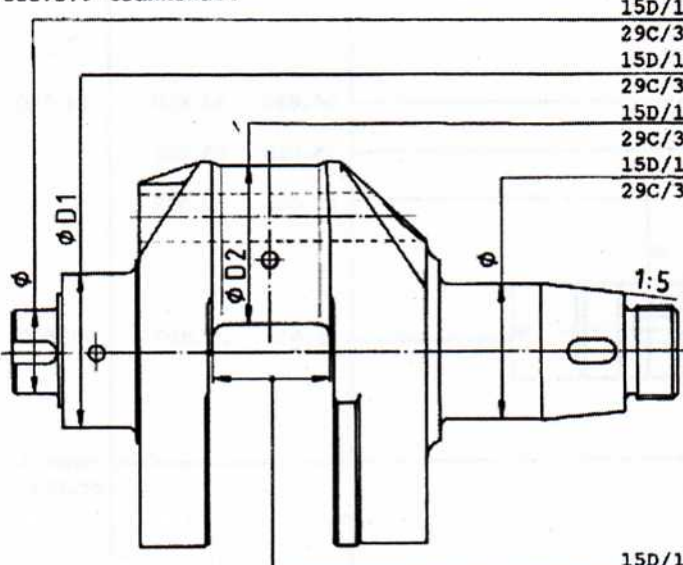
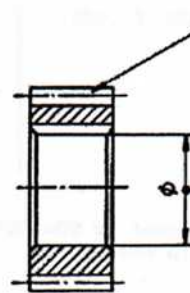


**III. 2. DIMENSION TABLE -  
WEARING PARTS**

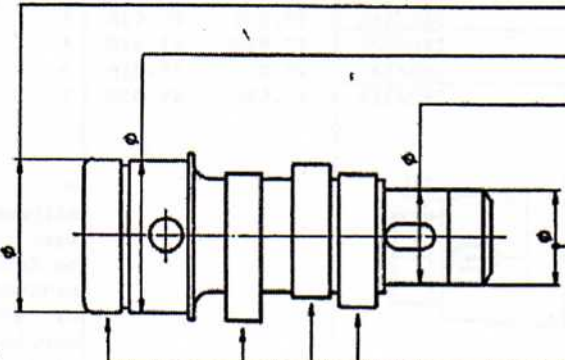
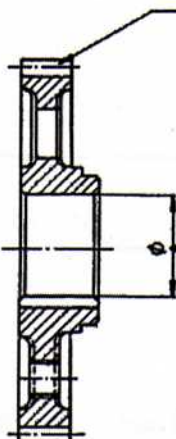
# III. ENGINE REPAIR

Part. Description		Dimension		
		Original max. mm	min. mm	max. Limit mm
III.2.1 Crankcase  	15D/18D	45.971	45.955	45.985
	29C/32A	46.016	46.000	46.030
		22.020	21.990	22.990
	15D/18D	95.035	95.000	
	29C/32A	104.100	104.100	
	15D/18D	75.050	74.950	74.900
	29C/32A	92.050	91.950	91.900
	15D/18D	100.004	99.982	
	29C/32A	128.004	127.979	
III.2.2 Main bearing bush  	15D/18D	46.105	46.065	
	29C/32A	46.075	46.035	
	15D/18D	inner diameter not fixed can only be checked when bush is pressed into crankcase via the bearing play, radial play:		
	29C/32A	0.02	0.06	0.09
		0.02	0.06	0.09
		Bearing bush will have to be replaced when galvani- cally applied Layer "R" wears off (recognisable on shiny gold bronze color) and/or when scoring appears around circumference. The inner diameter should not be used to determinate wear, only the radial bear- ing play is important.		

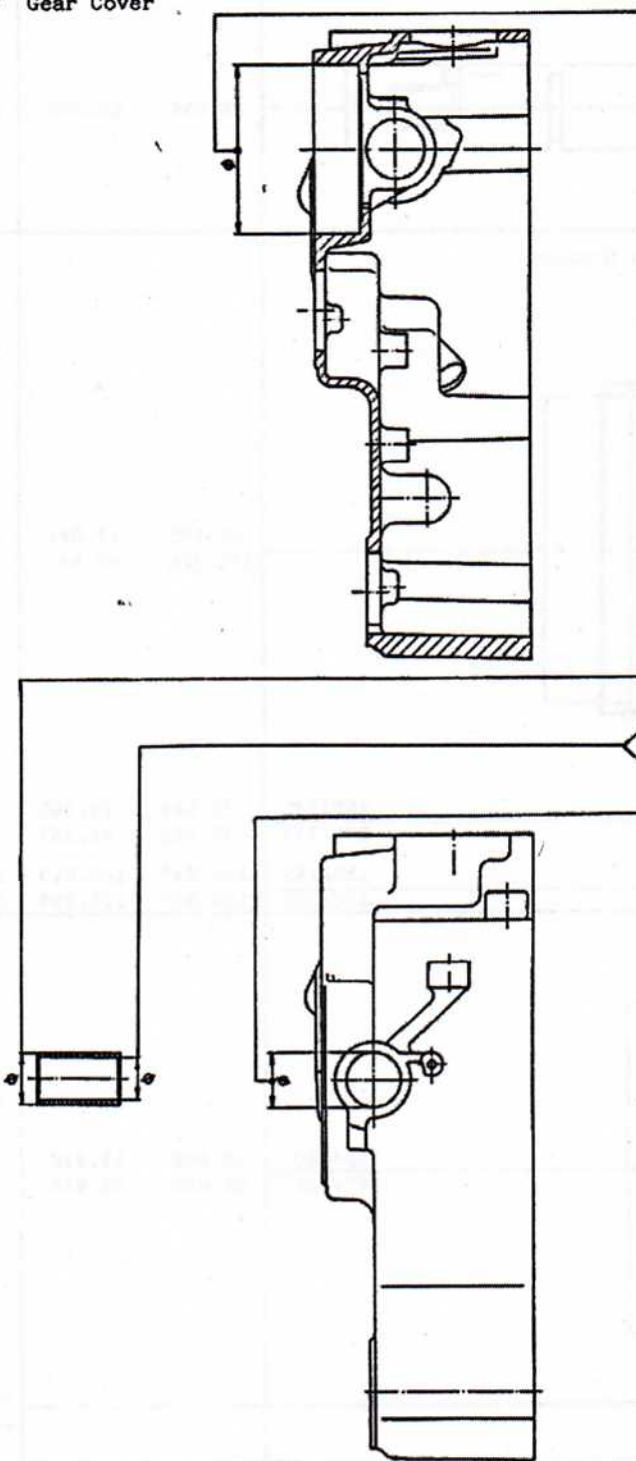
# III. ENGINE REPAIR

Part. Description		Dimension				
		Original max. mm	min. mm	max. Limit mm		
III.2.5 Crankshaft						
	15D/18D	22.029	22.008	*		
	29C/32A	22.029	22.008	*		
	15D/18D	40.080	40.060	*		
	29C/32A	41.010	39.990	*		
	15D/18D	40.030	40.020	*		
	29C/32A	47.960	47.940	*		
	15D/18D	35.023	35.015	*		
	29C/32A	45.020	45.009	*		
					* allowable wear to be determined by radial bearing play.	
		15D/18D	30.200	30.130	30.300	
	29C/32A	30.250	30.180	30.350		
Radial Bearing play		D1	15D/18D	0.020	0.050	0.080
		D1	29C/32A	0.020	0.060	0.090
		D2	15D/18D	0.030	0.060	0.110
		D2	29C/32A	0.030	0.060	0.120
Regrind Stages						
The crank pin and journal can be reground in 2 steps of 0.25 mm each and fitted with under size bearings						
	ø D1	ø D2	D1 corresponding D2 bearing			
1	39.830	39.780	775.033.4	470.009.4	15D/18D	
	39.810	39.770				
2	39.580	39.530	775.034.4	470.012.4	29C/32A	
	39.560	39.520				
1	40.985	47.710	775.035.4	470.019.4	29C/32A	
	39.740	47.460				
2	40.735	47.690	775.036.4	470.020.4	29C/32A	
	39.490	47.440				
III.2.4 Gearwheel Crankshaft						
						
			22.000	19.970	Tooth edges smooth, no scoring and wear.	
		Heat gear to 90-100°C to obtain shrink-fit.				

# III. ENGINE REPAIR

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.5 Camshaft  	34.850	34.800	34.750
	35.018	35.002	
	22.031	22.022	
	21.930	21.910	21.860
			renew if scored
III.2.6 Gearwheel Camshaft  	22.000	21.980	Tooth edges smooth, no scoring and wear.   Heat gear to 90-100°C to obtain shrink-fit.


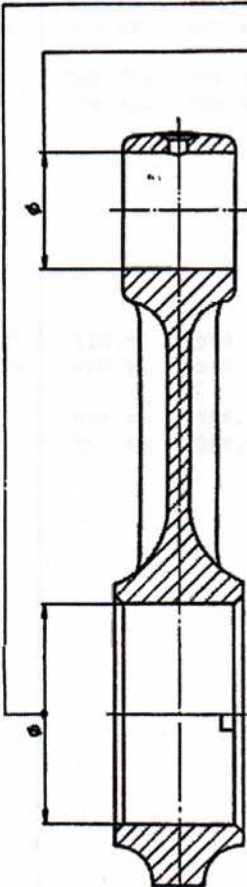
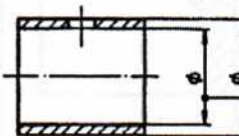
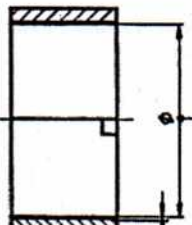
III. ENGINE REPAIR

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.7 Gear Cover	61.991	61.961	
	20.074	20.054	
	16.142	16.092	
	when pressed into gearcover		
	16.100	16.080	16.150
	20.020	20.010	





# III. ENGINE REPAIR

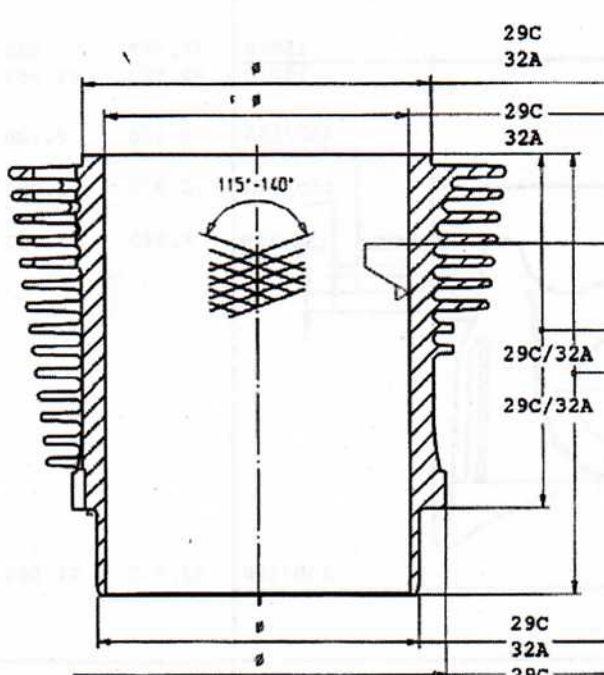
Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.11 Piston Pin			
	15D/18D	22.000	21.996
	29C/32A	26.000	25.996
			renew if scored
III.2.12 Connecting Rod with Bearings			
	15D/18D	43.666	43.650
	29C/32A	51.619	51.600
	15D/18D	24.986	24.974
	29C/32A	29.013	29.000
	15D/18D	25.075	25.035
	29C/32A	29.075	29.035
	15D/18D	22.050	22.030
	29C/32A	26.109	26.045
			renew if scored
inner diameter only to be checked via radial bearing play: 0.030 0.060 0.110 0,030 0,060 0.120 Both bearing shells will have to be renewed when the galvanically applied layer "R" wears off (recognisable on shiny gold-bronze color) and/or when scoring appears around circumference.			

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.13 Cylinder 15B/D / 18B/D			
15B/D	85.000	84.950	
18B/D	92.000	91.950	
15B/D	74.930	74.910	75.030
18B/D	81.900	81.880	82.000
15B/D	3.300	3.200	
18B/D			renew if scored
15B/D	88.150	88.125	88.075
18B/D	86.700	86.675	86.625
15B/D	107.350	107.250	
18B/D	104.900	104.800	
15B/D	75.030	75.010	75.130
18B/D	82.030	82.010	82.130
15B/D	94.900	94.850	
18B/D	94.900	94.850	

Attention: It is not possible to rehone the liner, due to conical shape.  
We recommend always to exchange cylinder liner together with piston and rings.



# III. ENGINE REPAIR

Part. Description	Dimension		
	max. mm	min. mm	max. Limit mm
III.2.14 Cylinder 29C /32A			
 <p>29C 32A</p> <p>29C 32A</p> <p>115-140</p> <p>29C/32A</p> <p>29C/32A</p> <p>29C 32A</p> <p>29C 32A</p>	100.000	99.950	
	108.995	108.990	
	90.030	90.010	90.130
	95.050	95.030	95.150
			renew if scored
	111.215	111.175	111.125
	138.500	137.900	
	93.900	93.800	
	100.400	100.300	
	103.900	103.850	
	116.900	111.850	
<p>Attention: It is not possible to rehone the liner, due to conical shape. We recommend always to exchange cylinder liner together with piston and rings.</p>			

### III. ENGINE REPAIR

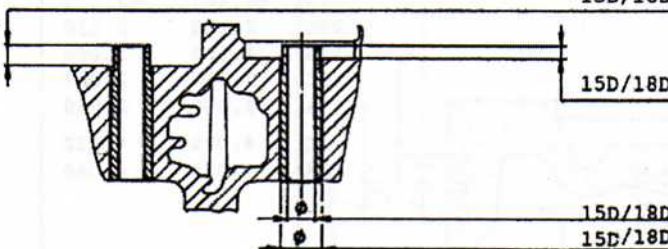
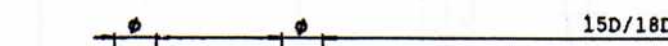







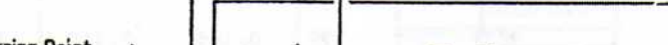



Part. Description	Dimension		
	max. mm	Original min. mm	max. Limit mm
III.2.15 Piston 15B/D / 18B/D			
	74.967	74.953	
	81.967	81.953	
	2.120	2.100	
	2.070	2.050	
	4.040	4.020	
	22.010	22.004	
	64.200	64.800	
	0.145	0.110	0.17
	0.092	0.060	0.14
	0.065	0.030	0.11
	0.500	0.300	1.0
	0.500	0.250	1.0
<p>Butt clearance are caused by piston ring wear and wear of cylinder liner surface. We recommend always to exchange cylinder liner, piston and rings together.</p>			

# III. ENGINE REPAIR

Part. Description	Dimension			
	max. mm	Original min. mm	max. Limit mm	
III.2.16 Piston 29C / 32A				
	29C	89.968	89.952	
	32A	94.947	94.933	
	29C	2.130	2.110	
	32A	2.100	2.080	
	29C	2.070	2.050	
	32A	2.060	2.040	
	29C	4.070	4.050	
	32A	4.060	4.040	
	29C	24.009	24.004	
	32A	26.008	26.003	
29C/32A	79.250	78.795	renew if longitu- dinally scored	
	29C	0,145	0,110	0.14
	32A	0.125	0.090	0.15
	29C	0.092	0.060	0.14
	32A	0.085	0.050	0.13
	29C	0.095	0.060	0.14
	32A	0.085	0.050	0.13
	29C/32A	0.650	0.400	1.1
	29C	0.600	0.300	1.0
32A	0.450	0.250	1.1	
Butt clearance for 2 top rings				
for oil scrapper ring				
Butt clearance are caused by piston ring wear and wear of cylinder liner surface. We recommend always to exchange cylinder liner, piston and rings together.				



# III. ENGINE REPAIR

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.17 Cylinderhead 15B/D / 18B/D			
 15D/18D 15D/18D	6.2 5.7		
 15D/18D 15D/18D	7.014 10.019	7.005 10.010	see note
 15D/18D	9.988	9.979	
 15D/18D	0.200	0.100	0.600
 15D/18D	2.600	2.500	
 15D 18D	85.050 92.050	85.000 92.000	
 15D/18D	6.980	6.965	see note
 15D/18D	45°		
 15D/18D	0.2 x 45°		
 15D/18D	2.600	2.500	
 15D/18D	1.000	0.850	renew if scored
 15D/18A 18B/C/D	29.150 36.150	28.850 35.850	
 15D/18A 18B/C/D	26.150 29.150	25.850 28.850	

Note: To check wear of valve shaft and valve guide, insert valve guide and put dial gauge to "measuring point". Move valve lateral. If movement is more than 0.15 mm replace both parts.

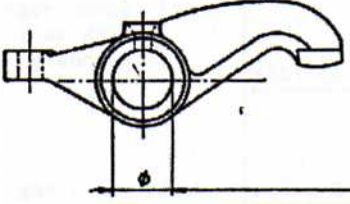
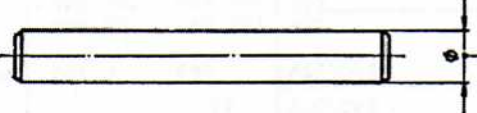
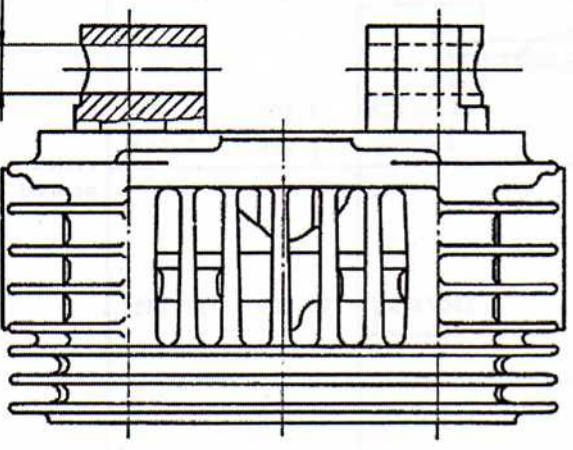


# III. ENGINE REPAIR

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
III.2.18 Cylinder Head 29C / 32A			
29C/32A	6.2		
29C/32A	5.7		
Press guide in till lower edge is flush with wall inside channels.			
29C/32A	7.014	7.005	see note
29C/32A	10.019	10.010	
29C/32A	9.988	9.975	
29C/32A	0.200	0.100	0.600
29C/32A	2.600	2.500	
29C/32A	100.500	100.000	
32A	109.050	109.000	
29C/32A	6.980	6.965	see note
29C/32A	45°		
29C/32A	0.2 x 45°		
29C/32A	3.150	2.850	
29C/32A	1.000	0.850	renew if scored
29C/32A	36.150	35.850	
29C/32A	36.150	35.850	

Note: To check wear of valve shaft and valve guide, insert valve into guide and put dial gauge to "measuring point". Move valve lateral. If movement is more than 0.15 mm replace both parts.

# III. ENGINE REPAIR

Part. Description	Dimension		
	Original max. mm	min. mm	max. Limit mm
<p>III.2.19 Rocker arm and shaft 15B/D 18B/D 29C 32A</p> 	12.018	12.000	12.060
	11.984	11.966	11.962
	12.018	12.000	12.060