



# Inspection Reports

## PAMA

PAMA is a very large mining company in Indonesia. The GF2 Formula is used in all company owned HD 785-5 Engines. The normal maintenance cycle required prior to engine re-Manufacturing occurred previously at 15,000 hours or 900,000 miles. This maintenance included replacing cylinder liners with new, expensive liners. After years of using the additive, the regular maintenance schedule was changed from 15,000 hours to 25,000 hours before total reconstruction of the engine was required. Using the additive has kept the cylinder liners within nearly identical tolerances of new liners. Enclosed are inspection reports showing measurements of a new liner and a liner with 14,887 hours of run time. Tolerances are within 'new' specifications. This , along with cleanliness of the engine, has saved PAMA millions of dollars in maintenance

PAK S YD & MR. DENTON

OLD LINER

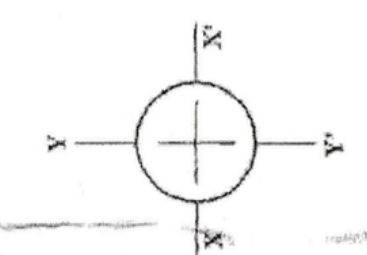
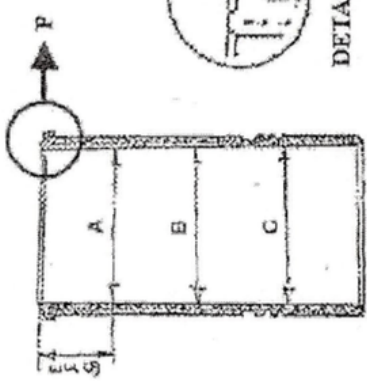
QA : 5

MEASURE &  
INSPECTION  
SHEET (04 of 08)

PT. PAMAPERSADA  
NUSANTARA  
COMEXSHOP DEPARTMENT

UNIT MODEL : HD 785-S	ENGINE MODEL : SA12V140
SERIAL NUMBER : 4589	SERIAL NUMBER : 13912
LIFE TIME : 14.887	MECHANIC : EKO WATIENO
WO NO. : 65004044	DATE : 20 Juli 2007

ID. CYLINDER LINER		STANDARD 140		
		+ 0.040	+ 0.021	
R1	X-X	A	B	C
	Y-Y	140,035	140,035	140,035
R2	X-X	140,040	140,050	140,040
	Y-Y			
R3	X-X			
	Y-Y			
R4	X-X			
	Y-Y			
R5	X-X			
	Y-Y			
R6	X-X			
	Y-Y			
L1	X-X			
	Y-Y			
L2	X-X			
	Y-Y			
L3	X-X			
	Y-Y			
L4	X-X			
	Y-Y			
L5	X-X			
	Y-Y			
L6	X-X			
	Y-Y			



**CYLINDER LINER**

PROTUTION OF CYL. LINER		0.07 - 0.15	
STD	NO.	ACTUAL	
R1			
R2			
R3			
R4			
R5			
R6			
L1			
L2			
L3			
L4			
L5			
L6			
L7			

ROUNDNESS		0.08	
R LIMIT	NO.	ACTUAL	
R1			
R2			
R3			
R4			
R5			
R6			
L1			
L2			
L3			
L4			
L5			
L6			
L7			

CYLINDRICITY		0.08	
R LIMIT	NO.	ACTUAL	
R1			
R2			
R3			
R4			
R5			
R6			
L1			
L2			
L3			
L4			
L5			
L6			
L7			

INSPECTED BY : ABU

20/10/07

AK SATIWA & MR. BENTON

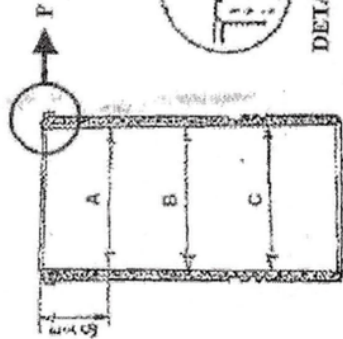
NEW LINER

**QA : 5**  
MEASURE &  
INSPECTION  
SHEET (04 of 08)

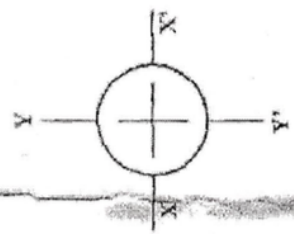
PT. PAMAPERSADA  
NUSANTARA  
COMEXSHOP DEPARTMENT

UNIT MODEL	: HD 785 -S	ENGINE MODEL	: SAIRV140
SERIAL NUMBER	:	SERIAL NUMBER	:
LIFE TIME	: NEW COMP	MECHANIC	: EKO WARTONO
WO NO.	:	DATE	: 20 JUL 2007

ID. CYLINDER LINER			
STANDARD	140	+ 0.040	
	A	B	C
R1	X-X	140,030	140,030
	Y-Y	140,030	140,030
R2	X-X		
	Y-Y		
R3	X-X		
	Y-Y		
R4	X-X		
	Y-Y		
R5	X-X		
	Y-Y		
R6	X-X		
	Y-Y		
L1	X-X		
	Y-Y		
L2	X-X		
	Y-Y		
L3	X-X		
	Y-Y		
L4	X-X		
	Y-Y		
L5	X-X		
	Y-Y		
L6	X-X		
	Y-Y		



**CYLINDER LINER**



DETAIL "P"

PROTUTION OF CYL. LINER		0.07 - 0.15	ACTUAL
STD	NO.		
	R1		
	R2		
	R3		
	R4		
	R5		
	R6		
	L1		
	L2		
	L3		
	L4		
	L5		
	L6		
	L7		

ROUNDNESS		0.08	ACTUAL
R LIMIT	NO.		
	R1		
	R2		
	R3		
	R4		
	R5		
	R6		
	L1		
	L2		
	L3		
	L4		
	L5		
	L6		
	L7		

CYLINDRICITY		0.08	ACTUAL
R LIMIT	NO.		
	R1		
	R2		
	R3		
	R4		
	R5		
	R6		
	L1		
	L2		
	L3		
	L4		
	L5		
	L6		
	L7		

INSPECTED BY: ABU

2007