240GC590BM SH. 1 OF 2

GENERAL SPECIFICATIONS

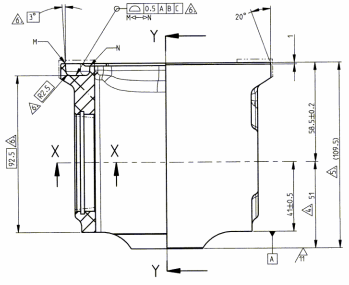
NO.	SUBJECT	APPLIES TO
650GS11	SUPPLIER DWG.	ALL
812GS11-S2	PART IDENT.	ALL

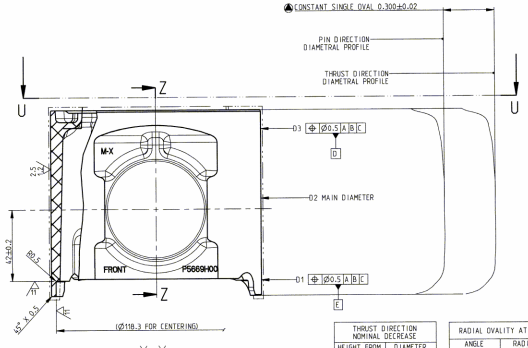
SYM	ZONE	CHANGES	NO.	DATE	BY	APPD.
A	---	PRODUCTION RELEASE	E79544.40 H95-0125.40	07/15/96	FL	---
B	J7	Ø 118.3 WAS Ø 116.3	98J0035 H97-0332	1-27-98	GM	CDH
C	---	CHANGED TO SUPPLIER DWG. Ø CYLINDER STAD. WAS 123.850 & WEIGHT TOL. WAS ± 9	H02-0057.00 0230034	4/25/02	SAM	KDG
D	---	REVISED PER LATEST SUPPLIER DRAWING REV. 01 REM. 45° CHAMFER ON PIN BORES	0230034-01 H02-0057.01	3-13-02	RSB	KDG
E	---	REVISED MAT'L PER LATEST SUPPLIER DRAWING ALSO SEE SHEET 2	0330167 H03-0247.00	10/10/03	EMP	KDG
F	---	ISSUED NEW SUPPLIER DWG REFLECTING SEMI-SOLID TOP SEE SHEET 2	0430125 H04-0125.00	7/15/04	JWN	KDG 7/16/04
G	---	ISSUED NEW SUPPLIER DWG REFLECTING THE ADDITION OF A PIN BORE CHAMFER	0430125-01 H04-0125.01	6/20/05	JWN	KDG 6/21/05
H	---	ISSUED NEW SUPPLIER DWG. DWG. REV. WAS 01 SEE SHEET 2	0730670 DCN D-13525-89 H07-0670.00	2007-8-18	JWN	KDG 8/16/07

	CYLINDER Ø	DIAMETERS AT THRUST DIRECTION D1	D2 ▲	D3	WEIGHT g
TOLERANCE	±0.013	⚠	±0.013	⚠	±20
NOMINAL	123.863	(123.754)	123.763	(123.72)	617

REVISION HISTORY

REV.	DATE	ER	ITEM	DESCRIPTION	DRAWN	APPR.
00	27-May-04	04-0033	N/A	DRAWING RELEASE	LEIBOLD	REBELLO
01	15-Jun-05	05-0165	1	ADDED NOTE FOR TRACEABILITY		
			2	ADDED DIM FOR CHAMFER	LEIBOLD	REBELLO
			3	ADDED DIM FOR CHAMFER		
02	4-May-07	06-0343	1	WAS OPTIONAL MARK BY MICRO-PERCUSSION 0.5 MAX DEPTH OR LASER ENGRAVE THE FOLLOW ING IDENTIFICATIONS. - MACHINING DATE CODE - MACHINE CELL	LEIBOLD	REBELLO
			4	ADDED: FEDERAL MOGUL PART NUMBER & REVISION NUMBER		
			5	ADDED: TSYE-015-001 US		
			6	REMOVED Ø		





NOTES:

1. TOTAL SURFACE AREA OF SKIRT ~0.080m².
2. THE VALUES SHOWN FOR OUTSIDE DIAMETERS EXCEPT MAIN DIAMETER, ARE FOR GAGING REFERENCE ONLY.

⚠ OUTSIDE DIAMETERS ARE REFERED TO ACTUAL MEASURED MAIN DIAMETERS AS SHOWN BELOW.

D3 = (D2-0.043)±0.013
D2 = MAIN DIAMETER
D1 = (D2-0.009)±0.013

NOMINAL CLEARANCE AT MAIN DIAMETER D2 = 0.1

⚠ PERMISSIBLE TO REMOVE MATERIAL TO 46 FOR WEIGHT CONTROL. tmn = 0.04g (3.2 TOTAL VARIATION FOR WEIGHT CONTROL)

⚠ THIS DIM CAN VARY ACCORDING TO WEIGHT CONTROL DIMENSION REF NOTE 4.

⚠ TYPICAL ALL TRAYS.

THRUST DIRECTION NOMINAL DECREASE		
HEIGHT FROM COUNTERBORE		DIAMETER DECREASE
100.5		-0.195
97.5		-0.104
94.4		-0.053
92.7	D3	-0.043
89.8		-0.035
81.2		-0.018
71.1		-0.009
62.0		-0.003
57.5		0.000
49.0	D2	0.000
36.6		0.000
17.4		0.000
11.3		-0.004
6.2		-0.008
4.9	D1	-0.009
3.8		-0.012
2.2		-0.019
0		-0.034
-1.9		-0.049
-4.9		-0.079
-7.0		-0.112
-8.0		-0.140
-9.0		-0.177

RADIAL OVALITY AT D2	
ANGLE (DEGREES)	RADIAL DECREASE
0°	THRUST 0.0000
5°	-0.0011
10°	-0.0045
15°	-0.0100
20°	-0.0175
25°	-0.0268
30°	-0.0375
35°	-0.0493
40°	-0.0620
45°	-0.0750
50°	-0.0880
55°	-0.1007
60°	-0.1125
65°	-0.1232
70°	-0.1325
75°	-0.1400
80°	-0.1455
85°	-0.1489
90° PIN	-0.1500

FEDERAL MOGUL SPECIAL CHARACTERISTICS

▲ CONTROL CHARACTERISTIC

S SAFETY CHARACTERISTIC

SPECIFICATION	MACK TRUCKS	FEDERAL MOGUL
FIRST ARTICLE INSPECTION	N/A	MQP-0243
MATERIAL	N/A	MS-51054
WASHING	N/A	MW I-0071
MACHINE OPERATION	N/A	MQP-0025
IDENTIFICATION AND TRACEABILITY	N/A	TSYE-015-001 US
SURFACE FINISH	N/A	ISO 1302
CLEANLINESS	312GS 178-A	N/A
PACKAGEING AND PRESERVATION OF PARTS	N/A	MQP-0025
PROFILE & OVALITY TOLERANCING	N/A	OVALITY MW I-0690 PROFILE MW I-0691
GEOMETRIC DIMENSIONING AND TOLERANCING	N/A	ASME Y14.5M-1994

ITEM	QTY	DRAWING NO.	MATERIAL REF.	DESCRIPTION
1	1	P5669H00	FM-124R	ROUGH SKIRT

BILL OF MATERIALS

GENERAL TOLERANCE WHEN NOT SPECIFIED, MACHINING DIMENSIONS

LINEAR DIMENSION		RADIUS		ANGLES
L ≤ 0.5	±0.1	R ≤ 0.5	±0.1	±1
0.5 < L ≤ 30.0	±0.2	0.5 < R ≤ 3.0	±0.2	SURFACE FINISH
30.0 < L ≤ 120.0	±0.3	3.0 < R ≤ 30.0	±0.3	
120.0 < L ≤ 400.0	±0.5	30.0 < R ≤ 200.0	±0.4	

DRAWN	A. LEIBOLD	DIMENSIONS ARE IN MILLIMETERS	THIRD ANGLE PROJECTION
DATE	14-Jan-04		
CHECK	B. ZHU		
DATE	27-May-04		
APPR.	J. REBELLO		
DATE	27-May-04		

FEDERAL MOGUL

POWERTRAIN SYSTEMS

MODEL NAME	ENGINE
P5669S00	E7
CUSTOMER	
MACK TRUCKS	

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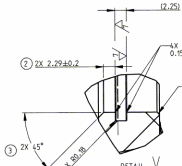
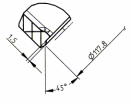
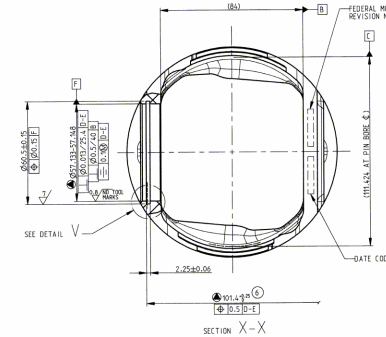
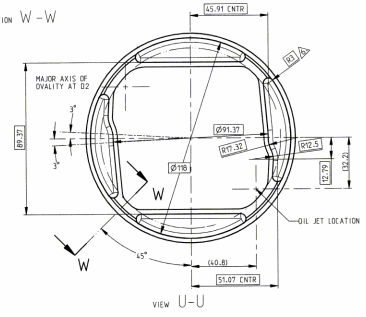
CUSTOMER PN	SCALE	DRAWING NAME
240GC590BM	1:1	FINISHED SKIRT (Ø123.85)
MATERIAL	SIZE	DRAWING NO. / REV. / SHEET
REFERENCE BOM	D	P5669S00 / 02 / 1/1

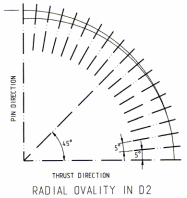
ProEngineer











NOTES:

1. ALL GEOMTRIC DIMENSIONING AND TOLERANCING IS PER SUPPLIER SPEC.
2. APPROVED SUPPLIER: FEDERAL MOGUL
3. SUPPLIER PART NO.: P5669S00 REV. 02
4. THIS DRAWING CONTAINS A SUPPLIER'S PROPRIETARY INFORMATION AND IS NOT FOR GENERAL DISTRIBUTION.

DENOTES KEY CONTROL CHARACTERISTIC. IDENTIFIES THOSE ITEMS ON WHICH DEFINED PROCESS CONTROLS AND STATISTICAL APPLICATION ARE MANDATORY.
APPLIED TO THIS DWG. ☐ YES ☑ NO

E7 EUP

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ref. 240GC2748M & -2350M | ALL LINEAR DIMENSIONS ARE SHOWN IN MM

		UNLESS OTHERWISE SPECIFIED	
supd.	240GB590R	INCHES TOL	METRIC TOL
MATL.	J.S.D.	1 DECIMAL SCALE DRAWING X ± 0.1 in 2 PL DECIMAL .XX ± 0.030 IN 3 PL DECIMAL .XXX ± 0.010 IN ANGULAR ± 1° 4 PLACE DECIMAL .XXXX ± 0.005 IN SURFACE FINISH 125 µin MAX	1 DECIMAL SCALE DRAWING X ± 2.5 mm 2 PL DECIMAL .XX ± 0.75 mm 3 PLACE DECIMAL .XXX ± 0.25 mm ANGULAR ± 1° 4 PLACE DECIMAL .XXXX ± 0.13 mm SURFACE FINISH 3.2 µm MAX
MFG.	---		
ENGRG.	C.D.HASSINGER		
CHK'D.	---		
DRAWN	F. LINDSAY		
DATE	06-12-96	SCALE NONE	SHEET ---

PREVIOUS CHANGES

THIRD ANGLE PROJECTION

MACK TRUCKS, INC.

TITLE: PISTON (SKIRT)

NO. 240GC590BM SH. 1 OF 2

240GC590BM SH. 1 OF 2

FORM NO. [illegible]