

QUESTION 4: MECHANICAL ASSEMBLY

Given:

- The exploded isometric drawing of the parts of an oil pump assembly, showing the position of each part relative to all the others
- Orthographic views of each of the parts of the oil pump assembly
- An example of a conventional representation of a worm gear assembly.

Instructions:

- Answer this question on page 6.
- Draw, to scale 1 : 1 and in third-angle orthographic projection, the following views of the assembled parts of the oil pump assembly:
 - 4.1 **The front view** as seen from the direction of the arrow shown on the exploded isometric drawing.
 - 4.2 **A sectional right view** on cutting plane A-A. The cutting plane, which passes vertically through the oil pump assembly, is shown on the front view of the pump body (part 9).

NOTE:

- Planning is essential.
- The drawing must comply with the guidelines as contained in the SANS 10111.
- Show THREE faces of the M14 retaining bolt (part 3) in the front view.
- Draw a conventional representation of the worm gear assembly in the sectional right view.
- Add cutting plane A-A.
- NO hidden detail is required.

[96]

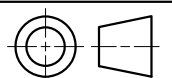
PARTS LIST			
	PARTS	QUANTITY	MATERIAL
1	BUSH	1	BRONZE
2	WORM SHAFT	1	EN 8
3	M14 RETAINING BOLT	1	BRASS
4	PUMP PLUNGER	1	BRASS
5	CRANK GEAR	1	EN 19
6	SPLIT BUSH	2	BRONZE
7	PUMP HOUSING	1	BRASS
8	COVER PLATE	1	MILD STEEL
9	PUMP BODY	1	STAINLESS STEEL

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OIL PUMP

ALL DIMENSIONS ARE IN MILLIMETRES.



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FOR OFFICIAL USE ONLY	
INCORRECT ORTHOGRAPHIC PROJECTION	
INCORRECT OVERALL SCALE	
INCORRECT HATCHING	
PARTS NOT ASSEMBLED	
TOTAL PENALTIES (-)	

ASSESSMENT CRITERIA					
FRONT VIEW					
		POSSIBLE	OBTAINED	SIGN	MODERATED
1	COVER PLATE	8			
2	PUMP BODY + BUSH	5			
3	WORM SHAFT	2 ½			
4	M14 RETAINING BOLT	4 ½			
SUBTOTAL		20			
SECTIONAL RIGHT VIEW					
1	COVER PLATE	11 ½			
2	PUMP BODY	11 ½			
3	CRANK GEAR + SHAFT	17			
4	PUMP PLUNGER	7			
5	SPLIT BUSH	3			
6	PUMP HOUSING	10			
SUBTOTAL		60			
GENERAL					
1	CENTRE LINES	4			
2	SECTION A-A	3			
3	ASSEMBLY	9			
SUBTOTAL		16			
TOTAL		96			
PENALTIES (-)					
GRAND TOTAL					
Initials: _____					
Surname: _____					
Task: 10.1 - Page: 10.6					

