



नाम

Name : \_\_\_\_\_

अनुक्रमांक

Roll No : \_\_\_\_\_

पाठ्यक्रम

Course : \_\_\_\_\_

दिनांक

Date : \_\_\_\_\_

प्राप्तांक

Marks Awarded : \_\_\_\_\_

अनुदेशक के आदयक्षर

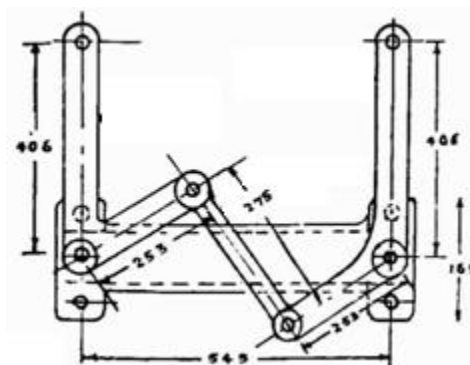
Instructor Initial : \_\_\_\_\_

### STUDY OF RODDING COMPENSATOR

1. A compensator consists of the following parts:

SERIAL NUMBER	NOMENCLATURE	NO.REQUIRED
1.	ACUTE CRANK	1
2.	OBTUSE CRANK	1
3.	BASE	1
4.	LINK	1
5.	PIN COMPLETE	2
6.	SPLIT PIN	2
7.	WASHER	2

2. Indicate these parts in the sketch given below:-



3. Measure and indicate the following in the sketch:-

- Length of the arms of acute crank:
- Length of the arms of obtuse crank:
- Length of the arms of obtuse crank:
- Length of the link:

4. Distance between the C/L of the fixing bolts:
  - A. Lengthwise:
  - B. Widthwise:
  - C. Diagonally:
5.
  - A. Types of bolts
  - B. Square/ Hex Head:
  - C. Size of split pin:
  - D. Size of pin:
6. Keep the compensator in its central position and move the 16 inches (406mm) Arm of the obtuse crank first inwards and then outwards and note the corresponding movement of the 16 inches (406mm) arm of the acute crank.

**TABULATE YOUR READINGS BELOW:**

NOTE:-- The compensator is central when the distance/ between the central line of holes on the 16 inches (406mm) arms of the acute and obtuse crank is equal to the distance between the central line of the fulcrum pins of the two cranks.

**5.A.**

IN DEG	INWARD MOVEMENT 16INCHES(406MM)ARM OF OBTUSE CRANK	CORRESPONDING INWARD MOVEMENTOF 16INCHES (406MM) OF ACUTE CRANK	REMARKS
5 <sup>0</sup>			
10 <sup>0</sup>			
15 <sup>0</sup>			
20 <sup>0</sup>			
25 <sup>0</sup>			
30 <sup>0</sup>			
35 <sup>0</sup>			
36 <sup>0</sup>			
37 <sup>0</sup>			
38 <sup>0</sup>			
39 <sup>0</sup>			
40 <sup>0</sup>			

**5.B.**

IN DEG	OUT WARD MOVEMENT OF OBTUSE CRANK	CORRESPONDING OUT WARD MOVEMENT OF ACUTE CRANK	REMARKS
5 <sup>0</sup>			
10 <sup>0</sup>			
15 <sup>0</sup>			
20 <sup>0</sup>			
25 <sup>0</sup>			
30 <sup>0</sup>			
35 <sup>0</sup>			
40 <sup>0</sup>			
50 <sup>0</sup>			
55 <sup>0</sup>			
60 <sup>0</sup>			
65 <sup>0</sup>			
70 <sup>0</sup>			

- 5.C .** The outward movement of the two arms of the compensator is equal between \_\_\_\_\_ degrees .
- 5.D.** The acute crank remains stationery even when the obtuse crank is moved outward between \_\_\_\_\_ degrees.
- 5.E.** The acute crank moving in the same directions as the obtuse crank when the obtuse crank when the latter is moved out from \_\_\_\_\_ degrees.
- 5.F.** From the above results it is concluded that a compensator is effective only between \_\_\_\_\_ degrees inward movement and \_\_\_\_\_ degrees outward movement.

**NOTE:-** To cover up in accuracies during installation, in practice an IRS Compensator is used for an angular movement of 22 ½ on either side Of its central position.

- 6.A.** Measure the stroke of 16inches (406mm) arm of the obtuse crank/acute crank for an angular movement of 22 ½ on either side of its central position .

#### **ACUTE CRANK :**

#### **OBTUSE CRANK :**

- B.** The compensator is capable of receiving a maximum stroke of :
- C.** The stroke applied at the lever tail to a rod transmission is either 6 inches (150mm) or 8 inches (200mm).
- D.** The stroke available at the compensator for copensation is:
- 1). A – 8 INCHES OR A- 200MM. =
  - 2). A -- 6 INCHES OR A- 150MM =

The stroke available for compensation at the compensator as given above is equal to the variation in the length of rodding connected to one arm of the compensator.

The variation in the length of rodding caused by changes in temperature  
 Is 24 inches ( 12mm for every 10degrees of temp for every 100M length of rod)  
 For every 10 degree F change of temperature for every 100YARDS length of rod.  
 (co-efficient of linear expansion or steel is 0.000012mm per degree centigrade).  
 (co-efficient of linear expansion or steel is 0.000065inches per degrees fahrenheit).  
 Ranges of temperature in INDIA is as follows:

- 1). Area with extrearms of climate like ALLAHABAD,DELHI, NAGPUR etc 150F.
- 2). Coastal area and other places with moderate climate like MUMBAI,CHENNAI etc 120 F.

Total variation V in length of a rod in inches =  $L * \alpha * T$ .

Where L is the length of a rod in yards is the co-efficient of transmission for the material of rodding and T is the range of temperature  $L = \frac{V}{\alpha * T}$

7.\_ Calculate the length of rodding "L " that can be connected to onearm of the compensator when.

- A. Lever at stroke is 8 inches (200mm) range of temperature 132F (83.3degreesC).
- B. Lever at stroke is 8inches (200mm) range of temperature 152F(62.2degrees C).
- C. Lever at stroke is 6inches (150mm) range of temperature 182F (83.35degrees C) .
- D. Lever at stroke is 6inches (150mm) range of temperature 152F (49degrees C).

8. The total length of rod that a compensator for :

<u>The stroke at lever tail</u>	<u>Range of temp.</u>
A) 8inches (200mm)	182F(83.3 C)
B) 8inches (200mm)	152F(62.2C)
C) 6inches (150mm)	182F(83.3C)
D) 6nches (150mm)	152F(62.2C)

Date;

Signature of trainee