Experiment No. 26

Statement:

Application of different types of springs

Desired Learning Objectives

2. At the end of this practical, the trainees will be able to understand the application of different types of spring.

Equipment / Material Required

3. Required apparatus are: -

(a) Chart / Diagram of different types of spring

(b) Different Aircraft components / LRU

(c) Flat springs

(d) Leaf spring

(e) Spiral spring

(f) Helical compression and tension springs

(g) Helical torsion springs

(h) Coned springs

(j) Torsion-bar springs

(k) Shear machine

Safety Precautions

4. During the practical, following safety precautions are to be adhered:

(a) Always consult technical manual to select specified type of spring.

(b) Care must be taken while carrying out spring installation or removal; it can injure your hand. Connect the in-accessible end first.

(c) Spring mounting ends be secured and grip firmly to avoid fouling out during operation.

(d) Don't apply extra tensile to any spring, it may lead to deformation of spring.

(e) Installed spring should be free from any untoward twist, rubbing and chaffing.

Procedure

5. The following procedure during practical are: -

(a) Issue of tools for springs installations and removal from tool store.

(b) Display all types of springs in the practical bay and group them according to three basic forces applied on the springs.

(c) Segregate the springs according to the force / load applied on springs i.e. compression, tension and torsional. Illustration is given in following figures: -

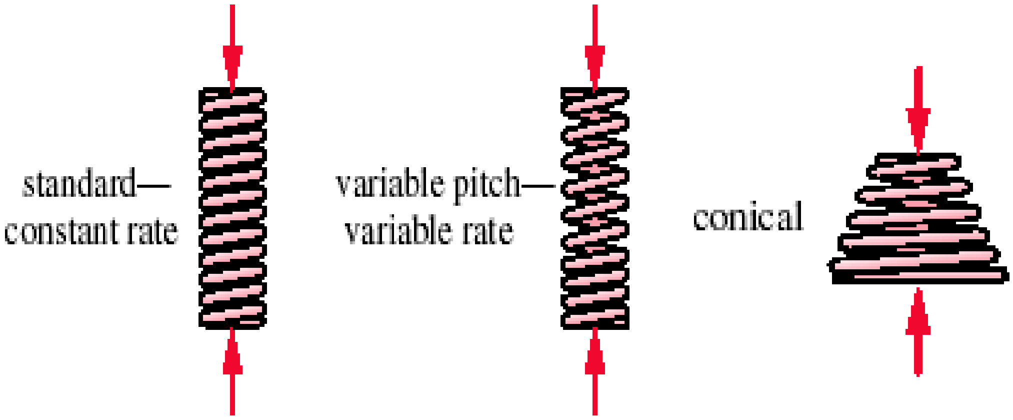

FIG 6.12.1: Springs for Compression Load

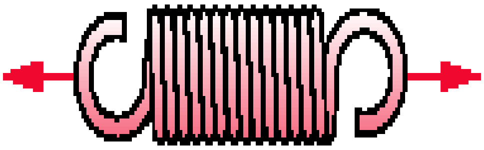

FIG 6.12.2: Springs for Tensile Load

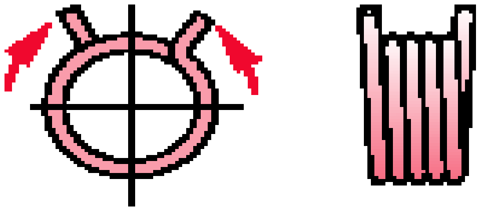

FIG 6.12.3 : Springs for Torsional Load

(d) Pick first specimen of LRU / component to illustrate type of spring fitted. Spring with Compression purpose may be designed in many sizes and constructions.

(e) Pick second specimen of LRU / component part to illustrate type of spring fitted. Spring with Tensile load. Operate the shear machine with foot pedal to demonstrate expansion and contraction of tensile type of spring. These are also designed in many sizes and constructions.

(f) Pick third specimen of LRU / component part to illustrate type of spring fitted. Spring with Torsional load. Show Landing Gear handle by pulling it out for torsional load application. These are also designed in many sizes and constructions; some are shown in the layout of this practical.

(d) Trainees are tasked to write carefully see the different types of spring and fill up the following blank space: -

(i) Specimen No 1 Shape ….. ………Load………………

(ii) Specimen No 2 Shape ….. ………Load………………

(iii) Specimen No 3 Shape ….. ………Load………………

Conclusion:

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