Task Title: Understanding V-Belts

OALCF Cover Sheet – Practitioner Copy

Learner Name: _____

Date Started: _____

Date Completed: _____

Successful Completion: Yes ☐ No ☐

Goal Path: Employment ☐ Apprenticeship ☐

Secondary School ☐ Post Secondary ☐ Independence ☐

Task Description: The learner will read about V-Belts and answer questions.

Main Competency/Task Group/Level Indicator:

- Find and Use Information/Read continuous text/A1.3

Materials Required:

- Pen/pencil and paper and/or digital device

Learner Information

Millwrights must understand different types and sizes of V-Belts for the purpose of repairing, replacing them on various industrial equipment.

Read “V-Belt Information and Sizes” and “V-Belt Construction”.

V Belt Information and Sizes

Flat belts and V-belts transmit power by their grip on the pulley or sheave.

Three major factors determine the potential of the grip:

1. Area of contact
2. Belt tension
3. Friction between the belt and pulley or sheave surface

A belt is a loop of flexible material used to mechanically link two or more rotating shafts, most often parallel. Belts may be used as a source of motion, to transmit power efficiently, or to track relative movement. Belts are looped over pulleys. In a two-pulley system, the belt can either drive the pulleys normally in one direction, or the belt may be crossed so that the direction of the driven shaft is reversed. As a source of motion, a conveyor belt is one application where the belt is adapted to continuously carry a load between two points.

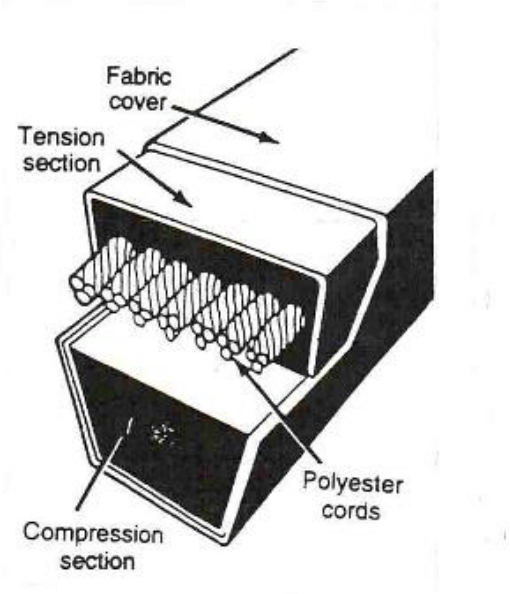
Vee belts (also known as V-belt or wedge rope) is the basic belt for power transmission. They provide the best combination of traction, speed of movement, load of the bearings, and long service life. They are generally endless, and their general cross-section shape is trapezoidal (hence the name "V"). The "V" shape of the belt wedges firmly into a mating groove in the pulley (or sheave), with the result that the belt cannot slip off. The belt also tends to wedge into the groove as the load increases—the greater the load, the greater the wedging action—improving torque transmission and making the V-belt an effective solution, needing less width and tension than flat belts. Optimal speed range is 1000–7000 ft/min. V-belts need larger pulleys for their larger thickness than flat belts.

For high-power requirements, two or more V-belts can be joined side-by-side in an arrangement called a multi-V, running on matching multi-groove sheaves. This is known as a multiple-V-belt drive (or sometimes a "classical V-belt drive").

V-Belt Construction

The V-belt is constructed of three main sections:

- Cover Section: Protects the inner sections from wear and abrasion.
- Tension Section: Contains cords which give the belt the ability to resist stretching.
- Compression Section: Supports the tension section and creates the wedging action in the sheave.



When an endless belt does not fit the need, jointed and link V-belts may be used. However, they are weaker and only usable at speeds up to 4000 ft/min. A link v-belt is a number of rubberized fabric links held together by metal fasteners. They may be adjusted by removing or adding links as needed.

Work Sheet

Task 1: List three functions of belts.

Answer:

Task 2: Describe the construction and reason for a multiple-V-belt drive.

Answer:

Task 3: List the three components of a V-Belt.

Answer:

Answers

Task 1: List three functions of belts.

Answer: Belts may be used as a source of motion, to transmit power efficiently, or to track relative movement.

Task 2: Describe the construction and reason for a multiple-V-belt drive.

Answer: Use for high power requirements when two or more V-belts are joined side-by-side and run on matching multi-groove sheaves.

Task 3: List the three components of a V-Belt.

Answer: Cover section, tension section, compression section.

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
A1.3	Integrates several pieces of information from texts			
	Manages unfamiliar elements (e.g., vocabulary, context, topic) to complete tasks			
	Identifies the purpose and relevance of texts			
	Skims to get the gist of longer texts			
	Infers meaning which is not explicit in texts			
	follows the main events of descriptive, narrative, informational and persuasive texts			
	obtains information from detailed reading			
	Identifies sources, evaluates and integrates information			

This task: Was successfully completed ☐ Needs to be tried again ☐

Learner Comments:

Instructor (print): _____

Learner (print): _____