

3

Couplings

Get ready!

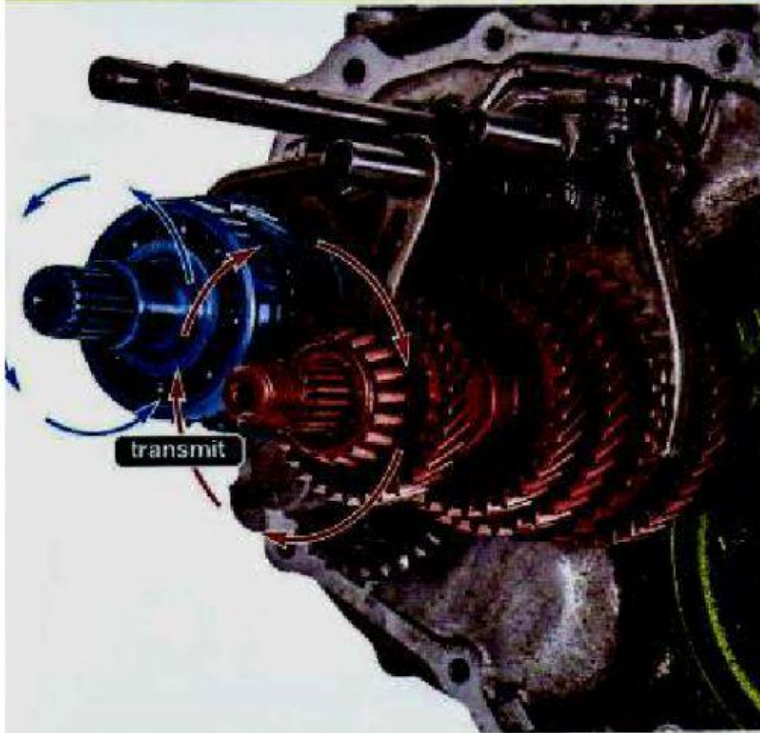
1 Before you read the passage, talk about these questions.

- 1 What are couplings used for?
- 2 What are some different types of couplings?

beam coupling

rigid coupling

output shaft



6.5 Couplings

Why do we use couplings?

Couplings transmit power from one shaft to another. The **input shaft** connects to the power source. The **output shaft** connects to the destination. There are two primary types of couplings.

Rigid couplings align the shafts with each other. Perfect alignment reduces wear on the machine. Rigid couplings maximize performance and efficiency. **Sleeve-style couplings** are the most common rigid coupling.

Sometimes the shafts do not meet perfectly. **Flexible couplings** transmit power without perfect alignment. **Beam couplings** are cut in a spiral shape. These can accommodate several degrees of shaft **offset**. Flexible couplings help reduce noise and unwanted vibrations.



sleeve-style coupling



offset

Vocabulary

3 Match the words or phrases (1-7) with the definitions (A-G).

- | | |
|--------------------|----------------------------|
| 1 __ offset | 5 __ input shaft |
| 2 __ coupling | 6 __ output shaft |
| 3 __ transmit | 7 __ sleeve-style coupling |
| 4 __ beam coupling | |

- A to move something from one place to another
- B a machine part that sends power to its destination
- C a machine part that receives power from the power source
- D a rigid connector that holds parts together within a metal tube
- E the state of being out of alignment
- F a piece of hardware that connects two machine parts together
- G a flexible connector cut from one solid piece of material

Reading

2 Read the textbook excerpt. Then, mark the following statements as true (T) or false (F).

- 1 __ The input shaft transmits power towards the power source.
- 2 __ Sleeve-style couplings can reduce wear on a machine.
- 3 __ Flexible couplings allow for slight misalignment.

4 Read the sentence pairs. Choose the sentence that uses the underlined part correctly.

- 1 A A rigid object cannot bend or change shape.
B To transmit energy is to receive it.
- 2 A A coupling is used to separate two or more shafts.
B A flexible coupling allows for misalignment.
- 3 A Offset is the state of being perfectly in line.
B To align two objects is to bring them in line with each other.

5 Listen and read the textbook excerpt again. What are the benefits of flexible couplings?

Listening

6 Listen to a conversation between two engineers. Choose the correct answers.

- 1 What is the conversation mostly about?
A how to install a beam coupling
B a defective sleeve-style coupling
C the best type of coupling for a design
D the use of couplings to reduce vibrations
- 2 Why does the woman suggest a particular coupling?
A to prevent the connection from breaking
B to minimize noise during operations
C to avoid offset between the shafts
D to reduce wear on the machine

7 Listen again and complete the conversation.

Engineer 1: David, I noticed a problem with your design. This 1 _____ won't work.

Engineer 2: What's wrong, Kathy?

Engineer 1: The input and 2 _____ aren't in alignment.

Engineer 2: You're right. It looks like there's a little bit of 3 _____.

Engineer 1: Yeah. It means we can't use a rigid coupling. 4 _____.

Engineer 2: Oh, you're right. We'll have to use a 5 _____ coupling instead. What do you recommend?

Engineer 1: I think a 6 _____ would work best.

Engineer 2: I agree. We'll use that.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I noticed ...

It looks like we need ...

I think ... would work best.

Student A: You are an engineer. Talk to Student B about:

- a problem with a design
- why a coupling will not work
- which coupling will work better

Student B: You are an engineer. Talk to Student A about a problem with a design.

Writing

9 Use the textbook excerpt and the conversation from Task 8 to fill out the progress report.

HAMDEN INDUSTRIES



Project Progress Report

Project #: 981b

List changes to the project: _____

Reason for changes: _____