CAREER PATHS

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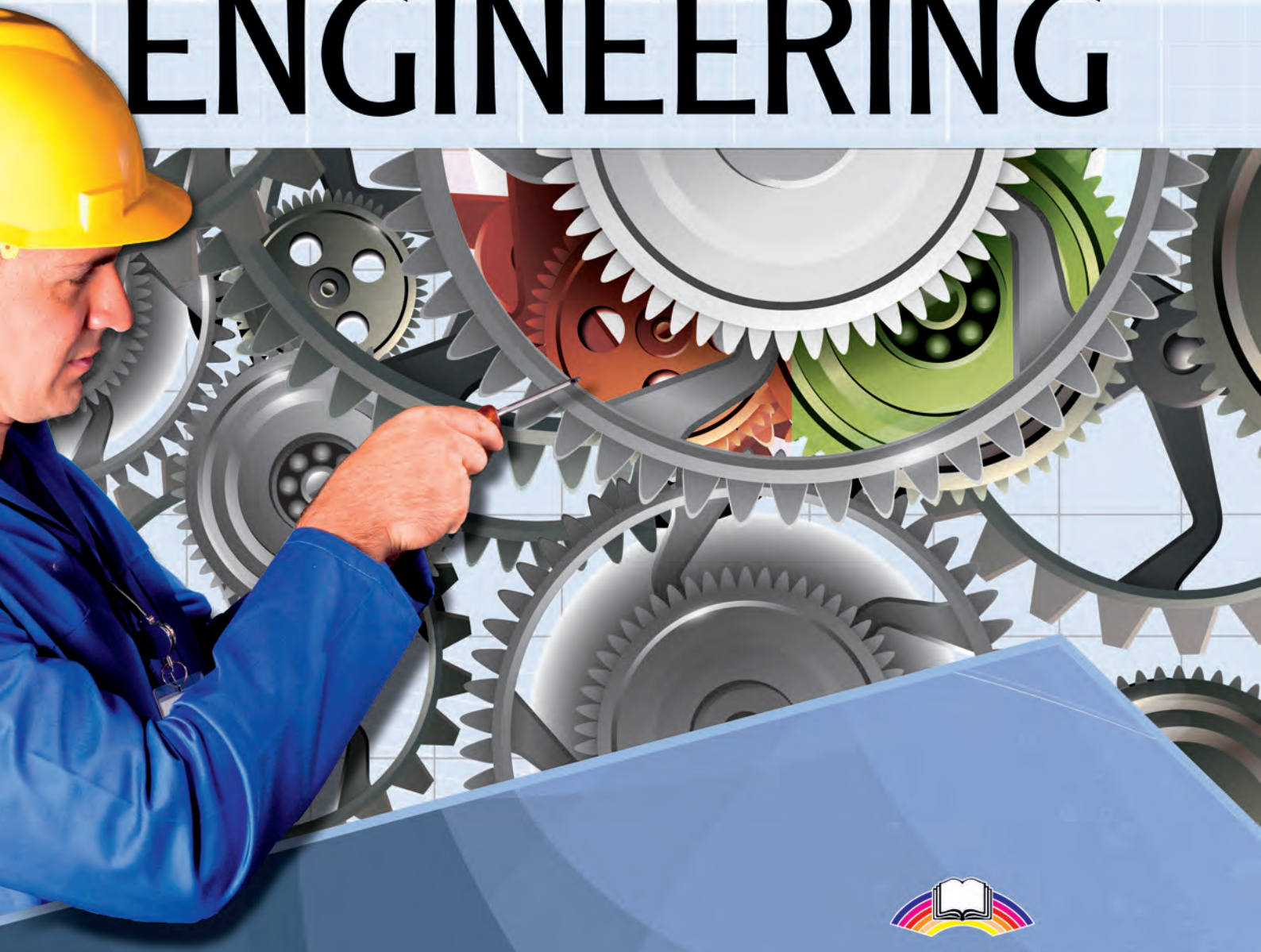
MECHANICAL ENGINEERING



Express Publishing

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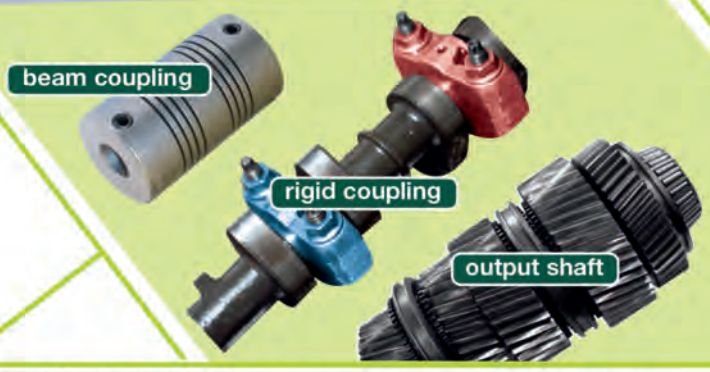
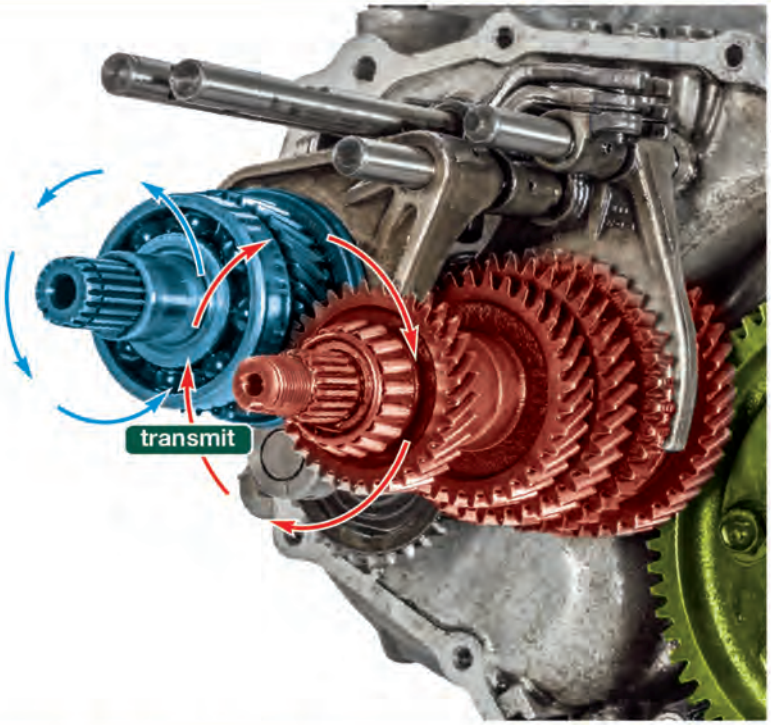
3 Couplings

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?





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.

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.

Vocabulary

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

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

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.

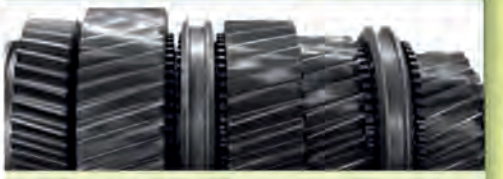
Student A: You are an engineer. Talk to Student B about:
- a problem with a design
- why a coupling will not work
- which coupling will work better

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: _____
_____
_____
_____