

3 Couplings

Get ready!

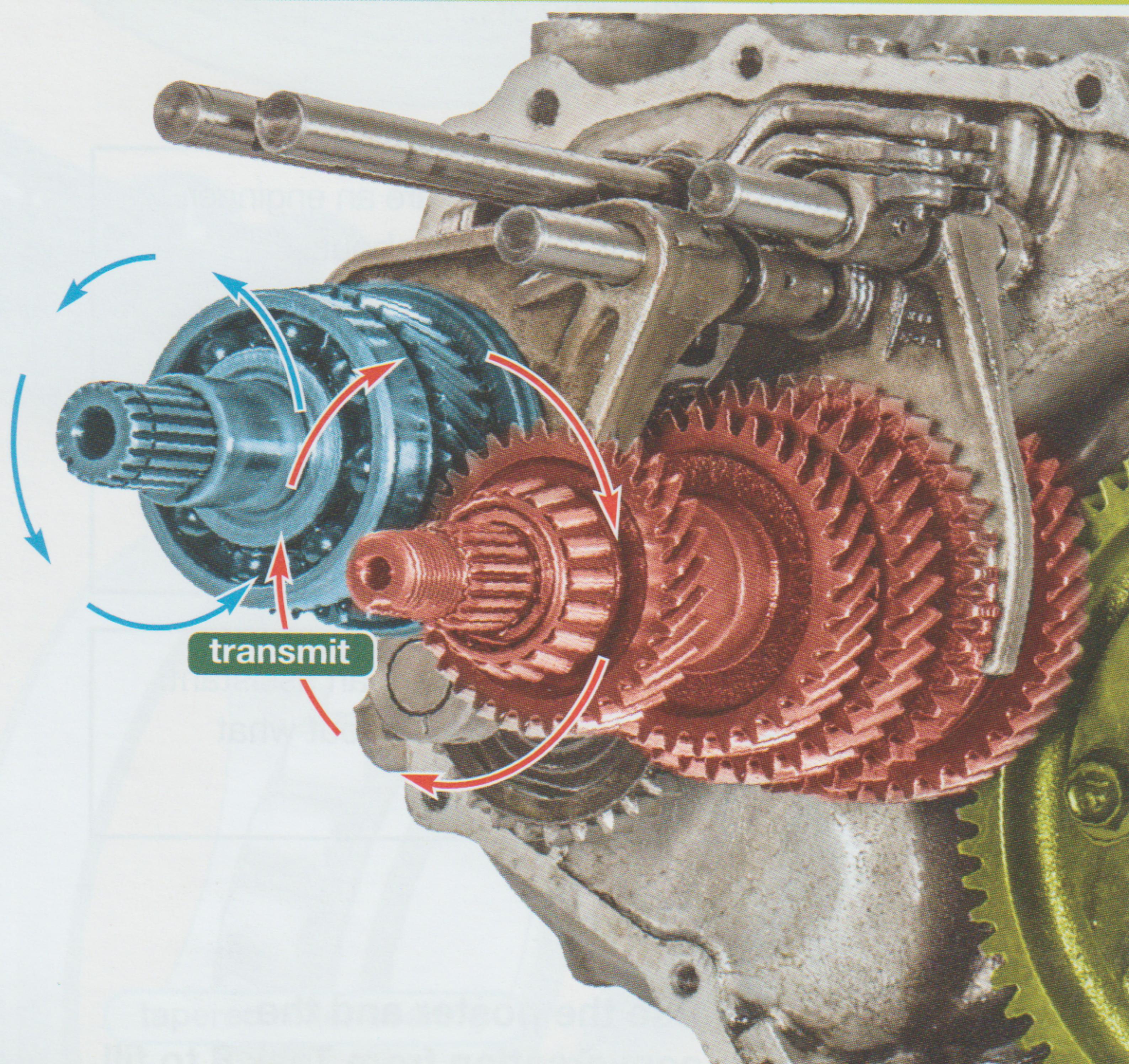
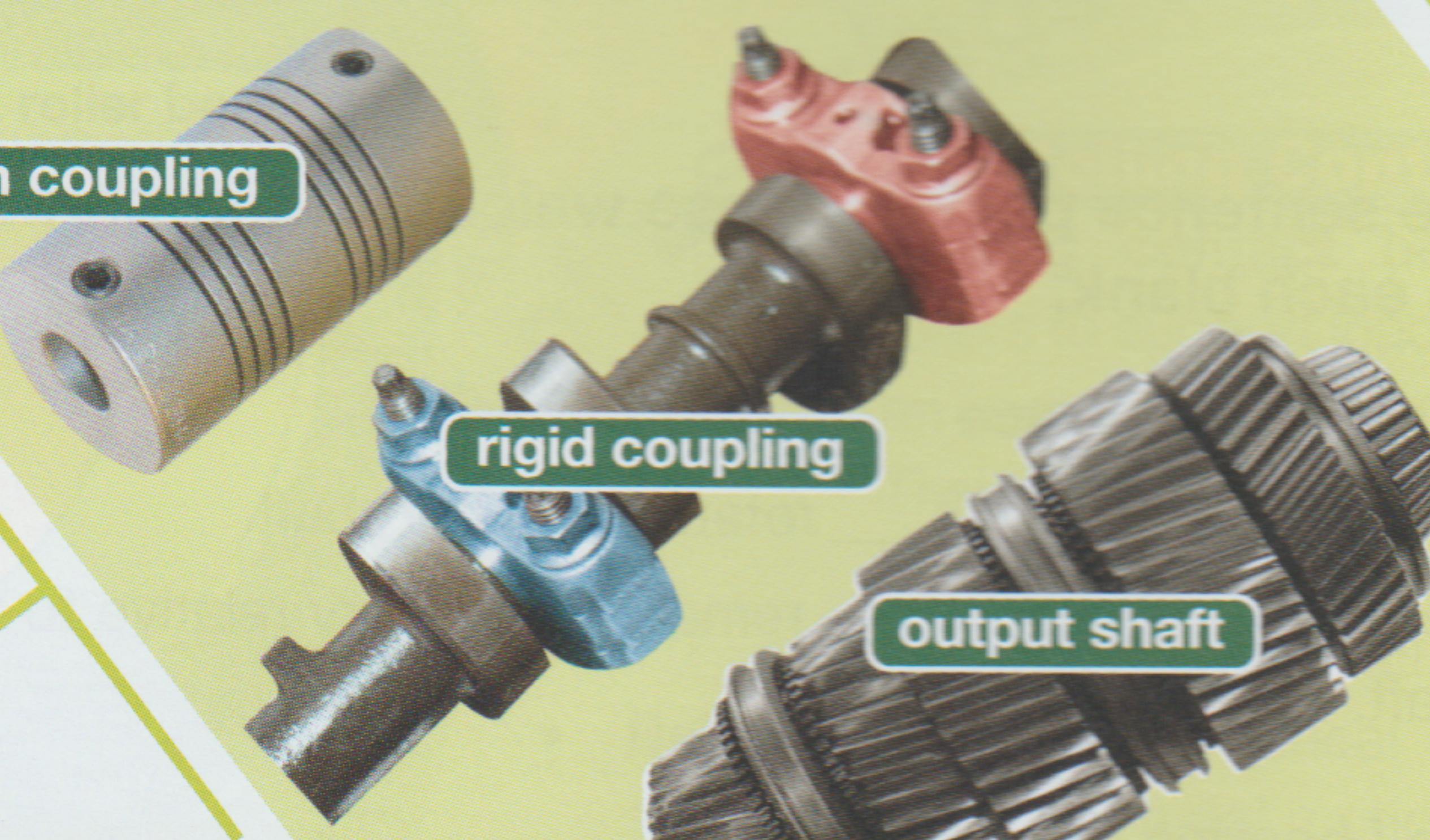
1 Before you read the passage, talk about these questions.

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

beam coupling

rigid coupling

output shaft



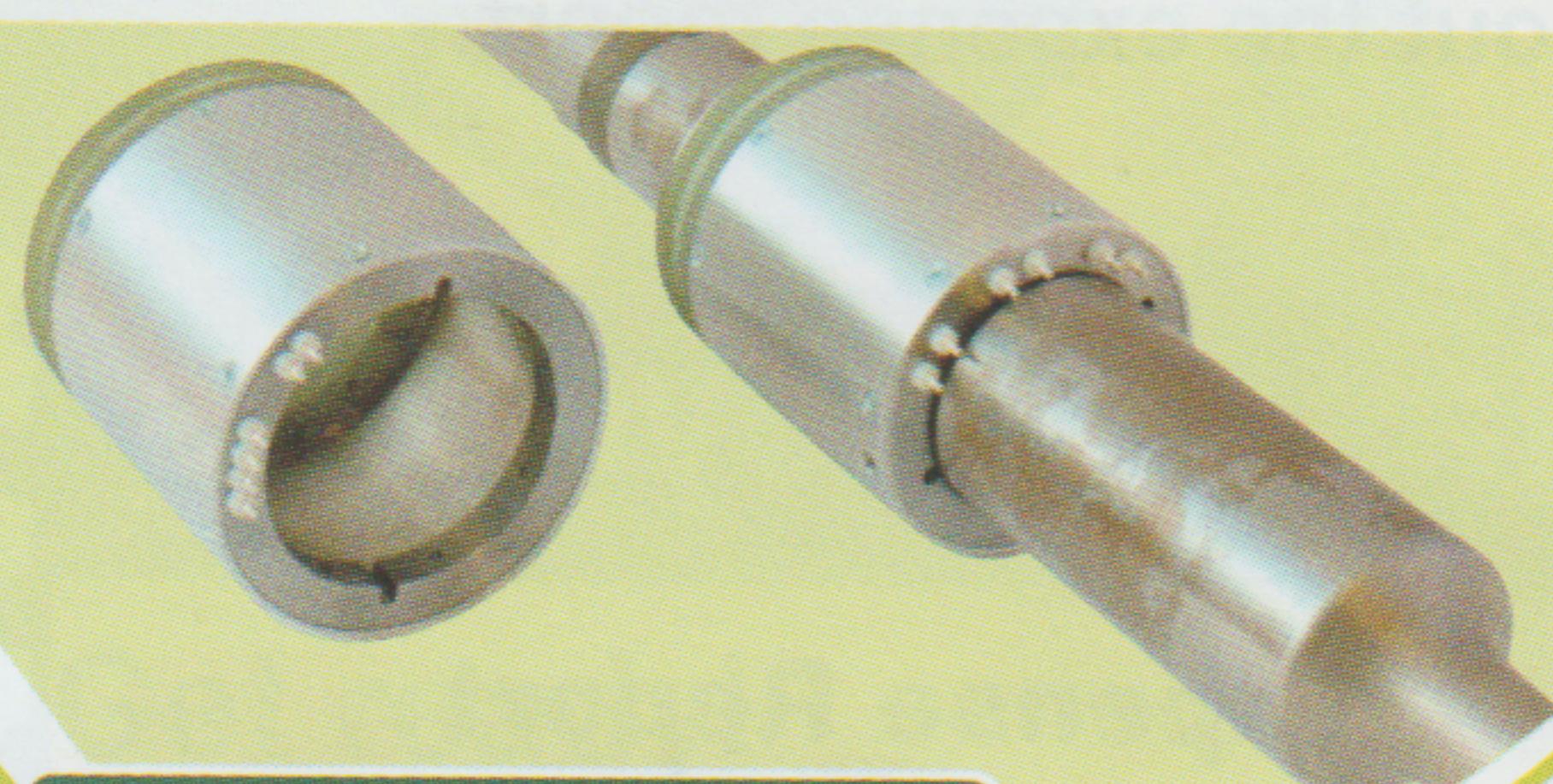
6.5 Couplings

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



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 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

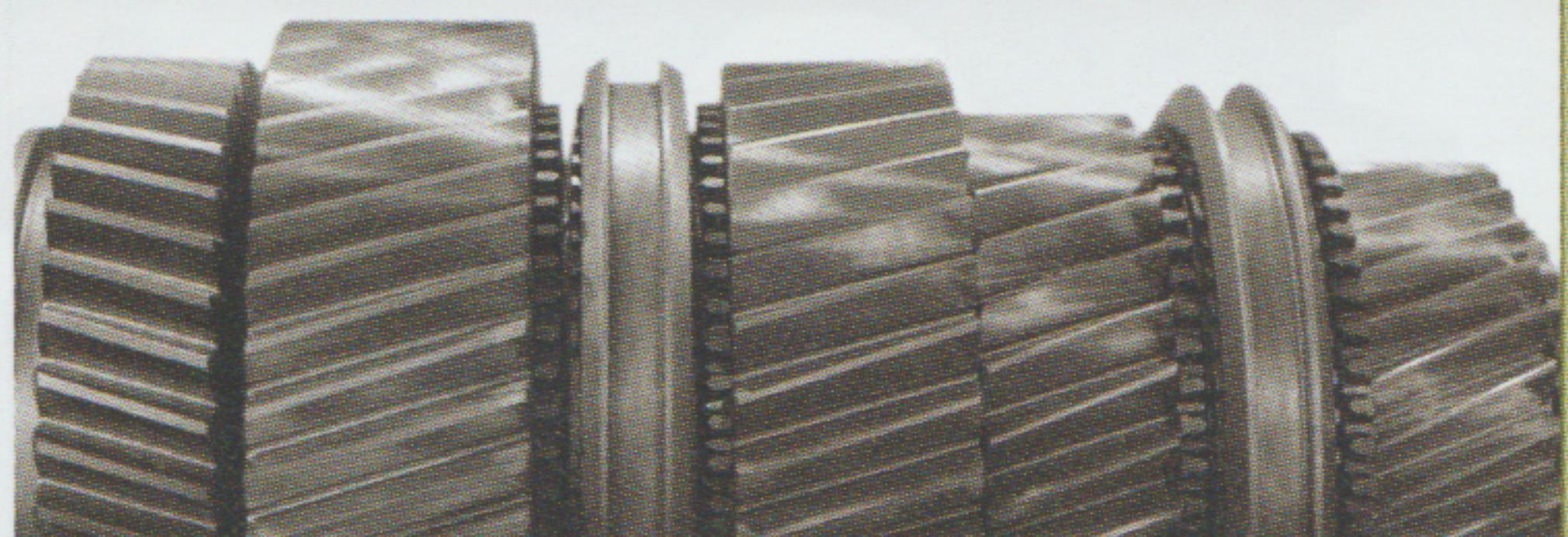
Student B: You are an engineer.

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: _____