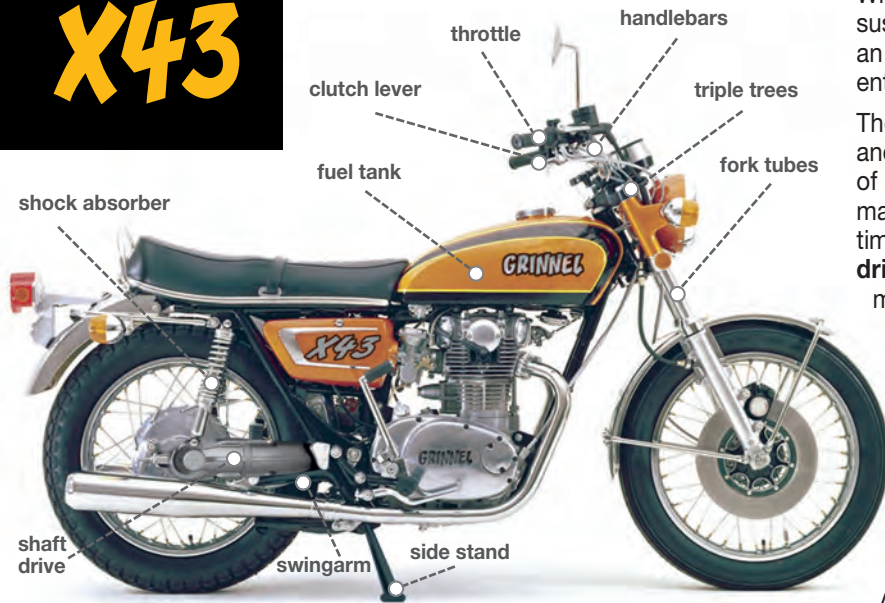


GRINNEL
X43

Coming in at 1,000 pounds with a full tank, the Grinnel X43 is our entry-level touring motorcycle and among our best selling!



With state-of-the-art, computer-adjusted front and rear suspension systems and comfortable seating it offers an amazingly smooth riding experience for those just entering the world of motorcycles.

The X43's **handlebars** are designed to reduce strain and put the driver in full control. Convenient placement of the **throttle**, the **clutch lever**, and the **shift lever** make this bike simple and easy to operate for a first-time driver. Unlike **chain** or **belt drives**, the X43's **shaft drive** is extremely durable and requires little maintenance. It's just one example of the X43's reliability. Our aim is to ensure that you get the smoothest ride with minimal maintenance.

And how do we accomplish that goal? We start with a high-strength steel **frame**. The **fork tubes** and durable **triple trees** provide the front suspension, while the **swingarm** with computer-controlled **shock absorbers** creates the rear suspension. A six-gallon **fuel tank** ensures you can take a long ride without refueling. And not only is the X43 supported by a standard steel **side stand**, it is supported by Grinnel's three-year, unlimited mileage warranty. Check out the Grinnel X43 today, and get into the world of riding motorcycles.

Get ready!

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

- 1 What are some of the parts of a motorcycle?
- 2 What keeps a motorcycle standing when it is not being driven?

Reading

2 Read the advertisement for a motorcycle. Then, choose the correct answers.

- 1 What is the advertisement mostly about?
 - A different types of options for a motorcycle
 - B types of products from a motorcycle company
 - C a motorcycle designed for touring
 - D available parts for a motorcycle
- 2 What is true of the X43 model?
 - A It is built for racing.
 - B It has an optional side stand.
 - C It is recommended for first-time drivers.
 - D It weighs less than 900 pounds with fuel.
- 3 Which is NOT a feature of the X43?

A side stand	C steel frame
B belt drive	D shock absorbers

Vocabulary

3 Read the sentence pair. Choose where the words best fit the blanks.

1 motorcycle / frame

- A A _____ is similar to a bicycle with an engine.
- B The wheels, seat, and other parts attach to the _____.

2 side stand / handlebars

- A The _____ allow drivers to park a motorcycle.
- B _____ are used to make turns.

3 chain drive / shaft drive

- A A _____ has a long rod in the drive train.
- B Gears are an important part of a _____.

4 fuel tank / belt drive

- A Gasoline or diesel is stored in the _____.
- B A _____ connects the engine and rear wheel.

- 4 Place the words from the word bank under the correct heading.

Word BANK

clutch lever swingarm fork tube shift lever
throttle triple tree shock absorber

Front suspension	Rear suspension	Controls

- 5 Listen and read the advertisement for a motorcycle again. What type of rider is the X43 aimed at?

Listening

- 6 Listen to a conversation between two mechanics. Mark the following statements as true (T) or false (F).

- ___ The motorcycle was in an accident.
- ___ The mechanic wants to replace the fork.
- ___ The frame is the most damaged part.

- 7 Listen again and complete the conversation.

Mechanic 2: That depends. The 1 _____ are beyond repair.

Mechanic 1: No doubt about that.

Mechanic 2: I think I could find a reasonably priced replacement.

Mechanic 1: OK. How about the 2 _____ ?

Mechanic 2: I went over it with a 3 _____ - _____ and didn't find a single crack.

Mechanic 1: That's incredible!

Mechanic 2: There was some damage, but it's 4 _____ .

Mechanic 1: So do you think it's still 5 _____ ?

Mechanic 2: Sure, but 6 _____ a lot of work. We'll also need to replace both wheels, the brakes, and the swingarm.

Mechanic 1: 7 _____ ?

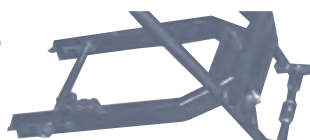
Mechanic 2: That's all I could find.



chain drive



belt drive



swing arm

Speaking

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

USE LANGUAGE SUCH AS:

How about the ...?
So do you think it ...?
We'll also need to ...

Student A: You are a mechanic. Talk to Student B about:

- the damage to a motorcycle
- what needs to be repaired
- if the motorcycle can be ridden

Student B: You are a mechanic. Talk to Student A about the damage to a motorcycle.

Writing

- 9 Use the advertisement and conversation from Task 8 to fill out an assessment of a damaged motorcycle. Include: damaged parts, repairs required, and parts that are safe.

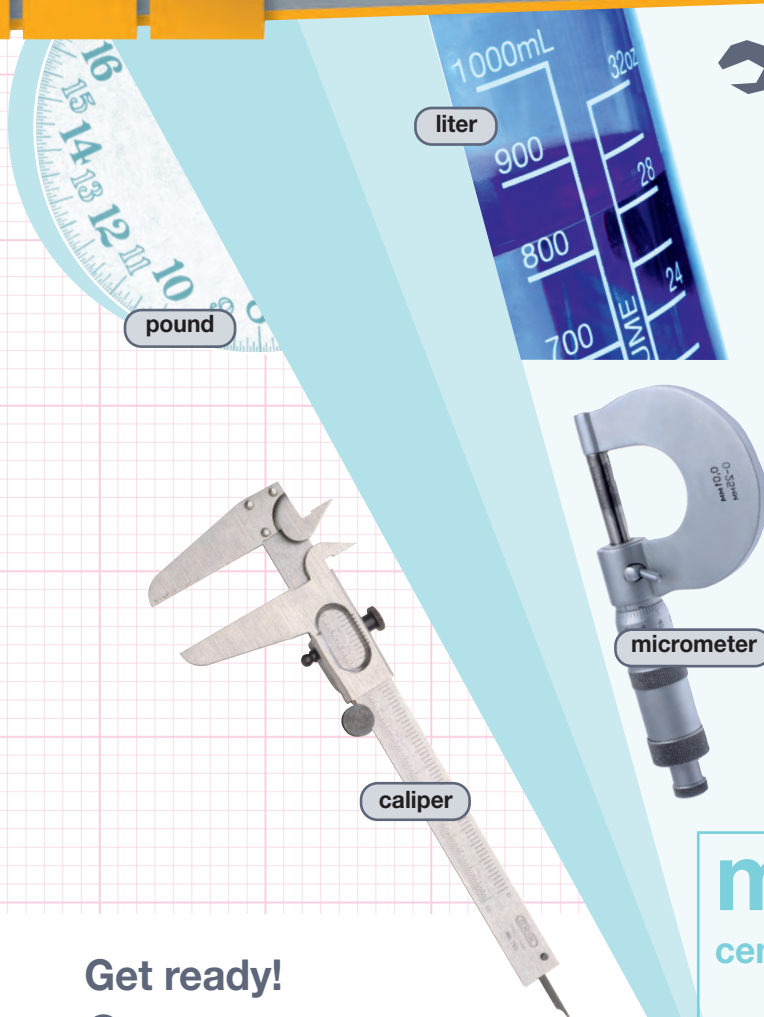
Damage Assessment

Customer name: _____

Damaged parts: _____

New parts required: _____

Safe parts: _____



Do-It-Yourself

MONTHLY

Know your measurements

Fasteners and tools use **imperial** measurements or **metric**, and knowing the difference is important. It prevents you from **rounding off** a fastener, damaging tools, or causing injury. If you don't know an item's size, use a **micrometer** or other **caliper** to measure it. Check **centimeters** or **millimeters** for metric tools. Look at **inches** for imperial tools.

Volume and weight are also very different in the two systems. Using **quarts** when a formula calls for **liters** is very dangerous. A **cubic inch** is totally different from a **cubic meter**. For weights, a **pound** cannot substitute for a **kilogram**. Always pay close attention to which system is required. If you must use tools from the other system, refer to a table of **conversion**.

Get ready!

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

- 1 What are two systems used for measuring short distances?
- 2 What is measured in pounds?

metric
centimeters



imperial
inches

Reading

2 Read the magazine article. Then, fill in the blanks using words from the word bank.

Word BANK

measurements centimeters liters
pounds systems fasteners

There are two 1 _____ of measurement. Using the right one is important. It prevents damage to 2 _____. The metric system uses 3 _____ for distance, while the imperial system uses inches. Other types of 4 _____ are also different in the two systems. Volumes in quarts and 5 _____ are not interchangeable. Neither are weights in 6 _____ and kilograms.

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

- | | |
|-----------------|------------------|
| 1 ___ liter | 5 ___ conversion |
| 2 ___ pound | 6 ___ cubic inch |
| 3 ___ imperial | 7 ___ centimeter |
| 4 ___ round off | 8 ___ micrometer |

- A changing from one system into another
 B a metric measure of length or distance
 C an imperial measure of volume
 D to damage a screw or bolt
 E a tool that measures small distances
 F the system that uses inches and quarts
 G an imperial measure of weight
 H a metric measure of volume

4 Write a word that is similar in meaning to the underlined part.

- The carpenter measured the bolt heads with a tool with adjustable legs. _ a l _ _ e r
- I have imperial wrenches, but I need one that is part of the system based on the meter. _ e _ _ i c
- This tank holds one unit equal to 1000 liters of liquid. _ u _ i _ m _ t _ _
- The size of the screw was eight units equal to 1/10 of a centimeter. _ _ l l _ m _ _ _ r s
- Add six units of imperial volume. _ u a _ _ s
- Steven accidentally recorded the weights in pounds instead of units of metric weight. k _ _ o _ r _ s
- How many units of imperial length is that rope? i _ _ _ e s

5 Listen and read the magazine article again. Why is it important to use the correct measurement system?

Listening

6 Listen to a conversation between two mechanics. Mark the following statements as true (T) or false (F).

- The man is using the wrong size wrench.
- The man injured his hand when a wrench slipped.
- The shop does not have imperial wrenches.

7 Listen again and complete the conversation.

- Mechanic 1:** Joe, are you **1** _____ over there?
- Mechanic 2:** Yeah. My wrench keeps **2** _____ this bolt.
- Mechanic 1:** Let's see. Well, you're using the wrong wrench.
- Mechanic 2:** Really? It seemed like the **3** _____.
- Mechanic 1:** You can't use a metric wrench with an imperial bolt. You could **4** _____ the bolt or hurt your hand.
- Mechanic 2:** I didn't realize I had **5** _____.
- Mechanic 1:** Come with me. **6** _____ where we keep the imperial wrenches.

Speaking

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

USE LANGUAGE SUCH AS:

My wrench keeps slipping ...
You're using the wrong ...
You can't use a ... with a ...

Student A: You are a mechanic. Talk to Student B about:

- a bolt
- using the correct wrench
- tool locations

Student B: You are a mechanic. Talk to Student A about using proper wrenches.

Writing

9 Use the conversation from Task 8 to fill out the mechanic's job notes.

JOB: 1779

What is being repaired?

Which tools are required?

What is the measurements system?

Glossary

- excessive** [ADJ-U4] If something is **excessive**, it is more than what is usual or expected.
- fan coil unit** [N-COUNT-U6] A **fan coil unit** is a device that controls the temperature in a room or small space without the use of ducts. The unit contains a heating or cooling mechanism and a fan to distribute the air.
- farmer** [N-COUNT-U8] A **farmer** is a person who operates or works on a farm.
- filter** [N-COUNT-U6] A **filter** is a part of a ventilation system that cleans air by catching particles of dirt and dust as the air passes through.
- fish tape** [N-UNCOUNT-U2] **Fish tape** is a band of spring steel used to guide wire through a wall.
- flashlight** [N-COUNT-U2] A **flashlight** is a small hand-held tool used to shine a beam of light.
- float bowl** [N-COUNT-U4] A **float bowl** is a compartment in a carburetor into which fuel is pumped for immediate use by the engine.
- fork tube** [N-COUNT-U3] **Fork tubes** are a pair of tubes forming the motorcycle's front suspension and connecting the front wheel to the frame.
- frame** [N-COUNT-U11] A **frame** is the main skeleton of an automobile, to which the engine, wheels and body are attached.
- frame** [N-COUNT-U3] A **frame** is the body of a motorcycle to which all other main parts are attached.
- frame rack** [N-COUNT-U11] A **frame rack** is an automotive lift to raise a vehicle above the ground so that it can be more easily worked on.
- fuel contamination** [N-UNCOUNT-U4] **Fuel contamination** is the process in which improperly stored fuel is spoiled as deposits and varnish form.
- fuel stabilizer** [N-COUNT-U4] A **fuel stabilizer** is an additive that prevents fuel from becoming stale and leaving deposits.
- fuel tank** [N-COUNT-U3] A **fuel tank** is the part of the motorcycle that stores fuel used by the engine.
- furnace** [N-COUNT-U5] A **furnace** is a container that produces heat.
- gas heater** [N-COUNT-U5] A **gas heater** is a type of furnace that produces heat by burning gas.
- generator** [N-COUNT-U13] A **generator** is a machine that makes electricity.
- give out** [V-PHRASAL-U4] If a piece of equipment **gives out**, it breaks or becomes unusable.
- grader** [N-COUNT-U9] A **grader** is a machine that is used to create a particular slope along the ground's surface.
- greasy** [ADJ-U15] If something is **greasy**, it has a layer of oil or similar substance on it.
- gun** [N-COUNT-U10] A **gun** is the part of a welding torch that is held during welding.
- handlebars** [N-COUNT-U3] **Handlebars** are a bar with grips on the ends used to steer a motorcycle.
- harvester** [N-COUNT-U8] A **harvester** is a farm machine that collects a crop from where the crop is grown.
- heat** [N-UNCOUNT-U7] **Heat** is the amount of warmth an object has.
- heat exchanging pipes** [N-COUNT-U7] **Heat exchanging pipes** are tubes used in cooling systems to move hot and cold gases in and out of the system.
- heating system** [N-COUNT-U5] A **heating system** is a utility for making and keeping a building warm.
- high voltage connector** [N-COUNT-U2] A **high voltage connector** is a connector wire used for voltages above 500V.
- hook** [N-COUNT-U11] A **hook** is a curved or bent piece of metal, such as those attached to a tool board, on which tools can be hung.
- humidity** [N-UNCOUNT-U6] **Humidity** is the amount of moisture that is present in the air.
- hybrid** [N-COUNT-U13] A **hybrid** is a vehicle that has both an electric motor and a gasoline or diesel engine.
- hydraulic pump** [N-COUNT-U8] A **hydraulic pump** is a pump that uses energy from flowing water to create power.
- hydraulic shears** [N-COUNT-U9] **Hydraulic shears** are a tool powered by hydraulics that are used to cut through metal.
- hydraulics** [N-UNCOUNT-U8] **Hydraulics** is the science of using water or other liquids to create power or movement.
- ice machine** [N-COUNT-U7] An **ice machine** is a device that freezes water into ice.
- inflate** [V-T-U4] To **inflate** a tire is to force air into it.
- install** [V-T-U5] To **install** something is to put or attach something in a particular place.
- insulator** [N-COUNT-U1] An **insulator** is an object or substance that stops electricity from passing through something.
- irrigation system** [N-COUNT-U8] An **irrigation system** is a process for distributing water to farmland.