Инструкция выполнения: Выполнить перевод текста «**Major types by application**». Выполненное задание предоставить преподавателю Королевой Александре Андреевне на адрес электронной почты. Эл.почта: evseeva14alex@gmail.com. Работа может быть выполнена в формате txt, doc, docx или фотография, выполненной работы на бумажном носителе.

**Major types by application**

 Vehicular (general)

There are multiple designs of vehicle clutch, but most are based on one or more [friction](https://en.wikipedia.org/wiki/Friction) discs pressed tightly together or against a [flywheel](https://en.wikipedia.org/wiki/Flywheel) using [springs](https://en.wikipedia.org/wiki/Spring_%28device%29). The friction material varies in composition depending on many considerations such as whether the clutch is "dry" or "wet". Friction discs once contained asbestos, but this has been largely discontinued. Clutches found in heavy duty applications such as trucks and competition cars use ceramic plates that have a greatly increased friction coefficient. However, these have a "grabby" action generally considered unsuitable for passenger cars. The spring [pressure](https://en.wikipedia.org/wiki/Pressure) is released when the clutch pedal is depressed thus either pushing or pulling the diaphragm of the pressure plate, depending on type. Raising the engine speed too high while engaging the clutch causes excessive clutch plate wear. Engaging the clutch abruptly when the engine is turning at high speed causes a harsh, jerky start. This kind of start is necessary and desirable in [drag racing](https://en.wikipedia.org/wiki/Drag_racing) and other competitions, where speed is more important than comfort.

Automobile powertrain

This plastic pilot shaft guide tool is used to align the clutch disk as the spring-loaded pressure plate is installed. The transmission's drive splines and pilot shaft have a complementary shape. A number of such devices fit various makes and models of drivetrains.

In a modern [car](https://en.wikipedia.org/wiki/Automobile) with a [manual transmission](https://en.wikipedia.org/wiki/Manual_transmission) the clutch is operated by the left-most [pedal](https://en.wikipedia.org/wiki/Automobile_pedal) using a [hydraulic](https://en.wikipedia.org/wiki/Hydraulic) or [cable](https://en.wikipedia.org/wiki/Wire_rope) connection from the pedal to the clutch mechanism. On older cars the clutch might be operated by a mechanical linkage. Even though the clutch may physically be located very close to the pedal, such remote means of actuation are necessary to eliminate the effect of vibrations and slight engine movement, engine mountings being flexible by design. With a rigid mechanical linkage, smooth engagement would be near-impossible because engine movement inevitably occurs as the drive is "taken up."

Motorcycles

Motorcycles typically employ a wet clutch with the clutch riding in the same oil as the transmission. These clutches are usually made up of a stack of alternating friction plates and steel plates. The friction plates have lugs on their outer diameters that lock them to a basket that is turned by the crankshaft. The steel plates have lugs on their inner diameters that lock them to the transmission input shaft. A set of coil springs or a diaphragm spring plate force the plates together when the clutch is engaged.

On [motorcycles](https://en.wikipedia.org/wiki/Motorcycle) the clutch is operated by a hand lever on the left handlebar. No pressure on the lever means that the clutch plates are engaged (driving), while pulling the lever back towards the rider disengages the clutch plates through cable or hydraulic actuation, allowing the rider to shift gears or coast. Racing motorcycles often use [slipper clutches](https://en.wikipedia.org/wiki/Slipper_clutch) to eliminate the effects of [engine braking](https://en.wikipedia.org/wiki/Engine_braking), which, being applied only to the rear wheel, can cause instability.

Automobile non-powertrain

Cars use clutches in places other than the drive train. For example, a belt-driven engine cooling fan may have a heat-activated clutch. The driving and driven members are separated by a silicone-based fluid and a valve controlled by a [bimetallic spring](https://en.wikipedia.org/wiki/Bimetallic_strip). When the temperature is low, the spring winds and closes the valve, which lets the fan spin at about 20% to 30% of the [shaft](https://en.wikipedia.org/wiki/Crankshaft) speed. As the temperature of the spring rises, it unwinds and opens the valve, allowing fluid past the valve, makes the fan spin at about 60% to 90% of shaft speed. Other clutches—such as for an [air conditioning](https://en.wikipedia.org/wiki/Air_conditioning) compressor—electronically engage clutches using magnetic force to couple the driving member to the driven member.