

МАТЕРИАЛЫ ДЛЯ ДИСТАНЦИОННОГО ОБУЧЕНИЯ  
по английскому языку  
группа 5.2а, 23.01.09. Машинист локомотива

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Следующее задание итоговая контрольная работа!!!!

Лекция № 9-10 на МАЙ.  
Тема: Устройство локомотива.

Задания:

1. Просмотрите видео, опишите основные виды локомотивов и их отличия на английском языке.
2. Выпишите подчеркнутую лексику в тетрадь и переведите на русский язык.
3. Прочитайте и переведите текст (письменно).
4. Запишите определения к себе в тетрадь
5. Посмотрите видео и ответьте на вопрос кратко.

Exercise 1. Watch the video and describe the types of trains.

[https://www.youtube.com/watch?v=j\\_9jqWNgnuM](https://www.youtube.com/watch?v=j_9jqWNgnuM) – Виды локомотивов.

Exercise 2. Read the text. Write down the underlining words and translate them on Russian.

A **locomotive** or **engine** is a rail transport vehicle that provides the motive power for a train. If a locomotive is capable of carrying a payload, it is usually rather referred to as multiple units, motor coaches, railcars or power cars; the use of these self-propelled vehicles is increasingly common for passenger trains, but rare for freight (see Cargo Sprinter).

Traditionally, locomotives pulled trains from the front. However, push-pull operation has become common, where the train may have a locomotive (or locomotives) at the front, at the rear, or at each end.

Locomotives may generate their power from fuel (wood, coal, petroleum or natural gas), or they may take power from an outside source of electricity. It is common to classify locomotives by their source of energy.

#### **Etymology**

The word locomotive originates from the Latin *loco* – "from a place", ablative of *locus*, "place" + Medieval Latin *motivus*, "causing motion", and is a shortened form of the term *locomotive engine*, which was first used in the early 19th century to distinguish between mobile and stationary steam engines.

#### **Classifications**

Prior to locomotives, the motive force for railways had been generated by various lower-technology methods such as human power, horse power, gravity or stationary engines that drove cable systems. Few such systems are still in existence today.

### **Motive power**

Locomotives may generate their power from fuel (wood, coal, petroleum or natural gas), or they may take power from an outside source of electricity. It is common to classify locomotives by their source of energy.

*Please write down what source of energy for locomotive do you know?*

Locomotives occasionally work in a specific role, such as:

- Train engine is the technical name for a locomotive attached to the front of a railway train to haul that train. Alternatively, where facilities exist for push-pull operation, the train engine might be attached to the rear of the train;
- Pilot engine – a locomotive attached in front of the train engine, to enable Double-heading;
- Banking engine – a locomotive temporarily assisting a train from the rear, due to a difficult start or a sharp incline gradient;
- Light engine – a locomotive operating without a train behind it, for relocation or operational reasons.
- Station pilot – a locomotive used to shunt passenger trains at a railway station.

### **Exercise 3. Read the text and translate it on Russian.**

An electric locomotive is a locomotive powered only by electricity. Electricity is supplied to moving trains with a (nearly) continuous conductor running along the track that usually takes one of three forms: an overhead line, suspended from poles or towers along the track or from structure or tunnel ceilings; a third rail mounted at track level; or an onboard battery. Both overhead wire and third-rail systems usually use the running rails as the return conductor but some systems use a separate fourth rail for this purpose. The type of electrical power used is either direct current (DC) or alternating current (AC).

Various collection methods exist: a trolley pole, which is a long flexible pole that engages the line with a wheel or shoe; a bow collector, which is a frame that holds a long collecting rod against the wire; a pantograph, which is a hinged frame that holds the collecting shoes against the wire in a fixed geometry; or a contact shoe, which is a shoe in contact with the third rail. Of the three, the pantograph method is best suited for high-speed operation.

Electric locomotives almost universally use axle-hung traction motors, with one motor for each powered axle. In this arrangement, one side of the motor housing is supported by plain bearings riding on a ground and polished journal that is integral to the axle. The other side of the housing has a tongue-shaped protuberance that engages a matching slot in the truck (bogie) bolster, its purpose being to act as a torque reaction device, as well as a support. Power transfer from motor to axle is effected by spur gearing, in which a pinion on the motor shaft engages a bull gear on the axle. Both gears are enclosed in a liquid-tight housing containing lubricating oil. The type of service in which the locomotive is used dictates the gear ratio employed. Numerically high ratios are commonly found on freight units, whereas numerically low ratios are typical of passenger engines.

Electricity is typically generated in large and relatively efficient generating stations, transmitted to the railway network and distributed to the trains. Some electric railways have their own dedicated generating stations and transmission lines but most purchase power from an electric utility. The railway usually provides its own distribution lines, switches and transformers.

### **Exercise 4. Write down in your copybook.**

VL80 (ru: **ВЛ80**) is a Soviet (and later Russian) built electric mainline freight locomotive. The initials *VL* are those of Vladimir Lenin (ru: Владимир Ленин), after whom the class is named.

The VL80 is a dual-section (or articulated) locomotive composed of two identical units, each resting on two two-axle bogies, powered by eight НБ-418К6 (en: NB-4186K6) electric tractive motors equipped with axle-support suspension. In order to pick up the current from overhead lines, the VL80 is fitted with two pantographs; one above the driver's cab on each section. Similarly, each section of the locomotive is equipped with one ОДЦЭ-5000/25Б (en: ODCE-5000/25B) tractive. The VL80<sup>T</sup> and ВЛ80<sup>C</sup> (en: VL80<sup>S</sup>) models are furnished with dynamic brakes.

The **cab**, **crew compartment** or **driver's compartment** of a locomotive, or a **self-propelled rail vehicle**, is the part housing the **train driver** or **engineer**, the **fireman** or **driver's assistant (secondman)** (if any), and the controls necessary for the locomotive's, or self-propelled rail vehicle's, operation.

A **pantograph** (or "**pan**", or "**panto**") is an apparatus mounted on the roof of an electric train, tram or electric bus to collect power through contact with an overhead line. Battery electric buses are charged at charging stations. It is a common type of current collector. Typically, a single or double wire is used, with the return current running through the rails. The term stems from the resemblance of some styles to the mechanical pantographs used for copying handwriting and drawings.

A **bogie** (/ˈboʊɡi/*BOH-ghee*) is a wheeled wagon or trolley. In mechanics terms, a bogie is a chassis or framework carrying wheels, attached to a vehicle. Usually, two bogies are fitted to each carriage, wagon or locomotive, one at each end.

**Dynamic braking** is the use of an electric traction motor as a generator when slowing a vehicle such as an electric or diesel-electric locomotive. It is termed "rheostatic" if the generated electrical power is dissipated as heat in brake grid resistors, and "regenerative" if the power is returned to the supply line. Dynamic braking reduces wear on - based braking components, and regeneration lowers net energy consumption. Dynamic braking may also be used on railcars with multiple units, light rail vehicles, electric trams, trolleybuses and electric and hybrid electric automobiles.

A **sandbox** is a container on most **locomotives**, **multiple units** and **trams** that holds **sand**, which is dropped on the rail in front of the driving wheels in wet and slippery conditions and on steep grades to improve **traction**.

**Exercise 5. Watch the video and write down in your copybook how does diesel engine work?**

<https://www.youtube.com/watch?v=JU6zpBT5Sh8> Как работает дизельный ЛОКОМОТИВ