

**Коротко об автомобиле  
на английском**

*Учебно-методическое пособие*

Челябинск

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ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ

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Данное учебно-методическое пособие включает в себя: обучение терминологической лексике по специальности, обучение основным грамматическим явлениям, характерным для стиля технической литературы и профессиональной речи, и способствует повышению мотивации к изучению иностранного языка при работе над текстами информативного характера по специальности.

Учебно-методическое пособие предназначено для студентов высших учебных заведений, обучающихся по специальности «Автомобили и автомобильное хозяйство», по дисциплине «Иностранный язык». Оно рассчитано для аудиторной работы под руководством преподавателя, а также для самостоятельной работы студентов.

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## UNIT 1. MOTOR VEHICLES

### Vocabulary List

- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1. supply                      | снабжать, обеспечивать            |
| 2. means                       | средство                          |
| 3. manufacture                 | выпускать, производить            |
| 4. works                       | завод                             |
| 5. prime mover                 | тягач                             |
| 6. carry                       | перевозить,<br>транспортировать   |
| 7. employ                      | применять, использовать           |
| 8. truck chassis               | колесное шасси                    |
| 9. truck train                 | автопоезд                         |
| 10. bolster truck              | седельный тягач                   |
| 11. trailer                    | прицеп                            |
| 12. semitrailer                | полуприцеп                        |
| 13. recoilless rifle           | безоткатное орудие                |
| 14. tow                        | буксировать, тянуть               |
| 15. general purpose<br>vehicle | машина общего назначения          |
| 16. special purpose<br>vehicle | машина специального<br>назначения |
| 17. fuel tanker                | бензозаправщик                    |

18. ambulance	санитарная машина
19. workshop truck	машина технической помощи
20. reconnaissance	разведка

Pay attention to the synonyms:

to install = to mount

to supply = to provide

to manufacture = to produce = to put out = to turn out

to carry = to transport

to employ = to use

to tow = to pull = to draw = to haul

works = plant

transport = transportation

bolster truck = saddle-type truck

truck chassis = wheeled chassis

### Phonetic Drill

Read aloud:

a) place, same, crane, radar, radio, prime, wide, side, by, type, motor, compose, road, use, super;

b) tactical, tank, tanker, intend, extend, thing, shop, truck, much, number, fuel;

c) firm, mortar, transport, transporter;

d) meet, wheel, means;  
e) requirement, equipment, should, supply, works,  
transportation, manufacture, nowadays, demand, heavy, mover,  
course, various, employ, dependent, chassis, bolster, train,  
trailer, launcher, semitrailer, mount, tow, drawn, piece, pull,  
special, terrain, usually, high, country, capability, general, great,  
operate, power, ambulance, universal, workshop, fighting,  
install, structure,

## Lexical Exercises

I. Read and translate the following international words:

type, modern, motor, transport, manufacture, automobile, firm,  
prime, tactical, tank, tanker, transporter, chassis, mount, trailer,  
platform, special, terrain, cross, operate, ambulance, station,  
universal, crane, structure, radar, radio, command.

II. Choose the word with the put forward meaning:

оборудование	equip, equipage, equipment
зависимый	dependent, dependence, dependency
производить	produce, producer, production
перевозка	carry, carrier, carrying
установка	launch, launcher, launching
буксируемый	draw, drawing, drawn

### III. Read and translate:

vehicle: motor vehicle, wheeled vehicle, general purpose vehicle, special purpose vehicle, high cross-country capability vehicle, tactical vehicle, track-laying vehicle, full-tracked vehicle, transport vehicle, amphibious vehicle, air droppable vehicle, air transportable vehicle;

truck: truck design, truck chassis, truck controls, truck train, modern truck, workshop truck, cross-country truck, bolster truck, truck-drawn artillery piece, general purpose truck.

### IV. Give Russian equivalents for the technical terms:

transportation means, prime mover, heavy motor vehicle, tank transporter, wheeled vehicle, truck chassis, bolster truck, truck train, trailer, semitrailer, high cross-country

capability vehicle, special purpose vehicle, fuel tanker, ambulance, workshop truck, fire-fighting equipment.

### Grammar Exercise

Read and translate the sentences. Pay attention to the forms of the Present Participle:

1. Motor transportation means are manufactured by automobile firms and works.
2. Wheeled vehicles are widely employed as trucks, truck chassis and truck trains composed of prime movers with trailers.
3. The truck platforms may be used for mounting equipment.
4. Motor vehicles are intended to tow truck-drawn artillery pieces.



## Text

### Types of Trucks

Motor transportation means are manufactured by automobile firms and works. Motor vehicles can be produced in different variants

Every truck is a means of transport of course. The word “to transport” means to carry people, goods and various equipment from place to place. The American word for the same thing is “transportation”.

Wheeled vehicles of all types are widely employed as trucks, truck chassis, bolster trucks and truck trains composed of prime movers with trailers and semitrailers. Their platforms may be used for mounting different equipment. The trucks can operate as power stations and workshops. The trucks can be equipped with super-structures for carrying people and cargo. Cranes and fire-fighting equipment can be installed on the trucks.

Motor vehicles are also intended to pull special and transport trailers on all types of roads and terrain. Usually they are all high cross-country capability<sup>1</sup> vehicles.

Side by side<sup>2</sup> with general purpose trucks one can see a great number of special purpose vehicles. They are able to

operate as fuel tankers, ambulances power stations and universal workshop trucks.

Notes:

<sup>1</sup>high cross-country capability – высокая проходимость;

<sup>3</sup>side by side – наряду;

Questions about the text:

1. What is the truck, first of all?
2. What does the word “transport” mean?
3. How are wheeled vehicles employed?
4. What are motor vehicles intended for?
5. What are special purpose vehicles ?

### Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

a) car, truck, jeep, wheeled motor vehicle, truck, tractor;

b) ambulance, fuel tanker, special purpose vehicle, tank transporter, workshop truck;

II. Fill in the gaps with the words in the box.

	means	
	produced	
operate		installed
	equipped	
carried		intended

1. Motor vehicles can be ... in different variants.
2. The trucks can ... as power stations and workshops.
3. The trucks can be ... with super-structures for carrying people and cargo.
4. Cranes and fire-fighting equipment can be ... on the trucks.
5. Trucks are ... to haul trailers on all types of roads.
6. Every truck is a ... of transportation.

III. Replace the underlined words by the words of the similar meaning:

1. The trucks can be provided with super-structures for carrying people and cargo.
2. Military motor vehicles can be manufactured in different variants.
3. Cranes and fire-fighting equipment can be mounted on the trucks.
4. Motor vehicles may be intended to pull special and transport trailers on all types of roads and terrain.

IV. Match the words to make up word combinations:

prime	set
power	carrier
rocket	mover
artillery	transporter
personnel	piece
tank	launcher
radio	station

V. Practice the sentences from the table:

Cranes and fire-fighting equipment			the trucks
Rocket launchers and mortars		installed	the cab
Radars and radio sets	can be		on the frame
Gauges and pilot lamps			the platform
Special		mounted	in the

devices and  
accessories

instrume  
nt panel

Truck units  
and  
assemblies

VI. Speak on:

1. types of trucks;
2. special purpose vehicles.

## UNIT 2. PERFORMANCES AND SPECIFICATIONS

### Vocabulary List

1. specification	конструктивная особенность
2. load carrying capacity	грузоподъемность
3. fuel consumption	расход топлива
4. fuel tank capacity	емкость топливных баков
5. dimensions	габариты
6. wheel arrangement	колесная формула
7. wheel track	ширина колеи
8. road clearance	дорожный просвет
9. turning radius	радиус поворота
10. interaxle differential	межосевой дифференциал
11. transverse differential	межколесный дифференциал
12. lock	блокировать
13. self-recovery winch	лебедка для самовытаскивания
14. reduce	уменьшать
15. specific ground pressure	удельное давление на грунт
16. adjust	регулировать

Pay attention to the

synonyms:

load carrying capacity =

payload capacity

reduce = decrease

raise = increase

pull out = evacuate

## Phonetic Drill

Read aloud:

a) wave, take, base, radius, locate, able, cable, enable, range, change, time, drive, minus, motor, load, road, fuel, reduce;

b) sand, cab, axle, tank, track, thanks, bank, fresh, intend, enter, stretch, fit, winch, withstand, frost, top, lock, soft, long, constant, obstacle, truck, plus, dust, up, adjust, number, under;

c) for, force, performance, platform, turning;

d) speed, wheel, degree, heat, deal, least, seat, increase;

e) specification, design, condition, capable, ambient, temperature, area, air, altitude, above, level, should, pull, swampy, account, capacity, capability,

interaxle, consumption, dimension, arrangement, clearance,

following, characterized, differential, excellent, transverse, recovery, pressure, specific, overcome.

## Lexical Exercises

I. Read and translate the following international words:

specification, mission, operate, modern, tropical, motor, temperature, minus, plus, ground, specialist, distance, base, track, clearance, radius, cabin, platform, characterize, differential, centralized, system, contact, cable, practically

II. Choose the word with the put forward meaning:

расход	consume, consumer, consumption
дорожный	clear, clearance, clearness
просвет	
расположение	arrange, arranger, arrangement
следующий	follow, following, follower
действовать	operate, operation, operator
обеспечивать	provide, provider, provision



### III. Read and translate:

load: heavy load, military load, payload capacity, load carrying capacity;

fuel: fuel tank, fuel tanker, fuel distance, fuel system, fuel consumption, fuel tank capacity;

wheel: wheelbase, wheel arrangement, wheel track, driving wheel, driven wheel, front wheel, rear wheel, steering wheel, road wheel, power-driven wheels drive.

### IV. Give Russian equivalents for the technical terms:

top speed, load carrying capacity, fuel tank, fuel tanker, fuel tank capacity, fuel consumption, diesel fuel, wheelbase, wheel track, wheel arrangement, turning radius, weight, road clearance, cross-country capability, cable, interaxle differential, transverse differential, self-recovery winch, centralized tyre inflation system, specific ground pressure, tyre pressure, tractive force.

### Grammar Exercise

Read and translate the sentences. Pay attention to the modal verbs and their equivalents:

1. Trucks can carry out a number of missions.

2. They are able to operate under the variety of terrain and weather conditions.
3. Modern army trucks must be capable of withstanding frost and tropical heat.
4. Due to the steering gear the truck can be pointed in the direction the driver wants to go.
5. Each brake must be able to stop the vehicle within the shortest distance.
6. Truck performance and specifications should always be taken into consideration by drivers.
7. Springs alone cannot provide a satisfactory smooth ride, therefore shock absorbers must be installed on trucks.
8. To disengage the clutch the driver must be sitting in the cabin.

## Text

### Truck Performances and Specifications

Trucks are designed to carry out a number of missions and to operate under the variety of terrain and weather conditions. Modern trucks must be capable of withstanding Siberian frosts and tropical heat.

The off-road motor vehicles are intended for operating at ambient air temperatures<sup>1</sup> ranging from minus 50 to plus 50 degrees Centigrade<sup>2</sup>, air dust<sup>3</sup> of up to 2 g/m<sup>3</sup> with speed of up to

25 mps on the ground and 1.5 mps in water with waves<sup>4</sup> of up to 0.5 m in areas located at an altitude<sup>5</sup> of up to 3,000 m above sea level<sup>6</sup> as well as mountains at an altitude of up to 4,000 m.

The following performance should be taken into account<sup>7</sup> by drivers and specialists dealing with<sup>8</sup> army trucks: weight, load carrying capacity, top speed on and off roads, fuel distance, fuel consumption, fuel tank capacity, dimensions, wheel arrangement, wheelbase, wheel track, road clearance, turning radius and number of seats in the cabin and on the platform.

Some 6x6 wheel arrangement trucks are characterized by the following specifications. They may have excellent cross-country capability thanks to their differentials on all axles. Both the interaxle differential and the transverse differentials can be locked. The trucks are fitted with a centralized tyre inflation system and self-recovery winches.

When inner pressure in the tyre changes from 0.45mPa to 0.1 mPa, their ground contact area increases by more than 2.5 times. This reduces the truck's specific ground pressure and enables the trucks to overcome such terrain as sand, fresh snow and the soft banks of water obstacles. The drivers can adjust the tyre pressure from the cab, directly before entering the difficult stretch of the terrain<sup>9</sup>. The truck's winch is provided with a cable

at least 60 m long and develops a tractive force of 50 kN. Which can pull the truck out of practically any swampy terrain<sup>10</sup>.

Notes:

<sup>1</sup>ambient air temperatures – температура окружающего воздуха;

<sup>2</sup>Centigrade – по Цельсию;

<sup>3</sup>air dust – запыленность;

<sup>4</sup>with waves – при высоте волны;

<sup>5</sup>at an altitude – на высоте;

<sup>6</sup>above sea level – над уровнем моря;

<sup>7</sup>should be taken into account – следует принимать во внимание;

<sup>8</sup>dealing with – имеющий дело с;

<sup>9</sup>stretch of the terrain – участок местности;

<sup>10</sup>swampy terrain – болотистая местность.

Questions about the text.

1. At what temperatures can trucks operate?
2. Under what terrain conditions can modern trucks operate?
3. What basic performance does the modern truck possess?
4. What are the main specifications of modern trucks?

Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

a) load carrying capacity, fuel distance, fuel consumption, performance, top speed, weight, wheel base, wheel track, fuel tank capacity, dimensions, wheel arrangement, road clearance, turning radius;

b) tractive effort of the winch, cable length, specifications, models of tyres, centralized tyre inflation system, types of differentials.

II. Fill in the gaps with the words in the box:

performance		operate
drivers	truck	cable
mountains		off road

1. Modern truck can ... under a variety of terrain and weather conditions.

2. The ... motor vehicles can move on cross-country roads.

3. Modern trucks are widely used in ... .

4. ... must be capable of withstanding Siberian frosts and tropical heat.

5. Great attention should be paid to the ... of the truck.

6. Specifications of motor vehicles should be taken into account by the ... dealing with army trucks.

7. When speaking of the specifications, the winch with its tractive effort and a ... length should be taken into consideration.

III. Replace the underlined words by the words of the similar meaning.

1. The Hummer truck is manufactured in military and commercial variants.

2. The ground clearance of up to 40 cm and the fuel consumption of 18 l per 100 km are the data of the Hummer truck.

3. The maximum speed of the Hummer truck is 105 km/h on highways and it can also travel over sand, mud and swampy areas.

4. The road range of the Hummer truck is 565 km.

5. The Hummer is capable to transport cargoes of 2 tons.

IV. Match the words to make up word combinations:

top		road
fuel		power
wheel		clearance
air		base

road	consumption
cable	speed
engine	length
off	temperature

V. Practice the sentences from the table:

Load carrying capacity		
Fuel distance		
Fuel consumption	should be taken into	account
Fuel tank capacity		
Wheel base		
Wheel track		
Road clearance	should be taken into	
Turning radius		consideration
Wheel arrangement		
Engine capacity		

## VI. Speak on:

1. designation of the modern truck;
2. main performance of the truck;
3. basic specifications of the truck.

## UNIT 3. TRUCK DESIGN. BODY

### Vocabulary List

1. frame	рама
2. cabin	кабина
3. cargo platform	грузовая платформа
4. hood	капот
5. fender	крыло
6. radiator shell	облицовка радиатора
7. all-steel cab	цельнометаллическая кабина
8. accommodate	размещать, приспособливать
9. instrument panel	приборный щиток, пульт управления
10. steering wheel	рулевое колесо
11. driving controls	органы управления, рычаги управления
12. throttle pedal	педаль управления дроссельной заслонкой, педаль газа
13. clutch pedal	педаль сцепления
14. brake pedal	тормозная педаль



15. gearshift lever	рычаг переключения передач
16. hand brake lever	рычаг ручного тормоза
17. winch lever	рычаг включения лебедки
18. front axle switch lever	рычаг включения переднего моста
19. transfer gearshift lever	рычаг переключения передач раздаточной коробки
20. power take off lever	рычаг включения коробки отбора мощности
21. handle	ручка, рукоятка
22. horn button	кнопка звукового сигнала
23. gauge	манометр, измерительный прибор
24. pilot lamp	контрольная лампочка, сигнальная лампочка
25. load	груз, нагрузка

Pay attention to the synonyms:

gauge = indicator

instrument = device

instrument panel = instrument board

pilot lamp = tell-tale lamp

throttle pedal = accelerator pedal

to mount = to install

to include = to contain = to comprise

to be composed of = to consist of

to be intended for = to be designed for

## Phonetic Drill

Read aloud:

a) brake, frame, take, lever, five, drive, pilot;

b) cab, as, hand, handle, axle, lamp, transfer, text, shell, let, left, centre, winch, switch, throttle, us, button, clutch, truck;

c) part, cargo, horn;

d) centre, accelerator, accepted, can, cabin, cargo, carry, accommodate, electrical, location, control, compose, component, clutch;

e) chassis, body, equipment, hood, radiator, besides, pedal, steering, transfer, standard, front, different, install, panel.

## Lexical Exercises

I. Read and translate international words:

chassis, special, electrical, component, cabin, platform, radiator, passenger, pedal, control, accelerator, standard, front, centre, lamp, panel.

II. Choose the word with the put forward meaning:

электрический	electricity, electrician, electrical
специальный	specialist, special, speciality
водитель	drive, driver, driving
расположение	locate, location, locative
устройство	designer, designing, design
составлять	compose, composite, composition
предназначать	intend, intention, intentional
перевозить	carrier, carrying, carry

III. Read and translate:

cabin: driver's cabin, all-steel cabin, all-metal cabin;

lever: gearshift lever, hand brake lever, winch lever, front axle switch lever, transfer gearshift lever, power take off lever; pedal: throttle pedal, clutch pedal, accelerator pedal, brake pedal.

IV. Give Russian equivalents for the technical terms:

cargo platform, radiator shell, steering wheel, driving control, horn button, pilot lamp, throttle pedal, clutch pedal, accelerator pedal, gearshift lever, hand brake lever, brake pedal, winch lever, front axle switch lever, power take off lever, transfer gearshift lever.

## Grammar Exercise

Read and translate the sentences. Pay attention to the forms of the verbs in the Passive Voice.

1. The body is located on the frame of the truck.
2. The all-metal cab is designed to accommodate a driver and two passengers, as a rule.
3. The pedals are located with generally accepted standard in the cabin.
4. The gauges and tell-tale lamps are mounted on the instrument board.
5. The cargo platform is intended for carrying men and various cargoes.
6. The armament and equipment are installed on the cargo platform.

Text

Body

The truck is composed of five main parts: engine, chassis, body, special and electrical equipment.

Body is located on the frame of the truck. The body components are: a driver's cabin, a cargo platform, a hood, fenders and a radiator shell.

Cab. The all-steel cab is designed to accommodate the driver and two passengers, as a rule<sup>1</sup>. Besides<sup>2</sup> there are levers, pedals and instruments in the driver's cabin.

The controls of the truck include a throttle pedal, a clutch pedal, a brake pedal, a gearshift lever, a hand brake lever, a steering wheel, a transfer gearshift lever, a winch lever and several buttons and handles.

Let us see the location of the driving controls. The clutch pedal, the brake pedal and the throttle pedal are located with generally accepted standard<sup>3</sup>. The hand brake lever and the gearshift lever are located to the right of the driver. The front axle switch lever and the transfer gearshift lever are located to the right too.

The power take off lever is located to the right of the gearshift lever. The horn button is located in the centre of the steering wheel.

The instruments consisting of different gauges and pilot lamps are mounted on the instrument panel.

Cargo platform. Cargo platform is intended for carrying men and various loads. Different equipment can be installed on the cargo platform.

Notes:

<sup>1</sup>as a rule – как правило;

<sup>2</sup>besides – кроме того;

<sup>3</sup>with generally accepted standard – как обычно.

Questions about the text:

1. What are the five main parts of a truck?
2. Where is the body located?
3. What are the body components?
4. What is the cabin designed for?
5. What do the controls of the truck include?
6. What is the cargo platform intended for?

### Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

1. body, supplemental equipment, chassis, truck, engine, electrical equipment;
2. hood, cargo platform, fender, cabin, body, radiator shell;
3. pedals, levers, handles, truck controls, buttons.

II. Fill in the gaps with the words in the box:

driving controls	pedals	
driver		
lever	frame	steering wheel
instrument panel		gauge

1. Body is located on the ... of the truck.
2. Cab is designed to accommodate a ... and two passengers.
3. The horn button is located in the centre of the ... .
4. Pilot lamps are located on the ... .
5. Different ... and tell-tale lamps are mounted on the instrument board.
6. ... are designed to change the direction of the truck movement and its speed and to stop the truck.
7. The hand brake ... and the gearshift ... are located to the right of the driver in the cabin.
8. The levers and ...are used by the driver in driving the truck.

III. Replace the underlined words by the words of the similar meaning:

1. The all-metal cabin is designed to accommodate the driver and two passengers, as a rule.
2. Levers, pedals and gauges are located in the cabin with generally accepted standard.

3. The instruments consisting of different gauges and tell-tale lamps are mounted on the instrument panel.

4. Cargo platform is designed for carrying men and various loads.

5. Different equipment can be mounted on the cargo platform:

IV. Match the word to make up combinations:

cargo	lever
pilot	panel
all-steel	pedal
clutch	button
instrument	platform
horn	cab
gearshift	lamp

V. Practice the sentences from the table:

The pedals			generally
			accepted
			standard
The hand brake		with	
lever			



The gearshift lever	is	located		the right of the driver
The front axle switch lever			to	The right of the gearshift lever
The transfer gearshift lever				
The power take off lever	are	located	in	
The horn button				the centre of the steering wheel
The gauges			on	
The pilot lamps				the instrument panel

## VI. Speak on:

1. parts of the truck;
2. body; cargo platform;
3. driving controls.

UNIT 4.  
CHASSIS. TRANSMISSION

Vocabulary List

1. truck	грузовой автомобиль
2. truck design	устройство автомобиля
3. transmit	передавать
3. be composed of	состоять из
4. engine	двигатель
5. chassis	шасси
6. body	кузов
7. supplemental equipment	дополнительное оборудование
8. electrical equipment	электрооборудование
9. transmission	трансмиссия
10. control the truck	управлять                      грузовым автомобилем
11. truck controls	система управления
12. driving wheel	ведущее колесо
13. driving axle	ведущий мост
14. driving torque	крутящий момент
15. units and assemblies	узлы и механизмы
16. running gear	ходовая часть

17. running engine	работающий двигатель
18. clutch	сцепление
19. gear box	коробка передач
20. transfer case	раздаточная коробка
21. cardan drive	карданная передача
22. final drive	главная передача
23. power-driven wheels drive	привод ведущих колес
24. differential	дифференциал
25. axle shaft	полуось
26. constant-velocity cardan joint	шарнир равных угловых скоростей
27. spring	пружина, рессора
28. connect	соединять
29. disconnect	разъединять
30. engage	включать, вводить в зацепление
31. engaged position	положение «включено»
32. disengage	разъединять, расцеплять
33. backward movement	задний ход
34. distribute	распределять
35. provide	обеспечивать

Pay attention to the synonyms:  
driving wheel = power-driven wheel  
driving axle = power-driven axle  
driving torque = torque  
final drive = main drive  
function = designation  
principal = main

### Phonetic Drill

Read aloud:

- a) basic, case, drive, final, provide, compose;
- b) angle, axle, factor, spring, box, shock, clutch, run,;
- c) start, part, army, cardan, form, torque, service, turn, purpose;
- d) function, condition, inflation, disconnection, transmission, truck;
- e) compose, control, constant, connect, condition, country, complicated, correspondingly, case, cardan, service, centralized, principal, velocity;
- f) engage, disengage, disengagement, gauge;

### Lexical Exercises

I. Read and translate the following international words:

chassis, transmission, assembly, control, form, basic, element, cardan, differential, principal, function, shock, position, effect,

pedal, start, vary, factor, combine, centralized, system, army, service, design.

II. Choose the word with the put forward meaning:

передавать	transmit, transmitter, transmission
ходовой	run, runner, running
дифференциал	difference, differential, different
привод	drive, driver, driving
соединять	connect, connective, connection
разъединение	disconnect, disconnectedly, disconnection
включенный	engage, engaged, engagement
отключение	disengage, disengagement, disengaged

III. Read and translate:

cardan: cardan drive, cardan shaft, constant-velocity cardan joint;

drive: cardan drive, final drive, power-driven wheels drive, driving wheels drive, winch drive, winch drive cardan shaft, electric drive;

driving: driving wheel, driving axle, driving torque;

truck: truck design, truck controls, truck movement, to control the truck, to drive the truck.

IV. Give Russian equivalents for the technical terms: units and assemblies, driving wheel, running gear, truck controls, driving torque, clutch, gear box, transfer case, cardan drive, final drive, differential, power-driven wheels drive, axle shaft, constant velocity cardan joint, spring, to engage, engaged position, to disengage, to connect, to disconnect, backward movement, running engine, leverage, transmission, chassis, centralized tyre inflation system, service conditions, pressure.

### Grammar Exercise

Read and translate the sentences. Pay attention to the forms of the Present Participle:

1. Chassis is composed of units and assemblies transmitting the effort from the engine to the driving wheels.

2. Chassis consists of the units and assemblies controlling the truck and providing the truck movement.

3. The three main parts of the chassis are a transmission, a running gear and truck controls.

4. Transmission is designed to change the driving torque and to transmit it to the driving wheels.

5. The principal function of the clutch is to enable the engine, when running, to be disconnected smoothly and without shock to the driving wheels.

6. A spring keeps the clutch in the engaged position, disengagement being effected by the pressure of the foot on a pedal.

7. To disengage the clutch, the driver must be sitting in the cabin.

8. For starting purposes and when it is desired to leave the truck with the engine running the disconnection between the engine and the driving wheels is obtained in the gear box.

9. To transmit the driving torque at a changing angle or at a right angle, the cardan drive and the final drive are used.

## Text

### Transmission

The truck is composed of five main parts: engine, chassis, body, electrical equipment and supplemental equipment. Chassis is composed of the units and assemblies transmitting the effort from the engine to the driving wheels, controlling the truck and providing the truck movement. These units and assemblies form the basic parts of the chassis: a transmission, a running gear and truck controls.

Transmission is designed to change the driving torque and to transmit it to the driving wheels. The main elements of the transmission are: a clutch, a gear box, a transfer case, a cardan drive, a final drive, a differential and a power-driven wheels drive including in their turn<sup>1</sup> axle shafts and constant-velocity cardan joints.

Clutch. The clutch enables the engine to be disconnected from the driving wheels, but its principal function is to enable the engine, when running, to be disconnected smoothly and without shock to the driving wheels. A spring keeps the clutch in the engaged position, disengagement being effected by the pressure of the foot on a pedal. To disengage the clutch therefore, the driver must be sitting in the truck. The backward movement of the truck is also provided by means of the gear box.

Gear box. For starting purposes and when it is desired<sup>2</sup> to leave the truck with the engine running, the disconnection between the engine and the driving wheels is obtained in the gear box. The principal function of the gear box is to enable the leverage between the engine and the driving wheels to be varied to suit the prevailing conditions<sup>3</sup>.

Transfer case. The driving torque is increased and distributed among the driving axles by a transfer case.



Cardan drive and final drive. To transmit the driving torque at a changing angle<sup>4</sup> or at a right angle<sup>5</sup>, the cardan drive and the final drive are used correspondingly<sup>6</sup>.

Differential and power-driven wheels drive. Transmission is provided with differentials. This factor, combined with the centralized tyre inflation system, allows the truck to increase cross-country ability under the most complicated army service conditions<sup>7</sup>. The torque from the differential to the driving wheels is transmitted by means of the power-driven wheels drive.

The differential enables the two road wheels to be driven equally by the engine and yet to be able to turn at unequal speed.

Notes:

<sup>1</sup>in their turn – в свою очередь;

<sup>2</sup>when it is desired – когда нужно;

<sup>3</sup>to enable the leverage... ...to be varied to suit the prevailing conditions – изменять крутящий момент по величине и направлению, сообразуясь с дорожными условиями;

<sup>4</sup>at a changing angle – под изменяющимся углом;

<sup>5</sup>at a right angle – под прямым углом;

<sup>6</sup>correspondingly – соответственно;

<sup>7</sup>service conditions – условия эксплуатации.

Questions about the text:

1. What are the five main parts of a truck?
2. What is the chassis designed for?
3. What are the basic parts of the chassis?
4. What is the function of the transmission?
5. What are the main components of the transmission?
6. What is the principal function of the clutch?
7. How is the disengagement of the clutch effected?
8. How is the backward movement of the truck provided?
9. What is the main function of the gear box?
10. What is the transfer case designed for?
11. For what purpose are the cardan drive and the final drive used?
12. What element of the truck allows the motor vehicle to increase its cross-country ability?
13. What is the power-driven wheels drive composed of?

### Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

- a) transmission, chassis, truck controls, running gear;
- b) clutch, gear box, transfer case, transmission, cardan drive, final drive, differential, power-driven wheels drive;

II. Fill in the gaps with the words in the box.

power-driven	gear box
final drive	
driving torque	transfer case
differential	clutch
axle shafts	

1. Transmission is designed to change the ... and to transmit it to the driving wheels.
2. Power-driven wheels drive includes ... and constant-velocity cardan joints.
3. The clutch enables the engine to be disconnected from the ... wheels.
4. A spring keeps the ... in the engaged position.
5. The backward movement of the truck is provided by means of the ...
6. The driving torque is increased and distributed among the driving axles by the ....
7. The cardan drive and the ... are two drives of the transmission.
8. The torque from the ... to the driving wheels is transmitted by means of the power-driven wheels drive.

III. Replace the underlined words by the words of the similar meaning.

1. Transmission is designed to change the driving torque and to transmit it to the power-driven wheels.

2. The main function of the clutch is to enable the engine, when running to be disconnected smoothly and without shock to the driving wheels.

3. The driving torque is increased and distributed among the power-driven axles by a transfer case.

4. The cardan drive and the main drive are designed to transmit the driving torque at a changing angle or at a right angle.

5. Differentials, driving wheels drive and centralized tyre inflation system allow the truck to increase cross-country capacity under the most complicated army service conditions.

IV. Match the words to make up word combinations:

road	shaft		
transfer	box	truck	wheel
axle	drive	cardan	control
truck	wheel	gear	case

V. Practice the sentences from the table:

Chassis		axle shafts and constant-velocity cardan joints
Transmission	consists of	a transmission, a running gear and truck controls
Power-driven wheels drive	is composed of	a clutch, a gear box, a transfer case, a cardan drive, a final drive, a differential and a power-driven wheels drive

VI. Speak on:

1. chassis, its designation and main parts;
2. transmission, its function and composition;
3. clutch;
4. gear box and transfer case;
5. cardan drive and final drive;
6. differential and power-driven wheels drive.

UNIT 5.  
CHASSIS. RUNNING GEAR

Vocabulary List

1. absorb shocks	поглощать удары
2. shock absorber	амортизатор
3. suspension	подвеска
4. spring assembly	рессора в сборе
5. insulate	изолировать
6. prevent	предотвращать
7. expand	расширять
8. liquid	жидкость
9. driven	ведомый
10. motion	движение

Pay attention to the synonyms:

motion = movement

to ensure = to provide

to act = to operate

action = operation

shock absorber = absorber

to ford obstacles = to overcome water obstacles

## Phonetic Drill

Read aloud:

a) frame, ride, driving, device, hole, unit;

b) axle, pad, end, centre, spring, from, shock, truck, bump,  
rubber;

c) ford, form, force, absorb, surmount;

d) centre, device, force, cylinder, oscillation;

e) connection, carry, encounter, compress;

f) chassis, gear, design, provide, motion, movement,  
suspension, mount, assembly, driven, absorber, ensure, prevent,  
through, flexible, beam, usually, fasten, insulate, bushing,  
mechanically, vibration, transmit, satisfactory, smooth,  
therefore, additional, pass, return, original,

## Lexical Exercises

I. Read and translate the following international words:

chassis, design, absorb, shock, form, assembly, modern,  
elastic, act, action, mechanically, vibration, pass, original,  
position, operate, hydraulic, contain, cylinder, army, motor.

II. Choose the word with the put forward meaning:

амортизатор

absorbent, absorber, absorb

движение

move, mover, movement

изолировать	insulate, insulator, insulation
вибрация	vibrate, vibrator, vibration
удовлетворительный	satisfactory, satisfaction, satisfy
работать	operate, operator, operation
сжимать	compression, compress, compressed
расширять	expansive, expand, expansion
двигаться	move, moving, movement

### III. Read and translate:

axle: driving axle, driven axle, front axle, rear axle;

wheel: driving wheel, driven wheel, power-driven wheels drive, steering wheel, wheelbase;

motion: truck motion, up-and-down motion, motion stock;

running: running gear, running engine, running repair, running maintenance;

spring: spring assembly, spring oscillation, compressed spring, expanded spring.

### IV. Give Russian equivalents for the technical terms:

running gear, frame, suspension, units and assemblies, driving wheel, driven wheel, spring, shock absorber, body, front axle, rear axle, rubber bushing, cylinder.



## Grammar Exercise

Read and translate the sentences. Pay attention to the modal verbs:

1. Running gear must provide the truck motion.
2. The axles and the wheels of modern trucks can be driving and driven.
3. The suspension is to ensure elastic connection between the frame and the axles.
4. Springs must absorb road shocks and prevent up-and-down motion from being carried through the frame and body.
5. Springs should be insulated mechanically from the frame by means of rubber bushings and pads.
6. Springs alone cannot provide a satisfactory smooth ride.
7. Shock absorbers must contain liquid that can be forced from one cylinder to another as the springs are compressed or expanded.

## Text

### Running Gear

Running gear is designed to provide the truck motion and to absorb shocks during the movement. A frame, axles, wheels and a suspension form the running gear.

The frame mounts all the truck units and assemblies. The axles and the wheels on modern trucks can be driving and driven. The suspension consists of springs and shock absorbers and ensures elastic connection between the frame and the axles.

**Springs.** Springs absorb road shocks as the wheels encounter holes and bumps<sup>1</sup> and prevent up-and-down motion from being carried through the frame and body. The spring assembly acts as a flexible beam<sup>2</sup> and is usually fastened at the two ends to the truck frame and at the centre – to the wheel axle. Springs are usually insulated mechanically from the frame by means of rubber bushings and pads<sup>3</sup>. This prevents road vibration from being transmitted to the frame and body.

**Shock absorbers.** Springs alone cannot provide a satisfactory smooth ride<sup>4</sup>. Therefore, an additional device, called a shock absorber, is used with each spring. Shock absorbers dampen out spring oscillations<sup>5</sup> so that after the wheel passes over a bump, or into a hole and out, the spring returns to its original position without overriding<sup>6</sup>.

Shock absorbers usually operate on hydraulic action. They contain liquid that is forced<sup>7</sup> from one cylinder to another as the springs are compressed or expanded.

The running gear of modern army motor vehicles allows them to move with high speeds on rough terrain, to span ditches, to surmount bumps and holes<sup>8</sup> and to ford water obstacles.

Notes:

<sup>1</sup>encounter holes and bumps – наезжают на ямы и ухабы;

<sup>2</sup>flexible beam – гибкая балка;

<sup>3</sup>rubber bushings and pads – резиновые вкладыши и прокладки;

<sup>4</sup>smooth ride – плавный ход;

<sup>5</sup>dampen out spring oscillations – амортизируют колебания рессоры;

<sup>6</sup>without overriding – без перенапряжения;

<sup>7</sup>that is forced – которая переливается;

<sup>8</sup>to surmount bumps and holes – преодолевать ухабы и ямы.

Questions about the text:

1. What is the running gear designed for?
2. What is the running gear composed of?
3. What does the frame mount?
4. What does the suspension consist of?
5. What does the suspension ensure?
6. What do the springs ensure?
7. What are the springs designed for?

8. What is the designation of the shock absorber?

9. On what action do shock absorbers operate?

### Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

a) frame, axle, running gear, suspension, wheel;

b) spring, suspension, shock absorber;

c) buttons, handles, levers, truck controls.

II. Fill in the gaps with the words in the box:

running gear	axle
wheel	
suspension	frame driving
springs	shock absorber

1. For dampening the road shocks transmitted to the frame and the body, ... have to be arranged between axles and the frame.

2. A special type of the rear-axle ... is the torsion bar spring.

3. The hydraulic ... are designed to damp the frame vibrations during the movement.

4. The basic parts of the chassis are a transmission, a ... and truck controls.

5. The front ... switch lever is located to the right of the driver in the cab

6. The torque from the differential to the driving ... is transmitted by means of a power-driven wheels drive.

7. The suspension ensures elastic connection between the ... and the axles.

8. The driving torque is increased and distributed among the ... axles by a transfer case.

III. Replace the underlined words by the words of the similar meaning.

1. All the truck units and assemblies are installed on the frame.

2. The axles and the wheels on modern trucks can be driving and driven.

3. Springs alone cannot provide a satisfactory smooth ride.

4. The running gear of army motor vehicles allows them to move with high speeds on rough terrain.

5. The running gear of the truck ensures them to overcome water obstacles.

IV. Match the words to make up word combinations:

spring      |      motion

road	obstacle
truck	bushing
water	absorber
shock	assembly
rubber	shock

V. Practice the sentences from the table:

The engine and the transmission	is	connected	by the gear box for a long time.
			to the frame by means of a suspension.
The wheels			by the clutch for a short time.
	are	disconnected	to the truck frame at the two ends.
The spring assembly			to the wheel axles at the centre.

VI. Speak on:

1. running gear, its designation and composition;

2. frame;
3. suspension;
4. springs;
5. shock absorbers.

## UNIT 6. CHASSIS. TRUCK CONTROLS

### Vocabulary List

1. truck controls	система управления автомобилем
2. change	изменять
3. direction	направление
4. steering gear	рулевой механизм
5. drive the truck	водить машину
6. turn	поворачивать
7. link	соединять, связывать
8. gear	шестерня, привод
9. slow	замедлять
10. difference	различие
11. brake	тормоз
12. shoe-type brake	колодочный тормоз
13. foot brake	ножной тормоз
14. hand brake	ручной тормоз

15. service brake	рабочий тормоз	
16. parking brake	стояночный тормоз	
17. hydraulic brake	тормоз гидравлическим приводом	с
18. air brake	тормоз пневматическим приводом	с
19. power brake	тормоз с усилителем	
20. transmission brake	центральный тормоз	
21. front-wheel brake	тормоз передних колес	
22. rear-wheel brake	тормоз на задних колесах	
23. external-contracting brake	тормоз с наружными зажимными колодками	
24. internal-expanding brake	тормоз с разжимными колодками внутри тормозного барабана	

### Phonetic Drill

Read aloud:

a) made, brake, be, lever, drive, while, by, type, so, go,  
mode, motor, use, include;



b) hand, action, can, contracting, expanding, depend, within, link, equipped, distance, system, stop, must, truck;

c) parking, army, short, according, service, external, internal, purpose, turning;

d) service, distance, difference, necessary, exception;

e) can, call, control, according, contracting;

f) each, gear, rear, means, wheel, vehicle, steering, change, air, design, direction, movement, without, actuation, between, classified, mechanical, hydraulic, respectively, front, point, almost, want, mostly, also, foot, shoe, power, employ.

### Lexical Exercises

I. Read and translate the following international words: text, chassis, control, design, stop, speed, system, front, army, type, distance, motor, service, parking, operation, classify, mechanical, hydraulic, modern, action, transmission.

II. Choose the word with the put forward meaning:

направление	direct, direction, director
работа	operator, operative, operation
трансмиссия	transmit, transmission, transmitter
рулевой	steer, steerage, steering
изменять	change, changeable,

III. Read and translate:

brake: main brake system, stop brake system, motor vehicle brake, shoe-type brake, foot brake, hand brake, service brake, parking brake, mechanical brake, hydraulic brake, air brake, power brake, front-wheel brake, rear-wheel brake, transmission brake, external-contracting brake, internal-expanding brake;

truck: truck controls, to drive the truck, to stop the truck, truck movement, to slow the truck, army truck;

wheel: steering wheel, driving wheel, driven wheel, front wheel, rear wheel, wheel brake, wheelbase, power-driven wheels drive.

IV. Give Russian equivalents for the following technical terms:

steering gear, brake system, truck controls, front wheel, rear wheel, gears and levers, drive, chassis, means of turning, steering wheel.

### Grammar Exercise

Read and translate the sentences. Pay attention to the forms of the verbs in the Passive Voice:

1. Truck controls are designed to change the direction of the truck movement and to stop the truck.
2. The steering wheel is linked by gears and levers to the front wheels.
3. The foot brake is also called a service brake.
4. The hand brake is called a parking brake.
5. According to their mode of operation the brakes are classified as mechanical brakes, hydraulic brakes and air brakes.
6. Power brakes are employed in many modern army vehicles.
7. Depending on their action on the front or rear wheels or on the drive, the brakes are classified as front-wheel brakes, rear-wheel brakes or transmission brakes.
8. The most of modern motor vehicles are equipped with internal-expanding brakes acting on all the wheels of the vehicle.

Text

## Truck Controls

Truck controls are designed to change the direction of the truck movement, movement speed and to stop the truck. Truck controls include a steering gear and brake systems.

Steering gear. To drive the truck, it is necessary to have some means of turning the front wheels, so the truck can be

pointed to<sup>1</sup> the direction the driver wants to go. The steering wheel in front of the driver is linked by gears and levers to the front wheels for this purpose<sup>2</sup>.

**Brake system.** Brakes are necessary to slow or stop the truck. In the army trucks two types of brake systems are mostly used: a main brake system and a stop brake system.

Each brake must be able to stop the vehicle within the shortest distance. Almost without any exception<sup>3</sup>, motor vehicle brakes are “shoe-type” brakes. Depending on their actuation<sup>4</sup>, a difference is made between foot brakes and hand brakes. The foot brake is also called a service brake, while the hand brake is called a parking brake.

According to their mode of operation<sup>5</sup>, the brakes are classified as mechanical brakes, hydraulic brakes and air brakes. Most braking systems in use today are hydraulic. Power brakes are also employed in many modern army trucks.

Depending on their action on the front or rear wheels or on the drive, the brakes are classified as front-wheel brakes, rear-wheel brakes or transmission brakes respectively<sup>6</sup>. The brakes are classified as external-contracting or internal-expanding brakes. The most of modern motor vehicles are equipped with

internal-expanding brakes acting on all the wheels of the vehicle.

Notes:

<sup>1</sup> ... can be pointed to – может быть задано;

<sup>2</sup> ... for this purpose – для этой цели;

<sup>3</sup> almost without any exception – почти без исключения;

<sup>4</sup> depending on their actuation – в зависимости от приведения в действие;

<sup>5</sup> according to their mode of operation – по режиму работы;

<sup>6</sup> ... respectively – соответственно.

Questions about the text:

1. What are the truck controls designed for?
2. What do the truck controls include?
3. How is the steering wheel linked to the front wheels?
4. What is the brake system intended for?
5. What brake systems are mostly used in army trucks?
6. How are the brakes classified depending on their actuation?
7. How are the brakes divided according to their mode of operation?
8. How are the brakes subdivided depending on their action on the front or rear wheels or on the drive?

## Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

- a) brake system, truck controls, steering gear;
- b) foot brake, main brake system, service brake;
- c) parking brake, hand brake, stop brake system.

II. Fill in the gaps with the words in the box:

hydraulic brakes	
steering gear	
power	braking
rear wheel	front brakes
steering wheel	

1. Above all, ... of the vehicle depends on friction between the tyres and road surface.
2. Truck controls include ... and a brake system.
3. The horn button is located in the centre of the ... .
4. Depending on the actuation, a difference is made between ... and hand brakes.
5. According to their mode of operation, the brakes are classified as mechanical brakes, ... and air brakes.

6. Depending on their action on the front or rear wheels the brakes are classified as front wheel brakes and ... brakes.

7. Nowadays ... brakes are often employed in many heavy-duty motor vehicles.

III. Replace the underlined words by the words of the similar meaning.

1. Depending on their actuation, a difference is made between foot brakes and hand brakes.

2. The most of modern motor vehicles are provided with internal-expanding brakes acting on all the wheels of the vehicle.

3. The accelerator pedal is located with generally accepted standard in the cabin.

4. Motor is a machine that changes power from fuel into movement.

IV. Match the words to make up word combinations:

Brake	wheel
Foot	speed
Truck	system
Front	brake
Movement	control

V. Practice the sentences from the table:

Running gear	is		ensure elastic connection between the frame and the axles.
Suspension		designed for	dampening out spring oscillations.
Springs	are	designed for	providing the truck motion
Truck controls		intended for	changing the direction of the truck movement, movement speed and stopping the truck.
Steering gear	are		turning the front wheels and changing the direction of the truck movement.



VI. Speak on:

1 truck controls, their designation and composition;

2 steering gear;

3 brake system, its designation and composition;

4 brakes, their classification.

## UNIT 7. SUPPLEMENTAL AND ELECTRICAL EQUIPMENT

### Vocabulary List

1. tractive effort	тяговое усилие
2. cable	кабель, трос
3. winch drive	привод лебедки
4. winch drive cardan shaft	карданный вал привода лебедки
5. winch gear unit	механизм лебедки
6. power take off box	коробка отбора мощности
7. safety pin	предохранительный штифт
8. accessories	приспособления
9. heater	отопитель, обогреватель
10. windshield wiper	стеклоочиститель
11. installation of sprinkler	омыватель лобового стекла
12. door window raiser	стеклоподъемник

13. coupling system	тягово-сцепное устройство
14. pressure	давление
15. tyre, tire	шина
16. halt	остановка, привал
17. current source	источник энергии
18. current consumer	потребитель энергии
19. current-and-voltage regulator	реле-регулятор
20. storage battery	аккумуляторная батарея
21. ignition system	система зажигания
22. lighting device	прибор освещения
23. signalling device	прибор сигнализации
24. radio interference filter	фильтр радиопомех
25. distributor	распределитель
26. ignition coil	катушка зажигания
27. spark plug	свеча зажигания
28. transistor type commutator	транзисторный коммутатор
29. additional resistor	добавочный резистор
30. fuel-air-mixture	топливная смесь

Pay attention to the synonyms:

to enhance = to increase

cross-country ability = cross-country capacity

functioning = operation

## Phonetic Drill

Read aloud:

a) take, drive, wiper, pilot, device, type, road, fuel, unit;

b) lamp, length, pin, winch, cross, bog, off, box, frost, soft,  
truck, plug, under;

c) hard, spark, start, starter, cardan, for;

d) device, source, centralized, interference, necessary,  
cylinder;

e) cab, cabin, cable, locate, tropical, indicating, electrical,  
condition, consider, consumer, coil, commutator, control,  
country, coupling, current, evacuate;

f) generator, voltage, storage, engine, imagine;

g) enhance, ability, heavy, tractive, effort, account, should,  
equipment, designed, power, shaft, safety, gear, accessories,  
heater, windshield, installation, sprinkler, raiser, withstand,  
solution, inflation, increase, capacity, without, ignition, lighting,  
distributor, additional, gauge.

## Lexical Exercises

I. Read and translate the following international words:

electrical, mechanical, tropical, indicating, functioning, signalling, generator, motor, regulator, transistor, commutator, resistor, cable, cabin, system, air, pressure, modern, group, radio, mixture, control, lamp, panel, battery, start, starter, filter, cylinder, cardan, element, instrument, occupant, ventilation, evacuate, centralized.

II. Choose the word with the put forward meaning:

конструктивная особенность	specify, specific, specification
механический	mechanic, mechanical, mechanism
устанавливать	install, installation, installment
вентиляция	ventilate, ventilator, ventilation
отопитель	heat, heater, heating
использование	employ, employer, employment
централизованный	centralize, centralized, centralization
давление	press, pressing, pressure
без	with, within, without
зажигание	ignite, igniter, ignition

освещение	lighting, lightning, lighter
распределитель	distribution, distributor, distributive

### III. Read and translate:

winch: mechanical winch, winch drive, winch drive cardan shaft, winch lever, winch gear unit;

system: ignition system, coupling system, centralized tyre inflation system;

ignition: ignition coil, ignition system;

equipment: electrical equipment, supplemental equipment;

current: current source, current consumer, current-and-voltage regulator;

device: special device, lighting device, signalling device, indicating device.

### IV. Give Russian equivalents for the technical terms:

cable length, power take off box, safety pin, devices and accessories, cab heater, windshield wiper, installation of sprinkler, door window raiser, air pressure in tyres, storage battery, radio interference filter, distributor, spark plug, transistor type commutator, additional resistor, fuel-air mixture, engine cylinder, gauge, pilot lamp, instrument panel.

## Grammar Exercise

Read and translate the sentences. Pay attention to the forms of the Infinitive:

1. To evacuate bogged down vehicles the trucks are equipped with a mechanical winch.
2. A cab heater and ventilation help the occupants sitting in the cab to withstand winter frosts and tropical heat.
3. The only solution to drive very fast in hard rain is the employment of the windshield wiper and the installation of sprinkler.
4. To increase or to decrease air pressure in the tyres the centralized tyre inflation system is used.
5. Electrical equipment is designed to ignite the fuel-air mixture in the engine cylinders.
6. Electrical equipment is used to start the engine.
7. To feed indicating devices the electrical equipment is mounted in the cab.

## Text

### Supplemental and Electrical Equipment

To enhance truck cross-country ability under heavy road conditions and evacuate bogged down<sup>1</sup> vehicles the trucks are equipped with a mechanical winch. When speaking of the specifications of the truck the winch, its tractive effort and a

cable length should be taken into account<sup>2</sup>. A winch and a winch drive can be considered<sup>3</sup> as special equipment designed for developing tractive effort of the truck. The main elements of the winch drive are: a power take off box, winch drive cardan shafts, a safety pin and a winch gear unit.

Supplemental devices and accessories are also installed in the driver's cabin: a cab heater and ventilation, a windshield wiper, an installation of sprinkler and a door window raiser. A cab heater and ventilation help the occupants sitting in the cab to withstand winter frosts<sup>4</sup> and tropical heat.

The only solution to drive very fast in hard rain is the employment of the windshield wiper and the installation of sprinkler.

To increase or to decrease air pressure in the tyres at halts and during the movement and thus to increase the cross-country capacity of the truck on a soft ground the centralized tyre inflation system is mounted.

One cannot imagine<sup>5</sup> a modern truck without an electrical equipment. The electrical equipment of the motor vehicle includes two groups of devices: current sources and current consumers. A generator and a storage battery belong to current sources. The current consumers are: an ignition system, a starter, lighting and signaling devices and radio interference filters. The

ignition system used in the truck is of a storage battery type and consists of a distributor, an ignition coil, spark plugs, a transistor type commutator, and an additional resistor.

Electrical equipment is designed to ignite the fuel-air mixture in the engine cylinders, to start the engine<sup>6</sup> and to feed<sup>7</sup> indicating devices. It is also necessary for lighting and signalling. Functioning of the electrical equipment in the truck is controlled by means of gauges and pilot lamps located on the instrument panel in the driver's cabin.

Notes:

<sup>1</sup>bogged down – застрявшие в трясине;

<sup>2</sup>should be taken into account – должны приниматься во внимание;

<sup>3</sup>can be considered – могут рассматриваться;

<sup>4</sup>to withstand winter frosts – выдерживать зимние морозы;

<sup>5</sup>one cannot imagine – невозможно представить себе;

<sup>6</sup>to start the engine – запустить двигатель;

<sup>7</sup>to feed – питать.

Questions about the text:

1. What does the supplemental equipment of the truck include?



2. For what purpose is the mechanical winch installed on the truck?
3. What are the main elements of the winch drive?
4. What devices and accessories are installed in the driver's cabin?
5. What are the cab heater and ventilation designed for?
6. What devices belong to supplemental equipment?
7. What is the centralized tyre inflation system intended for?
8. What two groups of devices is the electrical equipment composed of?
9. What devices belong to current sources?
10. What are the current consumers?
11. What is the electrical equipment designed for?

### Vocabulary Practice

I. Choose the word or the word combination denoting the most general notion:

a) power take off box, safety pin, winch drive, winch drive cardan shaft, winch gear unit;

b) cab heater, ventilation, windshield wiper, installation of sprinkler, special equipment, door window raiser;

c) generator, current-and-voltage regulator, current source, storage battery;

d) starter, lighting device, signalling device, current consumer, radio interference filter;

e) distributor, ignition coil, ignition system, spark plug, transistor type commutator, additional resistor.

## II. Fill in the gaps with the words in the box.

current sources	storage battery
winch drive	
tractive effort	
gauges	current consumers
tyres	devices

1. The electrical equipment of the motor vehicle includes two groups of ...: current sources and current consumers.

2. Functioning of the electrical equipment in the truck is controlled by means of ... and pilot lamps.

3. A generator and a storage battery belong to ...

4. The ... are an ignition system, a starter, lighting and signalling devices and radio interference filters.

5. The ignition system used in the truck is of a ... type.

6. To increase or to decrease air pressure in the ... the centralized tyre inflation system is mounted.

7. A winch and a winch drive are designed for developing ... of the truck.

8. The main elements of the ... are a power take off box, winch drive cardan shafts, a safety pin and a winch gear unit.

III. Replace the underlined words by the words of the similar meaning.

1. To increase truck cross-country capacity under heavy road conditions and evacuate bogged down vehicles the trucks are provided with a mechanical winch.

2. Supplemental devices and accessories are mounted in the driver's cabin.

3. The electrical equipment of the motor vehicle includes two groups of devices: current sources and current consumers.

4. Electrical equipment is intended to ignite the fuel-air-mixture in the engine cylinders, to start the engine and to feed indicating devices.

5. Operation of the electrical equipment is controlled by gauges and tell-tale lamps located on the instrument board.

IV. Match the words to make up word combinations:

windshield

| pressure

safety	consumer
storage	drive
road	pin
cable	coil
spark	heater
motor	wiper
air	conditions
current	length
ignition	battery
winch	plug
cab	vehicle

V. Practice the sentences from the table:

A winch and a winch drive		the electrical equipment
A power take off box		
Current sources		the special equipment
A storage battery	belong to	

A starter		current sources
Winch drive cardan shafts		
Current consumers		current consumers
A generator	belongs to	
Lighting devices		the winch drive
A winch gear unit		
Signaling devices		

VI. Speak on:

1. supplemental equipment;
2. electrical equipment, current sources;
3. electrical equipment, current consumers;
4. electrical equipment, its designation.

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