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FORD CARGO OWNERS MANUAL



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Although due care has been taken to make it as complete and accurate as possible, it can still be subject to alterations.

This publication describes options and trim levels available throughout the Ford model range in every country, and therefore some of the items covered may not apply to your vehicle.

Important: Ford genuine parts and accessories have been specifically designed for Ford vehicles. They are dedicated for your Ford vehicle.

We would like to point out that other parts and accessories than mentioned above have not been examined and approved by Ford unless explicitly stated by Ford. In spite of continuous market product monitoring, we cannot certify the suitability of such products. Ford is not liable for any damage caused by use of such products.

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About This Manual

ABOUT THIS MANUAL

Thank you for choosing Ford. We recommend that you take some time to get to know your vehicle by reading this manual. The more that you know about it, the greater the safety and pleasure you will get from driving it.

Also some features may be explained although they are not introduced because of the time periods between the dates of issue.

Regular servicing of your vehicle helps maintain both its roadworthiness and its resale value.

More than 100 Ford Authorized Dealerships around the world will offer you help with their professional service experience.

Authorized Dealerships provide you the best expert service with their specifically trained personnel. Moreover, they are supported with a wide range of tools and equipment specially developed for applying service on Ford vehicles.

Note: Remember to pass on the Owner's manual when reselling the vehicle. It is an integral part of the vehicle.

All technical information and data included in this manual are valid in the issue date of this manual. However, we reserve the right to make changes without prior information due to our continuous product development policy as FORD OTOSAN.

Some features described in the user handbook may not be present in your vehicle depending on the vehicle model.

**Regards,
FORD OTOMOTİV SANAYİ A. Ş.**

**For Diesel Vehicles
CAUTION !**

Use only EN590 compliant, high quality fuel (Eurodiesel) with low ratio of sulphur. Faults that may be caused by the failure to use EN590 compliant, high quality fuel (Eurodiesel) with low ratio of sulphur shall be considered out of warranty cover. Fuel-related faults that may occur when EN590 compliant, high quality fuel (Eurodiesel) with low ratio of sulphur is not used shall be considered out of warranty cover.

FORD OTOSAN

INTRODUCTION

1



INTRODUCTION

1

Accessories and Parts

PARTS AND ACCESSORIES

Your Ford has been built to the highest standards using high quality Ford Original Parts. You may enjoy driving your vehicle for years.

We advise you to use Ford Original Parts only when an unexpected situation occurs and a part should be replaced.

The use of Ford Original Parts ensures that your vehicle is repaired to its pre-accident condition and maintains its maximum residual value.

Ford Original Parts complies with the strictest safety conditions and highest safety standards of Ford. Thus, they offer the best total repair cost including the costs of parts and labour.

Now it is much easier to understand if the part offered to you is a Ford Original Part. Ford Original Parts listed below have a Ford logo on

them. Inspect whether the part has a Ford logo in case of a repair, and make sure that Ford Original Parts are used.

Symbols on your vehicle



When you see these symbols, refer to the relevant section of this manual before touching any part or attempting an adjustment of any kind.

SYMBOLS GLOSSARY

Symbols in this manual



WARNING

You risk death or serious injury to yourself and others if you do



CAUTION

You risk damaging your vehicle, if you do not follow the instructions highlighted by the caution symbol.

INTRODUCTION

ACCESSORIES, PARTS AND MODIFICATIONS ON YOUR FORD CARGO VEHICLE

Today, there are many non-original parts and accessories are being sold in the market for FORD CARGO vehicles. Using these types of non-original FORD CARGO parts and accessories (even these parts are authorized by some institutions in your country) may have an adverse effect on the safety of your vehicle. Therefore, non-original FORD CARGO parts and accessories and problems likely to result from the usage of these are not considered under warranty and this does not put FORD CARGO under any liability.

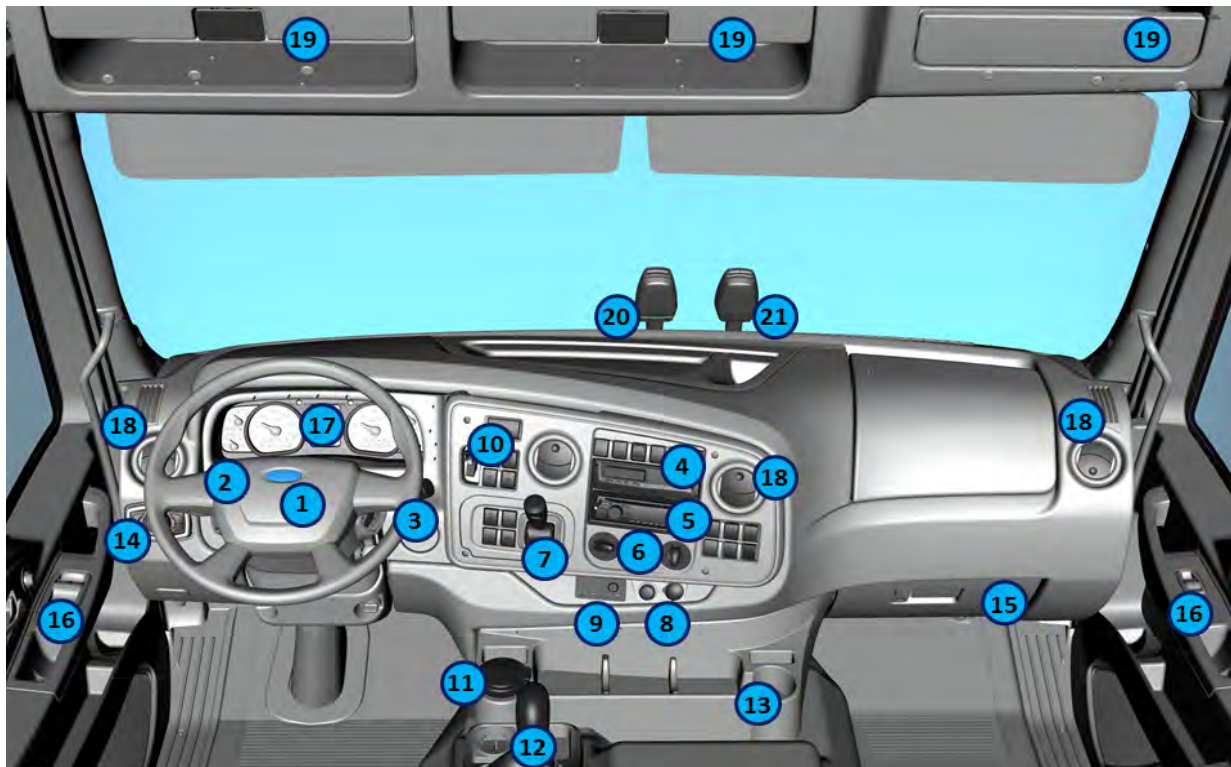
No modifications should be performed on this vehicle. Any modification on your FORD CARGO could effect your vehicle's performance, safety, and durability, and it might also be against legal regulations. Additionally, any damage and performance problems due to the modification of your vehicle are not considered under warranty cover.

FORD OTOMOTİV SANAYİİ A. Ş.

INTRODUCTION

1

Dashboard



1

INTRODUCTION

Dashboard

1	Steering
2	Multi-functional handle (left)
3	Multi-functional handle (right)
4	Tachograph
5	Radio
6	Air Conditioner/Heater switching unit
7	Parking brake
8	Lighter / 12V outlet
9	Auxiliary heater digital control unit
10	Control panel/control buttons
11	Ashtray

12	Gear
13	Centre console/Bottle holder
14	Headlamp switch
15	Glove box
16	Window regulator control buttons
17	Digital indicator
18	Ventilation and air conditioner/heater air vents
19	Storage compartments
20	Camera
21	Rain sensor



Safety

Seat Belts

2

Seat belts provided with your vehicle are the most important on-board safety equipment. Seat belts minimize the risk of injury by reducing the movement of the occupants in the direction of impact and their contact with the interior in case of a crash.

Always fasten your seat belts while driving. Seat belt shall not loose or bent or shall not be blocked by another occupant or load.



WARNING

Seat belt cannot provide its protection function if you do not fasten it correctly or ensure that the belt lock is engaged properly. Otherwise, you may get seriously or fatally injured in case of an accident. Ensure that all occupants of the vehicle have properly fastened their seat belts to prevent this.



CAUTION

While you are fastening your seat belt, ensure that,

- it does not pass through your belly that it passes through your hip, e.g. your thighs
- it is tight
- it is not twisted any way
- it passes through the middle of your shoulders
- it does not pass through your neck or armpits
- it is strained on your hips by pulling it upwards from the chest .

Do not fasten the belt with heavy items and avoid wearing thick clothes.

Do not fasten the seat belt over fragile objects in or on your clothes such as glasses, keys, pens etc.

Use a seat belt for only one person.

Never travel with your children on your lap and do not fasten the seat belt over them.



WARNING

Seat belts provide safety inside the vehicle when the occupants are seated in vertical position while the backrests of the seat are in vertical position.

Avoid seating position that prevents correct operation of the seat belts.

Do not drive while the backrest is leaned backwards excessively.

Safety

2

Seat Belts



WARNING

Seat belt cannot provide proper functionality when the belt or lock of the seat belt is damaged. To prevent this, check the seat belts for damage or jamming periodically.

Otherwise, seat belt may be torn in case of an accident and cause serious or fatal injuries.

Fastening the seat belt



Pull the seat belt continuously from the reel. Seat belt may be locked when it is pulled too fast or when the vehicle is on a slope. In this case, relieve the seat belt and allow it to retract a little, then try again. Hear the locking click when you are inserting the latch of the seat belt to the buckle. Otherwise, seat belt is not locked.



Press the red button on the buckle to release the seat belt. Then, release the belt slowly to allow that it is wound on the reel fully.

Seat belt shall pass through the middle of your shoulder. And, the waist part shall be seated firmly on your hips, not on your stomach.

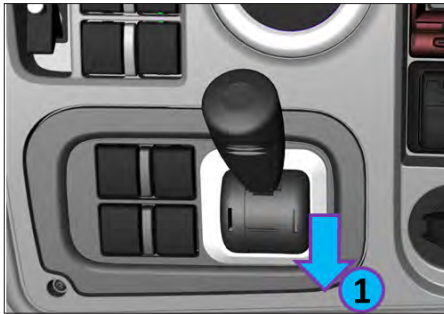
Safety

2

Park Brake Control

Park brake is placed on the front console. Always apply the park brake after parking the vehicle. Chock the tires if the vehicle is parked on a slope.

Park position:



Bring the park brake lever to ① position.

Red  illuminates on the indicator when the park brake is applied.

Drive position:



Bring the park brake lever to ② position.



WARNING

Do not apply the park brake while the brake drums or disks are very hot, wait for them to cool.



WARNING

Park brake is spring type. If there is not enough pressure in the air tanks, park brake will not be released from the control lever. There shall be enough air pressure on the tanks to release the brake. If there is not enough pressure, the brake can be release by turning the setting mechanism of the adjustment bolt located on the park brake bellows.

Before releasing the park brake spring, ensure the safety of your vehicle by chocking the wheels. Do not drive the vehicle if any park brake circuits are not working.

Bellows may be frozen if the brakes cannot be released while the lever is released on winter. Spring is installed by rotating the bellows installation bolt in the tightening direction. To ensure that the emergency spring is fully installed, installation bolt shall be tightened until it does not turn anymore.



Safety

2

Tires and Wheels

One of the most important safety elements on your vehicle is the tires. Check the tire pressure and condition periodically. Do not drive your vehicle with worn tires. -When the tire pressure is very low, tires may get extremely heated, worn and these may cause excessive fuel consumption. -When the tire pressure is very high, this may cause longer braking distance, worse handling and excessive wear on tires. -If the pressure loss happens continuously, this may be caused by external damages, cracks, foreign material in the tires and faulty tire valves leaking air.



WARNING

Please, observe the prescribed tire pressure for your vehicle. Very low tire pressure may cause blow-out of the tire at high speeds and loads. You can cause an accident and thus injuries to others due to this.

Tire profiles

A minimum profile depth is prescribed for tires by law. Observe the legislation for the relevant country.

For safety reasons, change your tires before reaching the legally advised minimum profile depth.



WARNING

An excessively low tire profile may cause loss of handling at high speeds in case of rain or snow mud conditions. You may lose your handling and cause an accident in these conditions.

The Condition of the Tires

Check the following conditions regularly every 2 weeks and before a long haul to inspect the condition of the tires:

- External damage
- Cracks and bulges on the tires,
- Foreign material in the tire profile,
- Irregular wear of the profile.



WARNING

Do not forget that the external damages, bulges and cracks on the tires may cause blow-out of the tire. You may cause an accident in these conditions.

The Aging of the Tires

- Aging of the tires reduces the operation and traffic safety of the tires. Even unused tires are aged.
- Always replace your tires if they are aged more than 6 years.

Tire Damages

- Tire damages are usually caused by the following reasons:
- Aging of the tire
 - Foreign material
 - Usage conditions of the vehicle
 - Weather conditions
 - Oil, fuel, grease etc. Contact with materials
 - Dragging on the sidewalks
 - Low or high tire pressure



WARNING

When your vehicle passes over the sides of the sidewalks or objects with sharp edges, this may cause damages that cannot be seen externally. These damages can only be noticed in the future and cause a flat tire. Do not park your vehicle with some part of the tire on the sidewalk.

Safety

2

General Safety Warnings



WARNING

Failure to observe following conditions may cause accidents which may result in serious injuries.

- Using a mobile phone while driving may distract you.
- Do not adjust the seat and steering wheel while driving.
- Occupants travelling on any other place than seats (e.g. on the bed) may cause serious injuries while braking.
- Do not put any objects on the beds inside the cab; this may cause serious injuries while braking.



WARNING

Make sure the heater is off before refuelling of the vehicles with additional fuel tank for additional cab heater.



WARNING

Do not carry or store material harmful to the health inside the driver cab.

Examples of these materials are:

- Fuel
- Acid
- Lubricants and grease
- Cleaning agents

Vehicle Tracking Safety System

Fleet tracking systems are also used for finding the location of the vehicle in case of car theft. However if the vehicle tracking module is removed, the location of the vehicle cannot be found.

Vehicle Tracking Safety System eliminates this problem which is the weak point of the fleet tracking systems, since the module cannot be removed and prevents the stolen vehicle from being driving away.

In vehicles with optional vehicle tracking safety system, starting may be last up to 35 seconds when the disconnecting switch shut off because of the safety package.

After the ignition is on, wait for the red immobilizer light to dim out  before starting.



Vehicle tracking safety system warning indicator

If the instrument panel and FMS cannot communicate while the ignition is on, the vehicle cannot be started.

This prevents the starting of the vehicle without GPS tracking.

Vehicle cannot be started and indicates a warning in this case.

Safety

2

General Safety Warnings

Cleaning of Exhaust Filter

The exhaust filter found in Euro 6 vehicles retains the smut coming from the exhaust gas and decreases the emission values. With the exhaust filter cleaning operation which can be performed automatically or manually, the smut retained in the filter is burned with regular intervals so that the filter is emptied before filling up and being clogged. In this operation, the exhaust gas is heated by the engine and smut is burned. Driver is informed about the exhaust filter cleaning of the vehicle through the messages displayed on the indicator panel and explained in detail in the Exhaust Filter Cleaning section



WARNING

Since the exhaust gas shall heat up during the exhaust filter cleaning; ensure that the vehicle is not in the same place with flammable, inflammable and explosive materials or in enclosed space



WARNING

Ensure that vehicle exhaust cleaning is not performed in locations like hazardous material loading and unloading places or fuelling stations. When necessary, activate the exhaust filter cleaning prevention using *exhaust filter cleaning prevention button*



CAUTION

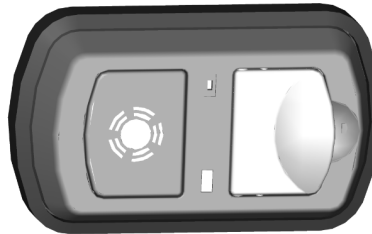
Using exhaust filter cleaning prevention for prolonged time may cause the exhaust filter to be clogged and rendered unusable. Please observe the warnings provided in the indicator panel and do not use manual filter cleaning prevention unless necessary.



CAUTION

When there are personnel on the step at the rear of garbage trucks, vehicle speed is limited to 30 km/h and vehicle can not reverse.

ERA-Glonass



The “ERA” mode:

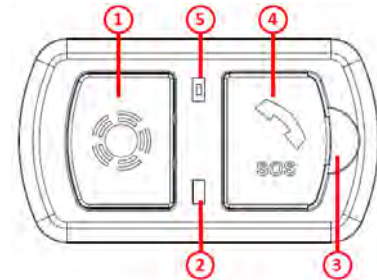
Backlight of buttons “SOS”, “Service” – white light

The “Emergency Call” Mode:

Backlight of button “SOS” – red light,
Backlight of button “Service” – white light.

Backlight of the LED:

- Switching on – red light 5 sec, then green flashing;
- The “ERA” mode – green light;
- Data transfer in the “Emergency Call” mode – green light;
- Malfunction – red light.

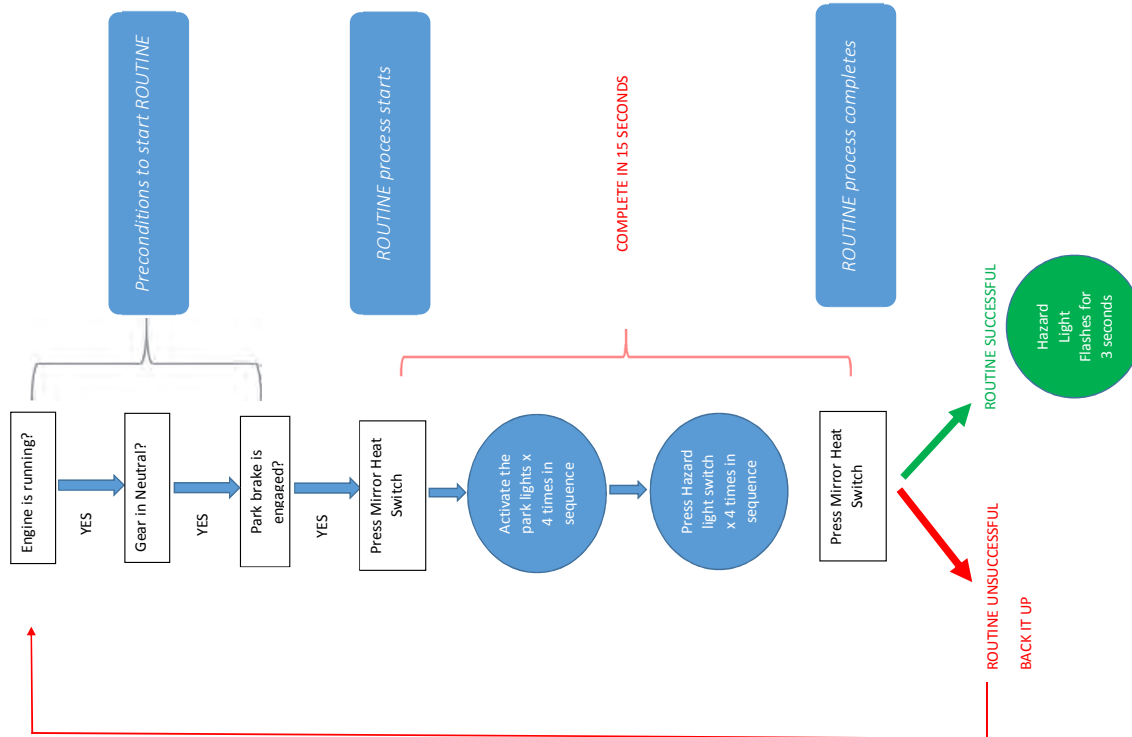


- 1- Service Buton
- 2-Microphone
- 3-Protective cover
- 4-SOS Buton
- 5-Led

Safety

2

General Safety Warnings



CONTROLS AND INDICATORS

3



CONTROLS AND INDICATORS

Instrument Panel

3



1	Air pressure indicator
2	Engine oil pressure indicator
3	Speedometer
4	Tachometer
5	Engine coolant temperature gauge
6	Fuel gauge
7	Trip computer

CONTROLS AND INDICATORS

Instrument Panel

3

FUNCTION	SYMBOL	COLOR	CONTROL BUTTON	BUZZER
Left Signal Lamp		Green	Multi-functional handle (left)	yes
Right Signal Lamp		Green		
Low brake air pressure		Red	Instrument	yes
EBS		Red / Amber	Automatic	n/a
ABS		Amber	Automatic	n/a
High Beam		Blue	Multi-functional handle (left)	n/a
Alternator		Red	Automatic	n/a
Park Brake Sign		Red	Park brake control	n/a
Cab Lock Sign		Red	Cab lifting mechanism	yes

CONTROLS AND INDICATORS

Instrument Panel

FUNCTION	SYMBOL	COLOR	CONTROL BUTTON	BUZZER
Oil Pressure Warning		Red	Automatic	yes
Cold Starting Aid		Amber	Automatic	n/a
Height Engine Water Temperature		Red	Automatic	yes
Trailer ABS/EBS		Amber	Automatic	n/a
Trailer right/left turn signal warning		Green	Multi-functional handle (left)	n/a
Engine Warning Lamp		Amber	Automatic	n/a
Cruise Control		Green	Multi-functional handle (right)	n/a
Front Fog Lamp		Green	Headlamp switch	n/a

CONTROLS AND INDICATORS

Instrument Panel

3

FUNCTION	SYMBOL	COLOR	CONTROL BUTTON	BUZZER
Rear Fog Lamp		Amber	Headlamp switch	n/a
Fuel Level warning		Amber	Automatic	n/a
Air Pressure 1		Green	Air pressure control button on the indicator	n/a
Air Pressure 2		Green		
Seat belt warning		red	Automatic	yes
ESP		Amber	control button on the control panel	n/a
Immobilizer		Red	Automatic	n/a
MIL (malfunction indicator lamp)		Amber	Automatic	n/a

CONTROLS AND INDICATORS

Instrument Panel

FUNCTION	SYMBOL	COLOR	CONTROL BUTTON	BUZZER
Intarder		Amber	Automatic	n/a
Oil level warning		Red	Automatic	n/a
Engine brake		Amber	Multi-functional handle (right)	n/a
Information warning		Amber	Automatic	n/a
Lane departure warning system		Amber	Control button on the control panel	yes
Emergency braking system		Amber	Control button on the control panel	yes
Icing warning		Red	Automatic	n/a
Park lamp indicator warning		Green	Headlamp switch	n/a
Exhaust Filter Cleaning		Amber	Automatic	n/a
High Exhaust Temperature		Amber	Automatic	n/a

CONTROLS AND INDICATORS

Instrument Panel

Display warnings and error warnings.

SYMBOL	WARNING	WARNING DESCRIPTION
	Drive with fixed speed to clean exhaust filter	Exhaust smut filter saturation is above the expected level. This might be caused by the style of driving or the driving time. For the vehicle to be able to conduct automatic filter cleaning, it is advised that you drive the vehicle with a fixed speed above 30kph when you see the "exhaust filter cleaning" text until it disappears. If the road conditions are not suitable, it is recommended to perform manual exhaust filter cleaning.
	Park the vehicle. Perform exhaust filter cleaning using the button	Exhaust smut filter is filled to the extent that the vehicle cannot perform automatic cleaning. In this case; park the vehicle to a safe location and make sure that the vehicle is not in contact with any flammable material, and then perform manual cleaning using the manual cleaning button. You can find manual cleaning conditions in the manual exhaust filter cleaning section.
	Exhaust filter excessively full. Drive to a workshop.	Exhaust smut filter is filled to the extent that the vehicle cannot perform manual or automatic cleaning. In that case; it is recommended that you immediately drive to the nearest service and have the exhaust smut filter cleaned before it is damaged. Drive vehicle under light load to prevent excessively full exhaust filter from being damaged.
	Remove the cancellation of exhaust filter cleaning when possible	Exhaust filter started to fill up excessively while the manual exhaust filter cleaning prevention is active. It is recommended that you lift the exhaust filter cleaning prevention before the filter is overloaded or allow manual filter cleaning. You can remove the filter cleaning prevention by keeping the filter cleaning prevention button for 3 seconds or shutting off and restarting the engine.
	Exhaust filter is being cleaned.	Automatic or manual exhaust filter cleaning is active. During exhaust filter cleaning, the exhaust gas temperature is increased to burn the soot inside the exhaust filter. During the automatic exhaust filter cleaning, it will be more helpful to have effective cleaning if you keep driving the vehicle with a fixed speed over 30kph.
	Conditions are not suitable for cleaning of the exhaust filter	Conditions are not suitable for manual exhaust filter cleaning. In this case, you have to ensure that the conditions written in the manual exhaust filter cleaning section are met
	Exhaust filter is not being cleaned. Drive to a workshop.	An error in the vehicle or the exhaust system automatically prevents the vehicle from performing exhaust filter cleaning. In this case, you should drive to the nearest service and have necessary checks performed. Otherwise, the exhaust filter will fill excessively and be damaged.
	Exhaust filter cleaning prevented by the driver.	Exhaust filter cleaning prevention is activated by the driver. You can activate the exhaust filter cleaning prevention while loading hazardous materials or while driving the vehicle in an environment with flammable materials like grass, hay, petroleum products etc. Please keep in mind that the exhaust filter will be damaged in long prevention durations.
	Exhaust gas is hot, pay attention during parking.	This warning is for the purpose of informing the driver. Exhaust gas temperature is high due to driving under heavy load or exhaust filter cleaning. This warning is activated when the exhaust gas temperature is high and the vehicle speed is low. It is normal to see this warning during exhaust filter cleaning. When the warning is active, please ensure that the vehicle and exhaust fumes are not in the same environment as flammable materials like grass, hay, petroleum products etc. and that the vehicle is not in an enclosed space. Otherwise, fire risk may occur!
	Defective Urea detected	Material not conforming to ISO22241-1 standards detected in urea tank. Please discharge the urea tank and add urea conforming to standards. Please remove the error to prevent power cut off.

CONTROLS AND INDICATORS

Instrument Panel

SYMBOL	WARNING	WARNING DESCRIPTION
	Depress the clutch pedal.	Change the gear lever to neutral and depress the clutch pedal to start the engine.
N/A	AEBS failure	AEBS failure, drive to workshop
N/A	Radar obstructed	Front radar sensor is obstructed.
N/A	Front camera failure	Front camera failure, drive to workshop
N/A	low camera resolution	low camera resolution. Clean the screen.
	Rear axle did not raise.	Rear axle did not raise. Vehicle loaded.
	Rear axle did not raise.	Rear axle did not raise. Vehicle speed is high
	Rear axle did not raise.	Rear axle did not raise. Handbrake applied.
	Trailer brake system problem	AEBS do not support trailer brake system
	Tachograph Break Time	4.5 hours driving time is over Give a break
	Lifting Damper Active	Lifting Damper Active

SYMBOL	WARNING	WARNING DESCRIPTION
	Rear axle did not raise.	Rear axle did not raise. First raise the front axle.
	Rear axle did not lower.	Rear axle did not lower. Vehicle speed is high
	Front axle did not raise.	Front axle did not raise. Vehicle loaded.
	Front axle did not raise.	Front axle did not raise. Vehicle speed is high
	Front axle did not lower.	Front axle did not lower. Vehicle unloaded
	Front axle did not lower.	Front axle did not lower. Vehicle speed is high
	Front axle did not lower.	Front axle did not lower, first lower the rear axle.
	Rear axle did not lower.	Rear axle did not lower. Vehicle loaded.
LIM 30 km/h	Speed Limit	Speed limiter will be active after 60s
>40 km/h	Overspeed Warning	40 km/h speed exceeded Slow down
	Battery failure	Battery failure, drive to service.

CONTROLS AND INDICATORS

Instrument Panel

3

SYMBOL	WARNING	WARNING DESCRIPTION
	Rear axle did not lower.	Rear axle did not lower. Handbrake applied.
	Front axle lowered.	Front axle lowered. Vehicle loaded.
	Low idle shutdown	Soon press any pedal to cancel (only manuel transmission vehicles)
	VGS active	VGS active
	Clutch lining failure	Warning, clutch overheated
	Clutch lining failure	Warning, clutch protection active
	Cab raising active	Cab raising active
	Door open warning	One of the doors is open
	Hill holder active	Hill holder active
	brake pedal demand	Brake pedal test shall be performed (page 124)
	Urea dosage error	Error detected in urea dosing system. Please drive to service to prevent power cut off.

SYMBOL	WARNING	WARNING DESCRIPTION
	Oil level warning	Add oil to engine
ECAS	ECAS	Air suspension warning active
	oil change warning	Engine oil renewing time
	Blocked air cleaner warning	Air cleaner must be changed as soon as possible. Drive to workshop
	Low steering oil pressure	Oil level must be controlled when lit. If there is a leakage, request road assistance. If there is no leakage, drive to nearest workshop without exceeding 50 km/h speed.
	Fuel filter blocked	Drive to workshop
	Low engine cooling water level warning	Add engine cooling water, if warning light does not go out, drive to workshop as soon as possible.
	Water in fuel warning	Discharge the water in pre fuel filter drain, if warning light is still active, drive to workshop as soon as possible.
	autodrop failure..see manuel	autodrop failure..see manuel (page 145)
	Critical emission error	Error detected in systems related to emission.Please drive to service to prevent power cut off.
	Refill the urea tank	There is not enough level of urea in the urea tank. Please add urea that conforms to the standards in order to prevent power cut off.
	Low urea level	Urea level low in urea tank. Please add urea that conforms to the standards in order to prevent power cut off.

CONTROLS AND INDICATORS

Instrument Panel

Odometer



Indicates the road speed (kilometer/hour).

Tachometer



Indicates the engine rpm. Operate your vehicle so that the indicator dial remains in the green zone as much as possible. Drive your vehicle considering the engine speed. Keeping engine speed in the green zone provides economy. Avoid excessive speeds in the red danger zone. Otherwise, your engine may get damaged.

Ensure that the speed does not increase up to red danger zone, especially while driving down the hill.

Green zone: economy zone

Blue zone: zone where engine brake is activated

Red zone: Danger zone

Buzzer sounds when you exceed the maximum allowed engine speed. Lower the engine speed when you hear that warning. Engine brake is shut down over of 2400 d/d.

CONTROLS AND INDICATORS

Instrument Panel

3

Engine coolant temperature gauge



Indicates engine coolant temperature. If the dial of the indicator is in the red area, engine may overheat.



Red warning light is illuminated on the indicator, and the buzzer sounds at 110 °C on vehicles with regulated air compressor. Red warning light is illuminated on the indicator, and the buzzer sounds at 104 °C on vehicles with non-regulated air compressor. Torque reduction values : 110 °C in vehicles with adjustable air compressor, 104 °C vehicles without adjustable air compressor.

Perform the following when the red warning lamp is illuminated:

- Stop the vehicle and operate the engine in idle.
- Apply park brake, check for water leaks under the vehicle (do not get under the vehicle.) check from the side.)
- Open the hood and check for the water level in the engine auxiliary water tank.
- If the water temperature does not drop, stop the engine and tilt the cab. Inspect whether the engine belt is broke.
- Check for water leaks in the thermostat area on the front of the engine.
- Ask the support of a Ford Cargo authorized dealership, if required.

Fuel gauge



Indicates the fuel level in the tank.

0: empty
1/2: half full
1: full

Amber warning lamp indicates low fuel level in the tank. Refill fuel immediately. System will take air if the fuel is lowered.

Icing Warning



Icing warning lamp will light up if outside temperature is between 0 and 4 degrees. If the outside temperature is below 0 degrees, icing warning lamp will blink with short intervals.

CONTROLS AND INDICATORS

Instrument Panel

Air pressure indicator



There are 2 independent air system circuits that supply for the front and rear brake systems. You can read the pressures of these systems from a single air pressure indicator. Indicator shows the pressure value of the line with low pressure automatically.

If the indicator ① indicates the circuit air pressure, ① light is illuminated.

If the indicator ② indicates the circuit air pressure, ② light is illuminated. Air pressure indicator always shows the air pressure of the circuit with the lowest air

pressure. Press the button on the indicator if you would like to view the air pressure of the other circuit. Indicator will display the pressure of the circuit with the lowest air pressure automatically after a specified time.

Normal operating pressure of the system is 10.5 bars.

If any warning is displayed on the screen, the key on the instrument shall lose the function for tank selection as it will be used for conforming these warnings. If you would like to view the 2nd tank, you can do this by moving to another page from the information page.

Air pressure audible warning

If the air pressure goes below 6.5 bars, low pressure audible warning will be activated. Buzzer is turned off when system pressure reaches the normal operating pressure at both pressure circuits.

Do not drive your vehicle before the audible warning is deactivated!

If you hear the audible warning while driving stop your vehicle immediately. Block the wheels. Place road safety signs and call a

Ford Cargo authorized dealer.

Oil pressure indicator



Indicates engine oil pressure in "bars". Oil pressure varies depending on the oil temperature and engine speed. Operating pressure: 3 bar @ 90 °C, 2500rpm. Idle pressure: 1.5 bars @ 90 °C, 2500rpm. The warning lamp will be illuminated when the oil pressure is low. Perform the following when the red warning lamp is illuminated:

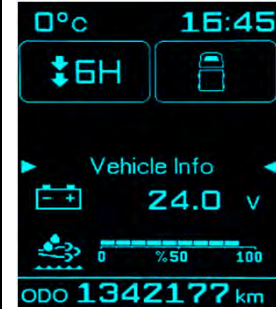
- Park the vehicle in a secure place, stop the engine.

Contact a Ford Cargo authorized dealership.

CONTROLS AND INDICATORS

Trip Computer

3

SYMBOL	 0°C 16:45 6H [Icon] ► Trip Computer 1 ◀ Trip 327.6 km [Clock Icon] 10:00 h ODO 1342177 km
DESCRIPTON	First screen if your vehicle has a lane tracking system
	 0°C 16:45 6H [Icon] ► Trip Computer 1 ◀ Trip 327.6 km [Clock Icon] 10:00 h ODO 1342177 km
	First screen if your vehicle does not have a lane tracking system
	 0°C 16:45 6H [Icon] ► Vehicle Info ◀ [Battery Icon] 24.0 V [Urea Icon] 0 % 50 100 ODO 1342177 km
	1-Battery voltage 2-Urea level

CONTROLS AND INDICATORS

Trip Computer

SYMBOL			
DESCRIPTON	Oil Level	1-Mileage 2-Engine operating hours	1-Engine total operating hours 2-Oil quality status indicator

CONTROLS AND INDICATORS

Trip Computer

3

SYMBOL	
DESCRIPTON	1-Instantaneous fuel consumption 2-Average fuel consumption.
	
	1-Average speed 2-Distance that may be covered with the remaining fuel
	
	Oil level (hourglass)

CONTROLS AND INDICATORS

Trip Computer

SYMBOL	
DESCRIPTON	Disc brake mode Vehicles With Disc Brakes Remaining brake lining percentage is displayed for each wheel.
	
Drum brake mode On vehicles with drum brakes, a warning is issued on the indicator of the relevant axle for the brake lining that has worn out.	
	
Language Selection	

CONTROLS AND INDICATORS

Trip Computer

3

SYMBOL	 The screen displays '0°C' and '16:45' at the top. Below are two buttons: '↓6H' and a truck icon. The main area is titled 'Functions' and shows six icons for various vehicle settings. At the bottom, it shows 'ODO 1342177 km'.	 The screen displays '0°C' and '16:45' at the top. Below are two buttons: '↓6H' and a truck icon. The main area is titled 'Battery Health' and shows a battery level indicator. At the bottom, it shows 'ODO 1342177 km'.	 The screen displays '--°C' and '23:59' at the top. Below are two buttons: '--' and a truck icon. The main area is titled 'Axle Load' and shows a truck icon with a load indicator. At the bottom, it shows 'ODO 0000005 km'.
DESCRIPTON	Functions	Battery status	Axle load

CONTROLS AND INDICATORS

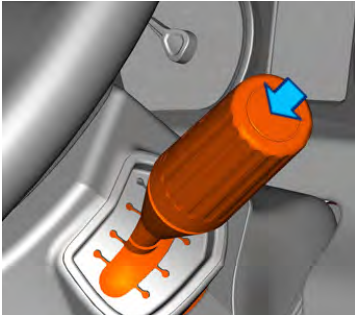
Trip Computer

SYMBOL	 The screen displays '0°C' and '15:32' at the top. Below are two boxes: the first contains '---' and the second contains a truck icon. The main area shows 'Information' with a left arrow, a speaker icon, 'WARNING', 'Clutch', and 'protected'. At the bottom is 'ODO ----- km'.
DESCRIPTON	Info menu
	 The screen displays '46°C' and '22:11' at the top. Below are two boxes: the first contains 'N' and the second contains a truck icon. The main area shows a star icon above a truck icon with a red arrow pointing to its rear. At the bottom is 'ODO 1055405 km'.
	Emergency braking system collision warning
	 The screen displays '27°C' and '10:42' at the top. Below are two boxes: the first is empty and the second contains a truck icon. The main area shows 'Fault Codes' with 'Nr: 01 / 28', 'ECL: 00', 'SPN: 0028', 'FMI: 13', and 'OC: 01'. At the bottom is 'ODO 0127653 km'.
	Error codes info screen

CONTROLS AND INDICATORS

Trip Computer

3



Trip computer shows information and warnings.
Trip computer may be changed by pressing the menu button on the right multi-functional lever.



WARNING

As changing trip computer display settings while driving may adversely affect the driving attention, it may cause serious risk of accident. Settings shall always be performed while the vehicle is parked.



You may reset trip computer information, which are allowed to be reset, by pressing the button on the lower right of the instrument panel.

CONTROLS AND INDICATORS



CONTROLS AND INDICATORS

Control Buttons

RESİM NO	SEMBOL	AÇIKLAMA
1		A/C ON/OFF
2		RECIRCULATION
3		MIRROR HEATING
4		WINDSHIELD HEATER
5		ASR CANCEL/ ASR ACTIVE
5		ASR CANCEL/ ASR ACTIVE
6		AUTOMATIC TRANSMISSION MODE SELECTION
6		AUTOMATIC TRANSMISSION MODE SELECTION
7		AUTOMATIC HYBRID BRAKE
8		HILL LAUNCH ASSIST
9		DIESEL PARTICULATE CLEANING ACTIVE
9		DOMELAMPS (OPT)
10		DIESEL PARTICULATE CLEANING DEACTIVED
10		SIREN BUTTON (OPT)
11		ROOF ON/OFF
12		INTERIOR LIGHTING

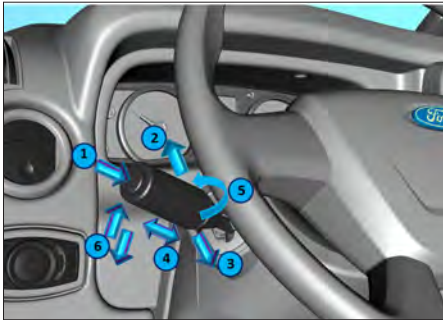
RESİM NO	SEMBOL	AÇIKLAMA
13		EMPTY
14		SEMI-TRAILER BRAKE
15		REAR AXLE LIFTING
15		FRONT SUSPENSION CONTROL BUTTON
15		TAG AXLE LIFTING II SWITCH
16		DIFFERENTIAL LOCK
17		FRONT AXLE LIFTING
17		INTERMEDIATE SHAFT LOCKING
17		FRONT SUSPENSION LIFTING
17		TRACTION HELP SWITCH
18		TIPPER LIFTING
19		EMERGENCY BRAKING SYSTEM
20		LANE DEPARTURE WARNING SYSTEM
21		WARNING SWITCH HAZARD FLASHER
22		ELECTRICAL CIRCUIT BREAKER (OPT)
23		HANDBRAKE

Some features may not be available depending on the vehicle version.

CONTROLS AND INDICATORS

Multi-functional Handles

Multi-functional handle (left)



It is placed on the left side of the steering.
Switch positions are as follows.

1. Horn
2. Right Direction Indicator
3. Left Direction Indicator
4. Windshield Water Spray
5. Wipers

5a. Wipers off



5b. Low speed wiping (long interval)



(This position activates the automatic wiper function on vehicles with a rain sensor.)

5c. Normal speed wiping



5d. High speed wiping



6a- High Beam (Flasher)

Flasher is operated by pulling the handle briefly and releasing it.

6b- High Beam (Continuous)

High beam is operated continuously when the handle is released after being pulled at full stroke.

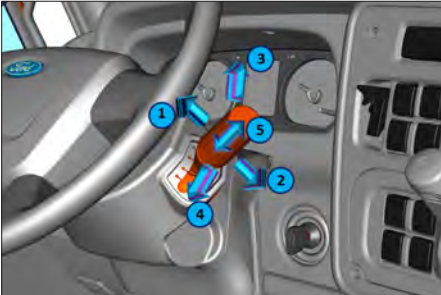
CONTROLS AND INDICATORS

Multi-functional Handles

3

Multi-functional handle (right)

It has 5 steps in vehicles with Intarder.
It has 2 steps in vehicles without Intarder.

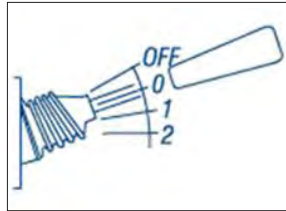


This handle has the following functions:

- Cruise control, increasing the speed, and decreasing the speed
- Engine brake and Intarder

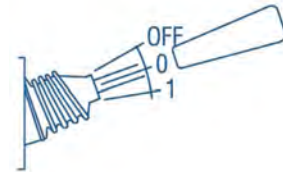
- 1- Activation of the cruise control and increasing the speed
- 2- Decreasing the speed
- 3- Deactivation of the cruise control
- 4- Activation of the engine brake
- 5- Resuming cruise control

On vehicles without Intarder and with EBS
2 step engine brake



	Engine Brake
1. Range	Low Brake Power
2. Range	High Brake Power

1 step engine brake



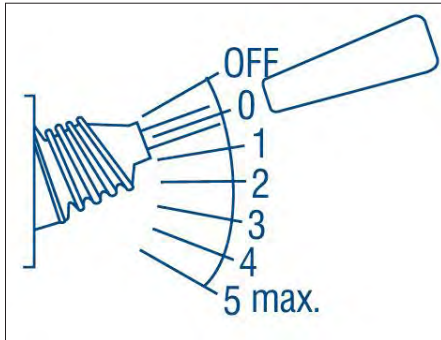
1st stage 100% engine brake
Bes,des while it is in "0" position, blending function is used in the vehicles with ebs.

CONTROLS AND INDICATORS

Multi-functional Handles

3

Vehicles with Intarder:



	Engine Brake	Intarder
Bremsomat	Reduced Brake Power	Bremsomat (0%-100%)
Intarder 1	Reduced Brake Power	25% Max. Brake Power
Intarder 2	Reduced Brake Power	50% Max. Brake Power
Intarder 3	High Brake Power	75% Max. Brake Power
Intarder 4	High Brake Power	100% Max. Brake Power

Activation of the gradual continuous braking operations

Bring the gradual braking lever from 1 to max. position.

The vehicle is continually decelerated according to the selected position.

Position 1 = low deceleration

Max. position = more deceleration.

Deactivation of the gradual continuous braking operations

- Gradual brake lever:
- OFF position or position 1 = BREMSOMAT function.

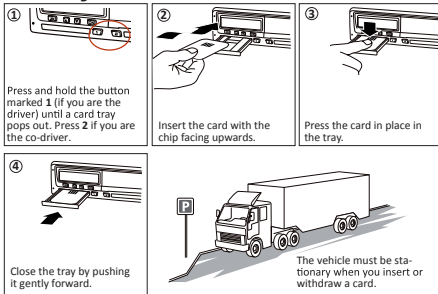
CONTROLS AND INDICATORS

Tachograph

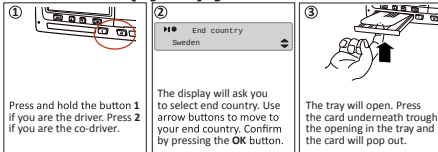
3

Tachograph (Just stoneridge Tachograph)

Insert your card



Withdraw (eject) your card



Driver Displays (DDS enabled)

Use the or button to scroll up/down to show one of the displays below. For more details on Driver Displays, please visit SE5000.com



Manual Entries

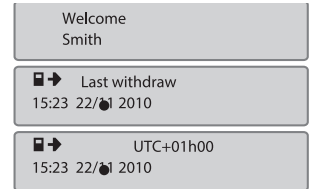
During the manual entries procedure you can use the button to move back to previous selection or backwards in display menu before confirming.

1. Insert the driver card and wait until the tachograph processes the driver card data.

The display shows the name of the card holder, the date and time for the last card withdrawal and local time/UTC off-set.

2. Continue with Rest until now? YES or NO.

Note: After time out (1 or 20 min), manual entries are no longer possible.



CONTROLS AND INDICATORS

Tachograph

Rest until now? YES

Scenario: The driver card was withdrawn at the end of the last working day and inserted when the new working day started.

1. Confirm with YES.

2. Select and confirm End country for the last working day.

3. Select and confirm Begin Country for the current working day.

Note! Step 2 and 3 will not be used if

the time between card withdrawals and insertion is less than nine hours.

4. Confirm if you want a printout or not.

5. Select and confirm YES to confirm the entries or NO to clear or modify entries.

6. You are now ready to drive.

Rest until now? NO

Scenario: You arrived at 15.23, 23/11 and withdrew the card. You performed other work until 17:00 and rested until 20.37, 23/11 when you inserted the card again.

1. Select and confirm NO.

2. Confirm Add manual entries with YES.

3. The following is displayed. The date and local time is shown for the last card withdrawal.

4. Select and confirm activity Work.

Adjust and confirm the date when the activity ended (23/11). Default time is set to insertion time.

Adjust and confirm the time (hour and minute) to when the activity ended.

5. The following is displayed.

6. Select and confirm activity Rest. In this example nothing needs to be adjusted.



7. Continue with step 4 in chapter Rest until now? YES.

Screen Messages

There are 4 types of messages displayed on the screen

Messages-They contain information about the operations or reminders for the driver. Messages can't be stored or printed. Press Back button to delete a message.

Prewarnings-They are displayed as early reminders for warnings. Prewarnings are stored and can be printed. Press OK button twice to delete a prewarning.

Warnings-Displayed in situations such as high-speed driving, violation of law or failure of the tachograph recording. Warnings are stored and can be printed. Press OK button twice to delete a warning.

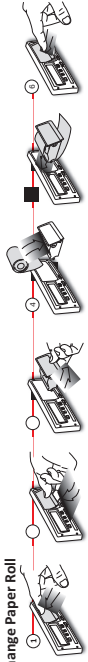
Failures-They are more important than warnings and displayed where a failure in tachograph, sensor or driver board has been detected. Furthermore, failures are also displayed where an unauthorized modification in the equipment has been detected. Failures are stored and can be printed. Press OK button to confirm a failure.

CONTROLS AND INDICATORS

Tachograph

Change Paper Roll

Printouts



Insert (for excluded parts, see the driver card print out.

24h Driver Card		24h Vehicle Unit (VU)	
Printout date and time (UTC time)	06/03/2009 10:32 (UTC)	Printout date and time (UTC time)	06/03/2009 10:39 (UTC)
Type of printout (24h, card)	24h	Type of printout (24h, VU)	24h
Card holder's surname	Anderson	Card holder's surname (driver)	Richard
Card and country identification number	05 10007001108910 0 0	Card and country identification number	05 10007001108910 0 0
Expiry date of the driver card	20/02/2012	Expiry date of the driver card	20/02/2012
Vehicle identification, VIN	123456789ABCDEF	Card holder's surname (co-driver)	Schmidt
Registration member state and vehicle registration number, VIN	S / ABC 123	Card holder's surname (co-driver)	Schmidt
Tachograph manufacturer	Storage Electronics	Card and country identification number	05 10007001108910 0 0
Tachograph part number	9000000000000000	Card and country identification number	05 10007001108910 0 0
Responsible workshop for last calibration	Johansen and Sons	Expiry date of this co-driver card	20/02/2012
Workshop card number	T 23/09/008	Card and country identification number	05 10007001108910 0 0
Last control the inspected driver has been subjected to	D 23/01/2009	Expiry date of this co-driver card	20/02/2012
Expiry date and daily card presence counter	06/03/2009 53	Card and country identification number	05 10007001108910 0 0
Driver card in card pay 1	S / ABC 123	Expiry date	06/03/2009
VIN, vehicle registration number, for the vehicle where the driver card is inserted	0 km	Expiry date	06/03/2009
Vehicle odometer at card insertion	0 km	Expiry date	06/03/2009
Duration time	0 km	Expiry date	06/03/2009
Card withdrawal, vehicle odometer and distance travelled since last insertion for which odometer is known	0 km	Expiry date	06/03/2009
Daily summary of activities, begin and end details (time, place and odometer)	0 km	Expiry date	06/03/2009
Last five events and faults from the driver card	0 km	Expiry date	06/03/2009
Last five events and faults from the VU, vehicle unit	0 km	Expiry date	06/03/2009
Control place	0 km	Expiry date	06/03/2009
Controller's signature	0 km	Expiry date	06/03/2009
Driver's signature	0 km	Expiry date	06/03/2009

CONTROLS AND INDICATORS

Tachograph

VDO Tachograph(DTCO-1381) Installing driver card



The indicator following the opening of usage warning no driver card in card slot 1

⚠ Driver cards must be inserted only when the vehicle is in parking position due to traffic safety and correct behaviour according to regulation!

Driver card can be inserted during cruise as well, but this operation is recorded and reported as an incident.

1. Switch on the ignition.
(* required only in ADR model)
2. The **1st driver** who shall drive the vehicle inserts their own driver card to the 1 card slot with chip upwards and arrow forwards.
3. Following operations are directed over the menu,
4. When the driver 1's driver card is read, **driver 2** inserts their own card into card slot 2

Description

Menus are shown in the language recorded in the driver card. Alternatively, you can set the language you prefer individually. Driver data display and printing menu functions can be used only when the related card is inserted i.e. "Print 2nd Driver" menu is displayed only when a driver card is inserted in card slot 2.

► Manual inputs

⚠ According to the regulation, the activity that cannot be recorded on the driver card must be added by manual input. (For details regarding activity,

Card retrieval (15.04.15) **Insertion (18.04.15)**
16:31 Local time **07:35 Local time**



Unknown time frame example

The following scenarios can be executed every time driver card is inserted:

- Adding resting time "R" activity;
- Continuing the shift;
- Continuing, ending shift and/or placing the activities before another shift;

CONTROLS AND INDICATORS

Tachograph

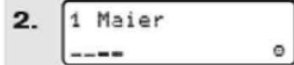
3

Path to follow as a principle

- Select any function or activity you like from the input area or key in the numerical / tuşlayın.
- Seçiminizi tuşuyla onaylayın.



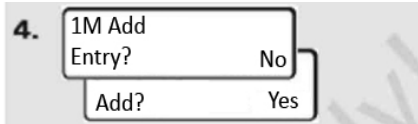
Welcoming message: For 3 seconds the set local time "07:35" and UTC time "05:35UTC" are displayed (Time offset = 2 hours).



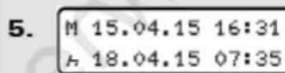
The surname of the driver is displayed. Status bar shows that the driver card is read



For 4 seconds, the last card removal date and time is shown in local time (symbol "M")



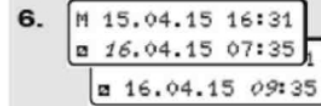
- If there is no activity you want to add, select "No"; to continue see **Step 9**.
- If you select "Yes" DTCO 1381 shall request you to make a manual input.



= Manual input;

- The input field of the activity flashes

The time frame between card retrieval (line 1) and current card insertion operation (line 2) are displayed in local time.



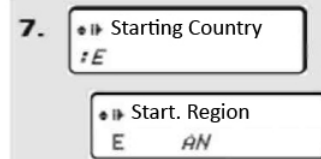
2nd line = input block

Then you can enter the logical variables (flashing input areas) in the following order.

"Event - Day - Month - Year - Hour - Minute".

When the insertion operation time is reached, the operation ends.

The prompt below is displayed before the manual inputs are confirmed.

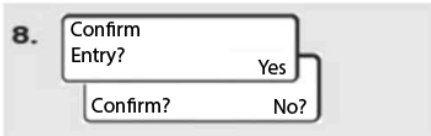


- Select and confirm the country.
- If required, select and confirm the region.
- You can cancel country input with button.

CONTROLS AND INDICATORS

Tachograph

3



- Confirm input with "Yes".
- Select "No".

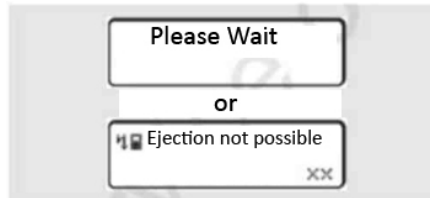


The standard indicator (a) is displayed. The meaning of the card symbol symbols displayed before this are as below:

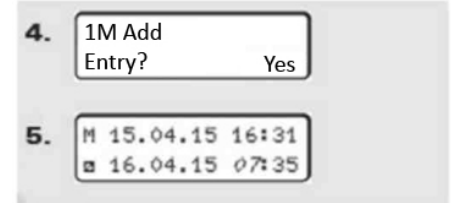
- "0" Driver card is in the card slot.
- "123456.7km" You can start driving, critical data is read.

- Discrete functions are temporarily disabled while the driver card is being read:
- Calling menu functions
 - Requesting tachograph card

A message is displayed when a menu button or card eject button is pressed.



- Correction opportunities
- You can select and correct available variables in the input block with button (back button). If you respond to the "M input confirmation - confirm?" question with No, Step 4 is displayed first and then the entire input block is displayed (step 5).



Now you can correct available variables step by step. by keeping button pressed you jump to the next input field or the next full input block.

CONTROLS AND INDICATORS

Tachograph

3

► Country input during manual input



- In the first "H" input field select "H?" Final country" symbol and confirm (Only possible when the first manual input time does not overlap with the country input time when the card is last removed.)
- Select and confirm the country.

Or:



- "H?" Select Start, country" symbol and confirm.
- Select and confirm the country.

Country selection

Last selected country is displayed first. Then the last input four country is displayed with / buttons Marking: The colon in front of country mark ":B"

The rest of the selection starts from letter "A" and continues alphabetically:

- A, Z, Y, X, W, ... etc with button
- A, B, C, D, E, ... etc with button

When the button is pressed the menu flows faster (automatic repetition function)

► Cancelling the input procedure

When there is no input in the input procedure, the following indicator is displayed in 30 seconds



If the button is pressed in the following 30 seconds, you can continue the input operation. At the end of this duration, or when driving starts; reading of the driver card is completed and standard display (a) is shown.

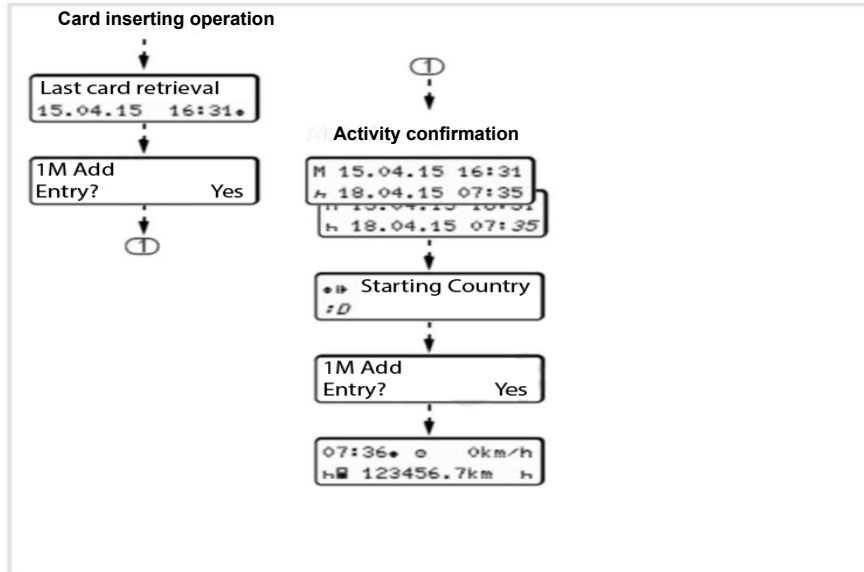
Version 2.1: inputs confirmed with button are recorded in DTCO 1381 tachograph.

Version 2.2: Be sure that the data is confirmed, otherwise entered data shall not be recorded. This is also the case when the data is entered remotely or directly into DTCO 1381. Manual input cancellation with driver card request.

CONTROLS AND INDICATORS

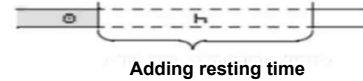
Tachograph

Adding "resting time" activity



Example 1:

Card retrieval (15.04.15) 16:31 Local time
Insertion (18.04.15) 07:35 Local time



Please note: Input is realised in local time.

1. Keep button pressed
2. Jumps to the last input field automatically (minute flashes).
3. Confirm input by pressing the key.
4. Follow menu guidance

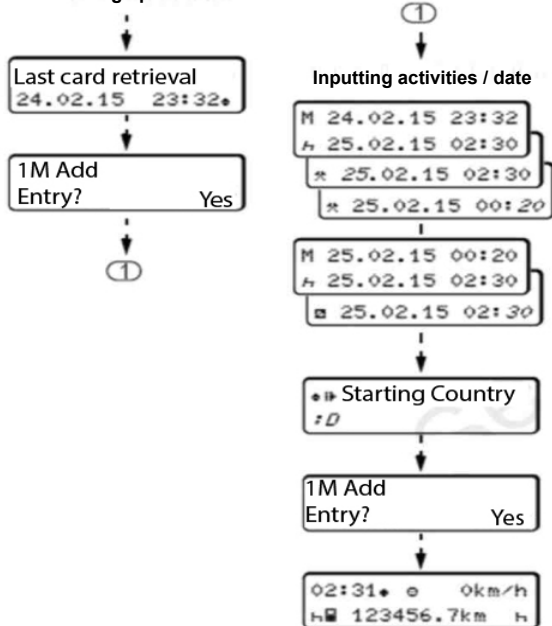
CONTROLS AND INDICATORS

Tachograph

3

► Continuing the shift

Card inserting operation



Example 2:

Card retrieval (24.02.15) 23:32 Local time Insertion (25.02.15) 02:30 Local time



Please note: Input is realised in local time.

1. Set first activity "*" and confirm.
2. Set and confirm the date, set and confirm the hour, set and confirm the minute.
3. Set second activity "D" and confirm.
4. keep button pressed, minute flashes.
5. Confirm input by pressing the key.
6. Follow menu guidance

3

```

graph TD
    A[Card inserting operation] --> B[Last Card retrieval  
05.11.15 17:50]
    B --> C{1M Add Entry?}
    C -- Yes --> D((1))
    D --> E[Inputting activities / date]
    E --> F[M 05.11.15 17:50  
H 14.11.15 14:00]
    F --> G[M 05.11.15 18:45  
H 14.11.15 14:00]
    G --> H{Finish Country?}
    H --> I[Country input  
ID]
    I --> J[M 05.11.15 18:45  
H 14.11.15 12:10]
    J --> K{Start. Country?}
    K --> L[Country input  
ID]
    L --> M[M 14.11.15 12:10  
H 14.11.15 14:00]
    M --> N[M 14.11.15 12:10  
H 14.11.15 14:00]
    N --> O{1M Add Entry?}
    O -- Yes --> P[14:01 0 km/h  
123456.7km]
  
```

Card retrieval (24.02.15)
23:32 Local time

The diagram shows a horizontal timeline with a dashed line. A solid vertical line marks the 'Shift end' at 18:45. A bracket indicates the period 'Before activity addition' from 12:10 to 18:45. A solid vertical line marks the 'Shift start' at 12:10. Above the timeline, there are icons: a star at 18:45, a question mark in the 'Before activity addition' period, and a square at 12:10. Below the timeline, the text 'Completing activity' is under the 'Shift end' line, and 'Shift start' is under the 'Shift start' line.

1. Set and confirm the first activity with V
2.  Select Ending country" symbol and confirm.
3. Select and confirm the country.
4. "?" = Set and confirm the unknown date activity with date, time.
5. Repeat the operation in the same system until you reach the time of the card insertion operation.

CONTROLS AND INDICATORS

Tachograph

3

Setting the activities

	=	Driving duration (automatic during cruise)
	=	All other operation durations
	=	Watch durations (waiting durations, assistantship duration, sleeping duration for the 2nd driver during cruise)
	=	Break times and resting periods

► Manual setting

Activity can be set only when the vehicle is in parking position

1. For the driver driving the vehicle, press 1st driver activity button;



2. Press the button until desired (h, s, z) activity (1) is displayed on the display. Approximately 5 seconds later the previous indicator is displayed

3. For the assistant driver, press 2nd driver activity button;

► Automatic setting

DTCO 1381 tachograph automatically passes the activity below:

Vehicle...	1. Driver	2. Driver
During cruise		
During park state		

⚠ Definitely set the activity at the end of the shift or during a break. This way, it is ensured that VDO Counter makes * reliable calculations.

► Automatic setting upon ignition on/off *

DTCO 1381 tachograph can switch to a defined activity after the ignition is turned on/off, for example "h"

After the ignition is turned on or off, the automatically changing event (1) and/or (2) is displayed on standard indicator (a) and flashed for approximately 5 seconds. Then the previous indicator is displayed.



Activities flashing in standard indicator (a)

When required, change the set activity in accordance with the activity you are executing at the moment.

CONTROLS AND INDICATORS

Tachograph

Note

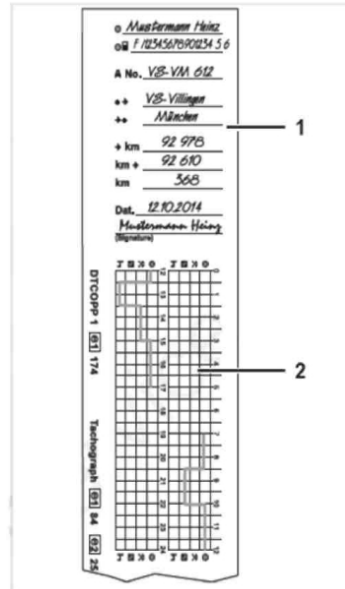
It can be programmed on customer request which activity the DTCO 1381 shall switch to automatically after ignition is turned on by the authorized workshop;

► Specifying activities with handwriting

As the driver, you are obliged to specify the activities in the below situations as per regulation:

- When DTC01381 tachograph malfunctions.
- When the driver card is lost, stolen, damaged or malfunctions a daily report should be printed from DTCO 1381 tachograph at the start and end of cruise. When required, you have to add the watch durations and other working durations by hand.

You can write the activities behind the paper roll with handwriting (2) and complete the printed report with personal information (1).



Personal information

	Name and surname
	Driver card or driver license number
	License Plate
	Location at shift start
	Location at shift end
	Mileage at shift end
	Mileage at shift start
km	Mileage covered
Dat.	Date
Sig.	Driver signature

 Please observe the law provisions in force in your country!

CONTROLS AND INDICATORS

Tachograph

3

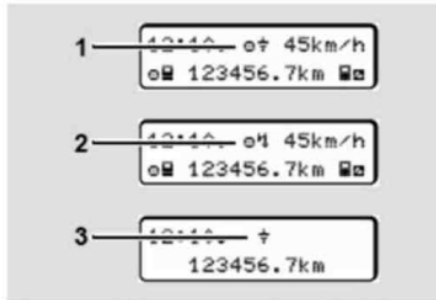
If an incident repeats continuously, please apply to an authorized expert workshop!

Pikto / Reason	Meaning	Precautions
 Security Violation	The possible reasons may be as below: • Error in data memory, data security cannot be ensured in DTCO 1381 tachograph any more. • Sensor data are no longer reliable. • Body of DTCO 1381 tachograph opened without authorization.	Confirm the message.
 Security violation	• Card lock broken or malfunctioning. • DTCO 1381 tachograph no longer recognizes the tachograph card normally inserted correctly • There is a problem in identity or accuracy of tachograph card or the data recorded in tachograph card is not secure.	Confirm the message. When DTCO 1381 tachograph senses a security violation where the accuracy of the data in the tachograph card can no longer be ensured, the tachograph card is ejected automatically - even during cruise! Re-insert tachograph card or have it checked when necessary.
 Voltage outage	Voltage is cut off or the feed voltage of DTCO 1381 tachograph / sensor is too low or too high. This message can be displayed when the engine is running, according to the situation!	Confirm the message
 Movement overlap	Discrepancy between the gauge and the independent signal source in evaluation of vehicle movement. Possibly the function (ferry/train) was not set during transportation.	Confirm the message. Apply to the authorized expert workshop as soon as possible.
 Sensor fault	Fault in communication with sensor.	Confirm the message.

CONTROLS AND INDICATORS

Tachograph

Behaviour in low/excessive voltage situation



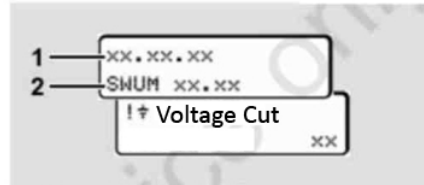
Standard indicator (a): Power supply failure
In the power supply of DTCO 1381 tachograph the low or excessive feed voltage value is displayed on standard indicator (a) as below:

1. **situation:** "⊖" (1) Low voltage or...
2. **situation:** "⊕" (2) Excessive voltage
DTCO 1381 tachograph continues recording activities. It is not possible to insert or remove the tachograph card with data printing or displaying functions!

Case 3: "⊕" (3)

This incident is equivalent to a voltage cut-off
Standard indicator (a) is displayed automatically and DTCO 1381 cannot perform tachograph function! The activities of the drivers are not recorded.

► Voltage cut-off



"Voltage cut-off" message indicator

When the voltage is back, the operating software version (1) and software update module version (2) is displayed for approximately 5 seconds.

Then DTCO 1381 tachograph displays "Voltage cut-off" message.

If the "⊕" symbol is displayed continuously even when the vehicle voltage is correct, apply to an authorized expert workshop!
If the DTCO 1381 tachograph malfunctions, it is your obligation to record activities with handwriting.

CONTROLS AND INDICATORS

Tachograph

3

Country codes

Value allocations	
A	Austria
AL	Albania
AND	Andorra
ARM	Armenia
AZ	Azerbaijan
B	Belgium
BS	Bulgaria
BIH	Bosnia-Herzegovina
BV	Belarus
CH	Switzerland
CV	Cyprus
CZ	Czech Republic
D	Germany
DK	Denmark
E	Spain ¹⁾
EC	European Union
EST	Estonia
EUR	Other European Countries
F	France
FIN	Finland

FL	Liechtenstein
FR/FO	Faroe
GE	Georgia
GR	Greece
H	Hungary
HR	Croatia
I	Italy
IRL	Ireland
IS	Iceland
KZ	Kazakhstan
L	Luxembourg
LT	Lithuania
LV	Latvia
M	Matta
HC	Monaco
MD	Moldova
HK	Macedonia
MNE	Montenegro
N	Norway
NL	Netherlands
P	Portugal

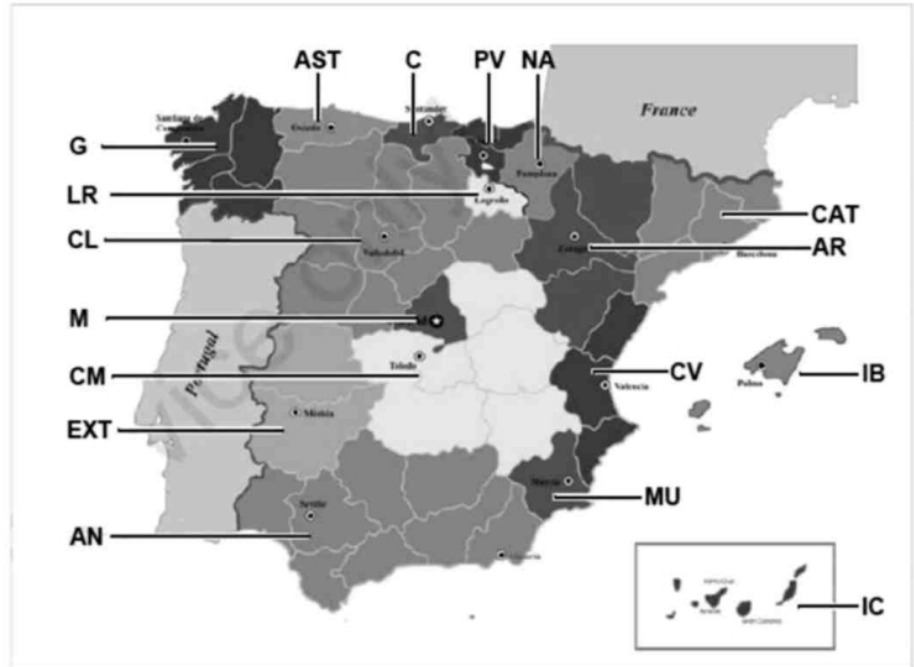
PL	Poland
RO	Romania
RSM	San Martno
RUS	Russian Federation
S	Sweden
SK	Slovak Republic
SLO	Slovenia
SRB	Serbia
TM	Turkmenistan
TR	Turkey
UA	Ukraine
UK	United Kingdom Atdemeyh Guernsey. Jersey. isle of Man, Gibraltar
UZ	Uzbekistan
V	Vatican
WLD	Other World

CONTROLS AND INDICATORS

Tachograph

► Region signs

Value allocations - Spain	
AN	Andalusia
AR	Aragonia
AST	Aturias
C	Cantabria
CAT	Catalania
CL	Castile - Lean
CM	Castile - La Mancha
CV	Valencia
EXT	Extremadura
G	Galicia
IB	Balear Islands
IC	Canary Islands
LR	La Rioja
M	Madrid
MU	Murcia
NA	Navarra
PV	Basque



CONTROLS AND INDICATORS

Tachograph

3

Removing driver cards

⚠ As a rule, the driver card can remain in the card slot at the end of the shift - please set "h" activity.
But during driver or vehicle exchange, driver card must be removed from the card slot.

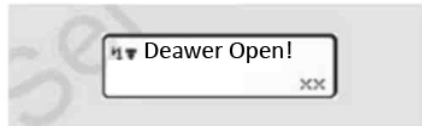
👉 You can remove the driver card from the card slot only while the vehicle is in parking position!



Removing the driver card

1. Switch on the ignition.
(* required only in ADR model)
2. Set the appropriate activity; for example set as "h" at the end of the shift.
3. Remove the card from the card slot 1 or card slot 2 it is inserted in;
Following operations are directed over the menu,

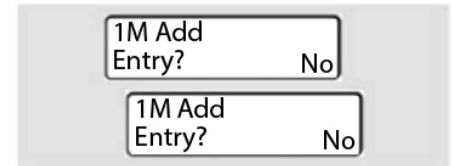
👉 When the printer drawer is open, it is prevented to remove card slot no 2!
The usage warning below shall direct your attention to this.



Card is ejected when you close the printer drawer.

Card request during manual input

1. Remove the card from the card slot 1 or card slot 2 it is inserted in;
2. Select "No" for the following questions and confirm.



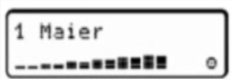
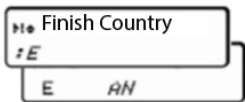
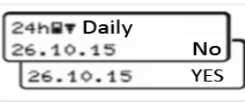
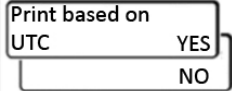
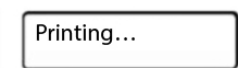
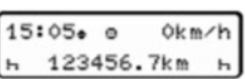
3. Continued

Manual input is cancelled, DTCO 1381 tachograph records "?" activity for an unknown duration.

CONTROLS AND INDICATORS

Tachograph

► Menus after driver card is removed

Step / menu display	Remark Description
1. 	The surname of the driver is displayed. Status bar displays that the DTCO 1381 tachograph transfers data to the driver card.
2. 	- Select and confirm the country. - If required, select and confirm the region. - For example, if you want to continue with your shift, cancel country input with  button
3. 	If you require a print out select "Yes" and confirm, otherwise select "No" and confirm.
	- If you want to print in UTC time (requested legally) confirm "Yes" answer. - When you select and confirm "No" the output is provided with "Local time"
4. 	When the related function is selected the progression of the operation is displayed on the screen.
5. 	Driver card is released, standard indicator (a) is displayed.

Select the country with  or  buttons and confirm your selection with  button.

Based on the situation, a warning may be displayed that the validity of the driver card is about to expire, regular check time has come or a driver card data copying operation needs to be performed,

CONTROLS AND INDICATORS

Tachograph

3

■ Changing driver/vehicle during operation



Changing driver cards

Case 1:

Team exchanges among themselves, driver 2 switches with driver 1

1. Remove the driver cards from their slots and insert in other slot. First, driver 2 (now driver 1) inserts their driver card into card slot 1 and driver 1 (now driver 2) inserts their driver card into card slot 2.
2. Set the desired activity.

Case 2:

Driver 1 and/or Driver 2 leaves the vehicle

1. Related driver requests their own driver card, when necessary prints out the daily report and removes driver card from DTCO 1381 tachograph.
2. New driver team inserts the driver cards according to their roles (driver 1 or driver 2)

3rd situation - mixed operation:

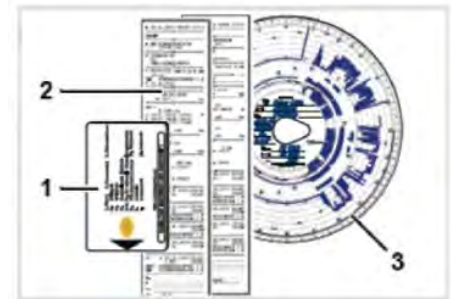
Driver working with different tachograph types

- For example paper tachograph or ...
- digital tachograph as per regulation number 3821V85/AET Appendix I B, for example DTCO 1381.

The driver must be able to present the following for the current week and the past 28 days in a supervision performed:

- Driver card (1),
- If the daily reports printed from digital tachograph (2) for example the driver card is damaged or malfunctioning,

- Written tachograph papers (3)
- and handwritten records belonging to the activity when required

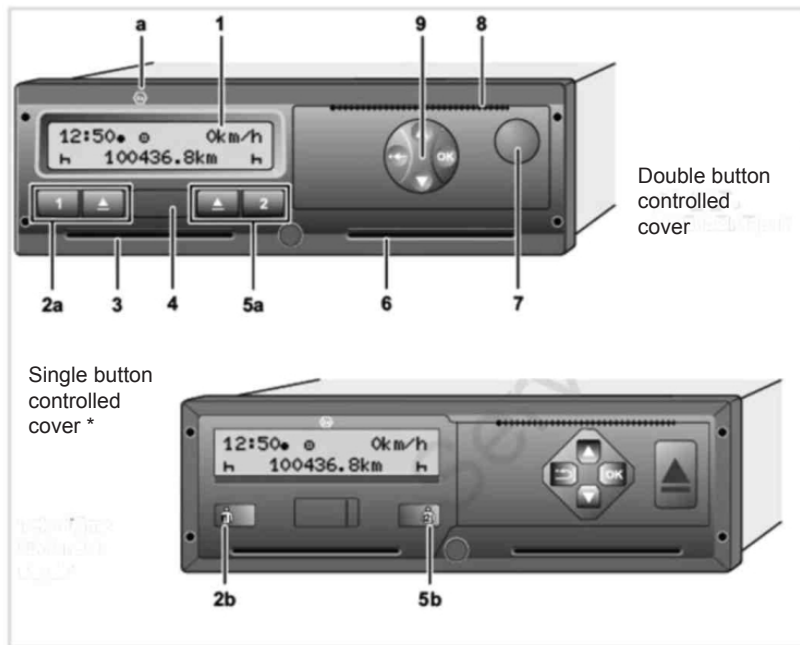


⚠ Please observe the law provisions in force in your country!

CONTROLS AND INDICATORS

Tachograph

■ Displays and button explanations



- (1) Display
- (2a) 1st driver buttons
- (2b) Driver 1 combi button
- (3) Card slot 1
- (4) Data download interface
- (5a) Driver 2 buttons
- (5b) Driver 2 combi button
- (6) Card slot 2
- (7) Printer drawer opening button
- (8) Cutting edge
- (9) Menu buttons

- (a) For ADR model * "ADR" sign (ADR = European agreement regarding international hazardous material transportation on Highway)

DTCO 1381 can be remotely controlled with suitable accessories. Following changing data that is important regarding legal regulations (removing the card, changing the activities etc.), the driver themselves has to perform confirmation on the tachograph.

CONTROLS AND INDICATORS

Tachograph

3

Pikto 1 Reason	Meaning	Precautions
Printing...	Selected function feedback.	These warnings are automatically deleted in three seconds. There is no need for any operation.
Input recorded	Feedback that DTC01381 tachograph recorded the input.	
Display not possible!	Data cannot be displayed as long as printing continues.	
Please wait!	Tachograph card has not been completely read yet. It is not possible to invoke menu functions.	
 Days until calibration 18	Next periodic inspection day approaching, for example in 18 days. Due to technological changes, the necessary checks are not considered! Authorized workshop can program which day this warning shall be displayed after.	
 Days invalid after 15	Working tachograph shall be invalid in 15 days, for example! It can be programmed by the authorized workshop which day this warning shall be displayed after.	
 download per day 7	The next driver card copying operation should be performed i.e. 7 days later (standard setting). It can be programmed by the authorized workshop which day this warning shall be displayed after.	

CONTROLS AND INDICATORS

Tachograph

■ Maintenance and cleaning

► Cleaning DTCO 1381 tachograph

Clean the device body, screen and buttons with a mildly damp cloth or a micro-fibre cleaning cloth.

⚠ Do not use abrasive cleaning materials, solvents like thinner or gasoline.

► Obligation of inspection for tachographs

Protective maintenance operations are not necessary for DTCO 1381 tachograph. It should be checked by an authorized workshop every **two years** whether the DTCO 1381 tachograph works correctly.

Additional checks are required in below situations...

- If changes like road impulse number or tire diameter are made on the vehicle,
- If repairs are made on DTCO 1381 tachograph,

- If the license plate of the vehicle is changed,
- When the UTC time deviates for more than 20 minutes.

⚠ Ensure that the installation label is renewed in each additional check and the foreseen information is present. Within the obligation of foreseen inspection; ensure that the feed voltage of the DTCO 1381 tachograph has not been cut-off more than a total of 12 months; for example via removing the vehicle battery

► Repair / replacement of DTCO 1381 tachograph

Authorized workshop can download the data in DTCO 1381 tachograph and deliver them to the related company.

If the recorded data cannot be copied due to a malfunction, workshops have to issue a document for the operator regarding this situation.

Archive the data or keep the document for coming questions.

► Disposing of the components



Please dispose of DTCO 1381 tachograph and system components that belong to it according to the regulations for disposal of EC tachograph in related member state

CONTROLS AND INDICATORS

Tachograph

3

■ Automatic activity setting upon turning ignition on/off

Automatically set activity ...						
... after ignition is turned on				... after ignition is turned off		
		Break / resting period	Driver 1		Break / resting period	Driver 1
		Other working times			Other working times	
		Watch time			Watch time	
		No change			No change	
		Break / resting period	Driver 2		Break / resting period	Driver 2
		Other working times			Other working times	
		Watch time			Watch time	
		No change			No change	



This option is disabled during "manual input" (adding activities to driver card)! No activity change takes place after ignition is turned on/off!

The automatic setting after ignition is turned on/off can be seen on standard indicator (a). Activity flashes for about 5 seconds and then the previous indicator is displayed.

Warning!

The defined activity following ignition on/off can be programmed by the vehicle manufacturer!

Please mark the set functions with on the table.

Information regarding DTCO 1381 tachograph

Type:

No:

Year:

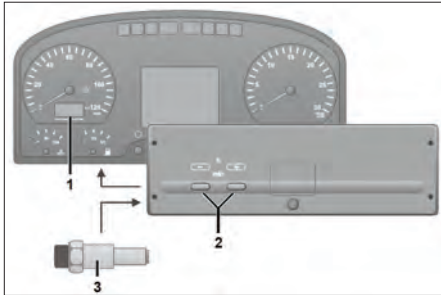
Date of setting: _____

Signature: _____

CONTROLS AND INDICATORS

Tachograph simulator unit

3



OPERATION

4



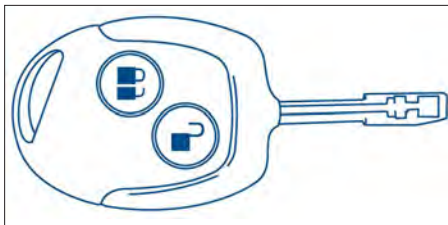
OPERATION

Opening and closing of the vehicle

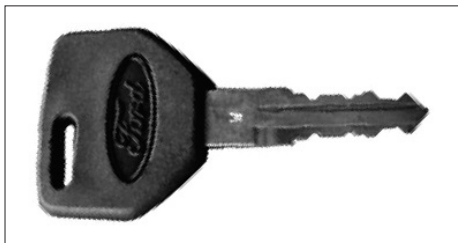
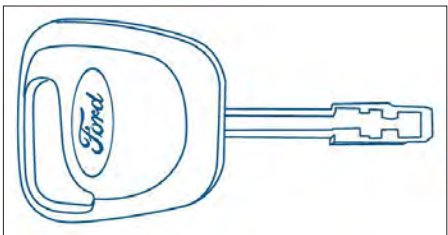
Keys

2 keys are supplied with the vehicle, one for your use, and one as a spare.

4



- Door locks
- Ignition
- Front Hood



- Fuel tank
- Urea tank (only on Euro 5 and Euro 6 vehicles)



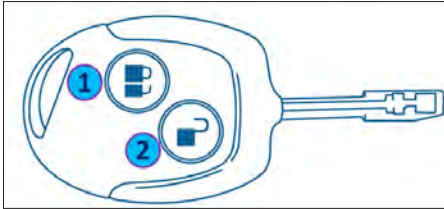
WARNING

Ignition key has an immobilizer feature against vehicle theft.
New keys shall be programmed by Ford Otosan authorized dealerships.

OPERATION

Opening and closing of the vehicle

Door Control:



You can lock and unlock doors with the remote control.

- 1- Locking button
- 2- Unlocking button

Central locks are opened when the open button of the control is pressed. They are closed when the close button is pressed.

If the direction indicators are illuminated for 2 seconds: Doors are locked.

When any of the doors are not closed for any reason (mechanical or electrical), error is detected and both doors are brought to open position.

However, central locking function on manual opening and closing is temporarily disabled until central locks are brought to the same position.

Error is removed when doors are completely closed.



WARNING

New remote controls shall be introduced to the vehicle when a new control is purchased. Please visit a Ford authorized dealer for the introduction of the controls.

Doors are locked again if the central lock is opened with remote control and doors are not opened physically.

Doors are locked automatically when vehicle speed exceeds 10 km/h.



WARNING

Module switches to protection mode if opening and closing operation is performed successively for 8 times in central locks both manually and via the remote control. System stops manual operation and operations by the control for 7 seconds. It performs the operations received after those 7 seconds later.

This condition ends if you wait for 1 minute without any intervention.

Opening the Window with Remote Control

Doors are unlocked and windows are lowered to the minimum level when opening button on the remote control is pressed for more than 3 seconds.

This feature also includes the opening of sunroof with the windows on vehicles with power roof.

Closing the Window with Remote Control

Doors are locked and windows are closed automatically when closing button on the remote control is pressed for more than 3 seconds.

This feature also includes the closing of sunroof after the doors on vehicles with power roof.

Window closing operation is not performed if the "Quick Window Closing" feature is not set on the windows.

OPERATION

Opening and closing of the vehicle

Outer Handle



Pull the latch towards you to open the door. Door is locked when key is turned clockwise, and unlocked when it is turned counter-clockwise.

Door Inner Latch



Pull the latch towards you to open the door from the inside. (1)
Push the latch outwards of the vehicle to lock from inside (2)

Getting In and Out Of the Vehicle

Use the 3 points principle while getting in and out of the vehicle. Do not hold the steering wheel while getting in the vehicle.

Don't:

Do not try to get in the vehicle by holding the steering wheel instead of the handle.

Do not get off the vehicle facing outwards.

Do not get off the vehicle by jumping from the steps.

OPERATION

Opening and closing of the vehicle

Windows



- 1- Driver side window regulator button
- 2- Passenger side window regulator button



Window moves to opening or closing direction while the opening/closing buttons are pressed. Operation is stopped automatically when the window reaches uppermost or lowermost position. Buttons are active while the ignition is on and for an additional 30 seconds after the ignition is turned off.

Quick Window Raising

Window is closed automatically when the window closing button is pressed once for a short time.

If jamming is detected while raising the windows, power windows are opened again to a specified level.



CAUTION

If the window is jammed thrice in a row while quick closing, window quick raising feature is deactivated.

Window learning procedure shall be started when the doors are closed and lock is open. First, bring the window half way or at least one quarter closed position.

Then lower the window to the bottom level and press the button until flasher signal is received.

When the flasher signal is received, bring the window to the top level with a single press and hold the button until off/on feedback is received from the locks.

Window learning operation shall be performed separately for driver window and passenger window.

These operations shall not be performed together.

Quick Window Lowering

When the on/off switch is pressed down for a short time and released, quick lowering feature is activated, and windows are lowered completely automatically.

OPERATION

Opening and closing of the vehicle

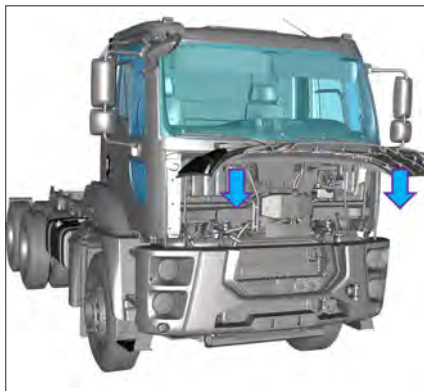
Opening/closing the front hood

4



To open:

It can be opened by the ignition key. Turn the key anticlockwise. Raise the hood slightly, pistons shall open the cover.



To close:

Push to the cover to its original position and press on the locking areas.



WARNING

Hold and press the middle of the hood while opening and closing the hood.
Do not press on one side of the hood.

OPERATION

Cab Ventilation

Manual Roof Flap



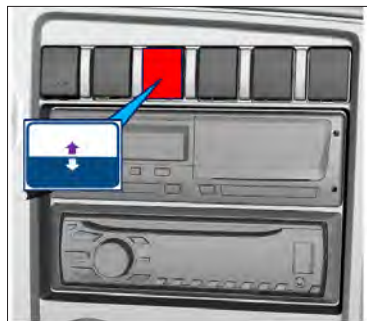
Switching on: Push the cover up by tightly holding the front and rear rods. Opening the cover from rear or front is applied in two different steps. Open front side or rear side or both sides until required level is reached to obtain the required ventilation.

To close: Pull the cover down by holding the rod tightly.

Power Roof Flap



Power roof is controlled by a control switch located in the centre console.



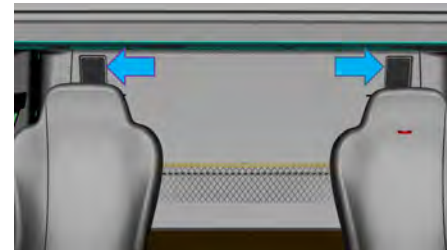
Power roof moves to opening or closing direction while the opening/closing buttons are pressed.

Operation is stopped automatically when the power roof reaches uppermost or lowermost position. Buttons are active while the ignition is on.

Power roof is closed automatically when the control switch is pressed once for a short period while it is open.

Power roof is opened automatically when the control switch is pressed once for a short period while it is closed.

Air vent with diaphragms



Your cab has a ventilation feature by the vent with 2 diaphragms on the back of the lower bed.

OPERATION

Seats and Beds

Seats

4



1	Height adjustment
2	Shock absorber adjustment
3	Fast lowering
4	Horizontal yield
5	Fore and aft adjustment
6	Resting position
7	Seat inclination adjustment
8	Seat depth adjustment
9	Armrest
10	Armrest inclination adjustment
11	Heater
12	Backrest adjustment
13	Lumbar support

OPERATION

Seats and Beds

Fast lowering



Seat may be lowered to the lowest position by pressing the button and securing it (before getting off the vehicle).

Seat shall be lifted to the drive position when the button is pressed and released (after getting on the vehicle).

Height adjustment



Height adjustment is applied in 8 steps.

By pulling or pressing the height adjustment latch, the seat height is changed one step up or down.

When the seat height is changed up or down, lever is released before each step.

Shock absorber adjustment



The absorbing harshness of the seat may be adjusted without any steps between soft and hard using the harshness adjustment button.

- 1: Soft absorbing
- 2: Middle absorbing
- 3: Hard absorbing

OPERATION

Seats and Beds

Horizontal yield



Operating the horizontal yield may be helpful in some operating conditions. Then, the impacts on the movement direction of the vehicle may be absorbed better.

0: Horizontal yield OFF

1: Horizontal yield ON

Fore and aft adjustment



Fore and aft adjustment is performed by moving the seat forward or backward while pulling the lock lever.

Seat shall be locked with an audible click when the lever is released.

Seat may be moved completely forward or backward.

Do not perform the fore and aft adjustment when the seat is lowered. Seat shall always be lifted for the fore and aft adjustment.

Seat inclination adjustment



Pull the button on the left upwards to adjust the seat inclination. Seat may be adjusted to the desired position by applying your weight forward or backward at the same time.



CAUTION

Risk of accident!
Do not operate the lock lever while driving.

OPERATION

Seats and Beds

Seat depth adjustment



Pull the button on the right upwards to adjust the seat depth. Desired position may be achieved by pushing the seat surface forward or backward at the same time.

Armrests



Armrests can be raised when required.

Armrest inclination adjustment

The inclination of armrests on the fore-aft direction can be changed by rotating the button.

The front end of the moves upward when you rotate the button outwards (+ direction), and downwards when you rotate the button inwards (- direction).

OPERATION

Seats and Beds

Heater



Electrical heaters on the backrest and seat cushion are operated in two steps by pressing the seat heater switch.

Backrest adjustment



To unlock the backrest, pull the lock lever upwards. Do not press on the backrest while opening the lock.

You can adjust the backrest by applying or releasing your weight simultaneously. Release the lever to lock again.

► Backrest shall be secured so that it cannot be moved to another position when it is locked.

OPERATION

Seats and Beds

Lumbar support



Front arch adjustment of the backrest can be customized to the driver by using the front and rear switches (1 and 2).

Air chambers are filled when the "+" end of this switch is pressed, and discharged when the "-" end of the switch is pressed.

If the back cushion is not inflated when the "+" of the switch is pressed, this means that the front arch adjustment of the back cushion side supports is complete; release the switch.

Maintenance

Dirt may hinder the operation of the driver seat. Keep your seat clean to prevent this!

Trims are not required to be removed from the seat frame for maintenance.



CAUTION

There is a risk of injury if the backrest bounces forward!
Press the backrest by your hand if the backrest adjustment mechanism is operated while cleaning the backrest trim.



WARNING

Discharge the air by pressing the rapid lowering button when you are getting off the vehicle. This would increase the service life of the seat mechanism.

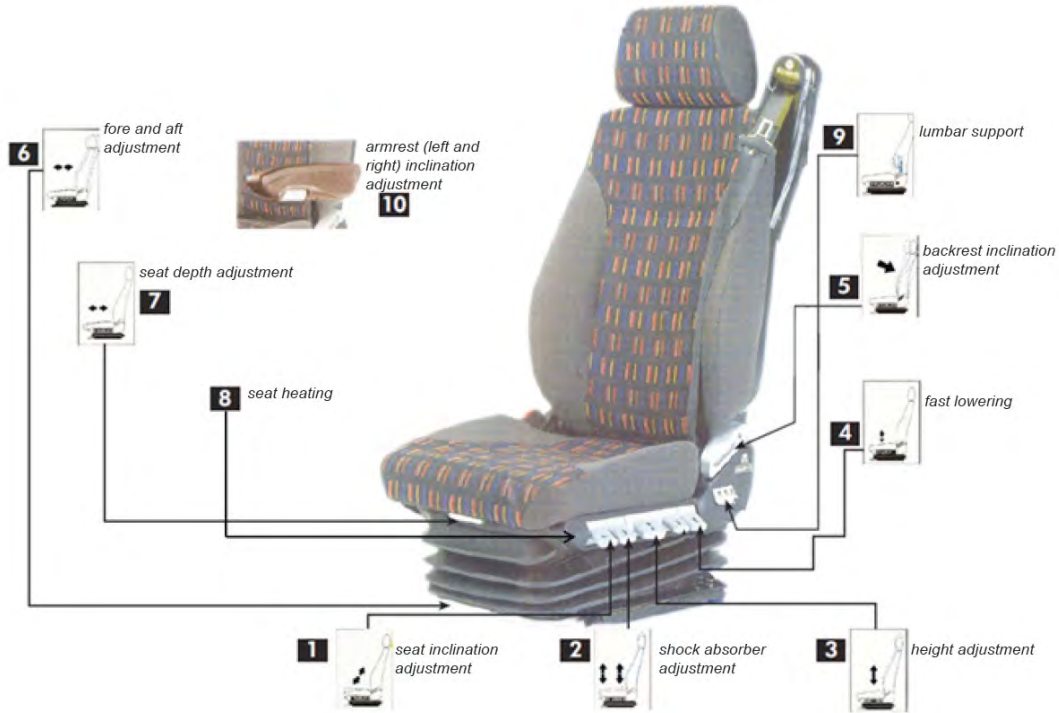


CAUTION

If the seat is used without air charge, this would damage the internal mechanism of the seat and render the seat out of warranty cover.

OPERATION

Seats and Beds



OPERATION

Seats and Beds

4

	DRIVER SEAT	PASSENGER SEAT
1- Seat inclination adjustment: Inclination of the seat can be adjusted between 2° and 12°.	YES	N/A
2- Shock absorber adjustment: Shock absorbers can be set in 4 positions from soft to hard with the adjustment button. Absorbers are adjusted to a softer setting when the button is pulled up and a harder setting when the button is pushed down.	YES	N/A
3- Height adjustment: You can adjust the height up and down for 100 mm without any step restriction.	YES	N/A
4- Rapid lowering: Makes getting in and off the vehicle easier. When the driver pulls up the button while he is getting off the vehicle, seat is lowered to the bottom position (by the discharging of air). When the driver gets back in the vehicle, he should push down the button to charge the air bellows of the seat for setting the seat to the driving position. If the seat is used without air charge, this would damage the internal mechanism of the seat and render the seat out of warranty cover.	YES	N/A
5- Seat backrest inclination adjustment: Lean on the seat backrest. Pull the lever up, bring the backrest to the desired position and release the lever.	YES	YES
6- Fore and aft adjustment: It is possible to adjust the seat to fore and positions with steps of 10 mm within a limit of 210 mm.	YES	YES

OPERATION

Seats and Beds

4

	DRIVER SEAT	PASSENGER SEAT
7- Seat depth adjustment: 60mm . Allows the setting of the depth of the seat within 60 mm in 5 stages.	YES	N/A
8- Seat heating: On/off button can be used to turn on the seat heater. Heater is deactivated after the seat is heated by switching off the button.	YES	N/A
9- Lumbar support adjustment: It may be set to the desired position without any stages.	YES	N/A
10- Armrest adjustment: · Armrest can be raised when required. · Armrest height may be set to the desired position without any stages.	YES	N/A



WARNING

Discharge the air by pressing the rapid lowering button when you are getting off the vehicle. This would increase the service life of the seat mechanism.



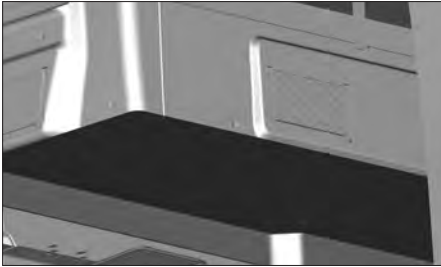
CAUTION

If the seat is used without air charge, this would damage the internal mechanism of the seat and render the seat out of warranty cover.

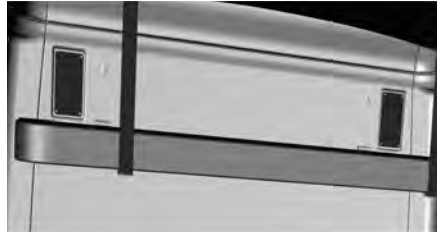
OPERATION

Seats and Beds

Single Bed



Upper bed



* Upper bearing is optional for high roof cabs.

Upper bed is tied with a belt.

* This belt shall be unfastened to open the bed (to bring it to horizontal position).

* Raising the bed: Bed is raised to the upper position and tied with a belt. Bed is raised to the upper position and tied with a belt.



CAUTION

Do not carry load or occupants while the vehicle is moving.

There is a risk of injury for both the driver and the passenger as it will be scattered around during braking and manoeuvring.



CAUTION

Upper bed shall be folded while driving.

OPERATION

In-cab storage compartments

Upper Console (Vehicles with high roof)



There are covered storage compartments on the right and left side of upper console. Press on both sides of the central button to open these covers.



CAUTION

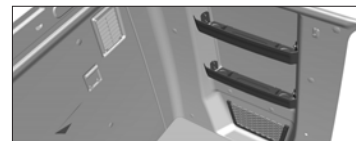
Do not put heavy items on upper console.

Glove box



It is placed on the right side of the center console, in front of the passenger seat. Pull the latch towards you to open it.

Shelves



In the rear part of the vehicle, there are 2 shelves and 1 compartment with net both on the right and left. Total weight of the material placed on each shelf shall not exceed 2 kg.

OPERATION

In-cab storage compartments

Centre console



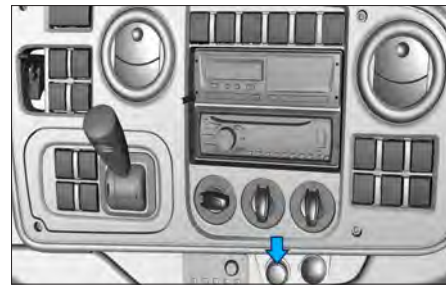
The multifunctional center console placed between the driver's seat and the passenger seat includes storage compartments for maps, glasses, plastic bottles and other material.

Ashtray



Ashtray is placed on the center of the console. Removable ashtray mechanism provides ease of use in the desired position for the driver.

Cigar lighter



Hold the heated cigar lighter only from its handle. Only use the lighter when the traffic allows you to; otherwise it may distract you and cause an accident.



CAUTION

24V lighter/power outlet shall be used for operation of the devices other than the lighter.

OPERATION

In-cab storage compartments



CAUTION

Do not touch the cigar lighter end when it is hot.



CAUTION

Do not hold the cigar lighter element pressed in after it is released.

12 V outlet



12 V outlet may provide power for devices up to 100W.

OPERATION

Steering



You can adjust the steering angle and height in the most comfortable position for you while driving.



1. Turn the knob on the steering column anticlockwise. Thus, power assist to the system shall be activated and setting shall be allowed.
2. Adjust the steering to a proper position by moving it back and forth.
3. Rotate the knob clockwise without changing the position of the steering.



CAUTION

A minimum of 7 bar air pressure is required to adjust the steering mechanism. If the vehicle air pressure is low, operate the vehicle to fill up to the air tubes.

OPERATION

Mirrors

Mirrors

4



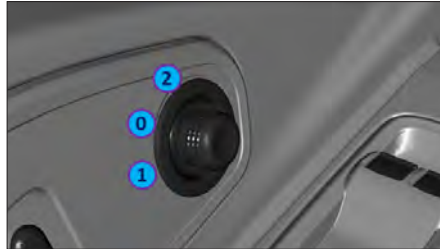
There are 4 different types of mirrors on your vehicle:

- 1- Reversing mirror
- 2- Wide angle mirror
- 3- Kerb mirror
- 4- Front view mirror



WARNING

Check the settings before operating your vehicle.



Adjust the rear view mirror (no. 1) by the rotating knob on the driver's door armrest.

Bring the knob to ① position for the adjustment of the driver's side mirror.

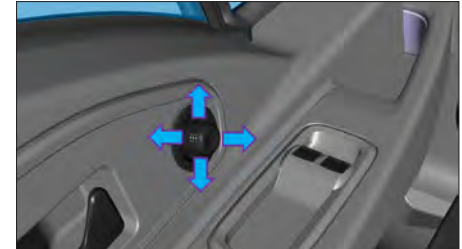
Adjust the mirror by moving the knob forward and backward and left and right, then bring the knob to ① position.

For setting the passenger side mirror:

Bring the knob to ② position.

Adjust the mirror by moving the knob forward and backward and left and right.

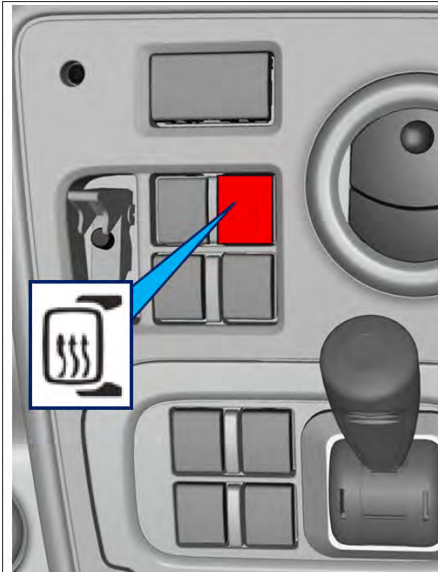
Bring the knob to ① position.



OPERATION

Mirrors

Mirror Heater



Mirrors 1 and 2 have heaters. Use the heater for ease of view on winter days.

To activate the heater: Press “mirror heater” switch on the control panel while the ignition switch is at position 2.

To deactivate the heater: heater shall be deactivated automatically after 10 minutes.

OPERATION

Lighting

Headlamp Switch



Headlamp switch is placed on the console to the left of the steering.

- 0 – Headlamps off
- 1 – Park lamps and indicator illumination
- 2 – Park lamps, indicator lamps and low beam head lamps Low beam bulbs
- 3 – Automatic
- 4 – increasing the interior lighting brightness
- 5 – decreasing the interior lighting brightness



CAUTION

Operating park lamps for a long time while the ignition off causes the battery to discharge.

Headlamp levelling adjustment



Press the knob in the middle for headlamp levelling adjustment. Knob shall come out as shown in the figure. When you rotate the knob to the left (counter-clockwise) headlamp level shall be lowered, and when you rotate the knob to the right (clockwise) headlamp level shall be raised.

Press the button on the headlamp switch to make it come out.
Rotate the button to set it to the required headlamp levelling adjustment.
Press the button on the headlamp switch to bring it to the closed position.

Headlamp levelling shall be performed as per the load of the vehicle.



WARNING

Headlamp levelling shall be adjusted before getting on the road to prevent dazzling the eyes of the drivers of the vehicles in the upcoming traffic in different road conditions.



CAUTION

The current capacity of the switch may only cover for the available system. Any additions may cause faults on the switch. If an additional illumination system is installed, additional lamps shall have wiring with relay control. Switch shall only control the relay.

Audible warning signal is heard when the door is opened when the ignition is off and headlamps are on.

OPERATION

Lighting

Autolamps (If Equipped)



WARNING

The autolamps switch position may not activate the headlamps in all low visibility conditions, such as daytime fog. Always ensure that your headlamps are switched to auto or on, as appropriate, during all low visibility conditions. Failure to do so may result in a collision



When the lighting control is in the autolamps position, the headlamps automatically turn on in low light situations.

Note: When the lighting control is in the autolamps position, while passing through viaducts or under bridges, under varying light conditions or during inclement

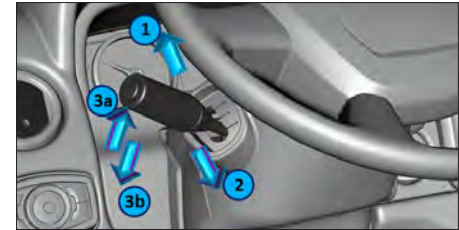
weather conditions headlamps may automatically turn on and off.

Note: It may be necessary to switch your headlamps on manually in severe weather conditions.

Note: It may be necessary to switch your headlamps on manually while entering some tunnels.

Note: If you have autolamps on, you can only switch the front fog lamps on once autolamps has switched the headlamps on.

Direction Indicator Lever



It is placed on the left side of the steering. Switch positions are as follows.

① – Right Direction Indicator

② – Left Direction Indicator

3a – High Beam (Flasher)

Flasher is operated by pulling the handle briefly and releasing it.

3b – High Beam (Continuous)

High beam is operated continuously when the handle is released after being pulled at full stroke.

If the direction indicator lever is moved halfway to the ① and ② positions, direction indicators are illuminated for 6 seconds and then automatically turned off. This would increase attention on the road, especially when you are changing lanes.

OPERATION

Lighting

Front fog lamp



Front fog lamp is placed on the headlamp control panel.
Turn this switch on to obtain better visibility and be visible to the incoming traffic in foggy conditions and where the visibility is low.
Front fog lamp icon is displayed on the indicator when the switch is pressed.

Rear fog lamp

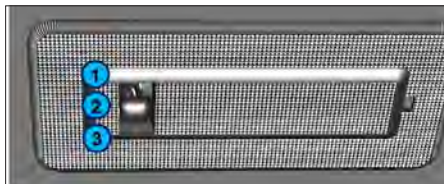


Rear fog lamp is placed on the headlamp control panel. Turn this switch on to obtain better visibility and be visible to the incoming traffic in foggy conditions and where the visibility is low.
Rear fog lamps are illuminated when the low and high beam headlamps are activated only. Rear fog lamp icon is displayed on the indicator when the switch is pressed.

OPERATION

Lighting

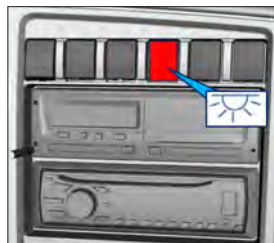
Interior lamp



Interior lamp is placed over the windshield on the center area. It is turned on/off by the switch on it.

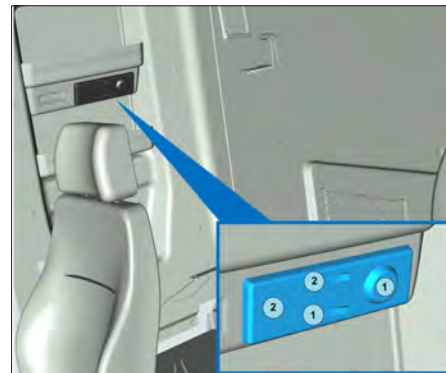
- ① – Position: Continuously lit.
- ② – Position: Lamp does not turn on.
- ③ – Position: Turns on with any door open.

Dome (pilot) Lamps



There are 2 pilot lamps, one on the driver side and the other on the passenger side, in the dome of the vehicle interior. These lamps are illuminated by a switch located in the centre console.

Reading lamp



It is placed on the passenger side of bed area. There are 2 buttons on it;

- ① – Turn on/off the round lamp
- ② – Turn on/off the square lamp

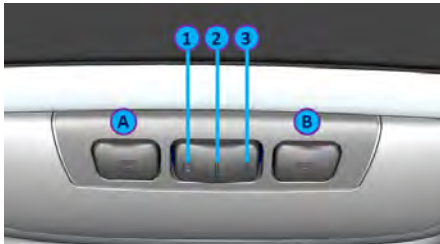
Button no. ① on the lower side controls round moveable lamp, and button no. ② on the upper side controls the square lamp on the left side.

OPERATION

Lighting

High roof vehicles

Interior lamp



Interior lamp is placed over the windshield on the center area. It is turned on/off by the switch on it.

A: Illuminates the driver side dome lamp.

B: Illuminates the passenger side dome lamp.

Center switch has 3 positions.

① - Closed

② - Illuminates when the door is opened

③ - Illuminates continuously

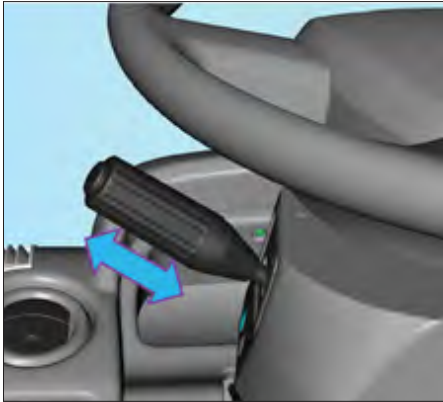
Dome (pilot) Lamps



OPERATION

Window Washing and Heating Systems

Water spray



Press on the upper side of the multi-functional handle towards the steering column to spray wiper liquid to the windshield. Water spray function shall be stopped when you release the lever.

Windshield Washer Reservoir



Windshield washer reservoir is placed on the front of your vehicle. You may access it by opening the hood. Add water and cleaning agent regularly before you run out of washer liquid.

Autowipers (If Equipped)

The autowipers feature uses a rain sensor. You will find it on the lower center part of the windshield. The rain sensor monitors the amount of moisture on the windshield and automatically turns on the wipers. It will adjust the wiper speed by the amount of moisture that the sensor detects on the windshield.



Wiper switch "Autowipers" position

 When you choose the autowipers position on the wiper switch, wipers will make a single wipe to show you that autowipers are activated. Then, wipers will operate automatically depending on the amount moisture detected on the windshield.

OPERATION

Window Washing and Heating Systems

Note: Once you choose a different speed or park position on the wiper switch, autowipers feature will be deactivated, and wipers will operate according to the selected switch position.

Note: Fully defrost the windscreen before switching on the windscreen wipers.

Note: Make sure the windscreen wipers are switched off before washing your truck.

Note: Clean the windscreen and wiper blades if they begin to leave streaks or smears. If that does not resolve the issue, install new wiper blades.

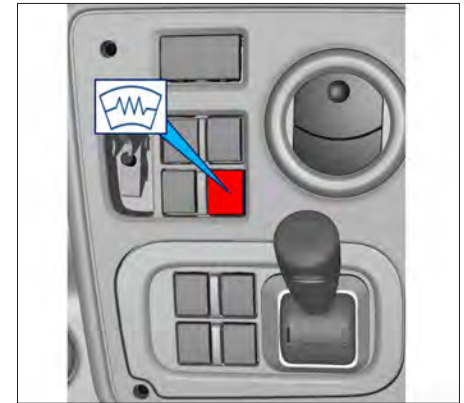
Note: During driving, if the autowipers operate the wipers slower or faster than you expect, choose most suitable wiper speed manually on the wiper switch.

Note: Keep the outside of the windscreen clean. Sensor performance will be affected if the blackened areas on the lower center part of the windscreen is dirty. The rain sensor is very sensitive and the wipers may operate if dirt, mist or flies hit the windscreen.

Note: Wet or winter driving conditions with ice, snow or salty road mist can cause inconsistent and unexpected wiping or smearing. In these conditions, you can do the following to help keep your windshield clear:

- Switch to normal or high-speed wipe.
- Switch the autowipers off.

Windshield Heating (Available on vehicles with Cold Climate pack only)



To activate: press the button on the control panel while the engine is on.

To deactivate: The resistor will automatically be disabled after 5 minutes. Press the button again to deactivate the heater when it is activated.

OPERATION

Circuit Breakers

Use the circuit breakers to disconnect the electrical current in your vehicle.

Vehicles with ADR



An ADR switch shall be available on vehicles that transport flammable, explosive, combustible material. ADR switch cuts all electricity of the vehicle off.

There are 2 ADR switches on your vehicle; one is inside the cab, and one is outside. Both switches have the same function. To cut the circuit off, it is adequate to turn off one.

Using the internal switch

To cut the circuit off:

Raise the safety cover and raise the switch.

To re-activate the electricity supply of the vehicle:

Put the switch down.
Close safety cover.

Using the external switch



To cut the circuit off

Lift the safety cover.
Raise the switch.

To re-activate the electricity supply of the vehicle:

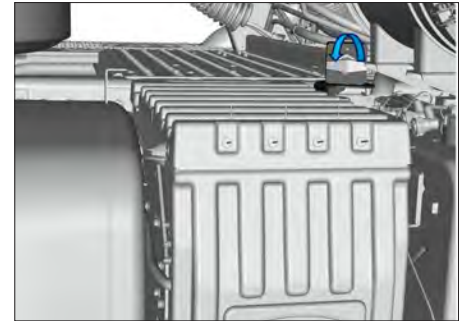
Put the switch down
Close safety cover.



CAUTION

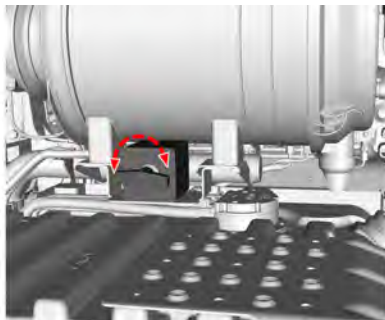
Using this switch frequently may damage electronic devices on the vehicle.

Vehicles without ADR



OPERATION

Circuit Breakers



Turn the switch counter-clockwise to cut the circuit off. Turn the switch clockwise to re-activate the electricity supply of the vehicle.



CAUTION

Use the circuit breaker at least 2 minutes after you have stopped your vehicle. Otherwise, engine electronic control unit (and Denox control unit, if available) may be damaged.



WARNING

Disconnect the battery terminals in case of any welding operation on your vehicle. If it is not possible to disconnect terminals, electricity supply shall be cut off with circuit breakers.

OPERATION

A/C and Heater

Air conditioning



- ① – Blower speed setting
- ② – Heat control (hot/cold setting)
- ③ – Blower direction setting

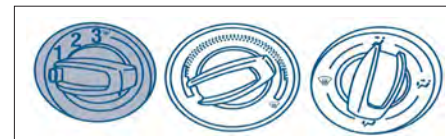
To operate the A/C of your vehicle, bring the heat control



To cold (blue) position while the engine is on.



Press the A/C and recirculation buttons on the front panel.



You can adjust the fan speed in 3 steps.

- 0: Off
- 1: Low speed
- 2: Middle speed
- 3: Fast

OPERATION

A/C and Heater



Adjust the blowing direction



blows to the windshield.



blows from opposite direction.



blows to the leg level and from opposite direction.



blows to the windshield and to the legs.

On hot days, we advise you to open the windows for a few minutes to equalize the temperature inside and outside of the vehicle before turning the A/C on and take some cold air inside the vehicle if the vehicle is moving to obtain better efficiency.

NOTE: To get a better performance from your vehicle's A/C, turn it on even in winter for 5 minutes every 15 days. It is not required to set the knob to cold position during this usage. Mist that forms on the windshield in cold weather conditions may be cleaned much more easily if the A/C and hot air is operated for a few minutes. Then turn the A/C off.

The gas type and amount of the gas used in A/C is printed on the sticker. (Adding oil to the A/C compressor is not necessary unless all gas drains from the A/C.

Your vehicle's A/C will not require maintenance under normal conditions. However, we may advise you to remove and clean the fly screen located in front of the radiator periodically to obtain a better efficiency.

And replacing the filter that dries air every 3 or 4 years will increase the performance of A/C.

Auxiliary heater (Webasto)

Dry Type Heater



Webasto AT 2000 dry type heater is used. This device is placed under the lower bed inside the cab. Control panel is placed on the center console.

Auxiliary heater can also be operated when the ignition is off.



CAUTION

On vehicles with dry type cab heaters, air may enter to the fuel line and prevent system operation when the fuel level in the fuel tank is decreased to a certain level.

OPERATION

A/C and Heater

4

When error codes F01 / F02 /F07 are read on the cab heater digital indicator, fill the fuel level and turn the cab heater switch off and on. Repeat this procedure until the air inside the cab heater fuel system is completely eliminated, and cab heater operates normally.

(Do not turn the heater switch off and on before filling the fuel tank)

When any error code is repeated less than 3 times, cab heater continues to operate normally. However, when (an) error code(s) are repeated more than 3 times successively, cab heater switches to protection mode and indicates an F12 error. In this case, circuit breaker shall be turned off and on again, and thus cab heater shall be reset after refilling the fuel tank. (See Page 95). When the reset procedure is completed, cab heater switch shall be turned off and on. Error F12 may be indicated 1 or 2 times as per the air amount in the cab heater fuel line. In this case, resetting procedure shall be repeated.



CAUTION

Webasto pump is delicate. High quality diesel fuel shall be used against freezing. Fuel consumption: 0.7 l/h during the initial start-up when the temperature inside the cab is low; and 0.4 l/100 km for the operating phase.

Blowing temperature from the nozzle is 75°C. 75°C dir. Thermostat operates between +5°C and -28°C.

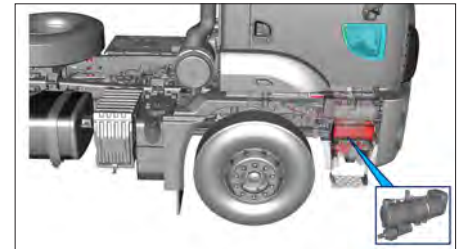
Do not cover the blower and the intake nozzle inside the cab. This is important as it affects the service life and the speed of the motor.



CAUTION

In-cab auxiliary heater hot air outlet is behind the driver's seat. Therefore, dangerous material such as flammable or explosive material shall not be placed between the driver's seat and bed.

Wet type heater

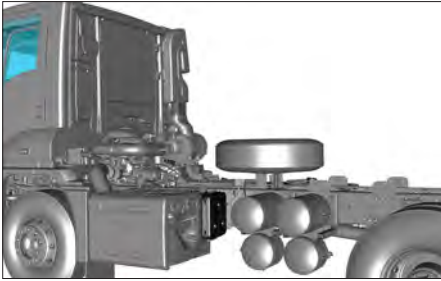


Webasto Thermo 90 S is used. Cab is heated by heating the engine coolant with diesel fuel. Fuel tank can also be heated optionally. This unit is placed under the right step on the vehicle.

OPERATION

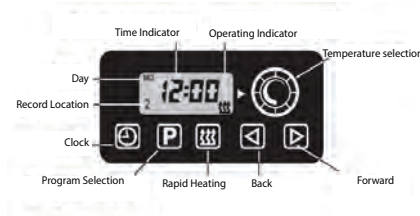
A/C and Heater

Wet type webasto fuel tank



This device has hoses on its own for exhaust and combustion air requirements. Webasto operates with diesel fuel. There is a separate fuel tank on the vehicle. This unit adjust the cycle automatically and takes fuel from dosage pump with the help of an element sensible to the in-cab temperature.

Controls



It is controlled by the digital control unit display panel or by the switch on the reading lamp side of the lower bed.



CAUTION

The unit intakes fuel supply from the specially designed fuel tank that houses the freezing-proof (Arctic Diesel, kerosene etc...) fuel. Turn off additional heating system(s) when refuelling.



CAUTION

Heater should not be operated in enclosed areas as it produces exhaust gas.

Malfunction

If the heater has a fault, check the fuse harness for safety. Contact a Webasto dealership if the precautions below do not solve the problem.



CAUTION

The auxiliary heater digital control programming feature is deactivated for safety reasons for the vehicles (with ADR) carrying hazardous substances

OPERATION

A/C and Heater

Heater Turns Off By Itself

Malfunction Description	Precaution
No ignition during starting.	Turn off/on the heater once
Flame extinguishes during operation	Turn off/on the heater once
Heater is overheated and green light is blinking	Turn off/on the heater after cooling it down after checking whether the air channels are blocked or not
Vehicle voltage is insufficient	Check the battery. Turn off/on the heater once
There's a blockage in air inlet and/or outlet ducts	Checked whether there's a blockage in air inlet and/or outlet ducts

Maintenance

- We recommend that the heater is inspected in Ford authorized workshops in the start of each winter season.
- Keep the heater air inlet and outlet ducts clean. Dirty air ducts cause overheating and deactivation of the heater control unit.
- Operate the heater once every month for 10 minutes to prevent the jamming of the mechanical components.

Error code display

If the heater has a combined timer, an error code shall be displayed on the screen of the timer when an error occurs.

Note: Error code is displayed by the flashing of the on/off indicator/error code indicator when an error occurs if the heater has a control element. After it is flashed rapidly for 5

seconds, error code is displayed by a series of long flashes, number of flashes is shown in the table below (e.g. F04 – 4 long flashing signals).

Error code	Error (group)	Additional information during computerized diagnosis	Remedy
F 00	Control unit error	01 Control Unit error 81 EOL checksum error 11 Wrong coded control unit or wrong type of heater (fuel type) is installed (heater does not operate when this error occurs) 91 Neutrally coded or deactivated control unit (heater does not operate when this error occurs) 92 Resume command fails (heater does not operate when this error occurs) 18 Customer bus is faulty	Replace the control unit

OPERATION

A/C and Heater

4

Error code	Error (group)	Additional information during computerized diagnosis	Remedy
F 01	Does not start	02 No flame even after restarting 82 Does not start during testing	Check fuel supply (tank empty, lines blocked) Clean burner insert, Petrol: Replace flame sensor Diesel: Replace overheating sensor / control unit.
F 02	Flame error	03 Flame goes off during operation and not generated again after starting attempt 83 Flame is distinguished for more than X times during heating cycle (EEPROM)	Check fuel supply (tank empty, lines blocked) Clean burner insert, Petrol: Replace flame sensor Diesel: Replace overheating sensor / control unit.
F 03	Low voltage or excessive voltage	84 Voltage is lower than 10.5V or 21 V for more than 20 seconds 04 The voltage was more than 16 V or 32 V for longer than 6 seconds	Charge the battery.
F 04	Premature flame detection	05 A flame is detected before the combustion	Diesel: Replace overheating sensor / control unit. Petrol: Replace the flame sensor.
F 05	Interruption or short circuit in flame sensor (petrol heater only)	1A Flame sensor circuit Short circuit to chassis in the switched wire of the element 9A Flame sensor circuit Wire fault or short circuit to +Ub	Replace the flame sensor. Replace the flame sensor.
F 06	Fault or short circuit on the external temperature sensor	14 Temperature sensor circuit Short circuit to ground 94 Fault on the temperature sensor circuit or short circuit to +Ub	Check the wires / replace the temperature sensor Check the wires and termination resistance / replace the temperature sensor
F 07	Interruption or short circuit in metering pump	88 Fault or short circuit to +Ub 08 Short circuit to ground	Check the wires / replace the metering pump Check the wires / replace the metering pump

OPERATION

A/C and Heater

4

Error code	Error (group)	Additional information during computerized diagnosis	Remedy
F 08	Drive unit (combustion and hot air blower) break or short circuit	89 Fault or short circuit to +Ub 09 Short circuit to ground in the switched drive unit wire (combustion and hot air blower) or drive unit is excessively loaded 15 Burner engine block protection is triggered 95 Burner engine block detection is triggered	Replace the drive unit (combustion and hot air blower) Eliminate the cause of the blockage / difficulty in movement Replace the drive unit (combustion and hot air blower)
F 09	Interruption or short circuit glow plug	8A Glow plug: Wire fault or short circuit to +Ub 19 Glow circuit Short circuit to chassis in the switched wire of the element	Replace the glow plug Replace glow plug
F 10	Overheating	06 Overheating fault lock triggered (heater is overheated) 17 Wrong application or improper insulation (UHS gradient is very high)	Find and remove the cause of the overheating Note: If no other cause is found for overheating, either the pressures losses caused by hot air distribution is very high (to much resistance point) or hot air filter is dirty
F 11	Interruption or short circuit on the overheating sensor	AB Fault on the overheating sensor circuit or short circuit to +Ub 1B Overheating sensor circuit. Short circuit to chassis in the switched wire of the element	Replace the overheating sensor Replace the overheating sensor
F 12	Heater fault locking	07 Heater fault locking is activated	Remove the fuse and re-install it NOTE Following errors occurred several times: Fault counter more than 3 times Wrong start counter more than 9 times Overheating counter more than 3 times
F 14	Overheating sensor is in the wrong position	97 Position of overheating sensor is wrong (UHS gradient is very low)	Place overheating sensor correctly.
F 15	Nominal sensor fault	9B Fault on the nominal value potentiometer circuit or short circuit to +Ub	Check the wires / replace the control element

OPERATION

A/C and Heater

4

Error Codes

F00	Control device error
F01	No start (after 2 start attempts)
F02	Flame interruption (minimum >5)
F03	Low voltage or high voltage
F04	Premature flame detection
F05	Flame detector (petrol heater)
F06	Interruption or short circuit in temperature sensor
F07	Short circuit in dosage pump
F08	Interruption or short circuit in fan motor or overload on fan motor or fan motor blocked
F09	Interruption or short circuit glow plug
F10	Overheating
F11	Interruption in temperature sensor or short circuit in temperature sensor
F12	Heater lock
F14	Temperature sensor installed incorrectly
F15	Target value transponder short circuit

OPERATION

A/C and Heater

Auxiliary Heater (EBERSPÄCHER)



Main functions of the buttons

With the  button, you may operate the heater or confirm the inputs.

With the  button, you may turn off the heater or stop the functions.

With keys  , you may select the functions and perform settings.

Operating the heater immediately

Heating starts immediately if you press the  key 2 seconds.

All functions are ended if you press the  key 2 seconds.



CAUTION

AD auxiliary unit function It may be activated by Eberspaecher authorized services.

 ventilation symbol is displayed only if the operating unit is connected to heaters that support this function (dry type heaters).

Heating

Starting the heating operation immediately by pressing the button for a long time

Press the  key for 2 seconds.

Starting the heating operation by pressing the button for a short time

Press the  key.

§ Set the desired ambient temperature value (only for dry type heaters) and operating time with   keys, and confirm by pressing the .

Press the  key to confirm the values entered.

Ending the heating operation by pressing the button for a long time

Press the  key for 2 seconds to end all functions.

Ending the heating operation by pressing the button for a short time

When the heater symbol is selected on the screen;

Press the  key; heating shall be ended.

Ventilation

Starting the ventilation

With   keys, select  symbol from the menu and confirm with the  key, set the operating time with   keys, and confirm by pressing the .

Confirm the settings by pressing the .

OPERATION

A/C and Heater

4

Ending the ventilation operation by pressing the button for a long time

Press the  key more than 2 seconds, all functions shall be ended.

Ending the ventilation operation by pressing the button for a short time When the ventilation symbol is selected on the screen; Press the  key; ventilation shall be ended.
Auxiliary unit

Starting the heating operation with the auxiliary unit

With   keys, select  symbol from the menu and confirm by pressing the  key.

With   keys, select  symbol and confirm by pressing the  key.
§ Set the desired ambient temperature value (only for dry type heaters) and operating time with   keys, and confirm by pressing the  key.

Press the  key to confirm the settings.

Ending the heating operation with auxiliary unit by pressing the button for a long time

Press the  key for 2 seconds, all functions shall be ended.

Ending the heating operation with auxiliary unit by pressing the button for a short time Select the auxiliary unit symbol on the screen, Press the  key, auxiliary unit shall end the heating operation.

Starting the ventilation operation with the auxiliary unit

With   keys, select  symbol from the screen and confirm by pressing the  key.

With   keys, select  symbol and confirm by pressing the  key.
Set the operating time with   keys, and confirm by pressing the  key.
Confirm by pressing the  key.

Ending the ventilation operation with auxiliary unit by pressing the button for a long time

Press the  key more than 2 seconds, all functions shall be ended.

Ending the ventilation operation with auxiliary unit by pressing the button for a short time

Select the auxiliary unit symbol on the screen. Press the  key, auxiliary unit shall end the ventilation function.

Program

Programming

With   keys, select  symbol on the screen and confirm by pressing the  key, Select one of P1, P2 or P3 programming memories with the   keys and confirm with the  key.

OPERATION

A/C and Heater

4

Activation of the saved program

With   keys, bring the program to "ON" and confirm with the  key.

Cancellation of a selected program

With   keys, bring the program to "OFF" and confirm with the  key.

Changing the settings of a selected program

With   keys, select  symbol from the menu bar and confirm with the  key.

Selecting the weekly program mode or day

With the   keys, select one of the weekly modes, e.g. Mon – Fri, Sat – Sun, Mon – Sun; or select a day, e.g. Mon, Tue, Wed, Thu, Fri, Sat, Sun and confirm with the  key.

Setting travel dates or starting time

Set the hours with   keys and confirm with the  key.

Set the minutes with   keys and confirm with the  key.

Selecting the operation mode

With   keys, select the heating symbol  or the ventilation symbol  and confirm with the  key.

Setting the cab temperature (only for dry type heaters)

Set the desired cab temperature with   keys and confirm with the  key.

Setting the heating level (only for wet type heaters with the automatic operating time function activated)

With   keys, select one of the ECO (economical) or HIGH (high) heating levels and confirm with the  key.

Setting the operating time

Set the operating period with   keys and confirm with the  key.

Settings

With   keys, select  symbol from the menu bar and confirm with the  key.

Setting the time

Select  symbol and confirm with the  key.

Set the hours with   keys and confirm with the  key.

Set the minutes with   keys and confirm with the  key.

OPERATION

A/C and Heater

Setting the date

With   keys, select  symbol and confirm with the  key,

Set the date with   keys and confirm with the  key.

Setting the time format

With   keys, select  symbol and confirm with the  key.

With   keys, select the time format and confirm with the  key.



CAUTION

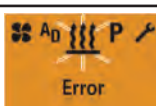
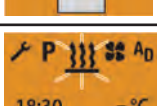
The auxiliary heater digital control programming feature is deactivated for safety reasons for the vehicles (with ADR) carrying hazardous substances

You may select operating period of your heater as you desire; you do not need to turn on the ignition for unlimited operation. Heater may be operated for the desired period even if the ignition is off.

OPERATION

A/C and Heater

In the event of a fault the following displays are possible

DISPLAY	DESCRIPTION	REMEDY / CUSTOMER
	Automatic detection is active. The EasyStart Timer has been disconnected from The power supply and then reconnected.	"Wait until the automatic detection has finished, then set the time and weekday.
	No communication.	"Check and if necessary renew the heater fuse. Visit your vehicle workshop.
	1st heater fault.	Visit your vehicle workshop.
	2nd heater fault.	Visit your vehicle workshop.
	Voltage too low.	Charge battery, if necessary visit your vehicle workshop.
	Temperature sensor is defective	Visit your vehicle workshop.

OPERATION

A/C and Heater



CAUTION

If you cannot resolve the fault by yourself, please contact your authorized service.

Entering the service menu to learn the error code:

With the   keys, navigate to  symbol on the start screen, and enter the settings menu with the  key.

Press and hold the  key for more than 5 seconds in the settings menu. Code shown in the menu no. 1.1.1 on the screen is the error code for heater no. 1. If there is a 2nd heater in the vehicle, navigate to menu no. 1.1.2 with the  key to see the error code for heater no. 2.



WARNING

Service menu shall only be used for displaying the error code. Changing the settings on the service menu may damage your heater. Please use the service menu for displaying the error code only.

Heater Turns Off By Itself

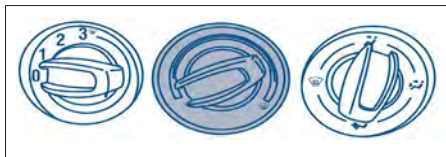
Fault Description	Remedy
Does not ignite during operation	Turn the heater off and on once
Flame goes off during operation	Turn the heater off and on once
Heater overheats	Check for blockage in the air input and output channels. Then cool down the heater and turn the heater off and on once.
Voltage value of the vehicle is inadequate	Check the heater. Turn the heater off and on once.

OPERATION

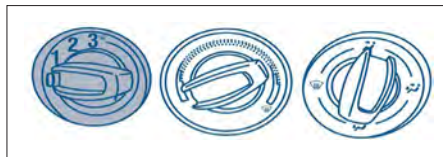
A/C and Heater

Heater

4

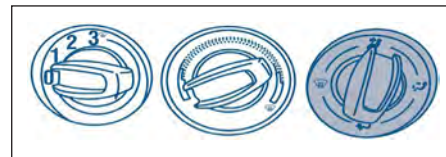


Bring the heat control to red position for hot air flow.



You can adjust the fan speed in 3 steps.

- 0: Off
- 1: Low speed
- 2: Middle speed
- 3: Fast



Adjust the blowing direction



blows to the windshield.



blows from opposite direction.



blows to the leg level and from opposite direction.



blows to the windshield and to the legs.

OPERATION

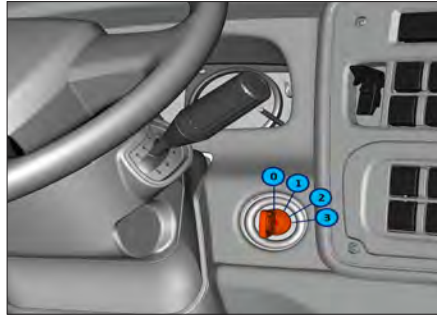
Driving

Before taking off:



Check the air pressures on the brake circuits.

Starting the engine



Turn the ignition on.

- Turn the ignition switch to position 2. Wait until the engine warning lamp is turned off. refer to maintenance and service chapter MIL lamp
- When gear idle , (press clutch for manuel transmission vehicles) and. Start the engine by turning the ignition switch to position 3 (max. 10 seconds)
- Wait for 15 seconds if the engine does not start and repeat the same procedure in the same order.



CAUTION

Wait for the period determined by the electronic control unit (10 to 40 seconds) before starting again after a start failure. Do not attempt to start in this period.

Cold Start

- Turn the ignition on. (position 2). Cold starting lamp will be continuously on 
- Start the engine (position 3) when the cold start lamp turns off,
 - We advise you to apply the clutch pedal to lower the load on the engine.
- If the engine does not start, switch the ignition off, wait for 1 minute and repeat the steps above.

OPERATION

Driving

Starter Protection System

Starter Protection System is a system that prevents the burning of the starter due to unnecessary starting operations.

Electronic control unit calculates the maximum appropriate duration of a starting operation by gathering many data via the sensors on the engine to protect the starter. When the user exceeds the specified maximum start duration, he is prevented from starting again. The system allows starting again at the end of the period determined by the electronic control unit.

Please follow the instructions below in such a case.



CAUTION

If your engine is not started after some attempts, there may be another problem in another system of your engine. First complete the other checks, and attempt to start again.

To stop the engine

Do not stop the engine immediately when the vehicle is stopped. Wait until the turbo speed is decreased by operating the engine in idle. If the engine is stopped immediately when the vehicle is stopped, the turbo which is rotating in high speed shall not be adequately lubricated.

Air deflector

Adjust the air deflector on the cab according to the trailer.

Note: A correctly adjusted air deflector reduces the fuel consumption.

There is a risk of falling down from the cab and being injured while adjusting the air deflector. We advise you that adjustments on the air deflector shall be performed by FORD OTOSAN authorized dealership with the required expertise and special equipment.

Smart acceleration feature:

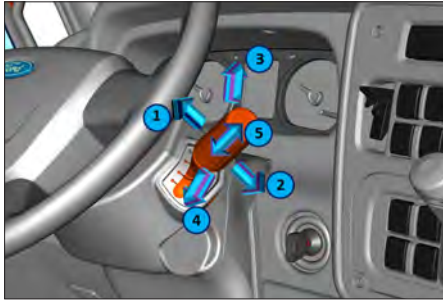
Acceleration of the vehicle is controlled by limiting the engine acceleration profile to a specified percentage of the maximum weight that can be carried by the variant for trucks, and maximum load that can be drawn for the tractor trucks.

Abrupt and unintentional accelerator responses of the unloaded vehicle have been prevented, and thus driveability of the vehicle is improved besides providing fuel economy. Smart acceleration function is deactivated especially in uphill start and climbing manoeuvres and it is optimized to prevent adverse effect on the vehicle performance.

OPERATION

Driving

Cruise Control



Pull the lever towards you to activate. (position



1) shall be displayed on the indicator.

- 1 – Increasing the speed
- 2 – Decreasing the speed
- 3 – Deactivation
- 4 – Engine brake and retarder
- 5 – Resuming cruise control

Driving speed is set by the multifunction lever on the right of the steering. Engine electronic control unit adjusts the throttle setting required for driving the vehicle at the set speed. Vehicle is driven in the set speed without the need for the driver's applying the accelerator pedal.

When the cruise control is activated, it is automatically deactivated in the following conditions:

- Applying the brake
- Applying the clutch (in vehicles with manual transmission)
- In case activating the engine brake, cruise control is deactivated automatically

When cruise control is activated, it is shown as figure depicted below on the cluster information menu.



CAUTION

Vehicle cuts throttle if the set speed is exceeded, and engine brake is activated if the engine speed is over 1000 rpm.

- Cruise control cannot be activated for vehicle speeds under 30km/h.
- Cruise control cannot be activated for vehicle speeds over the speed limit.
- Cruise control is deactivated automatically if it is active when speed limit is exceeded.
- For convenience of use, cruise control remains active until gear is changed when the clutch is applied for 5 seconds in vehicles with manual transmission.

OPERATION

Driving

Hill holder

4



On Vehicles with Manual Transmission:

- 1- Stop the vehicle with service brake.
- 2- Activate the hill launch assist by pressing the button on the center console.
- 3- Depress the clutch pedal.
- 4- Engage proper starting gear.
- 5- Release the brake pedal, brakes of the tractor and semi-trailer holds automatically.
- 6- Release the clutch pedal to drive off the vehicle and press the accelerator
- 7- Hill holder feature,

- is deactivated automatically when the clutch is released or engine torque reaches a specified value.

On Automated Manual Transmissions:

- 1- Stop the vehicle with service brake.
- 2- Activate the Hill holder by pressing the button on the center console.
- 3- Release the brake pedal.
- 4- Hill holder holds the brakes for a maximum of 2,5 seconds. If the engine torque reaches the specified level earlier, Hill holder assist is deactivated before 2,5 seconds

hill start assist active warning is displayed on the instrument when the hill start assist is active

OPERATION

Braking

Disc brake system

Brake System: Arvin Meritor Elsa 225H air disc brake with sliding brake calliper.
Disc: 430 mm anti-conical disc with air ducts.
System Air Pressure: 10,5 bar

Brake friction pads

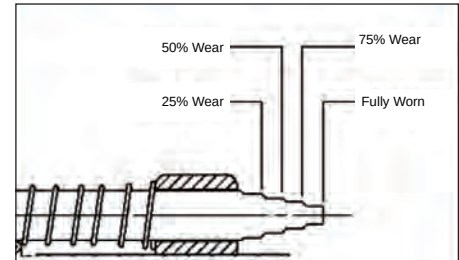
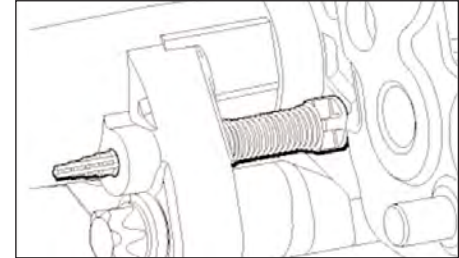
The thickness of the new linings is 19mm. Linings shall be replaced when the thickness becomes lower than 3 mm. On vehicles with disc brakes, a sensor that continuously measures the wear ratio is available on each brake. Remaining ratio of each brake lining is displayed in percents (%) on the indicator display. Driver is informed with a warning light when a lining on any brake is about to wear off. The vehicle should be taken to the nearest workshop and the problem shall be resolved when the warning light is illuminated.

 The difference up to %25 between left and right brake lining is acceptable. If the difference is greater than %25, bracket warning light is on. Brakes should be controlled at the service in this case. If the thickness of brake lining is less than %20, the value of the thickness of brake lining blinks on the screen. If the thickness of the brake lining is less than %6, the brake warning indicator is on on the screen. Please drive to the authorized dealer for brake lining change.



Wear information is shown on the display. On which axle the brakes shall be replaced can be seen on the display. Linings of both left and right brakes on the relevant axle shall be replaced at the same time.

An indicator lever is available on the brake to allow monitoring of the lining thickness besides the percentage indication on the display. Linings shall be replaced when the indicator lever is fully worn. As the service life of the lining shall differ greatly due to causes such as vehicle load, operating conditions etc., monitor the lining thickness periodically from the display or check it every month with the indicator lever on the brakes when it is not possible to monitor it from the display.



OPERATION

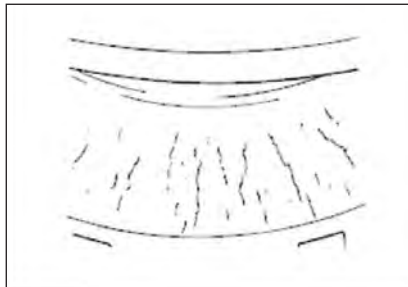
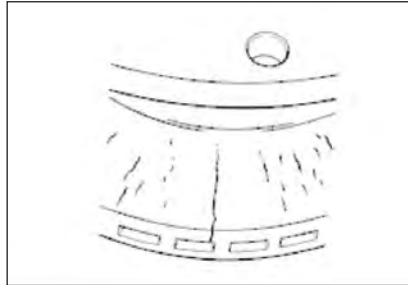
Braking

Disc brake system

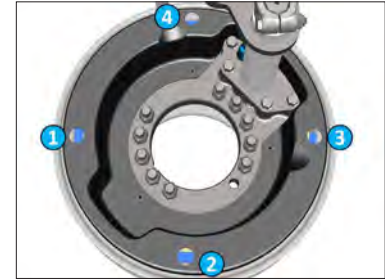
The thickness of the new discs is 45 mm. Discs shall be replaced when the thickness becomes lower than 39 mm. Check the disc thickness every three months as the service life of the disc shall differ greatly due to causes such as vehicle load, operating conditions etc. Inspect the disc surface against cracks during thickness inspection.

Replace the disc if the cracks on the surface has reached air ducts or grown up to 25% of the lining pressure surface. Cracks that have not grown up to 25% of the surface do not affect the performance, you may continue to use the disc.

Blue areas on the disc surfaces indicate that they have been subject to excessive heating. We recommend you to machine the disc as the structure of these areas have been deformed. Linings that have been subject to excessive heating shall also be replaced.



Drum Brake System

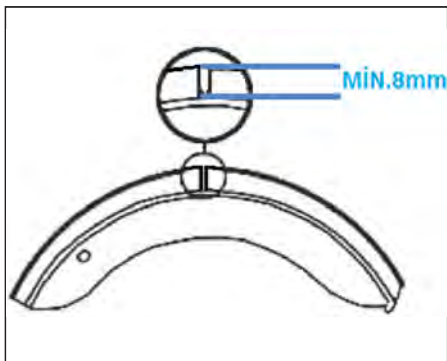


Z-cam brake system is a lining-drum type braking system. Brake lining wear is inspected from 4 holes on the brake plate. Remove the plugs on the plate for inspection, and replace them after inspection.

*Z-cam brake system is optional.

OPERATION

Braking



Lining wear inspection may also be performed visually from the inspection holes on the brake dust plate.

If the thickness of the lining remaining on the brake pad is less than 8mm, we recommend that you shall have your lining replaced in a Ford Cargo authorized service immediately.



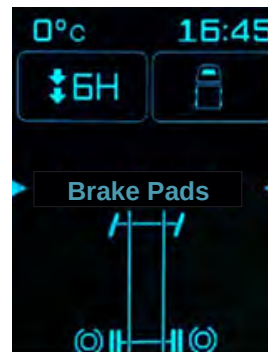
CAUTION

Even if one of the mutual linings is worn, replace both linings.



CAUTION

Install the plugs again after lining inspection. Otherwise, dust and dirt ingress between the lining and drum may cause premature lining wear and damage to the drum.



OPERATION

Braking

Emergency brake bellows

Brake air bellows on the drive axle of your vehicle have emergency feature. Emergency bellows are activated in 2 conditions:

- When the park brake is applied
- When there is not enough air in air tubes to brake the vehicle



Discharging the emergency bellows

To discharge the emergency bellows, turn the bolt behind the bellow in tightening direction (clockwise) completely.



CAUTION

No braking shall be available to hold the vehicle in place when the emergency bellows are discharged. Do not discharge the bellows before taking necessary safety precautions.



CAUTION

To start park brake mechanism again, please contact to the authorized workshops or refer to the repair catalogue. If the vehicle is going to be parked for more than one month, perform the following to protect the linings and drums.

- Park the vehicle, chock the wheels and release park brake lever.
- Drain air tanks completely.
- Release the park brake unit as specified depending on the vehicle model.
- Run park brake unit and refill the system with air when you will drive the vehicle again.

OPERATION

Braking

Engine brake (Standard)

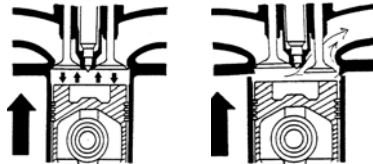


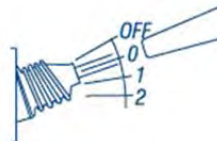
Figure-1

Figure-2

Your engine provides the engine brake feature as standard.

At the end of the compression cycle (Fig. 1), before several degrees from the Top Dead Center, a special equipment in engine pistons opens the exhaust valves a little and releases the pressure grown inside the cylinder (Fig. 2). Thus, braking torque of the compression cycle is used.

Activation of the engine brake



	Engine Brake
1. Range	Reduced Brake Power
2. Range	High Brake Power

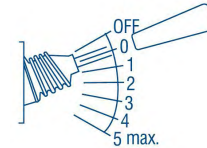
Engine brake is activated by the lever on the right of the steering.

 warning is displayed on the indicator.

Intarder / optional

Intarder is a special brake system for decelerating the vehicle and maintaining the speed in downhill travels, and also known in the market as "drive shaft brake". systems. Intarder provided in your vehicle has a hydrodynamic braking system also known in the market as fluid type.

- Braking Moment: 3.500 Nm
- Braking Power: 600 kW
- Weight: 70 kg .
- Operating principle: Hydrodynamic braking
- Fully compliant with ABS-EBS system



Intarder is activated by the 5 step lever on the right of the steering.

	Engine Brake	Intarder
Bremsomat	Reduced Brake Power	Bremsomat (0%-100%)
Intarder 1	Reduced Brake Power	25% Max. Brake Power
Intarder 2	Reduced Brake Power	50% Max. Brake Power
Intarder 3	High Brake Power	75% Max. Brake Power
Intarder 4	High Brake Power	100% Max. Brake Power

 warning is displayed on the display when the intarder is activated. Bring the intarder lever to 0 (off) position when the required speed is reached.

When the intarder lever is pulled, rear brake lamps are turned on when the vehicle reaches a specified braking power. (-0.7 m/s2).

OPERATION

Braking

Bremsomat:

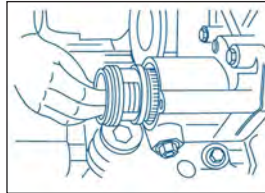
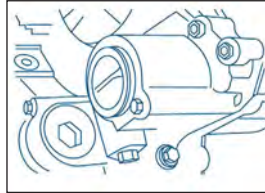
When the retarder lever is pulled 1 step while driving downhill, intarder is activated in the required amount so that the vehicle speed hold constant.

Bremsomat feature turns off when the lever is brought to 0 or any position from 2 to 5.



CAUTION

Intarder braking force has a technical limit. In Bremsomat position, force acting downhill due to the road inclination and load status may exceed maximum braking force of the intarder. In this case, vehicle shall be accelerated.



CAUTION

Intarder requires maintenance. The oil filter should always be changed at every replacement interval of the transmission oil.



WARNING

Intarder oil is cooled with the engine coolant. Check whether the coolant is heated excessively from the coolant temperature indicator especially when the intarder is used in long intervals.



When the coolant has reached 105 °C, intarder is deactivated automatically to prevent excessive heating of the engine.



CAUTION

Using Intarder for any type of deceleration will extend service life of the brake linings.

OPERATION

Braking

Automatic hybrid brake mode



When the “AUTO” button on the center console is pressed, intarder and engine brake may be activated by the foot brake. Thus, when the brake pedal is applied, intarder* and engine brake is applied as proportional to the pedal travel besides the service brakes.

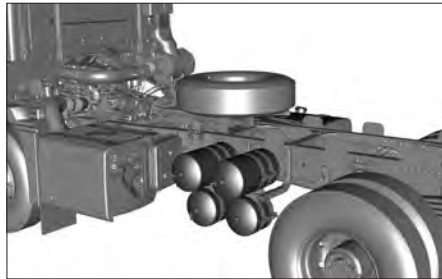
*intarder is not provided in standard vehicle package; it is optional.



CAUTION

If the right multifunction lever is brought to any position other than (0), automatic hybrid brake mode is deactivated until the lever is brought to position (0) again.

Air tubes



Air tubes used in your vehicle volume are indicated in the labels



Drain the water in the tanks every day. Pull the ring attached to the cock until all air is discharged to drain the water inside the tanks.

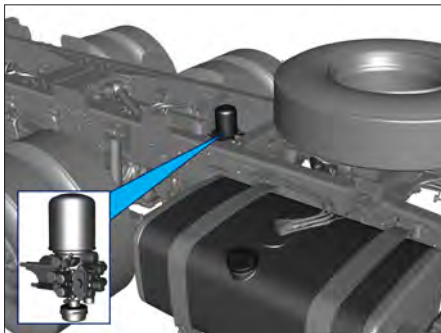
When the air tanks are drained, low pressure warning should sound as the ignition is switched on. If the warning system is not operated due to a fault on the warning circuit, the fault on the system should be repaired immediately. Do not drive your vehicle until the normal pressure is displayed on the air pressure indicators.

Air drier filter may be not operating if greasy mud deposit is seen during the air tank draining procedure. Replace the filter of the air dryer.

OPERATION

Braking

Air Dryer (APU)



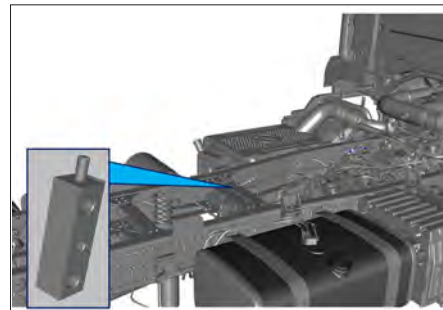
The air drier unit on your vehicle includes air heating, separating the oil in the air, air discharge and 4-way relief valve functionalities besides the air drying function. A tire inflation port is available on the air drier inside the chassis.



CAUTION

Air drier filter shall be replaced in periodical maintenance intervals. If the drier filter does not operate properly, it may cause damage to itself and the air valves.

Auxiliary Air Line



When air bleeding is required for special functions (e.g. air horn, air gun), connection shown in the figure shall be used.



CAUTION



Do not take air directly from the tubes.

OPERATION

Braking

Reverse test request



There are some kind of failures which can't be detected by EBS directly, only via monitoring of the behavior of the vehicle and the brake system. These monitoring functions are called plausibility checks. If a plausibility failure is detected by the EBS, it can be restored according to the legal requirements only if EBS carries out system test (called reverse test) and the result of the test is positive (operation of the brake system is correct). It means when the cause of the failure is eliminated (it was just a temporary failure, or the vehicle is repaired), than a reverse test has to be carried out. To make EBS to be able to carry out the reverse test, the driver has to activate the brake pedal once under a defined condition. When EBS requires such a pedal activation to restore the failure, it will send a request with the following failure code:

Path: **253** (Vehicle brake system)
Type: **201** (Press brake pedal request)
(SPN 64969)

It is highly recommended to give a clear text on the instrument cluster to the driver when this pedal activation requested and the user manual of the vehicle should describe clearly the conditions how to do it.

The pedal activation has to be carried out on the following way:

After fault detection, the ignition must be switched off and on in order to reset EBS:

- The ignition-off phase must be at least 5 sec., to allow power-down of EBS, and
- During ignition-off phase the brake pedal must be released, to avoid braking in wake-up mode without reset of EBS.
- After ignition is switched on, for at least 7 sec.:
- The vehicle must be in stillstand, and
- Brake pedal must be released.
- Supply voltage EBS sufficient for electronically controlled braking.
- Parking brake should be released in case of TCM failures.
- Warning lamp is on, system restriction is active.
- Brake pedal actuation, with the following features:
- During standstill, the driver is instructed via dashboard symbol "braking" to do a braking.
- Pedal actuation does not start before 7 sec. after ignition is switched on.
- Pedal actuation must increase to full brake position, without any condition.
- Full brake position must be hold for at least 3 sec..

- Pedal decrease until fully release, without any condition.
- Brake pedal must be fully released for at least 3 sec..
- Warning lamp is on. System restriction is not active during braking. Braking is controlled by electronic pressure control.

Brake pedal test is successful:

- No fault is detected during the braking.
- Warning lamp is switched off, system restriction remains not active.

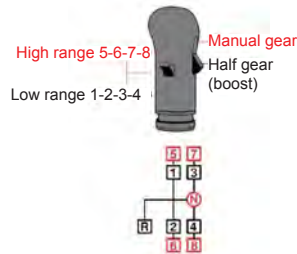
Brake pedal test is not successful:

- A fault is detected during the braking, or
- Maximum braking time of 25 sec. is expired, or
- The vehicle starts moving.
- Warning lamp remains on, system restriction is activated.
- An ignition reset is needed to start brake pedal test again.

OPERATION

Shifting

16S 2230 Manual transmission and shifting



There are 16 forward and 2 reverse (in high and low ranges) gears. All gears other than the reverse gears have synchronizers. Shifting from low to high range and selection of half (boost) gears is made via the latches on the gear knob. As shown in the diagram below, the latch in the front side of the gear knob allows selection of the low range (1-2-3-4) and the high range (5-6-7-8). When the latch is down, the transmission is in the low range; and when the latch is up, the transmission is in the high range. The latch on the side of the gear knob allows selection of half (boost) gears. When the latch is down, the transmission is in boost gear; and when the latch is up, the transmission is in normal gear.

Note: To shift from low range to high range during acceleration in transmissions with 1H gear system:

1. Press the latch upwards in the 4th gear.
2. Depress the clutch pedal.
3. Select neutral.
4. Shift the lever from neutral to $\frac{1}{2}$ range and then $\frac{1}{5}$ gear. Transmission will shift to 5th gear when it is in high range.
5. Slowly release the clutch pedal.
6. Leave the latch in high range.

16 S 2230 transmissions have a shift prevention mechanism to protect the transmission against incorrect shifts when the vehicle has reached a certain speed. These mechanisms prevent shifts to $\frac{1}{2}$ range in certain speeds for low and high ranges, and shifts from high range to low range.

Below are the cases reflecting the above mentioned circumstances and where the protection mechanisms are activated for errors likely to be experienced when driving:

1- Driver wants to shift from 4th to 5th, but forgets the switch the latch to high range (upwards) when the vehicle is accelerating: The gear knob cannot be moved to $\frac{1}{2}$ position, changing to an incorrect gear is prevented by the system.

2- Driver wants to shift from 6th to 5th, but switches the latch to low range inadvertently when the vehicle is decelerating: As the transmission will try to shift to 1st in this condition, the shift prevention mechanism is activated and prevents the shift operation, and moves the shift lever to the $\frac{3}{4}$ range, and changing to an incorrect gear is prevented by the system.

3- Trying to shift from 8th to 5th when the vehicle is moving with a certain speed: Selector lever 1 The gear knob cannot be moved to $\frac{1}{2}$ position, changing to an incorrect gear is prevented by the system.

4- Trying to shift from low range to high range when the vehicle is moving with a certain speed: System denies the shift to the low range. Driver is not allowed to shift to low range.

Prevention mechanisms of the 16 S 2230 transmission specified above are intended to protect the gear and synchronizer mechanisms in the transmission, and these are not error modes.



CAUTION

Service life of the clutch is proportional with its correct usage.

Incorrect usage of the clutch reduces its service life and clutch is damaged because of overheating in a short period of time.

Do not hold the vehicle on slopes with semi-applied clutch.

OPERATION

Shifting

In order to shift into gear, fully press the clutch pedal before shifting and remove your foot when shifting occurs.

Do not hold your foot on the clutch pedal on driving conditions where operation of clutch is not required.

Choose a lower gear during take-off to ensure that your clutch has a longer service life. In case of any load, take off with low range 1 on hills, and high range 1 gear on straight roads.



CAUTION

Do not take off with your vehicle when the vehicle is loaded and the transmission is in high range. Stop the vehicle completely to engage reverse. Wait for 8 to 10 seconds, and shift into reverse. Your vehicle's transmission may be damaged if you try to shift to reverse when the vehicle has not come to a complete stop.

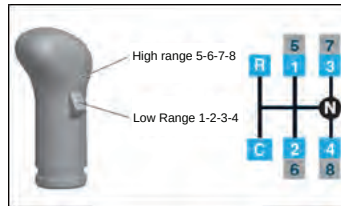
Do not shift to neutral while driving down a slope.

Do not take off with your vehicle when the transmission is in high range

Do not use reverse gear when the transmission is in high range.

Do not use your vehicle in neutral. Transmission may be damaged as the lubrication inside the transmission while the vehicle is moved in neutral for a long time will be inadequate.

9 S 1310 Manual transmission and shifting



It has 9 gears: 8 forward + 1 crawler gears. All gears except the crawler and reverse gears are synchronized. First 4 gears are called as low range, and the remaining 4 gears are called as high range.

Switching between low and high ranges is provided by the up and down movements of the latch on the gearshift lever. As shown below, the transmission will operate in the low range when the latch is pressed downwards,

and in the high range when the latch is pressed upwards.

- During the acceleration, to switch from the low range to high range:

1. Press the latch upwards in the 4th gear.
2. Depress the clutch pedal.
3. Select neutral. (Planetary gear set will be disabled then, and the transmission will shift to high range)
4. Shift the lever from neutral to $\frac{1}{2}$ range and then 1/5 gear. Transmission will shift to 5th gear when it is in high range.
5. Slowly release the clutch pedal.

6. Leave the latch in high range.

- 9 S 1310 transmissions have a shift prevention mechanism to protect the transmission against incorrect shifts when the vehicle has reached a certain speed. These mechanisms prevent shifts to $\frac{1}{2}$ range in certain speeds for low and high ranges, and shifts from high range to low range.

OPERATION

Shifting

4

• The situations that the driver may experience with the prevention mechanisms are listed below:

1. Driver wants to shift from 4th to 5th, but forgets the switch the latch to high range (upwards) when the vehicle is accelerating: Shift lever cannot be shifted to ½ range and the driver is warned about this.

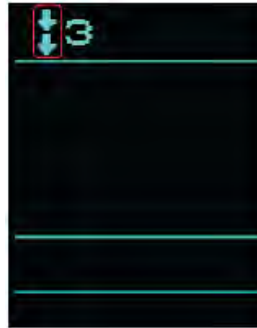
2. Driver wants to shift from 6th to 5th, but switches the latch to low range inadvertently when the vehicle is decelerating: As the transmission will try to shift to 1st in this condition, the shift prevention mechanism is activated and prevents the shift operation, and moves the shift lever to the ¾ range, and driver is warned about this.

3. Trying to shift from 8th to 5th when the vehicle is moving with a certain speed: Shift lever cannot be shifted to ½ range and the driver is warned about this.

4. Trying to shift from low range to high range when the vehicle is moving with a certain speed: System denies the shift to the low range. Driver is not allowed to shift to low range.

• Prevention mechanisms of the 9 S 1310 transmission specified above are intended to protect the gear and synchronizer mechanisms in the transmission, and these are not error modes.

Transmission Information on the display:



Engaged gear is displayed on the upper left corner of the trip computer.

D: forward gear

R: Reverse

Example: D4 Forward 4th gear



Downshift



Downshift 2 gears



"Shift up" warning: engaged gear is smaller than required by the engine speed. Shift up.



CAUTION

Driving in lower gears than required increases fuel consumption. As the engine speed shall be higher in smaller gears, it will tire the engine more.



Shift up when warning is displayed on the display.

OPERATION

Shifting

Automated transmission and shifting

A transmission with 12 forward and 2 reverse gears is provided in Ford Cargo vehicles with automated transmission*. **
No clutch pedal is available in the vehicle. Clutch release/clutch operation is performed by the mechanism controlled by the electronic control module.

System components

Rotating knob:



It is placed in front of the shift lever.

D: forward gear

N: N/A

R: Reverse Gear

DM: Forward Manoeuvre (only used while coasting)

RM: Reverse Manoeuvre (only used while coasting)

* : Automated transmission is not provided in standard vehicle package; it is optional.

** : Transmission model code can vary according to the features such as PTO and/or interarder.

Shift Lever:



Forward movement: It has 2 ranges. 1st range shifts up 1 gear, and 2nd range shifts up 2 gears (only in manual mode)

Reverse movement: It has 2 ranges. 1st range shifts down 1 gear, and 2nd range shifts down 2 gears (only in manual mode)

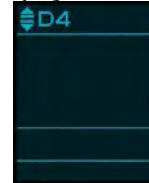
Left movement: Changes the transmission mode.

Shifts to automatic if it is in manual mode, and to manual mode if it is in automatic mode.

S (Search mode): While driving with the manual mode, transmission shall select the best gear for the current driving conditions when the shift lever knob is moved to right.

- Transmission shifts to most economical mode if engine brake is not activated (low engine speed)
- If the engine brake is activated, transmission shifts down to increase engine speed

Information Display:



Otomatik modda

Engaged gear is displayed on the upper left corner of the trip computer.

D: forward gear

R: Reverse

Example: D4 Forward 4th gear

In Manual mode

▽ Downshift

▽ Downshift 2 gears

Automatic and Manual Operation:

Automatic: Transmission electrical control unit selects the best gear according to the engine and load status. Gear selection and shifts are performed automatically. False gear selection is not possible.

- Transmission decides take-off gear and gearshifts.

OPERATION

Shifting

- Clutch movement and shifts are performed automatically.
- Gears may be corrected manually.
- False shifting is not possible.

Driving:



- Park brakes are active. Rotating knob is in position N.
- Start the engine.
- System checks itself,  information is displayed on the display.



- Bring the rotating knob to position "D".
- Take-off gear is automatically determined (take-off gear may be changed when required.)
- Accelerate while releasing the brake

Forward movement: Forward movement:

- 1- Bring the rotating knob to position D.
- 2- Release parking brake.
- 3- Take your foot off the brake pedal and press on the accelerator pedal.



WARNING

Risk of Accident

Do not engage neutral gear when the vehicle is moving.

Shifting to neutral:

Stop the vehicle completely and bring the rotating knob to position N.

Reverse movement:



Stop the vehicle completely and bring the rotating knob to position R.



CAUTION

Do not shift to reverse before stopping the vehicle completely. Transmission electronic control shall not allow shifting to reverse as it will sense that the vehicle has not stopped.

Coasting:



It is required that the vehicle moves very slowly during coasting. This can be achieved by half clutch in manual transmissions. And DM and RM functions are used for this function in automated transmissions. DM is used for coasting forward, and RM is used for coasting backward.

OPERATION

Shifting



CAUTION

DM and RM modes shall only be used for coasting, and only as it is required.



CAUTION

DM and RM modes are not 'boosts.'

The duration of DM and RM modes is limited by the transmission control unit. Manoeuvre mode (DM and RM) puts a strain on the clutch lining when it is used for a long time, then  warning is displayed on the display; shift the transmission to neutral and wait for a while.

STOP

Transmission is faulty. Stop the vehicle and contact a Ford Cargo authorized dealership.

Manual Use:

- Take-off gear is automatically determined.
- Clutch movement and shifting operation is automatic when the gear is shifted manually with the shift lever.
- False shifting is not possible.
- Manoeuvre operation is available in automatic mode only.

If the vehicle is driven in manoeuvre mode despite the  warning on the display, transmission shifts to gear automatically. In this case, vehicle may be accelerated.



CAUTION

Do not to exceed the maximum engine speeds allowed during manual operation.

Display warnings:

Transmission warnings are displayed as 2 digit abbreviations on trip computer.

CH

System Check: System checks itself whenever the ignition is switched on.

DM

Forward Manoeuvring Mode. This shall be used while coasting only.

N

Neutral Gear

PN

shift to neutral.

OPERATION

Shifting

4

RH

Reverse, high range

RL

Reverse, low range

RM

Reverse Manoeuvring Mode.
This shall be used while coasting only.

AL

Air pressure low: A separate air tube is available for the automated transmission in your vehicle. If the air pressure in the transmission air line goes below 5.8 bar, AL warning shall be displayed.



WARNING

- Attempting to shift while the air pressure is low may cause shifting of the transmission to neutral. In this case, exhaust brake shall not be active.
- When the air pressure drops, it is not possible to disengage the clutch.

CC

Clutch Control

Clutch position cannot be calculated by the system.

CL

Clutch is overloaded.

This is displayed when you attempt to take off the vehicle with a gear higher than required in manual mode. Select a lower gear and take off the vehicle in this condition.



Clutch lining wear

Clutch lining wear has reached limit value. Please visit a Ford Cargo authorized dealership in the shortest possible time.

EE

Electronic fault.

Communication error between the instrument cluster and transmission electronic control unit.

Please visit a Ford Cargo authorized dealership in the shortest possible time.

FP

Accelerator Pedal:

Remove your foot from the accelerator when this warning is displayed. If the warning is not removed, there is a fault in the system. Please visit a Ford Cargo authorized dealership.

NS

Shift to neutral.

OPERATION

Shifting

When the vehicle is left in D while being parked for a long time, this applies a load on the clutch. When NS warning is displayed, transmission control unit indicates that the vehicle is left in D without moving for a long time. Shift to neutral.



Transmission oil temperature has reached upper limit. Stop the vehicle. Please contact a Ford Cargo authorized dealership.

OPERATION

Shifting

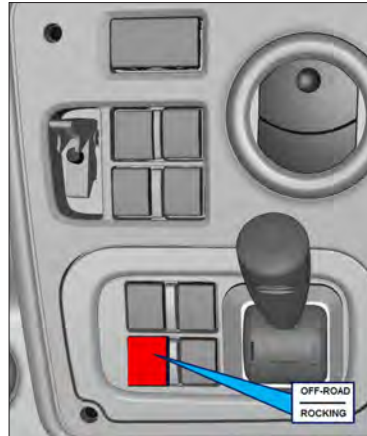
Off-road driving mode

Oscillation mode

4



On vehicles with an automatic transmission; provides driving in terrain conditions by preventing the torque reduction in drive wheels with the lowest possible number of shifts. Off-road driving mode is activated by pressing the button on control panel shown in the figure once, and deactivated by pressing it again.



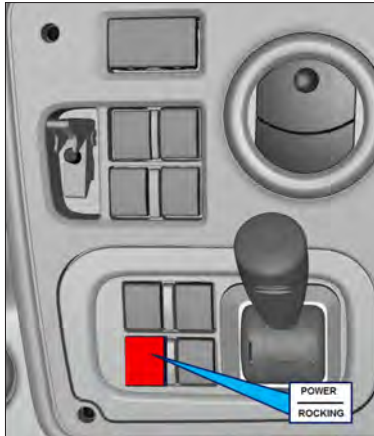
When used at difficult conditions such as mud, snow etc. on vehicles with automatic transmission, it allows rapid opening and closing of the clutch and thus prevents that the vehicle is stuck during take-off. It allows oscillation movement.

This mode is activated by pressing the button on control panel shown in the figure for 3 seconds, and deactivated by pressing it for 3 seconds again.

OPERATION

Shifting

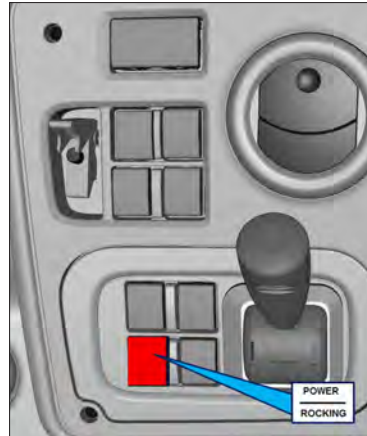
High speed drive mode



It is used when vehicle is required to shift up at higher engine speeds on vehicles with automatic transmission.

High speed drive mode is activated by pressing the button on control panel shown in the figure once, and deactivated by pressing it again.

Oscillation mode



When used at difficult conditions such as mud, snow etc. on vehicles with automatic transmission, it allows rapid opening and closing of the clutch and thus prevents that the vehicle is stuck during take off. It allows oscillation movement.

This mode is activated by pressing the button on control panel shown in the figure for 3 seconds, and deactivated by pressing it for 3 seconds again.

OPERATION

Power take off

Power Take Off



Illustration is for informational purposes only. There are no adaptors or pumps on the vehicle.

PTO is the unit connected to the transmission to operate the equipment that will be operated by taking power from the transmission (such as pumps). It transmits the power it takes from the transmission to the pump.

PTO installation is optional and can be performed on both manual and automated transmissions during production in the factory.

Contact a Ford Cargo authorized dealership for the retrospective PTO installations.

Engine electronic control unit on your Ford Cargo vehicles allows that the engine is operated at a constant speed when PTO is activated. Speed parameter on the control unit may be set by the Ford Cargo authorized dealers.

PTO on Vehicles with Manual Transmission

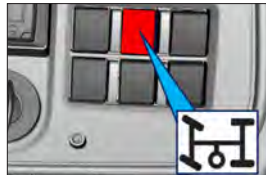


Operating speed can be 2 different speeds according to the half gear latch on the shift lever. Set the half gear latch up or down before activating PTO. Do not tamper with the latch while PTO is operated.

Pump shall operate with higher speed when the latch is up, and with lower speed when the latch is down.

Activating the PTO

- Stop the vehicle and apply the parking brake.
- Shift to neutral, set the engine to idle
- Depress the clutch pedal and hold it pressed.



- 10 seconds later, press the  switch on the center console. Yellow light on the switch shall be illuminated.
- Take your foot off the clutch pedal.

Deactivating the PTO

- Fully depress the clutch pedal for 10 seconds without taking your foot off (on vehicles with clutch pedal)
- Press the  switch on the center console, yellow light shall be turned off.
- Take your foot off the clutch pedal (on vehicles with clutch pedal).

PTO on Vehicles with Automated Transmission

- PTO can only be activated when the vehicle is stationary and rotating knob is at position "N". PTO is activated by pressing the PTO on the console.
- Shifting is not possible when PTO is activated and vehicle is moving.
- PTO cannot be activated when the vehicle is moving.

OPERATION

Power take off



Symbol shall be illuminated on the functions section of instrument when PTO is active.

PTO valve switch..



Control unit is used for lowering the bed in dump trucks. Button #12 is used for slow lowering, button #13 is used for fast lowering operation. Use the 'PTO (power take-off)' button in the panel to raise the bed.

OPERATION

While driving

4



WARNING

The driving, braking and manoeuvring behaviour of the vehicle varies according to the type, weight of the load, and the location of the center of gravity.

Make sure that the vehicle is loaded in balance and avoid an unbalanced weight distribution.

Secure the load to prevent sliding when required. Otherwise, you may lose the control of the vehicle and cause an accident.



CAUTION

Observe the allowed axle loads, wheel loads (half of the axle load) and maximum total weight of the vehicle. Otherwise, damage to the tires, chassis and axles may occur. Otherwise, damage to the tires, chassis and axles may occur. Observe the indicators on the instrument panel while driving.



WARNING

Make sure that the driven wheels are held on the road while driving, and especially on the off-road.

Prevent the spinning of the driven wheels (Differential damages).

Activate the differential lock.



CAUTION

Driving too much off-road may cause damage to the vehicle.

The obstacles may not be noticed in time and the structure of the ground may not be assessed properly.

E.g. deep tracks formed before may damage

- Axles
- Driveshafts
- Fuel tanks
- Compressed air reservoir
- Engine
- Transmission

May damage it.

Therefore, always drive slowly off-road. If you need to drive over the obstacles, co-driver should provide directions.

Always observe the height of the vehicle from the ground. Avoid obstacles whenever possible.



WARNING

In the vehicles with engine driven power output (Engine-PTO), Cargo Concrete Mixer series in particular, the angle of the shaft mounted at this point by the superstructure manufacturer with respect to engine shall not exceed the value of 3°. Make sure that the superstructure of your vehicle was constructed accordingly. Otherwise, it may result in vibration, balance and thus serious engine and superstructure problems.



CAUTION

You may not observe the obstacles in time or assess the structure of the ground properly. Always drive slowly off-road to prevent damages to the vehicle. Vehicle may slip sideways or turned over. Never drive the vehicle in direct angle to the slope, always drive in parallel to the slope.

Do not manoeuvre in the opposite direction. If your vehicle cannot take a slope, drive in the reverse gear.

You may lose the control of the vehicle when you shift to neutral or press the clutch or try to brake the vehicle with the service brake only in slopes. Do not let your vehicle to move in neutral or with the clutch activated.

OPERATION

While driving

4

If you load your vehicle excessively, this would increase the risk of turning over. Do not exceed the maximum permissible axle load. Maintain the center of gravity as low as possible when you are loading your vehicle. Materials that lower the effect of braking, such as sand or water mixed with oil, may enter the brakes if you drive your vehicle on muddy or swampy areas frequently. This may cause excessive wear and a decrease in the braking effect. A risk of not being able to use the braking effect fully in emergency conditions is present.

Test the brakes after any off-road drives. If the braking effect is lowered or that rubbing noises are present in this test, make sure that your brake system is checked by a FORD OTOSAN authorized dealership.



WARNING

Acceleration forces act on your body from all directions due to the improper nature of the ground. There is a risk of bouncing off the seat and injuring yourself. Always fasten your safety belt in the off-road drives, too.

Drive systems for off-road driving
Driving systems and equipment described below allows you to drive your vehicle safely off-road:

- Disengagement of the ASR.
- Differential locks.



WARNING

The steering wheel may strike back and cause injuries on the thumbs of your hands when driving over obstacles or the tracks formed over the road. Hold the steering wheel tightly with your both hands.

Consider the high forces occurring for a short period of time while driving over the obstacles.

- Stop the vehicle and engage a lower gear before driving off-road.
- Always drive the vehicle with the engine running and a gear engaged while driving off-road.
- Drive slowly and with a stable speed. Drive with the crawling speed if required.
- Make sure that the wheels are always held on the road.
- Activate the differential lock.
- Drive with extra care in an unknown or a non-visible area. Get off the vehicle first, and inspect the terrain for safety reasons.

- Check the depth of the water before driving through the water.
- Observe the obstacles like rocks, holes, trunks and trenches.
- Avoid skirts of the ground that the ground may be torn.

Before driving off-road

- Engagement of the differential lock
- Disengagement of the anti-skid control
- Equipment specified below should be available on the vehicle:
- Shovel
- Climbing hawser with bolted Y anchor .

After driving off-road



WARNING

Faults caused by off-road driving may cause accidents or prevent some parts from operating.

Clean and check your vehicle after driving off-road. Have the fault repaired before next operation of the vehicle.

- Disengage the differential lock
- Engage the anti-skid control (ASR)
- Clean the vehicle
- Check the vehicle for any damage.

OPERATION

While driving

Fuel consumption

Fuel consumption depends on the conditions below:

- Model of the vehicle
- Driving style
- Operating conditions
- Tire dimensions, tire profile, tire pressure, condition of the tires
- Upper structure, air deflector
- Drive train for the drive applications
- Auxiliary applications (A/C and heater, auxiliary power outlet, viscous fan)

Fuel consumption information may be displayed on the standard on-board computer.

Driving style

To lower the fuel consumption:

- Avoid frequent acceleration and braking
- Drive carefully by paying attention on the road
- Drive within the economic engine speed limits

Workstations

Fuel consumption depends on the conditions below:

- Highland conditions
- Traffic in cities and short distances
- Vehicle load
- Operation while the vehicle is parked
- Frequent starting when the engine is cold

Thus, it is not possible to provide a certain value for the fuel consumption of the vehicle.

OPERATION

ECAS (Electronically Controlled Air Suspension)

Manual Control Unit (In Vehicles with Air Suspension with Four Bellows)



Chassis height of the vehicles with 4 air bellows on rear axle may be adjusted by the control.

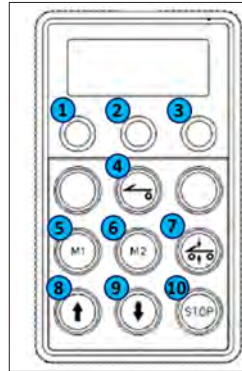
ECAS control is placed on the left of the driver's seat over the fender.



WARNING

Do not change the chassis height of your vehicle by the manual control unit when driving. Use the manual control unit when your vehicle is stationary and parking brake is applied. This is important for the safety of you and your vehicle.

Using Manual Control Unit (Only In Vehicles with Air Suspension with 4 Bellows)



- 1- N/A
- 2- Rear axle activation light
- 3- N/A
- 4- Driven axle selection button
- 5- M1 Memory button
- 6- M2 Memory button
- 7- Normal drive height button
- 8- Lifting button
- 9- Lowering button
- 10- Stopping button

1. Ignition switch should be in position 2 to activate the air control system by the "manual control unit".
2. Functions desired can be performed after pressing the 4 driven axle selection button .
3. Press the "STOP" button if you need to stop the operation during any procedure.
4. If you want to record a certain chassis height, press the "STOP+M1 or M2" buttons for 2 seconds at the same time. This would record the height to the system. In the future, when you want to adjust the vehicle to this height, press M1 or M2 button after you press the "front selection - rear axle" button.

NOTE:  marked buttons are not active.



Symbol is illuminated on the instrument when the vehicle is not at driving height

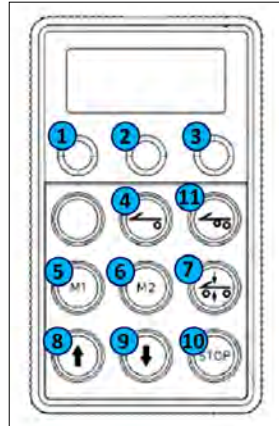
OPERATION

ECAS (Electronically Controlled Air Suspension)

Manual Control Unit (In Vehicles with 6 x 2 Air Suspension)



Chassis height of the vehicles with 6x2 air suspension may be adjusted. ECAS control is placed on the left of the driver's seat.



- 1- N/A- This button is not active.
- 2- Rear axle activation light
- 3- N/A- This button is not active.
- 4- Driven axle selection button
- 5- M1 Memory button
- 6- M2 Memory button
- 7- Normal drive height button
- 8- Lifting button
- 9- Lowering button
- 10- Stopping button
- 11- Lifted axle selection button

1. Ignition switch should be in position 2 to activate the air control system by the "manual control unit". work has been performed.
2. Functions desired can be performed after pressing the 4 driven axle selection button or 11 lifted axle selection button.
3. Press the "STOP" button if you need to stop the operation during any procedure.
4. If you want to record a certain chassis height, press the "STOP+M1 or M2" buttons for 2 seconds at the same time. This would record the height to the system. In the future, when you want to adjust the vehicle to this height, press M1 or M2 button after you press the "front selection - rear axle" button. In the future, when you want to adjust the vehicle to this height, press M1 or M2 button after you press the "front selection - rear axle" button.



WARNING

Do not tamper with the rear suspension load detection sensor connections of your vehicle and do not have ECAS values changed.

OPERATION

ECAS (Electronically Controlled Air Suspension)

Front Axle Height Adjustment Mechanism

Front axle lifting system shall be deactivated when the ignition is switched off and vehicle shall be lowered to drive level. In this case, use care for the relationship of the parts of the vehicle approaching the ground with the surroundings.

Front axle lifting system shall never be used when a vehicle speed of 15 km/h is exceeded. Otherwise there is a risk of damage to suspension system components.

Operating Instructions for Front Axle Height Adjustment Mechanism (Only for Vehicles that the height of the 5th wheel is lowered)

Ignition switch should be in position 2 to activate the air control system by the "Lifting Switch".

When the front axle lifting switch  is pressed, front suspension bellows start to raise the front chassis of the vehicle. While the system is active, on vehicles with Manual transmission: An audible warning signal with a gong sound is heard. On vehicles with an automatic transmission:

An audible warning signal with a gong sound is heard and  symbol is displayed on the indicators.

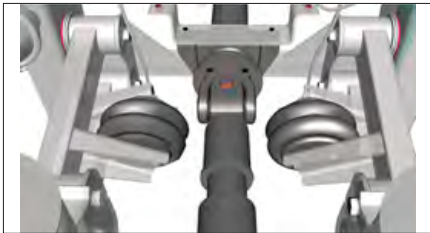
When the rear axle lowered drive level control

button  is pressed,  symbol is displayed on the indicator. This allows lowering of 5th wheel level by lowering the rear axle that is taken to drive level in ECAS manual control.

OPERATION

Air Suspension Mechanical Level Adjustment

32XX S Self Steering In Vehicles with Air Suspension



In 32XXS four axle vehicles the second axle is self-steered and has an air suspension. This axle facilitates vehicle's manoeuvring by complying with the turn of the front axle in forward and backward manoeuvres. When the vehicle is shifted to reverse, the caster mechanism allows the axle to perform a backward manoeuvre by automatically adjusting the axle's caster angle. Additionally, the self-steered axle can be lifted by a control switch in the cab.



CAUTION

In reverse manoeuvres you should wait 8 to 10 seconds after the forward manoeuvre to allow the wheels turn in the opposite direction.



CAUTION

Do not perform a reverse manoeuvre when the gear is in neutral.

OPERATION

Tag Axles

System description

Axle raising feature in 6x2, 8x2C and 8x2S Series trucks with mechanical suspension is controlled by the equipped AutoDrop (Automatic

Axle Lowering) System. Axle positions are checked by the system in terms of vehicle safety and performance in case of driving conditions of your vehicle such as ignition on, park brake, vehicle speed conditions.

Pressing the Button While Axle is Lowered

If the system allows, relevant axle is raised, icon is displayed on the Function menu of the instrument panel and the light on the button is illuminated.



If the system does not allow, relevant axle is not raised, warning message is displayed on

the Information menu of the instrument panel and the light on the button is not illuminated. Not allowed conditions:

Park Brake

In order to improve the performance of park brake, system lowers the tag axle if it is raised or does not allow it to be raised if it is already on the ground while the park brake is active. A warning message shall be displayed on the instrument panel in this case.

WARNING

This applies to tag axle only, it does not apply to self-steered axle.

WARNING

Air pressure available in the vehicle shall be over 6 Bars in order to release the park brake.



Vehicle Speed

Axle raising functions are cancelled for safety reasons if the vehicle speed is over 30 km/h. Axle raised is lowered again for traction assist. In this case, when the button is pressed to raise the axle, the axle positions do not change and a warning message is displayed on the instrument panel.



Axle Weights

When the vehicle is loaded over the limits allowed for axles loads, axle(s) which have been raised before are automatically lowered or if they are lowered, they are not allowed to be raised.

System calculates the weights per axles as per the information taken from the sensors connected to the vehicle. Therefore, weight limits specified for each axle are controlled

OPERATION

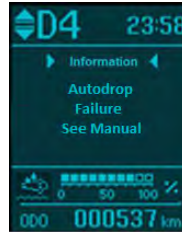
Tag Axles

by the system. Therefore, you should avoid unstable loading of the truck in order to use the axle raising system better and to obtain a better efficiency.



System Error

System has the feature to detect any faults that may occur in electronic components such as axle raising valves. In such a case, a warning message and the  symbol are displayed, and the axles are brought to ground position for safe driving. Take your vehicle to an authorized workshop to have the fault repaired in such a case.



Pressing the Button While Axle is Raised

If the system allows, relevant axle is lowered, icon disappears from the Function menu of the instrument panel and the light on the button is turned off.

If the system does not allow, relevant axle is not lowered, warning message is displayed on the Information menu of the instrument panel and the light on the button is not turned off.

Not allowed conditions:

Vehicle Speed

Axle lowering functions are cancelled for safety reasons if the vehicle speed is over 30 km/h. In this case, when the button is pressed to lower/raise the axle, the axle positions do not change and a warning message is displayed on the instrument panel.



Unloaded Vehicle Condition (For 8x2S only)

In 8x2S vehicles, is automatically raised and not allowed to be lowered again in unloaded vehicle condition - until live and tag axles have been loaded up to 12 ton approximately in total - in order to improve the handling, braking and life-cycle performance of the self-steered axle. A warning message shall be displayed on the Information Menu in this case.

Axle Weights

When the vehicle is loaded over the limits allowed for axles' loads, axle(s) which have been raised before are automatically lowered according to the loading amount and a warning message is displayed on the Information Menu.

OPERATION

Tag Axles

4

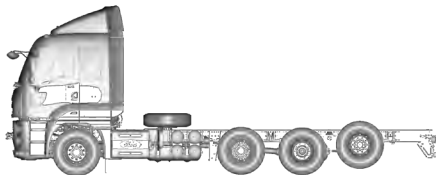


WARNING

Axle load limits are increased 30% up to a speed of 30 km/h to obtain a better traction during take-off. After a speed of 30 km/h, limits return to original values, so the system may activate and lower the axles!



WARNING

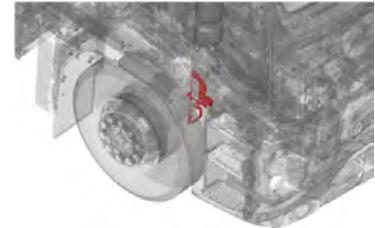


As shown in the figure, the tag axle shall not raised when the self-steered axle is on

the ground, or the self-steered axle shall not lowered when the tag axle is raised. To control these situations, system rejects the relevant requests and a warning message is displayed on the Information Menu.



Sensor positions and maintenance
System includes displacement sensors in order to send vehicle weight information to the Electronic Brake System (EBS). Positions of the sensors used for calculating the axle weights on the vehicle are shown in the figure. There are 4 sensors in total on the vehicle, these are 1 for each of right and left chassis arm on the tag axle, 1 for live axle crossmember connection and 1 for front axle right chassis arm.



WARNING

Sensors are calibrated during production, do not tamper with sensor connections to ensure safe driving. Remember that brake system shall also be affected in this case. We recommend you to visually inspect the mechanical connections of the sensors in weekly intervals.



WARNING

Never raise the tag axle when the vehicle is loaded.

OPERATION

EBS - ESP

4



CAUTION

ESP is an auxiliary brake system. Always remember that no system can change the physical laws. Driving safety is responsibility of the driver despite all auxiliary systems.

EBS (Electronic Brake System)
EBS (Electronic Brake Control) is an integrated braking system that includes sub-systems.

1-Braking power control:

EBS control unit adjusts the braking power on the wheels automatically based on the information from the load sensor and the brake pedal travel applied by the driver.

2-Automatic braking power distribution between axles:

EBS adjusts the braking power that will be applied to the axles based on the axle load.

3- ABS:

ABS maintains steering control by preventing the locking of wheels during brakes.

4-Automatic Traction Control:

Main purpose of this function is to prevent skidding of driven axle wheels.

- a) Braking power control: The speeds of the wheels of the driven axle are equalized by decelerating the skidding wheel by braking.
- b) engine torque is automatically limited to ensure that the vehicle moves stably.

5-Inertia torque control:

Wheels may skid due to the engine inertia in slippery surfaces. Especially, when the transmission is downshifted and/or interarder is activated, wheels may have an inclination to skid. Inertia torque control system sends a signal to engine control unit and adjusts the engine torque to overcome the inertia of the engine.



CAUTION

Interarder may cause the vehicle to skid in slippery road conditions.

6-Emergency brake assist system:

System senses the braking operation and increases braking power according to the pedal travel.



CAUTION

Emergency brake assist cannot increase the maximum capacity of braking power. Vehicle shall be braked in the limits of maximum braking power.

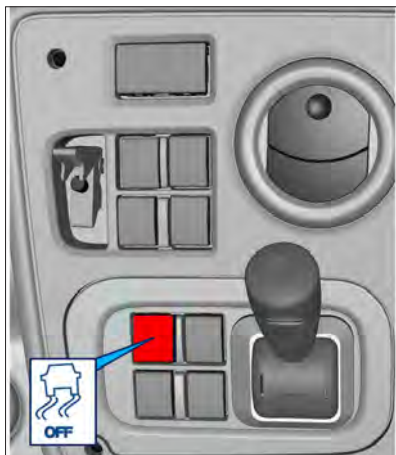
7-Tilt prevention system:

System senses the risk of tilting automatically when the brake is applied and decreases the braking power of front wheels and increases the braking power of rear axle. Thus, vehicle is prevented from tilting.

OPERATION

EBS-ESP

ASR Deactivation Mode:



You may want to disable ESP on soft road conditions. In this case, press the ESP cancel switch located in the centre console.



light is illuminated on the display when this mode is active.

OPERATION

Differential Lock

What is differential lock?

Differential lock is a system that increases the capacity of transmission of power to the surface. Lock gear consists of the yoke that moves the gear and a pneumatic (air operated) piston.

Engine torque transmitted to the left and right sides of the vehicle and wheel speeds are equalized when the differential lock is locked.

Activate the differential lock in bad and slippery road conditions where high traction power is required.



CAUTION

If the differential lock is not used properly, there is a risk of serious damage to the differential unit and/or a serious risk of accident. Differential faults caused by using improper use of differential lock are out of warranty cover.

To activate the Differential Lock

Follow the procedure below to activate the differential lock in bad and slippery road conditions:

- 1) Ensure that the wheels are not on slippery surface and stop the vehicle completely.
- 2) Turn the differential lock switch(es) on. 4x2, 6x2 and 8x2 vehicles have optional front differential locks (FDL); and 6x4 and 8x4 vehicles have front differential locks (FDL), rear differential locks (RDL) and inter-axle differential locks (IADL) as standard.



- 3) X2 vehicles FDL  light will be illuminated on the instrument panel when differential lock is activated, and a warning buzzer shall sound if available.

- 4) When differential lock is activated in X4 vehicles, both FDL and RDL lights  shall be illuminated simultaneously and a buzzer shall sound if it is available.

When the differential lock is active completely, vehicle will have a tendency to move outwards of the turn while turning. Always disengage differential lock while turning. Otherwise, the differential of your vehicle may brake and you may require road assistance. Vehicle speed shall not exceed 20km/h while the differential is active.



WARNING

Vehicle should always be decelerated in sharp curves, and it is advised that the FDL is deactivated in sharp curves. User is informed by buzzer on that differential lock is activated.

OPERATION

Differential Lock

To deactivate the differential lock:

Deactivate the differential lock when it is possible to drive safely when the road conditions get better. Perform the procedure below to deactivate the DCDL:

- 1) Ensure that the wheels are not on slippery surface and stop the vehicle completely.
- 2) Drive the vehicle very slowly by applying the accelerator slowly to deactivate the differential lock. Turn the differential lock switch(es) off. You may need to drive the vehicle in this speed for about 500 m to complete the deactivation.
- 3) DCDL light will be turned off on the instrument panel when DCDL is deactivated, and the warning buzzer will not sound, if available.
- 4) You can continue driving observing the legal speed limits according to flow of the traffic.



WARNING

Warnings on the usage of the driver controlled inter-axle differential lock (IADL)



Ford-Otosan Inter-Axle Differential Lock (IADL) is driver controlled system operated by the pressurized air; it allows that the traction torque is distributed evenly to the front and rear axles and ensures that the axles speeds are equal. This system is available only on 6x4 and 8x4 Cargo models; and the IADL switch is located on the center console.

Instructions

IADL switch should be deactivated on normal road conditions. Activate all differential locks to evenly distribute the traction to the front and rear axles in slippery and snowy road conditions. Deactivate the IADL when the vehicle is returned to normal road conditions.

Do not activate the IADL switch when the wheels are not slipping. Otherwise the IADL will be damaged.

Rear axle may be damaged when a wheel is slipped while deactivating the IADL. It is also known as "Inter-differential power distributor" and "3rd differential".

Rules to be observed in the usage of IADL

Activating the IADL:

Activate the IADL in slippery road conditions. Perform the following activation procedure similar to the activation of front differential lock:

The following instructions should be followed:

- 1) Ensure that the wheels are not on slippery surface and stop the vehicle completely.

OPERATION

Differential Lock

- 2) Turn the IADL switch on.



- 3) IADL light will be illuminated on the instrument panel when differential lock is activated, and a warning buzzer shall sound if available.

WARNING

User is informed by buzzer on that differential lock is activated.

Deactivating the IADL:

Deactivate the IADL when the vehicle is returned to normal road conditions. Perform the following procedure for deactivation:

- 1) Ensure that the wheels are not on slippery surface and stop the vehicle completely.
- 2) Drive the vehicle very slowly by applying the accelerator slowly to deactivate the differential lock. You may need to drive the vehicle in this speed for about 500 m to complete the deactivation.
- 3) DCDL light will be turned off on the instrument panel when DCDL is deactivated, and the warning buzzer will not sound, if available.

- 4) You can continue driving observing the legal speed limits according to flow of the traffic.

On tractor vehicles



How to Engage the Differential Lock

Always stop the vehicle completely to activate or deactivate the differential lock. Activate the differential lock before running into slippery road conditions. Ensure that the road is not slippery and any wheel is not skidding or slipping.

What Are the Points To Be Considered When The Differential Lock Is Activated?

You shall monitor whether the differential lock is completely activated or deactivated from the warning light on the instrument panel and use the differential lock by considering the necessary distance before entering to rough road conditions. Vehicle speed shall not exceed 20km/h while the differential is active. Do not use differential lock on paved roads, and never perform turns when the locks are engaged.

CAUTION

Deactivate the differential lock when driving the tractor vehicles down the slopes. Trailer may be folded due to the loss of the vehicle dynamics.

How to Disengage the Differential Lock

Vehicle shall be stopped and differential lock shall be disengaged after making sure that the vehicle moved far away from the slippery surface. Differential Lock shall be disengaged when the warning light on the instrument panel is turned off after you have pressed the switch on the center console. Deactivation of the differential lock is performed when the warning light on the instrument panel is turned off and this may take about 1 km sometimes.

WARNING

When the differential lock is active completely, vehicle will have a tendency to move outwards of the turn while turning. Always disengage differential lock while turning. Otherwise, the differential of your vehicle may brake and you may require road assistance.

OPERATION

Lane Departure Warning System

4



WARNING

 LDWS is only a warning system and does not interfere with dynamics of the vehicle. Always drive attentively and do not try to test the system on the road.

 LDWS will not warn if emergency lights are active

 LDWS will not warn if LDWS warning lamp  is constantly on, meaning that system is not active due to driver deactivation or an error.

 In order not to get lane departure warnings for the intended lane changes, always operate turn signal to the direction of lane change.

 The system does not relieve you of your responsibility to drive with due care and attention.

 At all times driver is responsible for controlling your vehicle, supervising the system and intervening if required.



The sensor may incorrectly track lane markings such as other structures or objects. This can result in a false or missed warning.



In cold and severe weather conditions the system may not function. Rain, snow, spray, worn or dirty lane markings and large contrasts in lighting can all influence the sensor.



The system may not operate in areas during roadwork construction.



The system may not operate on roads with sharp bends or narrow lanes.



Do not carry out windshield repairs in the immediate area surrounding the sensor.



The system may be impaired or may not operate properly if:

- Visible lane markings are not continuous
- There is glare due to oncoming traffic, direct sunlight or reflections or from wet surfaces
- Front camera visibility is low due to insufficient road illumination or due to snow, rain, fog or heavy spray

- Lane markings are not detected due to vehicles driving in front
- The part of the windscreen where front camera is located is dirty, misted up, damaged or covered
- No lane markings or several ambiguous lane markings are present, i.e. lanes branch off, cross or merge

Note: The system may assist you when driving on fast main roads and freeways.

Note: The system may operate with a minimum of one tracked lane marking.

Note: The system may only operate above vehicle speeds of approximately 60km/h.

Principle of operation

Lane Departure Warning System sensor is located behind lower part of the windscreen. It continuously monitors conditions to alert the driver of unintentional lane drifting at high speeds. Once vehicle speed is above 60kph, if there are visible lane markings on each side of the road, lane markings may appear on the LDWS page of the cluster display showing that system is active and ready to warn.

OPERATION

Lane Departure Warning System



LDWS icon on cluster display

Warnings consist of audible and visual warnings with spatial indication about the direction of unintended drift of the vehicle.

In order to make the warning more audible, system mutes radio and stops the blowers of air conditioning system until the end of the warning.

- If unintended lane departure is detected from left lane marking, LDWS page, shown in the figure above, will pop-up with a blinking left lane marking, a blinking LDWS warning lamp and an intermittent warning sound coming from left hand side will be activated.
- If unintended lane departure is detected from right lane marking, LDWS icon shown above will pop-up with a blinking right lane marking, a blinking LDWS warning lamp and an intermittent warning sound coming from right hand side will be activated.

Once LDWS has issued a warning, further warnings will only be issued when the vehicle is once again fully within the lane markings.

Switching the System On and Off

When the ignition is turned ON, LDWS will be automatically active unless there is no error.

To switch off, press the LDWS button . Then, LDWS warning lamp  will light up constantly on the instrument cluster.

To switch the system back on, press the LDWS button once again and visually verify that LDWS warning lamp  on the instrument cluster turns off.

The system is configured to warn on unintended lane departures only. Driver's awareness of the situation is monitored via driver inputs listed below. If these driver inputs explicitly show that there is an attentive driver, lane departure warnings are suppressed.

- Rate of lane departure, i.e. how fast is the lane being departed
- Brake pedal usage
- Steering wheel turning rate, i.e. how fast the steering wheel is turned
- Direction indicator activation for the side lane being departed

Note: If the turn signal has been active for over 1 minute, LDWS is not suppressed due to active turn signal anymore.

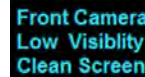


LDWS on/off switch



LDWS warning lamp

Note: In case camera vision is obstructed, driver may get below message on the cluster display.



Note: The message above is a clear indication that the sensor view is obstructed in a way that LDWS operation is negatively affected.

OPERATION

Lane Departure Warning System

Note: LDWS may get deactivated due to blockage, illuminating the LDWS warning lamp  constantly.

When the message above is seen on the cluster display:

- In case camera vision is obstructed due to heavy rain or snow, try to activate wipers at a correct speed or activate Auto-Wipe feature to enhance LDWS performance.
- In case windscreen is dirty, activate the washer to remove the dirt.
- In case windscreen is misted up, turn on the defrosters to remove the mist on the windscreen.

Note: If the information message below appears on the cluster display, this means LDWS needs to be inspected by an authorized Ford Trucks Service, and LDWS will not be available till the inspection.

**Front Camera
Malfunction
Service Required**

Note: If LDWS warning lamp  gets constantly illuminated and stays illuminated for a long time, there may be an error in the system, causing deactivation.

OPERATION

Emergency braking system

Advanced Emergency Braking System

Principle of operation

If your vehicle is rapidly approaching another stationary vehicle or a vehicle traveling in the same direction as yours, and if the Advanced Emergency Braking System (AEBS) detects that a rear end collision situation gets imminent with a motor vehicle ahead, the system is designed to provide two levels of functionality:

1. Collision warning
2. Emergency braking

Collision Warning: If the system determines that a collision is imminent, AEBS warning lamp flashes, an intermittent warning tone sounds, and a warning message pops-up in the information display. In order to make the warning more audible, system mutes radio and stops the blowers of air conditioning system until the end of the warning. If the system detects that you still do not take control of your vehicle to avoid the accident and collision is still found to be imminent, AEBS may apply partial braking along with acoustical and optical warnings to further draw your attention.

Emergency Braking: If the collision is still found to be imminent, the system may apply full braking to reduce the impact damage or avoid the crash completely. Note: AEBS is not active if you are driving below 15kph.

Note: AEBS will not warn or brake if the relative speed between your vehicle and the lead vehicle is below 10kph.

Note: Deactivation of the ESP feature via the ESP switch will deactivate the AEBS as well.



WARNING

Note: If the AEBS warning lamp is constantly ON, this means either system is deactivated by the driver, or AEBS shut off due to an error. In this case, AEBS is OFF. The system will not warn or intervene.



WARNING

! If you receive an AEBS warning, which means a rear-end collision is imminent, always apply brakes yourself to avoid the accident and try to take evasive action. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.



AEBS visual warning on cluster display

! AEB System is a collision avoidance system. However, AEB System is not a substitute for safe and attentive driving. AEB system has its own limitations for certain traffic scenarios. Note that AEB system might not work in all conditions as expected. The system does not relieve you of your responsibility to drive with due care and attention. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

! AEBS is not able to guess other drivers' intentions. Always maintain a safe distance with the vehicle in front of you. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

OPERATION

Emergency braking system

4

 AEB system is designed to provide active driver assistance to avoid rear-end collisions or mitigate the effects of a possible collision in real traffic situations in certain frontal collisions only.

 AEB System may not always recognize a collision situation and/or may not be able to avoid an accident. AEBS is neither designed to recognize complex traffic situations, nor to avoid all kinds of accidents. It is your responsibility to drive carefully at all times. Always pay careful attention to the traffic situation and be ready to brake. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

 The system does not react to cyclists, motorcyclists, pedestrians, animals or vehicles that are driving in a different direction. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

 AEBS is not designed to avoid accidents against stationary vehicles. AEBS may only reduce the effect of a rear-end accident with stationary vehicles on certain conditions.

 The system may not operate when driving around sharp curves and wavy roads. Failure to take care may lead to a crash or personal injury.

 The system may or may not operate or may operate with reduced function during cold or severe weather conditions. Snow, ice, rain, spray and fog can influence the system. Keep the front camera and radar free of snow and ice. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

 The system may not operate correctly if you replace the windshield with a non-Ford windshield. Do not carry out windshield repairs in front of the sensor. Failure to adhere to this warning may lead to an accident or injury.

 If something hits the front end of your vehicle or damage occurs, the radar sensing zone may change. This could cause missed or false vehicle detections. Contact an authorized dealer to have the radar checked for proper coverage and operation.

 The system may not detect objects with surfaces that absorb reflections. Failure to take care may result in the loss of control of your vehicle, serious personal injury or death.

 System performance may reduce in situations where the camera's detection capability is limited. These situations include but are not limited to direct or low sunlight, vehicles at night without tail lights, narrow vehicles and unconventional vehicle types. Do not rely on this system to replace driver judgment and the need to maintain distance and speed.

 AEB System effectiveness depends on many factors, such as speed, driver input, incremental precipitation, lead vehicle behavior, your vehicle's state and road conditions

 AEBS may not work as expected if your vehicle is not inspected by Ford Trucks Service on regular maintenance checks.

 It is driver's responsibility to switch off the AEB system during being towed via AEBS deactivation switch. Otherwise, AEBS may warn and/or brake unexpectedly.

 AEBS shall be turned off by the driver while driving off road.

OPERATION

Emergency braking system

How to maintain Advanced Emergency Braking System?

Note: If a message regarding a blocked radar sensor is shown in the information display, the radar signals are obstructed. The radar sensor is located behind a fascia cover integrated to the middle-bottom of the upper grille. With obstructed radar, the Advanced Emergency Braking System does not function and cannot detect a vehicle ahead.

Front Radar Sensor
Blocked, See Manual.

Radar sensor blockage message

Note: It is driver's responsibility to keep the radar sensor behind the front grille clean. Make sure that cover of the radar sensor is free of mud, packed snow or any other foreign object.

Note: Do not mount any attachments in front of the radar sensor. Do not cover or paint the cover of the radar sensor. Any modification on the cover of the radar sensor could cause AEBS failure or reduced functionality.

Note: If something hits the front end of your vehicle or damage occurs, the radar sensing zone may change. This could cause missed or false vehicle detections. Contact an authorized dealer to have the radar checked for proper coverage and operation.



Radar location to be kept clean

Note: If a message regarding low camera visibility is seen in the information display, camera sensor view is obstructed. With the front camera obstructed, AEB System function may reduce or get deactivated. It is driver's responsibility to keep the windscreen area clean where camera sensor is located to maintain full functionality. Make sure that there are no stickers or sun blocking films on the windscreen blocking the field of view of the camera. Have any windshield damage in the area of the camera's field of view repaired.

Front Camera Low
Visibility Clean
Screen

Camera sensor blockage message

AEBS usage with trailers:



WARNING

After connecting a new trailer to your vehicle, if ignition is already ON, you shall turn the ignition OFF and ON to get a fully functional AEBS.



AEBS will get deactivated if a trailer without ABS/EBS or with a faulty ABS/EBS is detected.



AEBS usage is restricted to vehicle combinations with one trailer only. It is driver's responsibility to switch off the AEBS when more than one trailer is connected to the vehicle.

OPERATION

Emergency braking system

Switching the System Off and On

Note: AEBS will be automatically ON every time ignition is turned on, if there is no error detected by the system.

Note: To deactivate or activate the AEBS, press the AEBS switch on the dashboard shown in the figure below. When switched off, AEBS warning

lamp  on the instrument cluster will light up. To switch the AEBS on again, short press AEBS switch. In this case, AEBS warning lamp will turn off to show that AEBS is operational again.



AEBS deactivation switch

Why AEBS warning lamp may be constantly ON?

- You may have switched off the AEBS via AEBS switch.
- ESP may be switched OFF.
- If something hits the front end of your vehicle or damage occurs, the radar sensing zone may change. This could cause missed or false vehicle detections. Contact an authorized dealer to have the radar checked for proper coverage and operation. In such a case, AEBS malfunction may be displayed on the information display as shown below.
- If system emergency braking occurs two times in one ignition cycle, AEBS will get deactivated to prevent possible unnecessary interventions. In such a case, visit an authorized Ford Trucks Service to activate the system.
- There may be temporary or permanent errors on other components of the vehicle that cause the AEBS to be automatically deactivated. If the AEBS warning lamp  stays illuminated constantly for a long time, visit an authorized Ford Trucks Service. This may mean that AEBS is deactivated due to an error in the system.

AEBS
Malfunction
Service Required

How to override an AEBS intervention

 AEBS may warn and brake even if the traffic situation is not dangerous. Be prepared to suppress the AEBS.

You can suppress an AEBS warning or stop an ongoing AEBS warning, if you:

- use left/right turn signal
- depress the brake pedal
- depress the accelerator pedal
- press the AEBS deactivation switch

You can abort an AEBS triggered emergency braking intervention, if you;

- depress the accelerator pedal beyond the pressure point (kick down)
- press the AEBS deactivation switch

OPERATION

Emergency braking system

If you are brought to a halt via an AEBS triggered emergency braking, AEBS will keep the brakes until you override by;

- depressing the accelerator pedal
- or
- pressing the AEBS deactivation switch.



WARNING

Important Note: In such a situation, take control of your vehicle and make sure that you activate the parking brake before leaving your vehicle. Take all necessary safety measures to secure yourself and your vehicle.

Use

Useful Information

4

CAUTION!

**PLEASE HAVE IT CALIBRATED IN AN AUTHORIZED
DEALERSHIP SPECIFIED IN THE TACHOGRAPH
MANUAL PROVIDED**

Useful Information

4

- You have made an excellent choice by purchasing a Ford Cargo vehicle. Congratulations.
- Please consider the following points and read this manual to obtain best performance and service life from your vehicle.

1. Air and oil filters

- Replace the air filter element when air filter warning light is illuminated inside the cab. Always refer to the warranty and service manuals for the main filter element replacement intervals.
- Use oil and air filters approved by Ford Otomotiv Sanayi only.

2. Adding oil

- Do not add oil until the oil level is reduced to min. line.
- Never add oil over the max. line.
- Add oil to the engine when the oil level warning light is illuminated.

3. Engine

- Your vehicle is equipped with a system that prevents starting of the engine while transmission is shifted to a gear.
- Always observe starting instructions provided in the manual.

- Do not increase the engine speed until oil pressure is increased after starting.
- We advise you to operate your vehicle in the green zone tachometer to obtain best traction. (1050-1600 rpm)
- Operate your engine at idle for 1 minutes before stopping the engine in order to allow continued lubrication of the turbocharger unit.
- We advise you to use the vehicles with automated transmissions in automatic mode as much as possible.

4. Injector pump

- Injector pump available in your vehicle is completely adjusted and sealed in factory.
- Do not let tampering of injector pump by any other workshops other than authorized dealerships.

5. Wheel nuts

- Have the wheel nuts tightened to the specified torque values after 500 km from the first loading point of your vehicle. This operation should be repeated after each nut removal. (750 +/- 50Nm)

Use

Useful Information

6. Wheel alignment

- Have the front alignment adjustment of your vehicle checked, and have it adjusted by service support if needed in the first 1000 to 5000 km.

7. Brake system

- Drain the water in the air tanks every day.

8. Differential lock

- Contact authorized dealership when the differential lock warning lamps is illuminated while the differential lock switch is not pressed. Do not use the differential lock when you exceed 20 km/h.

9. Differential oil replacement

- Ensure that park brake is applied, transmission is in neutral and hood is open before lifting the cab.

10. Upper bed

- Do not lower the upper bed while the vehicle is moving.

11. Refuelling

- Turn off the auxiliary cab heater before refilling fuel.

12. Tyre pressures

- Your vehicle is provided with low tire pressures from the factory. Adjust tire pressures according to the tire pressure values given in the manual before first loading.

Useful Information

4

When your engine has been idling for a long time, smart engine off system warns you 30 seconds before turning off the engine and informs you about the fact that the engine is being turned off when a predefined time period has expired in idle with the smart engine off feature. All you need to do to prevent engine from being turned off is to press any of the clutch, brake or accelerator pedals within this period. Thus, you shall deactivate this feature until you restart the engine when you do not want your engine to be turned off.

Other conditions when this feature is automatically deactivated is as follows:

- When engine speed control applications (for example: PTO) are operated
- When the park brake is not applied
- When DPF regeneration is activated

This feature would provide significant fuel saving and you shall enjoy the privilege of being a Ford Cargo owner.

You may increase or decrease the idling speed using speed control buttons when your vehicle is stationary. All you need to do is to bring the speed control handle to "resume" position and to activate this feature. After that, you shall simply decide at what speed the engine will run using "Set +" or "Set -" buttons. You may also use this feature in PTO applications, too. Thus, you can set the engine speed to the optimum point in various load conditions and obtain the highest efficiency from the PTO. PTO applications are used in mixer vehicles, concrete pumps and in many other similar vehicles today. It is very easy to operate or turn off the engine or control the engine speed remotely by a remote control with a similar special applications in vehicles such as concrete pump. Thus, remote operation is possible without requiring the operator to work inside the vehicle. In emergency conditions, you may deactivate the engine speed control by using the "off" position in speed control or by pressing the clutch or brake pedal as specific to application.



MAINTENANCE AND SERVICE

5

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

5th Wheel (Platform) - Attaching the Semi-Trailer (for 5th wheels of SAF HOLLAND brand)

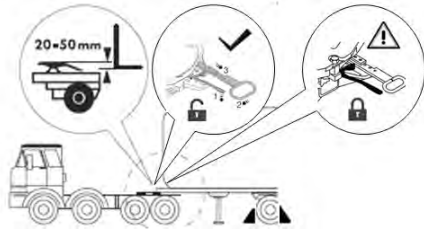


Figure-1

- 1- Block the wheels of the semi-trailer.
- 2- Check that 5th wheel lock is open. The port for the semi-trailer pin should be open. (see Figure 1)

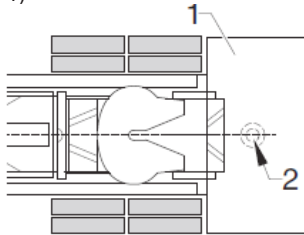


Figure-2

- 3-Position the truck in front of the semi-trailer.

- 4-Position the vehicle so that there is a clearance of 20 to 50 mm between the bottom of the semi-trailer and the 5th wheel platform (see Figure 1)

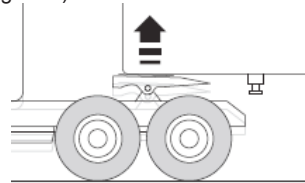


Figure-3

- 5-Lift 5th wheel with the help of the air suspension until the semi-trailer is slightly raised. (see Figure 3)

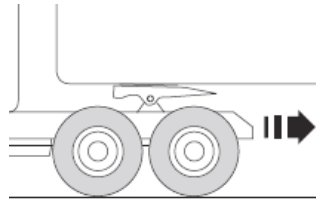


Figure-4

- 6- Reverse the vehicle slowly until 5th wheel coupling engages. (see Figure 4) The spring safety lever should return to its original

- position automatically. (see Figure 5)

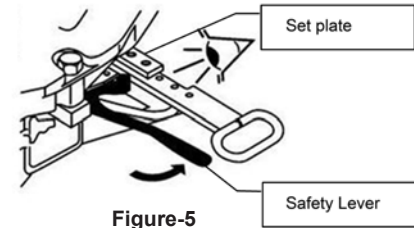


Figure-5

- 7- Get off the vehicle and visually check that 5th wheel lock has fully engaged. If the lock is fully closed, the safety lever should be in the upper position and the small adjustment plate on the lock lever should contact 5th wheel platform. (see Figure 5 and Figure 6). As shown in Figure 6, the latch on the safety lever should be in the upper position.

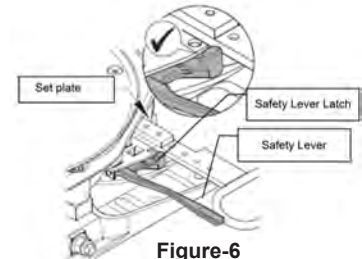


Figure-6

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

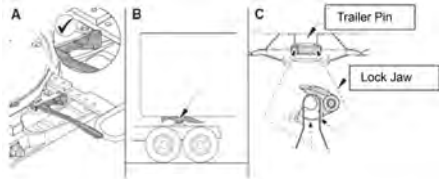


Figure-7

8- As shown in Figure 7, carry out the visual check for fully locking in order (A, B, C).

Check A: Check the safety lever, the latch on the safety lever and the adjustment plate. The safety lever and the latch on the safety lever should be in the position shown in Figure 7-A.

Check B: There should be no gap between the semi-trailer and 5th wheel.

Check C: The Locking Jaw should cover the semi-trailer pin securely.



Figure-8

9-Perform a starting test. Apply the brakes of the semi-trailer and start the truck at low gear; the semi-trailer should not be detached.



CAUTION

If any of the above conditions are not met, restart the entire locking procedure from the 2nd step. The starting test is not sufficient for secure locking. Visual checks should be performed. If the locking procedure is not completed successfully, a secure connection cannot be made (see Figure 9). The tag on the lock lever should be checked during visual checks.



Figure-9

10- Connect the supply lines and connection cables between the truck and the semi-trailer.

11- Complete the procedure for attaching the semi-trailer as per the instructions of the vehicle manufacturer.



CAUTION

Attach the cables in such a manner that the pressure air and hydraulic hoses are not tense, they are not bent or rubbing and the canopy can easily follow the trailer in curves, etc. Pay

attention to the voltage of the consumers on the semi-trailer before connecting the cable. 5th Wheel (Platform) - Detaching the Semi-Trailer

(for 5th wheels of SAF HOLLAND brand)

- 1- Park the vehicle on flat and solid ground.
- 2- Secure and support the semi-trailer as per the instructions of the vehicle manufacturer.
- 3- Disconnect the supply lines and connection cables between the truck and the semi-trailer.
- 4- Unlock the 5th wheel lock with the opening lever. (see Figure 10-11)

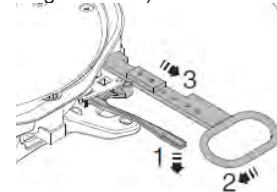


Figure-10

5- Press the safety lever down with your thumb -Arrow 1- and rotate the unlocking handle counter-clockwise - Arrow 2-. Extract the unlocking handle fully - Arrow 3- and attach the part near 5th wheel platform.

At this point, the adjustment plate should not contact 5th wheel platform, there should be a gap between them. (see Figure 10).

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

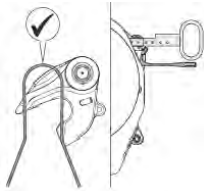


Figure-11

6- Make sure that the locking jaw is fully open for attaching/detaching the semi-trailer pin and the locking lever can be slid inside. (see Figure 11)

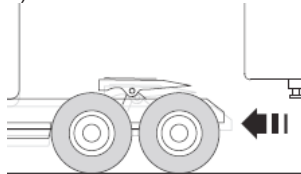


Figure-12

7- Drive the truck away from the semi-trailer slowly and straightly. (see Figure 12).
8- Complete the procedure for detaching the semi-trailer as per the instructions of the vehicle manufacturer.

Note: Once the 5th wheel lock has been unlocked, the locking lever is ready to be slid inside again automatically (the unlocking lever can be slid inside). (see Figure 13)



Figure-13

Note: Figure 13 shows the unlock position for the locking lever. At this point, the adjustment plate is away from 5th wheel body and the safety lever is down. Figure 14 shows the closed position of the lock. At this point, the adjustment plate is contacts 5th wheel body and the safety lever is up.



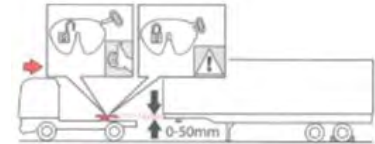
Figure -14



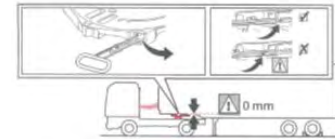
CAUTION

If there is a damage/flexion on 5th wheel locking lever and the safety lever, visit the workshop and do not attempt to attach a semi-trailer; a secure connection might not be established.
Check all parts for wear/corrosion/damage.

5th Wheel (Platform) - Attaching the Semi-Trailer (for 5th wheels of JOST brand)



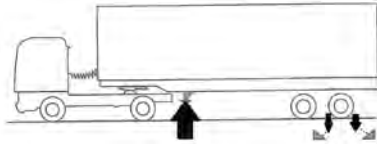
1- Block the wheels of the semi-trailer.



2- Pull the platform locking lever, the port for the semi-trailer pin will open.

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

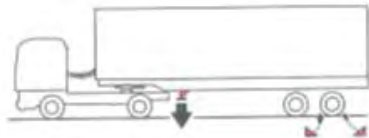


Reverse the vehicle until the trailer king pin is engaged on the seat on the 5th wheel. Spring release lever will return to its original position.



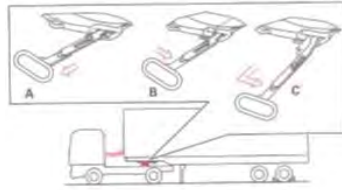
CAUTION

Attach the cables in such a manner that the pressure air and hydraulic hoses are not tense, they are not bent or rubbing and the canopy can easily follow the trailer in curves, etc. Pay attention to the voltage of the consumers on the canopy/ the trailer before connecting the cable. Detaching the Semi-trailer



1- Block the wheels .

Lower the legs of semi-trailer so that they are on the ground.
Disconnect the brake connections and wiring.



2- Pull the 5th wheel (platform) lock lever.



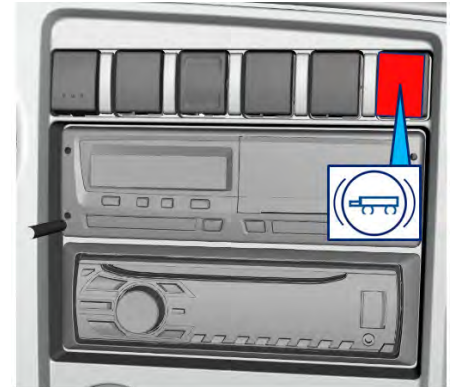
3- Drive the vehicle so that it will leave the trailer.



CAUTION

If there is a damage/flexion on 5th wheel locking lever, visit the workshop and do not attempt to attach a semi-trailer; a secure connection might not be established. Check all parts for wear/corrosion/damage.

Trailer brake



Eases the trailer connection or disconnection operation by braking the trailer while connecting the vehicle to the trailer or disconnecting it from the

trailer. If the  icon on the display is illuminated, this means a fault in the system.

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

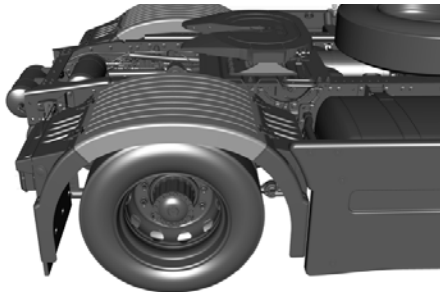
Attaching the Semi-Trailer:

- 1- Perform the semi-trailer to vehicle air connections.
- 2- Press and hold the semi-trailer brake button on the center console, semi-trailer brakes shall be applied as long as the button is pressed.
- 3- Align the 5th wheel (platform) to semi-trailer connection pin and make the connection

CAUTION

System shall not be activated when the button is pressed below 8 km/h.

A Dimmed light on the semi-trailer switch is illuminated continuously is for control purposes. A yellow light shall be illuminated when the switch is pressed.

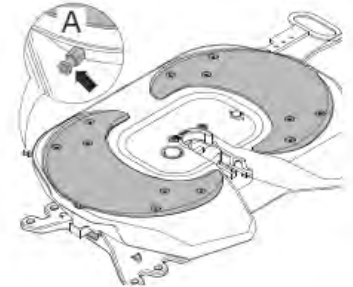


CAUTION

Remove the rear fender upper part when you use the vehicle with a semi-trailer.

In case of adding or not subtracting functions to the trailer connectors; check that the gasket which provides leak tightness in trailer connectors is fitted correctly in place. Ignition shall be turned off when the electrical connection of the trailer is performed.

Greasing (for 5th wheels of SAF HOLLAND brand)



The surface of the platform should be greased with a sufficient quantity of durable, high pressure <NLGI Class 2> grease containing MoS2 or graphite additives prior to the first attachment of a trailer.

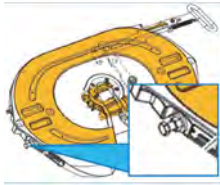
Without detaching the semi-trailer, grease through the nipple near the platform regularly at every 10.000 km.

- Clear the used grease on the surface with a scraper before each lubrication.
- However, the greasing periods should be adapted to the relevant operating conditions; shorter or longer intervals are possible.

MAINTENANCE AND SERVICE

Attaching and Detaching a Trailer

Greasing (for 5th wheels of JOST brand)



At every 10,000 km:

Apply grease from the grease fitting on the side of the 5th wheel (platform) without detaching the trailer. Every 50,000 km for vehicles used in normal operating conditions Every 25,000 km for vehicles used in heavy operating conditions Detach the semi-trailer. Remove the grease on 5th wheel (platform) and king pin. Apply grease to the areas shown with yellow color on the illustration.



WARNING

Attach the cables in such a manner that the pressure air and hydraulic hoses are not tense, they are not bent or rubbing and the canopy can easily follow the trailer in curves, etc.
Pay attention to the voltage of the consumers on the canopy/trailer before connecting the cable.

A 15 – 15 pin connector shall be used in vehicles with ADR

Contact Authorized Workshop when you want to install Trailer Axle Lifting function on the vehicle.



WARNING

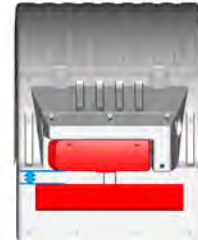
Upper part of the live axle fender with 3 parts is advised for operation without trailer.

The upper part shall be removed when the vehicle is operated with trailer and during the removal/installation manoeuvres of the trailer to the vehicle.

FORD OTOSAN will not be responsible for any damages to occur in the upper part during use with a trailer.



WARNING

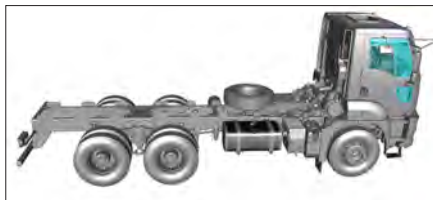


In tractor vehicles, the distance between lower side of the stop lamp on the rear left fender and upper side of the license plate's sheet plate should be 40 mm.

MAINTENANCE AND SERVICE

Fuel Quality and Refueling

Fuel Tank



Original steel and aluminium fuel tanks approved by Ford Otosan should be used in Ford Cargo vehicles. Using third party fuel tanks other than the tanks designed and test by Ford Otosan may render the warranty void for any fault on the fuel injection system and the vehicle.



CAUTION

The engine of your vehicle is designed to operate with EURO DIESEL complying with EN590 standards. Thus, usage of cheap diesel fuel causes a high risk for the function of the engine and its components. Usage of bad quality fuel, also known as cheap diesel fuel, reduces the power of our engines and shortens their service life.

We advise using Euro Diesel (complying with EN 590 standards) to prevent any problem on the fuel system.



CAUTION

Do not mix petrol in the fuel tank.

Fuel Tank Flap (lockable)



Ford Fuel tank flap opens counter clockwise in a single action in single-stage. The flap returns to the position where you will lock it in a single action in single-stage when turned clockwise. Cleaning of the fuel tank is essential. Wipe the flap and surroundings without opening the fuel filler flap.



CAUTION

Paraffin forms in the cold weathers in fuels without any precautions. Paraffin not only clogs the filter elements, but also clogs the fuel pipes. It is very difficult to melt the paraffin once it is formed. Therefore, winter type diesel fuel should be used in the areas where the weather is always cold in winter.

Tractor vehicles



A 600 liter aluminum fuel tank is available on the right side of the vehicle.

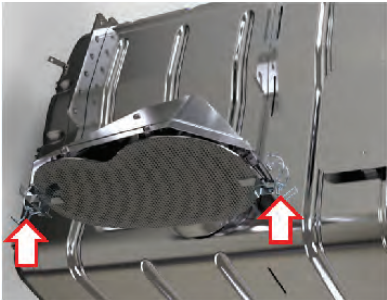
MAINTENANCE AND SERVICE

Fuel Quality and Refueling

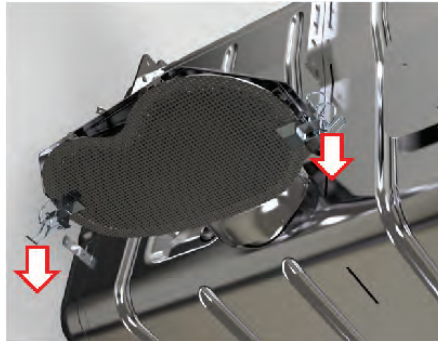
Spark Arrester



Spark arrester shall always be installed during refuelling in gas stations and while draining or adding fuel. Do not keep the spark arrester on the vehicle when the vehicle has left the gas station.



Put on a pair of gloves before installing spark arrester as the muffler is hot.
Hook the spark arrester from its clips to the hangers shown in the figure. Close the clips and retain the spark arrester to the exhaust.



Put on a pair of heat-resistant gloves again while removing the spark arrester. Both muffler and spark arrester will be hot during removal.
Loosen the retaining clips on spark arrester and detach from exhaust.



Clean the spark arrester with pressurized water so that its pores are also cleaned every 25 uses.

MAINTENANCE AND SERVICE

Cleaning of Exhaust Filter

Cleaning of Exhaust Filter

The exhaust filter retains the smut coming from the exhaust gas and decreases the emission values. With the exhaust filter cleaning operation which can be performed automatically or manually, the smut retained in the filter is burned with regular intervals so that the filter is emptied before filling up and being clogged. In this operation, the exhaust gas is heated by the engine and smut is burned. Driver is informed about the exhaust filter cleaning of the vehicle through the messages displayed on the indicator panel and explained in detail in the following sections



WARNING

Since the exhaust gas temperature is high during the exhaust filter cleaning; ensure that the vehicle is not in the same place with flammable (dry grass, leaves), inflammable and explosive materials or in enclosed space. Otherwise, fire risk may occur.



WARNING

Ensure that vehicle exhaust cleaning is not performed in locations like hazardous material loading and unloading places or fuelling stations. When necessary, activate the exhaust filter cleaning prevention using *exhaust filter cleaning prevention button*.



WARNING

Changes may be observed in engine and exhaust sounds during exhaust filter cleaning.



WARNING

During exhaust filter cleaning and right after the cleaning; a metallic smell or crackling sounds may come out of the exhaust side.

Automatic Cleaning of Exhaust Filter

Exhaust filter cleaning requirement is automatically determined according to the amount of soot accumulated in the filter, the distance the vehicle has travelled, amount of fuel consumed and the engine running hours. In this case, exhaust filter cleaning starts automatically. During automatic filter cleaning, the instrument panel shall display "Exhaust filter cleaning" warning for information. When this warning is displayed, vehicle should be driven normally.



WARNING

When you see the "Exhaust filter cleaning" warning, you should continue driving normally; there's no need to idle the vehicle and wait.



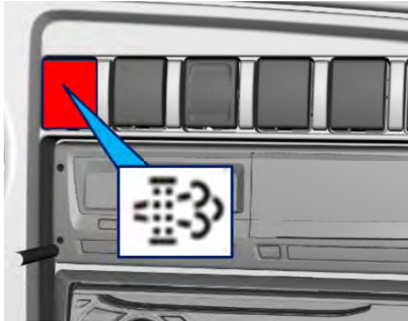
WARNING

If your vehicle undergoes 2 (or more) automatic filter cleaning in the same day, the driving conditions of the vehicle (the path it is used on, speed etc.) may not be suitable for automatic cleaning. In that case, it is recommended to perform manual exhaust cleaning. Manual exhaust cleaning is recommended especially for vehicles that cover short distances and run idle for prolonged periods of time (construction, mixer series etc.).

MAINTENANCE AND SERVICE

Cleaning of Exhaust Filter

Manual Cleaning of Exhaust Filter



The button in the middle console, shown with the red arrow above, is *Manual exhaust cleaning button*. You can perform manual exhaust filter cleaning of the vehicle using this button.



WARNING

Exhaust gas temperature will be high during manual exhaust filter cleaning, so make sure that the vehicle is not in an enclosed space and the exhaust gases do not come into contact with any flammable, inflammable or explosive material.

Before starting manual exhaust cleaning, please make sure the following conditions are met.

- Vehicle speed must be "0"
- Parking brake must be applied
- Gear must be neutral
- Gas, brake and clutch pedals must not be pressed
- PTO must not be active
- Vehicle water temperature must be above "40"
- There must not be any error codes that prevent exhaust filter cleaning

After you ensure that the conditions above are met:

- *Keep the manual exhaust cleaning button pressed for 3 seconds*

After this operation, the vehicle check for suitable conditions for filter cleaning and start the manual filter cleaning. When exhaust filter cleaning starts, the instrument panel shall display "Exhaust filter cleaning" warning for information. If the necessary conditions for exhaust cleaning are not met, "*Conditions not suitable for exhaust filter cleaning*" warning is displayed. If "conditions not suitable for exhaust filter cleaning" warning is received, the conditions above must be checked again.

When the manual exhaust filter cleaning starts, the engine revolution of the vehicle will

increase automatically. The operation shall continue as below:

- Heating 1 - 1200rpm 1 minute (minimum)
- Heating 2 - 1800rpm 2 minutes (minimum)
- Filter cleaning mode - 1800rpm 15 minutes (minimum) - 45 minutes (maximum)
- Cooling mode - 1200rpm 3 minutes (maximum)



WARNING

Exhaust filter cleaning duration may change depending on the amount of smut in the filter and the heating time. Filter cleaning mode can take between 15 minutes minimum and 45 minutes maximum, depending on the amount of smut.

When the manual exhaust filter cleaning operation is completed, the engine speed will again decrease to idle rpm. If you want to stop the cleaning operation; you can stop the operation by pressing gas, brake or clutch pedal or keeping the *exhaust filter cleaning prevention button* pressed for 3 seconds. In that case, vehicle shall decrease to normal idle rpm. Please see the details about *Exhaust filter cleaning prevention button* from the relevant chapter.

MAINTENANCE AND SERVICE

Cleaning of Exhaust Filter

WARNING

Since exhaust gas temperature shall be high and vehicle speed shall be "0" during manual exhaust filter cleaning, the indicator panel may display "High exhaust gas temperature, please pay attention during parking" information warning. The detailed explanation about this warning can be found in the warnings section. See page 23.

The button in the middle console, shown with the red arrow above, is *Exhaust filter cleaning prevention button*. You can prevent the exhaust filter cleaning of the vehicle using this button. When exhaust filter cleaning is prevented, the instrument panel shall display "Exhaust filter cleaning is prevented by the driver" warning. The detailed explanation about this warning can be found in the warnings section. See page 23.

To activate exhaust filter cleaning prevention,

- Keep the exhaust filter cleaning prevention button pressed for 3 seconds

When the prevention is activated, instrument panel displays "Exhaust filter cleaning is prevented by the driver" text.

To remove exhaust filter cleaning prevention,

- Keep the exhaust filter cleaning prevention button pressed for 3 seconds, or
- Keep the manual exhaust filter cleaning button pressed for 3 seconds (This will start manual exhaust filter cleaning operation) or,
- Shut off the engine of the vehicle and then restart it

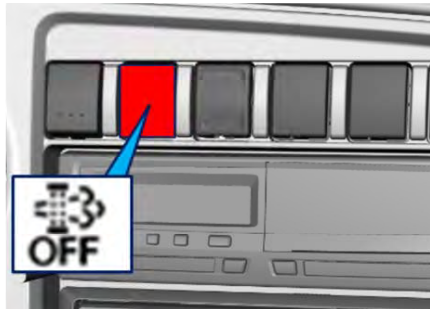
You can confirm that the cleaning prevention is lifted when "Exhaust filter cleaning prevented by the driver" warning is not displayed on the instrument panel.

WARNING

If exhaust filter cleaning is prevented by using *Exhaust filter cleaning prevention button* for a long time, the filter may fill with soot and clog up. When "Please remove exhaust filter cleaning prevention when possible" warning is displayed on the instrument panel, the prevention should be lifted and filter cleaning should be performed as soon as possible. Detailed information about this warning can be read in warnings section. See page 25.

WARNING

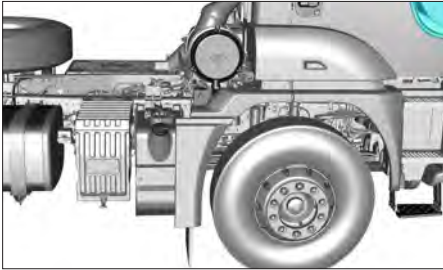
The purpose of exhaust cleaning prevention button is to prevent the vehicle from cleaning the exhaust whenever the vehicle is near a flammable, inflammable or explosive material.



Exhaust Filter Cleaning Prevention

MAINTENANCE AND SERVICE

Urea System



Your Ford Cargo vehicle with Euro 5 or Euro6 emission system is equipped with an Urea system.

Urea system is a selective reduction method that removes NOx gases, which are harmful to the environment and human health, from the exhaust gas.

DEF (Diesel Exhaust Fluid):

Urea system operates by spraying urea solution to the exhaust gas. Urea solution used in the urea system is defined with DIN 70070 and ISO 22241-1 standards

Your Ford Cargo vehicle with Euro5 or Euro6 emission system is equipped with urea tanks with a capacity of 55 or 75Lt.



WARNING

Do not turn the switch of your vehicle off for 40 seconds when you stop the engine of your vehicle to allow that the urea left in the Urea system is returned back to urea tank. Urea left in the system may harm urea system components by freezing in cold weathers.



WARNING

Urea system is sensitive to contaminants.



Urea indicator

Important Points:

Take extra care for cleaning.

Urea system is sensitive to dirt and soil. Pay attention to prevent dirt ingress to the tank. Wipe the dirt and mud around the flap before opening the tank flap. Fill urea fluid directly from its package (can).

Make sure the funnel is clean if you will use a funnel. Do not use funnels contaminated with fuel.



If you prefer to filling with a funnel, keep a separate, clean funnel to fill urea available. Do not use funnels contaminated with diesel fuel to fill urea.

MAINTENANCE AND SERVICE

Urea System

Do not fill the urea tank with any material other than urea.

Fill the tank with adblue complying with DIN 70070 / ISO 22241-1 standard only.

- Do not fill the tank with diesel fuel.
- Do not add water to the tank to increase urea level.

Quality of the fuel and engine oil used affects Urea system.

a-) Sulphur Content in the Fuel

Low quality fuel contains high sulfur ratio. Sulfur may cause blockage of catalyst, a component of the SCR system. You should use EuroDiesel only in your vehicle.

b-) Engine Oil

Low quality and/or wrong viscosity oil increases the oil vapour in the exhaust. This may cause blockage of the catalyst.

Catalyst is a non-serviceable component that cannot be cleaned.

Exhaust box shall be replaced as a whole when it is blocked. Pay attention to the quality of the urea, fuel and engine oil used and apply all instructions about urea system with care in order to avoid damages with high costs.

If the exhaust temperature is consistently low (buses, delivery trucks), efficiency of Urea system may be reduced and ammonia may come out. Contact your workshop if you continuously smell ammonia.



User should carry out following precautions to prevent faults and damages in this system.

Otherwise any faults occurring should be considered outside of the warranty cover and Ford Otosan will not take any responsibilities!



The legal rules for the prevention of accidents are to be considered!



WARNING

Exhaust gas reaches very high temperatures during regeneration or while operating under high load. "HES" light shall be illuminated on



the warning panel of your vehicle in high exhaust gas temperatures. Switching off your vehicle while this light is illuminated may cause damage to urea system components.

Average Urea Consumption			
	13L 480PS	13L 420PS	9L 330PS
Urea/Fuel Ratio Range			
Euro V	6-9%	6-9%	6-9%
Euro VI	1,5*	1,1*	0,7*

* Average urea consumption values are calculated based on vehicle and dynamometer test results. These values may vary according to vehicle load conditions, environmental conditions (Ambient airtemperature and pressure, relative humidity), engine and urea quality.

MAINTENANCE AND SERVICE

Urea System



WARNING

When improper urea or fuel is used or urea system is rendered inoperable because of contaminants mixed in the urea system, “MIL” lamp shall be illuminated on the instrument cluster and engine power shall be reduced by the engine control unit as the targeted emission values cannot be reached.

In order to avoid accident risk or problem, it is recommended to refill urea before the urea level falls below a specified critical level.

Engine power shall be reduced %40 by the engine control unit immediately after running out of all urea in the urea tank of your vehicle with Euro 5 emission level. High temperatures that may occur on the urea injector within this period may cause malfunction of the component.

Engine power shall be reduced %25 by the engine control unit when the urea level is reduced to a level under 3% in your vehicle with Euro 6 emission level. When the urea level is %0, vehicle speed shall be limited with 20km/h by the control unit.

Cluster Warning		Cluster Level Indicator		Inducement Level	
EURO6	EURO5	EURO5 / EURO6		EURO6	EURO5
Urea level Low	Urea level Low		Fix	No inducement active	No inducement active
Urea level Low	Urea level Low		Fix	No inducement active	No inducement active
Fill up urea	Urea level Low		Blinking	No inducement active	No inducement active
Fill up urea	Fill up urea		Blinking	inducement active %75 torque reduction	No inducement active
Fill up urea	Fill up urea		Blinking	severe inducement active Max. Vehicle speed 20 kph	inducement active %60 torque reduction

Restraints that are applied because of reduced/run out of urea as specified above shall be removed when urea is added.

Urea solution complying with DIN70070/ ISO22241 standards is used in your vehicle in order to reduce the exhaust emission. As this solution will be reduced in time, you shall check the urea solution level in your vehicle from the urea level indicator on the

instrument panel and add urea before it is completely run off. Usage of this solution is legally mandatory; and penalties may apply if you do not comply with this requirement.

MAINTENANCE AND SERVICE

Tires and Rims

Tire profiles

A minimum profile depth is prescribed for tires by law. Observe the legislation for the relevant country.

For safety reasons, change your tires before reaching the legally advised minimum profile depth.



WARNING

An excessively low tire profile may cause loss of handling at high speeds in case of rain or snow mud conditions. You may lose your handling and cause an accident in these conditions.

The Condition of the Tires

Check the following conditions regularly every 2 weeks and before a long haul to inspect the condition of the tires:

- External damage
- Cracks and bulges on the tires,
- Foreign material in the tire profile,
- Irregular wear of the profile



WARNING

Do not forget that the external damages, bulges and cracks on the tires may cause blow-out of the tire. You may cause an accident in these conditions.



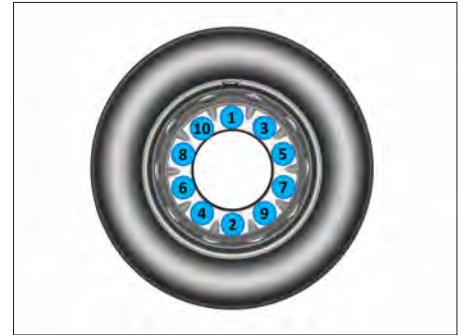
CAUTION

Do not use radial and transversed tires mixed on your vehicle.

Use same type of tires on both sides of the same axle. Do not use radial tires on front axles if the rear tires are transversed. Wrong maintenance on the wheels may be extremely dangerous.

Follow the instructions below strictly:

- Do not attempt to replace the tires if you are not familiar with the required tools, and always follow the instructions.
 - Deflate the tires completely before removing the valve.
- Thoroughly drain the fluid.
- Do not inflate the tires without a protection cage except normal pressure adjustments.
 - Always check the tire pressures with the wheel is cold.



Check the wheel nut torque when you load the vehicle with full load for the first time. (750 Nm $\pm$ 50Nm for front and rear wheels) Tighten the wheel nuts alternately.

Important:

- 1- If the wheel nuts are removed and fitted back for any reason, the wheel nuts shall be checked 50 km after the operation. If the torque values are not suitable, the wheel nuts should be tightened to the suitable torque.
- 2- When a new or newly painted rim is used, tighten the wheel nuts after 1000 to 5000 km of driving.

MAINTENANCE AND SERVICE

Tires and Rims

1

CAUTION

Please check the wheel nut torque when you load the vehicle fully for the first time.

Check the tire pressure periodically to prevent irregular tire wear.

Do not use radial and transversed tires mixed on your vehicle. Use same type of tires on both sides of the same axle. Do not use radial tires on front axles if the rear tires are transversed. Wrong maintenance on the wheels may be extremely dangerous.

Follow the instructions below strictly:

- Do not attempt to replace the tires if you are not familiar with the required tools, and always follow the instructions.
- Deflate the tires completely before removing the valve.
- Do not inflate the tires without a protection cage except normal pressure adjustments.
- Always check the tire pressures with the wheel is cold.

Tire pressure

Check the pressure of all tires including the spare wheel. All tires should have the specified pressure, and tread depth of the tires should never be under the limit value (6 mm). Also check for damage on the tires. Adjust the pressure of your vehicle's tires by referring to the "Tire pressure" table.

The Aging of the Tires

- Aging of the tires reduce the operation and traffic safety of the tires. Even unused tires are aged.
- Always replace your tires if they are aged more than 6 years.

Tire Damages

Tire damages are usually caused by the following reasons:

- Aging of the tire
- Foreign material
- Usage conditions of the vehicle
- Weather conditions
- Oil, fuel, grease etc. - Contact with materials
- Dragging on the sidewalks

Tyre/wheel replacement

Your wheel is specially designed to maximize the appearance performance. Ensure that equipment used for tire replacement do not damage the wheel surface. If it is required to replace the valve during the replacement operation, ensure that alloy wheel valve is issued in Ford Workshops is used.

Wheel maintenance

Clean your wheel frequently. Thus, you may take maximum advantage of appearance performance. Never use brushes, sanders or acidic fluids that may cause scratches on the wheel during cleaning. A damp soft cloth and cleaning agents commonly used for vehicle cleaning is adequate as a special transparent paint is used on the wheel surface.

5

MAINTENANCE AND SERVICE

Tires and Rims



WARNING

Your wheel is specially polished and covered with a transparent protection layer to protect its brightness. Never re-polish. This polishing operation would damage the protective layer on the surface. On vehicles with aluminium alloy wheels, wheel but caps shall be removed with the wheel nut cap pliers delivered with the tools before removing the wheel nuts.



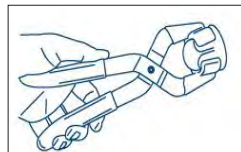
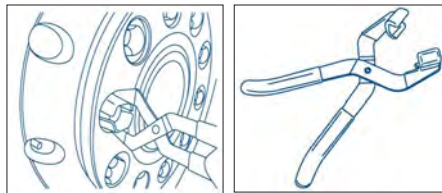
WARNING

Please, observe the prescribed tire pressure for your vehicle.
Very low tire pressure may cause blow-out of the tire at high speeds and loads.
You can cause an accident and thus injuries to others due to this.



CAUTION

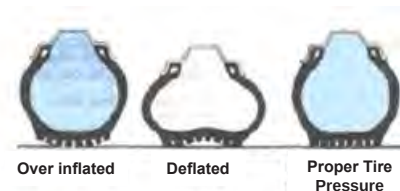
Use snow chains only on the outer tyres of your vehicle.



Remove the wheel nut caps with the special pliers provided in the toolbox of the vehicle for aluminium alloy wheels.

Do not attempt to remove with sharp objects such as screwdrivers etc.

Check the tire pressure periodically to prevent irregular tire wear.



Low pressure cause wear on the shoulder areas of the tire. High pressure cause wear on the back areas of the tire.

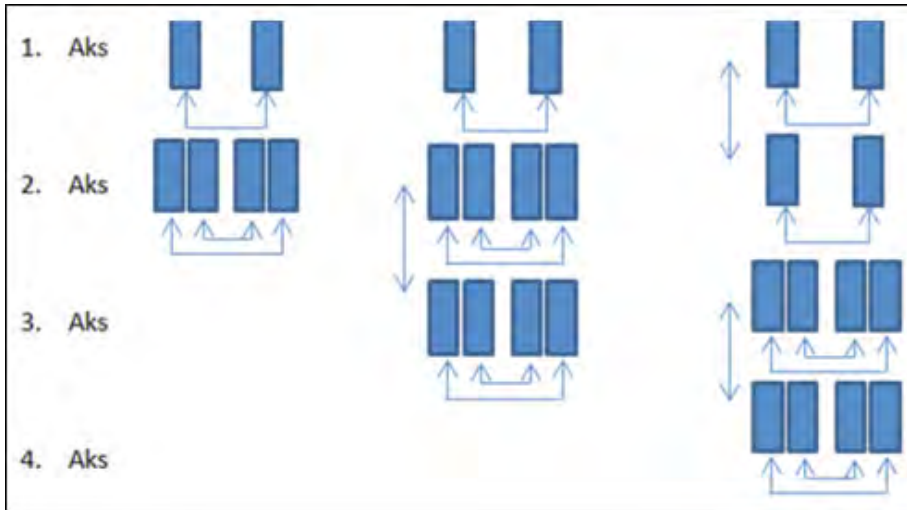
WHEEL ALIGNMENT CHART

	MIN.	MAX.
Caster	2° 42´	5° 18´
Camber	- 0° 30´	+ 0° 30´
Total toe-in	0,0mm	+ 1,7mm

MAINTENANCE AND SERVICE

Tires and Rims

Wheel position replacement



Wheel surfaces of your vehicle are polished specially and coated with protective transparent paint. Use your wheels in their original positions only. Or observe the following replacement chart. A wheel replacement other than the application specified below shall cause appearance problems.

MAINTENANCE AND SERVICE

Tires and Rims

TIRE PRESSURE [Bar]																
Tire Size	Rim	Load Index	Tyre	6.0	6.25	6.5	6.75	7.0	7.25	7.5	7.75	8.0	8.25	8.5	8.75	9.0
315/80 R22,5	9.00X22.5	156/150	One	-	6200	6400	6600	6800	7000	7200	7400	7600	7800	8000	-	-
			Pair	-	10400	10800	11100	11400	11800	12000	12400	12700	13000	13400	-	-
315/80 R22,5	9.00X22.5	154/150	One	-	6000	6200	6300	6500	6700	6900	7100	7300	7500	-	-	-
			Pair	10300	10700	11000	11400	11700	12000	12300	12700	13000	13400	-	-	-
315/60 R22,5	9.00X22.5	152/148	One	-	-	-	-	-	5900	6100	6300	-	6600	6700	6900	7100
			Pair	-	-	-	10000	10300	10600	10800	-	-	11600	12000	12300	12600
295/60 R22,5	9.00X22.5	150/147	One	-	-	-	-	-	-	-	-	6000	-	6300	6500	6700
			Pair	-	-	9000	-	10000	-	10500	-	11000	-	11600	12000	12300
295/60 R22,5	9.00X22.5	***149/146	One	-	-	-	-	-	-	-	-	-	6000	-	6300	6500
			Pair	-	-	-	-	-	10000	10300	10600	10900	11000	11400	11600	12000
295/80 R22,5	9.00X22.5	152/148	One	-	-	-	-	6000	6200	6400	-	6700	6900	7100	-	-
			Pair	-	-	10000	-	10700	11000	11400	11700	12000	12300	12600	-	-
275/70 R22,5	8.25X22.5	148/145	One	-	-	-	-	5000	5300	-	-	5600	-	5900	-	6300
			Pair	-	-	-	-	-	9700	-	-	10500	-	10900	-	11600
12R 22,5	9.00X22.5	152/148	One	-	-	5560	-	5950	-	6330	-	6720	-	7100	-	-
			Pair	-	-	9880	-	10560	-	11240	-	11920	-	12600	-	-

*** This is applicable for tires with a maximum speed limit of 120 km/h.

- Contact your dealership to select the correct size when you replace the tire.
- Always check the tire pressures with the wheel is cold.

MAINTENANCE AND SERVICE

Tires and Rims

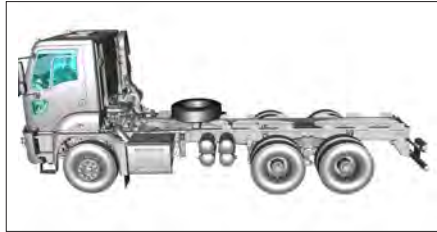
DIAGNOSTIC CHART	
FAULT	POSSIBLE CAUSE OF THE FAULT
If the vehicle skids to the side when brakes are applied	• Brake adjustment is faulty • Tires have different pressure values.
If the vehicle drags to left or right when the steering is released	• Incorrect tie-rod adjustment (toe angles) • Irregular wear on the tires • Tires have different pressure values
If it is difficult to steer the vehicle	• Tire is underinflated. • Vehicle is excessively loaded. • Steering system shall be checked.
If the steering excessive play or looseness	• Wheel bearings are loose • Ball joints are loose • Bushings are worn • Track rod is loose/worn • Steering gears or bearings are worn
If the outer side of the tire is worn	• Excessive toe-out is applied
If the inner side of the tire is worn	• Excessive toe-in is applied
If the tire is worn on the shoulder areas	• Tire pressures are low.
If the tire is worn on the back areas	• Tire pressures are high.

DIAGNOSTIC CHART	
FAULT	POSSIBLE CAUSE OF THE FAULT
If the tires are worn on both sides	• Vehicle is used with excessive load. • Curves are taken with high speed • Vehicle is used with high speed. • Wheel rotation is not applied.
If a tire is worn more than the other	• Pressure value of the worn tire is faulty. • Brake adjustment is faulty • Toe angles are faulty • Shock absorbers are faulty • Wheel rotation is not applied.
If the front wheels have excessive vibration	• Tire pressure is high. • Tires are flattened. • Balancing is faulty • Ball joints are worn
If the vehicle is shuddering	• Tire pressures are high. • Tires are flattened. • Balancing is faulty.

MAINTENANCE AND SERVICE

Tires and Rims

Spare Wheel and Tire Replacement



Spare wheel is on the chassis on your vehicle. Carefully lower the spare tire. Take necessary precautions to prevent the tire from falling over your foot.

It can be moved to any position on the vehicle by the vehicle owner when the upper structure will be installed.

Remove the Upper Spare Bracket before attaching a trailer to your vehicle.

Jacking The Vehicle

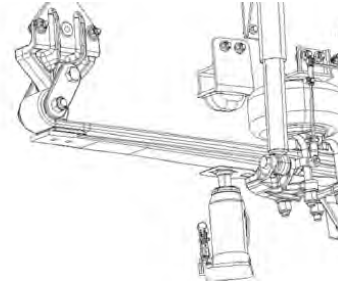
Jack can be mechanically geared type or hydraulic type. Before lifting the vehicle, park the vehicle on a level ground and apply the park brake. If the vehicle is on a slope and it is to be lifted without applying the parking brake, chock all other wheels. The jack should be placed under the leaf spring as shown in the figure and must be placed on the ground firmly.



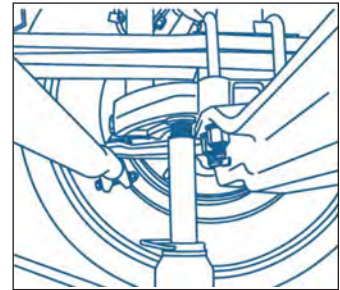
CAUTION

If you need to get under a vehicle lifted by a jack, provide additional support under the frame pedestals. There may not be enough space under the front axle while replacing a flat tire. Place the jack under the leaf springs on the closest point to the axle when there is not enough space. Pay attention not to damage the steering linkages while lifting the vehicle with a jack. Use wooden blocks if required. Check for an obstacle under the vehicle when lowering the vehicle.

Do not jack the vehicle from the chassis arms.



On vehicles with lowered ride height:



MAINTENANCE AND SERVICE

Tires and Rims

Spare Wheel and Tire Replacement



Spare wheel is on the left side of the chassis on vehicles with single fuel tank. To remove the spare wheel from its seat, loosen four bolts connecting it to the holder with the 24 spanner on the toolbox. Spare wheel is hanged with a cable. To release the cable, install the wheel brace to the rotating arm. Turn the brace anticlockwise.

Installation:

Check the connection cable before installing the spare tire. Cable shall be replaced if it is damaged. Connect the end of the cable to the tire again. Lift the tire with the hexagon wrench and tighten all nuts.



CAUTION

Carefully lower the spare tire. Take necessary precautions to prevent the tire from falling over your foot.



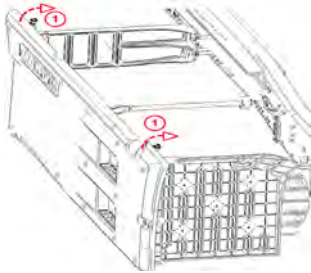
Spare wheel is on the chassis on vehicles with an optional secondary fuel tank. Side skirt shall be removed to take the spare wheel out.

Remove the Upper Spare Bracket before attaching a trailer to your vehicle.

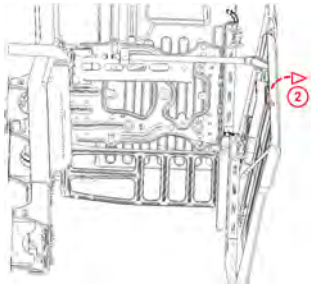
MAINTENANCE AND SERVICE

Tires and Rims

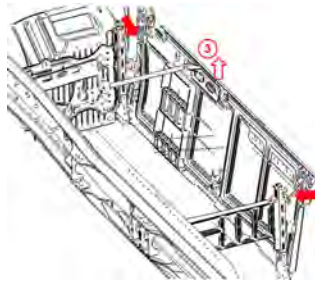
Side skirt opening mechanism



Side skirt panel is released of its locks with the movement of yellow locks on both front and rear sides to the direction of 1.



Side skirt panel is moved to the outwards of the vehicle on direction 2 after it is released of its locks.

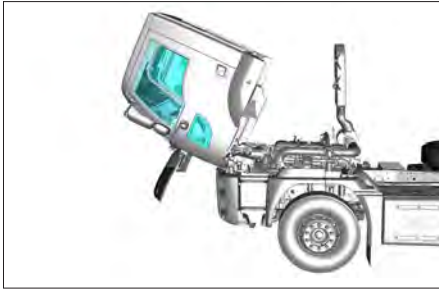


Side skirt panel is moved to the upwards on direction 3 after it is released from the rope hooks on the front and rear sides and it is released from its hinge connections.

MAINTENANCE AND SERVICE

Driver Cab

Tilting The Cab:



If you do not take the necessary precautions and pay necessary attention to the cab lifting procedures, this may cause fatal accidents.

Before tilting the cab:

- Ensure that no one is standing in front of the vehicle.
- Ensure that adequate space is available in front of the vehicle.
- Ensure that no freely moving objects are available in the vehicle. Hard objects may break the windshield when they fall while the cab is being tilted.



CAUTION

Do not work under the cab before tilting it completely. This brings a fatal accident risk.



CAUTION

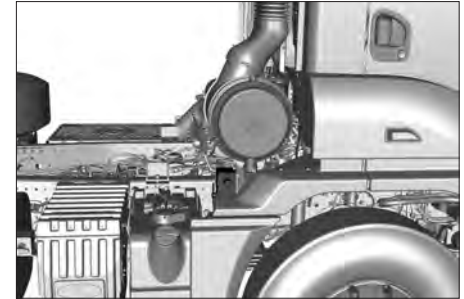
Do not tilt the cab uphill. As the gradient of the slope acts to move the cab in the closing direction, this may cause risk for the person under the cab. Always tilt the cab on a level surface. If the conditions require that the cab is tilted on a slope, place a safety element between the cab and chassis.



WARNING

Doors are heavy components; if the doors are opened while the cab is tilted, abrupt opening of the doors may cause serious injuries. If the door should be opened, it shall be opened by supporting from the lower side and slowly. Always open the hood before tilting the cab.

Vehicles without bed

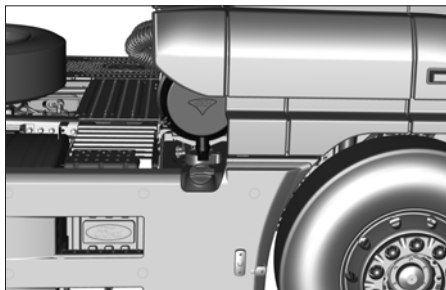


Cab tilt cylinder is located behind the fender on the right side of the vehicle.

MAINTENANCE AND SERVICE

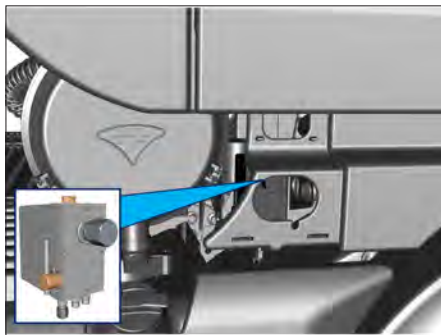
Driver Cab

Vehicles with bed



Cab tilt cylinder is located behind the fender on the right side of the vehicle.

Use the brace provided in the toolbox of your vehicle to tilt the cab and then to bring it to the driving position.



To use the jack, remove the specified cover.

1- On vehicles with manually controlled cab tilt cylinder:

Tilting the cab:

a) Open the hood of your vehicle.



b) Lift the latch on the cab tilt cylinder down.



c) Using the wheel brace provided in the toolbox of your vehicle rotate the hexagonal head bolt on the cylinder in the direction of arrow until the cab is tilted completely.

MAINTENANCE AND SERVICE

Driver Cab

Returning the cab to driving position:



a) Lower the latch on the cab tilt cylinder up.



b) Using the wheel brace provided in the toolbox of your vehicle rotate the hexagonal head bolt on the cylinder.

c) If the  warning is illuminated on the display when you get in the vehicle, this means that cab is not locked correctly. Check it.



CAUTION

Fully open and close the latch on the cab tilt cylinder while you are tilting and bringing the cab back to driving position, respectively. Do not tilt the cab or bring it back to driving position while the latch is in half-open or half-closed position. Otherwise, you may cause faults in the cab tilt cylinder.

MAINTENANCE AND SERVICE

Driver Cab

On vehicles with power cab tilt cylinder (optional)

Tilting the cab:



1) Lift the latch on the cab tilt cylinder down.



2) Hold the yellow button pressed
To operate the power cab lifting system, ignition switch shall be at position 2, park brake shall be applied and gear shall be shifted to neutral.

Returning the cab to driving position:



1) Lower the latch on the cab tilt cylinder up.



2) Hold the yellow button pressed if the  warning is illuminated on the display when you get in the vehicle, this means that cab is not locked correctly. Check it.

DIAGNOSTICS:

On manually controlled tilt cylinders:

Cab cannot be tilted

Check the position of latch on the tilt cylinder. It shall be on the tilt direction.

- Tilt cylinder is also serves as the hydraulic oil tank. Open the cover after cleaning the surroundings of the upper cover. Check with your finger, your finger shall touch the oil.
- Check for oil leaks through the tilt cylinder, hoses, lift hydraulic line.
- Please visit a Ford Cargo authorized dealership if the fault persists.

On power cab tilt cylinders:

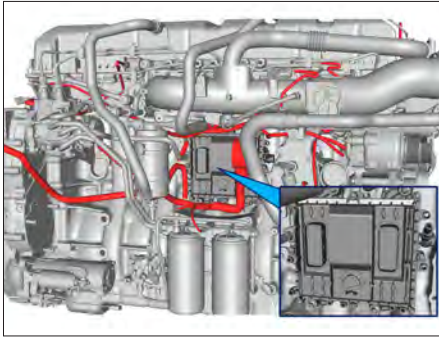
Cab cannot be tilted

• Check the position of latch on the tilt cylinder. It shall be on the tilt direction.

- Press the yellow button on the tilt cylinder.
- Check the fuse of the tilt cylinder.
- Check for oil leaks through the tilt cylinder, hoses, lift hydraulic line.
- Please visit a Ford Cargo authorized dealership if the fault persists.

MAINTENANCE AND SERVICE

Engine



Engine management is provided by the state-of-the-art electronic control unit.



CAUTION

Remove the plugs of electronic control unit before welding on the vehicle. Otherwise, there is a risk of permanent damage to the electronic control unit. Welding operations shall be performed while the main switch is off.

Running-in



There is no need to perform a special application in the running-in period of the engine.
Drive the vehicle with the proper gear so that tachometer remains in the green zone as always.

Daily Inspections

- Check the coolant level. If the level is at minimum or less, add 50% distilled water and 50% antifreeze (WSS M97B44 D) mixture.
- Check the brake hydraulic fluid level, add brake hydraulic fluid if the level is at minimum or less.
- Check windshield washer liquid level, add clean water if the level is dropped.
- Check for any oil or liquid leaks in general.
- Check the operation of the service and park brakes.
- Drain the water and oil collected in the air tanks completely by pulling the drain ring.

MAINTENANCE AND SERVICE

Engine

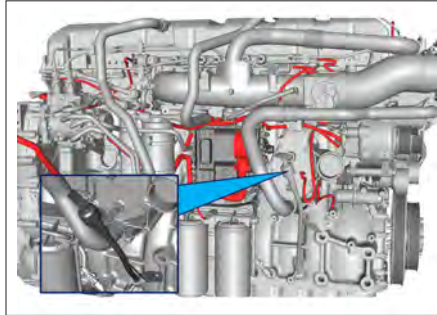
Weekly Inspections:

- Check the engine oil level.
- Check the tire pressures (while the wheel is cold), tread depth and damage condition on the tires.
- Check the clutch hydraulic fluid level, add hydraulic fluid if the level is dropped.
- Check the wear on the brake lining wear by looking through the lining inspection hole.
- Lubricate the semi-trailer connection platform.

Monthly Inspections

Check the power steering fluid level.

Engine Oil Level Inspection



Engine oil level shall be inspected weekly. Engine oil dipstick is placed on the right side of the vehicle.

- Park the vehicle on a level ground. Switch off the ignition, apply the parking brake, and take the necessary precautions.
- Wait for 10 minutes to allow flowing of the oil to the oil pan.
- Tilt the cab.
- Take the dipstick out.
- Wipe with a lint-free clean cloth, install the dipstick again and secure it.



The oil level must be between the MIN and MAX lines. The difference between “MIN” and “MAX” on the dipstick is 15 liters.

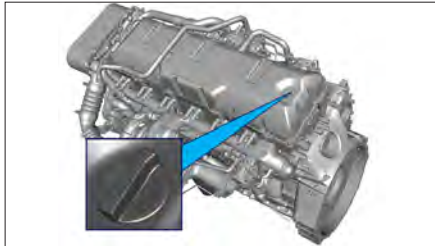


CAUTION

Use oil with the specifications approved by Ford Otosan only for your engine. Using improper oil for your engine may cause serious and costly faults.

MAINTENANCE AND SERVICE

Engine



Add oil if the level is less than MIN, engine oil filler cap is on the cylinder head cover. Wipe the surroundings of the cap before opening it. Pay attention to cleanliness if you would use equipment such as measuring container, funnel etc.

Fuel consumption value:

Oil consumption amount of the engine between 2 maintenances depends directly on the operating conditions of the vehicle (loaded-unloaded, short-long haul, fuel quality, engine oil quality). Under normal operating conditions, engine oil consumption up to 0.8 lt / 1,000 km between 2 maintenance operations is acceptable. These consumption values may vary under heavy operating conditions.

Adding Fluid

When the engine oil level is reduced to critical level, red “Engine oil low”  warning shall be displayed on the instrument. In this case, engine oil shall be brought to required level by adding engine oil within 500 km maximum. We advise you to have the engine oil adding operations performed in Ford Otosan authorized dealerships.



CAUTION

Do not replace engine filters and tamper with its connections when the ignition switch is at position 2.

Important Points:

1- When the warning light illuminates, lacking amount of oil in the engine is about 15 liters. Oil shall be add until the level observed on the dipstick reaches a level between MIN and MAX marks. Add oil gradually and in a controlled manner. Run the engine for a few minutes after each oil adding operation. Stop the engine, wait for 10 minutes, and check the engine oil level with oil dipstick.

2- Do not add oil more than required. Excessive engine oil may cause faults such as deterioration of seals, excessive heating, blocking of catalyst, oil leaks from various points on the engine.

3- Engine oils may lose their specifications if engine oils with different specifications and different brands are mixed. In order to prevent costly damages to your engine out of warranty cover, we recommend you to top up the oil in your engine with oils with the same brands and specifications when adding oil is required between 2 maintenance operations.



CAUTION

When the engine oil level is reduced to the minimum level, “engine oil level warning light”

is illuminated on the display .

In this case:

- 1- It is possible to drive up to the first rest stop. Road assistance is not required.
- 2- Vehicle shall be parked on a level ground on the rest stop area, park brake shall be applied and required safety precautions shall be taken.
- 3- When the vehicle has rested for 75 minutes with ignition off, oil shall completely flown to the oil pan.
- 4- Without turning the ignition / engine on, cab shall be tilted and oil level shall be measured with the engine oil dipstick.

MAINTENANCE AND SERVICE

Engine

After the measurement:

- 5
- If the engine oil level is not under MIN level and oil level warning light is turned off after 75 minutes, it would be adequate to drive the vehicle to the authorized workshop as soon as possible. Road assistance is not required.
 - If engine oil level is under MIN level, you shall add engine oil with the specifications given at page 228 with the required amount. Oil level warning light shall be turned off after waiting for 75 minutes with the ignition off. Road assistance is not required for this application, too.



CAUTION

Excessive oil is harmful for your engine. This may cause overheating of the engine, damage to the seals and oil leaks from several points of the engine.

It may also cause blockage of the exhaust catalyst pores.

We advise you to have the maintenance of your vehicle by specialists in Ford Otosan authorized dealerships.

Engine oil pressure and oil level is checked by the sensors, and the driver is informed with a warning light in case of an abnormal condition.



Low Engine Oil Pressure

Turn the engine OFF. Contact a Ford Cargo Authorized Dealership.



Low engine oil level

Tilt the cab, and check the engine oil level with oil dipstick.



Oil maintenance interval reached

Take your vehicle to a Ford Cargo Authorized Dealership as soon as possible for oil maintenance.



Engine coolant temperature warning

This informs the driver about overheating of the engine. Stop the vehicle immediately and run the engine at idle for a few minutes. Check for coolant leaks. Stop the engine if the coolant temperature does not drop. Check the water pump drive belt, fan and shroud, and the coolant level. (see Engine coolant level) Contact an authorized dealer.

MAINTENANCE AND SERVICE

Engine



Engine and drivetrain system malfunction

This indicates a malfunction in the engine and/or drivetrain components. Vehicle may continue normal operation or engine may reduce the power based on the severity of the fault. Please visit the nearest Ford Cargo authorized dealership.



MIL (malfunction indicator lamp) (In EURO-3 and EURO-5 vehicles)

MIL indicates a malfunction in the vehicle central information system when illuminates in the instrument panel. Engine may be power off according to the seriousness of the malfunction. It is recommended that you ask the support of a Ford Cargo authorized dealership.



MIL (malfunction indicator lamp) (In EURO-6 vehicles)

Before starting the engine:

Engine malfunction lamp of your vehicle will self check by illuminating for 5 seconds when the ignition switch is on (before engine start). This is the lamp check phase.

The lamp will be dim out for 10 seconds after that.

Then it will be illuminating again for 5 seconds. This is the preparation phase.

If all data is ready for examination the lamp will stay illuminated for 5 seconds, if not, it will blink 5 times in 5 seconds. (This does not affect the function, and is not a sign of malfunction.)

Before going to the next phase, lamp will dim out for 5 seconds. If a malfunction is detected, lamp will show one of the 4 following behaviours till the engine start:

- Lamp will light up continuously. **It is recommended to you to drive to an authorized workshop in this case.**
- Lamp will light up 3 times in 5 seconds, and dim out for 5 seconds. **It is recommended to you to drive to an authorized workshop in this case.**
- Lamp will light up 2 times in 3 seconds, and dim out for 5 seconds. **It is recommended to you to drive to an authorized workshop in this case.**
- If there is no errors, it will light up for 1 second and dim out for 5 seconds.

After starting the engine:

If there is an error, lamp will light up in 2 ways according to the error type,

- Lamp will light up continuously. **It is recommended to you to drive to an authorized workshop in this case.**
- Lamp will light up for 15 seconds, and dim out completely. **It is recommended to you to drive to an authorized workshop in this case.**
- If there is no error, lamp will not light up.

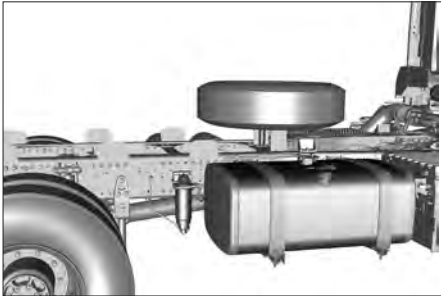
Cleaning the engine:

Do not apply pressurized water to the sensors and electronic control unit while you are washing the outer surface of the engine with pressurized water. Water ingress to electronic units will cause short circuits on the electrical pins, thus malfunctions on the engine.

MAINTENANCE AND SERVICE

Engine

On-chassis fuel filter (Fuel pre-filter)



Fuel pre-filter performs the initial filtration of the fuel drawn from the fuel tank. Also, it separates the water inside the fuel and provides fuel separated from water to the engine.

Filtered water is collected in the container under the filter assembly.



If the “water in fuel” warning light illuminates when the ignition is on, loosen or unclip the integrated water sensor under the filter assembly and close it when clean fuel appears.

Tighten the water sensor securely when you are closing the tap. Otherwise, air may enter the engine, and this may cause fuel leak.



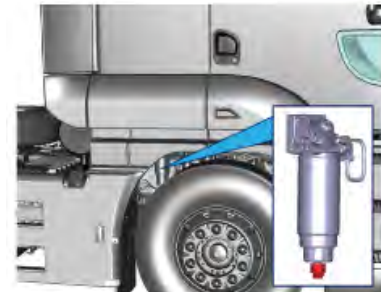
WARNING

Care that is shown for the cleaning of the fuel filters will contribute the service life of main fuel filter on engine and fuel system of the engine.

Fuel does not flow to the engine and system takes air when the vehicle runs out of fuel or when the low quality fuel is frozen in the filter. Remedial operation required

Tractor vehicles

On-chassis fuel filter (Fuel pre-filter)



MAINTENANCE AND SERVICE

Engine

After performing the necessary corrective action, bleeding air from the system is performed by the hand pump on the filter head.

Press until hand pump is stiffened, and start the engine when the pump is stiffened.



WARNING

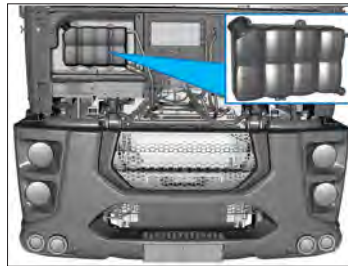
Do not continue on starting attempts if the vehicle does not start in a few attempt. There may still be air inside the fuel line. Pump fuel with the hand pump, then restart again.



CAUTION

Fuel that will be taken for the vehicles operating in cold climates shall be cold climate fuel resistant to waxing in cold weather. Otherwise, water inside the fuel will freeze and prevent flow of fuel to the engine; and the engine will not start.

Engine coolant



Engine coolant contains 50% antifreeze and 50% distilled water. Coolant circulates inside the engine block and cools the engine components. This fluid also cools the intertarder oil in vehicles with intertarder.



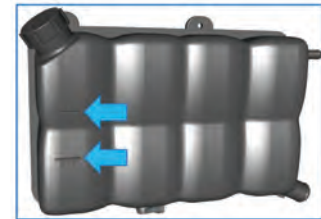
CAUTION

Antifreeze does not prevent freezing of the engine in winter only. It also lubricates the water pump and extends its service life. Ensure that the antifreeze complies with the Ford specifications when you are purchasing antifreeze. Lime and other chemicals in the non-distilled water cause corrosion in the cast engine block.



CAUTION

Freezing temperature of the 50% distilled water and 50% antifreeze mixture is -37 °C. On colder climates, it is possible to achieve protection up to -50°C by adjusting the mixture ratio to 40% distilled water and 60% antifreeze. Maximum antifreeze ratio is 60%, never exceed this ratio.



Engine coolant reservoir is under the hood. The coolant level should be between the **MIN** and the **MAX** marks when the engine is cold, and it shall be inspected daily.

If the coolant level is lower than the MIN mark, the x warning shall illuminate on the display. In this case:

MAINTENANCE AND SERVICE

Engine

- Stop the engine considering the road safety.
- Check the coolant level in the coolant reservoir under the hood.
- If the level is lower than the MIN mark, add 50% distilled water and 50% antifreeze until the level reaches between MIN and MAX marks. In the case of a malfunction in the low temperature circuit, a malfunction in the electrical pump or a water leak; the vehicle will start cutting down the torque. (For vehicles with 12.7 lt engine)

CAUTION

Risk of Serious Injury:
Coolant is pressurized and VERY HOT. Do not open the cover immediately. Wait at least half an hour and open the cover with a thick cloth or protective gloves, if available. Open the cover slowly first to discharge the pressure in the reservoir; then open the cover completely.

- Check under the vehicle for any coolant leaks.
- Tilt the cab, check the belts for any broken or excessively loosened belt.

If the fan cable breaks, fan rotates in maximum rpm; since this will worsen the fuel economy, it is advised you to go to service after the warning light goes on.

CAUTION

Do not refill with water when the cooling system of a hot engine is empty or its coolant is missing. Add hot water if available, or wait until the engine is cooled.

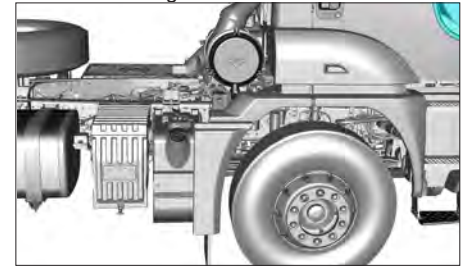
WARNING

The cover of the clutch fluid reservoir shall always be tightly closed. Ingress of foreign material such as water or dirt causes damage to the fuel system. Ingress of air to the system may also cause malfunctions. Replacement interval of the air filters depend on the operating conditions of the vehicle.

- 1- Air filter shall be replaced in an authorized dealership when light is illuminated.
- 2- Filters shall be replaced every 120,000 km for transporter and tractor vehicles, 60,000km for construction vehicles. or 1 year even if the warning light is not illuminated. Filter safety element shall be replaced after 3 replacements of main element.

The paper structure is distorted within one year and will not be performing the filtering function. The air filter clogged warning will be illuminated on the digital display when the air filter element is clogged.

Contact a Ford Otosan Authorized Dealership for the replacement of the air filter elements after this warning is illuminated.



WARNING

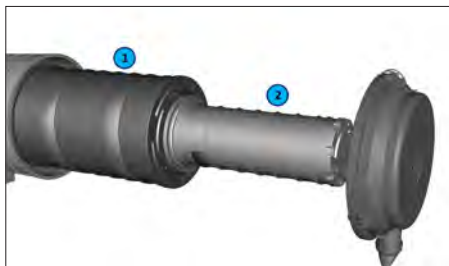
Always tilt the cab completely to replace air filters. Tilting the cab halfway may cause personal injuries. Ensure that the air filter cover is installed so that the dust draining hole faces downward.

WARNING

Do not operate the vehicle with air filters removed. As the air drawn to the turbocharger and thus the engine shall not be filtrated, this may cause serious and expensive malfunctions on components such as turbocharger and engine.

MAINTENANCE AND SERVICE

Engine



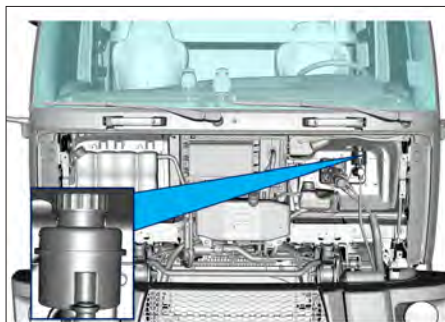
Air filter is composed of 2 components:

- 1- outer filter
- 2- inner safety element



WARNING

Note: Never expose the air filters to compressed air. Compressed air distorts the paper structure of the air filter elements and it may even tear them.



Clutch fluid reservoir is placed under the front hood. The level of fluid shall be up to the level mark on the reservoir.

Add fluid with proper specifications given if the level is low and close the cover tightly.



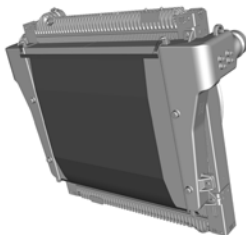
WARNING

Clutch fluid damages painted surfaces. Take necessary precautions to prevent spilling over the painted surfaces while adding fluid.

MAINTENANCE AND SERVICE

Engine

Inspection and Cleaning of the Flyscreen



Flyscreen, placed in front of the radiator, is a component that resembles a curtain and it can be cleaned.

Its purpose is to prevent objects such as flies, dust, bugs etc. from entering directly to the radiator.

Inspect the Flyscreen as per the working conditions and clean it if it is dirty. Cleaning is performed by removing the flyscreen from the radiator and applying pressurized water or air to the flyscreen.

Removal of the flyscreen:

Pull the flyscreen lower bar downwards from its sides and take it out of the lower seats that connect it to the cooling module. Then, open the upper cover, remove the flyscreen upper connection springs and take it out by pulling it upwards from this area. In this way, it would be possible to prevent the deformations on the cooling module that may be caused by the flyscreen springs.



CAUTION

Dirty flyscreen prevents air flow to the intercooler, thus to the radiator, and reduces the cooling capacity of the engine. Therefore, the cleaning procedure described above is important.

MAINTENANCE AND SERVICE

Engine



1- "Engine total operating hours from the first operation of the engine"

2-Oil quality status indicator

You may find more information on the maintenances and contact information for the Ford Cargo authorized dealerships in the Warranty Manual.

Distance and engine operating hours to the maintenance are displayed on the displays of your vehicle.

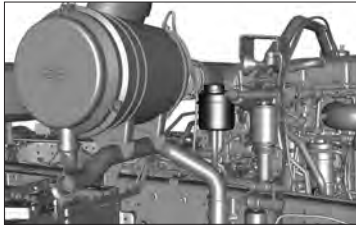
We advise you to have the periodical maintenance and repair operations on your vehicle performed in Ford Otosan authorized dealerships.

MAINTENANCE AND SERVICE

Steering

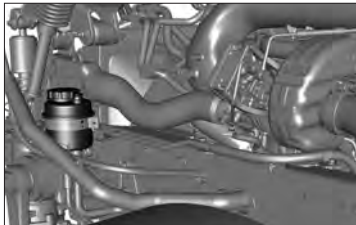
Steering Fluid

For vehicles with 12.7 lt engine



Steering fluid reservoir is located under the cab on the right side of the vehicle.

For vehicles with 9 lt engine



Steering fluid reservoir is located under the cab on the left side of the vehicle.

Fluid level check:

1- Tilt the cab.



1- Cover
2- Dipstick

2- Wipe the surroundings of the dipstick with a clean cloth, open the clip



3- Take the dipstick out, wipe with a clean cloth, install the dipstick securely and take it out again.

4- The oil level must be between the lines shown in the figure.

Add fluid if the fluid level is low.

Steering system is very sensitive to foreign material such as dust, dirt etc. Pay maximum attention to cleanliness while checking the fluid level and/or adding fluid. Prevent dirt ingress to the system.

Adding Fluid

- 1- Wipe the reservoir cover and surroundings with a cloth
- 2- Open the reservoir cover and add required amount of fluid.
- 3- Close the reservoir cover tightly.



WARNING

Steering gear upper area
Steering column joint connection area shall be cleaned with non-pressurized water or a brush. The mentioned area shall be protected if it is cleaned with pressurized water.

MAINTENANCE AND SERVICE

Towing the Vehicle

Towing of the vehicle requires specialist knowledge that is not explained in this manual. Make sure that the vehicle is towed by specialist staff.



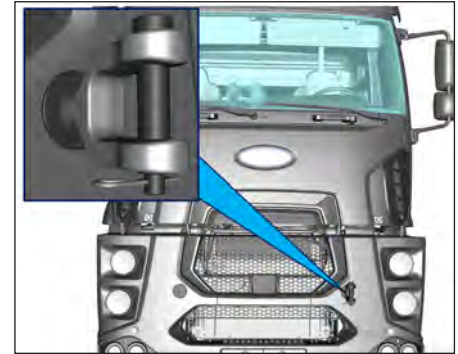
Draw pin installation location on your vehicle is on the front grille panel.



Remove the cover on the front grille panel to install draw pin.



Install draw pin by rotating it clockwise as shown in the figure.



Remove the draw pin and attach the towing cable.

Make sure that the transmission is in neutral and in high range.

If the transmission cannot be shifted to neutral, you should remove the drive shafts to the axle.

If the vehicle should be transported on a trailer with a deep platform, the specified 4m height may be exceeded. Consider the maximum passing heights of the underpasses. You may cause an accident.

MAINTENANCE AND SERVICE

Towing the Vehicle



WARNING

Do not tow the vehicle crosswise.

Risk of Accident

If the vehicle is towed with the engine is not running, the steering assist and air supplies will not be operating.

As this would require more steering effort, you may get out of the road or bump the towing vehicle in curves. You may install an emergency steering pump.

If you agree on special signs with the driver of the towing vehicle before towing the vehicle, it will prevent occurring of these kind of problems.



CAUTION

Observe the legal requirements. Maximum towing speed is 25 km/h, and maximum towing distance is 100 km.

If the conditions specified above are not applied, detach the driveshaft from the axle to prevent transmission damage.

Detach the driveshaft from the axle to if you suspect any transmission damage.

While towing your vehicle



CAUTION

- The drive shaft needs to be removed first before towing your vehicle. If the drive shaft is not removed, the movement shall be transmitted from the wheels to the transmission and operate the internal components of the transmission that is not pumping oil. In such a case, you may experience serious transmission malfunctions. This is considered out of warranty cover.

- Transmission latch shall be in high range (up) and the transmission shall be in neutral.
- Vehicle can be towed for a maximum of 100 km.



CAUTION

Have your vehicle towed by specialists only. Improper towing may cause damage to your vehicle and you may experience serious accidents.

Procedures to be Performed:

- If your engine is operating, have your vehicle towed as your engine is operated. If it is not possible to operate your engine, brake air pressure may be reduced after a while and this locks the emergency brakes. This may cause serious accidents and damages.

To prevent this condition, discharge the emergency brakes before towing your vehicle or connect an air line to the air tubes of your vehicle if the specifications of the towing vehicle allows this.

- The drive shaft needs to be removed first before towing your vehicle.
- The key should be on the ignition switch and on position (1) as your vehicle has a steering lock.
- The vehicle should only be towed with a drawbar. Towing with soft, breakable materials cause a serious risk of accident. Do not exceed the speed limit specified by traffic law.

MAINTENANCE AND SERVICE

Electrical Systems

Batteries

WARNINGS



Danger of explosion

Explosive gases form when the batteries are charged. Charge the batteries in well ventilated places only.



Danger of explosion

Avoid sparks!
Do not work with open fires or lights near batteries. Do not smoke.



Battery acid may cause burns.

Use acid-resistant protective gloves! Neutralize the skin or cloth that the battery acid is spilt on with soapy water or a neutralizing material and rinse with water.



Wear protective goggles.

Electrolyte may be spilt on the eyes while mixing it with water. Wash your eyes with plenty of water and seek medical help immediately.



Keep away from children

Children cannot decide the risks involved with batteries and acid.



Observe the safety warnings, protection precautions and manners described in this manual when you are dealing with the battery.

DAMAGES TO THE ENVIRONMENT



Batteries contain hazardous material. Do not dispose with household waste.

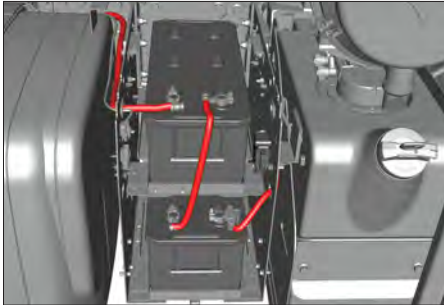


Dispose the batteries without harming the environment. Return the batteries to a FORD OTOSAN authorized dealership or a collecting facility for waste batteries. Transport and store the batteries filled with electrolyte in upwards condition. Secure the batteries against turning over when you are carrying them. Battery acid may contaminate the environment by vaporizing from the air discharge holes.

MAINTENANCE AND SERVICE

Electrical Systems

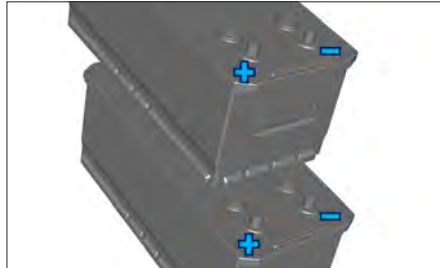
5



Batteries should always be charged as required in order to have a long service life. We advise you to use the circuit breaker next to the battery tray to preserve the service life of the battery when the vehicle is not going to be used for a long time.

Check the battery voltage level if the vehicle is parked for a long period of time. 12.2 V voltage level measured in a battery indicates that battery charge level is too low. In this case, best method is to leave the vehicle running in the shortest possible time in order to charge the batteries.

Disconnecting the battery terminals



Disconnect the terminals after 5 minutes minimum when you stop the engine. This is needed to supply power to the Urea system that will operate after a while when the engine is stopped. Otherwise, your Urea system (or vehicle) may be damaged.

- Remove the key from the ignition switch.
- Turn off all consumers.
- Open the battery housing cover and remove it.
- Disconnect the negative terminals.
- Disconnect the positive terminals.



WARNING

There is a risk of short circuit when the positive terminals of the battery contact the vehicle parts.

This may easily burn the explosive gas mixture. You and other people may get injured in an explosion.

Do not place metal parts or tools on the battery.

Disconnect the negative terminal first, and then the positive terminal while disconnecting the terminals.

Connect the positive terminal first, and the negative terminal then while connecting the terminals.

Do not loosen or disconnect the terminals when the engine is running.

BATTERIES REQUIRE MAINTENANCE

MAINTENANCE AND SERVICE

Electrical Systems

Connecting the battery terminals

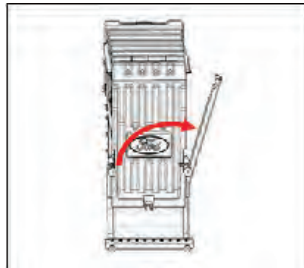


CAUTION

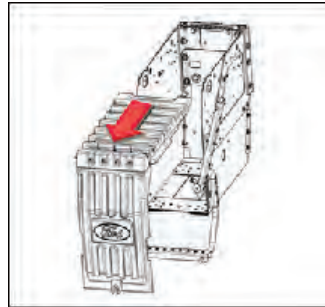
Remove the key from the ignition switch.
Turn off all consumers.
Connect the positive terminals.
Do not confuse terminals!
• Connect the negative terminals.
• Fit the battery cover.

Perform the following when the power is disconnected (e.g. when the terminals are disconnected and connected again).
• Set the clock.

Removing the battery cover



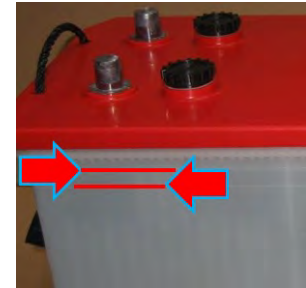
Open the upper connection profile of the step bracket under the battery cover in the direction of the arrow.



Then pull the battery cover to yourself in the arrow direction and remove easily.

After the battery replacement; if the replacement is made outside authorized service and parameter update is not performed, "replacement notification" signal is sent for 10 seconds.
In this case, the hazard lights button must be pressed 7 times within 14 seconds while the ignition is on.

Checking the electrolyte level



CAUTION

Battery box is white colored to provide the visibility of the liquid from outside. Pay attention to min./max. sign to understand whether the liquid level is adequate or not.

Check the electrolyte level every six months or 40.000 km.

Tap water decreases battery power. Only add demineralized or distilled water. Do not use a metal hone when you are filling the batteries. There is a risk of short circuit.

- Open the battery housing cover and remove it.
- Remove the plugs.
- Check the electrolyte level and correct if required.

MAINTENANCE AND SERVICE

Electrical Systems

- Install the plugs.
- Fit the battery cover.



WARNING

Batteries are very heavy. You may drop the battery and injure yourself or others when you are removing or installing a battery. Thus, be careful when you are removing the battery and use the help of a second technician.



WARNING

Make sure that the battery housing cover is closed. Ensure that the battery surface is always clean.



WARNING

There is a risk of explosion because of the forming of explosive gases. Avoid sparks! Do not work with open fires or lights near batteries. Do not smoke.



The blink of the battery status indicator shows that the battery charging level is very low. The best method in this condition is to keep the engine on immediately for batteries to be able to charged

Using Jumper Cables

If your battery is discharged and you want to start your engine with jumper cables, read the following instructions carefully to prevent damage to the charge system.

- The voltage of the spare battery (batteries) should be the same with your battery (your vehicle has a 24V electrical system). Keep the spare batteries in a well-ventilated environment.
- Turn off all other consumers. Connect the jumper cables to the spare battery first. Connect the

positive (+) terminal of the spare battery to the positive terminal of the vehicle battery, and negative (-) terminal of the spare battery to the negative terminal of the vehicle battery.

- Start the engine. Run the engine under 1000 rpm.
- Disconnect the negative jumper cable from the spare battery first, and then the vehicle battery. Disconnect the positive cable in the same way.
- If two vehicles are used, make sure that their bodies or frames do not contact each other.
- Do not approach the batteries with sparks or naked flames as the hydrogen will always be available.
- Connect the jumper cables as specified above to prevent sparks in the vicinity of the batteries.

Always use booster cables with insulated clamps and adequate size cable. Do not disconnect the battery from the vehicle's electrical system.

To start the engine:

- a- Run the engine of the vehicle with charged battery with a high speed.
 - b- Start the engine of the vehicle with the flat battery.
 - c- Run both vehicles for a minimum of three minutes before disconnecting the
- Otherwise, you may damage electronic equipment like the engine electronic control unit or the digital instrument cluster.

MAINTENANCE AND SERVICE

Electrical Systems

Fuse and Relay Table

J01	J06	R01		R03		R05		R07	R09	R12	R15
J02	J07							R08	R10	R13	R16
J03	J08	R02		R04		R06		R11		R14	R17
J04	J09										
J05	J10	J11	J12	J13	J14	J15	J16				
F1	F10	F19	F28	F37	F46	F55	F64	R18		R19	R22
F2	F11	F20	F29	F38	F47	F56	F65				
F3	F12	F21	F30	F39	F48	F57	F66				
F4	F13	F22	F31	F40	F49	F58	F67	F73	F78	R20	R23
F5	F14	F23	F32	F41	F50	F59	F68	F74	F79		
F6	F15	F24	F33	F42	F51	F60	F69	F75	F80		
F7	F16	F25	F34	F43	F52	F61	F70	F76	F81	R21	R24
F8	F17	F26	F35	F44	F53	F62	F71	F77	F82		
F9	F18	F27	F36	F45	F54	F63	F72	D01	D02		

MAINTENANCE AND SERVICE

Electrical Systems

No	Amp.	System	No	Amp.	System
F1	5	ABS/EBS	F20	7.5	SWITCH RELAY
F2	5	AIR SUSPENSION	F21	20	A/C BLOWER
F3	3	COMFORT MODULE IGNITION	F22	7,5	ACCESSORY GEAR SELECTOR STATE
F4	7,5	CAMERA / RADAR	F23	10	HEATED SEAT / POWER MIRROR
F5	7,5	INT3	F24	20	AIR DRIER / FUEL HEATER
F6	10	AUTOMATIC TRANSMISSION IGNITION	F25	20	WIPER MOTOR
F7	5	INSTRUMENT PANEL	F26	7,5	TRAILER IGNITION
F8	5	ECM	F27	15	MFS
F9	5	TACHOGRAPH	F28	30	WINDSHIELD HEATER -1
F10	1/3	TACHOGRAPH	F29	30	WINDSHIELD HEATER -2
F11	15	COMFORT MODULE	F30	5	LDWS BUZZER
F12	1	TACHOGRAPH BMS CAN SUPPLY	F31	5	BCU
F13	7,5	INT3	F32	15	EBS/ABS
F14	3	RADAR / CAMERA	F33	15	SUCTION LINE HEATER / ELECTRO HEATER
F15	7,5	AIR SUSPENSION	F34	20	ECM (Ignition)
F16	10	AUTOMATIC TRANSMISSION	F35	7.5	WEMA
F17	5	INSTRUMENT PANEL	F36	15	NOX
F18	20	CONVERTER	F37	10	N/A
F19	5	A/C COMPONENTS	F38	10	INTERIOR LIGHTS

MAINTENANCE AND SERVICE

Electrical Systems

No	Amp.	System	No	Amp.	System
F39		N/A	F55	5	WEBASTO TIMER
F40	7,5	REAR FOG LIGHT	F56	15	COMFORT MODULE
F41	7,5	STOPLAMPS	F57	20	WEBASTO PUMP
F42	7,5	PEAK SIGNAL	F58		SPARE
F43		SPARE	F59		
F44	10	REVERSE GEAR	F60	15	FLASHER / HORN
F45	5	HAZARD WARNING	F61	20	A/C WET TYPE
F46	7,5	RIGHT PARKING LAMPS / DOME LAMPS	F62	20	WIPER MOTOR
F47	30	CAB LIFTING	F63	1	ALTERNATOR W PIN (AFTERMARKET)
F48	7,5	LEFT PARKING LAMPS	F64	20	BCU1
F49	30	TRAILER 7 PIN SUPPLY	F65	20	BCU2
F50	10	TRAILER PARK	F66	20	BCU3
F51	5	HEADLIGHT ADJUSTMENT MOTOR	F67	20	BCU4
F52	5	WEBASTO TIMER MODULE PARK	F68	20	BCU5
F53	5	LIGHTER	F69	20	BCU6
F54	3	DOME LAMP	F70	15	IGNITION SWITCH

MAINTENANCE AND SERVICE

Electrical Systems

No	Amp.	System	No	Amp.	System
F71	15	VGT / EGR	J2	40	LDWS/TACHOGRAPH/CONVERTOR/ AUTOMATIC TRANSMISSION
F72			J3	40	LAMPS
F73	15	COMFORT MODULE CONVERTOR	J4	40	WEBASTO
F74	20	Radio	J5	30	AUTOMATIC TRANSMISSION
F75	5	RADIO SUPPLY AND ILLUMINATION / RAIN SENSOR	J6	40	CAB LIFTING / TRAILER
F76	10	DIAGNOSTIC	J7	60	BCU1
F77	5	WEBASTO TIMER IGNITION	J8	60	BCU2
F78	5	ADDITIONAL AXLE	J9	40	COMFORT MODULE/HORN/HAZARD/WIPERS
F79	20	AFTER SALES IGNITION SUPPLY (EXTERNAL)	J10	40	ABS / EBS / ECM
F80	15	AFTER SALES IGNITION SUPPLY (INTERNAL)	J11	40	IGNITION-1
F81	20	AFTER SALES IGNITION SUPPLY (INTERNAL)	J12	40	KONTAK-2.
F82	1	HEADLAMP SWITCH	J13	20	POWER POINT (12 VOLT OUTLET)
D1	1	INTARDER	J14	40	IGNITION SWITCH / WEMA,VGT&EGR / SUCTION LINE HEATER / ELECTRO HEATER
D2		N/A	J15	60	HEATED WINDSCREEN
J1	40	INTARDER / COMFORT MODULE / ECAS / CLUSTER	J16	40	LIGHTER / AFTER SALES IGNITION SUPPLY

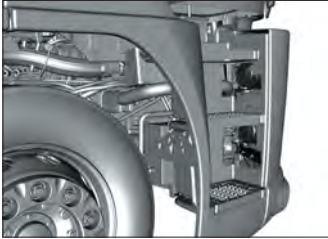
MAINTENANCE AND SERVICE

Electrical Systems

No	Amp.	System	No	Amp.	System
R1	40 A	IGNITION-1	R16	20 A	REVERSE GEAR
R2	40 A	VGT / EGR / WEMA / NOX	R17	20 A	PARKING LAMPS
R3	40 A	IGNITION-2	R18	40 A	BRAKING LAMPS -2
R4	40 A	WINDSHIELD HEATER 1	R19	20 A	MUTING THE RADIO
R5	40 A	WINDSHIELD HEATER 2	R20		N/A
R6	40 A	CAB TILTING	R21	20 A	CRUISE CONTROL OFF
R7	20 A	ROOF SIGNAL	R22	20 A	WIPER LOW SPEED
R8	20 A	AUX RELAY	R23	20 A	HORN
R9	20 A	PUSH FORWARD / PULL BACK	R24	20 A	REAR FOG LIGHT
R10	20 A	BLOWER1			
R11		N/A			
R12	20 A	ENGINE STOP			
R13	20 A	BLOWER2			
R14	20 A	WIPER HIGH SPEED			
R15	20 A	BRAKING LAMPS -1			

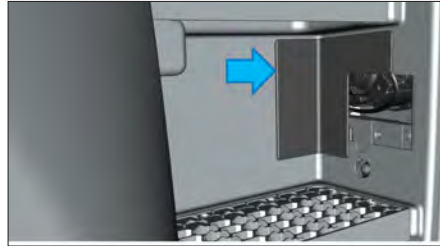
MAINTENANCE AND SERVICE

Changing Bulbs

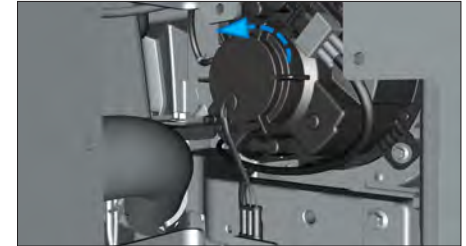


Use the covers on the door steps to replace the low and high beam headlamp bulbs.

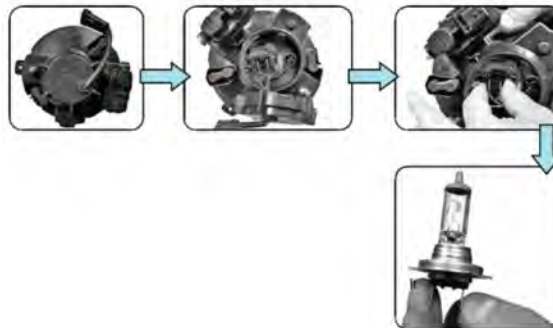
high beam:DTRL-21W
low beam :70W



1- Pull the rubber part firmly



2- Open the headlamp rear cover by rotating it counter-clockwise

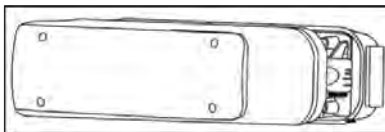
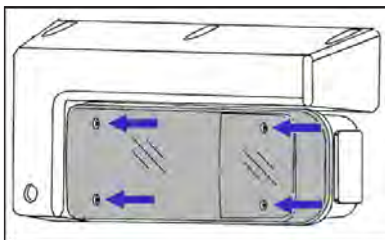


MAINTENANCE AND SERVICE

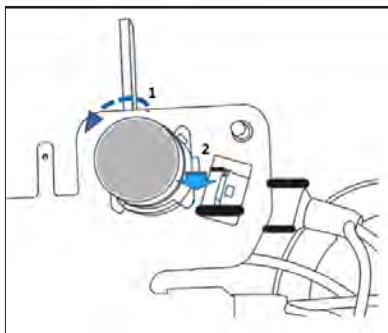
Changing Bulbs

Brake Lamp

Turn Indicator Lamp (bayonet 21w)
Brake Lamp (bayonet 21w)
Fog Lamp (bayonet 21w)
Reverse Lamp (bayonet 21w)
Position Lamp (bayonet 5 w)
Licence Plate Lamp (Led)
Side Marker Lamp (Led)



Remove the lens of the lamp by unscrewing its screws.



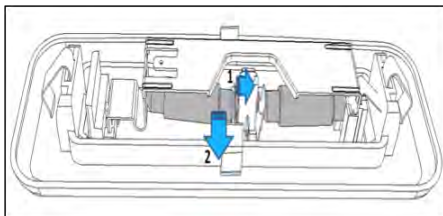
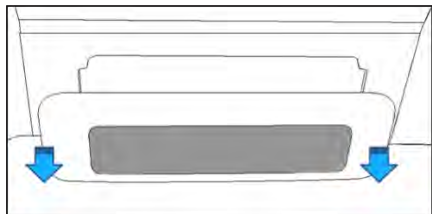
Rotate the bulb that will be replaced under slight pressure anticlockwise and remove it.

Install the new bulb by applying the same procedure backwards.

MAINTENANCE AND SERVICE

Changing Bulbs

Dome Lamp



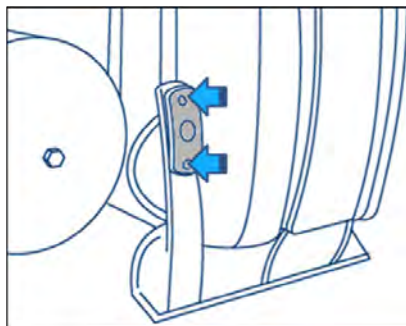
Unclip the bulb that will be changed.
Install the new bulb by applying the same procedure backwards.



CAUTION

Do not touch the bulbs with your hands when you are replacing the halogen bulbs, otherwise the bulbs will never work again.

Reflector (Led)

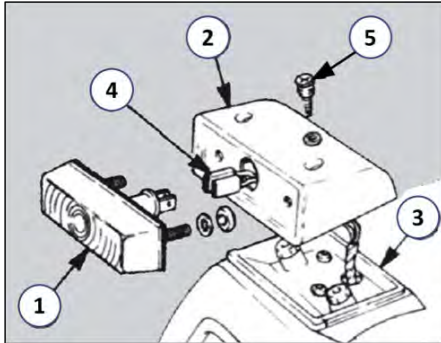


Unscrew the screws of the old reflector and renew it with new one.

MAINTENANCE AND SERVICE

Changing Bulbs

Roof Lamp



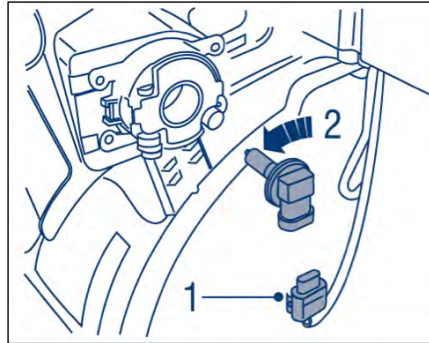
- 1- Lamp case 3- Bottom plate
2- Top cover 4- Connector and harness

Take the upper cover off by removing 2 screws (5) on the lamp.

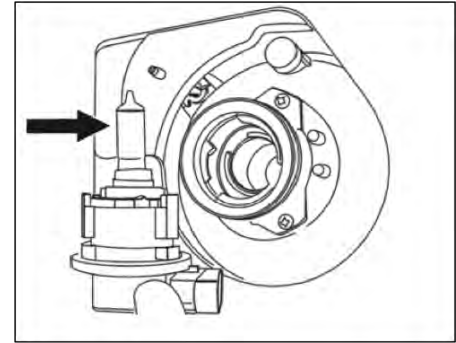
Detach the connectors (4) behind the lamp case. Take the lamp body off by removing 2 nuts.

Install new lamp case (1) by applying same procedure backwards.

Front Fog Lamp



- 1- Detach the electrical connector from its socket.
2- Remove the socket from fog lamp by rotating it counter-clockwise. (H1-70W)

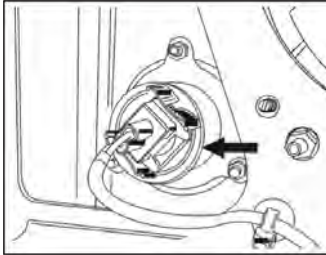


Remove the bulb and renew by applying the procedure backwards.

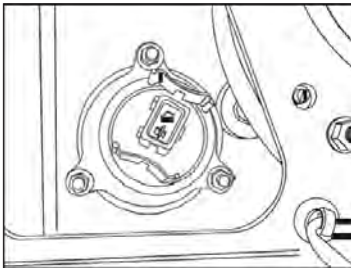
MAINTENANCE AND SERVICE

Changing Bulbs

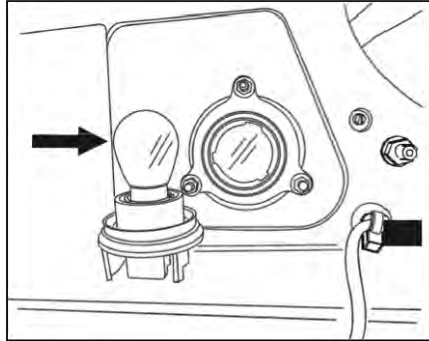
Turn Indicator Lamp



Detach the electrical connector from its socket.

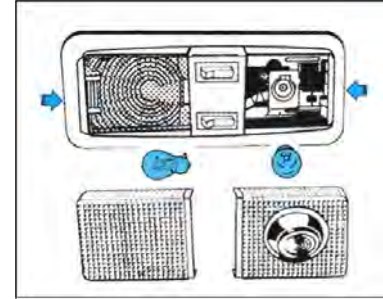


Remove the socket by rotating it counter-clockwise.



Remove the bulb and renew by applying the procedure backwards. (BAYONET-21W)

Reading Lamp



Release the lamp covers from the tabs by pressing them from the ends on the direction of the arrow to replace the reading lamp bulbs.

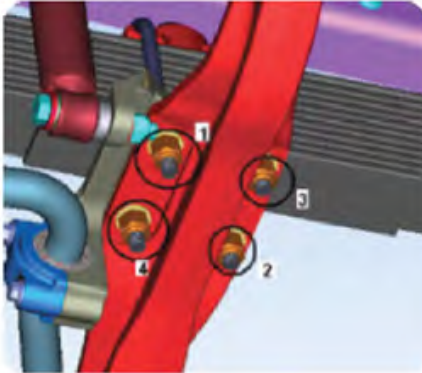
Remove the bulbs and renew by applying the procedure backwards.

Reverse Buzzer

A buzzer is available on your vehicle in addition to the reverse lamp. Buzzer will sound intermittently when the vehicle is shifted to reverse.

MAINTENANCE AND SERVICE

Suspension Systems



WARNING

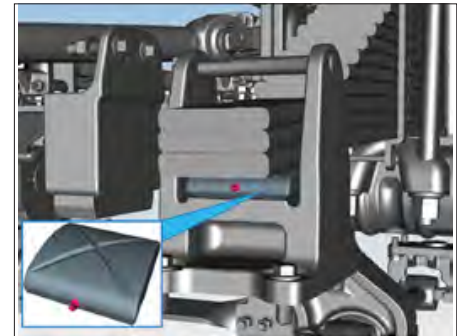
It is recommended, for a longer life of the springs, that you have the spring U-bolt nut torques checked between the first range of 2.000 km and 5.000 km (for once).

MAINTENANCE AND SERVICE

Suspension Systems

Type	1. Axle	2nd Axle	3rd Axle	4th Axle
35XXD			X	X
41XXD			X	X

Wear Pad Check



Check the grease condition of wear pads every week on X4 vehicles (except mixer vehicles), apply grease from the specified point if required.

MAINTENANCE AND SERVICE

Locations of the Tools in the Vehicle

PART	PART NAME	LOCATION	
		W SLEEPER CAB	W/O SLEEPER CAB
	JACK	UNDER THE BED	BEHIND DRIVER'S SEAT
	TOOLBOX	UNDER THE BED	BEHIND DRIVER'S SEAT
	WHEEL NUT WRENCH	BEHIND PASSENGER SEAT	BEHIND PASSENGER SEAT
	LEVER	BEHIND PASSENGER SEAT	BEHIND PASSENGER SEAT

PART	PART NAME	LOCATION	
		W SLEEPER CAB	W/O SLEEPER CAB
	TRAILER CONNECTION WIRE	UNDER THE BED	BEHIND PASSENGER SEAT
	TIRE INFLATION HOSE	UNDER THE BED	BEHIND DRIVER'S SEAT
	WARNING LAMP	IN GLOVE BOX	IN GLOVE BOX

MAINTENANCE AND SERVICE

Questions and Remedies

FAULT	CAUSE AND REMEDY
ENGINE IS STALLING	Transfer pump does not intake, check the front filter. Check main fuel filter. The hole on the fuel tank cover may be clogged. Open it. There is water in the fuel. Replace if necessary. There is air in the fuel injection system. Check the fuel pipes and hoses. Freezing or air ingress in the fuel settling bottle filter or fuel intake lines; check and clean if required.
ENGINE IS RUNNING ROUGHLY	There may be air or clogging in the fuel pipes. Bleed air. Incorrect valve adjustment Intake manifold or air filter may be clogged. Clean or replace. There is water in the fuel. Replace if necessary. There may be clogging or damage in the exhaust pipes or the muffler. Have them inspected. Injector pump intake may be insufficient. Contact an authorized dealer.
ENGINE IS DIFFICULT TO START	Air cleaner is dirty. Clean or replace. Starter is faulty. Have it repaired. Battery discharged. Have it charged. Exhaust system may be clogged. Have them inspected. Pre-heater fault. Have them inspected. Fuel level low. Top up. Air in the fuel system. Bleed air.

MAINTENANCE AND SERVICE

Questions and Remedies

FAULT	CAUSE AND REMEDY
ENGINE IS OVERHEATING	Coolant level low. Top up. An object may be blocking the front of the radiator. Check it. Radiator cores may be dirty. Clean the radiator. Water pump belt adjustment is wrong. Have it inspected by an authorized dealership. Exhaust system may be clogged, have it inspected. Thermostat is faulty. Check it (and replace it, if necessary). Water pump is faulty. Have it inspected by an authorized dealership.
LOW TRACTION	Engine compression level is low. Have them inspected. Air cleaner is dirty. Clean or replace. Incorrect valve adjustment Drive to an authorized dealer.
BLACKSMOKE FROM THE EXHAUST	Air cleaner is dirty. Clean or replace. Intake manifold or exhaust system may be clogged. Have them inspected. Compression level is low. Cylinder head gasket leaks. Incorrect valve adjustment or valves faulty. Engine worn. Drive to an authorized dealer and have the necessary inspections performed. Turbo unit is faulty. Drive to an authorized dealer. Air leak on the Intercooler and / or hose connections. Inspect the hose and clamps. Diesel particle filter breakage (Euro-6 vehicles)

MAINTENANCE AND SERVICE

Questions and Remedies

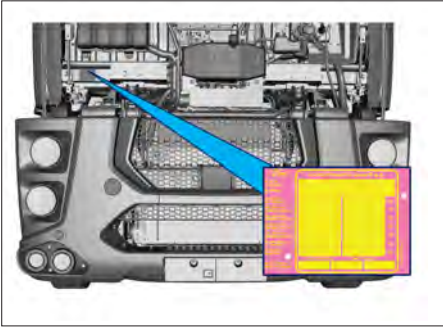
FAULT	CAUSE AND REMEDY
OIL PRESSURE LOW	Oil pressure indicator is blocked or faulty. Have them inspected. Oil filter element is clogged. Replace. Oil strainer is blocked. Clean it. Oil pump is faulty. Check the backlash, drive shaft and operation of safety valve.
POWER STEERING	Hydraulic oil level is low, top it up and bleed the system.
NOISE IN STEERING WHEEL	Drive to an authorized dealer and have the necessary inspections performed.
STEERING WHEEL IS ROTATING ROUGHLY	Check the tire pressure. Vehicle maybe overloaded. Check the suitability of load capacity. If load limits are not exceeded, drive to an authorized dealer.
PLAY IN STEERING WHEEL	Check for looseness in the steering system. Also have the adjustment inspected in an authorized dealership. Check the tire pressure and wheel alignment.
ENGINE DOESN'T PRODUCE POWER	Engine is faulty. Drive to an authorized dealer to resolve the fault. Exhaust or intake manifold is loose. Drive to an authorized dealer. Wrapping on turbine shaft bearings. It shall be repaired. Turbo pressure may be lower than necessary. You are recommended to contact nearest FORD OTOSAN authorized dealership.

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Labels

Vehicle Identification Plate



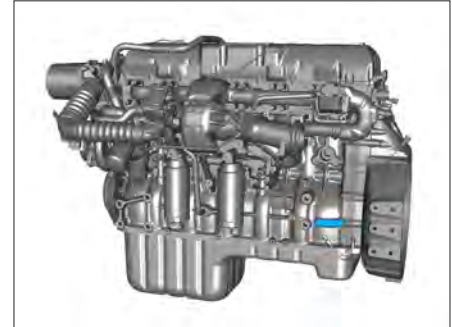
Vehicle identification plate is located under the hood in the front of the cab.

Over the right chassis arm of the vehicle:



Chassis number is placed under the front hood and chassis right side arm, and it has 17 digits. Example: NM0K13TEDFBL12345

Engine label



Metal label with the engine type and serial number inscribed on it is placed on the lower right side of the turbocharger intake pipe.

TECHNICAL SPECIFICATIONS

Fluid filling capacities

USAGE AREA	DESCRIPTION	CAPACITY	SAE NO.	FORD SPECIFICATION NO.	SPECIFICATION NO.
ENGINE OIL (INCL. OIL FILTER)	9 LT EURO 6 VEHICLES (ROAD TRUCK)	26 L			
	9 LT EURO 6 VEHICLES (CONSTRUCTION TRUCK)	29 L			
	9 LT EURO 3-5 VEHICLES (ROAD TRUCK)	26 L			
	9 LT EURO 3-5 VEHICLES (CONSTRUCTION TRUCK)	29 L			
	12.7 LT EURO 5-6 VEHICLES	46 L			
TRANSMISSION	ZF 9S 1310	8.9 L	75W80		Full Synthetic (TE-ML 02E ZF)
	ZF 12 TX 2210 TD AMT-INTARDER	22.5L			
	ZF 12 TX 2210 TD AMT-w/o INTARDER	12.5			
	ZF 12 TX 2620 TD AMT-INTARDER	23.5 L			
	ZF 12 TX 2620 TD AMT-w/o INTARDER	13.5 L			
	ZF 16S 2230 TO-with INTARDER	25L			
	ZF 16S 2230 TO-w/o INTARDER	15.4			
	ZF 16S 2530 TO-with INTARDER	25L			
	ZF 16S 2530 TO-w/o INTARDER	15.4L			
	-25°C to -45°C				
DIFFERENTIAL BOX	FORD XSS-510	18.5L			
	FORD XPT-330	23L			
	FORD XPS-330	17L			
DRIVE HUB	X4 AND X2 TRACTION VEHICLES	3 L/hub	85W140		API GL-5
JOURNAL HUB	X4 VEHICLES	2 x 0.75 L			
	-15 °C to -40 °C		75W140	WSL-M2C192-A	API GL-5
STEERING FLUID	Vehicles with Single Steerable Axle Vehicles with 9lt engine	3.5 L		WSS-M2C938-A	
	Vehicles with Single Steerable Axle Vehicles with 12.7lt engine	5.5 L			
	Vehicles with Dual Steerable Axle Vehicles with 9lt engine	9 L			
	Normal climate conditions	4,7L			
	-35 °C to -60 °C				

TECHNICAL SPECIFICATIONS

Fluid filling capacities

USAGE AREA	DESCRIPTON	CAPACITY	SAE NO.	FORD SPECIFICATION NO.	SPECIFICATION NO.
ENGINE COOLANT (ANTIFREEZE)	9 LT Vehicles	49 Lt		WSS-M97B44-D	
	12.7 Lt Vehicles (with Intarder)	72 Lt			
	12.7 Lt Vehicles (without Intarder)	59 Lt			
CAB LIFTER OIL		0.58 L		SLM-6C9100-A	
WHEEL GREASES	Disk brake	650 g/wheel	front axle	WSS-MIC275-A	
		1800 g/wheel	Additional Axle	WSD-MIC228-A	
	Disk brake C6AS vehicles	650 g/wheel	front axle	WSS-MIC275-A	
		1800 g/wheel	Additional Axle	WSD-MIC228-A	
	Drum brake	650 g/wheel	front axle	WSD-MIC228-A	
		1800 g/wheel	Additional Axle	WSD-MIC228-A	
	Cold pack	650 g/wheel	front axle	WSS-MIC275-A	
		1800 g/wheel	Additional Axle	WSD-MIC228-A	
	Disk brake (Tractor vehicles)	400 g/wheel	front axle	WSS-MIC275-A	
	Drum brake (Tractor vehicles)			WSD-MIC228-A	
	Cold pack (Tractor vehicles)			WSS-MIC275-A	
KING PIN			front axle	WSD-MIC228-A	
			self steer		
GREASES	SPARE WIRE	(**)	Lithium-based	WSD-MIC228-A	
	AXLE PIN	15 g/pin	Lithium-based	WSD-MIC228-A	
	AXLE LIFTING SHAFT	(**)	Lithium-based	WSD-MIC228-A	
	SECOND AXLE STEERING ARM	(**)	Lithium-based	WSD-MIC228-A	
	UNDER BODY LEAF SPRING FRICTION PADS LEAF SPRING EYELET BALANCE ARM CENTER PIN	(**)	Lithium-based	WSD-MIC228-A	
	BATTERY TERMINALS	20 g	Petroleum jelly		ESE N99B144B
	BRAKE SHOE SLIDERS	(**)	With Copper Additive		
	CAB LOCK BUSHING	0.024 g/lock		WSD-MIC228-A	
	DOOR STRUT	75 g/door	Polyurea NLGI 2	WSD-MIC238-A	
	DOOR LOCKS, LATCHES	(**)	Lithium No.1	SMIC-1021-A	
	DECELERATION				ISO 6743-9 L-XBEHB 2
					DIN 51502 KP2P-20
	-15 °C to -40 °C	(***)	Lithium-based	WSA-MIC160-D2 SS-M13P12-A	

TECHNICAL SPECIFICATIONS

Fluid filling capacities

USAGE AREA	DESCRIPTION	CAPACITY	SAE NO.	FORD SPECIFICATION NO.	SPECIFICATION NO.
CLUTCH FLUID		0,37 L	FMVSS No.116	WSS-M6C57-A2	SUPER DOT4
A/C SYSTEM REFRIGERANT	9 LT Engine	940 gr	J2776	WSH-M17B19-A	
	12.7 LT Engine	925 gr			
A/C SYSTEM OIL	9 LT Engine	150 -0/+20 cc		WSH-MIC231-B	
	12.7 LT Engine	200 -0/+10 cc			
FUEL		250L	TS EN590		
		315L			
		350L			
		450L			
		480L			
		550L			
UREA		600L	DIN 70070	WSS-M99C130-A	ISO 22241-1
		55L			
		75L			

(*) Antifreeze ratio in the coolant shall be at least 30% to protect the engine cooling system against corrosion.

Engine coolant shall include at least 60% antifreeze to prevent freezing down to -52 °C.

(**) This is used as required in maintenances.

(***) Instead of lithium based chassis greases in operating conditions from -15°C to 40°C

Refer to latest Ford Cargo Periodical Maintenance Sheet or contact a Ford authorized dealership for oil replacement intervals.

TECHNICAL SPECIFICATIONS

Engine Specifications

9 LT 330 PS	
Number of cylinders	6
Displacement	9000cc
Bore	115mm
Compression ratio	17,6±0,5:1
Minimum Engine Speed Without Load	600±10
Maximum Engine Speed With Load:	2200±20
Valve Clearance	Intake: 0.3mm .
	Exhaust:0,4mm
Ignition Sequence	1-5-3-6-2-4
Turbo	Euro5: Cummins HE400WG variable geometry
	Euro6: Borgwarner BV70 variable geometry
Oil Pressure	DIN 0.7-2bar
	DIN 2.1-3bar
	Max speed: 6 bar
Engine brake	27 kW/lt (2400 rpm)
Torque per unit liter	144Nm
PS per unit liter	37PS

12.7 LT 420 PS	
Number of cylinders	6
Displacement	12700 cc
Bore	130 mm
Compression ratio	17 ± 0,5:1
Minimum Engine Speed Without Load	550 ± 10
Maximum Engine Speed With Load:	1800 ± 20
Valve Clearance	Intake: 0.4mm
	Exhaust: 2.4mm .
Ignition Sequence	1-5-3-6-2-4
Turbo	Borgwarner BV70 variable geometry
Oil Pressure (100 °C)	600 rpm: 0.7 - 2 bar
	1100 rpm: 2.1 - 3bar
	Max speed: 6 bar
Engine brake	30 kW/lt (2400 rpm)
Torque per unit liter	169 Nm
PS per unit liter	33 PS

TECHNICAL SPECIFICATIONS

Engine Specifications

12.7 LT 480 PS	
Number of cylinders	6
Displacement	12700cc
Bore	130 mm
Compression ratio	17 ± 0,5:1
Minimum Engine Speed Without Load	550 ± 10
Maximum Engine Speed With Load:	1800 ± 20
Valve Clearance	Intake: 0.4mm
	Exhaust: 2.4mm
Ignition Sequence	1-5-3-6-2-4
Turbo	Borgwarner BV70 variable geometry
Oil Pressure (100 °C)	600 rpm:0.7 - 2 bar
	1100 rpm:2.1 - 3bar
	Max speed: 6 bar
Engine brake	30 kW/lt (2400 rpm)
Torque per unit liter	181 Nm
PS per unit liter	36 PS

TECHNICAL SPECIFICATIONS

Transmission Specifications

ZF 12 TX 2210 TD AMT					
	LOW	HIGH		LOW	HIGH
1ST GEAR	16.69	12.92	5TH GEAR	2.174	1.684
2ND GEAR	9.926	7.688	6TH GEAR	1.291	1
3RD GEAR	5.895	4.565	REVERSE GEAR	15.54	12.03
4TH GEAR	3.655	2.831			

ZF 16S 2230					
	LOW	HIGH		LOW	HIGH
1ST GEAR	13.8	11.54	6TH GEAR	2.08	1.74
2ND GEAR	9.49	7.93	7TH GEAR	1.43	1.2
3RD GEAR	6.53	5.46	8TH GEAR	1	0.84
4TH GEAR	4.57	3.82	REVERSE GEAR	12.92	10.8
5TH GEAR	3.02	2.53			

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ZF 12 TX 2620 AMT					
	LOW	HIGH		LOW	HIGH
1ST GEAR	16.688	12.924	5TH GEAR	2.174	1.684
2ND GEAR	9.926	7.688	6TH GEAR	1.291	1
3RD GEAR	5.895	4.565	REVERSE GEAR	15.537	12.033
4TH GEAR	3.655	2.831			

TECHNICAL SPECIFICATIONS

Transmission Specifications

ZF 16S 2530					
	LOW	HIGH		LOW	HIGH
1ST GEAR	13.8	11.54	6TH GEAR	2.08	1.74
2ND GEAR	9.49	7.93	7TH GEAR	1.43	1.2
3RD GEAR	6.53	5.46	8TH GEAR	1	0.84
4TH GEAR	4.57	3.82	REVERSE GEAR	12.92	10.8
5TH GEAR	3.02	2.53			

ZF 16S 1630					
	LOW	HIGH		LOW	HIGH
1ST GEAR	16.41	13.8	6TH GEAR	2.47	2.08
2ND GEAR	11.28	9.49	7TH GEAR	1.7	1.43
3RD GEAR	7.76	6.53	8TH GEAR	1.19	1
4TH GEAR	5.43	4.57	REVERSE GEAR		
5TH GEAR	3.59	3.02			

ZF 9S 1310			
1ST GEAR	6.58	6TH GEAR	1.35
2ND GEAR	4.68	7TH GEAR	1
3RD GEAR	3.48	8TH GEAR	0.75
4TH GEAR	2.62	REVERSE GEAR	8.95
5TH GEAR	1.89	C GEAR	9.48

TECHNICAL SPECIFICATIONS

Product Range

FORD CARGO TRANSPORT SERIES			
1833	2533	2542	2633
			
2642	2642T	3233S	3242
			
1842T	3542	4142	1848T
			

TECHNICAL SPECIFICATIONS

Product Range

FORD CARGO CONSTRUCTION SERIES

1833D



2533D



2542D



3233SD



3233CD



3242CD



3542D



3542M



3542P



3242M



3233M



4142M



4142P



4142D



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TECHNICAL SPECIFICATIONS

Installation of Upper structure

You can access the web portal designed to be a guide for Ford Cargo upper structure manufacturers from the following address:
<https://www.fordtrucksbb.com.tr>.

Portal requires a membership and provides the following:

- Urgent info bulletins
- Superstructure forms
- Technical bulletins
- Type approvals
- 2D and 3D technical drawings and models
- Vehicle specification sheets
- Electric and air outlet diagrams
- Advisory, monitory documents

- List of superstructure builders listed as recommended firm as per the inspections of Ford Otosan.

Visit

<https://www.fordtrucksbb.com.tr>

"Ford Otosan contact information" tab to contact relevant persons for your questions.

You may send e-mails to info@hakbim.com.tr for your questions on the portal.

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