Operator's Manual

MASSEY FERGUSON

MF 7700 - Maintenance

MF 7719
MF 7720
MF 7722
MF 7724
MF 7726

Dyna-VT

Beauvais
AGCO S.A.S. - 41 avenue Blaise Pascal - 60000
Beauvais - France - RC B562 104 539

Original Operator's Manual

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ACT0021150
EAME
English

1. Safety instructions and safety points - Warranty

1.4 General safety instructions

1.4.1 Awareness of the safety instructions and symbols

Remember that you alone are responsible for safety. Good safety practices protect not only you, but also bystanders. Before using the tractor, study the instructions given in this book with care, as well as all of the safety decals and instructions fixed to the tractor: Make them an integral part of your safety procedure. Also note all the usual protective measures that should be taken when working and above all, don't forget:

Safety depends on you. You can prevent accidents which could cause serious injury or death.

WARNING:

In some of the illustrations in this book, the safety panels and guards have been removed for reasons of clarity. Never use the tractor if these parts are not in place. If some of these parts have been removed for repair purposes, they must be refitted before use.

1.4.2 Operator familiarity in the use of the tractor

WARNING:
The operator must not drink alcohol or take any medication that may affect his concentration or co-ordination.
If taking medication, whether prescribed or not, the operator must seek medical advice with regard to his ability to operate machinery safely.

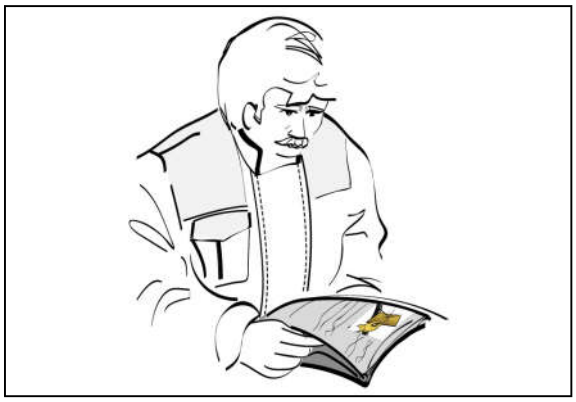

Fig. 2

- To be able to use your tractor, it is first necessary:
  - to be familiar with operating an agricultural tractor
  - to have been trained in the operation of the tractor that you have just purchased
  - to have read and understood this entire book — to always consult the dealer as soon as there is any doubt or lack of understanding
  - find out about the rules and safety regulations applicable to the work you are doing. Some regulations specify that no one under the age of 16 may operate power machinery, for example. This includes tractors. It is your responsibility to know what these regulations are and to observe them in the operating area or situation. These rules include, but are not limited, to the safety instructions relating to correct operation of the tractor as described in this book.
- Do not allow children or unqualified persons to operate the tractor.
- Do not allow children to use the instructor seat.
- The instructor seat is only intended for short periods of use.

WARNING:
In poor conditions, slow down and be extra careful, and engage 4-wheel drive if fitted.

It is important to have good knowledge of the operation of the tractor as well as all of its accessories and attached implements.

Remember that rain, snow, ice, loose gravel or soft ground can change the performance of the tractor.

Starting assistance

WARNING:
Never use any starter fluid or aerosol sprays.

This could cause an explosion and very serious injuries.

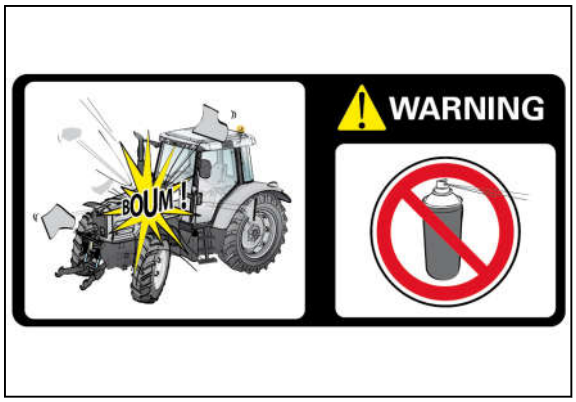

Fig. 8

1.7.3 Starting the tractor with jump start cables

IMPORTANT:

- *Do not attempt to boost a damaged battery.*
- *Do not touch the connectors on the jump start cables.*
- *Do not allow your body to touch the vehicle (chassis frame) when making the connections.*
- *Do not use a damaged battery or a damaged booster.*
- *Only use a battery or a booster with a similar voltage.*
- *To avoid accidental hazards when working near the battery, remove all jewellery or metal accessories, such as rings or bracelets.*
- *Do not disconnect the damaged battery — this can damage the vehicle's electrical system.*

Procedure

1. The ignition key must be in the OFF position.

   ATTENTION:
   The tractor engine must not start up or move accidentally.
2. Connect the clamp of the red cable to the positive terminal (+) of the flat battery.
3. Connect the other clamp of the red cable to the positive terminal (+) of the battery in good condition or to the positive terminal (+) of a recovery vehicle.
4. Connect the clamp of the black cable to the negative terminal (-) of the battery in good condition.
5. Finally, connect the other black clamp to any part of the engine block or chassis frame (metal part).

   ATTENTION:
   To avoid the risk of a spark and potential explosion due to hydrogen from the battery, never make this final connection to the negative terminal (-) of the damaged battery.
6. Leave the flat battery to recharge for a few minutes, or even longer if possible, before attempting to start.
7. Start the engine of the vehicle. Once started, leave the engine running for a few minutes.
8. Without turning off the engine you have helped to start, disconnect the jump start cables from the battery or the booster in reverse order.

   ATTENTION: *At the end of the operation, make sure that the red and black cables do not touch each other when they are still connected to a battery.*

   IMPORTANT: *Corroded battery terminals may interfere with, or even prevent the tractor from starting.*

- Ensure that all the PTO shaft guards are in place and check the presence of all safety decals .

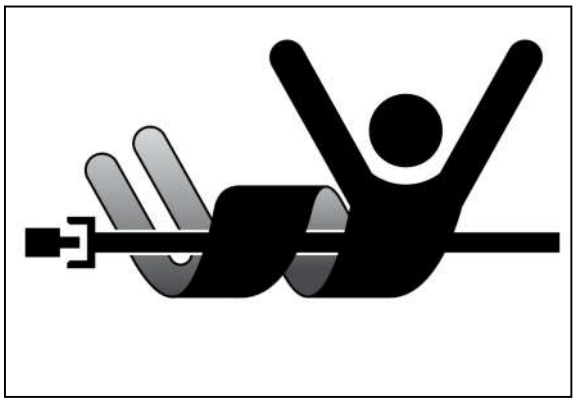

Fig. 17

- Ensure that the PTO cap (1) is fitted when the PTO shaft is not in use .
- Before hitching, unhitching, cleaning or adjusting the implements driven by the PTO, follow the "mandatory procedure before dismounting the tractor" .
- Ensure that there is nobody in the vicinity of the implement before engaging the PTO.
- For stationary PTO operation, place the transmission lever and/or the shuttle lever (both if the tractor is fitted with them) in neutral, apply the hand brake or engage ParkLock (depending on option) and chock the wheels of the tractor and the implement.
- Do not use PTO adapters, reducers or extensions as they extend the PTO coupler beyond the protection offered by the guard.

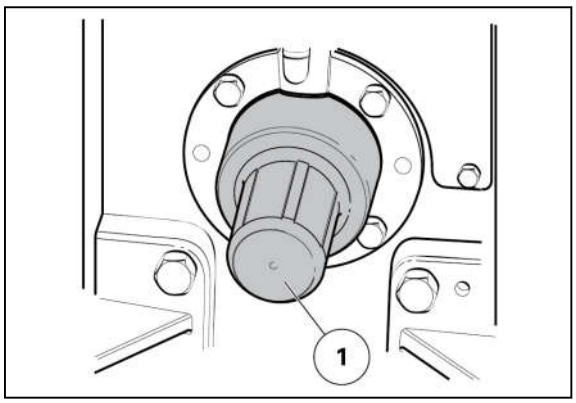

Fig. 18

(1) Correct assembly
(2) Incorrect assembly

IMPORTANT:
To prevent any rotation problems or damage to the PTO guard, observe the correct fitting position of the transmission shaft.
Make sure that the shaft does not collide with the surrounding area when the implement hitched to the tractor moves (this is a particular risk for short type 3 PTO shafts with a shield measuring 290 mm wide, as this limits the space available for the assembly).

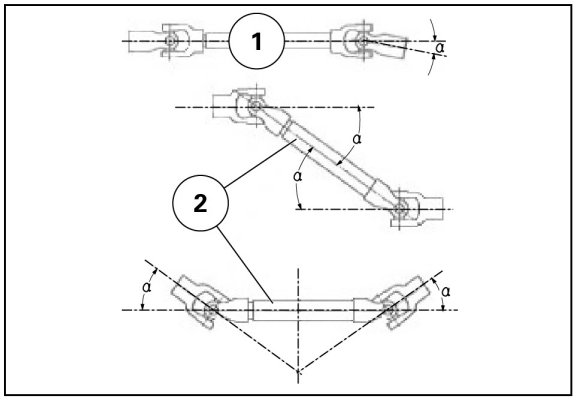

Fig. 19 Transmission shaft

1.8.10 Implements

WARNING:
The special implements are not supplied with the tractor.

Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.

1.11 Warranty

1.11.1 General

When selling new products to its dealers, the manufacturer provides a warranty which, subject to certain conditions, guarantees that the goods are free from defects in material and workmanship. Since this book is published worldwide, it is impossible to detail the exact terms and conditions of warranty that apply to all retail customers in all countries. Purchasers of new Massey Ferguson equipment should therefore request full details from their supplying dealer.

In accordance with the manufacturer's policy of continuous improvement of its products, the manufacturer reserves the right to make alterations to the specifications of machines at any time without notice. The manufacturer disclaims all liability for discrepancies which may occur between the specifications of its products and the descriptions thereof contained in its publications.

1.11.2 Pre-delivery inspection and commissioning on the user's premises

The dealer is required to carry out certain activities when supplying a new tractor. These consist of carrying out a full pre-delivery inspection to ensure that the tractor supplied is ready for immediate use, and providing full instructions to the user on the basic principles of operation and servicing of the tractor. These instructions will cover instruments and controls, and routine servicing and safety precautions. All persons who will be involved in the operation and servicing of the tractor should be present when these instructions are given.

IMPORTANT:
Massey Ferguson disclaims all liability in the event of any claim resulting from the fitting of non-approved parts, accessories, implements or attachments or unauthorized modifications or alterations.

1.11.3 Warranty procedure

Correct commissioning on the user's premises and routine servicing help to prevent breakdowns. However, if operating problems do occur during the warranty period, follow this procedure:

- Immediately inform the dealer you purchased the tractor from, stating the model and serial number. It is very important not to delay, as even if the defect is covered by the original warranty, the coverage may no longer apply if the repair is not carried out immediately.
- Provide the dealer with as much information as possible. The dealer will need to know how many hours the tractor has been in service, what type of work it is used for and the symptoms of the problem.

Routine service operations not covered by the warranty

It should be noted that routine service operations such as tuning, brake and clutch adjustment, and the supplies used for the tractor service (oil, filters, seals, fuel, antifreeze etc.), are not covered by the warranty.

Warning concerning spare parts

Parts other than Massey Ferguson parts are likely to be of lower quality. Massey Ferguson disclaims all liability in the event of loss or damage arising as a result of such parts being fitted. The manufacturer's warranty may also become void if such parts are fitted during the normal warranty period.

1.11.4 Procedure to follow if changing region

Only the dealer from whom the tractor was purchased is liable for the protection provided by the warranty. Any repairs should, wherever possible, always be carried out by this dealer. If, however, the owner moves to another region or if the tractor is to be used temporarily at a location a long way from the dealer from whom it was bought, it is advisable to ask this dealer for the name and address of the dealer closest to the new address and arrange to have the obligations remaining to be fulfilled under the warranty transferred to this dealer.

2.2 Cab

2.2.1 Air conditioning system: condenser

Frequency

Check the condenser regularly and, if necessary, clean using compressed air.

Procedure

Clean the condenser grilles carefully.

NOTE:
Take care not to damage the various radiator grilles.

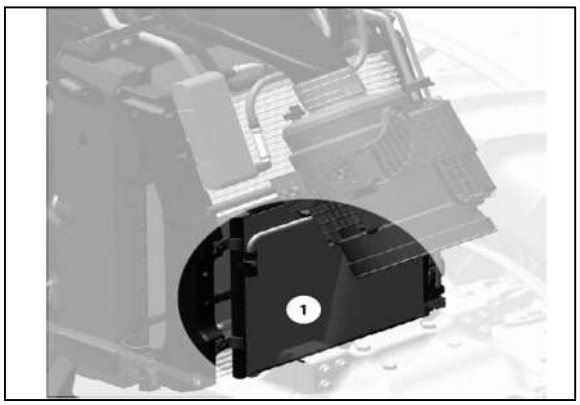

Fig. 1

2.2.2 Air-conditioning system: Checking the air conditioning system

DANGER:

In the event of a leak, wear safety goggles. Escaping refrigerant gas or liquid can cause severe injuries to the eyes. The R134a refrigerant used in the installation gives off a toxic gas if it comes into contact with a flame.

WARNING:

Do not disconnect any part of the air conditioning system. Consult your dealer or agent if a fault occurs.

Procedure

1. Operate the air conditioning system for a few minutes every week to keep the whole system in good condition and to lubricate the seals.
2. Add charge to the air conditioning system every year at the start of summer (consult your dealer).

2.2.3 Cab air filter

Frequency

Clean the cab air filter every week, or more frequently, if necessary.

In dusty conditions, clean the cab air filter every day.

Replace the cab air filter(s) every 1200 hours, or once a year, whichever occurs first.

2.2.3.1 Standard-roof air filter: Procedure

WARNING:
The air filter element does not provide protection from chemical products. Please ask your dealer for information concerning the availability of the specific particle filter.

Procedure

1. Place a container underneath the filter
2. Drain the filter
3. Remove the filter element (1) and discard it in accordance with current environmental legislation.
4. Fill the new filter element with clean fuel and refit it (also lubricate the seal with fuel)

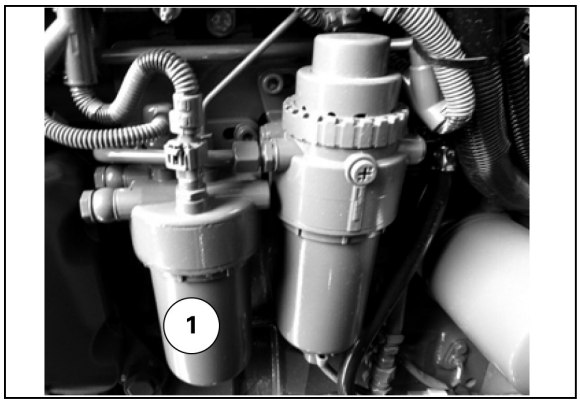

Fig. 17

5. Bleed the system .

2.3.10 Checking and cleaning the fuel cooler

Frequency

Check the cooler every day and, if necessary, clean using compressed air.

Procedure

IMPORTANT:
Take care not to damage the various radiator grilles.

Procedure

Clean the fuel cooler (1) with compressed air.

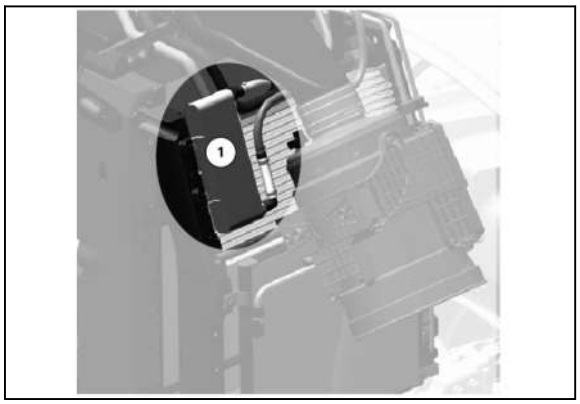

Fig. 18

2.3.11 Fuel system: Water separator prefilter

Draining the water: Frequency

Every 50 hours:

IMPORTANT:
Frequently clean the fuel prefilter bowl. Do not puncture the fuel prefilter.

NOTE:
To avoid water condensation in the fuel tank, refill with fuel at the end of the working day. Ensure that a spare prefilter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

2.4 Transmission

2.4.1 Recommended products

IMPORTANT:
The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Transmission

SAE 15W40 API GL4 oil complying with MF specifications CMS M1145 or oil found on the OH_3378884M1 list

Rear final drives

All models: SAE 85W140 API GL5.

2.4.2 Checking the transmission oil level

Frequency

Check the transmission oil level every day.

2.4.2.1 Procedure

Procedure

1. Stand the tractor on level ground, with the front axle suspension disengaged. Stop the engine.
2. Check that the level is between the minimum and maximum marks on the dipstick.
3. Top up if necessary.

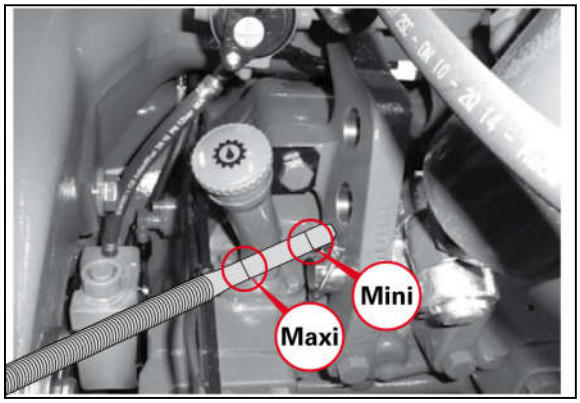

Fig. 37

2.4.3 Draining the transmission oil

Frequency

Drain and replace the transmission oil every 2000 hours.

2.4.3.1 Procedure

NOTE:
Do not drain until the transmission oil is hot.

Procedure

1. Open the cap of the anti-freeze tank
2. Open the system by placing the pump lever (1) in position (I)
3. Fill the tank (2) with the recommended anti-freeze
4. Replace the cap of the anti-freeze tank
5. After the winter, close the system by placing the pump lever in position (O).

   NOTE:
   Regularly check for anti-freeze in the tank throughout the winter.

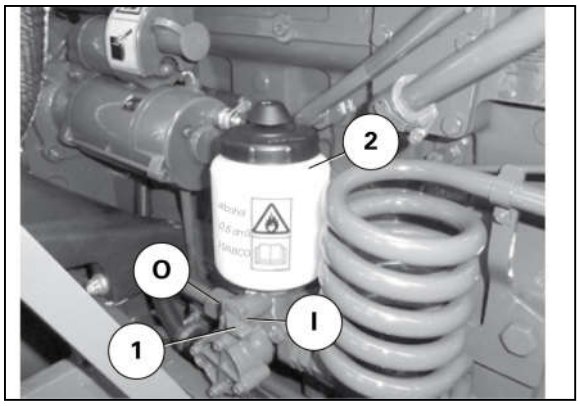

Fig. 56

(3) Linkage arm pin

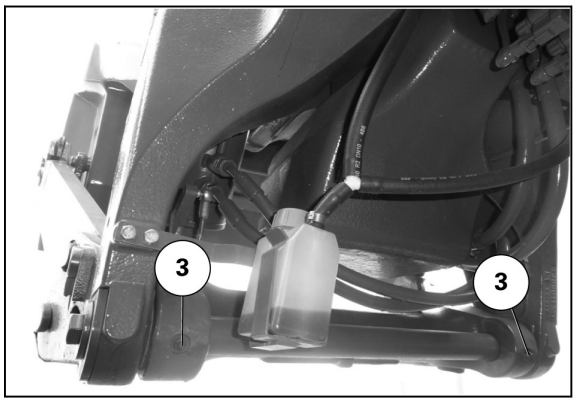

Fig. 74

Main fuse box

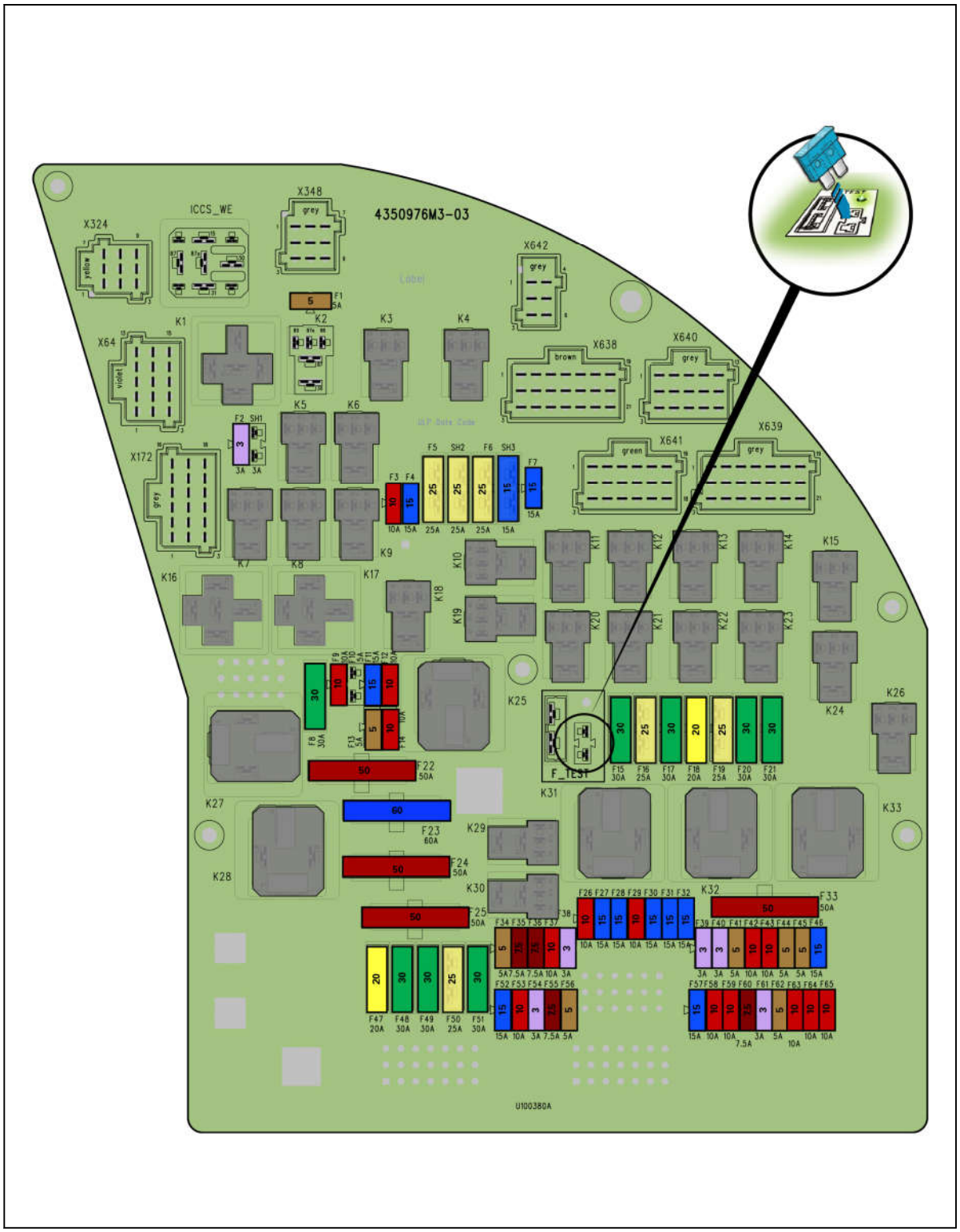

Fig. 87

For Dyna-VT transmission

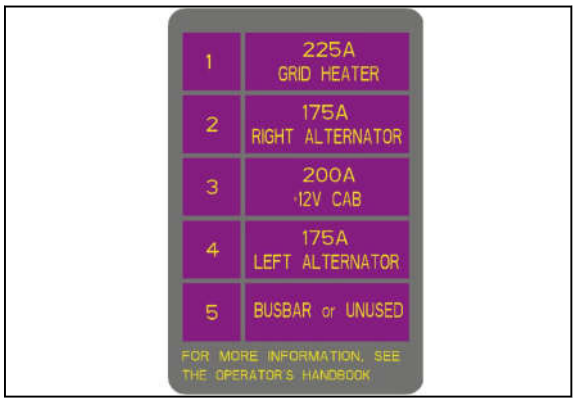

Fig. 90

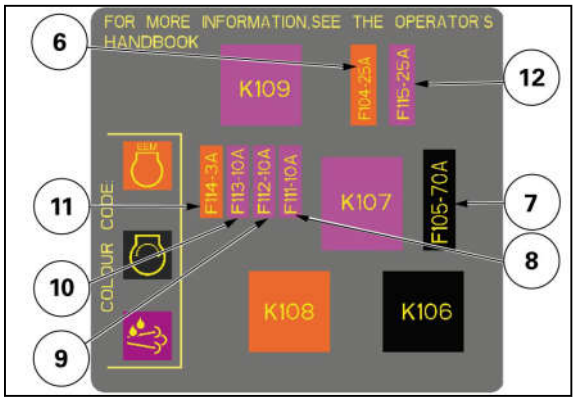

Fig. 91

Number	Amperage	Size	Protected function
1	225 A	Specific	+BAT **X241** - AGCO Power engine preheating supply (Grid Heater)
2	175 A	Specific	+BAT **X192** - B + alternator 1
3	200 A	Specific	Cab power supply + BAT
4	175 A	Specific	+BAT **X193** - B + alternator 2
5		Specific	BUSBAR +BAT or not used
6 - F104	25 A	Average	**X185** - Engine controller +BAT
7 - F105	70 A	Large	K106 start relay power circuit
8 - F111	10 A	Average	EGR valve supply
9 - F112	10 A	Average	Turbocharger wastegate power supply
10 - F113	10 A	Average	NOx sensors power supply
11 - F114	3 A	Average	**X185** - Engine controller earth protection
12 - F115	25 A	Average	K107 relay power circuit
K106			Starter relay
K107			preheater relay
K108			**X185** - Engine controller earth relay
K109			Power supply relay for engine sensors

Engine oil pressure indicator light

Activating condition(s)

- Indicator light flashing slowly = engine oil pressure low - warning
- Indicator light permanently on = insufficient engine oil pressure (< 1 bar) - STOP alert
- Indicator light flashing with general failure warning light = engine error

Cause(s)	Solution(s)
Oil level too low	Stop the engine and check the oil level.
Problem in the lubrication system	Contact the dealer.
Engine error code	Contact the dealer.

Service indicator light

Activating condition(s)

- Indicator light permanently on = service due

Cause(s)	Solution(s)
Service due	Perform required service. To switch off this indicator light, display the start-up screen, then press the OK key of the display selector switch on the Setup and Information Screen keypad for 6 seconds. The service schedule counter is set back to 500 hours. Otherwise, contact the dealer.

General failure warning light

Activating condition(s)

- Indicator light flashing with engine oil pressure indicator light = engine error - stop the engine
- Indicator light permanently on = major error - stop the tractor

Cause(s)	Solution(s)
Engine error	Contact the dealer.
Major error	Contact the dealer.

Steering supply pressure indicator light

Activating condition(s)

No.	FMI	Components concerned	Causes	Standard modes	modes
108	3	Ambient pressure sensor	Sensor voltage above normal or open circuit		
108	4	Ambient pressure sensor	Sensor voltage below normal		
109	3	Coolant pressure sensor	Sensor voltage above normal or open circuit		
109	4	Coolant pressure sensor	Sensor voltage below normal		
110	0	Coolant T° sensor	Coolant temperature HIGH, ALARM (>113 °C)	**Flm**	
110	3	Coolant T° sensor	Coolant temperature sensor voltage above normal or open circuit	1	
110	4	Coolant T° sensor	Coolant temperature sensor voltage below normal	1	
110	16	Coolant T° sensor	Coolant temperature HIGH, (>106 °C)	**Flm**	
132	2	Air flow sensor	Inconsistent signal		X
132	13	Air flow sensor	Calibration of point 0 failed		
132	19	Air flow sensor	CAN communication error		X
157	0	Rail pressure sensor	Rail pressure above normal	3	
157	2	Rail pressure sensor	Intermittent rail pressure	3	
157	3	Rail pressure sensor	Rail pressure sensor voltage above normal or open circuit	3	
157	4	Rail pressure sensor	Rail pressure sensor voltage below normal	3	
157	15	Rail pressure sensor	Positive pressure difference in common rail	3	
157	16	Rail pressure sensor	Rail pressure ABOVE NORMAL	3	
157	(17)	Rail pressure sensor	Negative pressure difference in common rail	3	
157	20	Rail pressure sensor	The rail pressure value has exceeded the tolerance threshold when starting or after stopping the engine		
157	21	Rail pressure sensor	The rail pressure value is below the tolerance threshold when starting or after stopping the engine		
168	0	Battery voltage	Battery voltage VERY HIGH (>17 V)		
168	1	Battery voltage	Battery voltage VERY LOW (<7.8 V)		
171	3	Ambient temperature sensor	Temperature sensor voltage above normal or open circuit		

No.	FMI	Components concerned	Causes	Standard modes	modes
520205	31		Error in input torque measurement		
520206	31	Engine controller	Controller internal error		
520207	31	Rail pressure sensor	Pressure below normal		
520209	31	Injectors	Injection time error		
520210	12	Injectors	Error with start of opening angle		
520211	31	CY33X	Component fault		
520212	31	MOCSOP (redundant stop test)	Diagnostic error		
520213	31	MOCSOP (redundant stop test)	Diagnostic error		
520214	31	MOCSOP (redundant stop test)	Diagnostic error		
520215	31	MOCSOP (redundant stop test)	Diagnostic error		
520216	31	MOCSOP (redundant stop test)	Diagnostic error		
520217	31	MOCSOP (redundant stop test)	Diagnostic error		
520218	31	MOCSOP (redundant stop test)	Loss of message synchronization		
520219	31	MOCSOP (redundant stop test)	Error appeared when storing torque limitation in memory		
520220	31	MOCSOP (redundant stop test)	Incorrect response time		
520221	31	MOCSOP (redundant stop test)	Too many errors during execution		
520222	31	MOCSOP (redundant stop test)	Diagnostic error		
520223	31	MOCSOP (redundant stop test)	Diagnostic error		
520224	31	MOCSOP (redundant stop test)	Time exceeded		
520225	31	MOCSOP (redundant stop test)	Diagnostic error		
520226	31	MOCSOP (redundant stop test)	Diagnostic error		
520227	31	MOCSOP (redundant stop test)	Diagnostic error		
520228	12	CY320	Module multiple supply error		
520229	13	FADC	A/D fast converter calibration error	3	
520229	31	Rail pressure sensor	Negative deviation of the pressure		
520230	31	Engine protection	Specification fault		
520231	31	All applications	Power take-off input error		
520232	31	All applications	Incorrect digital input configuration		
520233	31	Rail pressure sensor	Pressure below normal		
520237	31	User 1 error	Digital input		
520238	31	User 2 error	Digital input		
520239	3	DEF or AdBlue™™ metering valve after cooler	Short circuit to +12 V		

No.	Components concerned	Causes
6.X.B9	Rear power take-off 1000 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar	Communication error
6.X.E0	**X174** - EXT Lite transmission controller (96-pin)	Faulty programming
6.X.E1	**X174** - EXT Lite transmission controller (96-pin)	Faulty programming
6.X.E2	**X7** - Rear PTO solenoid valve	PWM signal control error
6.X.E3	**X7** - Rear PTO solenoid valve	PWM signal control error
6.X.E4	**X174** - EXT Lite transmission controller (96-pin)	Checksum error
6.X.E5	**X174** - EXT Lite transmission controller (96-pin)	Checksum error when engaging the rear power take-off clutch
6.X.E6	**X174** - EXT Lite transmission controller (96-pin)	Checksum error for the number of pulses from the rear power take-off end-fitting
6.X.E7	**X174** - EXT Lite transmission controller (96-pin)	Checksum error for the operating temperatures and the clutch times of the rear power take-off
6.X.E8	**X174** - EXT Lite transmission controller (96-pin)	Checksum error for the operating temperatures and the clutch times of the rear power take-off

2.15.11 Error codes for the high-pressure braking

No.	Components concerned	Causes
14.X.01	**X135** - Braking pressure sensor	Pressure below 70 bar during initialisation.
14.X.02	**X135** - Braking pressure sensor	Pressure below 70 bar for more than 2 seconds
14.X.03	**X135** - Braking pressure sensor	Pressure too high
14.X.04	**X135** - Braking pressure sensor	Overfeeding of sensor
14.X.05	**X135** - Braking pressure sensor	Pressure outside of range during initialisation
14.X.06	**X135** - Braking pressure sensor	The high-pressure braking accumulator is filled too often
14.X.07	**X135** - Braking pressure sensor	Open circuit
14.X.08	**X135** - Braking pressure sensor	Pressure too low

3. Technical specifications

Injection pump	Bosch CP4.2
Fuel injection type	Common rail HFRN 20
Injector type	CRIN 2.2
Cold weather starting	Grid heater with relay controlled by the controller
Air filter	Two-stage, dry element with blockage indicator

3.3.3 Cooling

Type	Pressurized system
Regulation	One thermostat, opening at 83°C
Fan	Vistronic clutch fan for Dyna-VT
Belts	Poly-V ribbed belts
Water pump	Belt-driven centrifugal pump

3.3.4 Tightening torques

Engine drain plug	80 Nm
Coolant filler plug	Manual tightening

(13) Rear work light: H3 55 W
(14) Rear indicators/warning lights: 21 W
(15) Rear brake lights/side lights: 21 W / 5 W

North America models

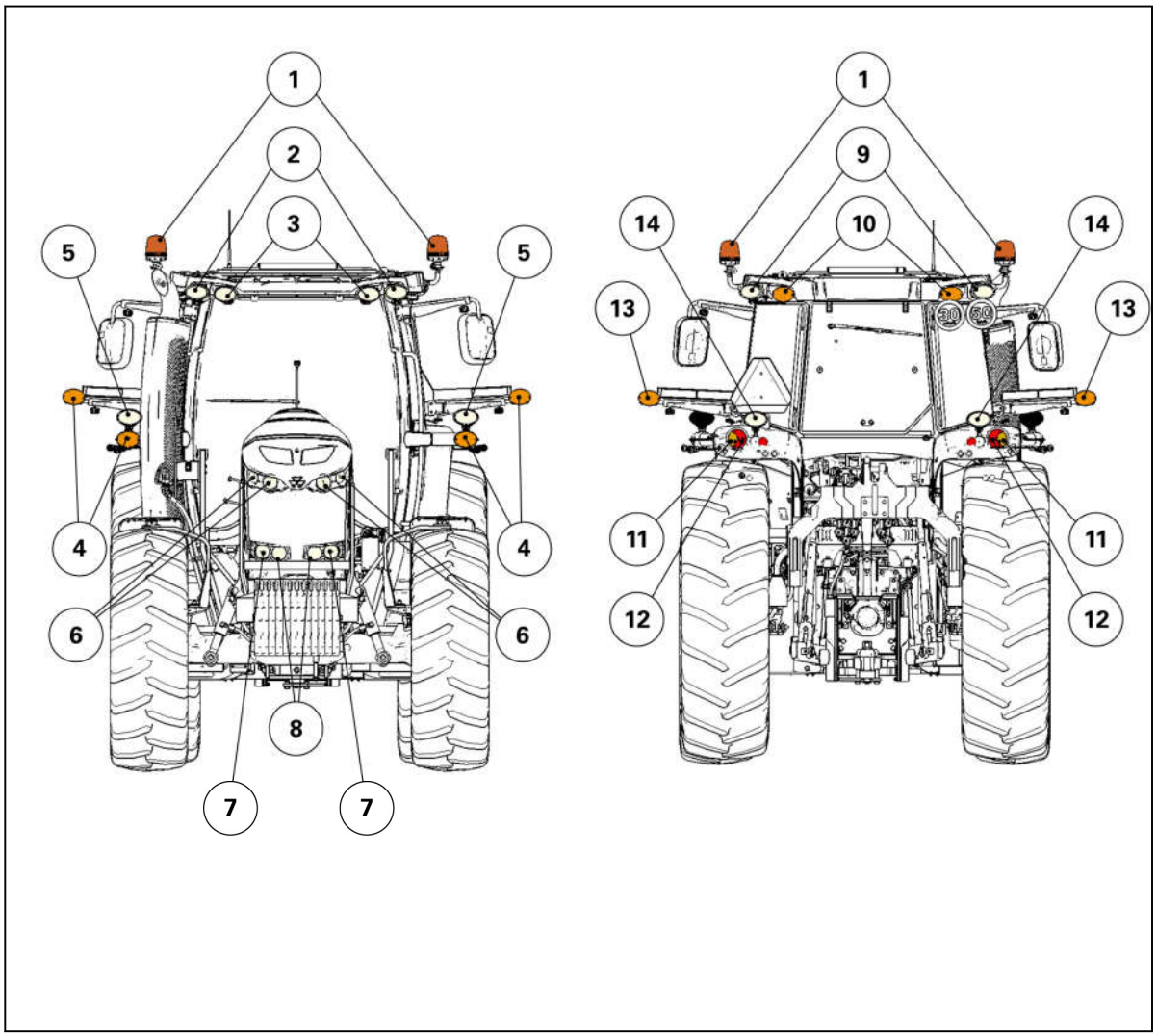

Fig. 5

(1) Rotary beacon: H1 55 W
(2) Front xenon work light: HID DIS 35 W
(3) Front work light: H3 55 W
(4) Warning lights: 21 W
(5) Front work light: H3 55 W
(6) Front work lights: H9 65 W
(7) Low beam lamps: H1 55 W
(8) High beam lamps: H1 55 W
(9) Rear xenon work light: HID DIS 35 W
(10) Warning lights: 21 W
(11) Indicator: 21 W
(12) Rear brake lights/side lights: 21 W / 5 W
(13) Rear warning lights: 21 W
(14) Rear work light: H3 55 W

Reference		X	Y	Z
1	2974 mm			
2	810 mm			
3	922 mm			
4	203 mm			
5	676 mm			
6	650 mm			
7	490 mm			
8	190 mm			
9	276 mm			
10	348 mm			
11	125 mm			
12	333 mm			
13[1]	M20	-1962 mm	345 mm	-66 mm
14[1]	M20	-1962 mm	345 mm	-146 mm
15[1]	M20	-947 mm	280 mm	-37.5 mm
16[1]	M20	-947 mm	280 mm	27.5 mm
(17)[1]	M20	27 mm	280 mm	-102.5 mm
18[1]	M20	27 mm	270 mm	-146.6 mm
19[1]	M20	86 mm	274 mm	-46.6 mm
20[1]	M20	86 mm	274 mm	-206.6 mm
21[1]	M20	331 mm	160 mm	-360 mm
22[1]	M20	331 mm	160 mm	-300 mm

[1] Front-end loader attachment points