



OPERATORS MANUAL AT-SB



Original

LLP FARM MACHINERY GROUP OY
LEVYTIE 4 • 74510 IISALMI

ORIGINAL

EY-VAATIMUSTENMUKAISUUSVAKUUTUS TUOTTEESTA

LLP Farm Machinery Group Oy vakuuttaa, että markkinoille saatettu kone täyttää direktiivin 2006/42/EY ja standardit SFS-EN ISO 12100 ja SFS-ISO730:2020.

FÖRSÄKRAN OM ÖVERENSSTÄMMELSE

LLP Farm Machinery Group Oy försäkras härmed till marknader att tillförda maskin uppfyller maskindirektivet 2006/42/EY och standard SFS-EN ISO 12100 och SFS-ISO730:2020.

CERTIFICATE OF CONFORMITY FOR A PRODUCT

LLP Farm Machinery Group Oy certifies that the following machine, which has been brought into the market, conforms to directives 2006/42/EY and standards SFS-EN ISO 12100 and SFS-ISO730:2020.

SAMSVARSERKLÆRING FOR MASKIN

LLP Farm Machinery Group Oy bekrefter herved at følgende maskin, som er sendt ut på markedet, er i samsvar med direktivene 2006/42/EF, SFS-EN ISO 12100 og SFS-ISO730:2020.

Tuote / Produkt / Product / Produkt: _____

Valmistusnumero / Tillverkningsnummer
/ Serial number / Serienummer: _____

Teknisen tiedoston kokoaja / Teknisk
dokumentation samlare / Technical file collector: Sakari Ruotanen

Valmistaja / Tillverkare / Manufacturer
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Paikka / Ort / Place / Sted: Iisalmi

Aika / Datum / Date / Dato: _____

Allekirjoitus / Underskrift / Signature
/ Signatur:



Nimenselvennys / Namnförtydligande
/ Clarification of signature
/ Tydeliggjøring av signatur:

Jarkko Hyyrönmäki

WARRANTY TERMS

- All the products produced by LLP Farm Machinery Group Oy have twenty four (24) months warranty.
- During the warranty period all the defects in material and in workmanship will be covered, in practical life FMG will replace defected parts with the new parts. Travelling expenses and freight of parts are not included in warranty.
- Warranty will start in the beginning of usage of the product, if nothing else has been agreed.
- Warranty is not covering damages due to misuse of product or use in the purposes where it has not been designed, lack of services or product has been modified without the permission of FMG.
- Wearing of the normal usage is not covered by the warranty.
- Losses in income, costs and loosen working hours caused by the defected part is not covered by the warranty.
- Warranty repairs should be done by the FMG service dealer or service dealer appointed by the manufacturer.
- In case the defects shown in reclamation is not valid or if case otherwise is not in the warranty area FMG has right to reject from the compensation.
- Warranty reclamation should be done in written form by the FMG seller within one (1) month after notifying the defect.

IN CASE OF DEFECT PROCEDURE IS AS FOLLOW:

- clarify the defect and defected area
- be prepared to deliver defected parts to the manufacturer
- contact FMG seller and make reclamation as follows:
 - type of the product and serial number
 - delivery date of the product (invoicing date)
 - date of the damage
 - description of the damage and pictures

description of the working conditions and the type of the base machine

TO THE OPERATOR

- The purpose of this manual is to provide support and instructions to scraper users. Manual contains detailed instructions for driving, operating and maintaining the scraper. Make sure that your new scraper is always handled and maintained in the correct way in order to ensure reliability and economical operation for many years.
- We recommend that you read the manual thoroughly. Follow the maintenance and service program carefully and include the daily maintenance in your normal routine. This is both your and your tractor interest.
- Maintenance, repairs and adjustments which are not described in this Operator Manual require the use of special tools and exact technical data. In case of that kind need please contact your FMG seller or factory.
- Use only genuine FMG spare parts for optimum performance from your tractor and scraper. Spares will be sold through the FMG seller.

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1. SAFETY INSTRUCTIONS

This section summarizes the regulations that must always be followed when working with the sensor blade. However, these regulations do not exempt the driver from statutory and other national regulations regarding traffic safety and occupational health and safety. Safety regulations that apply to different types of working sites and existing road traffic laws must always be observed. Tractor safety regulations accepted by the Finnish occupational safety and health administration have already been taken into account in the equipment design. The following section describes general safety precautions that must be observed regarding the use of the sensor blade.



IMPORTANT

Do not use the scraper for other purposes than it has been designed. Please read this manual carefully before using the implement.



IMPORTANT

Use the rotary beacon while working.



IMPORTANT

Before driving, make sure that all movements and functions work correctly.



IMPORTANT

Advise other users on the use of the implement and ask them to read the manual.



IMPORTANT

When using extension wings ensure that the space needed at the both side is enough.



IMPORTANT

If larger tractor tyres are used the turning angle of the grader should be limited so that the space between the blade and the tire is min 20 mm.



DANGER

Do not operate with damaged implement.



DANGER

When testing different movements of the grader make sure that there is no one on the running boards, stairs or close to equipment. Safety distance 5 meters.



DANGER

Pay attention to the turning of the blade because especially in winter conditions turned blade start to turn the tractor.



WARNING

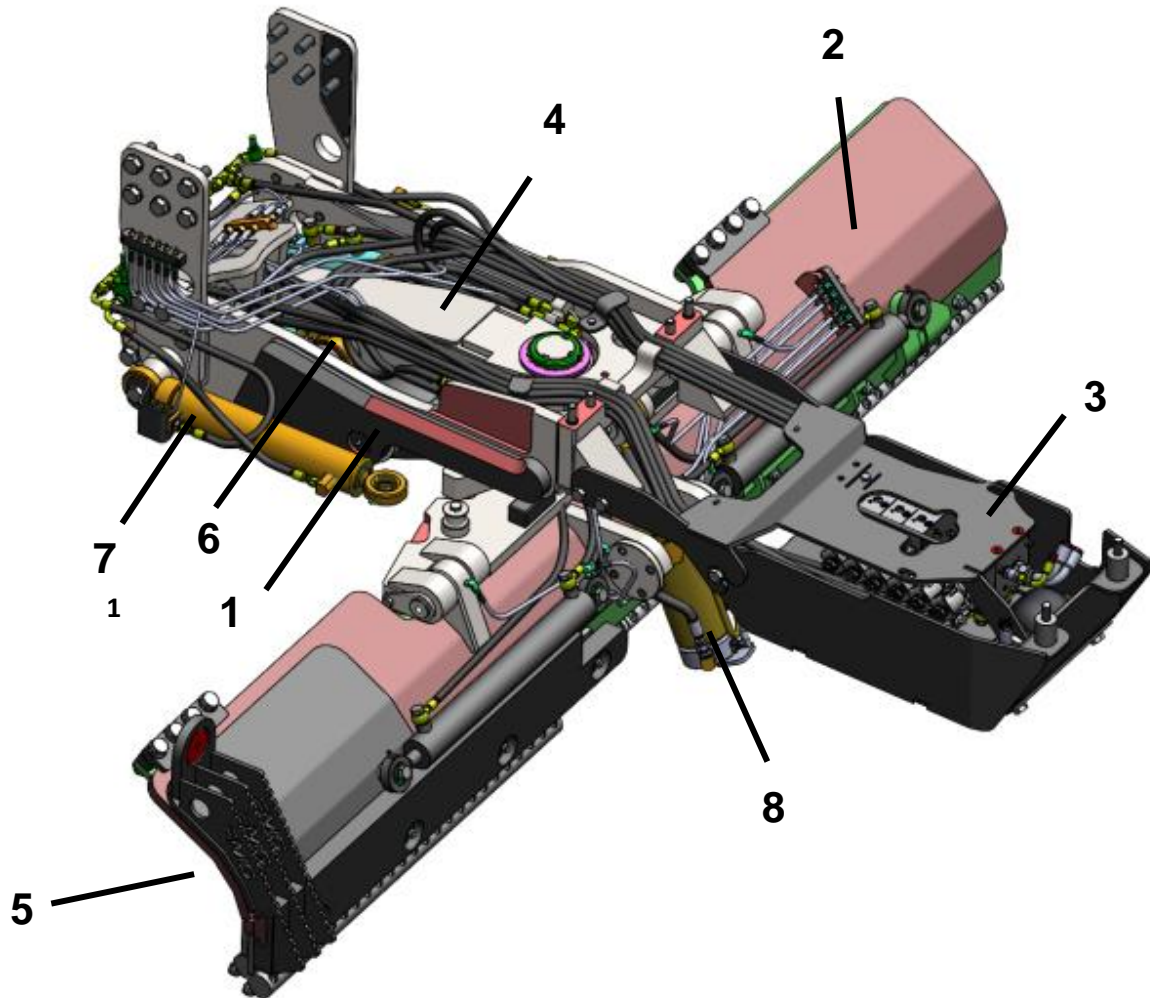
Use equipment according to the operator manual.



WARNING

Pay attention to other road users.

2. CONSTRUCTION



Picture 1. Grader construction

- 1. Grader frame**
- 2. Main blade**
- 3. Hydraulic valves**
- 4. Pulling frame**
- 5. Extension wings**
- 6. Lift cylinders**
- 7. Rotating cylinders**
- 8. Tilt cylinder of the blade**

3. SPECIFICATIONS

MODEL	AT-SB
Transport length	2480 mm
Working width	2256 mm – 3376 mm
Working width with max. turning angle	2256 mm – 3093 mm
Turning angle	+/- 25°
Side tilting	+/-5°
Ground clearance in work position (T4 stg4, Nokian Ground King 42")	150 mm
Ground clearance in the transport position (T4 stg4, Nokian Ground King 42")	260 mm
Height of the blade	416 mm
Extension dimensions / side (additional working width)	560 mm
Extension dimensions / side (additional working width with turning angle)	419 mm
Weight	1055 kg

4. QUICK USER GUIDANCE

Grader usage:

Grader will be used in balancing roads and yards both in building and in maintenance purposes. In winter time grader will be used in removing ice and slush from the road both with the snow ploughing and between snow ploughing.

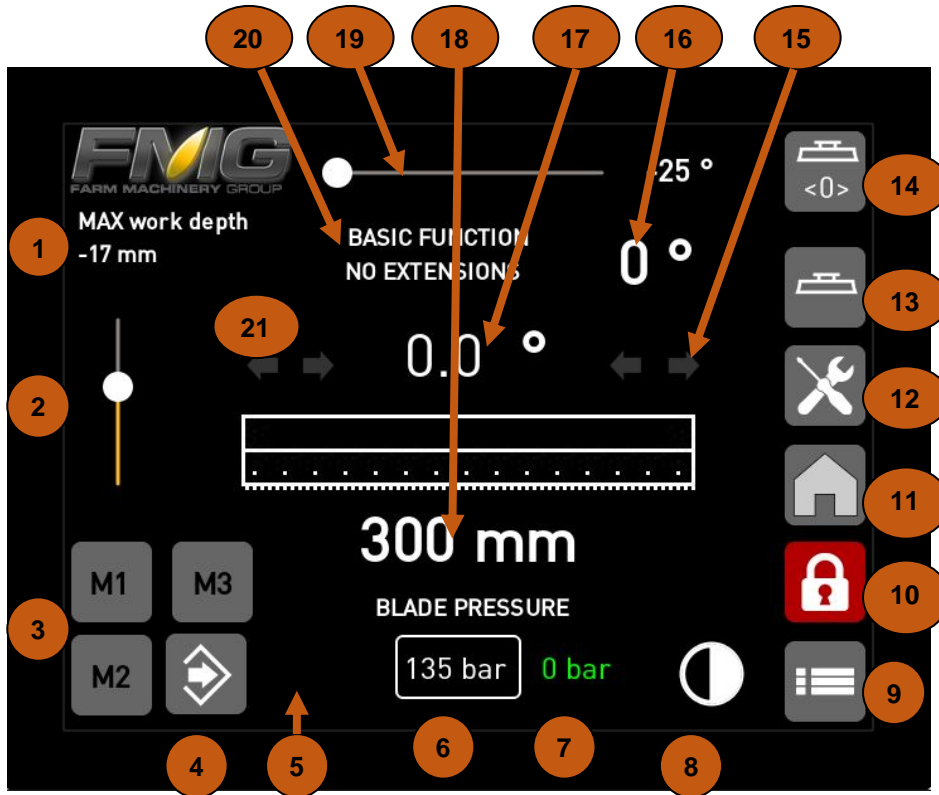
Controls:



Picture 2. Joystick and screen

User interface:

put grader on by pressing red icon with lock. After pressing, the colour of the lock changes to green and then the grader is ready for work. (Picture 3)



Picture 3 .Icons of the screen

1. **Max. working depth**
Show adjusted maximum working depth
2. **Max.working depth limiter**
The maximum working depth is adjusted with the slide switch
3. **Memory slots M1, M2, M3**
you can save different settings for the working depth and turning angle of the blade in three memory slots.
4. **Saving memory location**
When you have moved the blade to the desired position, you can use this button to save the settings.
5. **Saved values in the memory**
When memory slot is active, the saved values are shown in green.
6. **Desired working pressure**
7. **Actual value of working pressure**
The actual value of the working pressure is shown in green.
8. **Night / day screen**

9. Adjustments and additional settings

Show measurements, adjustments and language change.

10. Power button

When the screen is red, all functions is locked.

When press the button and it turns to green, grader is ready for the work.

11. Home button

Grader puts itself to the home position.

12. Settings

Settings button takes you to another page.

13. Back to the main menu

14. Tilt lock

You can lock the side tilt off.

15. Direction of the right extension movement

When the extension moves, green arrow lights up in the direction the wing is being moved.

16. Turning angle of the blade

Turning angle shows:

- when value is + , blade is turned to the right side.

- when value is - , blade is turned to the left side.

17. Tilt angel of the blade

Shows the blade tilt angel in degrees

18. Blade height from the ground

Shows blade height from the ground

19. Limiter for turning angle of the blade when impulse function is on

When the impulse function is on, you can limit the turning angle of the blade by the slide switch.

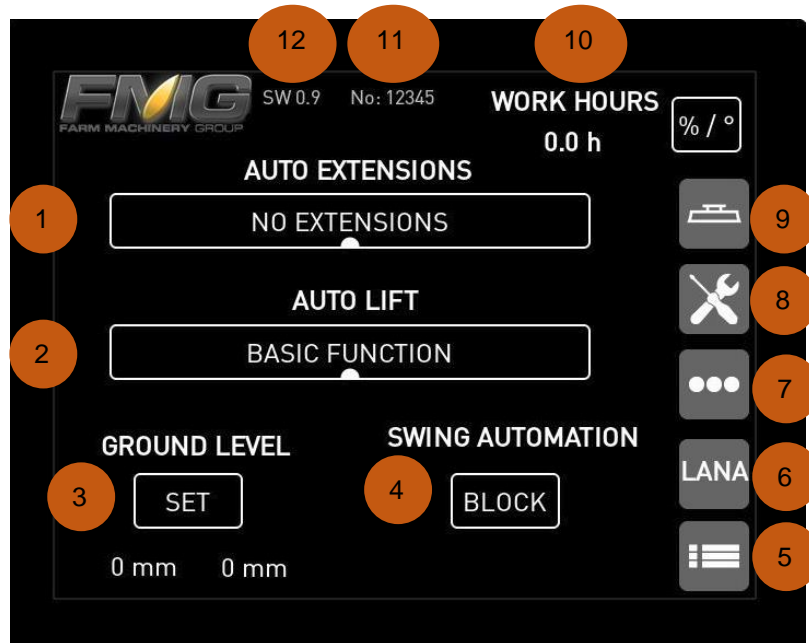
20. Pre-selections for automation modes

Show pre-selection for automation modes: auto lift/ basic function, no extensions/ both extensions or one.

21. Direction of the left extension movement

When the extension moves, green arrow lights up in the direction the wing is being moved.

Settings of the Sensor Blade:



Picture 4. Settings

1. Auto extensions

Auto extension is available when auto lift is on.

Auto extension enable to choose follow functions:

- no extensions, extension not in used
- left extension, only the left extension in used
- right extension, only the right extension in used
- both extensions. Both extensions are in used.
- when you drive the blade down by impulse function, extensions/extension, that you selected, are going out.
- When you drive the blade up, extensions/extension are going in.

2. Auto lift

Auto lift is available basic function or impulse function.

3. Ground level

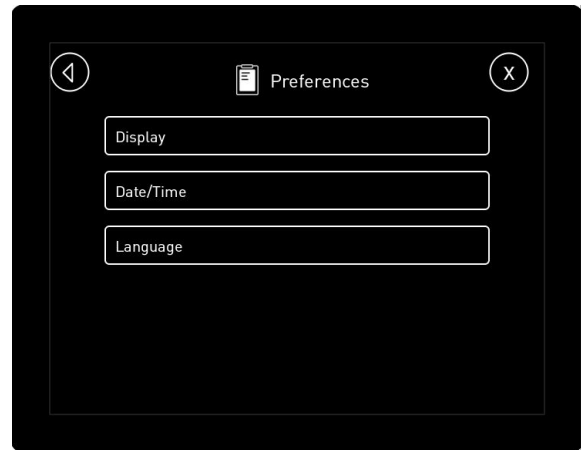
When you start to use first time the grader, drive the tractor on level surface and lower the blade to the ground by using the basic function, press the set ground level and the blade will reset to the correct height.

4. Swing Automation

You may block the automated turn function when impulse function is on.

5. Adjustments and measurements

Show the blades adjustments, measurements and languages.

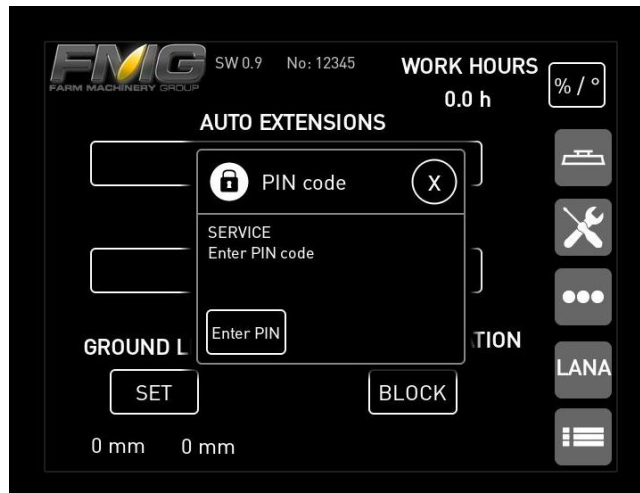


6. Road draggers

Option for connection road draggers

7. Service mode

If there is sensor fault on grader, you may go to the service mode. the pin code 0000. After that you may drive the grader to the transport position.



Picture 5. Service mode

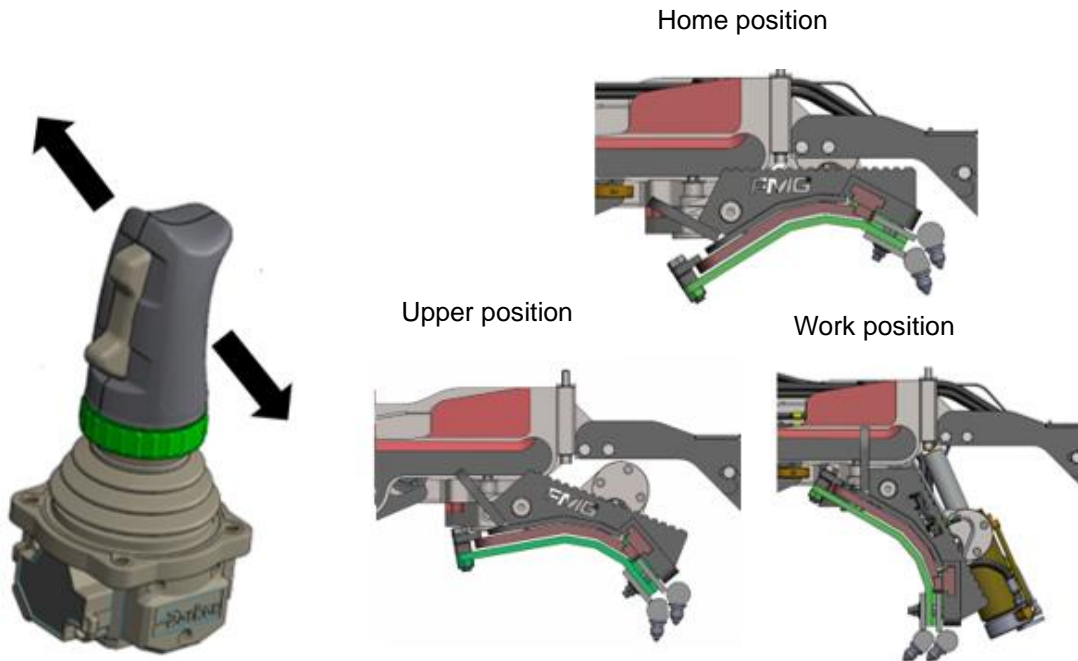
8. *Settings*
9. *Back to the main menu*
10. *Work hours*
Shows how long the sensor blade has been powered on.
11. *Shows the serial number of the grader.*
12. *Shows the version of the software.*



**Take care of the other person close by the grader!
CRUSHING DANGER!**

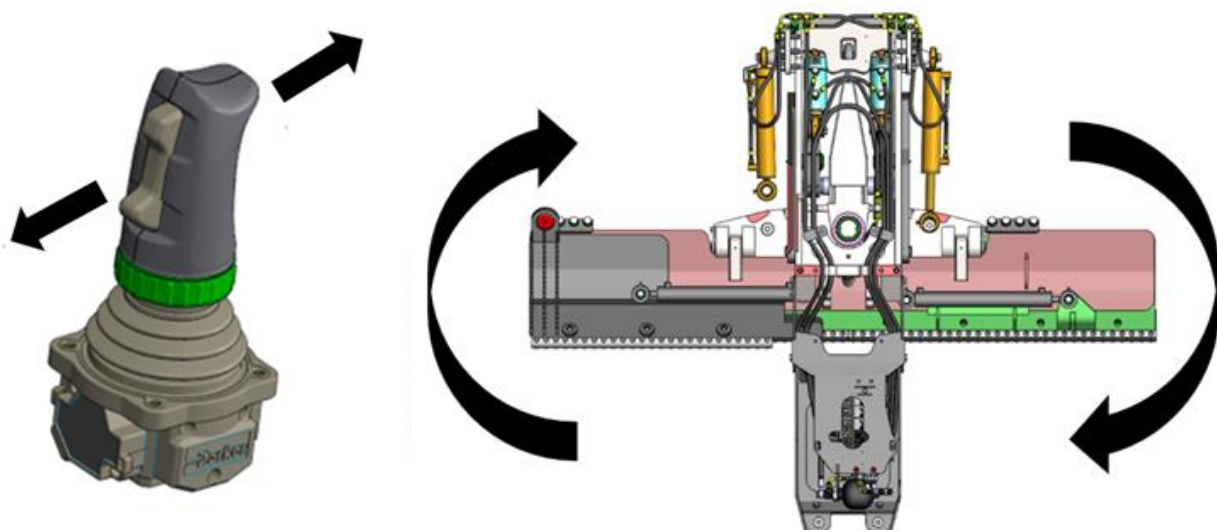
Sensor blade control:

- with the forward/reverse movement of the joystick blade will be adjusted to the working position or upper position (picture 5).



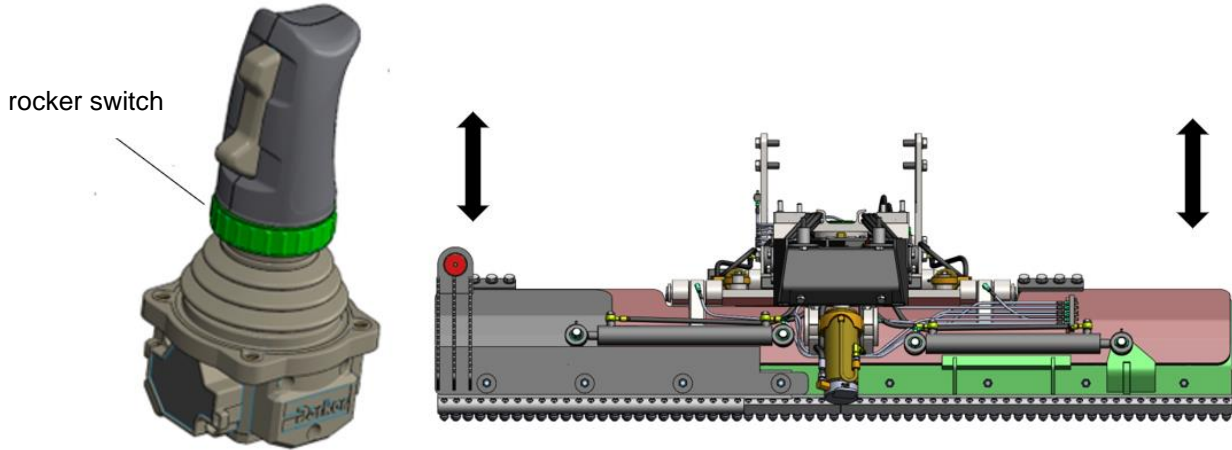
Picture 5. Adjustment of the blade position

- with the side movement of the joystick blade will be turned left and right (picture 6).



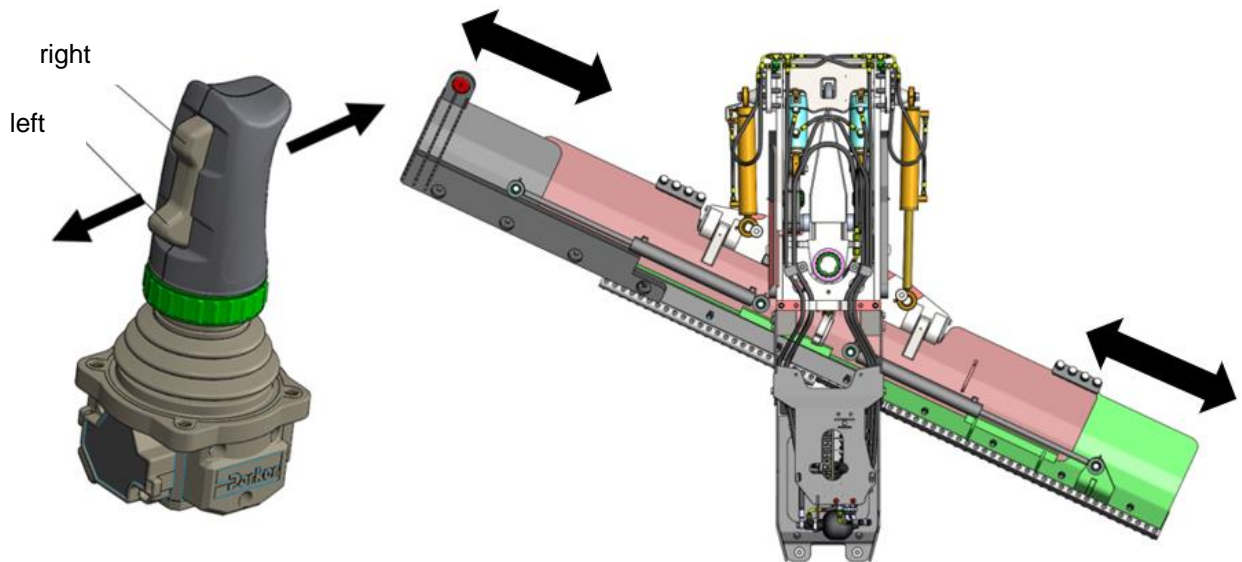
Picture 6. Turning of the blade

- with the rocker switch on the joystick blade will tilt to the right or left side (Picture 7).



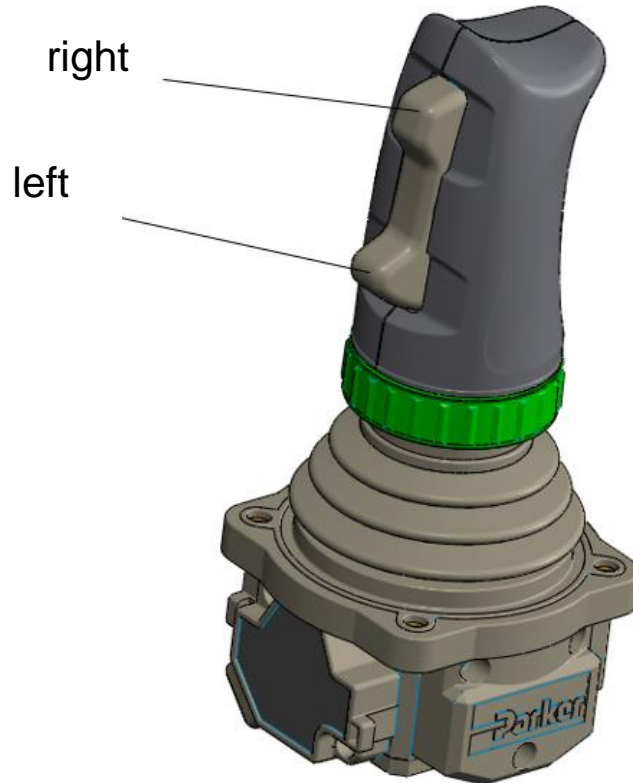
Picture 7. Tilt of the blade

- extension wings will be moved by pressing left or right button with the side movement of the joystick (Picture 8).



Picture 8. Movement of the extension wings

- with the side selection buttons will be selected which side functions will be steered (picture 9). Lower button activate left side functions and upper button activates right side functions.

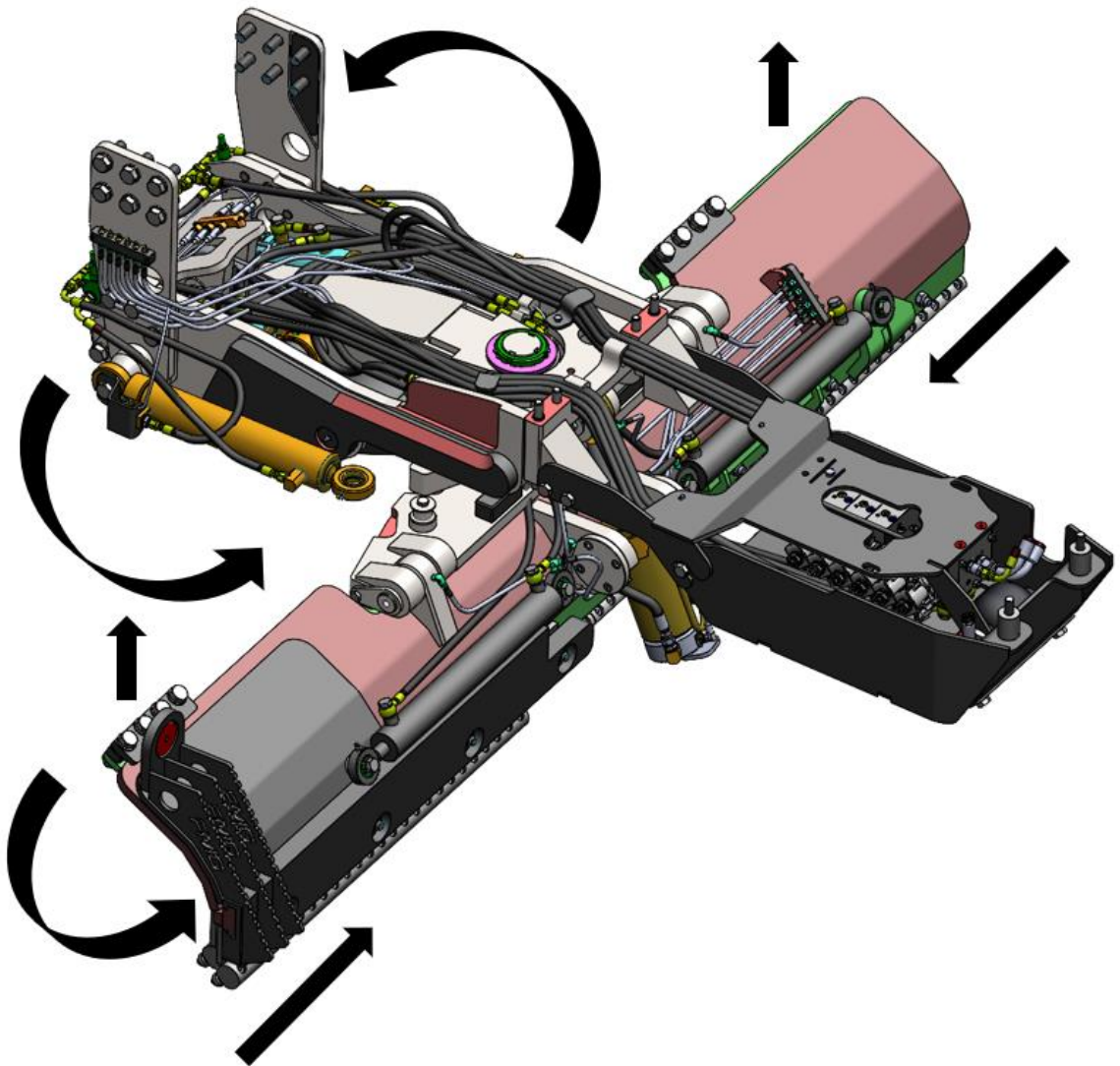


Picture 9. Side selection buttons of the joystick

NB! Grader will automatically drive all the movements to the home position (picture 10). You can stop the movements to the home position by moving joystick.



**Take care of the other person close by the grader!
CRUSHING DANGER!**



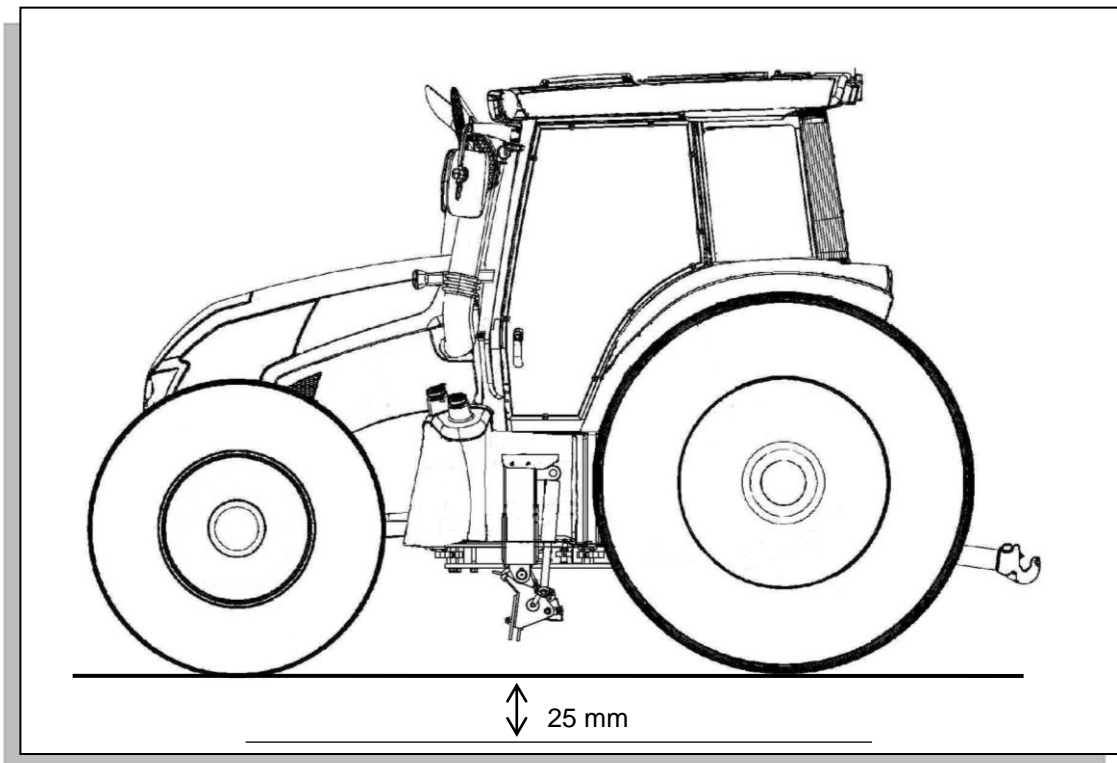
Picture 10. Home position of the movements



Danger!

Be careful when grader moves to the home position, all the movement drive automatically. Take care that there is no one close to the tractor. Safety distance 5 meters.

Typical working depth is around 25 mm depending on surface quality (picture 11).



Picture 11. Work depth



DANGER

When automation function is on, pay attention that grader drives all movement automatically. Take care that there is no one close to the tractor. Safety distance 5 meters.



IMPORTANT!

When automation function is on, the driving direction may only be changed when the tractor is stopped due to the blade lowering, otherwise the device may be damaged.

5. Sensor blade usage

Constant pressure of blade

Constant pressure keeps automatically blade in the working position. The control system provides the required pressure.

If the blade hits a solid obstacle, the lift cylinder release and corrects the blade position after the obstacle has been passed.



DANGER

Pay attention to the direction of the blade in relation to the tractor. The blade attempts to steer the tractor (especially in winter conditions).

6. MAINTENANCE

Correct maintenance at the appropriate time is essential for the grader to operate reliably. Maintenance costs are small compared with any repair costs resulting from lack of maintenance. The most important measures are those that you carry out yourself; these include lubrication and various checks and adjustments.

6.1 Daily

- Check blade condition
- Check blade attachments
- Check movements
- Check constant pressure function
- Clean the implement at the end of the workday

6.2 Weekly

- Lubricate the grease nipples
- Check the hydraulic coupling for leaks

6.3 Every hours

- Check pin condition
- Check screw tightness

6.4 Annual maintenance

All above mentioned and adjustment of the grader control which recommended to be done in the FMG service.



NB:

When carrying out servicing, you must follow the service intervals, i.e. you must also have carried out all previous-ly listed items.

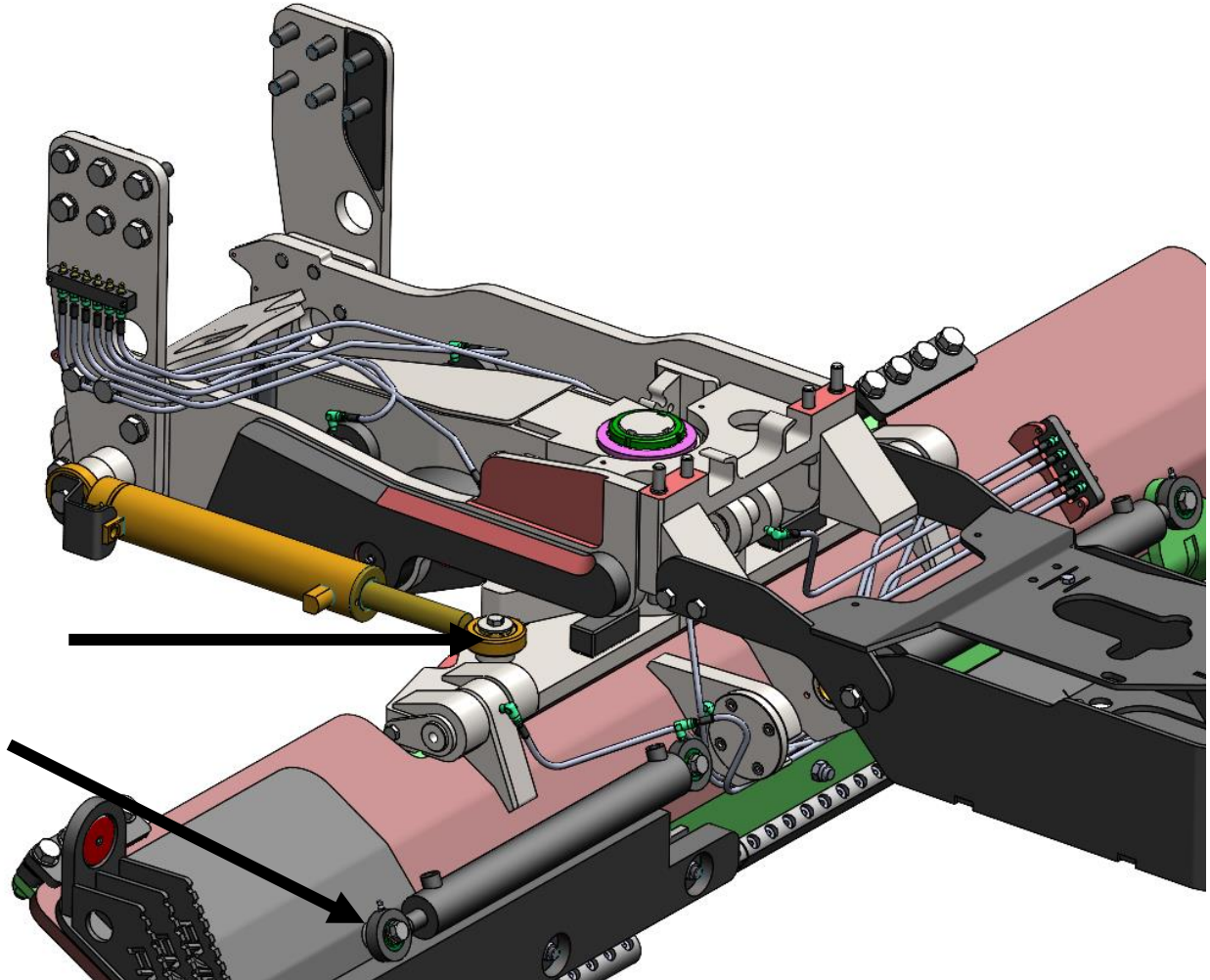


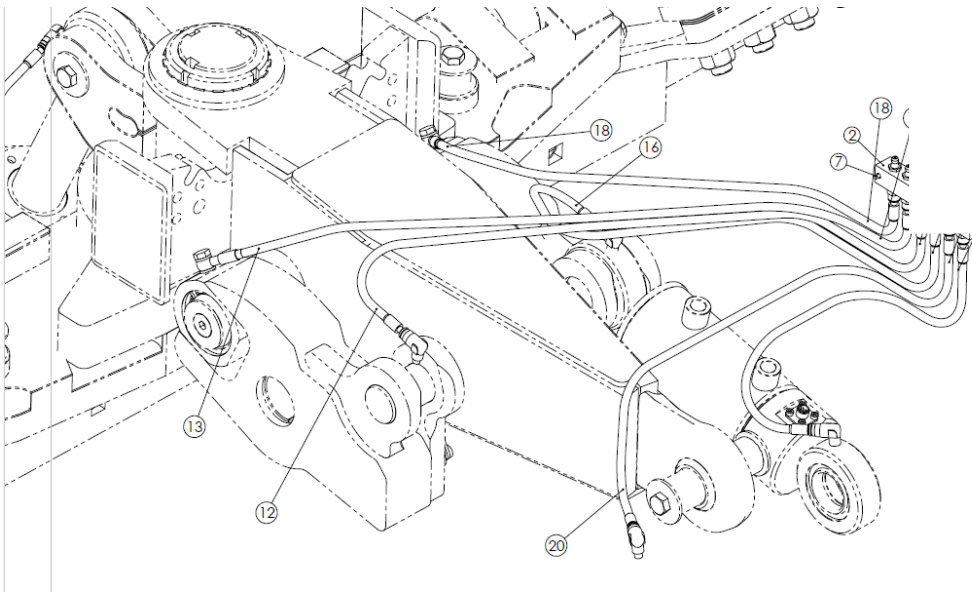
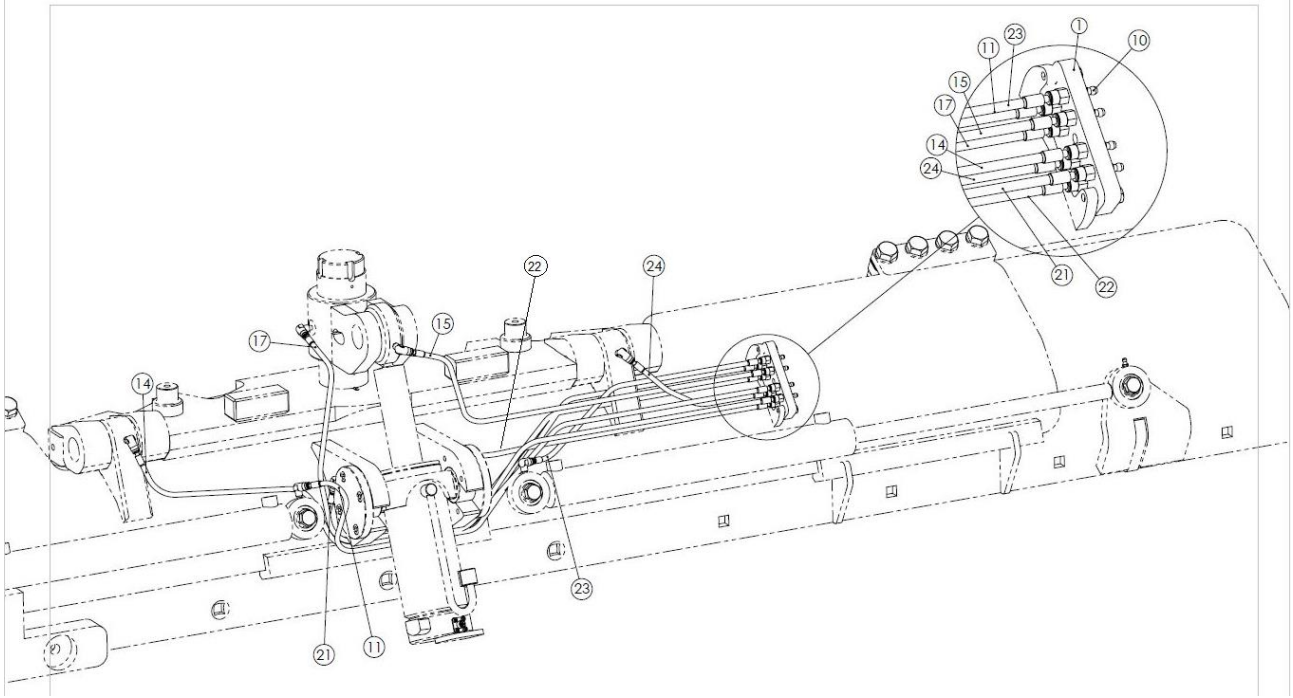
NB!

Also check that screws are tightened correctly after the first use.

6.5 Lubrication

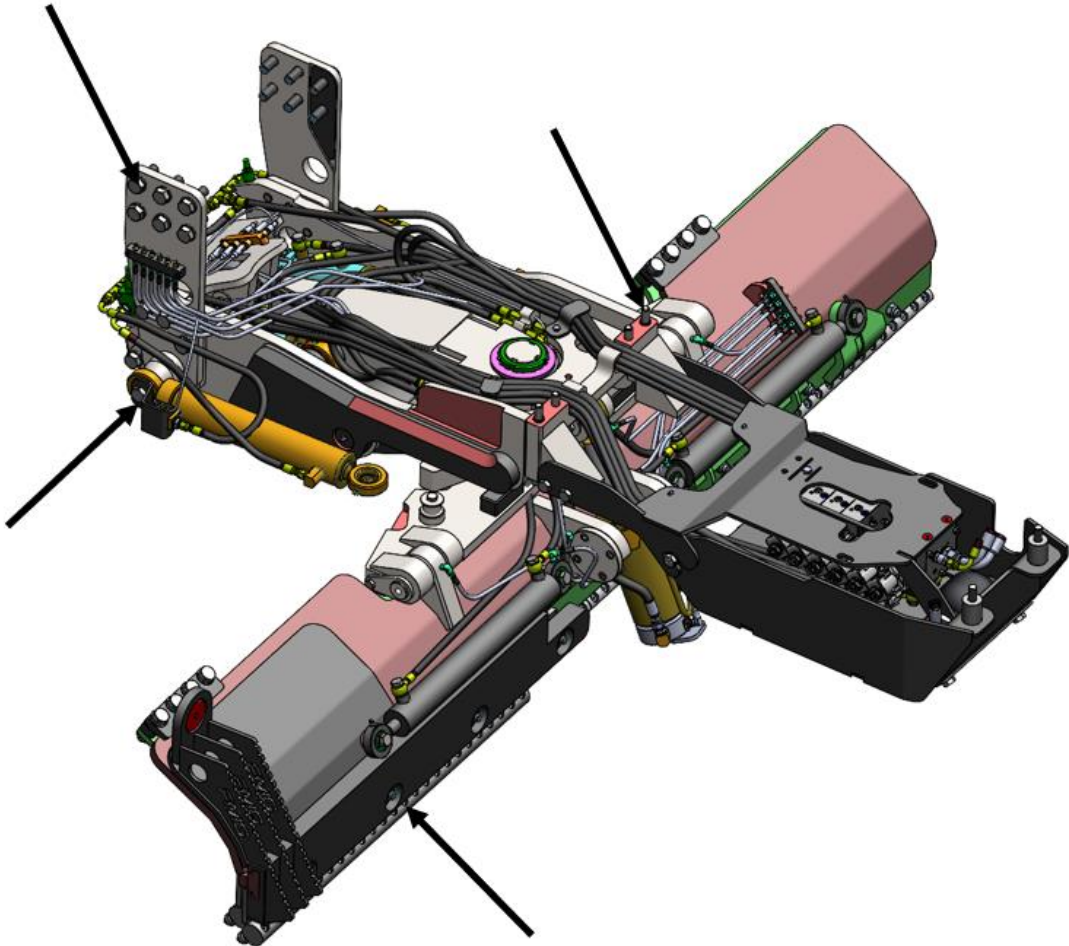
Lubricate the grease nipples according to the picture.





6.6 *Screws to be tightened*

Tighten the screws shown on the picture.





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