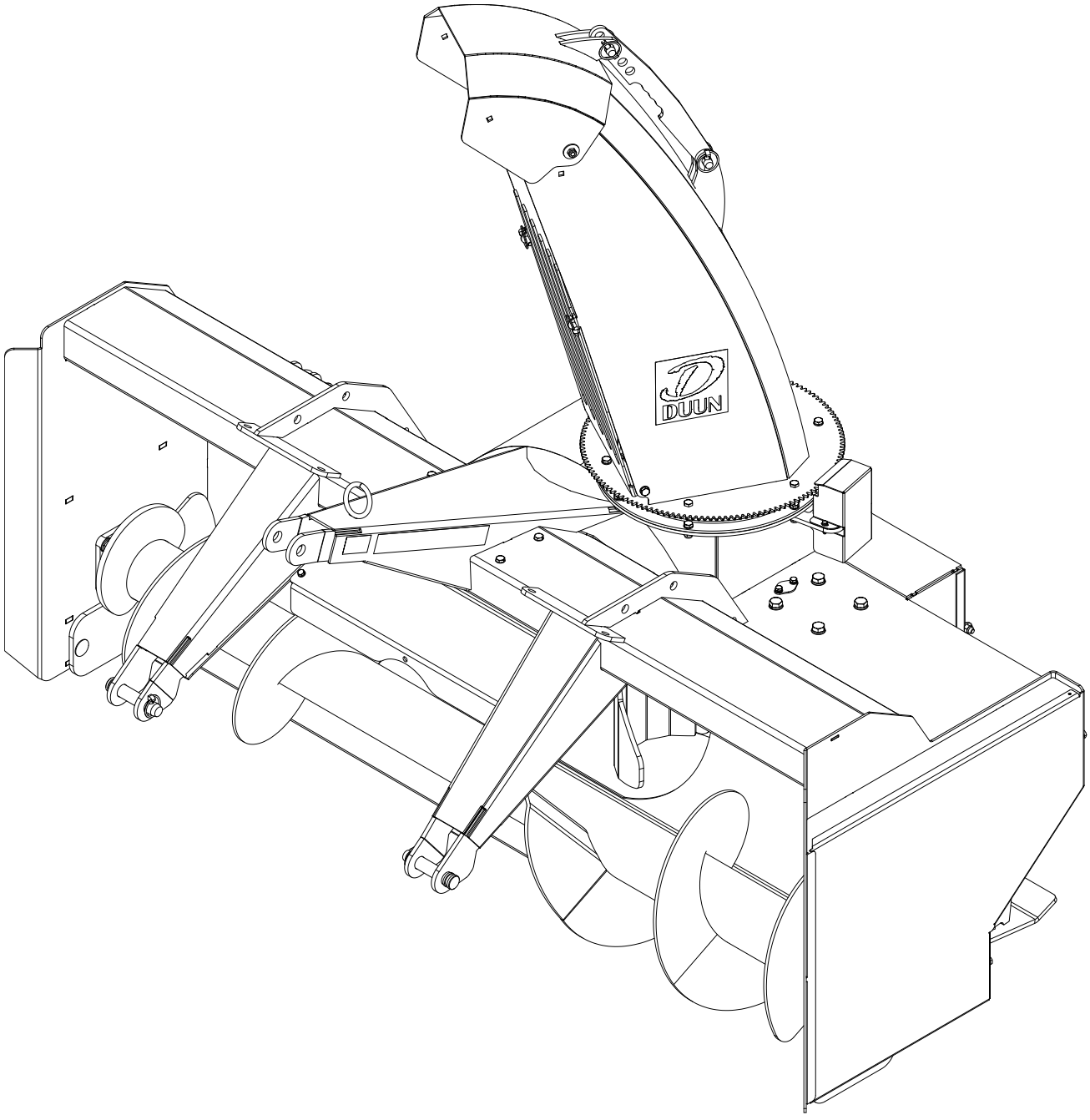
Duun Industrier as
7630 Åsen, Norway
www.duun.no

TF240 Instruction manual

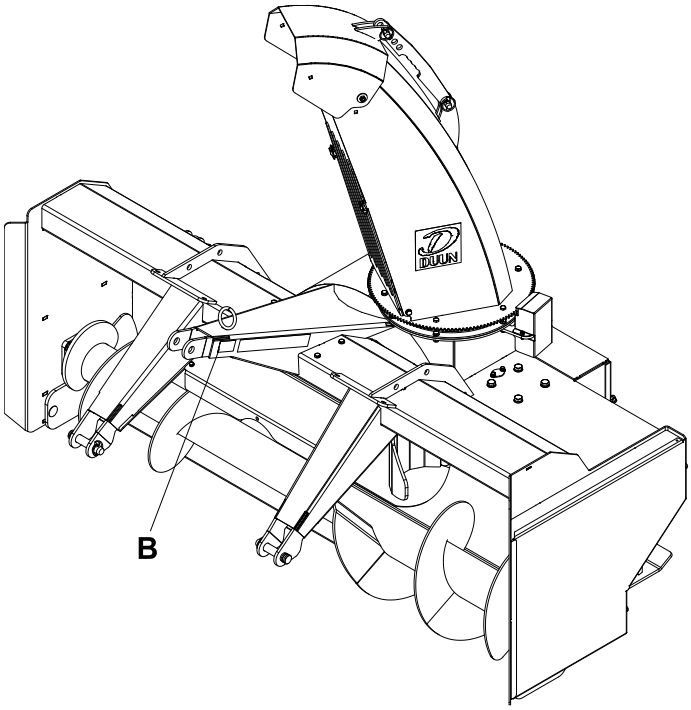


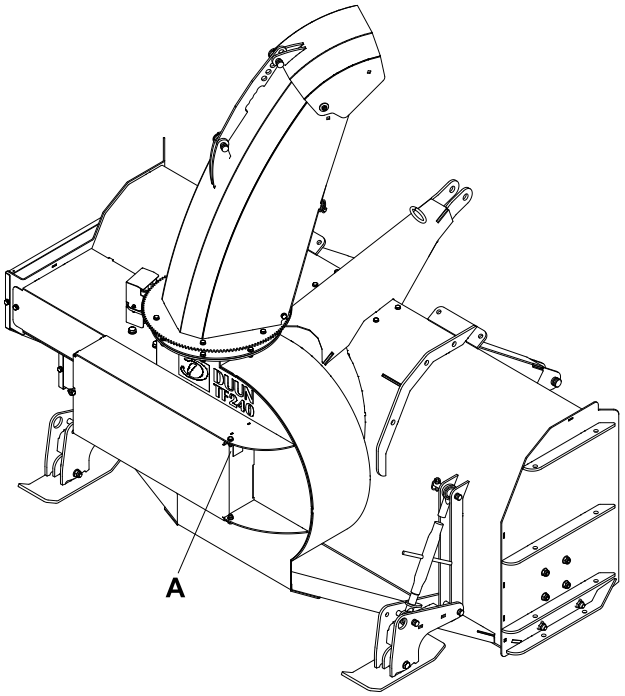
Congratulations on your Duun TF240 snow blower.

All Duun tractor operated machines have been engineered and tested in close cooperation with representative users to produce functionally safe and user-friendly machines.

Please read this instruction manual before using the machine.

Good luck!





Machine identification

Serial number and manufacturer are indicated on badge (A)
Register serial number and delivery time as indicated.
Always specify serial number when requesting service for the machine.
The machine is CE-marked (B). This marking confirms that the machine has been manufactured in conformity with EU Directive Machinery.

Serial number

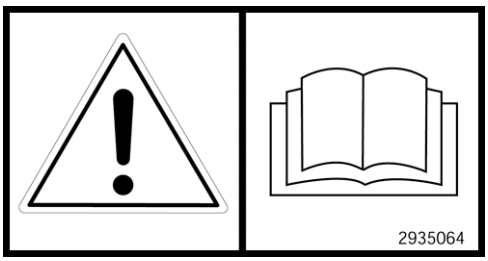
Time of delivery (month/year)

CONTENT

SAFETY

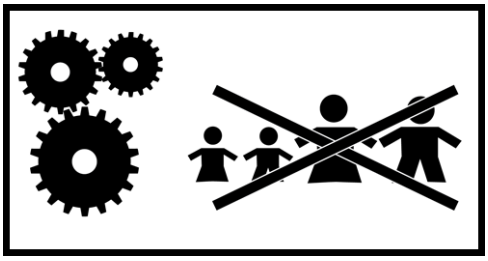
All operators, mechanics and the owner must always work carefully with agricultural machinery. Read and observe safety instructions in this instruction manual.

Be particularly aware of warning signs with this symbol, it marks measures that must be carried out in order to avoid accidents. The symbol appears in the instruction manual and on warning signs on the machine.



Instruction manual

All operators, mechanics and the owner must be well acquainted with the instruction in this instruction manual before the machine is taken into use.

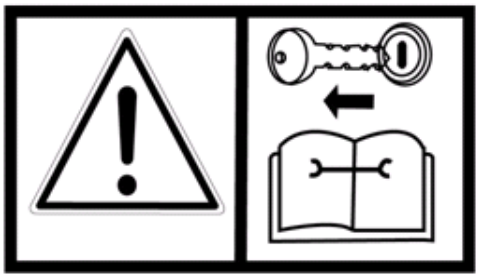


Safety of the surroundings

Be very careful when other people or animals are near the machine or tractor. Never start the machine when there are people or animals close to it, also never stand between the tractor wheels and the machine!

Safe connection and use

Do not allow anyone to stay between the machine and the tractor when the machine is connected to the tractor. The same applies during the use of the machine. Make sure that the connection is carried out in a safe manner. By automatically connecting with a triangle or HMV, the hydraulic hoses are connected before the start of work. Connecting with draw bolts, secure the drawbar connection with lunch pins before the hydraulic connection and start operation.



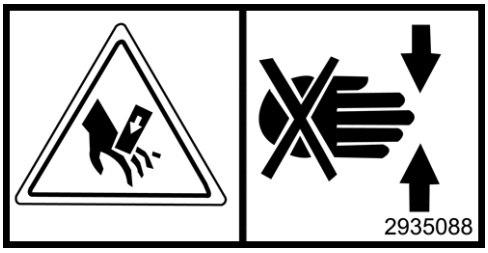
Safety in case of interruptions and maintenance

Remember always to stop the tractor’s engine and remove the ignition key before you lubricate, adjust, clean, or carry out repairs. This is to secure that the tractor does not start before you have completed the operation.

Power transmission shaft
The tractor is disengaged and the handbrake is applied before the shaft is connected to the tractor's PTO.
The maximum power output speed is 540 rpm. The drive shafts are always to be equipped with original protection covers.
Damaged and worn covers are to be replaced immediately!
Make sure that all covers for the shaft are in good condition and correctly fitted. Never start the machine when this is not in order. The locking chains for the plastic covers are always to be fixed to the appropriate brackets in order to prevent the covers to rotate. The covers must be lubricated according to the specified interval.

Rotating parts – high risk of injury
The rotating parts of the machine can cause major damage to body parts that come into contact with them. Do not allow anybody to stay in the work area when a machine is in operation.

Hydraulic high fluid pressure
Be careful when you work with hydraulics. Wear eye protection and gloves. Hydraulic oil under high pressure may penetrate the skin and cause serious infections. See a doctor if you have sustained an injury. Make sure no one is close by when performing hydraulic functions.



Rotating parts – risk of crushing
Case covers and moving parts are preferably marked in yellow.
All covers must always be used except when necessary maintenance, and always with a stopped engine as mentioned in **safety in case of interruptions and maintenance**. Pay special attention to clamping risk at points marked for this. Avoid hydraulic movement of the ejection spout when there are people nearby.
Never drive with open covers for chains and sprockets. Chains and sprockets can cause major damage to body parts that come into contact with them during operation.

Clamping risk when adjusting
When adjusting the support wheels, make sure that you do not stand with your feet under the wear steel.

Always lower the machine to safety rest at ground level when it needs to be parked.

Never work under a lifted device unless it is mechanically secured against coming down.

Before startup after servicing make sure all tools have been removed and brought into place.

Do not work in clothing that can be retracted into moving parts of the machine (e.g. scarves, wide coats).

Wear hearing protection if the machine has annoying or damaging noise levels.

Before the machine is raised or lowered, make sure that no person is near or touching the machine.

If warning signs are removed during repairs or service, new signs should be installed immediately!

Warranty terms

Duun TF240 has 12 months guarantee against defects in materials and workmanship.

Parts that are not originally manufactured by Duun Industrier as, for example, wheels, hydraulic parts, etc. are subject to these suppliers' guarantees and terms.

In cases where a repair is considered to be covered by the guarantee, the representative must inform the supplier's representatives that the repair is intended executed based on the guarantee. In this context, the following information must be recorded:

- Product name
- The product's serial no. (see the machine identification)
- Date of sale
- The product owner's address, telephone no.

In case of such a repair, the supplier is presented with a claim within 3 weeks after the repair date.

Replaced parts are to be kept until a decision has been made with reference to the claim and the replaced parts are to be forwarded to Duun Industrier as for assessment if so required.

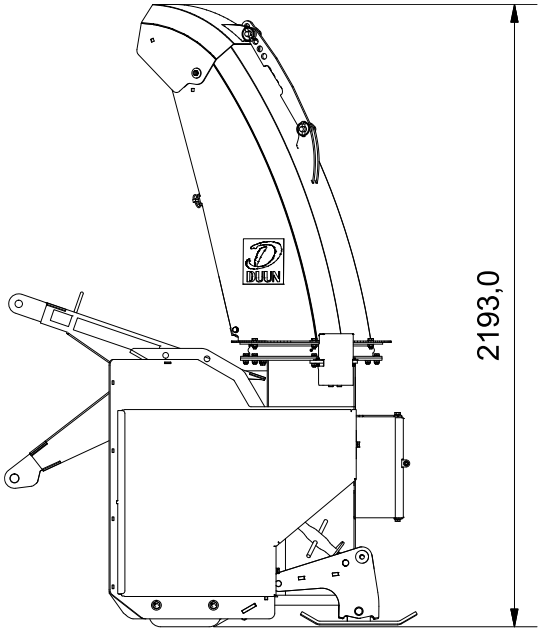
As the employment of the product is beyond our control, we may only guarantee the quality and do not accept liability for the product's general performance.

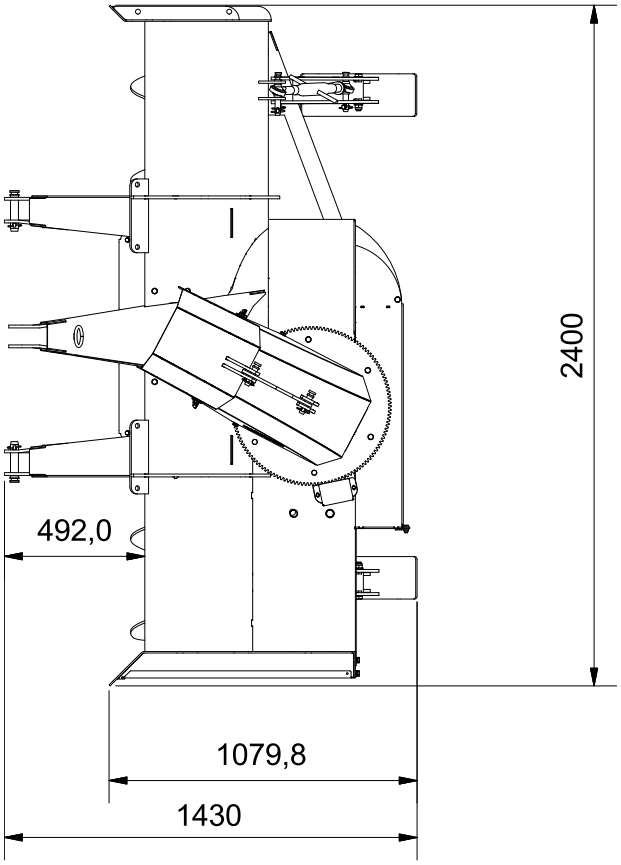
Duun Industrier as reserves the right to modify the design and specifications and/or make alterations and improvements without notification.

What is not included in the guarantee:

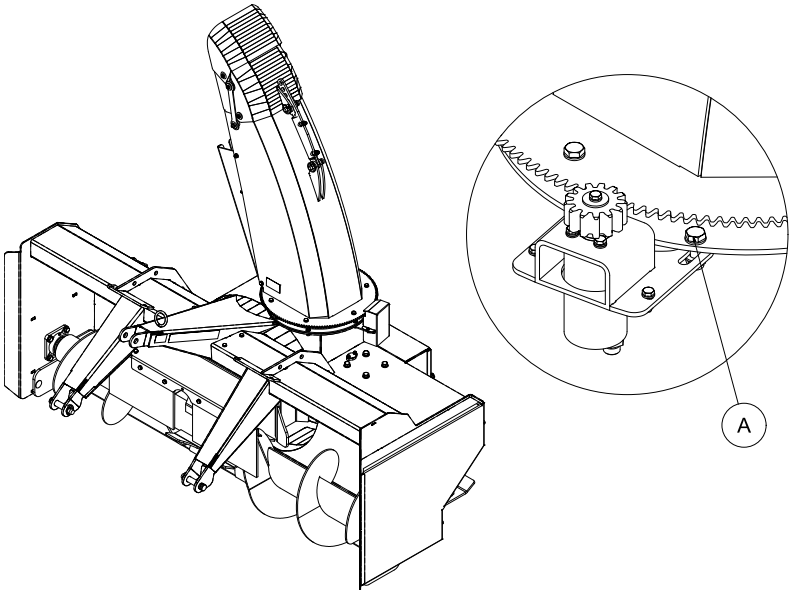
- The guarantee does not cover economic loss as a consequence of interruptions.
- The guarantee does not cover consequential loss due to defects.
- The guarantee does not cover defects or damage caused by misuse and uses that are not in accordance with the instruction manual's specifications and guidelines.

Technical data





Features:	**TF240**
Weight	720kg
Width (a)	2400 mm
Inner width	2220 mm
Max length (b)	1430 mm
Side length (c)	1080 mm
Three-point linkage (d)	492 mm
Inner height	550 mm
Diameter of feed screw	430 mm
Height to the top of feed screw	470 mm
Max height of outlet spout (f)	2193 mm
Speed of PTO shaft	540 rpm
Bolt fasteners connections are standard	Yes
Diameter of fan	800 mm
Diameter of wear steel	12x200x2192mm
Power requirement PTO 540 rpm	70 hk
Hole spacing for wear steel	305 mm
Asseccories:	
Coupling Triangle	1252637
Coupling HMV	1252638
Hydraulically operated of outlet flap	1251118
Breakdown flap complete set	1251119
Hydraulic side extension profile right side	1252013
Hydraulic side extension 1 m. right side	1252014
Side extension 1.6m manual operated right side	1252015
Safety device drawbars	1252016
Support wheel pair	1252017
Wear steel for side extension set	125239018
Snow trap left side complete	1252019
Hydraulic operation of spout flaps	1251118



A

Installation of the ejector spout and drive motor

Bracket with oil motor is unscrewed by loosening 2 pieces of M10. The ejector spout is attached to the hull with 6 M10 screws, washer and lock nut for this. The bracket with the oil motor is fixed in place, the adjustment of this to the "tooth ring" is adjusted with the fastening screw A. It is adjusted so that the spout can rotate suitably easily (clearance approx. 1mm)

Preparation for use

Adjustment of skid pads
The snow blower is placed on a level surface and the skid pads are adjusted so that the wear steels on both sides + the infeed steel in front of the fan housing have clearance above ground level. Too small distance here will cause abnormal wear on both wear steel and feed steel.

Power transmission shafts
Make sure that the PTO shaft is of sufficient length. After any length adjustment, the profile pipes in the shaft must overlap each other by half the pipe length. Any cutting of the shaft is carried out accordance to the instructions for this – the cut point is chamfered inside and out, and the profile tubes are lubricated with grease. Too short a telescopic length on the axle entails a risk of overloading the tractor's power take-off and the snow blower's bearings.
Please lubricate the power transmission shaft before use. **On the other hand, the shaft must not be too long so that it presses on the front and rear bearings and destroys them.**
Please lubricate the power transmission shaft before use.
The shear bolt coupling on the shaft is mounted against the implement. The coupling has a capacity of 2920 nm and in the event of a break in this, a hexagonal screw dim 12 mm qual 8.8 must be used as a breaking pin. The locking chains for the protective covers must always be attached to suitable fasteners to prevent the covers from rotating.
The power transmission shafts are maintained and used according to the attached instruction manual.

Save control of greasing (lubrication)
Check that the warehouses (front and back) are lubricated. Lack of lubrication entails a risk of breakdown. Also, be careful not to "over-lubricate" the bearings as this entails the risk of heat build-up and overheating in the bearing itself. In the case of too little lubrication, water can penetrate (infiltrate) the bearings.

Lubrication of ball bearing
Check that this is lubricated and make sure it is lubricated before use if this is not the case. Too little lubrication causes abnormal wear on the gears and chain.

Lubrication of chains
Check that the chains are lubricated with chain spray or thin oil with good lubricating properties, ensure that they are lubricated before using them if this is not the case.

Tightening of chains
Check chains at regular intervals. They must have slack corresponding to the height of the links. Chains will stretch while being used, so it is important to retighten them. Especially important when the chain is new, because it stretches the most at the start. Avoid tightening chains too much as this will cause unnecessary wear on them and bearings.

Protection of hydraulic hoses
Check the hose connections and that they are not stretched or cut during use. Tighten loose hose connections and secure/fasten the advance of the fittings. Failure to secure hydraulic hoses can lead to leaks and consequential damage to tractors and components.

Connection

Make sure no one is standing between the tractor and the machine during connection. Back the tractor up to the snow blower and stop the engine before the lifting arms are mounted in the three-point linkage.

Stabilization struts/support struts on tractors must be used.
This is to ensure that the snow blower does not get uncontrolled lateral movements while driving – i.e. goes in the same direction as the tractor all the times.

Hydraulic hoses installation. At the same time, check that all hoses are tight and undamaged before starting hydraulic functions. When the tractor engine is stopped, you should ensure that there is no pressure in the hoses by activating the tractor's hydraulic valves.

Pay special attention to the dangers of hydraulic oil under pressure.

Install the power transmission shaft on the PTO with the shear - bolt coupling against the snow blower. A safety chain is attached to the snow blower to prevent the rotation of protective covers.

The power transmission shaft must always have a shear bolt coupling max 2920 nm.

Make sure that the protective covers for the power transmission shaft are undamaged and replace them if they are damaged.

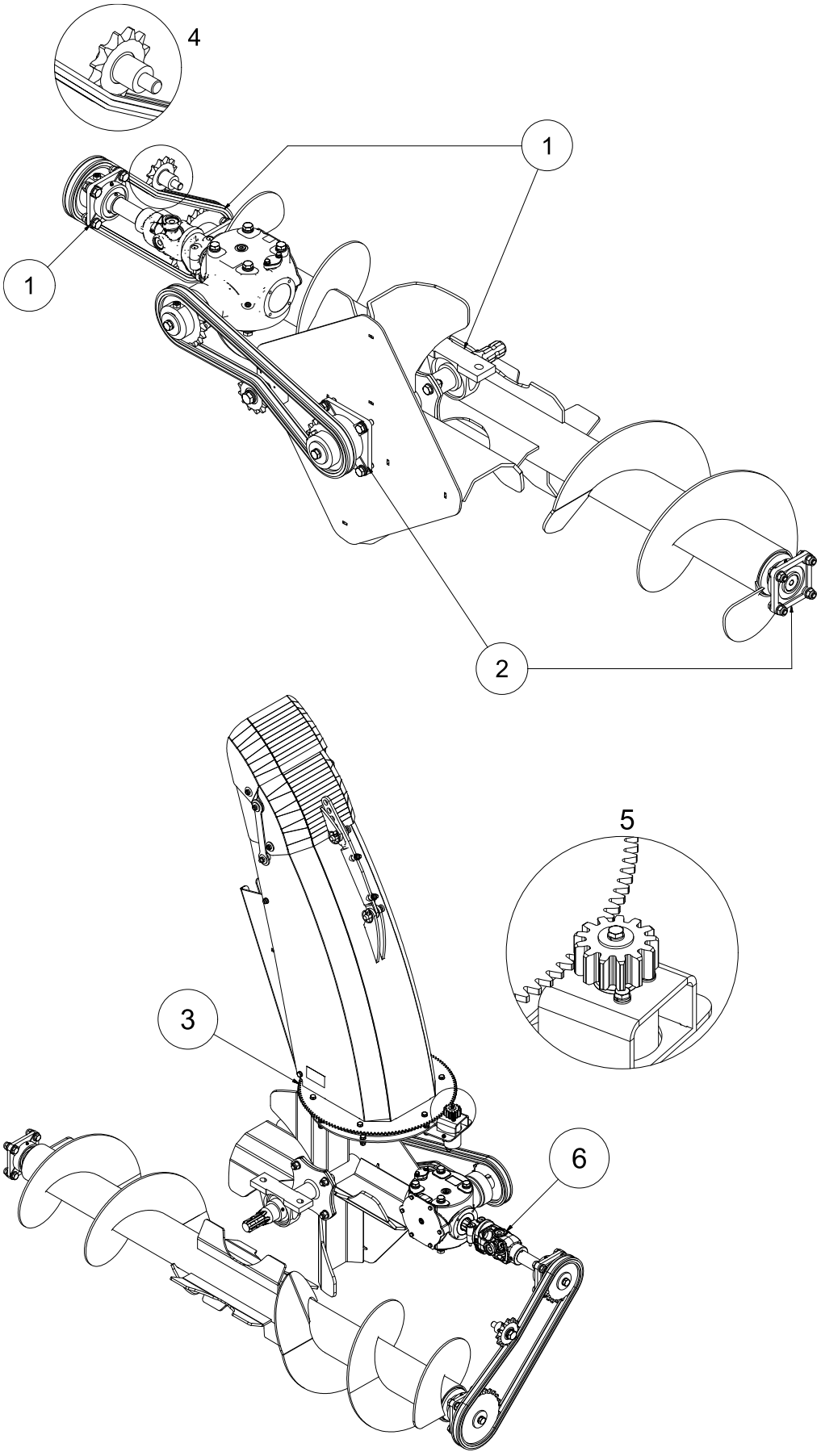
Before connecting the power transmission shaft, secure the following points.

Make sure that the shaft's protective tubes are undamaged and that the two halves of the shaft fit freely into each other. The length of the power transmission shafts must be adjusted carefully, if it is too long it can damage the bearing in the tractor's PTO or the snow blower’s bearings. Also ensure good lubrication of the profile pipes. See also the instruction manual for the power transmission shaft.

Check that the power transmission shaft can be rotated by hand to ensure that it is not buckling anywhere.

Check that the power transmission shaft will not be tensioned when the machine is lifted to max. or min. height. Driving on very hilly relief, a rear-mounted snow blower can work lower or higher than the tractor itself. Please also note that the angle of the axle can be too large when using very short axles - contact the supplier - importer.

Service and maintenance



Lubrication and maintenance

Before cleaning, lubricating, repairing or adjusting the machine, stop the engine and activate the handbrake, and remove the key during work.
Pay special attention to safety during maintenance work, park the machine in according with specified safety rules.

Inspection after screw connections
Screws - nuts - fittings and bolts on the machine should be re-tensioned after two hours of operation. All moving parts should be lubricated with grease.
The ejector spout's swivel is exposed to both cold and heavy wear - therefore use cold-resistant grease that can handle up to -40 degrees. Points 3 and 5.

Wear steel and skid pads are exposed to heavy wear - check and carry out the replacement or reversal of wear steel before damage occurs to the hull itself and mounting brackets.

Remove snow after use so that icing does not cause any problems at start-up later
To extend the life of the machine, cleaning after use is recommended.
Do not flush water directly into the bearing. For long-term storage, it is recommended to lubricate the machine in acid-free oil.

Interval of lubrication and grease quality

1,2. Bearings for front and rear fan
Interval: Every 100 hours and when parking in the spring.
Avoid pushing in too much grease as this can cause sealing rings to squeeze out + contribute to overheating of the entire bearing.
The recommended amount of 7-8 grams per time.
The bearing in front of the fan wheel is equipped with a plug that must be dismantled before inserting grease nozzles M8 to carry out lubrication. After lubrication the plug is installed - this is to secure the lubrication nozzles against external pressures and deformations.

1,2. Bearing for the feed screw (3 pcs.)
Interval: Every 100 hours and when parking in the spring.
Avoid pushing in too much grease as this can cause sealing rings to squeeze out + contribute to overheating of the entire bearing.
Anbefalt mengde 7-8 gram pr. gang.
The bearings are equipped with plugs that must be dismantled before inserting grease nozzles M8 in order to carry out lubrication. After lubrication, plugs are installed - this is to secure the lubrication nozzles against external pressures and deformations.

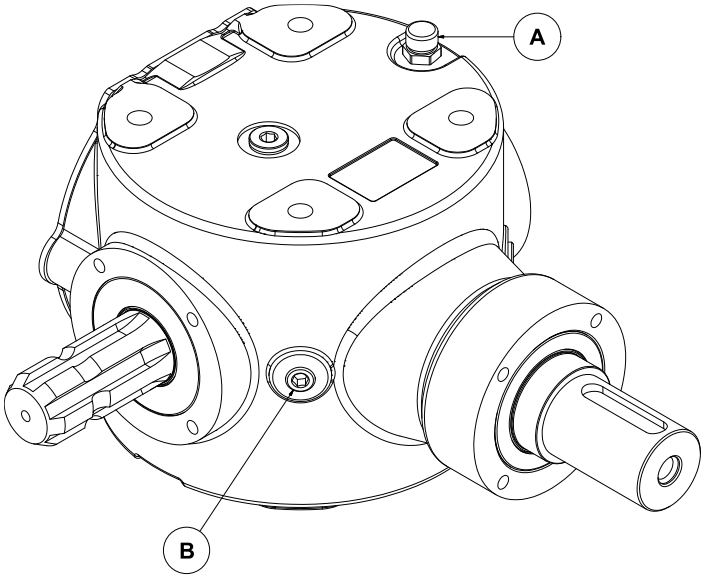
3. Expiration spout for ball bearing
Interval: Every 50 hours. Use low temperature grease Statoil uniwai LIX 42 or equivalent.

4. Chains for fan wheel and feed screw (2 pcs.)
Interval: Every 20 hours. The chains are lubricated with chain spray, or with grease. Ideally, lubricate the chains immediately after use when they are warm, lubrication will absorb well into the chain.

5. Sprocket on outlet spout
Interval: When needed

6. Power transmission shafts – universal joint + telescopic tube
Interval: Every 8 – 10 operating hour.
Maintained according to the attached instruction manual. Please contact the supplier if this is missing.

Gearbox



Recommended oil: Gearbox oil Mereta 220 synthetic oil (Statoil) or Esso Syntetic EP150. Other oil must fit to the standard SAE90EP or GL5.

Check the oil level after 50 operating hours or after each season by loosening the level screw marked B when the gearbox is in a horizontal position. (oil should leak out at a sufficient level).

If the oil level requires topping up, top up if necessary with semi-synthetic oil, Statoil Gearway S5 75W-90 up to the prescribed level or with Mereta 220.

Refilling is done through the screw hole A, with the screw hole B open to prevent overfilling.

The first oil change is recommended after 50 hours of use, and then every second season or after 500 operating hours - i.e. if 500 operating hours occur before the end of the 2nd season, oil change with Mereta 220 should be carried out as indicated.

The gearbox contains 1.7 liters of oil.

It is an advantage to change the oil when the gearbox is warm.
Draining oil takes place at the opposite plug to plug marked A.

It is very important to fill the gearbox with the correct amount of oil.
Too much oil will lead to a higher operating temperature and risk of breakdown.

Shear - bolt couplings

Remember to lower the machine, stop the tractor's engine and disconnect the power take-off before fitting a new cutting bolt. The machine is equipped with a cutting bolt coupling:

- Power transmission shaft bolt M12x60 qual. 8.8
- Joint coupling bolt M10x50 qual. 8.8

Operational risks

It is the driver's responsibility not to expose himself or others to danger during the use of the snow blower. Attention should be paid to people and animals located near the machine. Since other objects occur in the snow (rocks and similar things), the throwing route must be set so that the draft snow would not be danger to other road users. Since there are more objects in the snow (stones), the ejection nozzle must be adjusted so that the ejected snow does not pose a danger to other road users.

No one should ever stand on the machine while it is driving or moving. Protective covers must always be on when it is used.

Practical use

The Norwegian Labor Inspection Authority has listed snow blowers among machines that must be used with particular care and must therefore not be operated by people without documented training. The user must have a driving license for a tractor (aged 16) and have a certificate that he has received training in the use of the machine/tool.

The machine requires skilled operation, the user manual must be read before connecting to the tractor and putting it into operation, even if the user had previous experience with a similar machine – this is for user’s safety.

The top brace is adjusted so that the snow blower is parallel to the ground in working position.

Skid pads must always be used and adjusted according to the instructions in user manual.

The maximum power of PTO speed is 540 rpm. The throw length can be set by adjusting the speed.

The direct-coupled PTO must not be switched on at high rpm.

If the snow blower is pulled forward without displace the snow (punched drive shaft), you must pull back a little before re-engaging the PTO shaft.

Driving in packed snow, it is important to keep the rpm. high from the time you enter the snow until the fan is empty.

Disconnection

This happens in the reverse order of connection.
The tractor's PTO must be disconnected when working with the machine and the PTO shaft.
Place the machine on the even ground.
Disconnect hydraulic hoses.
Disconnect the power transmission shaft and hang it on a hook attachment.
Locking bolts for drawbars are released.
Now the machine is disconnected and can be left.

Declaration of conformity

Responsible person

Name:	Karl Martin Eggen
Position:	CEO
Company name:	Duun Industrier as
Address:	N-7630 Åsen
	Norway
Telephone:	+47 74 01 59 00

Person responsible for the technical documentation: Rolf Even Duun

Declares that the following machine:	TF240 Two stage snow blower
Manufacturer:	Duun Industrier as
Type:	Duun Two stage snow blower TF240

is in accordance with:

Directive 2006/42/EC Machinery

Signed by:

Karl Martin Eggen

Åsen, 15.09.2020