KEENAN
an Alltech company

Operator's Manual
MechFiber350 and 370

KEENAN MechFiber350 and 370 Operator's Manual

Effective from model MF35K100 and MF37K100

Revision D01 21 May 2019

CONTENTS

PART I

(Service and Maintenance)

1 Introduction

KEENAN MechFiber mixer wagon and KEENAN MechFiber bale handler

Thank you for purchasing a KEENAN product. The KEENAN MechFiber mixer wagon is a TMR feeder with a difference. The original KEENAN mixer wagon became a market leader due to its reliability and durability, founded on simplicity, fast and efficient mixing and feed-out, and low horsepower requirements. The KEENAN MechFiber mixer wagon has built on these capabilities by adding the ability to chop and present in a consistent fashion, time and time again. This ability is the cornerstone of the KEENAN MechFiber system, delivering improved efficiency and profitability on the farm. More recently, bale handler models have introduced the ability to handle bales of all sizes and types.

The minimum moving parts ensure a robust machine with high mechanical efficiency. Performing simple routine maintenance and correctly operating the machine will help ensure that it stays in service for many years. However, in the event of unforeseen problems, KEENAN's world-class support means you can be assured of a prompt solution.

This supplement has been designed to present the additional parts lists and operational and maintenance information for a rear feed-out machine with the standard KEENAN Operator's Manual for the corresponding model of the machine. It is to be used in conjunction with the main Operator's Manual regarding overall aspects of safety, operation, maintenance, the parts lists and the warranty. Recent revision updates are indicated by a line in the right-hand column.

If you require further assistance or information, please contact your physical nutritionist. Telephone numbers are listed on the back cover of this manual.

The KEENAN MechFiber mixer wagon is the cornerstone of the KEENAN MechFiber System, delivering improved efficiency and profitability on the farm.

2 Warning notes

Please read this manual carefully before operating your new machine, paying particular attention to the warning notes, which are explained here.

There are three different types of notes, as follows:

> **WARNING:**
> Texts with this symbol contain safety information.
> They warn you of serious dangers, possibly involving accident or injury.

> **CAUTION:**
> Texts with this symbol draw your attention to a possible risk of damage to your KEENAN MechFiber mixer wagon. Failure to observe the information contained in a caution may invalidate your warranty.

> **Note:**
> Texts with this heading give general information that can improve the operational efficiency of your KEENAN MechFiber mixer wagon.

The KEENAN MechFiber mixer wagon and KEENAN MechFiber bale handler machines are subject to international patents, including the following:

Europe:	E0, 833,558	USA:	5,967,433
Japan:	Pending	Canada:	Pending
Australia:	691418	New Zealand:	305943
South Africa:	96/3148		

> **WARNING:**
> Read the safety section (Section 5) before attempting to operate the machine.

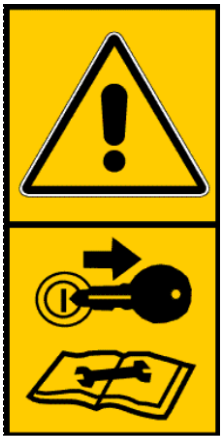
3 Warning signs

Read the Operator's Manual before using the machine.

Danger of flying objects. Keep a safe distance from the machine.

Stay clear of sharp blades.

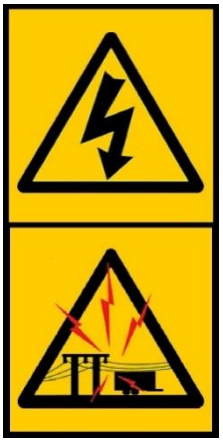
Do not open or remove safety guards while the machine is connected to the tractor.



Shut off the engine and remove the key before performing maintenance or repair work on the machine.

Never reach into the rotating auger. Danger of entrapment.

Do not ride on the platform or ladder.



Look out for overhead power lines.

Apply the handbrake when parked.

Do not stand between the tractor and mixer wagon while in operation.

4 Operating principles

The KEENAN MechFiber mixer wagon's main operating functions are weighing, chopping/mixing and feeding out.

4.1 Weighing

The KEENAN MechFiber mixer wagon's electronic weighing system allows an exact quantity of individual materials to be loaded into the mixing chamber for accurate rationing. Individual loads can be weighed, or successive loads can be accumulated to give the total weight of the feed. See Section 6 (on the weighing system) and the Readout Manual for more detailed information.

4.2 Chopping/mixing

Load ingredients in the sequence recommended by your KEENAN physical nutritionist, or as suggested in Section 7 (on operation). For non-bale handler models, ensure bales are broken up prior to loading. For bale handlers, wait until the bale has been taken in completely before adding further bales. As a general rule, material should be tumbling freely when mixing; if it is not, the machine is overloaded and will not achieve the desired mix quality. Mixing is carried out by a centrally mounted rotor fitted with six angled paddles revolving at 6-8 rpm. Each paddle imparts a shearing action, sweeping the feed ingredients onto the strategically placed knives to produce a consistent and thorough mix with all types of materials, including baled silage, hay or straw, roots and liquids.

The angled paddles help optimize mixing by sweeping the material from end to end. The placement of the blades ensures that the materials reach optimum size/length without grinding down and destroying the all-important "scratch factor" of the forages producing a MechFiber mix.

Mixing time will be determined by the required chop length. Follow the procedures outlined in this manual or consult your KEENAN physical nutritionist for further information.

> **CAUTION:**
> For bale handler models, do not load a complete 6x4 round bale, or more than one 5x4 or 4x4 round bale, onto the machine at any one time. Overloading the machine may seriously affect the safe operation and life of the machine and will invalidate the warranty.

For bale handler models, do not load a complete 6x4 round bale onto the machine, as it has the potential to become unstable, possibly falling off and causing injury. Instead, 6x4 round bales should first be broken up and then loaded onto the machine in sections; alternatively, the bale may be held in place by the loader until it is sufficiently chopped down (to a third or half of its size) so that complete chopping can be done safely on the top of the machine. If in doubt, consult your local KEENAN representative for the recommended safe operation of the machine to suit your particular application.

4.3 Feeding out

During mixing, the mixing chamber is separated from the feed-out chamber by a variable feed control (VFC) door, thus ensuring complete mixing. The feed-out chamber contains an auger, which runs the entire length of the machine.

When chopping/mixing is complete, the feed-out tray should be set to the required position and the VFC-door dropped, allowing the material to be swept up by the paddles and pushed onto the auger (see Figure 2). At first, the VFC-door should only be partially opened (not more than halfway). When feed is seen discharging, allow 15–20 seconds to pass before fully opening the VFC-door. Door position and ground speed should be set and used to allow for an even feed-out rate.

> **CAUTION:**
> The VFC-door should only be opened or closed when the PTO is engaged (with paddles turning) when material is in the machine.

4.4 Maintenance

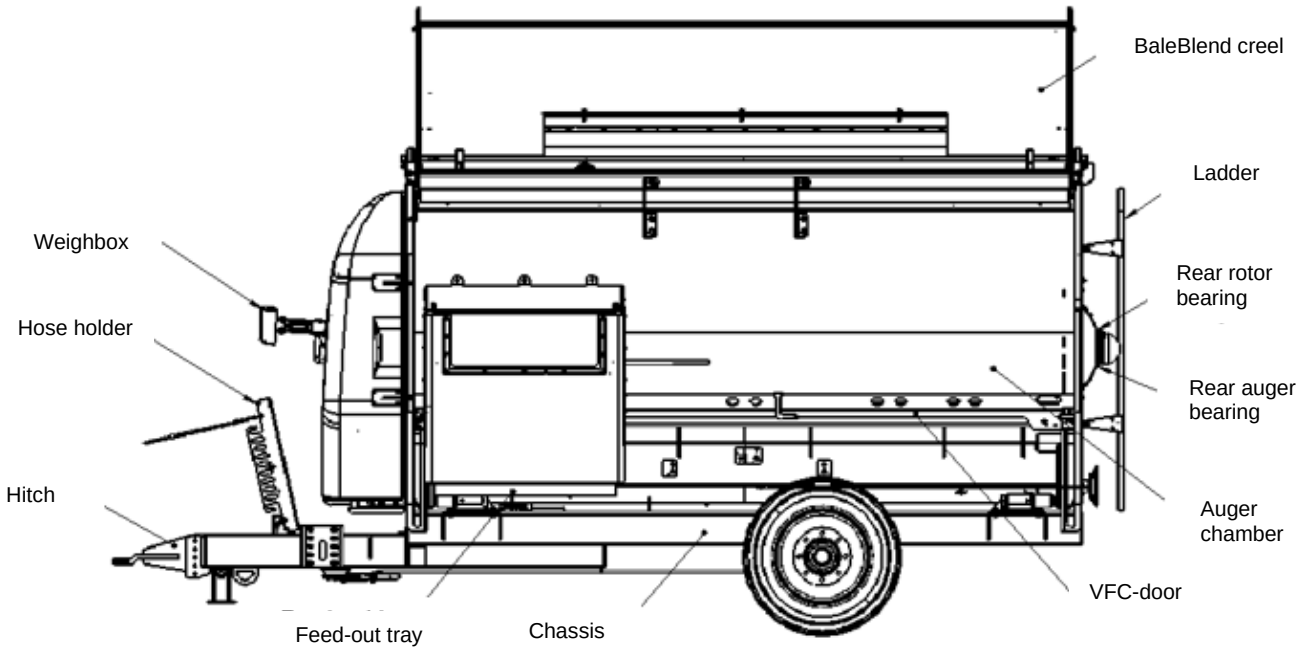


Figure 1: KEENAN MechFiber mixer wagon (bale handler option shown)

A properly operated and maintained KEENAN mixer wagon promises to operate trouble-free for years. **Regular maintenance of the machine is essential both for long machine life and also to meet the warranty requirements**. Refer to instructions in the maintenance section of this manual. Weekly cleaning of the machine is recommended to prevent corrosion to the mixer body from old feed. **The level of cleaning required will depend on the material being mixed, but any material that sits or lodges on the machine may adversely affect both the operation of the machine and the quality of the mix, if it subsequently falls into the feeder during mixing. It is therefore essential to routinely clean and wash down the feeder.**

4.5 Safety precautions

KEENAN mixer wagons have been designed to reduce risk to a minimum. However, as with any machine, careful observation of safety procedures is necessary to prevent accidents. See inside for further details on each section. If you have any further questions, please contact your local KEENAN center for advice.

> **WARNING:**
> Read the following safety section (Section 5) before attempting to operate your machine.

> **WARNING:**
> The operator is responsible for the safe operation of the machine at all times. This machine should only be operated by one person at a time. The machine should never be left unattended during operation.

> **WARNING:**
> The breakaway safety brake device should be attached to the tractor at all times.

5 Safety

The KEENAN MechFiber mixer wagon has many safety features built into its design, but, ultimately, safe operation requires the vigilance of the operator and an understanding of the potential safety hazards.

The machine is designed to be used as a mixer/chopper wagon for mixing animal feeds. It should not be used for any other purpose that could affect its performance or safety.

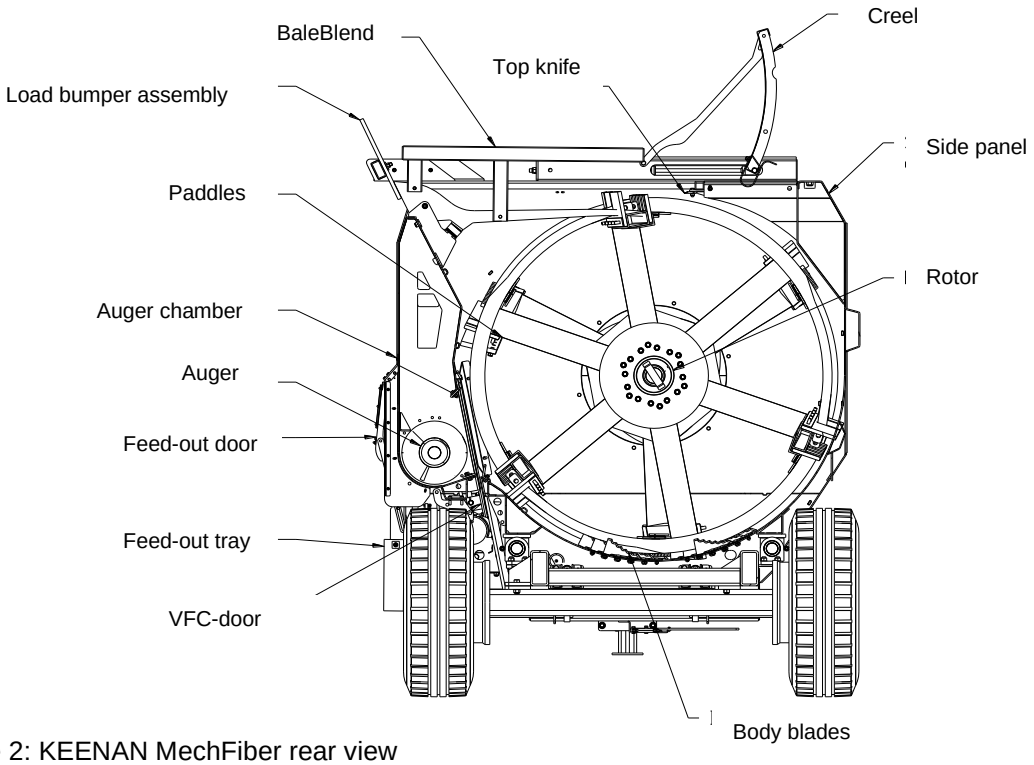


Figure 2: KEENAN MechFiber rear view

The following safety points are general guidelines. Given the wide variety of possible operating conditions, other safety risks that are not listed here may exist.

a) Always park the mixer wagon on level ground and apply the handbrake when not in use.

b) Do not exceed 15 km/h (10 mph) when in use/transit. Local road traffic laws will apply when machine is in transit on public roads, on which the maximum permissible speed is 25 km/h. Exceeding this will compromise the life and safety of major components, such as the hitch, axle, wheels and chassis.

c) Ensure the VFC-door is closed and all feed-out trays/elevators are in the closed/transport position prior to using on a public road.

d) When turning, exercise extreme caution for any potentially overtaking traffic on either side.

e) Do not stand on the ladder whilst the feeder is in transit. The mixer wagon should never be used for the transport of people, animals or objects.

f) Do not stand between the tractor and mixer wagon while it is in use.

g) Only use a PTO shaft with a properly fitted safety guard and the correct shear bolt.

h) Always connect the PTO shaft with the shear bolt end to the machine. The operating speed of the PTO is 540 rpm, and the direction of rotation is marked on the front cover. Always use a well-maintained PTO shaft and keep the safety covers in good condition.

i) Ensure all trailing leads, hoses, etc., are well clear of the PTO.

j) Never operate the PTO in "ground speed mode" or drive the PTO in reverse.

k) Make sure all covers/guards are fitted and closed correctly. Never remove guards when the mixer wagon is connected to the tractor.

l) Ensure that the mixer wagon and the immediate area surrounding it are clear of people, especially children, before commencing operation. Ensure that there is sufficient visibility for the operator to observe all danger zones and that the tractor is equipped with mirrors to enable the operator to see both sides of the machine while it is in operation.

m) When connecting the tractor to the mixer wagon, only connect using the ring hitch/hitch on the mixer wagon to ensure safe coupling. Ensure that the hitch is connected properly to the tractor and that all pins and clips are properly installed. Then, connect the PTO shaft in the correct fashion. Connect the hydraulic hoses, ensuring that the functions match the indicated valve on the tractor.

n) When disconnecting, always ensure that a stand or jack is used to secure the mixer wagon in the park position and that the handbrake is properly applied. Before driving the tractor away from the mixer wagon, ensure that all hoses and cables are disconnected.

o) Load only from the side indicated (see Figure 7; auger chamber side), using suitable equipment.

p) Standing level with or above the machine to load manually is not permitted. Loading should only be carried out with the suitable equipment.

q) Regularly inspect all chains (at least weekly), sprockets and moving parts for wear, and check all nuts and bolts for tightness.

r) The ladder on the rear of the mixer wagon is to be used as a viewing point for the mixing chamber. It should not be used as a means of access to the mixing chamber, nor to the body of the machine. It is strictly forbidden to climb on the upper brim of the machine body. The height of the machine presents the hazard of potentially falling during entry and exit.

s) The noise emission levels of the MechFiber350 and MechFiber370 have been recorded at 89.4 dB. Noise emission levels above 90 dB would require the wearing of suitable ear protection.

t) The breakaway safety brake device should be attached to the tractor at all times. Cable ties fix the wire rope in place along the handbrake handle. Cable-tie the wire rope to the drawbar (see Figure 4). Fix the other end of the wire rope to a solid location on the back of the tractor (e.g., using the top link pin). In the event that the breakaway safety brake device has been activated or damaged, contact KEENAN service for directions for resetting.

u) Routine cleaning may be carried out using a power washer. Isolate any power sources before beginning. When washing the inside of the mixing chamber, open the drain bung underneath the body to allow water to escape. Always disconnect the PTO shaft from the tractor and stand on a suitably safe ladder or platform. Do not to climb on top of the machine or into the mixing chamber.

v) It is recommended that only qualified, KEENAN-trained maintenance personnel enter the mixing chamber.

In the case that an untrained person should enter the mixing chamber, at the very minimum, the following precautionary safety guidelines should be strictly adhered to at all times:

1. Ensure the PTO and hydraulic hoses are disconnected.
2. Apply the mixer wagon handbrake and disconnect the tractor from the machine on level ground.
3. Use suitable PPE, such as protective footwear, eyewear and gloves.
4. Personnel should make themselves familiar with the location of all potential hazards before entering the machine, particularly the location of the top knife and body blades.
5. Be aware that sharp components may be hidden in or under material within the mixing chamber.
6. The top knife should always be fitted with the supplied guard (Figure 3b) before entering the machine. Begin by fitting the first 500 mm of the guard from the rear of the machine. Then, as you enter, continue to fit the guard along the full length of the top knife.

Note: the machine is supplied with a top knife guard, which can be found inside the driveline covers of the mixer wagon.

7. Use a suitable and secure ladder for access to and from the mixer wagon.
   Note: The ladder at the rear of the machine is provided only as a means of viewing the ration and should not be used to enter the mixing chamber.
8. Always maintain three points of contact while entering, exiting and moving within the mixing chamber of the machine.
9. When entering the base of the body, it is recommended that you cover the body blades in the vicinity of where the work will be carried out.
10. When removing trapped objects, be aware that some machine components may move unexpectedly when cleared.
11. Take extreme care when moving around inside the body, as surfaces may be slippery.

SODA GRAIN: Additional safety instructions and warnings are covered and available in the soda grain leaflet, which should be read carefully before soda-treating grain. When finished treating grain, clean out any remaining material in the mixing and/or auger chamber by loading in 200–300 kg of silage or 50 kg of straw, and allow the machine to mix before unloading in the normal manner. *Note: When mixing soda grain, the maximum gross load that can be mixed in the KEENAN MechFiber350 is 5,000 kg and the maximum for the KEENAN MechFiber370 is 6,000 kg.* The soda grain process can be completed using a KEENAN mixer, but before treatment on your farm, make sure you are adhering to local animal feed legislation and health and safety guidelines involving the treatment of grain.

Figure 3a: Body blade and blade cover

Figure 4: Breakaway safety brake

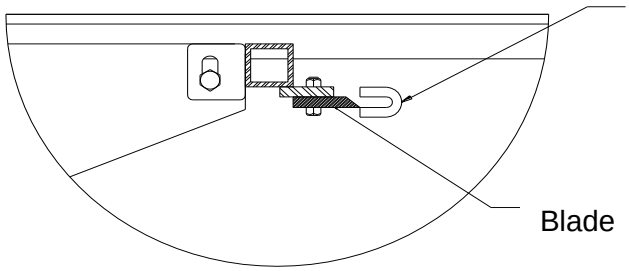


Figure 3b: Top knife protection

WARNING:
Failure to follow the safety guidelines above may lead to accident or injury.

6 Weighing system

The weighing system is designed to be simple to operate, accurate and robust. It consists of four load cells connected to a weigh box unit (a readout box) at the front of the machine. The system uses 12-volt DC power from the tractor, or a battery, if fitted. The weigh box unit can be rotated for visibility during loading and from the tractor cab, but it should be folded out of the line of the tractor wheel for road work. Loads are displayed in kilograms or pounds, with scale increments of 5 kg/10 lbs. The unit is capable of measuring up to 18,140 kg (39,999 lbs) with the appropriate weight bars. The system is maintenance-free, as it is fully electronic, with no moving parts. All components are sealed against moisture and dust and are resistant to frost and corrosion. The unit should not, however, be directly exposed to a high-pressure water jet. The weigh box unit may vary from model to model and region to region. A separate manual is supplied for your weigh box unit, which you should refer to for specific operating instructions.

INSTRUCTIONS FOR ELECTRONIC READOUT BOX ARE CONTAINED IN A SEPARATE MANUAL.

7 Operation

The simplicity of the KEENAN MechFiber mixer wagon's design is reflected in its low power requirement. The power required does vary, depending on the mix used, the dry matter and the amount of chopping required.

If a tractor is at its limit during mixing, this will put extra strain on moving parts, as there will be surges in power as the engine recovers during certain periods of the mix.

A tractor that has sufficient power will provide a much smoother drive to the mixer wagon during all stages of operation.

7.1 Set-up

1. Ensure the machine is level when hitched up. If the machine is not level, this can be corrected by adjusting the hitch height. The hitch height on the KEENAN MechFiber mixer wagon provides a certain level of adjustment from the manufactured height.

2. The PTO shaft should be attached with the shear bolt end coupled to the machine. Make sure that the PTO guard is in good condition and is well-secured.

> **CAUTION:**
> Do not operate the PTO in "ground speed" mode. Reversing the drive on your machine will cause serious damage.

3. As appropriate, connect the hydraulic hoses (see Table 1) from the machine to double- and single-acting spool valves on the tractor.

4. Examine the mixing chamber to ensure that:
- All blade covers have been removed.
- All spare parts and foreign objects have been removed.
- No damage has occurred during transport.

5. Check the weigh box and ensure that the power lead from the weighing system is connected to the tractor battery via either a direct fused line, a 7-pin plug or to a 12-volt battery located in the side box of the feeder. To zero the weigh box, press and hold the "zero" and "minus" keys together until "end" appears on the screen, then release the buttons. If the power is supplied through a 7-pin lights connection, the tractor lights will need to be switched on to provide power to the weigh box. If you stand on the ladder at the rear of the machine, you can check the reading on the weigh box against your known weight; this may require assistance.

6. With the tractor running, check that the VFC-door opens fully and closes completely. Similarly, check the movement of the feed-out tray. Engage the PTO and check the turning of the paddles. The initial turning of the paddle rubbers against the side of the KEENAN MechFiber mixer wagon will generate noise, but this will decrease as the paddle rubbers become more pliable.

Hydraulic and brake hoses	
Operation	**Colour**
VFC-door	Red and yellow
Feed-out tray	Blue
Bale handler creel	Green
Brakes	White
Beetgrid	Black

Table 1: Hydraulic and brake hoses

Note:
A: The design life of hydraulic hoses is subject to the level of wear and tear/usage as well as to factors like harsh climate. It is recommended that they be reviewed periodically (i.e., yearly) and should typically be replaced after ten years of operation, as is necessary.

B: The maximum oil pressure of the hydraulic system is 3,000 psi.

C: If there is a **valve chest** fit to the MechFiber machine, it is very important to connect the valve chest hydraulic feed and return pipes correctly. The return pipe is not designed to handle the hydraulic pressure normally experienced in the valve chest feed pipe, so seals and/or the valve chest itself may be damaged if oil flows in the wrong direction through the chest. Typically, the hydraulic return pipe on the valve chest is fit with a one-way flow valve to prevent oil from being fed to the valve chest in the wrong direction. This is identifiable as a steel connection on the end of the pipe with an arrow stamped on its side to indicate the direction of the oil flow through it. Oil flows into the valve chest through holes marked P (pressure) and out through holes marked T (tank). See Figure 5 below.

(The valve chest is set up for open-centre hydraulics. If the tractor has an alternative hydraulic system [other than open-centre], contact the tractor agent. To alter closed-centre hydraulics, there is a plug available on request from KEENAN Service that can be fitted to the spool valve block.)

Figure 5: Valve chest

7.2. Hitch height adjustment

The MF350 and 370 hitches have been designed to allow for various hitch height options with the same components used. Hitch height is normally selected for the application and set at the factory. However, if required, the hitch can be adjusted on-farm to level the machine. Some options are shown below in Figures 6.1, 6.2 and 6.3.

The main standard hitch assembly is a bolt-on assembly, and once the main setting is completed at the factory, it may also be adjusted on-farm by moving the assembly up or down within the bolt holes, or turning the complete hitch over, as it is suitable to operate facing either way up.

Note:
*1: A minimum of four M20 x 100 mm **Grade 8.8** bolts must be used to secure the swivel ring hitch and the clevis hitch to the drawbar.*
2: Care must be taken when adjusting the hitch height so that there is adequate PTO clearance and enough ground clearance below the stand.

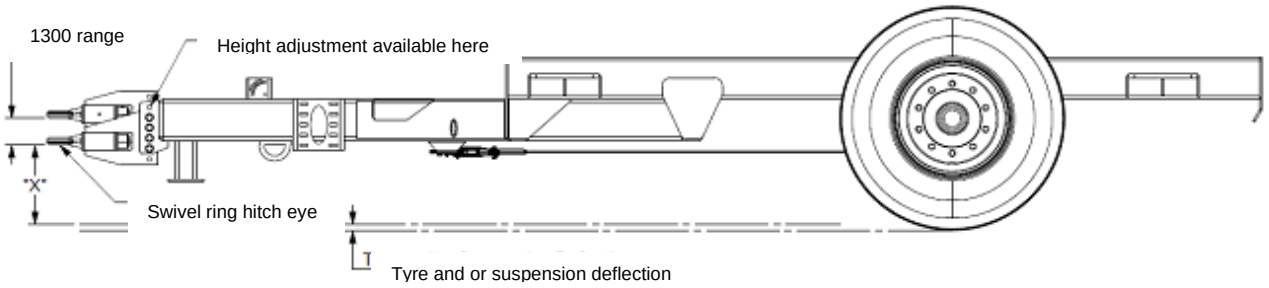


Figure 6.1: Standard hitch adjustment

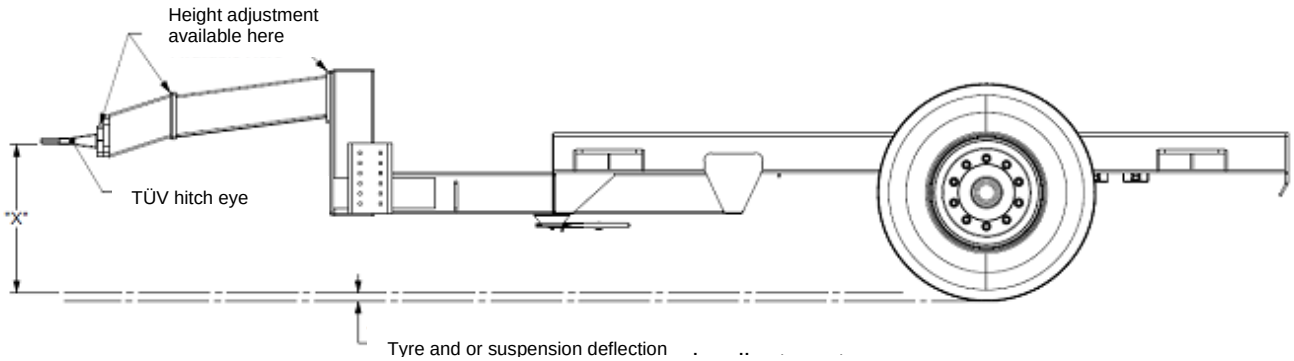


Figure 6.2: High hitch adjustment

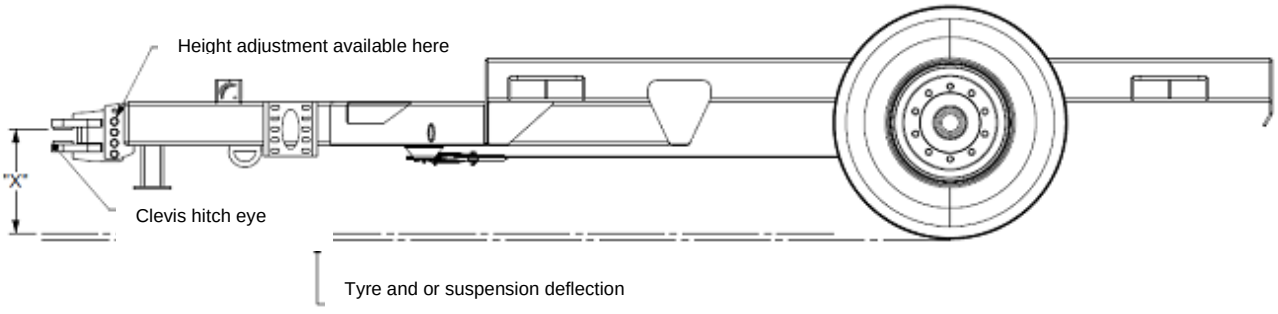


Figure 6.3: Clevis hitch adjustment

7.3 Mixer wagon capacity

Due to the diversity of the materials available for feeding, and to the KEENAN MechFiber's ability to incorporate a wide range of feed types into the ration, the capacity of the machine will vary. Ensure that overloading is avoided at all times, as mix quality will be seriously affected and the machine could potentially be damaged.

Overloading must be avoided because:

• The mix will not be homogenous (evenly mixed), preventing the machine from providing the maximum benefits.
• Mechanical failure will result. Due to the nature of the loading, this may occur at load levels below those that would break the shear bolt.

CAUTION:
The machine can be overloaded before the shear bolt breaks. Therefore, not breaking a shear bolt is not necessarily an indication that the machine is not being overloaded.

The overall amount of material that can be chopped/mixed in one load depends on the following:

• Machine size.
• Overall dry matter of the TMR.
• The chop length and quality of the material added.
• The loading procedure and loading order of the materials used (e.g., the addition of straw first or last), which has a major effect on machine capacity.
• Tractor H.P. rating.

Figure 7: Photograph illustrates a well-mixed ration, showing consistent fibre length and the integration of forages and grains.

7.4 Loading and mixing

Note: The unique tumbling action of the machine is what carries out the mixing. If the machine is overloaded or loaded in the incorrect order, or if insufficient time is allowed for proper chopping, this tumbling action will not happen correctly. Beyond reducing mix quality, this also increases the horsepower requirements and reduces the life of the machine.

> **CAUTION:**
> Overloading will seriously affect the machine's performance and life and will invalidate your warranty.

The effectiveness and speed of the chop is determined by:

- The number of effective (sharp and intact) blades.
- The dry matter of the material to be added.
- The amount of pre-chopping of the material.
- The loading sequence.
- The total amount of material to be chopped.
- The density of the bale.

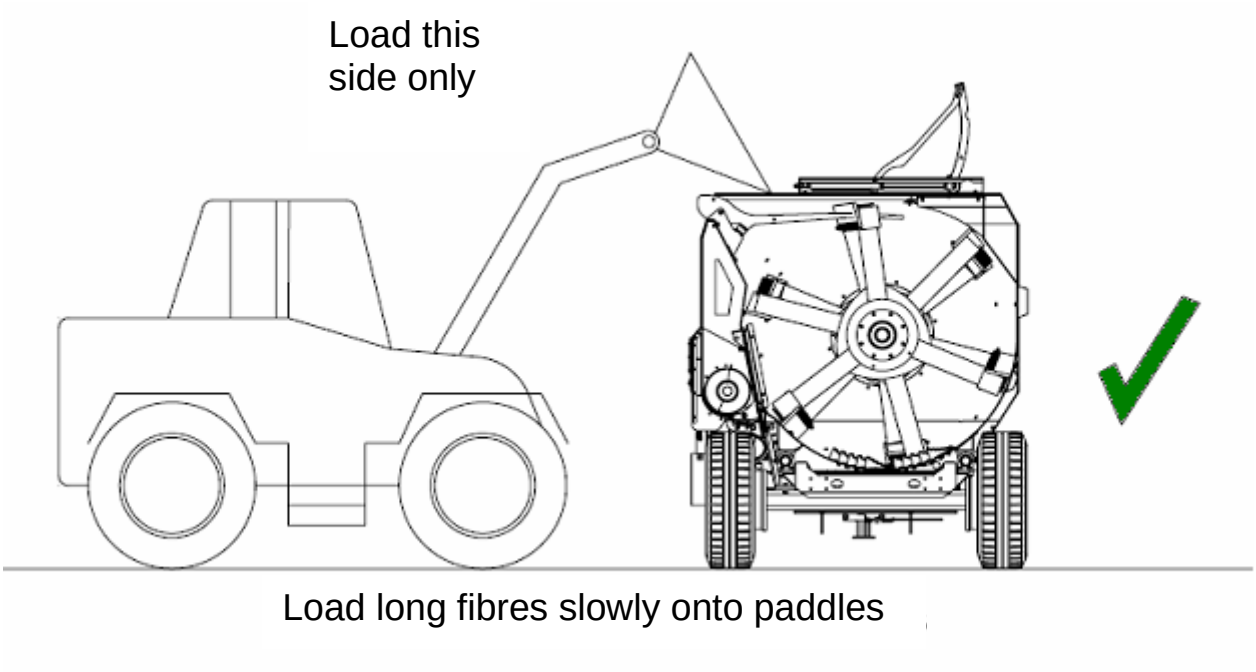


Figure 8: Loading the KEENAN MechFiber mixer wagon

7.5 Operating the KEENAN MechFiber mixer wagon

LOADING THE KEENAN MECHFIBER MIXER WAGON

GENERAL

- Park on level ground.
- Ensure variable feed control (VFC) door is closed.
- **Do not start PTO when VFC-door is open.**

LOADING AND MIXING SEQUENCE

- Load feed as close to the loading side of the unit as possible.
- Load concentrate feeds along the length of the machine.
- Load forages to the front, back and centre of the unit in alternate grabs during mixing.
- Remove all twine, wrap or polythene from bales.
- Round or square bales should be split or broken into a **minimum** of 4 pieces. Use front grab or forks as required.
- Stop PTO before moving to feed-out area.
- Mixing time will depend on the required chop length.

Below is a guide to the correct loading order. Consult your local InTouch office/nutritionist for more guidance on the best loading order for your ingredients.

Order	Feed ingredients	Paddle RPM	Tractor engine speed
1st	Straw, hay	All at 6–8 RPM	1,400–1,600 RPM
2nd	Water, liquid feeds		
3rd	Minerals, concentrates, protein meals, pulps, cereal grains		
4th	Grass silage		
5th	Maize silage		

Table 2: Loading the KEENAN MechFiber mixer wagon

7.6 Operating the KEENAN MechFiber bale handler

LOADING THE KEENAN BALEBLEND

GENERAL

• Park on level ground.
• Ensure variable feed control (VFC) door is closed.
• **Do not start PTO when VFC-door is open.**

LOADING AND MIXING SEQUENCE

• Set paddles running at 6–8 RPM for **all** bale types. ***Note:*** *When chopping straw, higher revs can be used.*
• Load round bales to the centre of the unit with the flat end toward the top knife.
• Allow a minimum of 2 minutes for the bale to chop down before adding another.

CAUTION: Do not load more than one bale at a time.

• Stop PTO before moving to feed-out area.
• Mixing time will depend on the required chop length.
Below is a guide to the correct loading order. Consult your local InTouch office/nutritionist for more guidance on the best loading order for your ingredients.

Order	Feed ingredients	Paddle RPM	Tractor engine speed
1st	Straw, hay	All at 6–8 RPM	1,400–1,600 RPM
2nd	Water, liquid feeds		
3rd	Minerals, concentrates, protein meals, pulps, cereal grains		
4th	Grass silage		
5th	Maize silage		

Table 3: Loading the KEENAN MechFiber bale handler

7.7 Specific instructions for bale handler models

1. The creel should be raised before loading bales.

2. Round bales should always be loaded in the centre of the machine to allow for the maximum agitation of the paddles.

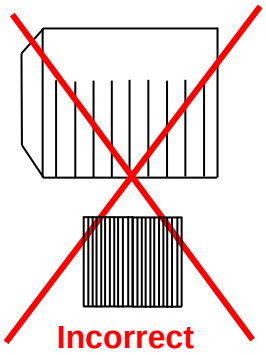
3. The bale should be gently lowered in the centre of the machine onto the tines. The bale handler will then begin its cutting action, with the tines/rings working in conjunction with the top knife, body blades and six paddles to evenly chop the bale material in a timely manner. The bale should be chopped evenly throughout this process, which will keep large lumps of the bale from entering the mixer at any time. This will result in a better mix quality and more even chopping action.

4. After the bale has been fully chopped and enters the machine, the next bale can be added to the mix in the same manner.

5. The standard chopping times for different materials of round 4' x 4' (120 cm) bales are as follows:

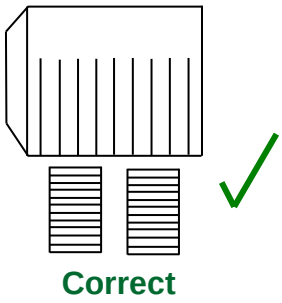
Bale:	**Time:**
Straw	6–8 minutes (140 kg)
Hay	4–6 minutes (300 kg)
Wet silage (up to 20% DM)	2–4 minutes (700 kg)
Dry silage (20–30% DM)	4–5 minutes (500 kg)
Very dry silage (over 35%)	4–6 minutes (400 kg)

Note: Heavy bales must be loaded gently on to the bale handler, not dropped from a height, as doing so can result in damage.



5. These times are dependent on the bale being loaded in the correct position and on using the correct loading method, as described above. These times may vary slightly depending on the tightness of the bale and the behaviour of the bale as it is chopped.

6. When loading large square bales, load the bales so the sections lie across the tines, as this will prevent the sections from falling through the gap in the tines (see diagram to the right: sections of large square bale loaded perpendicular to the tines). The easiest way to do this is to load the bale in two halves on the loader (one half on each side of the bucket, if wide enough) and flick the sections out onto the tines. By doing so, the sections will remain on the tines and rings longer and get a better chop against the top knife. If loaded incorrectly, the sections will fall through the tines and will not get chopped, putting additional stress on the chopping mechanism.



8. To successfully operate the bale handler, the bale should remain on top of the tines long enough to allow the pre-chopping to take place against the serrated top knife. This will ensure that further chopping within the mixing chamber is reduced, and though it may take longer for the bale to be taken in, during this time, the material that has already been cut from the bale will be processed within the chamber.

7.8 Washing and chopping root crops

With the machine stopped, add the root material to be washed and chopped. Ensure that there are no stones or foreign objects hidden in the roots.

1. Add water at approximately 300 kg (660 pounds) per ton of material to be chopped. Rotate the machine for 1–2 minutes at 6 rpm.
2. Park the machine on an incline. Open the wash gate and allow the water to drain off.
3. Repeating this process may be necessary if the materials being chopped are particularly dirty.
4. Chop the materials by running the machine at 8+ revs.

7.9 Feeding out

1. Ensure that the VFC-door is still closed.
2. Re-engage the tractor PTO at idle, increasing engine revs to between 1,400 and 1,600 rpm to achieve a paddle running speed of 6–8 rpm. Allow the TMR to loosen and tumble for 15–20 seconds.
3. Slowly open the VFC-door, no more than halfway. Allow at least 1 minute to pass before fully opening the door.
4. Select a ground speed to feed out at an even rate along the feed area.
5. When feed-out is complete, close the VFC-door and run the machine for 10–20 seconds to empty the auger chamber, then disengage the PTO before turning out of the shed.

CAUTION:

Never open VFC-door before engaging PTO. Serious damage can occur when a sudden load is put on the auger. Disengage the PTO before turning corners.

8 Maintenance

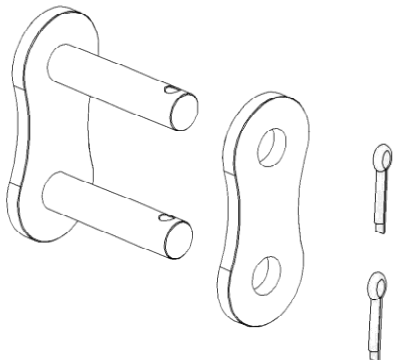
The KEENAN MechFiber mixer wagon has been designed for optimum performance with minimal maintenance. Chains, bearings and grease points have been kept to a minimum without compromising function. All components are high-quality and provide excellent durability. Regular, routine maintenance will ensure your KEENAN MechFiber mixer wagon gives you the best results with minimal problems.

> ⚠ **WARNING:**
> **Prior to carrying out any maintenance on the machine, always ensure that the tractor engine is stopped, and disconnect the P.T.O. and hydraulic hoses from the tractor. Observe safety precautions at all times when working on machine. Read the safety section (Section 5) before attempting to work on the machine.**

The recommended operating pressure in the hydraulic circuit is 170 bar and a flow rate of 40 litres per minute. Replacement hoses should comply with DIN EN 853. When replacing hydraulic hoses, always wear suitable protective equipment.

8.1 Chains

1. Each week, check the condition of the chain tension arms and adjust as required. There are two chains used on the KEENAN MechFiber model. The primary drive chain (ASA120) drives the auger shaft, and the secondary chain (ASA160SH) drives the rotor (see Figure 9). Both chains are tensioned by spring assemblies on the slack side of the chain.



Note: *The ASA120 chain uses split pins in the joiner link (as shown), while the ASA160SH chain uses roll pins, due to the high loads involved.*

Figure 9: Chain joiner link

2. Each day, check the level of oil in the automatic oiler reservoir (where fitted). If the oil level is low, top it up with light oil, grade SAE 10 or similar. The capacity of the reservoir is 1.89 litres.

   Note:
   A: Do not use heavy/high-viscosity oil, as the back pressure in the pipes may cause them to blow out.

   B: Do not use grease on the chains, as it is unsuitable for the application and will not allow lubrication of the vital internal parts of the chain.

C: The automatic chain oiler attachment (where fitted) gives a squirt of oil (approximately 15 ml) every time the VFC-door ram cycles. In this way, the machine is oiled in direct proportion to the number of cycles, assuring adequate lubrication. There is an adjustment screw on the base of the automatic oiler; turning clockwise applies less oil, while turning counter-clockwise applies more.

3. After each season, remove all chains by loosening the tensioners and removing the joiner links (see Figure 8).

Wash off all dirt using paraffin. Dry the chains before soaking overnight in oil, and then, refit.

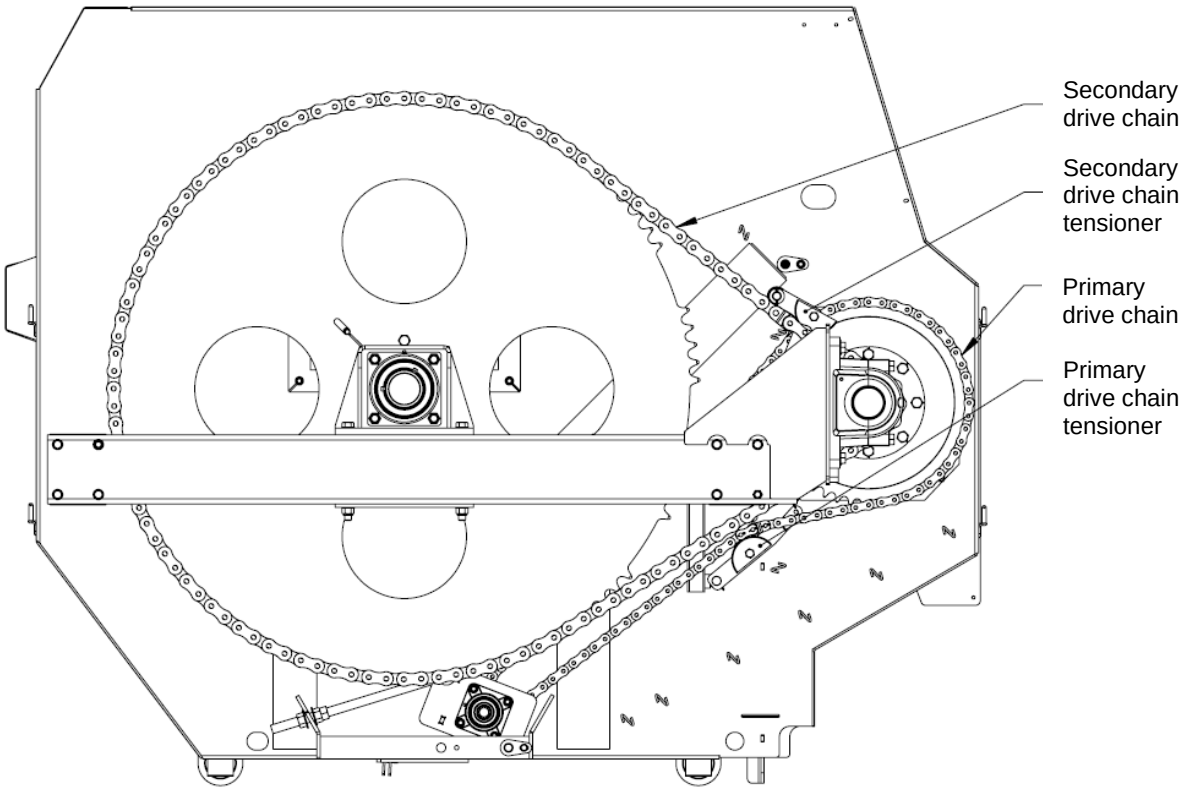


Figure 10: Front panel of KEENAN MechFiber mixer wagon

CAUTION:

- Failure to maintain oil on the chains may reduce the machine's working life by 90%. Chain damage is not covered by factory warranty. See warranty section for more details.

  It is also essential to monitor and maintain the required chain tension. Chain tension is adjustable for the primary chain. (See next section.)

CAUTION:

- For the first month of ownership (i.e., during the chain bedding-in period), it is recommended to check chain tension daily. (See next section.)

8.2 Chain tensioning

1. Setting tension on primary chain

Tension is set on the primary chain to remove excess slack and to prevent sagging or whipping when under heavy loads. The secondary drive chain is adjusted automatically.

The primary chain tension is adjusted by turning the adjuster nut on the gearbox retaining bolt (**A**) — see Figure 11. The final adjustment is applied by adjusting the tensioner spring on the chain links attached to the body. **70 mm** (3 inches) deflection from a straight line (**B**) is advised. Do not overtighten, as doing so will damage the bearings. The primary drive chain spring is nominally stretched to **270–290 mm** coil length and the secondary drive chain spring is nominally stretched to **600–700 mm** coil length. If the springs overstretch, they will need to be replaced.

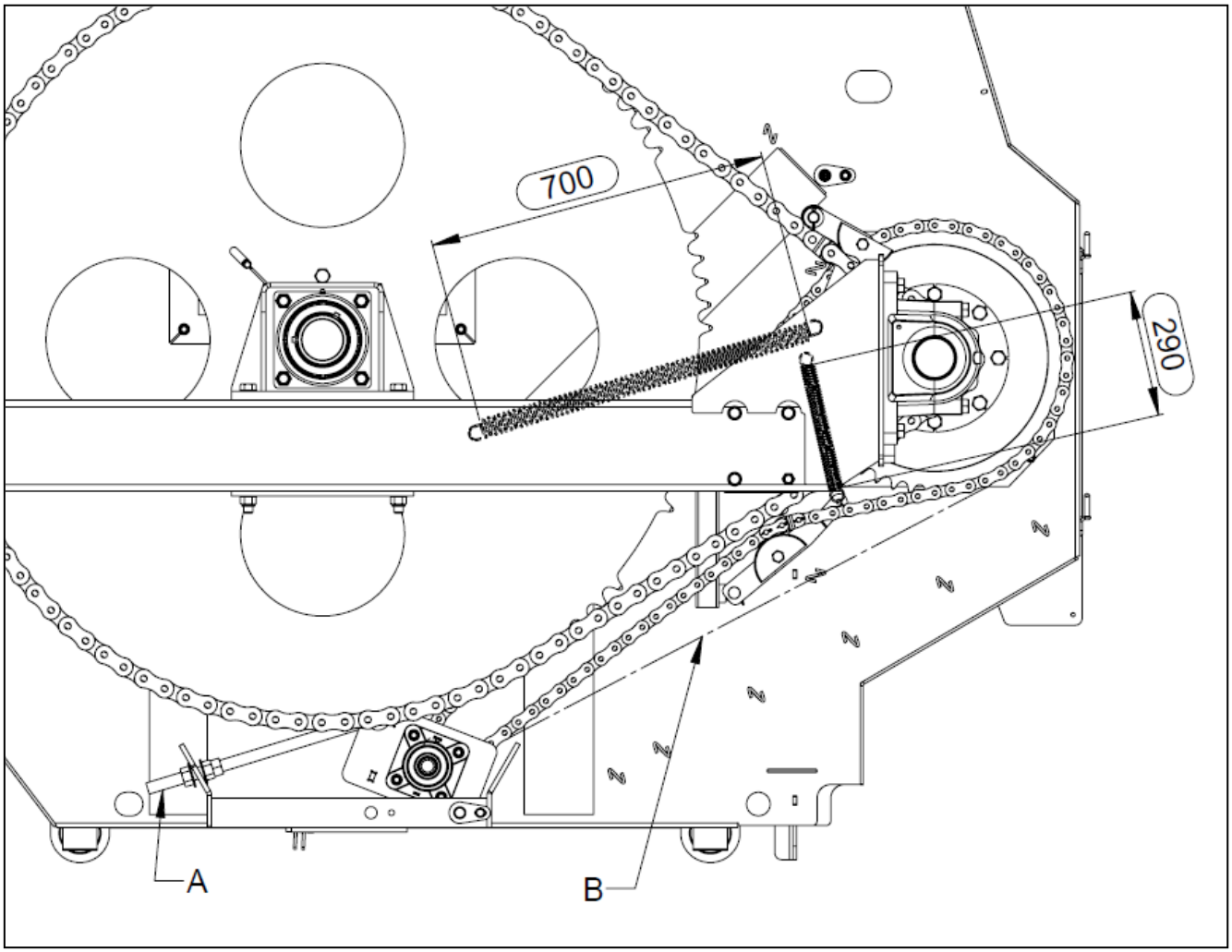


Figure 11: MechFiber 350 and 370 chain tensioning (showing springs fully stretched)

Model	MechFiber350 and 370
Primary drive chain	**ASA 120**
Links	104 (inc. joiner)
Pitch (mm)	38.1
Pitch (inches)	1.5
Chain length (mm)	3,962
Chain length (inches)	156
Rotor drive chain	**ASA 160HS**
Links	119 (inc. joiner)
Pitch (mm)	50.8
Pitch (inches)	2
Chain length (mm)	6,045
Chain length (inches)	238

Table 4: KEENAN MechFiber 350 and 370 drive chains

8.3 Greasing

1. Bearings

Each week, apply grease to the eight bearings with grease fittings. The bearings are as follows:

a. The main rotor bearing at the front of the KEENAN MechFiber (A, Figure 12).
b. Two main bearings on the front and rear of the input drive shaft (B and C, Figure 12).
c. The auger bearing at the front of the KEENAN MechFiber (D, Figure 12)
d. The two main bearings at the rear of the KEENAN MechFiber (G and H, Figure 13).

2. Grease fittings

Each week, apply grease to the following points with grease fittings (there are up to 25). The points include:

a. 2 pins and 2 bushes on the guillotine door lifting rams (I, J, K and L, Figure 14)
b. 18 grease fittings on the tandem axle assembly (where fitted):
    2 on each brake rod, 1 on each pivot (8 in total)
    1 on each brake arm (4 in total)
    1 on each front spring pin (4 in total)
    1 on each centre spring assembly pivot (2 in total)
c. 2 grease fittings, 1 on the secondary chain tension arm and 1 on the primary chain tension arm (see Figure 15)
d. See Section 6.4 for bale handler maintenance details
e. Grease fitting in pivot bush on gearbox pin

3. VFC-door

Check that the VFC-door is able to move freely each day, and grease as appropriate.

4. PTO drive shaft

Refer to PTO operator's manual for greasing instructions and recommendations.

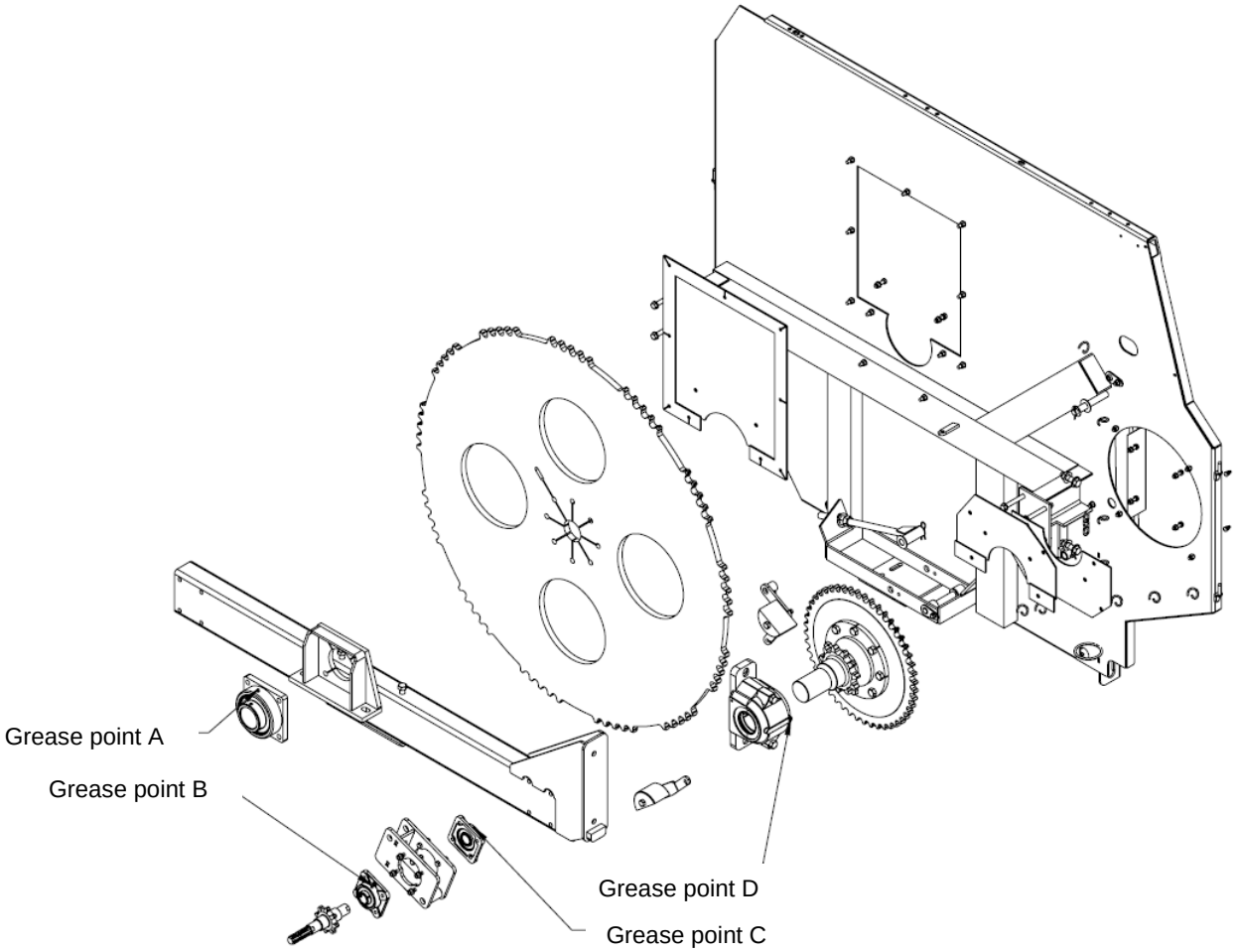


Figure 12: Front grease points

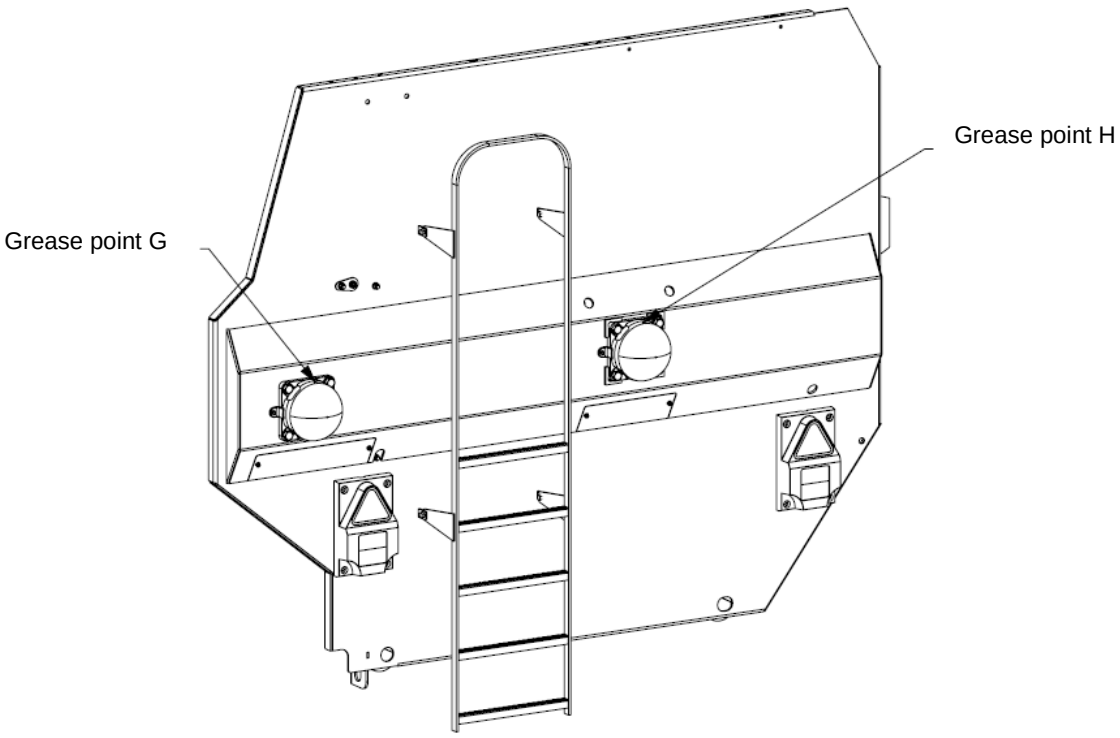


Figure 13: Rear grease points

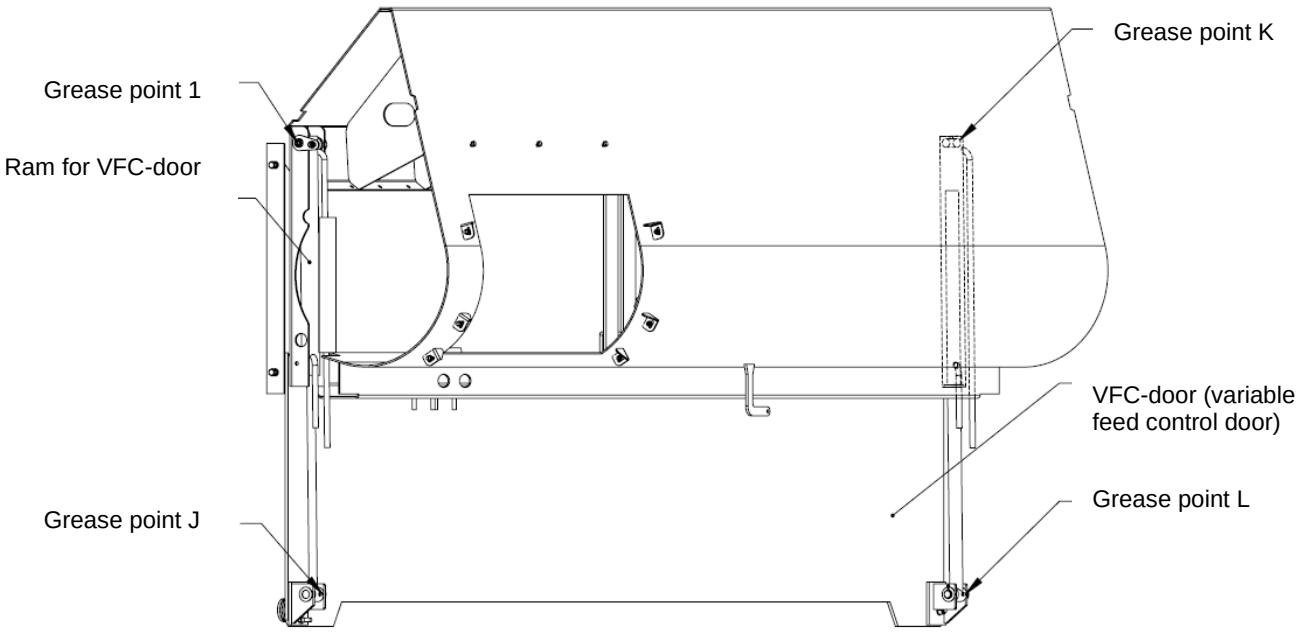


Figure 14: VFC-door grease points

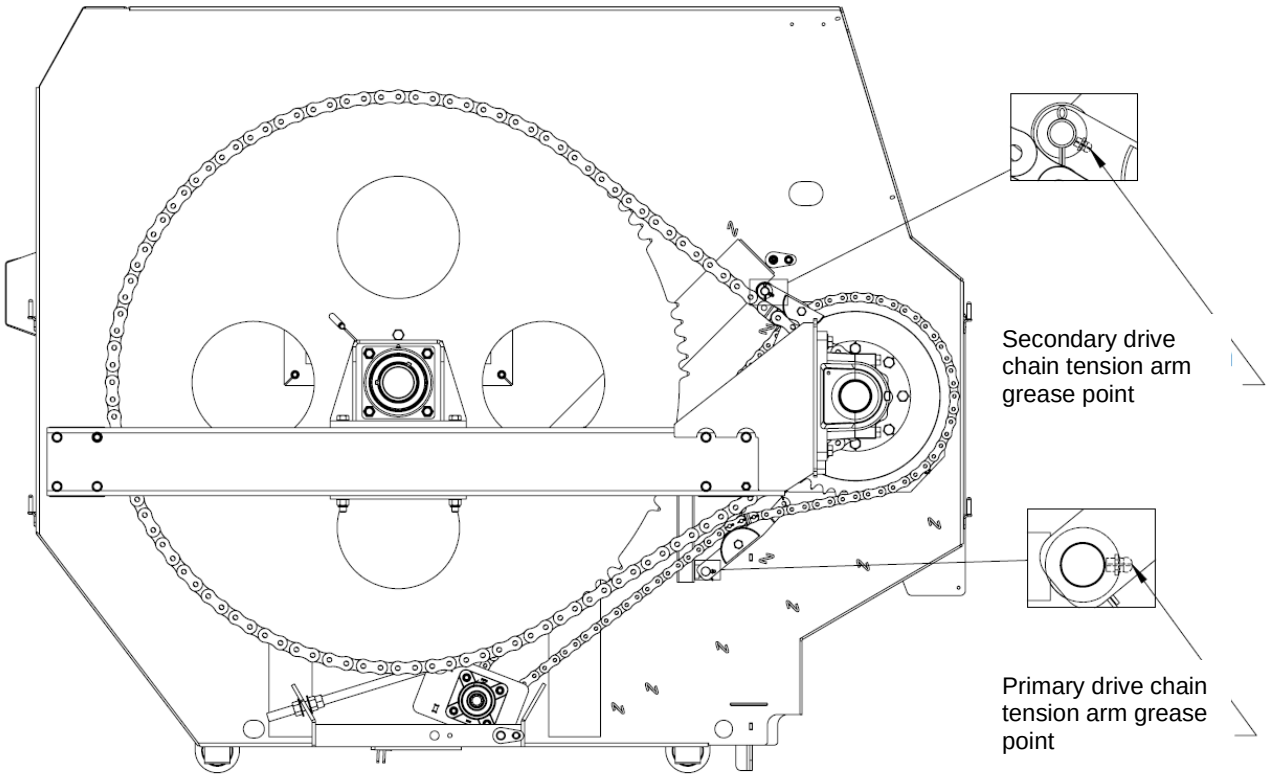


Figure 15: Tension arm grease points

8.4 Maintenance of blades

Blade sharpening and/or replacement: It is recommended that only KEENAN-trained and/or qualified maintenance personnel should perform this task.

Blades must be kept sharp, as blunt blades will increase power requirements. Sharpening must be done without taking the temper from the blades (without overheating). Blades can be sharpened many times, but when this is no longer practical, they must be replaced.

8.5 Maintenance for bale handler models

There is a grease nipple fitted at the pivot point of each bale handler tine on the auger chamber side of the machine. The grease nipple is fitted to the head of each M24 tine bolt. The following maintenance should be completed on a monthly basis:

1: Apply grease to each of the tine bolt grease points individually.

2: The M24 tine bolt lock nuts should be checked for tightness. They should be tight enough to prevent the tine from having any side movement but still allow it to fall under its own weight when let drop.

3: The rubber buffer should also be checked for wear or signs of damage, which may affect its shock absorption. The optimum tine-to-top-knife gap is **235 mm ± 10 mm**, but this may vary depending on application and the design of the tine fitted. Please consult your local service centre for settings.

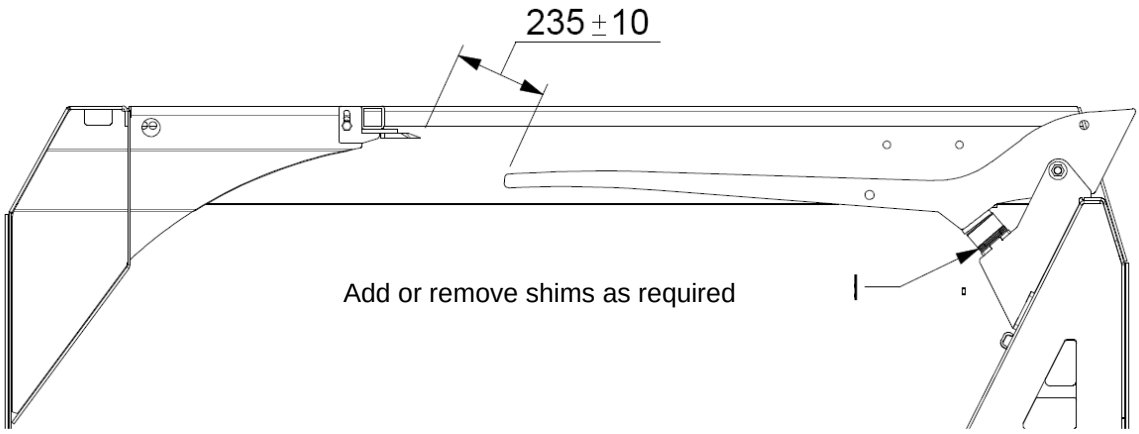


Figure 16: Bale handler tine to top knife setting

4: Check that the operation of the creel, both up and down, is smooth and unobstructed.

5: Check that the creel rubber is in place, is undamaged and is lowering and raising with the creel.

Note: *The creel rubber is fitted to prevent material from sitting on the top knife of the machine, additionally preventing a build-up of material from getting under the creel and damaging it as it is lowered. To prevent damage to this rubber, do not drop material on it from a height when loading material onto bale handler arms.*

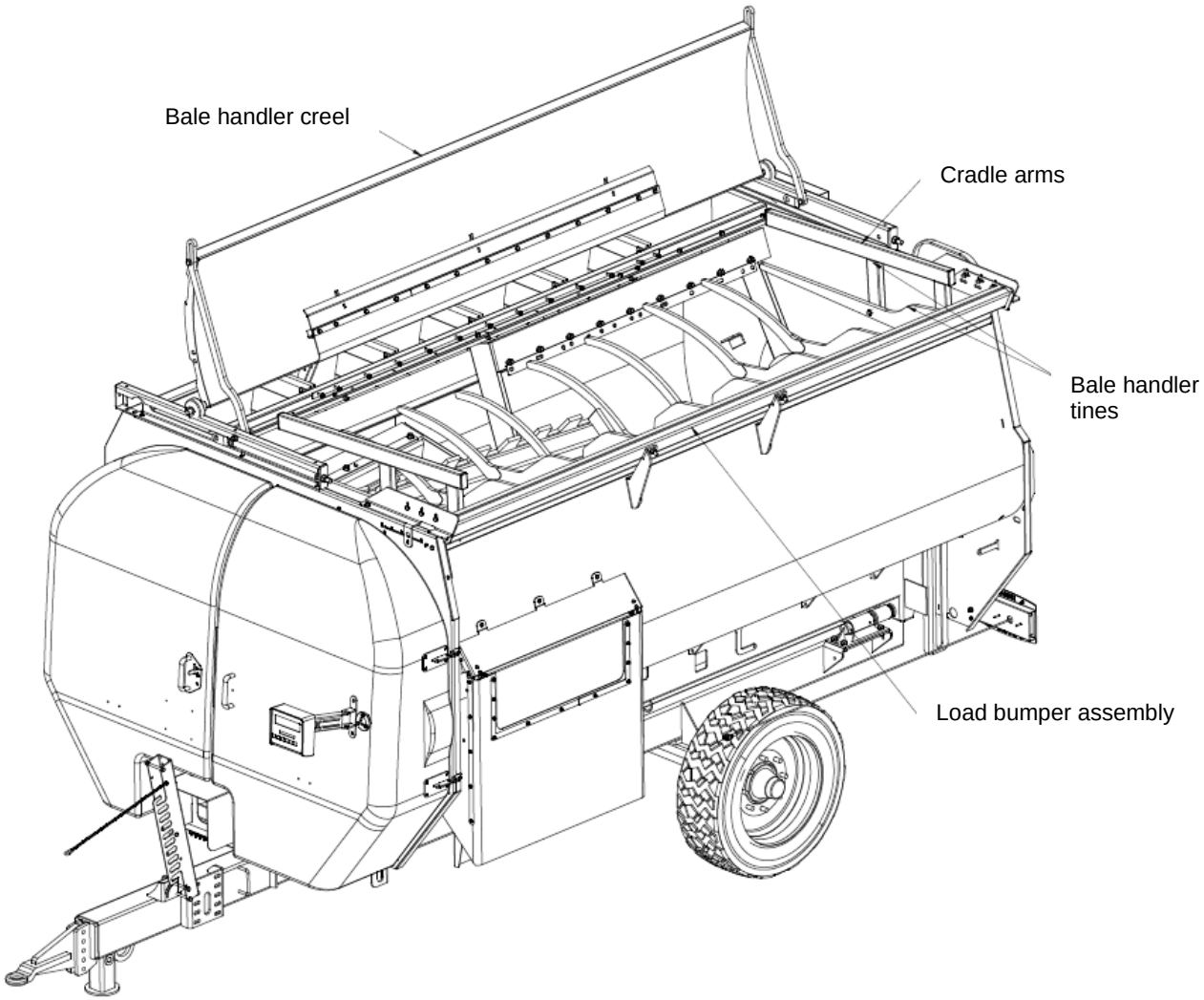


Figure 17: MechFiber machine with bale handler attachment

8.6 Shear bolts

The following are the recommended shear bolts to be used with the KEENAN MechFiber350 and 370:

Machine type	Shaft	Shear bolt
MechFiber350 and 370	T60	M10 x 65 x 8.8

Table 5: Shear bolt

CAUTION:
Failure to use the correct grade of shear bolt can result in overload failure of the machine and will invalidate your warranty.

8.7 Nuts and bolts

1. After the first day, and regularly thereafter, inspect wheel nuts and tandem axle U-bolts (where fitted).
2. After the first week, and each week thereafter, check all nuts and bolts, including bearing nuts, for tightness.

General torque

Stud/bolt type	FT/LB	Nm
M22	335	450
M20	260	350
M18	200	270

Table 6.1: General torque for wheel studs

U-bolt diameter (mm)	Tightening torque (Nm)
18	230
22	450
24	500
27	600

Table 6.2: Recommended torque for U-bolts for tandem axles (where fitted)

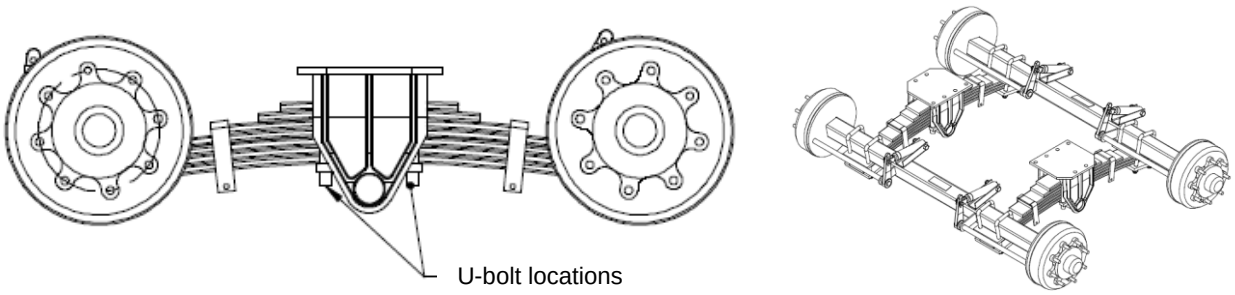


Figure 17: U-bolt position on bogie

8.8 Tyres

1. Each week, check the tyres for wear and damage.
2. Each week, check the tyre pressure. Optimum tyre pressures are shown in Table 7.

This information is given as a guide. If in doubt, please contact a KEENAN service representative.

> **WARNING:**
> When refitting and re-inflating tyre/wheel assemblies, a safety cage should be used to prevent possible injury. Incorrectly fitted tyres are dangerous. Please make sure tyre repairs are carried out by experienced tyre fitters.

Type	Bar	PSI
305/55 R 22.5	7.0	110
285/70 R 19.5	8.5	125
385/55 R 22.5	9.0	132
385/65 R 22.5 (8 stud)	5.5	81
385/65 R 22.5 (10 stud)	9.0	132
445/45 R 19.5	9.0	132
445/65 R 22.5	9.0	132

Table 7: Tyre pressure

8.9 Wheels

1. Each year, lever off the hub cap, remove the split pin and castle nut and remove the hub.
2. Check seals, bearings, brake shoes, springs, studs and all other internal parts.
3. Replace worn parts, re-grease and refit.

Note: When re-fitting the wheels, tighten the castle nut until resistance is felt (do not over-tighten). Release the castle nut 1/6 of a revolution and check for movement in the hub; if none, re-fit the split pin.

Note: At the end of the feeding season, wash the machine down thoroughly, preferably using a power washer. Grease or oil all lubrication points and open the drain bung on the bottom of the machine.

Changing a wheel

- Park the mixer wagon on level ground and apply the handbrake.
- Fit chocks to opposite wheels to prevent machine movement during the operation. Loosen the wheel nuts with a wrench, but do not remove the nuts at this stage.
- Jack up the mixer wagon underneath the axle until the bottom of the wheel is off the ground. Remove the nuts completely and slide off the wheel.
- Refit the wheel, ensuring that the centre of the wheel is properly located on the hub, and hand-tighten the wheel nuts.
- Lower the machine and tighten the nuts to the recommended torque using suitable equipment.
- Check the wheel nuts for tightness after 1 hour of use, and repeat on a weekly basis.

8.10 Rear feed-out elevator (where fitted)

An elevator system requires regular maintenance in order to achieve optimal performance. Every week, the elevator needs to be checked to make sure that the belt is running straight and not wearing unevenly on one side. If the belt is not running straight, adjust the tension by adjusting the tensioner nut on the side, and run it again to check.

The elevator surface should be kept clean at all times to keep feed from building up and falling into the rollers during operation. Do not allow old feed to build up on the sides of the belt.

Each week, ensure that the bearings are greased (as per Figure 18 below). Ensure that the elevator is free-moving in each direction and that there is no feed caught in the slideways. Replace belts and side rubbers when they become worn; otherwise, the elevator will not function properly. Refer to the Rear Feed-Out Operator Manual Supplement for spare parts, maintenance and operation.

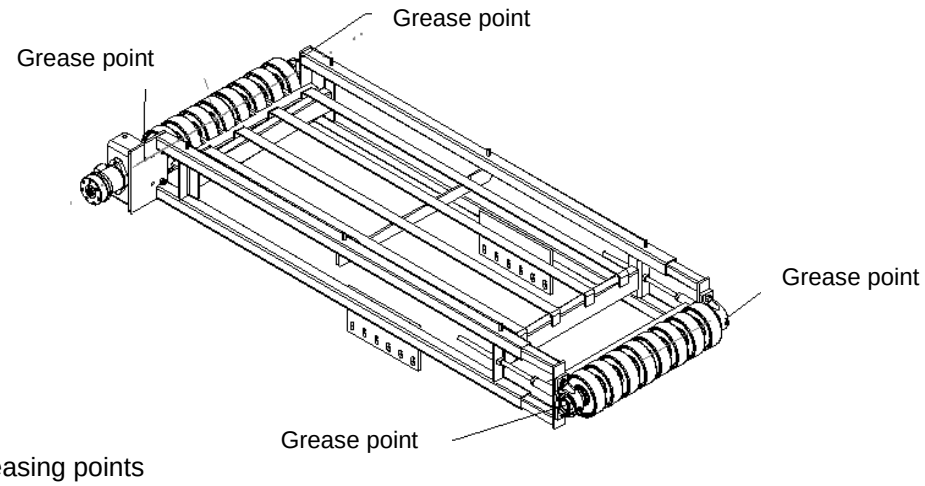


Figure 18: Rear feed-out elevator greasing points

8.11 Side and stub feed-out elevator (where fitted)

An elevator system requires regular maintenance in order to achieve optimal performance. Every week, the elevator needs to be checked to make sure that the belt is running straight and not wearing unevenly on one side. If the belt is not running straight, adjust the tension by adjusting the tensioner nut on the side, and run it again to check.

The elevator surface should be kept clean at all times to keep feed from building up and falling into the rollers during operation. Do not allow old feed to build up on the sides of the belt.

Each week, ensure that the bearings are greased (as per Figures 19 and 19a below). Ensure that the elevator is free-moving in each direction and that no feed is caught in the slideways.

Replace belts and side rubbers when they become worn; otherwise, the elevator will not function properly.

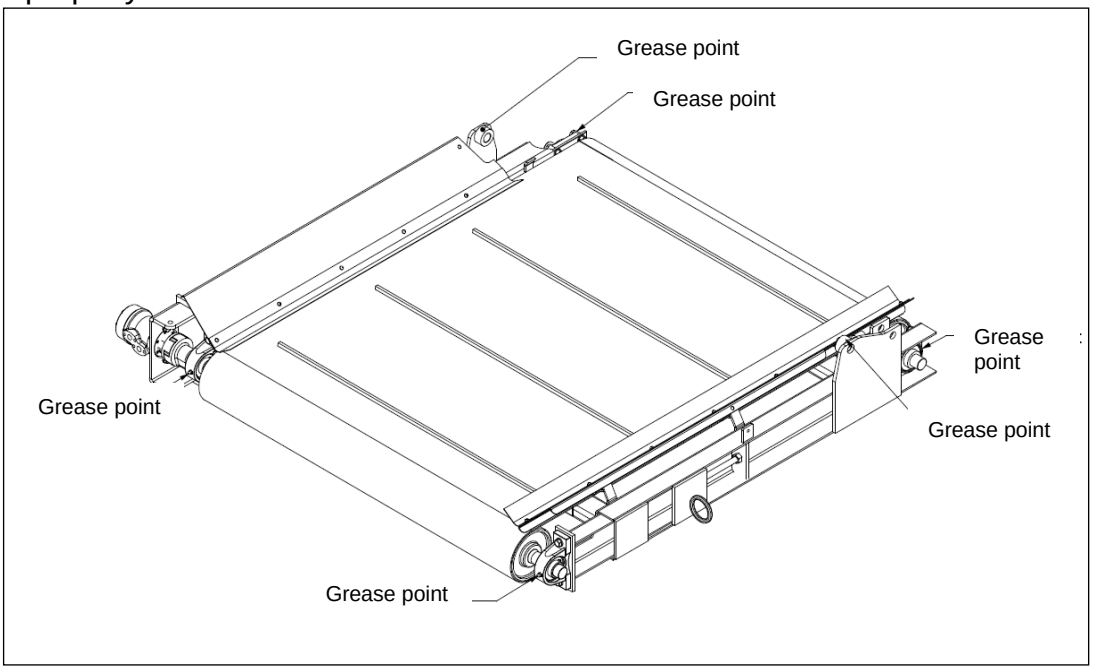


Figure 19: Side elevator greasing points

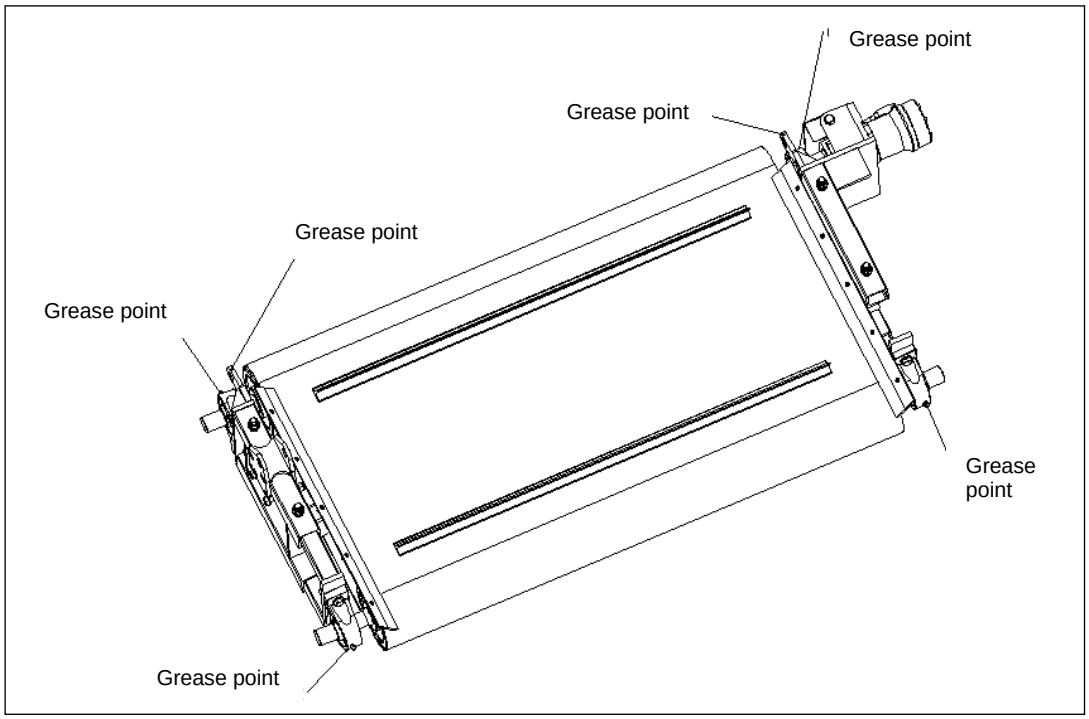


Figure 19a: Stub elevator greasing points

9 Maintenance checklist

Daily

Cleaning:	Clean all old feed from around the body to prevent corrosion and damage to paint.
VFC-door:	Before using the machine, check that the door opens and shuts fully and operates smoothly.
Wheel nuts:	Check torque settings**.**
Oiler:	Check the oil level and replenish with SAE10 oil as required.

Weekly (40 hours)

PTO input shaft:	Grease the universal joints (2 nipples) and the sliding half shafts (smear grease on surfaces). For further information, please refer to the PTO Maintenance Booklet supplied with the PTO.
Drive (gear) box:	Grease the drive input-shaft bearings (2 nipples) and pivot bush nipple.
Rotor bearings:	Grease the front and rear rotor bearings (2 nipples).
Feed discharge auger:	Grease the front and rear auger bearings (2 nipples).
Idler shaft:	Grease the front and rear idler shaft bearings (2 nipples).
Chassis:	Grease the hitch pivot tube (where swivel hitch is fitted).
Single axle:	Grease all 6 pivot points listed below: 2 on each brake rod (4 in total) 1 on each brake arm (2 in total)
Tandem axle (if fitted):	Grease all 14 pivot points listed below: 2 on each brake rod (8 in total) 1 on each brake arm (4 in total) 1 on each spring bogie pivot pin (2 in total)
VFC-door (guillotine door):	Grease the door's hydraulic cylinders (4 nipples) and the slide plates (smear food-grade grease on surfaces). The recommended grease is "Ceran FG," supplied by TOTAL Lubricants, or similar food- and feed industry-grade grease.
Drive chains:	Keep the automatic oiler reservoir (where fitted) full of SAE10 oil. Check the condition of primary and secondary chain tensioner arms.
Tyres:	Check that tyres are inflated to the recommended pressures and make sure the wheel nuts are tight.
Chain tensions:	Grease the pivot points on the primary and secondary chain tensioner mechanisms
Axle U-bolts:	Check axle U-bolt torque settings (tandem only).
Oiler pipes:	Check hoses for damage or leaks.

Monthly

Bale handler:	Grease each tine pivot and check the tines for looseness.
Tine buffer:	Check for cracks, splits or degradation.

Yearly (end of season)

Drive chains: Remove both chains; wash off all dirt and old oil using paraffin, then dry. Soak both chains in oil overnight or longer, if possible.

Idler and auger shaft front bearing: Remove and pack with grease.

Overall machine: Before storage, wash the complete machine, then grease or oil all weekly lubrication points as above. Open the drain cock in the mixing hopper. Check tyre pressures. Store the machine under cover or under a tarpaulin, if possible.

Electronic weigh box: If the machine is to be stored, remove the weigh box unit from the machine and keep in a dry place. Lightly grease the load cell cable connector end and place it into a plastic bag.

Wheels: Remove and inspect wheel hub. Replace worn parts, redress and re-fit.

Blades: Blades need to be kept sharp. This will have to be done without taking the temper (overheating) from the blades. Operating the machine with blunt blades will put major stress on the drive system. Blades may have to be replaced if it is no longer practical to sharpen them.

WARNING:
Due to the hazards of entering the mixing chamber, it is recommended that all blade replacement is carried out by a KEENAN-authorized service agent who is specially trained to do this. Contact your local agent (see back cover for details).

10 Specifications

10.1 Weight

Model weight		MechFiber350		MechFiber370	
			+ Bale handler		*+ Bale handler*
Unladen	kgs	8,250	8,900	10,470	11,270
	lbs	18,172	19,615	23,082	24,846
Payload	kgs	5,500		8,000	
	lbs	12,125		17,637	
Gross	kgs	13,750	14,400	18,470	19,270
	lbs	20,323	31,767	40,720	42,483

Table 8: Machine weights

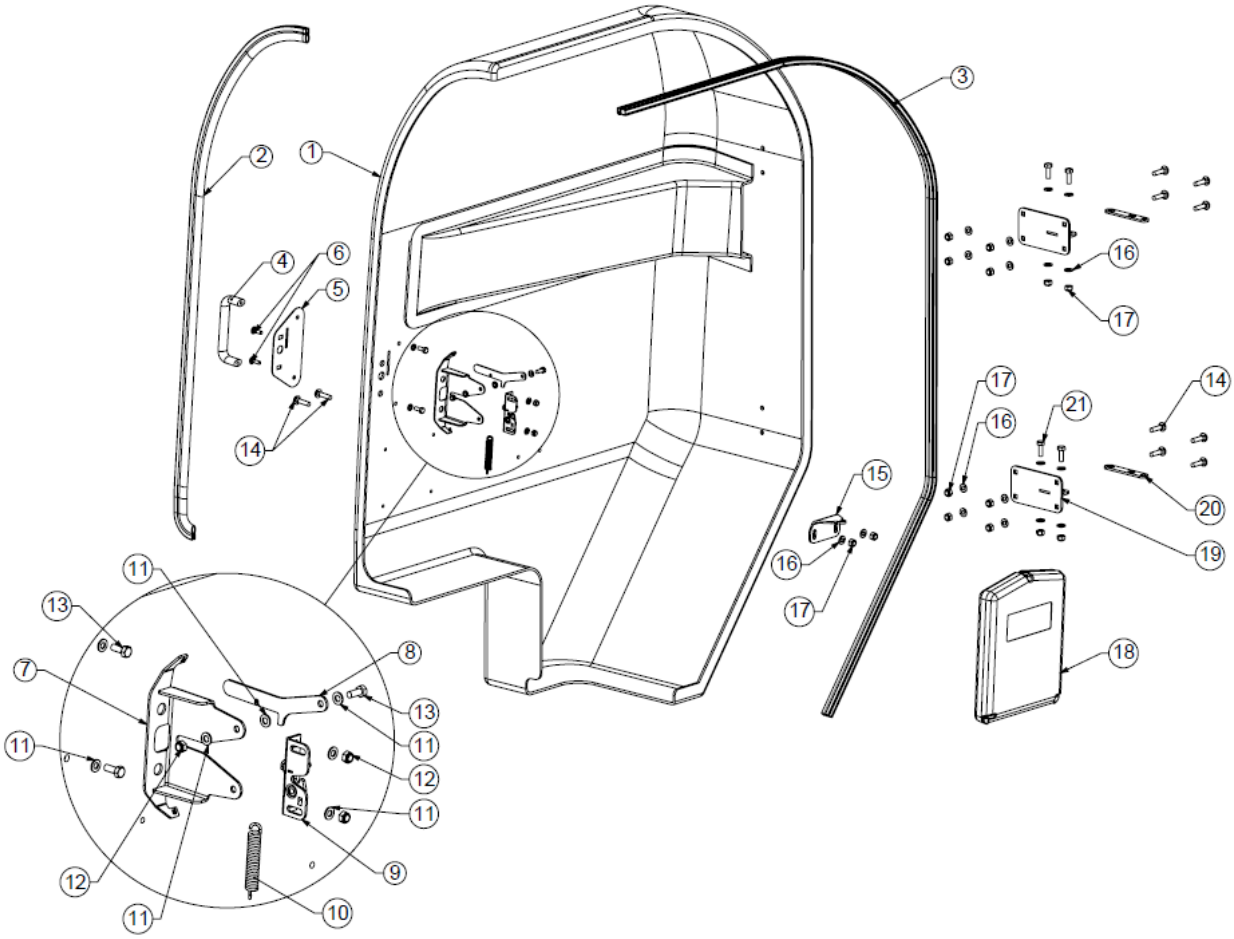
Note:
1: MechFiber350 weight based on single axle; for a twin axle, add approximately 800 kgs (1,763 lbs).
2: MechFiber370 weight based on twin axle; for a single axle, remove approximately 800 kgs (1,763 lbs) and reduce payload to 6,500 kgs (14,326 lbs).
3: Weights may vary depending on exact specifications.

PART II

(Spare Parts)

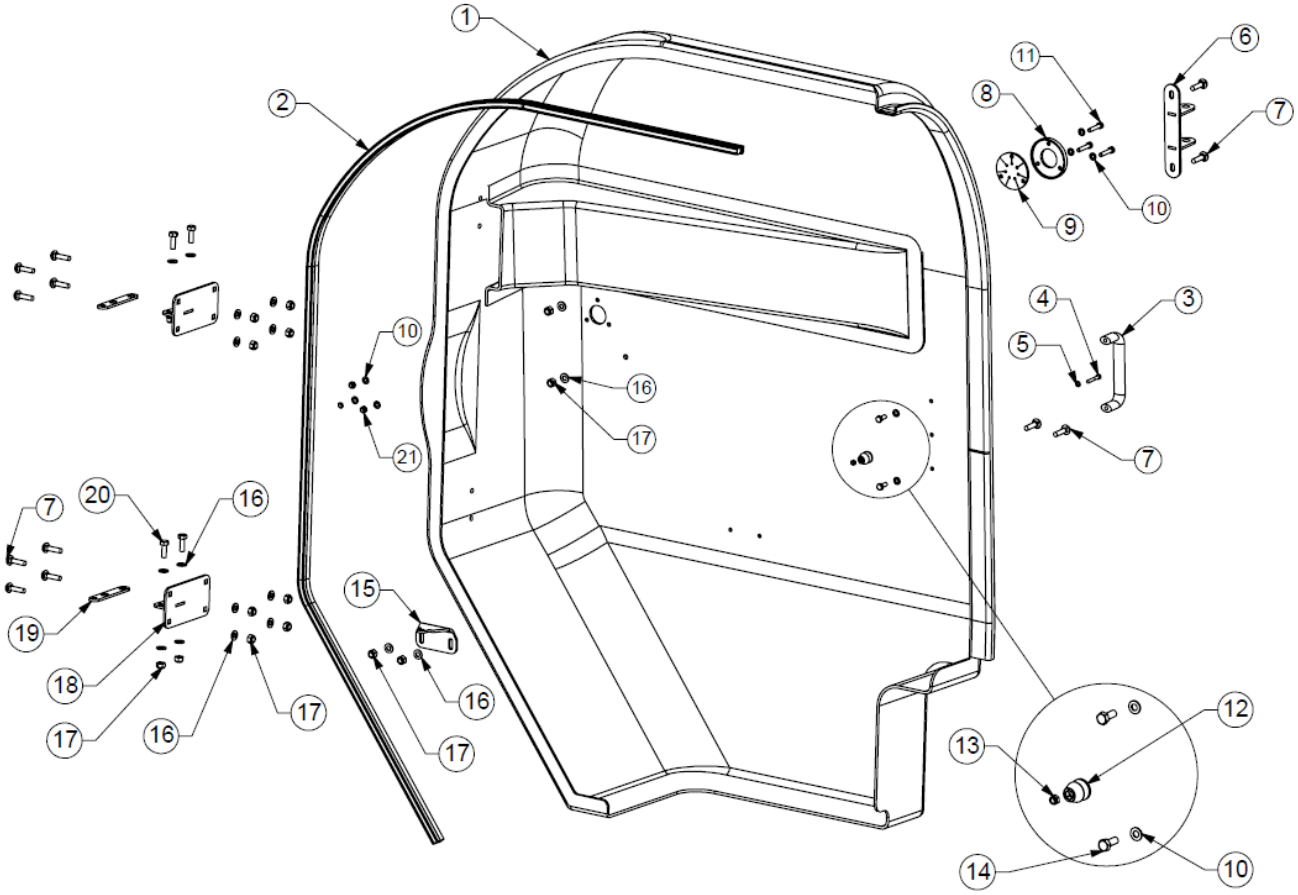
11 Parts list

11.1 Front guard parts



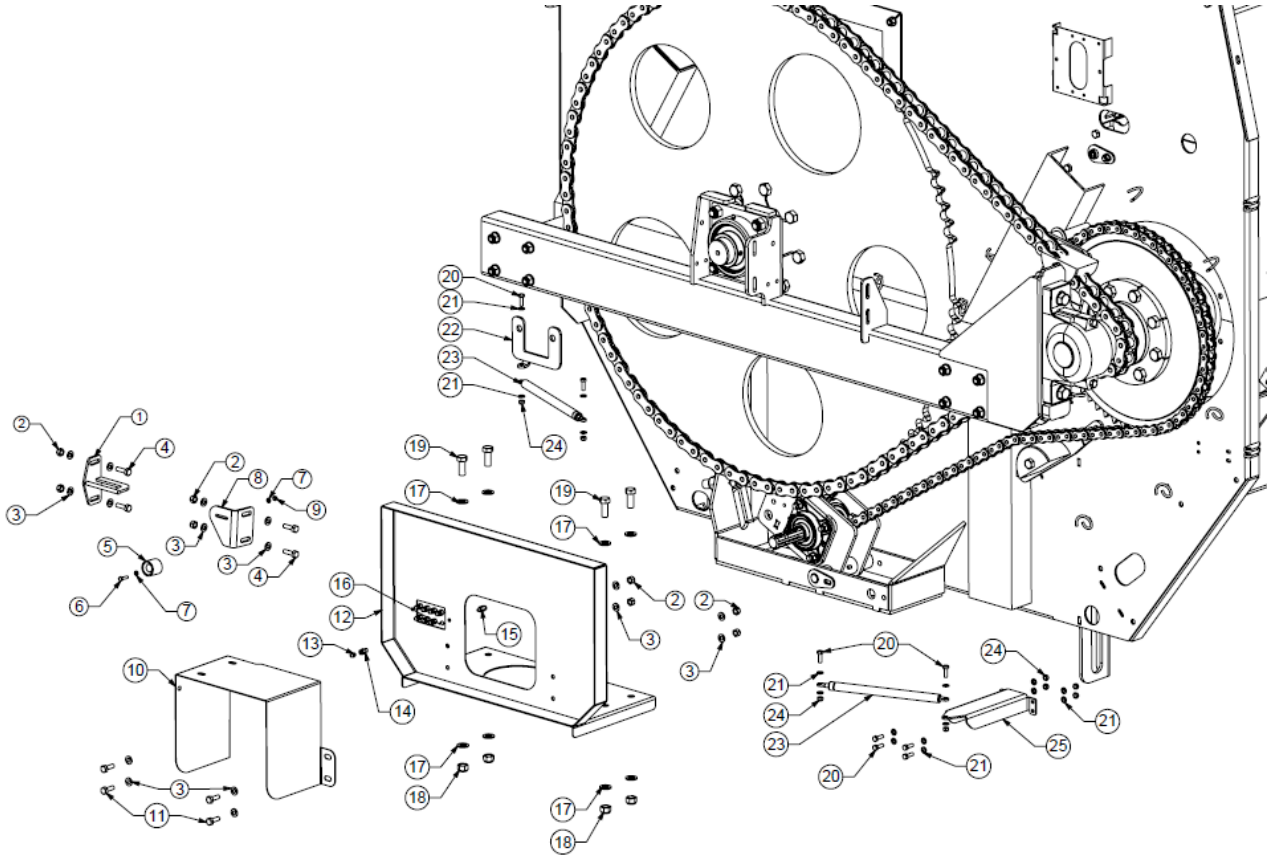
Item:	P/N:	Qty:	Description:
1	FP170-038-0011	1	MF350/370 fiberglass front cover (right-hand side)
2	FP200-037-0086	1	MF350/370 front cover inner seal
3	FP200-037-0058	1	MF350/370 front cover outer seal — right-hand
4	701363	1	Handles, U-shape, 160-mm hole centers for front guard
5	FP200-037-0095	1	Camlock outer plate
6	702256	2	M8 x 25 mm cuphead bolt
7	FP200-037-0093	1	Camlock mounting bracket
8	FP200-037-0094	1	Secondary fail-safe latch
9	706015	1	Fiberglass door camlock unit
10	701277	1	Springs elevator 3 x ½” 709”
11	700736	7	M8 flat washer
12	700223	3	M8 locknut
13	700208	3	M8 x 20 mm bolt
14	700251	10	M10 x 40 mm cuphead bolt
15	FP200-037-0113	1	Front cover gas strut outer mounting bracket
16	700729	18	M10 flat washer
17	700241	14	M10 locknut
18	706086	1	A4 flat document holder
19	FP200-037-0064	2	Front cover hinge mount
20	FP380-037-0057	2	Fiberglass hinge adjustment bracket
21	702111	4	M10 x 30 mm bolt

Table 9: MechFiber350 and 370 fiberglass front guard (right side)



Item:	P/N:	Qty:	Description:
1	FP170-037-0022	1	MechFiber350/370 fiberglass front cover (left-hand side)
2	FP200-037-0058	1	MechFiber350/370 front cover outer seal — left-hand
3	701363	1	Handles, U-shape, 160-mm hole centers for front guard
4	706609	1	M6 x 40 bolt
5	700751	1	M6 flat washer
6	FP380-037-0081	1	Weighbox arm mounting bracket base plate
7	700251	12	M10 x 40 cuphead bolt
8	FP200-037-0115	1	Weighing cable gland seal outer retainer
9	FP200-037-0114	1	Weighing cable gland seal (7 hole)
10	700736	8	M8 flat washer
11	700214	3	M8 x 40 bolt
12	7006127-2	1	Door holder — male side
13	700204	1	M6 locknut
14	700208	2	M8 x 20 bolt
15	FP200-037-0113	1	Front cover gas strut outer mounting bracket
16	700729	18	M10 flat washer
17	700241	14	M10 locknut
18	FP200-037-0064	2	Front cover hinge mount
19	FP380-037-0057	2	Fiberglass hinge adjustment bracket
20	702111	4	M10 x 30 mm bolt
21	700223	3	M8 locknut

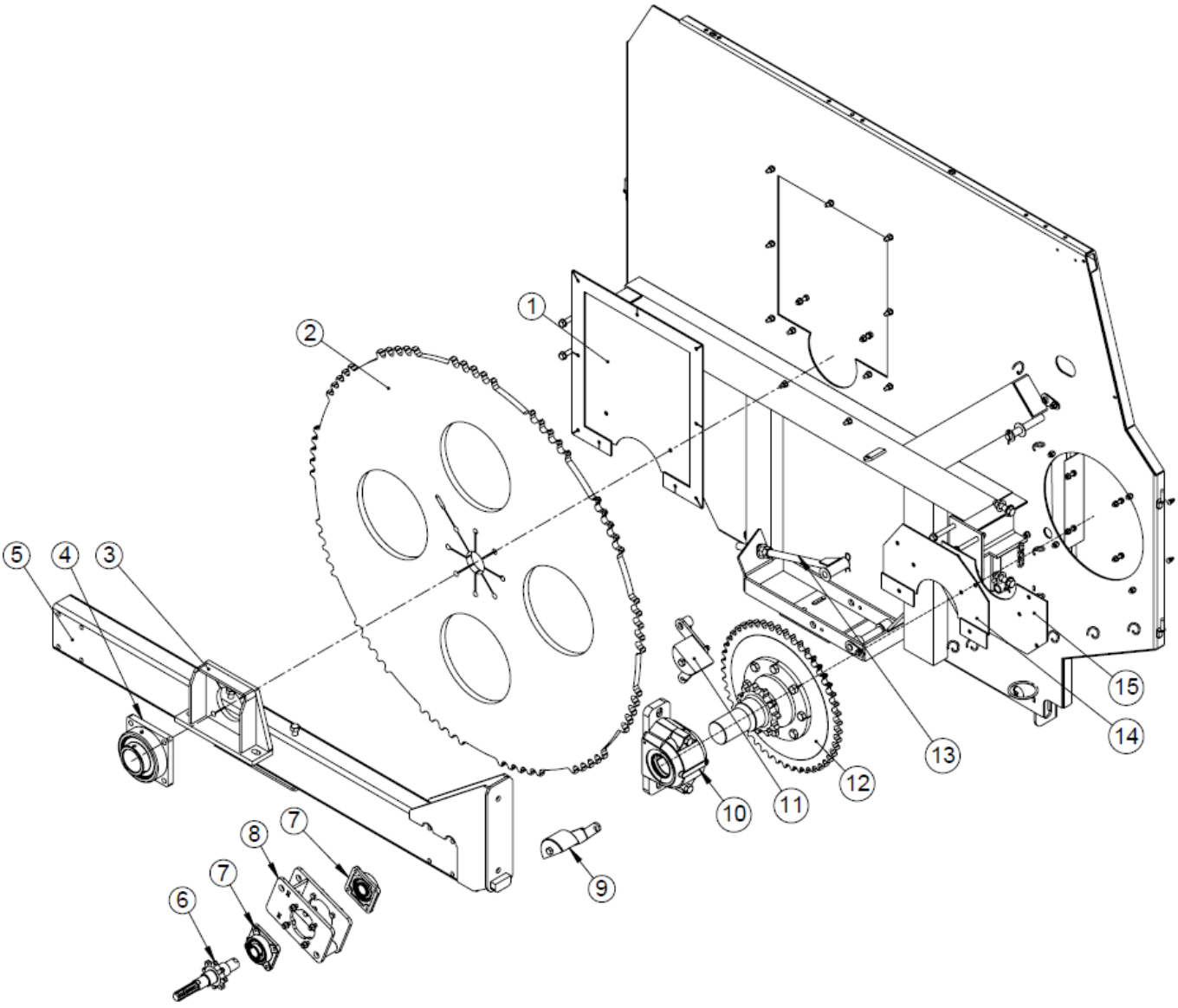
Table 10: MechFiber350 and 370 fibreglass front guard (left side)



Item:	P/N:	Qty:	Description:
1	FP200-048-0244	1	Camlock striker assembly
2	700241	8	M10 locknut
3	700729	16	M10 flat washer
4	700228	4	M10 x 35 bolt
5	706127-1	1	Door holder — female side
6	700200	1	M6 x 25 bolt
7	700751	2	M6 flat washer
8	FP200-017-0014	1	Door holder bracket
9	700204	1	M6 locknut
10	FP200-037-0071	1	PTO guard
11	702111	4	M10 x 30 bolt
12	FP200-002-0148	1	Gearbox/PTO guard assembly
13	701129	8	Straight grease fitting 1/8” BSP
14	704947	8	Grease fitting adaptor 1/8” BSP external and M6 internal to 1/8” BSP internal
15	704914	8	Grease tube connector — straight — M6 thread
16	FP170-002-0037	1	Grease manifold
17	700732	8	M16 flat washer
18	700283	4	M16 locknut
19	703148	4	M16 x 40 bolt
20	700210	4	M8 x 25 bolt
21	700736	16	M8 flat washer
22	FP170-038-0015	1	MF350/370 RH door strut bracket
23	706101	2	Gas strut (600 mm open, 200 N, 250 mm stroke)
24	700223	8	M8 locknut
25	FP170-037-0026	1	MechFiber270/320/350/370 LH door strut bracket

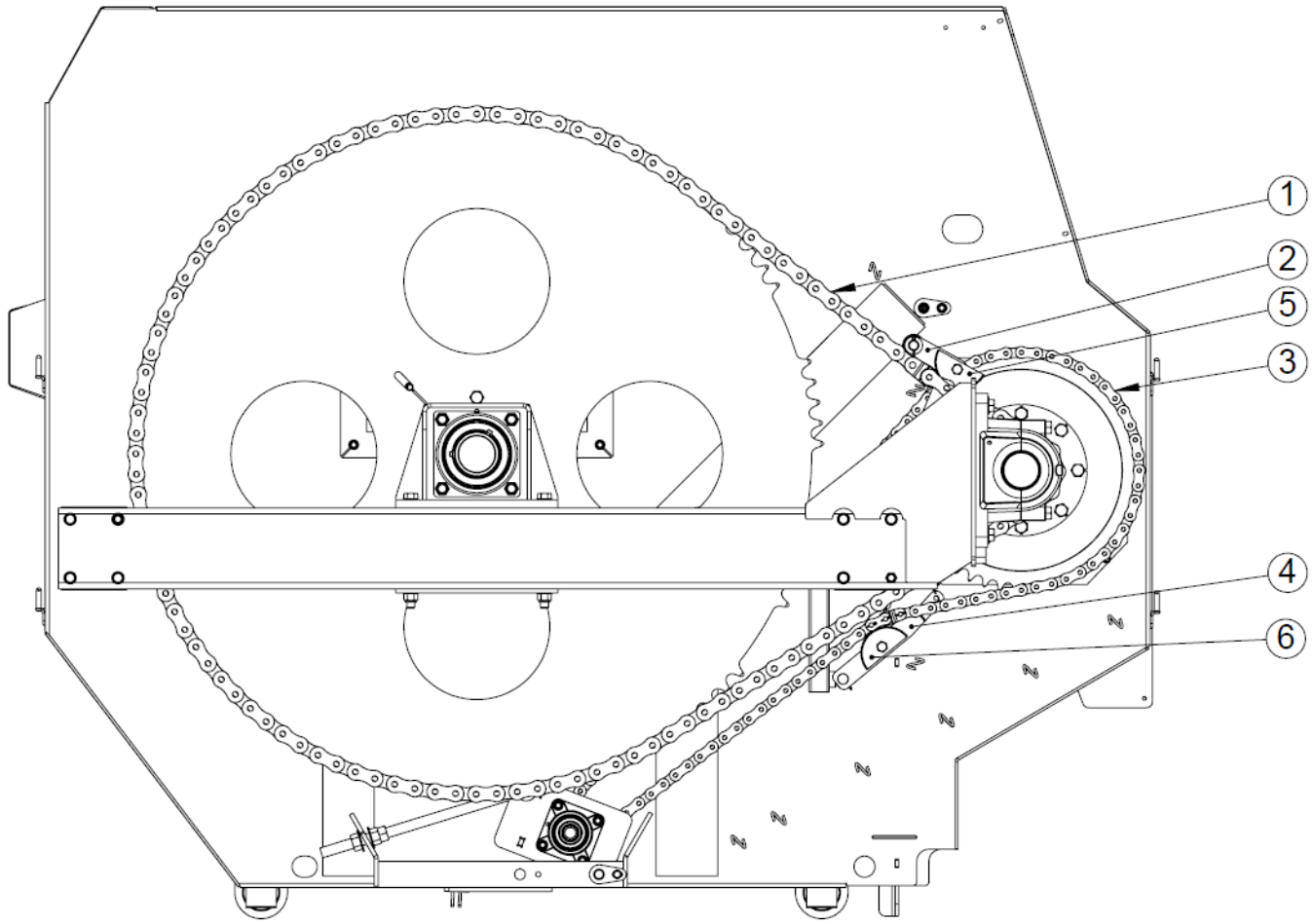
Table 11: Fiberglass guards’ ancillary parts

11.2 Driveline parts



Item:	P/N:	Qty:	Description:
1	EF202-10	1	Rotor window assembly
2	EF207-34	1	Sprocket, ASA160, 104 teeth, 25-mm plate
3	FP200-017-0007	1	Bearing bracket welded to item No. 5
4	702294	1	90-mm bearing assembly, flange mount, UCF X18
5	EF2017-14	1	Front box 90-degree bearing assembly
6	700628	1	Shaft, 6 spline with 8 tooth ASA120 sprocket
7	705145	2	Bearing, 40-mm, 4 bolt, flange mount, FYH UCF 308
8	EF2018-2	1	Gearbox unit assembly
9	EF1015	1	Primary drive chain tensioner assembly
10	FP200-009-0005	1	Plumber block bearing complete assembly
11	EF2014-1	1	Secondary drive chain tensioner assembly
12	701544	1	Sprocket, 48 tooth, ASA 120
13	EF2018-15	1	Gearbox adjuster assembly
14	EF206-75	1	Auger chamber front cover top section assembly
15	EF206-16	1	Auger chamber front cover bottom section

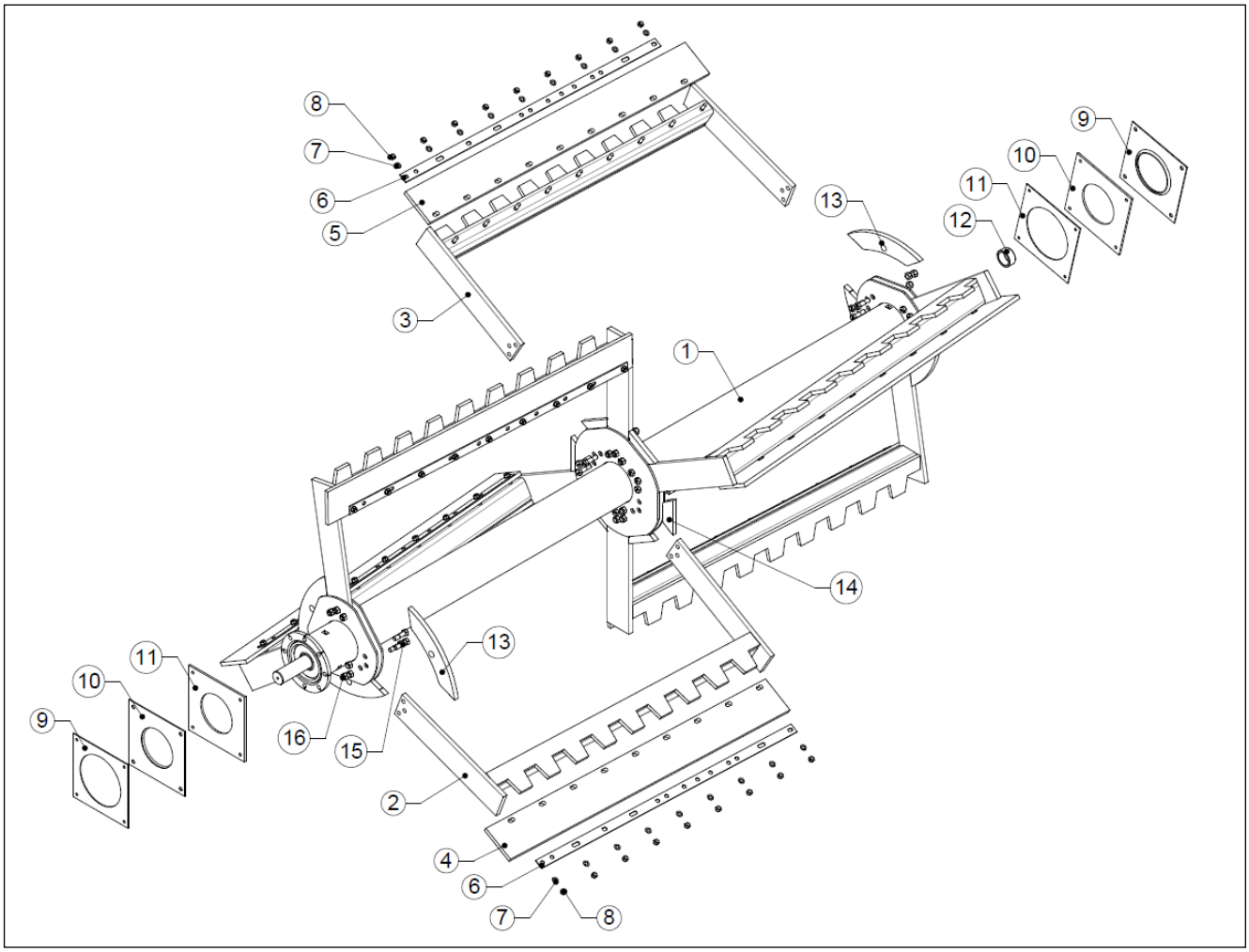
Table 12: Front panel assembly



Item:	P/N:	Qty:	Description:
1	702412	1	Secondary drive chain (Pulton ASA 160SH)
2	EF2014-1	1	Secondary drive chain tensioner assembly
3	702418	1	Primary drive chain (Pulton ASA 120)
4	EF1015	1	Primary drive chain tensioner assembly
Wearing parts:			
5	701971	1	Polypenco wear block 95-mm
6	701970	1	Polypenco wear block 85-mm
Spare parts:			
-	702419	1	ASA120 joiner link
-	702413	1	ASA160 SH joiner link
-	701275	1	Spring, 8” tension, for primary chain
-	701278	1	Spring, 12” tension, for secondary chain

Table 13: Chain and tensioner details

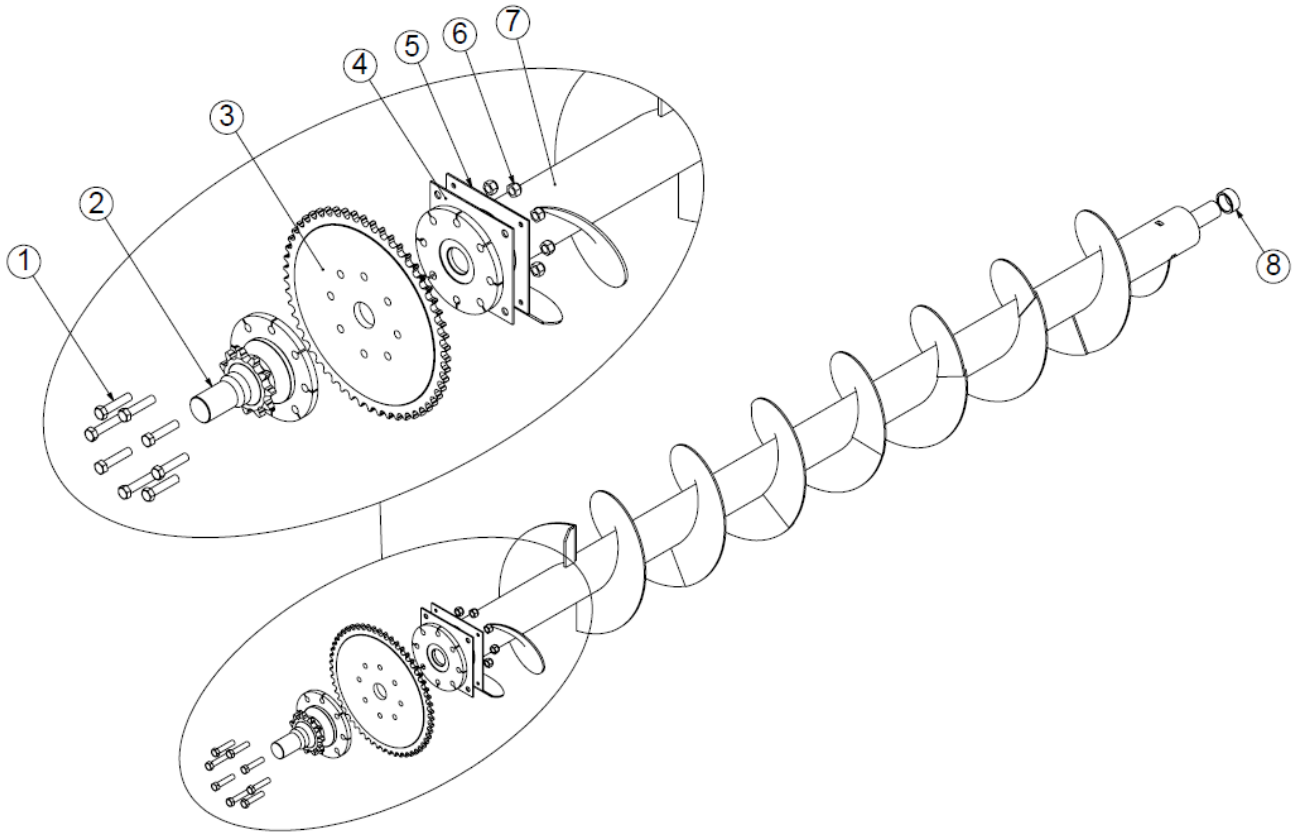
11.3 Rotor parts



Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	FP170-007-0001	FP200-007-0003	1	Rotor assembly
2	FP170-008-0003	FP200-008-0002	3	Front paddle assembly
3	FP170-008-0002	FP200-008-0003	3	Rear paddle assembly
4	702288	702289	3	Paddle rubber (front)
5	702287	702290	3	Paddle rubber (rear)
6	FP140-008-0009	*same as 350*	6	Paddle rubber retainer
6a	n/a	FP200-008-0010	6	Paddle rubber retainer
7	700732	*same as 350*	56/78	M16 flat washer
8	700283	*same as 350*	56/78	M16 nylock nut
9	701822	*same as 350*	2	Rotor lip seal, rubber
10	FP140-007-0017	*same as 350*	2	Braided rotor seal, rubber
11	FP140-007-0006	*same as 350*	2	Rotor seal retainer
12	701541	*same as 350*	1	Rotor spacer (90 mm ID x 120 mm OD x 40 mm long)
13	FP160-007-0026	*same as 350*	6	End paddle block
14	RDTP207-4	*same as 350*	6	Centre paddle block
15	700298	*same as 350*	36	M20 x 70 bolts
16	700305	*same as 350*	36	M20 locknuts

Table 14: Rotor assembly

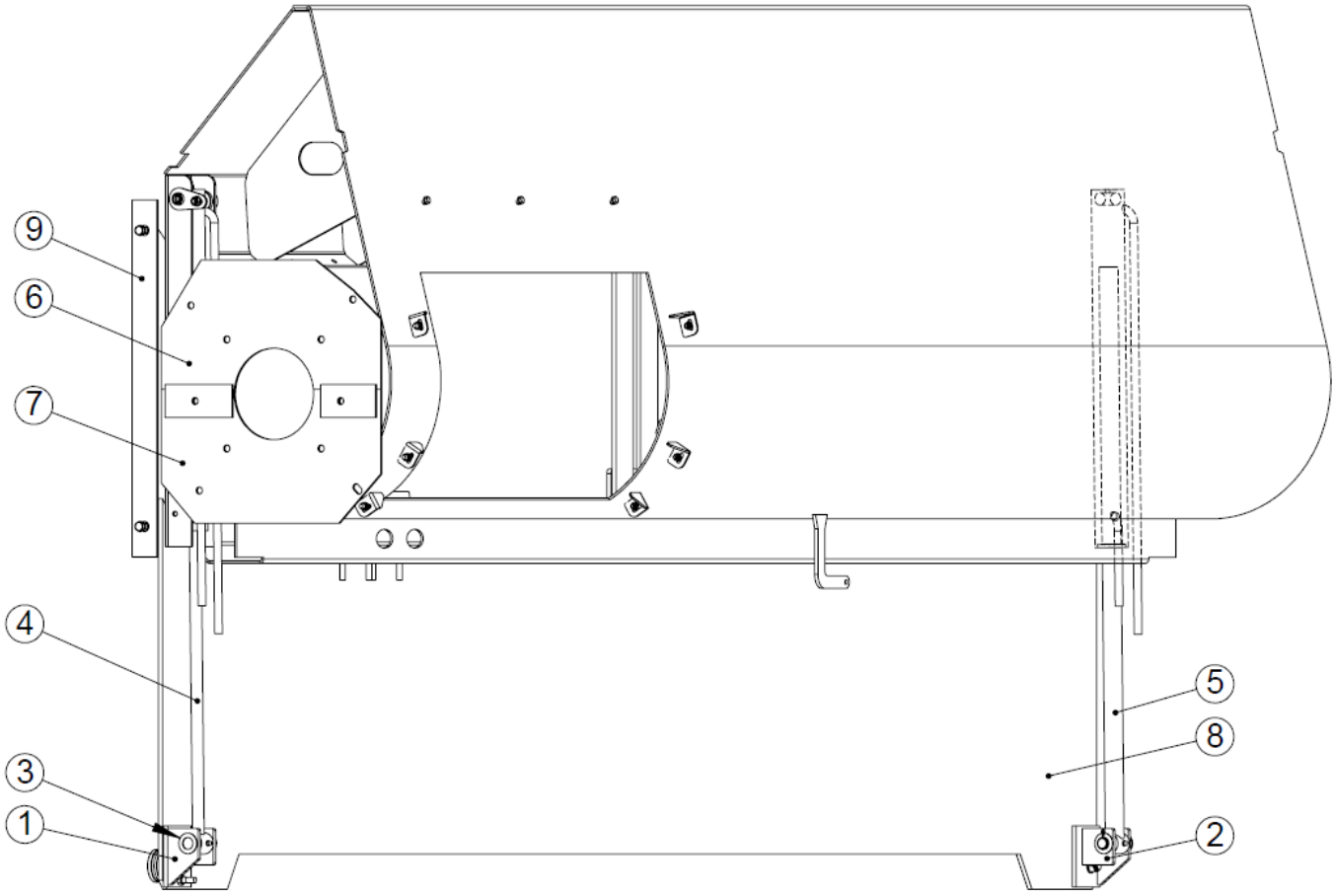
11.4 Auger parts



Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	700302	*same as 350*	8	M20 x 90-mm bolts
2	702008	*same as 350*	1	Auger stub shaft assembly, 90 mm, forged
3	701544	*same as 350*	1	Sprocket, 20 mm, ASA120, 48 tooth
4	704744	*same as 350*	1	Front rubber seal, 10 mm, for auger, 300 mm x 300 mm
4a	701192	*same as 350*	1	Rear rubber seal, 10 mm, for auger, 300 mm x 300 mm
5	EF206-120	*same as 350*	1	Baffle plate, 5 mm, for auger seal retainer (front)
5a	FP170-006-0190	*same as 350*	1	Baffle plate, 5 mm, for auger seal retainer (rear)
6	700305	*same as 350*	8	M20 locknuts
7	FP170-009-0001	FP200-009-0001	1	Auger assembly
8	701541	*same as 350*	1	Rotor spacer, 120 mm OD, 90 mm ID, 40 mm long

Table 15: Auger assembly

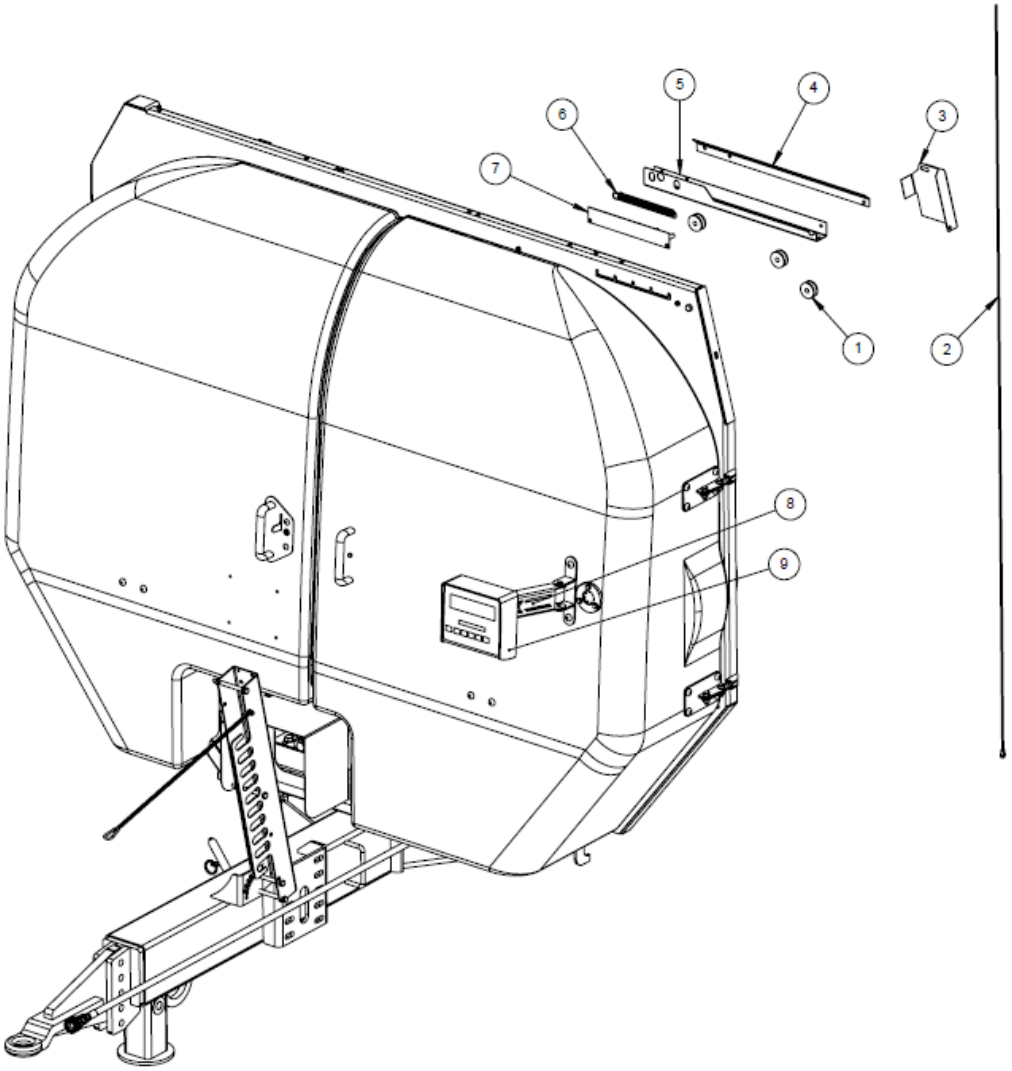
11.5 Auger chamber parts



Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	RD1010-44	*same as 350*	1	VFC-door lower ram bracket (front)
2	RD1010-45	*same as 350*	1	VFC-door lower ram bracket (rear)
3	701591	*same as 350*	2	VFC-door bottom hydraulic cylinder pin
4	701973	*same as 350*	1	Front VFC-door hydraulic cylinder (small)
5	701972	*same as 350*	1	Rear VFC-door hydraulic cylinder (big)
6	EF206-75	*same as 350*	1	Auger upper cover flange plate assembly
7	EF206-16	*same as 350*	1	Auger lower cover flange plate
8	FP170-010-0001	FP200-010-0008	1	VFC-door
9	701521	*same as 350*	1	Rubber seal for VFC-door ends

Table 16: Auger chamber assembly

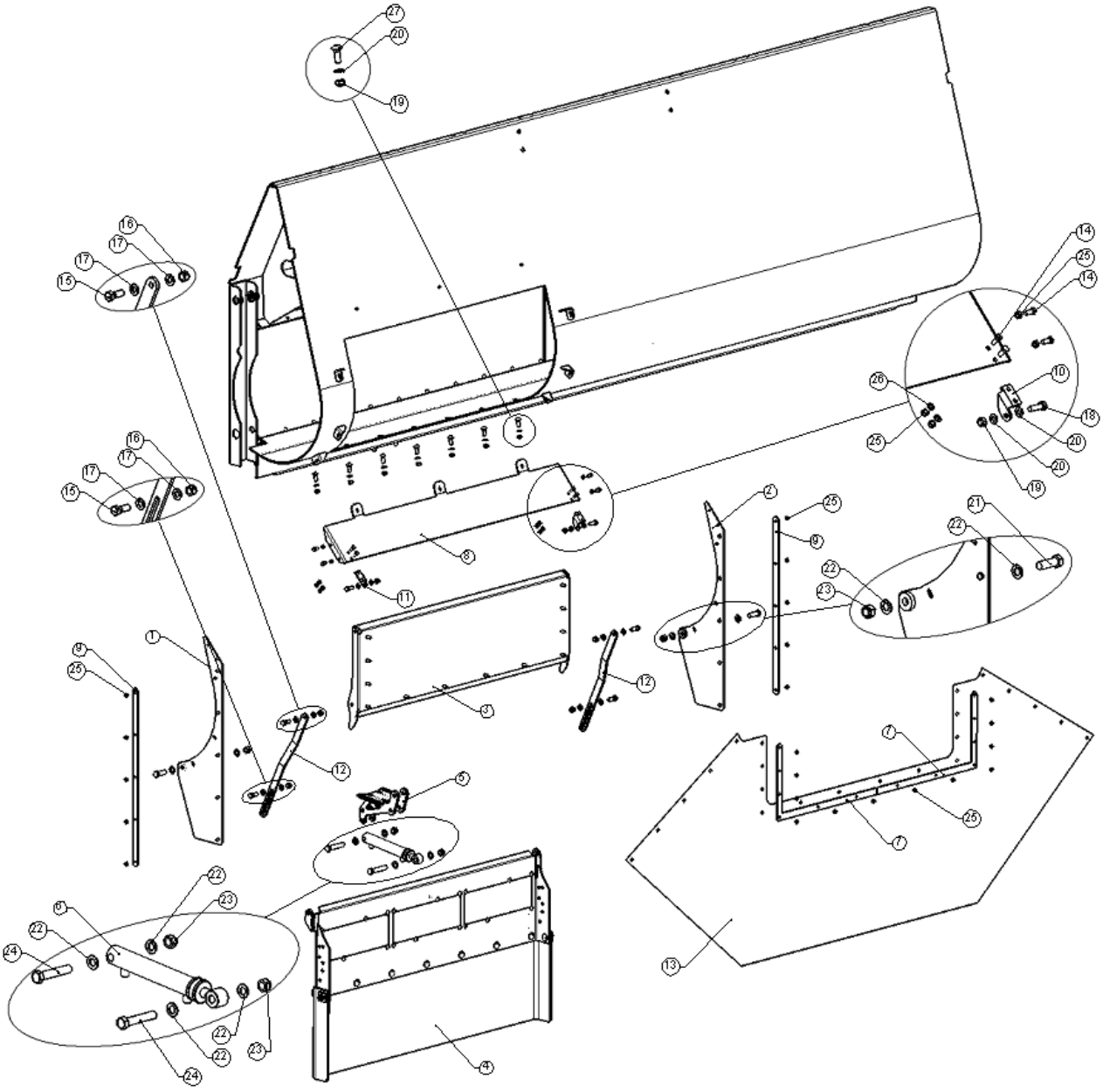
11.6 VFC-door indicator parts

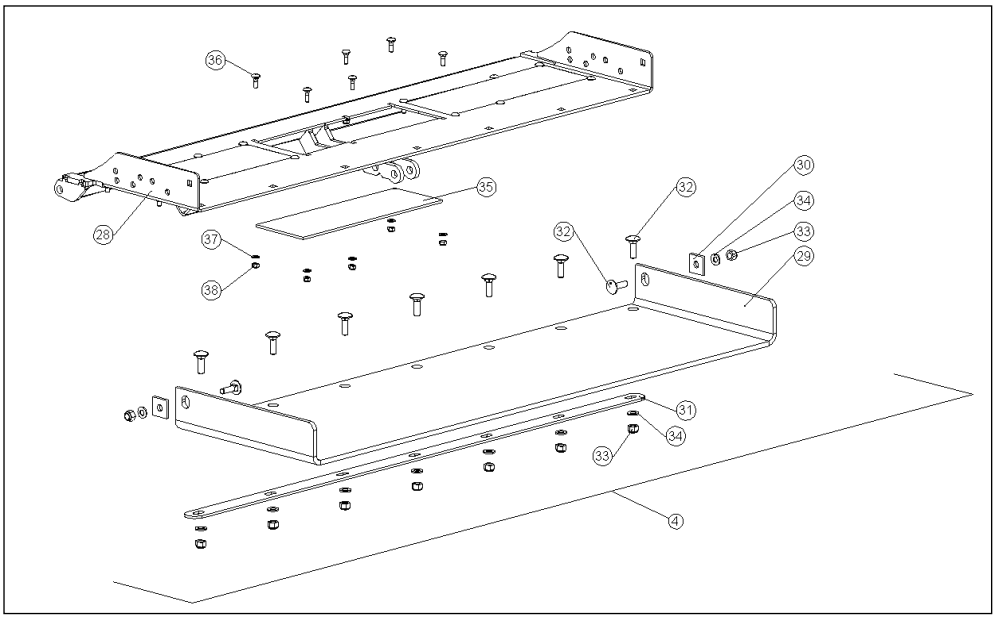


Item:	P/N:	Qty:	Description:
1	701559	3	Pulley wheel, 50 mm OD, 20 mm thick, for indicator
2	703629	1	Wire rope for door indicator, 2470 mm
3	FP200-002-0141	1	MF350/370 wire rope cover
4	FP170-010-0012	1	VFC-door indicator upper cover
5	FP170-010-0013	1	VFC-door indicator lower cover
6	703625	1	Spring, 8" expansion, 22 mm OD, 2 mm thick
7	RD1010-61	1	VFC-door indicator slider assembly
8	EF102-115	1	Weighbox bracket straight
9	703353	1	Stad 04 weighbox (optional 706168: KEENAN controller)

Table 17: Front panel assembly (both MechFiber350 and 370)

11.7 Standard feed-out tray parts





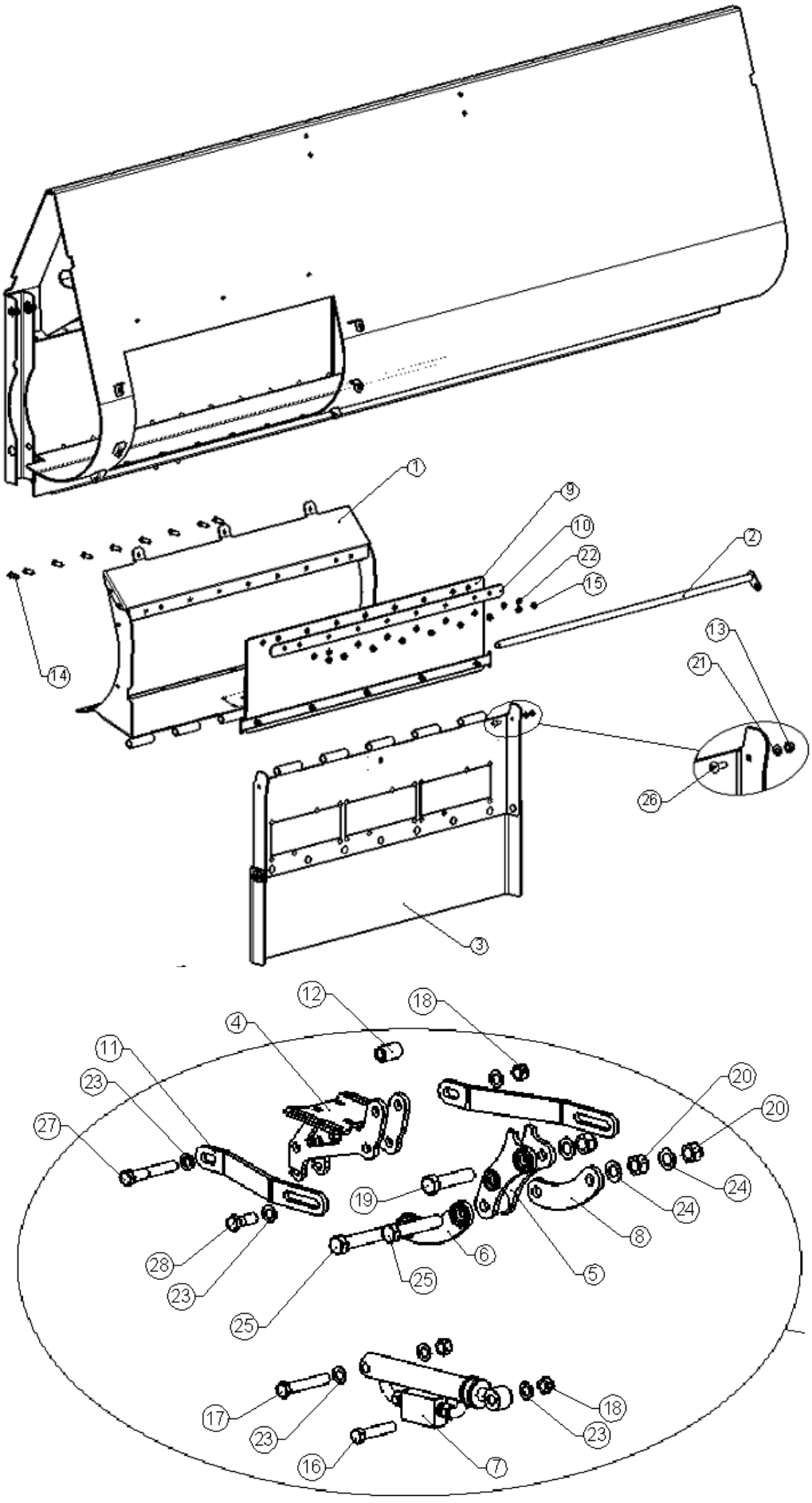
Item:	P/N:	Qty:	Description:
1	FP200-006-0004	1	Feed-out shroud front side plate assembly
2	FP200-006-0005	1	Feed-out shroud rear side plate assembly
3	FP200-006-0095	1	Feed-out door assembly
4	FP160-006-0123	1	Feed-out tray assembly (blanking plate and rubber extension)
5	FP200-006-0019	1	Feed-out tray ram upper mounting bracket assembly
6	703591	1	6” Stroke feed-out tray ram assembly (KEEN-63)
7	FP300-006-0095	2	Feed-out door shroud retainer
8	FP200-006-0008	1	Top shroud feed-out
9	FP100-006-0081	2	Feed-out door shroud side retainer
10	FP160-006-0088	1	Hinge bracket, feed-out door, right-hand side
11	FP160-006-0087	1	Hinge bracket, feed-out door, left-hand side
12	FP080-006-0012	2	Feed-out door link arm
13	FP200-006-0030	1	Feed-out shroud curtain
14	700208	8	M8 x 20 set screw
15	700249	4	M12 x 35 set screw
16	700266	4	M12 lock nut
17	700730	8	M12 flat washer
18	700228	2	M10 x 35 set screw
19	700241	9	M10 lock nut
20	700729	11	M10 flat washer
21	700275	2	M16 x 50 bolt
22	700732	8	M16 flat washer
23	700283	4	M16 lock nut
24	700281	2	M16 x 90 bolt
25	700223	30	M8 nyloc nut
26	700736	4	M8 flat washer
27	700226	7	M10 x 30 cup-head bolt
28	FP160-006-0124	1	Feed-out tray assembly
29	701403	1	Feed-out tray rubber extension (standard)
30	EF106-79	2	Feed-out tray side rubber retainer
31	FP160-006-0224	1	Rubber retainer
32	705405	9	M12 x 40 mm cup-head bolt
33	700266	9	M12 lock nut
34	700730	19	M12 flat washer
35	FP160-006-0270	3	Tray hole blanking plate (5 mm)
35a	701366	3	Magnet plate (OE)
36	702256	18	M8 x 25 mm cup-head bolt
37	700736	18	M8 flat washer
38	700223	18	M8 nyloc nut

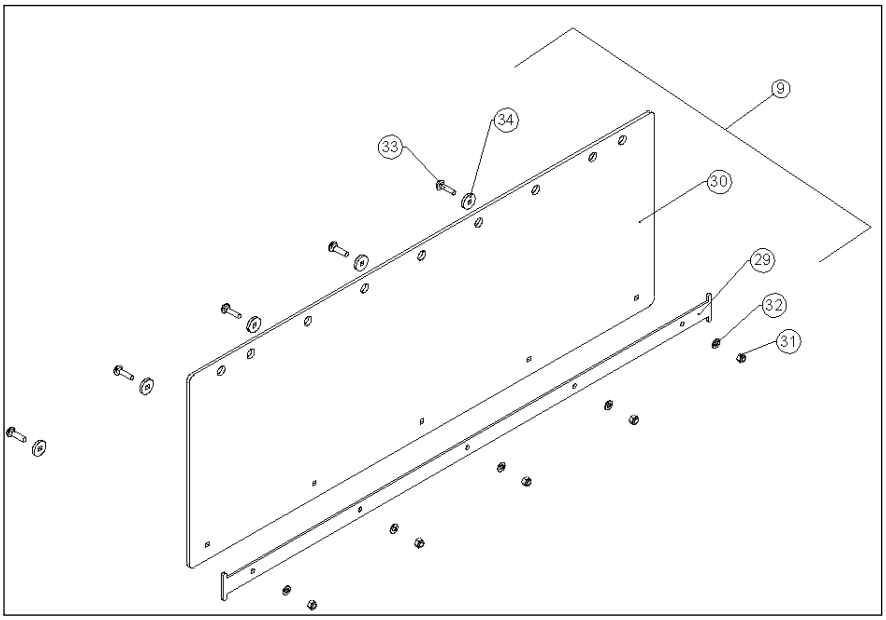
Table 18: Feed-out tray details (both MechFiber350 and 370)

Notes:
Complete standard feed-out kit P/N: FP170-006-0081

Feed-out tray can be supplied with magnet assembly P/N: FP160-006-0071

11.8 Fold-down tray (Optional Extra option)

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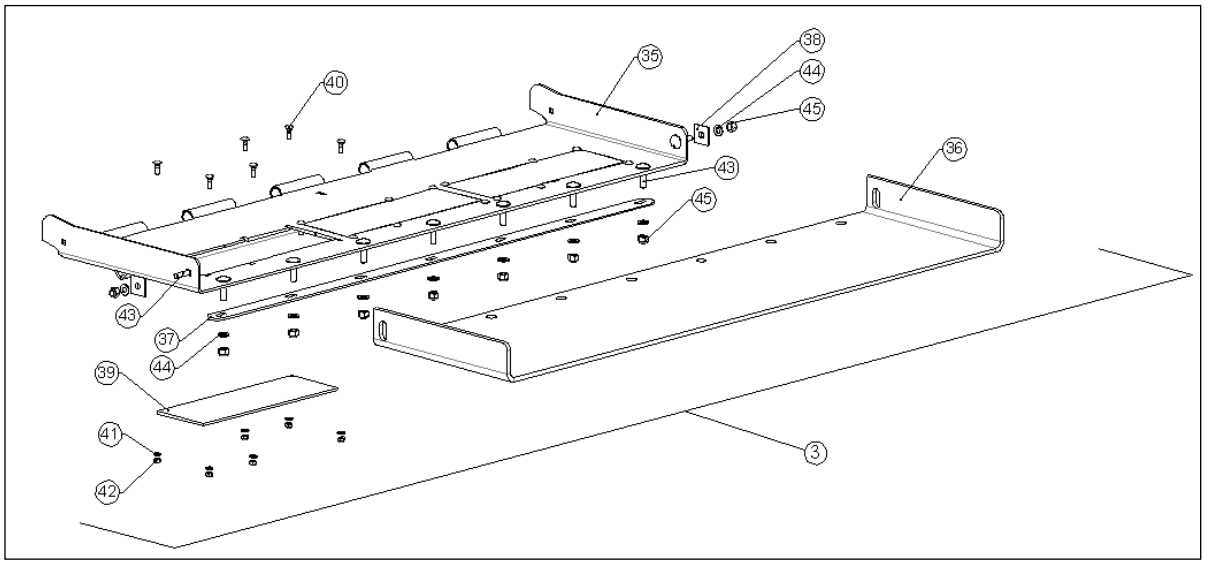
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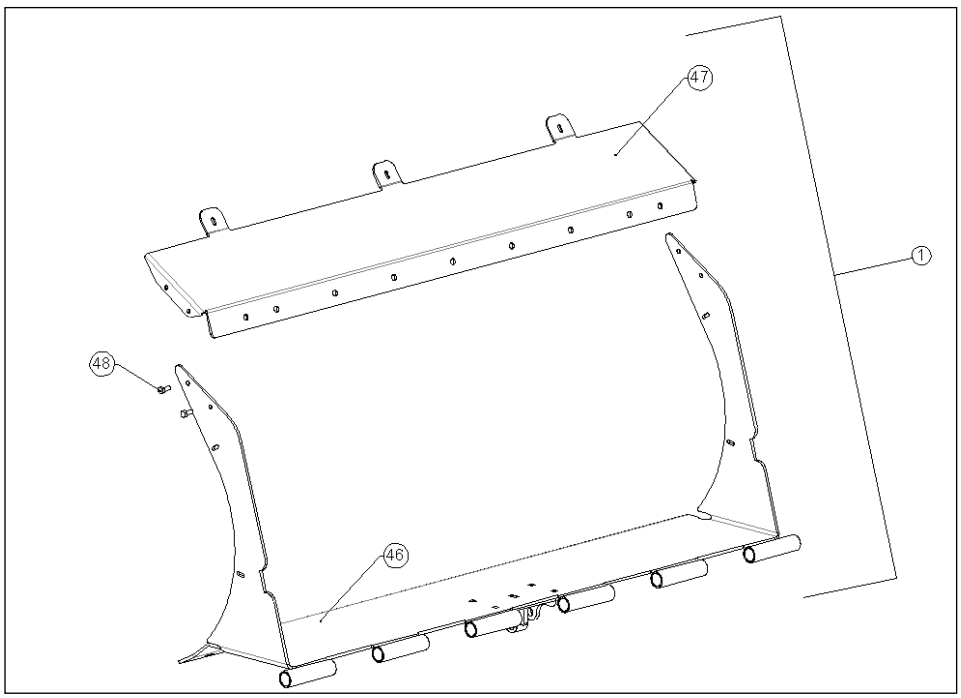
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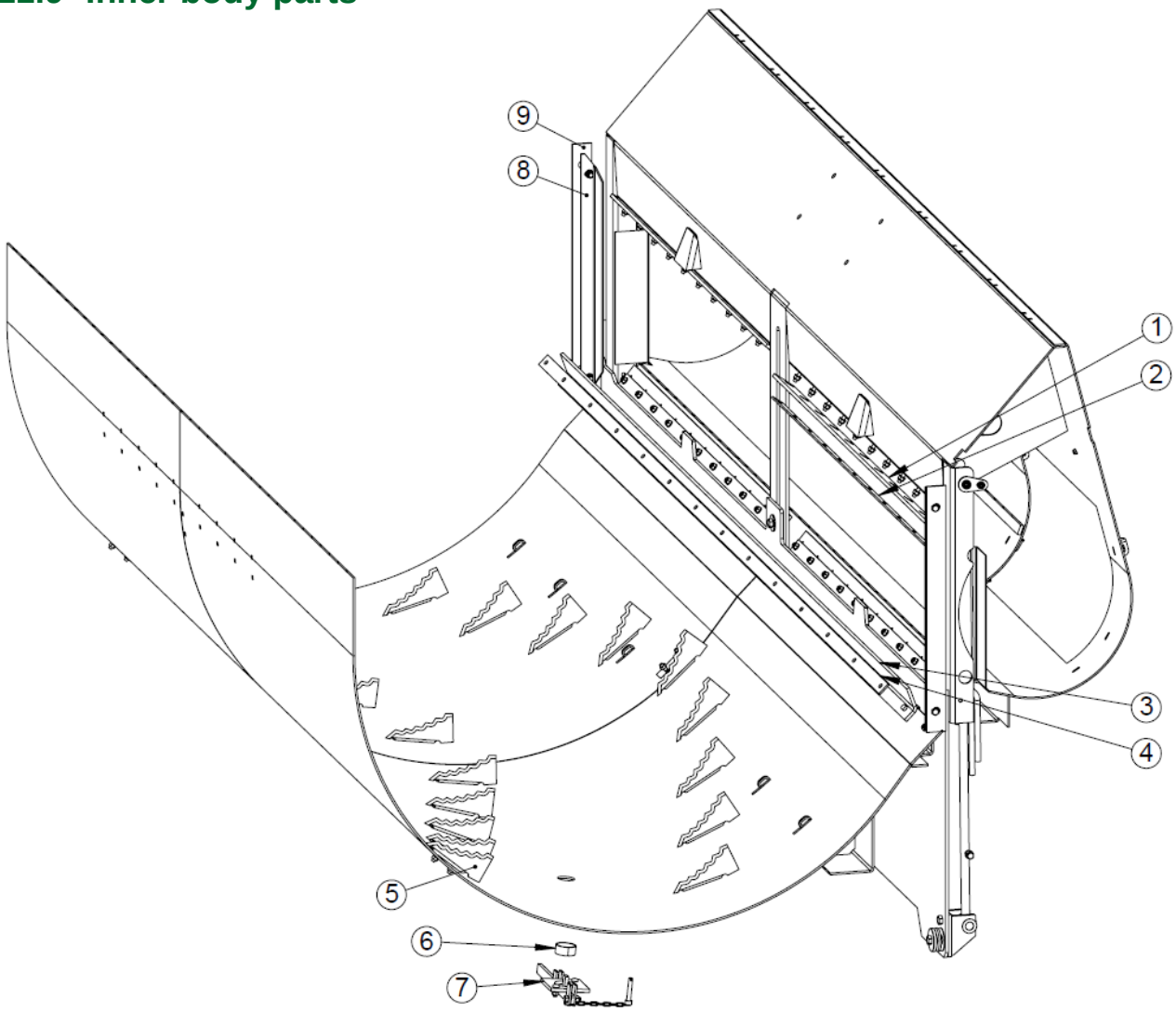
Item:	P/N:	Qty:	Description:
1	FP170-006-0174	1	Feed-out shroud assembly
2	FP170-006-0182	1	Fold-down tray hinge bar assembly
3	FP170-006-0191	1	Fold-down tray assembly 2
4	FP200-006-0019	1	Feed-out tray ram upper mounting bracket
5	FP170-006-0162	1	Fold-down tray inner link arm assembly
6	FP200-006-0340	1	Fold-down tray outer link arm assembly
7	705268	1	6” Stroke feed-out tray ram with check valve (KEEN-63SP)
8	FP200-006-0332	1	Fold-down tray outer link arm (127 mm centres)
9	FP170-006-0189	1	Feed-out shroud rubber assembly
10	FP160-006-0061	1	Rubber retainer, 1400 mm wide
11	FP170-006-0168	2	Fold-down tray shelf to auger chamber tie plate
12	FP170-006-0156	1	Feed-out tray ram bracket spacer bush
13	700241	1	M10 lock nut
14	700250	9	M12 x 40 set screw
15	700266	9	M12 lock nut
16	700280	1	M16 x 80 bolt
17	700268	1	M16 x 100 bolt
18	700283	5	M16 lock nut
19	700302	1	M20 x 90 bolt HT
20	700305	3	M20 nyloc nut
21	700729	1	M10 flat washer
22	700730	18	M12 flat washer
23	700732	7	M16 flat washer
24	700733	3	M20 flat washer
25	701488	2	M20 x 110 bolt HT
26	700226	1	M10 x 30 cup-head bolt
27	700269	1	M16 x 110 bolt
28	700274	2	M16 x 45 bolt
29	FP170-006-0187	1	Feed-out shroud rubber lower retainer plate
30	FP160-006-0422	1	Feed-out shroud rubber
31	700241	5	M10 lock nut
32	700729	5	M10 flat washer
33	700251	5	M10 x 40 cup-head bolt
34	FP170-006-0188	5	Retainer plate washer
35	FP170-006-0178	1	Fold-down tray assembly
36	FP170-006-0186	1	Fold-down tray rubber extension
37	FP160-006-0224	1	Rubber retainer
38	EF106-79	2	Side rubber retainer plate
39	FP160-006-0272	3	Tray magnet hole blanking plate (standard)
39a	701366	3	Magnet plate (optional extra)
40	700212	18	M8 x 30 bolt
41	700736	18	M8 flat washer
42	700223	18	M8 nyloc nut
43	702500	9	M12 x 45 cup-head bolt
44	700730	9	M12 flat washer
45	700266	9	M12 lock nut
46	FP170-006-0175	1	Feed-out shroud lower plate
47	FP170-006-0154	1	Feed-out shroud top plate
48	700208	4	M8 x 20 set screw
49	700223	4	M8 nyloc nut

Table 19: Fold-down tray details

Note:
Complete fold-down tray kit (standard) P/N: FP170-006-0173
Complete fold-down tray kit (OE-100) P/N: FP170-006-0164

Fold-down tray can be supplied with the magnet assembly P/N: FP170-006-0177

11.9 Inner body parts

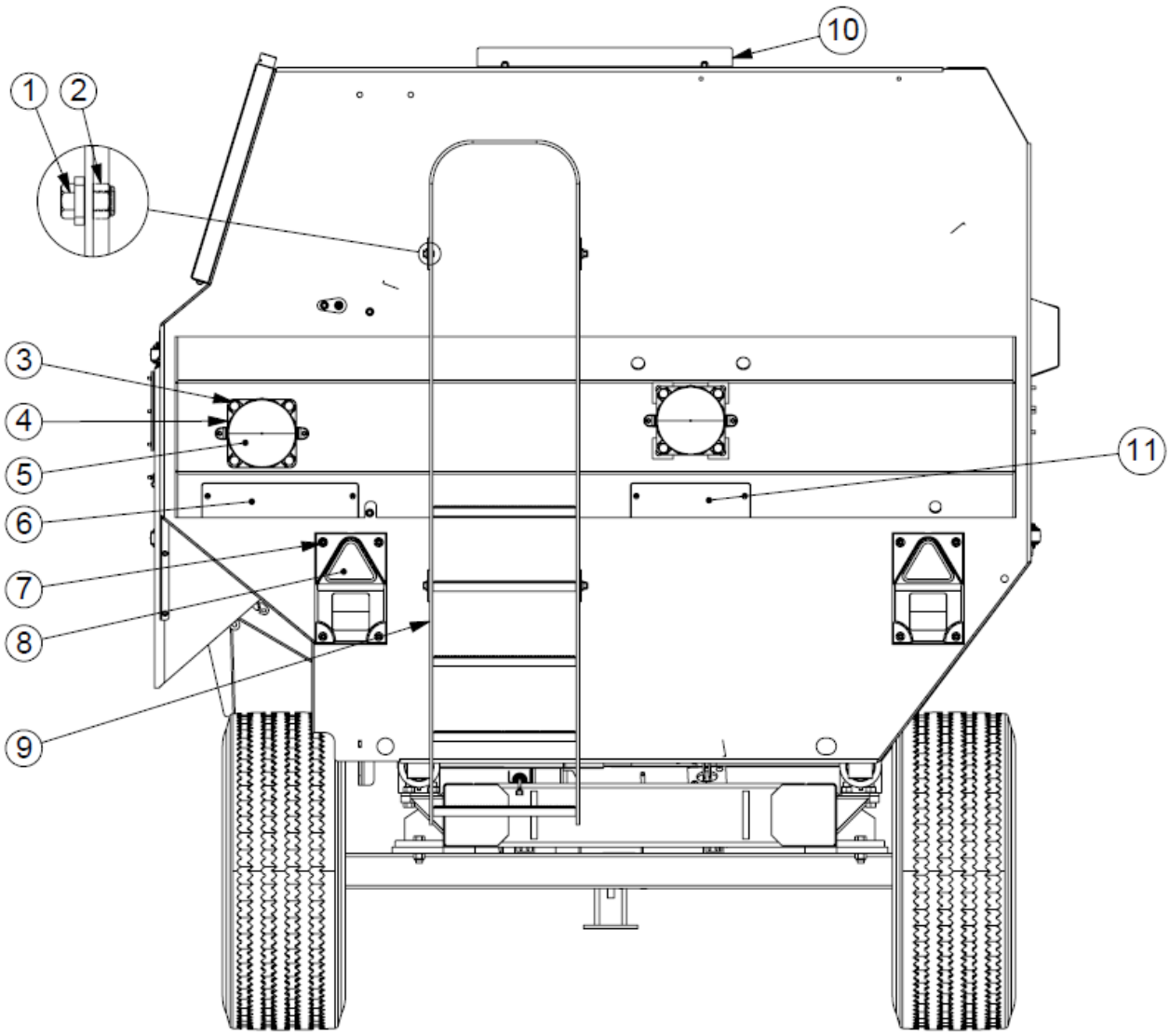


Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	701195	701199	4/6	VFC-door outer rubber seal
2	FP140-006-0022	FP200-006-0076	4/6	VFC-door outer seal retainer
3	701290	701293	1	VFC-door lower inner seal
4	FP140-004-0003	FP200-004-0028	1	VFC-door lower inner seal retainer
5 *	703955	*same as 350*	24/28	Body blade
	700227	*same as 350*	48/56	M10 x 30 set screw
	700241	*same as 350*	48/56	M10 nut
	700737	*same as 350*	48/56	M10 spring washer
6	EF104-6	*same as 350*	1	Drain bung tube
7	EF104-12	*same as 350*	1	Drain bung cover plate assembly
8	RD1010-12	*same as 350*	2	VFC-door front and rear end retainer plate
9	701521	*same as 350*	2	VFC-door front and rear end rubber
Body reline plates:				
-	FP170-004-0040	FP200-004-0055	1	Hardened body liner — front
	n/a	FP200-004-0056	1	Hardened body liner — middle
-	FP170-004-0041	FP200-004-0057	1	Hardened body liner — rear

Table 20: Body assembly

Note:
*There are 24 blades used as standard on the MechFiber350 and 28 as standard on the MechFiber370. Extra blades may be ordered depending on machine specification.

11.10 Rear panel parts

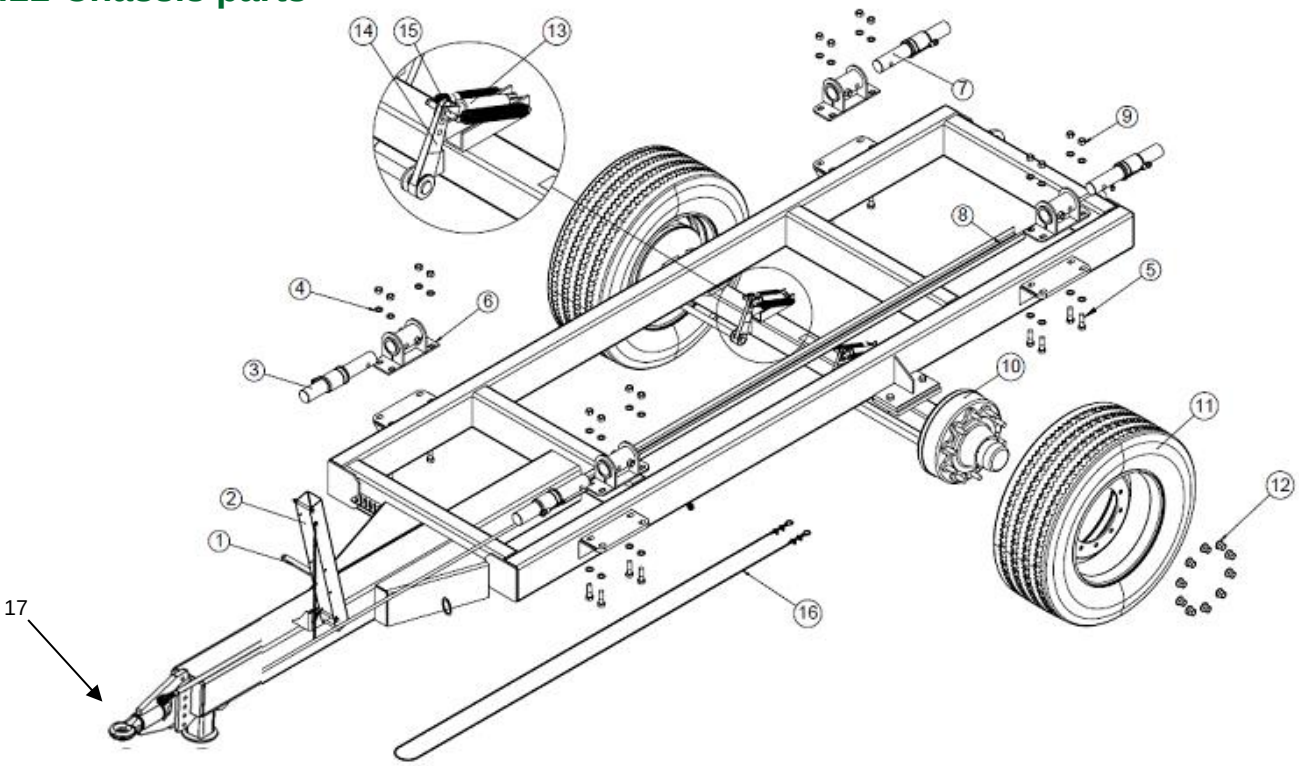


Item:	P/N:	Qty:	Description:
1	700246	4	M12 x 25 bolt
2	700266	4	M12 lock nut
3	700297	8	M20 x 65 bolt
4	700862	2	90 mm bearing, assembly, flange mount, UCF X18
5	701274	2	Rear bearing cover
6	FP200-003-0004	1	Auger bearing access slot cover plate
7 *	700223	8	M8 lock nut
8	700701	2	Rear light clusters
9	FP200-013-0001	1	Ladder assembly
10 **	EF1041-1	1	Cover plate, 3 mm, folded, for rear panel (top)
11	EF203-32	1	Rotor bearing access slot cover plate

Table 21: Rear panel assembly (MechFiber350 and 370)

Note: *Also used with items no. 6 and 11 (rear access slot cover plates).
**Not used on bale handler models.

11.11 Chassis parts

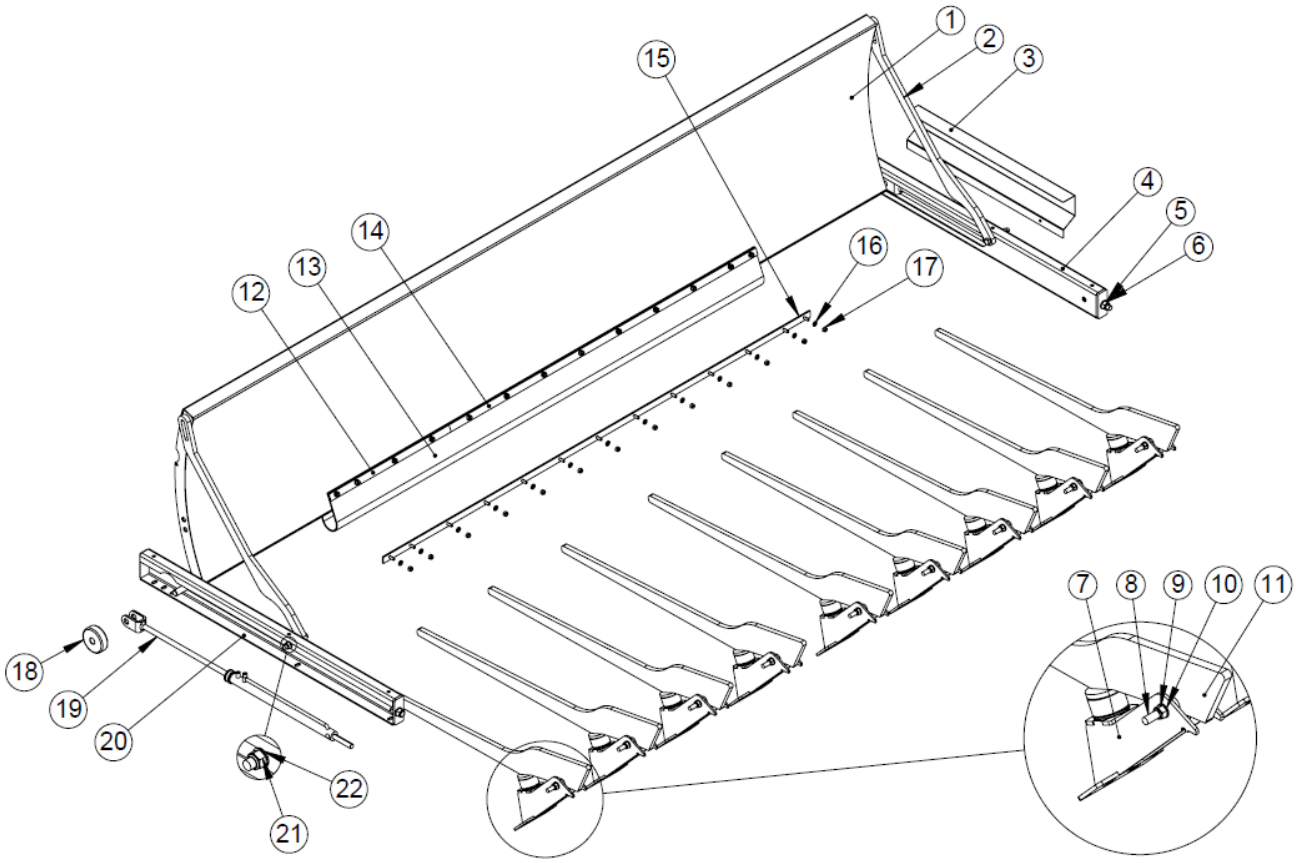


Item:	P/N:	Qty:	Description:
1	EF101-22	1	Handbrake assembly
2	FP140-001-0019	1	Hydraulic hose holder assembly
3	704140	2	Front weighbar, 5.2 m cable
4	700732	32	M16 washer
5	703148	16	M16 x 40 bolt
6	EF201-12	4	Weighbar bracket assembly
7	704141	2	Rear weighbar, 10.7 m cable
8	702105	1	Hydraulic hose, 20 ft, brake hose assembly
9	700283	16	M16 lock nut
10	700513	1	Axle, 110 mm x 2100 mm, 10 stud, braked, straight axle (check machine for spec)
11	702366	2	Wheel assembly, 385/55 R22.5, 10 stud (check machine for spec)
12	700306	20	M22 wheel nuts
13	703923	2	Brake ram
14	700513-3	2	Brake arm
15	700513-2	2	Brake ram and spring pivot pin
16	702502	1	Handbrake cable, 6 mm cable x 5600 mm long
17	FP170-001-0097	1	Swivel hitch assembly
18	700290	4	Bolt M20 x 100 (grade 8.8)
19	700733	8	M20 flat washer
20	700305	4	M20 nyloc nut
Optional parts			
	P/N:	**Qty:**	**Description:**
Hydraulic jacks	FP170-001-0006	1	Hydraulic jack, single-acting
	704289	1	Hydraulic jack, double-acting
	702044	1	Mechanical jack, side winding, US option. 10,000 lbs.
Hydraulic jack brackets	EF2033-12	1	Hydraulic jack mounting bracket
	EF1033-14	1	Sidewinding jack mounting bracket
	701573	1	Bulldog jack mounting tube
Bushes	704154	1	Towing eye bush, 32.5 mm ID
	702324	1	Towing eye bush, 30 mm ID

Table 22: Chassis and weighbars (exploded view)

11.12 Bale handler parts

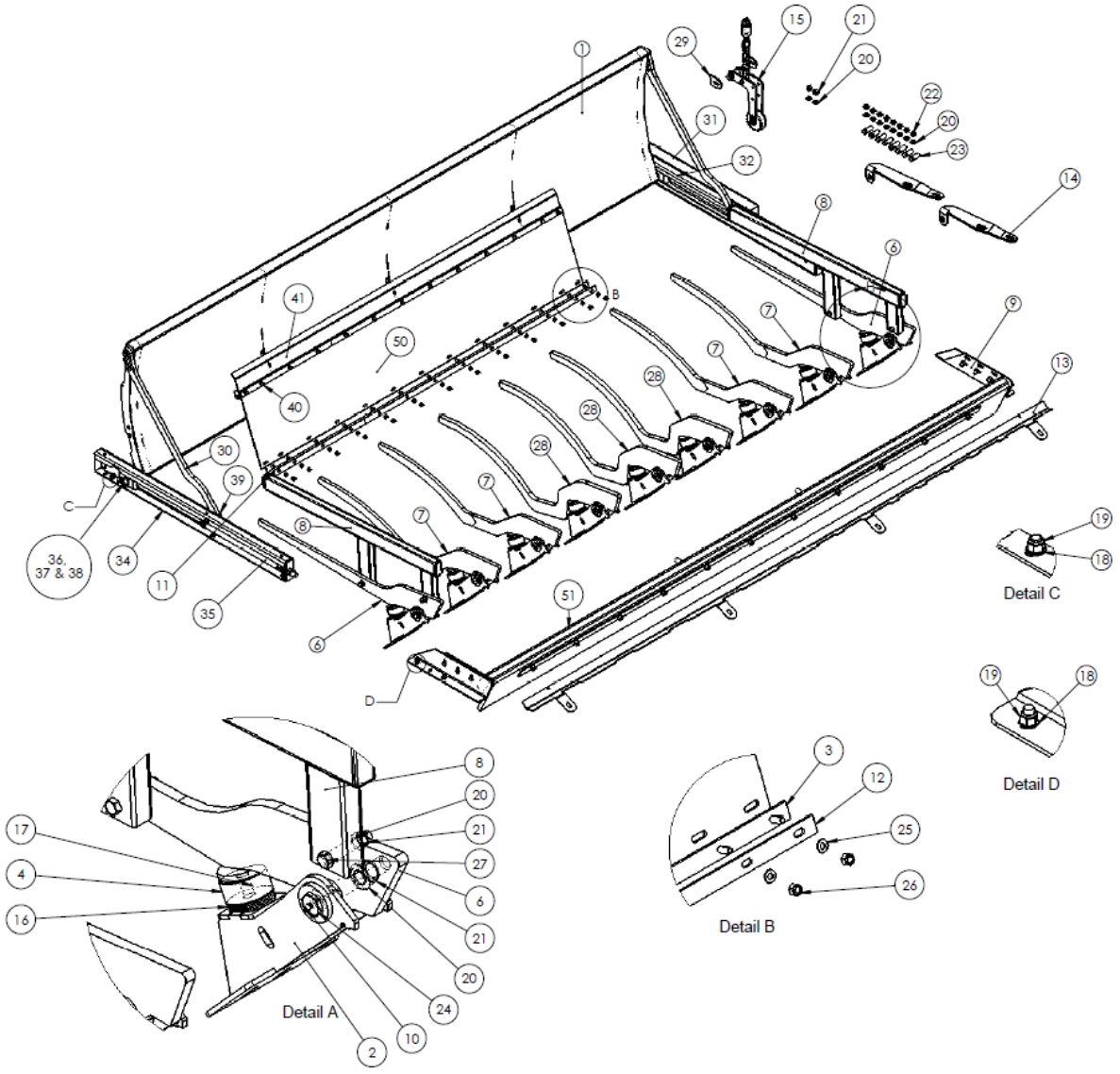
Series I bale handler



Item:	P/N:	Qty:		Description:
	MechFiber350	MechFiber370		
1	FP160-045-0083	FP280-045-0056	1	Bale handler creel curved plate assembly
2	FP280-045-017	*same as 350*	2	Bale handler creel guide arm
3	FP160-045-0088	*same as 350*	1	Creel end cover plate
4	FP160-045-0003	*same as 350*	1	Bale handler end creel assembly (rear)
5	700733	*same as 350*	2	M20 washer
6	700305	*same as 350*	2	M20 lock nut
7	FP200-045-0143	*same as 350*	9/11	Bale handler tine bracket
8	FP140-045-0111	*same as 350*	9/11	M24 x 150 mm bolt with grease nipple (701127) fitted
9	700318	*same as 350*	9/11	M24 lock nut
10	700316	*same as 350*	9/11	M24 washer
11	FP200-045-0154	*same as 350*	9/11	Tine arm assembly
12	FP140-045-0004	*same as 350*	2/0	Retainer strip, 5 mm, for rubber apron (675 mm long)
13	FP140-045-0003	FP200-045-0003	1	Rubber apron
14	FP200-045-0004	*same as 350*	2/4	Retainer strip, 5 mm, for rubber apron (1725 mm long)
15	FP140-045-0005	*same as 350*	1	Apron rail and stud assembly
16	700729	*same as 350*	13	M10 washer
17	700241	*same as 350*	13	M10 lock nut
18	FP280-045-010	*same as 350*	2	Bale handler nylon guide wheel
19	704040	*same as 350*	2	End creel ram assembly
20	FP160-045-0002	*same as 350*	1	Bale handler end creel assembly (front)
21	700283	*same as 350*	2	M16 lock nut
22	700732	*same as 350*	2	M16 washer

Table 23: Series I bale handler

Series III bale handler

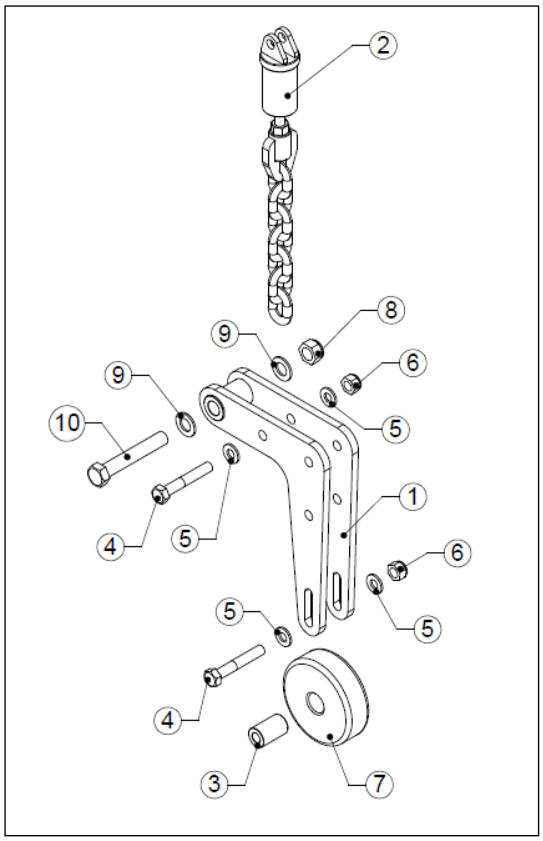


Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	FP160-045-0083	FP280-045-0056	1	Curved creel panel assembly complete
2	FP200-045-0143	*same as 350*	9/11	Tine bracket assembly (*weld on*)
3	FP140-045-0005	*same as 350*	1	Apron rail and stud assembly
4	703943	*same as 350*	9/11	Rubber buffer, 75 mm OD M12 x 13 mm deep thread
5	704925	*same as 350*	1	Bale handler hydraulic hose kit (complete)
6	FP200-045-0146	*same as 350*	2	Bale handler curved arm assembly (cradle) M24 bolt
7	FP200-045-0158	*same as 350*	4/6	Bale handler tine assembly (dropped) M24 bolt
8	EF1745-65	*same as 350*	2	Bale handler arm cradle assembly
9	FP140-050-006	FP200-050-007	1	Load bumper assembly 2, including rubber
10	701129	*same as 350*	9/11	Grease nipple 1/8 bsp
11	FP140-045-0004	*same as 350*	2/0	Apron retainer strip
12	FP200-045-0004	*same as 350*	2/4	Retainer strip, 5 mm, for rubber apron, 1725 mm long
13	FP160-006-0140	FP200-006-0144 (front) FP200-006-0145 (rear)	1	Load bumper rubber seat plate
14	FP160-006-0139	*same as 350*	2	Load bumper brace plate
15	FP160-045-0118	*same as 350*	1	Bale handler kicker assembly — complete kit

Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
16	FP140-045-0019	*same as 350*	As Req'd	Spacer plate, 3 mm, for bale handler bracket
17	700247	*same as 350*	10/11	M12 x 30 mm setscrew
18	700730	*same as 350*	10/11	M12 flat washer
19	700266	*same as 350*	10/11	M12 lock nut
20	700732	*same as 350*	23	M16 flat washer
21	700283	*same as 350*	15	M16 lock nut
22	700739	*same as 350*	8	M16 spring washer
23	700275	*same as 350*	8	M16 x 50 mm bolt
24	FP140-045-0111	*same as 350*	9/11	M24 x 150 mm bolt with grease nipple (701127) fitted
25	700729	*same as 350*	13	M10 flat washer
26	700241	*same as 350*	13	M10 lock nut
27	700281	*same as 350*	4	M16 x 90 mm bolt
28	FP200-045-0162	*same as 350*	3	Bale handler tine assembly (extra drop) M24 bolt
29	FP160-045-0094	*same as 350*	2	B/H kicker arm mounting bracket *(weld on)*
30	FP280-045-017	*same as 350*	2	Bale handler creel guide arm
31	FP160-045-0088	*same as 350*	1	Creel end cover plate
32	FP160-045-0003	*same as 350*	1	Bale handler end creel assembly (rear)
33	700733	*same as 350*	2	M20 washer
34	FP160-045-0002	*same as 350*	1	Bale handler end creel assembly (front)
35	704040	*same as 350*	2	End creel ram assembly
36	701112	*same as 350*	2	R clip
37	700746	*same as 350*	2	M25 flat washer
38	FP280-045-010	*same as 350*	2	Bale handler nylon guide wheel
39	700269	*same as 350*	2	M16 x 110 mm bolt
40	700228	*same as 350*	13	M10 x 35 mm bolt
41	FP160-045-0075	FP200-045-0103	1	Kicker assembly, rubber mount assembly
42	700247	*same as 350*	6	M12 x 30 mm bolt
43	700266	*same as 350*	6	M12 lock nut
44	700730	*same as 350*	6	M12 washer
45	700732	*same as 350*	2	M16 washer
46	700283	*same as 350*	2	M16 lock nut
47	700732	*same as 350*	9	M16 washer
48	700283	*same as 350*	9	M16 lock nut
50	FP140-045-0003	FP200-045-0003	1	Rubber apron
51	FP160-050-0003	FP200-050-0008	1	Load bumper rubber

Table 24: Series III bale handler

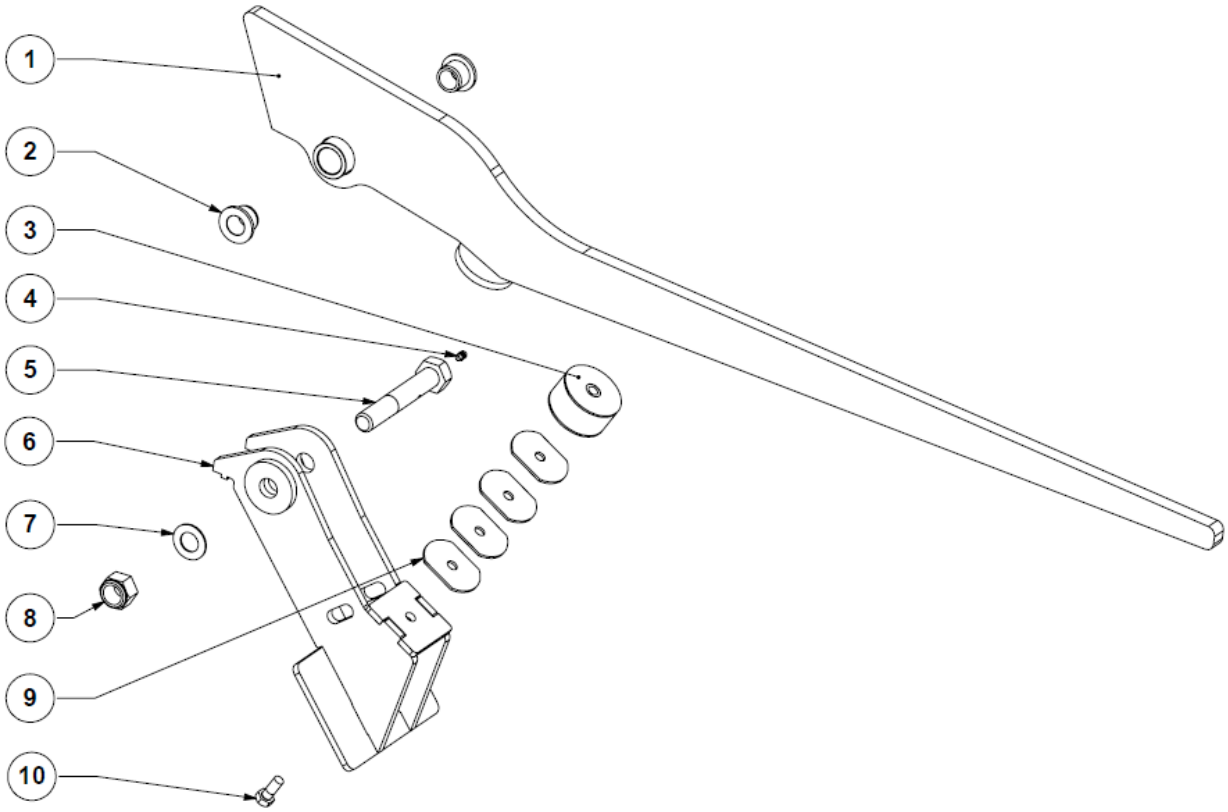
Series III bale handler creel kicker



Item:	P/N:	Qty:	Description:
1	FP160-045-0071	1	Bale handler creel kicker arm assembly 1
2	FP160-045-0136	1	Bale handler creel kicker spring kit
3	FP100-006-0021	1	Feed-out tray mechanical adjuster roller pivot bush
4	700262	2	M12 x 75 bolt
5	700730	4	M12 washer
6	700266	2	M12 lock nut
7	FP280-045-010	1	Nylon guide wheel
8	700283	1	M16 lock nut
9	700732	2	M16 washer
10	700268	1	M16 x 100 mm bolt

Table 25: Kicker arm assembly (exploded view)

Tine bracket and tine arm assemblies



Item:	P/N:		Qty:	Description:
	MechFiber350	MechFiber370		
1	See bale handler Parts List for specific tine reference	*same as 350*	9/11	Bale handler tine assembly
2	705947	*same as 350*	18/22	Delrin bush
3	703943	*same as 350*	9/11	Rubber buffer 75 mm O.D.
4	701129	*same as 350*	9/11	1/8 bsp grease nipple
5	FP140-045-0111	*same as 350*	9/11	M24 x 150 mm modified bolt
6	FP200-045-0143	*same as 350*	9/11	Bale handler tine bracket
7	700316	*same as 350*	9/11	M24 flat washer
8	700318	*same as 350*	9/11	M24 lock nut
9	FP140-045-0019	*same as 350*	9/11	Spacer plate 3 mm
10*	700247	*same as 350*	9/11	M12 x 30 mm bolt

Table 26: Bale handler tine and bracket assembly

** Longer M12 bolt may be required if additional spacers (item no. 9) are used.*

11.13 Axle

11.13.1 Axle options

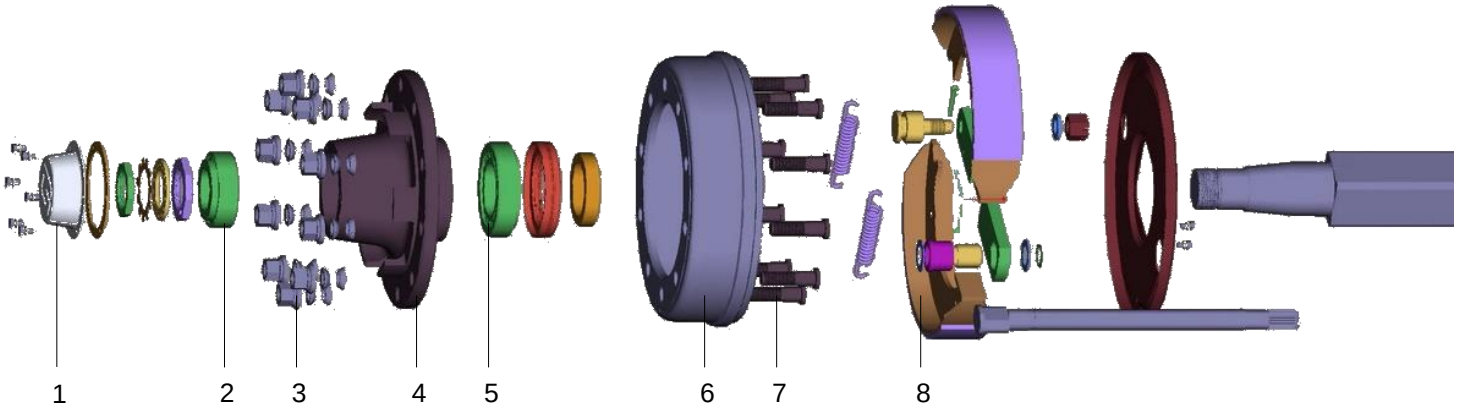


Figure 20: Typical axle (exploded view)

Axle types			
Axle application	**MechFiber350**	**MechFiber370**	**MechFiber350/370**
Axle specification	HS12A1-00	EUR1410 414S	EF1050
Axle type	Straight	Straight/cranked	Tandem bogie
Axle width (mm)	2100	2250/2400	2200
Brake type/dimensions (type/diameter x width, mm)	Series S, 420 x 180	414S, 406 x 140	408E, 400 x 80
No. studs	10	10	10
Nut size	M22 x 1.5	M22 x 1.5	M22 x 1.5
Axle spare parts			
Item No.:	**MechFiber350**	**MechFiber370**	**MechFiber350/370**
1. Hub cap	704167	703994	703732
2. Outer bearing	704176	704450*	702987
3. Nut	704166	702644	702644
4. Hub	704171	704449	704454
5. Inner bearing	704177	704450*	700838
6. Brake drum	704172	704451	704455
7. Stud	704173	700307	700307
8. Brake shoes	704170*	704452*	704233*

Table 27: Axle types and axle spare parts

*Note: *This is a kit.*

11.13.2 Axle maintenance

Tightening and retightening wheel nuts

The following steps should be taken to tighten and retighten wheel nuts:

1. Impact wrenches should not be used, as the impact torque maybe excessive.
2. Wheel nuts should be tightened diagonally every time in conjunction with a torque wrench.
3. In the case that power tools are the only tools available, they must be set to the correct torque (check heading 8.6), as over-tightening may lead to damage or breakage.

Ensure nuts are correctly tightened after:

1. First use.
2. The first laden journey.
3. The first 1000 km.
4. Every six months thereafter, or every 25,000 km (whichever happens first).
5. Every time a wheel is changed or removed (check how to safely remove a wheel under heading 8.8).

11.13.3 Hubcap maintenance

Hubcaps that go missing or are damaged must be replaced immediately to keep dirt from penetrating the hub, which can damage the bearings.

Check that hubcaps are always in place and in good condition.

If the hubcaps are a press fit, visually check to ensure that they are fully home.
If the hubcaps are attached using screws, fit a new gasket, if needed, once the hubcap is removed.
Retighten the screws regularly every 6 months.

11.13.4 Bearing play

The bearing play should be checked after

1. The first 1,000 km.
2. Before intensive use, every 6 months or 25,000 km (whichever happens first).

Wheel bearings are subject to varying levels of wear based on the:

1. Operating conditions.
2. Load.
3. Speed.
4. Adjustment and lubrication.

To check the wheel bearings:

1. Lift the wheel off the ground and turn it slowly, checking for any rough points or friction.
2. Turn it at a high speed to check for unusual noises, such as grating or knocking.

If there are signs of damage, or if the bearings are worn, the bearings and the seals should all be replaced.

11.14 Ancillary parts

PTO shaft		
P/N:	**Qty:**	**Description:**
700616	1	PTO, T60 shaft, 1-3/8” Z6 x 1-3/8” Z6. M10 x 6.8 shear bolt
Planetary Gearbox		
P/N:	**Qty:**	**Description:**
FP140-018-0010	1	Planetary Gearbox complete kit
Grease fittings		
P/N:	**Qty:**	**Description:**
704913	1	Grease tube swivel connector — 90-degree bend — M6 thread
704914	1	Grease tube connector — straight — M6 thread
704915	1	Grease nipple connector — straight — 1/8" BSP to M6
704941	1	Grease tube connector — straight — 6 mm thread
704942	1	Grease tube connector — straight — 8 mm thread
704943	1	Grease tube connector — straight — 1/8" BSP thread
704944	1	Grease tube connector — 90-degree bend — 1/8" BSP thread
704945	1	Grease tube connector — 90-degree bend — M6 thread
704946	1	Grease tube swivel connector — 90-degree bend — 1/8" BSP thread
704947	1	Grease nipple connector — straight — 1/8" BSP to M6
Auto oiler parts		
P/N:	**Qty:**	**Description:**
703624	1	Automatic oiler kit (3 chains)
703624-1	1	2-quart (1.89-liter) reservoir
703724	1	Brush assembly
704351	1	Brass manifold — mounts to top of Lubeminder pump
703765	1	In-line check valve, to be used before brushes
703725	4	5/32" (4-mm) ferrule kits — used to replace ferrules in 704351 (4 pk)
703726	4	Sleeve nut (4 pk)
704517	1	Repair kit — seal, piston and O-rings
Spool valve parts		
P/N:	**Qty:**	**Description:**
701215	1	2 bank with detent
701216	1	2 bank without detent
701218	1	3 bank with detent
701219	1	3 bank without detent
702269	1	4 bank with detent
701208	1	4 bank without detent
702450	1	5 bank with detent
704447*	1	Electro-hydraulic spool valve kit, 4 bank (contains 704445 and 704446)
704525	1	Electro-hydraulic spool valve kit, 5 bank
Diverter valve parts (used on French machines)		
P/N:	**Qty:**	**Description:**
704139	1	Diverter valve kit (contains 703535 and 704394)
703894	1	Electro-hydraulic diverter valve kit (6 port)
Heavy-duty top knife (standard on all bale handlers)		
704229	4	Top knife blade, 990 mm long, deep serrations

Table 28: Ancillary parts

*4 bank can be reduced to 3 bank, if required, using the same part number.

12 Troubleshooting

12.1 General troubleshooting

PROBLEM:	SOLUTION:
1. Weighing display won't work properly	Check section 12.2 on weighing.
2. VFC-door does not move	Check hydraulic hoses and ensure that valves are open. Check tractor hydraulic oil level. Check ram condition and ensure that pins are secure.
3. VFC-door drops during mixing	Insufficient hydraulic pressure – check spool valve on tractor or fit non-return valve in line. Check ram for signs of leakage.
4. VFC-door closes unevenly/sticks	Rams operating out of sequence. Move door to fully open position and hold level to allow oil to bypass the ram when the door is fully open and level. Repeat fully closed, until the door is even.
5. Excessive shear bolt breakage	Machine overloaded. Driving chain too loose – check condition and adjust idler springs. Feed-out too fast – open feed-out door, slowly at first, then open fully. Turn paddle a few times before opening the feed-out door to avoid putting a huge load on the machine, especially after feed has settled in the body of the machine. Run machine slower. For non-bale handler models, never load bales directly down on the paddle in one go. Always chop up into at least four pieces.
6. Noisy operation	Oil chains liberally. Adjust tension on chains. Grease all nipples. Check chain alignment.
7. Feed is not properly mixed	Insufficient mixing time. Loading materials in wrong order. Not enough time given for chopping. Overloading of machine.
8. Feed-out is too slow	Check condition of paddle rubbers. Slow down tractor ground speed. Reduce engine revs to give paddle more time to push material into auger. Ensure material is fully chopped before unloading.

9. Horsepower requirement is too high	Check body blade and top knife sharpness. Machine overloaded. Bale handler tines may be set too low.
10. Machine is not chopping	Blades blunt. Not enough material in body, or material is not heavy enough. Try adding more material, or, in the case of hay/straw, add water or a fork of silage to weigh it down. Machine overloaded.
11: Machine breaks ASA140 link	Check chain alignment of large sprocket, tolerance +/- 2 mm. Check chamfer on edge. Check roll pins used in joiner link. Check idler tension.
12: Bale goes in too quickly	If the bale goes into the machine too quickly, it may place an unnecessary load on the tractor and drive line, slowing overall mixing time, since the body blades don't chop long, fibrous material as efficiently as the top knife. Check tine buffers and tine-to-top-knife gap.
13: Excessive hitch wear	If excess hitch wear is noted, check: -Speed of use; hitch rated for a maximum of 25 km/h. -Hitch is level on tractor. -Fit of hitch and lubrication. -Wear on tractor hitch. -Brake operation — should match tractor brakes. -For excessive movement (which means it is not tight on pin/hitch).
14: Leaking valve chest (where fitted)	Check oil is only flowing from pressure "P" side to tank "T" side. Reverse-pressuring the valve check will damage the seals. Adding a one-way valve on the return pipe will prevent this.
15: Leaking oiler	If oiler leaks or loses oil, check the one-way valves in the oiler housing. Fit restrictor fitting to pressure line, which will smoothen out any power surges in the line and protect servo.
16: Excess oil on chains	Adjust oiler. The volume of oil sent to the chains when the VFC-door is operated may be adjusted by turning the set screw on the base of the oiler. The oiler operates on the closing stroke of the VFC-door. Therefore, the drive line should be left running for a period after the VFC-door is closed to allow the oil to fully cover the chain.

17: Blockage at top knife	On non-bale handler models, load smaller sections of material into machine. On bale handler models, check tine height settings. Ensure all feed materials are free from foreign objects before loading into machine. In the unlikely event of a large blockage preventing the machine from restarting using the tractor, it may be necessary to enter the mixing chamber to manually clear the blockage. Please refer to Section 5, Point U, on safety.
18: Blockage at auger	Use VFC-door to meter material intake into auger. Refer to Section 7.9 on feeding out to learn the correct operation of the VFC-door. In the unlikely event of a large blockage preventing the machine from restarting using the tractor, it may be necessary to enter the mixing chamber to manually clear the blockage. Please refer to Section 5, Point U, on safety.
19: Blockage at rear feed-out conveyor	Use VFC-door to meter material intake into auger. Refer to Section 7.9 on feeding out for information about the correct operation of the VFC-door. Ensure the conveyor belt rotates as VFC is opened. Check setting of priority flow valve (if fitted). In the unlikely event of a large blockage preventing the machine from restarting using the tractor, it may be necessary to enter the mixing chamber or gain access to the discharge auger chamber to manually clear the blockage. Please refer to Section 5, Point U, on safety.

12.2 Weighing troubleshooting

KEENAN troubleshooting tips on weighing

If you experience problems in the operation of the weighing system, read through this troubleshooting section before contacting a KEENAN service representative.

Reading drifting

If the reading on the weigh box is drifting or does not stay steady, the most likely cause of the problem is dampness or moisture in or around the weigh box or cables. Please follow these steps to determine and correct the problem.

- Disconnect the cables on the weigh box. Ensure that they are labelled correctly for reconnection. Check both the plug on the cable and the connector on the weigh box for dampness and/or corrosion of the terminals. If any dampness is found, dry it off thoroughly with a hairdryer. If corrosion is found on the terminals, clean them thoroughly with an electrical cleaner and let them dry. Then, reconnect and test the cable.

- Check for loose wiring or dampness. Some machines are fitted with a junction box. The procedure detailed above also applies here.

- Check weigh cell plugs for dampness, and also check weigh cell cables for any breaks and/or dampness.

If the steps above do not rectify the problem, contact a KEENAN service representative for further assistance.

System weighing inaccurately

If the machine is new or the weigh box has been replaced, it is possible that the weigh box may have the incorrect calibration code for the model. Contact a KEENAN service representative, who can check (or alter) the code.

If you suspect that the system is weighing inaccurately, check all four weigh cells to make sure that they are mounted correctly. If the bolt through the weigh cell has broken or come loose, the weigh cell can rotate, resulting in that weigh cell giving an inaccurate reading. To check that the system is weighing correctly, find an item whose weight is already known (e.g., a bag of fertilizer) and place it on each corner of the machine in turn. Doing so should return the same reading for each corner. If one corner returns a significantly different reading from the other three, this indicates a faulty weigh cell on that corner. If a negative reading is returned, the weigh cell could potentially be upside down; rotate it 180° and repeat the test.

Weigh box will not switch ON

Check the power cable thoroughly and make certain that you are getting power from the tractor to the display. Unscrew the power cable from the weigh box and ensure that there is a 10- to 13-volt supply across the internal pins of the cable. If the negative (-) and positive (+) are wired the wrong way, the weigh box will not switch on [Dinamica Generale weigh boxes power cable: white (+) and black (-)].

13 Warranty

13.1 KEENAN warranty policy

Alltech Farming Solutions Limited, trading as “KEENAN” (the “Company”), shall undertake to correct by repair or replacement, only at the Company’s option, any defect of material or workmanship occurring in any of its products as listed herein within the following warranty period. This Warranty is for the benefit of the initial owner as notified to the Company. This Warranty shall also apply to new and unused goods being resold by authorised dealers and/or distributors of the supplier. The Warranty period, from date of commissioning, is twelve (12) months for new equipment, and such shorter periods as may be agreed upon from time to time in writing for other products. This Warranty shall cease to apply upon any resale, alteration or incorrect usage of the equipment by the initial owner.

The Warranty shall not apply to:
A) Any machine used by a third party who has not been instructed in the correct usage of the machine by an official representative of KEENAN.
B) Any machine that has sustained damage through general wear and tear or neglect or use for which the machines were not intended to be used by the Company.
C) Bearings, sprockets, chains and other wearing parts, unless clear evidence of immediate working failure that is directly attributable to such parts can be furnished. Wearing parts include paddle rubbers, chains, jockeys, wheels and tyres.
D) Any consumable or perishable parts, such as knives, blades, rubbers seals, hydraulic components, shear-bolts, brake liners, electric components and running gear, unless clear evidence of immediate working failure that is directly attributable to such parts can be furnished.
E) Any machine on which the identification marks have been removed or altered.
F) Any machine that has not received effective routine maintenance using recommended KEENAN products as laid down in the Operator’s Manual.
G) Any machine that has received repairs or modifications by a person unauthorized by KEENAN.
H) Any machine fitted with spurious or non-genuine spare parts and attachments, or spare parts or attachments not approved by the Company.
I) Any machine damaged in transit while being loaded or unloaded on premises other than those owned by the Company.
J) Parts that may be defective or that may have failed and that are not retained on-site pending further investigation by the Company. Such parts may need to be inspected *in situ* by a Company representative.
K) Any machine damaged, or any damage incurred, prior to the machine being commissioned by an authorized representative of the Company.
L) Any machine not used in accordance with the instructions for use of the machine.
M) Any machine that has been altered or tampered with in a manner not approved by the Company.

The sole and exclusive claim against the Company made by the person specified above shall be for the repair or replacement of defective parts without prejudice to any rights pursuant to the Liability for Defective Products Act, 1991. No other claim — including, but not limited to, for incidental, direct or indirect or consequential damages, or for lost profits, lost sales, lost business, lost savings, loss of goodwill or loss of reputation, or any other loss of whatever nature, however sustained — shall be available. This Warranty constitutes the only warranty made by the Company and supersedes and overrides all oral and written statements or representations made by any Company representative or dealer or any other agreement,

arrangement, practice, custom or understanding between the parties. Any claim under the Warranty must be promptly notified to the Company in writing at the address on the invoice.

This Warranty shall be construed in accordance with Irish law and shall be subject to the exclusive jurisdiction of the Irish Courts.

13.2 Product changes and improvements

Due to our policy of continuous improvement, Alltech Farming Solutions Ltd reserves the right to make changes in design, add improvements to or otherwise modify any of its products without incurring any obligation on products previously supplied.

14 EC Declaration of Conformity

EC Declaration of Conformity.
In accordance with Directive 2006/42/EC.

Manufacturer:
Alltech Farming Solutions Ltd
Borris
Co. Carlow
R95 K223
Ireland

Certifies that the KEENAN MechFiber350 and MechFiber370 complies with the essential safety requirements of the Directive 2006/42/EC.

To conform to these essential health and safety requirements, the provisions of the following harmonized standards were particularly considered.

BS EN ISO 12100, I.S. EN ISO 13857, I.S. EN ISO 5674, EN349, EN703, I.S. EN ISO 4254-1, ISO 11684, ISO 12140

Date: 01 Nov 2016

Signed: _____

Robert Walker, CEO

15 Contact details

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