

Keenan Mech-Fiber 400



Operator's Manual

Effective from model MF40A105

WARNING NOTES

Thank you for purchasing a Keenan product. Please read this manual carefully before operating your new machine, paying particular attention to the warning notes, explained here. Most sections of the manual apply to both the Keenan Mech-Fiber Mixer Wagon and the Keenan Mech-Fiber Bale Processor machines. Sections which do not apply to both machines will be clearly stated in the heading and the text. Recent revision updates are indicated by a line in the right hand column as shown to the right.

There are 3 different types of notes.



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 Mech-Fiber Mixer Wagon. Failure to observe the information contained in a caution may invalidate your warranty.

Note:

Texts with this heading give general information which improves the operation efficiency of your Keenan Mech-Fiber Mixer Wagon.

The Keenan Mech-Fiber 400 and the Keenan Mech-Fiber 400 Bale Processor machines are subject to International patents including the following:

European:	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 3) before attempting to operate the machine.

Keenan Mech-Fiber Mixer Wagon and Keenan Mech-Fiber Bale Processor

The Keenan Mech-Fiber 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 efficient mixing and feed out and low horsepower requirements. The Keenan Mech-Fiber 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 Mech-Fiber System, delivering improved efficiency and profitability on the farm. More recently, the Bale Processor 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. Simple routine maintenance and correct operation will deliver many years of trouble free service. However in the event of unforeseen problems, Keenan's world class service means you can be assured of a prompt solution.

This manual has been designed to present the information you need to operate and maintain your machine. If you require further assistance or information, please contact your Keenan Physical Nutritionist. Telephone numbers are listed on the back cover of this manual.

The Keenan Mech-Fiber Mixer Wagon is the corner stone of the Keenan Mech-Fiber System delivering improved efficiency and profitability on the farm.

SECTION	CONTENTS	PAGE
1	Warning Signs	4
2	Operating Principles	5
3	Safety	7
4	Weighing System	10
5	Operation	11
6	Maintenance	20
7	Maintenance Checklist	33
8	Specifications	34
9	Parts List	35
10	Troubleshooting	60
11	Warranty	63
12	E.C. Declaration of Conformity/CE Certification	64
13	Contact Details	65

1. WARNING SIGNS



Read the operators 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 it is in operation.

Warning signs

2. OPERATING PRINCIPLES

Weighing

The Mech-Fiber Mixer Wagon's main operating functions are weighing, chopping/mixing and feeding out.

2.1 WEIGHING

The electronic weighing system allows the exact quantity of individual materials to be loaded into the mixing chamber for accurate rationing. Individual loads can be weighed or successive loads accumulated to give total weight of feed. In addition the new PACE Control System adds further control to the mixing process in order to ensure controlled delivery of Mech-Fiber. See Section 4 (Weighing System) and the Readout Manual for more detailed information.

2.2 CHOPPING / MIXING

Load ingredients in sequence recommended by your Keenan Physical Nutritionist, or as suggested in Section 5 (Operation).

For non Bale Processor models, ensure bales are broken up prior to loading. For Bale Processors, 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 not then the machine is overloaded and will not achieve the desired mix quality. Mixing is carried out by a centrally-mounted rotor fitted with 6 angled paddles revolving at 5 - 6rpm. 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 mixing by sweeping the material from end to end. The placement of the blades ensures the materials reach optimum size/length, without grinding it down and destroying the all important 'scratch factor' of the forages producing a Mech-Fiber mix.

Mixing time will be determined by the required chop length. Follow procedures contained in this manual or consult your Keenan Physical Nutritionist for further information.

Chopping/mixing

- CAUTION:**
- For Bale Processor 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 Processor models, do not load a complete 6x4 round bale onto the machine as it may potentially be unstable, possibly falling off and causing injury, 6x4 round bales should be first broken up and then loaded on to the machine in sections, alternatively the bale may be held in place by the loader until sufficiently chopped down, 1/3 to 1/2 way, to allow it safely complete chopping 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.

2.3 FEEDING OUT

During mixing, the mixing chamber is separated from the feed out chamber by a Variable Feed Control (VFC) or guillotine 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 door/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. The VFC door should be opened partially at first. As soon as feed is seen discharging then 15-20 seconds should be allowed before opening the VFC door fully. Door position and ground speed should be set to allow an even feed out rate.

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

2.4 MAINTENANCE

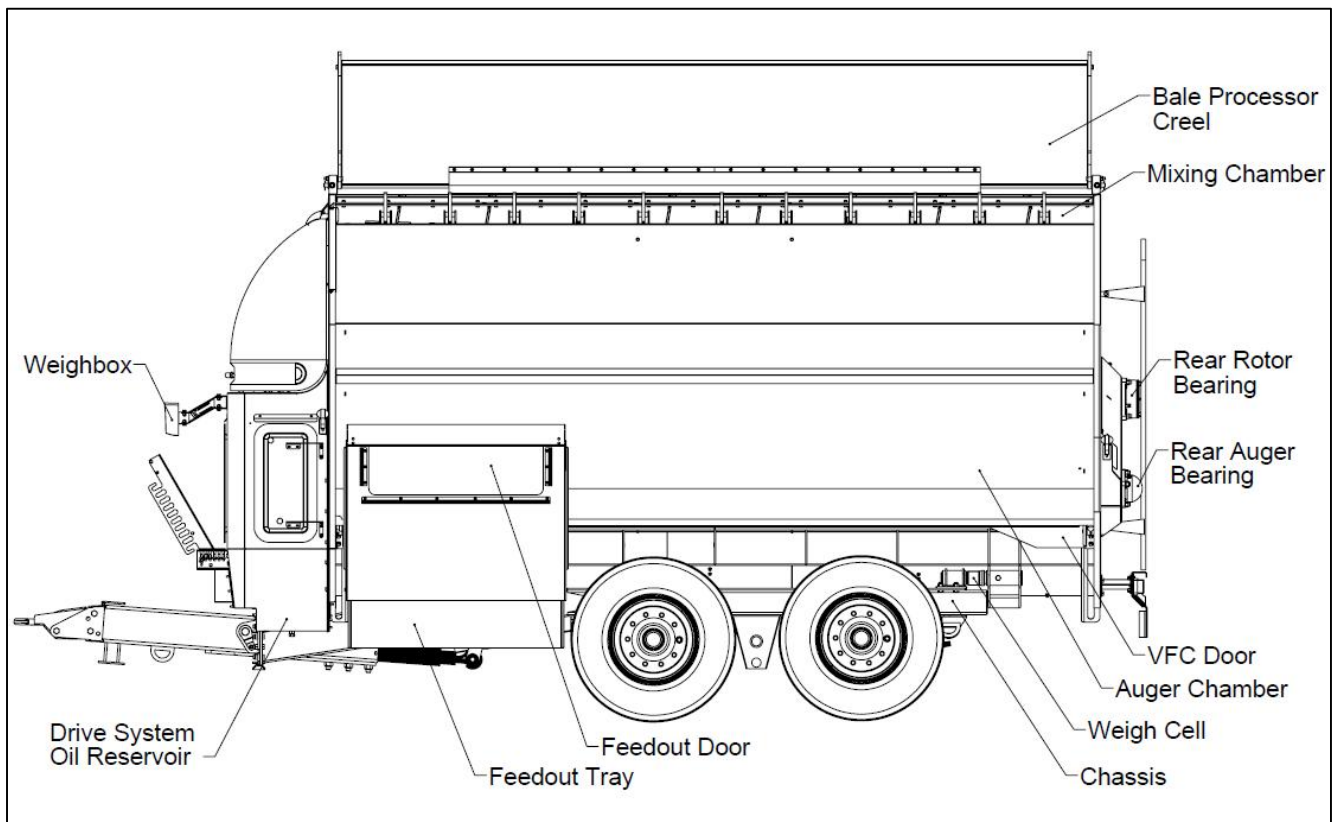


Figure 1: Keenan Mech-Fiber 400

A properly operated and maintained Keenan Mech-Fiber Mixer Wagon will give years of trouble free operation. **Regular maintenance of the machine is essential both for long machine life and also to meet the warranty requirements.** Refer to instructions in 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 which sits or lodges on the machine may both adversely effect the operation of the machine and affect the quality of the mix if it subsequently falls into the feeder during mixing. It is therefore essential that routine cleaning and washing down of the feeder is completed.**

2.5 SAFETY PRECAUTIONS

Keenan Mech-Fiber 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 centre for advice.

WARNING:
Read the safety section (section 3) before attempting to operate the 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 all times. The machine should never be left unattended during operation.

3. SAFETY

The Keenan Mech-Fiber Mixer Wagon has many safety features built into its design but ultimately, safe operation requires the vigilance of the operator and an understanding of potential safety hazards.

The Keenan Mech-Fiber Mixer Wagon is designed to be used as a mixer/chopper wagon for mixing animal feeds. It should not be used for any other purpose which will affect its performance or safety.

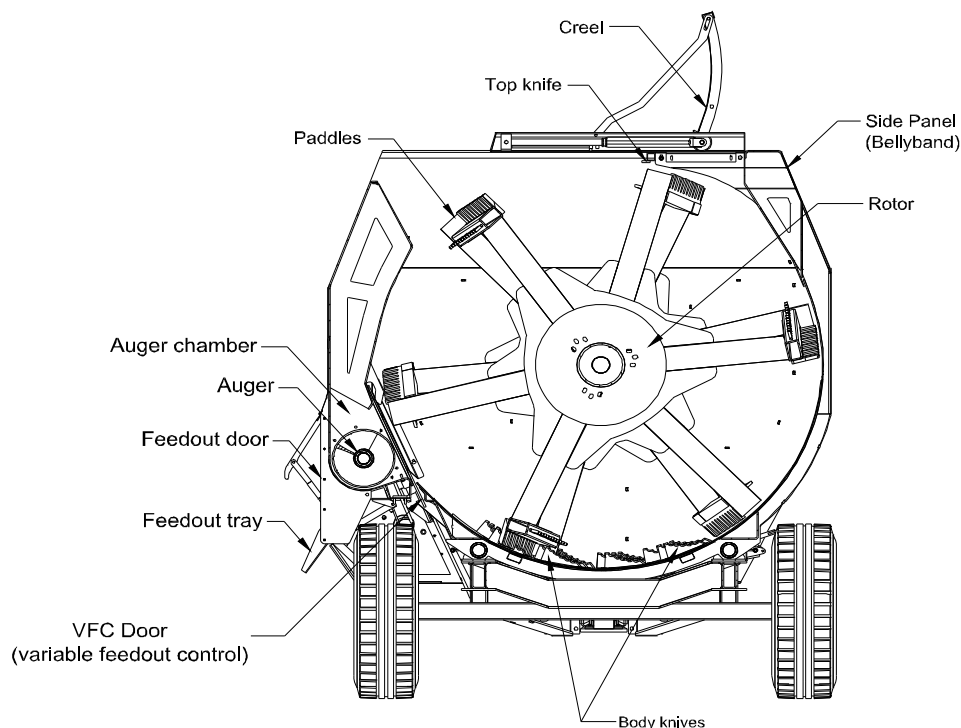


Figure 2: Keenan Mech-Fiber 400 Rear Profile View

The following safety points are general guidelines. Given the wide variety of possible operating conditions other safety risks may exist which are not captured in the list over.

- a) Always park the mixer wagon on level ground and apply the handbrake when not in use.
- b) Do not exceed 15km/h (10mph) when in use/transit. Local road traffic laws will apply when machine is in transit on public road, 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) Exercise extreme caution for possible overtaking traffic at either side when turning.
- d) Do not stand on the ladder whilst the mixer wagon is in transit. The mixer wagon should never be used for the transport of people, animals or objects.
- e) Do not stand between the tractor and mixer wagon while it is in use.
- f) Use only a PTO shaft with a properly fitted safety guard and correct shear bolt.
- g) Always connect the PTO shaft with the shear bolt end to the machine. The standard operating range of the PTO is 540rpm however an optional operating range of 1000rpm may be available if the machine has been built to this specification. This will be clearly marked on the front of the machine & on the operation procedure decal. The direction of rotation is marked on the front cover (clockwise view from rear of machine). Always use a well maintained PTO shaft and keep the safety covers in good condition.
- h) Ensure all trailing leads, hoses etc. are well clear of the PTO.
- i) **Do not operate the PTO in “ground speed mode”.**
- j) Make sure all covers/guards are fitted and closed correctly. Never remove guards when the mixer wagon is connected to the tractor. Ensure that the engine of the tractor is stopped and PTO shaft disconnected before carrying out service or maintenance work and especially if removing trapped objects from the machine.
- k) Ensure the mixer wagon and the immediate area surrounding it is 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. When connecting the tractor to the mixer wagon only connect using the ring 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. When disconnecting always ensure that a stand or jack is used to secure the machine in the park position and ensure that the handbrake is properly applied. Before driving the tractor away from the feeder ensure that all hoses and cables are disconnected.
- l) Load only from the side indicated – see figure 6 (auger chamber side) using suitable equipment.
- m) **Standing level with or above the machine in order to load manually is not permitted.** Loading should be carried out with suitable equipment.

- n) Regularly inspect all chains (at least weekly), sprockets and moving parts for wear and check all nuts and bolts for tightness.
- o) 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 onto the body of the mixer wagon. It is strictly forbidden to climb on the upper brim of the machine body.
- p) Routine cleaning should be carried out using a power hose, with the drain bung open eliminating any reason to climb into the mixing chamber.
- q) The top knife should always be fitted with the supplied guard (figure 4) before routine cleaning or maintenance is carried out. *Note: the machine is supplied with a top knife guard which should be removed before the machine is used.*
- r) **Only suitably trained and qualified maintenance people should enter the mixing chamber.** There are a number of specific hazards which apply including: The blades are extremely sharp and loss of footing inside the machine could result in a severe injury. All machines are provided with blade protectors, which should be used by maintenance personnel when entering the feeder. The height of the machine presents a potential fall hazard during entry and exit.
- s) **SODAGRAIN.** Additional safety instructions and warnings are available and covered in a 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 that when mixing soda grain, the maximum gross load that can be mixed in the Keenan Mech-Fiber 400 is 8,000Kg.*
- t) **It is recommended that only Keenan trained and qualified maintenance personnel enter the mixing chamber.** In the case of an untrained person entering the mixing chamber, at the very minimum, the following precautionary safety guidelines should be strictly adhered at all times.
 1. Ensure the PTO **and hydraulic hoses** are removed.
 2. Apply the mixer wagon handbrake and disconnect the tractor on level ground.
 3. Use a suitable ladder for access to and from the mixer wagon.

Note: *The viewing ladder is only used for viewing and not for access to the mixing chamber.*

 4. Personnel should make themselves familiar with the location of all potential hazards before entering the machine, in particular the location of the top knife and body blades.
 5. Use suitable PPE and fit blade covers as shown in figure 4.
- u) If the person intending to enter and work within the machine is not confident about doing so safely, then they should contact a Keenan Service Person to complete the work.
- v) The noise emission level of the Mech-Fiber 400 has been recorded at 89.4dB. Noise emission levels above 90dB would require the wearing of suitable ear protection.

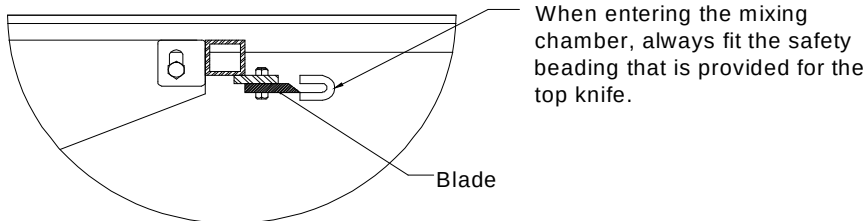


Figure 3a: Top Knife Protection



Figure 3b: Body blade and blade cover



WARNING:

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

4. WEIGHING SYSTEM

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

INSTRUCTIONS FOR ELECTRONIC READOUT BOX ARE CONTAINED IN A SEPARATE MANUAL

5. OPERATION

Set-up

The simplicity of the Keenan Mech-Fiber 400 design is reflected in its low power requirement. The power required varies, 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 translate into 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.

5.1 SET-UP

1. Ensure the machine is level when hitched up. If the machine is unlevel, this can be corrected by adjusting the hitch height. The hitch height on the Mech-Fiber 400 is adjustable from approximately 350mm to 650mm, with 6 different settings, please refer to the drawing on the next page for exact details.

Note: The dimensions shown in this drawing are based on an unladen machine with 385/65 R22.5 wheels/tyres. The hitch heights will be reduced by 40mm if using 385/55 R22.5 wheel/tyres and by 70mm if using 445/45 R19.5 wheels/tyres.

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 well secured.

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

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

Hydraulic and brake hoses	
Operation	Colour
Guillotine door	Red & yellow
Feed out tray	Blue
Bale Processor creel	Green
Brakes	White
Beetgrid	Black

Table 1: Hydraulic and brake hoses

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 the power lead from the weighing system is either connected to the tractor battery via a direct fused line, 7 pin plug or to a 12v battery located in the side box of the feeder. Test by switching on the weigh box, then press and hold the “+ / -” key, followed by “Zero” key, to zero the scales. If the power is supplied through a 7 pin lights connection, the lights will need to be turned on, on the tractor to provide power to the weigh box. If you stand on the ladder, at rear of the machine, you can check the reading on the weigh box against your known weight, this may require assistance.

Set-up

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 machine will generate a lot of noise but this will decrease as the paddle rubbers become more pliable.

As a general rule engine speed during loading should be as low as possible without the risk of stalling the tractor. See guidelines on loading and mixing procedures.

Note:

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

B: The maximum oil pressure of the hydraulic system is 3000 psi.

C: If there is a **valve chest** fit to the Mech-Fiber machine, it is very important to connect the valve chest hydraulic feed and return pipes correctly. The return pipe is not designed to take the hydraulic pressure normally seen in the valve chest feed pipe, and 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 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 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.

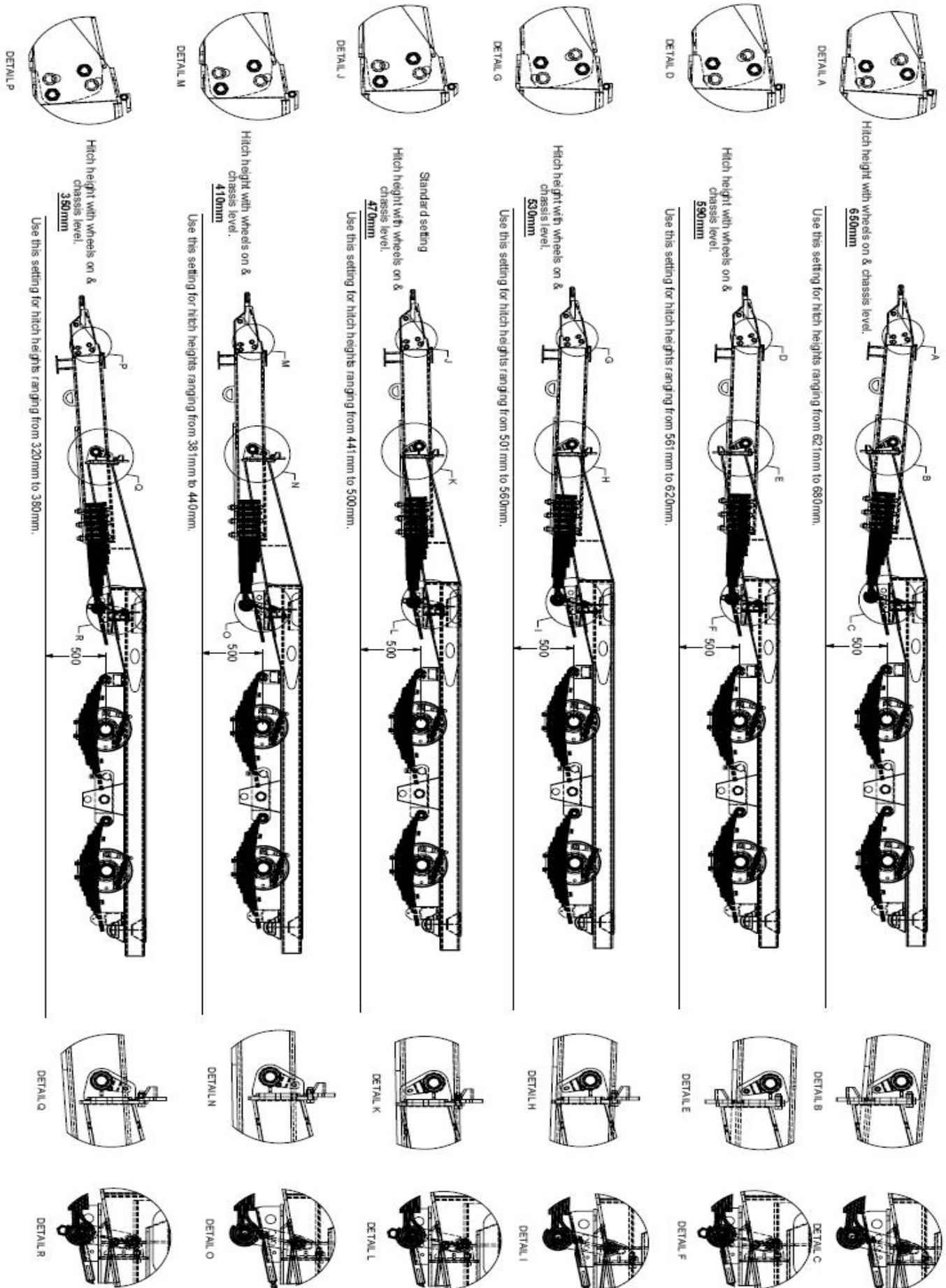
(The valve chest is set up for open centre hydraulics. If the tractor has an alternative hydraulic system (other than open centre) then contact should be made with the tractor agent. To alter to closed centre hydraulics, there is a plug that can be fitted to the spool valve block and is available from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

Set-up



Figure 4: Valve Chest

5.2. HITCH HEIGHT ADJUSTMENT



Set-up

5.3 MIXER WAGON CAPACITY

Due to the diversity of the materials available for feeding and the Keenan Mech-Fiber'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 potential machine damage may result.

Overloading must be avoided because:

- The mix will not be homogenous (evenly mixed), preventing the maximum benefit being gained from the machine.
- Mechanical failure will result. Due to the nature of the loading this may occur at load levels below that necessary to break the shear bolt.

CAUTION:

- The machine can be overloaded, before the shear bolt breaks. Therefore not breaking a shear bolt is not 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 (this has a major effect on machine capacity, e.g. the addition of straw first or last).
- Tractor H.P. rating.



Figure 5: Photograph illustrates a well mixed ration showing consistent fibre length and integration of forages and grains.

5.4 LOADING & MIXING

Note: The unique tumbling action of the machine is what carries out the mixing. If the machine is overloaded or loaded in an incorrect order, or insufficient time is allowed for proper chopping, this tumbling action will not take place correctly. In addition to reducing mix quality, it increases the horsepower requirements and reduces the life of the machine.

CAUTION:

- Overloading will seriously affect machine performance and life, and will invalidate your warranty.

The effectiveness and speed of 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 material.
- The loading sequence.
- The total amount of material to be chopped.
- The density of the bale.

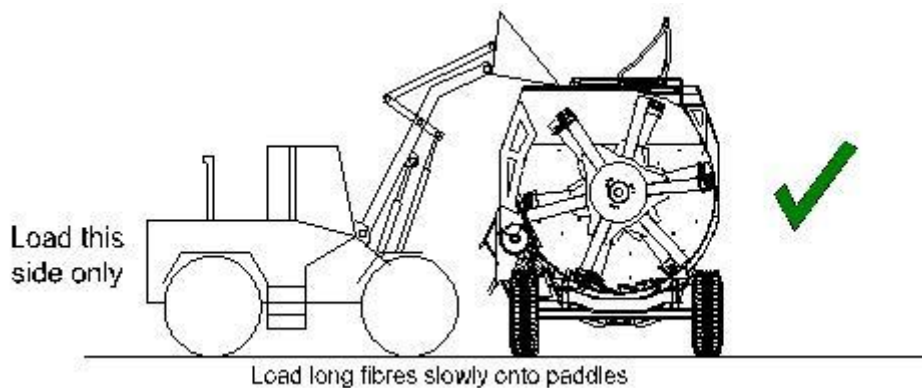


Figure 6: Loading the Keenan Mech-Fiber 400 mixer wagon

5.5 OPERATING THE KEENAN MECH-FIBER MIXER WAGON

GENERAL

- Park on level ground.
- Ensure the variable feed control door (VFC) (guillotine door) is closed.
- **Do not start PTO when VFC door is open.**
- Optimum PTO speed: 430rpm (in 540 range)

LOADING AND MIXING SEQUENCE

- Load feed as close as possible to the loading side of the unit.
- Load concentrate feeds along the length of the machine.
- Load forages to the front, back and centre of the unit in alternate grabs during the mixing process.
- Remove all twine, wrap or polythene from bales.
- Round or square bales should be split or broken into 4 pieces minimum.
Use front grab or forks as required.
- Load in the order shown below.

Load Order	Feed Ingredients	Paddle RPM	Tractor Engine Speed RPM
1st	Water, liquid feeds	All at 5-6 RPM	1400-1600 RPM
2nd	Straw		
3rd	Minerals, Protein meals, Pulps, Cereal grains		
4th	Grass silage		
5th	Maize silage, cereal Silage.		

- Mixing time will depend on chop length required.
- Stop PTO before moving to feed out area.

Table 2: Loading the Keenan Mech-Fiber 400

5.6 OPERATING THE KEENAN MECH-FIBER BALE PROCESSOR

LOADING THE KEENAN BALE PROCESSOR

GENERAL

- Park on level ground.
- Ensure variable feed control door (VFC) is closed.
- **Do not start PTO when VFC door is open.**
- Optimum PTO speed: 430rpm (in 540 range)

LOADING AND MIXING SEQUENCE

- Set paddles running at **4-5RPM** 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 towards the top knife. **Note:** When loading light bales e.g. straw or hay hold the bale in place until the bale remains stationary on the Bale Processor.
- Allow sufficient time for previous bale to clear before adding more.
- Add ingredients in order shown below:



CAUTION:

Do not load more than one bale at a time.

Load Order	Feed Ingredients	Paddle RPM	Tractor Engine speed RPM
1st	Water, liquid feeds	All at 5-6 RPM	1400-1600 RPM
2nd	Straw		
3rd	Minerals, Protein meals, Pulps, Cereal grains		
4th	Grass silage		
5th	Maize silage, cereal Silage		

- Mixing time will depend on chop length required.
- Stop PTO before moving to feed out area.

Table 3: Loading the Keenan Mech-Fiber 400 Bale Processor

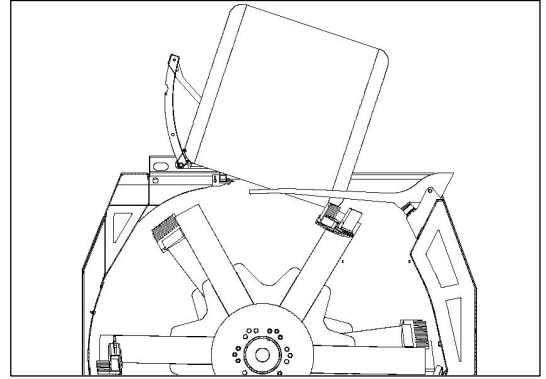
5.7 SPECIFIC INSTRUCTIONS FOR BALE PROCESSOR MODELS

1. The creel should be raised before loading bales.
2. The bale (round bales) should always be loaded in the centre of the machine so that it gets the maximum agitation from the 6 paddles.
3. The bale should be loaded at a slight backward angle and the front edge of the bale positioned above the knife, against the creel, so that the rotating paddle grabs hold of the rear base of the bale and cuts it against the serrated top knife. Refer to the diagram to the right.
4. The bale should be held in this position, until the first couple of paddles pass, chopping the rear corner of the bale, and then gently dropped to rest on the tines so that as the bale is being loaded, the paddles are hitting it and cutting some sections off the bale. The theory is that the bottom of the bale is cut off so that the bale sits flat on the tines and prevents the light density bales from rolling to either end of machine and also decreases intake time.
5. After 15-20 seconds the bale can be released and the loader moved away taking care not to pull the bale away from the knife.
6. After the paddle has sliced away some of the bottom of the bale, the bale itself will be turned over by the paddles and the process of loosening the bale will begin. If the bale is tightly wound then this part of the process will take longer than if the bale is loose.
7. As the bale loosens up, the paddle will start to take in sections of material by cutting it against the top knife. Once the bale has turned over and started to fall apart, the loader can be removed and the next bale fetched and the wrapping removed.
8. If the bale shows signs of being hard to break up or is not getting enough agitation by the paddles, do not press the bale down with the loader. A gentle lift of the bale and reposition is all that is required.
9. The **standard chopping times** for different materials of round 4' x 4' (120 cm) bales are as follows:

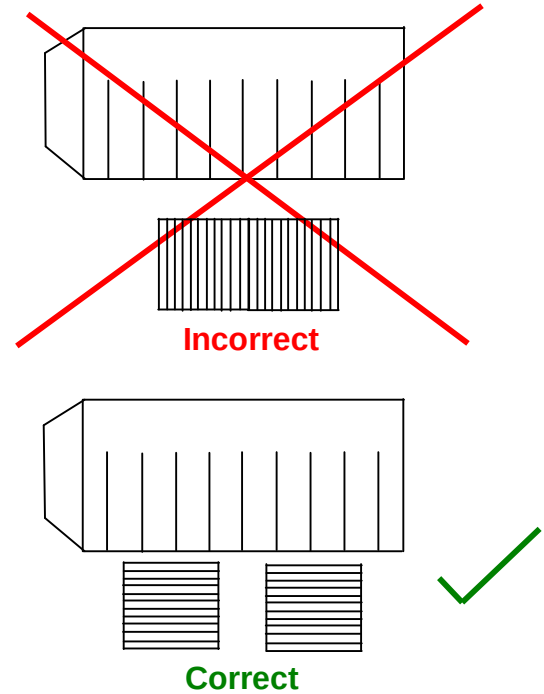
Straw	6-8 minutes (140 kg)
Hay	4-6 minutes (300 kg)
Wet silage (up to 20% DM)	2 minutes (700 kg)
Dry silage (20-30% DM)	2-4 minutes (500 kg)
Very dry silage (over 35%)	4-6 minutes (400 kg)

Note: Heavy bales must be loaded gently onto the Bale Processor not dropped from a height, or damage may occur.

10. These times are achievable if the bale is loaded in the correct position and the loading method as described above is followed. These times may vary slightly depending on the tightness of the bale and the behaviour of the bale when it is being chopped.



11. When loading large square bales the method is to load the bale so that the sections lie across the tines so as to prevent the sections falling through the gap in the tines. The easiest way to do this is to load the bale in two halves on the loader (one half in each side of the bucket, if wide enough) and flick the sections out onto the tines. In this way the sections will remain up on the tines for longer and get a better chop against the top knife. If loaded the opposite way the sections will tend to fall through the tines, not get chopped, and cause additional stress on the chopping mechanism.
12. The key to the successful operation is that the bale remains on top of the tines for long enough for all the pre-chopping to take place against the serrated top knife. This ensures that the amount of further chopping within the mixing chamber is reduced and though it may take longer for the bale to be taken in during all this time, the material that has already been cut from the bale is being processed within the chamber.



5.8 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 300kg (650 pounds) per tonne of material to be chopped. Rotate the machine for 1-2 minutes at 5-6 RPM.
2. Park the machine on an incline, open the wash gate and allow the water to drain off.
3. It may be necessary to repeat this if materials being chopped are particularly dirty.
4. Chop the materials by running the machine at 6+ revs.

If small quantities of material are to be washed and chopped best results are obtained by washing and chopping sufficient material to supply two days feed. It is recommended to do a rinse after the wash to remove any remaining dirt.

5.9 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 paddles running speed of 5-6 rpm. Allow the TMR to loosen and tumble for 15-20 seconds.
3. Open the VFC door partially. Once the TMR is seen on the feed out tray, allow 15-20 seconds before opening door fully.
4. Select a ground speed to feed out at an even rate along the feed area.
5. When feed out is complete, close the guillotine door and always disengage the PTO before attempting to make tight turns away from the shed.

CAUTION:

- Never open VFC door before engaging PTO – serious damage may be caused as a result of sudden load being put on the auger. Disengage the PTO before turning corners.

6. MAINTENANCE

The Mech-Fiber 400 has been designed for optimum performance with a minimum of maintenance. Chains, bearings and grease points have been kept to a minimum without compromising function. All components are of high quality and provide excellent durability. Regular, routine maintenance will ensure your Keenan gives you the best results with a minimum of problems.



WARNING:

Prior to carrying out any maintenance on the machine, always disconnect the P.T.O. and hydraulic hoses from the tractor and ensure tractor engine is stopped. Observe safety precautions at all times when working on machine. Read Section 3 on safety before attempting to work on machine.

The maximum allowable pressure in the hydraulic circuit is 170 bar and flow rates of 40 litres/min are used. Replacement hoses should comply with DIN EN 853. When replacing hydraulic hoses, wear suitable protective equipment.

6.1 CHAINS

1. Each week check the condition of the chain tension arms and adjust as required. There are four chains used on the Mech-Fiber 400 model. The primary drive chain (ASA120) drives the primary idler shaft from the input shaft (see figure 8) and the secondary chain (ASA140HS) drives the secondary idler. The third chain (ASA200HS) drives the rotor. The fourth chain (ASA120) drives the auger independently. All four chains are tensioned by a spring assembly on the slack side of the chain.

Primary Drive Chain	ASA120
Links	72 (inc. joiner)
Pitch (mm)	38.1
Pitch (inches)	1.5
Chain length (mm)	2,743.2
Chain length (inches)	108
Secondary Drive Chain	ASA140HS
Links	118 (inc. joiner)
Pitch (mm)	45.45
Pitch (inches)	1.75
Chain length (mm)	5245.1
Chain length (inches)	206.5
Rotor Drive Chain	ASA200HS
Links	108 (inc. joiner)
Pitch (mm)	63.5
Pitch (inches)	2.5
Chain length (mm)	6,858
Chain length (inches)	270
Auger Drive Chain	ASA120
Links	70 (inc. joiner)
Pitch (mm)	38.1
Pitch (inches)	1.5
Chain length (mm)	2667
Chain length (inches)	105

Table 4: Mech-Fiber 400 drive chains

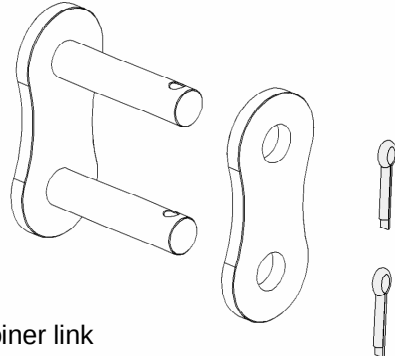


Figure 7: Chain joiner link

Note: The ASA120 chain use split pins in the joiner link as shown, the ASA140HS & ASA200HS chains must use roll pins due to the high loads involved.

2. Each day check the level of the oil reservoir (see figure 8). If the oil level is low, top it up with chain saw oil (the properties of which allow it cling to the chains longer). 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.
3. With use the drive chains will extend slightly over time. To compensate for this, all Keenan Mech-Fiber machines are fitted with a tensioner on the slack side of the chain. The primary, secondary and auger chain tensioners comprise of a pivoting tension arm connected to a tension spring and adjusted via a threaded bolt passing through a shoulder plate. The rotor chain tensioner comprises of a pivoting tension arm connected to a compression spring and adjusted via a second pivoting arm with locating bolt holes. In order to prevent the chain jumping and premature wear the chain must be held at the correct preload tension at all times and should be checked weekly.

6.2 CHAIN TENSIONING:

Primary Chain: This preload tension can be set by adjusting the vertical threaded bolt in the centre of the drive system (adjuster "A" in figure 8). The correct tension will be applied to the chain when the tension spring is extended to **220mm** between mounting centres. Once set, retighten all locking nuts.

Secondary Chain: The preload tension on this chain can be set by adjusting the horizontal threaded bolt situated behind the secondary idler shaft driven sprocket (adjuster "B" in figure 8). As above the correct tension will be applied to the chain when the tension spring is extended to **220mm** between mounting centres. Once set, retighten all locking nuts.

Auger Chain: The preload tension on this chain can be set by adjusting the horizontal threaded bolt situated to the front of the drive system (adjuster "C" in figure 8). Again, as above, the correct tension will be applied to the chain when the tension spring is extended to **220mm** between mounting centres. Once set, retighten all locking nuts.

Rotor Chain: The preload tension on this chain can be set using the adjuster pivot arm mechanism on the left side of the machine directly below the auger shaft (adjuster "D" in figure 8). To access this mechanism open the top left cover. Open the nut from the M16 fixing bolt and using a spring clamp or a lever bar compress the spring and remove the bolt. Using the same method as before now compress the spring to approx **255mm**. Ensuring that the spring is seated correctly, replace the M16 bolt & nut in the appropriate position and tighten.

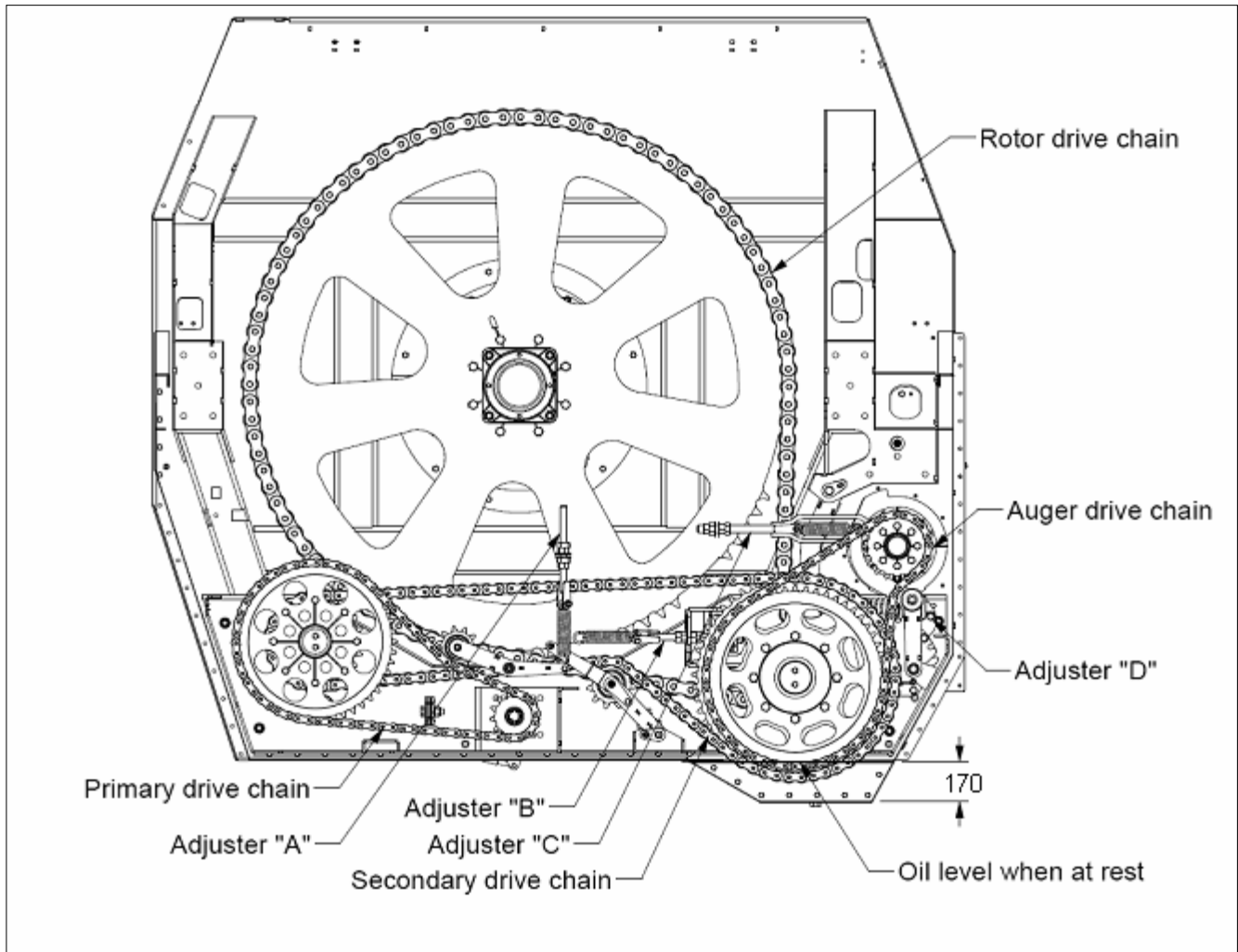


Figure 8: Keenan Mech-Fiber 400 drive system

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

- WARNING:**
- △ Larger drive chains exceed manual handling limits. If removing or refitting always use suitable lifting equipment.

Primary drive chain (540rpm input)	15kg
Primary drive chain (1000rpm input)	23kg
Secondary drive chain	42kg
Rotor drive chain	141kg
Auger drive chain	15kg

6.3 GREASING

- Bearings** - Each week apply grease to the ten main bearings. These are as follows:

Grease point 1	Input shaft bearing (front) (see figure 10)	
Grease point 2	Input shaft bearing (rear) (see figure 10)	
Grease point 3	Primary idler shaft bearing (front) (see figure 10)	
Grease point 4	Primary idler shaft bearing (rear) (see figure 10)	
Grease point 5	Secondary idler shaft bearing (front) (see figure 10)	
Grease point 6	Secondary idler shaft bearing (rear) (see figure 10)	
Grease point 7	Rotor bearing (front) (see figure 10)	
Grease point 8	Rotor bearing (rear) (see figure 11)	
Grease point 9	Auger bearing (front) (see figure 10)	
Grease point 10	Auger bearing (rear) (see figure 11)	

In addition the primary & secondary drive chain tensioner sprocket bearings (Grease points 11 & 12, figure 10) are to be greased monthly with only 1-2 pumps of grease. Do not over grease these bearings as it may damage the seals.

- Pivot pins** - Each week apply grease to the following points with grease nipples:

Grease point 13	Drawbar centre pivot pin (see figure 12)
Grease point 14	Drawbar spring to hanger pivot pin (see figure 12)
Grease point 15	Drawbar spring hanger top pivot pin (see figure 12)
Grease point 16	2 on each brake rod (8 in total)
Grease point 17	1 on each brake arm (4 in total)
Grease point 18	1 on each spring front pin (4 in total)
Grease point 19	1 on each spring centre pivot assembly (2 in total)
Grease point 20	Guillotine door front ram pin (top) (see figure 10)
Grease point 21	Guillotine door front ram pin (lower) (see figure 13)
Grease point 22	Guillotine door rear ram pin (top) (see figure 13)
Grease point 23	Guillotine door rear ram pin (lower) (see figure 13)
Grease point 24	Primary drive chain tensioner arm pivot pin (see figure 10)
Grease point 25	Secondary drive chain tensioner arm pivot pin (see figure 10)
Grease point 26	Rotor drive chain tensioner arm pivot pin (see figure 10)
Grease point 27	Auger drive chain tensioner arm pivot pin (see figure 10)
Grease point 28	Rotor drive chain adjuster arm pivot pin (see figure 10)
Grease point 29	Rotor drive chain tensioner spring inner seat bush (see figure 10)
Grease point 30	Rotor drive chain tensioner spring outer seat bush (see figure 10)
Grease point 31	Rotor drive chain tensioner spring seat shaft (see figure 10)

- VFC Door** - Check the VFC door is able to move freely each day and grease external slides as appropriate.

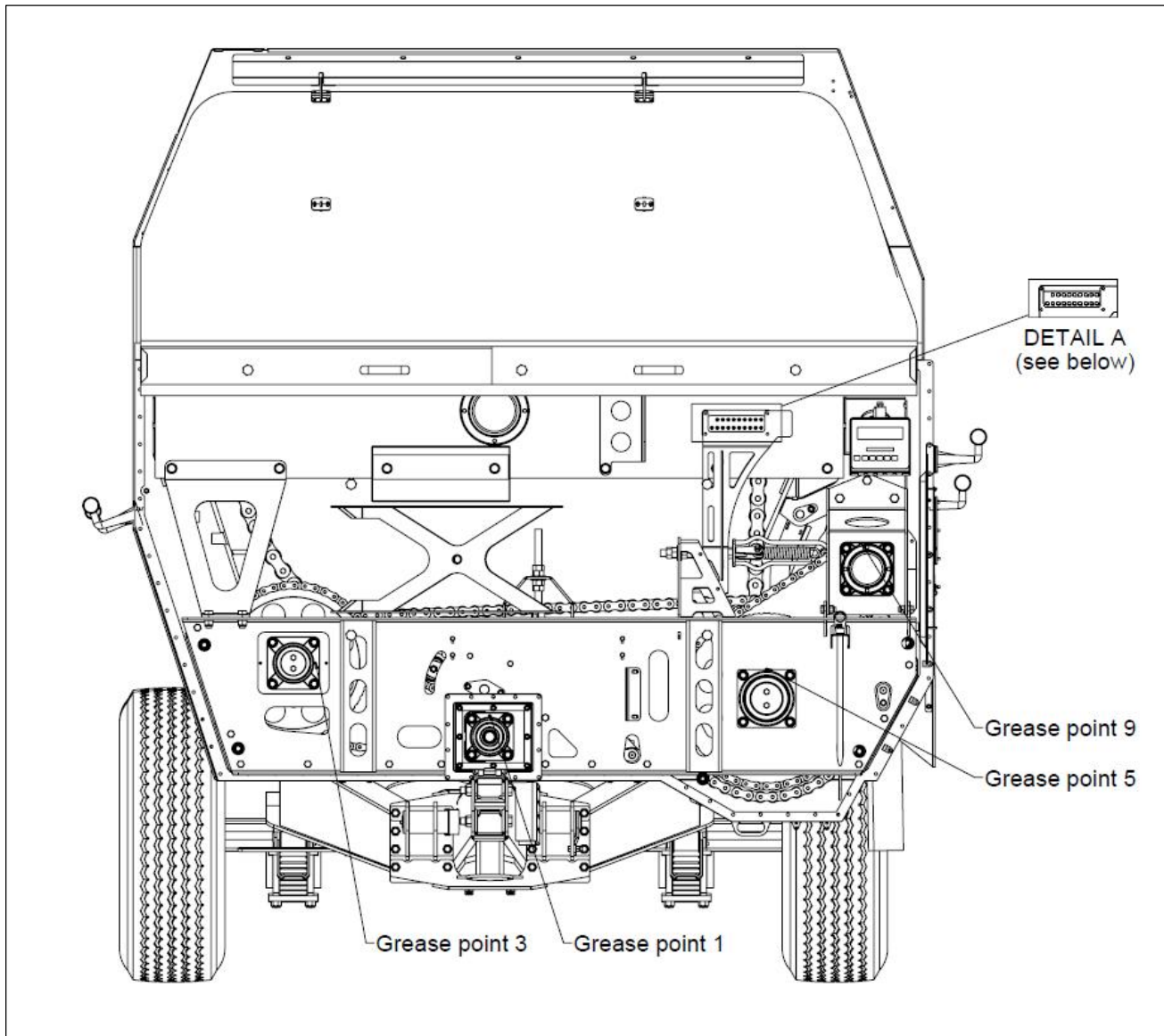


Figure 9: Front external greasing points

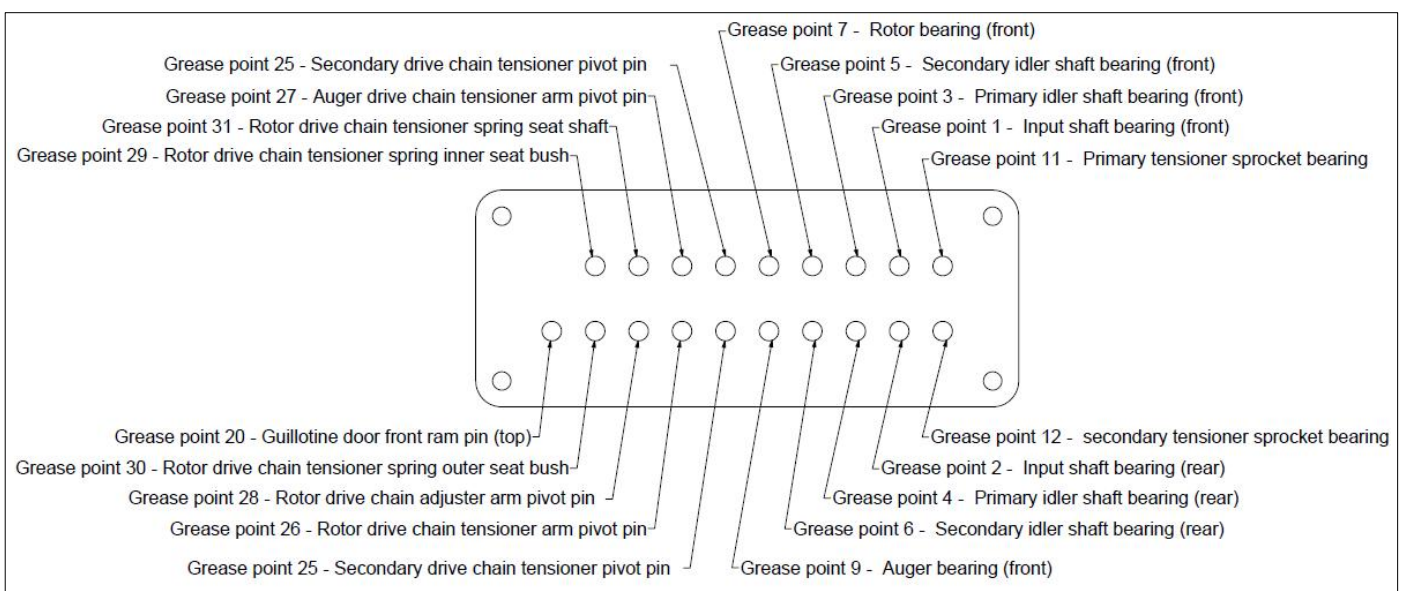


Figure 10: Front internal greasing points

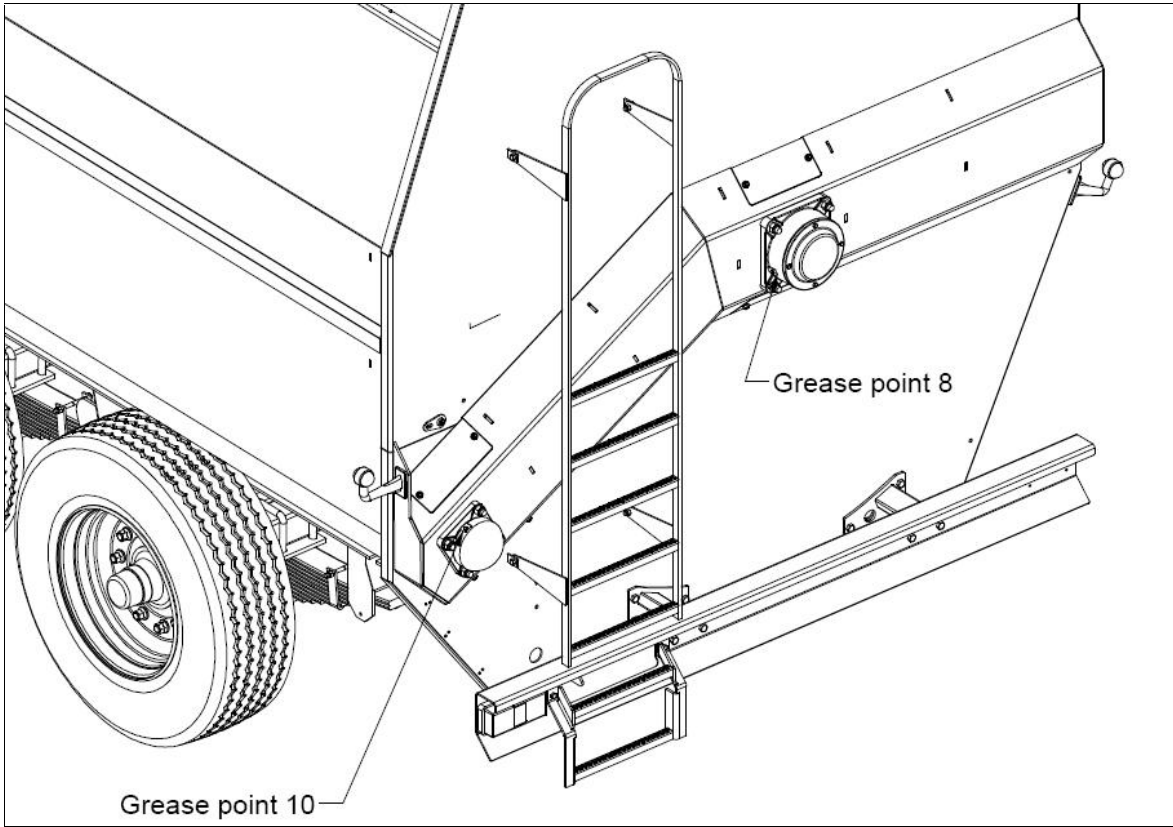


Figure 11: Rear greasing points

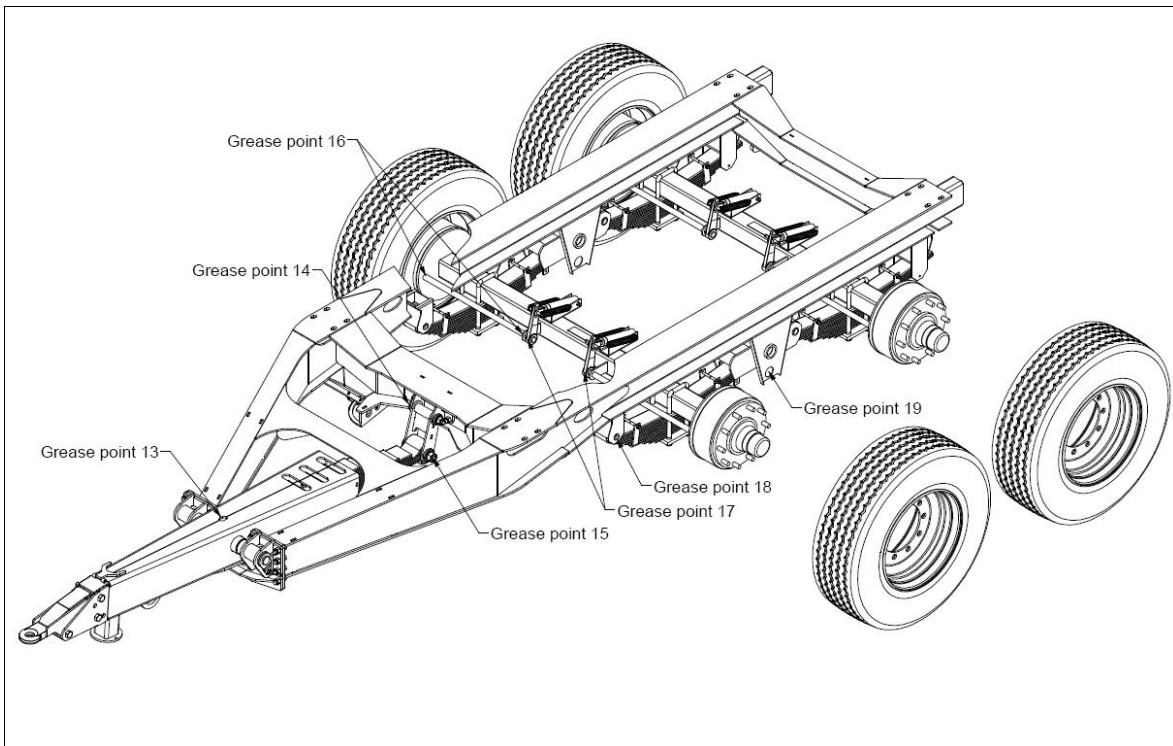


Figure 12: Chassis greasing points

Greasing

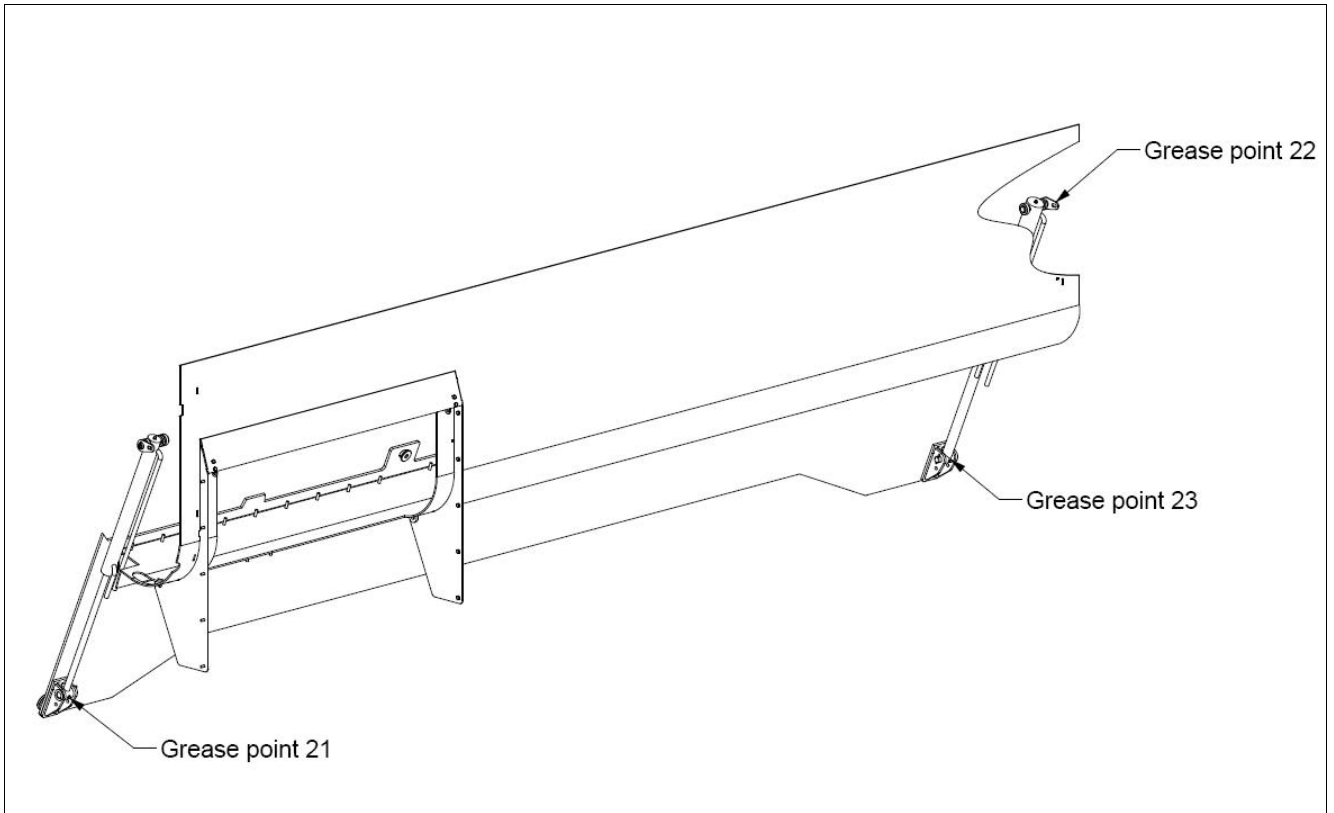


Figure 13: VFC Door greasing points

6.4 MAINTENANCE (FOR BALE PROCESSOR MODELS)

There are no grease points fitted to the Bale Processor creel bolt-on attachment. The simplicity of design and the use of self lubricating bushes negate the need for weekly greasing. However, the following should be checked on a monthly basis:

- 1:** The M16 tine bolt lock nuts should be checked for tightness, they should be tight enough to prevent the tine from having any side movement, but allow it fall under its own weight when let drop.
- 2:** The rubber buffer should also be checked for wear or signs of damage which may affect its shock absorption. Optimum tine to top knife gap is 235mm +/- 5mm, but may vary depending on application and the design of tine fitted. Please consult your local Service Centre for settings. The optimum distance from the ring to the top of the castellation is 20mm +0/-4mm on the rear of the ring (see figure 14).

Bale Processor

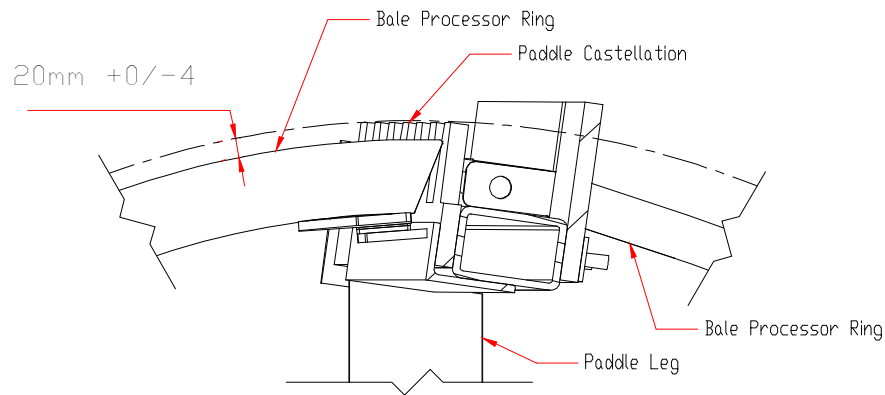


Figure 14: Series 2 Bale Processor ring to paddle tip setting

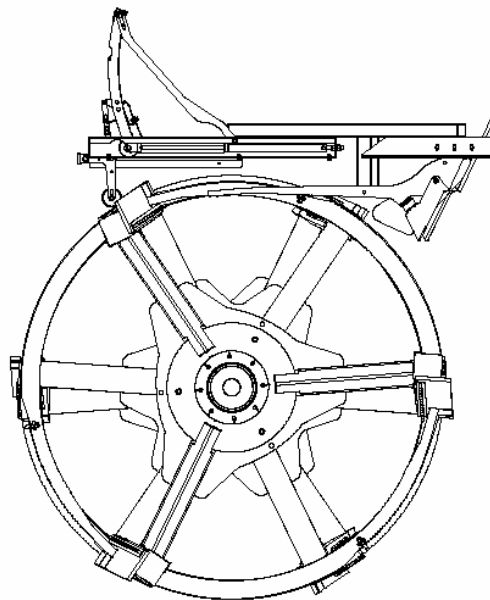


Figure 15: Series 2 Bale Processor rings (front view)

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

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

Note: The creel rubber is fitted to prevent material sitting on the top knife of the machine, preventing a build up of material 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 Processor arms.

Bale Processor

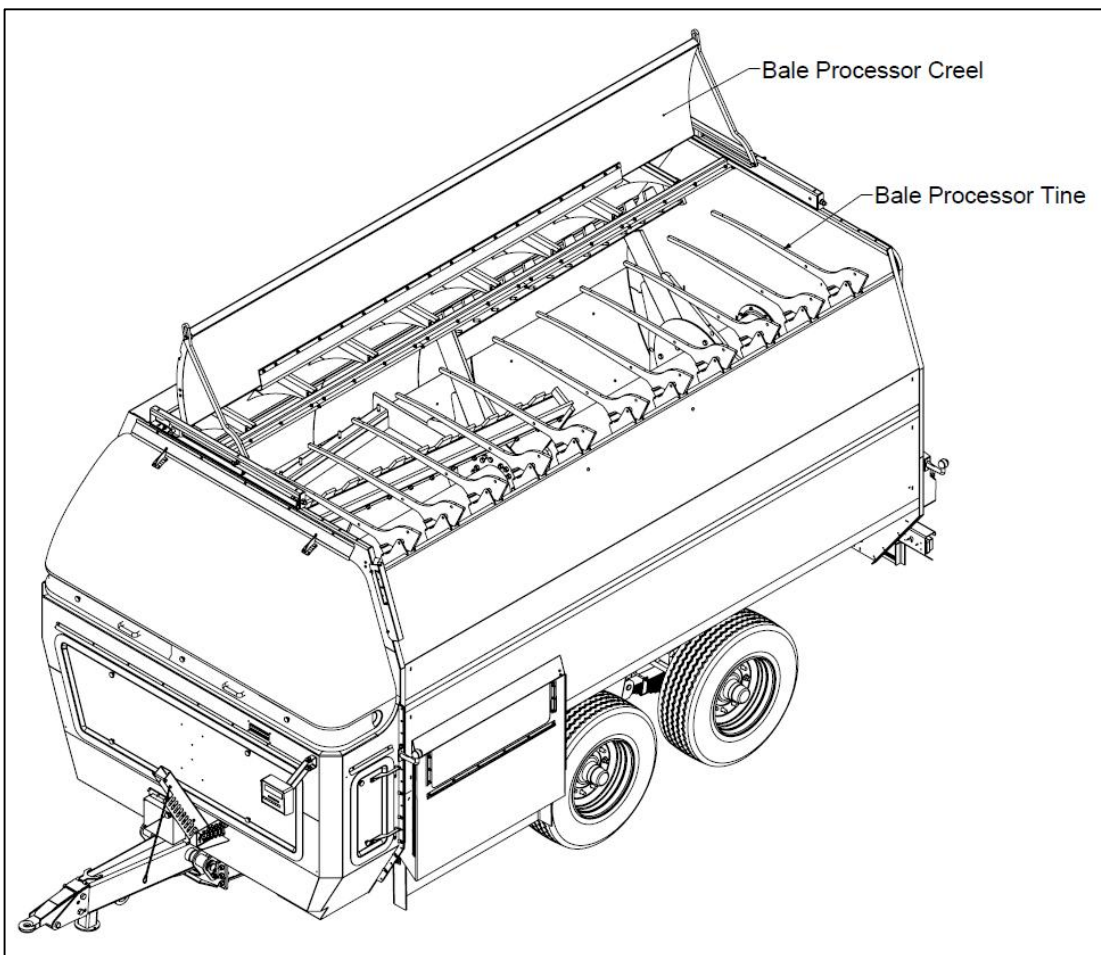


Figure 16: Mech-Fiber 400 with Bale Processor attachment

6.5 SHEAR BOLT

The following are the recommended shear bolts to be used with the Mech-Fiber 400 & Mech-Fiber 400 Bale Processor.

Machine type	Shaft	Shear Bolt
Mech-Fiber 400	T80 & V80	M12 x 65 x 4.6

Table 5: Shear bolt specification

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

6.6 NUTS AND BOLTS

- After the first day, and regularly thereafter, inspect wheel nuts.
- After the first week, and each week thereafter, check all nuts and bolts, including bearing nuts, for tightness.

Stud / Bolt type	FT/LB	N.M
M22	335	450
M20	260	350
M18	200	270

Table 6: General torque for wheel studs

U-Bolt Diameter (mm)	Tightening Torque (Nm)
18	230
22	450
24	500
27	600

Table 7: Recommended torque for U-bolts for tandem axles

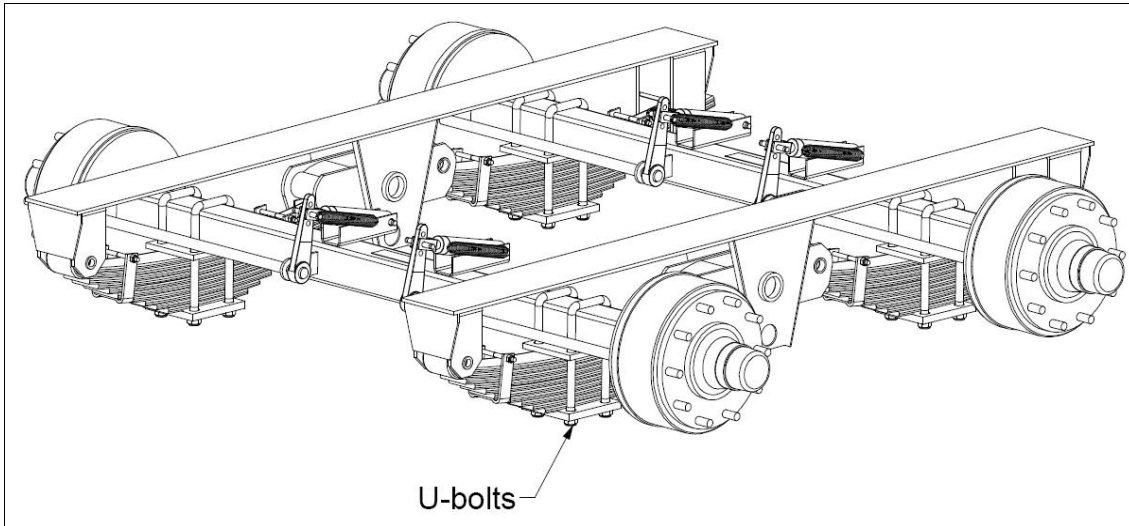


Figure 17: Tandem axle U-bolt locations

6.7 TYRES

Tyres

1. Each week check the tyres for wear and damage.
2. Each week check the tyre pressures. Optimum tyre pressures are shown in Table 8.

This information is given as guidance. If in doubt please contact Keenan service.

⚠ 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
15 x 22.5 (385/65 R22.5)	9	130
445/45 R19.5	9	130
385/55 R22.5	9	130

Table 8: Tyre pressure

6.8 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 castled nut 1/6 of a revolution, check for movement in the hub, and 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 feeder.

Changing a wheel

1. Park the mixer wagon on level ground and apply the handbrake.
2. 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.
3. 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.
4. Refit the wheel ensuring that the centre of the wheel is properly located on the hub and hand tighten wheel nuts.
5. Lower the machine and tighten the nuts to the recommended torque using suitable equipment.
6. Check the wheel nuts for tightness after 1 hour of use, repeating on a weekly basis.

Wheels

6.9 SIDE FEEDOUT ELEVATOR (WHERE FITTED)

An elevator system requires regular maintenance in order to achieve optimum 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 then adjust the tension by adjusting the tensioner nut on the side and run again to check.

The elevator surface needs to be kept clean at all times in order to avoid feed 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 there is no feed caught in the slideways.

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

Elevator

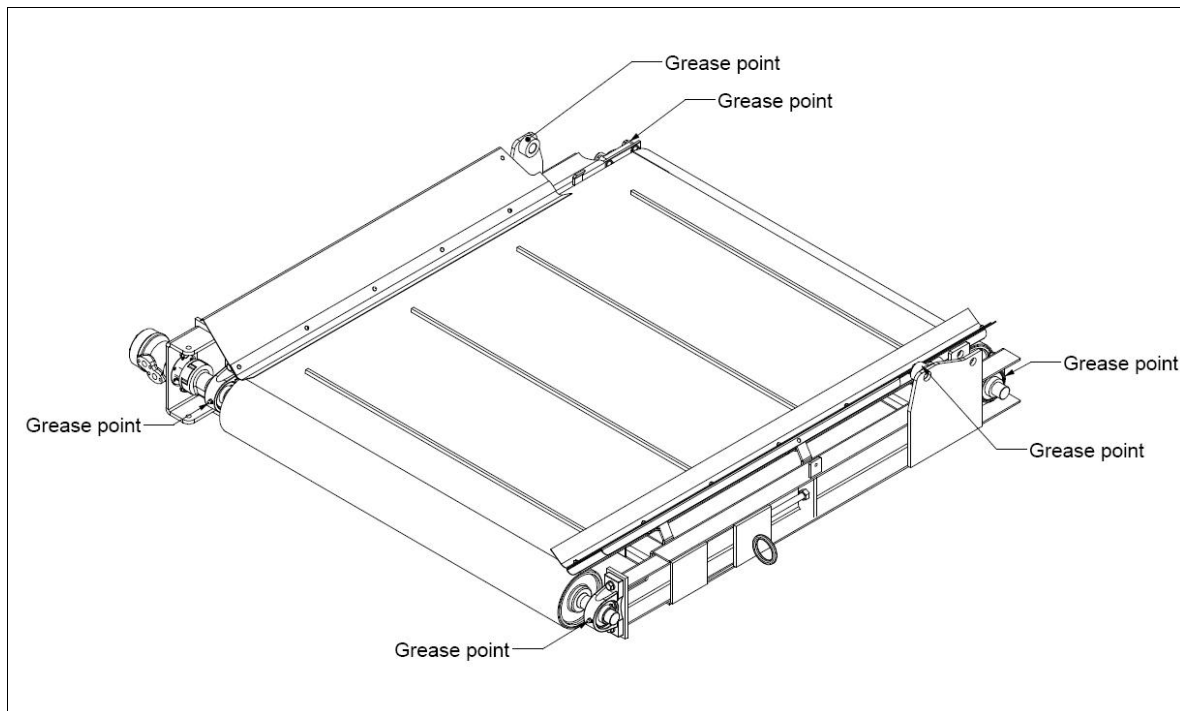


Figure 18: Side elevator greasing points

7. MAINTENANCE CHECKLIST

Daily

- Cleaning:** Clean all old feed from around body to prevent damage to paint and corrosion.
- VFC door:** Before using the machine, check that the door opens and shuts fully and operates smoothly.

Weekly (40 hrs)

- 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.
- Input shaft bearings:** Grease the drive input-shaft bearings (x 2)
- Primary idler shaft:** Grease the front and rear idler shaft bearings (x 2)
- Secondary idler shaft:** Grease the front and rear idler shaft bearings (x 2)
- Rotor Bearings:** Grease the front and rear rotor bearings (x 2)
- Feed discharge auger:** Grease the front and rear auger bearings (x 2)
- Chain tensioner arms:** Grease the pivot points on each of all 4 tensioner arms.
- Rotor chain tensioner spring seat:** Grease the pivot points of the spring seats & the centre shaft (x 3)
- Drawbar:** Grease centre pivot and spring hanger pins (x 3)
- Tandem Suspension:** each brake rod (x 8)
each brake arm (x 4)
each spring front pin (x 4)
each spring centre pivot assembly (x 2)
- Guillotine door (VFC):** Grease the door's hydraulic cylinders (x 4) and the slide plates (smear grease on surfaces)
- Drive chains:** Check condition of all 4 drive chains and their tensioners. Keep oil bath reservoir at recommended level with SAE 32 grade oil.
- Tyres:** Check that tyres are inflated to the recommended pressures and make sure the wheel nuts are tight.

Monthly (160 hrs)

- Chain tensioner sprockets:** Grease the primary & secondary chain tensioner sprocket bearings (x 2)
- Bale Processor arm buffer:** Check for cracks, splits or degradation.

Yearly (end of season)

- Drive chains:** Open oil bath drain bung and drain off existing oil. Wash off all dirt and old oil, using paraffin, then dry. Refill bath with new oil and run machine for 5-10 minutes to ensure all chains have been lubricated.

- Machine:** Before storage, wash the complete machine, then grease or oil all weekly lubrication points as above. Open the drain bung in the mixing chamber. 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 into a plastic bag.
- Wheels:** Remove and inspect wheel hub. Replace worn parts, redress and re-fit.
- Blades:** Blades need to be kept sharpened. This will have to be done without taking the temper (over heating) from the blades. If the machine is operated with blunt blades it will cause major stress on the drive system. Blades may have to be replaced when it is not practical to sharpen them.

WARNING:



Due to hazards involved in 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).

8. SPECIFICATION

8.1 WEIGHT

Model Weight		Mech-Fiber 400	
			<i>With Bale Processor</i>
Unladen	kgs	13,000	13,850
	lbs	28,660	30,533
Payload	kgs	10,000*	
	lbs	20,046*	
Gross	kgs	23,000	23,850
	lbs	50,706	52,580

Table 9: Machine weights

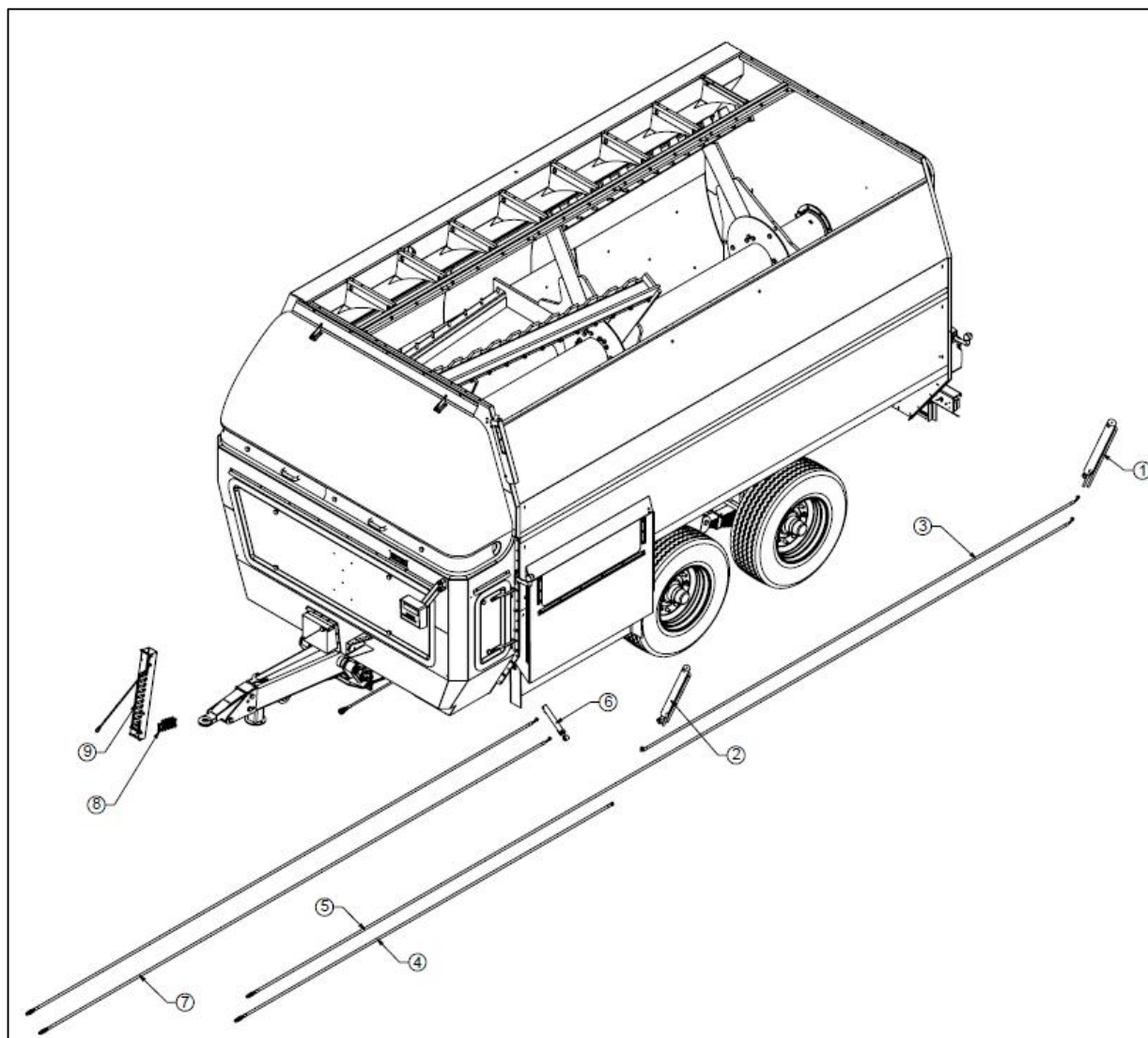
Note:

Weights may vary depending on exact specifications.

* The pre-mix or caustic soda capacity is 8000 kgs/17600 lbs, due to its nature in weight and density. Further advisements can be found in sections 5.3: Mixer Wagon Capacity & 5.4: Loading and Mixing.

9. PARTS LIST

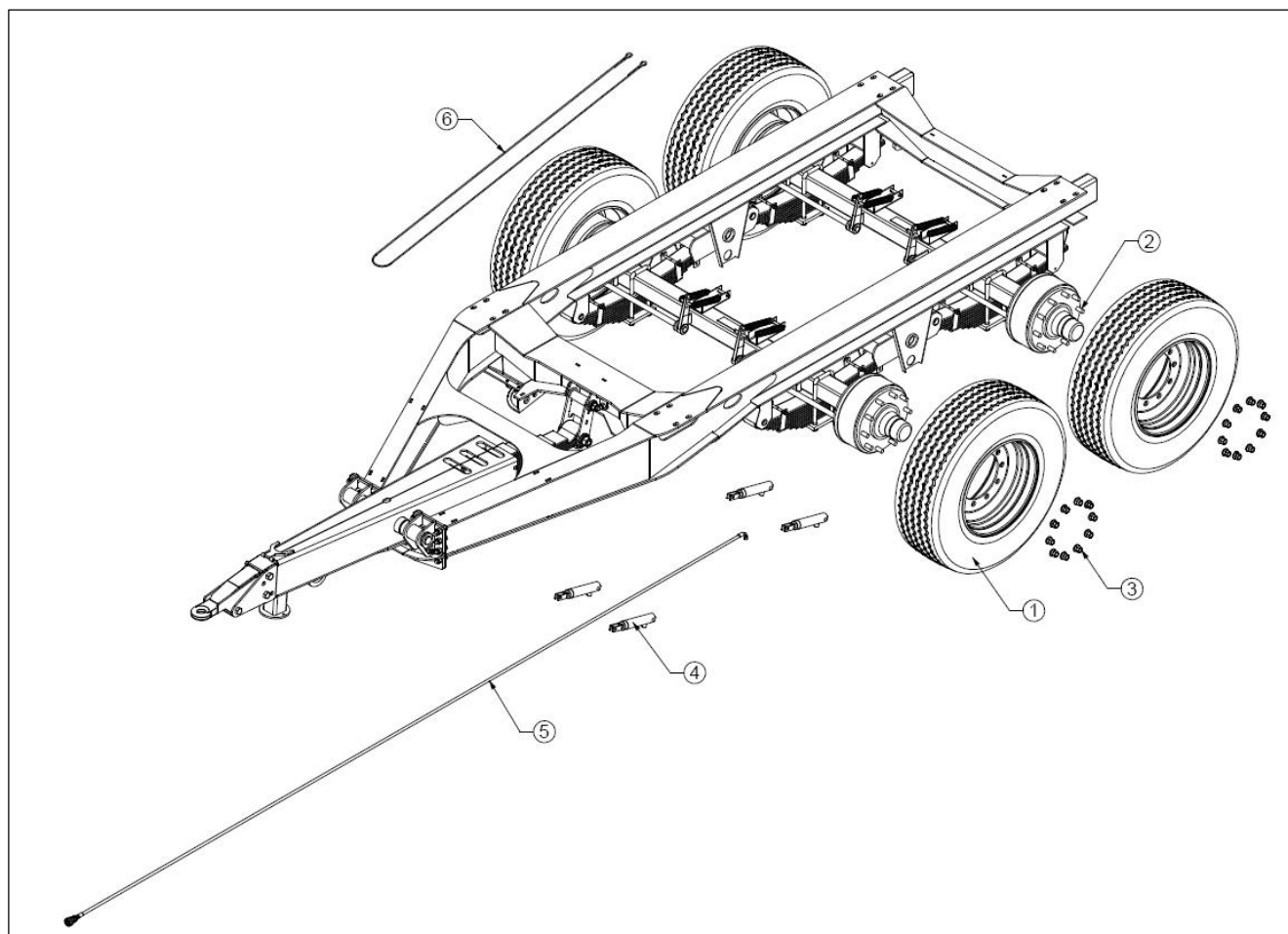
9.1 HYDRAULIC SYSTEM PARTS



Item:	P/N:	Qty:	Description:
1	701975	1	Rear V.F.C guillotine door ram
2	703857	1	Front V.F.C guillotine door ram
3	701513	1	Hydraulic hose – front V.F.C. door ram to rear V.F.C. door ram
4	701514	1	Hydraulic hose – tractor to front V.F.C. door ram
5	701515	1	Hydraulic hose – tractor to rear V.F.C. door ram
6	703591	1	6" stroke feed-out tray ram
7	703145	2	Hydraulic hose – tractor to feed-out tray ram
8	702869	10	M12 x 70 (4.6 grade) shear bolt
9	FP160-001-0094	1	Hydraulic hose arm

Table 10: Hydraulic system

9.2 CHASSIS PARTS



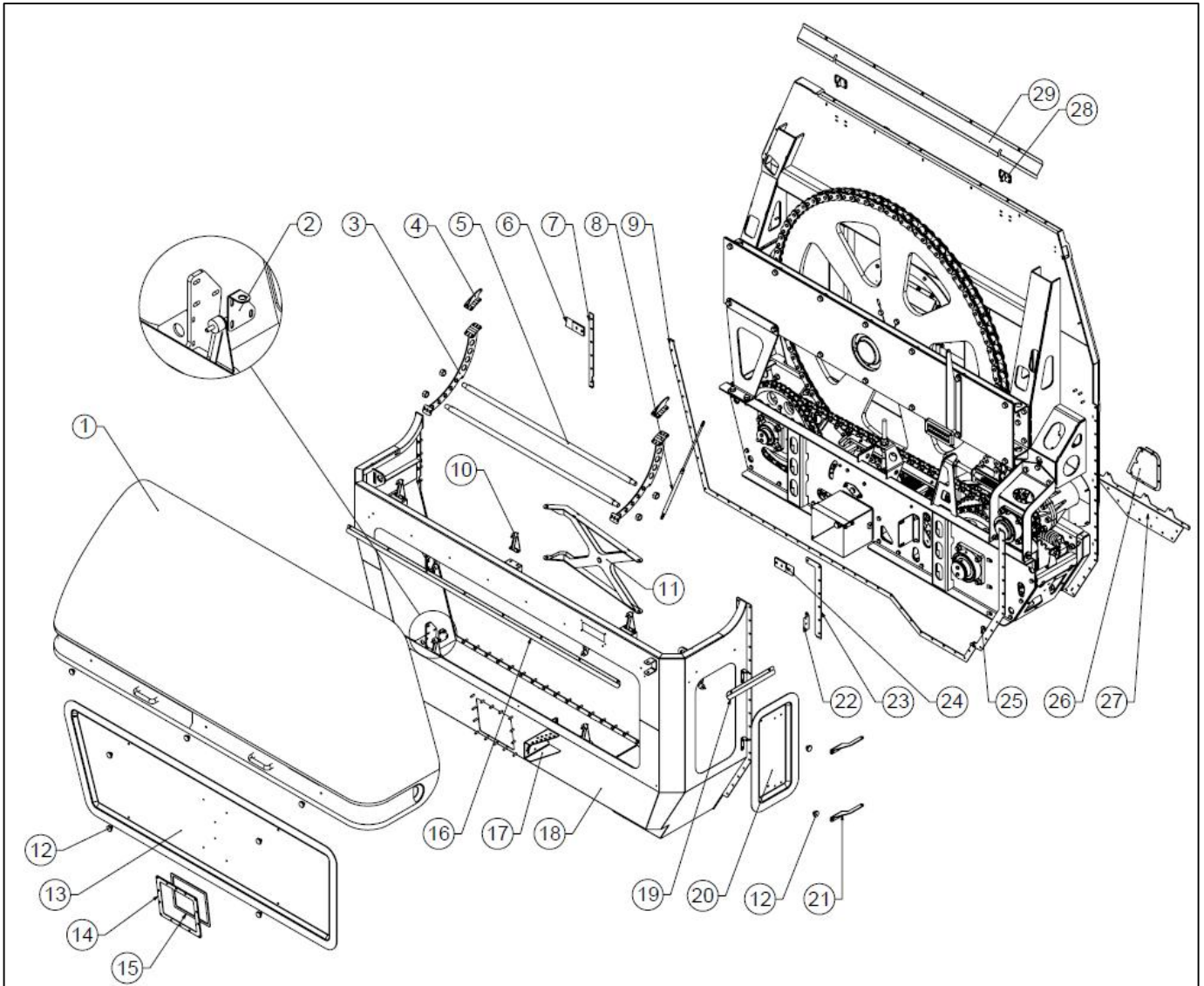
Parts list

Item:	P/N:	Qty:	Description:
1	700477	4	Wheel & tyre (385/65 R22.5 as standard)
2	700307	40	M22 wheel stud
3	700306	40	M22 wheel nut
4	700832	4	Hydraulic brake ram
5	702107	1	Hydraulic hose – tractor to brake ram
6	702034	1	4mm diameter handbrake cable
Optional Parts:			
-	FP280-001-0162	1	Heavy duty hydraulic jack mounting bracket
-	704154	1	Towing Eye Bush, 32.5mm ID
-	702324	1	Towing Eye Bush, 30mm ID

Table 11: Chassis parts

9.3 FRONT COVER PARTS

Parts list



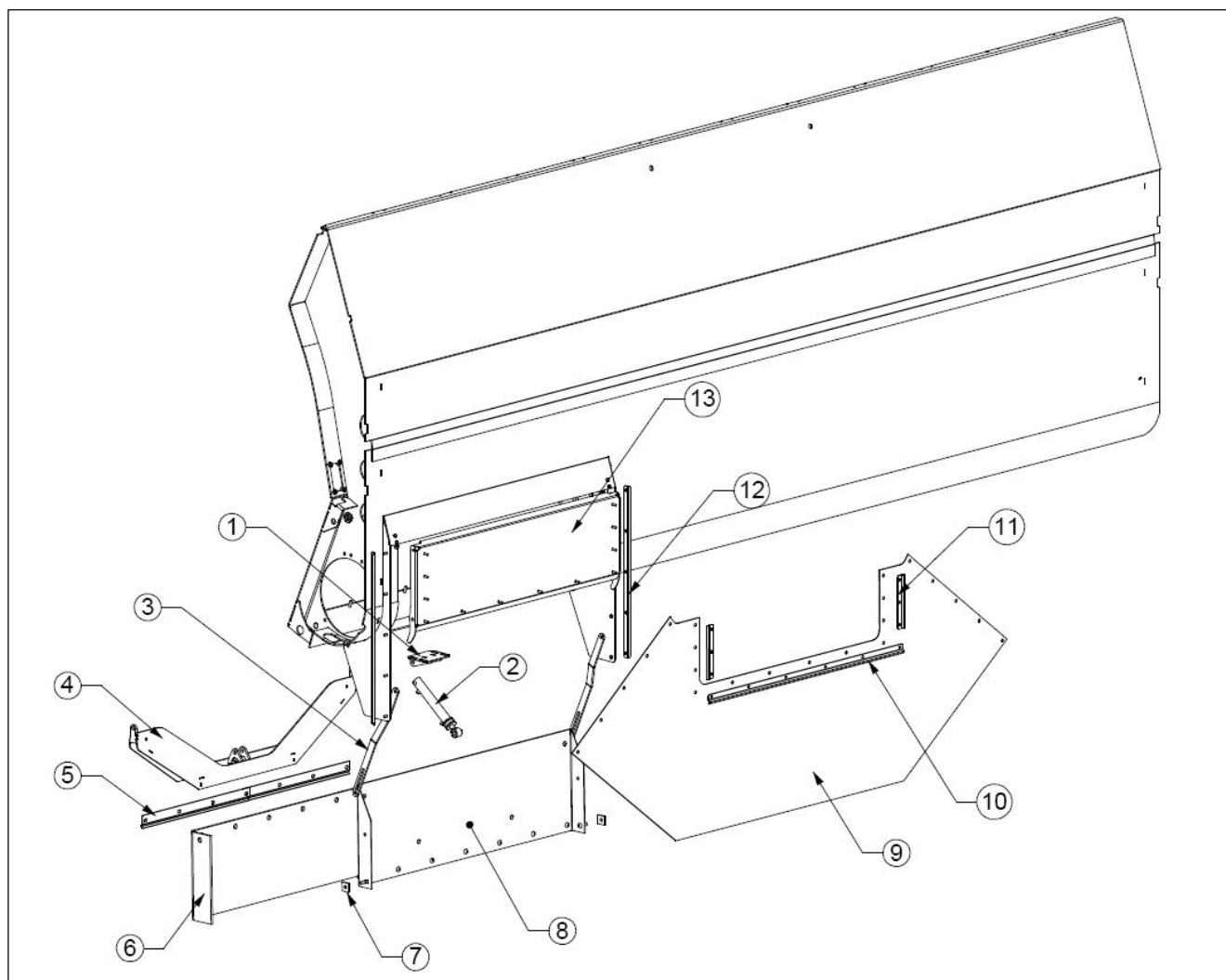
Item:	P/N:	Qty:	Description:
1	FP280-037-0111	1	Top front cover assembly 1 with edging seal
2	FP280-037-0167	2	Lower front cover lower hinge plate
3	FP280-037-0146	2	Top front cover top strut mount assembly
4	FP280-037-0142	2	Top front cover hinge assembly
5	FP280-037-0190	2	Top front cover inner brace plate tie tube assembly
6	FP280-037-0132	1	Front guard to front panel blending wedge (right side)
7	FP280-037-0153	1	Lower front guard rear flange right side seal
8	704104	1	Gas strut v2731 (650mm open, 1000n, 280mm stroke)
9	FP280-037-0152	1	Lower front guard rear flange lower seal
10	FP280-037-0183	8	Lower front cover buffer bracket assembly
11	FP280-037-0149	1	Lower front cover swinging arm assembly
12	704439	9	M8 star control knob
13	FP280-037-0117	1	Lower front cover assembly 3
14	FP280-037-0136	1	Input shaft shroud rubber seal retainer
15	FP280-037-0137	1	Input shaft shroud outer seal
16	FP280-037-0185	1	Lower front cover shroud plate
17	FP280-025-0003	1	Hydraulic hose holder mounting plate
18	FP280-037-0193	1	Drive system lower front guard assembly 2
19	FP280-037-0186	1	Lower side cover shroud plate
20	FP280-037-0118	1	Lower left side cover assembly 1

21	FP280-037-0170	2	Left side front cover hinge plate
22	FP280-037-0187	1	Front left side light mounting plate
23	FP280-037-0154	1	Lower front guard rear flange left side seal
24	FP280-037-0131	1	Front guard to front panel blending wedge (left side)
25	FP280-037-0188	5	Front left side light cable holder
26	FP280-037-0097	1	Secondary idler shaft rear bearing access cover assembly
27	FP280-037-0128	1	Drive system lower rear cover assembly
28	FP280-037-0139	2	Top front guard fixed hinge assembly
29	FP280-037-0138	1	Top front cover shroud plate

Table 12: Drive system covers

9.4 FEEDOUT PARTS

Parts list

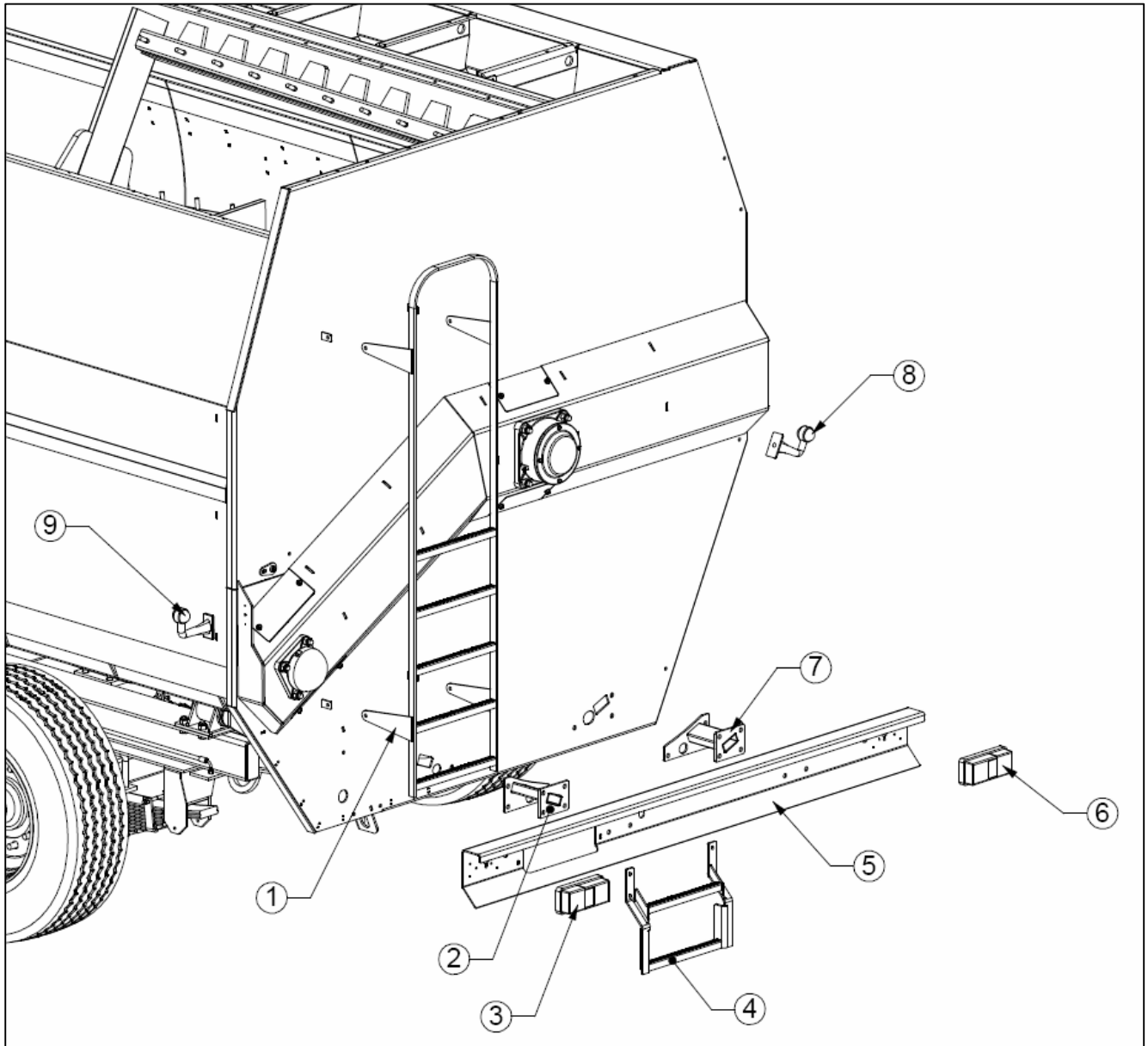


Item:	P/N:	Qty:	Description:
1	FP280-006-028	1	Feed-out tray ram upper mounting bracket assembly
2	703591	1	6" stroke feed-out tray ram
3	FP280-006-027	2	Feed-out frame link arm
4	FP280-006-025	1	Feed-out tray subframe assembly
5	EF206-79	2	Feed-out tray rubber extension retainer
6	701403	1	Feed-out tray rubber extension
7	EF106-79	2	Feed-out tray rubber extension side retainer
8	FP280-006-0029	1	Feed-out tray panel
9	703678	1	Feed-out shroud rubber curtain
10	FP280-006-055	1	Feed-out door horizontal rubber retainer
11	EF106-195	2	Feed-out door rubber side retainer
12	EF106-157	2	Feed-out shroud rubber side retainer
13	FP280-006-0029	1	Feed-out door assembly

Table 13: Feed-out parts

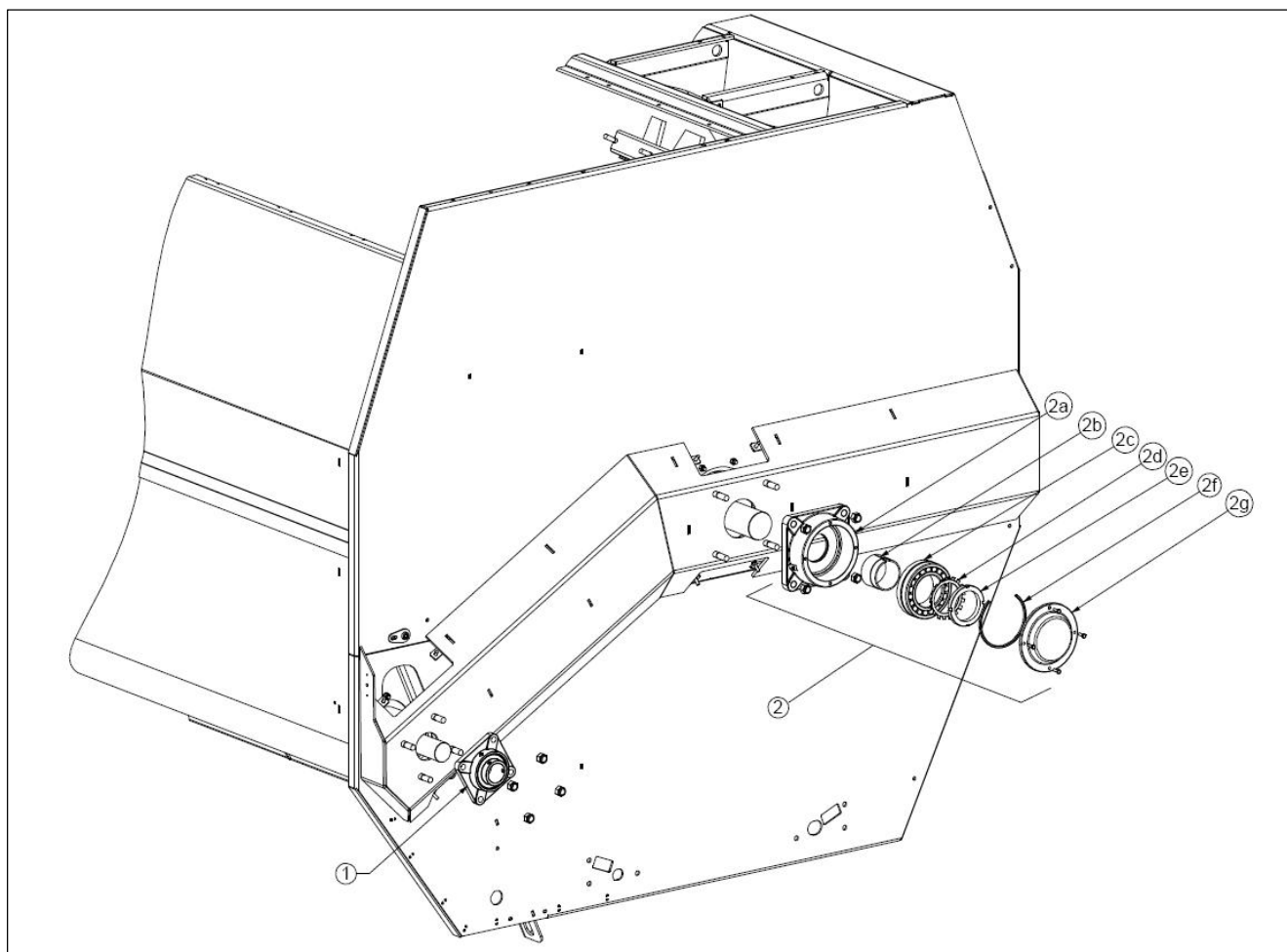
9.5 REAR PANEL PARTS

Parts list



Item:	P/N:	Qty:	Description:
1	FP280-013-100	1	Rear inspection ladder (top section)
2	FP280-003-0044	1	Bumper bar mount plate assembly (LHS)
3	704090	1	Rear light cluster (LHS)
4	FP280-013-007	1	Rear inspection ladder (bottom section)
5	FP280-003-031	1	Bumper bar
6	704089	1	Rear light cluster (RHS)
7	FP280-003-0048	1	Bumper bar mount plate assembly (RHS)
8	703842	2	Side marker light (RHS)
9	703841	2	Side marker light (LHS)

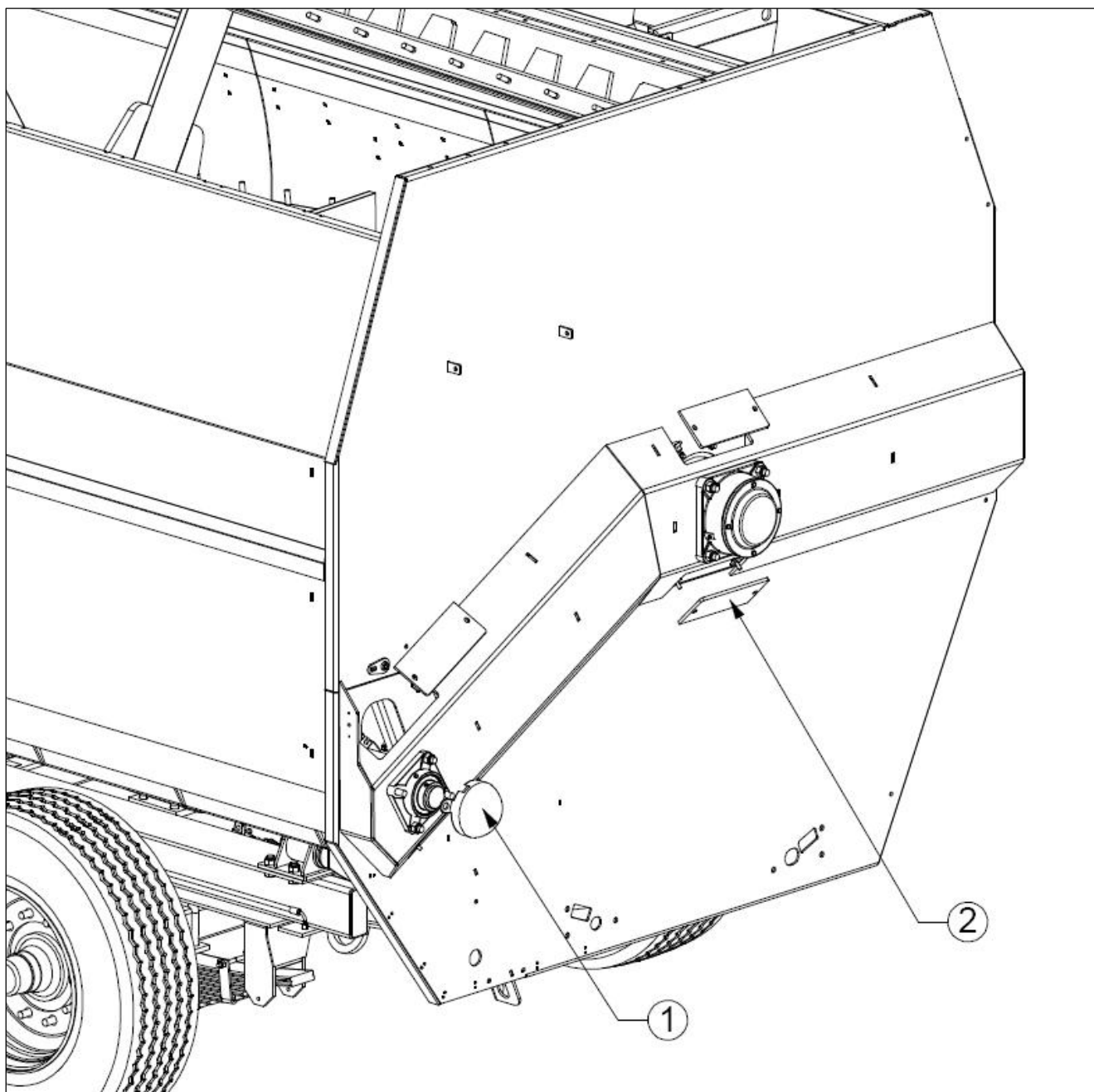
Table 14: Ladders & lights



Item:	P/N:	Quantity:	Description:
1	700842	1	UCF X14, 70mm bearing with cast housing
2	FP280-007-0085	2 (1 Front & 1 Rear)	Rotor bearing assembly
2a	703754-1	1	F522A rotor front bearing housing
2b	703755-1	1	H322 tapered sleeve 100mm ID
2c	703756	1	22222 bearing insert (tapered bore)
2d	703755-3	1	H322 adaptor sleeve castellated washer
2e	703755-2	1	H322 adaptor sleeve ring nut
2f	704054	1	Bearing spacer ring, SR200 x 10
2g	703754-2	1	F522A bearing housing cover

Table 15: Rear bearings

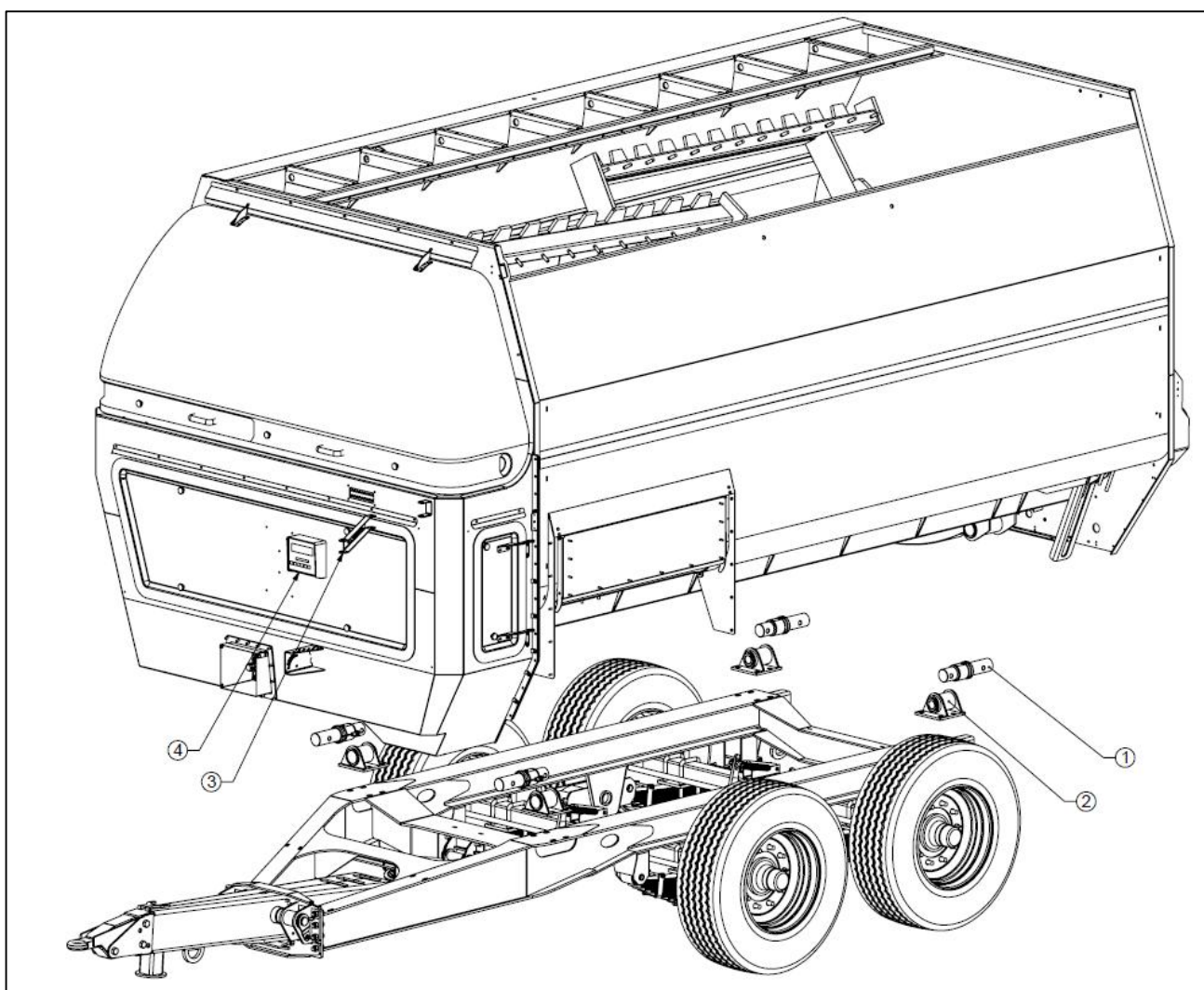
Parts list



Item:	P/N:	Qty:	Description:
1	701273	1	Cast aluminium bearing cover - 165mm ID
2	FP280-003-037	4	Rear auger & rotor bearing access slot cover plate

Table 16: Rear covers

9.6 WEIGHING SYSTEM PARTS

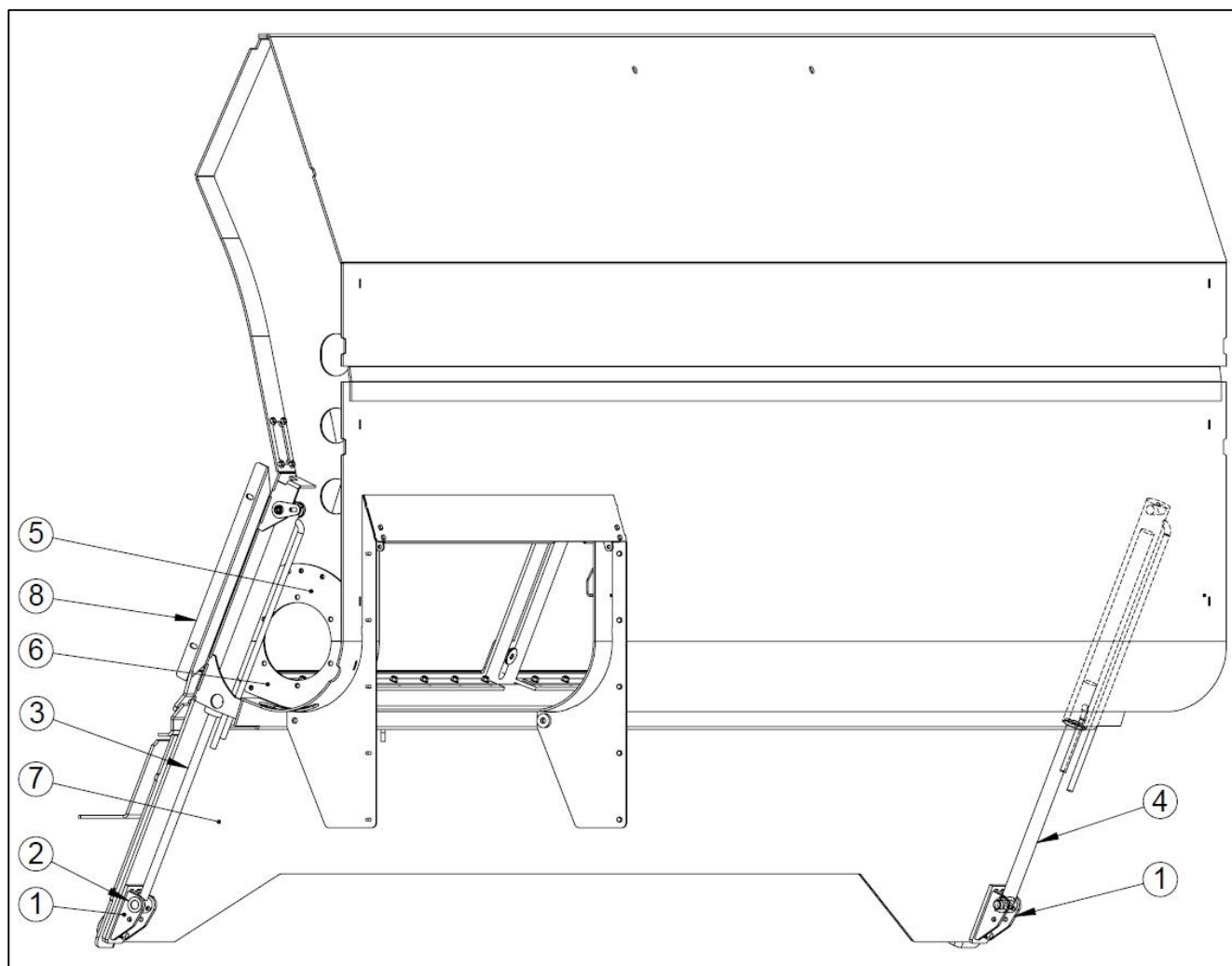


Parts list

Item:	P/N:	Qty:	Description:
1	703671	4	Dinamica Generale weighbar 2.875" dia, 9350mm cable
2	FP280-001-081	4	Weighbar mounting bracket assembly
3	EF102-117	2	Weighbox holder arm
4	703353	1	Dinamica Generale STAD 04 Weighbox
5	703352	1	Power cable (not shown in diagram)

Table 17: Weighing system

9.7 GUILLOTINE DOOR PARTS

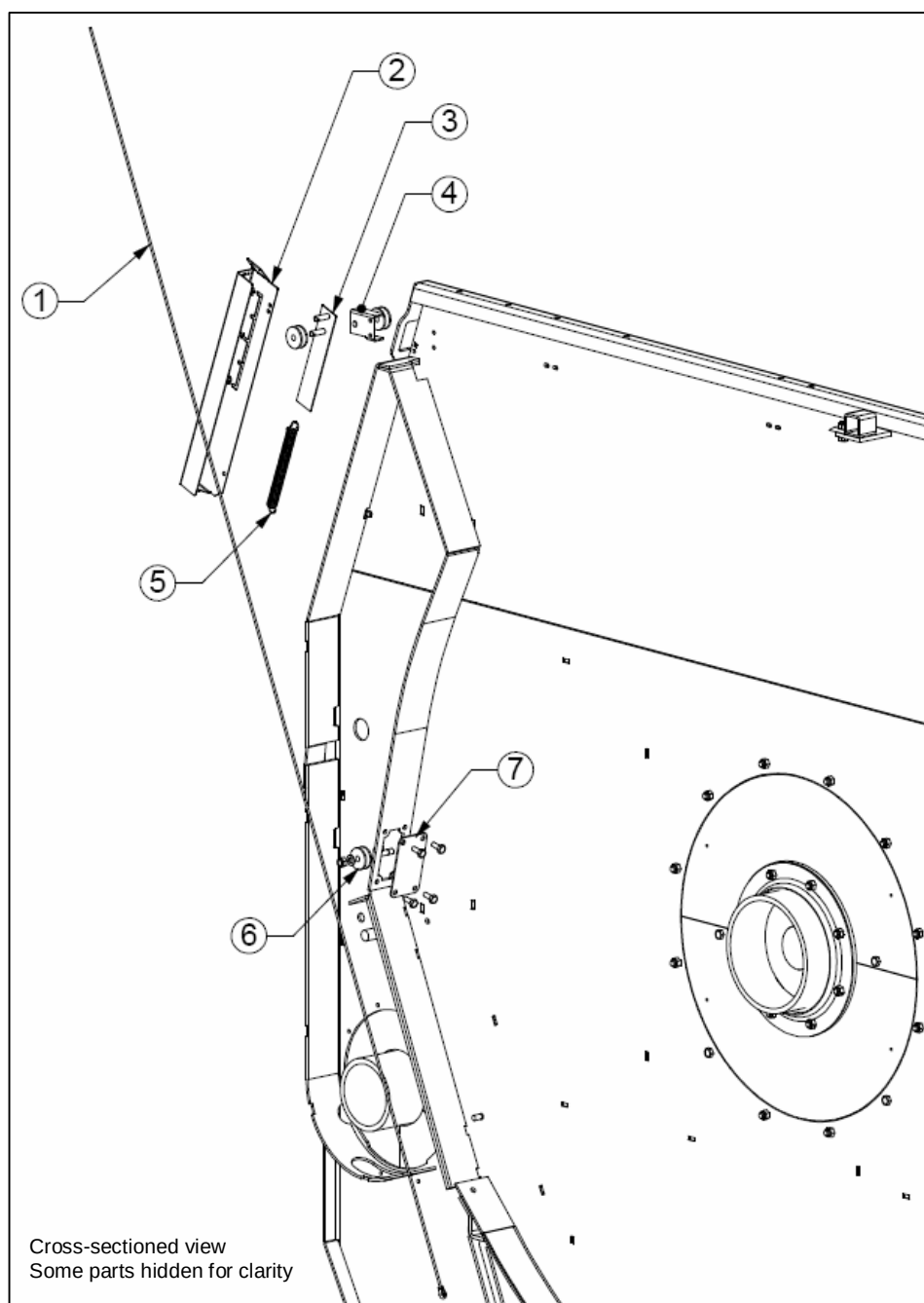


Item:	Qty:		Description:
1	FP280-010-013	2	Guillotine Door Lower Ram Bracket
2	701591	2	Guillotine Door Bottom Hydraulic Cylinder Pin
3	703857	1	Front Guillotine Door Hydraulic Cylinder (Small)
4	701975	1	Rear Guillotine Door Hydraulic Cylinder (Big)
5	FP280-002-050	1	Auger Upper Cover Flange Plate
6	FP280-002-052	1	Auger Lower Cover Flange Plate
7	FP160-010-0001	1	Guillotine Door (V.F.C. Door)
8 *	FP280-010-009	2	Guillotine Door Front & Rear End Retainer

Table 18: Auger chamber assembly

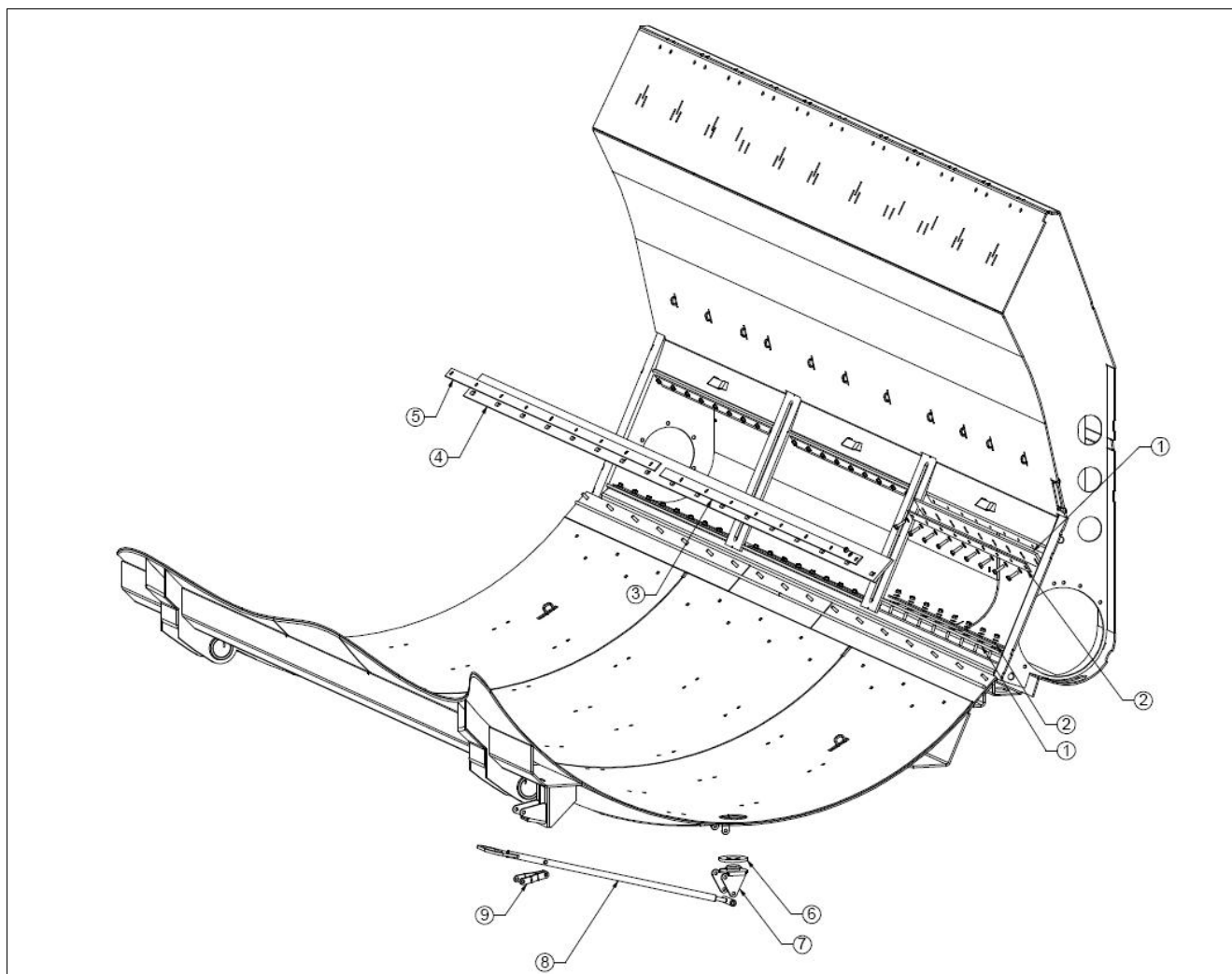
* Rubber seal for guillotine door ends (not shown) is part number 704876.

Parts list



Item:	P/N:	Qty:	Description:
1	FP280-010-0022	1	Guillotine door indicator wire rope (K280)
2	RD8010-58	1	V.F.C. door indicator cover
3	RD8010-61	1	V.F.C. door indicator slider assembly
4	FP280-010-0021	1	V.F.C indicator pulley wheel plate assembly 1
5	703625	1	6" Extension spring 22mm OD, 2mm wire
6	701559	1	V.F.C. door indicator pulley wheel (50mm OD, 20mm wide)
7	FP280-006-0179	1	Guillotine door indicator cable access slot cover plate

Table 19: V.F.C. door indicator



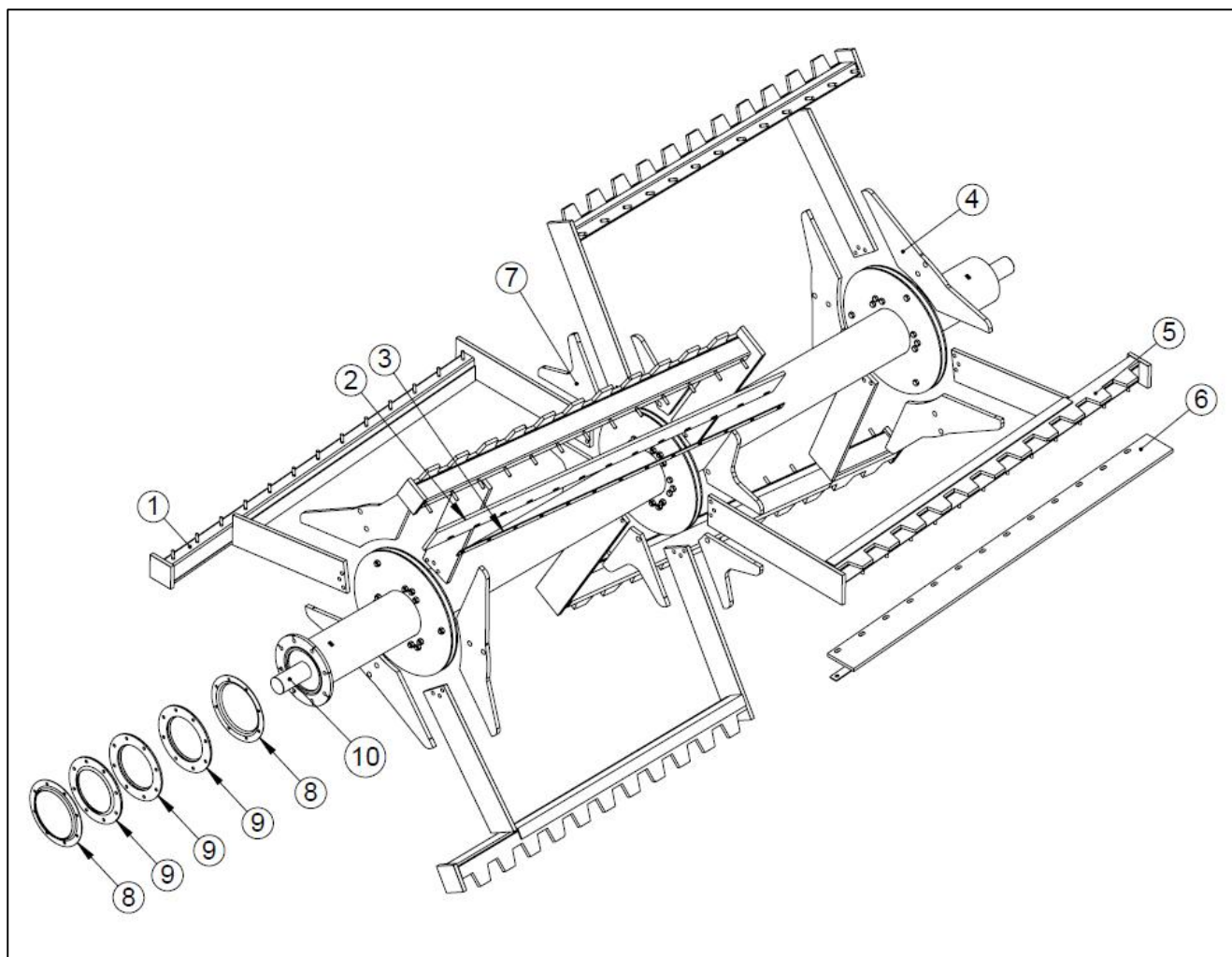
Parts list

Item:	P/N:	Qty:	Description:
1	701199	6	Guillotine door outer seal rubber
2	FP200-006-0076	6	Guillotine door shroud seal retaining flat
3	FP280-004-0040	1	Guillotine door inner seal retainer (front)
4	701293	1	Guillotine door inner seal
5	FP280-004-0039	1	Guillotine door inner seal retainer (rear)
6	703246	1	Drain bung rubber seal
7	FP280-004-0041	1	Drain bung cover plate assembly 1
8	FP280-004-021	1	Drain bung lever assembly 2
9	FP280-004-029	2	Drain bung lever toggle link

Table 20: Body seals

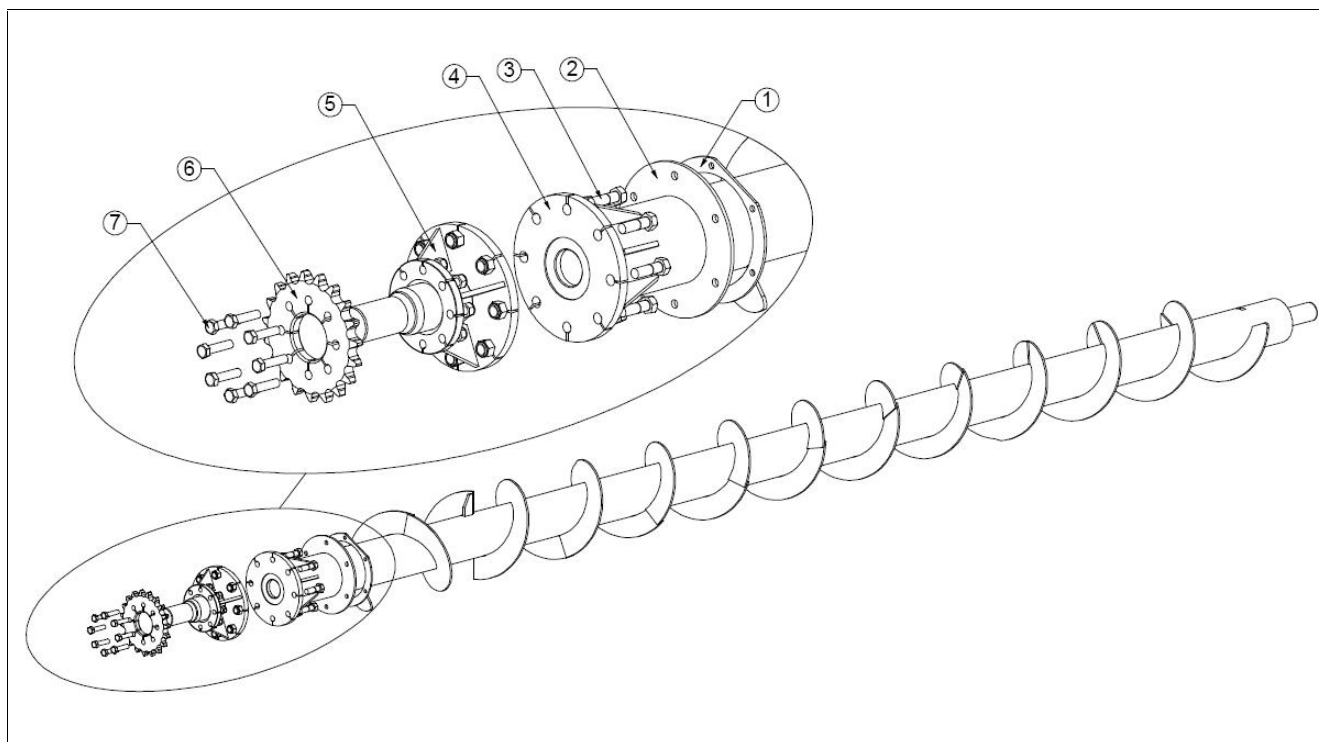
9.8 ROTOR & AUGER PARTS

Parts list



Item:	P/N:	Qty:	Description:
1	FP280-008-0073	3	Front paddle assembly
2	702289	1	Front paddle rubber (2500mm x 200mm x 20mm)
3	FP200-008-0006	2	Paddle rubber retainer
4	FP280-007-0091	6	Front & rear paddle block
5	FP280-008-0074	3	Rear paddle assembly
6	702290	1	Rear paddle rubber (2500mm x 200mm x 20mm)
7	FP280-007-0090	6	Centre paddle block
8	FP280-007-063	2	Rotor seal pressed retainer
9	703655	3	Rotor seal rubber
10	FP280-007-0100	1	Rotor assembly

Table 21: Rotor & Paddles assembly

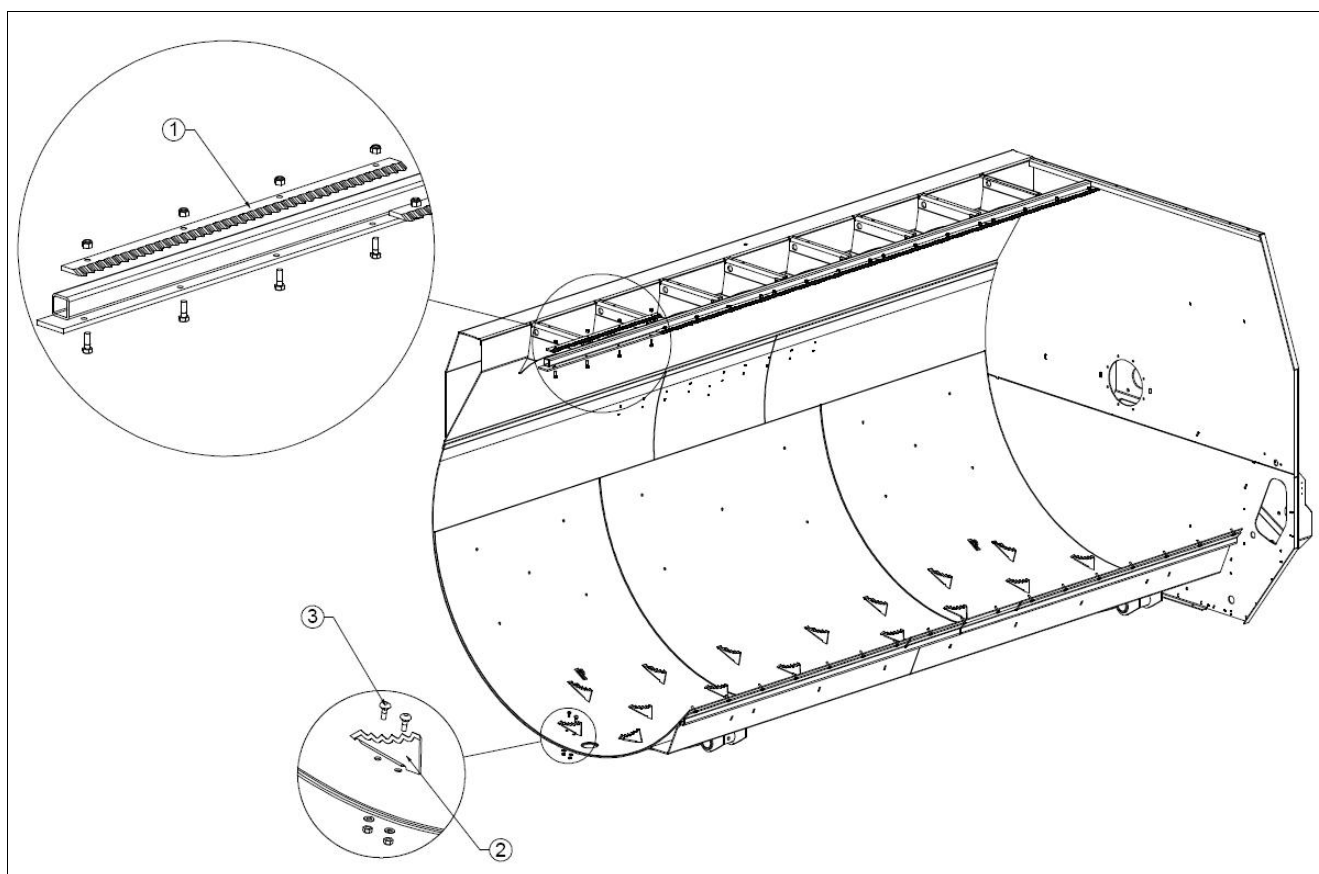


Parts list

Item:	P/N:	Qty:	Description:
1	FP280-002-055	2	Auger rubber seal retainer
2	FP280-009-0070	2	Auger front seal rubber
3	700297	8	M20 x 65 bolt
4	FP280-009-0080	1	Auger assembly 1
5	FP280-009-0083	1	Auger front stub shaft assembly
6	FP280-048-0342	1	19-tooth, ASA120 sprocket (Auger driven)
7	700297	8	M20 x 65 bolt

Table 22: Auger assembly

9.9 TOP KNIFE & BLADE PARTS

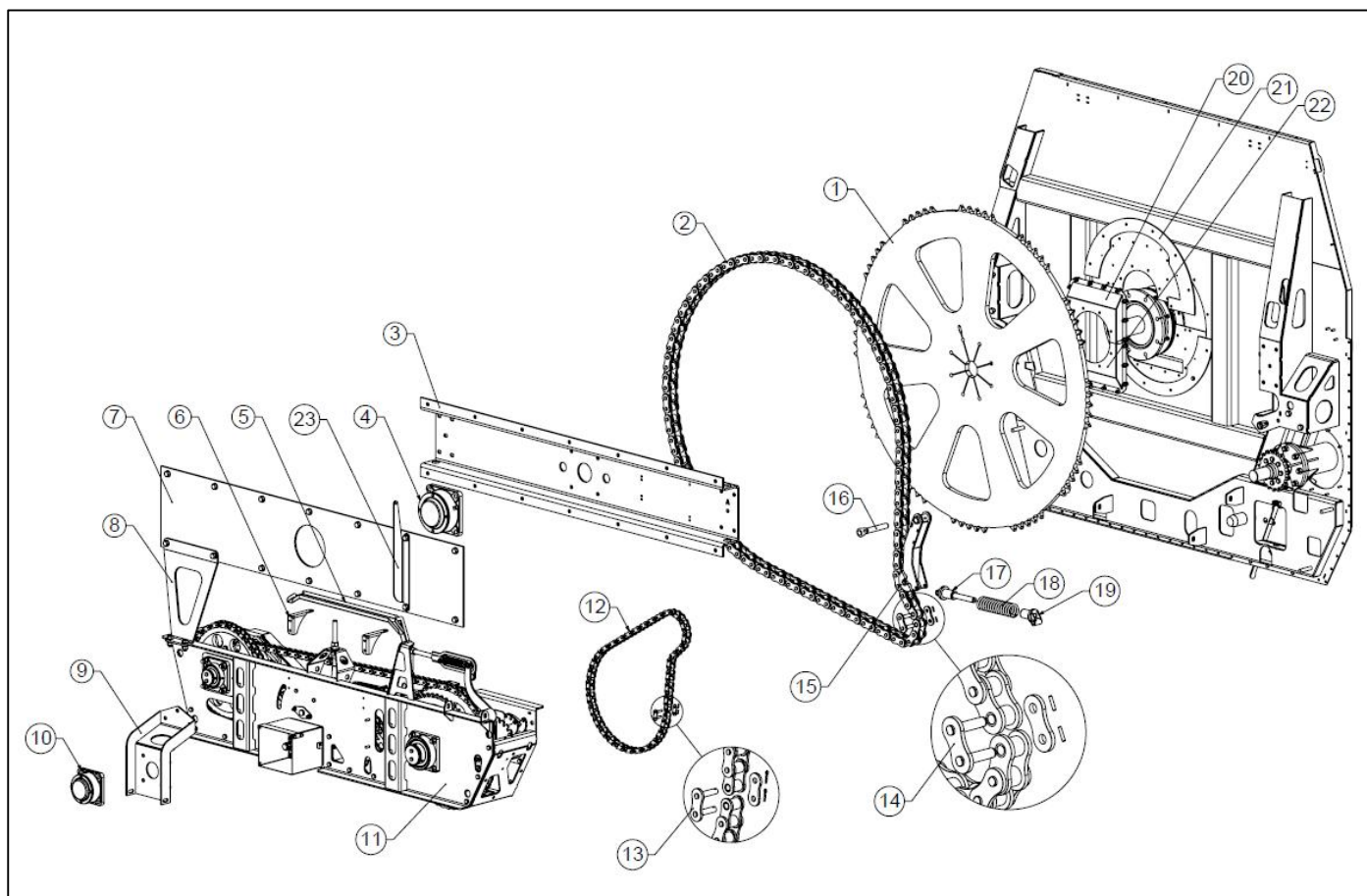


Parts list

Item:	P/N:	Qty:	Description:
1	701518	5	Top knife
2	703955	30	Body blade
3	700227	60	M10 x 30 cuphead screw

Table 23: Blades

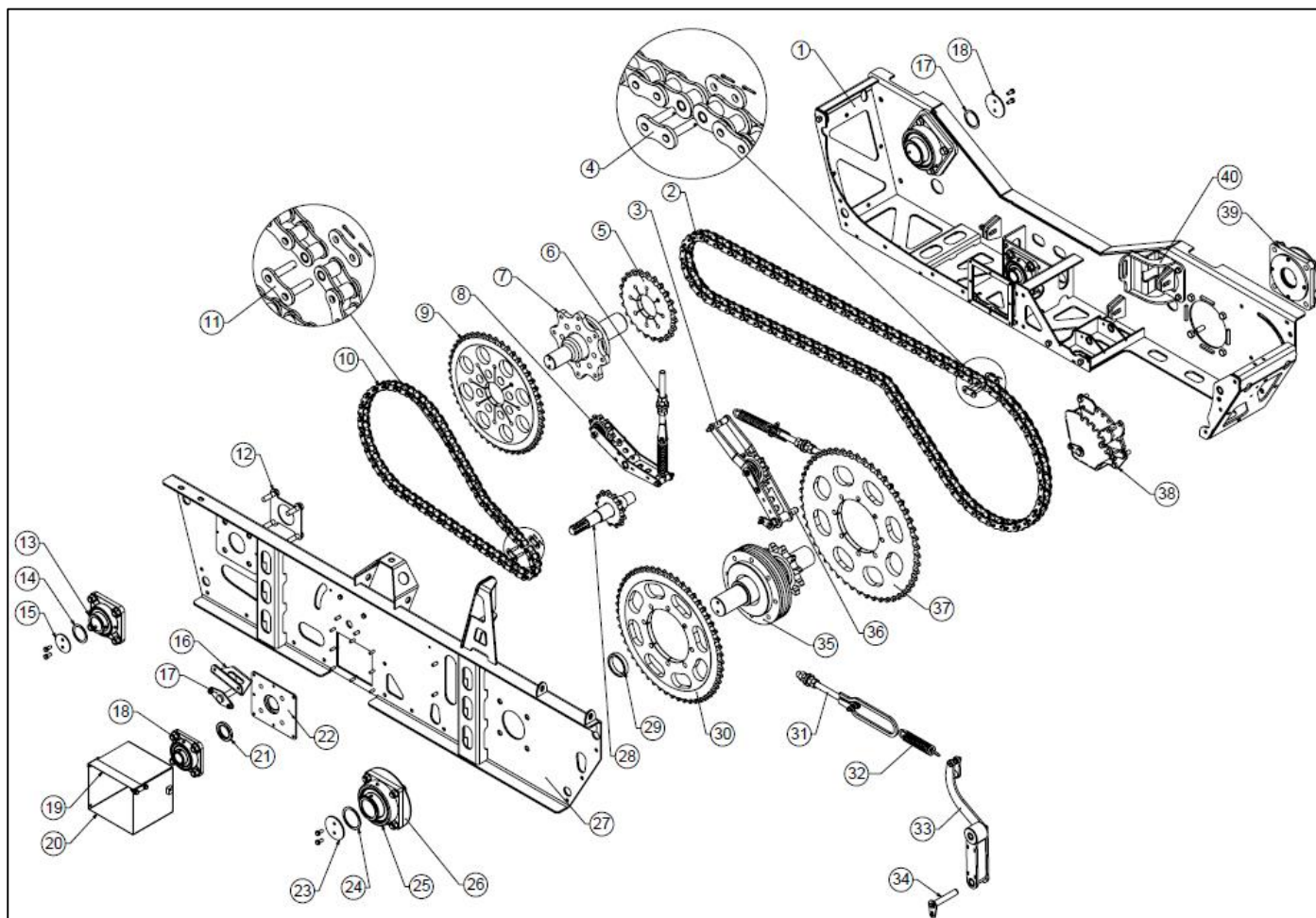
9.10 DRIVE SYSTEM PARTS



Item:	P/N:	Qty:	Description:
1	FP280-007-0099	1	Rotor sprocket
2	704297	1	ASA200 HS series rotor drive chain, 108 pitches
3	FP280-017-0010	1	Rotor front bearing carrier assembly
4	FP280-007-0085	1	Rotor bearing assembly
5	FP280-048-0518	1	Drive chain oil tray assembly
6	FP280-048-0521	2	Drive chain oil tray mounting plate
7	FP280-017-0007	1	Rotor front bearing carrier cover plate
8	FP280-048-0630	1	Chain drive reduction gearbox assembly right side brace plate
9	FP280-048-0495	1	Front auger bearing mounting plate assembly
10	FP160-009-0025	1	Auger front bearing assembly
11	FP280-048-0378	1	Chain drive reduction gearbox assembly
12	704298	1	ASA120 standard series auger drive chain, 70 pitches
13	704032	1	ASA120 chain joiner link
14	704389	1	ASA200 HS chain joiner link
15	FP280-048-0448	1	Rotor drive chain tensioner arm assembly 2
16	FP280-048-0466	1	Rotor drive chain tensioner pivot pin assembly
17	FP280-048-0255	1	ASA160 chain tensioner compression spring inner seat assembly
18	704196	1	Compression spring - 12mm wire, 80mm OD, 280mm long
19	FP280-048-0250	1	ASA160 chain tensioner compression spring outer seat assembly
20	FP280-002-0213	1	Rotor cover outer box lower section assembly
21	FP280-002-049	1	Rotor front cover plate assembly
22	FP280-002-0217	1	Rotor cover outer box top section assembly
23	FP280-037-0151	1	Top front cover gas strut lower mounting bracket arm

Table 24: Drive system assembly 1

Parts list



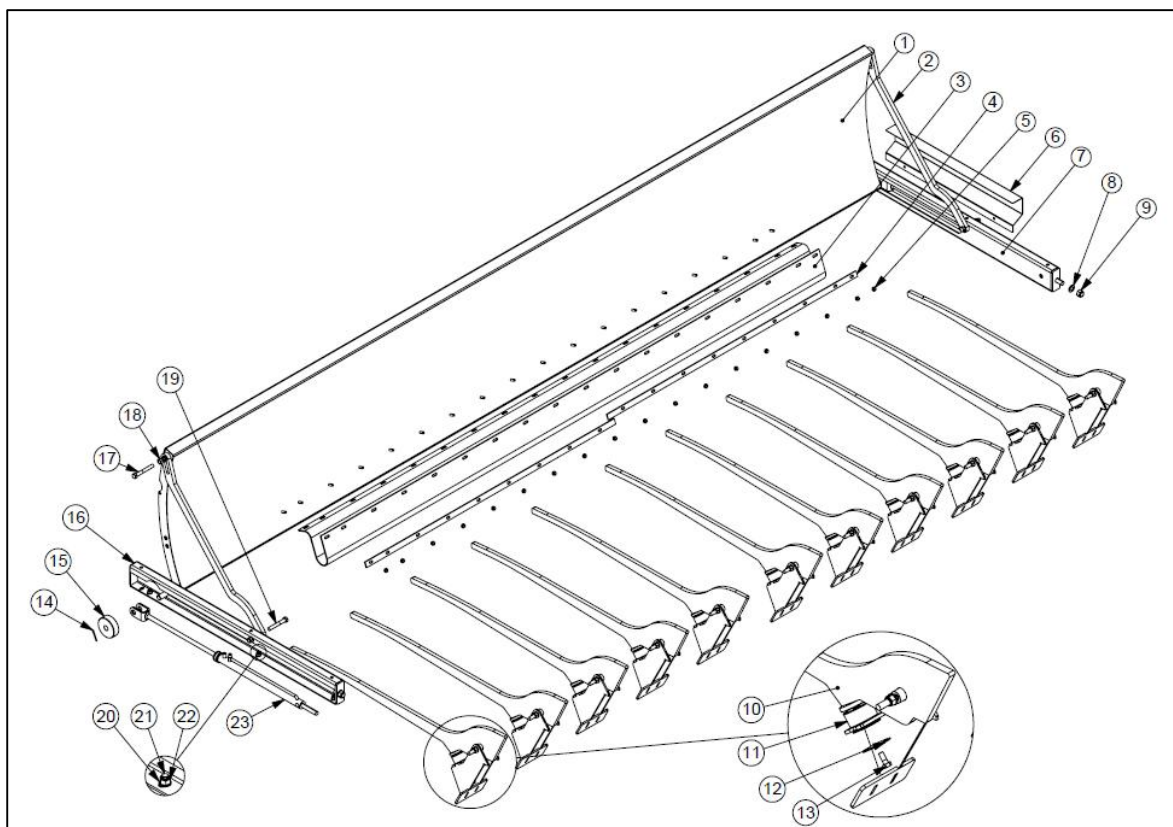
Item:	P/N:	Qty:	Description:
1	FP280-048-0592	1	Drive system housing rear panel assembly
2	704296	1	ASA140 HS series secondary drive chain, 118 pitches
3	FP280-048-0424	1	Secondary drive chain tensioner arm assembly 2
4	702417	1	ASA140 HS series drive chain joiner link
5	FP280-048-0324	1	23-tooth ASA140 sprocket (Secondary driver)
6	FP280-048-0422	2	Chain tension adjuster assembly 1
7	FP280-048-0382	1	Primary drive idler shaft assembly 1
8	FP280-048-0412	1	Primary drive chain tensioner arm assembly 2
9	FP280-048-0319	1	47-tooth, ASA120 sprocket (Primary driven)
10	704298	1	ASA120 standard series primary drive chain, 70 pitches
11	704032	1	ASA120 standard series drive chain joiner link
12	FP280-048-0385	1	Front primary idler bearing bolt positioning ring assembly
13	700842	2	UCF X14, 70mm bearing with cast housing
14	FP280-048-0491	6	Primary idler shaft thrust shim (2mm)
15	FP280-048-0490	2	Primary idler shaft thrust washer
16	FP280-048-0373	1	Primary chain tensioner arm pivot pin brace plate
17	FP280-048-0418	1	Primary drive tensioner arm pivot pin assembly
18	704410	1	FYH UCF310 50mm bearing with cast 4-Bolt flange housing
19	FP280-037-0133	1	Input shaft shroud top cover
20	FP280-037-0134	1	Input shaft shroud
21	701749	1	Oil seal (90mm x 60mm x 10mm)
22	FP280-048-0492	1	Input shaft front flange plate
23	FP280-048-0395	1	Idler shaft thrust washer
24	FP280-048-0396	5	Idler shaft thrust shim
25	702294	1	UCF X18, 90mm bearing steel housing
26	FP280-048-0386	1	Front idler bearing bolt positioning ring assembly
27	FP280-048-0612	1	Drive system housing front panel assembly

28	FP280-048-0316	1	Spline shaft & 13-tooth sprocket (540 rpm)
29	FP280-048-0534	1	Secondary idler shaft front thrust washer collar
30	FP280-048-0377	1	53-tooth, ASA120 sprocket (Auger driver)
31	FP280-048-0533	1	Auger chain tension adjuster assembly
32	704367	3	Tension spring – 7.92mm wire, 44mm OD, 220mm long
33	FP280-048-0468	1	Auger drive chain tensioner arm assembly 2
34	FP280-048-0639	1	Auger drive chain tensioner pivot pin assembly
35	FP280-048-0311	1	Rotor drive idler shaft assembly 1
36	FP280-048-0445	1	Secondary chain tensioner pivot pin assembly
37	FP280-048-0315	1	51-tooth, ASA140 sprocket (Secondary driven)
38	FP280-048-0463	1	Rotor drive chain tensioner adjuster arm & mounting bracket assembly
39	FP280-002-0013	1	Secondary idler shaft rear bearing assembly
40	FP280-048-0438	1	Secondary drive tensioner adjuster shoulder plate assembly

Table 25: Drive system assembly 2

9.11 BALE PROCESSOR OPTIONS

Series I Bale Processor

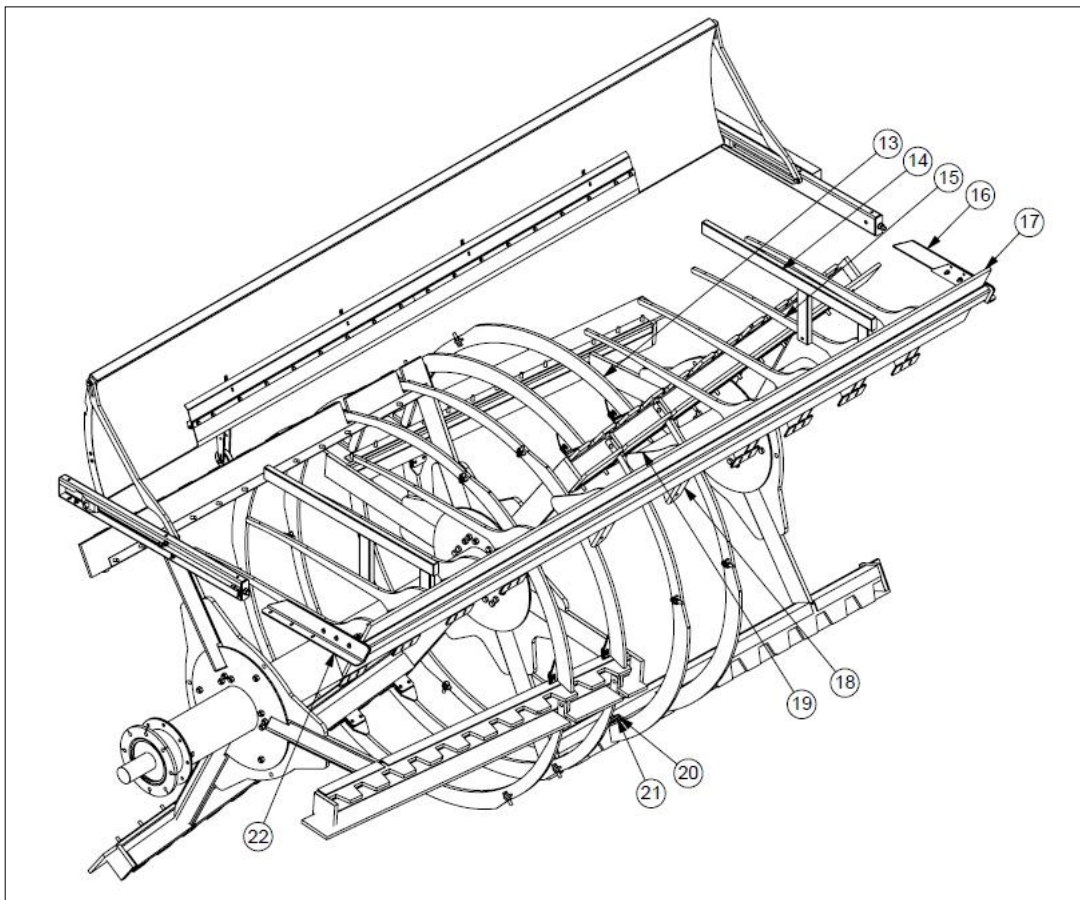
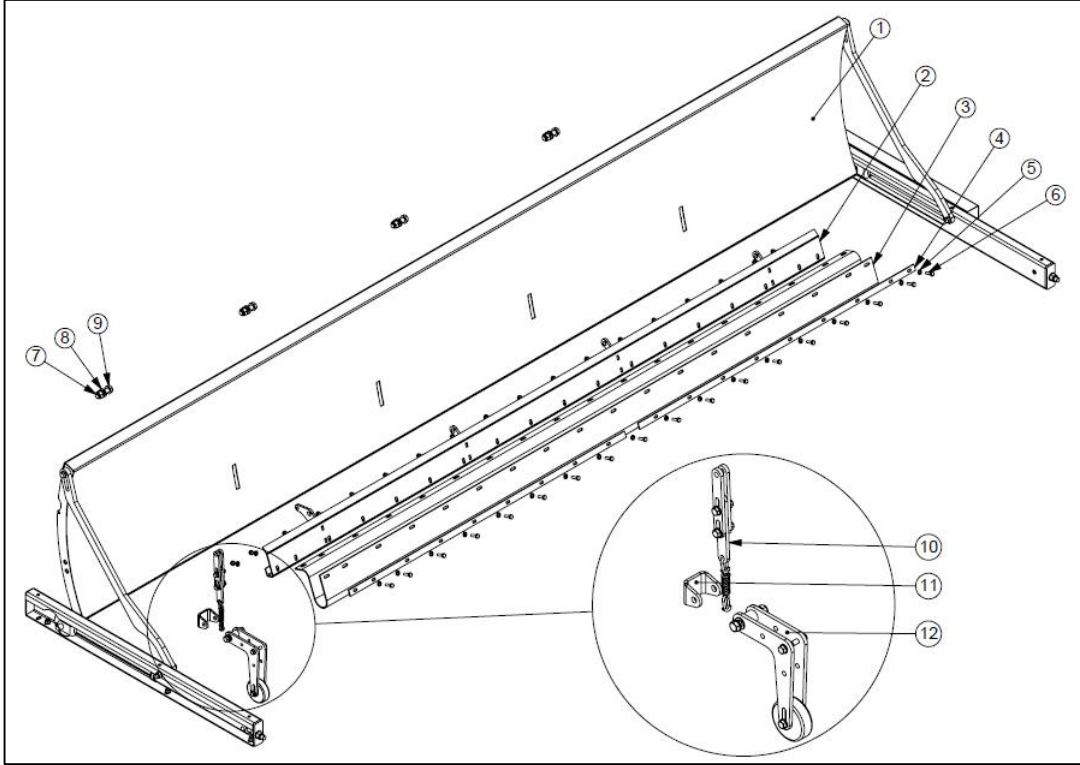


Item:	P/N:	Qty:	Description:
1	FP280-045-0056	1	Bale Processor Creel Curved Plate Assembly
2	FP280-045-017	2	Bale Processor Creel Guide Arm
3	FP200-045-0003	1	Rubber Apron
4	FP200-045-0004	2	Retainer Strip for Rubber Apron
5	700228	18	M10 x 35 Bolt
6	FP160-045-0088	1	Creel End Cover Plate
7	FP160-045-0003	1	Bale Processor End Creel Assembly (Rear)
8	700733	2	M20 Washer
9	700305	2	M20 Locknut
10	FP280-045-0028	11*	Bale Processor Tine Arm Assembly
11	703943	11	Rubber Buffer 75mm
12	700730	As Required	3mm Spacer
13	700247	11	M12 x 25 Bolt
14	701112	2	R Clip
15	703318	2	Bale Processor Nylon Guide Wheel
16	FP160-045-0002	1	Bale Processor End Creel Assembly (Front)
17	700270	2	M16 x 120mm Bolt
18	700283	2	M16 Locknut
19	700269	2	M16 x 110mm Bolt
20	700730	6	M12 Washer
21	700247	6	M12 x 30mm Bolt
22	700266	6	M12 Locknut
23	704040	2	End Creel Ram Assembly

Table 26: Series I Bale Processor assembly

* Only 6 required for Mech-Fiber 400 Series II Bale Processor option

Parts list (Bale Processor)

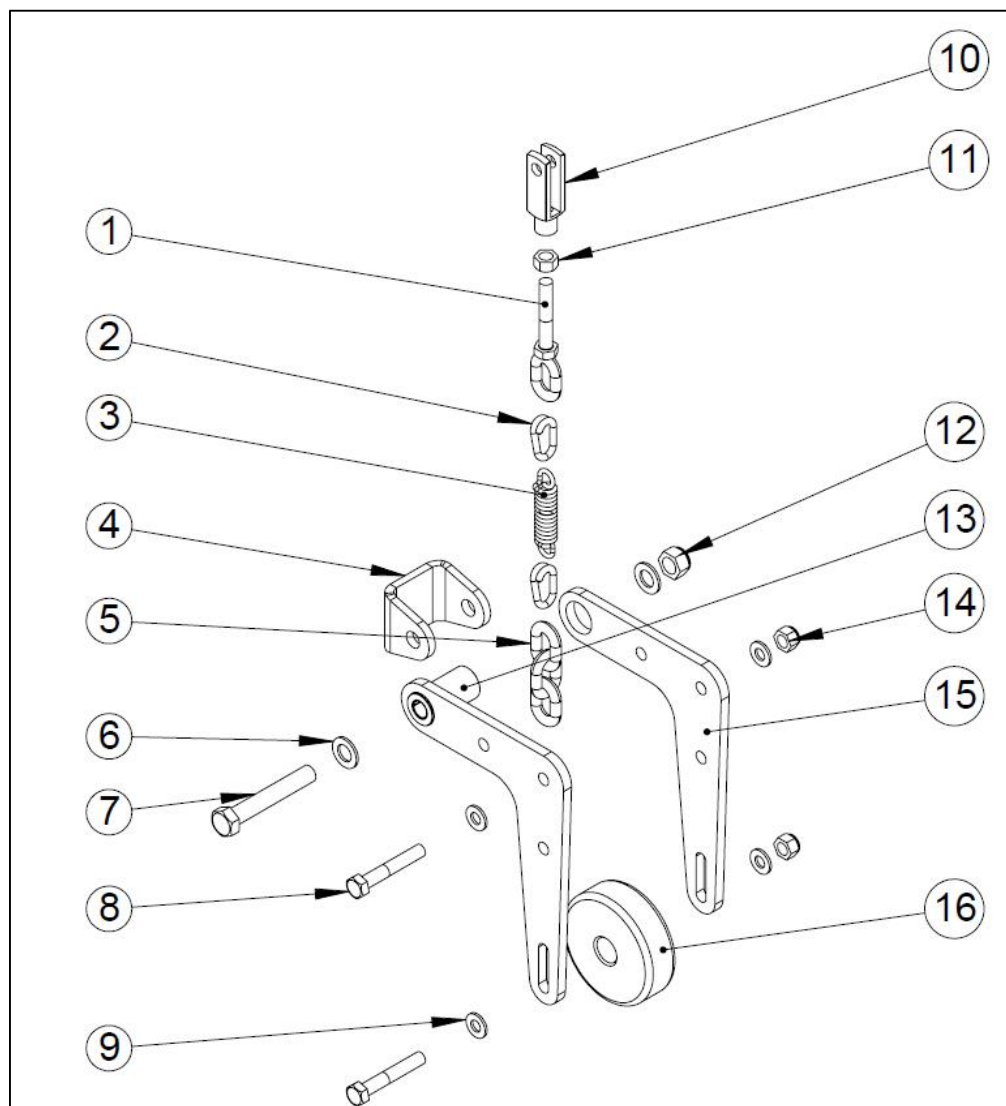


Parts list (Bale Processor)

Item:	P/N:	Qty:	Description:
1	FP280-045-0056	1	Creel Curved Plate Assembly (for Kicker)
2	FP200-045-0103	1	Kicker Assembly
3	FP200-045-0003	1	Rubber Apron
4	FP200-045-0004	2	Retainer Strip for Rubber Apron
5	700729	18	M10 Washer
6	700228	18	M10 x 35 Bolt
7	700305	4	M20 Locknut
8	700733	4	M20 Washer
9	700298	4	M20 x 70 Bolt
10	FP140-045-0057	1	Travel Adjuster Assembly (Spring P/N: 704414)
11	FP160-045-0073	1	Arm Mount Bracket for Kicker
12	FP160-045-0072	1	Arm Assembly for Kicker
13	FP280-045-0058	12	Ring Assembly
14	EF1745-65	2	Cradle Arm Assembly
15	FP280-045-0017	2	Bale Processor Tine Arm Assembly (with holes)
16	FP280-050-0002	1	Load Bumper Mounting Bracket - Rear
17	FP200-050-006	1	Load Bumper Assembly
18	FP160-045-0092	2	Light Material Deflector Mounting Plate
19	FP160-045-0089	2	Light Material Deflector Plate
20	FP160-045-0057	12	5mm Ring Spacer
21	FP160-045-0056	12	2mm Ring Spacer
22	FP280-050-0001	1	Load Bumper Mounting Bracket - Front

Table 27: Series II Bale Processor Assembly

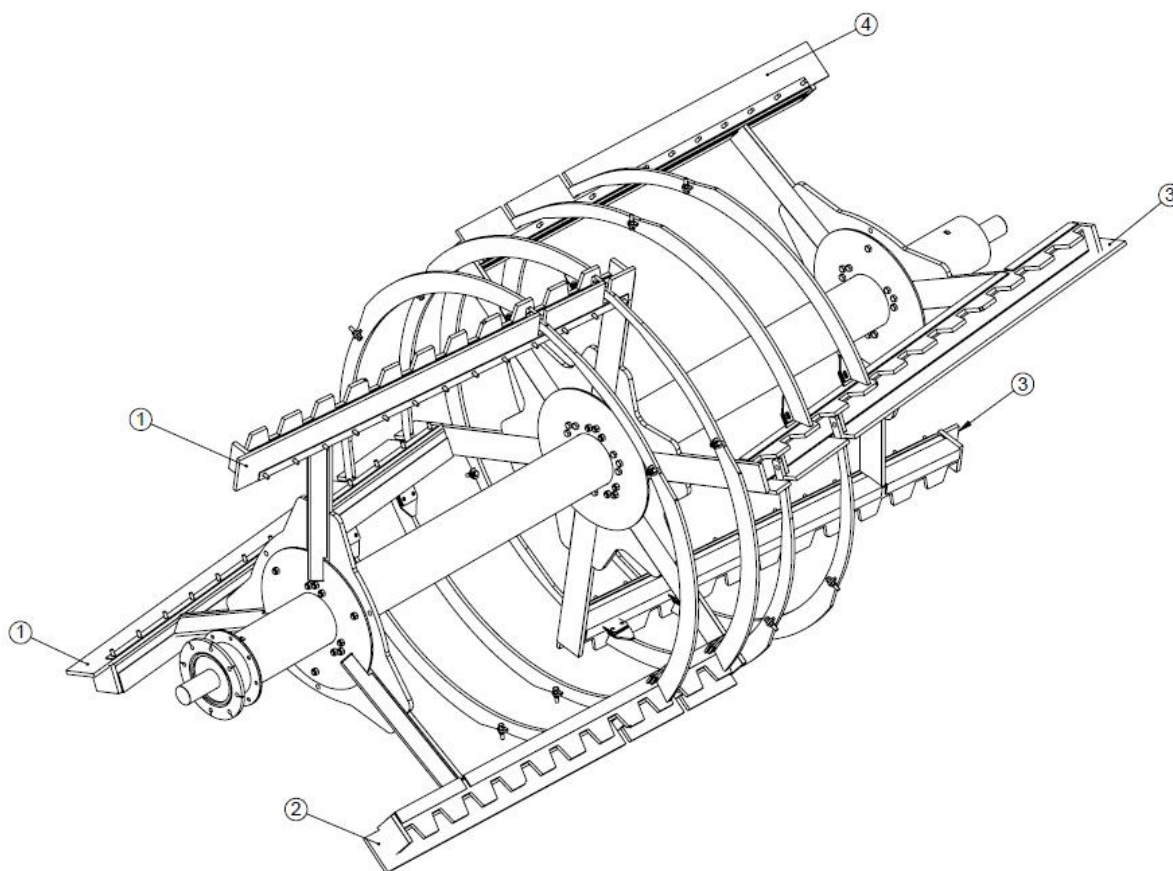
Series II Bale Processor Creel Kicker



Parts list (Bale Processor)

Item:	P/N:	Qty:	Description:
1	FP140-045-0054	1	Chain & Bolt Weld Assembly
2	704415	2	Chain Joiner Link
3	704414	1	Extension Spring, 87.2mm Long, 20mm OD, 4mm Wire
4	FP160-045-0073	1	Arm Mount Bracket
5	FP140-045-0052	1	Chain, 10mm x 49.5mm, Black Mild Steel, (3 Link)
6	700732	2	M16 Washer
7	700268	1	M16 x 100 Bolt
8	700262	2	M12 x 75 Bolt
9	700730	4	M12 Washer
10	FP140-045-0055	1	M12 Clevis
11	700265	1	M12 Hex Nut
12	700283	1	M16 Locknut
13	EF1045-94	1	Steel Bush
14	700266	2	M12 Locknut
15	FP160-045-0070	2	Side Plate
16	FP280-045-010	1	Nylon Guide Wheel

Table 28: Kicker Arm Assembly (Exploded View)

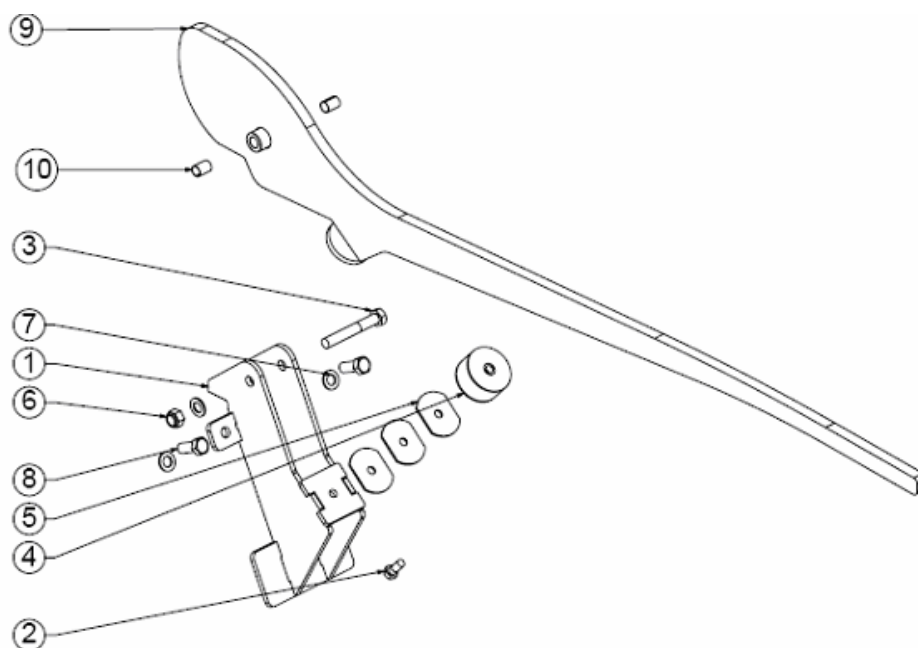


Item:	P/N:	Qty:	Description:
1	704266	2	Front Paddle Rubber – Type A
2	704268	1	Front Paddle Rubber – Type B
3	704267	2	Rear Paddle Rubber – Type A
4	704269	1	Rear Paddle Rubber – Type B

Table 29: Series II Bale Processor Paddle Rubbers

Note: These paddle rubbers used only on Series II Bale Processor machines

Tine Bracket & Tine Arm Assemblies



Item:	P/N:	Qty:	Description:
1	FP200-045-0012	11	Bale Processor Tine Bracket Welded Assembly
2	700247	11 *	M12 x 30mm Bolt
3	700271	11	M16 x 130mm Bolt
4	703943	11	Rubber Buffer 75mm O.D.
5	FP140-045-0019	11	Spacer Plate 3mm
6	700283	11	M16 Locknut
7	700732	11	M16 Flat Washer
8	700273	11	M16 x 40mm Setscrew
9	FP280-045-0028	11 **	Bale Processor Tine Assembly
10	703307	22	16mm I.D. & 18mm O.D. Self-Lubricating Bush

Table 30: Bale Processor Tine Assembly

Note:

- * Longer M12 Bolt may be required, if additional spacers, item no. 5 are used.
- ** Only 6 used on Series II Bale Processor option.

9.12 AXLE OPTIONS

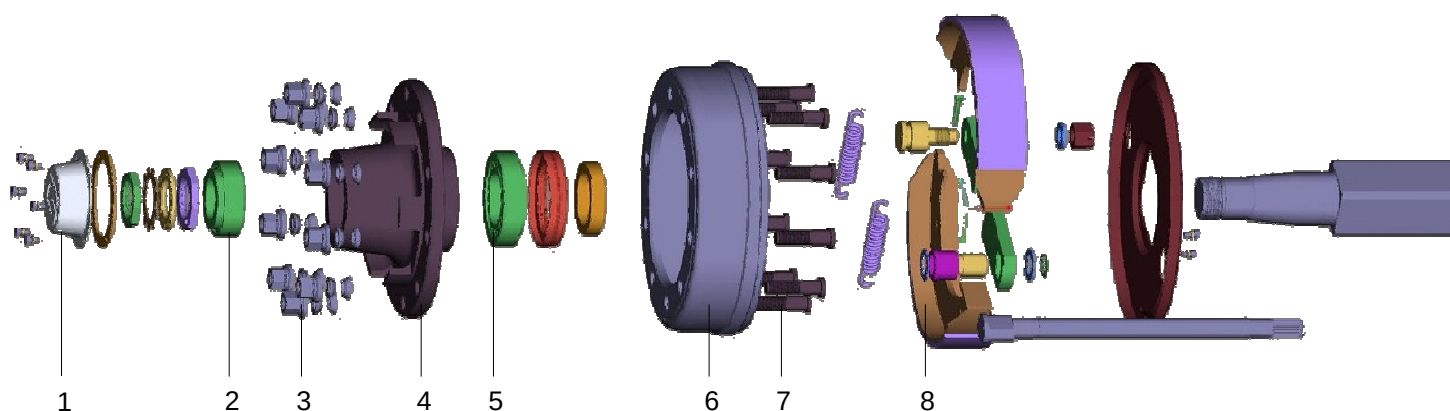


Figure 19: Mech-Fiber 400 Axle (Exploded View)

<u>Axle Types</u>		
Axle Application	Mech-Fiber 400	
Axle Type	Non-Steering	Steering
Axle Width (mm)	2400	2500
Axle Spec.	EUR1110	
Brake Type/Dimensions (Type/Dia. x Width, mm)	412S, 406 x 120	
No. Studs	10	
Nut Size	M22 x 1.5	

Table 31: Axle Types

<u>Axle Spare Parts</u>	
Item No:	Description:
1	Hub Cap
2	Outer Bearing
3	Nut (with washer)
4	Hub
5	Inner Bearing
6	Brake Drum
7	Stud
8	Brake Shoe

Table 32: Axle Spare Parts (Mech-Fiber 400 Axle)

10. TROUBLESHOOTING

10.1 GENERAL TROUBLESHOOTING

PROBLEM:

SOLUTION:

- | | |
|---|--|
| 1. Weighing display won't work properly | Check section 10.2 on weighing. |
| 2. VFC door does not move | Check hydraulic hoses and that valves are open.
Check tractor hydraulic oil level.
Check ram condition and 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 – operate door to fully open position and hold level to allow oil by-pass the ram when fully open and level door – Repeat on fully closed, until door is even. |
| 5. Excessive shear bolt breakage | Machine overloaded.
Driving chain too loose – check condition and adjust.
Feed out too fast – open feed out door slowly at first then open fully.
Turn paddle a few turns before opening the feed out door to avoid huge load on machine, especially after feed has settled in body of machine.
Run machine slower.
Never load bales directly down on paddle in one go – always chop up into at least 4 pieces. |
| 6. Noisy operation | Oil chains liberally –adjust tension on chains.
Grease all nipples.
Check chain alignment. |
| 7. Feed is not mixed properly | 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 chopping blades and top knife for sharpness.
Machine overloaded.
Bale Processor tines may be set too low. |

10. Machine is not chopping

Blades blunt.

Not enough material in body - not heavy enough –
Try adding more material or in case of hay/straw
add water or a fork of silage to weigh it down.
Machine overloaded.

11: Machine breaks ASA200 Link

Check chain alignment of large sprocket,
Tolerance +/- 2 mm.
Check chamfer on edge.
Check roll pins used in joiner link.

12: Bale goes in too quickly

If the bale goes into the machine too quickly, it may
place unnecessary load on the tractor and drive
line, as well as slowing overall mixing time as the
body blades aren't as efficient at chopping long
fibrous material 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 25 km/h maximum.
-Hitch is level on tractor.
-Fit of hitch & lubrication.
-Wear on tractor hitch.
-Check brake operation matches tractor brakes.
-Excessive movement – 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. The addition of 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 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 guillotine 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
guillotine door, therefore the drive line should be left
running for a period after the guillotine door is
closed to allow the oil cover the full chain.

10.2 WEIGHING TROUBLESHOOTING

Keenan troubleshooting tips on weighing

If you experience problems in the operation of the Weighing System, read through this Troubleshooting section first before contacting Keenan Service.

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/moisture in or around the weigh box or cables. Please follow these steps to locate and correct the problem.

- Disconnect the cables on the weigh box. Ensure 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 hair drier. If corrosion is found on the terminals then clean thoroughly with electrical cleaner & dry. Reconnect cable and test.
- Check for loose wiring or dampness. Some machines are fitted with a junction box. The procedure as detailed above applies.
- Check Weigh cell plugs for dampness and also check Weigh cell cables for any breaks and/or dampness.

If the above measures do not rectify the problem then contact Keenan Service for further assistance.

System Weighing Inaccurately

If the machine is new or the weighbox has been replaced it is possible that the weighbox may have the incorrect calibration code for the model. Contact Keenan service who can go through the procedure to 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 come loose or broken, the weigh cell can rotate resulting in that weigh cell giving an inaccurate reading. To check that the system is weighing correctly, get some known weight (e.g. a bag of fertilizer) and place it on each corner of the machine in turn. You should get the same reading for each corner. If one corner returns a significantly different reading from the other three then this points to a faulty weigh cell on that corner. Also, if receiving a negative reading, it would indicate that the weighcell is 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 weighbox and ensure there is a good 10 to 13 volt supply across the internal pins of the cable. If the negative (-) and positive (+) are wired the wrong way around, the weighbox will not switch on [Dinamica Generale weighboxes power cable - white (+) & black (-)].

11. WARRANTY

11.1 TERMS & CONDITIONS

Richard Keenan & Co. Ltd. ("the Company") shall undertake to correct by repair or replacement only at the Company's option, any defect of material or workmanship, which occurs 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. Standard Warranty period from date of commissioning is 12 months unless otherwise agreed in writing between the company and the owner. This Warranty shall cease to apply on any resale of the equipment by the initial owner.

The Warranty shall not apply to:

- A** Any machine used by a third party, who will not have had instruction in the correct use of the machine by an official representative of the Company.
- B** Any machine which 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 which is directly attributable to such parts can be furnished.
- D** Any consumable or perishable parts such as knives, blades, rubber seals, hydraulic components, shear-bolts, brake liners, electric components and running gear, unless clear evidence of immediate working failure which 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 persons unauthorized by the Company.
- 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 whilst being loaded or unloaded on premises other than those owned by the Company.
- J** Parts which may be defective or which may have failed and which 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.

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 at the address on the invoice.

In the event of the machine being loaned to or hired by a third party warranty cover is not transferable unless given in writing and signed by a Director of Richard Keenan & Co. This Warranty shall be construed in accordance with Irish law and shall be subject to the exclusive jurisdiction of the Irish Courts.

11.2 PRODUCT CHANGES AND IMPROVEMENTS

Due to our policy of continuous improvement, Richard Keenan & Co. reserve the right to make changes in design, to add improvements or to otherwise modify any of its products without incurring any obligation on products previously supplied.

12. EC DECLARATION OF CONFORMITY

EC Declaration of Conformity.

In accordance with Directive 2006/42/EC.

Manufacturer:

Richard Keenan & Co. Ltd.,
Borris,
Co. Carlow,
Ireland.

Certifies that the Keenan Mech-Fiber 400 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 12100-1, BS EN ISO 12100-2, I.S. EN ISO 13857, I.S. EN ISO 5674, EN349, EN703, I.S. EN ISO 4254-1, ISO 11684, ISO 12140

Date: 9th September 2009



Signed: _____

James Greene, Managing Director

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