



## Stationary Bale Wrapper

**EW-450A**



## Operator's Manual

Rev. 08/23

## Technical & Operational Information

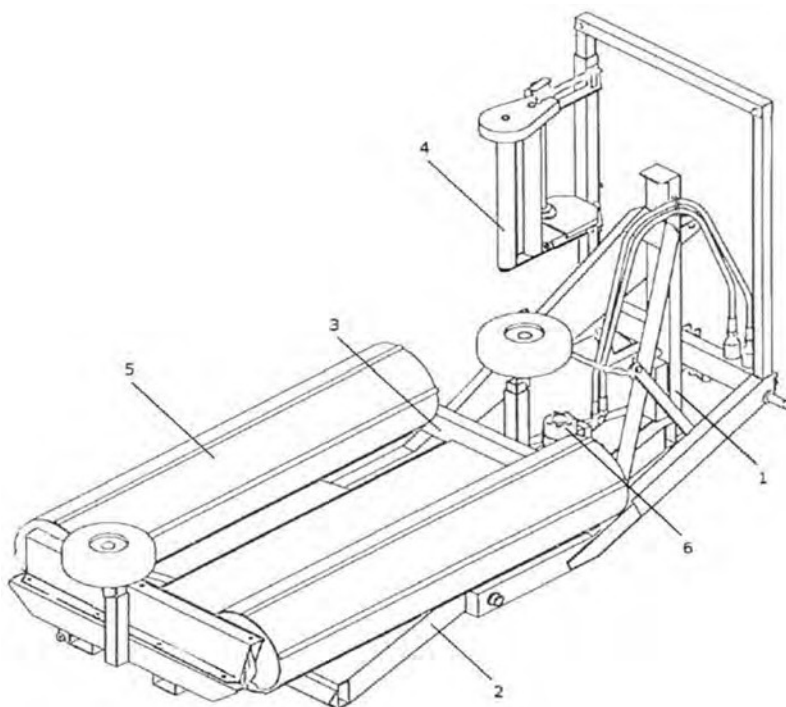
<b>Length</b>	100 inches
<b>Working Width</b>	55 inches
<b>Weight of Machine</b>	1,091 lbs.
<b>Dimensions of Bales Being Wrapped</b>	
<b>Diameter</b>	39 inches - 63 inches
<b>Length</b>	Up to 55 inches
<b>Weight of Bales</b>	Up to 2100 lbs.
<b>Horsepower Requirement</b>	40 HP Minimum
<b>Mounting Method</b>	3 Point Hitch
<b>Bale Wrapper Drive</b>	Hydraulic Motor
<b>Type of Oil in the Hydraulic System</b>	Gear Oil
<b>Tractor Engine Revolutions</b>	1500 RPM
<b>Roller Rotations</b>	2 RPM
<b>Bale Loading Device</b>	Loading device with lifting capacity greater than the weight of the bales being wrapped with the ability to lift bale higher than 4'.
<b>Minimum Number of Bale Wraps</b>	2 (double with overlapping)
<b>Total Time for Double Wrapping (with a diameter of 4')</b>	approx. 90 seconds
<b>Total Number of Wraps (for bales with a diameter of 4')</b>	30" film - 18 wraps (20" film - 26 wraps)
<b>Wrapping Counter</b>	Electronic
<b>Type of Wrapping Film</b>	Special polyethylene film, 0.025-0.03mm thick which is stretchable, self-adhesive, with ultra-violet ray stabilizer
<b>Film Wrapping</b>	Rotary knives on a fixed bracket, the rotating frame cutting after loading the next bale after the first rotation of the frame
<b>Unloading Wrapped Bales</b>	By tilting the lower frame (together with the rotating frame and the bale) backwards after unlocking it (by pulling the line) and after partial lifting of the wrapper on the 3-Point Hitch of tractor
<b>Bale Wrapper Operation</b>	2 people—1 operating wrapper on tractor, 1 loading the bales

## Introduction - General information

Persons operating the bale wrapper should absolutely consult the instruction manual and should have a knowledge of OCCUPATIONAL SAFETY and HEALTH in the use of agricultural machinery; The Bale wrapper is shipped with the operating instructions and warranty card in the complete state, any unauthorized or willful changes in the design will cause the loss of it's warranty; The service and maintenance of the bale wrapper incompatible with this instruction manual releases the manufacturer from liability for consequences resulting from its improper use and causes the warranty to be null and void. The manufacturer reserves the right to make changes in the design of the machine not shown in this manual and it's description and intended use of machine and the basic technical data of this machine.

The bale wrapper, EW-450A, is a simple-to-use machine with a hydraulic drive. It's intended use is for the wrapping of individual bales of pre-dried hay from grasses and leguminous fodder plants with stretch film. Plants intended for bales for silage should be mowed in the initial phase of earing. After a dozen or so hours of pre-drying, the hay should be collected using the roll baler in a way that ensures maximum density with the smallest amount of air in the middle of the bale. After the rolling of the bales, they should be wrapped as soon as possible on the bale wrapper. The bales left unwrapped for long periods of time may be caused to resist the putrefactive processes.

Bale wrapping with the film (foil), protects the mixture for ensilage before the long exposure to air, light and moisture, creates favourable conditions for fermentation process. After wrapping, you must stack bales in a maximum of two layers in a dry place on level ground. Particular attention should be paid to avoid possible damage to the film. The damaged areas should be repaired in such a way as to ensure the continuity of the layer. After approximately 6 to 8 weeks of storage at ideal temperatures, The haylage is then suitable for the feeding of animals with the feed having reached it's maximum nurishment level.



**Fig.1 The basic components of the machine are:**

- 1.) The Main frame
- 2.) The Lower frame
- 3.) The Rotation frame
- 4.) The Film Feeder
- 5.) The Rotation drum
- 6.) The Hydraulic engine with it's overload valve and conductors (conduits)

This bale wrapper is suitable for use with tractors of a 0.9 minimum class and with power more than 30 KW equipped with a set of weights on the front axle.

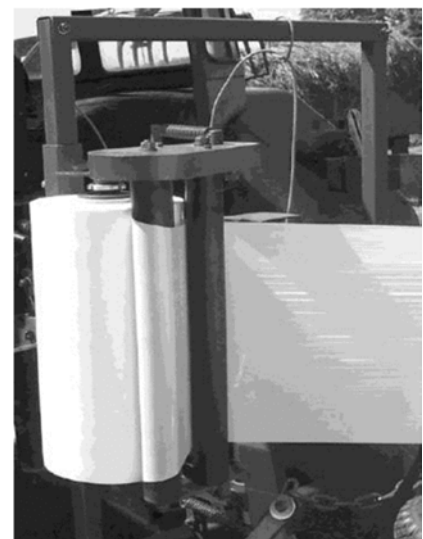
Its design is adapted for its connection with the Three Point Hitch of the tractor.

The Rotation frame shown as number 3 on the previous page placed on the lower frame shown as number 2 is connected aligned with the main frame shown as number 1 and is suspended on the three-point system of tractor. The lower frame together with the rotation frame is secured against deflection by a movable locking pin. Unloading the bales from the bale wrapper is possible after unlocking the pin and after the bale wrapper is raised using the Three Point Hitch of the tractor. It then unloads as the lower frame is tilted and the frame is rotated thus unloading the bales

The movement of the rotation frame and the rotation drums shown as by the number 5 on the previous page is carried out by the operation of the hydraulic motor, number 6 with overload valve which is operated by the hydraulic pump of tractor. This overload valve provides for smooth starting and stopping of the machine. It also protects the mechanical components of the drive from damage as a result of excessive load. The valve is factory-tuned to the engine and sealed. It should not be adjusted unnecessarily..

The drive from the engine is transmitted via a 5/8" (10B) chain on the chain wheel of rotation frame. This provides for a rotation of the bale along the vertical axis. Next, power is transmitted to the drums welded via a conical toothed gear and two chain transmissions. This provides a rotation of the bale with the appropriate ratio in the horizontal axis, this causes a partial overlapping film layers and tightness of the layer. Roll of film is placed in the feeder (4). The film is stretched through the two tension rolls connected with toothed gear, which ensures tight adhesion of subsequent layers of film.

The transmission ratio is chosen so as to ensure the optimal stretching the film, however, if necessary, stretching can be adjusted by tightening the nut pressure of film. The maximum extension/elongation of the film should not exceed 70% of original length. That is, segment of film with the length of 10 cm after stretching, should not be longer than 17cm. should be applied a polyester film, stretch film, self-adhesive with stabilizer of ultraviolet rays with a thickness of 0.025-0.03mm and the width of 500 or 750 mm.



**Fig.2 Stretching of the film during operation of bale wrapper**

## **Principles of safe operation of bale wrapper**

Bale wrapper must be operated by adult with driving licence to the steering of agricultural tractors, having knowledge of HEALTH and SAFETY at WORK in the use of agricultural equipment;

During installation, adjustment and repairs of bale wrapper, turn off the tractor engine and remove the keys from the ignition, during these steps the bale wrapper should be lowered to the ground and tractor should be stationary;

Before switching on the rotary drive, make sure that switching on the drive does not threaten anyone; Staying of persons in work zone of bale wrapper and loader is prohibited;

- Before starting work, check the condition of the machine and its completeness;
- Work with machine damaged or without protective covers is prohibited;
- Before starting work, check the condition of the hydraulic hoses/lines, work with broken or deformed lines/ hoses is prohibited;
- Transport of bales on bale wrapper when traveling on public roads is prohibited;

When loading bales one should pay special attention on permissible load capacity of loading equipment. Exceeding the load capacity may cause damage to machine and accident.

# SAFETY SIGNS

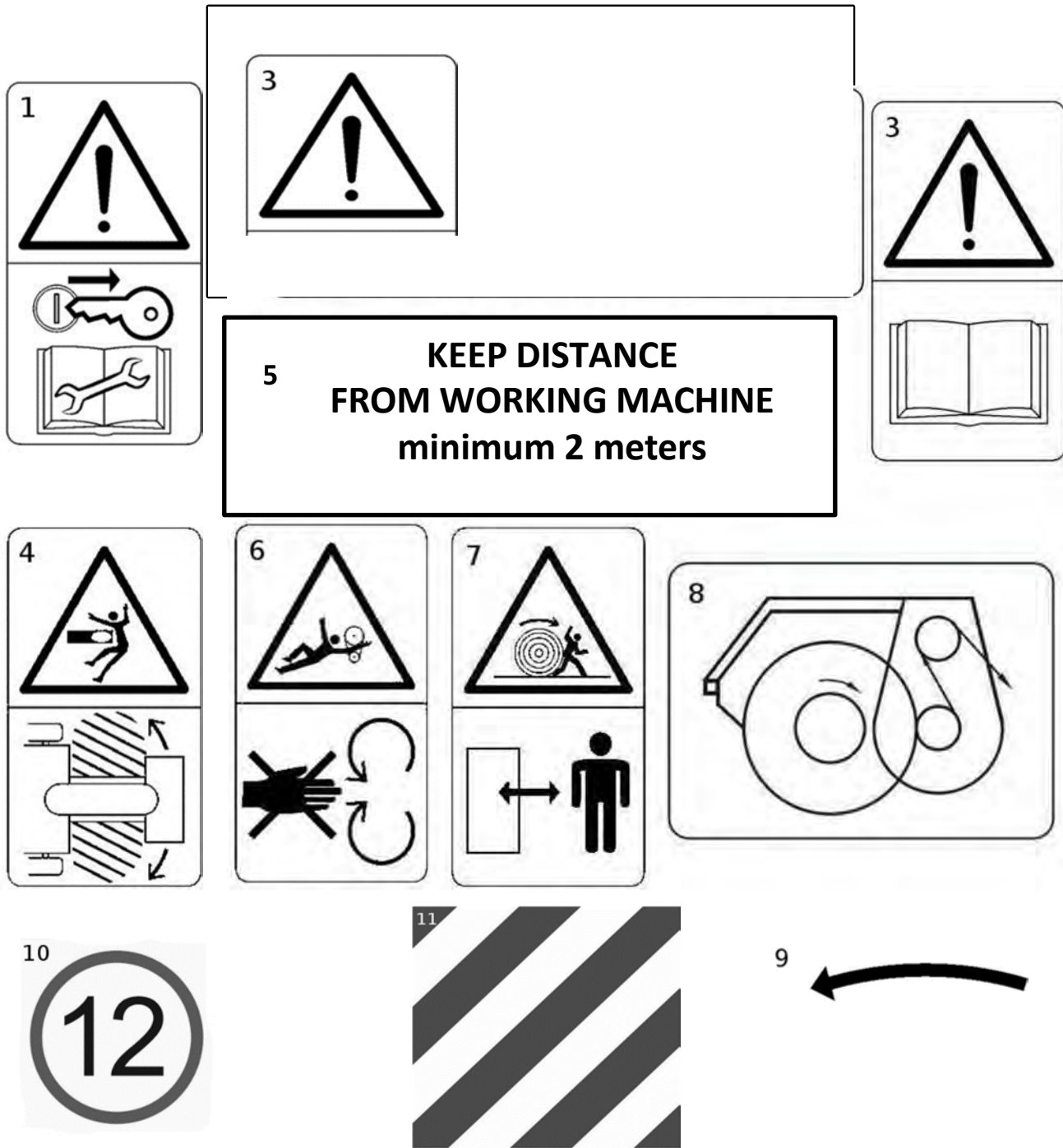


Fig.3 Safety tags and information plates – explanations:

During maintenance and repairs, turn off the tractor engine and remove the ignition key

2,3. Before commencement of machine operation, please refer to the instruction manual.

4,5,7. Moving components, keep a minimum distance of 2m.

6. Chain transmission, please take special care .

9.Direction of rotation of the rotating frame

Permissible speed when driving on public roads

Warning plate in white and red stripes

## **Functioning, operational use of bale wrapper**

### **Transport and loading**

Bale wrapper is suitable for transporting on Three Point Hitch of tractor. During transport on public roads, please observe the following principles:

Hydraulic hoses should be connected to a hydraulic pump.

Hydraulic system of bale wrapper should be filled with oil, therefore longitudinal rotating frame set in the transport position, will be secured against rotation;

Locking pin of the lower frame should be inserted in order to block it against deflection;

Warning plate in white and red stripes with the red warning light and triangular plate must be mounted in a visible way;

To secure the suspension pins one should use only original and functional cotters. The use of substitute protections such as bolts, wires etc. is prohibited;

**Transporting bales on bale wrapper when traveling on public roads is prohibited.**

Before loading of bale wrapper on transport of lorries, one should mount the machine on a wooden pallet and take precautions against before displacement.



**Fig.6 Bale after the end of the wrapping**

### **Assembly with tractor**

Correct assembly of bale wrapper with the tractor should be made according to the following principles:

- After removing the agricultural hitching from tractor, withdraw it to evenly placed bale wrapper;
- Connect the machine with Three Point Hitch of tractor while adjust the length of the single upper connecting link;
- Protect the connections with pins and original cotters of tractor equipment;
- Connect the quick release couplings of hydraulic hoses of tractor with hydraulic installation sockets;
- Sensor cable of of overwraps must be connected with counter, counter put in a prominent position in the tractor cab;

## Attempt/test of the operation

Before start wrapping, you should check the operation of the machine:

Raising on Three Point Hitch of tractor;

Smoothness and direction of rotation of rotating frame and drums (rotations of the frame - to the left / counter clockwise);

Operation of the interlocking, tilting the lower frame and the state of the chain. A chain attached to the brackets of main frame restricts/limits the size of the tilting while unloading the wrapped bale. After lowering of bale wrapper and return of the lower frame to horizontal position, locking pin when extended secures the frame before tilting;

At the start of the hydraulic system please take special care, one should check whether in the field of rotation of rotational frame with drums there are no people or objects, starting the warning with sound signal;

During operation the wrapper, the pin must absolutely block lower frame before tilting;

Extension /elongation of film as a result of tension, must not be more than 70% i.e. the length of the unstretched film of 10 cm should increase to not more as 17 cm and width for the film of 750 mm should not be smaller than 600 mm and for film of 500, not smaller than 400 .

**Attention!**

**Before starting the machine, please take particular care. Lower frame must be secured before tilting with locking pin.**

## Installation of film

To install the film roll, one should tilt the bracket with rubber rollers.

After removing the clamping nut, install the roller so that was embedded on the lower clamping ring, then secure from the top with clamping ring and the clamping nut. Clamp/press down the bracket with rubber rollers, check whether they are properly pressed against film. In the event of non-parallelism on the contact of film roller and rubber roller, one should adjust the position of the roll by overbending the fastening rod. In accordance with the diagram, drag the film by rubber rollers so that it is possible to grasp the tip of the film.

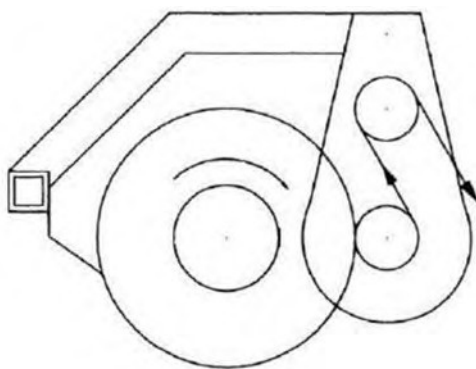
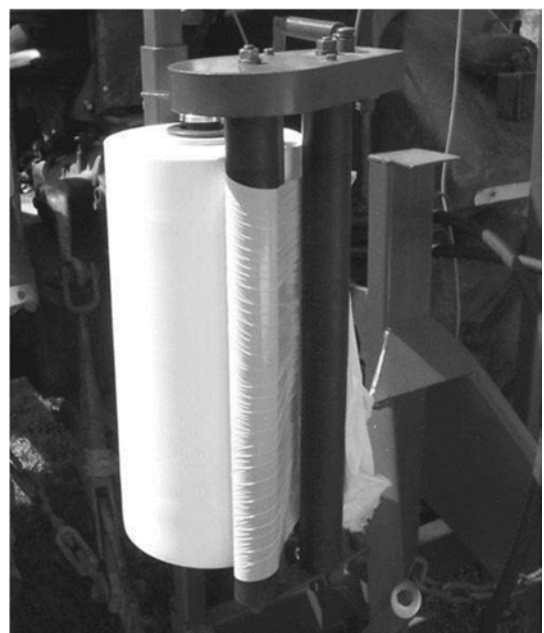


Fig.7 Diagram of installing Film Roll





## **Loading, wrapping and unloading bales**

Loading bales on bale wrapper one should carry out using the available devices with lifting capacity more than 1000 kg and with the possibility of lifting at the height of the minimum 1m. Loading and wrapping bales should be carried out in an area of subsequent storage of bales. This will prevent damage to the film, that may take place during the movement of bales. Before loading, rotating frame with drums should be set along the tractor. Such setting provides the best access to the machine during loading and operating/maintenance during the wrapping. Bale wrapper with the tractor should be on level ground and pin, which locks the lower frame should be protruding. Before starting the wrapping, bale should be in the center of the length of the rotating drums at equal distances from the side wheels. Next, you need attach the tip of the film, which protrudes from the feeder to bale, preferably to string as far away from feeder.



**Fig.8 Bale wrapping**



**Fig.9 Wrapped Bales**

After making sure that the inclusion of the drive does not endanger the surroundings, can start wrapping including hydraulic drive from the tractor cab. When wrapping, the tractor engine must maintain approximately 1500 rpm. Bale wrapping should occur after 24 (film 20" setting) or after 16 (film 30" setting) rotations of rotating frame (after about 1 minute of the wrapping). Fully wrapped the bale should have two layers of film, what provides a fully leak-proof protection before the access of air and water. After wrapping, one should stop the machine at the time when rotating frame with drums is in perpendicular position to the axle of the tractor and the direction of travel. After unlocking the locking pin and lifting of bale wrapper on Three Point Hitch of tractor, will occur the tilting of the lower frame and self-acting unloading the bale. Do not cut off the film prior to loading. For the purpose of loading the next bale, one should lower of bale wrapper and lock the lower frame with the locking pin. The drums must be set in the position as for first loading.

### Recommendations for use

During operation of bale wrapper, special attention shall be paid to the technical condition and tension of driving chains. After starting a new bale wrapper and after wrapping approx. the ten of bales, check tension of driving chains, in particular of driving chain of rotating frame. To carry out the adjustment of the driving chain of rotating frame, A) Remove Center Table Guard, B) Remove Gear Covers C) Rotate Bale Tray 90 degrees and D) Remove Front Frame Guard.

Once the chains are exposed, loosen the four nuts M12 (1) of the base of the hydraulic motor. Then, after loosening the counter nut (2) screw in the bolt of chain tension (3) so that the deflection in the middle of the longest segment of chain had about 20 mm.

After the adjustment and control/inspection of the technical condition, lubricate the chain with oil for driving chains.

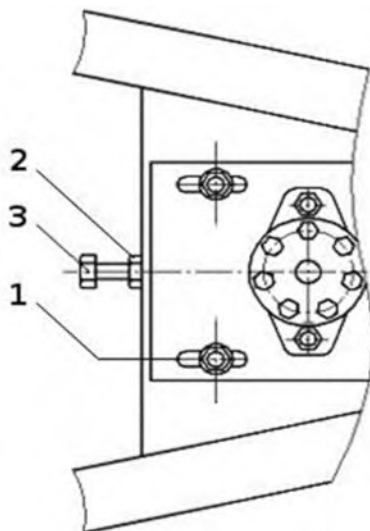


Fig.10 Tension adjustment of the chain of the rotating frame.

- 1- Nuts of base of the hydraulic motor
- 2- Counter nut
- 3- Screw of the chain tension

## **The overload valve adjustment**

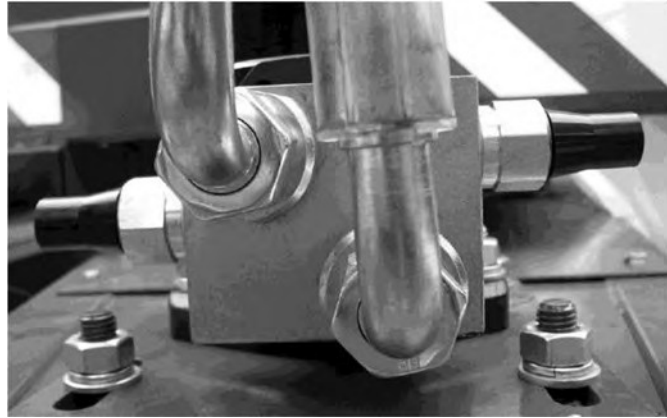


Fig.11 View of the overload valve

If during operation we determine no smoothness of operation, machine jerking, one should carry out the adjustment of the overload valve. When adjusting hydraulic hoses must be connected to the installation of the tractor.

Adjustment is carried out by means of the adjusting screw marked with the symbol 50 located on the left side of the valve. After removing/unscrewing the plastic cover, loosen the counter nut. After unlocking the bolt by unscrewing it, we increase the smoothness of machine operation. After each half turn of bolt, tighten up the counter nut and check the effect of adjustment.

Attention!

**Do not adjust the valve unnecessarily. When adjusting, please take special care during each starting/ run of the machine.**

## **Film width Adjustment**

The EW-450A is intended to bale wrapping with two types of the film about widths 20" and 30" . To adapt the machine to wrap another available type of film, one should:

### **Film Rollers**

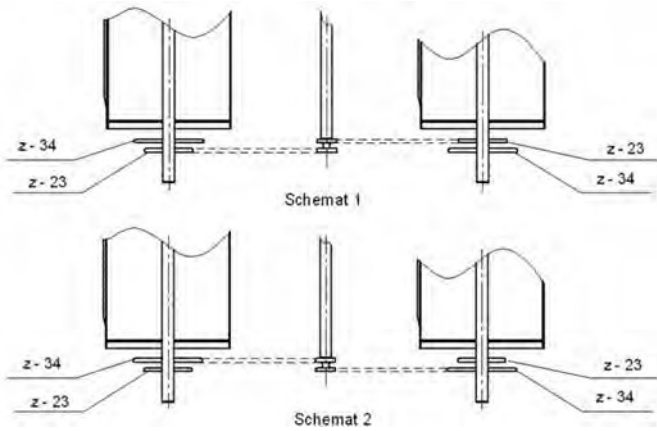
Adjust the height of the pressure of upper film by changing the height of the locking pin

### **Roller Rotational Chain**

Change the position of the chains driving the rotating drums – respectively for the film 20" on z-34 gears / toothed wheels and for film 30" on z-23 gears / toothed wheels . The length of the chains should be changed using the appropriate half-chain link. The gears are located behind the shield on the back of the Bale Tray.

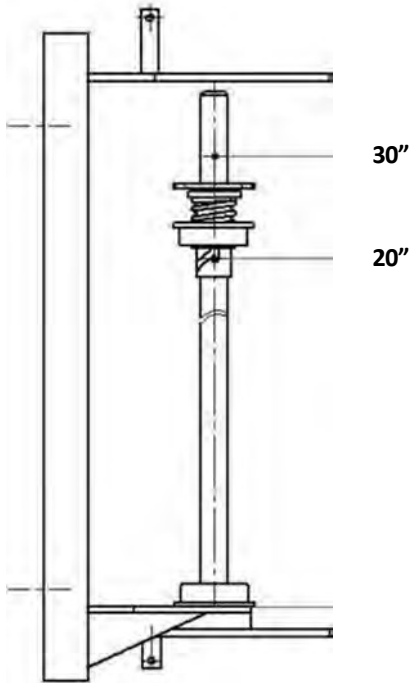
**NOTE:** The bale wrapper is set up from the factory for 20" film for faster wrapping. The 30" film may also be used in this position. Adjust wrap revolutions accordingly.

It is not advisable to change the factory setting for the 30" film. There is little gain in changing positions. Changing positions requires removing shields, removing/shortening chains, and can be time consuming.



Chain Position for 30" – Sch. 1

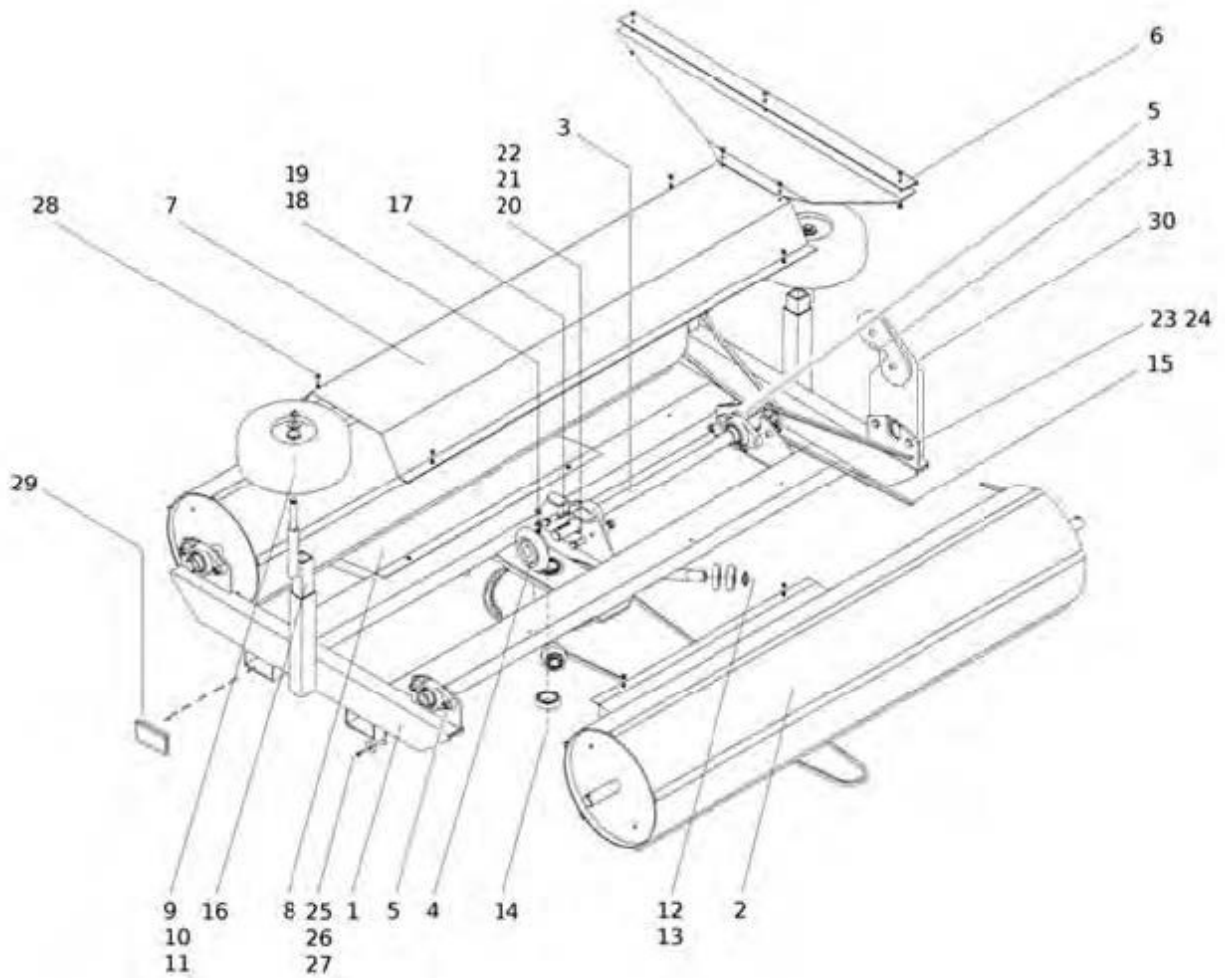
Chain Position for 20" – Sch. 2



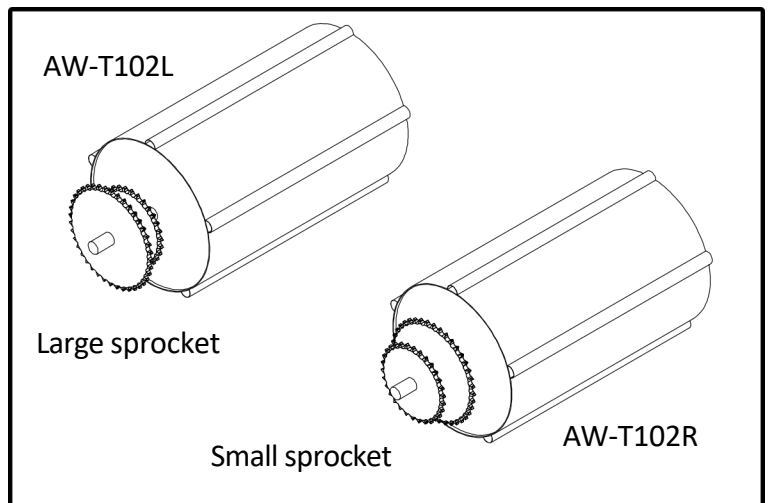
The Height of the pressure position for the 2 wrap sizes

# **Parts Breakdown**

**EW-450A  
ROTATING FRAME**



Note: The rollers can be identified by standing at the sprocket end of the roller. If the larger sprocket is facing the operator, it is the LH roller assembly, AW-T102L. If the smaller sprocket is facing the operator, it is the RH roller, AW-T102R.





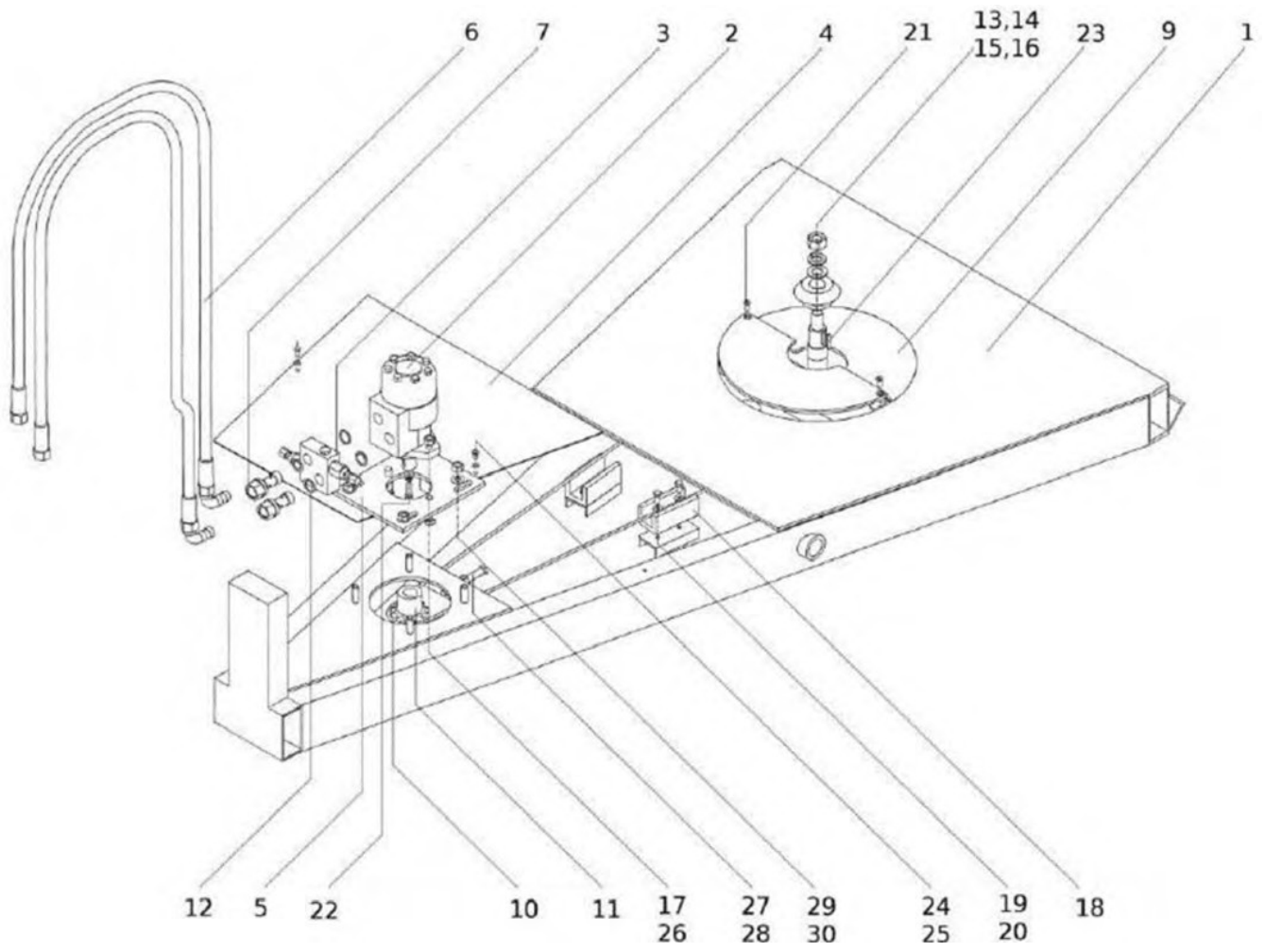
# EW-450A

## ROTATING FRAME

POSITION	PART NUMBER	DESCRIPTION	QTY
1	AW-T101	Welded Frame	1
2	AW-T102R	Welded Drum Right	1
	AW-T102L	Welded Drum Left	1
3	AW-T103	Drive Shaft	1
4	AW-T104	Bevel Gear Large	1
5	AW-T105	Bearing Unit 206 Set	6
6	AW-T106	Gear Guard I Set	2
7	AW-T107	Gear Guard II	1
8	AW-T108	Cover for Slide Bearings Metal	2
9	AW-T109	Wheel Set	2
10		Washer	2
11	SRE-20	M20 Snap Ring- External	2
12	B63052RS	Bearing 6305 2RS	8
13	SRE-25	M25 Snap Ring- External	4
14	B60072RS	Bearing 6007 2RS	2
15	AW-T115	Chain 10B	2
16	AW-T116	Wheel Axle Welded	2
17	EP311-0003	Key 8 x 7 x 40	1
18	BM0812525	Bolt M8 x 1.25 x 25 8.8 Nut	1
19	LN08125	M8 x 1.25 Zn	2
20	NM1217535	Bolt M12 x 1.75 x 35 5.8 Zn	12
21	FW13	Flat Washer M13 Fe-Zn	12
22	LN12175	Nut M12 x 1.75 Zn	12
23	BM0812530	Bolt M8 x 1.25 x 30 5.8	1
24	LN08175	Locking Nut M8 Zn	1
25	BM061016	Bolt M6 x 1.0 x 16 5.8 Zn	1
26	AW-T126	Magnet- Speed Sensor	1
27	NM0610	Nut M6 x 1.0 Zn	1
28	STB4819	Tap Screw 4.8 x 19 Self-Drilling	15
29	AW-T129	Plastic cap	4
30	EWT009	Knife Assembly	1
31	274-031-269	Knife	2



# EW-450A LOWER FRAME







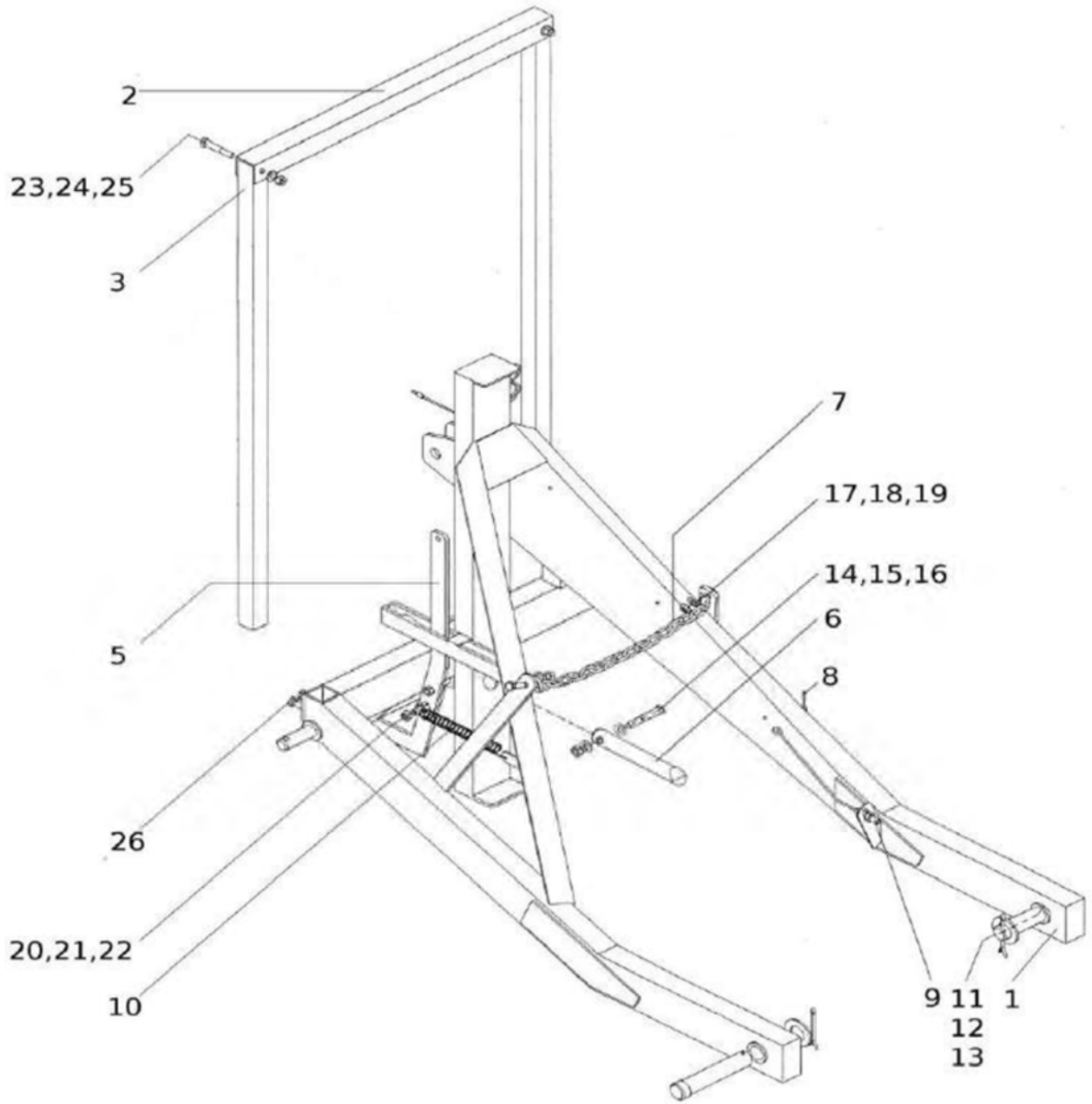
# EW-450A

## LOWER FRAME

POSITION	PART NUMBER	DESCRIPTION	QTY
1	AW-T201	Frame, lower w/welded spindle	1
2	AW-T202	Hydraulic Engine	1
3	AW-T203	Safety Valve	1
4	AW-T204	Frame Cover (lid)	1
5	AW-T205	Base of Engine	1
6	AW-T206	Hydraulic Hoses	2
7	AW-T207	Hydraulic Coupler	2
8			
9	AW-T209	Cover of Gear	1
10	AW-T210	Chain 10B	1
11	AW-T211	Chain Wheel z-12	1
12		Washer o21 Cu	2
13	AW-T213	Bevel Gear z-17	1
14	FW20	M20 Flat Washer	1
15	LW20	M20 Lock Washer	1
16	LNM2025	M20 Locking Nut	1
17	LNM12175	M12 x 1.75 Locking Nut	2
18	AW-T218	Chain Guide	2
19	SSM0812520	Socket Screw M8 x 1.25 x 20 5.8	4
20	NM08125	Nut M8 x 1.25	4
21	BM06101600	Bolt M6 x 1.0 x 16 5.8 Zn	2
22	BM0812530	Bolt M8 x 1.25 x 30 8.8 Zn	1
23	EP311-0003		2 Key 8x7x30
24	BM061016	Bolt M6 x 1.0 x 15 5.8 Zn	
25	LW06	M6 Lock Washer	
26	BM1217545	Bolt M12 x 1.75 x 45 5.8 Zn	2
27	LNM12175	Locking Nut M12 x 1.75	1
28	BM12175100	Bolt M12 x 1.75 x 100 5.8	1
29	LNM12175	Locking Nut M12 x 1.75 Zn	6
30	FW12	M12 Flat Washer Zn	4



# EW-450A MAIN FRAME





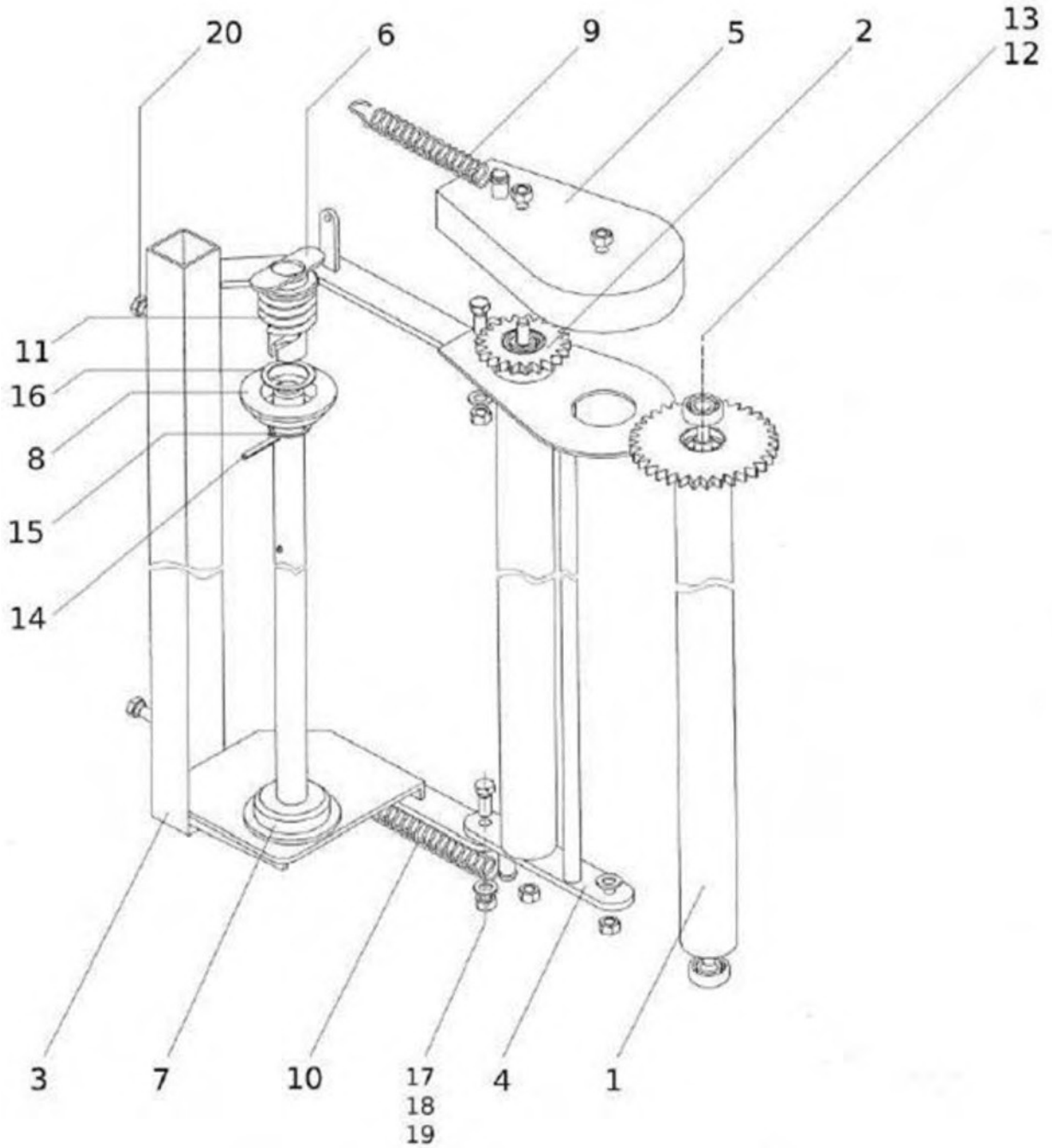
# EW-450A

## MAIN FRAME

POSITION	PART NUMBER	DESCRIPTION	QTY
1	AW-T301	Main Frame	1
2	AW-T302	Lateral Coupler/Connecting Link	1
3	AW-T303	Feeder Arm	2
4			
5	AW-T305	Locking Lever	1
6	AW-T306	Locking Pin	1
7	AW-T307	Agricultural Chain	1
8			
9	AW-T309	Sensor and Counter Cable	1
10	AW-T310	Spring	1
11	AW-T311	Frame Pin	1
12	FW37	M37 Flat Washer Zn	
13			
14	BM1217570	Bolt M12 x 1.75 x 70 5.8 Zn	1
15	FW12	M12 Flat Washer Zn	2
16	LN12175	Locking Nut M12 x 1.75 Zn	1
17	BM12175350	Bolt M12 x 1.75 x 35 5.8 Zn	2
18	FW12	M12 Flat Washer Zn	2
19	LN12175	Locking Nut M12 x 1.75 Zn	2
20	BM1217545	Bolt M12 x 1.75 x 45 5.8 Zn	2
21	FW12	M12 Flat Washer Zn	2
22	LN12175	Locking Nut M12 x 1.75 Zn	2
23	BM1217570	Bolt M12 x 1.75 x 70 5.8 Zn	2
24	BM1217530	Bolt M12 x 1.75 x 30 5.8 Zn	2
25	FW12	M12 Flat Washer Zn	2
26	BM1217525	Bolt M12 x 1.75 x 25 5.8 Zn	4



# EW-450A FILM FEEDER





# EW-450A

## FILM FEEDER

POSITION	PART NUMBER	DESCRIPTION	QTY
1	AW-T401	Roller z=34	1
2	AW-T402	Roller z=21	1
3	AW-T403	Feeder Frame Stationary	1
4	AW-T404	Feeder Frame Movable	1
5	AW-T405	Gear Guard	1
6	AW-T406	Locking Nut Set	1
7	AW-T407	Clamp Ring Lower	1
8	AW-T408	Clamp Ring Upper	1
9	AW-T409	Spring of Pressure Upper	1
10	AW-T410	Spring of Pressure Lower	1
11	AW-T411	Spring of Locking Nut	1
12	AW-T412	Rubber Roll Axle	2
13	B60042RS	Bearing 6004 2RS	4
14	AW-T414	Spring Pin	1
15	AW-T415	M38 Snap Ring External	1
16	AW-T416	Special Washer M41 x 51 x 2	1
17	BM1217530	Bolt M12 x 1.75 x 30 5.8 Zn	2
18	FW12	M12 Flat Washer Zn	6
19	LNM12175	Nut M12 x 1.75 Zn	6
20	BM1217535	Bolt M12 x 35 5.8 Zn	2



**lco110-III1ap**



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