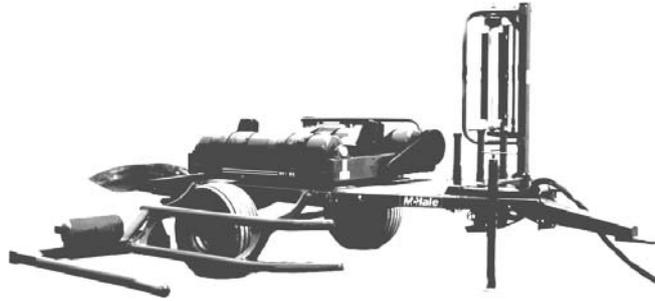


# **McHale** *ENGINEERING*



## **991B Series Round Bale Wrappers Operator Instruction and Spare Parts Manual.**

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### **Issue 12**

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# Introduction

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The **McHale 991B round bale wrapper** which you have purchased has been developed through years of constant research and development. Given proper care and attention the **991B** will give years of reliable and dependable performance. However it is important that this operators manual is read and fully understood to achieve this, **before** the machine is operated. As part of this philosophy it is vital to use only **genuine McHale** replacement parts, as these are manufactured to the same standard as the original machine. These may be obtained through your **McHale** dealer.

If any part of this manual is not fully understood please contact your **McHale** dealer who will be able to answer any questions you may have. It is important to quote the machine serial number when requiring spare parts or technical assistance. Space is provided below to record machine details

<b>Serial number:</b>	
<b>Year of manufacture:</b>	
<b>Date of delivery:</b>	

This manual covers the following machine variants (Not all variants are available in all markets):

- 991B Trailed machine with manual controls.
- 991BC Trailed machine with manual controls using cables.
- 991BJS Trailed machine with hydraulic servo joystick controls.
- 991BE Trailed machine using full electronic control.
- 991BER Trailed machine using full electronic control with remote control option.

If you require further copies of this instruction/ spare parts manual please quote part number: CLT00030

Due to a policy of continuous product development and improvement, McHale Engineering Ltd reserve the right to alter machine specification without prior notice.

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# 1. Designated use of machine

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The **McHale 991B series round bale wrapper** is designed to wrap, with plastic stretch film, cylindrical section bales of forage for the purpose of storage as fodder for livestock. This designation includes movement of machine, between fields by track or road, incidental to the wrappers main use.

The manufacturer will not be held responsible for any loss or damage resulting from machine applications other than those specified above. Any other use the machine may be put to, is entirely at the owners/operators risk.

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## 2. Technical specifications

---

	<b>991B Series</b>
Transport length	5.55m (18')
Transport width	2.35m ( 7' 9")
Total height	2.46m (8' 1")
Height to top of rollers	1.06m (3' 6")
Weight (unladen)	1870 kg (4123 lbs.)
Tyre dimensions	31x13.5 x15
Attachment	Pin hitch
Towing tractor requirements	35KW
Hydraulics	Open centre, closed centre or load sensing
Minimum hydraulic pressure	160 bar (2200 lbs./sq. in)
Minimum hydraulic flow	18 litres/min (4 gallons/min)
Maximum rotary table speed	30 R.P.M.
Maximum bale weight	1100 kg (2425 lbs.)
Maximum road speed	40 km/hr
Film stretch	70% (55% optional)(32% enduro)
Film layers	2+2 system
Film width	750mm (500mm optional)
Electrics	12Volt DC, 7amp approx.

### Options:

Side tip damper (991B series)  
Remote control kit for static machine operation (Electronic machines)  
Dispenser gears 55% and 32% options (991B series)

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## 3. Safety warnings

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### 3.1) General safety warnings

- 1) Read operators manual before use.
- 2) Only competent persons who have read and understand this manual should operate this machine. The person **must** understand all the functions, controls, working processes and safety warnings **before** operating the machine.
- 3) All guards must be in place before operating the machine
- 4) The “**Danger Zone**” level ground is the area around the rotating table (approx. 5 metres radius from the rotating centre axis) ,1 metre in front of the table and a minimum of 10 metres at the back of the machine to allow safe bale discharge.
- 5) The operator should ensure that there is no person in the `danger zone` while operating the machine especially during start up.
- 6) Always ensure tractor is stopped, handbrake is applied, engine stopped and ignition key removed before working on the machine.
- 7) Before travelling on a public road always ensure that you are familiar with the road traffic regulations relating to the country of use This includes the use and fitment of lights and brakes if necessary.
- 8) The vehicle used to tow the machine should comply with the manufacturers specifications.
- 9) Always follow the manufacturers instructions for attaching or detaching the machine.
- 10) Always be familiar with the health and safety requirements that may be in force in the country of use.
- 11) Under no circumstances should people or animals be carried on the machine.
- 12) Always ensure that guards and other devices are in place and are in good working order. Replace if necessary.
- 13) Always ensure that the electronic control box and oil supply are switched off when travelling on the road.

---

14) All safety decals on the machine must be kept in good readable condition. If they are not replacements are available from your McHale dealer. Part number are shown under the section `Decals` in the following pages.

15) Adjust driving speed to suit ground conditions. Allow for mounted machines reducing front end weight of tractor.

16) Always maintain machine according to manufacturers recommendations

17) Never disable any electrical safety circuits.

18) Always take extra precaution when using the machine on hilly or sloping ground. The danger zone is increased in such conditions as bales are more likely to roll causing a potential risk.

### **Warnings included in the text of this book**

Note extreme caution is required when fitting or adjusting the mat frame or side tip plate.

Be careful when working with the cut & hold. Remember that the accumulator is under pressure see section 6.3) . Avoid contact with the knife.

Spool valve controls must be kept outside the tractor cab.

Transport lock must be fitted while travelling on the road.

Do not attempt to clamp plastic film in cut & hold mechanism.

The operator must be aware of the “danger zone” which varies in size depending on operating conditions. The “danger zone” is the hazardous area around a machine i.e. the area in which a bale could land in the event of it being dropped suddenly from the wrapping table or from the mat frame. The “danger zone” for working on level ground is the area around the rotating table (approx. 5 metres radius from the rotating centre axis), 1 metre in front of the table and a minimum of 10 metres at the back of the machine to allow for safe bale discharge. It is the operators responsibility to keep persons out of this region.

The continuous cycle should not be used in hilly terrain as the operator need better control of bale unloading i.e. the bale should be unloaded on level ground.

The safety bar must always be used when working under a tipped table.

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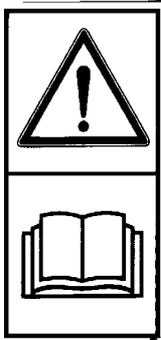
## 3.2) Hydraulic safety warnings

- 1) Always ensure system is not under pressure before working on it. Oil under pressure can penetrate the skin and cause injury.
- 2) If any hoses are removed ensure they are marked and returned to the correct position during reassembly.
- 3) Check hoses regularly for signs of leakage or damage. Use a piece of card when checking for leaks. Fine jets of hydraulic fluid can penetrate the skin. Never use your fingers or face to check for leaks. If affected by hydraulic fluid seek medical help immediately. Replace any worn or damaged hoses immediately.
- 4) As the cut and hold is kept open by gas accumulator pressure it will be necessary to release this before removing the accumulator or working on the hydraulic cylinder. Otherwise injury may occur. If in doubt entrust the job to your McHale dealer see section (11.4)
- 5) Do not work on hydraulic systems unless you have a working knowledge of them and feel confident to do so.
- 6) All hydraulic hoses must be replaced every 5 years.



## 4.1) Description of safety warnings

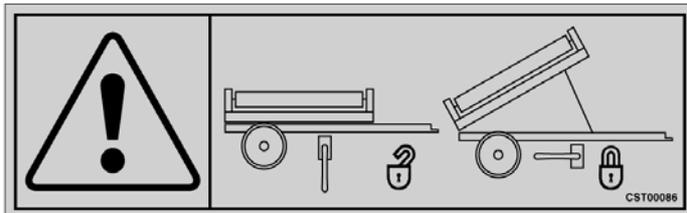
It is important that all safety warnings and instructions are understood and followed. If any of the decals become damaged or are missing they are available from your **McHale** dealer. The part numbers are shown in brackets.



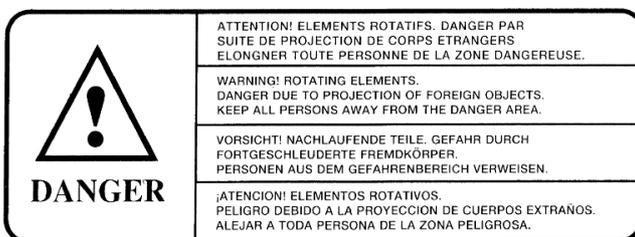
Read instruction manual.  
(CST00057)



Keep hands out of trap area.  
(CST00026)



Lock tap before carrying out maintenance on table. (BJS machines only)  
(CST00086)



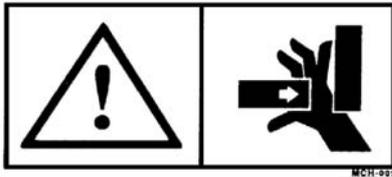
Danger of rotating parts, foreign objects. Keep clear of machine while working.



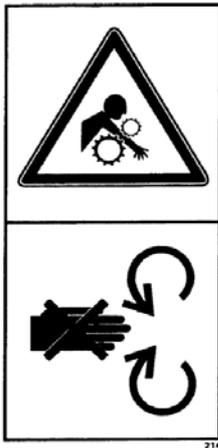
Max table speed 30 R.P.M.  
(CST00031)



Support table before working under it.  
Refer to instruction manual.  
(CST00059)



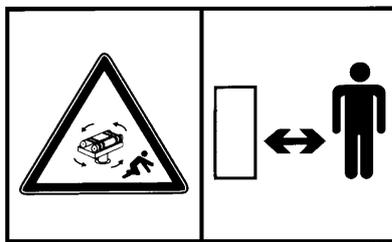
Keep hands out of crush  
area.  
(CST00019)



Keep hands clear of rotating rollers.  
(CST00017)



Keep clear of bale  
damper crush area.  
(CST00048)



Keep clear of rotating table.  
(CST00028)



Do not dismantle. Risk  
of pressure release.  
(CST00056)

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Ballinrobe  
Ireland..

991B series chassis plate  
(CST00051)

CE	TYPE	991B
	S/N	-
	YEAR OF MANUFACTURE	200

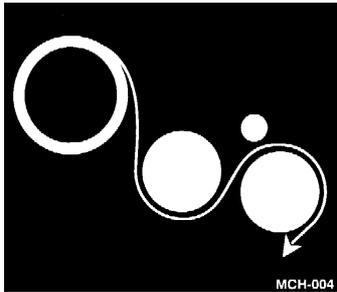
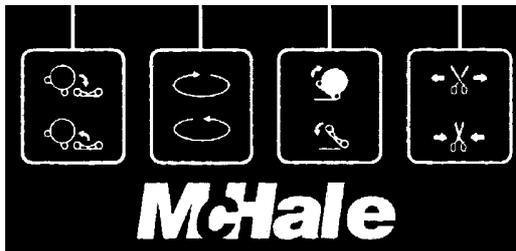


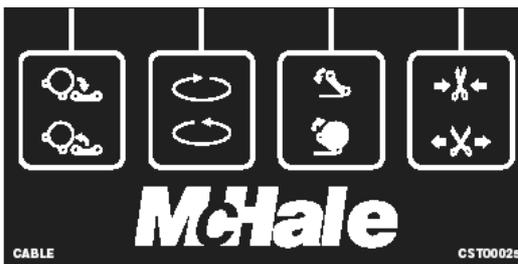
Diagram of plastic film path  
through Dispenser.  
(CST00049)



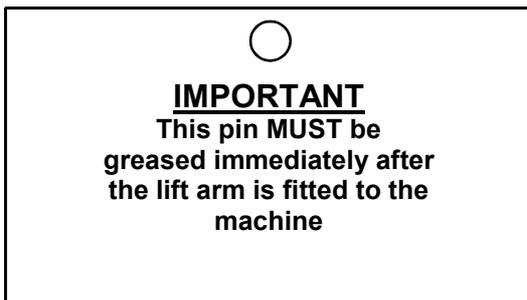
Check wheel nuts daily.  
(CST00020)



Manual control valve  
controls.  
(CST00064)



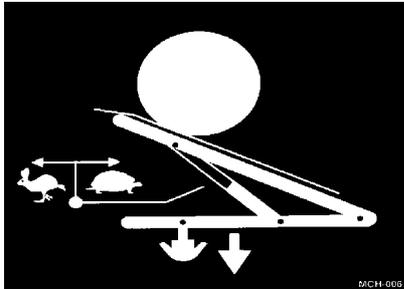
Cable control valve  
controls.  
(CST00025)



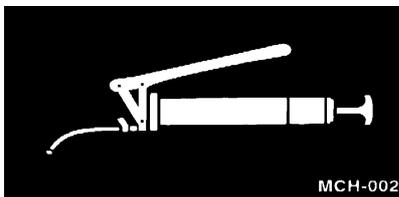
Grease pin immediately  
after fitting the lift arm  
(CST00105)



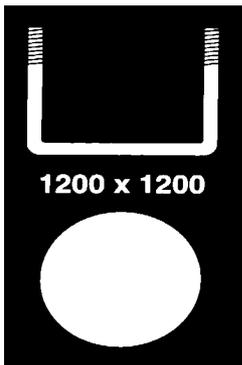
Check tyre pressure.  
(CST00058)



Bale damper drop speed  
adjustment  
(CST00061)



Grease daily  
(CST00060)



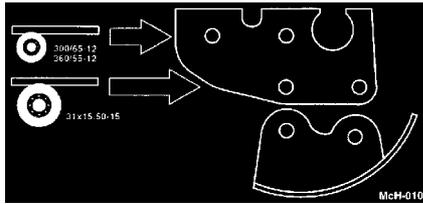
Dispenser height setting.  
(CST00062)



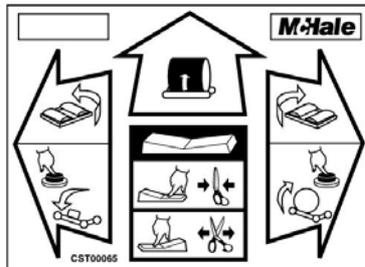
Lift machine at these points.



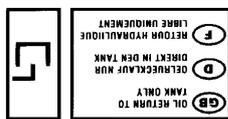
Lock joystick before carrying out  
work on the machine.  
(CST00099)



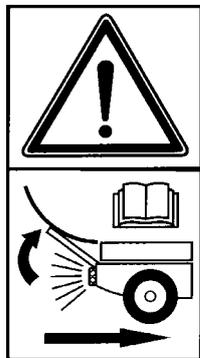
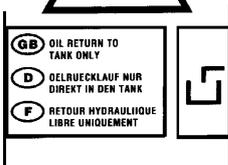
Bale damper skid adjustment.  
(CST0050)



991 BJS joystick operating instructions.  
(CST00065)



Freeflow return to tank.  
(CST0006)



Raise bale damper when lights are being used on the road. Refer to section 6.4 road transport  
(CST00063)



Remove key from tractor when adjusting or repairing machine.  
(CST00015)

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## 5. Machine re-assembly

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When the machine leaves the McHale factory it will normally be “knocked down” to a greater or lesser extent according to how it is shipped. The following gives a description of how to build the machine to working order. Some of the steps may not have to be carried out depending on how it is “knocked down”.

If two machines arrive together in a stack this must first be split into two separate machines. **Safe lifting gear of sufficient capacity must be used for machine assembly. All chains and slings used must be in good condition. Use wheel chocks to stabilise machine.**

The following sections describe machine reassembly.

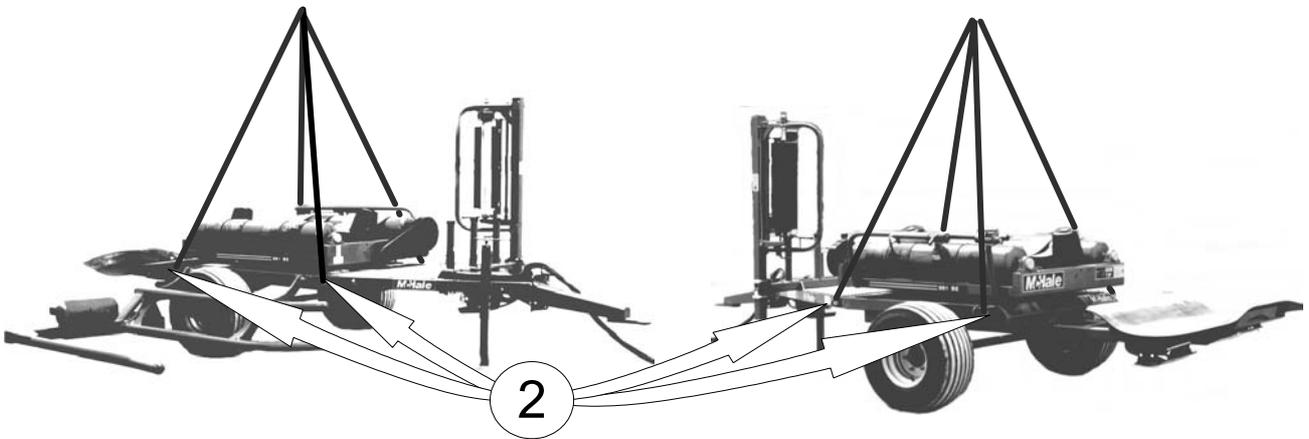
- 5.1) Separating machines in a stack.
- 5.2) Fitting bale lift arm (991B series). Fitting Potentiometer (991 BE)
- 5.3) Fitting bale damper (991B series).
- 5.4) Fitting plastic film dispenser.
- 5.5) Fitting cut & hold.
- 5.6) Fitting drawbar.
- 5.7) Fitting bobbins.
- 5.8) Fitting remote control and beacon.
- 5.9) Fitting `Auto Load` potentiometer to (991BE Series)
- 5.10) Connecting sensor wires to loom
- 5.11) Fitting 991BC control cables

---

## 5.1) Separating machines in a stack.

- 1) Ensure stack is stable using wheel chocks if necessary.
- 2) Using suitable lifting gear, attach lifting chains to the four lifting points on the upper machine.
- 3) Take up the slack in the lifting chains.
- 4) The machines are held together at three points, two at the rear lifting points and one where the dispenser normally fits. Separate machines at these points. Remove the three (3) stacking brackets completely.
- 5) Lift top machine clear and move away. Lower machine to ground. The machines are now fully separated.

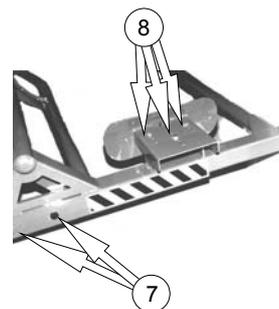
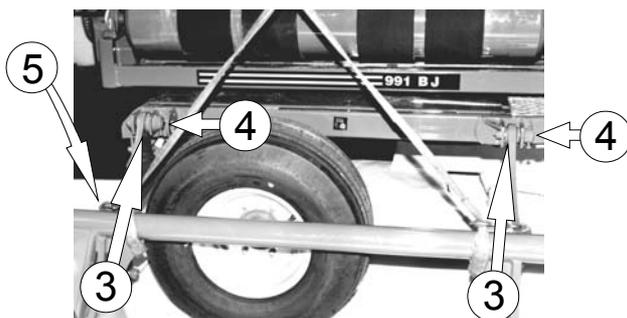
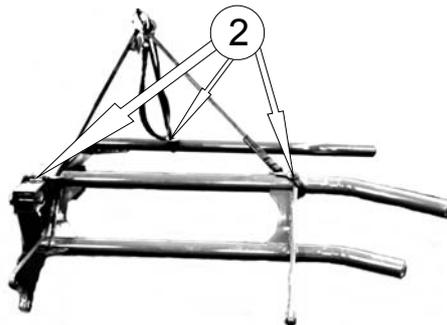
### 991B SERIES



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## 5.2 Fitting bale lift arm (991B series)

- 1) Remove protective plastic cover from machine.
- 2) Attach lifting gear as shown and lift bale lift arm off wrapper.
- 3) Invert the bale lift arm and move towards hinge points on machine.
- 4) Remove pivot pins and slide arm into position. Refit pivot pins.
  - 4.1) For 991 BE machines fit sensor to pivot pin. As shown in section 5.9.
- 5) Remove lift cylinder front pivot pin and line up cylinder with hole in lift arm. Refit pivot pin ensuring nut is tightened.
- 6) Remove the lifting gear.
- 7) Fit outer bale lift arm securing with bolt provided. The narrow position is for diameter 1200mm bales. For diameter 1500mm bales the outer arm is fitted in the wide position.
- 8) Fit bale stop to position shown with the three (3) M16 bolts and nuts provided.
- 9) Connect lighting loom (if fitted)
- 10) Grease pivot pins.**



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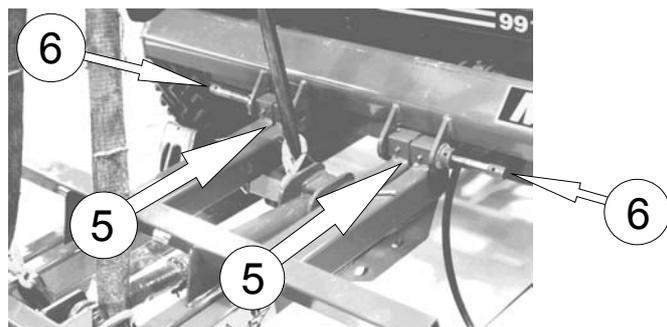
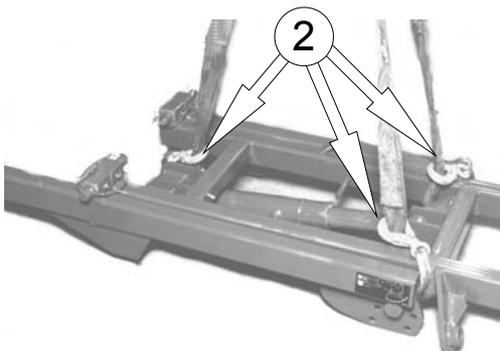
### 5.3) Fitting bale damper. (991B series)

There are two types of bale damper used on the 991B, the standard damper and the side tip damper. Fitting instructions are essentially the same for both. The damper may either be on the machine table or underneath the chassis.



**Note extreme caution is required when fitting or adjusting the mat frame or side tip plate.**

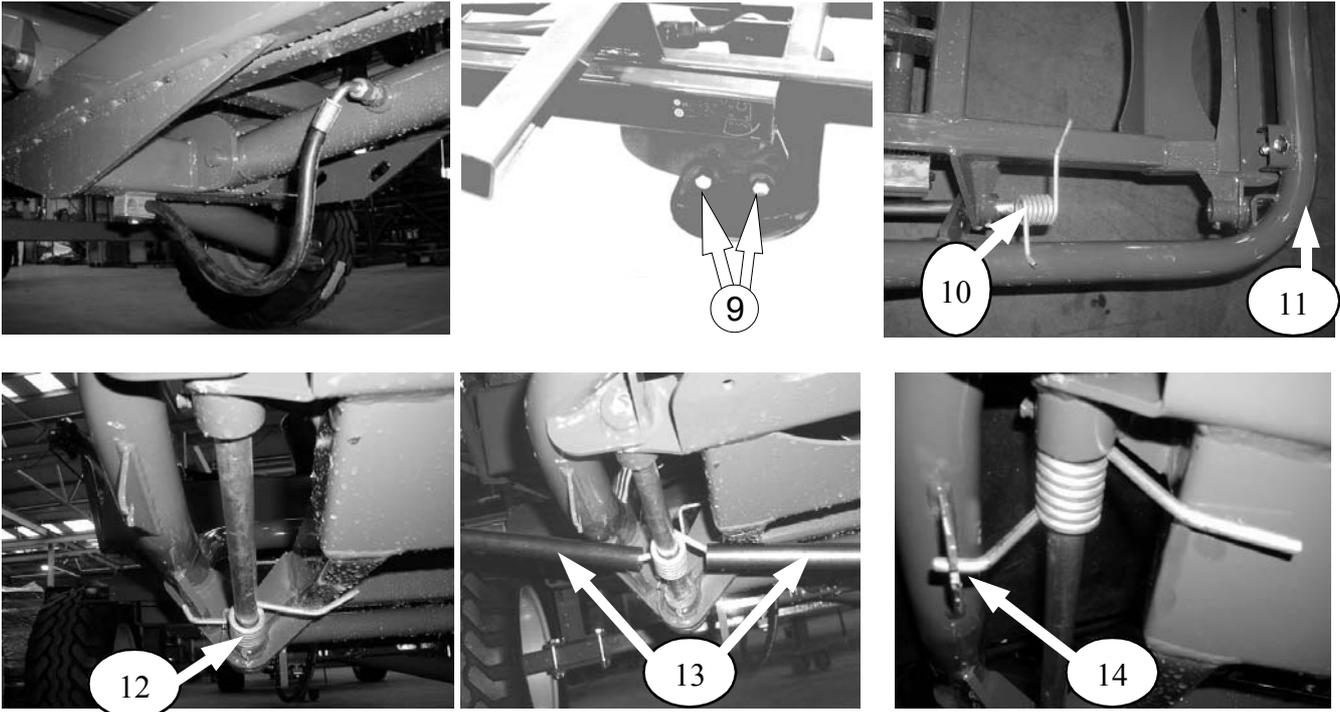
- 1) Remove plastic protective cover if still fitted.
- 2) Attach lifting gear as shown. This varies depending on where the damper is.
- 3) Lift off damper ready for fitting. It is important that any lifting chain or slings hold **both** parts of the damper.
- 4) Slide damper into position. **It is very important that the damper does not damage any components under the chassis.**
- 5) Remove damper pivot pins and line up pivots on damper with pivots on chassis.
- 6) Refit pivot pins and drive home roll pins fully.
- 7) Remove lifting gear.
- 8) Locate bale damper cylinder hose and fit to cylinder. Clamp hose in hose clamp ensuring it is not liable to get damaged in use.
- 9) Locate the damper skid stored in the table. Remove the four (4) M16 setscrews and nuts. Fit skid in the position shown (lower holes) ensuring that it is the correct way around (large lip to rear).
- 10) If it is a side tip damper that is being fitted the bale cradle plate can now be fitted. Remove the pivot pin from the plate. Insert through mat frame from front direction. The long side of the spring should be on the mat frame side of the bale cradle plate
- 11) Fit the bale cradle plate to the damper frame lining up the pivot points . Secure pivot pin in place using the bolt and nyloc nut supplied



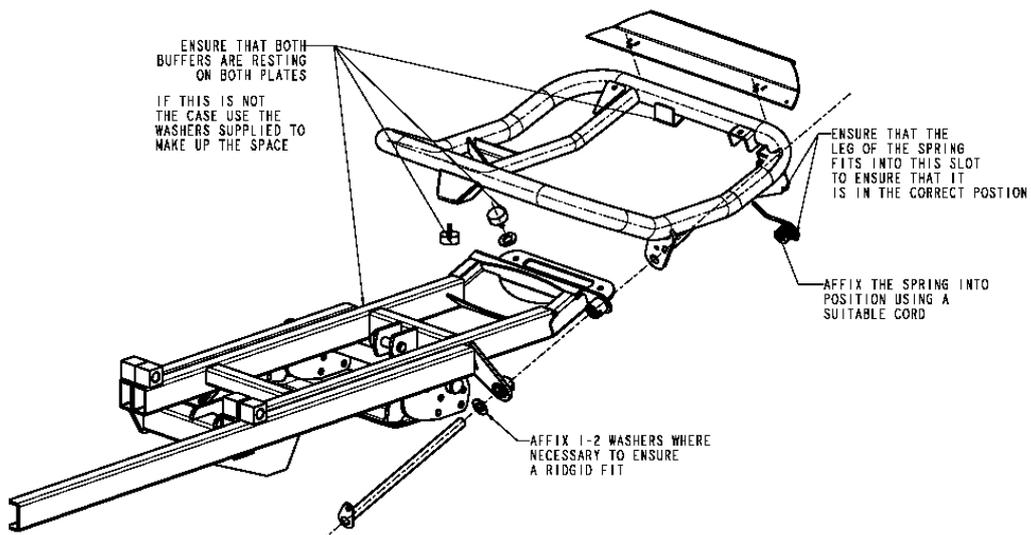
12) Fit spring ensuring that from the back of the Bale Wrapper the short leg of the spring is on the left side of the wrapper and the long leg is on the right side.

13) Using two pieces of pipe , place one on either end of the spring. This will allow you to open the spring and pull it towards the back off the mat frame into its correct position

15) Ensure that the short side of the spring is located in the notch in the bale cradle plate, the will ensure that the spring cannot move during the operation of the machine.



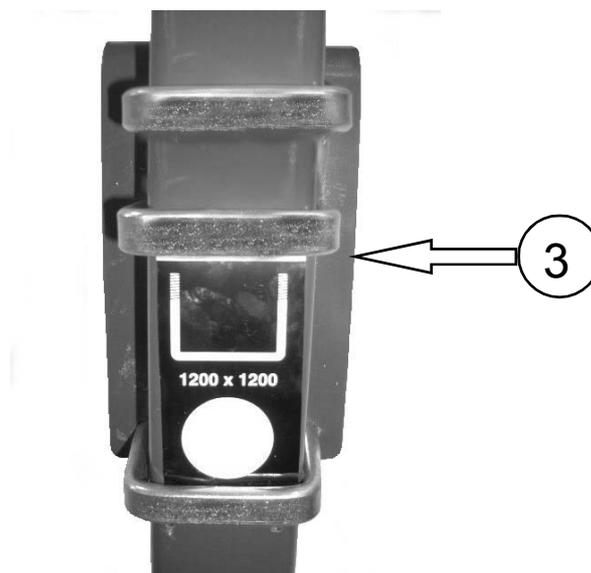
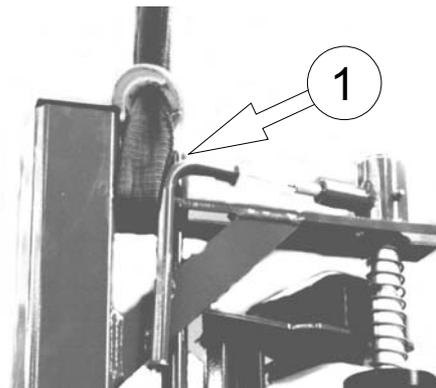
#### NEW SIDETIP ASSEMBLY INSTRUCTIONS



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## 5.4) Fitting plastic film dispenser

- 1) Lift the dispenser unit as shown using a sling. Note that the unit is top heavy.
- 2) Place the unit against the flat plate as shown by arrow three.
- 3) Fit the three “U” bolts supplied ensuring that the sticker is between the bottom two “U” bolts.
- 4) Tighten up the six M16 nyloc nuts ensuring the dispenser is mounted vertically.
- 5) Route plastic break sensor loom to hydraulic control valve where it is connected (yellow/blue and green/yellow wires) into the main loom. Route cable so that it cannot be damaged using the cable ties and clips provided. (If film break is fitted)



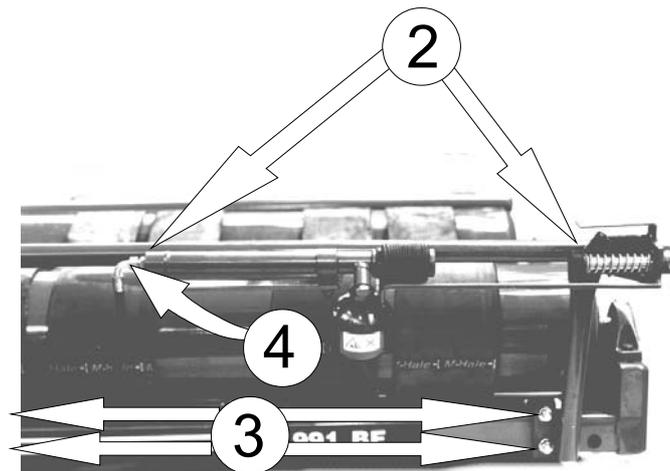
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## 5.5) Fitting cut & hold

- 1) Fit the four (4) M16 bolts and plates to the table in the positions shown (for 1200mm wide bales). For 1500mm wide bales use the other set of holes
- 2) Lift cut and hold unit at the points as shown and line up holes with bolts.
- 3) Fit the four (4) washers and nyloc nuts.
- 4) Locate and fit hydraulic hose to operating cylinder.



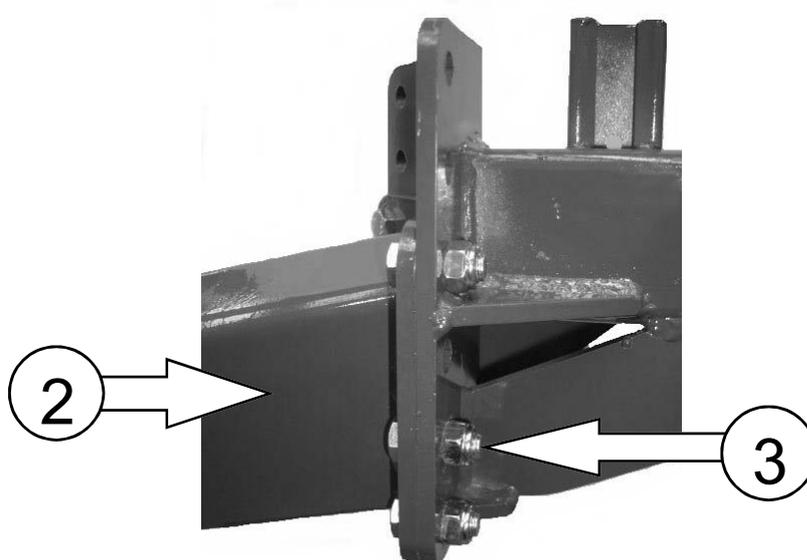
**Be careful when working with the cut & hold. Remember that the accumulator is under pressure see section 11.4) . Avoid contact with the knife.**



---

## 5.6) Fitting drawbar (991B series)

- 1) Locate drawbar stored in table.
- 2) Line up drawbar to holes on front of chassis.
- 3) Fit the six (6) M16 bolts and nuts and bolts and tighten fully.



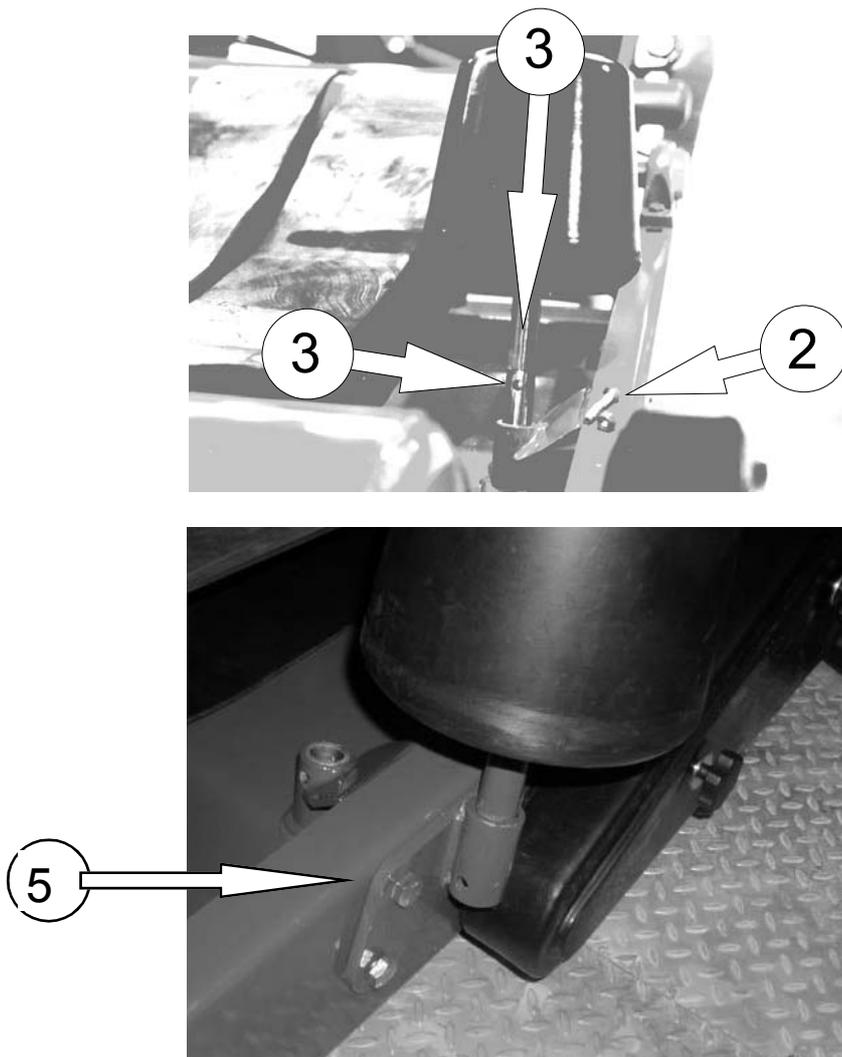
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## 5.7) Fitting bobbins

- 1) Locate the two (2) bobbins stored on the table.
- 2) Remove the M10 bolt and nyloc nut on the holder.
- 3) Place bobbin axle into holder and refit M10 bolt and nyloc nut.
- 4) Repeat procedure for the other bobbin.

Note: If wrapping 1500mm wide bales the bobbins are fitted to brackets bolted to the side of the table.

- 5) Secure bobbin brackets to the table using (3) three M16 nyloc nuts and M16 x 35 bolts each. Place bobbin axle into holder and refit M10 bolt and nyloc nut.

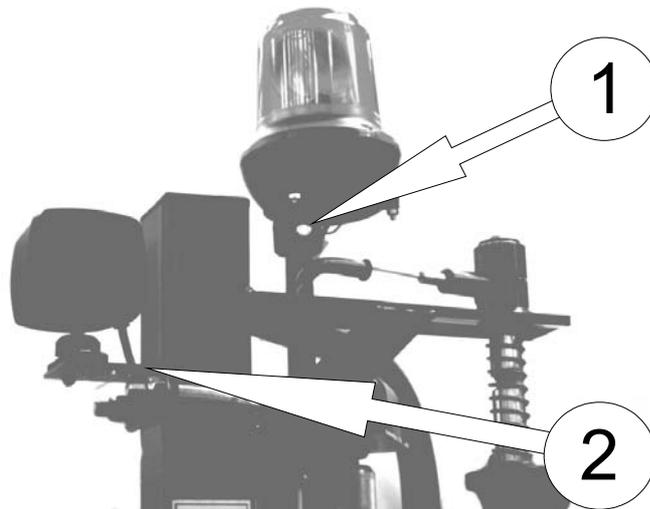


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## 5.8) Fitting remote control & Beacon

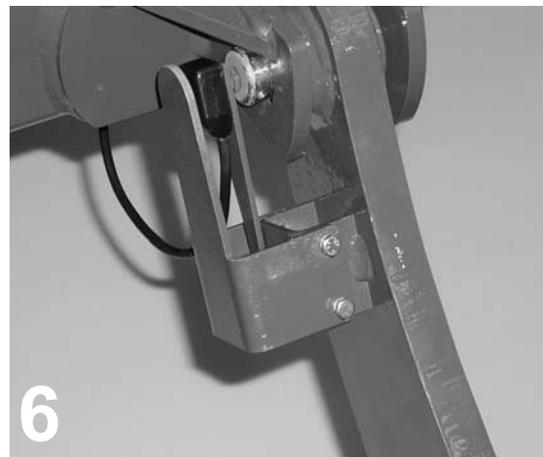
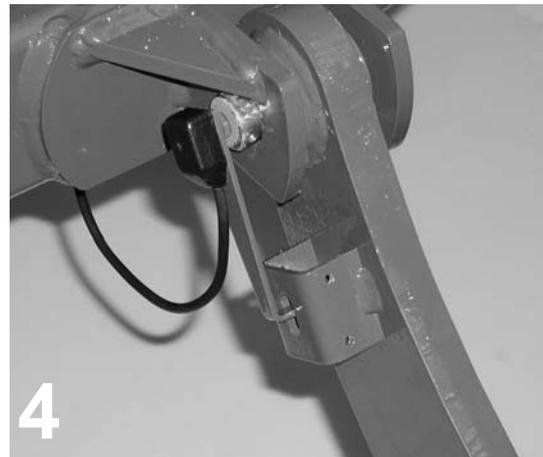
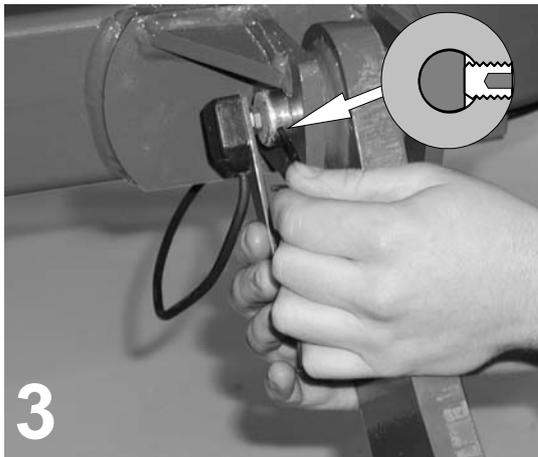
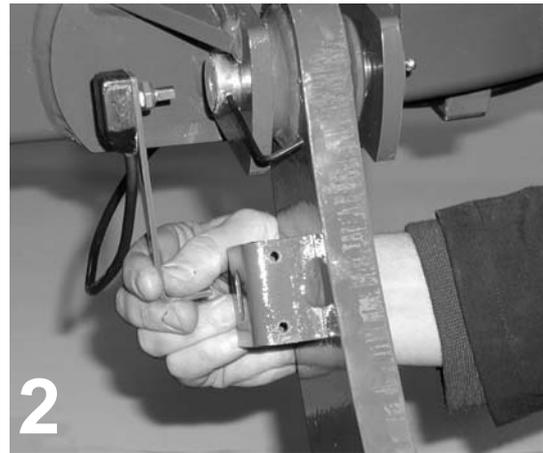
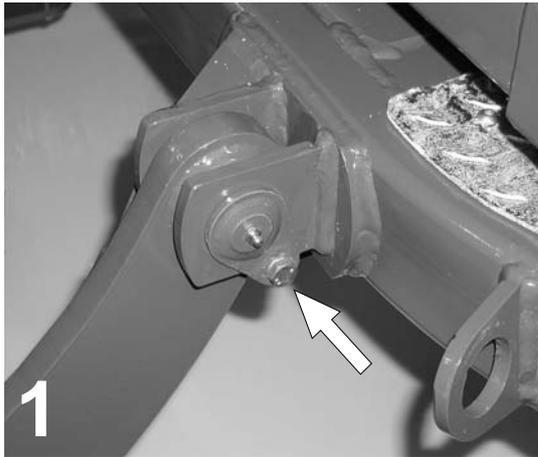
If a machine is supplied with remote control it may now be set up. The parts may be found packed in the table. Always ensure looms are routed so that they will not be damaged during use.

- 1) Clamp remote receiver to dispenser post using the “U” bolt provided. The receiver needs to be pointed in the direction it will be used from.
- 2) Route the receiver loom with the main machine loom. Attach the nine pin bottom connector to the control box.
- 3) Secure the cable down along the dispenser post using the cable ties and clips provided.
- 4) Fit beacon to top of dispenser pivot. Tighten M8 setscrew and nut.
- 5) Route the beacon loom to the spare connector (brown and green/yellow wires) found on the main loom near the hydraulic control valve.
- 6) For control box function set up see section 9.2.3).



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## 5.9) Fitting `Auto Load` potentiometer to (991BE series)



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## 5.10) Connecting Sensor Wires to Loom

Instructions for connecting Lift arm sensor/Film break sensor/Beacon to main loom. (ELECTRONIC MACHINES ONLY)

### **Lift Arm Sensor:**

The Auto Load Potentiometer sensor (lift arm sensor) cable is connected to the --three-pin connector (white/violet + black/green + blue/green) (colour of wires in connectors) on the main loom.

### **Film Break Sensor:**

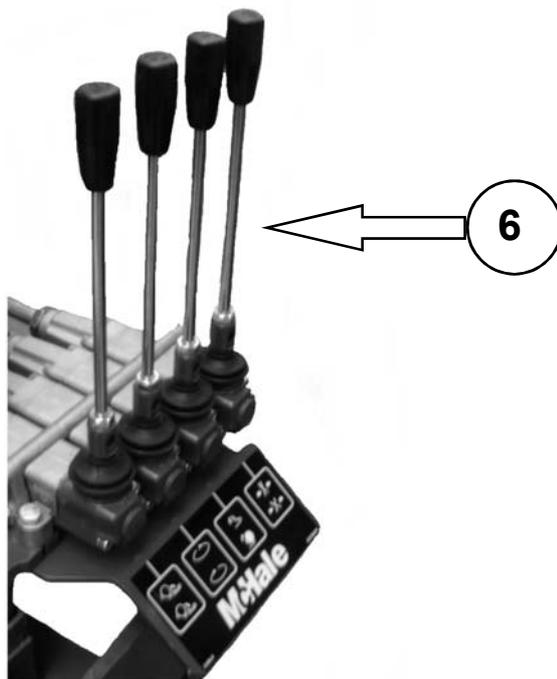
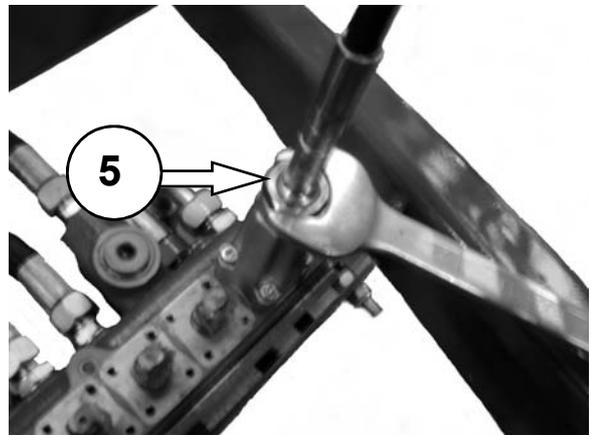
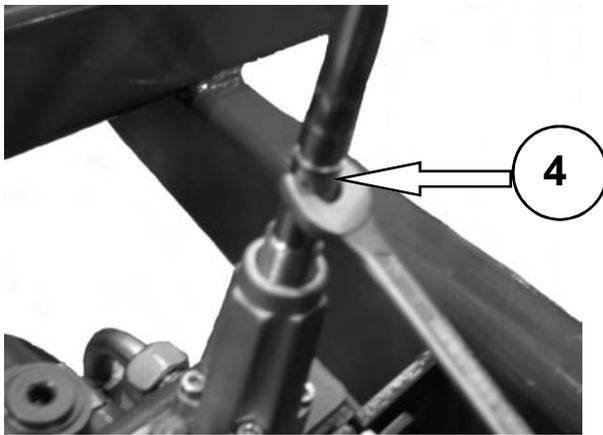
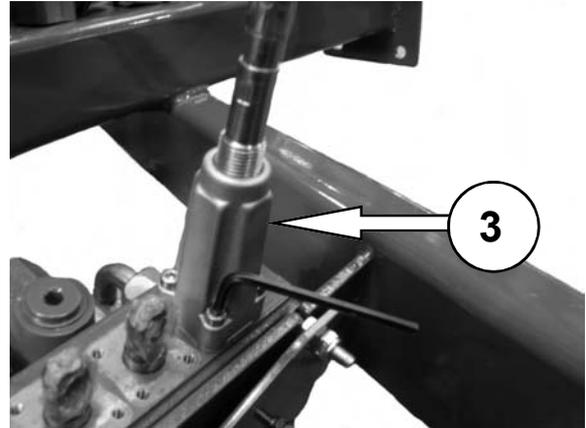
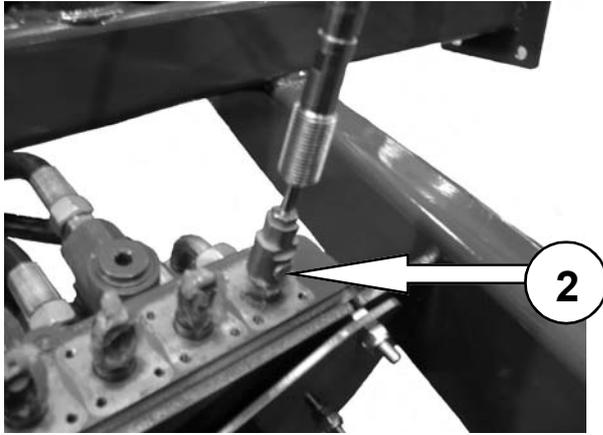
The film break sensor, which is fitted to the dispenser post, is connected to the --two-pin connector (yellow/blue + yellow/green) (colour of wires in connectors) on the main loom.

### **Beacon: (Remote control machines)**

The beacon wire is connected to the --two-pin connector (brown and yellow / green) (colour of wires in connectors) on the main loom.

NOTE this wire should be secured to the dispenser post using sticky backs and cable ties supplied with the machine.

The above connectors can be found on the main loom near the hydraulic control valve.



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## 5.11) Fitting 991BC control cables.

- 1) Identify the correct cable end for each control lever. Match each cable with the correct spool. (see pages 112 and 113 to help identify the correct spools)
- 2) Fit the cable end to the spool and insert pin.
- 3) Slide the conversion kit body down the cable and screw it in to place and secure with four M6 x 30 socket cap screws.
- 4) Adjust cable such that the lever is the central position on the remote control unit, so the lever has the same travel in each direction. This step should be carried out with the cable in a similar position to their normal operating position.
- 5) Lock cable location with M16 nut.
- 6) When adjusted correctly the four levers will lined up.
- 7) When adjusted correctly the four levers should be lined up.

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## 6. Machine operation

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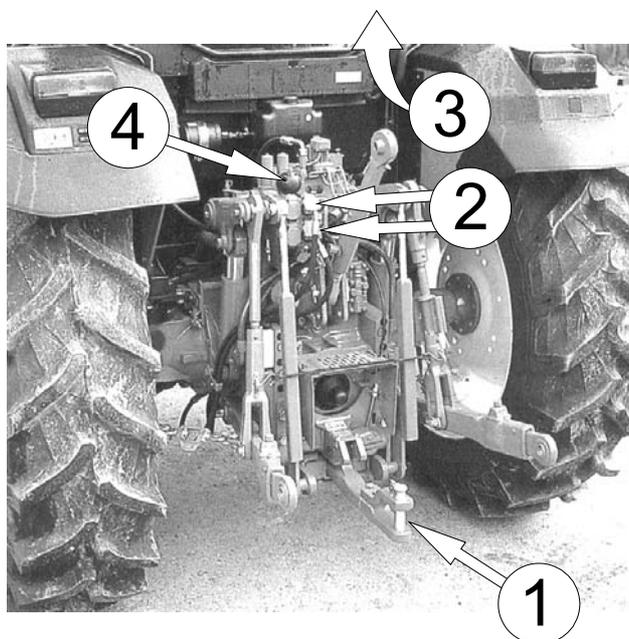
### 6.1) Tractor requirements 991B



The minimum power required to operate the wrapper comfortably would be **35kW**. However if working in difficult conditions this will need to be increased.

The following items on the tractor are required for fitment of the bale wrapper to the tractor.

- 1) Pin hitch with pin as supplied with tractor accessories.
- 2) Two (2) 1/2" female quick releases for hydraulic power supply. The return line must be a **freeflow** (check with McHale dealer for details) to tank.
- 3) One (1) 12V electrical supply
- 4) One (1) 7 pin lighting socket.



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## 6.2) Hydraulic spool valve setup

The wrapper hydraulic valve must be set up in accordance with the type of hydraulic system on the tractor that is being used. Check the tractor manual or dealer if unsure of which system is used on the tractor. If in any doubt after checking, use open centre settings as this will not damage the tractors hydraulics. The valve may be set up in two different ways:

### Plug A (manual, part no CVA06003) (electronic, part no CVA06004)

This plug is used for both **open centre** and **load sensing** hydraulic systems. The hydraulic valve is set up to this specification when leaving the factory. When using load sensing hydraulics always set tractor oil flow to achieve 30rpm on the table using the flow control on the tractors auxiliary valve.

### Plug B (part no CVA06001)

This setting is used for **closed centre** hydraulic systems.

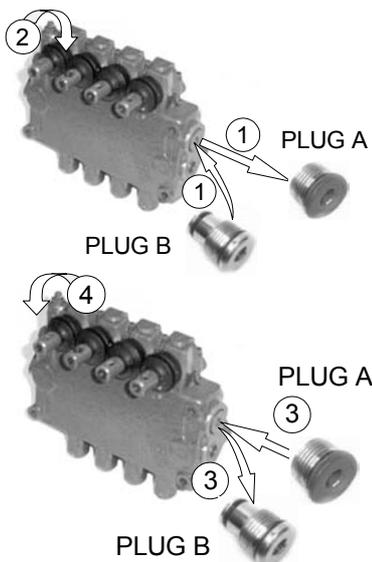
Changing from plug A to plug B (Manual & Electronic valves & BJS valves)

- 1) Remove plug A and replace with closed centre plug B.
- 2) Tighten in relief valve fully.

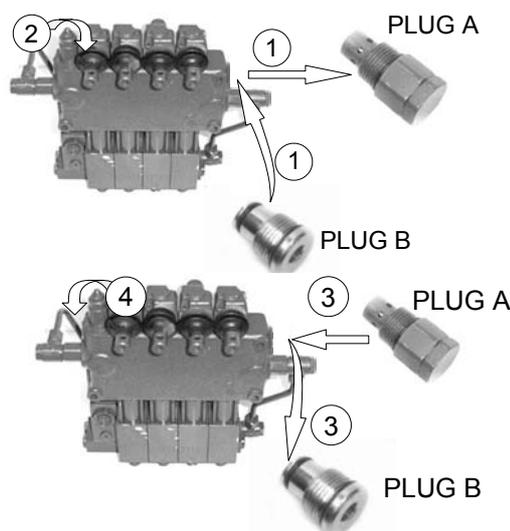
Changing from plug B to plug A (Manual & Electronic valves & BJS valves)

- 3) Remove closed centre plug B and replace with plug A.
- 4) Using a pressure gauge set relief valve to 160 bar.

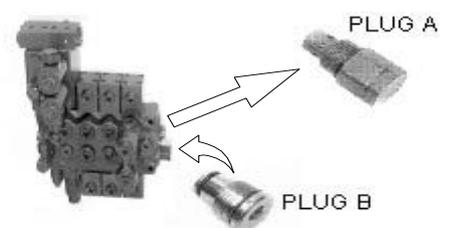
### 991B & 991BC valve



### 991BE valve



### 991BJS (Joystick) valve



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## 6.3) Attaching wrapper

1) Reverse tractor up to wrapper lining up the hitch of the tractor with the hitch of the wrapper.

2) Fit tow pin to hitch ensuring it is secure. Fit linch pin on tow pin.

3) Screw up jack off the ground fully.

4) Plug the hydraulic feed hose into a suitable hydraulic spool valve. Ensure the control valve is correctly configured for the type of hydraulic system on the tractor. Refer to section on hydraulic spool valve setup for more details.

5) Plug the hydraulic return hose into a connection that has a freeflow into the back of the tractor. It is very important to have this **freeflow** to get the best results from the wrapper.

6) Plug the 7 pin lighting plug into the 7 pin socket on the tractor.

7) Place the electronic box (991BE,991BER) or bale wrap computer (991B,991BJS,991BC) in the tractor cab and secure to the glass in an appropriate place using the suction pad on the rear. The safety strap must be secured to protect box from accidental damage. If there is no cab on the tractor secure as appropriate bearing in mind the box is **not waterproof**.

8) Screw 37pin socket on electronic box and 37 pin plug on machine together. Connect control box to tractor euro socket or direct to battery using the power cable. **There must be a good 12V supply to the control box.**

9) Connect bale wrap computer (991B,991BJ,991BC,991 FARMER) to tractor euro socket **or** direct to battery using power cable. **There must be a good 12V supply to the bale wrap computer.**



10) For 991B and 991BC place the control levers in an appropriate place. Cable controls may be placed in the cab if desired. However manual **spool valve controls must be kept outside the tractor cab.**

11) For 991BJS (joystick) models the joystick may be placed near the operator in a convenient location.

12) For the BJS connect the bale wrap computer to the joystick connector and connect the Euro plug to the tractor.

13) Check that all above functions operate correctly.

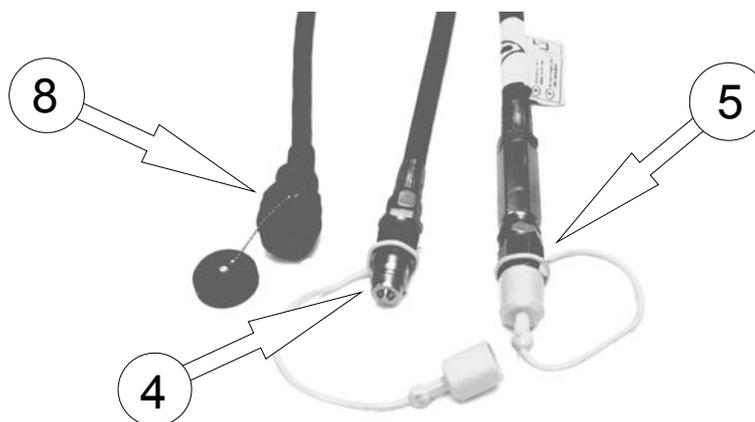
13)The machine is now ready to work.



Bale wrap computer



Electronic control box



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## 6.4) Road transport

The following must be checked, as a minimum requirement, before moving the machine on a public road.



1) Bale lift arm must be in the fully raised position (if fitted). **Transport lock must be fitted while travelling on the road.**

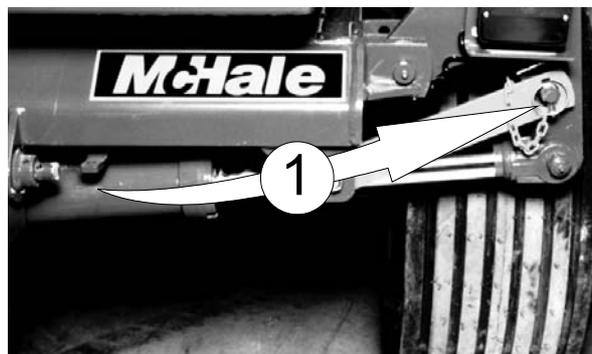
2) Ensure oil supply is turned off and cannot be turned on accidentally.

3) Ensure lights (if fitted) are connected and working correctly. Bale damper must be raised to comply with lighting regulations.

4) Ensure electronic control box or bale wrap computer is switched off.

5) If plastic film is to be transported on the machine it must only be done so on the holders provided and secured if necessary.

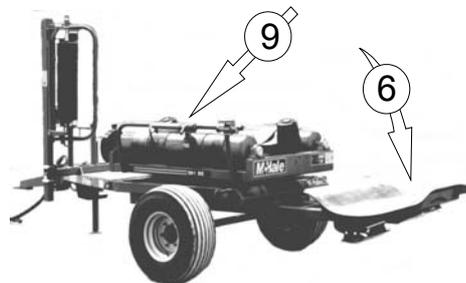
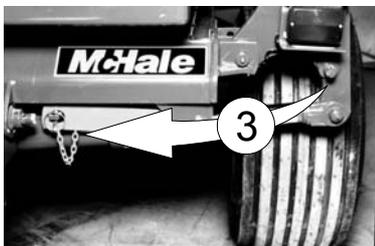
6) The operator must ensure that any other regulations regarding road use are adhered to.



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## 6.5) Preparing machine in field for wrapping

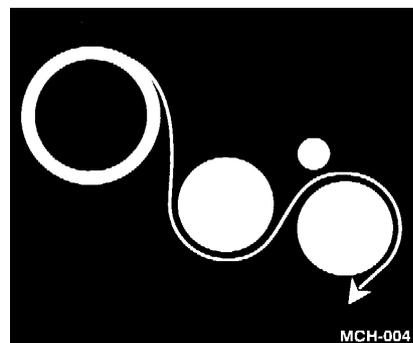
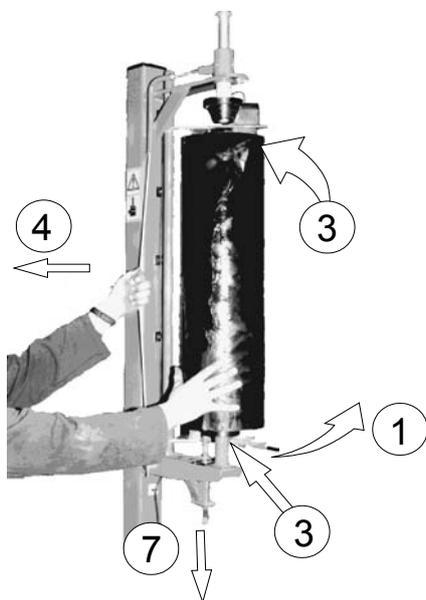
- 1) Load plastic film into dispenser running it through the rollers as shown by diagram. Attach film to bale. See section 6.6.
- 2) Turn on oil supply.
- 3) Remove lift arm transport lock (991B series). **Do not attempt to lower bale lift arm with transport lock still attached.**
- 4) Lower the bale lift arm to the ground (if fitted).
- 5) Lower bale damper (if fitted).
- 6) Switch on electronic control box and set to “Automatic” (Electronic models).
- 7) Connect bale wrap computer (Manual control models).
- 8) Ensure the table is in the correct starting position (see control box functions/ programmes). On electronic machines the control box needs to be set on “manual” to work this function.
- 9) The machine is now ready to wrap.



---

## 6.6) Loading plastic film

- 1) Push back handle until dispenser latches open.
- 2) When removing old roll, push upwards to latch top roll holder in the “up” position. Then remove the old roll and discard carefully.
- 3) Sit new roll onto bottom roll holder and align with top roll holder.
- 4) While still holding roll, pull cable to release top roll holder. The roll of plastic film is now held.
- 5) Thread the film through the dispenser rollers as per the threading diagram.
- 6) Tie end of plastic film to the bale on the table.  
**Do not attempt to clamp plastic film in cut & hold mechanism.**
- 7) Close dispenser by releasing the latch. The roll should now rest against one of the aluminium rollers.



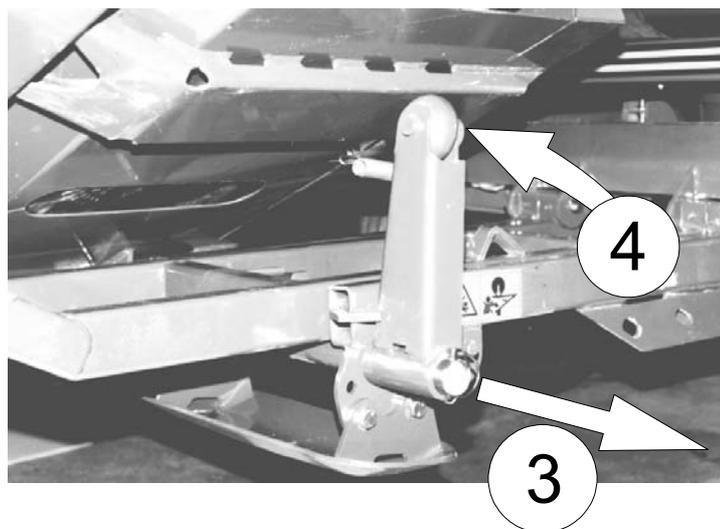
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## 6.7) Side tip bale damper (991B series)

The 991B may be used in conjunction with a side tip bale damper instead of the standard bale damper. The side tip bale damper may be used as a standard bale damper or with one adjustment to enable it to tip the bales on their ends. To change from standard tipping to side tipping the following is carried out.



- 1) **Be extremely careful when working with the side tip bale damper.**
- 2) Hinge up bale damper cradle plate ensuring it is secure and cannot fall.
- 3) Remove large linch pin and pull support arm out on shaft.
- 4) Turn support arm through 90 degrees (pointing upwards) and push support arm back into place. Secure with large linch pin.
- 5) Lower the bale damper cradle plate down again.
- 6) The machine is now ready to side tip bales. **When side tipping bales the machine must be stopped during tipping.**
- 7) Reverse this procedure to change back to normal tipping. **Side tip rear extension piece must be removed for normal tipping if fitted.**



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## 6.8) Wrapping

### 6.8.1) Wrapping behind tractor (991B series)

The following is the recommended method for working the 991B series/ 991L series after a tractor. It assumes the bales are well shaped for wrapping. However since it is impossible to allow for all differing conditions and terrain it may be necessary for the operator to vary this.



**The operator must be aware of the “DANGER ZONE” which varies in size depending on operating conditions.** The “danger zone” is the hazardous area around a machine i.e. the area in which a bale could land in the event of it being dropped suddenly from the wrapping table or from the mat frame. The “danger zone” for working on level ground is the area around the rotating table (approx. 5 metres radius from the rotating centre axis), 1 metre in front of the table and a minimum of 10 metres at the back of the machine to allow safe bale discharge. It is the operators responsibility to keep persons out of this region.

The electronic control box (if fitted) should be set to programme “O” for a 991B series machine. **The table must be in the correct starting position.** Refer to section on setting control box for more details.

- 1) Ensure the bale lift arm is lowered to the ground.
- 2) Drive tractor up beside the bale to be wrapped. It will take practice to line up the bale correctly with the wrapper. Ensure the lift arm goes under the bale.
- 3) Actuate hydraulic control valve (manual control) or switch (electronic control) to load bale.
- 4) The wrapper should now go through a sequence either worked manually, or automatically on electronic machines.
  - a) The bale lift arm lifts the bale onto the wrapping table (manual). On electronic machines the auto load cycle can be activated see control box features.
  - b) The bale lift arm is lowered to the ground again manually (manual machines). It is lowered automatically in electronic machines
  - c) The table starts rotating and plastic film is applied to the bale.
  - d) After a few revolutions the plastic is released out of the cut & hold.
  - e) The table slows down two revolutions before the required number of revolutions is reached (electronic control)
  - f) The table stops rotating when the required number of rotations are reached. It is now lined up for tipping off.
  - g) To tip the bale off, the the table tip switch must be activated (electronic machines).

- 
- h) The bale damper (991B series) raises up and the table tips.
  - i) The cut and hold closes, holding and cutting the plastic film.
  - j) The table and bale damper (991B series) lower down and the bale is lowered to the ground.
  - k) The table resets to loading position as it is being lowered (electronic).

5) The wrapper is now ready to receive another bale.

6) When changing the plastic film rolls always turn off the tractor and electronics. Always remove ignition key from tractor.

---

## 6.8.2) Wrapping behind tractor (991BJS series)

The following is the recommended method for working the 991BJS series after a tractor. It assumes the bales are well shaped for wrapping. However since it is impossible to allow for all differing conditions and terrain it may be necessary for the operator to vary this.



**The operator must be aware of the “DANGER ZONE” which varies in size depending on operating conditions.** The **“danger zone”** is the hazardous area around a machine i.e. the area in which a bale could land in the event of it being dropped suddenly from the wrapping table or from the mat frame. The **“danger zone”** for working on level ground is the area around the rotating table (approx. 5 metres radius from the rotating centre axis), 1 metre in front of the table and a minimum of 10 metres at the back of the machine to allow safe bale discharge. It is the operators responsibility to keep persons out of this region.

- 1) Ensure the bale lift arm is lowered to the ground. To lower the lift arm press switch `C` and move handle to the left see section 8.3) BJS controls.
- 2) Drive tractor up beside the bale to be wrapped. It will take practice to line up the bale correctly with the wrapper. Ensure the lift arm goes under the bale.
- 3) To load the bale press switch `C` and move handle in the opposite direction. To lower the lift arm back to the ground move handle back in original direction.
- 4) To start the wrapping cycle move handle to the left. After about two revolutions the cut & hold is released automatically..
- 5) Move the table manually into the tip off position.
- 6) Tip the bale by moving the lever forward in the direction of `3` see section 8.3) BJS controls. Actuate the cut & hold using the switch `A` see section 8.3) BJS controls.

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### 6.8.3) Wrapping at stack with remote control (991BER)

The following is the recommended method for working the 991 wrapper as a static machine at the stack using remote control. It assumes the bales are well shaped for wrapping. However since it is impossible to allow for all differing conditions and terrain it may be necessary for the operator to vary this.



**The operator must be aware of the “DANGER ZONE” which varies in size depending on operating conditions.** The **“danger zone”** is the hazardous area around a machine i.e. the area in which a bale could land in the event of it being dropped suddenly from the wrapping table or from the mat frame. The **“danger zone”** for working on level ground is the area around the rotating table (approx. 5 metres radius from the rotating centre axis), 1 metre in front of the table and a minimum of 10 metres at the back of the machine to allow safe bale discharge. It is the operators responsibility to keep persons out of this region.

The electronic control box (if fitted) should be set to programme “r94” except on 991BE where programme “rt” should be used. If side loading is desired use programme “Sr94”. **The table must be in the correct starting position. Refer to the section control box/functions/programmes for more details.**



1) Park machine on level ground with access for loader as required.  
**Ensure machine cannot move.**

2) Load bale onto wrapper table using a **McHale round bale handler.**

3) The wrapper should now go through a sequence either worked manually or automatically on electronic machines.

a) Press “Auto start” on the remote control unit.

b) The table starts rotating and plastic film is applied to the bale.

c) After a few revolutions the cut & hold releases the plastic film.

d) The table slows down two revolutions before the required

number of revolutions is reached.

e) The table stops rotating when the required number of rotations are reached. It is now lined up for tipping off.

f) To tip the bale off, “auto start” must be pressed again (except 991L).

g) The bale damper (991BER) raises up and the table tips.

h) The cut and hold closes, holding and cutting the plastic film. On a 991L series the table now tips up fully.

i) The table and bale damper (991BER) lower down and the bale is lowered to the ground. The table resets itself to loading position as it is being lowered (991BER).

j) The table tips fully and the bale is tipped to the ground (991L).



4) The wrapper is now ready to receive another bale.  
**Always ensure there is no personnel or wrapped bales in the way of the wrapper before operating again.**

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## 7. Bale and plastic film requirements

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The bales to be wrapped should be well shaped, dense and of suitable quality for making silage. Substandard material will not produce good quality silage regardless of how well the bale is wrapped.

Bale width: Up to 1500mm wide  
Bale height: Diameter up to 1800mm high

It is of utmost importance that top quality plastic film is used for wrapping bales. Always follow plastic film manufacturers recommendations on storage and use of the film.

It is recommended that a **minimum of four (4)** layers of film are applied to the bale. If the material being wrapped is of a hard or stemmy nature it may be necessary to apply **six (6) or eight (8)** layers to ensure a good airtight package. The operator needs to ensure that the bale is correctly wrapped.

It is good practice to periodically check the bales after being wrapped for any torn, split or punctured plastic film. If the stubble in a particular field has a tendency to puncture the plastic film, it is strongly advised to wrap the bales at the stack, where there may be more control over ground conditions.

**The plastic film must be applied to the centre of the bale. If it is too low or too high adjust the dispenser height as appropriate. See section 10.2**

**To determine the number of table rotations required to wrap a bale carry out the following procedure:**

- 1) Count the number of table revolutions to cover the bale completely with plastic film.
- 2) Add 1 to this number.
- 3) Multiply this resultant figure by 2 (for 4 film layers) or 3 (for 6 film layers)

Example:

Number of rotations to cover bale: 7

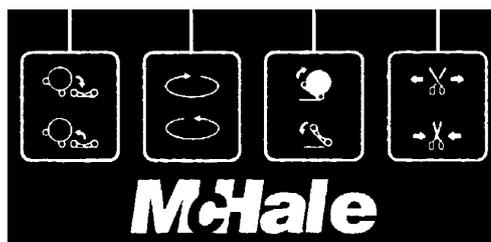
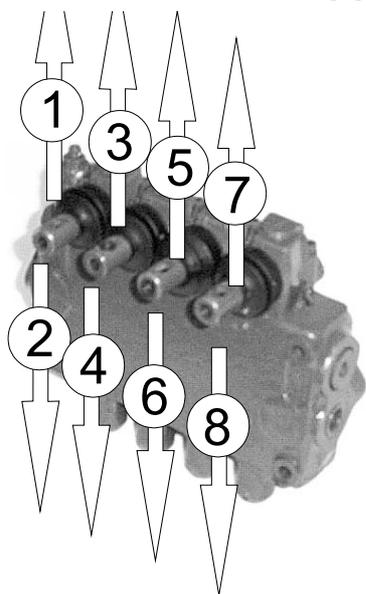
Number of rotations to apply 4 layers of film to bale =  $(7+1) \times 2 = 16$  rotations.

## 8. Manual controls

### 8.1) Manual controls (991B & BC)

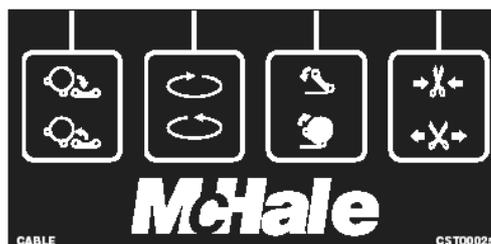
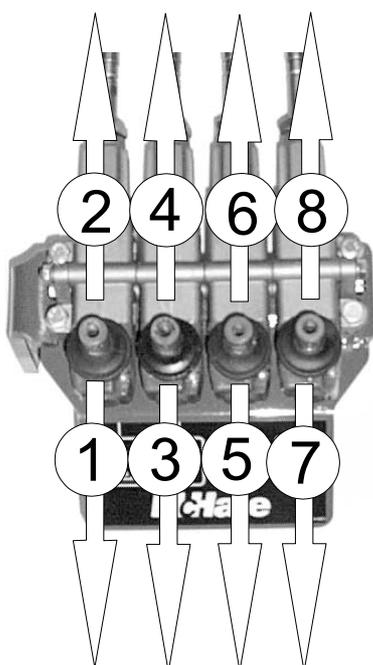
The manual controls on the 991B & BC consist of a four bank manually operated spool valve. This may be operated directly by levers or by cable control.

#### Direct control



No.	Description
1	Lift arm up
2	Lift arm down
3	Table reverse
4	Table forward
5	Table tip
6	Table lower
7	Cut & hold open
8	Cut & hold close

#### Cable control



No.	Description
1	Lift arm down
2	Lift arm up
3	Table forward
4	Table reverse
5	Table tip
6	Table lower
7	Cut & hold open
8	Cut & hold close

## 8.2) 991BJS controls

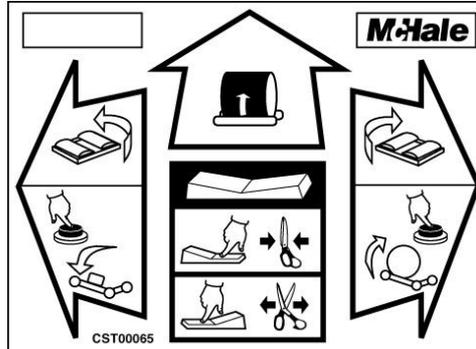
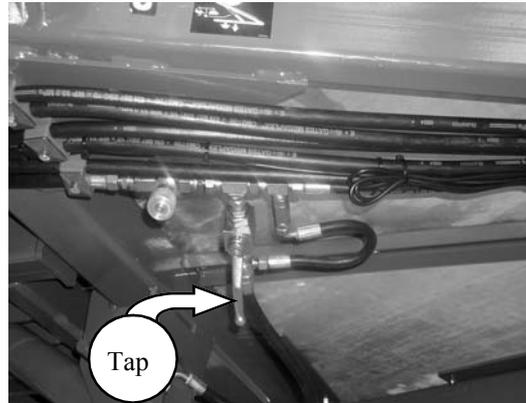
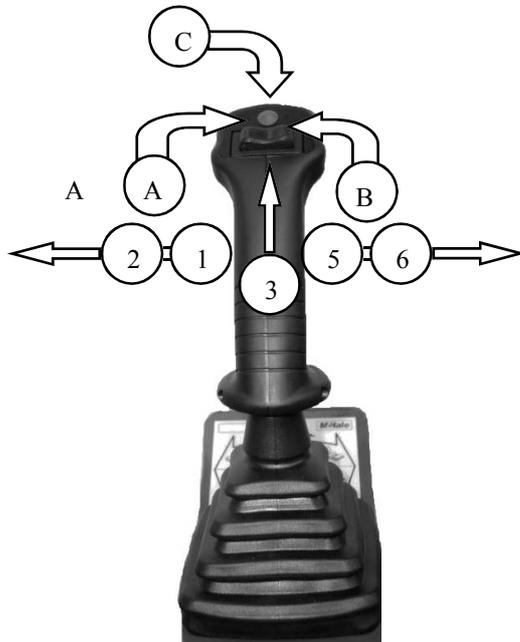
The 991BJS is fitted with a hydraulic servo joystick. To carry out maintenance under the table, the table must be locked in the upright position. The tap underneath the table must be closed. The tap shown in the picture is in the open position, to close the tap rotate it through 90 degrees. The table is then tipped as normal but it will not return when the joystick is released to the neutral position.



Place the safety bar in position underneath the table.

**The safety bar must always be used when working under a tipped table.**

To lower the table remove the safety bar, turn the tap to the open position. The table will return to its resting position. Be extremely careful when opening the tap as the table is lowered instantly.



No.	Description
1	Table rotate forward
2	Lift arm down press switch C
3	Table tip.
4	Neutral (Table returns to resting position)
5	Table rotate reverse
6	Lift arm up press switch C
C	Operates lift arm
A	Cut and hold open
B	Cut and hold close



Always apply the joystick lock and remove the key from the tractor before carrying out any maintenance or repairs on the machine.

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## 9. Electronic monitoring/control

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### 9.1) Bale wrap computer

The Bale Wrap Computer is used to monitor and control a number of different McHale bale wrapping machines both manual and semi-automatic. It is very important that the correct programme be selected to control the wrapping machine.

991B	Manual	Programme 1
991BC	cable control	Programme 2
991BJS	Semi-automatic	Programme 2

#### Selecting Programme

Switch off or unplug Bale Wrap Computer.

Press and hold 'cal button'.

Switch on computer.

Release cal button.

The display shows the over speed alarm setting.

Press and release the cal button again.

The last digit will flash '1', '2' or '3'.

Change by pressing 'SET/RESET'

When the correct programme number is displayed switch off the computer.

The settings will be retained in the memory.

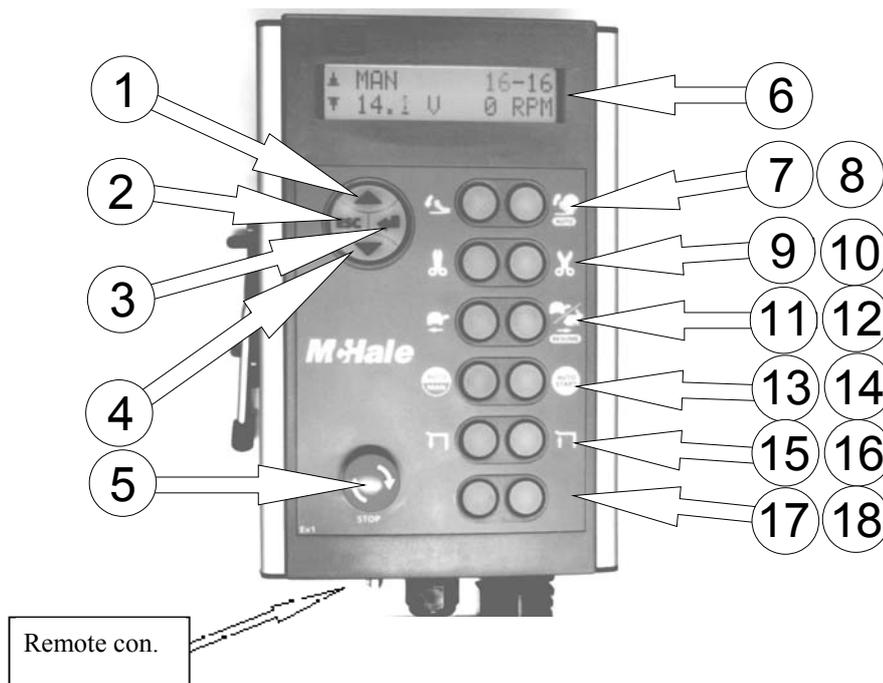
For information on the other settings of the bale wrap computer please refer to the separate RDS wizard manual (CLT00031, English, French, German)

## 9.2) Electronic control box

The Electronic Control box is the main interface between the operator and the machine. While the machine is fully automatic, setting up is required before wrapping commences. It is also possible to work the machine manually through the switches on the box. The electronic control box is fitted to the following machines:

991BE  
 991BER  
 991LBER  
 TBER  
 TSR } Not covered by this manual

### 9.2.1) Control Box Functions/Programmes



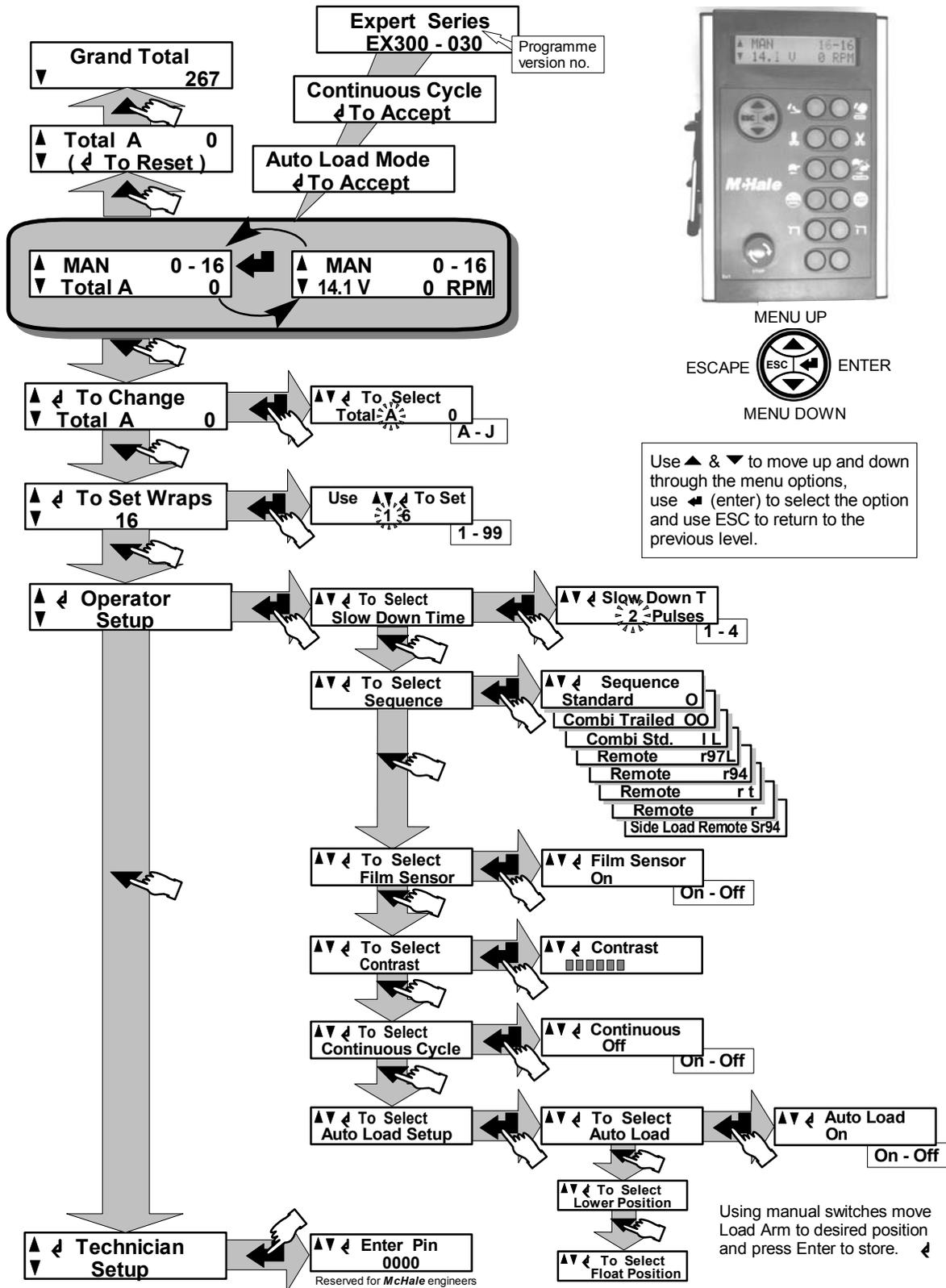
No.	Function
1	Display up
2	Escape back to main display
3	Enter
4	Display down
5	Stop button

No.	Function
6	Display
7	Table tip (In Auto starts the tipping part of the cycle)
8	Table lower
9	Cut & hold close
10	Cut & hold open
11	Table reverse (slow)
12	Table forward (slow/fast) Press button for slow speed, release and quickly press again for fast. Resume: Starts the wrapping cycle after film break.
13	Automatic cycle/Manual cycle
14	Automatic cycle start
15	Bale lift arm down
16	Bale lift arm up
17	Spare button
18	Spare button

## **Available wrapping programmes**

Programme		Description	Table start position
STANDARD	O	991BE, 991BER standard field operation	Cut & hold at left side of machine
COMBI TRAILED	OO	Not used on 991B series/ 991L series	
COMBI STANDARD	I L	Not used on 991B series/ 991L series	
REMOTE	r97L	991LBER with bale lift arm	Cut & hold at left side of machine
REMOTE	r94	991LBER standard	Cut & hold at front of machine
REMOTE	r t	991BER remote control operation	Cut & hold at front of machine
REMOTE	r	Programme not in use.	
SIDE LOAD REMOTE SR94		991LBER side load	Cut & hold at left side of machine

## 9.2.2) Control Box Setup



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## 9.2.3) Control box features

### Working display

When the control box is first switched on it displays "**Expert Series**" followed by the programme version number. The enter button must be pressed to confirm continuous cycle or auto load sequence. After a short delay the working display appears. The working display is in two halves: the upper half displays machine status manual or automatic, the current wrap count and the preset number of wraps; the lower half displays the voltage and the table speed in RPM; or the total for the selected bale counter. Pressing enter toggles between the two working display options.

### Bale Counters

The Expert Series control box contains ten different bale counters (**A - J**) which can be reset and a grand total counter which can not be reset.

### To Select Bale Counter

From the working display press the down arrow to select "**To Change Total**" display, press enter to move to the "**To Select Total**" display, select desired counter (**A -J**) using up and down arrow buttons and when correct press enter to select, press up arrow or ESC to return to the working display.

### Voltage Monitor

The Expert Series control box monitors its operating voltage and displays it during wrapping. If the voltage falls below a safe level **LOW BATT** is flashed on the display. The usual causes of low voltage are a bad battery or a defective charging circuit, loose or corroded connections or fuses or a faulty power lead to the control box.

---

### To Set Wraps

To change the desired number of film wraps press the down arrow button twice to display the **"To Set Wraps"** screen, press enter to move to the **"Use To Set"** screen, use up and down arrow buttons to make changes to the flashing figure and when correct figure shows press enter, the second digit is programmed in a similar manner. When the desired figure is displayed return to the working display by pressing ESC or the up arrow.

### Operator Set-up

The Expert Series control box is designed to control a number of different McHale wrapping machines therefore it is very important that the correct wrapping sequence be selected to suit the machine in use before work begins. To enter the operator set up menu press the down arrow three times, press enter once to move to the operator adjustable factors; **Slow Down Time, Sequence, Film Sensor, Display Contrast, Continuous Cycle, Auto Load Set up**. Select using up and down arrows, press enter to adjust.

### Slow Down Time

The table slow down time may be adjusted from within this sub menu, (that is the number of pulses before the end at which the table slows from high speed to low speed -two pulses per rotation- adjustment range **1-4**). Normally this will automatically be set when the wrapping sequence is selected.

### Wrapping Sequence

It is very important that the correct wrapping sequence is selected and the table rotated to the correct starting position before wrapping starts. Once selected the wrapping sequence will be retained in memory. Refer to available wrapping programmes section 9.2

### Film Sensor

The film sensor monitors the passage of film through the dispenser rollers. If the roll empties or the film breaks **FILM BREAK** will be flashed on the display, the wrapping table will rotate forward in slow speed and pause briefly. The table then rotates slowly in reverse to a position before the film breakage and waits for film to be replaced. **The operator must apply the parking brake, switch off the tractor and remove the key,** replace the film roll, attach the film to the bale, start the tractor and press `resume` to complete wrapping.

---

### **Display Contrast**

Extremes of temperature may affect the contrast of the display which is adjustable from the contrast menu.

### **Continuous Cycle**

The Continuous Cycle when enabled allows the wrapping machine to complete the wrapping cycle without waiting for the operator to press the tip switch to start the tipping part of the cycle. Each time the control box is switched on it asks the operator to press enter to confirm that the Continuous Cycle is required.



**The continuous cycle should not be used in hilly terrain as the operator needs better control of bale unloading i.e. the bale should be unloaded on level ground.**

### **Auto Load**

The Auto Load feature when selected enables automatic loading of the bale. The loading arm normally sits at the preset float position, on approaching the bale Auto Start is pressed, the loading arm drops to the preset lower position and the machine is moved forward to receive the bale. Auto Start is again pressed; the loading arm lifts the bale on to the wrapping table, the arm lowers to the float position and wrapping starts.

Both the float position and the lower position may be adjusted from the control box. To set; move to the 'To select lower position' screen, using manual switches move arm to desired position, when correct press enter to store the setting. The same applies to setting the float position. When settings are correct move to the Auto Load screen and set to ON. More accurate settings can be achieved if the adjustments are done as the arm is moved from a higher to a lower position.

Each time the control box is switched on the operator must press enter to confirm that the Auto Load Cycle is required.

---

## 10. Machine adjustments

From time to time it may become necessary to carry out adjustments to the machine, whether to improve machine performance or allow for general wear and tear. Such adjustments are part of the machine design. The following chapter gives details of how to go through the various adjustments. Some of these are field adjustments while others will be performed during machine maintenance. All of these adjustments should be checked before the machine goes to work for the first time.

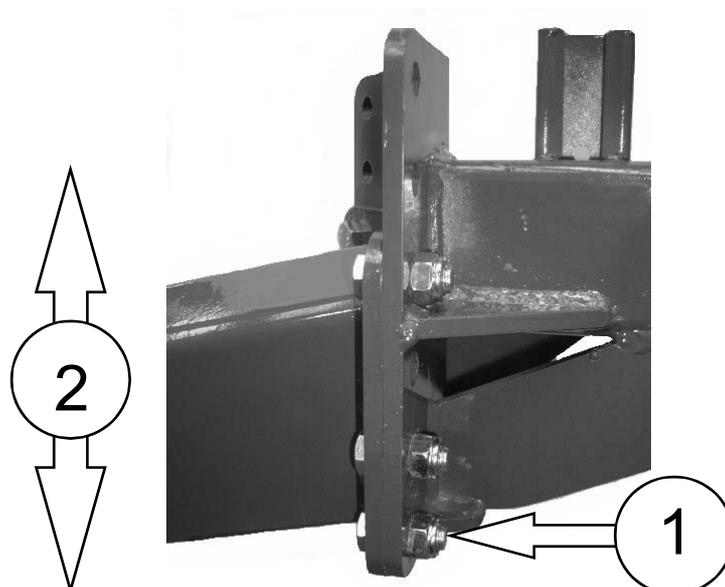
- 10.1) Drawbar height.
- 10.2) Dispenser height.
- 10.3) 500mm plastic film conversion kit.
- 10.4) Table rollers/belts adjustment.
- 10.5) Table stop position magnet.
- 10.6) Table load position magnet.
- 10.7) Table down magnet.
- 10.8) Bale damper lift height
- 10.9) Bale damper drop speed.

---

## 10.1) Drawbar height (991B series)

The height of the drawbar may be adjusted to allow for the use of different tractors. The wrapper should be parallel to the ground when in work. To change the height go through the following procedure.

- 1) Remove the six (6) M16 nyloc nuts and the six (6) M16 bolts holding hitch on.
- 2) Move hitch to new location.
- 3) Insert the six (6) M16 bolts and tighten nyloc nuts.

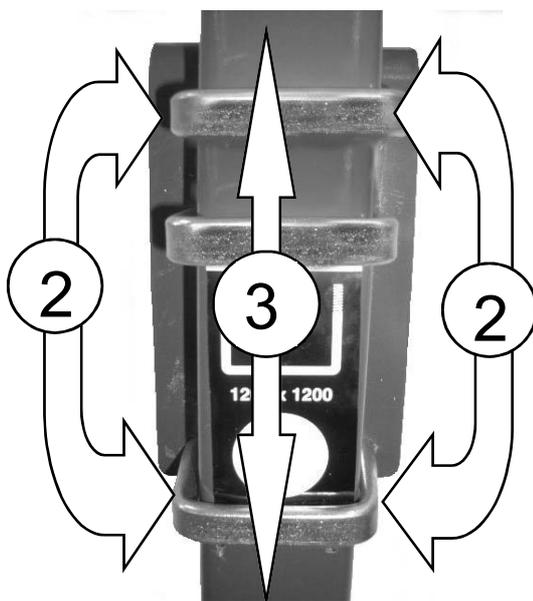


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## 10.2) Dispenser height

The plastic film needs to be applied around the centre of the bale to ensure optimum coverage. To adjust this the dispenser may need to be adjusted up or down as necessary.

- 1) Ensure dispenser is well supported.
- 2) Loosen six (6) M16 nyloc nuts (Do not remove)
- 3) Slide dispenser up or down as necessary.
- 4) Tighten the six (6) M16 nyloc nuts.
- 5) Remove support.

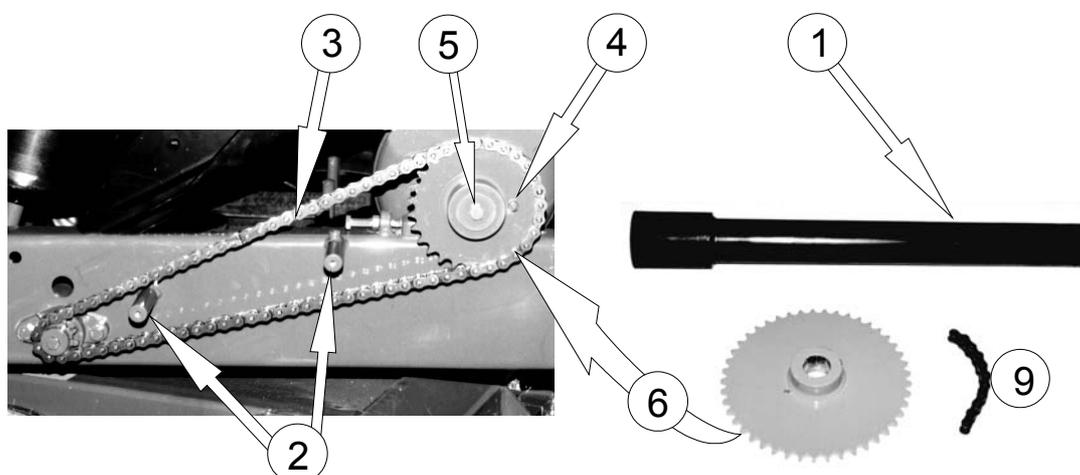


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### 10.3) 500mm plastic film conversion kit

If desired it is possible to use 500mm wide plastic film instead of the standard 750mm. An optional conversion kit is available to carry this out which includes a sprocket, extra length of chain and a plastic pipe to hold the film roll. To carry out the conversion carry out the following procedure. To convert back to 750mm plastic film reverse the procedure.

- 1) Fit plastic film roll to dispenser using the plastic pipe.
- 2) Remove table drive chain guard by undoing the two (2) handwheels.
- 3) Remove drive chain by opening joiner link.
- 4) Remove M8 nut and shearbolt.
- 5) Remove M10 setscrew holding on driven sprocket.
- 6) Remove the 28 tooth sprocket and replace with the 45 tooth sprocket from the kit.
- 7) Replace the M10 setscrew holding on the sprocket.
- 8) Replace the M8 shearbolt ensuring it is in good condition.
- 9) Replace the drive chain using the extension piece supplied in the kit to correct the length of the chain.
- 10) Adjust the chain as described in section 6)
- 11) Replace chain guard and tighten two (2) handwheels.
- 12) Adjust computer/control box to correct wraps.

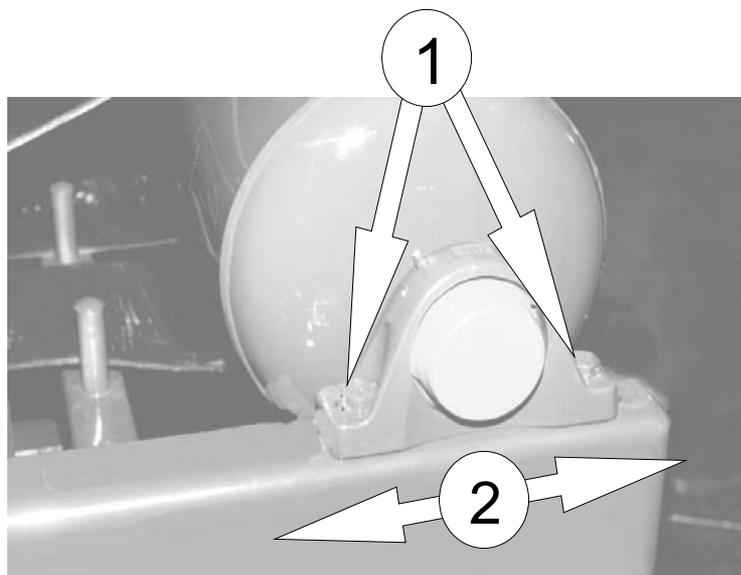


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## 10.4) Table rollers/belts

The wrapper normally leaves the factory with rollers set to the correct width for a 1250 diameter bale. Sometimes it may be necessary to narrow the rollers for a smaller diameter bale or widen them for a larger diameter bale. The belts should support the full weight of the bale and should sit tightly between the rollers

- 1) Loosen the four (4) M14 nyloc nuts and bolts holding bearings on idle roller.
- 2) Move roller as desired ensuring both ends are moved the same amount.
- 3) Tighten the four (4) M14 nyloc nuts and bolts.



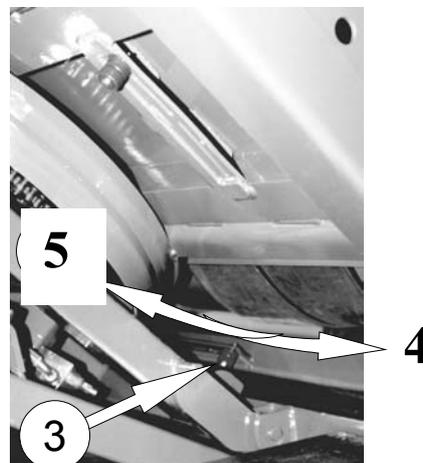
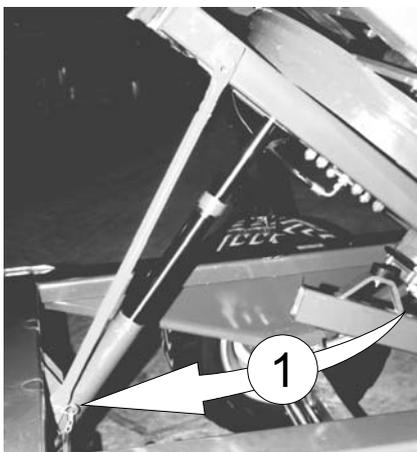
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## 10.5) Table stop position magnet (Electronic machines).

If the table does not stop in the correct position in line with the chassis it is possible to move the magnet that controls the stop position. However it must be checked first that the machine is operating at the correct speed, has a bale on the table and the plastic film is attached as these will have a bearing on where the machine stops (see section on trouble shooting). The magnet may be adjusted as follows.

- 1) Tip up table and fit safety bar.
- 2) Identify the magnet to be changed. There are two sets of magnets near the outside of the table. The magnets that are required to be changed are the ones furthest from the cut & hold.
- 3) Loosen the M6 bolt and nyloc nut holding on magnets.
- 4) If the table does not turn far enough push the magnets in the direction shown.
- 5) If the table turns too far push the magnets in the direction shown.
- 6) Tighten the M6 bolt and nyloc nut. (Do not overtighten as it may crack the magnets)
- 7) Remove table safety bar and lower table.
- 8) Test machine in automatic mode to see if it is stopping correctly. if not re-adjust.

Note: (1) For BJS machines the stop position must be manually adjusted before tipping.

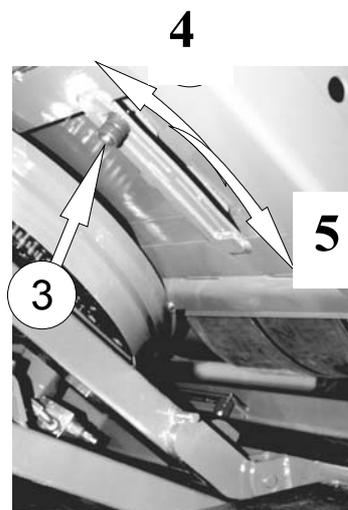
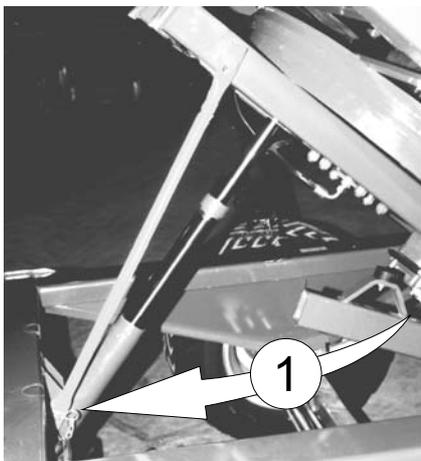


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## 10.6) Table load position magnet (991BE series)

If the table does not start in the correct position in line with the chassis and cut & hold to the left it is possible to move the magnet that controls the start position. However it must be checked first that the machine is operating at the correct speed with a bale on the table and that the plastic film is attached as these will have a bearing on where the machine stops (see section on trouble shooting). The magnet may be adjusted as follows.

- 1) Tip up table and fit safety bar.
- 2) Identify the magnet to be changed. There are two set of magnets near the outside of the table. The magnets that are required to be changed are the ones nearest the cut & hold.
- 3) Loosen the M6 bolt and nyloc nut holding on magnets and move as follows.
- 4) If the table does not turn far enough push the magnets in the direction shown.
- 5) If the table is turning too far push the magnets in the direction shown.
- 6) Tighten the M6 bolt and nyloc nut. (Do not overtighten as it may crack the magnets)
- 7) Remove table safety bar and lower table.
- 8) Test machine in automatic mode to see if it is stopping correctly. if not re-adjust.

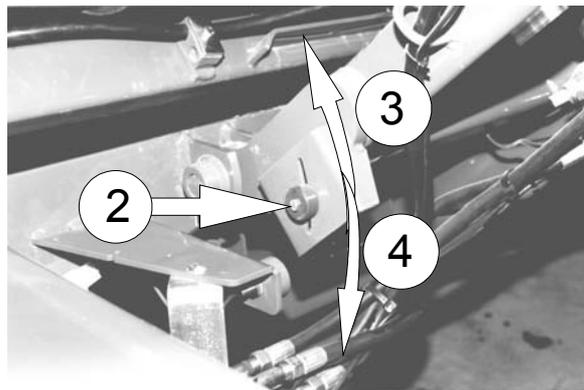
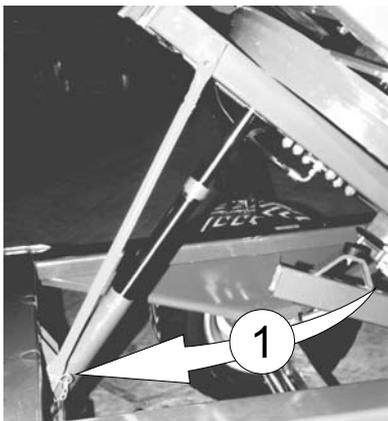


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## 10.7) Table down magnet (991B series).

The table down magnet does not normally require adjustment. However as it is used as a signal for the table to start indexing to the loading position (991BE series) it may need to be set.

- 1) Tip up table and fit safety bar.
- 2) Loosen M6 nut on magnet.
- 3) Move magnet upwards to sense when nearer the chassis.
- 4) Move magnet downwards to sense when further from the chassis. **Do not push down too far as the table may hit the bale damper while indexing (991B series).**
- 5) Tighten the M6 nut.
- 6) Remove table safety stay and lower table down. Test to ensure machine is working correctly.

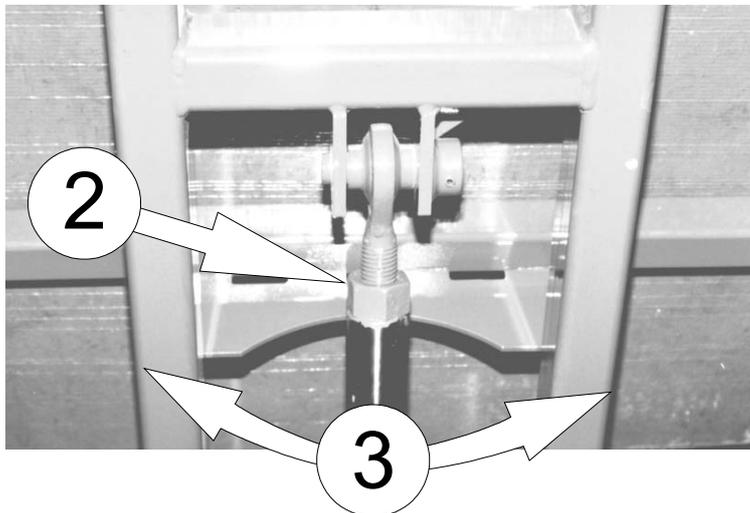


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## 10.8) Bale damper lift height (991B series)

The transition between the bale being tipped off the table and onto the bale mat must be gentle. To achieve this the end of the operating cylinder can be adjusted. **Do not carry out this procedure with a bale on the wrapper.**

- 1) Raise up bale damper and support securely. **Do not rely on hydraulic pressure.**
- 2) Loosen locking nut and screw away from cylinder rod.
- 3) Turn cylinder rod to lengthen or shorten the rod eye as desired.
- 4) Tighten the locking nut.
- 5) Remove support and lower bale damper. Test machine and re-adjust if necessary.

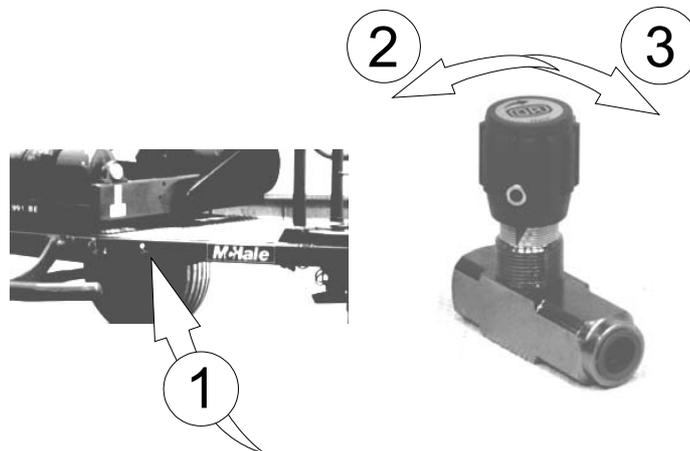


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## 10.9) Bale damper drop speed (991B series)

The drop speed of the bale damper may be adjusted to allow for the great variation in bale weights. The bale should not be allowed to drop too quickly so as not to cause any machine damage.

- 1) Locate restrictor valve on the right hand side of the chassis.
- 2) Turn as shown to speed up drop speed.
- 3) Turn as shown to slow down drop speed.
- 4) Test machine and re-adjust if necessary.



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# 11. Machine Maintenance

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To maintain the machine in good working order it becomes necessary from time to time to carry out preventative maintenance. The following section gives details of how this may be carried out and how often it will be required.

It is vitally important to observe health and safety rules where necessary to avoid unnecessary environmental damage or danger to anybody near the machine. This especially applies to disposal of oil, filters etc.

Items such as chain adjustments are to be carried out when necessary (i.e. when chains become loose). They may be found under machine adjustments.

11.1) Maintenance intervals

11.2) Table drive roller shearbolt replacement

11.3) Gearbox cross shaft roll pin replacement

11.4) Cut & hold accumulator pressure.

11.5) Table drive chain.

11.6) Table roller drive chain.

---

## 11.1) Maintenance Intervals

The following intervals should be adhered to, to ensure long and efficient life of the machine. They assume constant working during the wrapping season.

### 1) First 5 working hours

- 1) Check all nuts and bolt for tightness. Tighten if necessary.

### 1) Every day

- 1) Grease bale lift arm hinges. (2)
- 2) Grease bale lift arm hydraulic cylinder ends . (2)
- 3) Grease sub chassis pivots. (2)
- 4) Grease table tip hydraulic cylinder ends. (2)
- 5) Grease bale damper hinge pivots. (4)
- 6) Grease bale damper hydraulic cylinder ends . (2)
- 7) Grease side tip bale damper hinges (option). (2)
- 8) Check wheelnuts. (12)
- 9) Check all guards and safety related components.
- 10) Check for any oil leaks and damaged pipes.

### 2) Every week

- 1) Grease table roller bearings. (4)
- 2) Grease cross shaft bearing. (1)
- 3) Grease dispenser top coil roller shaft . (1)
- 4) Grease cut and hold plunger. (1)
- 5) Grease sidetip latch. (1)

### 3) Every month

- 1) Grease parking jack. (1)

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4) Every year

- 1) Clean and lubricate dispenser gears.
- 2) Check table gearbox for grease.
- 3) Grease shearbolt to sprocket flange on table drive roller.

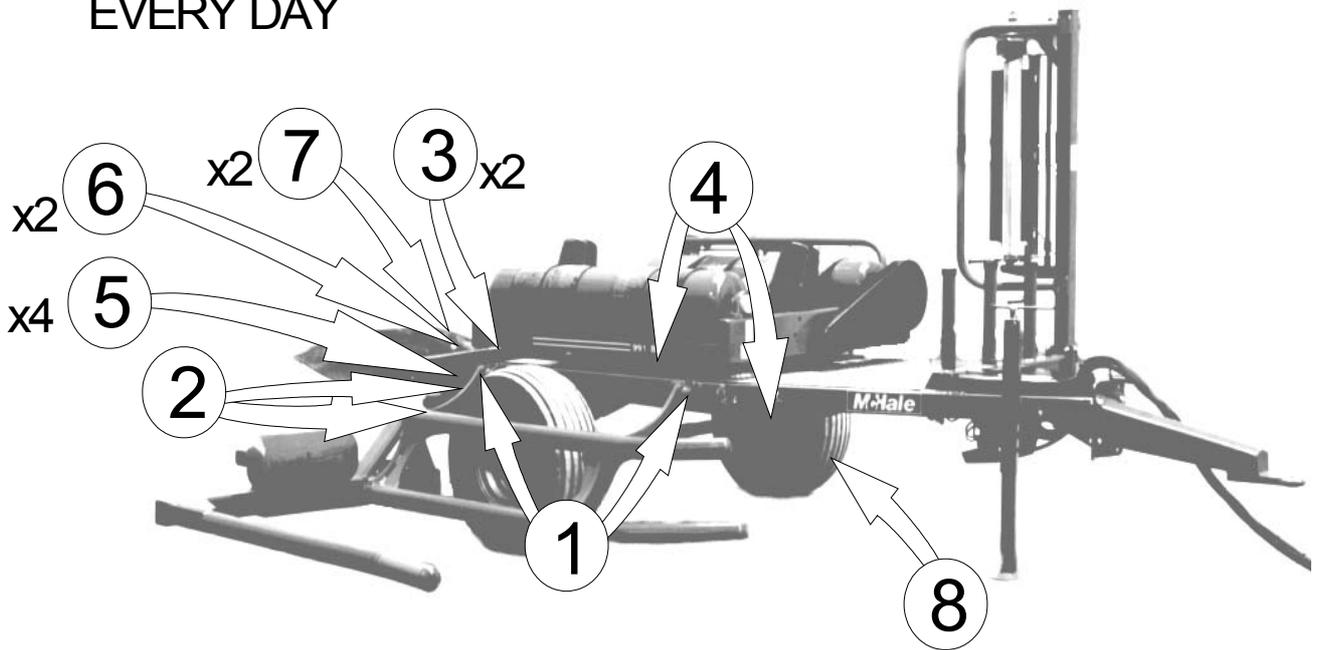
**All hydraulic hoses must be replaced every 5 years.**

It may become necessary from time to time to clean the dispenser rollers as they pick up the “tack” from the plastic film.

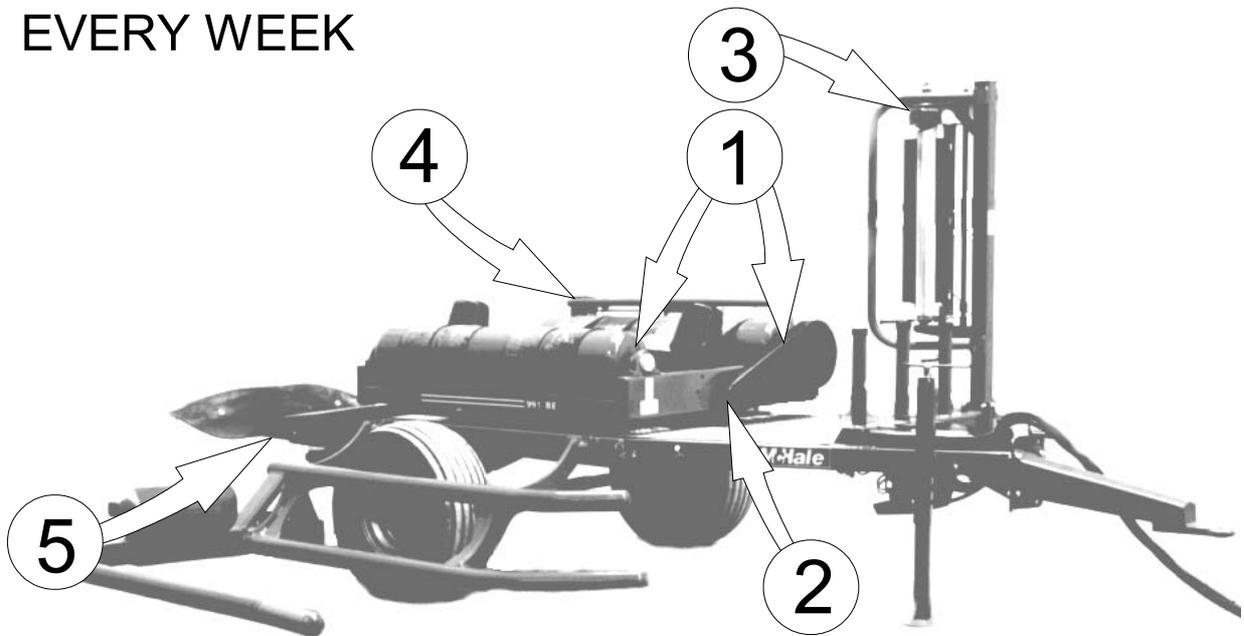
At the end of the wrapping season the machine should be washed and cleaned. Any damaged paintwork should be touched up. Any exposed rods of hydraulic cylinders should be greased. Any maintenance or repairs should be carried out at this stage. **The electronic control box is not waterproof so must always be stored in a dry environment.**

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991B SERIES  
EVERY DAY

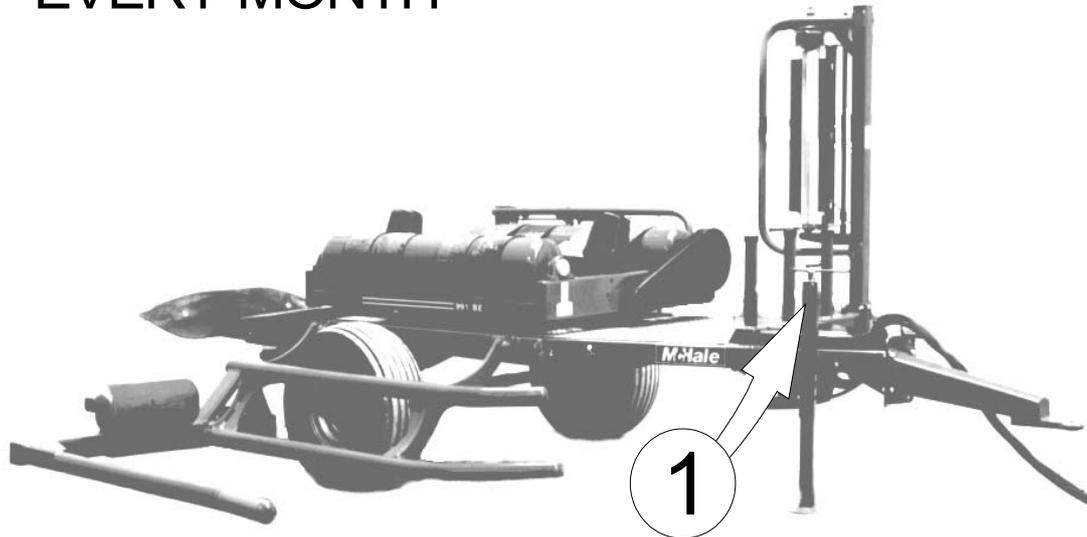


991B SERIES  
EVERY WEEK

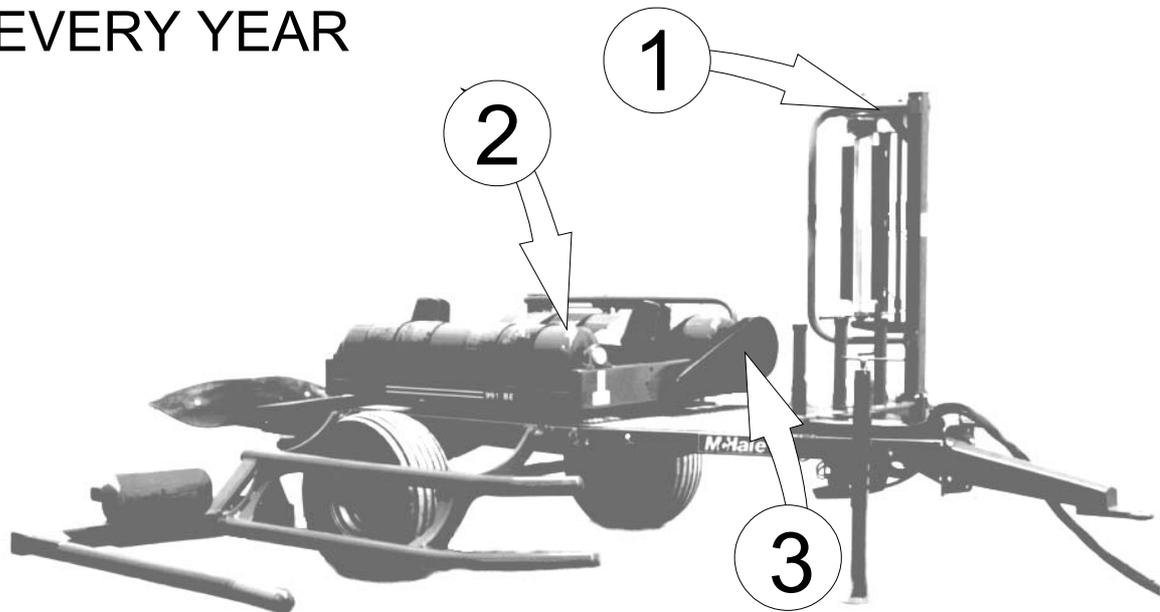


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## 991B SERIES EVERY MONTH



## 991B SERIES EVERY YEAR

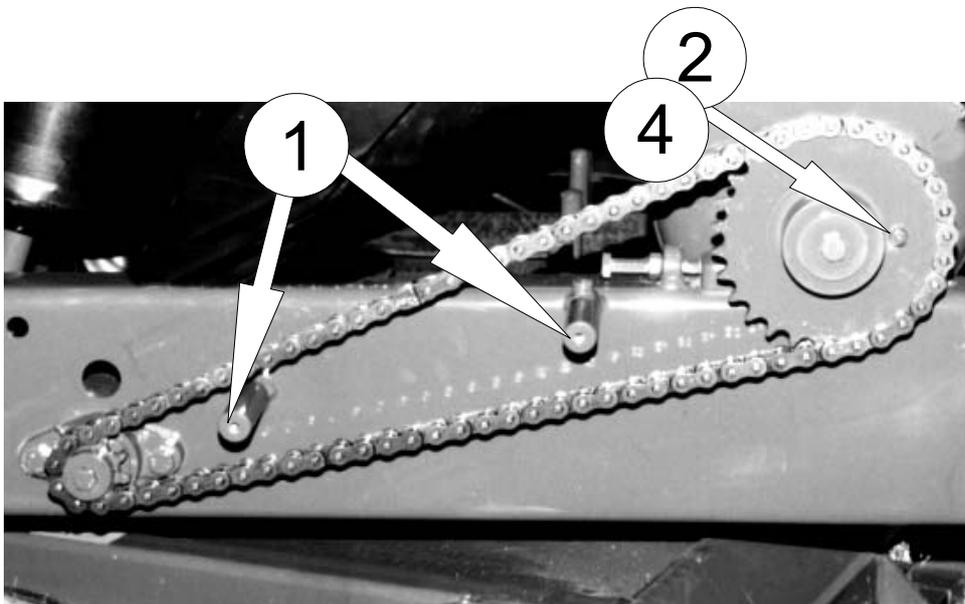


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## 11.2) Table drive roller shearbolt replacement

There is a shearbolt fitted to the driven table roller sprocket to prevent overloading of the table rollers. If broken it may be replaced as follows.

- 1) Remove two (2) handwheels and chainguard over the table roller drive chain.
- 2) Remove broken parts of shearbolt and discard safely.
- 3) Line up hole in sprocket with hole in drive flange.
- 4) Fit replacement M8x35 shearbolt (CFA00055) and nut (CFA00132). **Do not fit stronger bolts as replacements.**
- 5) Replace the chain guard and the two (2) handwheels.

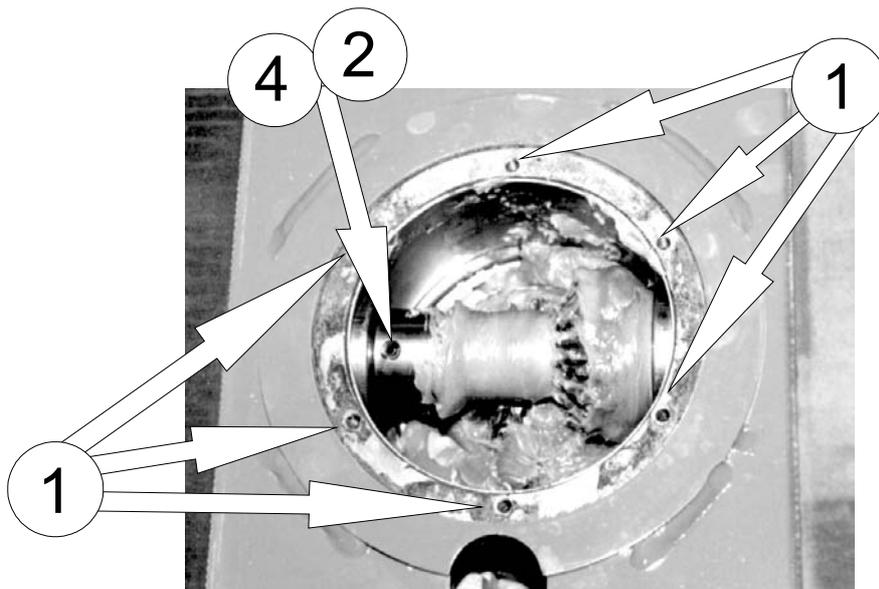


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### 11.3) Gearbox cross shaft roll pin replacement

As a secondary overload protection device the gearbox cross shaft is protected by roll pins which when overloaded shear. If this occurs they may be replaced as follows.

- 1) Remove six (6) setscrews holding on the cover of the gearbox. Remove cover and gasket.
- 2) Remove **all** broken parts of the roll pins.
- 3) Ensure the hole in the table cross shaft and the hole in gearbox cross shaft line up correctly.
- 4) Fit new roll pins (CFA00006 & CFA00009). **Do not** fit anything other than these.
- 5) Replace the gearbox cover ensuring gasket is serviceable. If not replace gasket with a new part CSE00006.
- 6) Replace the six (6) setscrews.



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## 11.4) Cut & hold accumulator pressure

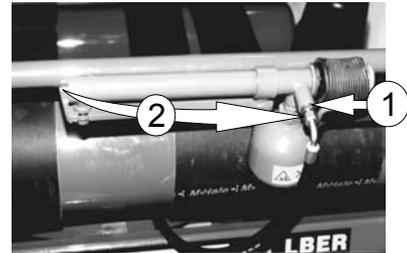
The cut & hold is held open by a hydraulic accumulator which is primed before leaving the factory. If for whatever reason the pressure drops or increases it is possible to prime the circuit again as follows.



**It is very important that care is taken in carrying out the following procedure to protect both the operator and any personnel that may be nearby. If unsure of how to carry out this procedure entrust the job to your McHale dealer.**

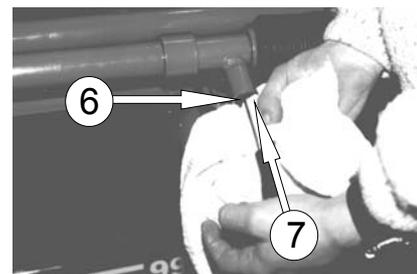
### To increase accumulator pressure.

- 1) Remove blanking cap on the hydraulic cylinder.
- 2) Remove the cut & hold feed pipe (and adaptor) and fit to the open port.
- 3) Operate the cut and hold to prime system. It only needs a small amount of oil to prime back up.
- 4) Remove hydraulic pipe (and adaptor) and refit to original position.
- 5) Replace blanking cap on priming port. Operate cut and hold to ensure it is opening and closing. Repeat if not fully primed.



### To decrease accumulator pressure.

- 6) Remove blanking cap on hydraulic cylinder.
- 7) Insert a small punch into the hydraulic cylinder port. There is a one way ball valve in the cylinder which the punch needs to unseat to release oil. Always cover the punch with a cloth to prevent oil contacting skin.
- 8) Replace blanking cap and test cut and hold to ensure it is opening and closing correctly.

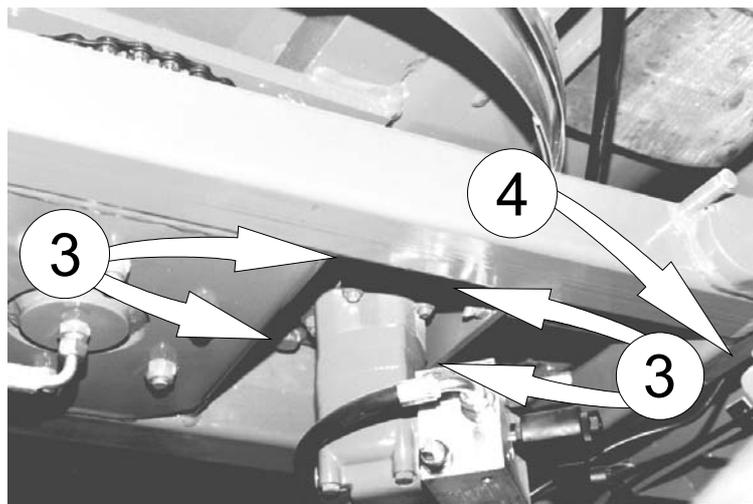


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## 11.5) Table drive chain

After a period of time it may become necessary to readjust the drive chain. It may be carried out as follows.

- 1) Tip up wrapper table and fit safety bar securely.
- 2) Stop tractor/power unit and ensure it cannot be restarted while working on the machine.
- 3) Loosen four (4) M16 bolts holding on motor plate.
- 4) Turn M16 nyloc nut to adjust chain. There should be 10-13mm of sag in the chain.
- 5) Tighten The four (4) M16 bolts holding on motor plate.
- 6) Remove table safety lock and lower table down.

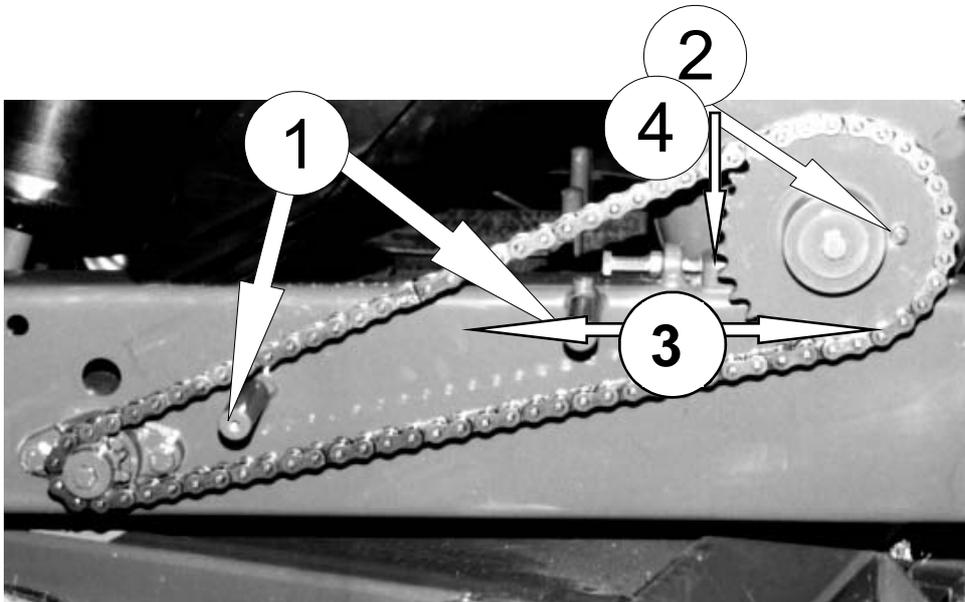


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## 11.6) Table roller drive chain

After a period of time it may become necessary to readjust the table roller drive chain. This adjustment may also have to be made if a 500mm plastic film conversion is carried out. To adjust go through the following procedure.

- 1) remove chain guard by undoing the two (2) handwheels.
- 2) Loosen the four (4) M16 nuts and bolts holding on the bearings.
- 3) Adjust the roller using the two (2) M10 adjuster setscrews. Always ensure both ends have been moved by the same amount.
- 4) Tighten the four (4) M16 nuts and bolts.
- 5) Replace chain guard with the two (2) handwheels.



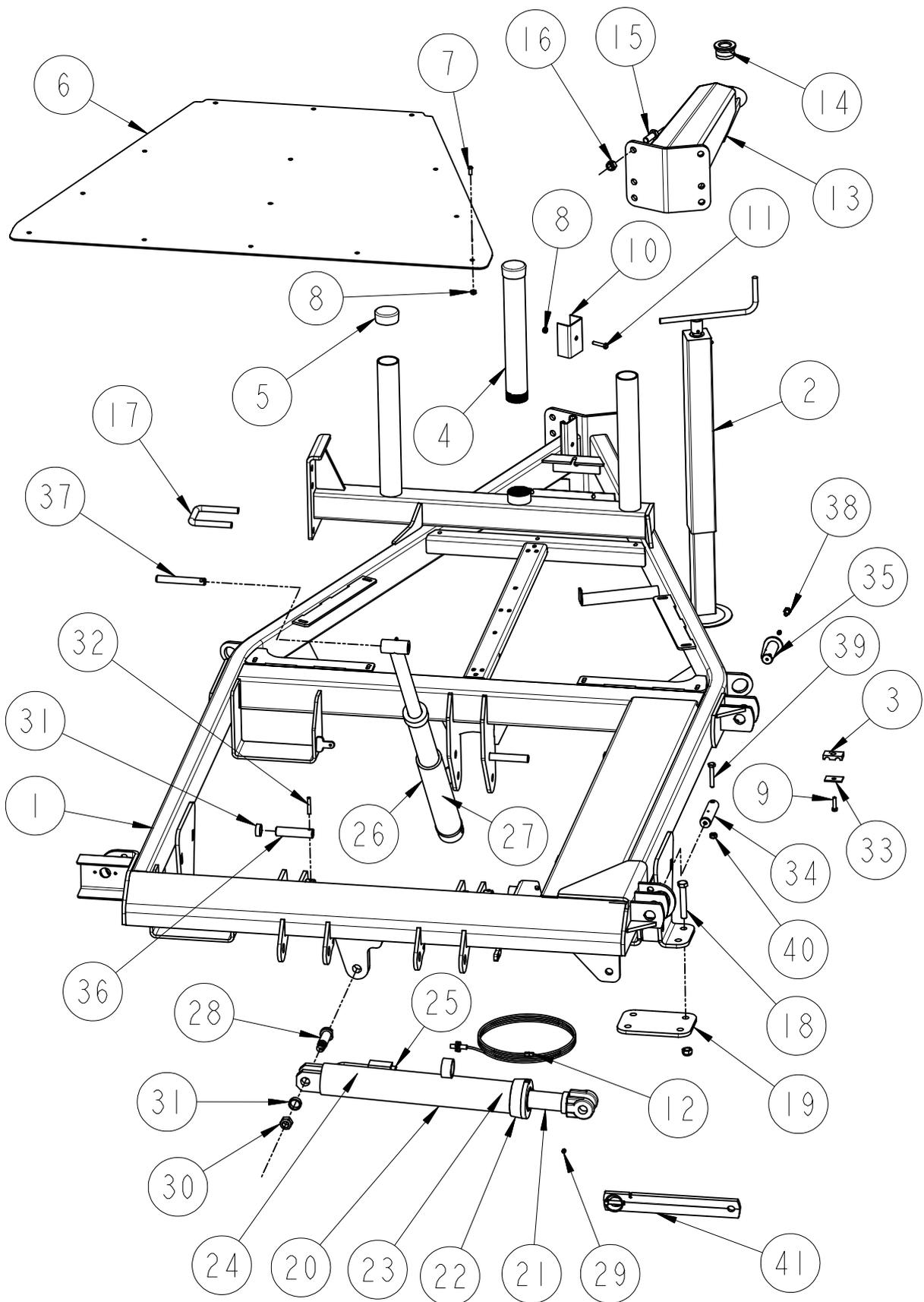
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## 12. Spare parts

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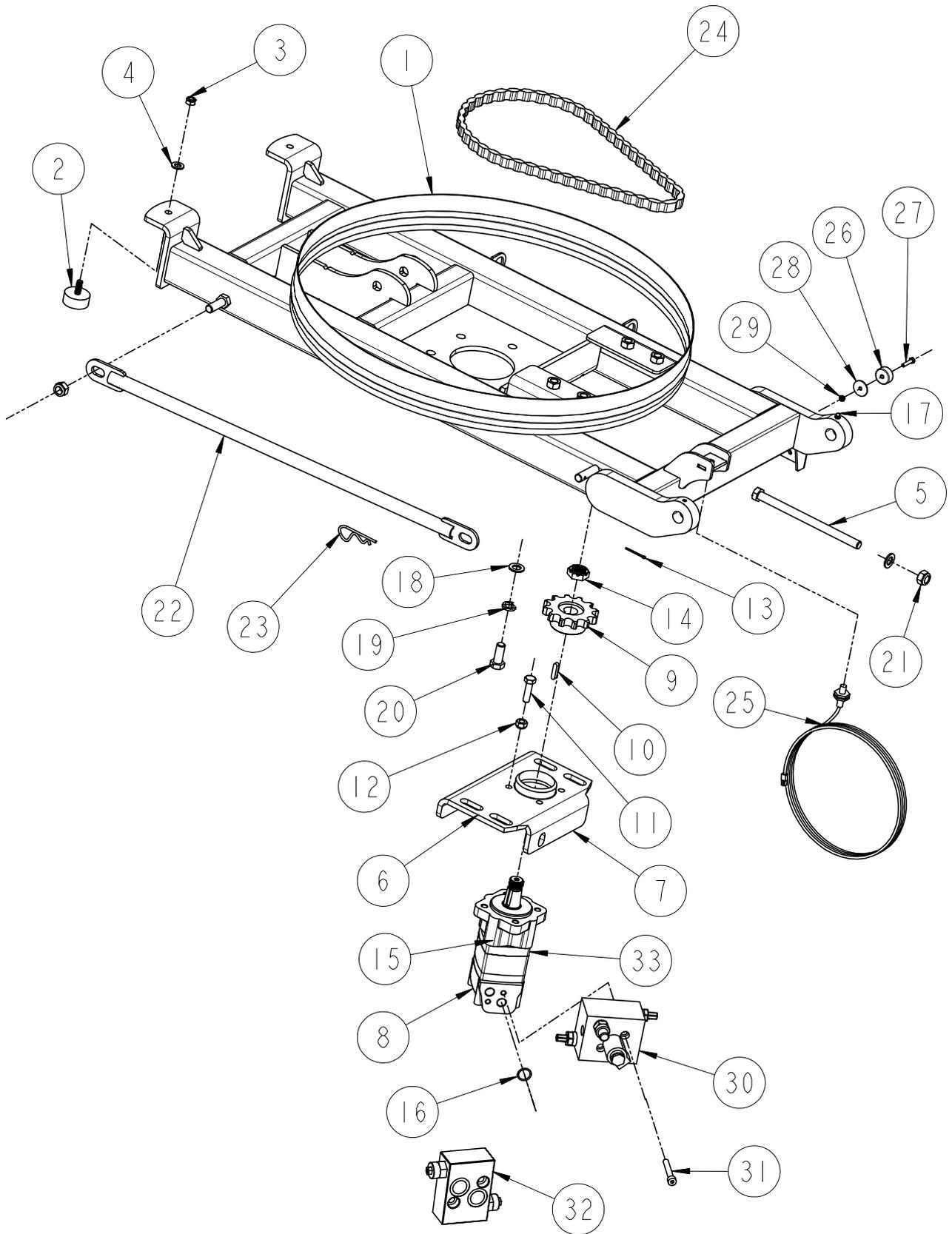
Spare parts for your 991B/991L round bale wrapper are available through your McHale dealer. To ensure you are supplied with the correct part always quote the serial number of the machine.

- 12.1) 991B Main chassis.
- 12.2) 991B Sub chassis.
- 12.3) Rotary table.
- 12.4) Gearbox.
- 12.5) Lift arm.
- 12.6) Dispenser post.
- 12.7) Dispenser.
- 12.8) Cut & hold.
- 12.9) Standard bale damper.
- 12.10) Side tip bale damper.
- 12.11) Axle.
- 12.12) 500mm conversion kit.
- 12.13) 991B Hydraulic assembly.
- 12.14) 991B Hydraulic control valve.
- 12.15) 991B Parts.
- 12.16) 991B Electrical assembly.
- 12.17) 991BE Hydraulic assembly.
- 12.18) 991BE Hydraulic control valve.
- 12.19) 991BE Parts.
- 12.20) 991BE Electrical assembly.
- 12.21) 991BC Hydraulic assembly.
- 12.22) 991BC Hydraulic valve cables.
- 12.23) 991BC Parts.
- 12.24) 991BC Electrical assembly.
- 12.25) 991BJS Hydraulic assembly.
- 12.26) 991BJS Joystick assembly.
- 12.27) 991BJS Parts.
- 12.28) 991BJS Electrical assembly.
- 12.29) 991B Series lighting.
- 12.30) Dispenser gears.
- 12.31) Remote control 991BE.



## 12.1) 991B Main chassis

Item	Part Code	Description	Qty
1	ACH00079	TRAILED CHASSIS 991B	1
2	CTP00001	JACK PARKING 991B	1
3	CFA00374	HOSE CLAMP 14MM (2 PER SET)	6
4	CMH00014	TUBE 60X614 THREAD	1
5	CBC00007	CAP BLACK PLASTIC 2.3/8" OSF	3
6	CTP00005	PLATE CHECKERED GALV	1
7	CFA00429	SETSCREW M8X20 BUTTON HEAD Z/P	14
8	CFA00132	NUT M8 NYLOC Z/P	15
9	CFA00055	BOLT M8X35 Z/P	6
10	CTP00015	CABLE CLAMP3MM CHANNEL140X100	1
11	CFA00100	BOLT M8X40 Z/P	1
12	CEL00036	SENSOR CABLE 5M	1
13	ACH00008	DRAWBAR HITCH EYE STANDARD	1
14	CMH00010	BUSH HITCH EYE	1
15	CFA00151	SETSCREW M16X40 Z/P	7
16	CFA00128	NUT M16 NYLOC	21
17	CFA00039	U BOLT M16X80X80 Z/P	3
18	CFA00040	BOLT M16X100 Z/P	8
19	CZH00105	10MM L TRAILED CHASSIS	2
20	CRA00020	RAM 80X50 BALE LIFT ARM 991B	1
21	CRA10020	RAM ROD LIFTARM	1
22	CRA00145	RAM CAP FOR CYLINDER CRA00020	1
23	CRA00131	SEAL GLAND TOP 80MM RAM	1
24	CRA00135	SEAL GLAND BOTTOM 80MM RAM	1
25	CVA00035	CTE CHECKVALVE MCHALE 20	1
26	CRA00019	RAM TIP TABLE 2 STAGE 991B	1
27	CSE00019	SEAL KIT TABLE TIP 2 STAGE	1
28	CMH00017	PIN 25X105&M20 THREAD STEPPED	2
29	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	4
30	CFA00129	NUT M20 NYLOC	2
31	CXT00016	TUBE 33.7X3X12	3
32	CFA00010	ROLL PIN 8X50 Z/P	3
33	CFA00183	HOSE CLAMP COVER PLATE 14MM	6
34	CMH00016	PIN 30X125&M8 THREAD	1
35	ALA00034	PIN 991 LIFTARM HINGE	1
36	CMH00095	PIN 25X106&8MM C.HOLE	2
37	CMH00068	PIN 19X140&8MM Z/P	2
38	CFA00018	SETSCREW M10X20	1
39	CFA00028	BOLT M10X65 Z/P	1
40	CFA00123	NUT M10 NYLOC	1
41	ALA00005	LIFTARM SAFETY BAR	1
13*	ACH00009	DRAWBAR HIGH HITCH GERMAN	1
13*	ACH00002	DRAW BAR CLEVIS AMERICA	1



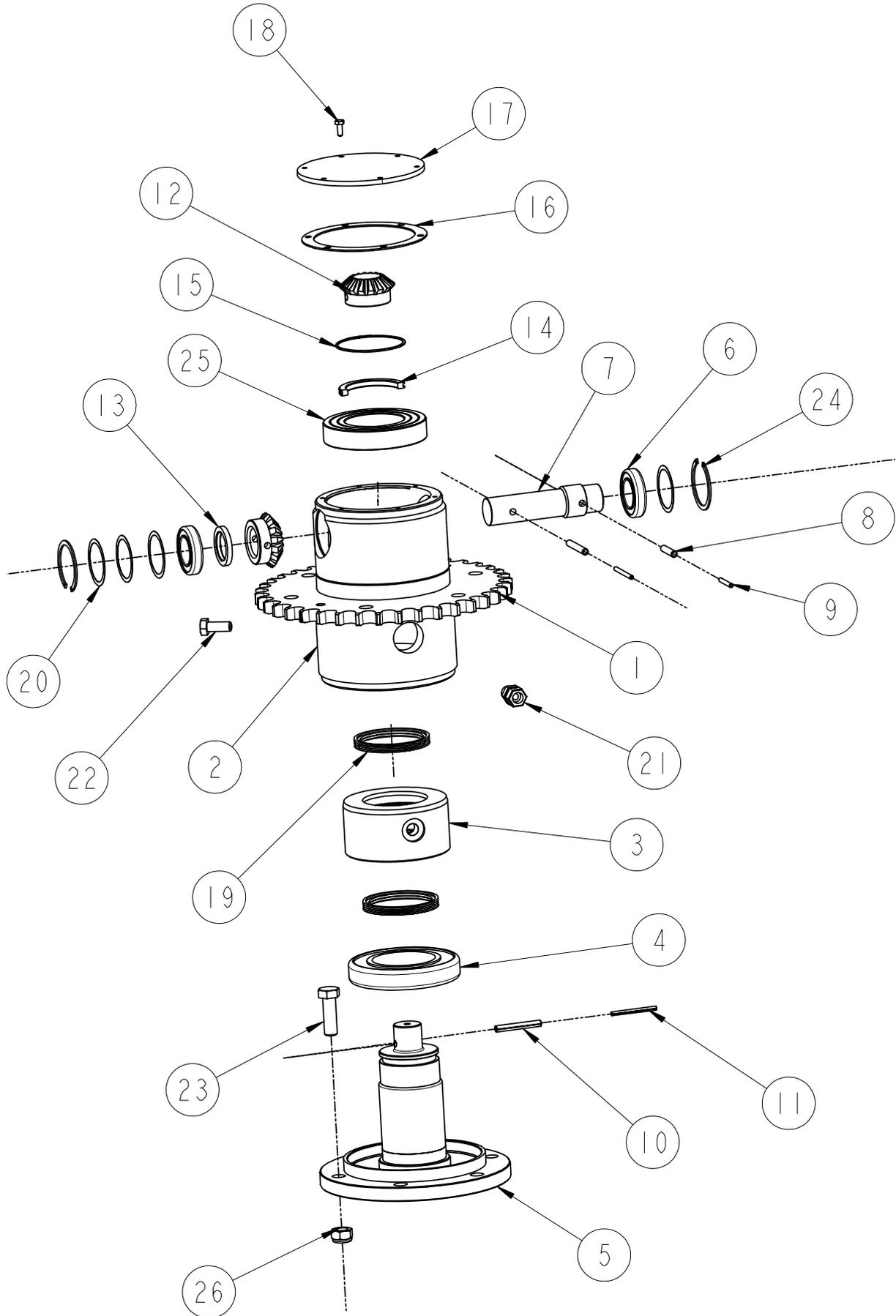
## 12.2)991B Sub chassis

Item	Part Code	Description	Qty
1	ACH00010	SUB CHASSIS FRAME TRAILED ASY	1
2	CBE00002	BUFFER RUBBER 50X21 M10X28	2
3	CFA00123	NUT M10 NYLOC	2
4	CFA00138	WASHER FLAT 12MM Z/P	2
5	CFA00041	BOLT M16X240	1
6	ACH00019	MOTOR COMPLETE 991TRAILED	1
7	ACH00020	MOTOR ADJUSTING PLATE TRAILED	1
8	CMT00002	MOTOR 250CC 4BOLT 1 1/4" TAPER	1
9	CMH00061	SPROCKET 1" PITCH 12T TAPPED	1
10	CFA00157	KEY 8 X 7 X 35	1
11	CFA00079	BOLT M12X45	4
12	CFA00124	NUT M12 NYLOC	4
13	CFA00021	SPLIT PIN 4X50 Z/P	1
14	CMT00015	NUT CASTLE ALL MOTOR SHAFTS	1
15	CSE00081	SEAL KIT CHARLYNN COMPLETE	1
16	CSE00009	SEAL O RING 27ODX2.6 SECT 70S	2
17	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	2
18	CFA00140	WASHER FLAT 16MM Z/P	5
19	CFA00141	WASHER SPRING M16 HEAVY DUTY	4
20	CFA00151	SETSCREW M16X40 Z/P	4
21	CFA00128	NUT M16 NYLOC	2
22	ACH00007	SAFETY BAR TRAILED	1
23	CFA00004	R-CLIP 4MM	1
24	CCH00003	CHAIN KIT 16B 1" PITCH 47LINKS	1
25	CEL00036	SENSOR CABLE 5M	1
26	CEL00017	MAGNET BLUE WHEEL	1
27	CFA00047	SETSCREW M6X30 Z/P	1
28	CFA00145	WASHER MUDWING M6 32MM OD	1
29	CFA00131	NUT M6 NYLOC	1
30	CVA03000	VALVE BLOCK SLOW SPEED DANFOSS	1
31	CFA00029	BOLT M10X70 SOC CAP Z/P	2
32	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
33	CSE00083	SEAL KIT MOTOR DANFOSS OMS	1



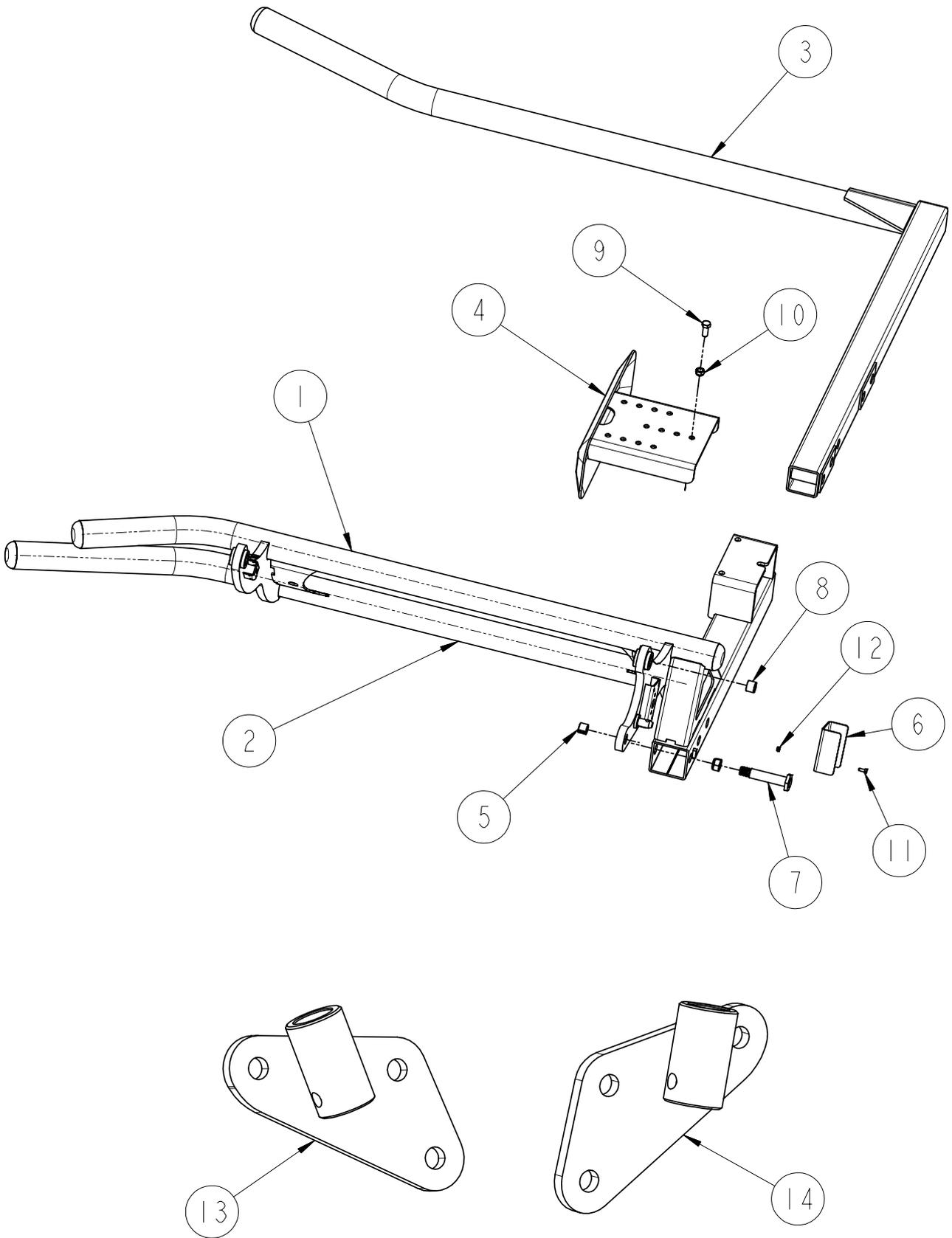
## 12.3) Rotary table

Item	Part Code	Description	Qty
1	ART00054	991 TABLE COMPLETE ASSY.	1
2	ART00099	TABLE WELD ASSY	1
3	ART00005	BOBBIN AXLE SHAFT	2
4	CPL00008	BOBBIN ASSEMBLY	2
5	CBR00024	BEARING 62062RS	2
6	CBC00008	CAP PLASTIC INSERT 75MM	1
7	CBR00005	BEARING PILBLK 1 3/4" 350 NP28	4
8	CBR00006	BEARING FLANGE 25MM 2BOLT	1
9	CMH00021	SHAFT 25X900	1
10	CMH00059	SPROCKET 3/4" PITCH 9T	1
11	CFA00033	SETSCREW M12X35 Z/P	2
12	CFA00124	NUT M12 NYLOC	2
13	CFA00024	SETSCREW M10X25 Z/P	2
14	CFA00134	WASHER MUDWING M10X38MM OD	3
15	CFA00022	SETSCREW M10X16 Z/P	2
16	CFA00359	KEY 8X7X30	1
17	CFA00038	BOLT M14X50	8
18	CFA00126	NUT M14 NYLOC	8
19	ART00004	TABLE DRIVING ROLLER	1
20	CMH00029	SHEAR BOLT FLANGE	1
21	CMH00060	SPROCKET 3/4" PITCH 28T	1
22	CBR00018	BEARING GLACIER PM 4040	1
23	CZD00121	4MM L CUT & TIE SPACER Z/P	1
24	CFA00055	BOLT M8X35 Z/P	1
25	CFA00132	NUT M8 NYLOC Z/P	1
26	CGD00003	GUARD CHAIN TABLE 991	1
27	CFA00149	WASHER MUDWING M8 38MM OD	2
28	CBC00002	HAND WHEEL M8X20	2
29	ART00003	TABLE IDLE ROLLER	1
30	CBE00010	BELT SINGLE 96	4
31	CMH00001	BUSH 12X22X70	16
32	CFA00546	BOLT M10X85 CUP HEAD SQ Z/P	16
33	CFA00123	NUT M10 NYLOC	18
34	CFA00383	BOLT M10X70 Z/P	2
35	CFA00036	SETSCREW M12X70 Z/P	2
36	CFA00014	NUT M12	2
37	CBR00008	END CAP FOR 350 NP28	3
38	CCH00006	CHAIN KIT 12B 3/4" PITCH79LINK	1
39	CEL00017	MAGNET BLUE WHEEL	4
40	CMH00224	MAGNET SPACER	1
41	CFA00049	SETSCREW M6X50 Z/P	2
42	CFA00145	WASHER MUDWING M6 32MM OD	2
43	CFA00131	NUT M6 NYLOC	2



## 12.4) Gearbox

Item	Part Code	Description	Qty
1	ACH00015	GEARBOX ROUND NEW	1
2	ACH00034	GEARBOX HOUSING ASSEMBLY	1
3	CMH00032	SEAL BLOCK WRAPPER GEARBOX	1
4	CBR00003	BEARING 62162RS	1
5	CMH00019	SHAFT 80X220 STEPPED	1
6	CBR00001	BEARING 6007 2RS	2
7	CMH00213	SHAFT 35X150 STEPPED	1
8	CFA00009	ROLL PIN 8X40	1
9	CFA00006	ROLL PIN 5X40	1
10	CFA00011	ROLL PIN 8X60	2
11	CFA00007	ROLL PIN 5X60	2
12	CMH00054	16 TOOTH MODUL3 4 LM MACHINE	2
13	CMH00064	SHIM GEARBOX	1
14	CMH00031	SPLIT RING GEARBOX	2
15	CFA00003	CIRCLIP 85MM EXTERNAL	1
16	CSE00006	GASKET 128X158&6X8MM C.HOLES	1
17	CZF00169	6MM L GEAR BOX PLATE	1
18	CFA00045	SETSCREW M6X16	6
19	CSE00001	SEAL GEARBOX	2
20	CFA00213	SHIM 50X62X0.3	4
21	CHY02001	ADAPTOR 3/8" BSP M/F	1
22	CFA00032	SETSCREW M12X30 Z/P	2
23	CFA00042	BOLT M16X50	6
24	CFA00002	CIRCLIP 62MM INTERNAL	2
25	CBR00002	BEARING 6215 2RS	1
26	CBC00014	PLUG BODY 16 X .08/2 MM	2
27	CFA00128	NUT M16 NYLOC	6
	ACH00029	KIT GEARBOX REPAIR ROUND	1

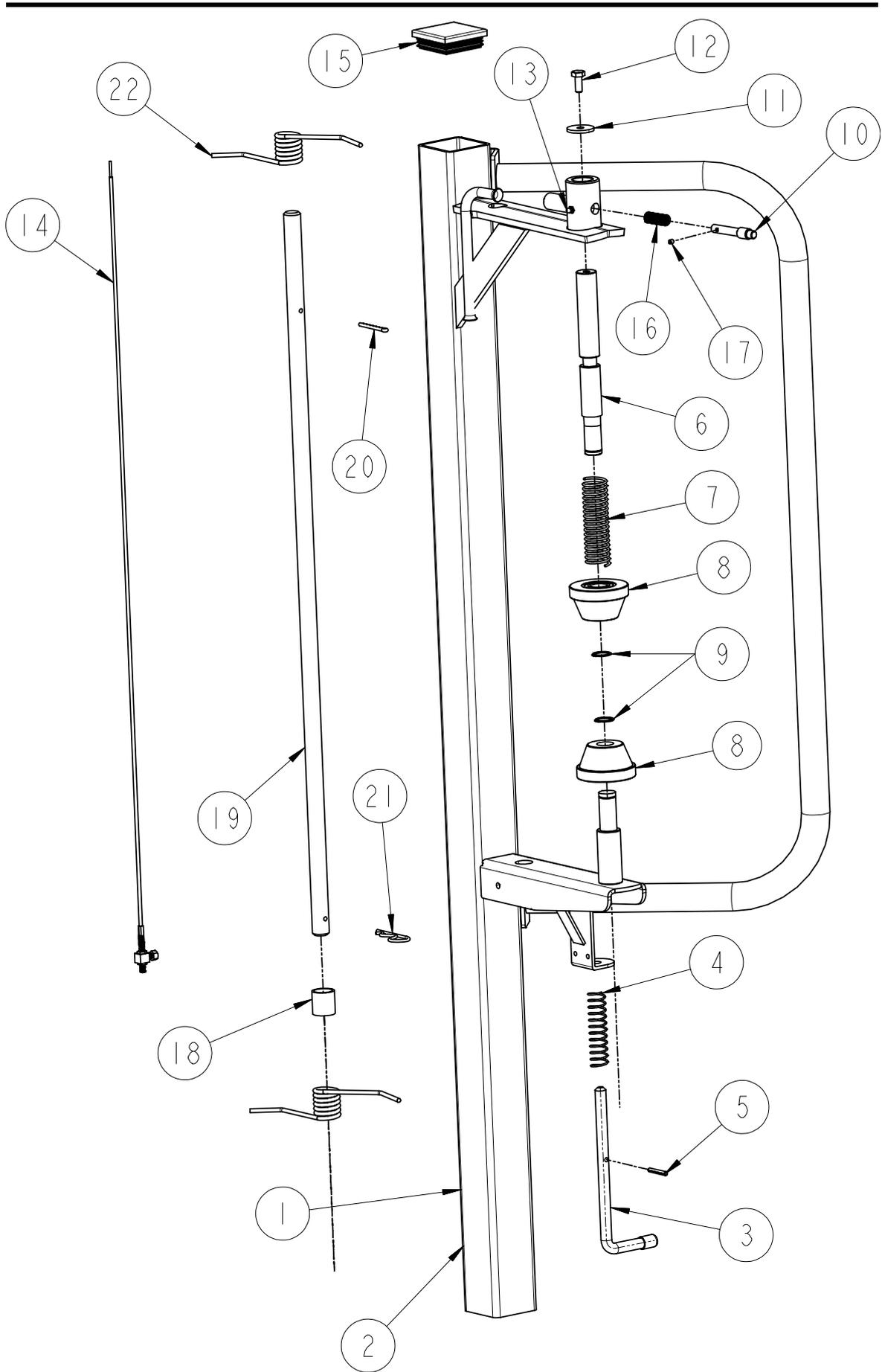


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## 12.5) Lift arm

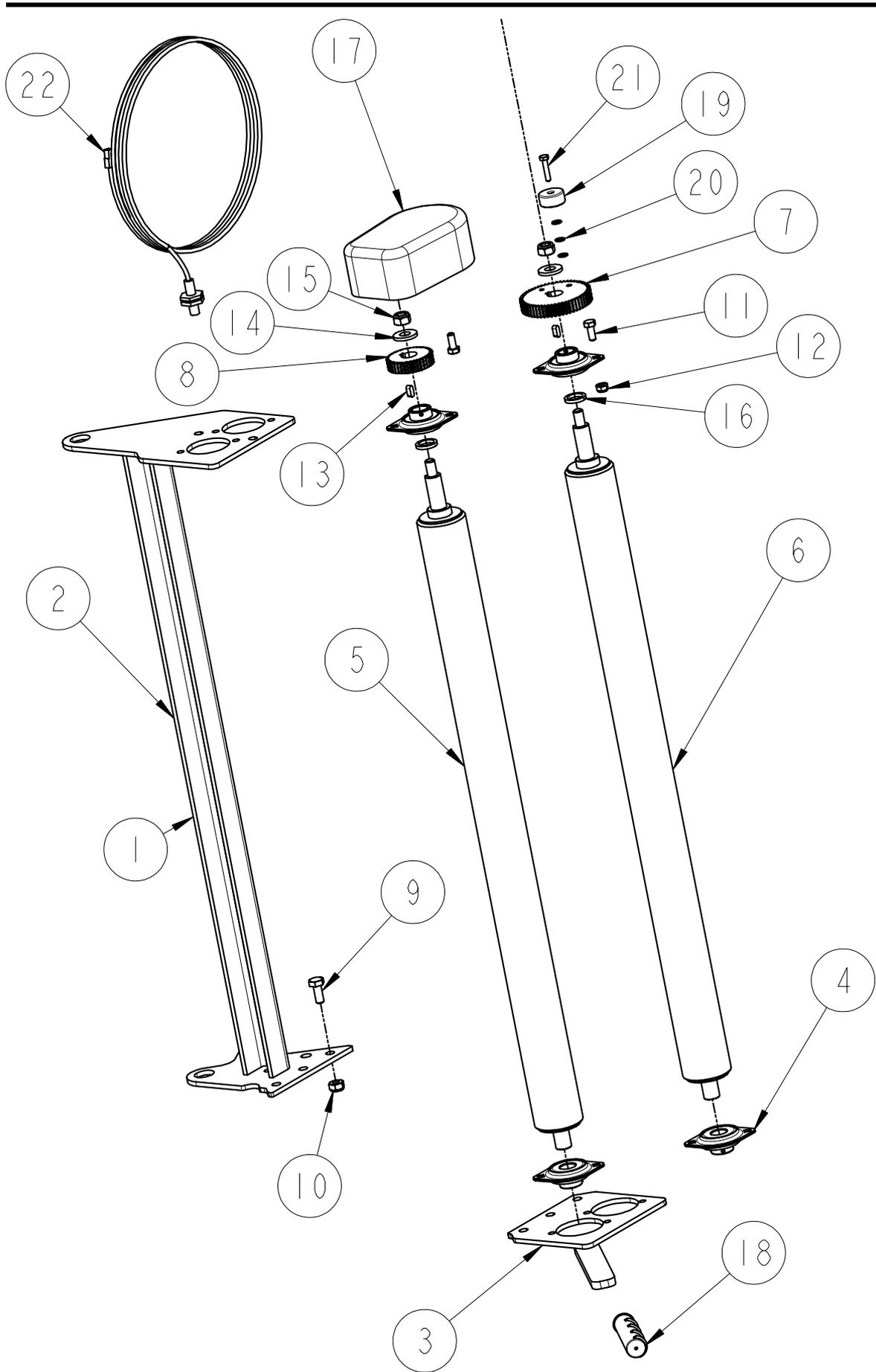
Item	Part Code	Description	Qty
1	ALA00012	LIFT ARM 991 ASSEMBLY 4 FT	1
2	ALA00044	LIFT ARM (1200MM WIDE BALE)	1
3	ALA00004	LIFTARM SLIDE ARM	1
4	ALA00002	LIFTARM BALE STOP	1
5	CBR00014	BEARING TENSION 1" X 1/1/4" X 1"	1
6	CZD00116	4MM L TRAILED LIGHT BRACKET	1
7	ALA00010	KIT PINS LIFTARM 991B	1
8	CBR00007	BEARING GLACIER PM 3025 DX	4
9	CFA00151	SETSCREW M16X40 Z/P	3
10	CFA00128	NUT M16 NYLOC	3
11	CFA00052	SETSCREW M8X20 Z/P	2
12	CFA00132	NUT M8 NYLOC Z/P	2
13	ACH00023	BRACKET DOUBLE BOBBIN L/ H	1
14	ACH00024	BRACKET DOUBLE BOBBIN R/ H	1
1*	ALA00013	LIFT ARM 991 ASSEMBLY 5 FT	1
2*	ALA00058	LIFT ARM (1500MM WIDE BALE)	1
6*	CZD00152	4MM L 5FT LIGHT BRACKET	1

ACH00023 and ACH00024 must be used when wrapping 1500mm wide bales.



## 12.6) Dispenser post

Item	Part Code	Description	Qty
1	ADP00011	DISPENSER POST 991 ASY	1
2	ADP00062	DISPENSER POST WELD ASY.	1
3	CMH00787	PIN 16X335 CHAMFER BENT 90 ZP	1
4	CSG00039	SPRING COMP 2.15X 21X 125X 14	1
5	CFA00073	ROLL PIN 6X40	1
6	CMH00195	PIN 30X280 STEPPED Z/P	1
7	CSG00009	SPRING COMP 2.95X37X197X12	1
8	ADP00009	COIL ROLLER + BEARING DIS POST	2
9	CFA00001	CIRCLIP 25MM EXTERNAL Z/P	2
10	CMH00197	PIN 16X84 STEPPED Z/P	1
11	CZD00118	4MM L CUT& TIE SPACER	1
12	CFA00024	SETSCREW M10X25 Z/P	1
13	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	1
14	CFA00206	CABLE ROLLER RELEASE DISP/POST	1
15	CBC00003	CAP PLAS INSERT SQ 80X80	1
16	CSG00010	SPRING COMP 1.625X16X40X8	1
17	CFA00208	GRUBSCREW M6X6 Z/P	1
18	CXT00104	TUBE 33.7X3X35	1
19	ADP00005	DISPENSER POST SHAFT	1
20	CFA00013	SPLIT PIN 5X50 Z/P	1
21	CFA00004	R-CLIP 4MM	1
22	CSG00003	SPRING 5.89W/DX40OD6.125T/COIL	1

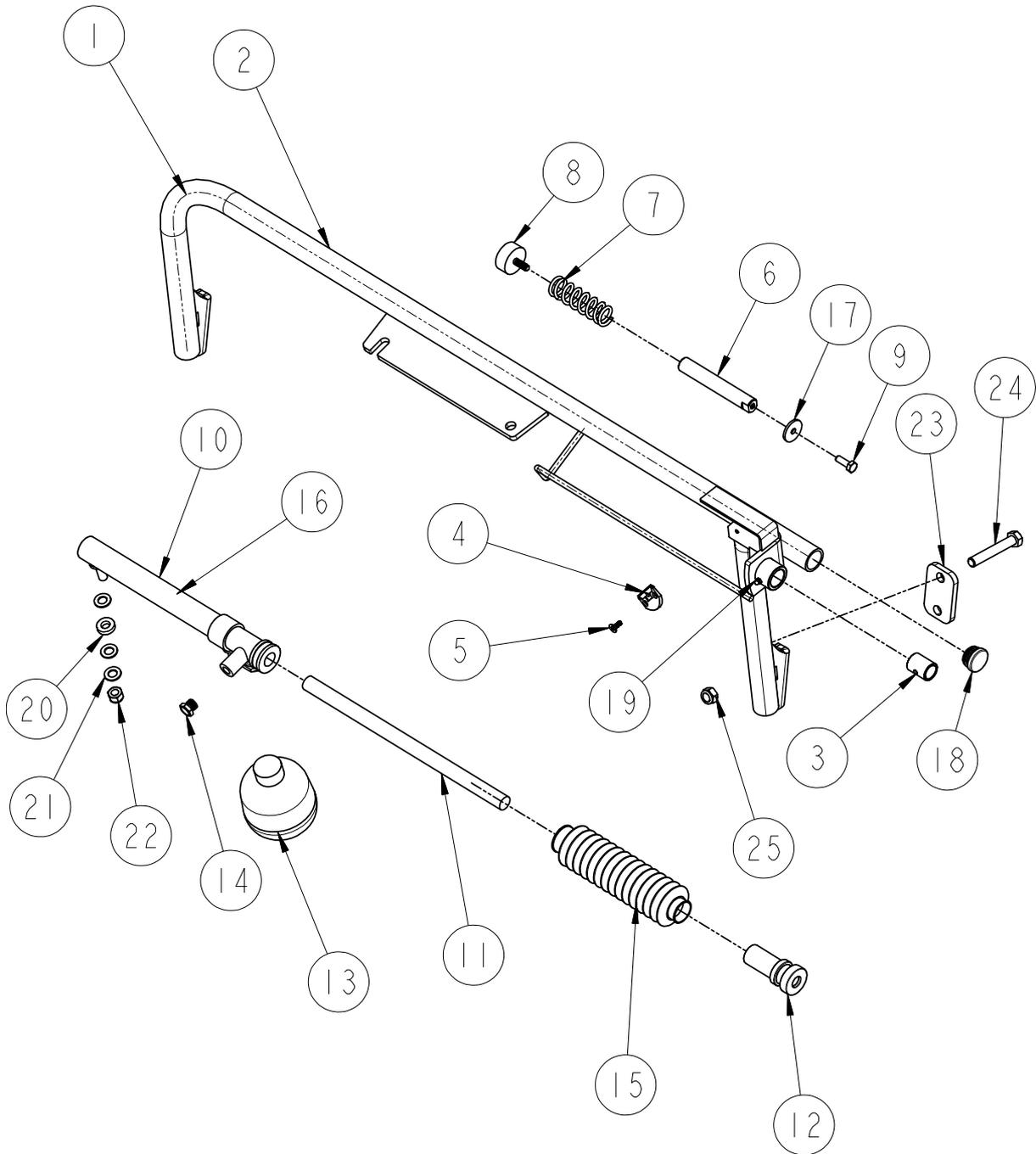


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## 12.7) Dispenser

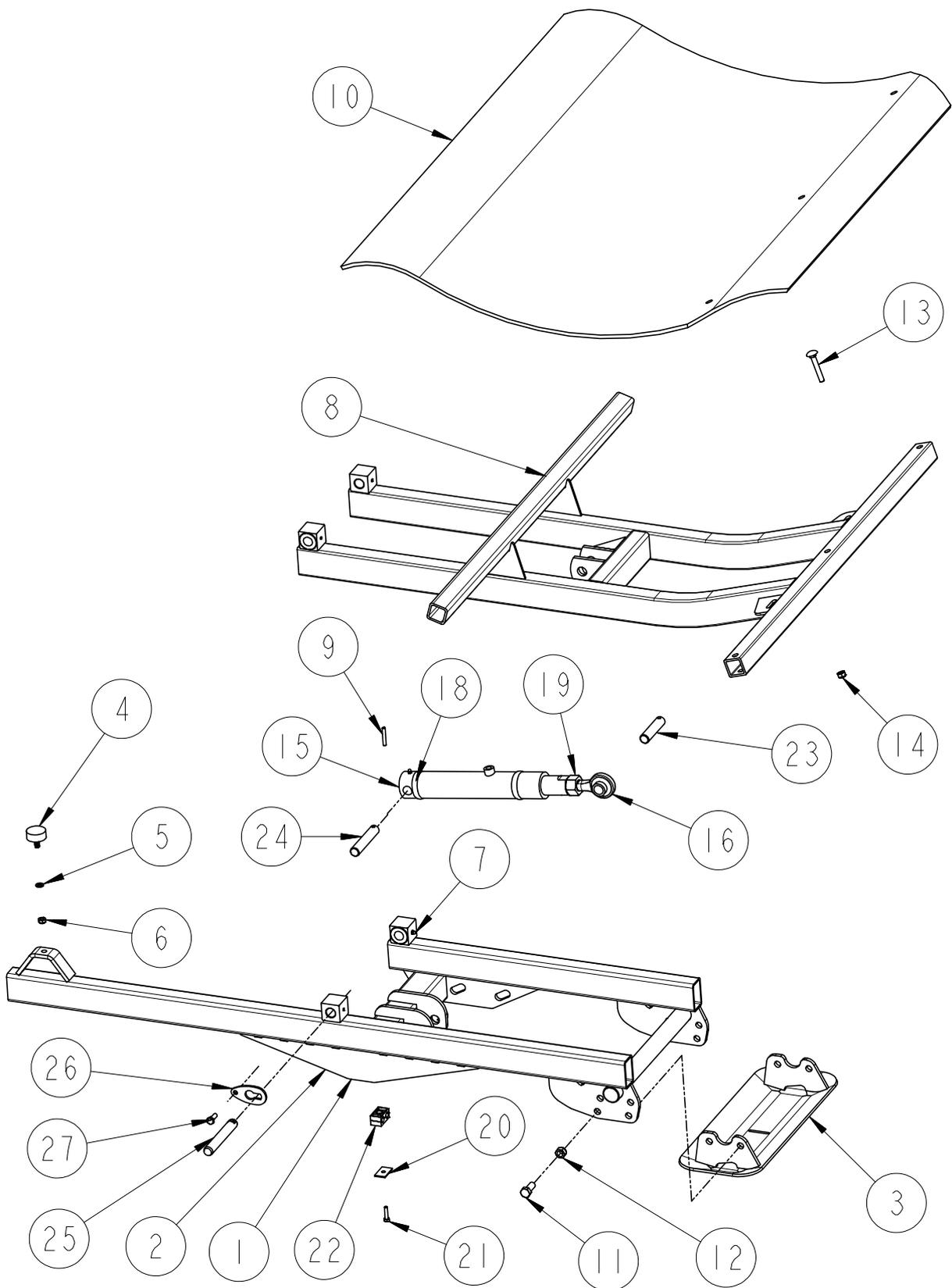
Item	Part Code	Description	Qty
1	ADP00015	FILM DISPENSER ASSEMBLY 750MM	1
2	ADP00010	DISPENSER FRAME WELD ASY.	1
3	ADP00004	DISPENSER BOTTOM PLATE	1
4	CBR00004	BEARING 20MM 2BOLT P/S FLANGE	4
5	CMH00034	ROLLER DISPENSER PRIMARY ALU	1
6	CMH00035	ROLLER DISPENSER SECONDARY ALU	1
7	CMH00055	GEAR SPUR 1.5M 60T DISPENSER 70%	1
8	CMH00175	GEAR SPUR 1.5M 35T DISPENSER 70%	1
9	CFA00024	SETSCREW M10X25 Z/P	3
10	CFA00123	NUT M10 NYLOC	3
11	CFA00052	SETSCREW M8X20 Z/P	10
12	CFA00132	NUT M8 NYLOC Z/P	8
13	CFA00153	KEY 6X6X15	2
14	CFA00139	WASHER FLAT 12MM H/D Z/P	2
15	CFA00124	NUT M12 NYLOC	2
16	CZD00114	4MM L DISPENSER SPACER	2
17	CGD00001	GUARD DISPENSER GEARS	1
18	CBC00012	CAP PLASTIC HANDGRIP 7/8"	1
19	CEL00017	MAGNET BLUE WHEEL	1
20	CFA00144	WASHER FLAT 6MM Z/P	3
21	CFA00047	SETSCREW M6X30 Z/P	1
22	CEL00036	SENSOR CABLE 5M	1

For Dispenser gear options see page 134/135.



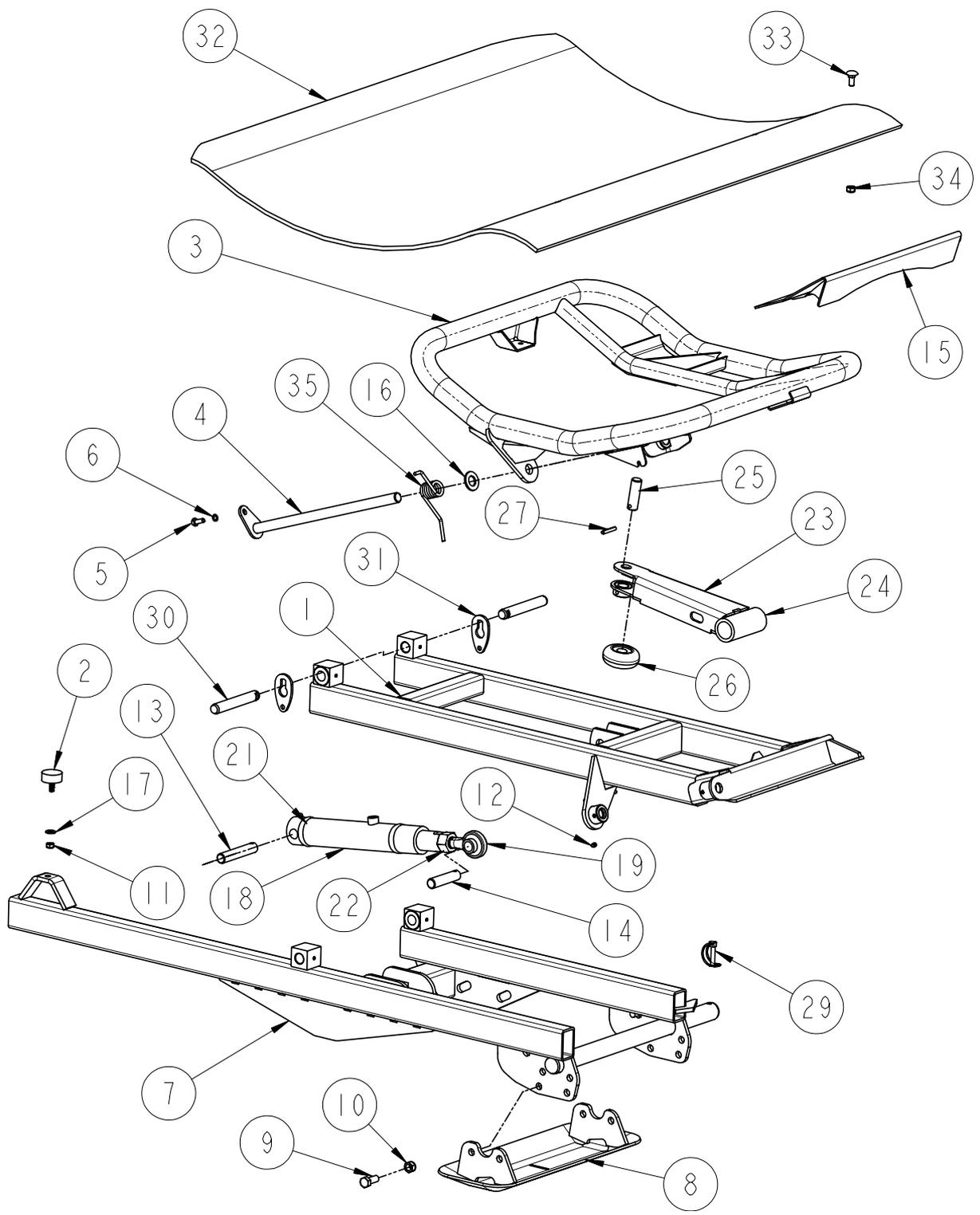
## 12.8) Cut & Hold

Item	Part Code	Description	Qty
1	ACT00006	CUT&HOLD 991 FULL ASSEMBLY	1
2	ACT00005	CUT&HOLD FRAME 991	1
3	CBR00016	BEARING OLITE 25X32X40	1
4	CKN00001	KNIFE CUT&HOLD ASY	1
5	CFA00044	BOLT M6X12 CSK	2
6	CMH00023	PIN 25X159 C.PLUNGER C&T	1
7	CSG00004	SPRING COMP 4.88 X 36 X 150 X 10.250	1
8	CBE00002	BUFFER RUBBER 50X21 M10X28	1
9	CFA00025	SETSCREW M10X30	1
10	CRA00021	RAM CUT&HOLD 32X20 991B	1
11	CRA00107	RAM ROD CUT&HOLD 991	1
12	CRA40021	RAM ROD END CUT&HOLD	1
13	CVA03010	ACCUMULATOR 0.7 LITRE 30 BAR	1
14	CHY02004	PLUG 3/8" BSP MALE	1
15	CBE00006	GAITOR CUT&HOLD RUBBER	1
16	CSE00021	SEAL KIT CUT&HOLD	1
17	CZD00118	4MM L CUT& TIE SPACER	1
18	CBC00005	CAP PLASTIC INSERT 42.4MM RND	1
19	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	1
20	CMH00093	BUSH 14X30X8	1
21	CFA00222	WASHER FLAT 14MM Z/P	4
22	CFA00126	NUT M14 NYLOC	2
23	CZH00135	10MM L CUT & TIE	2
24	CFA00040	BOLT M16X100 Z/P	4
25	CFA00128	NUT M16 NYLOC	4



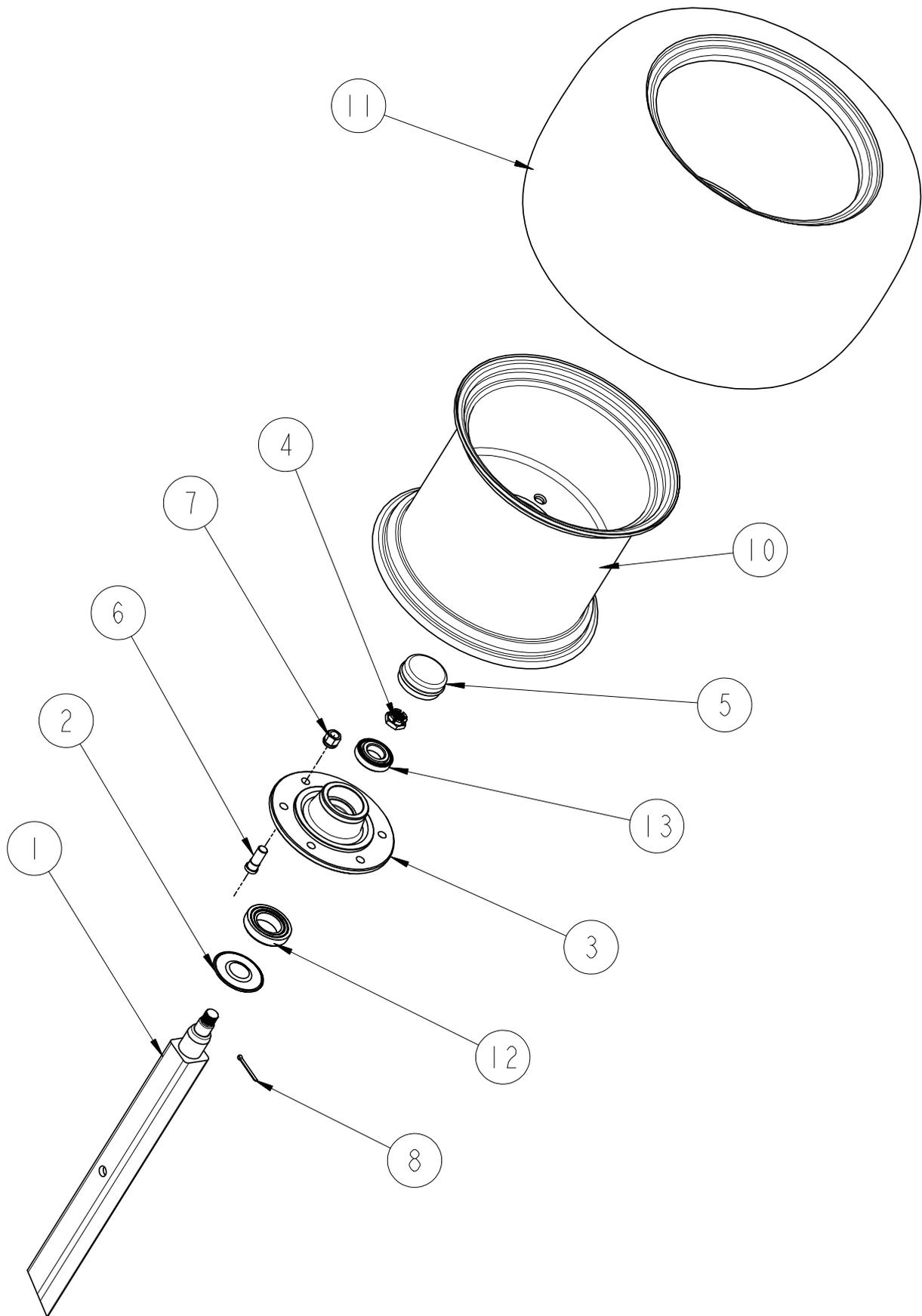
## 12.9) Standard Bale Damper

Item	Part Code	Description	Qty
1	ABD00003	BALE DAMPER STD FULL ASY	1
2	ABD00004	BALE DAMPER FRAME	1
3	ABD00001	BALE DAMPER SLIDE	1
4	CBE00002	BUFFER RUBBER 50X21 M10X28	1
5	CFA00201	WASHER FLAT 10 MM Z/P	1
6	CFA00123	NUT M10 NYLOC	1
7	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	4
8	ABD00005	MAT FRAME STANDARD	1
9	CFA00010	ROLL PIN 8X50 Z/P	2
10	CBE00001	MAT STANDARD BALE DAMPER	1
11	CFA00151	SETSCREW M16X40 Z/P	4
12	CFA00128	NUT M16 NYLOC	4
13	CFA00037	BOLT M12X80 CUPHEAD Z/P	3
14	CFA00124	NUT M12 NYLOC	3
15	CRA00038	RAM BALE DROPPER 50MM PLUNGER	1
16	CRA01038	RAM TOP - ADJUSTABLE	1
17	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	1
18	CSE00038	SEAL KIT BALE DAMPER RAM	1
19	CRA00138	NUT RAM ROD BALE DROPPER	1
20	CFA00183	HOSE CLAMP COVER PLATE 14MM	1
21	CFA00055	BOLT M8X35 Z/P	1
22	CFA00182	HOSE CLAMP 16MM	1
23	CMH00184	PIN 25X110&8MM C.HOLE Z/P	1
24	CMH00066	PIN 25X135&8MM C.HOLE	1
25	CMH00403	PIN 25X170 Z/P MILLED FOR CAP	2
26	CZF00292	6MM L CAP LONG FOR 25MM PINS	2
27	CFA00230	SETSCREW M10X30 Z/P	2
28	CFA00123	NUT M10 NYLOC	2



## 12.10) Side Tip Bale Damper

Item	Part Code	Description	Qty
1	ABD00007	SIDE TIP MAT FRAME	1
2	CBE00002	BUFFER RUBBER 50X21 M10X28	3
3	ABD00013	SIDE TIP PIPE ASSY	1
4	ABD00015	SIDE TIP PIVOT PIN ASSEMBLY	1
5	CFA00024	SETSCREW M10X25 Z/P	1
6	CFA00137	WASHER SPRING 10MM H.D Z/P	1
7	ABD00008	SIDE TIP DAMPER FRAME	1
8	ABD00001	BALE DAMPER SLIDE	1
9	CFA00151	SETSCREW M16X40 Z/P	4
10	CFA00128	NUT M16 NYLOC	4
11	CFA00123	NUT M10 NYLOC	3
12	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	6
13	CMH00066	PIN 25X135&8MM C.HOLE	1
14	CMH00095	PIN 25X106&8MM C.HOLE	1
15	ABD00021	SIDE TIP EXTENSION	1
16	CFA00135	WASHER FLAT 1" Z/P	2
17	CFA00138	WASHER FLAT 12MM Z/P	2
18	CRA00038	RAM BALE DROPPER 50MM PLUNGER	1
19	CRA01038	RAM TOP - ADJUSTABLE	1
20	CFA00118	GREASE NIPPLE M8X1.25 STRAIGHT	1
21	CSE00038	SEAL KIT BALE DAMPER RAM	1
22	CRA00138	NUT RAM ROD BALE DROPPER	1
23	ABD00009	SIDE TIP ARM ASY	1
24	ABD00031	SIDE TIP ARM WELD ASY	1
25	CMH00152	PIN 25X80&8MM C.HOLE	1
26	CMH00063	BUSH 25X90X39 STEPPED PLASTIC	1
27	CFA00010	ROLL PIN 8X50 Z/P	1
28	CFA00135	WASHER FLAT 1" Z/P	2
29	CFA00194	LINCH PIN PIPE 10MMX50MM	1
30	CMH00403	PIN 25X170 Z/P MILLED FOR CAP	2
31	CZF00292	6MM L CAP LONG FOR 25MM PINS	2
32	CBE00009	MAT SIDE TIP BALE DAMPER	1
33	CFA00078	SETSCREW M12X30 CUP SQ Z/P	2
34	CFA00124	NUT M12 NYLOC	2
35	CSG00020	SPRING TOR 7.62X42X42X6	1



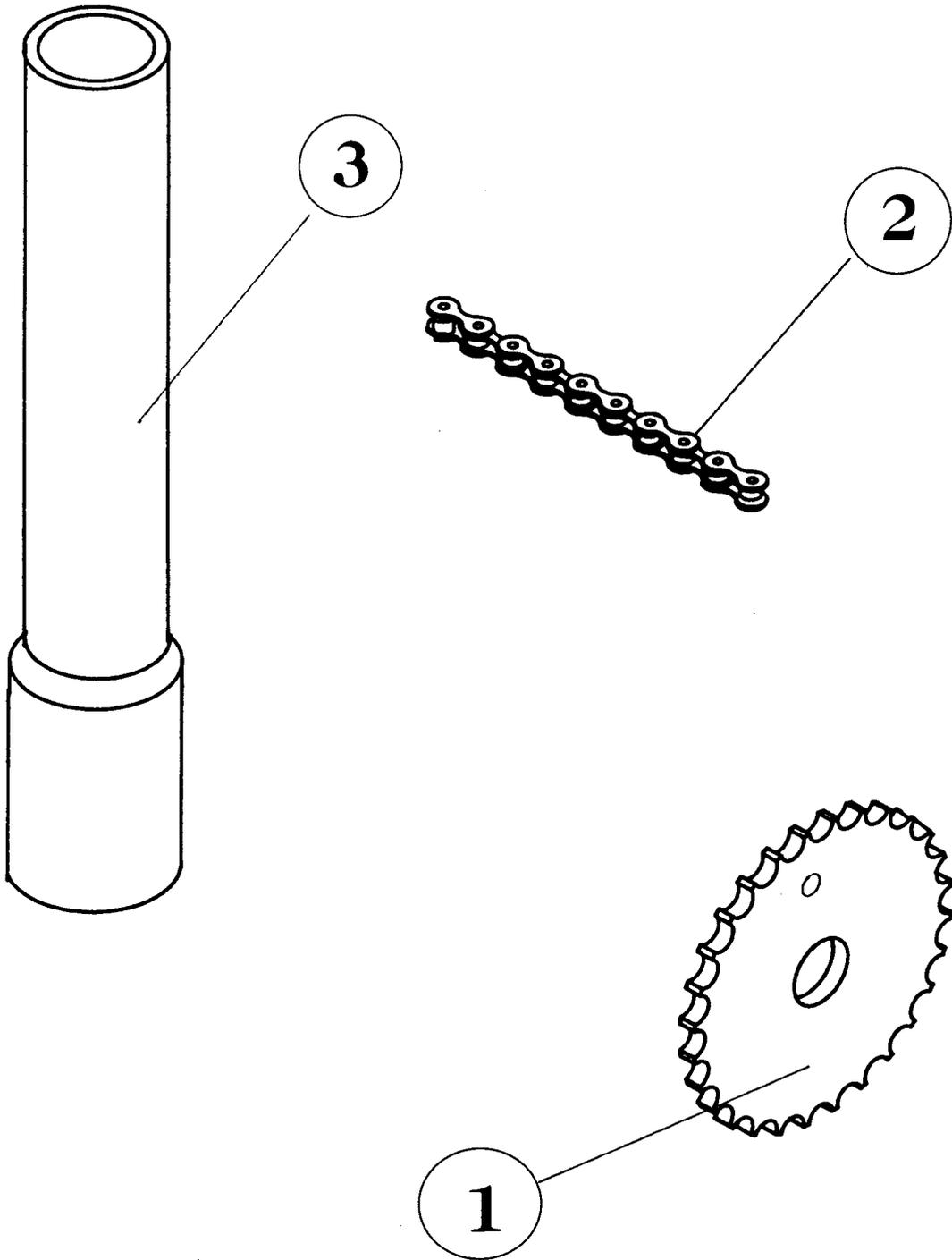
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## 12.11) Axle

Item	Part Code	Description	Qty
1	CAX00002	AXLE 60MM 6STUD 1900MM	1
2	CSE00079	SEAL AXLE HUB 6 STUD	2
3	CAX00009	HUB 6STUD 991	2
4	CAX00010	NUT CASTLE 6STUD 991	2
5	CAX00011	HUB CAP 6STUD 991	2
6	CFA00235	WHEEL STUD M18X1.5 (FAD)	12
7	CFA00121	NUT WHEEL M18 6 STUD AXLE	12
8	CFA00013	SPLIT PIN 5X50 Z/P	2
9	CWH00022	WHEEL ASY 350/50-16 FLOTATION+	2
10	CWH00048	WHEEL RIM 16X11 SIX STUD	1
11	CWH00047	TYRE 31X15.5X15 6 STUD	1
12	CBR00028	BEARING WHEEL 30210 6STUD	2
13	CBR00027	BEARING WHEEL 30207 6 STUD	2

### Tyre options

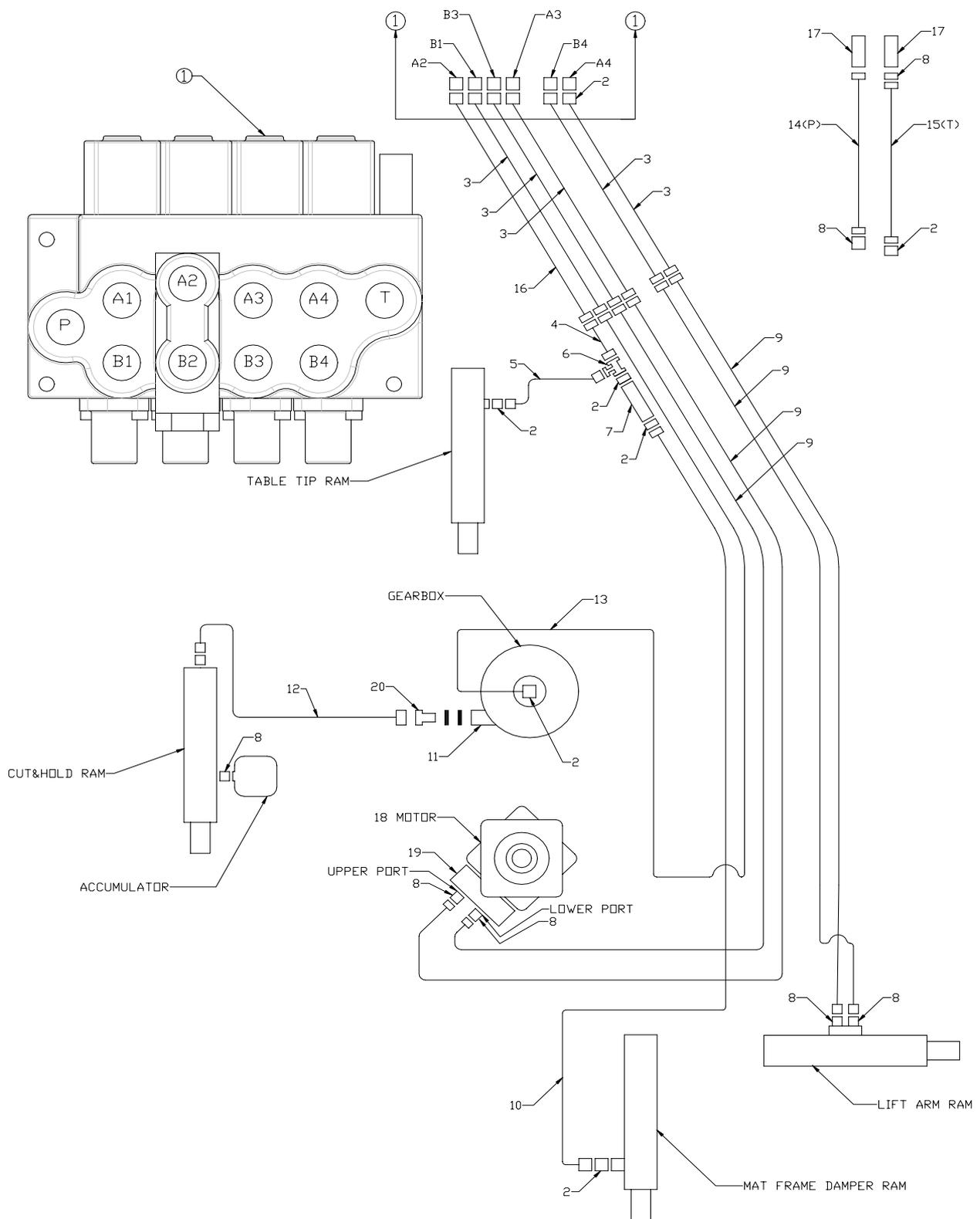
Item	Part Code	Description	Qty
9	CWH00009	WHEEL ASSEMBLY 31 X 15.5 SIX STUD	2
10	CWH00018	WHEEL RIM 15 X 13 SIX STUD	1
11	CWH00004	TYRE 31X15.5-15	1



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## 12.12) 500mm conversion kit

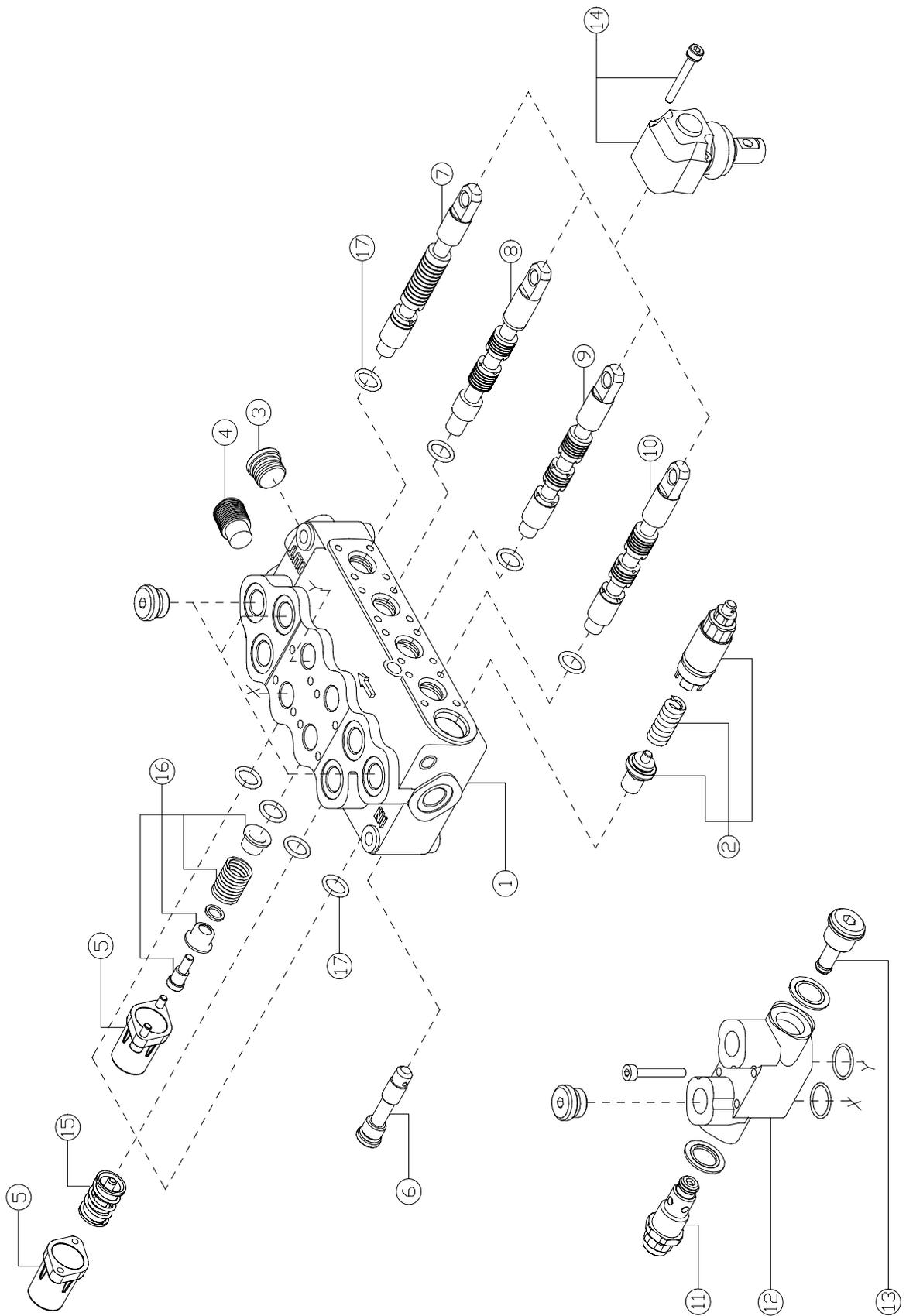
No.	PART NUMBER	DESCRIPTION	QUANTITY
	ADP00022	500mm CONVERSION KIT	1
1	CMH00058	SPROCKET 45 TOOTH	1
2	CCH00001	CHAIN EXT. PIECE 12B 3/4" PITCH 9 LINK	1
3	CPL00006	PLASTIC PIPE	1



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## 12.13) 991B Hydraulic assembly

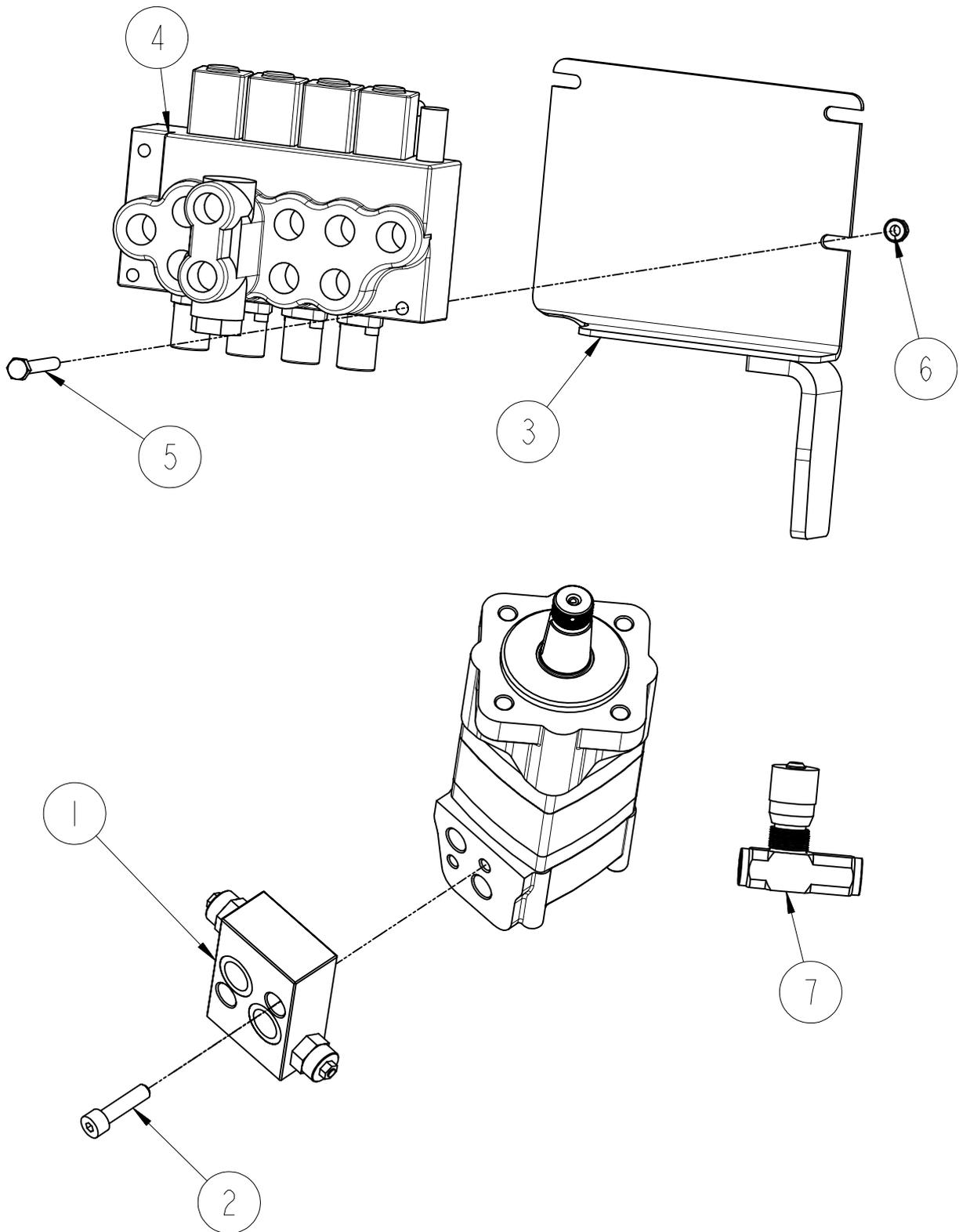
Item	Part Code	Description	Qty
1	CVA00003	VALVE CTL 4BANK MAN TRAILED	1
2	CHY02002	ADAPTOR 3/8" BSP M-M	14
3	CHY00078	HOSE HYD 3/8"X2670 F/M ST	5
4	CHY00084	HOSE 3/8"X930 F/ST F/ST	1
5	CHY00086	HOSE 3/8"X510 F/ST 90	1
6	CHY02097	T PIECE 3/8" M-M-F	1
7	CVA03007	VALVE RESTRICTOR 3/8"	1
8	CHY02008	ADAPTOR 1/2" M 3/8" M	7
9	CHY00082	HOSE 3/8" X3210 F/ST 90	4
10	CHY00085	HOSE 3/8"X2540 F/ST 90	1
11	CHY02098	ADAPTOR 3/8" BSP M-F	1
12	CHY00087	HOSE 3/8"X1220 BANJO 90	1
13	CHY00083	HOSE 3/8"X4000 F/ST 90	1
14	CHY00081	HOSE HYD 1/2"X1370 M ST 90	1
15	CHY00080	HOSE HYD 3/8"X1370 F ST 90	1
16	CHY00079	HOSE HYD 3/8"X2600 F/M ST	1
17	CHY02015	QR 1/2" MALE PARKER 7814G4X4	2
18	CMT00002	MOTOR 250CC 4BOLT 1 1/4" TAPER	1
19	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
20	CHY00098	ADAPTOR 3/8" BANJO BOLT	1



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## 12.14) 991B Hydraulic control valve

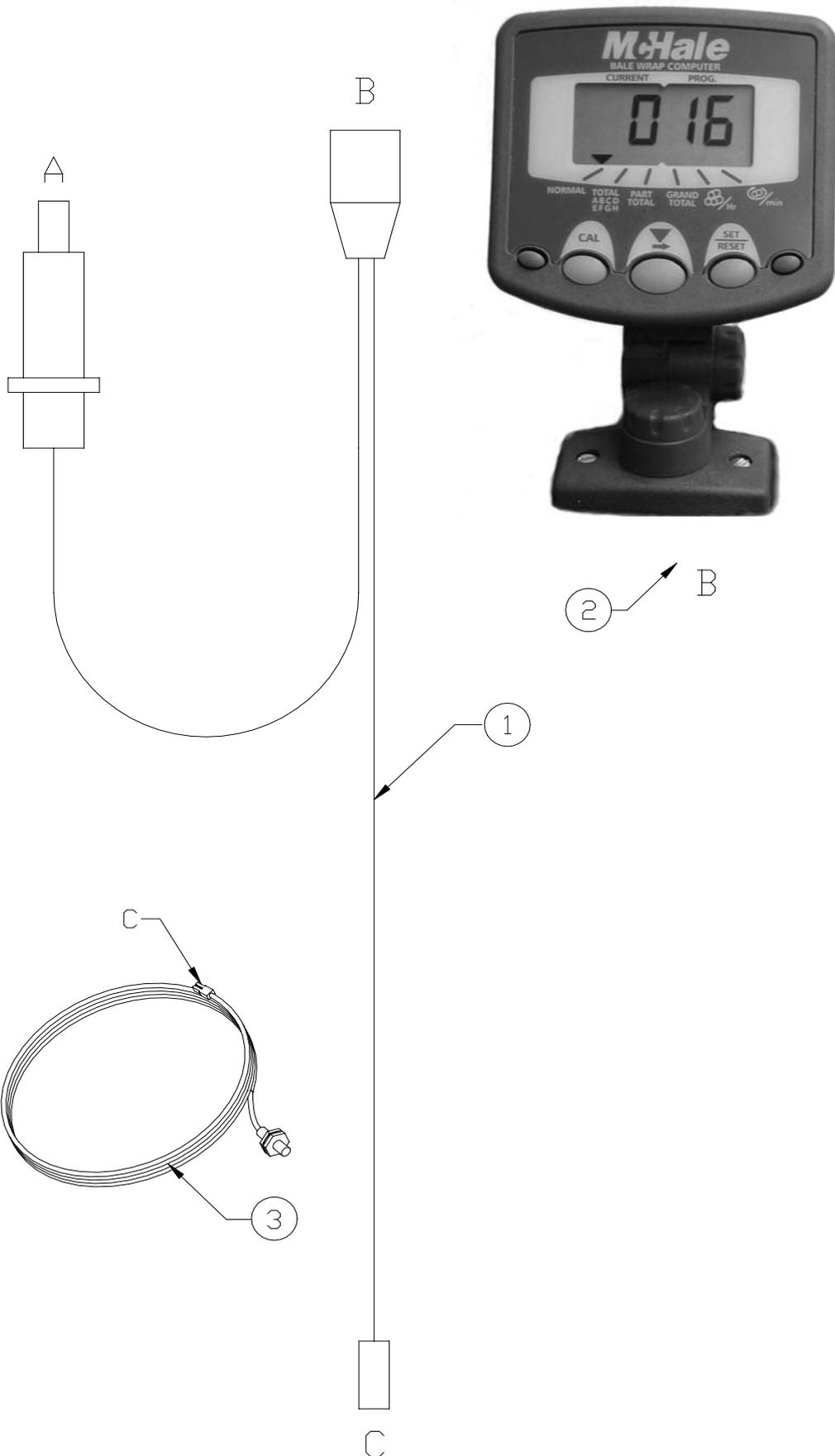
ITEM	PART CODE	DESCRIPTION	QTY
	CVA00003	VALVE 4 BANK MANUAL 991B	1
1	CVA00232	SD5/4-P/BSP/PT(s2-3) BODY	1
2	CVA00043	RELIEF VALVE FOR SD5 VALVE	1
3	CVA06003	OPEN CENTRE PLUG MANUAL VALVE	1
4	CVA06001	CLOSED CENTRE PLUG	1
5	CVA00044	SPOOL END CAP SD5	1
6	CVA00219	VR/SD5 KIT	1
7	CVA00208	SPOOL CUT & HOLD 991B	1
8	CVA00209	SPOOL TABLE TIP 991B	1
9	CVA00210	SPOOL TABLE MOTOR 991B	1
10	CVA00106	SPOOL LIFTARM 991B	1
11	CVA00223	P(G4-200)/SD5-SD11 CARTRIDGE	1
12	CVA00222	P3 SD5 BSP 3/8 BODY	1
13	CVA00224	P3T/SD5-SD11 REPLACING PLUG	1
14	CVA00023	LEVER PIVOT BOX SD5 M8	4
15	CVA00233	SPOOL SPRING KIT	3
16	CVA00234	SPOOL SPRING KIT	1
17	CSE00064	SEAL KIT 4 BANK MANUAL VALVE	1



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## 12.15) 991B Components

Item	Part Code	Description	Qty
1	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
2	CFA00179	BOLT M10 X 40 SOC CAP	2
3	ACH00004	PLATE MANUAL VALVE	1
4	CVA00003	VALVE CTL 4BANK MAN TRAILED	1
5	CFA00056	BOLT M8X65 Z/P	2
6	CFA00132	NUT M8 NYLOC Z/P	2
7	CVA03007	VALVE RESTRICTOR 3/8"	1

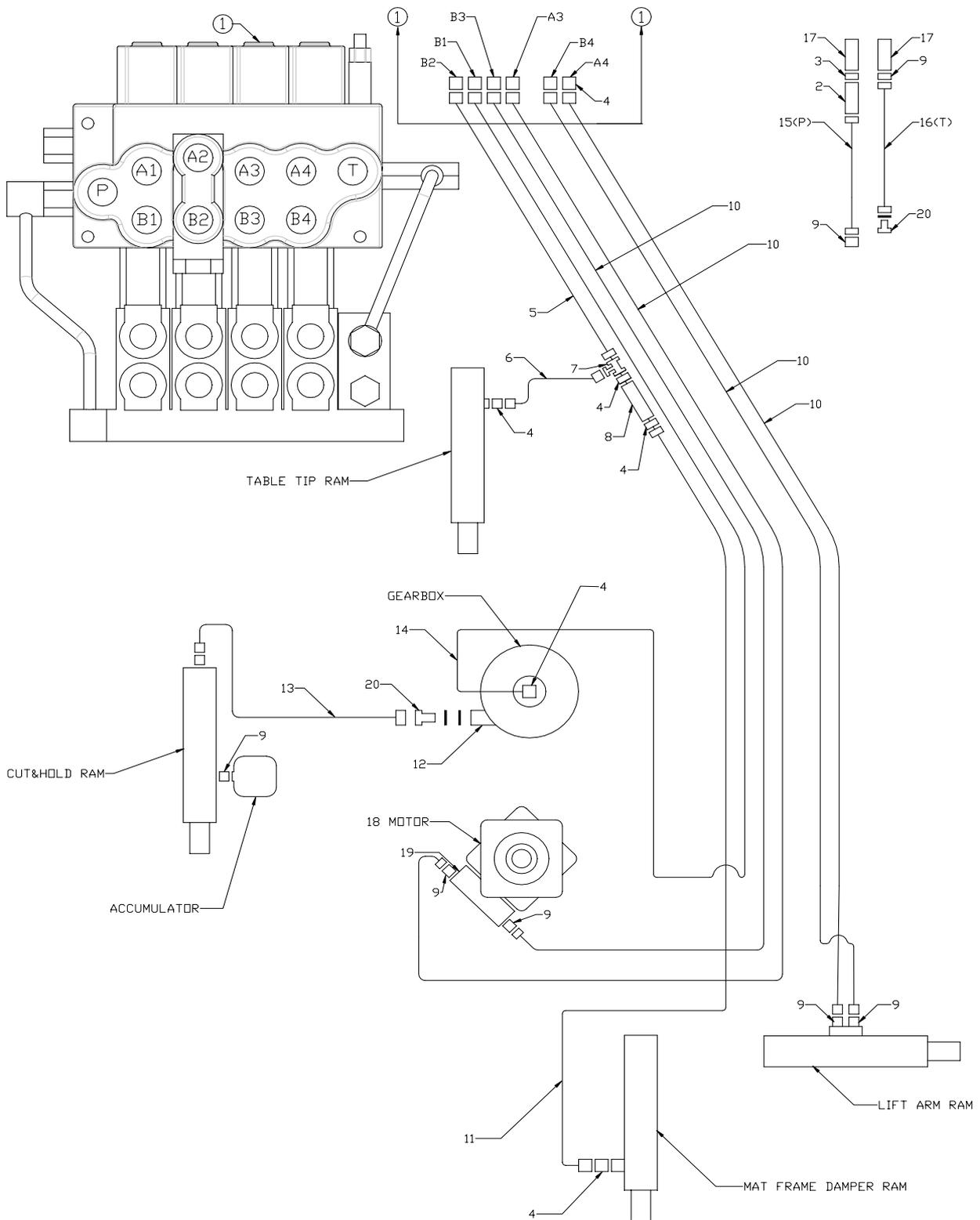


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## 12.16) 991B Electrical assembly

Item	Part Code	Description	Qty
1	CEL00187	LOOM WIZZARD 991B	1
2	CEL00174	CPTR WIZARD BWC	1
3	CEL00036	SENSOR CABLE 5M	1

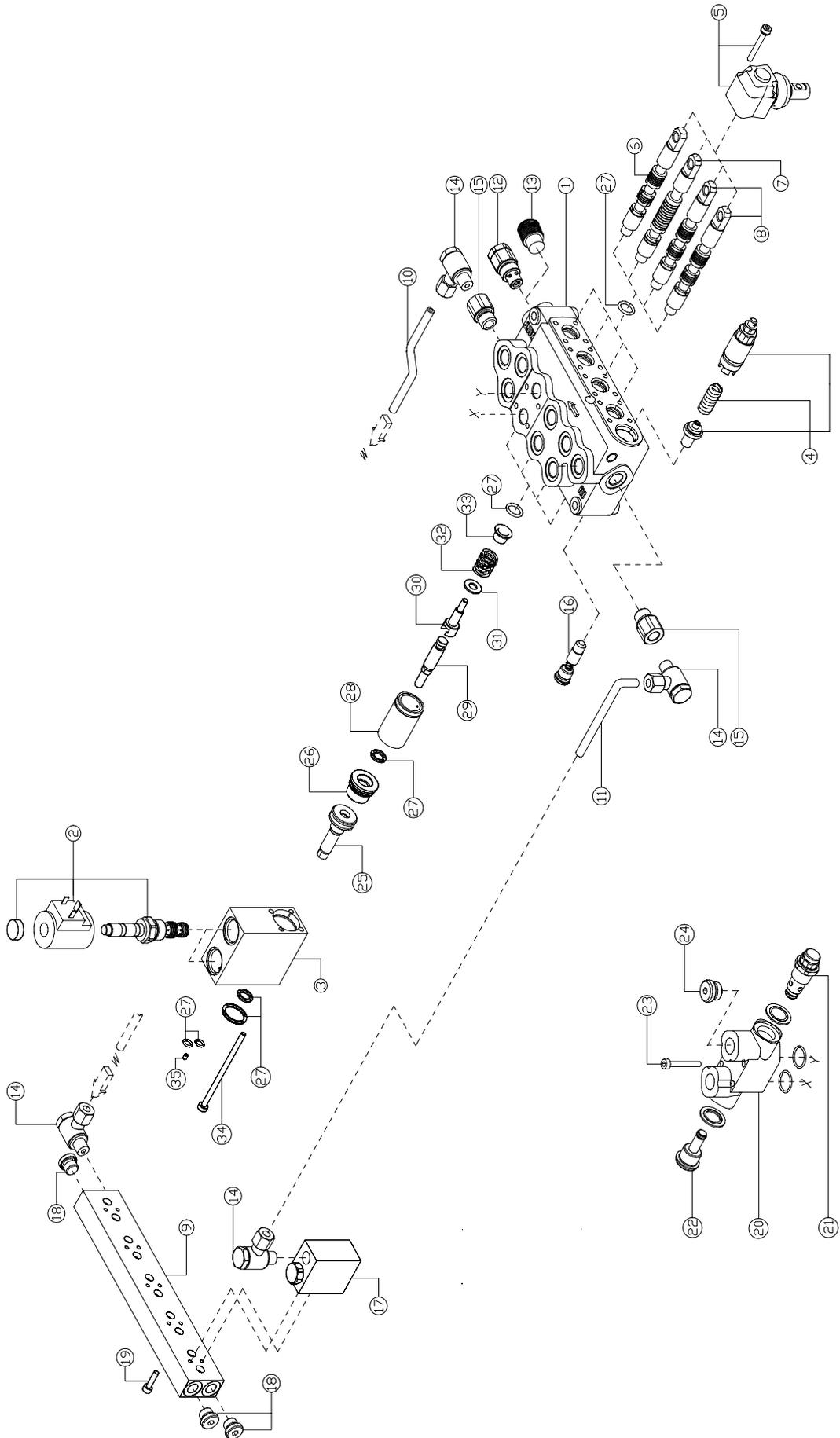
“A” connects to tractor power supply.



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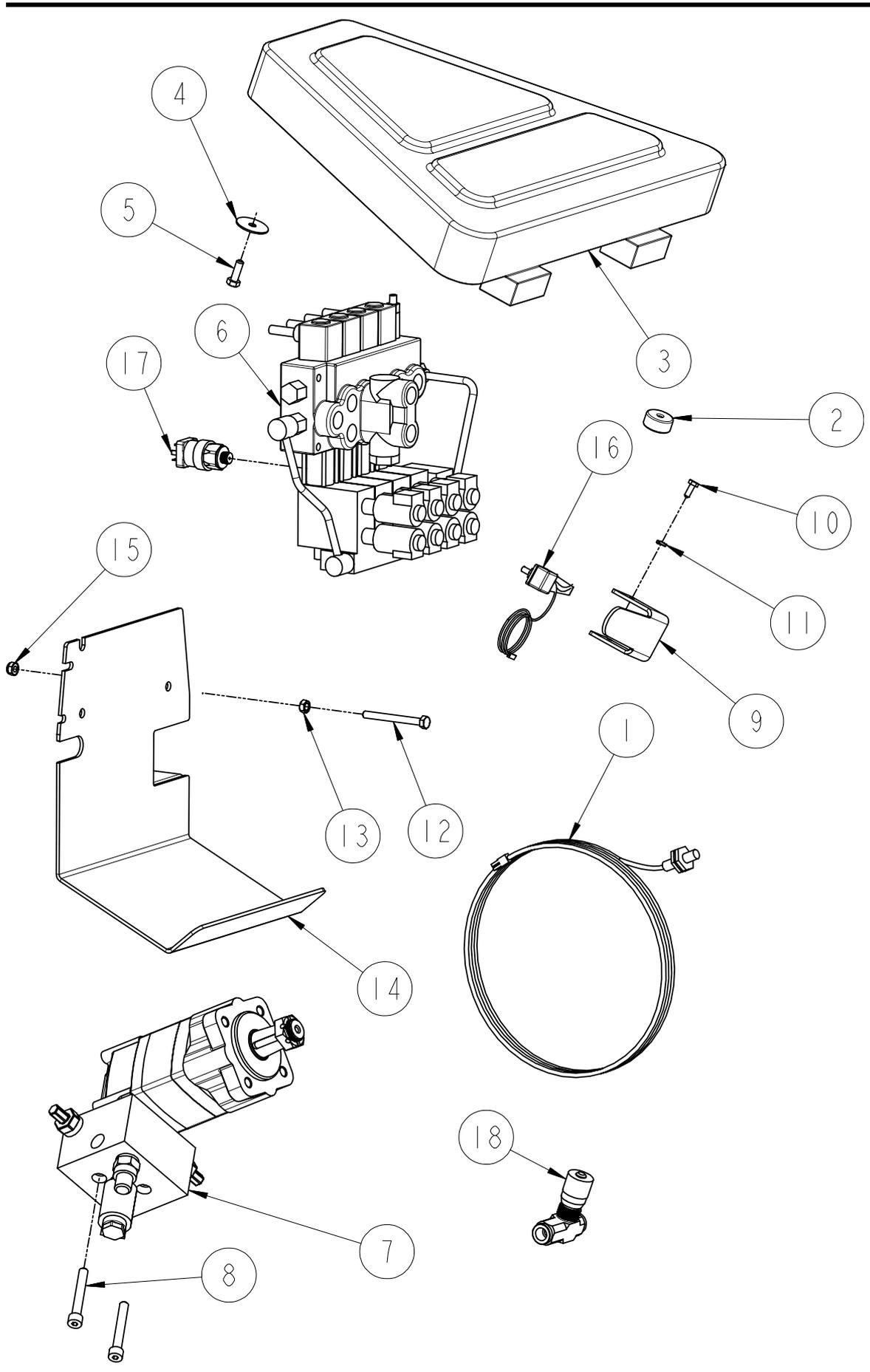
## 12.17) 991BE Hydraulic assembly

Item	Part Code	Description	Qty
1	CVA00009	VALVE CTL 4 BANK ELECTRONIC	1
2	CVA02999	VALVE NON RET 1/2" 0.5BAR	1
3	CHY02013	ADAPTOR 1/2" BSP M/M	1
4	CHY02002	ADAPTOR 3/8" BSP M-M	14
5	CHY00084	HOSE 3/8"X930 F/ST F/ST	1
6	CHY00086	HOSE 3/8"X510 F/ST 90	1
7	CHY02097	T PIECE 3/8" M-M-F	1
8	CVA03007	VALVE RESTRICTOR 3/8"	1
9	CHY02008	ADAPTOR 1/2" M 3/8" M	7
10	CHY00082	HOSE 3/8" X3210 F/ST 90	4
11	CHY00085	HOSE 3/8"X2540 F/ST 90	1
12	CHY02098	ADAPTOR 3/8" BSP M-F	1
13	CHY00087	HOSE 3/8"X1220 BANJO 90	1
14	CHY00083	HOSE 3/8"X4000 F/ST 90	1
15	CHY00089	HOSE 1/2"X2400 M 90	1
16	CHY00088	HOSE 3/8"X2500 F/ST BANJO	1
17	CHY02015	QR 1/2" MALE PARKER 7814G4X4	2
18	CMT00002	MOTOR 250CC 4BOLT 1 1/4" TAPER	1
19	CVA03000	VALVE BLOCK SLOW SPEED DANFOSS	1
20	CHY00098	ADAPTOR 3/8" BANJO BOLT	2



## 12.18) 991BE Hydraulic control valve

Item	Part Code	Description	Qty
	CVA00009	VALVE CTL 4 BANK ELECTRONIC	1
1	CVA00215	SD5 VALVE BLOCK	1
2	CVA00045	CTE+SOLENOID ELEC VALVE	8
3	CVA00046	VALVE BLOCK SOLENOID ELEC	4
4	CVA00043	VALVE RELIEF FOR SD5	1
5	CVA00023	LEVER PIVOT BOX SD5 M8	4
6	CVA00213	CUT & HOLD SPOOL 991BE + BJS	1
7	CVA00214	SPOOL TABLE TIP 991 BE + BJS	1
8	CVA00106	SPOOL SD5 DOU ACTING	2
9	CVA00047	ALU MANIFOLD ELEC CTL VALVE	1
10	CVA00216	T/KE-SD5/PSA-PIPE	1
11	CVA00217	P/KE CONNECTING PIPES	1
12	CVA06004	PLUG OPEN CTR ELEC VALVE	1
13	CVA06001	PLUG CLOSE CTR	1
14	CHY02020	ADAPTOR 1/4" BANJO ASY COMP	4
15	CVA00218	G3/8 - G1/4 JOINT	2
16	CVA00219	VR/SD5 KIT	1
17	CVA00220	PRESSURE CONTROL BLOCK	1
18	CVA00176	PLUG BSP 1/4"	3
19	CFA00261	SETSCREW M5X25 CSK HEX SS	10
20	CVA00222	P3 SD5 BSP 3/8 BODY	1
21	CVA00223	P(G4-200)/SD5-SD11 CARTRIDGE	1
22	CVA00224	P3T/SD5-SD11 REPLACING PLUG	1
23	CVA00225	UNI-5931/M5X45-12.9 SCREW	4
24	CVA00202	PLUG BSP 3/8"	1
25	CVA00226	PISTON SD5 SERVO	4
26	CVA00227	SEAL GLAND SD5 SERVO	4
27	CSE00065	SEAL KIT 4 BANK ELEC	4
28	CVA00228	SPACER SD5 SERVO	4
29	CVA00229	ROD SD5 SERVO	4
30	CVA00230	CONNECTING ROD SD5 SERVO	4
31	CFA00566	WASHER SD5 SERVO	4
32	CSG00043	SPRING SD5 SERVO	4
33	CVA00231	CUP SD5 SERVO	4
34	CFA00567	M5 X 100 _8.8 UNI 5931SCREW	16
35	CFA00568	M6x4.5-Fc=1 SCREW	4



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## 12.19) 991BE Components

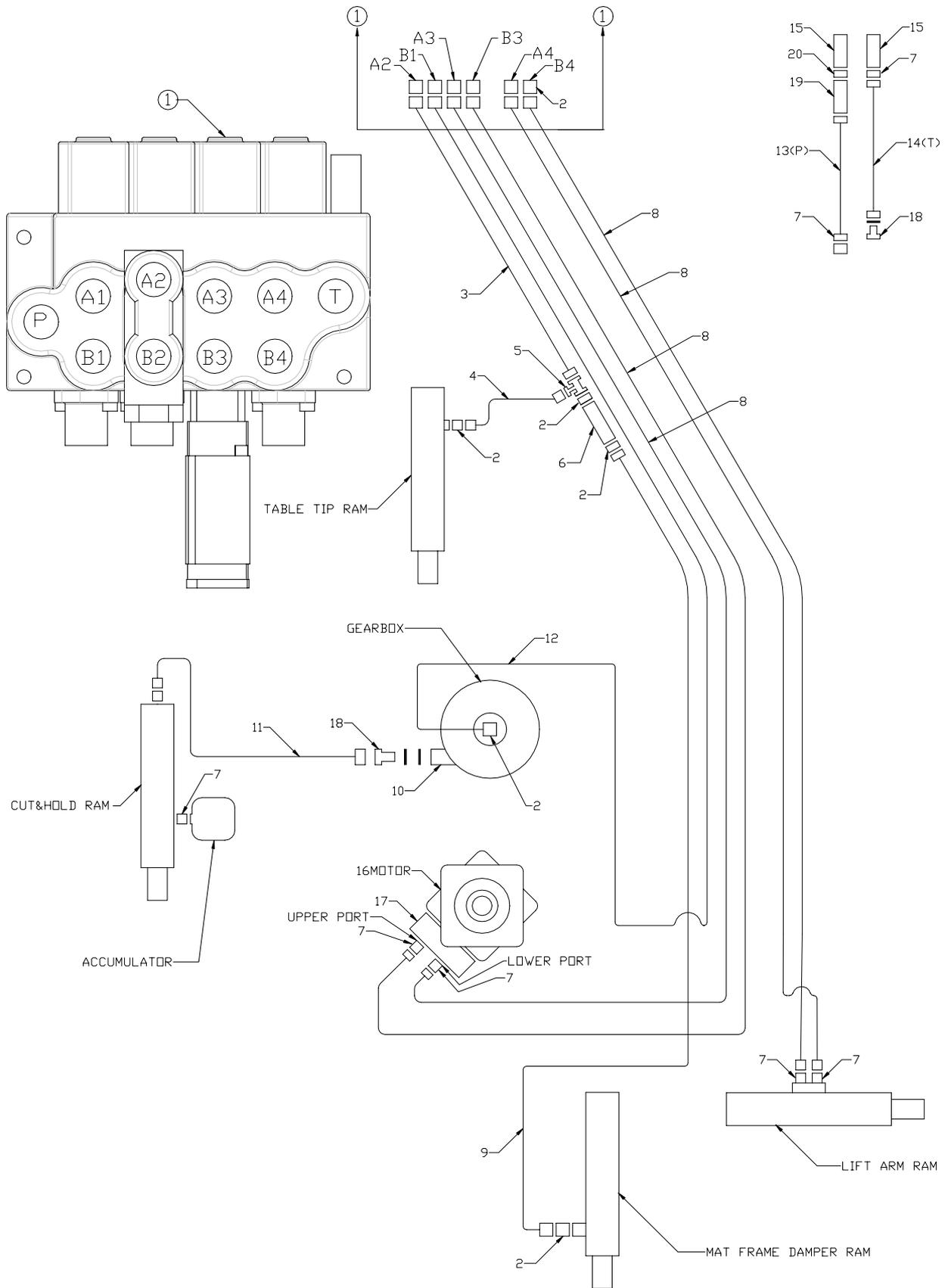
Item	Part Code	Description	Qty
1	CEL00036	SENSOR CABLE 5M	1
2	CEL00017	MAGNET BLUE WHEEL	4
3	CPL00021	VALVE COVER 991BE PLAS	1
4	CFA00149	WASHER MUDWING M8 38MM OD	1
5	CFA00407	BOLT M8X25 Z/P	1
6	CVA00009	VALVE CTL 4 BANK ELECTRONIC	1
7	CVA03000	VALVE BLOCK SLOW SPEED DANFOSS	1
8	CFA00029	BOLT M10X70 SOC CAP Z/P	2
9	CZD02137	4mm L LIFTARM SENSOR BRACKET	1
10	CFA00454	SETSCREW M6 X 16 Z/P	4
11	CFA00396	WASHER SPRING M6 Z/P	4
12	CFA00057	SETSCREW M8X80 Z/P	3
13	CFA00133	NUT M8 Z/P	3
14	ACH00012	GUARD VALVE PROTECTION ELEC	1
15	CFA00132	NUT M8 NYLOC Z/P	3
16	CEL00164	POTENTIOMETER 991 LIFTARM	1
17	CEL00008	SWITCH PRESSURE 2000PS	1
18	CVA03007	VALVE RESTRICTOR 3/8"	1



## 12.20) 991BE Electrical assembly

Item	Part Code	Description	Qty
1	CEL00087	LOOM AUTO ELECTRONIC 37 PIN	1
2	CVA00009	VALVE CTL 4 BANK ELECTRONIC	1
3	CEL00071	CTLR AUTO EXPERT TRAILED	1
4	CEL00036	SENSOR CABLE 5M	3
5	CEL00128	POTENTIOMETER 991 LIFTARM	1
6	CEL00032	BEACON CW LOOM	1
7	CVA03000	VALVE BLOCK SLOW SPEED DANFOSS	1
8	CEL00113	LOOM EXT SOLENOID 3M	1

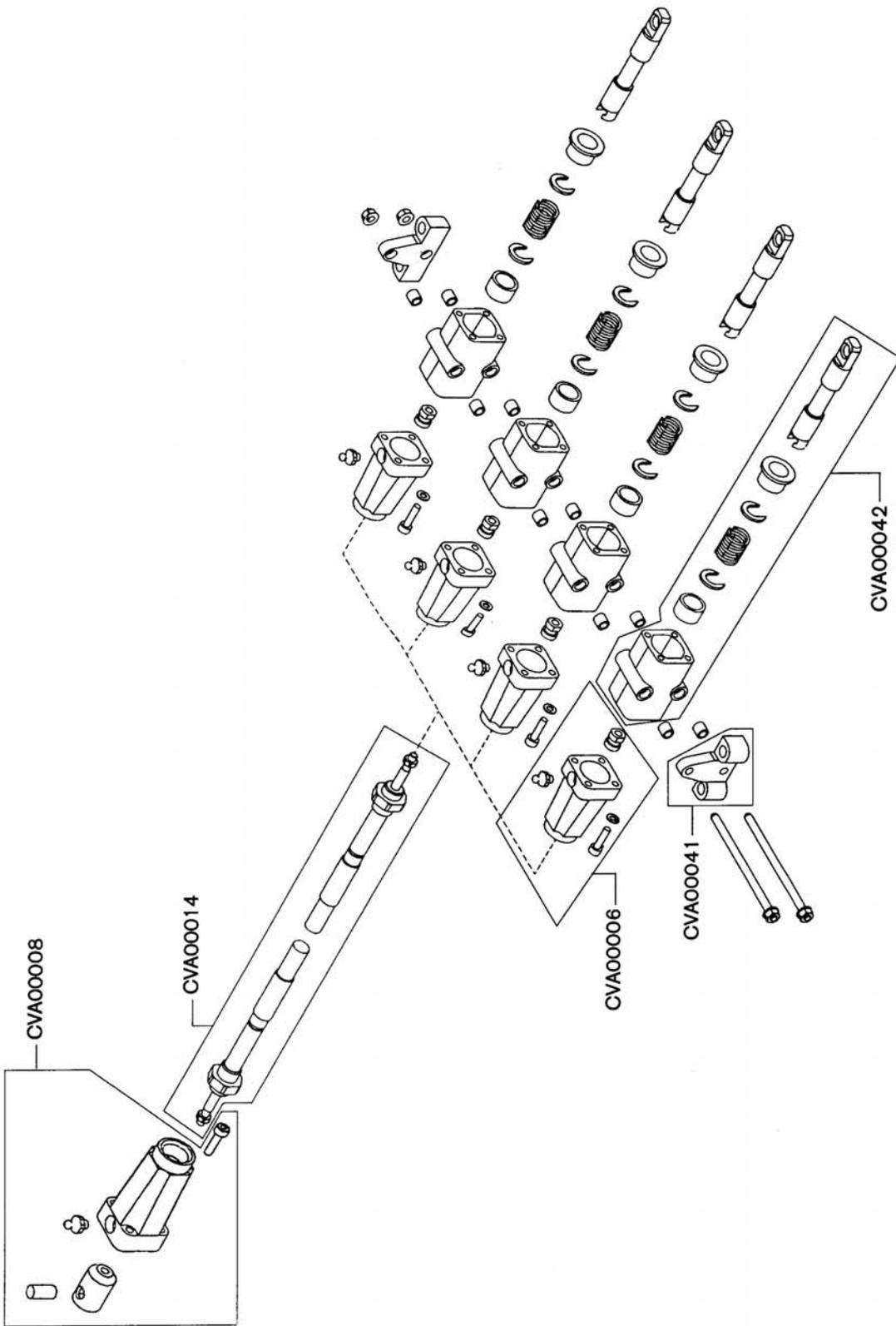
Connector	Loom	Component	Function
B	White/Violet+Black/Green+Blue/Green	CEL00128	LIFT ARM POTENTIOMETER
C	Red/Green+Yellow/Green	CEL00036	TABLE TIP SENSOR
D	White/Green+Yellow/Green	CEL00036	TABLE ROTATION SENSOR
E	Yellow/Blue+Yellow/Green	CEL00036	FILM BREAK SENSOR
F	Brown+Yellow/Green	CEL00032	BEACON
G	Blue+Yellow/Green	CEL00113	LOOM EXTENTION TO CVA03000
H	Violet+Yellow/Green		NOT USED ON THIS MACHINE
I	Grey/Blue+Yellow/Green		NOT USED ON THIS MACHINE
J	White/Blue+Red/Black+Yellow/Green		NOT USED ON THIS MACHINE
K	Grey/Green+Yellow/Green		NOT USED ON THIS MACHINE
L	Grey/Brown+Yellow/Green		NOT USED ON THIS MACHINE



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## 12.21) 991BC Hydraulic Assembly

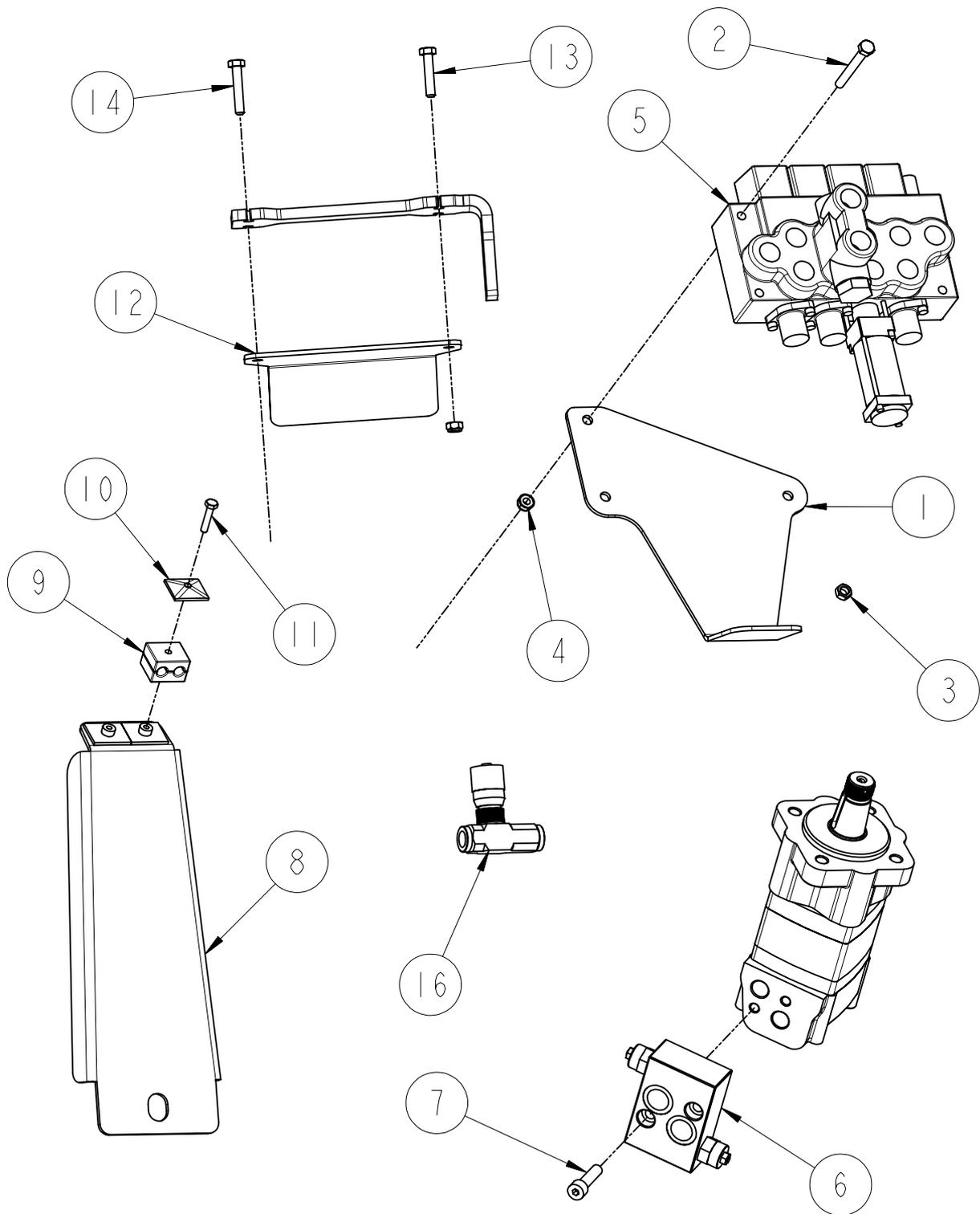
Item	Part Code	Description	Qty
1	CVA00161	VALVE CTL 4BANK 991BC KICK-OUT	1
2	CHY02002	ADAPTOR 3/8" BSP M-M	14
3	CHY00084	HOSE 3/8"X930 F/ST F/ST	1
4	CHY00086	HOSE 3/8"X510 F/ST 90	1
5	CHY02097	T PIECE 3/8" M-M-F	1
6	CVA03007	VALVE RESTRICTOR 3/8"	1
7	CHY02008	ADAPTOR 1/2" M 3/8" M	7
8	CHY00082	HOSE 3/8" X3210 F/ST 90	4
9	CHY00085	HOSE 3/8"X2540 F/ST 90	1
10	CHY02098	ADAPTOR 3/8" BSP M-F	1
11	CHY00087	HOSE 3/8"X1220 BANJO 90	1
12	CHY00083	HOSE 3/8"X4000 F/ST 90	1
13	CHY00089	HOSE 1/2"X2400 M 90	1
14	CHY00088	HOSE 3/8"X2500 F/ST BANJO	1
15	CHY02015	QR 1/2" MALE PARKER 7814G4X4	2
16	CMT00002	MOTOR 250CC 4BOLT 1 1/4" TAPER	1
17	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
18	CHY00098	ADAPTOR 3/8" BANJO BOLT	1
19	CVA02999	VALVE NON RET 1/2" 0.5BAR	1
20	CHY02013	ADAPTOR 1/2" BSP M/M	1



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## 12.22) 991BC hydraulic valve cables

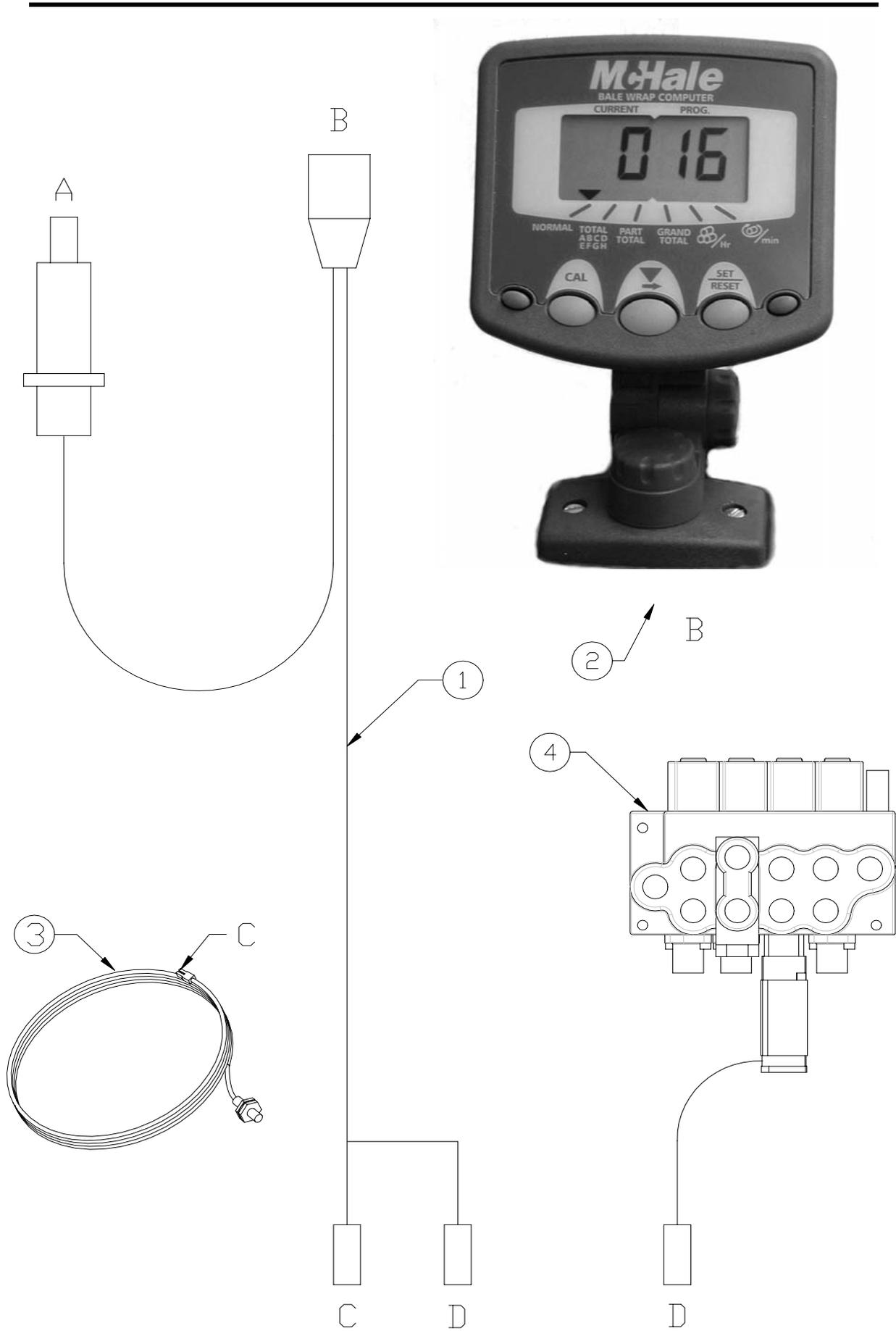
No.	PART NUMBER	DESCRIPTION	QUANTITY
	CVA00007	CABLE KIT COMPLETE 3M 4 BANK	1
	CVA00008	CABLE TO VALVE MODIFICATION KIT	4
	CVA00014	CABLE 3M 4CVA70 3000	4
	CVA00006	CABLE TO REMOTE MODIFICATION KIT	4
	CVA00041	CABLE REMOTE END CLAMP	2
	CVA00042	CABLE REMOTE SPOOL C/W HOUSING	4



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## 12.23) 991BC Components

Item	Part Code	Description	Qty
1	CZD02298	4MM L VALVE GUARD 991BC	1
2	CFA00342	SETSCREW M8X70 Z/P	3
3	CFA00133	NUT M8 Z/P	3
4	CFA00132	NUT M8 NYLOC Z/P	3
5	CVA00161	VALVE CTL 4BANK 991BC KICK-OUT	1
6	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
7	CFA00179	BOLT M10 X 40 SOC CAP	2
8	ALA00048	CABLE HOLDER ASSY 991BC	1
9	CFA00187	HOSE CLAMP 10MM (2 PER SET)	2
10	CFA00189	HOSE CLAMP COVER PLATE 6-12	2
11	CFA00047	SETSCREW M6X30 Z/P	2
12	ACH00154	LEVER MOUNTING BRACKET	1
13	CFA00100	BOLT M8X40 Z/P	2
14	CFA00106	BOLT M8X45 Z/P	2
15	CFA00132	NUT M8 NYLOC Z/P	4
16	CVA03007	VALVE RESTRICTOR 3/8"	1



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## 12.24) 991BC Electrical assembly

Item	Part Code	Description	Qty
1	CEL00188	LOOM WIZZARD 991BC	1
2	CEL00174	CPTR WIZARD BWC	1
3	CEL00036	SENSOR CABLE 5M	1
4	CVA00161	VALVE CTL 4BANK 991BC KICK-OUT	1

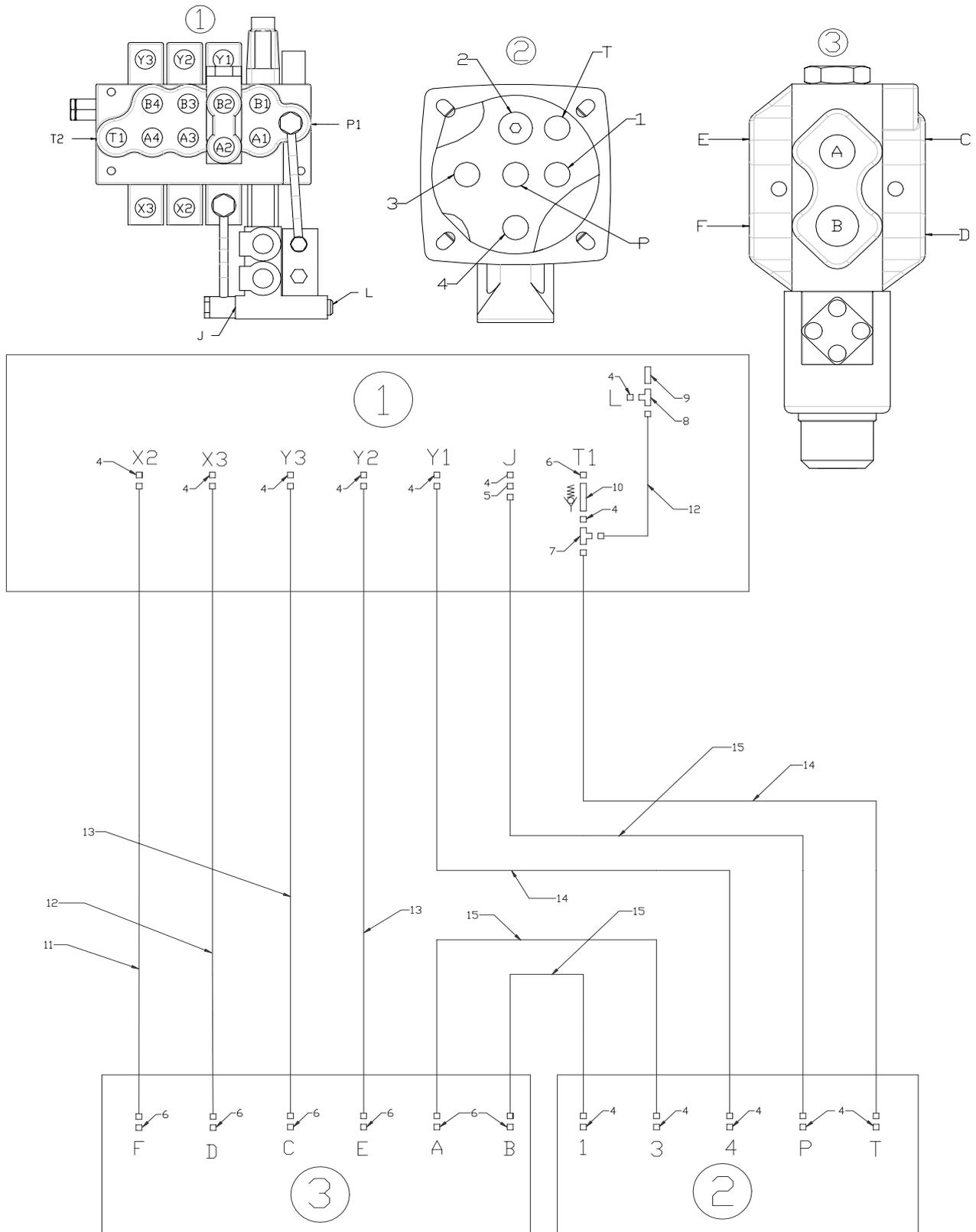
Connector	Loom	Component	Function
C	Yellow/Green + Blue	CEL00036	Rotation Sensor
D	Brown + Blue	CVA00161	Maintains rotation

**“A” connects to tractor power supply.**



## 12.25) 991BJS Hydraulic Assembly

Item	Part Code	Description	Qty
1	CVA00066	VALVE CTL 4 BANK BJS SERVO	1
2	CVA00098	VALVE NON RET 3/8" 0.5 BAR	1
3	CHY02100	HOSE KIT TABLE TIP LOCK 991BJS	1
4	CHY02002	ADAPTOR 3/8" BSP M-M	16
5	CHY00084	HOSE 3/8"X930 F/ST F/ST	1
6	CHY00086	HOSE 3/8"X510 F/ST 90	1
7	CHY02097	T PIECE 3/8" M-M-F	3
8	CVA03007	VALVE RESTRICTOR 3/8"	1
9	CHY02008	ADAPTOR 1/2" M 3/8" M	7
10	CHY00082	HOSE 3/8" X3210 F/ST 90	4
11	CHY00085	HOSE 3/8"X2540 F/ST 90	1
12	CHY02098	ADAPTOR 3/8" BSP M-F	1
13	CHY00087	HOSE 3/8"X1220 BANJO 90	1
14	CHY00083	HOSE 3/8"X4000 F/ST 90	1
15	CHY00089	HOSE 1/2"X2400 M 90	1
16	CHY00088	HOSE 3/8"X2500 F/ST BANJO	1
17	CHY02015	QR 1/2" MALE PARKER 7814G4X4	2
18	CMT00002	MOTOR 250CC 4BOLT 1 1/4" TAPER	1
19	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
20	CHY00098	ADAPTOR 3/8" BANJO BOLT	2
21	CVA02999	VALVE NON RET 1/2" 0.5BAR	1
22	CHY02013	ADAPTOR 1/2" BSP M/M	1
23	CVA03100	VALVE ON/OFF 3/8" BALL TYPE	1
24	CHY02098	ADAPTOR 3/8" BSP M-F	2



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## 12.26) 991BJS Joystick Assembly

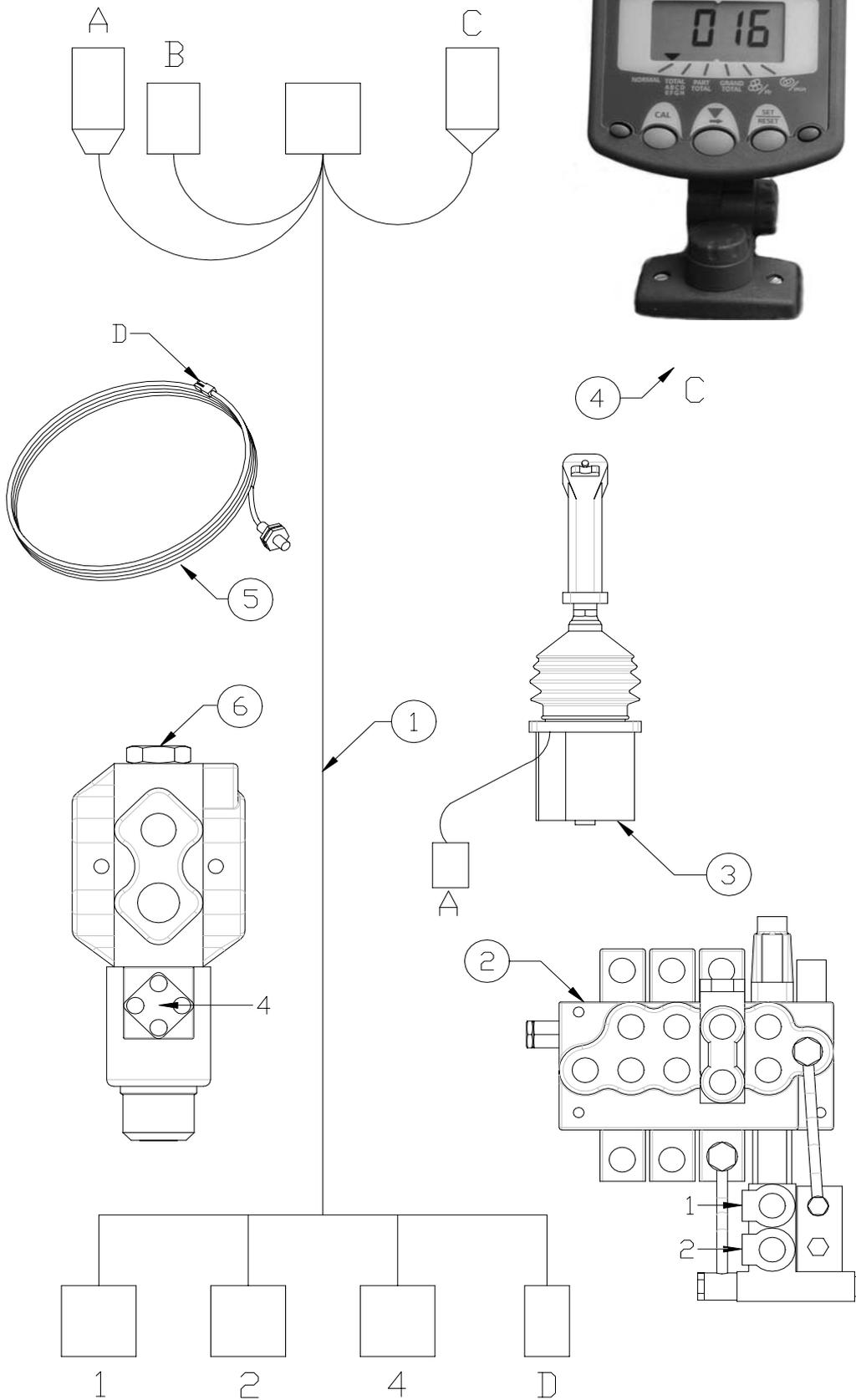
Item	Part Code	Description	Qty
1	CVA00066	VALVE CTL 4 BANK BJS SERVO	1
2	CVA00067	JOYSTICK HANDLE SERVO SV01TYPE	1
3	CVA00096	VALVE DIVERTER 3/8" 6WAY 12V	1
4	CHY02010	ADAPTOR 1/4" BSP M/M	13
5	CHY02018	ADAPTOR 1/4" M/F 90DEG	1
6	CHY02032	ADAPTOR 1/4" M 3/8" M	7
7	CHY02086	T PIECE 1/4" F-M-M	1
8	CHY02101	T PIECE 1/4" M-F-M	1
9	CVA03009	VALVE DUMP 60BAR	1
10	CVA03102	VALVE NON RET 1/4" 0.5 BAR	1
11	CHY02093	1/4" 250 F BSP 0° TO F BSP 90°	1
12	CHY02091	1/4" 350 F BSP 0° TO F BSP 90°	2
13	CHY02094	1/4" 450 F BSP 0° TO F BSP 90°	2
14	CHY02089	1/4" 4300 F BSP 0° TO F BSP 0°	2
15	CHY02090	1/4" 4300 F BSP 0° TO F BSP 90°	3



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## 12.27) 991BJS Components

Item	Part Code	Description	Qty
1	CPL00021	VALVE COVER 991BE PLAS	1
2	CFA00149	WASHER MUDWING M8 38MM OD	1
3	CFA00407	BOLT M8X25 Z/P	5
4	CZD00200	4MM L JOYSTICK CTRL VALVE BRKT	1
5	CVA00011	VALVE RELIEF CL OMS100&130BAR	1
6	CFA00179	BOLT M10 X 40 SOC CAP	2
7	CFA00132	NUT M8 NYLOC Z/P	7
8	CVA00066	VALVE CTL 4 BANK BJS SERVO	1
9	CFA00340	BOLT M8X60 Z/P	3
10	ACH00347	JOYSTICK BJS MOUNTING ASY 2002	1
11	CVA00067	JOYSTICK HANDLE SERVO SV01TYPE	1
12	CVA00096	VALVE DIVERter 3/8" 6WAY 12V	1
13	CVA03100	VALVE ON/OFF 3/8" BALL TYPE	1
14	CVA03007	VALVE RESTRICTOR 3/8"	1
15	CVA00098	VALVE NON RET 3/8" 0.5 BAR	1

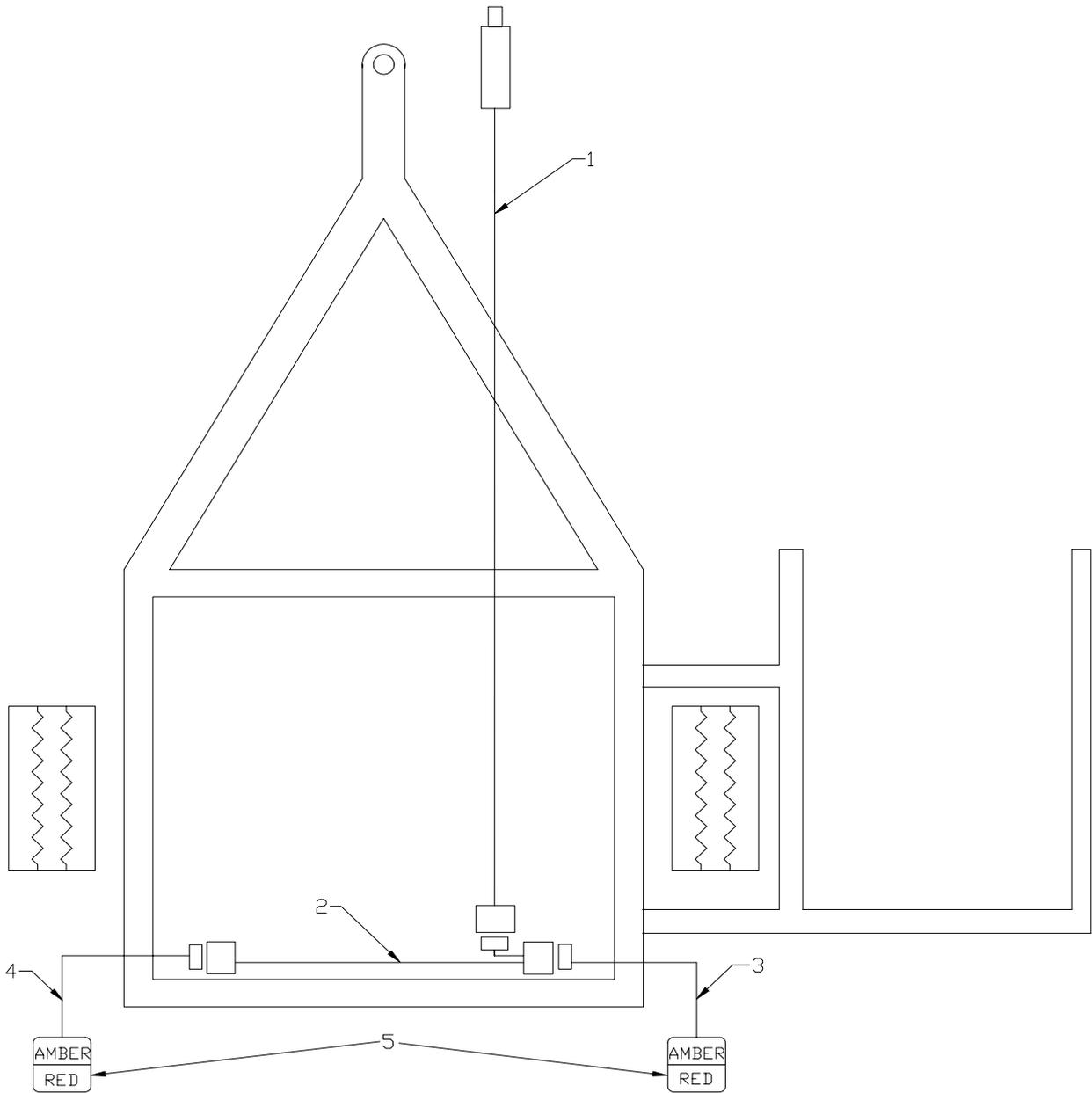


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## 12.28) 991BJS Electrical assembly

Item	Part Code	Description	Qty
1	CEL00175	LOOM 991BJS 2002 MODEL+	1
2	CVA00066	VALVE CTL 4 BANK BJS SERVO	1
3	CVA00067	JOYSTICK HANDLE SERVO SV01TYPE	1
4	CEL00174	CPTR WIZARD BWC	1
5	CEL00036	SENSOR CABLE 5M	1
6	CVA00096	VALVE DIVERTER 3/8" 6WAY 12V	1

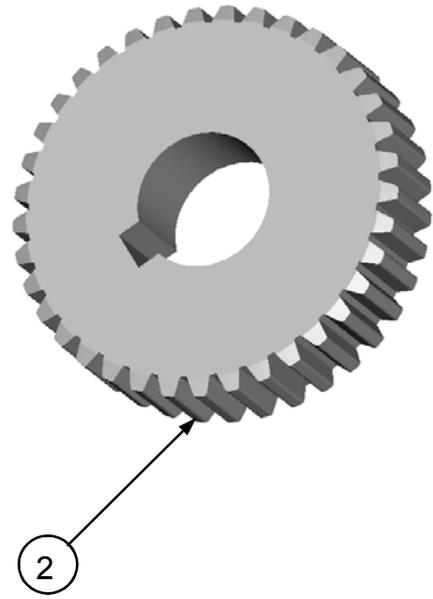
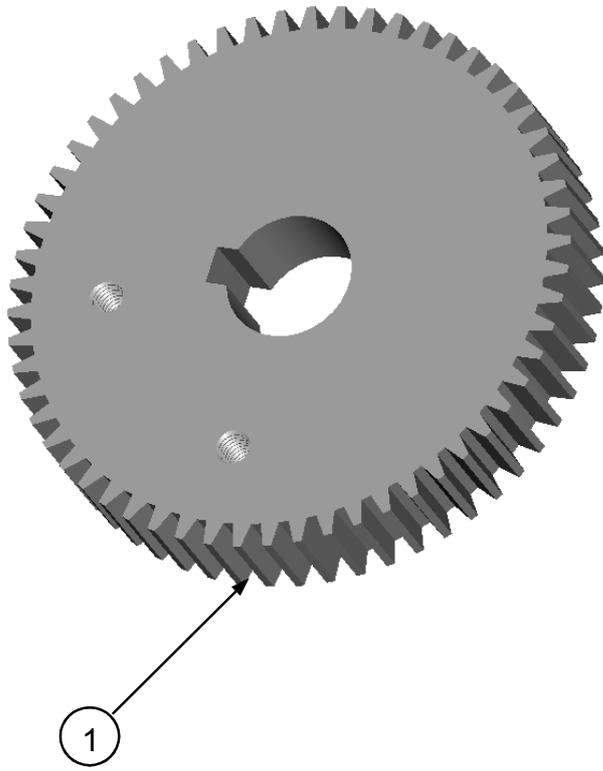
“B” connects to tractor power supply.



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## 12.29) 991B Lighting

Item	Part Code	Description	Qty
	CEL00024	LIGHTING KIT 991TRAILED	1
1	CEL00069	LOOM LIGHTING KIT TRAILED	1
2	CEL00121	LOOM LIGHTS JOINER 991	1
3	CEL00067	LIGHT 991 TRAILED LIFTARM	1
4	CEL00068	LIGHT 991 TRAILED CHASSIS	1
5	CEL00120	LIGHTING REAR LENS TRAILED	2



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## 12.30) Dispenser gears

### 70% GEAR OPTION: STANDARD

**Note:** This gear ratio is standard with all 991B series wrappers. See page 88.

Item	Part Code	Description	Qty
	ADP00018	KIT DISPENSER GEARS 70%	1
1	CMH00055	GEAR SPUR 1.5M 60T DISPENSER	1
2	CMH00175	GEAR SPUR 1.5M 35T DISPENSER	1

### 55% GEAR OPTION (HOT CLIMATES)

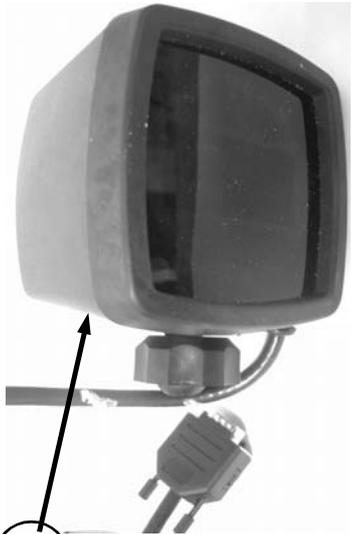
Item	Part Code	Description	Qty
	ADP00019	KIT DISPENSER GEARS 55%	1
1	CMH00057	GEAR SPUR 1.5M 58T DISPENSER	1
2	CMH00174	GEAR SPUR 1.5M 37T DISPENSER	1

### 32% ENDURO PLASTIC OPTION

Item	Part Code	Description	Qty
	ADP00085	KIT DISPENSER GEARS 32%	1
1	CMH00388	GEAR SPUR 1.5M 54T DISPENSER	1
2	CMH00389	GEAR SPUR 1.5M 41T DISPENSER	1



1



2



3

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## 12.31) REMOTE CONTROL

<b>Item</b>	<b>Part Code</b>	<b>Description</b>	<b>Qty</b>
	KST00007	KIT REMOTE & BEACON 991BE	1
1	CEL00013	REMOTE HAND PIECE	1
2	CEL00012	REMOTE RECEIVER	1
3	CEL00132	BEACON CW LOOM	1

## 13. Appendix 1 - Trouble shooting

The following table gives common problems that may occur while operating the machine and solutions to solve them. **If you are unsure of how to carry out the remedies entrust the job to your McHale dealer.**

Problem	Cause	Remedy
Lift arm not operating (991 BJS)	1) Faulty power supply/ electrical connections. 2) Diverter spool sticking (grit). 3) Joystick switch not operating.	1) Check and correct 2) Remove spool and clean. Check oil for cleanliness. 3) Check and correct.
Lift arm or table slow in one direction (991BJ)	1) Cable adjustment	1) Adjust cable
Table rotates but bale not indexing.	1) Table drive roller shearbolt broken. 2) Gearbox cross shaft roll pins broken.	1) Replace shearbolt. 2) Replace roll pins.
Table stopping in wrong position (Electronic machines)	1) Magnet settings. 2) Not starting in correct position 3) Slow down setting in control box. 4) Slow speed valve not working. 5) Dirt in slow speed cartridge. 6) Slow speed set too fast	1) Reset magnets. 2) Start with cut & hold at rear of machine. 3) Adjust. 4) Check electrical connections. 5) Clean cartridge. 7) Set table rotation to
Table moving in tip	1) Drive chain loose	1) Tighten chain.
Table slow to tip down	1) Back pressure too high. 2) Faulty quick release couplings	1) Ensure free flow return is fitted. 2) Replace couplings.

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Machine tips bale but does not reset to load	1) Tip sensor faulty. 2) Magnet broken.	1) Locate and replace. 2) Locate and replace.
Plastic film splitting as bale leaves table	1) Bale sticking to roller as it is leaving the table. 2) Bale damper ram adjusted too high	1) Shake chalk under belt to reduce friction. 2) Adjust damper cylinder.
Plastic not stretching	1) Build up of tack/glue on dispenser rollers 2) Torsion spring weak on dispenser	1) Clean off with kerosene. 2) Replace spring.
Plastic getting caught around cut & hold (Electronic machines)	1) Table down magnet set too high.	1) Reset table down magnet
Damper slow or fails to come down.	1) Restrictor tap set too tight.	1) Adjust restrictor.
Damper rising during wrapping cycle	1) High hydraulic back pressure. 2) Faulty quick release coupling.	1) Fit free flow return. 2) Replace quick release coupling.
Cut & hold not catching plastic film	1) Positioned incorrectly. 2) Table not stopping in correct tip off position.	1) Check position. 2) Check and adjust magnets if necessary
Cut & hold not opening	1) Pressure low on accumulator.	1) Prime accumulator.
Cut & hold not closing	1) Pressure high on accumulator.	1) Release pressure from accumulator.
Cut & hold leaks back slowly.	1) Seals weak in gearbox. 2) Loose hydraulic fitting on gearbox.	1) Replace seals. 2) Tighten.

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Control box not counting	1) Sensor damaged. 2) Magnet broken. 3) Sensor - magnet clearance. 4) Faulty control box	1) Locate and replace. 2) Locate and replace. 3) Adjust sensor approx. 10-15mm from magnet. 4) Replace control box.
“LOW BATT” appears on control box.	1) Supply voltage too low	1) Check battery and charging system.
Half the number of actual rotations displayed on control box	1) One set of magnets missing	1) Replace missing set of magnets
Control box will not switch to “auto” setting	1) Loom not connected to box.	1) Connect loom.
Hydraulics under pressure when wrapper is idle	1) Valve set to closed centre on open centre system.	1) Change setting.
Dump valve on control valve leaking (electronic machines)	1) Back pressure too high. 2) Return hose not connected.	2) Ensure free flow return is fitted. 2) Connect hose.
Hydraulic system vibrating	1) Incorrect valve setting for tractor being used	1) Set valve to suit tractor hydraulic system being used.
Tip up and cut & hold cycles very slow	1) Tractor pressure too low. 2) Faulty pressure switch (electronic machines) 3) Relief valve set too low	1) Ensure tractor has 150 bar pressure. 2) Replace 3) Set to 150 bar

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Remote control receiver not accepting signal	1) Not connected properly. 2) Sunlight shining direct into receiver. 3) Operating through tinted glass. 4) Batteries exhausted on handpiece. 5) Not pressing Start button for long enough.	1) Check on rear of control box. 2) Turn away or shade. 4) Operate where glass cannot come in the way. 5) Replace batteries. 5) Press button for 2-3 seconds.

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## **14. Appendix 2 - Recommended lubricants**

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The following lubricants are recommended for use on the 991B series wrappers.

Grease

Multi purpose grease

Dispenser gears

Open gear grease

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## 15. Appendix 3—Fasteners/fittings torques

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It is important that the correct torques for fasteners and fittings are adhered to. Below are tables of recommended torques for these. These are to be use unless torques are otherwise specified.

All torques are in Nm.

Table A nuts and bolts.

Bolt/Nut	Grade 8.8	Grade 10.9	Grade 12.9
M5	5.4	8	9.5
M6	9.5	13.5	15
M8	24	34	39
M10	43	64	79
M12	79	112.5	136
M14	127	180	216
M16	195	266	438
M20	353	496	597

Table B. Hydraulic fittings

Fitting size	torque
1/4"	24
3/8"	38
1/2"	49
5/8"	60
3/4"	81

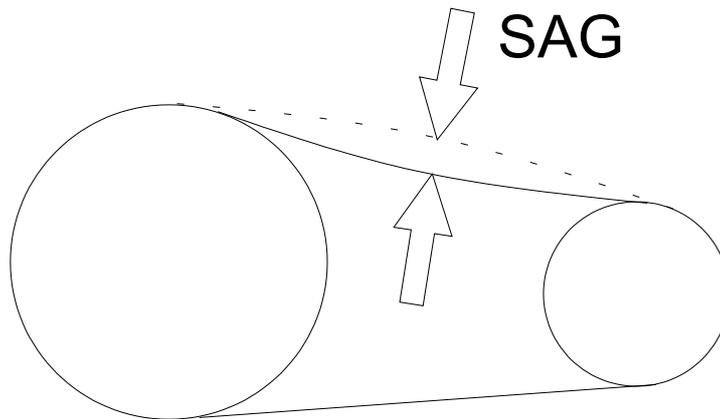
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## 16. Appendix 4—Chain adjustments

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It is important for the efficient operation of the wrapper that all drive chains are kept correctly tensioned. The following is a general guide to chain adjustment. For more specific information see the appropriate section under adjustments.

the sag is measured to the midpoint of the chain between sprockets. Always ensure one side of the chain is tight so that the correct reading is obtained. Even though some drives differ in detail the basic adjustment stay the same.



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## 17. Appendix 5 - Limited Warranty

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McHale Engineering of Ballinrobe in the County of Mayo (hereinafter called the “company”) warrant, in accordance with the provisions below, to each original purchaser of McHale Engineering Limited new equipment of its own manufacture from an authorised McHale Engineering Limited dealer, that such equipment is, at the time of delivery to such purchaser, free from defects in materials and workmanship which is fit for the purpose for which it is intended and that such equipment will be warranted for a period of one season starting from the date the goods are delivered to the end user, and during this period a limit of 500 hours on the condition precedent that the machine will be used solely for the purpose intended as per the company’s recommendations in the Operating Manual accompanying the machine, provided also that the said machine is serviced with strict accordance of the said operating manual.

### **CONDITIONS PRECEDENT AND INHERENT TO THE LIMITED WARRANTY:**

1. Parts of the machine which are not of our manufacture are not covered by this limited warranty and the Company is not liable for any breach of warranty or contract of any breach of the consumers rights under common law in relation to said parts. These parts are subject to the warranty of the original manufacturer if any and therefore any claim on foot of a breach of this warranty (if any) or breach of contract or breach of the consumers rights under common law shall be taken up by the consumer with the manufacturer concerned.
2. Any claim in respect of said parts must be submitted and processed in the exact manner in which a claim in respect of the machine manufactured by the company would be submitted and handled in such circumstances will be paid in accordance with warranty agreement of the individual independent manufacturer concerned in as far as the claim is admitted or proved as to the satisfaction of the individual independent manufacturer.
3. This Limited warranty shall cease and become void should the equipment or any part thereof be used for any purpose other than that recommended in the operating manual or for any other use for which it is not intended by the company. Furthermore this Limited Warranty shall cease and become void if the equipment or any part thereof shall be misused, neglected or damaged or let out on hire to a third party by the user or if any parts other than those manufactured by the company have been incorporated into the equipment or any part thereof without the company’s prior written consent or if the equipment or any part thereof is itself incorporated into any other equipment which is manufactured by any party other than the company. The company, its servants and agents shall have the sole and exclusive right to determine whether the equipment or any part thereof has been abused in any manner aforementioned

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4. The company shall not be responsible or liable for any damage to the equipment or any part thereof caused in transit or when handled by any independent carrier or haulier.

5. The company shall not be responsible or liable for any damages for loss of use, damages or inconvenience or loss of earnings however resulting whether within the period aforementioned covered by this Limited Warranty or otherwise for any damages caused by the delay of any independent party in the delivery, haulage or carriage of the equipment or any part thereof.

6. The company shall not be held responsible or liable in any way whatsoever for any loss of earnings whether real or unascertained caused by a breakdown of the equipment or any part thereof and the company shall not be held responsible for the cost of replacement or the cost of labour whether skilled or otherwise other than those originally agreed or where not so agreed then the company shall not be liable to such costs as they shall agree to be liable for in all circumstances in each individual circumstance.

7. The company shall not be responsible or liable for any injuries caused by the equipment or any part thereof whether directly or indirectly through the negligence of any other party other than the company whether the such injury is occasioned by the owner of the equipment or its user or by any third party whether authorised to use the equipment by the company or not.

8. The company shall not be responsible or liable for any costs howsoever occasioned in the removal or replacement of any component part of the equipment or any part thereof.

#### **CUSTOMER COVENANTS AND CONDITIONS:**

The customer shall be liable for the following costs and expenses exclusively:

1. Normal maintenance including adjustments as is within the knowledge and experience of the customer and which is customary in the business in which the company and the customer is engaged and such maintenance including adjustments as is required from time to time to keep the equipment in good repair and merchantable quality so that the equipment may perform the use for which it was intended.

2. Transportation of any kind of any McHale Engineering Limited product to and from the place the warranty work is performed.

3. Dealer travel time to and from the equipment or to deliver and return the equipment from the workshop for repair.

4. Dealer travelling costs and any other costs incidental to such repairs and deliveries.

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Any dispute as to this Limited Warranty whether as to the conditions precedent, inherent or subsequent or any dispute regarding normal wear and tear or normal wearing items or any dispute as to the application or jurisdiction of this Limited Warranty or any other dispute as to any claim made on foot of this Limited Warranty shall be determined by statute and common law for the time being in the Republic of Ireland and if the dispute shall not be determined by such reference then same shall be determined on application to the relevant court in the Republic of Ireland.

This Limited Warranty will not apply to any product which is altered or modified without the prior written consent of the company and/or repaired by anyone other than Authorised Service Distributors or Authorised Service Dealers without the prior written consent of the company.

### **CONDITIONS SUBSEQUENT TO THE LIMITED WARRANTY**

-That this Limited Warranty shall not be assigned or transferred to anyone without the prior written consent of the company.

- The warranty card has been correctly completed by the dealer and purchaser / customer with their names and addresses, dated signed and returned to the appropriate address as given on the warranty card.

- The claim form sent to McHale Engineering Limited has been correctly completed stating and including all the information as required thereon.

- The judgement of the company in all cases of claims under this Limited Warranty shall be final and conclusive and the purchaser agrees to accept its decisions on all questions as to defect and exchange of any part or parts.

- That all safety instructions in the Operators Manual shall be followed, all safety guards shall be regularly inspected and replaced where necessary.

No warranty is given on second-hand products and none is to be implied. Persons dealing in the company's products are in no way legal agents of the company and have no right or authority to assume any obligation on their behalf, express, implied, or to bind them in any way.

The company reserves the right to incorporate any change in design or materials in its products with obligation to make such changes on units previously manufactured and such changes shall be made in a good workmanlike manner, free from defects and of a merchantable quality to be used for the purpose for which they are intended.

This Limited Warranty does not cover the descriptions of equipment published in any document by the company.

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# Notes

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