McHale ENGINEERING


# 998 Square Bale Wrapper Operator Instruction Manual.

## Issue 9

(Valid from Serial No. 250618 Onwards)

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# Introduction

The **McHale 998 square bale wrapper** which you have purchased has been developed through years of constant research and development. Given proper care and attention the **998** 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

| | |
|---|---|
| **Serial number:** | |
| **Year of manufacture:** | |
| **Date of delivery:** | |

If you require further copies of this instruction book
please quote part number: CLT00274

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

# Contents

# 1. Designated use of machine

The McHale 998 square bale wrapper is designed to wrap, with plastic stretch film, rectangular 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.

# 2. Technical specifications

| | |
|---|---|
| Transport length | 7.30m (24') |
| Transport width | 2.99m ( 9' 10") |
| Transport height | 3.69m (12' 1") (at lowest machine height) |
| Weight (unladen) | 3875 kg (8680 lbs.) |
| Tyre dimensions | 16.0/70-20 12 ply |
| | |
| Attachment to tractor | Cat 2 lower linkage |
| Hydraulics | Self contained load sensing |
| Hydraulic requirements | One ½" - female quick release for hydraulic power supply of minimum 60 litres/min @ 180 bar.<br>One ¾" female quick release for return line. (Must be free flow to tank).<br>One ⅜" female quick release. (Load sensing only).<br>One single acting spool valve (Front conveyor lift)<br>One double acting spool valve (Drawbar) |

Hydraulic power pack option

| | |
|---|---|
| Attachment to tractor | Cat 2 lower linkage<br>SAE 6 spline PTO shaft |
| PTO speed | 600-800 RPM |
| Hydraulic requirements | One single acting spool valve (Front conveyor lift)<br>One double acting spool valve (Drawbar) |
| Hydraulic tank capacity | 130 litres (approx) |

| | |
|---|---|
| Film stretch | 64% (55% optional) |
| Film layers | 2,4,6,8,10 or 12 |
| | |
| Electrics | 12Volt DC |

## Options:

1) On-board Hydraulic power pack.

2) Round bale kit.

# 3. Safety warnings

## 1) General safety warnings

**Important :- Only competent operators who have fully read and understood this manual should operate this machine or perform maintenance on this machine.**

1) Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.

2) Before operating the machine ensure you are familiar with the functions of the machine.

3) Before travelling on public highways always ensure you are familiar with the road traffic regulations relating to the country of use. This includes the use and fitment of lights and brakes.

4) Always follow manufacturers instructions when attaching/detaching machine from tractor.

5) Always be familiar with health and safety regulations that may be in force in the country of use.

6) Under no circumstances may people or animals be carried on the machine.

7) Always keep children and spectators well away from the danger area of the machine while it is in operation. The danger area is within **2 metres** of any part of the machine and no persons should be in that area while the machine is operating. The only person who should be present is the machine operator who should be seated in the tractor cab while the bale wrapper is in operation.

8) Always ensure guards and other safety devices are kept in good working order. Replace if necessary.

9) Always ensure that electronic control box and PTO are switched off while transporting the machine on the road.

10) All safety decals on the machine must be kept in good readable condition. If they are not; or are missing, replacements are available from your **McHale** dealer.

11) Adjust driving speed to suit ground conditions.

12) Always maintain machine according to manufacturers recommendations.

13) Never operate machine with dispenser safety arms damaged or missing.

14) Never carry out any unauthorised modification to the machine.

15) Never increase speed of the dispenser rotation. Warning: Dispenser arm rotation must never exceed 25rpm.

16) Particular care to be taken if machine is left idle for any extended period, to ensure all sensors and safety features are working correctly.

17) Never disable any electrical safety circuits.

18) Always take extra precautions when using the machine on hilly or sloping ground.

## 2) Hydraulic safety warnings

1) Always ensure system is not under pressure before working on it.

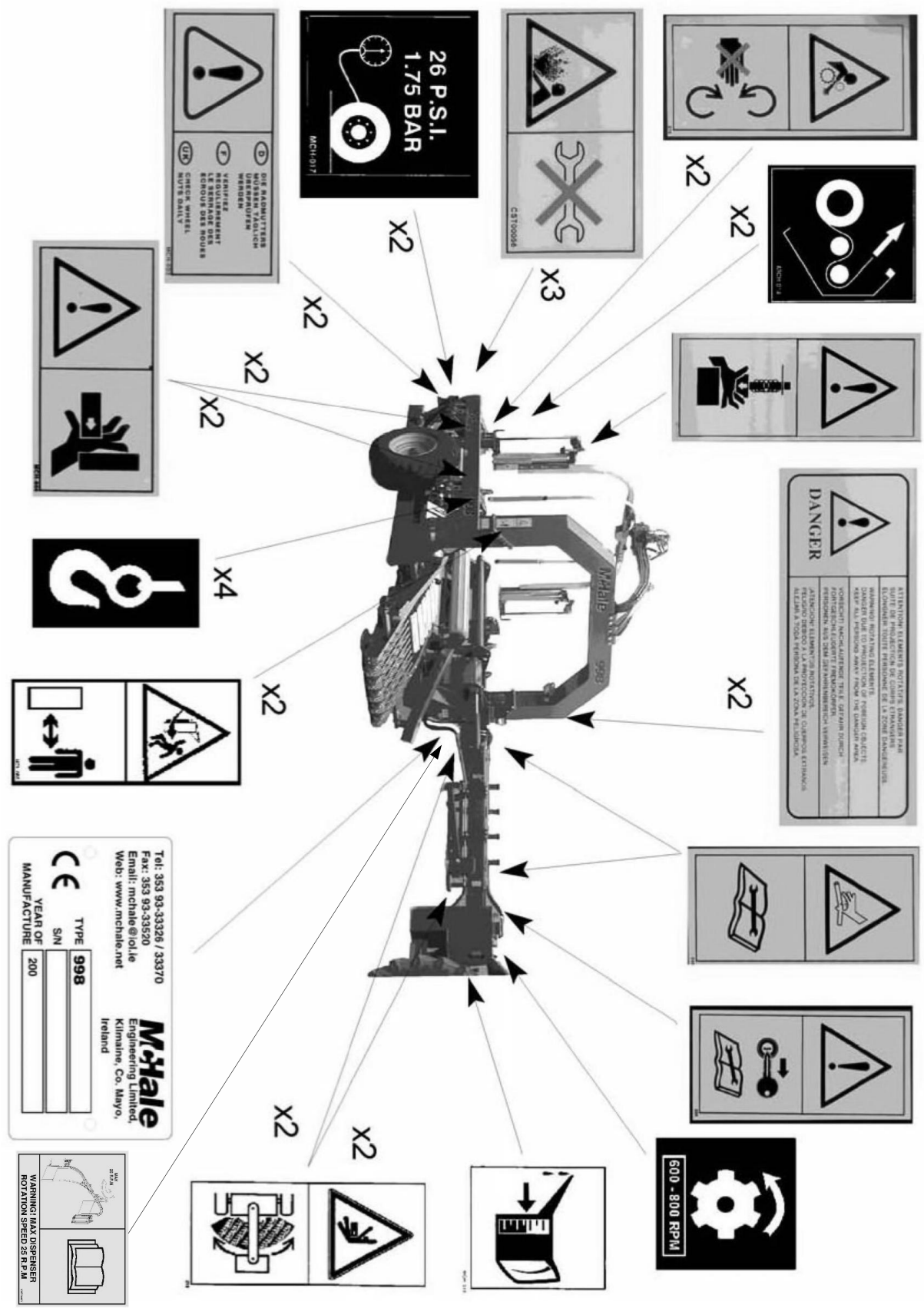
2) If any hoses are removed ensure they are marked and returned to the correct position during reassembly.

3) Check hoses regularly for signs of leakage or wear. If in doubt always replace.

4) As the cut and hold is kept closed by gas accumulator pressure it will be necessary to release this before working on this circuit. Otherwise injury may occur.

5) Do not work on hydraulic systems unless you have a working knowledge of them and feel confident to do so.

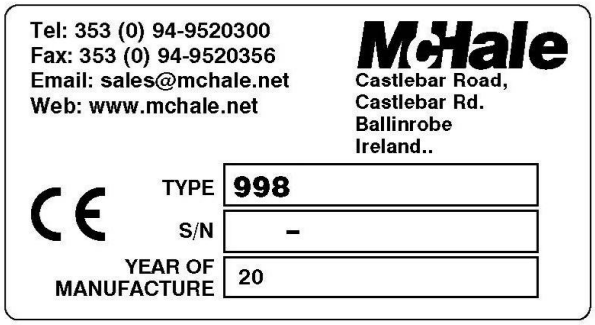
# 4. Safety/instruction decals



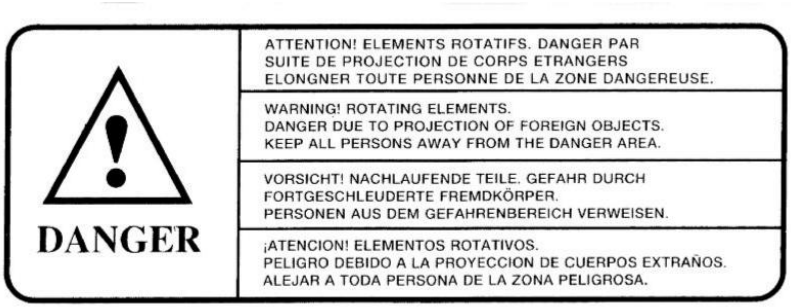
# 1) Description of safety warnings and instructions

**All safety decals on the machine must be kept in good readable condition. If they are not or are missing, replacements are available from your McHale dealer.**

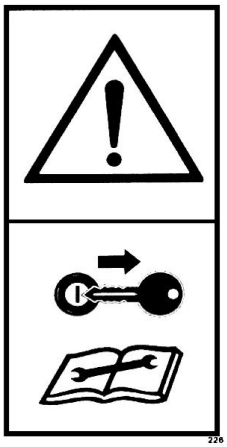
It is important that all safety warnings and instructions are understood and followed. The part numbers are shown in brackets.



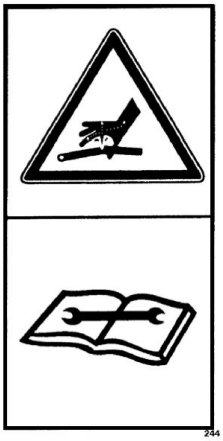

Machine Chassis plate



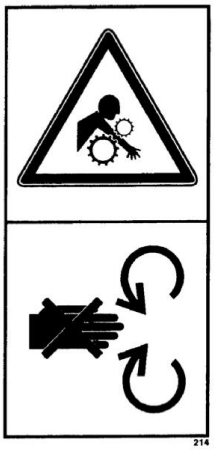

Danger of rotating parts, foreign objects.
Keep clear of machine while working.
(CST00014)



Stop tractor,remove ignition key and read instruction manual before working on the machine.
(CST00015)

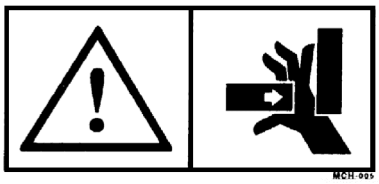


Read instruction manual before working on any part of the hydraulic system. Injury may be caused by systems under pressure.
(CST00016)

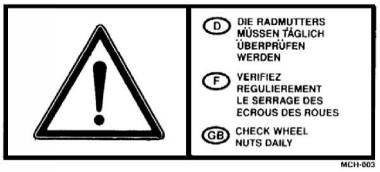


Keep hands clear of rotating rollers.
(CST00017)

Keep out of drawbar crush area.
(CST00018)



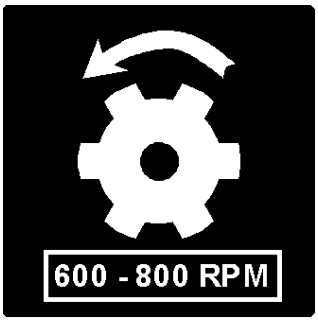
Keep hands out of crush area.
(CST00019)



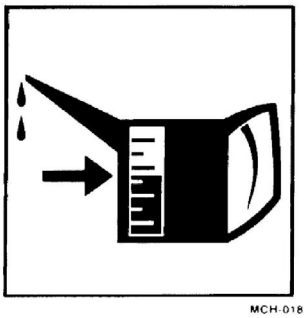

Check wheel nuts daily.
(CST00020)


Check tyre pressure.
(CST00021)

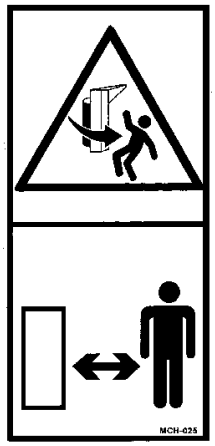

Diagram of plasic film path through Dispenser. (CST00022)




PTO speed to be between 600 and 800 revolutions per minute. (CST00023)

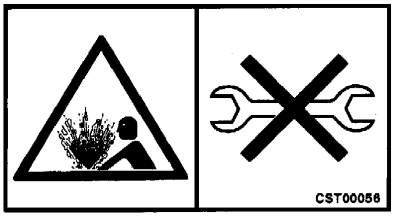



Check oil level (CST00024)

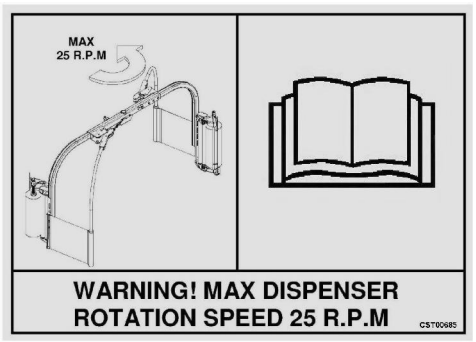



Keep clear of rotating Dispenser.
(CST00040)

Lift machine at these points.
(CST00032)




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




Warning! Never operate
dispenser above 25 R.P.M
(CST00685)

# 5. Machine operation

## 5.1 Tractor requirements

The minimum recommended size of tractor for operating the ***McHale 998*** comfortably, would be 60 to 70 kW on flat ground. On hilly ground or difficult conditions, an additional 10 to 15 kW are advisable.
Ideally, the tractor should have a load sensing hydraulic system, as the ***McHale 998*** works at it's best in this set-up, please refer to sections 5.3 and 5.4 for correct selection of hydraulic set-up.

***Note:*** Ensure that the tractor has clean, good quality, hydraulic/universal oil to avoid problems later on. Also, the hydraulic filters on the tractor should be changed regularly, according to the manufacturers service instructions. Avoid dirt getting in to the hydraulic couplings.

The following items on the tractor are required for attachment of the bale wrapper to the tractor:

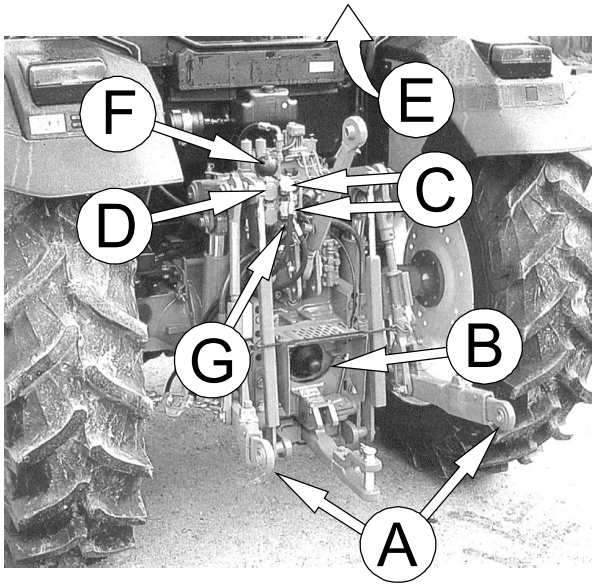
1. Category 2 Lower linkage.
2. One ½" - female quick releases for hydraulic power supply of minimum 60lit./ min @ 180bar.
3. One ¾" female quick release for return line. (Must be free flow to tank).
4. One ⅜" female quick release for load sensing. (Only required if tractor has a load-sensing hydraulic system)
5. One ½" female quick release double acting spool valve for drawbar.
6. One ½" female quick release single acting spool valve for conveyor lift.
7. One 12 V / 20 Amp euro socket **or** battery power cable.
8. One 12 V / 7 pin socket for lighting.
9. One hydraulic brake coupling **or** two air brake couplings.*

* Depending on country of use.

## 5.2 Tractor requirements (Units with Hydraulic Power Pack)

A. Category 2 Lower linkage.
B. 1 ⅜" SAE 6 spline PTO Shaft running at 600 - 800 R.P.M.
C. One ½" female quick release double acting spool valve for drawbar.
D. One ½" female quick release single acting spool valve for conveyor lift.
E. One 12 V / 20 Amp euro socket **or** battery power cable.
F. One 12 V / 7 pin socket for lighting.
G. One hydraulic brake coupling **or** two air brake couplings.*

* Depending on country of use.



## 5.3 *What is the hydraulic system on the tractor & how does it affect the 998 set-up?*

***Caution!*** It is very important to determine the correct hydraulic system on the tractor, as an incorrect set-up will cause serious damage to the tractor's hydraulic system, or at least, excessive heating of the oil. There are 3 systems found on tractors as outlined below:

1. **Open Centre:** Is the most common system on smaller tractors, (less than 60 kW) and also on some bigger older tractors. In this system, all the oil flows through the control valve, when the machine is idle. The tractor will have a fixed displacement pump and the output flow will be max. 60l/min and is usually not adjustable.
2. **Closed Centre:** Although not so common on today's tractors, this system is still found on the older John Deere models (pre 00 & 10 series), but also on some other makes & particular models. In this system, no oil flows through the control valve, when the machine is idle, but maintains max. oil pressure in the feed line. The tractor will have a fixed displacement pump and the output flow is usually not adjustable.
3. **Load-Sensing with Power Beyond fitted:** This is, by far, the preferred system. Most newer tractors are done this way, but not all. In this system, no oil flows through the control valve, when the machine is idle, but it maintains a low oil pressure in the feed line, (approx. 21 bar). The tractor will have a variable displacement pump and will always have some means of adjusting the oil flow on each auxiliary valve.

   In it's *most ideal configuration*, the tractor will have a 'Power Beyond' connection, i.e. oil comes direct from the pump, by-passing the tractor auxiliary valves, to a 'Female 1/2" Quick Release' connection, which becomes the main feed.

   It will also have a 3rd connection to the tractor, called the pilot sensing line, and this pipe sets the correct oil flow for the tractor to pump for each operation.

   This is the most advanced and the most efficient hydraulic system available, as the control valve now controls the amount & pressure of oil required for each control valve operation, and only the correct amount is pumped. This will save up to 20 kW pto power on the tractor.

   ***Note:*** Although it is possible to operate the *998* with a load-sensing system via. the tractor auxiliary spools, i.e. continuous oil flow (control valve is set to open centre set-up and flow is set to 60 lit./min. from the tractor), ***McHale*** do not recommend operating in this set-up, as controlling the oil flow is too variable from one tractor to another, and there is also a 20 kW pto power loss with it's associated over-heating of the oil.

   Once the correct tractor system is identified, use the map on the following page, to select the best set-up for the *998*.

## 5.4 What hydraulic system does the tractor use?

**1. Open Centre**
Set as Open Centre
(default factory setting, as shown in section 5.5)

**2. Closed Centre**
Set as Closed/Load Sensing
(as shown in section 5.5)

**3. Load-Sensing**

Does the tractor have a 'Power Beyond'
& 'Sensing Line' connection fitted?

NO

Contact your tractor dealer get the 'Power Beyond ' option fitted.

YES

Set as Closed/Load Sensing
(as shown in section 5.5 below).

**SET-UP (A)**
(1)Plug Wrapper Feed into auxiliary spool output ensuring it can supply an oil flow of at least 60 litres/min. @ 180 bar.
(2)Plug Wrapper Return into Free-Flow Return.

**SET-UP (B)**
(1)Plug Wrapper Feed into auxiliary spool output ensuring it can supply an oil flow of at least 60 litres/min. @ 180 bar.
(2)Plug Wrapper Return into Free-Flow Return.

**SET-UP (C)**
(1)Plug Wrapper Feed into Power Beyond Output.
(2)Plug Wrapper Return into Free-Flow Return.
(3)Plug Sensing-Line hose into 'Power Beyond' connection on tractor.

## 5.5 Hydraulic spool valve setup

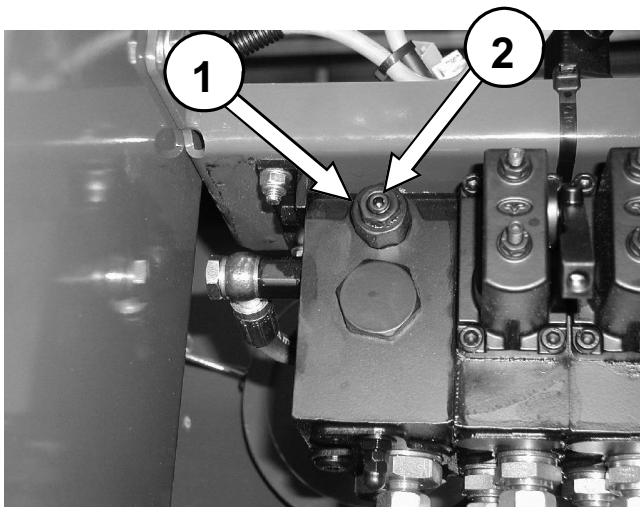
### Procedure to select open/closed centre valve configuration.

1. Using a 17 mm spanner, loosen locknut (1) as shown below.
2. With a 4 mm 'Allen' Key, tighten or unscrew the bolt according to the following guidelines:

(a) **Open Centre (Factory Default):**
Screw in fully. (Do not over-tighten)
Tightening torque = 6.0 Nm

(b) **Closed Centre/Load Sensing:**
Unscrew 5 full turns from the fully in position.

3. Re-tighten 17 mm locknut.
Tightening Torque = 20 Nm

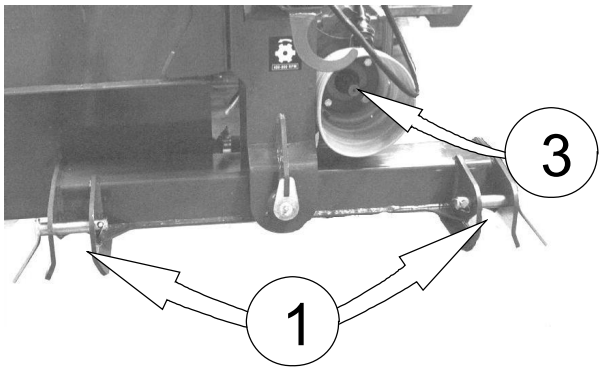


## 5.6 Attaching tractor to machine

**Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine. Always follow manufacturers instructions when attaching/ detaching machine from tractor.**

1) If using tractor quick couplers secure the lower link balls into the hitch bar using the pins provided. Otherwise remove pins from hitch bar.

2) Reverse tractor up to wrapper and attach lower links either hooking up the quick couplers or attaching directly with the pins provided.




3) Fit PTO shaft (Units with Hydraulic Power pack only). Cut PTO shaft according to PTO manufacturers recommendations attached to the shaft. This only applies to machines being fitted for the first time or if the tractor combination is changed.

4) Plug ¾" male quick release return line into main tractor hydraulic return. ***Note:*** The return line must have a free flow to tank. (Where a ¾" coupling is not available on the tractor, a special ½" fitting is supplied in the toolbox & should be used to replace the ¾" coupling fitted)

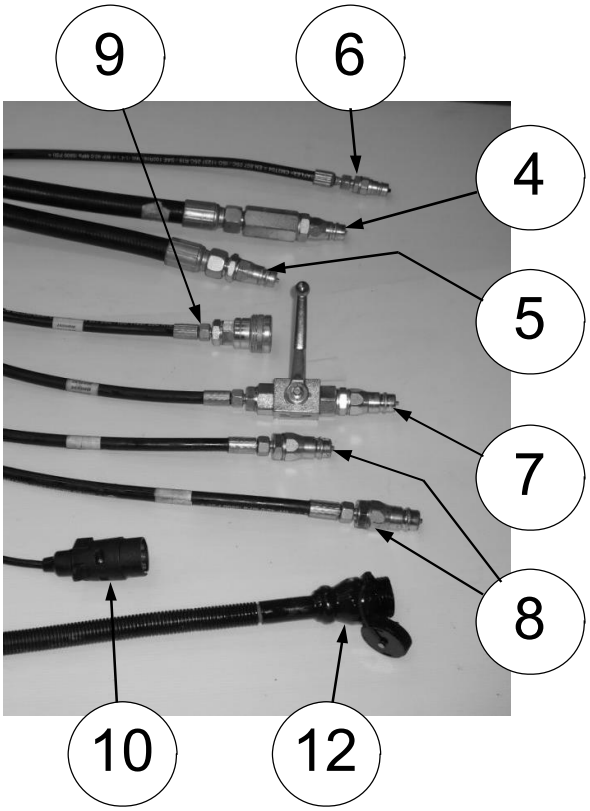
5) Plug ½" male quick release hydraulic feed line into main tractor hydraulic feed.

6) Attach ⅜" male quick release load-sensing line (If tractor is load-sensing)

7) Plug the hydraulic pipe, with the tap, into a single acting spool valve. This lifts the front conveyor. The tap may now be turned on by lining the handle up with the pipes. Ensure there is nobody near the front conveyor before carrying this out.

8) Plug the remaining two hydraulic fittings into a double acting spool valve. These operate the drawbar hydraulic cylinder.

9) Plug the hydraulic/air brake pipe(s) into the appropriate fittings on the tractor.



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

11) Place the electronic box inside the tractor cab and secure to the glass in an appropriate place, in the operator's field of vision and within easy reach of the red emergency stop-button, using the suction pad on the rear. Safety strap must be secured to prevent box from accidental damage. If there is no cab on the tractor secure as appropriate bearing in mind the box is **not waterproof**.

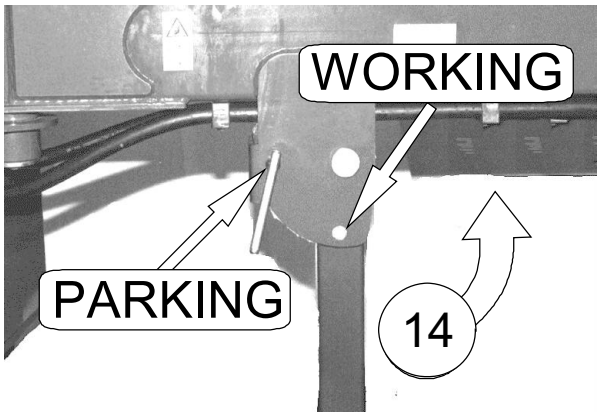
12) Screw 24pin socket on electronic box and 24 pin plug on machine together. Ensure that the cable to the machine is not under tension and clear of sharp edges etc.

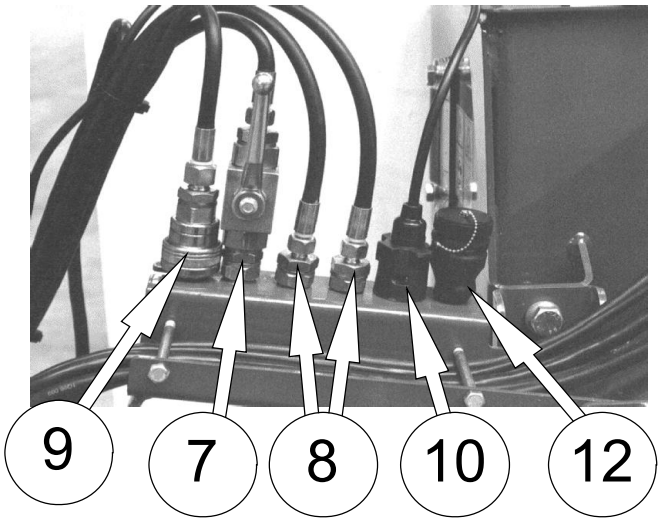
13) Connect control box to tractor battery, using the fused electric power cable provided (preferred option) or to the euro socket of the tractor, ensuring to route away from sharp edges and hot surfaces. **There must be a good 12V supply to the control box.**

14) Raise machine on tractor linkage and swing parking stand into working position.

15) Adjust tractor linkage so that wrapper is parallel to the ground.

16) Check that all above functions operate correctly.



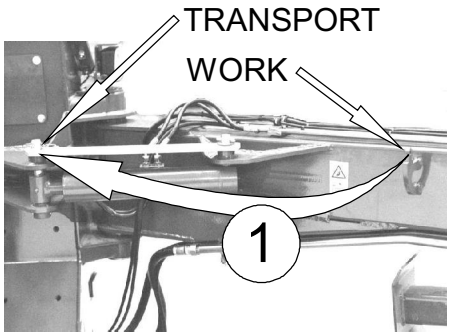

Connector arrangement for units fitted with Hydraulic Power pack option only.

Main hydraulic return, feed and sensing lines ( Items 4, 5 & 6) are not applicable.

## 5.7 Road transport

**Before travelling on public highways always ensure you are familiar with the road traffic regulations relating to the country of use. This includes the use and fitment of lights and brakes. Always ensure that electronic control box and PTO are switched off while transporting the machine on the road.**

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




1) Drawbar must be changed to transport position by closing the hydraulic cylinder and moving the safety stay to lock the hydraulic cylinder closed.

2) The front conveyor is raised to the top and the on/off tap is turned off by turning the handle at right angles to the hose(s).

3) The dispensers must be swung around so that they are inside the transport width of the machine.

4) Ensure brakes are connected and working .

5) Ensure lights are connected and working correctly.

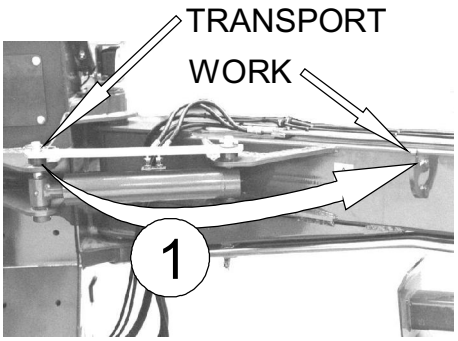
6) Ensure PTO is stopped on tractor and electronic control box is switched off.

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

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

## 5.8 Preparing machine in field for wrapping

**Only competent operators should operate this machine.**
**Under no circumstances may people or animals be carried on the machine.**
**Always keep children and spectators well away from the working area of the machine.**




1) Remove drawbar transport lock and place in storage position. ***Do not*** operate the hydraulic cylinder with the transport lock in the transport position.

2) Swing out drawbar to working position using tractor spool valve.

3) Turn conveyor lift circuit tap to the on position (Handle in line with pipes).

4) Lower conveyor to the ground using tractor spool valve. The correct position for the conveyor is for the skid to be 0-30mm above ground level. A hydraulic accumulator is used to allow the conveyor to glide over the ground.

5) Switch on tractor hydraulic-flow **Or** (If Hydraulic power pack option fitted) engage tractor PTO in order to run machine.

6) Switch on electronic control box and set to “Manual”

7) Turn dispenser arm until it is at normal stopping position. Ensure dispenser safety arms are in good condition and in their working positions.

8) Switch off electronic control box, PTO and tractor. Remove tractor key.

9) Load plastic film into dispensers running it through the rollers as shown by diagram. Tie ends of plastic film together and lay across centre of table.
***Do not*** attempt to clamp plastic film in cut & hold itself.
See section 5.9 Loading plastic film on following page.

10) Start tractor, switch on tractor hydraulic-flow **Or** (If Hydraulic power pack option fitted) engage tractor PTO at 600-800 rpm in order to run machine. Due to load sensing hydraulics, speeding up the PTO will not necessarily speed up all functions.

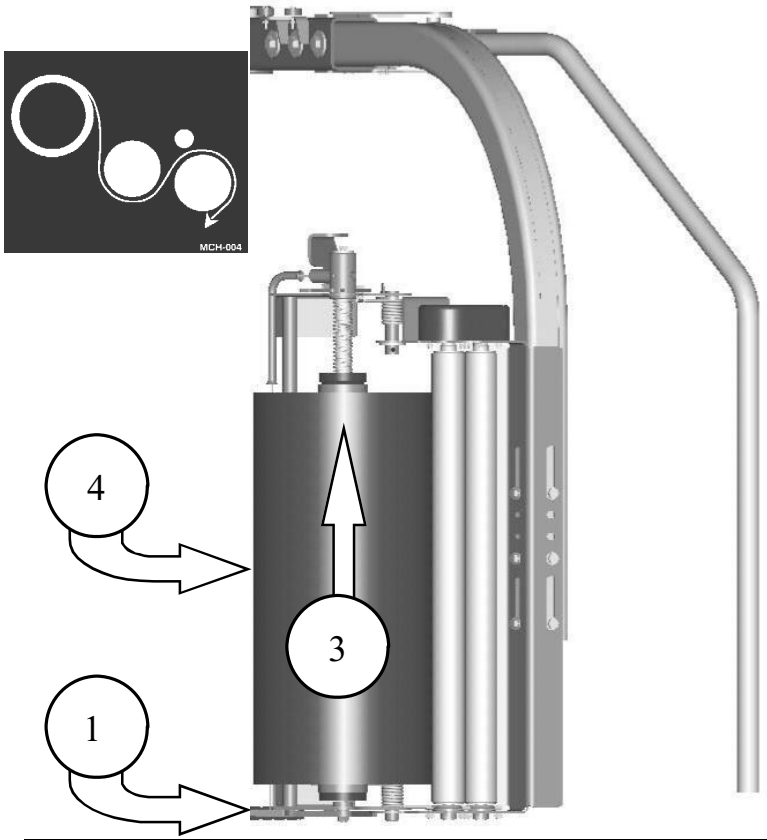
11) Switch on electronic control box and set to “Auto”.

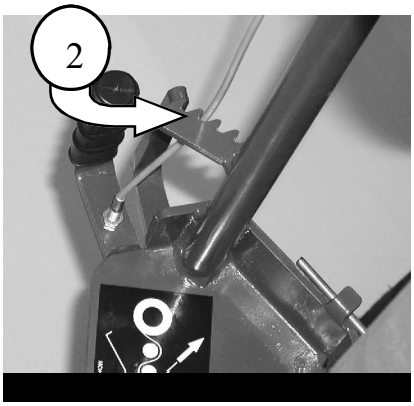
12)The machine is now ready to wrap.

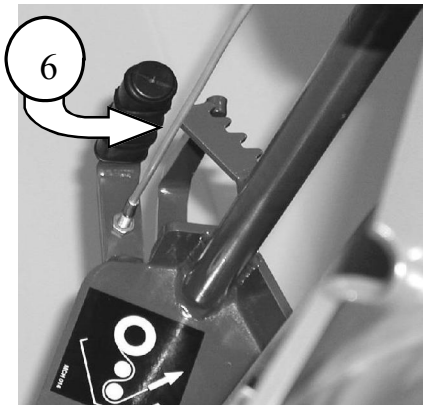
## 5.9 Loading plastic film

**Always turn off the oil supply to the wrapper, apply the parking brake, and the dispenser trip arms put in the tripped position, before changing film rolls, or at any time the operator needs to go near the dispensers.**

1) Push back handle until dispenser latches open.
2) Release film roll lock by locking the cable, in the notches provided, just enough, to release the roll lock for the old film roll to be removed and yet hold the top roll holder in the upwards position to allow fitting of new roll. (Usually works in the 2nd from outside notch)
3) To remove old roll, push upwards to latch top roll holder in the “up” position, and discard carefully.
4) Sit new roll onto bottom roll holder and centralise with top roll holder.
5) While still holding roll, pull cable to release top roll holder. The roll of plastic film is now held.
6) Re-engage the Film roll lock, by releasing the cable from the notch.
7) Thread the film through the dispenser rollers as per the threading diagram, taking care not to trap fingers between rollers.
8) Tie ends of plastic film together and lay across centre of table. ***Do not*** attempt to clamp plastic film in cut & hold itself.
9) Close dispenser by releasing the latch. The roll should now rest against one of the aluminium rollers.



## 5.10 Wrapping

**Only competent operators should operate this machine.**
**Under no circumstances may people or animals be carried on the machine.**
**Always keep children and spectators well away from the working area of the machine.**

The following is the recommended method for working the 998. 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. ***However the safety of the operator and any bystanders is of utmost importance at all times.*** The electronic control box must be set up according to the bale size to be wrapped (See section 8).

1) Drive the tractor alongside the bale to be wrapped. It may take practice before the operator will be able to line up the bale to the conveyor accurately.

2) When the bale reaches the front of the conveyor press “Auto start” on the control box (box must be set to “Auto”). Drive forward to pick the bale from the ground. Normally it is possible to keep moving forward as the bale is being loaded. The cycle will now continue automatically as follows:

a) Bale travels along conveyor until correct position is sensed
b) Rollers lift bale up to wrapping height
c) Dispensers and rollers start rotating to wrap bale.
d) Cut and hold cuts plastic and holds it for the next cycle
e) The bale is levelled and lowered onto conveyor.

**Auto mode note:** For testing a wrapping sequence in auto square bale mode a bale must be present otherwise program will stop after 5 seconds. If no bale is present, the cradle will lift, the rollers will rotate to try and level the bale but then stop the cycle after 5 seconds when a bale is not found. “NO BALE“ will be displayed on the screen.

3) If there is another bale waiting on or in front of the conveyor ,“Auto start” may be pressed again to roll off the wrapped bale and start the cycle again. Otherwise the bale may be unloaded by operating the conveyor switch on the control box. Ensure the wrapped bale is completely off the machine before wrapping another.


(3) Press “Auto start”

4) While one bale is being wrapped another may be loaded onto the conveyor ready for wrapping. To do this the bale is loaded by the “conveyor load” switch.


(4) Use “Conveyor load” switch

5) When changing the plastic film rolls always turn off the tractor, PTO and electronic control box. Always remove key from tractor.

6) If the wrapped bale is not properly covered before leaving the machine it is possible to rewrap the bale by pushing the “bale up” switch while still in “Auto” mode. This switch allows the automatic cycle to start without using the conveyor.This should only be done with the bale in the correct position along the conveyor.

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# 6. Bale requirements

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.

The 998 wrapper is designed to wrap many different sizes of bales which are given below.

* denotes that the 998 wrapper will wrap bales of this size.
# denotes the 998 wrapper will wrap bales of this size using the small bale kit.

Cross section: 1200mm wide, 700-1600mm high
800mm wide, 700-1000mm high

Length: Up to 1900mm long

| Make | Model | Single Bale | Double Bale |
|---|---|---|---|
| Case | 530 | * | |
| | 540 | * | * |
| | 550 | * | |
| Claas | 1100/1150 | # | * |
| | 1200/2200 | * | * |
| Fiatagri | 4860 | * | |
| | 4880 | * | |
| John Deere | 680 | * | |
| | 690 | * | * |
| Krone | Bigpack 80-80 | * | |
| | Bigpack 120-80 | * | * |
| Massey Ferguson | 185 | * | |
| | 187 | * | * |

| Make | Model | Single Bale | Double Bale |
|---|---|---|---|
| Mengele | 530 | * | |
| | 540 | * | * |
| | 550 | * | |
| New Holland | 710/BB920 | # | * |
| | D1000 | # | * |
| | 1010/BB940 | * | |
| | 1210/BB960 | * | |
| Welger | D4000 | * | |
| | D6000/D6050 | * | * |

Bales of sizes 800 mm wide, 500-1400 mm high can be wrapped using small bale kit

# 7. Plastic film requirements

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

It is recommended that a **minimum** of **six (6)** 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 **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.

**When wrapping square bales,** the number of rotations of the wrapping arm is determined by the control box settings (as outlined on the following pages) and the bale size. Each bale is measured independently and the correct amount of rotations is applied accordingly. This is pre-set and is not operator adjustable.

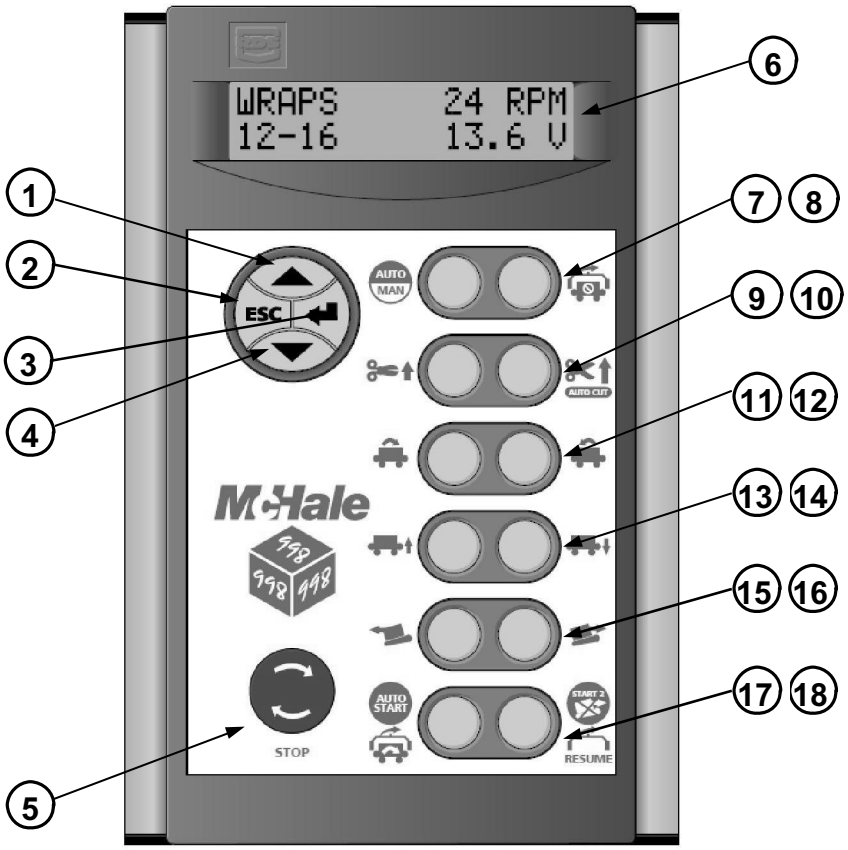
**When wrapping round bales,** see the instructions at the rear of the book for setting the film requirements. This adjustment **is not** pre-set and requires correct operator setting to ensure proper wrapping and needs to be checked regularly.

Only 750mm film to be used unless otherwise stated.

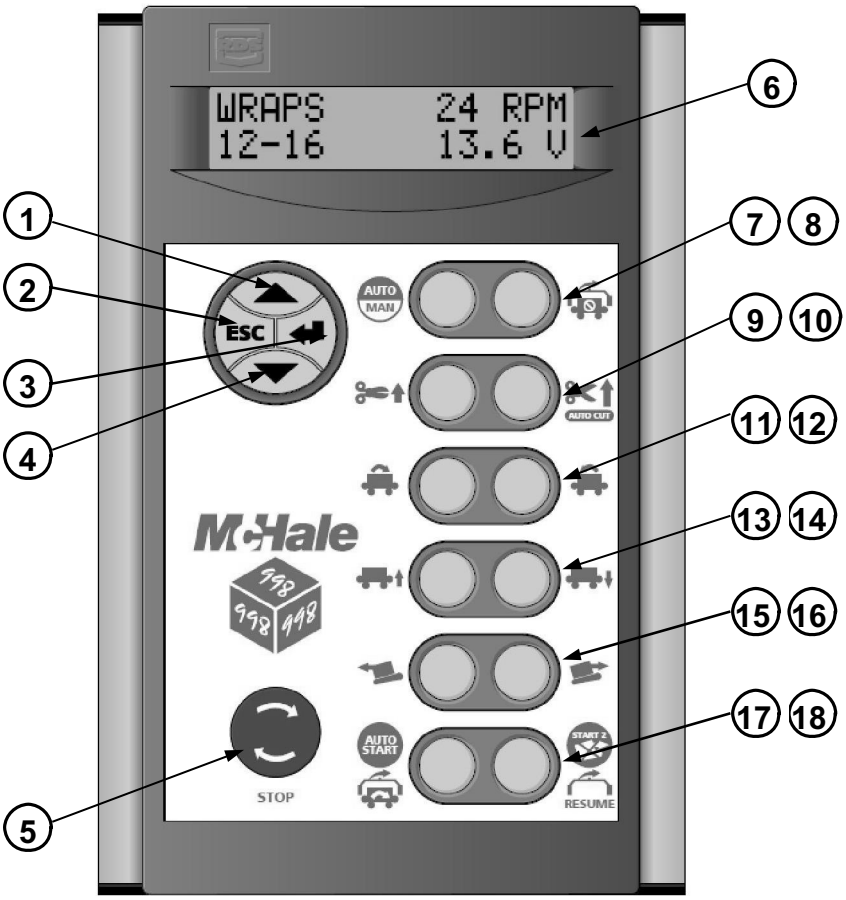
# 8. Electronic control box (software version EX305056 or later)

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 buttons on the box.

## 8.1 Control Box Functions

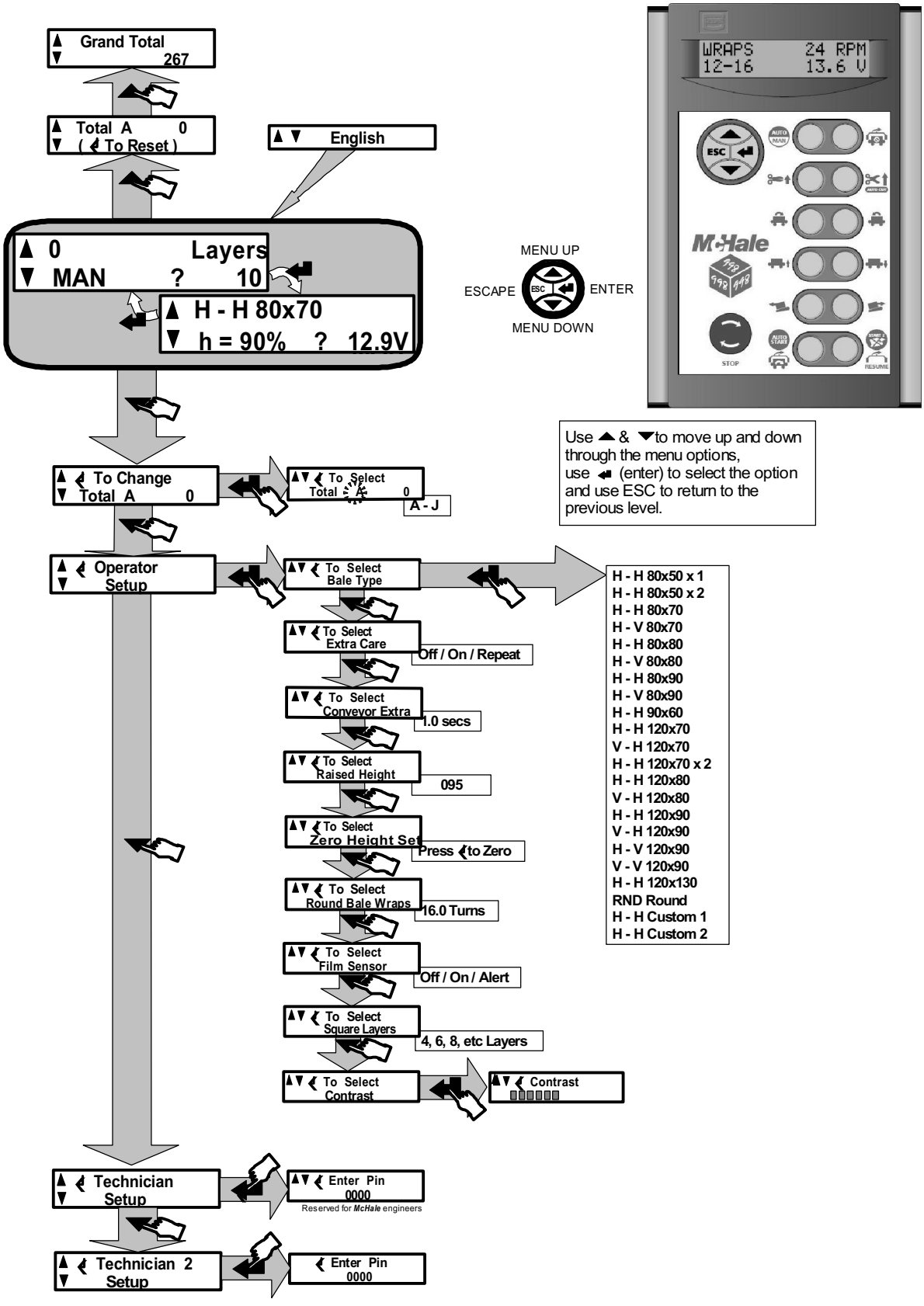



| No. | Function |
|---|---|
| 1 | Display up |
| 2 | Escape back to main display, or cancel error |
| 3 | Enter |
| 4 | Display down |
| 5 | Stop button-Twist clockwise to restart the control box! |
| 6 | Display |




| No. | Manual Function | Automatic Function |
|---|---|---|
| 7 | Select Automatic | Select Manual |
| 8 | No Function | Slow bale index to half speed/Stop index |
| 9 | Release plastic from cut & hold | Not used |
| 10 | Cut & hold plastic | Hold for 2 seconds to Auto cut and hold |
| 11 | Index bale forward | Not used |
| 12 | Index bale reverse | Not used |
| 13 | Lift bale up | Not used |
| 14 | Lower bale down | Not used |
| 15 | Move bale to front | Move bale to front |
| 16 | Move bale to rear | Move bale to rear |
| 17 | Wrap bale | Auto start (from front conveyor) |
| 18 | Rotate dispensers (no index) | Auto start 2 (bale is in position on conveyor) |

# 8.2 Menu structure



# 8.3 Control box features

## Automatic operation

Before commencing operation, all the parameters explained in this section must be set up. The control unit can then be switched into Auto mode by pressing button 7. Auto will then be displayed on the screen and most of the other button functions will be disabled. The Auto cycle can be started in 2 ways;

- Pressing button 17 will start the conveyor running. The operator drives into the bale and it will be picked up. The conveyor will automatically stop when the bale is in the correct position for the cradle to lift it into wrapping position. (If no bale is picked up, the conveyor will run continuously).
- Pressing button 18 will start the cradles rising to lift the bale into the correct wrapping position. This means that the bale must be manually positioned in the correct position on the conveyor beforehand. If no bale is present, the cradle will lift, the rollers will rotate to try and level the bale but then stop the cycle after 5 seconds when a bale is not found. “NO BALE“ will be displayed on the screen.

During wrapping, buttons 15+16 can be used to start loading the next bale.
Button 8 can be pressed to slow/pause the bale indexing to manually apply more film to one part of the bale. One press and hold will slow the bale rollers to half speed. A second press and hold will stop bale roller rotation completely.

## Manual operation

Whenever the control unit is first switched on, Manual mode is always selected. MAN will be displayed in the bottom left of the screen.
There is no reason to ever wrap a bale in manual, except if there was a faulty sensor which would not allow the Auto cycle to run.
All functions can be operated individually using buttons 7-18 to wrap the bale. The procedure for cutting the film is as follows;

- Select auto(button 7)
- Press and hold button 10 for 2 seconds to start the auto cut sequence. The satellite will turn once and the cut and hold will open to cut the film.
- Press button 7 again to return to Manual and eject the bale.

or

- Press button 10 to fully open the cut and holds.
- Release button 10 and press button 17/18 within 1 second to rotate the dispensers the last quarter turn. The cut and hold will still be kept open even though button 10 is not pressed anymore.
- Release button 17/18 and the cut and hold will close and cut the film.

## Working display

When the control box is first switched on it displays "**Expert Series**" followed by the programme version number, followed by the selected language.The working language can be changed at this point if required. The language is changed by pressing the arrow up or arrow down button to scroll to the desired language when the default language “English“ is displayed.
After a short delay the working display appears. There are 3 different working screens which can be toggled between by pressing the enter button.

- The main screen shows the subtotal on the top left, and machine status (Manual or Auto) on the bottom left. The right of the screen shows the word layers and the actual film layers setting underneath it.
- The second working screen shows bale orientation and size on top. The bottom left displays cradle height in percentage and the bottom right displays control unit supply voltage.
- The third working screen shows the satellite RPM during an Auto cycle. **Warning:** Satellite speed should not exceed 25 RPM (see section 10.12 for details on how to reduce dispenser speed)

## 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. The grand total can be viewed by pressing the up arrow twice from the main working screen.

## Voltage Monitor

The Expert Series control box monitors its operating voltage and displays it secondary working display 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 Select Bale Counter

From the working display press the down arrow once 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.
To reset the current subtotal, press the up arrow once from the main screen to view the total, then press enter to reset it.

## Operator Set-up

The Expert Series control box has a number of options that can be selected or adjusted by the operator. To enter the operator set up menu press the down arrow twice, press enter once to move to the operator adjustable factors; **Bale Type, Extra Care, Conveyor Extra, Raised Height, Zero Height Set, Round Bale wraps, Film Sensor, Square Layers and Contrast.**

## Bale Type

Select a bale type from the menu to match the dimensions of the bale being wrapped. The letters before and after the different bale types represent the start and finish orientation of the bale i.e. (H - V Horizontal start and Vertical finish). There are two custom bale options and a round bale option. The custom bale option allows the operator to define all the bale parameters to their own requirements. (see section 17 of this manual)

## Extra Care

The “Extra Care” wrapping cycle applies extra film on certain places on rectangular bales (i.e. Claas Quadrants 1200) if so desired. This helps to wrap these bales evenly. Extra Care can be switched Off, On or to Repeat. If “On “ is selected each extra care is applied on the bale once. If “Repeat” is selected each extra care will be repeated every time the bale indexes one revolution.

## Conveyor Extra

Conveyor Extra sets the time the bale moves past the bale sensor. The time increases for shorter bales and decreases for longer bales.

## Raised Height

This is the height the bale is raised for wrapping. Each bale option has a suitable preset value but this may need adjusting for some conditions.

## Zero Height Set

Zero height set calibrates the height sensor. Set the control box to manual and press the cradle down button until the cradles are fully down then press the display down button twice and press enter to enter the operators menu. Press the display down button four times and press enter to zero the height sensor. Press ESC to return to the working display. If the height reading on the secondary display is not matching the bales raised height then a zero height reset maybe required. A few percent of over shoot is however possible with light bales.

## Round Bale Wraps

To determine the number of dispenser rotations required to wrap a bale carry out the following procedure.

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

Example
Number of rotations to cover a bale: 5

Number of rotation to apply 4 layers of film to the bale = (5+1) x 2 = 12 rotations.

## Film Sensor

The film sensor monitors the passage of film through the dispenser rollers. If one dispenser stops feeding film due to a roll coming to an end the control box will give an audible alarm and flash “1 Dispenser Only”; bale rotation goes into half speed mode, rotating the bale at half speed so applying the correct film coverage and wrapping of the bale can be completed.
If the second dispenser empties the dispensers will rotate slowly and stop at the loading position, the bale will reverse to where the film broke, and the control box will display “Out of Film” and wait.
“Resume” (button 18) needs to be pressed and held for 2 seconds to restart the cycle.
*Note:* The film sensor may be switched off if desired.

## Square Layers

Square layers is the number of plastic film layers applied to a square bale. It is recommended that a **minimum** of **six (6)** 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 **eight (8)** layers to ensure a good airtight package. The operator needs to ensure that the bale is correctly wrapped.

## Contrast

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

# 8.4 TESTING

## Bale angle indicator

This is a small bar in the bottom middle of the screen. As the square bale is wrapping, this bar will change angle to represent the bale position to the nearest 45 degrees.
This shows that the control box is receiving a signal from the comparator which in turn indicates the potentiometers are working.
Coarse adjustment of the potentiometers is achieved by rotating the roller cradles upwards to the horizontal position where a small movement of either the left or the right cradle should cause the indicator and comparator LED to change state. Fine adjustment can be done when there is a bale on the machine as described in section 9.13.

# 9. Machine adjustments

**Only competent operators should operate this machine. Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine. Always maintain machine according to manufacturers recommendations.**

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.

## 9.1 Front conveyor skid

The skid on the front conveyor is height adjustable to allow for differing operating conditions or if the machine height is changed. To adjust this height go through the following procedure.

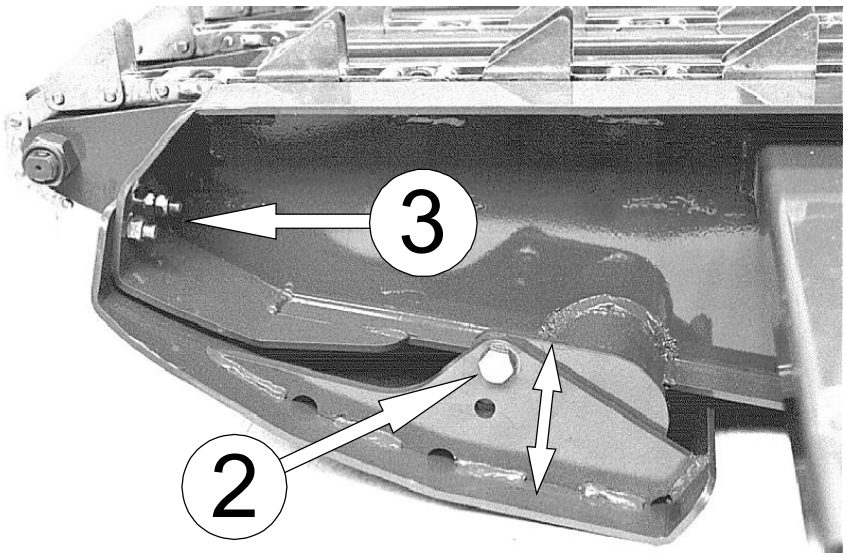
1) Ensure Conveyor is fully raised and supported.

2) Remove two (2) M14 nuts and bolts on skid.

3) Move skid to new position. It may be necessary to loosen the front bolts (4x M12) to achieve this. (Factory setting shown)

4) Insert two (2) M14 bolts into appropriate holes and tighten nyloc nuts.

5) Retighten front bolts if they have been loosened.



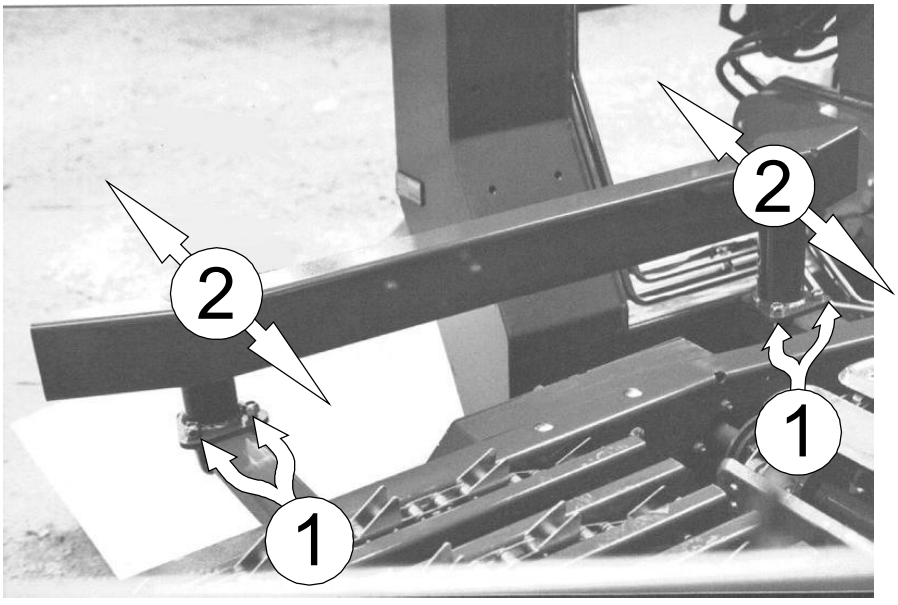
## 9.2 Bale guides

The front conveyor is fitted with two (2) adjustable bale guides, one (1) on the left hand side and one (1) on the right hand side. The distance between the two guides is adjusted to allow for different widths of bales. It is important that the guides are set for the correct bale width to ensure that the bale centralises on the main conveyor. As a guide, the bale guides should be set 100mm-200mm wider than the bale at their narrowest point. They may be set as follows.

1) Loosen eight (8) M16 nyloc nuts on “U” bolts.

2) Move guides to desired position ensuring that they are equal both sides.

3) Tighten the eight (8) M16 nyloc nuts.



## 9.3 Rear unloading roller

The rear unloading roller is fitted with adjustment to allow various sizes and lengths of bales to roll off the machine gently. Normally it will not need adjustment, however it may be adjusted as follows.

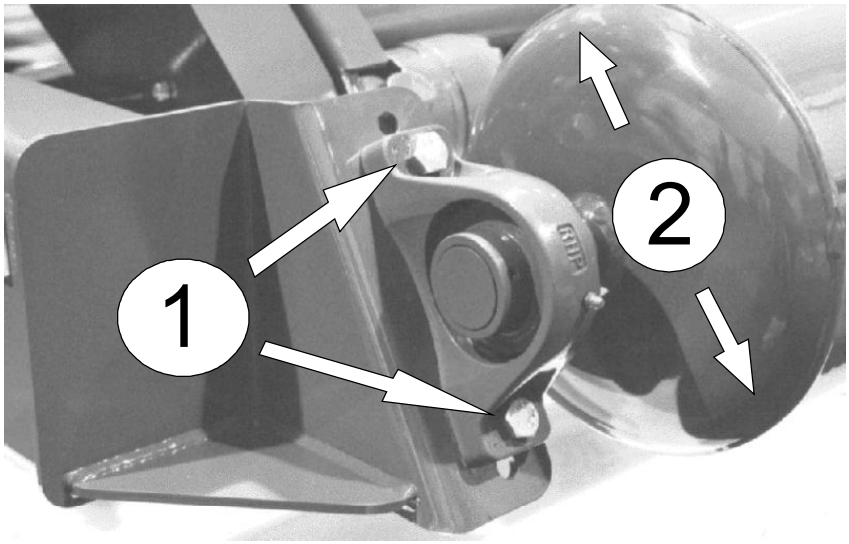
1) Remove two (2) M14 nuts and bolts on one side ensuring roller is fully supported.

2) Move roller to desired position. ( Factory setting shown)

3) Insert the two (2) M14 bolts and replace the nuts fingertight.

4) Repeat steps 1) to 3) for the opposite end of the roller.

5) Fully tighten the four (4) nyloc nuts.



## 9.4 Machine height

The height of the machine from the ground may be increased/decreased if desired. It is achieved as follows:

1) Jack up and support machine ensuring machine cannot move.

2) Remove six (6) wheel nuts and remove wheel.

3) Support stub axle and remove six (6) M20 nuts and bolts.

4) Move stub axle to desired location. ( Factory setting shown)

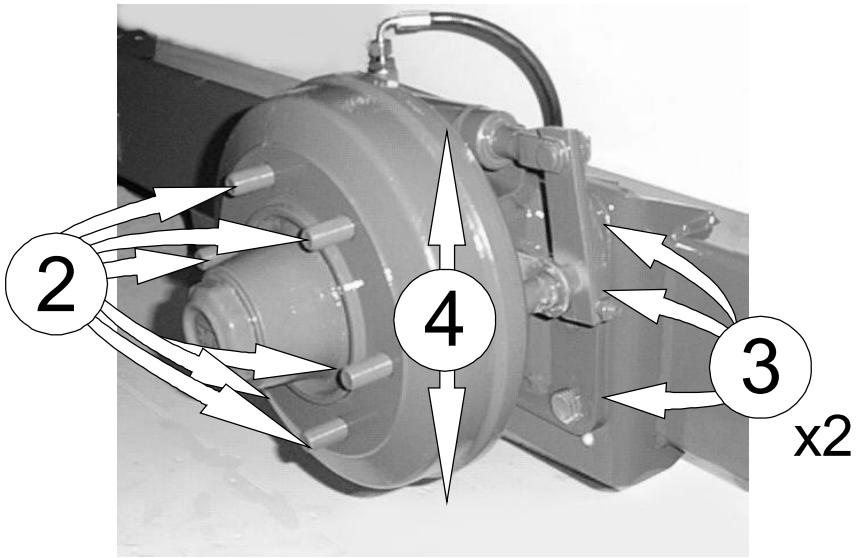
5) Insert the six (6) M20 bolts and tighten the nyloc nuts

6) Replace wheel and tighten six (6) wheel nuts.

7) Remove supports and jack.

8) Repeat for other wheel.

Note:
It may be necessary to adjust the front conveyor skid.



## 9.5 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. **Do not adjust too low as the dispenser may touch the Cut & Hold.**

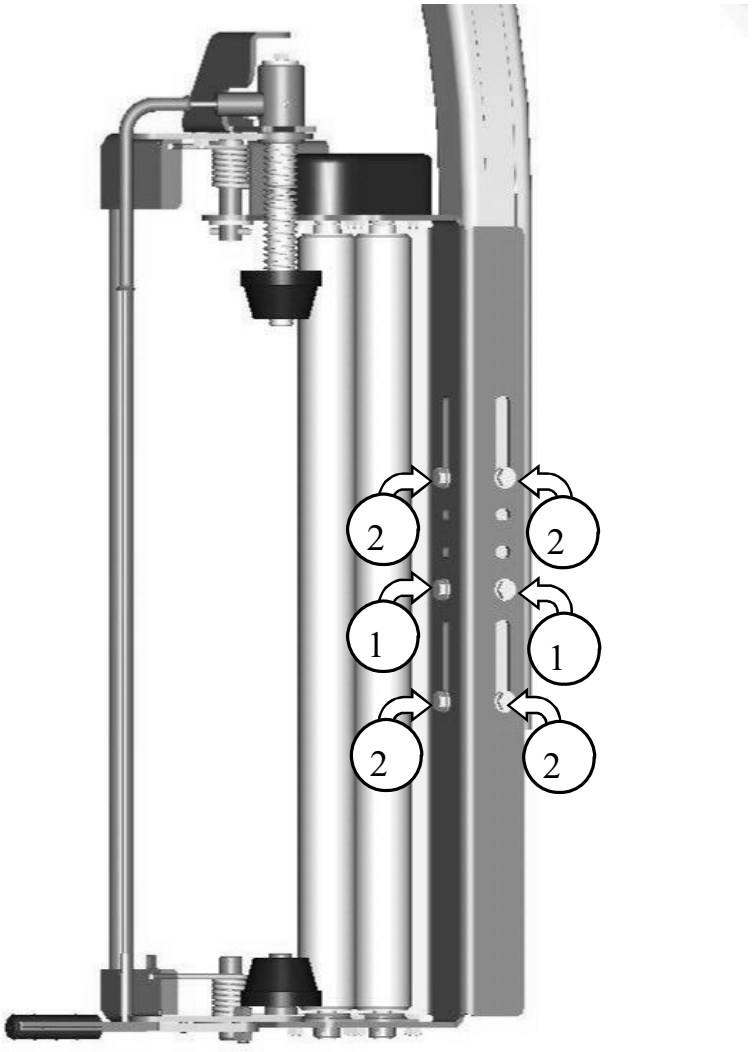
1) Remove the two centre bolts and washers.

2) Open the top two bolts and the bottom two bolts back a few threads. Do not remove these bolts, as they support the weight of the dispenser unit.

3) There are three height positions for the dispenser unit. Move the dispenser up or down as required. Insert the centre bolt when the required height has been selected.

4) Tighten all bolts fully.

5) Rotate dispensers slowly to ensure they do not touch any other part of the machine



## 9.6 Cut and hold knife

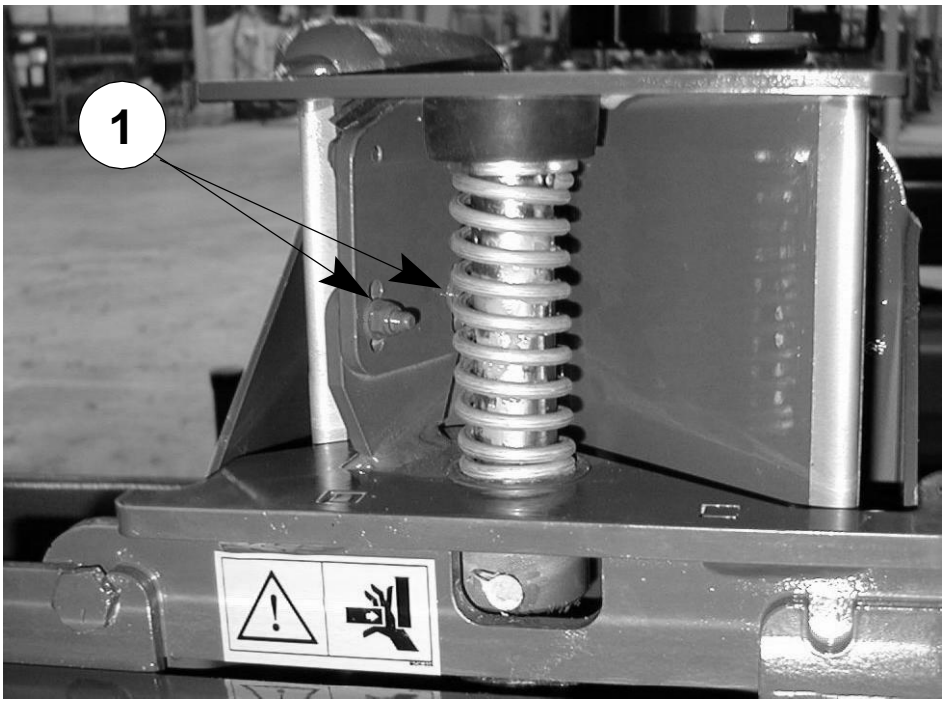
The cut and hold knife may be adjusted up and down if desired as follows. The height of the knife should not be adjusted to make up for blunt knives. They must be replaced.

1) Remove two (2) M6 nyloc nuts and bolts.

2) Move knife plate to new position. ( Factory set in middle position)

3) Insert the two (2) M6 bolts and tighten nyloc nuts.

4) Repeat for other cut & hold.



## 9.7 Cut and hold horizontal position

The cut and hold is adjustable in two positions.

1) Remove two (2) M12 nyloc nuts and bolts on bottom of cut and hold.

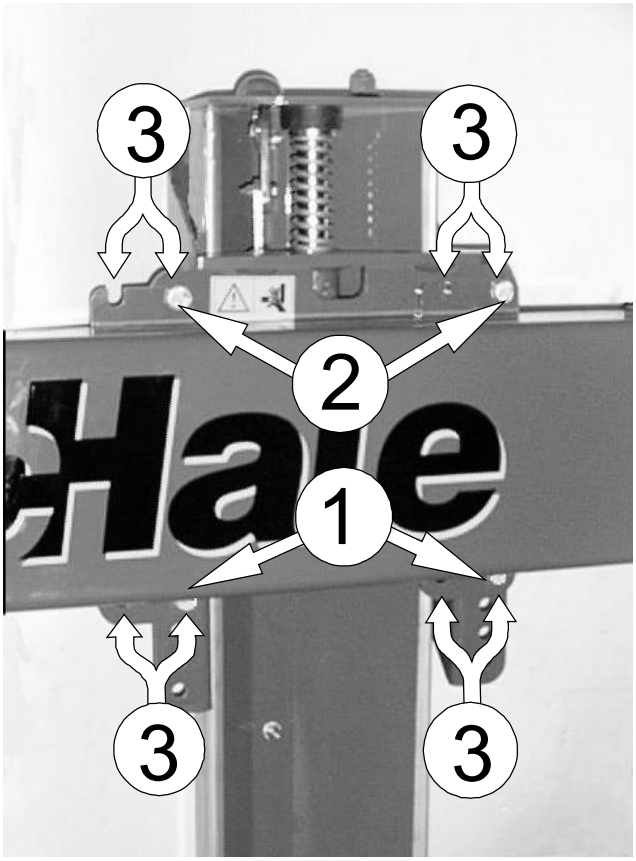
2) Loosen two (2) M12 nyloc nuts on top of cut and hold but do not remove.

3) Move cut and hold to new position. (Factory setting shown)

4) Insert the two (2) bottom M12 bolts and tighten the nyloc nuts.

5) Tighten the top two (2) nyloc nuts.

6) Repeat for other cut & hold.



## 9.8 Cut and hold height

The cut and hold may also be adjusted vertically if so desired, especially if the dispenser height has been adjusted. If the unit is to be changed from factory setting it is necessary to acquire two (2) M12X25 setscrews and nyloc nuts as two of the existing M12 setscrews and nylocs are used to hold the plunger bracket

1) Support cut and hold.

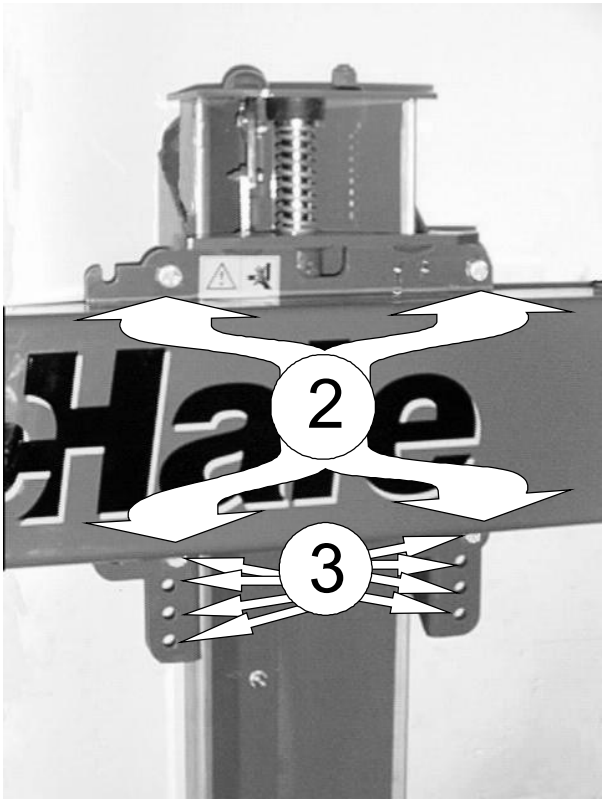
2) Loosen the top two (2) M12 nyloc nuts and setscrews and remove bottom two (2) M12 nyloc nuts and setscrews (retreive spacers). Retighten the top two M12 nyloc nuts and setscrews.

3) Move cut and hold to new position. (Factory setting shown).

4) Insert the four (4) appropriate M12 bolts and tighten nyloc nuts. The spacers that were used on the bottom setscrews must now be used as a washer between the backplate and the nyloc nut.

5) If it is required to adjust further just remove the four (4) M12 setscrews and nyloc nuts and move to the new position. refit the four (M12 setscrews and nyloc nuts.

6) Repeat for the other cut and hold.



## 9.9 Cut and hold rail

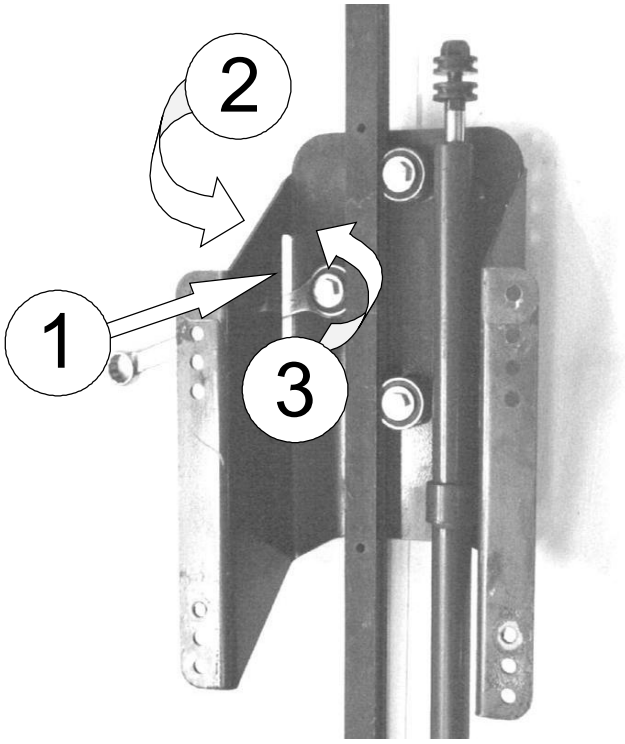
After much use the moving part of the cut and hold may develop wear. This may be adjusted, to ensure optimum working of the cut and hold, as follows. (Parts removed for clarity)

1) Insert 24mm open ended spanner into slot until it engages with hexagon on adjuster.

2) Loosen M12 nyloc nut on adjuster slightly. (Just enough to turn adjuster)

3) Turn adjuster, with 24mm spanner, until the resistance to turning increases greatly.

4) Holding the adjuster with the 24mm spanner, tighten the M12 nyloc nut.



## 9.10 Dispenser arm sensor

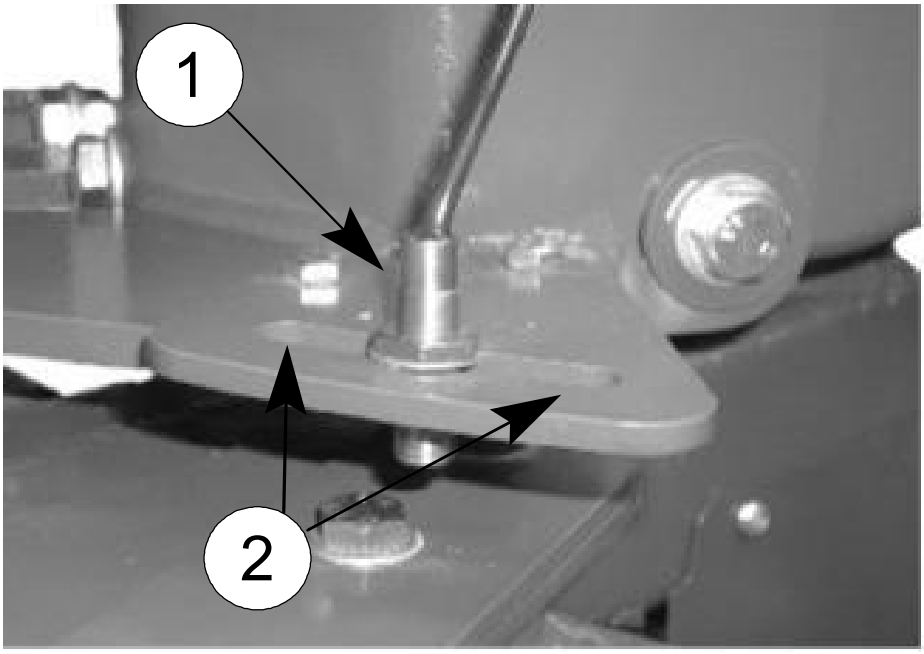
The stop sensor for the dispenser arm may be adjusted to change the stopping point of the arm.

1) Holding the sensor by hand, loosen the nut on the sensor.

2) Move the sensor to position required as follows:
Move to left to get dispenser to stop sooner.
Move to right to get dispenser to stop later.

3) Retighten nut finger tight. Turn 1/4 of a turn by spanner.

Note: **Do not** overtighten nut as this will damage the sensor.
Sensor should have approx 10mm clearance between its top and any rotating parts.



## 9.11 Trip arm switch

The trip arm switch will need to be properly adjusted if it ever needs replacement or has been moved for any reason. This may be adjusted as follows:

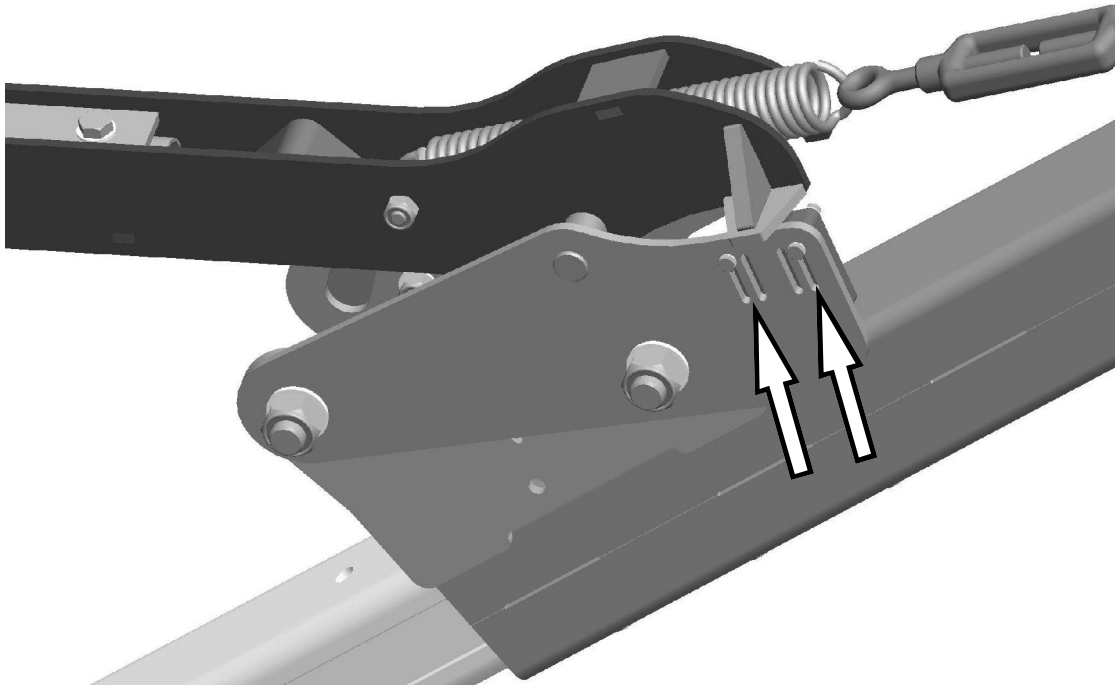
1) Loosen two (2) M5 nyloc nuts just enough to move switch.

2) Ensure arm is in working position.

3) Move switch against tab until plunger is protruding 1-2mm outside the main switch body.

4) Tighten the two (2) M5 nyloc nuts.

Note: Switch must be set correctly to ensure proper functioning of trip arm. **Do not** bypass circuit in any way.



## 9.12 How to test trip arm operation.

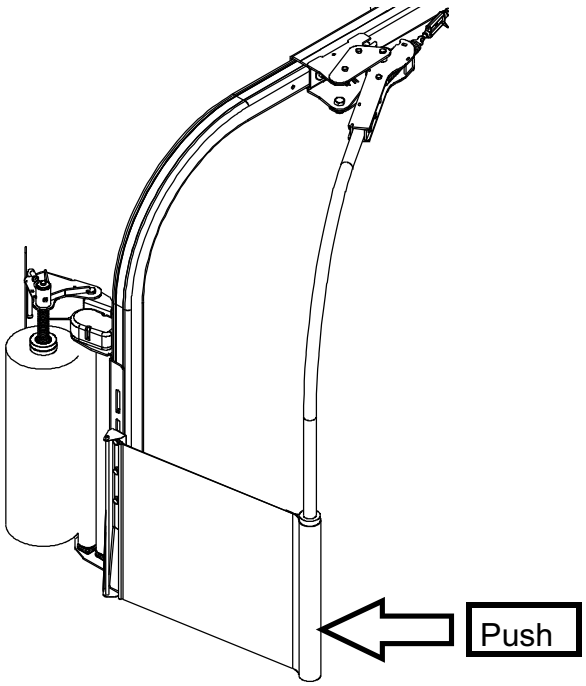
The trip arm safety feature needs to be checked periodically in accordance with the machine maintenance schedule. See section 10.11.

**1.) To check the force required to trip the trip arm.**

1. Ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed.

2. Manually with one hand try to push the trip arm into the tripped position. The arm should go into the tripped position using only small to medium force (approx. less than 5kg). If any difficulty or stiffness is encountered refer to Dispenser trip arm maintenance; See section 10.11.

3. Repeat check on 2nd dispenser.




**2.) To check trip arm safety switch operation.**

1. . Ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed.

2. Push only one of the trip arms into the tripped position.

3. Ensure all persons are well clear of machine, start up machine go into manual mode and try to operate the dispenser.

4. There must be no dispenser movement.

5. Turn off machine and tractor and repeat procedure for 2nd dispenser.

**Warning:** If there is any dispenser movement while an arm is tripped there is a serious safety issue with the switch. The machine must not be operated and a McHale authorised dealer should be contacted for further assistance.

**3.) Check that wrapping arm rpm does not exceed 25rpm.**

1. See section 10.12 to adjust.

**WARNING:** The dispenser must never be operated above a maximum of 25 rpm, otherwise the dispenser arm kinetic energy is above what the trip arm design is capable of stopping in an emergency situation.

**4.) To check wrapping arm stopping performance.**

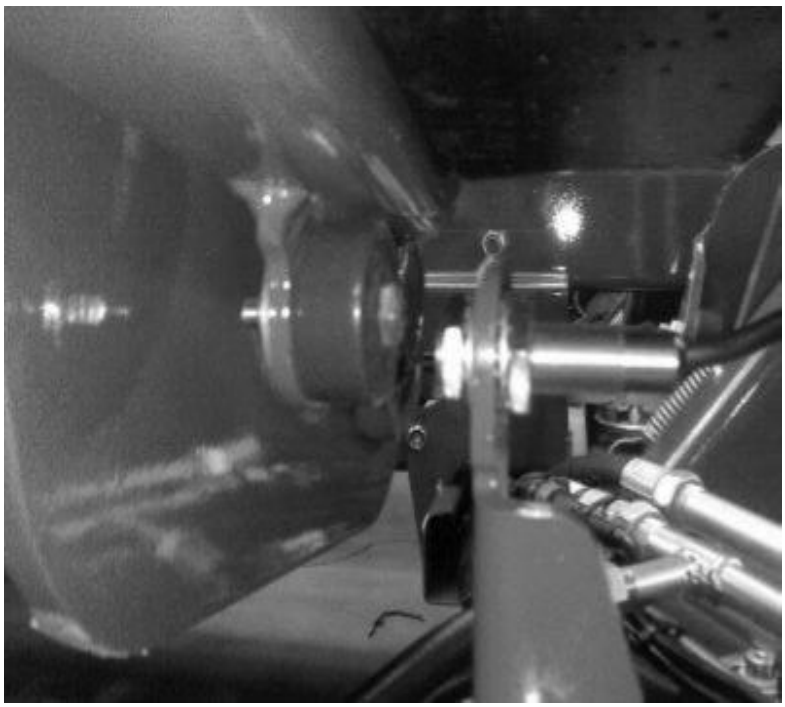
1. In manual mode, run wrapper at full speed (i.e. press the rotation button 2 times) with 2 new film rolls fitted on the dispenser. Upon releasing of the rotation switch, the arm rotation should stop immediately. If there is any run-on, then the setting of the over-centre valve needs to be checked. See section 10.13 to adjust.

Repeat the test, and if there is still run-on then do not operate the machine. Contact your McHale dealer for assistance.

## 9.13 Cradle down sensor (If fitted)

The cradle down sensor is used for sensing when the cradles have reached the down position at the end of each wrapping cycle. To set the sensor switch the control box to manual turn on the PTO and press the bale down button. When the cradle is down fully turn off the PTO, the control box and the tractor. Remove the key from the ignition. Hold the sensor by hand, loosen the nut on the sensor. Move the sensor to the centre of the magnet. Retighten the sensor so it has from 10mm to 20mm of clearance. Tighten the nut finger tight and then one 1/4 of a turn with a spanner.

Note: **Do not** overtighten nut as this will damage the sensor.
Sensor should have approx 10mm clearance between its top and any moving parts.



## 9.14 Bale levelling device

The machine is fitted with a patented levelling device to level the bale after wrapping before dropping it onto the conveyor. The bales should be well shaped for this to work correctly. Do not adjust if a badly shaped bale does not level correctly. If the bale does not level properly it is possible to adjust it as follows:

1) Check position of the bale on the main conveyor to see how central it is.

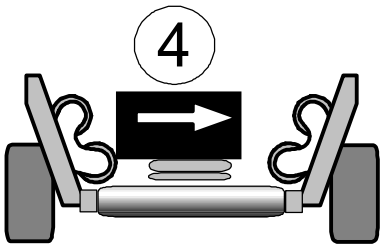
2) If the bale is sitting to one side of the machine the potentiometer needs to be adjusted. Discharge the bale and lift the rollers to the the top of their stroke and **support**. Ensure tractor and machine are **turned off** and tractor **key removed**.

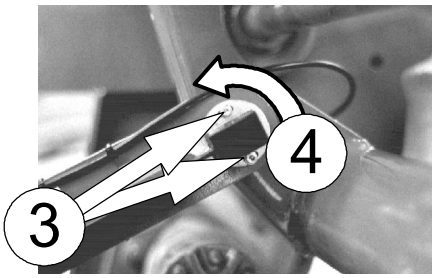
3) Locate the left hand potentiometer which is located near the front of the lefthand rollers. Slightly loosen the two (2) M4 hex head screws (3mm hex head key)

4) If the bale is to the left of the machine, adjust the slotted plate anticlockwise slightly. Retighten the M4 hex head screws.

5) Retest machine with a bale to check operation.

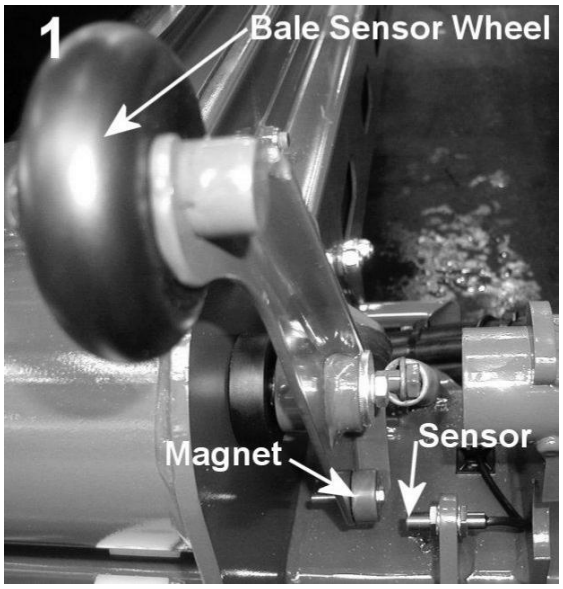
6) If the bale is to the right of the machine, adjust the slotted plate clockwise slightly.

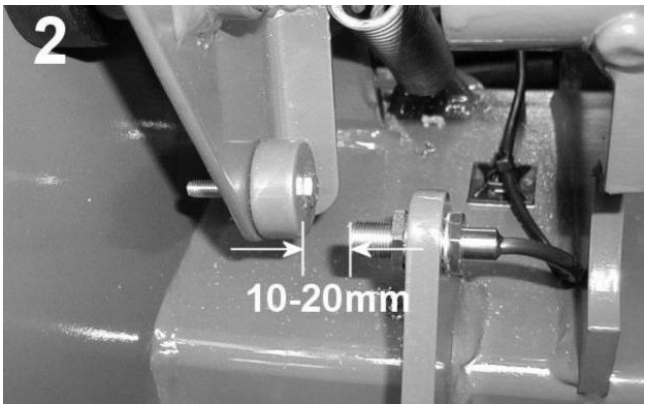


## 9.15 Bale load sensor

The bale load sensor is used for sensing when a bale is carried past a certain point on the conveyor belt. As the bale passes over the bale sensor wheels, the arm carrying the magnet sweeps past the sensor and the conveyor stops after a set period of time. The sensor is axially adjustable and is shown below with the optimum distance, from the magnet, being 10 to 20 mm as shown. ***Note:*** This sensor is factory set and should only be adjusted if a new sensor was fitted or if the sensor to magnet distance is deemed inadequate, this mechanism is shown in figures 1 and 2 below.



## 9.16 Main conveyor chain

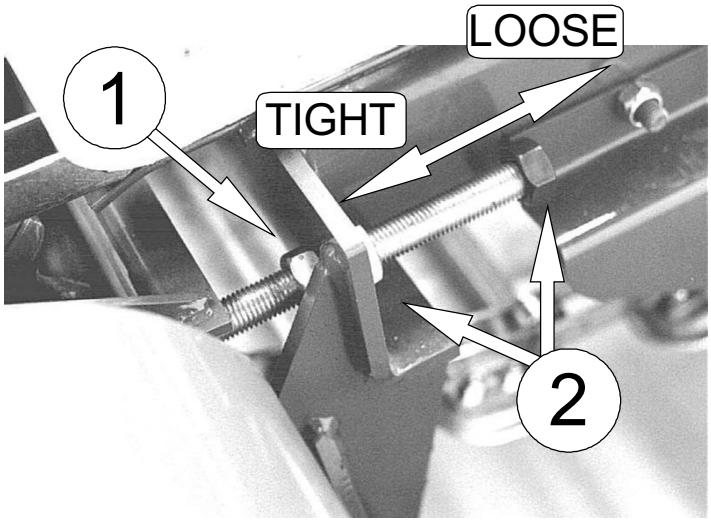
As a result of general wear and tear the main slatted conveyor will become loose after a time. However it is possible to adjust this as follows:

1) Loosen M20 nut.

2) Hold the other M20 nut with a spanner while turning the adjuster until the chain can be lifted 25-30mm in the centre.

3) Tighten the first M20 nut to lock the adjuster.

4) It is important that both adjusters are adjusted equally. Failure to do so could result in damage to the machine.



## 9.17 Front pick up chain

The five front pick up chains are adjusted as a unit as follows.

1) Remove three (3) M12 nyloc nuts from chain guard and remove guard.

2) It may be necessary to loosen the drive chain tensioner by removing the M10 bolt holding it.

3) Slightly loosen the seven (7) M12 nyloc nuts holding the bearing plates.

4) Screw the M12 adjuster bolt , holding the appropriate nut to get the 10-15mm sag in the chain.

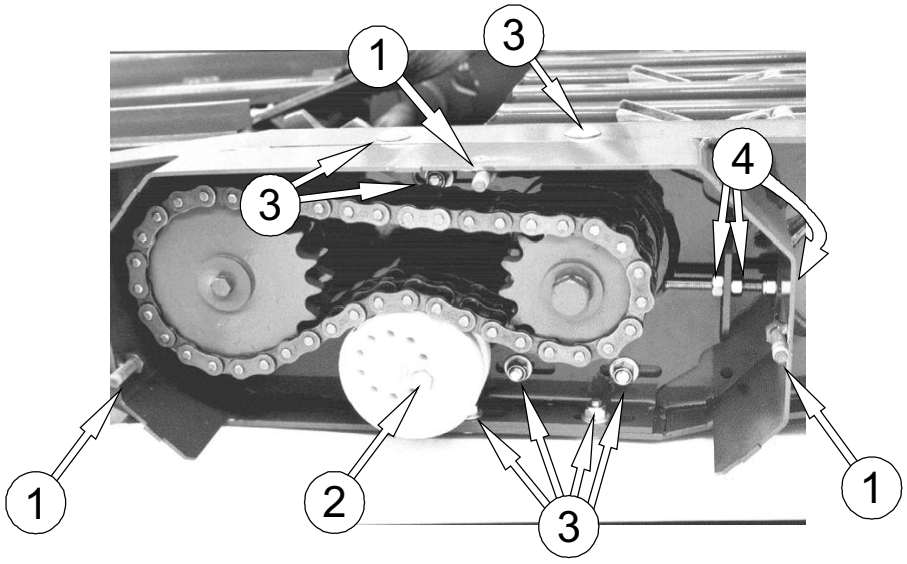
5) Repeat steps 3) and 4) for the other side ensuring that both are adjusted evenly .

6) Tighten the fourteen (14) M12 nyloc nuts holding the bearings.

7) Recheck chain tension.

8) Adjust drive chain tension.

9) Replace guards



## 9.18 Front conveyor drive chain

The front conveyor drive chain may be adjusted if the chain becomes slack from general wear and tear or if the the front pick up chains have been adjusted.

1) Remove three (3) M12 nyloc nuts holding on the chain guard and remove guard.

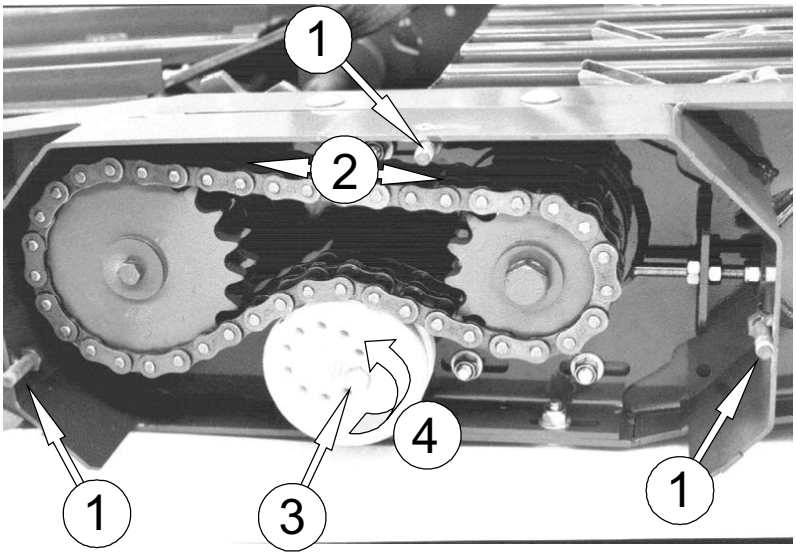
2) Ensure top of drive chain is tight.

3) Remove the M10 adjuster bolt.

4) Turn the adjuster until there is 3-6mm sag in chain.

5) Insert M10 bolt into appropriate hole in adjuster and tighten.

6) Replace chain guard and tighten the three (3) M12 nyloc nuts.



## 9.19 Roller drive motor chain

This may be adjusted as follows:

1) Remove two (2) M8 setscrews holding on the chain guard and remove guard.

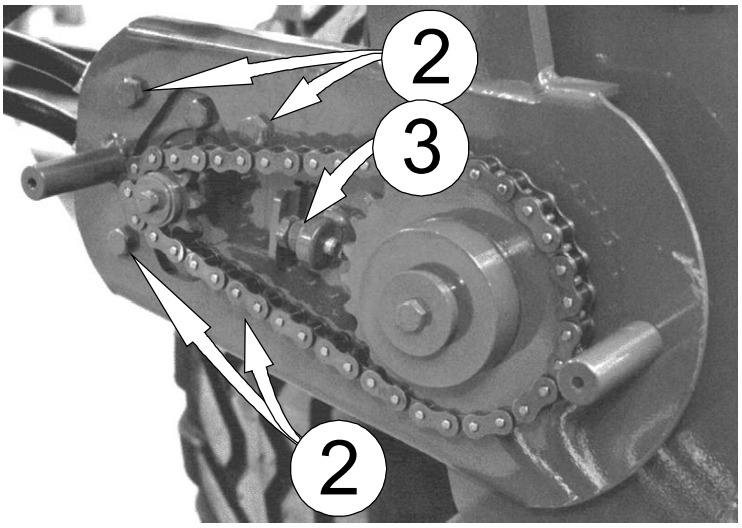
2) Loosen four (4) M12 nyloc nuts slightly holding adjusting plate on.

3) Loosen M12 locking nut on adjusting setscrew. Adjust setscrew until there is 10-12mm sag in the chain.

4) Tighten M12 locking nut

5) Tighten the four (4) M12 nyloc nuts holding the adjusting plate.

6) Replace chain guard and tighten the two (2) M8 setscrews.



## 9.20 Roller drive chains

These may be adjusted as follows:

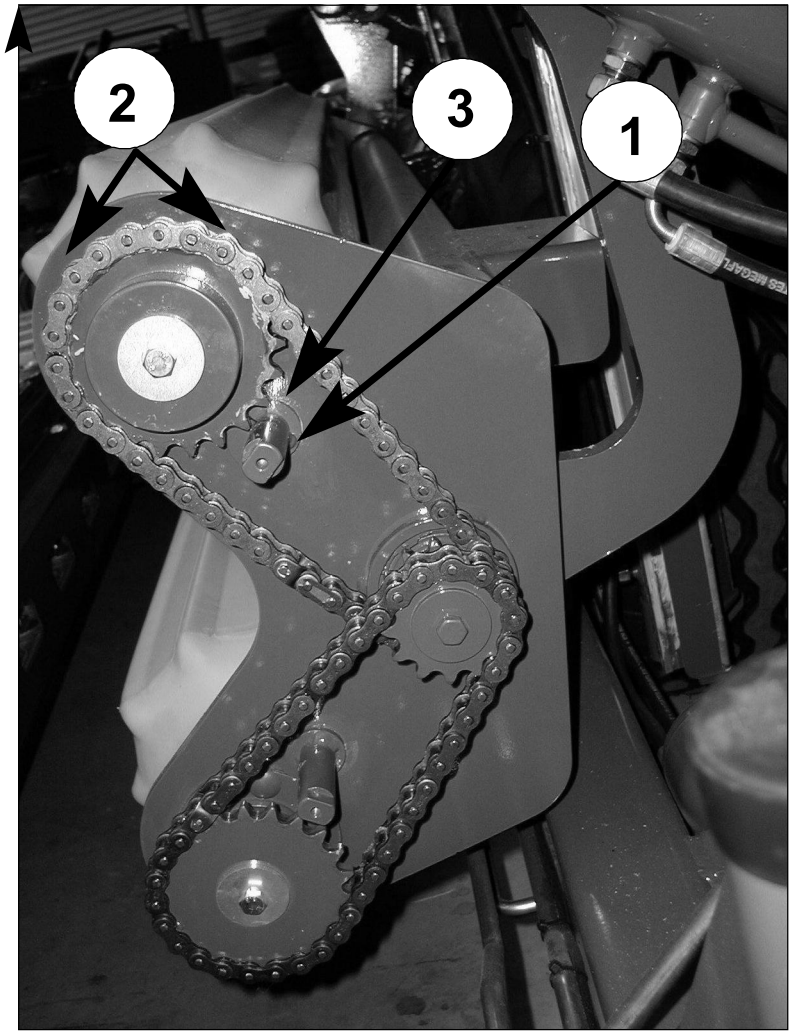
1) Remove two (2) M8 setscrews holding on chain guard and remove guard.

2) Slightly loosen three (3) M10 nyloc nuts, holding on bearing.

3) Turn cam adjuster against bearing, using 17mm spanner on the two machined flats until there is 8-10mm sag in the chain.

4) Tighten the three (3) nyloc nuts on the bearing.

5) Replace chain guard and tighten the two (2) M8 setscrews.



## 9.21 Main conveyor drive chain

This may be adjusted as follows:

1) Remove two (2) M8 nyloc nuts holding on guard and remove guard.

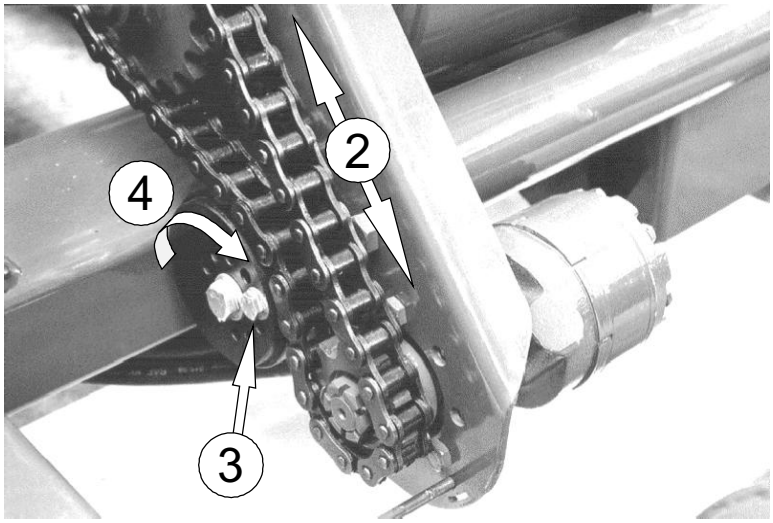
2) Ensure top of drive chain is tight.

3) Remove the M10 adjuster bolt.

4) Turn the adjuster until there is 4-8mm sag in chain.

5) Insert M10 bolt into appropriate hole. It may be necessary to line up holes with something smaller in diameter than the bolt.

6) Replace chain guard and tighten the two (2) M8 nyloc nuts.



# 10. Machine Maintenance

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

It is vitally important to observe health and safety rules where necessary to avoid unnecessary enviromental 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 (ie. when chains become loose etc). They may be found under machine adjustments.

10.1 Maintenance intervals.
10.2 Hydraulic oil level/replacement.*
10.3 Hydraulic oil filter replacement.*
10.4 PTO shaft.*
10.5 Pump gearbox.*
10.6 Cut & hold knife changing.
10.7 Spare film roll holder.
10.8 Dispenser gearbox oil level.
10.9 Dispenser brake oil level.
10.10 Dispenser pivot points.
10.11 Dispenser trip arms.
10.12 Dispenser arm rotation speed.
10.13 Setting of over-centre valve on the arm rotation assembly.
10.14 Cut & hold accumulator pressure.

* If Hydraulic power pack option fitted.

## 10.1 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 50 working hours
    1) Change oil filter *
    2) Change pump gearbox oil *
    3) Change dispenser drive gearbox oil

2) Every day
    1) Check hydraulic oil level *
    2) Check pump gearbox oil level *
    3) Grease PTO shaft joints * (2)
    4) Grease front conveyor sprockets (5)
    5) Check wheelnuts
    6) Check dispenser drive gearbox oil level
    7) Check all guards and safety related components
    8) Check for any oil leaks and damaged pipes.
    9) Check dispenser trip arm function. (See section 9.12 & 10.11)

3) Every week
    1) Grease drawbar front horizontal pivot (1)
    2) Grease drawbar front vertical pivot (1)
    3) Grease drawbar rear vertical pivot (1)
    4) Grease drawbar hydraulic cylinder ends (2)
    5) Grease lifting hydraulic cylinders ends (8)
    6) Grease roller cradle pivots (4)
    7) Grease cut and hold plunger (2)
    8) Grease rear of front conveyor bearings (2)
    9) Grease front of main conveyor bearings (3)
    10) Grease rear of main conveyor bearings (4)
    11) Grease rear unloading roller bearings (2)
    12) Grease PTO cover * (2)
    13) Grease PTO shaft tube profiles *
    14) Check tyre pressure ( 26 PSI,1.75 bar)
    15) Grease slotted links (2)

        * If Hydraulic power pack option fitted.

4) Every month

1) Grease dispenser top roll holder shaft (2)
2) Grease bale position arm bearings (2)
3) Check all chain tensions
4) Check oil level in brake unit

5) Every year

1) Clean and lubricate dispenser gears.
2) Change hydraulic oil filter. *
3) Remove front conveyor chains, clean and soak in oil.
4) Change pump gearbox oil. *
5) Change brake unit oil.
6) Change dispenser drive gearbox oil.

6) Every two years

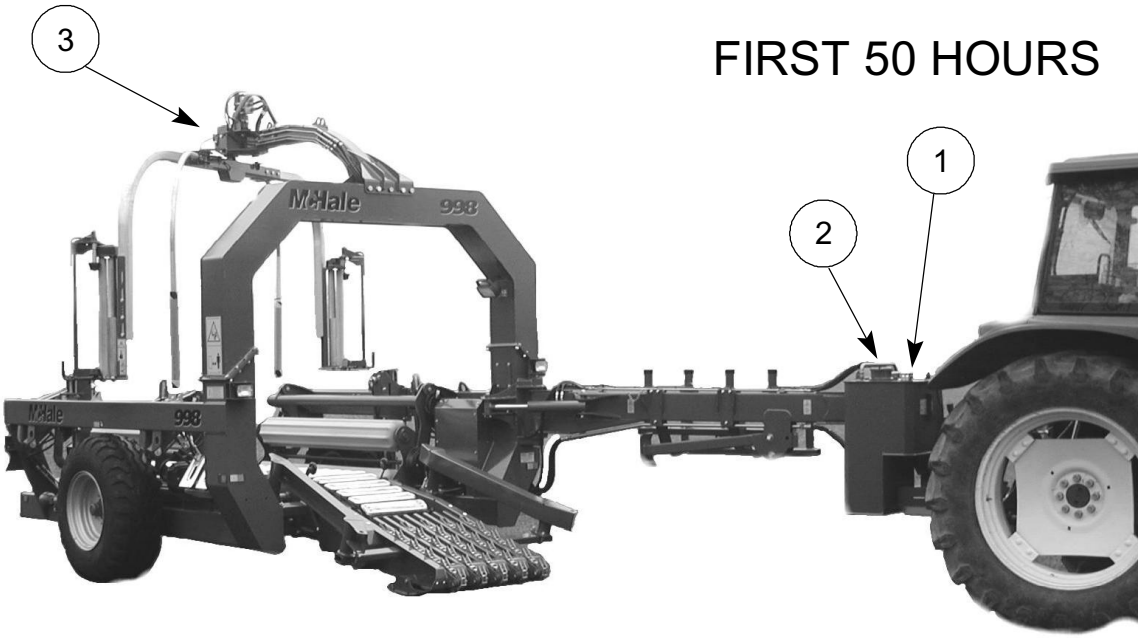
1) Change hydraulic oil.

* If Hydraulic power pack option fitted.

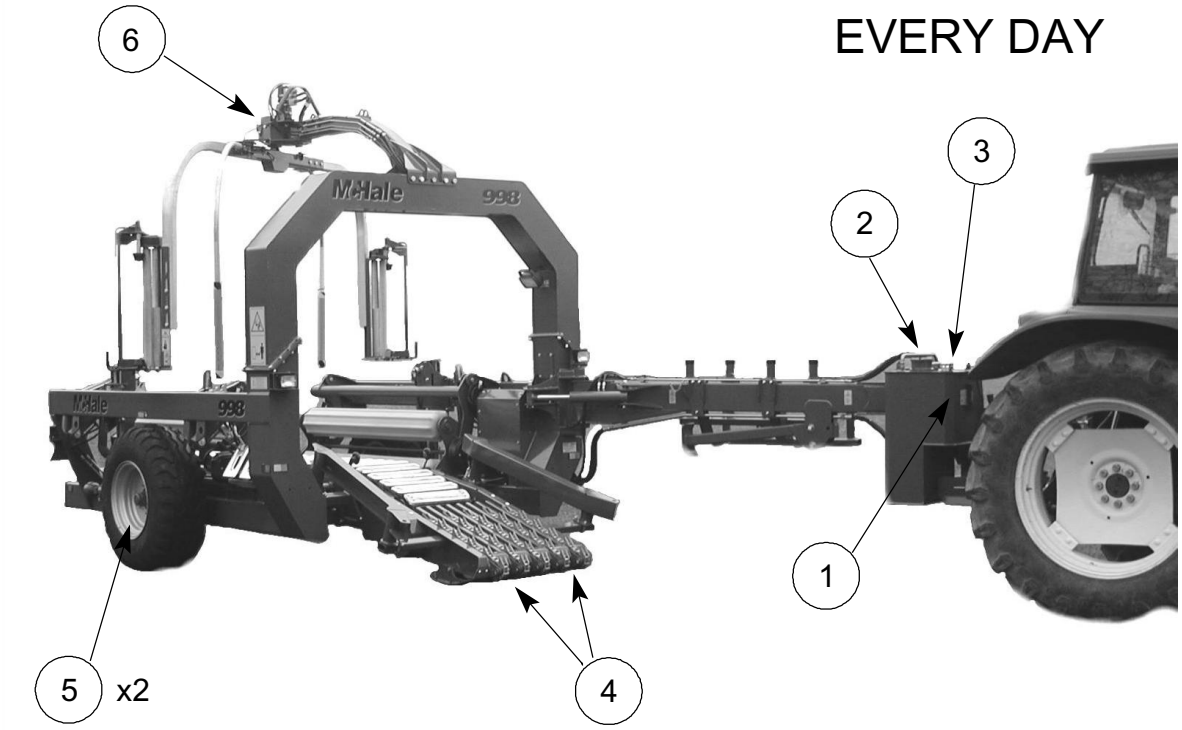
It may become necessary from time to time to clean the dispenser rollers as they pick up the “tack” from the plastic film.

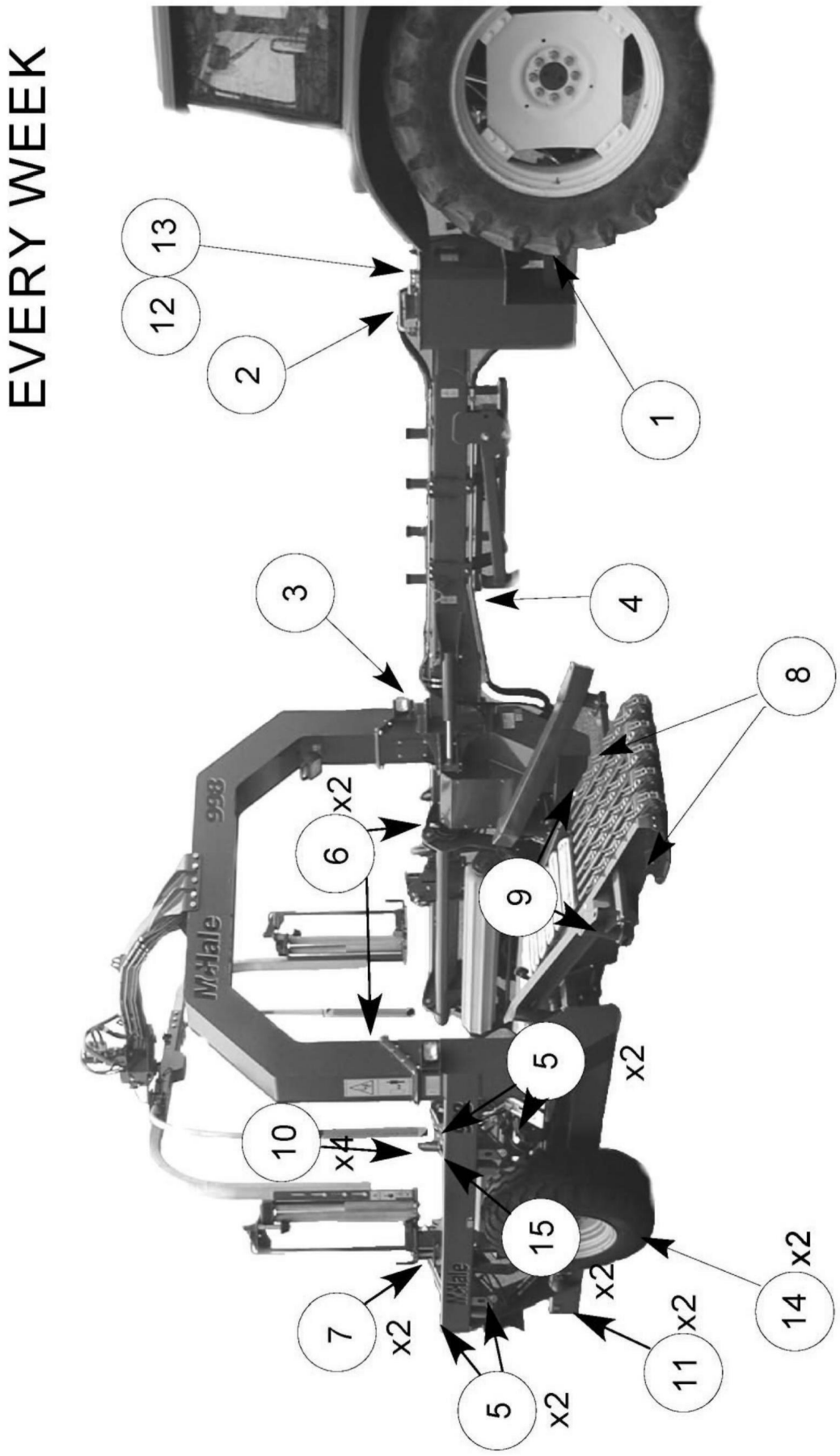
At the end of the wrapping season the machine should be washed and cleaned. Any damaged paintwork should be touched up. Any maintenance or repairs should be carried out at this stage. The electronic control box is **not waterproof** so must always be stored in a dry environment.

## FIRST 50 HOURS




## EVERY DAY




EVERY WEEK
13
12
2
1
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4
8
x2
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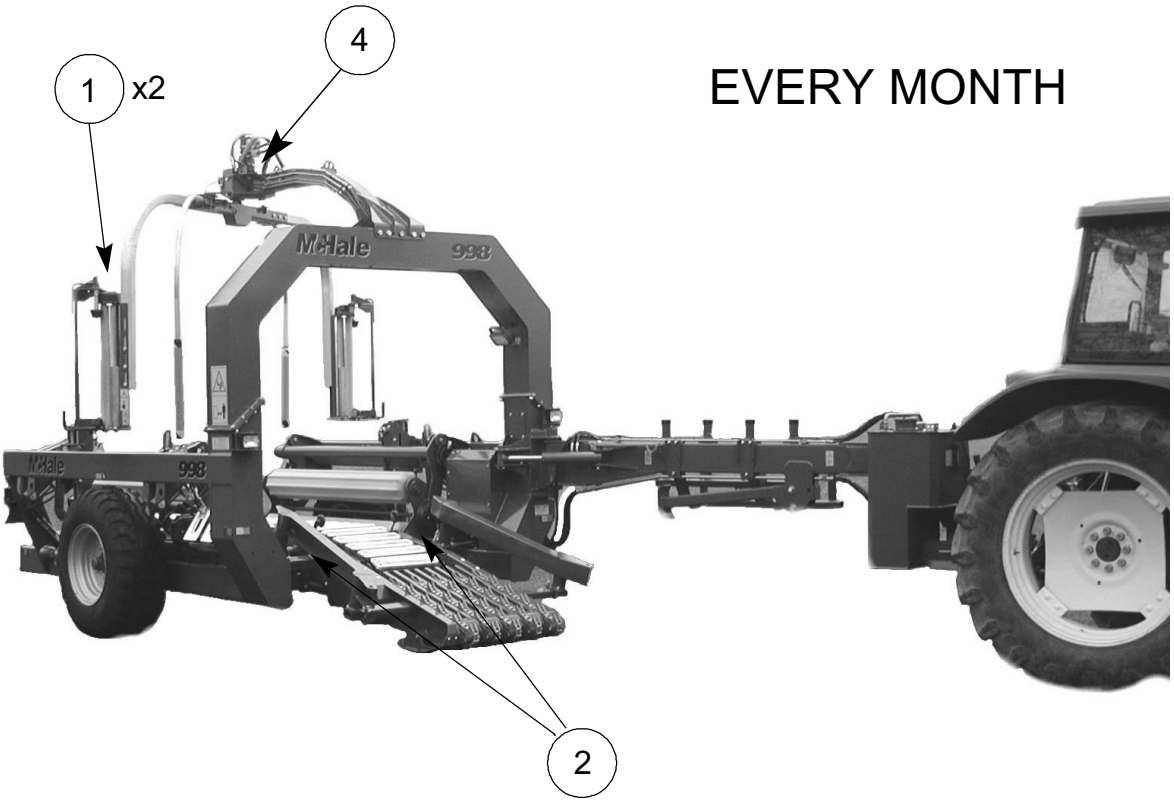
EVERY MONTH
1 x2
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McHale
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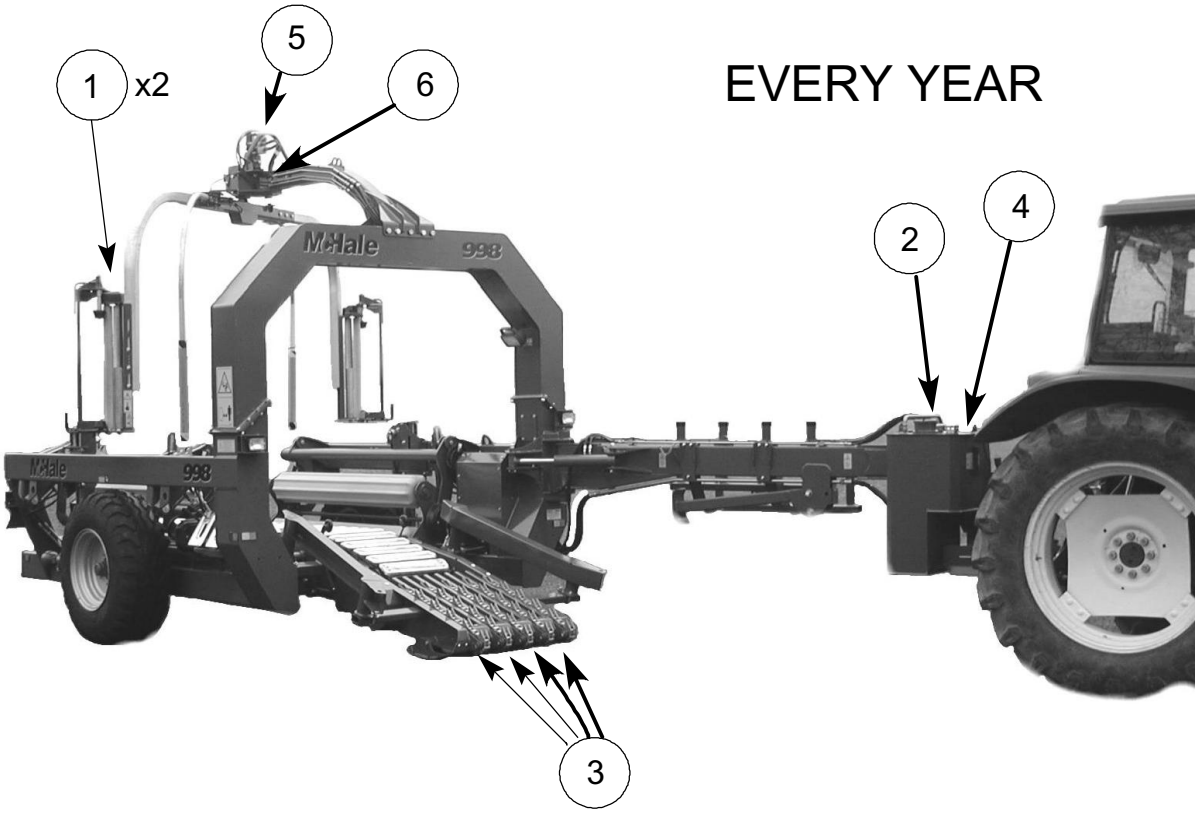
EVERY YEAR
1 x2
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3
McHale
998

## 10.2 Hydraulic oil level/replacement (If fitted)

**Always ensure system is not under pressure before working on it. Do not work on hydraulic systems unless you have a working knowledge of them and feel confident to do so.**

The hydraulic oil level needs to be visually checked once a day. It is best achieved before machine start up. This level needs to be kept between the upper and lower limits on the level sight gauge. It is recommended to completely replace the oil after every 1000 hours use or every two years which ever comes earlier. Replacement is as follows.

1) Place a suitable sized container under the oil tank. (tank capacity 130 litres approx.)

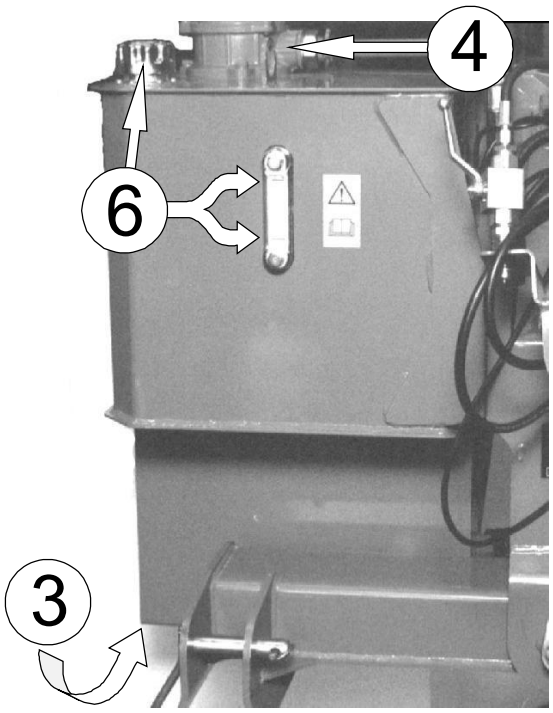
2) Ensure tank is sloping towards drainplug by tilting machine slightly if required.

3) Remove drain plug. It is best if the oil is warm to aid draining.

4) The oil filter should also be replaced at this stage.

5) Once oil is fully drained replace the drain plug.

6) Refill tank through filler (130 litres approx.) until oil is at top level on sight gauge.




7) Run machine working all functions to ensure there is no air in the system.

8) Stop machine and allow oil to settle. Check that oil level is within the limits on the sight gauge. Refill if necessary.

Note:
It may be necessary to prime pump after changing the oil. This may be achieved by loosening the pump pressure pipe (Top rear pipe) and turning the pump by hand until oil flows out without air. The pressure pipe can now be tightened.

## 10.3 Hydraulic oil filter replacement (If fitted)

The hydraulic oil filter needs replacement after the first 50 hours of work and thereafter every 500 hours or yearly, whichever comes first. A new filter is available from your McHALE dealer (part number CHY00030). It may be changed as follows.

1) Remove three (3) M10 setscrews holding on top of filter housing. This is held under spring pressure so will need to be kept pressed down.

2) Remove top of housing and spring.

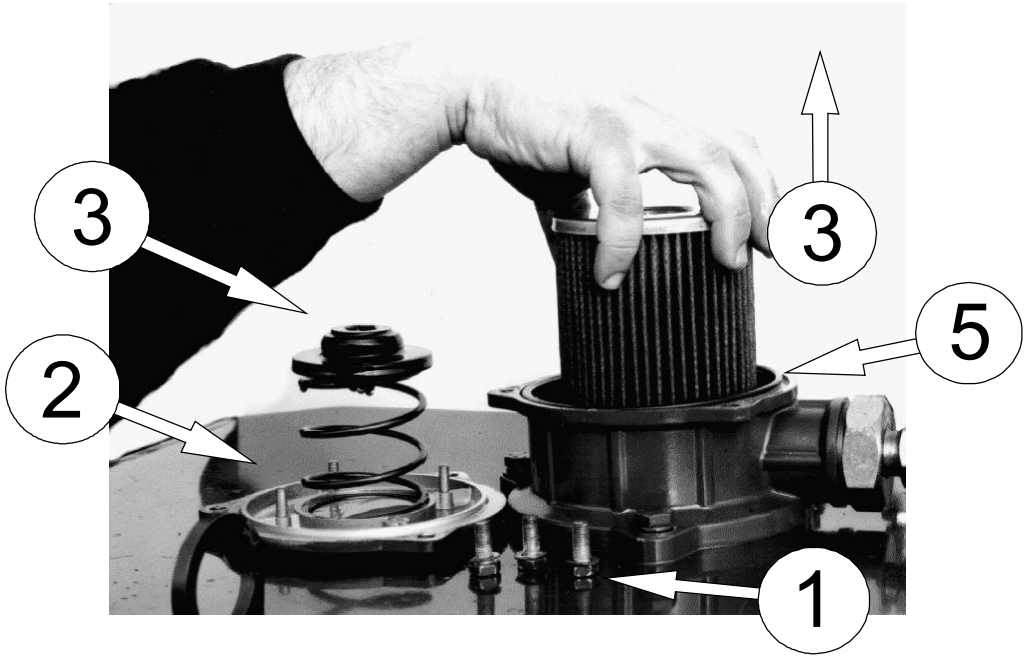
3) Lift filter out of housing and discard safely. The pressed steel filter housing will lift up with the filter so must be separated leaving the housing in the tank. The bypass valve on top of the filter is discarded with it.

4) Fit new filter into housing ensuring it is securely fitted to pressed steel housing.

5) Replace top of filter housing ensuring “O” ring is correctly seated and not damaged.

6) Tighten the three (3) M10 setscrews.

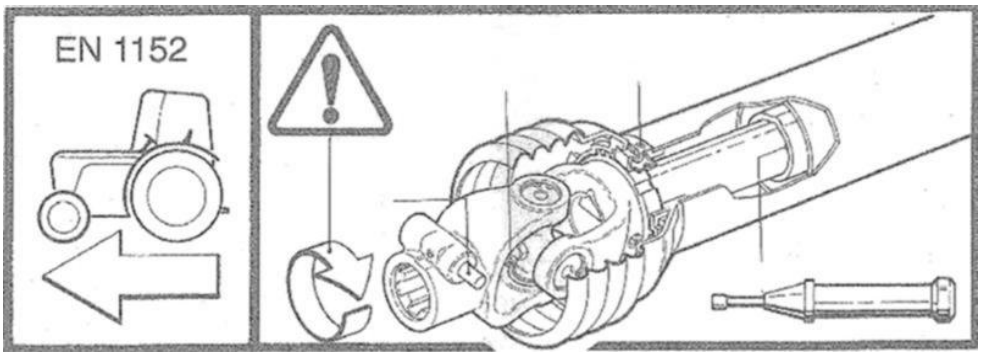
7) Run machine to ensure everything is running correctly.



## 10.4 PTO shaft (If fitted)

**It is very important that safety guidelines are adhered to especially with regard to guarding of the shaft for the safety of all who may be near the machine.**

The PTO Shaft is a vital link in driving the hydraulic pump on the machine. Therefore it is important to follow the PTO manufacturers guidelines on maintenance and repair. These guidelines are fixed to the PTO shaft when new. They must be removed and read and then stored with this instruction book for future reference. If they are missing from the machine contact your McHale dealer to obtain another copy.




Grease points for the PTO shaft

## 10.5 Pump gearbox (If fitted)

**Always ensure system is not under pressure before working on it. Do not work on hydraulic systems unless you have a working knowledge of them and feel confident to do so.**

The hydraulic pump is fitted with a 1:3 step up gearbox. The level of oil in the gearbox needs to be checked daily which is easily accomplished through the level sight gauge on the side of the gearbox. It is recommended that the oil is changed after the first 50 hours of use and thereafter every year. The oil is changed as follows:

1) Ensure gearbox oil is warm to aid draining.

2) Place suitable container under the drain stud.

3) Remove filler/breather cap (A)

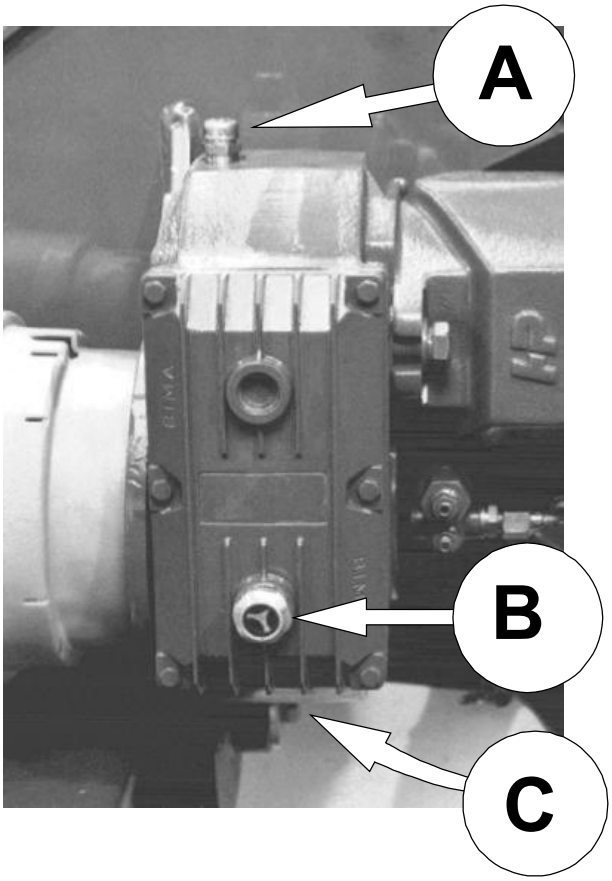
4) Remove the drain stud. (C)

5) Once drained replace drain stud (C) and dispose of oilsafely.

6) Fill gearbox with EP80 gearoil until oil can be seen on the sight gauge. (B)

7)Replace filler/breather cap (A) and run machine for 2-3 minutes.

8) Stop machine and allow oil to settle. Check oil level again and refill if necessary.



## 10.6 Cut and hold knife changing

**Only competent operators should operate this machine.**
**Be aware of the sharpness of the knives. To avoid injury, handle with care.**

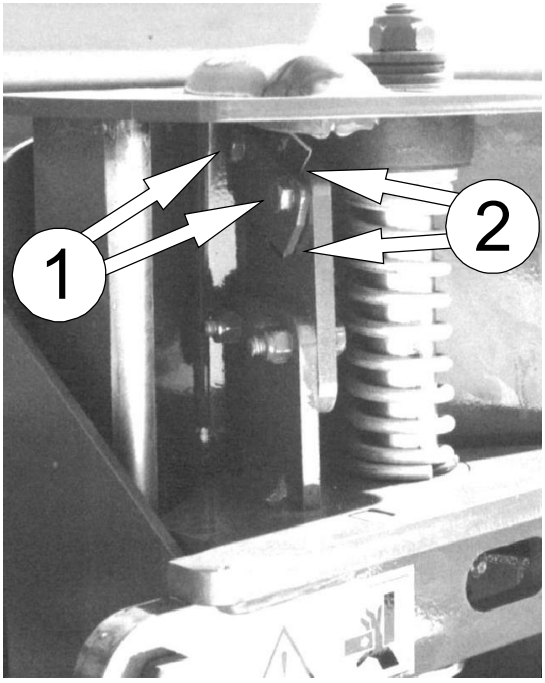
The condition of the cut and hold knife is important to the operation of the cut and hold mechanism. It is therefore important that the knife is kept sharp. It is advisable to change the knife when it becomes blunt, as follows. New knives may be obtained under part number CKN00011. Because of the nature of knives ensure precautions are taken to avoid injury.

1) Loosen the two (2) M6 setscrews holding the knife clamp.

2) Remove working knife noting that there is a spare knife held by the bottom of the knife clamp.

3) Place spare knife in working position and put a new spare knife underneath if available.

4) Tighten the two (2) M6 setscrews



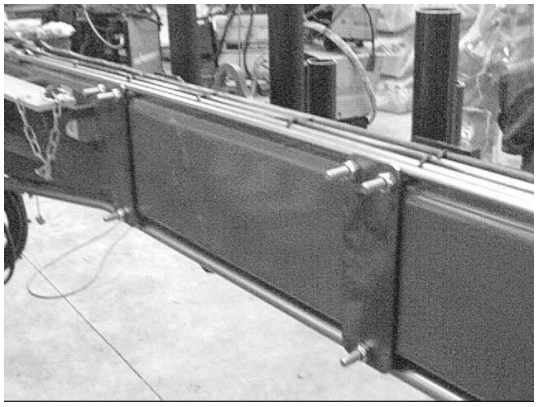
## 10.7 Fitting spare film roll holder

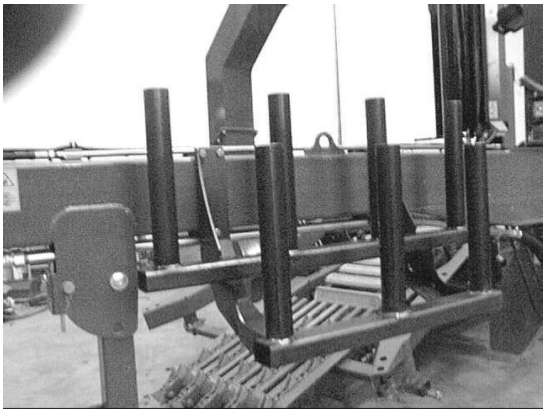
1) Loosen the (2) 8mm setscrews on the drawbar which hold the steel piping in place.

2) By means of a crane or a lifting apparatus lift the roll holder bracket up against the drawbar as shown below.

3) Using the brackets and the (6) bolts provided attach the film holder bracket as shown. The bolts must slide under the steel piping.

4) Affix the rubber strap provided between the bolts and the steel piping that is on the top of the drawbar. Then proceed to tighten down the steel piping into place.





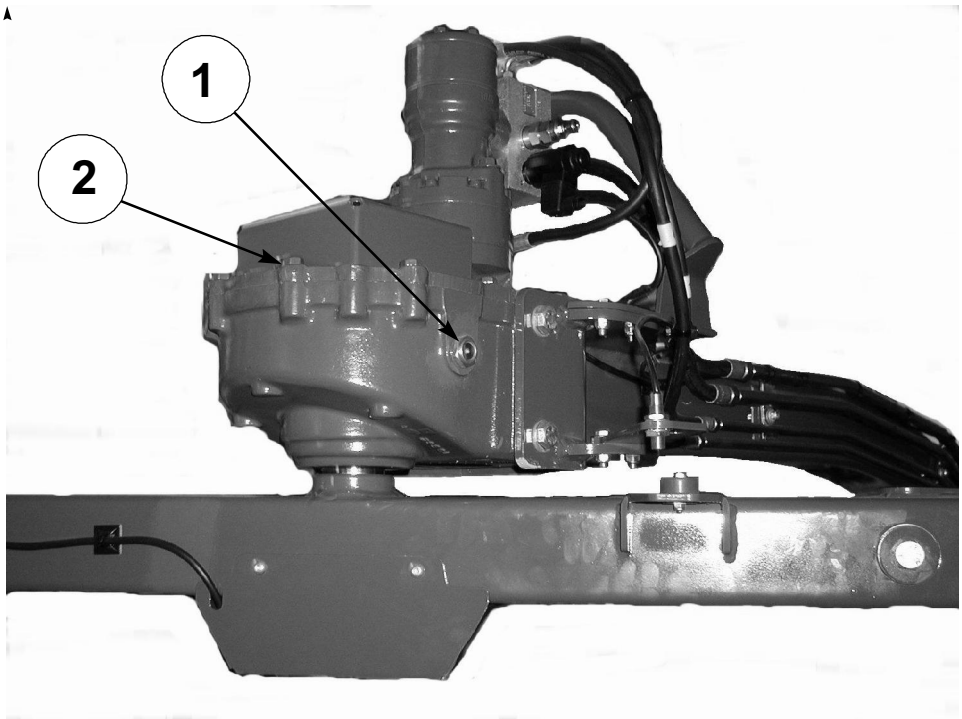
## 10.8 Dispenser gearbox oil level

**Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.**

1. Check oil level in dispenser gearbox using sight glass on side of gearbox housing.

2. If there is no oil level showing in the sight glass then top up oil level by undoing the breather cap shown.

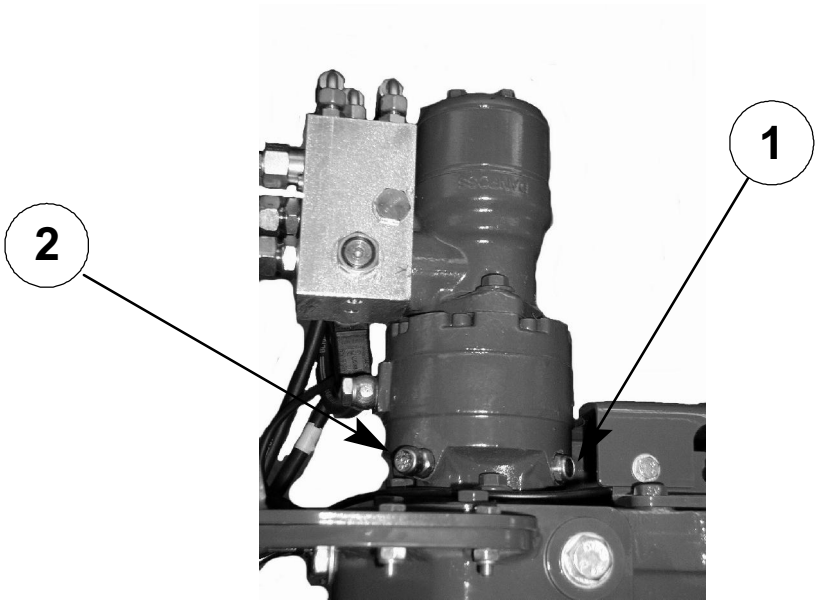
3. Fill until oil level is half way up the sight glass.



## 10.9 Dispenser brake oil level

**Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.**

1. Check oil level in brake unit using the sight glass in brake unit housing.
2. If there is no oil level showing in the sight glass then top up oil level by undoing the breather cap shown.
3. Fill until oil level is half way up the sight glass.



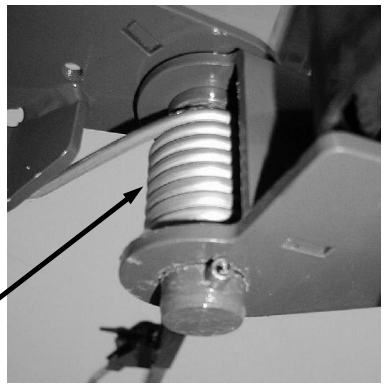
## 10.10 Dispenser pivot points.

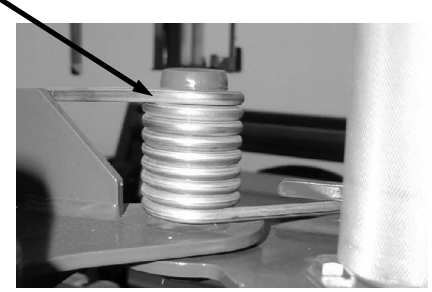
**Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.**

The dispenser pivot points, shown below (right) must be lubricated with grease at the beginning of the season and after every 1000 bales wrapped. This is to ensure proper application of plastic to the bale and to prevent plastic damage and therefore breakage. Also inspect aluminium rollers for free rotation as any blockage in rotation of these rollers will cause plastic breakage.

Aluminium Rollers

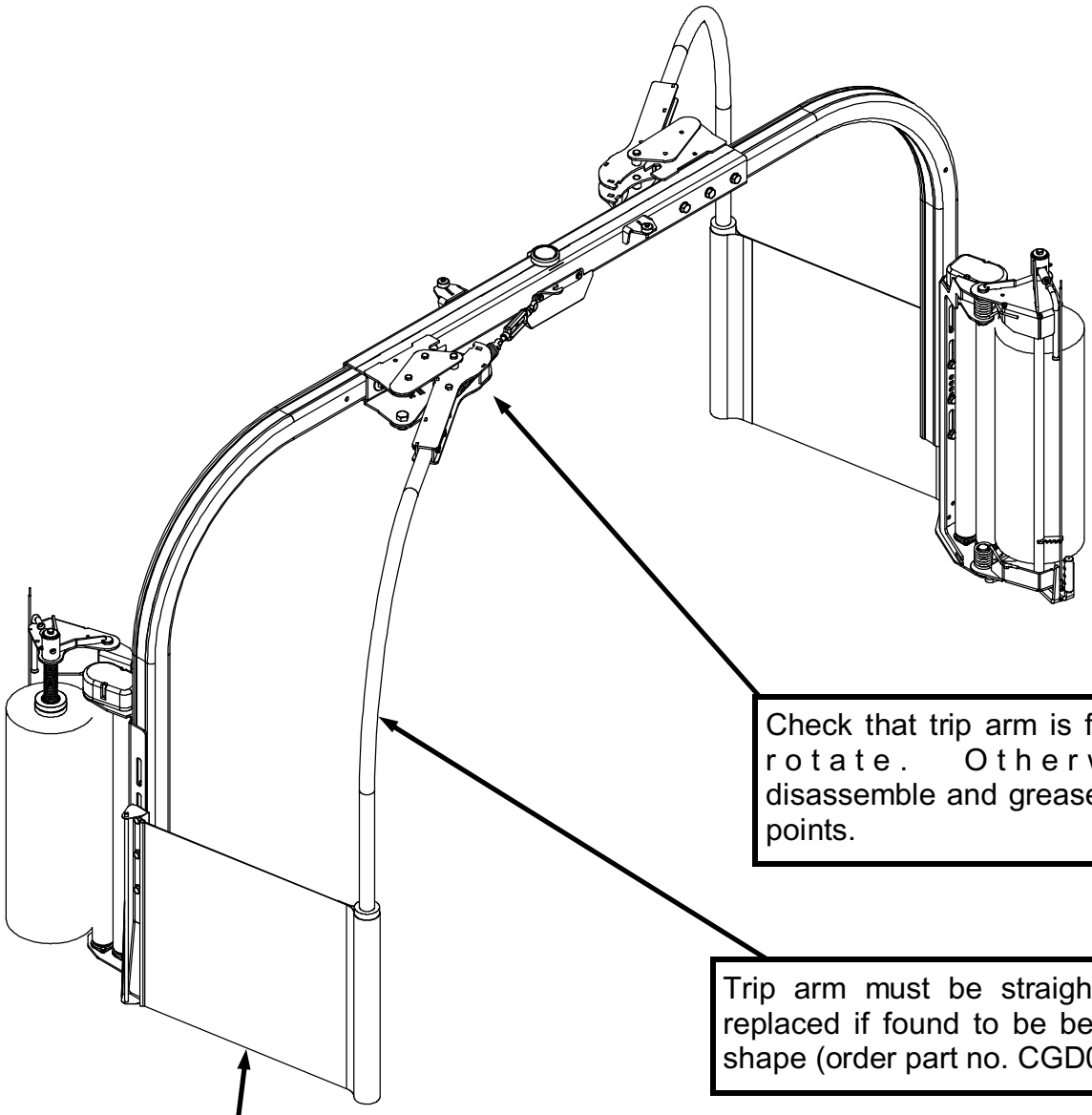
Pivot points to be greased:





## 10.11 Dispenser trip arms.

**Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.**



Check that trip arm is free to rotate. Otherwise disassemble and grease pivot points.

Trip arm must be straightened or replaced if found to be bent out of shape (order part no. CGD00028).

Check condition of yellow pvc cover. If damaged replace (order part no. CGD00229).

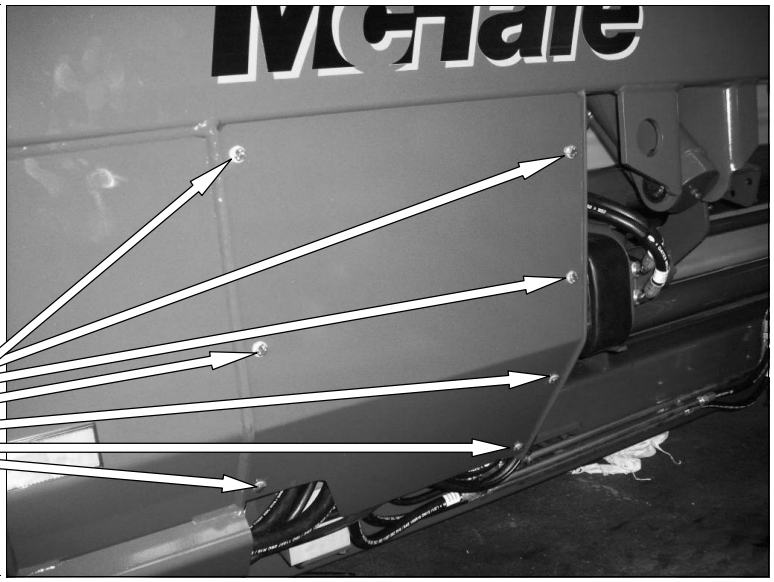
## 10.12 Dispenser arm rotation speed

Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.

From the tractor cab, engage the tractor hydarulics (or pto at working speed, 600-800 rpm, if Hydraulic power pack fitted), operate the arm rotation in Manual mode. Check the speed of the arm rotation. The correct speed is 23 rpm. If higher, see below for details to achieve the correct speed.

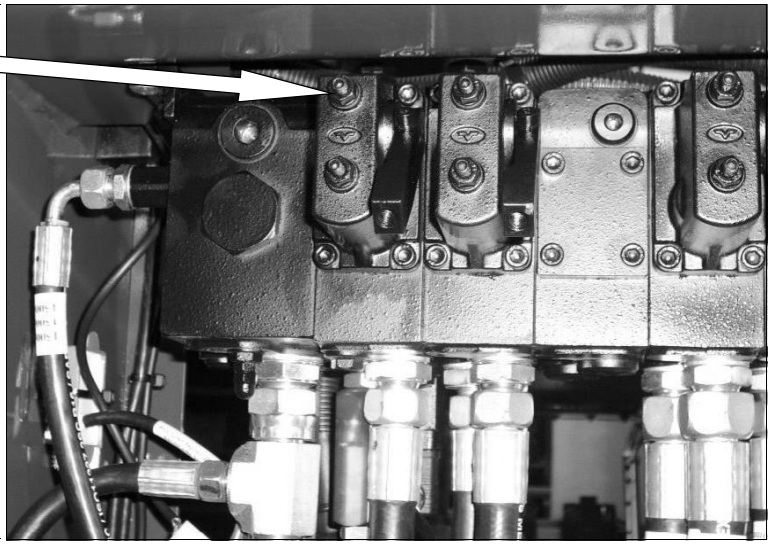
Turn off tractor and pto, before doing any adjustments on the machine.

Using a 13mm spanner, unscrew all the bolts holding the valve guard, as shown.

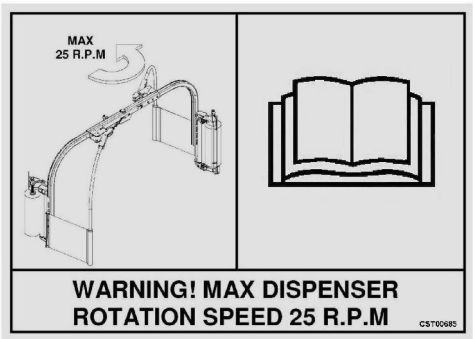


2. The 1st valve section operates the dispenser arm, and the upper setting screw sets the flow/speed of arm. Using a 10mm spanner, loosen the sealing/locking nut shown.
Using a 3mm Allen tool, turn clockwise to reduce the speed. In practice the adjustment required is very small, usually max. of 1/4 turn clockwise. Tighten the locking nut. Re-check the arm speed, and repeat until the correct arm speed of 23rpm is achieved.

Replace the valve cover.



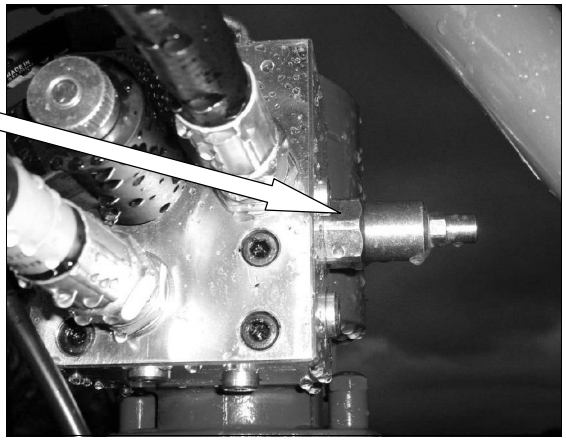
**WARNING: The dispenser must never be operated above a maximum of 25 revolutions per minute.**



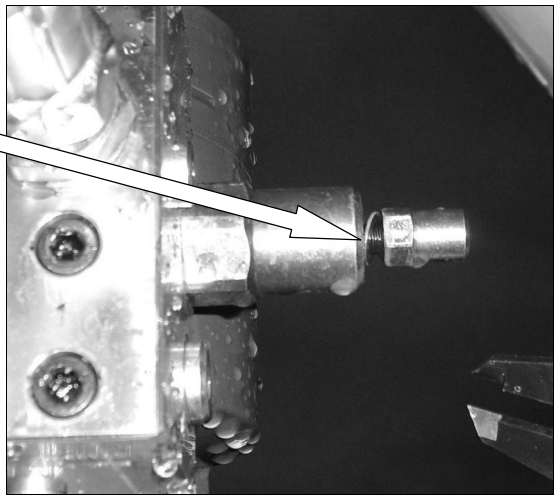
## 10.13 Setting of over-centre valve on the arm rotation valve assembly

Always ensure tractor is stopped, handbrake applied, engine stopped and ignition key removed before working on machine.

1. Locate the over-centre valve of the dispenser arm rotation valve assembly.

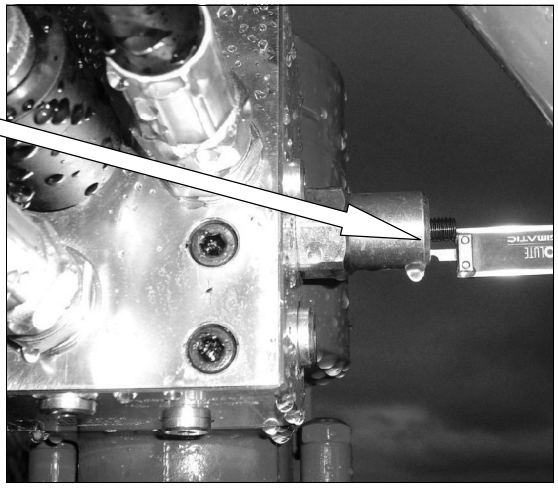


2. Using a 13mm spanner, remove this covering nut and the copper washer.



3. Using a 4mm Allen Key, set the distance shown to 6.5mm.

Refit the copper washer and the covering nut.



## 10.14 Cut & hold accumulator pressure

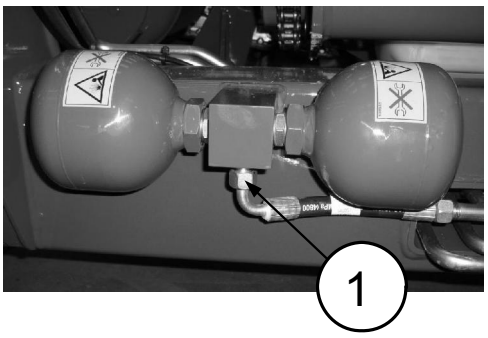
The cut & hold is held open by a hydraulic accumulator which is primed as the cut & hold is closed. If for whatever reason the pressure drops it will prime again the next time the cut & hold is closed.
If the 998 Square bale wrapper (without On-board Hydraulic Power pack option) is used on a tractor with high oil pressure, then the accumulator may need to be discharged, if the cut & hold is not closing fully.

This only applies to machines with full hydraulic connections coupled to tractor. It does NOT apply to machines fitted with On-board Hydraulic Power pack option.

⚠ **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 decrease accumulator pressure.**

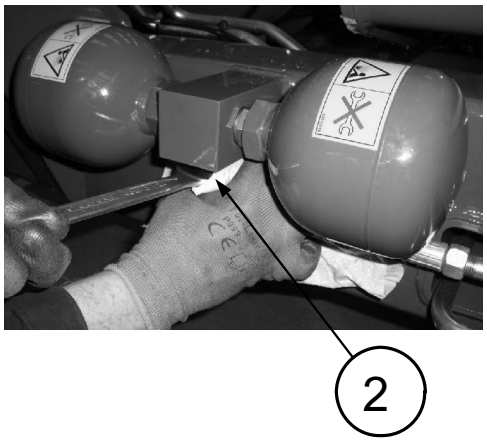
1) Place a spanner on the hydraulic fitting shown, but do not turn.




2) Wrap the spanner and fitting with a cloth to stop oil spray, then unscrew the fitting a half turn. This should allow the oil to leak out and reduce pressure. If no oil leaks, then turn spanner a quarter turn at a time, until it bleeds off oil pressure.

3) Tighten the hydraulic fitting, once oil pressure has been relieved.

4) Once the cut & hold is operated again the accumulator will be charged automatically to the correct pressure. Test cut and hold to ensure it is opening and closing correctly.



# 11. Appendix 1—Troubleshooting

The following tables give common problems that may occur while operating the machine and solutions to solve them. McHale suggests that the operator carry out a simple visual inspection of the machine to check for possible hydraulic leaks, loose or damaged cables and/or any other visibly damaged components.

Ensure that the control box is receiving a supply voltage of at least 12V and a recommended voltage of 13V.

**If you are unsure of how to carry out any of the remedies listed, entrust the job to your McHale dealer.**

**Table 1:**
The following table, table 1, refers to problems that may occur while using the 998 square bale wrapper in both “AUTO” and “MANUAL” modes.
***Note:*** Not all operations that are shown below are controlled by the control box. Each problem is shown by it’s main operation. Use table 2 on the following pages to check for possible causes and remedies.

| **Operation** | **Problem/Solution** |
|---|---|
| Drawbar operation. | Drawbar will not operate. Ensure tractor hydraulics are activated. Check double-acting hydraulic connection to tractor. See 1, 2 & 3. Also check sections 5.6 & 5.8 |
| Conveyor chain operation. | A). Conveyor chain fails to run, see 1, 2, 3a, 3b, 5 & 7. (28 & 29)*<br>B). Conveyor runs too slowly in both directions, see 1 & 2. (29)*<br>C). Conveyor fails to run with dispensers operating, see 1& 2 (29)* |
| Front conveyor lift operation. | Conveyor fails to lift. Ensure tractor hydraulics are activated and hydraulic lever in the open position. Check single-acting hydraulic connection to tractor. See 1, 2 & 3. Also check sections 5.6 & 5.8 |
| Cradle bale lift operation. | A). Cradle fails to lift bale, see 17a, 17b & 18<br>B). Cradle continues to try and lift bale, see 17a & 17b |
| Cradle roller operation. | A). Rollers fail to rotate, see 6, 20a & 20b.<br>B). Rollers fail to level the bale, see 4a & 4b.<br>C). Rollers continue to rotate once bale is loaded, see 4b. |
| Dispenser operation. | A). Dispensers fail to rotate, see 6, 7 & 8.<br>B). Dispensers come to an abrupt halt, see 6.<br>C). Dispenser roller lock fails to engage in the “up” position, see 9.<br>D). Plastic not stretching properly, see 10 & 11.<br>E). Plastic breaking easily, see 23.<br>F). Dispenser stops rotating just as cut & hold opens, see 5 |
| Cut and hold operation. | A). Ram fails to open, see 5.<br>B). Ram opens, but will not open fully, see 1, 2 & 27. (29)*<br>C). Film is not being cut properly, see 21.<br>D). Cut & hold fails to hold plastic film, see 22. |
| “AUTO” control box operation. | A). Auto start will not run once pressed, see 1, 2, 5, 7, & 12. (28 & 29)*<br>B). Auto start is pressed and bale is sent off the back of the machine, see 18.<br>C). Auto start is pressed, the conveyor runs, but nothing else happens, see 18 & 19.<br>D). Auto start without conveyor will not run, see 5, 6, 7, 12, 18, 20 & 24.<br>E). Auto start will not run the full cycle, see 5, 6, 7 & 19.<br>F). ‘Out of Film’ error displayed on the box, see 25 & 26<br>G). ‘1 Dispenser Only’ error displayed on the box, see 25 & 26<br>H). ‘safety Arm’ error displayed on the box, see 6 |

* Note(s) 28 & 29 are for use only If Hydraulic power pack option fitted.

## *Table 2:*

The following table, table 2 is to be used in conjunction with table 1. The below table refers to possible causes of problems and remedies to these problems.

| | **Possible Cause** | **Remedy** |
|---|---|---|
| 1 | Incompatibility of tractors hydraulic system or settings with the 998 Wrapper. | Reset to Open-Centre or Closed-Centre/Load-sensing. See sections 5.3, 5.4 & 5.5. |
| 2 | Inadequate hydraulic flow rate. | Ensure adequate hydraulic flow rate of 60 l/min. |
| 3 | a). No oil feed.<br>b). No oil return. | Ensure that hydraulic lines/couplings are connected properly and hydraulics activated.<br>Check tractor manual for hydraulic connections. |
| 4 | a). Bale levelling device set wrong.<br>b). Levelling device wiring damaged. | Adjust bale levelling device as per section 9.14<br>Replace damaged component. |
| 5 | Electrical power supply fault, e.g. loose connections, poor battery and/or charging system. | Ensure that a 13V DC power supply is available and check all electrical connections. |
| 6 | One or both safety arms have been activated (arm is pressing against aluminium box section), **stop work immediately**. | Reposition safety arm(s) into the working position and push and hold the Resume button on the control box, while in AUTO mode to continue. |
| 7 | “STOP” button has been pressed on control box. | Turn knob in the clockwise direction to turn the control box on. |
| 8 | Keyway has sheared. | Replace keyway between motor and brake unit. |
| 9 | Film roller release cable has become too loose. | Adjust nuts at bottom of cable until roller engages in the “up” position, see section 5.9 for cable position adjustment. |
| 10 | Build up of tack/glue on dispenser rollers. | Clean off with kerosene. |
| 11 | Torsion springs gone too weak on dispenser. | Replace springs. |
| 12 | The incorrect cycle is selected. | Press the “AUTO/MAN” button until “AUTO” is displayed on the screen. |
| 13 | Sunlight shining directly into the receiver. | Turn away or shade from sunlight. |
| 14 | Batteries exhausted on hand-piece. | Replace batteries. |
| 15 | Not pressing start button for long enough. | Press button for 2-3 seconds. |
| 16 | Operating through tinted glass. | Operate where glass cannot come in the way. |
| 17 | a) Cradle height potentiometer needs to be zeroed.<br>b) Cradle height potentiometer has been damaged. | Set the zero height on the control box.<br>Replace cradle height potentiometer. |
| 18 | Bale load sensor/magnet has been damaged | Replace sensor/blue magnet |
| 19 | No bale loaded on conveyor. | For the sequence to run fully, there must be a bale loaded on the machine. |
| 20 | a). Dispenser arm sensor/magnet damage.<br>b). Dispenser arm sensor-magnet distance too great. | Replace broken/damaged sensor or magnet.<br>If no visible signs of damage move sensor “downwards”, closer to the magnets. |

## ***Table 2:*** *(continued…)*

| | **Possible Cause** | **Remedy** |
|---|---|---|
| 21 | Blade has gone blunt. | Carefully replace blade, see section 10.6. |
| 22 | Dispenser “arm position” sensor is misaligned. | Refer to section 9.10 for sensor adjustment. |
| 23 | Dispenser pivot points sticking due to poor Lubrication. | See section 10.10. |
| 24 | The bale is not fully loaded onto the wrapper. | If the bale is sitting on the arms for the load sensor, Auto Start without the conveyor will not work. The bale must be moved further rear-wards with the conveyor. |
| 25 | The roll of plastic is empty or broken | Replace or re-attach. |
| 26 | There is a problem with the film sensors or the receiver. | The red light on the receiver should flash when the aluminium rollers on the dispensers are turned (control box must be on) |
| 27 | Cut & hold accumulator pressure too high. | Reset accumulator pressure. See section 10.14 |
| | * Note(s) 28 & 29 are for use only If Hydraulic power pack option fitted. | |
| 28 | No PTO connection. | With tractor turned off and key removed, en-sure that the PTO shaft is connected securely. |
| 29 | PTO speed set incorrectly. | Ensure that PTO speed is kept between a speed of 600-800 rpm. |

# 12. Appendix 2 - Recommended lubricants

The following lubricants are recommended for use on the 998 square bale wrapper

| | |
|---|---|
| Hydraulic oil | ISO HV 46 or higher * |
| Pump gearbox oil | EP 80 gear oil * |
| Grease | Multi purpose grease |
| Dispenser gears | Open gear grease |
| PTO shaft tubes | Graphited grease * |
| Rotation Arm Gearbox | EP 80 gear oil |

* If Hydraulic power pack option fitted.

# 13. Appendix 3 - Fasteners/fittings torques

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 used unless torques are otherwise specified.

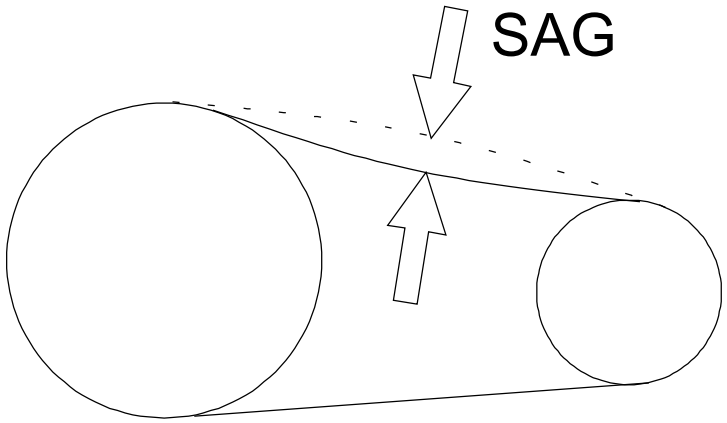
All torques are in Nm.

| **Nuts and bolts** | | **Black, Phosphated or Galvanized** | | |
|---|---|---|---|---|
| **Grade marking** | | 8.8 | 10.9 | 12.9 |
| | | | | |
| | **Dimensions** | **Metric standard thread** | | |
| | | | | |
| **Hex. bolts** | M4 | 2.7 | 3.8 | 4.6 |
| **Din 931** | M5 | 5.5 | 8 | 9.5 |
| **Din 933** | M6 | 10 | 14 | 16 |
| | M8 | 23 | 33 | 40 |
| **Socket head** | M10 | 45 | 63 | 75 |
| **cap screws** | M12 | 78 | 110 | 130 |
| **Din 912** | M14 | 122 | 175 | 210 |
| | M16 | 195 | 270 | 325 |
| **Hex. nuts** | M18 | 260 | 370 | 440 |
| **Din 934** | M20 | 370 | 525 | 630 |
| | M22 | 510 | 720 | 870 |
| | M24 | 640 | 900 | 1080 |
| | M27 | 980 | 1400 | 1650 |
| | M30 | 1260 | 1800 | 2160 |
| | | | | |
| | | | | |
| | **Dimensions** | **Metric fine thread** | | |
| | | | | |
| **Hex. bolts** | M8 X 1 | 25 | 35 | 42 |
| **Din 960,** | M10 X1.25 | 48 | 67 | 80 |
| **Din 961** | M12 X 1.25 | 88 | 125 | 150 |
| | M12 X 1.5 | 82 | 113 | 140 |
| **Hex. nuts** | M14 X 1.5 | 135 | 190 | 225 |
| **Din 934** | M16 X 1.5 | 210 | 290 | 345 |
| | M18 X 1.5 | 300 | 415 | 505 |
| | M20 X 1.5 | 415 | 585 | 700 |
| | M22 X 1.5 | 560 | 785 | 945 |
| | M24 X 2 | 720 | 1000 | 1200 |
| | M27 X 2 | 1050 | 1500 | 1800 |
| | M30 X 2 | 1450 | 2050 | 2500 |
| | | | | |
| | | | | |
| **NOTE:** | **For cadmium or copper plated bolts and nuts a torque value must be used** | | | |
| | **that is 25% lower than the value stated above.** | | | |

# 14. Appendix 4 - Chain adjustments

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 at the midpoint of the chain between the 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 adjustments stay the same.



# 15. Appendix 5 - Limited Warranty

## McHale Limited Warranty

McHale Engineering Ltd, Ballinrobe, Co. Mayo, Ireland (hereinafter called "the company") warrants to the original retail purchaser that new products sold and registered with the company, shall be, at the time of delivery, free from defects in material and workmanship, and that such equipment is covered under Limited Warranty providing the machine is used and serviced in accordance with the recommendations in the Operator's manual.

This Limited Warranty covers the equipment for 10,000 bales, or a period of one year starting from the date the equipment is commissioned, whichever comes first.

**The online submission of the pre-delivery inspection (PDI) form by the dealer (Importer) is taken as evidence of the delivery of the machine to the original retail purchaser. This is compulsory, and is required to record the machine in the McHale warranty system.**

- **1.1 These conditions are subject to the following exceptions;**
  - Parts of the machine which are not of McHale manufacture, such as tyres, PTO shafts, slip clutches, hydraulic cylinders, etc. are not covered by this limited warranty, but are subject to the warranty of the original manufacturer. Warranty claims applying to these types of parts must be submitted in the same way as if they were parts manufactured by McHale. However, compensation will be paid in accordance with the warranty agreement of the manufacturer concerned.
  - This limited warranty does not apply to failure through normal wear and tear, to damage resulting from negligence or from lack of inspection, from misuse, from lack of maintenance and/or if the machine has been involved in an accident, lent out or used for purposes other than those for which it was intended by the company.
  - This Limited Warranty will not apply to any product that has been altered or modified in any way without the express permission of the company, or if parts not approved by McHale are used in repair.
  - The company take no responsibility for any additional costs, including loss of oil and/or consumables incurred during the failure and repair of a product
  - The company cannot be held responsible for any claims or injuries to the owner or to the third party, nor to any resulting responsibility.
  - Also, on no account can the company be held liable for incidental or consequential damages (including loss of anticipated profits) or for any impairment due to failure, a latent defect or a breakdown of a machine.

- **1.2 The customer will be responsible for the following costs;**
  - Normal maintenance such as greasing, maintenance of oil levels, minor adjustments, etc. as specified in the Operator's manual.
  - Labour charges other than originally agreed, incurred in the removal and replacement of components.
  - Dealer's travel time and travel costs to and from the machine.
  - Parts defined as normal wear items such as, but not limited to belts, blades, knives, tines, tine bars, slip clutches, nylon chain runners and slides, etc. that are not covered under the Limited Warranty.

- **1.3 The importer will be responsible for the following costs;**
  - All warranty labour charges.

- **1.4 The limited Warranty is dependent on the strict observance of the following conditions:**
  - The machine has been put in service by the dealer according to our instructions.
  - The online pre-delivery inspection (PDI) form has been correctly completed by the dealer.
  - A printed version of the PDI form has been signed and dated by the original retail purchaser. This copy is to be stored by the dealer and made available to McHale when requested.
  - The warranty claim is submitted using the McHale online claims system.
  - The warranty claim must be submitted by the original retailing McHale dealer only.
  - The decision of the Company in all cases is final.
  - Damaged parts should be held by the dealer until credit has been given, or a returns request has been issued.
  - Parts must be returned to McHale with the McHale claim number written clearly on each individual part. These parts must be free from dirt and oil. If a part is returned in an unfit state, the claim will be refused.
  - If damaged parts have been returned to the company and warranty is refused, the dealer is allowed a period of one month from the date of receiving our notification to request the return of the damaged parts to the dealer site.

- **1.5 Further conditions: limits of application and responsibility**
  - This Limited Warranty cannot be assigned or transferred to anyone without the prior written consent of the Company.
  - McHale Dealers have no right or authority to assume any obligation or take any decision on the Company's behalf, whether expressly or tacitly.
  - Technical assistance given by the company or its agents for repairing or operating equipment does not lead to any responsibility on the Company's behalf and cannot under any circumstances bring novation or derogation to the conditions of the present Limited Warranty.
  - The Company reserves the right to incorporate changes in its machines without prior notice and without obligation to apply these changes to machines previously manufactured.
  - The present Limited Warranty excludes any other responsibility, whether legal or conventional, express or implied, and there are no warranties extending beyond those defined herein.

# 16. Optional Extra's

The following contains procedures and diagrams on how to attach the optional extra's to the 998 Bale Wrapper.

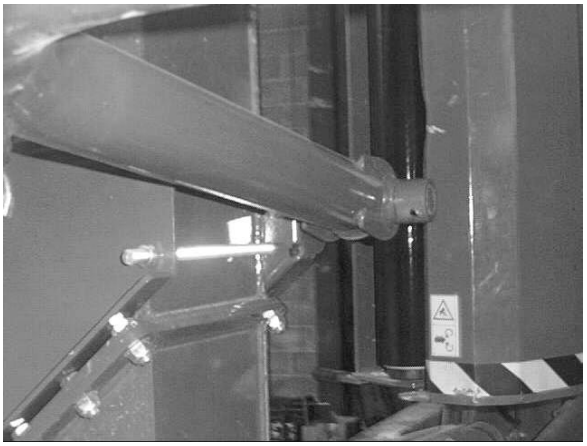
The optional extra's are as follows:

1. Round bale kit.

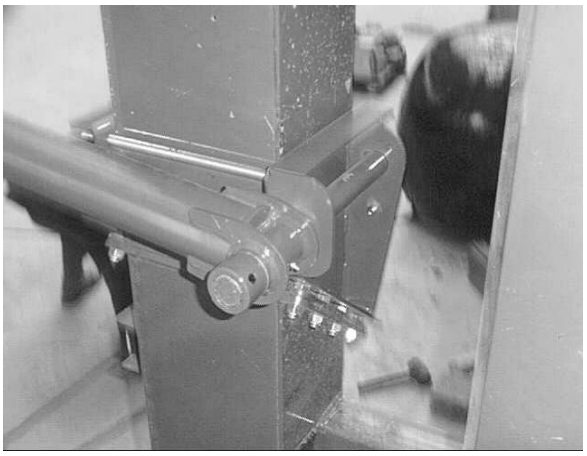
# Round Bale Kit

The following is the procedure & pictures on how to attach the ***Round Bale Kit*** to the 998 Wrapper.

1) The two brackets must firstly be attached to the arch of the machine using the M16 bolts supplied. The bracket with the pivot pin must be mounted on the back of the arch as in the pictures. Both brackets must rest on the existing M16 bolts that attach the arch to the machine.



2) On the end of the top link there is a pin with (2) 6mm brackets welded onto it. This pin is to be slid into the 80 x 50 Box section that is on the conveyor and welded securely in place. The top link is to be pivoted on this pin.



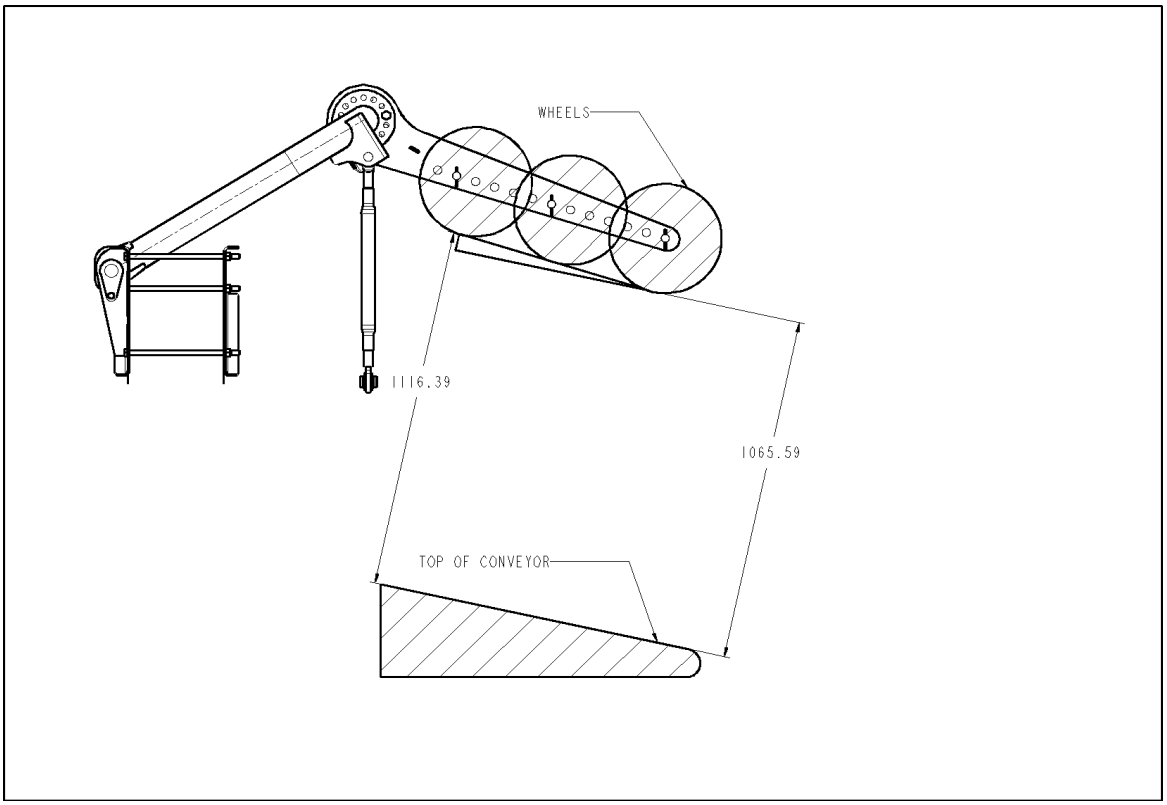
3) There is also a 6mm-support bracket that is not painted green. This bracket is to be welded as a support plate on top of the 80 x 50 box section on the conveyor & between the top of the conveyor.

4) For transport reasons the middle wheel is not assembled. This wheel is to be positioned in the 4$^{th}$ hole from the front of the assembly.

5) The 12mm roll pin that holds the locating bushing on the 40mm pin will have to be removed. Using a loader or crane raise the attachment and position it onto the 40mm pin, using the bushing and roll pin to secure it in position.

6) Adjust the top link or crane so that the eye of the top link is secured into the pin on the conveyor Box section. The round bale kit is now attached to the machine.

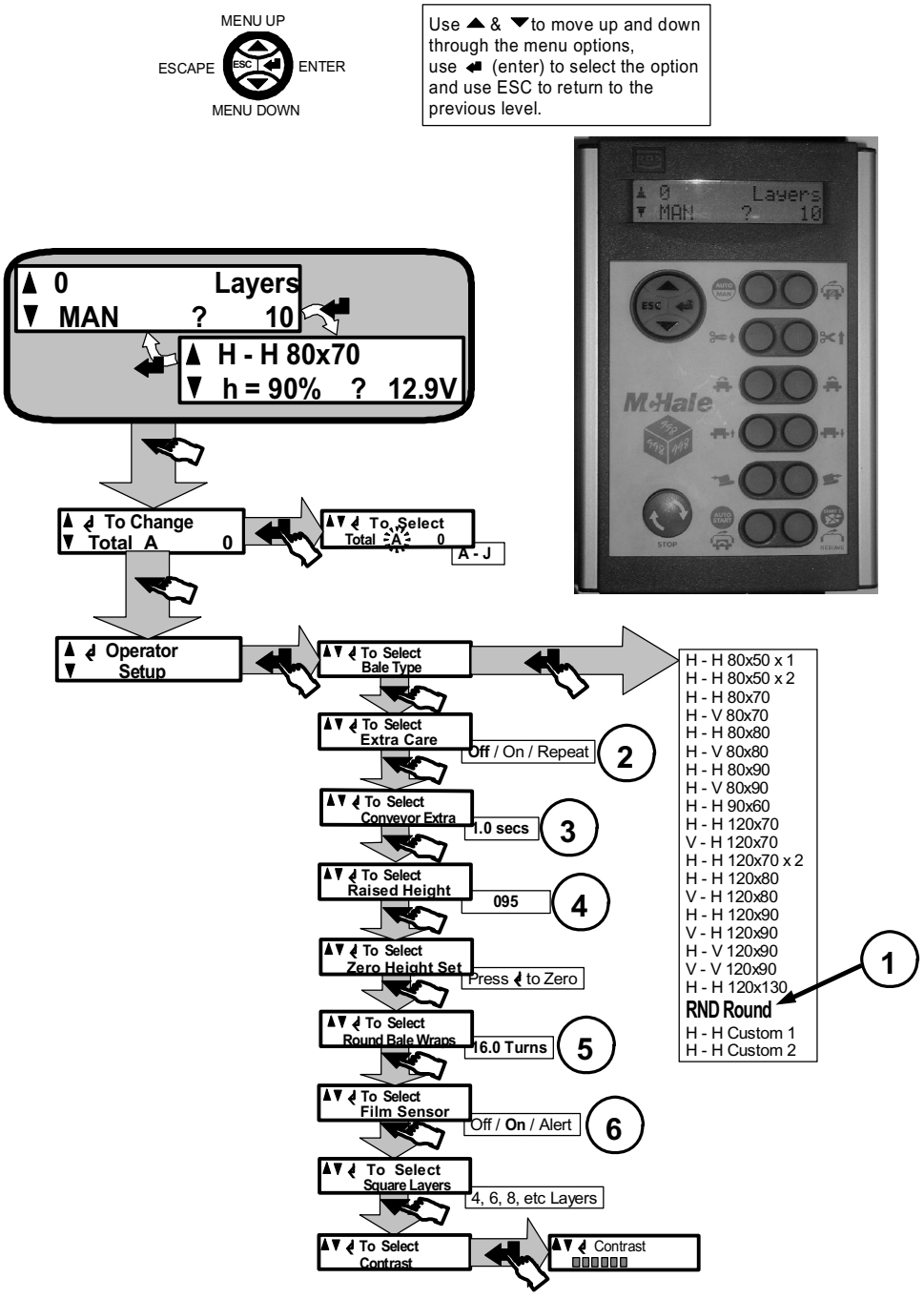
The wheels will have to be adjusted as per the drawing supplied. This is achieved by removing the (2) M16 bolts on the circular plates and adjusting according to the dimensions on the drawing.




# Round bale option control box settings.

### Setting the control box for round bale wrapping.

To wrap round bales on the 998 machine, the round bale loading kit must be fitted and the control box must be correctly adjusted.



1. Set the bale type to RND Round.
2. Extra Care is set to off.
3. Conveyor Extra is set to suit the length of the bale.
4. Raised Height must be set so the plastic film covers the centre of the two ends of the bale correctly. Therefore the centre of the bale should be in the middle of the roll of plastic film.
5. Round Bale Wraps must be set to suit the bale. To determine the number of dispenser rotations required to wrap a bale carry out the following procedure. A. count the number of dispenser revolutions required to cover the bale completely with plastic film.

   B. Add 1 to this number.

   C. Multiply this resultant figure by 2 (for 4 layers) or 3 (for 6 layers)

   Example

   Number of rotations to cover bale: 5

   Number of rotations to apply 4 layers of film to the bale =(5+1)x2=12 rotations.
6. Film sensors can be set to operators choice.

# 17. Custom Bale (software version EX305050 or later)

## Custom Bale Setup

There are two custom bales in the bale type menu. The operator can define the setup of each of these bales. When a custom bale is selected the operator setup menu remains the same as any other bale options but the technical 2 menu which is reserved for McHale engineers is replaced with custom bale setup. The adjustable factors in the custom bale setup are **Orientation Type, Horizontal Rev, Vertical delay, Pre Wrap Pulses, EC1 After Duration, EC Delay 1, Duration 1, Half Speed Valve, Rotate Bale Time, Fwd after wrap.**

## Orientation Type

The start and finish orientation of the bale is define using a **H** for horizontal and a **V** for vertical. There are four options for square bales: H - H, H - V, V - H and V - V. There is also a round bale option called RND Round.

## Horizontal Rev

Horizontal reverse is the indexing back of the bale for a selected period of time after the has levelled but before the dispenser start to rotate. The wrappings cycle the starts from this position. This can aid in preventing the plastic film slipping over the lower corner of the bale on the first rotation of the dispenser.

## Vertical Delay

Vertical delay is used when a bale is wrapped on a vertical start orientation (V - H or V - V). This setting is the amount of time that the bale will rotate from horizontal towards the vertical position. This is normally set at maximum time so that the bale will always get to the vertical position, but the time can be reduced so that the bale will stop and wrapping can start just before vertical
This function has a similar effect as “Horizontal Rev” just that it is only used on vertical start bales.

## Pre Wrap Pulses

A number of dispenser rotations can be applied before the bale starts to index. This is most commonly used when wrapping double stacks of bales. One or two dispenser rotations before the bale starts to index will secure the top bale from slipping out of line with the lower bale when it is indexing through the first ninety degrees.

## Extra Care

There are 8 extra cares, one for each corner of the bale as it rotates through 360 degrees. Each extra care has three adjustable factors. The first factor is EC1 After Trans which short for Extra Care 1 After Transition.
The second is factor is EC Delay 1 which is the delay after the selected transition (corner) in seconds before the Extra Care starts.
The third factor for extra care is Duration 1 which is duration of extra care applied to the bale in seconds. The bale roller rotation will slow to half speed for this length of time.
(see section 17.1)

## Half Speed Valve

The half speed valve indexes the bale at half the normal wrapping speed. This is set to on when wrapping using 500mm plastic film. This will give the correct over lap when the valve is set to suit 500mm plastic film however the default setting for the valve is set for one dispenser only on 750mm plastic film.

## Rotate Bale Time

This time is set for round bales that have a flat bottom. If the bale finishes wrapping with this flat near the bottom of the bale it can cause the bale to roll of centre on the conveyor. The plastic film can be damaged if it catches the rollers as it is unloads. Set the time to suit the bales being wrapped so the flat spot is not near the bottom.

The following two pages show the default settings for each bale type, these should be used as a reference when setting up a custom bale.

## Fwd after wrap

This function can be used to rotate the bale forwards after wrapping before it is lowered onto the conveyor. This can help the film to stick better in dusty conditions or it can just be used to to get the bale to be lowered onto the conveyor in the desired orientation.
0, 90, 180, 270 or 360 degrees can be selected.

| FUNCTION | RANGE | Default | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Bale Type 1 or 2 x H cm x V cm** | | 80x50x1 | 80x50x2 | 80x70 | 80x70 | 80x80 | 80x80 | 80x90 | 80x90 | 90x60 |
| Set Start/Finish orientation or Round | H-H; V-H; H-V; | | | | | | | | | |
| (*defines which parts of seq used)* | V-V; Round | H-H | H-H | H-H | H-V | H-H | H-V | H-H | H-V | H-H |
| Height bale raised ( 0 - 100 ) | 0 - 100 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Reverse bale before start. Horizontal only | 0 - 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delay wrap after 45. Vertical start only | 0-9.9 Secs | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 |
| Pre-wrap. (X-connect on), disp pulses | 0-10 Pulses | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC1 after transition no. * | 0-99 transitions | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Delay 1* | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 1 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC2 after transition no.* | 0-99 transitions | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| EC delay 2* | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 2 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC3 after transition no.* | 0-99 transitions | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| EC delay 3 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 3 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC4 after transition no. * | 0-99 transitions | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| EC delay 4 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 4 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC5 after transition no. * | 0-99 transitions | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| EC delay 5 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 5 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC6 after transition no. * | 0-99 transitions | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| EC delay 6 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 6 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC7 after transition no. * | 0-99 transitions | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| EC delay 7 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 7 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC8 after transition no. * | 0-99 transitions | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| EC delay 8 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 8 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | |
| Half Speed valve | Y/N | YES | NO | NO | NO | NO | NO | NO | NO | NO |
| Forward after wrap | degrees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| FUNCTION | RANGE | Default | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bale Type 1 or 2 x H cm x V cm** | | 120x70 | 120x70 | 120x70x2 | 120x80 | 120x80 | 120x90 | 120x90 | 120x90 | 120x90 | 120x130 |
| Set Start/Finish orientation or Round | H-H; V-H; H-V; | | | | | | | | | | |
| (*defines which parts of seq used)* | V-V; Round | H-H | V-H | H-H | H-H | V-H | H-H | V-H | H-V | V-V | H-H |
| Height bale raised ( 0 - 100 ) | 0 - 100 | 84 | 84 | 84 | 84 | 84 | 80 | 80 | 80 | 80 | 75 |
| Reverse bale before start. Horizontal only | 0 - 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delay wrap after 45. Vertical start only | 0-9.9 Secs | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 | 9.9 |
| Pre-wrap. (X-connect on), disp pulses | 0-10 Pulses | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| EC1 after transition no. * | 0-99 transitions | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Delay 1* | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 1 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EC2 after transition no.* | 0-99 transitions | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| EC delay 2* | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| Duration 2 * | 0-9.9 Secs | 0 | 1.5 | 0 | 0 | 1.7 | 0 | 2 | 0 | 2 | 0 |
| EC3 after transition no.* | 0-99 transitions | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| EC delay 3 * | 0-9.9 Secs | 0.5 | 0.1 | 0.5 | 0.5 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.5 |
| Duration 3 * | 0-9.9 Secs | 0 | 1.5 | 0 | 0 | 1.5 | 0 | 1.5 | 0 | 1.5 | 0 |
| EC4 after transition no. * | 0-99 transitions | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| EC delay 4 * | 0-9.9 Secs | 0.5 | 0.1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.5 |
| Duration 4 * | 0-9.9 Secs | 1.5 | 1.5 | 2 | 1.7 | 1.5 | 2 | 1.5 | 2 | 1.5 | 1 |
| EC5 after transition no. * | 0-99 transitions | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| EC delay 5 * | 0-9.9 Secs | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Duration 5 * | 0-9.9 Secs | 1.5 | 1.5 | 1.5 | 1.5 | 1.7 | 1.5 | 2 | 1.5 | 2 | 1 |
| EC6 after transition no. * | 0-99 transitions | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| EC delay 6 * | 0-9.9 Secs | 0.1 | 0.5 | 1 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 0.1 |
| Duration 6 * | 0-9.9 Secs | 1.5 | 0 | 1.5 | 1.5 | 0 | 1.5 | 0 | 1.5 | 0 | 1 |
| EC7 after transition no. * | 0-99 transitions | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| EC delay 7 * | 0-9.9 Secs | 0.1 | 0.5 | 0.1 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 | 0.5 | 0.1 |
| Duration 7 * | 0-9.9 Secs | 1.5 | 0 | 2 | 1.7 | 0 | 2 | 0 | 2 | 0 | 1 |
| EC8 after transition no. * | 0-99 transitions | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| EC delay 8 * | 0-9.9 Secs | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Duration 8 * | 0-9.9 Secs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | |
| Half Speed Valve | Y/N | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Forward after wrap | degrees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## 17.1) Extra Care

There are eight  extra care options in each custom bale. In the operators setup extra care can set to off, on or repeat. If set to off no extra care is applied to the bale. If set to on then each extra care defined is applied to the bale once. Setting extra care to repeat will apply each defined extra care to the bale every eight transition until the wrapping cycle is complete. Eight transitions is the application four layers of plastic film.

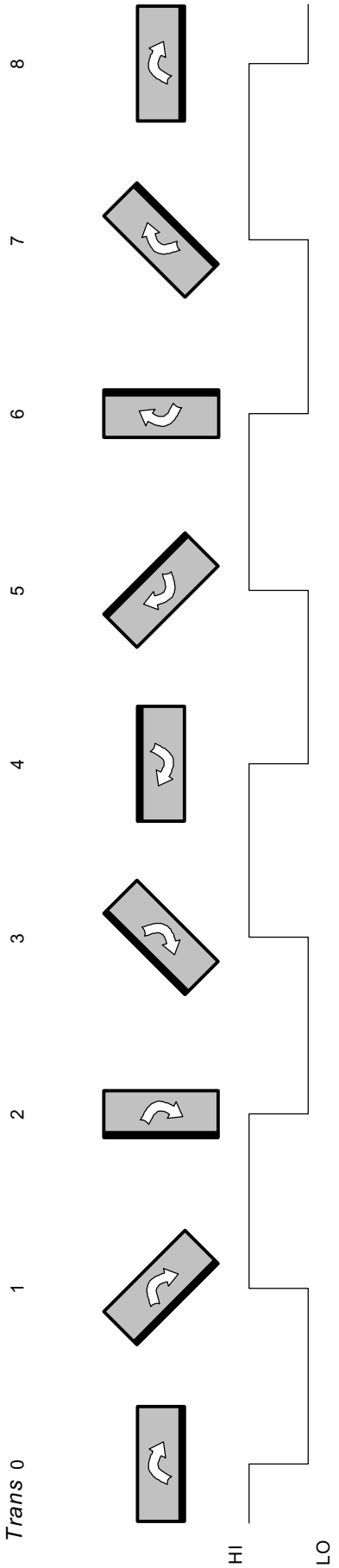
Extra care can be defined by the operator on the two custom bales. Select one of the two custom bales from the bale type menu in operator setup.

To define an extra care select the transition which you want the extra care to start after. Select an extra care that has not already been defined in the custom setup. Set the EC After Trans to the number of the transitions where the extra care is to start. This extra care will only start after this transition if it is required earlier then set EC After Trans to an earlier transition.

EC Delay is the period of time between the transition selected and the start of the extra care. Set this time to get the extra care applied exactly when required.

The duration is the last setting required to define the extra care. This is the period of time that extra care is applied for.

The default extra care settings can be seen on the previous two pages to be used as a reference when defining a custom bale with extra care.  The next page shows the bale transitions up to transition eight, but any transition after eight can also be selected.


Trans 0
1
2
3
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8
HI
LO

# 18. Change of ownership pre-checks

Shown below is a copy of the PDI (pre-delivery inspection) form that is filled out on the commissioning of every new machine. The same check list must be completed and any areas requiring attention addressed before the re-sale as a used machine can occur. Pay particular attention to all safety related areas. Take time to familiarise the new owner with machine operation and all safety features.

McHale

Castlebar Road,Ballinrobe,Co.Mayo.
Tel.:+353 (094) 95 20300. Fax:+353 (094) 95 20356
E-mail:sales@mchale.net Web:www.mchale.net

**McHALE 998 BALE WRAPPER: PRE-DELIVERY INSPECTION**

**DEALER:** .....
Full Address: .....
.....
.....

**OWNER:** .....
Full Address: .....
.....
.....

Wrapper Model: **998 SQ. Wrapper**
Serial No.: .....
Date Delivered: .....
Date Inspected: .....
Fitter: .....

**ENSURE THAT THE TRACTOR IS OF CORRECT SPECIFICATION**
**ALWAYS REFER TO OPERATOR'S MANUAL BEFORE MAKING ADJUSTMENTS!**

1 Check that all accessories are with owner/operator. Check operators manual and parts list. ☐

2 Ensure wrapper is assembled correctly (Refer to assembly instructions.) ☐

3 Hitch wrapper to tractor. Cut PTO shaft to the required length needed. ☐

4 Ensure that the wheels are correctly fitted i.e. (valve to the outside) ☐

5 Check 16 x 70x 20 tyre pressure is at 26 psi. ☐

6 Ensure that the power supply is direct from the battery otherwise the machine may malfunction. ☐

7 Connect hydraulic hoses and loom. ☐

8 Check that the dispenser is running smoothly & is free from damage or grit. ☐

9 Check that drawbar pins are fitted correctly. ☐

10 Check oil level and run machine at 600rpm and check for smooth running. ☐

11 Check all manual functions on the monitor. ☐

12 Check that dispenser trip arms work (see operators manual section 'Machine adjustments'). ☐

13 Check dispenser rotation speed. WARNING: max 25 R.P.M. (see operators manual section 'Machine maintenance'). ☐

14 Ensure that the monitor is on the correct setting for the size of bale being wrapped and that the machine is starting and finishing in the correct position. ☐

15 Run automatic programme on monitor. (you will need a bale to check this) ☐

16 Start machine in work and carry out any final adjustments. Ensure dispenser is set to the correct height & the plastic is applied to the center of the bale. ☐

17 Instruct operator of machine maintenance i.e. check chain tensions and wheel nuts, also grease daily. ☐

18 Ensure that operator reads the operators manual and understands all safety and operating aspects of the machine ☐

I am satisifed that the above checks have been carried out, and that the machine is complete with all accessories and manuals.

Signed: ..... Date: .....
(Owner)

Machine needs to be registered on www.mchale.net by the dealer in order to register for warranty.

**WHITE COPY TO BE RETAINED BY DEALER. DUBLICATE COPY TO BE RETAINED BY CUSTOMER.**

FORM 137 - REV. 3

# 19. Declaration of Conformity

**EC MACHINERY DIRECTIVE**
**2006/42/EC**
**DECLARATION OF CONFORMITY**

We hereby certify that the machinery stipulated below complies with all the relevant provisions of the EC Machinery Directive and the National Laws and Regulations adopting this Directive.
Modifications to the machine without prior approval from the undersigned will render this declaration null and void.

**Machine Description and Function:** Square Bale Wrapper for wrapping square bales of agricultural fodder with agricultural bale wrap film.

**Model:** **998** **Serial No.:** **25_____**

**Name of Manufacturer:** McHale Engineering Ltd.
**Address:** Castlebar Road,
Ballinrobe, Rep. Of Ireland.

**Is in conformity with the provisions of the following other EC Directives:**
2004/108/CE - EMC for the control unit.

**Technical file complied by:** James Heaney
c/o McHale Engineering Limited
Ballinrobe, Co. Mayo, Rep. of Ireland.

**Harmonized standards applied:**

EN ISO 12100: Safety of machinery - Basic concepts, general principles for design.
Part 1: Basic terminology, methodology.
Part 2: Technical principles and specifications.

EN ISO 4254 Part 1: Agricultural Machinery - Safety and general requirements.

**Signed:** James Heaney

**Date:** ..... **Place:** Ballinrobe, Rep. of Ireland

**Name:** James Heaney

**Position:** Design Office Manager

**Signed:** Gerry Corley

**Date:** ..... **Place:** Ballinrobe, Rep. of Ireland

**Name:** Gerry Corley

**Position:** Quality Manager