

# **McHale** *ENGINEERING*



## *Fusion 2* Baler Wrapper **Operator Instruction Manual** **Issue 2** (Valid up to Serial Number 654555)

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# 1. Introduction

The *McHale Fusion* round baler wrapper combination is a completely new product. This product combines the baling process with the wrapping process all in one machine. The design has been carried out on the basis of long term constant research and development in the field of round bale wrappers and round balers. According to consequent professional product development and proper care the *McHale Fusion* will provide years of reliable and dependable performance. However it is also important that **everybody** who operates this machine reads and understands this manual **before** operating the machine. If any of the instructions appear unclear do not hesitate to contact your *McHale* dealer. It is vital to replace defective parts of the machine **immediately** and to use only **genuine McHale** spare parts, as these are designed and manufactured to the same standard as the original machine. These may be obtained through your *McHale* dealer.

**Description of a fully trained operator:** The *McHale Fusion* will require a fully trained operator. This is someone who has read and fully understood all of the contents of this instruction manual. They must be aware of all safety instructions, of all functions and controls, both hydraulic and electrical. The operator is solely responsible for safe use and maintenance of the machinery in accordance with this manual. It is highly recommended that training be sought from your local dealer. The operator must be constantly vigilant of their surroundings and should always think, safety first. The machine is only to be used for it's designated purpose as is outlined above.

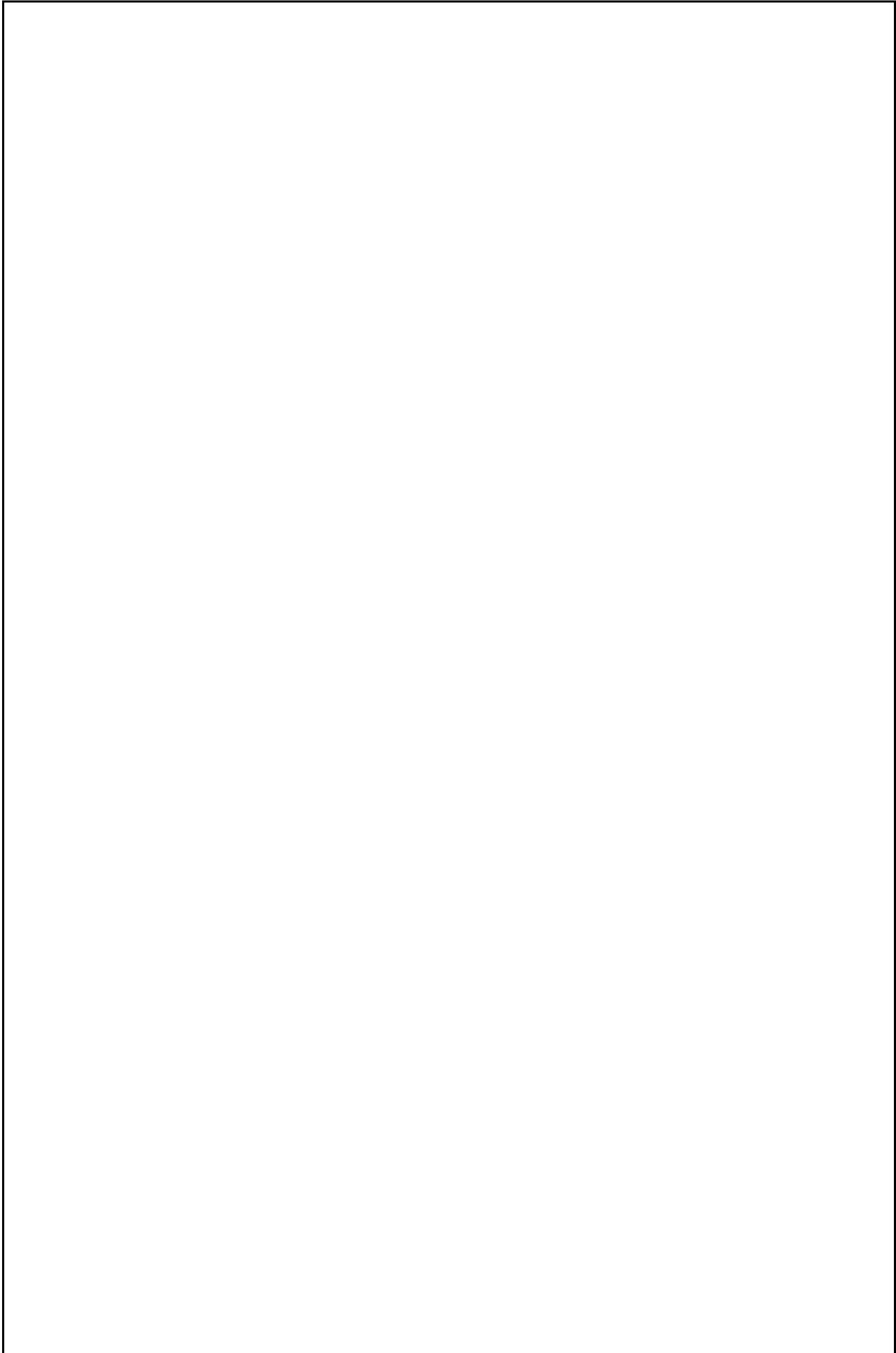
**Note:** The above description is a guideline only, and as a rule, it is highly recommended to get acquainted slowly at first with any new machinery. Take the time to both learn and understand all the features of the machine. Proficiency will increase as more experience is obtained.

It is important to quote the machine serial number when ordering spare parts or requesting technical assistance. Space is provided below to record machine details:

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

If you require further copies of this instruction manual please quote part number: CLT001 HF

Due to a policy of continuous product development and improvement, McHale Engineering Ltd. reserves the right to alter machine specifications without prior notice. Please note that all specifications marked with an ○ in this manual only relate to certain models or optional equipment. Also these specifications may not be available in all countries.

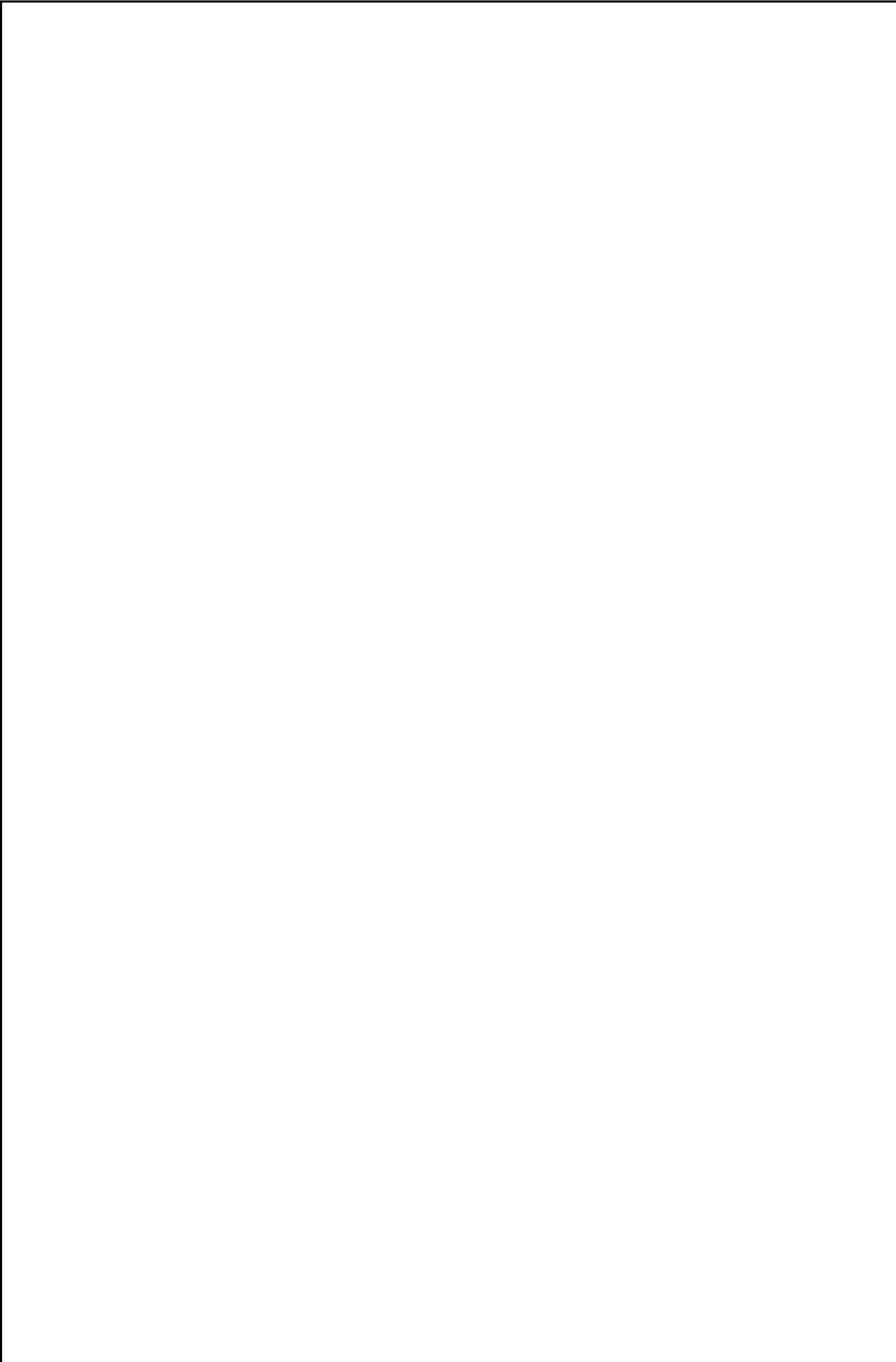


## 2. Contents

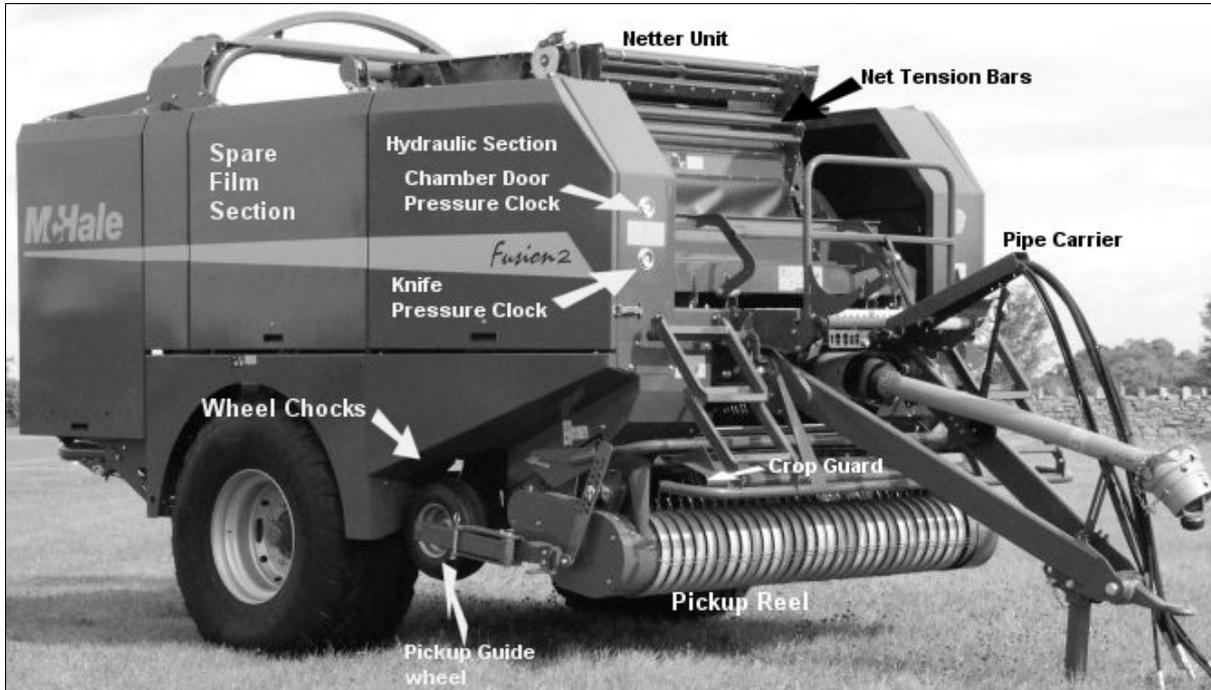
<b>Section</b>	<b>Page</b>
1. <b>Introduction</b> .....	01-1
2. <b>Contents</b> .....	02-i
3. <b>Getting familiar with the <i>McHale Fusion</i></b> .....	03-1
4. <b>General Safety</b>	
4.1 Be aware of all safety information.....	04-1
4.2 Follow all safety instructions.....	04-1
4.3 Store all items carefully .....	04-1
4.4 Protective clothing .....	04-1
4.5 In of emergencies .....	04-2
4.6 Stay clear of rotating elements .....	04-2
4.7 Operating the <i>McHale Fusion</i> with safety .....	04-2
4.8 In the event of a fire .....	04-2
4.9 General safety warnings .....	04-3
5. <b>Specific safety warnings</b>	
5.1 Electronic safety warnings .....	05-1
5.2 Hydraulic safety warnings .....	05-1
5.3 Noise level .....	05-2
5.4 Fire precautions .....	05-2
5.5 Special safety devices/ instructions .....	05-2
5.6 Safety/ instruction decal locations .....	05-3
5.7 Description of safety warnings and instructions .....	05-5
5.8 Description of the serial number plate .....	05-9
5.9 Machine lifting eye location points .....	05-10
6. <b>Tractor requirements and preparations</b>	
6.1 Tractor requirements .....	06-1
6.2 Control box installation .....	06-1
6.3 Lighting system .....	06-2
6.4 Attaching the <i>Fusion</i> to a 540 rpm PTO .....	06-2
6.5 Attaching to drawbar .....	06-2
6.6 Attaching break away brake.....	06-2
6.7 What is the hydraulic system on the tractor and how does it affect the <i>Fusion</i> set-up? .....	06-3
6.8 What hydraulic system does the tractor use? .....	06-4
6.9 Hydraulic spool valve set-up .....	06-5
6.10 Attaching hydraulic hosing to tractor .....	06-6
6.11 Connecting the control box.....	06-6

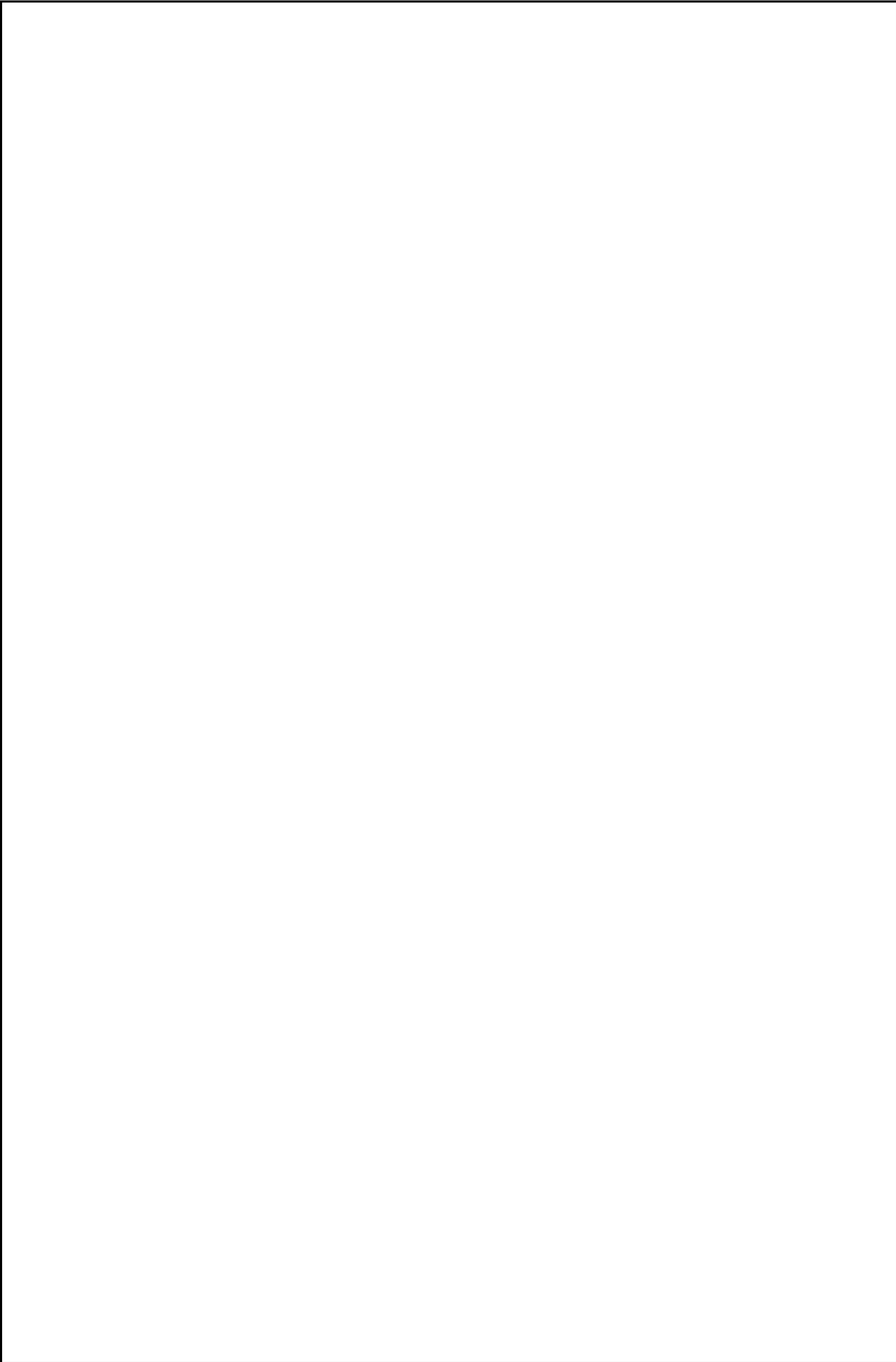
<b>Section</b>	<b>Page</b>
<b>7. Baler requirements and preparation</b>	
7.1 Net requirements.....	07-1
7.2 Care of the net roll .....	07-1
7.3 Care of the net wrapping system .....	07-1
7.4 Loading netter system .....	07-2
7.5 Net cutter setting .....	07-3
7.6 Net tension bar setting.....	07-4
7.7 Chopper unit knife removal and installation .....	07-5
7.8 Automatic lubrication system .....	07-7
7.9 Gear box oil.....	07-8
7.10 Tyre inflation pressures .....	07-8
7.11 Drawbar and PTO shaft stand usage .....	07-9
7.12 Drawbar adjustment .....	07-11
7.13 PTO shaft adjustment .....	07-11
<b>8. Electronic control system</b>	
8.1 Control box functions .....	08-1
8.2 Menu Structure .....	08-3
8.3 Control box features .....	08-5
8.4 Error messages and their meaning .....	08-11
8.5 Running a simulated “bale to wrapping” cycle .. ..	08-14
<b>9. Wrapper operation</b>	
9.1 Loading plastic film .....	09-1
9.2 Plastic film requirements .....	09-3
9.3 Wrapping process .....	09-4
9.4 Dispenser adjustment .....	09-4
9.5 Cut and hold system .....	09-5
<b>10. Road traffic safety and operation</b>	
10.1 Before travelling on any public roadway .....	10-1
10.2 Road transportation .....	10-2
10.3 Road transportation with side tip attached .....	10-2
10.4 Break away brake.....	10-3
<b>11. Baler field operation and adjustments</b>	
11.1 Break in period .....	11-1
11.2 Swath preparation .....	11-1
11.3 Pick-up adjustment .....	11-2
11.4 Crop guard adjustment .....	11-2
11.5 Unblocking system .....	11-3
11.6 Chopping system .....	11-4
11.7 Knife pressure gauge.....	11-4
11.8 Bale density gauge .....	11-5
11.9 Setting chamber pre-charge pressure.....	11-5
11.10 Top and bottom door locks .....	11-6
11.11 Spare film holders and door safety latch operation....	11-6
11.12 Adjusting pick-up float spring .....	11-7
11.13 Chain adjustments .....	11-8
11.14 Net wrapping system .....	11-14

<b>Section</b>	<b>Page</b>
<b>12. Accessories and optional equipment</b>	
12.1 Accessory and optional equipment availability .....	12-1
12.2 Knife blanks .....	12-1
12.3 Wheel Chocks .....	12-2
12.4 Tool box .....	12-2
12.5 Drawbar hitch options .....	12-2
12.6 Stand options .....	12-3
12.7 Brake options .....	12-3
12.8 Tyre options .....	12-3
12.9 Side tip option .....	12-3
12.10 Dispenser gear options .....	12-4
<b>13. Attachments</b>	
13.1 Side tip .....	13-1
<b>14. Machine maintenance</b>	
14.1 Maintenance intervals .....	14-1
14.2 Tightening torque values .....	14-3
<b>15. Storage</b>	
15.1 End of season .....	15-1
15.2 Start of season .....	15-1
<b>16. Technical specifications</b>	
16.1 General dimensions/ specifications .....	16-1
16.2 Tractor attachment .....	16-1
16.3 Machine specifications .....	16-1
16.4 Tyre specifications .....	16-2
16.5 Declaration of conformity .....	16-2
<b>18. Limited warranty</b> .....	<b>18-1</b>



### 3. Getting familiar with the *McHale Fusion*





## 4. General Safety

### 4.1 Be aware of all safety information

The symbol opposite is the symbol used to alert you to safety issues. It appears both in this manual and on some of the safety decals. On the decals it appears on a yellow background while in this manual it appears in black and white.

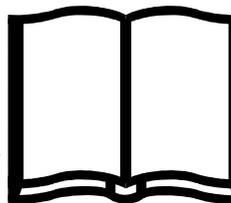
Follow all safety precautions and practice safe operation of all machinery at all times.

When reading through this manual, pay attention to where you see the above symbol paying extra care to where you will see the **Warning** and **Caution** pointers.



### 4.2 Follow all safety instructions

Using this manual, read all safety instructions, messages and be aware of the meanings of all safety decals. Ensure, if safety decals are damaged or missing due to wear and tear or due to component replacement, that they be replaced. Use the Decals section in the provided spare parts book as a handy reference for spare part codes and relevant decals, which are available from your McHale dealer.



As with all machinery, learn all operations and use of controls by reading this manual thoroughly. Do not attempt to let anyone operate this machine without being fully instructed.

### 4.3 Store all items carefully

Store all attachments such as spare net rolls, film rolls and any other stored items in a secure and safe manner so as to prevent items from falling. Keep storage areas clear of bystanders and children.



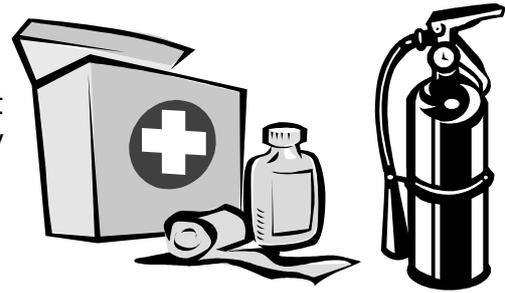
### 4.4 Protective clothing

Always wear clothing and safety equipment that is fit for the job at hand, never wear loose clothing. In the event of loud noises, wear suitable protective hearing devices. Use of radio (walkman) headphones are not recommended while operating machinery as this impairs operators attention.



## 4.5 In case of emergencies

In the event of any accident, emergency equipment should be kept close at hand. A first aid kit and fire extinguisher along with emergency phone numbers should always be available to machine operators.



## 4.6 Stay clear of rotating elements

Serious injury or death can result from entanglement of clothing or body parts with PTO shafts, drivelines and other rotating and moving components.

Keep all guards in place at all times, only wear close fitting clothing and ensure that tractor engine has stopped, key removed and that PTO has stopped turning before carrying out any adjustments, connections or cleaning of PTO driven equipment.

## 4.7 Operating the *McHale Fusion* safely

In order to avoid serious injury or even death by being pulled into the machine:

1. **Never** attempt to feed net or crop into the baling chamber or attempt to unplug pick-up area **while the baler is running**.
2. Disengage PTO, shut tractor engine off and remove the key.
3. Stand well clear of baler and tractor when machine is operating.

## 4.8 In the event of a fire

In the event of a fire, the following is only given as a guideline procedure, as it is the operators decision to ascertain the seriousness and hence the solution of the situation.



1. Switch control box to manual mode (see section on Electronic control system). Immediately tip bale off rear roller, leave roller in tipped position.
2. Eject bale from baling chamber by opening chamber doors.
3. Move tractor and baler away from the flammable material.
4. Disengage PTO, turn off tractor and remove key. Remove all hosing and electrical looms from the machine.
5. With all connections removed, disengage drawbar from tractor. Drive tractor away from baler.
6. Using a suitable fire extinguisher put out all fires.

**Note:** It is recommended that the baler be kept reasonably clean and free of build-ups of grass, lubricants etc., this will help to reduce the risk of fires.



## 4.9 General safety warnings

- **Read and understand** this operator's manual before using the machine. If any of the instructions appear unclear do not hesitate to contact your **McHale** dealer.
- **Only competent persons** who have read and fully understood this manual are qualified to operate this machine. The owner of this machine is obliged by law to ensure that every operator must understand all the functions, controls, working processes and safety warnings before operating the machine.
- **All safety devices** such as guards, protection parts and safety controls must be in place and in fully functioning condition. It is forbidden to operate this machine with defective or incomplete safety devices (never disable or defeat any electrical safety circuits).
- **All safety decals** on the machine must be kept in good legible condition. If they are not they must be replaced by genuine **McHale** decals from your **McHale** dealer (part numbers are available in this manual).
- **Before operating** this machine the operator must ensure that all covers are closed and all safety devices are in operating mode.
- **Before operating** this machine the operator must ensure that the manufacturer's instructions for attaching and detaching the machine are followed. This includes besides the drawbar attachment, the electric and hydraulic lines, in particular the lighting and brake system.

- **Before operating** this machine the operator must ensure that no persons or animals are carried on the machine or are hidden under the machine (on the tractor persons are only allowed to sit on the relevant seats).
- **Before operating** this machine the operator must ensure that there is no person in the “**danger zone**” (in front of tractor, between tractor and round baler wrapper combination, and a minimum of 5 m behind the machine).  
**Note: It is the operator’s responsibility to keep all people out of this area! In this area a person is subject to a risk to his/her own health or safety!”**
- **While operating** this machine on hilly or sloping ground the operator must take extra precautions, in particular the “**danger zone**” is increased in such conditions as bales are more likely to roll away causing a potential risk.
- **While operating** this machine the operator must ensure that there is a minimum of 4 m clearance between the machine and any obstacle above, in particular electrical high voltage lines.
- **Before working on** this machine, such as replacing net or film rolls, clearing forage away from any part of the machine or altering any setting, the operator must ensure that the tractor has definitely stopped moving, handbrake is applied, engine has stopped and ignition key is removed, PTO shaft is removed from pto stub and electric power supply is disconnected. It is forbidden to open any safety guards or to carry out any work on the machine unless the above-specified precautions have been carried out.
- **Warning!** If carrying out inspection during machine operation within the danger zone (**highly dangerous and not recommended!**), then there should be a trained and fully competent second person operating both the tractor and baler controls. If at any time the second operator loses sight of the inspector, turn off all tractor power immediately! Such inspection should only be carried out if all guards are fully in place, machine on level ground and a safe distance from the machine maintained from any hazards on the machine e.g. pick-up region.
- **Maintenance and repair work** on this machine should always be carried out in accordance with this manual.
- **Maintenance and repair work** exceeding the content of this manual should only be carried out by qualified persons or your **McHale** dealer.
- **Before travelling on public roads** the owner of this machine is obliged by law to ensure that every operator has got a valid driving licence and is familiar with the road traffic regulations relating to the country of use (see section 10).
- **Ensure that no bale** is carried on the rear table section, while travelling on public roads.
- **When parking** both wheels of this machine have to be blocked using wheel chocks according to the road traffic regulations relating to the country of use.

## 5. Specific safety warnings

### 5.1 Electronic safety warnings

- This machine is equipped with electronic parts and components which comply to the EMC directive 89/336/EEC but still may be influenced by electromagnetic transmissions of other apparatus, such as welding machines, etc.
- Check electric cables regularly for signs of breakage or wear. If in doubt always replace (faulty safety circuits will cause risks).
- Do not modify any safety circuits.

### 5.2 Hydraulic safety warnings

- The maximum pressure in the hydraulic system of this machine should not exceed 210 bar.
- Always ensure system is not under pressure before working on the machine. Oil under pressure can penetrate the skin and cause injury. Beware of pipes under accumulator pressure, depressurise lines by unthreading connections extremely slowly.
- Hydraulically actuated devices, such as pick-up, cutting device and wrapping ring, must be blocked mechanically against movement, before working on the machine.
- If any hoses are removed or replaced ensure they are marked and re-installed to the correct position during re-assembly.
- Check hoses regularly for signs of leakage or wear. If in doubt always replace – the recommended maximum working time of hoses should not exceed 5 years. Only use exact specification, **McHale** genuine replacement parts.
- Do not work on hydraulic systems unless you are qualified to do so, this work should only be carried out by qualified persons or your **McHale** dealer.

### 5.3 Noise level

The European regulation 86/188/EEC directs employers and employees to control the noise level at work. The noise level at field work may differ according to the tractor, to the ground, to the crops and other environmental conditions.

In normal conditions the noise level next to the drivers ear of the **McHale Fusion** round baler wrapper combination does not exceed 70 dB (A) with open rear screen of the tractor cabin. The common noise level of the machine and the tractor is primarily influenced by the tractor noise (radio is an additional noise source). It is recommended to operate this machine with closed cabin windows.

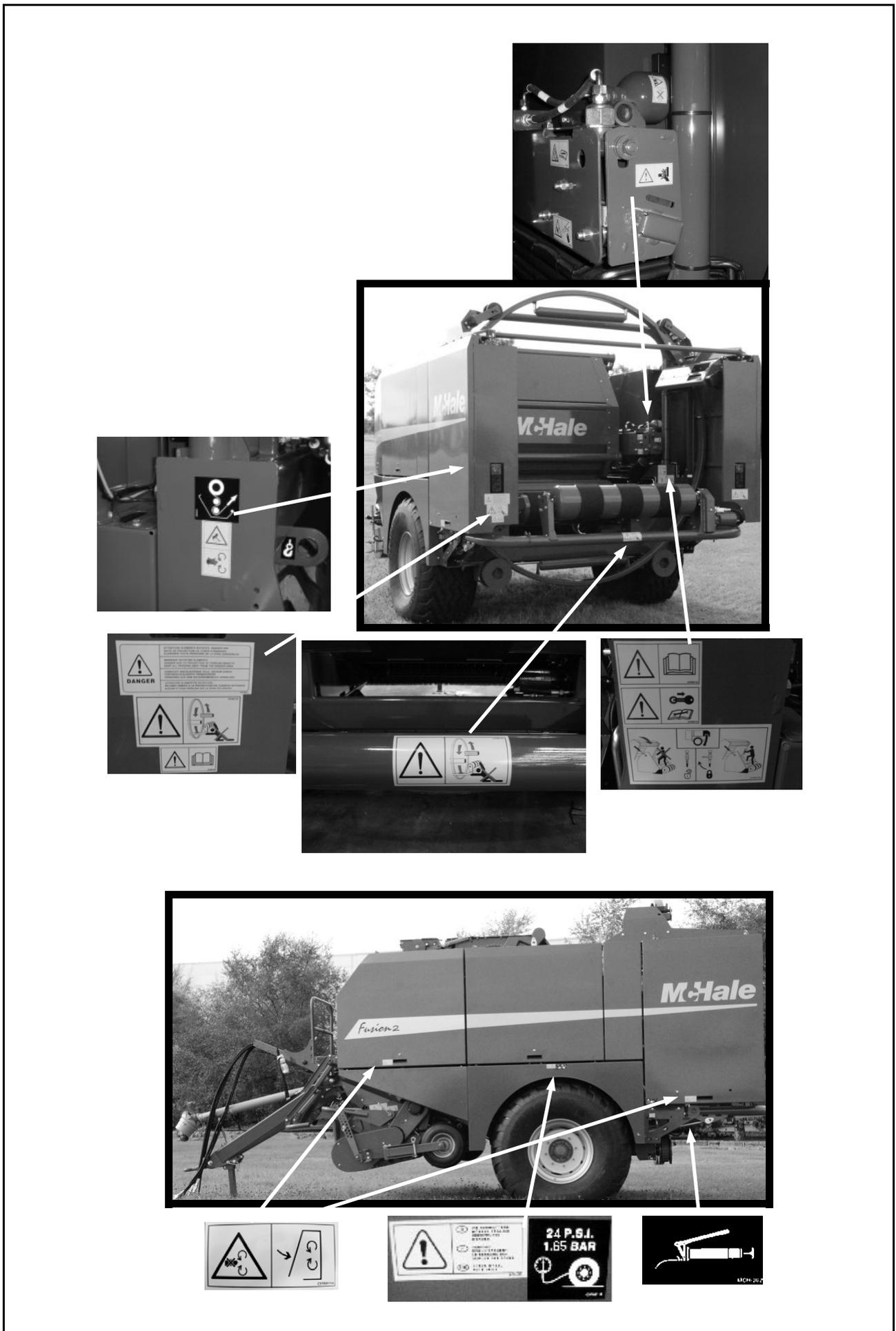
### 5.4 Fire precautions

- Be aware that crops are easily inflammable.
- Do not smoke or make use of any open fire next to the machine.
- A functioning fire extinguisher should always be available on the tractor.
- The machine is to be kept cleared of oil, grease, crops or any other flammable material at all times.
- Do not continue work with overheated parts, cables or pipes unless you have identified and eliminated the reason for overheating.

### 5.5 Special safety devices / instructions

- According to the European safety regulations the covers of this machine are designed to be opened only by the aid of a special tool and to be closed without a tool. For unlocking the covers the locks should be turned slightly anti-clockwise with a 13-mm-spanner; for locking the covers push cover towards the chassis until the fasteners lock into place. It is forbidden to operate the machine without, or with open covers. The owner of this machine is obliged by law to ensure that all covers are installed on the machine and are in good functioning condition.
- When maintenance or repair work has to be carried out at the open bale chamber the additional upper chamber lever valve must be in the locked position. Before the upper chamber can be closed it has to be unlocked again.
- Before replacing the knives of the chopping system make sure that all knives are in the upper position. Always use protective gloves when working at the chopping system.
- Avoid contact with the plastic film cutting knives.





## 5.7 Description of safety warnings and instructions

Danger areas which cannot be protected by any devices are marked by yellow safety decals. Therefore it has to be ensured that all safety warnings and instructions are understood and followed. If any of the decals are damaged or are missing they are available from your **McHale** dealer. The relevant part numbers are shown in brackets. **Note:** The most important instructions are shown as pictographs.

The accurate meanings are explained as follows:

<b>McHale</b> Castlebar Rd. Ballinrobe, Co. Mayo, Ireland.		Tel: 353 (0) 94-9520300 Fax: 353 (0) 94-9520356 E-mail: sales@mchale.net Web: www.mchale.net		<b>CE</b>	
SERIAL NUMBER		MAX. GROSS WEIGHT @10 km/h	7,900 kg		
YEAR OF MANUFACTURE	200_	NET WEIGHT	5,800 kg		
MODEL	FUSION 2	MAX. AXLE LOAD @ MAX. ROAD SPEED	4,900 kg		
MAX. VERTICAL DRAWBAR LOAD	19,000 N	VEHICLE WDT H*	2.76m*/2.94m*		
MAX. HORIZONTAL DRAWBAR LOAD	135,000 N	VEHICLE HEIGHT	3.02 m		
MAX. ROAD SPEED	40 km/h	VEHICLE LENG H*	5.8 m*/7.5 m*		

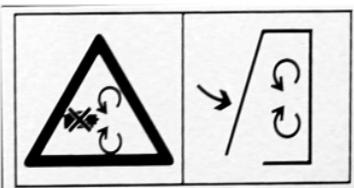
Machine chassis plate.



Read instruction manual before use.  
(CST00110)



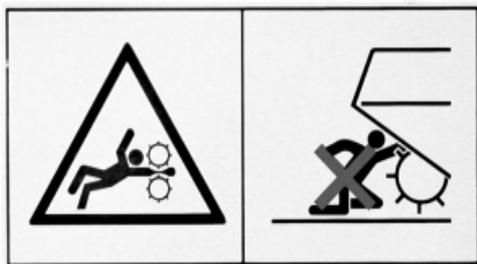
Turn off and remove key from tractor, read and understand manual before working on, or performing maintenance on the machine.  
(CST00113)



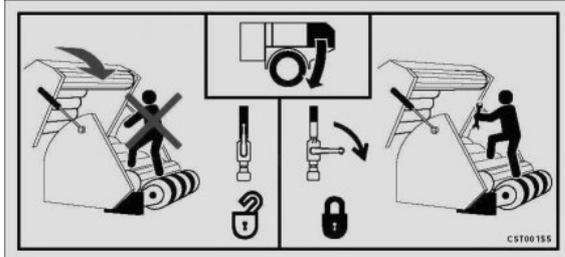
Close protective covers before operating the machine.  
(CST00114)



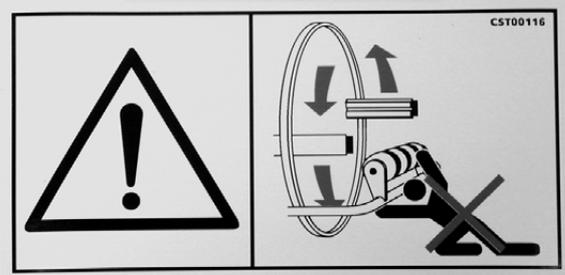
Beware of high-pressure hoses, even when machine is switched off. Also read and understand manual before working on any part of the hydraulic system.  
(CST00111)



Keep clear of pickup area as long as the engine is running and the PTO shaft is connected to the tractor.  
(CST00108)



Lock the chamber door before working on the open bale-forming chamber. (CST00155)



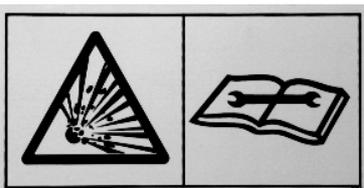
Beware of rotating dispensers, ring and moving wrapping table rollers! (CST00116)



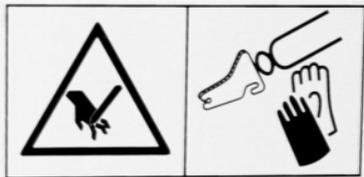
Do not stand on the platform or elsewhere on the machine when the machine is moving or working. (CST00107)



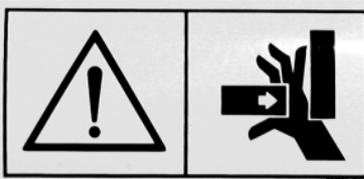
Keep hands out of crush area between roller & chassis rail. (CST00120)



Hydraulic accumulator is under high pressure. Slowly release hydraulic pressure before carrying out any maintenance. (CST00115)



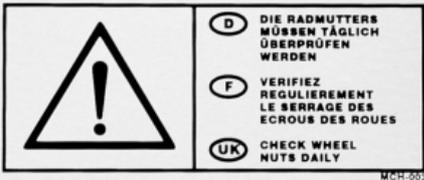
Knives of the cutting device should only be removed with an appropriate tool and protective gloves. (CST00112)



Keep hands out of crush area. (CST00019)



Keep hands clear of rotating rollers.  
(CST00017)



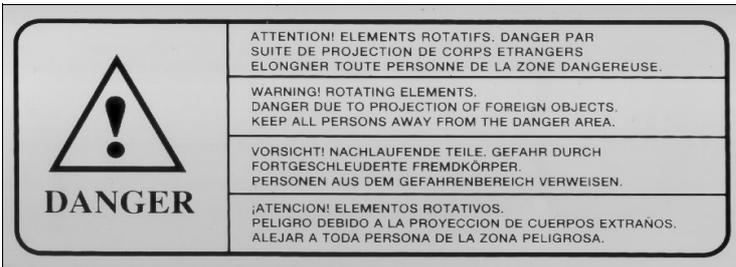
Check wheel nuts daily.  
(CST00020)



Free flow return to tank.  
(CST00006)



Maximum hydraulic pressure and maximum PTO speed. This machine must not be connected to hydraulic systems with pressure higher than 210 bar.  
(CST00121)



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



Do not dismantle.  
High pressure always.  
(CST00056)



Knife release lever, horizontal position-locked, vertical position-unlocked. (CST00118)



Diagram of plastic film path through dispenser. (CST00022)

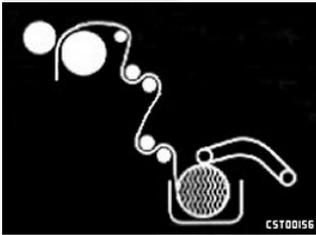
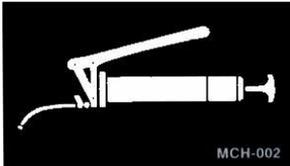


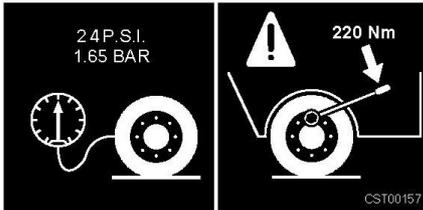
Diagram of net path through feeding rollers. (CST00156)



Grease daily. (CST00060)



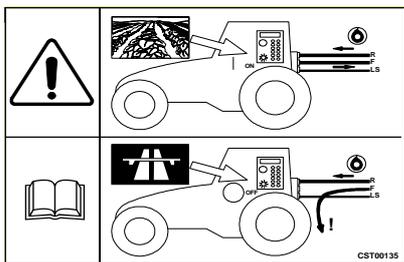
Lifting hook location (CST00032)



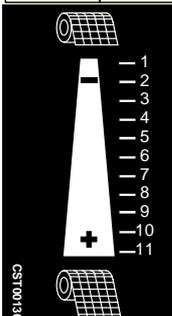
Ensure tyre pressure is at 1.65 BAR (24 P.S.I) pressure and torque nuts to 220Nm. (CST00157)

<p><b>Warning!</b></p>	<p>1. Keep all guards in place.</p> <p>2. Overhaul and turn off all engine and/or motor power before servicing or unloading machine.</p> <p>3. Keep hands, feet and clothing away from power-driven parts.</p> <p>4. Halten Sie alle Schutz im Platz.</p> <p>5. Schalten Sie ab und ziehen Sie weg allen Maschinen-und/oder Bewegungsarmen, bevor Sie Arbeiten durchführen oder reparieren.</p> <p>6. Halten Sie Hände, Füße und die Kleidung, die von den motorisierten Teilen weg ist.</p>
	<p>7. Garde les mains, les pieds et les vêtements pendant des pièces actionnées par l'électricité.</p> <p>8. Déconnecter et couper tout le courant de moteur et/ou de moteur avant d'entretenir ou d'effectuer les réparations.</p> <p>9. Garde les mains, les pieds et l'habillement pendant des pièces actionnées par l'électricité.</p>
	<p>1. Hold up all guards all sections.</p> <p>2. Make an stall at motor and/or motorboom too at stopovers of discharging machine to work together.</p> <p>3. Hold hands, feet and clothing away from motor.</p> <p>4. Håll upp alla skydd alla sektioner.</p> <p>5. Koppla ur och ställ av motorn före service eller rengöring av maskin.</p> <p>6. Håll händer, fötter och kläder borta från maskinverksamhet och andra rörliga delar.</p>
	<p>1. Hold up all guards all parts.</p> <p>2. Disconnect and stop all engine and/or motor power before servicing or unloading machine.</p> <p>3. Keep hands, feet and clothing away from power-driven parts.</p> <p>4. Halten Sie alle Schutz im Platz.</p> <p>5. Schalten Sie ab und ziehen Sie weg allen Maschinen-und/oder Bewegungsarmen, bevor Sie Arbeiten durchführen oder reparieren.</p> <p>6. Halten Sie Hände, Füße und die Kleidung, die von den motorisierten Teilen weg ist.</p>

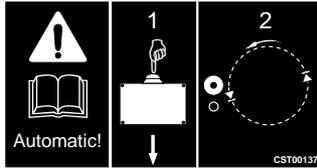
General Warnings! (CST00134)



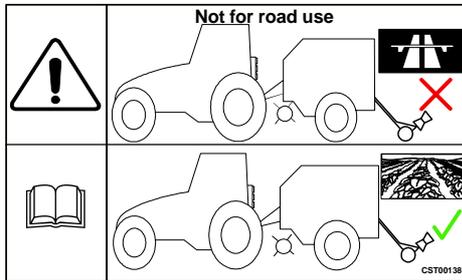
Disconnect *Fusion* feed line and turn off control box during road use. Read operator instruction manual. (CST00135)



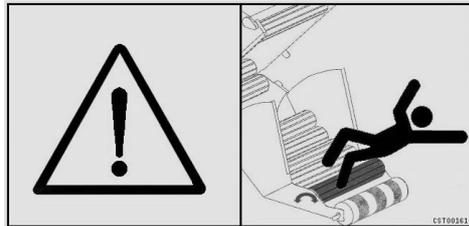
Net amount setting decal. (CST00136)



Dispenser park rotation decal.  
(CST00137)



Side Tip; Not for road use decal.  
(Placed on side tip only)  
(CST00138)



(CST00161)



(CST00162)

Free rotating transfer roller. Do not step on this roller.

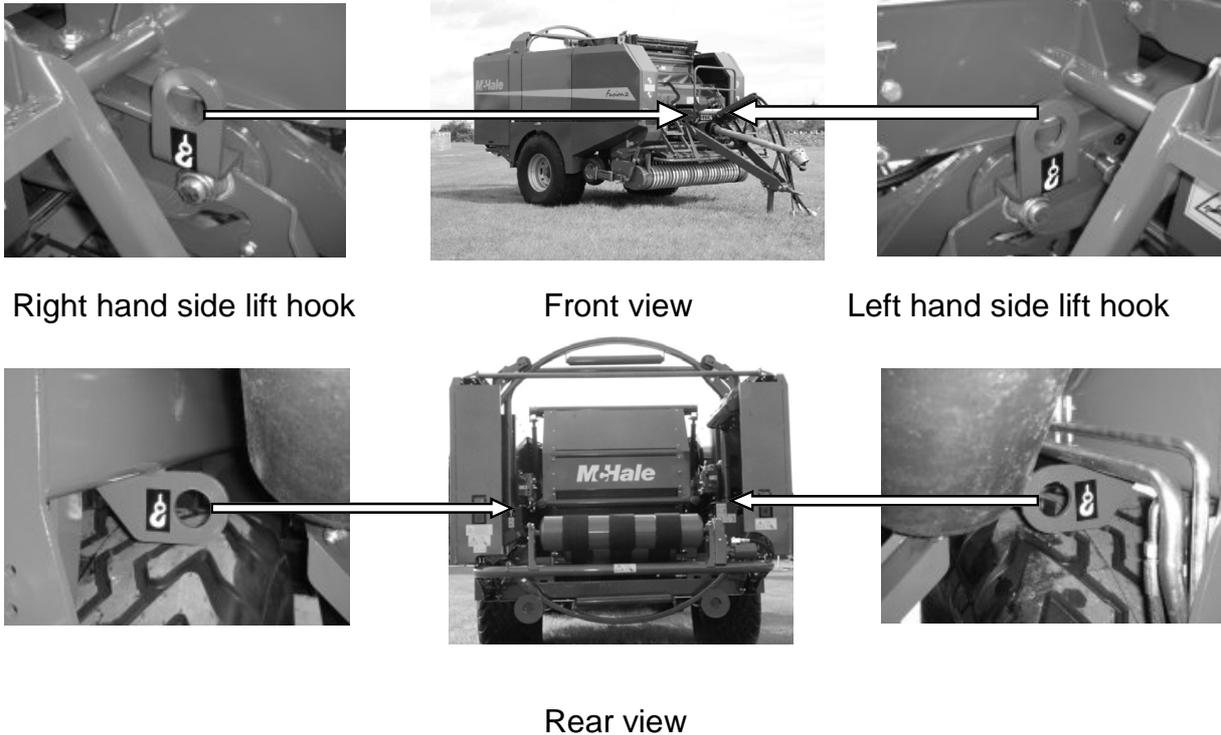
## 5.8 Description of the serial number plate

		Tel: 353 (0) 94-9520300 Fax: 353 (0) 94-9520356 E-mail: sales@mchale.net Web: www.mchale.net			
Castlebar Rd. Ballinrobe, Co. Mayo, Ireland.					
SERIAL NUMBER	A	MAX. GROSS WEIGHT @ 10 km/h	G	7,900 kg	
YEAR OF MANUFACTURE	B	NET WEIGHT	H	5,800 kg	
MODEL	C	MAX. AXLE LOAD @ MAX. ROAD SPEED	I	4,900 kg	
MAX. VERTICAL DRAWBAR LOAD	D	VEHICLE WDT H*	J	2.76m/2.94m*	
MAX. HORIZONTAL DRAWBAR LOAD	E	VEHICLE HIGHT	K	3.02 m	
MAX. ROAD SPEED	F	VEHICLE LENGTH H*	L	5.8 m/ 7.5 m*	

The following is a description of the serial plate meanings:

- A — Serial number of the machine.
- B — Year of manufacture of the machine.
- C — Model Name/Number of the machine.
- D — Maximum vertical drawbar load (Newton's).
- E — Maximum horizontal drawbar load (Newton's).
- F — Maximum road speed (kilometres per hour).
- G — Maximum gross weight at 10 kilometres per hour.
- H — Net Weight of the machine.
- I — Maximum axle load at maximum road speed of 40 kilometres per hour.
- J — Vehicle width: with standard size tyres/ with optional specification tyres.
- K — Vehicle height in metres.
- L — Vehicle length in metres: with no rear attachments/ with side tip attachment.

## 5.9 Machine lifting eye location points



**Fig. 5.91 Machine lifting eye locations**



### **Warning!**

- Only use chains or strapping that are rated for a minimum load of two tonnes (2,000 kg's) per chain or strap when using the four lift eye locations on the chassis, shown above.
- The crane or lifting device must be capable of lifting a minimum load of seven tonnes (7,000 kg's).
- Never go under a suspended machine or attempt to try and stop it if moving erratically, death or serious injury may result.
- Always be observant of people and objects around the suspended machine and do not allow the machine to impact heavily on the ground after suspension or movement

## 6. Tractor requirements and preparations

### 6.1 Tractor requirements

The minimum recommended size of tractor for operating the *McHale Fusion* comfortably, depends mainly on the crop condition and the required cut length of the forage. On flat ground *McHale* recommends a tractor size of approximately 85 kW 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 Fusion* works at it's best in this set-up, please refer to sections 6.7 and 6.8 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 baler wrapper combination behind the tractor:

1. Low/High drawbar hitch\* that is suitable for an imposed load of minimum 5000 kg's.
2. One 1/2" - female quick releases for hydraulic power supply of minimum 45lit./min @ 180bar
3. One 3/4" female quick release for return line. (Must be free flow to tank).
4. One 3/8" female quick release for load sensing. (Only required if tractor has a load-sensing hydraulic system)
5. One 1/2" female quick release single acting for pickup reel.
6. One 12 V / 7 pin socket for lighting.
7. One 12 V / 20 Amp euro socket **or** battery power cable.
8. One hydraulic brake coupling **or** two air brake couplings\*.
9. 1 3/8", 6 spline PTO shaft (set to a speed of 540 rpm).
10. One secure attaching point to tie the brake rope to the tractor.

\* Depending on country of use.

### 6.2 Control box installation

The electronic control box must be located inside the tractor cab in the operator's field of vision, and within easy reach of the red emergency stop button. It is secured to the glass using the suction pad on the rear. Ensure that the cable to the machine is not under tension and not near sharp edges etc. The electric power supply is obtained from either the fuse protected two core power lead (supplied and the preferred option) or the euro socket of the tractor.

Connect the supplied fused electric power lead to the tractor battery ensuring to route away from sharp edges and hot surfaces. The control box is not waterproof, it must be protected from rain. See section 8 on Electronic control system.



**Caution!** Do not use any other electric power supply for the electronic system, otherwise damage may occur!

## 6.3 Lighting system

The 7 pin plug of the lighting system on the machine must be connected to the 7 pin socket on the tractor. **Note:** Before travelling on a public road the operator must ensure that the complete (tractor and machine) lighting system is in a fully functioning condition.

## 6.4 Attaching the *Fusion* to a 540 rpm PTO



**Caution:** The *McHale Fusion* should be driven with a standard PTO speed of 540 rpm (max. PTO speed = 610 rpm, a PTO speed above 610 rpm is likely to cause damage to machine components). **Do not use any faster PTO speed other than the above specified!** All mechanical functions are related to the correct PTO speed. Follow the instructions as supplied with the PTO unit for correct assembling of the PTO shaft to the tractor.

## 6.5 Attaching to drawbar

The drawbar is to be attached so that the *McHale Fusion* is horizontal to the ground as in section 7.12, "Drawbar adjustment". Machines are set up for hitching to the tractor drawbar as shown in fig. 6.51 below. Once the tractor is attached to the drawbar attach the PTO shaft. Depending on the country of use a safety chain may also be required. Detach in reverse order of attachment.



**Fig. 6.51 Drawbar attachment.**

## 6.6 Attaching break away brake

The *McHale Fusion* is fitted with a hand brake which must be applied when the machine is detached from the tractor. The hand brake handle has a rope fitted to a calibrated ring which must have the other end securely fixed to the tractor each time the *Fusion* is attached to the tractor. Should the *Fusion* hitch ever become detached from the tractor this rope will apply the brakes on the *Fusion*.



**Caution:** Always ensure the hand brake has been released before moving the *Fusion* on the road or operating in a field.

## 6.7 What is the hydraulic system on the tractor & how does it affect the Fusion set-up?



**Caution!** It is very important to determine the correct hydraulic system on the tractor, as a wrong set-up will cause serious damage to the tractor 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 flow 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 *Fusion* 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 *Fusion* 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 *Fusion* 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 50 lit./min. from the tractor), **McHale do not recommend operating the *Fusion*** 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 *Fusion*.

## 6.8 What hydraulic system does the tractor use?

**1. Open Centre**  
Set as Open Centre  
(default factory setting, as shown in section 6.9)

**2. Closed Centre**  
Set as Closed/Load Sensing  
(as shown in section 6.9)

**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 6.9)

**SET-UP (A)**  
(1) Plug Wrapper Feed into auxiliary spool output ensuring it can supply an oil flow of at least 45 litres/min. @ 180 bar.  
(2) Plug Wrapper Return into Free-Flow Return.

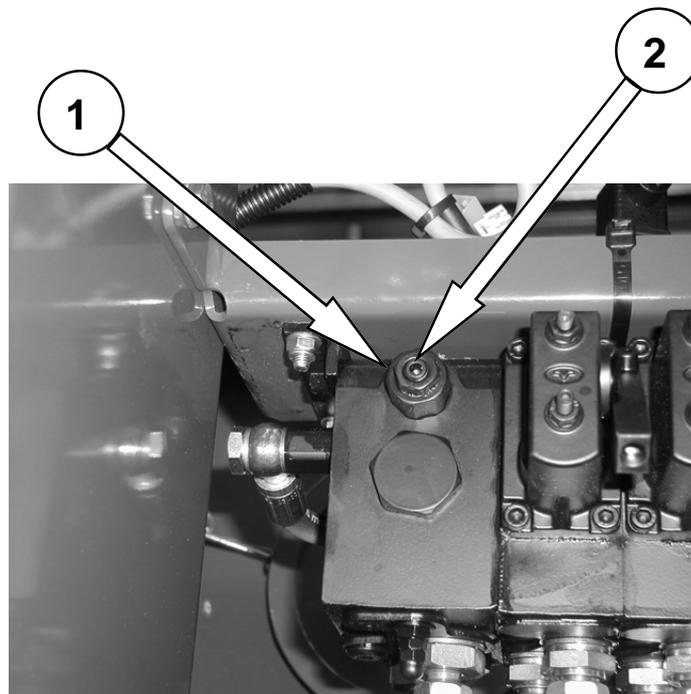
**SET-UP (B)**  
(1) Plug Wrapper Feed into auxiliary spool output ensuring it can supply an oil flow of at least 45 litres/min. @ 180 bar.  
(2) Plug Wrapper Return into Free-Flow Return.

**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.

## 6.9 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



## 6.10 Attaching hydraulic hosing to tractor

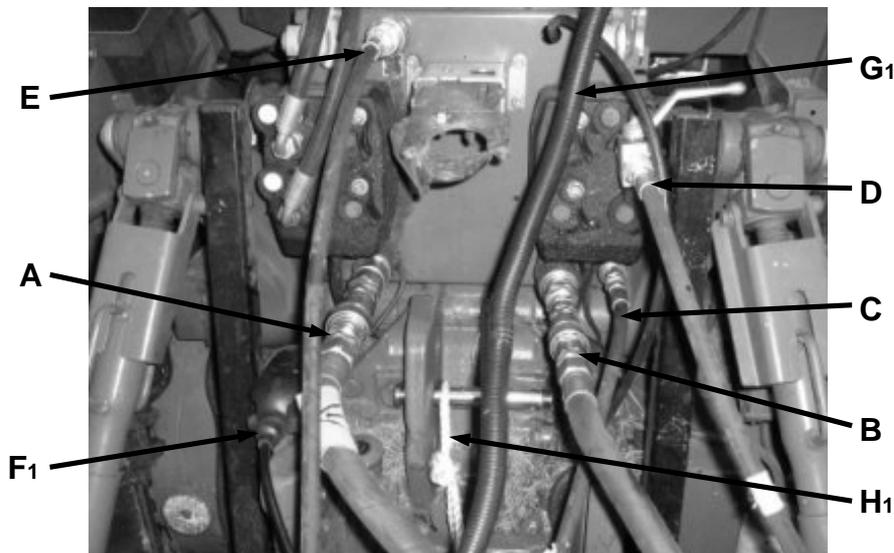
**Warning!** When connecting hydraulic hosing to the tractor ensure that the tractor engine is turned off and that the ignition key is removed. Ensure that all hydraulic connections are correctly tightened.

There are a total of four hydraulic hoses that must be connected (3 on air brake models)\* to the tractor. They are as follows:

- A. One ¾" female quick release for return line. **Note:** The return line must have a free flow to tank. (Where a ¾" coupling is not available on the tractor, a special ½" male quick release is supplied with the *Fusion* in the toolbox & should be used to replace the ¾" coupling fitted)
- B. One ½" female quick release for feed line.
- C. One ⅜" female quick release for load sensing (if tractor is load-sensing).
- D. One ½" female quick release for pickup reel.
- E. One hydraulic brake coupling.\*
- F<sub>1</sub>. One 12 V / 7 pin lighting socket.
- G<sub>1</sub>. One 12 V / 20 Amp euro socket (Machine loom to control box shown).
- H<sub>1</sub>. One break away rope fixed securely to the tractor.

See figure 6.91 below for possible piping layout. **Note:** Ensure that machine operator is familiar with all tractor connections and fittings.

\*In the case of air brakes there must be two air brake couplings available.



**Fig. 6.91 Possible layout of hydraulic hosing and electric looms.**

## 6.11 Connecting the control box

The control box is to be connected to a 12V / 20 Amp power supply either using the supplied euro socket or the battery power cable. A good power supply is critical for proper machine operation as the electronic control box is the main interface between the operator and the machine.

**Caution:** Do not attempt to connect control box to a 24 V power supply as machine component damage will result.

## 7. Baler requirements and preparation

### 7.1 Net requirements

In order for the *McHale Fusion* to produce well-shaped bales of excellent density a top quality net, that is similar as possible, to the specification recommended below should be used. It is of the utmost importance that the net is used and stored according to the instructions of the net manufacturer. **Note:** For netting silage a minimum of two turns of net is recommended, but when material is drier, netting amount should be increased to four or more turns. A general rule to follow is to apply the amount of net that will maintain the bale size. The maximum bale size recommended is a 1.3 m diameter bale. In order to achieve the best possible performance, *McHale* recommend the use of a net roll which meets the following specifications:

- Material: High quality, high density polyethylene.
- Density: Minimum of 10 g/m<sup>2</sup> ±10%.
- Elongation: 15% ±3%.
- Strength (In direction of wrap): 900 N/ 500 mm.
- Material Length 2000 – 3000 m ±100 m.
- Material Width (Ideal) 1230 mm, **Note:** 1260mm max.

### 7.2 Care of the net roll

The net roll should be protected from damage and moisture. Do not remove protective cover until ready for use. Net damage can cause undesired netter performance and affect bale weather ability.

### 7.3 Care of the net wrapping system

Before operating the baler ensure that the following procedure is followed to ensure improved netter operation:

- Clean off rubber and aluminium feed rollers and check for any tacky material.  
**Note:** Never use cleaning agents such as benzene, petrol, turpentine oil or similar cleaning solvents to clean rubber feed roll, otherwise damage may occur!

*McHale* recommend to use any of the following:

- A cloth soaked in dish washing liquid.
- Soap water

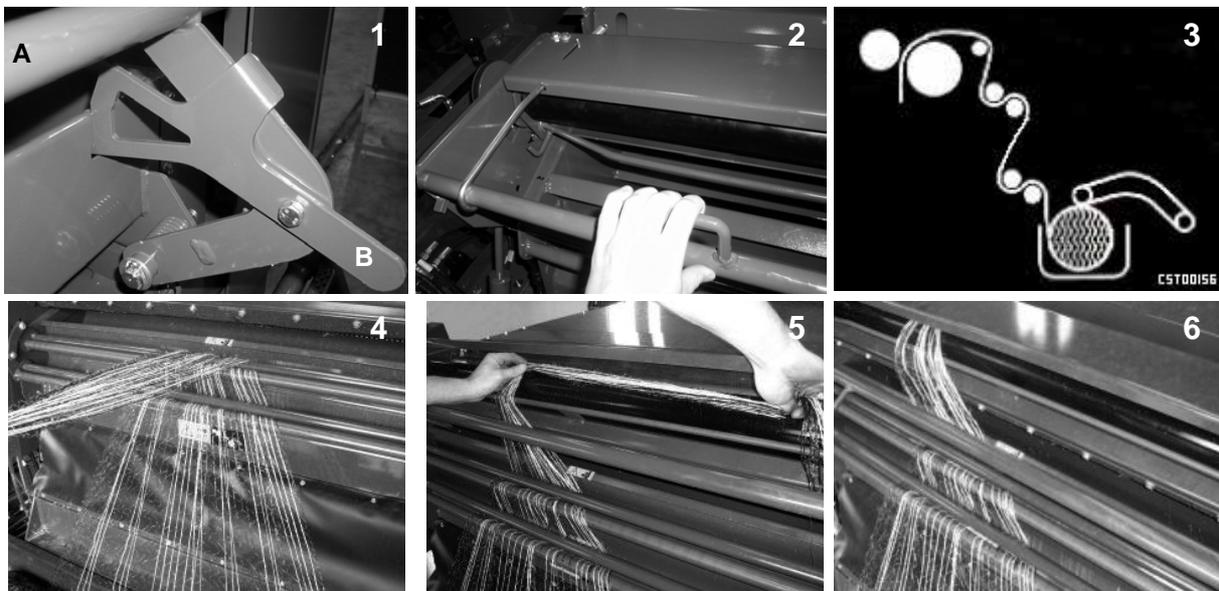
**Note:** Once roller cleaning is carried out, ensure to apply talcum powder to the rubber feed roll.

## 7.4 Loading and operating the netter system

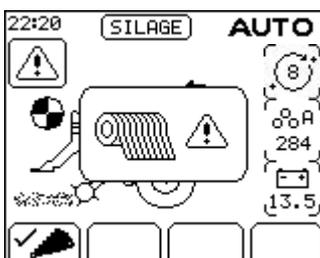
**Warning!** Pay attention to the heavy weight of the net roll! It is recommended that full net rolls should be handled by two persons.

The passage of net through the netting unit is monitored; if the net cutting knife does not trip within 20 seconds of the netter starting, the alarm sounds, the **net error symbol** (7.4.2) is displayed in the control box display and the cycle is halted. The following is the procedure for changing the roll or fitting the first roll:

- The PTO is first switched off.
- Open the net brake bar “A”, hold it in place with latch “B”, remove the empty cardboard core of the finished net roll and dispose of responsibly, see part 1.
- Put the new net roll in the net container.
- Open the net cutter bar as shown in 2 and pull a loose net end of approx. 0.5 m from the roll, feed through net tension bar and over the knife trip bar as shown in 3.
- Roll up the net and rest it across the rollers from left to right or vice versa as shown in 4 and 5, insert it in between the rubber and the aluminium feeding roller.
- Finally close the net cutter bar followed by the net brake bar “A” of the net container see figure 7.4.1, parts 1 and 2. The loose net end should not be more than 10 cm inside the bale chamber to prevent it being pulled in by the rotating bale. When finished the net should look something like figure 7.4.1, part 6.
- After roll of net is replaced, PTO engaged and the “**net**” button is pushed, net feeds into the chamber, netting the bale and the knife trips; the operator then checks that netting is complete and advances the cycle by pushing the ‘chamber door open’ button for one second, work can then continue as normal.



**Fig. 7.4.1 Feeding net through rollers.**



**7.4.2 Net error symbol**

## 7.5 Net cutter setting

In an automatic cycle the netter starts feeding net when the set bale density has been reached, and the cutter is tripped when the bale is wrapped with the predetermined net length. The net length can be adjusted at the net cutter drive on the left hand side, see figure 7.5.4. It is recommended that a **minimum** of two (2) layers of net are applied to the bale. Dry conditions and very high densities require up to four (4) or more layers to ensure a good bale shape. **Note:** When the control box is set to 'Bale Only' for hay or straw with high dry matter being baled more net must be applied.

**Warning!** The net adjustment lever must never be adjusted while the baler PTO shaft is engaged and the tractor is running. Never climb onto the baler platform while the pick-up reel is still spinning! Beware of sharp knife edges!

**Caution:** Never attempt to adjust the net cutter setting until the knife has tripped, see figures 7.5.1 and 7.5.2.



**7.5.1 Adjustable position**



**7.5.2 Nonadjustable position**

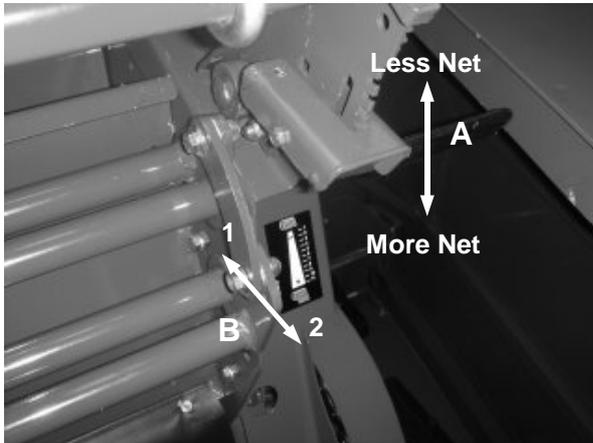
If the knife hasn't tripped, trip the knife by following the procedure below:

1. Ensure PTO shaft power is disengaged, tractor is turned off and safely parked, i.e. cannot roll.
2. Climb onto the baler platform. Carefully pull upwards on the knife frame bar, see figure 7.5.3, and while applying pressure upwards on the bar, release the bill hook, by pushing off the adjuster, refer to figures 7.5.1 and 7.5.2.
3. Allow knife to return to it's spring loaded position.
4. Adjust the net amount adjuster accordingly, refer to table 7.51 for settings.
5. Once desired setting is selected, replace the bill hook onto the adjuster by pulling upwards on the knife frame bar. **Note:** Ensure that the bill hook rests on the adjuster as shown in figure 7.5.2.



**Figure 7.5.3 Knife frame bar.**

**Fig. 7.5.4 Net cutter setting.**



Notch (#)	Layers of Net* (#)	Length of Net* (m)
1	2	7.25
2	2.25	8.37
3	2.5	9.35
4	2.7	10.18
5	3	11.00
6	3.2	12.00
7	3.5	13.11
8	3.75	14.23
9	4	15.21
10	4.3	16.18
11	4.6	17.30

**Table 7.5.1 Exact net settings\*.**

Adjustment is achieved by pushing the adjustment lever “A” to the right in order to release latch from the notches, then choose the desired notch for less or more net to be applied as shown in figure 7.5.3 below. The notches are sequenced from top to bottom and are numbered from 1 to 11 respectively. See table 7.5.1 for exact amount of net applied for each specific notch.

\* **Note:** Figures in table 7.5.1 are calculated assuming a bale circumference of 3.769 m (a bale diameter of 1.2m), i.e. the value of the layers of net and length of net, will be approximate figures only, due to differing bale diameters, due to varying crop conditions etc.

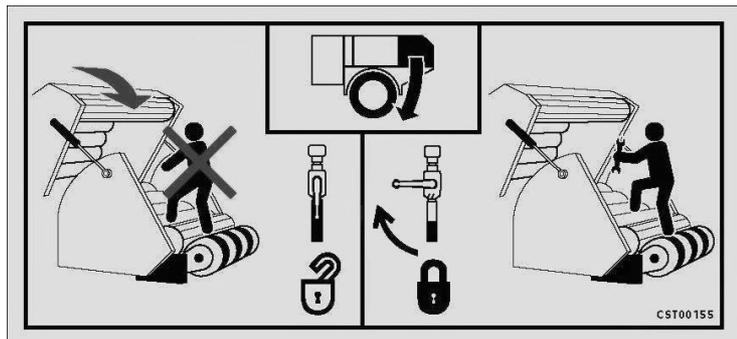
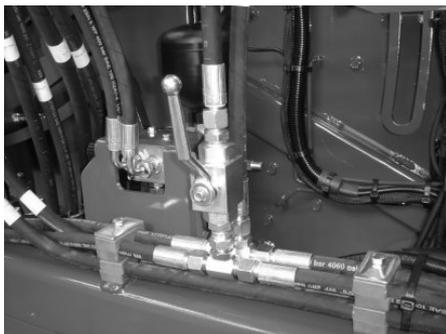
## 7.6 Net tension bar setting

The factory set position for the net tension bar “B”, shown in Fig. 7.5.4, is in the centre of the adjustment slot. Moving the bar forwards, in direction “2” reduces the amount of net tension, while moving in the opposite direction “1” increases the amount of tension applied to the net.

## 7.7 Chopper unit knife removal and installation

**⚠ Warning!** Use protective gloves for any manual work in this area!  
The number of knives installed determines the cut length of the material. Knife removal should be carried out in the following way:

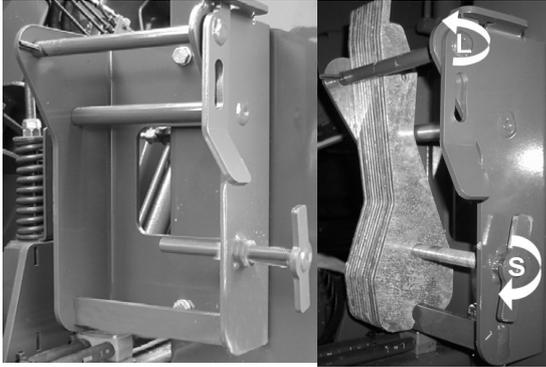
1. Switch the control box to manual mode.
2. Switch knives to “on” (knives move into the feeding channel) by pressing the knives switch for 2 seconds.
3. Lower chopper floor half way (control box must be in manual mode).
4. Open the chamber door to the fully up position.
5. Set the pick up reel wheels to working position to make access under the machine easier.
6. Using the lever valve, lock the chamber doors in position.



7. Switch off tractor, remove key, apply parking brake and prevent machine movement with wheel chocks.
8. Turn the knife lock / unlock lever, located on the left hand side of the pick up reel, 90° downwards, to the unlock position, as shown in the decal below.



9. Remove knives with a pair of pliers.
10. Replace with knife blanks to prevent crop catching in the slots, these are stored in the knife/ knife blank holster which is located in the front left compartment of the *Fusion*.



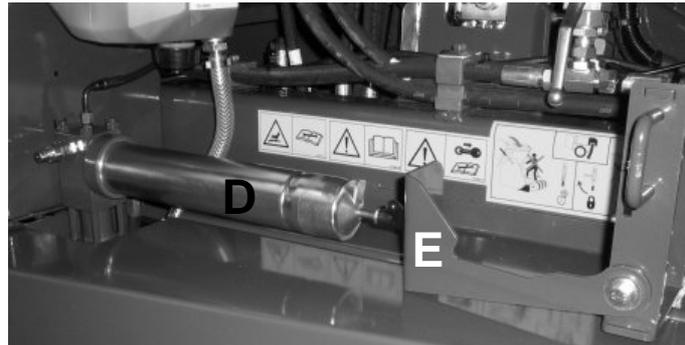
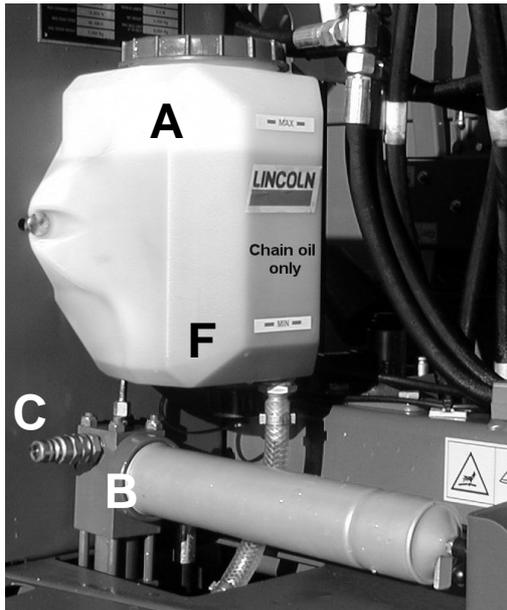
**⚠ Warning!** Always keep this compartment door panel closed while the machine is running, danger of rotating components! Note the warning decals and ensure that all safety measures and precautions are carried out before attempting to carry out any maintenance.

**⚠ Warning!** Do not forget to turn the levers back into the working position, but only after having finished all work in the baler as shown above.

11. To replace knives remove knife blanks and follow the above procedure, heeding all decal warnings and safety procedures.

## 7.8 Automatic lubrication system

The *McHale Fusion* is equipped with a fully automatic greasing and oiling system which is responsible for the greasing of the roller bearings in the machine baling chamber (apart from the transfer roller) and the oiling of all the chain systems. All other grease points must be greased as specified in the machine maintenance section, see section 14.1.



- A = Oil reservoir tank.
- B = Greasing cartridge and pump unit.
- C = Air release valve (Prevents air locks).
- D = Grease cartridge cover.
- E = Grease cartridge plunger stop.
- F = Oil filter.

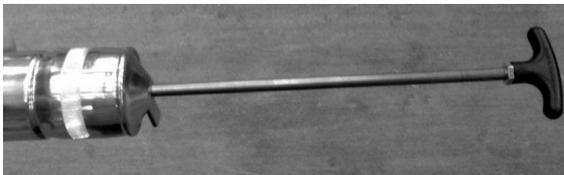
**⚠** The oil reservoir tank (A) can hold approximately 5 litres of oil and this is enough oil for approximately 500 bales, it should be kept between the min. and max. markings at all times. **McHale** recommend the use of only top quality chain oil and grease, this will prolong the life of the machine components. A grease cartridge is required after every 300 bales approximately. On the control box an alarm is provided to remind the operator to change the grease cartridge and top up the lubrication oil after a preset number of cycles. This counts down from 300 and gives a reminder at zero. It may be reset sooner if desired, from within the control box sub menu, see section 8.2 for instructions on how this is done.

**Replacing refill grease cartridge and releasing airlock.**

**McHale** recommend using a Multipurpose, extra high performance grease such as, Mobil grease XHP222 or equivalent NLGI number 2 grade grease. **Caution:** Avoid contact with skin.



Unscrew the cartridge holder from the pump and remove the used cartridge.



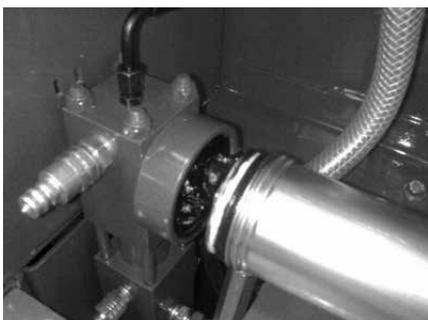
Pull the plunger all the way back.



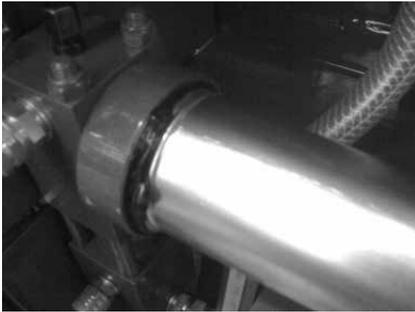
Remove the cap from the plunger end of the refill cartridge. Insert the refill cartridge as shown.



Open the refill.



Screw the cartridge holder onto the pump but do not tighten. Only screw the cartridge one turn once you feel the first thread.



Rock the cartridge holder from side to side to ensure it does not fall off.



Release the plunger and push the plunger rod all the way into the cartridge holder.



Slow and gently rock the cartridge holder from side to side. Air between the grease pump and the cartridge will escape. When a bead grease starts to leak out the cartridge can be tightened fully.



Clean off this bead of grease so dust and debris does not stick to it. This dirty grease could get into the grease pump at the next cartridge change causing a blockage of the grease system.



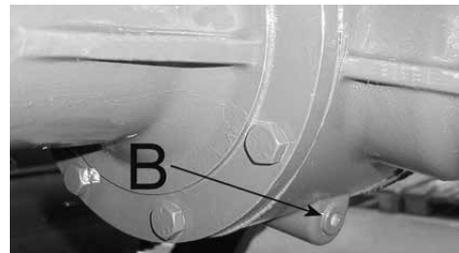
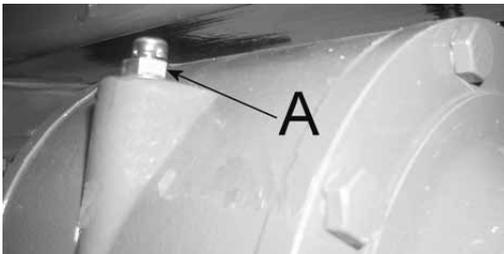
Drop down the plunger lock and top up the chain oil, then reset the lube count on the Expert Plus control box.

## 7.9 Gear box oil

**⚠ Warning!** Before attempting to change gear oil ensure that the tractor engine has been switched off, the key removed and that the brakes are applied before carrying out the following procedure, the PTO shaft should also be removed.

The gearbox is located to the rear of the PTO shaft. **Note:** After the first 5 hours of use the gear box oil must be completely drained. and filled with SAE 90 grade oil. To drain and add oil to the gear box carry out the following procedure:

1. Remove the drain plug (B), using a 10 mm Allen key, and drain oil into a suitable container, dispose of waste oil carefully, this is best carried out while the oil is still warm, i.e. soon after use. Replace drain plug.
2. Remove the breather (A) using a 17 mm spanner. Add 1.5l of SAE 90 grade oil. After this replace oil once per season or once per 10,000 bales, whichever comes first. **Note:** Do not overfill as this will result in overheating and oil leakage.
3. Replace breather and tighten.



## 7.10 Tyre inflation pressures

**⚠ Caution!** The tyres used on the **McHale Fusion** machine are to be inspected weekly for the following pressures:

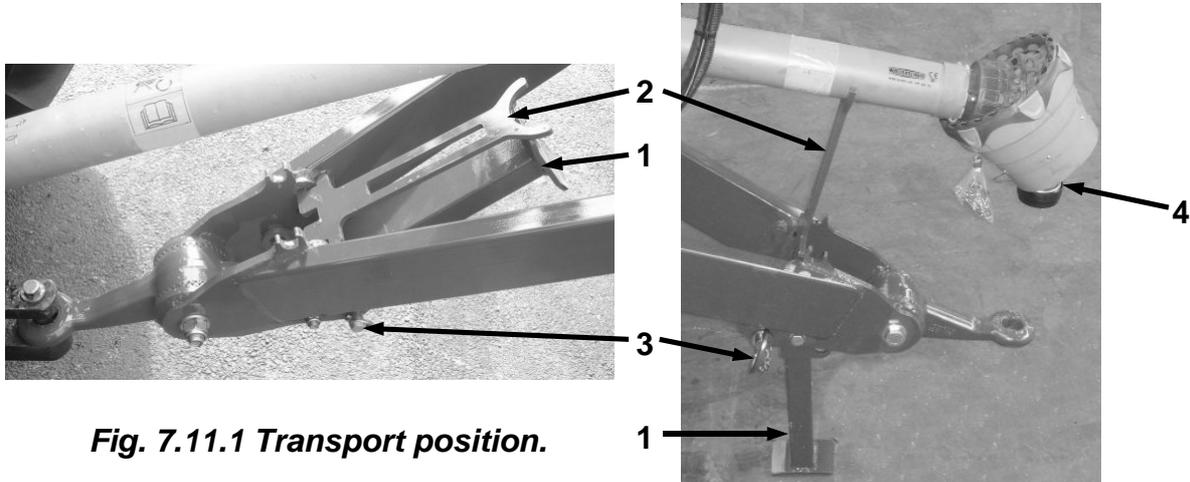
	<b>Tyre type</b>	<b>Pressure</b>
∅	550/60 – 22.5 or 550/60 R22.5	1.65 bar (24 P.S.I).
∅	650/55 R22.5 (Optional specification)	1.65 bar (24 P.S.I).
∅	170/60 – 8 (Pick-up tyre)	1.65 bar (24 P.S.I).

## 7.11 Drawbar and PTO shaft stand usage

There are two types of drawbar stands available on the *Fusion*, depending on the country of use one will come as standard. The drawbar stands (A and B types) are to be used any time the machine is to be disconnected completely from the tractor.

➤ The following applies to stand type A:

**Caution:** The stand must be rested on a solid footing, on level ground and also the supplied wheel chocks must be used. Ensure that the stand pin (3) is properly placed in the lower slot to prevent the stand from collapse. Then place PTO shaft stand (4) in the upright position in order to hold the PTO shaft in position, see figure 7.11.2. While using the machine ensure that the drawbar stand (1) is fully up and that stand pin (3) is in the upper slot, see figure 7.11.1.



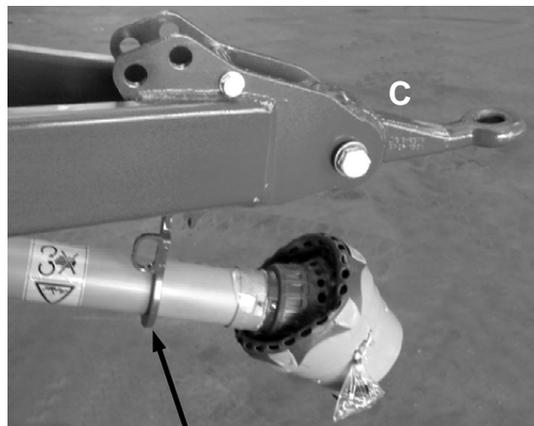
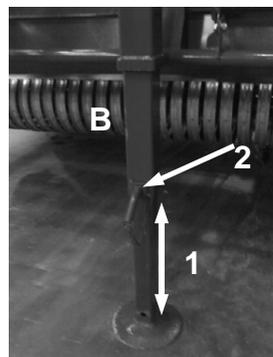
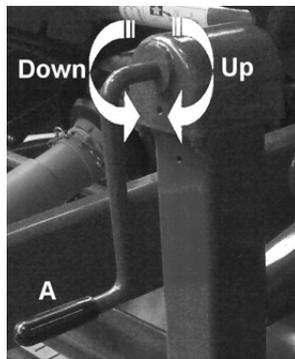
**Fig. 7.11.1 Transport position.**

**Fig. 7.11.2 Storage Position.**

➤ The following applies to stand type B, please refer to the figures in 7.11.4:  
**Caution:** The stand must be rested on a solid footing, on level ground and also the supplied wheel chocks must be used.

Note that stand type B is only supplied with the high drawbar hitch option. In order to raise the drawbar, rotate the jack handle (A) in the up or clockwise direction as shown in the figure below. In order to lower the drawbar rotate the handle in the down or counter-clockwise direction. Once the drawbar has been safely connected to the tractor hitch, the lower part of the stand (B) can be quickly risen by pulling on the quick release lever and pushing up to lower stand into position 1. Depending on the height of the windrow being baled the stand may require to be winched more in the upwards direction so as not to interfere with the windrow, This will save using the jack winch.

The PTO stand (C) can be simply lifted out of the way once the PTO shaft has been connected. Leave stand in a suitable location such as the tractor cab, toolbox etc.



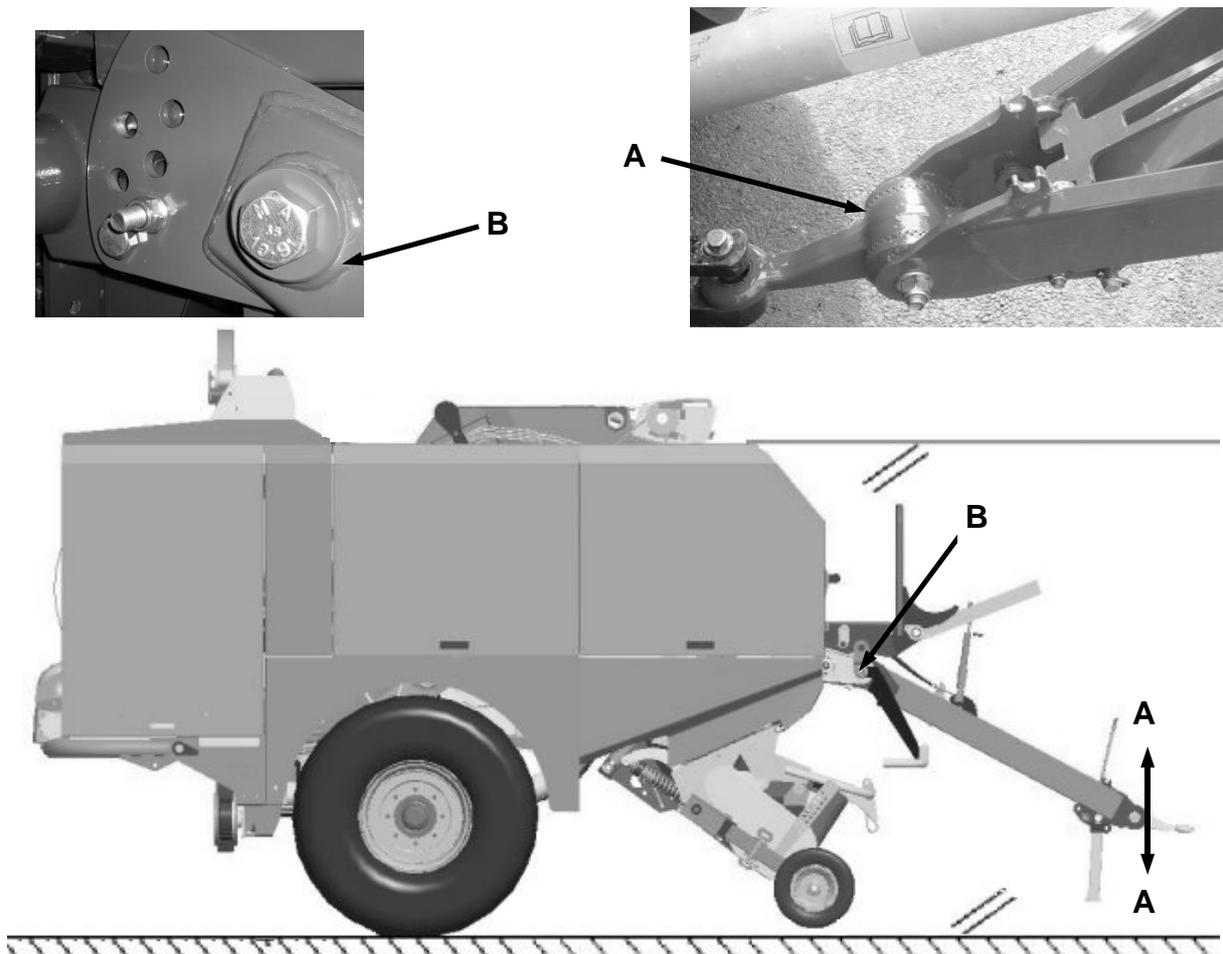
Removable PTO stand

**Fig. 7.11.4 Stand type B**

## 7.12 Drawbar adjustment

**⚠ Warning!** This work should only be carried out by qualified persons or your *McHale* dealer!

The drawbar should be adjusted so that the machine is horizontal to the ground when in the working position, see figure 7.12.1 below. Hitch A can be adjusted to different height positions. *Note:* Ensure that the hitch bolt is tightened to a torque value of 540 Nm. The 30 mm top drawbar bolts at (B) are to be inspected once every two weeks and tightened to a torque value of 1060 Nm.



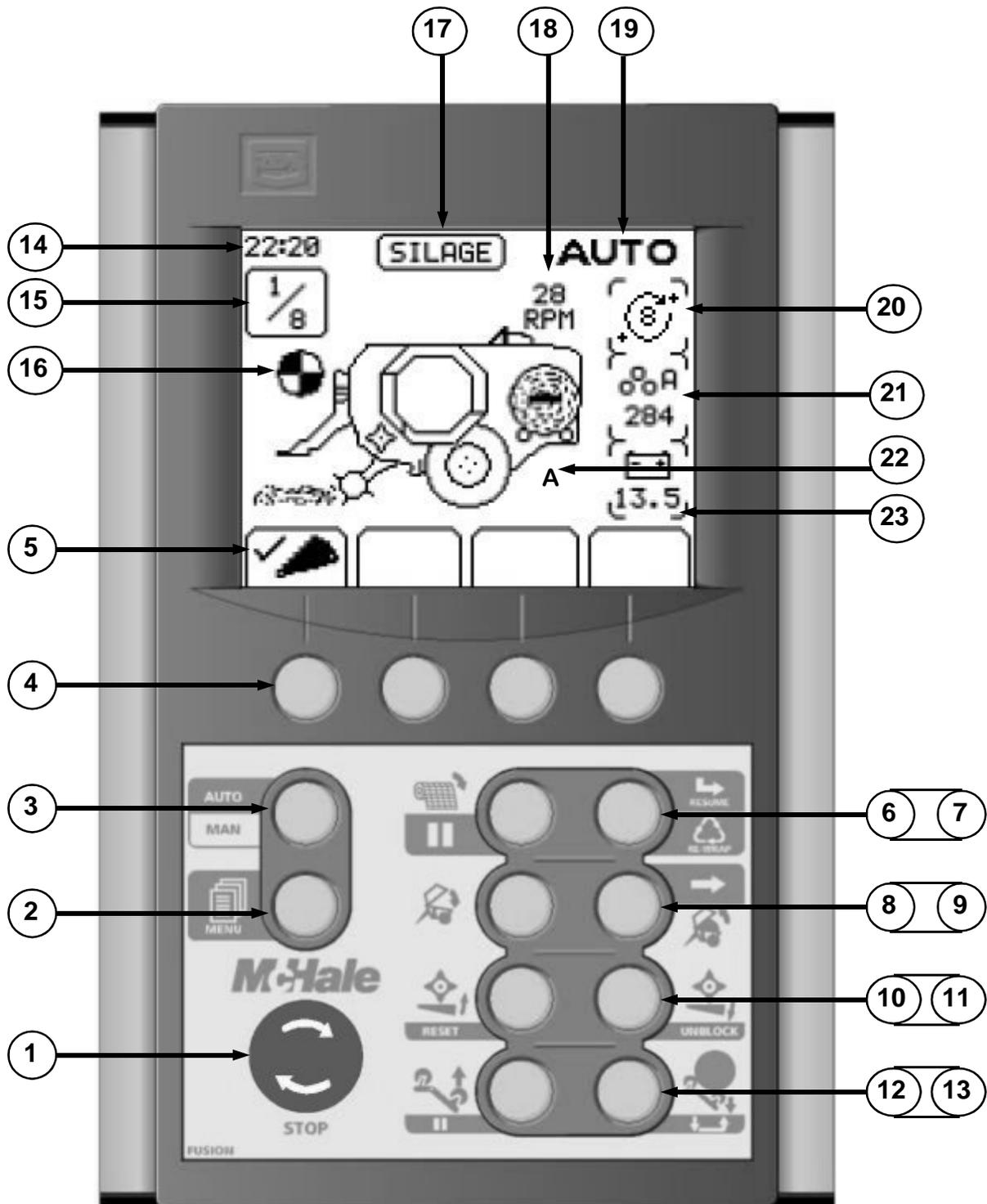
**Fig. 7.12.1 Drawbar adjustment.**

## 7.13 PTO Shaft adjustment

The length of the PTO shaft is suitable for all known tractor conditions. However, before the machine is operated for the first time with a new tractor it must be ensured that there is a minimum sliding clearance of 300 mm left during all angles between the tractor and the machine. In case there is not sufficient sliding clearance the shaft length must be adjusted according to the PTO shaft manufacturers recommendations that are either attached to the PTO shaft or included with this manual or both.

## 8. Electronic control system (EP301-095)

### 8.1 Control box functions



No.	Function	
	Manual	Automatic
1	Stop button— Twist clockwise to turn on the control unit	
2	Menu button	
3	Select Automatic	Select Manual
4	Four soft keys with interchangeable functions	
5	On screen display of four soft key functions	
6	Feed net	Hold to pause netting of the bale Press to feed net after an error
7	No function	Rewrap or resume wrapping
8	Close the chamber	No function
9	Open the chamber	Open chamber after a net error Press during transfer to pause Press once to close after a pause
10	Raises the unblock floor	Press to reset after unblocking
11	Lowers the unblock floor	Hold for 3 seconds to start unblock
12	Raises the bale tipping arm	Press to pause tipping of the bale
13	Lowers the bale tipping arm	One press to tip the bale
14	Clock	
15	Status indicator	
16	Rotates when net is being applied	
17	Crop type	
18	Wrapper ring RPM	
19	Displays Manual or Automatic mode	
20	Preset wrapper rotations display	
21	Bale subtotal count	
21	'A' symbol displayed when Auto tip is turned on	
23	Voltage input	

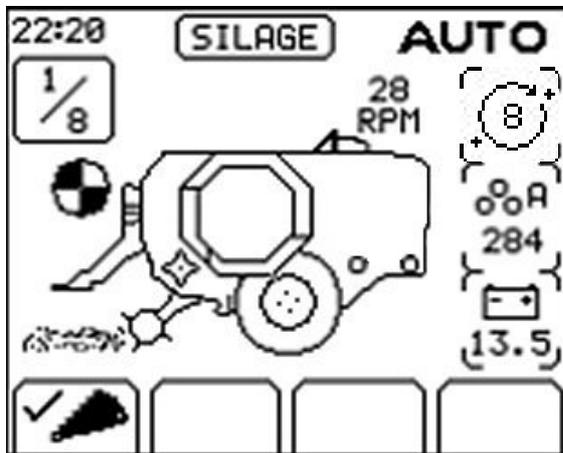
## 8.2 Control box features

### Working display

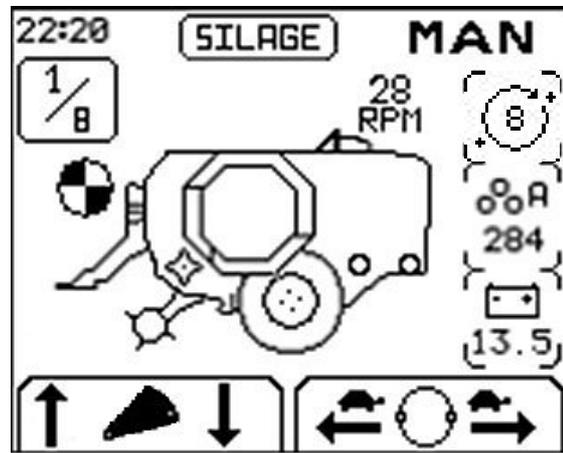
When the control box is first switched on it displays "McHale Fusion" followed by the programme version number, followed by the selected language. The language can be changed at this point by pressing the arrow up or arrow down button to scroll until the required language is selected.

After a short delay the working display appears. The working display features an image of the Fusion which is surrounded by general working information:

Time, Crop type, Man/Auto, Number of rotation VS target, Net indicator, Dispenser RPM, Selected number of rotations, Bale sub total and Battery voltage. The four soft key functions are displayed across the bottom of the screen.



Auto display



Manual display

### Time

The time is displayed in the top left corner of the screen and can be set in the operator manual (see section 8.3.4).

### Crop type

There are three crop types to choose from in the menu. These are straw, hay and silage. When Silage is selected the wrapping will be switched on. Selecting Hay or Straw will disable the wrapper.

### Auto/Man

Automatic or Manual control can be selected using the Auto/Man button. The selected control mode is displayed in the top right corner of the screen.

## Film Layers

The selected number of rotations is displayed on right side of the screen (see section 8.1). On the left side of the screen the number of completed wraps over the target number of wraps is displayed in the status box when the wrapper is rotating.

## Net Indicator

The net indicator rotates when net is being applied. This stops rotating when the net knife trips to cut the net.

## Bale Counters

The bale sub total is displayed on the right side of the screen. The Expert Plus Series control box contains ten different bale counters (**A - J**) which can be reset and a grand total counter which can not be reset.

## Voltage Monitor

The Expert Series control box monitors its operating voltage and displays it on the lower right side of the screen. If the voltage falls below a safe level the **LOW BATT** symbol is flashed on the display. This is an image of a battery. 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.

## Dispenser Speed RPM

The wrapper ring rotation speed in revolutions per minute is displayed over the wrapper of the Fusion image on the screen.

## Knives

The left soft key operates the knives in auto. If the knives are up there is a tick in the box with the image of the knife. If the knives are down there is an X in the box with the image of a knife. The knives can be dropped at any time during a cycle by pressing the soft key for the knife and the X will appear. If the knives are down the soft key can be pressed at any time during the cycle and the tick will appear but the knives will only come up during the next bale transfer. If manual mode is selected there are two soft keys active for the knives. The left key lowers the knives and the second soft key from the left raises the knives.

## Manual wrapping

The second soft key from the right will reverse the wrapping ring when manual mode is selected. The right soft key will rotate the ring forward in manual mode; the first press of this key is slow speed rotation. Release and immediately press this button again and the ring will rotate at full speed.

## Automatic Operation

When the box is switched on, Automatic mode can be selected by pressing button 3. AUTO will be displayed in the top right and crop is shown moving into the pick-up on the screen so baling is ready to start.

A series of beeps will sound for 3 seconds to tell the operator to stop when the bale is full. Button 6 can be held at this point to delay the net from feeding if the operator wants to pack a little extra crop into the chamber. Once the button is released netting will start and the wrapped bale on the wrapper will be tipped off automatically if 'Auto tip' is turned on (see section 8.3.1). If net knife does not trip within 20 seconds then no net/a problem is presumed and a 'check net' warning will be displayed (see section 8.4). The roll of net can be replaced and button 1 pressed to start netting again.

As soon the net knife trips the chamber will open to eject the bale, unless there is a wrapped bale waiting to be tipped first which will be indicated by a 'Tip bale' warning message. The chamber will open, delay for a short time, then close again. This delay can be set with the 'transfer time' in the machine menu (see section 8.3.2)

If button 9 is pressed during opening then the chamber will pause open for that bale until button 9 is pressed again to continue the cycle.

The knife and floor are automatically topped up/down during the bale transfer to make sure they are in the correct position and ready for the next bale.

Once the chamber has closed, wrapping will start if 'Silage' is the selected crop. Otherwise a beep will sound to indicate that the unwrapped bale is ready to be tipped. The film sensors will monitor the film usage throughout wrapping and if film runs out a warning will be displayed and corrective action taken (see section 8.3.2). A short beep will indicate that wrapping has completed.

Once the bale is finished wrapping, it can be tipped off at any time by pressing button 13.

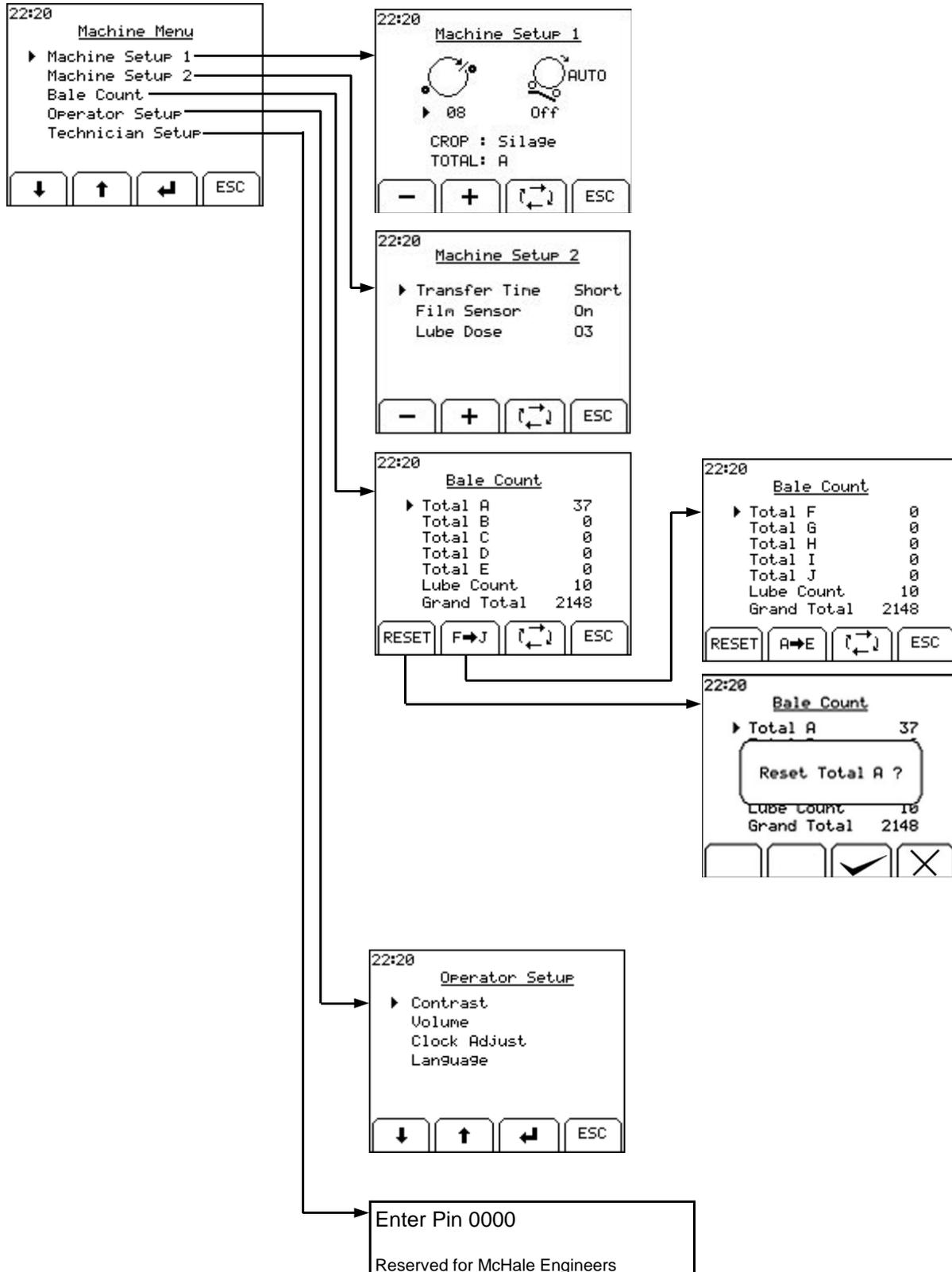
If 'Auto tip' is turned on then the bale will be automatically tipped when netting starts on the next bale. The tipping of the bale can be paused if desired by pressing button 12 before netting commences, then button 13 is pressed to tip when ready. A pause symbol will be shown on the wrapped bale to indicate that it will not automatically tip.

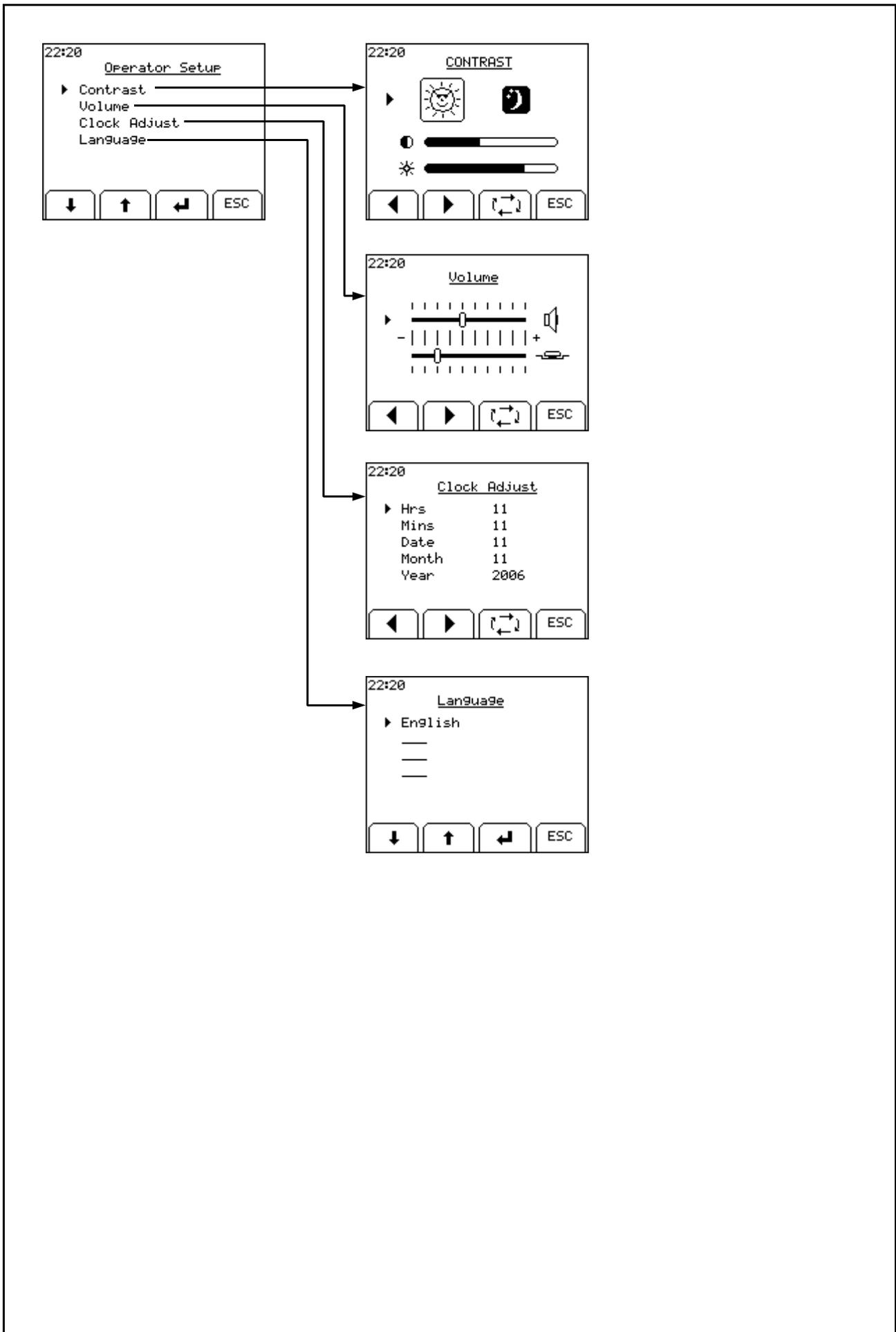
If 'Auto tip' is turned off then the bale must be manually tipped by pressing button 13 once every time.

If a blockage ever occurs in the feed channel during baling, the operator will be alerted by the sound of the PTO slip clutch. The PTO should be disengaged immediately and the 'Unblock' button (button 11) pressed for 3 seconds to activate the unblock routine and drop the floor and knives. Once the floor has lowered the PTO can be smoothly re-engaged to feed the blockage through to the chamber. Pressing 'Reset' (button 10) once will reset the floor and knives to the baling position.

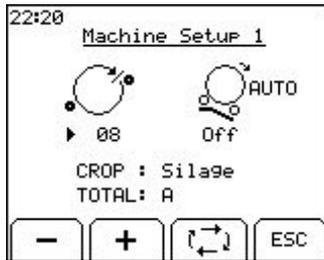
## 8.3 Menu structure

Press the menu button



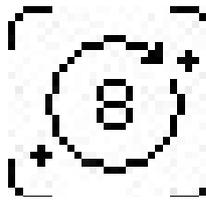


## 8.3.1 Machine Setup 1



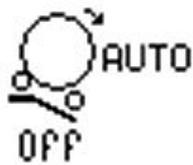
The four parameters in this menu are: Wrapper Rotations, Auto Tip, Crop Type and Bale Count. Use the toggle key to move the arrow head to each of the parameters and the + and - keys to change the value of the selected parameter. ESC will return to the machine menu.

### Film Layers



Film layers are set by the number of ring rotations. Count the number of rotations required to cover the bale once and add 0.5 of a rotation then multiply this resultant figure by half the number of layers required, e.g.  $(3.5 + 0.5) \times 2 = 8$  rotations for four layers. Use the + and - soft keys to adjust this figure.

### Auto Tip



Auto Tip can be set on or off. When set to 'Off' the bale will only be tipped when the bale tip button is pressed (button 13). When Auto Tip is 'On' the wrapped bale on the wrapping table will be automatically tipped off when the next bale is being netted. Pressing the tip button will tip off the bale earlier if desired. In automatic mode the auto tip can be paused by pressing the tip up (button 12) if the conditions are not suitable to tip off the bale. This stops the bale transfer cycle after the net is applied. When the machine has been moved to a suitable tip location then the tip button can be pressed to tip the bale and this will also resume the automatic bale transfer. A small letter 'A' will be shown on the screen under the tip arm to indicate when Auto tip is switched on.

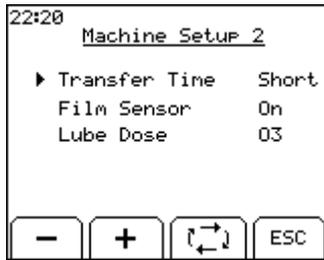
### Crop

There are three crop options: Straw, Hay and Silage. Use the toggle soft key to move the arrow head to the crop parameter, then use + and - soft keys to change the crop type. When set to 'Straw' and 'Hay' the bales will not be wrapped. The straw setting has only a one second delay between the time the bale chamber switch opens and the net is applied whereas the other options have a 3 second delay.

### Bale SubTotal

There are ten bale sub totals to choose from (A – J). Using the toggle soft key move the arrow head to the parameter and then use the + and - soft keys to change the sub total.

## 8.3.2 Machine Setup 2



The four parameters in this menu are: Transfer Time, Slow Down Time, Film Sensor and Lube Dose. Use the toggle key to move the arrow head to each of the parameters and the + and - keys to change the value of the selected parameter. ESC will return to the machine menu

### Transfer Time

There are three options for transfer in automatic mode; Short, Long and Manual.

'Short' will open the door fully and close with no pause.

'Long' will open the door fully and pause open for two seconds before closing the door again.

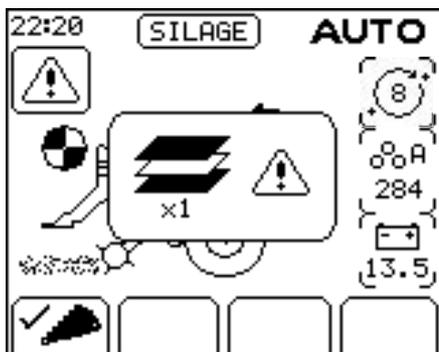
'Manual transfer' will open the door fully and it will remain open until the operator presses the chamber advance button to continue the cycle. Manual is only necessary in extremely difficult conditions.

Set this function to 'Long' when baling straw, hay or other difficult to transfer dry crops. It may also be used when using the baler in difficult conditions, such as hills, but this will increase cycle time. Set to 'Short' for all other baling conditions. One press of button 9 as the chamber is opening will pause the chamber in the fully open position. Another press of button 9 will close the chamber and resume the cycle. This function is useful if facing down a very steep hill and if the operator is unsure if the bale will transfer properly.

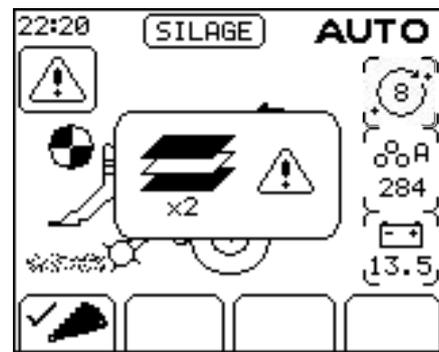
## Film Sensor

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 the '**1 Dispenser Only**' symbol; bale rotation goes into 50/50 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 control box will display the '**Out of Film**' symbol and wait.

**Note:** The film sensor may be switched off if desired.



**1 Dispenser Only**



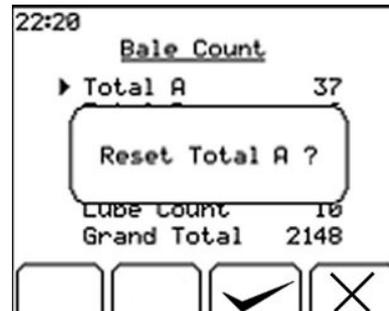
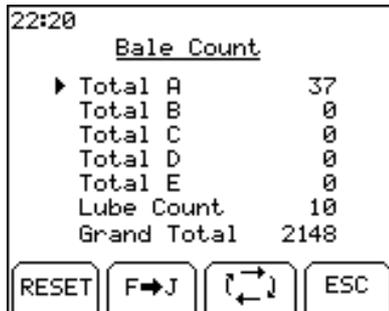
**Out of Film**

## Lube Dose

Lube dose is factory set to 3. This should be increased if it is taking a long period of time to make the bale or in very dry and dusty conditions as this determines the amount of oil applied to the chains. The grease cartridge will also get used quicker as this setting is increased. This is normal and the grease cartridge does not need to be replaced until the lube alarm sounds after 300 bales.

### 8.3.3 Bale Count

The bale count menu shows five subtotal bale counts, lube count and the grand total. The second five subtotals are accessed by pressing the soft key F→J. All subtotals and the lube count can be reset by pressing the reset soft key and the tick soft key. The grand total cannot be reset.

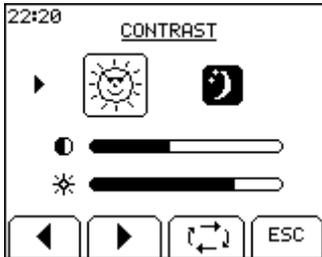


### 8.3.4 Operator setup



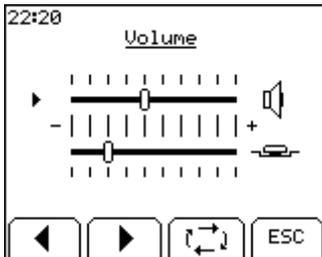
The four parameters in this menu are: Contrast, Volume, Clock Adjust and Language. Use the toggle key to move the arrow head to each of the parameters and the + and - keys to change the value of the selected parameter. ESC will return to the machine menu.

#### Contrast



Extremes of temperature may affect the contrast of the display which is adjustable from the contrast menu. Day and night options are also selectable. The brightness can also be adjusted.

#### Volume



The volume of the beeper and the button tone can be adjusted. Use the left arrow head soft key to decrease the volume and the right arrow head soft key to increase the volume.

#### Clock

Use the left and right arrow head soft keys to set the time. The toggle soft key moves from line to line in the menu.

#### Language

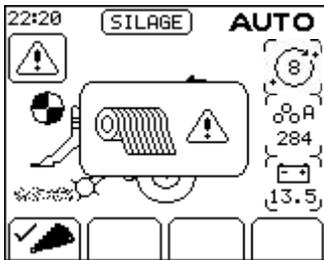
Use the arrow soft keys to move up or down to the required language and press the enter soft key to select the language.

### 8.3.5 Technician Menu

The technician menu has a lot of critical settings and is reserved for McHale engineers only. A pin code needs to be entered to access the menu.

## 8.4 Warning messages

### “Check net”



The passage of net through the netting unit is monitored; if the net cutting knife does not trip within 20 seconds of the netter starting, the net warning is displayed, an alarm sounds and the cycle is halted.

The PTO is first switched off, the roll of net is replaced, PTO engaged and the net button is pushed, net feeds into the chamber netting the bale and the cutting knife trips; the operator then checks that netting is complete and advances the cycle by pushing the 'chamber door open' button (button 9) for one second, work can then continue as normal.

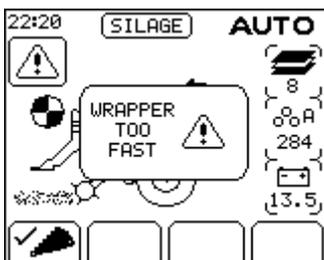
### “Safety switch!”



A mechanical Safety switch on the rear door where film is loaded prevents the dispenser ring rotating if it is open. If the rear door is not correctly fastened rotation is prevented and “Safety switch!” is displayed.

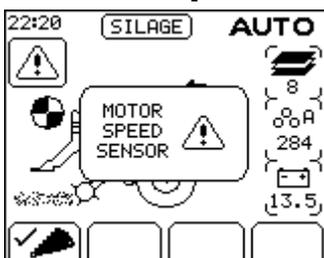
The cycle can be advanced by pressing 'resume' when the error is corrected.

### “Wrapper too fast”



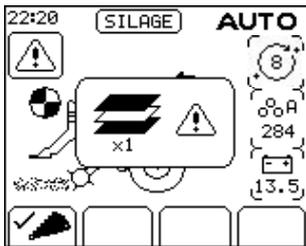
This warning will be displayed if the wrapper speed goes above 35rpm. Speed is set at 30rpm from the factory so this warning will not usually be seen unless the hydraulic settings have been tampered with.

### “Motor speed sensor”



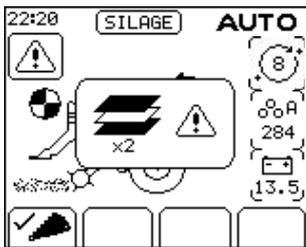
This warning will be shown if pulses are not seen from the motor speed sensor once the wrapper ring starts to rotate. Contact your McHale dealer if you see this.

### “1 Dispenser Only”



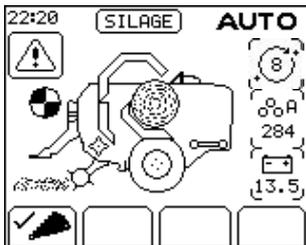
When the film sensor is switched on, failure of one dispenser to feed film will flash this warning on the display and the wrapping rollers will operate in 50/50 mode giving a correct wrap with the remaining film roll. Press ESC to silence the alarm.

### “Out of Film”



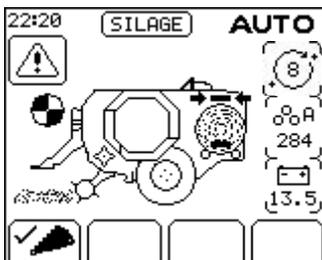
When both film rolls empty this warning is shown on the display and the dispenser rotates slowly to the loading position where the first roll is replaced, the door is closed. The rear mounted dispenser rotate button is pushed to bring the second dispenser to the loading position where the second roll is replaced. The ends of the rolls are next secured in the slots provided, the door is closed and the cycle is resumed.

### “Transfer Not Complete”



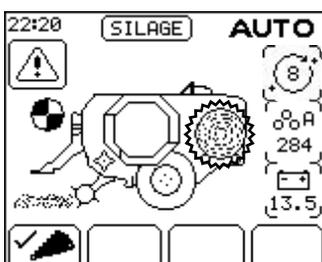
If the red stop button is pushed during transfer of a bale this error is displayed when the control box is next switched to 'Auto'. To correct the error, button 9 is pushed for one second to transfer the bale and advance the cycle. Pushing ESC on the control box will cancel the error warning.

### “Dispenser Position”



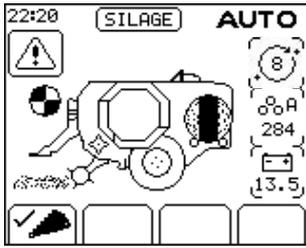
If the dispenser ring is not in the home position after netting, transfer of the bale is prevented and this warning is displayed. This can be corrected without leaving an 'Auto' cycle by pushing either forward or reverse rotate as appropriate. When the dispenser ring is correctly positioned transfer will continue.

### “Tip Bale”



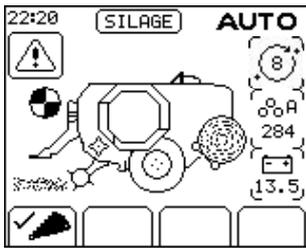
This message shows the bale on the wrapper flashing and prompts the operator to tip off the previous bale on the wrapping table which is preventing transfer of the netted bale. If Auto tip is selected the wrapped bale is automatically tipped. The 'Tip Bale' button is pushed to complete the tipping cycle.

### “Wrap not Complete”



If the red stop button is pushed during wrapping of a bale this error is displayed when the control box is next switched to 'Auto'. To correct the error 'Resume/Re-wrap' button is pushed to complete the wrapping cycle. Pushing ESC on the control box will cancel the error warning.

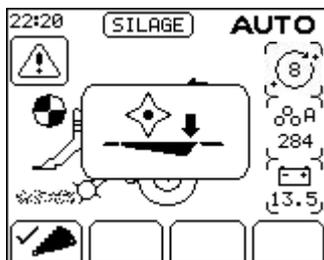
### “Tip not Complete”



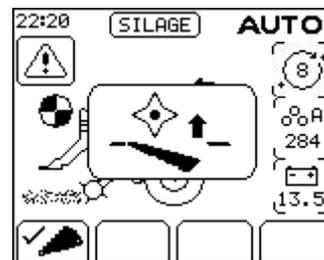
If the red stop button is pushed during tipping of a bale this error is displayed when the control box is next switched to 'Auto'. To correct the error 'Tip Bale' button is pushed to complete the tipping cycle. Pushing ESC on the control box will cancel the error warning.

### “Unblock”

This is not really an error message but signifies that unblock is active, a quick push on the reset unblock switch on the control box will restore everything to a working condition.

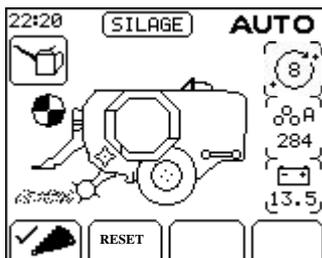


Unblock



Reset unblock

### Lube Count



An alarm is provided to remind the operator to change the grease cartridge and top up the lubrication oil after a preset number of cycles. This counts down from 300 and gives a reminder at zero. Press 'RESET' to clear the warning. It may be reset sooner if desired, from within the bale count menu. (see section 8.3.3)

## 8.5 Running a simulated “bale to wrapping” cycle

The following procedure is used to test a full “bale to wrapping” cycle in the absence of any baling material. It can be used to determine the correct operation for nearly all equipment from the start of the baling cycle to the end of the wrapping cycle. The following is the procedure used:

1. Before starting tractor, remove the net roll from the netting unit; this is important, otherwise net may get tangled up in the netter unit rollers, creating a mess and wasting net! See section 7.4.
2. Turn on the control box and select manual mode, ‘MAN’ will be displayed on the control box display. See section 8.1.
3. Scroll through the control box menu and turn the film sensor to “Off” as in 8.3.2.\*
4. Turn on PTO at a speed of 540 rpm.
5. While keeping an eye on the bill hook location, near the net set handle, (see section 7.5 for details) press the ‘Net Feed’ button until the bill hook is nearly set to trip (the hook is nearly as high as it will travel on the knurled wheel before tripping downwards, do not allow to trip).
6. Press the ‘Chamber door open’ button until the door raises slightly and an audible beeping sound is heard.
7. Switch the control box to “Automatic” mode. **Note:** If “Net?” is displayed in the control box display, then switch the “Manual/Automatic” button twice. This will ensure tripping of the bill hook.
8. Allow machine to run its full cycle.
9. Press the ‘Tip bale’ button on the Expert Plus control box.

\***Note:** If an “Out of Film” error is displayed, this means step 3 above was not carried out correctly and the film sensors are set to “On”.



**Warning!** Keep all persons outside of the ‘**danger zone**’ during all machine operations! See section 4.9 for **danger zone**’ description.

## 9. Wrapper operation

The *McHale Fusion* is designed with a wrapping system with two plastic film dispensers. Differing to conventional wrappers, the dispensers move vertically around the bale. The dispenser carrier system is mounted directly behind the baler chamber. Although the dispenser carrier ring is well protected by the safety guards and electrical safety switches the operator must ensure that all people and animals are kept out of this region while operating the machine.

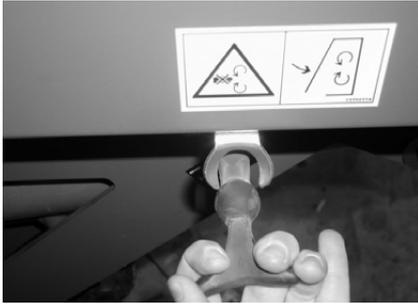
 **Warning!** Keep all persons outside of the “**danger zone**” during all machine operations! See section 4.9 for “**danger zone**” description.

### 9.1 Loading plastic film

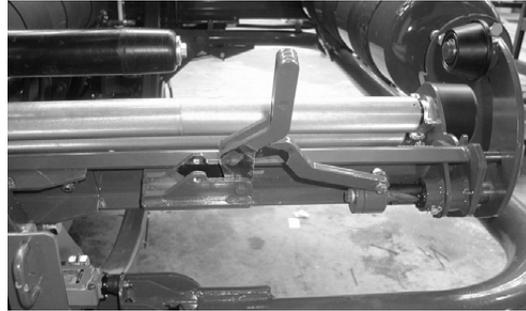
1. Release the rubber safety latch and lock in order to open the dispenser safety door on the left hand side of the machine, see figure 9.11 (see opposite page for figures).
2. Remove the linch pin and release the dispenser film roll lock, see figure 9.12.
3. Remove the old core.
4. Push the new roll on the central pin, engage the film roll lock and reinsert the linch pin.
5. Thread the film through the dispenser rollers as per the threading diagram, see figure 9.13, taking care not to trap fingers between the rollers.
6. Pull approximately 1.5 m of film away from the dispenser and make a knot at the end of the plastic film, see figure 9.14.
7. Close the dispenser safety door.
8. Push the rear mounted dispenser park button, for approx. two seconds, in order to rotate the next dispenser to the loading or “home” position, see figure 9.15. **Note:** The dispenser ring can only rotate when the safety door is closed and the control box must be in “Auto” mode when depressing this button.
9. Open safety door and load film as before.
10. Pull approx. 1.5 m of film away from the dispenser and make a knot at the end of the plastic film as before.
11. Slot the knotted end of the film in the left hand side slot of the rear wrapping roller as shown in figure 9.16.
12. Grab hold of the dangling film on the right hand dispenser and slot the knotted end of the film in the right hand side slot of the rear wrapping roller as shown in figure 9.17.
13. Close the door firmly and fasten the safety door with the rubber safety latch.

 **Warning!** Do not attempt to clamp plastic film in the “cut & hold” itself, this action may result in serious injury!

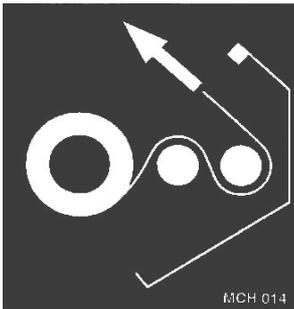
**Note:** Pushing “Resume” on the control box will complete the wrapping of a bale, that is, interrupted by an “Out of film” error symbol shown figure 9.18.



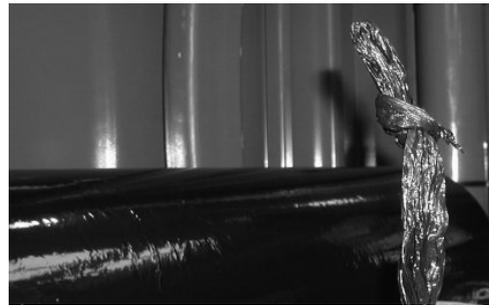
**Fig. 9.11 Rubber safety latch.**



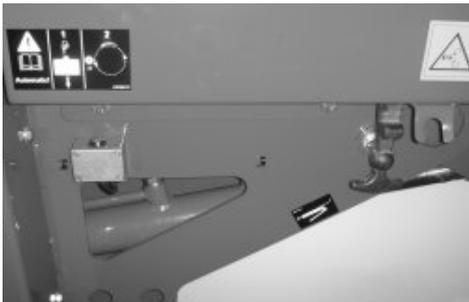
**Fig. 9.12 Film roll lock (Open).**



**Fig. 9.13 Film threading diagram.**



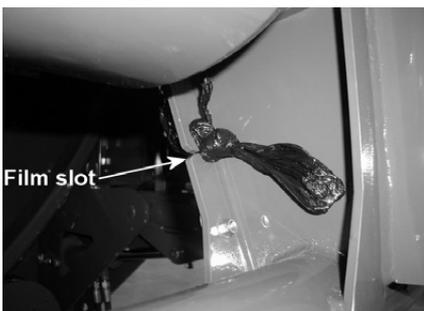
**Fig. 9.14 Film knot.**



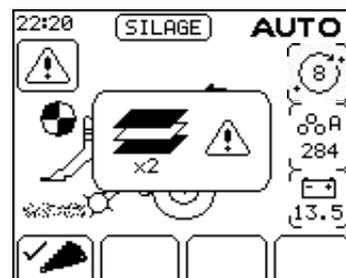
**Fig. 9.15 Dispenser park button.**



**Fig. 9.16 L.H.S Film slot.**



**Fig. 9.17 R.H.S Film slot.**



**Fig 9.18 "Out of film".**

## 9.2 Plastic film requirements

Besides well shaped dense bales, a good silage quality also depends on the use of top quality plastic film. Low standard film material will not produce good silage regardless of how well the machine wraps the bale. The plastic film should be used and stored according to the instructions of the film manufacturer.

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

**Note:** The operator needs to ensure that the bale is correctly wrapped.

It is good practice to check the bales regularly after being wrapped for correct wrapping and for torn, split or perforated plastic film.

**To determine the number of Wrapping Ring Rotations required to cover a bale carry out the following procedure:**

1. Using manual operation, from the control box, *manually* count the number of 'Wrapping Ring Rotations' (x) to cover the bale completely with plastic film.
2. Add 0.5 to this number (x).
3. Multiply this resultant figure by 2 (for 4 film layers) or 3 (for 6 film layers), 4 (for 8 layers), 5 (for 10 layers), etc.
4. Round up to the next full number if the result contains a fraction of a full number.

### Example:

Number of 'Wrapping Ring Rotations' to cover bale: 3.5 = (x)

Number of rotations to apply 4 layers of film to bale =  $(3.5+0.5) \times 2 = 8$

### Important Notes:

- (x) 'Wrapping Ring Rotations' = both dispensers rotating 360° around the bale.
- The **McHale Fusion** is a fixed chamber baler with the bale diameter usually 1230 mm –1270 mm. However, bales in excess of 1270 mm, can be produced if any of the following conditions exist:
  - a) If not enough net has been applied to the bale, (especially in high dry matter material)
  - b) Excessive feeding of the bale chamber, therefore not allowing the bale to be properly compacted to its correct size.

**Note:** It is very important to note that bales in excess of 1300mm will not have enough "wrapping ring rotations" if the above exercise has been carried out on a normal 1250 mm bale. Therefore, it is important to check the bale diameter at every change in crop condition or in differing crop row widths and densities.

### 9.3 Wrapping process

The wrapping process starts automatically as soon as the bale has been transferred from the bale chamber to the wrapping table (chamber door closed, rear roller in fully raised position and the access door closed). After the bale is wrapped with the selected number of film layers two cut & hold units grip and cut the film. The wrapping cycle is completed and the bale is ready for discharging.

If 'Auto Tip' is selected the wrapped bale is discharged when netting of the next bale starts.

**Note:** The bale will not transfer from the baler chamber if the dispenser ring is in the wrong position, this is a safety feature and is normal. In this case an audible alarm will sound and “**Dispenser Position**” error symbol will be displayed in the control box display. The **forward** and **reverse** soft key indicators will become active on the control box. Press appropriate button in order to correct and once corrected the bale will transfer and wrapping will start.

**Caution!** The machine should not be moving when the bale is tipped off, as this greatly increases the risk of plastic film damage.



### 9.4 Dispenser adjustment

The dispenser rollers are set for a standard film stretch of 70%. Optional sets of dispenser gears for both 55% and Enduro film stretching are available from your *McHale* dealer.



Figure 9.4.1 Dispenser in the "home" position.

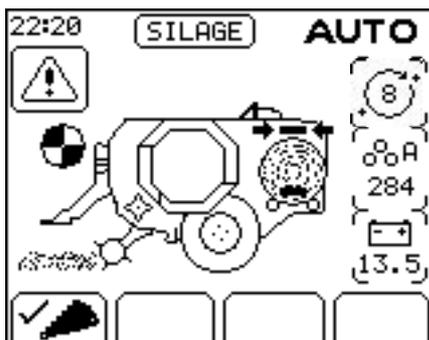


Figure 9.4.2 Dispenser position error symbol

## 9.5. Cut and hold system

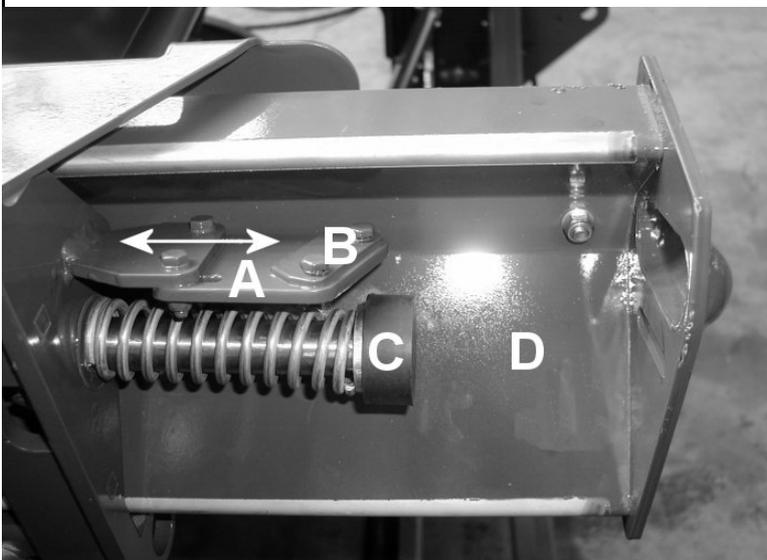
**⚠ Warning!** The cut and hold system utilises knives and accumulators in order to function. Beware of serious injury when carrying out any maintenance in this area, turn off tractor and remove key. Wear protective gloves and clothing at all times. Also never carry out any work on the hydraulic hosing as even when the machine is off, hosing remains under high pressure due to accumulators!

The cut and hold system on the *McHale Fusion* is designed to operate in conjunction with both the dispenser and table rollers to cut the plastic after a desired amount of film wrap has been applied to the bale, as set on the control box, see sections 9.2, 9.3 and 9.4 for more information on the wrapping process. The cut and hold system operates by way of a slider (D) that slides in and out using a hydraulic ram. The slider (D) then clasps the film and retracts to hold the film between (C) and (D) and then is cut at knife point (B). Once the wrapping process resumes the film is then released.

**⚠ Warning:** Before working on Cut & Hold rails, always release all oil pressure from accumulators, by slowly opening pressure hose (Fig. 9.52) and allowing all the oil to release. Accumulator pressure will reset automatically following the first operation of the cut & hold cylinder in the fully out direction.

**Never work on the Cut & Hold by holding out the rails against the oil pressure.**

The cut and hold knife may be adjusted in and out by following the procedure below and by referring to figure 9.51:



1. Remove the two M6 nyloc nuts and bolts that hold knife plate (A) using 10 mm spanners, beware of cutting knife!.
2. Move knife plate to desired position, factory set to fully out position as shown.
3. Insert the two M6 bolts and tighten nyloc nuts, for correct tightening torques refer to section 14.2.
4. Repeat for other cut and hold.

**Fig. 9.51 Cut and hold knife adjustment and removal.**

The cut and hold knife blade condition is very important for the proper operation of the cut and hold system. A blunt blade may not cut the film cleanly or possibly not at all, as such, the knives must be changed as soon as it becomes blunt. New knives may be obtained under part number CKN00011. Ensure all safety precautions are taken before carrying out the following procedure.

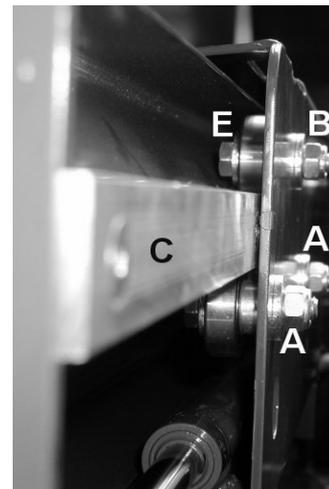
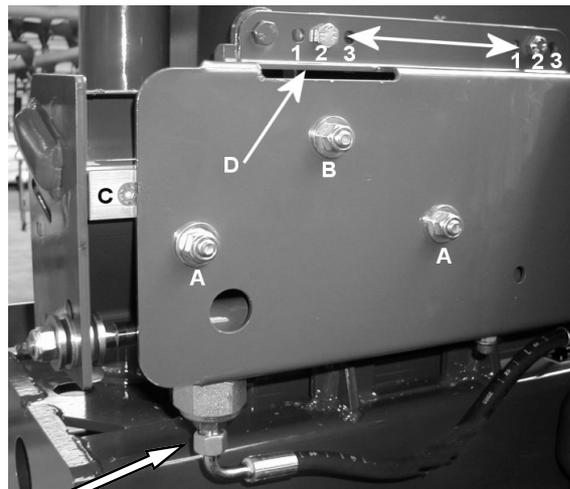
Change the cut and hold knives by following the procedure below and referring to figure 9.51 on the previous page:

1. Loosen the two M6 setscrews that hold the knife clamp plate (B) in place using a 10 mm spanner or socket, beware of knife blade!
2. Remove used knife noting that there is a spare knife blade held by the bottom of the knife clamp plate (B).
3. Place spare knife in the working position and place a spare knife underneath, if available.
4. Tighten the two M6 setscrews.

### Cut and hold rail adjustment

After much use, the moving part of the cut and hold, rail (C) may develop wear. In such a case this may be adjusted, to ensure optimum working of the cut and hold. While referring to figure 9.52 adjust as follows:

1. Insert a 24 mm open ended spanner into slot (D) until it engages with hexagon on adjuster cam (E).
2. Loosen M12 nyloc nut (B) on adjuster slightly, just enough to turn adjuster, which works on a cam principle.
3. Turn adjuster (preferably clockwise from cam side E), with a 24 mm spanner , until the resistance to turning increases greatly.
4. Hold resistive pressure on the adjuster cam (E) and tighten the M12 nyloc nut.



Accumulator Pressure Hose

**Fig. 9.52 Cut and hold rail/horizontal position adjustment.**

### Cut and hold horizontal position adjustment

The cut and hold assembly can be adjusted through three different horizontal positions if desired. The factory set position is position (2) as shown in figure 9.52.

**Warning!** Ensure that cut and hold assembly is safely secured, as assembly is quite heavy, before attempting the following procedure:

1. Loosen and remove the four M12 x 40 mm setscrews and M12 spacers and carefully place setscrews into the desired position, (1, 2 or 3).
2. Place M12 spacer between cut and tie and the chassis and tighten M12 nyloc nuts to a torque value as described in section 14.2.

## 10. Road traffic safety and operation

### 10.1 Before travelling on any public roadway:



**Warning!** Ensure that all of the following are inspected every time before attempting to go on to a public roadway, always think and practice safety.

- Ensure that the tyres are set to the correct pressure as per safety decals and according to the specifications as outlined in section 16.4.
- Ensure that all doors are securely closed and fastened, ensuring that primary and secondary catches are fully engaged, these should be kept clear of all foreign objects to ensure proper and trouble free operation.
- The bale forming chamber should be emptied and there must be no bale on the wrapping table.
- The machine must be safely cleared of all loose forage, to carry this out, firstly turn off the tractor and fully isolate the machine by disconnecting all of the connections to the tractor unit.
- The PTO shaft must be fixed safely to the tractor PTO stub shaft.
- The lighting system of the machine must be connected to the tractor and must be in a fully functioning condition.
- The electronic control box must be switched off or disconnected from the power supply, see section 8.1.
- The oil supply must be turned off and protected from accidental activation by disconnecting the oil feed line, support all loose lines in a safe manner, see section 6.10, part B.
- The pick-up guide wheels must be fixed in the road transport position and the stand placed in the horizontal position, see sections 7.11 and 10.2.
- Attention must be paid to the maximum travelling speed printed on the chassis plate on the left hand side of the machine, 40 km/hr, other speed limits that may be printed, on the drawbar plate or axle plate, for example are not relevant.
- The brake system of the machine (hydraulic or pressurised air) must be connected to the tractor. Do not travel with air brakes before the required pressure is shown on the indicator of the tractor panel.
- Ensure that all the national road traffic regulations relating to the country are fulfilled i.e. the use of safety chains may be mandatory in certain countries.

## 10.2 Road transportation

- Close all doors.
- Empty the baling chamber and the wrapping table.
- Clear the machine of loose forage.
- Lift the pickup reel completely.
- Unlock the pick-up guide wheels and swing them into the transport position rearwards, see figure 10.21 below and lock them carefully again.



*Fig. 10.21 Road transport position.*

## 10.3 Road transportation with side tip attached

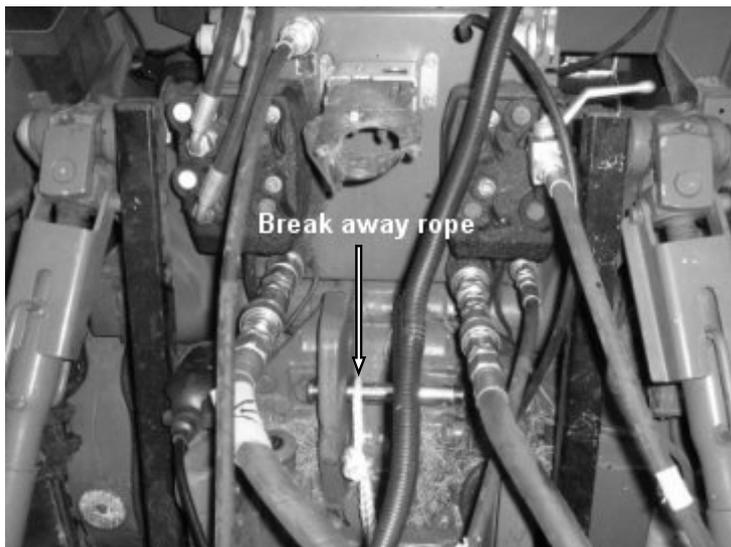
- See section 13.1, **Caution:** side tip is not to be used on public roadways!.
- Beware of projection distance to the rear of the machine when reversing as side tip attachment greatly increases the length of the machine. See serial plate for details!
- Do not attempt to go over 20 km/h at any time, while the side tip attachment is assembled to the machine.

## 10.4 Break away brake

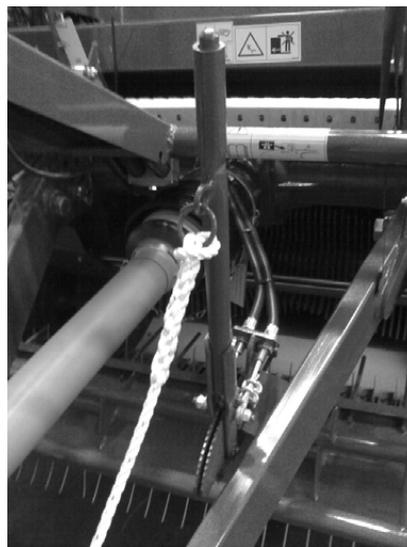
The *McHale Fusion* is fitted with a handbrake which must be applied when the machine is detached from the tractor. The handbrake handle has a rope fitted to a calibrated ring which must have the other end securely fixed to the tractor each time the *Fusion* is attached to the tractor. Should the *Fusion* hitch ever become detached from the tractor this rope will apply the brakes on the *Fusion*.



**Caution:** Always ensure the hand brake has been released before moving the *Fusion* on the road or operating in a field.



**Fig 10.31** Break away rope fixed to tractor



**Fig 10.32** Handbrake handle

## 11. Baler field operation and baler adjustments

### 11.1 Break in period

**McHale** recommend a break in period of approximately the first 50 bales or until the paint within the baler has worn off. **Note:** It is important to realise that roller and drive loads increase as the bale size approaches it's maximum diameter. As such, frequently making bales greater than the maximum diameter, by pressing and holding the net button on the control box, is not recommended as this can lead to premature failure of components. Ensure that all grease points are adequately greased to prevent rapid wear of components.

### 11.2 Swath preparation

An optimum baler performance of the *McHale Fusion* requires a good swath preparation in advance. **The optimum swath width is 1.40 m.**

**Note:** Swath width is the single most important factor in the preparation for proper bale formation. A swath narrower or wider than 1.5 m will lead to an uneven bale formation, with lesser or greater amounts of material, other than 1.5 m in a swath, leading to greater bale deformation, respectfully.

In the case where narrower swaths are unavoidable it is recommended that the swath be periodically directed 30 – 40 m to the right hand side and also the same distance to the left hand side of the pick-up as the baler is driven over the swath, see figure 11.2.1.

Collect the material into one side of the pick-up for 6 to 8 seconds. Then cross over the windrow and collect material for the same duration. Reduce the length of time for heavy windrows and increase for lighter windrows.

Continuous weaving is not recommended as this will result in excessive material being placed towards the centre of the bale, see figure 11.2.2.

In the case of wider swaths i.e. >1.5 m; this size of windrow should be avoided, as in this case a greater amount of material will continue to be fed to the outside of the baler. As a result, a greater amount of material will be fed to the outer edges of the bale than to the centre. This will result in concave-shaped bales.

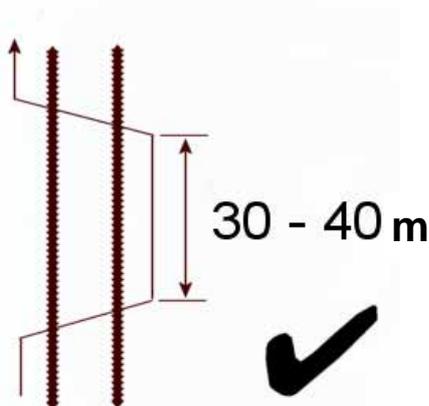


Fig. 11.2.1.

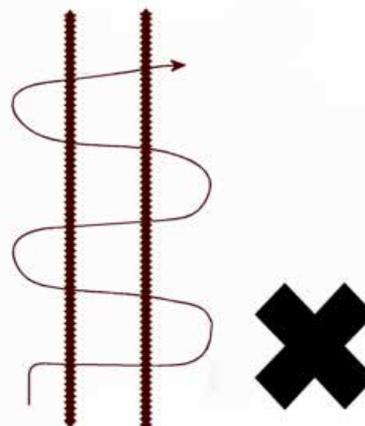
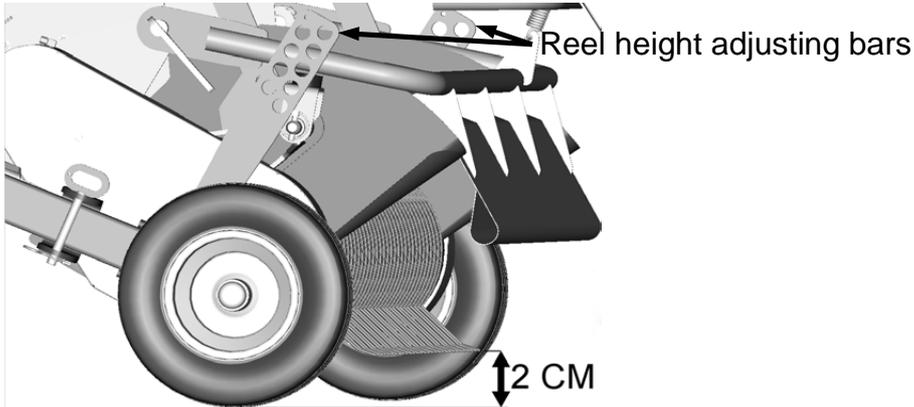


Fig. 11.2.2.

### 11.3 Pick-up reel height adjustment

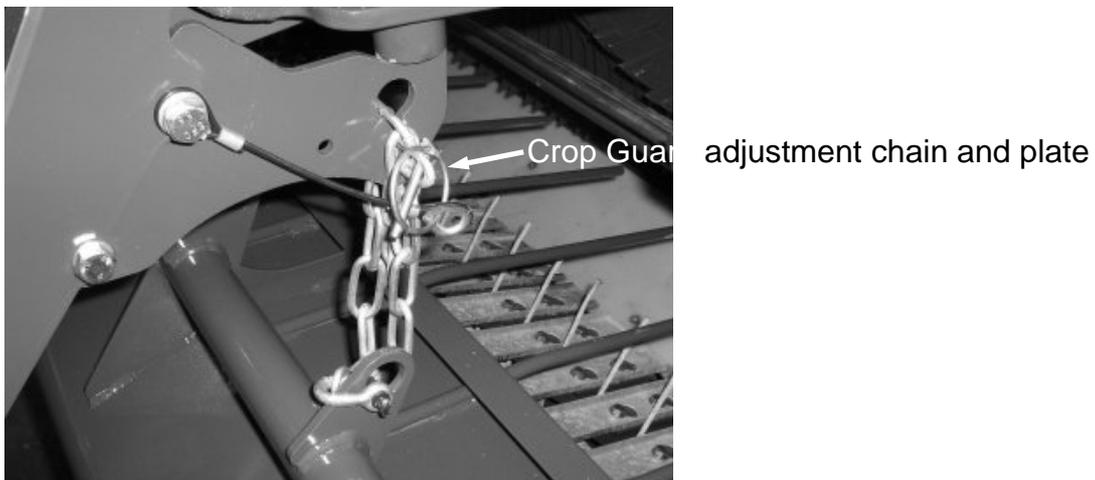
Before working in the field unlock and swing the pickup guide wheels forwards and lock them carefully again. Use the appropriate hole in the adjusting bar so that the pickup is at the optimum working height with the pickup tines being 2 cm above the ground, see figure 11.3.1. **Note:** Working with the pickup tines too low will leave the tines susceptible to breakage and rapid wear!



**Fig. 11.3.1 Pickup adjustment.**

### 11.4 Crop guard adjustment

The function of the crop guard plate is to hold down the baling material in order to achieve an even flow of material. The height of the crop guard plate can be adjusted to suit the material type and volume, by means of adjusting the chain length, see figure 11.4.1.



**Fig. 11.4.1 Crop guard adjustment chain.**

## 11.5 Unblocking system

**⚠ Warning!** Never attempt to go near the pick up reel with the reel still rotating and the tractor on. In the rare case that the reel cannot be unblocked from using the procedure below, then the pickup reel will require manual unblocking, by removing the excess blocked material. To do this safely ensure PTO is disengaged, tractor turned off, key removed and that all parts have stopped rotating. Also ensure machinery can't roll by having machinery on level ground and the brakes applied. Remove excess material carefully. Always wear protective clothing and gloves, beware of sharp edges!

The **McHale Fusion** is equipped with an unblock system. In case of a blockage in the feeding channel, the PTO overload clutch will disengage and a loud clicking noise will be heard. Once this sound is heard, immediately turn off the tractor PTO and push the **"Unblock"** button on the control box or handpiece for three seconds, while in the **'Auto'** cycle, the unblock routine will start. The knives, if set to on, (see section 8.1 for control box button function) will first retract followed by the lowering of the channel floor, see figure 11.5.1. Then restart the tractor PTO at a slow speed, increasing speed slowly up to 540 rpm and not exceeding 610 rpm. Any lumps of material can now be easily transported into the bale chamber.

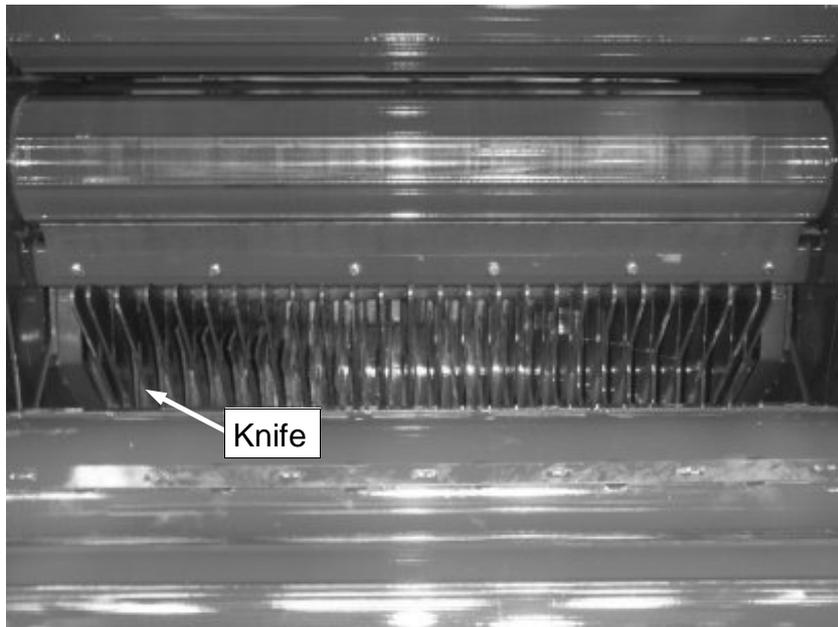
After having cleared the blockage a quick push of the **"Reset"** button will return the channel floor to the working position followed by the knives if previously set to on.



**Figure 11.5.1 Unblock mode, knives retracted and channel floor lowered.**

## 11.6 Chopping system

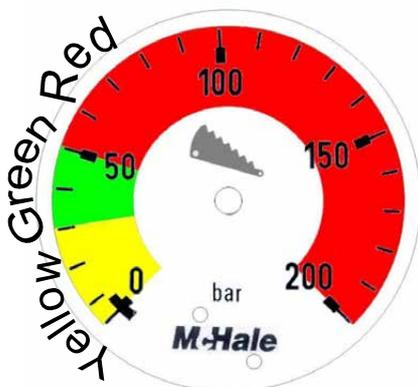
The *McHale Fusion* is equipped with a 23-knife chopping system for fine cutting. If a coarser chop is required 11 of the knives can be removed, or all can be removed if desired, see section 7.6 on knife removal and installation. The **knife** button on the control box will move the knives into the feeding channel or retract them. It is recommended to switch the chopping device off when baling very dry material.



**Fig. 11.6.1 Chopping system.**

In order to protect the chopping device against overload and damage, hydraulic accumulators are connected to the actuation circuit. **Note:** To keep the knife slots clear of material it is recommended to switch the knives on and off several times daily. To do this, just press the **knife** button while the control box is in automatic mode, this will drop the knives. Press the knife button again and the “knife on” symbol will appear and the knives will be reset to the on position when the next bale transfer occurs.

## 11.7 Knife pressure gauge



**Figure 10.7.1. Knife pressure gauge**

The knife pressure gauge, shown in figure 10.7.1. Is used to indicate the pressure applied to the knife operating rams. When the knives are being switched on the pressure will rise to about 150 bar before dropping back down to between 30 and 50 bar, this is the green area on the knife pressure gauge.

During operation the knife pressure will be topped up each time the tailgate is closed (if Knives are set to on), this can be observed on the knife pressure gauge as the pressure reading will increase before settling again at a pressure of between 30 and 50 bar.

## 11.8 Bale density gauge

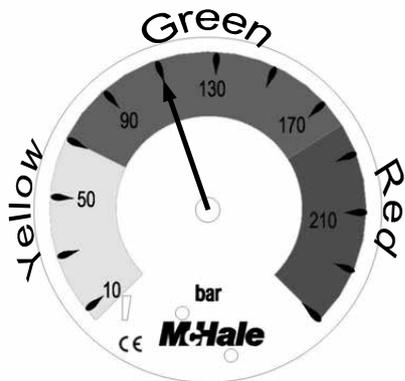


Fig. 11.8.1 Chamber pressure

The bale density gauge, shown in figure 11.8.1 is used to indicate the pressure applied to the top door rams (on the small side of the rams). When the top door is closed, and no material in the baling chamber, this is known as “chamber pre-charge pressure”. This pressure will then increase at the end of the bale forming cycle due to the oil in the cylinders being forced into the accumulator, as material begins to fill up the baling chamber, thus pushing the door rams open ever so slightly. This can cause the gauge to go into the red, and is normal operation. However, pressure should never go above 200bar, if so consult your **McHale** dealer.

## 11.9 Setting chamber pre-charge pressure

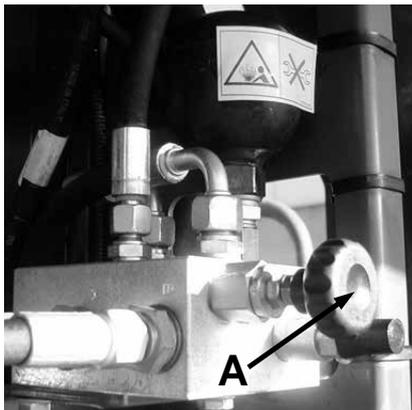


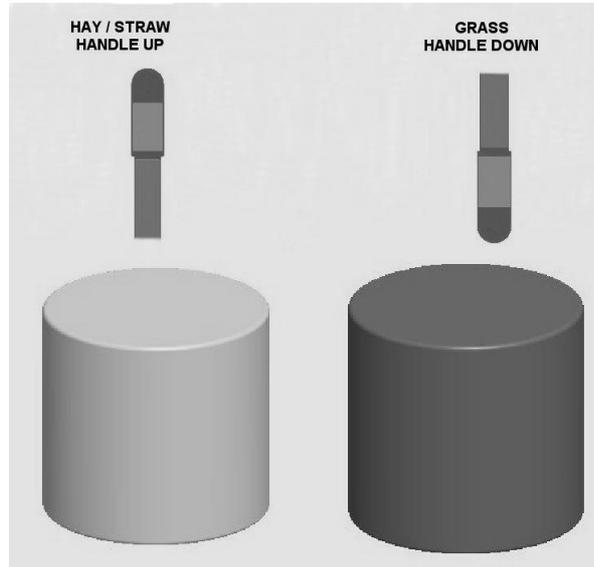
Fig. 11.9.1 Door charge valve.

The bale density gauge is divided up into increments of 20 bar per increment and has a yellow zone, green zone and a red zone as a quick reference during machine operation. When baling drier materials such as straw or hay **McHale** recommend adjusting the 'silage-hay-straw' sensor position plate (see instructions next page). When baling wetter materials such as grass for silage a pressure of between 110 and 160 bar is recommended. Chamber pre-charge pressure is set at the door charge valve, shown in figure 11.9.1, and is located in the hydraulic section (inside the front right door panel) by following the below procedure.

**⚠ Caution:** The chamber pre-charge pressure should never be adjusted above 160 bar pressure in any case, damage to machine components may result!

1. Remove all unfinished and finished bales from the baling chamber.
2. Loosen the lock nut on the adjustment screw (A).
3. Inspect the existing pre-charge pressure by holding the top door close button, while in “**manual**” mode, on the control box for 3 seconds, see section 8.1 for button referencing.
4. If pressure must be increased (gauge in the yellow zone, or if there is a change in the material being baled i.e. dry to wet etc., gauge in the green zone) turn the adjustment screw (A) clockwise and if the pressure is to be decreased turn the adjustment screw anti-clockwise.
5. Continue to inspect the gauge and once the indicator needle is at the desired setting, tighten the lock nut on the adjustment screw ensuring not to let the adjustment screw itself rotate and close all protective covers. To reduce the pressure the door must be opened, then turn the adjustment screw and close the door again to check the gauge.

Silage-Hay-Straw adjustment (located non-drive side of chamber close to top door hinge). The bale chamber features a quick adjustment sensor position plate. This allows for a quick change to lower density bales as required for hay and straw without any need to adjust the chamber pre-charge pressure. In effect it limits the level to which the chamber pressure will climb above the pre charge pressure during baling of hay and straw.



Silage position



Hay & Straw position



## 11.10 Chamber door lock

The chamber door lock is to be used at all times that the operator may wish to enter the chamber in order to change the cutter knives for example. The lock is located in the front right hand side panel of the machine. See figure 11.10.1 for safety decal and location of chamber door lock valve. The lock works by way of a hydraulic on/off valve, while locked the valve is in the “off” (horizontal) position and the hydraulic rams will remain open, hence, keeping the doors locked.

**Warning!** The operator must be aware of all related warnings, safety decals and dangers before attempting to carry out any work or maintenance from within the baling chamber. Please refer to and follow carefully section 7.6 for instructions on how to enter the baling chamber.

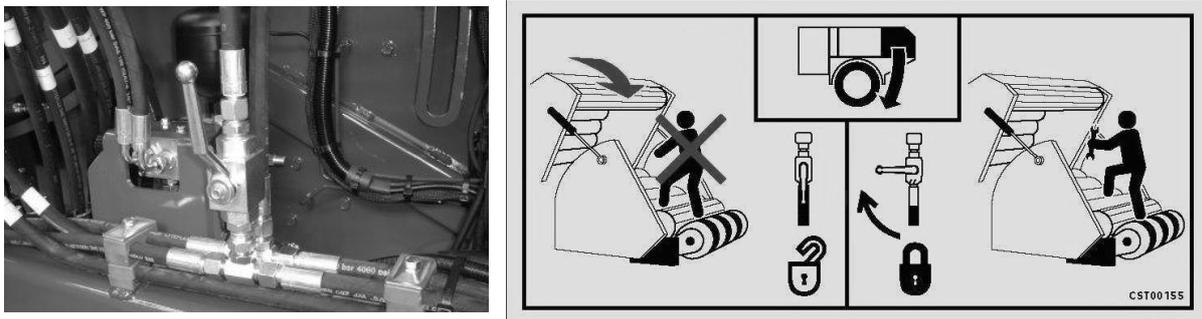


Fig. 11.10.1 Chamber door lock and CST00155, “lock chamber door” safety decal.

## 11.11 Spare film holders and door safety latch operation

The *McHale Fusion* can hold up to 8 rolls of spare film along with 1 more in each of the two dispensers. The spare rolls are stored at each side of the baler behind the centre panels. To open the primary latch (A) on the door panels a 13 mm spanner or flat headed screwdriver will be required and the secondary latch (B) is opened by means of holding the panel outwards and lifting latch (B) upwards as shown in figure 11.111 below. Safety latch type (C) is found on all other panels.

To store film rolls carefully pull down film holders and slide the film roll core onto the film holder. Each holder stores two rolls of film each. Push the film rolls back into an upright position.

**Warning!** Beware of falling plastic film rolls and other stored objects when opening door panels, especially where the machine is not on level ground!

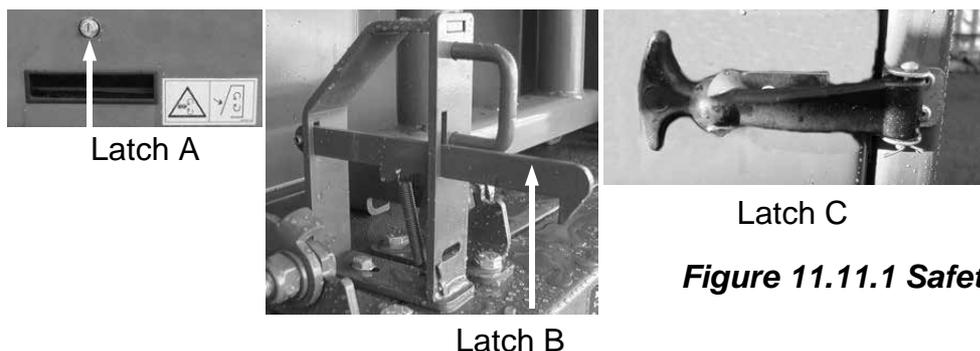


Figure 11.11.1 Safety latch types

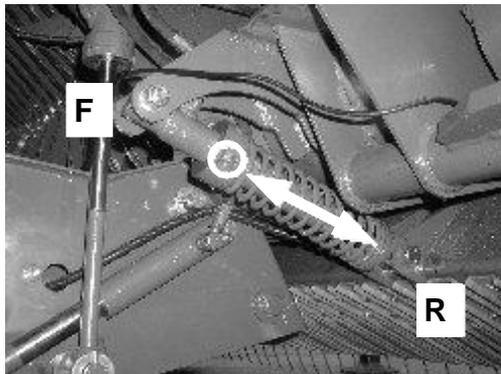
## 11.12 Adjusting pick-up float springs

The spring retainer collars which are used to adjustment the pickup float springs are located on either side **underneath the chopper unit**, see figure 11.12.1 below. To adjust follow the procedure below:

1. Using the tractor spool handle hydraulically raise the pickup, in order to release float spring pressure.
2. Ensure that the tractor engine has been switched off, the key removed and the brakes applied before carrying out the following procedure.
3. Loosen the collar by slacking off the bolts (circled below), then tap the collar in the direction (R) if increased float is required, or in direction (F) if less float is required.
4. Remember to fully tighten the bolts on the collar when adjustment is complete. Lower the pickup reel.

**Note:** This adjustment should enable the pickup to drop completely while in the lowered position. If not , re-adjust by lowering the spring tension by repeating steps 1 through 3.

**Note:** If operating at heights other than the fully lowered position, then additional spring force will be required to obtain adequate float, i.e. move the collar in direction (R).



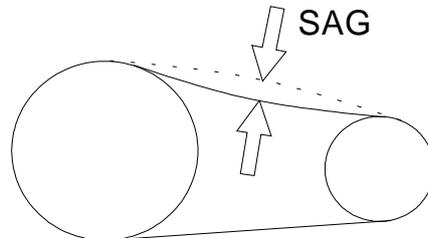
**Fig. 11.12.1 Adjustment of pickup float springs.**

**Warning!** When baling with the **McHale Fusion** ensure that the control lever for the spool operating the pick-up reel height adjustment is in the float position. If the lever is not in the float position then the reel will be fixed in position and will be unable to follow the ground contour.

## 11.13 Chain adjustments

It is important for the efficient operation of the machine that all drive chains are kept correctly tensioned. The following is a general guide to chain adjustment.

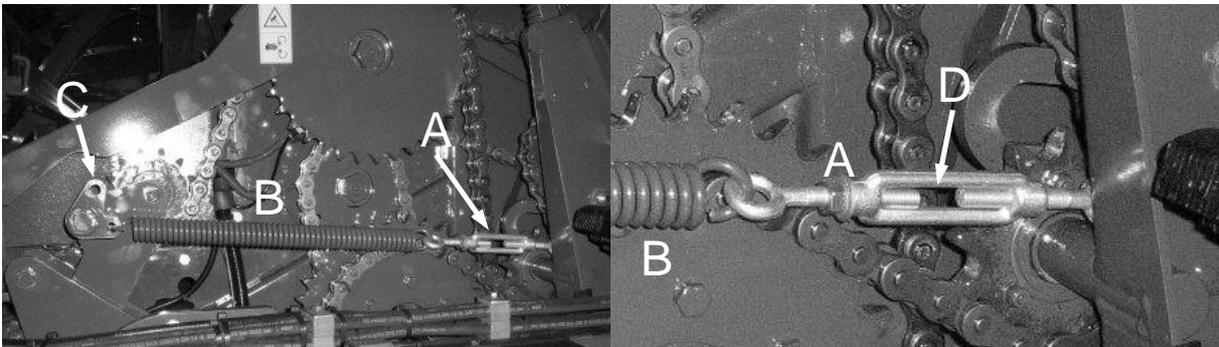
The sag is measured at the midpoint of the chain between the sprockets. Always ensure one side of the chain is tight so that the correct reading is obtained. Even though some drives differ in detail the basic adjustments stay the same.



All roller chain adjustments will require two 19 mm spanners for adjustment, unless otherwise stated. The following chains will require an inspection for sagging after the first 500 bales and must be inspected once per 1000 bales after this.

### 1. Main drive chain adjustment:

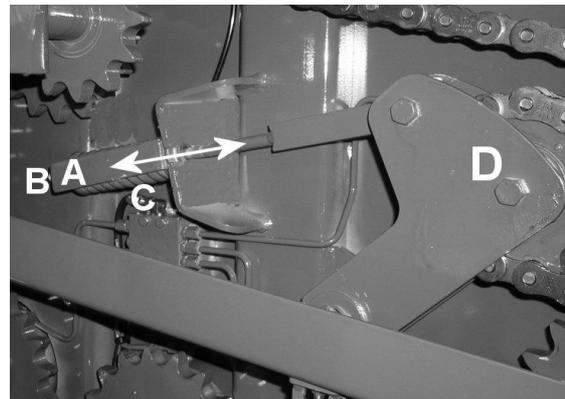
Adjust turn buckle (A) until the gap (D) is 25mm. As the chain wears the gap (D) will need to be reduced. If there is no more adjustment available in the turn buckle (A) the spring (B) can be moved to location (C) on the chain tensioner bracket.



Always inspect chain tightness after adjustment.

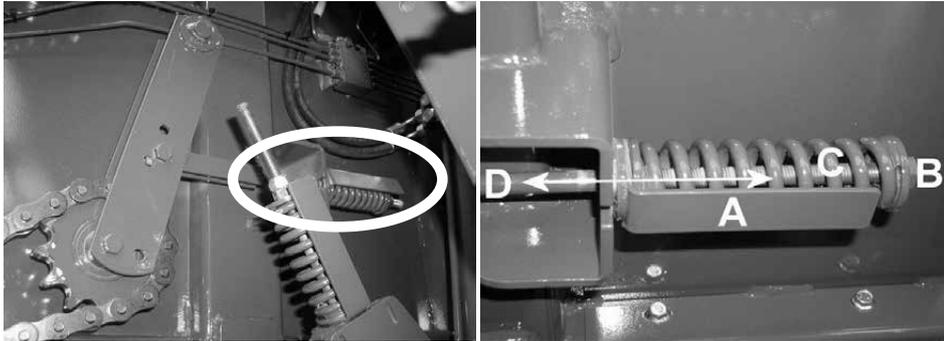
### 2. Bottom chamber door chain adjustment:

Adjust M12 nyloc and nut (B) until compression of spring (C) has reached the same length as spring guide (A). Spring guide (A) is an indicator only and always inspect chain tightness after adjustment, as greater spring compression may be required, due to chain wear, chain damage etc.



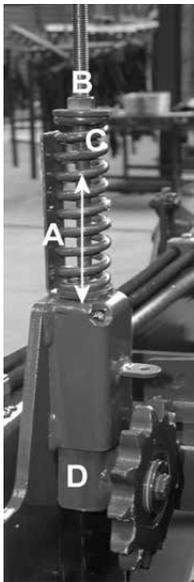
3. **Top chamber door chain adjustment:**

Adjust as discussed in #1 on previous page, but location as shown below.



4. **Bottom door to main drive chain adjustment:**

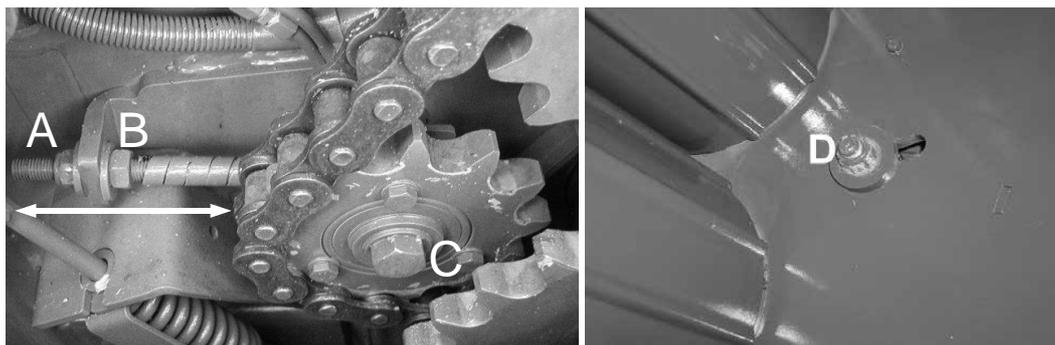
Adjust as discussed in #1 on previous page, but location as shown below.



5. **Front chamber segment chain adjustment:**

Adjustment of the front chamber chain will require the use of a 19 mm and 24 mm spanners and socket and is carried out as follows:

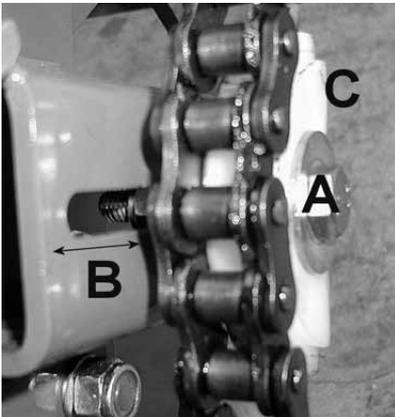
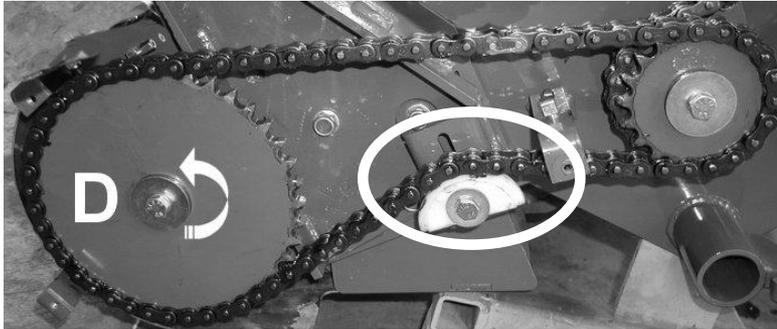
1. Loosen nyloc nut (D) about 1 turn anticlockwise and loosen nut (B) in the direction shown.
2. Tighten (A) until the chain is taut, **do not over tighten!**
3. Tighten nyloc nut (D) and bolt (C) when chain is taut, i.e. minimal sag.
4. Tighten nut (B).



## 6. Pickup reel tine chain adjustment

To adjust tine reel chain the use of a 17 mm spanner and socket is required.

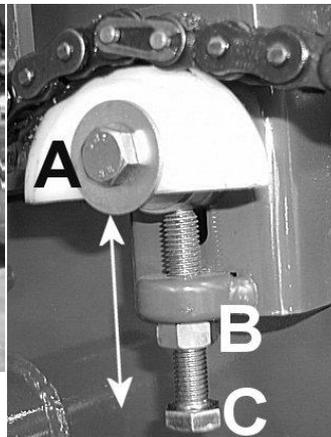
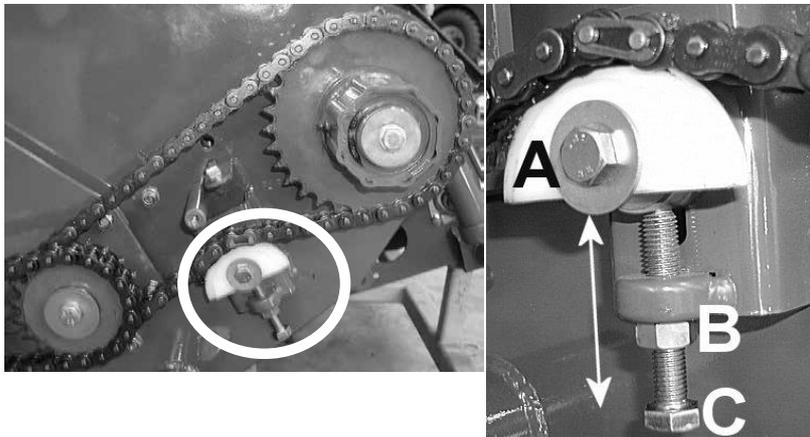
1. Loosen (A) and turn tine sprocket (D) anticlockwise as shown below.
2. Apply upward pressure (along slot B) to nylon chain slide (C), while continuing to hold sprocket (D) in position.
3. Tighten (A) and ensure that sagging is kept to a minimum.



## 7. Reel drive chain adjustment

To adjust the reel drive chain the use of both a 17 mm and 19 mm spanner and socket are required.

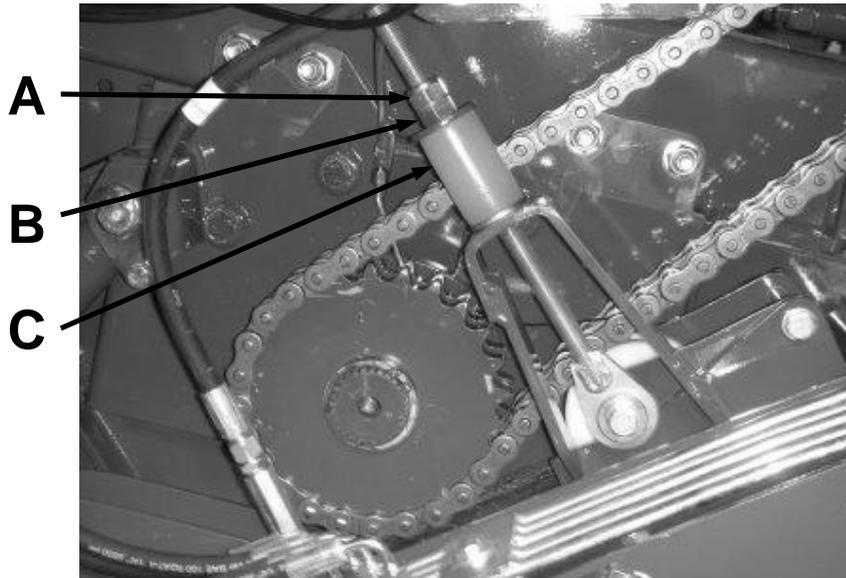
1. Using 17 mm tools loosen (A) anticlockwise by approx. 1 turn.
2. Using a 19 mm spanner loosen nut (B).
3. Tighten setscrew (C) until there is little or no sagging of the chain and retighten bolt (A).
4. Retighten nut (B).



## 8. Chopper unit duplex chain adjustment

To adjust the duplex chain the following tools are required; two 24mm spanners. Follow the below procedure:

1. Using the 24mm tools, loosen nyloc nut (A).
2. Tighten nut (B) until the distance from the bottom of the rubber spring (c) to the top of the washer under the nut (B) is 75mm.
3. Hold nut (B) with one spanner and tighten nut (A) down onto nut (B) with the second spanner.

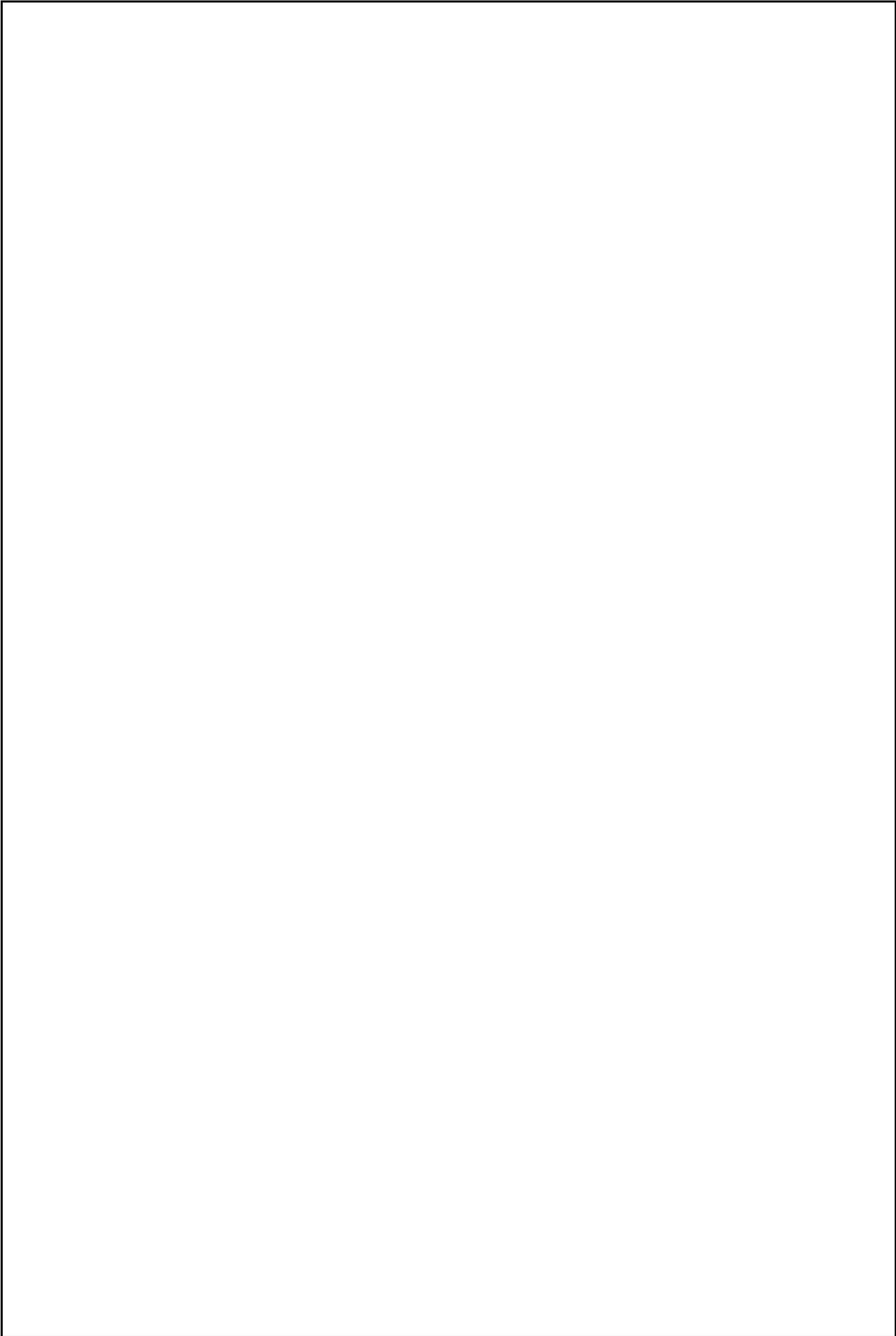


## 11.14 Net wrapping system

In an automatic cycle the control box emits a series of beeps when the bale has reached the predetermined density to alert the operator that netting is about to start.

**Note:** The operator must stop the forward movement of the tractor at once! (Pushing and holding the “net delay” button will delay the onset of netting).

Next a continuous beep informs the operator that the netting has started. After the set number of net layers are applied to the bale the net is cut and the chamber opens transferring the bale to the wrapping rollers. The chamber now closes, wrapping commences and the operator can continue baling. Please refer to sections 7.1 through to 7.5 for netter requirements, settings and adjustments.



## 12. Accessories and optional equipment

### 12.1 Accessory and optional equipment availability

Certain accessories and optional equipment may or may not be available in all countries, depending on varying circumstances. The following key symbols, are to aid in what equipment is sold as standard, optional and not available on the **McHale Fusion**. They are only correct at time of print and may vary.

Key: Standard Equipment = ●  
Optional Equipment = ○

### 12.2 Knife blanks ●

The knife blanks are to be used anytime one or more knives are to be removed. They prevent clogging of baled material in the, otherwise empty, knife slots. They are stored in the front left hand section of the machine in the knife/ knife blank holster.

**Warning!** Ensure that the tractor is off and that the key is removed before opening this panel, danger of rotating parts!

Follow the instructions below for securing knives and blanks in the holster:

1. Slot the blank or knife into bottom slot of holster.
2. Push knives/ knife blanks into the holster and insert pin (L) and lock pin into slot by rotating anticlockwise.
3. Finally secure knives/ knife blanks by rotating setscrew (S) clockwise until screw (S) is securely tightened against knives/ knife blanks.



**Fig. 12.21 Knife blank/Knife holster**

Standard Equipment = ●      Optional Equipment = ○

## 12.3 Wheel chocks ●

Wheel chocks are provided to secure the baler wheels anytime the baler is to be detached from the tractor, or if the machine is to be stored or parked up. They are located just above the pickup wheels, while in the transport position, see figure 12.31 below.



*Fig. 12.31 Wheel chock locations (Left and Right)*

## 12.4 Tool Box ●

A tool box is located in the front left hand section of the machine.

**⚠ Warning!** Ensure that the tractor is switched off and that the key is removed before opening this panel, danger of rotating parts!



*Fig. 12.41 Tool box*

## 12.5 Drawbar hitch options

- **Low drawbar hitch ●**  
Depending on the country of use this drawbar type is standard but the high drawbar hitch is available as an option. See 12.61 and 12.62 for available stands.
- **High drawbar hitch ○**  
Depending on the country of use this drawbar type is standard but the low drawbar hitch is available as an option.

Standard Equipment = ●

Optional Equipment = ○

## 12.6 Stand options

- **Stand type A ●**  
Stand type A is a manual static type stand and is suitable for use on the low drawbar hitch only!
- **Stand type B ○**  
Stand type B is a hydraulic type stand and is suitable for raising or lowering the machine for tractors that have static drawbar hitches. The ram on this stand has a stroke of 200 mm. This stand type is available on the low drawbar hitch only.
- **Stand type C ○**  
Stand type C is a hand operated stand that comes as standard on the high drawbar hitch option. This is raised and lowered by means of a power-screw system. This stand type is not available for the low drawbar hitch.

## 12.7 Brake options

- **Hydraulic brakes ●**  
This system utilises one hose for connection to the tractors hydraulic brake coupling. This is the most common system on the machine.
- **Air brakes ○**  
This system utilises two air brake couplings and the use of which, may be mandatory in certain countries. Always heed local road regulations!

## 12.8 Tyre options

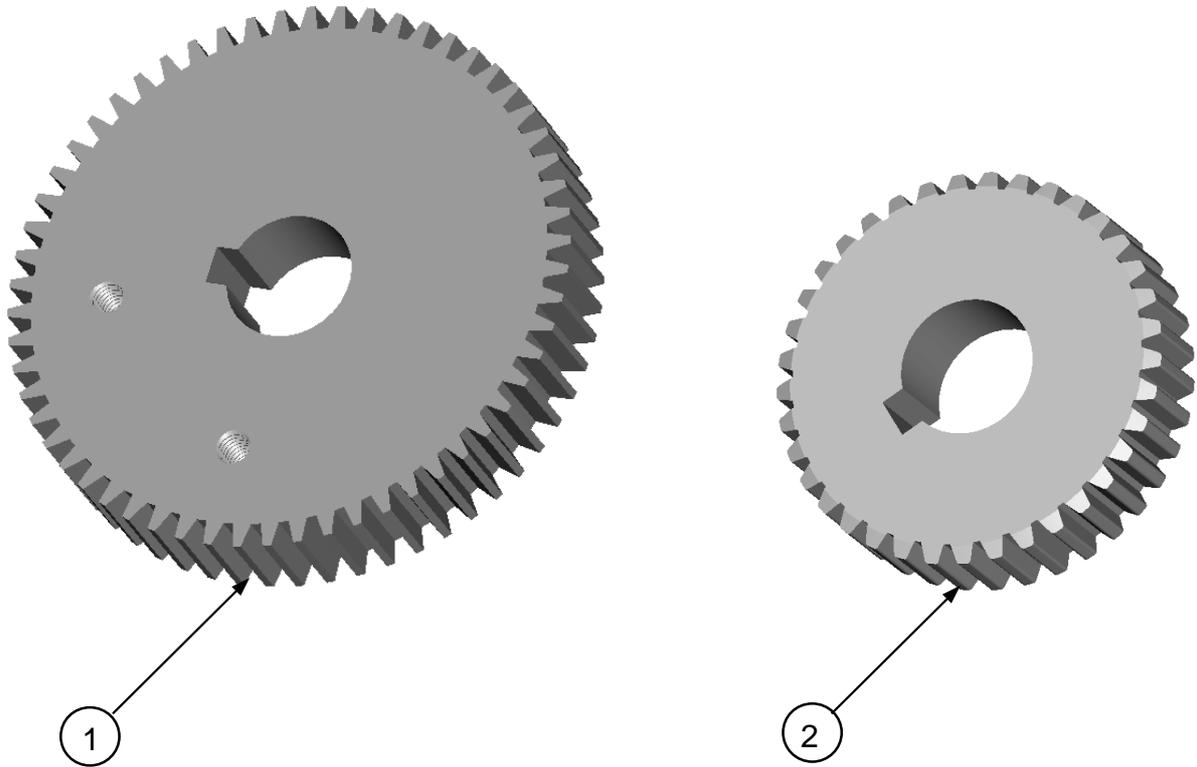
- **Tyre type A ●**  
Vredestein 550/60 R22.5
- **Tyre type B ○**  
Vredestein 650/55 R22.5

## 12.9 Side tip option ○

This option is used for knocking the bale onto it's side and is very useful for drier countries in particular as it allows the bale to land on the bales edge, which, has a much higher degree of film coverage. It is attached to the rear wrapping cradle.

Standard Equipment = ●      Optional Equipment = ○

## 12.10 Dispenser Gear options



➤ **70% GEAR OPTION: ●**

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

➤ **55% GEAR OPTION (HOT CLIMATES): ○**

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

➤ **32% ENDURO PLASTIC OPTION: ○**

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

Standard Equipment = ●      Optional Equipment = ○

## 13. Attachments

### 13.1 Side tip



#### Operating the *Fusion* side tip frame

Once the side tip frame is assembled to the *Fusion* it will operate automatically without an operator input. As each wrapping cycle is completed the operator must ensure that a clear and sufficiently large landing area is available for the bale.

#### Safety

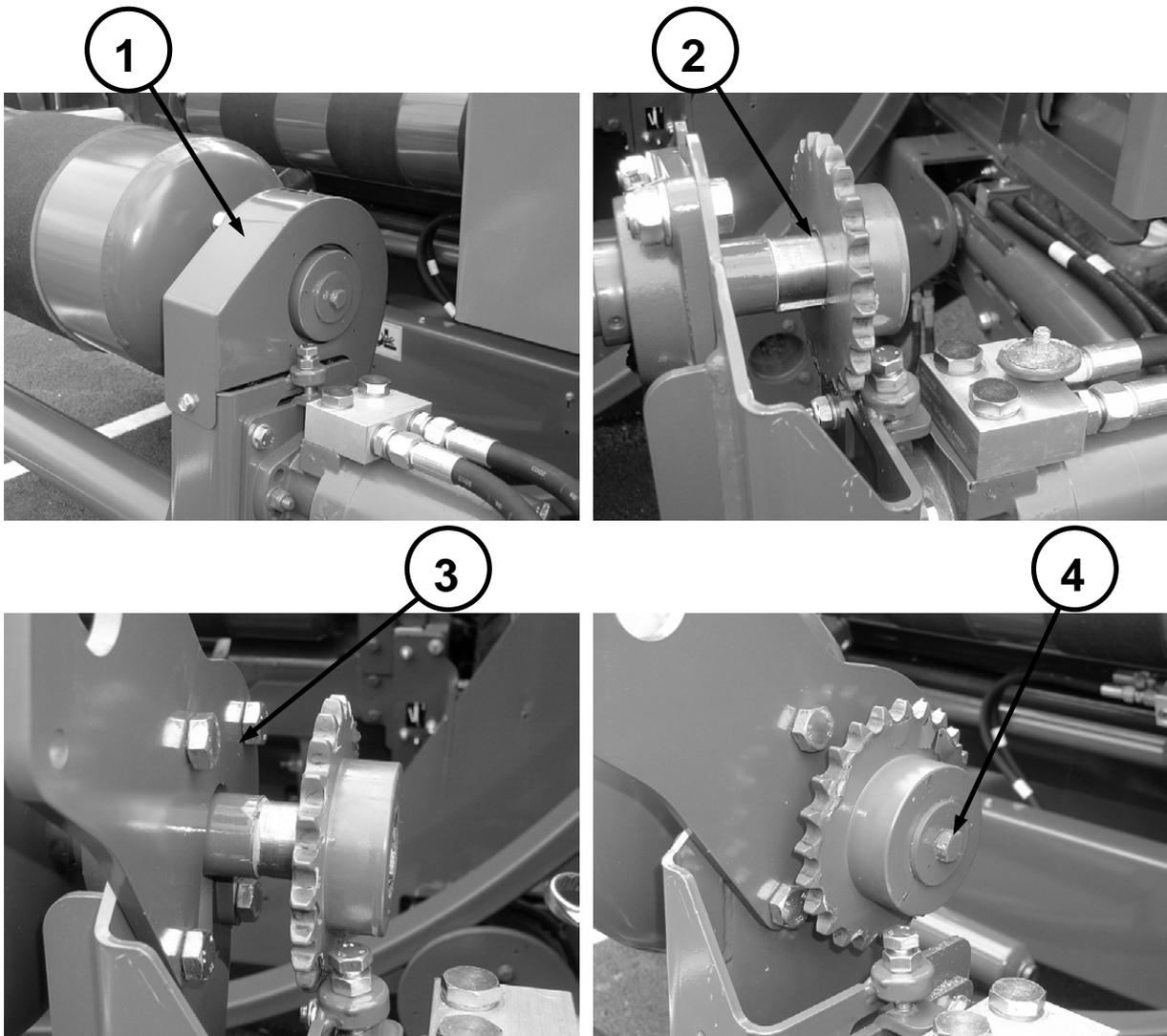
Always ensure that there are no persons behind or around the wrapper during operation and unloading.

#### Road Transport

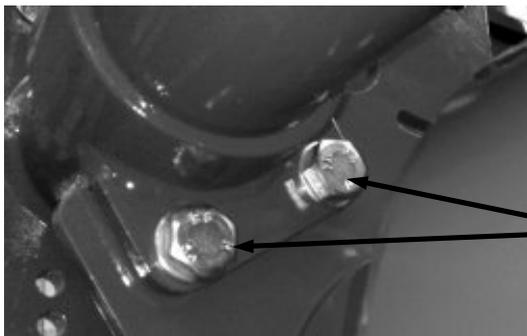
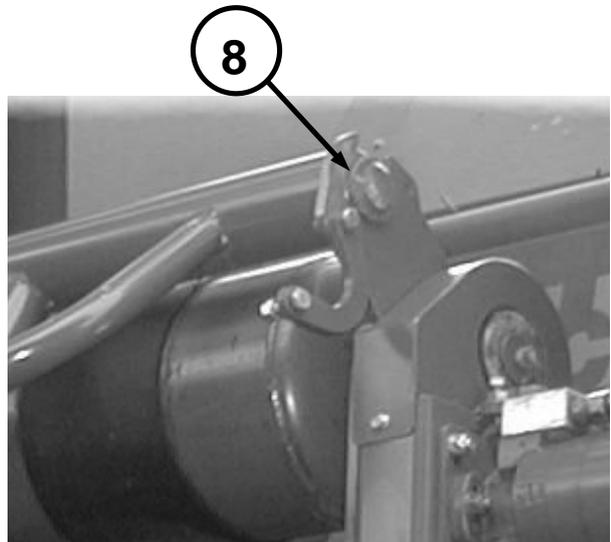
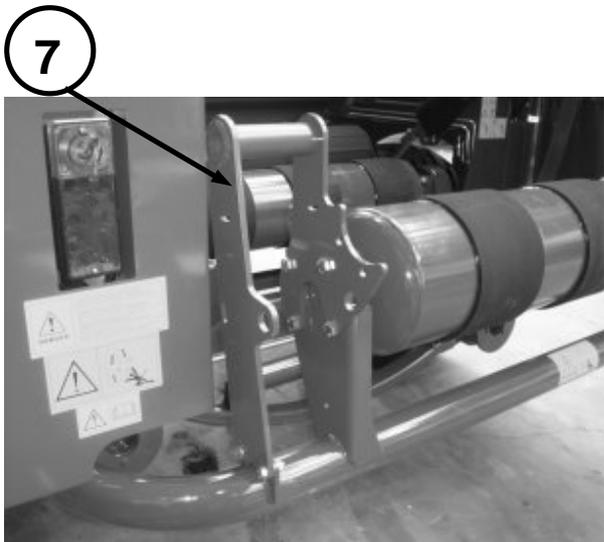
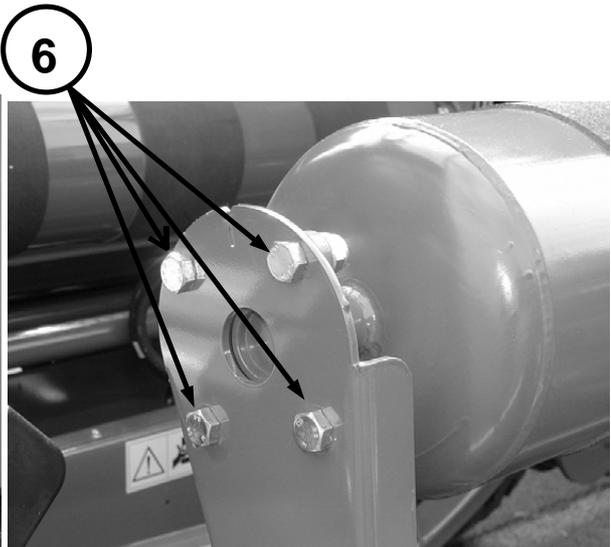
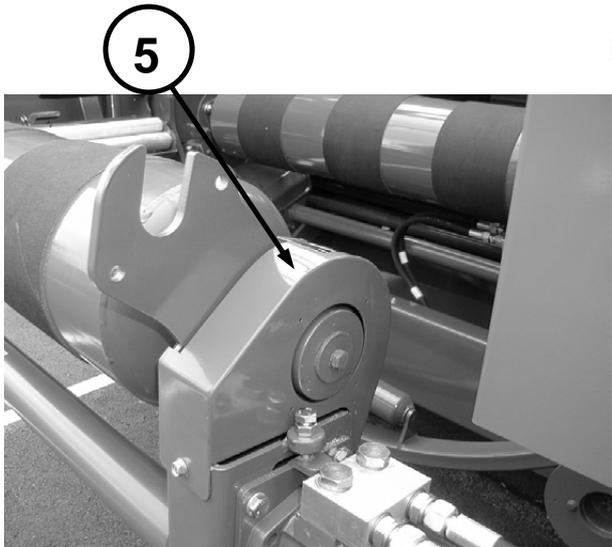
The *Fusion* Side Tip is not to be used in field or on road at speeds above 20km/hr. It must be ascertained first that road regulations in the country of use allow you to transport the *Fusion* Side Tip Frame behind a *Fusion*. It must also be noted that the *Fusion* Side Tip Frame adds 1.7 metres to the overall length of the *Fusion*. Always allow for the tail swing when turning the *Fusion* and Side Tip Frame.

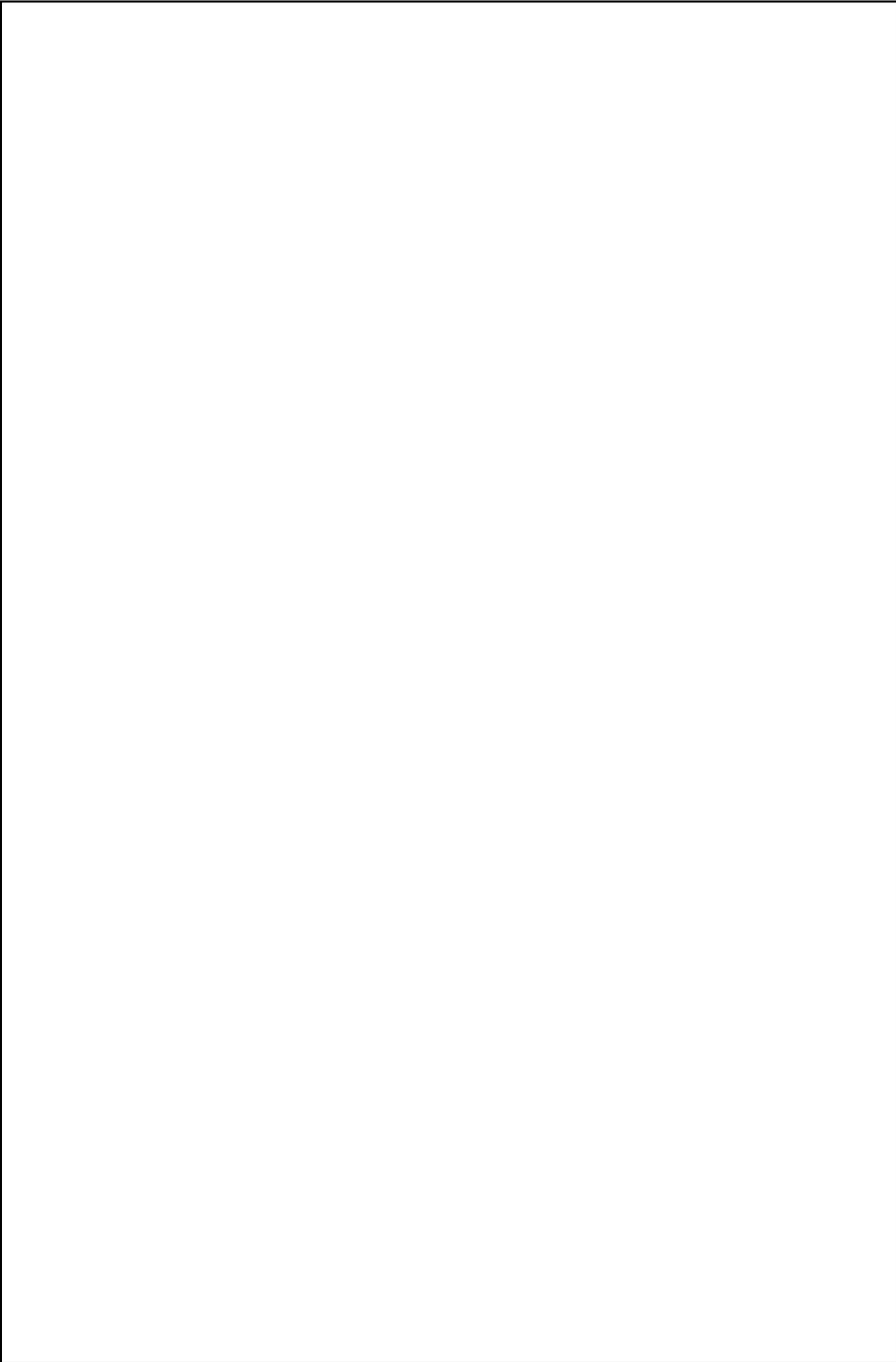
### Fitting the side tip to the *Fusion*

1. Secure rear roller using suitable lifting gear. Remove rear cradle roller chain guard (CGD00038). Remove the M10 x 25 bolt from the end of the rear roller. Rotate rear roller manually to locate joiner link in the drive chain (CCH00043). Remove the chain.
2. Pull the sprocket (CMH00396) as far as possible.
3. Remove the four M16 nuts and bolts which hold the flange bearing. Fit side tip mounting bracket (CZH02574) using four M16 x 50 bolts and nyloc nuts. Ensure bolt are tightened fully.
4. Refit sprocket and secure using M10 x 25 bolt.
5. Refit rear cradle roller chain guard.



6. To fit mounting bracket (CZH02576) to the idle end of the roller remove the four M16 nuts and bolts.
7. Fit the bracket (ABD00038) using four M16 x 50 bolts and nyloc nuts, and two M12 x 35 bolts and nyloc nuts.
8. Place Side Tip Frame down into mounting bracket.
9. Secure Side Tip Frame with the latch (CZH02668) using two M12 x 35 bolts and nyloc nuts on the right side and two M16 x 35 bolts and nyloc nuts on the left side.





## 14. Machine maintenance

To maintain the *McHale Fusion* in good working order it is necessary to carry out preventative maintenance regularly. The following section gives details of how this may be carried out and how often it will be required.

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

### 14.1 Maintenance intervals

The following intervals should be adhered to, in order to ensure a long and efficient life for the machine and maximum safety of personnel. They assume constant working during the harvesting season.

- 1) First 5 working hours:
  - ∅ Check all nuts and bolts for tightness and tighten if necessary.
  - ∅ Check and correct, if necessary, the air pressure in the tyres.
  - ∅ Drain and change gear box oil, please refer to section 7.8.
  - ∅ Carry out adjustment of chopper unit duplex chain, please refer to section 11.11, part 8. Inspect all other chains.
- 2) Every day (250 bales):
  - ∅ Check wheel nuts.
  - ∅ Check all guards and safety devices.
  - ∅ Check road traffic equipment.
  - ∅ Check for any oil leaks and damaged pipes.
  - ∅ Grease universal joints on PTO shaft.
  - ∅ Fill chain lubrication container.
  - ∅ Replace grease cartridge.
  - ∅ Grease upper chamber pivot points.
  - ∅ Grease lower chamber segment pivots.
  - ∅ Grease table roller pivots.
  - ∅ Check all chain adjustments, and adjust as necessary.
- 3) Every week:
  - ∅ Check for correct air pressure in the tyres.
  - ∅ Grease table roller bearings.
- 4) Every month:
  - ∅ Grease pick-up reel shaft bearings.
  - ∅ Grease pick-up cam clutch.
  - ∅ Check sufficient oil level in the gear box.
- 5) Every year:
  - ∅ Clean and lubricate all moving parts of the net tying unit.
  - ∅ Drain and change gear box oil, please refer to section 7.8.
  - ∅ Clean and lubricate dispenser gears.

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 it must always be stored in dry environment. All exposed hydraulic cylinder rods should be greased. The pick-up and the cutting device area as well as the bale chamber should be cleaned and lubricated, see section 16.

 **Warning!**

- Ensure to wear proper safety equipment at all times when working with the machine, such as gloves, eye protection etc. and follow all safety decals and instructions as stated in this manual.
- McHale recommend that nobody ever be in the danger zone at any time during machine operation, but in the event of carrying out inspections (**contrary to our safety recommendations**) when the machine is in operation, there must always be a second operator at the tractor controls (who is fully competent in the operation of both the tractor and the machine) in case of emergency stop action is required.

## 14.2 Tightening torque values

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. These values are for general use only. Check tightness of all fasteners periodically. All torques are in Nm (Newton metres).

**Table A. Metric Coarse Thread Nuts/Bolts**

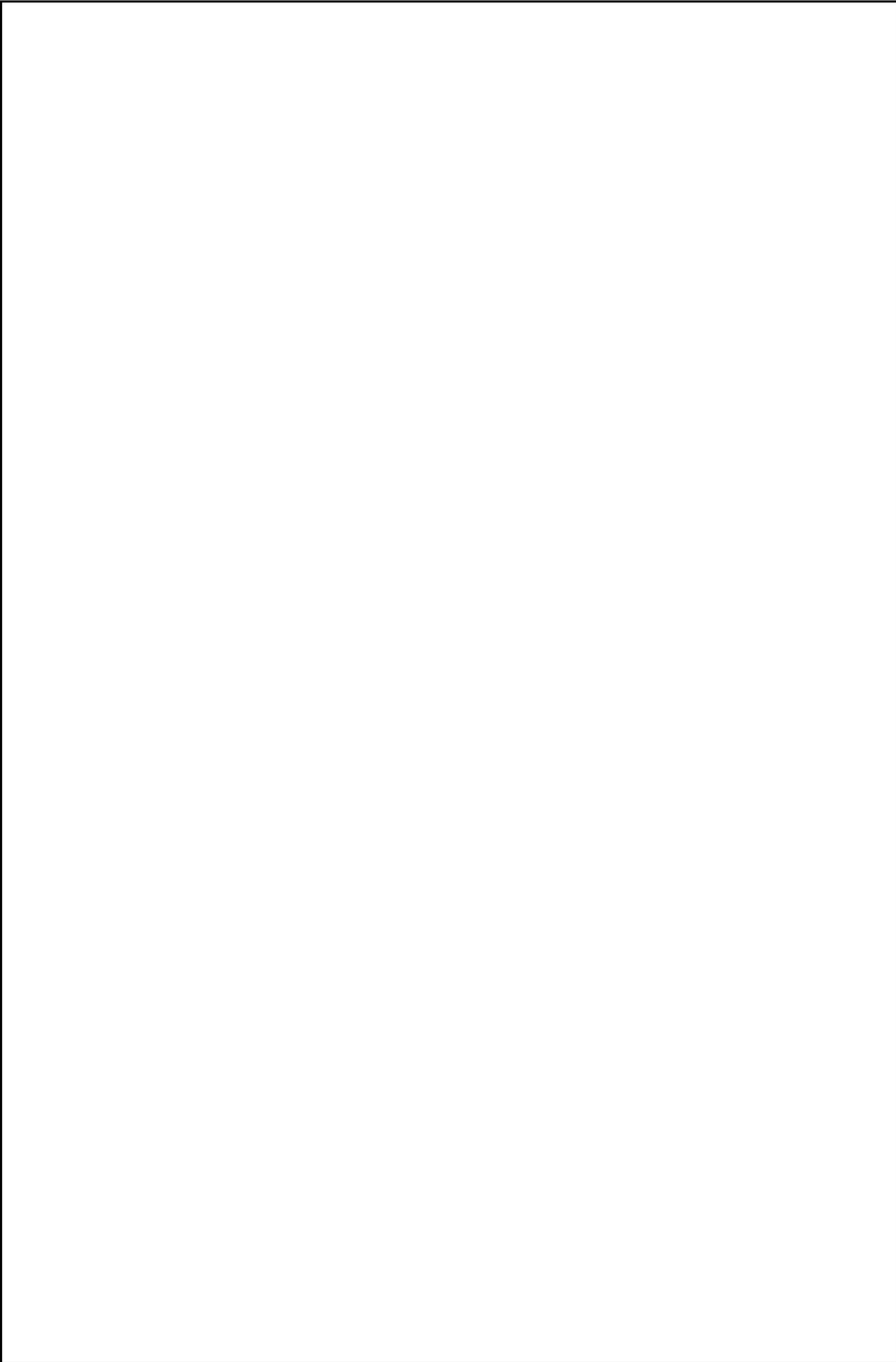
Bolt/Nut	Grade 8.8	Grade 10.9	Grade 12.9
M5	7.1	10	12
M6	12.1	17	20.4
M8	29.4	41.3	49.6
M10	58.3	82	98
M12	102	143	171
M14	162	227	273
M16	252	355	426
M20	492	693	830

**Table B. Metric Fine Thread Nuts/Bolts**

Bolt/Nut	Grade 8.8	Grade 10.9	Grade 12.9
M8	31.5	44.3	53.2
M10	61	86	104
M12	111	156	187
M14	176	247	297
M16	268	377	453
M18	391	549	659
M20	546	768	922
M24	926	1301	1562
M30	1706	2412	2884

**Table C. Hydraulic fittings**

Fitting size	Torque
1/4"	5
3/8"	18
1/2"	42
5/8"	86
3/4"	153



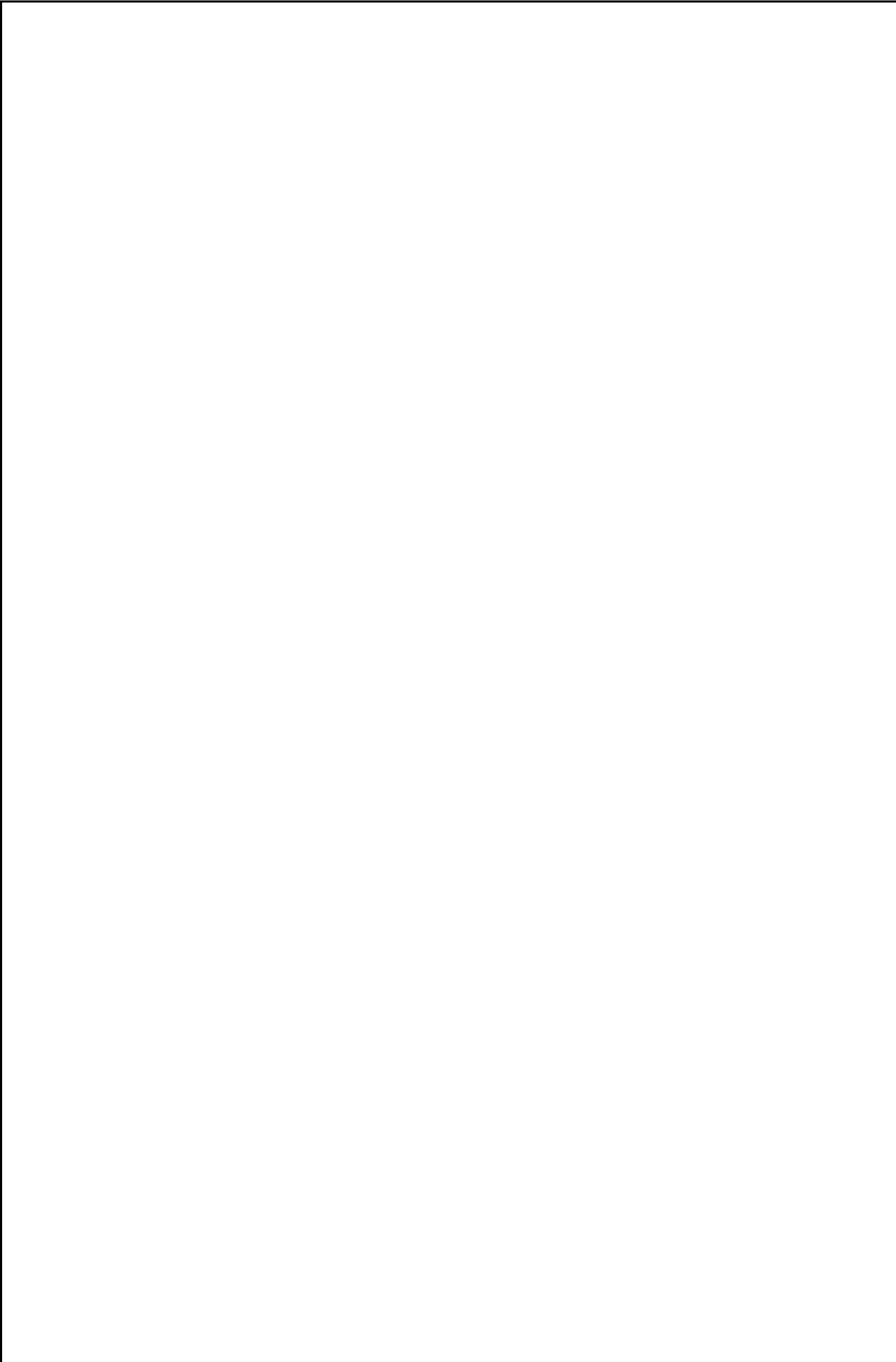
## 15. Storage

### 15.1 End of season

- Carefully clean the baler and wrapper sections inside and out. Dirt and foreign objects are likely to draw moisture and cause rusting of steel components.  
**Note:** In the case of using a high pressure washer, do not point pressurized water at or near electrical components, pivot points or bearings.
- Remove control box from tractor and store in a dry, safe environment.
- Clean the Net wrapping system as described in section 7.3. Remove net roll and store as per manufacturers instructions. Grease net knife and cut and hold knives to prevent rusting, use extreme caution when carrying out this operation, ensure to wear protective gloves and clothing!
- Lubricate all pivot points and apply a thin layer of grease to all adjustment bolt threads.
- Any components from which paint has become worn should be touched up or coated with grease to prevent rusting.
- Remove all dirt from all chains and blow dry using compressed air.
- Fill chain oil reservoir with chain oil & fit new grease cartridge, run pto at approx 200rpm and with the control box in manual mode, operate the bale tip up & down for around 150 cycles to ensure that all chains have a heavy coating of oil applied, and new grease in all bearings.

### 15.2 Start of season

- Fully review this operators manual.
- Check and fill gear box oil level if necessary, see section 7.8.
- Lubricate all pivot points.
- Tighten all bolts, nuts and setscrews, refer to section 14.2 for tightening torque values.
- Check air pressure of all tyres.
- Connect control box and inspect for correct operation of all functions, see section 8.
- Inspect and modify, if necessary, all machine adjustments as per section 11.
- Check net wrapping adjustments and inspect net knife for sharpness, ensure to wear protective clothing whenever working in this area! See section 7.3 for care of net wrapping device, follow instructions and carry out procedure as per section 7.3.
- Inspect aluminium dispenser rollers for a build up of tack/glue, clean off using kerosene or diesel oil and wipe rollers dry.
- Fill chain oil reservoir with chain oil & fit new grease cartridge, run pto at approx 200rpm and with the control box in manual mode, operate the bale tip up & down for around 50 cycles to ensure that all chains have a new coating of oil applied, and new grease in all bearings.
- Run a simulated 'bale to wrapping' cycle as described in section 8.5 (page 08-9).



## 16. Technical specifications

### 16.1 General dimensions/specifications

Transport length:	5.8 m (19'1")
Transport width :	2.76 m (9' 1")
Transport height:	3.02 m (9' 11")
Transport weight:	5700 kg (12566 lbs)
Tyre dimensions:	550/60 R22.5
Tyre pressure:	1.65 bar/24 P.S.I.
Tyre dimensions (Pick-up reel):	170/60 – 8
Tyre pressure (Pick-up reel):	1.65 bar/24 P.S.I.
Maximum road speed:	40 km/h (25 mph).
Brake system:	Hydraulic brakes (Cemagref approved) Air brakes* (TUV approved)

Check with national road traffic regulations in the individual country!

### 16.2 Tractor attachment

Drawbar:	Low drawbar. High drawbar*.
Pto Speed:	540 rpm.
Lighting:	12 V / 7 pin socket.
Electrics:	12 V / 20 Amp euro socket.
Hydraulic system:	load sensing, open centre, closed centre.
Min. pressure:	180 bar (2650 P.S.I).
Min. flow rate:	45 l/min (8.79 gal/min) @ 180 bar (2650 P.S.I)

### 16.3 Machine specifications

Bale chamber diameter:	1.25 m (49")
Bale chamber width:	1.23 m (48")
Pick-up width:	2.00 m (78")
Net tying:	net width Max. 1.26 m (49.5")
	net length 2000 m / Max 4000 m (2187 yd./Max 4374 yd.)
Plastic film:	film width 750 mm (29½")
	film stretch 70% (55% optional)
	film layers 2+2; 2+2+2; etc.
	film storage 8 Rolls (+ 2 Rolls on dispenser)
Dispenser rotary speed:	Max. 30 rpm

(\*) May not be available in all countries, check with your McHale dealer for availability in your country. Units are given in both metric and UK imperial values, with the latter shown in brackets.

## 16.4 Tyre specifications

Tyre type	Pressure
➤ 550/60 R 22.5	1.65 bar (24 P.S.I).
➤ 650/55 R 22.5 (Optional specification)	1.65 bar (24 P.S.I).
➤ 170/60 – 8 (Pick-up tyre)	1.65 bar (24 P.S.I).

## 16.5 Declaration of conformity



The *McHale* Fusion complies with the EU provisions as per the 98/37/EC machinery directive, the 89/336/EEC EMC directive and is manufactured to the I.S. EN ISO 9001:2000 quality standard.

The following harmonised standards were applied:

**EN 292:** Safety of machinery-Basic concepts, general principles for design:

**Part 1:** Basic terminology, methodology.

**Part 2:** Technical principles and specifications.

**EN 1553:** Agricultural machinery – Agricultural self propelled mounted, semi-mounted and trailed machines – Common safety requirements.

**EN 704:** Agricultural machinery – Pick-up balers – Safety.

## 17. 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 delivered to the original retail purchaser.**

**The return of the pre-delivery inspection (PDI) form by the dealer (Importer) to the company is taken as evidence of delivery of the machine to the original retail purchaser.**

### **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 lose 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 pre-delivery inspection (PDI) form has been correctly completed by the dealer and the retail purchaser, dated, signed by the retail purchaser and returned to the McHale immediately by post.

The warranty claim is submitted on a McHale warranty claim form, and is sent to the Company within one month after the date of failure or the date of problem becoming apparent.

The dealer must fill in the claim legibly and following information must be Mentioned

- Dealer's name and address
- Name and address of retail purchase
- Exact type of machine
- Machine serial number
- Date of delivery to the retail purchaser
- Date of failure
- Number of bales made.
- Detailed description and estimated cause of the failure.
- Part numbers and quantities used in repair.

The dealer has stored the damaged parts safely and labeled them clearly so that they can be recognized and returned to the Company if requested. They must be retained until a credit note has been issued to cover the parts.

The decision of the Company in all cases is final.

If damaged parts have been returned to the company and warranty is refused, the dealer is allowed a period of 1 month from the date of receiving our letter of decision 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.