

McHale *fusion*®³



Fusion 3 Baler & Wrapper Operator Instructor Manual Issue 1

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CLT00485_1

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McHale Fusion 3 Baler & Wrapper

Thank you for buying this **McHale** machine, you have chosen wisely!
Given proper care and attention, you can expect it to provide you with
years of dependable service.

Warranty/Guarantee

Attention End User!

Please ensure your machine is fully registered with **McHale**,
by your dealer, at the time of delivery.
Failure of the dealer to register the machine will render your warranty void!
You can check the registration of your machine by visiting www.mchale.net.

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.
See "Description of the serial number plate" on page 30.

Serial number:	
Year of manufacturer:	
Date of delivery:	

If you require further copies of this instruction manual,
please quote part number: CLT00485

Due to a policy of continuous product development and improvement, **McHale**
Engineering reserves the right to alter machine specifications without prior notice and
any obligation to make changes or additions to the equipment previously sold.

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.

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. Spare parts can be obtained from your **McHale** dealer.

Table of Contents

1	Introduction	8
2	Product Information	9
2.1	Designated use of the machine	9
2.2	Front view	10
2.3	Rear view	11
2.4	General dimensions & specifications	12
2.5	Tractor attachment	12
2.6	Machine specifications	13
2.7	Tyre specifications	13
3	General Safety	14
3.1	Be aware of all safety information	14
3.2	Follow all safety instructions	14
3.3	Store all items carefully	15
3.4	Protective clothing	15
3.5	In case of emergencies	15
3.6	Stay clear of rotating elements	15
3.7	Operating the McHale Fusion 3	15
3.8	In the event of a fire	16
3.9	General safety warnings	16
4	Specific Safety Warnings	20
4.1	Electronic safety warnings	20
4.2	Hydraulic safety warnings	20
4.3	Noise level	21
4.4	Fire precautions	21
4.5	Special safety devices/instructions	21
4.6	Safety instruction decal locations	22
4.7	Safety warnings & instructions explained	23
4.8	Description of the serial number plate	30
4.9	Machine lifting guidelines	31
5	Tractor Requirements & Preparation	32
5.1	Tractor requirements	32
5.2	Control box installation	33
5.3	Attaching to drawbar	33
5.4	Attaching 'break-away' brake	33
5.5	Attaching the Fusion 3 to a 540 rpm PTO	34
5.6	Lighting system	34
5.7	Fusion 3 set-up & tractor hydraulic system	34
5.8	Which hydraulic system is used?	36
5.9	Hydraulic spool valve setup	36
5.10	Attaching hydraulic hosing to the tractor	37
5.11	Connecting the control box	38

McHale Fusion 3 Baler & Wrapper

6	Baler Requirements & Preparation	39
6.1	Net requirements	39
6.2	Care of the net roll	39
6.3	Care of the net wrapping system	40
6.4	Loading & operating the netter system	40
6.5	Net cutter setting	41
6.6	Net tension bar setting	43
6.7	Chopper unit knife removal & installation	43
6.8	Automatic lubrication system	48
6.9	Gear box oil	51
6.10	Tyre inflation pressures	51
6.11	Wheel chocks	52
6.12	Drawbar and PTO shaft stand usage	52
6.13	Drawbar adjustment	54
6.14	PTO Shaft adjustment & maintenance	55
7	Electronic Control System	58
7.1	Control box functions	59
7.2	Control box features	60
7.3	Menu Structure	65
7.4	Warning messages	70
7.5	Simulating a “bale to wrapping” cycle	74
8	Wrapper Operation	75
8.1	Loading plastic film	75
8.2	Plastic film requirements	77
8.3	Wrapping process	78
8.4	Dispenser adjustment	79
8.5	Cut and hold system	79
9	Road Traffic Safety & Operation	82
9.1	Before travelling on any public roadway	82
9.2	Road transportation	83
9.3	Road transportation with side tip attached	83
9.4	‘Break-away’ brake	84
10	Field Operation & Baler Adjustments	85
10.1	Break-in period	85
10.2	Swath preparation	85
10.3	Pick-up reel height adjustment	86
10.4	Crop guard adjustment	87
10.5	Unblocking system	87
10.6	Chopping system	88
10.7	Selectable knives	88
10.8	Bale density gauge	89
10.9	Setting chamber pre-charge pressure	89
10.10	Chamber door lock	91
10.11	Spare film holders & door latch safety	91
10.12	Adjusting pick-up float springs	92
10.13	Chain adjustments	93

McHale Fusion 3 Baler & Wrapper

11	Accessories & Optional Equipment	98
11.1	Drawbar hitch options	98
11.2	Stand options	98
11.3	Brake options	99
11.4	Tyre options	99
11.5	Side tip option	99
11.6	Selectable Knives	100
11.7	Crop Roller	100
11.8	Dispenser gear options	101
12	Attachments	102
12.1	Side tip	102
13	Machine Maintenance	105
13.1	Maintenance intervals	105
13.2	Tightening torque values	108
14	Storage	109
14.1	End of season	109
14.2	Start of season	109
15	Trouble Shooting	111
15.1	Trouble shooting overview	111
16	Certification & Warranty	116
16.1	Declaration of Conformity	116
16.2	PDI Form	116
16.3	Change of ownership pre-checks	116
16.4	Limited Warranty	116

McHale Fusion 3 Baler & Wrapper

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1

Introduction

The **McHale Fusion 3** Baler & Wrapper is a completely new product. This product combines the baling process with the wrapping process, in one machine. The design has been developed based on years of extensive research and development in the field of round bale wrappers and balers. Given proper care and attention, the **McHale Fusion 3** will provide years of reliable and dependable performance.

Please do not assume that you know how to operate and maintain your machine before reading this manual carefully. In order to prevent misuse, damage and accidents, it is very important that everybody who will operate the **McHale Fusion 3** be a fully trained operator. They must read and fully understand all of the contents of this manual, before operating the machine, paying particular attention to the following:

- Safety instructions
- Functions
- Controls (hydraulic & electrical)

It is highly recommended to get acquainted with any new machinery slowly. Take time to learn and understand all of the features of the machine. Proficiency will increase as more experience is obtained.

If you have any questions in relation to the instructions in the manual, please contact your **McHale** dealer. It is highly recommended that training be sought from your local **McHale** dealer.

The operator is solely responsible for the safe use and maintenance of the machinery, in accordance with this manual. Keep this manual safe and make sure it remains with the machine, at all times.

2

Product Information

The **McHale Fusion 3** is protected against many dangers to itself while being operated from the control box in both manual and automatic cycles. However, it is of the utmost importance for the safety of the operator and for others, that the operator pays attention to all warnings and instructions given in this manual. In particular all safety devices, decals, guards and controls must be in place and in fully functioning condition. Never try to clear any malfunction when the tractor is switched on or while the machine is running. Keep the “Danger Zone” (An area around the machine, detailed in “Danger zone” on page 16) free of all persons and animals at all times, while the machine is in operation. This manual must be read and fully understood by anyone who will operate the machine.

2.1 Designated use of the machine

The **McHale Fusion 3** is exclusively designed for normal use in agricultural applications. The machine has been designed to pick up and compact stalks from the ground, to produce cylindrical bales of forage, which are in turn wrapped with plastic stretch film for the purpose of storing as fodder for feeding livestock. This designation includes the movement of the machine, between fields by track or road, incidental to the round baler/wrapper’s main use. The manufacturer will not be held responsible for any loss or damage resulting from machine applications other than those specified above. Any other use the machine may be put to, is entirely at the owners/operators risk.

The designated use of the machine includes that:

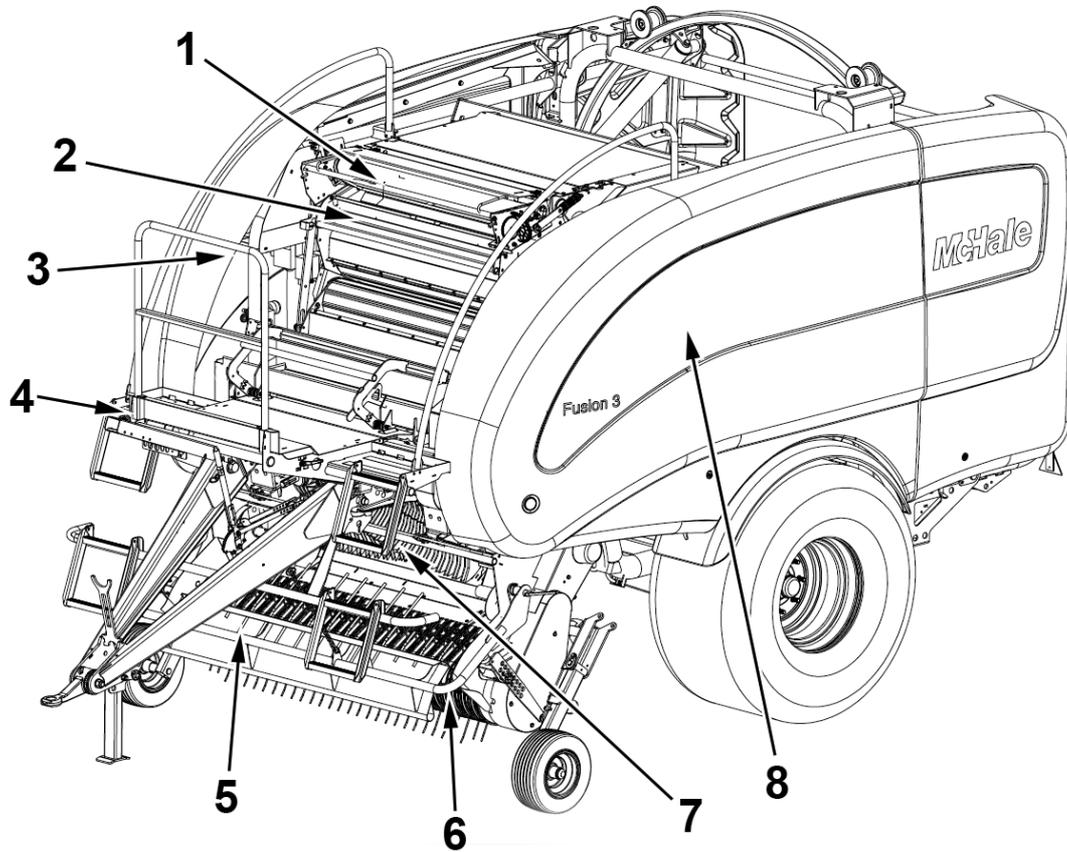
- the operating, maintenance and repair instructions given by the manufacturer will be strictly fulfilled
- exclusively persons who are familiar with it and instructed about the risks are entitled to operate, maintain and/or repair the machine
- the relevant health and safety requirements, that may be in force in the country of use, will be strictly followed
- no other equipment or accessories, other than released by **McHale**, are installed in the machine. The use of any other equipment or accessory is entirely at the owner/operators risk. In such cases, unauthorised modifications/changes exclude any liability of the manufacturer.



WARNING: Loss of machine validity

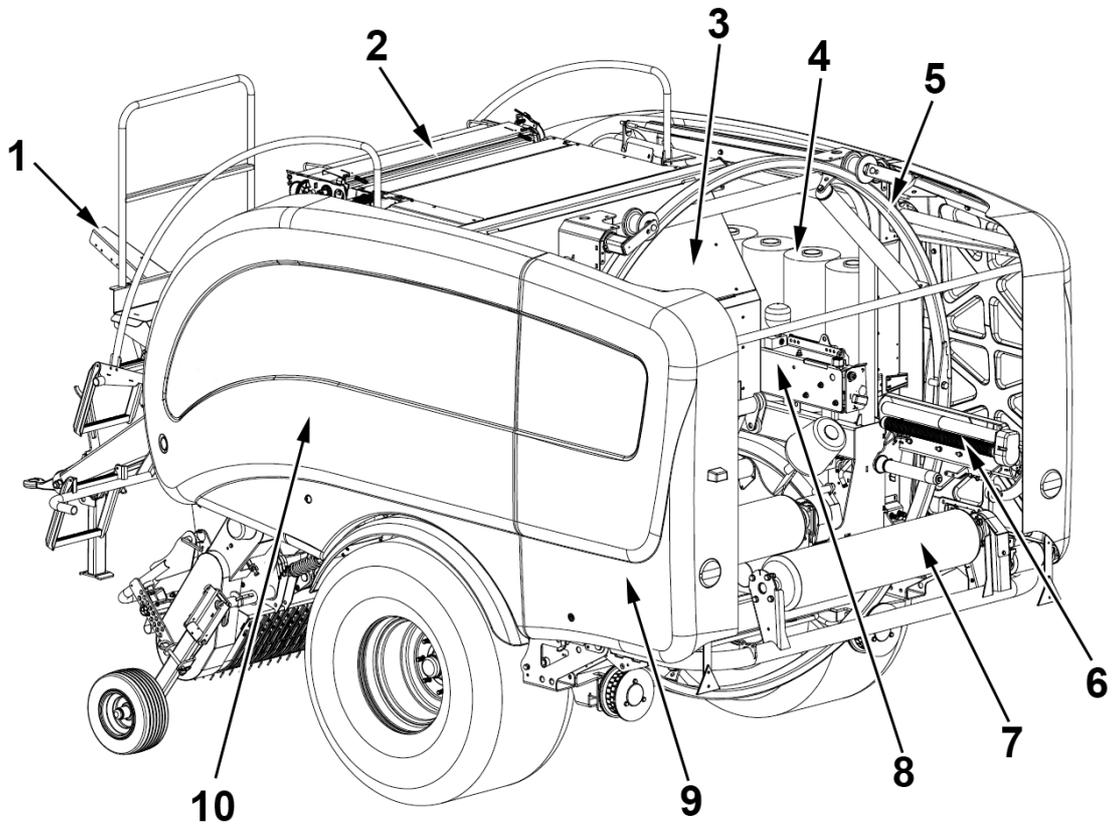
By any alteration of safety equipment, the declaration of conformity and the CE sign loses it’s validity for this machine.

2.2 Front view



No.	Machine Function
1	Netter unit
2	Net tension bars
3	Hydraulic section (Inside cover)
4	Chamber door pressure clock
5	Crop guard
6	Pick-up reel
7	Chopper unit
8	Wheel chocks & knife blanks (Inside cover)

2.3 Rear view



No.	Machine Function
1	Hose carrier
2	Netter unit
3	Top chamber door
4	Spare film section (Inside cover)
5	Dispenser ring
6	Dispenser
7	Table roller
8	Cut & hold unit
9	Dispenser access door
10	Drive side

2.4 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 (12,566 lbs)
Tyre dimensions	560/60 R22.5
Tyre pressure	1.65 bar/24 P.S.I.
Tyre dimensions (Pick-up reel)	170/60 - 8
Tyre pressure (Pick-up reel)	2.07 bar (30 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!

2.5 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 systems	Load sensing, open centre, closed centre
Minimum pressure	180 bar (2610 P.S.I.)
Minimum flow rate	45 l/min (9.9 gal/min) @ 180 bar (2610 P.S.I.)

(*) 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.

2.6 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

2.7 Tyre specifications

Tyre type	Pressure
560/60 R22.5	1.65 bar (24 P.S.I.)
650/50 R22.5 (Optional Specification)	1.65 bar (24 P.S.I.)
170/60 - 8 (Pick-up tyre)	2.07 bar (30 P.S.I.)

3

General Safety

3.1 Be aware of all safety information

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

Warning, caution, information & environmental messages:

When reading this manual, pay particular attention when you see the symbols below i.e. Warning, Caution, Information & Environmental. They will be used at various points in this manual and may also appear on safety decals on the machine. The purpose of these messages is to ensure that the most important information stands out from the rest of the text.



WARNING: This symbol indicates a potentially hazardous situation, that if not avoided could result in machinery damage, personal injury or even death.



CAUTION: This symbol indicates a potentially hazardous situation, that if not avoided could result in machinery damage or personal injury.



INFORMATION: This symbol is used to identify special instructions or procedures which, if not followed strictly, could result in machinery damage.



ENVIRONMENTAL: This symbol reminds you to respect the environment in relation to the correct disposal of waste material.

3.2 Follow all safety instructions



Using this manual, read all safety instructions and messages, and be aware of the meanings of all safety decals. If safety decals are damaged or missing due to wear and tear or component replacement, ensure that they are replaced. Refer to section 4.7 in this manual (or spare parts book provided) to see the spare part codes for the relevant decals, which are available from your **McHale** dealer.

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

3.3 Store all items carefully



Store all attachments such as spare net rolls, films 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.

3.4 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 mobile phones or radio/music headphones are not recommended while operating machinery as these impair the operators attention.

3.5 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.

3.6 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.

3.7 Operating the McHale Fusion 3

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

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

3.8 In the event of a fire



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

1. Switch control box to manual mode (See "Electronic Control System" on page 58). Immediately tip bale off rear roller and leave roller in tipped position.
2. Eject the bale from the baling chamber by opening the chamber doors.
3. Move the tractor and baler away from the flammable material.
4. Disengage the PTO, turn off the tractor and remove the key from the ignition.
5. Remove all hosing and electrical looms from the machine.
6. With all connections removed, disengage the drawbar from the tractor.
7. Drive the tractor away from the baler.
8. Using a suitable fire extinguisher, put out all the fires.



WARNING: Fire prevention

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.

3.9 General safety warnings

Read and understand this operator 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 understands all of the functions, controls, working processes and safety warnings, before operating the machine.

Safety devices

- 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.

Danger zone

- The 'Danger Zone' is the area around the rotating dispensers (approx. 2 metres radius from the rotating centre axis) & (a minimum of 5 metres) at the back of the machine to allow for safe bale discharge.



NOTE: "Danger Zone" can vary in size

The operator must be aware of the 'Danger Zone' which can vary in size, depending on operating conditions, i.e. hilly terrain.

McHale Fusion 3 Baler & Wrapper

- It is the operator's responsibility to ensure that there is no person in the '**Danger Zone**' while operating the machine, especially during start up.

Before repair or reassembly

- Safe lifting gear of sufficient capacity must be used for machine assembly. All chains and slings used must be in good condition.

Before operation

- The operator must ensure that the manufacturer's instructions for attaching and detaching the machine are followed. This includes the drawbar attachment, the electric and hydraulic lines, in particular the lighting and brake system.
- The operator must ensure that all covers are closed and all safety devices are in operating mode.
- The operator must ensure that there is no person in the 'Danger Zone'.
- Always be familiar with the health and safety requirements that may be in force in the country of use.

During Operation

- 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.
- 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.
- Never operate the machine with dispenser safety arms damaged or missing.
- Be careful when working with the cut and hold. Remember that the accumulators are under pressure.
- Avoid contact with the knife.
- Do not attempt to clamp plastic film in the cut and hold mechanism.
- Particular care must be taken, if the machine is left idle for any extended period, to ensure that all sensors and safety features are working correctly.



WARNING: Do not carry people or animals on the machine

The operator must ensure that no persons or animals are carried on the machine at any time or are hidden under the machine (on the tractor persons are only allowed to sit on the relevant seats).

Before travelling on public roads

- The owner of this machine is obliged by law to ensure that every operator has a valid driving licence and is familiar with the road traffic regulations relating to the country of use.
- Always ensure that the electronic control box and oil supply are switched off.
- Always attach the dispenser safety chain.
- When parking, both wheels of this machine have to be blocked using the wheel chocks and hand brake (if fitted) should be applied according to the road traffic regulations, relating to the country of use.

Performing maintenance

- Maintenance and repair work on the **Fusion 3** 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.
- When conducting maintenance work tie long hair behind your head. Do not wear a necktie, necklace, scarf or loose clothing when you work near the machine or moving parts. If these items were to get caught, severe injury could result.
- Before working on this machine, such as replacing net/film rolls, clearing forage away from any part of the machine, or altering any setting, the operator must ensure the following:
 - (a) The tractor has definitely stopped moving
 - (b) The hand brake is applied
 - (c) The engine is shut down
 - (d) The ignition key is removed
 - (e) PTO shaft is removed from PTO stub
 - (f) Electronic power supply and control box is disconnected
 - (g) Hydraulic oil supply is switched off

** 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.*
- When conducting maintenance work always support the machine properly. Where possible, lower the attachment or implement to the ground before you work on the machine. If it is not possible to lower the machine or attachment to the ground, always securely support the machine or attachment. Do not work under a machine that is solely supported by a jack. Never support the machine with props that may break or crumble under continuous load.
- Never disable any electrical safety circuits, tamper with safety devices or carry out any unauthorised modification to the machine.
- Avoid heating near pressurised fluid lines, as pressurised lines can be accidentally damaged when heat goes beyond the immediate flame area.

During inspection

- If carrying out an inspection during machine operation within the 'Danger Zone' (**highly dangerous and NOT recommended!**), then there should be a fully trained and 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, the machine is on level ground and a safe distance is kept from any hazards on the machine i.e. pick-up region.

4

Specific Safety Warnings

4.1 Electronic safety warnings

- This machine is equipped with electronic parts and components which comply to the EMC directive 2004/108/CE 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.

4.2 Hydraulic safety warnings

- The maximum pressure in the hydraulic system of this machine should not exceed 210 bar.
- Always ensure the 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.

4.3 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, ground, crops and other environmental conditions.
- In normal conditions, whilst driving the **McHale Fusion 3**, the noise level to the driver's ear does not exceed 70 dB (A) with the rear screen of the tractor cabin open. 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.

4.4 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 clear of oil, grease, crops, string, plastic or any other flammable material at all times.
- Do not continue to work with overheated parts, cables or pipes, unless you have identified and eliminated the reason for overheating.

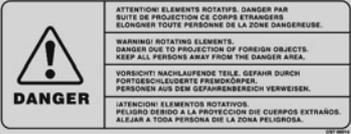
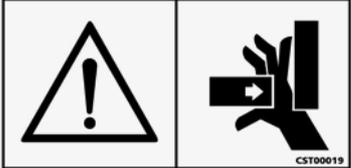
4.5 Special safety devices/instructions

- According to European safety regulation, 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. To unlock the covers, the locks should be turned slightly anti-clockwise with a 13 mm spanner or flat blade screwdriver. To lock the covers push the cover towards the chassis until the fasteners lock into place. It is forbidden to operate the machine without the covers or with them open. The owner of the 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 'UP' position. Always use protective gloves when working at the chopping system.
- Avoid contact with the plastic film cutting knives.

4.7 Safety warnings & instructions explained

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 missing, they are available from your **McHale** dealer. The relevant part numbers are shown in brackets.

The decals featured on the **McHale Fusion 3** are displayed with their meanings below:

	<p>Free flow return to tank (CST00006)</p>
	<p>Danger of rotating parts, foreign objects Keep clear of machine while working (CST00014)</p>
	<p>Keep hands clear of rotation roller (CTS00017)</p>
	<p>Keep hands out of crush area (CST00019)</p>
	<p>Check wheel nuts daily (CST00020)</p>

McHale Fusion 3 Baler & Wrapper



Diagram of plastic film path through dispenser
(CST00022)



Lifting hook location
(CST00032)



Do not dismantle
High pressure always
(CST00056)



Grease daily
(CST00060)



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

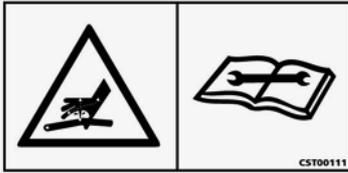


Keep clear of pickup area as long as the engine is
running and the PTO shaft is connected to the tractor
(CST00108)

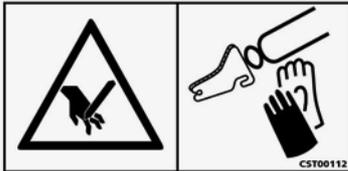


Read instruction manual before use
(CST00110)

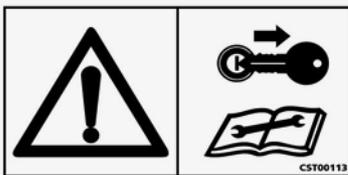
McHale Fusion 3 Baler & Wrapper



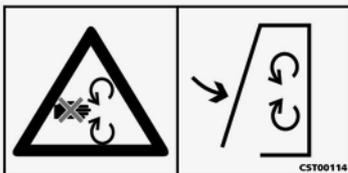
Beware of high-pressure hoses, even when the machine is switched off
Also, read and understand manual before working on any part of the hydraulic system
(CST00111)



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



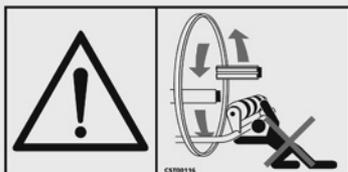
Turn off and remove key from tractor
Read and understand the manual before working on or performing maintenance on the machine
(CST00113)



Close protective covers before operating the machine
(CST00114)



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



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

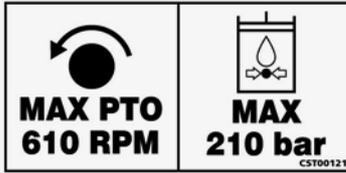


Knife release lever:
horizontal position-locked
vertical position-unlocked
(CST00118)

McHale Fusion 3 Baler & Wrapper



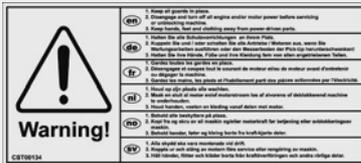
Keep hands out of the crush area between the roller and chassis rail
(CST00120)



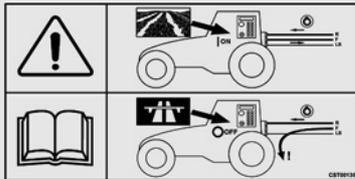
Maximum hydraulic pressure and maximum PTO speed. This machine must not be connected to hydraulic systems with pressure higher than 210 bar
(CST00121)



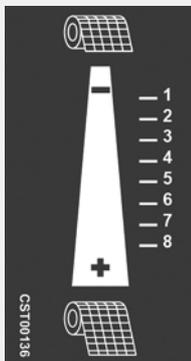
Stay clear of rotating PTO shaft. Never use the machine if the PTO guard is missing or damaged. Entanglement in the rotating drive line can cause serious injury or death. It is important to ensure that the rotating guard on the drive line rotates freely. Always stop the engine and ensure the driveline has stopped before making connections, adjustments or cleaning out PTO driven equipment.
(CST00132)



General warnings
(CST00134)

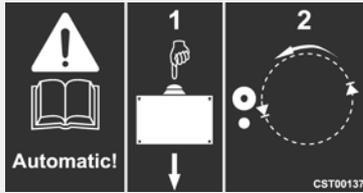


Disconnect the **Fusion 3** feed line and turn off the control box during road use. Read the operation instruction manual before proceeding.
(CST00135)

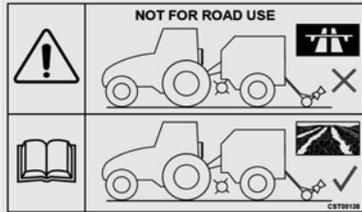


Net amount setting decal
(CST00136)

McHale Fusion 3 Baler & Wrapper



Dispenser park rotation decal
(CST00137)



Side Tip: Not for road use
(Placed on side tip only)
(CST00138)



Do not stand in the articulation area while the tractor engine is running.
(CST00141)



Never perform any adjustments or reach into the netter unless the PTO has been disengaged and the tractor has been shut down and the key has been removed. It is also recommended that the tension be released from the netter knife to avoid it being tripped accidentally.
(CST00142)

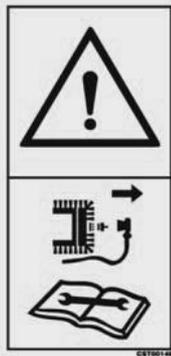


Stay clear of the rotating PTO shaft. Never use the machine if the PTO guarding is missing or damaged. Entanglement in rotating drive line can cause serious injury or death. It is important to ensure that the rotating guard on the driveline rotates freely. Always stop the engine and ensure that driveline has stopped before making connections, adjustments or cleaning out PTO driven equipment.
(CST00143)

McHale Fusion 3 Baler & Wrapper



Crush hazard. Keep hands clear of rotating elements. Do not remove the guard while the engine is running. (CST00144)



Disconnect the power supply to the control box and turn off the tractor before commencing work on the electrical system or welding on the machine. (CST00145)

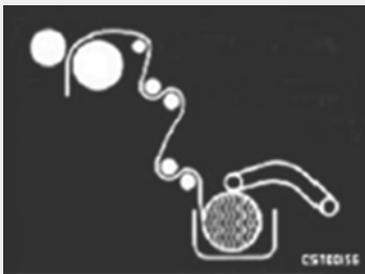
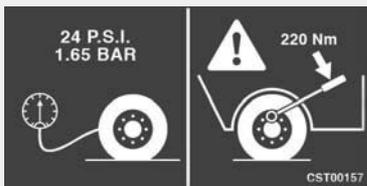


Diagram of net path through feeding rollers (CST00156)



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



Free rotating transfer roller
Do not step on this roller!
(CST00161)



Free rotating transfer roller
Do not step on this roller!
(CST00162)

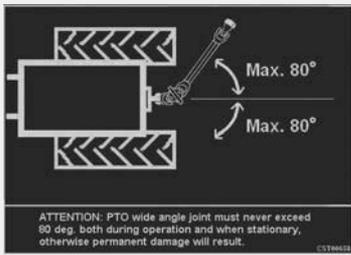
McHale Fusion 3 Baler & Wrapper



Ensure area around brakes is clear of dry material (CST00163)



Float decal. Indicating that during operation of the baler, the control lever of the spool operating the pick-up reel should be in the float position. (CST00609)



The PTO wide angle joint must never exceed 80 degrees, both when stationary or during operation. Permanent damage may result otherwise. (CST00658)



Wheel direction (CST00711)



Keep hands out of crush area (CST00753)

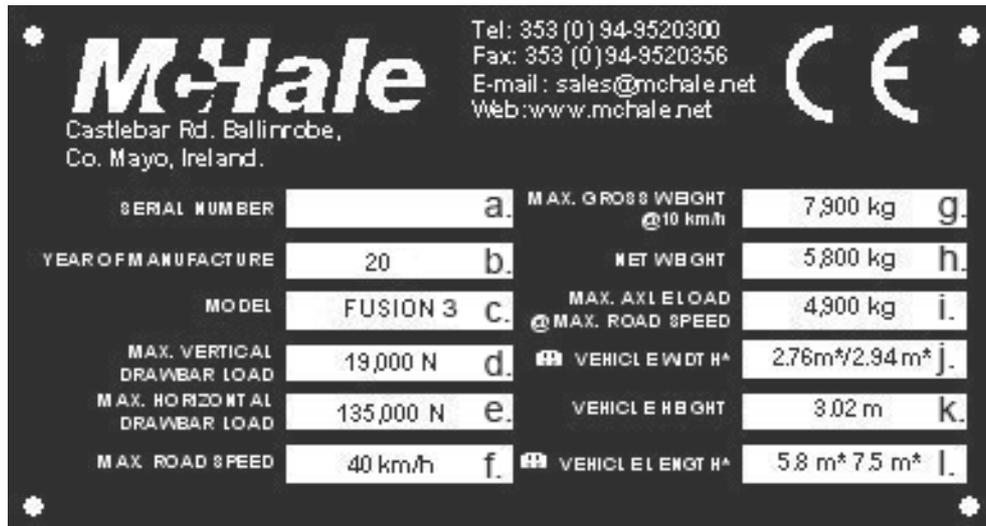


Keep hands out of crush area (CST00754)



Lock the chamber door before working on the open bale-forming chamber (CST00756)

4.8 Description of the serial number plate



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 / optional specification tyres
- k. Vehicle height (metres)
- l. Vehicle length (metres) with no rear attachments / with side tip attachment

4.9 Machine lifting guidelines

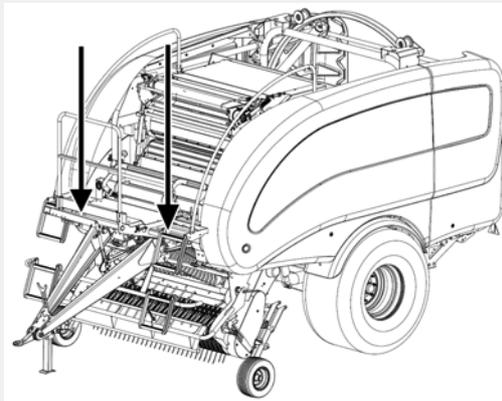


WARNING: Machine Lifting

- Only use chains or strapping that are rated for a minimum load of two tonnes (2,000 kg) per chain or strap when using the four lift eye locations on the chassis, shown below
- The crane or lifting device must be capable of lifting a minimum load of seven tonnes (7,000 kg)
- 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



RHS lift hook



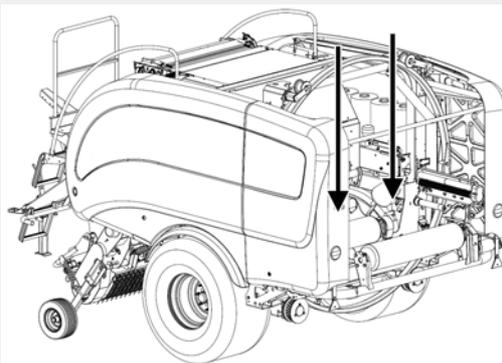
Front Left View



LHS lift hook



RHS lift hook



Rear Right View



LHS lift hook

5

Tractor Requirements & Preparation

5.1 Tractor requirements

The minimum recommended size of tractor for operating the **McHale Fusion 3** 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 is advisable.

Ideally the tractor should have a load sensing hydraulic system, as the **McHale Fusion 3** works at it's best in this setup. Please refer to "Fusion 3 set-up & tractor hydraulic system" on page 34 and "Which hydraulic system is used?" on page 36 for correct selection of hydraulic setup.



NOTE: Use good quality oil

Ensure that the tractor has clean, good quality oil, 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 into 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 6000 kgs
2. One 1/2" - female quick release single acting, with "float position" for pickup reel.
3. One 3/4" - female quick release for hydraulic power supply of minimum 45 litres per min @ 180 bar
4. One 3/4" - male quick release for return line (Must be free flow to tank)
5. One 3/8" - female quick release for load sensing (Only required if tractor has a load-sensing hydraulic system)
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. A 1 3/8", 6 spline PTO shaft (set to a speed of 540 rpm)
10. One secure attaching point to tie the 'break-away-brake' rope to the tractor

* Depending on country of use

5.2 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 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 "Electronic Control System" on page 58.



CAUTION: Electrical Power Supply

Do not use any other electric power supply for the electronic control system, otherwise damage may occur.

5.3 Attaching to drawbar

The drawbar is to be attached so that the **McHale Fusion 3** is horizontal to the ground as in "Drawbar adjustment" on page 54. Machines are set up for hitching to the tractor drawbar as shown in Figure 5.a 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.



Figure 5.a - Drawbar attachment

5.4 Attaching 'break-away' brake

The **McHale Fusion 3** 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 3** is attached to the tractor. Should the **Fusion 3** hitch ever become detached from the tractor, this rope will apply the brakes on the **Fusion 3**.



CAUTION: Release hand brake

Always ensure the hand brake has been released before moving the **Fusion 3** on the road or operating in a field.

5.5 Attaching the Fusion 3 to a 540 rpm PTO

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 (See “PTO Shaft adjustment & maintenance” on page 55). Ensure PTO cover-guards are prevented from rotating, by securing the chain to the tractor.



CAUTION: Standard PTO of 540 rpm, maximum = 610 rpm

The **McHale Fusion 3** should be driven with a standard PTO speed of 540 rpm. The maximum PTO speed allowed = 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 specified above!

5.6 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: Check lighting system before travelling on the road

Before travelling on a public road, the operator must ensure that the complete (tractor and machine) lighting system is in a fully functioning condition.

5.7 Fusion 3 set-up & tractor hydraulic system



CAUTION: Hydraulic System Setup

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:** This is the most common system on smaller tractors (less than 60kw) 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. 60 litres/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 and particular models. In this system, no oil flows through the control valve, when the machine is idle, but maintains max. oil pressure in

McHale Fusion 3 Baler & Wrapper

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 ¾” Quick Release’ connection, which becomes the **Fusion 3** feed.

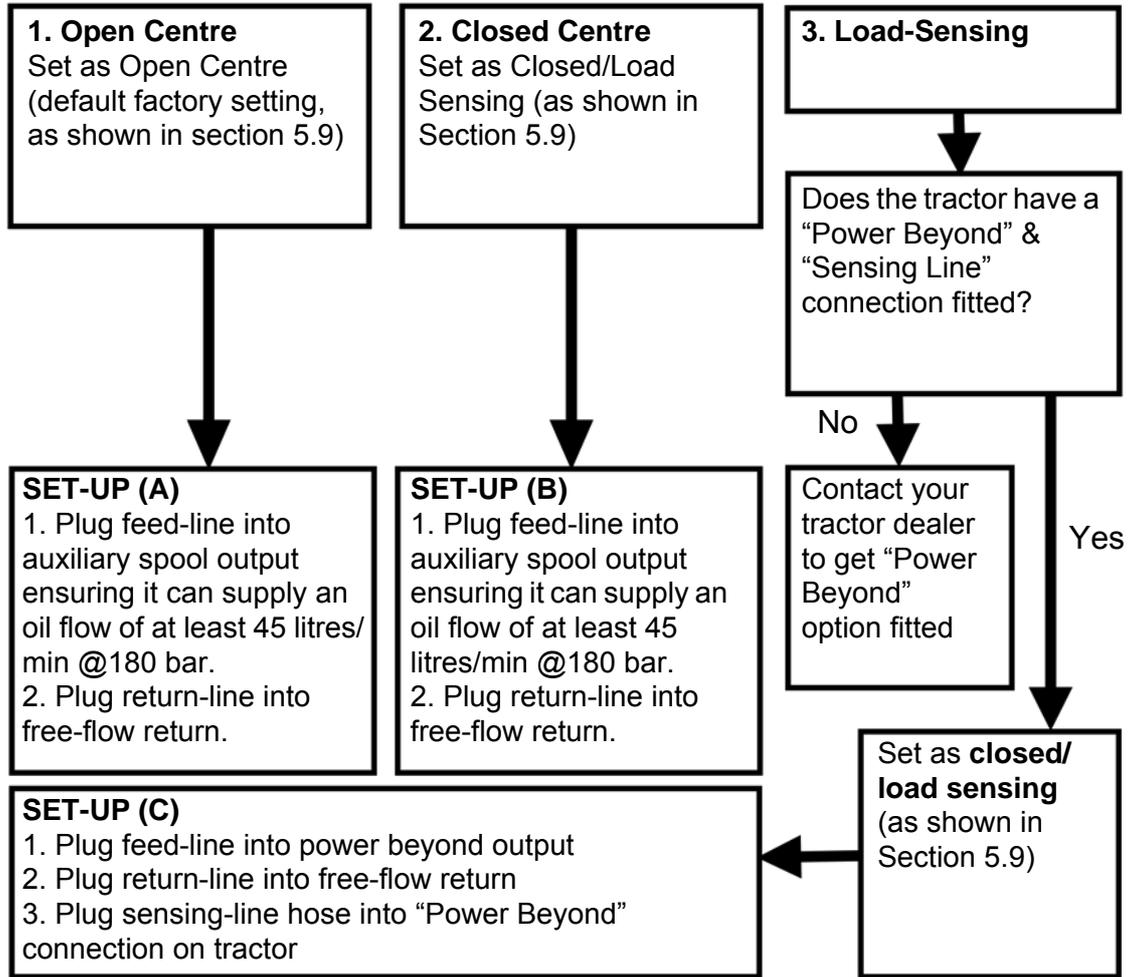
It will also have a 3rd connection to the tractor, called the pilot sensing line, and this pipe sets the correct oil flow for the tractor to pump for each operation.

This is the most advanced and efficient hydraulic system available, as the **Fusion 3** 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.

Although it is possible to operate the **Fusion 3** 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 45 litres/min from the tractor). **McHale** do not recommend operating the **Fusion 3** 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 in the next section, to select the best set-up for the **Fusion 3**.

5.8 Which hydraulic system is used?



5.9 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 (2) according to the following guidelines:
 - (a) Open Centre (Factory Default): Screw in fully (Do not overtighten)
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

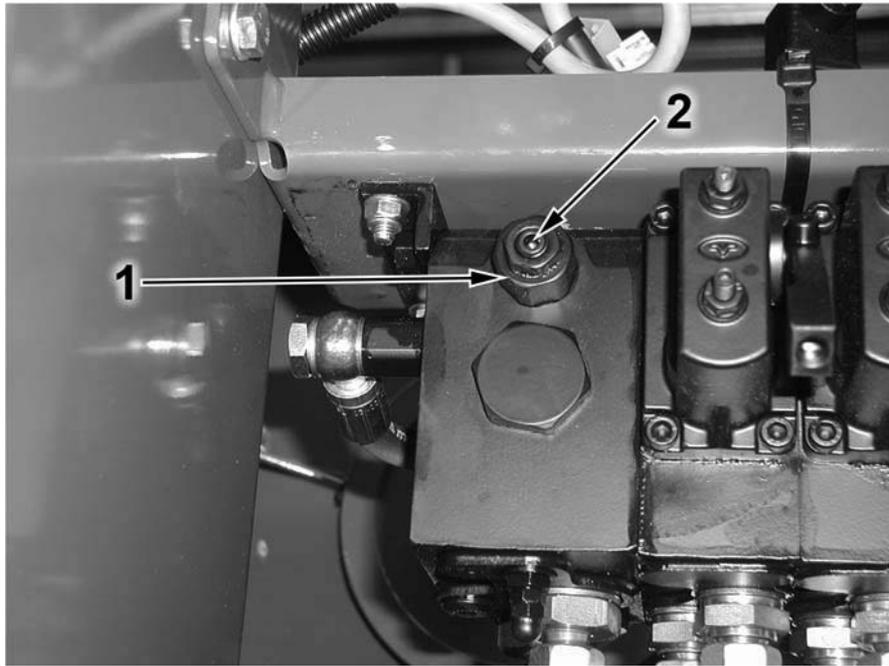


Figure 5.b - Hydraulic spool valve setup

5.10 Attaching hydraulic hosing to the tractor



WARNING: Turn off tractor and remove key before connecting hydraulic hosing

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 five hydraulic hoses (four on air brake models)* and three electrical connections that must be connected to the tractor. They are as follows:

1. One $\frac{3}{4}$ " female quick release for return line. It must be noted that the return line must have a free flow to the tank. (Where a $\frac{3}{4}$ " coupling is not available on the tractor, a special $\frac{1}{2}$ " male quick release is supplied with the **Fusion 3** in the toolbox and should be used to replace the $\frac{3}{4}$ " coupling fitted)
2. One $\frac{3}{4}$ " male quick release for feed line (Where a $\frac{3}{4}$ " coupling is not available on the tractor, a special $\frac{1}{2}$ " male quick release is supplied with the **Fusion 3** in the toolbox and should be used to replace the $\frac{3}{4}$ " coupling fitted)
3. One $\frac{3}{8}$ " male quick release for load sensing (if tractor is load-sensing)
4. One $\frac{1}{2}$ " male quick release for pickup reel (with on-off tap)
5. One hydraulic brake coupling *
6. One 12 V / 7 pin lighting socket
7. One 12 V / 20 Amp euro socket (Machine loom to control box shown)
8. One break away rope fixed securely to the tractor

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

McHale Fusion 3 Baler & Wrapper

See the following figure for possible piping layout. Ensure that the machine operator is familiar with all tractor connections and fittings.

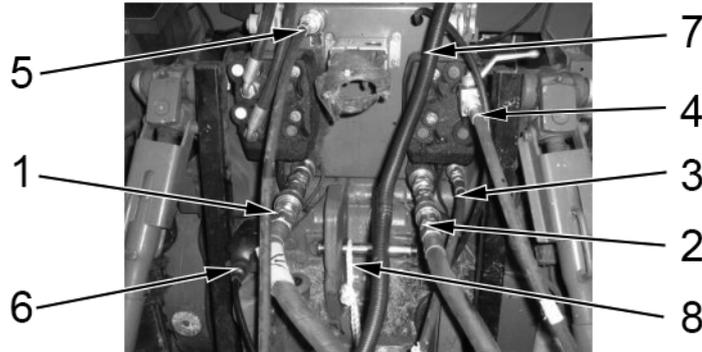


Figure 5.c - Possible layout of hydraulic hoses and electric looms

5.11 Connecting the control box

The control box is to be connected to a 12 V / 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 connect control box to a 24 V power supply

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

6

Baler Requirements & Preparation

6.1 Net requirements

In order for the **McHale Fusion 3** to produce well-shaped bales of excellent density, a top quality net, that is as 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: Minimum turns of net recommended

For netting silage, a minimum of two layers of net is recommended. When the material is drier, the 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.

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 \pm 10%
- Elongation: 15% \pm 3%
- Strength (in direction of wrap): 900 N/500 mm
- Material Length: 2,000 - 4,000 m \pm 200 m
- Material Width (ideal): 1,230 mm (Max. 1,260 mm)



ENVIRONMENT: Recycling of the Net Roll

Respect the environment! Never throw away or burn the waste net and the core tube. Always take waste materials to a recycling centre.

6.2 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 weatherability.

6.3 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 metal feed rollers and check for any tacky material
- Once roller cleaning is carried out, ensure to apply talcum powder to the rubber feed roll



NOTE: Cleaning Solvents

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 using either of the following:

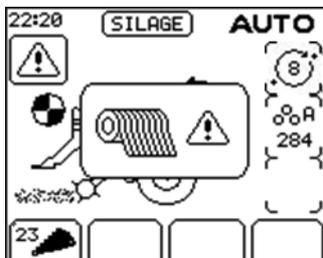
- A cloth soaked in dish washing liquid
- Soapy water

6.4 Loading & operating the netter system



WARNING: Lifting full net rolls

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



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 is displayed in the control box display and the cycle is halted.

The following is the procedure for changing a roll or fitting the first roll:

1. Ensure the PTO is disengaged, the tractor is shut-down and ignition key has been removed.
2. Open the net brake bar (A), hold it in place with latch (B), as shown in Image 1. Remove the empty cardboard core of the finished net roll and dispose of responsibly.
3. Place the new roll of net in the net container.
4. Open the net cutter bar as shown in Image 2 and pull loose net end of approx. 0.5m from the roll. Feed the net through the net tension bar and over the knife trip bar as show in Image 3.
5. Roll up the net and rest it across the rollers from left to right or vice versa, as shown in Images 4 & 5, inserting it between the rubber and the metal feeding rollers.

McHale Fusion 3 Baler & Wrapper

6. Finally close the net cutter bar, followed by the net brake bar (A) of the net container, as shown in Images 1 & 2. The loose net end should not be more than 10cm inside the bale chamber to prevent it being pulled in by the rotating bale. When finished the net should look like Image 6.
7. After the roll of net is replaced, the tractor & electronic control box is powered back up, PTO engaged & the “net” button is pushed, the net feeds into the chamber, netting the bale and the knife trips; the operator then checks that netting is complete & advances the cycle by pushing the “chamber door open” button for one second, work can then continue as normal.

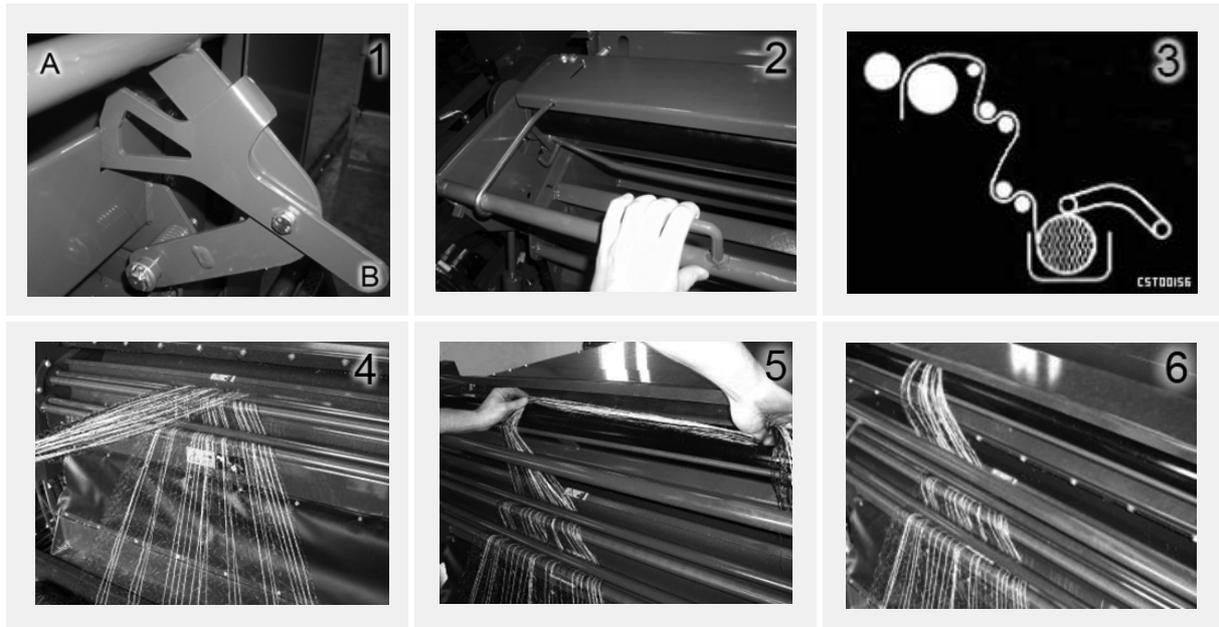


Figure 6.a - Adjustable position

6.5 Net cutter setting

In an automatic cycle, the netter starts feeding net once the set bale density has been reached and the cutter is tripped; the bale is then wrapped with the predetermined net length. The net length can be adjusted at the net cutter drive on the left hand side, see Figure 6.e. 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: Hay or straw with a high dry matter needs more net

When the control box is set to “Bale Only”, for hay or straw being baled with high dry matter, more net must be applied.



WARNING: Adjusting the net adjustment lever

Never adjust the net adjustment lever 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.

McHale Fusion 3 Baler & Wrapper



CAUTION: Adjusting the net cutter

Never attempt to adjust the net cutter setting until the knife has tripped, see Figures 6.b and 6.c.



Figure 6.b - Adjustable Position



Figure 6.c - Non-Adjustable Position

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

1. Ensure the PTO is disengaged, the tractor is shut-down with the ignition key removed and the machine is safely parked with wheels chocked, i.e. cannot roll.

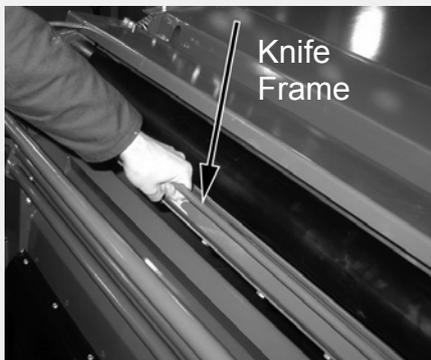


Figure 6.d - Knife bar frame

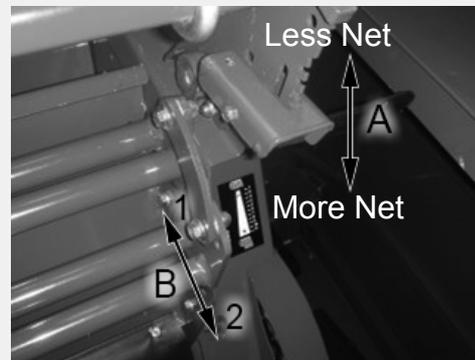


Figure 6.e - Net cutter setting

2. Climb onto the baler platform. Carefully pull upwards on the knife frame bar, see figure 6.d, and while applying upwards pressure on the bar, release the bill hook, by pushing it off the adjuster. Refer to figures 6.b and 6.c.
3. Allow knife to return to its spring loaded position.
4. Adjust the net amount adjuster accordingly, refer to table 6.1 "Calculated net settings" for settings.
5. Once the desired setting is selected, replace the bill hook onto the adjuster by pulling upwards on the knife frame bar. Ensure that the bill hook rests on the adjuster, as shown in Figure 6.c.

Adjustment is achieved by pushing the adjustment lever (A) to the right in order to release the latch from the notches. Choose the desired notch, upwards or downwards, for less or more net, to be applied as shown in figures 6.e before re-engaging. The

McHale Fusion 3 Baler & Wrapper

notches are sequenced from top to bottom and are numbered from 1 to 8 respectively. See Table “Calculated net settings” for exact amount of net applied for each specific notch.

Notch (#)	Layers of Net* (#)	Length of Net* (m)
1	2	7.25
2	2.25	2.25
3	2.5	9.25
4	2.75	10.25
5	3	11.25
6	3.25	12.25
7	3.5	13.25
8	3.75	14.25

Table 6.1 - Calculated net settings



NOTE: Figures in table 6.1 are approximate

Figures in table 6.1 are calculated assuming a bale circumference of 3.77m (diameter of 1.2m). The values of the layers and length of net will be approximate due to differing bale diameters, varying crop conditions, etc.

6.6 Net tension bar setting

The factory set position for the net tension bar (B), shown in Figure 6.e, 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.

6.7 Chopper unit knife removal & installation



WARNING: Incorrectly installed knives can cause irreparable damage

Incorrectly installed knives can cause irreparable damage to both the knives and the rotor, leading to serious destruction within the machine!



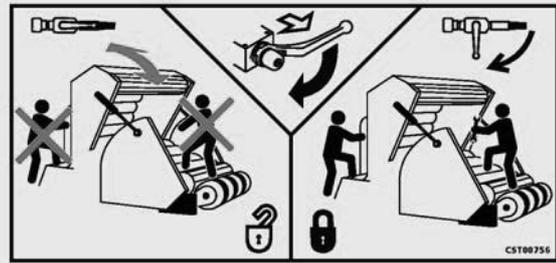
CAUTION: Use protective gloves

Use protective gloves for any manual work in this area! The number of knives installed, determines the cut length of the material.

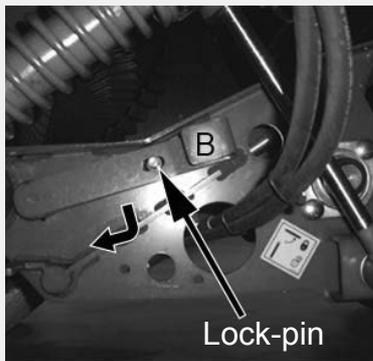
McHale Fusion 3 Baler & Wrapper

Knife installation/removal should be carried out in the following way:

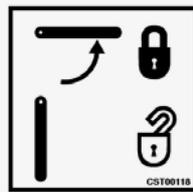
1. Ensure the knives are in the UP/ON position, before beginning
2. Lower chopper unit floor half way (control box must be in manual mode). Press “floor-down” button for one to two seconds approximately.
3. Open the chamber door to the fully up position
4. Set the pick-up-reel wheels to working position to make access under the machine easier
5. Using the lever valve (A), lock the chamber doors in position, by rotating it 90° to the left vertical position, as shown



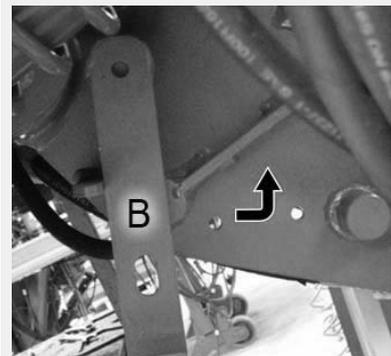
6. Shut down tractor, remove key, apply parking brake and prevent any machine movement with wheel chocks.
7. The knife lock/unlock lever (B) is located on the left-hand side of the chopper unit, just behind the pick-up reel. It must be pulled outwards at first, to disengage from the lock-pin, then turned 90° downwards, to the unlock position, as shown below. Reverse this procedure to return to the locked position.



Locked 'Closed' Position

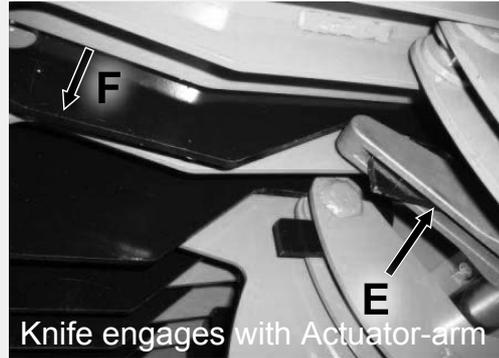
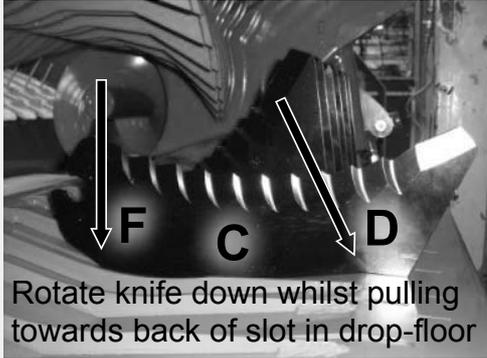


Unlocked 'Open' Position

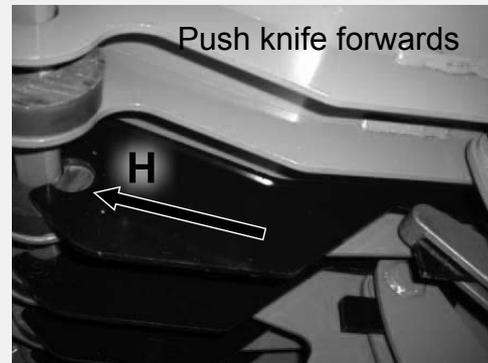
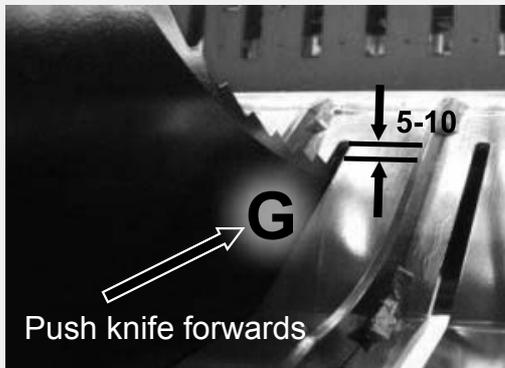


8. Removal of knives/blanks is the reverse of the following installation procedure. Pay particular attention to all decal warnings and safety advice.
9. Rotating lever “B” exposes “flats, on the lock-shaft which allows either knives or knife-blanks to be added or removed. Remove old knives with a pair of pliers.

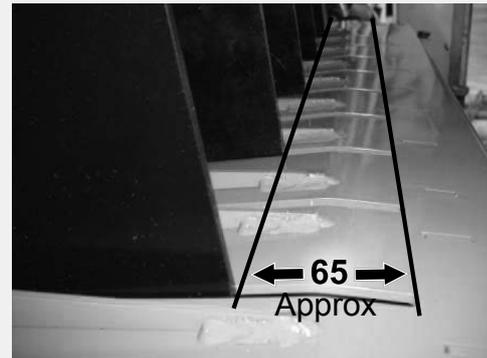
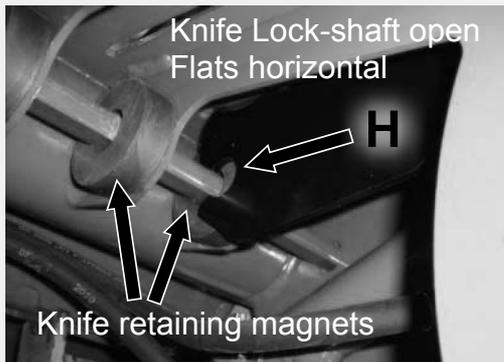
McHale Fusion 3 Baler & Wrapper



10. A new knife (C) can be installed by inserting into the back of the slot in the drop floor (D), so it engages with “raised” actuator arm (E). Next rotate knife downwards (F) whilst continuing to hold towards back of slot, until front toothed area looks like it will clear front end of slot by 5-10 mm (G), as shown.

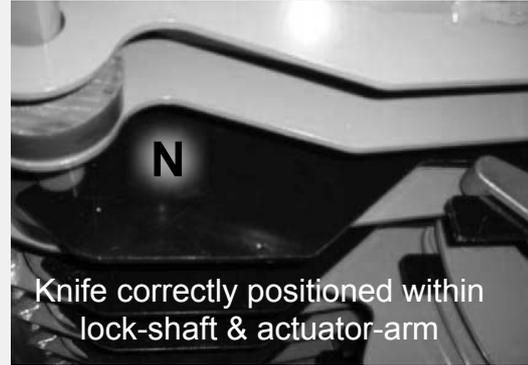
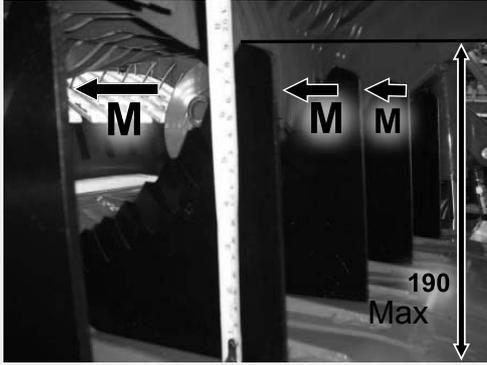


11. Now push knife forwards, continuing to maintain this 5 to 10 mm clearance under front of slot. The keyhole-slot on the front end of the knife should now guide itself over the “flats” of the lock-shaft (H).



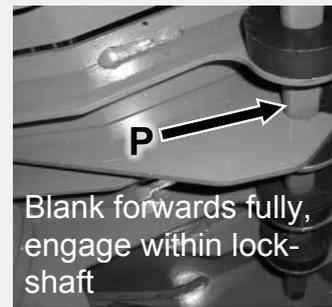
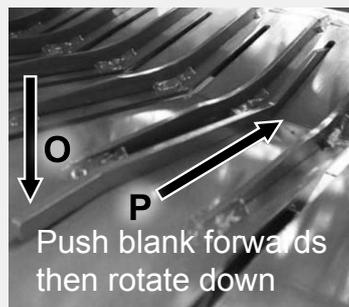
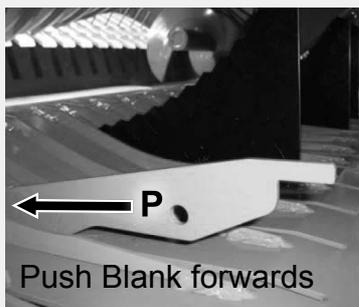
12. Continue to push the knife forward until fully home, which should leave a gap between the knife and back end of slot of approx. 65 mm (J), with maximum protrusion of approx. 190 mm (K) (assuming knife-actuators are fully up). The retaining magnets will hold knives in position until knife lock-shaft is closed.

McHale Fusion 3 Baler & Wrapper



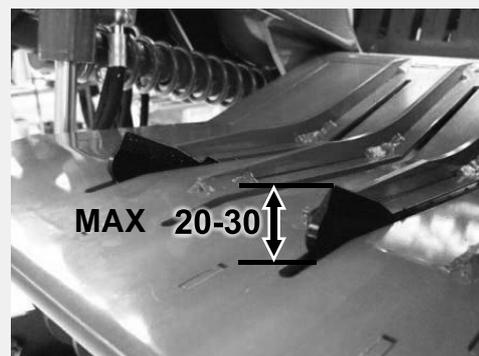
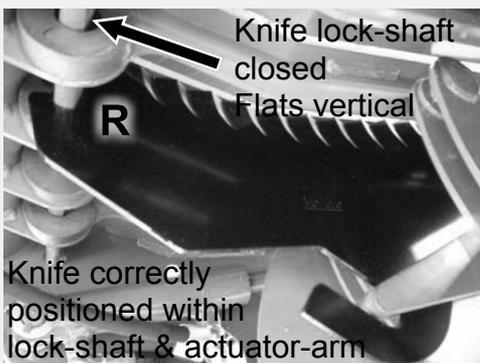
13. After installing, push the top of each knife forward as shown, in the direction of the arrow (M), to ensure proper engagement within both lock-shaft and actuator-arm. If the knife moves, then it is not positioned correctly. The correct position is shown at (N).

14. If knives are removed, for whatever reason, always replace with knife blanks to prevent crop catching in the “open” slots. These are stored in the knife holster. See “Knives/Blanks Storage” on page 47.



15. Installation is simpler, in that they only engage with the lock-shaft in front and not with the actuator-arm. The knife-blank is dropped into slot towards front, again maintaining the 5 to 10 mm gap (G), push forward (P), allowing the keyhole-slot to engage with lock-shaft. Then rotate downwards (O) and push forward fully.

16. Always observe the row of knives after installation. They should all be perfectly aligned and at the exact same height. If one or more do not line up, then they are not correctly positioned. Typically the lowest and furthest forward are correct.



McHale Fusion 3 Baler & Wrapper

17. Here the knives are shown fully down/retracted, with lock-shaft returned to the “locked” position (R). Knife tips should protrude 20 to 30 mm maximum (T).
18. Rotating lever B back up to 90° onto lock-pin, locks all knives/blanks securely.
19. The knife blanks are stored in the knife/knife blank holster which is located in the front left compartment of the **Fusion 3**. They are to be used any time one or more knives are removed.



WARNING: Turn the levers back into their working position

Do not forget to turn the levers back into their working position(s), but only after completing all work on the machine as shown.



WARNING: Compartment doors panels must be closed while the machine is running - danger of rotating components

Always keep the compartment door panels closed while the machine is running because of the danger of rotating components! Take note of all warning decals and ensure that all safety measures and precautions are implemented before attempting to carry out any maintenance work.

6.7.1 Knives/Blanks Storage

The knife blank holster has two methods of retention, L and S, as shown in Figure 6.f. Upper pin L can be pulled out from the left by first removing the pin on the right. The lower pin S is used as a clamping device, to prevent knives/blanks from vibrating and can be loosened by turning anti-clockwise and tightened by turning clockwise.

Removal of knives/blanks is the reverse of the installation procedure. Pay particular attention to all decal warnings and safety advice.

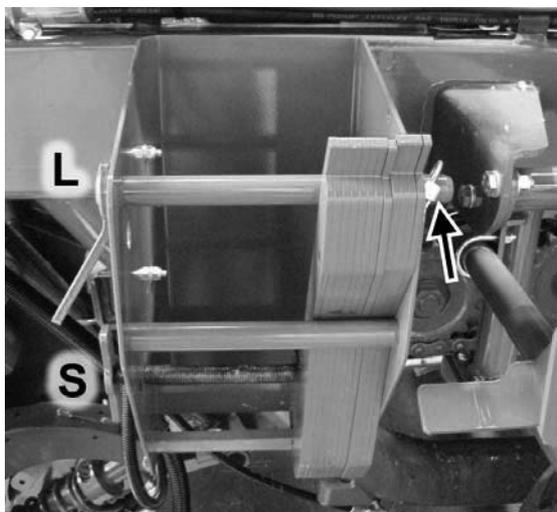


Figure 6.f - Knives/Blanks Storage



Figure 6.g - Knife blank

6.7.2 Knife sharpening



The knives in the chopper unit should be sharpened on the flat side using either a file or a mopping disk. The knife should never become hot while sharpening, otherwise it will lose its tensile. (Sharpen along the flat edge on this side only)

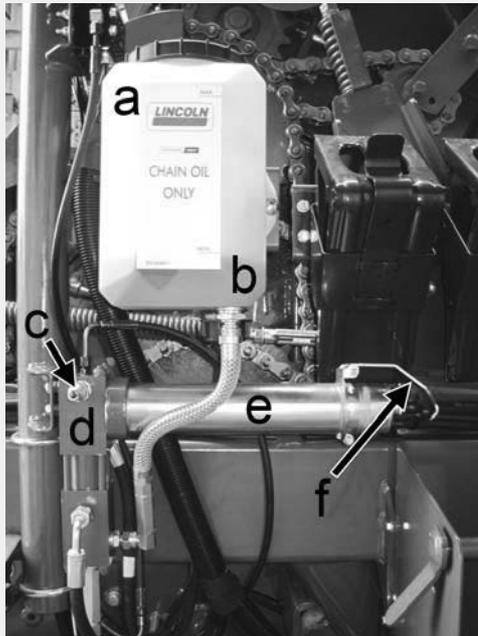


WARNING: Never use a grinding disk

Never use a grinding disk when sharpening the knives.

6.8 Automatic lubrication system

The **McHale Fusion 3** is equipped with a fully automatic greasing and oiling system which is responsible for greasing the roller bearings in the machine baling chamber (apart from the transfer roller) and oiling of all chain systems. All other grease points must be greased, as specified in "Machine Maintenance" on page 105.



- a. Oil reservoir tank
- b. Oil filter
- c. Air release valve (prevents air locks)
- d. Greasing cartridge and pump unit
- e. Grease cartridge cover
- f. Grease cartridge plunger stop

Figure 6.h - Oil reservoir tank & oil grease cartridge pump unit

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 minimum and maximum 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

McHale Fusion 3 Baler & Wrapper

may be reset sooner, if desired, from within the control box sub menus. See “Control box features” on page 60 for instructions on how this is done.



WARNING: Ensure the tractor is shut down before adding oil

Ensure that the tractor engine has been shut down, the key has been removed from the ignition and the brakes have been applied before adding oil.

To add oil:

1. Unscrew the top cap and add chain oil to the oil reservoir tank (A), up to the maximum level mark shown.
2. Replace the cap and tighten fully.



NOTE: Oil filter needs to be replaced at least once every season

The oil filter, inside the oil reservoir tank, will need replacement once every season or as soon as reduced oil consumption is noticed. The filter is critical to proper operation and lubrication.

Replacing refill grease cartridge and releasing airlock:

McHale recommend using a multipurpose, extra high performance grease such Mobil grease XHP222 or equivalent NLGI number 2 grade grease.

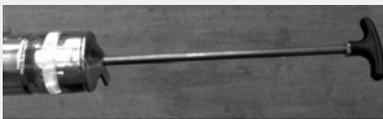


CAUTION: Avoid contact of the grease with skin

Avoid contact of the grease with skin



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

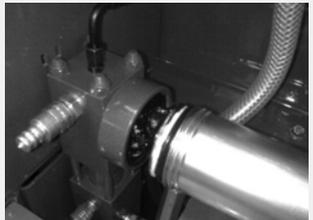


2. Pull the plunger all the way back



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

McHale Fusion 3 Baler & Wrapper

	<p>4. Open the refill</p>
	<p>5. Screw the cartridge holder onto the pump, but do not tighten. Only screw the cartridge by one turn when you feel the first thread.</p>
	<p>6. Rock the cartridge holder from side to side to ensure it does not fall off</p>
	<p>7. Release the plunger and push the plunger rod all the way into the cartridge holder</p>
	<p>8. Slowly and gently, rock the cartridge holder from side to side. Air between the grease pump and the cartridge will escape. When a bead of grease starts to leak out, the cartridge can be tightened fully.</p>
	<p>9. 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.</p>
	<p>10. Drop the plunger lock and top up the chain oil. Then reset the lube count on the Expert Plus Control Box.</p>

6.9 Gear box oil

The gearbox is located to the rear of the PTO shaft.



WARNING: Ensure the tractor is shut down before changing oil

Ensure that the tractor engine has been shut down, the key has been removed from the ignition and the brakes have been applied before changing oil.



NOTE: Oil must be drained & filled after the first 5 hours of use

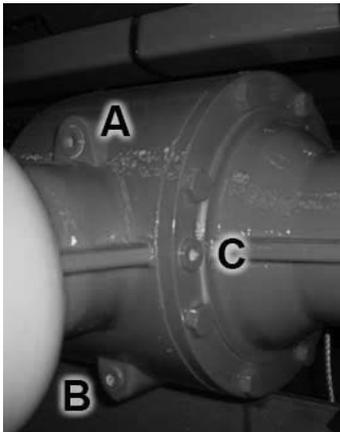
After the first 5 hours of use, the gear box oil must be completely drained and filled with SAE 80W/90 grade oil.



ENVIRONMENT: Safe disposal of oil

Respect the environment! Never spill oil or grease on the ground, never pour them down the drain and never discard them where they can pollute the environment. Always take waste materials to a recycling centre.

To drain and add oil to the gear box, carry out the following procedure:



1. Remove the filler-plug (A) followed by drain-plug (B), using an 8 mm Allen key, and drain oil into a suitable container. This is best carried out while the oil is still warm, i.e. soon after use. Replace the drain plug (B), tighten and dispose of waste oil responsibly.
2. Remove the level-plug (C) and add between 2 and 2.2 litres of SAE 80W/90 grade oil, or until oil begins to seep out at C. After this replace the oil once per season or once per 10,000 bales, whichever comes first.
3. Replace the level-plug (C) followed by filler-plug (A) and tighten carefully.



NOTE: Do not overfill the oil

Do not overfill the oil, as this will result in overheating and oil leakage.

6.10 Tyre inflation pressures



CAUTION: Check the tyre pressure weekly

Check the **McHale Fusion 3** tyres weekly for the pressures outlined in the following table.

McHale Fusion 3 Baler & Wrapper

Tyre type	Pressure
560/60 R22.5	1.65 bar (24 P.S.I.)
650/50 R22.5 (Optional Specification)	1.65 bar (24 P.S.I.)
170/60 - 8 (Pick-up tyre)	2.07 bar (30 P.S.I.)

6.11 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 on the left of the machine, inside the main panel, while in the transport position.



Figure 6.i - Wheel Chocks

6.12 Drawbar and PTO shaft stand usage

There are three (3) types of drawbar stands available on the **Fusion 3**, depending on the country of use, one will come as standard:

1. A swing down fixed length stand (low hitch) - Type A
2. A swing down screw stand (low hitch) - Type B
3. A fixed screw down stand (high hitch) - Type C

The drawbar stands are to be used every time the machine is disconnected from the tractor.



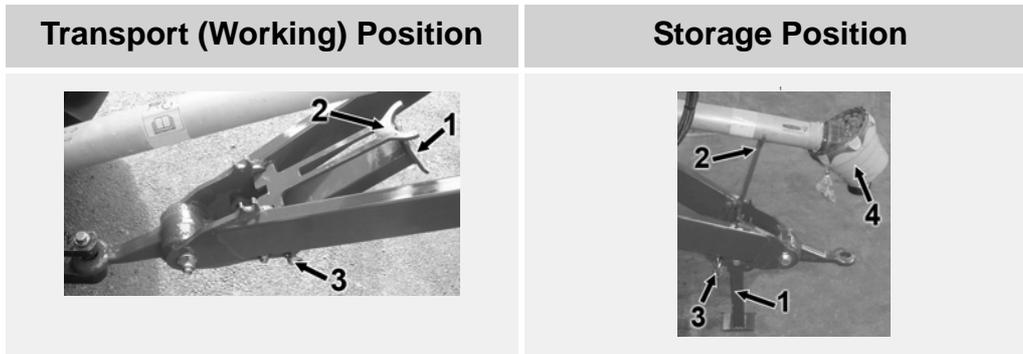
CAUTION: All stands must be rested on a solid footing

All stands must be rested on a solid footing, on level ground and also supplied wheel chocks must be used.

McHale Fusion 3 Baler & Wrapper

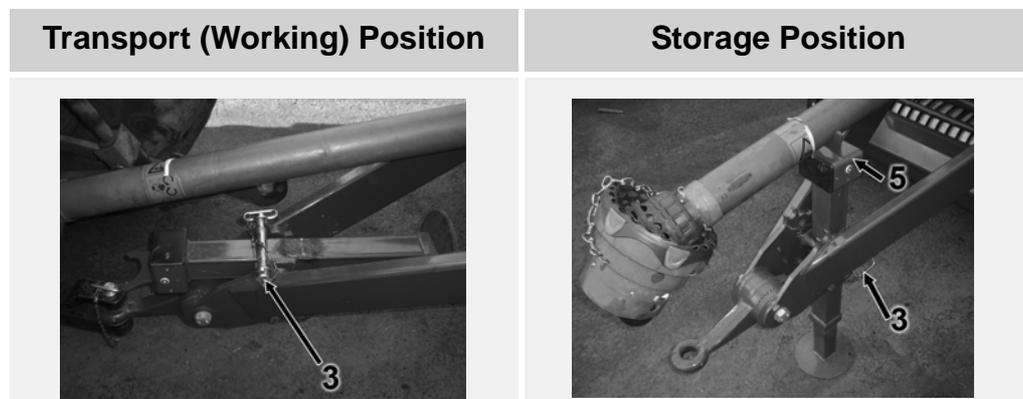
Type A - The following applies to the swing down fixed length stand (low hitch):

- Transport working position: While using the machine, ensure that the drawbar stand (1) is raised full with stand pin (3) in alternate hole position and ensure PTO shaft stand (2) is in the lowered horizontal position.
- Storage position: Ensure that the stand pin (3) is properly placed in the lower slot to prevent the stand from collapse. Then place PTO shaft stand (2) in an upright position in order to support the PTO shaft (4).



Type B - The following applies to swing down screw stand (low hitch):

- Similar to type “A”, except stand pin (3) is in the upper slot, in the transport (working) position. It should be wound up and retracted fully as shown before removing the handle. The main difference being, that the drawbar height is now fully adjustable and the PTO shaft stand (5) is an integral part of the assembly.

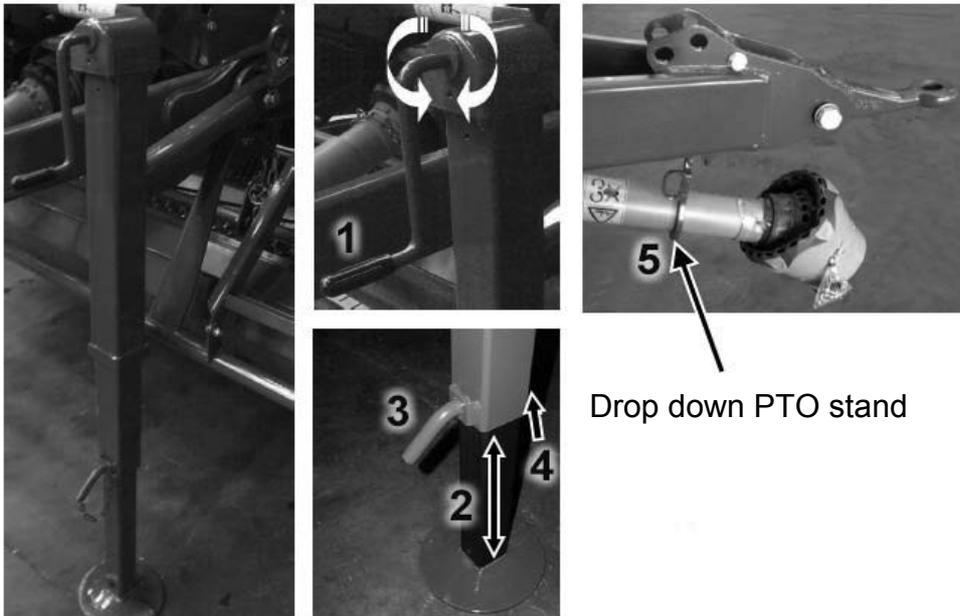


Type C - The following applies to the fixed screw down stand (high hitch):

- Stand type C is the only type supplied with the high drawbar hitch option and is available as an option on the low drawbar hitch machines.
- In order to elevate the drawbar, rotate the jack handle (1) in a clockwise direction as shown in the figure below. In order to lower the drawbar, rotate the handle in a counter-clockwise direction.
- When the drawbar has been safely connected to the hitch on a high hitch style tractor and the machine-weight taken off the stand (by rotating jack handle (1) in a counter-clockwise direction) the lower part of the stand (2) can be retracted quickly by removing the quick-release pin (3) (having first removed

McHale Fusion 3 Baler & Wrapper

the R-clip (4)) and sliding up the lower part of the stand, fully into position. Align the bottom hole and replace the pin (3) followed by R-clip (4).



- The PTO stand (5) can be simply lifted out of the way, once the machine has been coupled to the tractor, with the PTO shaft connected. Leave the stand in a suitable location such as the tractor cab, toolbox, etc. available for its next use.
- Depending on the height of the windrow being baled, the stand may need to be elevated further, in order to avoid catching crop. This is done by rotating the jack handle (1) in a counter-clockwise direction until it is fully retracted.

6.13 Drawbar adjustment



WARNING: Adjustment to be completed by qualified persons only

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

This adjustment should be carried out on a level concrete surface, with the tractor drawbar aligned such that the exact adjustment can be monitored. Ensure that the tractor engine has been shut down, the ignition key removed and the brakes applied. The machine handbrake must be applied, the main wheels chocked, with the front end of the machine (under the chopper unit) supported on axle stands. The drawbar should be adjusted so that the machine is level and horizontal to the ground when in the working position, see figure "Drawbar adjustment" below. To adjust, first remove the safety-bolts, then slacken the hinge-bolts (C), but do not remove. Hitch-eye can be adjusted to different height positions by repositioning bolts (B) in alternating hole positions. It can then be re-adjusted locally by loosening bolts (A & D) to ensure it is level. Once the desired height is achieved, ensure that bolts (A & B) are tightened to a torque value of 540 Nm and the 30 mm top drawbar hinge-bolts (C) tightened to a torque value of 1060 Nm. Tighten bolt (D) and reposition and tighten safety-bolts.



NOTE: The drawbar bolts must be inspected every two weeks

The main drawbar bolts (A & B) along with hinge-bolt (C) must be inspected once every two weeks.

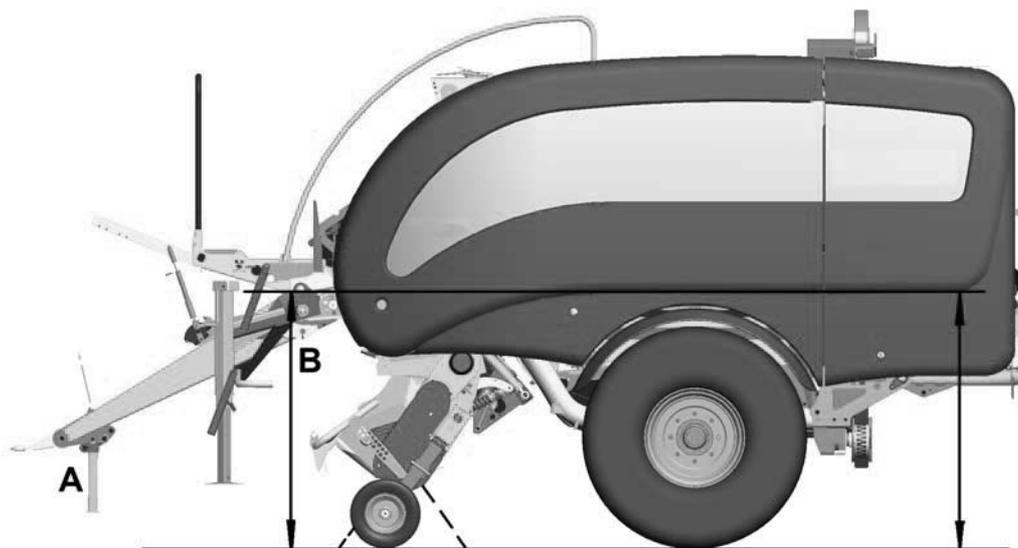
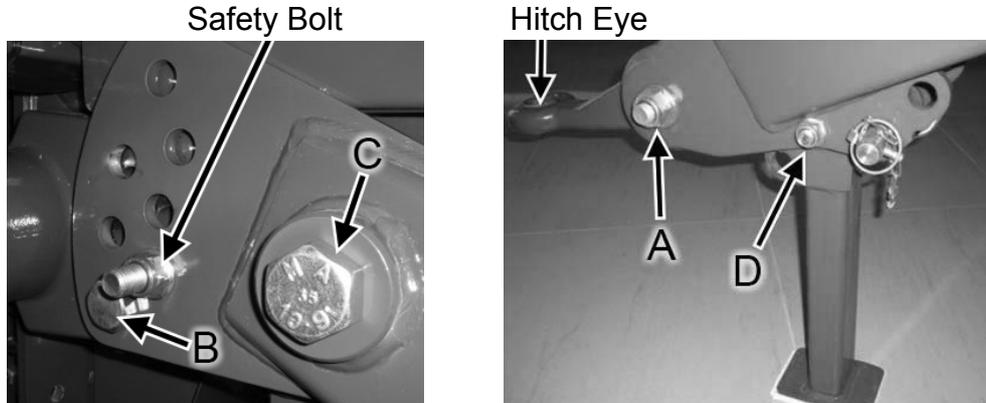


Figure 6.j - Drawbar adjustment

6.14 PTO Shaft adjustment & maintenance

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 combination, it must be ensured that there is a minimum sliding clearance of 200 mm left during all angles between the tractor and the machine. In a case where there is not sufficient sliding clearance the shaft length must be adjusted according to the PTO shaft manufacturer's recommendations that are either attached to the PTO shaft or included with this manual or both. Maximum 80° angle of movement should never be exceeded, otherwise permanent damage will result (See Figure 6.l).

All PTO shaft grease points are to be serviced at 60 hour intervals.

McHale Fusion 3 Baler & Wrapper

The recommended quantities of grease in grams for each grease-point are shown (See Figure 6.k).

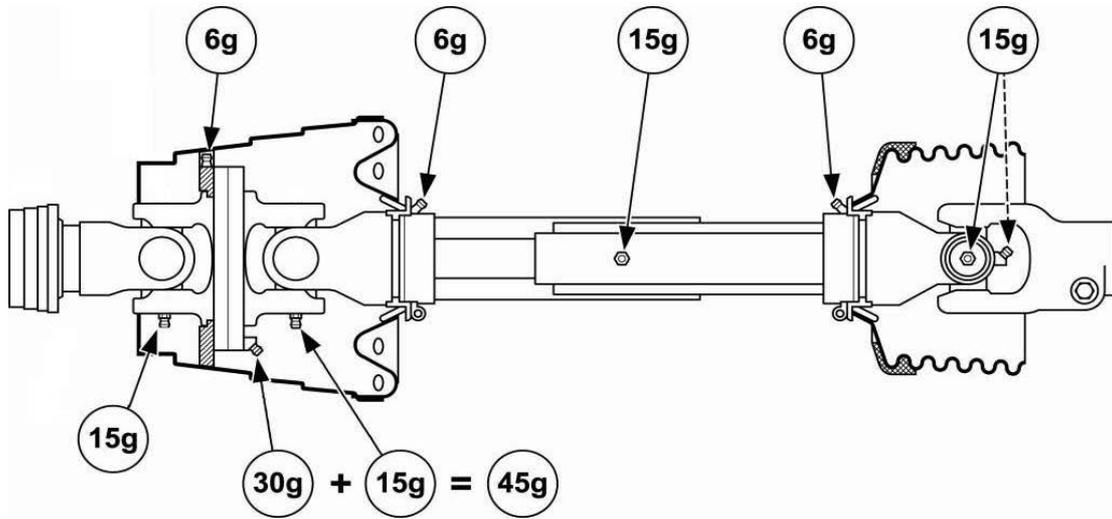


Figure 6.k - PTO Grease points

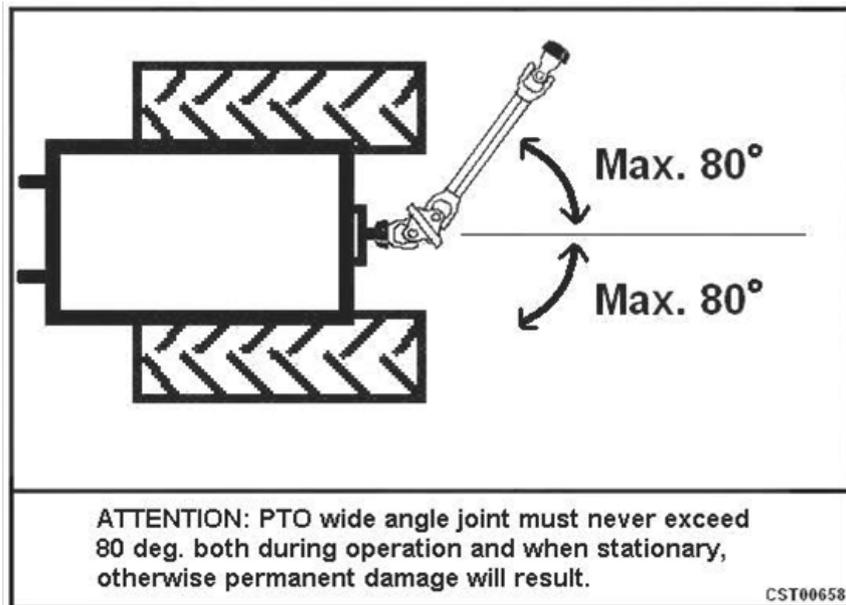


Figure 6.l - Max PTO angle

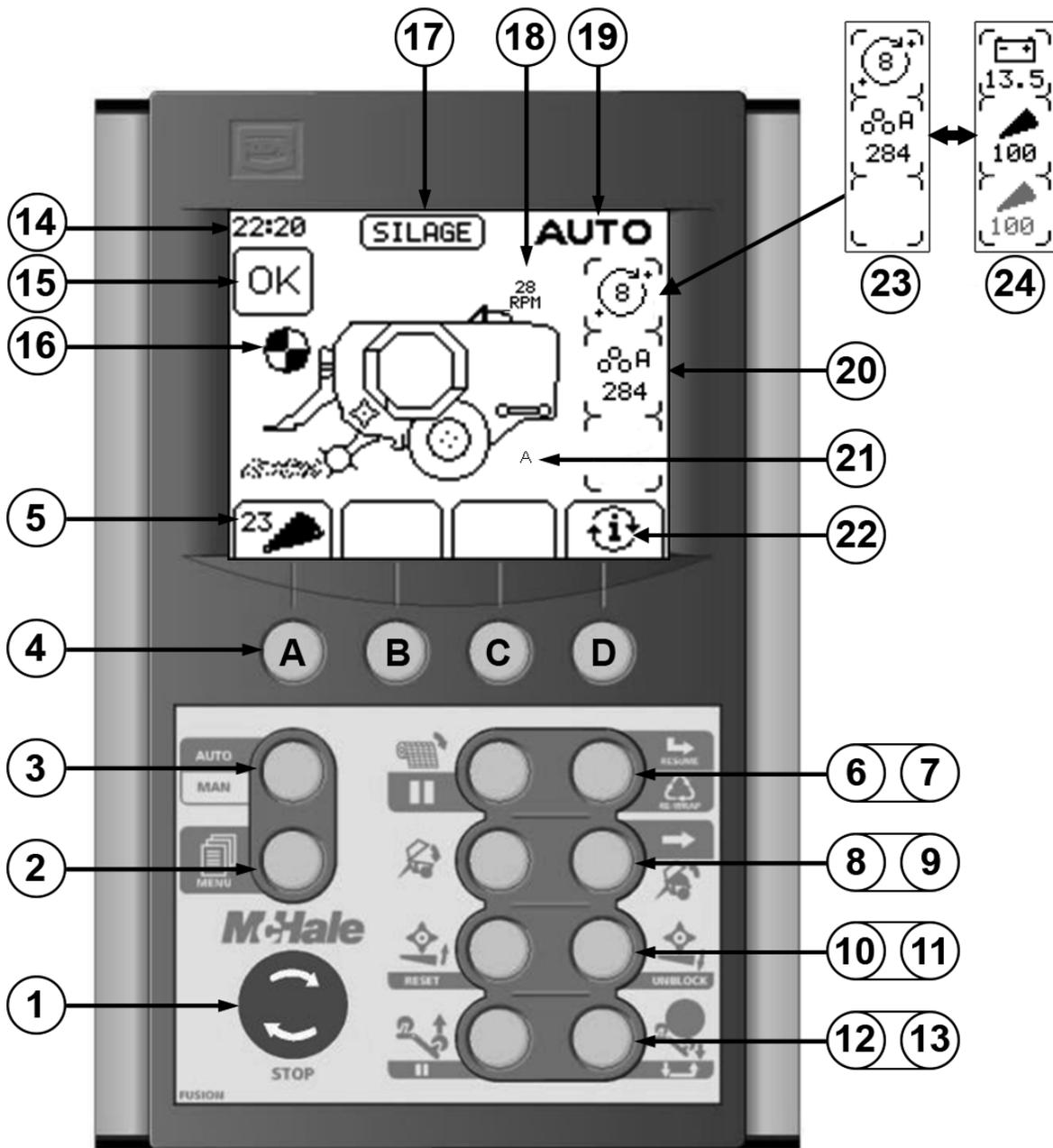
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7

Electronic Control System

Control Unit Software Version EP301-113 onwards



7.1 Control box functions

No.	Function	
	Manual	Automatic
1	Stop button - Twist clockwise to turn	
2	Menu button	
3	Select Automatic Mode	Select Manual Mode
4	Four soft keys (A, B, C & D) with interchangeable functions (each function relates to the corresponding option directly above it on the screen)	
5	On screen function display of the four soft key buttons below	
6	Net feed	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	Net Indicator (rotates when net is being applied)	
17	Crop type	
18	Wrapper ring RPM	
19	Displays Manual or Automatic Mode	
20	Information display	
21	“A” symbol displayed when Auto tip is turned on	
22	Use Softkey D to toggle between Main Screen 1 & 2	
23	Main Screen 1: symbols/information (alternative to Main Screen 2)	
24	Main Screen 2: symbols/information (alternative to Main Screen 1) (3 rd symbol is visible, with knife numbers, if selectable knives is operational)	

7.2 Control box features

7.2.1 Working Display

When the control box is first switched on it displays “**McHale Fusion**” followed by the software version number, followed by the selected language. The language can be changed at this point by pressing the arrow up (Softkey A) or arrow down (Softkey B) 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 3**, which is surrounded by general working information.



NOTE: The four soft key buttons are used for multiple functions

The four soft key buttons are used for multiple machine functions and menu navigations. Their function changes depending on the current screen and relates to the corresponding symbol directly above each soft key, across the bottom of the screen.

7.2.2 Manual/Automatic Modes

There are two working screen modes:

1. Manual
2. Automatic

To switch between the Manual and Automatic modes, press “Auto/Man” (Button 3). The selected control mode is displayed in the top right corner of the screen.

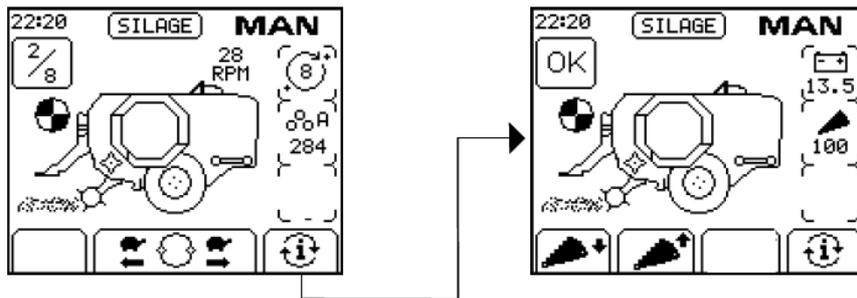


Figure 7.a - Manual Screen Display (Screen 1 on LHS & Screen 2 on RHS)

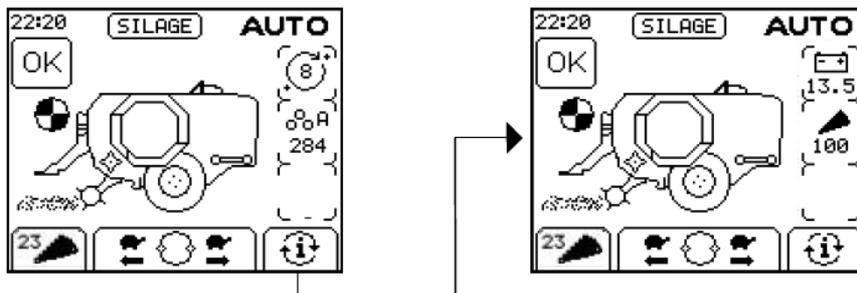


Figure 7.b - Automatic Screen Displays (Screen 1 on LHS & Screen 2 on RHS)

Screen Selection

There are two screen options for the Manual mode and two screen options for the Automatic mode. The reason for this is to show extra information displays and different functions for the softkeys.

7.2.3 Crop Types

There are three different crop types to choose from in the menu:

1. Straw
2. Hay
3. Silage

When Hay or Straw is selected, the wrapper will be disabled.
When Silage is selected, the wrapping will be switched on.

7.2.4 Film Layers

The selected number of rotations is displayed on the right side of the screen. 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.

7.2.5 Net Indicator

The net indicator (See No.16 of “Electronic Control System” on page 58) rotates when net is being applied. This stops rotating when the net knife trips to cut the net.

7.2.6 Bale Counters

The bale sub total is displayed on the right side of the screen, if you cannot see it on the screen, toggle to the other screen display by pressing the softkey D button. The control box contains ten different bale counters (A-J) which can be reset and a grand total counter which can not be reset. (See “Bale Count” on page 69)

7.2.7 Voltage Monitor

The control box monitors its operating voltage and displays it on the lower right side of the screen. If the voltage falls below 10 volts the “**LOW BATT**” symbol is flashed on the display.

7.2.8 Dispenser Speed RPM

The wrapper ring rotation speed, in revolutions per minute, is displayed over the wrapper of the **Fusion 3** image on the screen (Shown at No. 18).

7.2.9 Manual Wrapping

Softkeys B & C on the main screen 1 are used to manually rotate the wrapper ring. Pressing and holding the forward (Softkey C) or reverse (Softkey B) once will rotate the ring slowly. Pressing forward (Softkey C) twice and holding it will rotate the ring forward at full speed.

In Automatic Mode, the rotate buttons will not be active unless the ring is NOT in the “home” position.

7.2.10 Knives Operation

Standard Knife Operation allows all 23 knives to be raised/lowered together.

If **Manual Mode** is selected there are two soft keys active for the knives on the second working screen. Softkey A lowers the knives and Softkey B raises the knives. The knife pressure in Bar is displayed on the middle right information display, if you cannot see it on the screen, toggle to the other screen display by pressing the Softkey D button. When the knives are raised the pressure will increase and stop at the normal working pressure, approx. 50 bar.

Sometimes, if the knives have not been used for a while, full pressure may need to be used. To do this, the “knives up button” (Softkey B) should be released and when normal working pressure is reached, it should be pressed again.

The pressure will then increase to the maximum allowed and a “Knife pressure too high” warning will be displayed to warn the operator not to bale with the pressure this high. To release the pressure, lower the knives fully by pressing “knives down” (Softkey A) and press it again to raise them and reset the normal operating pressure.

In **Automatic Mode**, Softkey A is toggled to select the number of knives desired, 0 or 23. The machine will automatically move the knives to the correct position and constantly monitor the knife pressure and correct it as necessary

A sensor indicates when the knives are fully up. The knife symbol will be shown as follows (See Figure 7.c):

- Completely black when the knives are up
- Only an outline of the knife will be shown if they are down

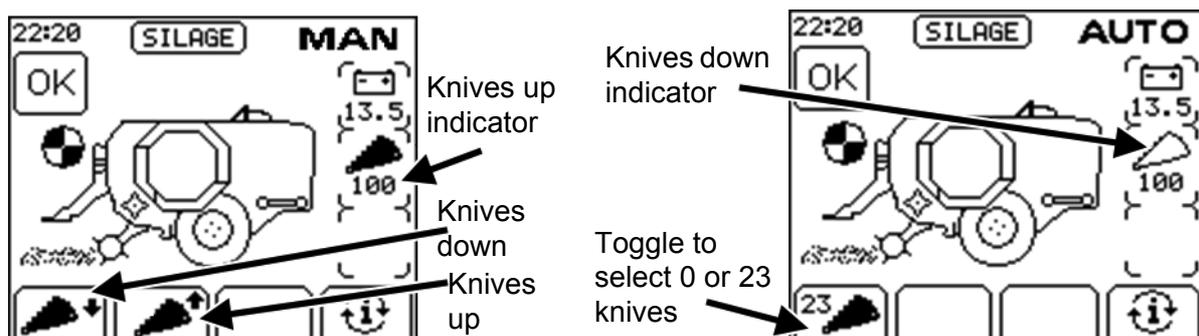


Figure 7.c - Standard Knife Operation

McHale Fusion 3 Baler & Wrapper

Selectable Knives Operation is an optional extra with the **Fusion 3** which allows the selection of 0, 11, 12 or 23 knives from the control unit.

In **Manual Mode**, there are 2 buttons use to the raise the knives, one for 12 knives (Softkey C) and one for 11 knives (Softkey B). Pressing “knives down” (Softkey A) lowers both sets (11 & 12) together. There are two knife pressure displays, one for the set of 11 knives and one for the 12 set.

In **Automatic mode**, 0, 11, 12, or 23 knives can be selected. This is done by toggling the knives button (Softkey A) to the desired knife setting.

A sensor indicates when the knives are fully up. The knife symbol, for 11 & 12 knives will be shown as follows (See Figure 7.d):

- Completely black when the knives are up
- Only an outline of the knife will be shown if they are down

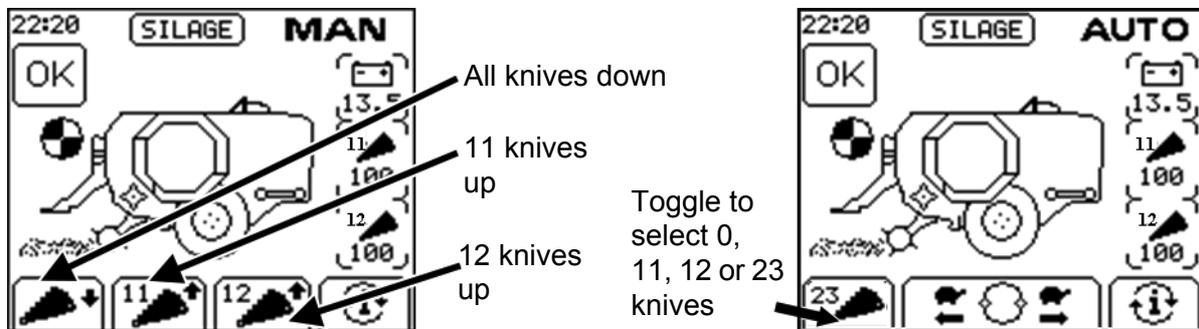


Figure 7.d - Selectable Knife Operation

7.2.11 Automatic Operation

Automatic operation is the preferred method of operation on a day-to-day basis, allowing the machine to free-flow through each cycle. Manual operation is generally used when the user wants to have direct control over individual functions for service/maintenance reasons.

When the control box is switched on, Automatic mode can be selected by pressing button 3. AUTO will be displayed in the top right of the screen and the **Fusion 3** image shows crop moving into the pick-up on the screen to show that baling is ready to start.

Netting: As crop continues to build up in the chamber, a series of beeps will sound for 3 seconds when the bale has reached the predetermined density (bale full) to alert the operator that netting is about to start. The operator must stop the forward movement of the tractor at once. The “Net Feed” (Button 6) may be held at this point to delay the net from feeding, if the operator wants to pack a little extra crop into the chamber. Next, a continuous beep informs the operator that the netting has started. and the wrapped bale on the wrapper will be tipped off automatically, if “Auto tip” is turned on (See Section “Auto Tip” on page 67). If the net knife does not trip within 20 seconds, then it is presumed that there is no net / a problem has occurred and a “check net” warning will be displayed (See Section “Check net” on page 70). The roll of net can be replaced and “Net Feed” (Button 6) is pressed to start netting again.

McHale Fusion 3 Baler & Wrapper

Transfer: 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, 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 “Transfer Time” on page 68). Button 9 may be pressed while the chamber is opening, to pause it opening for that bale. This is useful when working in extreme conditions, if the operator is unsure if the bale will transfer properly. Press Button 9 again to close the chamber and continue the cycle. The drop floor is automatically topped up when the chamber closes, to make sure it is always in the correct position for work.

Wrapping: 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. If one roll of film runs out, a warning will be displayed and the machine will automatically continue to wrap the bale with the one remaining roll. A short beep will indicate that wrapping has completed.

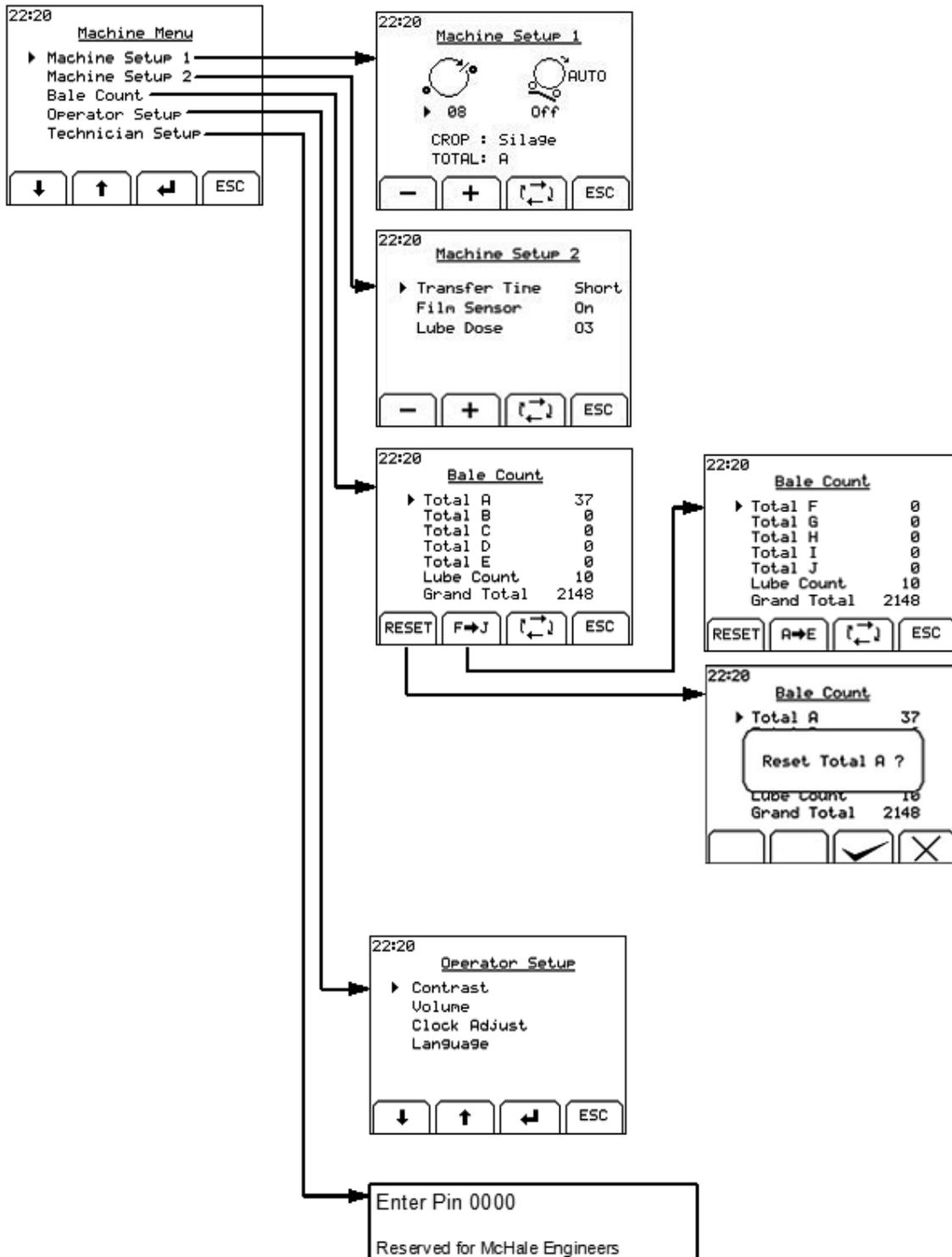
Tipping: Once the bale is finished wrapping, it can be tipped off at any time, by pressing Button 13. If “Auto tip” is turned on, then the bale will be automatically tipped when netting starts on the next bale. The tipping of the bale can be paused, if desired, by pressing Button 12 before netting commences, 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 (See Section “Auto Tip” on page 67). If ‘Auto tip’ is turned off then the bale must be manually tipped by one press of Button 13 every time.

Unblocking: 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 “Unblock” (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 and baling can continue.

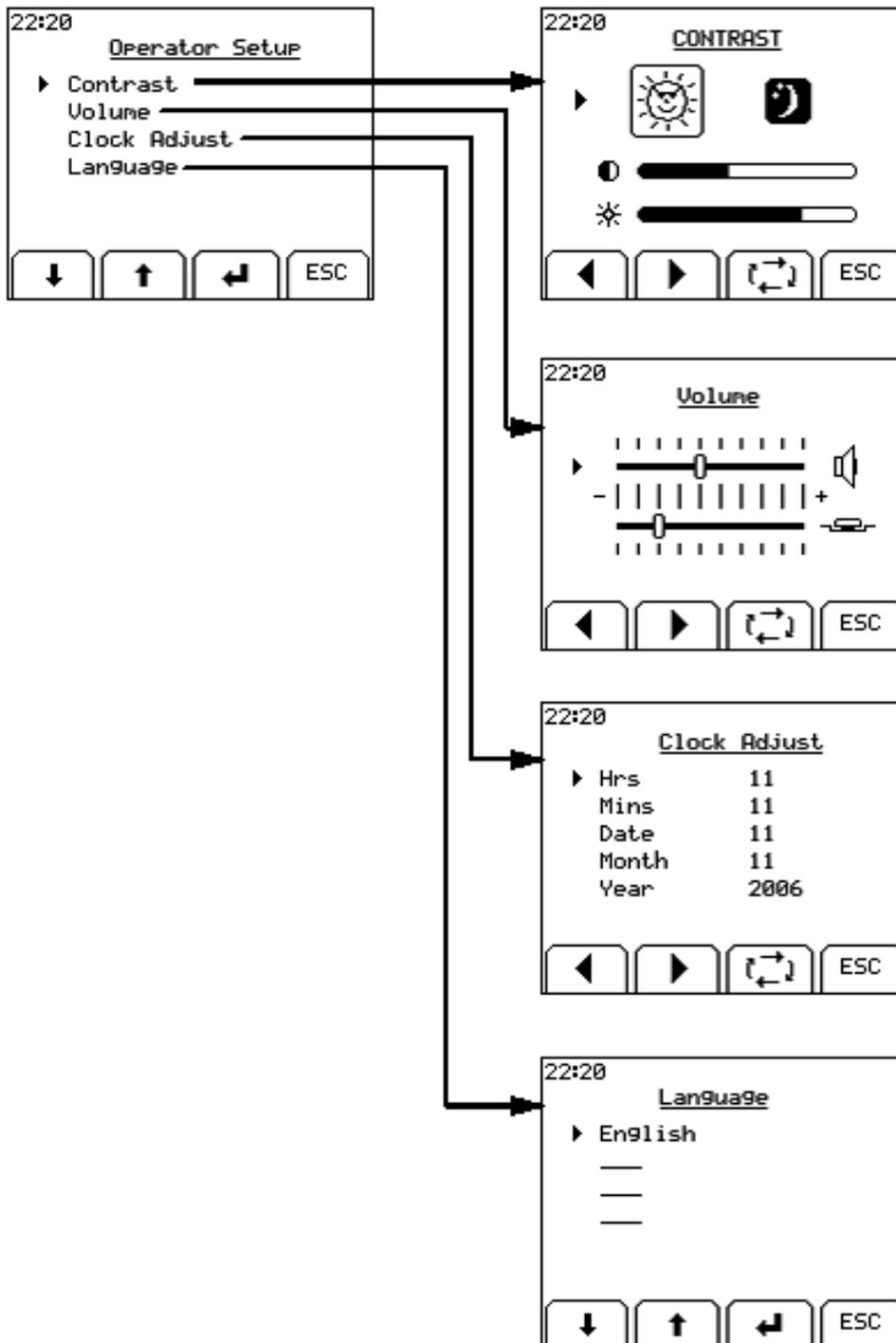
7.3 Menu Structure

Press “Menu” (Button 2) to display the Machine Menu

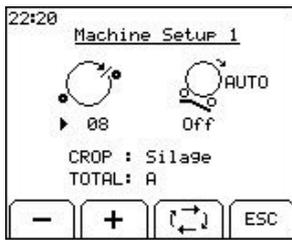
7.3.1 Machine Menu



7.3.2 Operator Setup Menu



Machine Setup 1



Use the following buttons to navigate the Machine Setup 1:

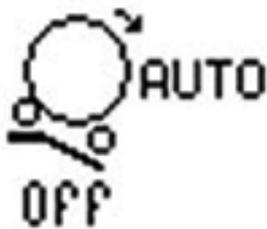
- Toggle key to move the arrow head to each of the parameters
- + and - keys to change the value of the selected parameter
- ESC to return to the Machine Menu

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 “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.

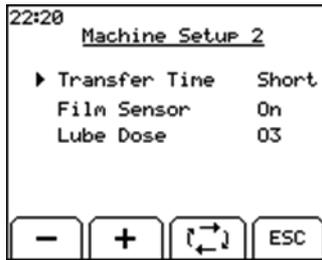
Crop

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 three-second delay.

Bale Sub Total

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.

Machine Setup 2



Use the following buttons to navigate the Machine Setup 2:

- Toggle key to move the arrow head to each of the parameters
- + and - keys to change the value of the selected parameter
- ESC to return to the Machine Menu

Transfer Time

This setting is the length of time that the chamber door will pause on open, when transferring a bale from the chamber to the wrapper. There are three options for transfer time:

1. “Short” will open the door fully and close it again with no pause
2. “Long” will open the door fully and pause on open, for a second, before closing the door again
3. “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 difficulty to transfer dry crops. It may also be used when using the baler in difficult conditions, such as hills, but this will increase the cycle time. Set this function to “Short” for all other baling conditions.



NOTE: Pause the chamber opening

One press of Button 9 as the chamber is opening will pause the chamber in the fully open position regardless of the transfer time setting. 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

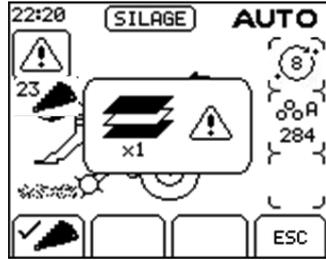
The film sensor monitors the passage of film through the dispenser rollers. If one dispenser stops feeding film due to a roll coming to an end, the control box will give an audible alarm and flash the “1 Dispenser Only” symbol. Bale rotation goes into 50/50 mode, rotating the bale at half speed and the remaining wrapper revolutions will be doubled, so the correct film coverage will be applied for the remainder of the bale. 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.



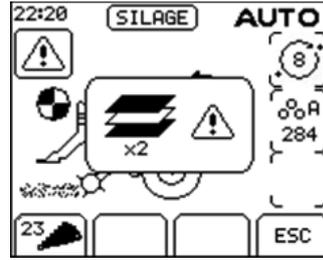
NOTE: The film sensor may be switched off, if desired

The film sensor may be switched off, if desired.

McHale Fusion 3 Baler & Wrapper



1 Dispenser Only



Out of Film

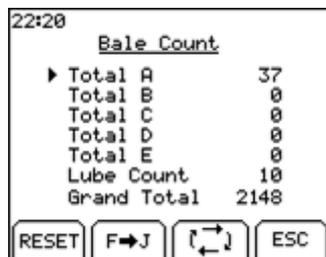
Lube Dose

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 lubrication oil applied to the chains. The grease cartridge will also get used quicker as this setting is also increased, but this is normal and the grease cartridge does not need to be replaced until the lube alarm sounds every 300 bales.

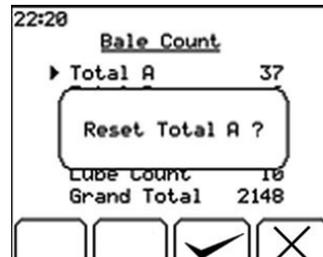
Bale Count

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". You can return to the first set of subtotals by pressing the soft key "A-E".

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.



Bale Count Menu



Reset Total A?

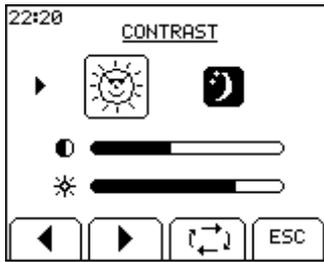
Operator Setup



Use the following buttons to navigate the Operator Setup:

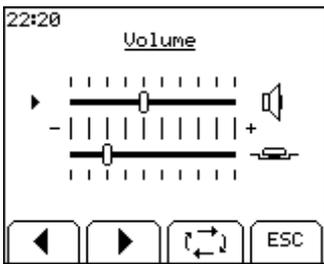
- Toggle key to move the arrow head to each of the parameters
- + and - keys to change the value of the selected parameter
- ESC to return to the Machine Menu

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 toggle key to select the beeper/button tone setting. Use the left arrow head (Soft key A) to decrease the volume and the right arrow head (Soft key B) 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

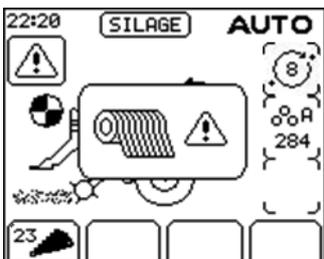
Use the arrow soft keys to move up or down to the required language and press the enter soft key to select the language.

7.3.1 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.

7.4 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.

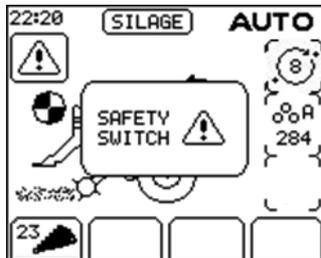
To correct this, complete the following:

- Disengage the PTO
- Replace the roll of net
- Engage the PTO
- Press the "Net" button

McHale Fusion 3 Baler & Wrapper

The net feeds into the chamber, netting the bale and the cutting knife trips. The operator then checks that the netting is complete and advances the cycle by pushing “chamber door open” (Button 9) for one second, work can then continue as normal.

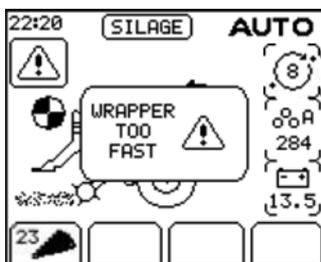
Safety switch



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.

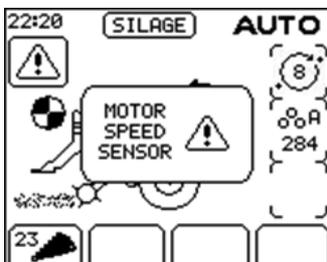
The cycle can be advanced by pressing “resume” (Button 7) when the error is corrected.

Wrapper too fast



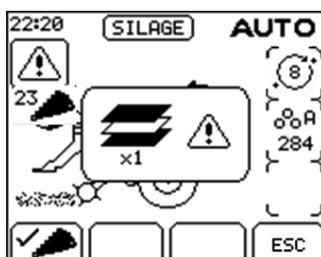
This warning message will be displayed if the wrapper speed goes above 35 rpm. Speed is set at 30 rpm from the factory so this warning will not usually be seen unless the hydraulic settings have been tampered with.

Motor speed sensor



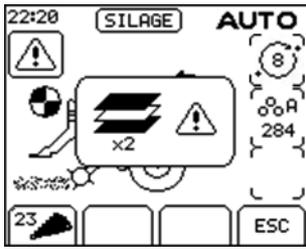
This warning will be shown if pulses are not seen from the motor speed sensor, once the wrapper ring starts to rotate. Contact your **McHale** dealer if you see this.

1 dispenser only



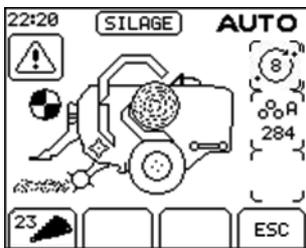
When the film sensor is switched on, failure of one dispenser to feed film will flash this warning on the display and the wrapping rollers will operate in 50/50 mode giving a correct wrap with the remaining film roll. Press ESC (Softkey D) to silence the alarm.

Out of film



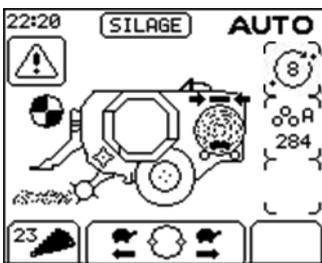
When both film rolls empty, this warning is shown on the display and the dispenser rotates slowly to the loading position where the first roll is replaced. The door needs to be closed, for safety, before the dispenser rotate position is pushed. This will bring the second dispenser to the loading position, where the second roll is replaced. The ends of each roll should be secured in the slots provided, the door is closed and the cycle is resumed. (See Section “Loading plastic film” on page 75). Press ESC (Softkey D) to silence the alarm.

Transfer not complete



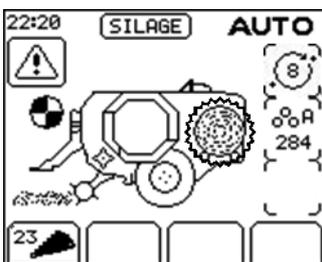
If “Stop” (Button 1) is pushed during the transfer of a bale, this error is displayed when the control box is next switched to “Auto”. To correct the error, Button 9 is pushed for one second to transfer the bale and advance the cycle. Pushing ESC (Softkey D) on the control box will cancel the error warning.

Dispenser position



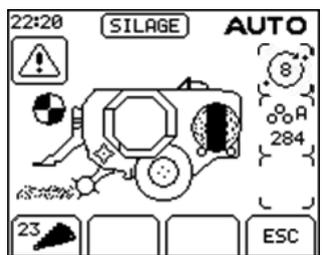
If the dispenser ring is not in the home position after netting, transfer of the bale is prevented and this warning is displayed. This can be corrected without leaving an “Auto” cycle, by pushing either forward (Softkey B) or reverse rotate (Softkey C), as appropriate. When the dispenser ring is correctly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

Tip bale



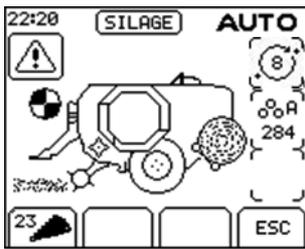
This message shows the bale on the wrapper flashing and prompts the operator to tip off the previous bale on the wrapping table, which is preventing transfer of the netted bale. If “Auto tip” is selected, the wrapped bale is automatically tipped. “Tip Bale” (Button 13) is pushed to complete the tipping cycle.

Wrap not complete



If “Stop” (Button 1) is pushed during wrapping of a bale, this error is displayed when the control box is next switched to “Auto”. To correct the error push “Resume/Re-wrap” (Button 7) to complete the wrapping cycle. Pushing ESC (Softkey D) on the control box will cancel the error warning.

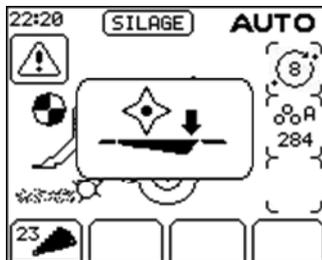
Tip not complete



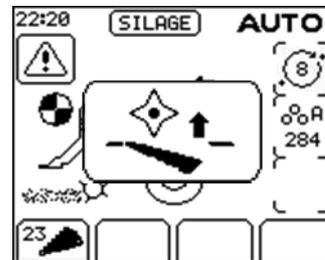
If “Stop” (Button 1) is pushed during the tipping of a bale, this error is displayed when the control box is next switched to “Auto”. To correct the error push “Tip Bale” (Button 13) to complete the tipping cycle. Pushing ESC (Softkey D) on the control box will cancel the error warning.

Unblock

This is not really an error message but it signifies that unblock is active. A quick push on “Reset unblock” (Button 10) on the control box will restore everything to a working condition.

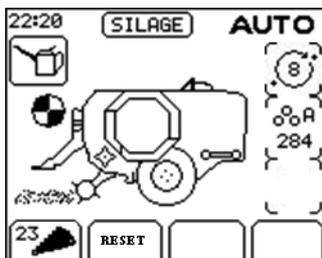


Unblock



Reset unblock

Lube count



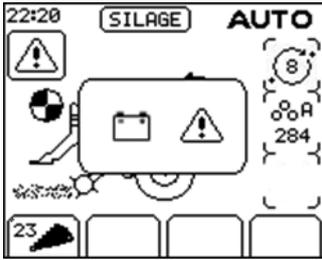
An alarm is provided to remind the operator to change the grease cartridge and top up the lubrication oil after a preset number of cycles. This counts down from 300 and gives a reminder at zero. Press “Reset” (Button 10) to clear the warning. It may be reset sooner, if desired, from within the bale count menu. (See Section “Bale Count” on page 69)

Knife pressure too high



This tells the operator that the hydraulic pressure holding up the chopping knives is too high for baling which could lead to knife or machine damage. This warning will be seen if manually raising the knives with max pressure, (See Section “Knives Operation” on page 62)

Low voltage



If the voltage drops below 10 volts, then this warning will be displayed. The usual causes are nearly always either an inadequate power lead cable or corroded connections. Ensure the cable connection to euro socket is of good quality.

7.5 Simulating a “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 the 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!
2. Turn on the control box and select manual mode, “MAN” will be displayed on the control box display. (See Section “Control box features” on page 60)
3. Scroll through the control box menu and turn the film sensor to “Off” as in Section “Film Sensor” on page 68.
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 “Net cutter setting” on page 41 for details) press “Net feed” (Button 6) 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 “Chamber door open” (Button 9) until the door raises slightly and an audible beeping sound is heard.
7. Switch the control box to “Automatic” mode. If “Check Net” is displayed in the control box display, switch the “Manual/Automatic” button twice. This will ensure tripping of the bill hook.
8. Allow the machine to run its full cycle.
9. Press the “Tip bale” button once, on the control box.



NOTE: “Out of film” error

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



WARNING: Keep out of the “Danger Zone”

Keep all persons outside of the “Danger Zone” during all machine operations! See “Danger zone” on page 16 for description.

8

Wrapper Operation

The **McHale Fusion 3** is designed with a wrapping system having 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 out of the “Danger Zone”

Keep all persons outside of the “Danger Zone” during all machine operations! See “Danger zone” on page 16.



ENVIRONMENT: Recycling of the plastic film

Respect the environment! Never throw away or burn the waste plastic film. Always take waste materials to a recycling centre.

8.1 Loading plastic film

1. The dispenser safety door, on the left hand side of the machine (See Figure 8.a) can be opened by releasing the primary latch (No. 1) with a 13 mm spanner or flat blade screwdriver and then pushing upwards on the secondary latch handle (No. 2).
2. Remove the linch pin and release the dispenser film roll lock (See Figure 8.b)
3. Remove the old core and ensure it is disposed of responsibly.
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 8.c), 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 8.d).
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 8.e). The dispenser ring can only rotate when the safety door is closed and the control box must be in Automatic 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, as before.

McHale Fusion 3 Baler & Wrapper

11. Slot the knotted end of the film in the left hand side slot of the rear wrapping roller as shown in Figure 8.f.
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 8.g.
13. Close the door firmly making sure that both primary and secondary latches have been engaged.



WARNING: Do not clamp film in the “cut & hold” mechanism

Do not attempt to clamp plastic film in the “cut & hold” mechanism as this action may result in serious injury!



NOTE: Resume a cycle interrupted by “Out of film” error symbol

Pushing the “Resume” on the control box will complete the wrapping cycle of a bale, that is interrupted by an “Out of film” error symbol shown in Figure 8.h.

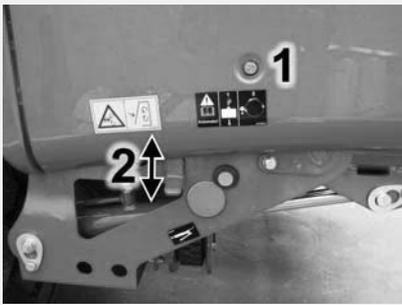


Figure 8.a - Door Latch



Figure 8.b - Film roll lock (open)



Figure 8.c - Film threading diagram

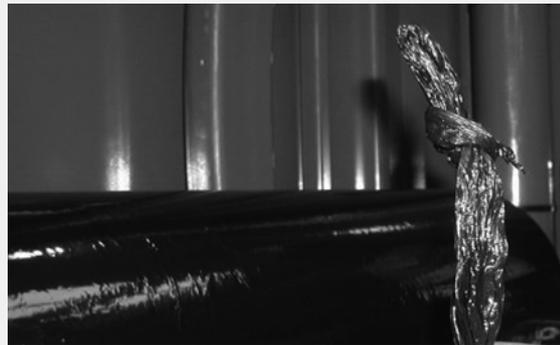


Figure 8.d - Film knot

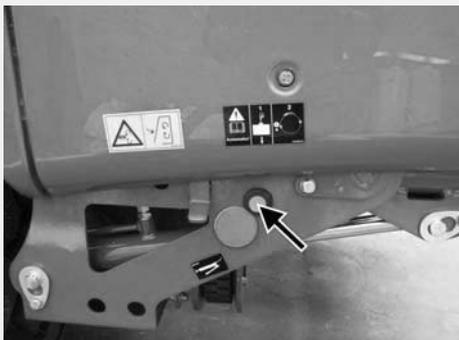


Figure 8.e - Dispenser Park Button

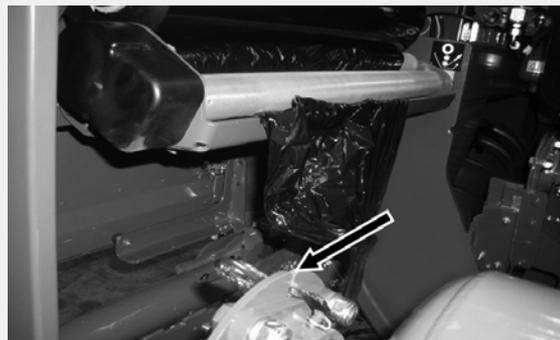


Figure 8.f - L.H.S. Film slot

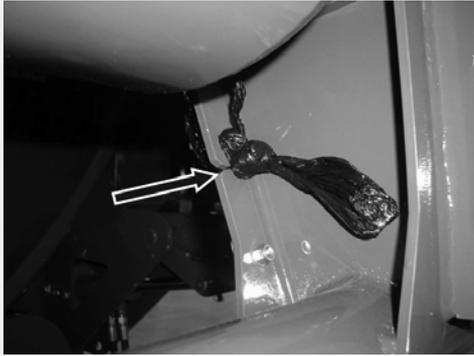


Figure 8.g - R.H.S Film slot

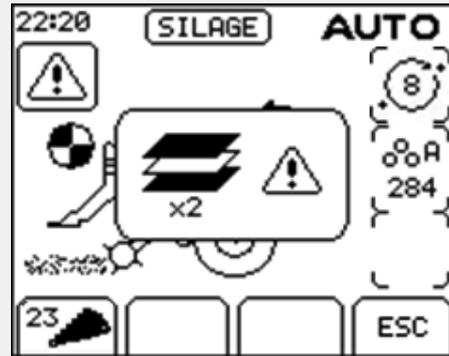


Figure 8.h - "Out of film"

8.2 Plastic film requirements

Good quality silage depends on the use of top quality plastic film, in addition to well shaped dense bales. 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: Operator must check to ensure bales are wrapped correctly

The operator needs to ensure that the bale is wrapped correctly. It is good practice to check the bales regularly after being wrapped for torn, split or perforated plastic film.

8.2.1 Determining the number of wrapping ring rotations

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 to cover the bale completely with plastic film
2. Add 0.5 to this number
3. Multiply the resultant figure by 2 (for 4 film layers), 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 rotation" = both dispensers rotating 360° around the bale.

McHale Fusion 3 Baler & Wrapper

- The **McHale Fusion 3** 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, not allowing the bale to be properly compacted to its correct size.



NOTE: Check bale diameter for enough wrapping ring rotations

It is very important to note that bales in excess of 1300 mm 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.

8.3 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 (2) 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: Bale will not transfer if dispenser ring is in wrong position

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 and audible alarm will sound and the “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 the appropriate button in order to correct and once corrected the bale will transfer and the wrapping cycle will begin.

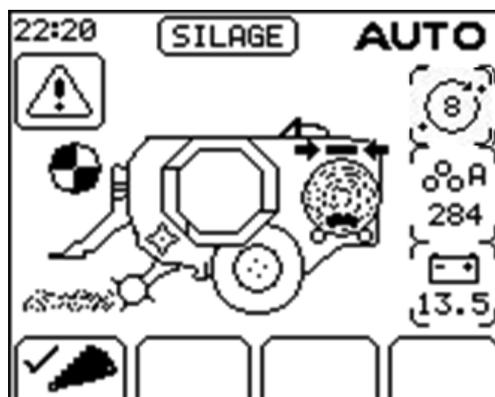


Figure 8.i - Dispenser position error symbol



CAUTION: Do not tip off bales while moving

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

8.4 Dispenser adjustment

The dispenser rollers are set for a standard film stretch of 70%. Optional sets of dispenser gears for both 55% and 64% film stretching are available from your **McHale** dealer.

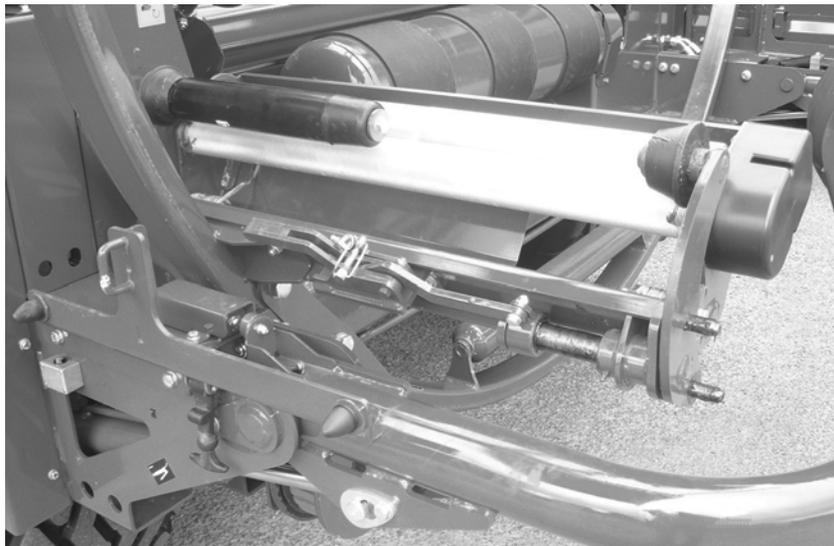


Figure 8.j - Dispenser in the “home” position

8.5 Cut and hold system



WARNING: Beware of knives & accumulators during maintenance

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 the tractor and remove the key from the ignition. Wear protective gloves and clothing, at all times! Also, never carry out any work on the hydraulic hosing because even when the machine is off, hosing remains under high pressure due to the accumulators.

The cut and hold system on the **McHale Fusion 3** 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 previous sections, 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) which is then cut at knife point (B). Once the wrapping process resumes, the film is then released.



WARNING: Beware of knives & accumulators during maintenance

Before working on cut and hold rails, always release the hydraulic pressure from accumulators by wrapping the spanner and hose-fitting with a cloth, then slowly and carefully open the pressure hose fitting (See figure 8.k), allowing oil to release before re-tightening. Accumulator pressure will reset automatically following the first operation of the cut and hold cylinder in the fully out direction.

Never work on the cut & hold by holding out the rails against hydraulic pressure.

The cut and hold knife may be adjusted in and out by following the procedure below and by referring to Figure 8.k:

1. Remove the two M6 nyloc nuts and bolts that hold knife plate (A) using 10 mm spanners. Beware of the cutting knife!
2. Move the knife plate to the desired position. The factory setting is to the fully out position, as shown.
3. Insert the two M6 bolts and tighten nyloc nuts to 12 Nm.
4. Repeat for the other cut and hold.

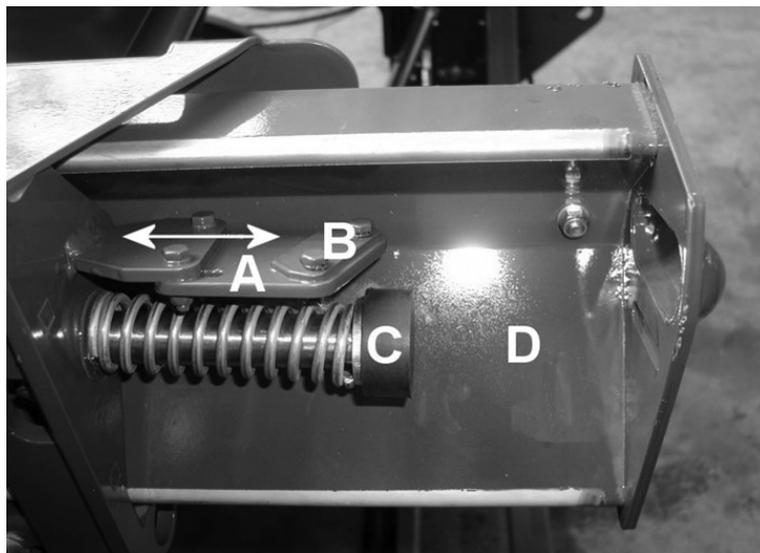


Figure 8.k - Cut and hold knife adjustment and removal

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 under part number CKN00011. Ensure all safety precautions are taken before carrying out the procedure on the following page.

Change the cut and hold knives by following the procedure and referring to Figure 8.k:

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).

McHale Fusion 3 Baler & Wrapper

3. Place spare knife in the working position and place a new spare knife underneath, if available.
4. Tighten the two M6 setscrews to 12 Nm.

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 8.I, adjust as follows:

1. Insert a 24 mm open ended spanner into slot (D) until it engages with the hexagon on adjuster cam (E).
2. Loosen M12 nyloc nut (B) on adjuster slightly, just enough to be able 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.

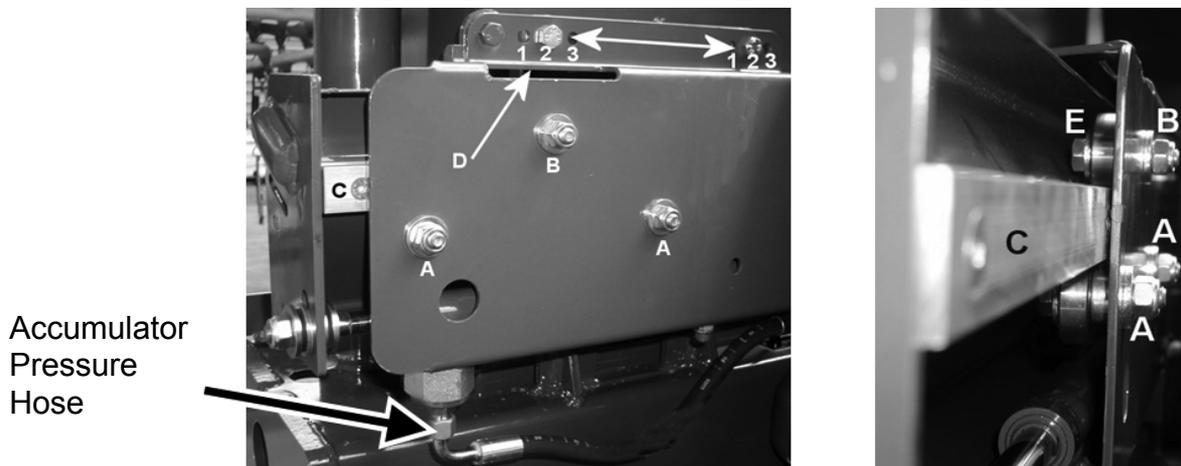


Figure 8.I - Cut and hold rail/horizontal position adjustment

Cut and hold horizontal position adjustment

The cut and hold assembly can be adjusted through three (3) different horizontal positions, if desired. The factory set position is position 2 as shown in Figure 8.I. 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 bolts and 12 mm spacers and carefully reposition bolts into the desired position i.e. 1, 2 or 3.
2. Place 12 mm spacers between cut and hold assembly and the main chassis, then tighten M12 nyloc nuts to a torque value, as described in Section "Tightening torque values" on page 108.

9

Road Traffic Safety & Operation

9.1 Before travelling on any public roadway



WARNING: Complete a full inspection before travelling on the road

Ensure that a full inspection is completed every time before attempting to go on to a public roadway, always think and practice safety!

The following should be inspected every time, before travelling on a public road:

- Ensure that the tyres are set to the correct pressure as per safety decals and according to the specifications, as outlined in Section “Tyre specifications” on page 13.
- Ensure that all doors are securely closed and fastened, ensuring that primary and secondary catches are fully engaged, these should be kept clear of 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 “Control box functions” on page 59.
- The hydraulic supply must be turned off and protected from accidental activation by disconnecting the hydraulic feed line. Support all loose lines in a safe manner.
- The pick-up guide wheels must be fixed in the road transport position (See Figure 9.a) and the drawbar/PTO stands secured in a working position, see section “Drawbar and PTO shaft stand usage” on page 52.
- Attention must be paid to the maximum travel speed-limit (40 km/hr) printed on the chassis plate, on the left hand side of the machine. Other speed limits that may be printed, on the drawbar plate or axle plate, for example are not relevant.

McHale Fusion 3 Baler & Wrapper

- The brake system of the machine (hydraulic or pressurised air) must be connected to the tractor. Do not travel, with air brakes, until 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.

9.2 Road transportation

- Close and secure all doors and panels.
- Empty the baling chamber and the wrapping table.
- Clear the machine of loose forage.
- Lift the pickup reel completely and close lever on hydraulic line (if fitted).
- Unlock the pick-up guide wheels and swing them backwards into the transport position, and lock them carefully.



Figure 9.a - Road transport position

9.3 Road transportation with side tip attached



CAUTION: Side tip is not to be used on public roadways!

Side tip is not to be used on public roadways!

- Beware of projection distance to the rear of the machine, when reversing, a side tip attachment greatly increases the length of the machine. See serial plate for details.

McHale Fusion 3 Baler & Wrapper

- Do not attempt to go over 20 km/h at any time, while the side tip attachment is assembled to the machine.
- See Section “Side tip” on page 102 for more details on the Side tip attachment.

9.4 ‘Break-away’ brake

The **McHale Fusion 3** 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 3** is attached to the tractor. If the **Fusion 3** hitch ever becomes detached from the tractor this rope will apply the brakes on the **Fusion 3**.



CAUTION: Ensure the hand brake is released when moving

Always ensure that the hand brake has been released before moving the **Fusion 3** on the road or operating in a field.

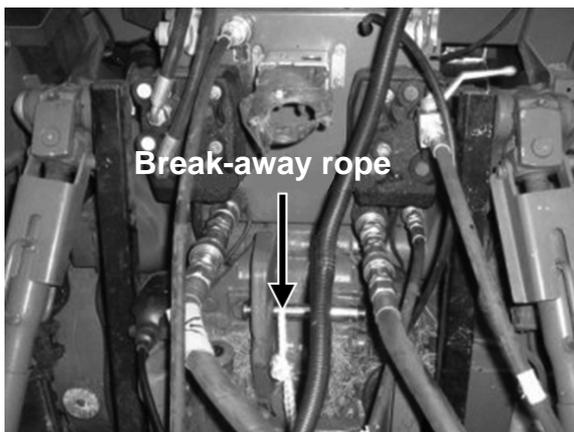


Figure 9.b - Break away rope fixed to tractor



Figure 9.c - Handbrake handle

10

Field Operation & Baler Adjustments

10.1 Break-in period

McHale recommend an break-in period of approximately the first 50 bales or until the paint within the baler has lost its shine.



NOTE: Making bales greater than the maximum diameter is not recommended on a frequent basis

It is important to realise that roller and drive loads increase as the bale size approaches its' 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.

10.2 Swath preparation

An optimum baler performance of the **McHale Fusion 3** requires a good swath preparation in advance. The optimum swath width is 1.5 m.



NOTE: Swath width is the most important factor in proper bale formation

A 1.5 m swath width provides optimum material flow into the bale chamber for even bale formation. A swath width greater or less than 1.5 m will lead to increased bale deformation.

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 10.a.

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 10.a.

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.

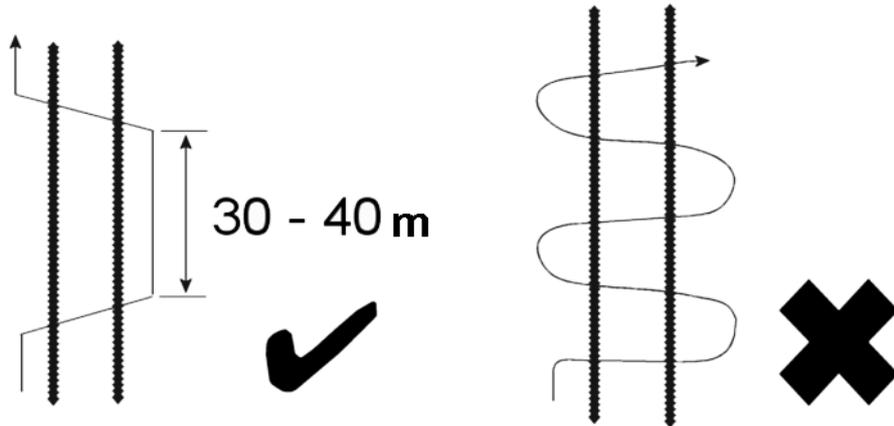


Figure 10.a - Swath widths - correct & incorrect

10.3 Pick-up reel height adjustment

Before working in the field unlock and swing the pickup guide wheels forwards and lock them again carefully. Use the appropriate hole in the adjusting bar so that the pickup is balanced and at the optimum working height with the pick-up tines being 2 cm above the ground.



NOTE: Wear and tear of pick-up tines

Working with the pick-up tines set too low will leave them susceptible to breakage and rapid wear!

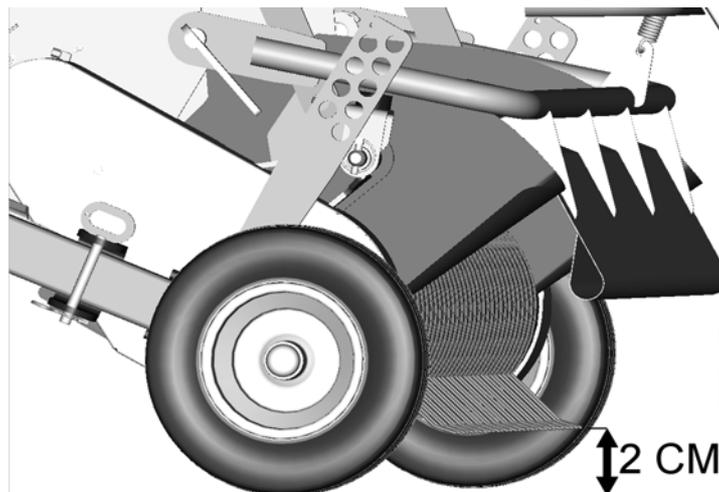


Figure 10.b - Pickup adjustment

10.4 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 place can be adjusted to suit the material type and volume, by means of adjusting the chain length.



Crop guard adjustment chain & plate

Figure 10.c - Crop guard adjustment chain

10.5 Unblocking system

The **McHale Fusion 3** is equipped with an unblock system. In the 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 “Unblock” (Button 11) on the control box for three seconds, while in the Automatic cycle. This will start the unblock routine and the knives, if set to ON, (see Section “Electronic Control System” on page 58) will retract along with the channel floor. 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 will now be easily transported into the bale chamber.

After having cleared the blockage, a quick push of “reset” (Button 10) will return the channel floor to the working position, followed by the knives, if previously set to ON.



WARNING: Never go near the pick-up reel, while the reel is still rotating and the tractor is running!

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



Figure 10.d - Unblock mode, knives retracted and channel floor lowered

10.6 Chopping system

The **McHale Fusion 3** 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 of the knives can be removed, if desired, see “Chopper unit knife removal & installation” on page 43. The knife buttons 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.

In order to protect the chopping device against overload and damage, hydraulic accumulators are connected to the actuation circuit.



NOTE: Keep the knife slots clear of material

To keep the knife slots clear of material, it is recommended to switch the knives on and off several times daily. To do this, press “knife selection” once (Softkey A), while the control box is in automatic mode. This will move the knives to the opposite position. One more press will move the knives back to the original position. See “Knives Operation” on page 62 for proper control unit operation of the knives.

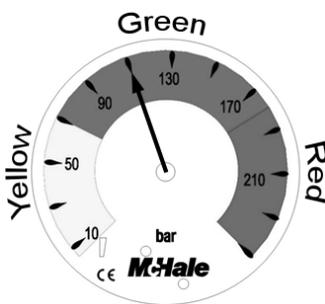
10.7 Selectable knives

Selectable knives are available as an option on the **McHale Fusion 3** Baler & Wrapper. The operator can select between 0, 11, 12 or 23 knives from the control box. The knives must be fully down, before selecting the desired set of knives. See Section “Knives Operation” on page 62.



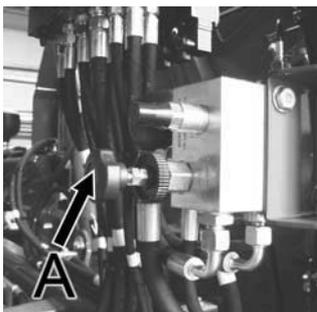
Figure 10.e - Selectable knives

10.8 Bale density gauge



The bale density gauge, 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, it pushes the door rams open ever so slightly. This can cause the gauge to go into the red and this is normal operation. However, pressure should never go above 200 bar, if it does consult your **McHale** dealer.

10.9 Setting chamber pre-charge pressure



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 setting the chamber pre-charge pressure between 70 and 110 bar pressure. When baling wetter materials, such as grass for silage, a pressure of between 110 and 160 bar is recommended.



CAUTION: Never adjust chamber pre-charge pressure above 160 bar

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

Chamber pre-charge pressure is set at the door charge valve, shown above and is located in the hydraulic section (inside the front right door panel), by following the below procedure:

McHale Fusion 3 Baler & Wrapper

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 8), while in Manual mode, on the control box for 3 seconds, see “Control box functions” on page 59.
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.

Grass-Silage or Hay-Straw adjustment (located behind the hydraulic section, on the non-drive side of the chamber, inside the front right hand door of the machine). 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.



**Figure 10.f - Grass & Silage position
(Handle left)**



**Figure 10.g - Hay & Straw position
(Handle right)**

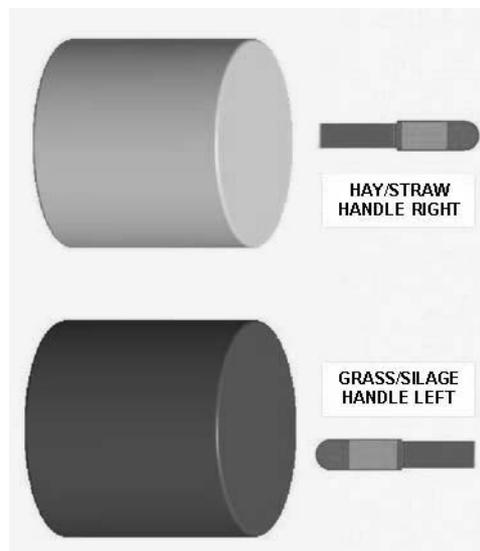


Figure 10.h - Hay/Straw (Handle right) Grass/Silage (Handle left)

10.10 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 below for the safety decal and location of the chamber door lock valve. The lock works by way of a hydraulic on/off valve, while locked the valve is in the “off” (vertical) position and the hydraulic rams will remain locked open, securing the door in a fixed position.



WARNING: The operator must be aware of all related warnings, safety decals and dangers

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 “Chopper unit knife removal & installation” on page 43 for instructions on how to enter the baling chamber.



Figure 10.i - Chamber door lock

To lock, rotate lever (A) down 90° to the vertical position

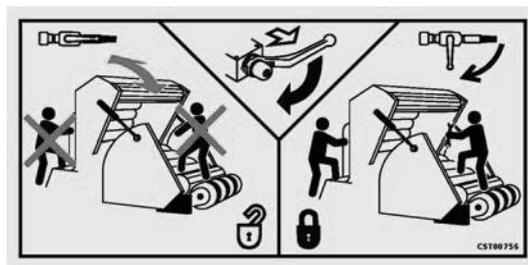


Figure 10.j - Chamber door lock decal

10.11 Spare film holders & door latch safety

The **McHale Fusion 3** can hold up to 10 rolls of spare film along with 1 more in each of the two dispensers. The spare rolls are stored at each side of the machine, behind the front panels. To open the primary latch (No. 1) on the door panels, a 13 mm spanner or flat blade screwdriver will be required. The secondary latch (No. 2) is opened by pushing it inwards to release the panel. (See Figure 10.k)

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 stored objects behind door panels

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

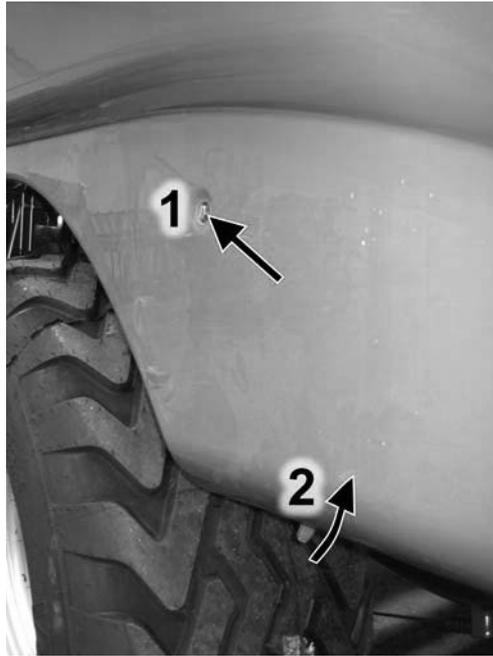


Figure 10.k - Safety latch types

10.12 Adjusting pick-up float springs

The spring retained collars which are used to adjust the pickup float springs are located on either side, underneath the chopper unit, see Figure 10.l 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 shut down, the key removed and the brakes applied before carrying out the following procedure.
3. Loosen the collar by slacking off the bolts (circled in Figure 10.l), 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 and lower the pickup reel.



NOTE: Adjustment should enable the pickup to drop completely

This adjustment should enable the pickup to drop completely, while in the lowered position. If not, re-adjust by lowering the spring tension, i.e. move the collar in direction (F).



NOTE: Additional spring force required when operating at heights

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).

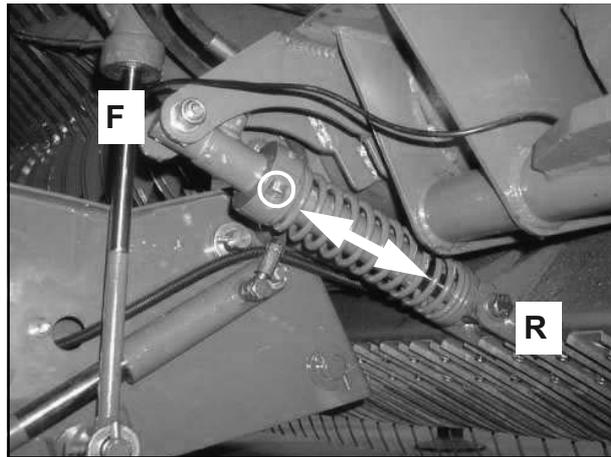


Figure 10.l - Adjustment of pickup float springs



WARNING: Ensure spool control lever is in the “float” position
When baling with the **McHale Fusion 3**, 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 a set position and unable to follow the ground contour.

10.13 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.

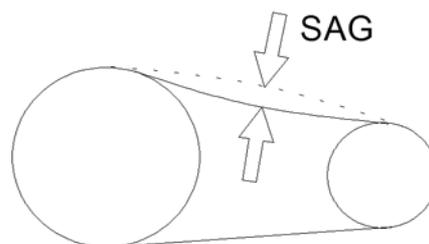


Figure 10.m - Chain adjustments

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 that.

10.13.1 Main drive chain adjustment

Adjust turn buckle (A) until the gap (D) is 25 mm. 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 end of the spring (B) can be moved to location (C) on the chain tensioner bracket.

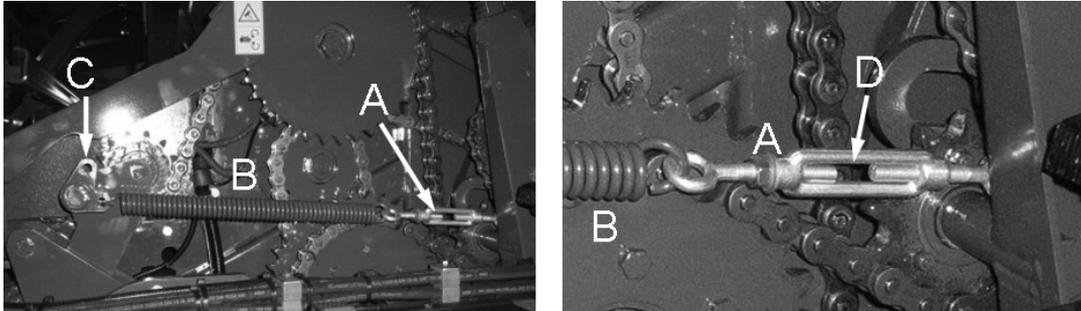


Figure 10.n - Main drive chain adjustment

10.13.2 Bottom chamber door chain adjustment

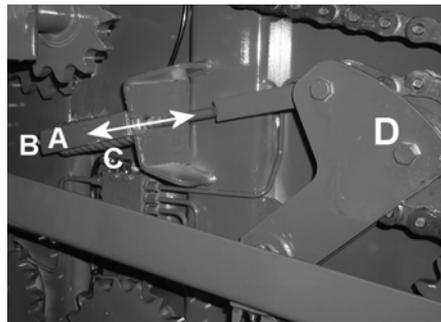


Figure 10.o - Bottom chamber door chain adjustment

Adjust M12 nyloc nut 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 tension after adjustment, as greater spring compression may be required, due to chain wear, chain damage, etc.

10.13.3 Top chamber door chain adjustment

Adjust as discussed in Section 10.13.2, but at the location as shown.

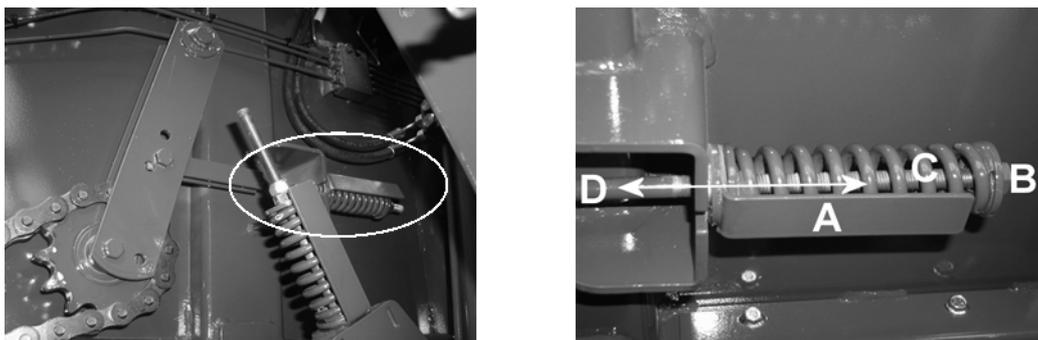


Figure 10.p - Top chamber door chain adjustment

10.13.4 Bottom door to main drive chain adjustment

Adjust as discussed in Section 10.13.2, but at the location as shown.

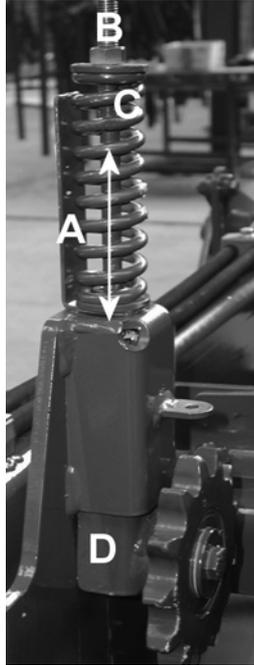


Figure 10.q - Bottom door to main drive chain adjustment

10.13.5 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 anti-clockwise and loosen locknut (B) in the direction shown.
2. Tighten (A) until the chain is taut, do not overtighten!
3. Tighten nyloc nut (D) and bolt (C) when the chain is taut, i.e. minimal sag.

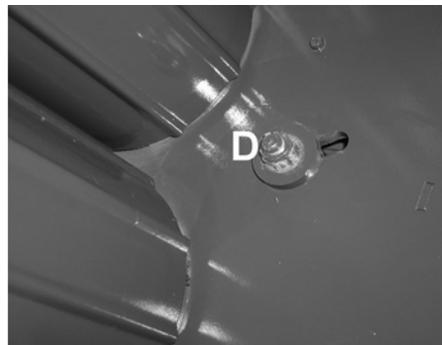
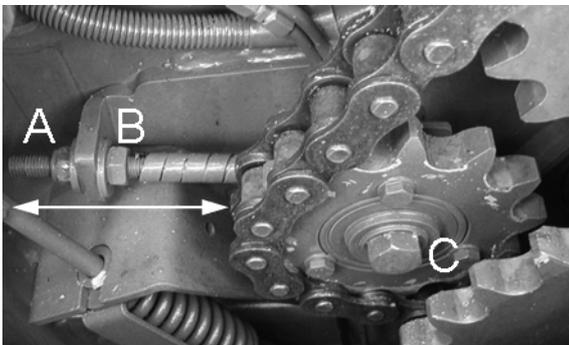


Figure 10.r - Front chamber segment chain adjustment

10.13.6 Pick-up 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.

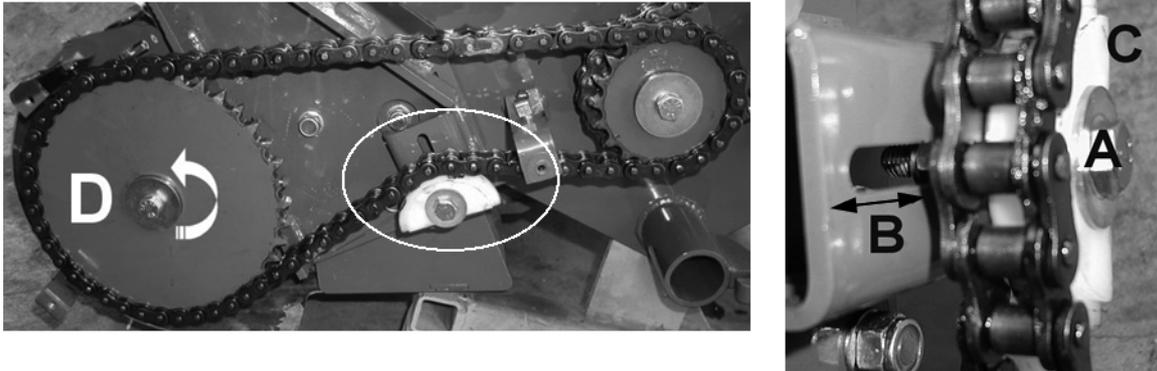


Figure 10.s - Pick-up reel tine chain adjustment

10.13.7 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 locknut (B).
3. Tighten setscrew (C) until there is little or no sagging of the chain and retighten bolt (A).
4. Retighten locknut (B).

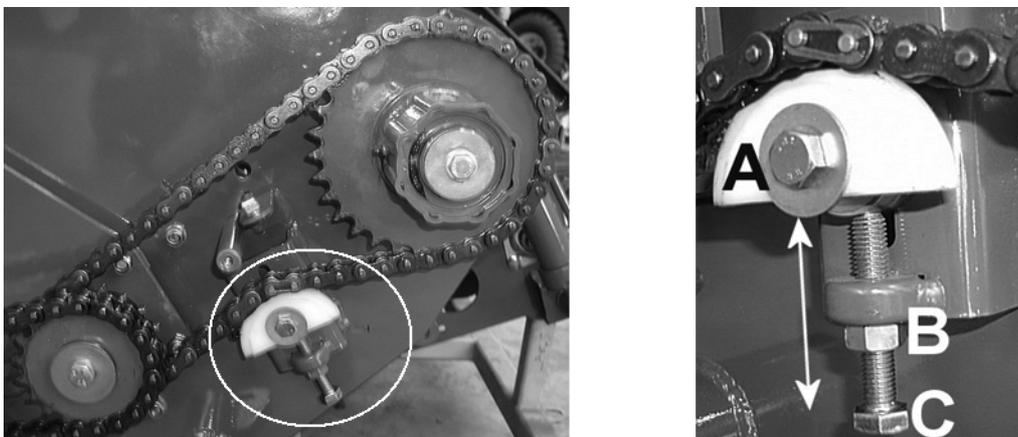


Figure 10.t - Reel drive chain adjustment

10.13.8 Chopper unit duplex chain adjustment

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

1. Hold the lower nut and loosen the upper nut.
2. To tighten - screw down the lower nut in the direction T.
3. When the chain is at the required tension, screw down the upper nut.
4. Lock the two nuts together to secure in place.

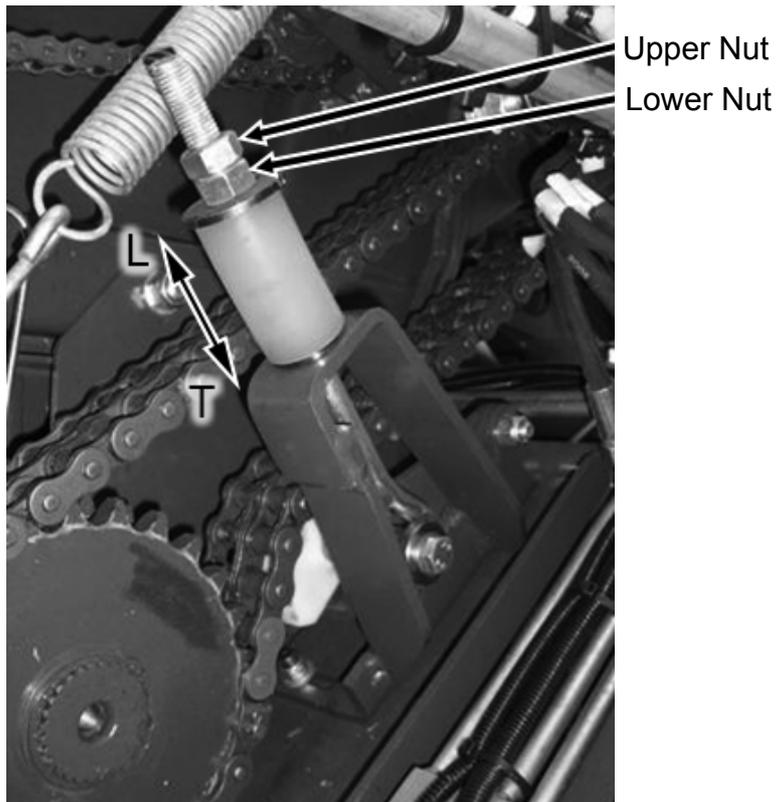


Figure 10.u - Chopper unit duplex chain adjustment

11

Accessories & Optional Equipment

Certain accessories and optional equipment may or may not be available in all countries, depending on varying circumstances. The following key symbols help to explain what is sold as standard and what is optional equipment, or may not be available on the **McHale Fusion 3**. They are only correct at the time of print and may vary.

Key symbols	
Standard equipment	●
Optional equipment	⊙

11.1 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.

High drawbar hitch ⊙

Depending on the country of use this drawbar type is standard, but the low drawbar hitch is available as an option.

11.2 Stand options

Stand type A ●

This is a static swing-down stand (fixed) and is suitable for use on the low drawbar hitch only!

Stand type B ⊙

This is a hand operated swing-down stand (adjustable screw and is suitable for raising or lowering the machine for tractors that have static drawbar hitches. This stand type is available on the low drawbar hitch only.

Stand type C ⊙

This is a hand operated fixed stand (adjustable screw) that comes as standard on the high drawbar hitch option. This is raised and lowered by means of a crank-handle.

11.3 Brake options



Figure 11.a - Braked Axle

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 obey local road regulations!

11.4 Tyre options

Type	Details	Part No
A ●	Vredestein 560/60 R22.5 (Flo-Pro)	CWH00053
B ⊙	BKT 560/60 R22.5	CWH00068
C ⊙	Vredestein 650/50 R22.5 (Flo-Pro)	CWH00054

11.5 Side tip option ⊙

The side tip option is used for knocking the bale onto it's side and is very useful for course ground with strong stubble (which may have a tendency to puncture the film), as it allows the bale to land on it's edge, which has a much higher degree of film coverage. It is also very useful on hilly/sloping ground as it can prevent bales from rolling, when they land on their side. The side tip is attached to the rear wrapping cradle.

11.6 Selectable Knives

This system gives the operator the option of using 0, 11, 12 or 23 knives.



Figure 11.b - Selectable Knife Chopper unit

11.7 Crop Roller

The crop roller aids the crop transfer from the pick-up reel in to the rotor.

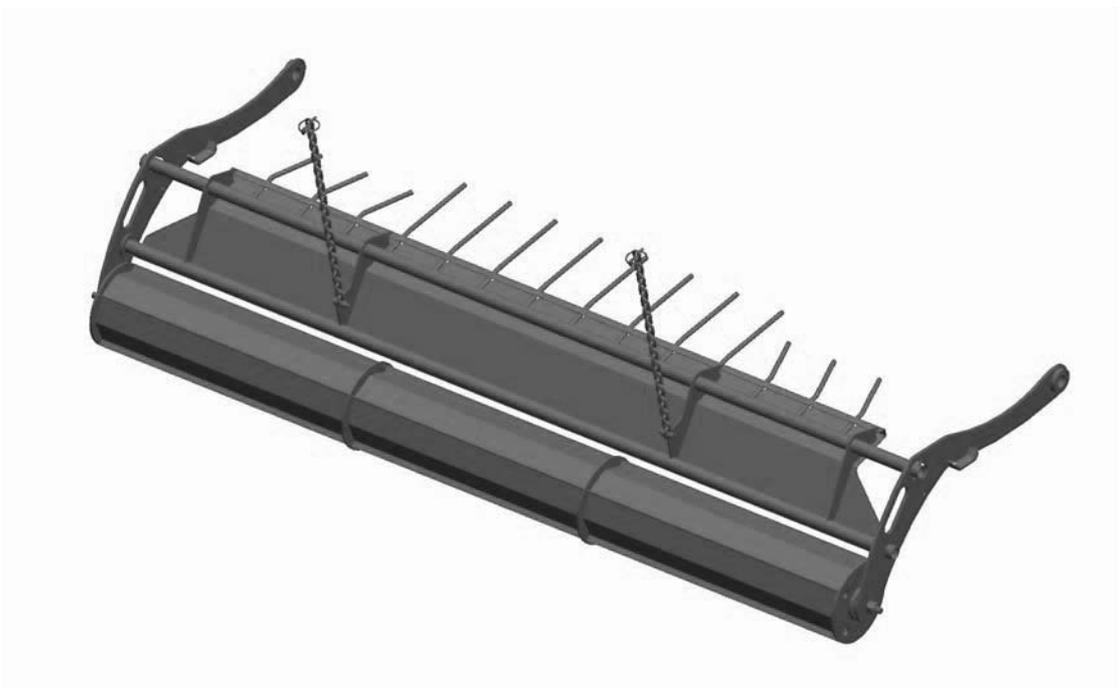
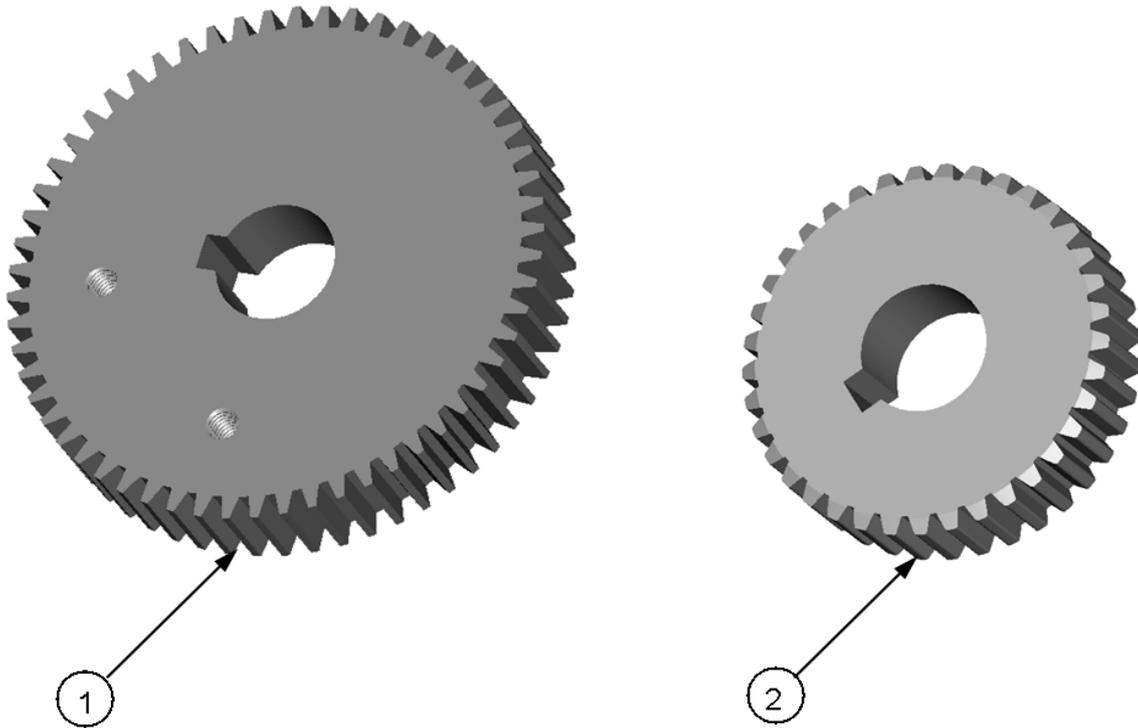


Figure 11.c - Crop Roller

11.8 Dispenser gear options



70% Gear option ●

Item	Part Code	Description	Qty
	ADP00018	Kit dispenser gears 70%	1
1	CMH00055	Gear spur 1.5 m 60t dispenser	1
2	CMH00175	Gear spur 1.5 m 35t dispense	1

64% Gear option ○

Item	Part Code	Description	Qty
	ADP00020	Kit dispenser gears 64%	1
1	CMH00056	Gear spur 1.5 m 59t dispenser	1
2	CMH00096	Gear spur 1.5 m 36t dispenser	1

55% Gear option (Hot climates) ○

Item	Part Code	Description	Qty
	ADP00019	Kit dispenser gears 55%	1
1	CMH00057	Gear spur 1.5 m 58t dispenser	1
2	CMH00174	Gear spur 1.5 m 37t dispenser	1

12

Attachments

12.1 Side tip

When the machine tips off the wrapped bale, the outer wrapper roller moves down to ground level and ejects the bale. This eliminates problems associated with bales being tipped from a height and getting damaged as they roll away.

In stalky crops or on rougher ground conditions a side tip option is available which allows the machine to tip the bales on their ends where there is additional film.



Figure 12.a - Side tip

12.1.1 Operating the Fusion 3 side tip frame

Once the side tip frame is assembled to the **Fusion 3**, it will operate automatically without any 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.

12.1.2 Safety

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

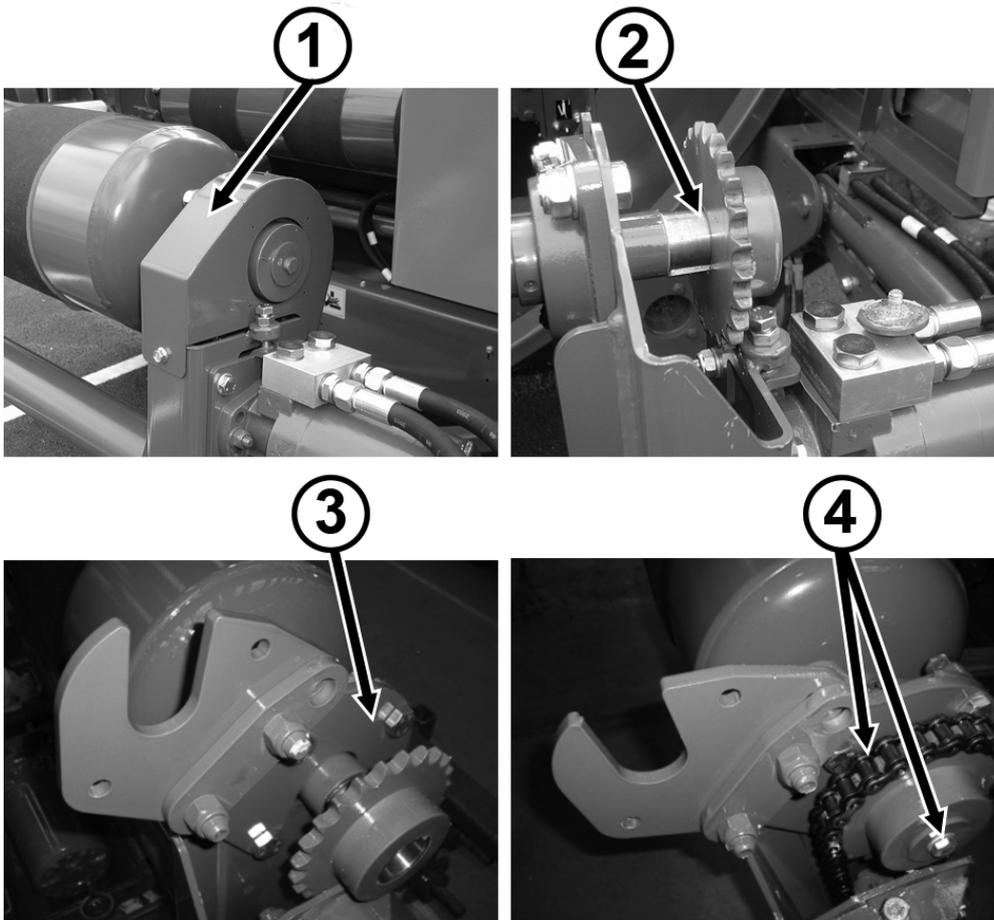
12.1.3 Road transport

The **Fusion 3** side tip is not to be used in fields or on roads at speeds above 20 km/hr. It must be ascertained first that road regulations in the country of use allow you to

transport the side tip frame behind a **Fusion 3**. It must also be noted that the side tip frame adds 1.7 metres to the overall length of the **Fusion 3**. Always allow for the tail swing when turning the **Fusion 3** and side tip frame.

12.1.4 Fitting the side tip to the Fusion 3

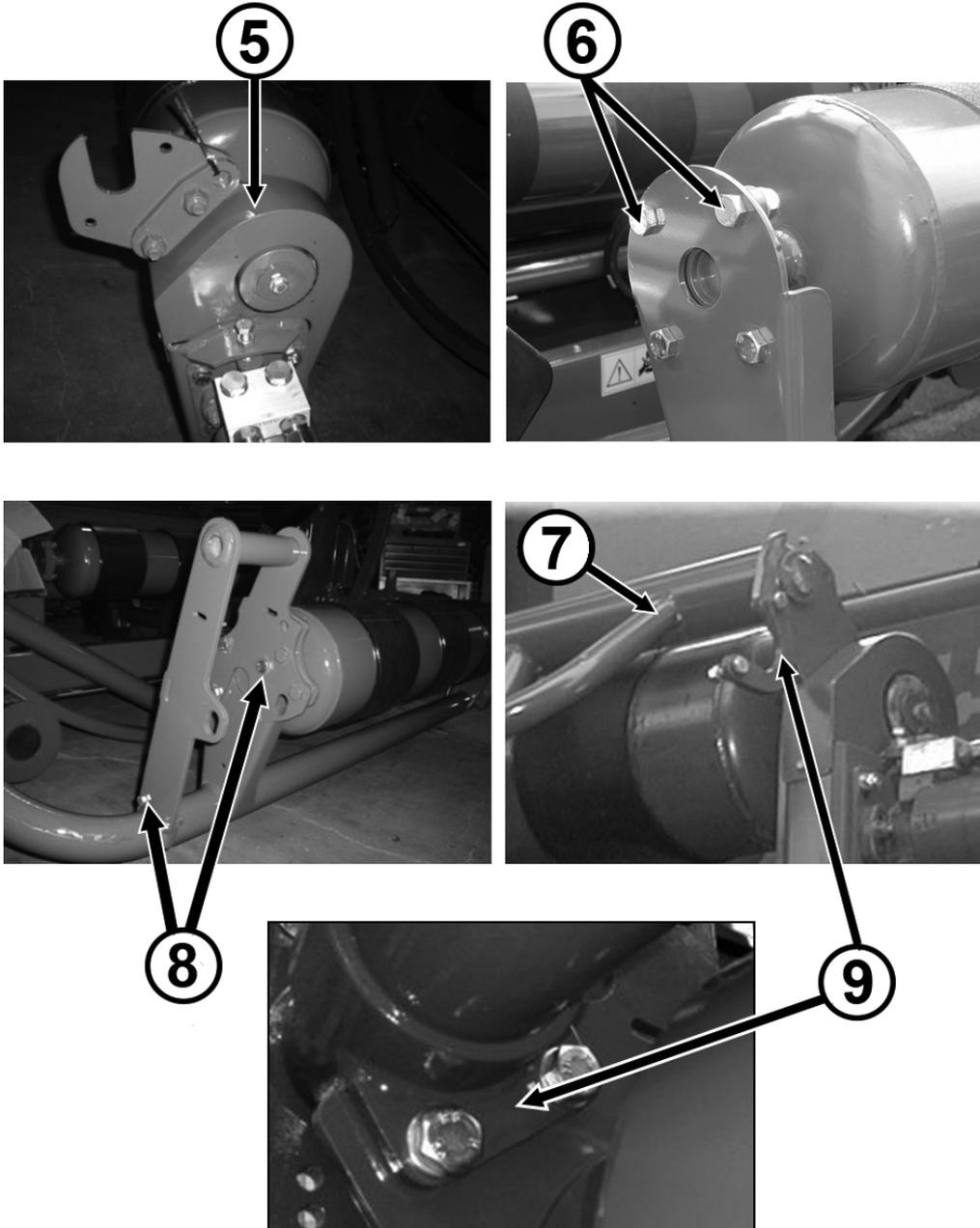
1. Secure rear roller using suitable lifting gear. Remove rear cradle roller chain guard. Remove the M10 x 25 bolt from the end of the rear roller sprocket. Rotate rear roller manually to locate joiner-link in the drive chain. Remove link and chain.
2. Pull the sprocket out on the end of the shaft, as far as possible.
3. Remove the four (4) M16 nuts and bolts, which hold the flange bearing. Fit right hinge mounting bracket (ABD00053) using four (4) M16 x 55 bolts (CFA00349) and nyloc nuts. Ensure bolts are tightened fully.
4. Refit sprocket and secure using M10 x 25 bolt. Refit drive chain and joiner-link.
5. Refit rear cradle roller chain guard, having removed pop-out section to allow for new bracket.
6. To fit left mounting bracket (ABD00038) to the idle end of the roller, remove the four M16 nuts and bolts.



7. Fit the bracket, using four M16 x 55 bolts (CFA00349) and nyloc nuts, and two M12 x 35 bolts and nyloc nuts. Place side tip frame assembly down into mounting brackets, using suitable lifting gear.

McHale Fusion 3 Baler & Wrapper

- Secure side tip frame with the latch (CZH02668) using two M12 x 35 bolts and nyloc nuts on the right side along with two M16 x 35 bolts and nyloc nuts on the left side.



13

Machine Maintenance

To maintain the **McHale Fusion 3** 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.



ENVIRONMENT: Health and safety rules re. environmental damage

It is vitally important to observe health and safety rules in order to avoid unnecessary environmental damage or danger to anybody near the machine. This especially applies to the responsible disposal of oil. Never spill pollutants (oil, grease, filters, etc.) on the ground, never pour them down the drain and never discard them where they can pollute the environment. Always take waste materials to a recycling centre.

13.1 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.

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 (See Section “Gear box oil” on page 51)
- Carry out adjustment of chopper unit duplex chain (See “Chopper unit duplex chain adjustment” on page 97) Inspect all other chains.

Every day (250 bales approx)

- Check wheel nuts
- Check all guards and safety devices
- Check road traffic equipment
- Check for any oil leaks and damaged pipes
- 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

Every week

- Grease PTO shaft every 60 working hours (see Section “PTO Shaft adjustment & maintenance” on page 55)
- Check for correct air pressure in the tyres
- Grease table roller bearings

Every month

- Grease pick-up reel shaft bearings
- Grease pick-up cam clutch
- Check sufficient oil level in the gear box

Every year

- Clean and lubricate all moving parts of the netter unit
- Drain and change gear box oil (see Section “Gear box oil” on page 51)
- 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 plastic film. Clean off with kerosene.

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 be always be stored in a 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 “Storage” on page 109.



WARNING: Wear proper safety equipment & follow all instructions

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



WARNING: Inspections in the “Danger Zone” during machine operation require a second trained operator at the controls

McHale recommend that nobody is ever 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 machine), in case an emergency stop action is required.

McHale Fusion 3 Baler & Wrapper

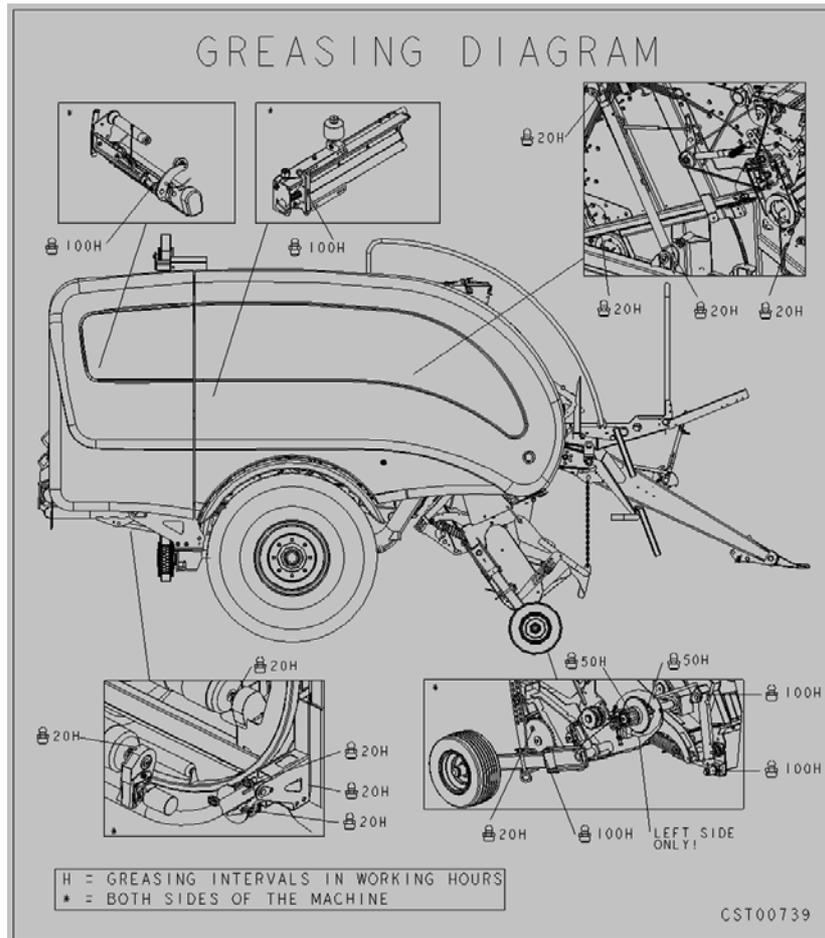


Figure 13.a - Greasing diagram

Additional greasing needs to be carried out as shown. This decal is mounted inside door-panel on the left hand side of the machine (CST00739).

13.2 Tightening torque values

It is important that the correct torques for fasteners 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.

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

14

Storage

14.1 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. In the case of using a high pressure washer, do not point pressurized water at or near electrical components, pivots points, valves or bearings. **McHale** recommend that the machine be blown down with an air line as opposed to a pressure washer in order to protect the overall paint work on the machine.
- Remove control box from the tractor and store in a dry, safe environment
- Clean the net wrapping system, as described in Section “Care of the net wrapping system” on page 40. 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 and exposed ram rods
- Check all oil and grease lines for damage and repair them if required
- 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 and fit new grease cartridge, run PTO at approx. 200 rpm and with the control box in manual mode, operate the bale tip up & down for around 15 cycles, to ensure that all chains have a heavy coating of oil applied, and new grease in all bearings.
- Remove the knives from the chopping unit to prevent them from sticking and store them in the spare knife holder

14.2 Start of season

- Fully review this operators instruction manual
- Check and fill gear box oil level, if necessary (See Section “Gear box oil” on page 51)
- Lubricate all pivot points

McHale Fusion 3 Baler & Wrapper

- Tighten all bolts, nuts and setscrews (Refer to Section “Tightening torque values” on page 108)
- Check air pressure of all tyres
- Connect control box and inspect for correct operation of all functions (See “Electronic Control System” on page 58)
- Inspect and modify, if necessary, all machine adjustments (See “Field Operation & Baler Adjustments” on page 85)
- Check net wrapping adjustments and inspect net knife for sharpness, ensure to wear protective clothing whenever working in this area! See “Care of the net wrapping system” on page 40, follow instructions and carry out correct procedure.
- 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. 200 rpm and with the control box in manual mode, operate the bale tip up and down for around 20 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 “Simulating a “bale to wrapping” cycle” on page 74

15

Trouble Shooting

15.1 Trouble shooting overview

This section has been compiled by **McHale** Service Personnel in conjunction with **McHale** importers and dealers.

It outlines some common problems which can occur and acts as a quick reference section or check list to resolve the problem. It is important to note that it outlines the common problems and to this effect it is not exhaustive.

Should you experience additional problems which you need help with; please do not hesitate to contact your **McHale** dealer.

15.1.1 Machine using higher than expected horse power when chopping

Symptom	Reason	Solution
Machine using higher than expected horse power	Knives in chopper unit are blunt or bale density too high	Remove the knives, sharpen and replace

15.1.2 Pick up slip clutch going off easily

Symptom	Reason	Solution
Pick up slip clutch going off easily or machine breaking tines	Pick up set too close to the ground	Adjust the pick up to a higher position. Tines should not be getting caught in the ground.
Pick up slip clutch going off easily	Pick up chains loose	Tighten the pick up chains See "Chain adjustments" on page 93

15.1.3 P.T.O slip clutch going off easily

Symptom	Reason	Solution
P.T.O slip clutch going off easily	Rotor chain loose	Tighten the rotor chain and check as specified
P.T.O slip clutch going off easily	Poor swath preparation	Prepare the swath in line with the recommendations in the machine set up
P.T.O slip clutch going off easily	Knives blunt	Check and sharpen if needed
P.T.O slip clutch going off easily	Chamber pressure/ground speed too high	Reduce

15.1.4 Knives not remaining up while chopping

Symptom	Reason	Solution
Knives not remaining up while chopping	Knives are blunt	Remove the knives and sharpen
Knife pressure too low		Refer to Section 15.1.5
Knives not remaining up while chopping	Roll Pins are broken in knife activator arms	Replace broken roll pins

15.1.5 Knife pressure too low or dropping completely

Symptom	Reason	Solution
Knife pressure too low or dropping completely	Leaking Hydraulic Hose	Check all hoses and tighten if necessary
Knife pressure too low or dropping completely	Leakage in hydraulic valve	Contact McHale dealer

15.1.6 Knife pressure too high

Symptom	Reason	Solution
Knife pressure too high	Knives have been raised to max pressure	Lower knives and raise again to set at correct pressure
Knife pressure too high	Faulty hydraulic valve	Contact McHale dealer

15.1.7 Chamber losing pressure

Symptom	Reason	Solution
Chamber losing pressure	Oil leak	Find leak and resolve
Chamber losing pressure	Relief valve loose / restriction in relief	Contact dealer

15.1.8 Issues with bale rotation/intake

Symptom	Reason	Solution
Baler won't take crop in even though the bale chamber is not full	Drop floor down—this can cause problems with bale rotation	Reset the floor to the working position
Baler won't take crop in even though the bale chamber is not full (Straw)	The bale has stopped rotating	Fit straw bar. (Available from dealer).

15.1.9 Issue with bale quality/density

Symptom	Reason	Solution
Issues with bale quality/density	Density set too low for the crop conditions	Increase the density
Issues with bale quality/density	Crop build up at the tailgate lower closing point	Clean away loose crop
Issues with bale quality/density	Ground speed too high	Reducing ground speed will allow the machine to pack the bale better.
Machine making bales with soft edges/ corners	The centre of the bale is being overfilled	See "Swath preparation" on page 85

15.1.10 Machine won't cut the net

Symptom	Reason	Solution
Machine won't cut the net	Bill hook worn and catching on plastic reset bushing	Replace bill hook

McHale Fusion 3 Baler & Wrapper

Symptom	Reason	Solution
Machine won't cut the net	Bill hook has too much free play and is catching on the plastic reset bushing	Realign
Machine won't cut the net	Knife jammed or not enough spring pressure	Check for free movement and increase spring pressure if needed

15.1.11 Chopper Knives wont move (activate/disengage)

Symptom	Reason	Solution
Knives won't move (activate/disengage)	Faulty hydraulic valve	Contact dealer
Knives won't move (activate/disengage)	Low Power Supply to the control box	Check power source

15.1.12 Net not cut correctly

Symptom	Reason	Solution
Net not cut correctly	Blunt/ rusty knife	Fit new knife
Net not cut correctly	Grease on Knife (new machine/ machine after winter storage)	Clean grease off knife Use extreme caution and protective clothing!
Net not cut correctly	Knife spring too slack	Adjust knife spring pressure. (Located behind the netter drive gears)

15.1.13 Drop Floor wont move (up or down) - Pick up moves

Symptom	Reason	Solution
Drop Floor won't move (up and or down)	Faulty hydraulic valve	Contact dealer
Drop Floor won't move (up and or down)	Low Power Supply to the control box	Check power source

15.1.14 Greaser not working

Symptom	Reason	Solution
Machine not using grease	Air locked	Bleed the cartridge by unscrewing it 2-3 turns
Machine not using grease	Blockage in the system	Contact dealer

16

Certification & Warranty

16.1 Declaration of Conformity

The Declaration of Conformity is provided by **McHale**. It certifies the new machine under all the relevant provisions of the EC Machinery Directive and the National Laws and Regulations adopting this directive.

The declaration gives a description of the machine and its function, along with the model and serial number details.

By any alteration of the machine, the Declaration of Conformity, as well as the CE sign on the machine, loses its validity.

The Declaration of Conformity is included in this manual, please see the next page.

16.2 PDI form

The PDI (pre-delivery inspection) form is filled out on the commissioning of every new machine, by the **McHale** dealer. The following checks are completed and signed off:

- All parts and accessories are provided to the customer, with the machine
- Machine is reassembled correctly
- Tyre pressure is correct
- Hydraulics, electrics and lighting are working
- New owner has been instructed on how to operate & maintain the machine

The PDI is included in the Operator Manual, please see page 118.

16.3 Change of ownership pre-checks

The PDI (pre-delivery inspection) form that is filled out on the commissioning of every new machine, should also be used during the transfer of ownership of a **McHale** machine. The same check list must be completed and any areas requiring attention addressed before the re-sale of the machine should occur. Pay particular attention to all safety related areas. Take time to familiarise the new owner with machine operation, maintenance and all its safety features.

16.4 Limited Warranty

Limited Warranty conditions are supplied with each **McHale** product. They cover the terms & conditions associated with abnormal failure under normal working conditions. Please see page 119 for more detail.

Declaration of Conformity



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

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

Machine description and function: Fixed chamber round baler wrapper, producing round bales of agricultural fodder and for wrapping bales with agricultural bale wrap film.

Model: **Fusion 3** Serial Number: **65**_____

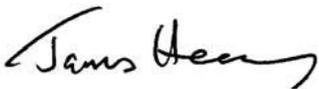
Name of Manufacturer: **McHale Engineering**
Address: **Ballinrobe, Co. Mayo. Rep. of Ireland**

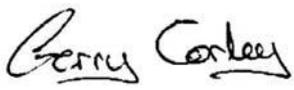
Is in conformity with the provisions of the following other EC directives:
2004/108/CE - EMC for the control unit

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

Harmonized standards applied:

- EN ISO 12100: Safety of machinery - Basic concepts, general principles for design
- Part 1: Basic terminology, methodology
- Part 2: Technical principles and specifications
- EN ISO 4254 Part 1: Agricultural Machinery - Safety and general requirements
- EN 704: Agricultural Machinery - Pick-up balers - Safety

Signed: 
Date: **Place:** Ballinrobe, Co. Mayo, Rep. of Ireland
Name: **James Heaney**
Position: **Design Office Manager**

Signed: 
Date: **Place:** Ballinrobe, Co. Mayo, Rep. of Ireland
Name: **Gerry Corley**
Position: **Quality Manager**

Pre-delivery inspection form

	
PRE-DELIVERY INSPECTION (PDI) McHale Fusion 3 Baler & Wrapper	Castlebar Road, Ballinrobe, Co. Mayo Tel: +353 (94) 95 20300 Fax: +353 (94) 95 20356 E-mail: sales@mchale.net Web: www.mchale.net
DEALER: Full Address:..... Fitter:.....	Model: McHale Fusion 3 Baler & Wrapper Serial No:..... Date Delivered:..... Date Inspected:.....
CUSTOMER: Full Address:.....	Tel:..... Mobile:..... E-mail:.....
ENSURE THAT THE TRACTOR IS OF THE CORRECT SPECIFICATION FOR THIS MACHINE REFER TO THE OPERATOR INSTRUCTOR MANUAL BEFORE MAKING ANY ADJUSTMENTS!	
1. Check that all accessories are with the Owner/Operator. Check Operator Instruction Manual and Parts List.	10. Check all manual functions on the control unit. Run machine through automatic cycle on the control unit.
2. Ensure machine is re-assembled correctly. (Refer to all assembly instructions supplied)	11. Check for smooth operation of the pick-up reel when machine is run at 540 rpm.
3. Ensure that the wheels are correctly fitted (i.e. valve to the outside). Torque wheel nuts correctly.	12. Check that all electrics and lights function correctly.
4. Check for correct tyre-type, tread and pressure.	13. Ensure netter operation and netter-knife are running smoothly.
5. Hitch machine to tractor, then connect PTO shaft. Adjust PTO length if required.	14. Check dispenser ring & dispensers are running smoothly & free from damage or grit.
6. When hitched to tractor check that the machine is level with the ground. Adjust drawbar if necessary. Attach 7 pin plug for lighting system.	15. The operator must be fully aware of all hazards, controls (electric & hydraulic), all functions & safety devices of both the machine and the tractor.
7. Connect hydraulic hosing to tractor and ensure proper hydraulic setup. Note: Ensure free flow return to tank.	16. Ensure that the owner/operator reads the Operator Instruction Manual and understands fully all safety and operating aspects of the machine as described therein.
8. Ensure control-unit power supply is 12v direct from battery otherwise the machine may malfunction.	17. Instruct operator on machine maintenance, i.e. Check chain tensions, adjustments, tyre pressure and wheel nuts, also areas to be greased daily along with oiler/greaser functions.
9. Ensure that the control-unit is on the correct programme to suit the machine specification.	
I am satisfied that the above checks have been carried out, and that the machine is complete with all accessories and manuals.	
Signed:.....	(Dealer) Date:.....
Signed:.....	(Owner) Date:.....
This machine must be registered on www.mchale.net by the Dealer in order to qualify for Warranty!	

A signed copy of this form is to be retained by both the Dealer and the Customer.

McHale Limited Warranty

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

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

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

These conditions are subject to the following exceptions:

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

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 PTO shafts, chains, tyres, bearings, belts, blades, knives, tines, tine bars, slip clutches, nylon chain runners and slides, etc. that are not covered under the Limited Warranty.

McHale Fusion 3 Baler & Wrapper

The importer will be responsible for the following costs:

- All warranty labour charges.

The warranty is dependent on the strict observance of the following:

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

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.