

McHale *F5400*



F5400 Baler

Operator Instruction Manual Issue 2

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McHale F5400 Baler

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')

Serial number:	
Year of manufacture:	
Date of delivery:	

If you require further copies of this instruction manual,
please quote part number: CLT00400

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.

Throughout this manual there are links to other relevant sections of the manual, to
guide the reader to additional information to convey the complete message. These
links are in *(grey italic font)*. See the example above i.e. the link to the description of
the serial number plate. When you click on the link in the PDF document, the page will
jump automatically to the linked section. With Adobe Reader, you can go back to the
page on which you clicked the link, by clicking on the 'Previous view' button (or by
holding 'Alt' and pressing the 'left arrow').

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1

Introduction

The **McHale F5400** Baler has been developed based on years of extensive research and development in the field of round balers. Given proper care and attention, the machine 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 machine is 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 machine 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) free of all persons and animals at all times, while the machine is in operation (*See 'Danger Zone'*). This manual must be read and fully understood by anyone who will operate the machine.

2.1 Designated use of the machine

The machine is exclusively designed for normal use in agricultural applications. The machine has been designed to pick up and compact cut crop from the ground, to produce cylindrical bales of forage primarily for feeding livestock. This designation includes the movement of the machine, between fields by track or road, incidental to the machine'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 owner/operator's 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/operator's 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 its validity for this machine.

2.2 Front view



No.	Machine function
1	Grease points
2	Pick-up wheels
3	Net unit
4	Density clock
5	Rotor duplex chain
6	Chopper unit
7	Pick-up reel

2.3 Rear view



No.	Machine function
1	Oil reservoir tank
2	Drive side
3	Chamber door (tailgate)
4	Bale chamber
5	Drive chain
6	Bale kicker

2.4 General dimensions & specifications

Transport length	4.53 m (178")
Transport width	2.55 m (100")
Transport height	2.70 m (106")
Transport weight	3,620 kg (7,981 lbs)
Tyre dimensions	13.5/75 - 430.9
Tyre pressure	2.07 bar (30 psi)
Tyre dimensions (pick-up reel)	170 / 60 - 8
Tyre pressure (pick-up reel)	2.07 bar (30 psi)
Maximum road speed	40 km/h (25 mph)
Brake system (optional)	Hydraulic brakes Air brakes*

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 A euro socket
Hydraulic systems	Open-centre
Minimum pressure	165 bar (2,393 psi)
Minimum flow rate	30 l/min (6.6 gal/min)

(*) 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		1.25 m (49")
Pick-up width		2.00 m (78")
Net tying	Net width	Max. 1.30 m (51")
	Net length	2,000 m / Max. 4,000 m

2.7 Tyre specifications

Tyre type	Pressure
13.5/75 - 430.9	2.07 bar (30 psi)
460/65 - 20 (optional)	1.38 bar (20 psi)
500/50 - 17 (optional)	1.38 bar (20 psi)
500/50 - 22.5 (optional)	1.38 bar (20 psi)
520/55 - R22.5 (optional)	1.38 bar (20 psi)
170/60 - 8 (pick-up tyre)	2.07 bar (30 psi)

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, note & environment messages:

When reading this manual, pay particular attention when you see the symbols below i.e. warning, caution, note and environment. 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.



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



ENVIRONMENT: 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 (*See 'Safety warnings & instructions explained'*). If safety decals are damaged or missing due to wear and tear or component replacement, ensure that they are replaced. Refer to the 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 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 operator's 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 the tractor engine has stopped, the key has been removed and that the PTO has stopped turning before carrying out any adjustments, connections or cleaning of PTO driven equipment.

3.7 Operating the machine

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 machine and tractor when the machine is operating.

3.8 In the event of a fire



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

1. Switch control box to manual mode. (See 'Electronic control system')
2. Eject the bale from the baling chamber by opening the chamber door.
3. Move the tractor and machine 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, assuming it is safe to do so.
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 or call the fire brigade.



WARNING: Fire prevention

It is recommended that the machine be kept reasonably clean and free of build-ups of crop, 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 front of the tractor, between the tractor and baler and a minimum of 10 m 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.

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- 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.
- 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.
- 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 machine should always be carried out in accordance with this manual.
- Maintenance and repair work exceeding the content of this manual should only be carried out by qualified persons or your **McHale** dealer.
- 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 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
 - (h) Chamber door lock is applied

** 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.
- Replace any electrical or hydraulic devices immediately, at the first sign of malfunction or failure, as these components affect the functionality, sequencing and thus safety of operation. Never use a machine where a malfunction exists! Contact your **McHale** dealer to achieve a solution. Always think 'Safety First'!
- Avoid heating near pressurised fluid lines, as pressurised lines can be accidentally damaged when heat goes beyond the immediate flame area.
- Regular clean down is recommended in order to maintain the machine in a safe and reliable working condition. **McHale** recommend that the machine be blown down with an air line, as opposed to a pressure washer, due to the dangers involved with pressure washing and to protect the overall paint work on the machine. If, despite our advice, a pressure washer is used then take extreme caution and operate from ground level only. Never climb onto any part of the machine, while pressure washing, due to the fact that all metal surfaces become extremely wet and slippery and always ensure that the tractor has been shut down, with the ignition key removed.

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 machine 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.

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.
- Do not modify any safety circuits (faulty safety circuits will cause risks).

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 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 machine, 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 chamber door lever valve must be in the locked position. Before the chamber door can be closed it has to be unlocked again. (*See 'Chamber door lock'*)
- Caution should always be taken when feeding in the net roll or making any adjustments to the netter configuration as the netter knife is extremely sharp!

4.6 Safety instruction decal locations



Decals on the front of the machine



Decals on the side of the machine

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 machine are displayed with their meanings below:

	<p>Danger of rotating parts, foreign objects Keep clear of machine while working (CST00014)</p>
	<p>Keep hands clear of rotating rollers (CTS00017)</p>
	<p>Keep hands out of crush area (CST00019)</p>
	<p>Check wheel nuts daily (CST00020)</p>
	<p>Lifting hook location (CST00032)</p>

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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 pick-up area as long as the engine is running and the PTO shaft is connected to the tractor
(CST00108)



Read instruction manual before use
(CST00110)



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)

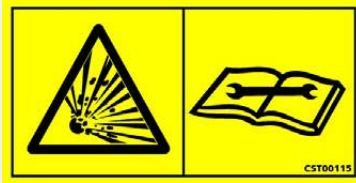


Turn off and remove key from tractor
Read and understand the manual before working on or performing maintenance on the machine
(CST00113)



Close protective covers before operating the machine
(CST00114)

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



Ensure tyre pressure is at 1.38 bar (20 psi) pressure.
(CST00119)



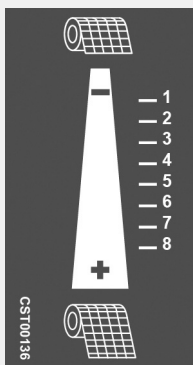
Keep hands out of the crush area between the roller and chassis rail
(CST00120)



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



General warnings
(CST00134)



Net amount setting decal
(CST00136)

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Do not step under the raised tailgate or attempt to do any adjustments on the machine while the tailgate is raised before the safety lock is applied. To avoid injury stay clear of the tailgate while it is being raised and lowered. Also ensure that bystanders are outside the 'Danger Zone' before operating the tailgate.
(CST00140)



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)

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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)

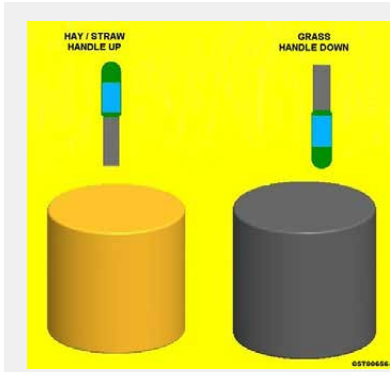


Do not stand in the swashing area of the tailgate while the tractor is running. To avoid injury stay clear of the tailgate while it is being raised and lowered. Also ensure that bystanders are outside the 'Danger Zone' before operating the tailgate. (CST00146)

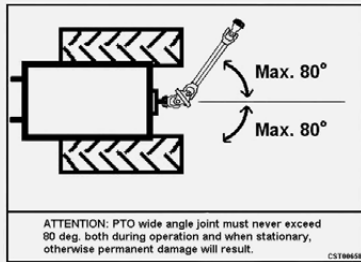


Float decal. Indicating that during operation of the baler, the control lever of the spool operating the pick-up reel should be in the float position. (CST00609)

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When baling hay, straw or dry material, the handle should be in the UP position. When baling silage, grass or high moisture material the handle should be DOWN.
(CST00656)



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)

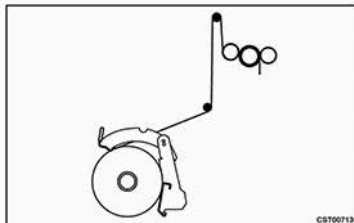
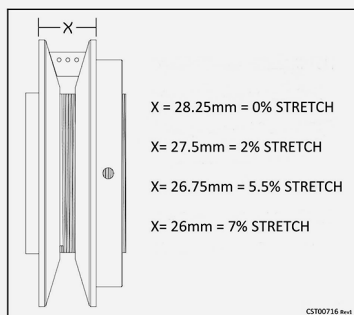
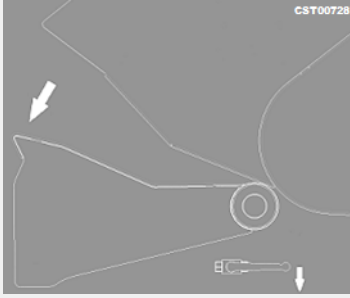


Diagram of net path through feeding rollers.
(CST00713)

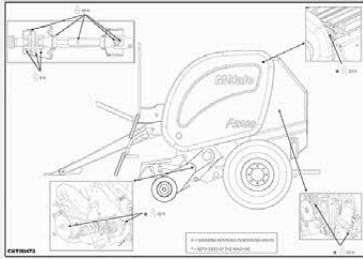


Decal indicating the settings on the variable pulley to adjust the tension on the net.
(CST00716)

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Decal indicating drop-floor operation.
(CST00728)



Decal indicating the locations to be greased regularly
and at what intervals in working hours.
(CST00743)






Always lock the chamber door in place before working
on the open bale chamber.
(CST00769)



Always use correct specification chain oil for automatic
chain lubrication.
(CST00776)

4.8 Description of the serial number plate

		Tel: 353 (0) 94-9520300 Fax: 353 (0) 94-9520356 E-mail: sales@mchale.net Web: www.mchale.net			
Castlebar Rd. Ballinrobe, Co. Mayo, Ireland.					
SERIAL NUMBER		a.	MAX. GROSS WEIGHT @10 km/h	4,800 kg	g.
YEAR OF MANUFACTURE	20	b.	NET WEIGHT	3,620 kg	h.
MODEL	F5400	c.	MAX. AXLE LOAD @ MAX. ROAD SPEED	2,745 kg	i.
MAX. VERTICAL DRAWBAR LOAD	19,000 N	d.	 VEHICLE WIDTH*	2.55 m*/2.65 m*	j.
MAX. HORIZONTAL DRAWBAR LOAD	78,000 N	e.	VEHICLE HEIGHT	2.50 m	k.
MAX. ROAD SPEED	40 km/h	f.	VEHICLE LENGTH	4.15 m	l.

* Width will depend on tyre selection

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 km/h
- j. Vehicle width: with standard size tyres / optional specification tyres
- k. Vehicle height (metres)
- l. Vehicle length (metres)

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 two lift eye locations on the chassis, shown below
- The crane or lifting device must be capable of lifting a minimum load of four tonnes (4,000 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



LHS lift hook

5

Tractor requirements & preparation

5.1 Tractor requirements

The minimum recommended size of tractor for operating the machine 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 60 kW. On hilly ground or difficult conditions, an additional 10 to 15 kW is advisable.



NOTE: Use good quality oil

Ensure that the tractor has clean, good quality, hydraulic/universal oil to avoid problems later on. Also, the hydraulic filters on the tractor should be changed regularly, according to the manufacturer's service instructions. Avoid dirt getting into the hydraulic couplings.

The following items on the tractor are required for attachment of the machine behind the tractor:

1. Low/high drawbar hitch* that is suitable for an imposed load of minimum 3,800 kg
2. Two double-acting spools (½" female quick-release) one with float position for the pick-up reel
3. Hydraulic-brake coupling (or two air-brake couplings), if brakes are fitted
4. 12 V / 7-pin socket for lighting
5. 12 V, 20 A euro socket or battery power cable
6. 1 ⅜", 6-spline PTO shaft (set to a speed of 540 rpm)

* Depending on country of use

5.2 Control box installation

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. The electric power supply is obtained from the euro socket of the tractor.



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 machine is horizontal to the ground (See 'Drawbar adjustment'). Machines are set up for hitching to the tractor drawbar, as shown 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.



Drawbar attachment



Drawbar adjustment

5.4 Attaching break-away brake (if fitted)

If the machine is fitted with a hand brake it 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 machine is attached to the tractor. Should the machine hitch ever become detached from the tractor, this rope will apply the brakes on the machine.



CAUTION: Release hand brake

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

5.5 Attaching the machine 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'*). Ensure PTO cover guards are prevented from rotating, by securing the chain to the tractor.



WARNING: Connect the PTO to the machine first

Always connect the PTO shaft to the machine PTO stub first and to the tractor PTO stub last, in case of accidental activation which could be lethal!



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

The machine 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 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 four hydraulic hoses that must be connected to the tractor. They are as follows:

McHale F5400 Baler

1. ½" male quick-release for door open (max. flow 70 l/min)
2. ½" male quick-release for door close (max. flow 70 l/min)
3. ½" male quick-release for pick-up reel up (drop floor up)
4. ½" male quick-release for pick-up reel down (drop floor down)
5. Hydraulic-brake coupling (or two air-brake couplings), if brakes are fitted
6. 12 V / 7-pin lighting socket
7. 12 V, 20 A euro socket (machine loom to control box shown)

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



Possible layout of hydraulic hosing and electric looms

5.8 Connecting the control box

The electronic control box must be located inside the tractor cab in the operator's field of vision and within easy reach (*See 'Electronic control system'*). 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 control box is to be connected to a 12 V, 20 A power supply, using the supplied euro lead. The control box is not waterproof, it must be protected from rain.



CAUTION: Do not connect control box to a 24 V power supply

Do not attempt to connect the control box to a power supply greater than 12 V, as machine component damage will result.

6

Machine requirements & preparation

6.1 Net requirements

In order for the machine 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 1.27 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. 1,300 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 machine, 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 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.

If changing a roll, remove the empty cardboard core of the finished net roll and dispose of responsibly.

Slide the new roll of net onto the net storage space on the platform.

NOTE: Ensure that the roll is orientated in the correct direction.

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2. Lift the net roll brake bar upwards and roll the roll of net into the net box.



3. With the roll of net positioned in the net box, lower the brake bar down onto the roll of net.

Adjust the net roll stops at either end to secure the roll of net central in the net box.



4. Before threading the net, ensure that the net knife is in the re-set position.

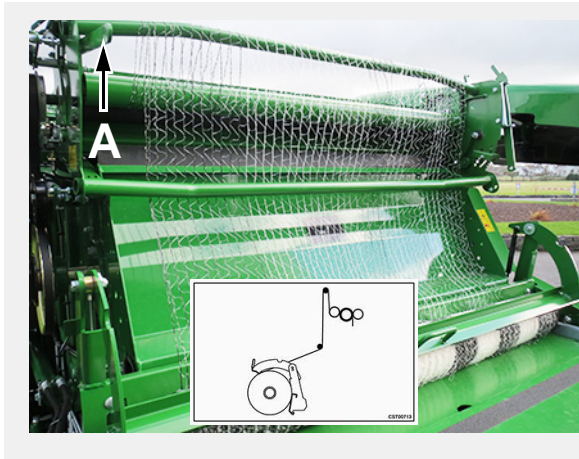
The net knife can be re-set using the handle provided on the net unit.

Insert the handle into the hole provided on the net knife frame & pull upwards, until the hook sits on the net adjustment handle.



5. Press the roller tension release lever (A) downwards until it locks in position, which results in the two steel rollers being spread apart from the black net-feed rubber roller.

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6. Thread the net as shown. The net should be routed underneath the first steel roller and over the black rubber drive roller.

When the net is threaded, pull upwards to release the roller tension lever (A) which will compress the three net rollers together.

The roll of net is now threaded and ready for baling.

6.5 Net length adjustment setting

In an automatic cycle, the netter starts feeding net once the set bale density has been reached and the net knife has been re-set. 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 of the machine. 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 hay or straw is 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!



CAUTION: Adjusting the net cutter

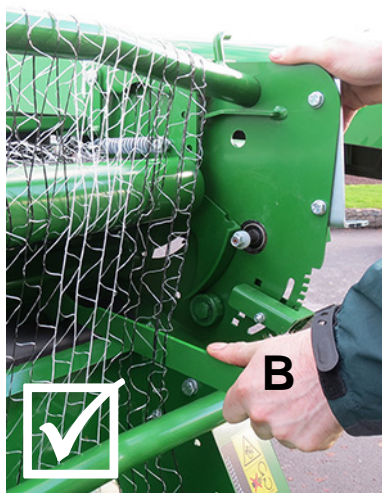
Never attempt to adjust the net cutter setting until the knife has tripped (B), see the following images.

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

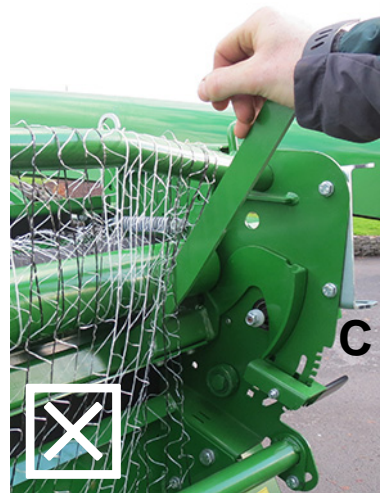
1. Ensure the PTO is disengaged, the tractor is shut down with the ignition key removed and the machine is safely parked with wheels chocked, i.e. cannot roll.
2. Climb onto the baler platform. Insert the handle into the hole provided on the net knife frame bar and pull upwards while applying upwards pressure on the bar, release the bill hook, by pushing it off the adjuster. (Refer to the following images)
3. Allow the knife to return to its tripped position, by lowering the handle gently. (B)

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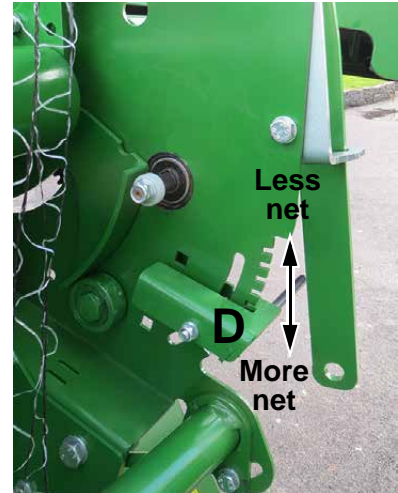
- Adjust the net amount adjuster accordingly. Adjustment is achieved by pushing the adjustment lever (D) to the right in order to release the latch from the notches. Choose the desired notch, upwards or downwards, for less or more net to be applied, before re-engaging. The notches are sequenced from top to bottom and are numbered from 1 to 8 respectively. See the table below for the exact amount of net applied for each specific notch.
- Once the desired setting is selected, replace the bill hook onto the adjuster by pulling upwards on the knife frame bar, using the handle provided. Ensure that the bill hook rests on the adjuster, in the knife re-set position, before returning the handle into the holster provided. (C)



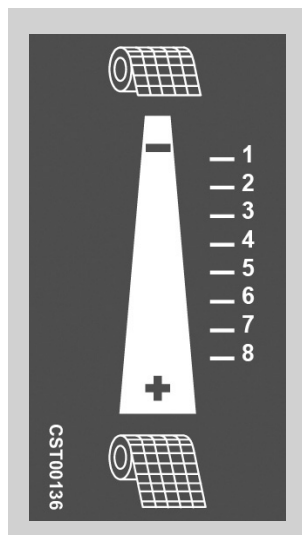
Knife tripped



Knife not tripped (re-set)



Net adjustment



Notch (#)	Layers of Net* (#)	Length of Net* (m)
1	2	7.5
2	2.25	8.5
3	2.5	9.4
4	2.75	10.4
5	3	11.3
6	3.25	12.3
7	3.5	13.2
8	3.75	14.2

Calculated net settings



NOTE: Ensure bill hook rests on the adjuster

Always ensure that the bill hook rests on the adjuster, in the knife re-set position.



NOTE: Figures in the table are approximate

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

6.6 Automatic lubrication system

The machine is equipped with a fully automatic oiling system which is responsible for lubricating all of the chain systems and a manual greasing system with centralised grease blocks for lubricating all of the roller bearings in the machine.

6.6.1 Automatic oiling system

The oil reservoir tank (A) can hold approximately 3 litres of oil and this is enough oil for approximately 12 working hours. 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. On the control box, an alarm is provided to remind the operator to top up the lubrication oil after a preset number of cycles. This counts down from 300 and gives a reminder at zero. It may be reset sooner, if desired, from within the control box sub menus. (See 'Lube/Oil alarm')



Oil reservoir tank



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. (**McHale** recommend a good quality high viscosity chain oil with good tack adhesion (ISO 150 - ISO 200)).
2. Replace the cap and tighten fully.



NOTE: Oil in the reservoir tank should always be clean

The oil in the oil reservoir tank should always be clean, strained and free of any impurities during top-up, as this will ensure proper operation and lubrication.

6.6.2 Greasing system

The machine is equipped with a manual greasing system using centralised grease blocks for lubricating all of the roller bearings in the machine. These instructions only cover the main components that must be greased daily, approximately every 250 bales. All other grease points must be greased, as specified. (See 'Machine maintenance'). **McHale** recommend using a multipurpose, extra high performance grease such as Mobil grease XHP222 or equivalent NLGI number 2 grade grease. This will prolong the life of the machine components.



The baler's drive side is greased manually at two centralised blocks.

These serve the drive side bearings on:

1. the chamber rollers
2. the rotor bearing
3. the pick-up drive gears



The baler's non-drive side is also greased manually at two centralised blocks.

These serve the non-drive side bearings on:

1. the chamber rollers
2. the rotor bearing

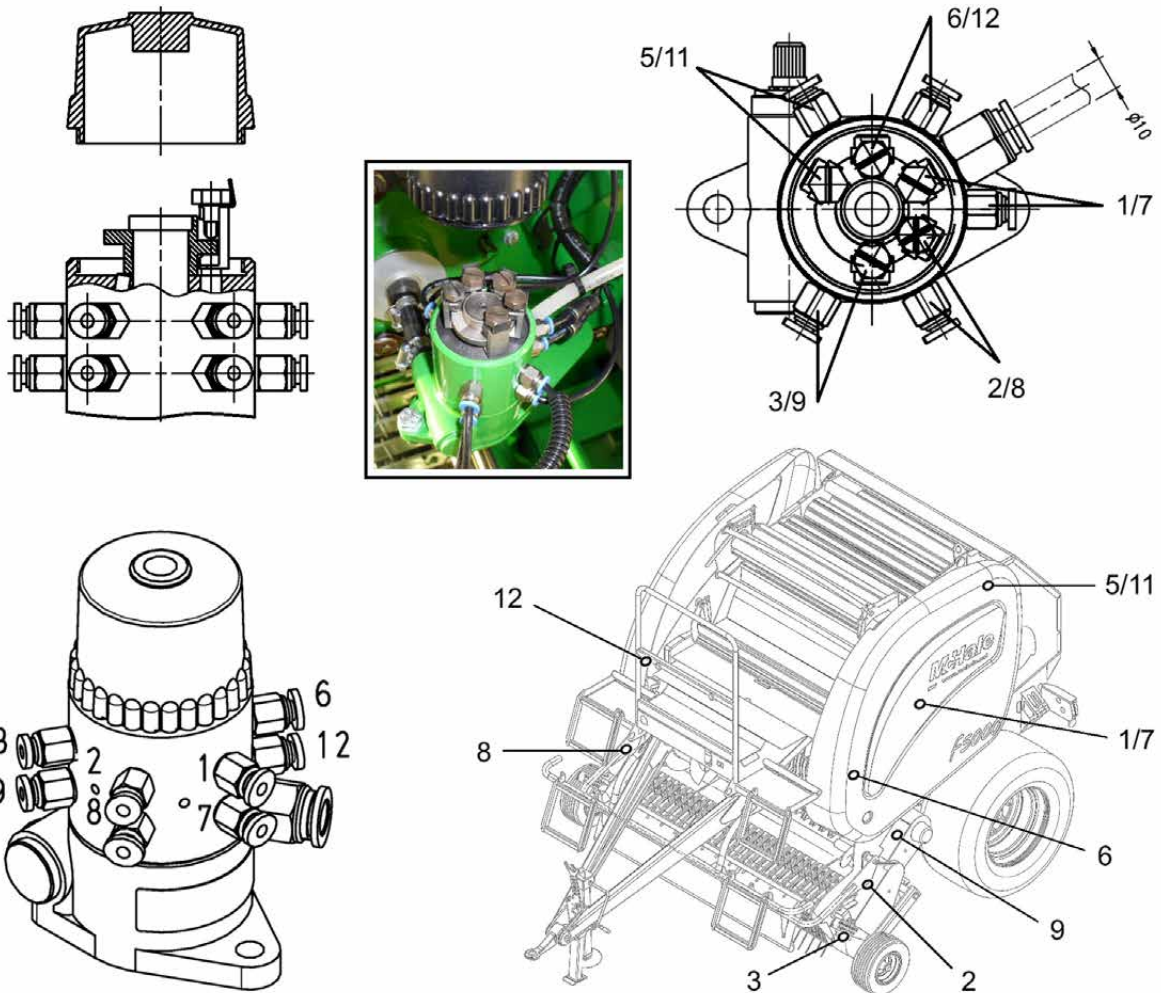
6.6.3 Oil pump adjustment

The oil pump is factory pre-set and under normal circumstances should not require any adjustment. If insufficient oil delivery is noticed on a particular chain, then the pump can be adjusted as follows:

The delivery is regulated for pairs of pressure connections, one above the other. Firstly unscrew the black plastic cover on top of the pump, which exposes the five adjusting screws. Adjustment to the delivery must be carried out using a slot-head screwdriver (Using a smaller screwdriver may damage the adjustment screw, so use size 8 - 10 minimum).

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- The delivery is increased by turning the adjustment screw in a clockwise direction and decreased by turning counter clockwise.
- One full turn (= 6 clicks) corresponds to 0.015 cc and each click equals 0.0025 cc.
- The maximum possible adjustment equals 3 turns or 18 clicks.



Oil pump adjustment

Once adjustment is complete, screw the black plastic cover back on top of the pump unit. Oil delivery should continue to be monitored and readjusted, if necessary, until desired results are achieved.

6.7 Gearbox 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. The PTO shaft should also be removed.



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

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

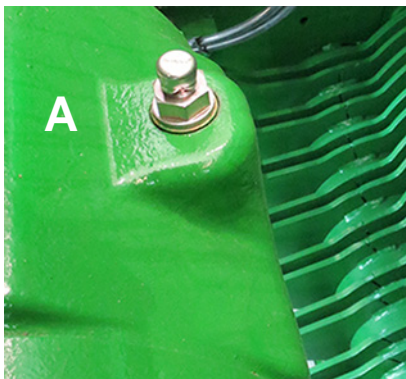


ENVIRONMENT: Safe disposal of oil

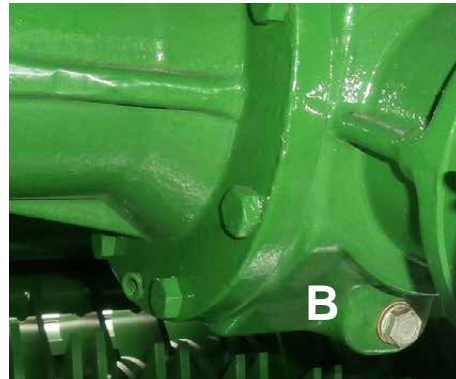
Respect the environment! Never spill oil or grease on the ground, never pour them down the drain and never discard them where they can pollute the environment. Always take waste materials to a recycling centre.

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

1. Remove the drain plug (B), (located on lower front of gearbox) 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, tighten securely and dispose of waste oil responsibly.
2. Remove the breather plug (A) (located on top of gearbox towards the rear), using a 17 mm spanner. Add 2 L of SAE 80W/90 grade oil. After this, replace the oil once per season or once per 10,000 bales, whichever comes first.
3. Replace breather plug (A) and tighten securely.



Filler/breather plug



Drain plug



NOTE: Do not overfill the oil

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

6.8 Tyre inflation pressures



CAUTION: Check the tyre pressure weekly

Check the tyres weekly for the pressures outlined in the following table.

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Tyre type	Pressure
13.5/75 - 430.9	2.07 bar (30 psi)
460/65 - 20 (optional)	1.38 bar (20 psi)
500/50 - 17 (optional)	1.38 bar (20 psi)
500/50 - 22.5 (optional)	1.38 bar (20 psi)
520/55 - R22.5 (optional)	1.38 bar (20 psi)
170/60 - 8 (pick-up tyre)	2.07 bar (30 psi)

6.9 Wheel chocks

Wheel chocks are provided to secure the machine wheels anytime the machine is to be detached from the tractor, or if the machine is to be stored or parked up. They are located on both the left and right of the back panels, on the rear of the machine.



Wheel chocks

6.10 Drawbar & PTO shaft stand usage

There are three types of drawbar stands available on the machine, 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. The PTO shaft stand must also be used to support the PTO shaft.



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.

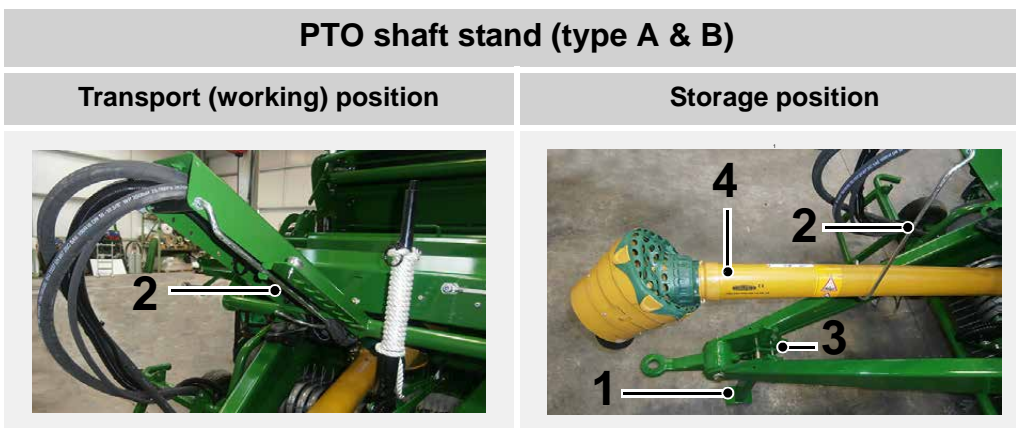
McHale F5400 Baler

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 fully with stand pin (3) in the alternate hole position.
- Storage position: Ensure that the stand pin (3) is properly placed in the lower slot to prevent the stand from collapse.



- Swing down the PTO shaft stand (2) in an upright position in order to support the PTO shaft (4).



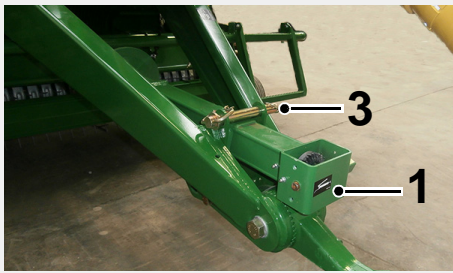
Type B - The following applies to swing down screw stand (low hitch):

- 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.

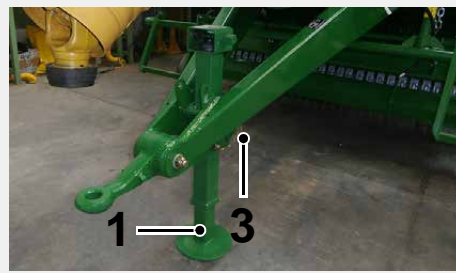
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Type B - swing down screw stand (low hitch)

Transport (working) position



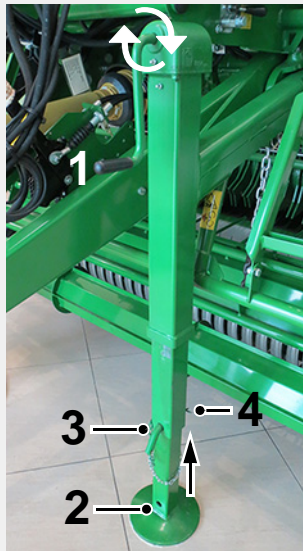
Storage position



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 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 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).

Type C - fixed screw down stand (high hitch)



- The PTO chain support (5) holds the PTO shaft when disconnected from tractor, in the storage position.
- 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.

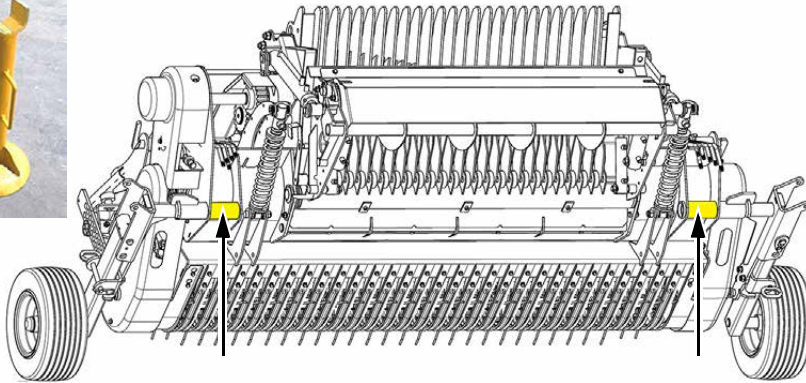
6.11 Drawbar adjustment



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 hitch 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.

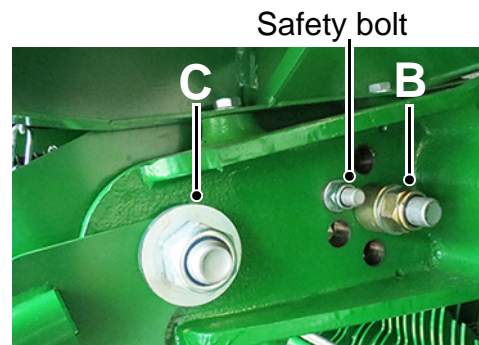
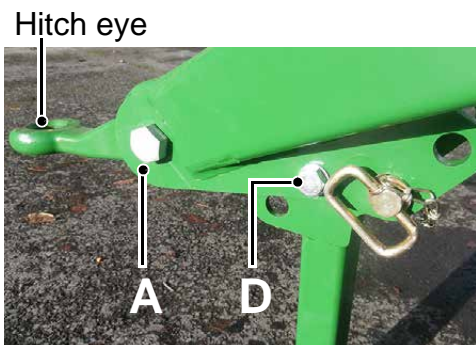


The drawbar should be adjusted so that the machine is level and horizontal to the ground when in the working position, see below. To adjust, first remove the safety bolts, then slacken the hinge bolts (C), but do not remove. The hitch eye can be adjusted to different height positions by repositioning 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 750 Nm and the 30 mm top drawbar hinge bolts (C) tightened to a torque value of 1,500 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.

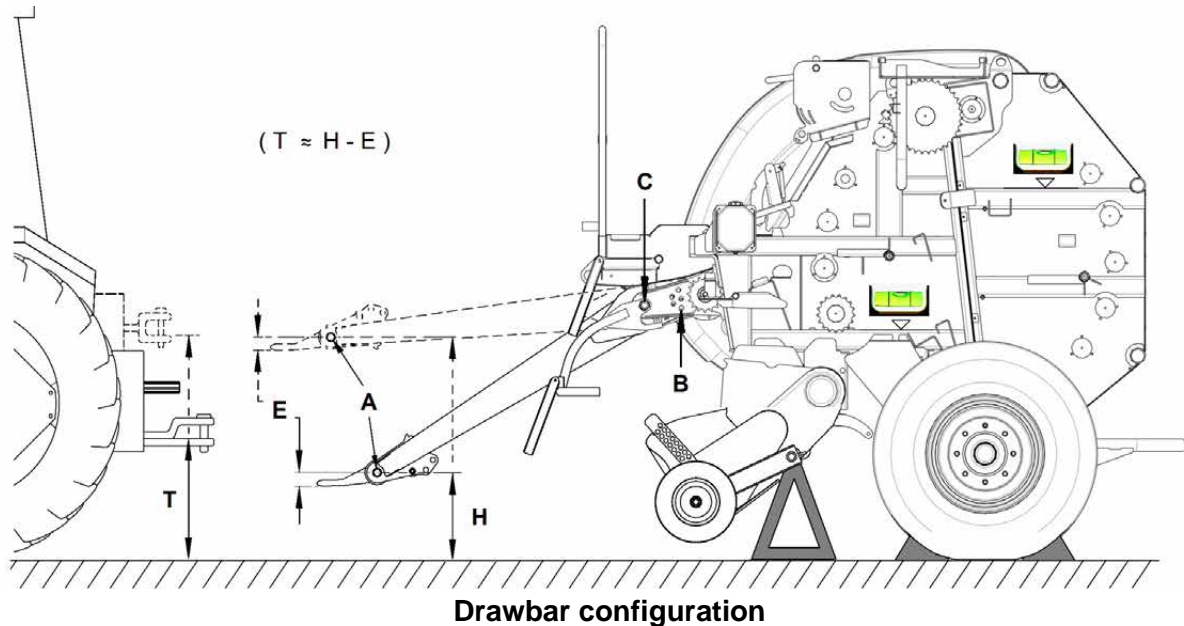


McHale F5400 Baler

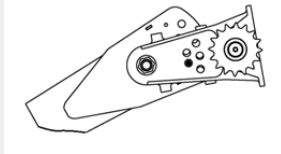
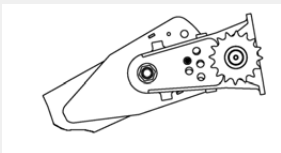


Tractors typically are either low hitch or high hitch and the drawbar on the machine should be set up accordingly. When changing from a low to a high drawbar set-up, the drawbar is inverted and the hitch eye is adjusted horizontally, in the orientation shown.

Once the height of tractor hitch (T) is measured in mm, then allowing for hitch-eye offset (E) the height (H) to the centre of pivot point A can be established ($H \approx T + E$).



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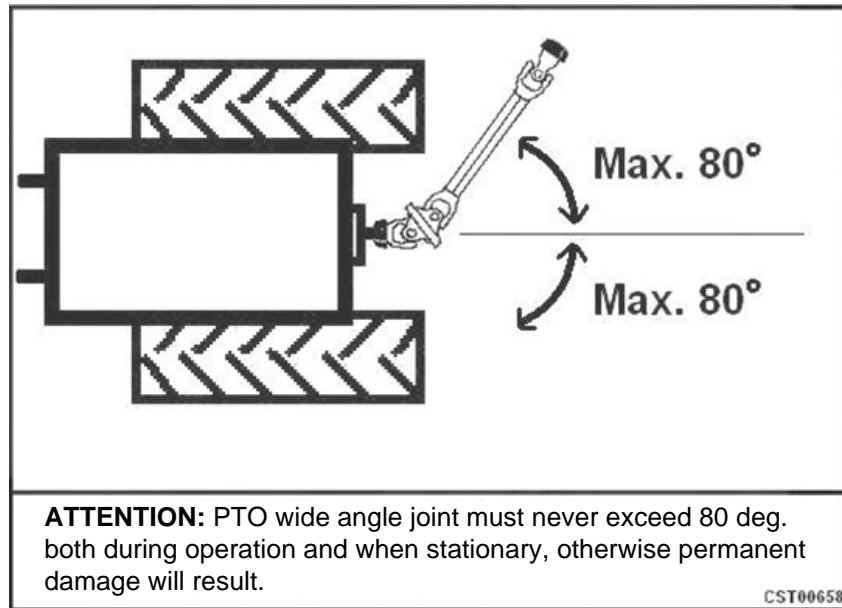
Position	Low drawbar setting	H	High drawbar setting	H
B1		410		800
B2		450		880
B3		480		990
B4		520		1030
B5		555		1070

The closest value of H can be selected from table above to determine the most suitable bolt hole position for **B**, depending on whether low or high drawbar set-up. Once adjusted, ensure safety bolt is re-installed and all bolts tightened securely.

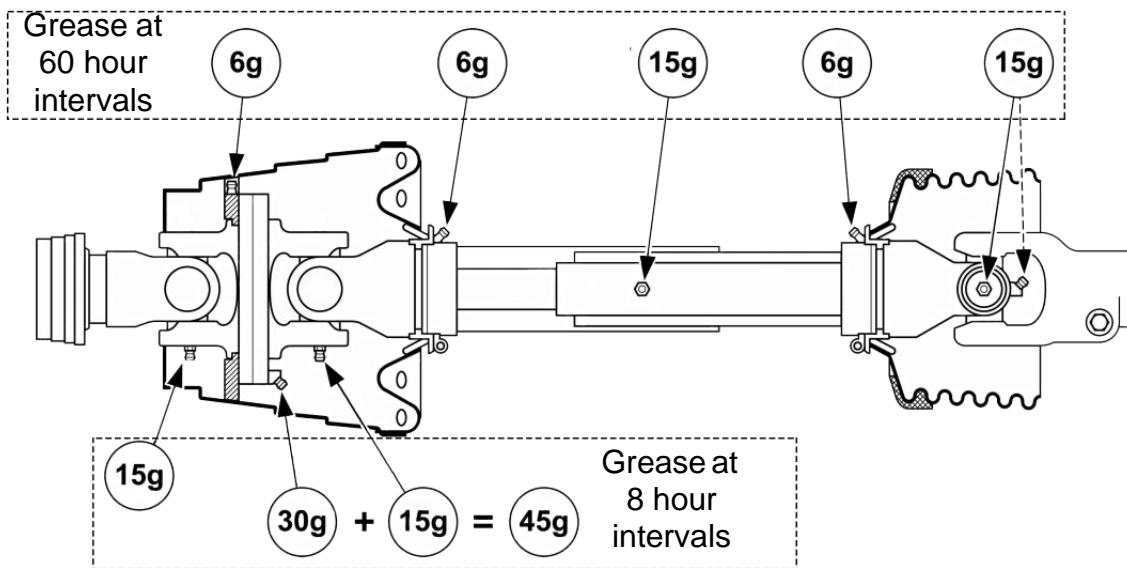
6.12 PTO shaft adjustment & maintenance

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.

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The recommended quantities of grease in grams for each grease point are shown below.



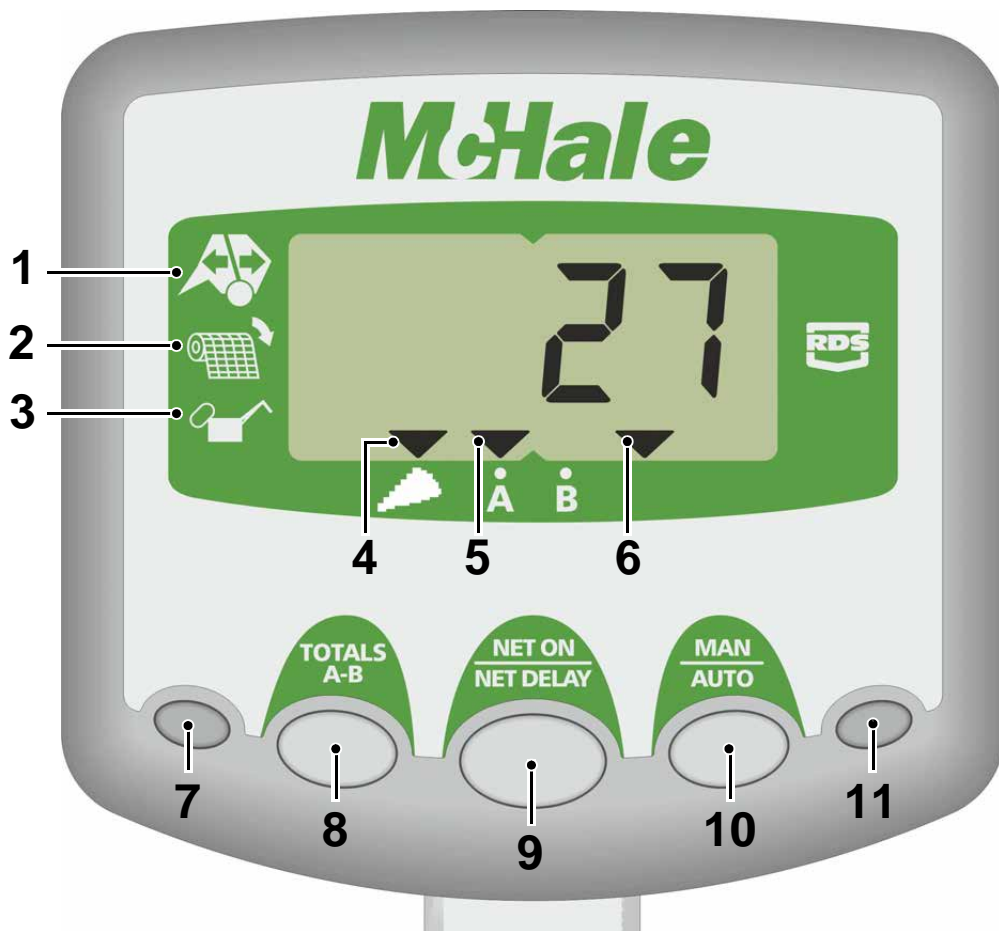
NOTE: Grease point intervals

The lower 3 PTO shaft grease points are to be greased at 8 hour intervals. All other grease points are to be serviced at 60 hour intervals.

7

Electronic control system

The control box is the main interface between the operator and the baler and can be operated in manual or auto mode. All the functions are shown on the diagram opposite with the relevant instructions for setting and re-setting in the following pages.



Please see the pull-out guide for this electronic control system at the end of this chapter. This can be removed and laminated to keep in your tractor and familiarise yourself with the functions of the controller.

7.1 Control box functions

No.	Function
1	Baler open
2	Net feeding
3	Lube alarm
4	Indicator shows when the chopping knives are fully up. (F5400C Only)
5	Indicator shows the bale counter selected, A or B.
6	Indicator shows when the net knife has tripped after netting.
7	Not used
8	Press once to view active bale counter total. Press again to toggle between counters, A or B. Press and hold to reset current bale counter.
9	Net On / Net Delay. In manual press to feed net. In Auto press to delay net feeding.
10	Man/Auto. Press to toggle between manual and automatic.
11	Not used
	Lube/Oil alarm. This reminds the operator after 300 bales to check the grease and oil levels. To reset the count and alarm, press and hold 'Totals A-B' & 'Man/Auto' switches for 5 seconds.

7.2 Control box operation

In Auto the display shows 'AUTO' while Manual mode is indicated by '- - - -'.

It displays relevant information, regarding function and is used in conjunction with two hydraulic spool levers on the tractor to operate the baler. One raises or lowers the pick-up reel and the other opens and closes the baler tailgate. By pulling the cord that is attached to a diverter valve under the platform, the drop floor can be lowered or raised while activating the pick-up reel spool lever within the tractor.

7.2.1 Manual cycle

As the chamber fills, the tailgate starts to open against hydraulic accumulator pressure and the operator is warned by a series of beeps, to stop forward motion. Pushing the 'Net' button will now feed net into the chamber where it will be pulled in by the rotating bale, after the pre-set amount of net is applied the net cutter will trip cutting the net. The tailgate can now be opened to discharge the netted bale and baling can resume as normal.

7.2.2 Auto cycle

As the chamber fills, the tailgate starts to open against hydraulic accumulator pressure and the operator is warned by a series of beeps, to stop all forward movement.

The net is automatically fed into the chamber and cut when the pre-determined amount is applied to the bale. The spool lever can then be operated to open the tailgate and discharge the bale.

Pushing the net button during the warning beeps will delay the net auto feeding, allowing more crop into the chamber, while forward motion continues.

7.2.3 Lube/Oil alarm

After 300 bales have been made the lube alarm will remind the operator to check the oil and grease levels by giving an occasional beep and flashing the lube indicator on the display.

To reset the lube count and its alarm press and hold both buttons 'Totals A-B' and 'Man/Auto' for five seconds.

7.2.4 Bale counts

Two bale counts are provided (A and B), the indicator on the display shows the current counter.

Pressing the 'Totals A-B' button will toggle between the memories and display their count, resetting is achieved by pressing and holding the button.

7.2.5 Grand total

Each time the control box is switched on, it displays the program version number followed for a few seconds by the bale grand total.

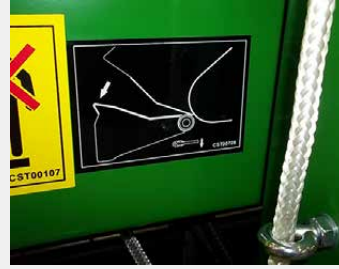
The grand total can not be reset.

7.3 Unblock floor operation

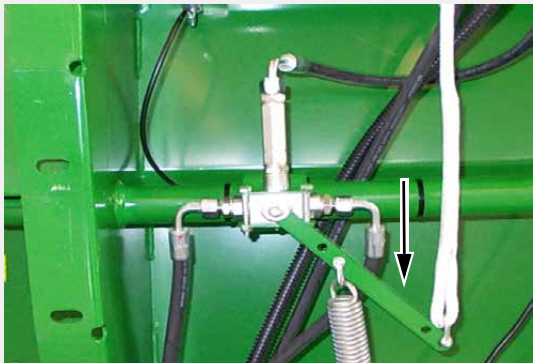
The drop floor is operated by pulling the cord that is attached to the baler hydraulics.

Pulling the cord and activating the pick-up spool lever downwards, will lower the floor. Pulling the cord and activating the pick-up spool lever upwards, will raise the floor back up into the working position. Releasing the cord returns the diverter valve to neutral, allowing normal activation of the pick-up reel.

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To activate the drop floor, pull the cord towards the tractor, whilst operating the pick-up spool-valve lever



Cord slack, with lever set at neutral to operate the pick-up reel



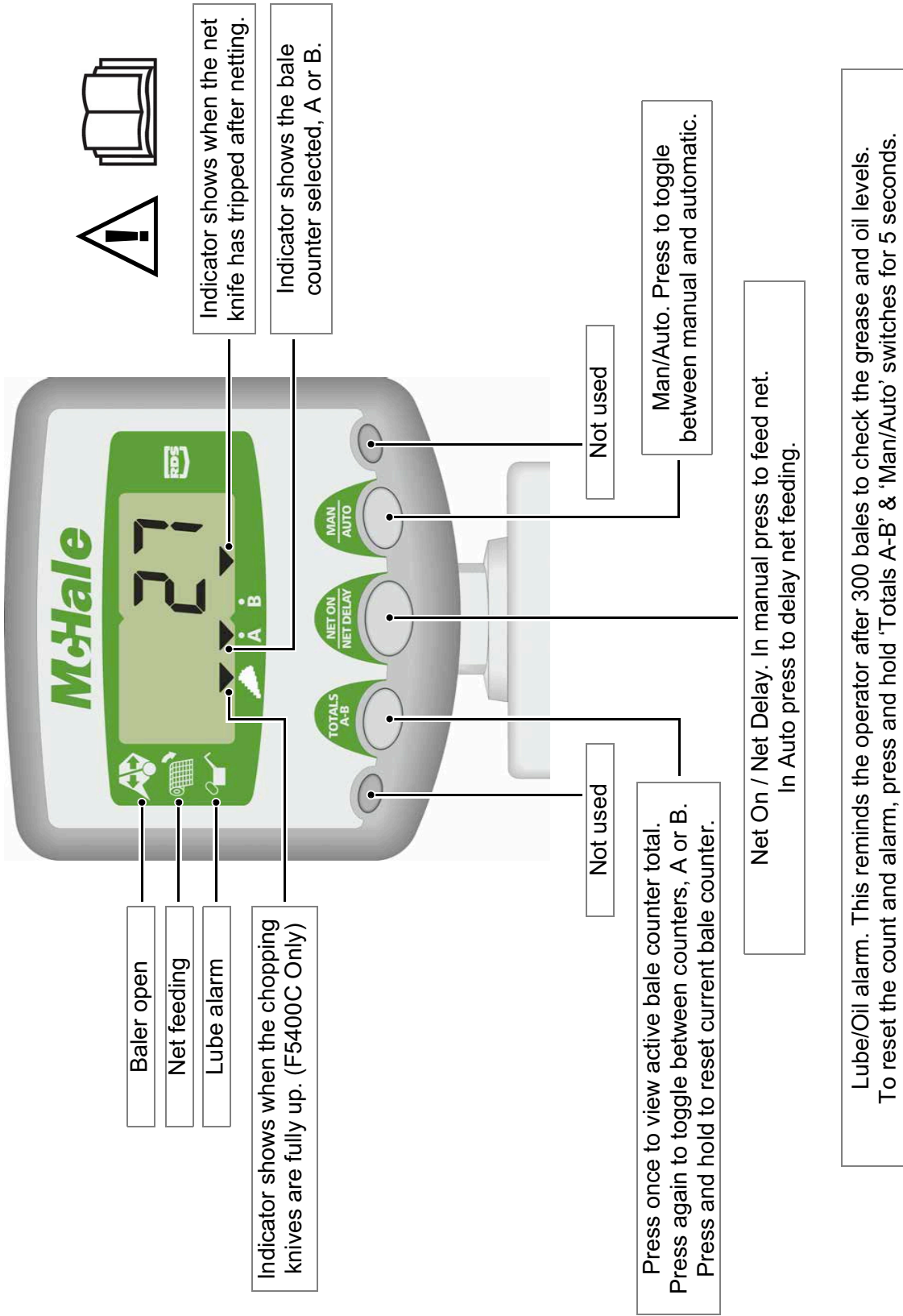
Cord and lever pulled which allows activation of the drop floor

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F5400 CONTROL UNIT OVERVIEW

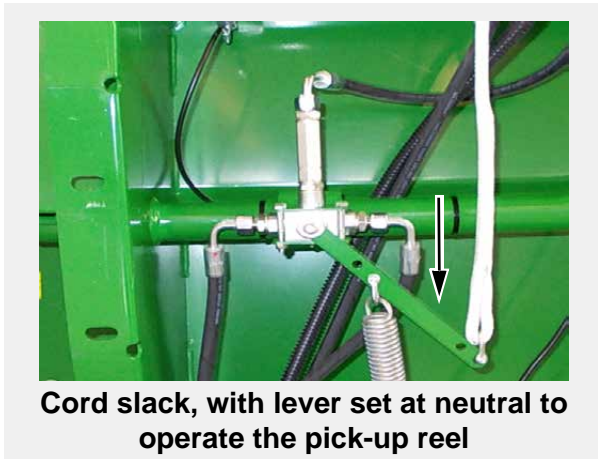


Unblock floor operation

Pulling the cord and activating the pick-up spool lever downwards, will lower the floor. Pulling the cord and activating the pick-up spool lever upwards, will raise the floor back up into the working position. Releasing the cord returns the diverter valve to neutral, allowing normal activation of the pick-up reel.



To activate the drop floor, pull the cord towards the tractor, whilst operating the pick-up spool-valve lever



Cord slack, with lever set at neutral to operate the pick-up reel



Cord and lever pulled which allows activation of the drop floor

Manual cycle

As the chamber fills, the tailgate starts to open against hydraulic accumulator pressure and the operator is warned by a series of beeps, to stop forward motion. Pushing the 'Net' button will now feed net into the chamber where it will be pulled in by the rotating bale, after the pre-set amount of net is applied the net cutter will trip cutting the net. The tailgate can now be opened to discharge the netted bale and baling can resume as normal.

Auto cycle

As the chamber fills, the tailgate starts to open against hydraulic accumulator pressure and the operator is warned by a series of beeps, to stop all forward movement.

The net is automatically fed into the chamber and cut when the pre-determined amount is applied to the bale. The spool lever can then be operated to open the tailgate and discharge the bale.

Pushing the net button during the warning beeps will delay the net auto feeding, allowing more crop into the chamber, while forward motion continues.



8

Road traffic safety & operation

8.1 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. (*See 'Tyre specifications'*)
- 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.
- 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 'Electronic control system'*)
- Attention must be paid to the maximum travel speed limit (40 km/h) 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.
- The brake system (hydraulic or pressurised air) of the machine, if fitted, 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.
- Lift the pick-up reel completely and close the lever on the hydraulic line (if fitted). The hydraulic supply must be turned off and protected from accidental

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activation by disconnecting the hydraulic feed line. Support all loose lines in a safe manner.

- The pick-up guide wheels must be removed and secured in the road transport position (see the following image) and the drawbar/PTO stands secured in a working position. (See 'Drawbar & PTO shaft stand usage')



Pick-up wheels in the transport position

9

Field operation & machine adjustments

9.1 Break-in period

McHale recommend a break-in period of approximately the first 50 bales or until the paint within the machine has lost its shine. After the initial break-in period the tension of all the chains on the machine should be checked and adjusted, as required (See 'Chain adjustments'). Ensure that all grease points are adequately greased to prevent rapid wear of components.



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 On / Net Delay' 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.

9.2 Swath preparation

An optimum baler performance of the machine 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.

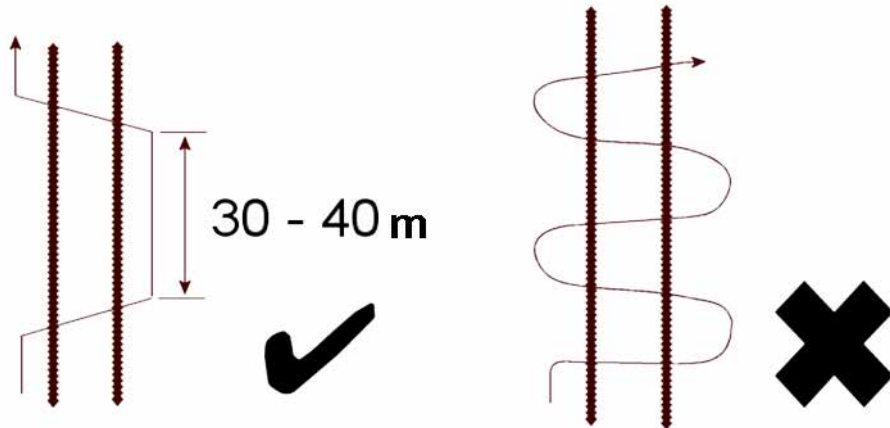
In the case where narrower swaths are unavoidable, it is recommended that the swath be periodically directed 30 - 40 m to the right-hand side and also the same distance to the left-hand side of the pick-up as the baler is driven over the swath.

Collect the material into one side of the pick-up for 6 - 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.

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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.



Swath widths - correct & incorrect

9.3 Pick-up reel height adjustment

Before working in the field secure the pick-up guide wheels, in their operating position, as shown. Use the appropriate hole in the adjusting bar so that the pick-up is balanced and at the optimum working height with the pick-up tines being 2 cm above the ground.



NOTE: Ensure the spool control lever is in the float position

When baling with this machine 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 will be unable to follow the ground contour.



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!



Pick-up reel height adjustment

9.4 Crop guard adjustment

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



Crop guard adjustment chain & plate



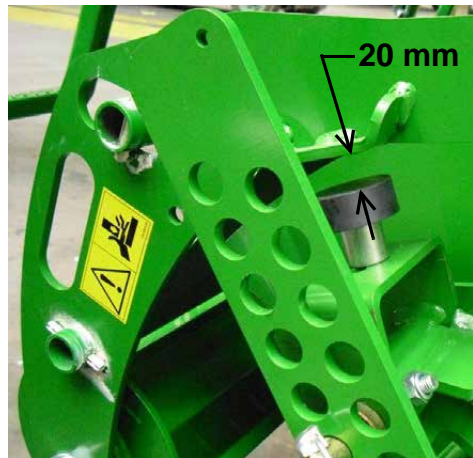
Crop guard

9.5 Crop roller adjustment

The function of the crop roller and fingers is to hold down and spread out the baling material in order to achieve a smooth crop flow into the pick-up unit. The crop roller height should be adjusted, by engaging the chain links in the keyhole slots, so that the stops do not rest on the rubber bumpers as shown. Once this initial height is set, it is then self adjusting depending on crop conditions. Ensure linch pins are used to secure chain links together. Once adjusted, the crop roller should run along the top of the swath. In lighter conditions it should be adjusted as low as possible, but still ensure that the stops do not rest on the rubber bumpers.



Crop roller adjustment chain



Crop roller stops

9.6 Unblocking system

The machine 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. Pull the cord towards the tractor cab while operating the pick-up spool lever to lower the channel floor. (See the following image). Then restart the tractor PTO at a slow speed, increasing speed slowly up to 540 rpm and not exceeding 610 rpm. Any lumps of material can now be easily transported into the bale chamber.

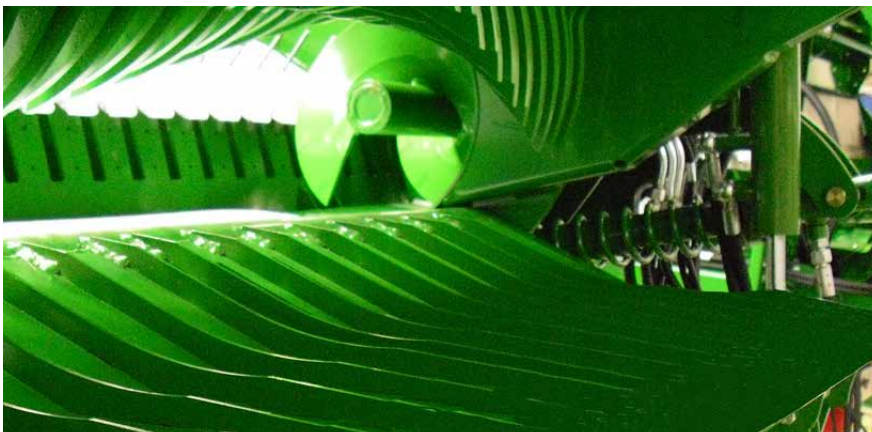
If a blockage occurs near bale completion, difficulty will be encountered in restarting the PTO. The solution to overcome this, is to select Manual mode, then open the chamber door a small amount so that the bale density gauge goes into the yellow zone. (See '*Bale density gauge*'). Then restart the PTO and once the PTO is back up to speed, close the chamber door fully and reselect Auto mode.

After having cleared the blockage, reset the channel floor again by pulling on the cord while using the pick-up spool lever (in the opposite direction) to raise the channel floor closed (See '*Unblock floor operation*'). Baling can then resume as normal.



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 pick-up 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!



Unblock mode and channel floor lowered

9.7 Net wrap system

In an Auto cycle, the control box emits a series of beeps when the bale chamber is full. When the bale has reached the predetermined density, this alerts the operator that netting is about to start. Net will automatically feed after a preset amount of time.



WARNING: When netting starts, stop forward movement!

The operator must stop the forward movement of the tractor at once!

Next, a continuous beep informs the operator that the netting has started. After the preset number of net layers are applied to the bale, the net is cut. The chamber door can then be opened to eject the bale from the bale chamber. Once the bale is ejected, the chamber door can then be closed and baling can resume, as normal. In Auto mode, pressing and holding the 'Net On / Net Delay' button, will delay netting start when the bale chamber is full.

In Manual mode, when the bale chamber is full a series of warning beeps will sound. The 'Net On / Net Delay' button needs to be pressed on the control unit to manually begin feeding net. When the correct amount of net is applied, the net knife trips and cuts the net, a short beep will sound to alert the operator to open the chamber door and eject the bale. If the net breaks or runs out then an arrow will flash at the netting symbol on the control unit, followed by a series of warning beeps. When the chamber door is fully closed again, a 1 second beep will sound to indicate that baling can resume and 1 bale will be added to the bale counters.

9.8 Net tension adjustment

The tension on the net is achieved by means of a variable pulley. The net can be tensioned from 0 to 7% stretch, depending on the quality of net used and the percentage dry matter of the material being baled. The machines are pre-set at 2% stretch. **McHale** recommend using a lower percentage stretch when baling dry matter material like hay and straw and a higher percentage stretch for material like grass. These percentages will vary depending on bale density and type of crop being baled. The following steps show how to adjust the variable pulley.



CAUTION: Bale size should not exceed 1.27 m in diameter

Always ensure that the bale size does not exceed 1.27 m in diameter. Bales with a bale size in excess of 1.27 m in diameter may result in damage to the net.



WARNING: Ensure the tractor is shut down before adjusting

Never adjust the net tension while the baler PTO shaft is engaged or while the tractor is running. Shut down the tractor, remove the ignition key, apply the parking brake and prevent any machine movement with wheel chocks.

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1. The variable pulley is the inner one located closest to the net unit side.

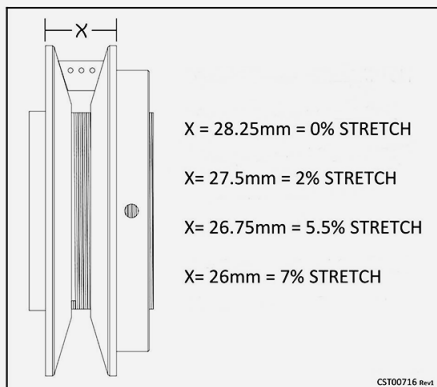
Insert the net-unit handle provided, into the slot on the spring-loaded belt tensioner and pull the handle forwards, until the hook can be swung up to latch the tensioner bolt temporarily, as shown. The belt should now be slack, allowing the variable pulley to be adjusted, as required.



2. The variable pulley is in two halves, with one side threaded into the other. The outer pulley half is secured in place using an M10 grub screw fastened onto the flat sides of the inner pulley.

Using a 5 mm allen key, loosen back the grub screw 5 turns.

With the grub screw loosened, the pulley can be threaded inwards or outwards depending on the net tension setting required.



3. By referencing to the diagram, the desired net tension can be achieved by measuring the distance 'x' as indicated in the diagram.

With the required tension setting achieved, tighten the grub screw.

Warning! Ensure that the grub screw is tightened onto the flat surfaces on the inner pulley and not on the threads.

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4. Insert the net-unit handle provided, into the slot on the spring-loaded belt tensioner and pull the handle forwards, until the hook can be unlatched. Ease the handle back, allowing the tensioner to re-tension the belt. Remove the handle and place it back into its holster on the net unit. Swing the hook back down into its original position.

To tension the outer V-belt loosen the tension pulley wheel, using a 19 mm spanner and slide the tension pulley towards the tractor.

The machine is now ready to bale at the new net tension setting.



CAUTION: Take care when removing and fitting belts

Always exercise care when removing and fitting belts onto pulley wheels. Use extreme caution when dealing with spring-loaded tensioners and hooks.



NOTE: Frequency of belt replacement

The variable pulley V-belt needs to be replaced every year or after 10,000 bales.

9.9 Net brake adjustment

(See 'Net tension adjustment')

The net brake is designed to prevent net run-on and is applied immediately the net knife trips. If problems exist with net run-on, or if net is being drawn into the chamber while baling, then it is likely that the brake needs adjusting.



WARNING: Ensure safety before working on brake adjustment

Before attempting to carry out brake adjustment, ensure that the tractor engine has been switched off, the key removed and the brakes applied.



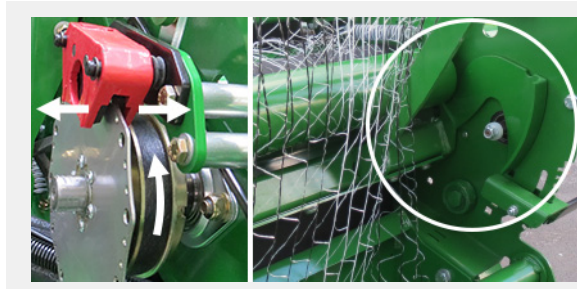
WARNING: Wear proper safety equipment & follow all instructions

Always wear protective clothing and gloves, beware of sharp edges! Caution must always be taken when making adjustments in this area as the netter knife is extremely sharp!

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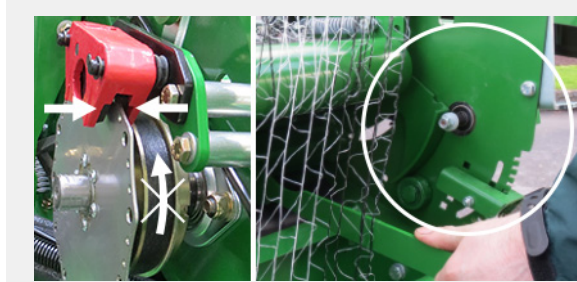
After every 1,500 to 2,000 bales, a quick check should be carried out as follows:

Firstly tension must be removed from the inner belt.



A. Net knife reset: The brake should be off in this position. Disc moves freely.

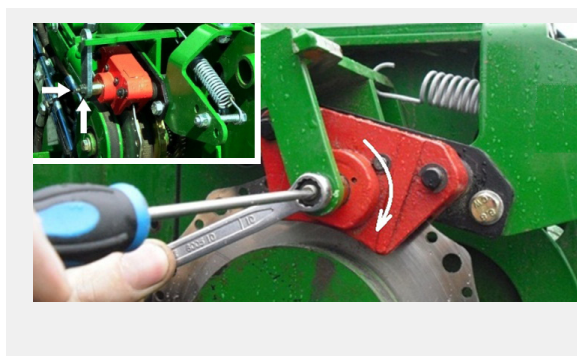
With the net knife in the re-set position as shown, it should be possible to rotate the brake disc freely, without the brake causing any noticeable drag.



B. Net knife tripped: The brake should be on in this position. Disc is locked.

With the net knife in the tripped position as shown, it should not be possible to rotate the brake disc, without exerting a lot of force.

If the above conditions are not met, then adjust using the following procedure:

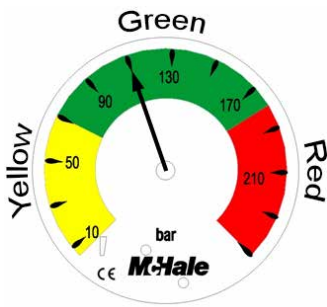


C. Adjustment: Insert a flat blade screwdriver in the screw slot and use a 10 mm spanner to loosen off the M6 nut, as shown. Then using the screwdriver turn the screw clockwise to tighten (apply the brake sooner) and anti-clockwise to loosen (back the brake off). Adjust the brake using only a ¼ turn at a time, as it is quite sensitive.

The brake should be set so that it is as close to the disc, as possible, without causing any drag. Tighten the M6 nut, holding the screwdriver in screw slot to stop it turning.

After performing an adjustment, carry out above checks at A and B to ensure brake is fully off, at step A and fully on, at step B. If not, repeat adjustment C until conditions at A and B are satisfied. A small movement of the brake arm should apply the brake fully. Finally, re-tension the inner belt.

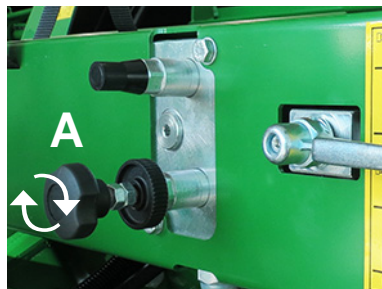
9.10 Bale density gauge



The bale density gauge, is used to indicate the pressure applied to the back door rams (on the small side of the rams). When the back 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 210 bar, if it does consult your **McHale** dealer.

9.11 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. The adjustment range to operate in is within the green zone. When baling drier materials such as straw or hay **McHale** recommend adjusting the door sensor handle to the hay-straw setting. Chamber pre-charge pressure is set at the door charge valve, shown below, and is located in front of the platform on the LHS of the machine.



Door charge valve



CAUTION: Never adjust chamber pre-charge pressure above 170 bar

The chamber pre-charge pressure should never be adjusted above 170 bar pressure in any case, damage to machine components may result!

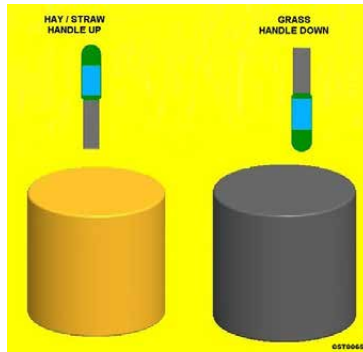
1. Remove all unfinished and finished bales from the baling chamber.
2. Loosen the lock nut on the adjustment screw (A).
3. Inspect the existing pre-charge pressure by holding the spool to close the back door for 3 seconds.
4. If pressure must be increased (gauge in the yellow zone) turn the adjustment 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.

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The grass-silage/hay-straw door sensor handle is located inside the right-hand side door panel, close to the door hinge. The bale chamber features a quick adjustment sensor position plate. This allows for a quick change to lower density bales as required for hay and straw, without any need to adjust the chamber pre-charge pressure. In effect, it limits the level to which the chamber pressure will climb above the pre-charge pressure during baling of hay and straw.



Hay & straw position
(handle up)



Handle up/down decal



Grass & silage position
(handle down)

9.12 Bale size adjustment

McHale recommend that the bale size should be between 1.25 m and 1.29 m. The bale size may vary depending on density setting, crop volume intake, chop length, stopping distance, netter settings, amount of net applied and bale size sensor adjustment.



CAUTION: Bale size should never exceed 1.29 m

Bales with a bale size in excess of 1.29 m in diameter may result in damage to the net on the bale.

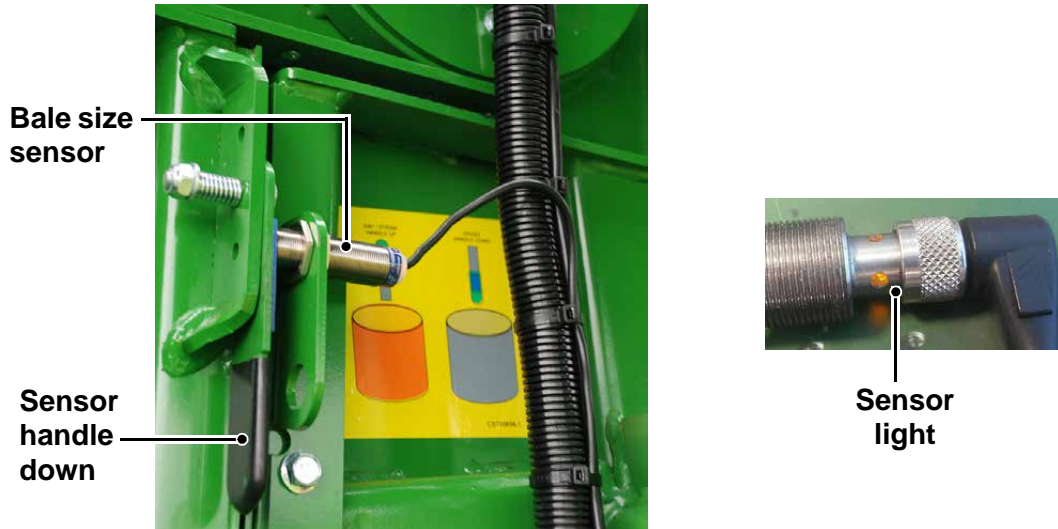
Should the bale size be greater than 1.29 m, then the bale size sensor will need to be adjusted away from the sensor handle. (See the following image)



NOTE: Minimal adjustment has significant effect

Minimal adjustment of this sensor can have a significant affect on the size of the bale. This sensor may need to be adjusted a few times in order to achieve the correct bale size.

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CAUTION: Only adjust the sensor with chamber door closed & handle down

Only adjust this sensor with the chamber door closed and the door sensor handle in the down position, as shown.

After adjusting the sensor, the light on the back of the sensor must be on. If there is no light on the sensor after adjustment, then the sensor is out of range and must be adjusted towards the sensor handle, until the light on the back of the sensor lights up.

9.13 Brakes (Air/Hydraulic) (if fitted)

Machines fitted with brakes, either air or hydraulic, must be initially checked after the first 50 hours of use and every 100 hours or yearly thereafter (whichever comes first).



WARNING: Ensure safety before working on brake adjustment

Before attempting to carry out brake adjustment, ensure that the tractor engine has been switched off and the key removed. Testing should be conducted with the handbrake 'off' on both the machine and the tractor and a second trained person will be required to activate brakes from the tractor. Also ensure machinery can't roll by parking machinery on level ground with wheels chocked. Always wear protective clothing and gloves.

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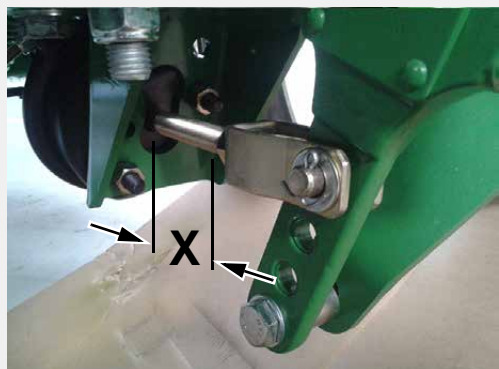
The following is the procedure for checking brakes:



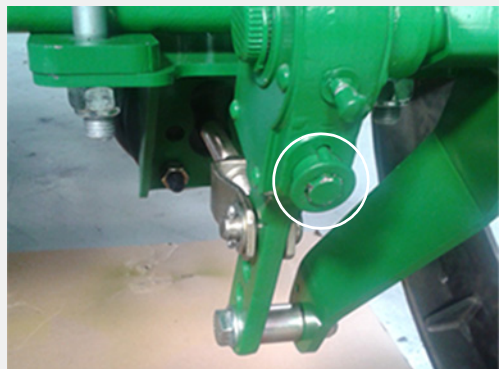
1. Check dimension 'X' before applying brakes and again when brakes are applied. The value for 'X' should be between 12 and 18 mm.

On hydraulic brakes (top picture) this is usually the amount of exposed chrome visible on cylinder rod.

On air-brake systems (bottom picture), some fixed reference point must be used to measure the actuator movement.



2. If the value for 'X' is not within this 12 to 18 mm range, then the brake can be adjusted using the adjuster screw, as shown. Using a 14 mm spanner, turn the adjuster screw clockwise to reduce the value and anti-clockwise to increase. Apply the brake again to check the measurement and repeat this procedure until the movement is within the designated range.



3. Ensure the spring-loaded locking collar is returned, to the locked position, to prevent any further movement of the adjuster screw.

Repeat the procedure for both sides of the machine and ensure brakes are being applied evenly. Both sides should be adjusted as closely as possible to the exact same value.

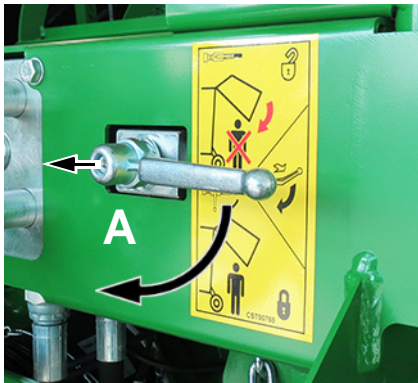
9.14 Chamber door lock

The chamber door lock is to be used, at all times, when the operator wants to enter the chamber. The lock is located in front of the platform on the left 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.



Chamber door lock

To lock, pull lever (A) forwards and rotate down 90°, to the left vertical position.



9.15 Adjusting pick-up float springs

The spring retained collars which are used to adjust the pick-up float springs are located on either side, underneath the chopper unit. To adjust, follow the procedure below:

1. Using the tractor spool handle, hydraulically raise the pick-up, 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. The method of adjustment can be either Type A or Type B, which are shown below.
 - (a) **Type A:** Loosen the collar by slacking off the bolts, then tap the collar in the direction (R) if increased float is required, or in direction (F) if less float is required. Remember to fully tighten the bolts on the collar when adjustment is complete.
 - (b) **Type B:** Loosen the collar by moving the circlip to another groove. The ram body on type B has a series of grooves allowing the circlip and collar to be moved at 10 mm intervals of adjustment. Tap the collar in the direction (R) if increased float is required, or in direction (F) if less float is required. Ensure circlip is positioned fully in the nearest groove to

McHale F5400 Baler

complete adjustment. For normal ground conditions, the circlip should be positioned on the 7th groove.

4. Lower the pick-up reel. Both left-hand and right-hand 'float spring' rams should be adjusted in exactly the same way so that the load is balanced and equal.



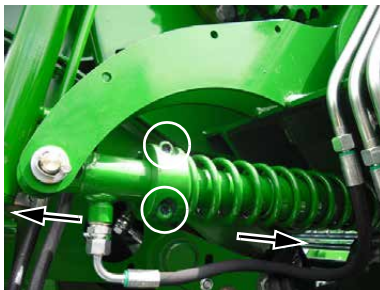
NOTE: Adjustment should enable the pick-up to drop completely

This adjustment should enable the pick-up 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).

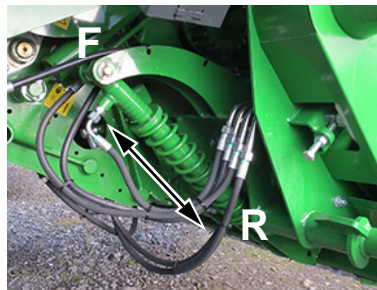


NOTE: Additional spring force required when operating at heights

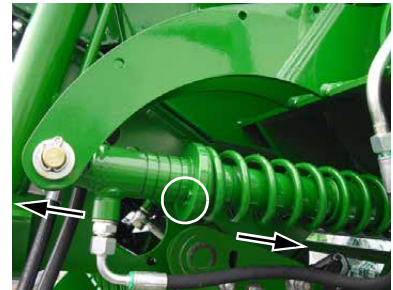
If operating at heights other than the fully lowered position, then additional spring force will be required to obtain adequate float, i.e. move the collar in direction (R).



Type A



Adjustment of pick-up float springs



Type B



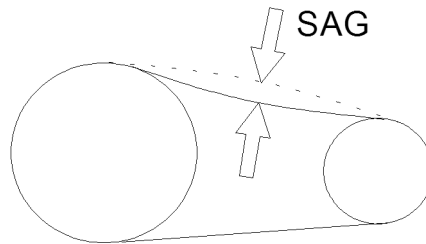
WARNING: Ensure spool control lever is in the 'float' position

When baling with this machine, 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 contours.

9.16 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.

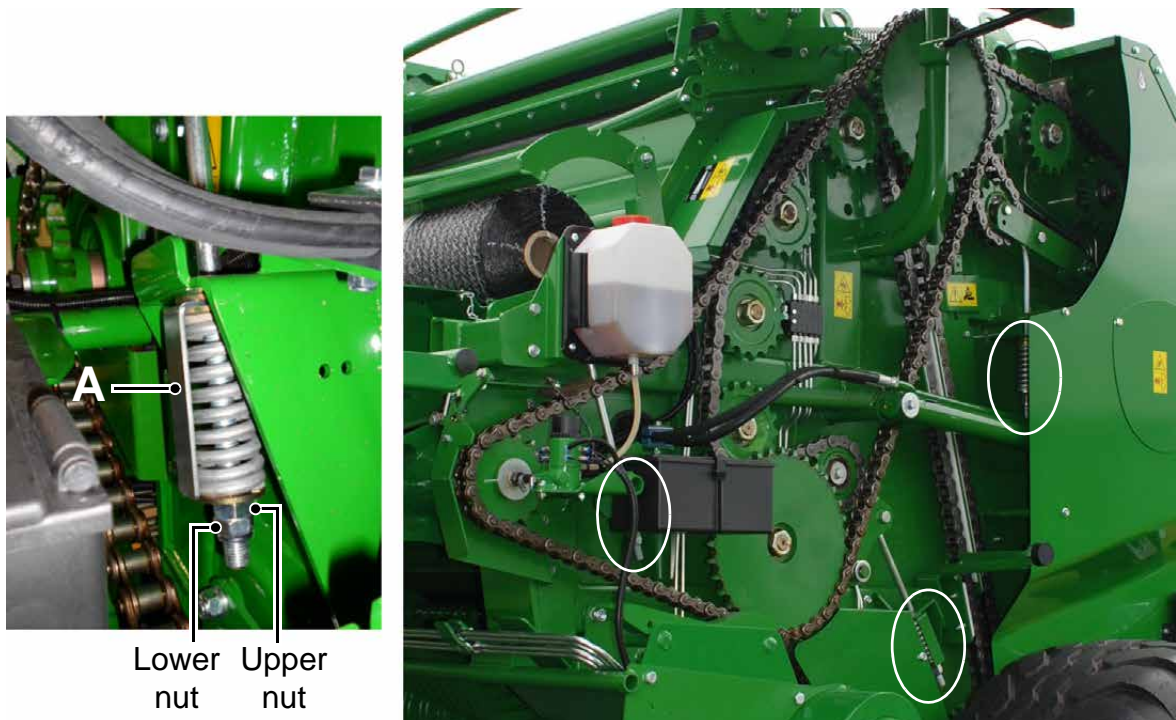
The sag is measured at the midpoint of the chain between the sprockets. Always ensure one side of the chain is tight so that the correct reading is obtained. Even though some drives differ in detail the basic adjustments stay the same.



The following chains will require an inspection for sagging after the first 500 bales and must be inspected once per 1,000 bales after that.

9.16.1 Main drive chain adjustment

To adjust all three drive chains, the following tools are required; two 24 mm spanners.

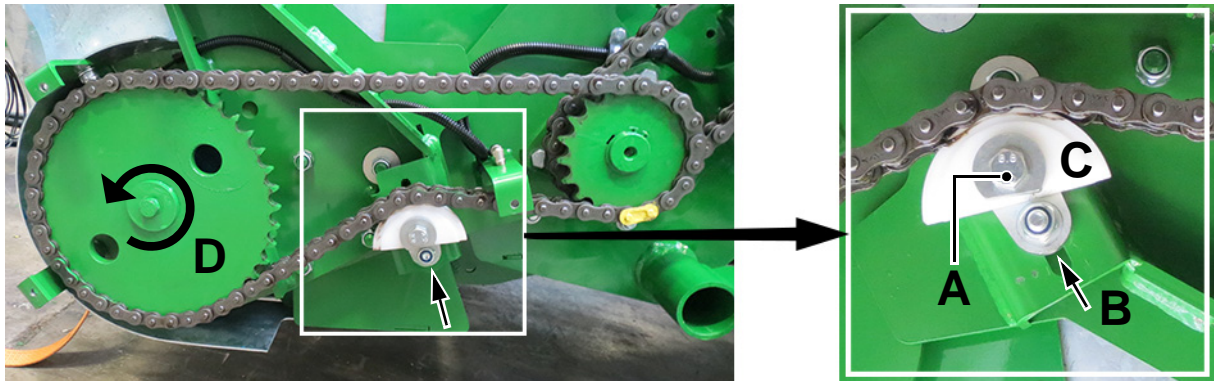


Hold the upper nut and loosen the lower nut. Adjust the upper nut until compression of spring has reached the same length as spring guide (A). Spring guide (A) is an indicator only and always inspect chain tightness after adjustment, as greater spring compression may be required, due to chain wear, chain damage etc. Lock the two nuts together to secure in place. Perform the procedure for all three tensioners outlined.

9.16.2 Pick-up reel tine chain adjustment

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

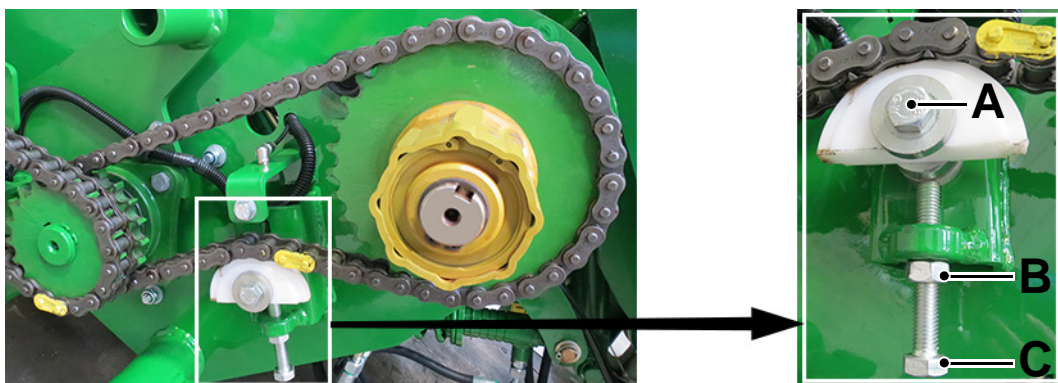
1. Loosen (A) and turn tine sprocket (D) anti-clockwise, as shown below.
2. Apply upward pressure (along slot B) to nylon chain slide (C), while continuing to hold sprocket (D) in position.
3. Tighten (A) and ensure that sagging is kept to a minimum.



9.16.3 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.

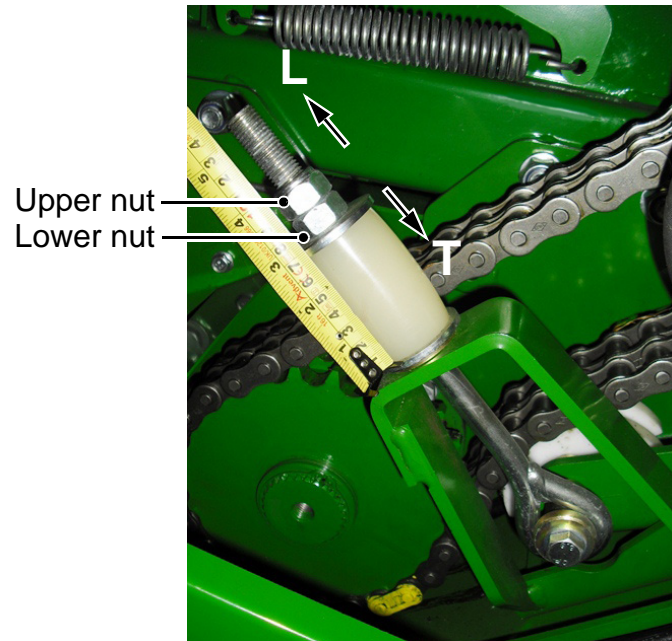
1. Using 17 mm tools, loosen (A) anti-clockwise by approx.1 turn.
2. Using a 19 mm spanner, loosen locknut (B).
3. Tighten setscrew (C) until there is little or no sagging of the chain and retighten bolt (A).
4. Retighten locknut (B).



9.16.4 Rotor duplex chain adjustment

To adjust the duplex chain the following tools are required; two 24 mm spanners.

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.



10

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 and may not be available on every machine. They are only correct at the time of print and may vary.

Key symbols	
Standard equipment	●
Optional equipment	⊙

10.1 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.

10.2 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. This is raised and lowered by means of a crank handle.

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.

10.3 Brake options



Hydraulic brakes

This system utilises one hose for connection to the tractor's hydraulic brake coupling. This is the most common braking 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!

10.4 Tyre options

Type	Details	Part No
A <input checked="" type="radio"/>	Vredestein 13.5/75 - 430.9	CWH00072
B <input type="radio"/>	Vredestein 500/50 - 17 (Flo +)	CWH00051
C <input type="radio"/>	Vredestein 460/65 - 20	CWH00083
D <input type="radio"/>	BKT 500/50 - 22.5	CWH00058
E <input type="radio"/>	Vredestein 520/55 - R22.5 (Flo Trac)	CWH00087

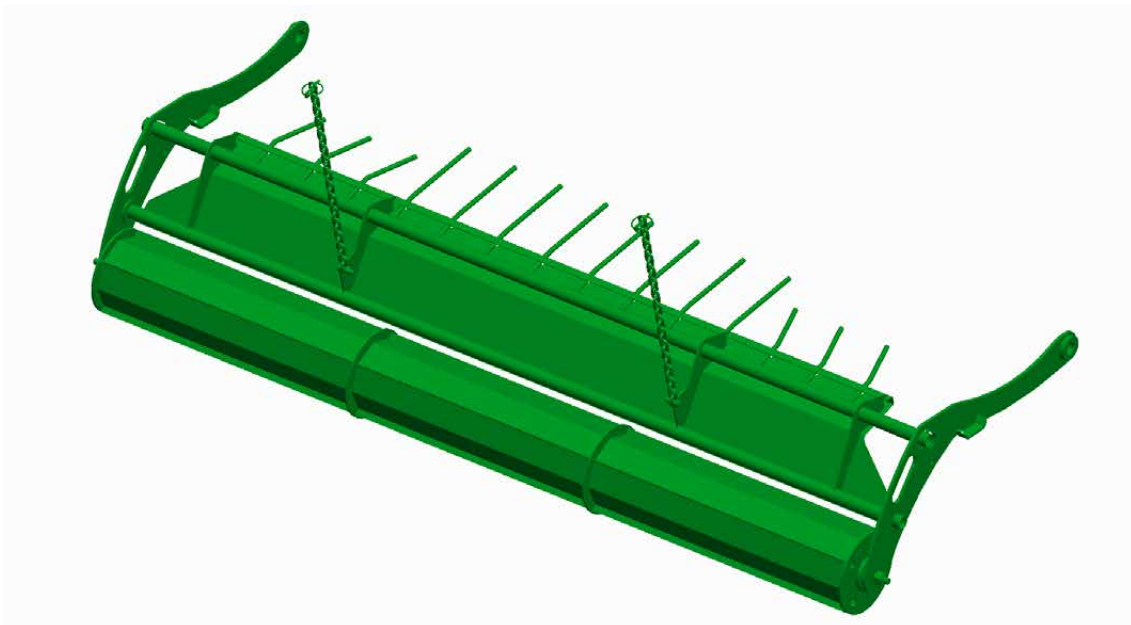
10.5 Heavy duty PTO shaft

The heavier duty PTO shaft has a longer greasing interval (60 hrs) and heavy duty profile tubing.



10.6 Crop roller

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



11

Machine maintenance

To maintain the machine 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.

Replace any electrical or hydraulic devices immediately, at the first sign of malfunction or failure, as these components affect the functionality, sequencing and thus safety of operation. Never use a machine where a malfunction exists! Contact your **McHale** dealer to achieve a solution. Always think 'Safety First'!



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.

11.1 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 gearbox oil (*See 'Gearbox oil'*)
- Carry out adjustment of chopper unit duplex chain. Inspect all other chains. (*See 'Chain adjustments'*)

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Every day

- Check wheel nuts
- Check all guards and safety devices
- Check road traffic equipment
- Check for any oil leaks and damaged pipes
- Grease 3 x heavy duty grease points on PTO shaft
- Fill chain oil reservoir (300 bales approx.)
- Grease chamber rollers (*See 'Greasing system'*)
- Grease rotor bearings
- Grease chamber door hinge points
- Check all chain adjustments, and adjust as necessary (*See 'Chain adjustments'*)

Every week

- Grease pick-up reel bearings
- Check for correct air pressure in the tyres
- Grease 5 x standard duty grease points on PTO shaft (*See 'PTO shaft adjustment & maintenance'*)
- Check the belt tension on the netter unit (*See 'Net tension adjustment'*)

Every month

- Grease pick-up reel shaft bearings
- Grease pick-up cam clutch
- Check sufficient oil level in the gearbox (*See 'Gearbox oil'*)

Every year

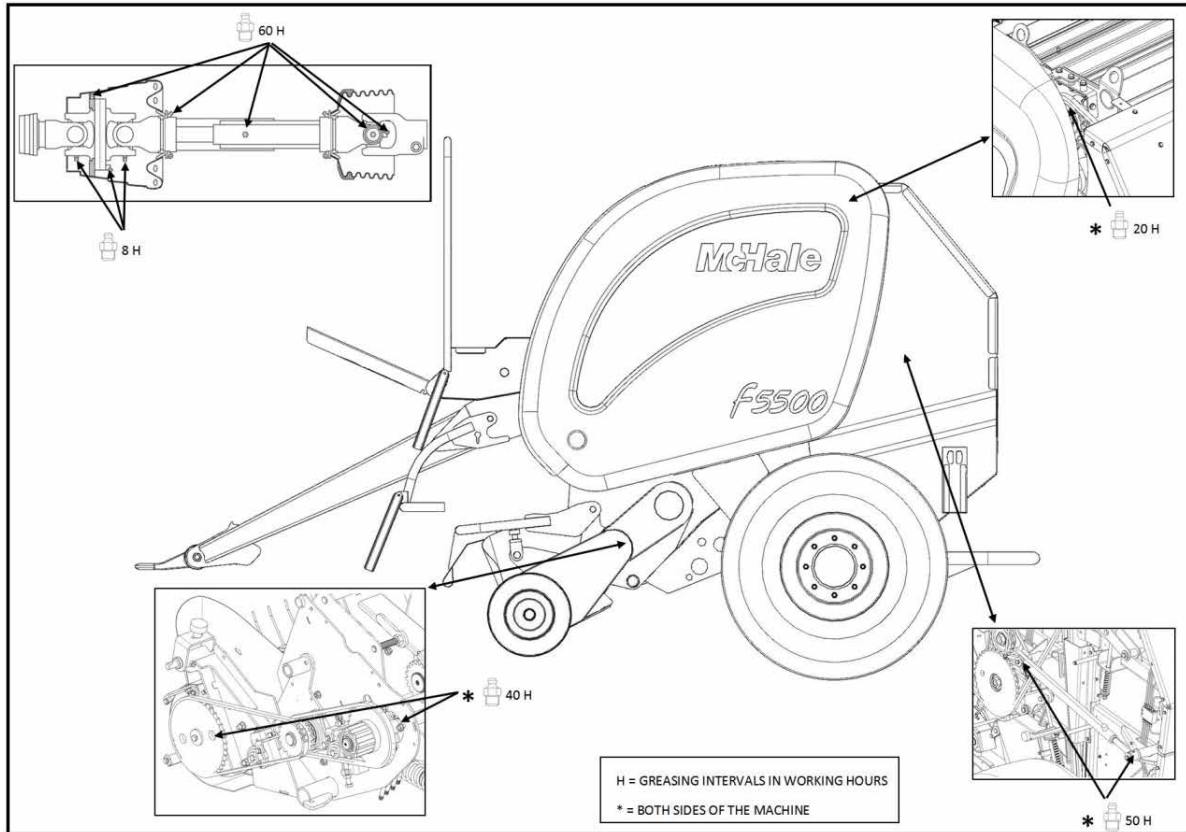
- Clean and lubricate all moving parts of the netter unit
- Drain and change gearbox oil (*See 'Gearbox oil'*)

At the end of the season the machine should be washed and cleaned.

Carefully clean all machine sections, inside and out. Dirt and foreign objects are likely to draw moisture and cause rusting of steel components. **McHale** recommend that the machine be blown down with an air line, as opposed to a pressure washer, due to the dangers involved with pressure washing and to protect the overall paint work on the machine. If, despite our advice, a pressure washer is used then take extreme caution and operate from ground level only. Do not point pressurized water at or near electrical components, pivots points, valves or bearings. Never climb onto any part of the machine, while pressure washing, due to the fact that all metal surfaces become extremely wet and slippery and always ensure that the tractor has been shut down, with the ignition key removed.

Any damaged paintwork should be touched up. Any maintenance or repairs should be carried out at this stage. The electronic control box is not waterproof, so it must always be stored in 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'*)

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Greasing diagram

Additional greasing needs to be carried out as shown. This decal is mounted inside the door panel on the left-hand side of the machine. (CST00743)



ENVIRONMENT: Health and safety rules for the environment

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.

11.2 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. Torque values are in Nm (Newton metres).

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	1,080
	M27	980	1,400	1,650
	M30	1,260	1,800	2,160
	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	1,000	1,200
	M27 x 2	1,050	1,500	1,800
	M30 x 2	1,450	2,050	2,500
NOTE:	For nuts and bolts from different materials and/or surface finishes a torque value must be used that is lower than the value stated above.			

12

Storage

12.1 End of season

- Carefully clean all machine sections, inside and out. Dirt and foreign objects are likely to draw moisture and cause rusting of steel components. **McHale** recommend that the machine be blown down with an air line, as opposed to a pressure washer, due to the dangers involved with pressure washing and to protect the overall paint work on the machine. If, despite our advice, a pressure washer is used then take extreme caution and operate from ground level only. Do not point pressurized water at or near electrical components, pivots points, valves or bearings. Never climb onto any part of the machine, while pressure washing, due to the fact that all metal surfaces become extremely wet and slippery and always ensure that the tractor has been shut down, with the ignition key removed.
- Remove the control box from the tractor and store in a dry, safe environment.
- Clean the net wrapping system (*See 'Care of the net wrapping system'*). Remove net roll and store, as per manufacturer's instructions. Grease the net knife 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 run PTO at approx. 200 rpm for 10 to 15 minutes, to ensure that all chains have a heavy coating of oil applied. Apply grease to all grease blocks/points to ensure new grease is pumped into the bearings.
- Pump grease into grease points in all other areas to ensure all bearings and joints are well lubricated.

12.2 Start of season

- Fully review this operators instruction manual.
- Check and fill gearbox oil level, if necessary. (*See 'Gearbox oil'*)
- Lubricate all pivot points.
- Tighten all bolts, nuts and setscrews. (*See 'Tightening torque values'*)
- Check air pressure of all tyres. (*See 'Tyre inflation pressures'*)
- Connect control box and inspect for correct operation of all functions. (*See 'Electronic control system'*)
- Inspect and modify, if necessary, all machine adjustments. (*See 'Field operation & machine adjustments'*)
- Check net wrapping adjustments and inspect net knife for sharpness, ensure to wear protective clothing whenever working in this area! Remove the grease from the net cutting knife. (*See 'Care of the net wrapping system'*)
- Fill chain oil reservoir with chain oil and run PTO at approx. 200 rpm for 10 to 15 minutes, to ensure that all chains have a heavy coating of oil applied. Apply grease to all grease blocks/points to ensure new grease is pumped into the bearings.
- Pump grease into grease points in all other areas to ensure all bearings and joints are well lubricated.

13

Troubleshooting

13.1 Troubleshooting 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.

13.1.1 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')

13.1.2 PTO slip clutch going off easily

Symptom	Reason	Solution
PTO slip clutch going off easily	Rotor chain loose	Tighten the rotor chain and check, as specified
PTO slip clutch going off easily	Poor swath preparation	Prepare the swath in line with the recommendations in the machine setup (See 'Swath preparation')
PTO slip clutch going off easily	Chamber pressure / ground speed too high	Reduce

13.1.3 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 McHale dealer

13.1.4 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 McHale dealer)

13.1.5 Issue with bale quality/density

Symptom	Reason	Solution
Issues with bale quality/density	When closing the door the spool is moving into the float position, as a result the chamber is not being pressurised	Attach the door functions to the tractor spool without a float position
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 chamber door lower closing point	Clean away loose crop. Use extreme caution!
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')

13.1.6 Net not feeding during an automatic cycle

Symptom	Reason	Solution
Net not feeding during an automatic cycle	Control box is in manual mode	Switch the control box to Auto mode
Net not feeding during an automatic cycle	Net knife has tripped	Manually reset the net knife (<i>See 'Net length adjustment setting'</i>)
Net not feeding during an automatic cycle	Bad power supply to control box	Check power source
Net not feeding during an automatic cycle	Faulty net knife sensor	Contact McHale dealer
Net not feeding during an automatic cycle	Faulty clutch / belts loose or worn	Contact McHale dealer

13.1.7 Net slipping on the rubber roller

Symptom	Reason	Solution
Net slipping on rubber roller	Net brake bar too tight	Decrease the tension by increasing the number of links on the chain on the drive side.
Net slipping on rubber roller	Roller drive belts loose or worn	Tighten the belts using the idle pulleys
Net slipping on rubber roller	Steel rollers tension not tight enough	Increase tension by adjusting the springs behind the steel rollers

13.1.8 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
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

13.1.9 Net not cut correctly

Symptom	Reason	Solution
Net not cut correctly	Net tension is too loose as it passes into netter	Adjust net tension system
Net not cut correctly	Not enough tension on the net roll in the net box	Remove any crop build up around the spring. Check the tension springs. Adjust or replace, if necessary.
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)

13.1.10 Drop floor won't move (up or down) - pick-up moves

Symptom	Reason	Solution
Drop floor won't move (up/down)	Faulty hydraulic valve	Contact McHale dealer
Drop floor won't move (up/down)	Low power supply to the control box	Check power source

14

Certification & Warranty

14.1 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. *(See 'Declaration of Conformity')*

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

14.2 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
- Hydraulics, electrics and lighting are working
- New owner has been instructed on how to operate & maintain the machine

The PDI is included in this operator manual. *(See 'Pre-delivery inspection form')*

14.3 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.

14.4 Limited Warranty

Limited Warranty conditions are supplied with each **McHale** product. They cover the terms & conditions associated with abnormal failure under normal working conditions. *(See 'McHale Limited Warranty')*

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 for making round bales of agricultural fodder.

Model: F5 _____ **Serial Number:** 71 _____

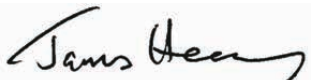
Name of Manufacturer: McHale Hungária Kft.
Address: 5000 Szolnok, Tószegi út 47, Hungary.

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:** Szolnok, Hungary
Name: László Kovács
Position: Quality Manager



Pre-delivery inspection form

	
PRE-DELIVERY INSPECTION (PDI)	
Dealer:.....	Model: F5 & V6 balers
Full address:.....	Serial No:.....
.....	Date delivered:.....
Fitter:.....	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 INSTRUCTION MANUAL BEFORE MAKING ANY ADJUSTMENTS!	
This machine must be registered on www.mchale.net by the dealer in order to qualify for warranty!	
1. Check that all accessories are with the owner/operator. Check Operators Instruction Manual and Parts Lists.	9. Ensure that the control-unit is on the correct program to suit the machine specification.
2. Ensure machine is re-assembled correctly. (Refer to all assembly instructions supplied)	10. Check both Manual and Auto functions on the control box. Run machine through automatic cycle on the control unit.
3. Ensure that the wheels are correctly fitted (i.e. valve to the outside). Torque wheel nuts correctly.	11. Check for smooth operation of the pick-up reel when machine is run at 540 rpm.
4. Check for correct tyre type, tread and pressure. (Tyre inflation pressure is ● 1.65 bar (24 psi) ● 2.07 bar (30 psi))	12. Check that all electrics and lights function correctly.
5. Hitch machine to tractor, then connect PTO shaft. Adjust PTO length if required.	13. Ensure netter operation and netter-knife are operating correctly.
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.	14. 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 is fitted where required.	15. Ensure that the owner/operator reads the operator instruction manual and understands fully all safety & operating aspects of the machine, as described.
8. Ensure control-unit power supply is 12 V direct from battery otherwise the machine may malfunction.	16. Instruct operator on machine maintenance i.e. check chain tensions, adjustments, tyre pressure and wheel nuts, also areas to be greased daily and oiler/greaser functions.
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:.....
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 F5400 Baler

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.