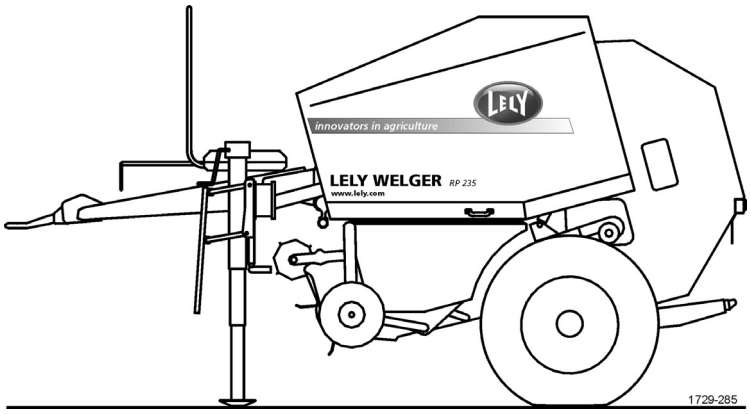
LELY WELGER

RP 235



RP 235

1729.99.03.01 07.04

GB Operating Manual

www.lely.com

innovators in agriculture

Handover declaration 1 (Copy for the Manufacturer)

Complete this document after machine has been delivered and send it back to the manufacturer. Possible guarantee requests can not be handled before this document has not been send back.

Send back to:
Lely International N.V.
TSS (Technical Service Support)
Postfach 1965
D-38289 Wolfenbüttel

Date of delivery:	
Machine type:	**RP 235**
Machine No.: (see data plate: #) (e. g. 1729.00.001)	

☐ Pick-up 2.00 m
☐ 13-knife cutting device
☐ Twine tying
☐ Balercontrol E
☐ Bottom door, fixed
☐ Pick-up 2.25 m
☐ 17-knife cutting device
☐ Net tying
☐ E-LINK
☐ Bottom door, hydraulic
☐ 25-knife cutting device
☐ Twine- and net tying

Customer's address

Name:			
Street:			
Zip-Code:		City:	
Country:			
Fon:		eMail:	

I purchased/use this machine. The operating manual including the EC-conformity declaration was hand-over to me when the machine was delivered. I was clearly instructed in the safety-, operating-, and maintenance instructions of the machine.

....
Date Signature of the customer

Address of the agent

Company seal / Signature

Address of the importer

Company seal / Signature

....
Date Signature of the customer service representative

Handover declaration 2 (Copy for the Customer)

Complete this document when the machine is delivered and keep it.

Date of delivery:	
Machine type:	**RP 235**
Machine No.: (see data plate: #) (e. g. 1729.00.001)	

- ☐ Pick-up 2.00 m
- ☐ Pick-up 2.25 m
- ☐ 13-knife cutting device
- ☐ 17-knife cutting device
- ☐ 25-knife cutting device
- ☐ Twine tying
- ☐ Net tying
- ☐ Twine- and net tying
- ☐ Balercontrol E
- ☐ E-LINK
- ☐ Bottom door, fixed
- ☐ Bottom door, hydraulic

Address of the agent

Company seal / Signature

Address of the importer

Company seal / Signature

..... Date

..... Signature of the customer service representative

Handover declaration 3 (Copy for the Trader)

Complete this document when the machine is delivered and keep it.

Date of delivery:	
Machine type:	**RP 235**
Machine No.: (see data plate: #) (e. g. 1729.00.001)	

☐ Pick-up 2.00 m
☐ Pick-up 2.25 m
☐ 13-knife cutting device
☐ 17-knife cutting device
☐ 25-knife cutting device
☐ Twine tying
☐ Net tying
☐ Twine- and net tying
☐ Balercontrol E
☐ E-LINK
☐ Bottom door, fixed
☐ Bottom door, hydraulic

Customer's address

Name:			
Street:			
Zip-Code:		City:	
Country:			
Fon:		eMail:	

Address of the importer

Company seal / Signature

....
Date Signature of the customer service representative

Handover declaration 4 (Copy for the Importer)

Complete this document when the machine is delivered and keep it.

Date of delivery:	
Machine type:	**RP 235**
Machine No.: (see data plate: #) (e. g. 1729.00.001)	

- ☐ Pick-up 2.00 m
- ☐ Pick-up 2.25 m
- ☐ 13-knife cutting device
- ☐ 17-knife cutting device
- ☐ 25-knife cutting device
- ☐ Twine tying
- ☐ Net tying
- ☐ Twine- and net tying
- ☐ Balercontrol E
- ☐ E-LINK
- ☐ Bottom door, fixed
- ☐ Bottom door, hydraulic

Customer's address

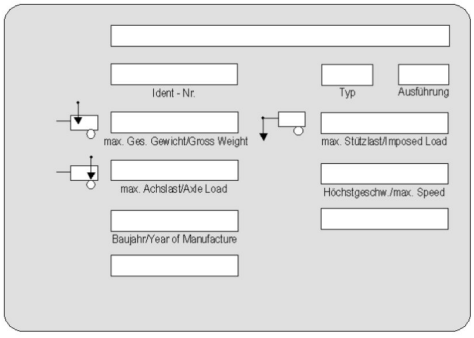
Name:			
Street:			
Zip-Code:		City:	
Country:			
Fon:		eMail:	

Address of the agent

Company seal / Signature

..... Date

..... Signature of the customer service representative

The **serial number** is shown on data plate on the right machine side, as shown aside. Warranty claims and queries cannot be dealt with unless the serial number is stated. Please enter this number here immediately after delivery:	

⚠ Read and heed the operating instruction and safety instructions prior to commission the machine. In this operating instruction all positions required for safety reasons are marked with a warning sign. Instruct all other operators in safety instructions! The warning- and information signs located at the machine give information for safe operation. Watch them for safety reasons!

* Please watch, that the equipment marked with a [*] in this operating instruction, belong only to defined types of the machine or that they are only deliverable for defined types as additional equipment.

WELGER

Maschinenfabrik GmbH

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eMail: wmf@welger.com

TABLE OF CONTENTS

1. Type Overview

Drawbar	D8 – Open-type towing fixture / Tow hitch
	D8 – Hitch
	D8 – Drawbar eye
	D8 – Ball-shaped coupling ∅ 80 mm

Pick-up width	2.00 m
	2.25 m

Roller lubrication	Default
	manual roller lubrication
	electrical roller lubrication

Cutting device	without cutting device
	MasterCut (13 knives)
	XtraCut 17 (17 knives)
	XtraCut 25 (25 knives)

Rotor	Ring type rotor (for 13 knives and for 17 knives)
	ProfiCut-Rotor (star type rotor)

Tying	Twine tying
	Net tying
	Combi tying (twine- and net tying)

Control / operation	Control box Balercontrol E	(with control Balercontrol E)
	Control box E-Link	(with control Balercontrol III)

Bottom door	Bottom door, fixed
	Bottom door, hydraulic opening and closing (HYDROFLEXCONTROL)

Table 1

2. It is for your safety

2.1. General safety instructions

 **Attention!** Even when all instruction have been watched there are residual dangers with the machine. Always handle the machine with care to avoid danger to yourself and others!

- Before starting work perform a visual inspection of the machine.. Check whether any device has been changed or is missing and pay attention to any unusual noise or leaks which occur during operation.
- All protective devices, as for example casing sheets, rubber skirts or distance brackets are for your safety! Never operate the machine with defective or removed protective devices e.
- Keep all safety relevant parts always in correct function. Before commissioning all guard casings must be mounted and closed!
- Never perform maintenance- and repair works during machine is in operation.
- In case of all work on movable parts or in the range of action of movable parts: Switch off power take-off shaft, switch off tractor engine, remove ignition key and disconnect drive shaft from power take-off shaft end. Interrupt electrical connection between tractor and machine.
- Bring no metal parts close to the machine, as long the electric control is in operation (e.g. tools, safety boots with metal caps). Reason: unintentional triggering of proximity switches and thus unexpected machine moves.
- When carrying out work on the opened tail gate: insert tail gate safeguard (chapter „2.4. Tail gate safeguard“).
- Never remove any crop material from the machine while the drive is running, or while the disconnected machine is still moving. Always switch-off power take-off shaft and tractor engine first.
- During work only the driver must be on the tractor. Riding on the machine is prohibited!
- Never step onto the maintenance platform during machine is in motion. Before stepping onto the maintenance platform: stop machine, switch-off power take-off shaft and tractor motor, take out ignition key and wait for standstill stand of the machine.
- Do not step onto the drawbar or other parts of the machine, when the machine is in operation. Keep sufficient distance to baler (pick-up, running gear, bale unloading area).
- Before threading the tying material: stop machine, switch-off power take-off shaft and tractor motor, take out ignition key and wait for standstill of the machine. Make the control powerless (disconnect electrical connection to the tractor).
- All protection devices must be mounted to the baler and must be in correct state. Prior to opening the protection devices switch-off power take-off shaft and tractor motor and wait for standstill of the machine.
- Block the wheels of the baler with wheel chocks when machine is parked. Carry the chocks on the machine when transporting it or during field use.
- When opening the tail gate keep a minimum distance of 2 m from electrical high-voltage lines.
- There is danger of cutting during works at the net knife or at the knives of the cutting device of the baler. Wear protective gloves.
- Works at the magnets of the knife holders: the function of cardiac pacemakers can be interrupted by magnetic fields.
- Works at the magnets of the knife holders: Danger of injury by splinters – never hit the inserted knives from down with a striking tool. Magnets could be damaged!
- Maintenance work may be carried out by trained persons only. All maintenance- and repair works that are not part of this operating instruction must be carried out by authorized personnel only.
- Replace wearing parts of the braking system only at both sides.
- Prior to disassembling the complete pick-up the machine must be secured against backward tilt.
- In case of locations on a slope: place the round bales always so that they cannot move automatically.

2.2. Noise level of tractors and machines

The EC directive 86/188/EEC (or EC directive 2003/10/EG) concerning noise at the workplace instructs employers and employees to assess noise at the place of work and to control it. The noise level during normal field work is subject to variations which depend on the one hand on the noise level of the tractor and on the other hand on the deployment conditions of the baler.

The noise level generated by the WELGER balers, measured at the head height of the driver with the tractor cabin window open, is, under normal operating conditions, less than 70 dB (A). The combined noise level of baler and tractor primarily depends on the level of the noise from the tractor (radios are an additional source of noise). We recommend that the tractor is operated with closed windows.

2.3. Fire prevention

Figure 1

The harvested crop can easily ignite! To prevent fire:

- remove crop remains and oil leaks.
- If any machine parts run hot: find and remove cause.
- Do not begin a journey with the machine attached unless the manually operated brake has been completely released. Otherwise there is danger of fire by brakes running hot (e. g. in the field).
- Keep the electrical systems of tractor and baler and the exhaust system of the tractor in proper condition.
- The existing wiring must not be used for any other consumers than those installed in the factory or approved by the manufacturer. Overloading the electrical lines leads to excessive heating.
- Do not smoke in the vicinity of the machine.
- Keep fire extinguisher within reach.

2.4. Tail gate safeguard

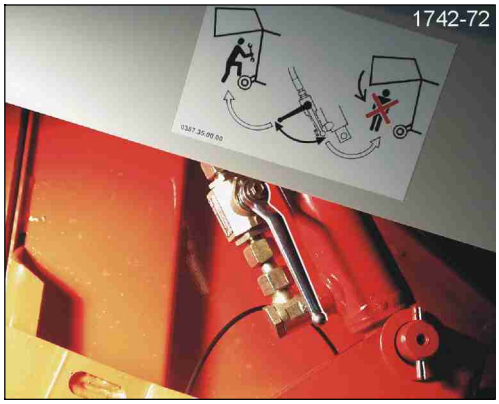


Figure 2

If any **short-time** maintenance or assembly work is carried out with the tail gate open, the tail gate must be hydraulically secured against lowering: use the shutoff valve (on the right in driving direction). When the valve is shut off, the actuating lever is at right angles to the flow direction (Figure 2).

In case of **longer** maintenance or assembly work with the tail gate open, the tail gate must (in addition to the hydraulic safeguard) be mechanically secured against lowering - using suitable means. This is necessary because, even if the hydraulic system is shut off, hydraulic pressure losses may still occur.

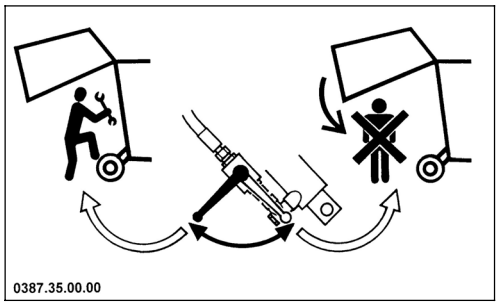


Figure 3

After completion of any maintenance and/or assembly work reset the valve to its initial position (along flow direction, Figure 3) and/or remove the mechanical safeguard.

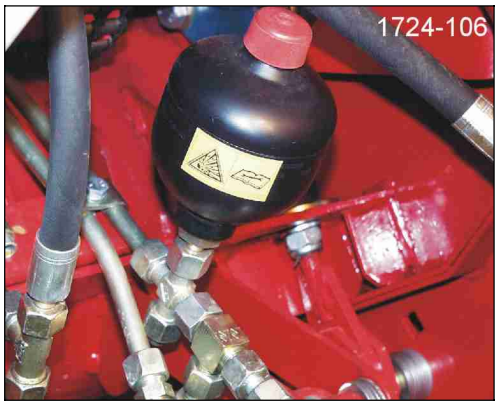


Figure 4

2.4.1. Hydraulic System

Max. operating pressure of the hydraulic system:

- 210 bar

During assembly work on the hydraulic system, in particular if accumulators are used (Figure 4):

- Depressurise hydraulic system
  (control unit to "Lower")
- Secure hydraulic operated parts (pick-up, cutting device) mechanically against unexpected movements.

According to DIN 20066 must hoses not be older than six years, including storage time.

2.5. Guard casings

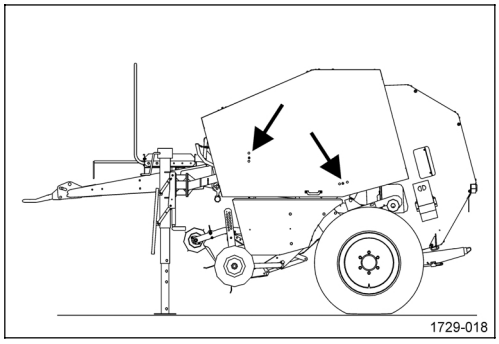


Figure 5

To open the guard casings on the machine, turn the catch concerned with a 13 mm spanner slightly in counter clockwise direction and pull off the guard casing from the machine.

- Catches at the left and right guard casing: Figure 5
- Catch at the front guard casing: Figure 6

For closing press the guard casing against the machine until the locking of the catches can be heard.

Attention, danger of injury! Never operate the machine with open guard casings!

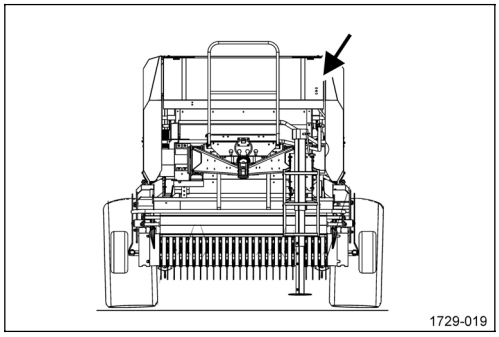


Figure 6

2.6. Maintenance Platform and Ladder

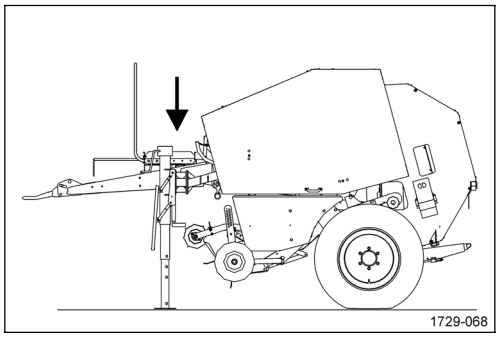


Figure 7

Attention, danger of falling! Never step onto the maintenance platform (Figure 7), while the machine is in motion. Before stepping onto the maintenance platform: stop machine, switch-off power take-off shaft and tractor motor and wait for standstill of the machine.

Step only via the ladder onto the maintenance platform and leave it the same way. Never step onto the hinged up ladder – always hinge down ladder prior to enter it.

To step onto the maintenance platform: Hinge down ladder (Figure 8).

Before machine can move on: Hinge up ladder (Figure 8) and lock it.

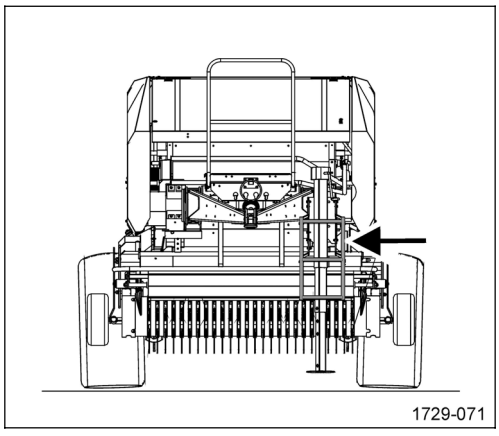


Figure 8

2.7.Symbols in this manual

Instructions of particular importance in this manual are marked by the following symbols and signal words:

Attention!
This symbol stands next to warnings: danger to life, danger of injury, possible serious material damage.

Caution!
This symbol stands next to safety instructions: malfunctions and impairments of correct operation, possible material damage.

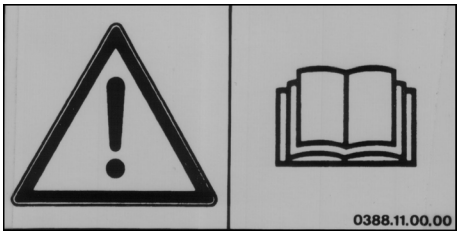
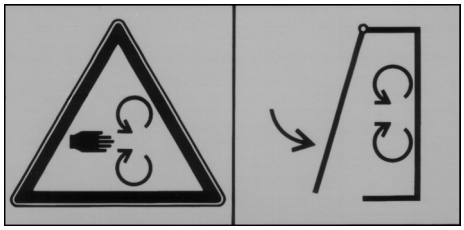
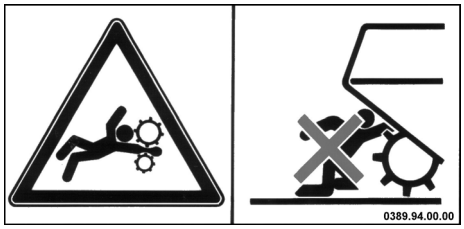
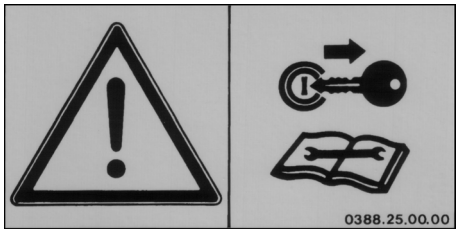
Note!
This symbol stands next to useful information: special information on how to use the machine most efficiently.

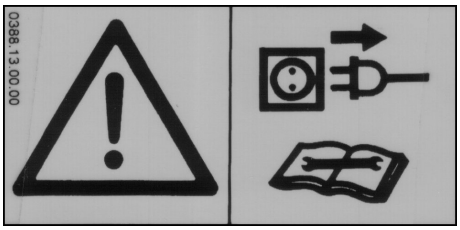
2.8. Warning symbols at the machine

2.8.1. Explanation of the symbols

Danger zones that can not be secured by construction are labelled with yellow warning symbols. Because they are without text in most cases the exact meaning is described in the following.

Note! The warning symbols must always be kept in recognisable state. If any warning symbols on this machine are missing or have been damaged, they must be replaced.

WARNING SYMBOLS	Meaning / Spare part No.
	Read and heed the operating instruction and safety instructions prior to commission the machine. Spare part no.: 0388.11.00.00
	Close guard casings prior to commissioning the machine! Spare part no.: 0389.92.00.00
	Never reach into the pick-up section when the tractor engine is running and the power take-off shaft is coupled. Spare part no.: 0389.94.00.00
	Switch-off motor and take out the ignition key prior to maintenance- and repair works. Spare part no.: 0388.25.00.00

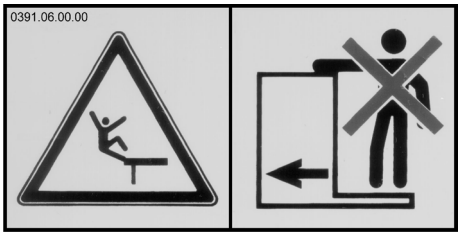


Switch-off motor and unplug the plug of the power supply prior to maintenance- and repair works.

Spare part no.: 0388.13.00.00

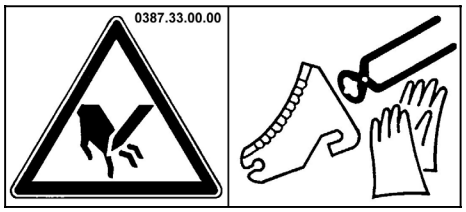
Stay clear of tail gate swinging area while in operation.

Spare part no.: 0389.93.00.00



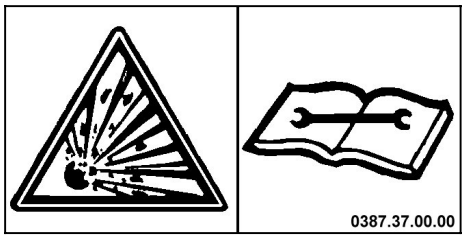
Riding onto the treads or the platform is not allowed.

Spare part no.: 0391.06.00.00



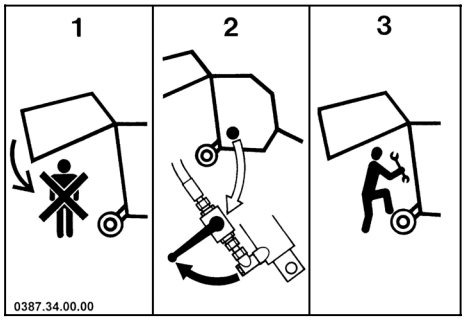
Handle cutting unit blade only with gloves and suitable tool

Spare part no.: 0387.33.00.00



The accumulator is under gas and oil pressure. Depressurise hydraulic system prior to disassembling or repair.

Spare part no.: 0387.37.00.00

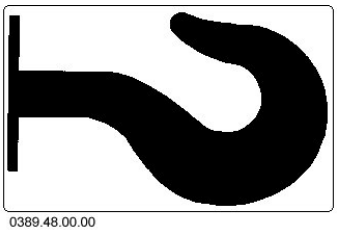
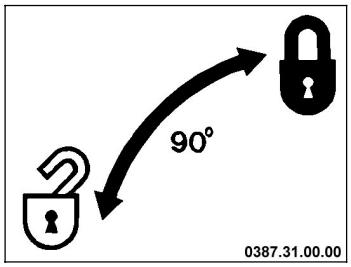
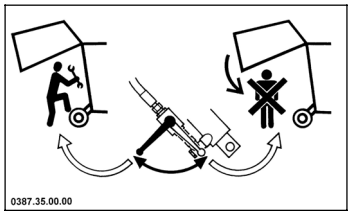
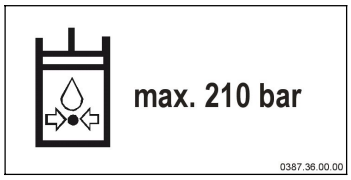
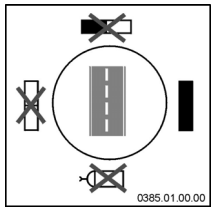


Activate tail gate safeguard prior to enter the roll chamber.

Spare part no.: 0387.34.00.00

2.9. Text-free operating instructions at the machine

The most important operating instructions are showed as symbols without text. The precise meaning is described in the following.

Symbols	Meaning / Spare part No.
	The two lift eyes at the upper traverse are indicated by this symbol. Other fastening points are not permitted for crane suspension. Spare part no.: 0389.48.00.00
 	Guard lever for cutting unit blade To unlock the cutting unit blade the lever must be turned down through about 90°. Spare part no.: 0387.31.00.00 and 0387.32.00.00
	Tail gate locking device If the lever is positioned at right angles to the flow direction, the tail gate is secured against lowering. Spare part no.: 0387.35.00.00
	Maximum permissible hydraulic pressure The machine may only be connected to a hydraulic system providing a maximum oil pressure of 210 bar. Spare part no.: 0387.36.00.00
	Adjusting the variable load valve For driving on the road, the variable load valve of the compressed-air brake must be set to "full brake force" [redacted]. Spare part no.: 0385.01.00.00

2.10. Proper use

- The machine is exclusively constructed for pressing bales from agricultural straw material lying on the floor (proper use). Using the machine for any other purposes does not constitute proper use. The manufacturer cannot be held liable for any damage resulting from such use; the risk of improper use lies entirely with the user.

- Operating the machine within the limits of its proper use also involves complying with the operating, maintenance and servicing conditions prescribed by the manufacturer.

- The machine may only be used, serviced and repaired by persons who are familiar with such work and instructed on the dangers involved.

- Attachment of additional equipment other than at the positions provided by the manufacturer is prohibited. Only additional equipment must be used that is allowed by the manufacturer.

- The relevant accident prevention regulations and all other generally accepted safety rules must be observed.

- Unauthorized modifications and installation of non-approved parts and equipment on the machine preclude any liability of the manufacturer for any damage resulting therefrom.

- The type approval, declaration of conformity and the CE sign loose their validity by changes at safety relevant part (e.g. brake and drawbar).

2.11. Electromagnetic compatibility (EMC)

The machine is equipped with electronic components and modules; the function of these electronic components and modules can be influenced by electromagnetic emissions of other equipment. Such influences can cause risks to persons, if the following safety instructions are not observed:

In case of subsequent installation of electrical and electronic equipment and/or components into the machine, with connection to the central mains, it is the user's responsibility to check whether the installation impairs the vehicle electronics or any other components.

Ensure above all that the electrical and electronic components subsequently installed are in conformity with the EMC directive 89/336/EEC as amended, and that they are provided with the CE.

2.12. To heed in the road traffic

Prior to drive on the road ...

… the roll chamber must be complete emptied (acc. to road traffic regulations);

… remove any crop material hanging loosely from the baler;

… connect drive shaft to tractor power take-off shaft;

… insert the spars of the bale ejector;

… the ladder of the maintenance platform must be hinged up and locked;

… connect lighting set of the machine to the tractor and check function (also at daylight);

… insert and secure pick-up guide wheels in upper position (pick-up width 2.25 m);

… fully release the manually operated brake. Otherwise there is danger of fire by brakes running hot (e. g. in the field).

… (only Balercontrol E) interrupt power supply (unplug), to interrupt the roller lubrication.

Prior to operate the baler with connected machine (e.g. round bale wrapper), obtain information from the manufacturer.

The wheel chocks (2 in number) which are part of the safety equipment are to be carried on the baler at all times.

Permitted maximum speeds of individual assembly groups (e.g. drawbar or axis) do not count for the allowed maximum speed of the total machine (see data plate on the right machine side). In this document only type relevant maximum speeds are listed. Any deviating national regulations must always be observed.

Pneumatic brake system*:

Do not begin a journey with the baler attached unless both coupling heads (yellow and red) are connected to the tractor and the pressure gauge in the tractor cabin shows the required operating pressure (5.0 bar).

Attention, danger of accident!
Prior to each journey pay attention to the lever position of the variable load valve of the pneumatic brake system. Wrong setting reduces the traffic safety (see chapter 4.5.1. Adjust variable load valve*).

Start driving on the road with connected baler only when the variable load valve is set to full load (see chapter 4.5.1. Adjust variable load valve*).

Hydraulic brake system:

Start driving on the road only when the according hydraulic tube is connected to the tractor.

Germany (StVZO – road traffic regulations):

Agricultural machines with permitted total weight of more than 3,000 kg need a type approval. (technical changes such as attaching a trailer coupling lead to loosing the type approval)

Prior to changes at the machine it must be solved, if the changes are permitted or if they can added to the documents by an expert.

Further heed the national regulations of the country where the machine is in use.

2.12.1. Specifications on the data plate of the machine

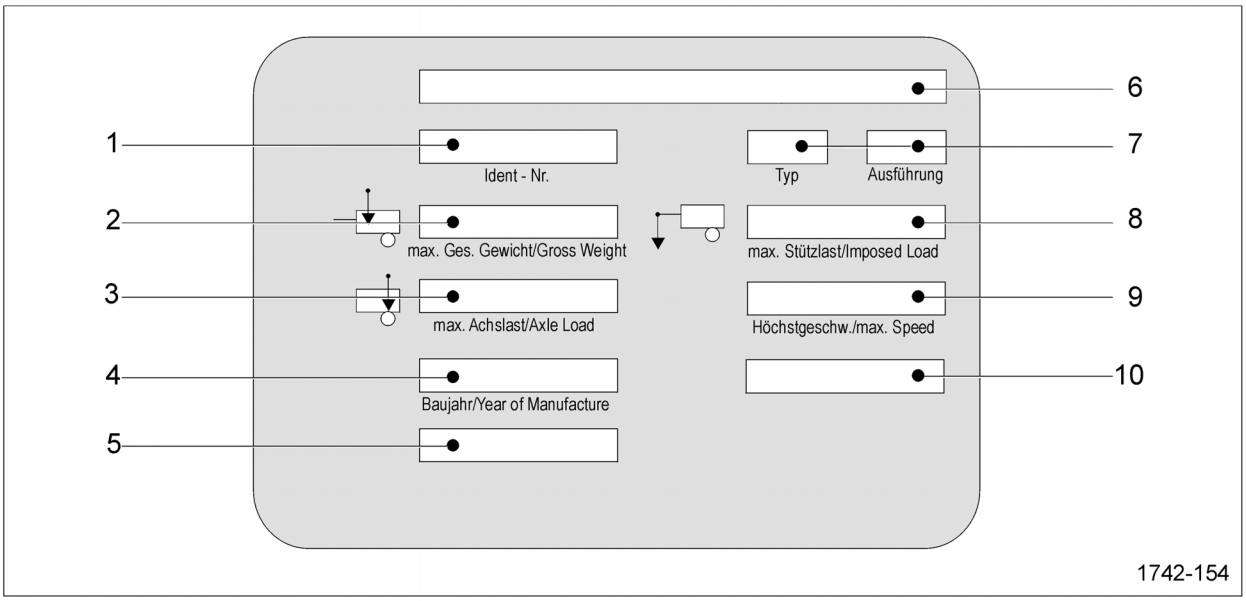


Figure 9

Item	Meaning
1	Machine identification: Ident no. (individual machine number), please state in case of inquiries
2	Permissible total weight for operation on public roads. The actual weight can be less according to the equipment. Exception (only in field use): The actual weight of the machine plus bale in the chamber can be higher.
3	Permitted axle load for operation on public roads
4	Year of construction of the machine
5	*Not in use*
6	Trade name of the machine
7	Machine identification: Machine type and version
8	Maximum support load of the machine, that acts – at maximum load of tying material* – to the hitch. The open-type towing fixture of the tractor must be registered for this support load.
9	Permitted type relevant maximum speed of the machine. National regulations can prescribe a lower speed!
10	Internal batch number

* maximum load of tying material: [2 net rolls] or [1 net roll plus 4 twine rolls] or [8 twine rolls]

2.12.2. Specifications on the data plate of the drawbar head

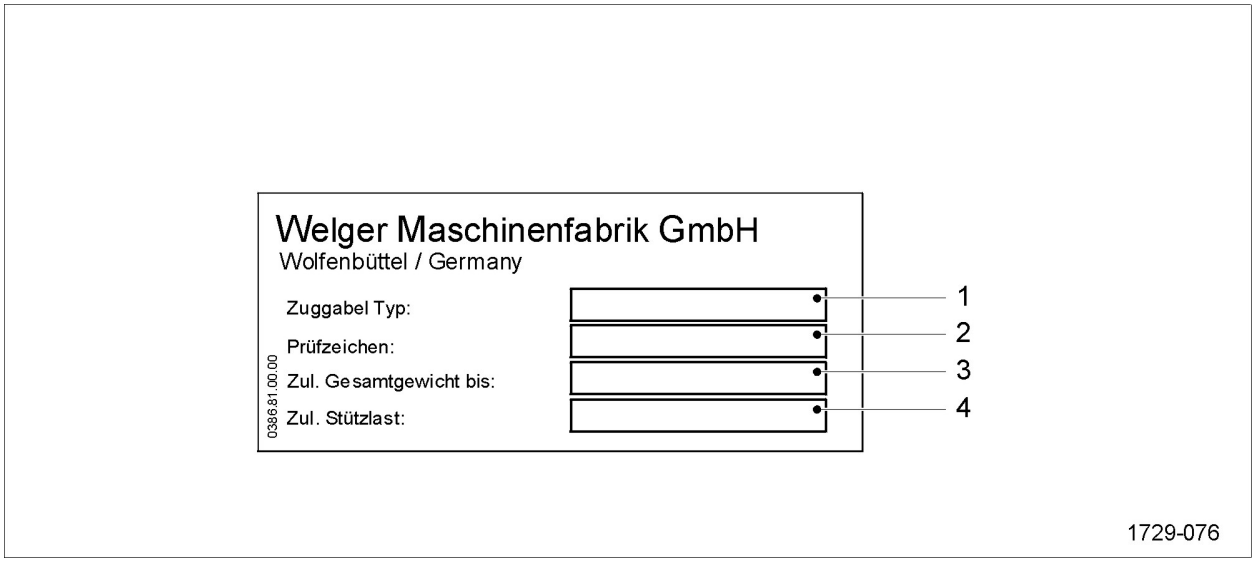


Figure 10

Item	Meaning
1	Drawbar head type
2	official mark of conformity
3	Permitted maximum total weight of the machine
4	Permitted maximum support load

3. Overview of the assembly groups

3.1. Machine

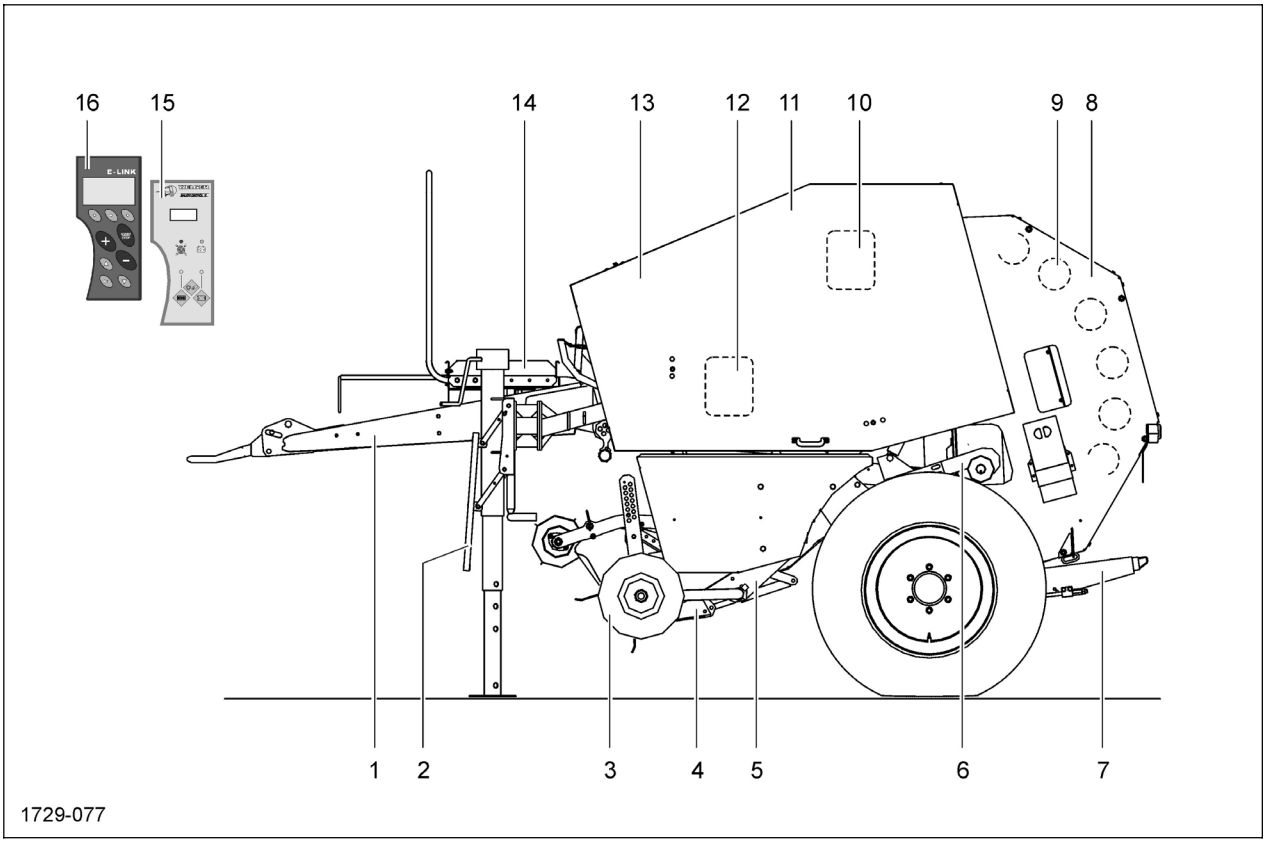


Figure 11

Item	Assembly group	Item	Assembly group
1	Drawbar with hitch	9	Chain sprockets for roller drive
2	Ladder for maintenance platform	10	Electrical roller lubrication* (on the right machine side)
3	Pick-up with pick-up guide wheels	11	Twine tying*
4	Cutting device* *MASTERCUT* or *XTRACUT*	12	Mechanical roller lubrication* (on the right machine side)
5	Conveyor bottom* *HYDROFLEXCONTROL*	13	Net tying*
6	Tail gate locking device	14	Maintenance platform
7	Bale ejector	15	Control box* *BALERCONTROL E*
8	Tail gate	16	Control box* *E-LINK*

3.2. Control

Attention!
The control of the machine was developed and manufactured with utmost care. Each unit has been checked for correct function prior to delivery. Malfunctions can not totally be excluded despite of all precautions. Therefore the control Balercontrol and the corresponding baler have always to be operated that no physical injuries or material damage occur.

Never perform maintenance- and repair works at the control unit during machine is in operation. Always switch-off power take-off shaft, disconnect drive shaft from power take-off shaft end and take out ignition key of the tractor before working nearby movable parts of the machine is started.

Always state the serial numbers for possible requests. Please enter this numbers here immediately after delivery:

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

BALERCONTROL E

Part	Serial number	How to find the serial number
Control box (software)	.....	When connecting the power supply – before the meters are indicated.

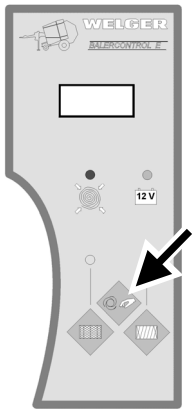
E-LINK

Part	Serial number	How to find the serial number
Control box (software)	SW. Rev ..... dd	Keep any key on the control box pressed when connecting the power supply.
Control unit	Serial no. ..... SW version ..... SW date ..... Memory	Press button Pr several times until "Systeminfo" appears

3.3. Protection of the control unit

- All assembly works must be performed during supply voltage is switched off: e. g. the connecting and disconnecting of sensors, valves, control box etc., the replacing of fuses).
- The control is designed for 12 Volt operation. Operation with other on-board power supplies is not permissible!
- The control boxes must be kept in a splash-proof location (tractor cabin or baler twine box, let the cable outlet point downwards).
- In case of welding work on the baler:
  Do not permit welding current to flow through the control unit.
  Interrupt power supply between tractor and baler.
  Take heat generation at the welding points into account; if necessary remove sensitive parts (cables, sensors or the like) prior to welding;

3.4. Set machine type (Balercontrol E)



- ❑ When connecting the control to the power supply (to the tractor): Press button Automatic/Manual for at least 5 sec. "BCE Setup" is displayed.
- ❑ Release button: The set machine type is displayed (e. g. "Type BCE520").
- ❑ By repeated short pressing of the button "Automatic/Manual" the machine type is changed (e. g. to "Type BCE235").
- ❑ When the desired machine type "BCE235" is set: Press button Automatic/Manual again for at least 5 sec. "Setup saved" is displayed. The setting is now saved.
- ❑ Release button: The display is now back to the normal bale operation.

The setting is complete.

3.5. Set machine type (E-Link)

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

4. Start Up

During handling in the area of the drawbar ensure that the machine is secured against moving. Do not raise the support foot before the baler has been safely coupled to the tractor.

Do not uncouple the baler, unless:
- the bottom for wheels and support foot is even and good bearing;
- the baling chamber is empty and the tail gate closed
- the wheels of the machine are blocked by means of wheel chocks;
- hydraulic tubes have been depressurised;
- the hitch is without load.

Nobody must be between tractor and baler unless both are secured against moving by manually operated brake and/or wheel chocks!

Always keep children away from the machine!

4.1. Attach baler

Note! Depending on the equipment variant, a rotary or a rigid hitch can be installed (observe national regulations!):

For trouble-free operation of the baler correct coupling of the machine and adjustment of the drive shaft is of decisive importance.

After coupling of the baler: Totally lift the support foot with the crank handle , loose bolt, insert support foot completely and secure it with the bolt.

Attention, danger of burning!
Do not begin a journey with the machine attached unless the manually operated brake has been completely released. Otherwise there is danger of fire by brakes running hot (e. g. in the field).

- After coupling the machine to the tractor: Loose manually operated brake (turn crank to the left).

Attention, danger of accident!
Machines not attached to the tractor must be secured against accidental rolling away by applying the manually operated brake and by means of wheel chocks.

- Before uncoupling the machine from the tractor: Tighten manually operated brake (turn crank to the right).

4.1.1. Drawbar positions

(all measures in [mm])

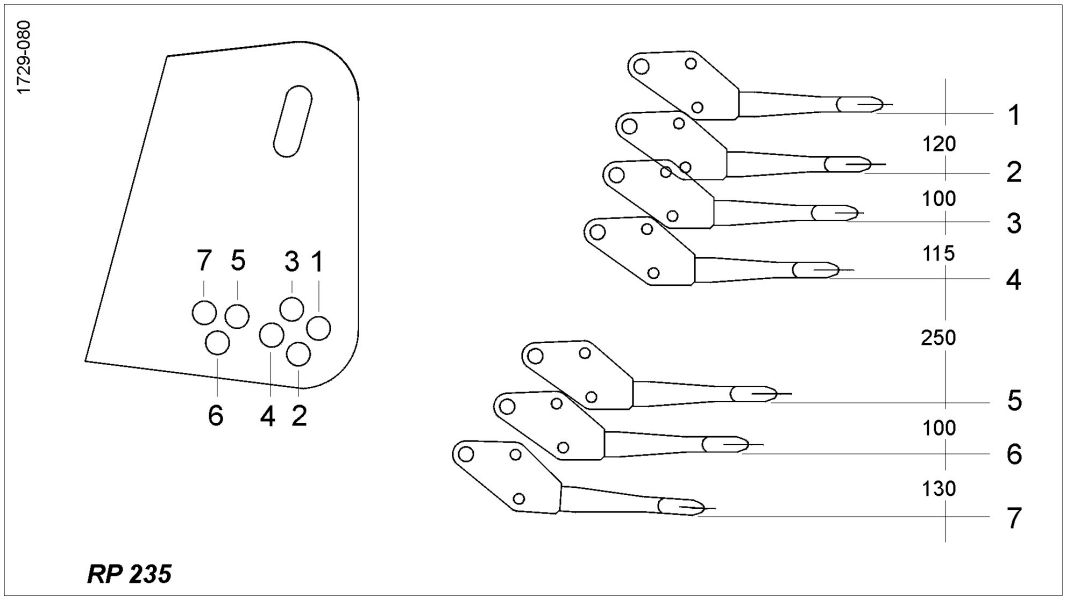


Figure 12

4.1.2. Adjusting the drawbar

Caution! The height adjustment and thus the adjustment of the hitch may be changed only by the manufacturer or an authorised special workshop.

RP 235

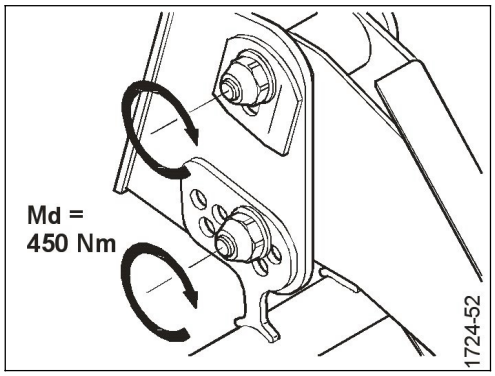


Figure 13

- Place the baler on a horizontal ground.
- Turn out support foot until the machine is horizontal. The axis plate at the frame serve as orientation.
- Measure the height of the drawbar on the tractor.
- Measure the height of the hitch on the machine.
- Figure 12: Using the dimensions stated in adjust the drawbar to the pair of holes approximating the desired value most closely. After each loosening of the safety nuts these must be replaced.
- After alignment of the triangular draw system, position the hitch horizontally: loosen the fastening screws of the hitch and correct the position of the hitch by means of the threaded rod.
- Firmly tighten all fastening screws and nuts.

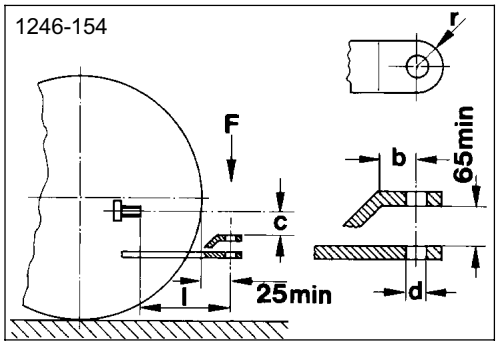


Figure 14

4.1.3. Tow hitch version

In case of tractor's tow hitch coupling of the baler the following dimensions must be observed, at all costs:
(see Table 2).

Attention! Other tow hitches than showed in Figure 14 or Table 2 are not permitted! Danger of breaking!

Category in conformity with ISO 730-1	dimensions of the catch opening		catch opening-outline	layout		vertical support load
	d	***B***	***r***1)	***c2***)	***l***	***F***
	+1 -0	min.	max.	min.	±10	kg
2	33	60	70	220	400	1200
3	33	70	80	250	500	1500

1) Provided the outer radius *r* is adhered to, different designs of tow hitch are permissible (see Figure 12).
2) To adhere to the dimension *c,* the upper part of the tow hitch can possibly be removed.
Dimensions in millimetres

Table 2: Dimensions, position and support load of the tow hitch

4.2. Drive shaft

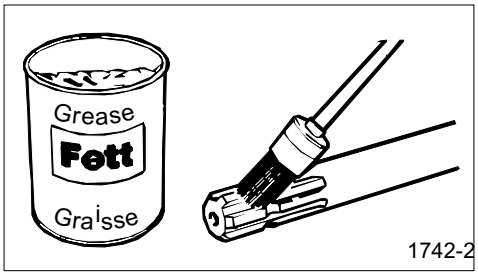


Figure 15

4.2.1. Coupling the cam-type cut-out clutch*

Depending on the version, a drive shaft with automatic safety clutch (cam-type cut-out clutch) is installed.

- Clean and grease the profile of the machine sided connecting shaft prior to assembling.
- Loosen and turn out clamping cone [1].
- Open maintenance hole in the guard cone on the machine side. Slide the clutch onto the connecting shaft so that the location hole [2] points towards the maintenance hole.
- Position the location hole for the clamping cone above the ring groove [3] of the connecting shaft.
- Turn clamping cone into location hole and tighten firmly (approx. 70 Nm) while moving the hub slightly to and fro in longitudinal direction.
- Check tight and firm seat of clutch hub by compression and tensioning movements. During work, check clutch for correct tightening at regular intervals.

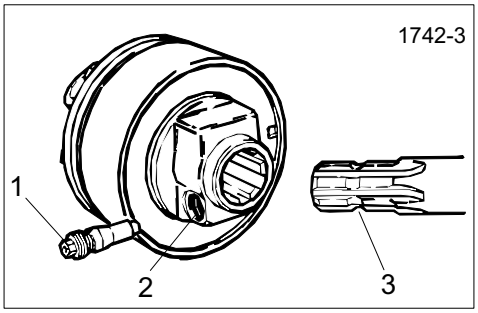


Figure 16

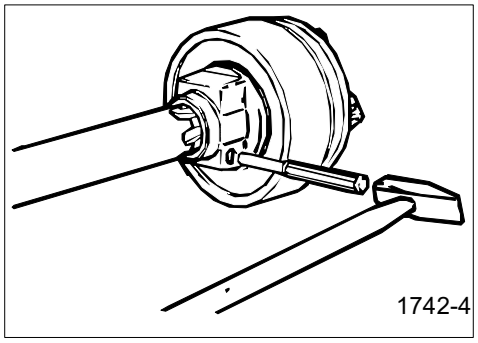


Figure 17

4.2.2. Uncoupling of the cam-type cut-out clutch*

Loosen and remove clamping cone from clutch hub. If this cannot be done by hand, drive out clamping cone from the opposite side by means of a pin punch.

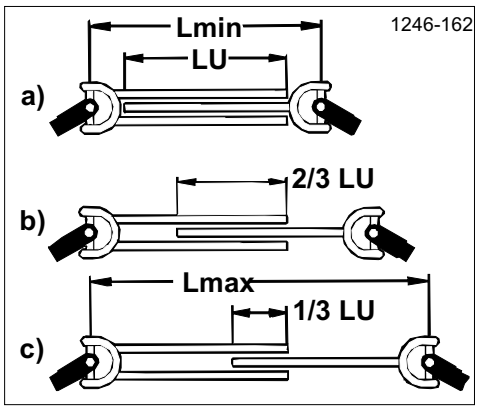


Figure 18

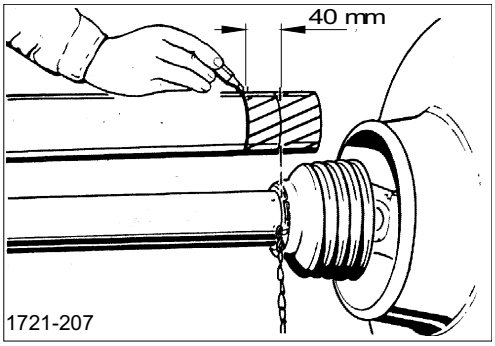


Figure 19

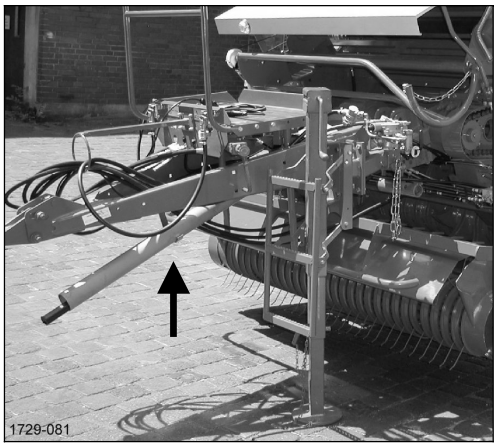


Figure 20

4.2.3. Adjusting the drive shaft

Pay attention to maximum operating length L_{max} and minimum operating length L_{min} ! Aim at maximum overlap possible.

a) shortest operating length, i. e. complete overlap.

b) During normal operation, the overlap of the sliding tubes should be a least 2/3 of the profile overlap LU.

c) For a short time, the drive shaft can be operated with the length L_{max} , i. e. the profile overlap is 1/3 LU.

Adjust the length, if necessary: Hold the drive shaft halves next to each other in the shortest operating position and mark them. Shorten inner and outer tubes by equal amounts so that a sliding travel of 40 mm is retained in the shortest operating position.

Secure the protective tubes of the drive shaft by retaining chain against revolving.

Before the starting the drive shaft, check whether the locks have properly engaged.

When driving through narrow bends ensure that the wide angle joint (on the tractor side) is not bent more than permitted by the manufacturer of the drive shaft.

Heed the operating instructions of the drive shaft's manufacturer as well as national relevant signs with type approval for drive shaft protection.

Only the drive shafts prescribed by the manufacturer may be used! A key-type overrunning clutch* as integrated part of the drive shaft protects the machine drive.

Support drive shaft always with the drive shaft support when machine is uncoupled (Figure 20).

Caution! Protective tube and guard cone of the drive shaft, and the power take-off shaft protection, must be fitted and be in proper condition. Ensure before switching on the power take-off shaft that the selected speed of the tractor is in conformity with the permissible speed and direction of rotation of the machine (540 rpm).

Switch power take-off shaft only during idling!

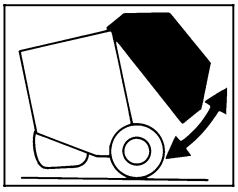
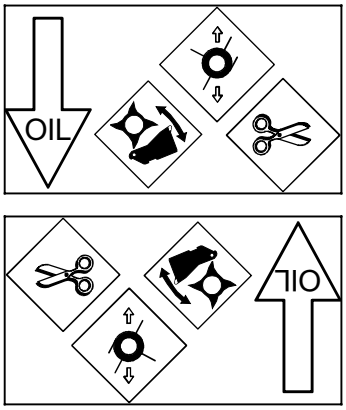
4.3. Hydraulic connections

For easier assignment of the correct oil connecting bushing during coupling the baler, transfer the colour marks of the hydraulic tubes to the connections of the tractor.
Clean the coupling parts of the hydraulic hoses with clean cloth and plug them into the bushings at the tractor.

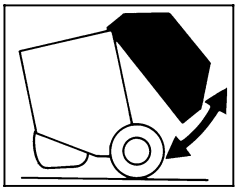
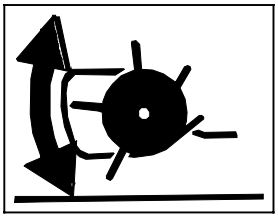
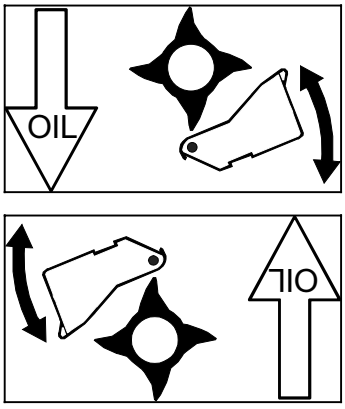
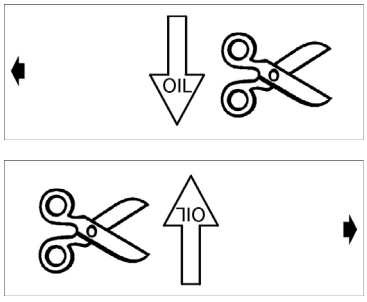
Caution! Check hoses and tubing regularly for damage, aging and operating reliability. Defective parts must immediately be replaced by original WELGER spare parts. Even in case of permissible stress, tubes and hoses are subject to natural aging. They can therefore be used only for a limited period of time.

According to the "Safety rules for hydraulic hoses", hydraulic hoses should not be used for more than six years!

4.3.1. ... for machines with E-LINK

Symbol on hydraulic tube	Function	Tractor connection	Colour of marking
	Tail gate open and close	single acting	yellow
	Hydraulic switch with the functions • open and close conveyor bottom • raising and lowering the pick-up • move cutting device in home- and in operating position	double acting with floating position	red

4.3.2. ... for machines with BALERCONTROL E

Symbol on hydraulic tube	Function	Tractor connection	Colour of marking
	Tail gate open and close	single acting	yellow
	Pick-up raise and lower	single acting	red
	move bottom door in home- and in operating position (for machines without cutting device)	double acting	green
	move cutting device in home- and in operating position (for machines with fixed bottom door)	double acting	green

4.4. Electrical system

4.4.1. Lighting set

To connect the lighting system, insert the 7-pin plug into the corresponding socket on the tractor. Before travelling on the roads, check that the lighting system functions correctly (also at daylight).

Figure 21

Figure 22

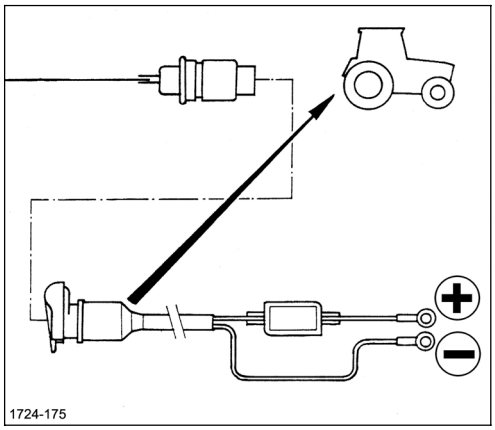


Figure 23

4.4.2. Control electronics

The machine will be delivered – according to the version – with the following control:

- "Balercontrol E"
  (with control box for "Balercontrol E" Figure 21)
- "Balercontrol III"
  (with control box for "E-LINK" Figure 22)

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

For attaching the corresponding control box a bracket is delivered with, that must be mounted nearby the tractor driver.

The respective control box is equipped with a magnetic plate at the back and can be fixed onto a metallic surface into the tractor's cabin.

To connect the control, insert the 7-pin plug into the corresponding socket on the tractor.

After connecting the plug supply voltage is available and a short series of beeps can be heard.

A load socket according to DIN 9680 is required on the tractor for connecting the control electronics "Balercontrol". (Part of the delivery of the baler). Fuse protection must amount to 30 A. (For balers without twine tying a fuse protection of 16 A is sufficient.)

To equip another tractor the plug socket with connecting cable and fuse is available under the WELGER part no. 0972.20.40.00.

The correct polarity of the power supply of the tractor must not be changed, otherwise the electronic control could be damaged (Figure 23).

4.5. Compressed-air braking system

4.5.1. Adjust variable load valve*

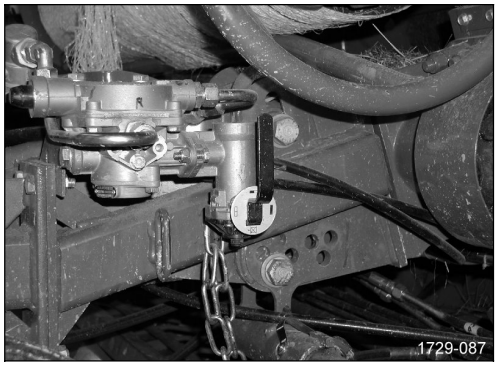


Figure 24

Attention, danger of accident!
Prior to each journey pay attention to the lever position of the variable load valve (Figure 24). A wrong setting reduces the traffic safety.

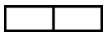
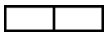
Symbol	Brake power
	No brake power! Not for road driving! Not for field use!
	Low brake power! Not for road driving! Restricted for field use!
	Medium brake force! Not for road driving! Permitted for field use!
	Full brake force! **Permitted for road driving!** Permitted for field use!

Table 3

Brake released (no brake power)
The attached machine has insufficient brake power for driving on the road. This lever position must only be used for moving the uncoupled machine. This setting is not permitted for moving with a tractor.



Empty load (low brake power)
The attached machine has insufficient brake power for driving on the road.
This lever position should not be used for field use of the machine. When using this setting the tractor must have sufficient brake power. For this heed the nature of the ground and of the site.

Half load (medium brake power)
The attached machine has insufficient brake power for driving on the road.
This lever position can be used for field use of the machine. When using this setting the tractor must have sufficient brake power. For this heed the nature of the ground and of the site.

Full load (full brake power)
This lever position must be set for driving on public roads.
This lever position can be used for field use of the machine.

4.5.2. Connecting the pneumatic system (pneumatic brake system)

Attention, danger of injury!
Pneumatic braking system: Before any work is carried out on the pneumatic system, the system must be depressurised.

Caution, danger of injury!
Do not begin a journey with the machine attached unless the pressure gauge in the tractor cabin shows 5.0 bar. Otherwise there is the risk of the brakes running hot.

Remove dirt, if any, from the sealing washers of the coupling heads on the tractor and on the connecting tubes of the machine.

- Connect coupling heads for reservoir (red) and brake (yellow) with the corresponding connections of the tractor.
- Drain the compressed-air tank (right machine side) and check for damage and tight seat daily.

To enable manoeuvring of the machine without connection to the compressed air system:

- lever of load apportioning regulator to:
- machine manoeuvring.
- Before the beginning of the next journey, or in order to brake the machine again: Set lever of load apportioning regulator according to demand or or (see chapter 4.5.1. Adjust variable load valve*).

4.6. Hydraulic braking system

4.6.1. Connect hydraulic system (hydraulic braking system)

Attention, danger of injury!
Hydraulic braking system: Before any work is carried out on the hydraulic system, the system must be depressurised.

The machine can be equipped with a hydraulic brake according to the legal regulations of the delivery country. The corresponding hydraulic coupling is different from the other hydraulic couplings in that the sleeve of the quick-action coupling is fitted to the machine.

Please observe in this context the national regulations of the country in which the machine is to be used.

5. Twine tying*

5.1. Thread twine

Attention, danger of injury!
Prior to inserting of new spools of twine and threading the twine: stop machine, switch-off power take-off shaft and tractor motor, take out ignition key and wait for standstill of the machine. Make the control powerless (disconnect electrical connection to the tractor).

Note! Optimum results in production during use of our machines depend of multiple factors. Therefore:

- Use quality nets and quality twines (recommendation: plastic twines). Place the twine spools upright side by side in the twine box. If the spools are inserted the wrong way round, the twine will tend to loop and break.
- Heed and follow the instructions given in the operating instructions. For working in extreme ambient conditions: request to our customer service. Heed the technical data at the end of this operating instruction.

Twine A
(Drawn consequently in Figure 25 to Figure 27 ————)
Guide the beginning of the twine (inside the spool) of spool A1 upwards through the guide eye and then out of the twine box. Tie end of twine (outside the spool)of spool A1 to beginning of twine of spool A2.

Twine B
(Drawn as dotted line in Figure 25 to Figure 27 - - - - - -)
Guide the beginning of the twine of spool B1 upwards through the guide eye and then also out of the twine box.

- ❑ Thread the twines A and B each through the twine brake [1].
- ❑ Only at machines with Balercontrol "E": Wrap both twines around the guide rollers [2].
- ❑ Thread in both twines upwards to the pair of eyes [3] on the binding bar.
- ❑ Only at machines with Balercontrol "E": Use the additional guide eyes between the deflection rollers [2] and the pair of eyes [3].
- ❑ The twines shall not touch each other.
- ❑ For continuation go to Figure 27.

Threading-in diagram for machines with BALERCONTROL E

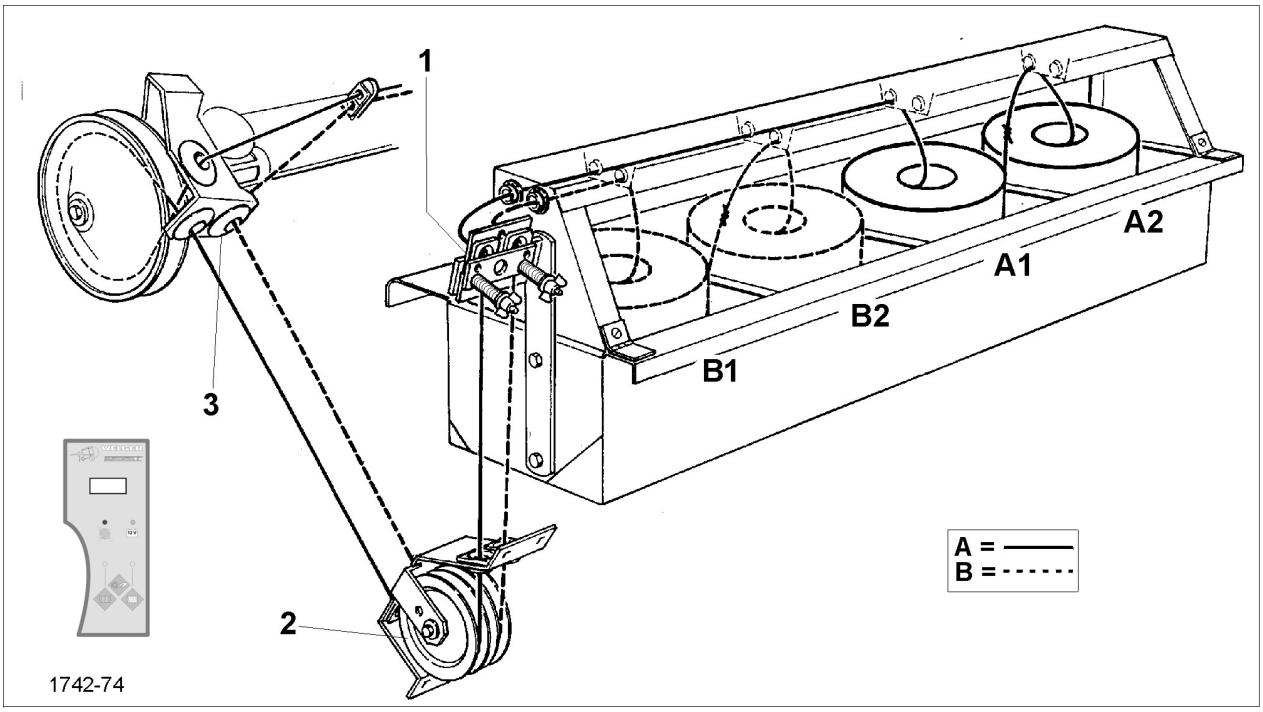


Figure 25

Threading-in diagram for machines with E-LINK

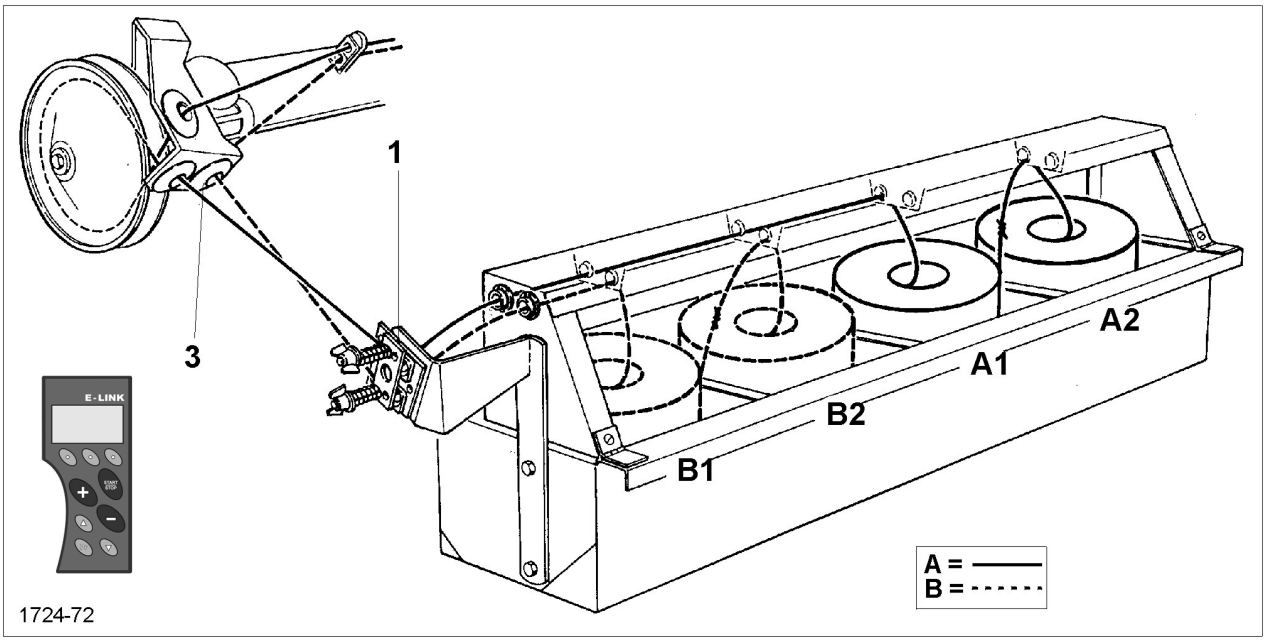


Figure 26

5.2. Binding bar

- ❑ Guide twines A and B through to the guide rollers [8] as shown in Figure 27.
- ❑ Loop twine A anticlockwise once around the variable diameter disc [9].
- ❑ Finally locate each twine at the entry to their respective guide roller.
- ❑ Turn the roller pair by hand until the thread has been securely grasped.

Note:
The clamping and cutting devices [10] have been factory set so that the driving twine (shown as a continuous line ———) must be guided through the guide rollers on the left-hand side, as seen from the direction of travel.

- ❑ Tension both sets of twine once they have been threaded.

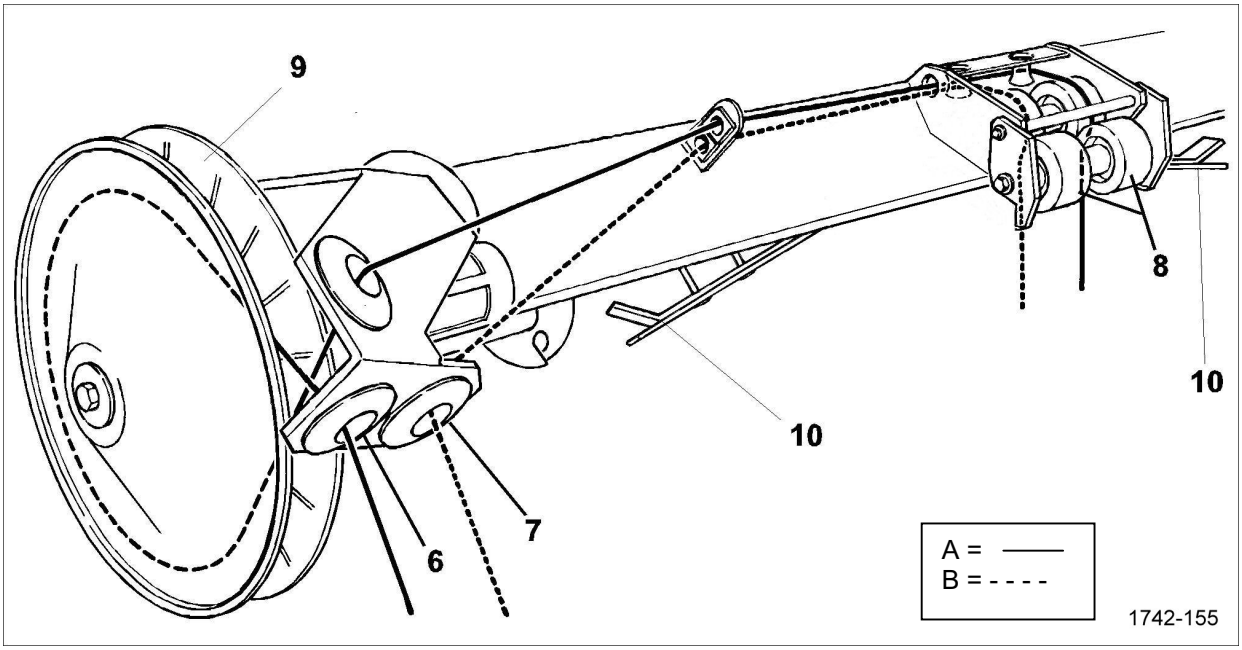


Figure 27

5.3. Adjusting the twine brake

Basic setup:	Length "X" of the spring of the twine brake (Figure 28)	
	BALERCONTROL E  (see Figure 25).	**E-LINK**  (see Figure 26).
TWINE A (shown as continuous line ———)	39 mm	33 mm
TWINE B (shown as dashed line - - - - - -)	37 mm	28 mm

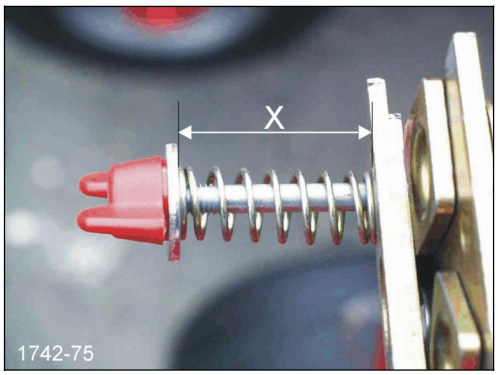


Figure 28

The twines brakes [1] (Figure 25 and Figure 26) must hold the twines as taut as possible for the twine to be tight around the bales.

Note! The permitted thread tension is exceeded when the twine breaks in the vicinity of the guide rollers [8] (Figure 27).

5.4. Further settings

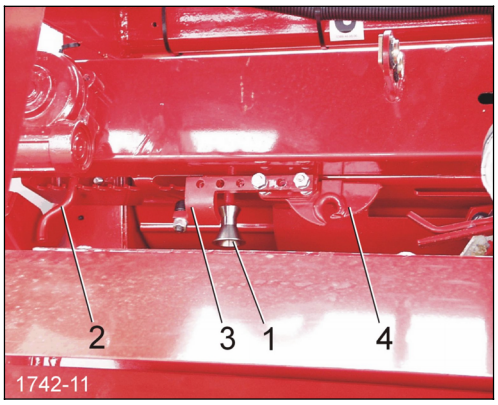


Figure 29

5.4.1. Setting the edge clearances

In order to limit the twine wrapping on the ends of the bale, the edge clearance retainers [1] are adjustable (the right side of the machine is shown in Figure 29 and Figure 30, but the same applies to the left side): With very dry and brittle crop materials it is better if the retainers are located more towards the middle of the baler.

5.4.2. Setting the distance between twine wrappings

The distance between the wrappings is given by the diameter used for the variable diameter disc [9] (Figure 27). The smaller the effective diameter of the disc, the greater the distance between the wrappings.

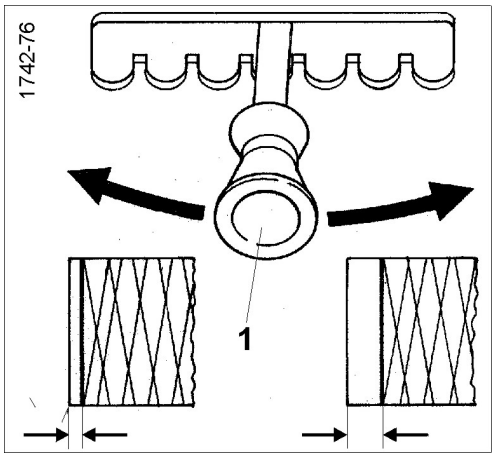


Figure 30

On the far right-hand edge of the binding bar is a lever [2] (Figure 29 and Figure 31), which is used to set the distance between the wrappings.

Setting:
Position 1.....greatest winding distance
Position 7..... smallest winding distance

5.4.3. Setting the edge wrappings

In order to ensure that the high density bales remain well compressed, the twine wrappings are automatically laid closer together near the edge of bales.

In order to achieve this, the right-hand shuttle [4] presses the variable diameter disc closer together when reaching the end zone. The working diameter of the variable diameter disc increases and the distance between wrappings is reduced towards the edges.

A switch angle [3] (Figure 29) is installed in the right-hand shuttle, which is attached by two screws in a unit with a set of holes. There are four different installation settings available.

Setting:

- Switching angle (3) towards the variable diameter disk:
  more end windings on the edge of the bale;
- Switching angle (3) towards the machine centre
  less end windings on the edge of the bale;

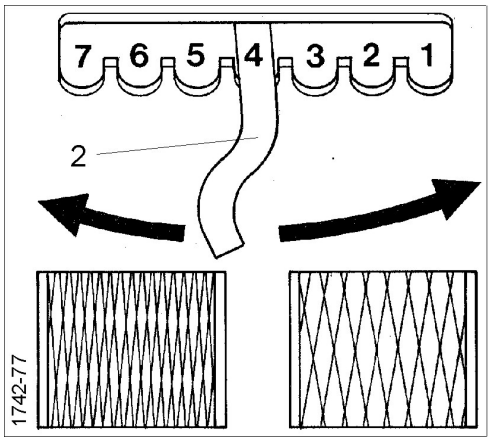


Figure 31

6. Net tying*

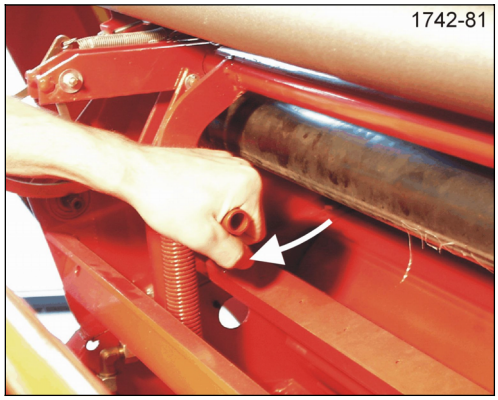


Figure 32

6.1. Inserting the net

Caution! In order to handle the net roll safely, insert it together with the help of a second person!

- ❑ Open left side cover (lift up).
- ❑ If a wrapping process has not been completely executed (e. g. because the net roll depleted during the wrapping process): pull the grip of the knife carrier strongly forward against the spring tension (Figure 32). The counting segment for the net length is reset to its starting position.

Figure 33

- ❑ (Figure 33) Open safety chain [1].

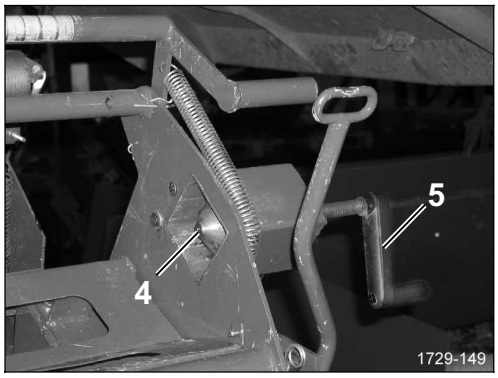


Figure 34

- ❑ (Figure 34) Pull out handle [5] of the crank handle. Crank back the tensioning spindle [4] until the lock plate with the crank handle.

Note! Before closing the side cover: Insert crank handle. Put in handle [5] of the crank handle.

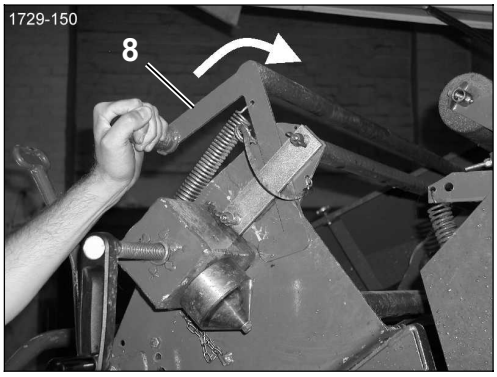


Figure 35

- ❑ Open upper hood.
- ❑ (Figure 35) Slide net tightener [8] back and secure with cotter pin.

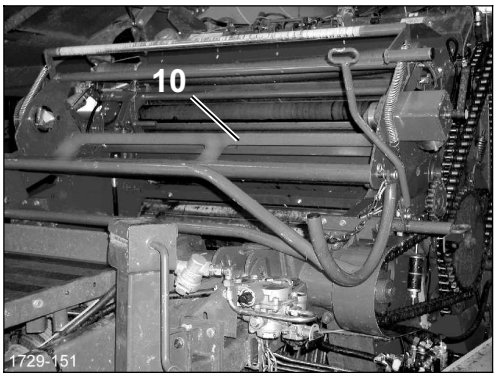


Figure 36

(Figure 36) Depending on the diameter of the net rolls in use the height of the net roll plate [10] must be set accordingly:

- Net roll with net length 3,000 m: Mount net roll plate in lower position (bottom thrill hole in Figure 37).
- Net roll with net length 2,000 m: Mount net roll plate in medium or upper position (centre or top thrill hole in Figure 37).

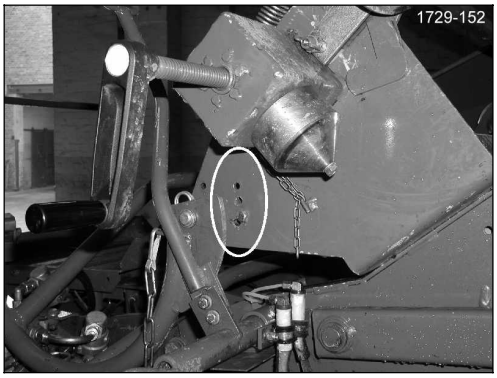


Figure 37

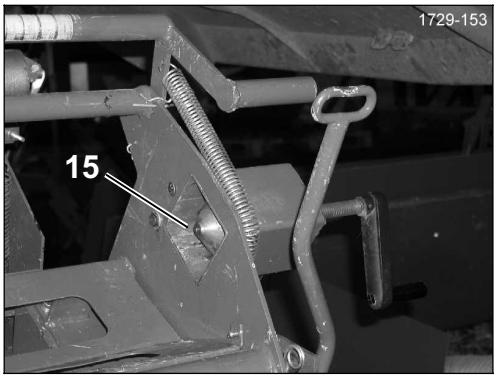


Figure 38

(Figure 38 and Figure 39) Depending on the width of the net roll in use an extension tensioning spindle (16) can be mount onto the original tensioning spindle (15):

- Width of the net roll more than 1.23 m: extension tensioning spindle not necessary.
- Width of the net roll 1.23 m or smaller: Unscrew extension tensioning spindle (16) and attach to the tensioning spindle [15].

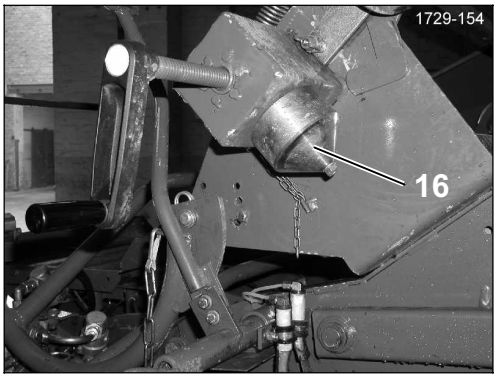


Figure 39

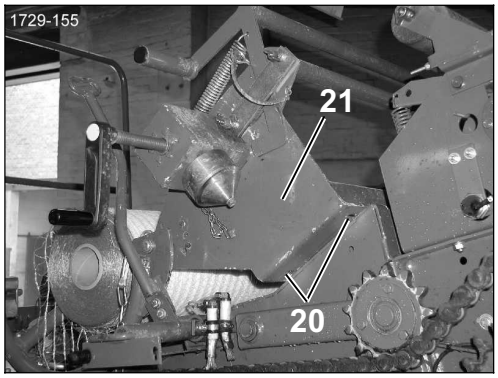


Figure 40

(Figure 40) Depending on the width of the net rolls in use the complete net holder [21] must be moved horizontally and fasten again:

- Width of the net roll is 1.23 m: move complete net holder [21] in the slotted holes to the left until the lock plate and fasten it.
- Width of the net roll is 1.30 m: move complete net holder [21] in the slotted holes [20] to the right until the lock plate and fasten it.

According to the width of the net rolls a position between the left and the right lock plate can be selected for the net holder.

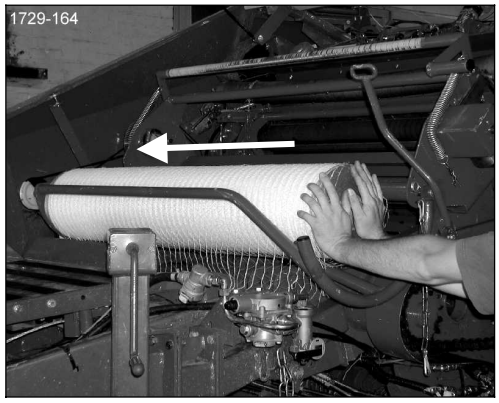


Figure 41

- (Figure 41) Slide net roll until the lock plate into the tiltable auxiliary net holder.

Note! Watch wind-off direction of the net roll! The net must enter the machine beneath the net roll (see Figure 46).

Figure 42

- (Figure 42) Tilt net roll into the net holder.

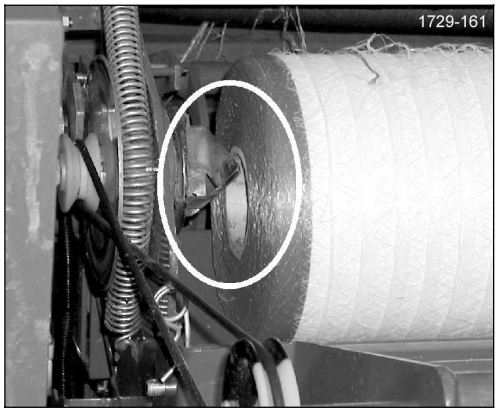


Figure 43

Note! (Figure 43) The tips of both tensioning spindles must point into the sleeve of the net roll.

If the tips of the tensioning spindle do not point into the sleeve but onto the net material the height of the net roll plate must be corrected accordingly (Figure 37).

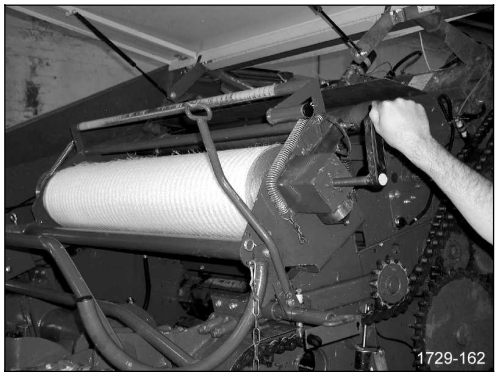


Figure 44

- (Figure 44) Pull out handle of the crank handle. Crank tensioning spindle with crank handle into the sleeve of the net roll.

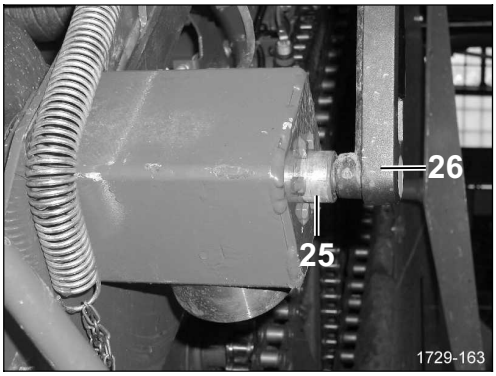


Figure 45

- (Figure 45) Crank tensioning spindle so far until between the bushing (25) and the crank handle (26) is only a gap of approx. 2 mm left.
- Insert the handle of the crank handle again.

Note! Before closing the side cover: Turn crank back into machine. Fold back the crank handle.

The net roll must rotate free and easy. If not: Check and repeat the setting described in this chapter 6.1. Inserting the net, if necessary.

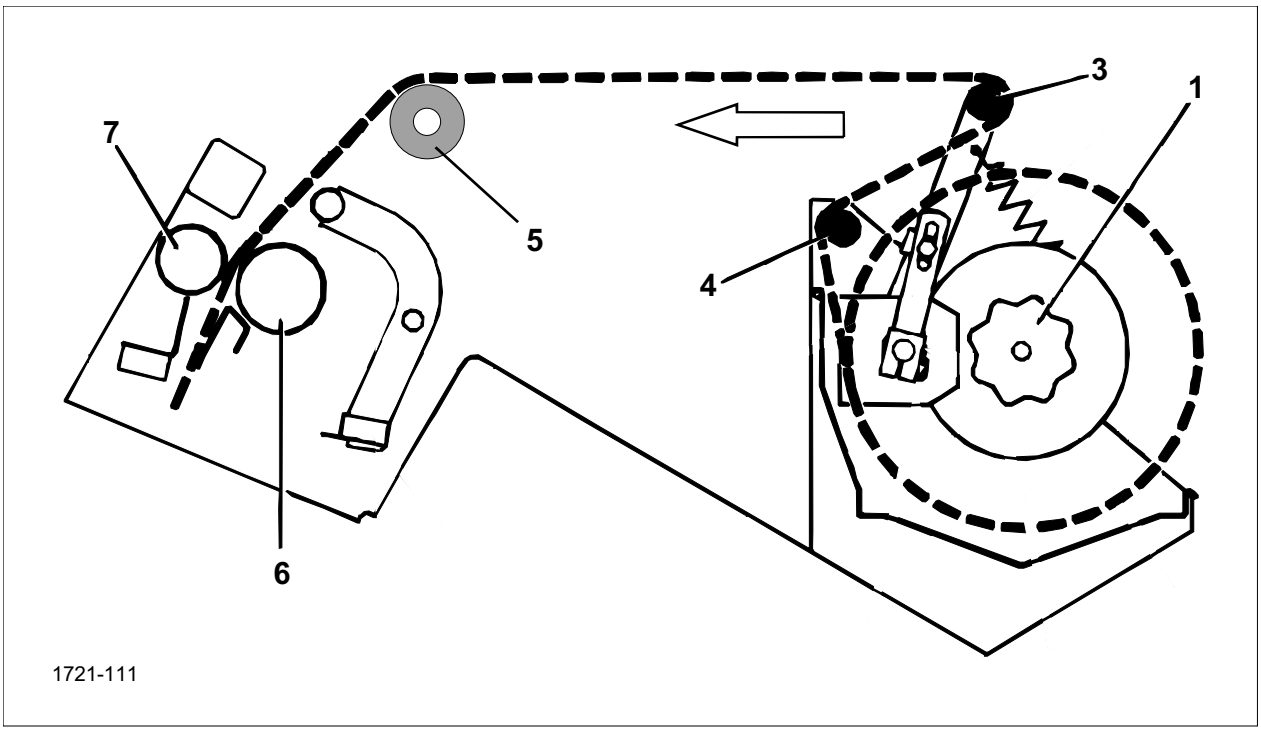


Figure 46

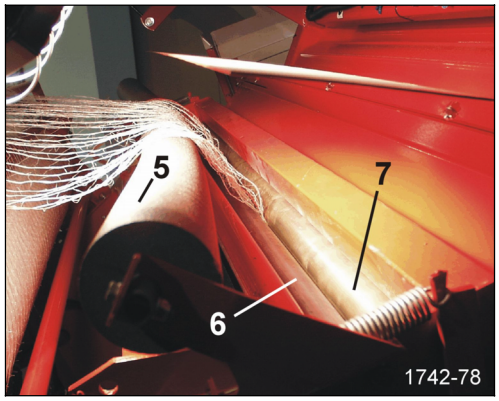


Figure 47

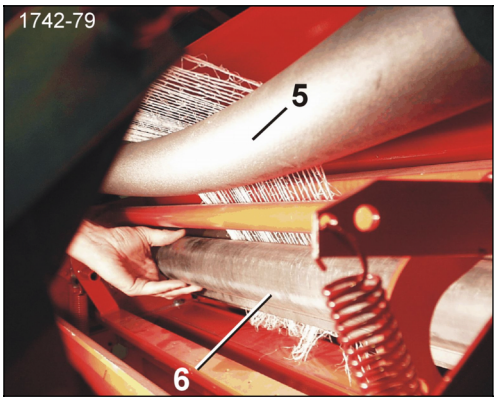


Figure 48

- Feed the net from the roll around the upper guide tube [4] and finally around the net tightener [3].
- Feed the net across the expanding device [5] and place its front end between rubber roller [6] and steel roller [7].
- Turn the rubber roller [6] by hand until the net is grasped. To prevent the net from getting into the roll chamber too early during the baling process, the front end of the net must not project more than approx. 10 cm beyond the rubber roller.
- (Figure 35) Remove cotter pin from the net tightener and swivel net tightener to the front.
- (Figure 41) Insert auxiliary net roll into auxiliary net holder.
- (Figure 33) Close safety chain.

6.2. Tighten net knife

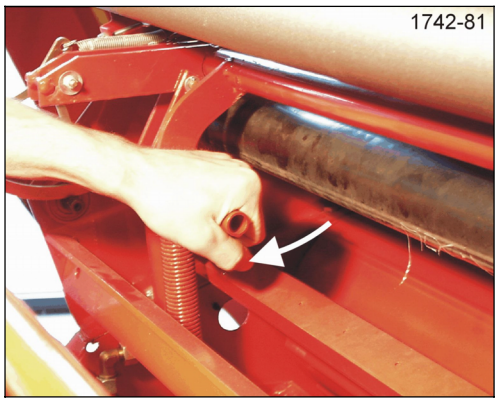


Figure 49

The net knife is tensioned automatically whenever the tail gate is opened. If, with the baling chamber filled, another net tying cycle is necessary without opening of the tail gate, due to net roll change or a malfunction, tensioning can be effected by hand.

For this pull the knife carrier against the spring tension to the front (Figure 49). Triggering occurs as described in chapter "Tying".

6.3. Setting of net layers

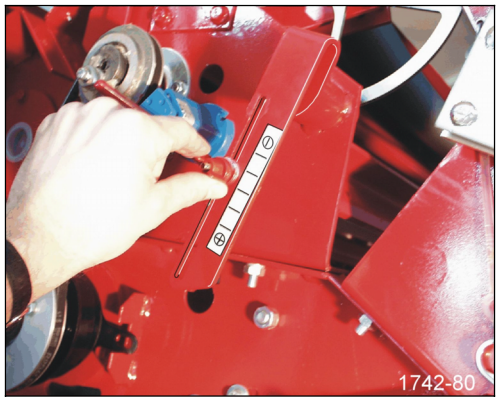


Figure 50

BALERCONTROL E:
Figure 50 The number of net layers around the round bale can be continuously set by means of the scale. After slackening of the wing nut, the net length can be adjusted by shifting the lever in the slotted hole.

Hint:
First select setting in the middle of the slotted hole. To save tying material change the setting step by step towards (-) for subsequent bales.

The bale must, however, still be held together. In case of very smooth material or high baling density a larger amount of net may be required.

E-LINK:
The number of net layers around the bale can be set from 1.5 to 5 by means of the E-LINK control.

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

7. Cutting device*

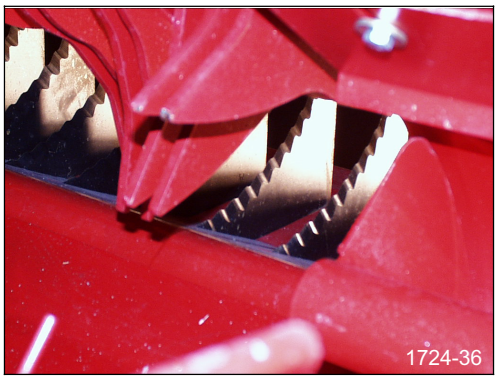


Figure 51

The cutting device (Figure 51) can be used for silage, hay and straw. The knifes of the cutting device are swivelled in and out hydraulically.

Attention, danger of injury! Prior to any work on the cutting device of the machine: Switch off power take-off shaft, switch off tractor engine, remove ignition key and disconnect drive shaft from power take-off shaft end. Make the control powerless (disconnect electrical connection to the tractor).

7.1. Equipment

The machines can be equipped as follows:

machine with control box:	can be equipped with:
 Balercontrol E	**BALERCONTROL E** • without cutting device • MasterCut (13 knives) • XtraCut 17 (17 knives)
 E-LINK	**E-LINK** • without cutting device • XtraCut 17 (17 knives) • XtraCut 25 (25 knives)

7.2. Knife groups

To change the cut length of the material to be pressed, knife groups can be selected (that means, not all knives of the cutting device are in use):

- The cutting device **XtraCut 17** (17 knives) contains an 8-knife group and a 9-knife group (8 + 9 = 17). Both knife groups can be used in the following combinations:
  0 knives – 8 knives – 9 knives – 17 knives
- The cutting device **XtraCut 25** (25 knives) contains a 12-knife group and a 13-knife group (12 + 13 = 25). Both knife groups can be used in the following combinations:
  0 knives – 12 knives – 13 knives – 25 knives

7.2.1. Select knife group (E-LINK)

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

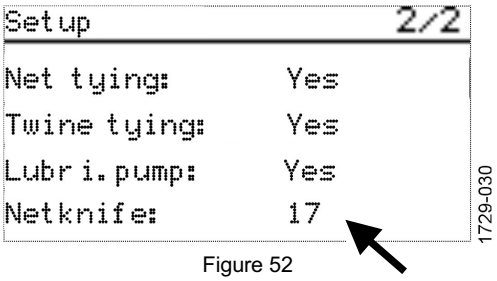


Figure 52

To move a knife group by means of the tractor's distribution valve it must have been selected:

- ❑ Open menu overview: press key Pr.
- ❑ Select "Setup" menu: keys ▲ or ▼
- ❑ Confirm selection with key Pr
- ❑ Turn to page 2/2 (Figure 52): left or right button ●
- ❑ Select "KNIFE": keys ▲ or ▼
- ❑ Select desired knife group: Keys + or - (in Figure 52 is selected: 17 knives)
- ❑ Either return to menu overview: press key Pr
- ❑ Or return to "MONITOR" menu: press key Pr for 3 sec.
- ❑ The knives can be moved, now:
  see chapter 7.3. Moving in and out the cutting device.

7.2.2. Select knife group (Balercontrol E)

To move a knife group by means of the tractor's distribution valve it must have been selected by means of the hydraulic valves [1] and [2] (Figure 53 and Figure 54). The hydraulic valves are located on the left machine side, seen driving direction.

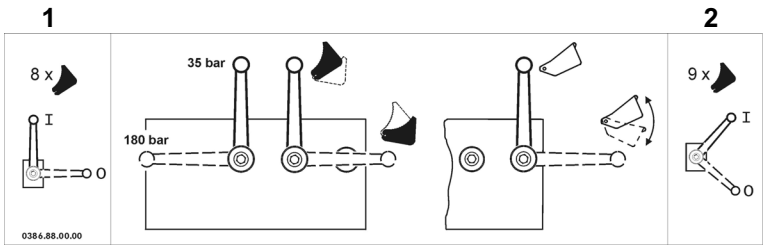


Figure 53

Attention, danger of injury! The hydraulic valves are located in the range of action of the pick-up and of the cutting device. Prior to operate the hydraulic valves: Switch off the power take-off shaft, switch off the tractor engine, remove the ignition key.

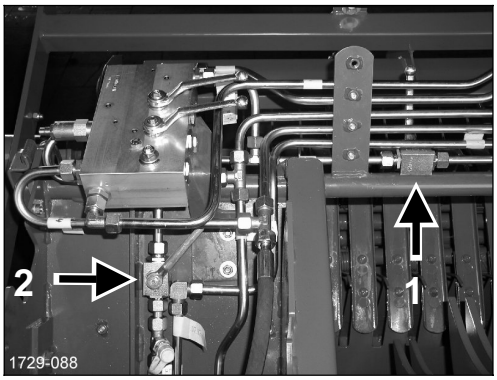


Figure 54

Desired knife group	Adjust hydraulic valves (according to Figure 53)	
no knives	Valve **1**	Position „0“
	Valve **2**	Position „0“
8 Knife	Valve **1**	Position "I"
	Valve **2**	Position „0“
9 Knife	Valve **1**	Position „0“
	Valve **2**	Position "I"
17 Knife	Valve **1**	Position "I"
	Valve **2**	Position "I"

- ❑ Adjust hydraulic valves according to the table.
- ❑ The knives can be moved, now:
  see chapter 7.3. Moving in and out the cutting device.

7.3. Moving in and out the cutting device

7.3.1. General

On the following pages the conditions "Knives in cutting position" and Knives in home position" are mentioned. Now, the definition of the states:

- "Knives in cutting position" means:
  The knives are totally moved out of the knife bottom plate (
- Figure 55). Straw conveyed through the machine is cut by the moved out knives.
- "Knives in home position" means:
  The knives are totally inserted into the knife bottom plate (Figure 56). Straw conveyed through the machine is not cut by the inserted knives.

Figure 55 (Pictures from open bottom door) Figure 56
Knives in cutting position Knives in home position

7.3.2. Control box E-LINK
17-knife cutting device
25-knife cutting device
fixed bottom door
bottom door HYDROFLEXCONTROL

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

Caution!
Before a knife group can be moved into cutting position, all knives – that can be in cutting position – must be totally moved into home position.

Only those knife groups are displayed that can be moved in or out for the actual moment, e.g. 8 (here: 8-knife group).

Move cutting device into cutting position

- In the menu "MONITOR": Press centre key so many times until the symbol "Cutting device" is displayed (above the centre key).
- Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate). If the hydraulic bottom door was open (HYDROFLEXCONTROL) this, too, swivels up.
- That the hydraulic accumulators can be filled: After the knives have reached the cutting position, the tractor's distribution valve must be operated for another 5 sec.

Move cutting device into home position

- In the menu "MONITOR": Press centre key so many times until the symbol "Cutting device" is displayed (above the centre key).
- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- That the hydraulic accumulators can be emptied: After the knives have reached the home position, the tractor's distribution valve must be operated for another 5 sec.

Note! To prevent jamming the knife slots and to keep the knives movable: Move in and out the cutting device multiple times a day.

Cutting device protection

Caution! Special function for fault clearance. Not permissible for production! Normal production only permitted with 35 bar.

To protect the cutting device against mechanical overload (e.g. large stones or hard wood parts come into the cutting device), the knives of the cutting device are protected via a hydraulic pressure switch (cutting device protection). This pressure switch limits the hydraulic pressure – available to the cutting device knives – to a standard pressure of 35 bar. Only this standard pressure is available for swivelling the cutting device knives out to cutting position.

If the knife slots are clogged, this standard pressure may not be sufficient. A by-pass function is therefore available which permits putting cutting device protection out of operation. This means, the cutting device knives move out of the knife bottom plate with the full hydraulic pressure of 180 bar and can thus better remove jams at the knife slots.

Attention, danger of injury! In the following the cutting device knives are moved without cutting device protection.

- In the menu "MONITOR": Press centre key so many times until the symbol "Cutting device" is displayed (above the centre key). **Important: Do not release the button!**
  (If the button was released: Press centre button so many times that the symbol "Cutting device" is displayed again. Important: Do not release the button!
- At still pressed centre button: Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- At still pressed centre button: Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- Repeat the two working steps above so long until the jamming of the knife sots is removed and the knives move free and easy.

Attention! The knives must finally moved in and out with 35 bar. Otherwise: Lost of guarantee possible when machine was overload!

- Important: Release centre key.
- Move knives again into home position and then back to cutting position by means of the tractor's distribution valve. Just now the normal production can be continued.

7.3.3. Control box Balercontrol E
13-knife cutting device
fixed bottom door

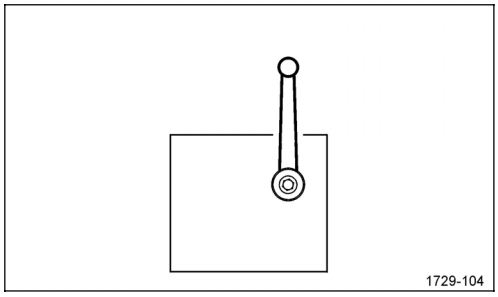


Figure 57

Note! For normal production the ball valve must point to the machine (see Figure 57 and Figure 58)!

Move cutting device into cutting position

- Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- That the hydraulic accumulators can be filled: After the knives have reached the cutting position, the tractor's distribution valve must be operated for another 5 sec.

Move cutting device into home position

- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- That the hydraulic accumulators can be emptied: After the knives have reached the home position, the tractor's distribution valve must be operated for another 5 sec.

Note! To prevent jamming the knife slots and to keep the knives movable: Move in and out the cutting device multiple times a day.

Cutting device protection

Caution! Special function for fault clearance. Not permissible for production! Normal production only permitted with 35 bar.

To protect the cutting device against mechanical overload (e.g. large stones or hard wood parts come into the cutting device), the knives of the cutting device are protected via a hydraulic pressure valve (cutting device protection). This pressure valve limits the hydraulic pressure – available to the cutting device knives – to a standard pressure of 35 bar. Only this standard pressure is available for swivelling the cutting device knives out to cutting position.

If the knife slots are clogged, this standard pressure may not be sufficient. A by-pass function is therefore available which permits putting the pressure valve out of operation. This means, the cutting device knives move out of the knife bottom plate with the full hydraulic pressure of 180 bar and can thus better remove jams at the knife slots.

Attention, danger of injury! In the following the cutting device knives are moved without cutting device protection.

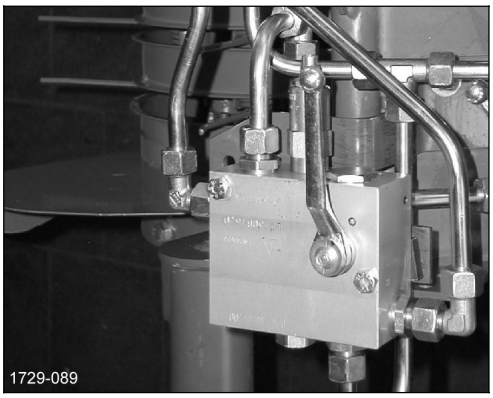


Figure 58

- ❑ Swivel ball valve (Figure 58) beneath the left side cover to the front: 180 bar (Figure 59).
- ❑ Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- ❑ Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- ❑ Repeat the two working steps above (tractor's distribution valve to "Lift" and "Lower") so many times until the jamming of the knife slots is removed and the knives move free and easy.
- ❑ Swivel ball valve (Figure 58) back to the machine: 35 bar (Figure 59).

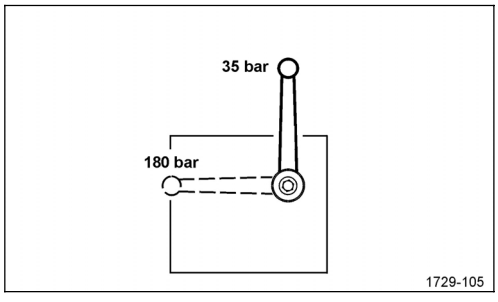


Figure 59

Attention! The knives must finally moved in and out with 35 bar. Otherwise: Lost of guarantee possible when machine was overload!

- ❑ Move knives again into home position and then back to cutting position by means of the tractor's distribution valve. Just now the normal production can be continued.

7.3.4. Control box Balercontrol E
13-knife cutting device
bottom door HYDROFLEXCONTROL

Note! For normal production both ball valves must point to the machine (see Figure 60)!

Move cutting device into cutting position

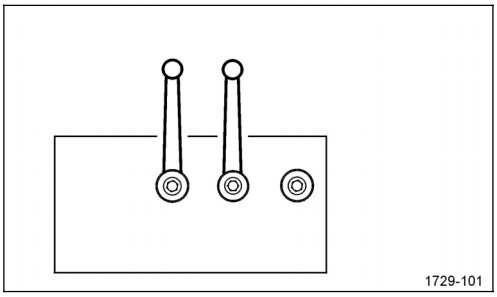


Figure 60

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 60.
- Set the tractor's distribution valve so long to "Lower", until the cutting device is moved completely to home position (i.e. until the knives are moved completely into the knife bottom plate) and until the bottom door is completely opened (moved down).
- Set the tractor's distribution valve so long to "Lift", until the cutting device is moved completely to cutting position (i.e. until the knives are moved completely out of the knife bottom plate) and until the bottom door is completely closed (moved up).
- That the hydraulic accumulators can be filled: After the knives have reached the cutting position, the tractor's distribution valve must be operated for another 5 sec.

Move cutting device into home position

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 60.
- Set the tractor's distribution valve so long to "Lower", until the cutting device is moved completely to home position (i.e. until the knives are moved completely into the knife bottom plate) and until the bottom door is completely opened (moved down).
- That the hydraulic accumulators can be emptied: After the knives have reached the home position, the tractor's distribution valve must be operated for another 5 sec.

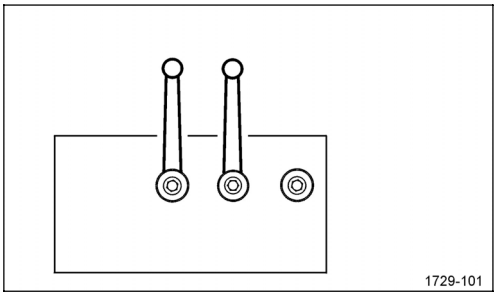


Figure 61

For working without cutting device:

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 61. Thus the cutting device is locked hydraulically.
- Set the tractor's distribution valve so long to "Lift" until the bottom door is closed completely (moved up). The cutting device rests completely in home position (the knives do not move out of the knife bottom plate).

Note! To prevent jamming the knife slots and to keep the knives movable: Move in and out the cutting device multiple times a day.

Cutting device protection

Caution! Special function for fault clearance. Not permissible for production! Normal production only permitted with 35 bar.

To protect the cutting device against mechanical overload (e.g. large stones or hard wood parts come into the cutting device), the knives of the cutting device are protected via a hydraulic pressure valve (cutting device protection). This pressure valve limits the hydraulic pressure – available to the cutting device knives – to a standard pressure of 35 bar. Only this standard pressure is available for swivelling the cutting device knives out to cutting position.

If the knife slots are clogged, this standard pressure may not be sufficient. A by-pass function is therefore available which enables moving the knives of the cutting device out of the knife bottom plate and into working position by means of the full hydraulic pressure of 180 bar. By this clogging of the knife slots can be removed.

Attention, danger of injury! In the following the cutting device knives are moved without cutting device protection.

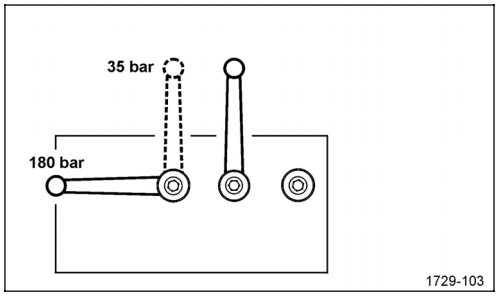


Figure 62

- Left machine side: set left ball valve of the hydraulic block according to Figure 62: 180 bar. set right ball valve of the hydraulic block according to Figure 62: this releases the knives.
- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- Repeat the two working steps above ("Lift" and "Lower") so many times until the jamming of the knife slots is removed and the knives move free and easy.
- Set left ball valve (Figure 62) back to 35 bar.

Attention! The knives must finally moved in and out with 35 bar. Otherwise: Lost of guarantee possible when machine was overload!

- ❑ Move knives again into home position and then back to cutting position by means of the tractor's distribution valve. Just now the normal production can be continued.

Special function: lock bottom door

The HYDROFLEXCONTROL-bottom door (bottom door can be opened and closed hydraulically) can be – if desired – locked hydraulically. See chapter 7.4. Lock bottom door.

7.3.5. Control box Balercontrol E
17-knife cutting device
fixed bottom door

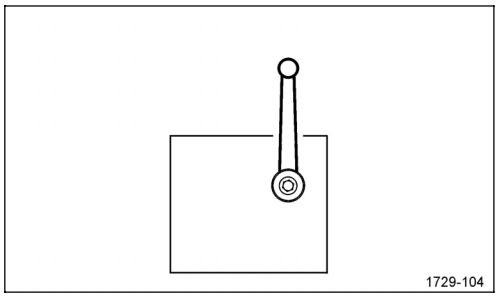


Figure 63

Note! For normal production the ball valve must point to the machine (see Figure 63 and Figure 64)!

Caution!
Before a knife group can be moved into cutting position, all knives – that can be in cutting position – must be totally moved into home position.

Move cutting device into cutting position

- Select 8-knife group or 9-knife group or all of the 17 knives by means of the hydraulic valves (see 7.2.2. Select knife group (Balercontrol E).
- Set the tractor's distribution valve so long to "Lift" as it takes to move the desired knife group totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- That the hydraulic accumulators can be filled: After the knives have reached the cutting position, the tractor's distribution valve must be operated for another 5 sec.

Move cutting device into home position

- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- That the hydraulic accumulators can be emptied: After the knives have reached the home position, the tractor's distribution valve must be operated for another 5 sec.

Note! To prevent jamming the knife slots and to keep the knives movable: Move in and out the cutting device multiple times a day.

Cutting device protection

Caution! Special function for fault clearance. Not permissible for production! Normal production only permitted with 35 bar.

To protect the cutting device against mechanical overload (e.g. large stones or hard wood parts come into the cutting device), the knives of the cutting device are protected via a hydraulic pressure valve (cutting device protection). This pressure valve limits the hydraulic pressure – available to the cutting device

knives – to a standard pressure of 35 bar. Only this standard pressure is available for swivelling the cutting device knives out to cutting position.

If the knife slots are clogged, this standard pressure may not be sufficient. A by-pass function is therefore available which permits putting the pressure valve out of operation. This means, the cutting device knives move out of the knife bottom plate with the full hydraulic pressure of 180 bar and can thus better remove jams at the knife slots.

Attention, danger of injury! In the following the cutting device knives are moved without cutting device protection.

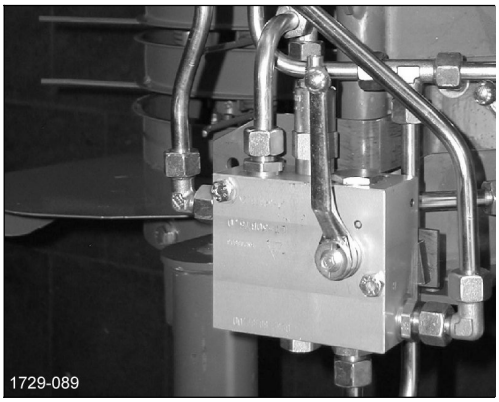


Figure 64

- Select 8-knife group or 9-knife group or all of the 17 knives by means of the hydraulic valves (see 7.2.2. Select knife group (Balercontrol E).
- Swivel ball valve (Figure 64) beneath the left side cover to the front: 180 bar (Figure 65).
- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- Repeat the two working steps above (tractor's distribution valve to "Lift" and "Lower") so many times until the jamming of the knife slots is removed and the knives move free and easy.
- Swivel ball valve (Figure 64) back to the machine: 35 bar (Figure 65).

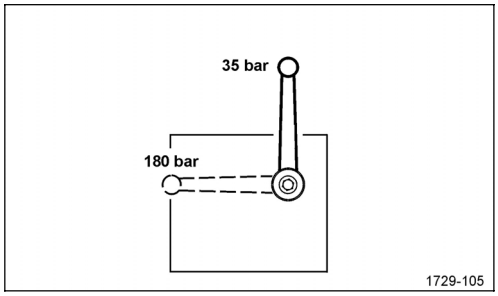


Figure 65

Attention! The knives must finally moved in and out with 35 bar. Otherwise: Lost of guarantee possible when machine was overload!

- Move knives again into home position and then back to cutting position by means of the tractor's distribution valve. Just now the normal production can be continued.

7.3.6. Control box Balercontrol E
17-knife cutting device
bottom door HYDROFLEXCONTROL

Note! For normal production both ball valves must point to the machine (see Figure 66)!

Caution!
Before a knife group can be moved into cutting position, all knives – that can be in cutting position – must be totally moved into home position.

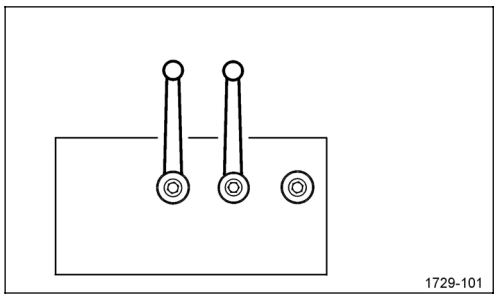


Figure 66

Move cutting device into cutting position

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 66.
- Set the tractor's distribution valve so long to "Lower", until the cutting device is moved completely to home position (i.e. until the knives are moved completely into the knife bottom plate) and until the bottom door is completely opened (moved down).
- Select 8-knife group or 9-knife group or all of the 17 knives by means of the hydraulic valves (see 7.2.2. Select knife group (Balercontrol E).
- Set the tractor's distribution valve so long to "Lift", until the cutting device is moved completely to cutting position (i.e. until the knives are moved completely out of the knife bottom plate) and until the bottom door is completely closed (moved up).
- That the hydraulic accumulators can be filled: After the knives have reached the cutting position, the tractor's distribution valve must be operated for another 5 sec.

Move cutting device into home position

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 66.
- Set the tractor's distribution valve so long to "Lower", until the cutting device is moved completely to home position (i.e. until the knives are moved completely into the knife bottom plate) and until the bottom door is completely opened (moved down).
- That the hydraulic accumulators can be emptied: After the knives have reached the home position, the tractor's distribution valve must be operated for another 5 sec.

For working without cutting device:

- Left machine side: Adjust ball valves of the hydraulic block according to Figure 67. Thus the cutting device is locked hydraulically.
- Set the tractor's distribution valve so long to "Lift" until the bottom door is closed completely (moved up). The cutting device rests completely in home position (the knives do not move out of the knife bottom plate).

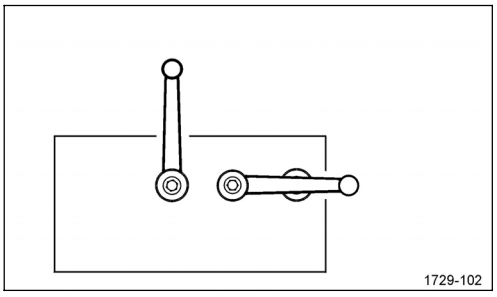


Figure 67

Note! To prevent jamming the knife slots and to keep the knives movable: Move in and out the cutting device multiple times a day.

Cutting device protection

Caution! Special function for fault clearance. Not permissible for production! Normal production only permitted with 35 bar.

To protect the cutting device against mechanical overload (e.g. large stones or hard wood parts come into the cutting device), the knives of the cutting device are protected via a hydraulic pressure valve (cutting device protection). This pressure valve limits the hydraulic pressure – available to the cutting device knives – to a standard pressure of 35 bar. Only this standard pressure is available for swivelling the cutting device knives out to cutting position.

If the knife slots are clogged, this standard pressure may not be sufficient. A by-pass function is therefore available which enables moving the knives of the cutting device out of the knife bottom plate and into working position by means of the full hydraulic pressure of 180 bar. By this clogging of the knife slots can be removed.

Attention, danger of injury! In the following the cutting device knives are moved without cutting device protection.

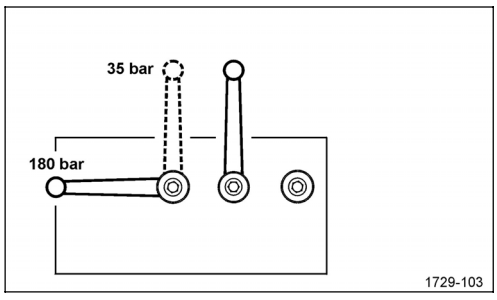


Figure 68

- Left machine side: set left ball valve of the hydraulic block according to Figure 68: 180 bar. set right ball valve of the hydraulic block according to Figure 68: this releases the knives.
- Set the tractor's distribution valve so long to "Lower" as it takes to move the cutting device totally into home position (that means until the knives are totally moved into the knife bottom plate).
- Set the tractor's distribution valve so long to "Lift" as it takes to move the cutting device totally into cutting position (that means until the knives are totally moved out of the knife bottom plate).
- Repeat the two working steps above ("Lift" and "Lower") so many times until the jamming of the knife slots is removed and the knives move free and easy.
- Set left ball valve (Figure 68) back to 35 bar.

Attention! The knives must finally moved in and out with 35 bar. Otherwise: Lost of guarantee possible when machine was overload!

- Move knives again into home position and then back to cutting position by means of the tractor's distribution valve. Just now the normal production can be continued.

Special function: lock bottom door

The HYDROFLEXCONTROL-bottom door (bottom door can be opened and closed hydraulically) can be – if desired – locked hydraulically. See chapter 7.4. Lock bottom door.

7.4. Lock bottom door

The HYDROFLEXCONTROL-bottom door (bottom door can be opened and closed hydraulically) can be – if desired – locked hydraulically. It acts then as a fixed bottom door, i.e. it cannot be opened as long it is locked.

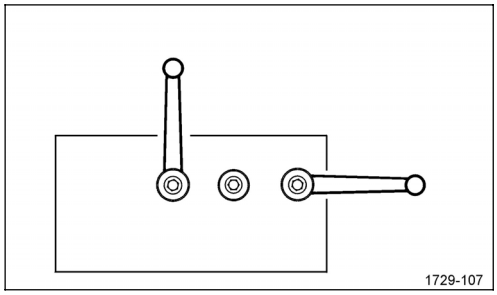


Figure 69

7.4.1. Lock bottom door

- ❑ Change the ball valve from the centre valve to the right valve.
- ❑ Set the right ball valve according to Figure 69.

The bottom door is locked now. I.e.: only the cutting device but not the bottom door can be moved by means of the tractor's distribution valve.

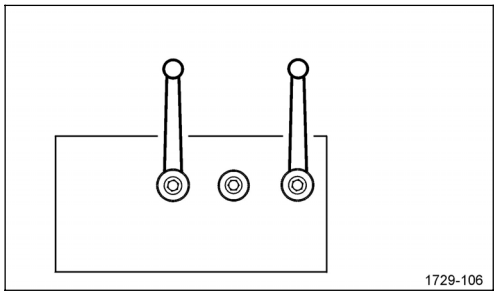


Figure 70

7.4.2. Release bottom door

- ❑ Set the right ball valve according to Figure 70.

The bottom door is released. I.e.: the cutting device as well as the bottom door can be moved by means of the tractor's distribution valve.

7.5. Brittle crop material

While pressing brittle crop material it is recommended to move the cutting device into home position short before wrapping process. In this way the bale is finally wrapped with long material and crop losses are minimised.

7.6. Assembly and disassembly of the cutting device knives

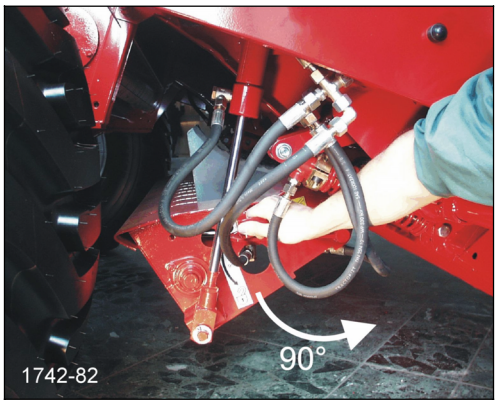


Figure 71

Note! By removing individual knives the cut length of the baling material can be changed. (This counts mainly for the 13-knife cutting device. At the 17-knife cutting device and the 25-knife cutting device the same effect can be got by selecting knife groups).
If no cutting function is desired for a longer period of time, all knives can be removed.

Attention, danger of injury!
Wear protective gloves while working with the knives.
If any maintenance or assembly work is carried out with the tail gate open, the tail gate must be hydraulically secured against lowering for safety reasons:

For the following working steps:
see chapter 7.3. Moving in and out the cutting device.

- ❑ Move cutting device to cutting position.
- ❑ Lower HYDROFLEXCONTROL-bottom door* for at least the half way (Figure 71).
- ❑ Open and secure tail gate (see chapter 2.4. Tail gate safeguard).
- ❑ Swivel lever of the knife axle on the feeder housing (on the right in driving direction) down through about 90° as far as the stop (Figure 71).
- ❑ Using tongs withdraw the knives diagonally upwards from the knife axle and remove them from the slot proceeding from the roll chamber.

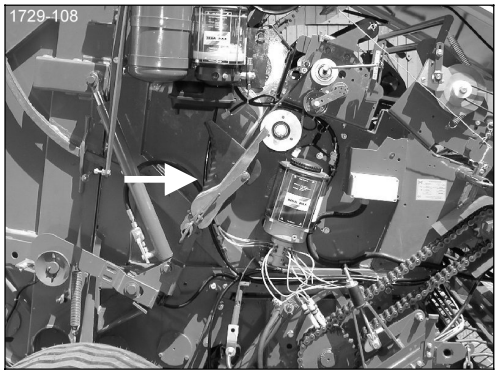


Figure 72

Note! Removed blades should be replaced by blind blades* to prevent soiling of the knife slots (part no. 1724.55.12.37)

As well blind blades as removed blades can be "parked" and secured with a cotter pin behind the right casing door (Figure 72).

7.7. Regrinding the cutting device knives

To provide the best crop throughput it is recommended to regrind the cutting device blades at least after cutting of 500 bales. Dependent on the working conditions sharpening may be necessary earlier:

Attention, danger of injury when working at the magnets of the knife holders!!
the function of cardiac pacemakers can be interrupted by magnetic fields.
Danger of injury by splinters: Never strike against the installed knives from the bottom with a striking tool - this may damage the magnets!

- Remove knives, see chapter 7.6. Assembly and disassembly of the cutting device knives.
- Regrind knives from the smooth side. The temper of the blades must not be drawn when grinding.

A grinder is available as special tool.
(Part no. 0980.70.14.00)

8. Field use

Attention!

The machine may only be operated by persons who are familiar with the operating instructions and the safety instructions.

Never remove any harvested crop material from the machine while the drive is running. Prior to work: Switch off power take-off shaft, switch off tractor engine, remove ignition key and disconnect drive shaft from power take-off shaft end.

During operation: do not climb the machine. Keep sufficient distance to the range of action of the machine (pick-up, running gear, tail gate, bale unloading area). As a matter of principle: Riding on the machine is prohibited for the entire machine! Keep children away from the machine!

Prior to first start: Make yourself with the control box and the functions of this machine.

Nobody must stay between tractor and machine while the tractor engine is running.

Never operate the machine with defective or removed protective devices (e. g. casing sheets and distance brackets)! Before opening the protections: Switch off power take-off shaft, switch off tractor engine, remove ignition key and disconnect drive shaft from power take-off shaft end.

Prior to enter the baling chamber: close tail gate locking device (Figure 3)!

8.1. Driving on the road

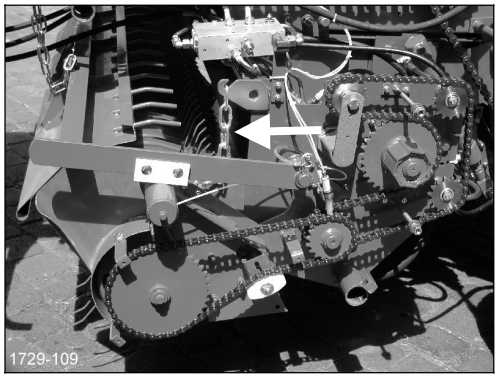


Figure 73

Note!
Read and heed the chapter: 2.12. To heed in the road traffic!

- ❑ Lift pick-up to highest position.
- ❑ Close shut-off valve at the hydraulic tube of the pick-up. By this the pick-up is secured into the highest position.
- ❑ Secure pick-up with both chains (left and right side of the pick-up, Figure 73).
- ❑ When pick-up is 2.25 m* wide: bring pick-up guide wheels into upper position (Figure 74).

Figure 74

- ❑ For avoiding dangerous moments for following traffic both square tubes of the bale ejector* must be completely inserted and secured with bolt and cotter pin (Figure 75). See also chapter 8.2. Bale ejector.

8.2. Bale ejector*

A bale ejector is mounted beneath the roll chamber to prevent that the ready bale does not rest in the area of the swivelling range of the tail gate. Prior to field use both square tubes are pulled out of the parking position and secured with bolt and cotter pin.

Figure 75

Attention!
On locations on a slope the bale ejector should be totally inserted and secured with bolt and pin (Figure 75).

8.3. Laying swaths

The full performance of the machine and good bale formation can only be achieved when the swaths are prepared carefully. Lay swath evenly.

The width of the swath should be:

Pick-up width	2.00 m	2.25 m
optimum width of the swath (approx.)	1.40 m	1.50 m

8.4. Pick-up

8.4.1. Lift/lower pick-up (E-LINK)

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

Several hydraulic functions can be operated with only one tractor's distribution valve by means of a electro-hydraulic manifold block (hydraulic switch)*.

To lift or lower the pick-up by means of the tractor's distribution valve:

- ❑ Open shut-off valve at the hydraulic tube of the pick-up.
- ❑ In the menu "MONITOR": press centre key so many times until the symbol "Pick-up" is displayed (above the centre key).
- ❑ Lift and lower pick-up by means of the tractor's distribution valve.

Note!
The valves of the hydraulic switch* will not be activated when the symbol "Pick-up" is selected at the control box.
This setting has to be preferred to minimise the power consumption and to avoid unnecessary heating of the valve coils.

8.4.2. Lift/lower pick-up (BALERCONTROL E)

- ❑ Open shut-off valve at the hydraulic tube of the pick-up.
- ❑ Lift and lower pick-up by means of the tractor's distribution valve.

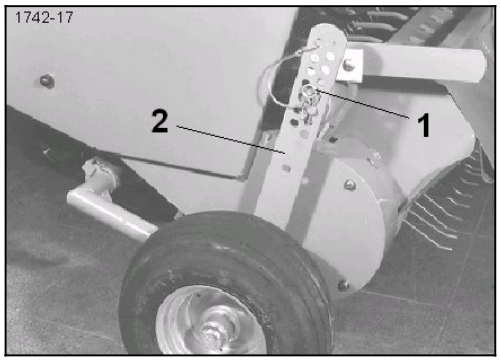


Figure 76

8.4.3. Pick-up guide wheels

On the field, adjust the pick-up guide wheels so that the tines are approximately 2 cm above the ground.

- ❑ To adjust the pick-up guide wheels: raise pick-up.
- ❑ Pull out spring clip [1] and fit shackle [2] in the desired hole (Figure 76).
- ❑ Secure the pick-up guide wheels again with the spring clips.
- ❑ Always select the same adjustment on both sides of the pick-up.

8.4.4. Wind guard

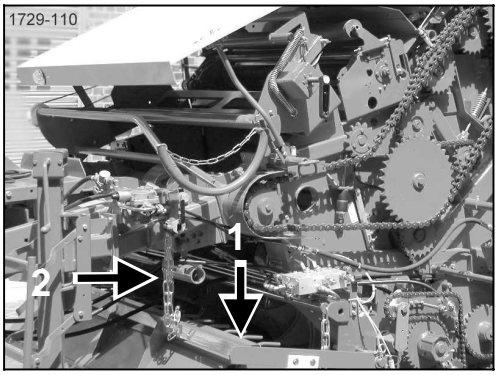


Figure 77

At all versions of the pick-up (Figure 79 and Figure 80) the wind guard is mounted movable – hanging above the pick-up.

- (Figure 77) The vertical position of the wind guard [1] is adjusted to the size of the swath by means of the chain [2].
- To avoid that the pick-up grasps the chain the upper end of the chain must always be fastened to the hook.

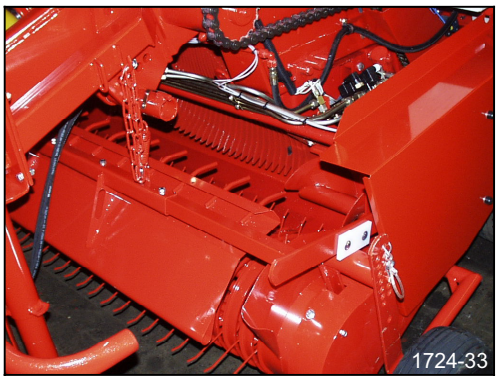


Figure 78

Attention! At the pick-up with pick-up width 2.25 m both pick-up guide wheels cover the circular path of the tines laterally and are therefore part of the safety equipment.

When using the baler both guide wheels must always be attached.

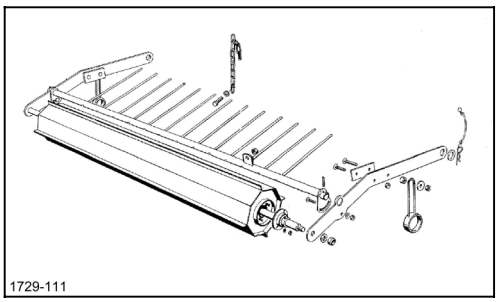


Figure 79

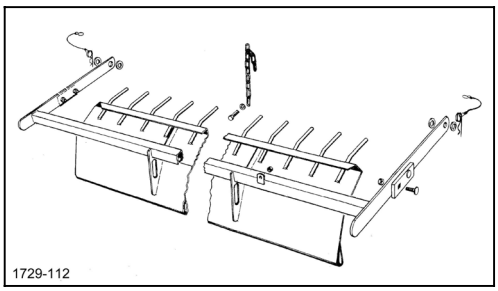


Figure 80

8.5. Feed guide plate

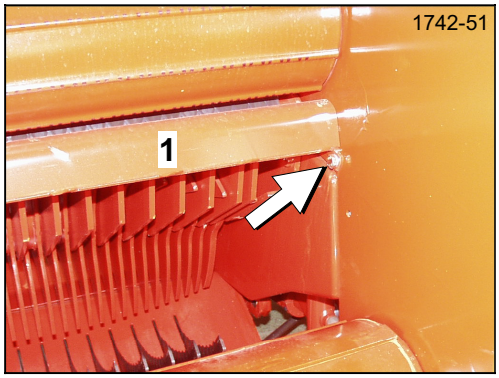


Figure 81

The tear-shaped feed guide plate [1] is installed in the roll chamber in the factory.

If a material jam occurs in case of an extraordinary crop structure, the feed guide plate can be removed: For this unscrew the right screw, seen in driving direction (arrow in Figure 81) and remove profile from the roll chamber.

8.6. PTO speed

Operate baler at power take-off shaft standard speed of 540 rpm. In case of extremely short and brittle crop material a lower PTO speed (350–4501/min) can safely be used.

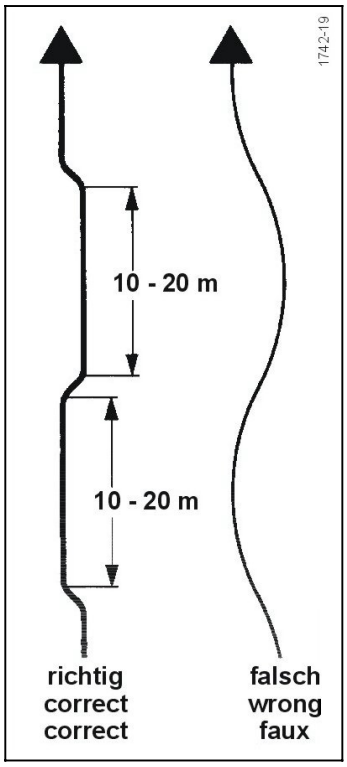


Figure 82

Attention! Only the drive shafts prescribed by the manufacturer may be used! Protective tube and guard cone of the drive shaft, and the power take-off shaft protection, must be fitted and be in proper condition.

Always ensure that the drive shaft is installed and secured correctly: Secure the drive shaft safeguard against revolving by fitting the chain. Ensure before switching on the power take-off shaft that nobody is within the range of danger of the device!

8.7. Driving style

To achieve a high throughput and well-shaped round bales the roll chamber must be evenly supplied with material over the entire width of the machine by an appropriate driving style.

In case of small swaths, i.e. the swath width is lower than the pick-up width, drive alternately on the right and left swath side to fill the baler chamber evenly (Figure 82).

When driving through narrow bends ensure that the wide angle joint (on the tractor side) is not bent by more than 80°. Otherwise there is danger of break in driven as well as in resting state.

8.8.Setting the bale density

8.8.1. Set bale density (E-Link)

See separate operating instruction „E-LINK for RP 235“.

8.8.2. Set bale density (BALERCONTROL E)

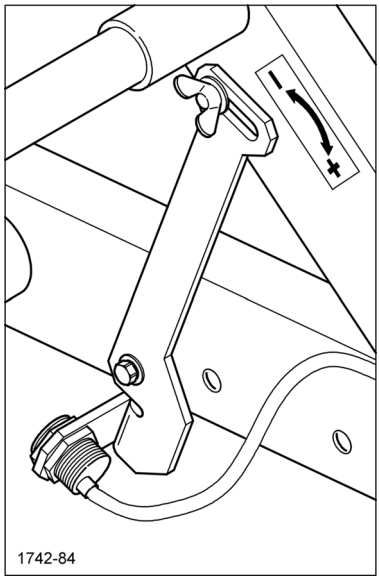


Figure 83

The adjusting lever for density setting is located at the right machine side.

- ❑ Open side cover.
- ❑ Slacken wing screws of the adjusting lever.
- ❑ Set adjusting lever to "+" or to "–".

Set adjusting lever to	+	–
Bale density	higher	lower

- ❑ Retighten the wing screw of the adjusting lever when done.

8.9. Setting of net layers

Only machines with control box E-LINK. See separate operating instruction „E-LINK for RP 235“.

When operating parameter "Net layer" is selected, the setting can be in the range of 1.5 ... 5.0.

When the set net length is through the net knife is triggered and binding is finished.

8.10. Operate tail gate

The tail gate is opened and closed by means of the tractor's distribution valve (distribution valve for the tail gate):

❑ Open and close tail gate by means of the tractor's distribution valve.

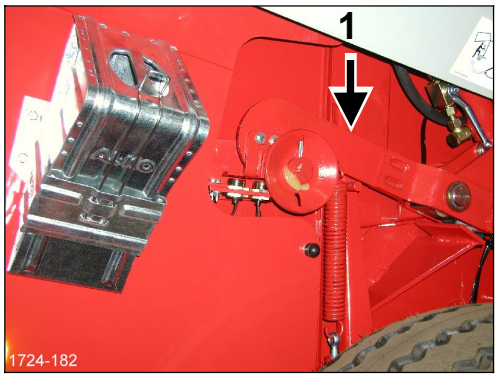


Figure 84

Tail gate must be proper closed:

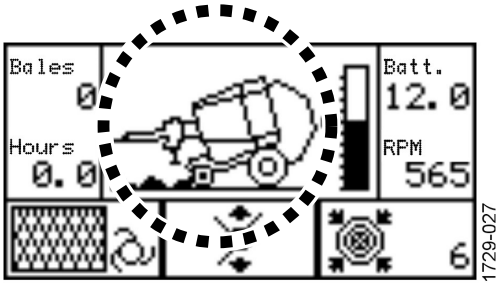
- before beginning with pick-up the crop material.
- after each bale ejection.

❑ To proper lock the tail gate: hold the tractor's distribution valve to "Lower" until the tail gate is completely closed and until the locking hook [1] grasps completely around the locking bolt (Figure 84).

At machines with net wrapping kit the tractor's distribution valve must be held to "Lower" for a few more seconds after the tail gate has been closed. By this the net wrapping kit will be reactivated.

Note!
The valves of the hydraulic switch* will not be activated when the symbol "Pick-up" is selected at the control box.
This setting has to be preferred to minimise the power consumption and to avoid unnecessary heating of the valve coils.
Keep the distribution valve in "floating position" during baling to not unnecessarily stress the hydraulic pump.

Only machines with Balercontrol E:
the white signal lamp (right front side of the machine) lights when the tail gate is unlocked.



Only machines with E-LINK:
A short signal tone indicates the tractor driver that the tail gate is closed completely. Furthermore a closed tail gate is displayed on the control box (see graphic).

9. Operation / Tying

The following tying modes can be selected according to the version:

- manual twine tying
- manual net tying
- automatic twine tying
- automatic net tying
- automatic combined tying

Attention, danger of injury!
Proceed with particular care when opening and closing the tail gate. No persons may stay in the swivelling range of the tail gate and in the bale unloading area.

9.1. Control box BALERCONTROL E

The control box BALERCONTROL E contains the following functions and displays (Figure 85):

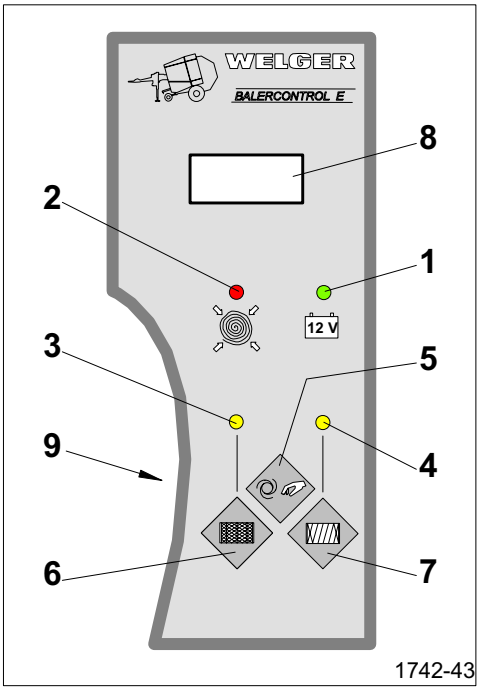


Figure 85

Item	Part	Meaning
1	LED, green	correct power supply
2	LED, red	preset bale density reached
3	LED, yellow	automatic net tying selected. (flashes when net coupling is in operation)
4	LED, yellow	automatic twine tying selected. (flashes when twine motor is in operation)
5	Button	Switching between manual and automatic tying (see chapter 9.1.1. Trigger tying) hold for 5 sec:→ resetting the bale counter (TAZ)
6	Button	manual triggering the net tying
7	Button	manual triggering the twine tying
8	Display, illuminated	Top line: Cumulative counter cannot be deleted Bottom line: daily counter, can be deleted
9	acoustic buzzer (back side)	preset bale density reached

9.1.1. Trigger tying (BALERCONTROL E)

When the preset bale density is reached (chapter 8.8.Setting the bale density), this is indicated to the tractor driver by the red LED [2] and the buzzer [9].

According to the selected tying mode the tying is triggered either manually or automatically:

- manually, i.e. the operator presses the corresponding button (button "Net" [6] or button "Twine" [7])
- automatically, i.e. triggered by the control

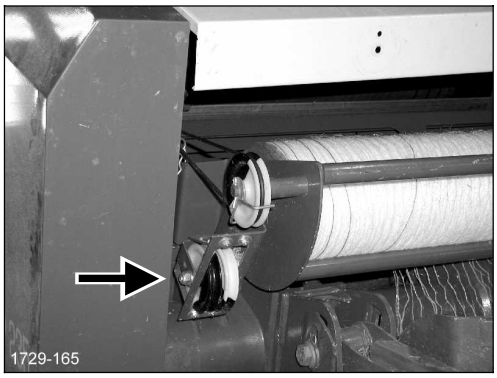


Figure 86

Manual twine tying

- ❑ Press button [5] for several times until none of the yellow LED's is lighting.
- ❑ When the preset bale density is reached the red LED is first flashing and then lighting continuously. The buzzer sounds.
- ❑ During drive: Press button Twine [7] for a short time. The yellow LED [4] flashes simultaneously.
- ❑ Stop tractor after 5 to 10 sec's after pressing the button Twine [7]. Run-out tying at nominated speed.
- ❑ Check twine run at the twine guide rollers (Figure 86). Tying is finished as soon as the guide rollers stop.
- ❑ Open tail gate and eject bale.

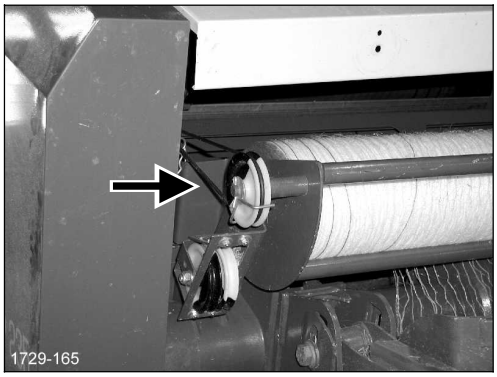


Figure 87

Manual net tying

- ❑ Press button [5] for several times until none of the yellow LED's is lighting.
- ❑ When the preset bale density is reached the red LED is first flashing and then lighting continuously. The buzzer sounds.
- ❑ Stop tractor and let pick-up run empty.
- ❑ Press button Net [6] for approx. 5 sec. The yellow LED [3] flashes simultaneously.
- ❑ Run-out tying at nominated speed.
- ❑ Check net run on the guide roller (Figure 87). The tying process has been finished when the guide roller stops again.
- ❑ Open tail gate and eject bale.

Automatic twine tying

- ❑ Press button [5] several times until the right yellow LED [4] lights.
- ❑ When the preset bale density is reached the red LED is first flashing and then lighting continuously.
- ❑ The twine is inserted automatically in the roll chamber. The yellow LED [4] flashes simultaneously.
- ❑ Approx. 4 sec after the automatic triggering the twine tying a signal sounds. This is the time for stopping the tractor. Run-out tying at nominated speed.
- ❑ Check twine run at the twine guide rollers (Figure 86). Tying is finished as soon as the guide rollers stop.
- ❑ Open tail gate and eject bale.

Automatic net tying

- ❑ Press button [5] several times until the left yellow LED [3] lights.
- ❑ When the preset bale density is reached the red LED is first flashing and then lighting continuously. The signal sounds.
- ❑ Stop tractor immediately and let pick-up run empty.
- ❑ Approx. 4 s after the signal was triggered the net is automatically inserted into the roll chamber. The yellow LED [3] flashes simultaneously.
- ❑ Run-out tying at nominated speed.
- ❑ Check net run on the guide roller (Figure 87). The tying process has been finished when the guide roller stops again.
- ❑ Open tail gate and eject bale.

Note!

If very brittle crop material shall be wrapped with twine the following handling is recommended:

- To tie the start of the twine further crop material must be supplied for a short time after tying has started.
- After tying has been finished: eject bale at nominal speed.

Combined net-/twine tying

To reduce crop losses and to reduce net consumption it is possible to use both tying modes at the same time.

- Operate machine with automatic twine binding.
- Trigger twine binding automatically.
- When flashing of the yellow LED [4] stops press the button [6] for the net tying.

For combined tying it is sufficient to select a small number of net layers and a large distance between the wrappings of the twine.

9.2. E-LINK control box

Figure 88

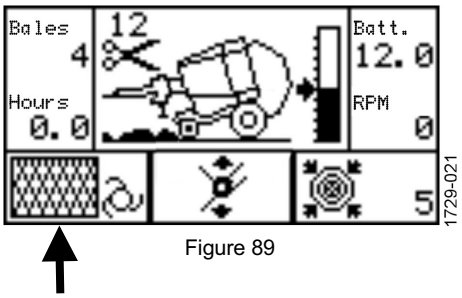


Figure 89

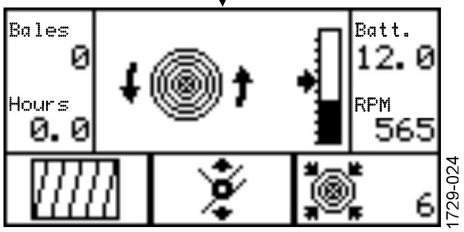


Figure 90

Note! Read and heed the separate operating instruction "E-LINK for RP 235".

9.2.1. Select tying mode

Tying modes are selected with the left button (Figure 88):

- ❑ Press button for several times until the desired tying mode is selected.

The selected tying mode is displayed in the left lower corner (Figure 89). It appears subsequently:

tying mode		machine with twine tying	machine with net tying	machine with twine- and net tying
	manual twine tying	•		•
	automatic twine tying	•		•
	Manual net tying		•	•
	Automatic net tying		•	•
	automatic combined tying			•

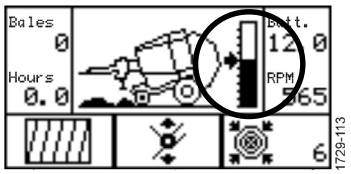
- ❑ Start tying: Press button <START/STOP>

The running tying is displayed with two arrows that rotate around a bale (Figure 90).

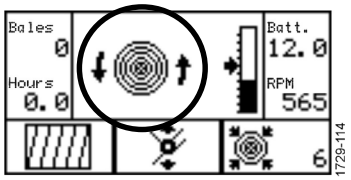
The selected setting is saved and will automatically be used when the control is switched on for the next time. On the following pages the corresponding working steps for each tying mode and the corresponding displays on the control box are shown:

9.2.2. Twine tying, triggered manually:

Acoustic signal (3 sec) when getting the preselected bale density (visual: bar graph-display of the bale density increased to preselected level).

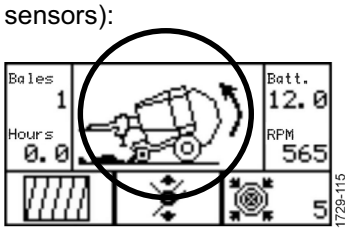


Press button <START-STOP> while driving and stop tractor:



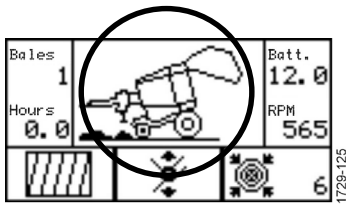
the twine motor remains switched on for 8 sec more after the pressing the button.

After finishing twine tying (standstill at the twine run sensors):

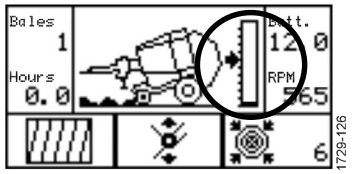


A signal sounds. Then: open tail gate by means of the tractor's distribution valve.

As soon as the locking opens:



After bale ejection: Close tail gate by means of the tractor's distribution valve again.
A short signal sounds after locking the tail gate.

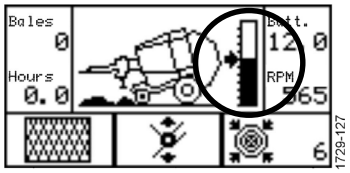


The bar graph display of the bale density has decreased to "0".

Crop material can be picked up again.

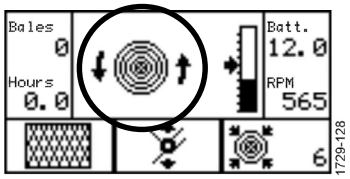
9.2.3. Net tying, triggered manually:

Acoustic signal (3 sec) when getting the preselected bale density (visual: bar graph-display of the bale density increased to preselected level).

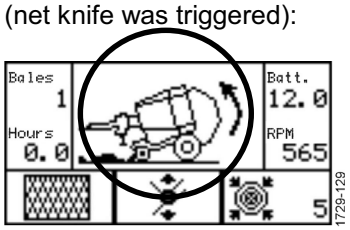


Stop tractor and let pick-up run empty.

Press button <START-STOP> so long until the net is been grasp by the bale.

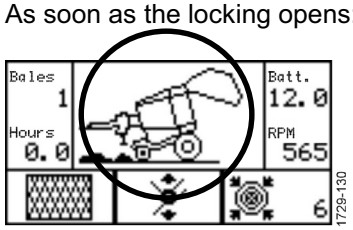


After finishing the net tying (net knife was triggered):

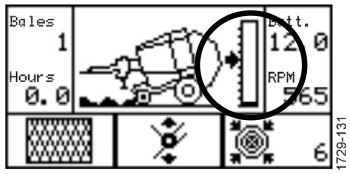


A signal sounds. Then: open tail gate by means of the tractor's distribution valve.

As soon as the locking opens:



After bale ejection:
Close tail gate again.
After locking the tail gate: short signal.
Net knife is tensioned automatically when closing the tail gate.



The bar graph display of the bale density has decreased to "0".

Crop material can be picked up again.

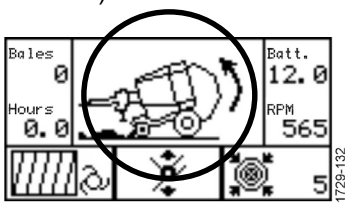
9.2.4. Twine tying, triggered automatically:

Start tying – without doing of the driver – when getting the preselected bale density.

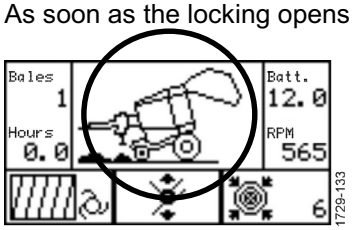
The driver is urged to stop the tractor by an interrupted signal tone that takes 3 seconds.

This signal starts with a short delay **after** tying has been started. This delay can be set in the menu SETUP.

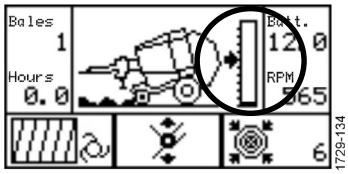
After finishing twine tying (standstill at the twine run sensors):



A signal sounds. Then: open tail gate by means of the tractor's distribution valve.
As soon as the locking opens:



Close tail gate again after bale ejection.
A short signal sounds after locking the tail gate.



The bar graph display of the bale density has decreased to "0".

Crop material can be picked up again.

9.2.5. Net tying, triggered automatically:

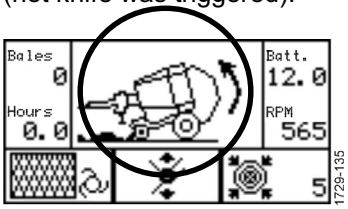
Start tying – without doing of the driver – when getting the preselected bale density.

The driver is urged to stop the tractor by an interrupted signal tone that takes 3 seconds.

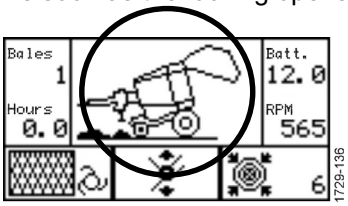
This signal starts with a short delay **before** tying has been started. This delay can be set in the menu SETUP.

Net coupling will be activated for the time of 5 sec.

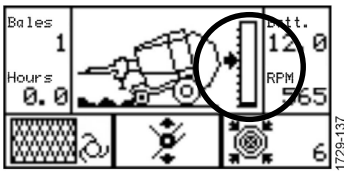
After finishing the net tying (net knife was triggered):



A signal sounds. Then: Open the tail gate
As soon as the locking opens:



Close tail gate again after bale ejection.
A short signal sounds after locking the tail gate.
Operate the distribution valve for another 5 sec for complete tensioning the net knife*



The bar graph display of the bale density has decreased to "0".

Crop material can be picked up again.

9.2.6. Combined tying, triggered automatically:

"Automatic twine tying" and "Automatic net tying" are started with a delay of 3 sec (twine tying starts first).

Stop tractor when signal sounds ("Density reached").

9.2.7. Combined tying, triggered manually:

If the amount of the crop material to be picked up is insufficient to get the preselected bale density, automatic combined tying can not be used. In such cases of premature tying the manual combined tying is used:

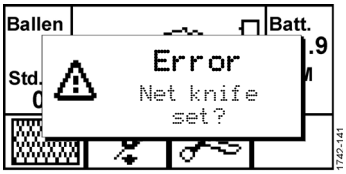
Approx. 5 meter before swath ends: press <START-STOP> key .

9.2.8. Multiple triggering the tying:

Automatic tyings are only triggered once. For reactivating the tail gate must be opened at least one time.

Manual tyings can be triggered as often as necessary without opening the tail gate.

When net tying is triggered for a second time manually first the following request is displayed:



Acknowledge fault message

press key 

When the button <START-STOP> is pressed for another time the tying is restarted.

Check if the net knife is tensioned before triggering a new tying.

9.3. Eject bales

Attention, danger of injury!
Proceed with particular care when opening and closing the tail gate. No persons may stay in the swivelling range of the tail gate and in the bale unloading area.

After tying has been finished:

- ❑ Open tail gate hydraulically that the bale can roll out. Set tractor's distribution valve so long to "Lift" until tail gate is completely open.

If no bale ejector* (see Figure 11, pos. 7) is assembled:

- ❑ Move back for approx. 3 m and move then to the swath prior to closing the tail gate.
- ❑ Closing tail gate: Set tractor's distribution valve so long to "Lower" as it takes for closing the tail gate and the net wrapping kit is retensioned, if necessary.
- ❑ Set tractor's distribution valve to "Neutral" ("floating position") (when position "Neutral" exists).

At the machines with E-LINK control box an additional signal sounds. The display of the control box shows ground state.

The tail gate is now locked at both sides and crop material for the next bale can be picked up.

10. Safety clutch / Reversing unit

10.1. Drive shaft with shear bolt yoke*

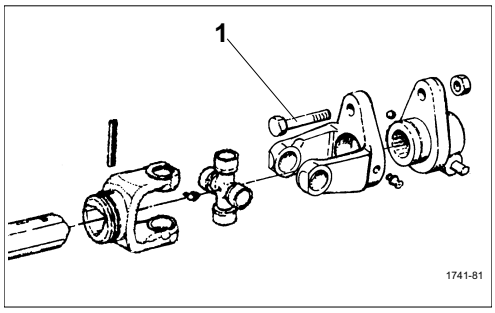


Figure 91

A shear bolt yoke is inserted at the machine side into the drive shaft.

- ❑ The bolt [1] shears off at overload and must be replaced by a new one.
- ❑ Do not restart the machine unless the source of the overload is removed.
- ❑ Use only original spare parts:
  Shear bolt with nut..... 0930.84.53.00

10.2. Drive shaft with cam-type cut-out clutch*

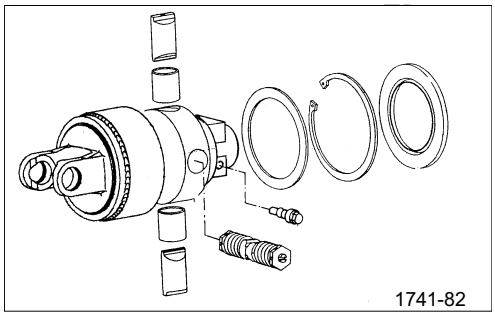


Figure 92

In the event of overload the cam-type cut-out clutch interrupts the driving torque.

- ❑ Switch off power take-off shaft and remove cause of overload.
- ❑ After switching on the power take-off shaft, the torque builds up again so that the machine can be put into operation.
- ❑ Avoid long and frequent overloads. Make sure, that only the corresponding drive shaft is used.

10.3. Reverse main drive

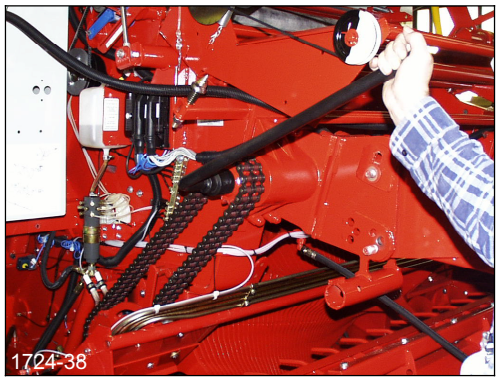


Figure 93

If the feed channel jams at machines without hydraulic bottom door (without HYDROFLEXCONTROL) the main drive can be reversed manually (Figure 93):

- ❑ Switch off power take-off shaft.
- ❑ stop the engine and take out the ignition key.
- ❑ Attach turning handle (wrench size 46 mm) and reverse machine until the feed channel can be emptied.

Attention!
Prior to restart the machine: dismount turning handle and close all guard casings!

10.4. Hydraulic bottom door*

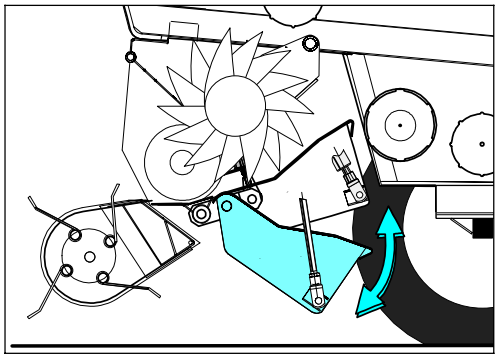


Figure 94

The bottom door (HYDROFLEXCONTROL) can be opened hydraulically. The empty space beneath the rotor is clearly increased. In this way, jammed material is drawn through easier, grasped by the bottom baling roller and conveyed into the roll chamber.

Attention, danger of injury!
Removing malfunctions of the draw-in elements (e.g. pick-up, draw-in screw and tine rotor) only when the tractor engine is stopped and ignition key took out!

For machines with cutting device: there is danger of injury during working in the area of the cutting device even if the knives are in home position (when the knives are completely moved into the knife bottom plate). Wear always protective gloves!

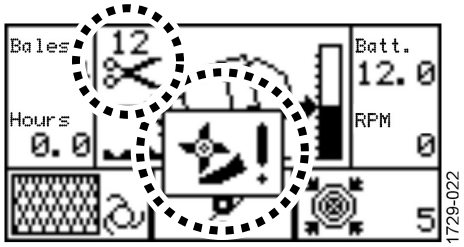


Figure 95

10.4.1. Behaviour during material jam (E-LINK)

- ❑ Stop driving and switch off power take-off shaft.
- ❑ In the menu "MONITOR": Press centre key so many times until the symbol "Bottom door" is displayed (above the centre key).
- ❑ Operate the tractor's distribution valve so long until the bottom door is completely opened and until the knives are moved completely to home position (i.e. until the knives are moved completely into the knife bottom plate).

The window "Bottom door open" is displayed (with flashing exclamation mark, Figure 95) when the bottom door is open.
The symbol "Cutting device" disappears when the knives are inserted into the knife bottom plate (in Figure 95 still displayed).

- ❑ Switch on PTO shaft again.

After material jam has been removed:

- ❑ In the menu "MONITOR": Press centre key so many times until the symbol "Cutting device" is displayed (above the centre key).
- ❑ Operate the tractor's distribution valve so long, until the cutting device is moved completely to cutting position (i.e. until the knives are moved completely out of the knife bottom plate) and until the bottom door is completely closed (window "Bottom door open" disappears).
- ❑ That the hydraulic accumulators can be filled: Operate tractor's distribution vale for another 5 sec.

10.4.2. Behaviour during material jam (BALERCONTROL E)

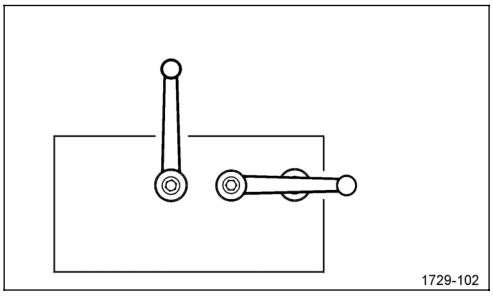


Figure 96

If cutting device has been used:

- ❑ Stop driving and switch off power take-off shaft.
- ❑ (Hydraulic block, left machine side) the right ball valve of the hydraulic valve must point according to Figure 96 to the tail end of the machine. The left ball valve of the hydraulic block must point to the machine.
- ❑ Operate the connected the tractor's distribution valve so long as it takes to move the knives totally into home position (that means until the knives are totally moved into the knife bottom plate).
- ❑ Couple PTO shaft again. The material jam is removed by the running conveying devices.

If the material jam is removed:

- ❑ Operate the connected the tractor's distribution valve so long as it takes to move the knives into cutting position (that means until the knives are moved out of the knife bottom plate).
- ❑ That the hydraulic accumulators can be filled: Operate distribution valve after moving the knives for another 5 sec.

If the material jam is not removed:

- ❑ open and close bottom door (please continue on the next page).

Note! the bottom door can only be opened, if it is **not** locked (see chapter 7.4. Lock bottom door).

Open bottom door:

- ❑ Stop driving and switch off power take-off shaft.
- ❑ (Left machine side, Figure 96:) the left ball valve of the hydraulic block must point to the tail end of the machine. The left ball valve of the hydraulic block must point to the machine.
- ❑ Operate the connected tractor's distribution valve until the bottom door is completely opened.
- ❑ Clutch PTO shaft: The material jam is removed by the running conveying devices.
- ❑ Subsequently: close bottom door.

Close bottom door:

- ❑ Operate the connected tractor's distribution valve until the bottom door is completely closed.
- ❑ That the hydraulic accumulators can be filled: Operate distribution valve after closing the bottom door for another 5 sec.

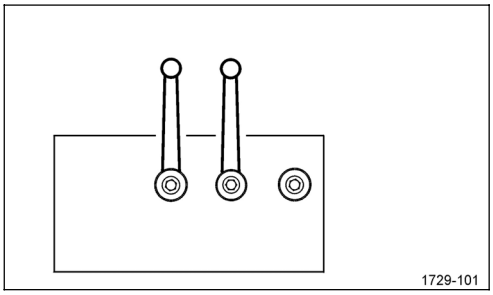


Figure 97

Attention!
For daily use both ball valves must be parallel (see Figure 97)!

- ❑ (Left machine side, Figure 97:) The right ball valve of the hydraulic block must point again to the machine. The left ball valve of the hydraulic block must point to the machine.

Attention!
The knives move automatically into working position when closing the bottom door. If it must be worked without knives the knives must then be moved back to home position: see chapter7. Cutting device

11. Maintenance / Setting

11.1. General notes

After the first 20 running hours: Retighten all fastening screws, wheel nuts, drawbar screws and nuts – also inside the machine. Exception: Do not change adjusting screws, e.g. on the twine guiding or the net brake.

Attention, danger of falling!
Never step onto the maintenance platform during machine is in motion. Before stepping onto the maintenance platform: stop machine, switch-off power take-off shaft and tractor motor and wait for standstill of the machine.

11.2. Environment/Disposal

11.2.1. Lubricants

Dispose of lubricants properly and do not pollute the environment. Observe the safety data sheets of the lubricants used. Biologically degradable lubricants must be disposed of separately.

1 litre of oil pollutes 1 million litres of water.
1 litre of oil pollutes 10 million cubic meters of soil.

11.2.2. Consumables

Twines, nets, and machine parts thrown away pollute the environment. They endanger in particular the animal world.

Therefore: Dispose of twines, nets, and machine parts in a professional manner.

11.3. Tensioners

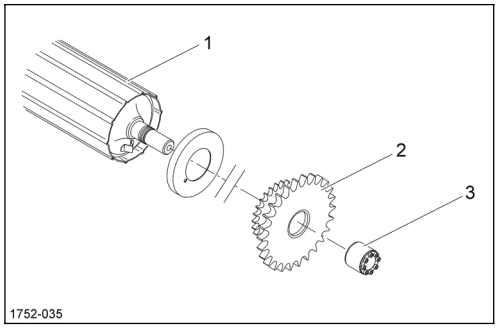


Figure 98

Caution!
(Figure 98) The gears [2] of the main drive shaft [1] are mounted with tensioners to the shaft end. Working at the tensioners [3] must only performed by instructed technical staff.

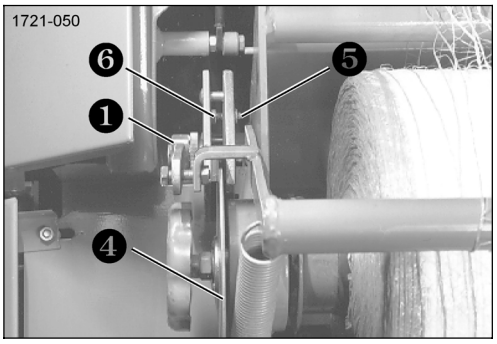


Figure 99

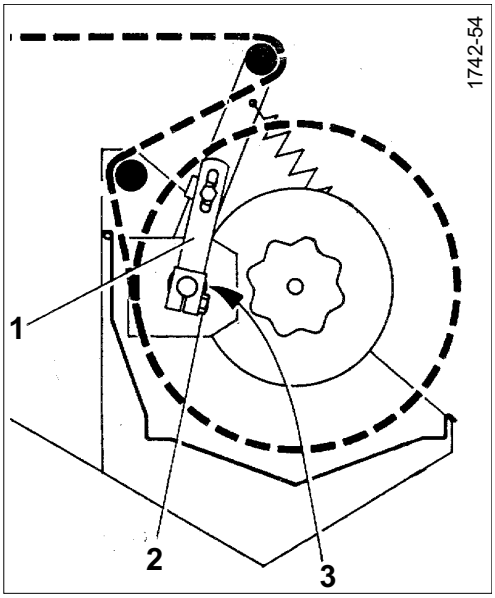


Figure 100

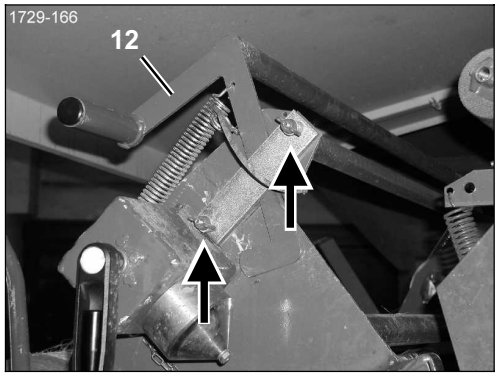


Figure 101

11.4. Maintenance of the net tying unit

Adjusting the disk brake

(Figure 99 and Figure 100)
To prevent castor of the net roll the disk brake must be adjusted in such a way that the brake disk can no more be turned by hand when the lever [1] points upwards.

For this slacken screw [2] at the lever [1], tighten milled nut [3] so far that the brake linings are fully attached to the brake disk. Retighten screw [2].

When brake lining [4] is worn only one-sided slacken lock nut [5] and slightly insert screw [6] until brake linings are parallel again, lock screw [6] again.

Adjusting the shock absorbers

Caution, danger of injury!
Do not reach into the knife area.

On the left machine side, the movements of the net tensioner [12] are braked by a shock absorber.

Two wing nuts (arrows in Figure 101) press the friction linings against the net tensioner from both sides. For adjustment first move the net tensioner to the top end position and tighten the wing nut "hand-tight". Proceed analogously in the bottom end position. The adjustment is correct, if the net tensioner can just still be moved to and fro between the two end positions by hand.

During net tying the net tensioner may move between the two end positions only in such a way that the net always remains properly tensioned.

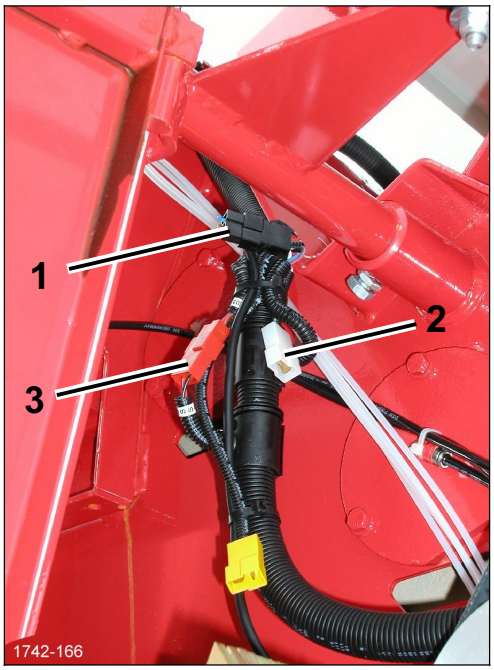


Figure 102

11.5. Emergency operation of the tying unit

In case of a defect in the electronic control, the twine- or net tying unit can, if necessary, be operated by means of the electric lighting system. The plug connection [1] projecting from the cable harness on the right side of the machine serves for this purpose.

11.5.1. Emergency operation of the net tying unit

The black attachment plug [1] of the electric net coupling is simply plugged into the empty white socket [2]. To trigger the net tying switch on the parking light (or the low beam or the high beam) for a short time until the net is grasped by the bale (recognisable from the fast rotation of the net roll).

11.5.2. Emergency operation of the twine tying

The red attachment plug [3] for the twine tying is simply plugged into the empty white socket [2]. To trigger the twine tying switch on the parking light (or the low beam or the high beam) for a short time until the twine is grasped by the bale. This emergency operation requires an intact main power supply between tractor and machine.

Note! If the lighting system is permanently switched on, e.g. for driving on the road, it is essential that the provisional connection of the net- and twine tying unit is interrupted.

11.6. Components for Balercontrol

11.6.1. E-LINK control box

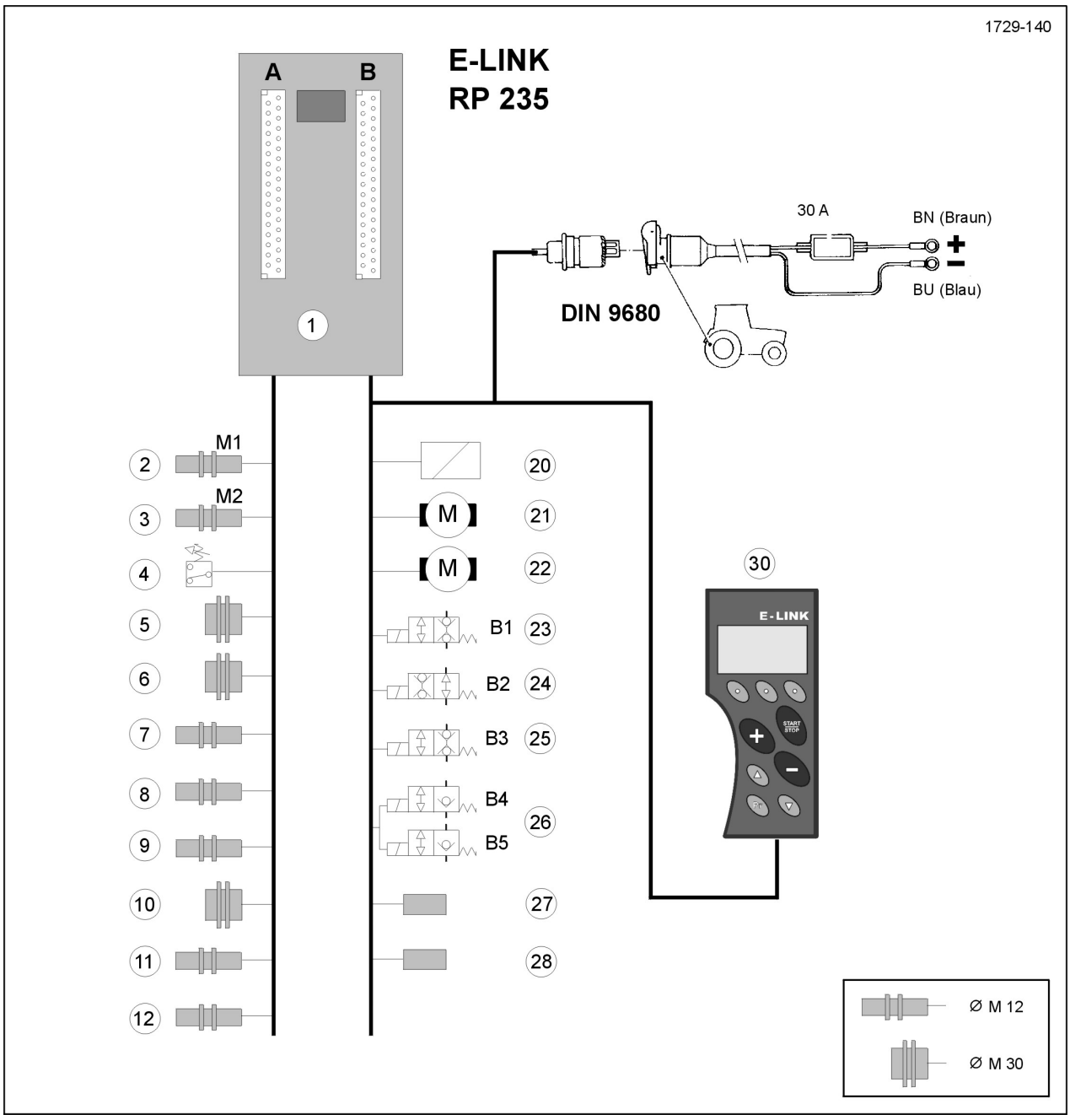


Figure 103

(Explanation for Figure 103)

Item		Item	
1	control unit	20	magnet net tying unit* (N)
2	sensor cutting device* (knife group 1)[1)]	21	net knife tripping device
3	sensor cutting device* (knife group 2)[1)]	22	motor twine tying unit* (T)
4	pressure switch (P)[1)], opens at 35 bar	23	hydraulic switch B1
5	sensor locking right (R)	24	hydraulic switch B2
6	sensor locking left (L)	25	hydraulic switch B3
7	sensor bottom door* (G)	26	hydraulic switch B4 and B5
8	sensor twine run right (1)	27	distance sensor left, yellow (L)
9	sensor twine run left (2)	28	distance sensor right, yellow (L)
10	sensor net knife* (N)		
11	sensor net length	30	Control box
12	sensor PTO speed		

[1)] only with cutting device

11.6.2.Control box BALERCONTROL E

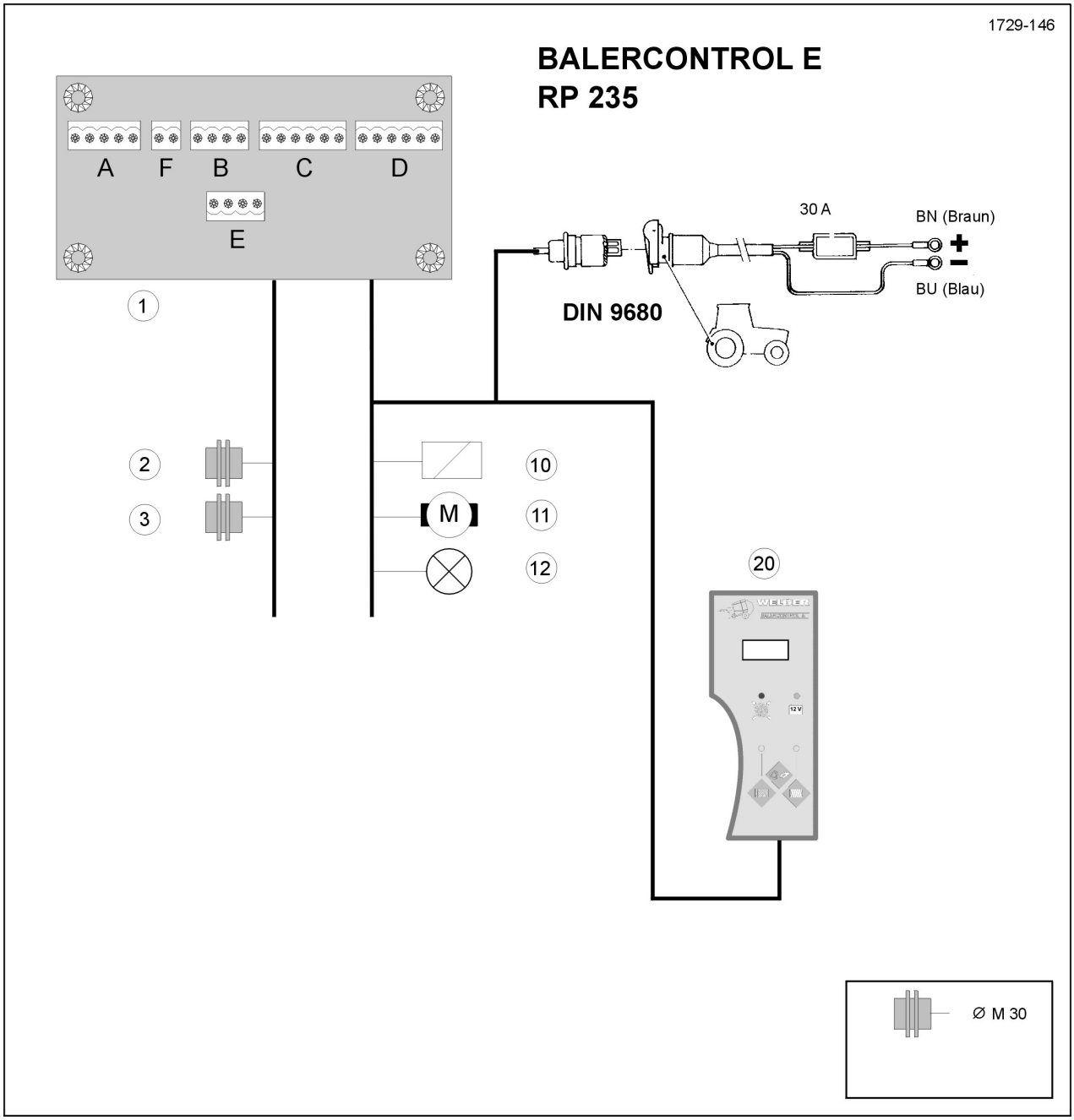


Figure 104

(Explanation for Figure 104)

Item		Item	
1	PCB of the control	10	magnet net tying unit* (N)
2	sensor bale density	11	motor twine tying unit* (T)
3	sensor tail gate locking device	12	Control lamp tail gate OPEN - CLOSE
		20	Control box

11.7. Hydraulic layouts

11.7.1. Hydraulic layout

machines **with E-LINK**
with HYDROFLEXCONTROL bottom door
with 13-, 17- or 25-knife cutting device

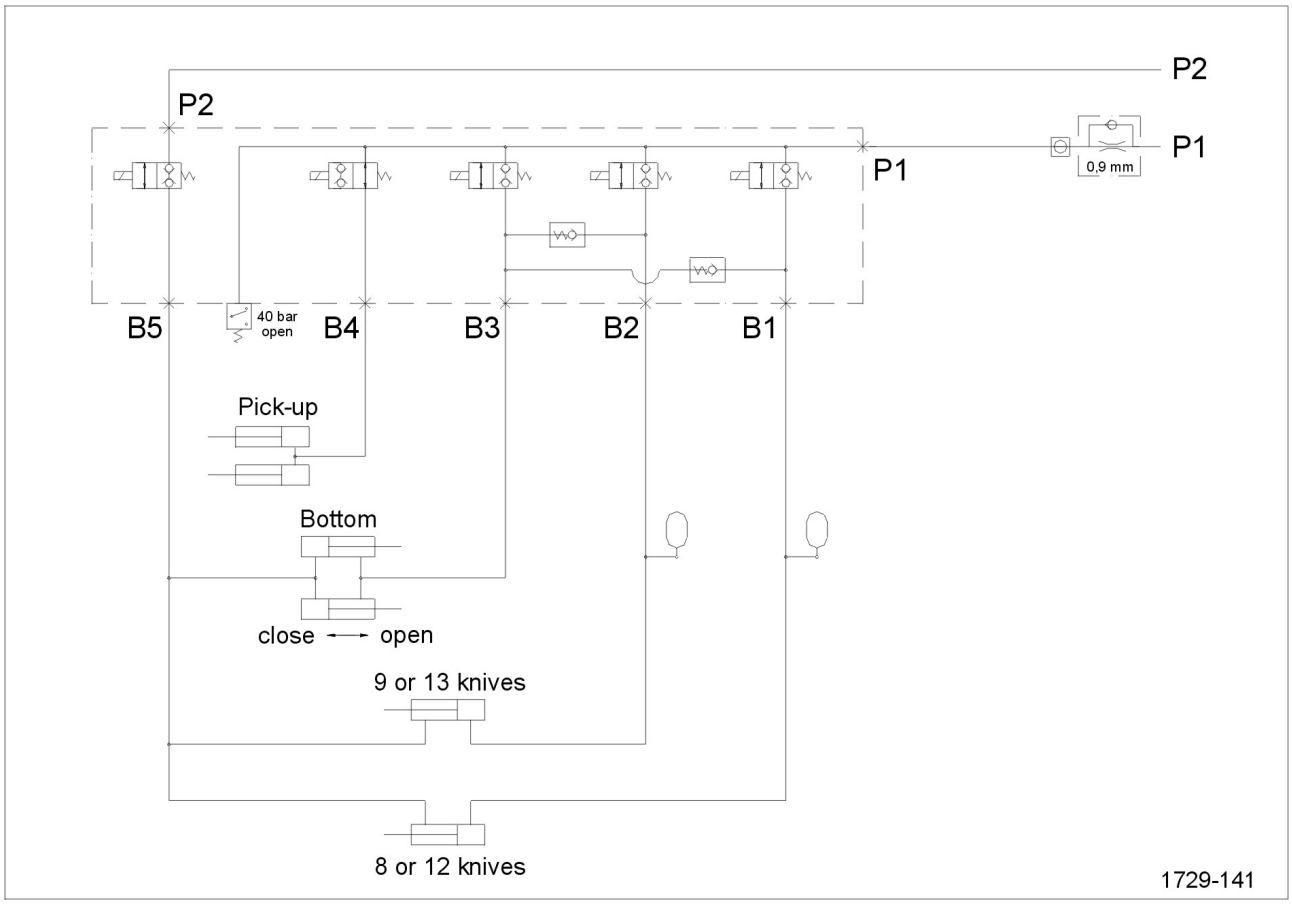


Figure 105

Logic diagram

		Hydraulic switch	*Control valve*				
			B1	*B2*	*B3*	*B4*	
Pick-up		*indifferent*					
Bottom (Hydroflex)		*indifferent*			*X*	*X*	
	8 or 12 knives	*closed*	*X*			*X*	
		open				*X*	
	9 or 13 knives	*closed*		*X*		*X*	
		open				*X*	
	17 or 25 knives	*closed*	*X*	*X*		*X*	
		open				*X*	

1729-142

X = valve under current (live)

Figure 106

11.7.2. Hydraulic layout BALERCONTROL E
machines with conveyor bottom
with cutting device

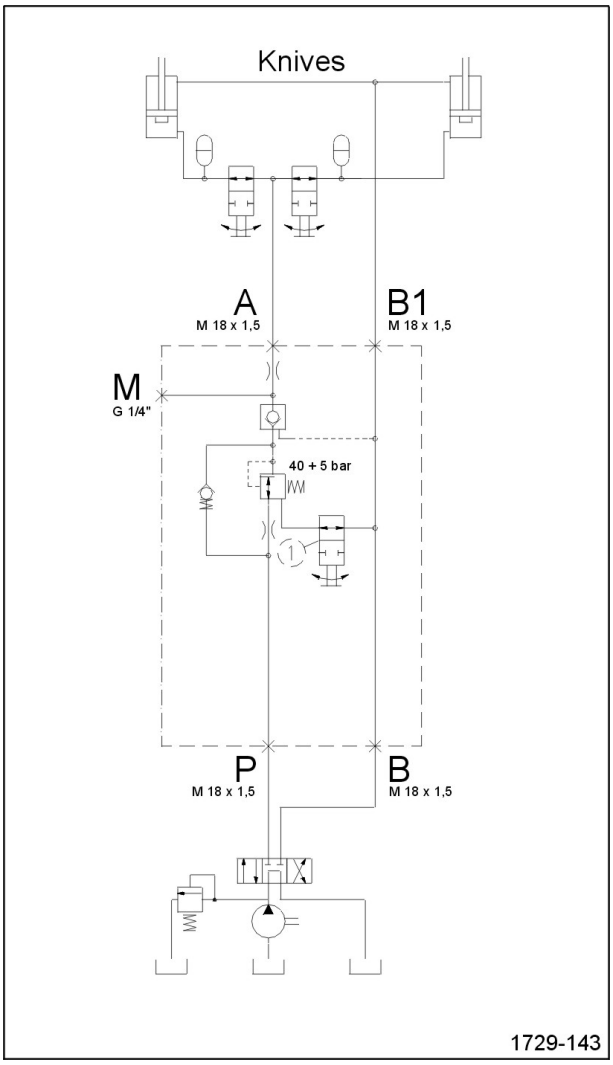


Figure 107

11.7.3. Hydraulic layout BALERCONTROL E
machines with HYDROFLEXCONTROL bottom door
with cutting device

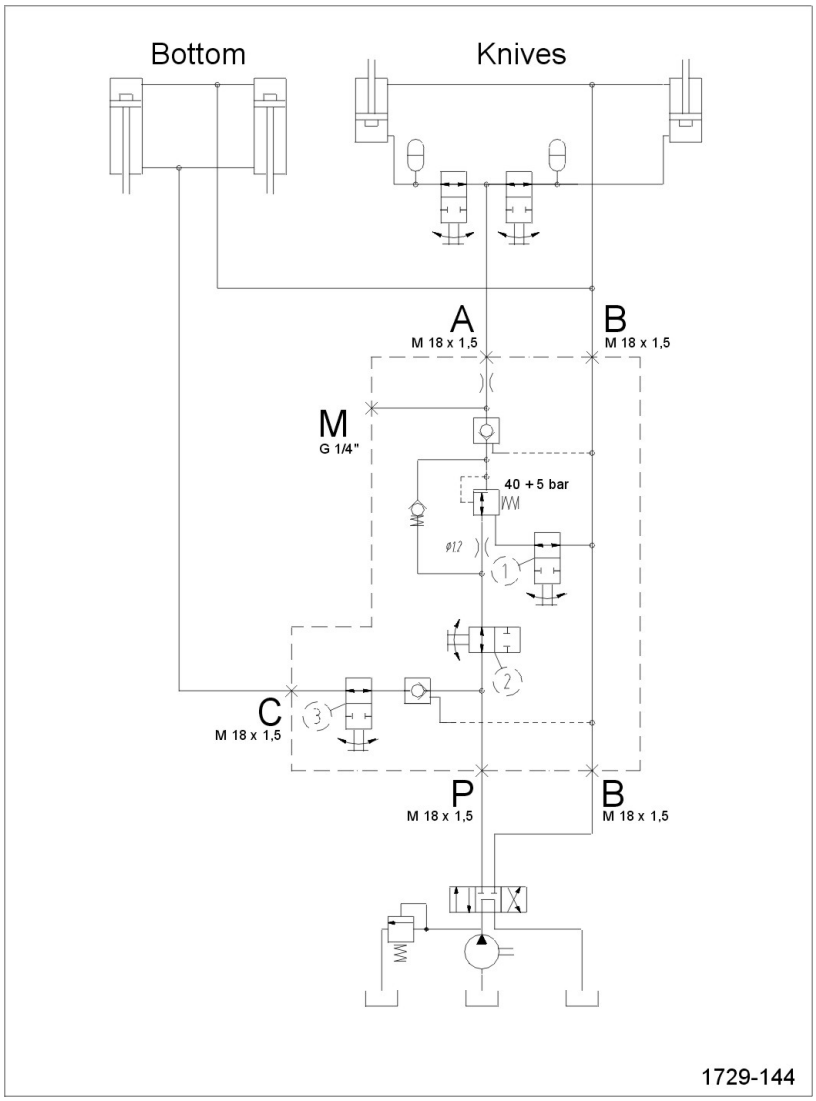
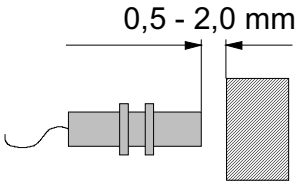
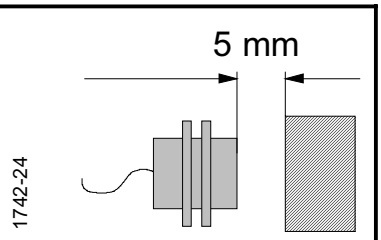


Figure 108

11.8. Setting the sensors*

Three different kinds of sensors are mounted:

Item	Name	Use	Setting
1	Sensor m12 ∅12 mm	• Cutting device* (group 1 and group 2) • Bottom door* • Twine run, right • Twine run, left • Net run • PTO speed	
2	Sensor m30 ∅30 mm Metal casing	• Locking device, right • Locking device, left • Net knife*	
	Sensor m30 ∅30 mm Plastic casing	• Basic setting density	only possible with special tool Part no.: 0980.70.01.00 and: 1740.82.14.10
3	Distance sensor (yellow) ∅20 mm	• Distance tail gate, right • Distance tail gate, left	only possible with special tool Part no.: 0980.70.01.00 and: 1740.82.14.10

11.9. Short check E-LINK

Attention, danger of injury! During processing the short check the machine must not be connected to the hydraulic supply. The PTO must be switched off and uncoupled.

Step 1

❑ Connect plug of the power supply

- Control box beeps ..... ❍
- Display is illuminated ..... ❍
- Start up is displayed ..... ❍
- Monitor is displayed ..... ❍
- Takes BALERCONTROL commands, e.g. density preset? ..... ❍

Step 2

❑ Start menu **SETUP**

Check the settings:

- Dialogue language ..... ❍
- Machine type ..... ❍
- Delay 0 – 5 s ..... ❍

Step 3

❑ Start menu **SYSTEMINFO**

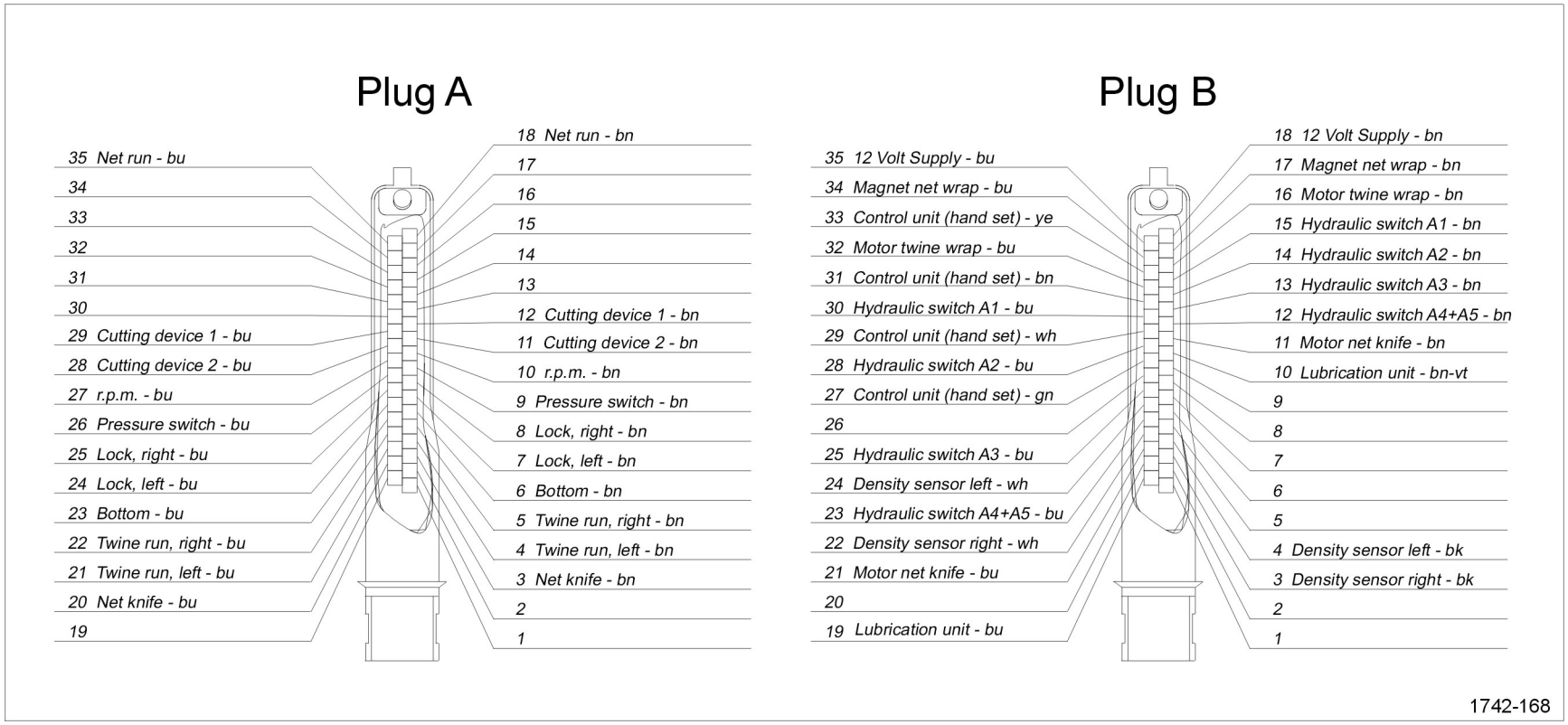
- See for hard- and software and make notes, if necessary ..... ❍

Step 4

❑ Menu: START **DIAGNOSIS** (optional: **AUTO DIAGNOSIS**)

- Trigger each sensor in the menu **DIAGNOSIS / SENSOR**, i.e. hold metal part in front of the sensor or remove it; check setting and correct location in the Function display; ❍
- **DIAGNOSIS / ACTOR** check all actors -/- and +/+ ..... ❍

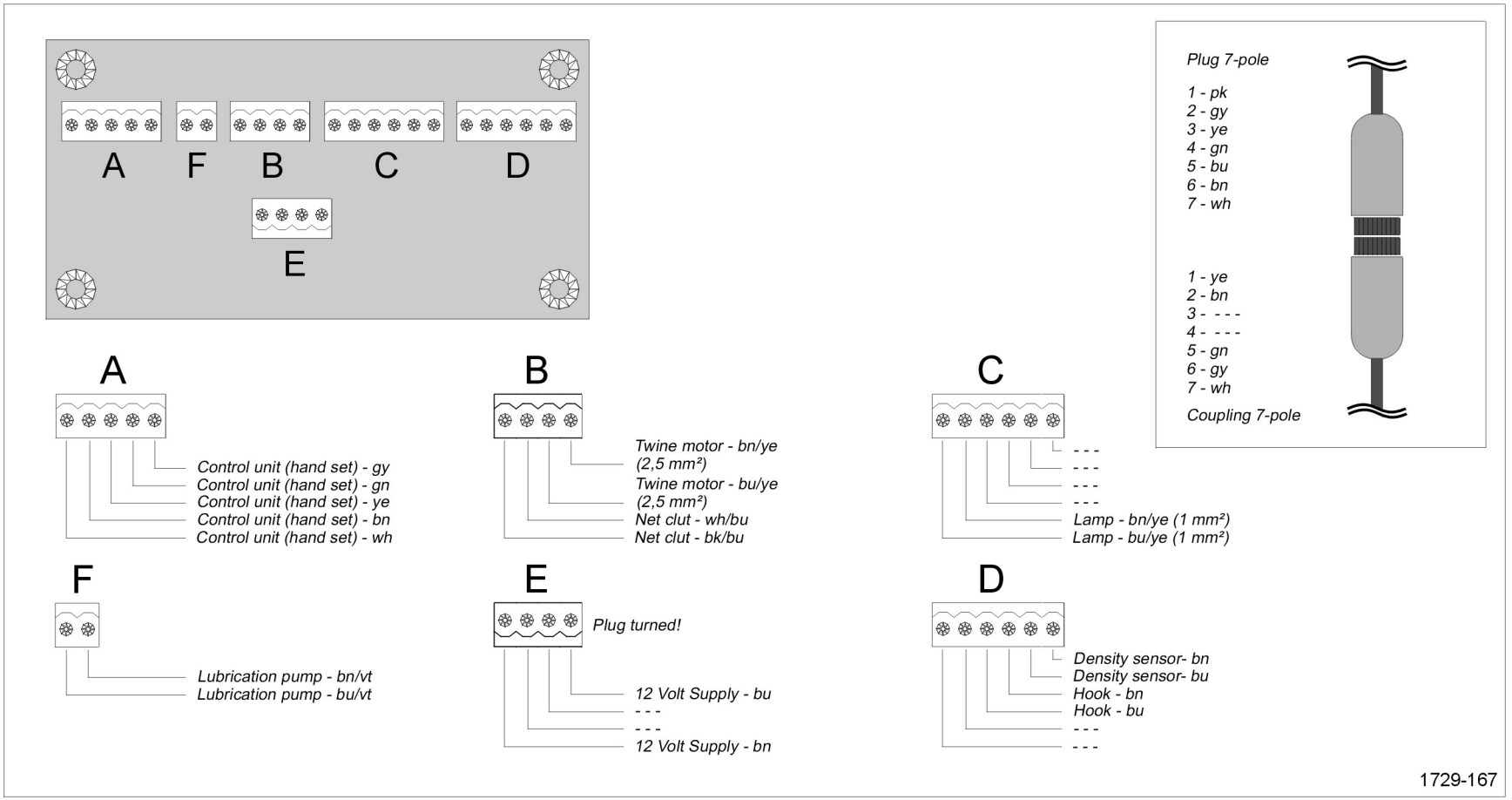
11.10. Pin assignment E-LINK



BK	= black	BU	= blue
BN	= brown	VT	= violet
RD	= red	GY	= grey
OG	= orange	WH	= white
YE	= yellow	PK	= pink
GN	= green	TQ	= turquoise

IEC 60757 (International Electrotechnical Commission)

11.11. Pin assignment BALERCONTROL E



BK	=	black	BU	=	blue
BN	=	brown	VT	=	violet
RD	=	red	GY	=	grey
OG	=	orange	WH	=	white
YE	=	yellow	PK	=	pink
GN	=	green	TQ	=	turquoise

IEC 60757 (International Electrotechnical Commission)

11.12. Chain lubrication (oil lubrication)

Figure 109

The mechanical chain lubrication provides the drive chains of the machine with oil.

- ❑ Check oil level in oil reservoir daily (visual check). Never let the oil reservoir run completely empty.

Caution!
Check oil level daily. Avoid complete emptying. Otherwise air can enter the distribution system and the pump can lose power.

Oil type: See chapter 11.15. Lubrication chart.

If required: fill oil:
- ❑ Unscrew tank cover.
- ❑ Refill oil up to the max. mark.
- ❑ Check tank screen in the oil reservoir for dirt or blockage (visual check).
- ❑ Screw cover down again.

If required: clean screen:
- ❑ Unscrew tank cover.
- ❑ Remove screen:
- ❑ Clean the screen thoroughly using exclusively petroleum benzine or petroleum.
- ❑ Insert screen and screw cover on again.

Subsequently:
- ❑ Check oil level in oil reservoir daily.

Caution!
Never use for cleaning: Tri, Per, methanol, acetone or other polar, organic solvents.

11.13. Roller lubrication (grease lubrication)

The electric roller lubrication supplies the baling rollers of the machine with grease.

- ❑ Only BALERCONTROL E: The electric roller lubrication runs constantly as long as the machine is connected to a power supply. Therefore: When the machine is out of use (e.g. longer standstill periods, driving on the road) the power supply must be interrupted (unplugged).

Figure 110

Caution!
Please heed the separate operating instruction for roller lubrication (is attached to the lubricant reservoir).

- ❑ Check lubricant level in oil reservoir daily (visual check). Take care that the filling level does not sink beneath the minimum mark.

Caution!
Take care that the filling level does not sink beneath the minimum mark. Otherwise air can enter the distribution system and a ventilation can become necessary.

Grease type: See chapter 11.15. Lubrication chart.

If required: refill grease:
- ❑ Clean filling nipple at the lubricant reservoir.
- ❑ Fill lubricant reservoir by means of the filling nipple and a manual grease gun.

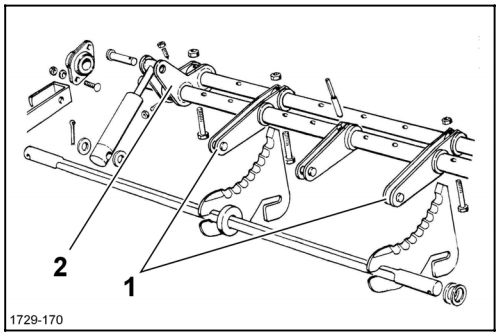


Figure 111

11.14. Grease knife lever

Only machines with cutting device XtraCut 17 and XtraCut 25:
- ❑ Nonrecurring 3 weeks after first commissioning: Grease the knife levers [1] (grease nipple at the bottom side of each knife lever).
- ❑ Nonrecurring 3 weeks after first commissioning: Grease the knife lever [2] (grease nipple at the bottom side of the knife lever).
- ❑ After set regrease once per season.

11.15. Lubrication chart

After each 500 bales (or daily)			
Position (Figure 112)	**Machine part**	**Lubricant** (Table 4)	**Note**
1	Drive shaft	A	
2	Chain lubrication	B	right machine side (Figure 109 and Figure 112)
3	Hinge of the tail gate [1)]	A	on both sides
4	Metering device*, at the front left	A[2)]	
	Metering device*, at the front right	A[2)]	not shown in Figure 112
5	Metering device*, at the rear left	A[2)]	
	Metering device*, at the rear right	A[2)]	not shown in Figure 112
6	Locking hook [1)]	A	on both sides
7	Roller on locking device	A	on both sides
8	Cutting rotor* [1)]	A	on both sides
9	Pick-up guide wheels	A	on both sides
10	Guide rail for tail gate	A	right machine side, grease
11	Roller lubrication	F	right machine side (Figure 110 and Figure 112)

1) Depending on version, possibly supplied by central lubricant metering device.

2) Supply lubricant metering device by means of a cautious stroke from the manual grease gun - do not use compressed air grease gun.

Annually after the end of the season (in case of special operating conditions also weekly)			
Position (Figure 112)	**Machine part**	**Lubricant** (Table 4)	**Note**
12	Star ratchet in pick-up drive	A	for pick-up 1.50 m; assembled only for Non-EC
13	Main gear unit	C / 2.00 Litre	Oil change check filling level with dip stick or overflow hole
14	movable parts of the net tying unit*	D	provide for smooth motion
15	movable parts of the twine tying unit*	D	provide for smooth motion
16	Belleville springs of the locking hooks	E	dismantle, clean and grease; Attention: do not change sensor setting!
17	Twine eyes	A	grease chafe marks slightly
18	Only machines with cutting device XtraCut 17 and XtraCut 25: grease knife lever (see 11.14. Grease knife lever)	A	3 weeks after first commissioning, then once per season

11.16. Schematic presentation of the lubrication points

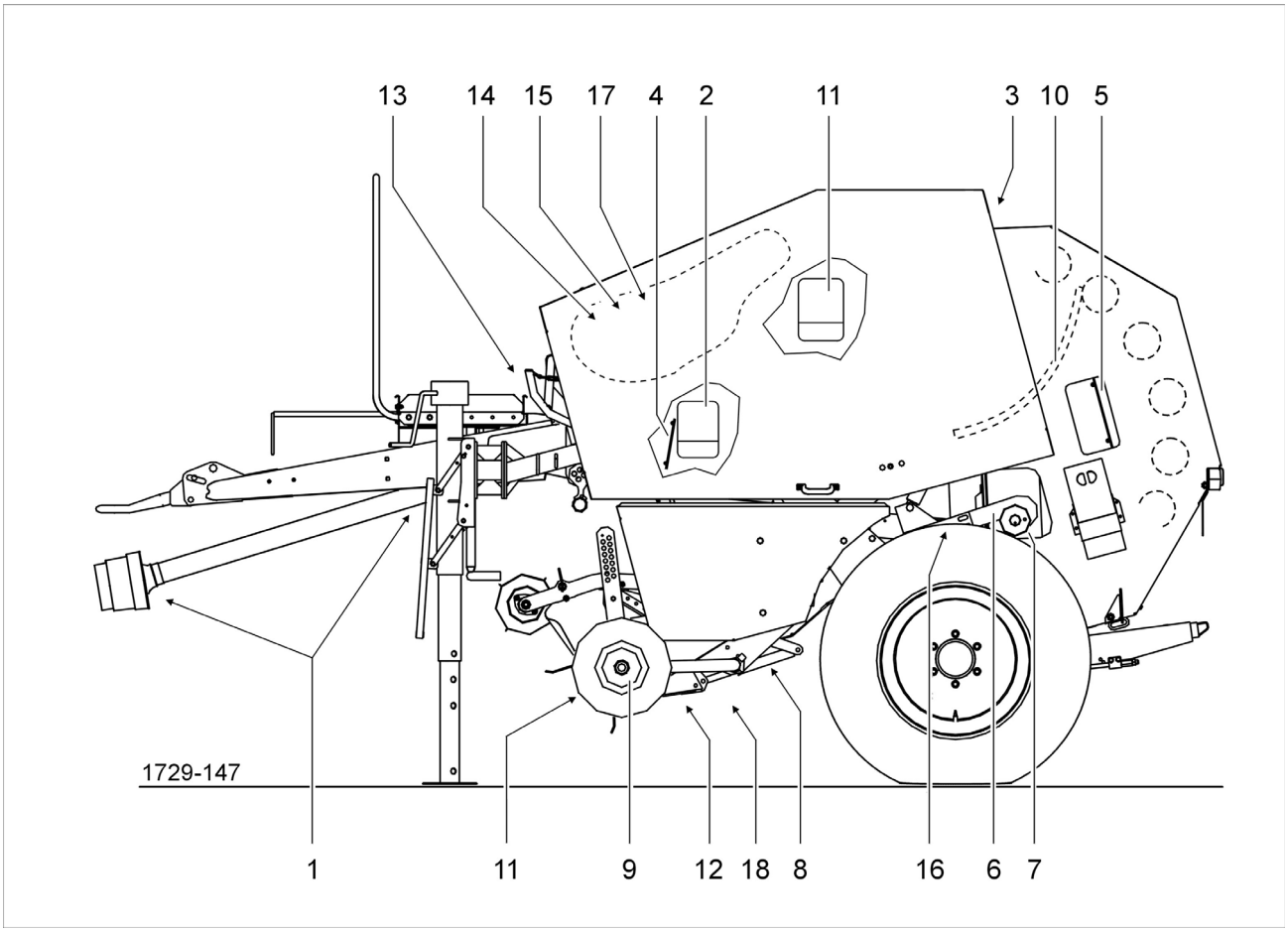


Figure 112

	Lubricant	Trade name, e. g.
A	Multipurpose grease	Fuchs Renolit FEP 2
		Bechem High-Lub LM 2 EP
		BP Energrease LS-EP2
		Elf Epexa 2
		Esso Beacon EP 2
B	Chain lubrication	Lubricant according to ISO VG 68 – ISO VG 220 (not thickening)
C	Gear oil	SAE 90
D	Machine oil	- - -
E	Multipurpose grease	Gleitmo 810
F	Multipurpose grease	Multipurpose grease according to NLGI-class 2, with high pressure additive, without solid parts

Table 4: Specification of the lubricants

Attention! Never perform maintenance- and repair works during machine is in operation. stop the tractor engine and take out the ignition key, wait until the machine has stopped, switch off PTO shaft and pull drive shaft from the PTO shaft before start working at movable parts of the machine.

If any maintenance or assembly work is carried out with the tail gate open, the tail gate must be hydraulically secured against lowering for safety reasons:

for this use the shut-off valve located at the right side of the machine. When the valve is shut off, the actuating lever is at right angles to the flow direction (Figure 2).

The shut-off valve must only be operated from the open right-hand casing door.

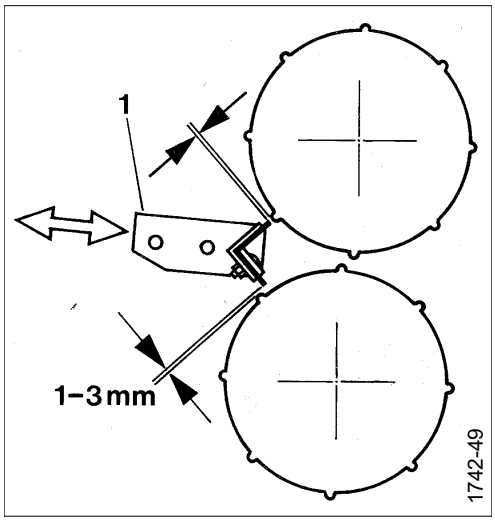


Figure 113

11.17.Adjusting the deflectors

To prevent twine or net from leaving the roll chamber two deflectors [1] (Figure 113) had been mounted in the bottom area of the front roller.

- ❑ The distance between the deflectors and the roller can be changed by slackening the fastening screws in the side walls.
- ❑ Adjust the deflector so that the longitudinal profiles on the rollers just still pass the deflector during operation.
- ❑ Retighten the screws.

11.18. Tensioning the roller chains

Figure 114

Correct chain tensioning reduces the wear of the chains, chain wheels and the bearings of the rollers. Chain tensioning has to be checked and/or retightened at least after 500 bales.

Note: New chains elongate already after a short time of operation. They can therefore be tensioned a little bit stronger.

Rotor drive chain

The twin-chain of the rotor drive must be tensioned so much until the distance between both disks is approx. 70 mm (Figure 114).

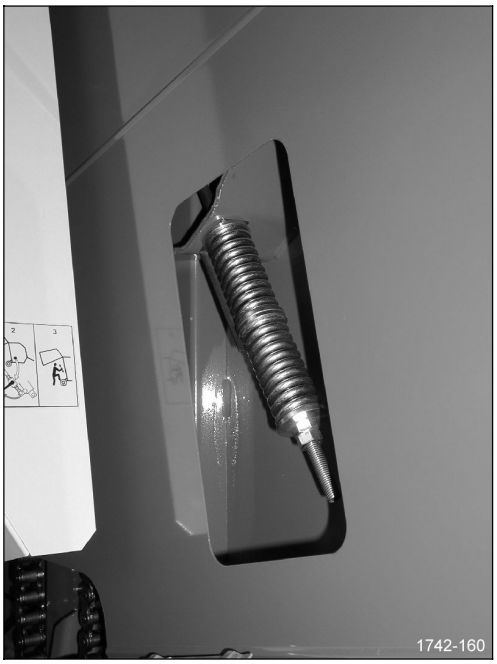


Figure 115

Roller drive chains

The chains of the roller drives must be tensioned so much that the spring plates are almost aligned to the measurement angles (Figure 115 and Figure 116).

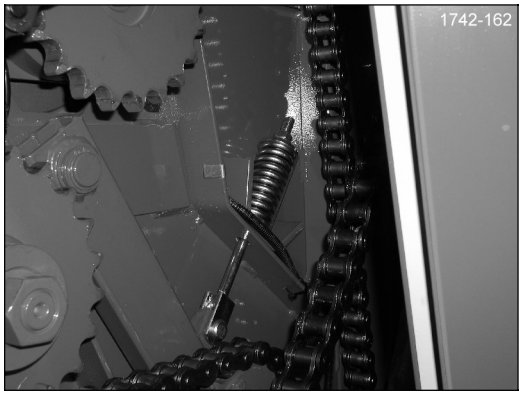


Figure 116

Figure 117

Main drive chain

The main drive chain must be tensioned so much until the distance between the top and the bottom disk is approx. 90 mm (Figure 117).

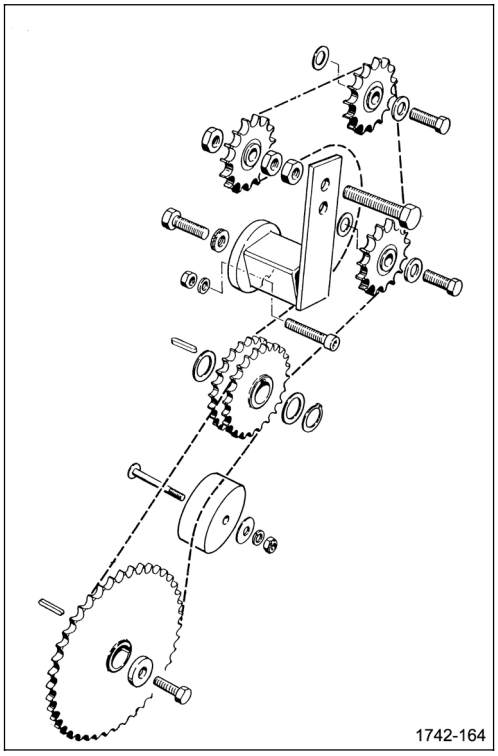


Figure 118

Worm- and pick-up drive chain

The chain tensioning of the worm- and pick-up drive is made by means of a Silentblock-chain tightener and two tensioning blocks (Figure 118).

Turn the Silentblock after loosening the screw on the square until the arrow points to 15° on the scale. Retighten screw.

Tighten the tensioning blocks (each one on the right and one on the left machine side) after loosening the screw connection until the upper lane of the chain (above the tensioning block) can still be bent for approx. 10 mm.

11.19. Winter pause

Prior to a winter pause:

- ❑ Place the machine on an even surface to avoid frame tension.
- ❑ Unthread twine, unthread net.
- ❑ Remove twine, net and straw remains from the machine.
- ❑ Disconnect control box from the machine (pull plug).
- ❑ Keep control box dry and at room temperature.
- ❑ Remove, grind and reinstall cutting device knives.
- ❑ Grease tying mechanism.
- ❑ Thoroughly lubricate all bearings.
- ❑ Slightly grease the surface of the baling chamber by means of a lubricant degrading neither the environment nor the fodder (e.g. rape oil).
- ❑ Check air pressure of tires and adjust – if necessary –.

11.20. Tyres and Tyre pressure

Tyre size	max. speed	Pressure
11.5/80-15.3 Impl.8 PR	25 km/h	—
	40 km/h	3.0 bar
15.0/55-17 Impl. 10 PR	25 km/h	—
	40 km/h	1.8 bar
480/45-17 Impl. 16 PR	25 km/h	3.2 bar
	40 km/h	3.2 bar
19.0/45-17 Impl. 10 PR	25 km/h	—
	40 km/h	1.5 bar
425/55 R17 134 G	25 km/h	2.5 bar
	40 km/h	2.5 bar
500/50 R17 146 D	25 km/h	—
	40 km/h	3.4 bar
505/50 R17 146 G	25 km/h	2.5 bar
	40 km/h	2.5 bar
500/55-20 Impl. 12 PR	25 km/h	—
	40 km/h	1.5 bar
500/60-22.5 Impl. 8 PR	25 km/h	—
	40 km/h	1.5 bar
16 × 6.50-8 4 PR	Pick-up guide wheel: 2.0 bar	

12. Technical Data

12.1. Overview

	RP 235
Roll chamber (∅ x width) [m]	approx. 1.25 x 1.23
Twine tying unit* with	
a) sisal twine	Length: 200 or 330 m/kg
b) plastic twine	Length: 400 to 750 m/kg
Net tying unit* with	
quality round bale net	Length: 2,000 or 3,000 m / width: max: 1.30 m
Tying material stock	
Twine / Net	4 spools (*8 spools) / 2 spools[1)]
Pick-up*	
Pick-up width [m]	2.00 / 2.25
Rake width [m] DIN 11220	1.80 / 2.05
Cutting device*	13 knives / 17 knives / 25 knives
Speed of tractor p.t.o. shaft [min^{-1}]	540
Necessary connectors	
Connection for lighting system	12 V (7-pole plug socket)
Connection for control (BALERCONTROL E and BALERCONTROL III with E-LINK)	12 V DIN 9680 A
Length [m]	see Figure 119
Width without pick-up guide wheels [m] Width with pick-up guide wheels [m]	see Figure 119
Height [m]	see Figure 119
Empty weight with tying material, at least [kg]	see data plate at the machine
Design-conditioned permissible maximum speed	40 km/h[2)]

Data are for approximate specifications and are not binding. Versions can vary.

[1)] With mounted twine tying unit only 1 net roll can be picked-up.

[2)] Observe deviating national road traffic law!

* Additional- or extra equipment

12.2. Dimensions

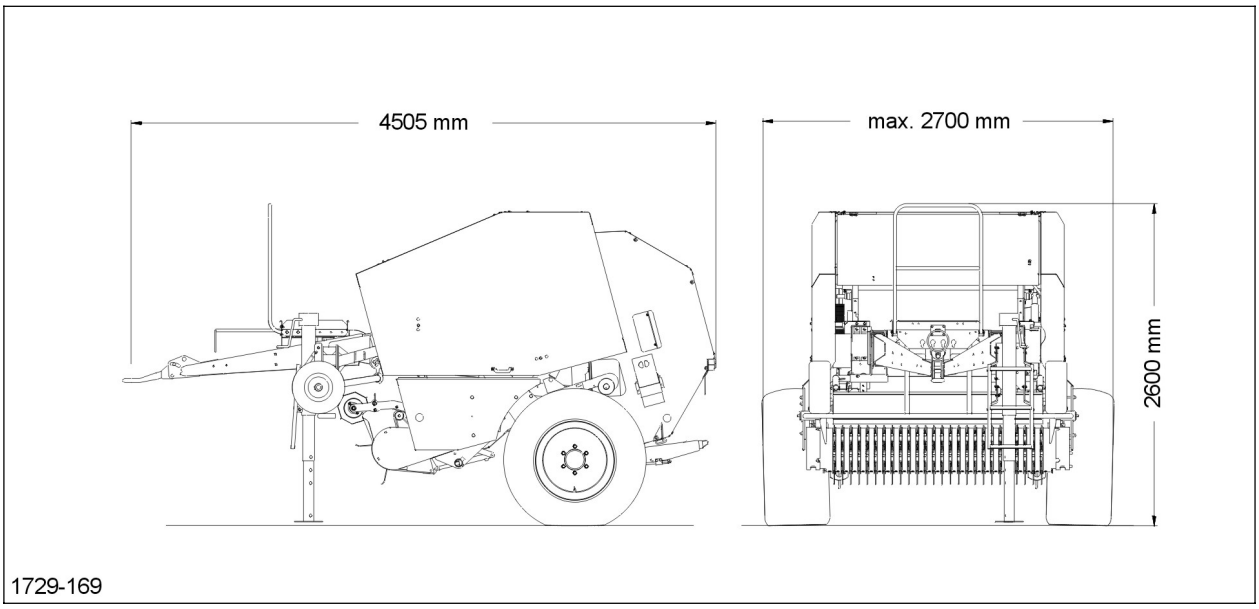


Figure 119

EC Declaration of Conformity

according to Directive 98/37/EEC

We **Welger Maschinenfabrik GmbH**

(Name of supplier)

Gebrüder-Welger-Straße, D-38304 Wolfenbüttel

(full address of the manufacturer - authorized representative established in the Community must also give the business name and address of the manufacturer)

declare under our sole responsibility, that the product

WELGER RP 235

(Make, model)

to which this declaration relates corresponds to the relevant basic safety and health requirements of the Directives 98/37/EEC and 89/336/EEC,
(if applicable)

and to the requirements of the other relevant Directives:

— — —

(Title and/or number and date of issue of the other Directives)

(if applicable)

For the relevant implementation of the safety and health requirements mentioned in the Directives, the following standard(s) and/or technical specification(s) has (have) been respected:

EN 704, EN 1553

(Title and/or number and date of issue of standard(s) and/or technical specification(s))

Wolfenbüttel, August 2004

Peter Rodewald

Peter Rodewald
(stellvertretender Entwicklungsleiter
Welger Maschinenfabrik GmbH)