



BULLPAK

A black silhouette of a bull in a running or charging pose, positioned below the word "BULLPAK".

USER'S GUIDE



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Certificate of conformity

MDA Compaction certifies that their equipment is manufactured and assembled according to ANSI and CSA standards listed below.

The use of this equipment meets the standard listed below as long as the owner and user of the equipment follows the maintenance and training prescribed by these standards.

- The baler meets the ANSI Z245.51 standards.
- The safety check complies with the CSA Z432-04 standards, clause 8.2.5, Canadian Machinery Safety standards.
- The level 3 safety circuit meets the requirements of standard R2A (SECURITY CONTROL) risk category PL and D.

Being the original manufacturer of the equipment, if equipped with the SECUREPAK option, we declare that our products meet the standards prescribed in section 7 of the regulation 851 concerning the “Pre-Start Health and Safety” of the “occupational health and safety Act regulation” for industrial machinery.

This document makes a written notice for the PSR inspection exemption as described in the “Ontario Health and Safety guideline.” Directive from “PSR guideline from April 2011.” The directive makes it possible to display on the original equipment of the manufacturer the conformity with the standards of applications for the exemption of PSR inspection.



All of our equipment includes CSA approval and are certified as CAN/CSA 22.2#0, 0.4 and CSA after having been legitimately inspected by the CSA Group.



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INTRODUCTION

Congratulations!

You are now the owner of a vertical baler BULLPAK from MDA Compaction. This equipment, like all our products manufactured, have been manufactured with all the care required to give the most complete satisfaction.

This manual has been written by the manufacturer and is an integral part of the equipment. It defines the use for which the product was designed and contains all the information necessary for operators.

In addition to this manual, which contains the necessary information for users, more information has been written specifically for technicians in charge of maintenance.

Compliance with the instructions given in this manual ensures the safety of working conditions, reduces operating costs, the quality of the results as well as increased machine life. Failure to comply with these requirements can result in risks for the user and damage to the equipment and the environment.

All repairs, the information of which is absent from this manual, must be carried out by qualified personnel that have been authorized by the manufacturer.

If you need assistance, please contact your supplier. Have in hand the serial number of the device, the installation date, and the electrical diagram number.

If you have any questions concerning your equipment or you need more information, please contact us at:

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BASIC INFORMATION

SAFETY OPTION: MAKE SURE YOU EQUIP YOUR NEW BALER!

BULLPEN

An exclusive mobile security belt that defines a secure area for the entire ejection cycle.

BULLGUARD

An automatic opening barrier protecting the operator from potential injury.





BULLHORN

Unique security protection that prevents against the fall-down of the ram at the opening of the door.

SECUREPAK

CSA approved security control safety management system making it impossible to bypass security operations. Required to meet PSR standards.



DEFINITION OF LABELS



LETT-0311— Registered trademark owned by MDA Compaction. The model number is usually attached to the right.



LETT-0302— The loading door is designed to withstand pressure from compacted materials. Since its weight is significant, we recommend using both hands to shut the door in order to avoid any hand injuries.



LETT-0301— Never step in the compacting chamber without applying the lockup procedure. The BullHorn safety system holds the ram in raised position when the loading door is open. Make sure it is properly installed at all times. Furthermore, during extended work periods, it is recommended to hold the ram with a bracket or support all the way to the floor underneath the ram.



LETT-0011— "Produced in Canada"



LETT-0310— Equipment, designed and manufactured by MDA Compaction.



LETT-0023— This label identifies the compaction chamber in the "duo" models.



LETT-0024— This label identifies the compaction chamber in the "duo" models.

DEFINITION OF LABELS



LETT-0307 — During the bale tie-up and ejection operations, we highly recommend the operator to wear listed safety goggles and gloves.



LETT-0308 — If you use a metal wire to tie up the bale, it is mandatory to start at the highest point of the bale in order to avoid facial injuries.



LETT-0309 — Despite all our efforts and the safety features we put in place, the bale ejection process still remains a critical operation due to the bale weight. Stay as far as you can from this area during the ejection process.



LETT-0025 — Represents the recycling symbol.



LETT-0026 — Represents the type of model.



LETT-0306 — "This equipment requires a regular and periodic maintenance." The maintenance of this equipment is your responsibility; ensure its proper functioning. Please refer to this manual. See the maintenance schedule.



LETT-0305 — Your equipment is known to be among the safest ones if all the standard and optional safety guards/devices are engaged.

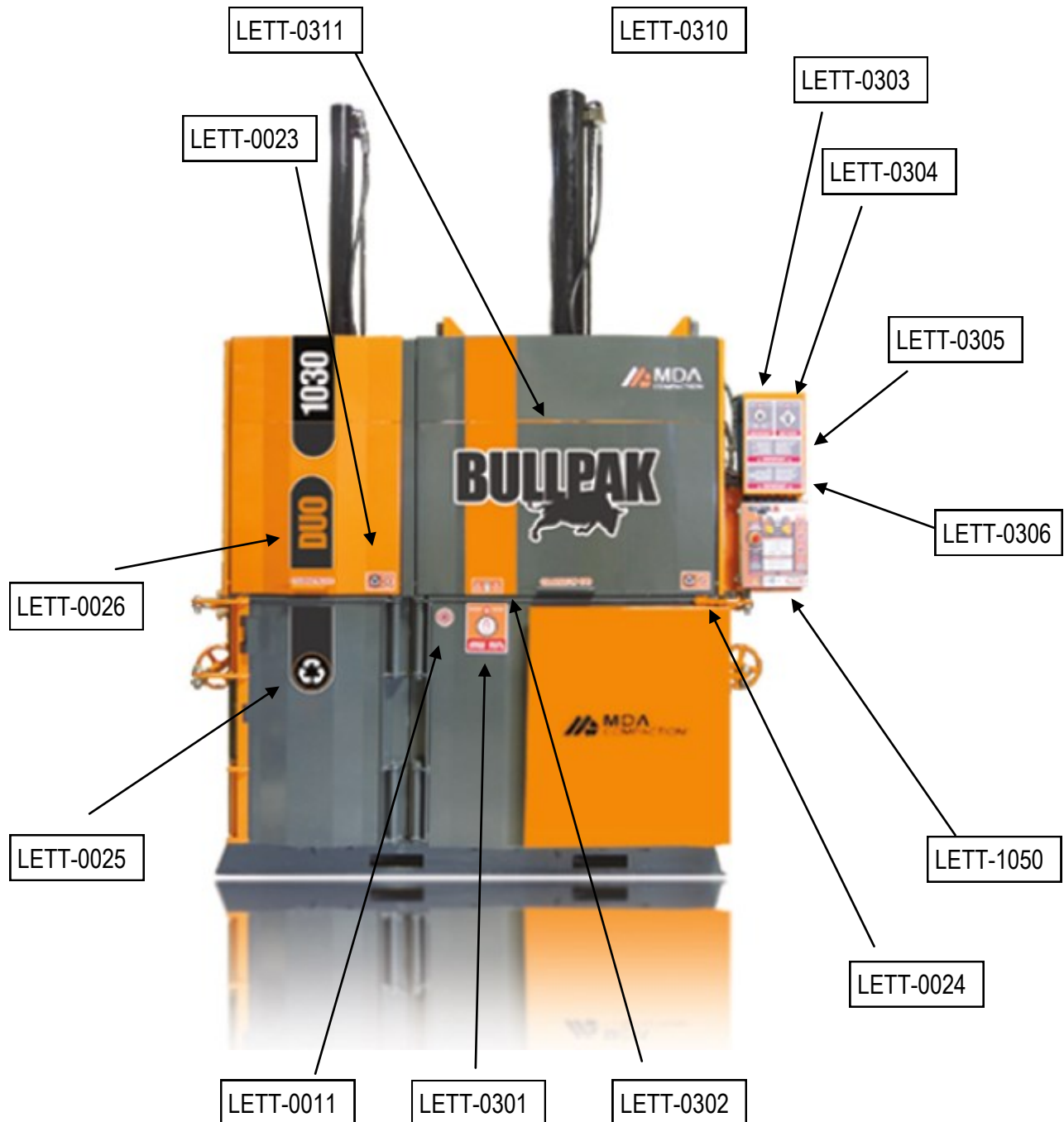


LETT-0303 — It is mandatory to perform the lockup procedure prior to any equipment intervention, maintenance, or inspection.

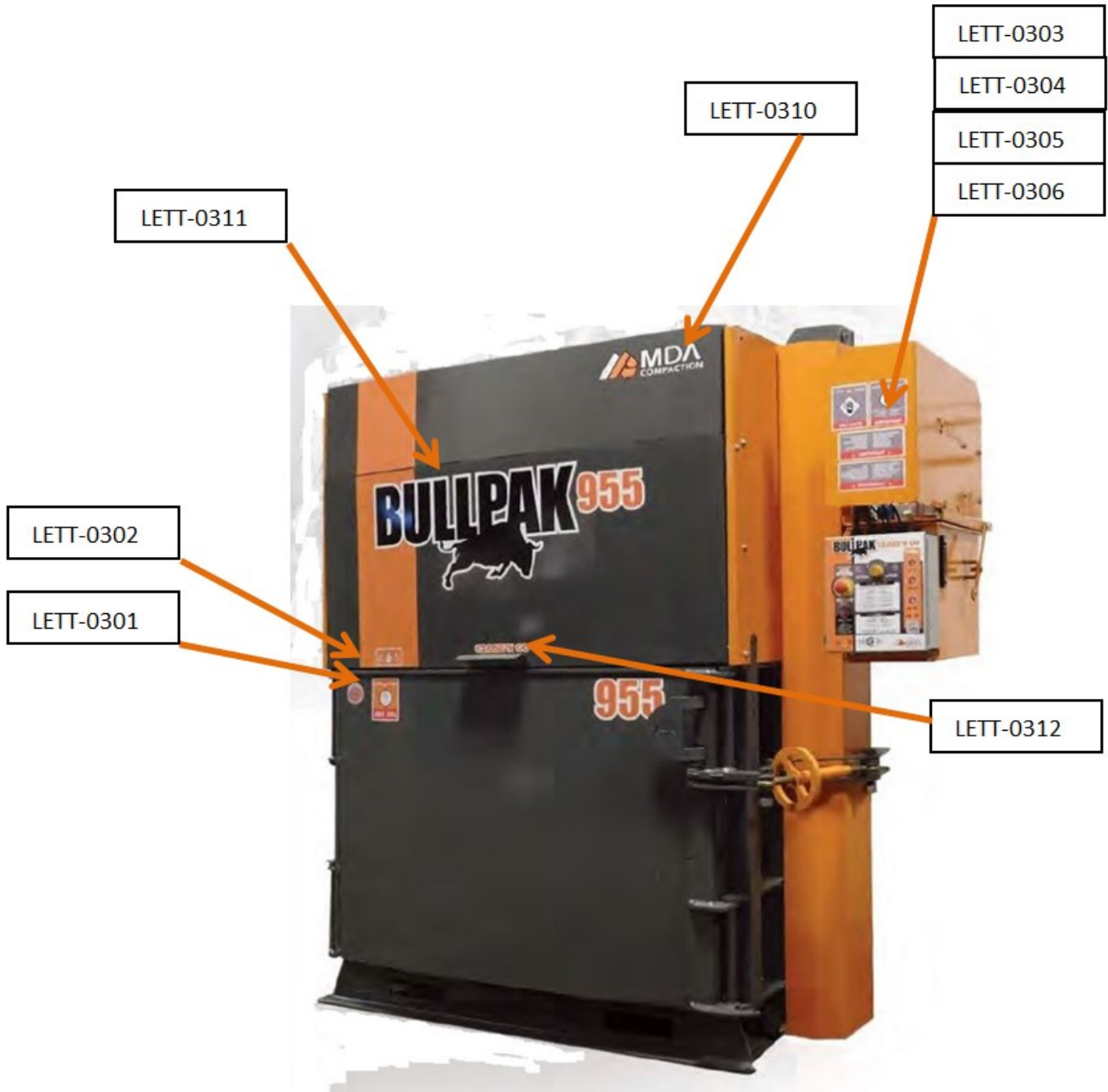


LETT-0304-XXX — "DANGER XXX VOLTS." Your equipment is powered with a high-voltage electrical source that could cause injuries or even death. Only a qualified electrician must access the control panel. The inner compartment is entirely "finger safe" in order to protect people operating the equipment.

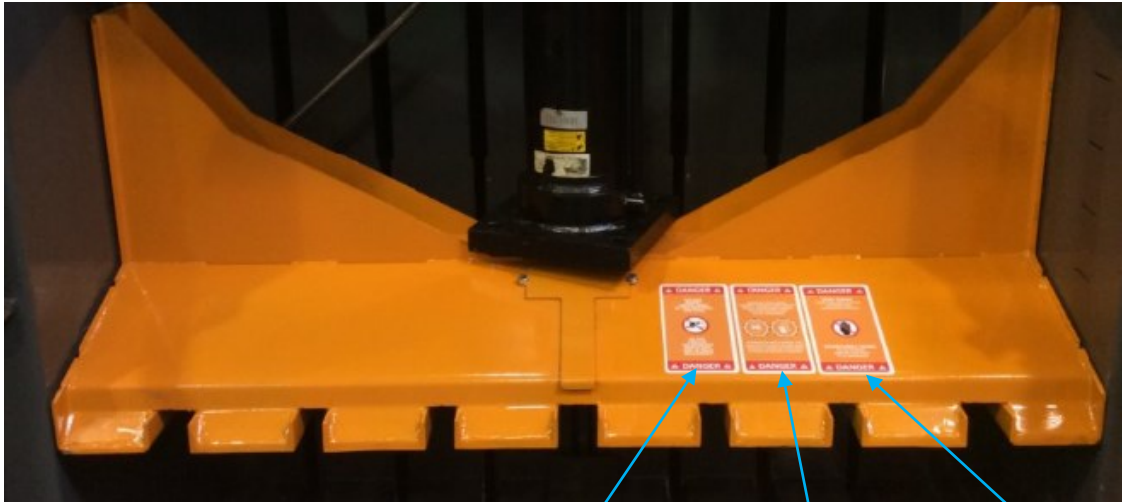
POSITION OF LABELS



NOTE: THE LABEL MODEL AND THEIR POSITIONING ARE SUBJECT TO CHANGE WITHOUT NOTICE.

POSITION OF LABELS

POSITION OF LABELS



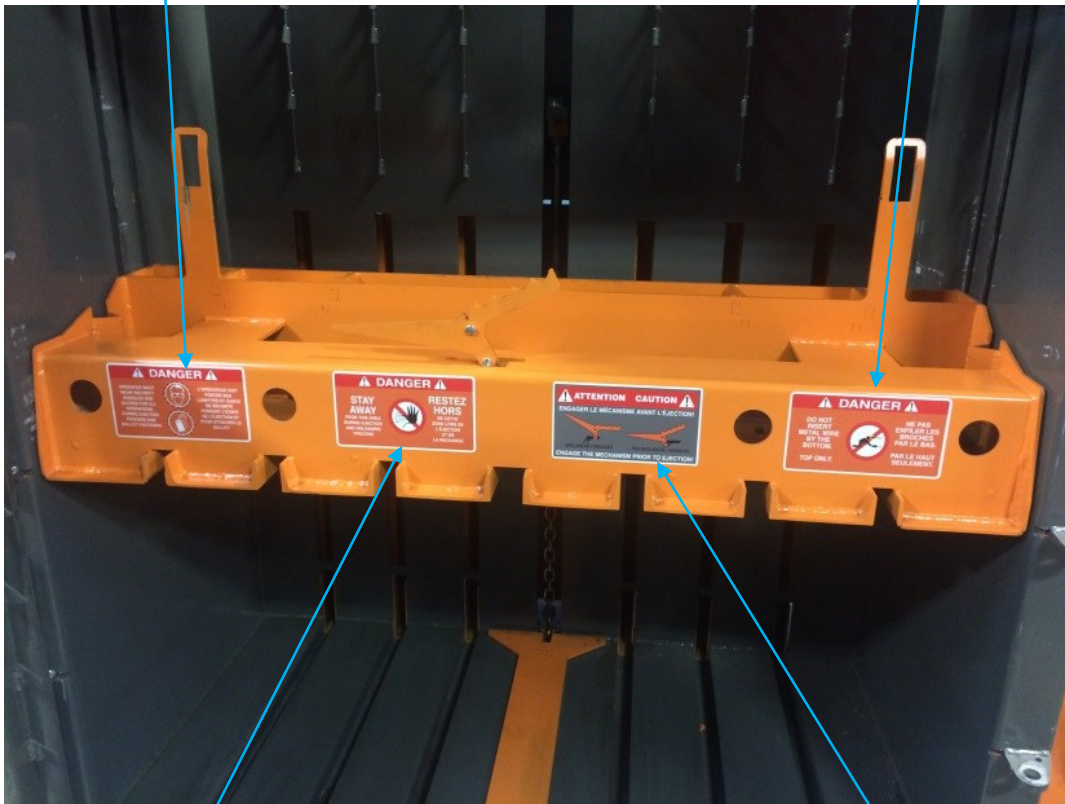
LETT-0309

LETT-0307

LETT-0308

LETT-0307

LETT-0309



LETT-0308

LETT-0006

WARNING BEFORE USE

ONLY PERSONNEL OVER THE AGE OF 18 OR TRAINED ARE PERMITTED TO USE THIS EQUIPMENT.

REMAIN OUTSIDE THE RESTRICTED AREAS WHILE THE EQUIPMENT IS IN OPERATION. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.

NEVER ENTER INSIDE THE BALER WITHOUT FIRST LOCKING THE WALL MOUNTED DISCONNECT IN CLOSED POSITION. AVOID WEARING CLOTHING THAT IS TOO LOOSE THAT MAY CATCH ONTO PARTS OF THE MACHINE AND COULD RESULT IN SERIOUS ACCIDENTS. BEFORE ACTIVATING THE COMPACTOR, MAKE SURE THAT NOTHING AND NOBODY IMPEDES ON THE CORRECT OPERATION OF THE MACHINE. REST ASSURED THAT NO ONE IS INSIDE THE RESTRICTED ZONES. (See safety procedures in the maintenance section.)

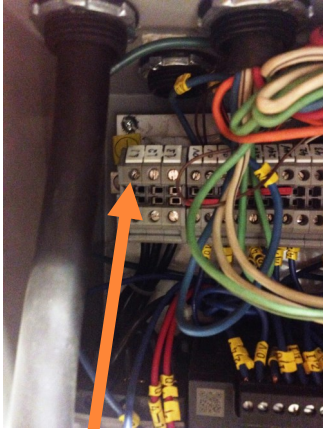
Scrupulously follow all instructions in this manual (in particular those linked to the symbols "danger" and "warning") and the safety labels affixed directly to the machine.

The manufacturer declines all responsibility for the material and bodily damage caused by the non-observance of these instructions.

Any work on the equipment that is not covered in this manual must be performed or requires the assistance of personnel from the manufacturer.

**IN CASE OF EMERGENCY PRESS RED
BUTTON**

WARNING BEFORE USE



Electric connection terminals:

- L-1
- L-2
- L-3



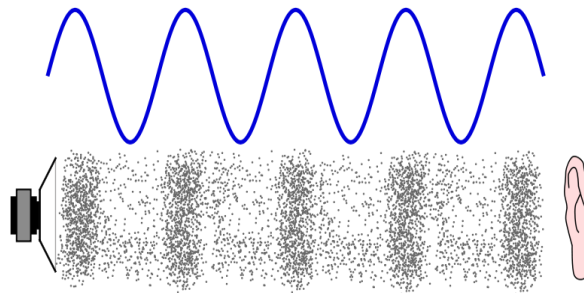
CAUTION

THE ELECTRICAL CONNECTIONS MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN.

N.B. Make sure that the engine is running in a clockwise motion.

If not, reverse two (2) phases. The equipment will not operate if the engine is reversed.

82



dB
DECIBEL

Sound estimation information

When the operator operates the equipment :

the noise level of a vertical baler was tested in dBA with respect to the time of the ram cycle of 56 seconds. The noise level was measured as a function of the position of the operator during the operation of the baler, ie approximately 24 inches from the operator and at a height of 65 inches.

INSTALLATION

INSTALLATION

Handling

There are two (2) ways to handle the vertical baler :

With sleeves made for forklift truck forks (located at the front of the baler) or laterally with a pallet truck.

Sleeves are located on each side of the baler, therefore, it is impossible to drop the equipment during the manoeuvre.

A pallet truck is useful in confined areas. Furthermore, the equipment can be handled by a single individual.



INSTALLATION

The selected place must have a flat floor, ideally made of concrete. It is possible to install the equipment outdoors, but it must be equipped with an optional heating element. Furthermore, the equipment must be protected from the elements **otherwise the warranty will be void.**

Step 1- Anchor the equipment to the ground in the four (4) holes provided for this purpose, with concrete ½ " anchors.



Step 1.1— Install and set the option BULLPEN.



INSTALLATION**Step 2- One cylinder models only (skip to step 6 for models from series 55):**

Install an electrical bridge to lift the cylinder. You can move the hydraulic cylinder vertically by pressing the "action" button. Depending on the location of the bridge, the cylinder retracts or extends.

Electric connection terminals:



24V + 17 = cylinder retracts

24v + 18 = cylinder extends

Step 2.1- On delivery, the ram is already inside the press and rests on the wear shoes on each side. ¹Remove contact on the ejection button located inside the enclosure to allow the cylinder to extend and position itself in its location between the two channels of the structure then fix it in place. The cylinder's limit switch is at 1/4 of an inch from the attachment structure.

¹This contact prohibits the lowering of the ram in operation mode when the doors are opened.

INSTALLATION

**Step 1 :**

Locate the contacts needed to be disengaged.

**Step 2 :**

1. Choose the two (2) contacts with the red wires.
2. Disconnect the contacts with a screwdriver as shown.

**Step 3 :**

It is important to reconnect the contacts after the installation of the cylinders.

INSTALLATION

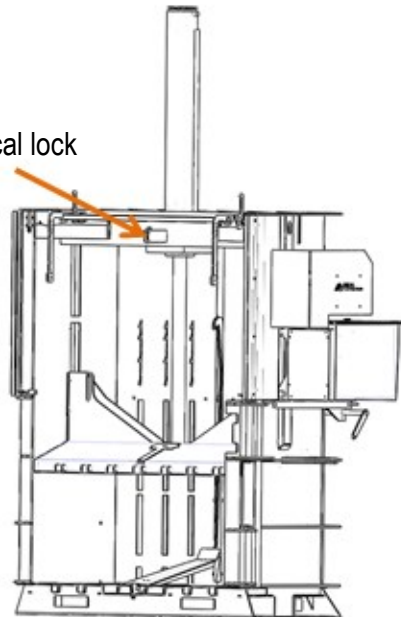
Step 2.2- Open the door of the ram.

Manual opening of the loading door :

With the help of a flat screwdriver, open the the electromechanical latch by pressing on the manual starter located behind the enclosure.

CAUTION : Once triggered, the door opens by itself, beware of it to avoid the return on you.

Electromechanical lock



Manual starter



Opening of the ejection door:



INSTALLATION

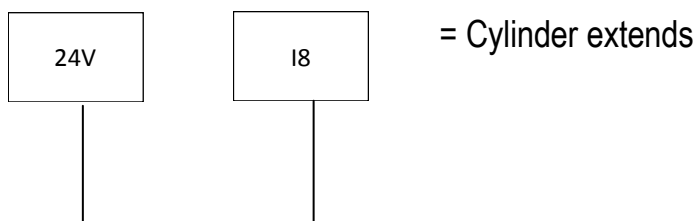
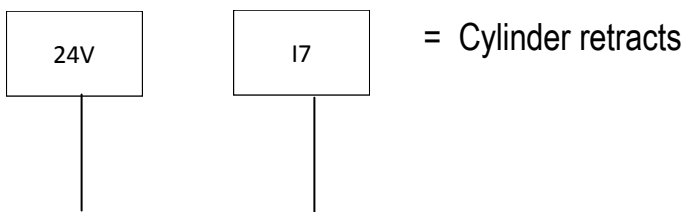
Step 2.3:

1. Install jumper.
2. Remove contact.
3. Lower the Bullpen (optional).
4. Press the ejection button on the side of the control box.
5. Press the "Action" button during 2 seconds to start the motion.
6. Release the "Action" button to stop the motion.

Ejection button (also known as the two hands button) on the side of the control box



Install jumper:



INSTALLATION

Step 3- Screw the fixing bolts of the cylinder. The bolt head must face down and the nut upwards so as not to affect the ascent of the ram. Be sure to install a locking washer and a square washer to compensate for the shape of the channel.



Locking washer

Square washer



INSTALLATION

Step 4- Now that the cylinder is in place and well screwed to the structure, contract the cylinder to raise the ram in the end-of-sequence position. The wire frame detailed in step 2.2 must stay in place for proper operation.



Step 5 - Remove the wired bridge (step 2) and return the ejection contact (step 2) to close the press doors. It will perform a calibration cycle, then the loading door will open.

Step 6 - Install the double attachment from the BULLHORN option.

**CAUTION**

AFTER THE INSTALLATION OF THE BULLHORN OPTION, IT IS OBLIGATED TO REMOVE THEM BEFORE PERFORMING HYDRAULIC OPERATIONS WITH THE INSTALLATION WIRE. A RISK OF BREAKAGE IS IMMINENT.



SETTINGS

SETTINGS

There are two types of settings: one is for the cardboard/plastic operating mode and the other for the baler model. Each setting will be activated differently.

Operating Mode

The operator can choose between two (2) operating modes: the cardboard mode OR the plastic mode.

1. Press the Emergency Stop button.

NOTE: The settings shall be achieved within 8 seconds. Beyond that period, no change can be made.

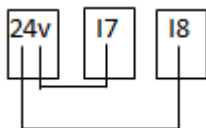
2. Press the "Action" button during 5 sec.
3. The "Action" pilot light blink confirms the operating mode start-up.
4. The Emergency Stop button must be deactivated before implementing a new setting.

Code	Description
3 x 1-sec pulses	Plastic mode
6 x 1-sec pulses	Cardboard mode

NOTE: Following a power failure, the system will indicate the actual baler operating mode.

Parameter

The technician may set the parameters without using a computer. The setting activation can be performed by connecting two (2) installation jumpers between the 24V, 18, and 17 terminals:



Input:

COMPACT INSTALLATION (10.7) AND RETRACT INSTALLATION (10.8)

1. Install two (2) jumpers.
2. Press the "Emergency Stop" button.
3. Press the "Action #1" or "Action #2" button to select the baler.
4. When the selection is entered, it will activate the parameter #0.
5. To start the setting process, you must disengage the emergency stop, and then put it back on. The "Action" pilot light stops blinking to confirm the mode change.

6. Press the "Action" button the required number of times according to each parameter settings (refer to the chart on the next page).
7. Disengage the emergency stop to save the parameter.
8. Press the emergency stop to continue to the next parameter.
9. Repeat steps 6-7-8 for each parameter settings. If no change is necessary OR reaches the next parameter too quickly , repeat only steps #7-8.
10. When all parameters are entered, the system will return to step #0. Such step will activate the "Action "pilot light in order to display the flashing code for each instruction. A two-second delay marks the transition between each parameter and a four-second delay marks the beginning of parameter #1.
11. If the setting is invalid, repeat steps 5 to 10. Otherwise, remove the jumpers I7 and I8.

List of parameters

Parameter	Description	Unit
#0	Flashing Code Display	
#1	Loading Zone: Delay between the original position and 2-3 inches below the top of the ejection door.	1 pulse = 1 sec
#2	Breaking Bar Zone: Delay between the end of the loading zone and up to 6 inches below.	1 pulse = 1 sec
#3	Compacting Zone: Delay between the end of the breaking bar zone and the compacting cycle.	1 pulse = 1 sec.
#4	Low pressure: Pressure instructions used when ram returns to its original position.	1 pulse = 100 psi (Min. = 1,100 psi)
#5	High pressure: Pressure instructions used during the compacting cycle and bale ejection. NOTE: Set to 200 psi below the relief valve setting.	1 pulse = 100 psi (Min. = 1,100 psi)
<p>Note :</p> <p>SoMachine: baler #1 MW411 to MW415, baler #2 MW461 to MW465</p> <p>No instruction must be set to 0.</p> <p>Low pressure must be set below high pressure.</p>		

NOTE: When the setting is deactivated or invalid, the "Action" pilot light blinks (0.1s ON / 5s OFF) to notify the technician or operator.

Bale Height

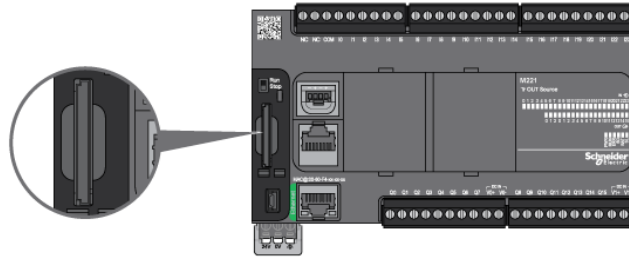
Check the parameter setting according to the required bale height:

1. Empty the compactor (if possible) OR make sure that the ram is not slowed down by the material entering the breaking bar zone.
2. Initiate a normal compacting cycle.
3. Press the "Action" button during the whole compacting cycle.
4. When the ram enters the breaking bar zone, check for the "Action" pilot light.
5. When the "Action" pilot light is on, quickly press on the "Emergency Stop" button to stop the ram's downward movement.
6. Measure the distance between the bottom of the compactor and the ram, from behind the machine OR by slightly opening the ejection door.
7. If the height is inadequate, monitor the setting of parameters #1 and #2. Refer to the procedure stated in the parameter section page 25.
8. When operating in real time, the "Bale Ready" detection will be activated if the pressure is high for at least 0.5 sec as the ram reaches the end of the breaking bar zone.

Save

The PLC memory is automatically saved after each alarm or bale ejection. This way, the program update can be performed without reconfiguring the setting and losing any system history data.

SOFTWARE UPDATE WITH SD CARD



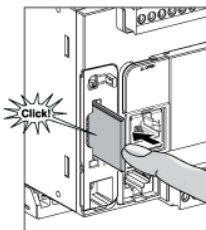
1. Press emergency stop and wait 10 seconds. The system makes a backup of its data.
2. Cut power to the PLC.
3. Insert the SD Card in the PLC slot provided for this purpose.



4. Restore power to the PLC.
5. The Light SD (orange) and ERR (red) indicates that the update is in process (download) (about 10 sec).



6. When the SD and ERR indicator are off, turn off power to the PLC
7. Remove the card, press the card to wait for a "click."



8. If the Run LED flashes, you must lower the switch to stop a position and back to a RUN position.



9. The software has been updated.

SOFTWARE UPDATE WITH SD CARD**IMPORTANT:**

Following the update of the program via a memory card or computer, you must verify if the setting is still valid.

1. Unplug the main power OR the control panel fuse.
2. Reconnect the main power.
3. Wait for the PLC to be fully functional.
4. Check if the "Action" pilot light blinks:
5. If yes: repeat the procedures from parameter page 25.
6. If no: the setting is saved.

CARBOARD MODE

1. Make sure that the Emergency Stop button is not activated.
2. Close the ejection door and the loading door.
3. Press the Action button.
4. Once the initialization process has started, the system stays in the production mode and the loading door will open to fill up the compaction chamber.
5. Close the loading door and press the Action button.
6. The "Action" pilot light will be on for 1 second to confirm the initial order.
7. The compacting cycle begins
8. At the end of the cycle, the loading door will open to fill up the compaction chamber again.
9. Return to step 1.

PLASTIC MODE ONLY

1. Make sure that the Emergency Stop button is not activated.
2. Close the ejection door and the loading door.
3. Press the Action button.
4. Once the initialization process has started, the system stays in the production mode and the loading door will open to fill up the compaction chamber.
5. Close the loading door and press the Action button.
6. The "Action" pilot light will be on for 1 second to confirm the initial order.
7. The compacting cycle begins
8. Ram will stay down and door closed.
9. Wait for the operator to press the "Action" button.
10. Raise the ram in upward position.
11. Open the loading door.
12. Return to Step # 1

Home Mode

After an emergency stop or safety failure, the baler will reach the Home mode.

If all the safety conditions are met and no alarm is triggered, the system will start its initialization process:

- a. Place the ram in upward position.
- b. Unlock the loading door.

SIMPLE CONTROL PANEL

SIMPLE CONTROL PANEL



IN CASE OF EMERGENCY PRESS RED BUTTON

DOUBLE CONTROL PANEL

CONTROL PANEL FOR DUO
BALER



IN CASE OF EMERGENCY PRESS RED BUTTON

NOMENCLATURE OF PANELS

A = "EMERGENCY STOP BUTTON"

EMERGENCY STOP BUTTON : ACTIVATES/DISABLES ALL FUNCTIONS OF THE MACHINE. THE BUTTON REMAINS ENGAGED ONCE TRIGGERED. THIS BUTTON MUST BE PULLED OUT TO ALLOW IT TO FUNCTION. IF ANY PROBLEMS OCCUR, THIS BUTTON REMAINS THE IMMEDIATE AND SAFEST SOLUTION. HOWEVER, AT NO TIME MUST IT BE USED AS A LOCKING PROCEDURE.

B = "GUIDE AND INSTRUCTION AVAILABLE WITHIN THIS MODULE"

CERTIFIES THAT WITHIN THIS MODULE IS FOUND A PERMANENTLY SEALED POCKET CONTAINING THE ELECTRIC DIAGRAM AS WELL AS A CSA GROUP CERTIFICATION PLATE AND INFORMATION RELATING TO THE ELECTRICAL HOUSING.

C = "CSA STANDARDS"

"OBLIGATION" THE ENGINE MUST BE EQUIPPED WITH AN OVERCURRENT PROTECTION CONFORMING WITH THE CANADIAN ELECTRICITY CODE, PART I.

THE CONTROL BOX RECEIVED CSA APPROVAL. THIS CERTIFICATION MARK PROVES THAT THIS PRODUCT HAS BEEN TESTED THOROUGHLY AND THAT IT COMPLIES WITH THE CONDITIONS REQUIRED BY THE SAFETY AND PERFORMANCE STANDARDS.

(The CSA Group is a non-profit organisation made up of members whose activities are aimed at meeting the needs of the industry, the government and the consumers in Canada and on the markets worldwide.)

D = "QR CODE (QUICK RESPONSE)"

QR CODE IS FOR NAVIGATING TO THE OPERATION MANUAL OF THE PRODUCT USING A SMART PHONE. THE OPERATION MANUAL IS AVAILABLE FOR DOWNLOADING IN THE "PDF" FORMAT.

E = "EJECTION BUTTON" OR "TWO HANDS BUTTON"

THIS BUTTON ONLY FUNCTIONS SIMULTANEOUSLY WITH THE "ACTION" BUTTON AND HAS NO OTHER FUNCTION BUT TO EJECT BALES.

F = "GREEN STATUS LIGHT"

IF AN UNUSUAL SITUATION IS DETECTED THE SYSTEM FALLS IN ALARM MODE AND ALL ACTIONS ARE CANCELLED IMMEDIATELY. TO RESET AN ALARM, IT IS NEEDED TO ACTIVATE AND DISABLE THE EMERGENCY STOP BUTTON. IF THE ALARM IS STILL PRESENT, THE "READY" STATUS LIGHT WILL FLASH ACCORDING TO A FLASHING CODE. A 3 SECOND PAUSE INDICATES THE END OF THE FLASHING CODE. (SEE SECTION "PROCEDURE" PARAGRAPH 6.1)

G ET H = S'IL Y A LIEU = "LIGHT AND ACTION BUTTON"

THE "ACTON" STATUS LIGHT ALSO GIVES DIFFERENT INFORMATION ON THE PROGRESS OF THE SYSTEM. (SEE SECTION "PROCEDURE" PARAGRAPH 6.2)



TROUBLESHOOTING PROCEDURES

PROCEDURE

TROUBLESHOOTING (DEBUG)

Several troubleshooting tools are available for solving the most common problems. These tools cannot be incidentally activated. A series of actions is required or a delay has been added to secure their activation:

Ram held with door hooks (30 sec.)

1. Push and pull the Emergency Stop button to reset recent alarms.
2. Make sure that the "Ready" pilot light is steady.
3. Lower the Bullpen (optional).
4. Press the ejection button on the side of the control box.
5. Press the "Action" button during **30 sec.**
6. The "Action" pilot light is on for 1 sec.
7. Release the "Action" button.
8. The ram will move upward for 0.1 sec.

Ejection door opens accidentally (45 sec)

1. Close the loading door.
2. Open the ejection door.
3. Press the "Action" button during 45 sec.
4. The flashing of the "Action" pilot light means that 30 seconds have elapsed.
5. If the pilot light remains lit, release the Action button.

"Bale Ready" on request

1. Start a compacting cycle.
2. Before the end of the compaction cycle (ram rearward motion), press the "Action" button until the ram stops completely.
3. The activated "Action" pilot light indicates that the ejection mode is on.

Cancel the "Bale Ready" mode

An emergency procedure can be performed when the operator wants to cancel the "Bale Ready" mode.

1. Press the Emergency Stop and Action buttons simultaneously.
2. Release the Emergency Stop button and Action button simultaneously.
3. Repeat steps 1 & 2 five (5) times.
4. The disabled "Action" pilot light indicates that the "bale ready" is cancelled.

2 PILOT LIGHT

The system has two (2) pilot lights that display the system status according to the situation. Normally, the "Ready" light refers to alarms and the "Action" pilot light indicates the cycle status.

2.1 "Ready" (Alarm)

In the case of an unusual situations, the system triggers the alarm and any action is automatically cancelled. To reset the alarm, you must press and release the Emergency Stop button. If the alarm remains, the "Ready" pilot light flashes according to the actual error code. A 3-second pause indicates the end of the flashing code.

Code	Message	Description
Remains on	Secure System	The safety relay is ready.
Remains off	Safety Violation	The safety system has been breached.
1	Emergency Stop	The Emergency Stop is on.
2	Loading Door Open	The loading door opened during a compacting cycle.
3	Ejection Door Open	The ejection door opened: - Before the bale is complete. - After the bale ejection.
4	Lengthy Compacting / Return Cycle	The compacting OR return cycle is too long (3 sec.).
5		
6	Low PLC Battery (does not shutdown the system)	The PLC battery must be quickly replaced. (BR2032 3-Volt Model)
7	Loading door jam	Loading must be open.
8	Overload reset	The motor overload must be reset

2.2 "Action" (Cycle Status)

The "Action" pilot light provides different information on the system status.

Code	Description
Remains on	The bale is ready to eject.
1s ON / 1s OFF Flash	The bale is almost ready.
1 x 0.5s Pulse	The release of the "Action" button indicates that it properly operates AND there is no alarm signal.
0.1s ON / 5s OFF Flash (Double Baler)	The release of the "Action" button indicates that it operates properly AND there is no alarm signal. However, the baler will not start its cycle immediately, wait for the other baler's cycle to end.
0.1s ON / 2s OFF Flash	The baler model is not set. Therefore, the system cannot operate. NOTE: For the double baler, the two (2) "Action" pilot lights will flash.
3 x 1s pulses	Following a power failure, the system indicates the baler's operating status.
6 x 1s pulses	3 pulses = Plastic Mode and 6 pulses = Cardboard Mode

Bullpak balers are programmed to create a bale with a density that is equivalent to the other generated bales. The operating mode will switch to the ejection mode when the ACTION pilot light flashes.



ACTION LIGHT IS FLASHING DO NOT OPEN EJECTION DOOR

Such flashing indicates to the operator that the last compacting cycle is taking place before the bale ejection.

Prepare the bale with a large piece of cardboard to facilitate the passage of the tie-up wires. Add the piece on top of the cardboard and close the loading door, then press Action

The Ram will stay down, loading door closed and the Action Light will stay ON.

IMPORTANT. Do not fill the compacting chamber with materials when the ACTION light flashes. If completely full, the ram may not be able to resume and may jeopardize the bale tie-up process.



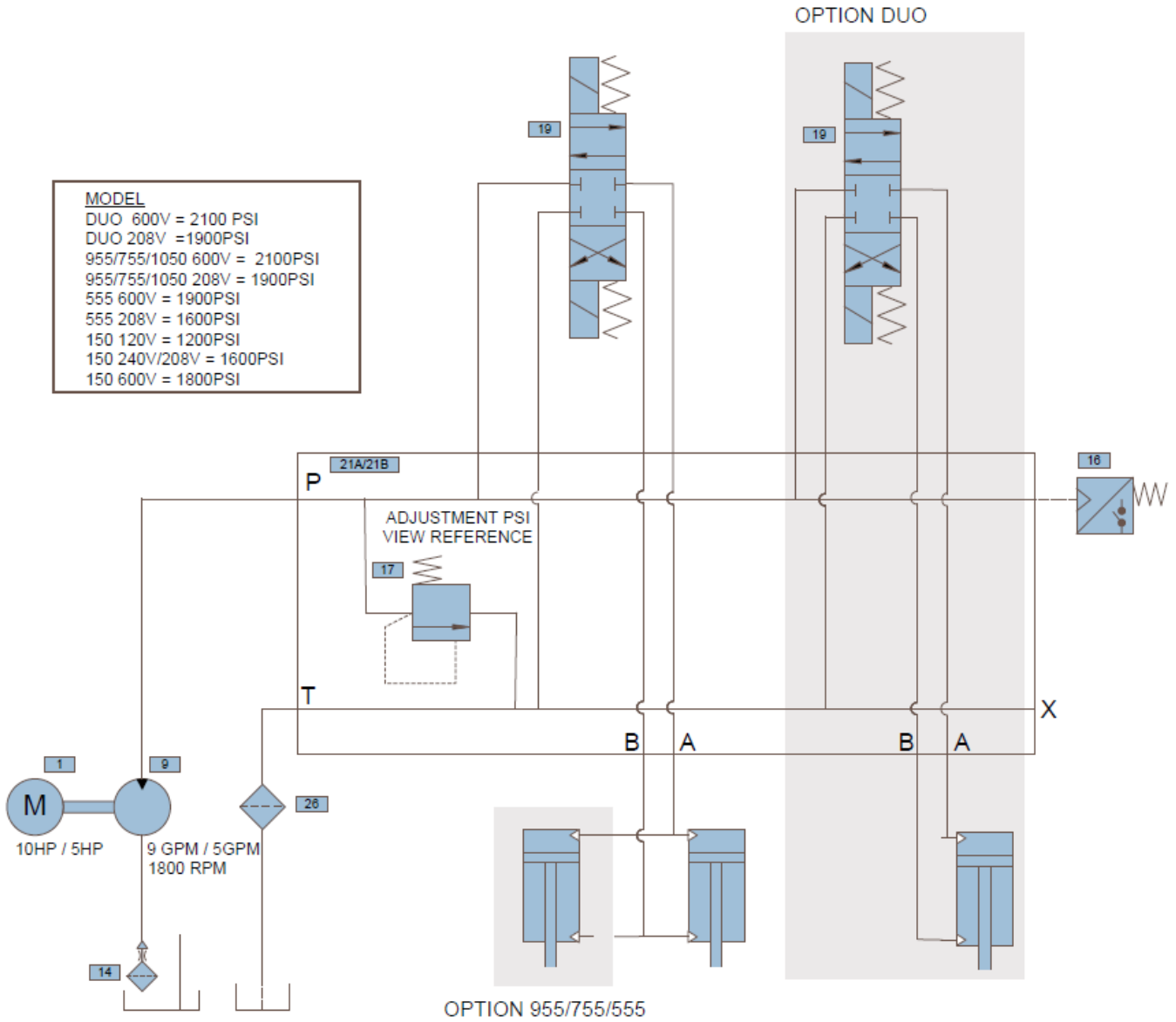
ACTION LIGHT IS ON IT IS NOW TIME TO EJECT

PROCEDURE

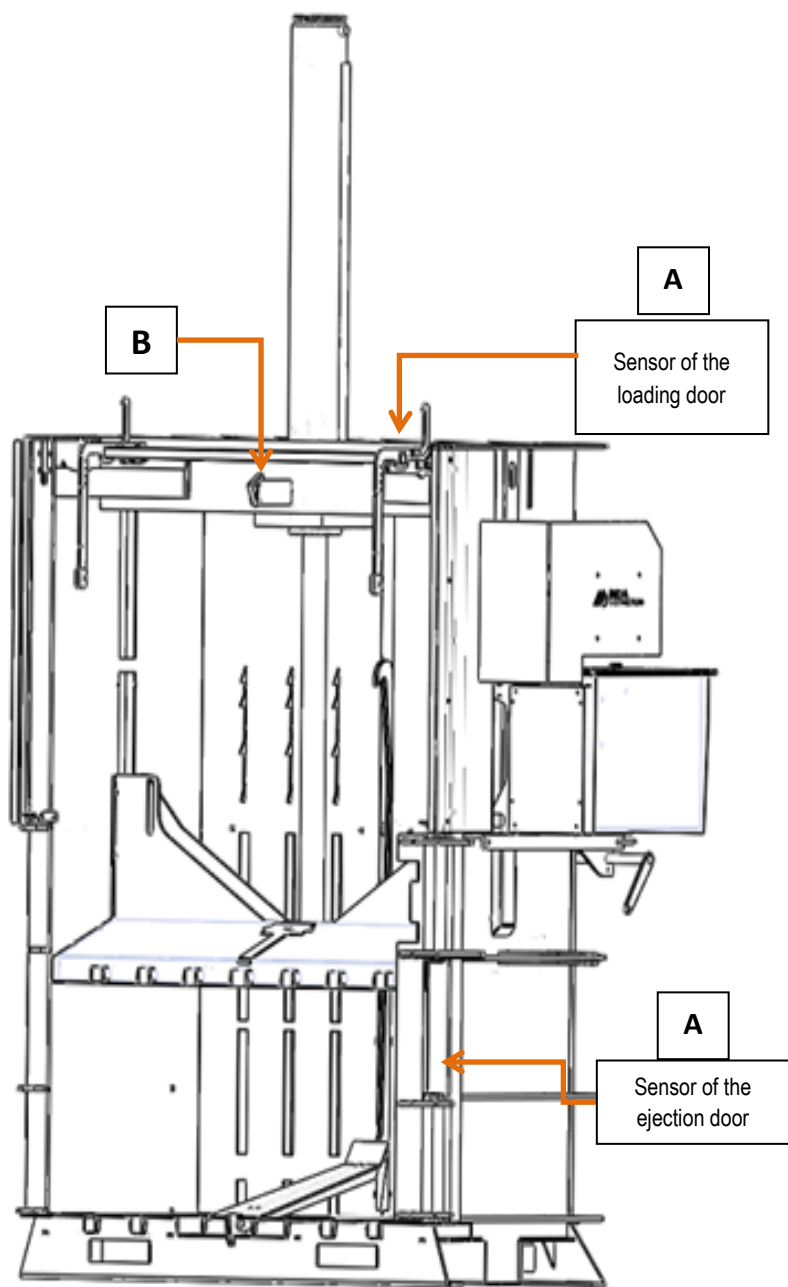
1. The operator opens the ejection door.
2. The loading door opens. (If the loading door does not open, it is possible that it is being held back by some material. See section 2.2 in "Installation" module for manual release of the baler.)
3. The bale can be tied up.
4. **Press the ejection button on the side of the control box and keep holding until the end of procedure (important).**
5. Press the "Action" button, release and hold to eject the bale.
6. The ram reaches the upward position.
7. **The "Action" pilot light turns off.**
8. Remove the bale and close both doors.
9. Press on the action button to make an empty cycle to disengage the ejection. Do not insert material inside the baler before the empty cycle as material may jam under the ejection mechanism.
10. You are now ready to fill chamber again.

HYDRAULIC DIAGRAM

MODEL	
DUO 600V	= 2100 PSI
DUO 208V	= 1900PSI
955/755/1050 600V	= 2100PSI
955/755/1050 208V	= 1900PSI
555 600V	= 1900PSI
555 208V	= 1600PSI
150 120V	= 1200PSI
150 240V/208V	= 1600PSI
150 600V	= 1800PSI



MAGNETIC SENSORS



A

Positioning magnet



Status diag/LED (see next page)

B

Electro-mechanical locks
With integrated magnets.



DIAGNOSTIC

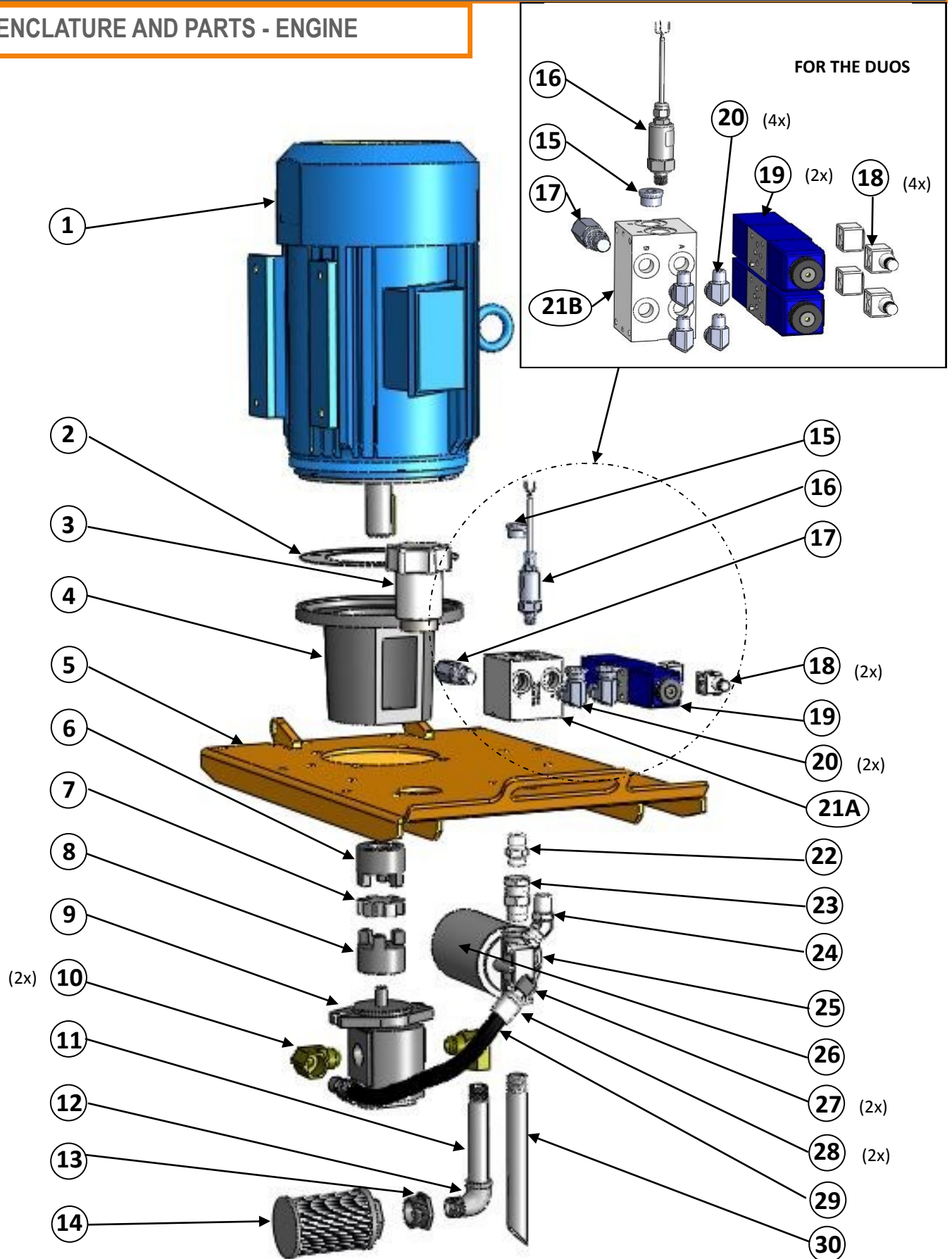
Status/Diag LED

Unit Indicators (per IEC 60073)

State	Status	Troubleshooting
Off	Not powered	NA
Red	Not safe (not active)	NA
Green	Safe (active)	NA
Green Flash	The tensioning unit or OSSD inputs are not valid	Check 24V DC or OSSD inputs (yellow and red wire)
Red Flash	Rapid flashing: Recoverable Fault Long flashing: Non-recoverable Fault	Recoverable fault– switch off then back on the power. If not recovered, check that the OSSD outputs are not bypassed towards the ground, the 24VCC power or amongst each other.
Amber Flash	Rapid flashing: the light indicator means margin is safe, OSSD active	Sensor is reaching max. Sensing distance; re-align sensor with actuator



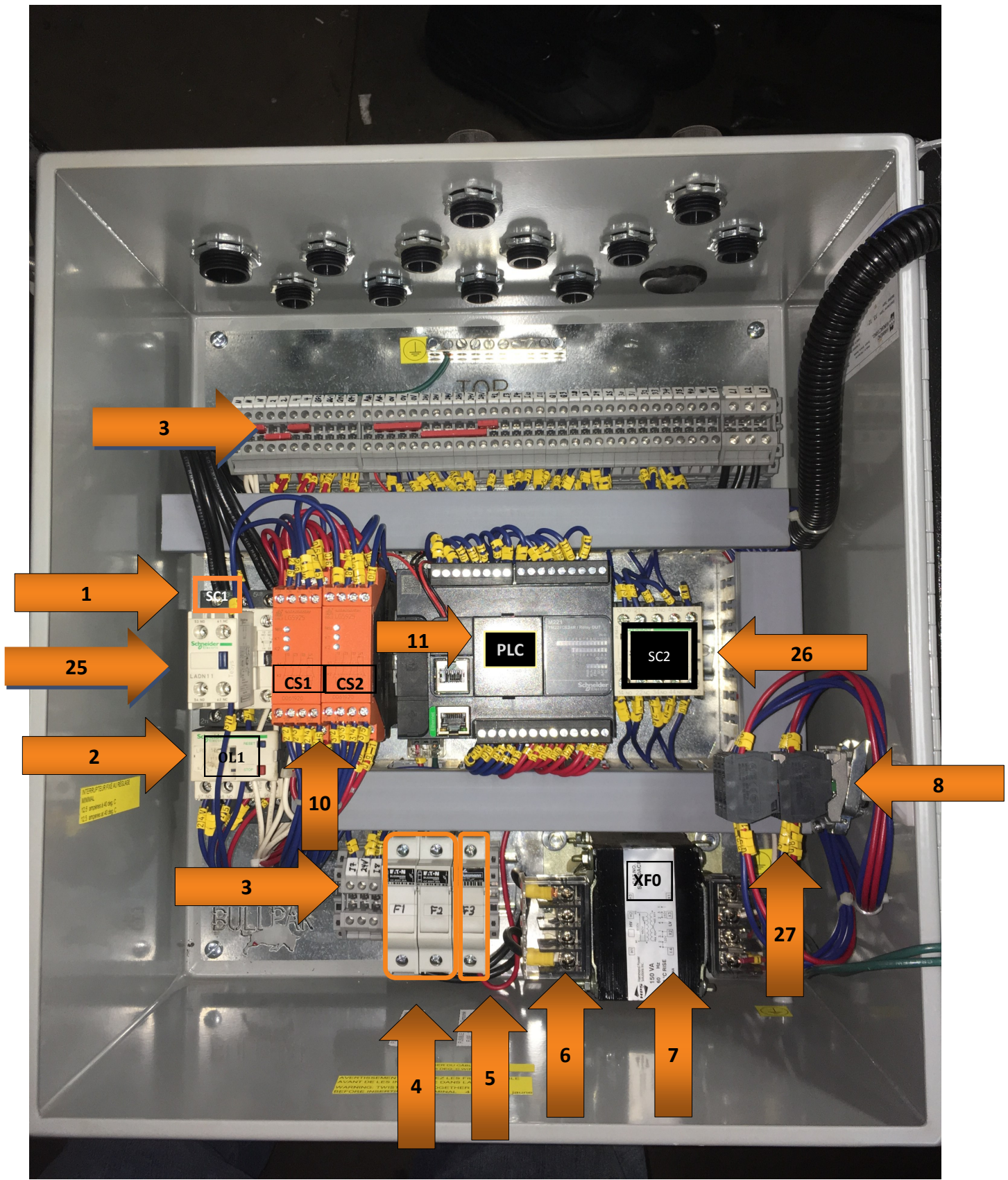
NOMENCLATURE AND PARTS - ENGINE



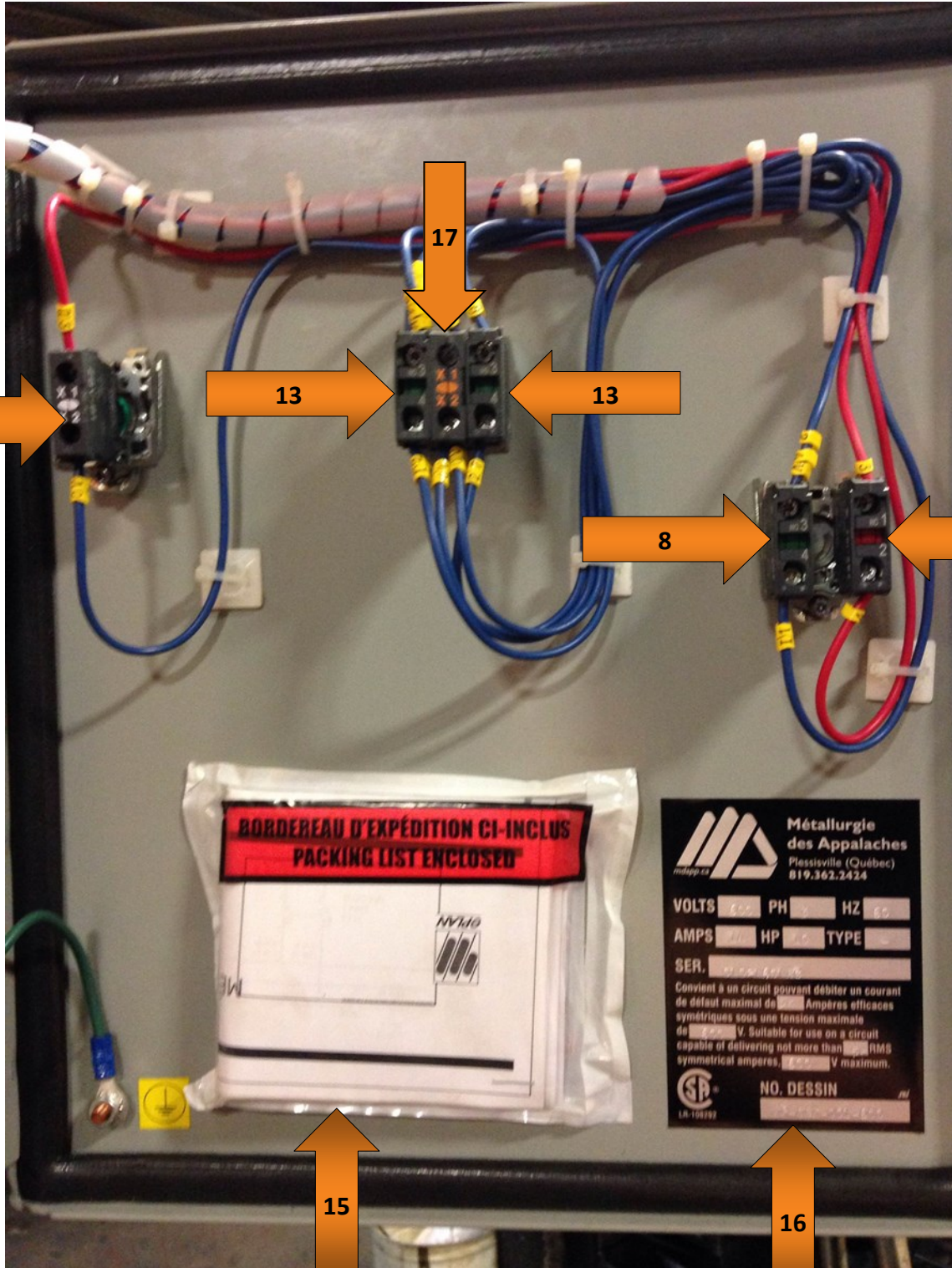
NOMENCLATURE AND PARTS - ENGINE

NO.	CODE MDA	DESCRIPTION
1	EMOT-0001	MOTOR 10HP 600V
2	UNC8-0598	GASKET
3	HADP-0065	TANK CAP
4	HSUP-0002	PUMP SUPPORT
5		POWERPAK PLATE
6	HJMQ-0007	LOVEJOY
7	HJMQ-0008	LOVEJOY
8	HJMQ-0005	LOVEJOY
9	HPMP-0101 (HPMP-0026 FOR THE 555)	GEAR PUMP
10	HADP-0021 (2X)	ADAP. 12MB-12FP 90
11	HADP-0475	PIPE ¾ X 6"
12	HADP-0211	ELBOW 90 BLACK M-F ¾ NPT
13	HADP-0270	ADAPTATOR 1 ¼ TO ¾
14	HCRP-0001	STRAINERS
15	HADP-0785	PLUG 10MB
16	ECAP-0025	PRESSURE TRANSDUCER, 0-3000 PSI
17	HVAL-0177	RELIEF VALVE
18	EFIL-0200 (2x) OR (4x) FOR DUO	DIN CONNECTOR
19	HVAL-0100	HYDRAULIC VALVE
20	HADP-0132 (2x) OR (4x) FPR DUO	90° Male JIC/Male "ORB" Adjustable
21A	HVAL-0176	BLOC MANIFOLD
21B	HVAL-0189 FOR DUO	BLOC MANIFOLD DOUBLE
22	HADP-0060	ADAP. 10MB-12MP
23	HADP-0617	ADAP. 12MP-12FPX
24	HADP-0089	ADAP. 10MB-8FPX45
25	HFTR-0004	FILTER
26	HFTR-0005	FILTER HEAD
29	HBOY-0418	HYDRAULIC HOSE ½ X 14"
30	HADP-0038	PIPE ¾ X 12"
31	HVSL-0001	OIL LEVEL

CONTROL PANEL— ELECTRICAL COMPONENTS



CONTROL PANEL— ELECTRICAL COMPONENTS



CONTROL PANEL ELECTRICAL COMPONENTS



NOMENCLATURE AND PARTS - CONTROL PANEL

NO	CODE MDA	DESCRIPTION
1	ECON-0025	(SC1) TeSys D IEC Bi-Metallic Overload Relay 600V 13A
2	ECON-0005	(OL1) TeSys D contactor - 3P(3 NO) - AC-3 - <= 440 V 12 A - 120 V AC coil
3	EBOR-0013	DIN Rail Mount Terminal Block
4	EFUS-0037	Fuse Holder
4	EFUS-0015	(F1, F2) FUSE 0,8 AMP
5	EFUS-0124	Fuse Holder
5	EFUS-0011	(F3) FUSE 1,5
6	ETRA-0040	FINGER GUARD
7	ETRA-0039	(XF0)CONTROL TRANSFORMER
8	EBOU-0012	CONTACT BLOCK, 1N0
9	EBOU-0014	N/O CONTACT BLOCK
10	ESEC-0001	SAFETY RELAY
11	EAUT-0021	(PLC) TM221
12	EBOU-0102	white light block with body/fixing collar integral
13	EBOU-0004	Non-Illuminated Selector Switch Operator
14	EBOU-0015	Push button Contact Block
15		ELECTRIC DIAGRAM
16		CSA LABEL
17	EBOU-0105	LED Panel Mount Indicator
18	EBOU-0033	(BP2) FLUSH PUSH BUTTON
19	EBOU-0020	(LT2) PILOT LIGHT
20	EBOU-0029	(PB1) orange flush illuminated pushbutton
21	EBOU-0009	(AU1) E-Stop operator
22		CODE QR
25	ECON-0003	SAFETY AUXILIARY CONTACTOR
26	ECON-0010	SAFETY CONTACTOR
27	EBOU-0015	AUXILIARY CONTACT N.C



MAINTENANCE SCHEDULE

Intervention	For Each Bale	Monthly	Yearly
Clean inside the baler and on top of the ram with a broom	X		
Grease shoe tracks inside the baler		X	
Check the oil level		X	
Clean out wire guides on machines equipped with them		X	
Apply a light coating of all purpose grease in loading door		X	
Safety feature inspection			
Is the BullHorn still in place?		X	
Is the BullPen still in place? Simulate an ejection.		X	
Is the Bull Guard still in place?		X	
Safety magnetic switch : simulate a violation.		X	
Change oil, oil filter and oil suction filter			X
Hydraulic Hose Inspection			X
Structural Frame Inspection			X



TRAINING PLAN

Introduction

Presenting the baler

User's guide

Presenting the labels (know how to read the information)

LEVEL 1

Producing a bale

Producing a bale

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6

Step 7

Inspect, monitor, respect

Safety elements

Memory Aid

LEVEL 2

Operate commands

Electric enclosure

4 buttons (or 5 for duos)

Decode light signals

TRAINING LEVEL 2**PRESENTING THE BALER**

Bullpak balers are the new generation of vertical balers and of compactors of high capacities. The robustness and the power allied to the efficiency and the security guarantee a quality work.

USER'S GUIDE

Skimming through the user guide with apprentice.

PRESENTING THE LABELS (KNOW HOW TO READ INFORMATION)

Go over the equipment to be able to recognize and explain the labels. Training on safety about the equipment.

LEVEL 1**Step 1 – Cleanliness**

Make sure the floor of the baler is clean. Broom if necessary to thoroughly empty the baler. Put a flat piece of cardboard on the ground to avoid the compaction of pieces between the spaces of the floor that could block the passage of the metal wires. Never enter inside the baler.

Step 2 – Loading

Close the ejection door. You can begin to load the baler. Arrange the cardboard evenly.

Step 3 – Close the loading door

Press the "action" button. The ram will complete a full cycle - lower and raise- and the loading door will open automatically. You will then be able to add more material and repeat this step until the "action" button flashes.

The flashing indicates that the ram is lowering for the last time before the bale is ready.

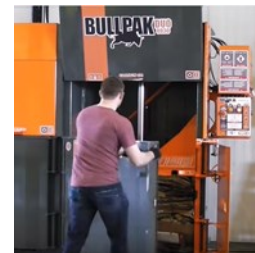
Put a flat piece of cardboard on top, close the loading door and press the "action" button.

The ram comes down again to lean on the bundle and stays in this position.

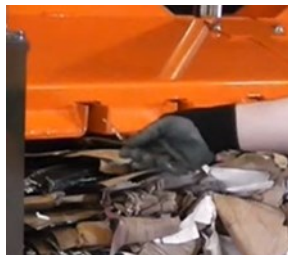
TRAINING LEVEL 1

Step 4-

The "action" status light stays on. The loading door will not open. You can open the ejection door. The loading door will then open automatically.

**Step 5- At this stage, you have to wear your gloves and safety glasses**

Take the steel wire and insert it in the ram until it comes back through by the floor. Join the two ends together by twisting them together until the tightening of the bundle is resistant and be even for all wires when the bale will expand. (4 wires for cardboard and 6 wires for plastic). Take advantage of this to remove all the cardboard that is above the ram.

**Step 6-**

Set a skid in front of the baler, if equipped with a Bullpen, lower it. As you hold the "ejection" button press and release the "action" button, the green "ready" light will turn on. Press the "action" button again and hold it down. The bale will be ejected and the ram will resume to its original place. **WARNING, KEEP HOLDING DOWN BOTH BUTTONS UNTIL THE LIGHT TURNS OFF AND THE ENGINE STOPS.**

**Step 7-**

Broom the inside of the baler and restart to step 1.

Step 8 - Perform a round-trip sequence of the ram to reset the ejection mechanism.

TRAINING BALER OPERATOR

In addition to knowing how to prepare a bale, the operator must know the configuration of the control panel internally and externally. They must be able to recognize the emergency situations, the defect problems as well as being able to communicate them with resource professionals.

EXTERNAL CONFIRGURATION

Here is the external control panel of a simple baler.



TRAINING LEVEL 2**"EMERGENCY STOP" BUTTON**

The first necessary information is that always, in uncertain situations, the red button will allow you to avoid accidents. This button called the "Emergency Stop Button" is activated by pressing it and its function is to interrupt all mechanical activities done by the baler. Once triggered, it remains so until it is rotated a quarter of a turn and then pulled out to return to its original position. Once pulled out, it can be switched on or off.

"ACTION" BUTTON

Its function is to activate the baler, but its orange light can also transmit information. When it flashes it indicates that the ram is performing its last cycle, when it then stops flashing and simply stays on it indicates that the bale is ready, which it can then be tied and ejected. To force the creation of a bale, press the "action" button, release and then hold until the light turns on.

Following the release of the "action" button, there will be a pulse of 0.5 seconds which will indicate that the "action" button is working correctly and that no alarm is active.

If it flashes (1 second on and 2 seconds off), it indicates that the model of the baler is not configured and that it cannot operate.

Following a power failure, the system will indicate the operating mode of the baler by 3 pulses of 1 second for the plastic mode and 6 pulses of 1 second for the cardboard mode.

BUTTON ON THE SIDE OF THE BOX OR TWO HANDS BUTTON

This button's use is uniquely for ejecting a bale. Press this button simultaneously with the "action" button. While holding the buttons down and as the ram is repositioning atop, the bale will be ejected.

THE GREEN "READY" STATUS LIGHT

When it is always on, it indicates that the security relay is rearmed meaning that the system is secure. On the contrary, when it is always off, it indicates that the security system has been violated. It represents 8 different messages by the way they flash (see memory aid table on page 54).

MEMORY AID

Tasks	Yes	No
Broom		
Cardboard on the ground		
Closed ejection door		
Loading is even		
"Action" button		
Steel wire well tied and quantity is sufficient		
Skid in front of the baler		
Bullpen lowered (if equipped with one)		
Ram back up and bale has tumbled (light and engine off)		
Remove the skid		

You can attach a bale with twine or steel wires.



MEMORY AID

For the green status light (ready)

Code	Message	Description
Remains on	Secure System	The safety relay is ready.
Remains off	Safety Violation	The safety system has been breached.
1	Emergency Stop	The Emergency Stop is on.
2	Loading Door Open	The loading door opened during a compacting cycle.
3	Ejection Door Open	The ejection door opened: - Before the bale is complete. - After the bale ejection.
4	Lengthy Compacting / Return Cycle	The compacting OR return cycle is too long (3 sec.).
5		
6	Low PLC Battery (does not shutdown the sys-	The PLC battery must be quickly replaced. (BR2032 3-Volt Model)
7	Loading door jam	Loading must be open.
8	Overload reset	The motor overload must be reset

MEMORY AID FOR THE "ACTION" BUTTON

Code	Description
Remains on	The bale is ready to eject.
1s ON / 1s OFF Flash	The bale is almost ready.
1 x 0.5s Pulse	The release of the "Action" button indicates that it operates properly AND there is no alarm signal.
0.1s ON / 5s OFF Flash (Double Baler)	The release of the "Action" button indicates that it operates properly AND there is no alarm signal. However, the baler will not start its cycle immediately and will wait for the other baler's cycle to end.
0.1s ON / 2s OFF Flash	The baler model is not set. Therefore, the system cannot operate. NOTE: For the double baler, the two (2) "Action" pilot lights will flash.
3 x 1s pulses	Following a power failure, the system indicates the baler operating status. 3 pulses = Plastic Mode
6 x 1s pulses	6 pulses = Cardboard Mode

ENERGY CONTROL POINT



ELECTRIC



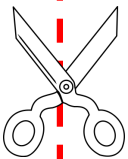
MAIN CURRENT —VERTICAL BALER

LOCKUP PROCEDURE

- 1- WARN THE PERSONNEL THAT THE EQUIPMENT IS SUBJECT OF A LOCKUP PROCEDURE.
- 2- PUT EQUIPMENT IN "OFF" POSITION.
- 3- DISCONNECT ALL SOURCES OF POWER SUPPLY.
- 4- USE OF THE LOCK:
 - (a) USE A SAFE ENCLOSURE FOR ELECTRIC OUTLETS (ABLE TO CLOSE WITH A KEY);
 - (b) TIE IT AROUND A SOLIDE AND STATIONARY OBJECT ;
 - (c) PUT THE CONJUNCTION BOX IN THE "OFF" POSITION AND PUT THE LOCK ON.
- 5- DO NOT LEAVE THE KEY ON THE LOCK, IN PREFERENCE PUT IT IN A SAFE PLACE UNTIL THE END OF THE WORK THAT IS EXECUTED.
- 6- ENSURE THAT EQUIPMENT CANNOT BE RE-OPERATED (THAT THE CONJUNCTION BOX CANNOT BE RECONNECTED IN ANOTHER SOCKET)
- 7- VERIFY THAT EVERYTHING IS WITHIN STANDARDS AND THAT THE EQUIPMENT CANNOT BE RE-OPERATED. IF IT IS NOT THE CASE, REPEAT STEPS FROM STEP 1.
- 8- VERIFY THAT ALL CONTROLS ARE IN OFF POSITION.
- 9- VERIFY THAT THERE ARE NO OTHER POWER SOURCE.
- 10- DURING MAINTENANCE OPERATIONS OR REPAIRS ON THE EQUIPMENT YOU MUST WEAR PROTECTIVE GLASSES AND GLOVES AS REQUIRED BY THE MANUFACTURER

END OF LOCKUP PROCEDURE

- 1- RESET ALL PARTS IN PLACE. VERIFY THAT THE SECURITY PIECES ARE ALL INSTALLED.
- 2- ENGAGE THE RESETING PROCEDURE.
- 3- VERIFY THAT THE LOCKS ARE REMOVED AND THAT THE SAFETY DEVICES ARE CORRECTLY IN PLACE.
- 4- MAKE SURE TO KEEP THE PERIMETER SAFE AND WARN ALL PERSONNEL THAT THE EQUIPMENT IS READY TO BE OPERATED.
- 5- TURN ON THE EQUIPMENT AND VERIFY THAT ALL THE FUNCTIONS OF THE EQUIPMENT ARE IN ORDER OF OPERATION AND SAFE.



Contract No. : _____



Attestation of group training

During the installation of the vertical baler, as of _____, the following employees were present to receive the vertical baler user training:

Signature of employees that have received the training (client):

The training was given by : _____

In the presence of MDA installers : _____

Chief of staff (client) : _____

