AUTOBALER

SERVICE & OPERATIONAL MANUAL

TI350 / TI500 SERIES

Trethewey Industries
14 Carl Baer Circuit
Deepwater
NSW 2371
Australia

For Service Assistance or Advice Call:
Telephone: 02 67 345 403
Service Line: 1800 888 403

AUTOBALER®
www.autobaler.com.au

Declaration of Conformity

Application of EC Directive(s)

Standard(s) to which Conformity is declared:

MD: 98/37/EC Machinery Directive

LVD: 73/23/EEC Low Voltage Directive

EMC: 89/336/EEC EMC Directive

Manufacture's Name: Trethewey Industries Pty Ltd

Manufacture's Address: 14 Carl Baer Circuit, Deepwater, NSW 2371

Description of Equipment: ***AUTOBALER.***

Model: ***TI350A3-C3 / TI500A3-C3 Series***

Trethewey Industries Pty Ltd hereby declares that the product(s) specified above conform to the above directive(s) and Standard(s). This apparatus must not be put into service until the equipment into which it is incorporated has been declared in conformity with the essential requirements of the relevant EC directives.

Full Name: _____ Signature:_____

Position: _____ Date: _____

For and on behalf of Trethewey Industries Pty Ltd, Deepwater NSW, Australia Compliance

Compliance assessed and approved by:

.

Banksia Project 00723

Banksia EOHS Pty Limited
Richmond Vale Road,
Mulbring. NSW 2323.
Phone 02 4938 0044
Fax 02 4938 0111.
e-mail: jimorr@bigpond.com.

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Jim Orr BSc MAppSc PhD

Director

SERVICE & OPPERATIONAL MANUAL

MACHINE - *AUTOBALER and CYBERSMART CONTROLLER*
MODEL - TI*350A3-C3/ TI500A3-C3 Series*

AUTOBALER MODEL NUMBER - _____

AUTOBALER SERIAL NUMBER - _____

CONTROLLER SERIAL NUMBER - CS_____

Name and Address of Manufacturer

Trethewey Industries
14 Carl Baer Circuit
Deepwater
NSW 2371
Australia

Please Read This Document before Operating the Machinery

NOTES

- The machines are manufactured in compliance with the accident prevention rules in force.
- The machines strictly comply with the instructions contained in the manual to obtain the best performance from the machines. Strict compliance with the rules contained will ensure optimum results and avoid any inconvenience caused by the non-compliance of operation and maintenance instructions.
- To avoid contacting the manufacture for problems which can be easily solved, closely follow the instructions given below.
- If after having strictly complied with the instructions given, the buyer still needs the help of our technical assistance service, he must supply all the technical indications necessary to determine correctly. This will enable our technical assistance service to intervene quickly and efficiently on the machine.
- Copies of the instructions manual may be requested upon indication of the machine serial number.

IMPORTANT
Upon delivery of the machine, the customer must make sure that all the devices indicated in the paragraph on the safety manual are present and working correctly. Furthermore, he must mount in conformity with the instructions indicated; those devises which are not mounted at the time of delivery to facilitate transport.

When ordering spare parts it is necessary to state:

- Machine Model
- Serial Number and Year of Manufacture
- Item Reference Number

Without serial number, no spare parts will be delivered!

DEFINITIONS
User: The person body or company who has brought or rented the machine and intends to employ the users trained and inducted in the safe use & operation.
Operator: The physical person authorised by the user or a representative of Trethewey Industries to operate the machine after having been suitably trained on the use and specific risks of the machine.
Authorised Person: The physical skilled person authorised by the user to carry out maintained or setting up operation on the machine.
Dangerous Zone: Any person who finds himself in a dangerous zone as marked on the baler either entirely or partially.

PURPOSE OF MACHINE

- This machine has been designed to be mainly used in recycling stations or similar applications.
- This machine has been designed for the compaction of cardboard, paper and similar fibourous materials.
- Use differing from the above is to be considered inappropriate and prohibited. The machine operator must be trained and informed of risks and must have the instruction manual at his disposal
- The operator must not work with any guards or safety devices inoperative or missing. The baler must not be operated.

RISKS
During the pressing phase, the operator must never put hands or use tools in the compaction area.

Note:

When servicing a press or addressing a press problem please check the press serial and model numbers and the date of manufacture. This manual will apply to earlier models, however, there will be issues with earlier models which will not be covered by this manual, and an amendment to this manual covering earlier models is available. Please contact the press manufacturer on their service agent.

To be equipped to service a problem press, the technician, before leaving to service the machine, especially where a customer has phoned with a problem, will need via the phone to establish the possible source of the problem, so as to be equipped to deal with that particular problem. However if the technician from the information given is unable to identify the possible problem, he should contact the manufacturer before leaving to ensure that the correct components and testing equipment are taken to the problem machine, thus minimising the down time of service and inconvenience to the customer.

Caution:

If the machine requires welding:

1. Always completely remove the electronic control units' connections as welding may seriously damage the controller.

2. Always anchor the earth lead of the welder directly to the part being welded.

3. Clean to bare metal the position of the earth clamp.

4. Ensure that no electric or electronic wiring plastic etc is in the vicinity or the heat affected area.

CUSTOMER SERVICE NUMBER: 1800 888 403

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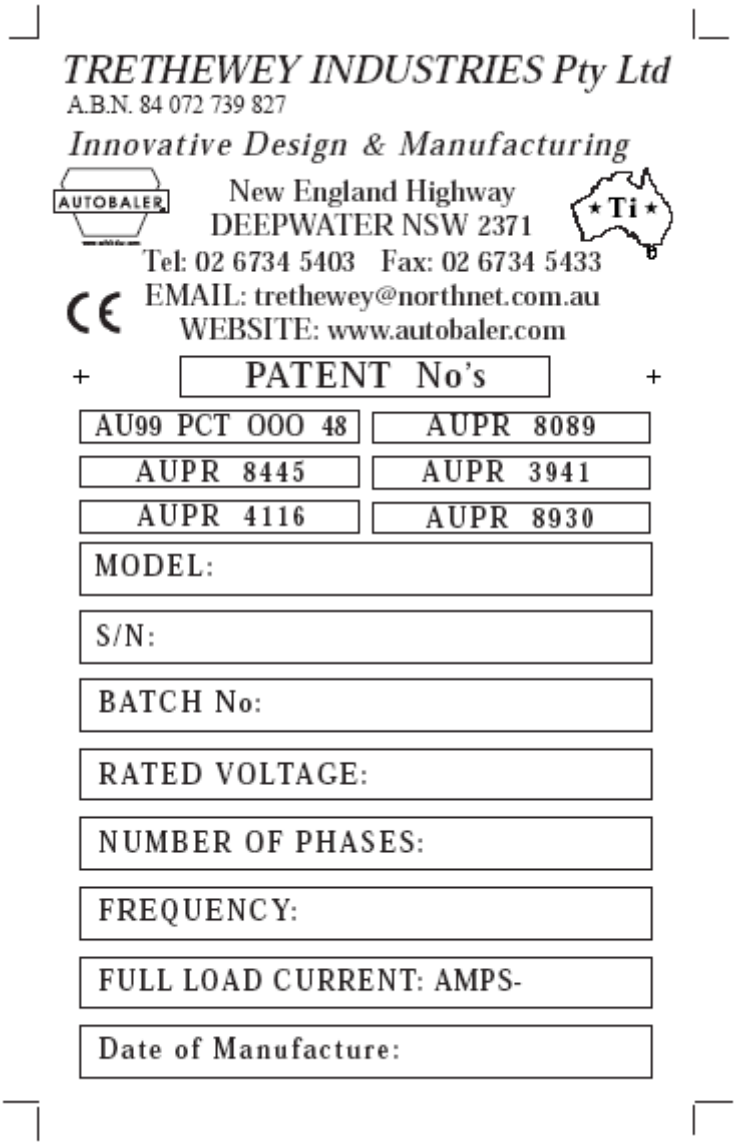
Manufacturing Plate



DECLARATION OF CONFORMITY

98/37/EC Machinery Directive
73/23/EEC Low Voltage Directive
89/336/EEC EMC Directive

Name of manufacturer or supplier
Trethewey Industries Pty Ltd

Full postal address including country of origin
14 Carl Baer Circuit, Deepwater, NSW 2371, Australia

Description of product
Paper & Cardboard Baling Machine

Name, type or model, batch or serial number
Type - Autobaler
Model – TI350/TI500
Make - Trethewey Industries Pty Ltd
Location – 14 Carl Baer Circuit, Deepwater, NSW 2371 Australia
Supply - 415V ac 3- Serial No: _____
Mass Weight - _____

Standards used, including number, title, issue date and other relative documents
See attached sheets

Place of issue Address of Authorised representative in Europe

Name of authorised representative: _____

Position of authorised representative: _____

Full postal address if different from manufacturers
Address of Authorised Representative in Europe

Declaration

I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of the above Directives and their amendments.

Signature of authorised representative _____Date_____

Autobaler

EN ISO 12100-1	Safety of machinery - Basic concepts, general principles for design - Part 1 Basic terminology, methodology
EN ISO 12100-2	Safety of machinery - Basic concepts, general principles for design - Part 2 Technical principles and specifications
EN 294	Safety of machinery Safety distances to prevent danger zones being reached by the upper limbs
EN 349	Safety of machinery Minimum gaps to avoid crushing of parts of the human body
EN 418	Safety of machinery - Emergency stop equipment, functional aspects Principles for design
EN 811	Safety of machinery Safety distances to prevent danger zones being reached by the lower limbs
EN 953	Safety of machinery - Guards General requirements for the design and construction of fixed and movable guards
EN 954-1	Safety of machinery - Control systems - Part 1 General principles for design
EN 982	Safety of machinery Safety requirements for fluid power systems and their components - Hydraulics
EN 1037	Safety of machinery Prevention of unexpected start-up
EN 1050	Safety of machinery Principles of risk assessment
EN 1088	Safety of machinery - Interlocking devices associated with guards Principles for design and selection
EN 60204-1	Electrical - equipment of machines Part 1 General requirements
AS 4024.1	Electrical Equipment
AS 4024.1101-2006	Safety of Machinery

Trethewey Industries Pty Ltd

14 Carl Baer Circuit
Deepwater
NSW. 2371

14 November 2003

ASSESSMENT REPORT
AUTOBALER
FOR COMPLIANCE WITH MACHINERY DIRECTIVE 98/37/EC

Prepared by
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Banksia Project 00998

Jim Orr
BSc MAppSc PhD
6th February, 2010

INSPECTION & ASSESSMENT METHODS

This follow up assessment of the improvements of the machine was carried out on the machine at Campbellfield following the initial assessment on 15 August 2003 and Inspection report No: 150803.
The machine was assessed for compliance with the Essential Health and Safety requirements of Annex I of the EC Machinery directive 98/37/EC and the following harmonised EN standards -

EN 292 Safety of machinery - basic concepts, general principle for design

EN 1050 Safety of machinery - Principles of risk assessment

EN 418 Safety of machinery - Emergency stop equipment, functional aspects

EN 954.1 Safety of machinery -Safety related parts of control systems

EN 1088 safety of machinery - Interlocking devices associated with guards

EN 294 Safety of machinery - safety distances to prevent danger zones being reached by the upper limbs

EN 60204 Safety of machinery - Electrical equipment of industrial machines.

Baler Test Report

Comprehensive Autobaler Test Report

Date:	
Serial No:	
Testing Officer:	
Electrical Test Performed By:	
Noise Emission Test:	
Hydraulic Test:	

Autobaler Quality and Reliability Test
Full Mechanical Test

Test Report No:	
Testing Officer:	
Operational Test Report No:	
Testing Officer:	
Lubrication Test Report No:	
Testing Officer:	
Testing Officer:	
Signature:	

Hydraulic Pressure and Performance Test

"Report on Safety and Hydraulic Performance"

This report is suitable for pressure systems below 2500 psi.

System Pressure Required:	
System Pressure on Test:	
System Pressure Spikes:	
Pressure Switch Firing Range:	
Pressure Switch Firing Test:	
Hydraulic Delivery Hose Rating:	
Fluid Type and Grade:	Hydraulic 32 Grade
Cylinder Brand and Type:	
Duration of Cycle Test:	
Date:	
Inspector:	
Signature:	

Noise Emission Test Report

Baler Noise Emission report - the test done from five positions:-

a. From each side at a distance of 1m from the machine

b. At a distance of 1m above the machine

Decibel monitor type and number:	Tenma 72.6604
Test one metre from front:	
Test one metre from left side:	
Test one metre from right side:	
Test one metre from back:	
Test one metre above machine:	
Injury precautions required:	Ear Protection Must be worn if noise exceed 85 DB
Date of Inspection:	
Inspection No:	
Inspector:	
Signed:	

Earth Bonding and Electrical Test

Report on Safety Inspection and Testing of Electrical Equipment

This report is suitable for class 1 protectively earthed 3 phase 415V equipment. The test has been carried out in accordance with AS/NZS 3760, with the following electrical and visual inspections:

500V Insulation Resistance Tests

α Active 1 to earth: Pass ☐ Fail ☐

α Active 2 to earth: Pass ☐ Fail ☐

α Active 3 to earth: Pass ☐ Fail ☐

Earthing continuity: Pass ☐ Fail ☐

Flexible supply cord:-

α External visual inspection of plug connection: Pass ☐ Fail ☐

α Visual inspection of cord termination to equipment: Pass ☐ Fail ☐

Visual inspection of wire termination in electric motor terminal housing: Pass ☐ Fail ☐

Date: ☐

Inspection number: ☐

Inspector: ☐

Inspector registration number: ☐

Signed: ……

Trethewey Industries

New Machinery Hazard Identification assessment and Control

Description: Autobaler Model: TI350/TI500 Brand:

Developed in Co-operation between AWISA and Australia Chamber of Manufactures
This program is based upon the Australian Worksafe Standard for Plant NOHSC: 1010-1994

Item No.	Hazard Identification	Hazard Assessment	Risk control Strategies
A	Entanglement	Very Low	Do not reach into baler. Operator Training
C	Cutting, stabbing, puncturing	Very Low	Use only safety knife for bale tie off.
D	Shearing	Nil	
E	High Temperature	Nil	
F	Striking	Moderate	Upper of lower door rebound. Operator Training
G	Crushing	Low	Bale ejection. Operator Training
H	Electrical	Low	Operator Training
O	Other hazards, noise dust.	Moderate noise	Noise if operated with insufficient materials in hopper. Operator training

Warnings

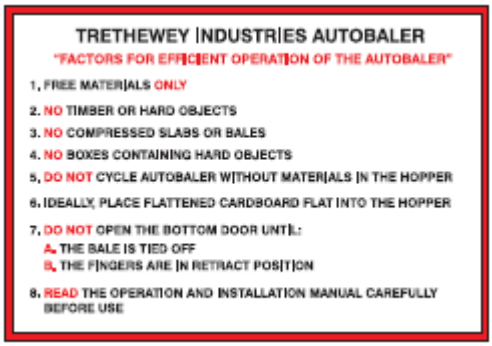
1. Autobalers must only be operated by qualified people
2. Only qualified people to service or repair Autobalers
3. Before servicing or repair familiarise yourself with the relevant instruction manual
4. The Autobaler must not be used in a manner contrary to the manufacturer's instructions.
5. Prior to moving the Autobaler ensure the fork lift capacity is at least 3.5 tonne.
6. On installation or repair ensure the machine is effectively earthed. (All electrical work to be carried out by qualified electrician).
7. Always disconnect the electrical supply before servicing or repair due to electrical hazard

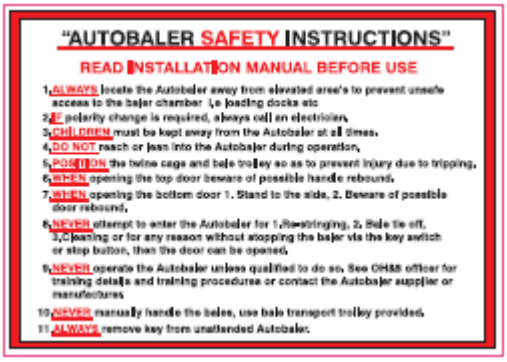
Failure to observe Safety Precautions could lead to severe injury.

We recommend operators using the following personal protective equipment:-

1. Safety glasses
2. Safety shoes
3. Safety gloves

COPY OF WARNING NOTICES ON MACHINE (INCLUDING NAMEPLATE)





SPECIFICATIONS

TI350A3

Transport width	*2250*
Operating width	*2070*
Depth	*1470*
Transport height	*2090*
On pallet height	*2250*
Height with canopy	*2700*
Compaction chamber	*750x750x1100*
Bale weight	*300-350kgs*
Cycle time	*28 seconds*
Compaction force	*33000kg*
Motor 3 phase	*5kw*
Baler mass	*3000kgs*
Shipping weight	*3250kgs*

TI500A3

Transport width	*2250*
Operating width	*2070*
Depth	*1930*
Transport height	*2025*
On pallet height	*2250*
Height with canopy	*2700*
Compaction chamber	*700x1100x1100*
Bale weight	*450-550kgs*
Cycle time	*32 seconds*
Compaction force	*33000*
Motor 3 phase	*5.5kw*
Baler mass	*3500kgs*
Shipping weight	*3750kgs*

TRANSPORTING THE AUTOBALER SAFELY

Baler positioned on pallet

The following procedure is for the safe transportation and movement of the Autobaler

REMOVING THE AUTOBALER FROM THE PALLET

1. Unwrap and cut metal strapping
2. Open baler door
3. Insert the fork lift tines through the slots beneath the front lower door, situated in the rear baler wall are fork way slots. Ensure that the fork lift tines are fully through the rear wall slots.
4. Lift the baler no more than 80mm off the pallet, check again to ensure sufficient tine protrusion through the rear slots
5. Lift sufficiently i.e. 50mm to clear the pallet, slide the pallet beneath the baler with caution

    With tines through the baler slots, always move:-

    a. close as possible to the floor
    b. at idle speed only
    c. in reverse to ensure good vision

Note: When transporting the Autobaler where lifting on a truck is required

1. Always transport on a solid hardwood pallet.
2. Never lift the baler more than 300mm unless on a pallet, as the baler could slip off the tines (metal to metal).
3. If lifting the baler from beneath the baler base, fasten the baler to the fork mask using strap or chain.
4. When lifting the baler more than 300mm, always be on level ground and never transport the baler in an elevated position.
5. When transporting or moving the baler on the fork lift, always travel in reverse to ensure good vision
6. Safety Equipment: Compliant safety boots, high visibility vest, hearing protection, eye protection and head protection if required.

POSITIONING THE AUTOBALER ON THE PALLET

The baler is lifted beneath the lower front door (Never lift beyond the forklifts capacity)

1. Ensure that the baler chamber is completely empty of any loose baler components or materials.
2. Insert the fork lift tines through the slots between the bottom of the lower door and the base, these front tine slots correspond with slots in the rear wall.
3. Before attempting to lift, ensure that the fork lift tines are fully through the rear slots. Dismount the fork lift and check to ensure fork lift tines are fully inserted.
4. Lift the baler 200mm off the floor.
5. Slide the pallet equally under the baler from the side; ensure that the pallet can be lifted from the front.
6. Lower the baler gently onto the pallet and strap the baler to the pallet if transporting a long distance

BALER LOCATING FROM TRUCK TO DOCK

When loading the baler for its final destination, the baler is to be loaded in such a way so as to facilitate the removal at the customers end, i.e. if the baler is to be unloaded using a forklift truck, the pallet will need to be situated to facilitate this but if the baler is to be unloaded using a pallet jack, then the pallet containing the baler needs to be situated to facilitate this (which would be a 90 degrees).

BALER CHECK BEFORE COMMISSIONING

Trethewey Industries balers undergo a thorough quality check before they are despatched from the factory. This ensures that they are all in perfect order. Due to varying conditions during the transporting procedure the balers will require a pre-start up check.

The installer should be a person trained, qualified and approved by the baler manufacturers for the purpose of pre-start up and machine commissioning.

When installing a baler the pre-start up check should be as follows:

1. Thoroughly check the baler for obvious damage from transport and handling.
2. Check the baler for moisture contamination. The manufacturers' recommendation is that balers not be transported in a manner that will cause water contamination to the electrics and the electronics.
3. Check the electrical system for obvious damage
4. Check hydraulic system for oil leaks
5. Check Safety Bar
6. Insert all strings through string lock as in stringing set up in the operator's manual
7. Bottom Door Adjustment

1. Check the Baler for Damage from Transport & Handling

Walk around the baler and inspect for any damage that may have occurred during transport. If any damage has occurred record the damage found and contact the manufacturer immediately.

2. Check the Baler for Moisture Contamination

If water contamination has occurred, the baler should not be connected to the power supply until the installer is fully satisfied that the moisture risk no longer exists. In case of severe water contamination dismantling of the following may be required to allow evaporation of the trapped moisture.

a) Check the motor junction box; if moisture is present the unit must be allowed to dry before use.

b) Solenoid valve coils.

c) Electronic censor unit situated on the rear of the upper roppel.

d) The electronic controller unit, to check this unit if contamination is suspected

e) Remove the controller from the machine.
f) Remove the entry plate from the back of the controller.

If moisture is present allow to dry thoroughly if excessive water contamination had occurred to the controller unit it may require replacing with a dry unit. In many cases this is the best option, moisture in sensitive electronic components may take long periods to dry thoroughly. Attempting a start up with a moist unit may result in serious damage to the control unit.

3. Check the Electrical System for Obvious Damage

1. Check the plug unit for any damage or lose wires
2. Check the lead from the plug to the controller for damage, if in doubt use an appropriate multi-metre
3. Check the power connection units at the bottom of the controller for firm undamaged connection
4. Check the power entry to the motor junction box. If damage or a fault is suspected call a qualified electrician
5. Do not connect to a wall socket (point) that shows damage or is in poor repair.

4. Check Hydraulic System for Oil Leaks.

1. Check the fluid level in the reservoir, the oil should be showing on the dip stick. If no oil is present then add oil (awh 40) until oil is present. Caution (Do not over fill)
2. Check oil tank for transport damage.
3. Check hydraulic hoses for damage, if damaged replace hoses (check with manufacturer for correct hose type).
4. Systematically check all fittings (hose ends and fittings can be bumped during transport and location).

5. Check safety bar

1. Check for free operation
2. Check to see that bar is functioning correctly.

6. Insert all strings through string lock as in stringing set up in the operator's manual

1. Open and close the top door several times then open the top door fully.
2. Pull each string through the lock bar and check to see that the lock bar is not cutting or damaging the string (twine). If damage is occurring the adjustment on the string lock connector may need adjustment (to adjust - undo one of the connector link bolts, rotate one revolution, reconnect and re-test).

7. Bottom Door adjustment check

Situated on the right hand side of the baler on the bottom of the lower door is an adjustable link connector. A correctly adjusted door will spring open 10-20mm when pushed closed and is unlatched. On the bottom link are two hexagonal nuts. The link can be lengthened or shortened as required by adjustment of these two nuts. Note - See manual for door link adjustment.

Safety

1. Location of Autobaler:

a) Never place the Autobaler near any landings or elevated loading docks, unless these areas have the appropriate safety arrangements and approvals.
b) Never place the Autobaler under a man hole, air conditioner, refrigeration unit, light or any position where a service technician may have occasion to work above the machine.
c) Never place the Autobaler on a loading dock, close to the edge or the above landings edge.
d) Never place the Autobaler in a position where unauthorised persons have access.
e) Always consult an OH&S officer.

2. Area of Operation:

a) Ensure that baler trolley is stored in a position away from the operator's passageway.
b) Ensure that twine rolls & twine safety cage are positioned close to the right hand side of the Autobaler to prevent tripping. If cage is provided with hooks, use these to affix cage to safety barrier.
c) Ensure that electric lead is not in a hazardous position and is not left lying on the floor, particularly if there is a chance of water being on the floor.

3. Operation of Autobaler:

a) Always keep hands and arms out of the Autobaler hopper during operation.
b) Always, when entering the pressing chamber for re-stringing etc, wait until the motor stops and turn the key to the "Off" position.
c) Never attempt to load heavy objects over the top door during the baling process, (reduce boxes of books, brochures etc to smaller quantities).
d) When removing full bales from the Autobaler, always use the Auto-eject.
e) When ejecting full bales, never pull on the twine in such a manner that if the twine breaks, or the knot fails, a fall will result which may cause an injury.
f) Always use the baler trolley, pallet jack or fork lift to relocate full bales.
g) Always be aware of door rebound when opening top or bottom doors, always stand to the side.
h) Never stand in front of the pressing chamber when ejecting full bales, always stand to the side.
i) Never attempt to operate Autobaler with the front door open.
j) Never attempt to clean, lubricate or work in the vicinity of the cylinders during operation.

SAFETY CLOTHING / FOOTWEAR

a) During assembly, location and operation of the baler, safety compliant footwear must be worn.
b) Firm fitting work place compliant clothing must be worn.
c) Safety compliant work place gloves, hearing protection and eye protection must be worn.

Always remove Autobaler key when machine is not in operation, or is unattended.
Trethewey Industries recommend that the following checks be carried out.

Maintenance Requirements

WEEKLY

a) Check safety guards around moving parts. Are they in place? Are they damaged?
b) Check Autobaler key switch, is it functional and in good order?
c) Check emergency stop button, is it functional and in good order?
d) Check safety bar, is it functional and in good order?
e) Check power lead, is it undamaged?
f) Is it clear of any moisture?
g) Check Autobaler response to opening top door. Opening more then 50mm (approx 2 inches) should cause the machine to cease cycling.

IF ANY OF THE ABOVE CHECKS REVEAL DAMAGE OR MALFUNCTION, THE MACHINE SHOULD BE SHUT DOWN AND THE KEY REMOVED UNTIL THE FAULT IS REPAIRED.

PREVENTATIVE MAINTENANCE:

a) Every 4 months, or every 500 bales, the operation of the Autobaler should be checked by a qualified person to ensure that all safety features are functioning correctly and are undamaged.
b) From time to time, a qualified electrician should inspect all power leads and electrical contacts, and tag the lead as required by law.

Commissioning of a New Autobaler

This is the stage where a fully functional Autobaler is handed over for use by the end-users. At the conclusion of this commissioning, the installer must be satisfied that the Autobaler will perform as specified, and that the end-users are fully conversant with the operation and the safety guidelines.

Initially, the installer must be satisfied that:-

- The Autobaler is complete, as specified by the manufacturer
- The Autobaler is the specific model, as requested
- The power source is as specified
- All accessories and attachments are as requested
- All functions of the Autobaler operate correctly
- The motor rotates in a clockwise direction
- The hydraulic oil reservoir is full
- There are no hydraulic oil leaks
- There is no damage to any safety barriers
- The twine lock operates efficiently
- There are no safety concerns regarding the location of the Autobaler
- A qualified electrician has checked the power source, lead and electrical contacts

The installer must now:-

- Ensure that one, or more, of the end-users are completely trained in the safe use of the Autobaler
- Ensure that those trained are fully aware of safety procedures associated with the safe use of the Autobaler
- carry out a full training session, incorporating these factors

At the completion of the training session, the installer must:-

- Complete the “Job Completion” form, detailing precisely what was delivered and accepted by the end-user
- Complete the “Training & Trainee Particulars” forms, detailing the names of those who attended the training session. These persons will be sent a certificate stating that they are competent to operate the particular Autobaler, as well as have the overall knowledge to train others in its operation

Training the end-users should be carried out as follows:-

- Ensure that the person who has ultimate responsibility for the operation of the Autobaler is amongst those to be trained initially. i.e. Head Store man or Cleaner.
- Carry out the training, using the end-users as much as possible, from the stage of inserting the twine initially, to the removal of a full bale
- At all stages of the training process, make sure that those being trained are fully aware of the safety aspects associated with the operation of the Autobaler

Training is to be conducted as follows:-

- Preparation of the twine for insertion into the Autobaler
- Feeding of twine through the twine lock and collars
- Feeding of twine through hole in rear of pressing chamber
- Affixing of twine to cup head bolts, explaining need for double knots
- Placement of twine under lugs on the base of the pressing chamber
- Allowance for length of twine from hole in rear of pressing chamber
- Fixing of twine from rear wall, under lugs, up the inside of bottom door and fixed on attachment
- Closing of front doors and explaining of safety features i.e. Autobaler key, emergency stop button, safety bar, coded key switch and door opening cut out
- Explanation of electronic eye function

- Demonstration of operation of Autobaler with no material in pressing chamber
- Explanation that material should be visible above top door level prior to activation of Autobaler
- Feeding of material to be baled, explaining reasons for non-operation and motor cut out
- Explanation of “bale full” signals
- Demonstration on how to “tidy up” final bale
- Explanation on why bottom door should never be opened during baling process
- Tying of bale and retraction of fingers
- Opening of bottom door, with emphasis on possibility of rebound
- Placement of bale trolley and description of auto-eject function
- Eject of full bale, with emphasis on need for manual assistance and care to be taken by standing aside pressing chamber

Commissioning and Training Procedure

1. Trainers and service people must always have a manual when training or attending the baler.
2. Trainers must have all training documentations and must be completed by each trainee.
3. Site Inspection – Ensure the baler is situated to comply with all OH&S requirements
4. Unwrap the baler – Remove the baler from the pallet following the baler removal procedure.
5. Remove the components from within the baler chamber attach the twine cage to the lower mesh on the right hand side – situate the hopper mesh – fit over head screen.
6. Complete the baler pre-delivery check
7. Commission the Baler
8. Train the Staff Following the Staff Training Procedure Autobaler trainee material
9. Complete the Pre-Post Installation check
10. Return the require forms to the company – Trainee questionnaires, trainee details and all original documents are to be returned to Trethewey Industries
11. Invoice for payment can only be processed when all the documents have been returned to Trethewey Industries.

Installation Instructions for the Overhead Safety Canopy

FITTING OF THE OVERHEAD FRAME

- From within the baler lift frame – the rear support legs will telescope out
- When the holes I the telescoping rear legs appear, slide in retaining bolts to hold the frame in position. This operation may require two people or the use of a fork lift or mechanical lifting device.
- Firm up the grub screws on these legs
- Fit the mesh sections supplied – these will only fit one way.
- Tighten up the grub screws in the saddles to secure the mesh tabs to the baler
- The mesh frames should be now securely attached to the baler frame
- Firm up grub screws on baler saddles locking overhead frame into position. Note: mesh hopper must be on the inside of the legs (see illustration 2)
- Frame should now be as the picture below,

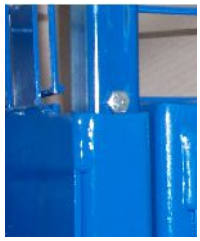
If you require further information on the fitting procedure, please contact the manufacturers on:-

1800 888 403 or 02 6734 5403

FITTING OF THE SAFETY CANOPY:

Fitted Overhead Safety Canopy

Rear Canopy legs position



Mesh mounting lugs

Chapter 1 - Oil Leaks

1. Determine leak
2. Check oil level
3. JIC hose fittings leak
4. O - fitting leak
5. Suction hose leak
6. Solenoid leak
7. Pump leak
8. Cylinder leak
9. Pressure by pass valve leak
10. Electronic switch leak
11. Hose leak
12. Regen leak
13. Parts Listing

If an oil leak in the hydraulic system occurs-

1. Determine Leak.
Determine the leak point, leaks are often difficult to locate, clean oily areas and place a sheet of cardboard beneath the effected area, and observe for leaks, this may require the machine to operate for a period.

2. Check Oil Level.
The level of oil in the reservoir needs to be checked, with the main cylinders closed (fingers down) check level on the dip stick, top up if required (never overfill).

3. JIC Hose Fitting Leaks.
If the oil leak is from a JIC hose end fitting, tighten up the fitting on the hose end whilst holding firm the inserted male fitting. Caution - do not over tighten.

4. O-ring Fitting Ring.
If the oil is coming from the base of a fitting (most hydraulic fitting on the machine are an O-ring type, check to see that the backing nut, on the fitting is tight. If this fails to correct the leak, remove the fitting and replace the O-ring seal (**See** Part Listing for O-ring part Number) or replace the fitting - Caution: O-ring must be fitted to the fitting correctly without damage. When the lock nut is tightened, the O-ring on the fitting must not be forced against the thread on the fitting, ensure that the fitting is screwed in sufficiently.

5. Suction Hose Leak.
a) Check the suction fitting into the pump, remove the fitting and apply thread seal tape - Caution: tape must be wound onto the fitting firmly and in the opposite direction of the fitting screwing in. Tape must not come closer to the front of the fitting than 5mm or thread tape contamination to the oil system may occur.
b) Check suction hose for damage.
c) Tighten suction hose clamps - new clamps may be required - double clamping may be required in some circumstance (2 clamps each end).

6. Solenoid Leaks
Leaks from beneath the solenoids
a) Thoroughly clean solenoids before dismantling to prevent hydraulic system contamination.
b) Situated on the solenoids are electrical wire sockets - before removal, carefully mark so that these go back on as they came off. (Same position) To remove the wiring cap, remove screw in cap centre.
c) With Allen key (5mm) remove 4 cap screws on the solenoid unit. Each solenoid unit has four oil ports each port has a small O-ring inserted (replace the O-ring if required) ***see:*** Parts List for O-ring Number.
d) When reassembling ensure both surfaces are thoroughly clean - ensure O-ring are correctly fitted and in all four ports, tighten down cap screws evenly. NOTE: Solenoid unit will only fit one way (the direction should be noted before removal).

7. Pump Leak.

Leak from the hydraulic pump:

a) Carefully check the inlet and outlet fittings into the pump for possible leaks.

b) Replace the faulty pump; return this to the manufacture or a dealer for service.

8. Cylinder Leaks.

Hydraulic Cylinder Leak

a) Check fittings into cylinder for possible oil leaks.

b) Check welding at the base of the cylinder for cracks resulting in a leak.

c) Excessive hydraulic cylinder shaft leakage: - As the cylinders age some leakage from the seals will occur this is normal when this becomes excessive replacement of the cylinders or the fitting of the cylinder seal kit will be required. **See**: Parts List for cylinder numbers.

9. Pressure Bypass Valve Leak

Oil leaking from the pressure bypass valve mounted to the aluminium block:

a) Check to see valve is firm (or)

b) Remove valve unit and replace O-rings.

c) Renew O-ring on outer cap.

10. Electronic Switch Leak.

Oil leaking from the hydraulic / electronic switch unit mounted to the aluminium block:

a) Tighten up the pressure unit, if this fails, replace the seal. ***See*** Parts List.

b) If oil is coming from the top of the switch unit from behind the wires from inside the switch unit, replace the entire switch.

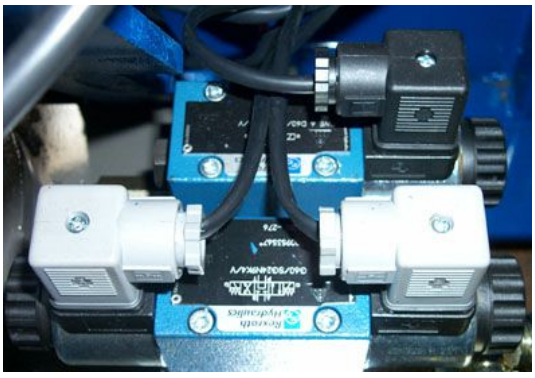
11. Hose Leak.

Hoses can develop leaks and fractures as a result of age or damage or a hose fault, if a leak occurs in a hose replace the hose. ***See*** Parts List for correct hose.

12. Regen Leak. Regen valve leak (Unit on cylinder)

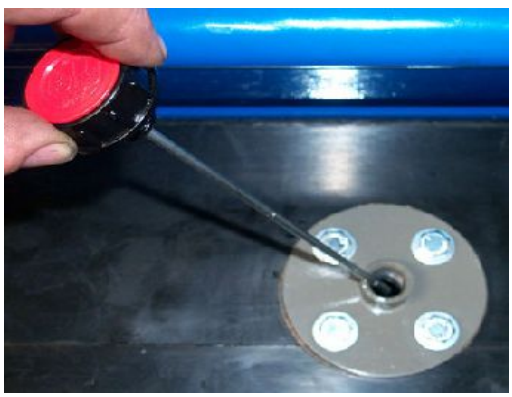
a) Tighten fittings

b) Renew O-rings on O-ring fittings.



Solenoid Cap

Dipstick



Dipstick

Chapter 2 - Pressing Fingers Malfunction

Malfunction of the pressing fingers

The pressing fingers are the 2 clusters of 9 fingers, one set on each side of the press. On the pressing stroke (down) these fingers come into the upper hopper through slots in walls of the upper chamber. These fingers compress the materials in the upper hopper into the lower chamber.

When the compression stroke is complete and as materials are placed into the upper hopper during normal operations, these fingers return to an upper position, as these fingers return they also relax and withdraw through the slotted side walls of the hopper without disturbing the material above, when the fingers are withdrawn from the hopper they rotate, locking in a vertical position for the compression cycle. (See appendix 1)

Malfunction 1 "Limp Finger Set"

1. When the press is cycled and is returning both sets of fingers are in a fully raised position (Observe that both fingers are actually standing completely up).
2. As the direction of the cycle changes from up to coming down and one finger fails to remain ridged and rotates to horizontal position the horizontal finger will then push in through the side of the hopper with no pressing effect at all. This malfunction may occur on each stroke or at random depending on the problem.

Steps to remedy

1. Isolate the machine power by removing the key from the panel. (Note pressing fingers should be completely down.) (Cylinders fully closed)
2. Remove the rear mesh safety screen from the problem side of the press.
3 Locate C shaped lock. Clean from around locking system rubbish cardboard etc.
4. Earlier model presses have no bearings on the Fingerlock pivot and may simply require lubrication both on the pivot and the side contact plated, recommended lubricants (Pro-ma lube spray). Check that the lock, pivot bolt is not over tensioned.
5. Later model machine locks, pivots on sealed bearings No. 6203LU. Check lock for freeness replace bearings if required.
6. Lock is preloaded forward with a tension spring.
   a) Check that the spring is attached both ends
   b) Check that spring has full tension. When lock is manually pulled back it should snap closed positively (unbolt one end of chain to test.)
7. Attached to the rear end of lock via two shackle plated is the release chain which is also attached to the press frame via the other end. Check that the shackles are free and that chain is untangled (Note if chain becomes tangled it will shorten the length of the chain possibly breaking the chain (or the chain anchor bolts) as the press travels in the down cycle.
8. Clean the two surfaces of contact on the lock. Remove grease compressed paper etc. Roughen surfaces using a course file. (On older models only if required)
9. See Flow Chart (Appendix 14)

Malfunction 2

Correct function of the finger system, the fingers travel in a downward direction rigidly locked when the fingers have travelled 80° of their downward path the lock chain comes into tension releasing the lock.

With the locks released the finger assembly becomes limp on the return stroke, withdrawing through the side, and then rotating to the vertical position and re- locking.

Malfunction 2 - *Is when the finger assembly remains rigid in both directions - rigid down is correct, rigid up is a malfunction.*

Steps to Remedy

1. Remove key for safety
2. Check main barrel pivot for seizure
    a) Lubricate main pivots
    b) Check for string, wire etc. tangled between the moving surfaces barrel unit should rotate freely.
3 Check that the lock chain is attached both ends and working - malfunction 2 is normally caused when the lock release chain becomes detached. (One or both ends)
4. See Flow Chart Appendix 13

Malfunction 3 "Low System Pressure"

One or both fingers malfunctioning in the previous chapters in finger malfunction we look at various mechanical reasons for the fingers failing to remain locked and rigid on the pressing stroke.

As previously mentioned the finger units need to be raised to their maximum for the locks to engage if the fingers fail to fully extend the lock or locks may not engage which will cause the fingers to collapse on the descending stroke.

Malfunction 4 "Inadequate System Pressure"

Refer to system pressure chapter 13.

The four main areas of Fingerlock failure in order of priority:-

1. *Finger lock spring*
2. *Disconnected chain*
3. *Broken finger lock body*
4. *Frozen or damaged bearing*

Chapter 3 - Press Cycles Down With Front Door Open

If press fingers move down with the top door open, Stop immediately and call manufacturer or safety officer

The front door is equipped with a limit switch or a coded switch unit when functioning correctly it ensures that:-

1. The machines pressing fingers will cycle up and down while ever the top door remains closed;
2. When the top door is opened during the cycling process the pressing fingers immediately stop and require reactivating when the door is closed again;
3. When the pressing fingers are down and the front door is closed, the pressing fingers will, with some models, retract when the up or retract button is activated, the fingers returning to an up position and remaining there;
4. With the front door open under no circumstances should the pressing fingers be able to move in a downward direction.

Malfunctions of door limit switch

a. Pressing fingers moving down with the top door open.
b. Press not cycling except in the retraction or (fingers up) and bale eject mode.

"Machines fitted with a roller switch on the right-hand side"

If the machines pressing fingers move in a pressing (down) direction with the top door open the most likely cause is the limit switch on the right hand side of the door not contacting correctly with the circular cam (earlier models). Later models have a switch arrangement adjacent to the controller.

The recommended clearance between the limit switch roller and the cam divot is 1mm. When the gap between the switch roller and the cam divot becomes too great, the cam will not push the limit switch via the roller deep enough to activate the switch, thus allowing the machine to cycle with the door open. (Earlier models only)

On the other hand if the limit switch is over adjusted with the switch roller and the cam in contact or close to contact, the machine may become unreliable or even stop cycling. With the switch activated with the door closed (as an over adjusted switch may be) the machine would only start and run in:

a) When the eject button was activated
b) When the up button was pressed, press would start (if fingers were down)
c) Return to the top position stopping there.

To Correct:

1. Close the top door
2. Adjust the limit switch in or out as required to 1mm clearance on the closest point of the limit switch roller. Securely lock in this position. Caution - do not over tighten switch lock nuts (use a mild locking agent). Use a multi-meter check switch for correct function.

Switch replacement number: TI350 - 215GQ21B
TI500 - 215GQ21B

Replace switch if damaged or faulty

1. Using a multi-meter check the switch function. With the door closed the switch should be in closed mode - with the top door open the switch should be in an open mode.
2. Wiring check. (See appendix 8).

“Balers fitted with a key coded switch on the left hand side”
If the baler cycles with the top door open, check the following:-

1. Ensure that the coded key is securely attached to the key bar on the top door. Replace rubber mounts if required.
2. Ensure that the coded key is fully inserted when engaged.
3. Check the coded switch for contamination entry.
4. Replace the coded switch if faulty. (Appendix 7)

Coded Key Bar

Chapter 4 - Press Fails to Start

See Flow Chart Appendix 19

Chapter 5 - Press Starts but Fails to Cycle

See Flow Chart Appendix 20

Chapter 6 - Press Continually Cycles

1. The most common cause with the press continually cycling is obstructions over the censor eyes - check the eyes that they are free of obstructions clean both eyes with a soft clean rag.
2. The press continually cycles with clean clear eyes.
3. See flow chart Appendix 15.

Eye

Chapter 7 - Press Noises

“Press Noises” causes/solutions

It is important that the press be operated in a manner that created the minimum levels of noise especially if the machine is situated in a confined space.

“Possible areas of noise and their control”

1. *The press is equipped with a high speed motor coupled to a two stage pump.* These in combination and situation in a confined space can create excessive noise levels. A motor/pump silencing box option is available from the manufacturers or their service agents.
2. *The press is emitting a high level squeal from the hydraulic system.* If the squeal is constant and the press is not cycling the possible problem is the hydraulic pressure switch. See Chapter 15 for pressure switch adjustment or replacement.
3. The pressing fingers are making a loud banging sound on the down cycle. This will happen as a result of insufficient material in the press.
4. The press makes a bumping sound as the fingers rise (in the up direction). The possible cause is a faulty damper strut. See chapter 18.
5. Squeal from main pivots. This may occur during damp weather. Lubricate using (pressure pack).

Chapter 8 - Press Fails to Press Heavy Bales

Bale weights can vary significantly when pressing cardboard and paper, there are several factors in the materials which can contribute to this:

1. During moist weather moisture is absorbed into the materials increasing its weight and also reducing its structural strength both these factors contribute to heavier denser bales.
2. Bales pressed quickly tend to be lighter (in some cases up to 20 %) than bales which are pressed over a longer period of time, bales pressed over a longer period have a longer time for the materials to collapse and settle (repressed bales are often lighter).
3. Bales pressed from the TI350 & TI500 can vary in weight as previously stated depending on conditions and materials the TI350 will press a bale 300-350 kgs per bale and the TI500 will press a bale 450-550 kgs per bale.
4. Low System Pressure - See Chapter 15 Adjusting System Pressure.
5. Faulty or Maladjusted Pressure Switch - See Chapter 16 Pressure Switch.

Light Bale Low Density Bale Problems

Full Bale Light Comes on Early.
This fault is not uncommon, in some cases the light may come on each time the fingers complete the pressing cycle down, regardless of how much material there is in the bale.

Adjusting the Full Bale Switch

a) The pressing fingers are to be right down and the main Hydraulic cylinders fully closed. Note: Be sure the cylinders are fully closed; if necessary remove some materials from beneath the pressing fingers. Check the closing mark on the cylinder shaft to be certain cylinders are fully closed.
b) Locate full bale switch situated on the left hand side of the press (motor side) on the front corner. Note: The switch can be adjusted by removing lower left mesh guard.
c) The full bale switch is mounted to a plate which on turn is mounted under the bearing anchor bolt.
d) The switch can come out of adjustment as a result of this plate rotating, moving the switch roller away from the frame section which activates the switch (in some machines there are bolted switch activators), to see Appendix 6.
e) Using a lever gently rotate the plate back until the switch roller axle is a little into the brass housing, do not over travel switch.

NOTE: Do not lever against the switch, the switch is very fragile and will not take any force at all. You may need to relax the bearing anchor bolt under which the plate is mounted.

f) The back edge of the switch anchor plate should be parallel with the press frame bar.
g) Hold the bolt head firmly and tighten nyloc nut until it is very firm. (Caution: The bolt can rotate causing the anchor plate also to rotate out of adjustment).
h) The full bale switch can be finely adjusted on the full bale switch adjustment nuts.
i) If the full bale switch is damaged or faulty replace .*See parts list*.
j) Final check. Cylinder fully closed
k) Roller axel.

Chapter 9 - Stringing Systems, Procedures and Problems

Stringing System "Initial stringing" - (Required 3 rolls of string)
Recommended twine gauge Supalash 8 (depending on bale weights)
Often problems experienced with the twine system are as result of wrong procedure or incorrect twine.

For the correct procedure for the initial stringing of the baler see stringing chapter in *Owners Manual*.

1. Position the 3 rolls of twine on the string lock side of the baler ensure that the string rolls are the correct side up and drawing from the correct end of the twine roll.
2. Burn seal the end of the twine (for the initial stringing only)
3. If the pressing fingers are down, raise the finger assembly, by activating the up button, the pressing arms will raise and stop in the fully up position. Turn key off.
4. Fully open the bottom door and the top door.
5. Situated on the top right hand side of the press hopper is a string lock bar.
6. Insert the twine from the outside through the string lock bar holes
7. Continue down with the twine and through the collar immediately below string bar see stringing chapter of owners manual.
8. String lock bar has three holes through which the three string ends are inserted from the outside, the two strings closest to the front come down the inside of the hopper and through the collars immediately below lock bar.
9. The third twine end is inserted through the hole in the string lock bar at the back position (rear of press) see twining chapter.

The rear string passes through the twine lock bar and back inside the press through the hole in the rear panel of the press. The above initial procedure is for new balers or when fitting new rolls of twine.

"Stringing for each bale"

1. Take the string end (inserted through the collars and the rear door).
2. On the two side strings pull some string through the collars and tie in each string a double non slip loop.
3. Draw the strings across the baler as per to the inside of the opposite hopper wall and loop the string loop over the doomed hook.
4. Pull string down towards the bottom of the press and place the twine under plastic tab 4, then across under tab 5.
5. Repeat the procedure on both side twines. If the twine has surplus slack pull surplus through from the outside before closing the doors.
6. With the doors still open, draw the string across from the rear wall (approximately 2.4 metres). Place twine under tabs 6 and 7. Close the bottom door and bring the twine up the inside of the front door, over the top of the bottom door and attach to the square tab on the front of the bottom door, by rotating the twine several times around the tab.
7. See twining chapter in owners' manual & Appendix 21

Before loading the Baler

1. Check that side strings are securely attached to the domed hooks, situated on the left hand wall.
2. Check that strings are under tabs securely.

Loading of the Baler

1. After stringing, close securely both doors.
2. Pressing fingers are still fully raised clear of the box.
3. Load materials into the hopper over the top of the top door.

4. When the materials are level with the top of the top door. First turn on the key and secondly press down button. From this point the press will automatically cycle while ever materials bridge the censor eyes.
5. When the full bale light is illuminated remove surplus materials from above the fingers.
6. Note if excessive materials are protruding above from between the fingers
    a) Open top door
    b) Push up button pressing arms will return to vertical position and stop
    c) Distribute and flatten top of bale
    d) Close the top door and press the down button

    Fingers will stop on the top of the pressed material.
7. Open the top door fully.
8. Draw side strings across the top of the bale from beneath the collars.
9. Unhook the looped ends from the domed hooks.
10. Cut the strings from below the collars; join the two ends by inserting cut end through the loop pulling tight and tying off.
11. (A) Undo string from the front door tale;
    (B) Tie a loop in the cross string, pull tight, cut and tie off.
12. With top door still open activate up button, the finger will stand and stop vertically.
13. Open the bottom door fully and eject the bale, see bale ejection.

String Problems

A String becomes detached from the domed hooks.

1. Excessive slack in the twine can cause this. Ensure that the strings are firm after stringing.
2. String loops are not sitting into the domed hood correctly in the hooks.

B Loops tighten on the hook.

1. Incorrect loop. The loop must be a no slip loop. I.e. double the twine end back along itself for about 300mm and tie a loop knot near the end then come back 100mm and tie another loop knot, this gives a double loop knot. See Appendix 21 illustration 2.

C Loop is hard to unhook when the press is full of compressed material.

1. In the previous paragraph is an explanation on how to do a double knot.
2. When the tension is too great to unhook simply cut the top loop when ready to tie off the bale and use the loop section between the two knots to tie the other end.

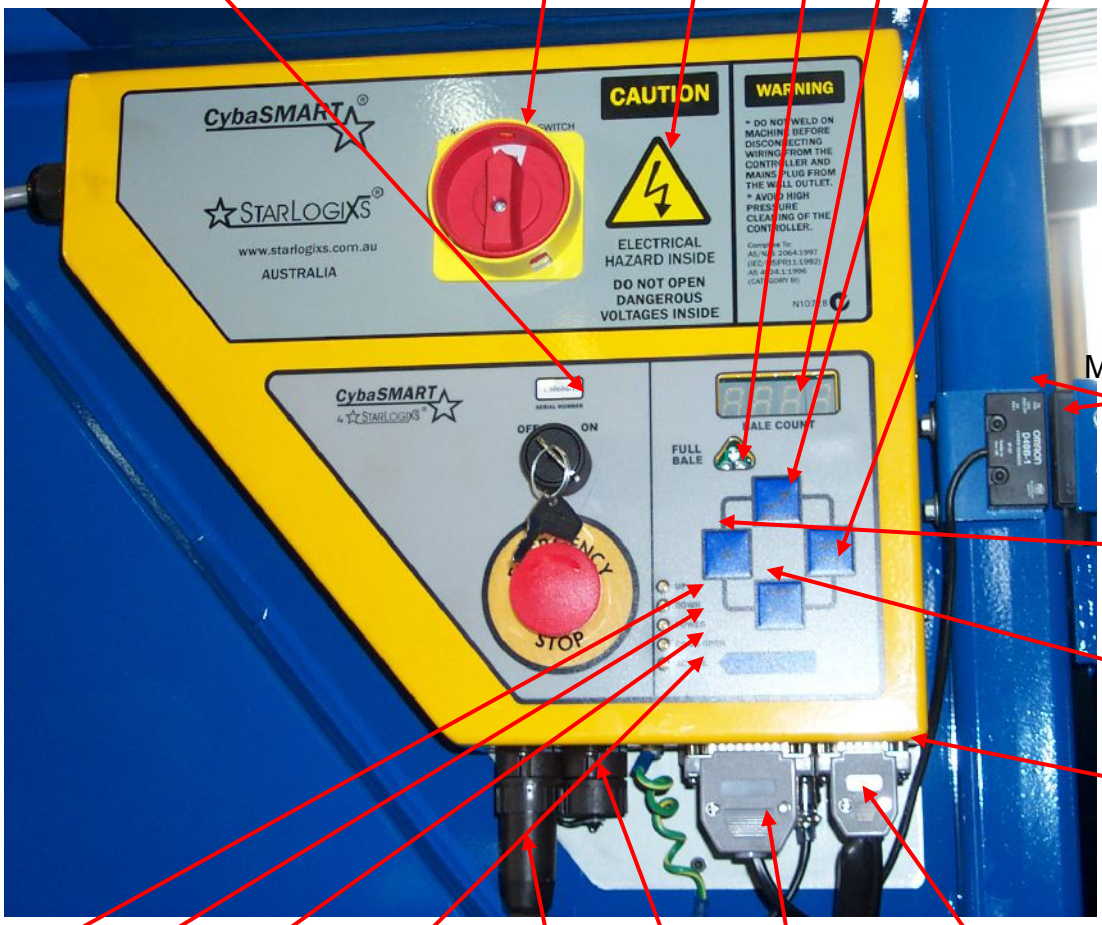
D String lock is cutting the twine.

1. Twines vary in diameter especially if a twine not recommended is being used. The twine lock system is adjustable, if the twine is being cut as a result of over adjustment remove one of the bolts on the twine lock connector bar, linking the top door with the twine lock bar - lengthen the connector bar by rotating (one rotation may be sufficient depending on twine diameter).

E Twine damage

1. If the twine is being damaged and the bales are coming out with loose twines, the twines are being pulled through the locking bar during the pressing operation. This will require that the adjustable link be shortened. Note if the bar is over adjusted the lock will cut or damage the twine.

Chapter 10 - Controller Layout and Function



Bale Counter (8)

Full Bale Light (13)

Warning (20)

Serial Number (3)

Isolating Switch (1)

Retract (11)

Eject (9)

Power In (2)

Ignition Key (4)

Emergency Stop (5)

Magnetic Switch (6)

Power Boost (12)

Cycle (10)

Fuse (21)

Up Indicator

Down Indicator

Power Indicator

Active Indicator

(19)

Power To Motor Port (14)

Polarity Change Port (15)

Thermo Plug Accessories (16)

Solenoids Full Bale Pressure Switch (18)

Controller
Almost the total function of you Autobaler is via the Cybasmart control unit.

The various functions of the controller are as follows:

1. Isolating Switch
The isolating switch is situated on the upper end of the controller. The purpose of the isolating switch is to isolate the power to the unit when ever a service or repair is carried out. It is therefore the manufacturers' recommendation that when ever the machine is tagged "out of service" that the tag be attached to the isolating switch via a padlock this will ensure that the machine will remain inactive and safe for the technician.

2. Power In
Power to the controller unit enters through the 3 phase power cable at the power in point. It is essential that the lead and plug be kept in good working order and free from possible damage and moisture entry. Note: all repairs to the electrical components must be carried out by those qualified to work with 3 phase power. If power at anytime becomes absent at the controller, (power light out), check the power entry system from the controller back to the main power source.

3. Serial Number
Every controller unit has its individual serial number. When ordering parts for the controller or the electrical system, always quote the controller serial number as well as the baler serial number and date of manufacture.

4. Ignition Switch
The controller ignition switch has a security type key. If the baler is not in use or is in a public area it is advisable for the key to be removed. If additional keys are required these will need to be specially ordered from Farnells; from the baler manufacturer or the manufacturer's agent or representative.

5. Emergency Stop Button
The emergency stop button is fro emergency use. The emergency stop disables all electrical functions within the baler systems. To activate the emergency stop simply push the button firmly in. To release the emergency stop button to the active mode rotate the button clockwise until the button pops forward.

6. Magnetic Door Switch
The magnetic door switch is activated at the top of the upper door adjacent to the controller unit. One half of the magnetic switch is attached to the controller via plug socket (7) the other section of the switch is attached to the door. It is essential that these sections of the switch be correctly adjusted to each other. The two halves of the switch must never come into contact with each other or serious switch damage may occur. A correctly adjusted switch will have each section squarely situated to each other and will have a minimum of 1.5mm clearance to each other with a maximum clearance at any time of 4mm. More clearance than this will create a door 'open' light to illuminate on the controller. During operation the movement in the top door may create a switch movement either apart of out of line with each other – this will depend on the machine and active the door open light. If switch adjustment is required adjust then carefully close the door ensuring that the two sections of the magnetic switch have the required clearance to prevent switch damage.

7. Door Magnetic Switch Plug
This is the plug as described in (6) that is attached to the controller from the second half of the Magnetic Door Switch

8. Bale Counter
The bale counter as the came suggests simply counts the number of bales being compacted. The bale counter performs an important function. Service intervals are time base or in situation of above average use are based on the number of bales completed. Refer to the Service Section of you Operators Manual for service intervals.

9. Eject
The eject button activates the eject system removing the completed bale from the baler chamber. To operate the eject the bale must be complete with twines or fasteners secured, pressing fingers fully retracted, both doors fully open, and the bale transport trolley situated correctly in front of the bale to be ejected. The operator must stand to the side and safe from the passage of the ejecting bale. When ejecting the bale the eject button must be kept activated until the bale is fully ejected into the trolley.

10. Cycle Button
The cycle button activates the cycle mode, when activated the baler arms will come down if in the retracted position. If the baler arms are down the baler will do a full cycle, i.e. arms up then back down. This should result in the system being “activated” the system active light will be illuminated. When materials are deposited into the baler chamber and the infra red beam emitting from the controller to the receiver on the rear wall is broken the baler will automatically start and do a full cycle, while ever the infrared beam remains broken the baler will continue to cycle until the beam is cleared of material.

11. Retract Button
The purpose of the retract button is to raise the pressing arms to a vertical (out of the chamber position) and to remain there. This function is used when the bale is complete, tied off and ready to be ejected.

12. Power Boost Button
The power boost button provision is used only after the full bale light and indicator has signalled a full bale. This button applies extra power to fully close the four main power hydraulic cylinders to give a constant bale size and length.

13. Full Bale Light and Siren
When a full bale has been achieved the full bale light and siren will signal full bale. When these come on the automatic function feature of the baler will cease. The baler though can be manually operated to draw down surplus materials. A large piece of material can also at this point be placed in the chamber, the baler manually cycled to form a flat tidy top bale.

14. Power to Motor Port
The power to motor port couples the motor and the controller together. The power socket can be removed by rotating the power to motor socket nut.

15. Polarity Change Port
This port can be interchanged with the Power to Motor Port (14) to reverse the polarity of the motor. (Note motor must always rotate in a clockwise direction).

16. Thermo and Accessories Plug *(pug cap on spare port must always be attached!)*
This port has the wiring to the thermo unit which detects overheated hydraulic oil and closes down the machine when the oil exceeds 60 degrees celsius. This will show on the door open light and also on the controller display as a overheat warning.

17. Warnings
The bale counter display also doubles as a display screen showing various problem indicators i.e. pressure switch, overheating etc.

18. Connection Socket

The connection socket contains the wiring looms from the controller to the following functions:

1. Solenoid valve to main compaction arms
2. Solenoid valve to bale eject cylinder
3. Pressure switch control wires
4. Power boost wiring
5. Full Bale switch

19. Light Indicator Grouping

A series of vertical lights show the various functions of the baler.

- The up indicator light (top light) illuminates when the cycle button is activated and baler arms are rising.
- The down light will illuminate when the baler direction is down.
- The third light down (red is the power light. This light should illuminate when the key switch is turned on 2. The eject button is released and indicates power at the baler.
- Door open light will indicate when the top door is open or the machine has developed a system fault such as an overheated system or pressure related problem.
- The active light indicated that the baler system is active and will automatically start and cycle when materials break the infrared beam.

20. Warning

Warning symbol indicates the presence of dangerous voltage within and is a warning to those qualified to ensure a power supply is disconnected before opening of the unit. To those who are not qualified to work with high voltage a warning not to open the unit with authorisation.

21. Fuse

The controllers' electronic system is protected by a fuse. To access the fuse unscrew the fuse holder.
Fuse Type: 32mm glass fast blow fuse
Fuse Valve: 4A

Chapter 11 - The Hydraulic System

The basic hydraulic system in the TI350/TI500 Autobaler models consists of:

1. 200L hydraulic oil reservoir
2. 5.5Kw three phase motor coupled to a dual stage pump or a 10hp diesel motor.
3. A manifold system situated at the rear of the baler attached to this manifold are various hydraulic and electronic components as follows:
    i. Main System Solenoid
    ii. Eject Solenoid
    iii. Power Boost Unit
    iv. Relief Valves
    v. Pressure Switches
    vi. Electronic Attachments
    vii. Fitting and hosing systems
4. Eject Cylinder Dimensions
5. Main Hydraulic Cylinders:

TI350 4 @ 4” x 18” stroke cylinder
TI500 4 @ 5” x 18” stroke cylinder

6. The hydraulic system filtering. The hydraulic system has a replaceable cartridge filter situated for service convenience on the top of the oil reservoir. The system is also filtered by a pre-filter unit situated in the hydraulic reservoir on the suction line.

Hydraulics
The electric model balers are powered by Teco 5.5Kw, 2 pole, 3 phase, foot and flange mount electric motor, coupled to a Haldex 1300/488 two stage pump.

Diesel powered balers are powered by a Yanmar 6.5Kw diesel motor. Model: L1000AE-DE coupled to a Haldex 080405/1300487 two stage pump.

TI350 model balers are equipped with manifold M10230-1.

Main system solenoid valve CTOP4 FD68412 voltage 24V DC.
Eject system solenoid FD68614 CTOP4 voltage 24v DC
Power Boost valve unit M22593-1

Power boost models are equipped with two pressure switches. One pressure switch is situated in manifold M10230-1 and adjusted to a firing pressure of 1950 psi. The other pressure switch is situated in power boost block M22593-1 and has a firing pressure set 2700 psi.

Eject cylinder TI500 balers:
3½ “bore x 8” stroke x 1½ “rod

Eject cylinder TI350 balers:
3” bore x 8” stroke x 1½ shaft

Main cylinders TI500
TI500 5” bore x 18” stroke x 2” shaft rod

Basic hydraulic system information

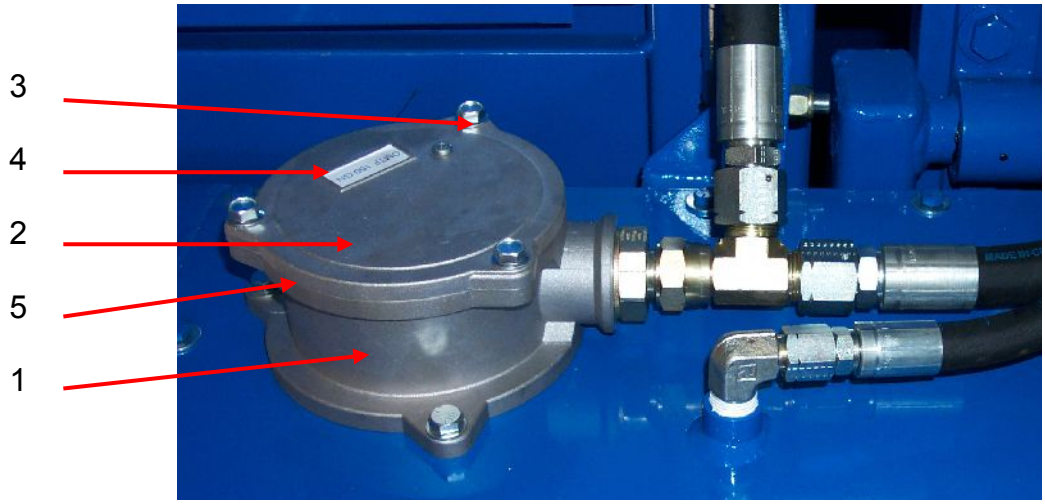
- Oil Type — Hydraulic
- Oil Grade — 32 Grade
- Hydraulic oil supplied at Delivery — AWH40 (Gulf Western)
- Maximum operating oil temperature — 65 degrees celsius
- Main system pressure — 2250psi
- Power boost system pressure — 2850psi
- Main system pressure switch firing — 1950psi
- Power boost system firing — 2700psi
- Filter Cartridge number — 150GN
- Oil Change interval
  - In dusty conditions — every 12 months
  - Normal conditions — every 4 years
- Filter Change — every 12 months

IMPORTANT: *Hydraulic components may vary from model to model; when ordering spare parts quote the part numbers stamped on that particular component.*

Hose replacement – if a hose replacement is required:

1. Remove the damaged hose
2. List the size and psi rating on the hose
3. List the fitting numbers on both ends
4. Measure the total hose length

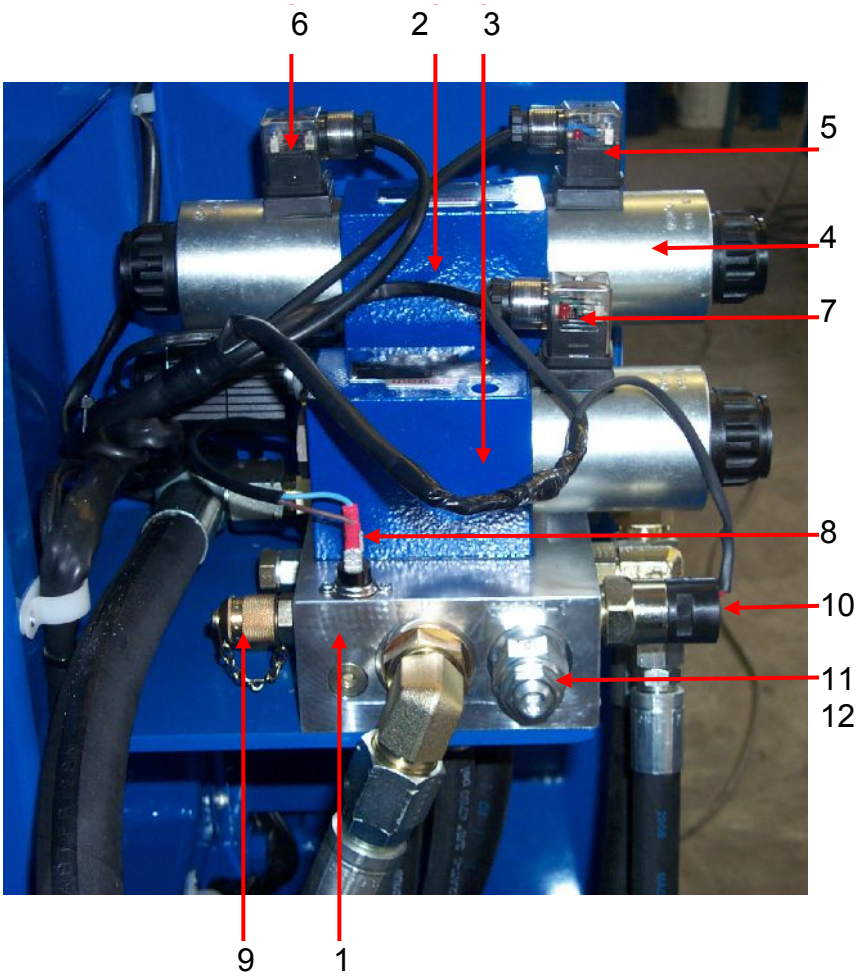
Hydraulic tank top filter unit

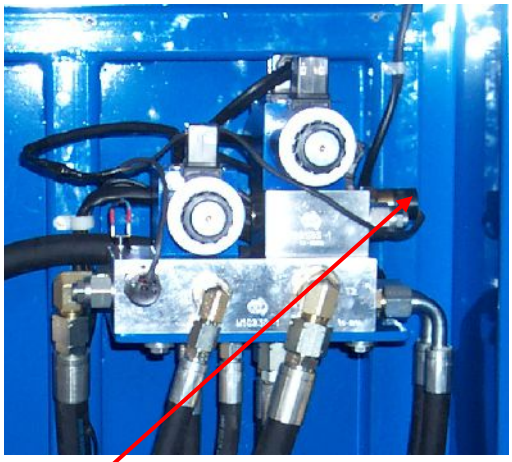


1. Tank top filter unit assembly
2. Filter unit cap
3. Cap retainer screws – to replace the internal filter:
   a. Remove the cap crews and cap
   b. Remove the tension spring
   c. Lift out the filter unit element and replace.

   When fitting the new element ensure that the filter cartridge element is the correct way up.
4. Filter number - When ordering filter cartridges quote the number on the cap to ensure receiving the correct filter
5. Situated between the cap and filter body is the o-ring seal. Ensure that the seat is properly located in the seal groove, place cap and tighten down evenly and firmly. Note do not over tighten cap screws.

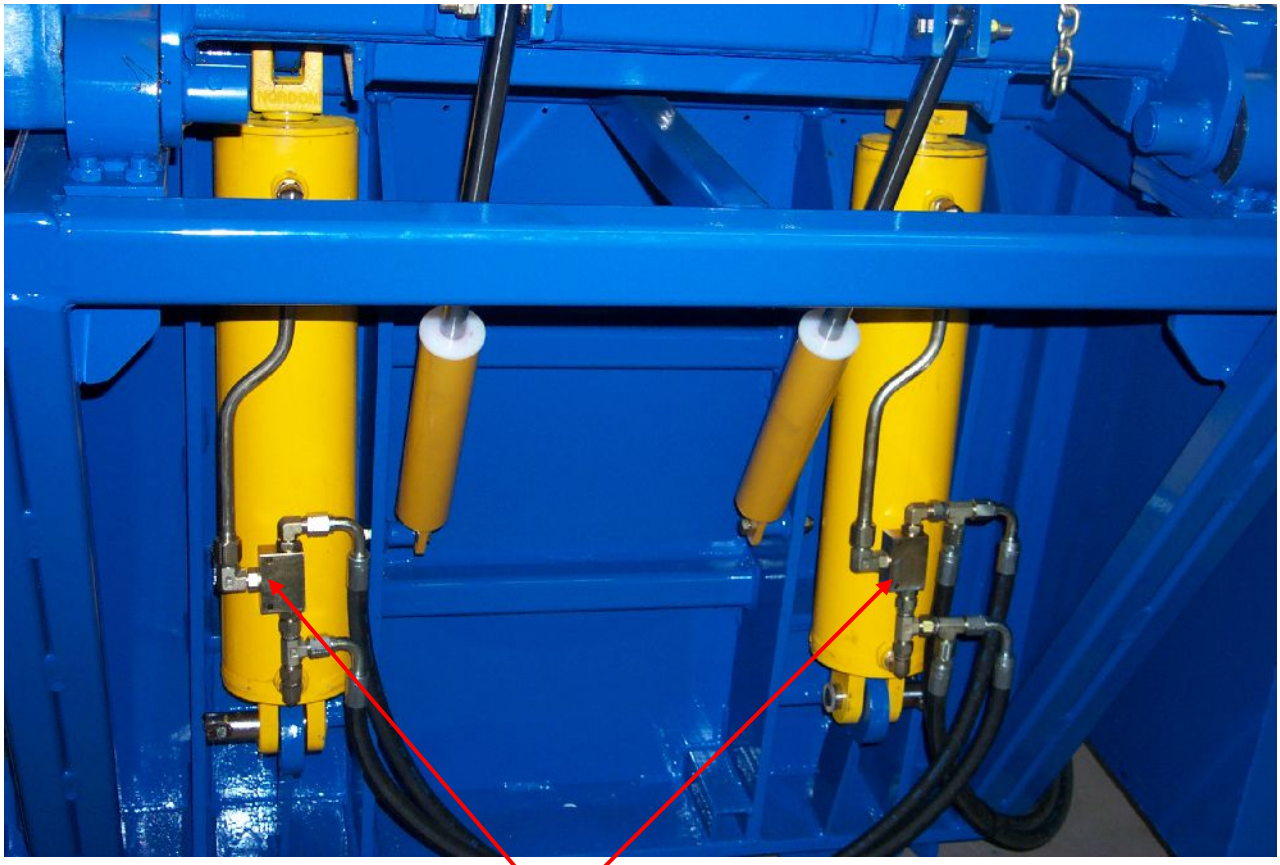
Hydraulic Directional Control System – *component identification list*





1. Manifold MID230-1
2. Rexroth main valve CTOP4 FD68412
3. Rexroth eject valve CTOP4 FD68614
4. Solenoid Units 24V DC
5. Solenoid Power Supply Cap (left hand side)
6. Solenoid Power Supply Cap (right hand side)
7. Eject solenoid power supply cap
8. Thermo switch
9. System pressure check port
10. Hydraulic pressure switch
11. System pressure release adjustment
12. “Power Boost” pressure release adjustment and hydraulic pressure switch

Hydraulic Regeneration Unit



Regeneration Valves

TI350-500 Balers are fitted with a pair of cylinders on each side of the baler. TI350 has 4”x18” clevis mount hydraulic cylinders; these are attached with 1¼” hard chrome pivot pins. (Note when servicing or replacing the cylinders always use hard chrome pivot pins *never use the pins supplied standard with the cylinders as these will fail and damage the baler anchor lugs*).

TI500 Balers are fitted with 5” x 18” hydraulic cylinders; these also are fitted with hardened chrome pivot pins for the above reasons.

Each cylinder is fitted with a regeneration block. These regeneration blocks improve the cycle time of the machine by 25%. Regen block number:

Chapter 12 - Bale Ejection System

The way the bale is made, the way it is capped and the type of materials being pressed, can determine how difficult it will be to remove the bale from the press.

Capping of the Bale

After the full bale light has come on and fingers are down firmly on top of the compressed materials:-

1. Open the top door (**only**) then-
2. Activate the up button, the arm will rise and stay up.
3. Level the cardboard on top of the compressed material. Amounts of cardboard raised up in the centre distribute to the outer sides of the hopper- close the top door and activate down button.
4. Fingers should now be down firmly on top of the compressed material – open fully the top door only.
5. Remove any loose amounts of cardboard.
6. Unhook twines from the left hand side of the hopper.
7. With the top door fully open, take hold of twine below the collars, right hand side and draw across the bale top.
8. Cut the twine allowing enough length to go through the loop and tighten off as firmly as possible.
9. Do the same with the twine from front to back, tie a non slip loop in the back end of the twine- untie the front from the tab on the top of the bottom door, pull tight and tie off.
10. With the front top door remaining open, activate the up button fingers will rise and stay up.
11. With pressing fingers up, open the bottom door to its maximum.
12. Place transport trolley in front of the bale.
13. Activate eject button with left hand and assist bale ejection with the right hand.

Difficulties in Bale Removal

In the previous paragraph the importance of tying off the bale firmly was stressed, a bale tied off firmly has minimum expansion when the bottom door is released and offers less resistance in ejecting.

Problems:-

1. When ejecting button is activated the motor starts, yet the bale fails to eject.
    a. Ensure that both doors are opened to their maximum.
    b. If eject arms are working a thud feeling should be felt on the bale. (When the machine is new, the tacky paint surface can offer some resistance, especially if the compressed material has been in the press for some length of time, creating a bonding effect. To remove such bales, may require substantial assistance from the operator by pulling firmly on top of the bale at the same time as operating the eject button, this situation will improve with use.
2. Motor fails to start when the eject button is activated:-
    a. Ensure that the pressing fingers are raised as previously stated and that both doors are fully opened.
    b. Check the emergency stop button.
    c. Check the power light on the controller, if the power light is not on check the power supply to the controller.
    d. Check the press fuse.
3. When the eject button is activated the motor starts but the hydraulics on the eject fails to function.
    a. Check the wiring going to the eject solenoid valves, mounted on the top of the block. On the block are two solenoid values, the single ended valve operates the bale ejection system.
    b. Check the wiring in the valve plug unit for loose or disconnected wires.

4. A test unit is available, to test for the correct signal response from the controller - these are available from the press manufacturers or your local hydraulics service agent.
5. (1) If the motor starts when the eject button is activated
(2) And the correct electronic signal is reaching the solenoid on the eject valve yet the valve fails to respond:
    - α Replace the solenoid valve unit.
    - α Remove and dismantle the valve, clean the internal working parts thoroughly in clean fuel to remove any possible contamination.
    - α Replace the solenoid valve coil.

Note: If there is no signal from the controller to the valve:-

- α Check the wiring from the controller to the valve for damage or for loose or disconnected wires or loose fittings.
- α Replace the main controller unit.

Chapter 13 - Press Movement on the Floor during Operation

STRUT MALFUNCTION

The likely cause of press movement in locating on the floor is a faulty damper strut. See Appendix 3.

Steps to check:-

1. Ensure that there is sufficient material in the hopper to prevent the fingers crashing on the down stroke during test.
2. As the press is cycled in the up stroke, finger assemblies, come into contact with rubber bumpers.
3. If the damper struts are functioning correctly, finger assemblies will contact the bumpers, without a bump or without making a bumping sound. If a strut is faulty, one or both of the assemblies will contact the bumpers with force; this bump force causes the press to move on the floor.

Steps to correct:-

1. Check strut anchor points to ensure strut is connected.
2. Identify faulty strut and remove.
3. Dismantle faulty strut:
    - α Remove cap retaining screw
    - α Top of cap
    - α remove shaft assembly
    - α check that the piston unit remains well secured to the shaft
    - α Replace piston o-ring 6 Part No. (on o-ring models)
    - α thoroughly clean unit
    - α recharge o-ring models with AWH 45 grade
    - α recharge older units without o-rings with 90-160 grade
    - α amount of oil as per
    - α reassemble and refit the damper to the machine
    - α replace anchor bolts if worn
    - α bottom bolt 2½" HT top bolt 2½ x ½" HT bolt with nyloc nuts

If one strut only is malfunctioning, it is still advisable to remove and service both left and right hand struts. *See strut service page 57*

Chapter 14 - Doors Latching and Opening

The correct operation of the front lower door is an important function of the press, both for the ease of operation, safety of the operator and the performance of the press.

For the bottom door to perform satisfactorily attention to lubrication is essential.
See Lubrication Guide Chapter 18.

1. The bottom door is interlinked with the right-hand side section of the press, as the bottom door is opened the side section of the press also pivots out, releasing the tension on the bale for easier ejection. As the bottom door is closed the above mentioned side section of the press is drawn in (hence the need to keep rotating and sliding components well lubricated.
2. The side section movement is a result of an adjustable connection link between the front door and the base.

Adjusting Front Door Latch
The purpose of the link being adjustable is for adjustment on the door latch. The link can be lengthened or shortened as required to give the correct clearance between the two latch surfaces as the door closes the two flat surfaces should just contract.

If the bottom door is difficult to close in the last 50 - 75mm, the last adjustable link may require lengthening (Note: a small amount of rotation can make a big difference, adjust by ¼ turns. A repeat of the procedure may be required until the door latch closes satisfactorily, and also opens well under loaded conditions i.e. Full bale). When the correct adjustment has been achieved, tighten nuts on the adjuster.

The connector link is secured to the press both ends by 2 X 2 ½ HT Bolts with nyloc nuts. These bolts to be done up firmly but not over tightened - replace bolts if worn.

Bottom Door and Latching System
Service, Operation and Adjustment

- α Check front bottom door for soundness (welding etc)
- α Lubricate hinges.

Door Latch Adjustment

1. With the door open check the rotational freeness of the vertical door latch bar and lubricate to freeness.
2. Close the door until latch is in position. The approximate gap between the flat surfaces of the vertical bar and the press latch lugs should be approximately 1mm.
3. To adjust the door gap clearance lengthen or shorten as required, the adjustable link is situated at the bottom right hand corner of the press, if the link is over adjusted the door will not close, if under adjusted the latch surface will collide.
4. This procedure may need to be repeated until the press door opens satisfactorily under loaded conditions.
5. The adjustment link is secured to the press both ends by 2 X 2 ½ HT Bolts; these should be firm but not over tightened.

Door Switch

Door Switch 2

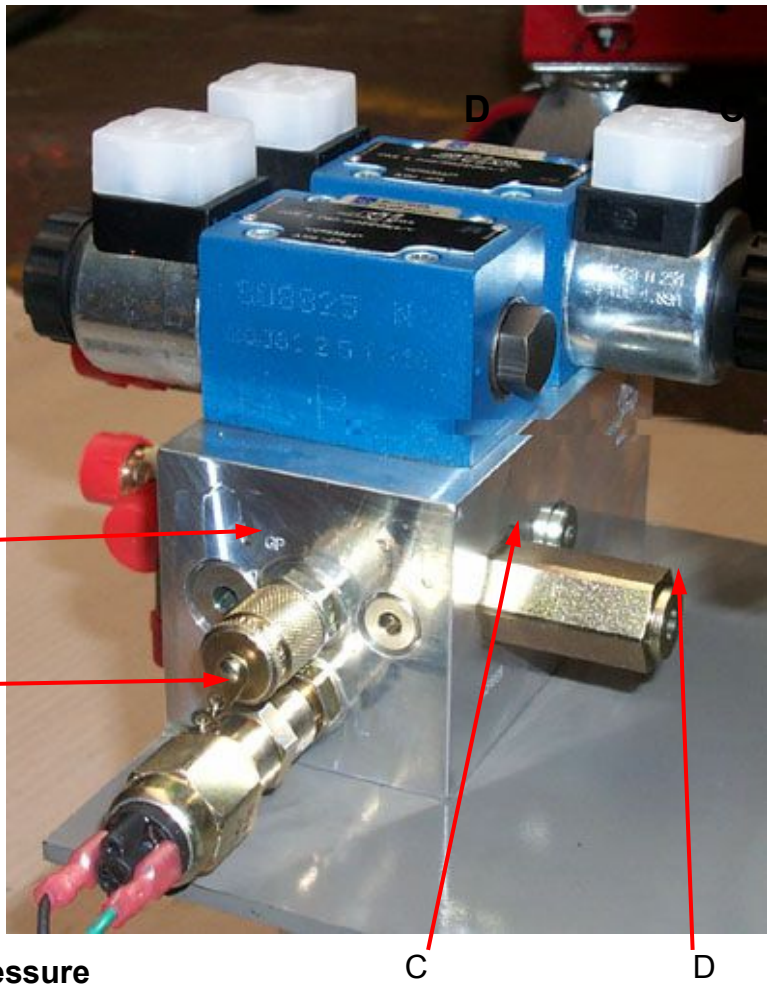
Door Adjustment

Door Link Adjuster

Chapter 15 - Adjusting System Pressure

Testing and Adjusting the Hydraulic System Pressure

Autobalers have a recommended system pressure of 2100psi. With time and system wear the pressure may reduce to the point of creating functional problems in the baler system.



Testing System Pressure

1. A hydraulic pressure gauge with a capacity of 3000psi plus will be required.
2. To attach the pressure gauge to the baler test port A. Remove the dust cap from the baler test port fitting and attach the pressure gauge.
3. Remove one of the two wires from the hydraulic pressure switch B. “remove the wire spool fitting carefully”
4. Cycle the baler until full system pressure is reached.

Adjusting the Hydraulic system pressure

1. Remove cap C from the system relief valve D
2. Insert a 3/16 Allen key into the relief valve D through the open plug port.
3. To Increase the system pressure rotate the adjustment screw in approximately ¼ turn per 500psi.
4. Systems that fail to respond to adjustment could have the following issues:
    a) Insufficient hydraulic oil (top oil up to recommended level)
    b) Coupling key sheared off – check coupling
    c) Hydraulic pump wear
    d) Inner strainer filter blocked creating pump cavitation
    e) Cylinder internal failure permitting oil to escape past the piston seals

Chapter 16 - Pressure Switch

The pressure switch plays a vital role in the operation of the machine; the pressure switch is simply an adjustable switch in the hydraulic system. The system pressure is set at approximately 2100 - 2250 psi and fixed. The pressure switch is set to fire at approximately 2000 psi, or as determined.

When the cylinders reach their full stroke on the up part of the cycle full pressure is reached in the system, this causes the pressure switch to fire, sending an electronic pulse to the yellow controller.

The electronic controller in turn sends the appropriate response to the solenoid valve in the hydraulic system, the solenoid valve then activates changing the flow direction of the oil path from the bottom port on the cylinder to the top port, and this change causes the cylinders now to commence closing thus commencing the (down) pressing path of the cycle.

When the cylinder is fully closed full pressure is again reached, the pressure switch fires and solenoid valves are activated, oil flow to the top of the cylinder ceases and is directed to the tank.

Switch Malfunction

1. If the pressure switch is set too high the press will not cycle, it will reach the up stroke and bypass in the main system via bypass valve.
2. If the pressure switch is set too low. Low bale weight will occur. The pressing fingers also may become unreliable; as the pressing fingers are stood up progressively more pressure is required. If the pressure switch is set to low it may fire before the finger assemblies are fully up. If the fingers are not fully up the locks on the finger units will not activate and the fingers will malfunction on the down (pressing) stroke.

Pressure Switch Adjustment

1. Ensure that there is sufficient (cardboard) material in the press to prevent the fingers of the unit crashing at the bottom end of the pressing stroke.
2. Activate and send pressing fingers down.
3. Turn off power key
4. Ensure that both wires to the pressure switch are firmly connected.
5. Insert a 3mm Allan key into the pressure switch between the two wire connections.
6. Rotate the Allan key (in) clockwise ½ of one turn (leave Allan key inserted) by rotating the switch ½ of one turn this should prevent the pressure switch firing at the top end of the stoke as it normally would.
7. Start the press and activate the up button, press arms should rise and stop in the fully up position, if the switch still activates, allow the arms to travel down and stop. Rotate the Allan key further in until press does stop at the top. (Caution switch can be damaged if the key is rotated to far).
8. When the press pressing arms have reached the top position and no longer changing and coming down with motor still running. **Very slowly** start releasing switch adjustment by rotating inserted Allan key in an anti clockwise (out) direction until the switch activates and the arms proceed down.

(Caution Beware of Moving Cylinder)

9. Stop press turn off key.
10. At the point where the switch fired, rotate Allan key (still inserted in the pressure switch) a further 1/8 of one turn anti clockwise (out).
11. Test to see machine cycles reliably, remove Allan key.

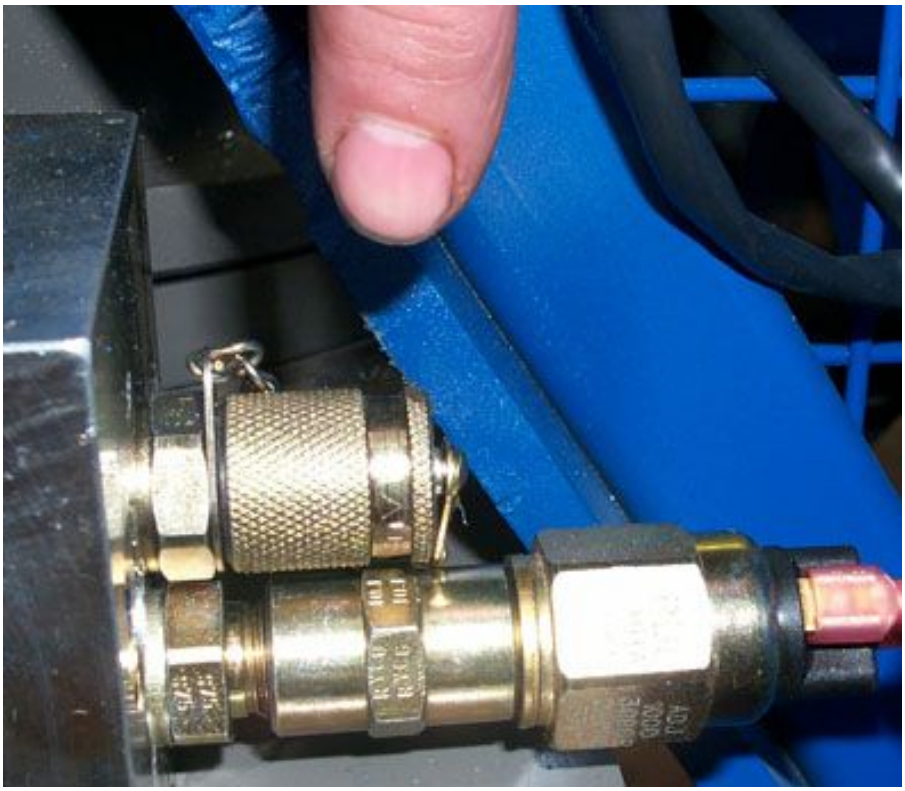
Pressure Switch Replacement

The pressure switch will require replacement when:

1. The switch fails to respond to the adjustment
2. When oil is leaking from inside the switch
3. Behaves unreliably

If the pressure switch is suspected of being faulty replace.

Note: If the switch is sourced from the manufacturer it will be pre-set and should operate when fitted. If the pressure switch is not pre-set then the technician will need to follow the setting procedure as in the pressure switch adjustment.



Chapter 17 - Emergency bar Operation

The emergency stop bar is situated on the top of the top door.

The emergency bar is often subjected to damage from fork lifts loading skips etc. It is therefore important that its function and maintenance be understood.

The bar consists of eight components:

1. Emergency bar support Bracket
2. Emergency bar
3. Connection Bolt
4. Sleeve
5. Spring
6. Washer
7. Nut
8. Limit switch

The emergency bar if operating correctly, when depressed should stop the press during any part of its cycle. To recommence the cycle the appropriate button will need to be activated on the controller.

Emergency bar operation

1. Ensure that the emergency bar bracket is firmly attached to the door, check for damage, bending etc.
2. Check the emergency bar when depressed that is returns freely via compression spring.
3. The purpose of sleeve is to control the down movement of the emergency bar to protect the limit switch from damage.

Limit Switch Fitting

Correct limit switch fitting.

1. With the emergency bar fully up and working freely the clearance between the button on the limit switch and the bottom of the emergency bar should be a minimum of 1mm.
2. Adjust the limit switch vertically in the slotted holes in the switch mounting plate so that when the emergency bar is fully depressed the emergency bar is not in contact with the plastic switch housing.
3. Operate the emergency bar, when depressed the limit switch button should be contacted and the switch make an activated click sound. When released the emergency bar should rise above the switch button.
4. Check the limit switch mounting bolts for firmness.

Switch Wiring

1. The switch operates in the normally closed mode.
2. The two wires are attached to the outer terminals. Terminal 1, com and 2, NC
3. Check the wiring from the limit switch on the emergency bar to the wiring on the door limit switch for damage or short circuits. Use a multi-meter.

Testing the emergency bar switch

1. Set the multi-meter on low ohms scale, or continuity light, these should indicate a short between terminals 1 and 2 of the limit switch is not operated. Operation of the switch should remove the short circuit. (Terminals 1 and 2 outer terminals)

Chapter 18 - Damper Strut

The damper struts are situated on either side of the baler unit. It is essential that these be working correctly. These ensure that the finger assembly return smoothly.

FULL SERVICE PROCEDURE

1. Remove the damper from the Autobaler (remove anchor bolts at both ends)
2. Remove the small cap retainer screw on the side of the damper barrel
3. Carefully remove the cap by tapping off
4. Slide out the piston assembly and take care, DO NOT DAMAGE THE SEAL
5. Replace oil with 32 grade hydraulic oil, 50mm depth in the barrel (approx 1/3 of a cup / 100ml)
6. Replace seals: Shaft seal - Ludowici R87-088 and Piston & cap seal - 2” x 3mm O’ring

SERVICE CHECK

1. Raise the fingers to a vertical position and stop in that position, this can be done by pressing the retract button found on the controller
2. If a strut is working correctly, the assembly will slow 50mm before contacting the plastic stoppers
3. Leave strut attached to the baler
4. Remove the strut cap, total oil volume in each strut 100ml
5. Using a long clean rule, measure oil on top of the piston (minimum 5mm of oil depth)
6. Add 32 grade hydraulic oil if required
7. Before closing the cap, smear grease around the cap O’ring
8. Re-assemble and check for good function

Fig 6

Fig 7

Fig 8

RECOMMENDED LUBRICANTS

Only lubricants recommended by the manufacturer are to be used in the Autobaler. Failure to use the recommended lubricants will result in voidance of the baler warranty. Autobalers have high pressure pivot points and therefore must only be lubricated with high pressure long life lubricants.

HYDRAULIC OIL	**:**	CASTROL HYSPIN 32 GRADE
GREASE	**:**	MBL8
SPRAY LUBRICANT	**:**	MBL8 SPRAY LUBE

For further details and possible supply of the recommended lubricants, Please phone:-

TOLL FREE : 1800 888 403 OR 02 67 345 403

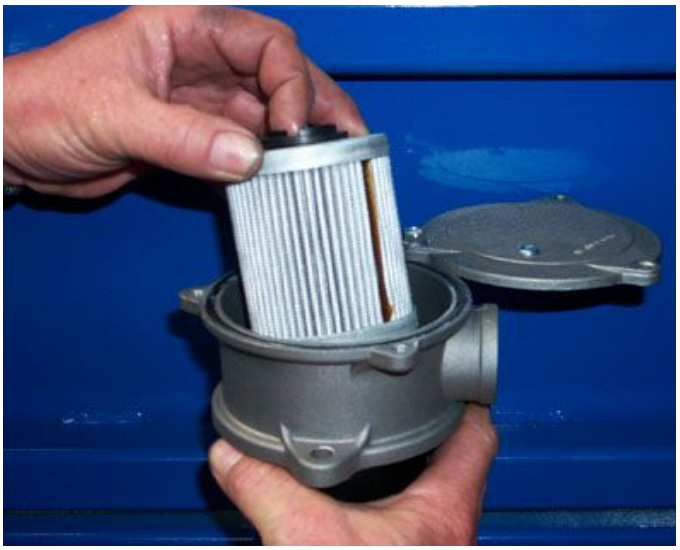
Chapter 19 - Lubrication

Lubrication Chart

The life and performance of the machine will be determined by how well the press is serviced and maintained. Though this applies to the whole life of the press, it is especially important during the first twelve months of the presses life.

Hydraulic System

Replace filter every 12 months. Where conditions are dusty, replace more often.



Hydraulic Oil

- Oil type AWH 40 (recommended).
- Tank capacity TI350 208L approximate value
  TI500 208L approximate value

Oil Change Period

Recommended oil change period every 1500 bales or every 2 years, under dusty conditions oil change will be required more often.

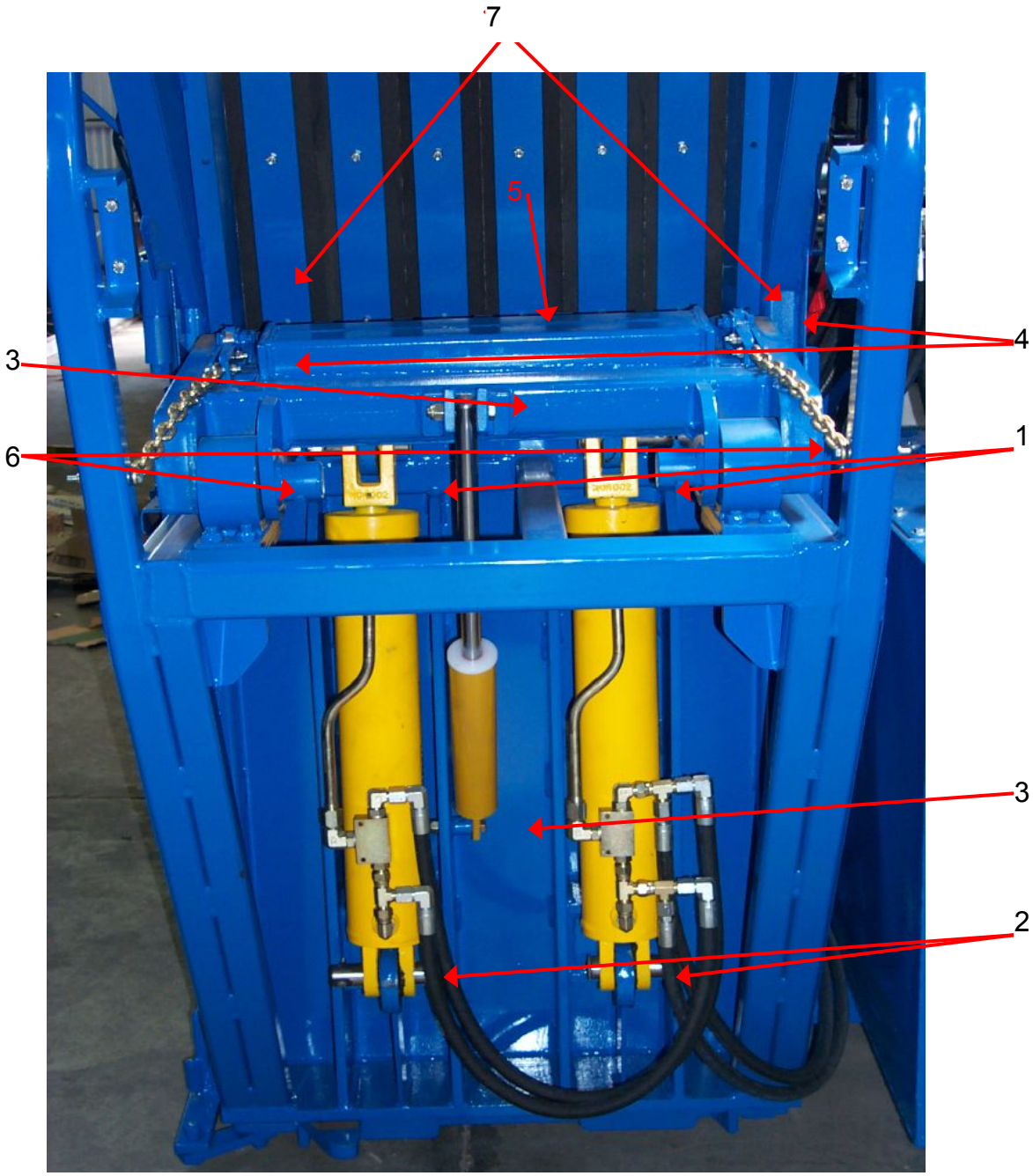
(EACH MAINTENANCE PERIOD)

1. Upper door latch pivot, one pump of grease each service per pivot
2. Emergency bar pivots, oil pivot and ensure that the bar is working freely
3. Connector link pivots, connecting top door with rotary twine lock, Grease both ends
4. Upper door hinges, using KZD needle nose coupler, ¼ pump per coupling
5. Lower door hinges, using KZD coupler, ¼ pump per pivot
6. Side door slide plate, the side door assembly slides on this plate - grease generously
7. Connector link, an adjustable link. Grease both ends, see link adjustment for adjustment
8. Lower door latch clevis, grease lightly
9. Lower latch clevis, lightly grease
10. Secondary latch slide, grease lightly
11. Latch bar support, small lug welded to the vertical latch bar, lightly grease
12. Eject cylinder anchor points, grease lightly
13 Eject axle pivots, using KZD coupler (one pump)
14. Filter, change annually (see filter service details)
15. Lower side wall pivots, using KZD coupler ½ pump each
16. Dip stick, with the main cylinders fully closed, the oil level should be within 100mm from tank top
17. Middle side wall pivot, ½ pump per pivot using KZD coupler
18. Upper side wall pivot, ½ pump per pivot using KZD coupler
19. Upper & lower cylinder anchors, main hydraulic cylinder pivots situated both sides of the baler. Using KZD coupler, lever cylinder clevis to one side and squirt grease into pivot

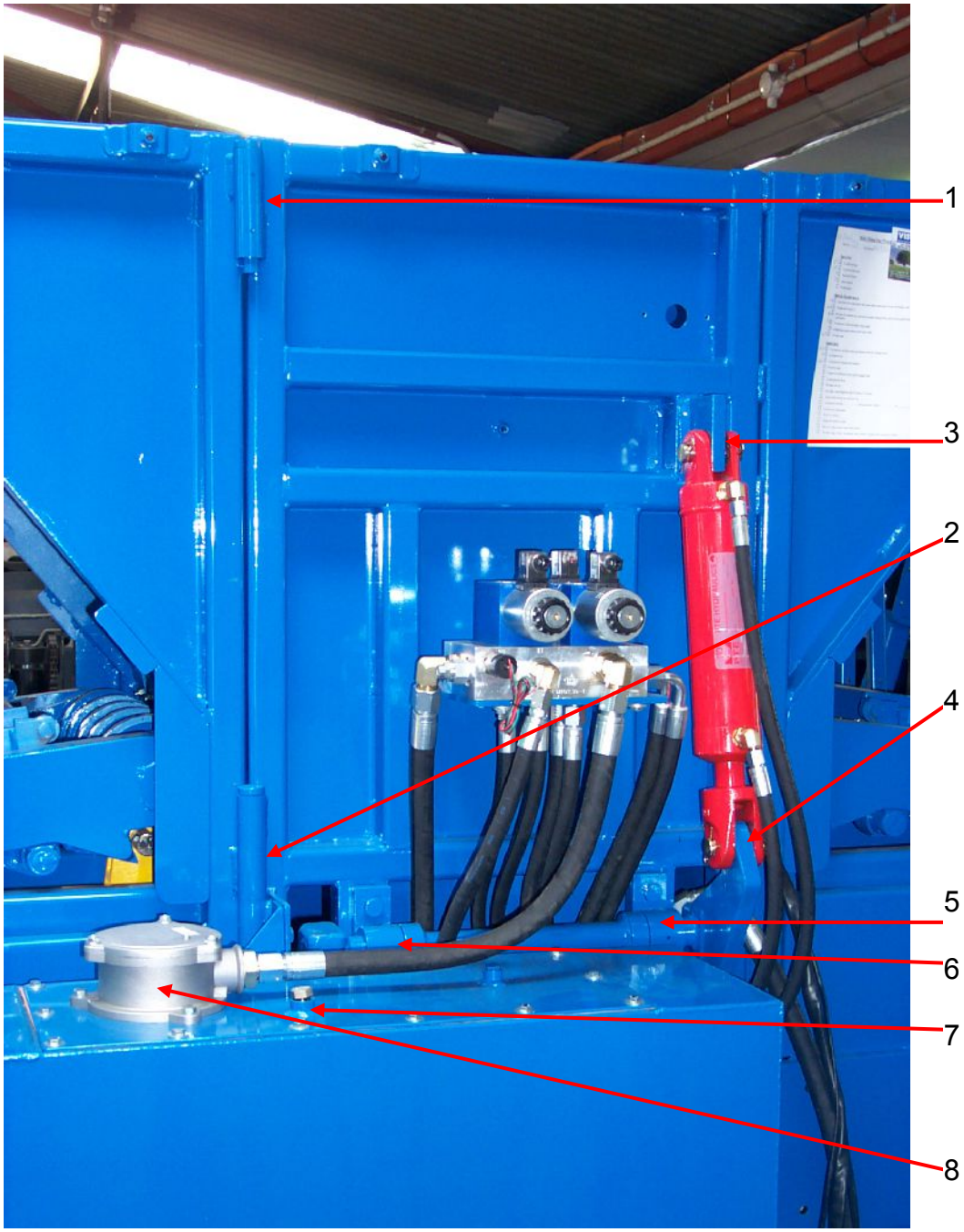
then lever clevis the other direction and squirt grease into the pivot. Rotate anchor pin ensuring grease has penetrated pivot. The anchor pin should turn freely. Repeat this procedure on all pivots (upper & lower, as well as on both sides). If difficulties are experienced with grease penetration, removal of the anchor pin may be required. Once removed, grease pin and inner clevis and refit, ensure that pin is fastened securely

20. Upper & lower damper anchors using KZD coupler grease upper & lower pin ensuring good grease penetration
21. Damper service (see damper service)
22. Chain shackles, grease pivots and slide lightly
23. Barrel grease nipples, 2 nipples situated on each finger barrel, 5 to 10 pumps per barrel
24. Main bearings, grease sides of bearings lightly
25. Finger lock roller, these are situated on each side of the baler, grease lightly

Lubrication Points



	Component	Lubricant	Applicator	Application
1	Upper cylinder anchors	MBL8 Grease	Grease gun KZD Coupler	Apply grease – slip pin side to side
2	Lower cylinder anchors	MBL8 Grease	Grease gun KZD Coupler	Apply grease – slip pin side to side
3	Damper anchor points	MBL8 Grease	Grease gun	Remove bolt pivot & grease
4	Chain shackle plates	MBL8 Grease	Grease gun	Grease to surface
5	Barrel grease nipples	MBL8 Grease	Grease gun	Via nipples
6	Main bearing side plates	MBL8 Grease	Grease gun	Apply to sides
7	Finger lock rollers	MBL8 Grease	Grease gun	Apply to sides



	Component	Lubricant	Applicator	Application
1	Side Section Pivot (upper)	MBL8 Grease	Grease gun KZD Coupler	Injection into hinge
2	Side Section Pivot (middle)	MBL8 Grease	Grease gun KZD Coupler	Injection into hinge
2a	Side Section Pivot (lower)	MBL8 Grease	Grease gun KZD Coupler	Injection into hinge
3	Upper eject cylinder pivot	MBL8 Grease	Grease gun KZD Coupler	Lubricate pin
4	Lower eject cycle pivot	MBL8 Grease	Grease gun KZD Coupler	Lubricate pin
5 & 6	Eject shaft	MBL8 Grease	Grease gun KZD Coupler	Inject into pivot
7	Dip stick	AWH 30/40 Hydraulic Fluid	Oil pump & clean funnel	Fill to recommended level
8	Filter Unit	-	-	-

	Component	Lubricant	Applicator	Application
1	Upper, top door hinge	Clear grease	Grease gun KZD coupler	Injection
2	Lower, top door hinge	Clear grease	Grease gun KZD coupler	Injection
3	Upper, lower door hinge	Clear grease	Grease gun KZD coupler	Injection
4	Middle, lower door hinge	Clear grease	Grease gun KZD coupler	Injection
5	Lower, lower door hinge	Clear grease	Grease gun KZD coupler	Injection
6	Side door slide plate	MBL8 Grease	Grease gun KZD coupler	Apply on surface
7	Door link pivots	MBL8 Grease	Grease gun KZD coupler	KZD coupler nozzle
8	Lower latch pivot	Penetrating fluid	Pressure pack	spray
9	Lower latch upper pivot	Penetrating fluid	Pressure pack	Spray
10	Upper latch pivots	Penetrating fluid	Pressure pack	Spray
11	Safety bar pivots	Penetrating fluid	Pressure pack	Spray
12	Twine lock pivots	Penetrating fluid	Pressure pack	spray

Chapter 20 - Press Fails to Cycle Automatically

1. Autobalers will not cycle automatically after the full bale indicator has responded; at this point the baler will only cycle manually using the cycle button.

2. The baler will not cycle automatically if the baler active light is not flashing. The three most common faults for active light failure are as follows:

    a) As the baler cycles under load movement in the top door can affect the door interlock momentarily breaking the circuit and stopping the baler cycle and rendering the auto function inactive – adjust as required.

    b) Automatic function can also be affected by a hydraulic pressure switch problem. If the hydraulic pressure switch fails to fire at either the top or bottom end of the stroke the auto function will be negated. Pressure switch adjustment or replacement may be required.

    c) Automatic function can also result from the sensor failure, situated at the rear of the baler hopper is the receiver section of the eye unit. This may require replacement. Contact your local service organisation for a replacement unit or contact the baler manufacturer on: **1800 888 403**

Chapter 21 - Maintenance Instructions

This should include safe working procedures for carrying out all preventative maintenance and repairs. This should also include any special tool requirements for maintenance.

1. SERVICING PROCEDURE

Before attending a service site, the following may be required:

1. Source from the baler owner or operators the following
   a) When the internal services are due
   b) Date and time suitable to carry out the service
   c) An accurate location of the baler
   d) Whether site induction and training is required to enter the site
   e) What type of clothing and footwear are required
   f) Machine type and serial number
   g) Does the baler require attention i.e. repair / adjustment etc over and above a regular interval service, so that likely parts required can be taken

2. Personal Protective Equipment required
   a) A high visibility shirt or vest
   b) Regulation safety glasses
   c) Regulation footwear
   d) Hearing protection
   e) Hand cleaner
   f) Towel roll

3. Before commencing the service
   a) Isolate the power source from the machine
   b) Clean the area to be working in
   c) Remove the baler key and place an “out of service” sign if required
   d) Remove the guards relevant to a service

2. LUBRICANTS REQUIRED TO SERVICE AUTOBALERS

1. Tube of MBL8 (Pro-ma) long life grease
2. MBL8 or similar spray lubricant
3. 32 grade hydraulic oil, Note: a minimum of 20 litres is required for top up purposes in a regular service. Sufficient oil should be carried for maintenance which requires an oil change. For a complete oil change, the following amounts are required:-

300	series baler	200	litres
400	series baler	200	litres
500	series baler	200	litres

A container or containers will be required to deposit the used baler oil. In the likely event of an oil spill, carry a sufficient amount of oil absorbent substance to ensure that the floor area is completely oil free on completion of the job. Used oil must be disposed of via an oil recycler or in a legal manner.

3. TOOLS REQUIRED FOR A PREVENTATIVE MAINTENANCE

1. Cartridge type grease gun
2. Oil pump
3. Oil funnel
4. KZD needle nose coupler

4. BALER SPARES REQUIRED FOR A SERVICE

1. Oil filter
2. Pressure switch
3. Fingerlock spring
4. Plastic twine tabs
5. Assorted high tensile bolts (2 ½" x ½" x ht nyloc)
6. Roller type limit switch (omron)
7. Cable ties
8. Spare cylinders, see parts list numbers
9. Cylinder anchor bushes see parts list number
10. Controller mount anti vibration fasteners, see parts list number
11. Spare finger lock chains, see parts list number
12. Spare damper
13. 4 amp controller fuse
14. Full bale light bulb
15. Coded key mount rubbers
16. Spare eye unit

The parts listed above are the parts which may be required and recommended be carried by all authorised service agents

Chapter 22 - Servicing

Service Period - Every 4 months
M/M = Major Maintenance every 12 months or every 660 bales

Major Maintenance

1. Auto-baler service essentials
2. Replacing the Finger Lock Springs
3. Replacing the Oil Filters
4. Servicing Finger Assemblies
5. Door Adjustment Check
6. Damper Unit Service
7. Electronics
8. Service Check on Finger Locks
9. Hydraulic Check
10. Full Lubrication Guide
11. Safety Check List
12. Service Guide
    - Lubrication
    - Dampers
    - Hydraulics
    - Electrics
    - Controller – Eye Operation
    - Solenoid Valve System
    - Safety Bar Operation
    - Full Bale Indicator Operation
    - Structural
    - Twine System
    - Top Door
    - Guarding
    - Finger Assembly Check
    - Bottom Door
    - General Operation
    - Signage

FIVE AUTO-BALER SERVICE ESSENTIALS

1. CLEAN all loose material from within the balers' upper and lower sections and behind the compaction cylinders. Caution – when cleaning around the power unit area care must be taken with wiring and wiring connectors.

2. LUBRICATE the baler in accordance with the manufactures recommendations i.e. lubricate all moving parts, upper and lower cylinder pivots, door latches and hinges, side door slide plate, hydraulic unit oil level etc.

3. Complete a safety audit form i.e.: door interlocks emergency bar, emergency stop, baler location guarding, work practices etc.

4. Check the baler function and operation. I.e.: all finger units' functions correctly, finger units standing smoothly (check damper function) door latch operation.

5. DOOR LATCHING. Check baler door latch operation check and repair worn door latches. Check for safety of Latching and ease of operation.

2. REPLACING THE FINGER LOCK SPRINGS

For good reliable service, the finger lock springs require replacement on a frequent basis. The TI350/TI500 balers have a pair of finger locks, one on each side of the baler. “Replace annually”

The finger lock has attached a chain via two shackles; the chain is attached to the other end of the baler structure. Attached to the finger lock unit is a tension spring, the tension spring is attached to the finger by a spring which is attached to the finger by a 3/8” bolt (see finger lock illustration)

<u>STEPS TO THE FINGER LOCK SPRING REPLACEMENT</u>

Locate the finger lock assembly (Left to Right)
Remove the outer mesh screens
Ensure that the finger assemblies are down (cylinders are fully closed)
Release the finger lock chain on one end, this will allow finger lock to close releasing the tension in the finger lock springs
Remove the existing spring by rotating the upper spring hook from the top lug (use vice grip tool)
Unhook the spring from the bottom anchor bolt
Check the anchor bolt for firmness
Attach new spring to the bolt lug at the bottom (full loop end of spring)
Grip the top of the spring firmly using clamp vice grip pliers, lift and rotate spring into the top anchor lug hole
Re-attach chain to the finger lock
Check to see that springs are fully and securely attached

Illustration: Finger Lock Spring

3. REPLACING THE OIL FILTERS

It is recommended that the oil is tested annually to check for the following:

- Oil contamination
- Oil damage from overheating
- Water ingressions from high pressure cleaning

The hydraulic system requires a filter change every third service.

The filter is situated on the hydraulic tank which is situated at the side or rear of the Autobaler

Filter Changing Procedure:-

a) Remove the three small studs on the tank; these are located on the top of the unit (see illustration 1)
b) Lift filter out of the unit (Note: the unit does not require removal from the tank)
c) Replace the new filter taking care with the re-assembly making sure that the filter is the correct way up (see illustration 2)
d) Ensure no contamination occurs; clean well before disassembly and re-assembly
e) Tighten the filter unit lid down evenly
f) Run the machine and check for oil leaks


Illustration: 1


Illustration: 2

4. SERVICING OF THE FINGER ASSEMBLIES

The finger assemblies consist of a left and a right hand unit.

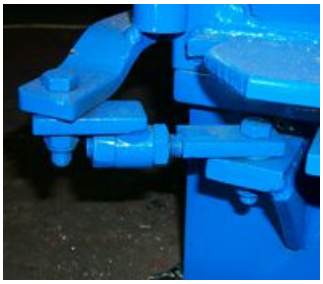
1. Check the anchor bolts on each of the main bearings, if bolts are broken replace with 2 ½ X ½ or 2" X ½ " UNC HT bolts with Nyloc nuts.
2. Machines equipped with nylon main bushes lubricate using pressure pack lubricant.
3. Check bearing pivot shaft securing pins/bolts.
4. Finger assemblies consist of finger/barrel cluster coupled to the finger frame assembly by a full length hard chrome pin, check that the pin fastening is secured.
5. Lubricate grease nipple on main barrel.

6. Check finger assembly for weld failure or fatigue.
7. Check top cylinder anchor

8. Remove one split pin from the anchor pin.
9. Remove the anchor pin- check pin and lug sleeve for excessive wear, replace the pin and bush if required.
10. Check the cylinder clevis for cracks, fatigue or wear, replace if required.
11. Lubricate pivot with lithium based grease before reassembly.
12. Dismantle and lubricate the bottom cylinder anchor, check hydraulic cylinder fittings for oil leaks.

5. DOOR ADJUSTMENT CHECK

The front door on the AutoBaler is connected to the side door pivoting via an adjustable linkage.



If a linkage assembly is incorrectly adjusted the bottom door latch can be difficult to open or close.

1. Check the linkage arrangement for damage.
2. Check that all bolts are attached and in good order, replace with a 2" X ½ "HT bolt if required.
3. To adjust, lengthen or shorten adjustment link as required.
4. In most cases the link will require lengthening - to lengthen, release 5/8 lock nut furthermost from the press, rotate ½ turn, follow up lock nut closest to the press, tension up. If the adjuster is over length the door won't close.

A correctly adjusted door-

α When the bottom door is pushed fully closed without latching it will spring back open from 15-20 mm.

α Lubricate all pivot points on the linkage, door hinges and the door latch.

Door Check Complete.

6. DAMPER UNIT SERVICE.

The damper struts are situated on either side of the baler unit. It is essential that these be working correctly. These ensure that the finger assembly return smoothly.

FULL SERVICE PROCEDURE

1. Remove the damper from the Autobaler (remove anchor bolts at both ends)
2. Remove the small cap retainer screw on the side of the damper barrel
3. Carefully remove the cap by tapping off
4. Slide out the piston assembly and take care, DO NOT DAMAGE THE SEAL
5. Replace oil with 32 grade hydraulic oil, 50mm depth in the barrel (approx 1/3 of a cup / 100ml)
6. Replace seals: Shaft seal - Ludowici R87-088 and Piston & cap seal - 2” x 3mm O’ring

SERVICE CHECK

1. Raise the fingers to a vertical position and stop in that position, this can be done by pressing the retract button found on the controller
2. If a strut is working correctly, the assembly will slow 50mm before contacting the plastic stoppers
3. Leave strut attached to the baler
4. Remove the strut cap, total oil volume in each strut 100ml
5. Using a long clean rule, measure oil on top of the piston (minimum 5mm of oil depth)
6. Add 32 grade hydraulic oil if required
7. Before closing the cap, smear grease around the cap O’ring
8. Re-assemble and check for good function

7. ELECTRONICS - FOR DETAILED INFORMATION SEE STARLOGIXS

1. Check the operation of the key switch and emergency stop button. See illustration 5.
2. Check the operation of the cycle buttons.
3. Check the door open switch. The baler must not be able to cycle down with the top door open.
4. Check the operation of the eject function “with all doors open”. Press the eject button, eject arms will swing into the press chamber ejecting the bale, eject arms require manual retraction (i.e. press

Illustration 5

in with your foot). Note if the eject fails to eject the possible cause will be a top door limit switch - adjust the limit switch.

5. When servicing the baler record the bale count on the bale counter situated on the controller.
6. Check the operation of the sensor units. With the press active light on place a piece of material between the sensor eyes, the motor should start and the press commences the up direction of its cycle.
7. Check emergency / safety bar on the top door - adjust if necessary.
8. In the case of a controller failure, replace the controller unit.

8. SERVICE CHECK ON FINGER LOCKS

Finger lock unit (see photo this page) consists of a C shaped lock which hold the pressing assembly rigid on the down (pressing stroke) if the pressing assembly fails to remain rigid the fingers will drop and will push into the pressing chamber in an abnormal fashion.

The most common cause of the problem is a finger unit.

Initial Check:

1. The finger lock unit is sprung loaded forward by a tension spring (known as a finger lock spring), if this fails the finger lock will not function. Replace if broken or stretched.
2. Check finger lock, pivot the finger lock must pivot freely (lubricate pivot).
3. Check that no obstructions i.e. plastic twine, paper, etc are obstructing the finger function.
4. Attached to the finger lock unit via shackle plates is a chain. This chain is also attached to the body of the press by a hi-tensile bolt, if this chain is detached - reattach. Note - ensure nyloc nuts are used on attaching bolts.
5. Some older models are not equipped with a roller on the top of the finger lock, if the point of the finger lock has become worn;
6. Replace finger lock with a service unit.
7. Build up finger lock with weld and smooth off with a grinder
   (Note if replacing the finger lock chain, it must be the correct length - if the chain is too short it will come into excessive tension when the pressing arms are fully down causing the bolts or chain to fail. On the other hand, if the chain is too long the finger lock will not open at the correct point causing the fingers on the pressing assembly to rise in an unclasped form. This can cause the finger lock unit to fail (breakage).
8. Check that the finger lock unit is functioning correctly.

9. HYDRAULIC CHECK

1. Check for oil leaks in the reservoir, cylinders, hoses & fittings.
2. Check for damaged or unsupported hoses.
3. Replace reservoir oil every 2 years - 32 grade Hydraulic Oil.
4. Replace oil filter every 12 months.
5. Check for damage, tightness and function of the solenoid valves.
6. Balers are equipped with a pressure test port on the aluminium valve block - 2200 PSI system pressure and firing at 1950 PSI, with SL500 boost at 2700 PSI system pressure and firing at 2400 PSI.

7. Check oil level. Oil should be showing on the dip stick - **<u>Caution</u> - DO NOT OVER FILL.**

Chapter 23 - Forms

- Service Guide
    1. Lubrication
    2. Dampers
    3. Hydraulics
    4. Electrics
    5. Controller – Eye Operation
    6. Solenoid Valve System
    7. Safety Bar Operation
    8. Full Bale Indicator Operation
    9. Structural
    10. Twine System
    11. Top Door
    12. Guarding
    13. Finger Assembly Check
    14. Bottom Door
    15. General Operation
    16. Signage
- Baler Installation Procedure Conformity Document
- Declaration of Conformity
- Safety Check List
- Seven Essentials when Visiting a Baler
- AutoBaler service report
- Staff Training Report
- Pre Installation information
- Pre & Post Commissioning Checks
- Job Completion Sheet

1. Lubrication

Hydraulic cylinder pivots (top and bottom)		☐
Door Hinges	Use KZD Coupler attachment	☐
Side Door Pivots	Use KZD Coupler attachment	☐
Side Door Slide	Use KZD Coupler attachment	☐
Door	Use KZD Coupler attachment	☐
Door Link		☐
Grease Finger Barrel unit (2 grease nipples per barrel)		☐
Grease Eject Bar Pivots at Rear of Press		☐
Grease Side Doorslide Plate at Bottom		☐

Comments_____

2. Dampers

Lubricate Pivots – Top and Bottom	☐
Check Oil Level, See Oil Level Checking and Refilling Procedure	☐
Check for Leaks (replace seals)	☐
Check for Operation	☐

Comments_____

3. Hydraulics

Check System Pressure, 2200psi (illustration 27)	☐
Check Pressure Switch Firing, 1900 psi (illustration 31)	☐
Check Hoses for Damage	☐
Check Hydraulic Oil Level, 32 grade	☐
Lubricate cylinder pivot pins, remove pins and lightly grease using long life lithium based grease, alternatively use a good grade chain lube type pressure pack	☐
Check split pins on the cylinder anchor pins, replace if required	☐
Check all hydraulic hose and pipe fittings for leaks	☐
Check hydraulic system filter, replace if required. Normal replacement period 12 months, more often in dusty conditions	☐

Comments_____

4. Electrics

Check Wiring for Damage or Lose Unsaddled Wiring	
Check Power Plug and Point	
Check Electrics Generally Report or Repair Damaged or Dangerous Situations	

Comments_____

5. Controller

Check Controller for Correct Function	
Check for and Report Damage	
Check all Fittings to the Controller for Firm Positive Connection	
Check Controller Anchor Screws	
Clean the Sensor Eye Glass	

Comments_____

6. Solenoid Valve System

Check All Wiring to Valve System for Damage or Contamination, Clean Thoroughly	
Check Screws are Firm on Solenoid Wiring Caps	
Check Wires are Firm on Solenoid Wiring Caps	
Check Wires are Firm and Moisture Boot is Fixed on Hydraulic Pressure Switch	
Check and Repair for Oil Leaks	

Comments_____

7. Safety Bar Operation

Check That Safety Bar Functions Correctly	
Check Switch For Operation or Damage	
Check That all Bolts and Screws etc are in Good Working Order	

Comments_____

8. Full Bale Indicator Operation

Check Full Bale Light, Replace Bulb if Required (illustration 35) ☐

Check full bale limit switch situated on the left side of the baler behind the front main bearing – with the pressing fingers right down (in the box) hydraulic cylinders fully closed. At this point the full bale limit switch situated behind the bearing should be depressed until the roller axle is just out side the switch body. Adjust if required. (illustration 45) ☐

Check wiring connection to switch ☐

Clean any rubbish or contamination from the switch ☐

Comments_____

9. Structural

Thoroughly check for cracks or failed welds or any signs of fatigue or structural damage and report ☐

Check all bolts, especially bolts attaching the main finger pivot bearings replace broken bolts with high tensile bolts ☐

Check cylinder anchor lugs for fatigue ☐

Comments_____

10. Twine System

Check to see that the twine lock through which the twine passes does not cut the twine, adjust if required ☐

Check twine plastic clips on the baler base are in good order, replace or report ☐

Comments_____

11. Top Door

Check latch is functioning correctly ☐

Adjust and lubricate latch ☐

Lubricate hinges ☐

Check top door limit switch if functioning correctly ☐

Check coded witch that they enter centrally, adjust if required (illustration 16) ☐

Comments_____

12. Guarding

Check that mesh guards are secure and free of damage, repair or report. ☐

Comments_____

13. Finger Assembly Check

Check bearing anchor point bolts (replace if required) ☐

Lubricate as mentioned in lubrication section ☐

Check centre pivot bar for secure fastening i.e. circlips etc ☐

Check finger lock operation, see finger lock service manual ☐

Comments_____

14. Bottom Door

Difficult to close, situated at the right hand bottom of the door is a connecting and adjustment link, Adjust as required ☐

Comments_____

15. General Operation

Report any abnormalities ☐

If the baler is moving on the floor or bumping severely as the pressing arms are standing, the cause will be in the small yellow cylinders' situated on either side of the press. Service as in damper service if this fails to correct the bumping remove the small yellow cylinder, dismantle the cylinder and service or repair as required. ☐

Comments_____

16. Signage

Report missing safety signage ☐

Report damaged signage ☐

Comments_____

Trethewey Industries
Baler Installation Procedure Conformity Document

	Yes	No
Has the client agreed on a dispatch date:		
Has the correct model required by the client been checked to conform to his requirement		
Has the pre-installation form been sent to the client		
Has the pre-installation form been completed and returned		
Are there issues that require attention from the return of the pre-installation form i.e. forklift, power, transport etc		

What are the issues?
1.
2.
3.
4.

	Yes	No
Have these issues been addressed		
Has the baler arrived on site		
With the baler at the site and all issues addressed, has a day and time been agreed on Date:		
Has the number of people for training been established		

Number to be trained Number of People	
Baler Serial Number	
Baler Type	
Customer	
Date	
Officer Signature	

Trethewey Industries
Declaration of Conformity

Training Procedure Conformity

Product Type _____

Serial Number _____

Machine Type _____

Customer Name _____

Baler Location _____

Date _____

Conformity Declaration

- ☐ Service Agent manual Carried
- ☐ Baler Removal from Pallet
- ☐ Pre-commissioning Check
- ☐ Post Commissioning Check
- ☐ All Store Documents ie Woolworths
- ☐ Trainee Documents

Trainer Material Presented

- ☐ Controller
- ☐ Set-up
- ☐ Baler Fit Out
- ☐ Pre-twine
- ☐ Tying the Loop
- ☐ Twining
- ☐ Twining Transverse
- ☐ Initial Fill
- ☐ Baler Start Up
- ☐ Automatic Operation
- ☐ Tidy Bale Procedure
- ☐ Tying Off
- ☐ Maintaining Twine Tension
- ☐ Transverse Twine Tie Off
- ☐ Retracting Fingers
- ☐ Opening Doors
- ☐ Situating Bale Trolley
- ☐ Ejecting the Bale
- ☐ Full Bale made
- ☐ Trainees Competent

I hereby declare that I/we have fully complied

Signed: _____

Date: _____

Safety Check List

Name/Location _____Store No_____

Baler Model No _____ Serial No _____

Controller No _____Date _____

Service Requirements	Good	Poor	Action Taken
1. Check top door operation, door must not open more than 30mm without activating safety switch, adjust if required			
2. Check safety operation situated on the top door			
3. Check emergency stop			
4. Check key operation			
5. Check power leads for damage placement etc			
6. Check baler situation, baler must not be under where service is required i.e. man holes, lights, walkways, elevated docks etc			
7. Check twine cage placement, cage must be situated to prevent tripping			
8. Check upper and lower door catches for positive lock			
9. Check all guarding, report, refit or correct if required			
10. Report unsafe operator practices			
11. Report other areas of safety concerns			
12. Check safety signage is in good order			

Seven Essentials When Visiting a Baler

The compacting arm assemblies must remain rigid on the first 90% of the compression stroke and fully bent on the up stroke. If not:

A. Check the finger lock spring		
B. Check the finger lock chain for attachment at both ends		
C. Check the finger lock for freeness and positive locking		
D. Check that the pressure switch is firing in the correct range		

Top door security fingers must not be able to move down with the top door open

A. Check coded key for attachment and operation		
B. Older balers check limit switch on the top door hinge		
C. Check alignment of magnetic switch on 2005 + models		
D. Check mounting of magnet switch i.e. Fasteners		

Is the baler operating smoothly? When the finger assembly is standing up the action must be smooth with no bumps or jar

A. Check damper struts (small yellow cylinders) for attachment		
B. For operation, add 1/3 cup light oil if required		

Bottom door closer, must close with ease

A. Grease all door slide		
B. Adjust the bottom door, adjust link until door closes with ease (in most cases shorten line by one rotation) tighten adjustment lock nuts firmly		

Check for oil leaks

Correct the leak if present		
Check the reservoir oil level		

Lubricate baler if required

Cylinder anchor pins top and bottom		
Door hinges		
Door slides at bottom		
Door latch		
Filter change if required 6 Monthly Periods		

General check

Baler operation		
Twine Tabs		
Eject Operation		
Structural soundness		

Autobaler Service Report

Name/Location_____ Store No_____

Baler Model No_____ Serial No_____

Controller No_____ Date_____ Baler Counter Reading _____

Service grease points and lubrication	Good	Poor	Comment
1. Finger Locks			
2. Emergency bar pivots			
3. Bottom door link adjustment			
4. Upper door hinge			
5. Safety Bar wedge			
6. Lower door hinges			
7. Bottom door slide			
8. Connector link			
9. Lower door latch clevis			
10. Safety latch for lower door			
11. Latch clevis			
12. Secondary latch slide			
13. Latch bar support			
14. Eject cylinder anchor point			
15. Eject axle pivot			
16. Lower side wall rear hinge			
17. Middle side wall rear hinge			
18. Upper side wall rear hinge			
19. All moving parts			
20. Cylinder pivot pins			
21. Damper strut pivots			
22. Chain plates			
23. Clean & check mounts on sensor eye			
24. Remove all material from hydraulic area, ensuring all moving parts are free.			
Safety list checked ok?			

Service Compliance Declaration

Autobaler Service Booklet Maintenance Record:- Complete and attach tear out section and return (found behind the left front panel in service pouch)

Service Compliance Declaration: _____
Service Agent Provider: _____
Signature: _____
Any other comments: _____
_____

Print Name: _____

Position: _____

Date: _____

Authorised Persons Signature: _____

STAFF TRAINING REPORT

This is to certify that on_____ the following

Staff Members of_____ were trained to competently and safely operate and clean the following equipment:-

EQUIPMENT SUMMARY

TYPE	MODEL	SERIAL No's
Autobaler		Autobaler:
		Controller:

Name…….Signed……
(Please Print)

Name…….Signed……
(Please Print)

Name…….Signed……..
(Please Print)

Name…….Signed……
(Please Print)

Name…….Signed……..
(Please Print)

Nam

Name…….Signed……..
(Please Print)

Name…….Signed……
(Please Print)

The equipment was fully operational at time of training and showed no signs of fault.
Comments_____

_____

Store Managers Name……..Signature……

Technicians Name…….Signature……

New England Highway. Telephone: 02 6734 5403
DEEPWATER NSW 2371 Facsimile: 02 6734 5433
EMAIL: michelletully@autobaler.com.au

Pre Installation Information

Company Name: _____

Address: _____

_____

Contact: _____ Phone: _____

Fax: _____ Email: _____

Autobaler Model Requested: _____

Office Use Only

Serial Number: _____ Controller Number: _____

Delivery Date Requested: _____

Installation Date and Time: _____

Has the Autobaler Been Delivered: _____

Installation and Training Site Assessment Request

1. Delivery: is there a 3.5 tonne fork lift available? Y/N
2. Extra delivery cost may be incurred if alternative delivery is required.
3. I would prefer to make by own deliver arrangements Y/N
4. Will any manual handling be required? Y/N
5. What distance does the Autobaler have to be moved? _____
6. Will the Autobaler be located in your Delivery Dock? Y/N
7. Is the Delivery Dock raised? Y/N
8. Is the Delivery Dock at ground level? Y/N
9. Is there any further information we should be aware of to ensure the smooth installation of your Autobaler?_____
   _____
10. Does the site meet all the OH&S requirements? Y/N

Comment: _____
_____

11. Is the Autobaler site ready? Y/N
12. Power Requirement, is the appropriate power available? Y/N
    I.e.: (415V x 20 amp x 4 pin) it is the responsibility of the site manager to ensure that the power connection capacity in the building is compatible with the baler requirements e.g. Circuit breaker must suit the baler AMPS

13. Is sufficient material available for training to be conducted? Y/N
    TI*350 – 300kg material*
    TI500 – 500kg material
14. Staff training: Are all staff to be trained available for the installation time requested? Y/N
15. Do you require multiple training sessions for different shifts? Y/N
16. I am aware that extra training sessions will attract a fee of $225.00 + GST, and agree to pay this cost if extra training is provided Y/N
17. A Trethewey Industries Representative will be available to conduct your training and installation at the time requested. If for any reason there are time delays i.e. Power or staff unavailable, please contact the office directly to reappoint prior to the installation or **extra charges will apply.**
18. Service Agent: Do you have a local referred service provider? Y/N
19. Please provide contact details to enable all relevant information to be forwarded to them to assist in the servicing of your Autobaler:

Service agent details:

Name: _____

Address: _____

_____

Phone: _____ Fax: _____

Trethewey Industries must be notified if the site is not ready, this will enable rescheduling of the training staff, and failure to do so will attract retraining charges.

I confirm that the site is reads and the appropriate power as outlined above is connected and ready. I accept that if any information is not correct and the commissioning and training cannot be carried out as organized, I will be responsible for the cost incurred for the trainers' time if they are unable to proceed or are delayed.

Installation authorized on behalf of the specified company:

Name: _____

Title: _____

Signature: _____

Date: _____

Please list the names of the people to be trained in the safe operation of the Autobaler. Groups MUST not exceed 5 people, as competency based assessment will be conducted on all trainees individually.

1. _____

2. _____

3. _____

4. _____

5. _____

Pre & Post Commissioning Checks

Company Name: _____

Address: _____

City: _____

Contact: _____ Phone: _____

Installation Date: _____ Model: _____

Serial Number: _____

Controller Number: _____

Pre Installation Check

Checks to be Carried Out	**Fail**	**Pass**	**Cleared**
1. Check that the paler is free of transport DAMAGE			
2. Check the motor rotation (clockwise)			
3. The power lead is safely situated			
4. Bale trolley is stored beneath the baler overhanging on the left side			
5. Deposit baler wrappings and trash			

Post Installation Check

Checks to be Carried Out	Fail	Pass	Cleared
1. All Hydraulic cylinder fittings			
2. All Hydraulic hose and pipe fittings			
3. Pressure switch setting			
4. System Pressure			
5. Bale full switch			
6. Coded upper door switch			
7. Safety Bar			
8. Upper & Lower Doors			
9. Dampers			
10. All bolts & Split pins etc			
11. All electrical wiring			
12. All OH&S concerns			

Comments: _____

_____

_____

_____

Trethewey Representative: _____

Signature: _____ Date: _____

AUTOBALER

www.autobaler.com
CUSTOMER SERVICE NUMBER
1800 888 403

JOB COMPLETION SHEET: CARDBOARD BALERS

Store Name & No: _____

Purchase Order No: _____

Delivery Date Requested: _____

Date of Installation: _____

Planned Date of Staff Training: _____

EQUIPMENT SUMMARY

TYPE	MODEL	SERIAL NO.
Autobaler		

Installation & Commissioning Completion Checklist: (please tick on completion)

Positioned, Installed and Commissioned (as per supply agreement)	YES		
Relevant Accessories provided (as per supply agreement):			
Cleaning Signage	YES	Warning Signage	YES
Maintenance Signage	YES	Operators Manual	YES
Cleaning Instructions	YES	Bale Trolley	YES
Bale Twine (rolls)	YES	Twine Safety Cage	YES
Extension Hopper	YES	Overhead Cage Canopy	YES
Baler checked for Travel Damage			YES
3 Phase, 20 Amp, 4 pin plug provided			YES
3 Phase rotation checked			YES
Check all fittings for hydraulic oil leaks			YES
Limit Switches checked and functioning correctly			YES
Adequate Signage to Push Buttons as per AS1543-1985 Section 4.4.3			YES
Electrical Cable Length is acceptable and is supported off the floor			YES

Comments: _____

_____

The above has taken place to my satisfaction.

Store Managers Name: …….Signature……..

Technician

Manufactur
New Englar
DEEPWATER NSW 2371

Facsimile: 02 6734 5433
EMAIL: michelletully@autobaler.com.au

Chapter 24 - Training

Safety procedures for training

1. Autobaler Location
2. Bale trolley location, store trolley away to prevent trip hazard or injury.
3. Twine cage correctly attached and twine placed in cage.

Point out safety devices:-

a) Safety bar operation
b) Emergency stop button
c) Key switch
d) No reaching into baler
e) No standing or climbing on the baler
f) Turn the baler off when unattended
g) Care and position when ejecting baler
h) Importance of reading and observing all safety instructions
i) Bale location in approved designated area.

MACHINE OPERATION

1. Motor rotation check. To test, press retract button, if fingers go up rotation is correct.
2. Fitting of upper mesh hopper
3. Location of twine cage
4. Initial stringing
5. Complete stringing
6. Double knot and why? Twine under left tab then under right tab
7. Transverse twine, length, fitting etc
8. Bottom door closing
9. Twine (transverse) front door (tie off)
10. Close top door
11. Place flat cardboard in base prior to loading.
12. Initial loading to top door height, to prevent fingers banging in empty chamber.
13. Initial starting of press
14. Explain eye location and function
15. Continue to load
16. Large boxes should be loaded during the first 75% of capacity, for the last 25% load flat boxes to create a flat cap for the bale.
17. Red light illuminates
18. Cycle several times to level top
19. Remove excess if required
20. Place cap on bale
21. Open top door, explain door switch safety
22. Always turn key off or press Emergency stop to neutralise unit
23. Explain how opening top door releases twine via the twine lock
24. Unlock twine from left hand hooks
25. Pull twine across from right hand side
26. Cut to correct length
27. Tie off
28. Pull transverse twine across and tie loop
29. Twine from tab to loop and tie off
30. Close top door
31. Turn on system, press retract button
32. Open bottom door

33. Place bale trolley
34. Eject bale
35. Wheel away
36. Restring baler

Bale Trolley

FINISHING OFF THE BALE

When full bale light comes on
1. Remove excess material from above the pressing fingers
2. Place top cap
3. Press cycle button

OR

Remove excess
1. Stand fingers up, press retract
2. Remove excess
3. Place cap
4. Press cycle button

Autobaler Trainee Particulars (Kit)

Company: ……

Address: ……
……
……

Trainee Name: ……
(Print Clearly in Capitals)

Autobaler Model Trained To Use: ……

I, ……..…… (Trainer) witnessed the competency of ……..…… In the safe competent use of the Autobaler Model……..…… and I received a copy of the Training Manual.
I hereby validate this assessment.

Signed (Trainer) ……..

Date …….

Signed (Trainee) ……..

Date …….

Special Comments

……
……
……
……

Autobaler Training Handout

Person in Training

Name: ……..……

Address ……
……......
……

Phone No: ……

Employer: ……

Date of Training: ……

Name of Trainer: ……

Autobaler Model Trained To Use: ……

Trainee Exam Questions (Autobaler TI350/TI500 Series)

1. If the baler is in a public access area and the baler will be unattended for a long period, what precaution for public safety should you take:
   a. Sit and watch the baler……☐……..
   b. Remove the key……☐…….
   c. Do nothing……☐…….

2. What function does the retract button have:
   a. General operation……☐……
   b. Cycles the baler……☐……
   c. Raises the fingers only……☐……

3. The purpose of the safety bar is:
   a. To do chin ups……☐……..
   b. For emergency stopping……☐……..
   c. No particular use……☐……...

4. Through which holes in the twine lock bar would you insert the twine:
   a. One hole only……☐……
   b. Two holes only……☐……
   c. All holes……☐……...

5. When twining the baler at what position should the baler fingers be:
   a. Right down……☐……..
   b. Half way down……☐…….
   c. Fully up……☐…….

6. What is the purpose of the plastic tabs on the base (floor) of the baler:
   a. Decoration……☐……
   b. Place twine beneath……☐……...
   c. Structural……☐……..

7. The last 10 - 20% of the bale, how would you place flattened material:
   a. On its edge……☐……..
   b. Anyway……☐……..
   c. Flat in the baler……☐……

Cont…….

8. Tying of the finished bale should be done with the:
   a. Fingers up (retracted)…… ☐
   b. Fingers half way…… ☐
   c. Fingers right down…… ☐

9. Opening of the top door, I should:
   a. Open it the best I can…… ☐
   b. It doesn't matter…… ☐
   c. Grip the handle firmly…… ☐

10. Ejecting the bale, I should:
   a. Stand aside and hold finger on button…… ☐
   b. Push button and walk away…… ☐
   c. Push button and stand in front of bale…… ☐

11. Where should the bale transport trolley be stored when not in use:
   a. Under the right hand side…… ☐
   b. Under the left hand side…… ☐
   c. Anywhere……. ☐
   ……...

12. Real heavy objects i.e. boxes of magazines etc. How should I load them into the baler:
   a. Over the top door…… ☐
   b. Open the top door…….. ☐
   c. The best I can…… ☐

13. If the baler operates with the top door open, I must:
   a. Continue as normal…… ☐
   ……..
   b. Shut the machine off, remove the key and place out of order sign…… ☐
   c. Take care……. ☐
   ……

14. Was the knot test passed? Yes ☐ No ☐

SAFETY ESSENTIALS

1. Before commencing the baling process ensure that the bottom door is latched correctly to prevent the door bursting open during process.

2. Never climb onto the baler from any side or reach in during operation or stand on elevated objects.

3. When ejecting the bale stand to one side to prevent injury form the ejecting bale.

4. Always place the bale transport trolley centrally to the bale to prevent bale side roll.

5. On inclines, chock bale trolley to prevent run away

6. Use only the safety knife for twine cutting.

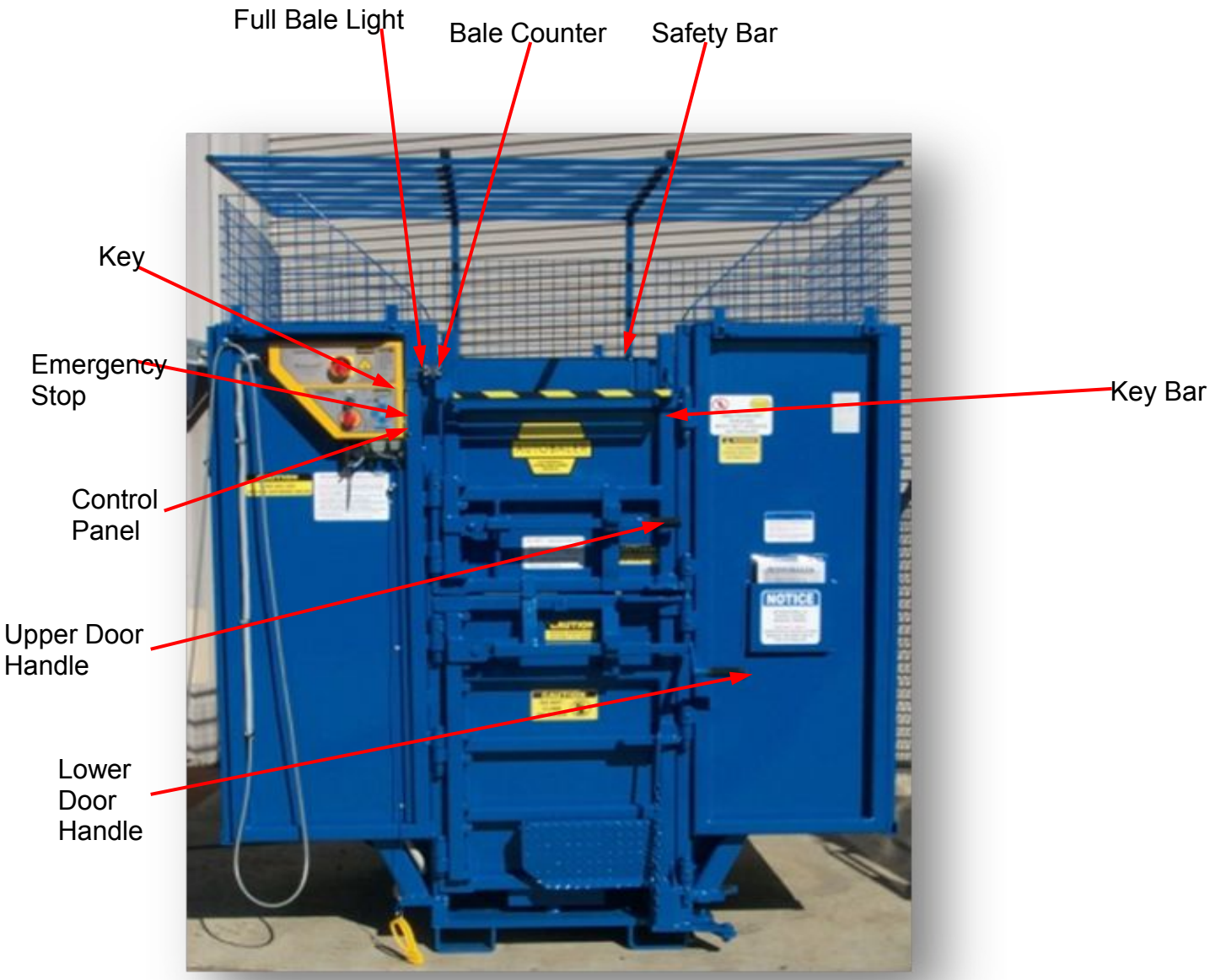
7. To prevent strain injury ensure that the doors and latches open freely – lubrication may be required

8. Remove baler key if in a safety sensitive zone.

9. Never operate a faulty machine tag out and call 1800 888 403

10. Autobaler operators must be licences to legally operate Autobalers

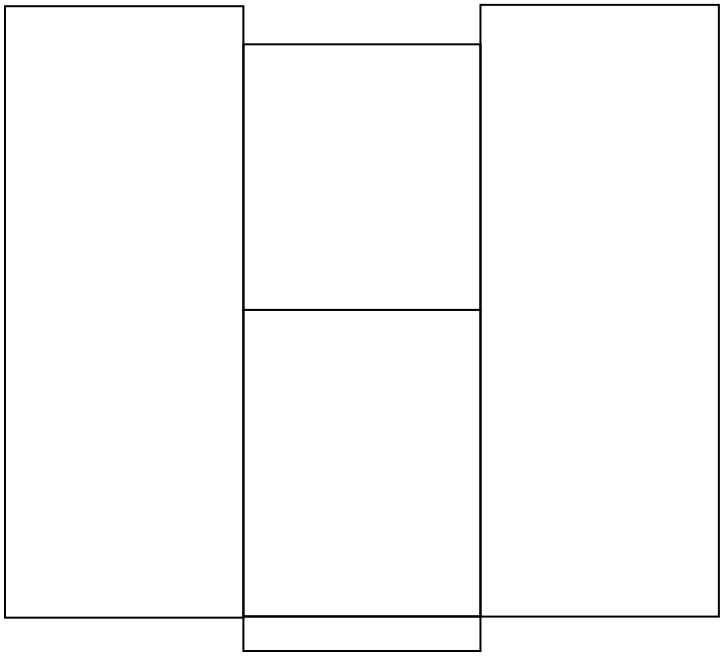
AUTOBALER



TRAINER

MATERIAL

AUTOBALER TRAINER MATERIAL



INDEX

Baler Serial No: _____

Date: _____

Customer: _____

Address: _____

Trainer: _____ Signature: _____

1. ***Controller Operation***

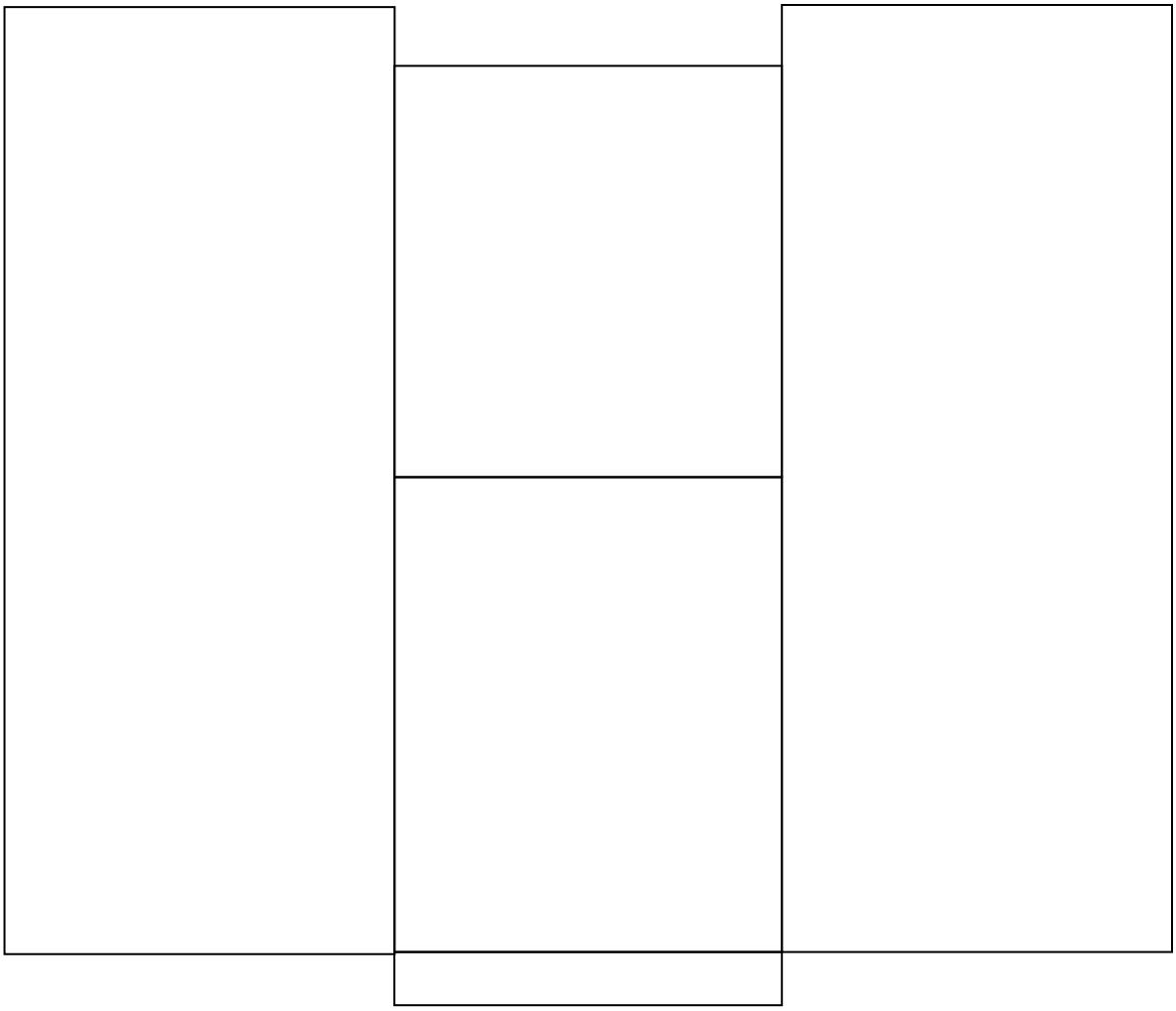
1. Turn the key on – power light on
2. Door switch – light on
3. Disengage emergency stop key rotation
4. Cycle button to cycle
5. Retract button to raise fingers only
6. Eject must be held in to eject
7. Red light and beeper full bale indicators

Trainer Signature of compliance:

_____

2. Set Up

1. Remove The Wrapper.
2. Cut The Straps.
3. Remove all items from within the baler.
4. Following the lifting directions, remove the baler from the pallet, Chapter 5 in manual.



Trainer Signature of compliance:

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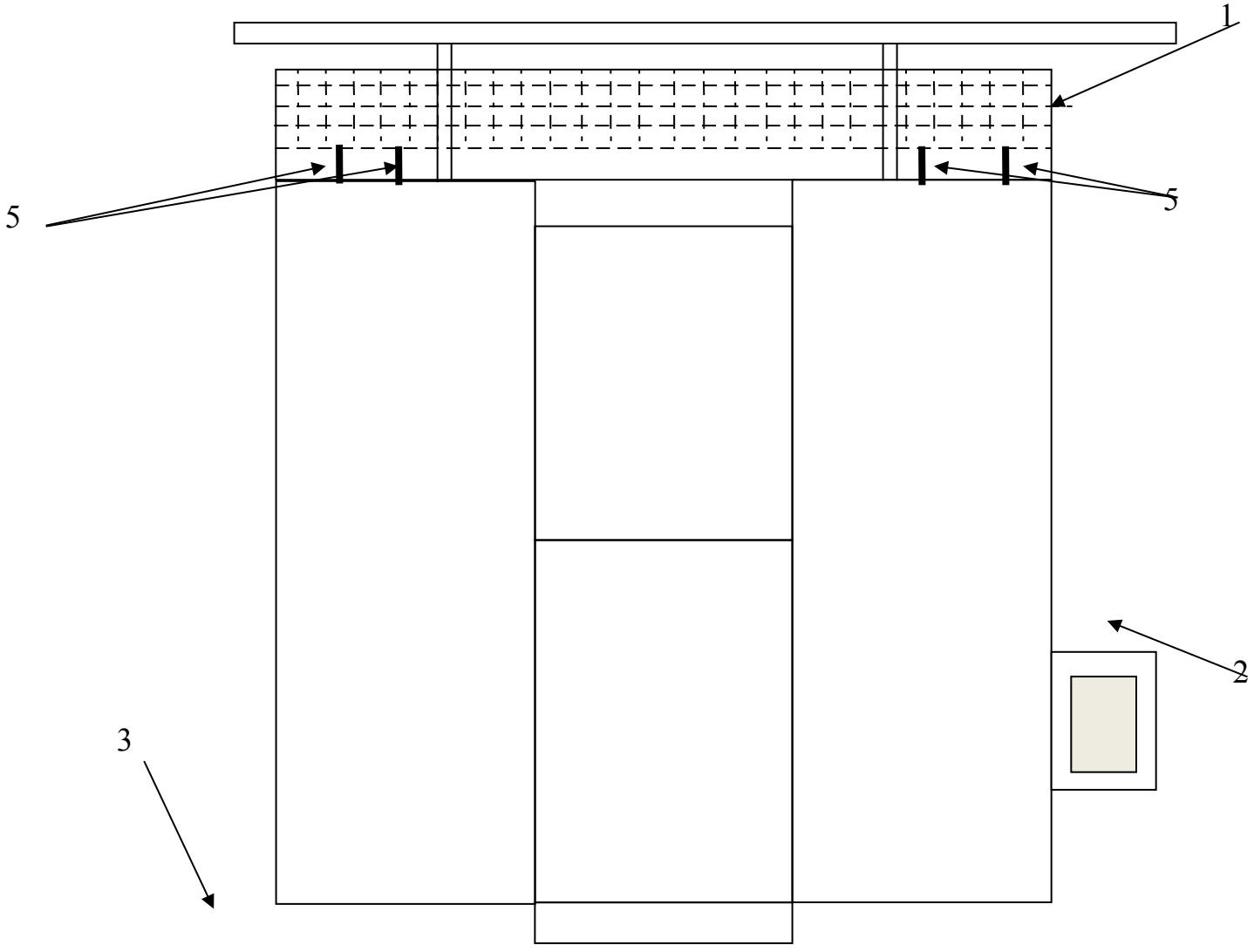
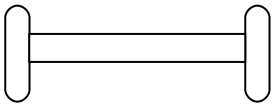
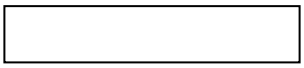
3. Baler Fit Out

1. Fit the mesh hopper and canopy, Chapter 4.
2. Position the twine cage to the baler side.
3. Situate the baler trolley.
4. Plug in baler power socket, motor must rotate clockwise.
5. Ensure all bolts holding the mesh hopper and canopy are tight.







Trainer Signature of compliance:

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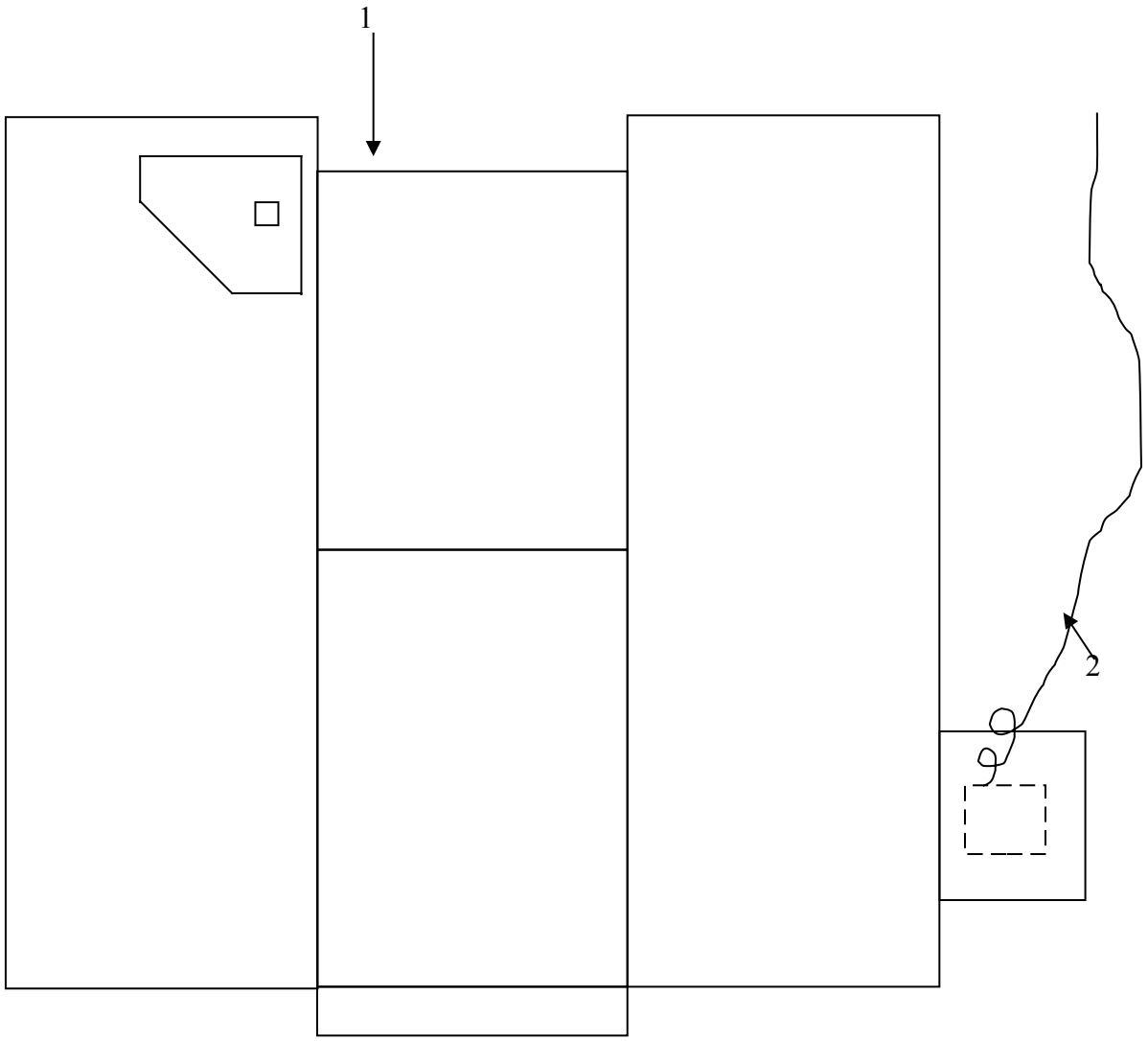
4. Initial Set

1. Turn on power, engage key, press retract button to stand fingers up.
2. Draw each twine from centre of twine roll.

NOTE twine roll must be right way up.

3. Heat seal twine end or use tape around.
4. Open baler doors fully.



Trainer Signature of compliance

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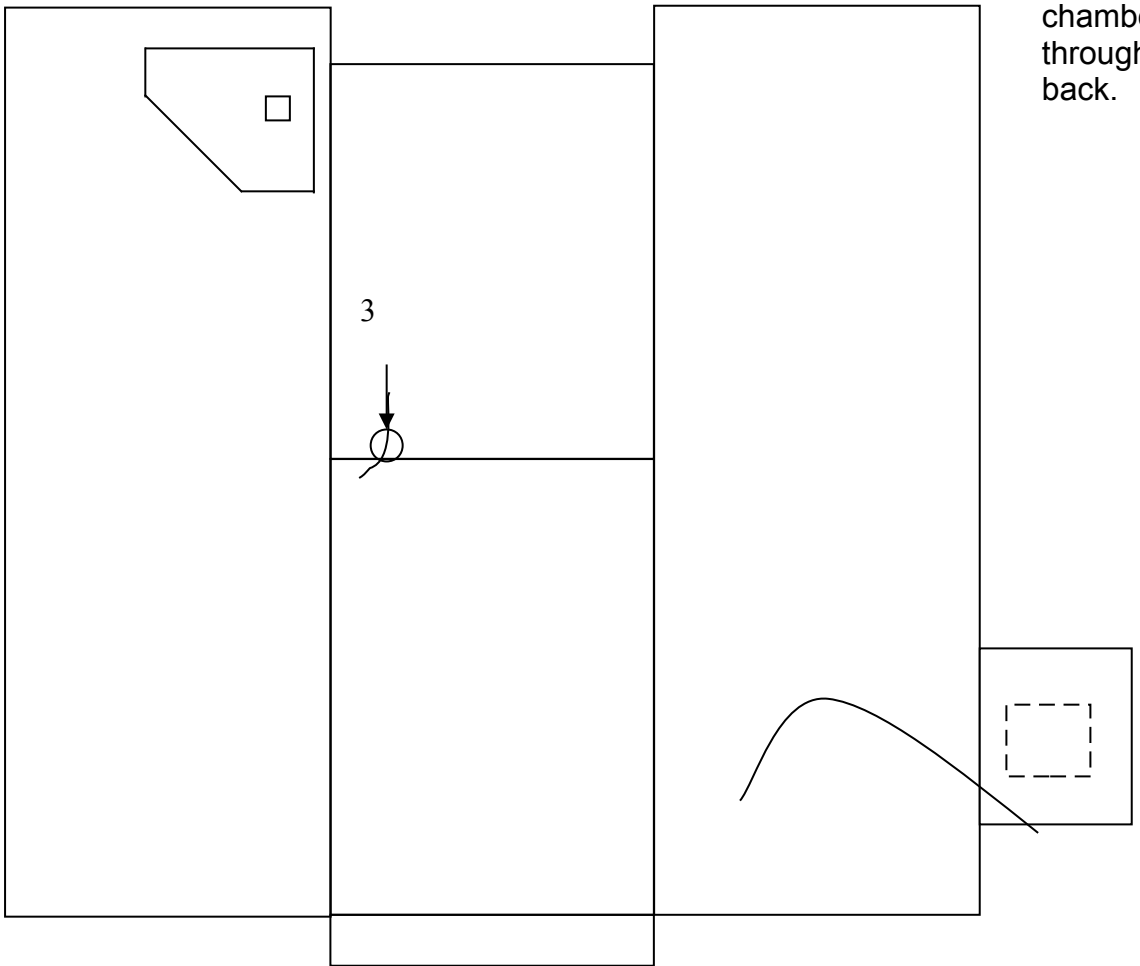
5. Pre-Twine

1. Insert sealed twine end through open hole in twine lock bar.
2. Front two twine on inside of the baler chamber and insert through eyelets (collars).
3. Rear twine in rear twine lock hole and down the back outside and into chamber through hole in back.



Trainer Signature of compliance

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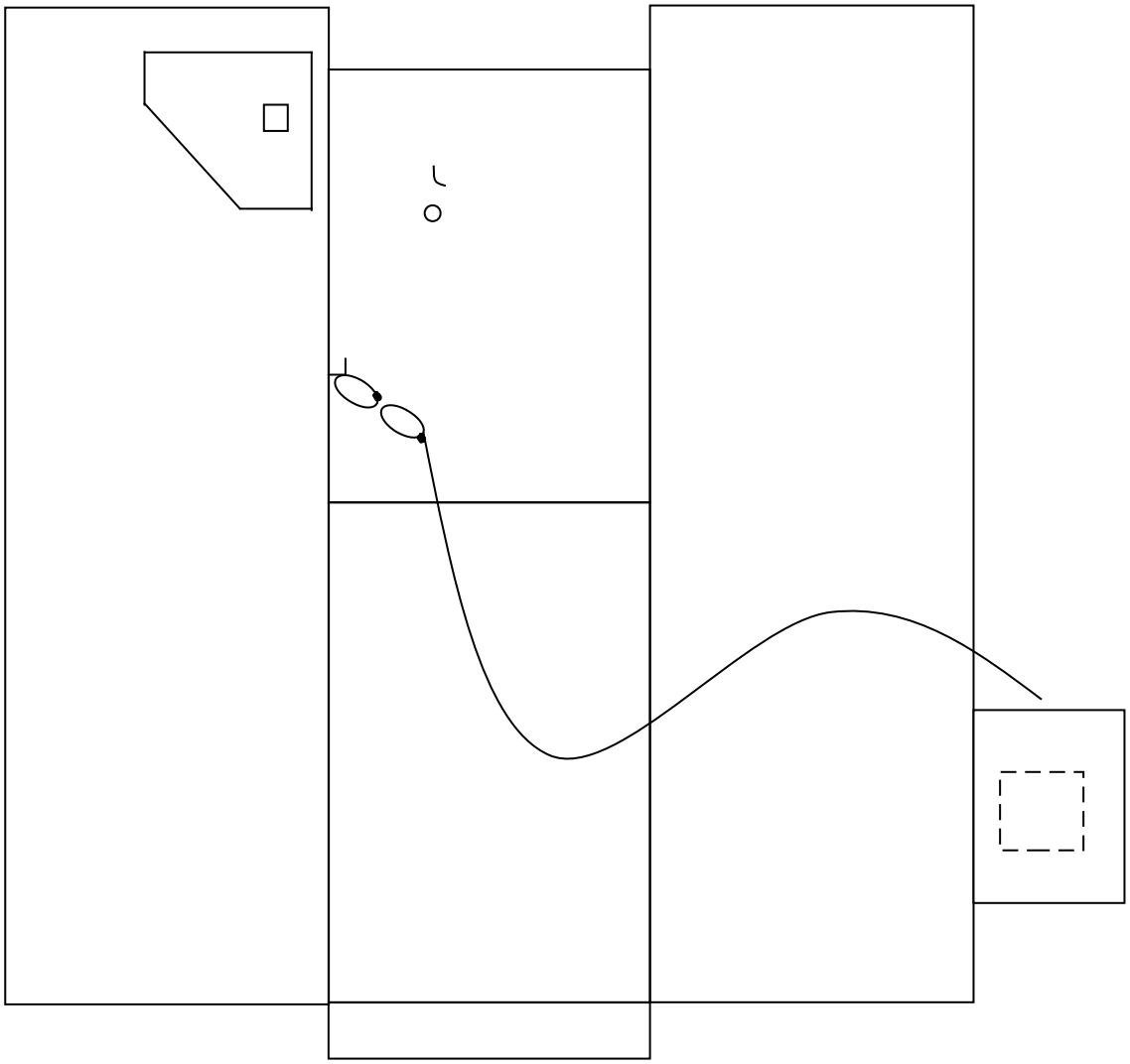
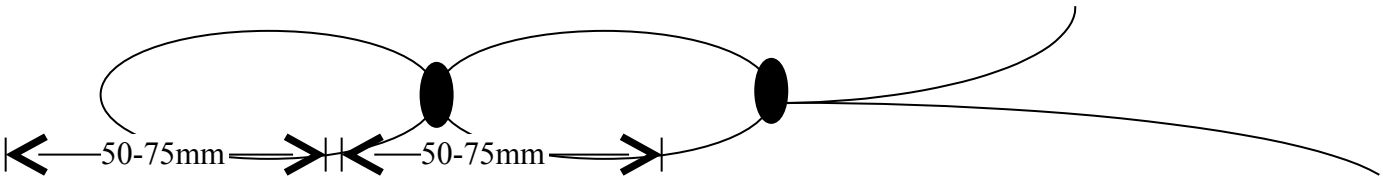
6. Tying the Loop

1. Tie double loop in twine ends (side twines only).
2. Take looped ends across and hook onto hook on opposite side.

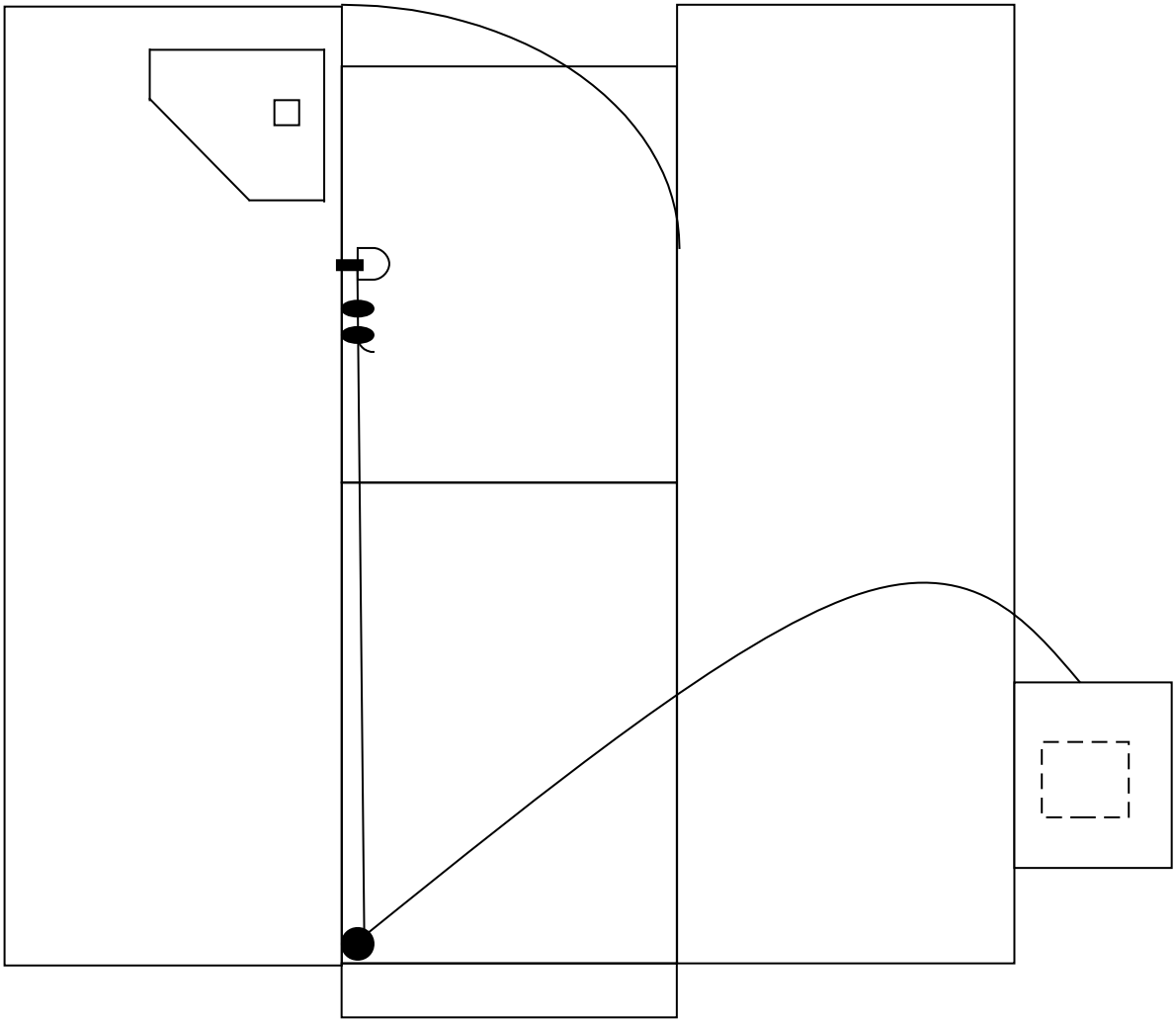




Trainer Signature of compliance

7. ***Twining***

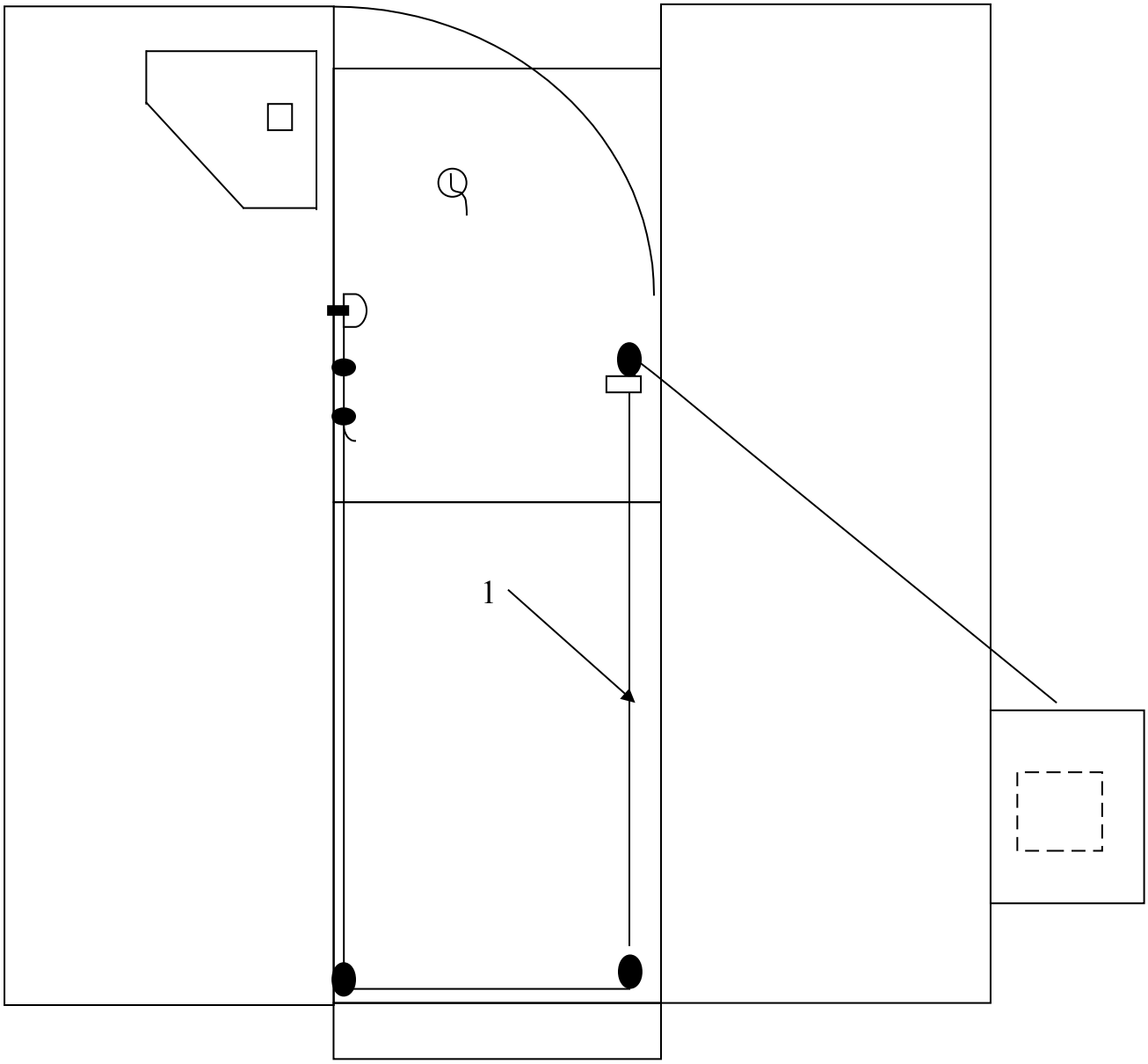
1. Take twine down and hook under plastic tab directly below.



Trainer Signature of compliance

8. Twining

1. Take side twines across under the tab on the right hand side.
2. Surplus slack twine inside, pull out from the outside.



Trainer Signature of compliance

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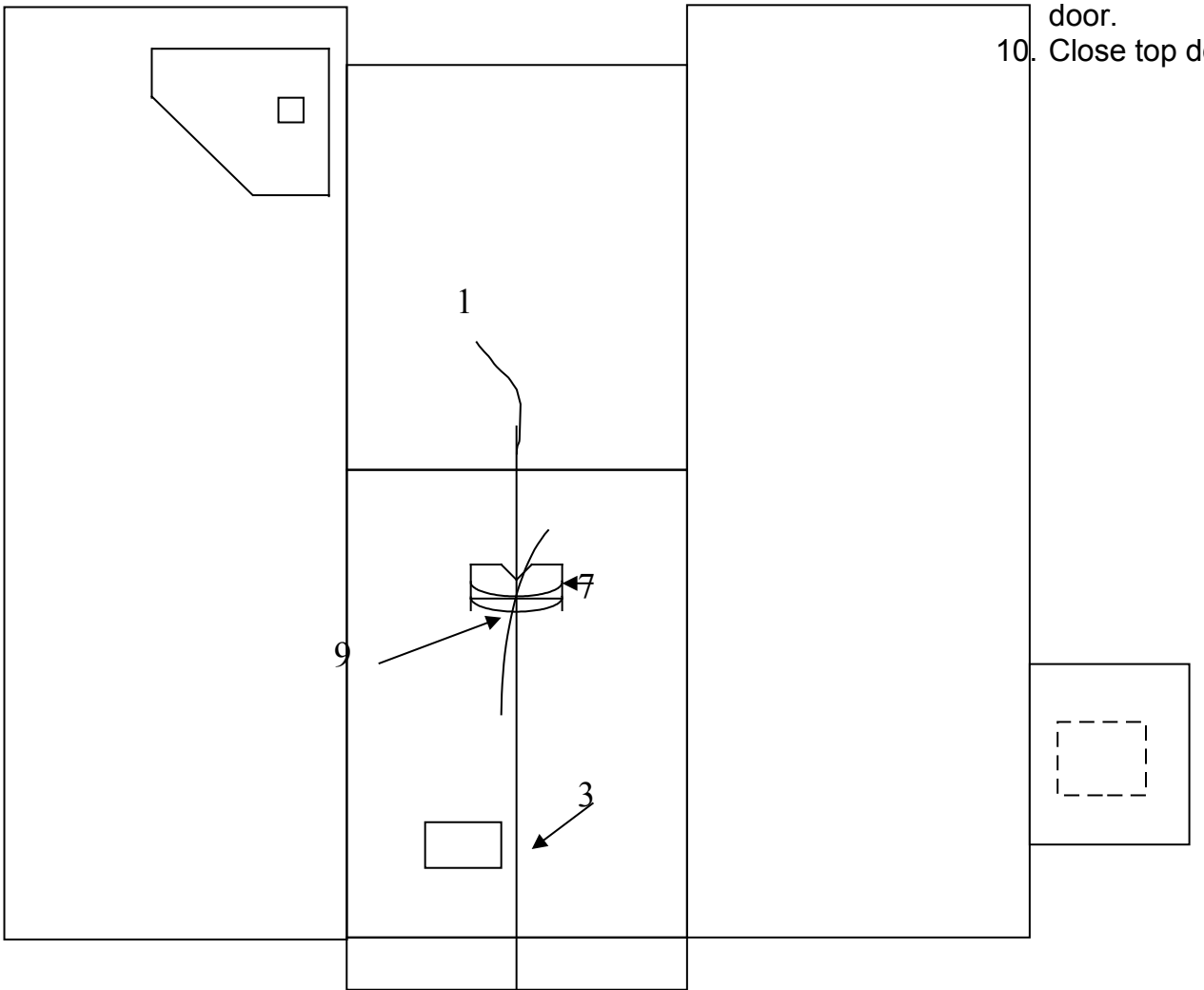
9. Twining Transverse

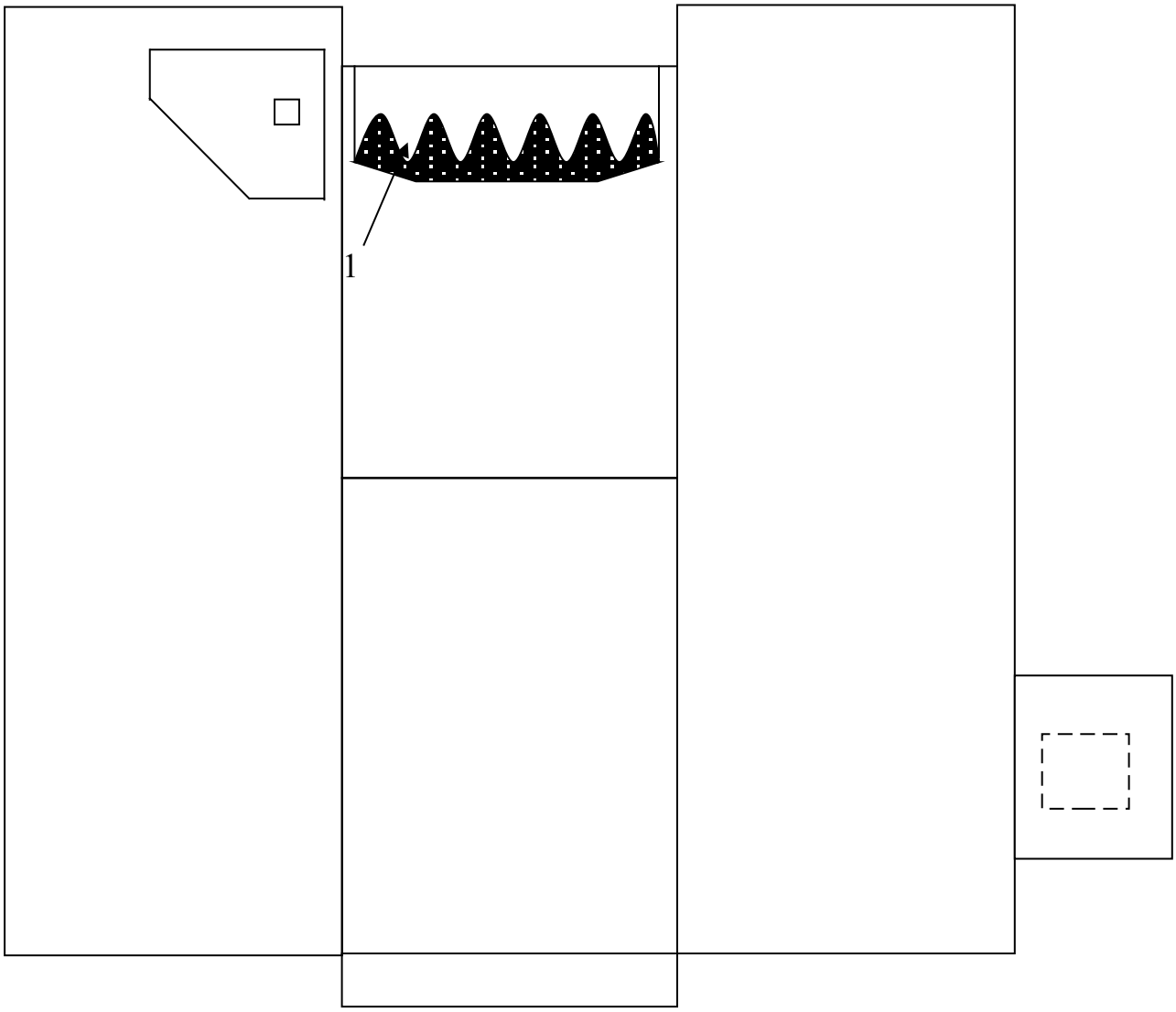
1. Twine from rear
2. Hook twine loop to rear tab.
3. Place twine under rear tab then forward under front tab.
4. Hold twine in left hand to left side.
5. Close bottom door with right hand.
6. Bring twine over the top of the bottom door from the inside.
7. Twist twine end around the tab twice and bring end into slot.
8. Latch bottom door.
9. Twine end about halfway down the front door.
10. Close top door.



Trainer Signature of compliance

10. Initial Fill

1. Throw in material until visible.



Trainer Signature of compliance

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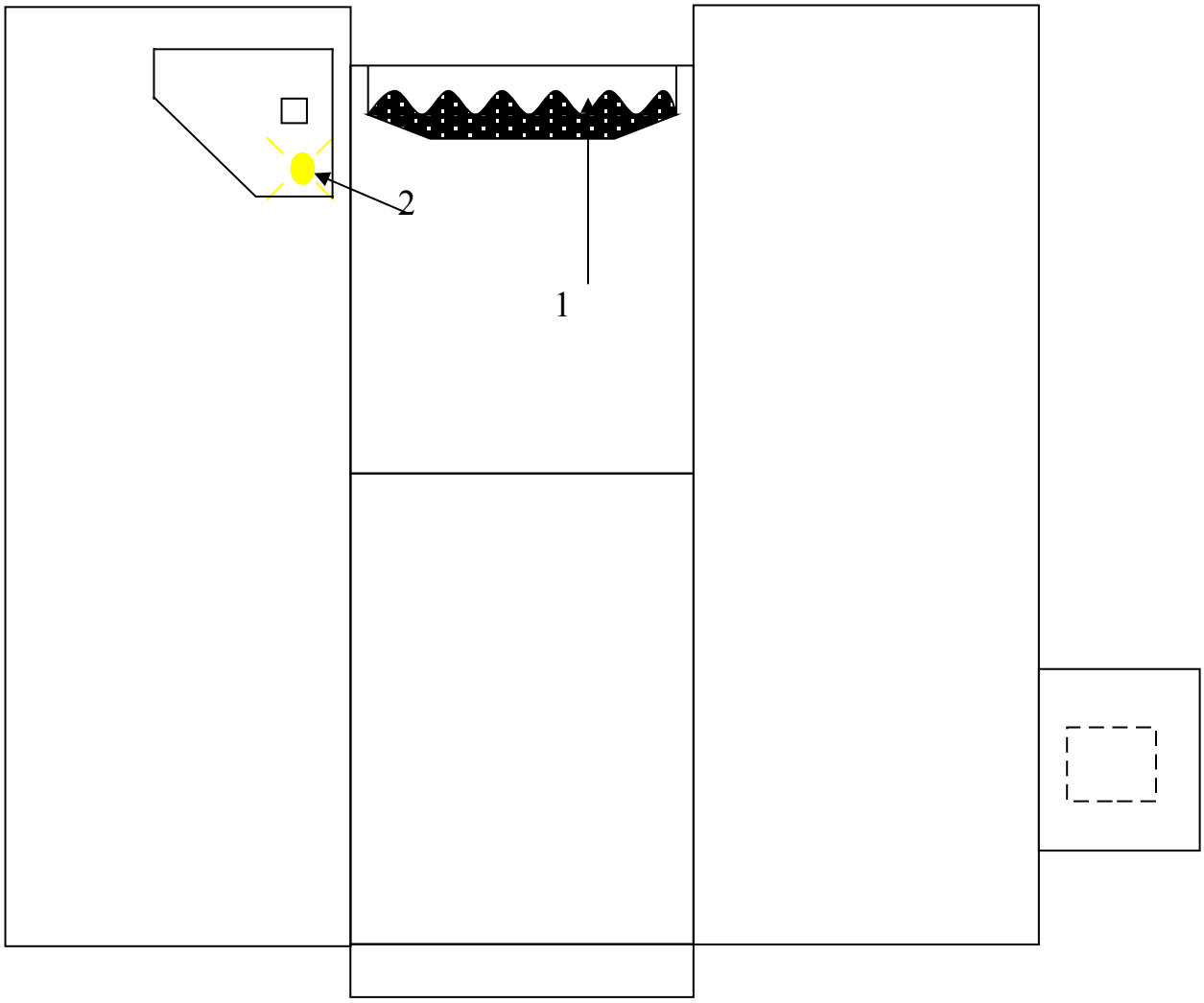
11. Baler Start Up

1. With material visible :-
2. Turn on baler.
3. Press in coded key bar.
4. Press cycle button marked cycle.

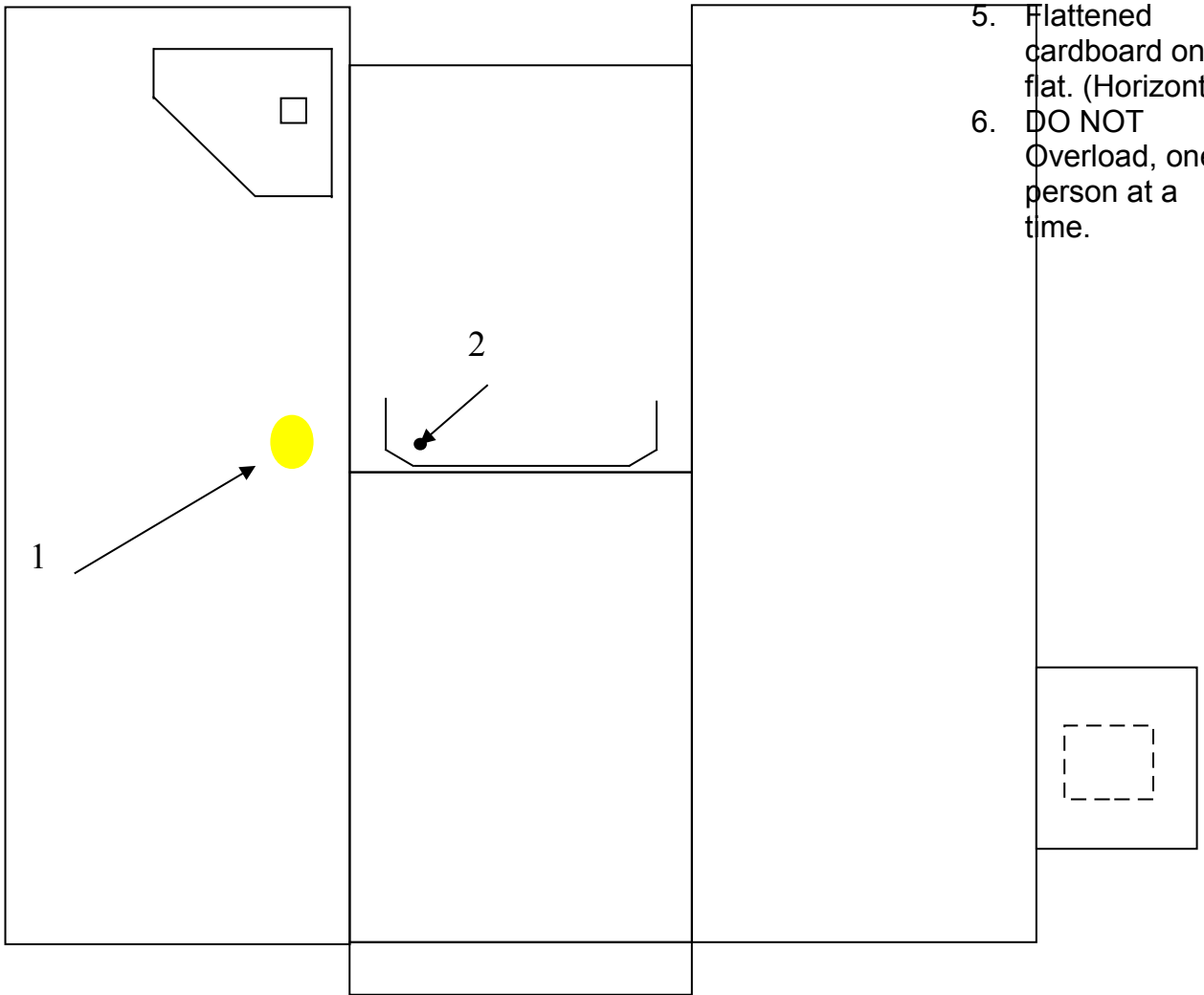
Note: If baler is cycled with no or little material in the hopper, the baler may make a sharp clunk (this will not damage the baler).



Trainer Signature of compliance

12. Automatic Operation

1. Active light will flash after cycle button has been activated.
2. When loading baler, direct material evenly and towards censor eye to activate the baler.
3. Throw full boxes in any time through the cycle path.
4. Large boxes, throw these in the first 50% of the bale.
5. Flattened cardboard on its flat. (Horizontal)
6. DO NOT Overload, one person at a time.



Trainer Signature of compliance

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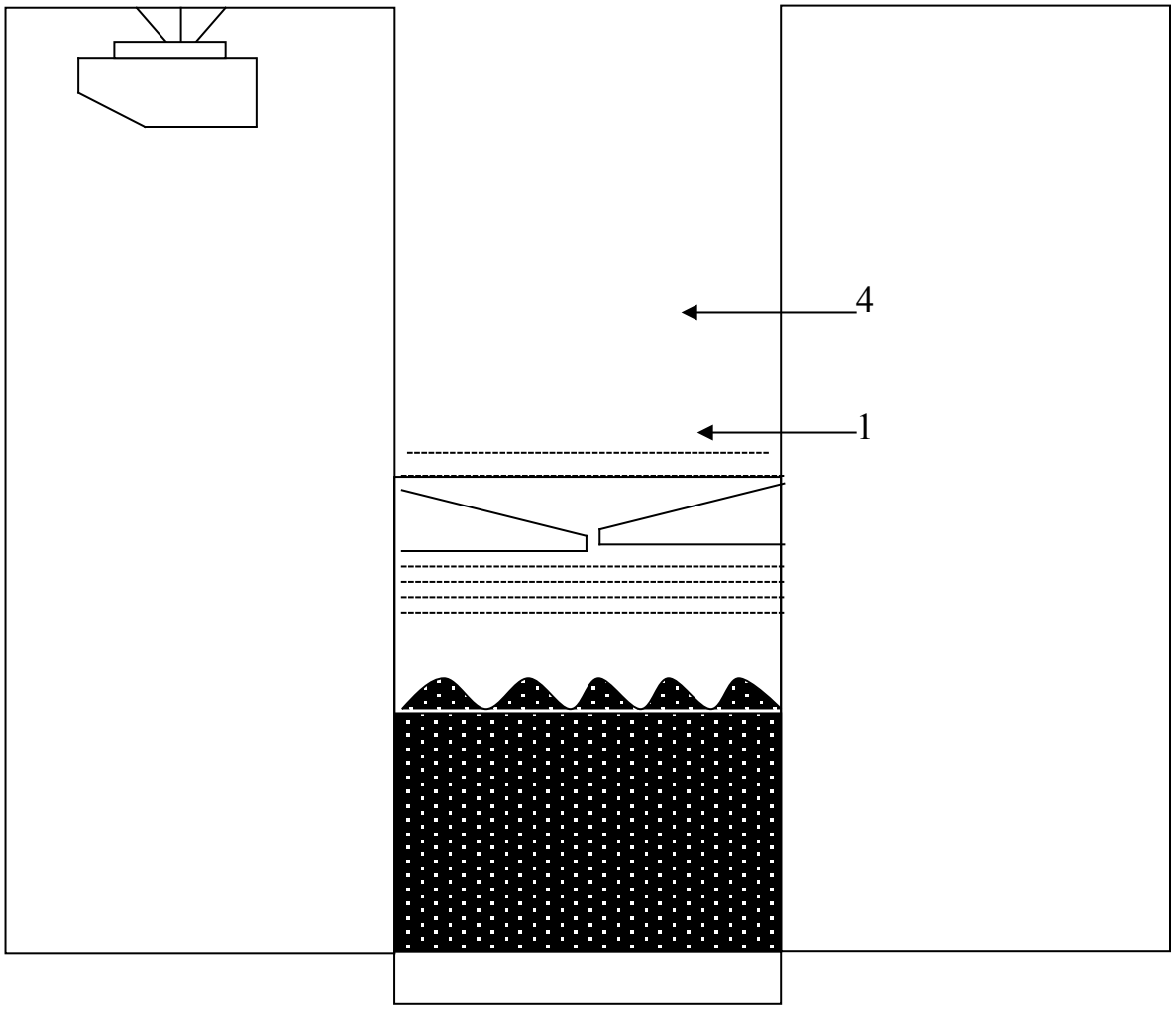
13. Tidy Bale Procedure

1. Last 10% of bale, flattened material on flat.
2. When full bale light comes on:-
3. Remove excess materials by cycling manually by pressing cycle button (several cycles).
4. For neat top add large flattened material and manually cycle by activating cycle button.

5. NOTE: Baler will not cycle automatically when full bale light and indicator are activated

2



Trainer Signature of compliance

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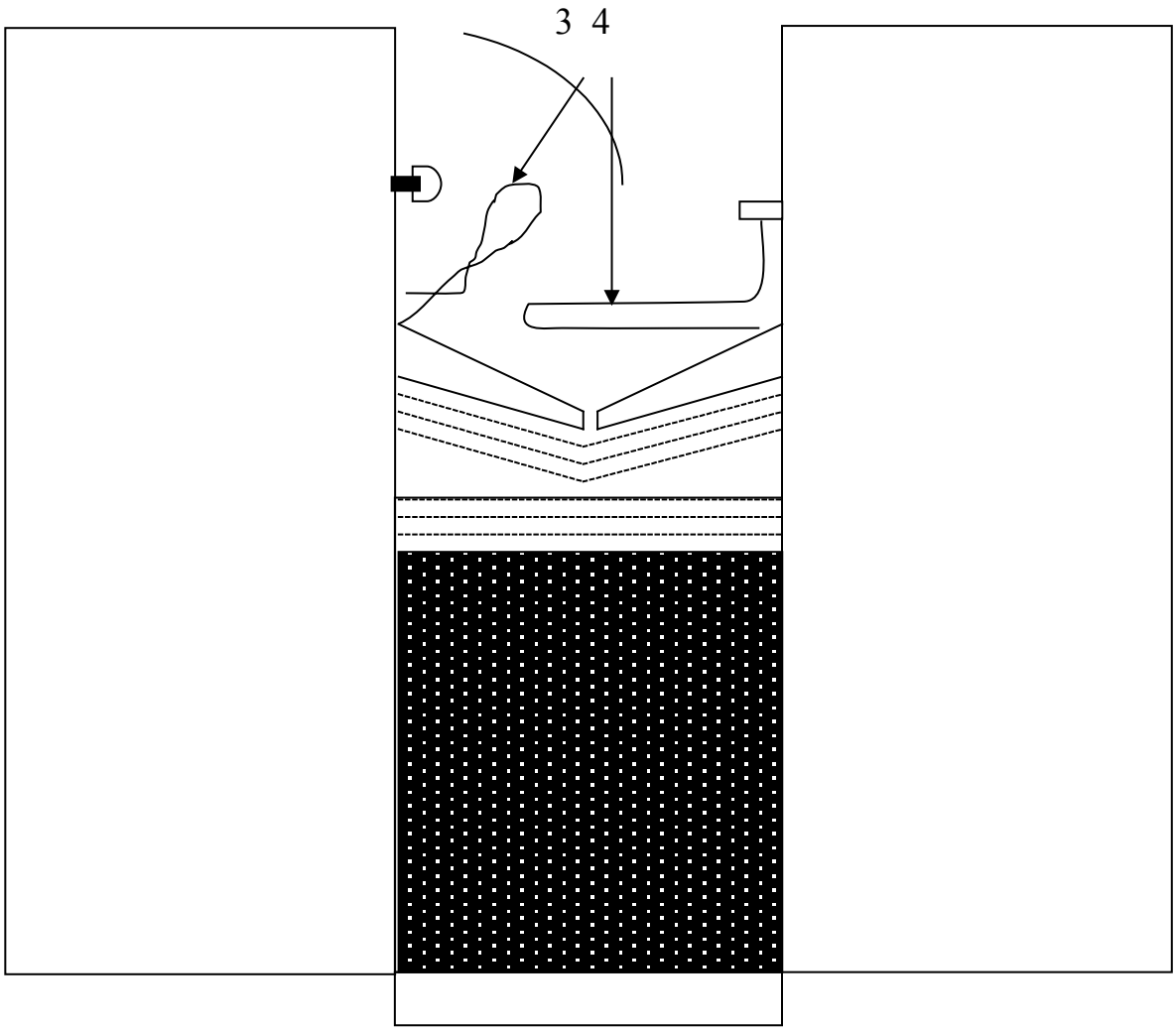
14. Tying Off

1. Open the top door
2. Remove any loose materials from above the fingers.
3. Unhook the twines on left side by pulling on the twines then lifting of the hook or if very tight cut top loop.
4. Pull twine across and insert twine end through looped end of twine and tie off.



Trainer Signature of compliance

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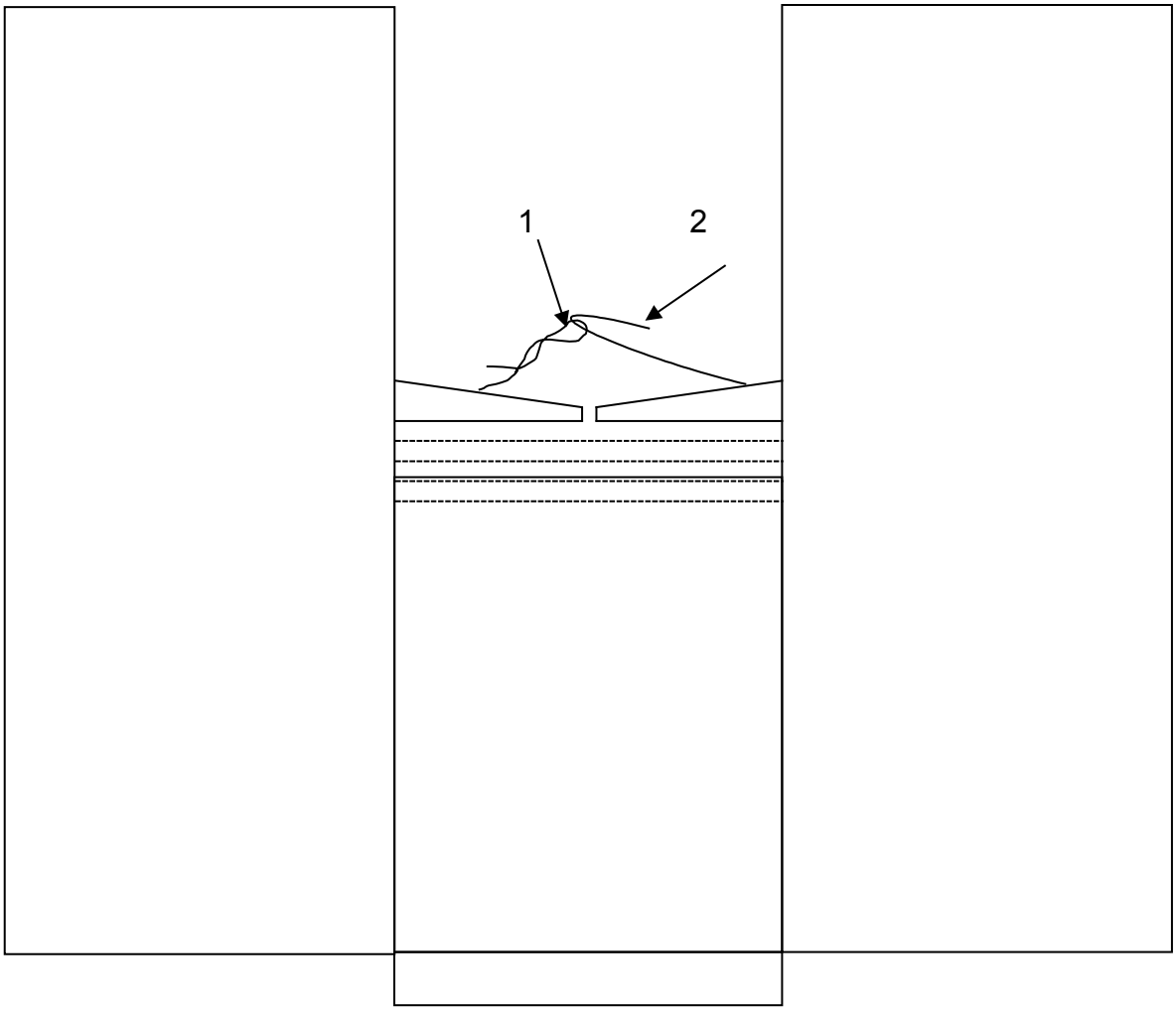
15. Maintaining Twine Tension

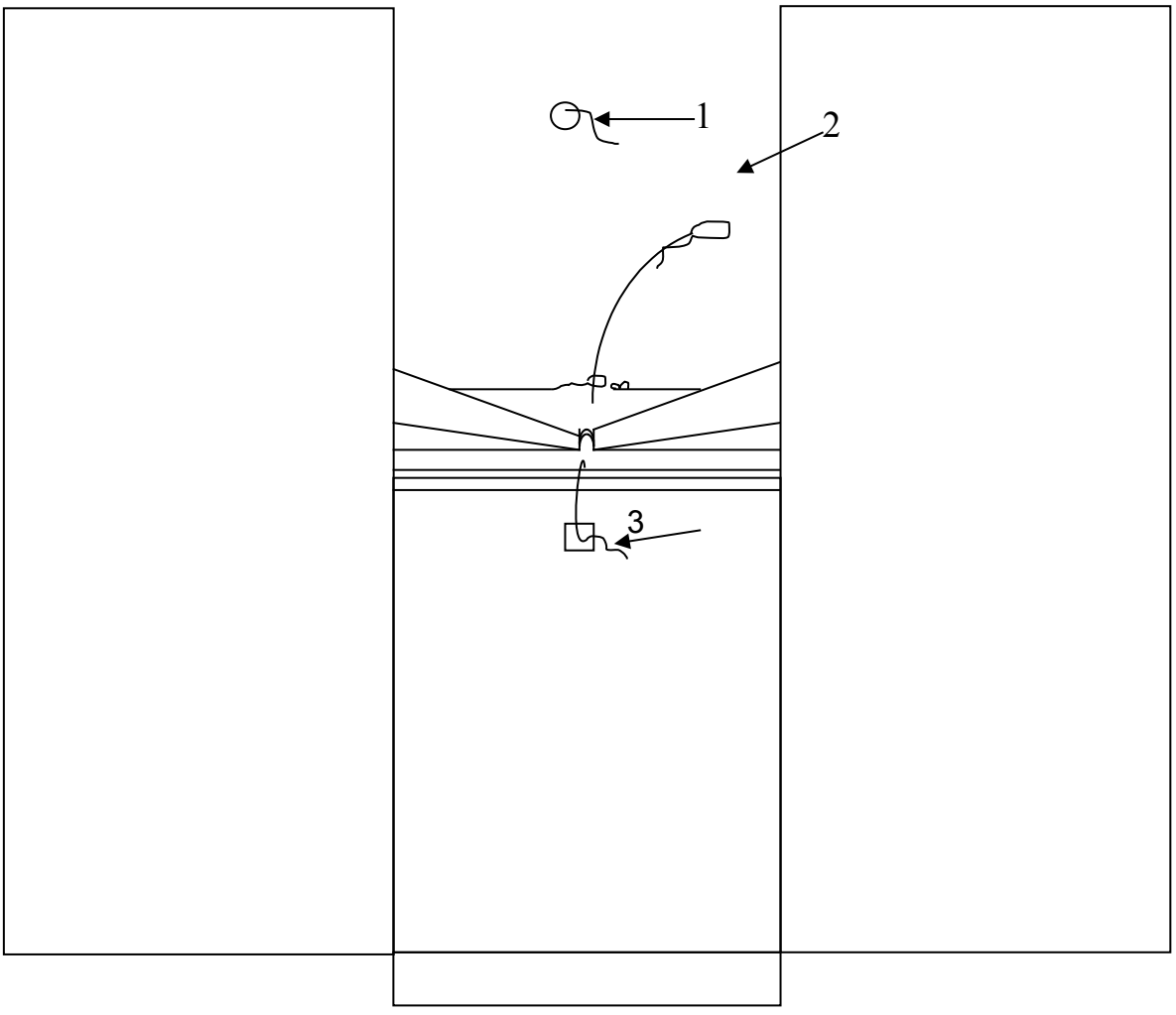
1. Loop through
2. Pull tight
3. With left hand hold tension by gripping the twine on the loop
4. Tie off twine.
5. Repeat on both twines.



Trainer Signature of compliance

16. Transverse Twine Tie Off

1. Pull transverse twine through the hole 100mm and cut.
2. Lower cross twine end, tie a loop as in side twines, see illustration.
3. Undo twine off front tab.
4. Pass loose end through loop and pull tight and tie off.
5. NOTE Pressing fingers must be down and on the top of the bale when tiring off the bale.



Trainer Signature of compliance

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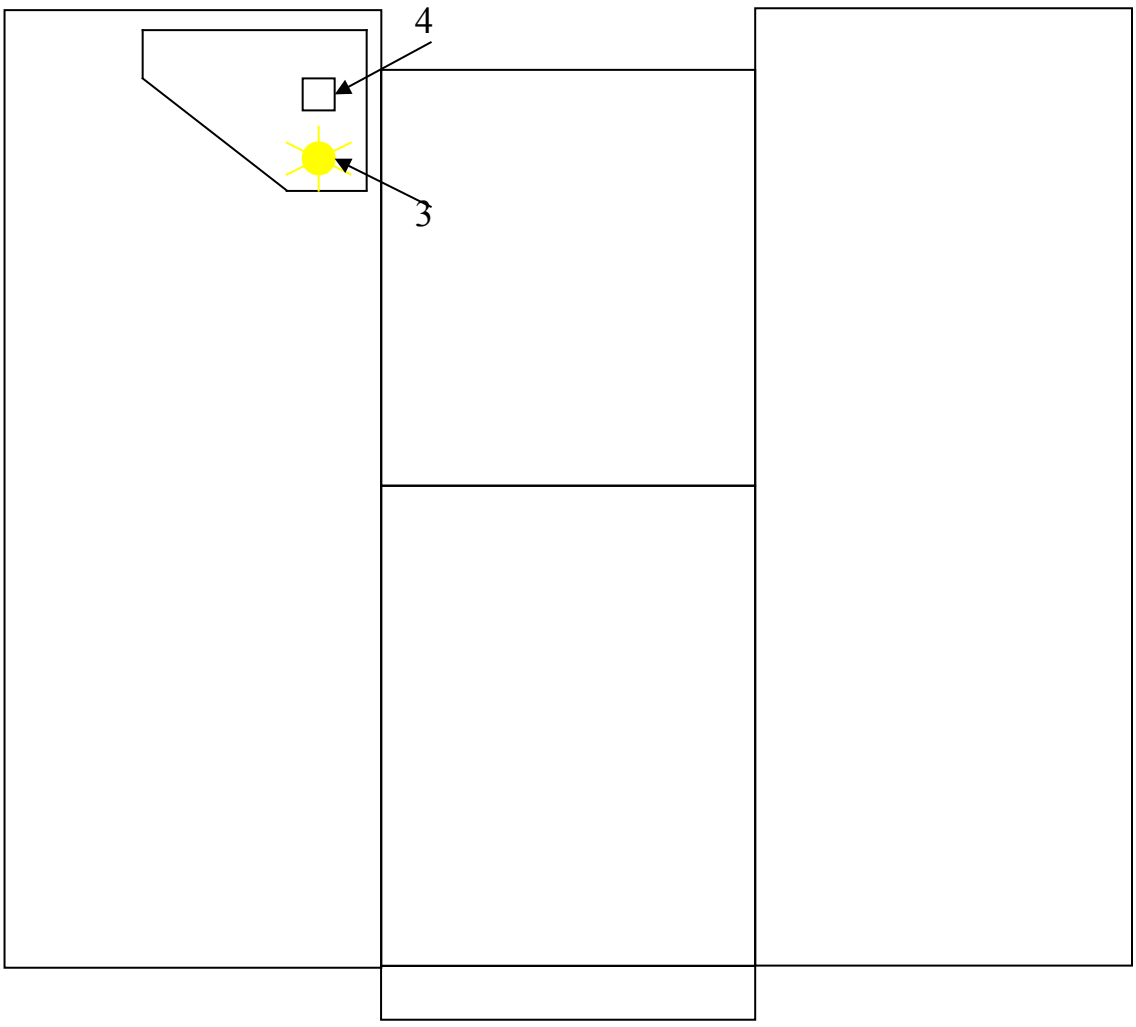
17. Retracting Fingers

1. Close top door.
2. Press in key lock bar.
3. Turn on power-release the emergency knob.
4. Press button marked retract.

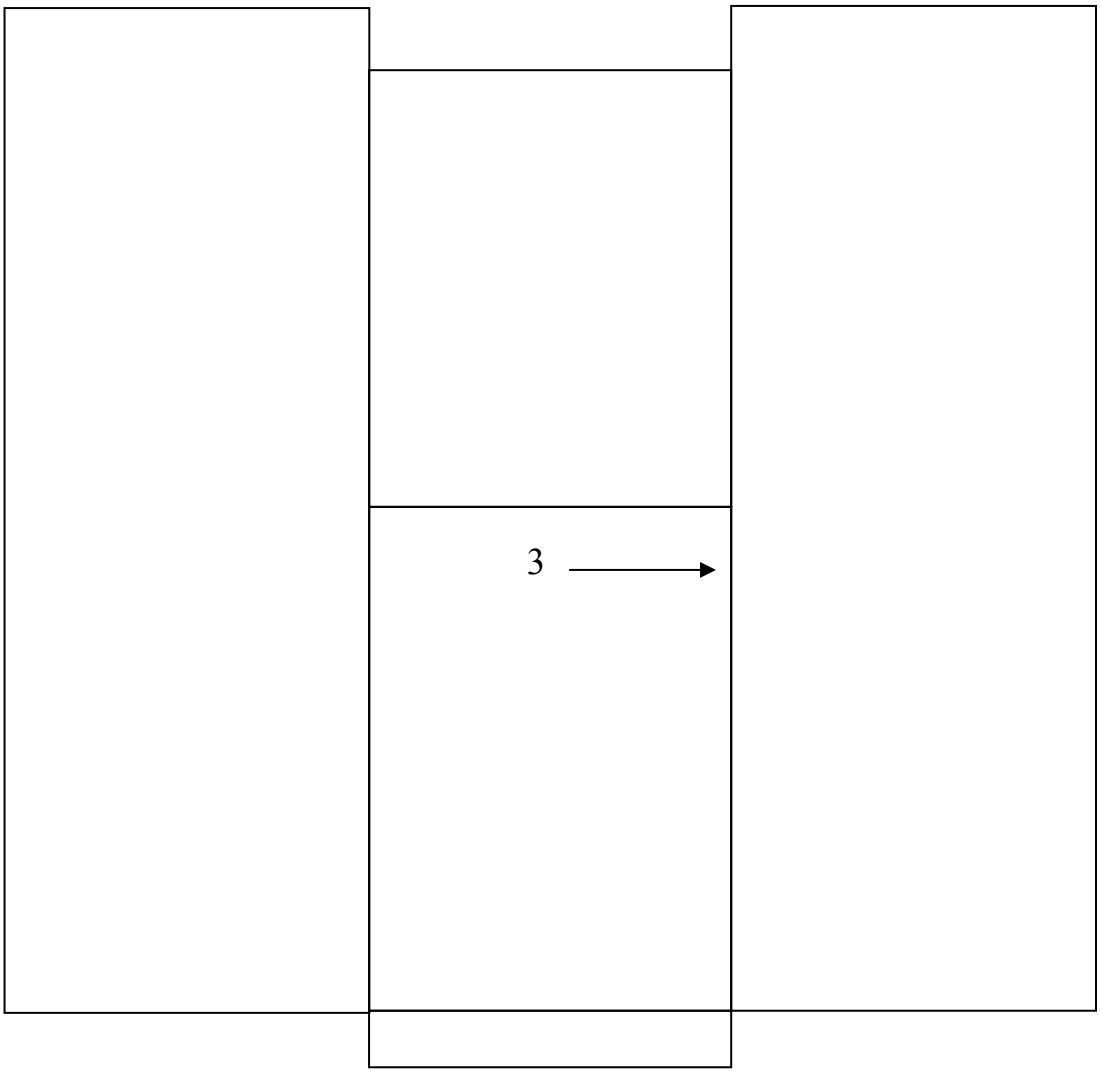


Trainer Signature of compliance

18. Opening Doors

1. Open top door.
2. Attach rebound chain to bottom door on the last link.
3. Open bottom door latch, unlock rebound chain.
4. Fully open door.

Note: Never attempt to open the bottom door with the pressing fingers down. (They must be retracted in fully up position).

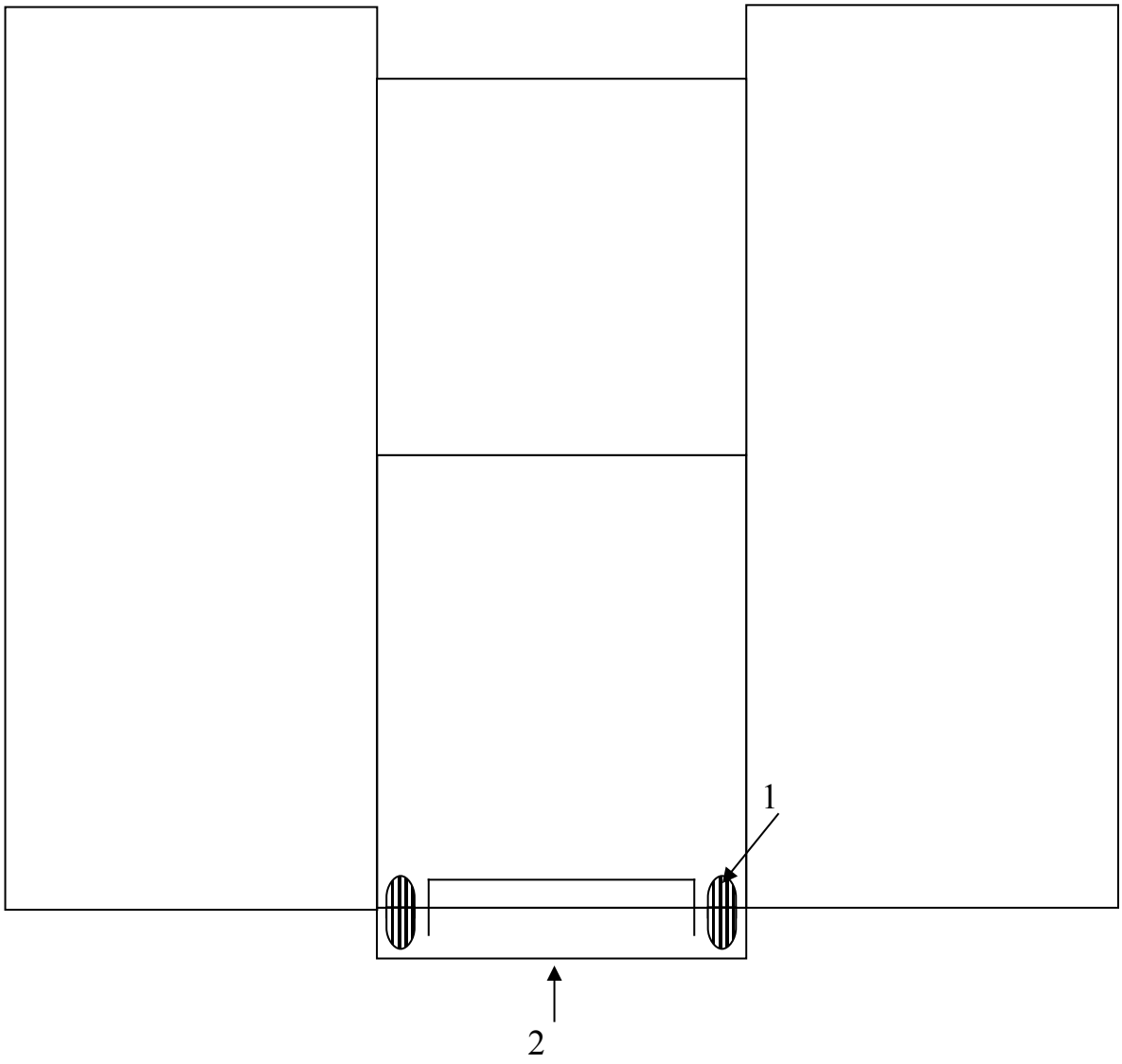


Trainer Signature of compliance

19. Situating Bale Trolley

-WITH DOORS FULLY OPEN-_

1. Situate bale trolley:-
2. Central to the baler.
3. Out 75mm from contact.
4. Roll away from baler direction.

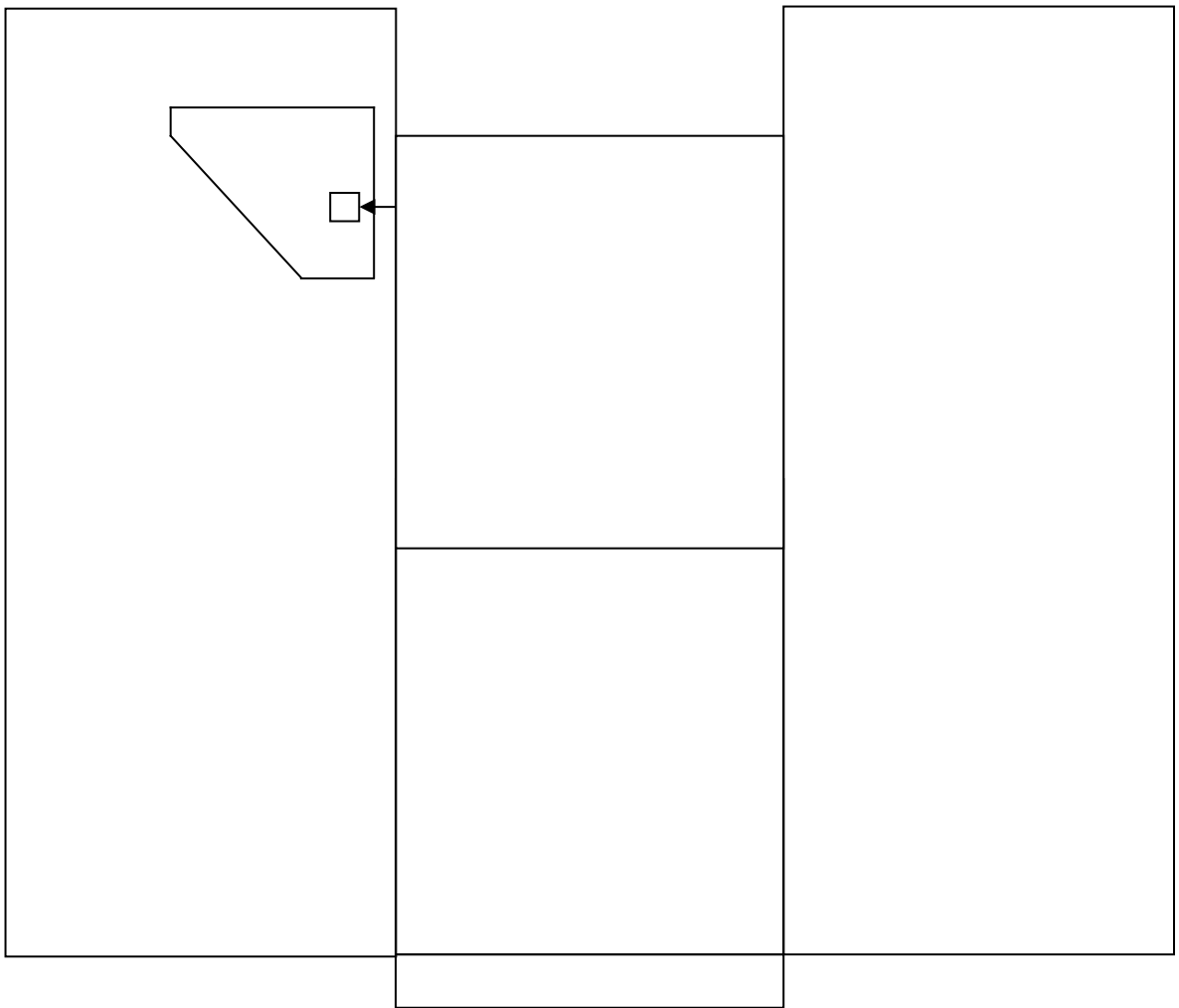


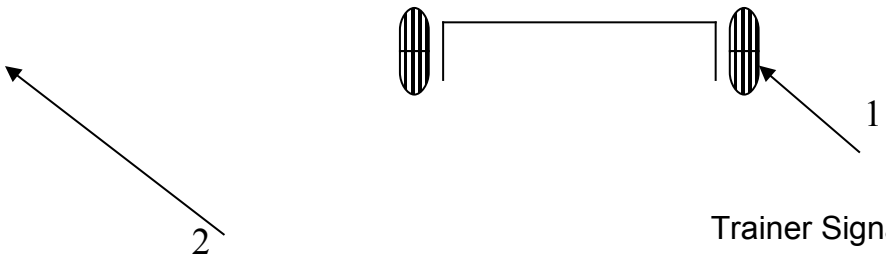
Trainer Signature of compliance

20. Ejecting the Bale

1. All doors fully open and bale trolley situated.
2. Stand to the left of the bale area.
3. With right hand, grip the left cross twine.
4. Pull firmly, at the same time pressing and holding the eject button until the bale is firmly on the trolley.
5. Roll bale away on the trolley.
6. Push bale sideways off trolley to unload.
7. Start again at step four – Initial Set.

Note: Push eject arms back in using foot





Trainer Signature of compliance

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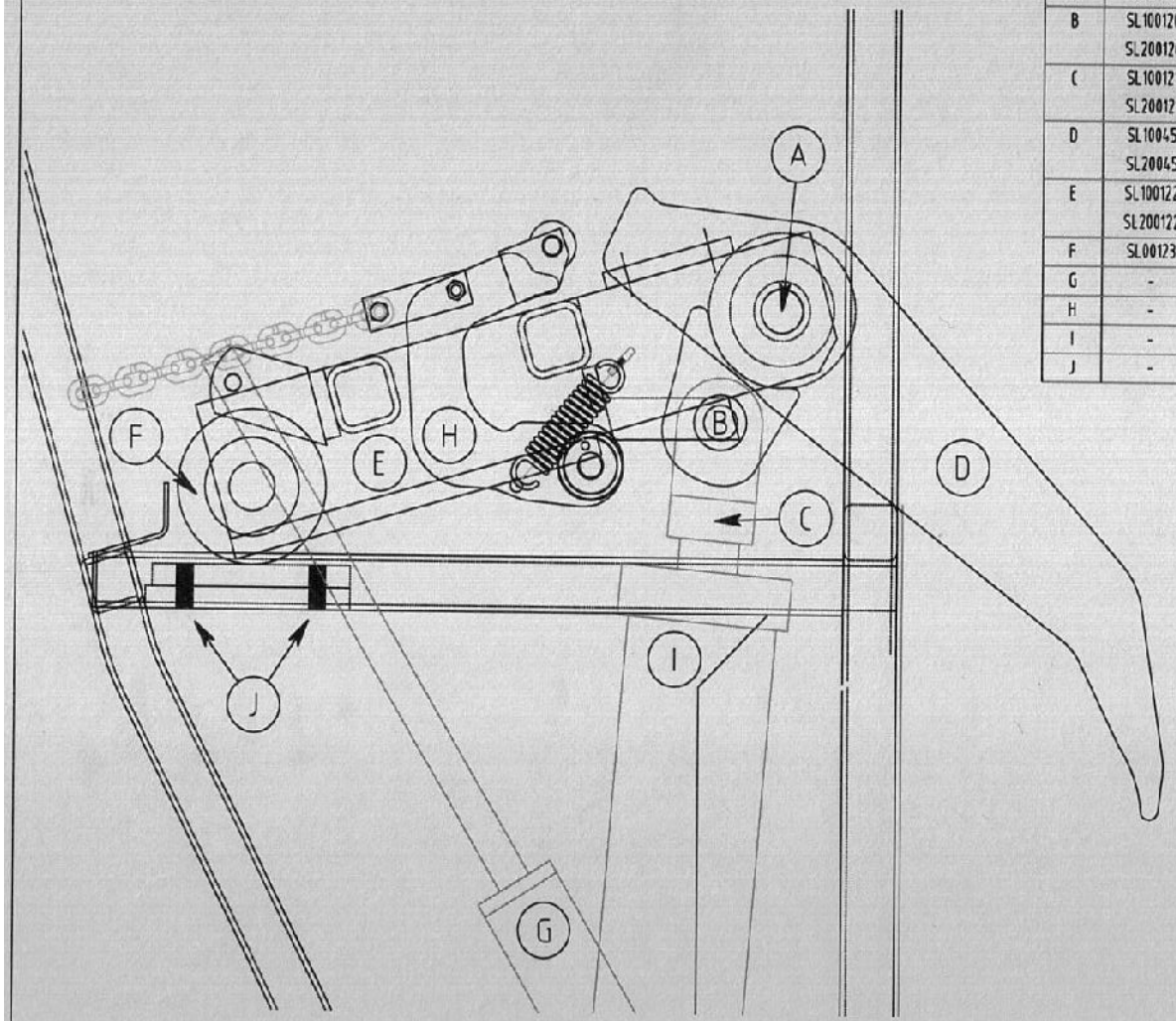
Chapter 25 - Parts Listing

Component			
Power Pack Unit			
Electric Motor			
Bell Housing			
Pump			
Pump Coupling			
Coupling Spider			
Coupling Motor Key			
Coupling Pump Key			
Coupling Grub Screws			
Main Valve Block			
Main Solenoid Unit			
Eject Solenoid Unit			
Solenoid Coils			
Solenoid Coil Caps			
Bypass Valve Unit			
Test Port Unit			
Pressure Switch Unit			
Dip Stick			
Filter Unit			
Filter Cartridge			
Filter Fitting In			
Filter Fitting Out			
SM023			
Power Pack Acorn Nuts			
Motor Fastening Studs			
Hydraulic Hose Bottom Left			
Hydraulic Hose Bottom Right			
Hydraulic Hose Top Left			
Hydraulic Hose Top Right			
Eject Hose Delivery			
Eject Hose Return			
Regen Unit			
Isolating Switch			
Control To Is Cable			
Main Cable			
4 Pin Plug			
Electrical Fittings			
Electrical Fitting			
Finger Frame			
Finger Frame Bearing			
Finger Frame Bearing Block			
Finger Frame Block Bolts			
Bearing Axle			
Axle Retainer Bolt			
Finger Unit Left Hand			
Finger Unit Right Hand			
Finger Unit Axle			

Finger Axle Retainer Bolt			
Finger Lock Right Hand Side			
Finger Lock Left Hand Side			
Finger Lock Shackles			
Finger Lock Shackle Bolts			
Finger Lock Chain			
1. Finger Lock Chain Bolt			
2. Finger Lock Chain Bolt			
Finger Lock Bearing			
Finger Lock Roller			
Finger Lock Roller Axle			
Finger Lock Spring			
Finger Lock Spring Anchor Bolt			
Finger Lock Main Axle			
Finger Lock Axle Grub Screw			
Finger Lock Split Pin			
Finger Lock Washer			
Eject Frame			
Eject Bearing Block			
Eject Bearing Bolts			
Eject Finger			
Eject Hydraulic Cylinder			
Eject Hydraulic Fitting (Cylinder)			
Eject Guard			
Eject Guard Flap			
Eject Anchor Pin			
Twine Lock Bar			
Twine Lock Connector			
Twine Lock Bolt			
Twine Lock Spring Connector			
Twine Lock Bar Split Pin			
Emergency Stop Bar			
Emergency Bar Bolt Kit			
Emergency Bar Spring			
Coded Key Bar Insert			
Coded Key Anchor Tab			
Coded Key Bolt Kit			
Coded Key			
Coded Key Switch			
Upper Door Handle			
Upper Door Handle Grip			
Upper Door Handle Bolt Kit			
Main Upper Door Unit			
Upper Door Studs			
Upper Door Hinge Pins			
Lower Door Unit			
Vertical Latch Unit			
Lower Door Hinge Pins			
Lower Door Link Unit			
Link Unit Bolts			

Main Frame Hinge Pins			
Main Frame Hinge Bushes			
Front Upper Left Hand Cowl			
Front Upper Right Hand Cowl			
Rear Upper Left Hand Cowl			
Rear Upper Right Hand Cowl			
Lower Right Hand Front Cowl			
Lower Left Hand Front Cowl			
Lower Left Hand Rear Cowl			
Lower Right Hand Rear Cowl			
Side Upper Mesh			
Lower Right Hand Side Mesh Unit			
Lower Left Hand Side Mesh Unit			
Lower Mesh Hinge Units			
Side Mesh Upper Cover Strips			
Side Mesh Lower Cover Strips			
Canopy Unit			
Canopy Legs			
Upper Mesh Unit			
Plastic Twine Tabs			
Main Seal			
Hydraulic Cylinders			

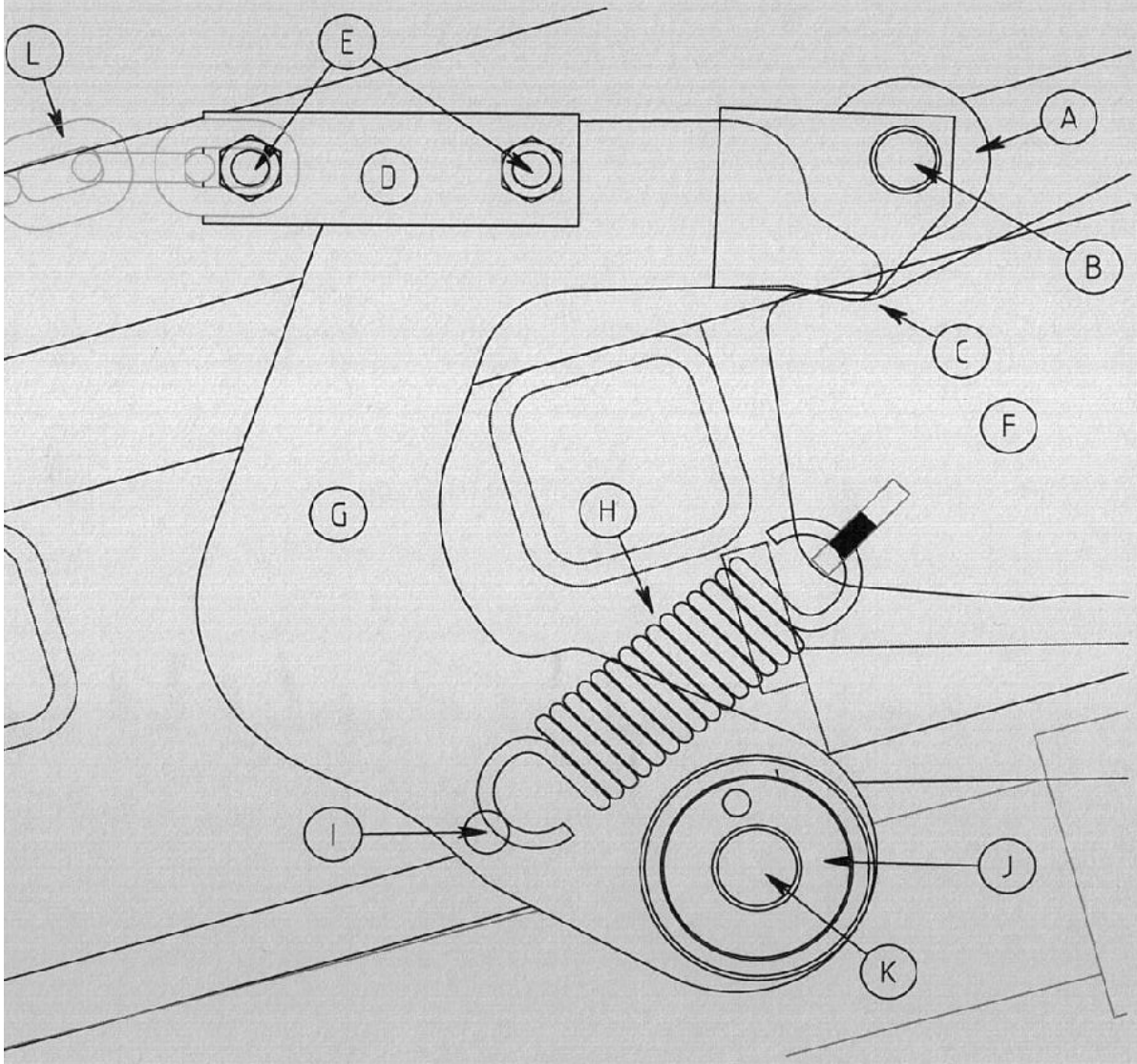
COMPONENT IDENTIFICATION CHART 001



ITEM	PART No.	DESCRIPTION	QTY.
A	SL0047	MAIN CENTRE AXLE	1
B	SL100120 SL200120	CYLINDER PINS	2
C	SL100121 SL200121	CLEVIS (UPPER)	1
D	SL10045 SL20045	FINGER CLUSTER	1
E	SL100122 SL200122	MAIN FINGER FRAME ASSEMBLY	1
F	SL00123	BEARING ASSEMBLY	2
G	-	DAMPER UNIT	1
H	-	FINGERLOCK UNIT	1
I	-	HYDRAULIC CYLINDER	1
J	-	ANCHOR BOLTS	4

SL100 / SL200 COMPACTION MECHANISM

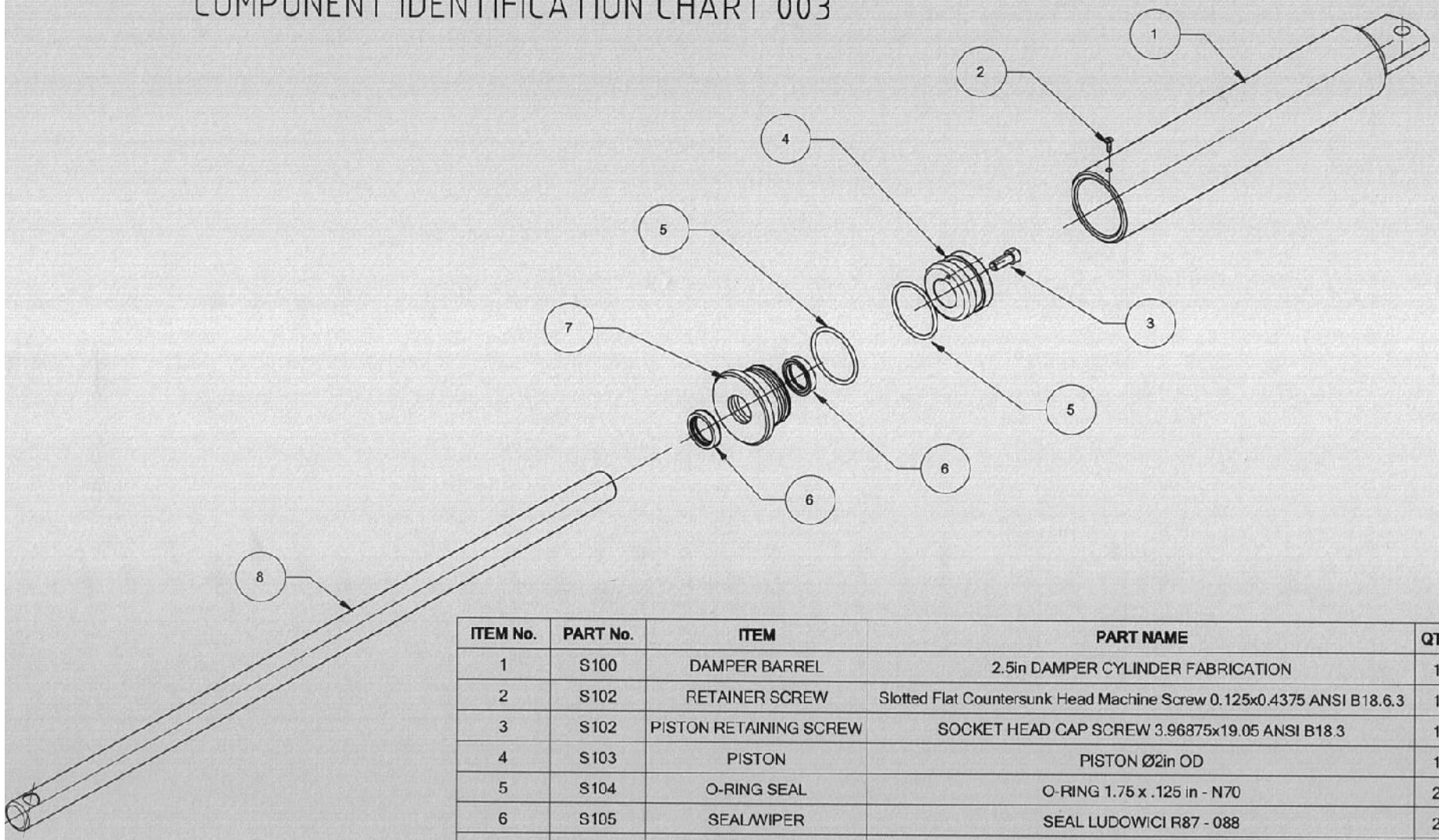
COMPONENT IDENTIFICATION CHART - 002



ITEM	PART No.	DESCRIPTION	QTY.
A	SL10057 SL20057	FINGERLOCK ROLLER -	-
B	SL10058 SL20058	ROLLER PIVOT BOLT	-
C	-	LOCKING DIVOT	-
D	SL10051 SL20051	CHAIN ATTACHING SHACKLE -	-
E	SL10052 SL20052	SHACKLE BOLTS -	-
F	SL10050 SL20050	FINGER	-
G	SL10049 SL20049	FINGERLOCK BODY	-
H	SL10059 SL20059	FINGERLOCK SPRING	-
I	SL10060 SL20060	FINGERLOCK SPRING ANCHOR BOLT	-
J	SL10056 SL20056	FINGERLOCK BEARING	-
K	SL10061 SL20061	FINGERLOCK AXLE	-
L	SL10053 SL20053	FINGERLOCK CHAIN	-
M	SL10062 SL20062	FINGERLOCK AXLE GRUB SCREW	-
N	SL10063 SL20063	FINGERLOCK AXLE SPLIT PIN	-
O	SL10064 SL20064	FINGERLOCK SPACER WASHER	-

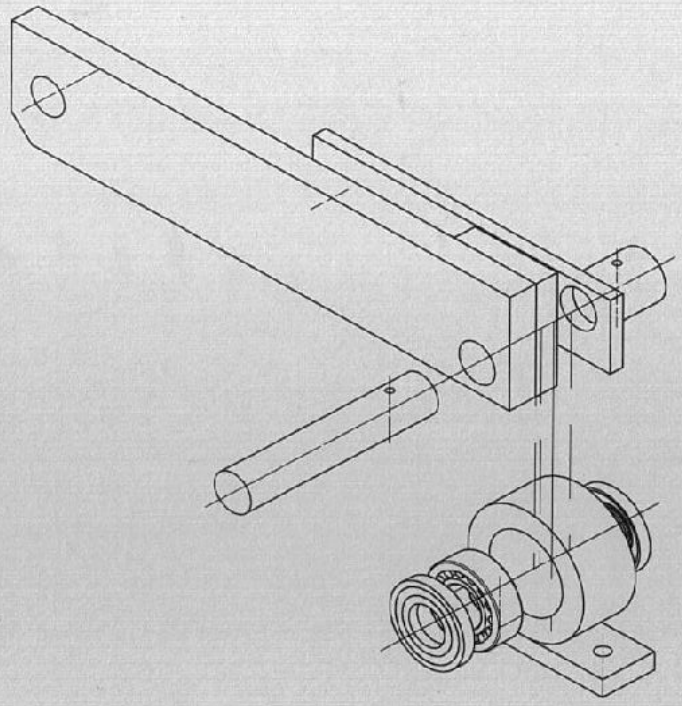
SL100 / SL200 FINGERLOCK MECHANISM

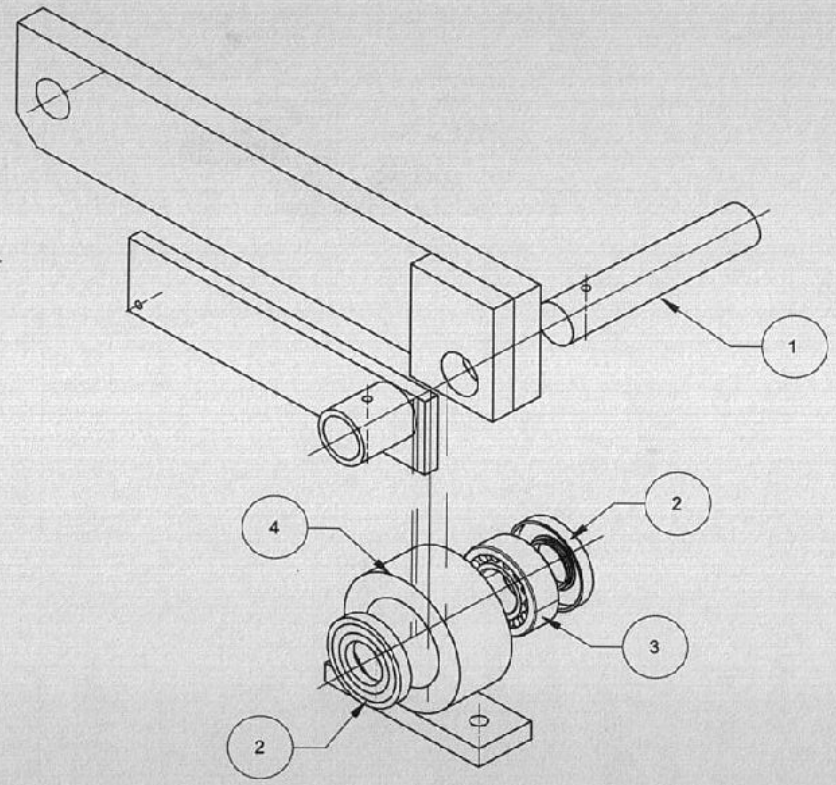
COMPONENT IDENTIFICATION CHART 003



ITEM No.	PART No.	ITEM	PART NAME	QTY
1	S100	DAMPER BARREL	2.5in DAMPER CYLINDER FABRICATION	1
2	S102	RETAINER SCREW	Slotted Flat Countersunk Head Machine Screw 0.125x0.4375 ANSI B18.6.3	1
3	S102	PISTON RETAINING SCREW	SOCKET HEAD CAP SCREW 3.96875x19.05 ANSI B18.3	1
4	S103	PISTON	PISTON Ø2in OD	1
5	S104	O-RING SEAL	O-RING 1.75 x .125 in - N70	2
6	S105	SEAL/WIPER	SEAL LUDOWICI R87 - 088	2
7	S106	DAMPER CAP	DAMPER CAP Ø1in ID Ø2in (minor)OD	1
8	S107	SHAFT	SHAFT Ø1in x 670mm	1

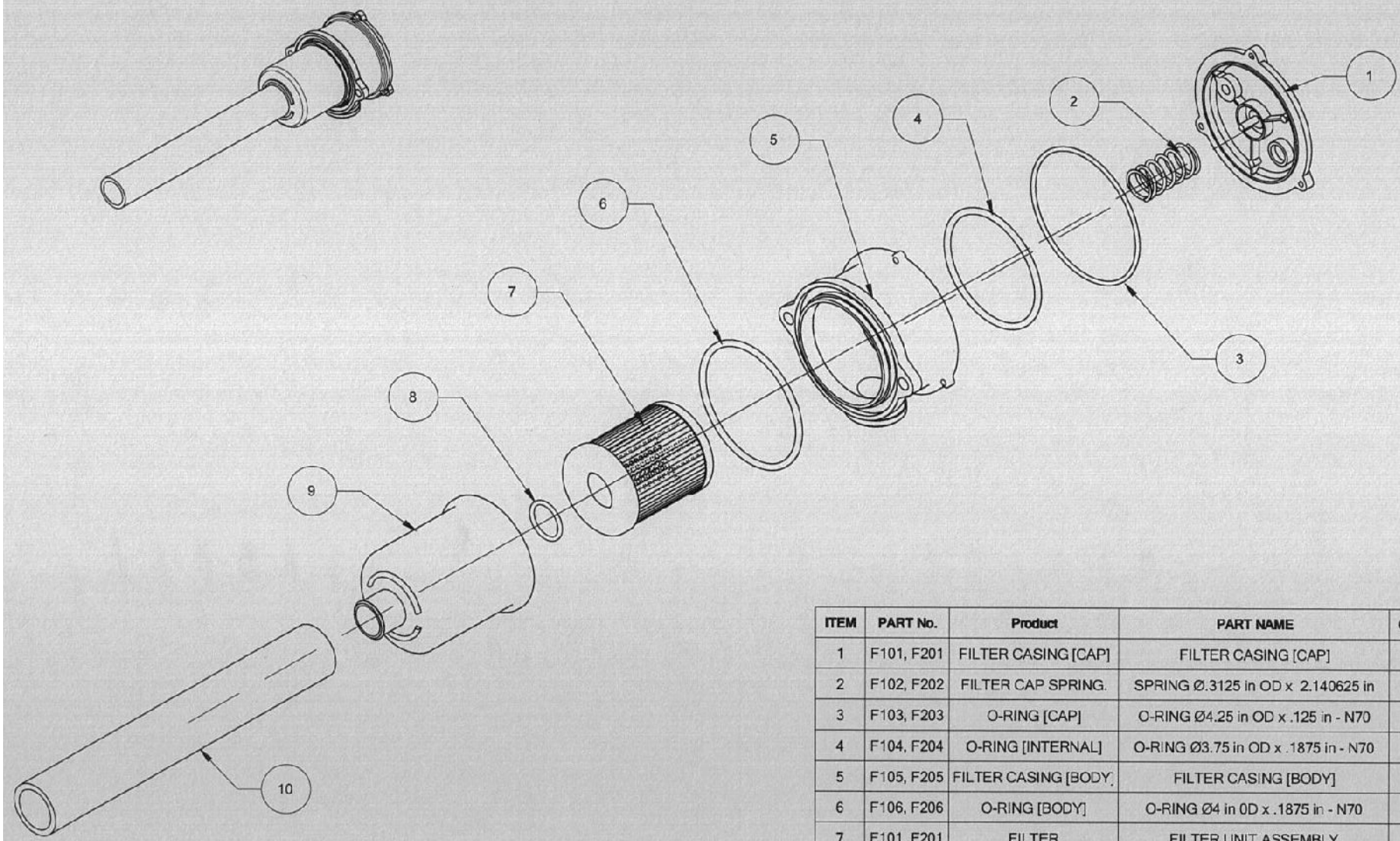
COMPONENT IDENTIFICATION CHART 004





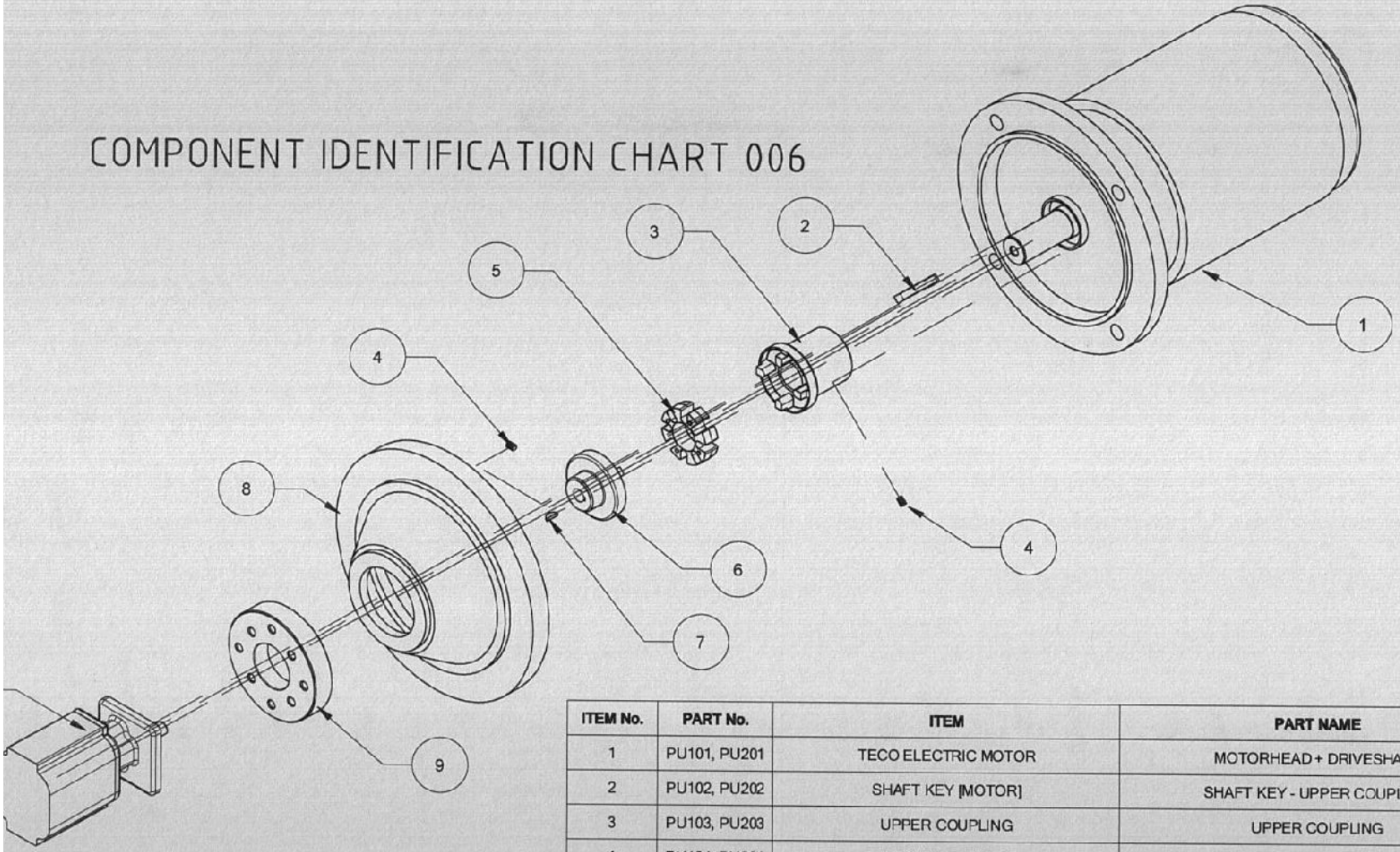
ITEM	PART No.	Product	PART NAME	QTY.
1	B001	PIVOT SHAFT	PIVOT SHAFT	2
2	B002	BEARING SEAL	SEAL NAK TC 35 72 10	4
3	B003	BEARING	RHP 22207EJW33C3 - BEARING	2
4	B004	BEARING HOUSING	BEARING HOUSING ASSEMBLY	2

COMPONENT IDENTIFICATION CHART 005



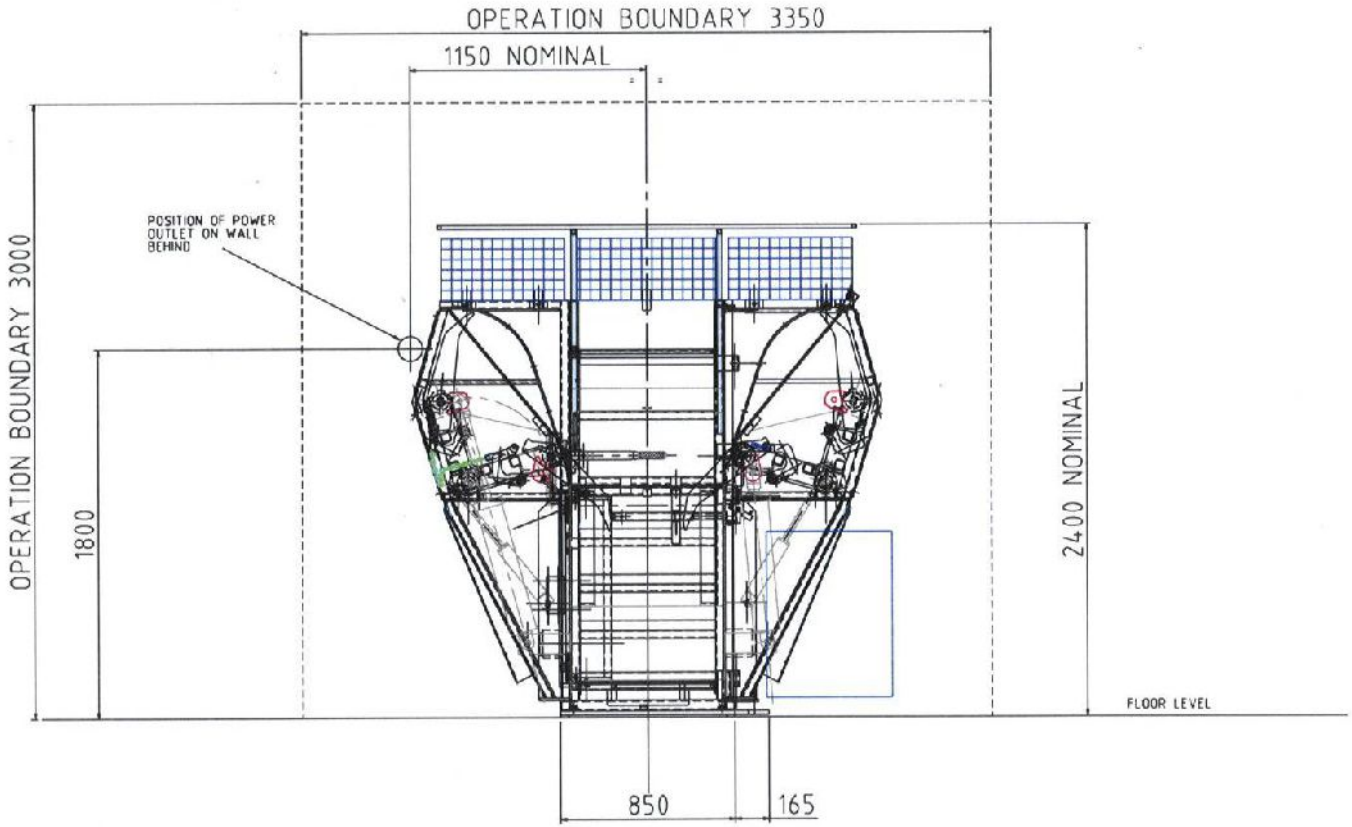
ITEM	PART No.	Product	PART NAME	QTY.
1	F101, F201	FILTER CASING [CAP]	FILTER CASING [CAP]	1
2	F102, F202	FILTER CAP SPRING.	SPRING Ø.3125 in OD x 2.140625 in	1
3	F103, F203	O-RING [CAP]	O-RING Ø4.25 in OD x .125 in - N70	1
4	F104, F204	O-RING [INTERNAL]	O-RING Ø3.75 in OD x .1875 in - N70	1
5	F105, F205	FILTER CASING [BODY]	FILTER CASING [BODY]	1
6	F106, F206	O-RING [BODY]	O-RING Ø4 in 0D x .1875 in - N70	1
7	F101, F201	FILTER	FILTER UNIT ASSEMBLY	1
8	F108, F208	O-RING [CUP]	O-RING Ø1.375 in OD x ..125 in - N70	1
9	F109, F209	FILTER CUP	FILTER CUP [MOULDED PLASTIC]	1
10	F110, F210	OUTLET HOSE	HOSE Ø1.625 in OD x Ø1.25 in ID x 11 ir	1

COMPONENT IDENTIFICATION CHART 006



ITEM No.	PART No.	ITEM	PART NAME	QTY
1	PU101, PU201	TECO ELECTRIC MOTOR	MOTORHEAD + DRIVESHAFT	1
2	PU102, PU202	SHAFT KEY [MOTOR]	SHAFT KEY - UPPER COUPLING	1
3	PU103, PU203	UPPER COUPLING	UPPER COUPLING	1
4	PU104, PU204	LOCKING SCREW	M6 x 1 x 8 - HEX SOCKET SET SCREW FP - [JIS 1177]	2
5	PU105, PU205	SPIDER [FLEX COUPLING ELEMENT]	'SPIDER'	1
6	PU106, PU206	LOWER COUPLING	LOWER COUPLING	1
7	PU108, PU208	SHAFT KEY [WOODRUFF] - LOWER COUPLING	SHAFT KEY - LOWER COUPLING	1
8	PU109, PU209	BELL HOUSING	BELL HOUSING	1
9	PU110, PU210	ADAPTOR PLATE	ADAPTOR PLATE	1
10	PU111, PU211	HALDEX HYDRAULIC PUMP	HALDEX GC6016A 18RB01 - HYDRAULIC PUMP	1

REV'N	DATE	REVISED BY	NOTES
1	-	-	-



FRONT ELEVATION

FACILITY ARRANGEMENT

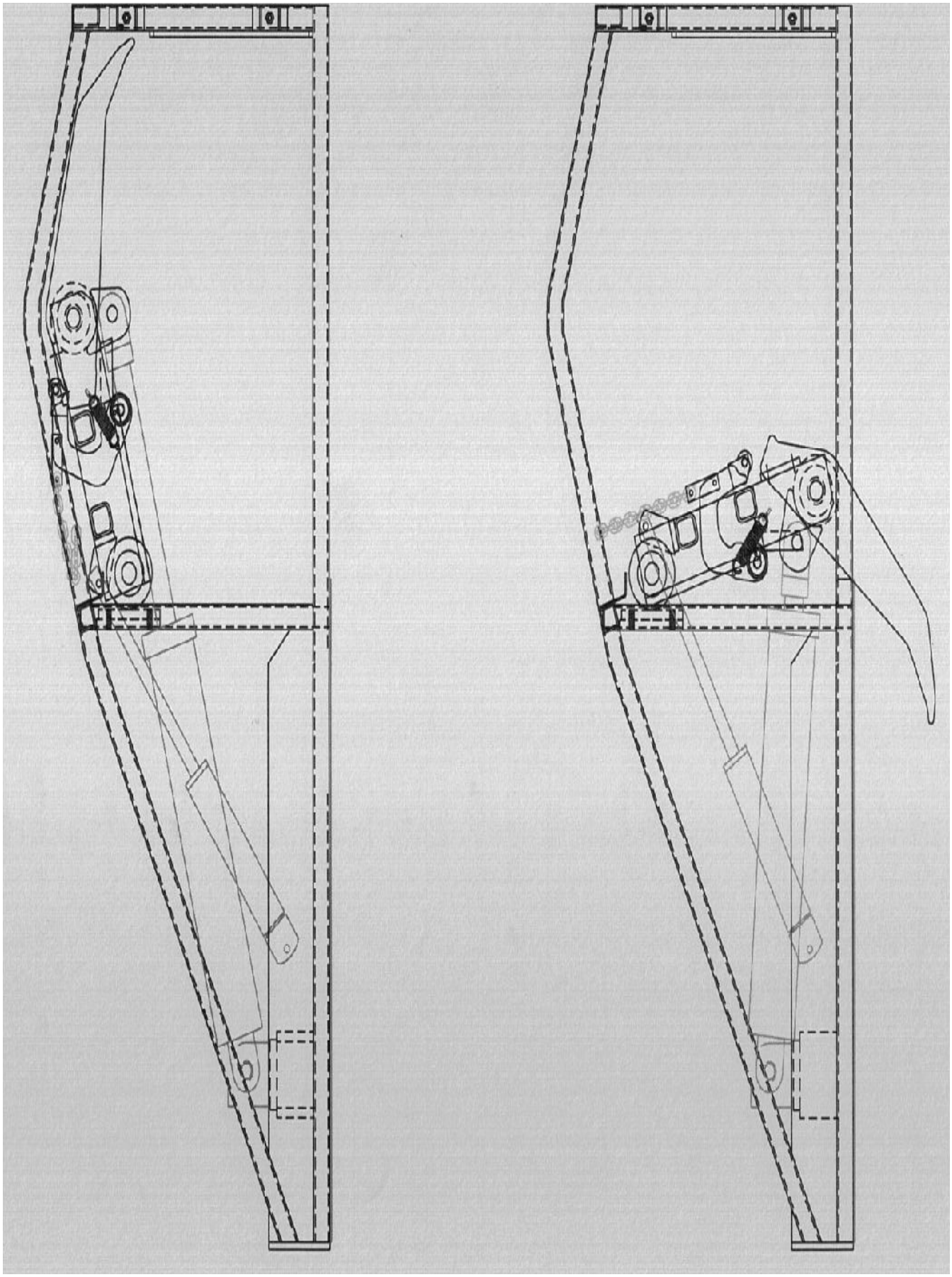
Trethewey Industries PTY LTD

AUTOBALER
TSL 500
FACILITY DRAWING 2/2

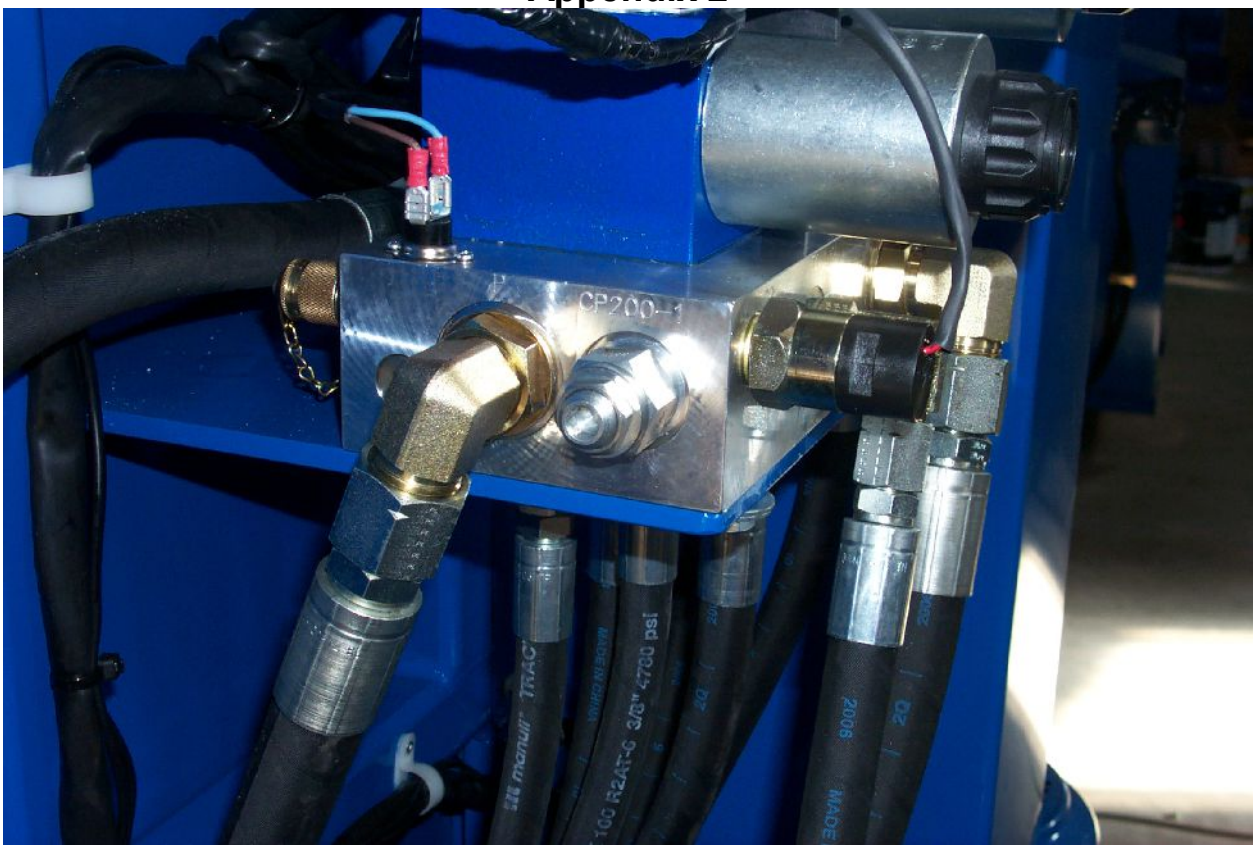
DRAWING NUMBER/FILENAME	REVISION
TSL503-0A	A

REV'N	DATE	REVISED BY	NOTES
A	02/08/16	DHB	PRELIMINARY REVISION
-	-	-	-

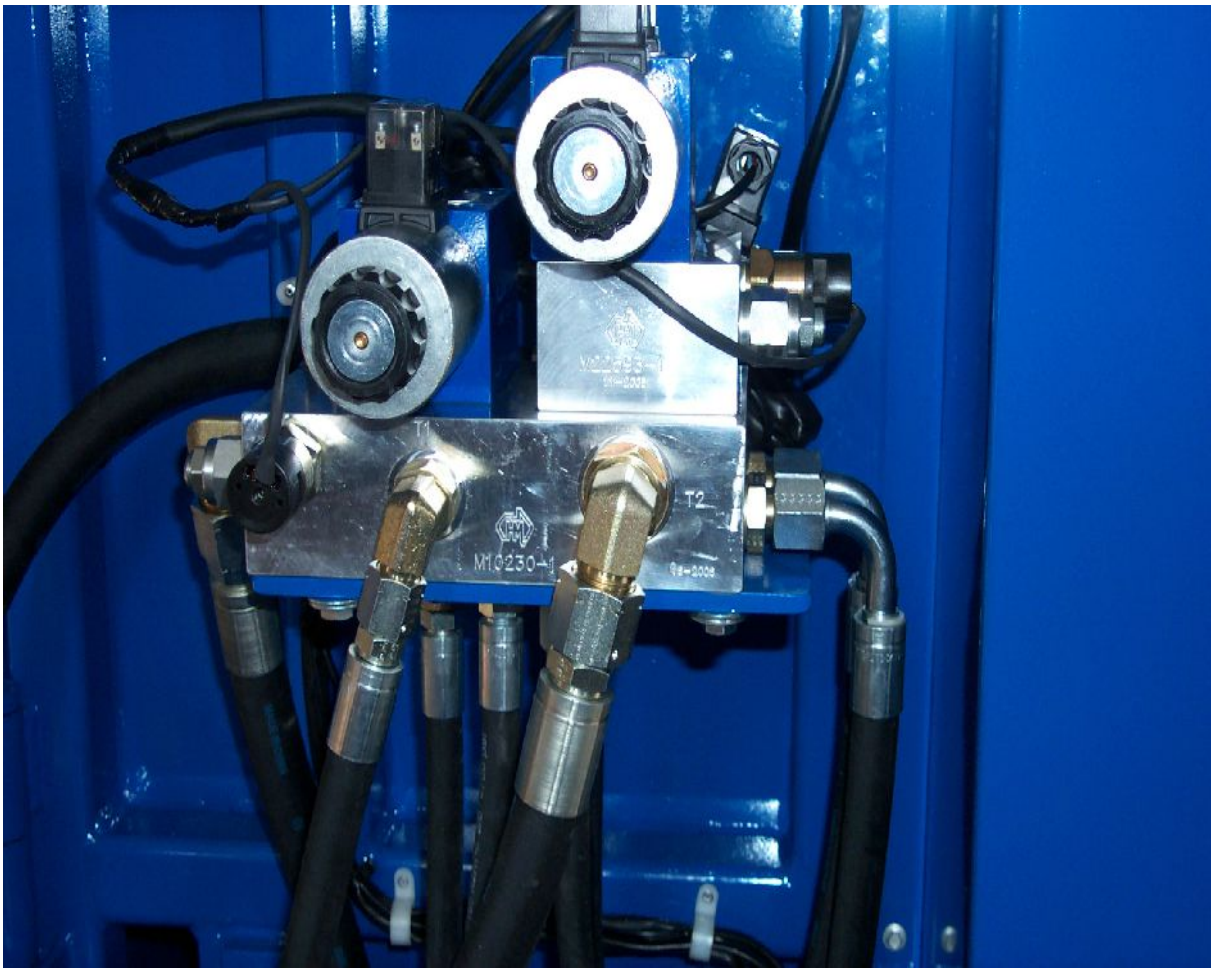
Chapter 27 – Appendices
Appendix 1



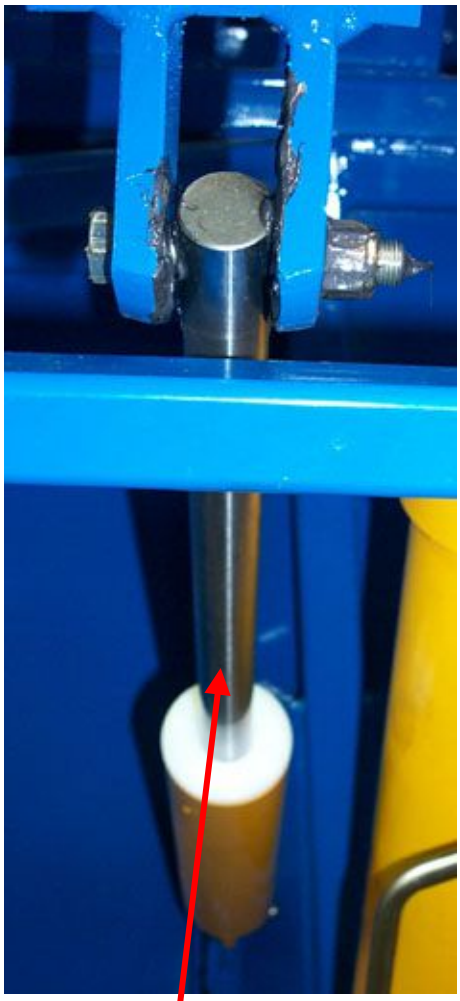
Appendix 2



SL500 Valve Block



Appendix 3



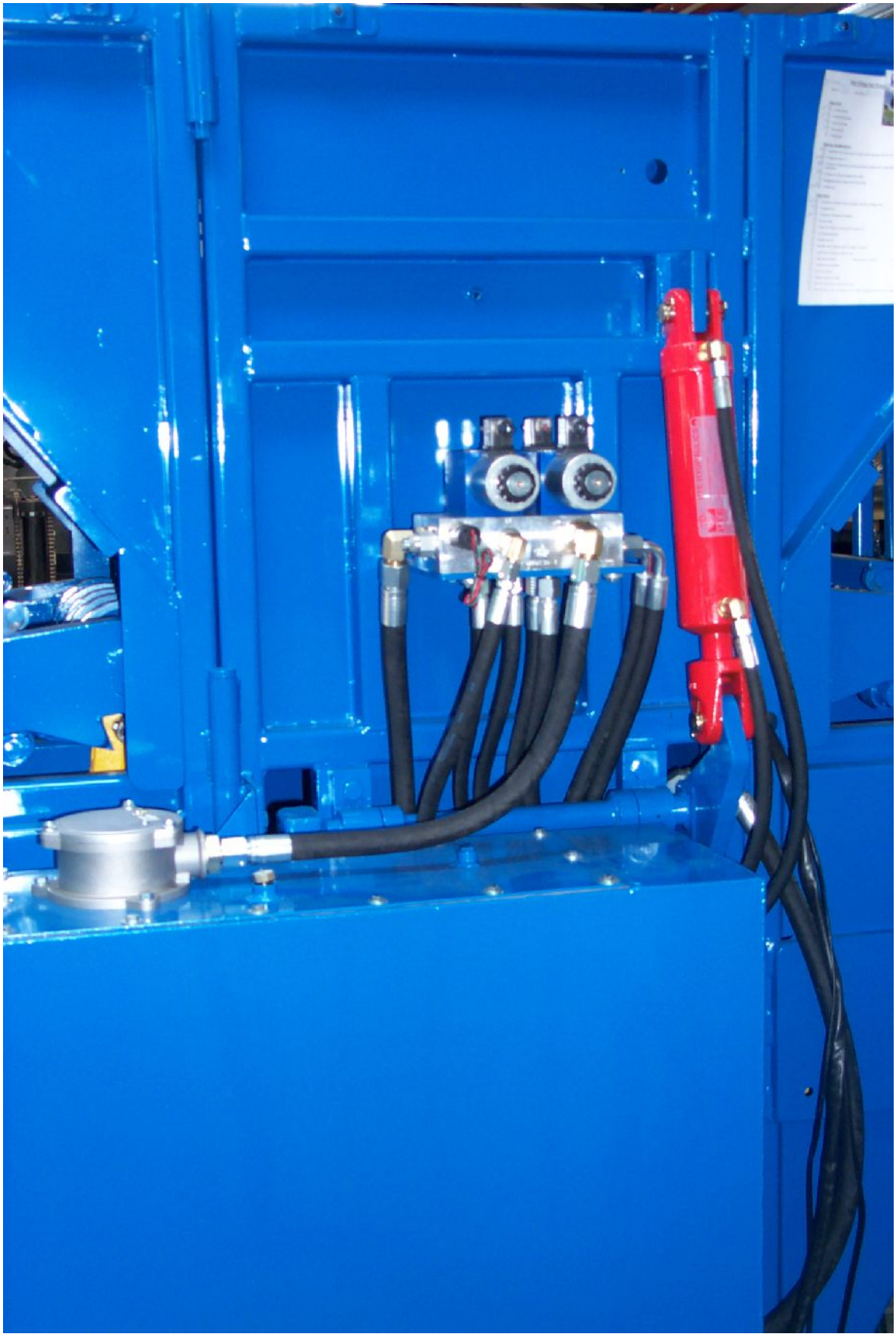
Damper

Appendix 4

Door Link Adjuster

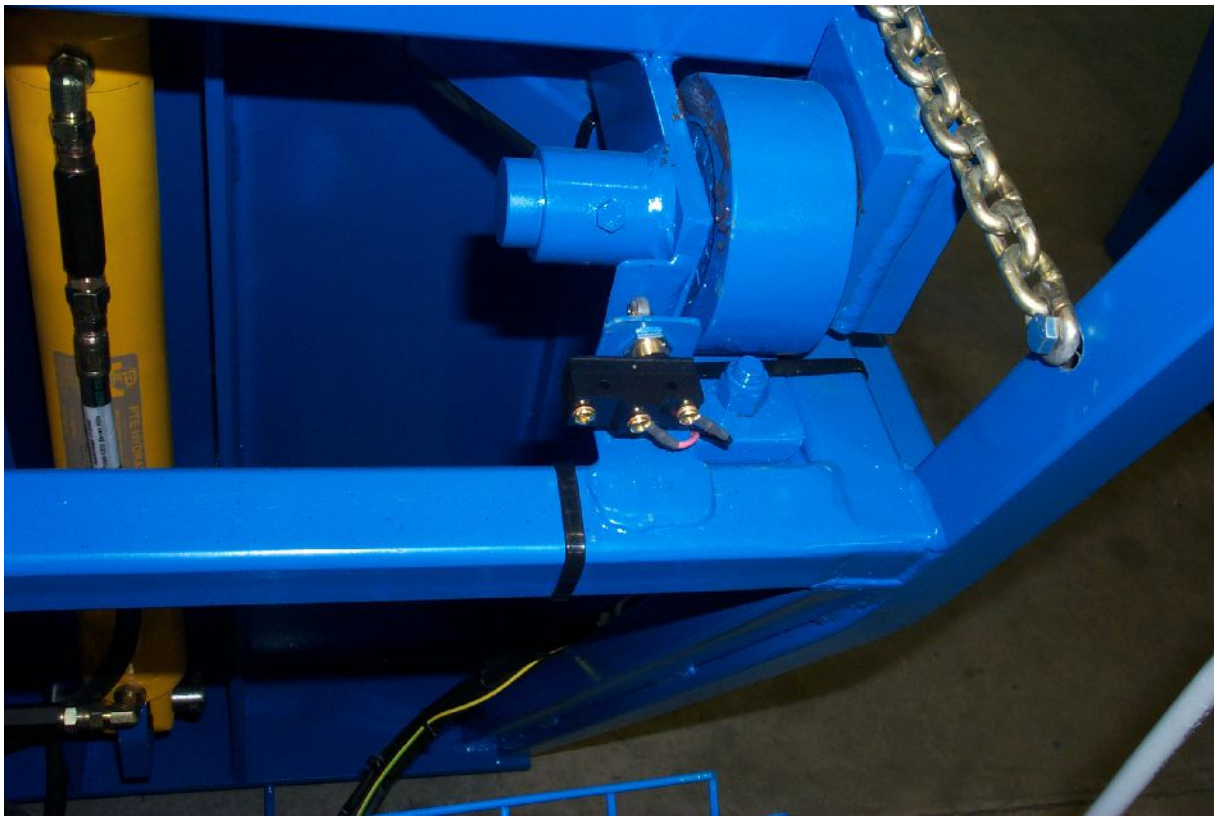
Door Link

Appendix 5

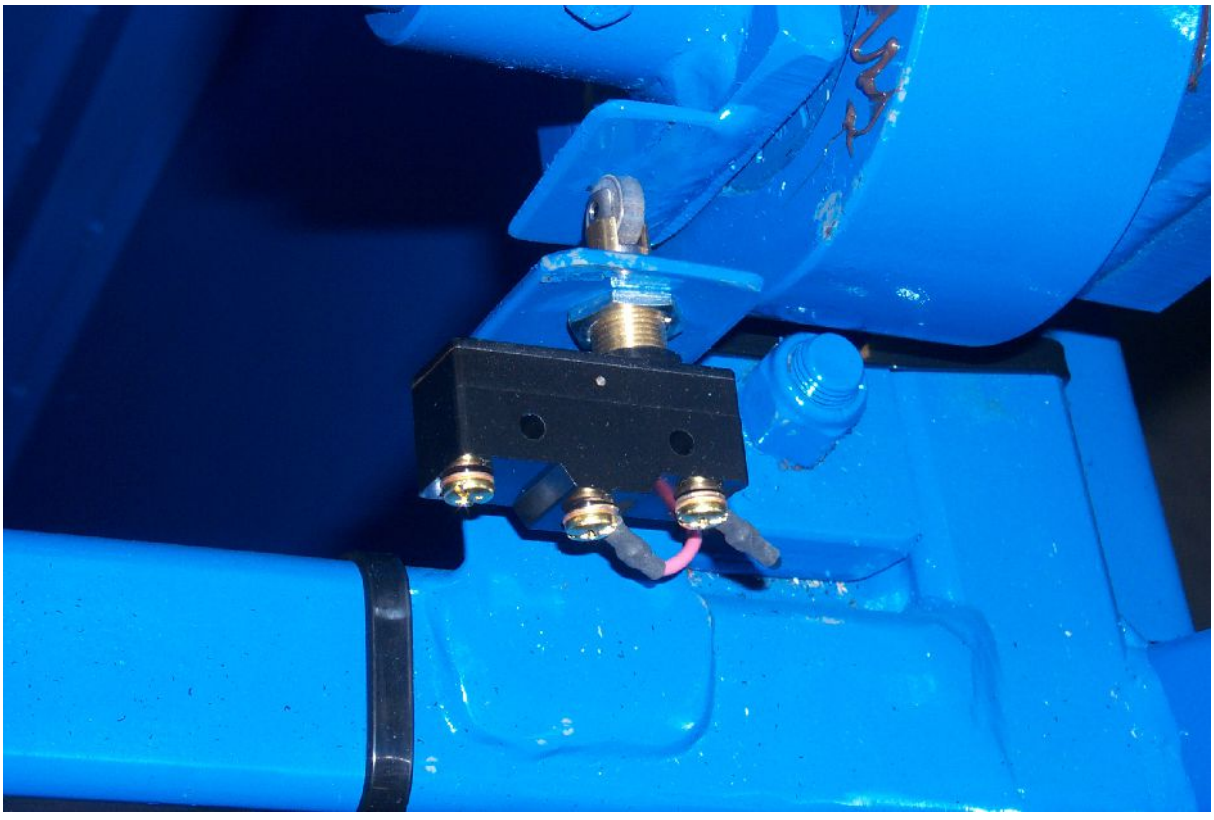


Eject

Appendix 6



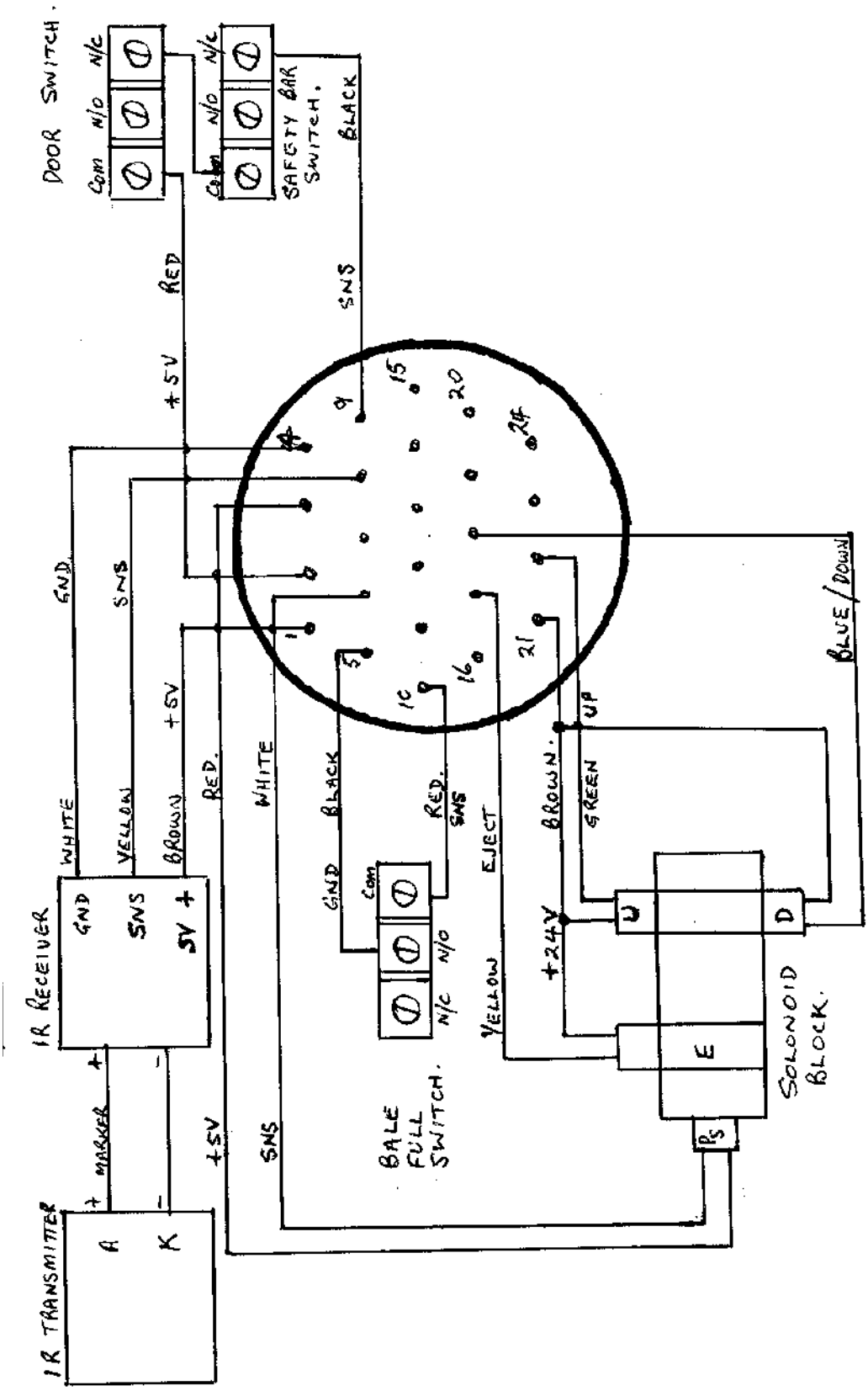
Full Bale Switch



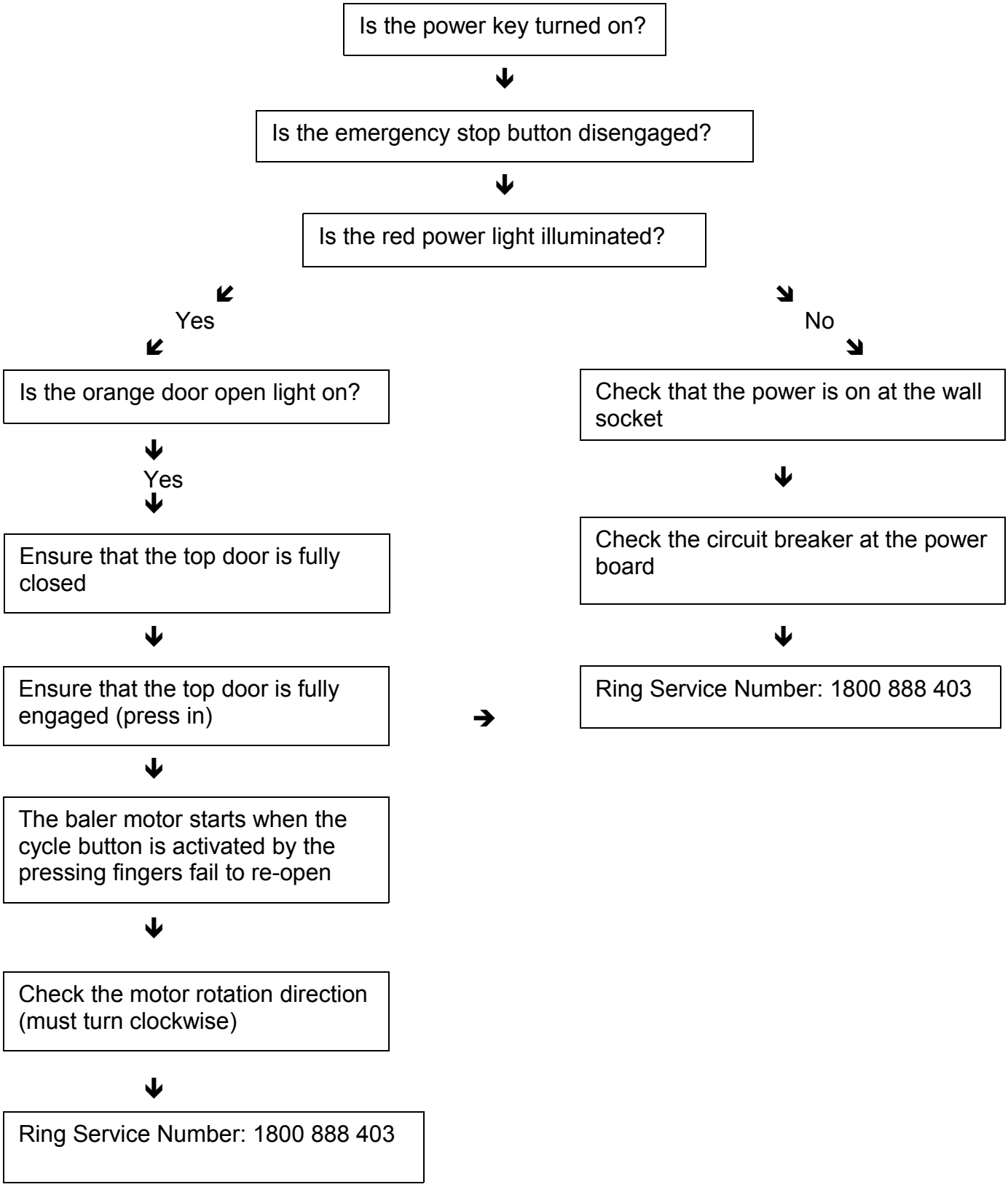
Appendix 7

Door Switch

Appendix 8


DOOR SWITCH.
Com N/O N/C
SAFETY BAR SWITCH.
BLACK
SNS
RED
+5V
GND
SNS
+5V
WHITE
YELLOW
BROWN
RED.
WHITE
IR RECEIVER
GND
SNS
5V +
IR TRANSMITTER
A
K
MARKER
+5V
SNS
BALE FULL SWITCH.
Com
N/O
N/C
GND
BLACK
RED.
SNS
EJECT
YELLOW
+24V
BROWN.
UP
GREEN
BLUE/DOWN
U
D
E
PS
SOLONOID BLOCK.
1
5
10
16
21
4
9
15
20
24

Appendix 9
Baler won't respond when cycle button is activated



Appendix 10
Baler fails to eject the bale

Are all doors fully open?

↓

Is the power light illuminated?

↙ Yes

↘ No

↙

Are you holding the eject button in until the bale is fully ejected?

↓

Check the circuit breaker at the power board

↓

Are you assisting the ejection process with your right hand?

↓

Ring Service Number: 1800 888 403

↘

See above procedure

Appendix 11
Baler is making a poor loose bale

Are you tying off the bale with the pressing fingers right down and hard on top of thebale?

Yes

No

Tie off the bale with the pressing fingers right down are on top of the bale

Are all the twines through the holes in the twine lock bar on the top right door?

Are the twines free of excess slack after the initial twine up?

Are the wines being tied off firmly with a non slip secure knot?

Ring Service Number: 1800 888 403

Appendix 12
Bale is difficult to locate and handle

Are you using the bale transport trolley provided with the baler?

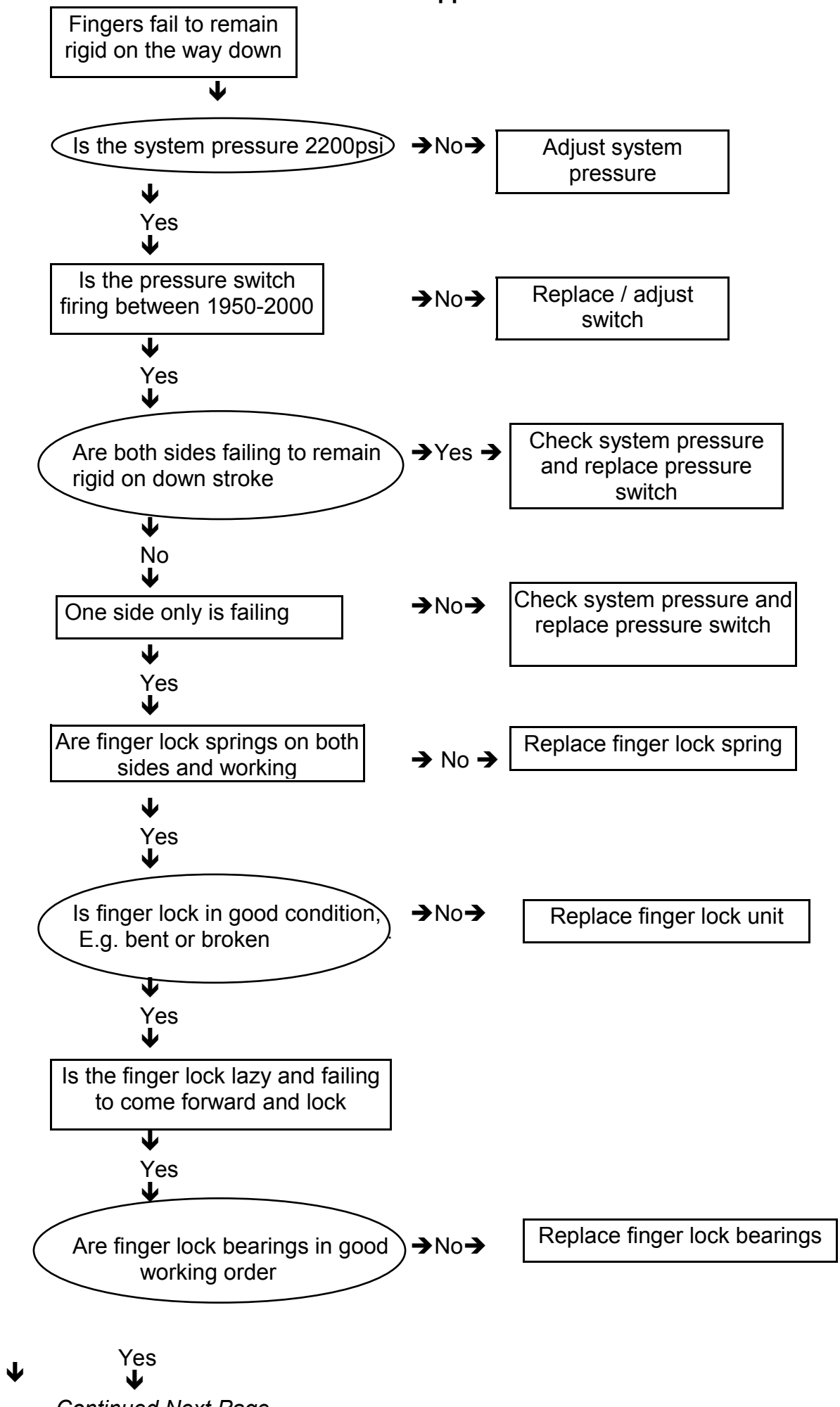
Is the bale correctly situated on the transport trolley?

Have you been trained in the use of the Autobaler?

No

Ring Service Number: 1800 888 403

Appendix 13



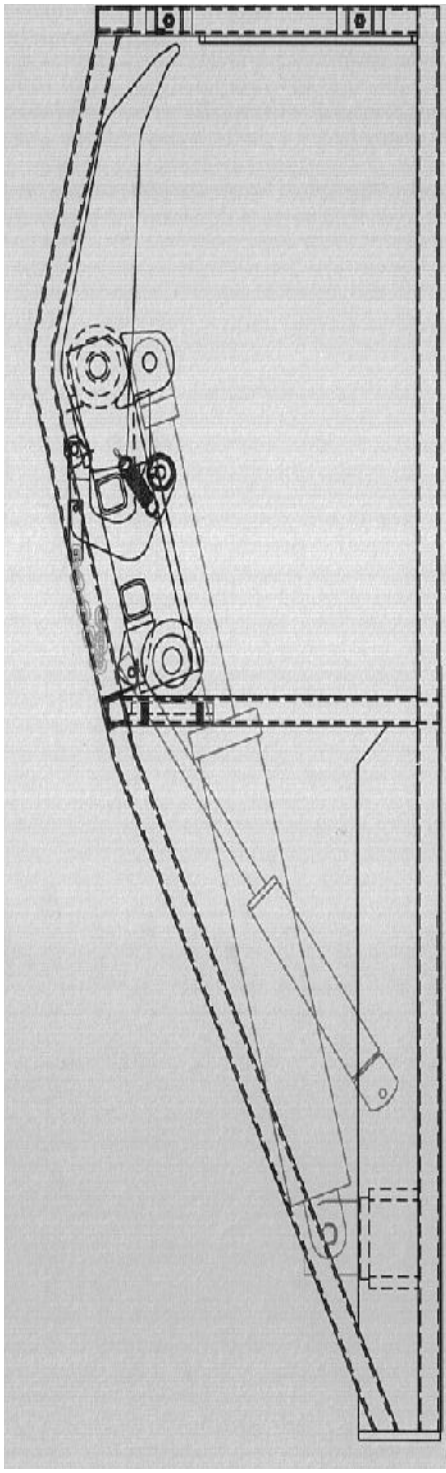
Continued Next Page

Yes

With the pressing arms right down (cylinders fully closed), remove the chain connecting the finger lock to the baler. The finger lock unit should snap forwards freely and lock over the finger unit abutment. Caution, when re-attaching the chain, ensure that the chain is not twisted and is securely and firmly attached to the baler body.

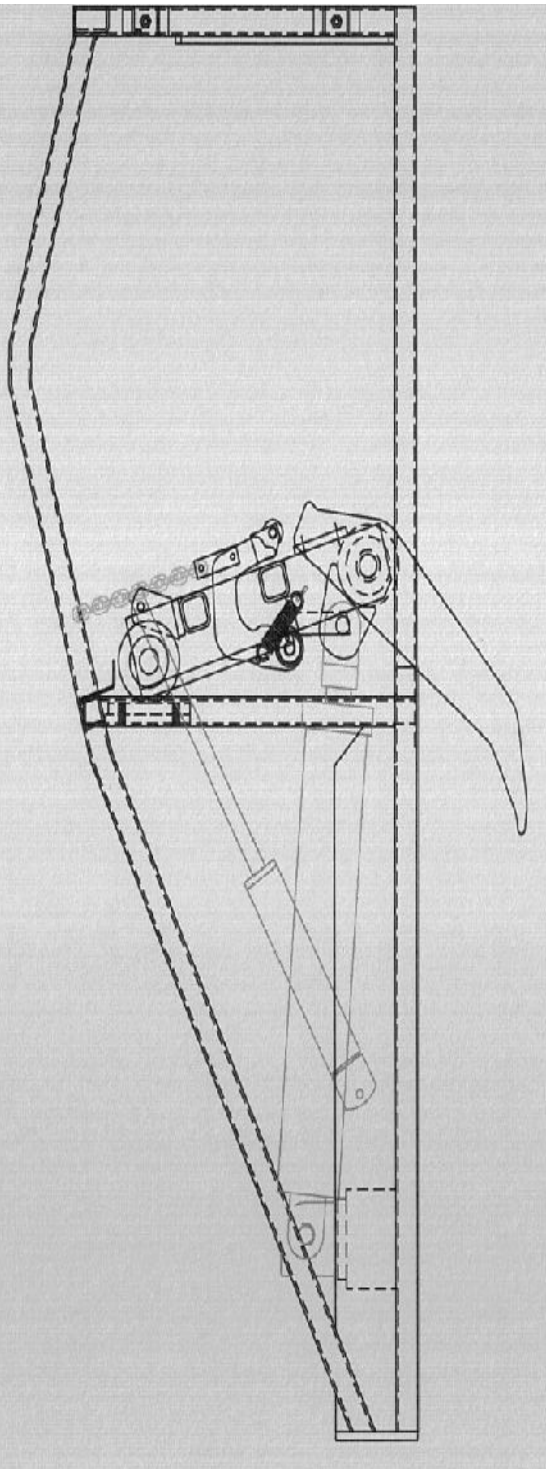
SAFETY - Before removing the guards to service the finger lock unit, isolate the power and remove the key.

Illustration 1



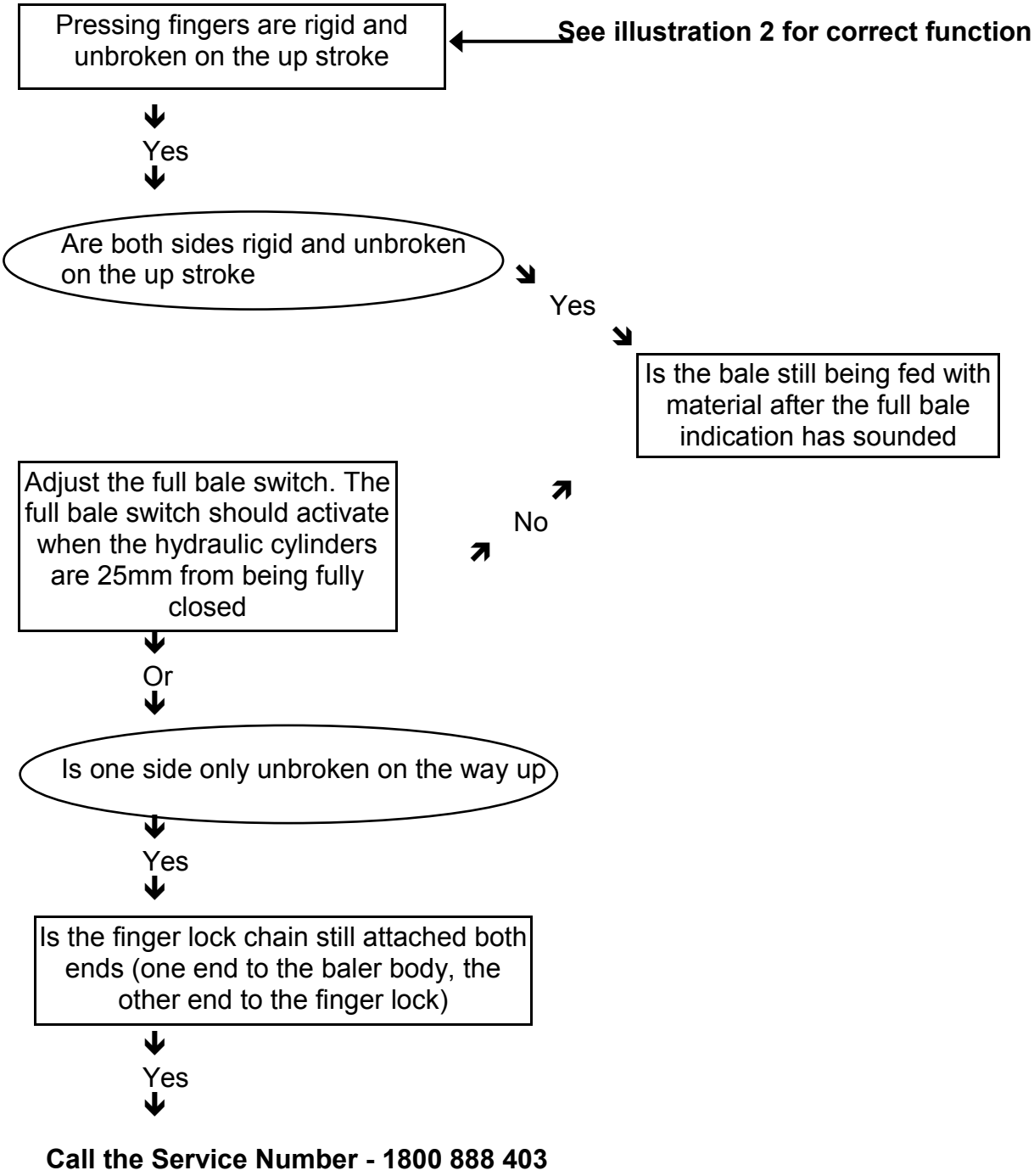
Correctly locked finger unit on descending stroke

Illustration 2



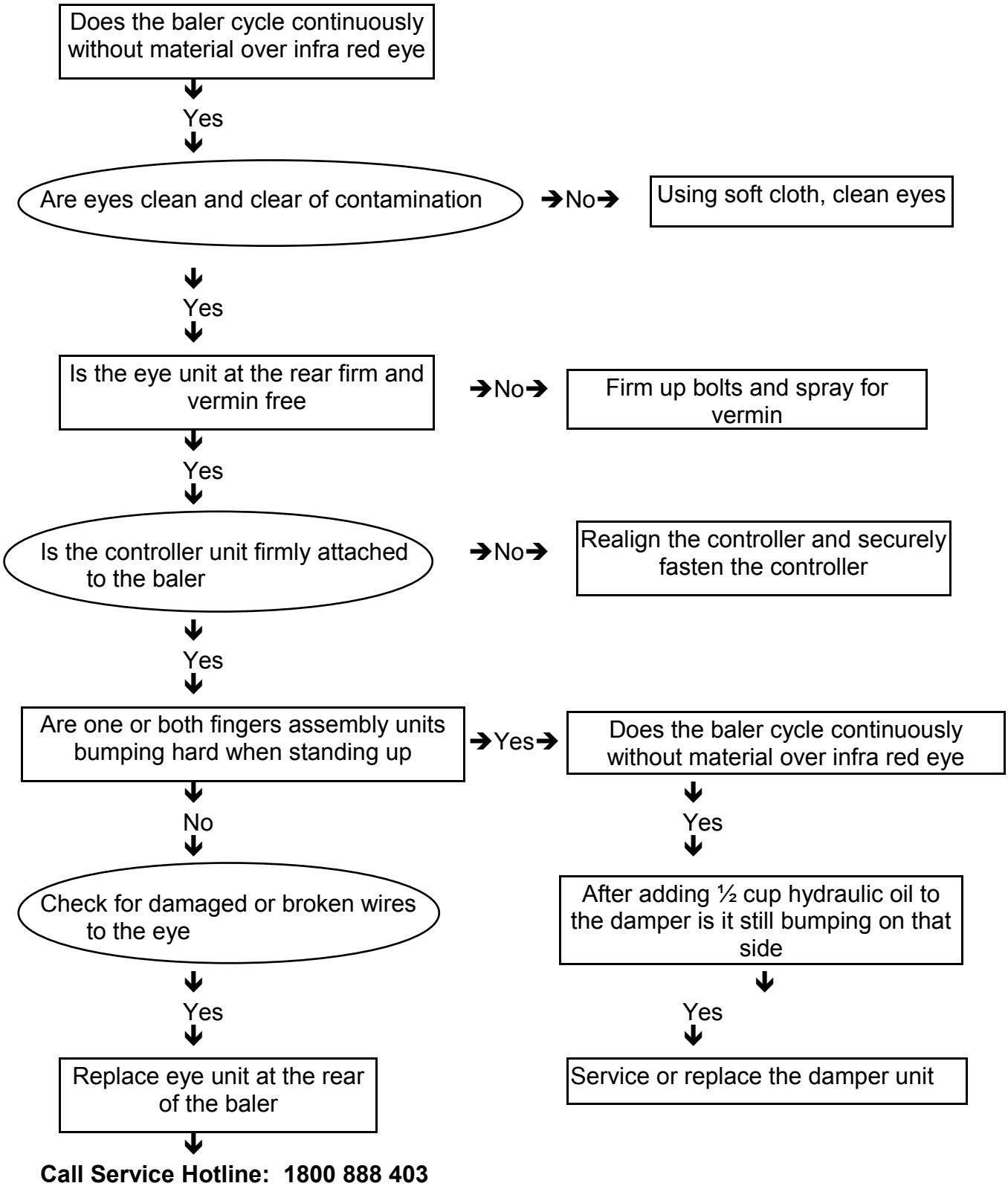
Correctly broken finger unit on ascending stroke

Appendix 14



Call the Service Number - 1800 888 403

Appendix 15



Appendix 16

Is the baler moving on the floor

↓

Yes

↓

Does the baler make a sharp banging or bumping sound when the finger assemblies are standing up on one or both sides?

↓

Yes

↓

Are the small yellow cylinders situated on each side adjacent to the large cylinders securely attached both ends

→No→ Re-attach, using only high tensile boils

↓

Yes

↓

Top up oils in small Dampers. Remove the small screws holding the cap and slide up the shaft and add ½ cup of hydraulic oil and cycle several times. Are the finger assemblies still bumping hard.

↓

Yes

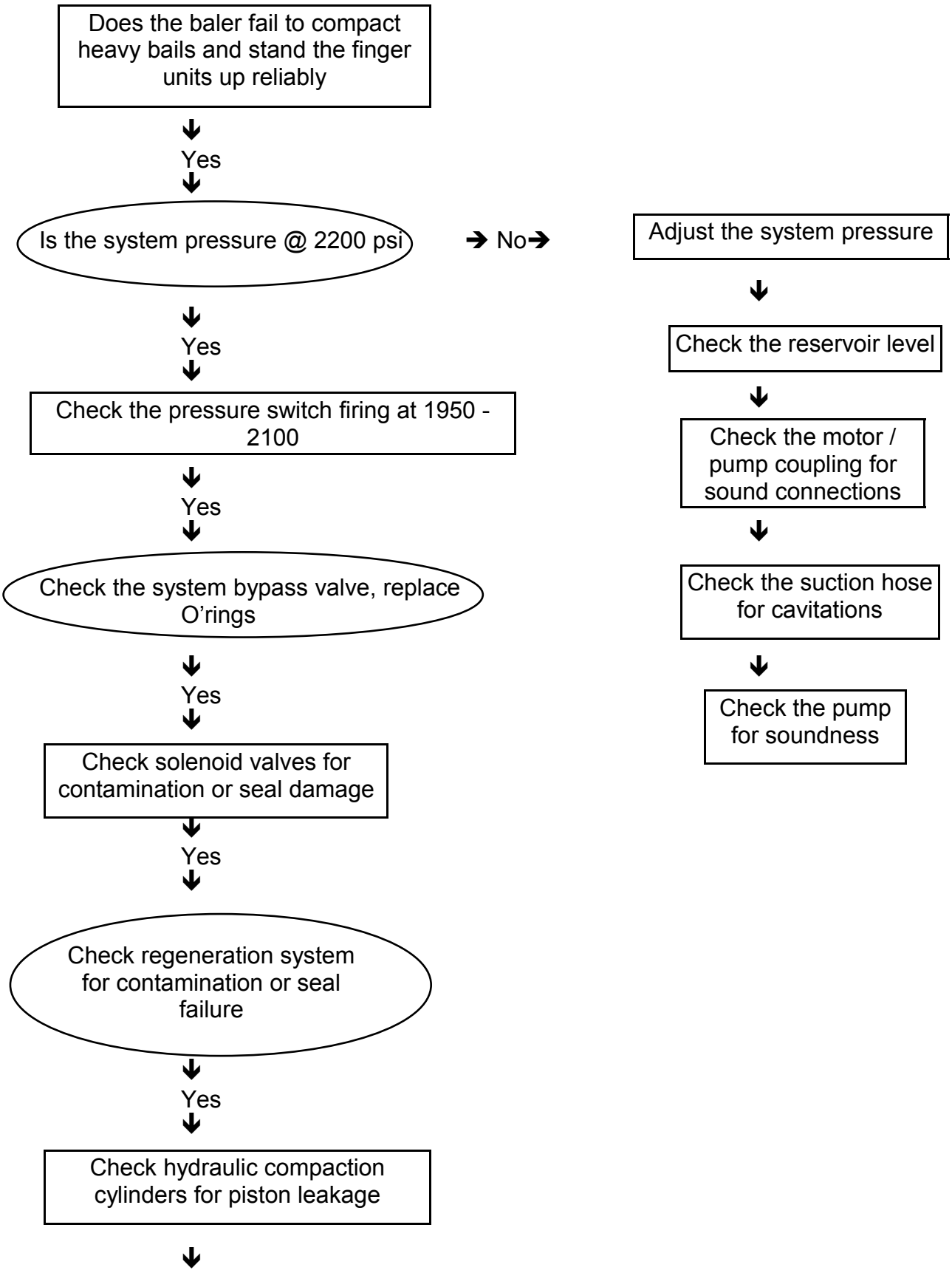
↓

Service or replace damper unit

↓

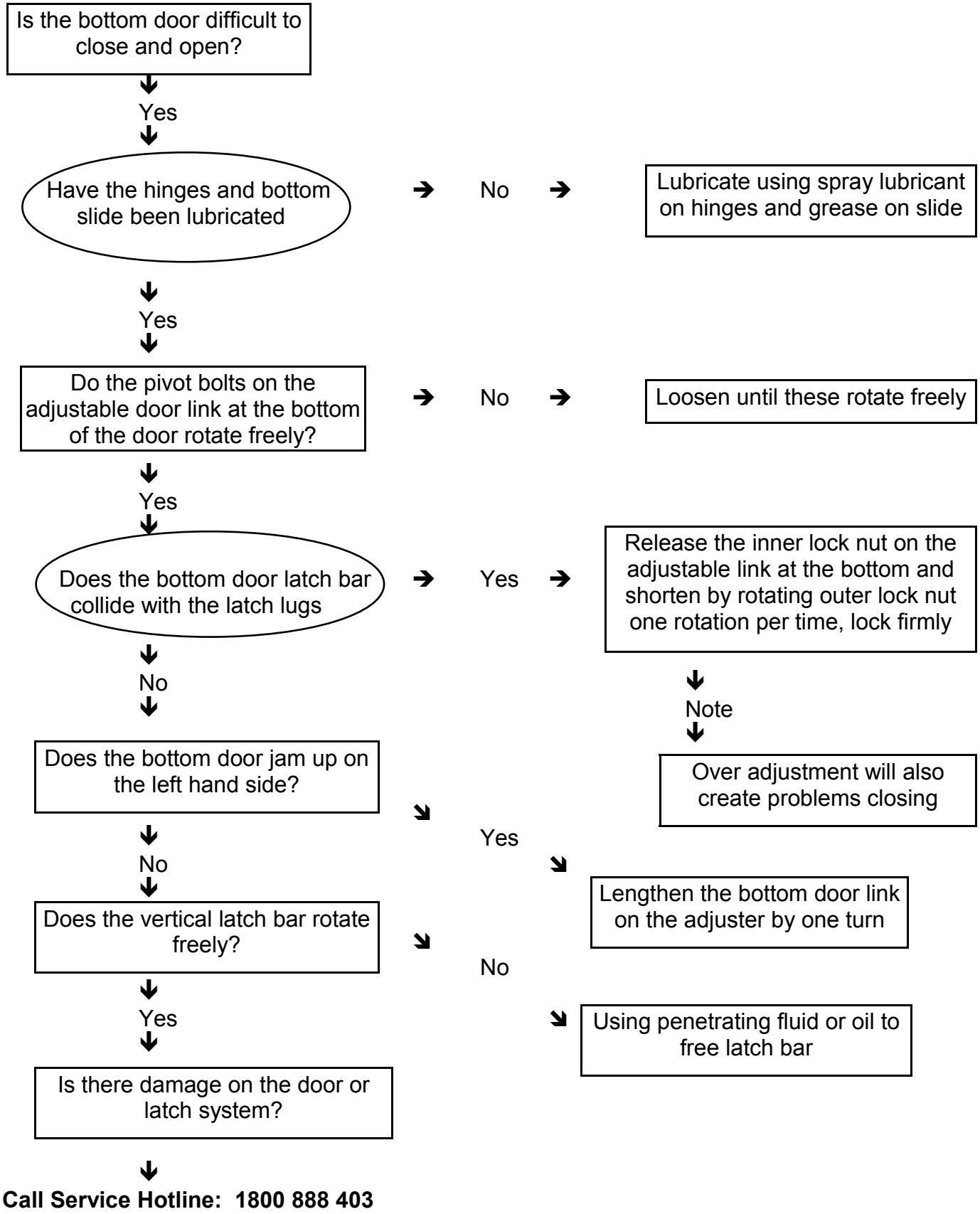
Call service hotline: 1800 888 403

Appendix 17



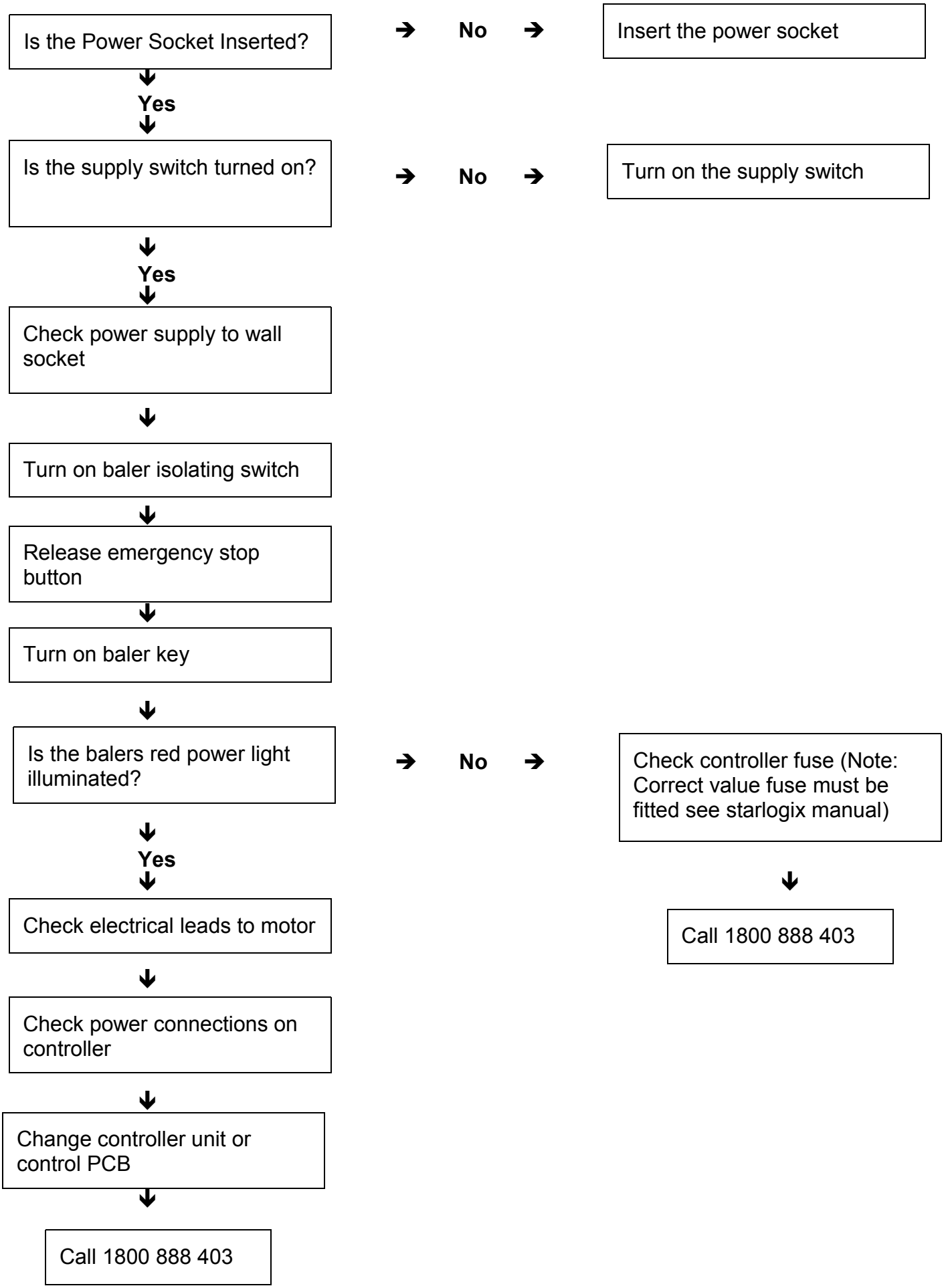
Call Service Hotline: 1800 888 403

Appendix 18

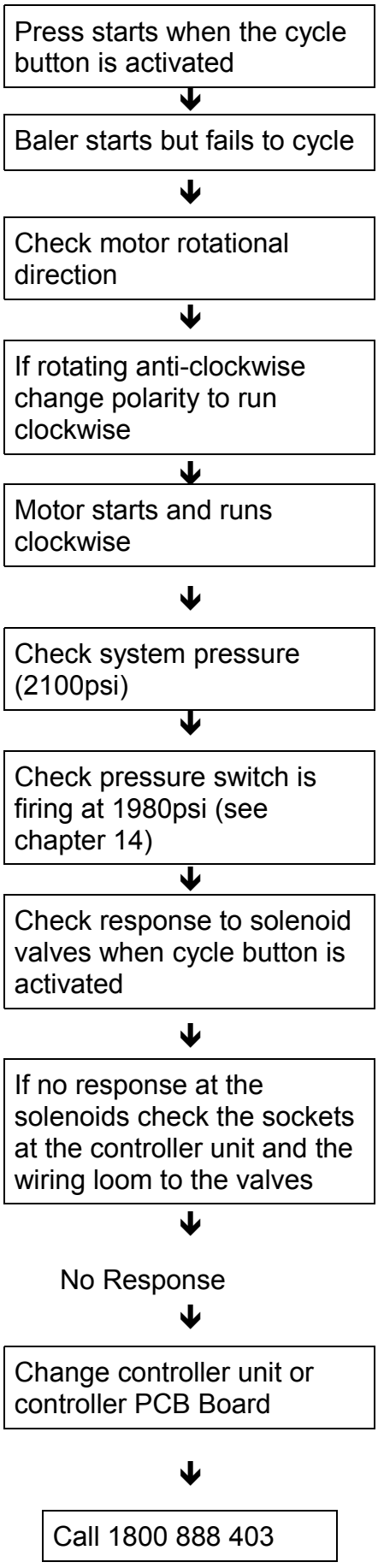


Call Service Hotline: 1800 888 403

Appendix 19


Is the Power Socket Inserted?
No
Insert the power socket
Yes
Is the supply switch turned on?
No
Turn on the supply switch
Yes
Check power supply to wall socket
Turn on baler isolating switch
Release emergency stop button
Turn on baler key
Is the balers red power light illuminated?
No
Check controller fuse (Note: Correct value fuse must be fitted see starlogix manual)
Call 1800 888 403
Yes
Check electrical leads to motor
Check power connections on controller
Change controller unit or control PCB
Call 1800 888 403

Appendix 20


Press starts when the cycle button is activated
Baler starts but fails to cycle
Check motor rotational direction
If rotating anti-clockwise change polarity to run clockwise
Motor starts and runs clockwise
Check system pressure (2100psi)
Check pressure switch is firing at 1980psi (see chapter 14)
Check response to solenoid valves when cycle button is activated
If no response at the solenoids check the sockets at the controller unit and the wiring loom to the valves
No Response
Change controller unit or controller PCB Board
Call 1800 888 403

Appendix 21

1. 

2. 

3. 

4.

5.

6.

7. 

8. 

9.