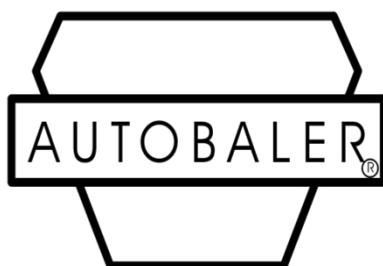


# AUTOBALER OPERATION MANUAL



## TI100/TI200 COMBO



[www.autobaler.com](http://www.autobaler.com)

**Trethewey Industries**  
14 Carl Baer Circuit  
Deepwater NSW 2371  
Australia  
[www.autobaler.com.au](http://www.autobaler.com.au)



## Owner's Manual

Thank you for choosing Autobaler TI100/TI200 Combo. It is our wish that you remain very happy with the performance and service given by your baler and our service backup staff.

For operating this baler properly, please take time to read this manual thoroughly before start to operate your baler.

Keep this manual handy for future reference.

The information contained in this manual is basic information. If you require information over and above what is supplied in this manual, please contact the Autobaler service hotline on **1800 888 403**.

### ***Models covered by this manual***

TI100/TI200 Combo Autobaler

#### **Note**

Training is required to operate Autobalers.

Training is required to service Autobalers.

Autobalers are protected by International Patents and Patent Applications.



# **OPERATION AND MAINTENANCE MANUAL**

## **USER MANUAL**

## **SPECIFICATION MANUAL**

**MACHINE - AUTOBALER with CYBERSMART CONTROLLER  
and Combo Controller**

**MODEL - TI100/TI200 Combo**

**AUTOBALER SERIAL NUMBER - \_\_\_\_\_  
CONTROLLER SERIAL NUMBER - \_\_\_\_\_**

### **Name and Address of Manufacturer**

Trethewey Industries Pty Ltd  
14 Carl Baer Circuit  
Deepwater NSW 2371  
Australia

***Please Read This Document BEFORE Operating the Machinery***

## **WARRANTY**

To maintain warranty the baler must be serviced in accordance with the manufacturers recommendations outlined in chapter 9 and the service booklet.

The firm guarantees the machine hereby described has been designed in compliance with all regulations in force, in particular safety and health regulations. The machine has undergone successful testing. (See test certificate enclosed.)

The warranty covers a period of 12 months. It does not cover electrical motors and tools. Extended warranty to 5 years is available

The purchaser is entitled to the replacement of faulty parts. Shipping and packing costs are at the purchaser's expense.

The warranty does not cover damage caused by: Falls or careless handling of the machine, incorrect operation, and non-compliance with the maintenance rules. **Any tampering with the machine, especially with its safety devices automatically voids warranty.** The manufacturer will be freed from any responsibility.

No claim for damages shall be accepted in cases where the machine has been laying idle for a long period of time.

The serial number on the machine is a main reference for the warranty, instructions manual and after sales service and identifies the machine in case of need.

Serial Number must be quoted in all correspondence.

## **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 manufacturer for problems which can be easily solved, closely follow the instructions given below.

If the help of our technical assistance service is still required after having strictly complied with the instructions given, the buyer must supply all the technical indications necessary to effectively determine the problem. 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 consumer must make sure that all the devices indicated in the paragraph on the safety manual are present and working correctly. Furthermore, those devices which are not mounted at the time of delivery to facilitate transport must be mounted in conformity with the instructions indicated.

When ordering spare parts it is necessary to state:

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

***Without the Serial Number, no spare parts will be delivered!***

## **DEFINITIONS**

**User:** The person, body or company who has bought or rented the machine and intends to employ the users trained and inducted in its safe use & operation.

**Operator:** The physical person authorised by either 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:** Is he physical skilled person authorised by the user to carry out maintenance or installation/initialisation on the machine.

**Dangerous Zone:** Any 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 fibrous 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 their disposal. The operator must not work with any guards or safety devices inoperative or missing. The baler must not be operated in any non-safety-compliant condition.

## **RISKS**

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

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## SCOPE

### Background

Autobalers are a unique compacting machine featuring an open top system to facilitate loading of the baler with materials. Autobalers offer considerable time savings when compared with most other baler types. The time to compact is reduced on account of no doors to open and close each time materials are deposited. The Autobaler can be loaded during any part of its cycle path.

Autobalers are a safe machine reducing many of the common injuries associated with conventional balers such as strain injuries from pushing and forcing of materials into fixed sized areas. Many injuries also occur due to material breakdown with knives and other injury creating devices. AUTOBALER REQUIRES NO MATERIAL BREAKDOWN.

Autobalers are an extremely versatile machine being able to compact a large range of materials i.e.: paper, cardboard, plastics, rubber tyres, wool and most otherwise compactable materials. Autobalers come in a ten model capacity range from 80 to 500+ kg to best suit particular customer requirements. Autobalers are a quality machine offering unparalleled safety, amazing efficiency and huge labour savings.



Trethewey Industries have vast experience in the manufacture of quality baling machines, having produced in excess of 500 agricultural baling machines. Five years ago Trethewey's developed the Autobaler for commercial use, in particular to be used in Supermarkets and Recyclers. Trethewey Industries are situated on the New England Hwy at Deepwater NSW. Trethewey Industries location is ideal for servicing our national markets. Trethewey Industries focus is to develop machines which totally satisfy customer requirements in performance, quality, service, economy and safety.

Autobalers were developed to give the maximum efficiency and safety possible. Autobalers are designed for loose materials and are not recommended for solid materials (i.e. hard wooden or metallic objects) as these may cause machine damage. The manufacturers are happy to assess your needs and make recommendations and give assurances on the type of baler which will best suit your requirements.

Autobalers are built to comply with the highest national and international standards.

***Autobalers are protected by International Patents and Patent Applications.***

### Manufacturing Plate:

|                                                                                     |                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------|
| <b>TRETHEWEY INDUSTRIES Pty Ltd</b>                                                 |                                           |
| A.B.N. 84 072 739 827                                                               |                                           |
| <i>Innovative Design &amp; Manufacturing</i>                                        |                                           |
|  | New England Highway<br>DEEPWATER NSW 2371 |
|                                                                                     | Tel: 02 6734 5403 Fax: 02 6734 5433       |
|  | EMAIL: trethewey@northnet.com.au          |
|                                                                                     | WEBSITE: www.autobaler.com                |
| + PATENT No's +                                                                     |                                           |
| AU99 PCT 000 48                                                                     | AUPR 8089                                 |
| AUPR 8445                                                                           | AUPR 3941                                 |
| AUPR 4116                                                                           | AUPR 8930                                 |
| MODEL:                                                                              |                                           |
| S/N:                                                                                |                                           |
| BATCH No:                                                                           |                                           |
| RATED VOLTAGE:                                                                      |                                           |
| NUMBER OF PHASES:                                                                   |                                           |
| FREQUENCY:                                                                          |                                           |
| FULL LOAD CURRENT: AMPS-                                                            |                                           |
| Date of Manufacture:                                                                |                                           |

# 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

Make - Trethewey Industries Pty Ltd

Model – TI100/TI200 Combo

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**

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 \_\_\_\_\_

## **Trethewey Industries Autobaler**

|                          |                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>EN ISO 12100-1</b>    | Safety of machinery - Basic concepts, general principles for design - Part 1<br>Basic terminology, methodology          |
| <b>EN ISO 12100-2</b>    | Safety of machinery - Basic concepts, general principles for design - Part 2<br>Technical principles and specifications |
| <b>EN 294</b>            | Safety of machinery<br>Safety distances to prevent danger zones being reached by the upper limbs                        |
| <b>EN 349</b>            | Safety of machinery<br>Minimum gaps to avoid crushing of parts of the human body                                        |
| <b>EN 418</b>            | Safety of machinery - Emergency stop equipment, functional aspects<br>Principles for design                             |
| <b>EN 811</b>            | Safety of machinery<br>Safety distances to prevent danger zones being reached by the lower limbs                        |
| <b>EN 953</b>            | Safety of machinery - Guards<br>General requirements for the design and construction of fixed and movable guards        |
| <b>EN 954-1</b>          | Safety of machinery - Control systems - Part 1<br>General principles for design                                         |
| <b>EN 982</b>            | Safety of machinery<br>Safety requirements for fluid power systems and their components - Hydraulics                    |
| <b>EN 1037</b>           | Safety of machinery<br>Prevention of unexpected start-up                                                                |
| <b>EN 1050</b>           | Safety of machinery<br>Principles of risk assessment                                                                    |
| <b>EN 1088</b>           | Safety of machinery - Interlocking devices associated with guards<br>Principles for design and selection                |
| <b>EN 60204-1</b>        | Electrical - equipment of machines Part 1<br>General requirements                                                       |
| <b>AS 4024-1</b>         | Electrical Equipment                                                                                                    |
| <b>AS 4024.1101-2006</b> | 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**

**THIS REPORT IS PREPARED BY BANKSIA EOHS PTY LTD FOR RISK MANAGEMENT PURPOSES, AND ITS CONTENTS ARE PROVIDED EXPRESSLY FOR THE NAMED CLIENT FOR ITS OWN USE**

**NO RESPONSIBILITY IS ACCEPTED FOR THE USE OF, OR RELIANCE UPON THIS REPORT, IN WHOLE OR IN PART, BY ANY THIRD PARTY.**

**Prepared by  
Jim Orr  
Banksia EOHS Pty Ltd**

**Richmond Vale Road  
MULBRING NSW 2323  
Ph: (02) 4938 0044  
Fax: (02) 4938 0111  
Email: [jimorr@bigpond.com.au](mailto:jimorr@bigpond.com.au)**

**Banksia Project 00998**



**Jim Orr  
BSc MAppSc PhD  
6th February, 2010**

**Baler Test Report**

Comprehensive Autobaler Test Report

|                               |                      |
|-------------------------------|----------------------|
| Date:                         | <input type="text"/> |
| Serial No:                    | <input type="text"/> |
| Testing Officer:              | <input type="text"/> |
| Electrical Test Performed By: | <input type="text"/> |
| Noise Emission Test:          | <input type="text"/> |
| Hydraulic Test:               | <input type="text"/> |

**Autobaler Quality and Reliability Test - Full Mechanical Test**

|                             |                      |
|-----------------------------|----------------------|
| Test Report No:             | <input type="text"/> |
| Testing Officer:            | <input type="text"/> |
| Operational Test Report No: | <input type="text"/> |
| Testing Officer:            | <input type="text"/> |
| Lubrication Test Report No: | <input type="text"/> |
| Testing Officer:            | <input type="text"/> |
| Testing Officer:            | <input type="text"/> |
| Signature:                  | <input type="text"/> |

# **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:

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

Decibels monitor type and number:

Tenma 72.6604

Test one metre from front:

70 Db

Test one metre from left side:

70 Db

Test one metre from right side:

70 Db

Test one metre from back:

70 Db

Test one metre above machine:

70 Db

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

- |                      |                               |                               |
|----------------------|-------------------------------|-------------------------------|
| • Active 1 to earth: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |
| • Active 2 to earth: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |
| • Active 3 to earth: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |

|                      |                               |                               |
|----------------------|-------------------------------|-------------------------------|
| Earthing continuity: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |
|----------------------|-------------------------------|-------------------------------|

### Flexible supply cord:-

- |                                                       |                               |                               |
|-------------------------------------------------------|-------------------------------|-------------------------------|
| • External visual inspection of plug connection:      | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |
| • Visual inspection of cord termination to equipment: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |

|                                                                           |                               |                               |
|---------------------------------------------------------------------------|-------------------------------|-------------------------------|
| Visual inspection of wire termination in electric motor terminal housing: | Pass <input type="checkbox"/> | Fail <input type="checkbox"/> |
|---------------------------------------------------------------------------|-------------------------------|-------------------------------|

|       |                      |
|-------|----------------------|
| Date: | <input type="text"/> |
|-------|----------------------|

|                    |                      |
|--------------------|----------------------|
| Inspection number: | <input type="text"/> |
|--------------------|----------------------|

|            |                      |
|------------|----------------------|
| Inspector: | <input type="text"/> |
|------------|----------------------|

|                                |                      |
|--------------------------------|----------------------|
| Inspector registration number: | <input type="text"/> |
|--------------------------------|----------------------|

Signed: .....

# Trethewey Industries

## New Machinery Hazard Identification assessment and Control

Description: Autobaler

Model: TI100/TI200 Combo

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                                                    |
|----------|-------------------------------|-------------------|----------------------------------------------------------------------------|
| <b>A</b> | Entanglement                  | Very Low          | Do not reach into baler. Operator Training                                 |
| <b>C</b> | Cutting, stabbing, puncturing | Very Low          | Use only safety knife for bale tie off.                                    |
| <b>D</b> | Shearing                      | Nil               |                                                                            |
| <b>E</b> | High Temperature              | Nil               |                                                                            |
| <b>F</b> | Striking                      | Moderate          | Upper or lower door rebound. Operator Training                             |
| <b>G</b> | Crushing                      | Low               | Bale ejection. Operator Training                                           |
| <b>H</b> | Electrical                    | Low               | Operator Training                                                          |
| <b>O</b> | Other hazards, noise dust.    | Moderate noise    | Noise if operated with insufficient materials in hopper. Operator training |

# 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 in 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



Mesh mounting lugs

## CHAPTER 1 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 1.5 tonne.
6. When moving/lifting combined unit, left side (with combo unit attached) will be heavier & all necessary precautions must be taken to ensure safe manoeuvring of baler.
7. On installation or repair ensure the machine is effectively earthed. (All electrical work to be carried out by qualified electrician).
8. 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)



**NO  
Solid  
Bundles!**





## CHAPTER 2 Specifications

|                  | <u>TI100</u>            | <u>TI200</u>            | <u>Combo units</u>   |
|------------------|-------------------------|-------------------------|----------------------|
| Bale Weights     | 100 – 140kgs            | 175 – 200kgs            | 30-45kgs (plastic)   |
| Bale Size        | 750 x 750 x 1000 (mm)   | 750 x 750 x 1000        | 250 x 550 x 650      |
| Cycle Time       | 30 secs                 | 23 secs                 | 35 secs              |
| Unit Weight      | 1250kgs                 | 1650kgs                 | 180kgs               |
| Thrust Load      | 6000kgs                 | 10160kgs                | 2500kgs              |
| Power            | 3Kw 3phase 20amp        | 3Kw 3phase 20amp        | .75Kw                |
| Plug Required    | 4pin clipsal compatible | 4pin clipsal compatible | 440volt 3 phase      |
| Height           | 2050mm                  | 2500mm                  |                      |
| Width            | 1950mm                  | 1940mm                  | 2260mm (Combination) |
| Depth            | 900mm                   | 920mm                   |                      |
| Transport Height |                         | 2050mm                  | 1600mm               |
| Bale timing      | 2 bales per hour        | 2 – 3 bales per hour    |                      |

### TRANSPORTING THE AUTOBALER SAFELY

When moving or relocating the baler always follows the Work Method Statement, in most cases it will be a requirement of the organization that the Work Method Statement be completed signed and handed in to the appropriate person or persons for approval before carrying out the task. The following procedure is for the safe transportation and movement of the Autobaler

#### 1. BALER RELOCATION PROCEDURE

1. Before removing or lifting the baler ensure that the lifting equipment is in good order and has capacity to lift minimum 2 tonne the baler and the combo.
2. Autobalers can be moved with a forklift unit or a pallet truck.
3. Before moving the baler ensure that there is sufficient clearance (height wise)
4. With the combo unit attached, weight distribution is uneven (heavier on the left hand side). Ensure that when moving/lifting with a forklift, all necessary precautions must be taken to ensure safe, even manoeuvring of baler.
5. Lift baler from front only, with care due to fragile components. Open fork tines fully, insert the right hand fork tine into the lifting slot in the base of the baler on the right side and the left hand side fork into the lifting saddle found on the lower frame immediately below the yellow control unit. Where possible secure the baler to the moving means to prevent possible overbalance
6. Where required situate traffic cones and safety barriers
7. Always transport baler units as close to the ground level as possible – if forward movement is required always used another qualified person as a guide
8. Proceed slowly – downhill grade always in reverse

#### 2. REMOVING THE AUTOBALER FROM THE PALLET

- a. Unwrap and cut metal strapping
- b. Insert the fork lift tines beneath the front lower door. Ensure that the fork lift tines are fully through to the rear baler wall.
- c. Lift the baler no more than 80mm off the pallet & check again to ensure sufficient tine protrusion through the rear slots
- d. With tines under the baler always move:-
  - as close as possible to the floor
  - at idle speed only
  - in reverse to ensure good vision

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

- a. Never lift the baler more than 300mm unless on a pallet or strapped securely to the fork lift, as the baler could slip off the tines (metal to metal)
- b. If lifting the baler from beneath the baler base, fasten the baler to the fork mask using strap or chain
- c. When lifting the baler more than 300mm, always be on level ground and never transport the baler in an elevated position
- d. When transporting or moving the baler on the fork lift, always travel in reverse to ensure good vision
- e. **Safety Equipment: Compliant safety boots, high visibility vest, hearing protection, eye protection. Head protection if required.**

#### 3. LOCATING FROM TRUCK TO DOCK.

When loading the baler for its final destination, the baler is to be loaded in such a way as to facilitate removal at the customer end.

ie. If the baler is to be unloaded using a forklift truck, baler should be situated accordingly.

NB: if baler is to be unloaded via pallet jack, then the pallet containing the baler needs to be rotated through 90 degrees.

## Work Method Statement

|                                  |  |                 |  |
|----------------------------------|--|-----------------|--|
| Activity                         |  | Contractor      |  |
| Person completing this statement |  | Telephone       |  |
| Date                             |  | Contract Number |  |

| Key Steps | Equipment or plant required | Possible Hazards | Safety controls including personal protective equipment (PPE) | Licenses, qualifications or work permits |
|-----------|-----------------------------|------------------|---------------------------------------------------------------|------------------------------------------|
| <b>1.</b> |                             |                  |                                                               |                                          |
| <b>2.</b> |                             |                  |                                                               |                                          |
| <b>3.</b> |                             |                  |                                                               |                                          |
| <b>4.</b> |                             |                  |                                                               |                                          |
| <b>5.</b> |                             |                  |                                                               |                                          |
| <b>6.</b> |                             |                  |                                                               |                                          |
| <b>7.</b> |                             |                  |                                                               |                                          |
| <b>8.</b> |                             |                  |                                                               |                                          |
| <b>9.</b> |                             |                  |                                                               |                                          |

## **CHAPTER 3**

### **SAFETY**

#### **A. 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.

#### **B. 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.

#### **C. 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 or eject trolley
- 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, and eject models only.
- 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.
- d. General

**Always remove Autobaler key when machine is not in operation, or is unattended.**

## **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 removing the bale, grip the handle of the eject trolley firmly and pull back with care.
4. Always place the bale transport trolley centrally and in the floor channels to prevent bale side roll.
5. On inclines, take care to prevent run away and potential injury to others.
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 licenced to legally operate Autobalers
11. Note smaller framed people or people of low strength and fitness can sustain injuries from over exertion with bale removal and location – ensure that the operator is of sufficient strength and fitness to safely perform this task.

## CHAPTER 4

### OPERATION OF AUTOBALER

#### **BALE REMOVAL PROCEDURE**

Larger Autobaler are equipped with auto ejection systems the small 100 series have manual bale removal system

#### **Removal of the Bale using Bale Ejection Trolley**

##### **Step1.**

Before commencing the baling especially with smaller granulated materials place a sheet of cardboard on the bottom of the baler to prevent clogging of the baler floor grooves.

##### **Step2.**

Fully open both upper and lower baler doors using the bale extraction trolley supplied with the machine. Insert the trolley tines into the baler lots.

##### **Step3.**

With the trolley forks fully inserted, grip the top of the trolley handle firmly and pull back, carefully drawing the bale from the chamber. (Note for ease of extraction the bottom door of the baler must be fully opened.)

##### **Step4.**

With the bale extracted from the baler the bale can be wheeled away and stored.

#### **Safety**

Those responsible for the safe operation of the baler must:

1. Ensure that the persons removing the bale have been sufficiently trained in the safest removal procedure.
2. Must be of sufficient strength and fitness to safely carry out this task.
3. Bale trolley storage to prevent a tripping hazard – store the bale trolley with the forks beneath the left hand side and the trolley against the baler.

#### **Bale Removal using Power Eject System**

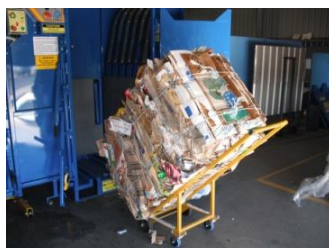
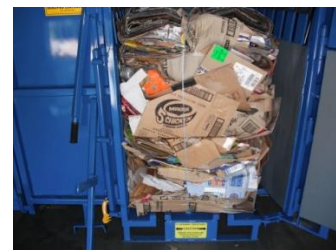
**Step one** – with the bale complete and tied off (see tie off procedure) close the top door and retract the fingers by activating retract button.

**Step two** – fully open upper and lower doors fully.

**Step three** – situate the six wheeled cart directly in front of the cardboard chamber – the cart to be out 150mm from the baler (see illustration below).

**Step four** – stand to the left for safety and hold finger on eject button until the bale is tipped out onto the cart (in some cases physical assistance may be required).

**Step five** – bale can be wheeled away to storage area on the cart and rolled off sideways.



## TWINING UP THE TI100/TI200

The following procedure is for the twining of the TI100/TI200 Autobaler.

### Step1.

Place the roll of twine under the left hand side of the baler. The roll must be the correct side up. The draw end of the twine feeds from the entire of the roll from the top side. Twine type must comply with OH&S requirements (recommended twine type is Superlash8)

### Step2.

From the drawn end lay the twine back approximately 200mm as shown



### Step3.

Tie a knot in the end to form a non-slip loop as per illustration.



### Step4.

In some instances a double know may be required as shown. The reason for this will be explained in a later step.



### Step 5:

With the double knot tied to the end, draw from the twine roll fully open both upper and lower doors.



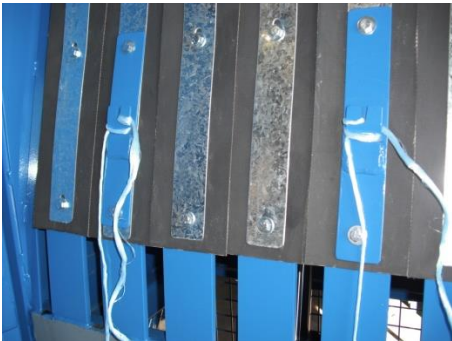
Picture 1



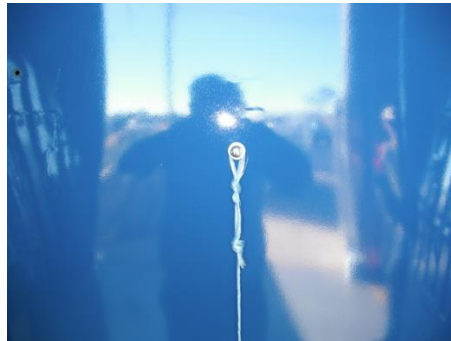
Picture 2

### Step 6:

Situated at eye level on the left hand side of the inner chamber are two domed hooks (*picture 1*), hook outer loop to the domed hook and take twine down under the floor tabs and across to the right hand side of the chamber (*picture 2*) and up the right hand wall and onto tabs as in *picture 3*. Rotate twine around hook twice and out through slot at the top – tie a loose loop as in *picture 3* & cut twine with about 200mm loose end.



Picture 3



Picture 4

### Step 7:

Hook double loop twine (the third twine) onto the rear wall doomed tab (*picture 4*) then down under the floor tabs and up the inside of the front door and over the top of the door closing the bottom door at the same time and secure twine onto the front door tab (*picture 5*). Cut twine leaving approximately 250mm loose end.

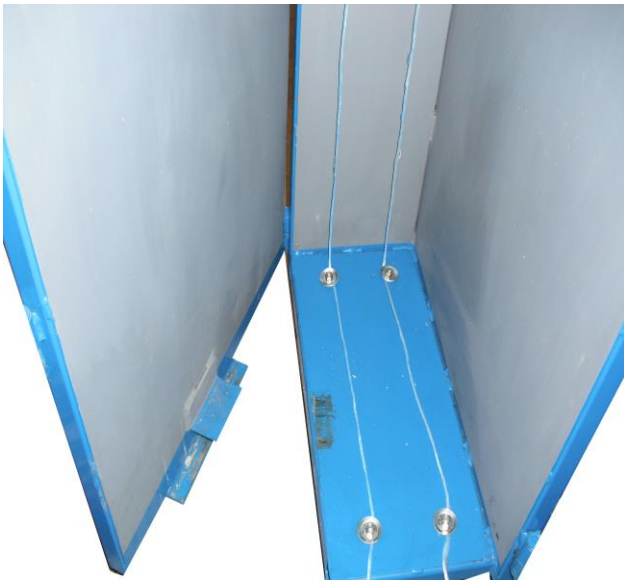


Picture 5



## Twining up the Combo

1. Open the doors
2. Turn off the power
3. Cut two pieces of twine approximately 3.7 meters and tie a loop in one end of each piece.
4. Hook the looped ends onto the domed hooks on the upper rear chamber wall. (See Illustration H.)
5. Insert twine down rear wall under plastic twine tabs on the floor (See Illustration I.), up the inside of the lower front door and over the top of the door, then secure to the twine hooks by rotating and securing the loose end in the slot.
6. Close the bottom door latch.
7. Close top door and activate cycle button.
8. Baler will cycle down and temporarily stop before automatically returning to the up position.
9. Continue the process. When the baler is full, the baler pressing plate will not do a full stroke.
10. Open the top door fully. (See Illustration J)
11. Reach across baler and unhook twine loops from domed hooks.
12. Pass these under the pressing plate cross rail in the grooves on top of the pressing plate.
13. Release twine ends from twine hooks on top of lower door.
14. Pass the end of twine through the looped end and pull tight. Tie off both twines.
15. Close top door, press green button to retract plate. When motor stops, open top door.
16. Open the bottom door fully to release and remove the bale using the trolley supplied.
17. BEWARE of possible door rebound.



**Illustration H**



**Illustration I**



**Illustration J**



## Combo Operation

**Step 1:** Combo unit attached to TI baler share a common electronic power supply system. To operate the combo the main supply needs to be turned on the main control unit key.

**Step 2:** After initial twining Pg 24 close and latch bottom combo door securely.

**Step 3:** Load plastic sheet and shrink wrap into the chamber and securely close the top door (picture 1 – 1a)

**Step 4:** Press green button on the small controller – Combo will start to cycle down and return automatically stopping at the top.

**Step 5:** This process is repeated until the system detects a full bale – when the bale is full the pressing plate will be down (picture 2).

**Step 6:** Unhook twines and insert under pressing plate cross rails and tie off by releasing the twine ends from the tabs on the front lower door. Insert these through the loops on the other ends, pull tight and tie off.

**Step 7:** Close top door and cycle to the up position.

**Step 8:** Open both upper and lower doors – Caution, beware of lower door rebound – use rebound chains.

## Combo Service

1. Lubricate dor and latch pivot pins using PBL spray lubrication.
2. In the event of oil leaks, check hydraulic oil levels in the reservoir with cylinder fully closed (pressing plate up) oil level 100mm from the top full - Grade 32 Oil.



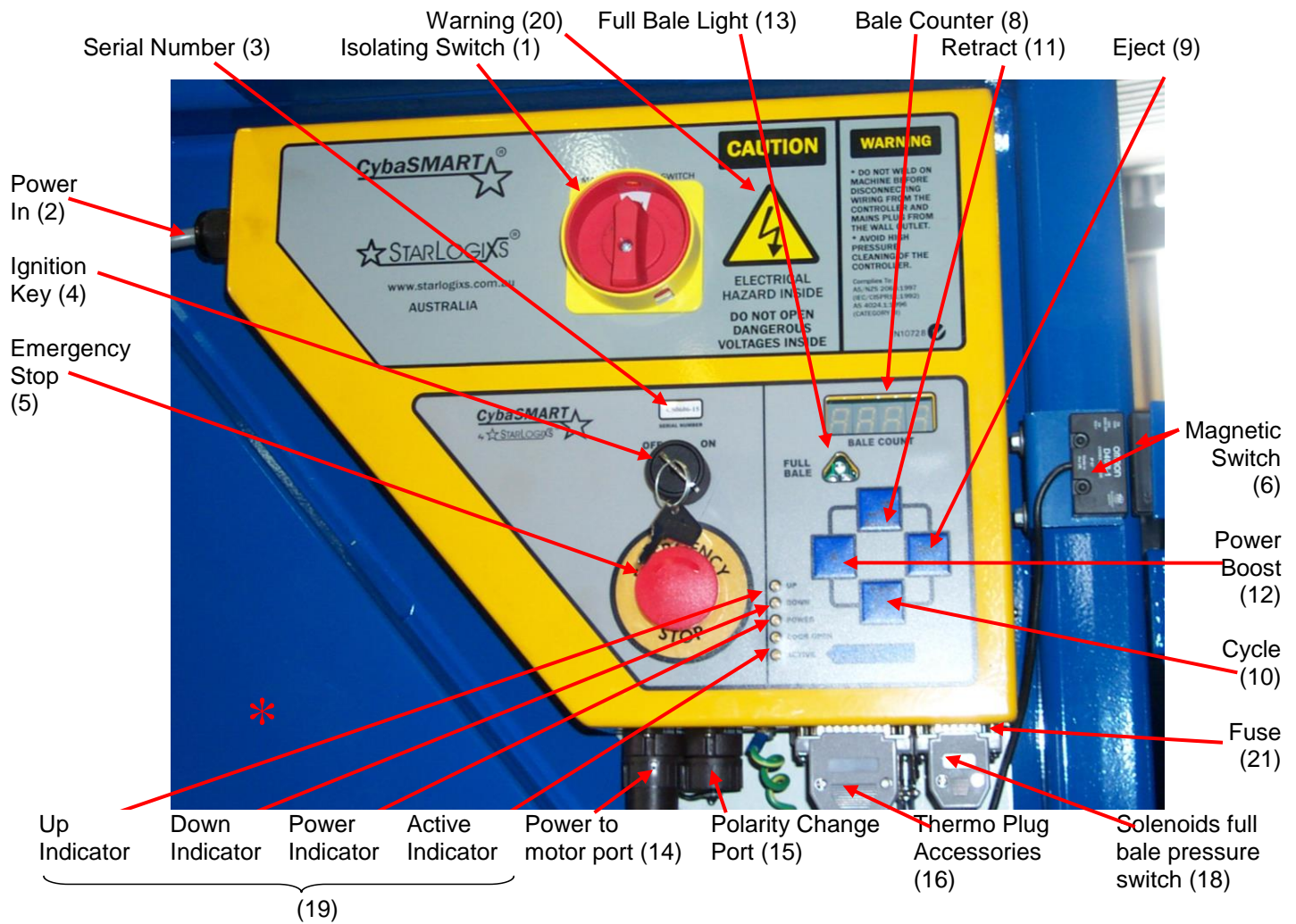
Pic 1



Pic 1A



## CONTROLLER LAYOUT AND FUNCTION



### Combo Unit Controller



## Controller

Almost the total function of your 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 whenever a service or repair is carried out. It is therefore the manufacturers' recommendation that whenever 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 Farrell's; from the baler manufacturer or the manufacturer's agent or representative.
- 5. Emergency Stop Button** - The emergency stop button is for 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 or out of line with each other – this will depend on the machine and activate 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 simply counts the number of bales having been 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 your 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
- 6.

**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.

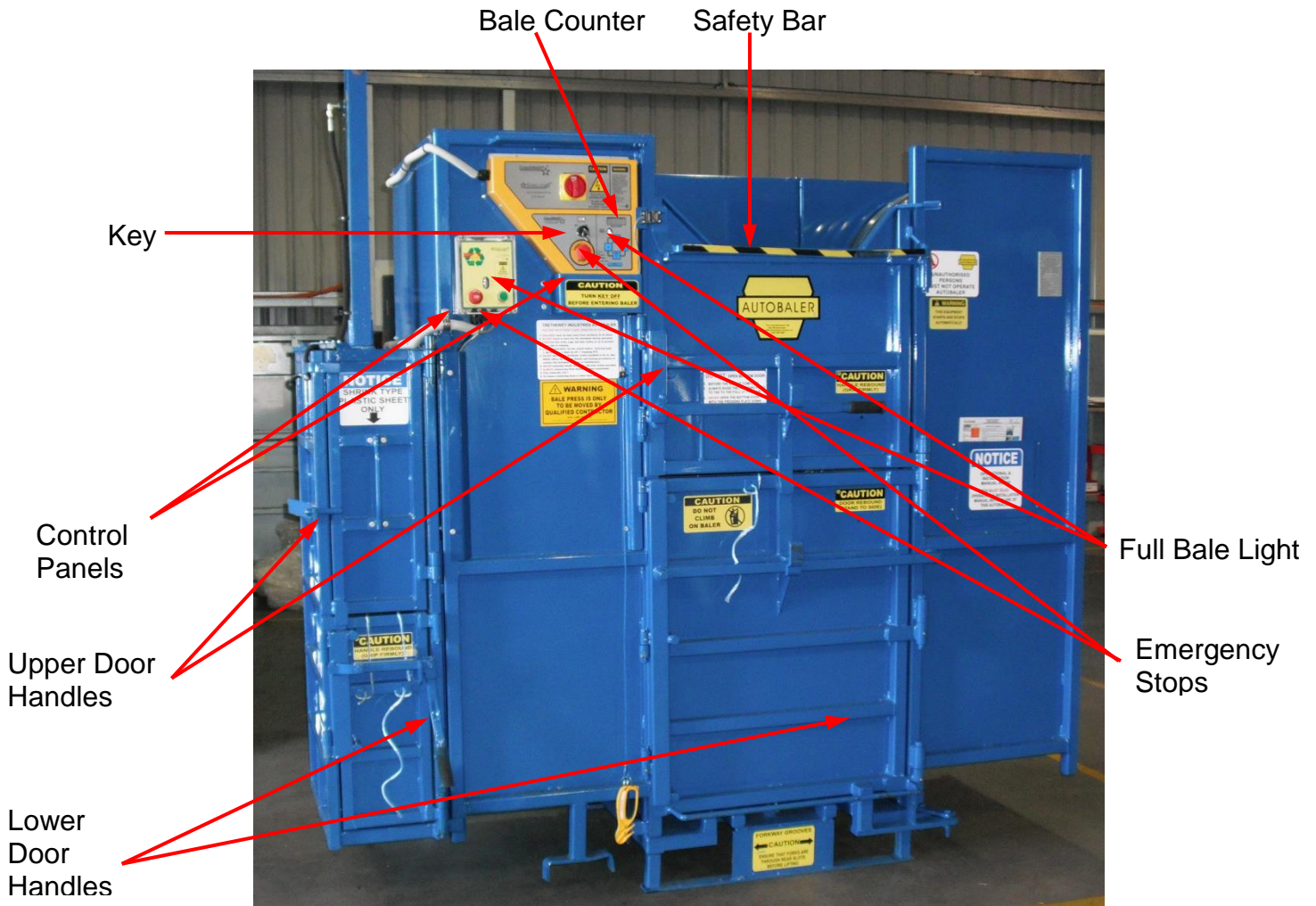
**21. Fuse** - The controllers' electronic system is protected by a fuse. To access the fuse unscrew the fuse holder.

Fuse Type: 32mm glass fast blow fuse

Fuse Value: 4A

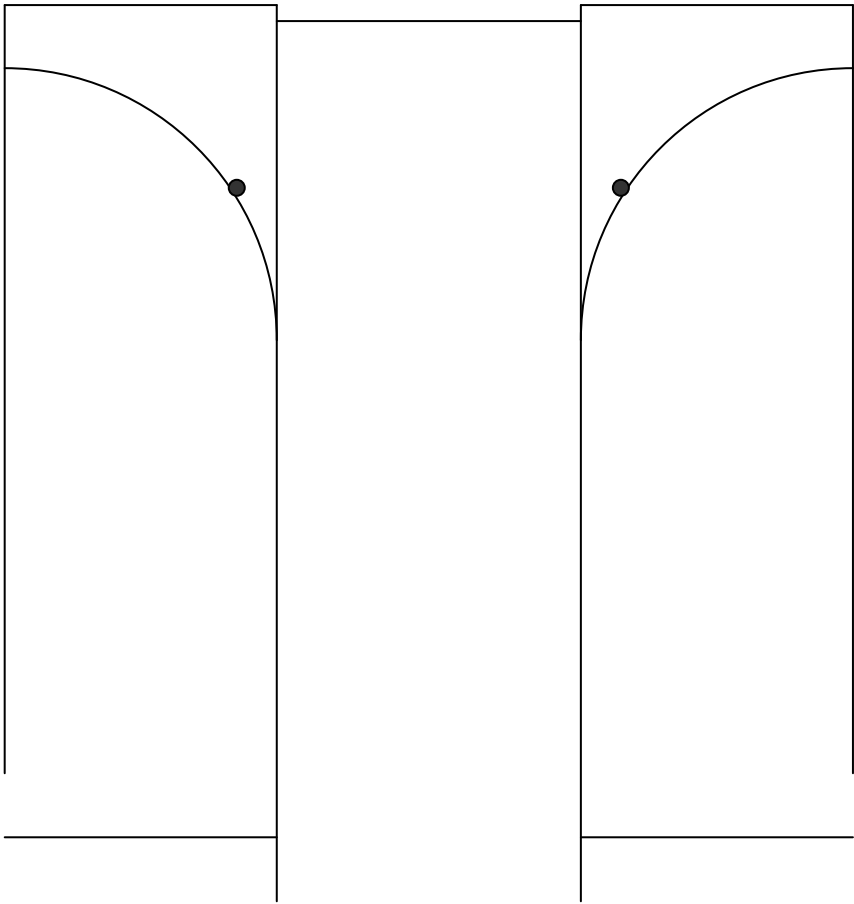


# ***AUTOBALER***



# ***TRAINER MATERIAL***

## **AUTOBALER TRAINER MATERIAL**



## **INDEX**

1. Controller Operation
2. Set Up
3. Baler Fit Out
4. Initial Set
5. Tying the Loop
6. Transverse Twining
7. Initial Fill
8. Baler Operation
9. Tidy Bale Procedure
10. Tying Off
11. Transverse Twine tie off
12. Retracting Fingers
13. Opening the Doors
14. Bale Removal and -

Storage Safety Procedure



Baler Serial No: \_\_\_\_\_

Date: \_\_\_\_\_

Customer: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Trainer: \_\_\_\_\_

Signature: \_\_\_\_\_

## 1. Controller Operation

1. Turn the key on – power light on
2. Engage coded key bar – door open light on.
3. Disengage emergency stop key rotation
4. Cycle button to cycle
5. Retract button to raise fingers only
6. Red light and beeper full bale indicators

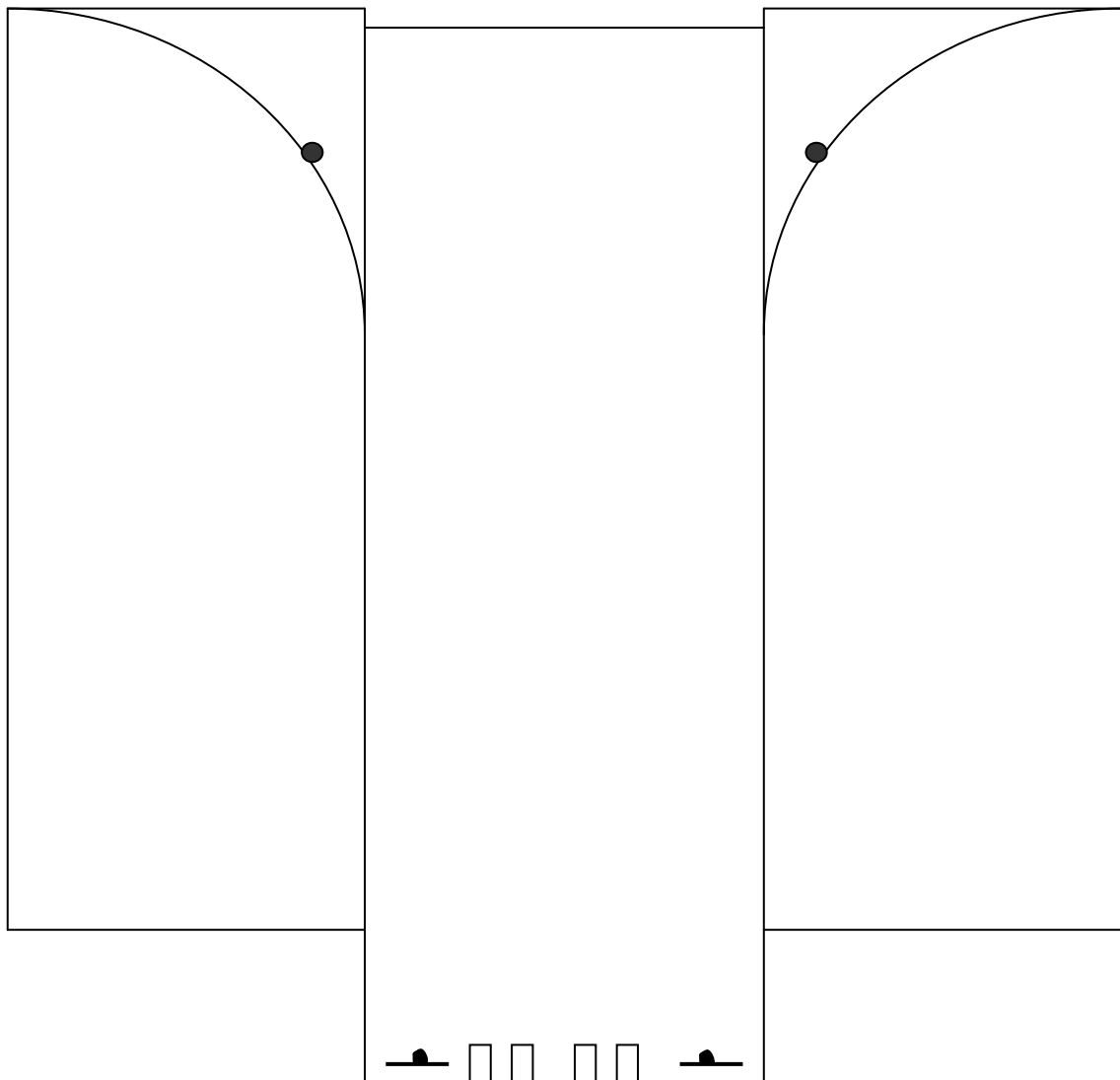


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## 2. **Set Up**

1. Remove the protective wrapping
2. Move all sundry items from within the baler
3. When moving or relocating the baler carefully follow the lifting instruction and safety procedure.



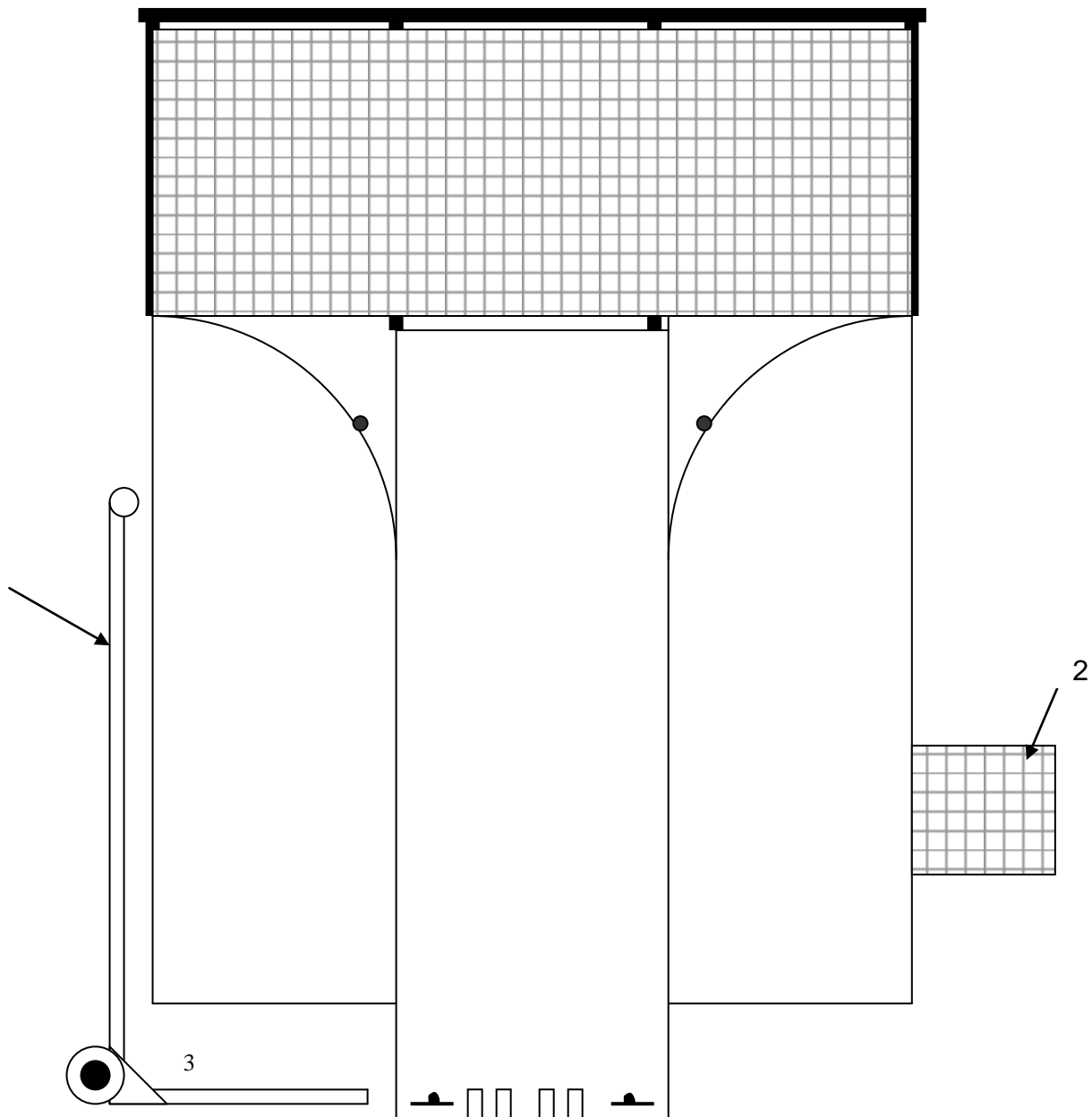
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### 3. *Baler Fit Out*

1. Fit the mesh hopper above the baler
2. Position the twine cage to the side of the baler
3. Situate the baler removal and storage trolley
4. Fit canopy to balers with auto cycle provisions

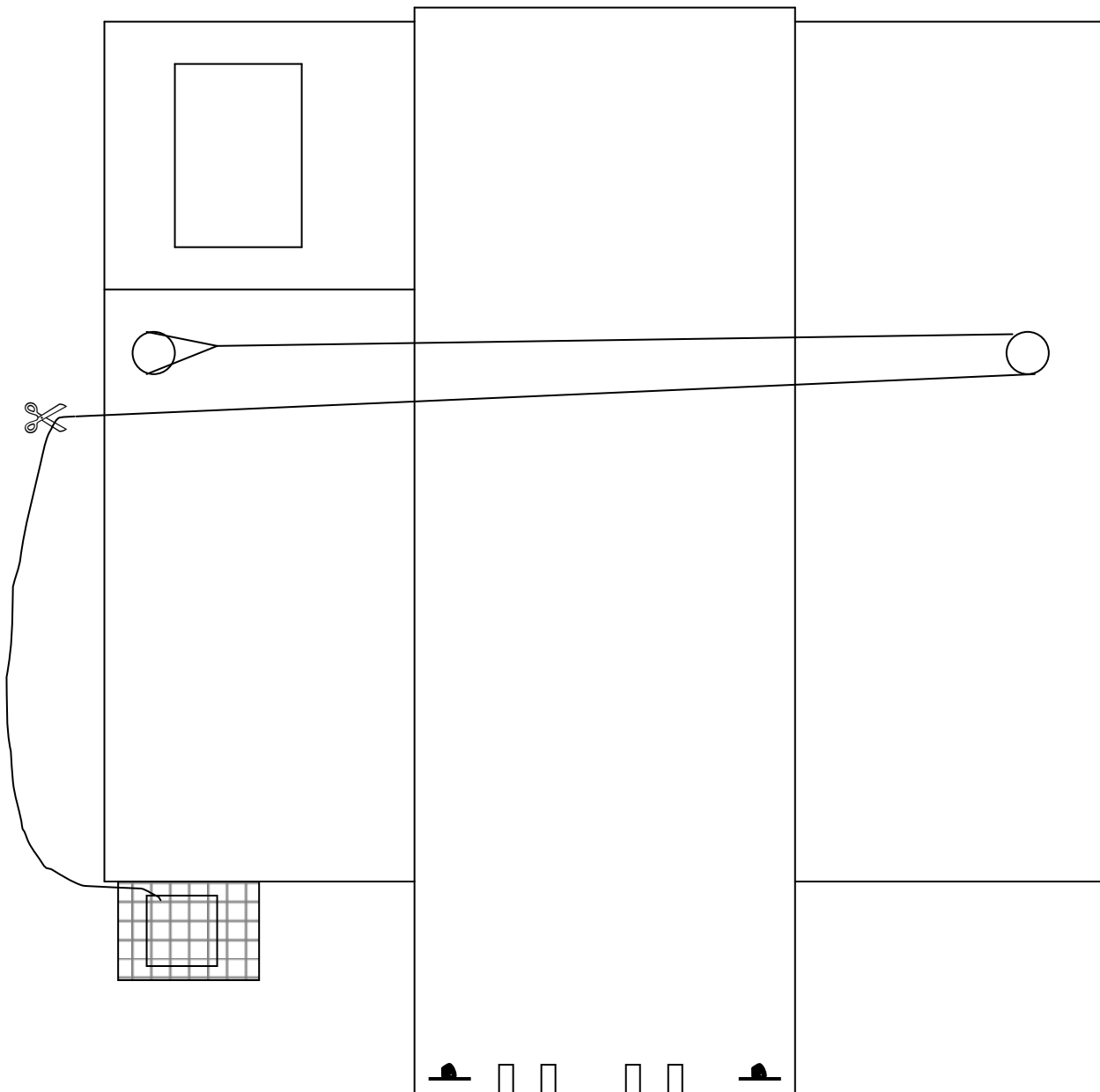


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#### 4. **Initial Set**

1. Turn the controller key on
2. Press retract button – check motor rotation for clockwise direction – stand fingers up and clear of the bale chamber
3. Check that twine roll is correct side up – draw twine and cut to length as on the illustration below (all three twines are the same length)

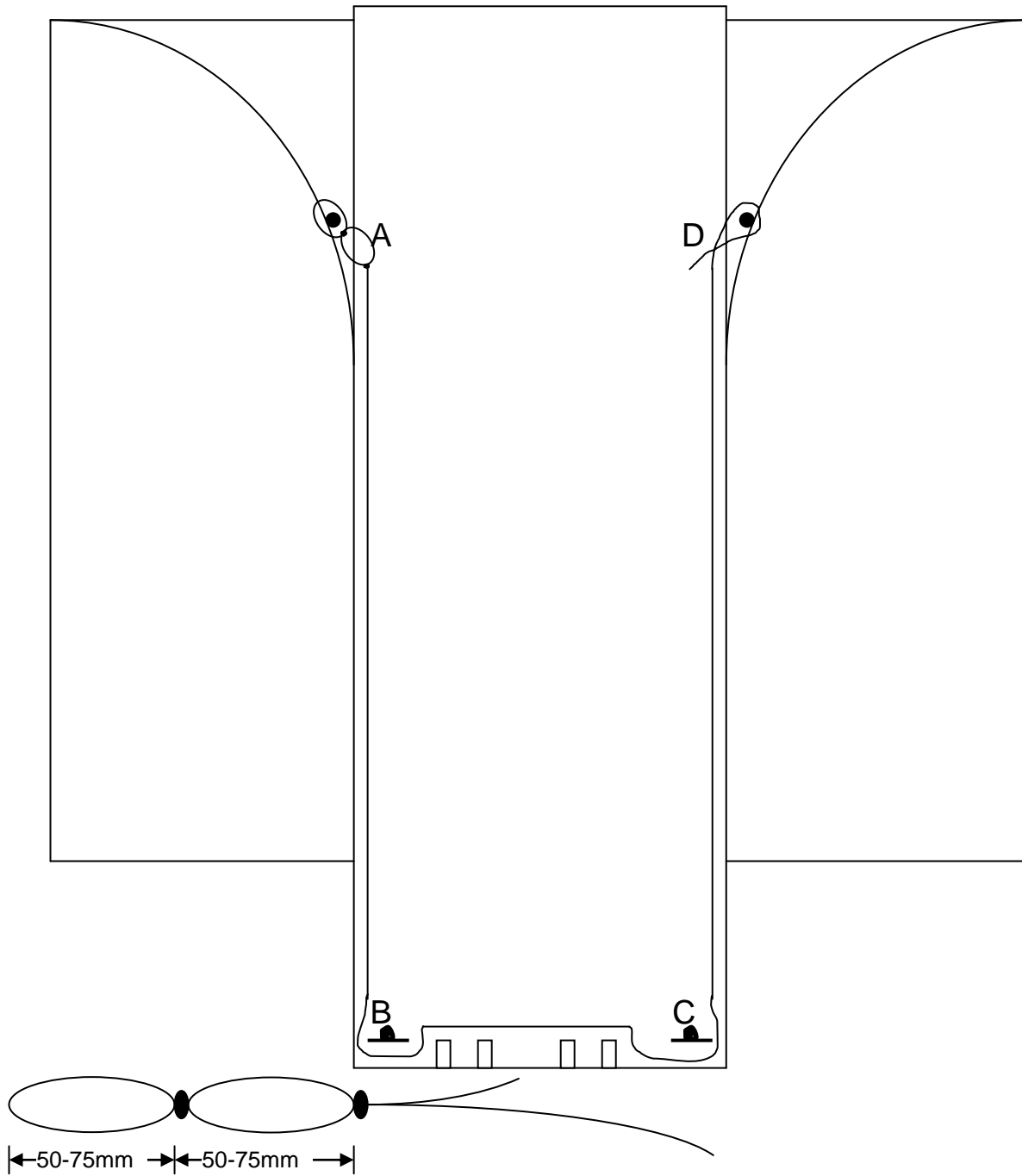


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## 5. *Tying the Loop*

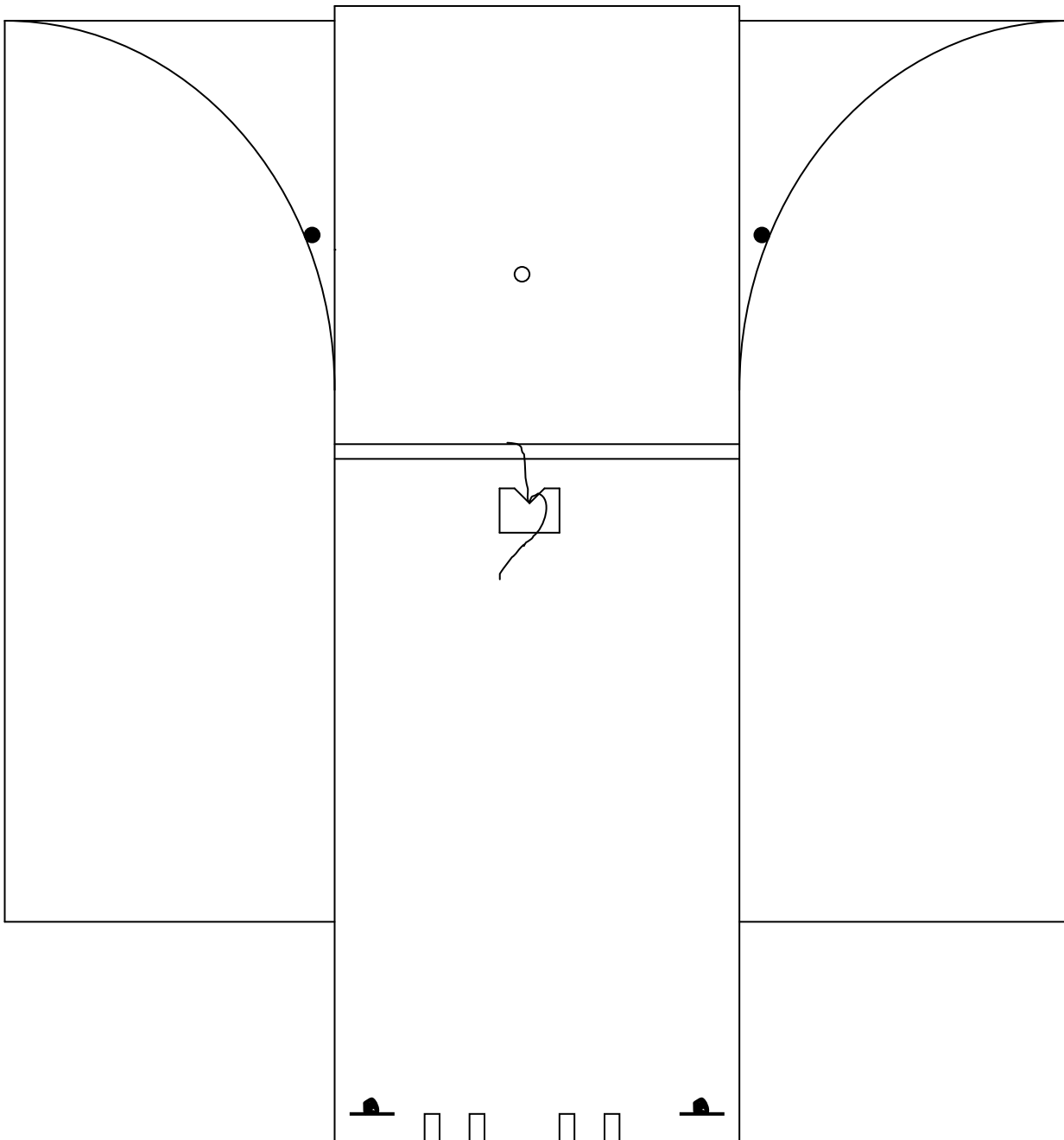
1. Tie the double loop in twine ends.
2. Open all doors
3. Attach the outer loops of the twine to the left hand side of the baler
4. Down to tab on left side then across the floor then under the tab on the right hand side.
5. Rotate the twine end around the eye bolt twice then tie off with one loop
6. Repeat his process on all three twines



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**6. Transverse Twining**

1. Hook twine loop or domed hook on rear will of baler
2. Position twine under rear twine tab on the baler floor
3. Position twine under front floor tab
4. Close bottom door and brine twine up the inside of the front door and over the top and fix twine end to twine tab by rotating once then fixing the twine in the tab slot.

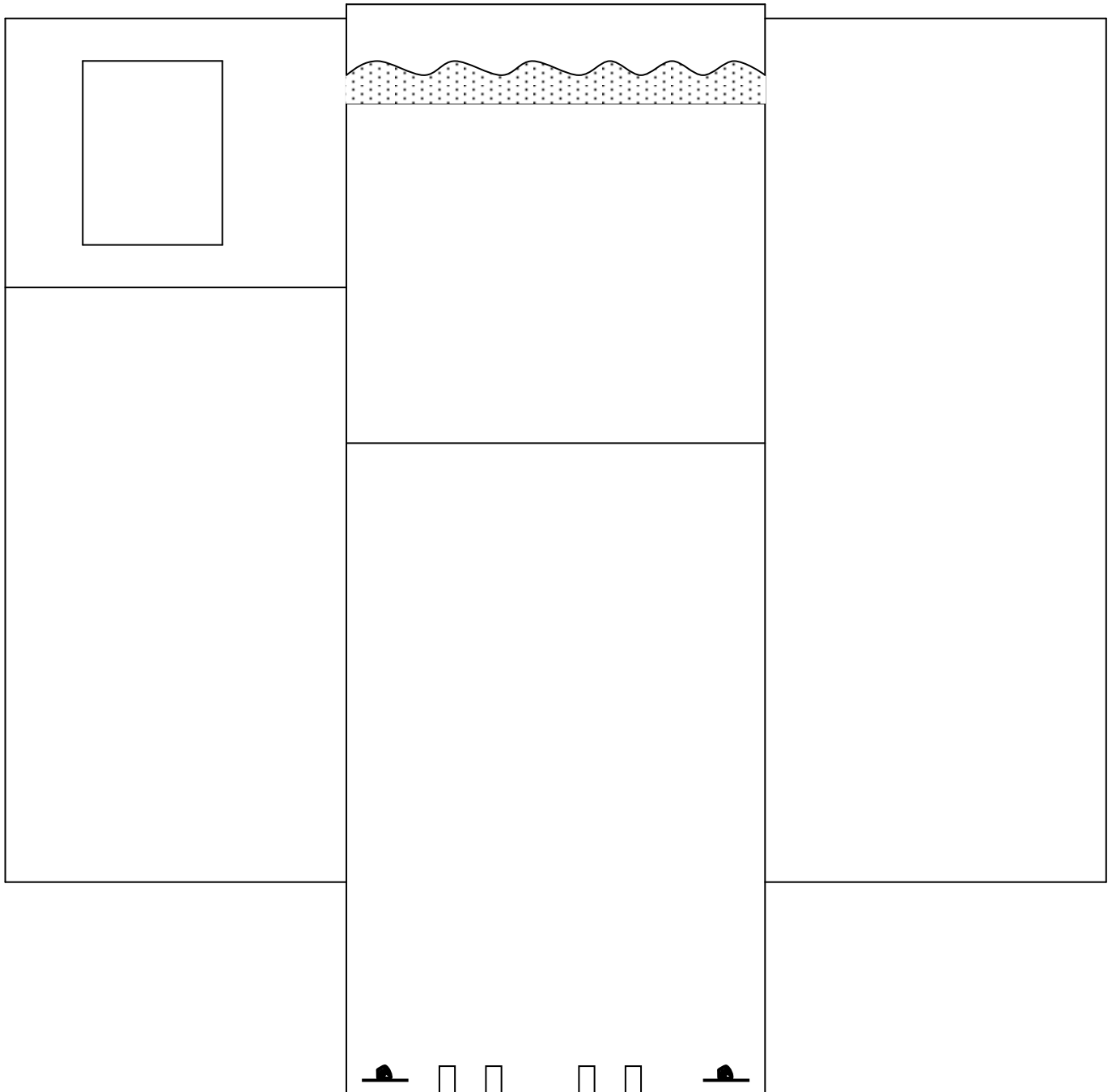


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**7.**

***Initial Fill***

1. Fill the lower section of the baler chamber with the top door open. (*note pressing fingers need to be fully retracted*)
2. When the lower section is full close the top door and deposit materials over the top door until visible.
3. Activate the cycle button
4. Cycling the baler with o material or insufficient materials will cause a loud bump.

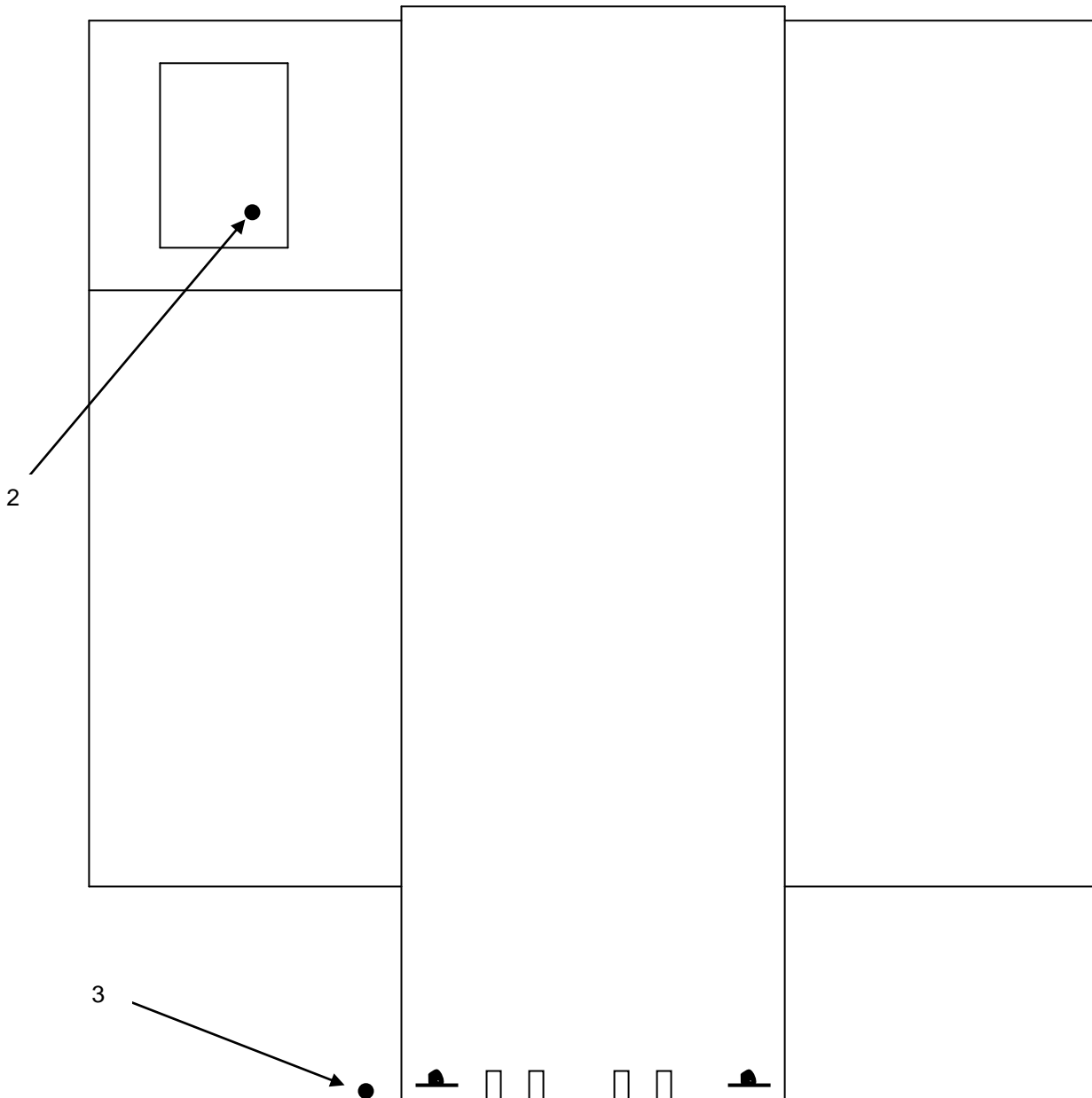


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## 8. *Baler Operation*

1. TI100 & TI200 balers have automatic function.
2. Button or automatic activation is required for each cycle.
3. Peddle (or foot activation is optional) on TI100 & TI200 units

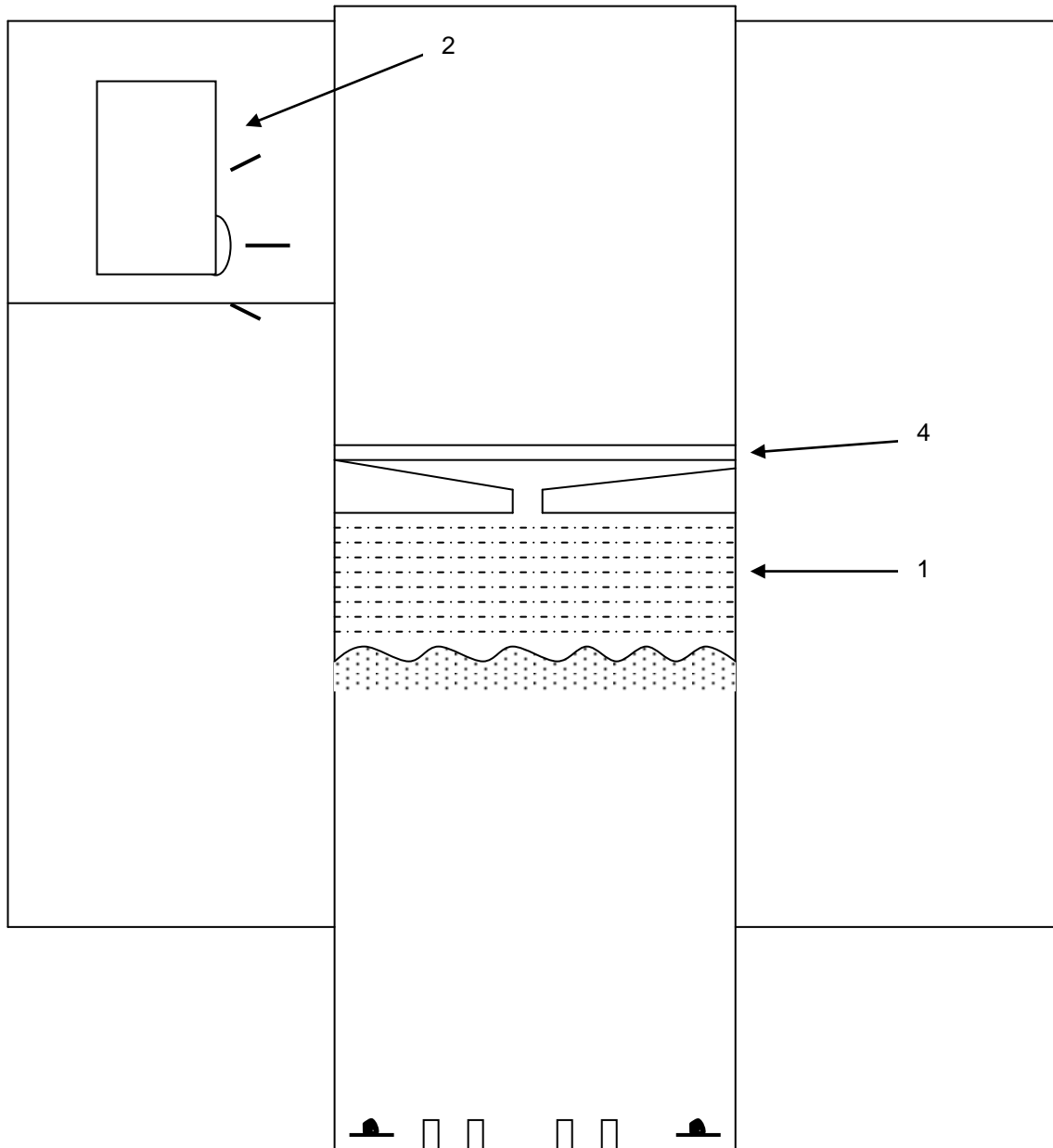


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**Tidy Bale Procedure**

1. Last 10% of the bale, flattened material laid flat
2. When full bale light comes on:
  - i. Remove excess material by cycling manually by pressing the cycle button (several cycles may be required)
  - ii. For neat top, place large flattened material on the top of the bale and activate cycle button.

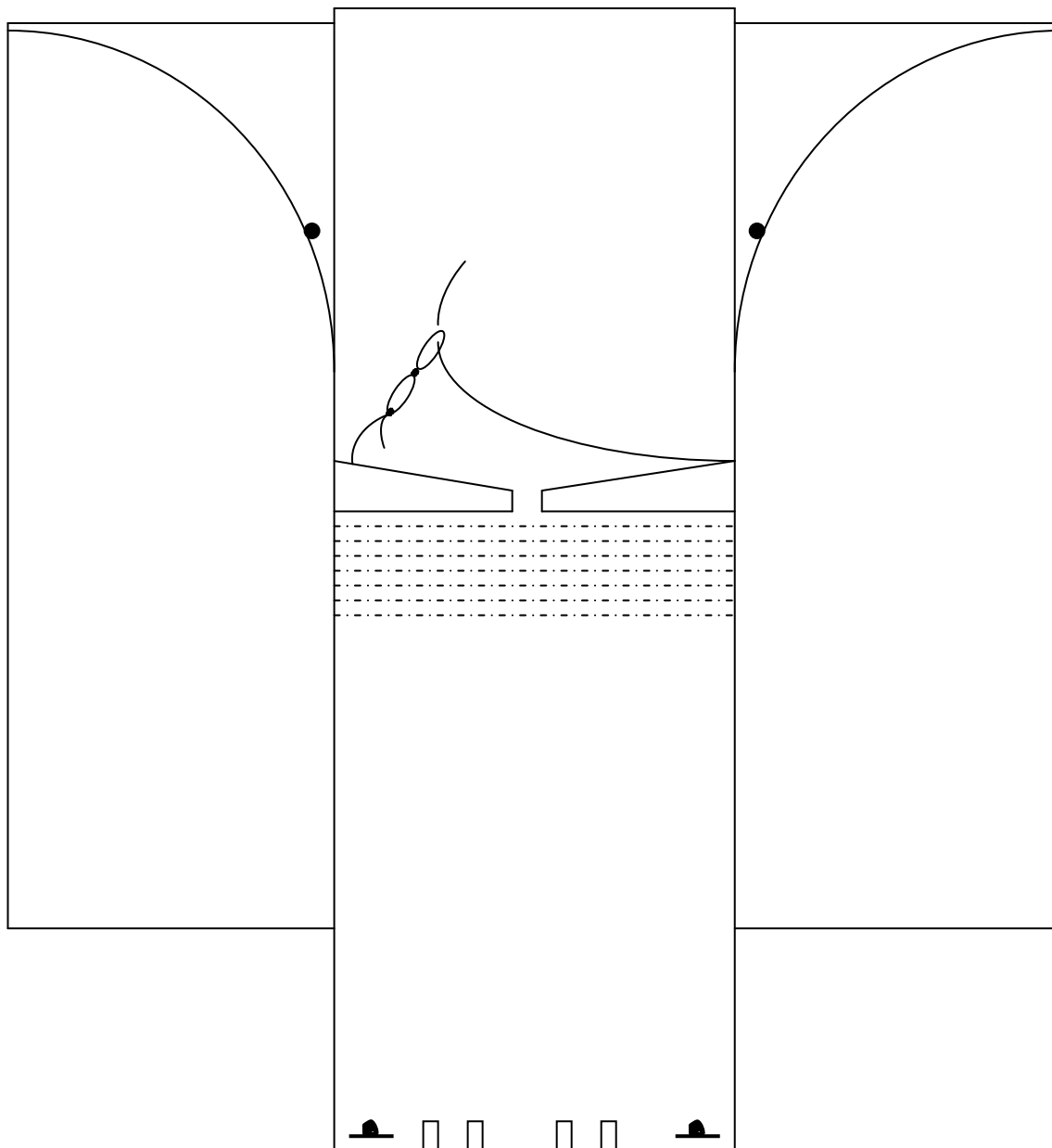


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## 10. Tying Off

1. Open the top door
2. Remove loose or protruding materials from above the fingers
3. Unhook the twines on the looped ends (*cut upper loop if too tight and use lower loop to tie off*)
4. Untie plain twine end and insert through the loop. Pull tight and tie off securely.



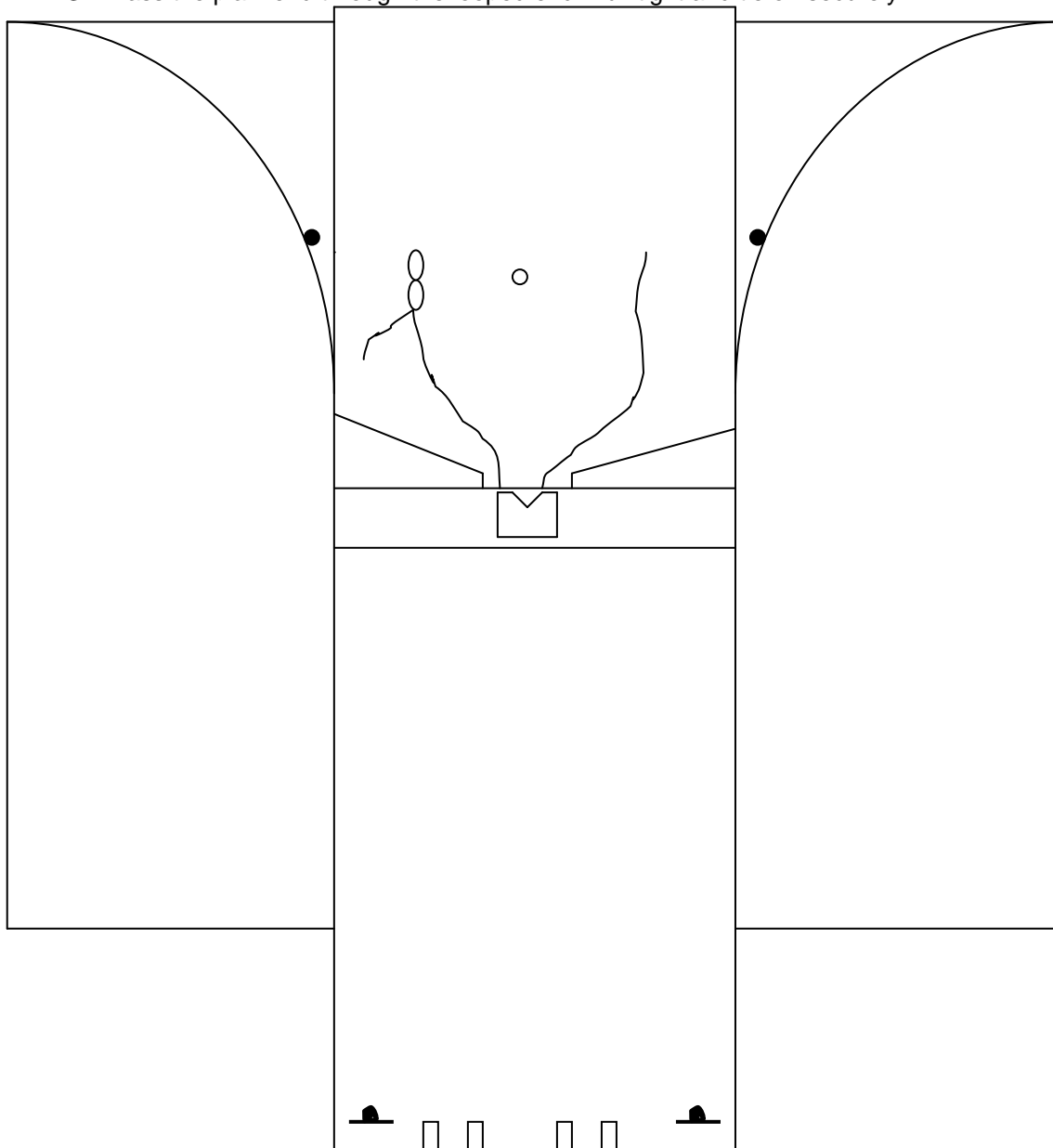
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# 11. Transverse Twine Tie Off

1. Unhook from rear baler wall.
2. Release plain end from the tab on the outer front lower door.
3. Pass the plain end through the looped end. Pull tight and tie off securely

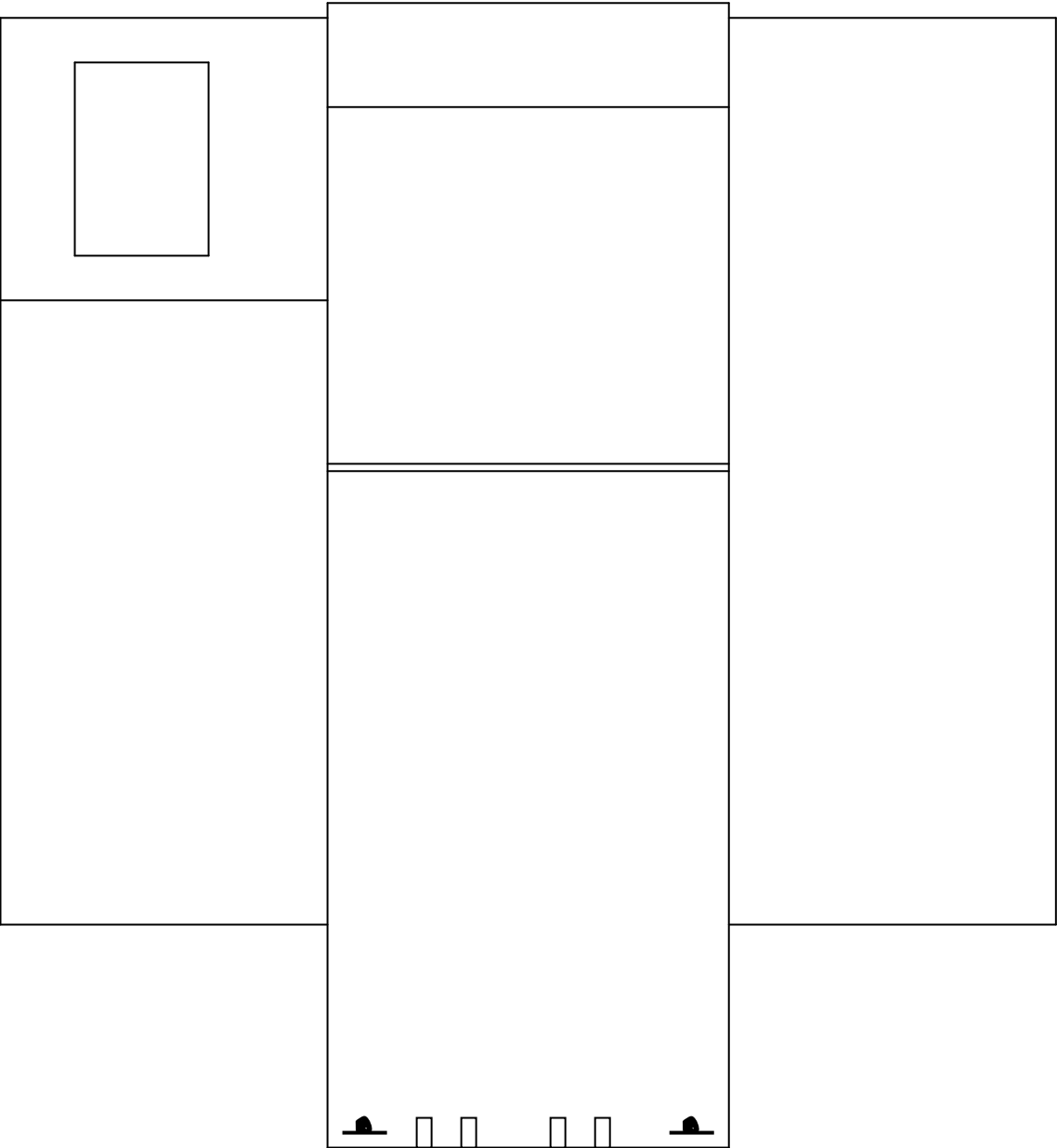


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12. Retracting Fingers

- 1. Close top door
- 2. Turn power on
- 3. Press retract button (hold button until the fingers are fully retracted)

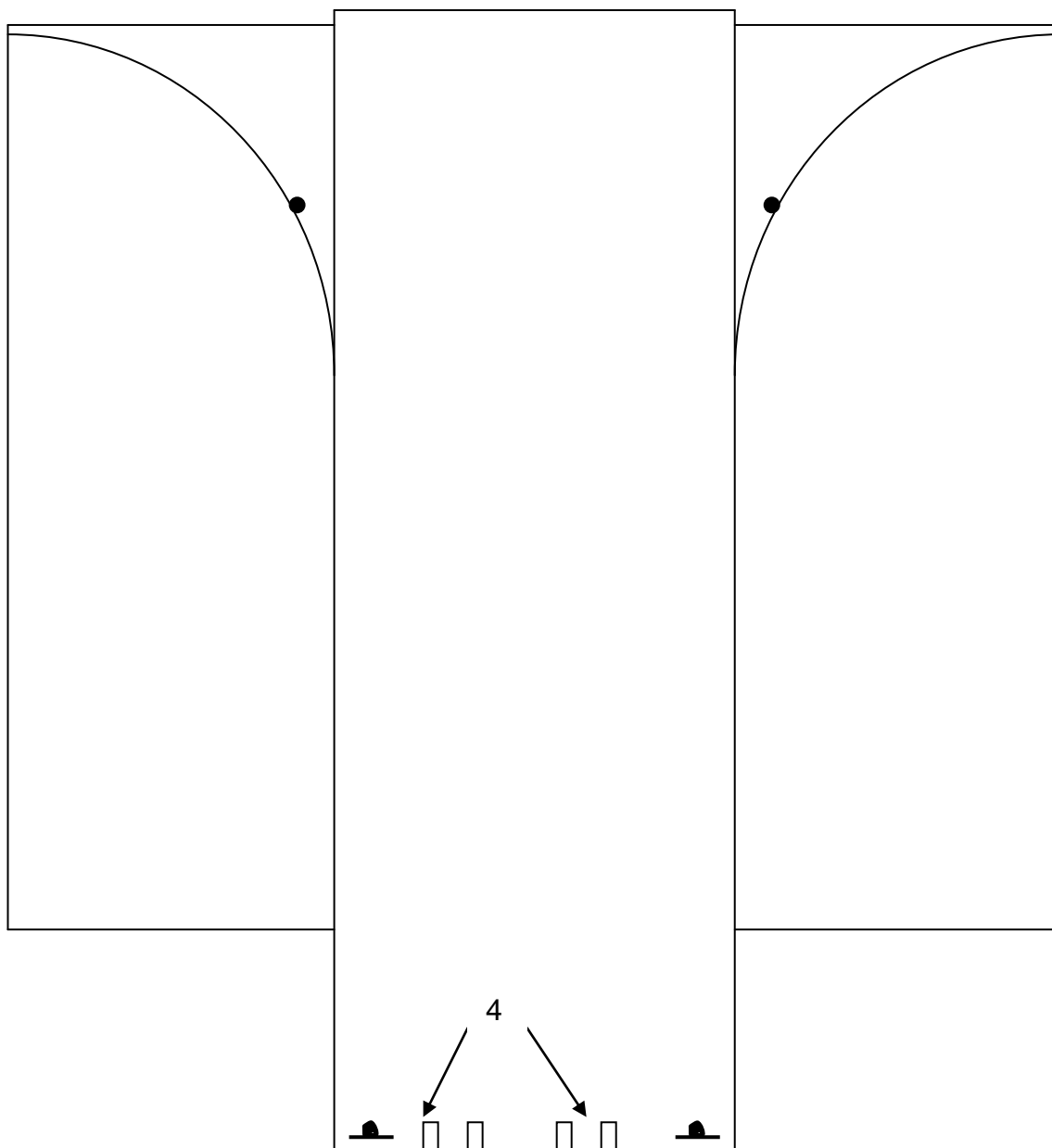


Trainer Signature of compliance:

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### 13. Opening the doors

1. Open the top door (beware of possible rebound)
2. Open the bottom door (beware of possible rebound)
3. Open the bottom door fully
4. Insert the bale removal trolley tines into slots in the baler floor or with auto eject models position the bale transport trolley for ejection onto the trolley.
5. When fully inserted gently pull back on trolley handle and wheel away for storage.
6. Note do not open the bottom door with the fingers down.

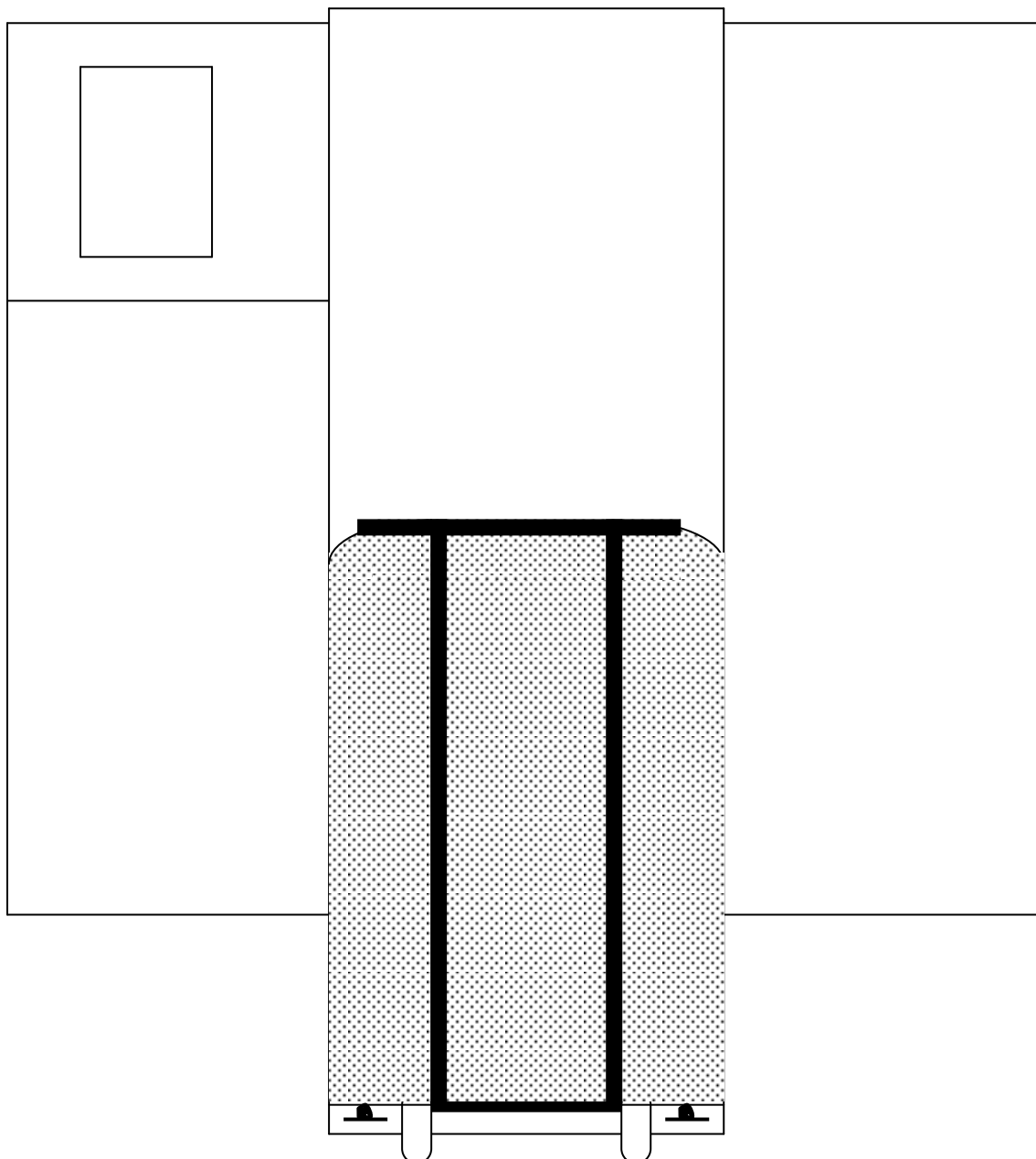


Trainer Signature of compliance:

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#### 14. ***Bale removal and storage safety procedure***

1. Ensure that the person removing the bale is of sufficient strength and fitness to prevent personal injury.
2. Heavier bales may require a three wheeled trolley, supplied as an option at the customers request.
3. Beware of over balance and possible back or foot injury.



Trainer Signature of compliance:

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***Autobaler Trainee Particulars (Kit)***

Company: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Trainee Name: \_\_\_\_\_  
(Print Clearly in Capitals)

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone No: \_\_\_\_\_

Employer: \_\_\_\_\_

Date of Training: \_\_\_\_\_

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 \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Trainee Exam Questions (Autobaler TI100/TI200 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. When twining the baler at what position should the baler fingers be:
  - a. Right down..... ☐
  - b. Half way down..... ☐
  - c. Fully up..... ☐
5. What is the purpose of the plastic tabs on the base (floor) of the baler:
  - a. Decoration..... ☐
  - b. Place twine beneath..... ☐
  - c. Structural..... ☐
6. The last 10 - 20% of the bale, how would you place flattened material:
  - a. On its edge..... ☐
  - b. Anyway..... ☐
  - c. Flat in the baler..... ☐
7. Tying of the finished bale should be done with the:
  - a. Fingers up (retracted)..... ☐
  - b. Fingers half way..... ☐
  - c. Fingers right down..... ☐
8. 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. Pull as hard as I can on the twine..... ☐
  - b. Place the eject trolley in front of the baler with all doors open and in a roll away from the baler position..... ☐
  - c. The best I can..... ☐
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 an out of order sign on it..... ☐
  - c. Take care..... ☐
14. Was the knot test passed? Yes ☐ No ☐





**CLEANING AND MAINTENANCE SECTION**

- *MAINTENANCE DESCRIBED IN THIS MANUAL IS ONLY TO BE PERFORMED BY A QUALIFIED PERSON.*
- *ALWAYS DISCONNECT ELECTRICAL SUPPLY BEFORE CHANGING ANY EQUIPMENT*

**Maintenance Definition**

**Standard Maintenance:** A service provided at four monthly intervals.

**Average usage:** For Balers producing up to 3 bales per day, recommended preventative maintenance period is not to exceed four months, to be serviced according to the standard servicing schedule.

**High usage:** For Balers producing more than 3 bales per day, recommended service period is not to exceed four months, to be serviced according to the standard servicing schedule.

**Major Maintenance:** Service to be performed every 12 months or every 660 bales if sooner, to be serviced according to the standard servicing schedule. A major service has these additional service elements:

1. Oil filter change
2. Hydraulic oil test and changed if required
3. Main cylinder pivot pin check for wear or fatigue

**Safety:** All service intervals to include a full safety check and report.

**MACHINE CLEANING**

To keep your Autobaler in top working condition, frequent cleaning is required.

**POWER UNIT CLEANING**

- Never attempt to service the power unit without first thoroughly cleaning the unit.
- Remove the retainer screws holding the mesh covers
- Note: Always disconnect the power socket from the power source plug before attempting any guard removal.
- Remove the key from the controller and attach an 'in service' note to the baler
- Keeping the power system clean will prevent wear and system damage.

**CLEANING THE BALER CHAMBER**

Using a soft cloth, clean the outside of the machine to keep it in good appearance. Never use petrol or mineral solvents to clean the machine as this may damage the paint.

**GENERAL HOUSE KEEPING**

Daily remove material build up around the baler, especially between the rear of the baler and the wall. A material build up creates a fire and vermin hazard. Keep the access area to the baler free of all materials to prevent a trip hazard and other OH&S concerns.

**SERVICING**

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

**Major Maintenance**

1. Full Lubrication Guide
2. Safety Check List
3. Service Guide

**FULL LUBRICATION GUIDE** *(each maintained period)*

1. Upper door latch pivot: one pump of grease each service per pivot,
2. Upper door hinges: using KZD needle nose coupler, ¼ pump per coupling,
3. Lower door hinges: using KZD coupler, ¼ pump per pivot.
4. Using KZD coupler (provided) grease all hinge and latch pivots. (See lubrication guide)

**LUBRICANTS REQUIRED TO SERVICE AUTOBALERS**

1. Tube of *PBL 8* (Pro-ma) long life grease
2. *PBL 8 SPRAY LUBE* or similar spray lubricant
3. Hydraulic fluid grade 32

**Hydraulic reservoir capacity** 6 litres

- If hydraulic fluid top up is required:*
1. Clean thoroughly the top of the hydraulic unit to prevent contamination
  2. Always use a clean funnel
  3. Use new recommended grade oil
  4. Never over fill

**RECOMMENDED LUBRICANTS**

Autobalers have high pressure pivot points which require high pressure grease, therefore it is recommended that only Pro-ma MBL grease be used in the service of Autobalers or grease with equivalent lubrication properties (see data sheet). If maintenance periods are exceeded or lubricants used which are outside the manufacturers recommendations, Autobaler warranty may be voided. Only lubricants recommended by the manufacturer are to be used in the Autobaler.

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

**TOLL FREE : 1800 888 403 OR 02 67 345 403**

## 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

## TOOLS REQUIRED FOR A PREVENTATIVE MAINTENANCE

1. Cartridge type grease gun
2. KZD needle nose coupler

## BALER SPARES REQUIRED FOR A SERVICE

1. Oil filter
2. Spare twine tab unit
3. Assorted high tensile bolts (2 ½" x ½" x ht nyloc)
4. Roller type limit switch (omron)
5. Cable ties

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

## MAINTENANCE INTERVALS AND LUBRICANTS

1. Service Intervals
2. Recommended Lubricants

### SERVICE INTERVALS

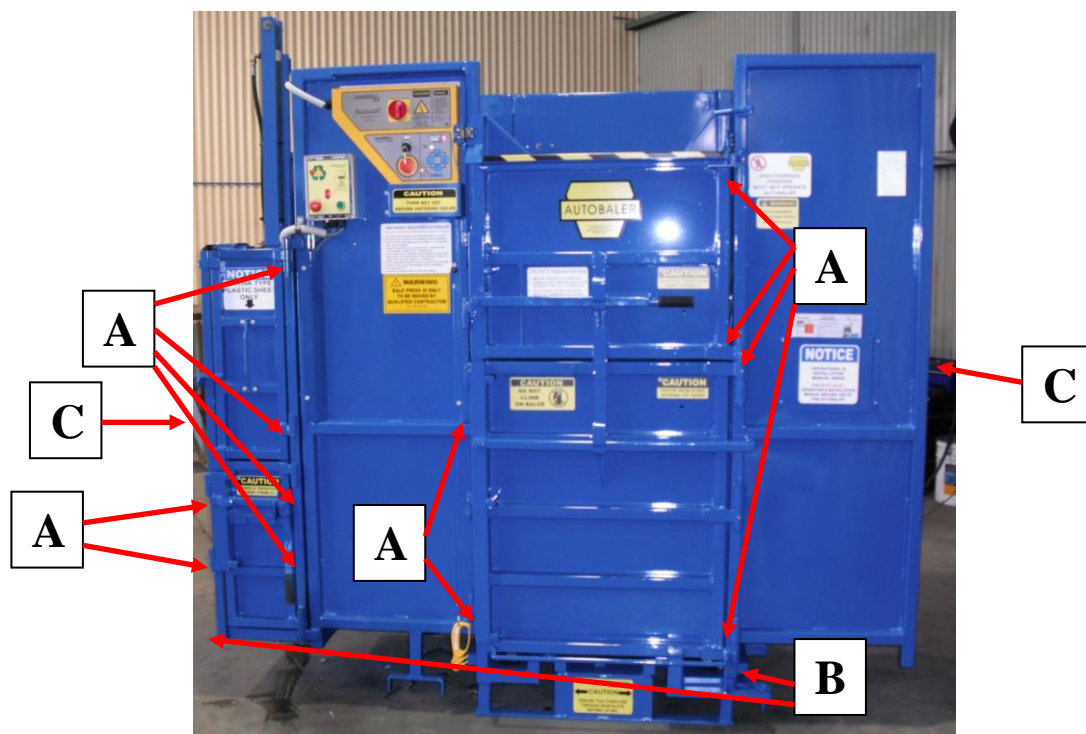
- Autobalers require regular maintenance intervals to ensure that they perform and operate safely, reliably & efficiently.
- Autobalers must be serviced by qualified service people who have been instructed in the service of Autobalers
- Autobalers must be serviced according to the service requirements as laid out in the maintenance manual supplied with each Autobaler.
- It is a requirement that when an Autobaler has an interval service that the appropriate service leaf be dated and filled out according to the service and signed by the service technician.
- It is recommended that a service interval not exceed 4 months or every 500 bales. Autobalers must be serviced within this period during the warranty period.
- An integral component of the service is a comprehensive safety check to ensure interlocks and all other safety devices and guards are in good safe working order.

## DATA SHEET, PRO-MA MBL 8 GREASE

### Benefits of Use

- Performs within high and low temperature operating ranges
- Resists water and water washout
- Provides oxidation stability
- Protects against rust
- Protects against extreme pressure
- Works well with high loading or severe shock loading
- Extends lubrication periods
- Prevents excessive seal swelling

## Lubrication Chart



**A:** Hinge and latch pivots – where grease nipples are fitted inject grease until it appears. Wipe off surplus, some balers have grease holes, these are lubricated using a KZD coupler attachment. Alternately a good quality pressure pack lubricant can be used.

**B:** Door slide plates on main baler side door and combo side door require lubricating with a Pro-ma PBL long life grease.

**C:** On both sides of the baler are the main compression systems. To access these remove combo fastening nut and swing out (picture 1) the combo unit.



Pic 1



Pic 2



Pic 3



Pic 4

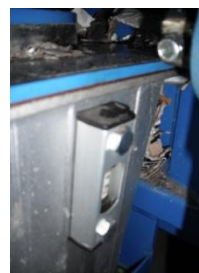
**D:** Remove both baler side gates to access compression systems.

**E:** Lubricate using PBL grease or PBL spray lubricant both top and bottom cylinder anchors on both sides of the baler (picture 2).

**F:** Situated on both the left and right side finger unit are rollers (picture 3). Lubricate thoroughly using PBL grease; these rollers need to rotate freely.

**G:** Lubricate – grease nipples or KZD coupler main bearings (picture 4).

**H:** Check hydraulic oil level sight glass – must be check with the compaction cylinders fully closed – DO NOT overfill. Care must be taken to ensure no contamination occurs – Grade 32-45 (picture 5)



Pic 5

**The Base Grease Used in MBL Grease has the Following Specifications**

NLGI Grade.....2  
Soap Type.....Lithium-Complex  
Texture.....Buttery

**Base oil viscosity**

CST at 40°C.....148  
CST at 100°C.....14  
SUS at 100°F.....767  
SUS at 210°F.....75  
Base oil viscosity index.....90  
Dropping point C (F) (ASTM D 2265).....280° + C (500° + F)

**Penetration, mm/10 (ASTM D 217)**

Unworked.....280  
Worked 60 Strokes.....285  
Worked 100,000 strokes, % change..... + 10

**Trident probe viscosity (ASTM D 3232)**

204°C (400°F), poises.....15

**Oil Separation (ASTM D 1742)**

24 hr at 25°C (77°F), %.....3

**Lubrication life (ASTM D 3336), no.204 bearing**

10,000 rpm, 163°C (325°F), hrs.....290

**Oxidation stability (ASTM D 942)**

Pressure drop at 100hr, kPa (psi).....14 (2)  
Pressure drop at 500hr, kPa (psi).....70 (10)  
Roll stability (ASTM D 1831) % penetration change..... + 10

**Wheel bearing test (ASTM D 1263 modified:60-9 pack 160°C (325°F)**

Leakage, g.....1.5

**Load carrying properties:**

Timken load (ASTM D 2509,kg (lb).....25 (55)

**4-Ball EP test (ASTM D 2596)**

Load wear Index, kg.....40  
Weld point, kg.....250

**4-Ball wear test (ASTM D 2266), 40 kg 1200rpm,**

75°C (167°F), 1 hr. Wear scar diameter, mm.....0.40

**Ball-joint test (ASTM D 3428)**

Brine sensitivity (noise and wear).....Pass  
Torque stability.....Pass  
Water washout (ASTM D 1264), % at 80°C (175°F).....4  
Rust prevention (ASTM D 1743), ASTM rating.....1

**Low temperature torque (ASTM D 1478), -40°C (-40°F)**

Starting, g-cm.....13, 000Running,  
g-cm.....5,000

**Mobility (U.S. Steel method)**

Flow rate at -18°C (0°F), g/sec.....0.5

**Rubber swell (GM method) 70hr at 100°C (210°F)**

Volume change, %.....+ 12

**Handling**

Product contains petroleum oil, copper and leads particles, **DO NOT store near heat, sparks or flame.** Wash with soap and water after contact with skin. KEEP OUT OF REACH OF CHILDREN. A material Safety Sheet is available from Pro-Ma Systems.

## **Warning**

Do NOT take internally. **Harmful or fatal if swallowed.** Contains copper and lead particles and hydrocarbons. If swallowed contact a doctor immediately. Wash hands after use.

### **Medical advice**

Contains petroleum oil, copper and lead particles. **If swallowed, do NOT induce vomiting.** Call physician immediately.

### **Available Sizes**

450g, 2.5kg, 20kg, 60kg, and 202.5kg.

### 3. Material Safety Data Sheet

Product Name: **SUPERDRAULIC RANGE**

Date Issued: 3 June 1997

#### IDENTIFICATION

Use: General purpose hydraulic oil.

Not classified as hazardous according to criteria of Work safe Australia.

Company: WESTERN OIL

1 COOMBES DR

PENRITH

UN No. : **Not Assigned**

Main Class : **Not Assigned**

Subsidiary Risk : **Not Assigned**

Poisons Schedule : **Not Allocated**

Hazchem Code : **Not Assigned**

CAS No : **Not Relevant**

#### PRODUCT PROPERTIES

Appearance & Odour: **Clear and bright oily liquid. Mineral oil odour.**

Chemical Reactivity: **Stable. Reacts with oxidising agents.**

Solubility in Water: **Negligible**

| Property              | Value          | UOM   | Temp |
|-----------------------|----------------|-------|------|
| Specific Gravity      | 0.87           | -     | 15   |
| Melting Point         | Not Available  |       |      |
| Vapour Pressure       | Expect<0. 0005 | kPa   | 20   |
| IBP                   | Typically 280  | deg C |      |
| FEP                   | Not Available  |       |      |
| Evaporation Rate      | Not Available  |       |      |
| Vap Dens (Air=1)      |                |       | >1 - |
| Fire/Explosion Hazard |                |       |      |
| Flash Point           | Typically>224  | deg C |      |
| Auto-ignition         | Typically>320  | deg C |      |
| % Volatiles           | Not Available  |       |      |
| LEL                   | Expected 1     | %v/v  |      |
| UEL                   | Typically 10   | %v/v  |      |

#### PRODUCT INGREDIENTS

| Blending Ingredient          | Proportion  | Method | CAS No. |
|------------------------------|-------------|--------|---------|
| Highly refined mineral oil   | High >99.4% | m/m    |         |
| Complex mixture of additives | Low < 0.6%  | m/m    |         |

#### HEALTH HAZARDS

##### HEALTH EFFECTS

Acute

##### Swallowed

Slightly toxic, may cause gastric irritation

##### Eye

Product may cause slight to moderate irritation to the eyes.

##### Skin

Mild irritation may occur to skin. Prolonged and repeated skin contact may cause dermatitis due to defatting effect.

##### Inhaled

Inhalation of the vapours (generated at elevated temperatures) or mists can cause irritation to the nose and throat.

#### FIRST AID

##### Swallowed

If swallowed, do NOT induce vomiting, seek medical advice.

##### Eye

Flood eyes with plenty of water for 20 minutes; if irritation occurs seek medical advice.

##### Skin

Remove contaminated clothing and wash skin thoroughly with soap and water.

##### Inhaled

Remove affected person from contaminated area and seek medical advice: if not breathing apply artificial respiration and seek urgent medical advice.

##### Advice to Doctor

#### PRECAUTIONS FOR USE

##### Exposure Standards

Work safe Exposure Standard: - time weighted average (TWA) 5 mg/m3 (oil mist) short term exposure limit (STEL) 10mg/m3 (oil mist)

### **Engineering Controls**

Special ventilation is not normally required due to the low volatility of the product at normal temperatures. However, in the operation of certain equipment or at elevated temperatures, mists or vapour may be generated and exhaust ventilation should be provided to maintain airborne concentration levels below the exposure standard or where no exposure standard is allocated, as low as is reasonably practicable.

### **Personal Protection**

Avoid contact with the skin and eyes, and avoid breathing vapours or mists. When exposure is likely, personal protective equipment in a combination appropriate to the degree and nature of exposure, should be selected from the following list:-

- (1) Eye protection
- (2) PVC gloves
- (3) PVC apron and sleeves, or full PVC covering
- (4) PVC or rubber boots

Where the concentration of vapour or mist is expected to approach the exposure limit, the following additional equipment is recommended:-

- (1) Short elevated exposures, e.g. spillage - goggles and correct respiratory protection should be worn.  
NB. If the vapour/mist concentrations exceed the exposure limit by more than 10 times, air supplied apparatus should be used.
- (2) For prolonged elevated exposures - Full face air supplied or self contained breathing apparatus should be worn.

### **CONTAMINATION**

If contamination occurs, change clothing and discard internally contaminated gloves and footwear. Launder contaminated clothing before reuse.

Observe good personal hygiene.

Eye wash fountains and safety showers should be available for emergency use.

### **REFERENCES**

For detailed advice on Personal Protective equipment, refer to the following Australian Standards

|                   |                                                                   |
|-------------------|-------------------------------------------------------------------|
| HB 9 (Handbook 9) | Manual of industrial personal protection.                         |
| AS 1337           | Eye protectors for industrial applications.                       |
| AS 1715           | Selection, use and maintenance of respiratory protective devices. |
| AS 1716           | Respiratory protective devices.                                   |

### **Flammability**

Combustible liquid, will not burn unless preheated

Refer to AS 1940 - Storage and handling of flammable and combustible liquids and AS 2865 - Safe working in a confined space, for more specific information on these subjects.

### **SAFE HANDLING INFORMATION**

#### **Storage & Transport**

Classified as a class C2 combustible liquid for storage and handling purposes. Store in a well ventilated place away from ignition sources, oxidizing agents foodstuffs and clothing. Keep containers closed when not in use.

#### **Spills & Disposal**

Extinguish or remove all sources of ignition and stop leak if safe to do so. Contain the spill with sand or earth and take up with a vacuum truck or absorb with absorbent material, sand or earth. Place used absorbent in suitable sealed containers and follow state or local authority regulations and guidelines for disposal of the waste. Clean area with detergent and water. Do not allow product to enter drains, sewers or water courses inform the local authorities if this occurs.

#### **Fire/Explosion Hazard**

Combustible: Combustion products include oxides of carbon. Keep storage tanks, pipelines, fire exposed surfaces etc cool with water spray. Shut off any leak if safe to do so and remove sources of re-ignition. Use foam, CO2 or powder to extinguish fire.

### **OTHER INFORMATION**

Long term animal experiments have shown that any health risks are associated with the level of aromatic and polycyclic constituents in the product. These constituents are removed during the manufacturing process to a level at which no health risks are expected as a result of normal handling.

### **CONTACT POINT**

Emergency Response: - 02 4732 3305

\*\*\* END \*\*\*

## CHAPTER 7

### FACILITY DRAWING

