

# AUTOBALER

## OPERATION MANUAL



### LS150 SERIES



www.autobaler.com

**Trethewey Industries**

14 Carl Baer Circuit  
New England Highway  
Deepwater NSW 2371  
Australia





## **Owner's Manual**

Thank you for choosing Autobaler LS150. 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 you 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***

LS150 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 and CYBERSMART CONTROLLER**

**MODEL - LS150**

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

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

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

Trethewey Industries  
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:** The 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 (EXSL models only) 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 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:	

### **Autobaler LS150**

Autobaler LS150 is a long stroke baler designed to compact a range of compressible waste.

#### **Waste Stream:**

Cardboard	110kg
Plastic	110-130kg
Aluminium Cans	
Metal Drums	up to 205L
Car Tyres	200kg
Glass Crushing	

Autobaler LS150 balers are loaded directly through the upper door or alternatively through a fold down chute build into the upper door. An optional bin for crushed glass can be supplied.

Strapping system can be heavy duty twine

Strapping system to take nylon strap

A bale removal trolley is supplied.



# 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 – LS150

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 \_\_\_\_\_

# Trethewey Industries

## 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 accidental 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

**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:	<input type="text"/>
System Pressure on Test:	<input type="text"/>
System Pressure Spikes:	<input type="text"/>
Pressure Switch Firing Range:	<input type="text"/>
Pressure Switch Firing Test:	<input type="text"/>
Hydraulic Delivery Hose Rating:	<input type="text"/>
Fluid Type and Grade:	<input type="text" value="Hydraulic 32 Grade"/>
Cylinder Brand and Type:	<input type="text"/>
Duration of Cycle Test:	<input type="text"/>
Date:	<input type="text"/>
Inspector:	<input type="text"/>
Signature:	<input type="text"/>

## 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:

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: LS150

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

## CHAPTER 1 Warnings

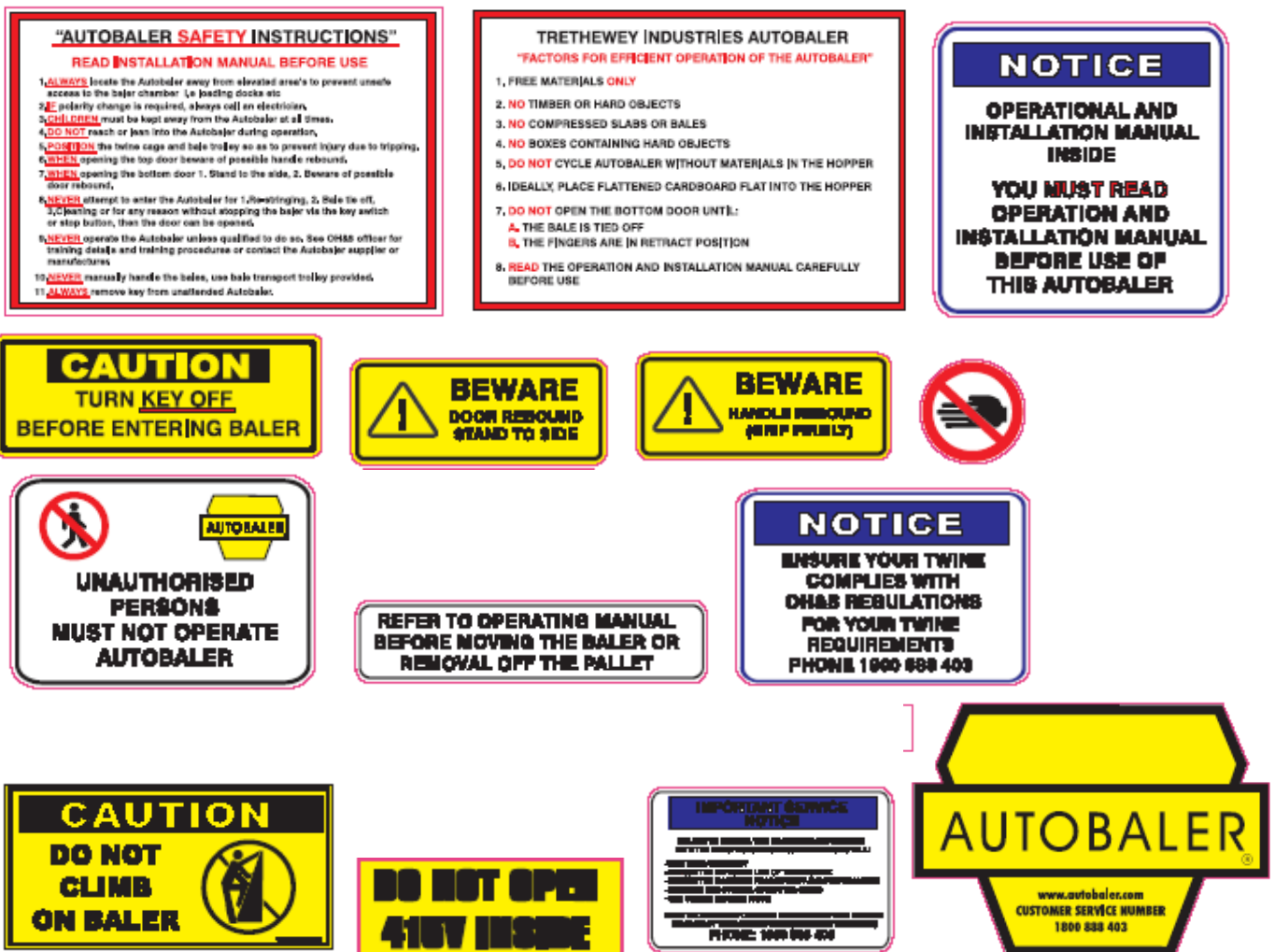
1. Autobalers must only be operated by qualified people.
2. Only qualified people to service or repair Autobalers.
3. Before servicing or repair familiarise yourself with the relevant instruction manual.
4. The Autobaler must not be used in a manner contrary to the manufacturer's instructions.
5. Prior to moving the Autobaler ensure the fork lift capacity is at least 1.5 tonne.
6. 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)







## CHAPTER 2 LIFTING AND HANDLING INSTRUCTIONS OF THE AUTOBALER

### LS150 Specifications

Bale Weights	See page 5.
Bale Size	630x630x850
Cycle Time	35 seconds
Unit Weight	950kg
Compaction Force	14000kg
Power	4Kw 3 phase
Plug required	4pin Clipsal compatible
Height	3200mm
Width	1250mm
Depth	1250mm
Transport Height	2100mm

### TRANSPORTING THE AUTOBALER SAFELY

When moving or relocating the baler always follow 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 the baler – check baler weight in baler specifications.
2. Autobalers balers 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. Where possible attach the baler to the moving means to prevent possible overbalance
5. Where required situate traffic cones and safety barriers
6. 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
7. 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.

I.e. 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, 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.
3. When removing the bale, grip the handle of the eject trolley firmly and pull back with care.
4. Always insert the bale transport trolley fully 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

### **INITIAL BALER SETUP**

#### **Step 1.**

Position baler in a safe to use position.

#### **Step 2.**

Situate twine or strap roll in a safety compliant place.

#### **Step 3.**

Situate the bale removal and location trolley in a safety compliant place.

#### **Step 4.**

Fully open baler door.

### **TWINING – STRAPPING SETUP**

Baler has provision for twine or strapping in both directions – two across the baler and two from front to back. Generally one direction twining is sufficient, both directions if compacting motor tyres or any material with excessive memory rebound.

Suggested twine or strapping length: (pre-cutting of strap)

Side Strap/Twine 2 @ 3.6m

Front to back Strap/Twine 2 @ 3.8m

#### **Step 1.**

From within the baler chamber, pass approximately 300mm of strap through the slot in fig. 1.  
(Average compaction rear wall)



Fig 1.

#### **Step 2.**

Press the inserted end through clamp lock, Fig. 2.



Fig. 2.

**Step 3.**

Push clamp lock handle towards baler wall, securely locking strap or twine.

**Step 4.**

From within the baler chamber, insert twine or strap beneath plastic retainers on the baler floor. Fig. 3.



Fig. 3

**Step 5.**

Bring the end up to the slat directly above and insert the strap or twine through and fasten through the clamp lock, side straps only.

**Step 6.**

Rear to front strapping. Insert 3.8m through the back wall slots and lock through the clamp lock.

**Step 7.**

Fasten front to rear strapping beneath the plastic retainers on the floor then up the inside of the lower front door and fasten using clamp lock on the outside over the top door.

**Step 8.**

Ensure the bottom door is securely closed.

**BALING PROCEDURE****Step 1.**

Open top door – ensure bottom door is securely latched.

**Step 2.**

Load material – close the top door and cycle.

**Step 3.**

The baler will stop when the bale is full – showing full bale on the digital reader.

**CLOSING THE COMPLETED BALE – TYING OFF**

When a full bale has been indicated, the pressing plate will be in the down position.

Open the top door only.

Release the lock clamps, and pass the strap through the slots in the pressing plate.

Fasten using locking clips, see fig. 4, 5 and 6.



Fig. 4



Fig. 5





Fig. 6

## REMOVING THE TIED OFF BALE

### Step 1.

Close the top door.

### Step 2.

Raise the pressing plate to full up position.

### Step 3.

Open the bottom door (caution, door may have heavy rebound – support while opening)

### Step 4.

When open, fully open bottom door – this action opens the side door releasing tension on the bale.

### Step 5.

Insert the bale trolley, sliding the trolley tines under the bale in the groove ways in the baler floor.



Fig. 7

### Step 6.

Pull back on the trolley, lifting and removing the bale from the chamber.



FIG. 8 & 9



## CONTROLLER LAYOUT AND FUNCTION



### 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 any time 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 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.

### **Inside the Wiring Loom -**

- 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 name 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. (On some models only).

**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 (on some models only).

**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.

**13. Full Bale Indicator** - When a full bale has been achieved the full bale indicator 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).

**17. Warning Indicator on System Monitor** - 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. 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. Baler Set Up
3. Baler Fit Out
4. Initial Function Check
5. Tying Off
6. Initial Fill
7. Opening the Bottom Door
8. Bale Removal

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

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

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

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

## 1. **Controller Operation**

1. Plug power lead socket into wall socket – (note: prior to plug in, check for lead damage in transport)
2. Ensure all doors are closed
3. Turn controller key on – power light will illuminate
4. Disengage E-Stop knob by rotation.
5. To cycle press green cycle button (note: check rotation of the motor – motor must rotate clockwise)
6. Various modes of operation will be displayed on the LCD display; i.e. door open, full bale, ready to operate.
7. Full bale light – small screen on left lower corner of the controller.
8. Note the rotation change plugs are situated on the inner right hand side of the controller, to change direction – swap plug sockets.



Trainer Signature of compliance:

## **2.     *Baler Set Up***

1. Remove Wrapping
2. Remove from transport pallet
3. Remove any items from within the chamber
4. Always follow bale lifting and transporting procedures.

Trainer Signature of compliance:

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### 3. *Baler Fit Out*

LS150 balers arrive with the compaction cylinder down in the transport position to reduce baler height. To raise the cylinder:

1. Remove all four mounting bolts from frame at cylinder flange.
2. Position fork life beneath compression plate and raise – note: ensure hoses and hydraulic fittings don't contact and be damaged, fig 3a.



fig 3a.

3. With the cylinder flange in contact with the underside of baler overhead frame, insert four anchor bolts from the top down, fig 3b.



fig 3b.

4. With the fork lift still in place, tighten all four anchor bolts. If scheems are attached, ensure scheems go back in the same position.

“Safety”:

5. Remove the forklift and immediately close lower and upper doors – pressing plate may come down and cause injury.

“Test Run With Care”:

6. Lower cylinder plate hydraulically after final operational check and check for pressing plate evenness in the chamber – 25m

Trainer Signature of compliance:

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***Initial Function Check***

- Rotation clockwise.
- Doors are all latching correctly.
- Door interlock.
- Tying a loop in twine when required. When using twine and even strapping a loop can be tied on one end.
  - Open top door only.
  - Unlatch twine or strap ends.
  - Tie a non-slip loop on the furthestmost end and insert the other end through the loop and tie off.

Trainer Signature of compliance:

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## 5. *Tying Off*

1. When bale is complete the pressing plate will stop down at top door level, fig 5a.

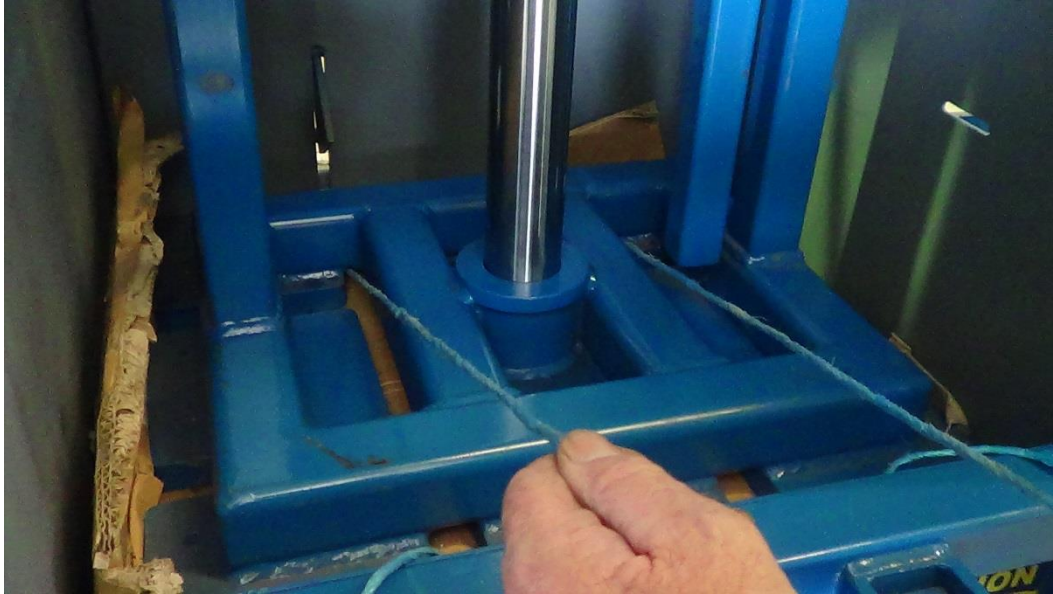


fig 5a.

2. For easy tie off, cycle once more with a large piece of flat cardboard, fig



fig 5b.

3. With pressing plate firm down on the compacted bale, release twine/strapping clamps on all ends, fig 5c.



fig 5c.

4. Bring rear twice across under pressing plate rail and tie a non-slip loop in the end, fig 5d.



fig 5d.

5. Insert the front twine/strap beneath the race insert through the tied loop pull tight and tie off, fig 5e.



6. With all twines/straps tied of close top door and raise pressing plate to fully up.
7. Strapping can be tied off in a similar way or using fastening clips.

Trainer Signature of Compliance:

---

**6. Initial Fill**

- LS150 balers are designed to compact a range of products.
- How the baler is loaded will often determine the end result.
- How the material is placed towards the end of the bale is important for ease of twine or strapping – often a large piece of cardboard on the top can greatly facilitate the final tie off.

Trainer Signature of Compliance:

---



## 7. **Opening the Bottom Door**

When opening the bottom door of a loaded baler:

1. Before opening, ensure the pressing plate has been fully raised.
2. Unlatch handle using a secure grip using both hands as rebound could cause injury – release handle slowly.
3. Support the door to prevent rebound swing and possibly injury from door contract, fig 7a.



fig 7a.

4. Open the bottom door fully and expand side door.

Trainer Signature of Compliance:

## 8. *Bale Removal*

1. Insert the fork tines of the bale removal trolley fully beneath the bale.
2. Pull back on the trolley handle releasing the compacted bale – assistance with some products may be required.  
Fig 8a, 8b, 8c.



fig 8a.

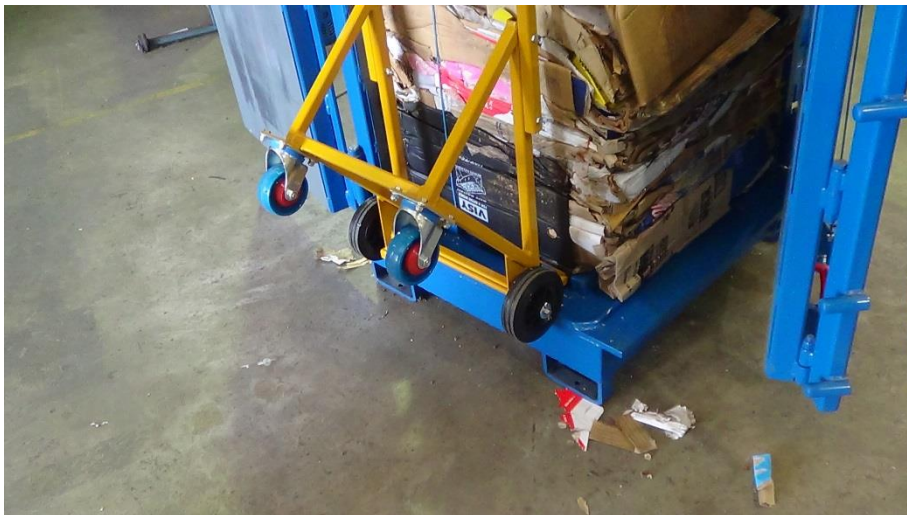


fig 8b.



fig 8c.

Trainer Signature of Compliance:

**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 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

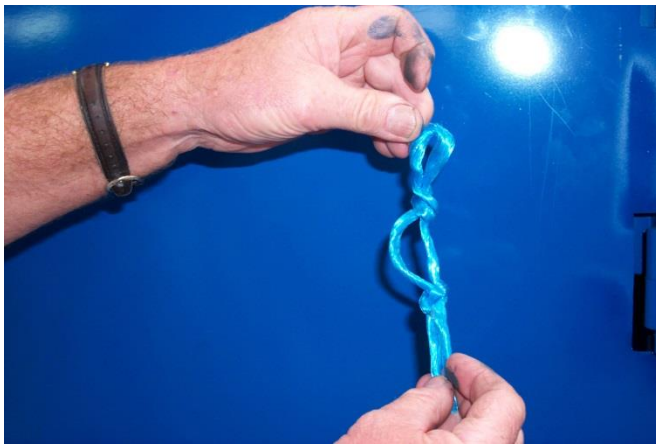


## Trainee Exam Questions (Autobaler LS150 Series)

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 E-Stop button have:
  - a. General operation.....☐
  - b. Cycles the baler.....☐
  - c. Emergency Stop.....☐
3. When twining the baler at what position should the baler pressing plate be:
  - a. Right down.....☐
  - b. Half way down.....☐
  - c. Fully up.....☐
4. What is the purpose of the plastic tabs on the base (floor) of the baler:
  - a. Decoration.....☐
  - b. Place twine beneath.....☐
  - c. Structural.....☐
5. The last 10 - 20% of the bale, how would you place flattened material:
  - a. On its edge.....☐
  - b. Anyway.....☐
  - c. Flat in the baler.....☐
6. Tying of the finished bale should be done with the:
  - a. Pressing plate up.....☐
  - b. Pressing plate half way down.....☐
  - c. Pressing plate firm on bale top.....☐
7. Opening of the top door, I should:
  - a. Open it the best I can.....☐
  - b. It doesn't matter.....☐
  - c. Grip the handle firmly.....☐
8. Removing the bale, I should:

☐

- a. Pull as hard as I can on the twine.....☐
  - b. Insert the eject trolley with all doors open.....☐
  - c. Do the best I can.....☐
9. Where should the bale transport trolley be stored when not in use:
- a. In a designated spot.....☐
  - b. Under the left hand side.....☐
  - c. Anywhere.....☐
10. 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.....☐
11. 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.....☐
12. Was the knot/clip test passed? ☐ Yes ☐ No



## **CHAPTER 6**

### **MAINTENANCE & CLEANING SECTION**

*Always disconnect Electrical Supply before Changing Any Equipment!*

#### **A. MAINTENANCE DEFINITION**

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

**Average usage:-** A baler producing up to 5 bales per day - recommended preventative maintenance period not to exceed four months and to be serviced according to the standard servicing schedule.

**High usage:-** a baler producing more than five bales per day - recommended service period not to exceed four months and to be serviced according to the standard servicing schedule.

**Major Maintenance:-** A serviced preformed every 12 months or every 660 bales and to be serviced according to the standard servicing schedule. A major service has the additional service elements.

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

#### **B. WEEKLY MAINTENANCE CHECK**

- 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? Is it clear of any moisture?
- f. Check Autobaler response to opening top door. Opening more than 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***

#### **C. 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.

#### **D. MACHINE CLEANING:**

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

##### **Power Unit:**

Never attempt to service the power unit without first thoroughly cleaning the unit.

- Remove the retainer screws holding the hinged mesh covers (EXSL Models only)
- 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 unit clean will prevent overheating and system contamination

**NOTE:** - Power unit must be cleared of accumulated material pieces on a regular basis to prevent overheating.

##### **Cylinder enclosures:**

As with the power unit service, totally isolate the power, remove the key and fix an 'in service' sign.

- Undo screws and remove side meshes to give good access to both sides. Clean all loose materials from this area of the machine. Often materials become compacted behind the hydraulic cylinders adding additional strain to the machine (remove these materials)
- This should be done at least every monthly depending on the use of the baler

##### **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.

#### **E. 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.

#### **F. SERVICE INTERVALS**

- i. Autobalers require regular maintenance intervals to ensure that they perform and operate safely, reliably and efficiently.
- ii. Autobalers must be serviced by qualified service people who have been instructed in the service of Autobalers
- iii. Autobalers must be serviced according to the service requirements as laid out in the maintenance manual supplied with each Autobaler.
- iv. 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.

- v. 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.
- vi. 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.

## G. RECOMMENDED LUBRICANTS

- i. Recommended hydraulic oil *AWH 32 Castrol*
- ii. 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.

## H. DATA SHEET, PRO-MA MBL 8 GREASE

### Benefits of Use

1. Performs within high and low temperature operating ranges
2. Resists water and water washout
3. Provides oxidation stability
4. Protects against rust
5. Protects against extreme pressure
6. Works well with high loading or severe shock loading
7. Extends lubrication periods
8. Prevents excessive seal swelling

### 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 lead 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 Worksafe 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	
Autoignition	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

Mildly irritating 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

Worksafe Exposure Standard :- time weighted average (TWA) 5 mg/m<sup>3</sup> (oil mist) short term exposure limit (STEL) 10mg/m<sup>3</sup> (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, CO<sub>2</sub> 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 \*\*\*

**LS150 Service Components**

		Shown on Figures
Controller	CMLS (vertical)	1D
Motor	JIA CHENG ELECTRIC	1D
	2.2KW 3ph 4 pole	1D
Pump	2 Stage	1D
	Upper: HGP-33AF6RPF	1D
	Lower: HGP-33AF6RPF	1D
Filter	WIX 51551	2D
Relief Valve	LCH DG-02-3	3D
Solenoid	LCH DSG-3C2-N-02	4D
Pump Change Unloader	LCH BUGG-03-3	5D
Pressure Switch	LCH DNA150K22B	6D
General View		7D
Ignition Key		
Plastic Twine Tabs		
Magnetic Door Switch		10D



Fig 1D



Fig 2D





Fig 3D

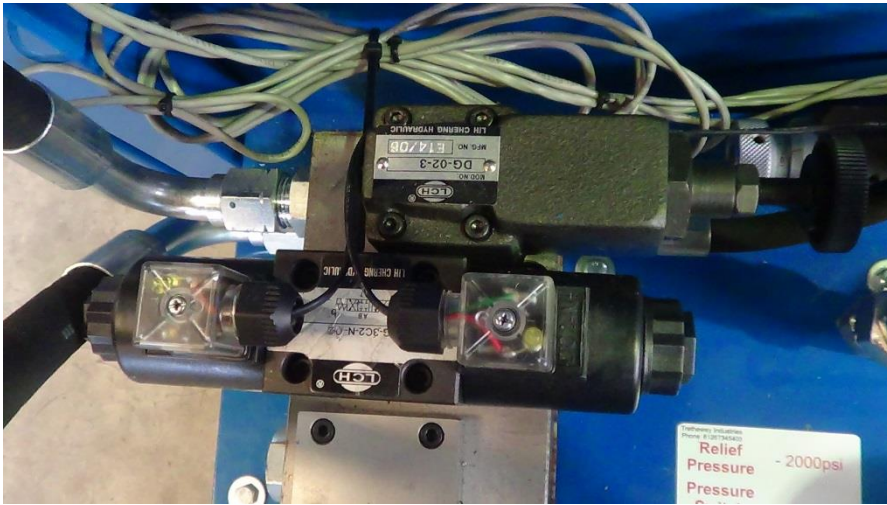


Fig 4D



Fig 5D Front View

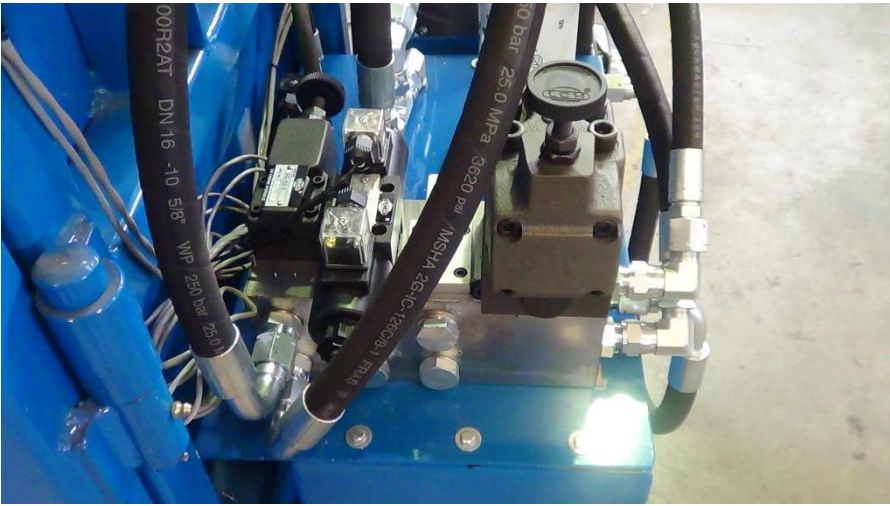


Fig 5D Side View

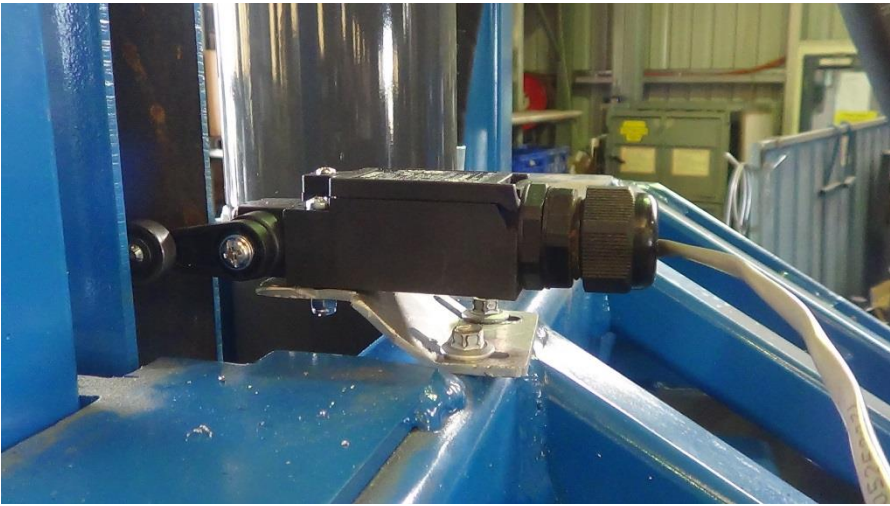


Fig 6D



Fig 7D



Fig 10D

## **CHAPTER 7**

### **MAINTENANCE INSTRUCTIONS**

This should include safe working procedures for carrying out all preventative maintenance & repairs. This should 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 & training is required to enter the site
  - e) What type of clothing & footwear are required
  - f) Machine type & serial number
  - g) Does the baler require attention, i.e. repair/adjustment over & above a regular service, so 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 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. 1 Tube of PBL (Pro-ma) long life grease
2. PBL 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 amount of oil required for the 100 and 200 series Autobalers is 60 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**

Controller	CMLS (vertical)
Motor	JIA CHENG ELECTRIC 2.2KW 3ph 4 pole
Pump	2 Stage Upper: HGP-33AF6RPF Lower: HGP-33AF6RPF
Filter	WIX 51551
Relief Valve	LCH DG-02-3
Solenoid	LCH DSG-3C2-N-02
Pump Change Unloader	LCH BUGG-03-3
Pressure Switch	LCH DNA150K22B
Ignition Key	
Plastic Twine Tabs	
Magnetic Door Switch	



## **CHAPTER 8**

### **SERVICING**

Service Period = Every 4 Months

M/M = Major Maintenance every 12 months or every 660 bales

#### **Major Maintenance**

- 1. Autobaler service essentials**
- 2. Replacing the oil filters**
- 3. Door adjustment check**
- 4. Electronics**
- 5. Hydraulic Check**
- 6. Full Lubrication Guide**
- 7. Safety Check List**
- 8. Service Guide**
  - Lubrication
  - Hydraulics
  - Electrics
  - Controller
  - Solenoid Valve System
  - Safety Bar Operation
  - Full bale indicator operation
  - Structural
  - Twine system
  - Top door
  - Bottom door
  - General operation
  - Signage

## **FIVE AUTOBALER SERVICE ESSENTIALS**

1. **CLEAN** all loose material from within the baler's upper and lower sections. 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 manufacturers recommendations i.e. lubricate all moving parts, cylinder guides, door latches and hinges, side door slide plate, hydraulic unit oil 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. 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.

## Replacing the Oil Filters

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

- a) Remove the three small studs on the tank; these are located on top of the unit.
- b) Lift the 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 fig 2D)
- 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.



Fig 2D.

## **ELECTRONICS (FOR DETAILED INFORMATION SEE STARLOGIXS)**

1. Check the operation of the key switch and emergency stop button.
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 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 it's 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.

## **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 (WIX 51551) 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 – older model balers 220 PSI, later models are 2000 PSI.
7. Check oil level, Oil should be showing on the dip stick – CAUTION – DO NOT OVER FILL.

**SERVICE GUIDE**  
**FORMS**

- **SERVICE GUIDE**

1. Lubrication
2. Hydraulics
3. Electrics
4. Controller
5. Solenoid Valve System
6. Safety Bar Operation
7. Full Bale Indicator Operation
8. Structural
9. Twine System
10. Top Door
11. Bottom Door
12. General Operation
13. Signage



### 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

**Comments**

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### 2. Hydraulics

Check System Pressure, 2200psi

Check Pressure Firing Switch, 1900psi

Check Hoses for Damage

Check Hydraulic Oil Level, 32 Grade

**Comments**

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### 3. 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**

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### 4. 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

**Comments**

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### 5. 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**

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### 6. Full Bale Indicator Operation

Check Roller Switch Situated on Top of Baler for Soundness and Function

**Comments**

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**7. Structural**

Thoroughly Check for Cracks of Failed Welds or Any Signs of Fatigue or Structural Damage and Report  
Check Cylinder Anchor Bolts

**Comments**

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**8. Twine System**

Check to see that the Twine Lock through which the twine passes does not cut the Twine, adjust if required  
Check the Twine Plastic Clips on the Baler Base are in Good Order, Replace or Report

**Comments**

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**9. Top Door**

Check Latch is Functioning Correctly  
Adjust and Lubricate Latch  
Lubricate Hinges  
Check Top Door Limit Switch if Functioning Correctly  
Check Magnetic Door Switch for Operation and Clearance

**Comments**

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**10. Bottom Door**

Difficult to Close, Lubricate Hinge Units

**Comments**

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**11. General Operation**

Report any Abnormalities

**Comments**

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**12. Signage**

Report Missing Safety Signage  
Report Damaged Safety Signage

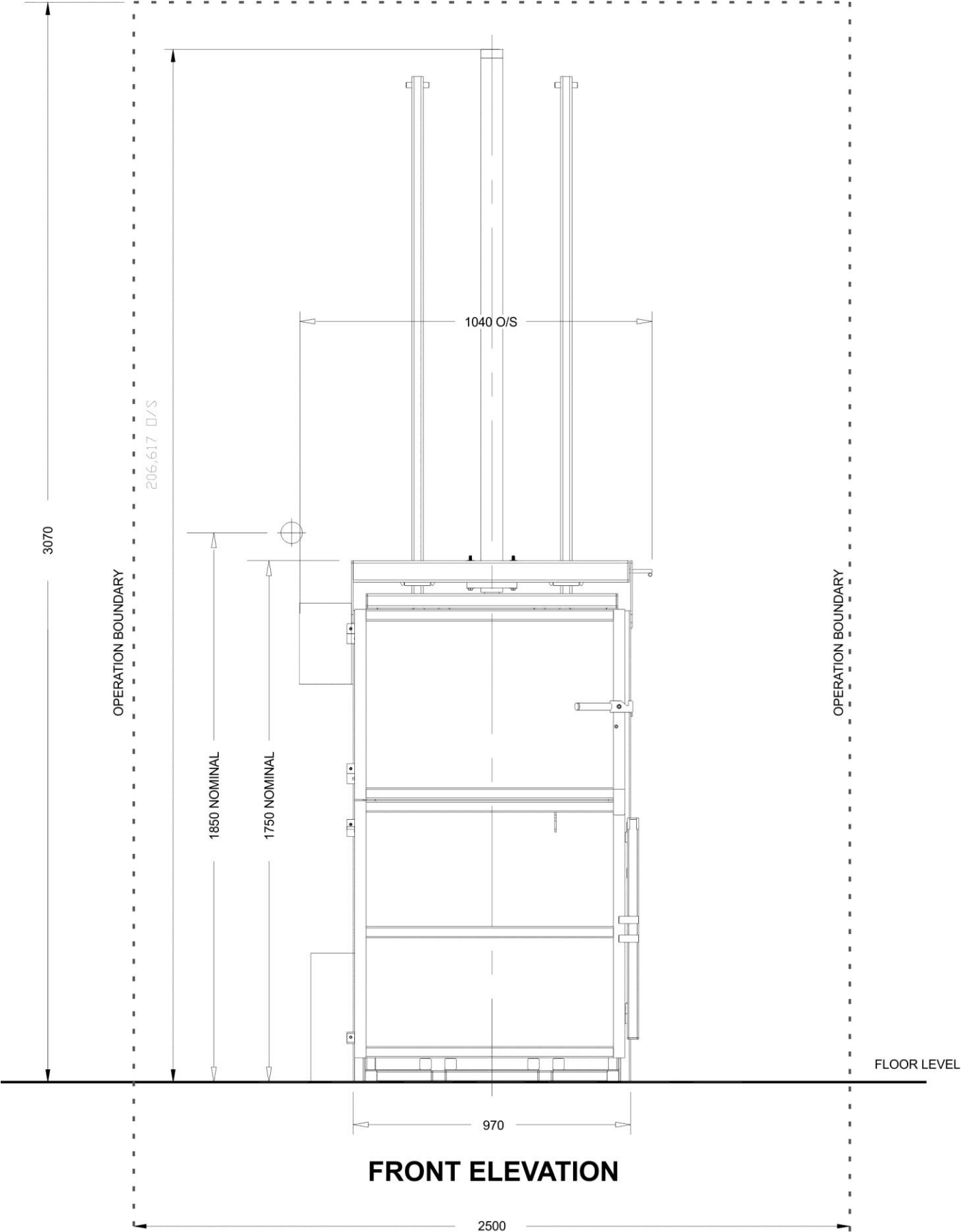
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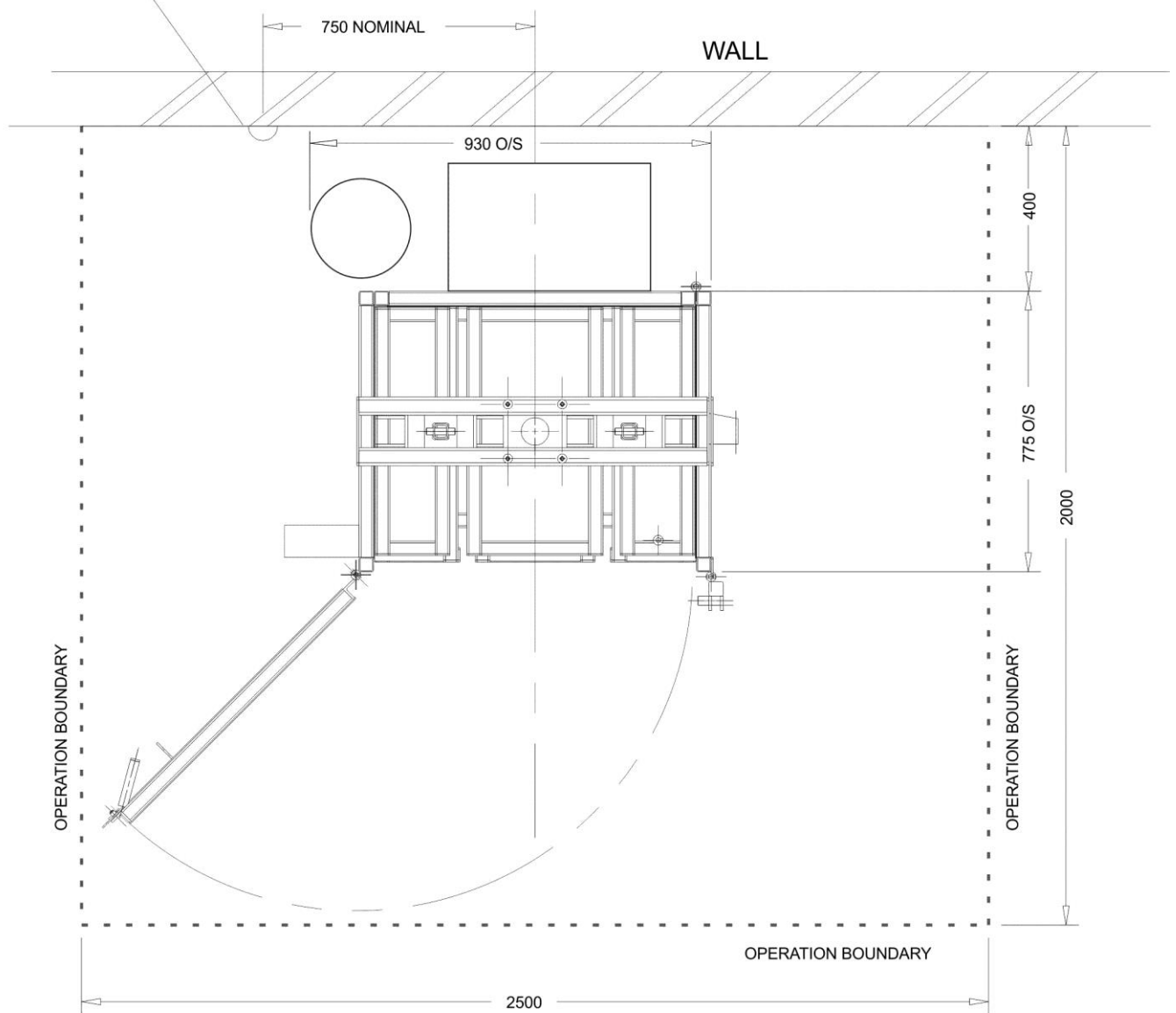
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POSITION OF ELEVATED  
POWER OUTLET ON WALL  
REFER ELEVATION



**PLAN**