300 SERIES BALER - OWNER'S MANUAL

M.O. 69-87

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AMERICAN NATIONAL STANDARD INSTITUTE SAFETY REQUIREMENTS
ANSI CODE Z245.5-1982

The following pages are excerpts from the American National Standard Institute Safety Requirements for balers, ANSI Code Z245.5-1982 for your information and compliance. The excerpts cover Modification (4.12), Installation, Operation, and Maintenance Requirements (5), Employer responsibility (6) and Employee responsibility (6.2).

For the complete code contact:

AMERICAN NATIONAL STANDARD INSTITUTE
1430 BROADWAY
NEW YORK,NEW YORK 10018

4.1.2 Modification. It shall be the responsibility of any person modifying a baler after the effective date of this standard to do so in accordance with all appropriate sections of this standard and to notify the manufacturer prior to making such modifications. No such modification should take place without the written permission of the manufacturer, if available. See 5.2 for operating instructions to be included with all modifications.

5. Installation, Operation, and Maintenance Requirements

5.1 General. Installation recommendations and operating instructions shall be developed by the manufacturer and furnished with each baler. These instructions shall establish guidelines for the use, cleaning, and preventive maintenance of the unit. Such instructions shall include safety precautions associated with the operation of the unit.

5.2 Modification. Any person modifying a baler shall furnish instructions with the modification. Instructions shall include safety precautions associated with the modification of the unit. Modifications shall be done in accordance with 4.1.2.

5.3 Installation. The installer shall install a baler in accordance with applicable codes, local ordinances, and the manufacturer's instructions and specifications.

5.4 Maintenance Personnel. The employer who operates the baler shall ensure the proper cleaning, inspecting, and maintaining of the baler in accordance with the manufacturer's recommendations. Employers who maintain their own equipment shall be responsible for the training of competent maintenance personnel in accordance with the manufacturer's recommendation.

5.5 Inspection and Maintenance. The employer shall establish and follow a program of periodic and regular inspections of all balers to ensure that all parts, auxiliary equipment, and safeguards are in a safe operating condition. The employer shall maintain records of these inspections and the maintenance work performed.

5.6 Work Area. The employer shall provide an adequate work area around the baler to permit safe maintenance, servicing, and cleaning. The employer shall keep all surrounding floor areas free from obstructions that would create a slip or trip hazard.

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5.7 Lockout Procedures. A lockout procedure for baling equipment shall be established by the manufacturer and followed by the employer to provide for the power to be shut off before and during maintenance to prevent unauthorized operation.

5.8 Protective Devices. The employer shall maintain all guards and protective devices required by this standard.

5.9 Blocking Device for Vertical Downstroke Balers. The manufacturer shall include in the instructions to the employer a provision that a blocking device, capable of being fabricated from readily available materials, shall be manually installed to restrain inadvertent downward motion of the platen whenever a person is to enter into the baler chamber.

6. OPERATIONAL REQUIREMENTS

6.1 EMPLOYER RESPONSIBILITY. The employer shall be responsible for:

(1) Ensuring that the installation of the baler is in conformance with applicable local, state and federal codes and ordinances.

(2) Providing a properly maintained baler that meets all applicable safety standards.

(3) Training and instructing employees in safe methods of work before assigning them to operate or maintain a baler. The employer shall ensure, by adequate supervision, that correct operating and maintenance procedures are understood and followed. The employer should refer to the manufacturer's instructions for this purpose.

(4) Operating the baler in accordance with the design specifications as recommended by the manufacturer.

(5) Repairing, prior to operation, all malfunctions or breakdowns that result in unsafe operating conditions of the baler. Specific instructions to employees and blocking devices, if required, shall be provided by the employer in the event that the baler chamber must be entered.

(6) Providing for the protection of the operator of horizontal balers having a loading height less than 42 inches from the point of operation by one of the following means:

(a) Deadman controls, with the control panel located in such a way that the operator cannot reach the loading zone or pinch-point area.

(b) The installation of a point-of-operation guard that shall: prevent entry of hand, fingers, or any part of the body into the point of operation; in itself, create no pinch point between the guard and moving baler parts; offer maximum visibility of the point of operation consistent with other requirements; and be easily accessible for inspection and maintenance.

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6.2 EMPLOYEE RESPONSIBILITY. The employee shall be responsible for:

(1) Using all applicable safety features provided on the baler.

(2) Operating, maintaining, and using a baler only after being properly instructed and trained in accordance with the instructions given in 6.1(3).

(3) Immediately reporting any damage to or malfunction of the baler to the employer or responsible authority.

(4) Ensuring that all individuals are clear of the point of operation and pinch-point area before actuating the controls.

(5) Not placing hands or fingers in the bale binding slots.

(6) Ensuring that all individuals are standing clear of the bale chamber door when ejecting the bale or opening the bale chamber door.

BALEMASTER/BALEWEL

INTRODUCTION

Congratulations on your selection of a new Balemaster Extrusion Baler. It is the finest piece of equipment available in its field. The Balemaster Baler is manufactured by BALEMASTER - the leading name in waste handling and baling.

This Operator's Manual contains information on the operation and servicing of your new Balemaster Baler. Read, understand and follow the enclosed installation and operating instructions before connecting and operating your new Balemaster Baler. The equipment was electrically and hydraulically pressure tested and preset at the factory prior to shipment.

Many years of satisfactory service and production are available from your equipment provided the instructions in this booklet and a good preventative maintenance program are used.

BALEMASTER/BALEWEL

PRECAUTIONS

BEFORE ANY MAINTENANCE IS PERFORMED ON BALEMASTER/BALEWEL EQUIPMENT, MAKE CERTAIN THAT ALL ELECTRICAL CONTROLS ARE LOCKED OUT. DO NOT OPERATE THE EQUIPMENT WHEN PANELS AND GUARDS ARE NOT IN PLACE.

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules and precautions. For this reason most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

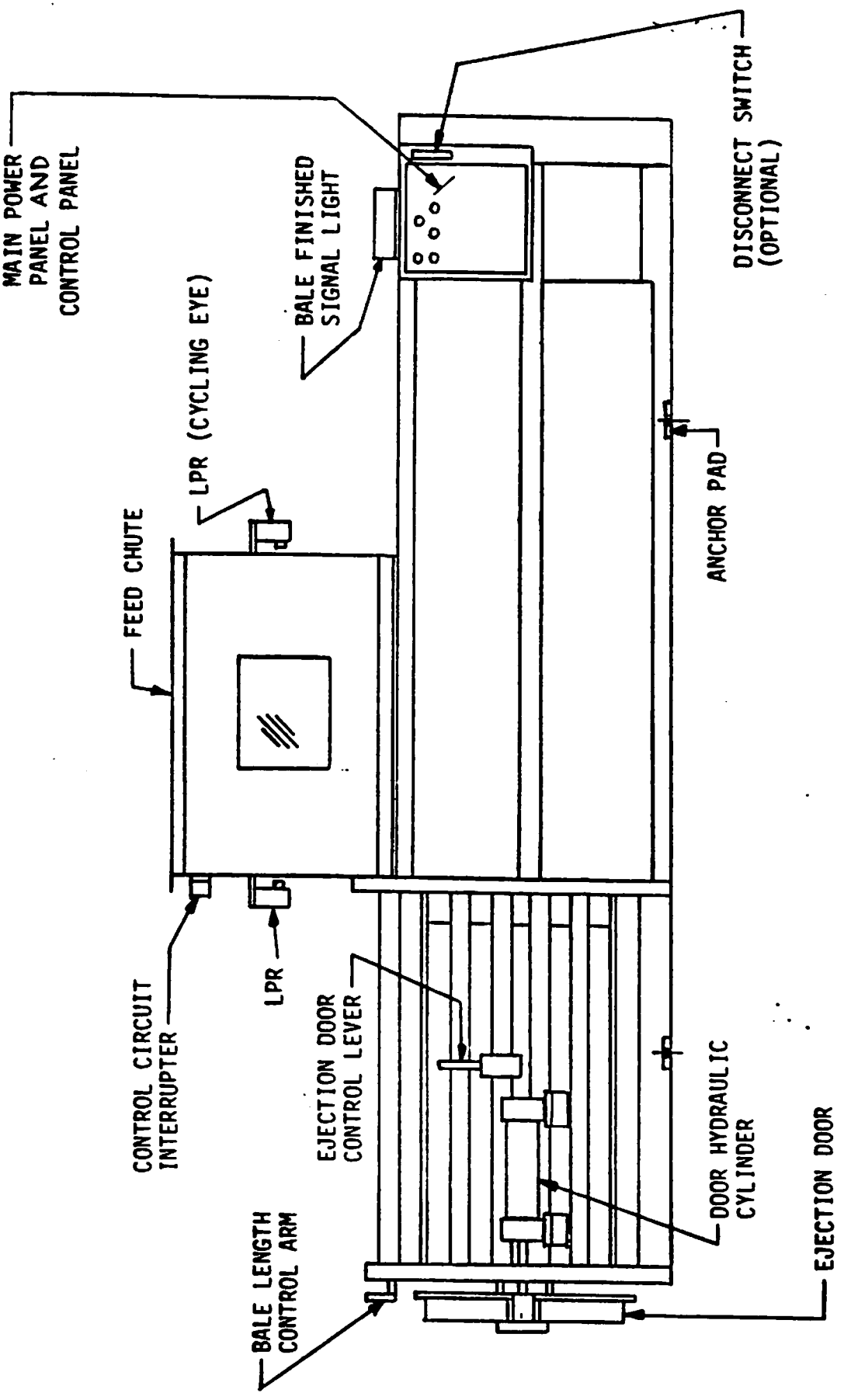
WITH ANY MACHINERY A CAREFUL AND TRAINED OPERATOR

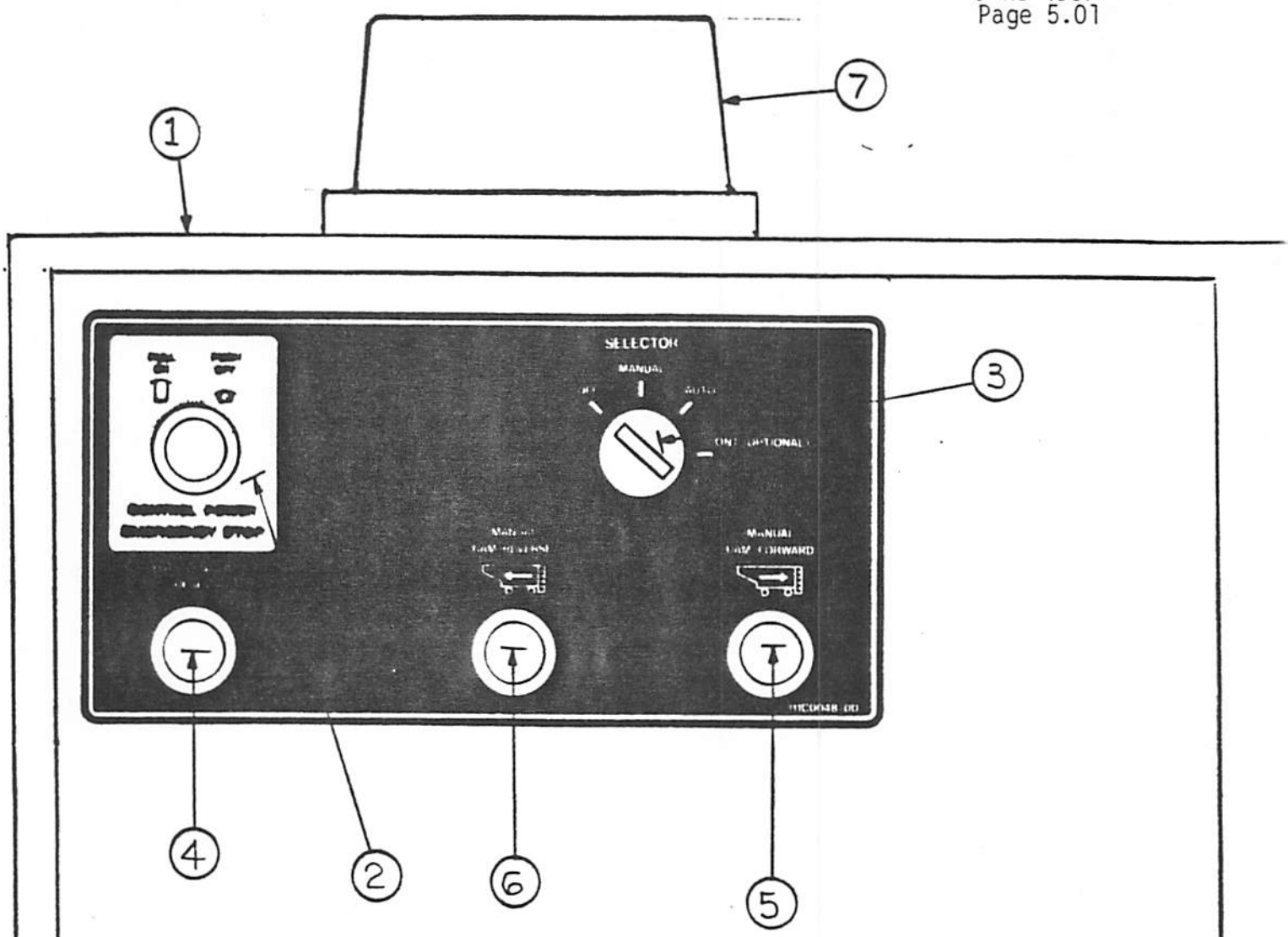
IS THE BEST INSURANCE AGAINST AN ACCIDENT.

NEVER ATTEMPT TO CLEAN, OIL OR ADJUST

A MACHINE WHILE IT IS IN MOTION

GENERAL ARRANGEMENT





2----PULL/PUSH BUTTON
3----OFF-MANUAL-AUTO SELECTOR SWITCH
4----BALE LENGTH RESET PUSH BUTTON
5----MANUAL RAM FORWARD PUSH BUTTON
6----MANUAL RAM REVERSE PUSH BUTTON

INSTALLATION INSTRUCTIONS

NOTE: Installation is to be made by qualified personnel and is the responsibility of the user management.

1. Carefully move baler into desired location and remove skids. Level the baler, using floor of baler chamber as reference. Anchor the baler to the floor through holes provided in anchor pads. (See Page 5.00)

2. Place the roller conveyor section (if furniched) in front of the baler. See roller conveyor instructions for installation on page 7.00. If conveyor sections are stored in baler chamber, refer to paragraphs 13 and 14.

3. Attach the feed chute. The feed chute access door or window should be on the operator's control cabinet side. To reduce any "dusting" during operation, caulk all seams with a non-hardening caulking compounding.

4. Remove all protective covering from the photo-electric eye lenses and feed chute door plexiglass.

5. Mount the source and receiver cycling eyes with the brackets provided on each side of the feed chute. (See page 27.00) Level and square the source and receiver to the surface being penetrated. Cycling eye alignment check per alignment procedure sheet on page 14.00.

6. Mount control circuit interrupter switch when furnished. This switch is supplied if feed chute access door was ordered. (See page 27.00)

7. Check the level of the hydraulic oil by use of the dipstick. The oil should show five inches (5") on the dipstick when the ram is in the retracted position. If it is low or not visible on the dipstick, add premium grade of non-foaming oil; Sinclair Rebilene Light hydraulic oil or equivalent to the correct level. It is better to slightly overfill than underfill.

   If the baler is to be operated or left standing for a period of time in other than normal temperature conditions (70 degrees F), normal oil supplied may not be suitable. Check with your local hydraulic oil supplier for unusual temperature conditions. See the chart on page 17.00.

8. Connect your 3 phase electrical power to the power control cabinet (see page 5.00) and ground the baler frame per local or National Electrical Codes.
   NOTE: All electrical disconnect switches should be installed in sight of all motors controlled or should be capable of being locked in "OFF" position only. A tag on the electrical control box indicates the voltage, phase and frequency. You machine is pre-wired in accordance with the Purchase Order.

INSTALLATION INSTRUCTIONS
(Continued)

9. On the Operator's Control Cabinet Door (see page 5.01) check to see that:

   A. Baler Selector Switch is in "OFF" position.
   B. Start/Stop Control Switch is pushed in.

10. Throw the disconnect switch handle located on the power control cabinet to "ON". Red L.E.D. indicator should illuminate on the source and receiver photo switches if the source and receiver are aligned and there's electrical power to the power control cabinet.

11. "With Access Door Closed," located on the feed chute, check for pump rotation by jogging the start/stop control switch and note the direction of rotation. Pump shaft normally rotates clockwise when looking at the shaft end. If it does not, reverse leads "T1" and "T3" at the starter and repeat the test.

    CAUTION: OPERATING THE MOTOR FOR MORE THAN A FEW SECONDS IN "REVERSE DIRECTION" COULD CAUSE DAMAGE TO THE "HYDRAULIC PUMP".

12. Test the door interrupting limit switch by opening access door. This should stop the pump. If it does not, adjust switch arm and retest. Pump should operate only when access door is closed and its switch activated.

13. Start the pump and open the bale ejection door. See page 5.00. Remove the bale ties and (if furnished) conveyor section stored in the chamber.

14. Place the roller conveyor section in front of the baler. See roller conveyor instructions on page 7.00 for installation.

    NOTE: CHECK TO INSURE EJECTION DOOR CLEARS THE TOP OF THE CONVEYOR BY NO LESS THAN ONE-HALF INCH (1/2").

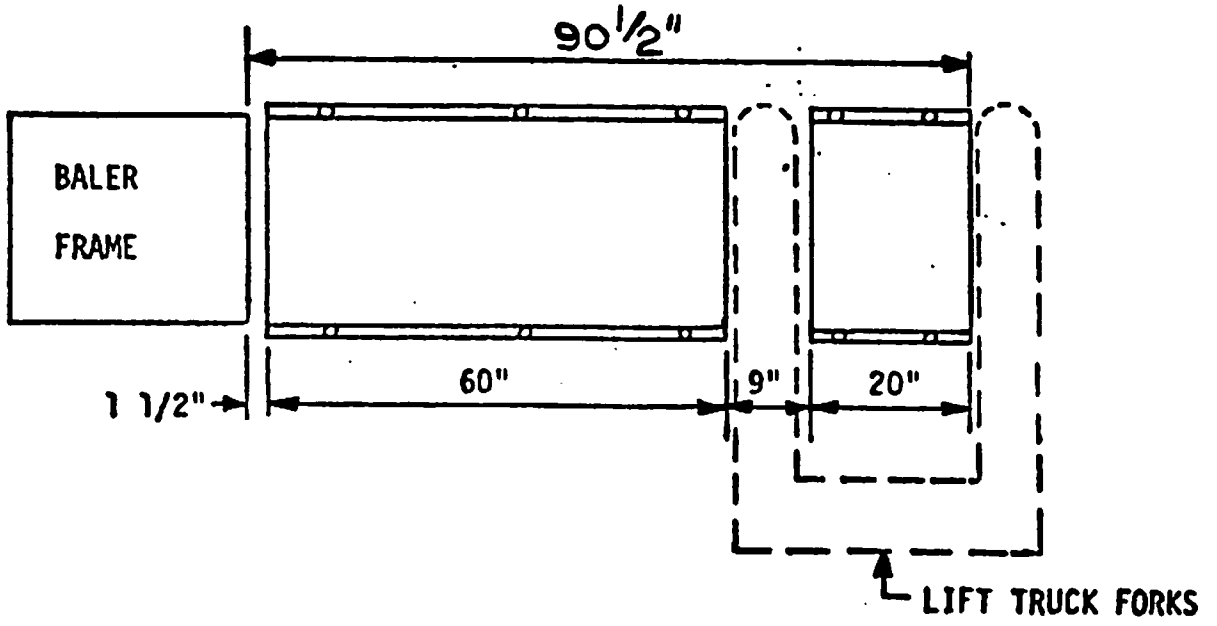
INSTALLATION INSTRUCTIONS

OPTIONAL ROLLER CONVEYOR

1. The Balewel models are provided as an option with one (1) 5' 0" conveyor section. One (1) additional 20" conveyor section can also be provided as an option. A 9" space between the two (2) conveyor sections will accommodate the forks of most lift trucks.

2. For all models, locate the roller conveyor 1-1/2" forward of the baler frame. Check to make sure the bale ejection door clears the top of the roller conveyor by no less than 1/2".

3. Level the conveyor as necessary and anchor conveyor section to floor using all mounting holes provided.



OPERATING INSTRUCTIONS

The baler can be operated either automatically, continuously (optional) or manually.

AUTOMATIC OPERATION:

1. Turn the Selector Switch to the "OFF" position. Push in the Control Power Switch.
2. Put the disconnect to the "ON" position. The Feed Chute Lower Photo Electric Relay (LPR) will come on.
3. Pull the "Control Power" Switch to the "ON" position. The red "Control Power" indicating light will come on.
4. Turn the Selector Switch to the Manual Position. The pump will start. Close and latch the Bale Ejection Door with the ejection door hand lever.

   CAUTION: WHEN CLOSING THE EJECTION DOOR, KEEP HANDS CLEAR OF DOOR AND THE LATCHING MECHANISM.

5. Turn the Selector Switch to the Automatic position. If the ram is not in the fully retracted position, it will automatically go to retracted position and shut off.
6. As material builds up to the level of the feed chute photo electric receiver unit (LPR), the light beam will be blocked.
7. The pump motor will start and the ram will make a forward stroke and automatically return to the stored retracted position and stop.
8. The baling cycle will continue as described in steps 6 and 7 until baling pressure has exceeded the pre-set pressure on pressure switch (PS). Bale length light will flash intermittently.
9. The ram will complete its forward stroke and stop.
10. With the ram full forward, the wire tie slots will be visible. Insert bale ties, see page 9.00 for bale tying.
11. Push the re-set push button. Ram will automatically return to its stored retracted position.
12. Turn selector switch to manual mode.

OPERATING INSTRUCTIONS
(CONTINUED)

SAFETY FIRST
STAND CLEAR WHEN UNLATCHING DOOR

CAUTION: NEVER OPEN THE BALE EJECTION DOOR WHEN THE BALING RAM IS HOLDING THE BALE UNDER PRESSURE IN THE FORWARD POSITION. WHEN THE DOOR IS OPEN, RETURN THE DOOR CYLINDER TO ITS BACK POSITION.

13. Open bale ejection door with hydraulic ejection door control level. Refer to Page 5.00.

14. Lower the "6LS" limit switch bale length control arm in front of the bale. Refer to Page 5.00.

15. Turn selector switch to automatic mode and push the bale length re-set push-button (BLRPB) in.

16. The baling cycle will continue as described in steps 6 and 7 until bale limit switch "6LS" is activated. The ram will stop and bale length light will flash intermittently indicating bale length.

17. Return "6LS" limit switch control arm to its stored position and remove bale from baler.

    CAUTION: WHEN CLOSING THE EJECTION DOOR, KEEP HANDS CLEAR OF DOOR AND LATCH MECHANISM.

18. Close and latch the bale ejection door with the hydraulic ejection door control lever.

19. Push the bale length re-set pushbutton (BLRPB) in. The ram will complete the forward stroke and automatically return to the retracted position and stop.

20. The baling cycle will continue as described in steps 6,7,8 and 9.

MANUAL OPERATION:

1. When baler selector switch is in the manual mode, the pump will run. Ram can be advanced by pushing the"manual ram forward."

2. To retract the ram, push the "manual ram reverse" button.

CONTINUOUS OPERATION:

1. Turn baler selector switch to "Continuous".

2. This will keep the pump running all the time. Operation is the same as Automatic Operation.

BALE TYING

1. With the baling ram in the full forward position, the wire tie slots will be visible. The tie slots are in pairs with the upper slot of each pair for the bale which has been formed and the bottom slot of each pair for the next bale to be formed or the reverse. This helps prevent tying two bales together. Insert the straight end of the prelooped wire through the ram from the operator's control side of the baler. Leave a 3' length of wire with the loop protruding from the insertion side.

2. Start to form a bale. During each baling stroke, pressure will rise until the pressure exceeds the pre-set pressure setting on pressure switch (PS). The ram will complete its full forward stroke where the wire slots will again be visible.

   If the ram does not move to the full forward position, this usually is caused by excess material in the baling chamber. Back the ram up and remove some material. Repeat until the wire slots are visible. Insert each wire from the back side of baler and tie the bale as follows:

   Insert the straight end of the individual tie wire through the prelooped end, fold wire over on itself, pull wire towards you. Slide looped end towards bale (if necessary, repeat to draw the wire tight), twist straight wire tightly and closely around itself four or five times. Bale expansion will tighten wires. If tied too tightly, wire ties may break.. See "Trouble Shooting" chart in this manual.

3. From the operator's control side of the baler, insert new wire ties to the correct length. Be sure the wires are not crossed in the ram slots.

4. Retract the ram, open the bale ejection door and continue baling.

HELPFUL HINTS FOR FORMING BETTER BALES

For best results, make sure the ram returns to its fully retracted position after each stroke. It should stay at this position until the photo-electric eye has been blocked.

Under normal conditions, the ram chamber and feed chute should be full of material at this time. Should the photo-electric eye be blocked by dust, foreign material, or improper filling of the chute (such as material falling all on one side) a false signal will be given and the machine will cycle. After continuous operation under this condition, the bales coming out may have a very loose look, be lower than average in weight, curved bales, or even fall apart.

Below is a list of items to check if you are experiencing this condition:

1. Make sure the lenses of the photo-electric receiver and feed chute glass are free of dust.
2. Make sure the electro-static dampener is operating, this will help keep the dust down.
3. Check the time on the photo-eye. It should be 5 or 6 seconds. The adjustment is inside the back of the receiver.
4. Make sure the material you are baling has been properly prepared. This will help to insure a proper charge in the chamber, giving a uniform bale.

It has been our experience that if the ram does not go forward far enough to trap the material with the Balelok, the material may spring back and prevent forming a proper charge.

ELECTRICAL DESCRIPTION AUTOMATIC OPERATION

LIMIT SWITCHES AND SOLENOID VALVES DESIGNATION AND FUNCTION

SYMBOL	DESCRIPTION
3LS	BALING RAM RETRACTED
4LS	BALING RAM ADVANCED
6LS	BALE LENGTH
PS	BALE LENGTH PRESSURE SWITCH
SOL A	ADVANCE BALING RAM
SOL B	RETRACT BALING RAM
LPR	LOWER PHOTO RELAY

The Baler can be operated either automatically, Continuous (optional) or Manual.

AUTOMATIC OPERATION

For Automatic Operation the following initial conditions must be satisfied.

1. Main disconnect switch is in the "on" position and the control power "on" indicatting pilot light is lit.

2. Turn the "baler Selection" Selector Switch to the "Auto" position.

   NOTE: Prior to turning Baler Selection Switch in "Auto" position check that the baling ram is retracted and activating "LS3" Limit Switch. If the baling ram is not in its retracted positions, return to position by manual operation. Also check that the front door is closed and locked. With the above complete, the baler is in an automatic condition.

3. As the material builds up in the feed chute to the level of the "Lower Feed Chute" photoelectric receiver unit "LPR" the Light Source is darkened. After the "LPR" time delay has expired the "Advance Baling Ram" Solenoid Coil "A" is energized. Solenoid Coil "A" will remain energized until the "Baling Ram Advanced" Limit Switch "4LS" is activated.

4. When the "Baling Ram Advanced" Limit Switch "4LS" is activated, Solenoid Coil "B","Retract Baling Ram" is energized. Solenoid Coil "B" will remain energized until the "Baling Ram Retracted" Limit Switch "3LS" is activated.

ELECTRICAL DESCRIPTION AUTOMATIC OPERATION
(CONTINUED)

5. The baling cycle will continue as described in Steps 3 and 4 until the baling pressure has reached its pre-set pressure setting on the "Bale Length Pressure Switch". "PS", at this point the baling ram will continue advancing until the "Baling Ram Advanced" Limit Switch "4LS" is activated. With the activation of "4LS", the "Bale Length" alarm device "AD" will indicate bale length.

6. After the operator has pulled sufficient wire for tie-off, he (baler operator) must tie-off the bale.

   When the bale has been tied-off, the operator then must push the "Bale Length Reset" Push Button. This will automatically retract the baling ram until the "Baling Ram Retracted" "3LS" Limit Switch is activated.

7. At this time the baler operator must open the front door, and lower the bale length control arm, and position in front of the bale. Caution must be taken not to open front door with ram in the forward position.

8. The baling cycle will continue as described in Steps 3 and 4 until the "Bale Length" "6LS" Limit Switch is activated.

9. With the activation of Limit Switch "6LS", the baling ram will stop and again the "Bale Length Alarm Device" "AD" will indicate bale length.

10. The bale operator must return the bale length control arm to its stored position and remove the bale from the baling chamber.

11. After the bale, has been removed from its baling chamber and the front door is closed, the operator must push the "Bale Length Reset". This will automatically allow the baler to continue its baling operation.

12. The baling operation will continue until the baling pressure has been reached as described in Step 6.

ELECTRICAL DESCRIPTION MANUAL OPERATITON

MANUAL OPERATION

For manual operation the following initial conditions must be satisfied.

1. Main disconnect switch is in the "ON" position and the "Control Power-On" indicating pilot light is lit.

2. Turn the "Baler Selection" selector switch to the "Manual" position.

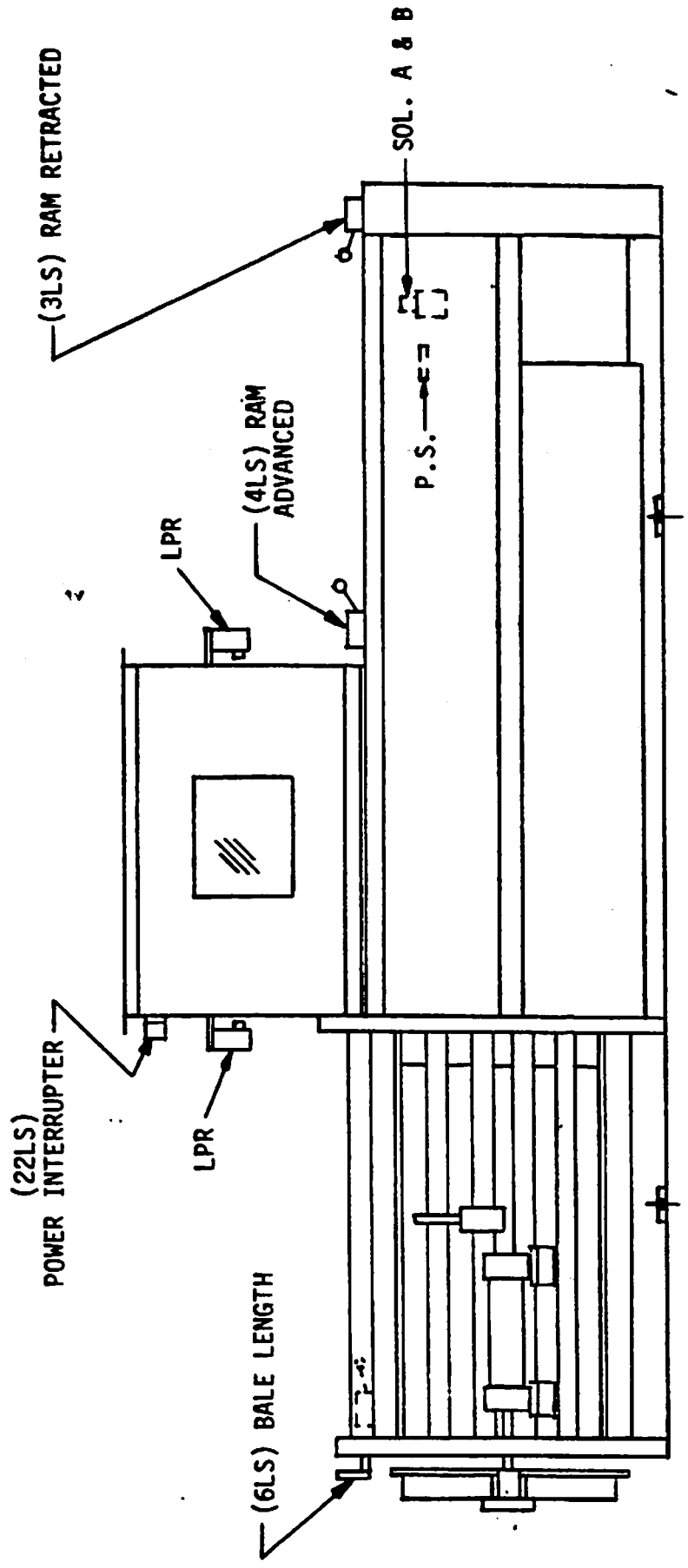
3. With the "Baler Selection" selector switch in the "Manual" position, the hydraulic pump motor will start.

4. Pushing the "Manual Ram Forward" button will advance the baling ram. Solenoid Coil "A" is energized, and will remain energized until either the push button is released or the "Baling Ram Advance" Limit Switch "4LS" is activated.

5. To retract the baling ram, Push the "Manual Ram Reverse" button. The baling ram will retract and Solenoid Coil "B" is energized. Solenoid Coil "B" will remain energized until either the "Bale Selection" Selector Switch is turned to the "OFF" position or the "Baling Ram Retracted" Limit Switch "3LS" is activated.

6. Feed Chute Loading door is equipped with Power Interrupter Switch "22LS" to stop machine when opened. Do not attempt to defeat this switch. It is for your protection.

LIMIT SWITCH LOCATIONS



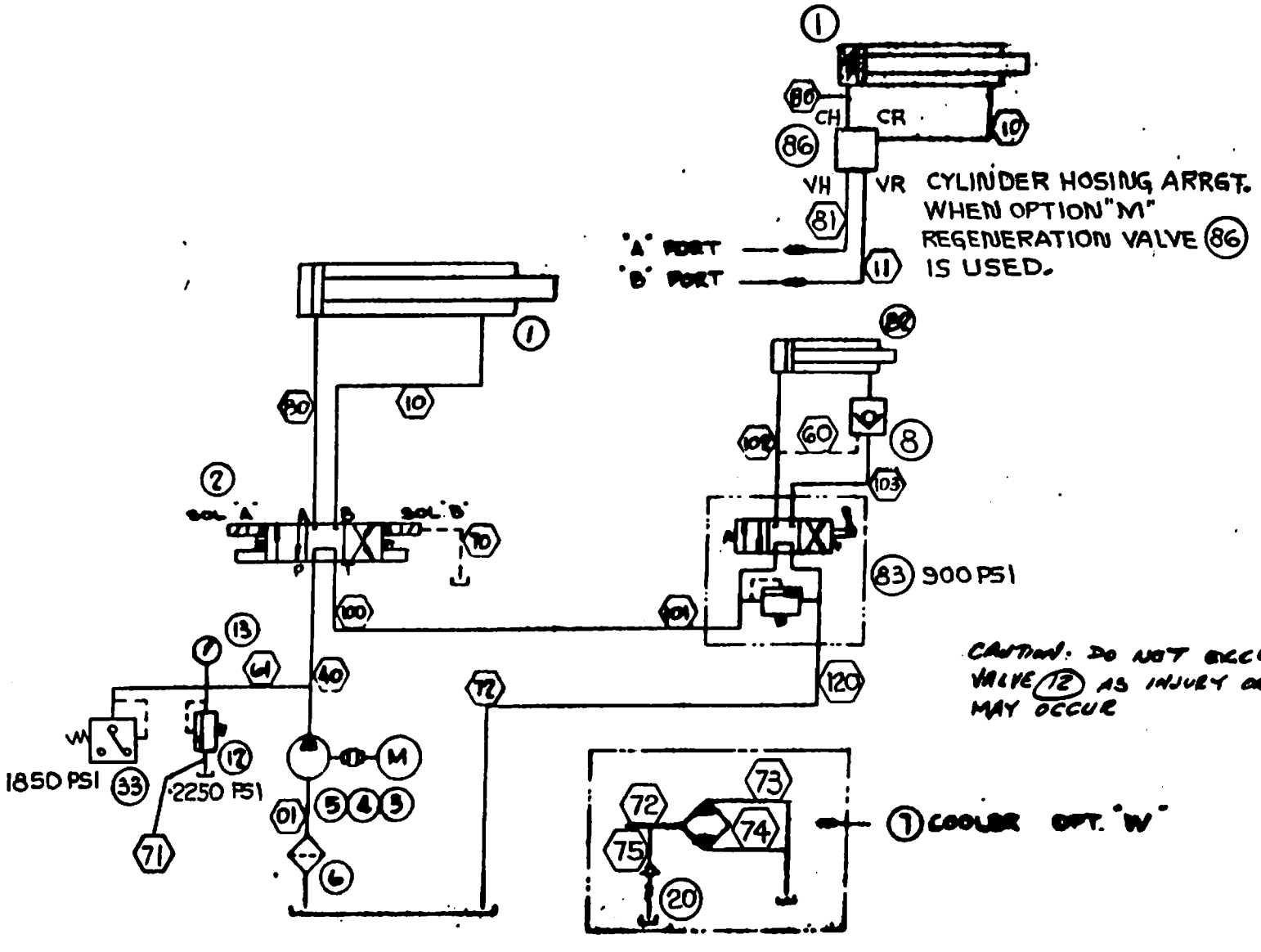
ELECTRIC EYE ALIGNMENT PROCEDURE

1. Focus electric eye light source and receiver. Physically align the light source unit first by directing it visually--squarely at the receiver. Tighten mounting bolts.

2. Receiver unit will be aligned when "L.E.D." indicating light is illuminated. Receiver indicator will illuminate even if it is not exactly centered. For proper receiver alignment, connect a D.C. voltmeter to the (+) eyelet and (-) eyelet on the internal circuit board of the receiver. (See electrical wiring diagram - Page 31.03). This will serve as an indication of whether or not perfect alignment is being approached and should hasten the procedure. The meter reading should approach 2.5 volts to 5 volts D.C. as alignment is improved.

3. When alignment has been completed, the receiver sensitivity adjustment control should be turned toward maximum only to provide the greatest possible operating margin. The operating margin can be checked by determining how much of the receiver (or light source) lens can be obscured before the relay drops out. It should be possible to cover two-thirds to three-quarters of the lens area with a piece of thick paper (tthick enough to block illuminated beam) before the relay drops out.

4. Time delay adjustment (blue wheel on card) setting normally is 6 to 8 seconds before relay drops out. If the finished bale tends to be banana shaped, the time delay setting should be increased to permit full charge in the baling chamber.



ITEM NO.	NO. REQ.	DESCRIPTION
1	1	BALING CYLINDER
2	1	3/4 4-WAY VALVE
3	1	MOTOR
4	1	COUPLING
5	1	PUMP
6	1	FILTER
7	1	COOLER (OPT.)
8	1	P.O. CHECK VALVE
12	1	RELIEF VALVE
13	1	GAUGE
20	1	3/4 CHECK VALVE
33	1	PRESSURE SWITCH
82	1	DOOR CYLINDER
83	1	4-WAY VALVE
86	1	REGENERATION (OPT.)

CAUTION: DO NOT EXCEED MAX. RELIEF PRESSURE VALVE (12) AS INJURY OR EQUIPMENT DAMAGE MAY OCCUR

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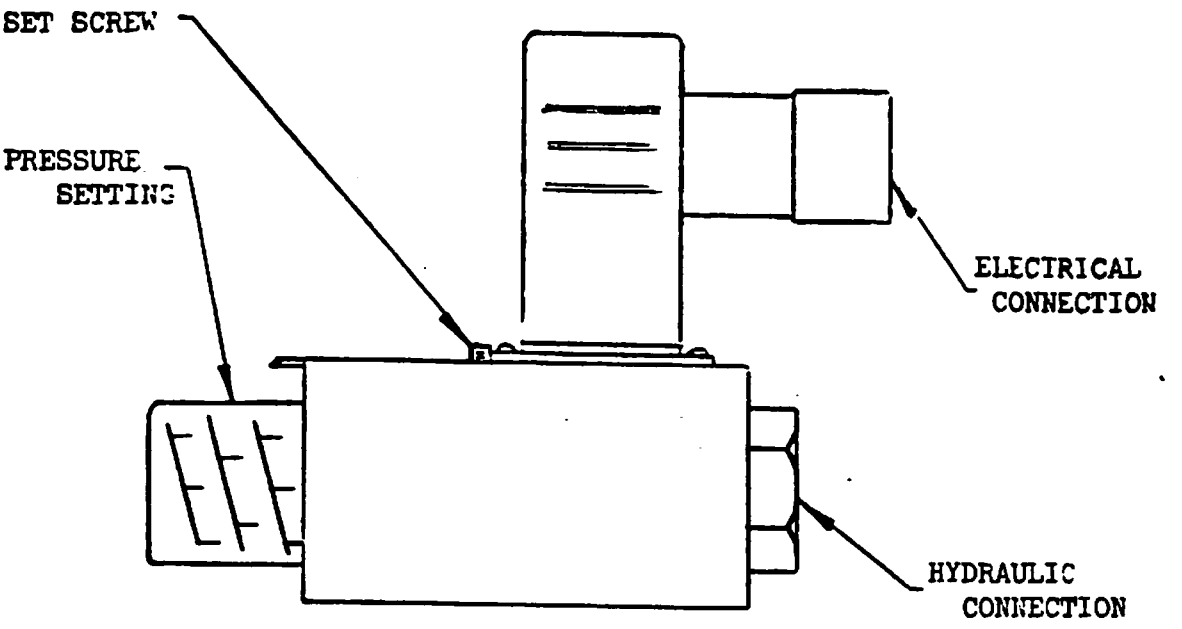
PRESSURE SWITCH ADJUSTMENTS



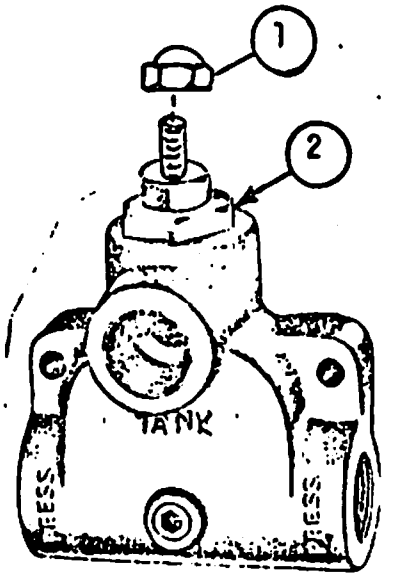
Pressure Switch (Item 33)

To adjust this switch, loosen socket set screw with a 3MM allen wrench. Rotate pressure setting dial with a 3/8" allen wrench clockwise to increase pressure, counter-clockwise to decrease pressure. Readings are measured in bars. 1 Bar = 15 PSI, App. 123 bars to meet 1850 PSI. See chart on Page 16.02. When the proper setting has been reached, re-tighten set screw to prevent dial from backing off.

CAUTION: THE PRESSURE SWITCH PRESSURE MUST ALWAYS BE SET SEVERAL HUNDRED PSI LOWER THAN THE RELIEF VALVE.

NOTE: MAINTENANCE IS TO BE PERFORMED BY QUALIFIED PERSONNEL AND IS THE RESPONSIBILITY OF THE USER MANAGEMENT.

RELIEF VALVE ADJUSTMENT



ITEM 12

To adjust the relief valve, remove domed nut (1), and loosen lock nut (2). Adjust threaded rod with cylinders deadheaded. Set pressures according to page 16.02

CAUTION: DO NOT EXCEED PRESSURES AS LISTED ON THE SPECIFICATION SHEET, PAGE 16.02

NOTE: MAINTENANCE IS TO BE PERFORMED BY QUALIFIED PERSONNEL AND IS THE RESPONSIBILITY OF THE USER MANAGEMENT.

PRESSURE SETTINGS

	HYDRAULIC SETTINGS			ELECTRICAL TIMERS	
BALEWEL	RELIEF VALVE 12	PRESSURE SWITCH 33	DOOR RELIEF 83	PRESSURE SWITCH TIMER 1TR	RAM CYCLE LPR
100 SERIES	1450	----	----	----	----
200 SERIES	2250	1850	700	4-6 SEC.	8-10 SEC.
→ 300 SERIES	2250	1850	700/1200	4-6 SEC.	8-10 SEC.
400 SERIES	2250	1850	700/1200	4-6 SEC.	8-10 SEC.
700 SERIES	2250	1850	700/1200	4-6 SEC.	8-10 SEC.

NOTE: All pressures are maximum and should never be exceeded. Pressures may be set lower depending upon condition.

NOTE: Maintenance is to be performed by qualified personnel and is the responsibility of the user management.

CAUTION: NEVER WORK ON UNIT UNTIL ALL MOTORS AND ROTATING EQUIPMENT HAVE STOPPED AND ARE ELECTRICALLY LOCKED OUT.

OIL/TEMPERATURE CHART

AMBIENT TEMPERATURES	GRADE
60 F to 90 F	Premium Hydraulic Oil - 220-250 SSU at 100 F
Below 60 F/Above 90 F	Consult Your Local Hydraulic Oil Dealer

Balewel Series	100	200	300	400	700
Gallons of Oil Req'd	10	10	45	45	110

* SSU REFERS TO SAYBOLT SECOND UNIERSAL, AND IS THE ONLY DROP TEST USED TO DETERMINE THE VISCOSITY RATING OF A GIVEN OIL AT A SPECIFIED TEMPERATURE.

PREVENTATIVE MAINTENANCE SCHEDULE

CAUTION: NEVER PERFORM MAINTENANCE ON BALER UNTIL MOTOR AND ROTATING COMPONENTS HAVE STOPPED AND ARE ELECTRICALLY LOCKED OUT. DO NOT REMOVE, OVER PAINT OR DEFACE WARNING, INSTRUCTION OR IDENTIFICATION LABELS.

DAILY

1. Check hydraulic oil for proper oil level and condition. Fill or replace as necessary.
2. Repair any hydraulic leaks.
3. Clean out area behind Baling Ram with the Ram in the forward position.
4. Check Balelok operation for spring action and free movement. Correct as required.
5. Check to make sure Control Circuit Interrupter Switch on Load Door of Feed Chute is in fact stopping motor when door is not closed. If faulty, do not operate Baler until adjusted or repaired.
6. Assure cleanliness of all plexiglass on Feed Chute. Do not wipe with abrasive materials as it will scratch surface and reduce light transmission. Automatic feed - automatic control models only.
7. Check Ejection Door latch for operation and alignment. Repair and/or adjust immediately.
8. With manually operated unites, check Load Door for easy rolling into retained position. Check hold down pads, at front end of load door, both sides. Adjust as necessary to 3/16 clearance.

MONTHLY

1. Check and tighten all mounting bolts and ram liner bolts and nuts.
2. Remove hydraulic tank cover. Reach down inside of tank and unscrew the oil filter. Clean or replace.
3. Replace all damaged or scratched plexiglass.

PREVENTATIVE MAINTENANCE SCHEDULE
(CONT)

SIX MONTHS

1. Change hydraulic oil per oil Specifications Chart shown on Page 17.00 . Quantity of replacement oil required to show 5" on dipstick.

   NOTE: Some oil remains in hydraulic system which will not affect recommended quantities listed.

2. Clean or change tank filter (when supplied).

3. Check Baling Ram operation for excessive vertical and side to side movement. Excessive movement is corrected by replacing Ram Liners.

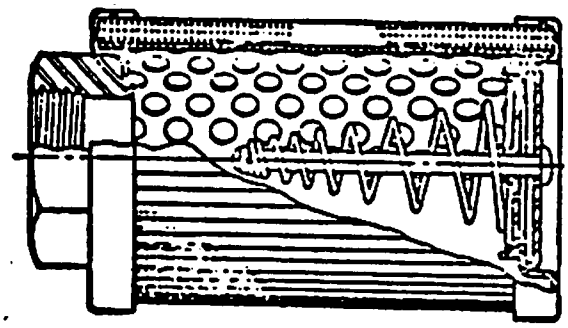
4. Check Baling Ram and Ejection Door latch hydraulic rod cylinder bushings for excessive leakage. If necessary, replace with Cylinder Seal Kit. See Spare Parts List in this manual.

CAUTION: WHEN REPLACING OR REPAIRING BALING RAM CYLINDER ON "OVERSIZE" MODELS, BE SURE TO REPLACE ANY SHIM BEHIND THE TRUNNION BLOCK. ALWAYS EXTEND THE CYLINDER ROD TO FORWARD POSIITON BEFORE CONNECTION TO RAM IN ORDER TO CHECK ALIGNMENT.

PREVENTATIVE MAINTENANCE

Oil filters should be cleaned every 30 days

HHB00002



(NPTF) with By-Pass Valve

By-Pass Valve is designed to open within ±10% of its setting.

HOW TO CLEAN:

Remove filter element from suction line. Swish element in any non-caustic clean solvent for a short period of time.

(CAUTION: DO NOT LEAVE ELEMENT IN SOLVENT).

A stiff fibre brush may be used, if necessary, to remove impacted deposits between wire cloth serrations. Shake off excess solvent. If compressed air is available, blow dry from inside out.

CAUTION: STOP BALER BEFORE REMOVING FILTERS.

NOTE: Maintenance is to be performed by qualified personnel and is the responsibility of the user management.

PROBLEM	CAUSE	REMEDY
EXCESSIVE NOISE IN PUMP ON STARTING IN MORNINGS	LOW OIL LEVEL (MODEL 300-400 ONLY) SUCTION FILTER BAD PUMP COLD OIL AIR IN OIL	CHECK--ADD OIL AS NEEDED CLEAN OR REPLACE FILTER CHANGE, REPLACE OR REPAIR REFER TO CHART THIS MANUAL CHECK FOR SUCTION LEAKS
LOOSE BALES WIRES LOOSE WIRES BREAKING	MATERIAL IN CHAMBER NOT EVENLY DISTRIBUTED. BALELOKS NOT WORKING.	READ "HELPFUL HINTS FOR BETTER BALES" THIS MANUAL. CHECK BALELOKS AND SPRINGS, REPLACE AS NECESSARY.
MOTOR RUNS, RAM WON'T MOVE OR EJECTION DOOR WON'T OPEN	LOW OIL BAD PUMP WORN OR BROKEN COUPLING FROM PUMP TO MOTOR	ADD AS NEEDED REPAIR OR REPLACE REPLACE COUPLING
MOTOR STOPS WITH RAM IN FORWARD POSITION	TOO MUCH MATERIAL IN FEED CHAMBER FORCING DOOR OPEN ENOUGH TO BREAK CONTACT ON POWER INTERRUPTER SWITCH	REMOVE SOME MATERIAL FROM FEED CHUTE CHAMBER

NOTE: Maintenance is to be performed by qualified personnel and is the responsibility of the user management.

PROBLEM	CAUSE	REMEDY
RAM WON'T MOVE MOTOR WON'T RUN	POWER INTERRUPTER SWITCH NOT MAKING CONTACT HEATERS TRIPPED	ADJUST ARM ON SWITCH TO MAKE CONTACT. RESET
RAM STALLS BEFORE FINISHING STROKE	LOW PRESSURE MAIN CYLINDER PUMP TYPE OF MATERIAL AND PREPARATION OF MATERIAL	REBUILD CYLINDER OR PUMP OR REPLACE PROPER PREPARATION OF MATERIAL
RAM CREEPS BACK ON TIE OFF	MAIN CYLINDER BYPASSING (CHECK PRESSURE ON GAUGE) 4 WAY VALVE LEAKING	REBUILD OR REPLACE MAIN CYLINDER REPLACE
RAM NOT FORWARD ENOUGH TO INSERT WIRES	TOO MUCH MATERIAL IN CHAMBER	REMOVE SOME FROM FEED CHUTE NEVER OPEN EJECTION DOOR TO REMOVE MATERIAL
RAM CYCLES CONTINUOUSLY ON AUTOMATIC MODELS	LAMP BURNED OUT DIRTY LENS MATERIAL BLOCKING LENS	REPLACE CLEAN

NOTE: Maintenance is to be performed by qualified personnel and is the responsibility of the user management.

PROBLEM	CAUSE	REMEDY
BALE LENGTH	ROD NOT OVER END OF BALE ROD BENT NOT MAKING LIMIT SWITCH (ABOVE EJECTION DOOR) FALSE SIGNAL TO PRESSURE SWITCH	CHECK LOCATION ADJUST LIMIT SWITCH OR STRAIGHTEN ROD ADJUST 3CR FOR TIME DELAY
HOT OIL	RELIEF VALVE LOW OIL COOLER DIRTY	ADJUST OR REPLACE ADD AS REQUIRED CLEAN
EJECTION DOOR CREEPS OPEN	DOOR CYLINDER BYPASSING FAULTY P.O. CHECK VALVE OR DIRTY	REBUILD REPLACE OR CLEAN
CAN'T CLOSE EJECTION DOOR LOAD DOOR HARD TO ROLL	TOO MUCH MATERIAL IN CHAMBER DIRTY ROLLERS WASTE ON ROLLER TRACK	REMOVE SOME MATERIAL FROM LOAD DOOR ONLY CLEAN OR REPLACE ROLLERS CLEAN TRACK
RAM SCRAPING AND GALLING CHAMBER	WORN LINERS WORN GIB BARS (NORMAL POLISHING OF SIDE WHERE LINERS RUB IS NORMAL)	REPLACE LINERS REPLACE GIB BARS
RAM CHATTERING	LINERS NEED LUBRICATION	LIBERALLY GREASE LINERS

CYLINDER REMOVAL AND INSTALLATION

CYLINDER INSTALLATION

NOTE: Keep all hydraulic parts clean. Dirt and contaminates shorten the life of hydraulic components.

1. Place cylinder in baler.

   NOTE: On standard units, the cylinder is installed from the top. On over size units, the cylinder can be inserted through the rear frame. Protect the cylinder rod from damage.

2. Attach back (cap) of cylinder to baler frame. Standard balers use a pin. Oversize balers use the trunion blocks bolted to the rear frame.

3. Extend the cylinder and check alignment. Alignment on oversize balers can be adjusted by shims behind the trunion blocks.

4. Extend cylinder rod to ram, align holes and insert pin. Be sure to reinstall cotter pins.

5. Install hoses. Be sure they are correctly coupled. If reversed, the ram will operate in opposite direction and hoses must be reversed.

6. Reinstall ram chamber cover.

7. Turn on electrical power.

8. Start baler. Check for hydraulic leaks and ram direction.

CYLINDER REMOVAL AND INSTALLATION

NOTE: Maintenance is the responsibility of the user management and is to be performed by qualified personnel.

CYLINDER REMOVAL

1. Position the ram at least half way forward in the chamber permitting sufficient room for personnel access to the cylinder/ram attachment pin.

2. Lock out electrical power.
   CAUTION: NEVER WORK ON UNIT UNTIL ALL MOTORS AND ROTATING EQUIPMENT HAS STOPPED AND IS ELECTRICALLY LOCKED OUT.

3. Remove ram chamber cover.

4. Support the cylinder to prevent it from dropping when the attachment pins are removed.

5. Disconnect the hoses. Swivels are provided at one end. Mark the hoses so they can be hooked up currently upon installation. Incorrect attachment will cause ram to operate in reverse. Install plugs in cylinder ports. This prevents the cylinder rod from moving unexpectedly during handling.

6. Remove the cylinder/ram pin and disconnect the rear (cap) end of the cylinder.

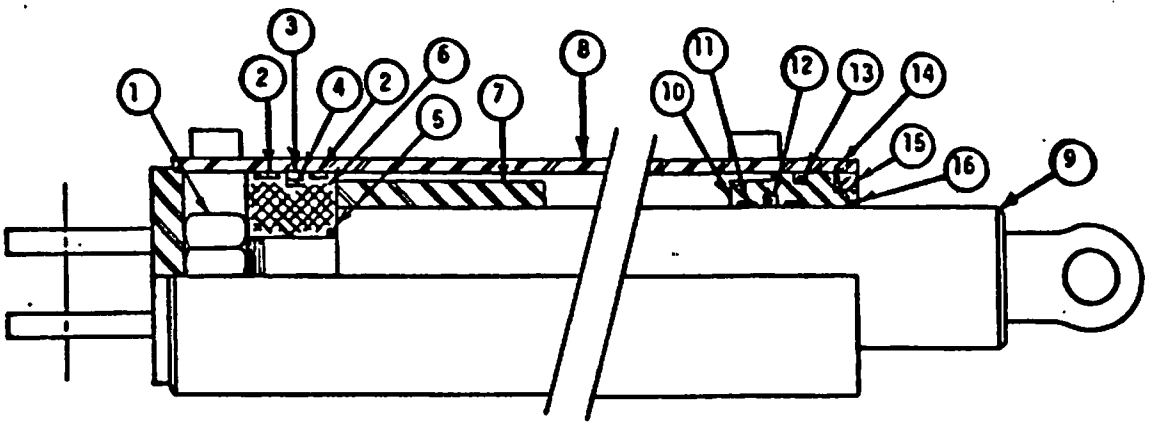
   NOTE: On standard units, the cylinder is connected by a pin. On oversize units, the trunion blocks must be unbolted from the frame and then removed from the cylinder.

7. Remove the cylinder from the balers.

   NOTE: On standard balers, the cylinder is lifted out the top. On oversize balers, the cylinder can be removed through the back. Be careful not to damage the rod.

8. If the cylinder is to be stored or shipped, retract the rod back into the cylinder and install plugs in the cylinder ports.

HYDRAULIC CYLINDER



ITEM	DESCRIPTION	QUANTITY	
1	PISTON NUT	1	
2	PISTON WEAR RING	2	PART NO: 287A017
3	PISTON SEAL	1	BORE: 6"
4	PISTON SEAL EXPANDER	1	
5	PISTON 7 ROD SEAL	1	WORKING STROKE: 48"
6	PISTON	1	ROD DIA.: 4"
7	STOP TUBE	1	MAX. OPERATING PRESSURE: 250 PSI
8	CYLINDER BODY	1	
9	PISTON ROD	1	PORTS: 3/4" NPT
10	GLAND	1	SEAL KIT PART NO: HAM23603
11	ROD WEAR RING	2	
12	ROD SEAL	1	
13	GLAND SEAL	1	
14	RETAINING RING	1	
15	LOCK RING	1	
16	ROD WIPER	1	

CYLINDER MAINTENANCE INFORMATION

W A R N I N G

Hydraulic fluid under pressure and heavy components can cause serious injury. Before performing any task that involves cylinder removal or disassembly always:

A. Disconnect and lock out all power.

B. Block tie or otherwise restrain from moving any spring loaded components or components which could fall vertically.

C. Never completely remove any fluid line until it is loosened part way and flexed from side to side, allowing any pressure in the line to bleed off.

D. Always work with proper equipment and sufficient manpower to avoid injury when handling heavy components.

1. On horizontal balers, allow the ram to go forward to some point in midstroke. Disconnect the piston rod from the ram and retract the piston rod back into the cylinder. LOCK OUT ALL POWER AT THIS TIME.

1A. On vertical balers, allow the ram to come down and rest on material in the baling chamber. Disconnect the piston rod from the ram and retract the rod back into the cylinder. LOCK OUT ALL POWER AT THIS TIME.

2. Loosen the hydraulic lines at the port connections. Allow any pressure to be relieved. When pressure is relieved, disconnect lines.

3. SUPPORT THE CYLINDER WITH A SUITABLE LIFTING DEVICE. Remove the cylinder mounting device(s) and remove the cylinder.

4. Remove threaded lock ring #15 with a pin type spanner wrench or similar tool.

5. Remove retaining (spirolock) ring #14 from internal groove utilizing a screwdriver or similar tool to start and remove.

6. Remove gland #10 and piston rod assembly #9 from barrel assembly by sliding piston rod assembly out of the body.

7. The piston #6 need not be removed from the piston rod for normal seal replacement. If removal is required, clamp the piston rod in a vice witth copper pads to protect rod finish. Drill out the tack weld and remove the piston rod locknut #1. Replace "O" ring static seal #5. Reassemble piston and locknut torque to 1000 ft. lbs. Tack weld the locknut #1 to piston rod.

CYLINDER MAINTENANCE INFORMATION

8. Replace wear strips #2, piston seal #3 and piston seal expander #4 on piston #6. Remove seals by placing a screwdriver shaped tool behind seal and stretching the seal out over the groove.

9. New seals should be lubricated generously with hydraulic oil and installed by placing one side in the piston groove and stretching the seal around the circumference with a thin tool as used in disassembly.

10. Clean all metallic parts thoroughly and examine all sealing surfaces such as the body I.D. and piston rod for damaged areas.

11. Remove and replace wear rings #11, rod seal #12 and wiper #16 from gland #10. Utilize a thin dull tool to load gland packing.

12. Install gland assembly onto piston rod., taking care to guide wear rings and rod seal over piston rod. Utilize a thin dull tool rotating around the entire inside circumference of the gland.

13. Loading of the piston rod assembly is best accomplished by easing the piston assembly seals individually over the snap ring groove with a thin dull tool.

14. Secure gland #10 in body by installing retaining ring #14 into the body groove. Start one edge into groove using a screwdriver type tool until completely seated in groove.

15. Install threaded lock ring #16 into body with a pin type spanner wrench or similar tool. Torque to 300 ft. lbs. using Loc-tite 242 medium strength on threads.

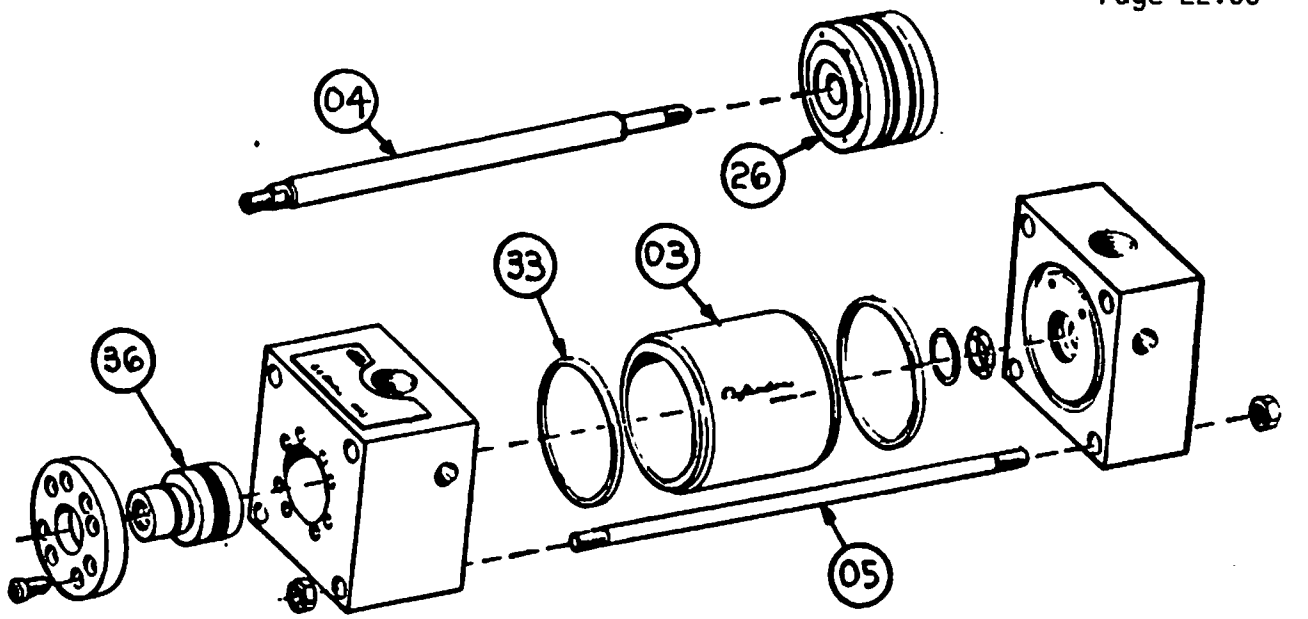
16. Install the cylinder into the baler using the reverse of the removal procedure. REPLACING ANY LOCK-WIRE ON BOLTS OR LOC-TITE ON FASTENERS HOLDING THE RAM INTO THE BALER OR AT THE POINT OF CONNECTION TO THE RAM IF OTHER THAN A PIN IS USED AT THIS POINT.

17. Insure all mounting devices and fluid lines are tight.

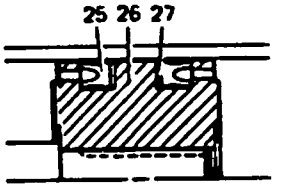
18. Operate the baler through several cycles to bleed air from the cylinder and lines.

19. Deadhead the cylinder in the forward or down position, as the case may be, under full system pressure and check for any leakage past the rod seals.

20. Replace any guard, access panels, door covers or other devices removed during the above operations. Clean up any oil spillage to avoid falls.



PISTON ASSEMBLIES

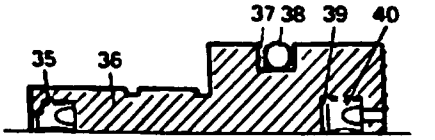


LIP-TYPE PISTON ASSY.

64 PISTON SEAL KIT
CONSISTING OF:

25 - PISTON SEAL, LIP TYPE
27 - PISTON SEAL WASHERS
33 - TUBE SEALS.

ROD CARTRIDGE ASSEMBLIES



ROD CARTRIDGE ASSY.

63 - ROD SEAL KIT CONSISTING OF:

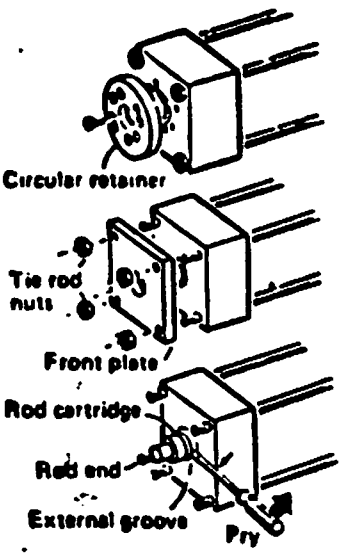
35 - ROD WIPER
37 - BACK UP WASHER
38 - "O" RING
39 - ROD SEAL WASHER
40 - ROD SEAL

ITEM NO.	DESCRIPTION	PART NUMBER	REMARKS
	CYLINDER COMPLETE 3 1/4 X 16"WORK STROKE	287A0014-00	
03	CYLINDER TUBE	287A0014-03	
04	PISTON ROD	287A0014-04	
05	TIE ROD	287A0014-05	
26	PISTON	HAL20001	
36	ROD BEARING	HAL20302	
63.	ROD SEAL KIT	HAL20402	ITEMS 35,37, 38,39,40
64	DYNAMIC PISTON SEAL KIT	HAL20201	ITEMS 25,27,33

ROD CARTRIDGE SEALS AND TUBE END SEALS

TO REPLACE ROD CARTRIDGE SEALS

1 In almost all cases there is a circular retainer at the head end, remove the socket head screws which retain it. Otherwise, remove tie rod nuts.
2 Remove circular retainer or front plate which retains rod cartridge.
3 Remove rod cartridge. To overcome friction, insert screwdriver in external groove. Pry carefully, (see illustration).
4 Clean cartridge recess in the head.
5 Lubricate the inside of the rod cartridge and the outside of the new cartridge prior to assembly.
6 *CAUTION*—Place new cartridge on rod end, being sure to use a twisting, "screwing motion" as you start it onto the rod.
7 Insert cartridge (now mounted on rod) into head recess.
8 Replace circular retainer or front plate, and tighten tie rod nuts to original prestress (see charts at bottom of page), and fig. 1 (far right) for order of tightening.



TORQUE ON CIRCULAR RETAINER SOCKET HEAD SCREWS

Screw Size	1/4 - 20	5/16 - 18	3/8 - 16	7/16 - 14	5/8 - 11	3/4 - 10
Torque (ft/lb)	18	34	53	80	270	370

TO REPLACE TUBE END SEALS

1 Remove tie rod nuts at end of cylinder.
2 Remove head and cap from cylinder.
3 Discard used seal, and clean all parts thoroughly, including inside of tube and grooves in head and cap.

When installing Continuous-Ring Type Seal $1\frac{1}{2}$"-5" bore & up, insert seal with CAUTION to avoid stretching. (See fig. 2 & 3.)

Fig. 2. Be sure to butt ends of seal together as you begin to seat seal in groove.

Fig. 3. Hold the ends together and in place with one finger while seating the rest of the seal with your other hand.

Avoid stretching, twisting, or pulling seal when seating it in the groove.

Make certain seal is seated fully into groove, and against outer groove diameter.

5 Reassemble cylinder. Tighten Tie Rod Nuts hand tight only.
6 Torque Tie Rod Nuts in order shown in Fig. 1: 1-2-3-4 See chart at bottom of page for proper torque. — 30 FT. LB.
7 Re-check torque in same order.

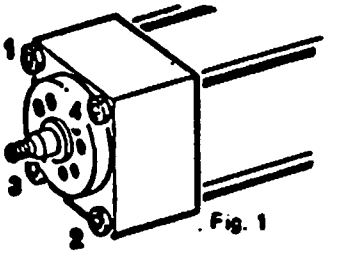


Fig. 1

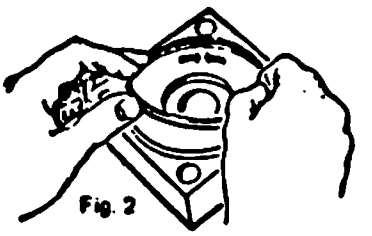


Fig. 2

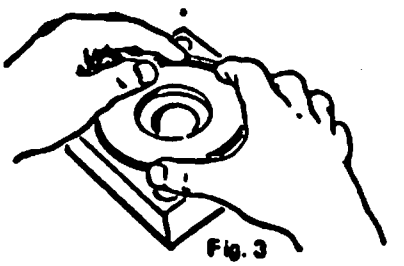
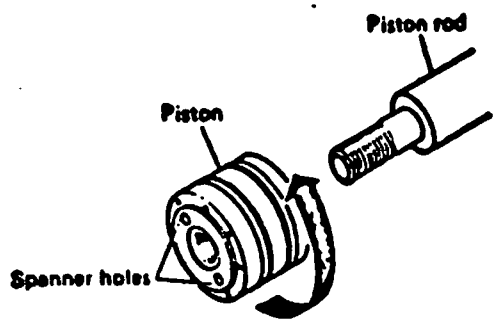


Fig. 3

PISTON

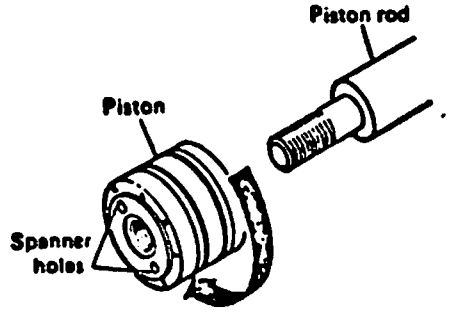
TO REMOVE PISTON FROM ROD—LOCTITE METHOD

1 Heat piston and rod to 400°-450° F.
2 Disassemble while hot using spanner wrench.
3 Remove piston by turning counterclockwise.



TO REPLACE PISTON

1 Clean threads of rod and piston or stud thoroughly with a non-petroleum solvent such as trichlorethylene.
2 Apply Loctite Sealant® Grade AVV to threads of piston only.†
3 Assemble piston or stud onto rod. Back off 2 turns and look to be sure threads are covered with Loctite.
Tighten with spanner wrench.
4 Allow Loctite to cure for 12 hours. When a cure time of 30 minutes is required apply Loctite Primer® Grade "T".



†ASSEMBLE PARTS WITHIN 3 MINUTES AFTER APPLICATION OF LOCTITE.

RAM LINER REPLACEMENT

1. REMOVE THE RAM WIPER FRAME LOCATED BEHIND THE FEED CHUTE.

2. REMOVE THE FEED CHUTE. DISCONNECT THE CIRCUIT INTERRUPTTER SWITCH (IF FURNISHED). ALSO, DISCONNECT THE PHOTOSWITCH EYES.

3. REMOVE THE GIB BARS. WHEN ALL BOLTS AND NUTS ARE REMOVED, THEY WILL COME OUT BY SLIDING STRAIGHT BACK OVER RAM. MARK LEFT AND RIGHT AS THEY ARE NOT IDENTICAL AND MUST BE REPLACED IN THE SAME POSITION.

4. WITH THE RAM AOBUT 8" FROM FULL EXTENSION, DISCONNECT THE MAIN CYLINDERS. BLOCK THE MAIN CYLINDERS TO PREVENT THEM FROM DROPPING.

5. RETRACT THE CYLINDER RODS AND REMOVE THE RAM THROUGH THE TOP OF THE BALER.

6. WITH RAM OUT OF MACHINE, REMOVE BOLTS HOLDING LINERS. BOLTS THAT GO ALL THE WAY THROUGH SHOULD BE REPLACED WITH FLEXLOCK NUTS ONLY. BOLTS THAT GO INTO THREADED HOLES ARE INSTALLED WITH LOCKTITE #242 AND MUST BE INSTALLED THE SAME WAY, THEY MAY HAVE TO BE HEATED TO RELEASE THE LOCKTITE FOR REMOVAL.

   NOTE: LOCKTITE MUST BE USED ON ALL BOLTS AND NUTS (EXCEPT FLEXLOCK NUTS) OR THEY MAY BECOME LOOSE AND BACK OUT, CAUSING DAMAGE.

7. REINSTALL IN REVERSE ORDER.

C A U T I O N: NEVER WORK ON UNIT UNTIL ALL MOTORS AND ROTATING EQUIPMENT HAS STOPPED AND IS ELECTRICALLY LOCKED OUT.

PARTS ORDERING INFORMATION

BALEMASTER/BALEWEL

SERVICES AVAILABLE

We will be pleased to quote the following:

1. Replacement parts and spare parts.
2. Bale tie wire and twine.
3. Factory field service supervision.

PARTS ORDERING

Your order MUST include the following:

1. Serial Number and Model Number as tagged on the machine.
2. Part Number -- refer to Parts List in this Manual.

CONTACT

THE SERVICE DESK

BALEMASTER DIVISION

EAST CHICAGO MACHINE TOOL CORPORATION

980 CROWN COURT

CROWN POINT, INDIANA 46307

OR CALL

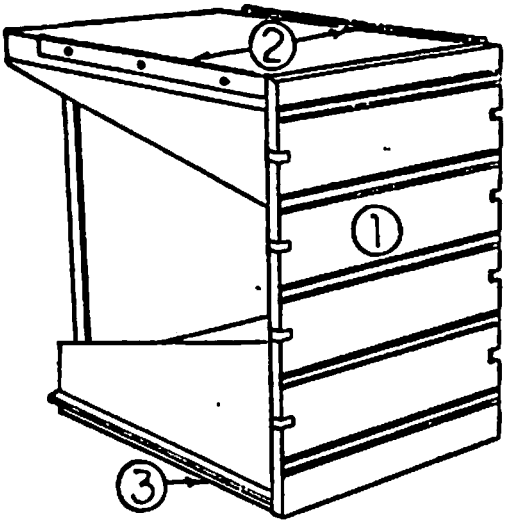
219/663-4525

3. All warranty claimed returned parts must have a Return Authorizaion Number given during contact with our Service Desk. Ship to the Attention of Customer Service Department. NO collect shipments will be accepted. See warranty.

MAIN FRAME SPARE PARTS

REFERENCE	DESCRIPTION	PART NUMBER
2 352 SERIES	EJECTION SWITCH ROD	226B0030-04
360 SERIES	EJECTION SWITCH ROD	226B0030-06
372 SERIES	EJECTION SWITCH ROD	226B0030-08
3	EJECTION DOOR	221B0053-00
4	LIMIT SWITCH DOG	226B0029-00
5	THRUST WASHER	CJA00002
6	HINGE PINS	214B0007-00
7	BALELOCK	225B0005-00
8	BALELOCK SPRING	225A0006-00
9	GIB BAR R.H.	222B0002-90
	GIB BAR L.H.	222B0002-91

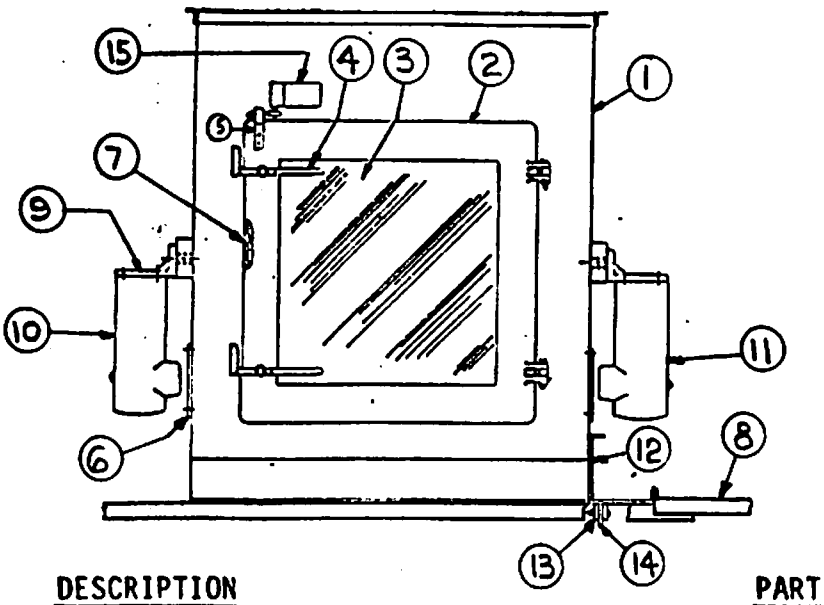
SPARE PARTS - RAM



ITEM	DESCRIPTION	PART NO.	QUANTITY
1	RAM ASSEMBLY	223C0038-00	1
2	TOP LINER	223B0503-00	2
	3/8-16 X 2 1/4 SOC. FT. HD. CAP SCR.	ACB00042	6
	3/8-16 FLEXLOCK NUT	AGB00002	6
3	BOTTOM LINER	223B0504-00	2
	3/8-16 X 2 1/2 SOC. FT. HD. CAP SCR.	ACB00043	6
--	3/8-16 FLEXLOCK NUT	AGB00002	6

SPARE PARTS FEED CHUTE STANDARD WITH DOOR

BF017



ITEM	DESCRIPTION	PART NUMBER
1	FEED CHUTE	224C0016-00
2	DOOR	224C0005-00
3	WINDOW	224B0006-00
4	HANDLE	224B0007-00
5	LIMIT SWITCH ACTUATOR	226A0013-00
6	PHOTO SWITCH WINDOW	224A0010-00
7	DOOR GASKET	EAB00012
8	RAM INSPECTION COVER	212B0006-00
9	PHOTO SWITCH BRACKET	GTE00011
10	LIGHT SOURCE PHOTO SWITCH	GTE00009
11	RECEIVER PHOTO SWITCH	GTE00010
12	RAM WIPER FRAME	223B0906-00
13	RAM WIPER BACK-UP	223B0804-02
14	RAM WIPER	223B0804-00
15	LIMIT SWITCH (22LS)	GXA00002

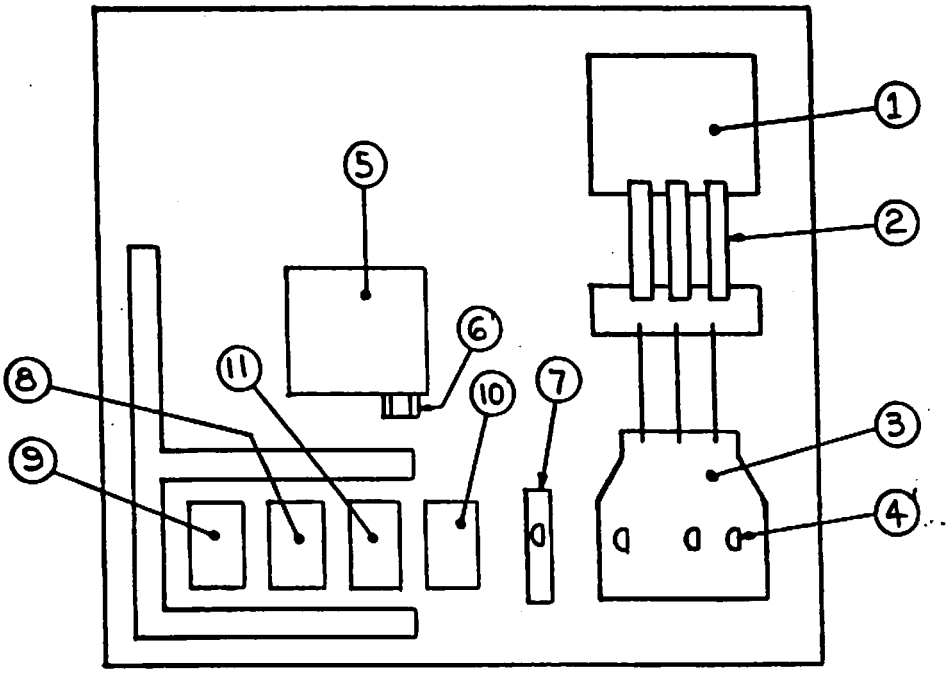
7/22/87 BOM574 SPARE PARTS - HYDRAULICS

PART NUMBER	PART DESCRIPTION	QUANTITY PER
BI205-01	INTERCONNECT HOSING,'A' ,300 STD W/O REGEN	1
282A0009-90	VALVE MTG BRKTS	1.000
	(2)	
HCC00020	VALVE,4-WAY, 3/4"	1.000
HCC00200	SUBPLATE,3/4 BOTTOM DISCH	1.000
	(12)	
HCB00012	VALVE,RELIEF,3/4"	1.000
	(13)	
HGC00008	GAUGE,LIQUID FILL,0-5000	1.000
	(33)	
GXC00001	SWITCH,PRESSURE	1.000
	(20A)	
HCA00004	VALVE,CHECK,3/4 IN-LINE,6	1.000
	(01) 4-WAY VALVE 'B' TO ROD END	
BBE00215	ELBOW,MALE,45,3/4 - 3/4"	1.000
BEB00340	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(02) PUMP 'PRESS' TO 4-WAY VALVE 'P'	
BEB00340	HOSE,HYDRAULIC,HIGH PRES,	1.000
BBE00408	ELBOW,MALE,LONG,90,3/4 -	1.000
	(07) RELIEF VALVE TO TANK	
BBE00215	ELBOW,MALE,45,3/4 - 3/4"	1.000
BEB00336	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(07A) 4-WAY VALVE 'DRAIN' TO TANK	
BBE00004	CONNECTOR,MALE,1/4 - 1/4"	1.000
BEB00130	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(08) 4-WAY VALVE 'A' TO CAP END	
BBE00215	ELBOW,MALE,45,3/4 - 3/4"	1.000
BEB00329	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(13) 4-WAY VALVE 'T' TO BALER PIPE	
BBE00508	ELBOW,MALE,EXTRA LONG,90,	1.000
BEB00329	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(14) RELIEF VALVE(12) TO PRESS SW(33)	
	(21) AIR BLEED OFF - FROM (14)	
HCH00002	VALVE,NEEDLE,1/4"	1.000

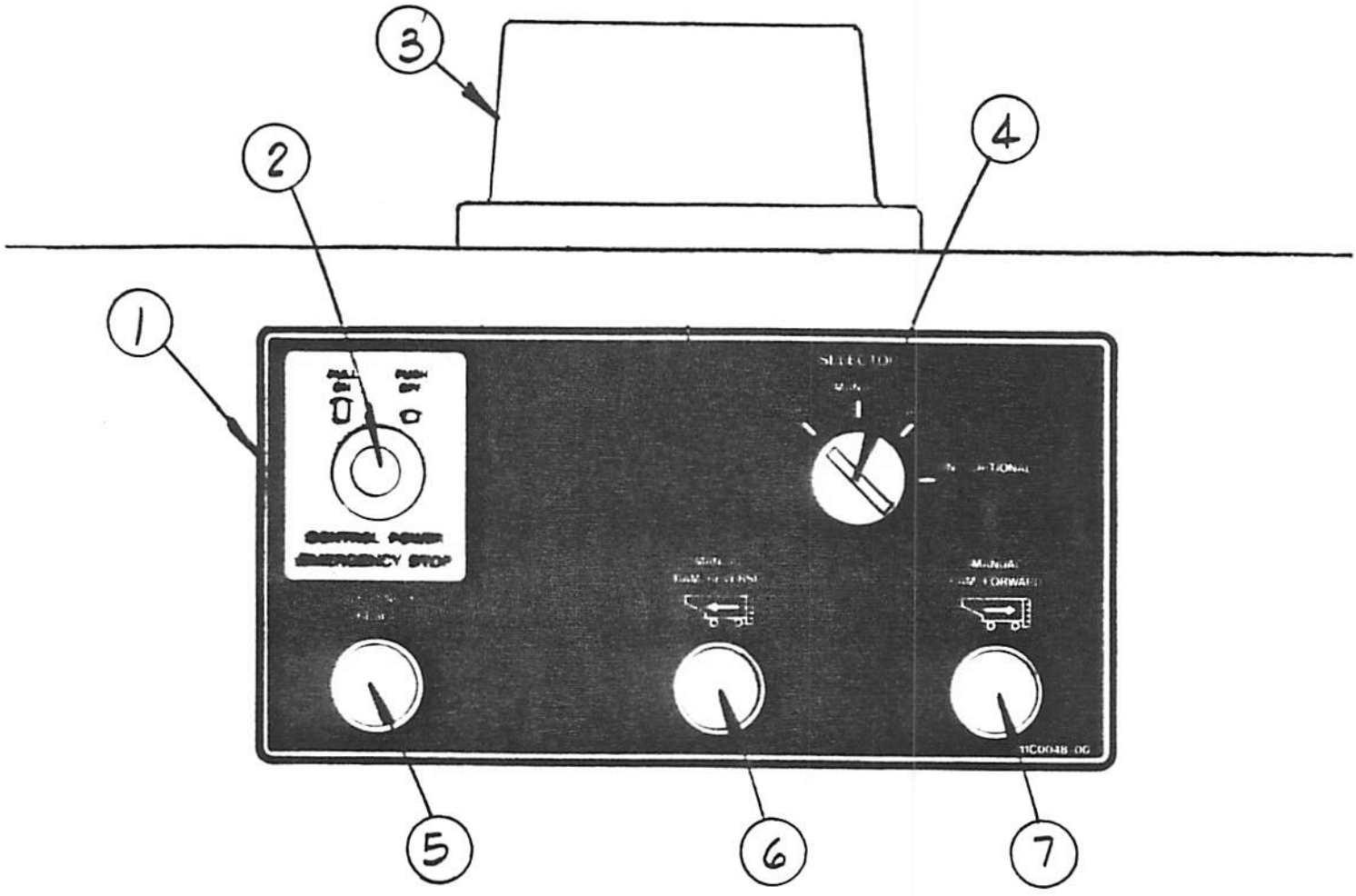
PART NUMBER	PART DESCRIPTION	QUANTITY PER
BJ020-01	300 BALEWEL W/O OIL COOLER	1
	(72) BALER PIPE TO TANK	
BEA00433	HOSE,HYDRAULIC,LOW PRES,	1.000
BBE00025	CONNECTOR,MALE,1 - 1" 300	1.000

PART NUMBER	PART DESCRIPTION	QUANTITY PER
BP009-02	15 HP POWER PACK, STD CYL	1
284A0004-00	OIL TANK ACCESS COVER	1.000
284B0005-00	OIL TANK COVER GASKET	1.000
283A0015-00	FILLER/FILTER/DIPSTICK	1.000
HHA00001	FILTER,BREATHER,FILLER	1.000
HMA00002	HYDRAULIC OIL	65.000
	* MOTOR FASTENERS *	
HKB00002	FLANGE,MOTOR/PUMP	1.000
DBA00010	COUPLING,MOTOR/PUMP,7/8 X	1.000
HBA00014	PUMP, VANE 12 GAL.	1.000
HKA00013	FLANGE,PIPE,1 1/2" "O"RIN	1.000
HKA00003	FLANGE,1" PIPE	1.000
HHB00002	FILTER,ELEMENT,1 1/2"	1.000
HCA00018	VALVE,CHECK,1/2 INLINE,P.	1.000
287A0014-00	CYLINDER,HYDRAULIC,DOOR	1.000
HCC00022	VALVE,4 WAY RELIEF 1/2"	1.000
HCC00023	SRRING	1.000
	(01) SUCTION - TANK TO PUMP	
BLA00006	1 1/2 IN 2 BRAID X 1' LG	1.000
	(101) BALER PIPE TO 4-WAY "IN"	
BEB00321	HOSE,HYDRAULIC,HIGH PRES,	1.000
BBE00317	ELBOW,MALE,90,3/4 - 3/4"	1.000
	(120) 4-WAY "EXHAUST" TO BALER PIPE	
BBE00317	ELBOW,MALE,90,3/4 - 3/4"	1.000
BEB00321	HOSE,HYDRAULIC,HIGH PRES,	1.000
	(102) 4-WAY "A" TO CAP END DOOR CYL	
	(103) 4-WAY "B" TO ROD END DOOR CYL	
BEB00224	HOSE,HYDRAULIC,HIGH PRES,	1.000
BBE00016	CONNECTOR,MALE,1/2 - 1/2"	1.000
	(60) PILOT - (17) TO (8) P.O. CHECK	
BEB00124	HOSE,HYDRAULIC,HIGH PRES,	1.000
BBE00303	ELBOW,MALE,90,1/4 - 1/4"	1.000

ELECTRICAL SPARE PARTS

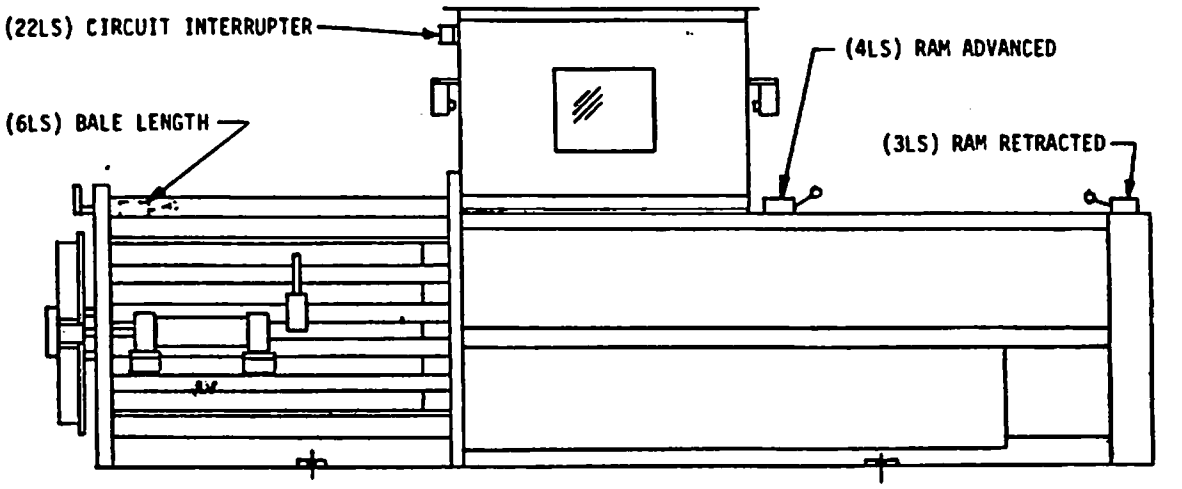


ITEM	DESCRIPTION	PART NUMBER
1	ELECTRICAL DISCONNECT (OPTIONAL)	----------
2	FUSES, BALER STARTER	----------
3	MOTOR STARTER	----------
4	MOTOR STARTER OVERLOADS	----------
5	CONTROL TRANSFORMER	----------
6	FUSE, CONTROL TRANSFORMER	----------
7	OIL COOLER OVERLOAD, (OPTIONAL)	----------
8	1 CR, CONTROL RELAY	GRA00001
9	MCR, CONTROL RELAY	GRA00001
10	1 TR, CONTROL RELAY	GRA00007
11	2 CR, CONTROL RELAY	GRA00003



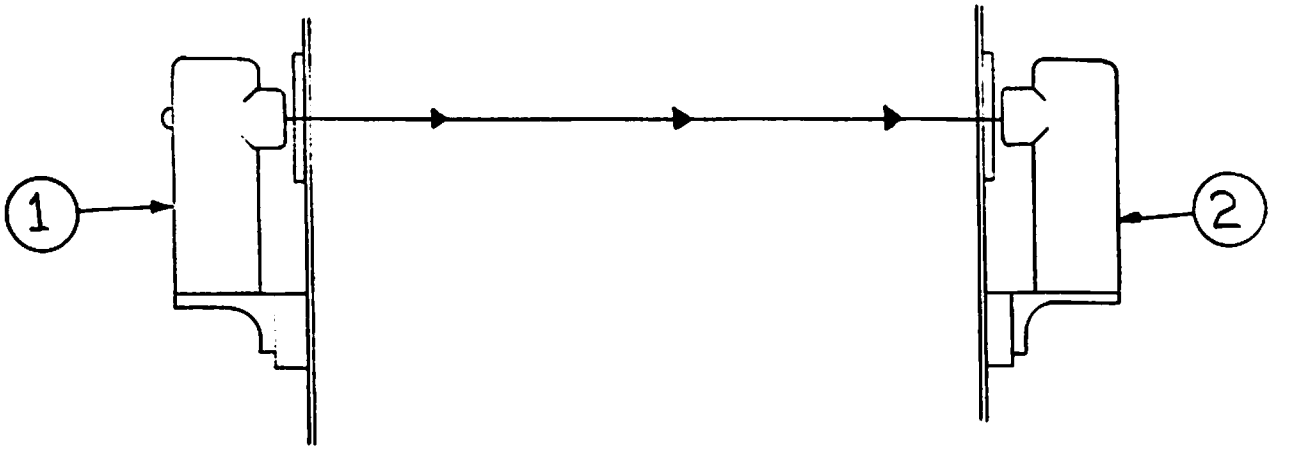
ITEM	PART NUMBER	DESCRIPTION
1	111C0048-00	Tag
2	GWA00009	Pull/Push Button
3	GZA00004	Fixture
	GZA00005	Bulb
	GZA00006	Flasher Button
4	GWC00011	Off-Man-Auto Selector Switch
	GWD00002	Off-Man-Auto-Continuous Selector Switch ("J" Option)
5	GWA00001	Push Button - Bale Length Reset
6	GWA00001	Push Button - Manual Ram Reverse
7	GWA00001	Push Button - Manual Ram Forward

SPARE PARTS LIMIT SWITCHES

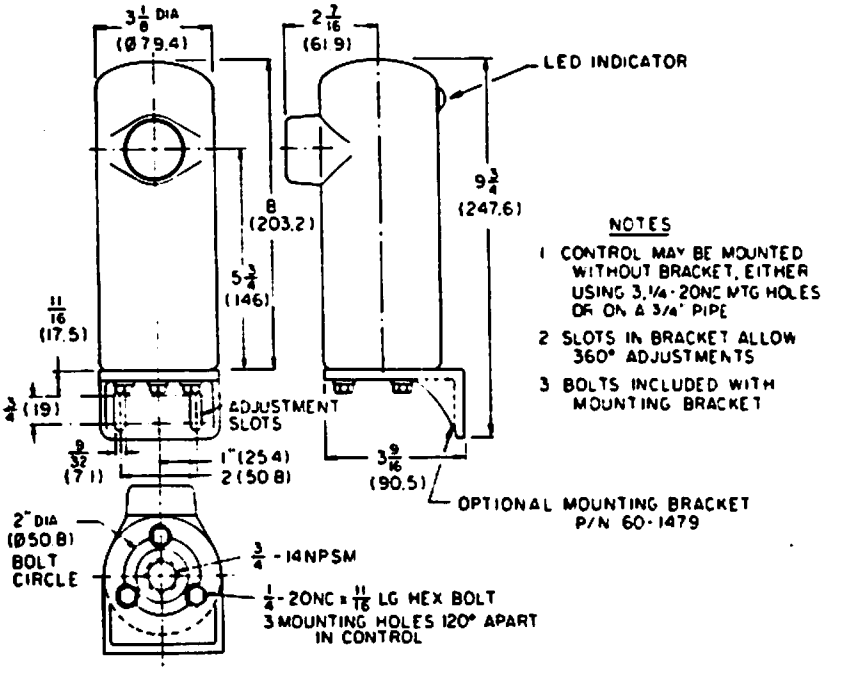


DESCRIPTION	PART NUMBER
3LS, 4LS, 6LS	GXA00004
22LS	GXA00002

ELECTRIC-PHOTOCELL



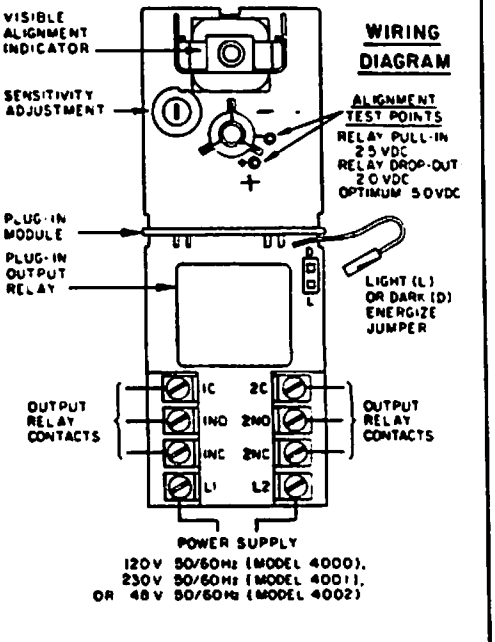
DIMENSIONS



NOTES

1. CONTROL MAY BE MOUNTED WITHOUT BRACKET, EITHER USING 3, 1/4-20NC MTG HOLES OR ON A 3/4" PIPE
2. SLOTS IN BRACKET ALLOW 360° ADJUSTMENTS
3. BOLTS INCLUDED WITH MOUNTING BRACKET

WIRING DIAGRAM



SPARE PARTS - ELECTRICAL

ITEM	DESCRIPTION	PART NUMBER	QTY
I	LIGHT SOURCE	GTE00009	1
2	RECEIVER PHOTOSWITCH CONTROL	GTE00010	1
3	TIME DELAY P.C. MODULE	GTE00007	1
4	RELAY (PLUG IN)	GTD00001	1

SPARE TAGS

Balemaster®

DIVISION OF

EAST CHICAGO MACHINE TOOL CORP.

980 CROWN COURT, CROWN POINT, INDIANA 46307

PART NO.

MODEL | BORE

STROKE | MAX PSI

SERIAL NO.

HYDRAULIC CYLINDER

CORRECT SPARE PARTS OR REPLACEMENT CYLINDERS CANNOT BE SUPPLIED WITHOUT THE SERIAL AND PART NUMBERS.

PHONE CUSTOMER SERVICE DEPT.

219-663-4525

111A0042-00

Balemaster®

DIVISION OF

EAST CHICAGO MACHINE TOOL CORP.

980 CROWN COURT, CROWN POINT, INDIANA 46307

MODEL NO

SERIAL NO

111A0027 00

Balemaster®

- REPLACEMENT PARTS
- BALE TIE WIRE
- FACTORY SERVICE ASSISTANCE

CONTACT

219-663-4525

980 CROWN COURT, CROWN POINT, INDIANA 46307

EQUIPMENT SERIAL & MODEL NOS. MUST BE INCLUDED

IIIA006

DANGER

HIGH VOLTAGE

111A0025-00

CAUTION

DO NOT UNLATCH DOOR
WITH RAM IN FORWARD POSITION
STAND CLEAR WHEN UNLATCHING DOOR

111A017-00

CAUTION

-LOCK OUT-

EQUIPMENT CONTROLS BEFORE PERFORMING MAINTENANCE

111A0020-00

Balewel®
by Balemaster®
ZDA00037

CLEAN FILTER MONTHLY

CLEAN OUT DAILY

Arrow indicates pump rotation. Also indicates direction to open and close ejection door valve (above door cylinder).

NOTICE

AMERICAN NATIONAL STANDARD INSTITUTE SAFETY REQUIREMENTS

ANSI CODE Z245.5-1982

6.1 EMPLOYER RESPONSIBILITY. The employer shall be responsible for:

(1) Ensuring that the installation of the baler is in conformance with applicable local, state and federal codes and ordinances.

(2) Providing a properly maintained baler that meets all applicable safety standards.

(3) Training and instructing employees in safe methods of work before assigning them to operate or maintain a baler. The employer shall ensure, by adequate supervision, that correct operating and maintenance procedures are understood and followed. The employer should refer to the manufacturer's instructions for this purpose.

(4) Operating the baler in accordance with the design specifications as recommended by the manufacturer.

(5) Repairing, prior to operation, all malfunctions or breakdowns that result in unsafe operating conditions of the baler. Specific instructions to employees and blocking devices, if required, shall be provided by the employer in the event that the baler chamber must be entered.

(6) Providing for the protection of the operator of horizontal balers having a loading height less than 42 inches from the point of operation by one of the following means:

(a) Deadman controls, with the control panel located in such a way that the operator cannot reach the loading zone or pinch-point area.

(b) The installation of a point-of-operation guard that shall: prevent entry of hand, fingers, or any part of the body into the point of operation; in itself, create no pinch point between the guard and moving baler parts; offer maximum visibility of the point of operation consistent with other requirements; and be easily accessible for inspection and maintenance.

6.2 EMPLOYEE RESPONSIBILITY. The employee shall be responsible for:

(1) Using all applicable safety features provided on the baler.

(2) Operating, maintaining, and using a baler only after being properly instructed and trained in accordance with the instructions given in 6.1(3).

(3) Immediately reporting any damage to or malfunction of the baler to the employer or responsible authority.

(4) Ensuring that all individuals are clear of the point of operation and pinch-point area before actuating the controls.

(5) Not placing hands or fingers in the bale binding slots.

(6) Ensuring that all individuals are standing clear of the bale chamber door when ejecting the bale or opening the bale chamber door.

11A0050-00

BALEMASTER®

DIVISION OF EAST CHICAGO MACHINE TOOL CORP.
980 CROWN COURT, P.O. BOX 465, CROWN POINT, INDIANA 46307
219/663-4525

TERMS AND CONDITIONS OF SALE

The following terms and conditions of sale become a part of the proposal and any subsequent sale of equipment manufactured by the East Chicago Machine Tool Corporation, its Divisions or Subsidiary, hereafter referred to as "we," "us," "our," etc., whether the equipment be purchased or leased directly from us or our Agent, Representative or Dealer, or from a Leasing Company. "Buyer" as used herein includes not only the purchaser but also the original user and original owner of the equipment.

PRICES

1. Prices are firm for a period of 60 days from date of proposal provided that the first available shipment will be accepted by Buyer.
2. Prices are f.o.b. point of manufacture. Shipments will be made freight collect only.
3. Prices are in U.S. currency and do not include any excise, sales, use or property taxes, export or import duties or other taxes of any taxing authority. Prices are subject to increase equal in amount to any tax we may be required to collect or pay on the sale or use of the equipment. Such amount will be payable when invoiced.

TERMS OF PAYMENT

1. Unless otherwise specified by us, the following payment schedule applies to all accepted orders, based on the total dollar amount of the order.

   To $50,000:
   Twenty five percent payable at time of placement of order,
   Sixty five percent payable five (5) calendar days prior to shipment,
   Ten percent payable thirty (30) calendar days following date of shipment.

   $50,001 and up
   Twenty five percent payable at time of placement of order followed by equal monthly progress payments, so scheduled, that ninety percent has been paid five (5) calendar days prior to scheduled shipment and final ten percent payable thirty (30) calendar days following date of shipment.
2. Accounts not paid within 30 days of invoice date will bear a service charge of one and one-half percent (1½%) per month on the unpaid balance due.

ACCEPTANCE

1. All orders are subject to acceptance in East Chicago, Indiana in writing by our marketing manager or one of our corporate officers. Typographical and clerical errors in quotations and acknowledgements are subject to correction. Equipment manufacture will not be scheduled prior to receipt of down payment.
2. For credit verification, we may require a financial statement or other financial information from the Buyer. At our option prior to shipment of the equipment, we may require the utilization of a financing statement and security agreement or Irrevocable Letter of Credit.
3. Any contract for the sale of equipment by us shall be treated as made and as performed in the State of Indiana.

CHANGES IN DESIGN

1. As we constantly strive to improve our products, specifications are necessarily subject to change without notice. We are not obligated to apply any change or improvement on equipment previously manufactured.
2. Changes in design or construction of equipment made at the request of the Buyer after its order has been accepted, or, in the case of custom equipment orders after the approval of certified drawings, will be made at the expense of the Buyer under terms to be mutually agreed.

CANCELLATION

Accepted orders cannot be cancelled or assigned without prior written agreement by our marketing manager or one of our corporate officers and payment of a charge of not less than 10% of the purchase price to cover lost time and handling expenses in the case of cancellation.

SHIPMENT

1. We reserve the right to select the transportation carrier which has equipment to meet the requirements of our shipping facility.
2. We are not responsible for shipping delays beyond our reasonable control. It is understood that we are free of any and all liability and penalty for delayed shipments caused by transportation delays, inability to obtain necessary components and materials for fabrication and assembly, acts of Buyer, labor disturbances, wars, riots, fires, accidents, explosions, floods, epidemics, quarantine, adverse weather, Governmental acts or regulations, or acts of God.
3. Should the Buyer be unable or unwilling to accept shipment of the equipment when notified that the equipment is ready for shipment, the terms of payment of the order shall then be in effect as if shipment had been made. Any expense or cost to us incidental to the delayed shipment will be payable by the Buyer when invoiced.

RISK OF LOSS AND DAMAGES

We assume no responsibility for loss or damage to the equipment incurred after we load the equipment on the transportation carrier. Claims for such loss or damage must be filed by the Buyer with the transportation carrier or other responsible party.

SERVICE

1. Before the equipment is placed in operation, start-up and training service by one of our field service engineers is available and recommended.

   During this start-up, final equipment adjustments are made and the Buyer and his operating and maintenance personnel are instructed. This service is charged at prevailing rates. Service work can not be scheduled unless payments are current in accordance with the contract.
2. Two Owner's Manuals covering Installation, Operating and Maintenance Instructions and Spare and Replacement Parts Lists are furnished with the equipment purchased. Additional manuals may be purchased at the prevailing nominal charge.

GENERAL

1. Electrical components used on the equipment meet ANSI and National Electrical Code requirements and are UL approved. Hydraulic system components used on the equipment comply with National Fluid Power Association and JIC Standards.

   The equipment is constructed in compliance with the intent of the Occupational Safety and Health Act of 1970 (OSHA), and in particular with Title 29, Chapter XVII, Part 1910, of the Occupational Safety and Health Standards adopted Oct. 18, 1972.
2. Additional costs as the result of special hydraulic, electrical or pneumatic components or other special arrangements required by local standards or codes will be the responsibility of the Buyer.
3. The equipment is skidded as is normal to the transportation carrier. Loading, skidding, crating, export boxing, packing or painting of a special type or nature can be provided at an extra charge.
4. In the event that litigation is brought against the Buyer alleging that the equipment of our manufacture, which is the subject of this proposal, infringes any U.S. or Canadian patent issued as of the date of acceptance of the order, we agree to defend such litigation at our expense provided the Buyer notifies us within seven (7) days after receiving notice of the alleged infringement and provided we are given complete control of the defense of such litigation with the right to settle such litigation or to make changes in the equipment for the purpose of avoiding the alleged infringement.
5. Our products are protected by one or more of the following issued patents. No licenses have been granted.

U.S.A.	3,212,428, 3,212,434, 3,212,823, 3,279,356, 3,365,049, 3,438,320, Design 206,727		
CANADA	790,335, 845,970		
NEW ZEALAND	150,294	NETHERLANDS	134,982
AUSTRALIA	436,421	JAPAN	762,499

6. These terms and conditions supersede and take precedence over all the provisions of the Buyer's purchase order or any similar document of the Buyer in conflict with these terms and conditions of sale.
7. These terms and conditions of sale, our written warranty, our published current literature and specifications and our acceptance of the Buyer's order define our entire obligation with respect to any sale of our equipment.
8. All information in the proposal is confidential, prepared solely for the Buyer's consideration to purchase our equipment. Transmissions of all or any part of the proposal information to others or use by the Buyer for other purposes is unauthorized without our written consent.

WARRANTY

1. We warrant the equipment to the Buyer against defective materials or workmanship under normal use and service during a five day week starting from date of shipment on a prorated basis as follows: Up to 8 hours per day operation - 12 calendar months. 8 hours to 16 hours per day operation -6 calendar months. 16 hours per day operation and up -4 calendar months. A warranty of less than (1) one year commences the first day the equipment is operated in excess of eight hours. This warranty will not be honored unless payments are current in accordance with the contract.

   Should the equipment or any part of the equipment prove defective in materials or workmanship within the warranty period, we will repair or replace the defective equipment or part, free of charge, f.o.b. our plant, provided the defective equipment or part is delivered to us at our plant or other location at our direction. However, no replacement parts will be furnished under this warranty or otherwise, unless payments are current in accordance with the contract. Such action by us does not extend the warranty period. The Buyer shall assume the cost of removal and installation of replacement parts.

   This warranty is contingent upon our being promptly notified of the defects and the Buyer establishing to our satisfaction that the defective equipment or part of the equipment has been properly installed, maintained in accordance with the Owners' manual supplied, and operated within the limits of rated and normal usage.
2. This warranty has no application to electric motors on the equipment or to normal replacement of service parts such as operating oil, paint, conveyor belts and drive belts, light sources and fuses and other parts which may have service life inherently shorter in duration than the warranty period. Electric motor warranty claims should be directed to the local motor manufacturer service center.
3. This warranty has no application to wear or damage resulting from accident, alteration, misuse, abuse, neglect, non-action, improper removal or reinstallation or handling of new or defective parts, lack of preventive maintenance, sabotage, tampering, fire, explosion or any other causes not directly attributable to defective workmanship or material of the equipment or any part of the equipment. Under no circumstances shall we have any liability under this warranty for loss of use or for any other losses or damages sustained by the Buyer.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND EXPRESSES OUR ENTIRE OBLIGATION AND LIABILITY WITH RESPECT TO SAID EQUIPMENT. WE NEITHER ASSUME, NOR AUTHORIZE ANYONE TO ASSUME FOR US, ANY OTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE EQUIPMENT OR ANY PART OF THE EQUIPMENT. WE EXPRESSLY DISCLAIM ALL LIABILITY FOR DAMAGES OF EVERY NATURE AND DESCRIPTION, IF ANY, SUSTAINED BY THE BUYER FROM DELAYS IN THE SHIPMENT AND DELIVERY OF EQUIPMENT, REPLACEMENT EQUIPMENT OR ANY REPLACEMENT PART, OR FROM DEFECTS IN, OR FAILURES OR MALFUNCTIONS OF, THE EQUIPMENT OR ANY PART THEREOF.

LICENSEE IN EUROPE BALEMASTER EUROPE B.V., NUTH HOLLAND