PLAY IT SAFE!

OPERATION, MAINTENANCE
AND INSTALLATION MANUAL

FOR

VERTICAL RECYCLER BALER

V-4224

MARATHON®
A DOVER COMPANY

VERNON, AL - FAYETTE, AL
YERINGTON, NV - CLEARFIELD, PA

Marathon Equipment Co. OMI Manual No. 0011, Rev. 10/06

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1 OPERATION

INTRODUCTION

THANK YOU FOR PURCHASING A MARATHON VERTICAL BALER.

This product is designed to give you reliable service and superior performance for years to come. To guarantee top performance and the safest operation of the baler, each person involved in the operation, maintenance and installation of the baler should read and thoroughly understand the instructions in this manual and follow all warnings.

The employer(s) involved in the operation, maintenance and installation of the baler should read and understand the most current version of the following applicable standards:

ANSI Standard No. Z245.5, “Safety Requirements For Baling Equipment”
A copy of this standard may be obtained from:
Environmental Industries Association
4301 Connecticut Avenue, N.W.
Suite 300
Washington, D.C. 20008
Telephone: 202-244-4700

OSHA 29 CFR, Part 1910.147, “The control of hazardous energy (lockout/tagout)”

ALL SERVICE OR REPAIR PROCEDURES DESCRIBED IN THIS MANUAL SHOULD BE PERFORMED BY AUTHORIZED, FULLY TRAINED PERSONNEL.
Any service or repairs that go beyond the scope of this manual should be performed by factory authorized personnel only.

IF YOU SHOULD NEED FURTHER ASSISTANCE, PLEASE CONTACT YOUR DISTRIBUTOR. YOU WILL NEED TO PROVIDE THE BALER SERIAL NUMBER, INSTALLATION DATE, AND ELECTRICAL SCHEMATIC NUMBER TO YOUR DISTRIBUTOR.

IF YOU HAVE ANY SAFETY CONCERNS WITH THE EQUIPMENT, OR NEED FURTHER INFORMATION, PLEASE CONTACT US AT:

Marathon Equipment Company
P.O. Box 1798
Vernon, Al 35592-1798
Attn: Field Service Department
1-800-633-8974

PRE-OPERATING INSTRUCTIONS

STAND CLEAR WHILE BALER IS IN OPERATION.

WARNING: DO NOT OPERATE BALER UNTIL OPERATING INSTRUCTIONS ARE THOROUGHLY UNDERSTOOD.

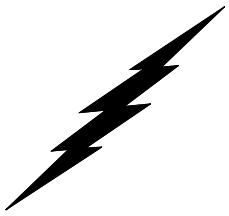
NEVER ENTER ANY PART OF THE BALER UNLESS THE DISCONNECT SWITCH HAS BEEN TURNED OFF AND PADLOCKED. Before starting the baler, be sure no one is inside. Be certain that everyone is clear of all points of operation and pinch point areas before starting. **See Lock-Out & Tag-Out instructions in the Maintenance section.**

THE EMPLOYER SHOULD ALLOW ONLY AUTHORIZED AND TRAINED PERSONNEL TO OPERATE THIS BALER. This baler is equipped with a key operated locking system. The key(s) should be in the possession of only authorized personnel. Turn off and remove key after use.

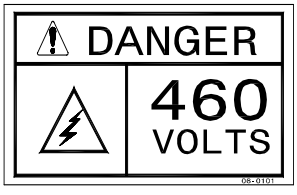
Federal regulation prohibits operation by persons under 18 years of age.

BE CERTAIN TURNBUCKLE AND LATCH IS FULLY LOCKED IN PLACE ON BALE CHAMBER DOOR BEFORE STARTING BALER.

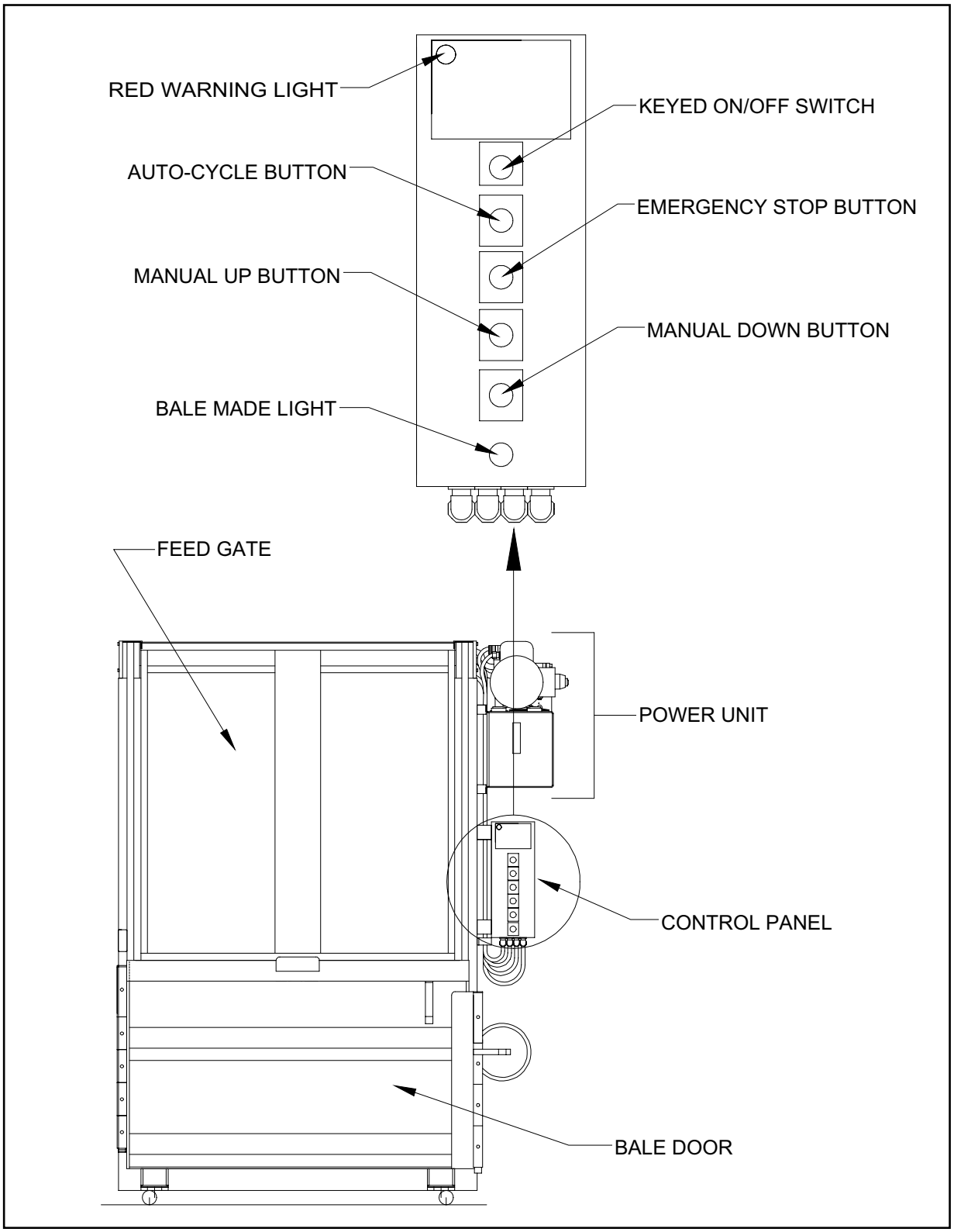
Pay close attention to the RED WARNING LIGHT on the control panel. If the light is illuminated when the feed gate is raised, there is a malfunction of the magnetic interlock system. IN THIS EVENT, DISCONTINUE USE OF THE BALER AND LOCK-OUT & TAG-OUT THE BALER PER THE INSTRUCTIONS IN THE MAINTENANCE SECTION, PAGE 2-1. Perform necessary repairs before continuing operation of the baler.



ONLY AUTHORIZED PERSONNEL SHOULD BE ALLOWED INSIDE THE PANEL BOX. The panel box contains high voltage components. **See Lock-Out & Tag-Out instructions in the Maintenance section.**



CONTROLS


RED WARNING LIGHT
KEYED ON/OFF SWITCH
AUTO-CYCLE BUTTON
EMERGENCY STOP BUTTON
MANUAL UP BUTTON
MANUAL DOWN BUTTON
BALE MADE LIGHT
FEED GATE
POWER UNIT
CONTROL PANEL
BALE DOOR

CONTROL DESCRIPTION

1. ON-OFF (Keyed Selector Switch)
   Turning this switch to the ON position activates the other controls in the control panel. The baler can not be operated unless the key is in the switch and the switch is in the ON position. The purpose of this switch is to allow only authorized and trained personnel to operate the baler. The key should be removed from the baler when not in use and should stay in the possession of only responsible and trained personnel.

2. EMERGENCY STOP (Red Mushroom Head Push button)
   Depressing this button will stop the machine at any point in the cycle.

3. AUTO-CYCLE (Green Push button)
   The AUTO-CYCLE button can be used only when the feed gate and bale door are closed and the key switch is in the ON position. Once depressed, the AUTO-CYCLE button will cause the platen to move to the fully down position and back to the fully raised position (one complete cycle).

4. MANUAL UP (Black Push button)
   This button will only start the baler with the key switch in the ON position. Depressing this button will raise the platen with the feed gate and bale door opened or closed. It is normally used during bale ejection. It can also be used to interrupt the automatic cycle and raise the platen should it become necessary. The MANUAL UP button is a “Hold To Run” control, causing the baler to stop when it is released. **WARNING:** STAY CLEAR OF MOVING PARTS WHEN USING THE MANUAL UP BUTTON WITH THE FEED GATE OPEN.

5. MANUAL DOWN (Black Push button)
   This button will only start the baler with the key switch in the ON position. Depressing this button will lower the platen only if the feed gate and bale door are closed. It can be used to interrupt the automatic cycle and lower the platen should it become necessary. The MANUAL DOWN button is a “Hold To Run” control, causing the baler to stop when it is released.
6.
   RED WARNING LIGHT
   This light will warn the operator of a magnetic interlock switch malfunction. If the light is on, and the feed gate is in the up position, there is a problem. Discontinue use of the baler. Turn off the baler and Lock-out and Tag-out per the instructions on page 2-1. Then call a qualified service person. The light SHOULD BE ON when the feed gate is in the down position.
7.
   BALE MADE LIGHT
   This light will come on if enough material has been compacted to make a complete bale.

OPERATING INSTRUCTIONS - MAKING A BALE

WARNING: DO NOT OPERATE BALER UNTIL OPERATING INSTRUCTIONS ARE UNDERSTOOD. See page 1-3 for control panel layout.

IN CASE OF EMERGENCY:
Push the large red button to STOP

WARNING: Interlocks and safety devices were installed on this unit for your protection. **Never disable or bypass any interlock or safety device**. Failure to comply with this warning could result in serious injury or death.

TO MAKE A BALE :

1. **Feed material into baler.** If starting a new bale, place a large flat piece of material flat on the baler floor. NOTE: Do not attempt to overfill the feed chamber by forcing material into the chamber with the feed gate. This can cause gate release malfunction and may damage baler.

2. **Pull gate handle down to close feed gate**. NOTE: Check red warning light before closing feed gate. If gate is open and light is on, discontinue use of the baler and call for service.

3. **To start the baler, insert the key into the key switch and turn to the ON position.**

4. **Press the AUTO-CYCLE button.** The platen will make a complete cycle down and back up. When the platen is in the full up position, the feed gate will automatically open and the motor will automatically shutdown.

5. Repeat steps 1 through 4 until the platen stops in the down position, and the “BALE MADE” light comes on.

NOTE: In normal operation, the feed gate will be open when you walk up to place material into the baler. For added security, the feed gate can be manually closed after the AUTO-CYCLE(S). To open the gate, you will have to insert the key into the key switch and run the baler through a complete AUTO-CYCLE.

OPERATING INSTRUCTIONS - BALE TIE OFF/BALE EJECT

When the “BALE MADE” light comes on it is time to tie off the bale and eject the bale from the baler. See page 1-3 for control panel layout and location. See the following page for a diagram of the following steps.

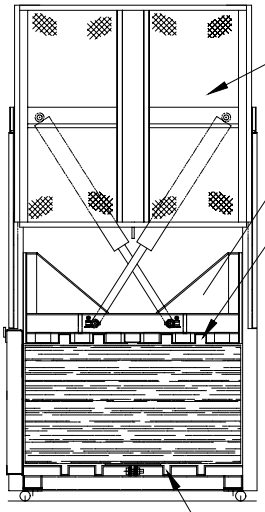
FOR BALE TIE OFF & BALE EJECT:

1. Press the MANUAL UP button until the platen is in the up position and the feed gate raises.
2. Insert a large, flat piece of material across the top of the bale. With the platen in the “up” position, make sure there is no cardboard, or other baled materials, stuck between the back of the platen and the back wall of the baler. Remove any materials found in this area.
3. Close feed gate and press the AUTO-CYCLE button. The platen will move to the down position and the bale made light will come back on.
4. Release the bale chamber door latch on the side of baler and open the bale chamber door all the way. Feed gate is closed but will raise when the bale chamber door is opened.
5. **CAUTION: Wear safety glasses and leather gloves during the following operation:** Facing the front of the bale, tie off bale by inserting bale ties (loop end first) through the platen. **Always insert bale ties through the tie slots in the platen, first.** Feed wire through until it comes out of the tie slot in the baler floor. Tie off each tie. Bale ties should be tightened only hand tight, allowing for bale expansion when released.
6. Standing at the side, make sure all personnel are clear of the front of the baler. Press and hold the MANUAL UP button until the bale ejects.
7. Remove bale from in front of baler. Close and latch the bale door **completely**. Failure to close and latch the bale door completely may result in serious damage to the bale ejector.
8. Close the feed gate, and press the AUTO CYCLE button and let the machine run through a complete cycle to reset the bale ejector hook. When the feed gate raises, the machine is ready to start the next bale.

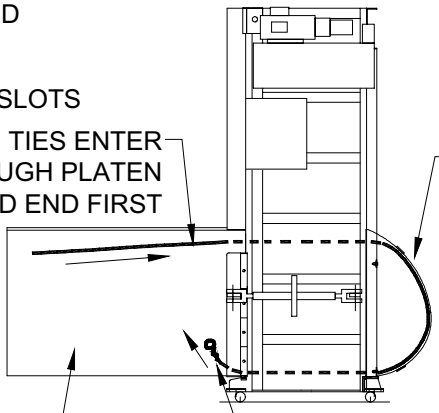
NOTE: You can close the feed gate at this time if added security is required. To open the gate you will have to run the baler through a complete AUTO-CYCLE.

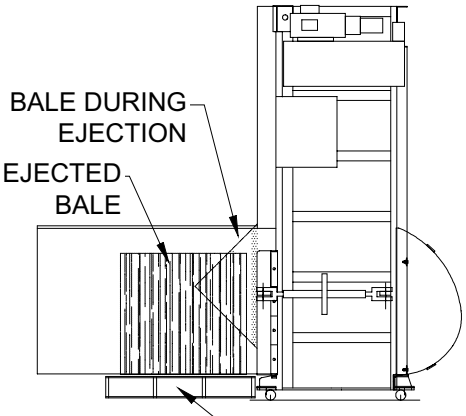
DIAGRAM - BALE TIE OFF/BALE EJECT

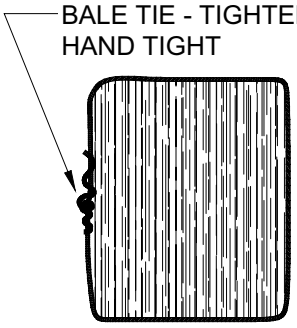
FRONT VIEW OF BALER



SIDE VIEW







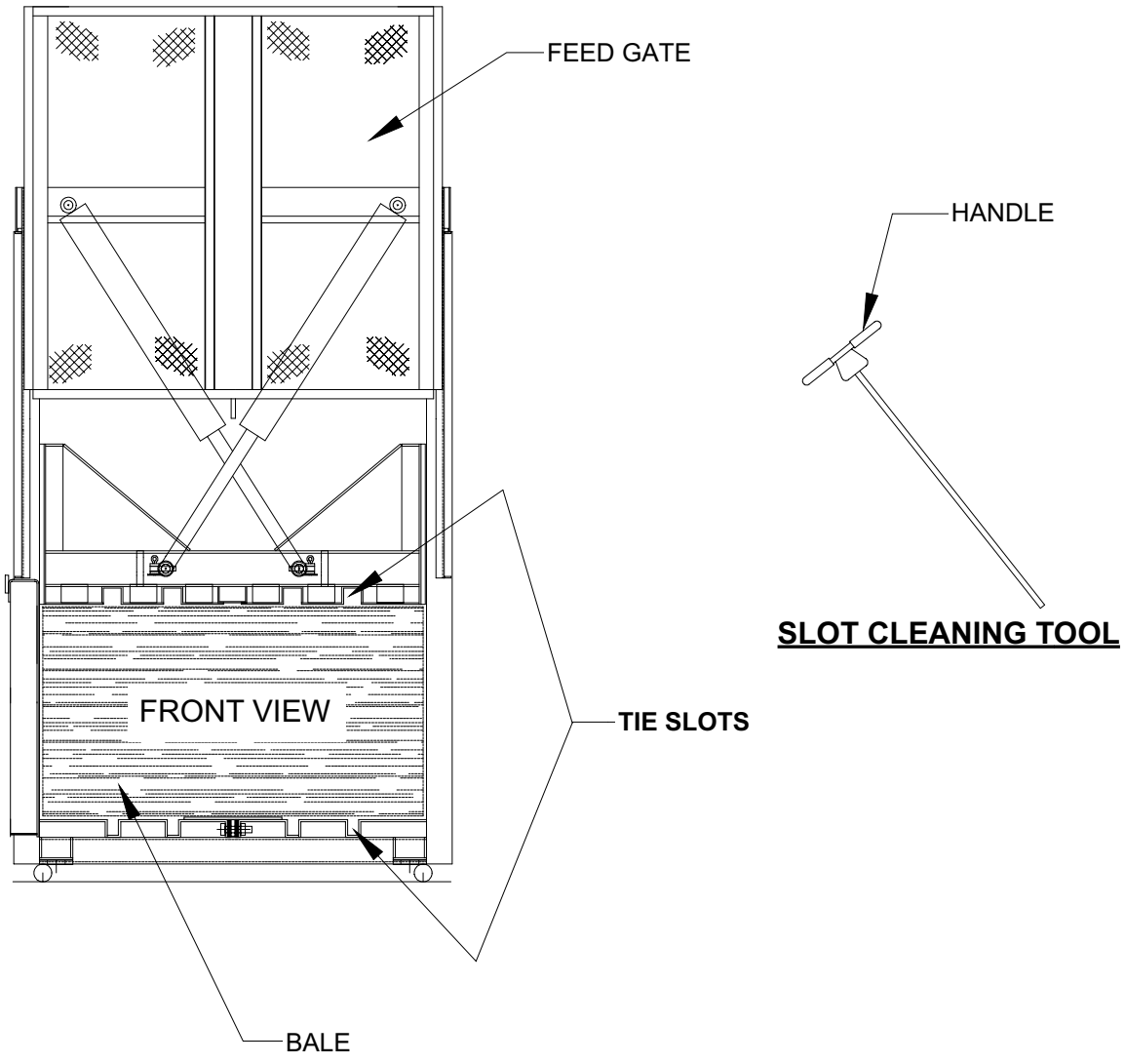
SIDE VIEW - BALE

TIE SLOT CLEANING

AT TIMES THE TIE SLOTS MAY BECOME OBSTRUCTED WITH MATERIAL AND PREVENT THE WIRE TIES FROM PROPER INSERTION THROUGH THE SLOTS AND AROUND THE BALE. THE BALER IS SUPPLIED WITH A **SLOT CLEANING TOOL** FOR RODDING OUT THE TIE SLOTS.

TO USE, INSERT THE TOOL INTO THE PROBLEM SLOT AND PUNCH OR DRAG THE MATERIAL OUT.

IF THE WIRE GUIDES BECOME OBSTRUCTED WITH MATERIAL , THE BALER SHOULD BE EMPTIED, **LOCKED OUT AND TAGGED OUT**, AND THE PLATEN SHOULD BE CHOCKED AS SHOWN IN THE MAINTENANCE SECTION OF THIS MANUAL BEFORE CLEANING THE WIRE GUIDES.



Decal's

WARNING DECAL REQUIREMENTS

When your baler leaves the factory, several WARNING Decal's are installed for protection. These labels are subject to wear and abuse due to the nature of the operation. **THESE Decal's MUST BE MAINTAINED**. Additional Decal's may be purchased through your distributor.

1. Decal Number 06-0039 - DANGER: DO NOT ENTER.
2. Decal Number 06-0101 - DANGER: 460 VOLTS. 2” X 4” OR
3. Decal Number 06-0102 - DANGER: 230 VOLTS. 2” X 4” OR
4. Decal Number 06-0103 - DANGER: 208 VOLTS. 2” X 4” OR
5. Decal Number 06-0115 - CAUTION: GATE MUST BE CLOSED BEFORE OPERATING BALER.
6. Decal Number 06-0116 - DANGER: KEEP HANDS OUT.
7. Decal Number 06-0117 - CAUTION: STAND CLEAR WHEN BALE IS EJECTED.
8. Decal Number 06-0118 - CAUTION: STAND CLEAR WHILE OPERATING DOOR LOCK.
9. Decal Number 06-0120 - DANGER. DISCONNECT AND LOCK OUT POWER BEFORE OPENING THIS PANEL.
10. Decal Number 06-0121 - WARNING: FEDERAL REGULATION PROHIBITS OPERATION OF THIS EQUIPMENT BY PERSONS UNDER 18 YEARS OF AGE.
11. Decal Number 06-0126 - MARATHON EQUIPMENT COMPANY
12. Decal Number 06-0129 - NOTICE: PERIODIC MAINTENANCE IS REQUIRED AND IS YOUR RESPONSIBILITY.
13. Decal Number 06-0130 - OPERATING INSTRUCTIONS (on panel box).
14. Decal Number 06-0132 - WARNING: STAY CLEAR OF BALE CHAMBER WHEN LIGHT IS ON.

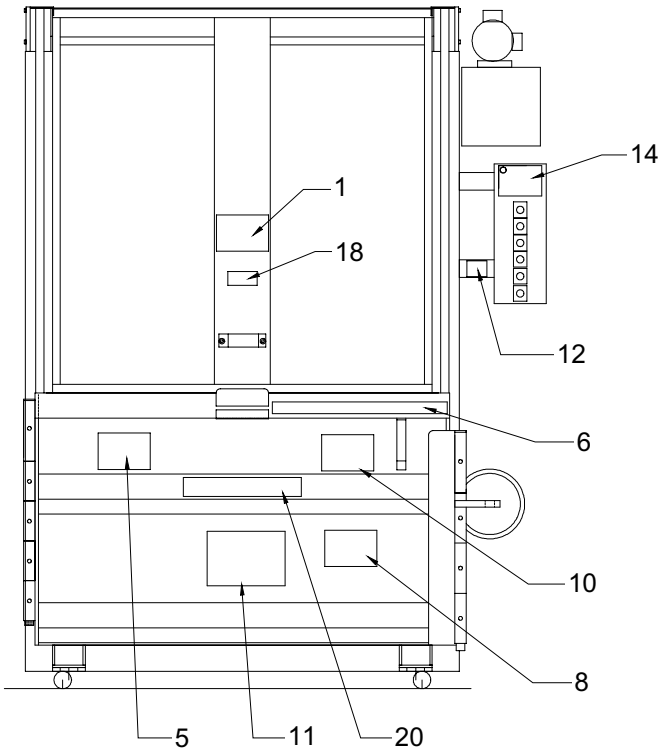
Decal's

WARNING DECAL REQUIREMENTS

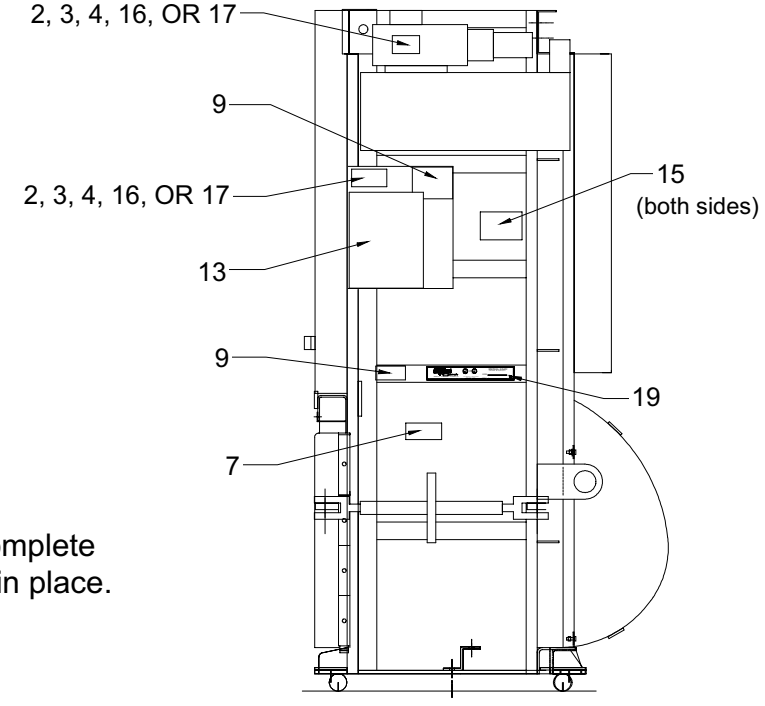
When your baler leaves the factory, several WARNING Decal's are installed for protection. These labels are subject to wear and abuse due to the nature of the operation. **THESE Decal's MUST BE MAINTAINED**. Additional Decal's may be purchased through your distributor.

15. Decal Number 06-0133 - DANGER: STAY OFF TOP OF BALER. DO NOT CLIMB ON SIDES. USE WORK PLATFORM FOR SERVICING.
16. Decal Number 06-0270 - DANGER: 575 VOLTS
17. Decal Number 06-1511 - DANGER: 120 VOLTS
18. Decal Number 06-0097 - SERIAL NUMBER PLATE
19. Decal Number 06-0275 - U. L. DECAL
20. Decal Number 06-1648 - BALE TYING INSTRUCTIONS

DECAL PLACEMENT



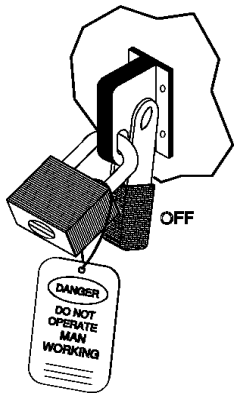
FRONT VIEW



SIDE VIEW

NOTE: Installation is not complete until all Decal's are in place.

LOCK-OUT & TAG-OUT INSTRUCTIONS



(Typical disconnect shown, other types may lock-out differently.)

FOREWORD: **Before entering any part of the baler, be sure that all sources of energy have been shut off, all potential hazards have been eliminated, and the baler is locked-out and tagged-out in accordance with OSHA and ANSI requirements. Before servicing the hydraulic system or the inside of the bale chamber, THE PLATEN MUST BE PROPERLY SUPPORTED AS SHOWN ON THE NEXT PAGE.** The specific lock-out and tag-out instructions may vary from company to company (i.e. multiple locks may be required, or other machinery may need to be locked-out and tagged-out). The following instructions are provided as minimum guidelines.

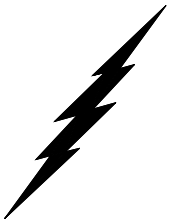
INSTRUCTIONS

1. Move the main disconnect lever to the OFF position.

2. Padlock the disconnect lever with a keyed padlock and take the key with you.

3. Along with the padlock, place an appropriate, highly visible, warning tag on the disconnect lever. The tag should provide a warning such as: " Danger: Do not operate equipment. Person working on equipment. Warning: Do not energize without the permission of _____."

4. After locking and tagging the baler, try to start and operate the baler (as outlined in the Operating Instructions) to make sure the lock-out and tag-out is effective. If the lock-out and tag-out is effective, remove the key from the key switch and take with you.



ELECTRICAL: The panel box contains high voltage components. Only authorized service personnel should be allowed inside the box. Authorized service personnel should be allowed inside the box only after the baler has been locked-out and tagged-out.

HYDRAULIC: Stored hydraulic energy must be removed from the baler hydraulic circuit for complete lock-out and tag-out. Make sure that this energy has been relieved by manually depressing the solenoid valve pin located in the center of the coil end of each valve.

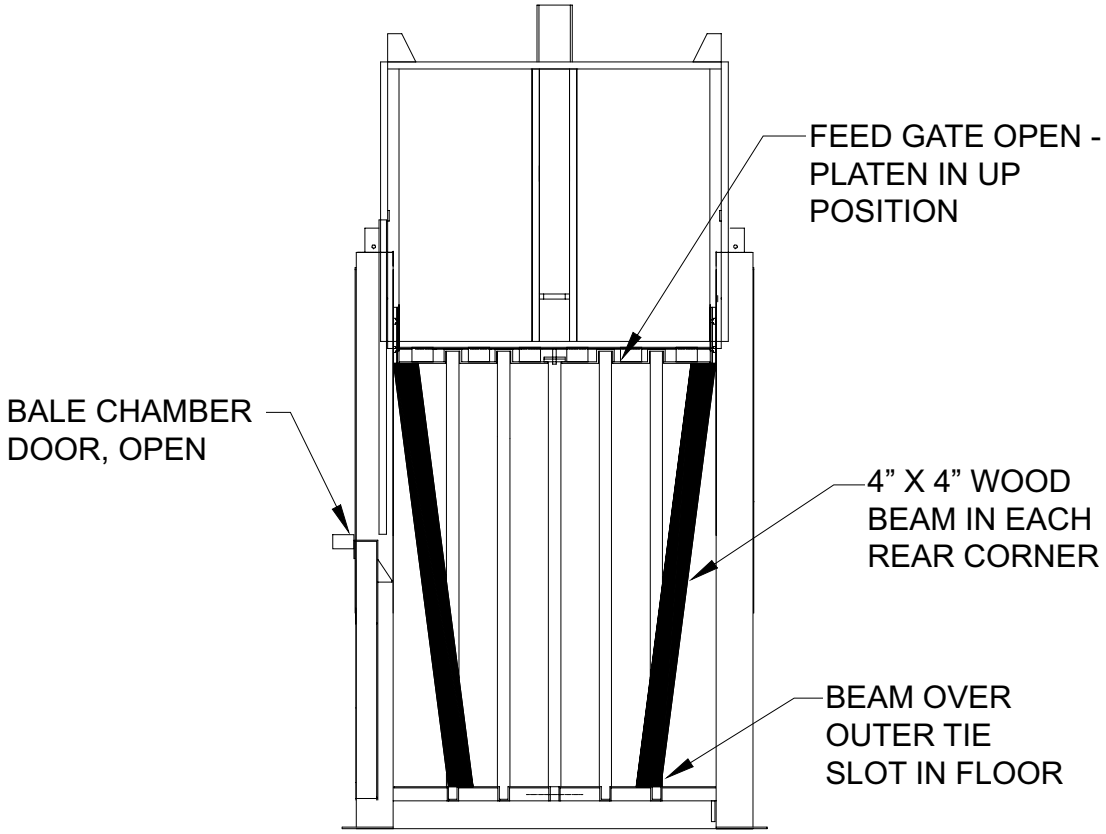
SUPPORTING OF PLATEN

WARNING: BEFORE ENTERING BALE CHAMBER FOR SERVICE, BE SURE THAT THE PLATEN IS SECURELY SUPPORTED. AT A MINIMUM, USE TWO WOODEN 4” X 4” BEAMS (GOOD CONDITION), CUT TO FIT SNUG IN EACH REAR CORNER OF THE CHAMBER WHILE SUPPORTING THE PLATEN IN THE UP POSITION. THE TOP END OF EACH BEAM SHOULD BE IN THE EXTREME CORNER, WHILE THE BOTTOM END SHOULD BE POSITIONED OVER THE OUTER TIE SLOT IN THE FLOOR. SEE DIAGRAM BELOW.

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

WARNING: FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS RAISED.

CAUTION: TURN DISCONNECT TO THE **OFF** POSITION, LOCK-OUT AND TAG-OUT POWER BEFORE SUPPORTING THE PLATEN.



FRONT VIEW OF BALER

PERIODIC MAINTENANCE

WARNING: BEFORE PERFORMING ANY MAINTENANCE OR SERVICE PROCEDURES ON THE BALER, MAKE SURE THE BALER IS LOCKED-OUT AND TAGGED OUT PER THE INSTRUCTIONS ON PAGE 2-1. FOR MAINTENANCE INSIDE THE BALE CHAMBER, SEE THE PLATEN CHOCKING PROCEDURE ON PAGE 2-2.

MONTHLY

1. Check external hoses for chafing, rubbing, leakage, or other deterioration and damage. Tighten all fittings as necessary. Check hydraulic cylinder, cylinder pin and bolts for signs of wear and fatigue.
2. Check for any obvious unsafe conditions, such as operator obstructions, in baler area.
3. Check oil level in hydraulic reservoir.
4. Lubricate the door hinge, and mechanical door lock with oil.
5. Check magnetic interlock on feed gate for proper operation.
6. Apply a light coating of all purpose grease in the feed gate tracks.
7. Apply a light application of all purpose oil to the feed gate latch moving parts.
8. Remove any pieces of materials on top of the platen, see Page 2-7.

THREE MONTHS

1. Check functional operation of controls and options (stop button, timers, lights, etc.).
2. Check hydraulic cylinders, and hoses, for leakage, chafing and wear.

ANNUALLY

1. Replace the hydraulic fluid. See Recommended Oil.
2. Electric motor bearings should be lubricated once a year.
3. Clean the top of the power unit to remove the dirt build up.

ANNUAL FILTER MAINTENANCE

1. The hydraulic filter should be cleaned at regular annual intervals.
2. The filter may be removed from the power unit through the clean out cover in the top of the reservoir.
3. Care should be exercised in cleaning the filter to insure that the element is not torn. Clean the element with a soft brush and standard industrial solvent.
4. Replace the filter after cleaning and check fittings for tightness. Pump noise and a "crackle" sound is most often caused by air entering the pump suction line. Tightening the suction fittings will usually eliminate the problem.

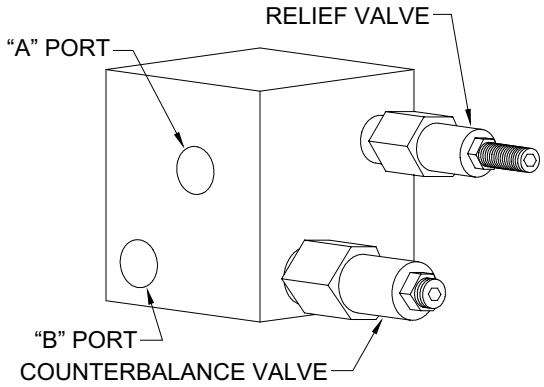
PRESSURE SETTING

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

WARNING: FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS RAISED.

HYDRAULIC SYSTEM PRESSURE SETTING

1. Using the “MANUAL DOWN” button, run the platen to the fully down position.
2. Lock-out and Tag-out the power per the instructions on page 2-1.
3. Relieve any stored hydraulic pressure by pressing in on the solenoid valve pins located on each end of the directional control valve. Use a small blade screwdriver or small allen wrench to perform this operation.
4. Remove the 1/4” plugs in the “A” and “B” port fittings where the hydraulic hoses enter the back of the baler, and install a pressure gauge in each port (2 gauges required).



SUB PLATE

5. Loosen the lock nut on the counterbalance valve and adjust the valve counter clockwise all the way out.
6. Remove the Lock-out and Tag-out.
7. Insert the key into the key switch and turn the key to the “ON” position.
8. Press the “MANUAL UP” button and raise the platen to the fully up position.
9. While continuing to hold the “MANUAL UP” button, loosen the lock nut on the Relief Valve and adjust the relief pressure to 150 psi. Use the pressure gauge in the “B” port to read this pressure. Release the “MANUAL UP” button.
10. Press the “MANUAL DOWN” button and adjust the counterbalance valve clockwise until the platen moves in the downward direction freely. Tighten the lock nut on the counterbalance valve.
11. Continue to hold the “MANUAL DOWN” button and adjust the Relief Valve to 650 psi. Use the pressure gauge in “A” port to read this pressure. Release the “MANUAL DOWN” button.
12. Remove the cap from the Unloading Valve adjustment screw located on the pump.
13. Press the “MANUAL DOWN” button again and adjust the unloading valve screw to unload the high flow section of the pump. Turning the screw clockwise increases the unloading pressure, while turning the screw counter clockwise decreases the unloading pressure. With the relief pressure at 500 psi., the pump will have a distinctive sound when the pump unloads. Replace the cap on the Unloading Valve adjustment screw.

PRESSURE SETTING AND INTERLOCK TESTING

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

WARNING: FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS RAISED.

HYDRAULIC SYSTEM PRESSURE SETTING-(continued)

14. Continue to press the “MANUAL DOWN” button and adjust the Relief Valve to 1800 psi.
15. While holding 1800 psi. adjust the pressure switch until Relay 3 (R3) energizes.
16. Continuing to press the MANUAL DOWN button, adjust the relief valve to 2000 psi.
17. Tighten the lock nut on the Relief Valve.
18. Lock-out and Tag-out power per the instructions on page 2-1.
19. Relieve any stored hydraulic pressure by pressing in on the solenoid valve pins as described in Step 3.
20. Remove the pressure gauges from the “A” and “B” ports and reinstall the 1/4” plugs.
21. Remove the Lock-out and Tag-out and turn the power “ON”. The pressure settings are now complete.

MAGNETIC INTERLOCK TESTING

1. This baler is equipped with a solid state output magnetic interlock switch. Because it is a semiconductor device, it can not be checked with a continuity light or OHM tester. The switch must be checked with the power ON. The RED WARNING LIGHT on the control panel has been provided to indicate if the switch is working properly.
2. To check the switch, turn the key switch to the ON position. When the feed gate or bale door is open, the light should be off. When the bale door and feed gate are closed, the light should be on.
3. If further verification is required, a volt meter (120V) may be connected to terminal #2A and terminal #7 in the panel box. The meter should read “0” volts with the gate open and 120 volts with the gate closed.
4. In no instance should the baler operate in either MANUAL DOWN or AUTO-CYCLE with the feed gate up or bale door open.
   WARNING: IF THE INTERLOCK IS NOT WORKING PROPERLY, DISCONNECT THE POWER AND LOCK-OUT AND TAG-OUT THE BALER UNTIL REPAIRS CAN BE MADE.

CYLINDER REMOVAL AND REBUILDING

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

WARNING: FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS RAISED.

CYLINDER REMOVAL

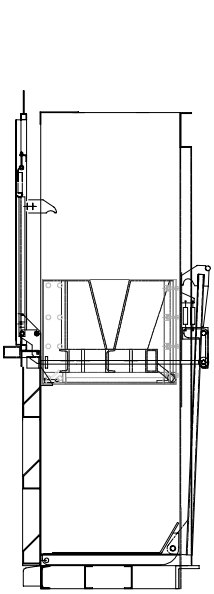
1. Close the feed gate.
2. Turn on power and lower the platen using the MANUAL DOWN button. Turn off power.
3. Disconnect and Lock-out and Tag-out power per instructions on page 2-1.
4. Open the bale door. When the bale door is opened, the feed gate will raise.
5. Support platen with fork lift to take pressure off of the cylinder pins and to prevent the platen from falling when pins are removed.
6. Remove bolts and cotter pins from the cylinder pins.
7. Remove platen from front of baler.
8. Turn on power and retract cylinder rods.
9. Disconnect and Lock-out and Tag-out power per instructions on page 2-1.
10. Relieve hydraulic pressure by manually depressing solenoid valve (both sides).
11. Relieve pressure on the counter balance valve. Loosen the lock nut on the counterbalance valve and adjust the valve clockwise all the way in to relieve the pressure.
12. Disconnect one hydraulic hose at a time. Plug the hose port before disconnecting another hose.
    NOTE: Remove hose fittings slowly.
    WARNING: BE SURE HYDRAULIC CYLINDERS ARE SECURELY SUPPORTED BEFORE PROCEEDING.
13. With the hydraulic cylinders supported, remove the cylinder pins.
14. Remove cylinders.
15. Before reinstalling cylinders, check cylinder pins, bolts, and cylinder rods for signs of fatigue. Do not reuse parts if wear or cracks are present.
16. To reinstall the cylinders, reverse the above steps.
    NOTE:Use new bolts, nuts, and cotter pins when re-installing the cylinder pins.
17. After reinstallation of cylinder(s), readjust pressure on the counter balance valve. See Page 2-4 for proper procedures.

CYLINDER REBUILDING

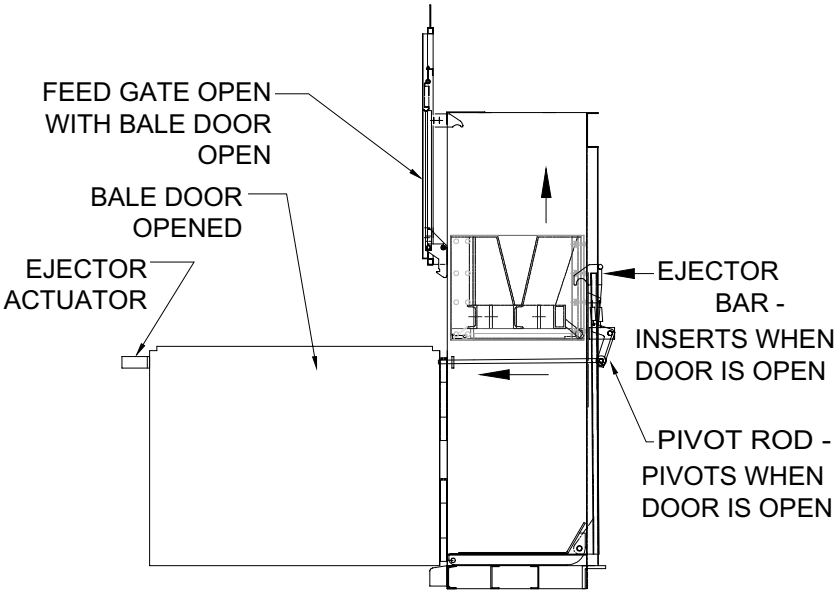
1. Remove hydraulic cylinder from baler.
2. Remove retainer nut from gland.
3. Remove internal retaining ring.
4. Remove rod from cylinder barrel.
5. Remove piston lock nut and piston from cylinder rod.
6. Replace all seals. Discard old seals and old piston lock nut.
7. Replace gland on rod.
8. Install piston on cylinder rod using new lock nut (included in seal kit).
   NOTE: Do not reuse old lock nut. Torque new lock nut to 275 - 330 ft-lbs.
9. Install piston and rod assembly in cylinder barrel. Be careful not to damage seals.
10. Install gland in barrel. Install internal retaining ring.
11. Install retainer nut to gland. Reinstall cylinder in baler.

BALE EJECTOR

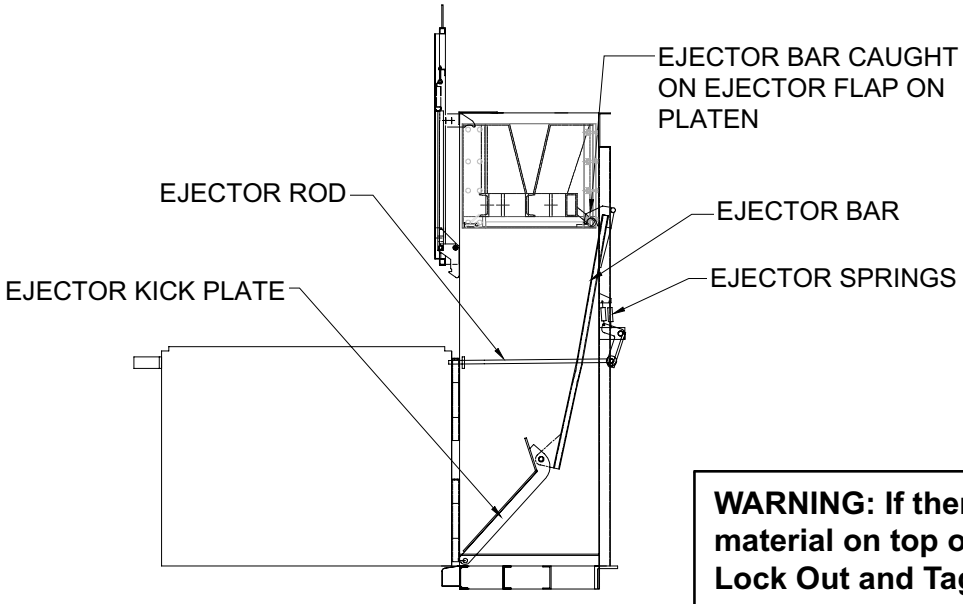
NOTE: See page 1-6 for complete instructions for BALE TIE OFF/BALE EJECT.



BALER READY FOR BALE TIE OFF AND EJECTION



BALER READY TO EJECT BALE

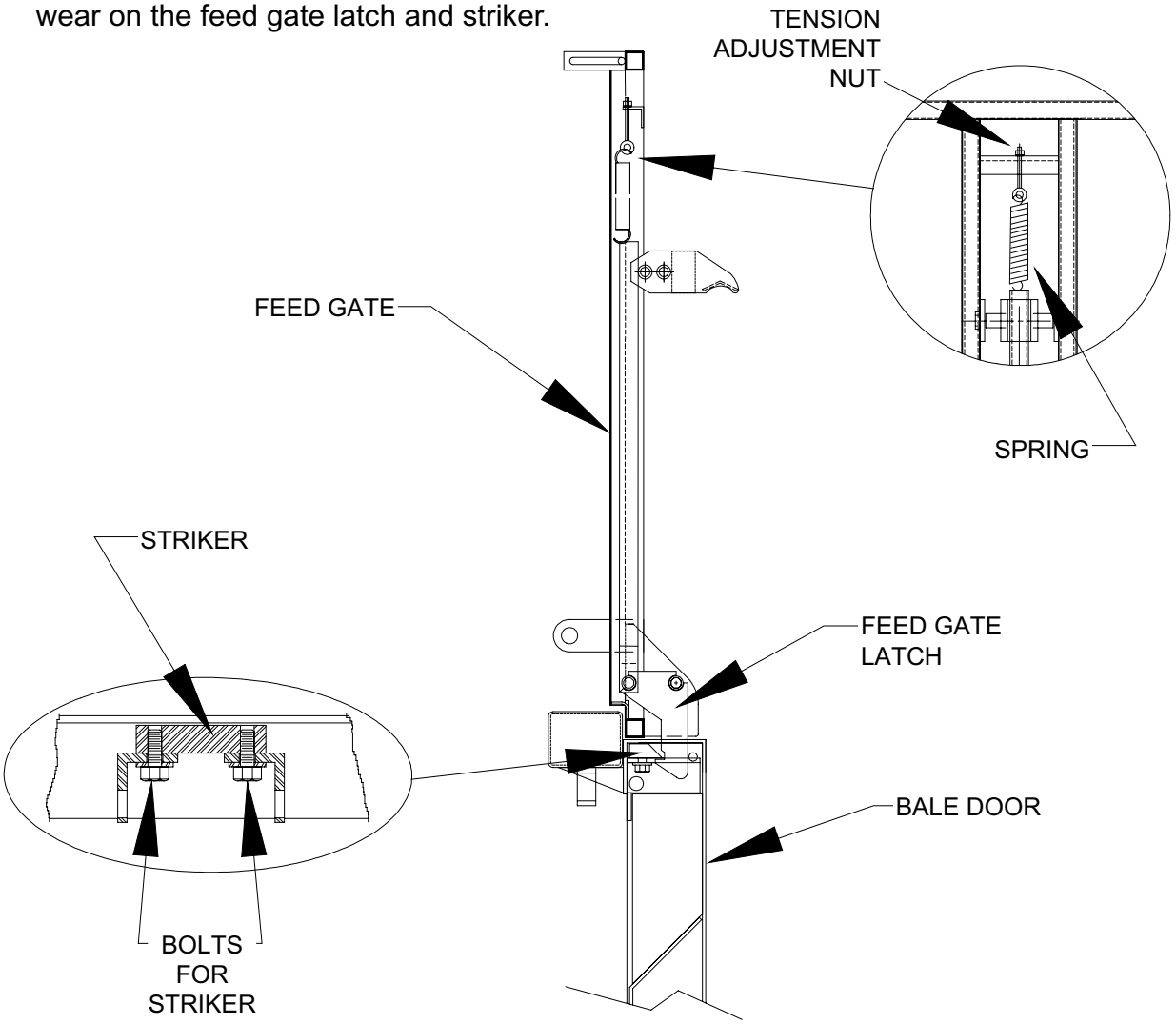


BALER WITH FULLY EJECTED BALE

WARNING: If there are pieces of material on top of the platen, Lock Out and Tag Out baler and remove material before bale ejection.

FEED GATE LATCH ADJUSTMENT

NOTE: Adjustment is made by tightening or loosening the TENSION ADJUSTMENT NUT with the feed gate in the up position. Spring tension should not exceed 5 lbs to prevent excessive wear on the feed gate latch and striker.



NOTE: In the event of excessive wear, the feed gate latch STRIKER is removable and replaceable. Striker may be replaced by removing the two (2) striker bolts. Access to the striker bolts can be achieved by removing the front cover from the bale door

PRINCIPLES OF OPERATION

OPERATING CHARACTERISTICS:

With the key switch in the ON position, and the bale door and feed gate closed, pressing the AUTO-CYCLE push button will cause the machine to operate one complete cycle. Pressing the AUTO-CYCLE switch closes three sets of contacts: (1) energizes Relay 1, (2) energizes Relay 2, (3) energizes the motor starter coil. With the motor running, oil is supplied to the SUB PLATE and directional control valve. With Relay 1 energized, oil is directed to the base end of the cylinders and causes the platen to move in the downward direction. The platen will move in the downward direction until enough pressure is detected by the pressure switch to de-energize Relay 1 and shift the directional control valve to direct the oil to the rod end of the cylinders and start the platen moving in the upward direction. When the platen raises high enough to catch and open the feed gate, the control voltage in the magnetic interlock switch is broken and de-energizes the motor starter and the power unit shuts down. When the motor starter is de-energized, an auxiliary contact de-energizes Relay 2.

When Relay 2 energizes, a contact is closed to start Timer 1. Timer 1 is used to shut the power unit down if the pressure switch never opens by either: (1) not enough pressure, or (2) by malfunction. Timer 1 sets at 50 seconds. If Timer 1 times out, Relay 2 is de-energized which de-energizes the motor starter coil. When the motor starter is de-energized, it also de-energizes Relay 1, and the power unit shuts down.

When enough material has been compacted in the bale chamber to stop the platen while holding the limit switch in the open position, and the pressure switch actuates, Relay 2 will de-energize. When Relay 2 de-energizes, the motor starter coil will de-energize, the power unit will shut down, and the BALE MADE LIGHT will come on.

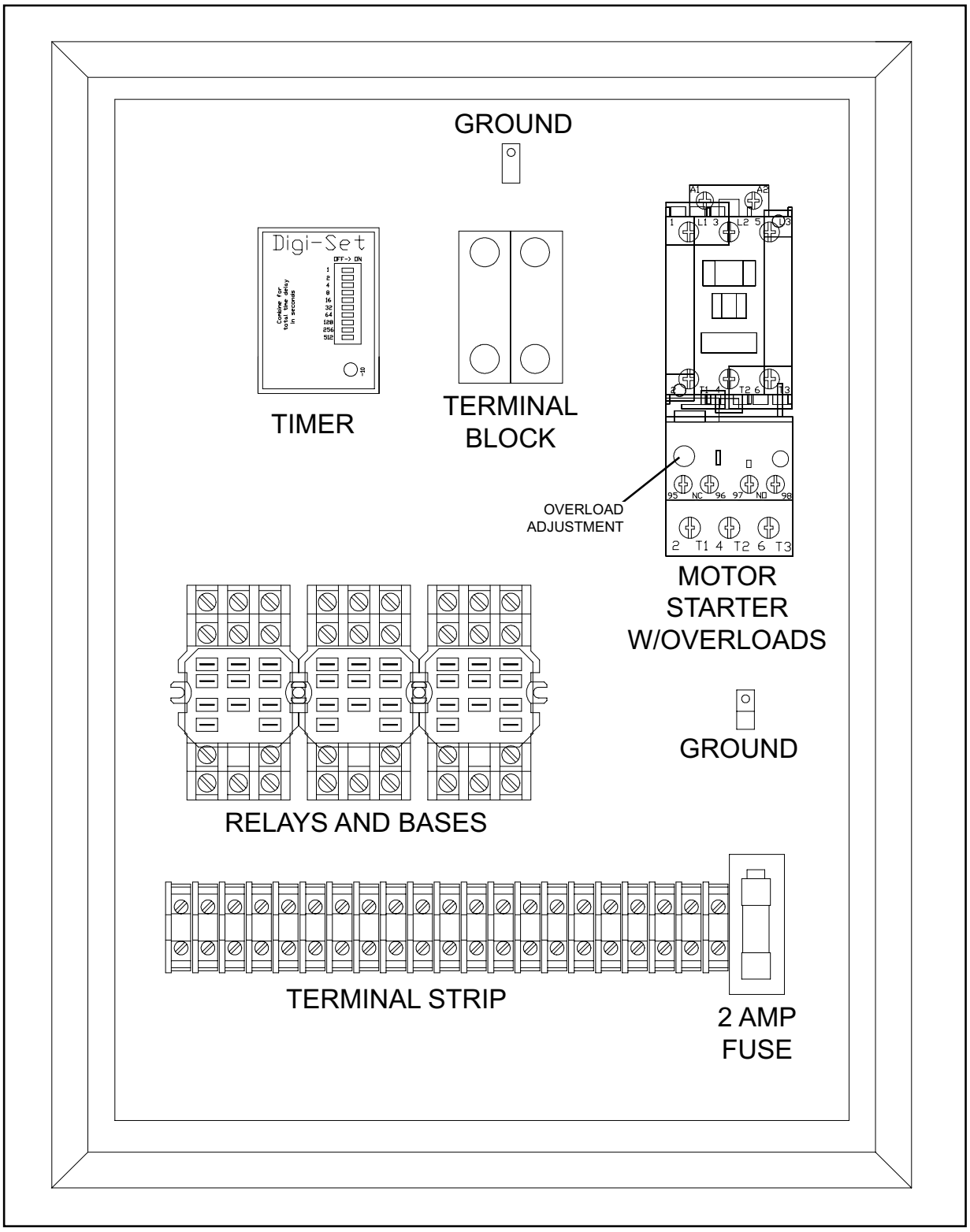
NOTE: When the BALE MADE LIGHT comes on, it is time to tie the bale. See Bale Tie Off instructions on page 1-6.

CHARTS

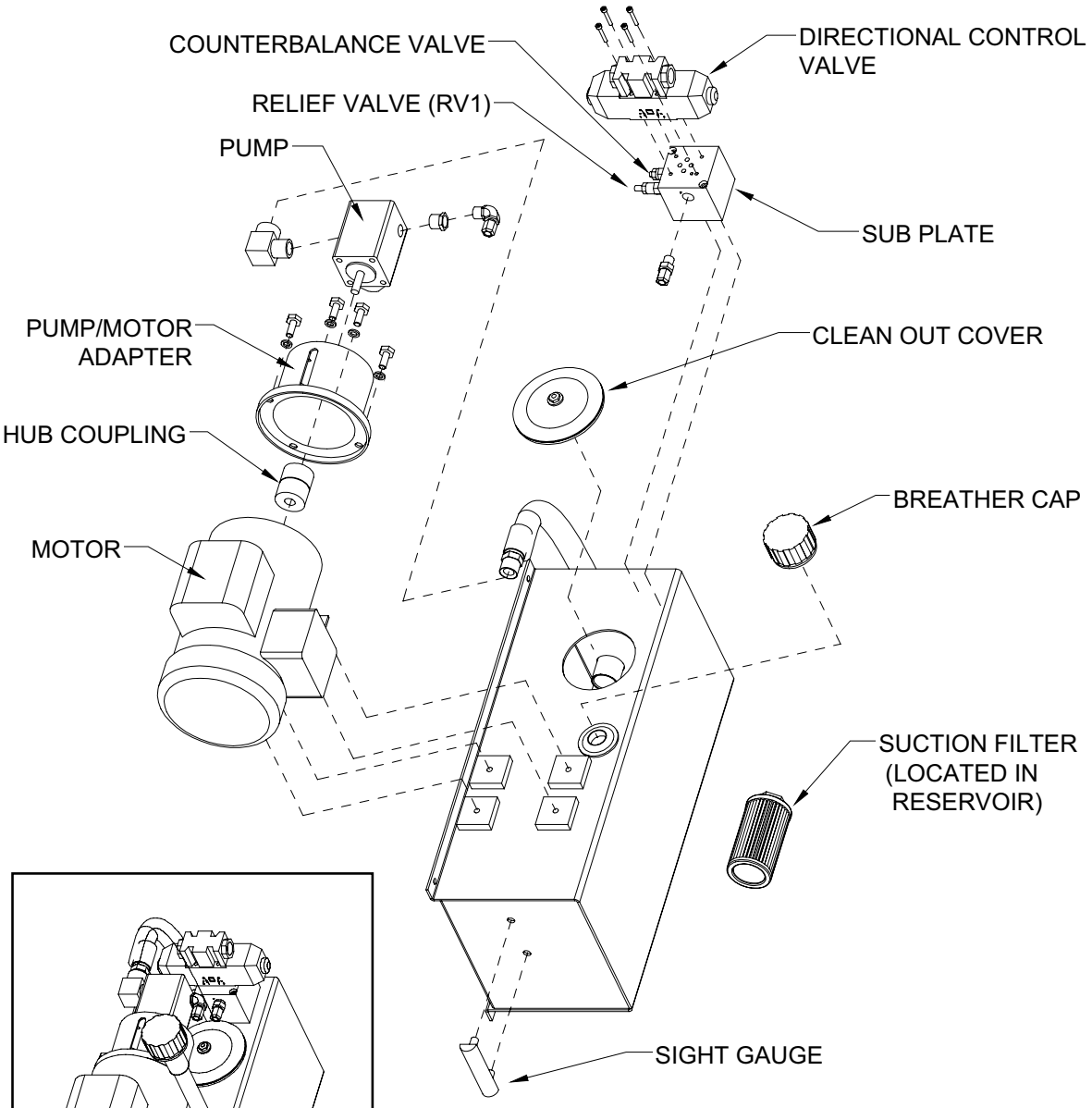
ELECTRICAL REQUIREMENTS

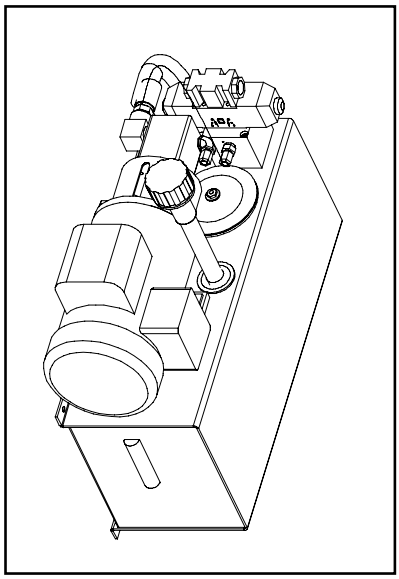
	1-1/2 HP MOTOR SINGLE PHASE			5 HP MOTOR THREE PHASE		
VOLTAGE	120 VAC	208 VAC	240 VAC	208 VAC	230 VAC	460 VAC
FULL LOAD AMPERAGE	20	11	10	16.7	15.2	7.6
DISCONNECT SIZE (MAX)	30 AMP	30 AMP	30 AMP	30 AMP	30 AMP	30 AMP
TIME DELAY FUSE (MAX)	30 AMP	15 AMP	15 AMP	30 AMP	25 AMP	15 AMP
INVERSE TIME CIRCUIT BREAKER (MAX)	45 AMP	25 AMP	25 AMP	40 AMP	40 AMP	20 AMP
WIRE SIZE (75ºC)						
50’	10	14	14	12	12	12
100’	8	12	14	10	10	12
200’	6	10	12	6	8	12
300’	4	8	10	4	6	10

PANEL BOX


GROUND
Digi-Set
TIMER
TERMINAL BLOCK
OVERLOAD ADJUSTMENT
MOTOR STARTER W/OVERLOADS
GROUND
RELAYS AND BASES
TERMINAL STRIP
2 AMP FUSE

POWER UNIT

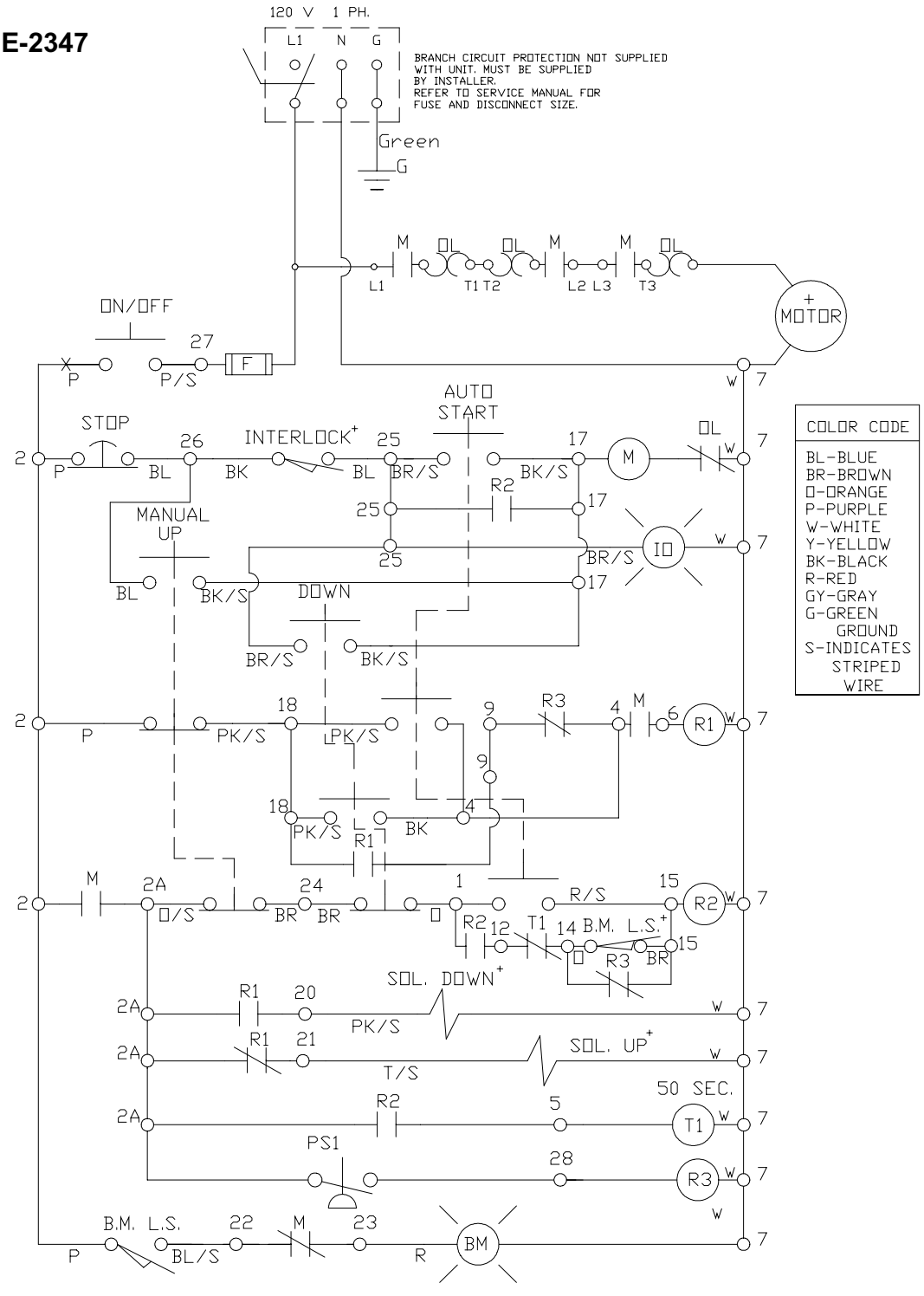




NOTE: See RECOMMENDED OIL on page 2-15.

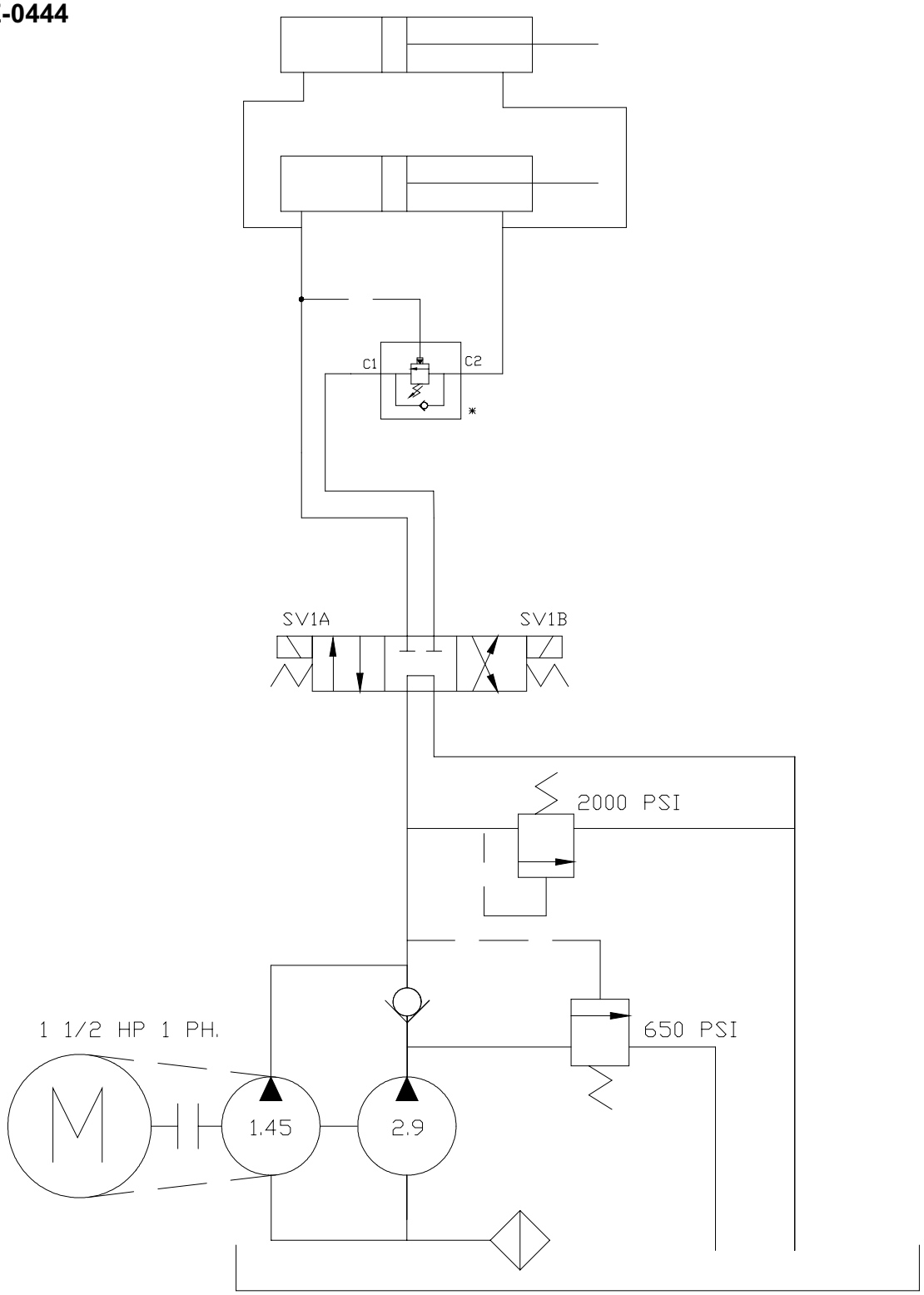
ELECTRICAL SCHEMATIC

E-2347



HYDRAULIC SCHEMATIC

E-0444



PARTS LIST

PART #	DESCRIPTION		PART #	DESCRIPTION
02-0050	SUCTION FILTER		03-0498	MAGNETIC SWITCH
02-0197	BREATHER		03-0658	PRESSURE SWITCH
02-0198	SIGHT GAUGE		03-0786	MOTOR STARTER
02-0219	CLEAN OUT COVER		03-0928	Push button SWITCH (BLACK)
02-0628	DIRECTIONAL CONTROL VALVE		03-0929	EMERGENCY STOP SWITCH
02-3902	COUNTER BALANCE VALVE		03-0934	KEY SWITCH
02-3924	PUMP/MOTOR ADAPTER		03-0936	CONTACT BLOCK N/O
02-3965	SUB PLATE		03-0937	CONTACT BLOCK N/C
02-3969	HUB COUPLING		03-0987	Push button SWITCH (GREEN)
02-3970	PUMP		03-1681	MOTOR STARTER AUX. CONTACT
02-4108	RELIEF VALVE		03-2649	MOTOR, 1-1/2 HP SINGLE PHASE
03-0010	LIMIT SWITCH ARM		03-2787	MOTOR STARTER OVERLOADS
03-0012	LIMIT SWITCH		04-3134	CYLINDER, 3B 1.5R 25S
03-0234	RELAY SPRING CLIP		05-0277	SPRING
03-0256	RELAY BLOCK 3 LINE		05-0283	CHAIN, 2040 RIVET
03-0284	RELAY BASE		05-0285	SPROCKET F/GATE
03-0293	TIMER		05-0664	CHAIN MASTER LINK
03-0294	TIMER BASE		05-2384	TURNBUCKLE W/8" WHEEL
03-0335	RED OMNI GLOW LIGHT		06-1409	CASTER
03-0351	TIMER RETAINING CLIP			

RECOMMENDED OILS

1. Union - Unax-46, Unax-AW46
2. Gulf - Harmony 47, Harmony 48-AW
3. Exxon - Teresstic 46, Nuto 46
4. Texaco - Rando 46
5. Chevron - AW 46
6. Shell -Turbo 46, Tellus 46
7. Quaker State - Dextron ll (ATF)
8. Citgo - Pacemaker 46, Tellus - AW46
9. Amoco - (Rycon)

WARRANTY AND SERVICE ON MOTORS

If the baler motor fails under warranty, have it checked by a qualified electrician or service person. If there is no problem with fuses or wiring, the motor should be taken to the nearest authorized motor warranty shop. If you do not have a list of qualified shops, contact Marathon Equipment Co. The motor warranty shop will be able to inspect the motor and determine if it is factory defective. If the motor failed due to defects in material or workmanship, contact the factory to determine if the motor will be replaced or repaired. If motor failure was not due to defective material or workmanship, it will be repaired only if customer agrees to pay for expenses. Marathon Equipment Co. will not absorb cost for pickup and delivery to service centers. Removal and reinstallation are covered in the standard warranty policy.

3 INSTALLATION

GENERAL INSTALLATION

CAUTION:

Review this manual before beginning the installation. Study the job site and installation requirements carefully to be certain all necessary safeguards and/or safety devices are provided to protect all personnel and equipment during the installation and as a completed system.

These instructions are not intended as a substitute for training and experience in proper use, safety procedures, maintenance, or installation of this equipment.

This baler is designed for INDOOR USE ONLY.

Marathon does not assume responsibility for the installation procedures of this equipment. Conformance to applicable local, state, and federal laws concerning installation rests with the customer.

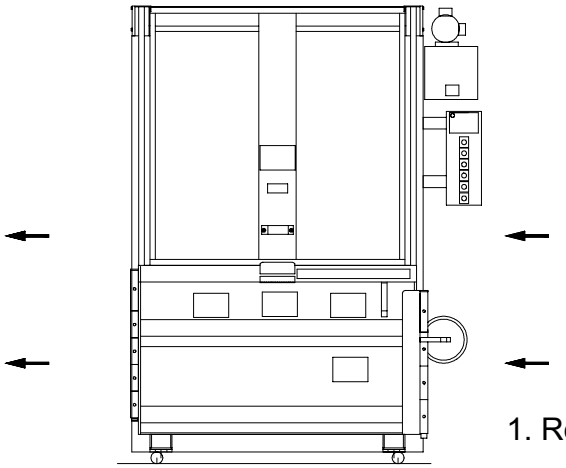
Decal's
Installation of the baler is not complete until an inspection of the warning Decal's has been made. Decal's should be clearly visible, legible, securely applied, and in the proper location. For decal description and location, see Decal's and DECAL PLACEMENT in Section 1.

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

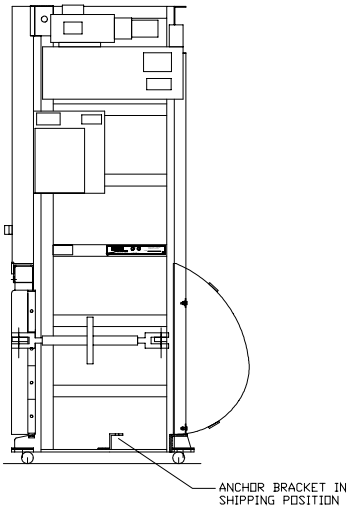
WARNING: PARTS OF THE FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS FULLY RAISED.

ANCHORING TO CONCRETE PAD

The concrete pad should be level, and a minimum of 3000 PSI concrete, steel reinforced, 6” thick. Anchor baler to floor using anchor brackets on sides of baler base. Two 3/4” diameter anchor bolts required, Red Head type recommended.

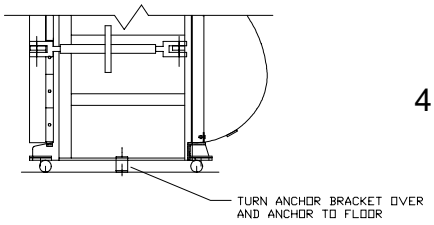


1. Roll baler to the desired location.



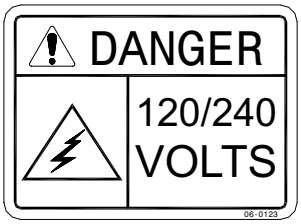
2. Unbolt the Anchor Bracket from the baler. (both sides)

3. Turn the Anchor Brackets over and re-bolt them to the baler.

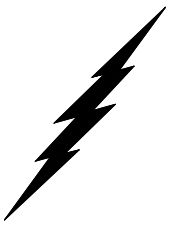


4. Anchor the Anchor Bracket to the floor. (both sides)

ELECTRICAL INSTALLATION



The panel box contains high voltage components. Only authorized service personnel should be allowed inside. See Lock-Out & Tag-Out instructions in the Maintenance section.



WARNING: BEFORE MAKING ANY ELECTRICAL CONNECTION, BE SURE THAT THE MAIN DISCONNECT SWITCH HAS BEEN LOCKED-OUT AND TAGGED-OUT PER THE LOCK-OUT AND TAG-OUT INSTRUCTIONS ON PAGE 2-1.

1. **BRANCH CIRCUIT PROTECTION IS NOT PROVIDED WITH THIS UNIT, AND MUST BE PROVIDED BY THE INSTALLER.** This disconnect switch must be fused, lockable, and within sight of, and not to exceed 50 feet from the baler, per the National Electrical Code. Additional local codes may apply. Use the FUSE AND CIRCUIT BREAKER chart and the WIRE SIZE chart in the MAINTENANCE section of this manual for reference during the electrical installation.

2. Before connecting power to the baler, check the incoming line voltage with a voltmeter. Also, check voltage wiring in the baler panel box. If the baler is not wired to the proper voltage, make necessary corrections before proceeding.

3. A lockable disconnect switch **IS NOT PROVIDED** in the panel box. Incoming power should be connected to the top of the terminal block. Be careful not to let incoming wires touch each other. A properly sized equipment ground wire should be connected to the enclosure ground lug.

GROUNDING INFORMATION

DANGER: All equipment should be grounded per National Electric Code.

This appliance must be connected to a grounded, metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the appliance.

If there is any doubt whether the equipment is properly grounded, a qualified electrician should be consulted.

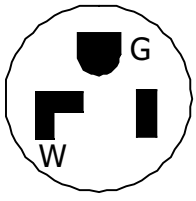
FOR CORD CONNECTED EQUIPMENT:

DANGER—Improper connection of the equipment–grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded. Do not modify the plug provided with the appliance-if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

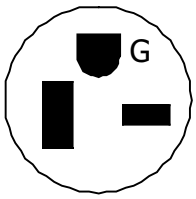
This appliance must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into and appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

This appliance is rated for more than 15 amps and is for use on a circuit having a nominal rating of 120 volts or 240 volts, and is factory equipped with a specific electric cord and plug. No adapter should be used with this appliance. If the appliance must be reconnected for use on a different type of electric circuit, the re-connection should be made by qualified service personnel; and after the re-connection, the appliance should comply with all local codes and ordinances.

See picture examples of receptacles:



NEMA 530 -P
120 (115) VOLT 1 PHASE



NEMA 620 -P
240 (230) VOLT 1 PHASE

START-UP INSTRUCTIONS

WARNING: BEFORE START-UP, REPLACE THE 3/4" PLUG ON THE TOP OF THE POWER UNIT RESERVOIR WITH THE FILLER BREATHER CAP. THIS CAP IS SHIPPED INSIDE OF THE PANEL BOX.

DANGER: DO NOT CLIMB ON SIDES OF BALER. USE A LADDER OR WORK PLATFORM WHEN WORKING ON TOP OF THE BALER OR OTHER AREAS OF THE BALER THAT CAN NOT BE REACHED FROM GROUND LEVEL.

WARNING: PARTS OF THE FEED GATE WILL EXTEND ABOVE THE TOP OF THE BALER WHEN THE FEED GATE IS FULLY RAISED.

CAUTION: MAKE SURE PERSONS AND MATERIAL ARE CLEAR OF CHARGE BOX AREA.

1. With the platen fully raised, check to be sure the oil reservoir is filled to the 3/4 level on the sight gauge (Refer to the maintenance chart for hydraulic oil recommendations). The hydraulic system pressure has been factory set.

2. The baler is equipped with an electrical interlock which prevents the use of the AUTO-CYCLE and MANUAL DOWN functions when the feed gate is in the up position. If either of these buttons start the baler when the feed gate is up, discontinue use of the baler until repairs have been made.

3. **MAKE SURE THAT THE OPERATORS ARE TRAINED IN THE PROPER USE OF THIS EQUIPMENT.**