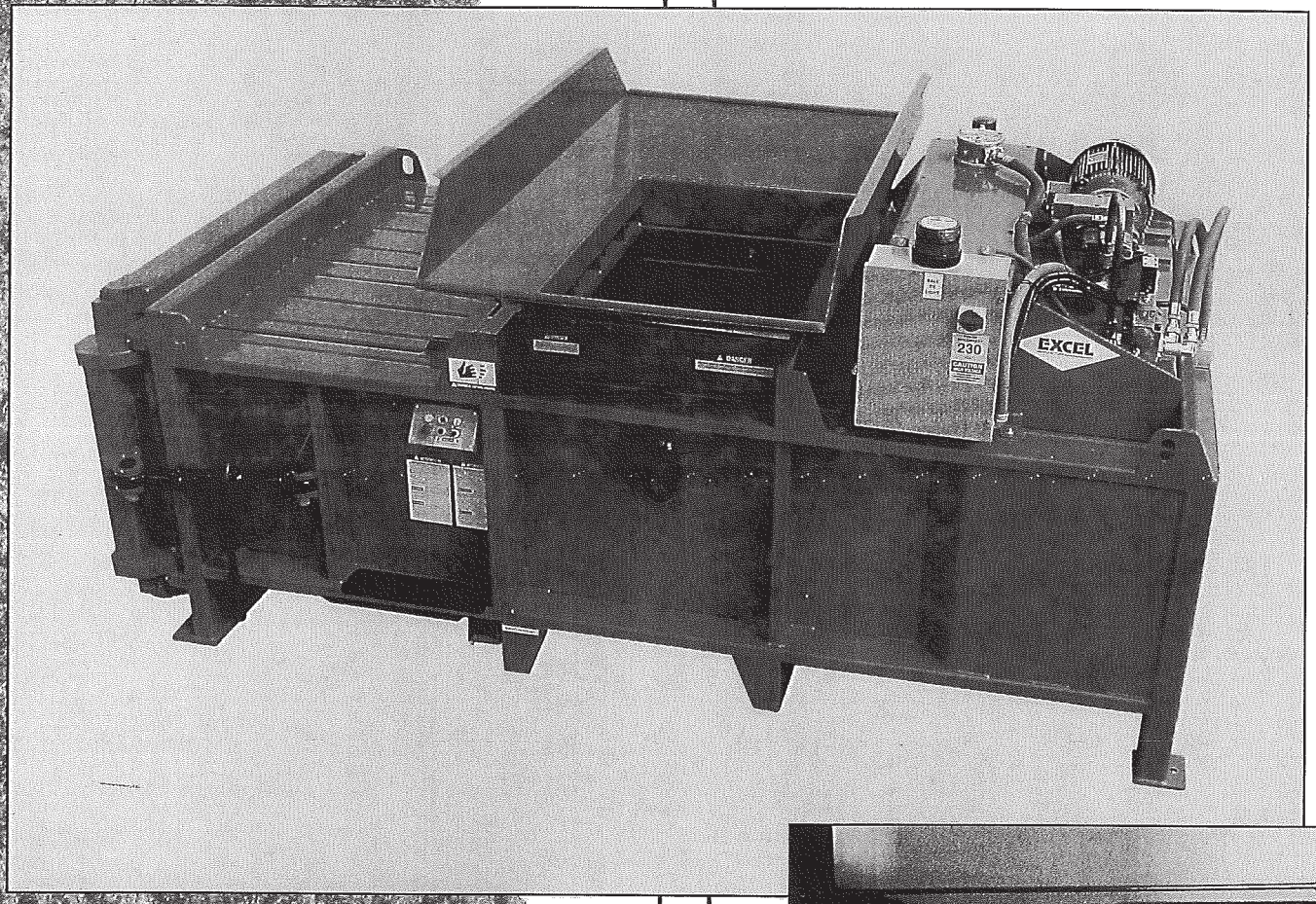
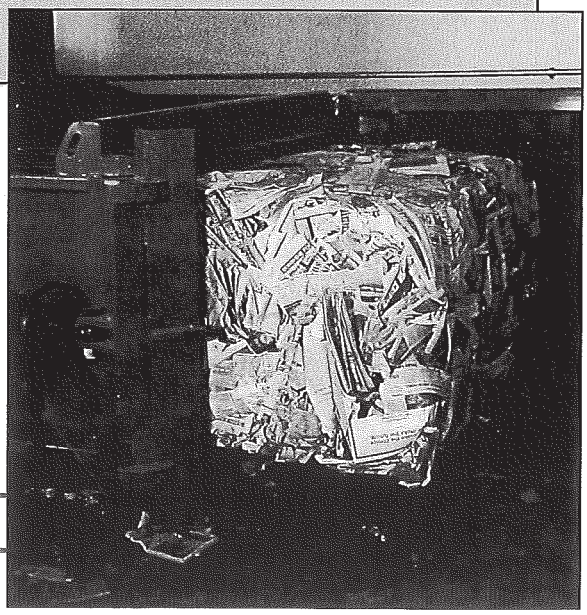
EXCEL MANUFACTURING

Owners Manual

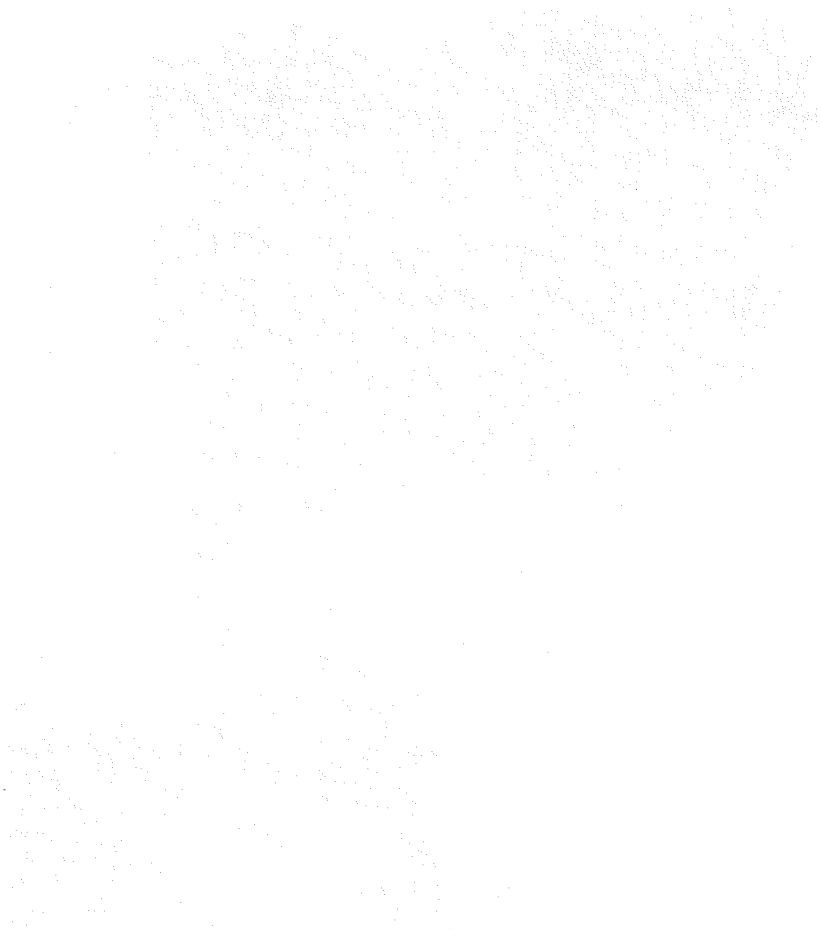
HORIZONTAL BALER

EX60





EQUIPMENT FOR THE RECYCLING INDUSTRY



CONTENTS

INTRODUCTION

THANK YOU FOR CHOOSING AN EXCEL BALER.

You have selected a precision-engineered product designed with advanced features for modern recycling center baling. The power of intelligent engineering and use of the highest quality components available guarantee many years of maximum performance and reliable service from your baler.

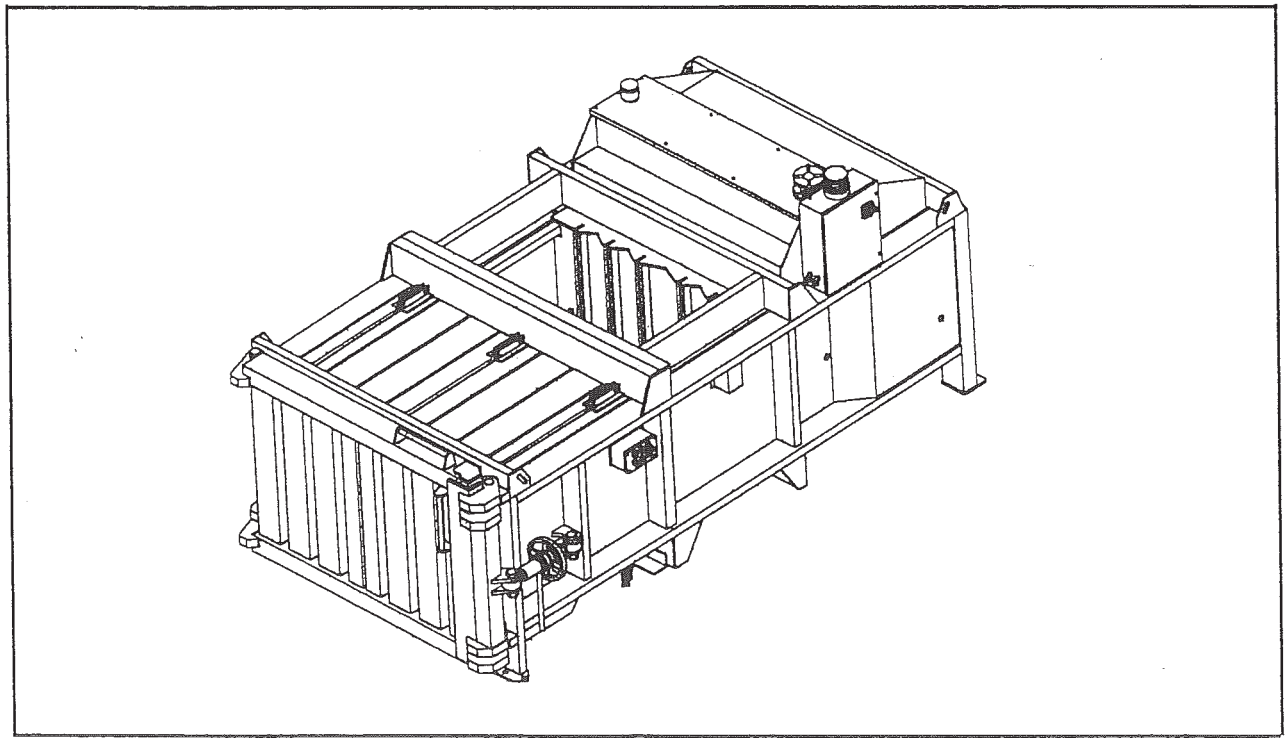
To maintain quality performance, it is important that all personnel involved in the installation, operation, and maintenance of the equipment, carefully read and follow the instructions in this guide until completely familiar with the proper safe operating procedures. This manual is arranged in the order that we anticipate you will use it to operate the equipment.

It is suggested that owner/operators read the most current publication of American National Standard Safety Requirement No. Z245.5, entitled "Safety Requirement for Baling Equipment." Copies may be purchased from the AMERICAN NATIONAL STANDARDS INSTITUTE, 11 West 42nd ST, New York, NY 10036, phone (212)-642-4900.

It is also suggested that owner/operators read the most current publication of "Control of Hazardous Energy (Lockout/Tagout)." OSHA publication 3120. Available at regional offices of US Department of Labor, Occupational Safety and Health Administration.

If you should experience a problem, always refer first to the Trouble Checks and Service Information section of this manual. Many times a simple solution is all that's needed, and could save a costly service call.

Elimination of the hazards listed in this manual does not guarantee that the equipment will meet or exceed all standards or regulations, or will be completely safe to all personnel. The equipment should be inspected before use to assure adequacy in safety for the function for which it will be used.



FEATURES

VERSATILE MATERIAL BALING

The EXCEL EX60 bales all plastic, cardboard, paper, aluminum cans, and other recyclables.

MAXIMUM SIZE MATERIAL FEED OPENING AND CHAMBER

Because the baler has a large feed opening and chamber, large quantities of material can be fed into the machine by hand, conveyor, or machine loader.

REMOVABLE SHEAR BLADE WITH FOUR CUTTING EDGES

Material not fitting into the bale chamber, or pieces of material toward the top of the chamber, gets sheared off by the 4 sided removable shear blade, preventing jams or pressure on the baler. After the cutting edge of the shear blade becomes dull, it can be removed, rotated, and reinstalled with a fresh new edge.

32" OF CHAMBER PENETRATION

After the feed chamber is filled, the platen pushes the material into the bale chamber, penetrating 32" into the chamber, completely compacting all the material with tremendous force.

RETRACTABLE DOGS

Once the material has entered the chamber, it is prevented from springing back by retractable dogs, until the Automatic Bale Sizing System stops the machine automatically at the proper bale size.

PLATEN WIPER

As the platen retracts to allow more material to fall into the feed chamber, a unique wiper sweeps material from the top of the platen back into the feed chamber.

AUTOMATIC BALE SIZING SYSTEM

When the bale reaches the correct size, the bale tie off light will illuminate and the machine will stop cycling with the platen in the correct forward position for tieing the bale. The tie off light is easily seen from all vantage points because of it large size and location on the top of the baler.

SIX, FULLY GUIDED WIRE TIE SLOTS

Tieing the bale is made easy because the wire is fully guided around the bale after it is formed. No prethreading of the wire is required. Tieing the bale with six wires assures that material is held secure in the bale, providing you with a solid, transportable bale.

SAFE, SEMI-AUTOMATIC BALE EJECTION

The bale is ejected completely from the chamber by a unique, built in ejecting device. After the bale is tied, open the door to the baler and eject the bale onto a pallet with the easily operated bale ejecting system.

SPECIFICATIONS

STRUCTURAL

Overall Frame Height:	52 1/2"
Overall Width:	72 3/4"
Overall Length:	150"
*Area Required to Operate:	10' x 20'
Loading Height:	62" With Standard Hopper
Feed Opening:	54"W x 35"L
Chamber:	48"L x 60"W x 30"H
Bale Size:	60"L x 48"W x 30"H

HYDRAULICS

Pump:	34 Gallon Pressure Compensated, Horse Power Limited Piston Pump, 4000 PSI Rated
Directional Valve:	D06 Pattern, Hi-Flow Cushion Shift Design
Cylinders:	2 - 6" Bore x 54" Stroke with 3 1/2" Hard Chrome Rod
Oil Reservoir:	105 Gallons

ELECTRICAL

Motor:	20 HP TEFC 230-460 Volt, 3 Phase
Enclosure:	NEMA 12 Rated
Controls:	UL Approved NEMA 12 Rated

PERFORMANCE DATA

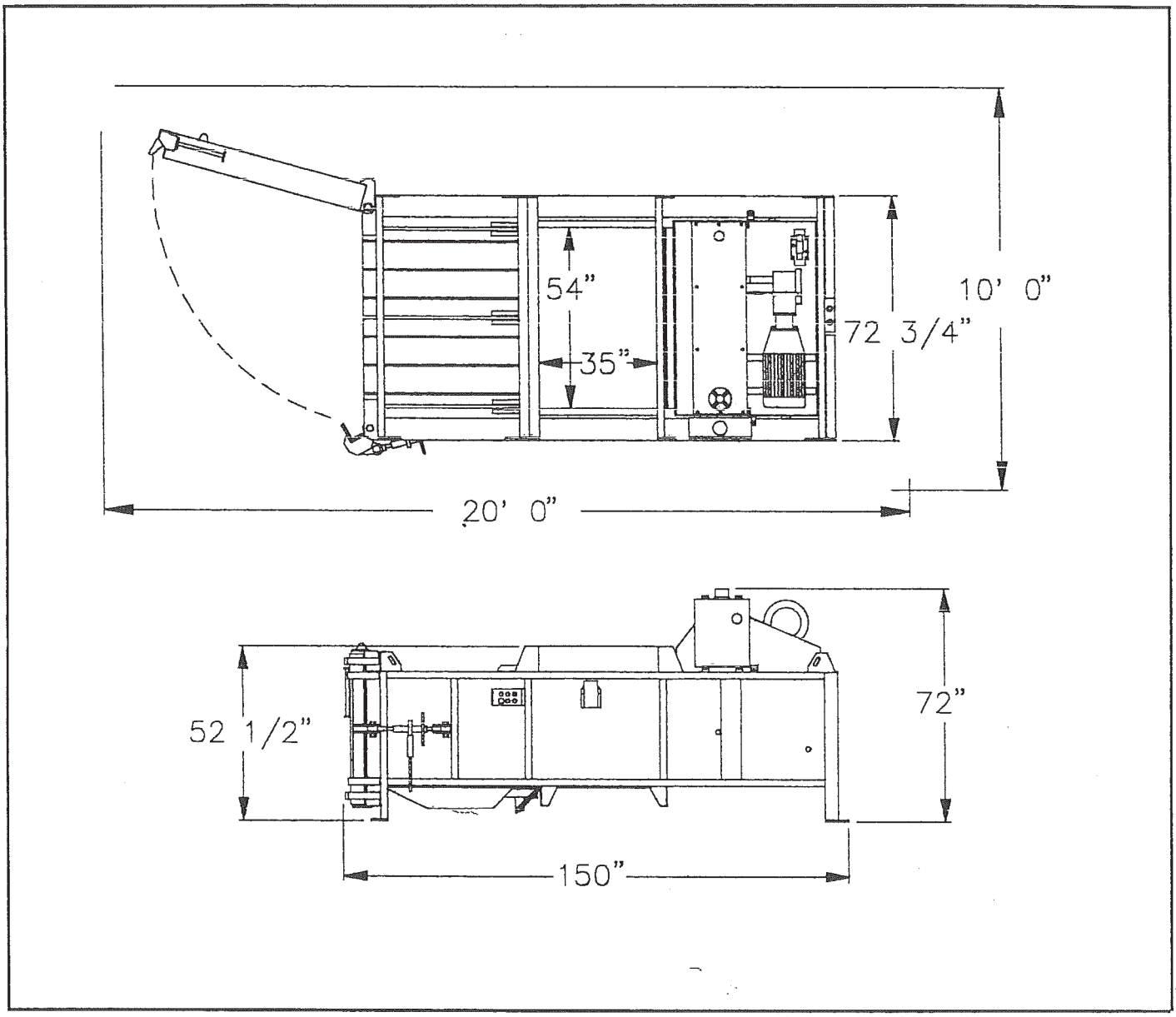
Hydraulic System Pressure:	2500 PSI
Overall Platen Force:	124,400 Lbs.
Cycle Time:	40 Seconds
Shipping Weight:	13,000 Lbs.

FINISHED BALE WEIGHTS

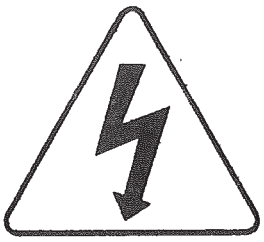
PET:	Up to 950 Lbs.
Office Paper:	Up to 1700 Lbs.
Newspaper:	Up to 1600 Lbs.
Corrugated Cardboard:	Up to 1200 Lbs.
Tin Cans:	Up to 1250 Lbs.
Aluminum Cans:	Up to 600 Lbs.
HDPE:	Up to 1050 Lbs.

*See diagram on next page.

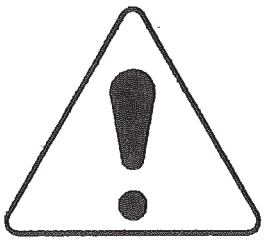
Diagram A. EXCEL Model EX60 Structural Specifications Diagram.



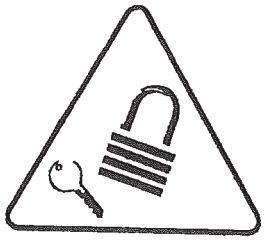
SAFETY PRECAUTIONS



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important safety reminders, and operating and maintenance (servicing) instructions in the literature accompanying the equipment.



The key and lock are intended to alert the user to the need of lockout/tagout procedures.

It is the responsibility of all persons involved in the installation and operation of this equipment to completely understand the function and operation of the unit, and to understand and adhere to all safety precautions in this manual. It is important to keep watch for any condition or situation which may affect the safe performance of the equipment. If unsafe conditions are present shut equipment down using Red Emergency Stop Button or normal shut down procedure. Corrective measures, service, or baler repair must be preformed by trained and authorized personnel only.

1. **READ INSTRUCTIONS.** Read all safety and operating instructions before operating the baler.

2. **RETAIN INSTRUCTIONS.** Retain all safety and operating instructions for future reference.

3. **OBEY WARNINGS.** Obey all warnings on the baler and in the manual.

4. **FOLLOW INSTRUCTIONS.** Carefully follow all operating and safety instructions.

5. **MACHINE OPERATING PERSONNEL.** a) Only properly trained operators no less than 18 years old shall operate the unit. It is the responsibility of the employer to see that operators are properly trained.
b) Do not wear loose clothing or jewelry which could catch on moving parts. Do wear safety equipment as required by your employer.
c) Never operate the baler if work ability is impaired by drugs, fatigue, illness or other causes.

6. **EMERGENCY STOP BUTTON.** Every unit manufactured by EXCEL has a RED extended head emergency stop button. All personnel should be aware that depressing this button at any time stops the machine from operating. This button shall be installed at a distance from the machine no greater than allowed by applicable codes and local ordinances.

7. **SAFETY SWITCHES.** Safety switches have been provided at certain doors and access covers. They must not be overridden in any manner which prevents them from functioning properly or removed.

8. **ACCESS COVERS.** Access covers must be properly maintained and in place at all times.

9. **PINCH POINTS.** All moving machinery has pinch points. EXCEL has provided guards on them where possible. Some, because of the operating characteristics, cannot be guarded. Operators must use caution when closing doors, etc.

10. **EXPLOSIVE SUBSTANCES.** Never attempt to bale volatile or explosive substances. Serious injury or death could result.

11. **HOPPER.** Under no circumstances is the baler to be operated with EXCEL safety hopper removed.

12. **OPTIONAL EQUIPMENT.** To prevent hazardous operation, use only attachments and accessories approved by EXCEL.

13. **CLEANING BALE CHAMBER OR BALER.** The power must be shut off to the machine at the MAIN disconnect, and locked out, when entering the baler chamber to remove debris, or to clean around the power unit and cylinders. Refer to Lockout/Tagout section of this manual for Lockout Procedure.

14. **HYDRAULIC PRESSURE.** Hydraulic lines should be considered under pressure at all times. Completely understand the hydraulic circuit before disconnecting any hoses. Personal injury can result from escaping high pressure fluids.

15. **BALER POWER DISCONNECT.** The BALER disconnect is on the baler's electrical enclosure. To prevent unauthorized use, turn off and lock out the BALER disconnect. See Diagram H located in "Connecting Baler to Power Source" under INSTALLATION INSTRUCTIONS. Also refer to Lockout/Tagout section of this manual for Lockout Procedure.

16. **ADJUSTMENTS AND SERVICING.** Adjustments and repairs to this unit must be performed by qualified and authorized personnel or trained service technicians.

17. **SAFETY CHECK.** Upon completion of any service or repairs, the service technician should perform safety checks to determine that the unit is operating properly. Do not start or operate equipment which has a malfunction or is damaged.

18. **MAKE CERTAIN ALL PERSONS ARE CLEAR OF THE BALER, CONVEYORS, AND RELATED EQUIPMENT BEFORE STARTING THE MACHINE.**

19. **FIRE EXTINGUISHER.** Keep a fully charged fire extinguisher available at all times.

20. **SAFETY DECALS.** Replace all Safety Decals as they become unreadable or are missing. For proper decal replacement see "Decal" section under DETAILED PART IDENTIFICATION of this manual.

EMPLOYER REQUIREMENTS

1. The employer will establish a procedure for the locking and tagging out of energy sources as required by OSHA.

2. The employer will provide training to all personnel involved in the operation, service and maintenance of the equipment.

3. The employer will monitor the employees operation of the equipment, ensuring that safe practices are being followed.

4. The employer will establish a program of regular inspections as outlined in the section CARE AND MAINTENANCE.

NOTE

These safety precautions do not imply or in any way represent an all inclusive list. It is the owner's and operator's responsibility to be familiar with and enforce that the unit is operated in accordance with safety requirements and codes including all applicable Occupational Safety & Health Act (OSHA) and American National Standards Institute (ANSI) regulations.

These regulations change and therefore, it is impossible to give a reference which will remain current. It is strongly recommended that current OSHA and ANSI standards publications be available and reviewed with operators at all times.

SAVE THESE INSTRUCTIONS

LOCKOUT/TAGOUT PROCEDURE

GENERAL

The following is an outline of the OSHA Standard for locking and tagging out equipment from hazardous energy sources. A comprehensive publication of this standard can be obtained from OSHA. The purpose of this procedure is to ensure that the equipment is isolated from its energy sources and rendered inoperative prior to service or maintenance.

Lockout/Tagout devices shall meet requirements set forth in the OSHA Standard Publication as to durability, standardization, substantialness and identity.

RESPONSIBILITIES

The standard requires employers to establish an energy program which includes:

1. Documented energy control procedures.
2. An employee training program.
3. Periodic inspections of the use of the procedures.

Compliance with the development of the Lockout/Tagout Procedure shall be the responsibility of the Employer.

PROCEDURE

The suggested procedure to comply with this standard is outlined as follows:

1. Remove the system key.
2. Lockout the MAIN power disconnect per OSHA requirements.
3. Tagout all other controls or energy sources not capable of being Locked out. Every person affected should know and understand all Lockout tags.
4. Verify that all energy sources have been accounted for prior to service or maintenance work.
5. To Restart the equipment, ensure that all Lockout and Tagout devices are removed by employee that applied the device(s).

BASIC PART IDENTIFICATION

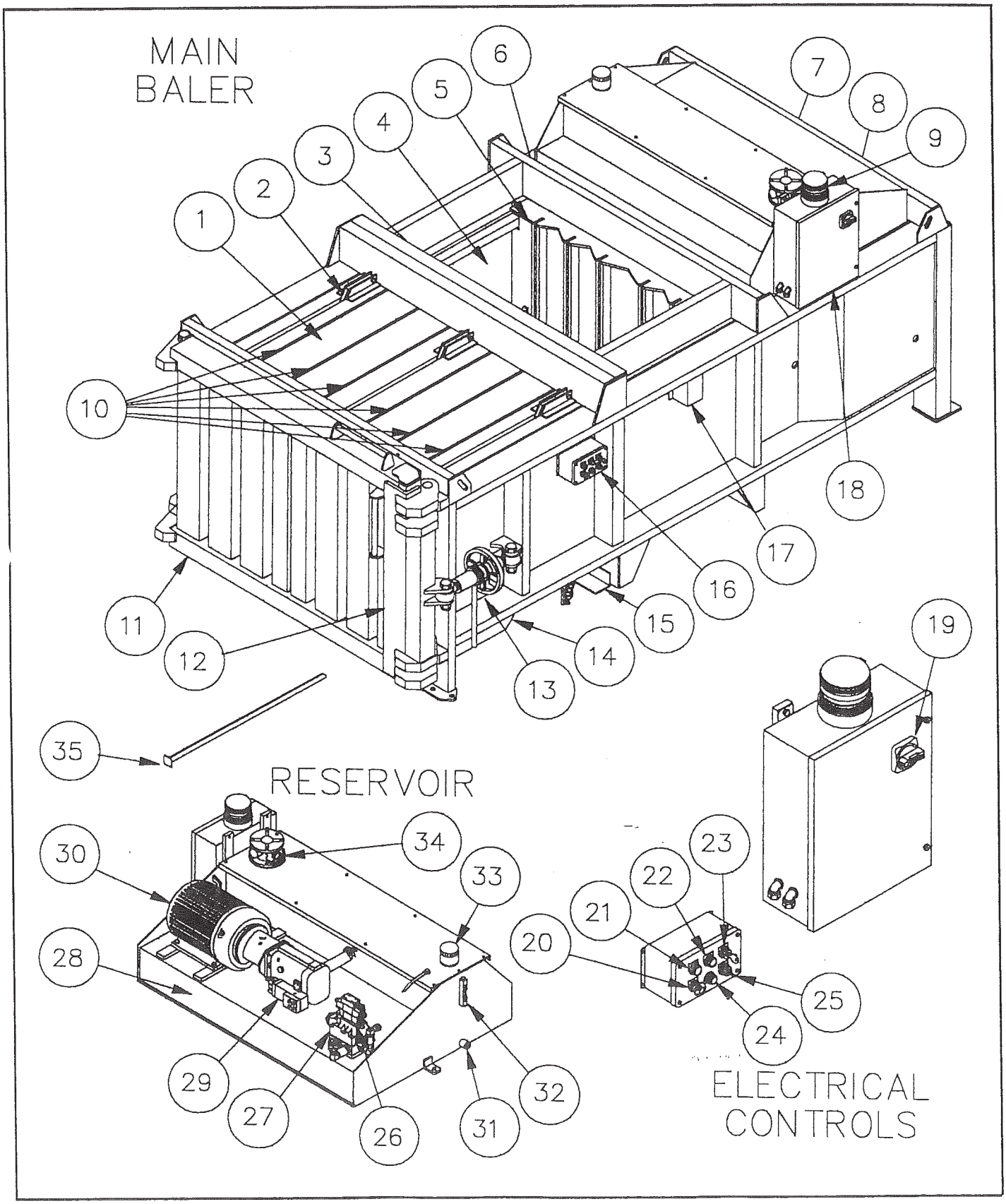
The part diagrams on the following page shows the location of key parts and baler controls. Some of the parts require installation. These parts have been shipped packed inside the baler. As you read the description of each part and control, find that part on your baler to familiarize yourself with its location.

■ BASIC PART IDENTIFICATION

1. Bale Chamber
2. Retractable Dogs
3. Removable Shear Blade With 4 Cutting Edges
4. Feed Opening
5. Platen
6. Wiper
7. Access Panel (Rear of Baler)
8. Cylinders (Inside)
9. Bale Tie Light
10. Six Wire Tie Slots
11. Door
12. Door Latch
13. Turnbuckle - Ratchet
14. 6 Wire Guides (Under Baler)
15. Ejector Pedal
16. Control Panel
17. Photo Eye Control
18. Electrical Enclosure
19. BALER Power Disconnect Switch

    NOTE: This is not the MAIN Disconnect Switch
20. Emergency Stop - Red
21. Forward (Cycle) Button - Green
22. Reverse Button - Yellow
23. 3 Position Key Switch and Key HAND-OFF-AUTO
24. Photo Eye Indicator Light
25. Photo Eye Control Switch
26. Pilot Valve
27. Relief Valve
28. Oil Reservoir
29. Pump
30. Motor
31. Drain Plug
32. Temperature/Sight Gauge
33. Breather Cap
34. Oil Filter
35. Clean Out Tool

Diagram B. EXCEL Model EX60 Basic Parts Identification Diagram.



INSTALLATION INSTRUCTIONS

It is the responsibility of the installer of this baler to install it in accordance with applicable codes, local ordinances, and the manufacturer's recommendations.

It is important that the installers of this baler follow the installation instructions in the order in which they follow. All persons involved in the installation of this baler should read the manual completely before proceeding.

■ ELECTRICAL REQUIREMENTS

All wiring must be in accordance with local and national electrical code regulations.

Check the voltage and frequency marking at the installation site MAIN supply disconnect box, so it is certain that the electrical current characteristics (voltage, etc.) are compatible with those of the baler.,

If not, a qualified electrician must take whatever steps are necessary to make the voltage compatible.

Motor Horsepower	Line Voltage	Motor Overload Amps
20 HP, 3 Phase	230 Volts	54 Amps Full Load
	460 Volts	27 Amps Full Load

■ CHANGING VOLTAGE

The baler has been shipped from the factory wired for the correct voltage. Changing voltage is to only be done by a qualified electrician.

Before changing voltage, make sure that the MAIN disconnect switch is padlocked in the "OFF" position. Place an appropriate warning tag, "UNDER REPAIR, DO NOT USE", on the switch so that it will not be energized without notifying the person making wiring corrections.

1. Change the wiring at the transformer to the voltage required. See Diagram C for the correct wiring for 230 volts and Diagram D for the correct wiring for 460 volts. A decal on the transformer also shows the correct wiring.

Diagram C. 230 Volts.

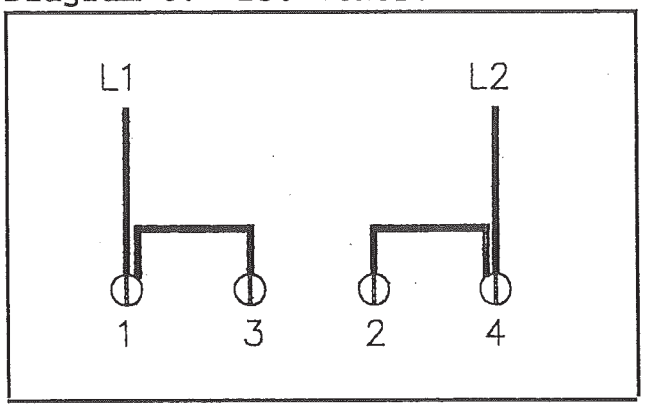
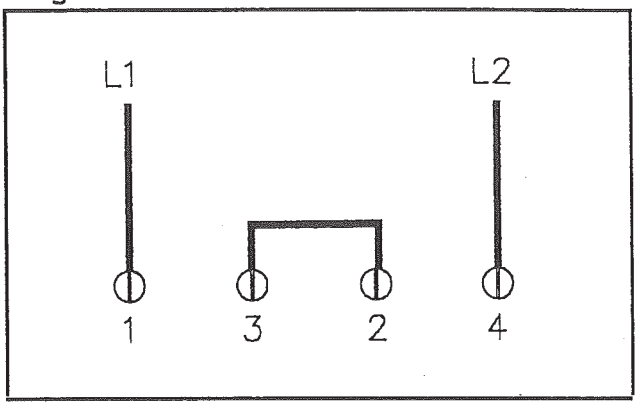


Diagram D. 460 Volts



2. Change the motor wiring to match the voltage required. See Diagram E for 230 volts and Diagram F for 460 volts. A plate on the motor will also show the correct wiring.

Diagram E. 230 Volts.

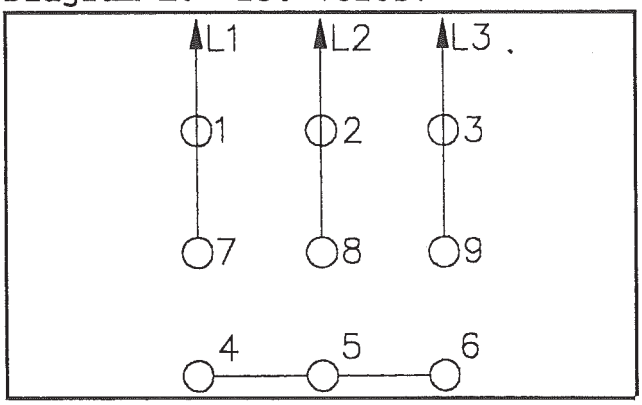
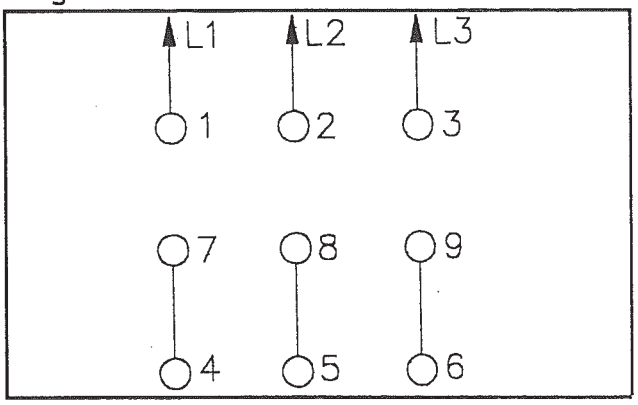


Diagram F. 460 Volts



3. Replace the motor overload using the appropriate overload parts listed in the following chart:

230 VOLTS	460 VOLTS
Allen-Bradley	Allen-Bradley
Overload #193-CPC-60	Overload #193-CPC-30
	Terminal Kit #193-CA1
Set at 60 Amps	Set at 30 Amps

The motor overload for both 230 Volts and 460 Volts must be set in the MANUAL mode only.

4. Place an appropriate voltage decal on the outside of the box which indicates either 230 Volts or 460 Volts.

5. Follow the Start Up and Testing instructions in this manual to assure that the baler will operate properly.

■ INITIAL SET UP

After the baler arrives, inspect the overall condition of the baler for damage during shipping. Remove all the loose parts and information papers.

Make sure that all parts required for assembly have been received. If any items are missing or appear damaged, contact your EXCEL Manufacturing representative immediately.

■ INSTALLATION SITE

Careful consideration should be given to the site selected for the baler. Refer to Diagram A on page 3 to determine the amount of room required to operate the baler. Ample room must be provided to load the baler feed opening, remove a bale from the baler, and obtain access to the back of the baler for maintenance work and servicing.

	Use extreme caution when moving the baler into position. Watch for all persons who may be in the path of the baler and moving equipment.

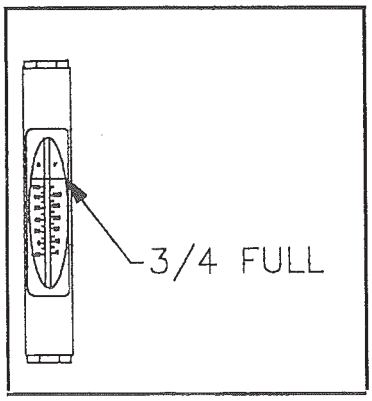
■ BREATHER CAP INSTALLATION

Remove Breather Cap from electrical enclosure (Item #18 in Diagram B). Remove shipping plug on oil reservoir and install Breather Cap. For Breather Cap location see Diagram B (Item #33).

■ HYDRAULICS

The hydraulic system has been completely operated and tested at the factory. Check all hydraulic connections to insure that no leaks have developed during transit.

Diagram G. Temperature/Sight Gauge.



Check the oil level within the reservoir. The temperature/sight gauge on the side of the reservoir should be 3/4 full when the platen is fully retracted.

CONNECTING BALER TO POWER SOURCE

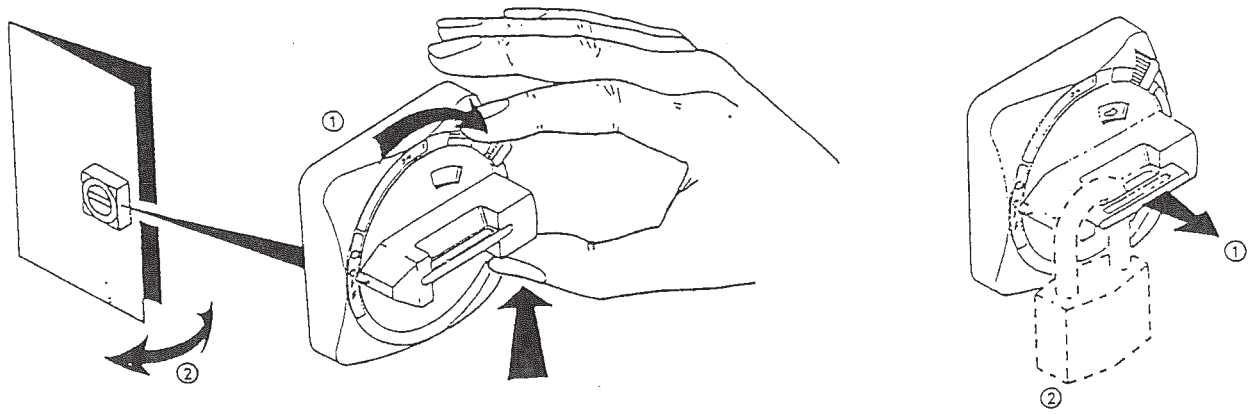
All wiring must be in accordance with local and national electrical code regulations.


Before connecting power to the baler, make sure that the MAIN disconnect switch is padlocked in the "OFF" position. Place an appropriate warning tag, "UNDER REPAIR, DO NOT USE", on the switch so that it will not be energized without notifying the person making wiring connections.

See the Detailed Part Identification section of this manual for the wiring diagram and electrical schematic. A copy of the wiring diagram and electrical schematic are also enclosed inside the print pocket of the electrical enclosure.

1. Open the electrical enclosure. Refer to Diagram H for operation and lockout procedure of the BALER power disconnect. Also, refer to Lockout/Tagout Procedure section of this manual.

Diagram H. Operating and Lockout Procedure of Baler Power Disconnect.



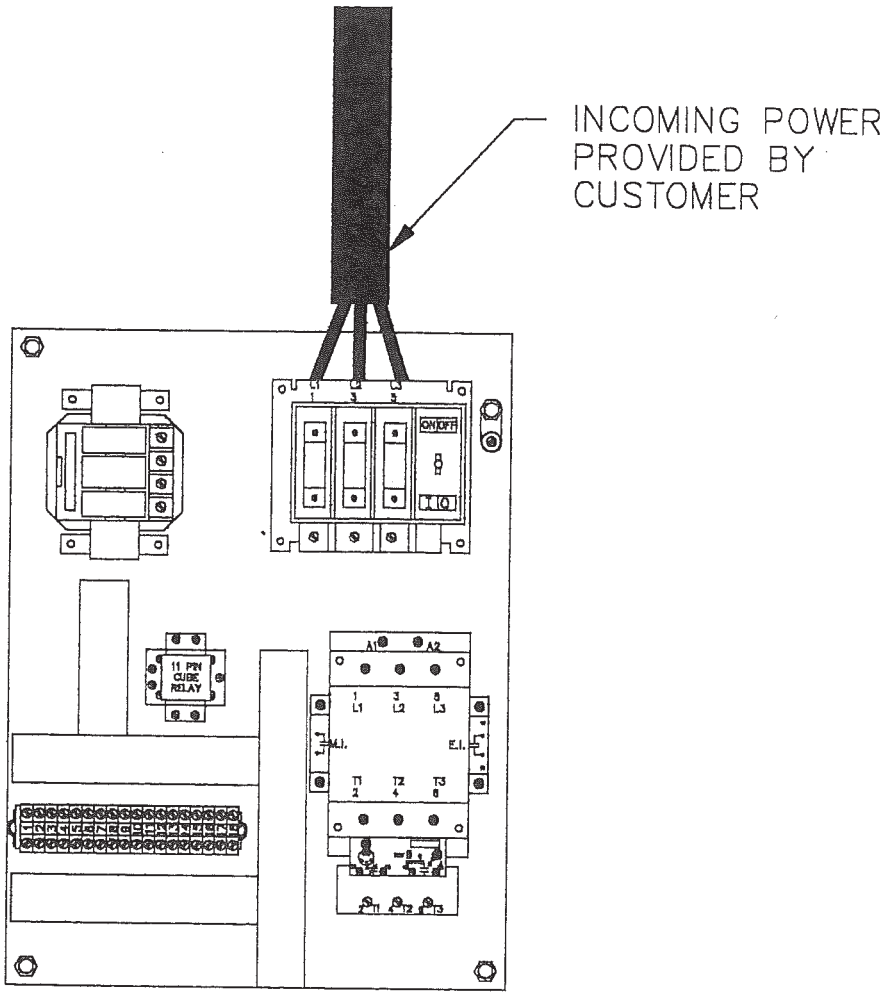
2. Drill or punch a hole in the electrical enclosure to allow the electrical power line to enter the box. Protect parts from metal chips.

After drilling or punching holes in the electrical box, extract all metal filings or chips from the box. Do not blow them out or premature contactor failure will result!

3. Run electrical power lines from the customers MAIN disconnect switch to the electrical box.

4. Connect the electrical power line as shown in Diagram I on this page.

Diagram I. Connecting Electrical Power to Disconnect Inside Box.



5. Close the electrical box.

Do not close the MAIN power supply switch or turn the handle to ON until instructed to do so in the start up and testing section of this manual.

EJECTOR PEDAL INSTALLATION (INSTALLED AT FACTORY)

Parts Required:
1 - Ejector Assembly

3 - 1/2-13 UNC X 2" Hex Bolts

2 - Bushings

2 - 1/2" Flat Washers

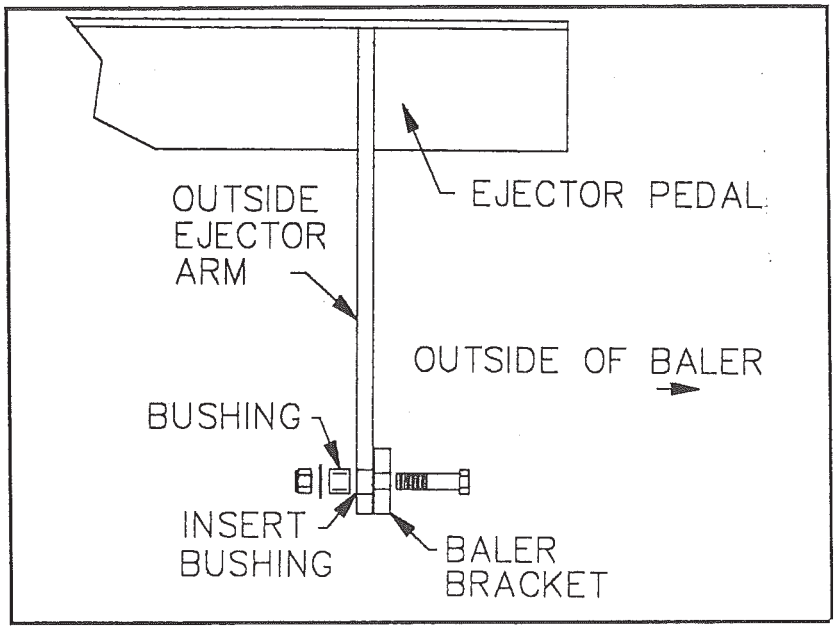
2 - Springs

3 - 1/2-13 Nylock Nuts

Tools Required:
2 - 3/4" Wrenches

Vise Grip Type Pliers

Diagram J. Installing Bushings and Bolting Into Place.



INSTALLATION STEPS

1. Open the baler chamber door.

2. Slide the ejector assembly under the baler.

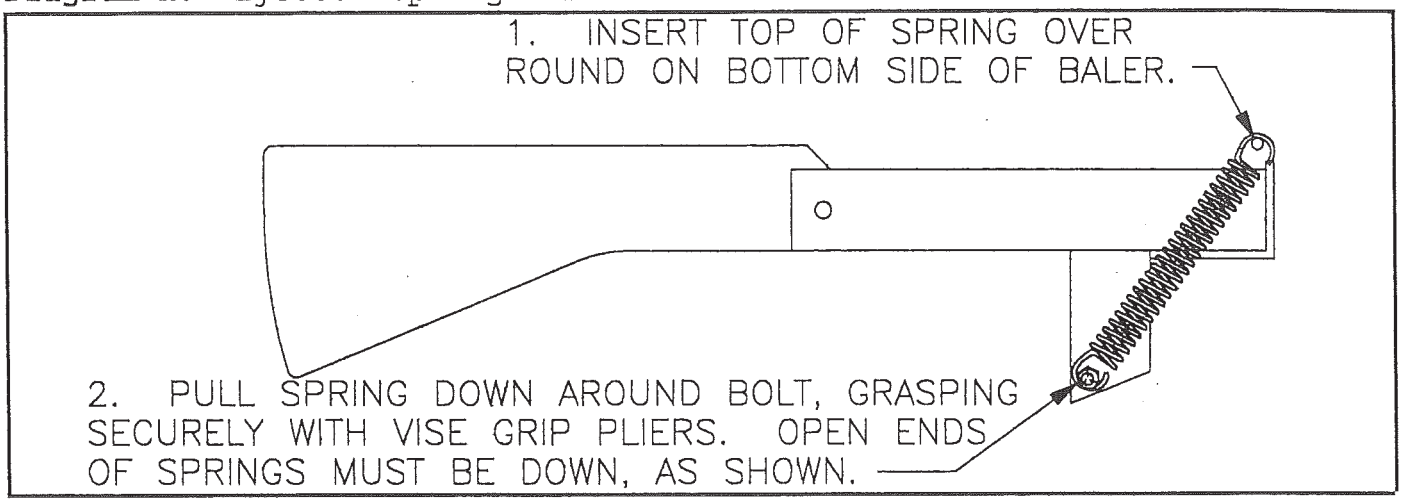
3. Hold the ejector center arm up through the slot in the bale chamber floor while aligning the bolt holes in the arm and at the sides of the ejector with the corresponding holes on the baler.

4. Insert a 1/2-3 UNC X 2" bolt into the center holes under the baler and corresponding hole in the center arm. Place a 1/2-13 nylock nut on the bolt and tighten.

5. Line up the holes in the outside arms of the ejector with the mounting holes on the bottom of the baler. Insert the 2 bushings in the holes in the outside arms of the ejector. Insert the 1/2-13 UNC X 2" bolts first through the mounting hole on the baler, then the bushing. Next, place a washer and then nut on each of the two bolts and tighten. The ejector must pivot freely. See Diagram J.

6. Block the ejector up and install the springs as shown in Diagram K.

Diagram K. Ejector Spring Installation.



7. Test the ejector for proper operation after the Start Up and Testing instructions have been completed. Follow the Bale Ejection instructions to test the ejector.

■ WIRE GUIDE INSTALLATION (INSTALLED AT FACTORY)

Parts Required:

6 - Wire Guides	12 - 3/8-16 UNC x 3/4" Hex Bolts
12 - 3/8" Flat Washers	12 - 3/8" Split Lock Washers

Tools Required:
1/2" Socket Wrench

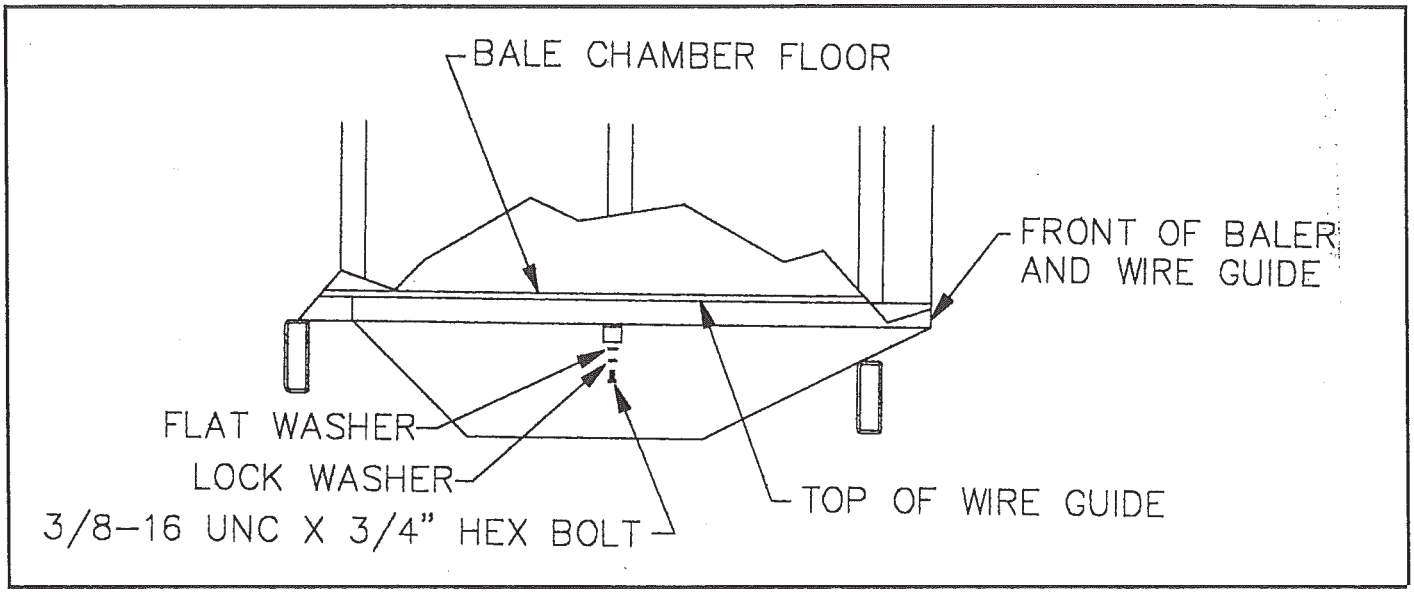
INSTALLATION STEPS

1. Block up front end of baler one foot off from floor.

2. From underneath the baler, place a wire guide into a slot, sliding the front of the wire guide to the front of the baler.

3. Push the guide into the slot completely, so that the front of the guide rests on the tube at the front of the baler, and so that the holes in the guide are aligned with those on the baler. See Diagram L.

Diagram L. Wire Guide Installation.



4. Use 2 - 3/8-16 UNC x 3/4" bolts, 2 - 3/8" flat washers, and 2 - 3/8" split lock washers to secure the guide.

5. Repeat the previous steps until all guides are in place.

■ FINAL INSPECTION

As a final check, carefully inspect for leaky hydraulic connections, loose electrical connections, and loose or missing bolts and nuts.

START UP AND TESTING

Do not test this baler until all involved persons have completely read and understood this manual.

Make sure that all access covers are in position and that the baler chamber door is closed and secured with the latch. Before proceeding with this test, make sure that all persons are clear of the baler.

1. With the MAIN disconnect switch OFF, visually inspect all hydraulic, mechanical, and electrical connections. All connections must be tight.

2. Check oil level in the reservoir to be sure it is adequate.

3. Close the MAIN disconnect switch. Turn the BALER power disconnect located on the electrical enclosure to ON.

Be alert for smoking, electrical arcing, or fuse failure. If any irregularity is observed, open the MAIN supply switch immediately. Find the source of the trouble and make the necessary corrections.

4. Have an assistant stand so that they may clearly view the fan end of the motor. This person should be instructed to observe the rotation direction of the motor. The motor must turn in the direction of the arrow located on the motor housing when viewed from the fan end. If the direction arrow is missing, the motor must turn in same direction as indicating arrow on pump.

5. Insert the key into the key switch located on the control panel.

6. Turn the key counterclockwise to the HAND position.

7. Depress the green FORWARD button momentarily. The motor will start and the platen will move forward while the button is being depressed.

8. If the observer indicates that motor rotation is incorrect, depress the EMERGENCY STOP button IMMEDIATELY and go on to step 9. If motor rotation is correct, skip to step 11.

9. Place the key switch in the OFF position and remove the key.

Before changing motor rotation, make sure that the MAIN disconnect switch is padlocked in the "OFF" position. Place an appropriate warning tag, "UNDER REPAIR, DO NOT USE", on the switch so that it will not be energized without notifying the person making wiring connections.

10. To change motor rotation for 3 phase motors, switch any two motor wires. Switch the wires where the incoming wires connect to the disconnect. See the wiring diagram at the back of this manual.

Make sure the motor wires are reconnected securely if it was necessary to switch them to correct motor rotation.

Return to step 4 and repeat the rotation testing procedure to assure proper motor rotation.

11. Turn the key switch to OFF and then to AUTO.

12. Depress the green FORWARD button once again. The motor will start and the platen will move forward and then reverse automatically after reaching full extension into the bale chamber. It will return to its retracted position and the motor will shut off. If it does not, press the EMERGENCY STOP button. Adjustments may be needed to the rear limit switch. See the Adjustments section of this manual.

13. Cycle the baler again by depressing the green FORWARD button. When the baler is partway through its cycle, depress the EMERGENCY STOP button. The motor should stop running and the platen should stop moving.

OPERATING INSTRUCTIONS

Employer Responsibility Regarding the Operation of EXCEL Balers.

The employer shall provide properly maintained baling equipment that meets all applicable regulatory safety standards.

The employer must insure that the installation of balers is in conformance with local codes, ordinances, and the manufacturer's recommendations.

The employer must provide instruction and training in safe methods of work to employees before assigning them to operate, clean, service, maintain, or repair the equipment. Such instruction and training shall include procedures provided by EXCEL Manufacturing.

Employers are responsible for repairing, prior to placing baler equipment into service, any mechanical malfunctions or breakdowns that affect the safe operation of the equipment.

Finally, employers are responsible for establishing and following a program of periodic and regular inspections of the baling equipment to insure that all parts, component equipment, and safeguards are in safe operating condition and adjusted in accordance with the manufacturers recommended procedures. This shall include keeping detailed malfunction reports and records of inspections and maintenance work performed.

Before operating, check to see that the loading chamber is empty and free to operate.
Operators of this baling equipment must be at least 18 years old.

■ SEMI AUTOMATIC BALER CYCLE

1. Turn the BALER power disconnect switch to the ON position.

2. Turn the key switch to AUTO.

3. Load the feed chamber until it is full.

Before depressing the FORWARD button, clear all unauthorized personnel from the area.

4. Depress the FORWARD button. The motor will start and the platen will move forward, compacting the material in the bale chamber. After the platen reaches full extension into the bale chamber, it will reverse automatically and return to its original starting position.

5. Follow steps 3 and 4 until the bale tie off light at the top of the baler illuminates. After a complete bale is formed, follow the directions for Bale Tieing and Bale Ejection.

6. If you wish to stop baling before a bale has been completed, turn the key switch to the OFF position and remove the key. Turn the **BALER** power disconnect to the OFF position.

To prevent unauthorized use of the baler, always lockout the BALER power disconnect and remove the key when the baler is not in use.

■ BALE TIEING

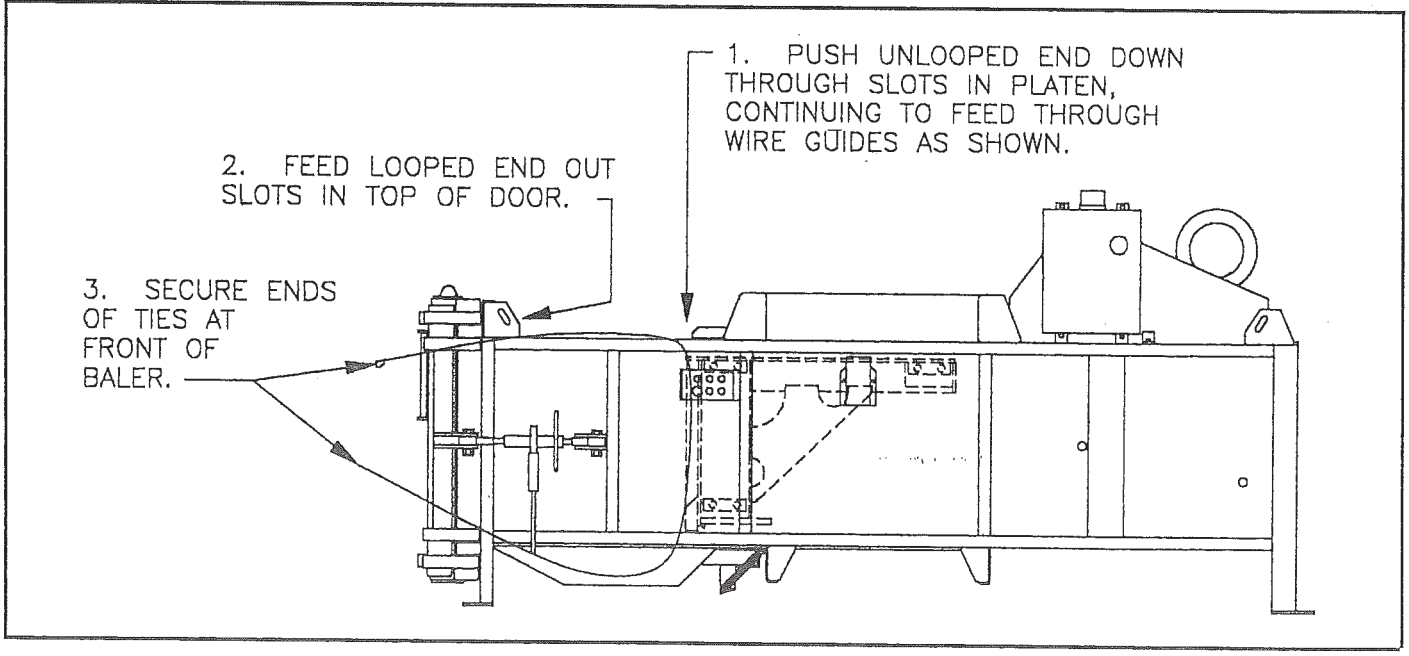
After a complete bale is formed in the bale chamber, the bale tie off light at the top of the baler will illuminate. The baler shuts off automatically with the platen in the correct forward position for tieing the bale.

1. Turn the key switch to the OFF position. If baler is equipped with electric photo eye, turn the photo eye control switch OFF.

2. From the top of the baler, thread the end of the wire ties which are not looped down through the six slots in the front of the platen. See Diagram M below.

SAFETY GLASSED REQUIRED. Do not have a person inserting wire when someone is standing in front of baler door. Injury could result.

Diagram M. Threading Wire Ties Around the Bale.



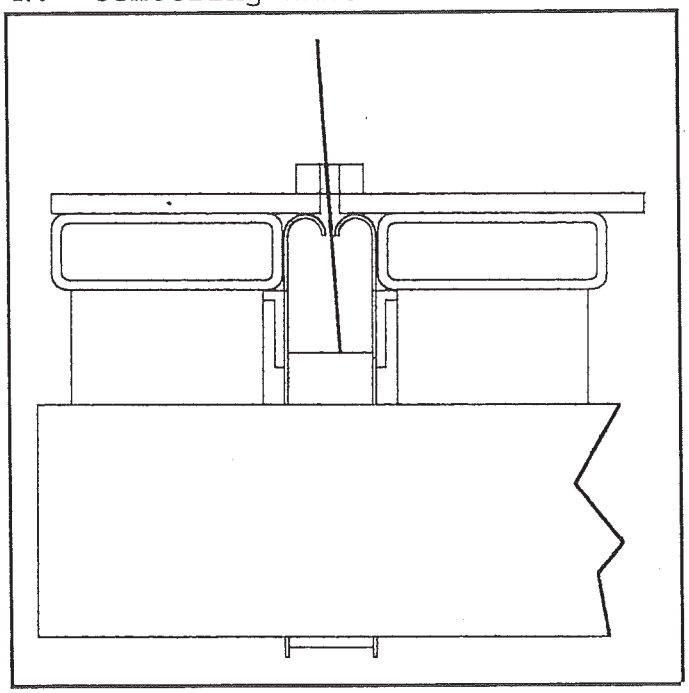
3. Push the wire until it comes out the bottom of the corresponding slot in the door.

4. Pull the wires through to allow enough slack for securing the two ends together.

5. Thread the looped end of the wire ties through the corresponding slots on the top of the bale and then out the same slot in the top of the bale chamber door.

6. Center the wire in the guide on the underside of the bale to assure that the wire will pull up completely and out of the slot when the two ends are secured together. This will prevent the wires from being cut by the edge of the wire guide.

Diagram N. Centering Wire Ties in the Guides.



7. Standing at the front of the baler, tie the two ends of each of the six wires together.

BALE EJECTION

The bale is ready to be ejected from the chamber after the machine has stopped with the bale tie off light illuminated and the bale has been tied following the previous instructions.

All persons must be clear from the front of the baler when the bale is being ejected. Serious injury could result from the bale falling onto the pallet.

1. Turn the key switch to the HAND position.

2. Depress the REVERSE button and retract the platen from the bale.

The bale chamber door is under pressure and may spring open suddenly when the door latch is loosened. Stand clear of the swing path of the door as it is being opened.

3. Open the bale chamber door.

4. Place a pallet beneath the door for the bale to land on and be moved with once it is ejected.

5. Push the FORWARD button. Keep depressing it until the platen reaches full extension and the bale is partially ejected.

6. Upon full extension, push the REVERSE button and retract the platen 24 inches to 30 inches.

7. Depress the ejection pedal and push the FORWARD button while holding the pedal down. Continue to stand on the ejection pedal and depress the FORWARD button until the ejector is fully engaged. Release the ejector pedal when upward pressure is felt. Continue to depress the FORWARD button until the bale is ejected completely from the bale chamber.

The operator should be prepared to ride up slightly when standing on the ejection pedal. This will happen when the platen moves forward to eject the bale. Release the pedal at this point.

8. Turn the key selector switch to the AUTO position.

9. Depress the REVERSE button. The platen will fully retract.

10. Turn the key switch to the OFF position. Turn the BALER power disconnect switch OFF and LOCKOUT.

11. Clear the inside of the baler chamber and the area of debris.

12. Check the ejector's position. The ejection pedal should be up and the ejector must be flush with the floor inside the chamber.

13. Clean wire guides is necessary using the clean out tool provided.

14. After bale is moved out of the way, close and secure the bale chamber door.

15. Turn the key switch to AUTO and begin forming another bale.

■ AUTOMATIC BALING (ELECTRIC EYE CONTROLLED)

1. Turn the BALER power disconnect to ON.

2. Turn the key switch to AUTO.

3. Turn the photo eye control switch to ON.

NOTE: When the red indicator light is illuminated, the platen is retracted and the feed chamber is ready to be filled.

When photo eye beam is broken, the baler starts and cycles automatically, without warning.

4. Load the feed chamber.

The baler cycles automatically when the feed chamber becomes full.

5. Continue filling the chamber. When a complete bale is formed, the bale tie off light at the top of the baler illuminates.

6. After the bale tie off light illuminates, turn the photo eye control switch to OFF. Follow the Bale Tieing and Bale Ejection instructions earlier in this manual.

7. If you wish to stop baling before a bale is completed, turn the photo eye control switch to OFF, then the key to OFF.

Never leave the baler unattended with the Photo Eye Control On.

CARE AND MAINTENANCE

EXCEL Manufacturing recommends that users of our baling equipment adopt a program of regularly scheduled maintenance procedures. This schedule should be followed to insure against premature failure of mechanical or hydraulic components.

Employer Responsibility Regarding the Maintenance of EXCEL Balers

It shall be the responsibility of the employer who uses baling equipment to insure the proper caring for, cleaning, inspection, and maintenance of the equipment. In the case of employers who maintain their own equipment, the employer will provide training to competent personnel for this purpose.

It is also the responsibility of the employer to establish and follow a program of periodic and regular inspections of baling equipment, and to insure that all parts, auxiliary equipment, and safeguards are in safe operating condition and adjusted in accordance with the manufacturer's recommended procedures. The employer must maintain records of these inspections and of maintenance work performed.

Finally, the employer is Responsible for providing adequate work area around the baler to permit safe maintenance, servicing, and cleaning practices. The employer must insure that all surrounding floors are free from obstructions, from accumulation of water, and free from grease, oil or water.

■ CLEANING OUT PLATEN AND REAR COVER

All balers tend to accumulate material behind the main platen as the machine is cycled. This is due to the built in clearance along the sides and bottom of the platen which allows material to migrate to the area behind the platen. Allowing this material to build up may cause baler malfunction and even lead to structural failure. Therefore, it is necessary to clean out this area on a regular basis as part of a routine maintenance program. This procedure should be performed every 20 hours.

To avoid personal injury, lock power out per OSHA requirements before cleaning out this area. Wear safety glasses to keep debris out of eyes.

Lock out power and put on safety glasses. Remove rear cover and sweep out all material on floor. Also clean debris off of limit switch rail.

■ WEEKLY CARE REQUIREMENTS

__1. Check all nuts and bolts during the first week of use, and then monthly thereafter.

__2. Check the hydraulic reservoir oil level. The oil level gauge on the side of the reservoir should be 3/4 full when the platen is fully

retracted. If it is not, add Mobil DTE 13 or an equivalent oil which exceeds DTE 13 specifications.

__3. Check hydraulic lines for leaks.

Use cardboard or wood to search for suspected leaks. Do not use hands. High pressure fluid flow can penetrate skin and cause serious injury.

__4. Check hydraulic hoses for condition. Check for any damage, kinks, etc.

__5. Check to see that all access covers are secured in place.

__6. Inspect the power unit. Remove dust and dirt from outside of the reservoir, control box, and electrical enclosure. Wipe off any grease, oil, or moisture. Inspect motor for excessive dirt, friction, or vibration. Keep the ventilation openings clear to allow free passage of air.

__7. Make sure overall baler is clean and cleared of debris.

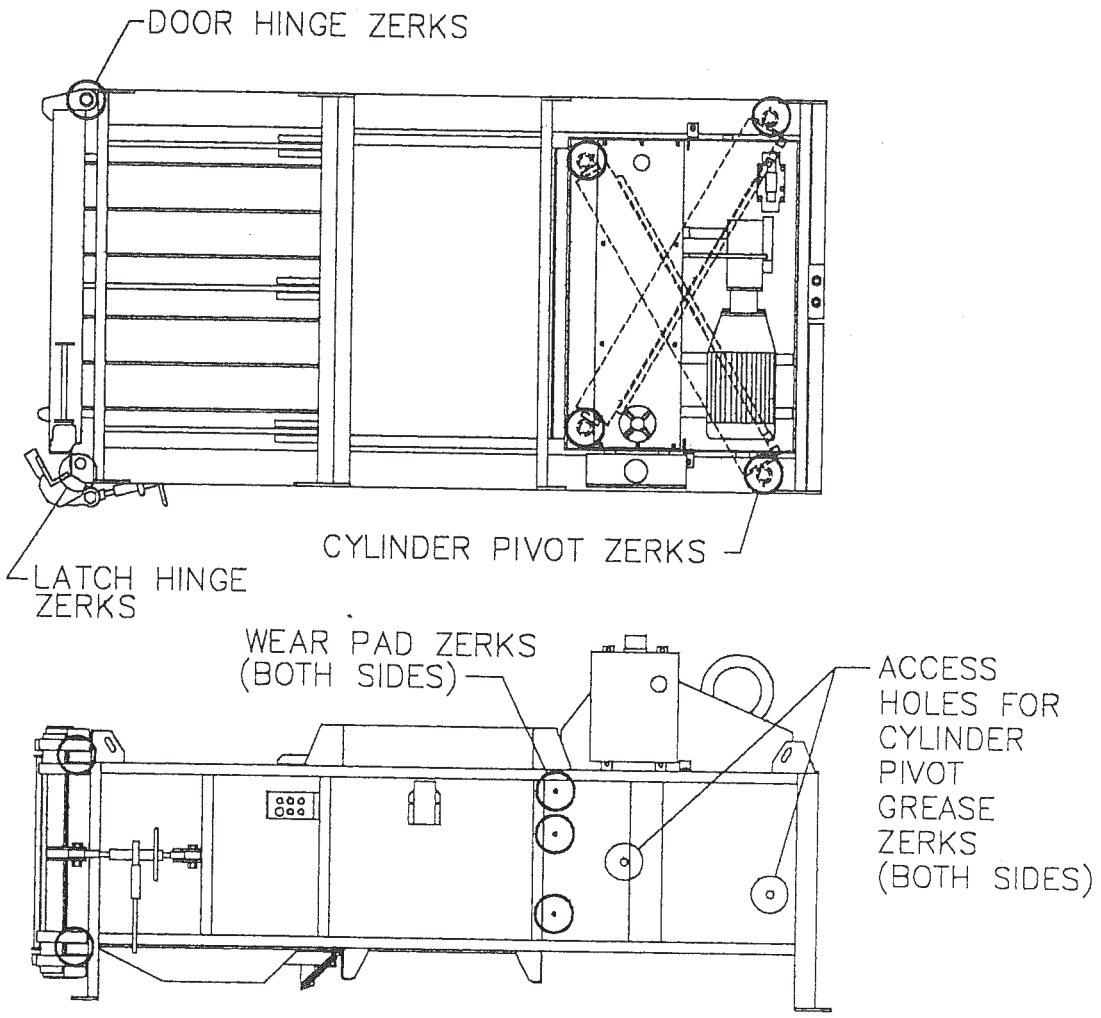
__8. Grease the four cylinder pivots and six nylatron wear pads at the sides of the baler. Also grease the two door latches and two door hinges. See the Lube Chart below for their location. Lubricate the baler every 35 to 40 hours of operation. High use will require lubrication more often.

■ MONTHLY CARE REQUIREMENTS

__1. Walk around the baler and inspect the overall condition of the baler.

__2. Check lubrication. Lubricate the baler according to the following diagram.

Diagram O. Lube Chart.



__3. Check all nuts and bolts. Make sure all are tight and secure.

__4. Check platen to shear edge clearance. See Platen To Cutting Edge Clearance Adjustment section in this manual.

SEMIANNUAL CARE REQUIREMENTS

__1. Change the oil filter and breather filter after the first 6 months of operation and then yearly after that.

__2. The motor is equipped with double shielded ball bearings having sufficient grease to last indefinitely under normal service. Where motor is used constantly is dirty, wet, or corrosive atmospheres, add one quarter ounce of grease per bearing every three months. Use a good quality rust inhibited polyuria based grease, such as Chevron SRI.

__3. Check the nylatron wear pads which the platen and follower ride upon See the Platen to Cutting Edge Clearance Adjustment section in the chapter entitled Adjustments.

YEARLY CARE REQUIREMENTS

__1. A qualified electrician or service technician must check all electrical connections and check motor resistance. Recording successive readings helps to prevent future failure.

__2. Change oil filter yearly. Have an oil sample tested yearly and compare the result to the oil manufacturer's specifications. If oil does not meet specifications, replace. 105 gallon of Mobil DTE 13 is required to fill the reservoir. An oil that exceeds the specification of Mobil DTE 13 may be used.

__3. Check the structure of the baler for potential trouble areas and repair as needed.

__4. Check hoses to insure they do not become severely worn before being replaced. A broken hose will allow the reservoir to be pumped dry and ruin the pump.

TROUBLE CHECKS AND SERVICE INFORMATION

Troubles sometimes are caused by simple "faults" that can be easily corrected without the help of a service technician by first checking a few basic remedies.

Before you call an authorized EXCEL Manufacturing service representative, look below for the type of trouble you are experiencing. Then perform the check and adjustments listed for the trouble.

If your baling equipment is still in warranty, these checks and adjustments could save you time and the cost of an unneeded visit from a service representative. They also could save you the cost of a diagnosis not covered by your warranty. (Refer to the warranty on the inside of the back cover to verify what is covered.)

If your baling equipment is out of warranty, these checks and adjustments could save you the cost of an unneeded diagnosis.

For your nearest authorized EXCEL Manufacturing service representative, phone 1-800-475-8812.

Electrical trouble shooting is to be performed by qualified electricians only.

TROUBLE	POSSIBLE PROBLEM	SOLUTION
Material jams under cutting edge	Cutting edge to platen tolerance exceeds 1/16"	See Cutting Edge Adjustment
Cutting edge is not cutting	Edge is dull	Remove cutting edge and rotate as needed
Motor shuts off with platen in extended position and will not return	Rear limit switch	Foreign object holding Rear limit switch arm open
Motor continues to run after platen is retracted	Rear Limit Switch out of adjustment	See Limit Switch Adjustments
Bale tie position is not correct	Bale Tie Limit Switch out of adjustment	See Limit Switch Adjustments
Ejector pedal does not return	Bolts too tight	Loosen bolts
	Springs broken or missing	Replace
Motor runs hot	Blocked ventilation	Clean external and internal ventilation systems
	High ambient temperature of over 105 degrees F	Provide outside sources of cooler air or reduce number of cycles per hour

TROUBLE	POSSIBLE PROBLEM	SOLUTION
Motor does not run	Emergency Stop button depressed	Twist to release
	Key Switch in OFF position	
	Disconnect in OFF position	
	Blown fuse	If blown, replace
	Blown Control Voltage fuse	Replace
Motor won't start or makes growling noise	Very low voltage	Check power source Check motor nameplate
	Single Phased (3 Phase only)	Check power source. Must have all three phases.
	Open motor leads	Check continuity. Clean and tighten
	Rotor or bearings locked	Check shaft for freeness of rotation
	Thermal overload tripped	Be sure proper sized overload relays are used and amp setting is correct
	Starter coil burned out	Replace starter coil
Thermal overload relays tripped or tripping	Incoming leads to incorrect terminals	Correct lead terminal locations
	Low voltage at motor terminals	Improve power supply and/or increase line size
	Single Phased (3 phase only)	Check power source. Must have all three phases.
Excessive vibration	Motor mounting	Check alignment between motor and pump. Be sure motor mounting is tight and solid.
	Pump	Disconnect pump from coupling and restart motor. If vibration stops, the unbalance is in the pump. Replace the pump.
	Coupling	Remove coupling and restart motor. If the vibration stops, the unbalance is in the coupling. Replace the coupling spider.
	Motor	If the unbalance does not stop after checking the other possibilities above, the unbalance is in the motor. Check the bearings.
Motor runs noisy	Bad bearings	Disconnect from pump coupling and check. If noise does not stop, replace bearings.

TROUBLE	POSSIBLE PROBLEM	SOLUTION
Motor runs noisy (Continued)	Bad pump or coupler	Disconnect from coupling and check
Pump makes noise	Low oil level	Add oil
	Partly clogged intake strainer or restricted intake pipe	Flush the system. Clean intake pipe and clean or replace strainer. Add clean fluid.
	Defective bearing	Replace pump
Motor and pump run but baler does not run	Low oil level	Add oil
	Incorrect pump and motor rotation	See Start Up and Testing section for checking motor rotation.
	Pump suction clogged	Clean suction
	Key sheared on pump or motor shaft	Replace key and any damaged parts
Baler does not start	Fuse blown	Replace. Check integrity of electrical units. Look for sticking time delay units, burned out solenoid coils, shorted terminals, loose connections, etc.
	Main switch open	Close switch
Noise like stones in the pump - usually intermittent	Air leak in suction system	Replace O-ring on suction end of pump. Check all connections for possible leaks.
Motor continues to run and fails to return platen	Front Limit Switch out of adjustment	See Limit Switch Adjustments
	Pressure switch out of adjustment	See Pressure Switch Adjustments
	Relief Valve out of adjustment	See Relief Valve Adjustments
Baler continues to cycle with empty chamber	Electric Eye and/or Electric Eye Reflector dirty	Clean Electric Eye and/or Electric Eye Reflector
	Electric Eye and/or Electric Eye Reflector out of adjustment.	See Electric Eye Adjustments

ADJUSTMENTS

Adjustments are to be performed by authorized service technicians only.

■ ROTATING CUTTING EDGE

The shear blade is designed to make use of four indexable cutting edges. Follow these instructions to remove the shear blade and revolve it to a fresh cutting edge.

1. Fully retract the platen.

2. Lockout the power to the baler.

3. Loosen the bolts which secure the shear blade.

4. Turn the blade to a fresh cutting edge.

5. Turn the blade and secure with the bolts. Use only 5/8-11 UNC x 2 1/2" Grade 8 bolts. Torque the bolts to 125 foot pounds.

■ PLATEN TO CUTTING EDGE CLEARANCE ADJUSTMENT

Follow the Rotating Cutting Edge adjustment instructions above before doing this procedure.

1/16" plus or minus 1/32" is the recommended distance from the top of the platen to the cutting edge. An excessive gap will hinder the cutting performance, and cause debris to jam between the platen and the top of the bale chamber. Do not use more than 1/4" shim material thickness. If the tolerance cannot be held, it may be necessary to replace the nylatron wear pads.

The top of the platen must be free from debris. Observe Lockout procedures to clean.

Follow these instructions for setting the gap distance.

1. Place the key switch in the HAND position.

2. Depress the FORWARD button until the platen's front edge is under the cutting edge.

3. Turn the key switch to OFF and LOCKOUT the power supply.

4. Place a 1/16" shim between the platen and the cutting edge,

5. Remove the access panel to the back of the baler.

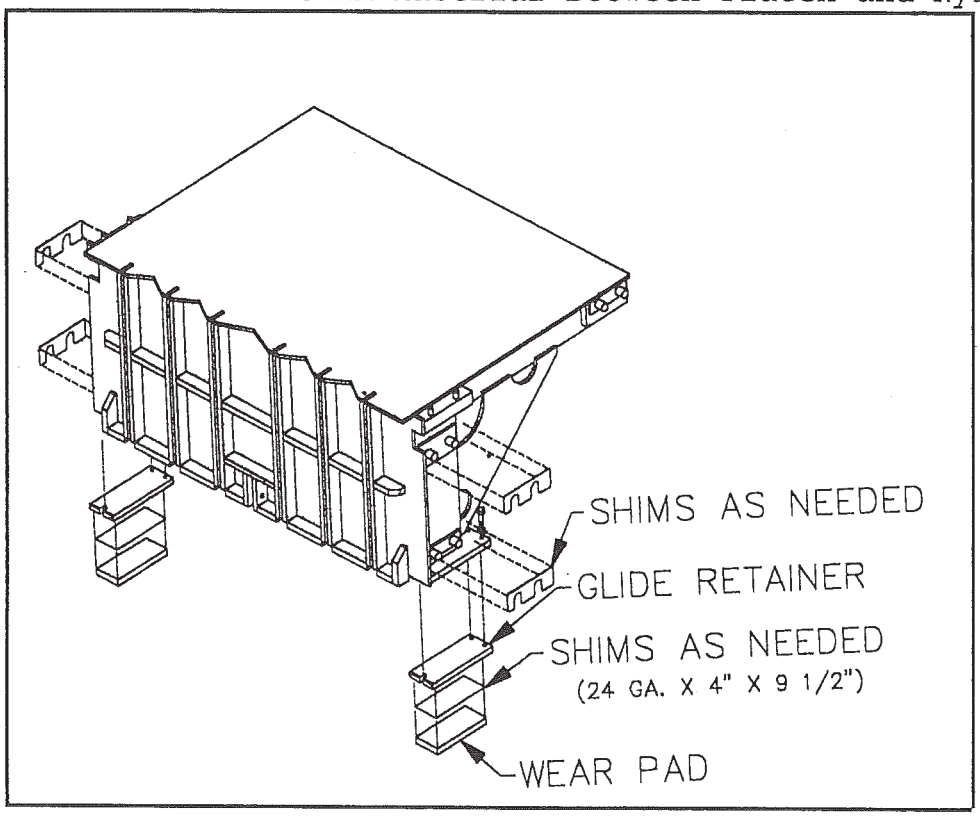
6. Remove the bolts at the bottom of the platen as shown in Diagram P.

7. From the back of the baler, use a pry bar to pry the platen upwards against the cutting edge.

8. Pull the two glide retainers back and off the platen. Remove the nylatron wear pads from the retainers.

9. Place the appropriate amount of shim material between the glide retainer and nylatron wear pad as shown in Diagram P.

Diagram P. Placement of Shim Material Between Platen and Nylatron.



10. Reassemble the parts and slide into position under the platen.

11. Replace the bolts and tighten securely.

12. Check platen side clearance. Add shims to the side as needed to align wire slots in platen to wire slots in floor.

13. Reactivate the power supply.

14. Reverse the platen. Lockout the power supply once more to remove the shim material from the top of the platen.

15. Run the platen forward. Stop the front of the platen under the cutting edge once more.

16. Check the distance from the top of the platen to the cutting edge. It should be 1/16" plus or minus 1/32".

Never run the platen into the cutting edge. Extreme caution must be used while performing this adjustment.

LIMIT SWITCH ADJUSTMENTS

Tools Required:
1/2" Wrench

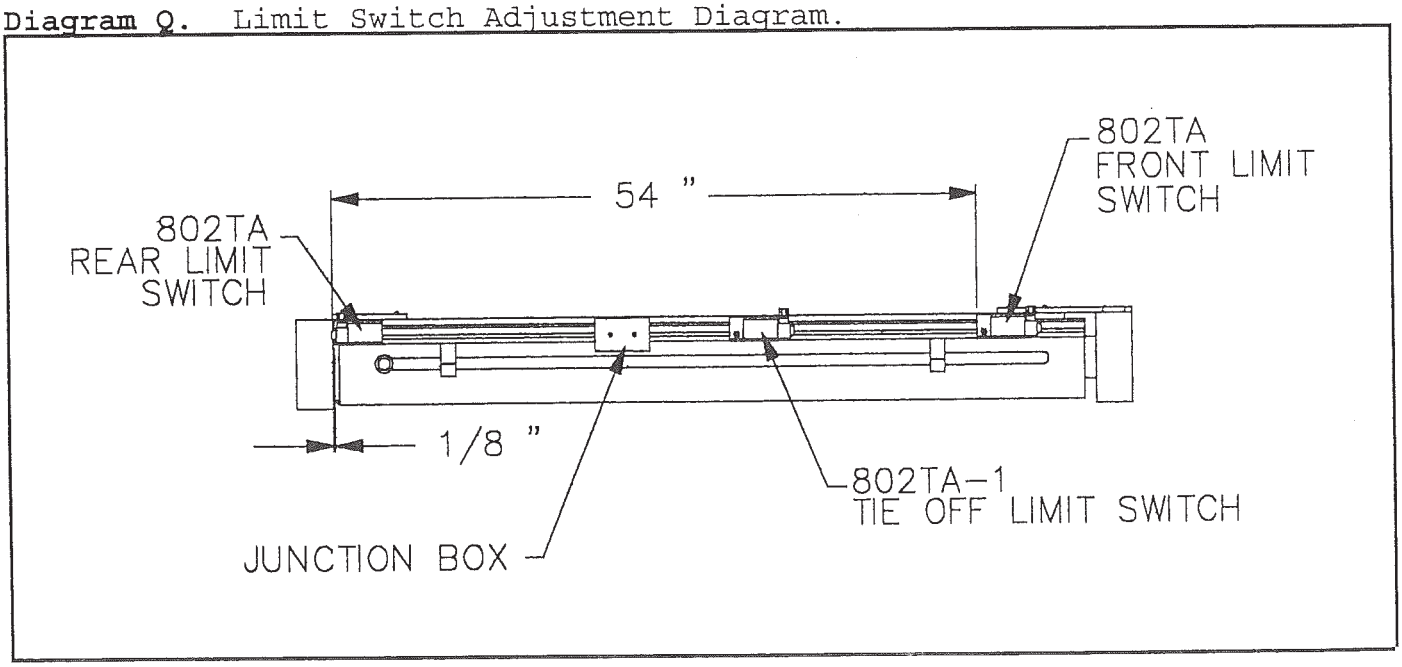
Before proceeding, make sure that the six inch long limit switch cam is set flush with the left end of the slide that it is mounted on. Also check to see that the limit switch arms are at right angles (90 degrees) to the switch bodies.

Adjustment of the switches is made by loosening the nuts which hold the limit switch mounting angles to the aluminum housing. When retightening, do not over tighten these nuts, or the aluminum housing will be distorted.

NOTE: Tie-off Switch (802TA-1) has a special one-way action and is not interchangeable with the front or rear limit switches.

Refer to Diagram Q to make these adjustments.

Diagram Q. Limit Switch Adjustment Diagram.



REAR LIMIT

The rear limit switch is 1/8" from the left end of the aluminum housing to the edge of the limit switch mounting angle. This should stop the ram 1 1/2" to 2" from the end of its stroke.

This may be checked by temporarily removing the limit switch. Allow the cylinder to "Bottom Out" and take a measurement to be compared with a measurement taken after the switch is adjusted. The difference should be 1 1/2" to 2".

■ TIE-OFF LIMIT

Adjustment of this switch will affect the size of the finished bale. The 33 1/4" measurement shown in the diagram will produce approximately a 48" bale. It is not possible to tie off bales larger than 48".

If a smaller bale is desired, move the switch to the right. This will increase the 33 1/4" measurement, which should not exceed 37 1/2".

■ FRONT LIMIT

There should be 54" from the left end of the aluminum housing to the edge of the limit switch mounting angle. This should stop the ram 1" to 1 1/2" from the end of its stroke.

This may be checked by switching the selector switch to HAND and extending the ram completely. Measure the distance from the front face of the ram to the baler door and compare this to the same measurement taken with the machine cycling on AUTO. The difference should be 1" to 1 1/2"

■ HYDRAULIC ADJUSTMENTS

Adjustments to the hydraulic system must be carried out by authorized service technicians.

Pressure settings specified by the factory must never be exceeded. Exceeding these pressures will void the warranty, cause permanent damage to the baler, and may result in personal injury.

FACTORY SETTINGS

Pressure Switch - 2300 PSI
Pump Compensator - 2500 PSI
Relief Valve - 2800 PSI

■ PRESSURE SWITCH ADJUSTMENT

The pressure switch is factory set at 2300 PSI and in **not adjustable**. This switch controls the maximum baling pressure.

■ PUMP COMPENSATOR AND RELIEF VALVE ADJUSTMENT

The pump compensator is set to reduce the pump flow to zero at 2500 PSI. It may be necessary to adjust the compensator if the pump is rebuilt or replaced. A set screw and lock nut are located on the pump compensator control for this purpose.

The relief valve is provided on this system as a backup pressure control should the pump compensator fail.

To set compensator and relief valve pressures, follow these instructions.

1. Place the selector switch on HAND and extend the ram completely.

2. Have an assistant continue to hold the FORWARD button to sustain maximum pressure while you turn the compensator bolt clockwise to increase pressure to 2800 PSI on the pressure gauge. **Check diagram for correct location of compensator adjusting bolt. Never adjust the torque limiter bolt with out contacting an EXCEL Manufacturing representative.**

If this pressure cannot be attained, then the relief valve is bypassing.

3. Turn the relief valve adjustment clockwise 1 or 2 turns and then continue adjusting the compensator screw to reach 2800 PSI on the pressure gauge.

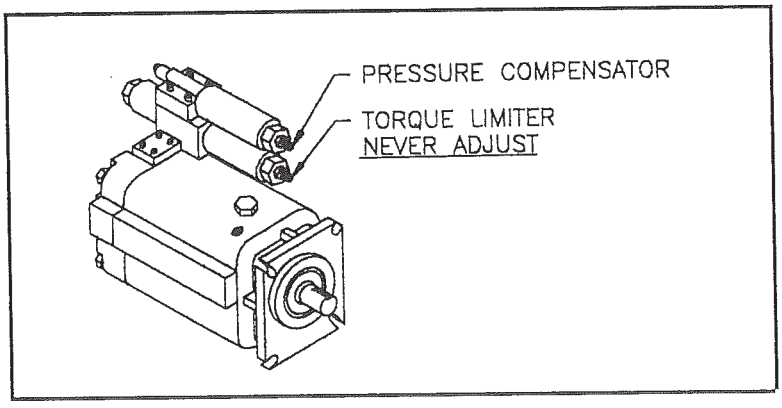
4. Turn the relief valve adjustment counterclockwise until the pressure on the gauge drops just slightly below 2800 PSI. Lock relief valve jam nut.

5. Turn the compensator adjustment counter-clockwise until pressure drops to 2500 PSI. Tighten the compensator lock nut.

■ PUMP TORQUE LIMITER ADJUSTMENT

The pump is factory preset and must **never** be adjusted. The warranty will be void if the pump adjustment is tampered with. For more information, contact an EXCEL Manufacturing representative.

Diagram R. Pump Compensator and Torque Limiter Locations.

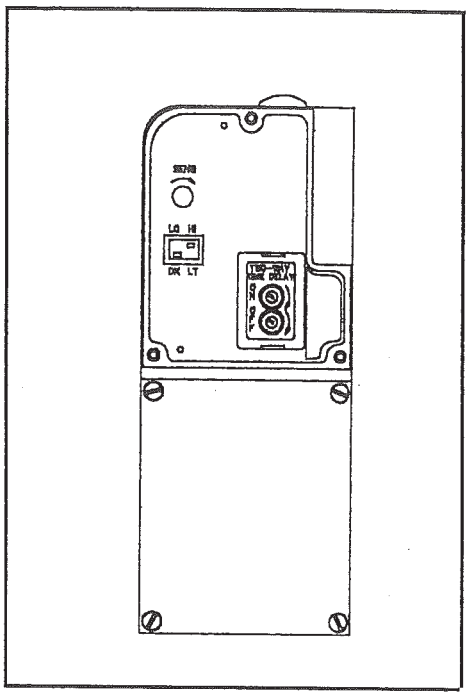


■ PUMP ADJUSTMENT

The pump is factory preset and must **never** be adjusted. The warranty will be void if the pump adjustment is tampered with. For more information, contact an EXCEL Manufacturing representative.

■ ELECTRIC EYE ADJUSTMENT

Diagram S. Proper Settings for Electric Eye.



Adjustment of the electric eye may be necessary if the eye somehow has been moved out of position. The baler will run continuously, as if something is blocking the beam of the eye.

Diagram S illustrates the proper settings of the eye. The on and off of the Two-way Time Delay should be set in the 10 o'clock position as shown. The sensitivity adjustment is factory preset and needs no adjustment.

■ BEAM ADJUSTMENT

Perform this adjustment after the time delay has been properly set according to Diagram S.

1. Fully retract the platen.

2. Turn the key to OFF. Shut off and Lockout the power to the baler at the MAIN power disconnect.

3. Remove the guard covering the electric eye.

4. Remove the upper cover on the electric eye and turn both the ON and OFF of the Two-way Time Delay counterclockwise to zero.

5. Open the electrical enclosure. Remove the wire from TB3 which comes from the electric eye. Tape the end of the wire to prevent it from hanging hot when the power is reactivated to finish this adjustment.

6. Close the electrical enclosure and reactivate the power.

■ HORIZONTAL ADJUSTMENT

7. Loosen the screws on the bottom of the mounting bracket. Slightly move the eye left and right to sweep the beam across the reflector. As the beam falls off each edge of the reflector, the red indicator light on top of the electric eye lights up. Retighten the screws so that the beam is held steady halfway between each indicated edge.

VERTICAL ADJUSTMENT

8. Loosen the screws on the side of the mounting bracket and adjust the beam as done in the previous procedure, sweeping the beam up and down.

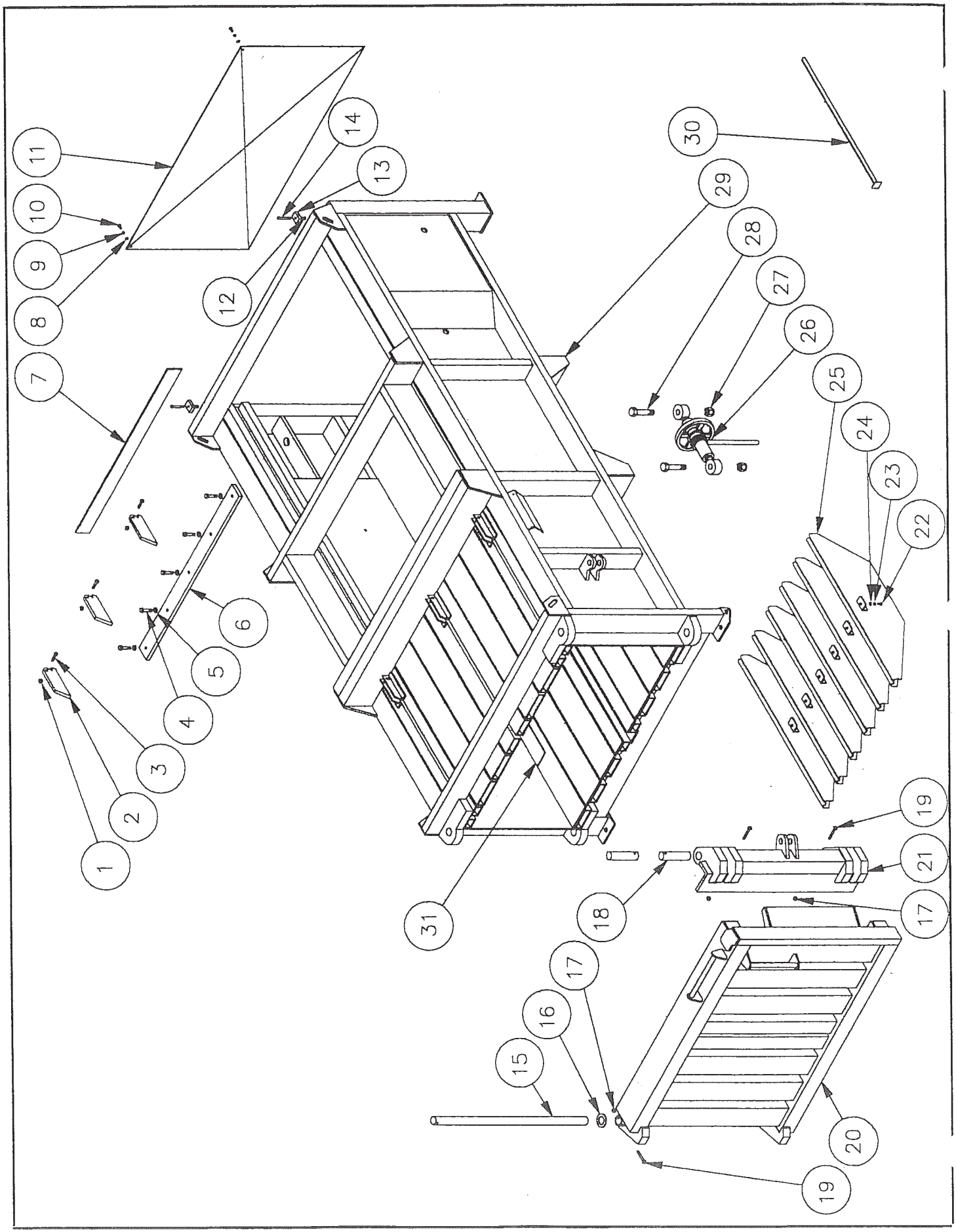
9. Set the Two-way Time Delay back up to the 10 o'clock position as shown in Diagram S. This will give a 2 second time delay.

10. Turn the baler power off again. Lockout the power to the baler at the MAIN power disconnect.

11. Open the electrical enclosure and reinstall the wire to TB3.

12. Reactivate the power supply. The baler is ready to operate.

DETAILED PART IDENTIFICATION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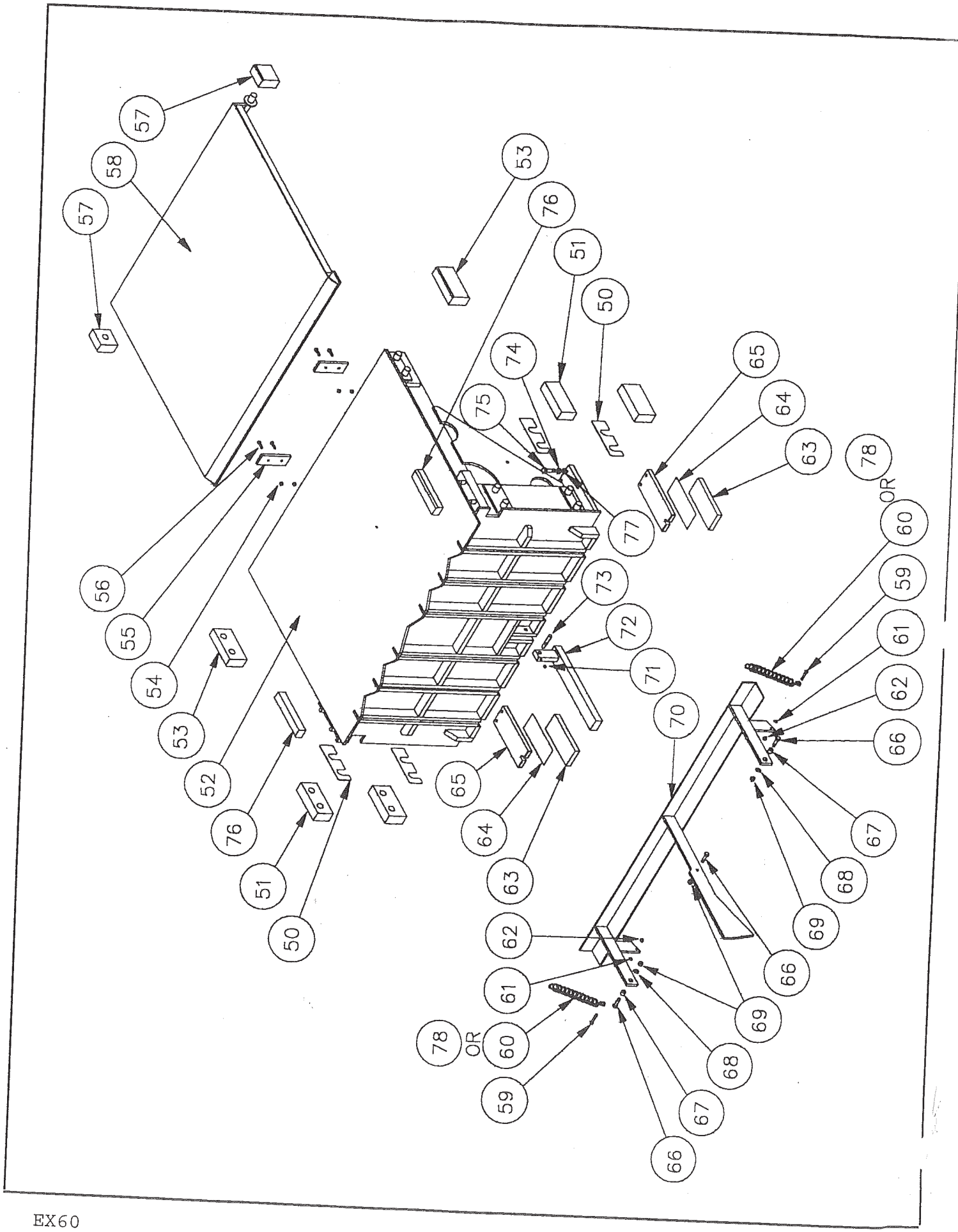
MAIN BALER

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	P-1035	1/2-13 Nylock Nut - Unc	3
2	M-1050	Dog	3
3	P-1029	1/2-13 UNC x 2" Hex Head Cap Screw GRD5 Z	3
4	P-1037	5/8-11 UNC x 2 1/2" Hex Head Cap Screw Gr. 8 P	5
5	P-1038	5/8" Flat Washer Gr. 8	5
6	M-1056	Shear Edge	1
7	M-2019-25	Floating Scraper	1
8	P-1024	3/8" Flat Washer USS Zinc	2
9	P-1025	3/8" Split Lock Washer Z	2
10	P-1015	3/8-16 UNC x 3/4" Hex Head Cap Screw GRD5 Z	2
11	M-1048	Rear Cover	1
12	P-1023	3/8-16 Nylock Nut Unc	2
13	M-2021-89	Rear Follower Stop	2
14	P-1020	3/8-16 UNC x 3 1/2" Hex Head Cap Screw Grade 2 Z	2
15	M-3008	Door Hinge Pin	1
16	M-3018	Thrust Washer	1
17	P-1035	1/2-13 Nylock Nut Unc	3
18	M-3009-70	Latch Pin	2
19	P-1031	1/2-13 UNC x 3 1/4" Hex Head Cap Screw	3
20	A-1003-134	Door	1
21	A-1007-134	Door Latch	1
22	P-1015	3/8-16 UNC x 3/4" Hex Head Cap Screw GRD 5 Z	12
23	P-1025	3/8" Split Lock Washer Z	12
24	P-1024	3/8" Flat Washer Zinc, USS	12
25	A-1008-125	Wire Guide	6
26	P-1054	Turnbuckle	1
27	P-1043	1 1/4-7 Nylock Nut, Unc	2
28	P-1042	1 1/4-7 UNC x 5" Hex Head Cap Screw GRD5 PL	2
29	S-1009-108	Main Baler Frame	
30	A-1014	Clean Out Tool	1
31	M-1178-87	Wear Plate	2
Not Shown		3/16" Drive Grease Zerk (Door & Latch Hinge)	4

Include model number and serial number information when ordering parts.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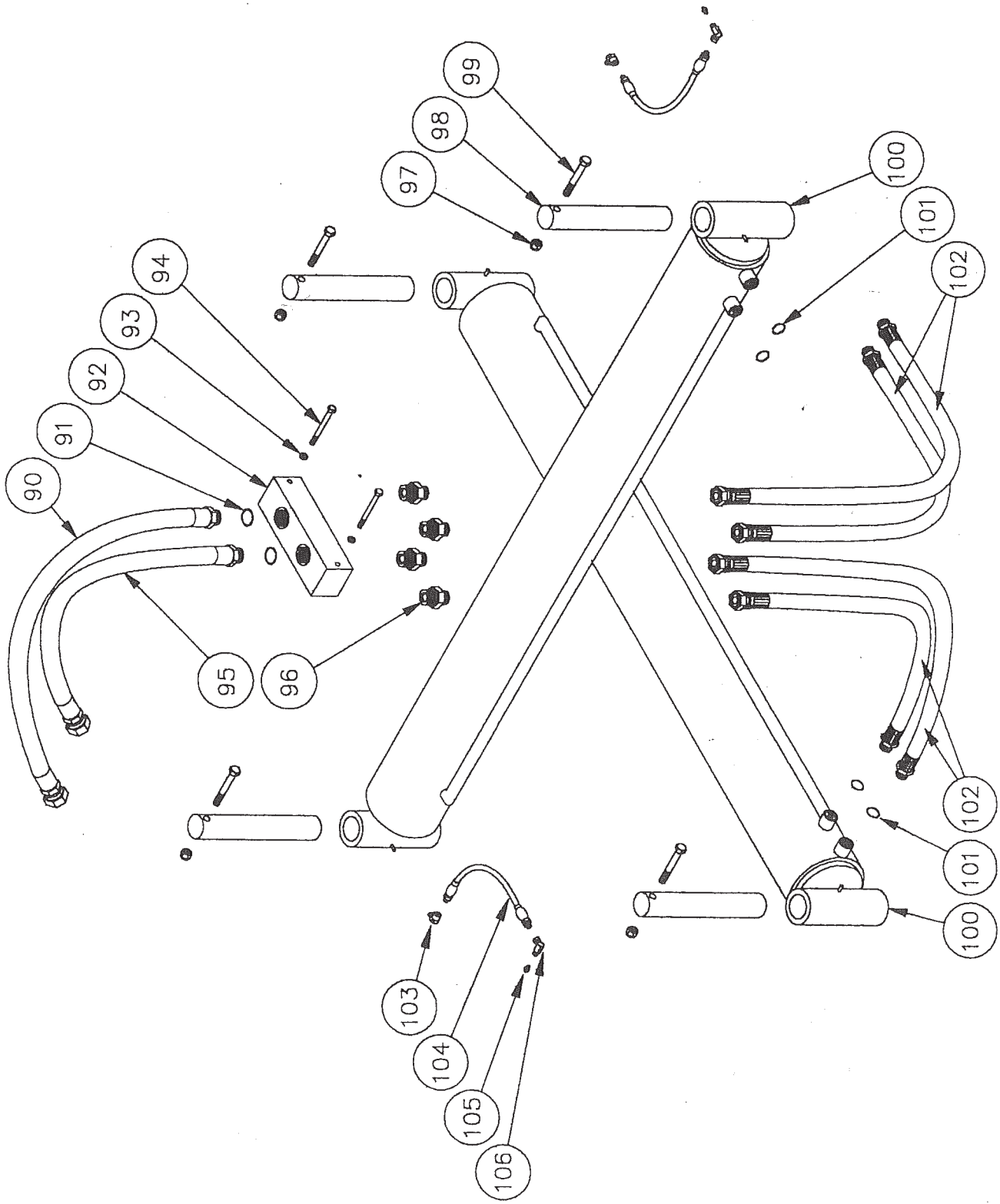
EX60

PLATEN - FOLLOWER - EJECTOR

REF. NO.	PART NO.	DESCRIPTION	QTY.
50	M-2046	Side Platen Shim	4
51	M-2035	Bottom Side Bearing	4
52	A-1001-77	Platen	1
53	M-2025	Rear Bearing	2
54	P-1023	3/8-16 Nylock Nut, UNC	4
55	M-2020	Follower Pull Bar	2
56	P-1077	3/8-16 UNC x 1 3/4" Hex Head Cap Screw GRD 5 Z	4
57	M-2022	Follower Bearing	2
58	A-1004	Follower	1
59	P-109	3/8-16 UNC x 2" Hex Head Cap Screw GRD5 Z	2
60	P-1053	Sm. Ejector Spring (Located Control Box Side)	1
61	P-1022	3/8-16 Jam Nut, UNC	2
62	P-1023	3/8-16 Nylock Nut, UNC	2
63	M-2023-21	Lower Bearing	2
64	M-2039-36	Shim Plates (24 Ga. x 4" x 9 1/2")	
65	S-1010-78	Glide Retainer	2
66	P-1029	1/2-13 UNC x 2" Hex Head Cap Screw GRD5 Z	3
67	HM-1018	Spacer	2
68	P-1383	1/2" Flat Washer USS ZINC	2
69	P-1035	1/2-13 Nylock Nut, UNC	3
70	A-1005-124	Ejector Base	1
71		3/8-16 UNC x 3/8" Hollow Point Set Screw	2
72	A-1010	Ejector	1
73	M-2037	Ejector Pin	1
74		5/8" Lock Washer	4
75	P-1036	5/8-11 UNC x 2" Hex Head Cap Screw GRD5 Z	4
76	M-2034	Top Side Bearing	2
77	P-1390	5/8 Flat Washer USS, ZINC	4
78	P-1181	Lg. Ejector Spring	1

Include model number and serial number information when ordering parts.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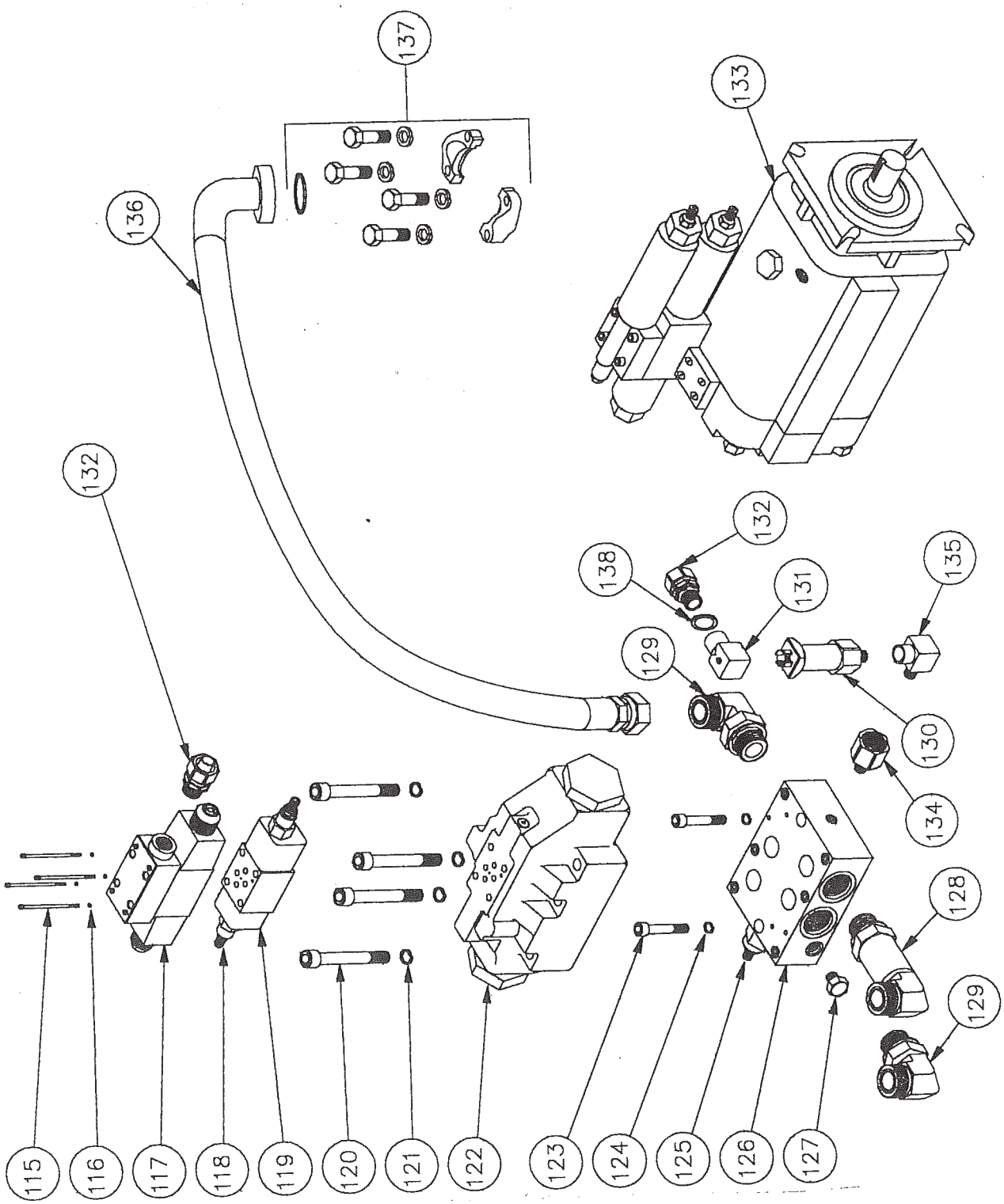
CYLINDERS - HOSES

REF. NO.	PART NO.	DESCRIPTION	QTY.
90	HP-1032	#16 Pressure Hose x 44" Long	1
91	HP-1039	O-Ring #16	2
92	HP-1000	Splitter Manifold	1
93	P-1025	3/8" Split Lock Washer 2	2
94	P-1021	3/8-16 UNC x 3 1/2" Hex Head Cap Screw GRD 5 Z	2
95	HP-1033	#16 Pressure Hose x 37" Long	1
96	HP-1024	ORS/SAE O-Ring Boss Adapter	4
97	P-1035	1/2-13 Nylock Nut, UNC	4
98	M-1054	Cylinder Pin	4
99	P-1031	1/2-13 UNC x 3 1/4" Hex Head Cap Screw, UNC	4
100	HP-1005-67	Hydraulic Cylinder	2
101	HP-1040	O-Ring #12	4
102	HP-1034	#12 Pressure Hose X 47" Long	4
103	HP-1056	1/8 NPT 90 Degree Street Ell	2
104	HP-1058	Hose Assembly	2
105	HP-1059	1/8 NPT Zerk Fittings (Located on Platen)	2
106	HP-1057	1/8 NPT 90 Degree Swivel Street Ell	2

Include model number and serial number information when ordering parts.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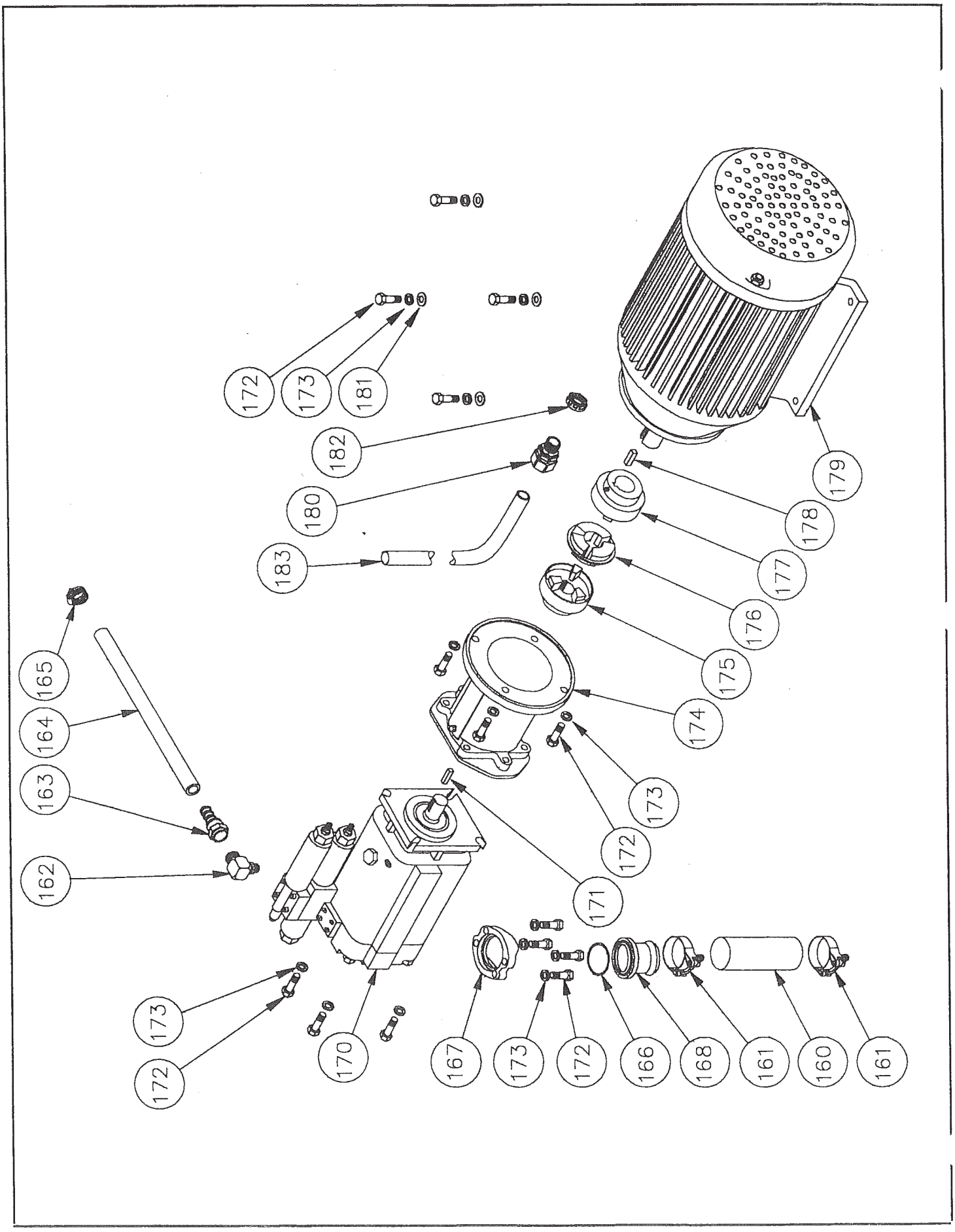
VALVES - FITTINGS

REF. NO.	PART NO.	DESCRIPTION	QTY.
115	P-1046	10-24 x 2 3/4" Socket Head Cap Screw	4
116		#10 High Collar Lock Washer	4
117	HP-1010	Pilot Valve (Replacement)	1
118	HP-1009	Sandwich Replacement Valves	2
119	HP-1008	Sandwich Body W/Valves	1
120	P-1030	1/2-13 UNC x 3" Socket Head Cap Screw	6
121		1/2" High Collar Lock Washer	6
122	HP-1007	Directional Valve	1
123	P-1019	3/8-16 UNC x 2" Socket Head Cap Screw GRD 5 2	2
124		3/8" High Collar Lock Washer	2
125	HP-1011	Relief Subplate Replacement Valve	1
126	HP-1012	Relief Subplate W/Valve	1
127	HP-1027	O-Ring Boss Plug	1
128	HP-1023	90 Deg. ORS/SAE O-Ring Boss Long Adapter	1
129	HP-1022	90 Deg. ORS/SAE O-Ring Boss Adapter	2
130	HP-1020	Pressure Switch	1
131	EP-1050	Din Plug	1
132	EP-1043	1/2" Straight Conduit Connector	2
133	HP-1066	Pump	1
134	HP-1064	1/4 MP x 1/4 FP Straight	1
135	HP-1063	1/4 MP x 14 FP 90 Degree	1
136	HP-1032B	Hose	1
137	HP-1060	Split Flange Kit	1
138	EP-1208	1/2" Conduit Connector Gasket	1

Include model number and serial number information when ordering parts.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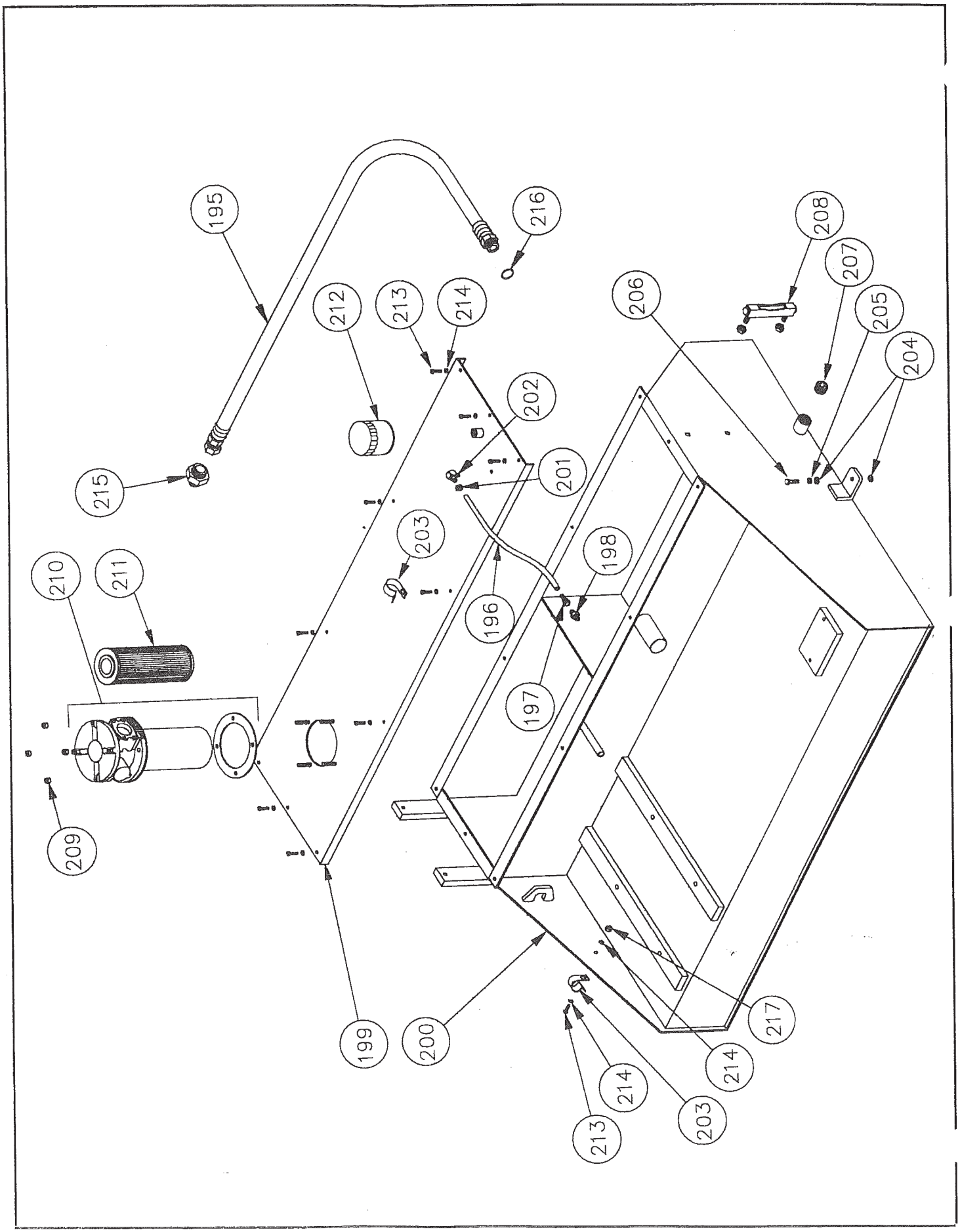
PUMP - MOTOR

REF. NO.	PART NO.	DESCRIPTION	QTY.
160	HP-1035	Suction Hose	1
161	HP-1018	T Bolt Clamp	2
162	HP-1031	SAE O-Ring Boss/37 Degree Flare Fitting	1
163	HP-1030	37 Degree SAE Socketless Swivel	1
164	HP-1037	Case Drain Hose	1
165	HP-1019	Clamp	1
166	HP-1061	O-Ring	1
167	HP-1062	Flange	1
168		SAE-32 Suction Fitting	1
169			
170	HP-1066	Pump	1
171		5/16" x 1 1/4" Pump Key	1
172	P-1028	1/2-13 UNC x 1 1/2" Hex Head Cap Screw GR5 Z	16
173		1/2" Split Lock Washer	16
174	HP-1004	Pump to Motor Adapter	1
175	HP-1001	Pump Coupler	1
176	HP-1003	Spider	1
177	HP-1002	Motor Coupler	1
178		3/8" x 1 1/4" Motor Key	1
179	EP-1000	Motor	1
180	EP-1040	1" Straight Conduit Connector	1
181	P-1383	1/2" Flat Washer, USS Zinc	4
182	EP-1109	1" Insulating Bushing	1
183	EP-1210	1" Conduit	36"

Include model number and serial number information when ordering parts.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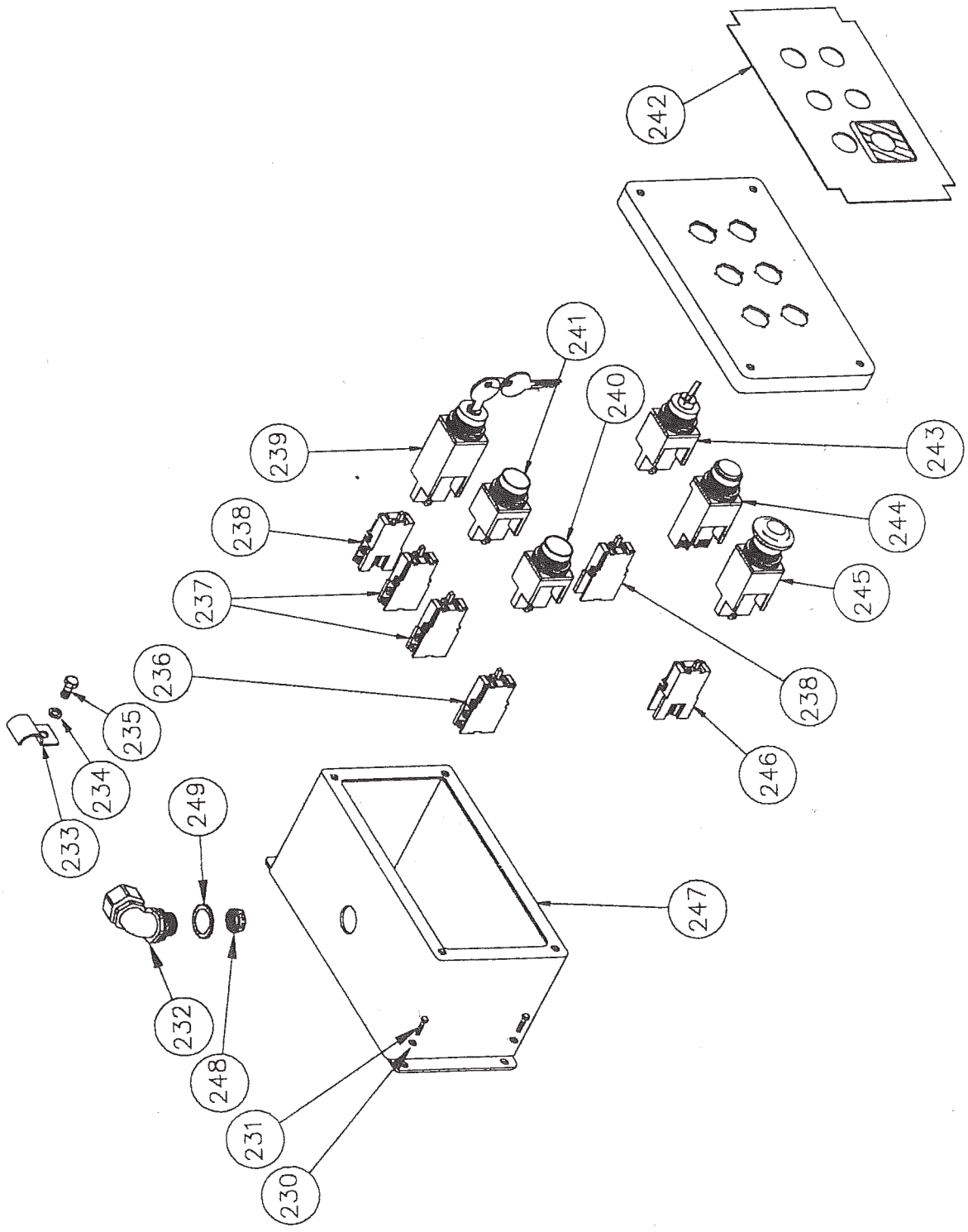
RESERVOIR - FILTER

REF. NO.	PART NO.	DESCRIPTION	QTY.
195	HP-1036	#16 Return Hose x 55"	1
196	HP-1043	Bleed Hose x 20"	1
197	HP-1044	#6 37 Degree SAE Socketless Swivel	1
198	HP-1045	#6 O-Ring Boss 37 Degree Flare Adapter	1
199	A-1009-80	Reservoir Cover	1
200	A-1002-99	Reservoir	1
201	HP-1054	5/16 Clamp	1
202	HP-1046	Fitting	1
203	HP-1047	Return Hose Clamp	2
204	P-1024	3/8" Flat Washer, USS ZINC	4
205	P-1025	3/8" Split Lock Washer, Z	2
206	P-1016	3/8-16 UNC x 1" Hex Head Cap Screw GRD 5 Z	2
207	HP-1016	Drain Plug	1
208	HP-1014	Sight Gauge	1
209	P-1023	3/8-16 Nylock Nut, UNC	4
210	HP-1006	Oil Filter (Complete)	1
211	HP-1049	Replacement Oil Filter	1
212	HP-1015	Breather Cap	1
213	P-1271	1/4-20 UNC x 3/4" Hex Head Cap Screw GRD 5 Z	11
214	P-1007	1/4" Flat Washer, USS ZINC	12
Not Shown	HP-1050	Gasket Strip (Between Reservoir & Cover)	139"
Not Shown	HP-1050	44" Gasket Strip (Between Baler & Reservoir)	2
215	HP-1051	SAE O-Ring to 37 Degree Flare Adapter	1
216	HP-1039	O-Ring #16	1
217	P-1078	1/4-20 Nylock Nut, UNC	1

Include model number and serial number information when ordering parts.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CONTROLS

REF. NO.	PART NO.	DESCRIPTION	QTY.
230	P-1044	10-24 x 1 1/2" Hex Head Cap Screw, UNC	4
231		#10 Internal Tooth Lock Washer	4
232	EP-1044	1/2" 90 Degree Conduit Connector	1
233	EP-1051	Conduit Clamp	1
234	P-1008	1/4" Split Lock Washer 2	1
235	P-1001	1/4-20 UNC x 1/2" Hex Head Cap Screw GR05 2	1
236	EP-1079	Contact Block	1
237	EP-1078	Contact Block	2
238	EP-1077	Contact Block	2
239	EP-1067	3 Position Keyed Selector Switch	1
240	EP-1065	Yellow Push Button	1
241	EP-1066	Green Push Button	1
242	P-1156	Lexan Panel - Right Remote	1
	P-1157	Lexan Panel - Left Remote	1
243	EP-1068	2 Position Selector Switch	1
244	EP-1069	Red Light	1
245	EP-1064	Emergency Stop Push Button	1
246	EP-1076	Contact Block	1
247	EP-1080	Control Box	1
248	EP-1110	1/2" Insulating Bushing	1
249	EP-1208	1/2" Conduit Connector Gasket	1
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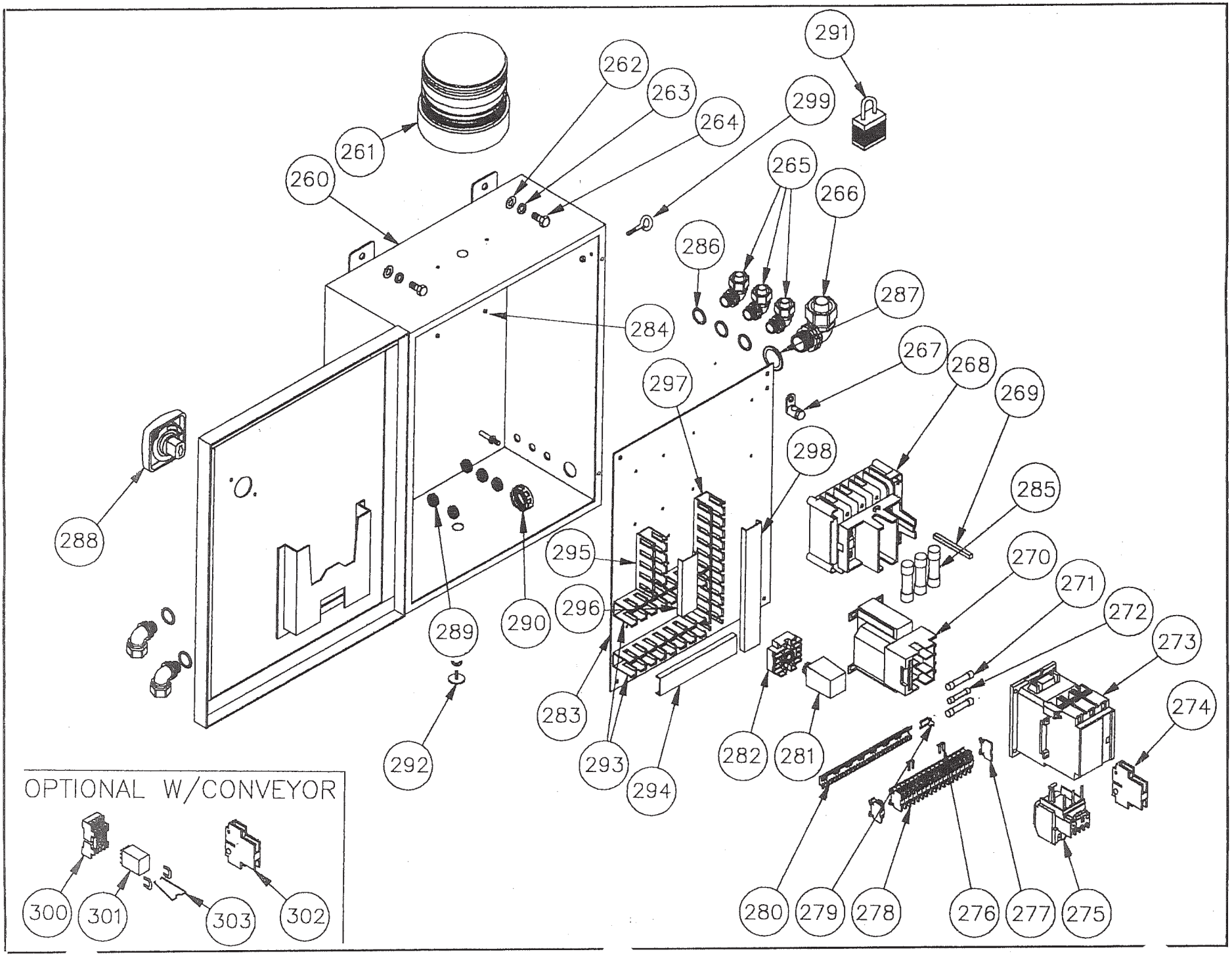
Include model number and serial number information when ordering parts.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ELECTRICAL ENCLOSURE (460V)

REF. NO.	PART NO.	DESCRIPTION	QTY.
260	EM-1000-111	Electrical Enclosure	1
261	EP-1047	Bale Tie Strobe Light	1
262	P-1024	3/8" Flat Washer, USS ZINC	4
263	P-1025	3/8" Split Lock Washer, Z	4
264	P-1015	3/8-16 UNC x 3/4" Hex Head Cap Screw GR05 Z	4
265	EP-1044	1/2" 90 Degree Conduit Connector	5
266	EP-1041	1" 90 Degree Conduit Connector	1
267	EP-1018	Ground Lug	1
268	EP-1004	Disconnect	1
269	EM-1011-91	Operating Rod	1
270	EP-1145	Transformer	1
271	EP-1214	Fuse	2
272	EP-1148	Fuse	1
273	EP-1211	Contactor	1
274	EP-1212	Auxiliary Contact	1
275	EP-1052	460 Volt Overload	1
276	EP-1015	Terminal Jumper	2
277	EP-1014	End Barrier	1
278	EP-1012	Terminal Block	18
279	EP-1013	Terminal End Anchor	2
280	EP-1011	Terminal Channel	1
281	EP-1016	11 Pin Relay	1
282	EP-1017	Relay Socket	1
283	EM-1018-91	Panel	1
284	P-1049	10-24 Nylock Nut, UNC	2
285	EP-1149	Fuse	3
286	EP-1208	1/2" Conduit Connector Gasket	5
287	EP-1209	1" Conduit Connector Gasket	1
288	EP-1085	Replacement Disconnect Handle	1
289	EP-1110	1/2" Insulating Bushing	5
290	EP-1109	1" Insulating Bushing	1
291	P-1081	Padlock and Key	1
292	EP-1216	Hole Seal Kit	1

REF. NO.	PART NO.	DESCRIPTION	QTY.
293	EP-1151	Panduit - 6.25"	2
294	EP-1152	Panduit Cover - 6.25"	2
295	EP-1151	Panduit - 4"	1
296	EP-1152	Panduit Cover - 4"	1
297	EP-1151	Panduit - 8.75"	1
298	EP-1152	Panduit Cover - 8.75"	1
299	P-1155	Eye Screw with Nut	1
		OPTIONAL PARTS W/CONVEYOR	
300	EP-1116	Base Socket	1
301	EP-1117	Relay	1
302	EP-1115	Auxiliary Contact	1
303	EP-1336	Relay Retainer Clip	1

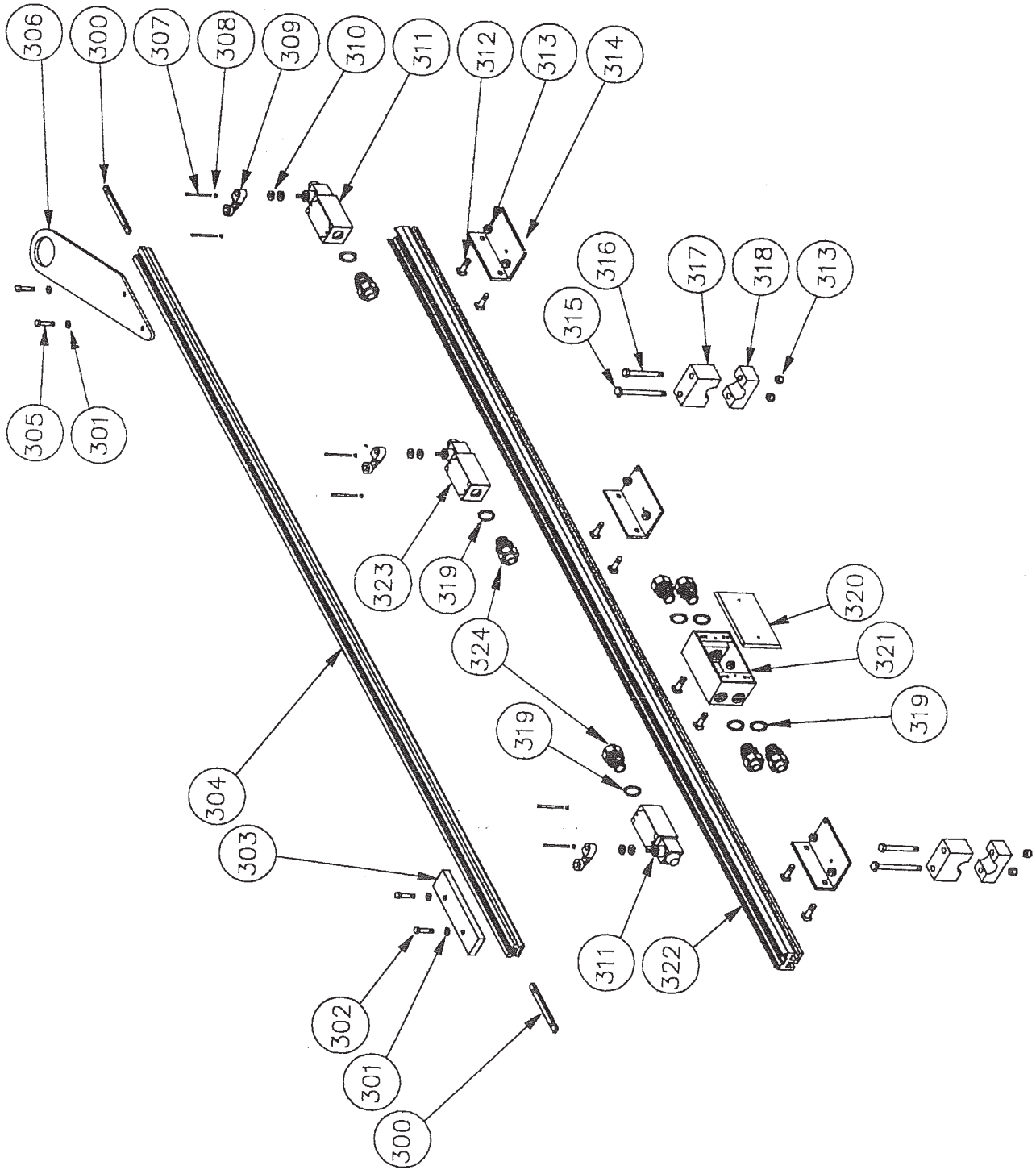
Include model number and serial number information when ordering parts.

ELECTRICAL ENCLOSURE (230V)

REF. NO.	PART NO.	DESCRIPTION	QTY.
260	EM-1001-111	Electrical Enclosure	1
261	EP-1047	Bale Tie Strobe Light	1
262	P-1024	3/8" Flat Washer SS ZINC	4
263	P-1025	3/8" Split Lock Washer Z	4
264	P-1015	3/8-16 UNC x 3/4" Hex Head Cap Screw GR5Z	4
265	EP-1044	1/2" 90 Degree Conduit Connector	5
266	EP-1041	1" 90 Degree Conduit Connector	1
267	EP-1018	Ground Lug	1
268	EP-1144	Disconnect	1
269	EM-1028-91	Operating Rod	1
270	EP-1145	Transformer	1
271	EP-1215	Fuse	2
272	EP-1148	Fuse	1
273	EP-1005	Contactor	1
274	EP-1022	Auxiliary Contact	1
275	EP-1201	230 Volt Overload	1
276	EP-1015	Terminal Jumper	2
277	EP-1014	End Barrier	1
278	EP-1012	Terminal Block	18
279	EP-1013	Terminal End Anchor	2
280	EP-1011	Terminal Channel	1
281	EP-1016	11 Pin Relay	1
282	EP-1017	Relay Socket	1
283	EM-1018-91	Panel	1
284	P-1049	10-24 Nylock Nut UNC	2
285	EP-1146	Fuse	3
286	EP-1208	1/2" Conduit Connector Gasket	5
287	EP-1209	1" Conduit Connector Gasket	1
288	EP-1327	Replacement Disconnect Handle	1
289	EP-1110	1/2" Insulating Bushing	5
290	EP-1109	1" Insulating Bushing	1
291	P-1081	Padlock and Key	
292	EP-1216	Hole Seal Kit	1

REF. NO.	PART NO.	DESCRIPTION	QTY.
293	EP-1151	Panduit - 6.25"	2
294	EP-1152	Panduit Cover - 6.25"	2
295	EP-1151	Panduit - 4"	1
296	EP-1152	Panduit Cover - 4"	1
297	EP-1151	Panduit - 8.75"	1
298	EP-1152	Panduit Cover - 8.75"	1
299	P-1155	Eye Screw with Nut	1
		OPTIONAL PARTS W/CONVEYOR	
300	EP-1116	Base Socket	1
301	EP-1117	Relay	1
302	EP-1115	Auxiliary Contact	1
303	EP-1336	Relay Retainer Clip	1

Include model number and serial number information when ordering parts.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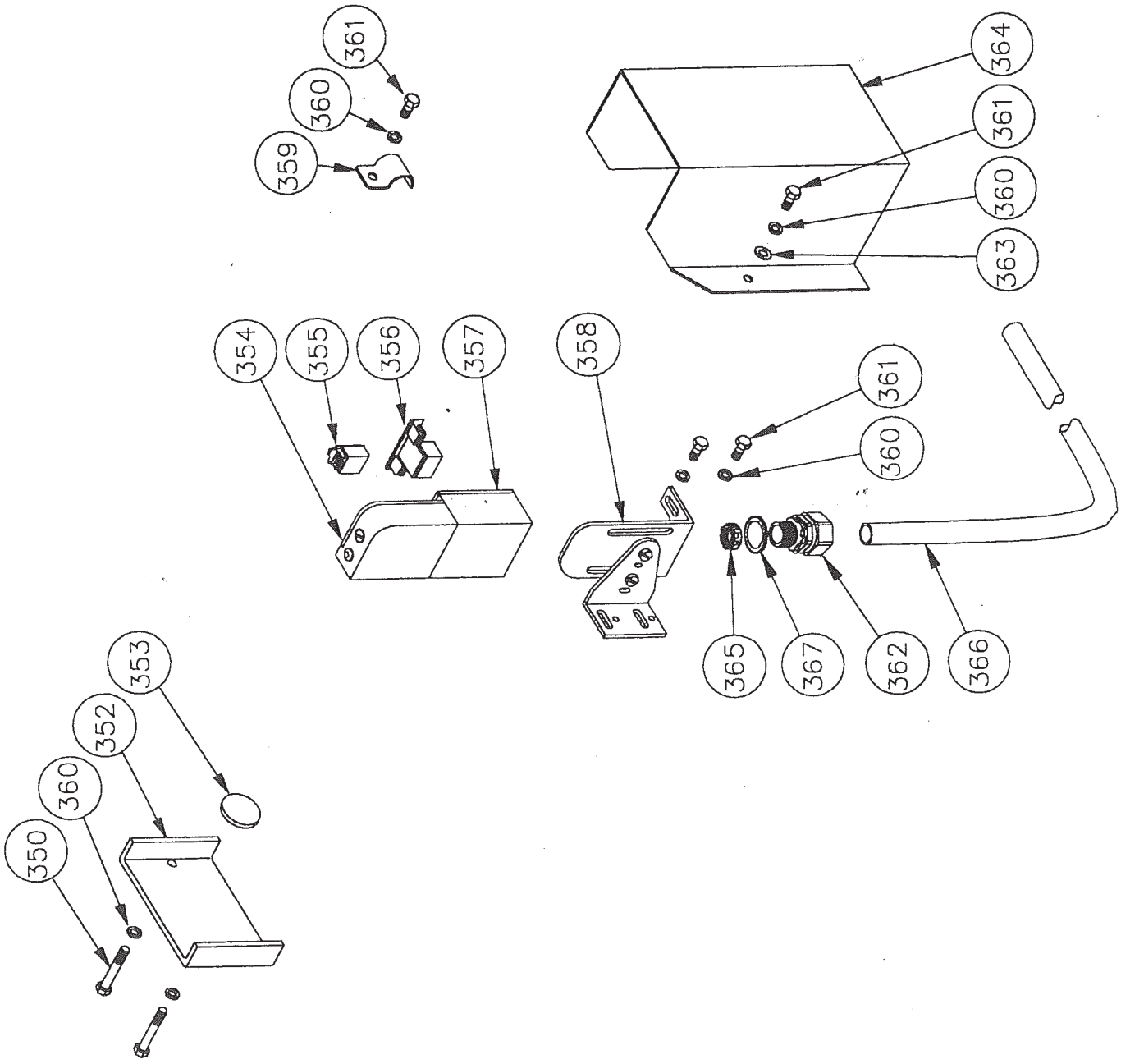
LIMIT SWITCH RAIL

REF. NO.	PART NO.	DESCRIPTION	QTY.
300	EM-1010	Slide Nut	2
301		1/4" Internal Tooth Lock Washer	4
302	P-1003	1/4-20 UNC x 1" Hex Head Cap Screw, GR5 Z	2
303	EM-1008	Cam	1
304	EP-1049	Slide	1
305	P-1271	1/4-20 UNC x 3/4" Hex Head Cap Screw GR5 Z	2
306	EM-1009	Driver	1
307	P-1045	10-24 x 1 3/4" Socket Head Cap Screw, UNC	6
308		#10 Internal Tooth Lock Washer	6
309	EP-1021	Limit Switch Arm	3
310	P-1079	5/16" SAE Flat Washer, Z	6
311	EP-1019	Limit Switch	2
312	P-1174	5/16-18 UNC x 1" Square Head Cap Screw, GR5 Z	8
313	P-1013	5/16-18 Nylock Nut, UNC	12
314	EM-1005-90	Limit Switch Bracket	3
315	P-1012	5/16-18 UNC x 3 1/2" Square Head Cap Screw GR5	2
316	P-1011	5/16-18 UNC x 3 1/4" Hex Head Cap Screw, UNC	2
317	EM-1006-44	Top Rail Clamp	2
318	EM-1007-44	Bottom Rail Clamp	2
319	EP-1208	1/2" Conduit Connector Gasket	7
320	EP-1024	Bell Box Cover	1
321	EM-1004	Bell Box	1
322	EP-1048	Rail	1
323	EP-1020	Tie Limit Switch	1
324	EP-1043	1/2" Straight Conduit Connector	7
		1/2" Conduit (Not Shown)	

Include model number and serial number information when ordering parts.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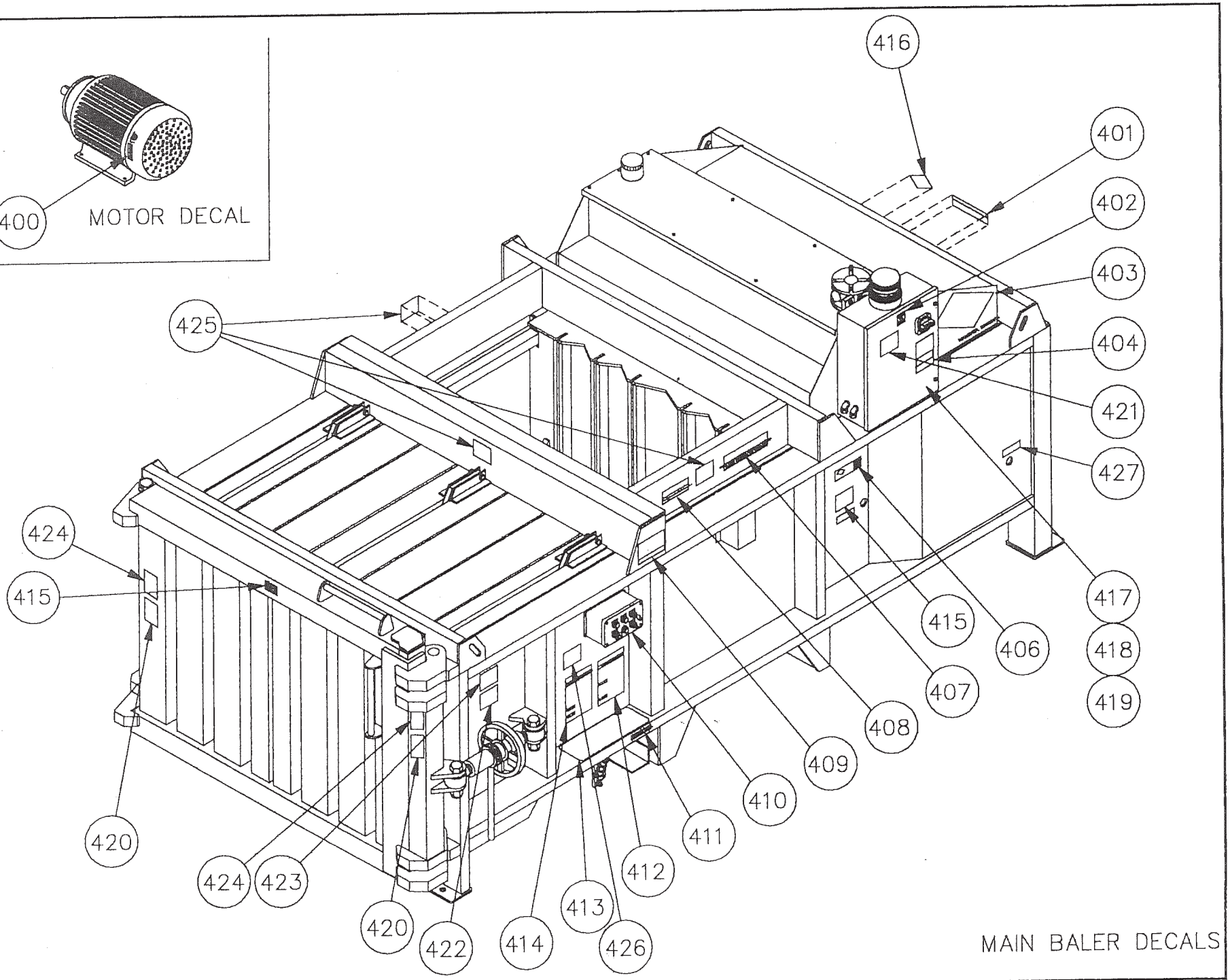
ELECTRIC EYE

REF. NO.	PART NO.	DESCRIPTION	QTY.
350	P-1004	1/4-20 UNC x 1 1/4" Hex Head Cap Screw, GR05 Z	2
351			
352	EM-1013	Reflector Mounting Bracket	1
353	EP-1062	1 1/4" Reflector	1
354	EP-1058	Reflex Photo Head	1
355	EP-1061	On/Off Delay	1
356	EP-1060	EM SPDT Relay	1
357	EP-1059	Terminal Base	1
358	EP-1063	Mounting Bracket	1
359	EP-1051	Conduit Clamp	1
360	P-1008	1/4" Split Lock Washer Z	7
361	P-1001	1/4-20 UNC x 1/2" Hex Head Cap Screw, UNC	5
362	EP-1043	1/2" Straight Conduit Connector	1
363	P-1007	1/4" Flat Washer, USS ZINC	2
364	EM-1015	Cover	1
365	EP-1110	1/2" Insulating Bushing	1
366	EP-1045	1/2" Poly Flex Conduit	52"
367	EP-1208	1/2" Conduit Connector Gasket	1

Include model number and serial number information when ordering parts.

400 MOTOR DECAL



MAIN BALER DECALS

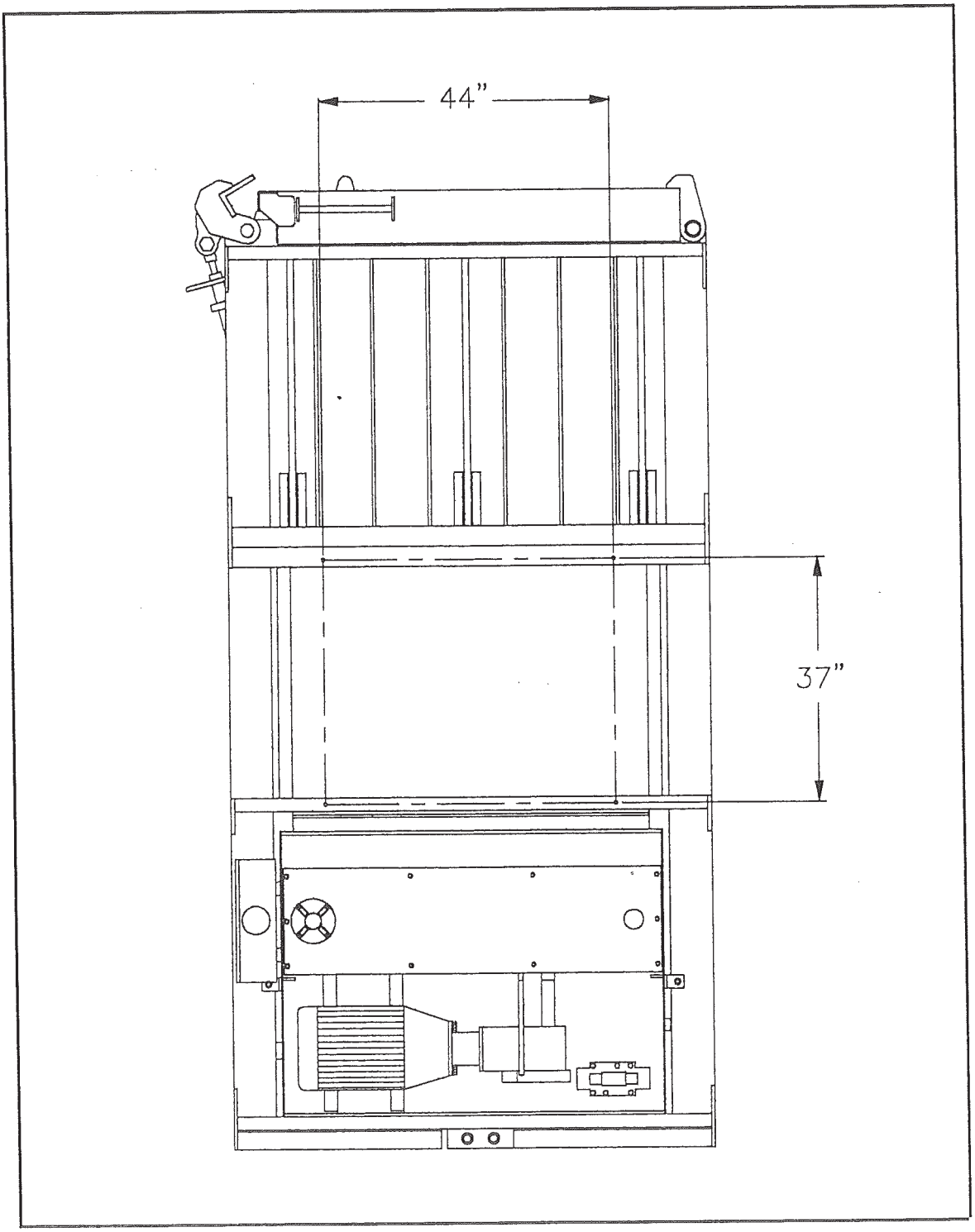
DECALS

REF. NO.	PART NO.	DESCRIPTION	QTY.
400	D-1009	Motor Rotation Arrow	1
401	D-1008	WARNING - Access Panel	1
402	D-1015	Bale Tie Light	1
403	D-1000	Large EXCEL Logo	3
404	D-1002 or D-1003	230 Voltage or 460 Voltage	1
406	D-1007	Model #, Serial # Information	1
407	D-1004	DANGER - Never Enter or Reach Into ...	2
408	D-1019	DANGER - Machine Starts Automatically	2
409	D-1006	DANGER - Cutting Hazard	2
410	D-1018	Photo Eye Control	1
411	D-1012	Ejector Pedal	2
412	D-1011	ATTENTION - Bale Ejection	1
413	D-1017	No Skid Surface	2
414	D-1010	ATTENTION - Machine Operation	1
415	D-1016	Made in U.S.A. Flag	2
416	D-1001	Small EXCEL Logo	1
417	D-1020	Replacement Fuse (Inside Electrical Box)	1
418	D-1021	Voltage Rating (Inside Electrical Box)	1
419		CUL Label	1
420	D-1026	CAUTION - Door Under Pressure	2
421	D-1024	Lockout/Tagout	1
422	D-1025	CAUTION - Latch Must Be ...	1
423	D-1027	Reverse Compression Ram	1
424	D-1023	WARNING - Stand Clear When Bale Is Ejected	2
425	D-1028	Stay Off Baler	3
426	D-1029	Periodic Maintenance	2
427	D-1030	Lubrication Point	4
428	D-1031	Oil Level	1

Include model number and serial number information when ordering parts.

HOPPER BOLT PATTERN DIAGRAM

The following diagram illustrates the location of holes on the baler to which optional hopper devices can be fastened. Holes in optional equipment must match the dimensions shown. The four holes shown on the baler are threaded for 3/8-16 UNC fasteners.



WARRANTY

EXCEL Manufacturing Inc. (also known herein as EXCEL) warrants equipment manufactured by EXCEL to be free from defects in workmanship and materials for one (1) year after the date of delivery.

EXCEL will repair or replace any parts manufactured by EXCEL during this warranty period at no expense to the owner except for transportation.

EXCEL does not warrant electric motors, hydraulic pumps and cylinders, accessories or other parts not manufactured by EXCEL. EXCEL will obtain and pass on to the purchaser any adjustments provided by the manufacturers of these parts under these manufacturers warranties.

EXCEL reserves the right to provide the labor necessary to install parts during this warranty period. Excel may, at its option, elect to grant adjustments in the field through an authorized representative.

EXCEL will not warrant any equipment used for a task which it was not specifically designed for by EXCEL.

This Warranty does not apply to normally maintained parts or parts that deteriorate from wear, exposure, or use.

A new warranty period is not established for replacement parts. Replacement parts are warranted for the remaining portion of the original warranty.

EXCEL retains final judgement on all warranty and service performed and determines the validity of such claims.

To the extent allowed by applicable law, this warranty is expressly in lieu of other warranties, expressed or implied, in fact or by law, including any implied warranty of merchantability or fitness for a particular purpose. The remedies of repair or replacement as set forth are the only remedies under this warranty. EXCEL disclaims any obligations or liability for loss of time, inconvenience, commercial loss or direct, consequential, special or incidental damages. This warranty is in lieu of any other obligation or liability of EXCEL of any nature whatsoever by reason of the manufacture, sale, lease or use of such products and EXCEL neither assumes, nor authorizes anyone to assume for it, any other obligation or liability in connection with such products.

Baler Model Number: _____

Baler Serial Number: _____

Date of Delivery: _____

NOTES