PICTURE PROCESS MAPS (PPM)

AUTO-TIE BALER OPERATION TRAINING

Revised January 2025

PURPOSE

The purpose of the Auto-Tie Baler Operation Training PPM is to equip ROC Team Members and leaders with the knowledge and skills needed to safely and efficiently operate the auto-tie baler. This training aims to ensure proper startup, operation, and troubleshooting procedures. This reduces downtime and promotes a safe workplace.

TABLE OF CONTENTS

Required Tools and Materials

- ☐ Safety gloves
- ☐ Safety glasses
- ☐ Reflective vest
- ☐ Gaylords
- ☐ Cutters
- ☐ Daily Checklist
- ☐ Wire boxes
- ☐ Wire box lift equipment

GETTING STARTED

BEFORE YOU START:

1. Do not operate the baler without being trained and signed off

2. Do not operate the baler without completing the Daily Checklist.

   a. Daily Checklist is located on a clipboard on the threader.

   b. The checklist is turned into a Salvage Manager at the end of every shift. The Salvage Manager scans the document and its saved in an electronic file.

Auto Tie Baler Operation – Information Screen

System Pressure
When the baler is compressing a bale, the pressure used is being indicated here.

Tie Length
The length of the bale currently being processed

Bale Size
The standard setting for the size of bale we use is 73

Message Screen
Important operating messages

INFORMATION SCREEN -Whenever the baler is on, this screen is on.

STACK LIGHT

The Stack Light is above the Control Console. Each color stands for a different mode of operation.

WHITE- Indicates the baler has been started.

GREEN - Indicates the baler is running in automatic

BLUE - Indicates the baler is in the tie cycle

AMBER -Indicates the baler is in start-up mode OR has a fault and has stopped,

The light will pulse. If solid, it means the baler Is trying to be started, and the HAND-AUTO switch is

not in the HAND position.

HORN-Horn will blow whenever the amber light is on.
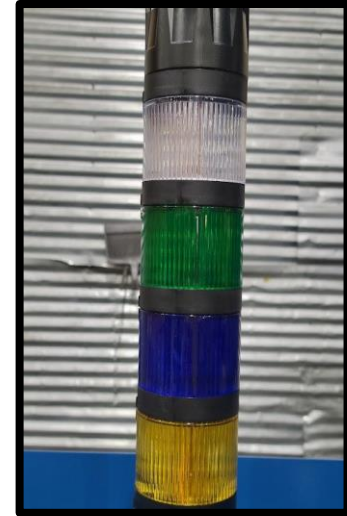
Control Console Key Exchange

1. **Baler On Position:**
    *   Correct positions for keys
    *   Red light is off

2. **Baler Off Position:**
    *   Correct positions for keys
    *   Red light will go on
    *   Baler will stop

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START Button
When pressed it will illuminate and the baler will go through its start-up sequence.

Stop Button
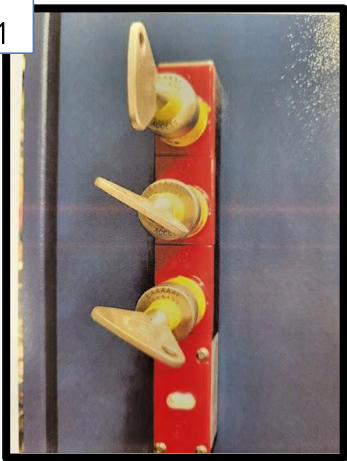When pressed the baler will stop and the motor will turn off.
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RESET Button
Used to reset the emergency stop relay and clear any faults that may have occurred. The HAND-AUTO switch must be in the HAND position to reset.

BALER ON/OFF

Used to lock the baler controls, when set to "off", the baler cannot be started. Stops unintended ops, but not a proper lockout/tag out.

MODE HAND/AUTO
When starting the baler, must be turned to HAND. Once the motors have started, you can switch to AUTO.

TENSION AUTO/DUMP

AUTO = Tension cylinder is controlled by the baler program based on HMI and pressure transducer.
DUMP = Used for a manual dump.

HIGH LEVEL OFF/ON
Used to enable ON, or disable OFF the high level function. See HMI.
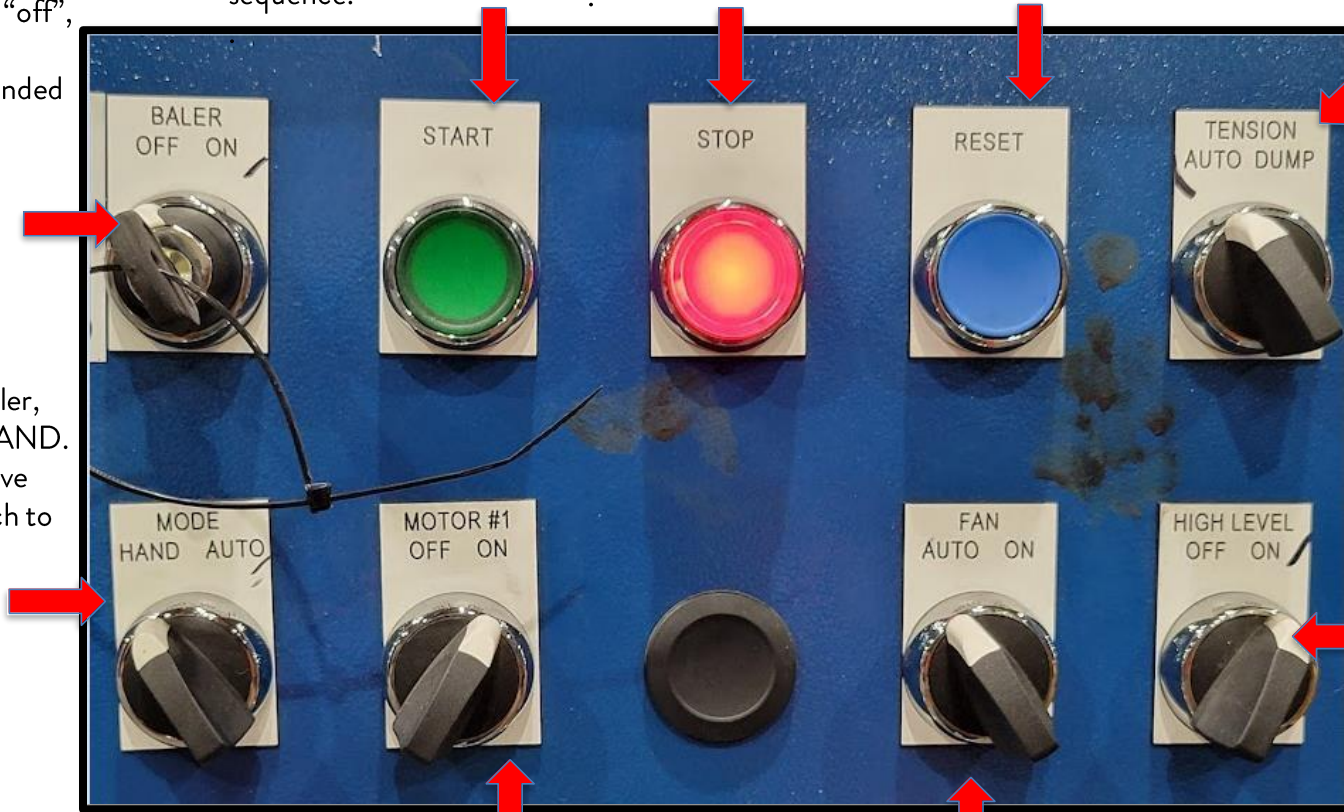
MOTOR #1 ON/OFF
Manual Start/Stop to the motor. The motor can be stopped in automatic mode, BUT the Mode switch must be in the HAND position. This button is typically left in the ON position.

FAN AUTO/ON
AUTO = heat exchanger is controlled by the oil temp. switch
ON = Fan will continually run while baler in operation.

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TIE CYCLE RESET:
In MANUAL hold along with PLUNGER ADV/CYC-the ram will advance to LS4 and pressurize the tier. In AUTO triggering cycle will cause the baler to tie the current bale.

NEEDLE: Advance (ADV) /Retract (RET)
Used in MANUAL cycle to advance or retract the *tier* needles.

TWIST: Forward/Release
Used in MANUAL cycle to advance or retract the *tie* twister.

In BOTH, you can cancel the tie cycle by pressing RESET button

PLUNGER: Advance (ADV) /Cycle Retract (CYC RES)
Used to MANUALLY run the baler:
ADV: Runs baler forward
RET: Runs baler backwards
Used in AUTO:
ADV/CYC will advance the baler one stroke

CONVEYOR Start-Stop:
1. The baler must be running with no faults to start the conveyor
2. When the baler has started, the switch will light up, indicating it is OK to start/stop at any time.

JOG CONVEYOR:
1. Used to manually run conveyor momentarily when the baler is on OR off
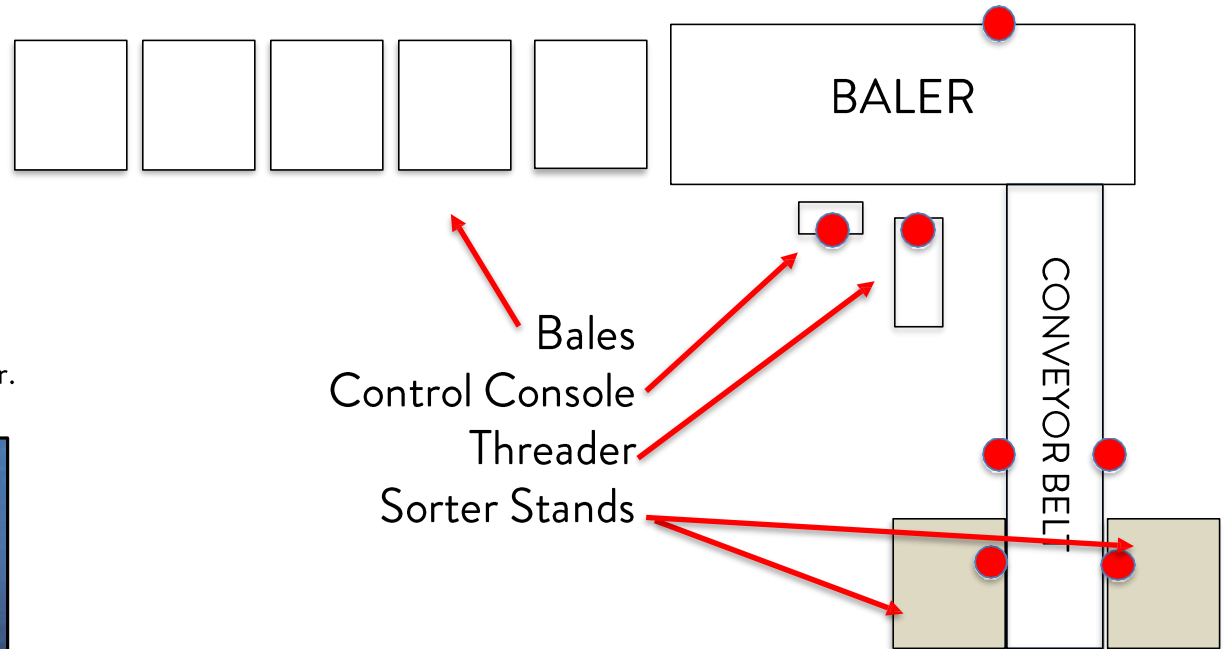2. Can be used to add material to hopper/bypass

EMERGENCY SHUT OFFS

There are a total of SEVEN Emergency Shut Offs.

🔴 Indicates locations of Emergency Shut Offs.

Pressing an Emergency s=Stop will immediately stop the baler and the motor.

BALER

CONVEYOR BELT

Bales
Control Console
Threader
Sorter Stands

ACTIVATE AND SHUT DOWN

Startup

Ensure <u>Key Exchange</u> keys are in the correct position.

1. Ensure <u>electrical power</u> is on (handle is up) (Pic #1)

2. Ensure the <u>Baler power toggle</u> switch is turned on (Pic #2)

3. <u>Baler on/off</u> switch, turn key to ON (Pic #3)

4. <u>Mode switch Hand/Auto</u>: Ensure in "Hand" position (Pic #4)

5. <u>Reset Button:</u> Press for a few seconds, release, press for a few more seconds until there are no red messages on the screen (Pic #5)

6. a. Press the start button until the stop button no longer lights up red (Pic #6 a/b). WAIT FOR THE **MOTOR TO TURN ON.**

7. Turn the <u>Mode Switch</u> to AUTO (Pic #4)

Shut down

1. <u>Baler on/off</u> switch, turn key to OFF (Pic #3)

2. Ensure the <u>Baler power toggle</u> switch is turned off (Pic #2)

3. Ensure <u>electrical power</u> is off (handle is down) (Pic #1)

SORTING

Auto-tie Operation

SAFETY NOTE: <u>DO NOT</u> add any type of step, box, or other item on top of either sorter stands to stand on.

While the Gaylord is being emptied, the following items need to be removed and placed in the correct Gaylord:

- Stuffed animals
- Shoes
- Hangers
- Plastic/plastic bags
- Other non-cloth items

One Gaylord will be located on each side of the platforms.


Example of removed items:

If the baler stops DURING THE TIE CYCLE (blue light is on), you need to stop the machine. Always check to see if the blue light is on. If it is, do not stop the Baler until it has finished the Tie Cycle.

1. Mode switch is in the **Hand** position (Pic #1)

2. Hold the **Plunger on Advance** for 5 seconds (Pic #2) until the tier pressurized is shown on the screen.

3. Hold the **Plunger and Tie Cycle** at the same time for 5 seconds OR until the baler stops making noise (Pic #2/3)

4. Hold the **Tie Cycle and Needle on Advance** until it stops (Pic #4). The needle retracts until it stops.

5. Hold the **Tie Cycle and Twist on Forward** until it stops (Pic #5 or 6)

6. Hold the **Tie Cycle and Twist on Reverse** until it stops (Pic #5 or 6)
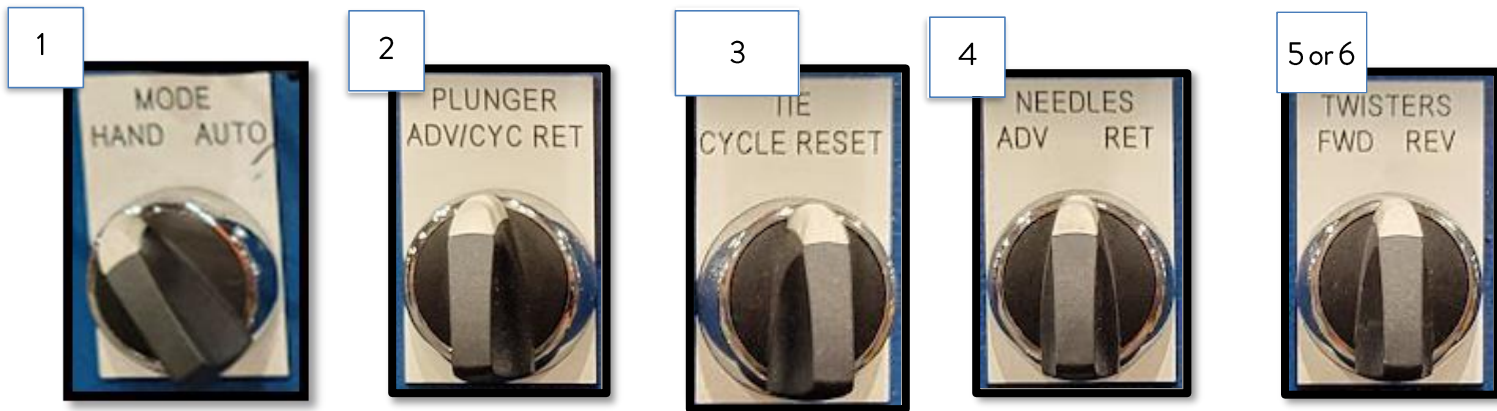
REMOVING BALES

1. Bales should <u>not be removed</u> until they reach the yellow pillar (see red arrow) Generally, 6 bales.

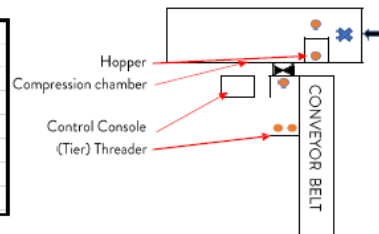2. The baling machine uses the weight of finished bales to compact the new bale.
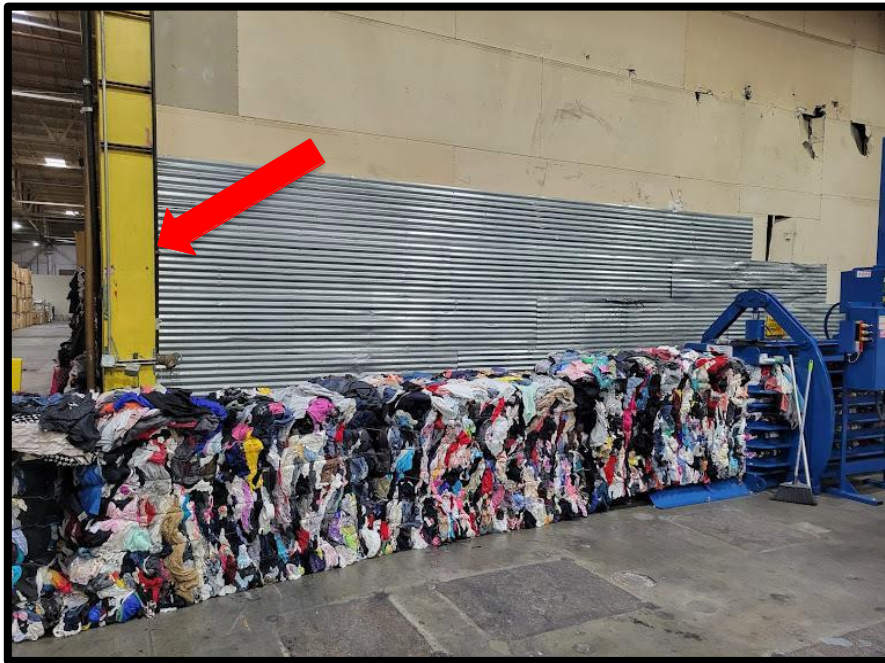
DAILY CHECKLIST

Auto Tie Baler Daily Check-Off List

Phoenix ROC ONLY

Date:

Maintenance Task	Clean Daily	Insp. Daily	Initials
Check infrared sensors (5) are lit	x		
Clean tier (Threader)	x		
Clean heat exchanger (top of the ATB)	x		
Clean loose material on floor, from behind the plunger, and on top of all machine surfaces	x		
Check hydraulic oil temp. If oil Temp exceeds 140 degrees, the machine will shut down		x	
Walk Around:			
Check oil level. If oil level is low, the machine will shut down		x	
Check for hydraulic oil leaks		x	
Check that all bale wire feeds are smooth and unrestricted		x	
Check Twister Hooks for wear and alignment		x	
Check oil filter indicator		x	

NOTES:

Infrared Sensors (5)	●
(2) Hopper windows	
(3) Tier (threader) inside, 1 south, 2 north	
Heat Exchange (Fans)	✖
On top of >>>>>>>>	
Twister Hooks	◄►
North/South side of compression chamber	
Oil Gauge & Check Oil Filter Indicator	◄

Hopper
Compression chamber
Control Console
(Tier) Threader

CONVEYOR BELT

Auto Tie Baler Check-Off Sheet   Revision 3   December 2024

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RUNNING A NEW BALE WIRE

1. Use the lift to handle the wire box safely.

2. Take out the cardboard circle from the top of the wire box.

3. Cut the small inner wires to open the box.

4. Place the wire box into its slot.

5. Make sure the opening of the box faces the tier.

6. Run the wire through the lobes and holes.

7. At the front, tie the wire around the pole two times.

8. At the back, tie the wire around the pole three times.

Problem: The needles didn't fully retract, often due to wires blocking their movement during the tie cycle.

1. Switch the machine to Hand Mode.

2. Hold the Tie Cycle and Plunger Advance buttons to pressurize the system.

3. Hold the Tie Cycle and Needles Retract buttons until the needles move back and reach the sensor.

4. Hold the Tie Cycle and Twisters Forward buttons until the motion stops.

5. Hold the Tie Cycle and Twisters Reverse buttons until the motion stops completely.

6. This process will reset the count to zero. Afterward, switch the machine back to Auto Mode.
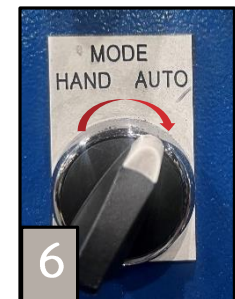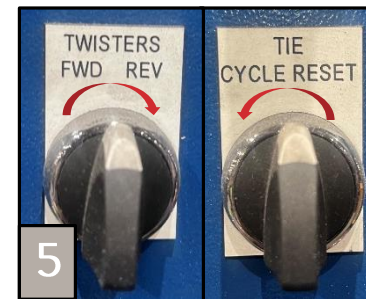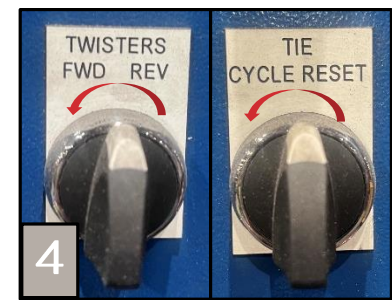
Problem: The twisters didn't fully reset, and the sensors in the front of the tier show an error.

1. Hold the Tie Cycle and Plunger Advance buttons to pressurize the system.

2. Hold the Twisters Reverse button to cut the wire and reset the length to zero.

3. If the wires are too tangled for the machine to handle, you can either cut the wires from the outside manually or tie them manually.

4. Once everything is reset, put the machine back into Auto Mode.

If the bale length isn't changing on the screen, the counting gear might be clogged. Here's how to fix it:

1. Turn off the machine for safety.

2. Go to the back of the machine and find the counting gear.

3. Pull up on the gear. It's attached to a spring, so you might feel some resistance. Clean out any debris or clogs stuck in the gear.

4. After cleaning, push the assembly back so it sits against the bale.

5. Once you've done this, turn the machine back on and check if it's working properly.

Problem: The needles are not moving, which could be caused by tangled wire, a loose motor, or a broken chain.

1. Inspect the hooks for tangled wire. If the wire is tangled, remove it and re-thread it correctly.

2. Check if the motor is loose and tighten the motor if needed.

3. Check if the chain is broken. If it is, attempt to fix it or call Tower for support, specifically Erin, at 602-292-6518 or via email at erinsports@towercompactors.com.

4. After fixing any issue, test the needles to ensure they move correctly.
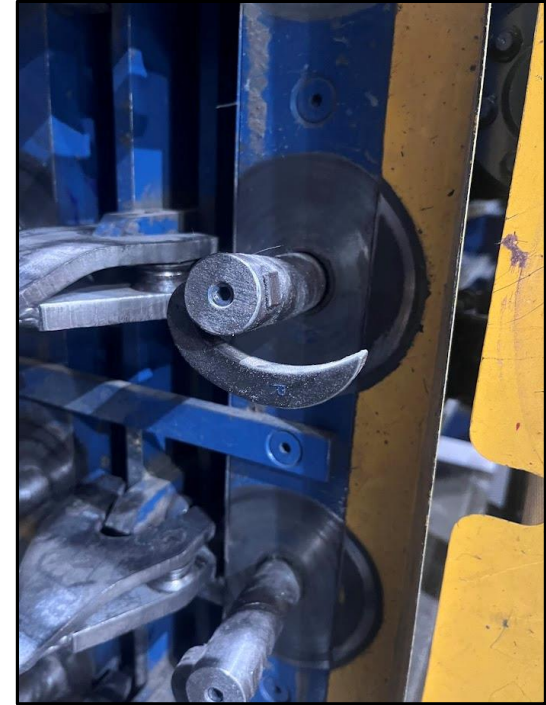
IMPORTANT NOTE:

If you need further troubleshooting, contact Olympic (David) at 310-779-7083 or by email at dd@olympicequipment.com or mp@olympicequipment.com.