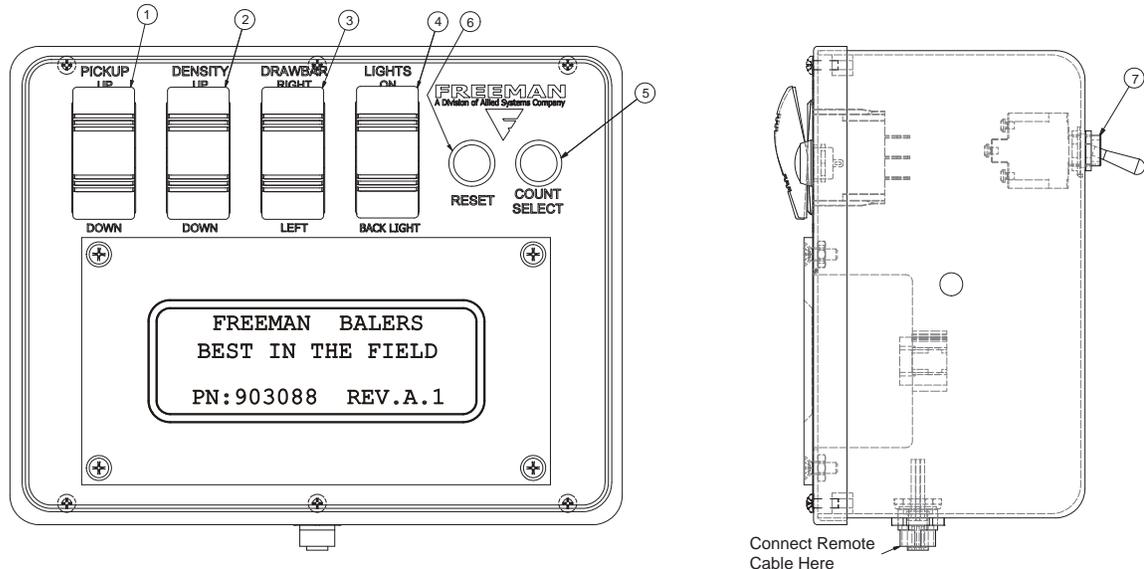


# Freeman 380/385 Hydro PTO Operator Controls and Baler Connection Instructions

The following pages detail how to connect and use the controls on your Hydro PTO Baler. Please consult Operators manual PB00000102 for more information, including SAFETY.



## Main Controls

Figure 1 - Baler Control Box

1. PICKUP switch controls the pickup for raising and lowering. Push UP for the pickup to raise and DOWN for the pickup to lower. Refer to Pickup Adjustment on page 17 of your Operator's Manual PB00000102.

2. DENSITY The density switch controls the amount of pressure applied to the cylinders in the tension rail system. When the cylinder pressure is increased it increases the amount of force the tension rails apply to the bales. This increase in force raises the friction between the bale material and the tension rails which requires more compacting force to move the bale through the chamber. The increase in compacting force increases the density of the bale by putting more material into the same volume.

The hydraulic force or "density" applied to the tension system is displayed as a percentage of the system pressure. See figure 18 on page 9 for an example. The typical system pressure ranges

from 0 psi at 0% to 2100 psi at 100% of the density setting. The system pressure can be read from the Tension System Gauge (see Figure 2 page 3) located on the front of the baler.

The type of material, moisture content and other factors will often change how the density setting affects the amount of compacting force required to push the bale through the chamber. Drier materials like Straw and some types of grasses may require more pressure than is possible at the 100% density setting. If this is the case chamber restrictor wedges can be installed. These wedges are designed to further compact the material without the necessity to increase the density setting. However, the installation of wedges may require the Operator to reduce the density setting to maintain the appropriate weight. Please contact your Freeman representative for more information on these and other products.

3. DRAWBAR switch controls the movement of the drawbar from left to right. Having the drawbar in

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the far right position is best for towing down the road. Having the drawbar in the far left position is best for baling. Push RIGHT to move the drawbar right and LEFT to move it left. Refer to Drawbar Adjustment on page 17 of your Operator's Manual PB00000102.

4. LIGHTS switch controls work lights. Push ON to turn the work lights on. Push BACKLIGHT once to toggle the switch to center position to turn lights off. Push BACKLIGHT to change brightness of control box screen.

5. COUNT/SELECT button controls field selection and main menu. There are 10 field counts available with your monitor (see Figure 18 page 9). Pushing the count select button will move you from bale count Field 1 through Field 10 while in the bale screen. Push the COUNT/SELECT button for 2 second to access the main menu. While in the main menu, press COUNT/SELECT to toggle through the menu options.

6. RESET controls main menu options and resets bale count in the bale screen. Pushing RESET for 1.5 seconds while in the baling screen (see Figure 18 page 9) will reset the bale count of current field. Pushing RESET when in the main menu (see Figure 12 page 10) will execute the option displayed on the bottom of the screen. Pushing and holding RESET when the Start-Up screen is displayed will prompt the Max Tension Pressure screen.

7. BALER POWER SWITCH turns on baler when vehicle power switch is on. Toggle UP to turn baler power on. Toggle DOWN to turn baler power off.

## Baler Control Panel

1. LIGHTS switch controls work lights. Toggle up to turn lights on. Toggle down to turn lights off.

2. TIME OF USE COUNTER keeps track of how much time the baler has been in operation. This counter cannot be reset (Discontinued on 2008 models. This feature (Life Machine Hours) was added to the DVC program which can be accessed by the remote controller).

3. RESTRICTION RAILS switch opens the restriction rails for easy clean out. Toggle the switch to OPEN for opening the restriction rails. Toggle the switch to RUN for baling.

4. DVC10 system (see Figure 3) is connected under the baler control panel. The DVC10 system is the master controller for the hydraulic system. This DVC10 system should be adjusted by your local Freeman dealer only. There are LED indicator lights on the DVC10 system for trouble shooting (see page 7). Flashing NS or MS LEDs on DVC10 modules indicates service issues. Your dealer service department may be able to determine if there is a service issue just by letting them know which lights are flashing. The most common problems are communication settings.

5. REMOTE CONNECTOR connect communication cable from remote connector to remote box (see Figure 1).

6. TENSION SYSTEM GAUGE

7. TEMPERATURE GAUGE

8. BALER POWER cord should be connected to the vehicles battery. Connect the wire with fuse box in it to positive terminal and the second wire to ground.

9. DIAGNOSTIC PLUG on the machine's external wiring harness.

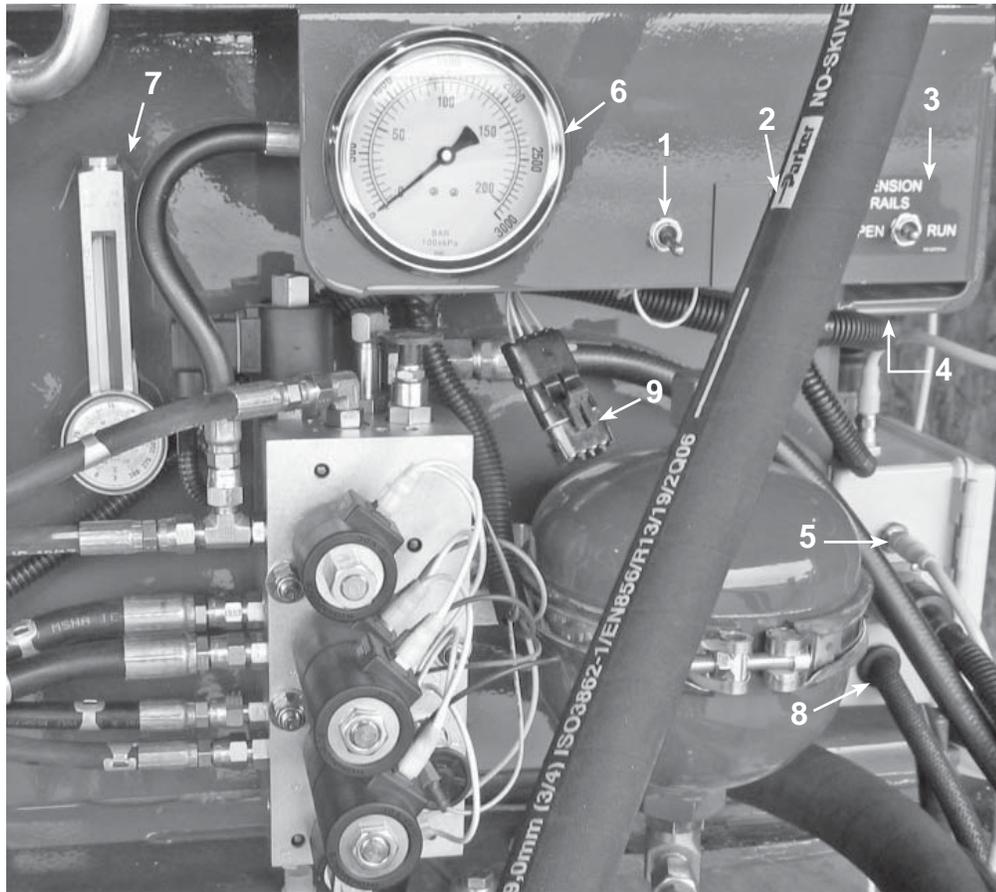


Figure 2 - Baler Control Panel

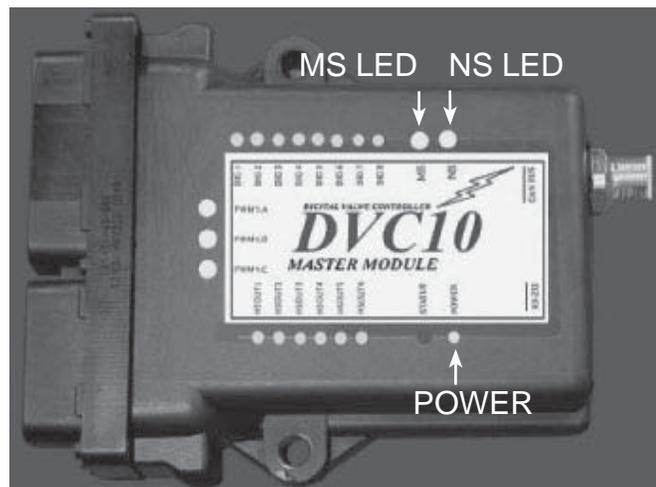


Figure 3 - DVC10 Module

## Connecting to Baler

1. Connect ball to tractor and torque nut at 920 ft-lbs. wet.

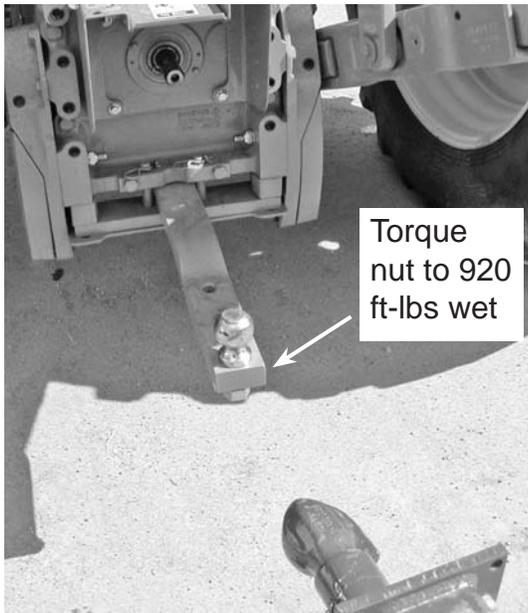


Figure 4 - Secure Ball to tractor

2. The center of the ball should be approximately 16" from the power take-off and the top of the ball 19.5" from the ground.

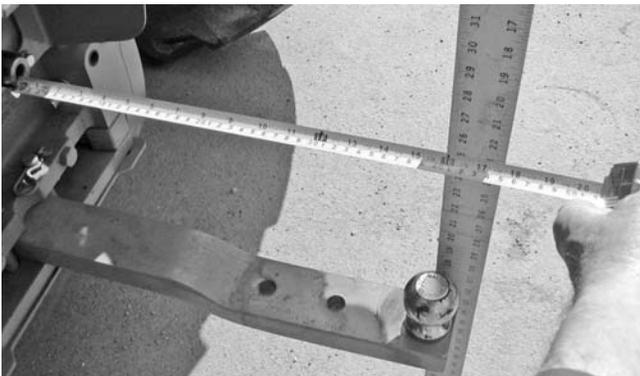


Figure 5 - Tractor Ball

3. Place a level on top of the bale chamber (see Figure 6) and adjust the drawbar jack up or down until the chamber is level to the ground (see Figure 7). Adjust the hitch (loosen and re-tighten the nuts and bolts torque nuts to 75 ft-lbs.) up or down so it is level with the ball (see Figure 7). It is always better to have the feed opening higher if the baler isn't level.



Figure 6 - Bale Chamber Level to Ground

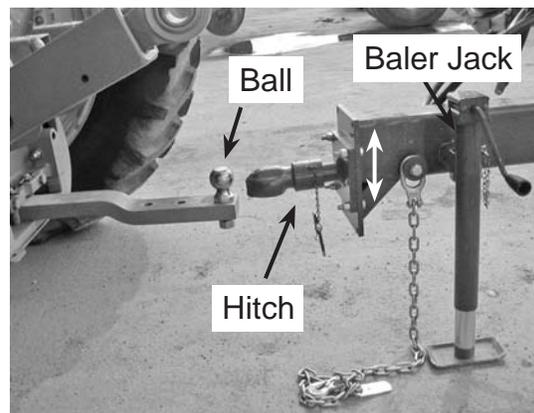


Figure 7 - Hitch Adjustment

4. Connect hitch to tractor ball and drawbar safety chain to tractor. Connect the pump - gearbox and safety chain (see figure 8)

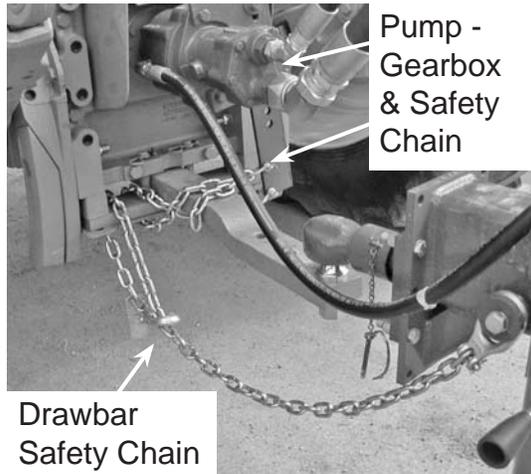


Figure 8 - Connect Hitch, Pump-Gearbox and Safety Chains

5. Connect the 2 hoses from the baler to tractor. Connect the pressure hose, top hose on the baler to the power cylinder extend port on the tractor (see Figure 9 and 10).

The middle hose is the tank return line on the baler and should not receive more than 25 psi of back pressure from the tractor when connected (see Figure 9 and 10). Connect the tank return line to the return cylinder retract port on tractor.

Caution: Do Not Hook Hoses Up Backwards. When operating the baler, put the Selective Control Valve lever in the cylinder extend position.

Oil supplied to the baler must meet Oil Class 18/15 Cleanliness. Minimum flow required: 5 GPM at 2500 PSI.

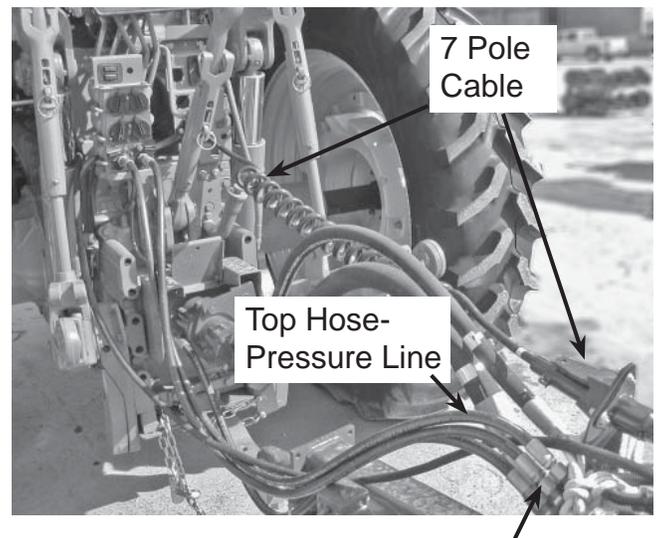


Figure 9 - Hose and 7-Pole Cable Connection

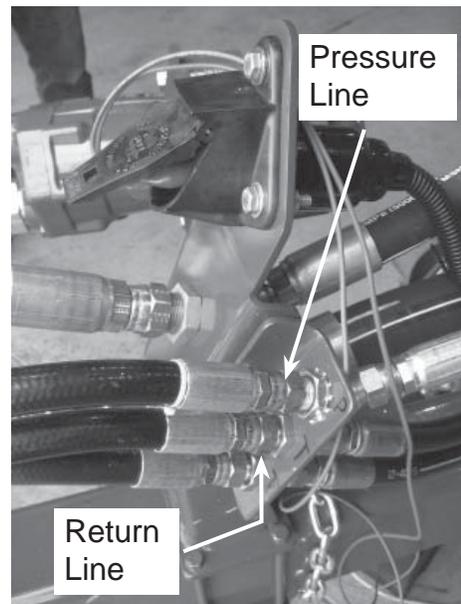
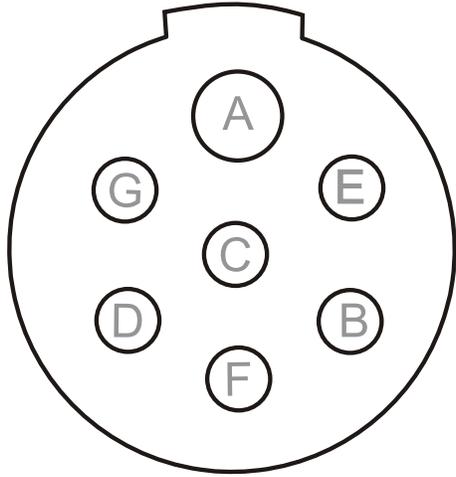


Figure 10 - Hoses



PIN	WIRE/GA.	FUNCTION
A	WHT 12	GROUND
B	GRN 16	RIGHT TURN
C	BLU 12	+ 12V
D	YEL 16	LEFT TURN
E	BRN 16	TAIL LIGHTS
F	RED 16	BRAKE LIGHTS
G	BLK	NOT USED

Figure 11 - 7 Post Connector on drawbar.

6. Above is the 7 pole power supply and lights connector on the drawbar. Verify that there are 12 volts DC on post "C" (see Figure 11) during tractor operation. If power is not constant at post "C," contact your tractor dealer.

Connect 7 pole cable from baler to tractor (see Figure 9 page 5).

7. Place or mount the DVC10 Controller in the cab where it won't obstruct your ability to drive the vehicle safely.



Figure 12 - 7 Baler Control Box

8. Connect DVC 10 cable to junction box to DVC 10 controller in the cab (see figure 12 and 13) Connect battery loom wires to battery on tractor. The wire with fuse is always positive.

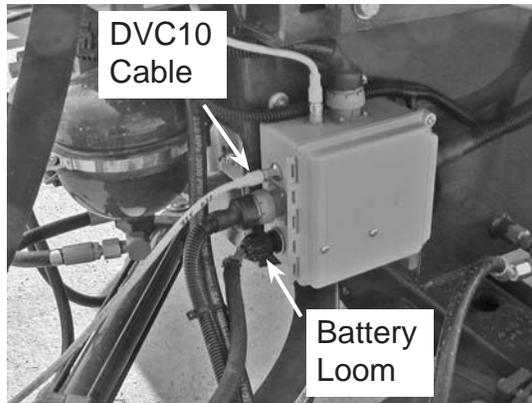


Figure 13 - DVC10 Cable and Battery Loom

## DVC10

DVC10 module is located under the control panel on the front of the baler. The DVC system is the master controller for the hydraulic system, bale count and stroke count. This DVC system should be adjusted by your local Freeman dealer only. There are LED indicator lights on the DVC system for trouble shooting (see Figure 14). Flashing NS or MS LEDs on DVC modules indicates service issues. Your dealer's service department may be able to determine if there is a service issue just by letting them know which lights are flashing. The most common problems are communication settings.

P/N 903088 REV.A.1 should be the current program loaded in your DVC10. The 903088 REV.A.1 should be displayed on the start up screen of the remote controller (see Figure 15 page 9). Program 903088 REV.A.1 will run these features: 10 different fields, bale count in each field, total bale count, strokes per bale, density, life machine hours, life baling hours, life bale count and sensor troubleshooting.

Note: If any solenoids are disconnected on the main valve, the DVC10 will detect an open circuit and will not operate these valves after being reconnected until the DVC10 power is cycled.

Proximity sensor on Bull Gears should be adjusted between 1/16" and 1/8" from target and Knotter sensor should be adjusted between 3/16" and 1/4" from target.

Properly working sensors must provide a signal back to the DVC10. If there is not a light indicating operation on the DVC10 body, this can be checked most easily at the terminal block. The bull gear and knotter sensors both provide a 12v signal to the DVC10 while the oil sender is a 0-5v signal.

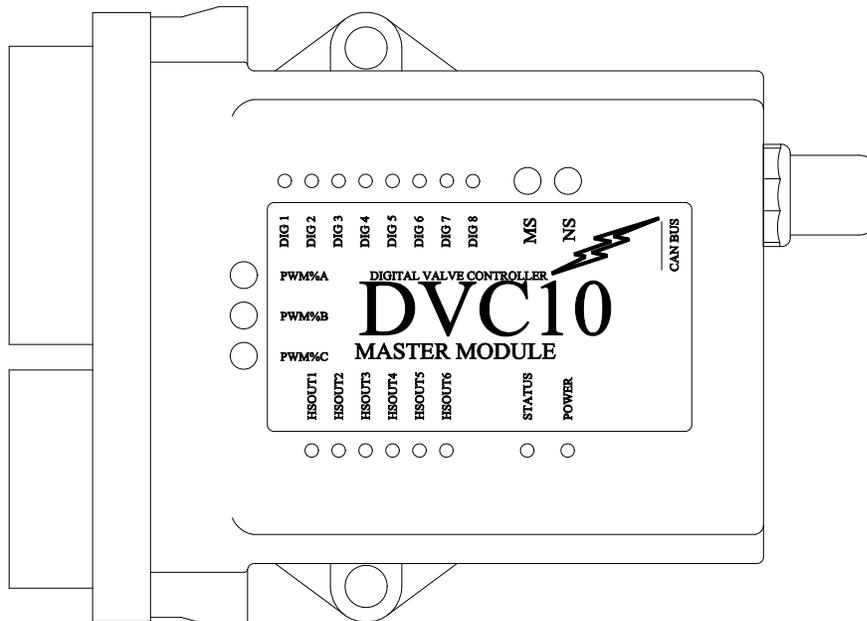


Figure 14 - DVC-10

## DVC-10 Continued

LED	Function	Normal (Powered) Condition
MS	Module Status	Lit (green) after power-up. While downloading a program to the module, MS and NS LED's will flash in an alternating fashion.
NS	Network Status	Lit or flashing after power-up. While downloading a program to the module, MS and NS LED's will flash in an alternating fashion.
DIG1	Light Switch	On when baler light switch is on.
DIG2	Not Used	N/A
DIG3	Not Used	N/A
DIG4	Not Used	N/A
DIG5	Not Used	N/A
DIG6	Not Used	N/A
DIG7	Not Used	N/A
DIG8	Not Used	N/A
PWM%A	Density	0 to 100% Red to Green
PWM%B	Not Used	N/A
PWM%C	Not Used	N/A
HSOUT1	Pickup UP	Green light on.
HSOUT2	Pickup DOWN	Green light on.
HSOUT3	Drawbar RIGHT	Green light on.
HSOUT4	Drawbar LEFT	Green light on.
HSOUT5	Lights	Green light on.
HSOUT6	Not Used	N/A
STATUS	Not Used	N/A
POWER	Power Indicator	Lit after power-up

HS1 – HS 8 are all outputs. If one of these is slowly blinking, there is an open circuit to that output. If it is blinking rapidly, there is a short circuit to that output. Under normal trouble-free operation the LED will either be on or off. If it is on, that output is active, and if the LED is off, the output is inactive.

Dig 1 – Dig 8. These show the state of the digital inputs. If the LED is on, the DVC is receiving a signal from the input. If the LED is not on, there is no signal from the input.

The three LEDs labeled PWM%-A – PWM%-B – PWM%-C change color based on how much current is being pushed through that output. If there is no light, the output is currently not in use. If the light is fully green, the DVC 10 is driving full current through that output. If it is fully red, it is driving minimum or no current through the output. When driving current between min and max, the color will change from bright red (minimum) to lighter red to orange to light green to bright green (maximum). When driving from maximum to minimum, it does the opposite. If one of these LED's is blinking red, there is a short circuit on that output. If it is blinking green, there is an open circuit to the output.

The power LED will flash if there is too much voltage being delivered to the unit. If there is no light at the power LED or it is blinking erratically, there is not enough voltage to power it up, or it has shut down due to too much voltage. In normal operation, this light should be steadily on.

**MONITOR MESSAGES**

**Start-up Screen**

The startup screen will display for approximately 3 seconds when there is power to the baler.

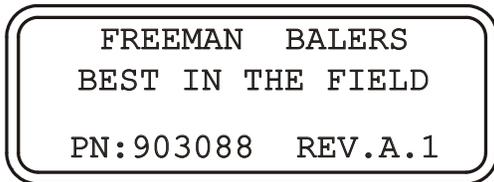


Figure 15 - Startup Screen

**Dealer Screen**

The dealer screen displays after the start-up screen and stays on for approximately 3 seconds.

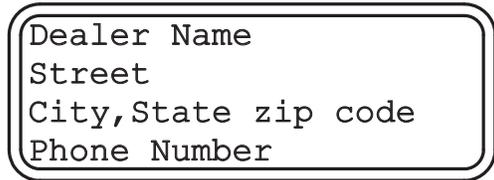


Figure 16 - Local Dealer

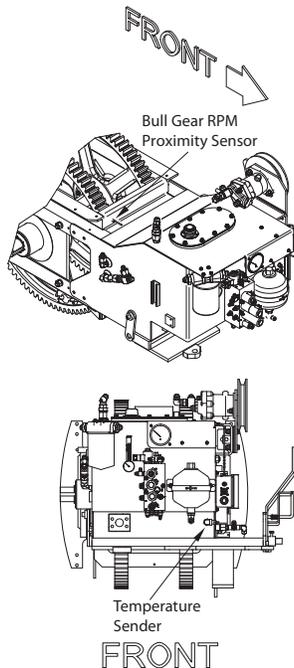


Figure 17 - STROKES/BALE Proximity Sensor

**Baling Screen**

The baling screen displays right after the dealer screen and stays on until the power is turned off.

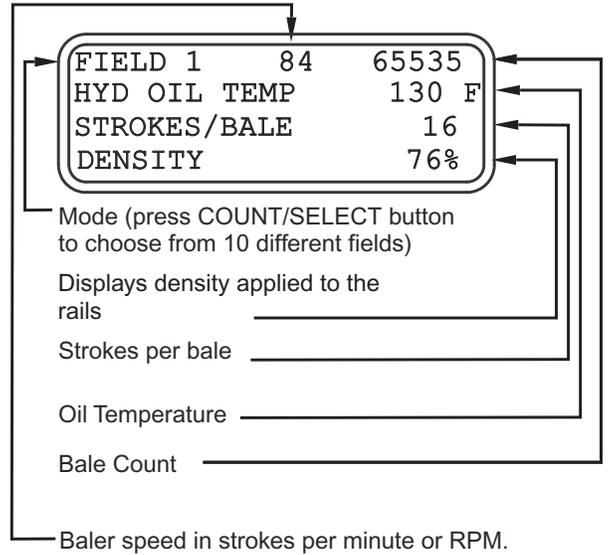


Figure 18 - Baling Screen

The ten fields/bale counts are toggled using the COUNT/SELECT button (see Figure 1 on page 1) and record the number of bales in the displayed field. Each bale count may be reset by holding down the RESET button for 1.5 seconds.

The bale counts are saved to memory every time a bale is counted. The top center number is the baler speed in plunger strokes per minute or RPM. It receives its signal from the proximity sensor (see Figure 17) on the bull gear and reads RPM. This same sensor is used by the DVC10 to count strokes per bale. STROKES/BALE will display 0 or the last bale stroke count. After the knotter cycles, the last STROKES/BALE number is displayed until the knotter cycles again.

HYD OIL TEMP (see Figure 17 page 9) receives its signal from the temperature sender on the LH side of the tank . The sender is a variable resistor to ground. It has two wires connected to it: one is a 5v power supply through a 1k ohm resistor from the DVC10, and the other is the sending unit input to the DVC10. Cold oil results in higher resistance, which means the DVC10 will see a higher voltage (closer to 5v). Hot oil will lower the resistance, allowing current to run to ground and resulting in a lower voltage to the DVC10. The hot oil will flash on and off when the hydraulic oil reaches 180° F. It will continue to flash until the oil has cooled down or power to the baler is tuned off.

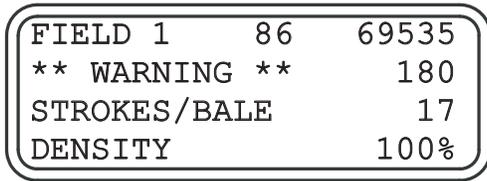


Figure 19 - Oil Temperature Warning Flashing in Bale Screen

Density represents the percentage that the density valve is open. 0% represents 0 psi and 100% allows maximum system pressure to the restriction rails.

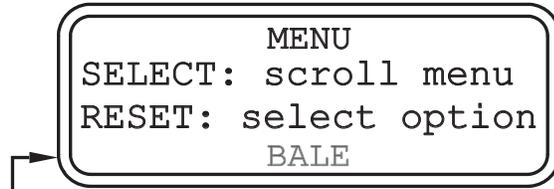
## Main Menu Screen

The menu screen can be accessed from the bailing screen only by pushing and holding down on the COUNT/SELECT button for approximately 2 seconds (see Figure 1 on page 1).

When in the menu screen, push the COUNT/SELECT button to toggle through the following screens:

- High Temperature Adjustment (see Figure 21)
- Sensor Trouble Shooting (see Figure 22)
- Dealer (see Figure 16)
- Temp Calibration Instructions (see Figure 23)
- Temp Calibration Screen (see Figure 24)
- Life Machine Hours (see Figure 25)
- Life Baling Hours (see Figure 26)
- Life Bale Count (see Figure 27)
- Bale (see Figure 18)

Push the RESET button to display the screen of choice for making adjustments.



Toggle menu selections will display here.

Figure 20 - Main Menu

## High Temperature Adjustment Screen

The high temperature warning can be adjusted by pushing RESET quickly for up and COUNT/SELECT for down. Push and hold RESET to save and exit the screen. Warning will signal on the bale screen when your preset temperature is exceeded (see Figure 18 & 19).

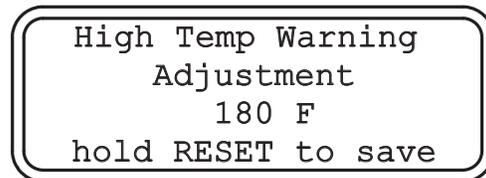


Figure 21 - High Temperature Adjustment

## Sensor Troubleshooting Screen

The sensor screen is accessed through the menu options. This screen displays the DVC10 inputs. "Tooth #" is the bull gear tooth counter and maybe reset by pressing the "reset" button. To exit the test screen, hold down on the "count" button.

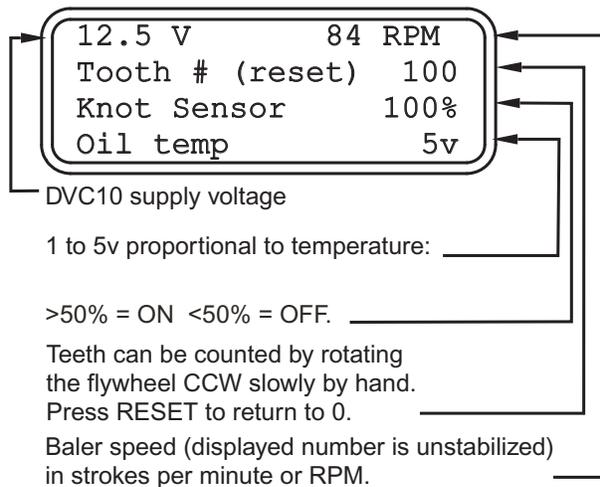


Figure 22 - Sensor Screen

## Temperature Calibration Instruction Screen

The temperature calibration instruction screen (see Figure 23 ) will display for 3 seconds when selected then change to the temperature calibration screen (see Figure 24).

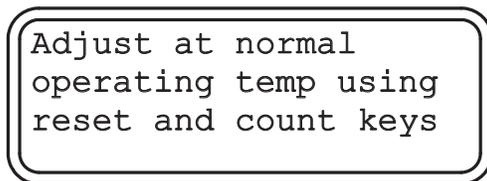


Figure 23 - Temperature Calibration Instructions

Use the oil temperature calibration screen for setting your monitor oil temperature reading so its the same as the oil temperature reading on the baler. The baler must be ran for at least 20 minutes so the oil is at normal operating tempera-

ture. For best accuracy, baler should be as hot as possible (few hours of baling) when calibrating. Your oil temperature will display on the baling and calibration screens on your monitor and on your temperature gauge on the front of the baler (see Figure 2 page 3).

Lowering the temperature multiplier number (see Figure 24) will lower the temperature reading on your monitor. Pressing RESET quickly will lower the temperature multiplier number. Pressing and holding down on RESET will return the temperature multiplier number to default.

Raising the temperature multiplier number will raise the temperature reading on your monitor. Pressing COUNT/SELECT quickly will raise the temperature multiplier number. Pressing and holding COUNT/SELECT will exit the screen.

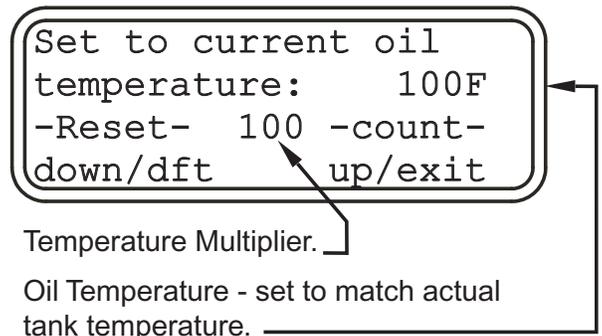


Figure 24 - Temperature Calibration

## Life Machine Hours Screen

The life machine hours screen displays total hours the baler has been turned on.

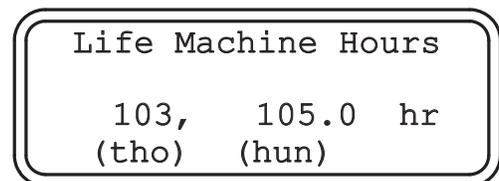
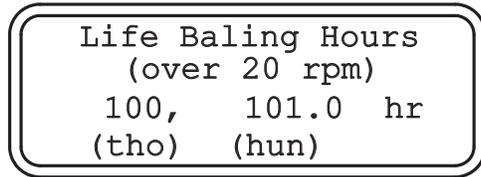


Figure 25 - Life Machine Hours

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## Life Baling Hours Screen

The life baling hours screen displays total hours of baling over 20 RPM.

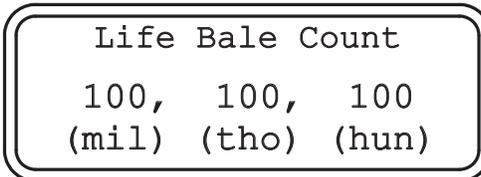


```
Life Baling Hours
(over 20 rpm)
100, 101.0 hr
(tho) (hun)
```

Figure 26 - Life Baling Hours

## Life Bale Count Screen

The life bale count screen displays the total bales the baler has baled.



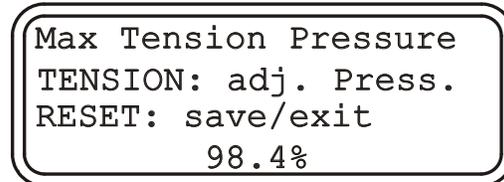
```
Life Bale Count
100, 100, 100
(mil) (tho) (hun)
```

Figure 27 - Life Bale Count

## Setting Maximum Tension Pressure:

Cycle baler power off and on.

Hold "RESET" in the Freeman startup screen until the "Max Tension Pressure" adjustment screen displays:



```
Max Tension Pressure
TENSION: adj. Press.
RESET: save/exit
98.4%
```

Figure - 28 Tension Adjustment Screen

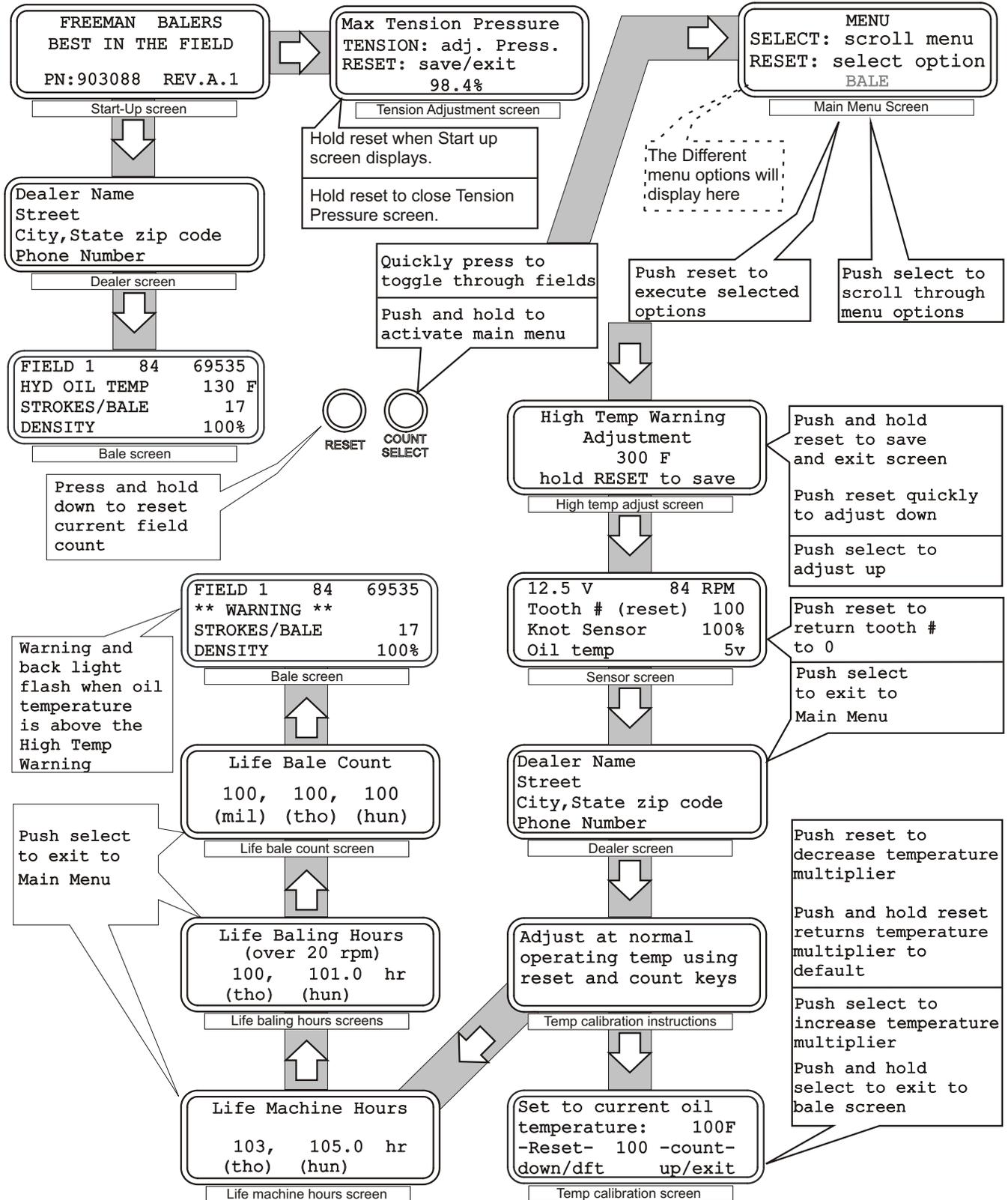
Use the "DENSITY" rocker switch to adjust the gauge pressure to the maximum allowable tension pressure 2100 psi. If during adjustment the tension pressure goes above 2100 psi, reduce the tension pressure below 2100 psi using the rocker switch and then slowly approach 2100 psi without exceeding this pressure.

Hold "RESET" to save pressure cap and exit.

In the "BALE" screen, the tension pressure will go up to 100% but only put out the pre-set pressure cap.

Please contact Allied Systems service department if more then the allowable pressure is needed.

# Quick Reference Guide





To find a dealer in your area,  
Call: 503-625-2560,  
Fax: 503-625-7269, or

Visit our website: <http://www.alliedsystems.com>

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