Freeman 280/285/380/385 Hydro Baler ICM Controls

The following pages detail how to use 280/285/380/385 ICM (In Cab Monitor) controls. Read entire manual before operating baler. Consult operators manual PB00000102 for more information, including SAFETY.

Applicable for balers built in 2016 and before.

SAFETY SUMMARY

Obey the following cautions and warnings before using your machine to avoid equipment damage, personal injury or death.

GENERAL SAFETY NOTICES

The following pages contain general safety warnings which supplement warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is dangerous. You must thoroughly review and understand the Safety Summary before attempting to operate, troubleshoot or service this baler.

The following symbols/terms are used to emphasize safety precautions and notices in this manual:

⚠ DANGER

The "DANGER" symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. Carefully read the messages that follows to prevent serious injury or death.

⚠ WARNING

The "WARNING" symbol appears wherever incorrect operating procedures or practices could cause death or serious injury. Carefully read the message that follows to prevent serious injury or death.

⚠ CAUTION

The "CAUTION" symbol appears wherever a hazardous situation which, if not avoided, could result in minor to moderate injury and equipment damage.

NOTICE

This signal word alerts to a situation that is not related to personal injury but may cause equipment damage.

NOTE:...

The term "NOTE" highlights operating procedures or practices that may improve equipment reliability and/or personnel performance.

NOTE: All possible safety hazards cannot be foreseen so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.

SAFETY

Allied Systems Co. is concerned with safety. Freeman Equipment is furnished with safety features. Even with these safety features, personal injury can still occur if the operator is careless when operating or maintaining the machine. There are “CAUTION,” “DANGER,” and “BE CAREFUL” decals on the machine. Read and pay attention to the decals. Following is a list of precautions that should be taken to help prevent personal injury:

1. Keep All Shields In Place.
2. Shut Off Tractor Engine Before Adjusting, Lubricating, Cleaning Or Servicing The Baler.
3. Wait For All Movement To Stop Before Servicing Baler.
4. Keep Hands, Feet, And Clothing Away From Power Driven Parts.
5. Keep All Shields Installed And Keep Clear Of The P.T.O. Drive Line.
6. Keep All Others Off Baler.
7. Make Certain Everyone Is Clear Of Baler Before Engaging P.T.O.
8. Do Not Ride On Any Part Of The Baler While In Operation.
9. Keep Hands And Feet Clear Of Pickup.
10. Keep Hands Away From Knotter When Baler P.T.O. Drive Is Engaged.
11. Periodically Check All Nuts And Bolts For Tightness.
12. Always Use Lights For Night Work.
13. As A Safety Precaution It Is Recommended That An “Abc” Fire Extinguisher Be Carried On The Baler At All Times. It Is Also Recommended To Carry A Four Gallon Water Container With Pump, Or As Required By Local And State Law.
14. Avoid Loose Clothing Which Can Easily Be Caught In Moving Parts.
15. Remember ‘Safety’ Is Only A Word Until It Is Put Into Practice.

Be aware of the hazards of pressurized hydraulics:

» Wear personal protective equipment, such as gloves and safety glasses, whenever servicing or checking a hydraulic system.

» Assume that all hydraulic hoses and components are pressurized. Relieve all hydraulic pressure before disconnecting any hydraulic line.

» Never try to stop or check for a hydraulic leak with any part of your body; use a piece of cardboard to check for hydraulic leaks.

» Small hydraulic hose leaks are extremely dangerous, and can inject hydraulic oil under the skin, even through gloves.

» Infection and gangrene are possible when hydraulic oil penetrates the skin. See a doctor immediately to prevent loss of limb or death.

WARNING: Some illustrations in this parts list show the baler without shields to allow for a better view of the area being addressed. The baler should never be operated with any of the safety shields removed.

REVISION HISTORY

Revision	Date	Description	Page
Initial Release	6/2009		
Rev. A	5/2010	Updated Sections: 1. Safety Summary 2. Factory Default Machine Sensor Settings Table 3. ICM Precautions	 ii-iii 18 21-22

ALPHABETICAL INDEX

BALE SCREEN

⚠ WARNING

Make certain everyone is clear of the baler before engaging PTO or operating baler.

The ICM system will turn on with the combination of tractor key switch and MD3 screen toggle switch (See Item 27) above. When turned on, the MD3 screen will quickly display a start-up screen and then continue to the last menu screen displayed when the unit was shut down. The main bale screen may always be reached by pressing the BACK ARROW button (←).

F1 1. WINDROW Press F1 to start and stop the windrow. If it reads "Start", pressing F1 will lower the pickup for a preset amount of time. If it reads "End", pressing F1 will end the windrow by raising the pickup. The Pickup timer can be adjusted in the Preference 5 screen (see page 12). Pressing F2 (Pickup) or F3 (Tension) will not override F1 (Windrow) functions.

F2 2. PICKUP Press F2 to activate control of the Pickup. Use the UP/DOWN buttons to raise and lower the pickup (Accessed only in BALE SCREEN). Press and hold F2 to turn on and off Work Lights.

F3 3. TENSION Press F3 to activate control of tension pressure . Use the UP/DOWN buttons to raise and lower the tension (Accessed only in BALE SCREEN).

F4 4. DRAWBAR Press to activate control of the Drawbar. Use the UP/DOWN buttons to move the Drawbar right UP button and left DOWN button (Accessed only in BALE SCREEN). Press and hold F4 to toggle Normal Operation/ Stop (See Item 10).

BALE SCREEN

5. BACK ARROW button Press the back arrow button to access the Functions screen for quick access to Tension Rails, Oil Cooler Fan and Knotter Fan adjustments. Press the back arrow button again to return to the Bale screen.

6. MENU button Press to access Main screen. The main screen displays: Adjust, Measure, Preferences and Info.

7. PICKUP Indicator Light Pickup is active and can be adjusted when Pickup Indicator light is illuminated.

8. TENSION (%) Displays the current Duty Cycle of the tension Valve.

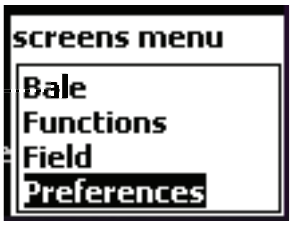
9. DRAWBAR Indicator Light Drawbar is active and can be adjusted when Drawbar Indicator light is illuminated.

10. NORMAL OPERATION/STOP Indicator Lights Baler is in normal operational mode when the blue check mark is illuminated. A red STOP will illuminate when the Control Output Disable button (See Figure 1 Page 3) on the baler has been pressed and when the baler is powered on. Control Output Disable button cuts power to all ICM outputs. Press and hold F4 button to return baler to normal operation mode.

	Normal Operation
	Cuts power to all ICM outputs

11. UP/DOWN Button For navigating and adjusting settings.

12. SCREENS MENU Press OK button to access the Screens Menu. The Screens Menu can be used to navigate to Bale screen, Functions screen, Field screen and Preferences screen (see below). Use the UP/DOWN arrows for navigation and press OK to select the screen.



13. RPM Strokes Per Minute

14. BALE COUNT Bale count of the current field. The bale count can be reset in the Field screen (See Page 6).

15. STROKES/BALE Displays the strokes of the last bale made.

16. SNAIL/RABBIT See FLAKE VARIANCE BAR.

17. WORK LIGHTS The indicator will illuminate when Work Lights are on.

18. FLAKE VARIANCE BAR The upper part of the indicator will display green and a Rabbit will illuminate when there are too many flakes per bale and ground speed should be increased. The lower part of the indicator will display red and a Snail will illuminate when there are not enough flakes and ground speed should be decreased (see Flake Goal Window Chart on page 20).

19. CLOCK The time can be adjusted by navigating to the Preferences screen. Press the MENU button, F3 for Preferences, F2 for Date/Time and F2 for Time. Use the UP/DOWN arrows for adjusting and OK button when done.

20. PROPORTIONAL FLAKE COUNT This bar indicator will fill as Flake Goal is being achieved. For optimum bale weight and shape, the baler should make a bale with 14 to 16 strokes per bale. The bar automatically calibrates so that the flake goal is reached at the midpoint of the Flake Variance Bar. Flake Goal can be adjusted in Preference 2 screen (See Page 9).

BALE SCREEN

21. OIL COOLER FAN The fan can be set to AUTO, OFF and ON (See Page 5). In AUTO the indicator will turn on and off when the hydraulic oil has reached a preset temperature which can be adjusted in the Preference 4 screen (see page 11).

22. HOT OIL Indicator The indicator will illuminate when the hydraulic oil has reached a preset temperature which can be adjusted in the Preference 3 screen (see page 10).

23. KNOTTER FAN The fan can be set to AUTO, OFF and ON (See Page 5).

24. FIELD Displays current field. Fields can be renamed in the Field Screen (See Page 6). Also will flash "Low RPM" if below adjustable baling parameter of 70 RPM. Low RPM Warning can be adjusted in the Preferences 1 screen to help prevent low RPM bailing (See Page 7).

25. TENSION 100% is full pressure. The tension can be adjusted in the Preference 1 screen (see page 7 and 8).

26. HYDRAULIC OIL TEMPERATURE receives its signal from the temperature sender on the LH side of the tank (See Page 4). The sender is a variable resistor to ground. In the harness, it has two wires connected to it: one is a 5v power supply through a 1k ohm resistor from the ICM, and the other is the sending unit input to the ICM. Cold oil results in higher resistance, which means the ICM 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 ICM. The hot oil warning will come on when the hydraulic oil reaches 180° F (this threshold is operator adjustable) and turn off when the oil cools back down. If the hot oil warning comes on, check operation of the cooling fan, correct oil level, and proper calibration and operation of the oil temperature sender.

27. ICM SCREEN ON/OFF switch Toggle to turn baler power ON and OFF.

Control Output Disable Button

⚠ CAUTION

Baler will still function after pressing the Control Output Disable button until tractor PTO and all moving baler parts have come to a complete stop.

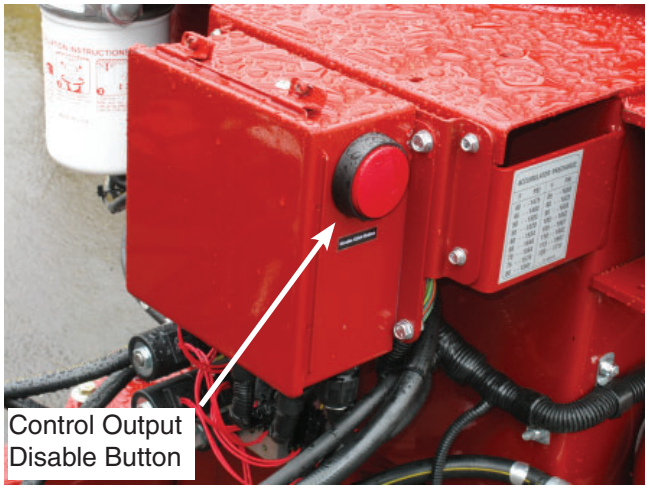


Figure 1 - Disable ICM Button

Control Output Disable button cuts output from the ICM system to the following:

Oil Cooler Fan
Knotter Fan
Work Lights
Releases tension from Tension Rails.
Stops UP/Down motion to Pickup.
Stops side motion to Drawbar.

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FUNCTIONS SCREEN

Navigation from Bale screen (See Page 1): Press Back Arrow button.

F1 1. TENSION RAILS Press F1 to OPEN and CLOSE the tension rails.

F2 2. OIL COOLER FAN Press F2 to set oil cooler fan to AUTO, OFF or ON.

F3 3. WORK LIGHTS Press F3 to turn ON and OFF Work Lights.

F4 4. KNOTTER FAN Press F4 to set knotter fan to AUTO, OFF or ON.

5. UP/DOWN Button For adjusting Pickup or Drawbar.

OK 6. OK Button Press to access Pickup and Drawbar.

FIELD SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Field and press OK.

F1 1. DEALER Press F1 to display Dealer information and program version.

F3 2. ADJUST COUNT Press and hold F3 while pressing UP/DOWN buttons to adjust bale count in current field.

F4 3. RESET COUNT Press and hold F4 to reset current field bale count.

OK 4. OK Button Press to access Screens Menu (See Page 2).

5. LIFE TIME BALE COUNT Not Adjustable

6. LIFE TIME HOUR COUNT Not Adjustable

7. BALING HOUR COUNT Not Adjustable

8. FIELDS Press UP/DOWN buttons to scroll through fields 1 through 10.

PREFERENCE 1 SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK.

F1 1. TENSION DUTY CYLCLE Press F1 to access Tension adjustment. Use the UP/DOWN buttons to adjust and press OK button to set and save. Or use the UP/DOWN buttons to access and adjust the Tension, press OK button to set and save.

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 typical system pressure ranges from 0 psi to 2100 psi for the density setting.

The type of material, moisture content and other factors will often change how the density setting affects the amount of compacting force required to press the bale through the chamber. Drier materials like Straw and some types of grasses may require more pressure than is possible at the highest density setting. If this is the case, chamber restrictor wedges can be installed. These wedges are designed to further compact the material without density setting being increased.

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.

F2 2. TENSION CAP Press F2 to adjusts the tension cap, which is the max tension pressure. This adjustment is to prevent the pressure from being set above the pump “turn on” pressure which would cause unstable tension pressures. To set the tension cap:

a. Raise engine speed half throttle.

b. Press F1 button to access Tension and use the UP button to adjust Tension to 100%, press OK button.

c. Press F2 to access Tension Cap. While watching the tension pressure in this screen (See item 11), press the UP/DOWN buttons to Adjust Tension pressure to 2100 psi and press OK button.

3. LOW RPM WARNING Press F3 to adjust the Low RPM Warning.

4. NEXT PAGE Press F4 to move between Preference screens 1,2,3,4 and 5.

5. UP/DOWN Button Press to adjust Tension Duty Cycle.

6. OK Button Press to access Screens Menu (See Page 2).

7. STROKES/BALE Plunger strokes of the last bale.

8. STROKE Current plunger stroke.

9. TEETH There are 88 teeth per revolution. The count resets each revolution.

10. RPM Strokes Per Minute.

11. TENSION PRESSURE Displayed in units of PSI.

12. TENSION 100% is full pressure.

PREFERENCE 2 SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK. Press F4 to move between Preference screens 1,2,3,4 and 5.

F1 1. FLAKE WINDOW Press F1 to change the flake window, or the number of flakes that the upper or lower bars in the Flake Variance bar represents. The lowest setting window is a variance of 1 flake. Setting Flake Window to 1 is the strictest monitoring setting providing the least amount of information. The larger the flake window, the broader the view of baler performance. (See Flake Window Chart on page 13).

F2 2. RABBIT/SNAIL WINDOW
The Rabbit/Snail window displays the number of flakes above the flake goal that will cause the rabbit to turn on and the number below the flake goal that will cause the snail to turn on, adjust ground speed accordingly.

F3 3. FLAKE GOAL Press F3 to adjust the flake goal or desired number of flakes in a bale.

F4 4. NEXT PAGE Press F4 to move between Preference screen 1,2,3,4 and 5.

OK 5. OK Button Press to access Screens Menu (See Page 2)

6. STROKES/BALE Plunger strokes of the last bale.

7. STROKE Current plunger stroke.

8. RPM Strokes Per Minute.

9. FLAKE VARIANCE BAR See Page 1 and 3.

10. PROPORTIONAL FLAKE COUNT See Page 1 and 3.

PREFERENCE 3 SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK. Press F4 to move between Preference screens 1,2,3,4 and 5.

F1 1. KNOTTER FAN RPM The knotter fan ON RPM is the minimum baler RPM at which the knotter fan will turn on. This value should be set below the lowest RPM at which you would bale, but above zero so the fan will turn off when not baling.

F2 2. TENSION CALIBRATION Press F2 to prompt the Pressure Calibration screen (See Page 13). A pressure gauge needs to be hooked up to tension system in order to calibrate the sender.

F3 3. OIL OVERHEAT TEMPERATURE Press F3 to adjust Oil Over Heat temperature.

F4 4. NEXT PAGE Press F4 to move between Preference screen 1,2,3,4 and 5.

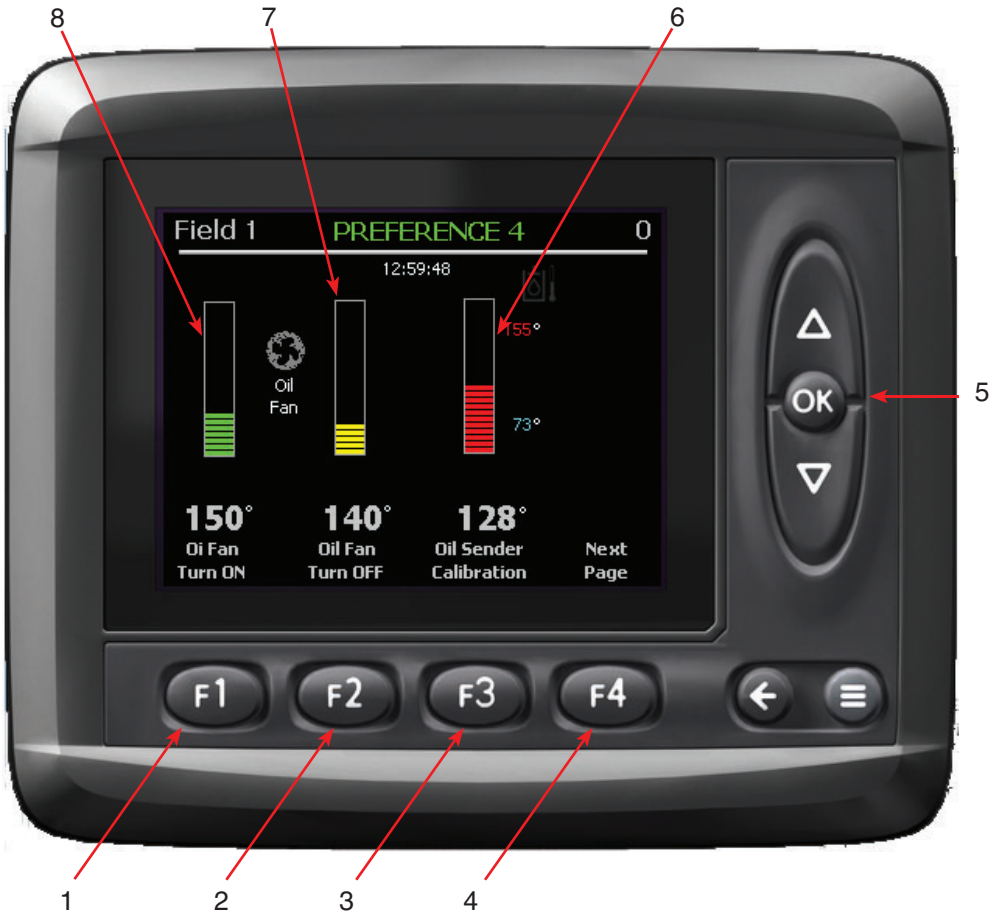
OK 5. OK Button Press to access Screens Menu (See Page 2)

6. OIL TEMPERATURE Displays Oil Temperature.

7. OIL OVER HEAT TEMPERATURE Displays Oil Over Heat Temperature.

8. OIL PRESSURE GAUGE Displays Oil Pressure.

PREFERENCE 4 SCREEN



Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK. Press F4 to move between Preference screens 1,2,3,4 and 5.

F1 1. OIL FAN TURN ON Press F1 to adjust the temperature at which the oil cooler fan will turn on. It must be set above the Turn OFF temperature. Use the UP/DOWN buttons to adjust and press OK button to set and save.

F2 2. OIL FAN TURN OFF Press F1 to adjust the temperature where the oil cooler fan will turn off until the oil temperature rises back up to the Turn ON temperature. This must be set below the Turn ON Temperature. Use the UP/DOWN buttons to adjust and press OK button to set and save.

F3 3. OIL SENDER CALIBRATION Press F3 to access Oil Sender Calibration (See Page 14). To calibrate the sender you will need a thermometer to check oil temperature.

F4 4. NEXT PAGE Press F4 to move between Preference screen 1,2,3,4 and 5.

OK OK Button Press to access Screens Menu (See Page 2)

6. OIL TEMPERATURE Displays Oil Temperature.

7. OIL TEMPERATURE TURN OFF Displays Oil Temperature Turn Off setting for Oil Cooler Fan.

8. OIL TEMPERATURE TURN ON Displays Oil Temperature Turn On setting for Oil Cooler Fan.

PREFERENCE 5 SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK. Press F4 to move between Preference screens 1,2,3,4 and 5.

F1 1. PICKUP UP TIME Press F1 to access Pickup Up Time. Use UP/DOWN buttons to adjust and OK button to exit. This is the time used when using the Windrow function (See Page 1).

F2 2. PICKUP DOWN TIME Press F2 to access Pickup Down Time. Use UP/DOWN buttons to adjust and OK button to exit. This is the time used when using the Windrow function (See Page 1).

F3 3. BULLGEAR LUBER (Optional Feature) Press F3 to lube Bullgears. If an Electric Bullgear Luber is installed, contact your local dealer for an updated program.

F4 4. NEXT PAGE Press F4 to move between Preference screen 1,2,3,4 and 5.

OK 5. OK Button Press to toggle through Throttle, Drawbar and Pickup.

When the up or down buttons are pressed, a timer will start and run for as long as the button is held down. Each timer will reset when the direction is changed. To set the Pickup Up Time, press OK button until Pickup is displayed. Press the down arrow until the Pickup is lowered all the way (raising it first and then lowering it without interruption will produce the most repeatable settings). Press the up arrow for the minimum time required for the Pickup to raise to its furthest point. Press F1 and enter this “Up time” number into the “Pickup Up Time” and then press OK button to lock in the number. Repeat this procedure for Pickup Down Time.

6. DOWN TIME Temporary reading when making adjustments.

7. UP TIME Temporary reading when making adjustments.

8. BULLGEAR RPM Equals plunger strokes per minute.

PRESSURE CALIBRATION SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Preferences and press OK. Press F4 to toggle to Preference 3 screen. Press F2 to reach Pressure Calibration.

The Pressure Calibration should be preset to the proper settings. Two points are needed to calibrate the gauge, preferably the lowest and the highest points. Either point may be set at any time. Before performing this calibration, hook up a manual pressure gauge to the tension system (near the pressure transducer). When the tension pressure is at its lowest point, set the low point by entering the "Sender (input)" mv voltage reading into F1 and verifying Low output F2 is at 0%. When the tension pressure is at its highest point, enter the "sender (input)" mv voltage into F3 and enter the manual gauge pressure in F4. The gauge will read linearly between these two points.

F1 1. LOW INPUT Press F1 to adjust Low Input voltage.

F2 2. LOW OUTPUT Press F2 to adjust Low Output pressure.

F3 3. HIGH INPUT Press F3 to adjust High Input pressure.

F4 4. HIGH OUTPUT Press F4 to adjust High Output pressure.

OK 5. OK Button Press to access Screens Menu (See Page 2)

6. SENDER INPUT Sender Input from tension pressure transducer, near manifold

7. HYDRAULIC PRESSURE Press F3 to adjust High Input pressure.

TEMPERATURE CALIBRATION SCREEN

Navigation from Bale screen (see page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Field and press OK.

The Temperature Calibration should be preset to the proper settings. To calibrate the sender you will need a thermometer to check oil temperature. Two points are needed to calibrate the gauge, preferably the lowest and the highest points. Either point may be set at any time. When the temperature is low, set the low point by entering the "Sender (input)" voltage reading into F1 and set F2 to the current oil temperature. When the tank is topped off, enter the "sender (input)" voltage into F3 and set F4 to the current high temperature. The gauge will read linearly between these two points.

F1 1. LOW INPUT Press F1 to adjust Low Input voltage.

F2 2. LOW OUTPUT Press F2 to adjust Low Output temperature.

F3 3. HIGH OUTPUT Press F3 to adjust High Input voltage.

F4 4. HIGH INPUT Press F4 to adjust High Input temperature.

OK 5. OK Button Press to access Screens Menu (See Page 2)

6. SENDER INPUT Sender Input from oil temperature sender on lower left side of oil tank.

7. OIL TEMPERATURE Displays Oil Temperature.

MAIN SCREEN

Navigation from Bale screen (See Page 1): Press Menu button from Bale screen.

F1 1. ADJUST Press F1 button to prompt Adjust screen. The following can be accessed and should only be adjusted by Freeman Service Technicians; Hydraulics, Preferences, Field Names, Bale Shape, Tension System, Screens, Hydraulic Oil Settings, Dealer, Lifetime Counter Reset. Use UP/DOWN buttons to navigate and make adjustments. Each adjustment can be reset and/or adjusted. Press the Back Arrow button to go back to the main screen.

F2 2. MEASURE Press F2 button to prompt Measure screen. Machine Sensors and XA2 Outputs will display. Use UP/DOWN buttons to navigate and press OK to access (See Page 11 and 12 for troubleshooting).

F3 3. PREFERENCES Press F3 to prompt Preferences screen. The following can be accessed: Display (adjust Backlight and Screen Saver), Date/Time and Language. Use the monitor buttons to navigate and make adjustments.

F4 4. INFO Pressing F4 while in the Main screen will prompt the Info screen. The following can be accessed: Modules and Logs. Modules and Logs can be used to troubleshoot the system.

DISPLAY SCREEN

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F3 Button (Preferences) from Main screen. Press F1 button (Display).

F1 1. MAIN Press F1 button to go back to the Main screen.

F2 2. BACKLIGHT Press F2 button to prompt Backlight control. Backlight (screen brightness) is adjustable by using the UP/DOWN arrows and OK button.

100 = Brightest 10 = Dimmest

F3 3. SCREEN SAVER Press F3 to prompt Screen saver control. Use UP/DOWN arrows to toggle between Black (screen goes black after timeout), Dimmed (screen goes dim after timout) and Off (screen saver function disabled). Press OK button to lock in choice and advance to Timeout. Timeout is an adjustable timer that can be set from 5 seconds to 600 seconds. Dimmed light is the opacity of the screen and can be adjusted from 10% to 100%.

NOTICE

Keep Screen Saver on to prevent screen Burn -In.

DEALER SCREEN

Navigation from Bale screen (See Page 1): Press OK button from Bale screen. Press UP/DOWN buttons to toggle to Field and press OK. Press F2 to access Dealer screen.

1. PROGRAM VERSION

2. PROGRAM PART NUMBER

3. DEALER INFORMATION

TROUBLESHOOTING (Machine Sensors)

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F2 Button (Measure) from Main screen. Press OK button with Machine Sensors highlighted.

Press F2 to toggle between Raw Value and Scaled Value. Troubleshoot the Machine Sensors by comparing the Machine Sensor readings displayed on the monitor to the list below.

Factory Default Machine Sensor Settings				
	Low	Notes	High	Notes
Oil Temp	950 mv	100° F	2200 mv	160° F
Bullgear speed	0 RPM	Stopped	84 RPM	Full Speed
Bullgear tooth count	0 Teeth	1 = 88 Teeth Counted	----------	Resets when knotter sensor is tripped
Tension Pressure Sender	0 mv	0 PSI	5000 V	2500 PSI (Approximately)
Knotter Cycle	False	Not in proximity	True	Bolt head is within proximity of sensor
MDGN-+BAT:XA2-A1 (Battery Input Voltage)	10. V	Battery voltage is low.	14 V	Alternator is charging good
MDGN-+Temp:XA2-A1 (Module Temperature)	21° C	Module temperature in Celsius	90° C	Max temperature in Celsius
MDGN-+VREF:XA2-A1 (Module Reference Voltage)	5.00 V	Reference Voltage	+/- 0.1 V	To much draw on reference output
MDGN-+Status:XA2-A1 (Module Input Status)	OK	XA2 functioning properly	Not OK	Problem with XA2 module
MDGN-+VREF:MD3 (Screen Input Voltage)	4.99 V	ICM Reference Voltage (Not Used)	5.01 V	Not used on ICM
MDGN-+Status:MD3 (Screen Staus)	OK	ICM functioning properly	Not OK	Problem with ICM module
MDGN-+Temp:MD3 (Screen Temperature)	0° C	Freezing temperature	60° C	Average warm ICM temperature max
MDGN-+BAT:MD3 (Screen Input Voltage from Battery)	11. V	Minimum operating voltage	14 V	Over voltage (computer can take up to 30 v)

TROUBLESHOOTING (Machine Sensors)

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F2 Button (Measure) from Main screen. Press OK button with XA2 Outputs highlighted.

Press F2 to toggle between Raw Value and Scaled Value.

Troubleshoot the Machine Sensors by comparing the Machine Sensor readings displayed on the monitor to the list below.

Factory Default XA2 Output Settings				
	Low	Notes	High	Notes
Tension Pressure Output	0%	0 Tension Pressure	100%	Full Tension Pressure
Drawbar Left	False	Valve Not Powered	True	Powered
Drawbar Right	False	Valve Not Powered	True	Powered
Pickup UP	False	Valve Not Powered	True	Powered
Pickup DOWN	False	Valve Not Powered	True	Powered
Work Lights	False	Valve Not Powered	True	Powered
Oil Cooler Fan Relay	False	Valve Not Powered	True	Powered
Knotter Fan Relay	False	Valve Not Powered	True	Powered
Tension Rails Open	False	Rails Closed	True	Rails Open
Bull Gear Luber Relay	False	Valve Not Powered	True	Powered

FLAKE WINDOW CHART

FLAKE WINDOW CHART
The chart below illustrates what the Flake Variance Bar will display at different ground speeds. Flake Goal: 14 and Flake Window: 3 are used for example only (see page 3 and 4 for setting Flake Goal and Flake Window).

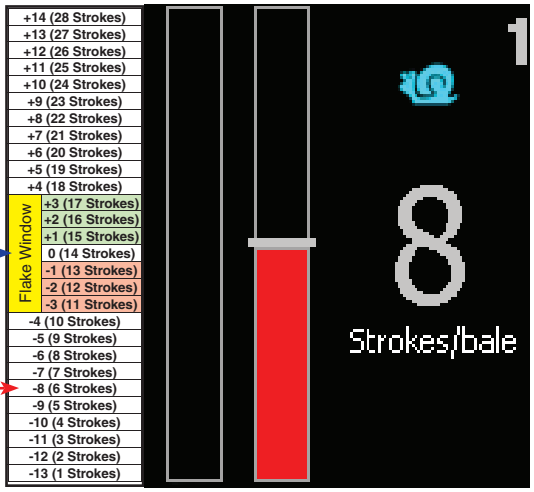
Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Not enough flakes per bale. Ground speed should be decreased.

Bale should have tied here

Last Bale tied off here



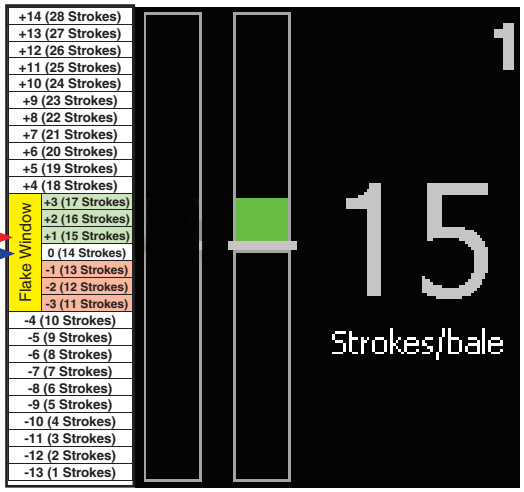
Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Too many flakes per bale. Ground speed should be increased.

Bale should have tied here

Last Bale tied off here

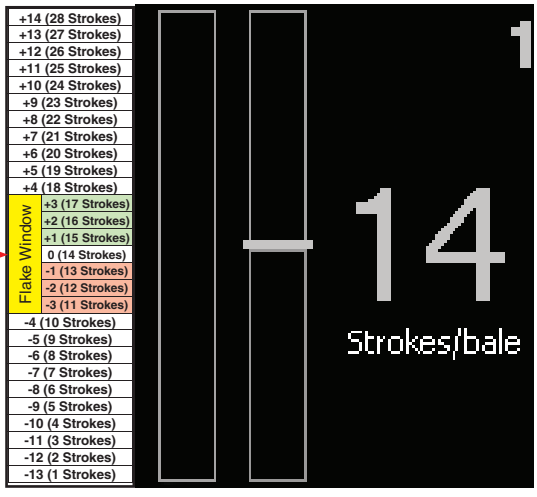


Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Flake Goal achieved. Ground speed perfect.

Last Bale tied off here



ICM PRECAUTIONS

General Safety Regulations

Work on the hydraulics control electronics may only be carried out by trained personnel who are well-acquainted with the control system, the machine and its safety regulations.

⚠ WARNING

Mounting, modification, repair and maintenance must be carried out in accordance with the manufacturer's regulations. The manufacturer has no responsibility for any accidents caused by incorrectly mounted or incorrectly maintained equipment. The manufacturer does not assume any responsibility for the system being incorrectly applied, or the system being programmed in a manner that jeopardizes safety.

⚠ WARNING

Damaged product may not be used. If the control system shows error functions or if electronic modules, cabling or connectors are damaged, the system shall not be used.

⚠ WARNING

Electronic control systems in an inappropriate installation and in combination with strong electromagnetic interference fields can, in extreme cases, cause an unintentional change of speed of the output function.

NOTICE

As much of the welding work as possible on the chassis should be done before the installation of the system. If welding has to be done afterwards, the electrical connections on the system must be disconnected from other equipment. The negative cable must always be disconnected from the battery before disconnecting the positive cable. The ground wire of the welder shall be positioned as close as possible to the place of the welding. The cables on the welding unit shall never be placed near the electrical wires of the control system.

Safety During Installation

⚠ CAUTION

Incorrectly positioned or mounted cabling can be influenced by radio signals which can interfere with the functions of the system.

Safety During Start-Up

⚠ WARNING

The machine's engine must not be started before the control system is mounted and its electrical functions have been verified. Ensure that no one is in front, behind or nearby the machine when first starting the machine. Follow the instructions for function control in the Start-up section.

Safety During Maintenance And Fault Diagnosis

⚠ CAUTION

Ensure that the following requirements are fulfilled before any work is carried out on the hydraulics control electronics.

- The machine cannot start moving.
- Functions are positioned safely.
- The machine is turned off.
- The hydraulic system is relieved from any pressure.
- Supply voltage to the control electronics is disconnected.

ICM DISPLAY

Burn-In
The ICM display, like other computer screens can have a ghost picture occur if a static image is left on the display for extended periods of time. For the best viewing over the life of the product we recommend using the screen saver functionality.

NOTICE

To avoid burn-in, use the screen saver on the display.

Maintenance
The 3.5" transflective display is a high quality viewing interface and reasonable care should be taken to maintain it. The display can be cleaned with an LCD cleaning solution found in many stores. Use a lightly dampened lint-free, non-abrasive cloth when cleaning the display.

NOTICE

To avoid scratches, do not wipe or clean a dry display.

Environment Specification
ICM is a hardened module suitable for outdoor use. However, concentrating cleaning jets on the control surface of the ICM can cause a degradation of the finishing and should be avoided.

NOTICE

To keep the unit's buttons looking their best, do not blast the control surface with cleaning jets.

Back Of Unit
If the rear surface of the ICM unit is exposed and will be subjected to high pressure steam cleaning, care should be taken around the connector assemblies. The Deutsch DTM connectors are IP67 rated which is suitable for any type of outdoor conditions. However, concentrating the cleaning jets on the connectors of the ICM can cause damage to the connector seals or wire insulation and should be avoided. Use of shielding is recommended to block high pressure cleaning jets, if the rear of the unit is exposed.

NOTICE

To avoid damaging the connector seals or wire insulation, do not blast the connectors with cleaning jets.

MOUNTING CONSIDERATIONS

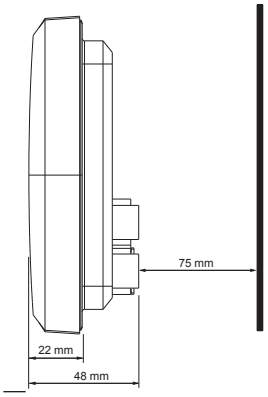
ICM shall be positioned in the machine per the following instructions:

• The unit is designed for outdoor use. Position the unit in desired location and make sure that it is not exposed to mechanical damage.

• The connectors on the reverse side of the unit should be accessible.

• Position the unit so there is no risk that the cabling can be folded, crushed, worn or damaged in any way.

• Leave sufficient room behind the unit to insert connectors. Less than 75 mm clearance will stress the cabling and distort the seals in the connectors. This can cause the environmental specification not to be met.



Take careful consideration when positioning the unit.

• Position the unit so there is no risk to be exposed to external heat, e.g. from the engine or heater.

• The best readability will be achieved by positioning the front face of the unit directly towards the operator.

• Extended periods of exposure to direct sunlight can cause an internal temperature exceeding 75°C / 158°F which may cause permanent degradation of the LCD display.

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