Table of contents

iWater™ Controller Instructions

The iWater™ Controller begins with an initialization screen. This takes a few moments to set the computer. This screen shows the current software version in the lower right corner. You may be required to include this information during any computer related service calls.

Figure 1 - Initialization Screen   img-00514

Once the computer has initialized you start at the main menu. This screen gives the option of which menu you would like to choose. It also gives current information such as time, battery charge level, signal strength and current menu selected.
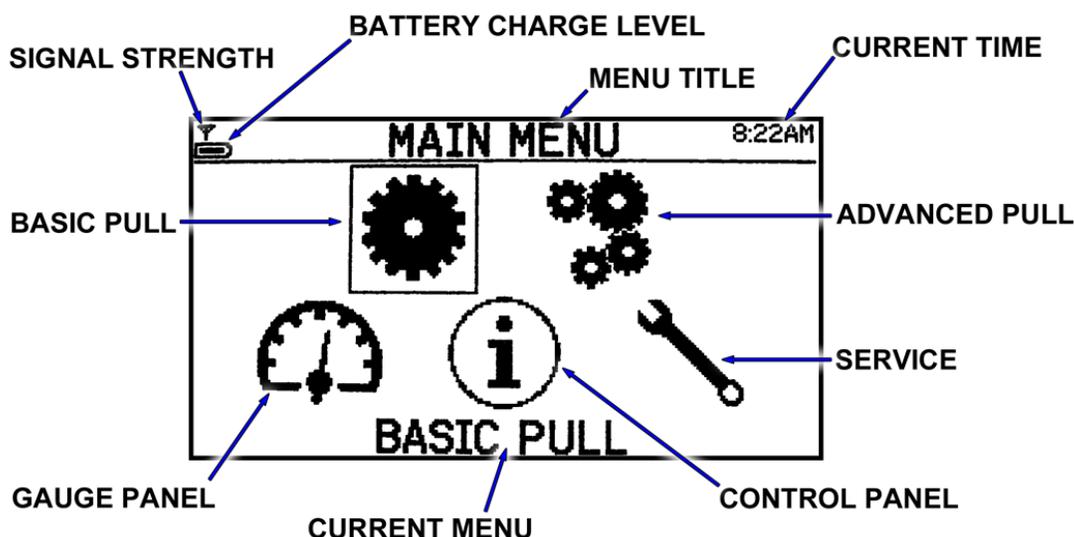

Figure 2 - Screen Layout   img-00515

To navigate through the menus you use the control buttons below the display screen. The left and right arrows are used to scroll through the menu and the OK button is used to select the highlighted item.

Figure 3 - iWater™ Control Panel   *img-00516*

The iWater™ Controller allows you to setup basic pulls to the most complex pulls. You have a choice on where to begin. For basic pull continue with the following instructions. For advanced pulls see page 27.

Basic Pull

As the title states this option is for an irrigation pull that is straight forward with no changes required from start to finish.

Step 1

Choose the screen option Basic Pull. Select the "**OK**" button.

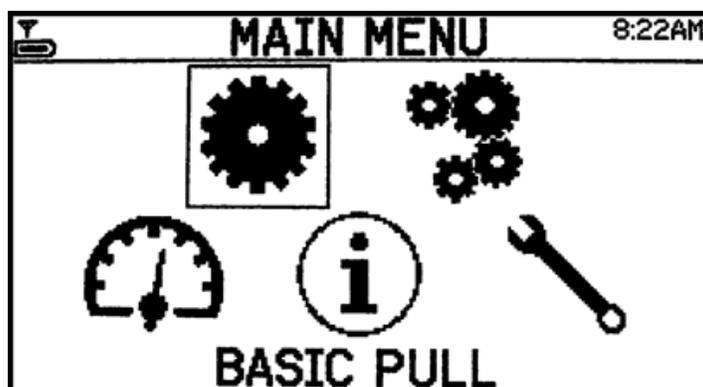*Figure 4 - Main Menu Screen*   *img-00517*

Step 2

The Basic Pull menu has simple settings. To change any of the default settings please see the Control Panel section of this manual found on page 37. The first menu item is to choose the retrieve rate.
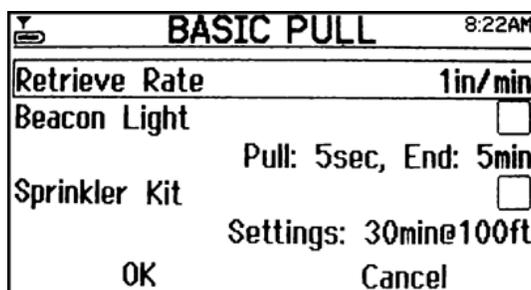

Figure 5 - Basic Pull Menu   *img-00518*

Step 3

Selecting the OK button allows you set the required retrieve rate. Using the arrow buttons adjust to the retrieve rate you need.

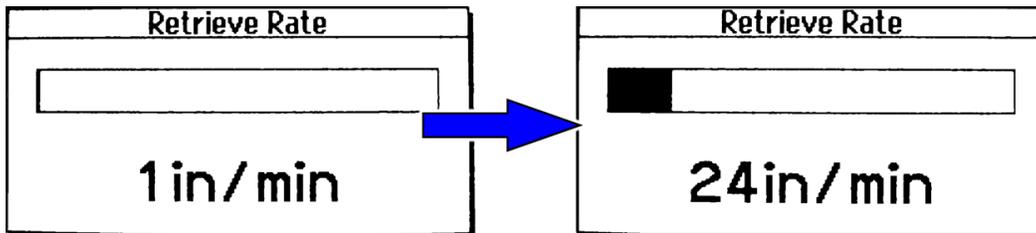*Figure 6 - Retrieve Rate*   *img-00519*

Once you are at the retrieve rate you want, select OK to return to the previous menu.

Step 4

If you would like the beacon light to flash if one is equipped verify the option is selected.
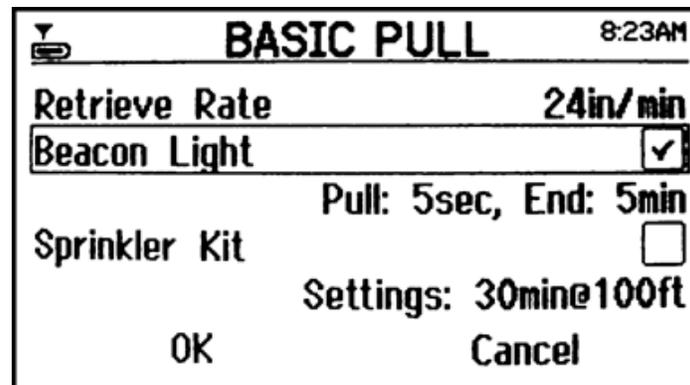

Figure 7 - Beacon Light (if equipped)   *img-00520*

Step 5

If you would like the sprinkler kit *(if equipped)* to irrigate, ensure the option is selected.
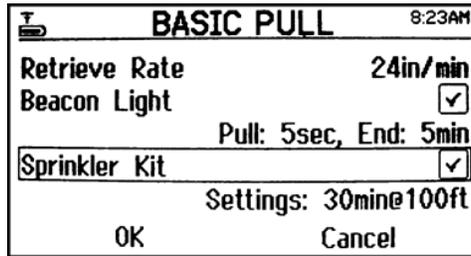
Figure 8 - Sprinkler Kit (if equipped)   img-00521

Step 6

Once the options have been chosen, select OK at the bottom of the screen. This will start the emergency stop and shut off system test. You will need to actuate the shut off bar and return it to normal position. You will also need to push in and pull out the emergency button. This will allow you to start your pull.
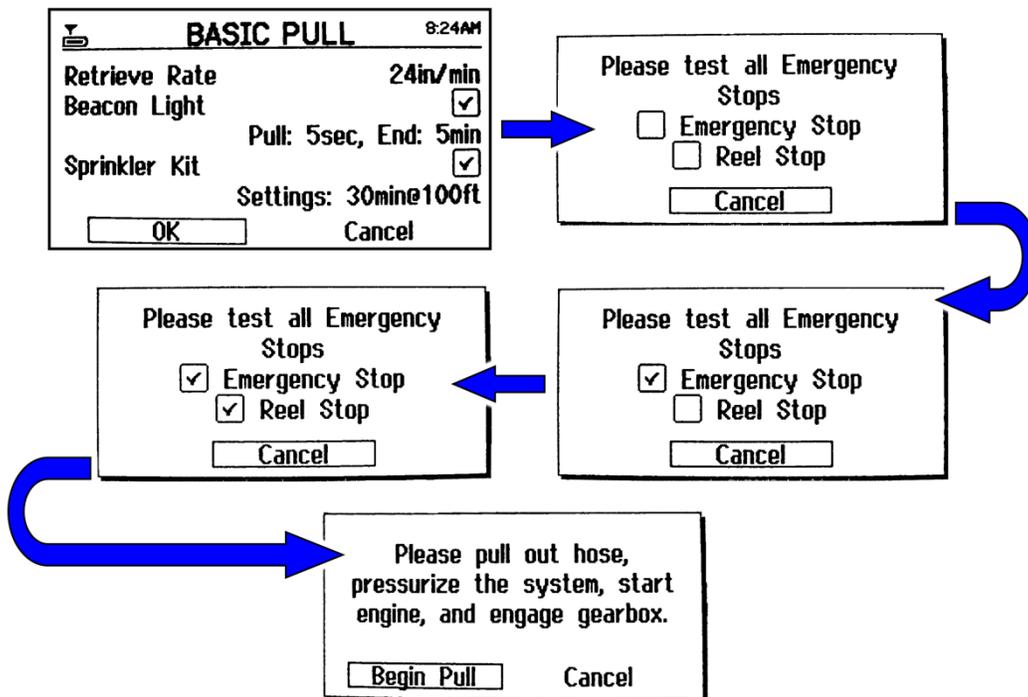

Figure 9 - Emergency Stop / Shut off System Test   img-00522

Step 7

Once the "Begin pull" has been selected you will be brought to the gauge panel screen. This screen shows you a predicted finish time. It will also display how much hose is pulled out and the current retrieve rate.
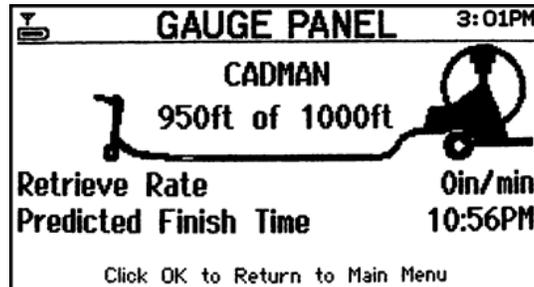
Figure 10 - Gauge Panel   *img-00523*

Advanced Pull

This section allows for a more customized pull setup. This gives you more control on how the water is applied to your fields. You can also recall saved pulls from previous setups. The following instructions will help you create your own custom pull.

Step 1

Choose the screen option Advanced Pull. Select the OK button.
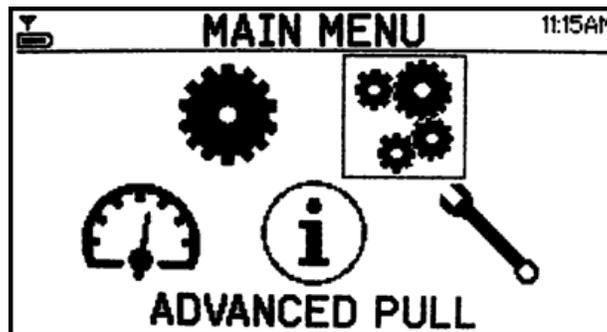

Figure 11 - Advanced Pull   *img-00524*

Step 2

This screen gives you the option of recalling a saved pull or creating a new pull. For the first time using advanced pull you will be required to select "Create a Pull". To recall a saved pull select the "Recall a Pull" menu option. Choose a file listed and all setting will be changed to what was saved in the pull file.
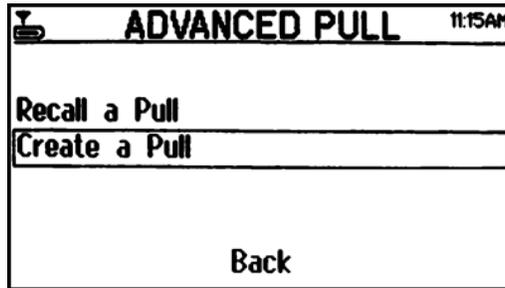
Figure 12 - Create a Pull   *img-00525*

Step 3

With advanced pull many options become available to customize your irrigation pull.

Delayed Start ○	Auxiliary Control 1 ○	Sprinkler kit ○
Initial Pause	Auxiliary Control 2 ○	Wireless communication
Retrieve Rate	Final Pause	Mobile phone

Programmed Events	Beacon Light ○	

○ Requires optional equipment

Figure 13 - Advanced Pull Options   img-00526

Delayed Start

This setting allows you to start your pull at a later time. This requires optional equipment. For further information please contact Cadman Power Equipment Limited or your local dealer.

Using the arrow keys adjust the time to the desired start time. Select OK once you have reached the chosen time. Select "Enabled" to enable this option.

Figure 14 - Delayed Start   img-00527

Initial Pause

This setting allows you to delay the start of the pull while irrigating the field. Using the arrow keys adjust the delay to the desired amount of time. Select OK to continue. To disable this feature use the left arrow key to reduce the time until "OFF" appears.

Figure 15 - Initial Pause   *img-00528*

Retrieval Rate

In this area you are able to choose the type of retrieval. This allows for greater control of the irrigation cycle.

Figure 16 - Retrieve Rate Types   *img-00529*

1. Speed set: This allows you to set the pull based on speed

2. Pull Duration: This allows you to set the pull to be completed in a specific time

3. Finish Time: Completes a pull by a set time. This time must allow for the drive system to run at whatever speed it needs to finish the pull by the set time

4. Application Depth: Applies the amount of water needed to reach a certain depth. This setting takes your installed sprinkler, pressure, and nozzle size set in the control panel into account

Programmed Events

This area allows you to control the application rate for different areas of a field. Hills should have reduced speeds, and valleys should have increased speeds. This can also allow for different coverage of irrigation water based on soil types
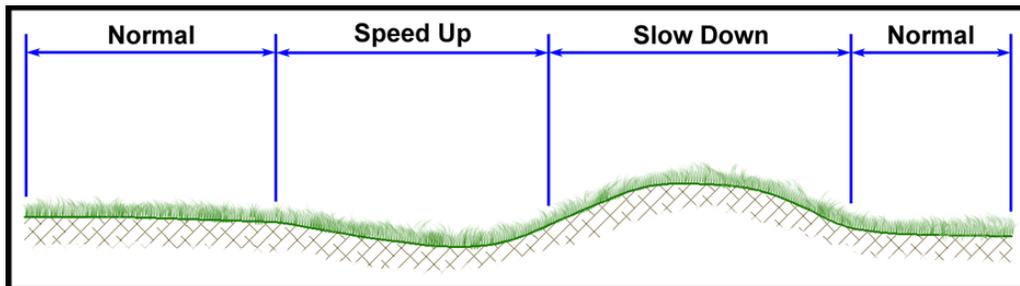
Figure 17 – Suggested Speed Changes   img-00530

Figure 18 – Programmed Events   img-00531

1. Event number: this lists the current event being programmed. You can store up to 8 unique events

2. Start: This displays when this event will begin the change. This dimension is measured from the traveler to the sprinkler's position in the field.

3. Rate: This is what the new retrieve rate will be during the displayed event.

4. Finish: This tells when this event should return to the default retrieval rate. This dimension is measured from the traveler to the sprinkler's position in the field.

5. OK: This programs the current event number and returns to the previous screen

6. MORE: This allows you to program additional events

Use the control buttons to adjust to the required values. If you make an error or the event is no longer required you must restart the programmed event change screen. To do this you select OK on the screen then press OK button. This will return to the Advanced Pull screen. Select the Programmed Events again and choose the event to be modified or removed. Select the value to change.

If you want to remove an event you must reduce the Start value until it displays "Delete Event" by pressing the left arrow, then select OK.

Auxiliary Control 1 and 2

If you would like to control auxiliary components you would use this area to setup the duration time and distance for actuation. These control relays work either by opening or by closing the circuit. You can adjust how these relays work in the Control Panel section labeled "Auxiliary Relay" found on page 41.

Figure 19 – Auxiliary Relays   *img-00532*

Beacon Light

This area allows you to set the length of hose to pull out before the beacon light is activated. If you would like to only pull out 900 feet of your hose set the "Activate beacon @" to 900 feet. You can

choose if the beacon light activates at the end of a pull as well. See the section labeled Beacon Light Duration see page 42 to adjust the durations.

Figure 20 – Beacon light   *img-00533*

> **When using this option do not use the full length of the hose. Set the value so that a minimum of one coil of hose is wrapped on the drum at all times. Failure to do so will result in damage to the machine**

Sprinkler Kit

This section allows you to adjust the sprinkler kit settings. You can set how long the sprinkler kit will run. You can choose what distance to activate the sprinkler kit. This dimension is measured from the traveller to the sprinkler cart position in the field.

Figure 21 – Sprinkler Kit   *img-00534*

Step 4

Once you finish setting all advance pull options, you need to save the custom pull. Select the OK button to continue. A pop up screen will appear asking if you would like to save the pull or continue.

Choose save, then select it with the OK button to record all the setting for the next time you use the machine.

Figure 22 – Save Pull   *img-00535*

If you select continue, the settings you have modified will not save. Next time you use the machine you will be required to set up the custom pull.

Step 5

Choose one of the available memory slots to store your advanced pull.

Page 14 of 25

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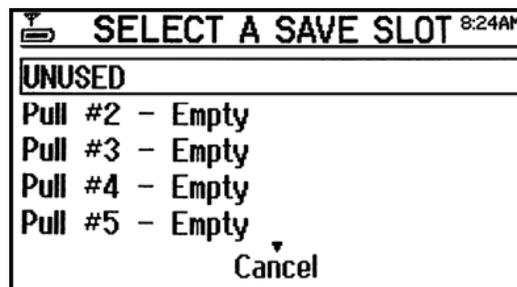
Figure 23 – Memory slot   *img-00536*

Step 6

    Use the arrow keys to enter a description. After each letter is selected press the OK button once. Once you have the name chosen an arrow will appear. If you select the OK button it will give the choice of either OK or Cancel. OK will save the file for future use. Cancel will exit the save area.
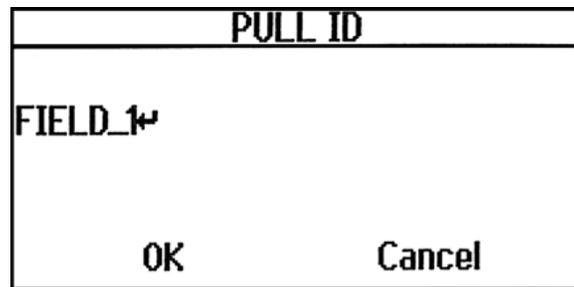
```
                    PULL ID
FIELD_1↵



        OK            Cancel
```

Figure 24 – Pull Identification   *img-00537*

Step 7

    Once you have saved the file, select OK at the bottom of the screen. This will start the emergency stop and shut off system test. You will be required to actuate the shut off bar and return it to normal position. You will also be required to push in and pull out the emergency button. This will allow you to begin your pull.
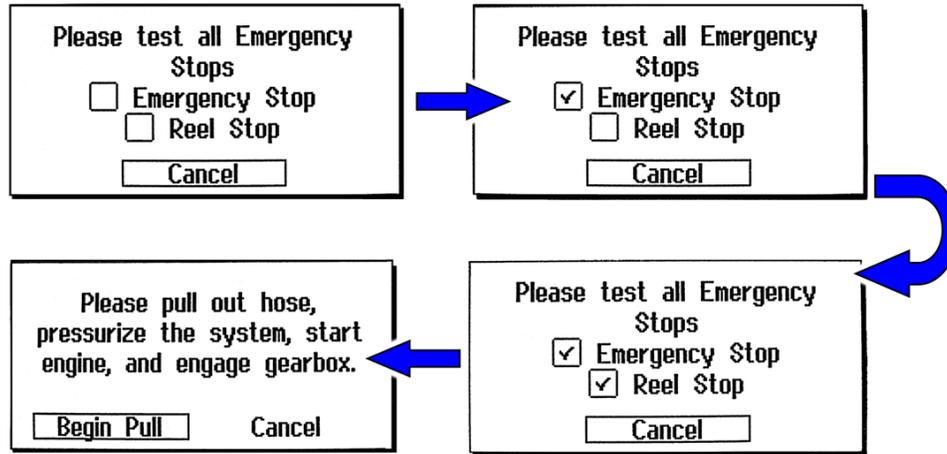
Figure 25 – Emergency Stop/Shutoff System Test   img-00538

Step 8

Once "Begin Pull" has been selected you will be brought to the gauge panel screen. This screen will provide you with a predicted finish time. It will also display how much hose is pulled out and the current retrieve rate.
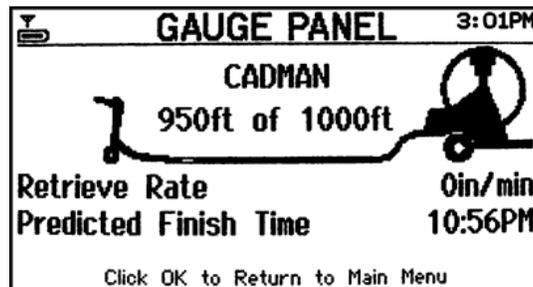
Figure 26 – Gauge Panel   img-00523

Page 16 of 25

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Control Panel

The Control Panel menu allows you to set various items related to your machine.

Step 1

Choose the screen option Control Panel. Select the OK button.
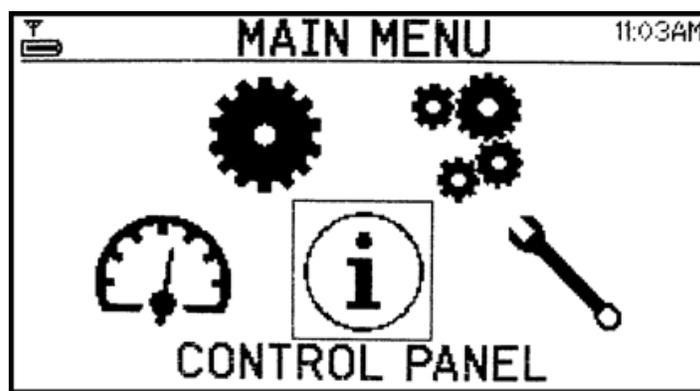
Figure 27 – Control Panel Menu   *img-00539*

Step 2

This screen gives you the items that can be set for the systems defaults.
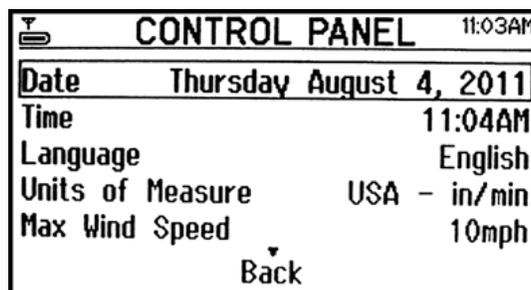
Figure 28 – Control Panel Settings   *img-00540*

Date

     The date is factory preset. If you need to change the date use the arrow keys to adjust the date. Once the correct date is shown select the OK button to set the system date.

Figure 29 – Change Date Screen   *img-00541*

Time

     The time is factory preset, however if there is a change required use the arrow keys to adjust the time. Once the correct date is shown select the OK button. This will set the system time.

     You can also change the format from 12 to 24 hours. Highlight the format and use the arrow button to adjust the setting.

Figure 30 – Change Time Screen   *img-00542*

Units of Measure

The factory setting for Units of Measure is USA - in./min. Select the format that is preferred then select OK.

```
UNITS OF MEASURE
USA - in/min          ✓
USA - ft/hr           ☐
Metric                ☐

        OK        Cancel
```

Figure 31 - Units of Measure   img-00534

Maximum Wind Speed

This setting requires that you have a wind sensor installed. You can stop the irrigation cycle if the wind exceeds the set speed. Once the wind speed goes below the maximum setting, irrigation will continue.

```
WIND SPEED

Maximum              10mph


        OK        Cancel
```

Figure 32 – Set Maximum Wind Speed   img-00544

Pressure

A minimum and maximum pressure setting can be set to better control the irrigation application. If the pressure is outside the set range the pull will be stopped. Once the pressure returns to the set range the pull will restart.

```
              PRESSURE

Minimum                    30psi
Maximum                   140psi


         OK          Cancel
```

Figure 33 - Pressure Settings   img-00545

Machine ID

Each machine can be set with unique machine identification. With unique identification your field planning can be better controlled. Your plan can include the ID with the pull program settings. This will help with consistent irrigation setups.

```
             MACHINE ID

UNIT_01↵



         OK          Cancel
```

Figure 34 - Machine Identification   img-00546

Auxiliary Relays

You can set how the auxiliary relays operated. They can be set as normally open (N.O.) or normally closed (N.C.). This setting will be dependent on the unit you plan on controlling. For further information please contact Cadman Power Equipment Limited or your local dealer.

```
            AUX RELAYS
_____
Aux Relay 1                 N.O.
Aux Relay 2                 N.C.

        OK        Cancel
```

Figure 35 – Auxiliary Relay Settings   img-00547

Sprinkler Kit

As in the advanced pull section, you can set how long the sprinkler kit will run. You can choose what distance to activate the sprinkler kit. This dimension is measured from the traveller to the sprinkler cart position in the field. This will be the default setting for the machine during a basic pull setup.

```
          SPRINKLER KIT

Run sprinkler for         75min
Activate Sprinkler at     900ft

            [  OK  ]
```

Figure 36 – Sprinkler Kit   img-00534

Beacon Light Duration

You can set the default values for the beacon in the area. The pull out duration lights up the beacon when your pull has reached the desired distance. For basic pull setups, the beacon will flash when your machine has fifty feet remaining on the drum. If you want a specific distance set, you are required to set up an advanced pull. The pull complete duration lights up the beacon at the end of the pull for the time you have chosen.


```
          BEACON DURATION

Pulling Out Duration          30sec
Pull Complete Duration         5min

                OK
```

Figure 37 – Beacon Light Settings   img-00548

Sprinkler

Your main sprinkler is set here. This is where you set your sprinkler model and nozzle size. It is important to change these settings to match the equipment on your machine. If your settings are incorrect the computers calculations will be inaccurate during the application depth retrieve setting. This computer comes pre-programmed with all available sprinkler options.


```
              SPRINKLER
Sprinkler:
              Nelson 150 Ring Nozzle
Nozzle:                       1.34in

                 OK
```

Figure 38 – Beacon Light Settings   img-00549

Retrieval Rate

In this area you are able to choose the type of retrieval. This allows for greater control of the irrigation cycle. This will be the default setting for the basic pull.

Figure 39 – Beacon Light Settings   *img-00549*

1. Speed Set: Units per minute. This allows you to set the pull based on the rate of speed

2. Pull Duration: Duration in hours and minutes. This allows you to set the pull to be completed within a given time

3. Finish time: Completes a pull by a set time. This time must allow for the drive system to run at whatever speed it needs to finish the pull by the set time

4. Application Depth: Applies the amount of water needed to reach a certain depth. This setting takes your installed sprinkler, pressure, and nozzle size set in the control panel into account

Useful Information

LENGTH

1 FOOT	= 12	Inches	**1 METER**	= 39.37	Inches
	= 0.3048	Meter		= 3.2808	Feet
1 ROD	= 198	Inches	**1 MILE**	= 5280	Feet
	= 16.5	Feet		= 1760	Yards
	= 5.5	Yards		= 320	Rods
	= 5.029	Meters		= 1609	Meters

AREA

1 SQUARE FOOT	= 144	Square Inches
	= 0.0929	Square Meters
1 SQUARE YARD	= 1296	Square Inches
	= 0.8361	Square Meters
1 SQUARE METER	= 1550	Square Inches
	= 10.764	Square Feet
1 ACRE	= 43560	Square Feet
	= 4047	Square Meters
	= 0.4047	Hectare
1 HECTARE	= 107639	Square Feet
	= 10000	Square Meters
	= 2.47105	Acres
1 SQUARE MILE	= 640	Acres
	= 259	Hectares

VOLUME

1 GALLON (US)	= 0.8327	Imperial Gallons
	= 231	Cubic Inches
	= 0.1337	Cubic Feet
	= 8.345	Pounds
1 CUBIC FOOT	= 1728	Cubic Inches
	= 7.48	Gallons (US)
	= 62.4	Pounds
	= 28.32	Liters
1 ACRE INCH	= 27154	Gallons (US)
	= 254	Cubic Meters / Hectare

AREA OF A CIRCLE = Diameter x Diameter x 0.7854

CYLINDER VOLUME (US GAL.) = Diameter (ft.) x Diameter (ft.) x Length (ft.) x 5.8752

Revision History

VERSION	DATE (MM/DD/YYYY)	AUTHOR	DESCRIPTION
A	01/24/2018	AB	Add iWater Controller section