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POLARIS DP-20 WEB GUIDE CONTROLLER

Additional User Manual Instructions

Setup For Hardlock And Stroke Limits With DP-20





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GENERAL INFORMATION

NOTE: The information in this document supplements or supersedes that which is listed in the Polaris DP-20 Web Guide Controller User Manual, Figure Sheet 1-862.

Explanation of Additional Features

GUIDE POSITION FEEDBACK

The guide position feedback is provided by the customer supplied 10K potentiometer (with a 1.91K resistor in series). This potentiometer also provides feedback for the Servo Center feature of the Polaris DP-20.

HARDLOCK


The purpose of the Hardlock feature is to maintain the guide position in Manual mode. Hardlock is active while in the Setup Menus if the Setup Menus were entered while in Manual mode. Hardlock is disabled during Auto Setup. Hardlock uses the same guide position feedback as Servo Center. Therefore, the Servo Center Calibration must be performed and Servo Center Polarity must be set before Hardlock can be used. The Servo Center Gain is set to 25% at the factory. If it is desired to change this gain setting, refer to the procedure "3X.1.6 Servo-Center Gain" in the Polaris DP-20 Web Guide Controller User Manual.

STROKE LIMITS

The purpose of Stroke Limits is to restrict the movement of the guide to within two limits, which are programmed using the Set Stroke Limits procedure. The Stroke Limits use the same potentiometer for guide position feedback, as does Servo Center. Therefore, the Servo Center Calibration must be performed and Servo Center Polarity must be set before Stroke Limits can be set and used. The Servo Center Calibration determines the range of adjustment of the Stroke Limits.

During operation, when the guide reaches either Stroke Limit, the guide will stop moving and "STROKE LIMIT" begins flashing on line 4 of the LCD Panel. Also, Output B of the Digital I/O is turned on. The guide is not allowed to continue moving in the direction of the Stroke Limit. The proper jog key may be used to move the guide in the opposite direction from the Stroke Limit. While in Automatic mode or Servo Center mode, the guide will move in the opposite direction from the Stroke Limit if the error signal is of the correct polarity for movement in that direction. When the guide moves away from the Stroke Limit, Output B of the Digital I/O is turned off.

MOTOR DETECTION

The first time that a 442K ohm resistor is detected in the drive cable during power-up, the LCD Panel will display ACTIVATING ALTERNATE MATRIX on lines 2 and 3, and PRESS  on line 4, until the Enter key is pressed. After the ENTER key is pressed, the unit will automatically restart. During the restart, the alternate matrix is loaded and the Hardlock and Stroke Limit menus are enabled.








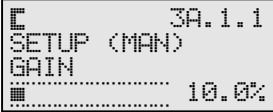
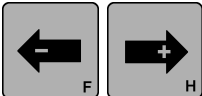
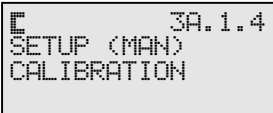


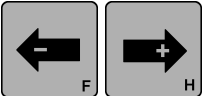
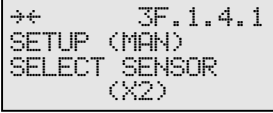

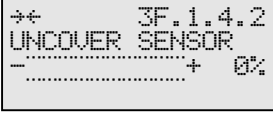
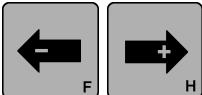
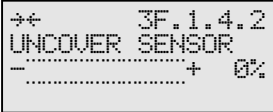
SYSTEM SETUP

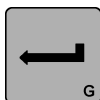
Setup Procedures for Servo Center, Hardlock, and Stroke Limits

When setting up the system, both Hardlock and Stroke Limits must be turned OFF. To verify that they are turned off, use the “3X.5.4, Hardlock Control” procedure and the “3X.5.5, Stroke Limits” procedure, which are located in this document. Once it has been verified that the Hardlock and Stroke Limits are both turned off, perform the following procedures in the order listed to setup the system. Verify that the DP-20 is in Manual mode before beginning each of the following procedures.

3X.1.4, Calibration, Servo-Center Sensor

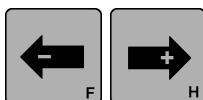
This procedure must be performed before Hardlock and Stroke Limits can be used.

- | | | |
|---|---|---|
|  | 1. Press the SETUP key to enter the Setup Menus. The SELECT MENU screen will be displayed on the LCD Panel. |  |
|  | 2. Press the ENTER key to enter the BASIC Menus. The GAIN menu will be displayed. |  |
|  | 3. Use the ARROW keys to scroll until CALIBRATION is displayed on line 3. |  |
|  | 4. Press the ENTER key to enter the CALIBRATION menu. SELECT SENSOR will be displayed on line 3. |  |
|  | 5. Use the ARROW keys to select the Servo-Center Sensor (X2). |  |
|  | 6. Press the ENTER key to begin the calibration. UNCOVER SENSOR will be displayed on line 2. |  |
|  | 7. Use the ARROW keys to move the guide to one of its mechanical stops. The sensor signal is displayed on line 3. |  |



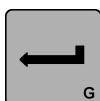
8. Press the ENTER key. COVER SENSOR will be displayed on line 2.

```
3F.1.4.3
COVER SENSOR
-■■■■■■■■■■+ 95%
```



9. Use the ARROW keys to move the guide to the opposite mechanical stop. The sensor signal is displayed on line 3.

```
3F.1.4.3
COVER SENSOR
-■■■■■■■■■■+ 95%
```

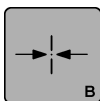


10. Press the ENTER key to complete the calibration. The system will exit the setup menus, and return to the Operator Level.

```
3A
MANUAL
C -■■■■■■■■■■+
```

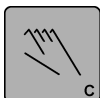
3X.1.7, Servo-Center Polarity

This procedure must be performed before Hardlock and Stroke Limits can be used.



1. Press the SERVO CENTER key to select the Servo Center mode. If the guide moves to the center of the stroke and stops, skip this procedure and continue with the Hardlock Control procedure.

```
2A
SERVO CENTER
++ -■■■■■■■■■■+
```



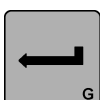
2. If the guide remains at one end of the stroke, press the MANUAL key to return the system to Manual Mode.

```
3A
MANUAL
C -■■■■■■■■■■+
```



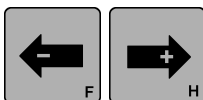
3. Press the SETUP key to enter the Setup Menus. The SELECT MENU screen will be displayed.

```
3A.1
SETUP (MAN)
SELECT MENU
BASIC
```



4. Press the ENTER key to enter the BASIC Menus. The GAIN menu will be displayed.

```
3A.1.1
SETUP (MAN)
GAIN
■■■■■■■■■■ 10.0%
```



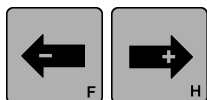
5. Use the ARROW keys to scroll until ++ POLARITY is displayed on line 3. The current setting is displayed on line 4.

```
3A.1.7
SETUP (MAN)
++ POLARITY
+
```



6. Press the ENTER key to allow adjustment of the Servo-Center Polarity. The current Polarity setting will begin flashing.

```
3A.1.7.1
SETUP (MAN)
++ POLARITY
+
```

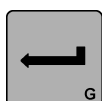


7. Use the ARROW keys to adjust the Servo-Center Polarity to the opposite setting, as indicated on line 4.

```

3A.1.7.1
SETUP (MAN)
->+ POLARITY
-

```



8. Press the ENTER key to store the change. The system will exit the setup menus, and return to the Operator Level.

```

3A
MANUAL
- - - - - +

```

3X.5.4, Hardlock Control

This procedure is used to set the Hardlock Control to ON or OFF. When the Hardlock Control is set to ON, Hardlock is active in Manual mode, only. Hardlock remains active while in the Manual Setup Menus.

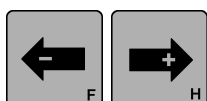


1. Press the SETUP key to enter the Setup Menus. The SELECT MENU screen will be displayed on the LCD Panel.

```

3A.1
SETUP (MAN)
SELECT MENU
BASIC

```

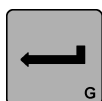


2. Use the ARROW keys to scroll until CUSTOM is displayed on line 4.

```

3A.5
SETUP (MAN)
SELECT MENU
CUSTOM

```

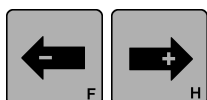


3. Press the ENTER key to enter the Custom Menus. The ASC CONTROL menu will be displayed.

```

3A.5.1
SETUP (MAN)
ASC CONTROL
OFF

```

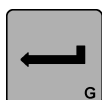


4. Use the ARROW keys to scroll until HARDLOCK CONTROL is displayed on line 3. The current setting is displayed on line 4.

```

3A.5.4
SETUP (MAN)
HARDLOCK CONTROL
OFF

```

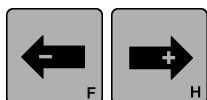


5. Press the ENTER key to enter the HARDLOCK CONTROL menu. The current setting will begin flashing.

```

3A.5.4.1
SETUP (MAN)
HARDLOCK CONTROL
OFF

```

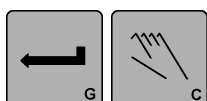


6. Use the ARROW keys to select the desired setting.

```

3A.5.4.1
SETUP (MAN)
HARDLOCK CONTROL
ON

```



7. Press the ENTER key to store the new HARDLOCK setting, or press the MANUAL key to abort the change. The system will exit the setup menus, and return to the Operator Level.

```



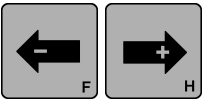
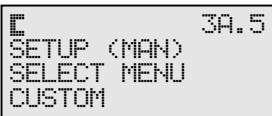
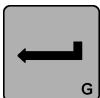
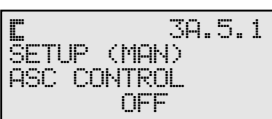

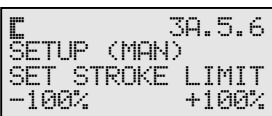
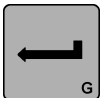
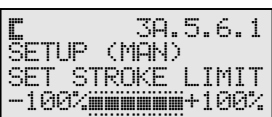

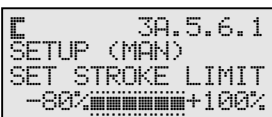
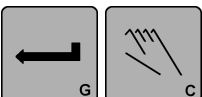
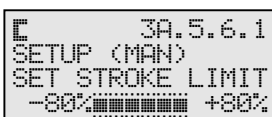
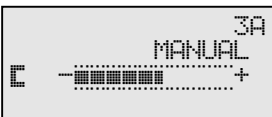

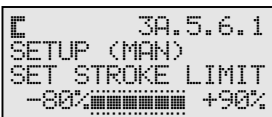
3A
MANUAL
- - - - - +

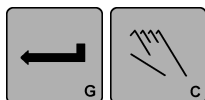
```



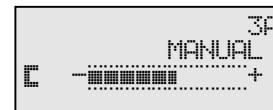
3X.5.6, Set Stroke Limits

This procedure is used to set the Stroke Limits. If the Stroke Limits are set to ON in the Stroke Limits menu, these limits are active in all modes.

- | | | |
|---|--|--|
|  | 1. Press the SETUP key to enter the Setup Menus. The SELECT MENU screen will be displayed on the LCD Panel. |  |
|  | 2. Use the ARROW keys to scroll until CUSTOM is displayed on line 4. |  |
|  | 3. Press the ENTER key to enter the Custom Menus. The ASC CONTROL menu will be displayed. |  |
|  | 4. Use the ARROW keys to scroll until SET STROKE LIMIT is displayed on line 3. The current Stroke Limit values are displayed on line 4. |  |
|  | 5. Press the ENTER key to enter the SET STROKE LIMIT menu. Depending on the current position of the guide, one of the Stroke Limit values will begin flashing. |  |
|  | 6. Use the ARROW keys to move the guide to the desired location for one of the Stroke Limits. The corresponding limit value will follow the guide movement. |  |
|  | 7. Press the ENTER key to switch to the opposite Stroke Limit value (this value is automatically set symmetrical to the first value), or press the MANUAL key to abort the procedure. If the MANUAL key is pressed, any changes to the Stroke Limit values will be discarded and the system will exit the setup menus, and return to the Operator Level. | 
 |
|  | 8. If the ENTER key was pressed in the previous step and symmetrical values are desired, skip this step and continue with the next step. Otherwise, use the ARROW keys to move the guide to the desired position on the opposite side. |  |



9. Press the ENTER key to store the new STROKE LIMITS, or press the MANUAL key to abort the changes. The system will exit the setup menus, and return to the Operator Level.

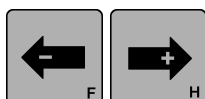
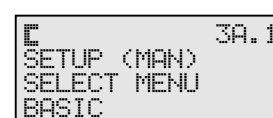


3X.5.5, Stroke Limits

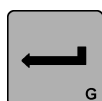
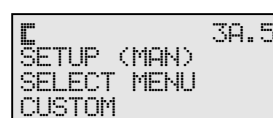
This procedure is used to set the Stroke Limits to ON or OFF. When the Stroke Limits are set to ON, they are active in all modes.



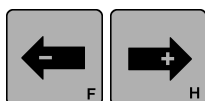
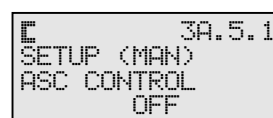
1. Press the SETUP key to enter the Setup Menus. The SELECT MENU screen will be displayed on the LCD Panel.



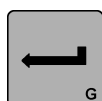
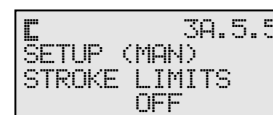
2. Use the ARROW keys to scroll until CUSTOM is displayed on line 4.



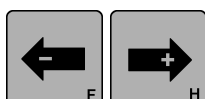
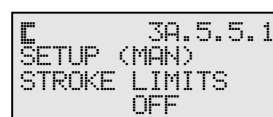
3. Press the ENTER key to enter the Custom Menus. The ASC CONTROL menu will be displayed.



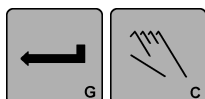
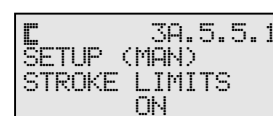
4. Use the ARROW keys to scroll until STROKE LIMITS is displayed on line 3. The current setting is displayed on line 4.



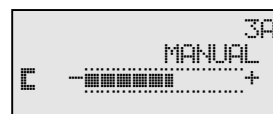
5. Press the ENTER key to enter the STROKE LIMITS menu. The current setting will begin flashing.



6. Use the ARROW keys to select the desired setting.



7. Press the ENTER key to store the new STROKE LIMITS setting, or press the MANUAL key to abort the change. The system will exit the setup menus, and return to the Operator Level.





Features of the LCD Panel



LINE 4 While at the Operator Level, in Automatic mode, Servo Center mode, or Manual mode, if Stroke Limits are set to ON, this line flashes STROKE LIMIT if either one of the programmed stroke limits is reached.

Motor List

LCD Indication	Motor	Resistor	Typical Assembly
PITTMAN MTR 442K	Pittman #14206C255	442K	Von Weise #V03798AA62 Motor/Actuator

Parallel Output Matrix

STATUS	OUTPUTS	
	B*	A*
AUTOMATIC MODE	-	1
STROKE LIMITS	1	-

* Parallel outputs are active low.

1 = ACTIVE

- = IGNORE