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Manual # 91728434

Replacement Valve Driver Configuration

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WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.

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Section - 1 **Introduction**

Equipment Safety

PERSONNEL REQUIREMENTS

Certain inherent risks are associated with heavy equipment. Personnel working in the area of these vehicles are subject to certain hazards that cannot be guarded against by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential for the owner / operator to be trained in the safe operation of this equipment.



Read this manual and on-product labels carefully. Learn how to inspect, use, test, and maintain this equipment correctly, and strictly follow all safety information and instructions contained in this manual and on the equipment, as well as any requirements of local, state, and federal law, industry standards, and any other applicable safety procedures. Failure to do so could result in death, serious personal injury, property damage, or damage to the equipment.

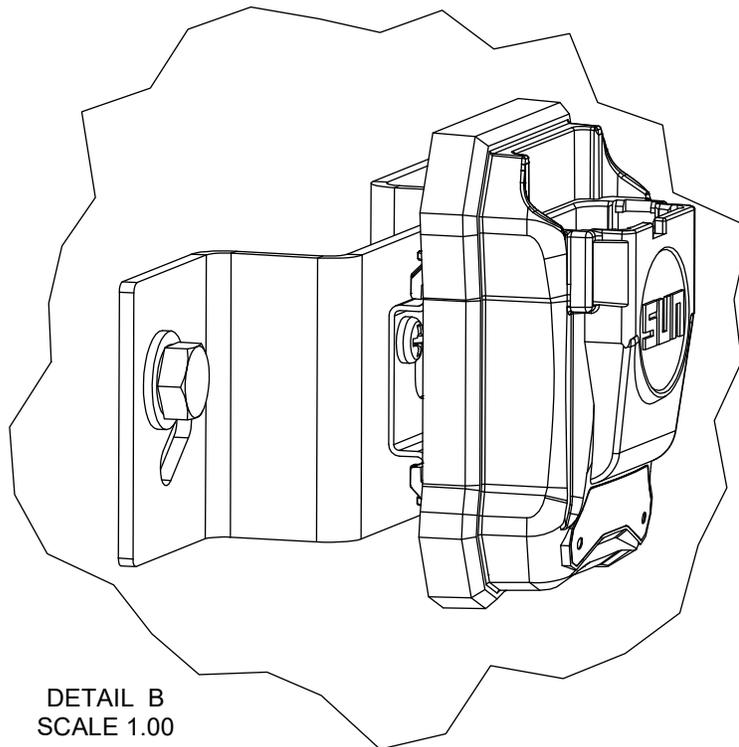
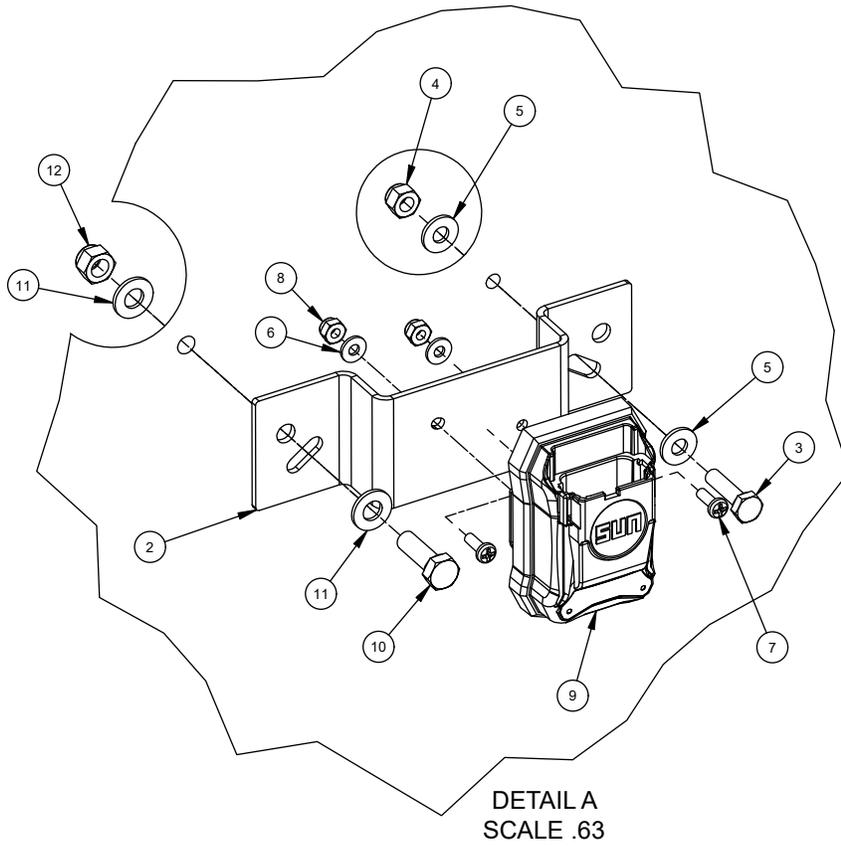


You WILL be electrocuted if you are near a crane that approaches or contacts energized electric power lines. The equipment is not insulated and does not provide protection from contact or proximity to electrical current. Death or serious injury WILL result from touching or being in or near vehicle, or a tethered remote control if the crane becomes electrically charged.

Section - 2

**Proportional Driver
Installation**

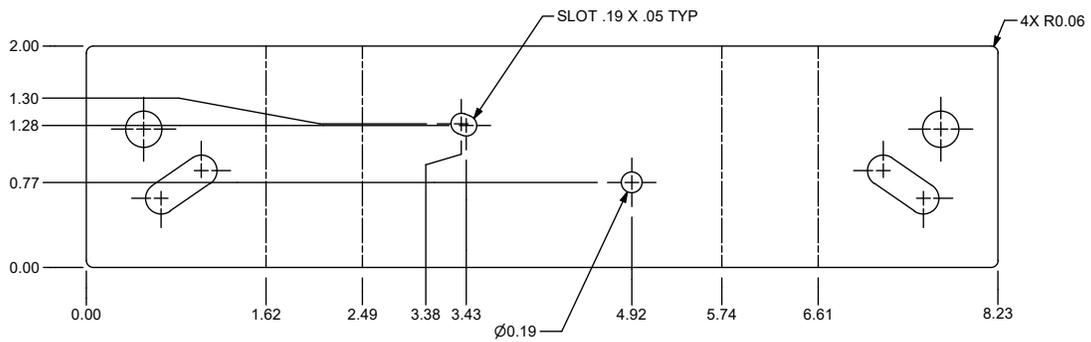
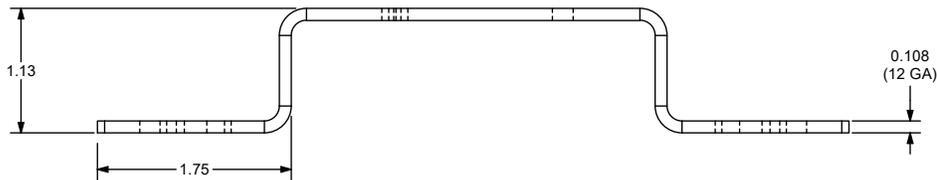
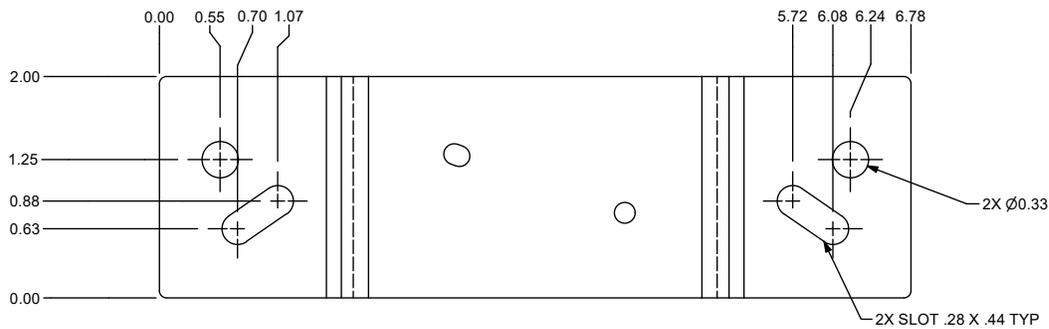
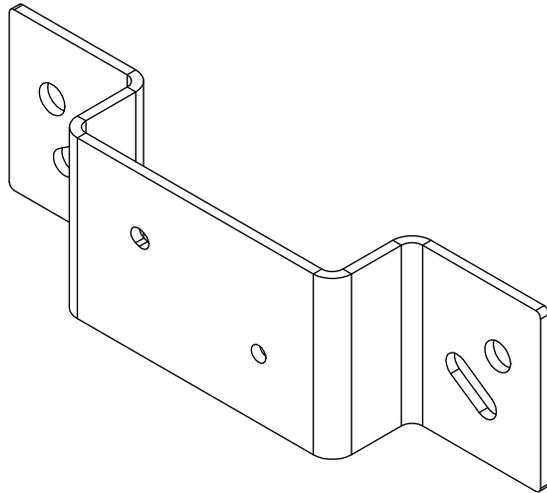
99906281 - Installation - Proportional Valve Driver



99906281 - INSTALLATION - PROPORTIONAL VALVE DRIVER

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	51728392	INSTL-KIT VALVE DRIVER	REF
2	60147176	VALVE DRIVER INSTL BRACKET	1
3	72060004	CAP SCR .25-20X 1.00 HH GR5 Z	2
4	72062104	NUT .25-20 HEX NYLOCK	2
5	72063001	WASHER .25 FLAT	4
6	72063271	WASHER # 8 W FLAT ANSI B27.2Z	2
7	72060610	SCR-MACH # 8-32X .50 RDH	2
8	72062307	NUT-SS # 8-32 HEX NYLOC	2
9	77040848	VALVE DRIVER PROPORTIONAL PROGR	1
10	72060025	CAP SCR .31-18X 1.00 HH GR5 Z	2
11	72063002	WASHER .31 FLAT	4
12	72062167	NUT-SS .31-18 HEX NYLOC	2
REV. INITIAL RELEASE			

60147176 - Valve Driver Installation Bracket

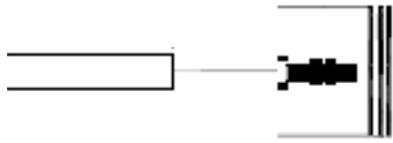


VALVE DRIVER INSTALLATION KIT (51728392) PARTS LIST

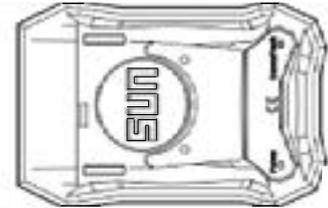
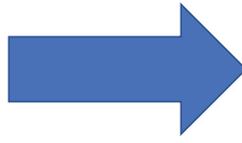
PART NO.	DESCRIPTION	QTY.
72060004	CAP SCR .25-20X 1.00 HH GR5 Z	2
72062104	NUT .25-20 HEX GR5 Z NYLOCK	2
72063001	WASHER-FLAT .25 W ANSI B27.2 Z	4
72063271	WASHER-FLAT # 8 W ANSI B27.2 Z	2
72060610	SCR-MACH # 8-32X .50 RDH	2
72062307	NUT # 8-32 HEX SS 18-8 NYLOCK	2
60147176	VALVE DRIVER INSTL BRACKET	1
72060025	CAP SCR .31-18X 1.00 HH GR5 Z	2
72063002	WASHER-FLAT .31 W ANSI B27.2 Z	4
72062167	NUT .31-18 HEX SS 18-8 NYLOCK	2

Electrical Connection

Connect the provided harness to the driver

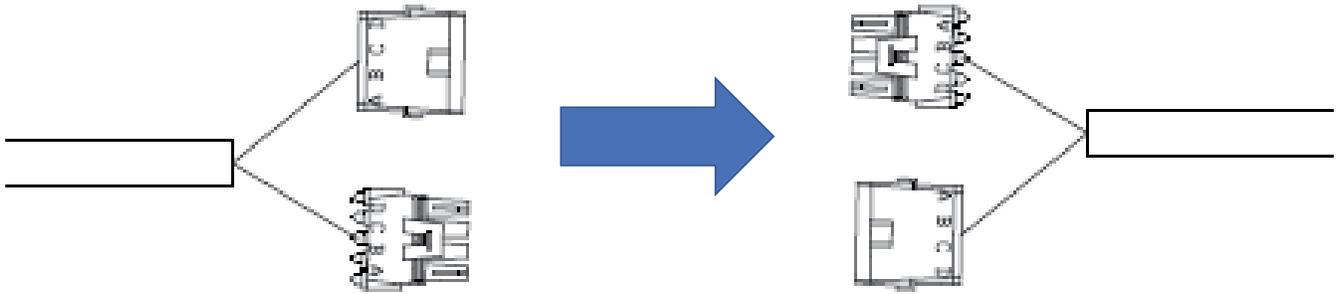


Harness



Driver

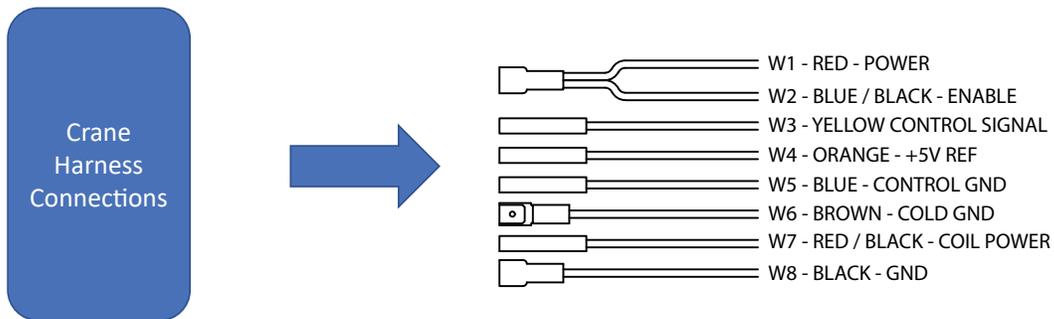
77040845 - Electrical Connection - Model 1 (Uses Harness 77441738)



NOTES:

1. CONNECT THE CRANE HARNESS TO THE PROVIDED DRIVER HARNESS.
2. FOR COMPLETE ELECTRICAL HARNESS DRAWINGS, SEE SECTION 5, ELECTRICAL SCHEMATICS.

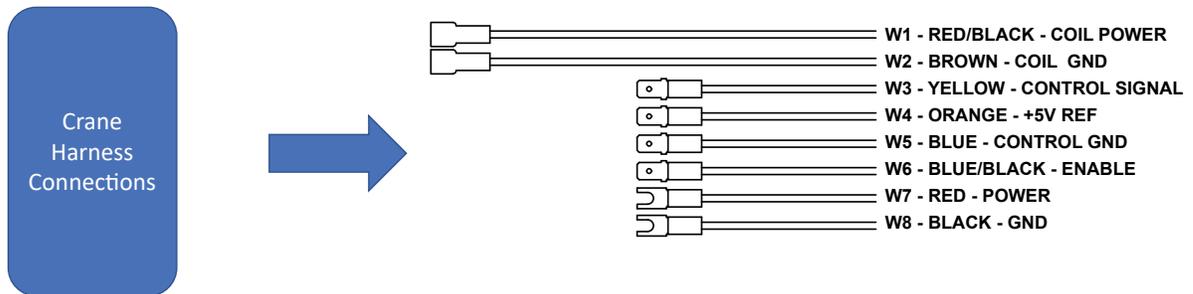
77040846 - Electrical Connection - Model 2 (Uses Harness 77441739)



NOTES:

1. CONNECT THE CRANE HARNESS TO THE PROVIDED DRIVER HARNESS.
2. FOR COMPLETE ELECTRICAL HARNESS DRAWINGS, SEE SECTION 5, ELECTRICAL SCHEMATICS.

77040847 - Electrical Connection - Model 3 (Uses Harness 77441740)



NOTES:

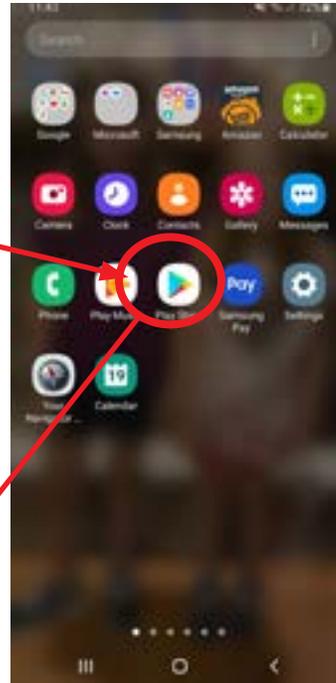
1. CONNECT THE CRANE HARNESS TO THE PROVIDED DRIVER HARNESS.
2. FOR COMPLETE ELECTRICAL HARNESS DRAWINGS, SEE *SECTION 5, ELECTRICAL SCHEMATICS*.

Section - 3

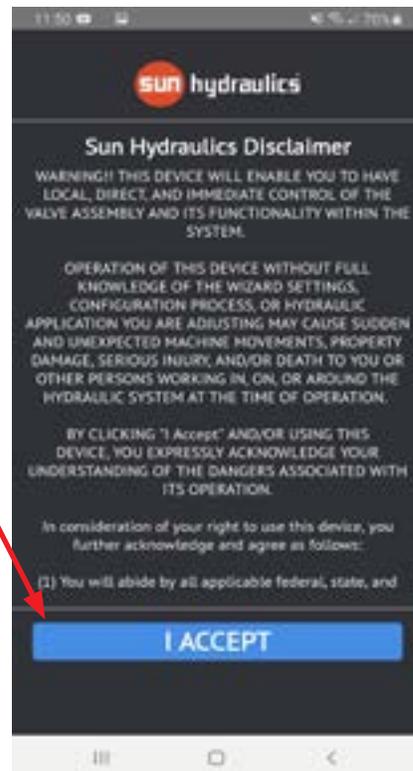
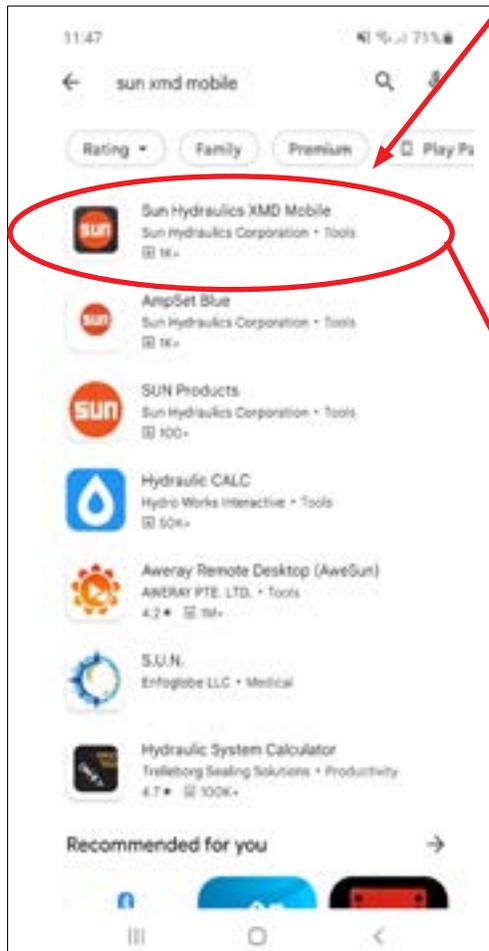
**Smart Phone App
Installations**

Android Phone

NOTE: SEE DRIVER MODULE FOR LIST OF COMPATIBLE DEVICES

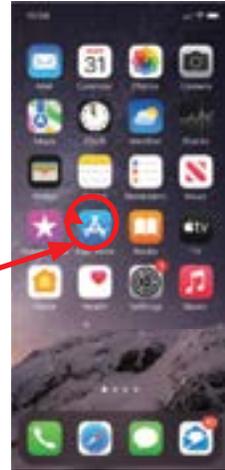


1. Double-click on the Google Play Icon.
2. In the search box, type in Sun Hydraulics XMD Mobile.
3. Double-click on the Sun Icon, then click I ACCEPT
4. Follow the prompts to complete the installation.



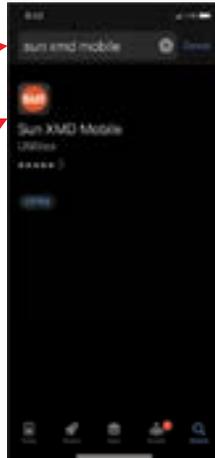
IOS (Apple Phone)

NOTE: SEE DRIVER MODULE FOR LIST OF COMPATIBLE DEVICES



1. Double-click on the App Store Icon.
2. In the search box, type in Sun XMD Mobile.

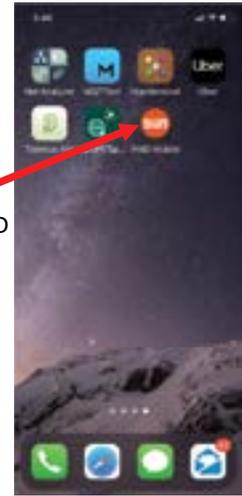
Search for 'sun XMD Mobile'



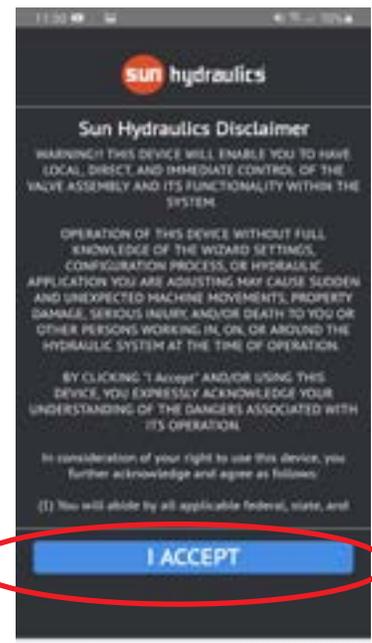
Click to install the 'Sun XMD Mobile' App

3. Follow the prompts to complete the installation.

Locate and click the 'XMD Mobile' icon



4. Read and accept the **Sun Hydraulics** disclaimer by clicking 'I ACCEPT' button.



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Section - 4

**Setting Up the Valve
Driver**

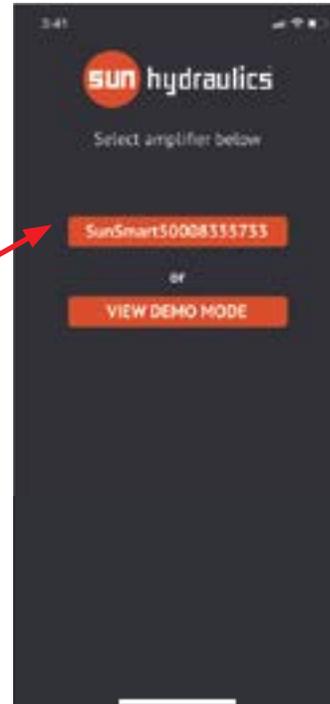
Setting Up the Valve Driver

NOTE:
REMOVE THE PROPORTIONAL VALVE COIL FROM THE CRANE VALVE BANK!

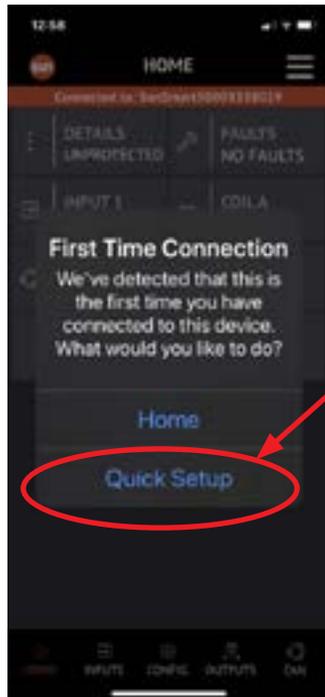
1. Remove the proportional valve coil from the crane valve bank.
2. Power up the crane.

3. After the App finds the driver, click on the corresponding button.

NOTE:
FOR TROUBLESHOOTING SEE *SECTION 6, IOS APPENDIX A.*



4. When connecting the first time with the driver, select, **Quick Setup**.



5. When connecting the first time with the driver, select, **Single Output Dual Slope**.



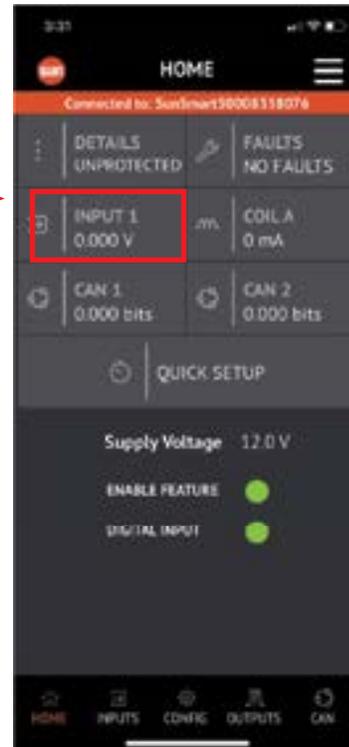
NOTE:
REMOVE THE PROPORTIONAL VALVE COIL FROM THE VALVE BANK!

1. With remote trigger **NOT** squeezed, read and write down the 'INPUT 1' value. 

TRIGGER NOT SQUEEZED: _____ V

2. With remote trigger **FULLY** squeezed, read and write down the 'INPUT 1' value

TRIGGER FULLY SQUEEZED: _____ V



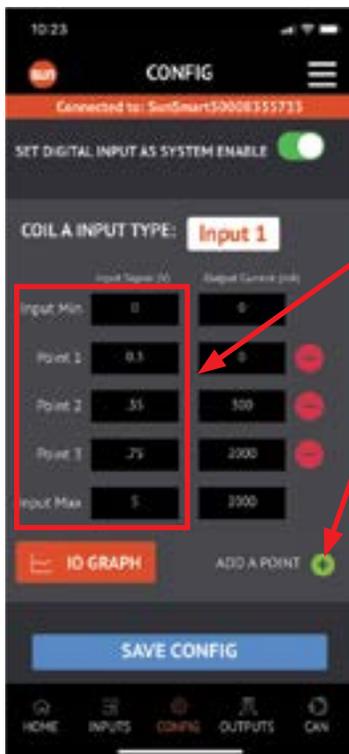
Select the 'CONFIG' tab.



1. Click, 'ADD A POINT' until the screen has:

- 'INPUT MIN'
- 'POINT 1'
- 'POINT 2'
- 'POINT 3'
- 'INPUT MAX'

As shown in illustration.



HOW TO CALCULATE 'POINT 1' VALUE:
'POINT 1' = 'TRIGGER NOT SQUEEZED' + 0.20 volts.



Enter the calculated **'POINT 1'** value to the table on the App.

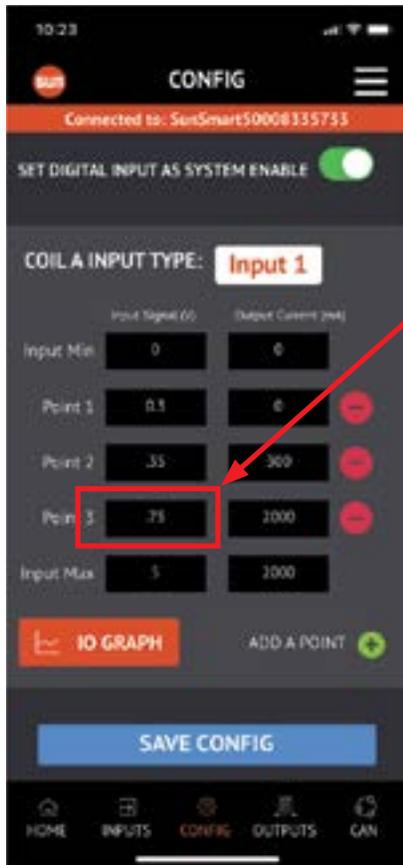


Enter **0** to the table on the App.

HOW TO CALCULATE 'POINT 2' VALUE:
'POINT 2' = 'TRIGGER NOT SQUEEZED' + 0.30 volts.

Enter the calculated **'POINT 2'** value to the table on the App.



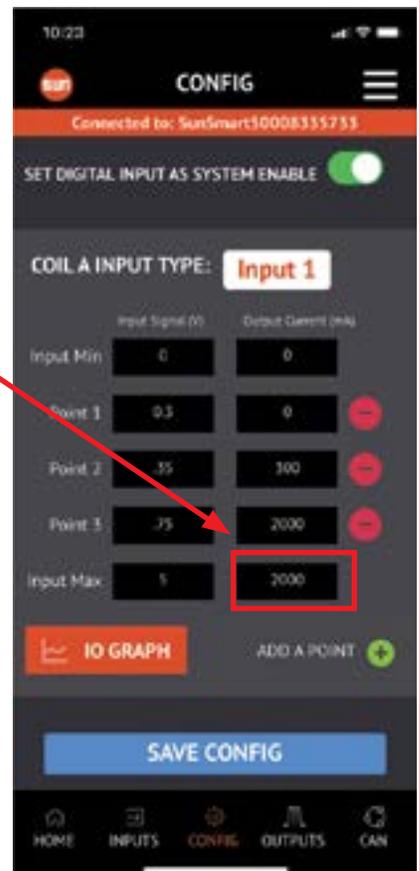


HOW TO CALCULATE 'POINT 3' VALUE:

Enter 'TRIGGER FULLY SQUEEZED' value to 'POINT 3' on the the App.



Enter 2500 to BOTH boxes on the App.

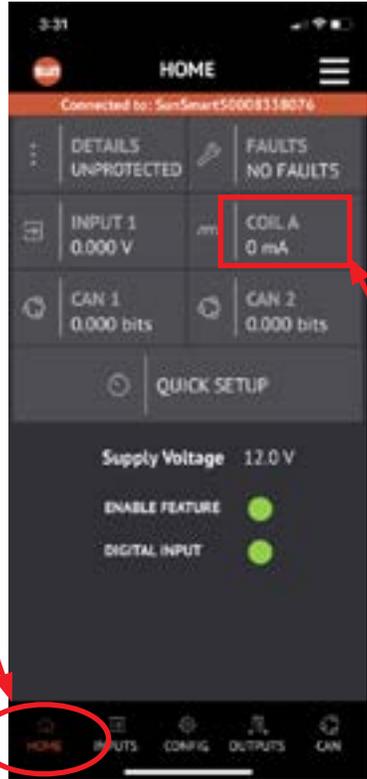




Click '**SAVE CONFIG**' button and confirm.

**NOTE:
REMOVE THE PROPORTIONAL VALVE COIL FROM THE VALVE BANK!**

1. Select 'HOME' screen.



COIL MAX current: _____ mA

2. With remote trigger fully squeezed, read and write down the 'COIL A' value

NOTE:
INSTALL THE PROPORTIONAL SOLENOID BACK IN THE VALVE BANK!

THIS STEP REQUIRES TWO QUALIFIED TECHNICIANS TO PERFORM SAFELY.

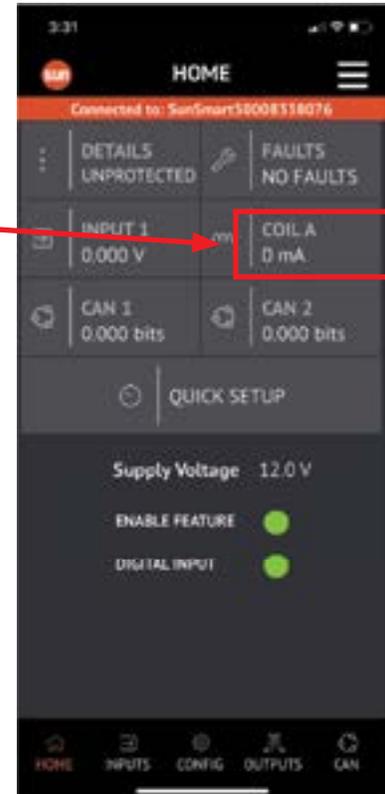
Technician #1:

Deploy the crane in a position that allows operating the winch safely. Observing the crane, pull winch down or winch up toggle on the remote. Squeeze the trigger until the winch starts moving.

Technician #2:

Read and write down the 'COIL A' value:

CRANE MOVING SLOW current: _____ mA.



Click '**CONFIG**' button.





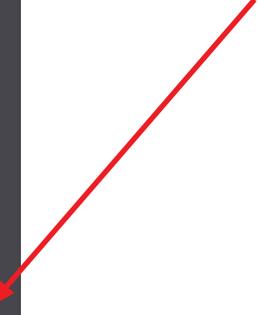
Enter '**CRANE MOVING SLOW**' current value to the table on the App.

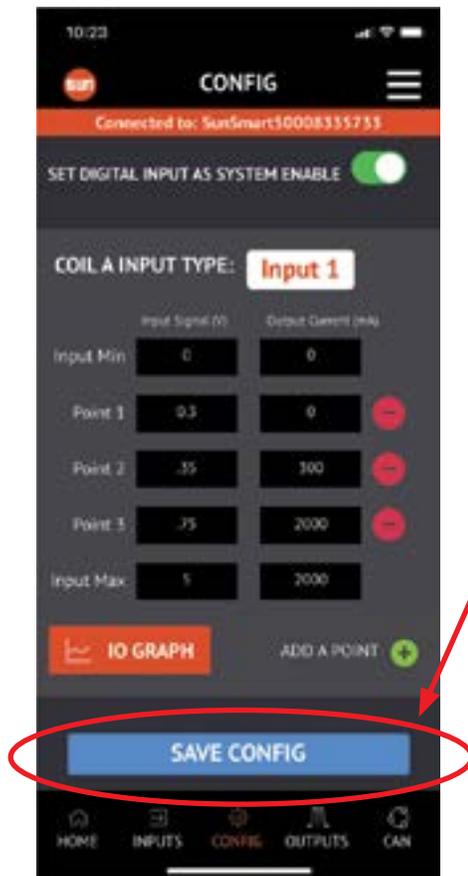


Enter '**COIL MAX**' current value to the table on the App.



Enter 'COIL MAX' current value to the table on the App.

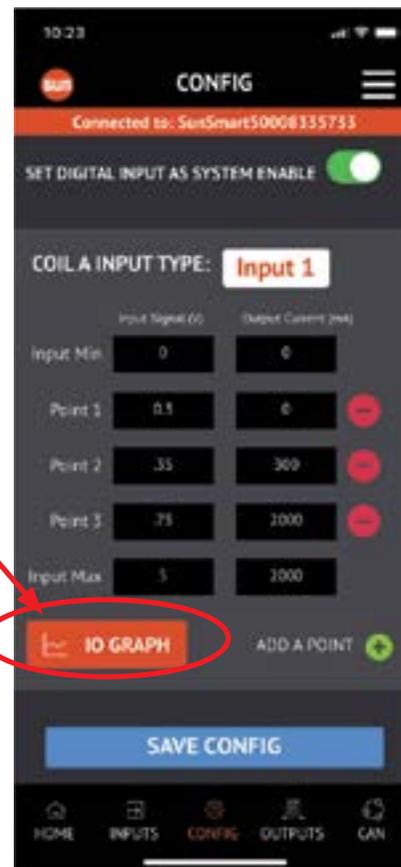




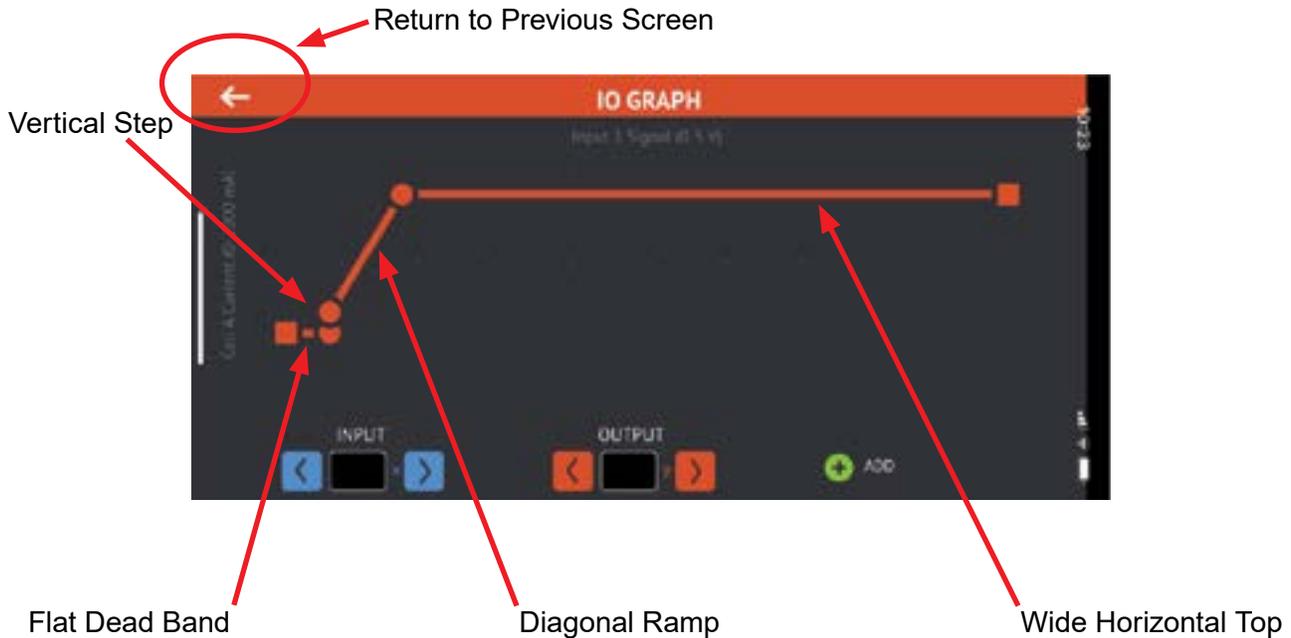
Click '**SAVE CONFIG**' button and confirm

Click 'IO GRAPH' button.

NOTE:
THE APP WILL REQUIRE A FEW SECONDS TO
PROCESS THIS REQUEST PRIOR TO
DISPLAYING THE COMPLETE GRAPH
SHOWN ON THE NEXT STEP!



VERIFY THAT YOUR GRAPH LOOKS SIMILAR AND HAS THE FEATURES POINTED OUT BELOW.



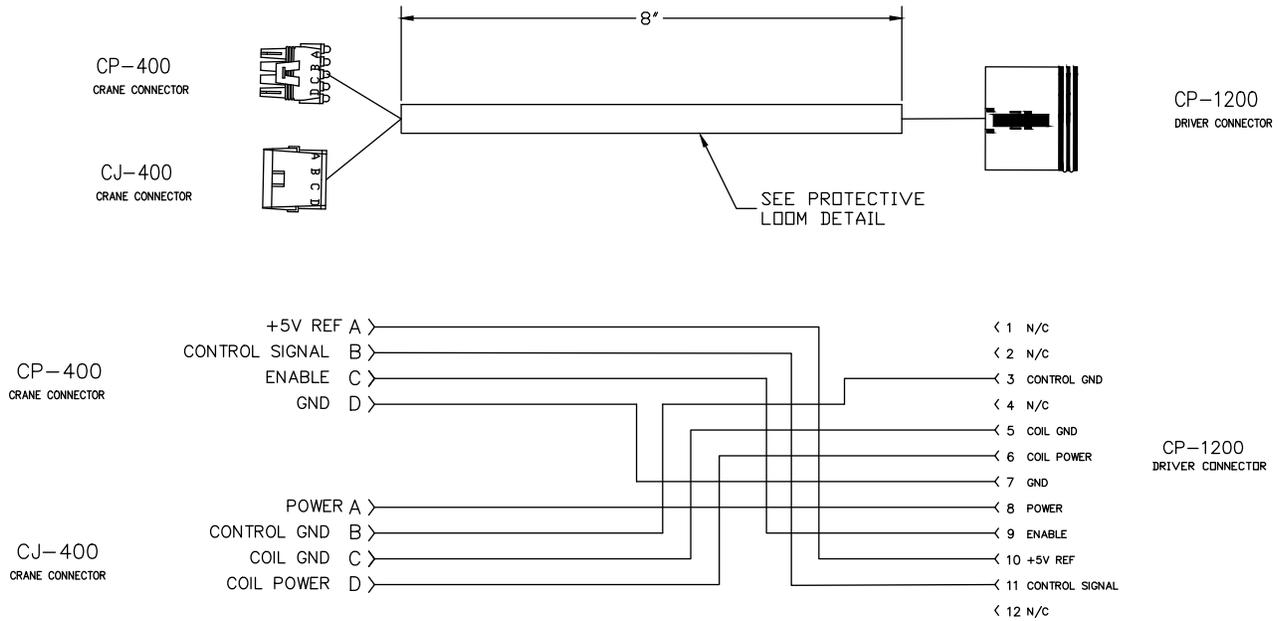
- Your Valve Driver Configuration is now completed.
- Test the crane functionality following all safety information and instructions contained in this manual and on the equipment, as well as any requirements of local, state, and federal law, industry standards, and any other applicable safety procedures.
- For additional information on the valve driver, consult the manufacturer's manual supplied with the driver, or visit their website, www.sunhydraulics.com
- For any questions, contact IMT Technical Support at 641-923-3711.

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Section - 5

**Electrical
Schematics**

77441738 - Harness - Driver - Model 1

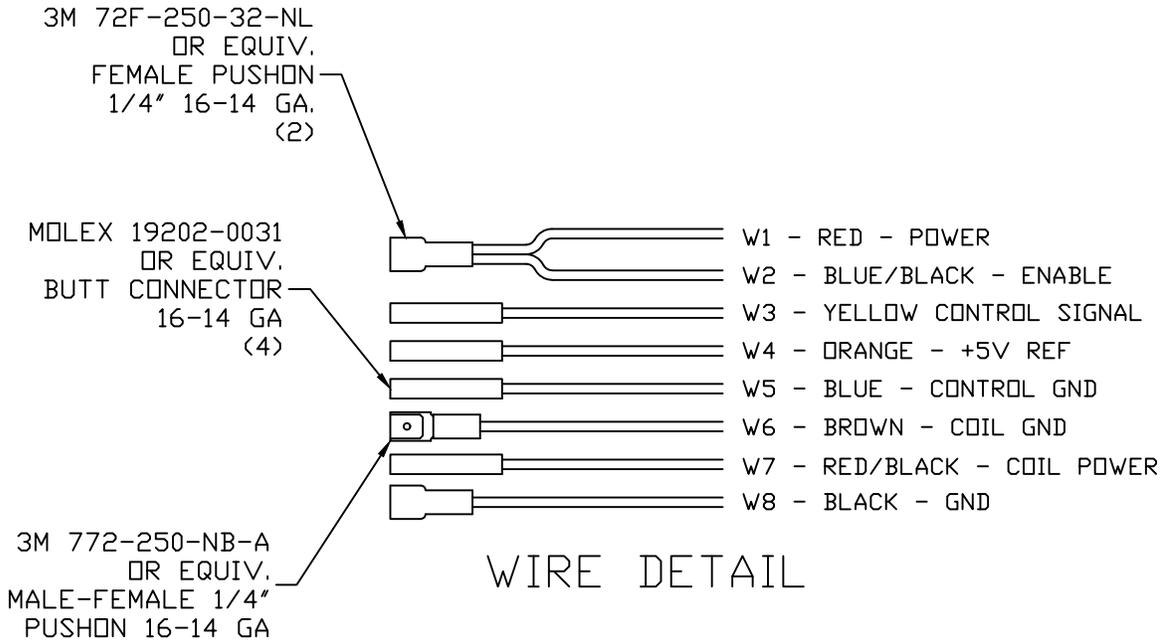
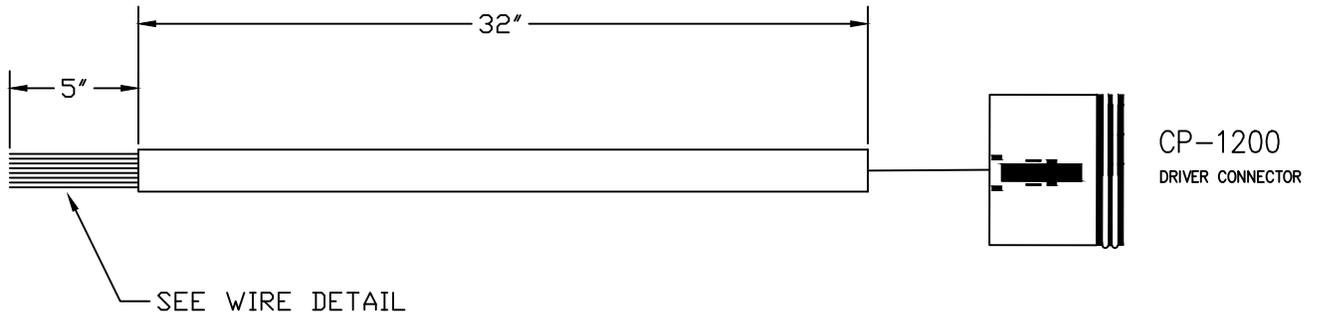


LOCATOR CODE: CP-1200			DEUTSCH: DT06-12SA			
TERM: 0462-201-16141			WEDGE: W12S		CAVITY PLUG: 114017	
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
1	-	-	-	TO	-	-
2	-	-	-	TO	-	-
3	BU	16	CONTROL GND	TO	CJ-400	B
4	-	-	-	TO	-	-
5	BN	16	COIL GND	TO	CJ-400	C
6	RD/BK	16	COIL POWER	TO	CJ-400	D
7	BK	16	GND	TO	CP-400	D
8	RD	16	POWER	TO	CJ-400	A
9	BU/BK	16	ENABLE	TO	CP-400	C
10	OG	16	+5V REF	TO	CP-400	A
11	YE	16	CONTROL SIGNAL	TO	CP-400	B
12	-	-	-	TO	-	-

LOCATOR CODE: CP-400			PACKARD: 12015797			
TERM: 12089188			SEAL: 12015323			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	OG	16	+5V REF	TO	CP-1200	10
B	YE	16	CONTROL SIGNAL	TO	CP-1200	11
C	BU/BK	16	ENABLE	TO	CP-1200	9
D	BK	16	GND	TO	CP-1200	7

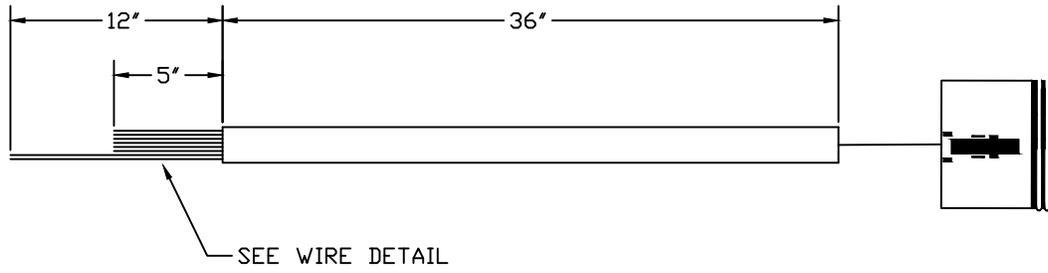
LOCATOR CODE: CJ-400			PACKARD: 12010974			
TERM: 12089040			SEAL: 12015323			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	RD	16	POWER	TO	CP-1200	8
B	BU	16	CONTROL GND	TO	CP-1200	3
C	BN	16	COIL GND	TO	CP-1200	5
D	RD/BK	16	COIL POWER	TO	CP-1200	6

77441739 - Harness - Driver - Model 2

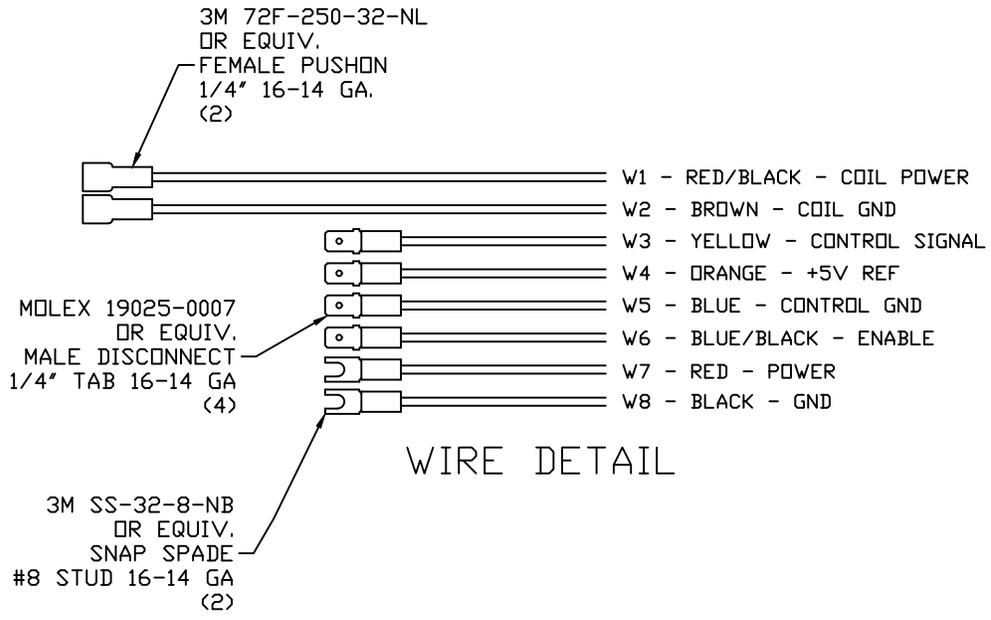


LOCATOR CODE: CP-1200			DEUTSCH: DT06-12SA			
TERM: 0462-201-16141			WEDGE: W12S		CAVITY PLUG: 114017	
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
1	-	-	-	TO	-	-
2	-	-	-	TO	-	-
3	BU	16	CONTROL GND	TO	W5	-
4	-	-	-	TO	-	-
5	BN	16	COIL GND	TO	W6	-
6	RD/BK	16	COIL POWER	TO	W7	-
7	BK	16	GND	TO	W8	-
8	RD	16	POWER	TO	W1	-
9	BU/BK	16	ENABLE	TO	W2	-
10	OG	16	+5V REF	TO	W4	-
11	YE	16	CONTROL SIGNAL	TO	W3	-
12	-	-	-	TO	-	-

77441740 - Harness - Driver - Model 3



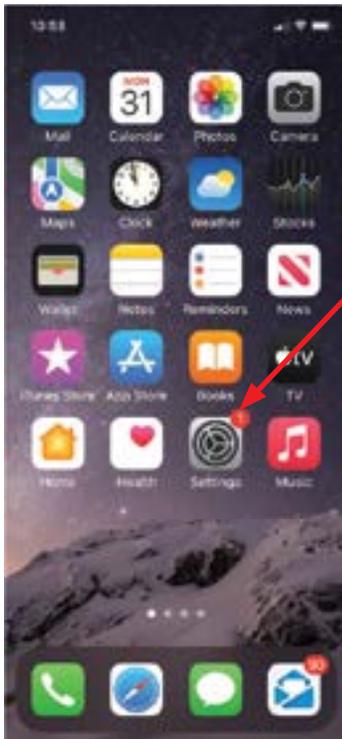
CP-1200
DRIVER CONNECT



LOCATOR CODE: CP-1200			DEUTSCH: DT06-12SA			
TERM: 0462-201-16141		WEDGE: W12S		CAVITY PLUG: 114017		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
1	-	-	-	TO	-	-
2	-	-	-	TO	-	-
3	BU	16	CONTROL GND	TO	W5	-
4	-	-	-	TO	-	-
5	BN	16	COIL GND	TO	W2	-
6	RD/BK	16	COIL POWER	TO	W1	-
7	BK	16	GND	TO	W8	-
8	RD	16	POWER	TO	W7	-
9	BU/BK	16	ENABLE	TO	W6	-
10	OG	16	+5V REF	TO	W4	-
11	YE	16	CONTROL SIGNAL	TO	W3	-
12	-	-	-	TO	-	-

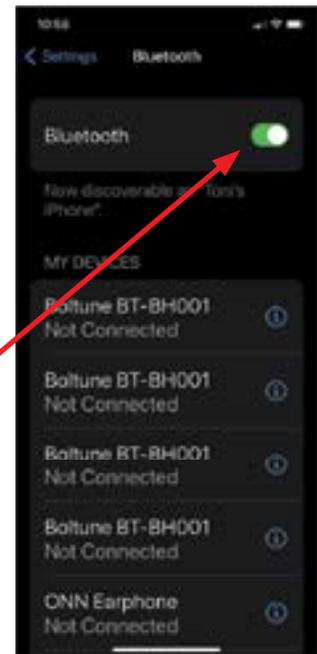
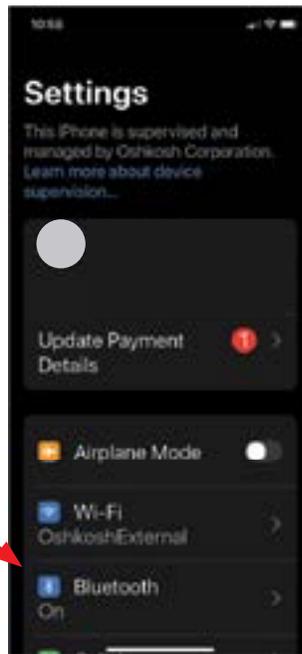
Section - 6

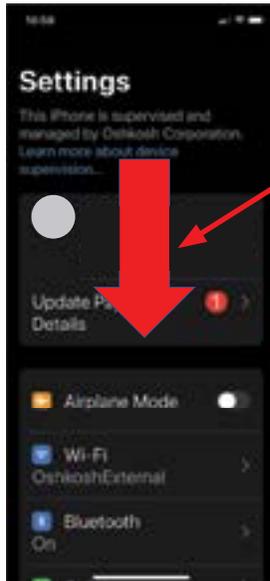
IOS Appendix A



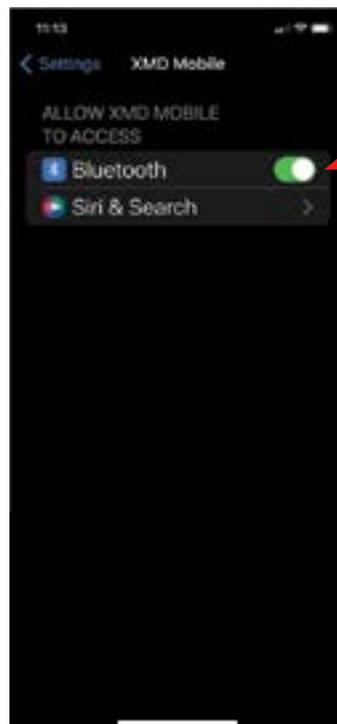
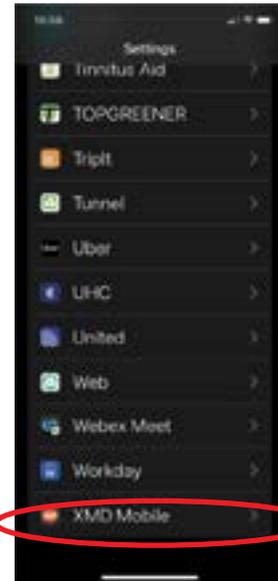
Locate and click on the 'Settings' icon.

Confirm that 'Bluetooth' is **ON**.
To turn **ON**, click the selection and use the slider.





Scroll down the 'Settings' screen to 'XMD Mobile' and click the selection.



Confirm that 'Bluetooth is ON'. To turn ON, use the slider.

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An Oshkosh Corporation company

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