



7170 Jog Lever

Owner's Operation, Installation & Maintenance Manual



February 2019

Kobelt Manufacturing Co. Ltd.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

RECORD DATA BEFORE INSTALLATION FOR FUTURE REFERENCE	
Model #:	
Serial #:	
Date of Purchase:	
Date of Installation:	

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1 INTRODUCTION

1.1 CONTACT

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This document is intended to clearly present comprehensive product data and provide technical information to assist the end user in design applications. Kobelt reserves the right, without notice, to change the design, or construction, of any products and to discontinue or limit distribution of any products. Kobelt also reserves the right to change, or update, without notice, any technical information contained within this document.

Kobelt recommends that customers visit our website to check for updates to this Manual. Once a product has been selected for use, it should be tested by the user to ensure proper function in all possible applications. For further instructions, please contact our distributors or visit our website.

1.2 SAFETY

1.2.1 Safety Alerts

Throughout this manual, the following symbols, and their accompanying explanation, are used to alert the user to special instructions concerning a service or operation that may be hazardous if performed incorrectly or carelessly. The associated risk levels are stated below.

 DANGER	This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	This symbol indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
NOTICE	This symbol informs the reader of events not related to personal injury but which there is a risk of damage to property or equipment.
SAFETY INSTRUCTIONS	This symbol informs the reader of safety-related instructions or procedures.

1.2.2 Notice to Installer

Disregarding the following safety measures can result in an accident causing severe injury to personnel and damage to material assets.

- Only use the product as directed in this manual.
- Never put the product into service if there is evidence of visible damage.
- Never put the product into service before fully completing installation and commissioning.
- Do not carry out any modifications to the product.
- Only use authentic Kobelt spare parts.
- Observe all local regulations, directives and laws during the installation of this product.
- All installation, commissioning, and maintenance work must only be conducted by qualified personnel. (For the purpose of this manual, qualified personnel are persons who are familiar with the assembly, installation, commissioning, and operation of the product and who have the qualifications necessary for their occupation.)
- Observe all specifications in this manual. If these guidelines are not followed and damage occurs, the warranty will be voided.

1.2.3 Product Hazards



Disconnect Power: Turn off power at distribution panel before beginning installation to protect installer from electrical hazards.



Voltage and Current Compatibility: Confirm that the power source is compatible with the maximum voltage and current ratings of is product variant. Failure to do so could result in damage or fire.

2 PRODUCT DESCRIPTION

The Kobelt 7170 Jog Lever is used for input jog control to electronic and power hydraulic steering systems. The operator can maneuver the vessel by simply jogging the lever port or starboard to activate its internal micro switches. The Jog Lever can be used for steering applications, other marine applications, or industrial installations.

The 7170 is designed for indoor and outdoor installation with a robust die cast bronze and stainless steel construction to provide a long service life in a harsh marine environment.

The 7170 is available in a combination of black and chrome, all black, or all polished chrome to suit your appearance preference and offers cable configurations either from the top or bottom to accommodate a range of connection types and direction to match your application.

2.1 TECHNICAL DATA

Table 1: 7170 Technical Data

MODEL	7170					
KOBELT PART #	7170-A1	7170-A2	7170-B1	7170-B2	7170-C1	7171-C2
ELECTRICAL CONTACTS	1 Form A, NO (Normally Open) (per direction)					
MAXIMUM VOLTAGE	250 VAC / 24 VDC					
MAXIMUM CURRENT	10 A (per switch contact)					
HANDLE TRAVEL	20° (per direction)					
OPERATING FORCE	1.5 lb·f [6.7 N]					
PRODUCT FINISH	Black Body and Chrome Hub		All Black		All Chrome	
GLAND EXIT LOCATION	Top	Back	Top	Back	Top	Back
OPERATING TEMPERATURE	-13°F ... 158°F [-25°C ... 70°C]					
PRODUCT WEIGHT	2.1 lbs [0.95kg]					

3 INSTALLATION

3.1 MECHANICAL

Ideally, the jog lever should be mounted in a central location at each station on-board the vessel to control steering operation.

- Within 6 feet [1.8 m] of electrical junction box.
- Placed on horizontal or angled dash surface.
- Placed as to protect external electrical cable from damage.

The Jog Lever is equipped with (4) four clearance holes for #10 (M5) screws or bolts through the top surface for direct mounting to the dash. Ensure the unit is securely fastened to a suitable surface.

3.2 ELECTRICAL

The Jog Lever has a 6 foot [1.8 m] long 3C/18 cable for external connection. Connect it to an electrical junction box and the electronic or power hydraulic steering system interface.

The product's 3C/18 electrical cable contains the following wires and related functions:

Table 2: 7170 Wire Connections

7170				
Wire #	Wire Name	Colour	Gauge	Function
1	SWA-NO	Black	18AWG	Connects to COM when Switch A is activated.
2	SWB-NO	White	18AWG	Connects to COM when Switch B is activated.
3	COM	Green	18AWG	COM connection.

The cable penetration location is shown in Figure 1 and the internal wire connections are shown in Figure 2.

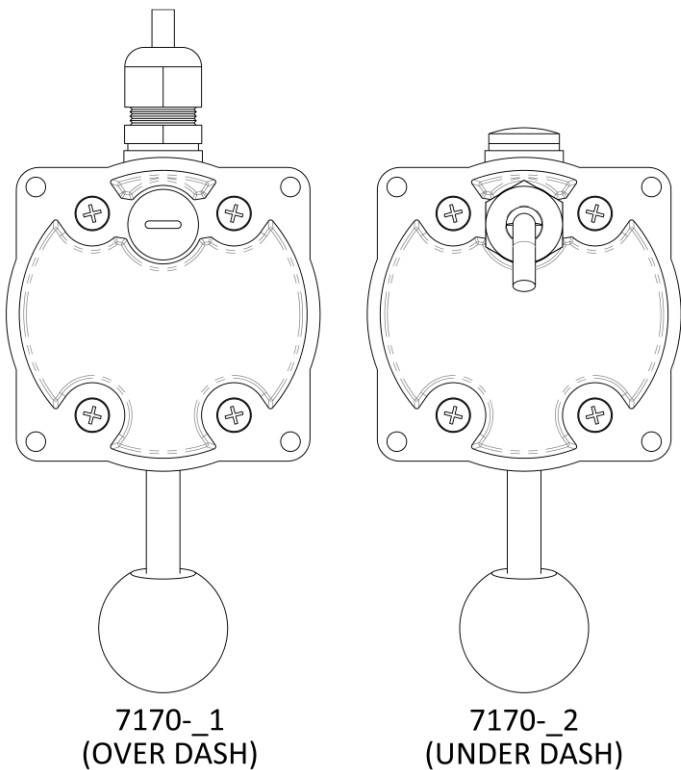


Figure 1: 7170 Cable Penetration Location

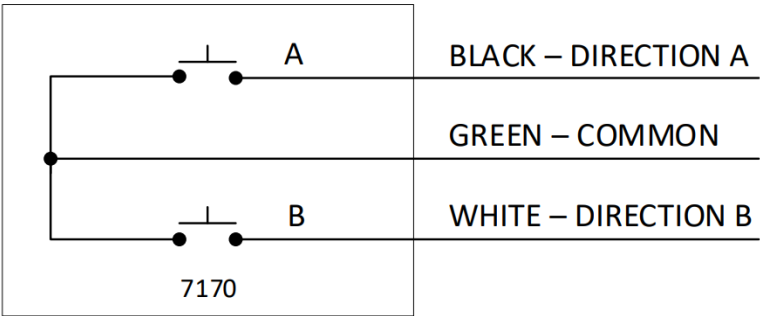


Figure 2: 7170 Internal Wiring Diagram

The operating direction of the Switches in relation to the Jog Lever handle is shown in Figure 3.

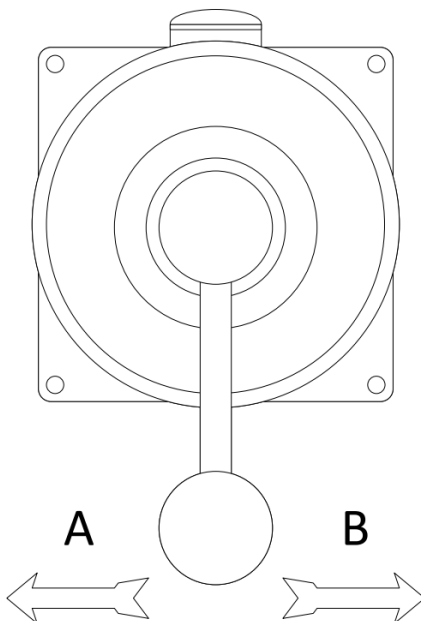


Figure 3: 7170 Switch Direction Diagram



WARNING

Do not operate the Jog Lever if the internal spring has broken.
Unexpected operation could result.

4 COMMISSIONING

4.1 ELECTRICAL CHECK



CAUTION

Ensure that the rear cover is installed and secured before powering on the 7170.

- Confirm that the electrical connections to the 7170 have been made.

4.2 FUNCTIONAL TEST



CAUTION

The Functional Test should be carried out while the vessel is still at dock and before it is taken out to sea after installation has been completed.

A complete functional test should be performed on the system that the Jog Lever has been installed within before entering operational use.

5 OPERATION

The Kobelt 7170 Jog Lever contains a pair of contact switches, one for each direction of travel. The Jog Lever also contains a centering spring that forces the lever back to centre when pressure is not being applied by the operator.

The Jog Lever can be operated either Port or Starboard (Left or Right) to command motion in the system it is controlling. The Jog Lever has three positions of operation as shown below.

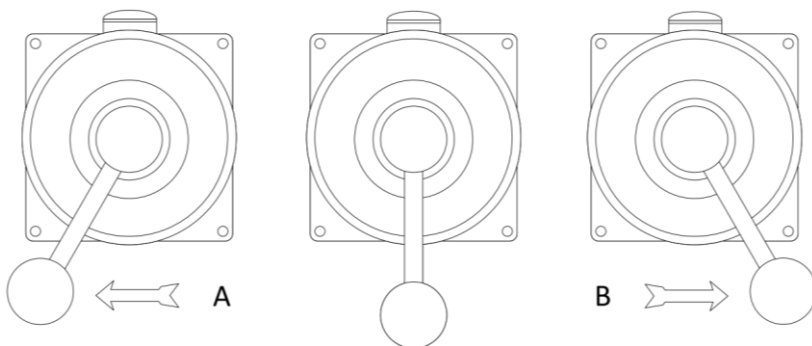


Figure 4: 7170 Positions of Operation, LEFT - CENTRE – RIGHT

6 MAINTENANCE

6.1 PREVENTATIVE MAINTENANCE

- Quarterly (4 times per year)
 - Visually inspect wire and cable insulation for splits or damage.
 - Ensure there is no visible corrosion on the unit.
- Every 2 years
 - Confirm cable glands are secured to cables.
 - Replace seals.
 - Replace tension spring.

6.2 RECOMMENDED SPARE PARTS AND KITS

As a minimum Kobelt recommends that a spare 7170 Repair Kit be kept on-hand.

Depending on the date of purchase, a retro-fit kit may be required to mount the new more robust spring found in the 7170 Repair Kit. When ordering a retro-fit kit, a repair kit should also be ordered and installed together.

Table 3: Available Kits

AVAILABLE KITS		
QTY	ITEM	KOBELT PART #
1	7170 REPAIR KIT	7170-RK
1	7170 RETRO-FIT KIT	7170-RF

When purchasing spare parts refer to Appendix B: Parts List at the back of this manual for Kobelt component Part Numbers.

NOTICE

It is recommended that any required service work on a Kobelt unit be performed by a factory authorized service representative. Please contact the nearest Kobelt authorized distributor for assistance.

7 TROUBLESHOOTING

If you encounter problems with the operation of your product, please refer to the trouble-shooting suggestions before contacting Kobelt for assistance. If the steps below do not resolve your issue, please reach out either Kobelt directly or our Dealers in your area.

Table 4: Common Solutions

Problem (Issue encountered)	Cause (What it means)	Corrective Action (What to do)
Jog lever action is reversed.	Wiring is backwards.	1. Swap the Switch A and Switch B output wires to their respective system connections.
Jog lever does not move rudder at all.	Wiring is wrong.	1. Check wiring. 2. Refer to system design drawing for proper wiring.
	The rest of the system isn't hooked up correctly.	1. Check system wiring. 2. Confirm wiring to Jog Lever.
	Broken switch or contact.	1. Use a multi-meter to monitor the resistance of the wiring between switch contacts. 2. Check for normal operation of each switch by measuring the connection while jogging the lever. 3. Check both Switch A and Switch B directions. Replace any damaged switches.

8 WARRANTY

Kobelt Manufacturing Co. Ltd. ("Kobelt") warrants the Products and Parts manufactured by Kobelt to be free from defects in workmanship or material and that said products are designed mechanically and functionally to perform to specifications.

This warranty is effective providing:

- The equipment is used within the intended operating conditions and in accordance with Kobelt recommendations
- The equipment is installed according to equipment diagrams, specifications and recommendations which Kobelt has provided

This warranty becomes invalid if the factory supplied serial number has been removed or altered on the product. This warranty does not cover cosmetic damage or damage caused by an act of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to inappropriate equipment or attempted repair by anyone other than an authorized Kobelt representative.

Upon identification of a potential issue or defect with a Kobelt Product or Part, the Warranty Applicant ("Applicant") must immediately contact Kobelt and describe the issue in writing, by letter, fax, email or other electronic conveyance. Kobelt will then assess the cause of the defect and determine warranty applicability and appropriate remediation.

If any part is found to be defective, Kobelt will replace said part FOB the Kobelt factory provided that any such defective part is returned by the Buyer with freight and applicable forwarding charges prepaid by the Buyer. Kobelt's sole obligation to the Applicant will be to repair or replace the defective part with same or similar product, to a maximum value of the list price of the product or part. The Kobelt warranty does not cover labour charges, travel or any other associated expenses.

All Products and Parts manufactured by Kobelt, are subject to a warranty against manufacturer's defects in materials or workmanship for a period of two (2) years from the date of purchase.

Kobelt will be responsible for all Products or Parts sold by Kobelt but manufactured by 3rd party manufacturing companies. However, these products and parts are subject to applicable 3rd party warranties and may not be the same as the Kobelt warranty.

9 APPENDIX A: INSTALLATION DIMENSIONS

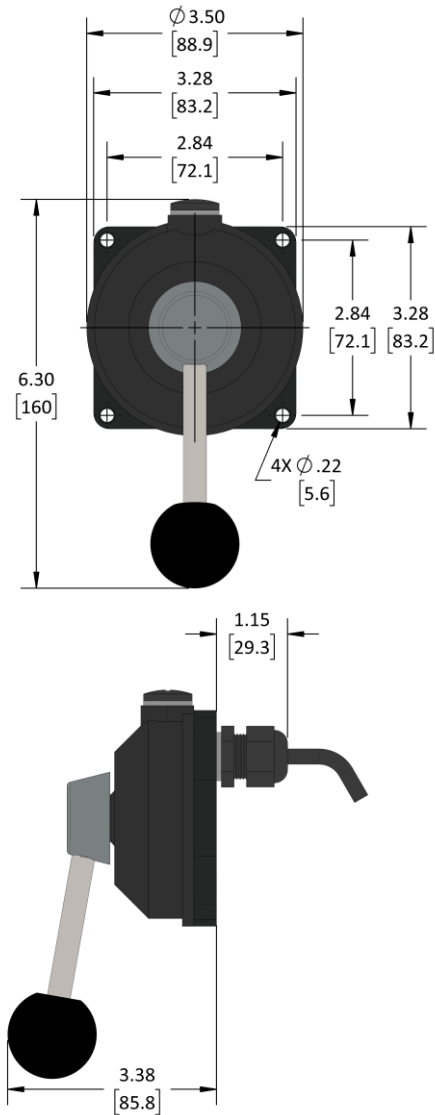


Figure 5: 7170 Installation Dimensions

10 APPENDIX B: PARTS LIST

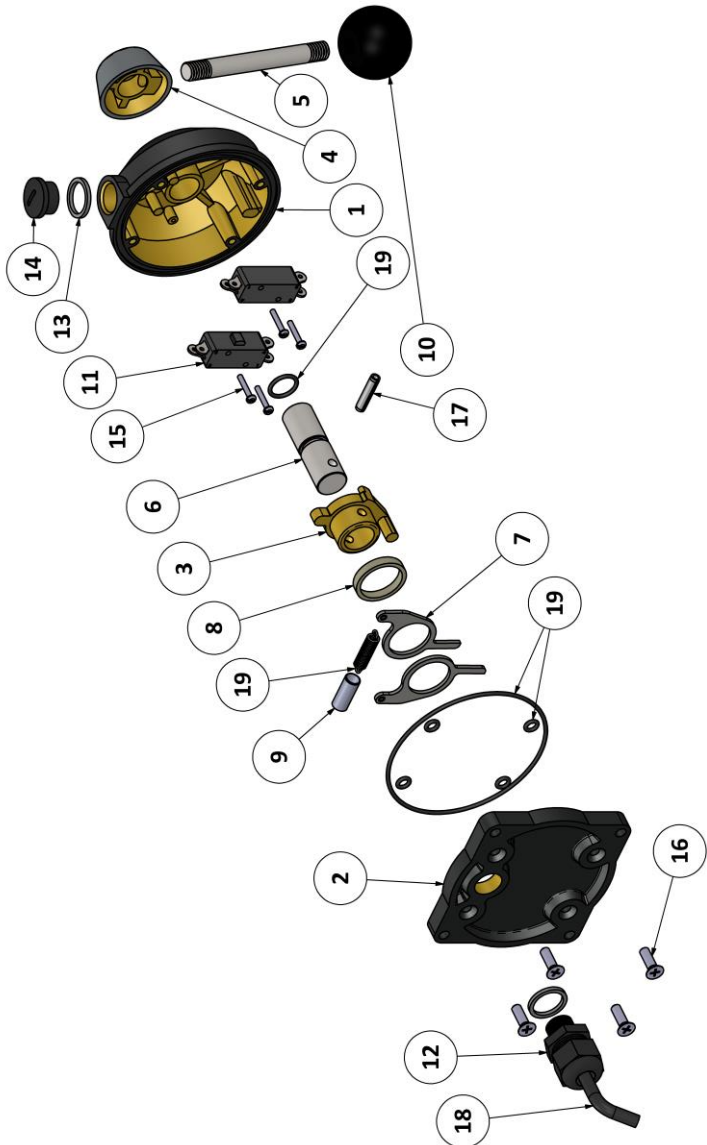


Figure 6: 7170 Parts Diagram

Table 5: 7170 Parts List

Model Number:			7170		
Part Number:			7170-A_	7170-B_	7170-C_
ITEM	QTY	DESCRIPTION	PART NUMBER		
1	1	JOG LEVER HOUSING	7170-0001B	7170-0001B	7170-0001-CHROME
2	1	JOG LEVER COVER	7170-0002B	7170-0002B	7170-0002-CHROME
3	1	CAM	7170-0003		
4	1	HUB	7170-0004-K	7170-0004B	7170-0004-K
5	1	HANDLE SHAFT	7170-0005		
6	1	SHAFT	7170-0006		
7	2	BRACKET, SPRING ARM	7170-0007		
8	1	SPACER, JOG LEVER	7170-0009		
9	1	BUSHING, SLEEVE, 7MM ID, G300 PLASTIC	7170-0010		
10	1	KNOB, BLACK	2030-0001		
11	2	MICROSWITCH	6001-0104		
12	1	CABLE GLAND, M16 X 1.5, NYLON, BLACK	6001-0248		
13	2	WASHER, M16, PE, CLEAR	6001-0248-W-M16		
14	1	PLUG, CABLE GLAND, M16 X 1.5, BLACK	6001-0311		
15	4	SCREW, PAN HD SLOTTED, 3-48 X 5/8, 18-8	1006-0310		
16	4	SCREW, FLAT HD PHL, 10-24 X 5/8, 18-8	1009-0810		
17	1	SPRING PIN, 3/16 X 7/8, SS	1024-0814		
18	2	CABLE, 3C/18AWG, SVT, 300V, 105C	6014-0001		
19	1	REPAIR KIT (SEALS AND SPRING) FOR 7170	7170-RK		

11 APPENDIX C: REPAIR KIT INSTALLATION

NOTICE

It is recommended that any required service work on a Kobelt unit be performed by a factory authorized service representative. Please contact the nearest Kobelt authorized distributor for assistance.

Steps for replacement of spring and seals:

1. Loosen cable gland.
2. Remove housing screws and cover plate.
3. Unthread handle shaft and remove shaft hub.
4. Remove spring arms (with spring and spring bushing attached).
5. Remove shaft assembly (be careful not to lose spacer).
6. Remove and replace small housing O-rings (4x). Refer to Figure 8.
7. Remove and replace large housing O-ring.
8. Remove and replace shaft O-ring.
9. Disconnect spring from spring arms.
10. Slide bushing onto new spring and re-attach to spring arms.
11. Reassemble unit as shown in Figure 7.
 - a. Use Loctite 242 or 243 on handle shaft threads and housing screw threads.
 - b. Ensure shaft has sufficient assembly grease (add more if necessary).
 - c. Refer to Figure 9 for spring arm orientation/order.

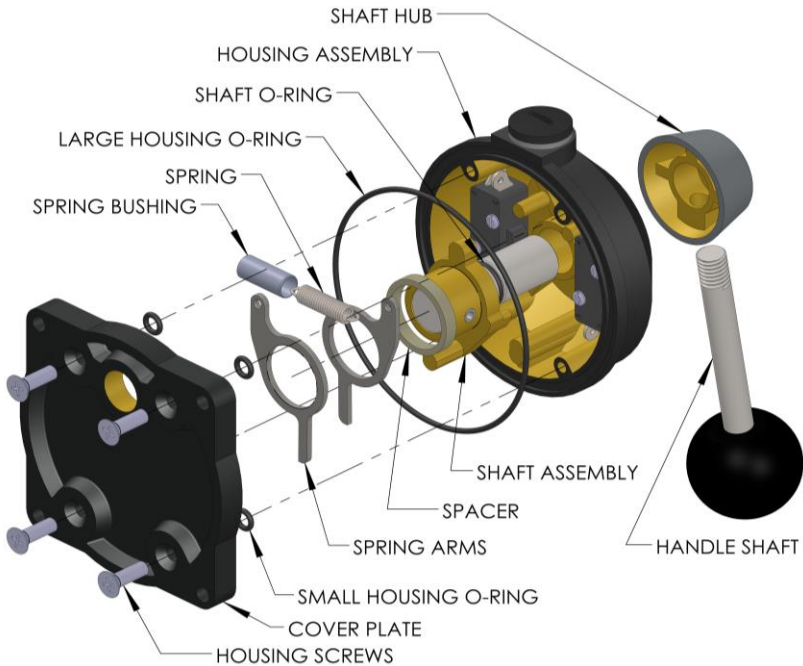


Figure 7: 7170 Parts Diagram for Maintenance



Figure 8: 7170 Maintenance Small Housing O-Rings Close-up

12 APPENDIX D: SPRING ARM REPLACEMENT

NOTICE

It is recommended that any required service work on a Kobelt unit be performed by a factory authorized service representative. Please contact the nearest Kobelt authorized distributor for assistance.

NOTICE

If your Jog Lever contains previous generation Spring Arms, indicated by straight spring arms within the unit, this Retrofit Kit should be applied to the unit during seal and tension spring replacement at the next preventative maintenance cycle.

Steps for replacement of spring and seals:

1. Complete Steps 1-5 of outlined in Appendix C: Repair Kit Installation.
2. Discard old spring arms and spring.
3. Slide bushing onto new spring.
4. Attach spring (with bushing) to spring arms.
5. Slide spacer onto shaft assembly (before spring arms).
6. Reassemble unit as per Step 11 of Appendix C: Repair Kit Installation.

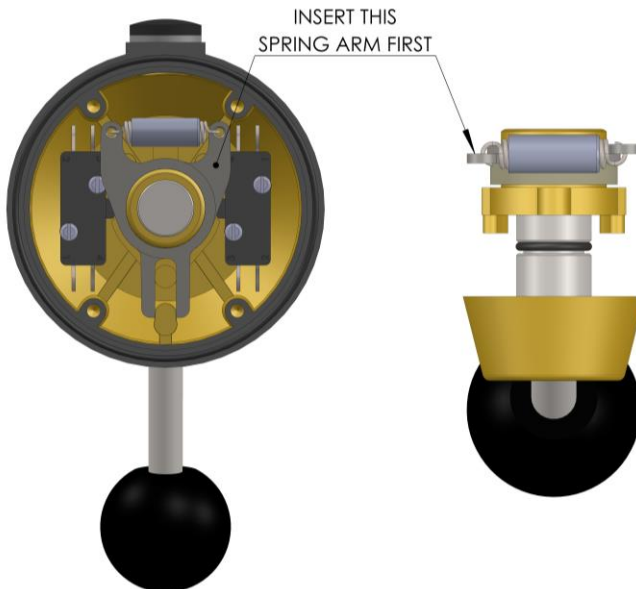


Figure 9: 7170 Spring Arm Order

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13 APPENDIX E: INSTALLATION CUT-OUT TEMPLATE

NOTICE

Scale may not be exactly 1:1 due to PDF and printer scaling. Verify primary dimension with a ruler after printing and before using to cut.

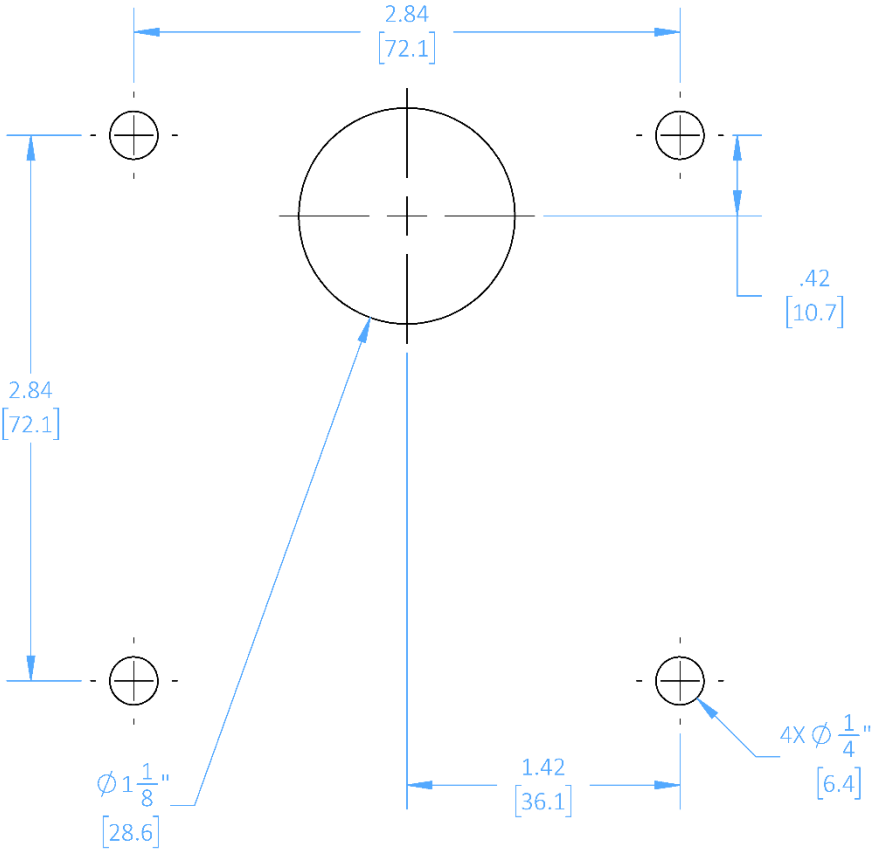


Figure 10: Installation Cut-out Template



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