

KOBELT

7195 Stacked Long Handle FFU Lever

Owner's Operation, Installation & Maintenance Manual



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(Rev A)

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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.

Kobel 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 COMPLIANT USE

This device is only intended for use by persons trained in operating marine systems.

The installer shall:

- Only use non-defective products.
- Check the safety of operation and the condition of the device before each use.
- Verify that the product is operational at all times and keep it in good working conditions.

Only Kobelt Manufacturing Co. Ltd. Authorized Dealers or Authorized Technicians are to repair Kobelt products.




1.3 COPYRIGHTS & TRADEMARKS

All product names, logos and brands are property of their respective owners. All company, product and service names used in this manual are for identification purposes only. Use of these names, logos, and brands does not imply endorsement.

2 SAFETY

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.

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.

2.3 PRODUCT HAZARDS



WARNING

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



CAUTION

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

3 ABOUT THE STACKED LONG HANDLE FFU LEVER

The Kobelt 7195 Stacked Long Handle FFU Lever is used as an input to Full Follow Up (FFU) electronic steering systems. The operator can maneuver the vessel by moving the lever port or starboard to adjust its internal potentiometer. The Stacked FFU Lever Controller can be used for steering applications, other marine applications, or industrial installations.

The 7195 is available with one or two potentiometers per handle and each handle includes a friction tensioning device. The top handle (usually for the flanking rudder system) is equipped with a center detent. The standard handle length is 16" (18" from center of hub). The 7195 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 7195 is available in black or chrome surface finishes to suit your appearance preferences.

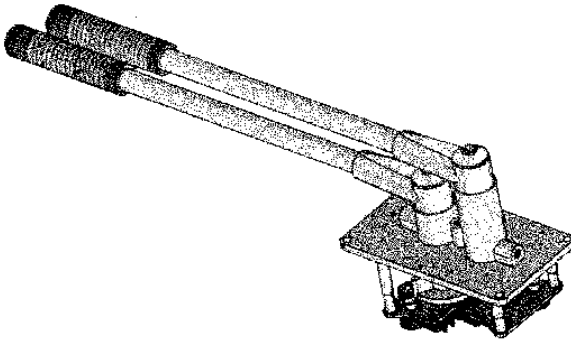


Figure 1: 7195 Overview Diagram

3.1 TECHNICAL DATA

Table 1: 7195 Technical Data

MODEL	7195			
KOBELT PART #	7195-B	7195-BPP	7195-C	7195-CPP
HANDLE TRAVEL	45° (per direction)			
SURFACE FINISH	Black		Chrome	
POTENTIOMETER VALUE	1kΩ (per handle)	2x 1kΩ (per handle)	1kΩ (per handle)	2x 1kΩ (per handle)
MAX. POTENTIOMETER POWER	1 W			
OPERATING TEMPERATURE	-25°C to 70°C [-13°F to 158°F]			
PRODUCT WEIGHT	4.3 kg [9.5 lbs]			

4 INSTALLATION

4.1 MECHANICAL

Ideally, the Stacked Long Handle FFU Lever should be mounted in a central location at each station on-board the vessel to control steering operation.

- Placed on horizontal or angled dash surface.
- Placed as to protect external electrical cable from damage.

The Stacked Long Handle FFU 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.

4.2 ELECTRICAL

The Stacked Long Handle FFU Lever has two terminal blocks for external field connections. Use them for connection to the steering system interface on the vessel.

The product's terminal blocks contain the following connections and related functions:

Table 2: 7195 Top Handle Terminal Block Connections

Position	Signal Name	Colour	Function
1	T_POT1+	White	Top handle Pot 1 power supply connection.
2	T_POT1_WIPER	Green	Top handle Pot 1 signal connection.
3	T_POT1-	Black	Top handle Pot 1 ground supply connection.
4	T_POT2+	White	Top handle Pot 2 power supply connection.
5	T_POT2_WIPER	Green	Top handle Pot 2 signal connection.
6	T_POT2-	Black	Top handle Pot 2 ground supply connection.

Table 3: 7195 Bottom Handle Terminal Block Connections

Position	Signal Name	Colour	Function
1	B_POT1+	White	Bottom handle Pot 1 power supply connection.
2	B_POT1_WIPER	Green	Bottom handle Pot 1 signal connection.
3	B_POT1-	Black	Bottom handle Pot 1 ground supply connection.
4	B_POT2+	White	Bottom handle Pot 2 power supply connection.
5	B_POT2_WIPER	Green	Bottom handle Pot 2 signal connection.
6	B_POT2-	Black	Bottom handle Pot 2 ground supply connection.

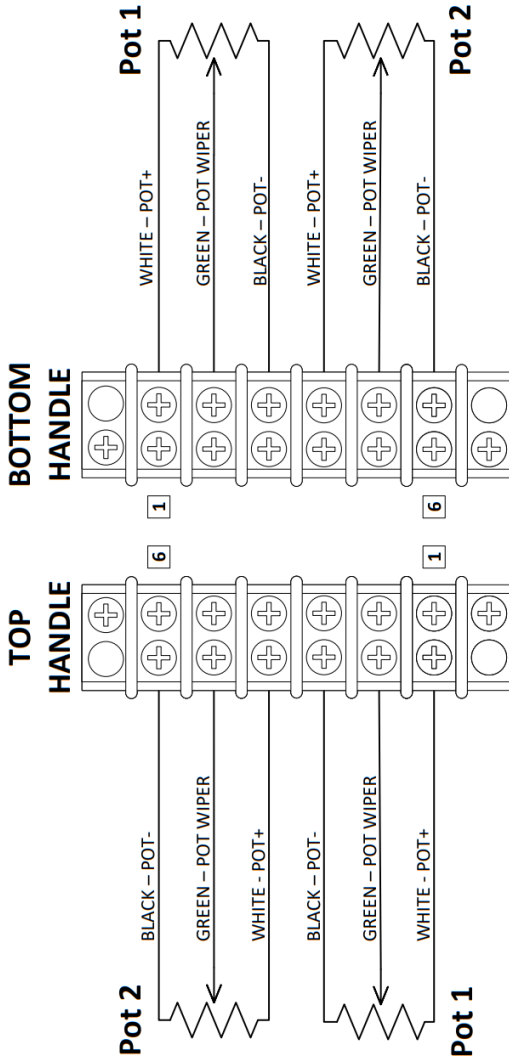


Figure 2: 7195 Internal Wiring and Connection Diagram

NOTE: Only Pot 1 is installed on single pot product variants.

The operating direction of the potentiometers in relation to the Stacked Long Handle FFU Lever handles is shown in Figure 3.

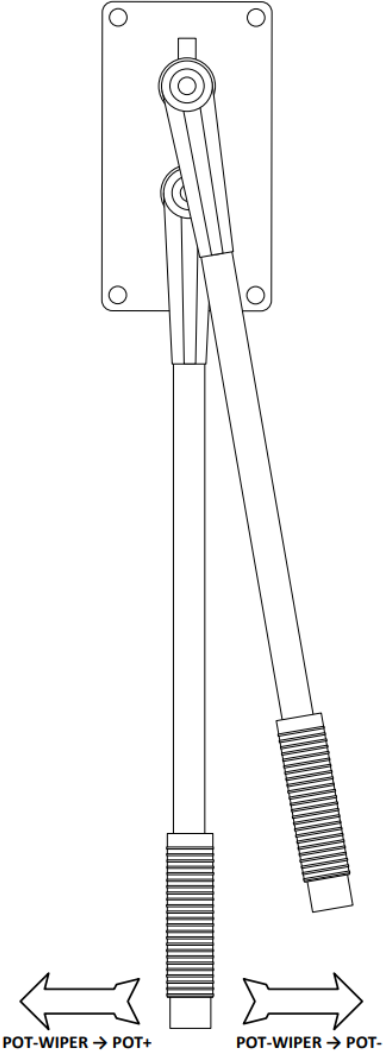


Figure 3: 7195 Potentiometer Direction Diagram

5 COMMISSIONING

5.1 ELECTRICAL CHECK



CAUTION

Ensure that the rear cover is installed and secured before powering on the 7195.

- Confirm that the electrical connections to the 7195 have been made.

5.2 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 Stacked Long Handle FFU Lever has been installed within before entering operational use.

6 OPERATION

The standard configuration of the Kobelt 7195 Stacked Long Handle FFU Lever contains a total of two (2) potentiometers, one (1) for each lever. The -PP variant contains two (2) potentiometers for each lever, for a total of four (4). Operating the Stacked Long Handle FFU Lever allows the hydraulic steering gear to move in the desired direction. When the handle is released, the FFU lever stays in that position, it does not spring back to centre.

This Stacked Long Handle FFU Lever provides Full Follow Up (FFU) control of the dual steering gear systems commonly found on Push Boats. In common configurations, one steering gear controls the steering rudders aft of the propellers while the other controls the flanking rudders, forward of the propellers.

The Stacked Long Handle FFU Lever can be operated either Port and Starboard, or Left and Right, to command motion in the system it is controlling. The range of the Stacked FFU Lever during operation is shown below. Range of movement is identical for top and bottom handles.

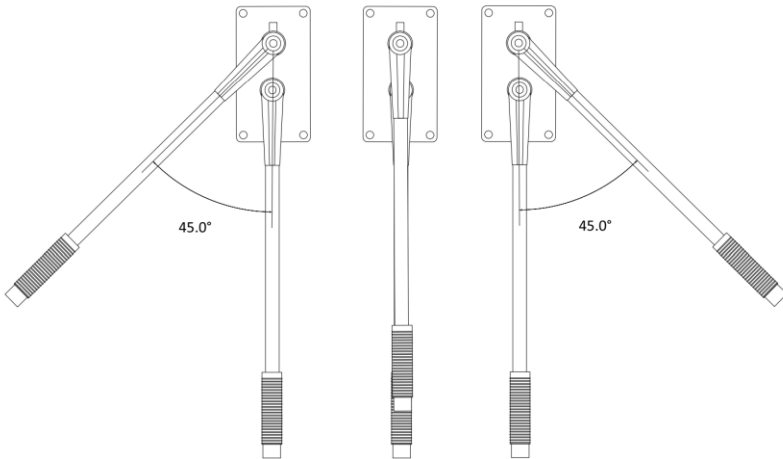


Figure 4: 7195 Top and Bottom Handle Positions of Operation, LEFT - CENTRE – RIGHT

NOTICE

Ensure that the FFU lever is set to within a few degrees of the current rudder angle before switching into FFU mode.

7 MAINTENANCE

7.1 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.
- Biennially (Once every 2 years)
 - Confirm all electrical screw terminals are secured.

7.2 RECOMMENDED SPARE PARTS

No spare parts are recommended for this unit due to the sealed nature of its design.

When purchasing replacement 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.

8 TROUBLESHOOTING

If you encounter problems with the operation of your product, please refer to the troubleshooting 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)
Stacked FFU Lever action is reversed.	Wiring is backwards.	Swap the POT+ and POT- output wires to their respective system and handle connections.
Stacked FFU Lever Controller does not move rudder at all.	The rest of the system isn't hooked up correctly.	Check system wiring. Confirm wiring to Stacked FFU Lever.
	Broken potentiometer or contact.	Use a multi-meter to monitor the resistance of the wiring between potentiometer contacts. Check for normal operation of the potentiometer by measuring the connection while moving the Stacked FFU Lever. Check potentiometer directions. Replace any damaged potentiometers.
	Wiring is wrong.	Check wiring. Refer to system design drawing for proper wiring.

9 WARRANTY

Kobel Manufacturing Co. Ltd. ("Kobel") warrants the Products and Parts manufactured by Kobel 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 Kobel recommendations
- The equipment is installed according to equipment diagrams, specifications and recommendations which Kobel 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 Kobel representative.

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

If any part is found to be defective, Kobel will replace said part FOB the Kobel factory provided that any such defective part is returned by the Buyer with freight and applicable forwarding charges prepaid by the Buyer. Kobel'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 Kobel warranty does not cover labour charges, travel or any other associated expenses.

All Products and Parts manufactured by Kobel, 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.

Kobel will be responsible for all Products or Parts sold by Kobel 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 Kobel warranty.

10 APPENDIX A: INSTALLATION DIMENSIONS

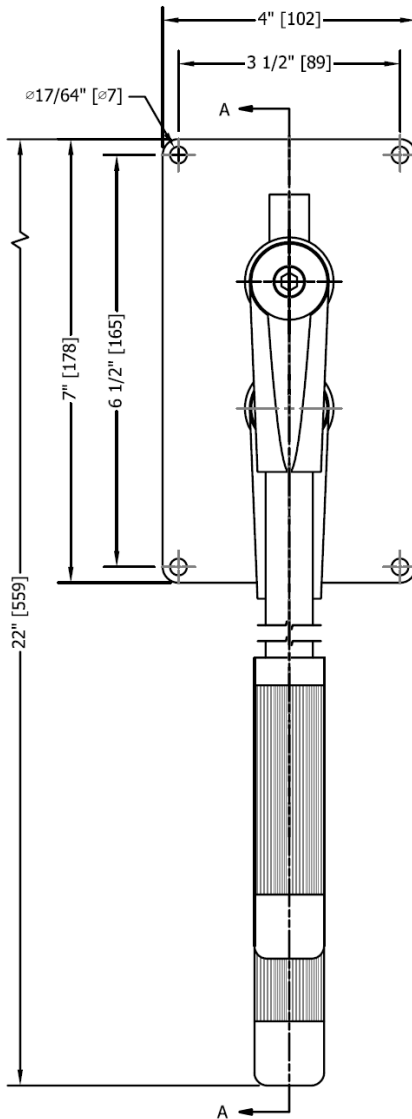


Figure 5: 7195 Installation Dimensions

11 APPENDIX B: PARTS LIST

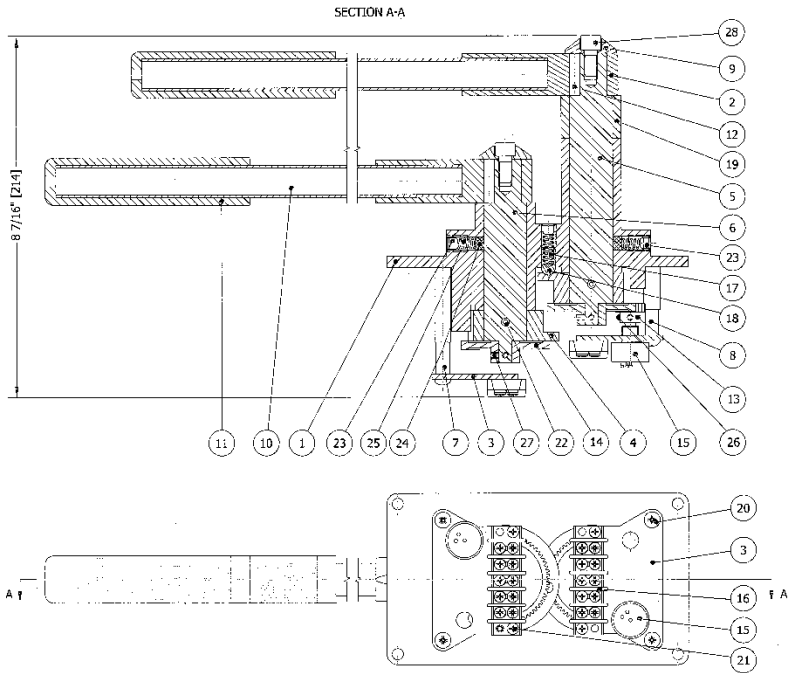


Figure 6: 7195 Parts Diagram

Table 5: 7195 Parts List

Model Series:			7195
			Part No.:
ITEM	QTY	DESCRIPTION	7195-C
1	1*	Body - Chrome	7195-0001-K
2	2*	Handle - Chrome	7195-0002-K
3	2	Bracket	7195-0003
4	2	Cam	7195-0004
5	1	Shaft – long	7195-0005
6	1	Shaft – short	7195-0006
7	2	Spacer – long	7195-0007
8	2	Spacer – short	7195-0008
9	2	Handle cap	7195-0009
10	2	Handle tube	7195-0010
11	2	Handle grip	7195-0011
12	2	Key	7195-0012
13	2	Brass gear	Y-3220
14	2*	Gear	.YPB-3264
15	2*	Potentiometer 1K	POT-1
16	2	Terminal block	6009-0006
17	1	Spring	1201-0062
18	1	Detent plunger	2012-0007
19	1	Spacer	7195-0013
20	4	Round head screw	1010-0820
21	4	Pan head screw	1012-0606
22	2	Spring Pin	1024-0824
23	3*	Set screw	1016-1104
24	2	Friction plug	2016-0011
25	2	Spring	1201-0002
26	4	Setscrew	1016-0602
27	4	Setscrew	1016-0603
28	2	Hex socket cap screw	1002-1110

**quantity may vary with model variant*

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