



**CH1900 Series CAN Bus Control
Installation Manual**
... includes CP1200 Operator Panel

MANINPBYM01
Revision 2.0

Notice to Boat Manufacturer, Installer, and Consumer

Throughout this manual, warnings are used to alert the installer/operator to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe these alerts carefully!

These “safety alerts” alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing installation, operation, and maintenance plus “common sense” operation are the most effective accident prevention measures.

WARNING

This device should not be used as a navigational aid to prevent collision, grounding, boat damage, or personal injury. When the boat is moving, water depth may change too quickly to allow time for you to react. Always operate the boat at very slow speeds if you suspect shallow water or submerged objects.

WARNING

This product contains lead, a chemical known to the State of California to cause cancer, birth defects, and other reproductive harm.



This product has been designed to be compliant with the above Directive.

Maximum performance, and compliance with the EMC Directive, can only be ensured by correct installation. It is strongly recommended that the installation conforms with the following standards:

APPLICABLE STANDARDS

- a) ISO 8846 Small Craft-Electrical Devices
Protection against ignition of surrounding flammable gases.
- b) ISO = International Standards Organization

This device meets or exceeds the applicable ABYC, ISO, and USCG safe boating rules, regulations, standards, and guidelines.

SAFE BOATING ON THE WEB

U.S. Coast Guard www.uscg.mil

U.S. Power Squadron www.usps.org

NMEA 2000® is a registered trademark of the National Marine Electronics Association.

Disassembly and repair of this electronic unit should only be performed by authorized service personnel. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty. Handling and/or opening this unit may result in exposure to lead, in the form of solder.

The information contained in this manual is believed to be accurate at the time of going to print but no responsibility, direct or consequential, can be accepted for damage resulting from the use of this information. The manufacturers reserve the right to make changes, without notice, to any of its products.

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Overview

The CH1900 Series Control and CP1200 Operator Panel are designed to be used with the Yanmar electronic control system. This manual provides installation details of the control heads and operator interface panel. For installation of other electronic components, calibration, operation, and other technical information, refer to the Electronic Control System Installation and/or Operation Manual that is provided with each system.

The CH1900 series control consists of individual port and starboard single lever control heads, a CP1200 Operator Panel, CE41400 interface harness, and mounting hardware. Each CH1900 control is provided with individual adjustment screws to change detent position firmness and/or drag (rotational resistance) so the system can be tailored to the operator's preference.

PARTS SUPPLIED

1. Port control with mounting kit
2. Starboard control with mounting kit
3. Handle kit
4. CP1200 operator panel with mounting kit
5. CE41400 cable harness
6. CH67019D Control Interface

SPECIAL TOOLS REQUIRED

1. 1-3/4 inch (45 mm) diameter hole saw
2. 2-1/2 inch (64 mm) diameter hole saw
3. Spanner wrench with 3/16 inch (4.8 mm) diameter pins

Mounting Instructions

Mounting the Control Head

Determine a Proper Mounting Location

The CH1900 control heads are designed to be mounted on flat vertical surfaces on port and starboard sides of the operator helm. The controls are designed to mount on surfaces from $\frac{3}{4}$ inch (19 mm) to 1- $\frac{1}{4}$ inch (32 mm) thick.

Since each control head is secured from the inside of the mounting surface, placement must allow clearance for the 5 inch (127 mm) diameter mounting flange, and access behind the mounting surface for attaching mounting hardware, making harness connections, and providing access to drag and detent adjustments.

Placement of the control heads must allow for the full range of lever movement (156 degrees) without clearance problems. Be certain that control levers can be operated through their entire range without risk of hand or finger injury. See Fig. 1 for outline dimensions.

Outline Dimensions

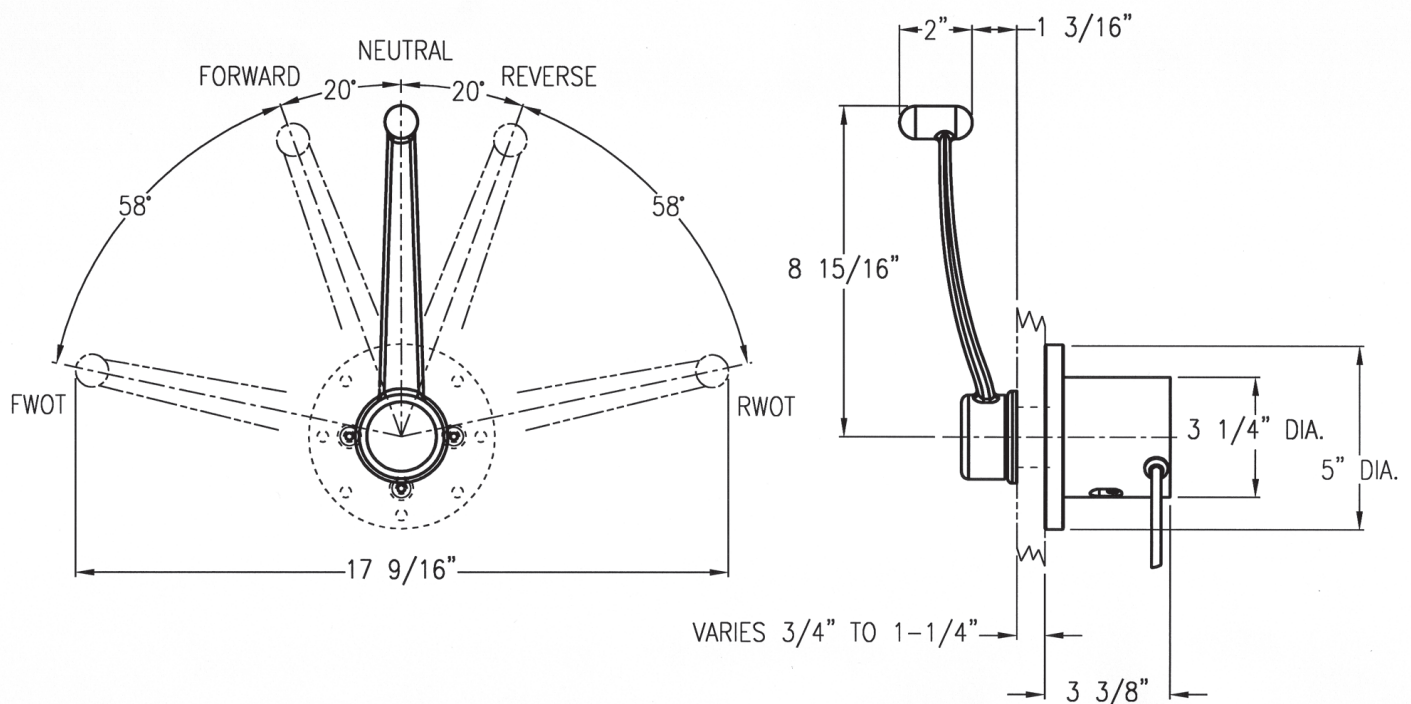


Figure 1: Outline Dimensions

Mounting Instructions

Installation Diagram

*Note: The port and starboard controls are unique.
Each control head is clearly labeled at the end of each harness.*

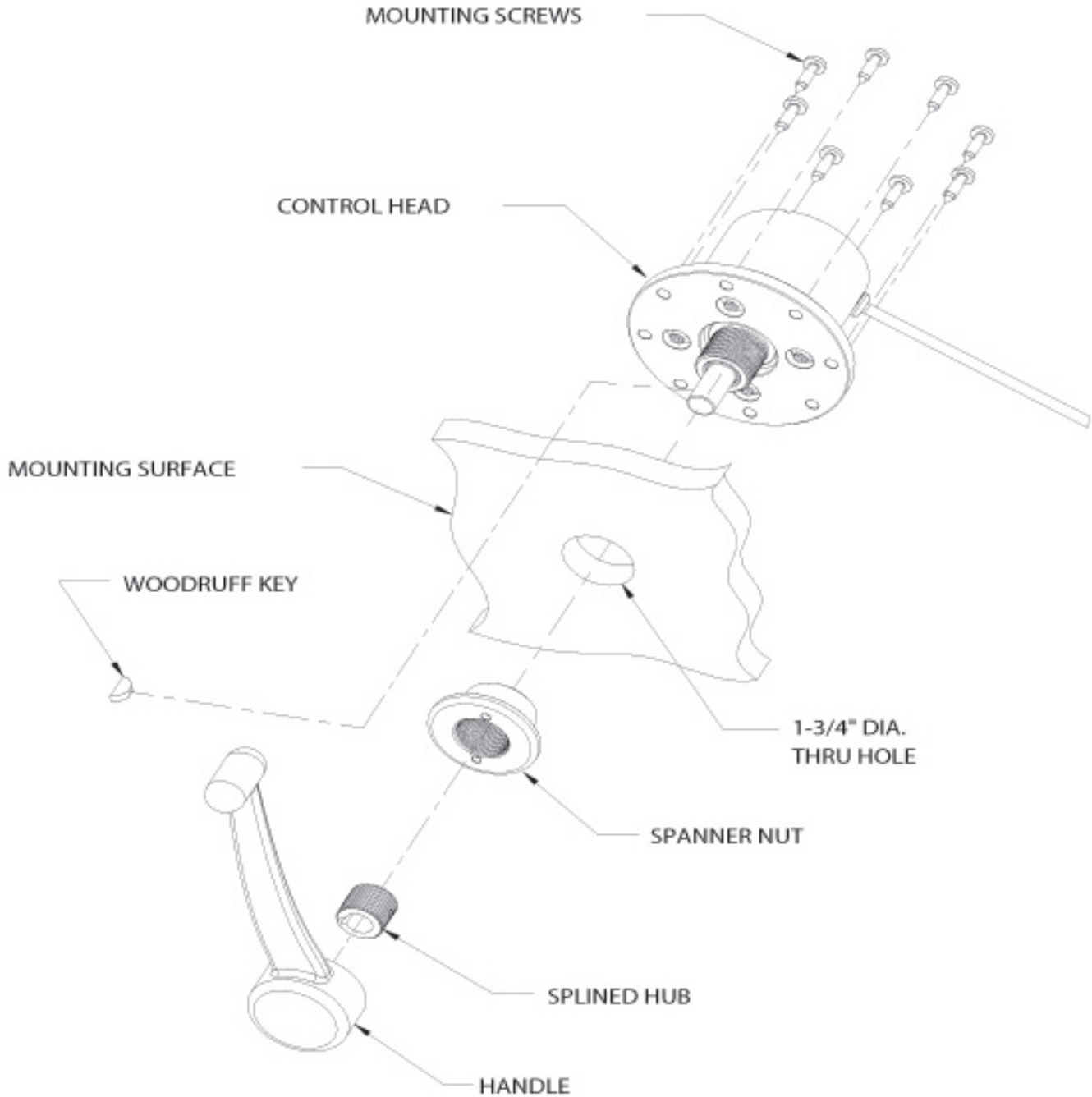


Figure 2: Control Head Mounting

Mounting Instructions

Installation Instructions

1. Starting with either port or starboard control, locate the desired position of center of handle and cut a 1-3/4 inch (45 mm) diameter through hole in the mounting surface.
2. Remove the spanner nut from the front of the control. Insert the controls threaded flange through the 1-3/4 inch hole from the inside. Re-install the spanner nut from the outside (hand tight only).
3. The control can now be rotated and positioned so that the drag adjustment screw is accessible from inside for future adjustments. Note that since the control handle can be mounted in any position about the axis (in 10 degree increments), there is no orientation requirement for the controls.
4. Make any necessary adjustments to plum and square by shimming between the inside installation surface and the face of the mounting flange.
5. When satisfied with position and alignment, tighten the spanner nut.
6. Using the holes in flange as a guide, match drill (from inside of boat) the eight flange mounting holes. Use pilot hole for the 1/4 inch dia. mounting screws (provided). Drill pilot holes to a maximum depth of 1/2 inch (13 mm). Caution: Do not drill through outer surface of the console. Since conditions vary widely, it may be necessary to vary the hole size to suit a particular application.
7. Install the eight mounting screws provided.
8. From outside, install woodruff key into shaft and mount center splined hub (part of handle assembly) and tightening set screw securely. Install handle onto hub using set screw provided. The control handle can be mounted in any position about the axis (in 10 degree increments). Choose a position that is both safe and convenient to the boat operator.

Repeat steps 1 through 8 for the second control.

Mounting Instructions

Mounting the Operators Panel (CP1200)

Determine a Proper Mounting Location

The CP1200 Operator Panel is designed to be mounted on flat surfaces convenient for both operation and installation. The panel is designed to mount on surfaces from 1/4 inch (6 mm) to 1 inch (25 mm) thick with the hardware provided.

Mount the Operator Panel

Mount the CP1200 Operator Panel Template from the back of this manual to the chosen mounting surface.

Caution: Before using a template from this manual, measure it to be certain it is to scale.

1. Mark the mounting surface for hole placement using the template. Drill four mounting holes and switch center hole.
2. Secure operator panel to the mounting surface with four # 10 x 1-1/2 inch (38 mm) long mounting screws, washers, and locking nuts provided.

Mount the Control Interface (see page 12 for diagram)

While the CH67019D can be mounted horizontally or vertically, the preferred mounting is vertical with the connectors facing down.

Connecting the Components

Complete the installation by connecting components as shown in Fig. 3. Excess harness should be neatly coiled and secured with nylon ties. The components may have to be disconnected for service at some point during the boat's lifetime, so leave at least 4 inches (10 cm) of clearance in all directions for releasing and removing their connectors.

Caution: Harnesses should be run as far as practical from high current wires or wiring runs and should not be subject to water, fuels, lubricants, or excess heat. Electrical connectors should also be protected from rain, spray, and wash down. When possible, install components with connectors pointing downward, or at least angled downward, to protect them from drips.

1. The CE41400 cable harness has seven connections:
 - a. Connect the cable marked "Port Control" to the connector on the Port control head.
 - b. Connect the cable marked "Starboard Control" to the connector on the Starboard control head.
 - c. Connect the cable marked "Operators Panel" to the connector on the CP1200 Operator Panel.
 - d. Connect the cable marked "Gray Connector" to the gray outlet on the CH67019D.
 - e. Connect the cable marked "Black Connector" to the black outlet on the CH67019D.
 - f. Connect the cable marked "Trolling Switch" to the Trolling Switch Connections (if applicable).
 - g. Connect the cable marked "CAN Bus" to the NMEA 2000 Connector/Main CAN Bus connection.

Refer to points a-g on the diagram below. Note that "xx" as in CE107xx is cable length in feet.

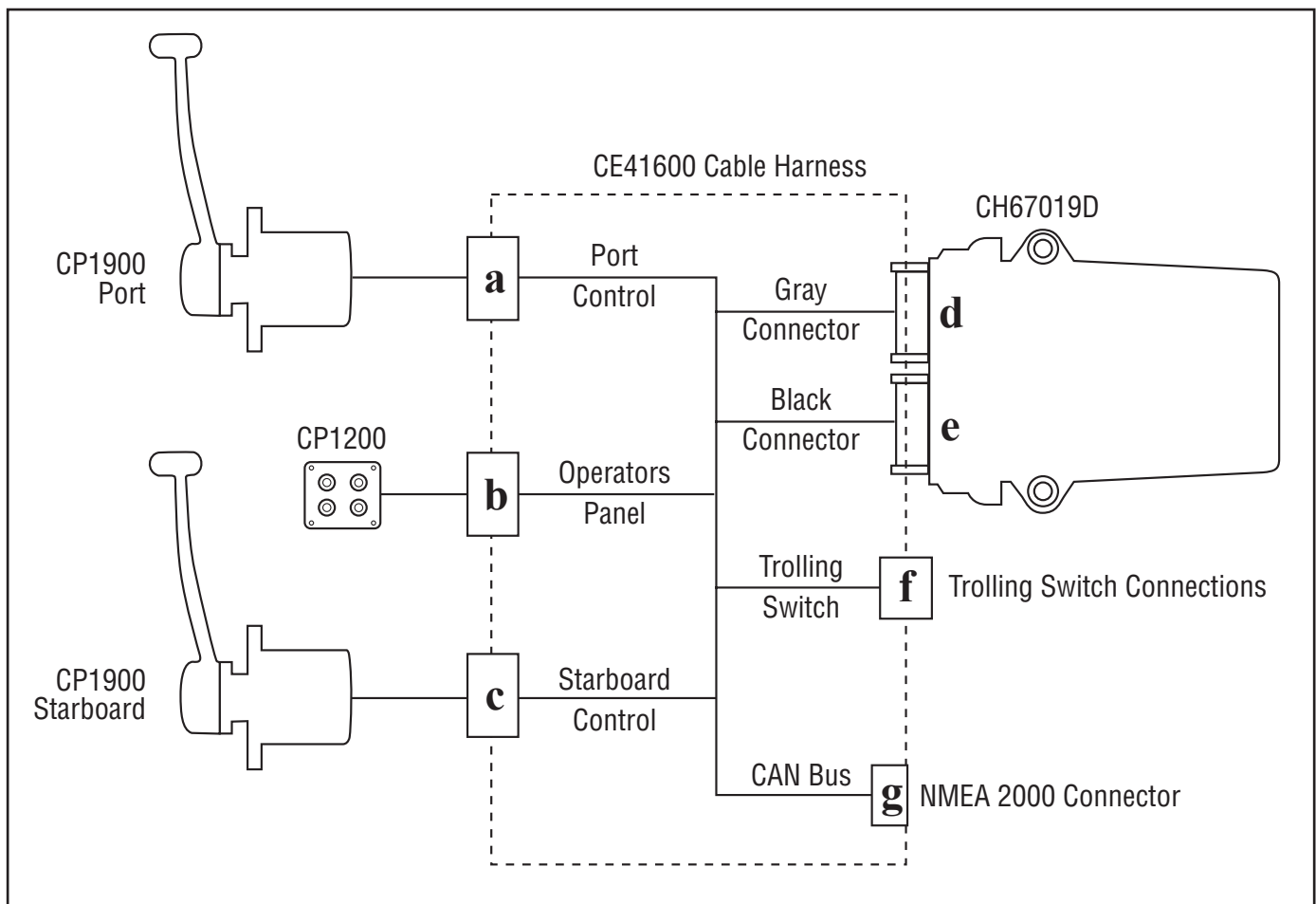


Figure 3: Connection Diagram

CH1900 Setup & Operation

Control Head Drag and Detent Adjustment

Each CH1900 control has been factory pre-set for comfortable detent and drag operation. However, if an operator desires a different “feel” to the controls, adjustments can be made as follows:

Control lever drag:

The drag adjustment screw is located on the side of each control head. Adjustment requires a 5/32” hex allen wrench. Drag is increased by rotating the screw clockwise, and decreased with counterclockwise rotation. *Be aware that noticeable drag changes are made with relatively small adjustments to the screw.* It is recommended that adjustments be made by turning the screw in small increments (no greater than 1/4 turn) and then feeling the resultant change at the handle.

Caution: Turning the adjustment screw too tight can damage the drag adjustment.

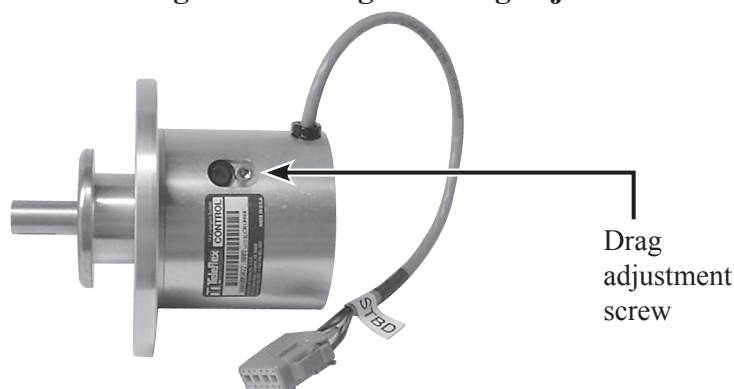


Figure 4: Drag Adjustment Location

The detent adjustment screw is located on the inside end of each control head and requires a flat screwdriver for adjustment. Detent firmness is increased by rotating the screw clockwise, and decreased with counterclockwise rotation. It is recommended that adjustments be made by turning the screw in small increments (no greater than ½ turn), then feeling the resultant change at the handle.

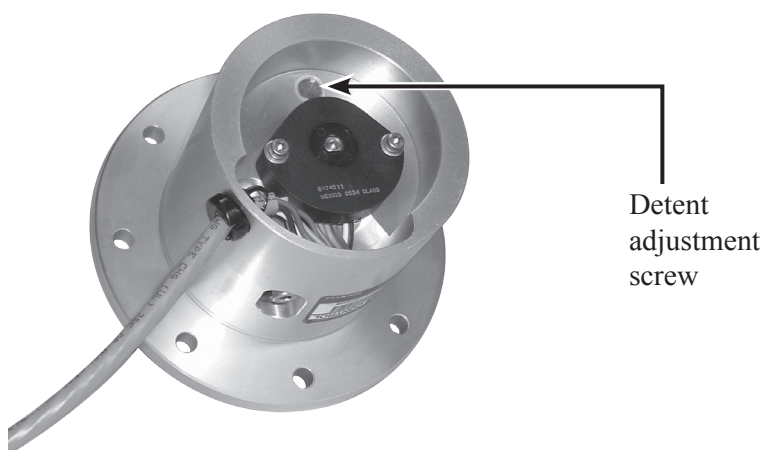
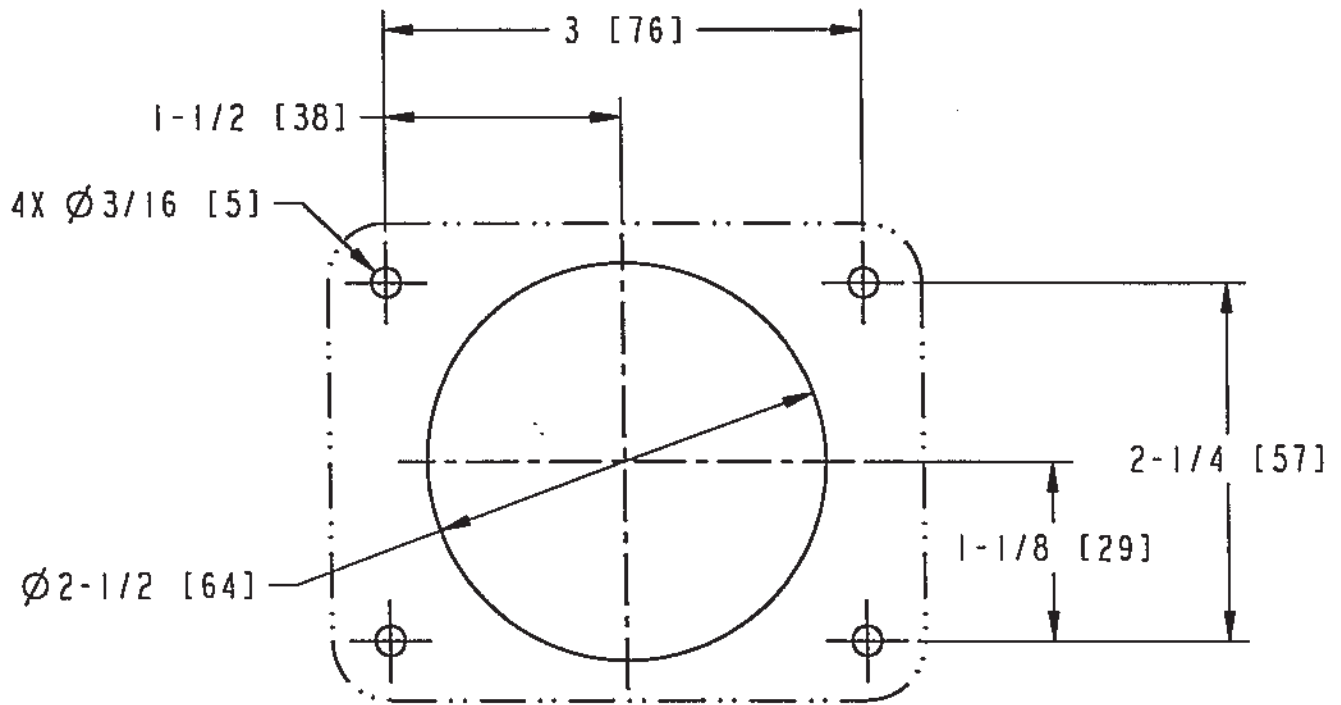


Figure 5: Detent Adjustment Location

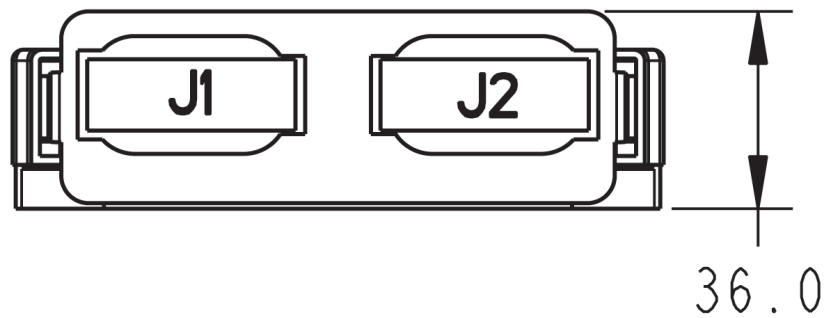
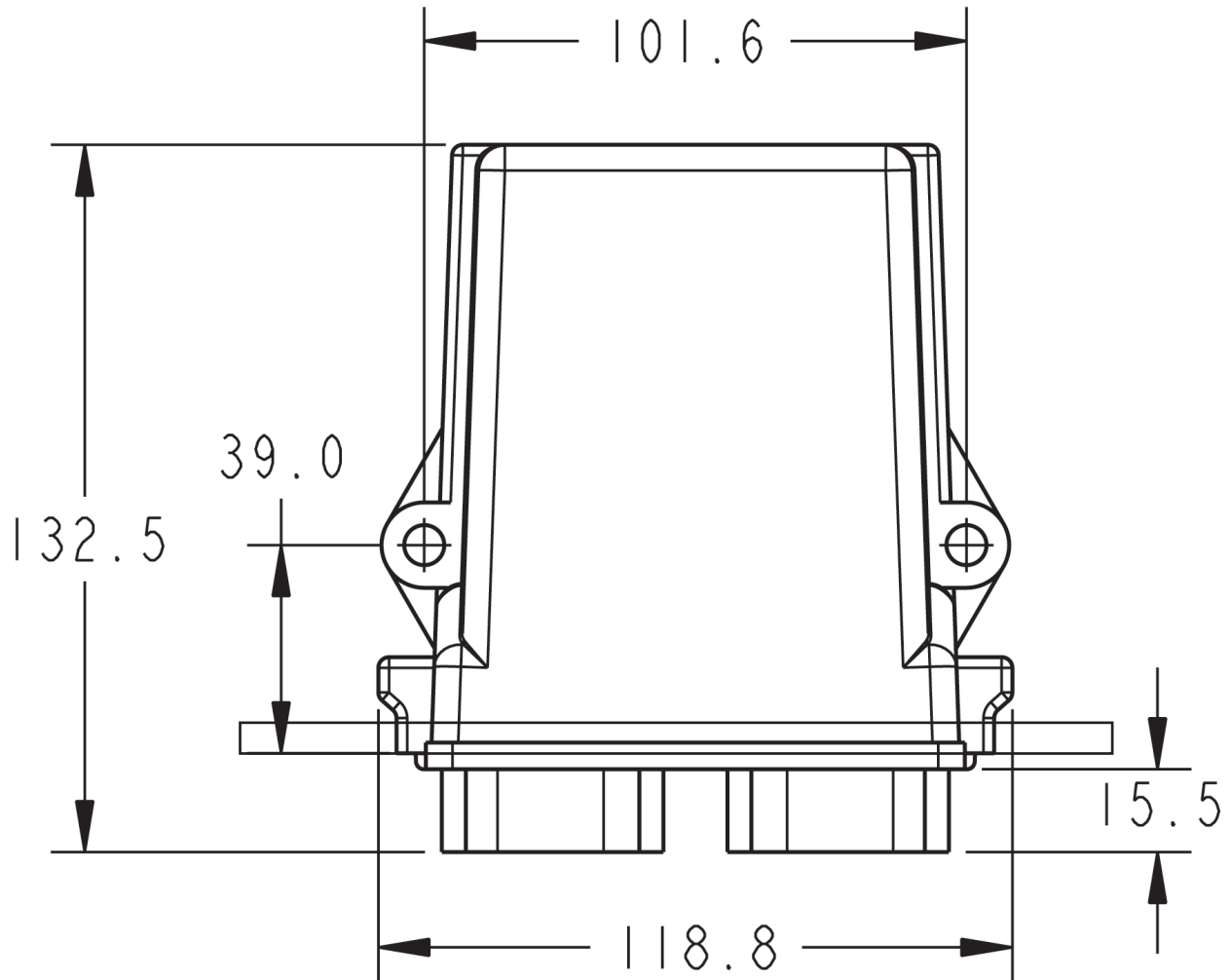
After all controls and system components have been mounted and interconnected, the system must be set up to agree with the engines, transmissions, and operators preferences. For calibration, feature selection, and system operation, refer to the Electronic Control System Installation Manual.

CP1200 Operator Panel Template



CH67600 Control Interface

Drawing not to scale



U.S. to Metric	
4 inches	= 101.6 mm
1.535 inches	= 39 mm
5.217 inches	= 132.5 mm
.610 inches	= 15.5 mm
4.677 inches	= 118.8 mm
1.441 inches	= 36 mm