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Control Cables

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What to Consider when selecting Controls

Teleflex[®]
MARINE

Morse[®]

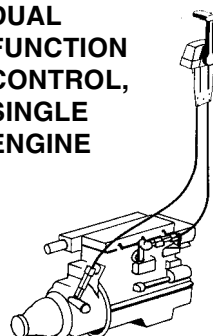
Dual-function single-lever controls:

Dual-function single-lever controls operate both shift and throttle with a single lever. The control mechanism still uses two cables (one for shift and one for throttle), but movement of both cables and control of shift and throttle is achieved through just one lever.

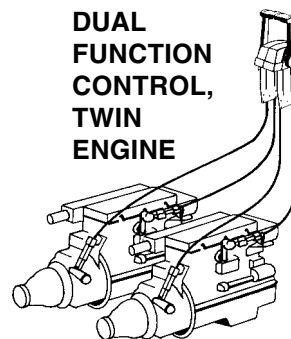
Dual-function, single-lever controls are also available for twin engine applications. Although there are two levers on the control, there is still only one lever controlling both shift and throttle for each individual engine.

Single lever control helped make boats so much easier to handle that it has become the most popular control used today. Not only do

DUAL FUNCTION CONTROL, SINGLE ENGINE



DUAL FUNCTION CONTROL, TWIN ENGINE



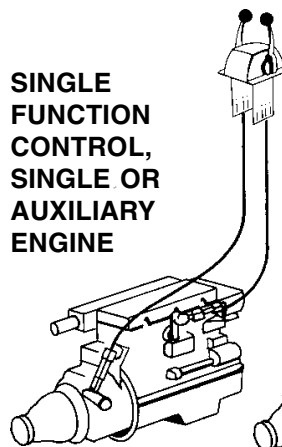
single-lever controls have a very natural instinctive action, but shifting is very quick and they can only be shifted at low RPM which protects the engine's shift mechanism.

Single-function controls:

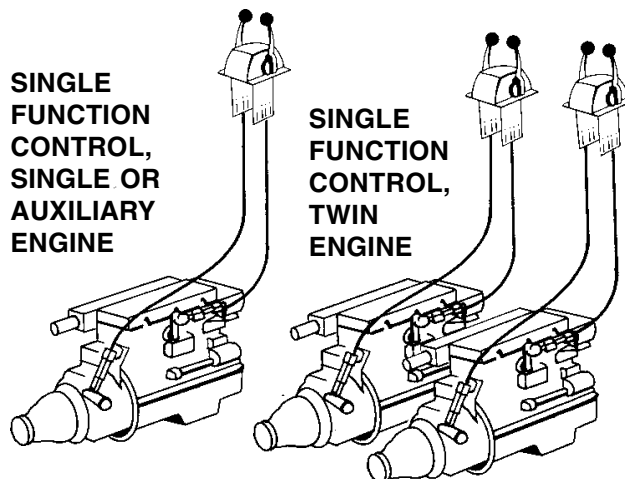
On single-function controls, one lever operates only the shift mechanism or only the throttle. The controls themselves may have one lever (which would control the shift or the throttle) or two levers (one for shift and one for throttle).

Twin engine applications will commonly utilize 2, two-lever single function controls. Both levers of one control will operate the throttles, while the levers of the second control will operate the shift mechanisms.

SINGLE FUNCTION CONTROL, SINGLE OR AUXILIARY ENGINE



SINGLE FUNCTION CONTROL, TWIN ENGINE



Multiple station installations:

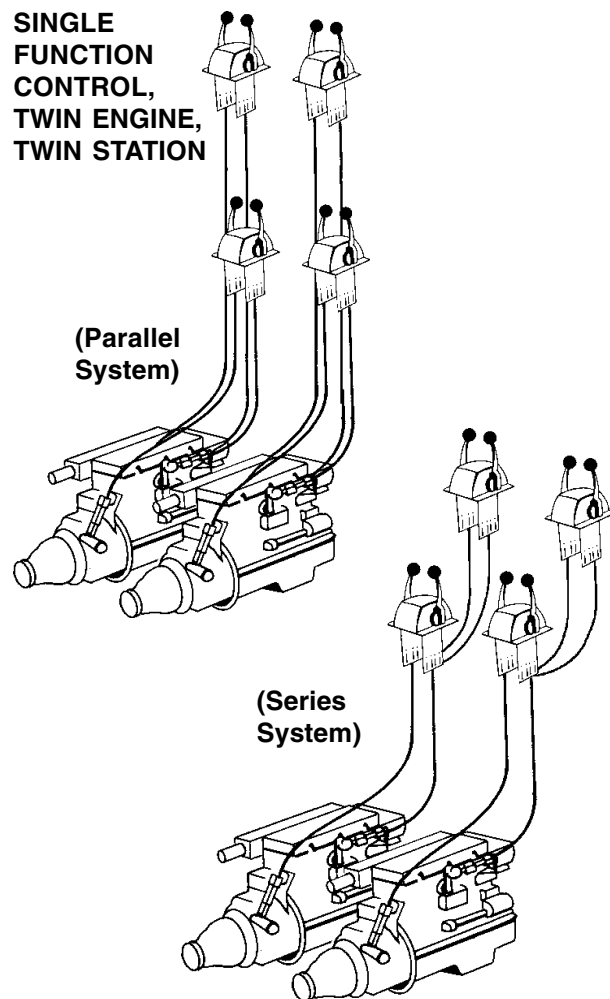
Dual or multiple station applications almost exclusively use single-function two lever controls.

There are two basic system designs recommended for multiple stations:

Parallel Control System: cables from each control station run all the way to the clutch and throttle at the engine. This configuration is sometimes used when cable runs are relatively short and direct.

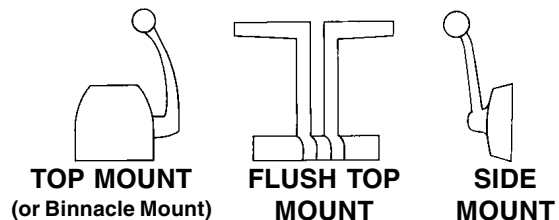
Series Control System: cables run from controls at the upper station to the lower station controls. A second set of control cables runs from the lower station to the engine. This method is generally used for longer, more difficult cable runs.

When to utilize a parallel series system is dictated by the total degrees of bend in the cables as measured by the sum of the degrees of all bend radii. This directly affects the efficiency of cable action. The configuration that gives the control system the fewest degrees of bend is the one that should be employed.



Control head mounting:

A final choice in engine control styles is the type of mounting. Teleflex Marine offers controls for most applications and user preferences.



Mechanical Advantage:

Every control has its own “mechanical advantage” factor. Mechanical advantage means that because you are using a lever to create motion at the other end of a control system (move the throttle or shift mechanism on the engine itself) it requires less effort at the control handle than it would if you were pushing directly on the engine’s throttle or shift mechanism. **Example:** if an engine required 15 pounds of force to move its shift lever and you use a control with a mechanical advantage of 2.77, you would divide the force by the mechanical advantage to determine how much

effort must be exerted at the control lever handle to create the needed 15 pounds of force.

$$\frac{\text{force}}{\text{mechanical advantage}} = \text{force required at control lever}^*$$

$$\frac{15 \text{ lbs.}}{2.77} = 5.42 \text{ pounds of force required at control lever}^*$$

Understanding a control’s mechanical advantage and the amount of force to be overcome at the engine is very important when specifying the appropriate control.

* Approximate: varies by cable efficiency and routing.

Teleflex Marine Controls

Which Control is Right for You?

When making a control system selection, please note that the **type of engine, number of engines and number of helm stations determine which control** or range of controls can be used:

Single engine/single station boats can use most of our controls when used with universal 3300/33 type control cables. *Outboards and stern drives should use controls which offer the neutral safety switch and lock-out features.*

Inboard single-function type engine controls are recommended for hydraulic transmissions and twin stations. Note that some of these can be used with the heavy duty (43 type cables); others cannot. Check your application. *Single function controls in dual station applications should use shift detents at the main operating station only.*



	CH1700 Side Mount	CH7500/ 7600 Top Mount Controls	SL-3 Side Mount	SL-3 Top Mount Controls	CH 2600 CH2700 Univ. Side Mounts	CH2100 Sail Side Mount	MT-3 Universal Top Mount	CH2200 Ski Boat Side Mount
BOAT TYPE:								
Outboard & Sterndrive single station	Y	Y	Y	Y	Y 4	Y 4	Y	N
Outboard & Sterndrive dual station	N	N	N	N	N	N	N	N
Inboard single station	Y	Y	Y	Y	Y	Y	Y	Y
Inboard dual station	N	N	N	N	N	N	N	N
Jet Boat	N	N	N	N	N	N	N	N
Sailboat	N	N	Y 1, 2, 3	Y 1, 2, 3	Y 1, 2, 3	Y	Y 1, 2, 3	N
Commercial	Y	Y	Y	CHY	N	Y	Y	N
CONTROL FEATURES:								
Neutral safety switch to prevent starting in gear	Y	Y	Y	Y	0	0	Y	0
Neutral interlock to prevent accidental shifting	Y	Y	Y	N	Y	Y	N	Y
Engine warm-up provision	Y	Y	Y	Y	Y	Y	Y	Y
Adjustable throttle brake	Y	Y	Y	Y	N	N	N	N
Trim & tilt switch	Y	Y	0	0	Y (CH2700)	N	N	N
Forward neutral reverse detents	Y	Y	Y	Y	Y	Y	Y	Y
Adjustable travel stops	N	N	N	N	N	N	N	N
Applicable for multiple stations (amount)	N	N	N	N	N	N	N	N
Trolling Valve/Thruster/Windlass control	N	N	N	N	N	N	N	N
Maximum Number of Engines	1	1	2	2	1	1	2	1
CONTROL CABLES USED:								
33C/3300 Universal Types	Y	Y	Y	Y	Y	Y	Y	Y
Mercury/Mariner OEM Types	Y	Y	Y	Y	N	N	N	N
OMC & OMC/Volvo OEM Types	Y	Y	Y	Y	N	N	N	N
43 Series Cables	N	N	N	N	N	N	0	N
64 Series Cables	N	N	N	N	N	N	N	N
Merc Gen II Cables	Y	Y	Y	Y	N	N	N	N

selecting an engine control system

Sailboats can use either side mounts or top mounts as space permits. Specialty controls are offered for **bass, ski, and jet boats**, each suited to the characteristics of those boats.

Control cable routing paths should be chosen to minimize bends, kinks and obstructions. Cable routing with a few gradual bends will result in better feel at the control. After installation, all boats should be water tested to ensure safe, dependable operation.

Key to Notes:

- Y Yes
- O Optional
- N No
- 1 Sailboat with outboards.
- 2 Sailboat with inboard hydraulic transmission.
- 3 Sailboat with inboard cone clutch.
- 4 Optional neutral safety switch recommended when used with outboards.



CH2300
Jet Boat
Side
Mount

MV-3
Ski/Jet
Side
Mount

**S and
Twin S**
Top
Mount

SR
Twin
Top
Mount

CH5600
SLT
Top
Mount

CH4400
Flush
Top
Mount

MY
Flush
Top
Mount

**ST/
STB**
Side
Mount

**KE4
EST**
Stand-alone
Controls

N	Y	Y 4	Y 4	Y 4	Y 4	Y 4	N	Y
N	N	Y 4	Y 4	Y 4	Y 4	N	N	Y
N	Y	Y	Y	Y	Y	Y	Y	Y
N	N	Y	Y	Y	Y	N	N	Y
Y	Y	N	N	N	N	N	N	N
N	Y 1, 2, 3	Y 2	Y 2	Y 2	Y 2	Y 2	Y 2	N
N	Y	Y	Y	Y	Y	Y	Y	Y

NOTE: This chart is intended as a guide with general recommendations. If you have questions about a control application, please contact Teleflex Marine at 610-495-7011 or www.teleflexmorse.com

Y (waterproof)	Y	O	O	O	O	O	N	Y
Y	Y	N	N	N	N	N	N	Y
N	Y	N	N	N	N	N	N	Y
N	N	Y	Y	N	N	Y	N	N
N	N	N	N	N	N	N	N	Y
Y	Y	O	O	Y	Y	Y	N	Y
N	N	Y	Y	Y	Y	Y	N	N
N	N	Y (2)	Y (2)	Y (2)	Y (2)	N	N	Y (4)
N	N	N	N	N	N	N	N	Y (troll valve)
1	1	1	1	1	1	3	1	2

Y	Y	Y	Y	Y	Y	Y	Y	Y
N	N	N	N	N	N	N	N	Y
N	N	N	N	N	N	N	N	Y
N	O	O	O	N	N	N	O	N
N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N

Teleflex Marine Premium Controls

Teleflex[®]
MARINE

CH5600
(single-function control)

premium
engine control

See
page
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A Step Beyond the Ordinary:

The CH5600 SLT from Teleflex is a step beyond ordinary engine controls. This stylish and unique top-mount control **eliminates throttle creep, yet works flawlessly even in twin station applications.**

Stops Throttle Creep Without Sacrificing Smooth Feel:

Better than traditional friction-based solutions, the CH5600 doesn't rely on tightening the control lever or restricting cable movement to stop creep. (Friction-based methods make the cable "stiffer" and more difficult to move.)

Using a patented Self-Locking Throttle (SLT) clutch, the CH5600 control holds throttle lever position, even in vibration-prone environments.

Experience the Full Effect of Premium Control Cables:

Because the control maintains the position of the throttle lever (instead of the traditional method of putting a drag on the control cable) the throttle lever stays where you set it and it's easy to move the lever when you're ready.



With the CH5600, you can take full advantage of premium, high-efficiency cables for smooth lever operation, because cable movement is unrestricted. Yet, the CH5600's patented SLT clutch will not allow vibration and cable feedback to move the lever.

Other controls allow the use of premium cables, but the advantage of those high performance cables is negated when a "cable brake" is used to limit throttle creep. There is no "positive stop" with a cable brake. You tighten it to achieve a trade-off between lever slippage and ease of movement. If it's too tight, the cable becomes difficult to move. If it's too loose, the cable may feel fine but the lever may creep.

Each lever of the CH5600 control has both an SLT and direct-drive cable attachment for single or dual station operation without sacrificing cable efficiency or smoothness.

cutting edge control technology for nearly any boat

Teleflex[®]
MARINE

premium
engine control

CH1700
CH7500
(dual-function controls)

new!!!

See
page
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*Unmatched
Features and
Convenience:*

This family of controls was created with a painstaking focus on ergonomics in every detail. **The result is an engine control which is rugged and substantial, yet feels natural in every function.**

*A Family of Controls —
One for Nearly Any Boat:*

These controls are ideal for most single-station outboards, stern drives and inboards. Available models include a side mount (with or without lanyard-type emergency cutoff switch) and single lever top mount.

*True "Easy On"
Cable Attachment:*

These controls readily accept OEM type cables for Mercury, Mariner, Force, OMC, and OMC/Volvo engines **AND universal 33C types** used on most other engines. Installation is fast and simple. No modifications to the control or tedious cable adjustments are needed!



CH1702
SIDE MOUNT



CH7502
TOP MOUNT



CH1702
WITH CUTOFF
SWITCH

enginecontrols



premium

Teleflex CH1700/7500 control

Teleflex[®]

MARINE

*(dual-function control
— each lever controls
throttle AND shift)*

new!



premium

engine control

This family of controls was created with a painstaking focus on ergonomics in every detail. The result is an engine control which is rugged and substantial, yet feels natural in every function.

Applications:

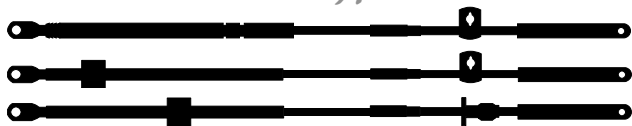
For single station use with nearly any engine.

Features:

- Single-lever top mount PLUS sidemount with and without cut-off switch.
- Precise, smooth, positive action.
- Ergonomically designed handle with Soft Touch Grip and intuitive positioning of shift interlock, trim switch and other features.
- New trim switch with tactile feedback.
- Available in chrome or black finish.
- Push button for neutral engine warm-up.
- Trim switch in grip for one-hand operation.
- Power tilt when needed for trailering.
- Neutral interlock and start-in-gear protection switch.
- Optional, lanyard-style cut-off switch for emergency engine shutdown (CH1700)*.
- Drag adjustment included in all models.
- “Easy-On” cable design accepts virtually every type of OEM and 3300 type cable.
- Easily adapted to push or pull cable actuation mode without tools.
- Deutsch[®] electrical connections standard.
- Mechanical advantage 2.38:1
- Meets/exceeds all applicable standards.

(accepts these cables:)

OEM Types



OEM/Univ. 3300 Types



Universal 3300 Types



DIMENSIONS: page 214
 CONTROL TYPES: page 174
 SELECTION GUIDE: page 176
 SUPPORT: www.teleflexmorse.com
 or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner[®] and OMC[®] OEM type control cables as well as universal 33 type cables and engine connection kits.

**Cut-off switches normally function as follows (without lanyard installed on switch): Inboard and Stern Drive - switch open; Outboard - switch closed. Cut-off switch is not available with top mount controls.*

dualfunctioncontrols

premium

mechanical control, most engines, single stations

Engine Controls:

CH1700 SIDE MOUNT LEFT LEVER:

Black (standard) CH1702-000000

Black (trim, harness) CH1702-000011

Black (trim, harness,
outboard cutoff switch) CH1702-001011

Black (trim, harness,
stern drive cutoff switch) CH1702-002011

Black (trim, tilt, harness) CH1702-010012

Black (trim, tilt, harness,
outboard cutoff switch) CH1702-011012

Black (trim, tilt, harness,
stern drive cutoff switch) CH1702-012012

Chrome Handle
(trim, harness) CH1702-200011

Chrome Handle
(trim, tilt, harness) CH1702-210012

CH7500 TOP MOUNT SINGLE LEVER:

Black & Chrome CH7502-000000

Black & Chrome
(trim, harness) CH7502-000011

Black & Chrome
(trim, tilt, harness) CH7502-010012

Chrome (trim, harness) CH7502-200011

Chrome (trim, tilt, harness) CH7502-210012

Options:

Standard Tilt/Trim Harness 7210115

Yamaha Tilt/Trim Harness 7210113

Honda Tilt/Trim Harness 7210116

Mercury Tilt/Trim Harness 7210117

Service Items:

Handle with Trim-CH1700-Black 7212917

Handle W/O Trim-CH1700-Black 7212710

Handle with Trim-CH1700-Chrome 7212813

Handle W/O Trim-CH1700-Chrome ... 7212616

Handle with Trim-CH7500-Black 7213619

Handle W/O Trim-CH7500-Black 7213411

Handle with Trim-CH7500-Chrome 7213515

Handle W/O Trim-CH7500-Chrome ... 7213318



CH1702
SIDE MOUNT



CH1702
SIDE MOUNT
WITH CUTOFF
SWITCH



CH7502
TOP MOUNT

Service Items, continued:

Cover-CH7500-Black 7214217

Cover-CH7500-Chrome 7214113

Insert Kit CH1700-Black 7213111

Insert Kit CH7500-with Tilt-Black 7214611

Insert Kit CH7500-W/O Tilt-Black 7214518

Insert Kit CH1700-Chrome 7210317

Insert Kit CH7500-with Tilt-Chrome 7214414

Insert Kit CH7500 W/O Tilt-Chrome 7214311

Throttle Only Button Kit-CH1700 7213214

Neutral Throttle Warm-up Kit-CH7500 7214715

Cable Nest And Connection Kit 212151-001

(Mounts 3300 and all popular OEM type cables to control.)

Compatible Cables:

Merc CC179/CC635, CC189/CC679, CC210,
CC213, CC630

OMC/Volvo CC205/CC636, CC214/CC740

3300 Universal Cables (10-32 threaded ends)

Purchase of cable connection kit(s) may be required to complete
control system installation.

Morse SL-3 control

Morse®



*(dual-function control
— each lever controls
throttle AND shift)*

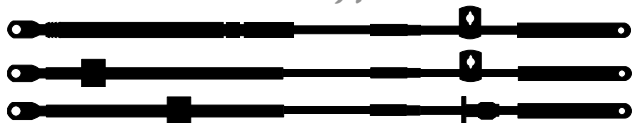
Attractive and astonishingly simple in design, the SL-3 is ideal for most boats. Offered in four styles, it's a snap to install — without needing control modifications or tedious cable adjustments. And it accepts nearly every type of cable!

Applications:

A perfect match with nearly any engine: outboards, inboards or sterndrives: Evinrude, Johnson, Honda, Mariner, Mercruiser, Mercury, Nissan, OMC Cobra, Suzuki Tohatsu, U.S. Marine/Force, Volvo, Yamaha and others.

(accepts these cables:)

OEM Types



OEM/Univ. 3300 Types



Universal 3300 Types



Features:

- Four styles: single and twin lever topmounts + sidemount with and without cut-off switch.
- Firm yet effortless shift and throttle motion.
- Entire gear mechanism is enclosed and permanently lubricated for long-lasting, smooth operation.
- Port or starboard installation with various cable entry angles.
- Easily adapted to push or pull cable actuation mode without tools.
- “Easy-On” cable design means no shift or throttle adjustments, no control modifications, and accepts virtually every type of cable.
- Push button for neutral engine warm-up.
- Trim switch in handle grip for one-hand operation.
- Neutral interlock prevents starting in gear.
- Adjustable brake prevents throttle creep.
- Mechanical advantage 2.38:1.
- Meets/exceeds all applicable standards.

DIMENSIONS: page 215
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner® and OMC® OEM type control cables as well as universal 33 type cables and engine connection kits.

mechanical control, most engines, single stations

Engine Controls:

SL-3 TOP MOUNT SINGLE LEVER:

Top Mount Single Standard309476
 Top Mount Single Deluxe (trim)309477
 Top Mount Single Deluxe
 (trim & tilt - Volvo) 309478-001
 Top Mount Sgl. Deluxe (trim & tilt). 309478-002

SL-3 TOP MOUNT TWIN LEVER:

Top Mount Twin Standard309479
 Top Mount Twin Deluxe (trim)309480
 Top Mount Twin Deluxe (trim & tilt)309481

SL-3 SIDE MOUNT

Side Mount Standard309473
 Side Mount Deluxe (trim)309474
 Side Mount Deluxe
 (trim & tilt - Volvo) 309475-001
 Side Mount Deluxe (trim & tilt) 309475-002

SL-3 SIDE MOUNT W/CUT-OFF SWITCH (OUTBOARD):

Side Mount Std. (cutoff switch) 311322-002
 Side Mount Deluxe (cutoff & trim) 311323-002
 Side Mount Deluxe (cutoff, trim & tilt)
 (5 wire - Volvo) 311324-002
 Side Mount Deluxe (cutoff, trim & tilt)
 (4 wire - non-Volvo) 311325-002

SL-3 SIDE MOUNT W/CUT-OFF SWITCH (I/O AND INBOARD):

Side Mount Std. (cutoff switch) 311322-001
 Side Mount Deluxe (cutoff & trim) 311323-001
 Side Mount Deluxe (cutoff, trim & tilt)
 (5 wire - Volvo) 311324-001
 Side Mount Deluxe (cutoff, trim & tilt)
 (4 wire - non-Volvo) 311325-001

Options/Service Items:

Trim & Tilt Switch Kit315590
 Side Mount Tilt Switch/wire harness309509
 Top Mount Tilt Switch/wire harness309514
 Lanyard Cut-off Switch (side mount) 311376

Cut-off Switch with Cover 311380-001
 Cut-off Switch Only 311379-001
 Neutral Safety Switch 051801-033

Top Mount (Single) replace. parts kit316941
 Top Mount (Twin) replace. parts kit316942

SL-3
TOP MOUNT
SINGLE LEVER



SL-3
TOP MOUNT
DUAL LEVER



SL-3
SIDE MOUNT



SL-3
SIDE MOUNT
WITH CUTOFF
SWITCH



Options/Service Items, continued:

Side Mount replacement parts kit317002
 Side Mount replacement parts kit
 (with cutoff switch)317003
 Cable Nest Kit
 (mounts all cables to controls) 212151-001

Compatible Cables:

Merc CC179/CC635, CC189/CC679, CC210,
 CC213, CC630
 OMC/Volvo CC205/CC636, CC214/CC740
 3300 Universal Cables (10-32 threaded ends)
*Purchase of cable connection kit(s) may be required to complete
 control system installation.*



Teleflex CH2600/2700 controls



*(dual-function control
— each lever controls
throttle AND shift)*

Universal Outboard Side Mount Control.
This economical single lever, dual action control features universal styling, positive shift detents, an optional engine trim switch in the handle and easy installation. It's an excellent replacement for both outboard and stern drive controls using universal (3300/33 type) cables.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Applications:

Virtually all single-station outboards and stern drives with mechanical transmissions. Single lever, dual action design controls throttle and shift with one lever. Utilizes 3300/33 type “universal” engine control cables.

Not suitable for use with Mercury® and OMC® OEM type control cables.

Features:

- Single lever, dual action for throttle & shift.
- Surface mount design for quick, tidy installation.
- Includes neutral warm up capability.
- Includes hardware for two 3300/33 control cables.
- Positive shift detents and neutral lock-out.
- Optional engine trim switch in handle.
- Optional neutral safety switch.
- Weatherproof exterior, rugged die cast frame.
- Meets/exceeds all applicable industry standards.

DIMENSIONS: page 215
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SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner® and OMC® OEM type control cables that have “eye” terminals at the control end of the cable.)

mechanical control, most engines, single stations

Engine Control:

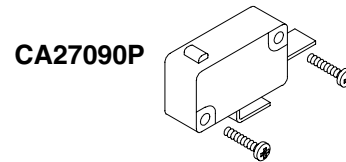
- Side Mount with Trim Switch CH2700P
- Side Mount (no Trim Switch) CH2600P



CH2600P
CH2700P
(with trim)

Options/Service Items:

- Optional Neutral Safety Switch CA27090P
- Connection Kits . (see Connection Kits section)



Compatible Cables:

OEM/Univ. 3300 Types

- Mercury 3600 type cable (premium) . CC630XX
- US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

- 3300 cable (standard) CC172XX
- 3300 cable (midrange) CC330XX
- 33C cable (midrange) 032377-003-XX
- 33C Supreme (midrange) 301947-003-XXX
- TFXTREME 3300 cable (premium) ... CC633XX

(May require purchase of cable connection kit(s) to complete control system installation.)



Teleflex CH2100 control

Teleflex[®]
MARINE



*(dual-function control
— each lever controls
throttle AND shift)*

On more sailboats than any other, this side mount control from Teleflex features single lever/dual action design. Its compact construction accommodates sailboats and other boats without a lot of space for a control. And, it's a drop-in replacement for controls sold by NW[®], Onan[®], TX[®], Vetus[®], Volvo[®] and others. Uses 3300 type cables.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Applications:

Virtually all sail engine applications in which a side mount control is desirable. Single lever, dual action design controls throttle and shift with one lever. Utilizes 3300/33 type “universal” engine control cables.

Not suitable for use with Mercury[®] and OMC[®] OEM type control cables.

Features:

- Single lever, dual action for throttle & shift.
- Surface mount design for quick, tidy installation.
- Includes neutral warm up capability.
- Includes hardware for two 33 type cables.
- Positive shift detents and neutral lock-out.
- Optional neutral safety switch.
- Weatherproof exterior, rugged diecast frame.
- Meets/exceeds all applicable industry standards.

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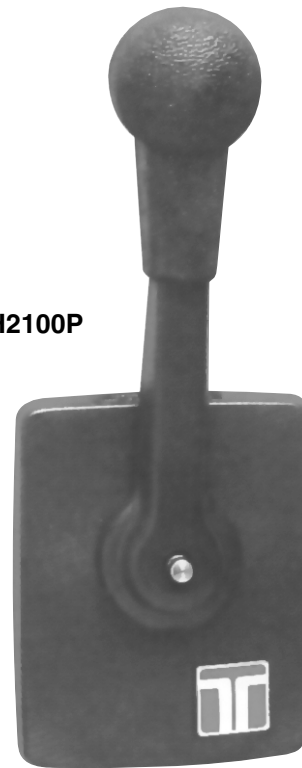
NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner[®] and OMC[®] OEM type control cables that have “eye” terminals at the control end of the cable.)

mechanical control, most engines, single stations

Engine Control:

Side Mount Sailboat Control CH2100P

CH2100P

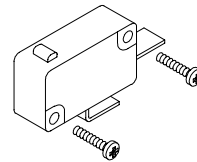


Options/Service Items:

Optional Neutral Safety Switch CA27090P

Connection Kits . (see Connection Kits section)

CA27090P



Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX
US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

3300 cable (standard) CC172XX
3300 cable (midrange) CC330XX
33C cable (midrange) 032377-003-XX
33C Supreme (midrange) 301947-003-XXX
TFXTREME 3300 cable (premium) ... CC633XX

(May require purchase of cable connection kit(s) to complete control system installation.)

CC630 *TFXTREME*



CC213



CC633 *TFXTREME*



CC172



CC330/032377-003/301947-003



Morse MT-3 control

Morse®



*(dual-function control
— each lever controls
throttle AND shift)*

Ideal for inboards, stern drives and outboards, MT-3 combines classic binnacle control styling with dual function levers, a neutral safety switch and an engine warm-up feature! Control throttle and shift with one lever instead of two. One twin-lever unit can control twin engines.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



*Universal 43 Types**



*(*MT-3 single lever only)*

Applications:

Great for single station inboards stern drives and outboards, single or dual engine. Perfect for applications in which a binnacle control appearance is desired, but one-lever throttle/shift control is preferred. Also a great choice when space is at a premium.

This control uses 33 type cables. *Not suitable for use with Mercury® and OMC® OEM type control cables.*

Features:

- Binnacle styling with the advanced features of a dual-function control: one-handle engine control, neutral warm-up.
- Neutral safety switch to help prevent starting in gear.
- Built-in friction drag helps prevent slippage and throttle creep while underway.
- Mechanical advantage - shift 2.77:1/ throttle 3.57:1.
- Meets/exceeds all applicable industry standards.

Start and warm-up are done by pulling out the hand levers in the neutral position. This disengages the clutch and allows throttle to be advanced in neutral. Returning to neutral detent re-engages clutch.

DIMENSIONS: page 216
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 and 43 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.) 43 type cables cannot to be used on MT-3 Twin, as interference will occur.

mechanical control, most engines, single stations

Engine Control:

SINGLE LEVER:

MT-3 Single 308601

SINGLE LEVER:

MT-3 Twin 308602

Options/Service Items:

Optional Neutral Safety Switch 051801-023

Hand Lever 032778-002

Chrome Side Plate, MT-3 308598-001

Ball Knob, Red 4009912

Decal, FWD-NEU-REV 038853

Hardware Kit for MT-3 single lever 308599

Hardware Kit for MT-3 twin lever 308727

OMC Replacement Switch for Sterndrive
(available for MT-2 only) 301585

Connection Kits . (see *Connection Kits* section)

Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX

US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

3300 cable (standard) CC172XX

3300 cable (midrange) CC330XX

33C cable (midrange) 032377-003-XX

33C Supreme (midrange) 301947-003-XXX

TFXTREME 3300 cable (premium) ... CC633XX

Universal 43 Types

TFXTREME 4300 BC cable CC692XX

TFXTREME 4300 CC cable CC693XX

**43 type cables cannot to be used on MT-3 Twin,
as interference will occur.**

(May require purchase of cable connection kit(s) to complete
control system installation.)

MT-3 SINGLE



MT-3 TWIN



CC630 TFXTREME



CC213



CC633 TFXTREME



CC172



CC330/032377-003/301947-003



CC692 TFXTREME



CC693 TFXTREME



Teleflex CH2200/2300 controls

Teleflex[®] MARINE



*(dual-function control
— each lever controls
throttle AND shift)*

Considered the best by boat builders, these controls feature superior styling, a compact design, positive lockout and smoothest feel available — and they're standard equipment on ski and jet boats. The ski boat unit includes superior neutral warm-up action, while the jet boat version features a waterproof start-in-gear switch.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



*Any Jet Throttle or Gate Cable
with 10-32 threaded
connection at control*

Applications:

Ski version: all inboard ski boats and other single station craft requiring super-smooth, precise throttle control.

Jet version: all jet boats powered by Mercury[®] Sport Jet 90 & early 120, OMC[®] Turbo Jet, or similar propulsion systems.

Single lever, dual action design controls throttle and shift with one lever using 33 type cables. See components list for cables used.

Features:

- Single lever, dual action for throttle & shift.
- Superior neutral engine warm-up control (ski version).
- Flush mount design for quick, tidy installation.
- Includes hardware for two 33 type cables.
- Crisp shifting ball grip for a solid, sure feel.
- Neutral safety switches:
 - Optional for ski version;
 - Waterproof type included with jet version.
- Weatherproof exterior, rugged diecast frame.
- Meets/exceeds all applicable industry standards.

DIMENSIONS: page 216
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner[®] and OMC[®] OEM type control cables that have "eye" terminals at the control end of the cable.) Not for Berkeley, Sport Jet 175 or other applications using 43 type cables. For those applications, see the MV-3 control pages, after these.

mechanical control, most ski boat and jet applications

Engine Control:

SKI BOAT CONTROL:

Side Mount Ski Boat Control CH2200P

JET BOAT CONTROL:

Side Mount Jet Boat Control CH2300P

Options/Service Items:

CH2200 SKI

Optional Neutral Safety Switch (Ski) CA27090P

CH2300 JET

Neutral Safety Switch (Jet) CA27100P

CH2200 OR CH2300:

Stainless Steel Knob (red-grooved) CA69052P

Stainless Steel Knob (smooth) CA69051P

Cable Connection Kits (See Connection Kits and Jet Boat Steering sections.)

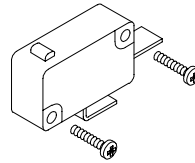
NOTE: Correct Craft® installations of the CH2200 control use a proprietary mounting arrangement. Please contact Correct Craft when servicing this control.

CH2200P
SKI BOATS

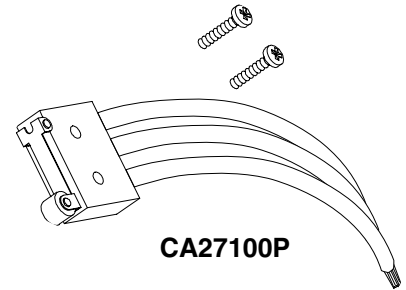
CH2300P
JET BOATS



CA27090P



CA27100P



Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX

Universal 3300 Types

3300 cable (standard) CC172XX

3300 cable (midrange) CC330XX

33C cable (midrange) 032377-003-XX

33C Supreme (midrange) 301947-003-XXX

TFXTREME 3300 cable (premium) ... CC633XX

Jet Gate Control Cables:

Sport Jet 90 & early 120 CC213XX

(This is a special 3300 type cable with different configuration at drive end for 90 and early 120's.)

(May require purchase of cable connection kit(s) to complete control system installation.)

Please note that while the CH2200 and CH2300 are similar in appearance, they have different neutral safety switches and internal mechanisms. Do not substitute CH2200 for CH2300 or vice-versa. If you need assistance with these products, please contact Teleflex Marine Tech Service at 610-495-7011 or on-line at www.teleflexmorse.com

CC630 **TFXTREME**



CC213



CC633 **TFXTREME**



CC172



CC330/032377-003/301947-003



Morse MV-3 control

Morse®



premium engine control

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Universal 43 Types



DIMENSIONS: page 217
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.)

*(dual-function control
— each lever controls
throttle AND shift)*

The MV-3 offers style and incredible versatility in a dual-function, single-lever control. Several models are offered for outboards, stern drives, inboards, ski boats and jets, including versions with a lanyard-type emergency cut-off switch.

Applications:

Ideal for many outboards, stern drives and inboards, with specialized versions for ski and jet boats. Single lever, dual action units control throttle and shift with one lever, using 33 or 43 type control cables. *Not suitable for use with Mercury® and OMC® OEM type control cables.*

Features:

- Specially styled for today's integrated cockpit.
- Fits all popular outboards, inboards and sterndrives.
- Emergency cut-off feature available for most popular MV-3 models.
- Crisp, positive detents.
- Pullout clutch disengagement feature for engine warm-up with automatic disengagement.
- Neutral interlock feature to prevent accidental shifting.
- Mechanical advantage - Shift 2.9:1 / Throttle 3.20:1.
- Uses 33 and 43 type cables.
- Can be used for Berkeley Jet (with 43 type cables) and Mercury 175 HP Sport Jet (with special cable noted on next page).
- Meets/exceeds all applicable industry standards.

mechanical control, ski boat, jet. outboard, stern drive

Engine Controls:

- MV-3 Competition Ski Boat Version (no safety switch) forward cable entry .. 311335
- MV-3 Standard Control with neutral safety switch and aft cable entry 311364
- MV-3 Standard Control with neutral switch and throttle limit 311481
- MV-3 Standard Control with neutral switch 311480

MV-3 FOR JET BOATS:

- MV-3 Control, right mount, Berkeley 311412
- MV-3 Control, left mount, Berkeley 311413
- MV-3 Control, Mercury Sport Jet 90, right mount with special immersible switch, aft cable entry 311415
- MV-3 Control, Mercury Sport Jet 90, right mount with special immersible switch, forward cable entry 311414
- MV-3 HD Control with neutral safety switch and aft 175 HP only 311508

MV-3 WITH EMERGENCY CUT-OFF SWITCH (JETS & OUTBOARDS):

- MV-3 Competition Ski Boat Type .. 311335-002
- MV-3 Mercury Sport Jet 90, right mount w/special immersible switch, forward cable entry 311414-002
- MV-3 Mercury Sport Jet 90, right mount w/special immersible switch, aft cable entry 311415-002
- MV-3 for Jet Boats 311364-002
- MV-3 HD Mercury Jet 175 HP Only, right mount w/special immersible switch, aft cable entry 311508-002

MV-3 WITH EMERGENCY CUT-OFF SWITCH (STERN DRIVES & INBOARDS):

- MV-3 Competition Ski Boat Version 311335-001

Options/Service Items:

- Ball Knob, Black 4009819
- MV-2 Hand Lever Assembly 306494
- Neutral Safety Switch Replacement..... 300928
- OMC Replacement Shift Switch Only ... 301585
- Immersible Neutral Safety Switch for Jet 051801-031



MV-3 (with cut-off switch)

Options/Service Items, continued:

- MV-3 Emergency Cut-Off Switch Kit for Jet and Outboard 311482-002
- MV-3 Emergency Cut-Off Switch Kit for I/O and Inboard 311482-001
- Cable Connection Kits (See Connection Kits and Jet Boat Steering sections.)

Compatible Cables:

OEM/Univ. 3300 Types

- Mercury 3600 type cable (premium) . CC630XX

Universal 3300 Types

- 3300 cable (standard) CC172XX
- 3300 cable (midrange) CC330XX
- 33C cable (midrange) 032377-003-XX
- 33C Supreme (midrange) 301947-003-XXX
- TFXTREME 3300 cable (premium) ... CC633XX

Jet Gate Control Cables:

- Sport Jet 90 & early 120 CC213XX
(This is a special 33 type cable with different configuration at drive end for 90 and early 120's.)
- Sport Jet 175 312240-000-XXX
(This is a special 43 type cable with different configuration at drive end for 175's.)
(May require purchase of cable connection kit(s) to complete control system installation.)

Morse S control

Morse®



(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Universal 43 Types



DIMENSIONS: page 217
 CONTROL TYPES: page 174
 SELECTION GUIDE: page 176
 SUPPORT: www.teleflexmorse.com
 or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 and 43 type cables and engine connection kits. (These controls are not designed to use Mercury/Marine® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.)

*(single-function control
 — each lever controls
 throttle OR shift)*

The original, classic Morse control – great for inboards, single or dual station. The time-proven design of Twin S means years of reliable operation. Accepts universal control cables. Optional lever extension, detent kits and neutral safety switch available. Additional hardware may be required for twin station use.

Applications:

Ideal for inboards, stern drives and outboards, the S controls are suitable for single or dual station use. These single function engine controls are available in both one or two-lever models.

Both S controls use 33 and 43 type cables. Not suitable for use with Mercury® and OMC® OEM type control cables.

Features:

- Highly polished corrosion resistant chrome plated brass covers.
- Simple, rugged, compact design.
- Optional neutral safety switch to prevent starting in gear.
- Optional hand lever extension.
- Optional shift detent kit (if used in dual stations; use on main station only).
- Uses 33 and 43 type cables.
- Mechanical advantage - shift 2.77:1/ throttle 2.77:1.
- Meets/exceeds all applicable industry standards.

mechanical control, most engines, single & dual stations

Engine Controls:

Single S 031002-001
Twin S 031001-001

Options/Service Items:

Clutch Detent Kit 022328
In-Series Dual Station Kit, 30 Series
(2 required for twin) 039489-002
In-Series Dual Station Kit,
40 Series (2 required for twin) 042152
Neutral Safety Switch Kit 047307
OMC Replacement Shift Switch Only ... 301585
Lever Extension 036773
Throttle Hold Kit (one per lever,
prevents throttle creep) 306997
Ball Knob, Red 4009912
Ball Knob, Black 4009819
Stainless Steel Throttle Knob
(grooved) CA69052P**
Stainless Steel Shift Knob
(smooth) CA69051P**
*** Fits most controls with 3/8-24 threaded levers.*
Mounting Hardware Kit, Twin 061001
Connection Kits . (see Connection Kits section)

**SINGLE S
CONTROL**



**TWIN S
CONTROL**



Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX
US Marine® L-Drive shift cable CC213XX

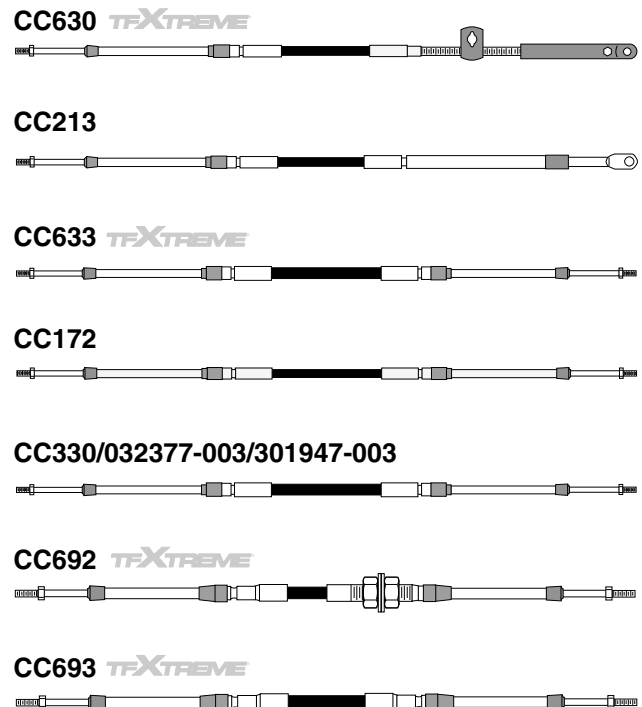
Universal 3300 Types

3300 cable (standard) CC172XX
3300 cable (midrange) CC330XX
33C cable (midrange) 032377-003-XX
33C Supreme (midrange) 301947-003-XXX
TFXTREME 3300 cable (premium) ... CC633XX

Universal 43 Types

TFXTREME 4300 BC cable CC692XX
TFXTREME 4300 CC cable CC693XX

(May require purchase of cable connection kit(s) to complete control system installation.)



Morse SR control

Morse®



(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Universal 43 Types



DIMENSIONS: page 217
 CONTROL TYPES: page 174
 SELECTION GUIDE: page 176
 SUPPORT: www.teleflexmorse.com
 or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 and 43 type cables and engine connection kits. (These controls are not designed to use Mercury/Marine® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.)

*(single-function control
 — each lever controls
 throttle OR shift)*

Ideal for inboards and multiple station boats, SR Twin is rugged and made with the finest marine grade materials. Removable cover enables easy access to the mechanism. Includes adjustable brakes and stops. Accepts universal control cables. Optional detent kits and neutral safety switch available. Additional hardware may be required for twin station use.

Applications:

Ideal for inboards, stern drives and outboards, Twin SR controls are suitable for single or dual stations and can utilize 33 or 43 type cables.

Not suitable for use with Mercury® and OMC® OEM type control cables.

Features:

- Polished stainless steel cover, marine grade chrome levers and rugged cast hanger plate.
- Removable cover enables easy access to the control mechanism.
- Adjustable brakes and stops.
- Optional neutral safety switch to prevent starting in gear.
- Optional shift detent kit (if used in dual stations; use on main station only).
- Uses 33 and 43 type cables.
- Mechanical advantage - shift 3.10:1/ throttle 3.10:1.
- Meets/exceeds all applicable industry standards.

mechanical control, most engines, single & dual stations

Engine Control:

Twin SR 2-lever control 036469-001

Options/Service Items:

Clutch Detent Kit.....036774
In-Series Dual Station Kit, 30 Series
(2 required for twin lever control) .. 039490-002
HD Conversion Kit
(2 required for twin lever control)040090
In-Series Dual Station Kit,
40 Series (2 required for twin) 048501-002

Neutral Safety Switch Kit 041117
OMC Replacement Shift Switch Only ...301585

Hand Lever036326

Ball Knob, Red 4009912

Ball Knob, Black 4009819

Stainless Steel Throttle Knob
(grooved) CA69052P**

Stainless Steel Shift Knob
(smooth) CA69051P**

** Fits most controls with 3/8-24 threaded levers.

Replacement Stainless Steel Lever CA69060P
(Fits Teleflex® CH5600 SLT and Morse® Twin SR controls only.)

Mounting Hardware Kit, Twin060991

Replacement Dome Cover, Twin047682

Connection Kits . (see Connection Kits section)

Compatible Cables:

OEM/Univ. 3300 Types

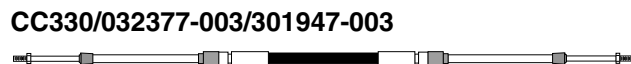
Mercury 3600 type cable (premium) . CC630XX
US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

3300 cable (standard) CC172XX
3300 cable (midrange) CC330XX
33C cable (midrange) 032377-003-XX
33C Supreme (midrange) 301947-003-XXX
TFXTREME 3300 cable (premium) ... CC633XX



TWIN SR



Universal 43 Types

TFXTREME 4300 BC cable CC692XX
TFXTREME 4300 CC cable CC693XX

(May require purchase of cable connection kit(s) to complete control system installation.)

Teleflex CH5600 SLT control

Teleflex[®]
MARINE



premium
engine control

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



DIMENSIONS: page 218
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner[®] and OMC[®] OEM type control cables that have "eye" terminals at the control end of the cable.) More information about this product can be found in the Technical Reference section.

*(single-function control
— each lever controls
throttle OR shift)*

There's nothing else like it! Patented **Self Locking Throttle** technology makes the SLT the only control that stops cable creep and works flawlessly in single or multi-station applications (even in the most complex cable routing). It stops unwanted control cable movement without cable brakes or other makeshift solutions that cause poor feel at the lever. Additional hardware may be required for twin station use.

Applications:

For single or dual stations with single or twin engines (including outboards utilizing an optional neutral safety switch kit).

Uses 3300 type universal control cables. *Not suitable for use with Mercury[®] and OMC[®] OEM type control cables.*

Features:

- Patented SLT technology prevents throttle creep. Lever stays where it is placed.
- Superior twin station performance.
- Polished Stainless Steel levers & dome.*
- Positive detent for shifts.
- Can be user-configured as either Push or Pull to operate throttle and/or shift.
- Includes hardware for two 33 type universal control cables.
- Easy-access adjustable detents/stops (under easily removable dome).
- Optional neutral safety switch.
- Meets/exceeds all applicable industry standards.

Drop-in replacement for Morse[®] Twin SR controls.

**standard on CH5600P version*

mechanical control, most engines, single & dual stations

Engine Control:

SLT Top Mount Control CH5600P

Options/Service Items:

Optional Neutral Safety Switch CA69009P

Cable Attachment Kit
(3300/Dual Station) CA69022P

3300 Heavy Duty
Brass Pivot Kit (2) CA27563P

Replacement Red Knob 4009912

Replacement Black Knob 4009819

Stainless Steel Throttle Knob
(grooved) CA69052P**

Stainless Steel Shift Knob
(smooth) CA69051P**

** Fits most controls with 3/8-24 threaded levers.

CH5600 Mounting Hardware Kit CA69013P
(Includes control mounting hardware, 1 detent, 1 throttle friction screw & lever stops.)

Replacement Stainless Steel Lever CA69060P
(Fits Teleflex® CH5600 SLT and Morse® Twin SR controls only.)

Connection Kits . (see Connection Kits section)

Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX
US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

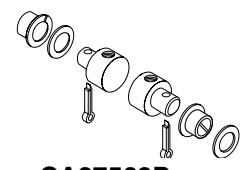
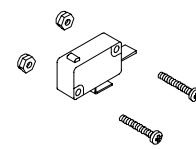
3300 cable (standard) CC172XX
3300 cable (midrange) CC330XX
33C cable (midrange) 032377-003-XX
33C Supreme (midrange) 301947-003-XXX
TFXTREME 3300 cable (premium) ... CC633XX

(May require purchase of cable connection kit(s) to complete control system installation.)



CH5600P

CA69009P

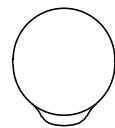


CA27563P

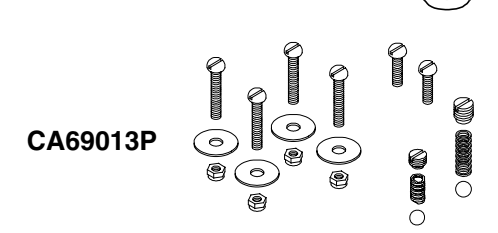
CA69052P



CA69051P



CA69013P



CC630 TFXtreme



CC213



CC633 TFXtreme



CC172



CC330/032377-003/301947-003



Teleflex CH4400 control

Teleflex[®]
MARINE



*(single-function control
— each lever controls
throttle OR shift)*

This stylish, low profile top mount control features twin levers/single action with visual and tactile throttle/shift identification. Available in chrome or satin black, with straight or raked handles and smooth or ratchet-type friction, it can be used for single or twin stations. CH4400s accept 33 type control cables and are ideal drop-in replacements for older Teleflex CH4500/4800 units. Additional hardware may be required for twin station use.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Applications:

For single or dual station applications with single or twin engines (including outboards utilizing an optional neutral safety switch kit). Uses 33 type universal control cables. *Not suitable for use with Mercury[®] and OMC[®] OEM type control cables.*

Features:

- Dual lever, single action for throttle & shift.
- Dual station capability.
- Stylish look with either straight or raked handles.
- Positive detent for shifts.
- Push or Pull to operate throttle and/or shift.
- Includes hardware for two 3300/33 control cables.
- Optional neutral safety switch.
- Adjustable ratchet feel for precise throttle operation.
- Removable knobs for recessed mounting.
- Meets/exceeds all applicable industry standards.

DIMENSIONS: page 218
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: *When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner[®] and OMC[®] OEM type control cables that have "eye" terminals at the control end of the cable.)*

mechanical control, most engines, single & dual stations

Engine Controls:

STRAIGHT HANDLE MODELS:

- Chrome/Smooth Friction..... CH4451P
- Chrome/Ratchet Friction..... CH4452P
- Black/Smooth Friction..... CH4453P
- Black/Ratchet Friction..... CH4454P

RAKED HANDLE MODELS:

- Chrome/Smooth Friction..... CH4481P
- Chrome/Ratchet Friction..... CH4482P
- Black/Smooth Friction..... CH4483P
- Black/Ratchet Friction..... CH4484P



Options/Service Items:

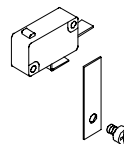
- Optional Neutral Safety Switch CA68075P
- 3300 Heavy Duty Brass Pivot Kit (2) CA27563P

- CH4400 Cover (Black Plastic) 6800611
- CH4400 Cover (Chrome Plastic) 6800618

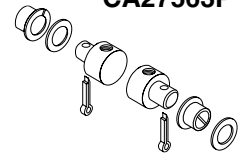
- CH4400 Knob (Chrome Zinc Alloy) 6801812
- CH4400 Knob (Black Aluminum) 6801811
- CH4400 Knob (Red Aluminum) 6801815
- CH4400 Screw for Knob..... 6801918
- CH4400 Black Knob Cap (Shift)..... 6802215
- CH4400 Red Knob Cap (Throttle)..... 6802111

- CH4400 Hardware Kit..... CA68057P

CA68075P



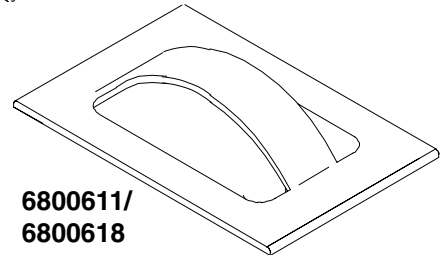
CA27563P



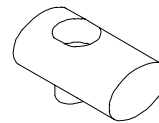
6802215



6802111



6800611/
6800618



6801812/
6801811/
6801815
(1 knob)



6801918

Compatible Cables:

OEM/Univ. 3300 Types

- Mercury 3600 type cable (premium) . CC630XX
- US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

- 3300 cable (standard) CC172XX
- 3300 cable (midrange) CC330XX
- 33C cable (midrange) 032377-003-XX
- 33C Supreme (midrange) 301947-003-XXX
- TFXTREME 3300 cable (premium) ... CC633XX

CC630 **TFXTREME**



CC213



CC633 **TFXTREME**



CC172



CC330/032377-003/301947-003



(May require purchase of cable connection kit(s) to complete control system installation.)

Morse MY control

Morse®



*(single-function control
— each lever controls
throttle OR shift)*

An incredible blend of form, function and flexibility. Exciting styling, smooth operation and rugged, compact form make the MY ideal for many applications, especially the control of multiple engines. MY gives you a vast array of control choices which add style to any cockpit, yet occupy a minimum amount of space.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Applications:

For single, twin, triple and quad engines (including outboards utilizing an optional neutral safety switch kit). Ideal for multiple engine control. MY controls are for single station use.

Uses 33 type universal cables. *Not suitable for use with Mercury® and OMC® OEM type control cables.*

Features:

- Available in two, four, or six lever configurations; levers available in either fore- or aft-canted positions.
- Levers available in black, satin and polished stainless steel finishes.
- Positive shift detents.
- Smooth ratchet throttle or optional adjustable throttle brake.
- Neutral safety switch to help prevent starting in gear.
- Uses 33 type universal control cables.
- Mechanical advantage - shift 2.14:1/ throttle 3.03:1.
- Meets/exceeds all applicable industry standards.

DIMENSIONS: page 218
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: *When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 type cables and engine connection kits. (These controls are not designed to use Mercury/Mariner® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.)*

mechanical control, most engines, single stations

Engine Controls:

BLACK HOUSING, BLACK LEVERS:

- MY (1 throttle T, aft cant) 311110-420
 - MY (1 shift, 1 throttle ST, aft cant) 311111-460
 - MY (2 throttle TT, aft cant) 311120-460
 - MY (2 shift SS, aft cant) 311193-460
 - MY (2 shift, 2 throttle STTS, aft cant) 311122-460
 - MY (2 shift, 2 throttle SSTT, aft cant) 311188-460
 - MY (3 shift, 3 throttle SSSTTT, aft cant) 311133-460
- (All above: ratcheting throttle with no friction brake.)

- MY (1 shift, 1 throttle ST, fwd. cant) 311111-161
 - MY (2 shift, 2 throttle SSTT, aft cant) 311188-461
 - MY (3 shift, 3 throttle SSSTTT, fwd. cant) . 311133-151
- (All above: resistance throttle with friction brake.)

BLACK HOUSING, SATIN LEVERS:

- MY (1 shift, 1 throttle ST, fwd. cant) 311111-270
- (Above: ratcheting throttle with no friction brake.)
- MY (1 shift, 1 throttle ST, fwd. cant) 311111-261
- (Above: resistance throttle with friction brake.)

BLACK HOUSING, STAINLESS LEVERS:

- MY (1 shift, 1 throttle ST, aft cant) 311111-521
- (Above: resistance throttle with friction brake.)

- MY (1 shift, 1 throttle ST, aft cant) 311111-560
 - MY (2 shift, 2 throttle STTS, aft cant) 311122-560
 - MY (3 shift, 3 throttle SSSTTT, aft cant) 311133-560
- (All above: ratcheting throttle with no friction brake.)

WHITE HOUSING, SATIN LEVERS:

- MY (2 shift, 2 throttle STTS, aft cant) 311113-560
 - MY (2 shift, 2 throttle SSTT, aft cant) 311118-560
- (All above: ratcheting throttle with no friction brake.)

WHITE HOUSING, STAINLESS LEVERS:

- MY (2 shift, 2 throttle SSTT, fwd. cant).. 311118-261
- (Above: resistance throttle with friction brake.)

WHITE HOUSING, BLACK LEVERS:

- MY (1 shift, 1 throttle ST, aft cant) 311109-460
- (Above: ratcheting throttle with no friction brake.)

MY (ST)
SINGLE SHIFT,
SINGLE THROTTLE



"S" & "T" in the descriptions refer to relative placement of throttle & shift levers.

MY (SSSTTT)
TRIPLE
SHIFT,
TRIPLE
THROTTLE



Options/Service Items:

- MY Mounting Screws - Black 306047
- MY Pivot Kit (Single Cable) 306048-001
- MY Pivot Kit (Two Cables) 306048-002
- MY Neutral Safety Switch Kit 306594
- MY Detent & Spring Kit 306595
- MY Throttle Friction Kit
(one per throttle lever) 306615

Compatible Cables:

3300 Universal Cables (10-32 threaded ends)
Purchase of cable connection kit(s) may be required to complete control system installation.

Number Code:

Because there are many combinations available with the MY Control, a part numbering system has been developed to help you identify the part number of the control configuration desired. Please note the three numbers following the base number to order the required control.

3 1 1 1 ? ?

base number

HANDLE ORIENTATION/FINISH

- 1 - Black; Foreward Cant
- 2 - Satin or Stainless;Fore Cant
- 4 - Black; Aft Cant
- 5 - Satin or Stainless;Aft Cant

X X X

PUSH/PULL SELECTION

- 1 - Push to Open, All Throttle Levers
- 2 - Pull to Open, All Throttle Levers
- 3 - Push into Forward Gear, All Shift Levers
- 4 - Pull into Forward Gear, All Shift Levers
- 5 - Push to Open Throttle/Pull into Forward Gear
- 6 - Pull to Open Throttle/Pull into Forward Gear
- 7 - Push to Open Throttle/Push into Forward Gear
- 8 - Pull to OpenThrottle/Push into Forward Gear

THROTTLE

- 1 - Resistance throttle with friction brake, no throttle detents
- 0 - Ratchet throttle has throttle detents without friction brake

Morse ST/STB controls

Morse®

*(single-function
one-lever control)*



The ST & STB controls are economical, and durable, with a simple, elegant design. Single-function lever moves one cable. Versions are available for 33 and 43 type cables, with or without throttle brake.

(accepts these cables:)

OEM/Univ. 3300 Types



Universal 3300 Types



Universal 43 Types



Applications:

ST controls are great choice for many inboards and sailboats, stern drives and outboards. The STB control includes a throttle brake and can shift Berkeley jets when a foot throttle is used.

ST/STB units can utilize 33 type universal control cables.

ST-HD and STB-HD controls use 43 type control cables.

ST/STB controls are for single-station use only and are not suitable for use with Mercury® and OMC® OEM type control cables.

Features:

- Compact, rugged design and classic traditional styling.
- Durable heavy chrome finish.
- Models for 33 and 43 type cables.
- Available with or without throttle brake.
- Mechanical advantage - 3.20:1.
- Meets/exceeds all applicable industry standards.

DIMENSIONS: page 219
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing universal 33 and 43 type cables and engine connection kits. (These controls are not designed to use Mercury/Marine® and OMC® OEM type control cables that have "eye" terminals at the control end of the cable.)

mechanical control, many engines, single station

Engine Controls:

ST CONTROLS (NO BRAKE):

ST Control (33 type cables)031791
 ST-HD Control (43 type cables) 039115

STB CONTROLS (WITH BRAKE):

STB w/external brake
 (33 type cables)044777
 STB-HD w/external brake
 (43 type Cables)045978

Options/Service Items:

Hand Lever Assembly, Chrome 031046-002
 Ball Knob, Black
 (replaces 035232-044) 4009819
 Stainless Steel Shift Knob
 (smooth) CA69051P**
 ** Fits most controls with 3/8-24 threaded levers.

Throttle Cable Brake044386
 Mounting Hardware Kit
 (30 Series Kit)062279

Compatible Cables:

OEM/Univ. 3300 Types

Mercury 3600 type cable (premium) . CC630XX
 US Marine® L-Drive shift cable CC213XX

Universal 3300 Types

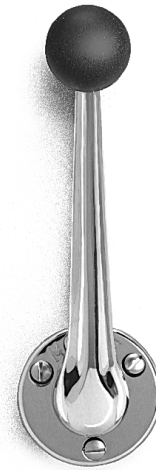
3300 cable (standard)CC172XX
 3300 cable (midrange)CC330XX
 33C cable (midrange) 032377-003-XX
 33C Supreme (midrange) 301947-003-XXX
 TFX TREME 3300 cable (premium) ... CC633XX

Universal 43 Types

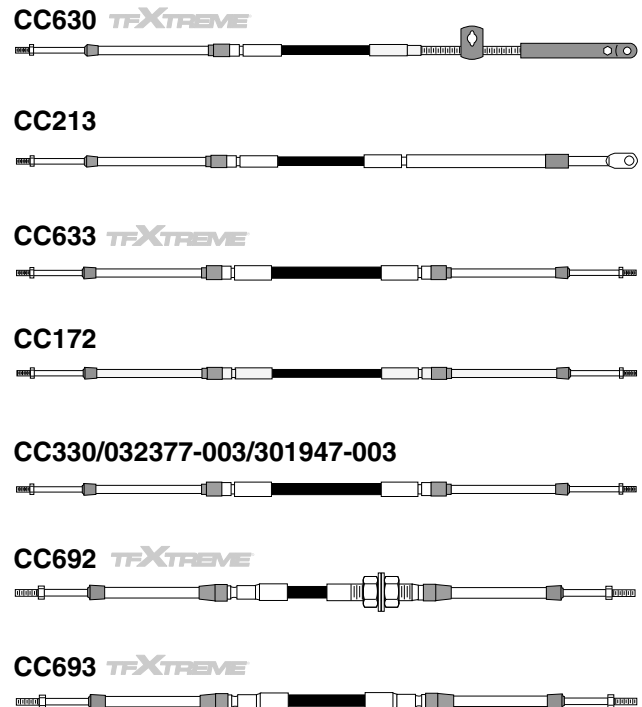
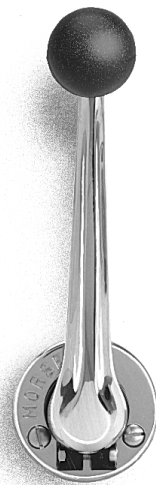
TFX TREME 4300 BC cable CC692XX
 TFX TREME 4300 CC cable CC693XX

(May require purchase of cable connection kit(s) to complete control system installation.)

ST



STB



Morse KE-4 control

Morse®



premium engine control

(accepts these cables:)
Universal 3300 Types

KE-4 or i6000?

Use KE-4 if:

- There are more than 2 stations.
- Throttle and Shift are actuated mechanically (KE-4 has no electronic throttle interface).
- Trolling valve control required.
- Throttle Sync only is needed.
- Electrical system is 12 or 24 volt.
- Hand-held remote desired.
- CANbus interface not needed.

DIMENSIONS: page 219
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing an electronic interface, universal 33 type cables and appropriate engine connection kits.

*(electronic control —
each lever controls
throttle AND shift)*

The KE-4 set the standard for reliability in marine electronic controls. Its simplicity and proven design make it the choice for most multi-station/multi-engine control pleasure and work boats. KE-4 controls are available in either single or twin lever binnacle mount versions for single or multiple stations and up to two engines.

Applications:

Electronic stand-alone controls are ideal for larger, multi-station boats, especially those applications in which a mechanical control cannot deliver the desired feel and performance. For nearly all engine types.

Features:

- Works with any engine: outboard, stern drive or inboard.
- Single or twin engine control; dual function for each lever.
- Up to 4 control heads.
- Optional hand-held remote control: great for docking!
- Built-in station selection switch.
- Engine Sync option available. (Throttle only.)
- Adjustable gear shift delay.
- Mechanical backup (easy to use “get home” system).
- Built-in overload protection & diagnostics.
- Visual failure alarm standard (audio alarm optional).
- Uses standard 33C type control cables on throttle/shift actuator.
- 12 and 24 volt capability.
- Meets/exceeds all applicable industry standards.

electronic control, most engines, up to 4 stations

Engine Control Items:

CONTROL HEADS:

(Select one control per station.)

Single Lever-1 Engine(LH)-Gold	NM0511-00
Single Lever-1 Engine(RH)-Gold	NM0521-00
Single Lever-1 Engine(LH)-Chrome	NM0534-00
Single Lever-1 Engine(RH)-Chrome	NM0534-00
Single Lever-1 Engine(LH)-White	NM0537-00
Single Lever-1 Engine(RH)-White	NM0538-00
Single Lever-1 Engine(LH)-Black	NM0540-00
Single Lever-1 Engine(RH)-Black	NM0541-00
Twin Lever-2 Engines-Gold	NM0510-00
Twin Lever-2 Engines-Chrome	NM0533-00
Twin Lever-2 Engines-White	NM0536-00
Twin Lever-2 Engines-Black	NM0539-00

ELECTRONIC CONTROL UNIT (ECU):

(One required per engine; select based on onboard DC voltage.)

ECU-12 Volt DC	NM0477-00
ECU-24 Volt DC	NM0478-00

HARNESSES:

Remote Control Harness	NM0616-XX
<i>(XX = length in meters. Avail. 04-50 meters in 2M increments.)</i>	
Remote Control Harness 100M	NM0616-A0
<i>(One Remote Control Harness required per engine & station. A twin engine, twin station installation would require 4 RCHs.)</i>	
Comm Harness 5M (16.40 Feet)	NM0619-05
<i>(1 Comm harness required for twin engines.)</i>	
Power Harness 5M (16.40 Feet)	NM0414-28
Power Harness 10M (32.80 Feet)	NM0414-33
<i>(2 Power Harnesses required per engine.)</i>	

ACTUATOR:

(1 required per engine; controls both throttle and shift.)

Actuator-Throttle & Shift	NM0165-00
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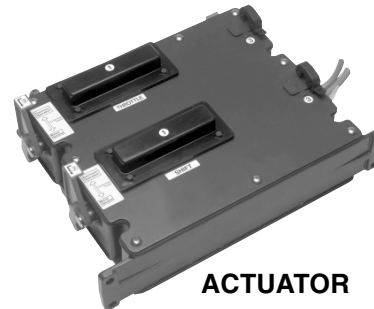
ACTUATOR-ENGINE INTERFACE CABLES:

(Two cables required per actuator. XX = length in feet. Most control cables are available in lengths from 6 to 50 feet. See the Teleflex Marine list price sheet for current offering. Where Part Numbers are indicated, XX = length in feet. Lengths above 30 feet are only available in two-foot increments (32, 34, 36, etc.)

33C Supreme (midrange)	301947-003-XXX
TFXTREME 3300 cable (premium)	CC633XX
<i>Cables have a 10-32 threaded terminal and a clamp-type fitting at each end. 3" nominal travel. Purchase of cable connection kit(s) may be required to complete the installation.</i>	
Mercury 3600 type cable (premium)	CC630XX
<i>Separate connection kit generally not required with this cable.</i>	

CONNECTION KITS FOR 33/3300 CABLES:

Mercury O/B & I/O	301901 or CA27319P
Mercury Inboard Kit (all)	302123 or CA27373P
Evinrude/Johnson (1979-up) ..	300557 or CA27320P
Evinrude/Johnson (pre-1979) .	301729 or CA27321P
OMC Stern Drive (all)	300557 or CA27320P
<i>(Morse P/N shown first, comparable Teleflex P/N shown second.)</i>	



Options:

Hand Held Remote Control Unit	NM0906-00
Engine Sync Switch Kit	NJ0524-00
Engine Sync Master Harness	NM0605-01
Engine Sync Slave Harness	NM0605-02
Engine Sync Switch Harness	NM0617-XX
<i>(XX = length in meters. Avail. 05-40 meters in 5M increments.)</i>	
Circuit Breaker 20 AMP	NJ0514-00
Warning Buzzer-12 Volt DC	NJ0251-00
Warning Buzzer-24 Volt DC	NJ0515-00

Service Items:

Control Head Cover,Gold	NM0508-01
Control Head Cover, Chrome	NM0533-01
Control Head Cover, White	NM0536-01
Control Head Cover, Black	NM0539-01
Control Head Mounting Gasket	NM0508-06
Control Head Single Lever Cover Plug ..	NM0509-01
Cover Screws	NM0804-00
Keypad-Single Lever models	NM0811-00
Keypad-Twin Lever models	NM0810-00
Handle Decal	NM0808-00
Switch Cover	NM0508-03
Actuator Front Cover	NM0156-14
Manual Backup Cover	NM0805-00
Access Door Kit	NM0807-00
Latch Kit	NM0801-00
Sensor Assembly	NM0812-00
Cable Hardware	NM0802-00
Aux. Cable Hardware	NM0806-00
Cable Grommet	NM0803-00
Cable Clip	NM0809-00



Morse KE-4 control

Optional KE-4a Hand Held Control:

The KE-4a Hand Held Control is an option to the KE-4a's single lever, dual function control system. It allows the boater to actually carry the shift and throttle control about the boat when docking or maneuvering. The KE-4a single lever, dual function control system must be installed prior to installing the hand held control.



NM-0906-00

Features:

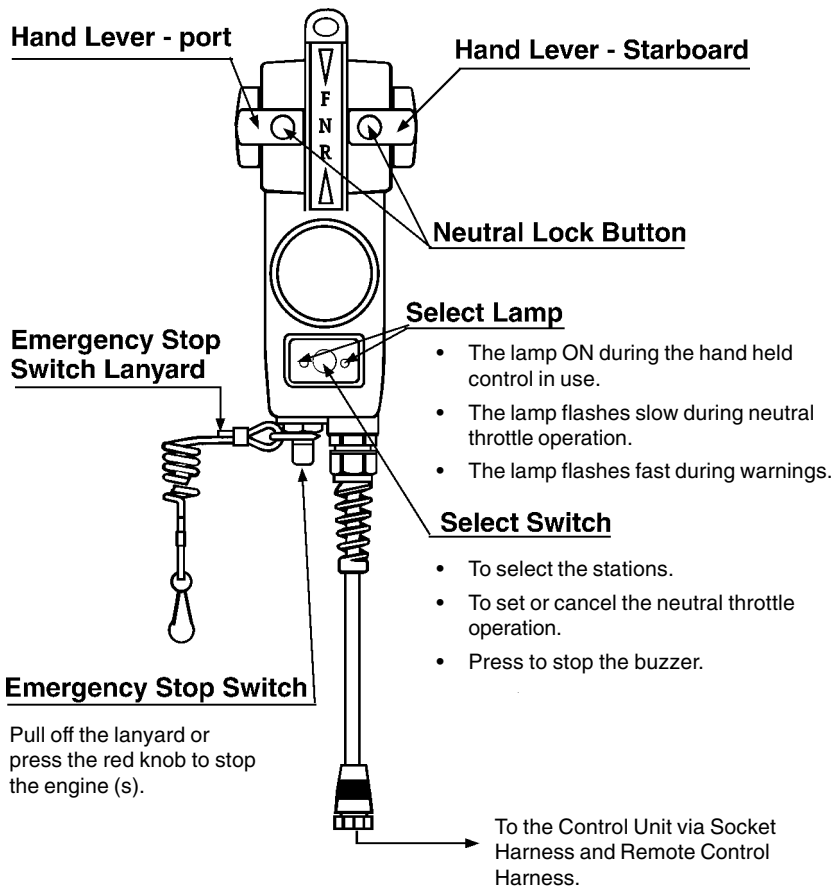
- Ergonomic design like the fixed KE-4a control head.
- Twin and single engine controls available.
- Socket harness plugs into existing KE-4 or KE-4a control units using standard remote control harness and functions as an additional control head.
- Hand held control detachable from the wall socket connector.
- Hand held control has a 26.2 foot (8 meter) detachable harness.
- Control lever incorporates a neutral lock mechanism for improved safety.
- Optional two-way stop switch with lanyard for emergency cut-off.
- Control is water resistant and meets or exceeds all industry standards.
- Dual power supply facility.

Hand Held Control Overview:

KE-4 or i6000?

Use i6000 if:

- There are 1 or 2 stations.
- There are 1-3 engines.
- Propulsion is via a jet.
- Throttle and Shift are actuated mechanically or electronically.
- Full One-Touch Engine Synchronization across all ranges is desired.
- Traditional styling desired.
- Electrical system is 12 volt.
- CANbus interface needed.

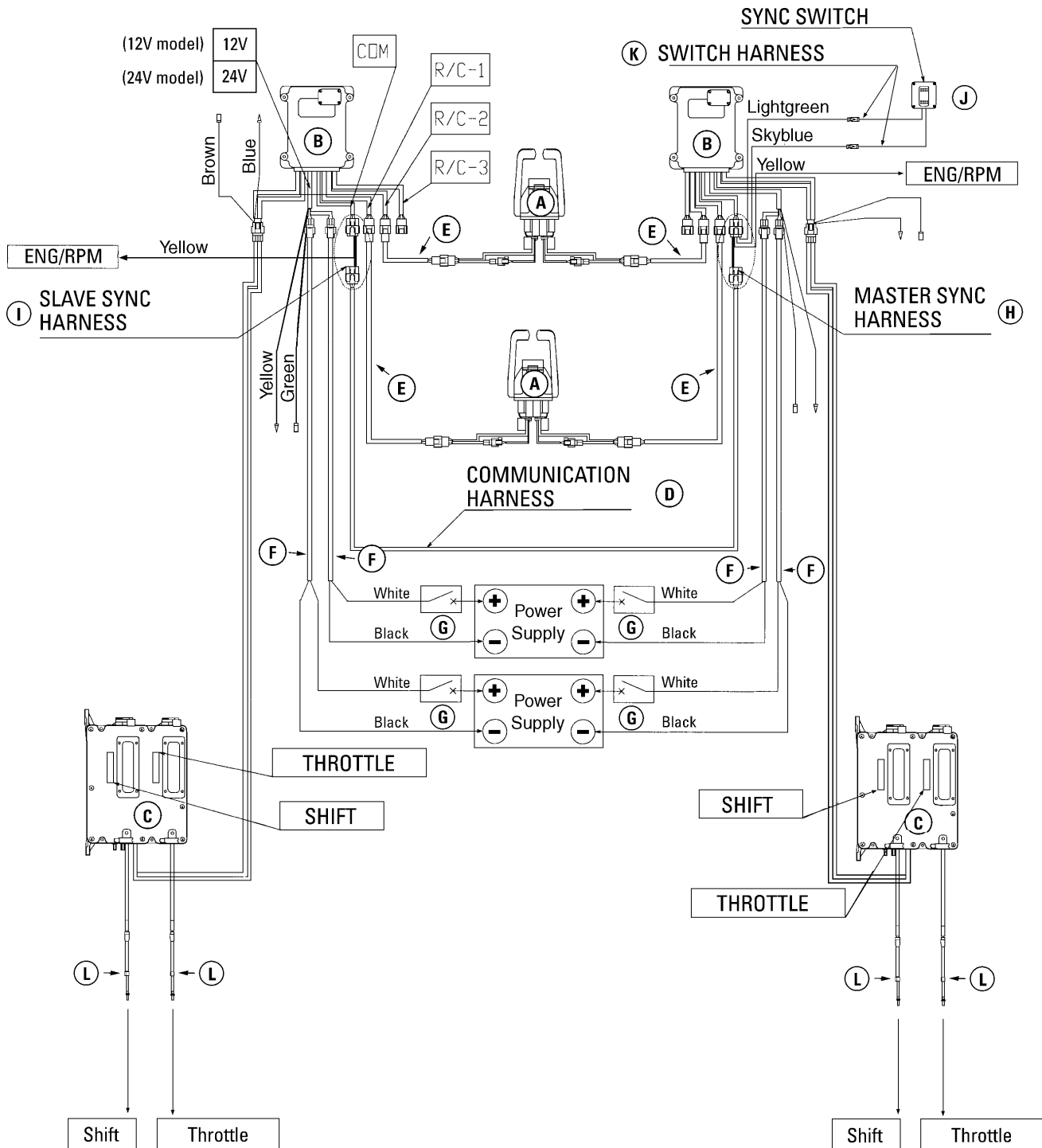


electronic control, most engines, up to 4 stations

Basic KE-4 System Overview:

The following schematic shows elements of the KE-4 control system in a typical twin engine/twin station application.

For part numbers associated with the items depicted below, please see the previous two pages.



Morse ETC control

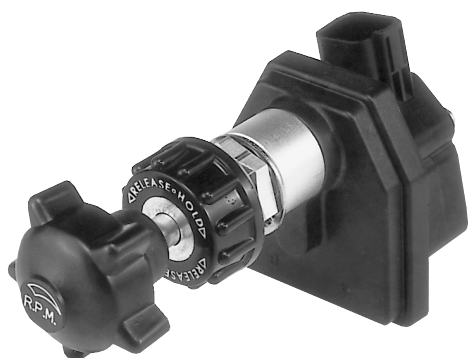
Morse®



(electronic throttle control — for engines with electronic governors)

Now there is added flexibility in remote operation of electronic governors.

MICRO-ADJUSTABLE ETC (311873 shown)



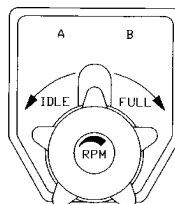
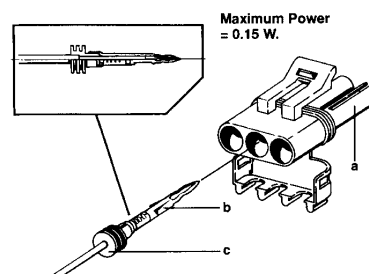
(LEVER-OPERATED VERSIONS AVAILABLE.)

Features:

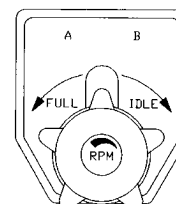
- Meets all engine manufacturer specifications.
- Available in micro-adjustable or lever-operated models.
- Low and high RPM settings.
- Pigtail available.
- Can be used with existing mechanical controls.
- Custom designed levers for application versatility.

DIMENSIONS: page 220
 CONTROL TYPES: page 174
 SELECTION GUIDE: page 176
 SUPPORT: www.teleflexmorse.com
 or call 610-495-7011

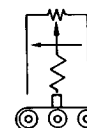
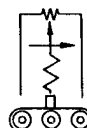
ELECTRICAL CHARACTERISTICS FOR PART NUMBER 310714 ONLY:



-001, -002, -003



-004, -005, -006



CONNECTORS REQUIRED:

Caterpillar (311788) - Deutsch Mating Connector: DT, 06 3S Plug Connector (1), W3 S Secondary Lock (1), 0452-16141 Contact Socket 16 to 18 AWG (3). **Caterpillar (311873)** - Deutsch Mating Connector: HD 14-3-96P Connector (1), 0460-202-16141 pin (3).

John Deere, Detroit Diesel, Cummins without Idle Validation - Mating Connector Packard Electric Weather Pack: Three Way Tower P/N 12015793 (1), Male Pin P/N 12033647 (for AWG Wire) Gold Plated (3), Wire Cable Seal P/N 12089040 (3).

Cummins with Idle Validation - Deutsch Mating Connector: DT 06-6S Plug (1), 0462-201-16141 Socket (6), W6S Secondary Lock Part (1).

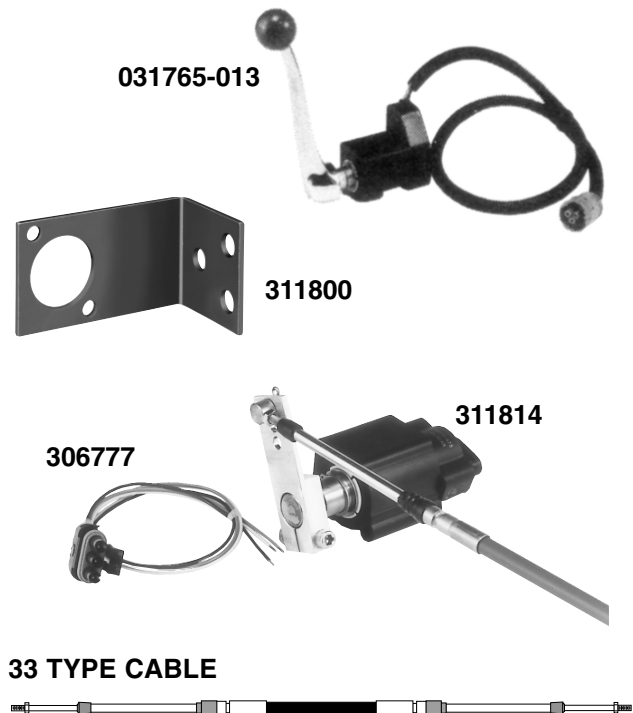
ENGINE MODEL	ROTATION	PART NUMBER
MICRO-ADJUSTABLE ETC CONTROL:		
Caterpillar - 12VDC Input		311421
Caterpillar - 8VDC CPU Input		310730
Cummins - Celect Plus w/Idle Validation		311440
Detroit Diesel - DDEC I, II, III	CW	310714-001
Detroit Diesel - DDEC I, II, III	CCW	310714-004
John Deere - All	CW	310714-002
John Deere - All	CCW	310714-005
LEVER OPERATED ETC CONTROL:		
Caterpillar - 12VDC Input		311873
Caterpillar - 8VDC CPU Input		311788
Cummins - Celect Plus w/ Idle Validation		311821
Cummins - w/o Idle Validation	CCW	311789-003
Cummins - w/o Idle Validation	CW	311789-001
Detroit Diesel - DDEC I, II, III	CW	311789-001
Detroit Diesel - DDEC I, II, III	CCW	311789-003
John Deere - All	CW	311789-002
John Deere - All	CCW	311789-004

CW = Clockwise; CCW - Counter Clockwise

Options/Service Items:

- Hand Lever Assembly..... 031765-013
- SR Hand Lever312018
- ST Hand Lever 031765-013
- Lever Operated ETC Mount Bracket..... 311800
- Cable Lever Assembly 311814
- Pigtail for 310714 part numbers306777
- 3300 cable (standard) CC172XX
- 3300 cable (midrange) CC330XX
- 33C cable (midrange) 032377-003-XX
- 33C Supreme (midrange) 301947-003-XXX
- TFXTREME 3300 cable (premium) ... CC633XX

Purchase of cable connection kit(s) may be required to complete control system installation.



Teleflex ProTrim control

Teleflex[®]
MARINE

pro
series

(Control any one of these functions...)

*Engine Trim/Tilt
Jackplate
Horn*

(... or any two with Pro Trim Dual!)

INSTALLATION: page 213
CONTROL TYPES: page 174
SELECTION GUIDE: page 176
SUPPORT: www.teleflexmorse.com
or call 610-495-7011

NOTE: When properly installed, this engine trim control allows adjustment of trim settings on various engines by attaching to either a bezel or boot (mechanical & tilt steering) or the front of a helm (SeaStar hydraulic steering) and by splicing into existing engine trim wiring. Mechanical steering bezels must allow for proper installation of mounting screws (see Pro Trim instructions). Refer to engine manual for additional details about trim wiring. For Big-T, SeaStar rear mount helms and SeaStar Capilano applications, call Teleflex Marine technical service at 610-495-7011. Pro Trim is not suitable for use with pre-1991 SeaStar helms (with domed oil seal cover). Do not attempt to install Pro Trim on these helms. Please call Teleflex Canada technical service at 604-270-6899 for assistance.

(engine trim control — single or dual function)

Trim control the way it's meant to be . . . at your fingertips. With Pro Trim from Teleflex, you can keep both hands on the wheel and concentrate on your driving. Its clean, modern design looks at home in any cockpit and there are no cords to tangle around the steering wheel, a big plus for boats with hydraulic steering! The Pro Trim single-switch controls one function (engine trim or jackplate) Pro Trim Dual controls two functions (trim and jackplate).

Applications:

Pro Trim is a "bolt-on" for all popular Teleflex steering systems and is attractively packaged, with everything you need. Also suitable for use with Morse[®] Command 200 rack & pinion steering, and it's the only trim switch recommended for SeaStar and SeaStar PRO hydraulic steering systems!

Features:

- Momentary-on switch is off in its center "at-rest" position; actuates in up and down directions.
- UV-Stabilized ABS switch cover blends with dash.
- Strong fusion-coated bracket fits most steering systems and adjusts for regular or deep-dish wheels.
- Heavy duty marine wiring harness, color-coded to match existing trim and jackplate wiring.
- Durable Mylar[®] decals allow labelling of switch functions.
- All mounting hardware and complete, user-friendly instructions included in attractive clamshell package!

electrical control, most engines with trim or jackplate

Pro Trim Controls:

Pro Trim Single FunctionPT1000P

Pro Trim Dual FunctionPT2000P

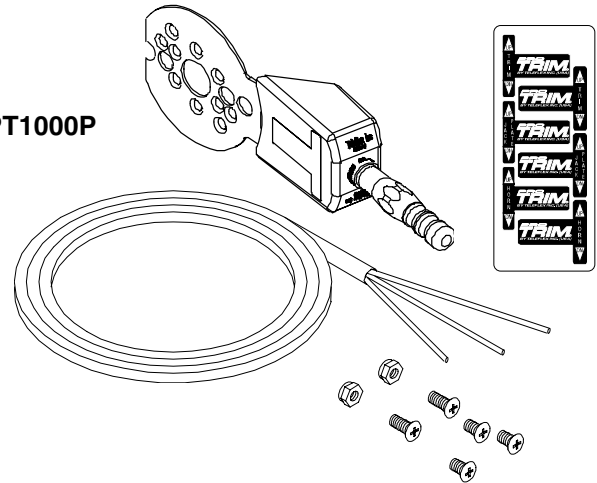
Pro Trim Fits:

Any boat using one of the following Teleflex Marine steering systems:

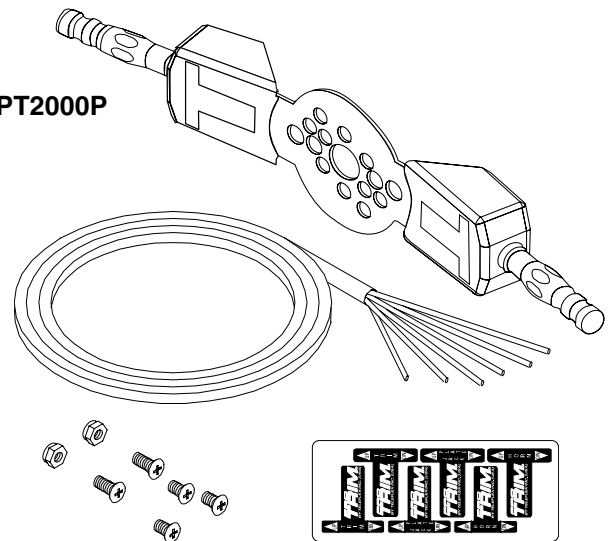
- Safe-T mechanical steering.
- Rack & Pinion mechanical steering.
- NFB No FeedBack steering (all helms).
- SeaStar hydraulic steering.
- SeaStar PRO hydraulic steering.
- Morse Command 200 Rack & Pinion.

PRO TRIM®

PT1000P

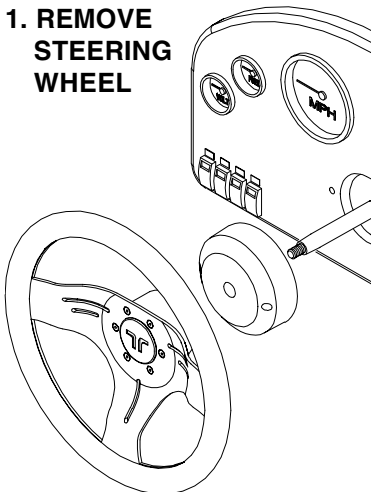


PT2000P

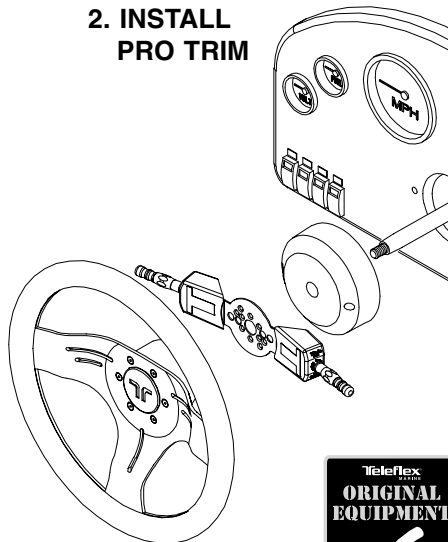


Pro Trim Installation Overview:

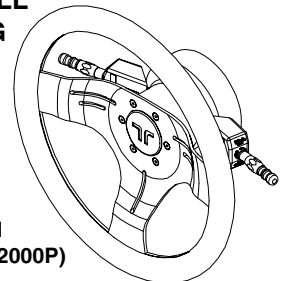
1. REMOVE STEERING WHEEL



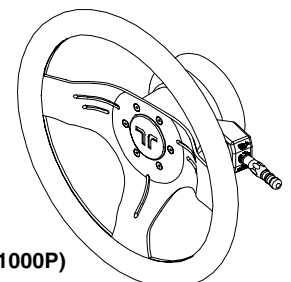
2. INSTALL PRO TRIM



3. RE-INSTALL STEERING WHEEL



PRO TRIM DUAL (PT2000P)



PRO TRIM SINGLE (PT1000P)

(MECHANICAL STEERING SHOWN)

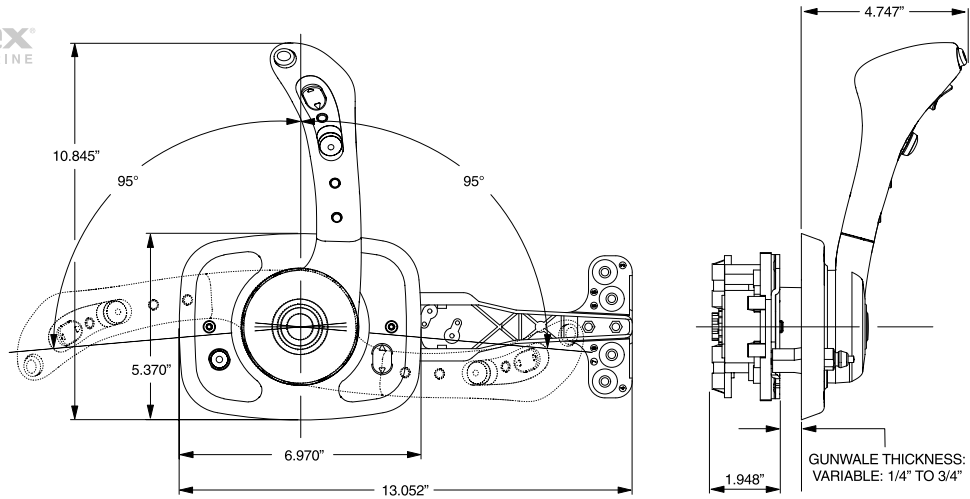
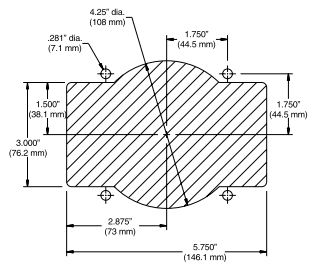


Teleflex Marine Controls

CH1700

Teleflex
MARINE

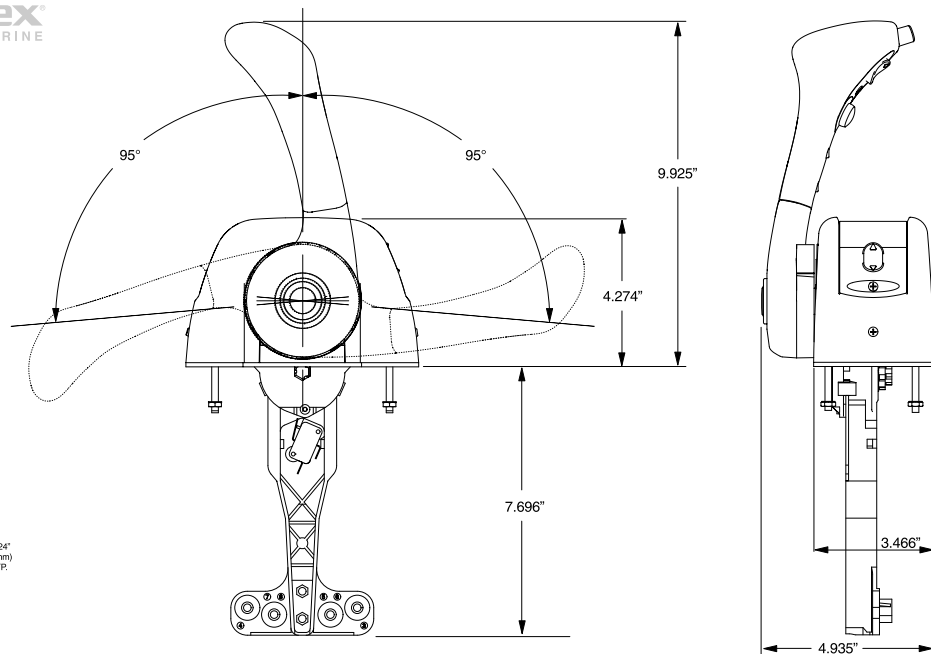
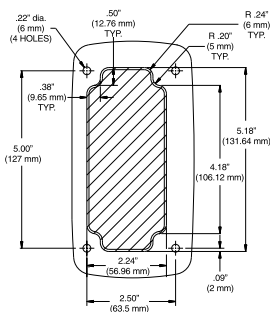
MOUNTING CUTOUT DIMENSIONS:



CH7500

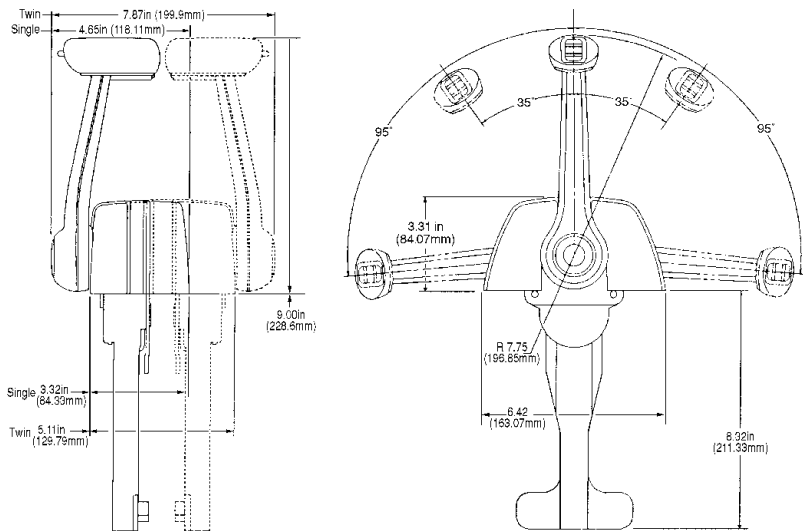
Teleflex
MARINE

MOUNTING CUTOUT DIMENSIONS:



SL-3 Top Mounts

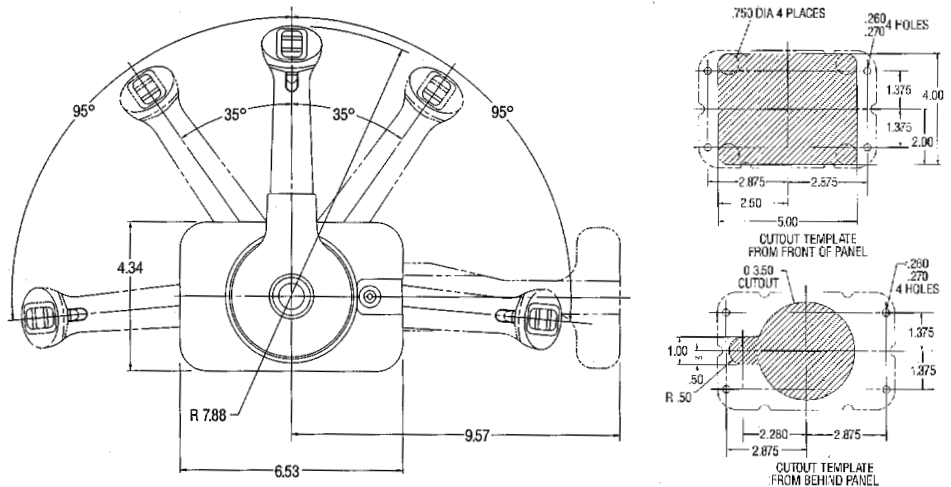
Morse.



SL-3 Side Mount

Morse.

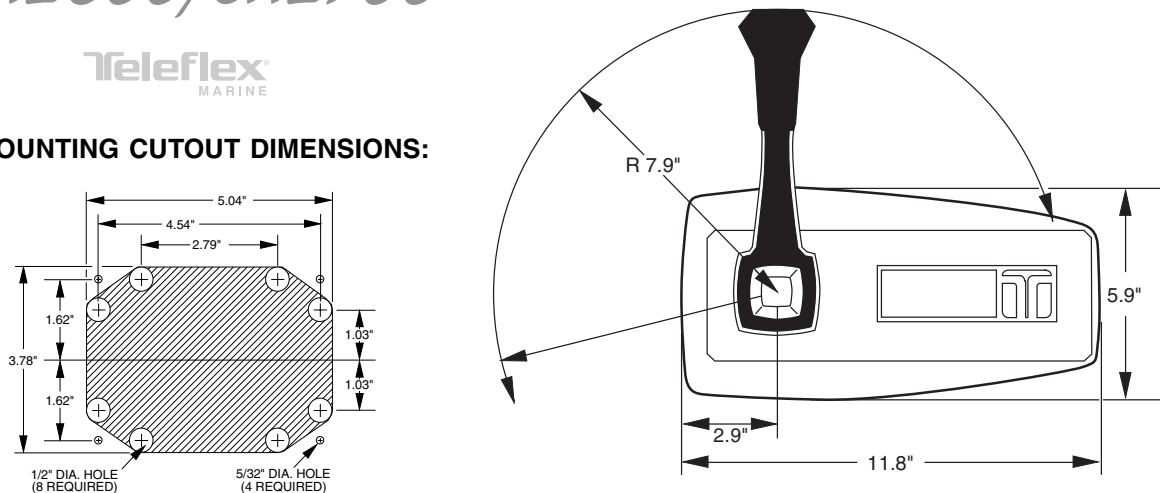
MOUNTING CUTOUT DIMENSIONS:



CH2600/CH2700

Teleflex
MARINE

MOUNTING CUTOUT DIMENSIONS:

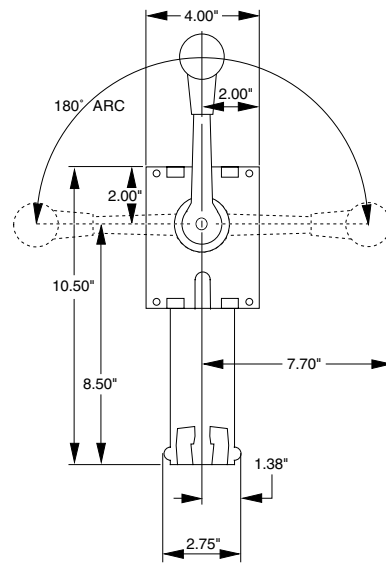
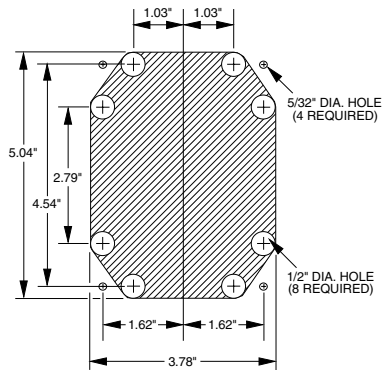


Teleflex Marine Controls

CH2100

Teleflex
MARINE

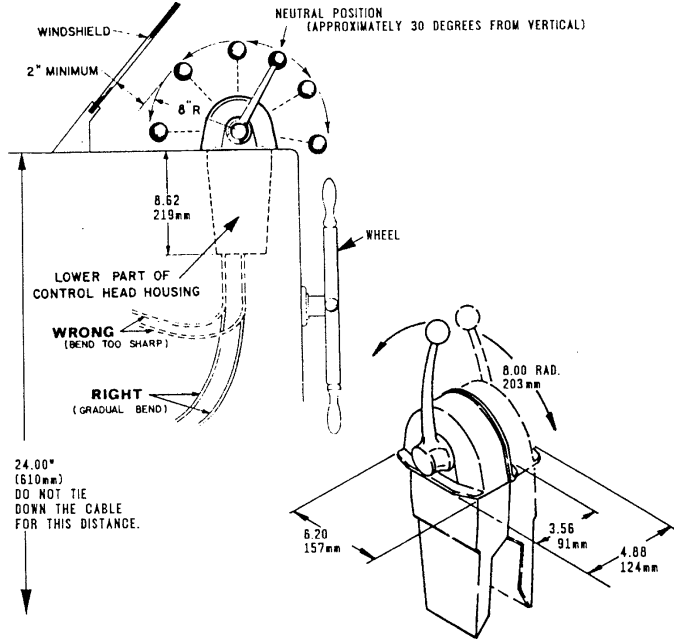
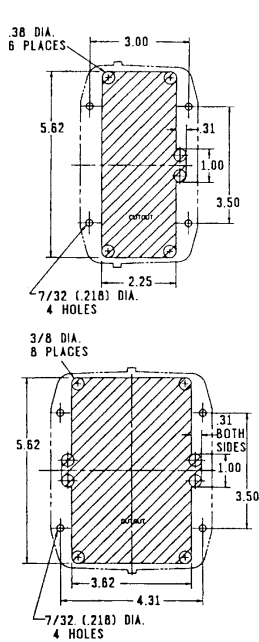
**MOUNTING
CUTOUT
DIMENSIONS:**



MT-3

Morse

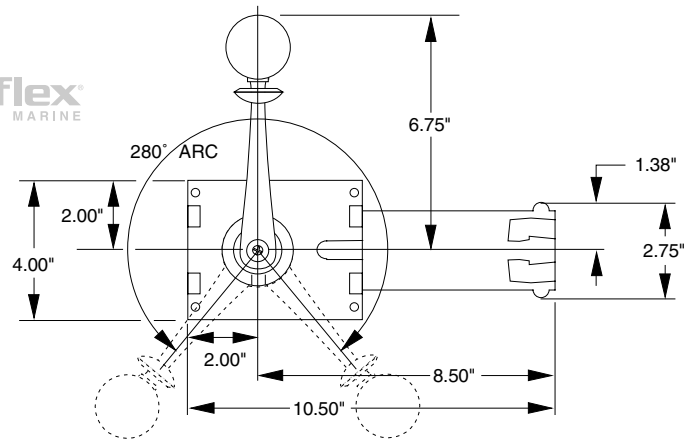
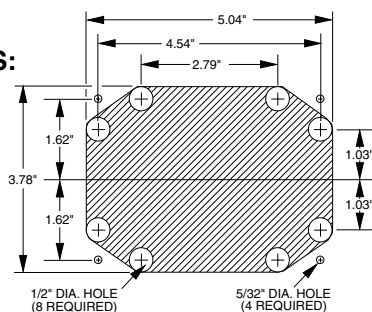
**MOUNTING
CUTOUT
DIMENSIONS:**

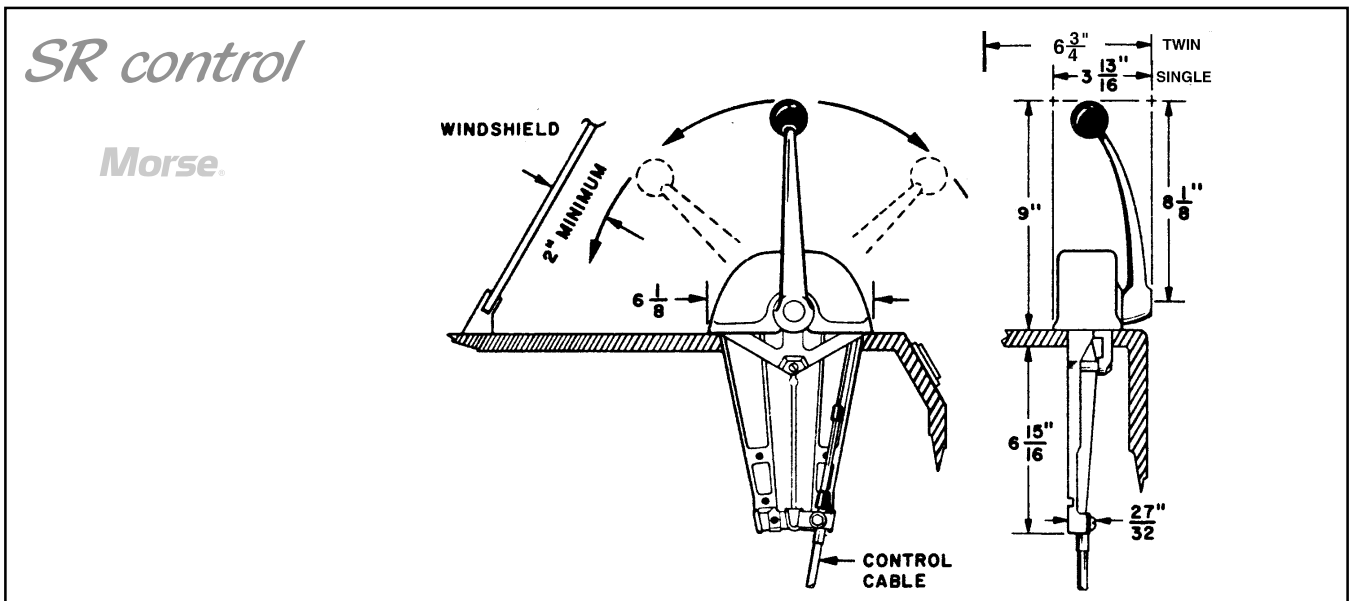
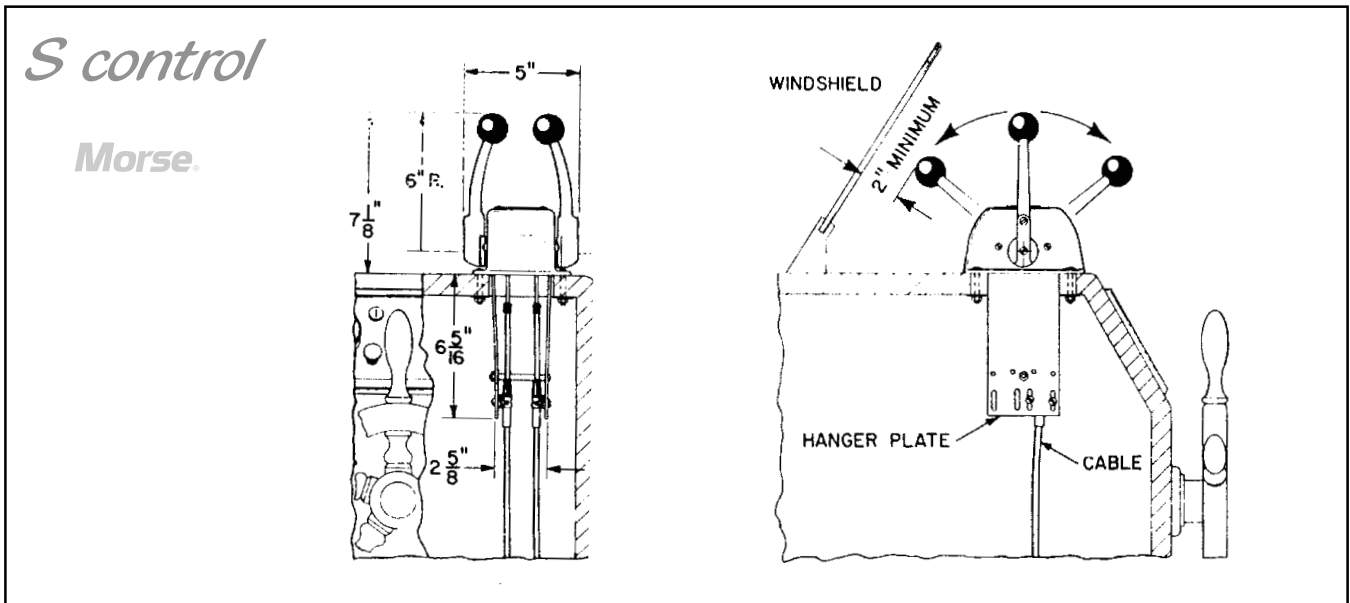
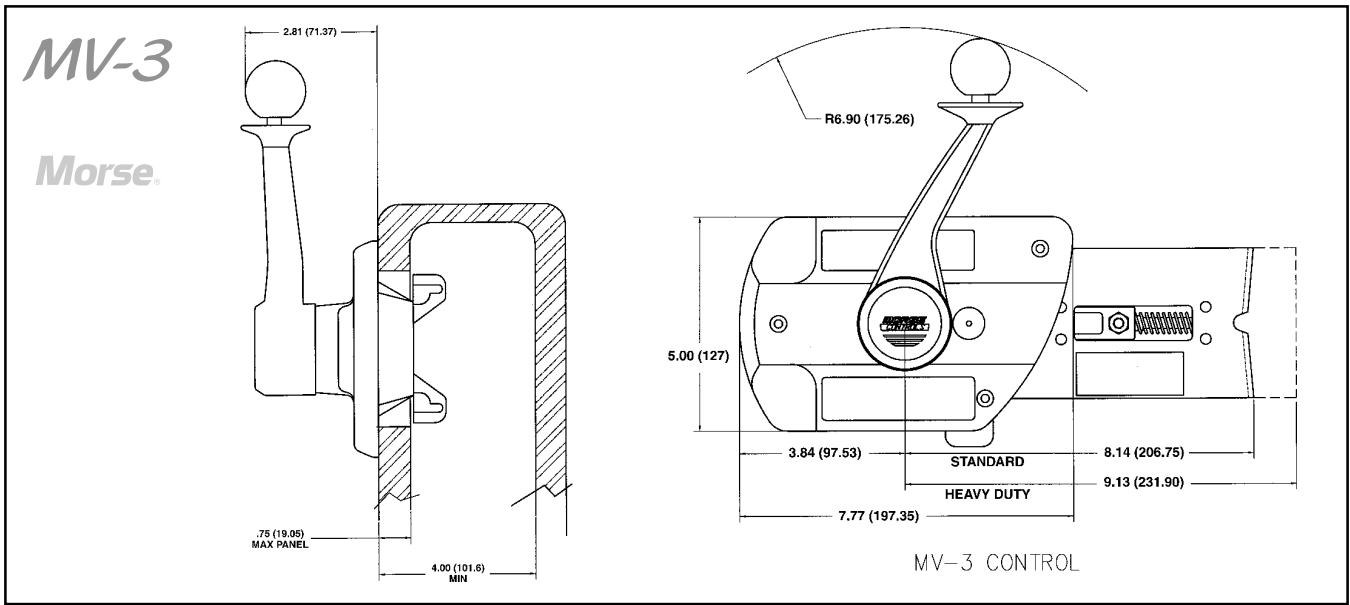


CH2200/CH2300

Teleflex
MARINE

**MOUNTING
CUTOUT
DIMENSIONS:**

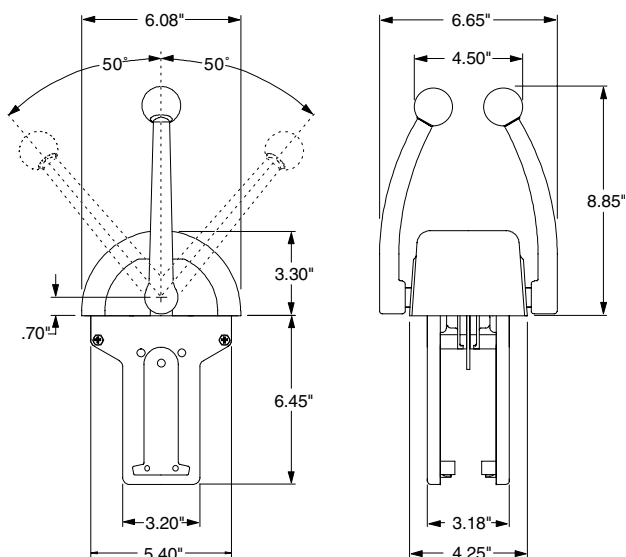




Teleflex Marine Controls

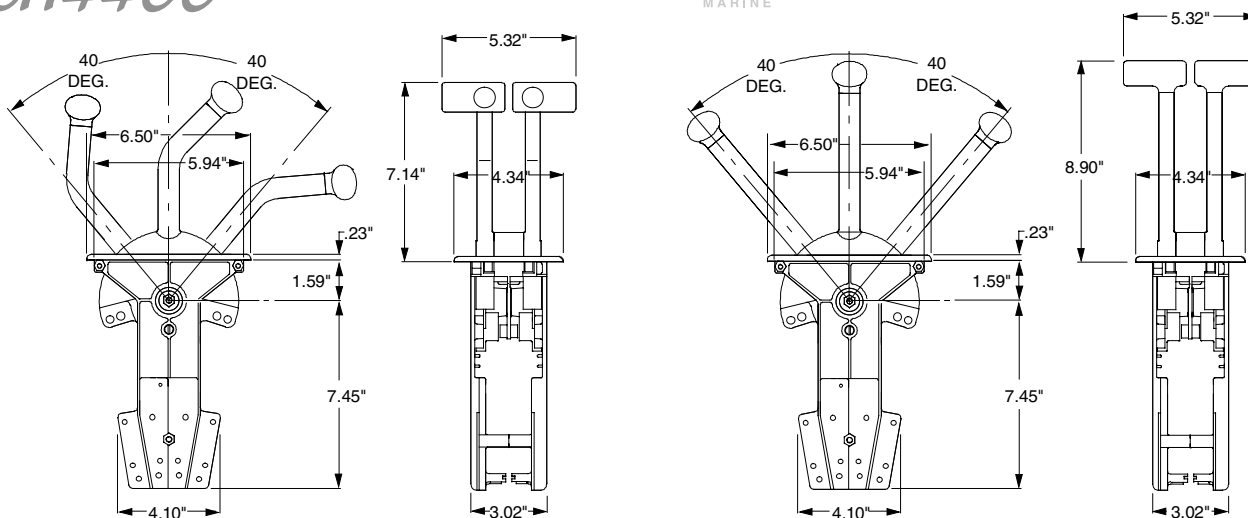
CH5600

Teleflex
MARINE



CH4400

Teleflex
MARINE

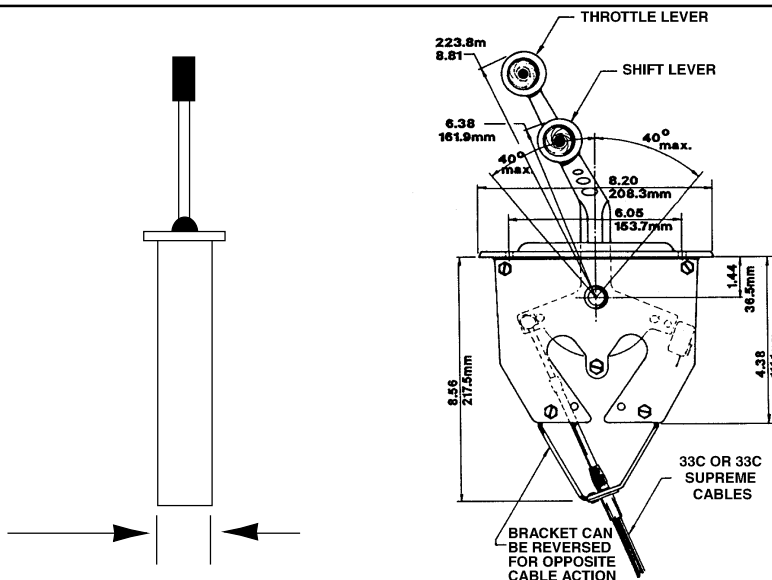


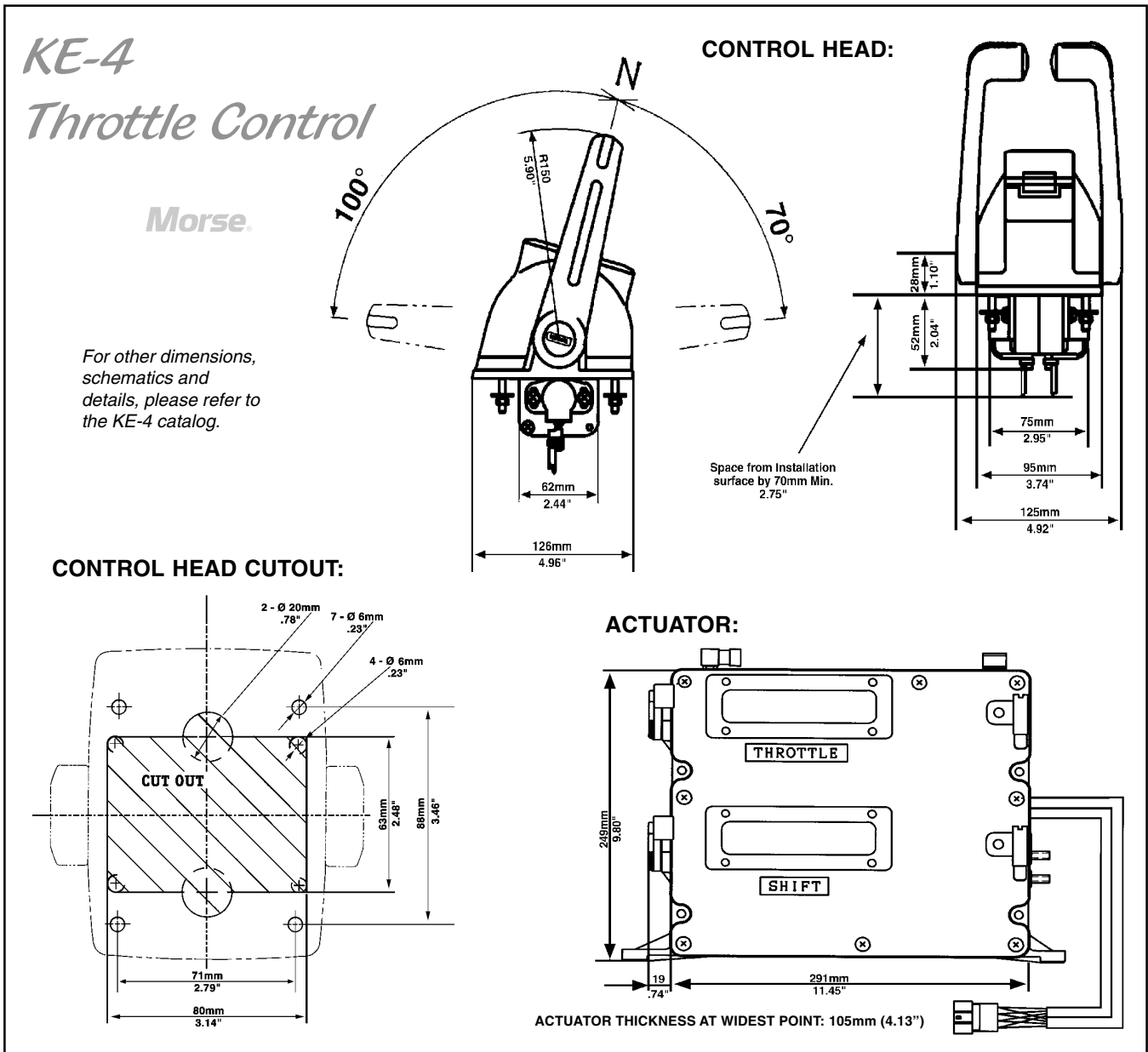
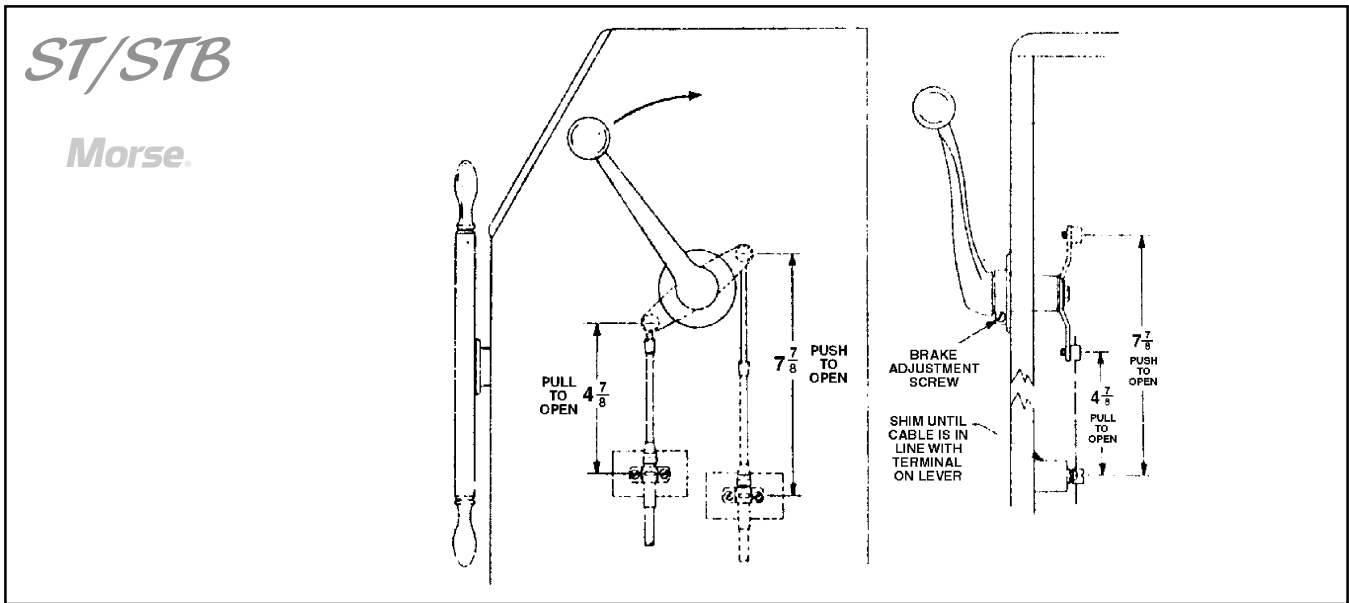
MY controls

Morse

CUTOUT HOLE WIDTHS:

- 1 LEVER: 1.12" (28.4 mm)
- 2 LEVER: 2.06" (52.4 mm)
- 3 LEVER: 2.99" (75.9 mm)
- 5 LEVER: 4.87" (123.7 mm)
- 4 LEVER: 3.94" (100 mm)
- 6 LEVER: 5.81" (147.6 mm)

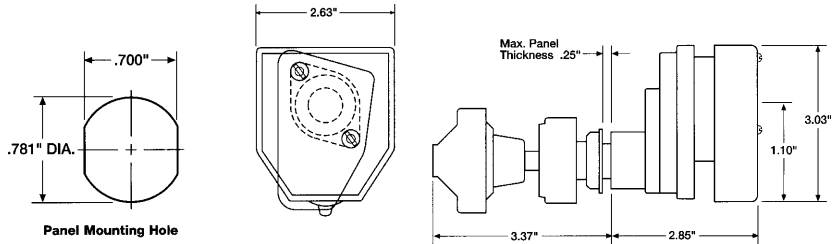




Teleflex Marine Controls

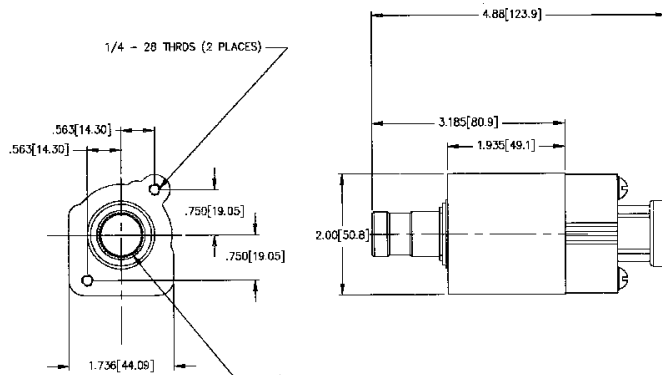
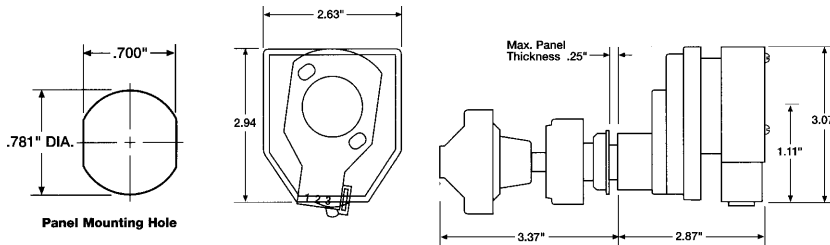
ETC Electronic Throttle Control

Morse



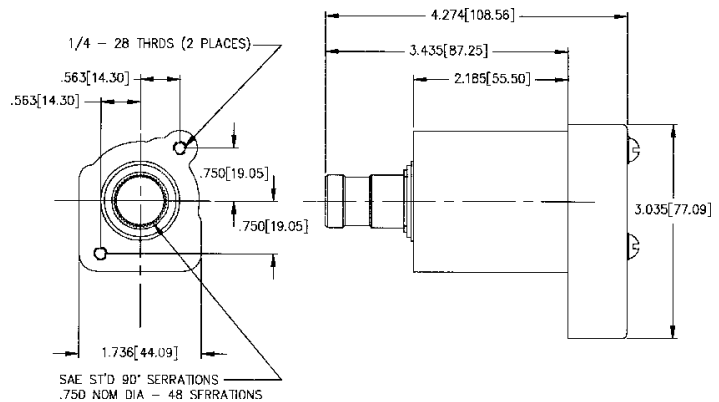
**311421
CATERPILLAR**

**311440
CUMMINS**



**311789-001/002/003/004
JOHN DEERE,
DETROIT DIESEL, CUMMINS
WITHOUT IDLE VALIDATION**

**311788 AND 311873
CATERPILLAR**



**311821
CUMMINS
WITH IDLE VALIDATION**

