

TELEFLEX MORSE Marine Products

MV-3 Control

For
Standard Inboard and Outboard Versions
Sport Jet Versions
Berkeley Jet Versions

Owner's Manual

INSTALLATION, OPERATION AND
MAINTENANCE INSTRUCTIONS

This manual must be accessible to the owner/user of this Morse Marine Product.

PLEASE READ THESE INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE INSTALLING OR OPERATING THIS CONTROL!

All specifications and features are subject to change without notice.



6980 Professional Parkway East
Sarasota, FL 34240
941/907-1000
FAX 941/907-1020

Introduction

The Morse MV-3 Control is designed to provide convenient, one hand, single lever operation of shift and throttle for most popular outboards, sport jets, inboards equipped with hydraulic reverse gears and Berkeley or similar jet pumps.

A safety feature of the MV-3 is a Neutral Locking Hand Lever. It can only be disengaged from Neutral by raising the lifter under the ball knob. The MV-3 accepts Morse 33C Red Jacket Cables or 33C Supreme Red Jacket cables. Some jet models use a 43C Shift cable.

A neutral safety switch is standard, except on MV-3 controls assembled for inboard ski boats and Berkeley Jet controls.

IMPORTANT SAFETY NOTICES

Morse Controls highly recommends the installation and usage of an engine emergency shut-off switch as an important safety feature for Class IA and Class IB boats. This switch should be connected by a cord to the boat driver. This shut-off switch is not a standard part of the control you are using.

Part number 311482-001: I/Os and inboards.

Part number 311482-002: outboards.

Observe carefully these symbols below for **Warnings**, **Cautions** and **Notes**. They are to alert installers and operators of possible dangers or important information contained in this manual. Warnings alone do not eliminate the dangers nor are they a substitute for safe boat handling and proper accident prevention measures.



FAILURE TO COMPLY WITH A WARNING MAY RESULT IN INJURY TO BOAT OCCUPANTS AND/OR OTHERS.



NONCOMPLIANCE WITH A CAUTION MAY RESULT IN FAILURE AND/OR DAMAGE TO THE CONTROL AND/OR EQUIPMENT.

NOTE:

INDICATES INFORMATION OR INSTRUCTIONS THAT ARE NECESSARY FOR PROPER INSTALLATION, MAINTENANCE AND OPERATION.

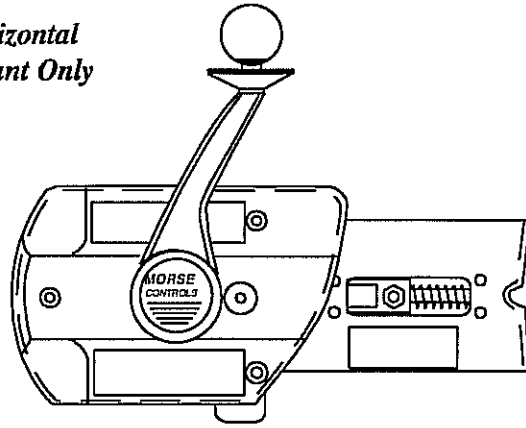
Section 1

Control Configurations

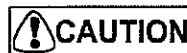
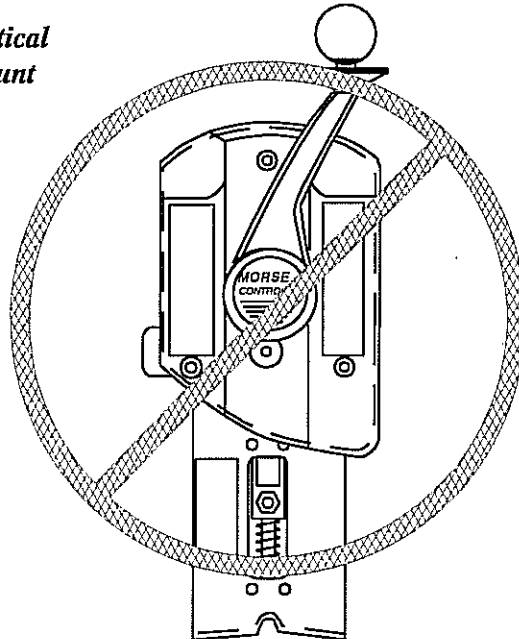
The MV-3 Control can only be mounted in a horizontal position.

Figure 1

Horizontal Mount Only



Vertical Mount

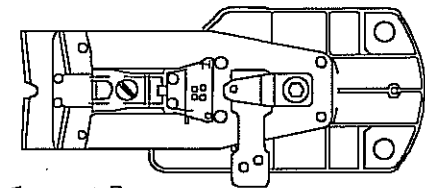


DO NOT REMOVE HAND LEVER TO CHANGE POSITION.

1.1 This section is provided to make sure that you have the correctly configured control for your application.

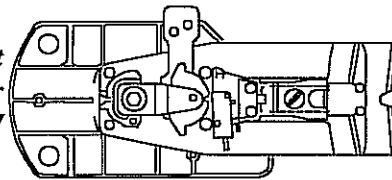
Figure 2

**Part
Number
311335**



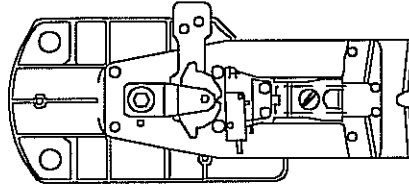
Bow
Right hand mount, cables forward without
Neutral safety switch
For use with Inboard ski boats

**Part
Number
311467**



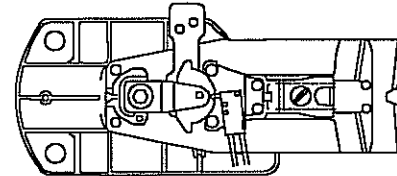
Bow
Right hand mount, cables aft with
Standard safety switch and warm-up limiter
Sport Jet version

**Part
Number
311364**



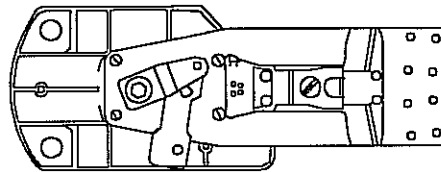
Bow
Right hand mount, cables aft with
Standard neutral safety switch
For use with inboards, outboards and I/O's

**Part
Number
311481**



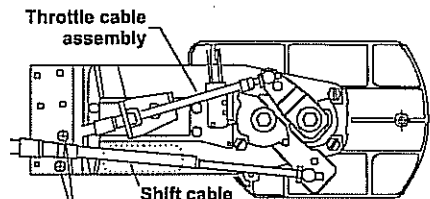
Bow
Right hand mount, cables aft with
Immersion proof safety switch
Sport Jet version with warm-up limiter

**Part
Number
311412**



Bow
Right hand mount, Berkeley Jet
Uses 43BC shift cable
Neutral safety switch optional

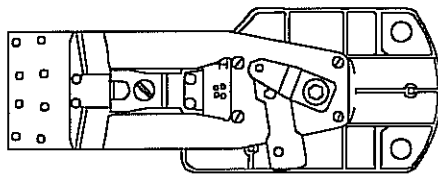
**Part
Number
311508**



Throttle cable
assembly
Shift cable
assembly
Shift cable
attaches at
these holes
25
6.35 mm
Shift cable
rod
Cable pivot
BOW

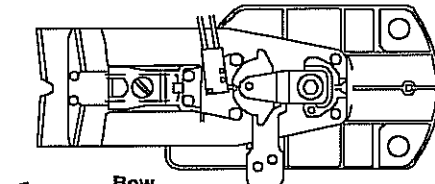
Right hand mount, cables aft with
Immersion proof safety switch, warm-up
limiter and heavy duty shift cable for
Mercury Marine 175 horsepower jet drive.
Cables must be installed to the 311508
control as shown above when used with
the Mercury 175 horsepower
Sport Jet engine.

**Part
Number
311413**



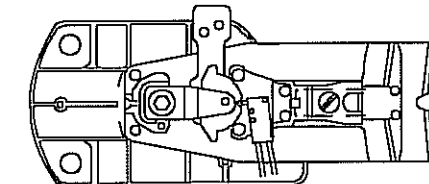
Bow
Left hand mount, Berkeley Jet
Uses 43BC shift cable
Neutral safety switch optional

**Part
Number
311414**



Bow
Right hand mount, cables forward with
Immersion proof safety switch
Sport Jet version with warm-up limiter

**Part
Number
311415**



Bow
Right hand mount, cables aft with
Immersion proof safety switch
Sport Jet version with warm-up limiter

NOTE:

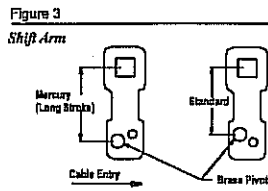
TO DETERMINE THE CORRECT CONTROL ASSEMBLY FOR INBOARDS WITH HYDRAULIC TRANSMISSIONS, YOU MUST DETERMINE IF THE SHIFT CABLE 'PULLS' OR 'PUSHES' TO GO INTO FORWARD AND IF THE THROTTLE CABLE 'PULLS' OR 'PUSHES' TO OPEN THE THROTTLE.

Operate MV-3 control hand lever to see how the shift and throttle levers move. If they move in the right direction, you do not have to change them. If control is not assembled for proper action of shift and throttle function required by engine or left hand configuration is required, reassemble control as shown in following instructions of this section.

1.2 Repositioning the Shift Arm

If the transmission shift function is different than the control shift arm, reposition the arm by removing hex head screw and rotate the shift arm 180 degrees.

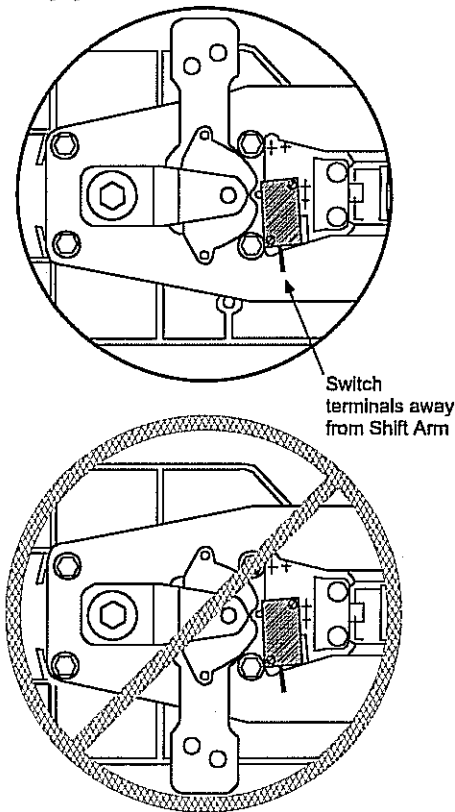
Pay attention to the 2-hole pattern on the shift arm for mounting pivot. See Figure 3.



IF THE SHIFT ARM IS REPOSITIONED, THE NEUTRAL SAFETY SWITCH MUST ALSO BE REPOSITIONED OR THE SWITCH WILL BE DAMAGED. (SEE FIGURE 4.)

Figure 4

Neutral Safety Switch



1.3 Reversing the Throttle Action

All MV-3 controls are assembled to give a *PULL* action on the cable. If cable action is incorrect, reverse throttle arm by removing Hex Head Screw and large flat washer. Remove arm and reassemble in opposite position as shown in Figure 5. Also, reverse position of dwell block and spring by removing screw flat washer and nut. Reassemble in opposite position (see Figure 5).

Figure 5

Throttle Cable Connection

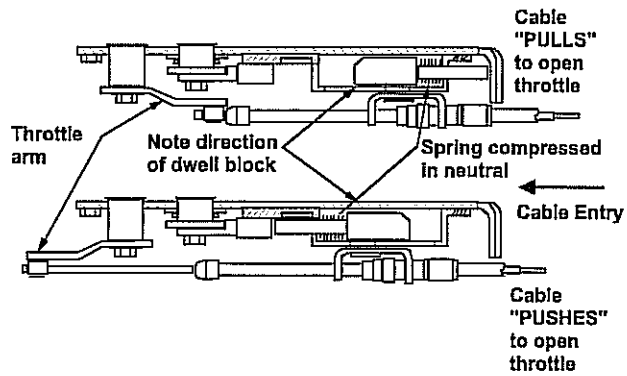
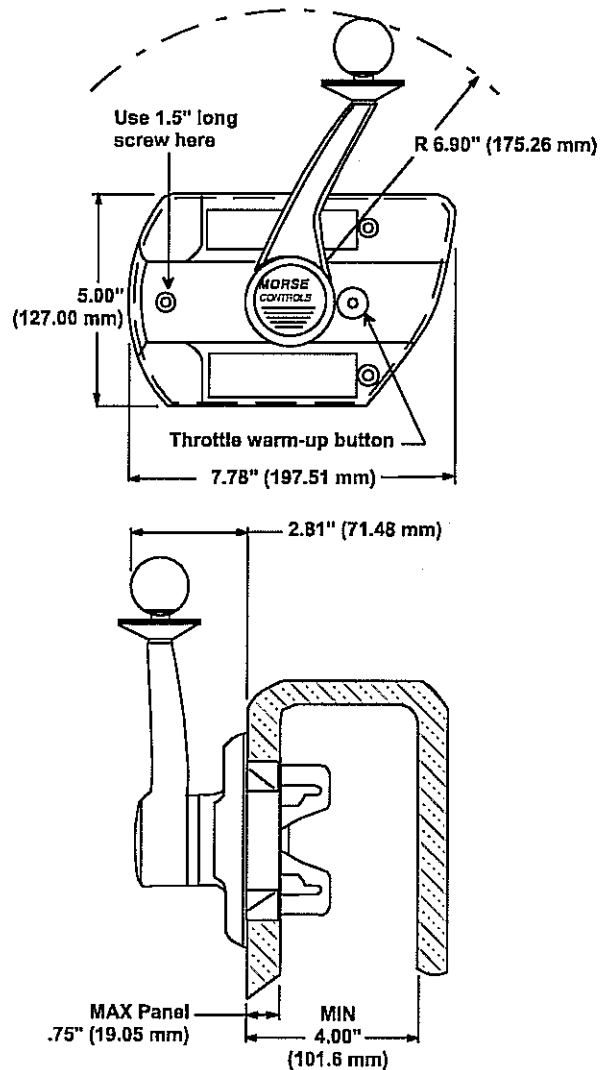


Figure 6

Control Connection and Recommended Clearance



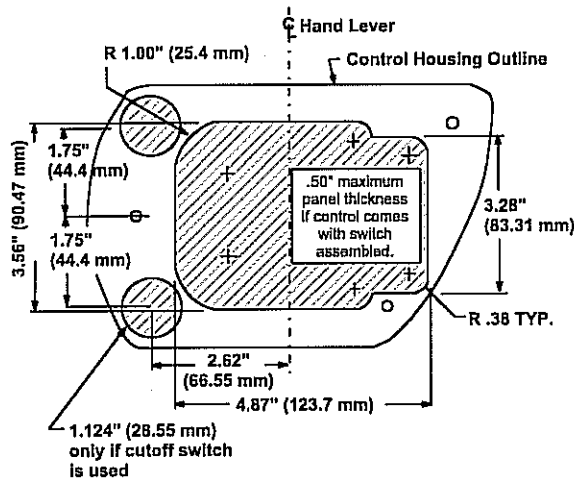
Choosing Control Location And Measuring Cable Length

2.1 Location

Choose a mounting location for the control head which will provide comfortable operation of the hand lever, unobstructed movement of mechanism arms and a clear path for cables to engine.

Figure 6 shows the control dimensions and the recommended clearance behind the mounting surface. Using the template provided, cut the appropriate mounting hole in the panel as shown in Figure 7.

Figure 7



CAUTION

WHEN CONTROL COMES WITH CUTOFF SWITCH INSTALLED, PANEL THICKNESS MUST BE .50" (12.7 MM) MAXIMUM. IF CUTOFF SWITCH IS NOT USED, THE PANEL THICKNESS MAY BE .75" (19.05 MM) MAXIMUM.

2.2 Cable Length

Measure from the control head position along an unobstructed path to the shift and throttle connections. Cable lengths are overall length. When a measurement is in feet and inches, specify the next whole foot.

Connecting Control Cables

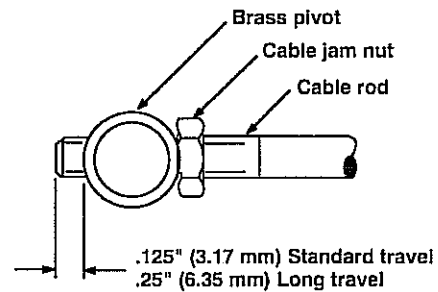
3.1 Connect Shift Cable To Control

Insert shift cable through opening in hanger assembly in line with shift arm pivot attachment hole and lock cable in hanger slot.

Screw pivot onto cable rod, allowing threads to protrude through pivot 1/8" for standard travel or 1/4" for long travel.

Lubricate pivot with grease, then insert into required hole in shift arm (see Figure 8) Fasten with cotter pin. Tighten cable nut against pivot.

Figure 8



To obtain standard (2 3/4") cable shift travel at engine use shift arm on control at short pivot hole location as shown in Figure 3.

For Mercury, long (3 inch) cable shift travel at engine is necessary. Assemble shift arm to control using longest pivot hole location.

CAUTION

THE PIVOT MUST BE IN THE HOLE NEAREST TO CABLE ENTRY END OF THE CONTROL. USING THE HOLE IN THE SHIFT ARM FURTHER MOST AWAY FROM THE CABLE MOUNTING SUPPORT WILL PRODUCE UNEQUAL SHIFT TRAVEL BETWEEN NEUTRAL TO FORWARD AND NEUTRAL TO REVERSE, RESULTING IN IMPROPER SHIFT ACTION. (SEE FIGURE 3.)

NOTE:

THE CONTROL SHIFT LEVER AND THE TRANSMISSION SHIFT LEVER MUST COINCIDE AT THE FORWARD, NEUTRAL AND REVERSE POSITIONS. DIFFERENT MAKES OF TRANSMISSIONS MAY REQUIRE DIFFERENT AMOUNT OF SHIFT TRAVEL. FOR THIS REASON, THE CONTROL SHIFT LEVER IS PROVIDED WITH TWO (2) POSITIONS FOR ATTACHING THE SHIFT CABLE: ONE FOR THE STANDARD TRAVEL AND ONE FOR THE LONGEST TRAVEL. (SEE FIGURE 3)

3.2 Connect Throttle Cable To Control

With opening in swivel bracket nearest to the cable entry end of the control, insert throttle cable through opening in swivel bracket and secure cable hub in bracket slot.

Screw pivot onto cable rod and allow cable rod threads to protrude through pivot 1/8 inch (3.17mm).

Lubricate pivot with grease, then insert into hole in throttle arm. Fasten with cotter pin. Tighten cable nut against pivot.

Section 4

Electrical

4.1 Neutral Safety

Most MV-3 controls are equipped with a neutral safety switch.

NOTE:

MORSE CONTROLS STRONGLY RECOMMENDS THAT THE SWITCH BE CONNECTED TO ASSURE SAFE BOATING OPERATION.

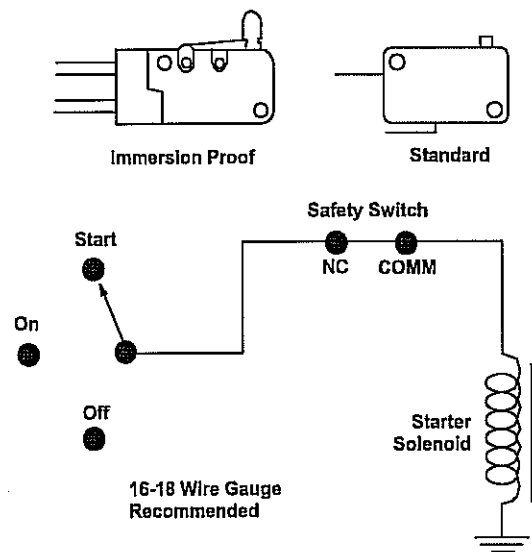
With the Control in NEUTRAL, connect one wire of the tester to the common terminal and one wire to the INCI (Normally Closed) Terminal. The test light MUST light. Connect the Neutral Safety Switch between the ignition switch (start lead) and the starter solenoid. (See Figure 9.)

Use terminals and insulators to insure against and electrical short circuit.



CHECK TO MAKE SURE THAT THERE IS ELECTRICAL CONTINUITY ONLY WHEN THE CONTROL IS IN NEUTRAL. WHEN THE CONTROL IS IN GEAR, THERE MUST NOT BE ANY ELECTRICAL CONTINUITY.

Figure 9



Section 5

Mount Control

5.1 Cable Path

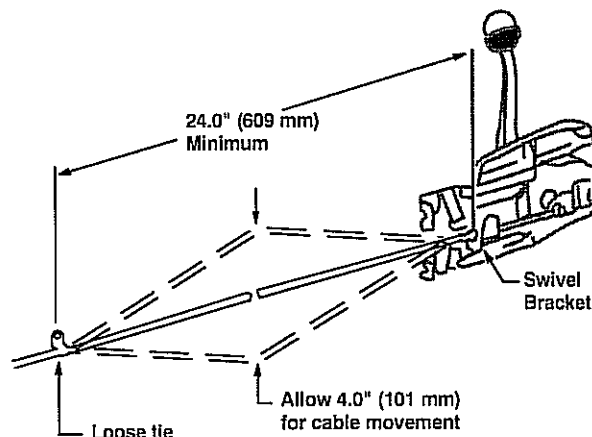
Run the cables, which are connected to the control, back to the throttle and shift location of the engine and drive.

The cables should run as straight as possible, avoiding any sharp bends. Make no bends in the cable of less than 8 inch (203.2 mm) radius.

5.2 Installation

Shift control into forward to move shift arm out of the way. This allows the control to be inserted into the cut out.

Figure 10



When satisfied with the position of the control, fasten housing to mounting surface with three (3) #10 thread cutting screws. One screw is 1.50 inches (38.1mm) long and it is used in the single hole (see Figure 6).



DO NOT USE CABLE HANGERS OR CLAMPS WHICH MAY CRUSH OR STRESS THE CABLES IN ANY WAY. DOING SO MAY IMPAIR THE FUNCTION OF THE CABLES.



DO NOT RESTRICT MOVEMENT OF THE THROTTLE CABLE WITHIN 2 FEET OF THE CONTROL. (SEE FIGURE 10.) TO DO SO MAY DAMAGE OR IMPAIR PROPER OPERATION OF THE THROTTLE CABLES.

Section 6

Connecting To Engine

6.1 Procedure

Connect the shift and throttle cables to the throttle and shift levers at the engine following the instructions provided with the appropriate connection kit or with the engine.

6.2 Shift Cable Connection and Adjustment

The shift cable must be connected so that the **IFORWARD**, **INEUTRAL** and **IREVERSE** positions of the control shift lever will coincide with the forward, neutral and reverse positions of the transmission lever.

Readjust the cable terminals until the correct function of the shift lever is achieved. Proper adjustment of the shift cable will result in a much better operating control.



OVER JAMMING THE TRANSMISSION STOP ON EITHER END OF THE SHIFT TRAVEL MAY:

- 1) CAUSE EXCESSIVE WEAR OF THE DRIVE AND SHIFT GEAR;**
- 2) RESULT IN A **HEAVY** FEEL OF THE HAND LEVER; AND/OR**
- 3) OVER STRESS AND DAMAGE THE CABLE.**

6.3 Throttle Cable Connection and Adjustment



THE THROTTLE CABLE MUST BE DISCONNECTED FROM THE MOTOR BEFORE MAKING MOTOR IDLE ADJUSTMENTS. ADJUSTMENT OF THE MOTOR IDLE WHILE THE THROTTLE CABLE IS STILL CONNECTED TO THE MOTOR MAY CAUSE A JAMMING ACTION AGAINST THE IDLE STOP. AS A RESULT, THE CONTROL MAY NOT FUNCTION PROPERLY AND DAMAGE TO THE CONTROL, THE CABLE AND/OR THE MOTOR COULD RESULT.

Proceed As Follows:

- a) Adjust the motor to a smooth idle as recommended by the motor manufacturer. This must be done **BEFORE** connecting the control throttle cable to the carburetor.
- B) Place the hand lever of the control into the forward detent position.
- C) Place the carburetor arm lightly against the idle stop.
- D) Adjust the throttle cable terminal (at the motor end) to line up with the hole (or pin) on the carburetor arm, then connect the terminal to the arm.

Proper adjustment of the throttle cables will assure having long life from this control. When the throttle cable is correctly adjusted, the motor speed will remain at idle while the control is shifted and will increase only when the hand lever is moved beyond the shift detent.



UNLESS THE ABOVE PROCEDURE **IS FOLLOWED ENGINE R.P.M. WILL RAISE EXCESSIVELY DURING THE SHIFT CYCLE. FOR THIS REASON, THERE IS A COMPRESSION SPRING-TYPE THROTTLE DWELL BUILT INTO THE CABLE ANCHOR ASSEMBLY WHICH ALLOWS THROTTLE CABLE ACTION TO REMAIN STATIONARY DURING THE SHIFT CYCLE. (SEE FIGURE 5.) AS A RESULT, THE HAND LEVER MUST BE IN THE FORWARD DETENT POSITION AND THE CARBURETOR THROTTLE ARM MUST BE AT IDLE POSITION WHILE CONNECTING THE THROTTLE CABLE TO THE ENGINE.**

Section 7

Operation and Adjustment

The MV-3 Control is equipped with a throttle warm-up feature.



DO NOT FORCE SHIFT WHEN THE MOTOR IS NOT RUNNING. TO DO SO MAY DAMAGE THE CONTROL, THE CABLES AND/OR THE MOTOR, ESPECIALLY OUTBOARDS.

7.1 Operation: Shift and Throttle

For starting or warm-up, place the control in Neutral Detent position, then grasp button beside the hand lever hub and pull out (approximately .20") to disengage shift. Lift collar under hand lever knob and move hand lever ahead of the forward shift detent to advance throttle for neutral warm-up.

When warm-up is completed, return hand lever to neutral detent. The warm-up button is spring loaded and it will snap back in place when hand lever is brought back to neutral. Push in on the button to make sure it is fully in. The control is ready for shift and throttle operation.



DO NOT SHIFT TOO QUICKLY FROM FORWARD TO REVERSE. STAY IN THE NEUTRAL OR IDLE POSITION UNTIL THE BOAT HAS LOST MOST OF ITS HEADWAY BEFORE COMPLETING THE SHIFT TO REVERSE. SOME MODELS ARE DESIGNED TO LIMIT THE THROTTLE R.P.M. IN REVERSE TO A LOWER SPEED.

Section 8

MAINTENANCE

8.1 Corrosion Protection

For maximum protection, especially in salt water areas, wipe all metallic parts, such as screw heads, cable sleeves, etc. with oil or light marine grease. Hand lever should be washed with fresh water and waxed regularly.

8.2 Mechanical Performance

- Periodically check the control mechanism for loose fastenings and signs of wear on moving parts, particularly the cable terminals. Lubricate all moving parts with a good quality marine grease.
- Periodically examine the cables and engine connections for signs of physical damage, wear and/or corrosion. Replace all faulty or damaged parts as required.

8.3 Electrical Performance

- Periodically check the switch for proper electrical function.
- Periodically check the wiring for abrasion which may cause a short circuit.

NOTE:

MORSE CONTROLS STRONGLY RECOMMENDS THAT THE BOAT OWNER OPERATOR SET UP AND FOLLOW A STRICT MAINTENANCE PROCEDURE.

Section 9

Berkeley Jet Controls



THE SHIFT AND THROTTLE ARMS HAVE BEEN OFFSET 15 DEGREES TO ASSURE PROPER GATE OPERATION. DO NOT ATTEMPT TO CHANGE THIS POSITION. TO DO SO WILL RESULT IN IMPROPER SHIFT ACTION (SEE FIGURE 11).

Installation of the Berkeley Jet Control closely follows that of the other MV-3 Controls made by Morse Controls. Follow the instructions in this booklet plus these few added instructions:

9.1 Neutral Safety Switch Option

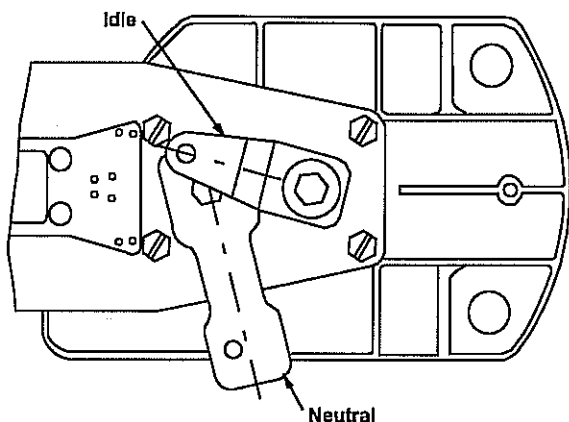
A neutral safety switch kit is available for use with Berkeley Jet versions (Part Number 311453). Follow the procedures for installation of the Neutral Safety Switch as outlined in Section 4.

9.2 Routing Control Cables

Run the cables through the panel cutout back to the location of the engine and jet drive, then attach the cables to the carburetor and jet gate.

Figure 11

Berkeley Jet Versions



NOTE:

CONNECT THE SHIFT CABLE TO THE JET GATE AS RECOMMENDED BY THE JET MANUFACTURER.

To install the throttle cable to the engine, refer to the installation instructions provided with the throttle connection kit.

NOTE: VERY IMPORTANT!

THIS CONTROL CAN BE USED ONLY WITH NON-SPRING LINK THROTTLE CONNECTION KITS. BECAUSE THE SPRING DWELL IS BUILT INTO THE THROTTLE CABLE ANCHOR ASSEMBLY, THE CONTROL HEAD HAND LEVER MUST BE IN THE FORWARD POSITION AND THE CARBURETOR THROTTLE ARM MUST BE AT THE IDLE POSITION WHILE CONNECTING THE THROTTLE CABLE TO THE ENGINE.

This provides a means for absorbing the slight movement of the Control Head Throttle Arm during the shift cycle.

When the Throttle Cable is correctly adjusted, the engine speed will remain at idle while the Control is shifted, and will increase ONLY after the Gate is full open or closed.

9.3 Control Installation Completion

Place the Hand Lever in the FORWARD position so that, as a result, the Shift Arm and Throttle Arm will take the smallest amount of space to feed the Hanger Bracket through the panel cutout. Fastening recommendations are as follows:

For Normal Mounting:

- 2 each, Oval Head #10 x 1-1/4" long Self-Tapping Screws
- and
- 1 each, #10 x 1-1/2" long Self Tapping Screws.

! CAUTION

DO NOT USE CABLE HANGERS OR CLAMPS WHICH MAY CRUSH OR STRESS THE CABLES IN ANY WAY. DOING SO MAY IMPAIR THE FUNCTION OF THE CABLES. DO NOT RESTRICT MOVEMENT OF THE

! CAUTION

THROTTLE CABLE WITHIN 2 FEET OF THE CONTROL. TO DO SO MAY DAMAGE OR IMPAIR PROPER OPERATION OF THE THROTTLE CABLES (SEE FIGURE 10).

Engine Cable Connections:

Connect the Shift and Throttle Cables to the Shift and Throttle levers at the engine following the instructions provided with the appropriate Connection Kit or with the engine.

9.4 Final Adjustments

Operate the Hand Lever several times. The Jet Gate should be FULLY OPEN or FULLY CLOSED before the carburetor arm leaves the Idle Stop. Adjust the Cable Terminal at the carburetor, if necessary, to obtain this result.

NOTE:

WHEN THE THROTTLE CABLE IS CORRECTLY ADJUSTED, THE ENGINE SPEED WILL REMAIN AT IDLE WHILE THE CONTROL IS SHIFTED AND WILL INCREASE ONLY AFTER THE GATE IS FULLY OPEN OR FULLY CLOSED.

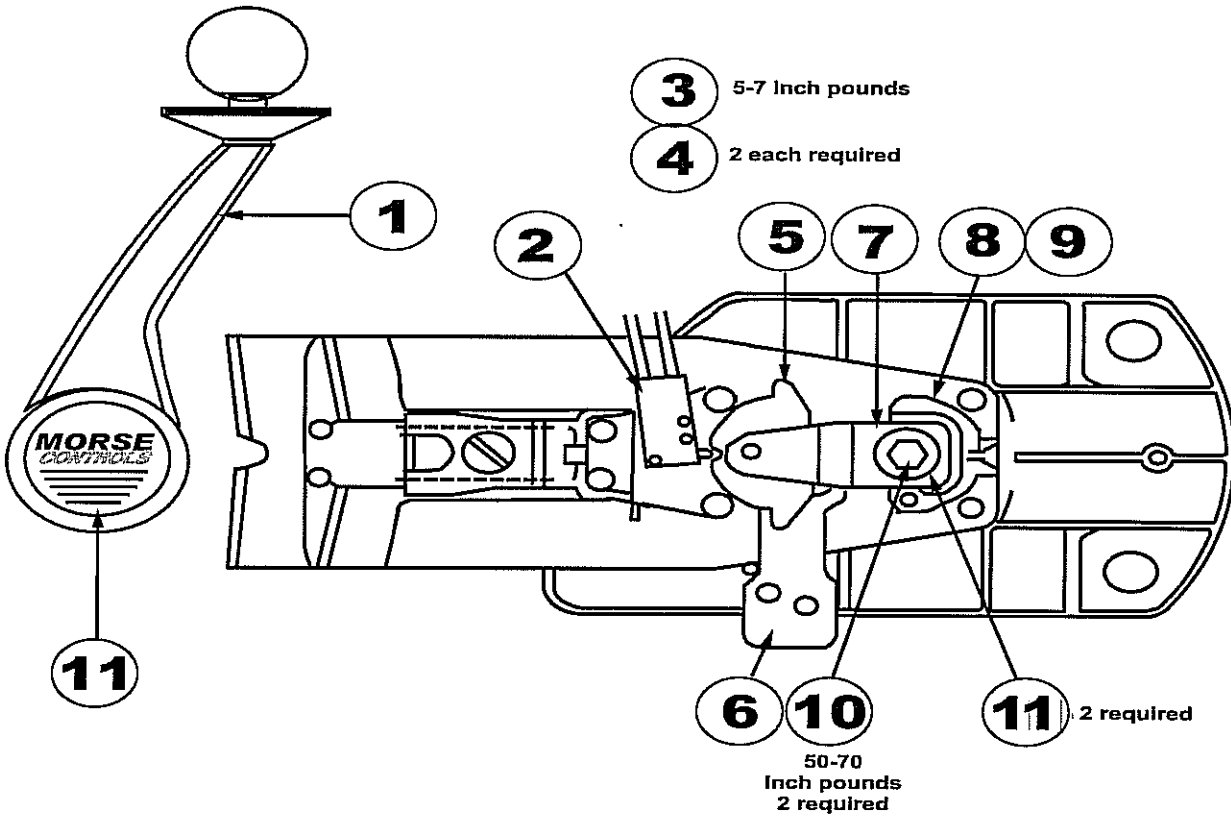
9.5 Control Operation and Maintenance

Follow the instructions previously outlined in this instruction booklet. See Sections 7 and 8.

MV-3 Sport Jets

Inboards and Outboards Control

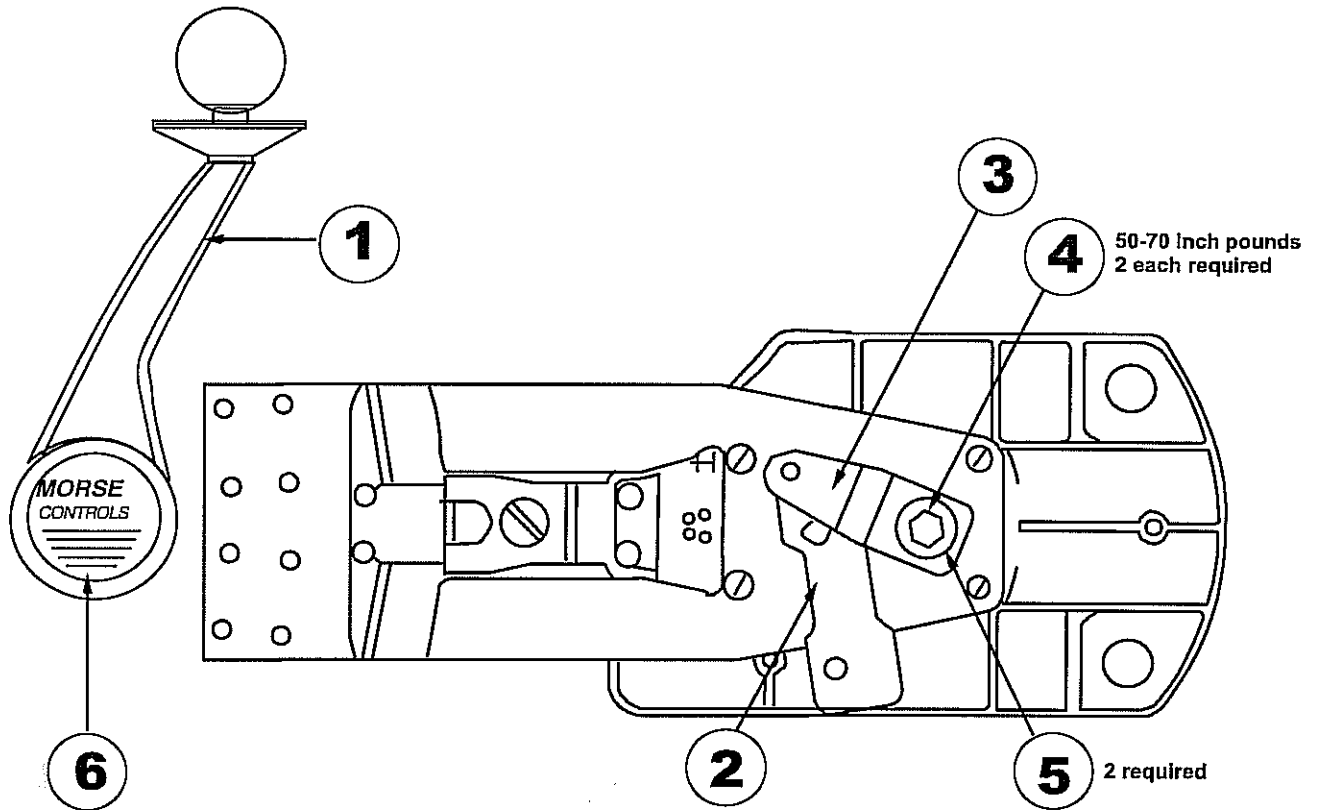
PARTS LIST



CONTROL MODEL NUMBER	ITEM PART	NUMBER
ITEM	DESCRIPTION (See Page 3, Figure 2)	
1	HAND LEVER ASSEMBLY ALL MODELS	311337
2	SWITCH - STANDARD 311364, 311467	51801 -022
	SWITCH - IMMERSION PROOF 311414, 311415, 311492, 311508	51801-031
3	#4 X 5/8" THREAD CUTTING SCREWS ALL MODELS	50588-517
4	#4 LOCKWASHER ALL MODELS	50803-023
5	SWITCH CAM ALL MODELS	61697
6	SHIFT ARM WITH LIMITER CAM 311414, 311415, 311467, 311508	311511
	SHIFT ARM ó STANDARD 311335 and 311364	68269
7	THROTTLE OUTPUT ARM 311335, 311364, 311414, 311415, 311467, 311508	43033
8	WARM-UP LIMITER INSERT 311414, 311415, 311467, 311508	311341
9	REVERSE THROTTLE LIMITER 311481	311822
10	HEX HEAD SCREW ALL MODELS	311507
11	FLAT WASHER ALL MODELS	302068
12	HUB INSERT WITH LOGO ALL MODELS	311352
13	MOUNTING HARDWARE 311364, 311414, 311415, 311467	311365
	AND CABLE HARDWARE KIT 311335	311336
	311508	311510

MV-3 For Berkeley Jets

PARTS LIST



ITEM	DESCRIPTION	CONTROL MODEL NUMBER (See Page 3, Figure 2)	ITEM PART NUMBER
1	HAND LEVER ASSEMBLY	311412 and 311413	311337
2	SHIFT OUTPUT ARM	311412 and 311413	68300
3	THROTTLE OUTPUT ARM	311412 and 311413	43033
4	LOCKING HEX HEAD SCREW	311412 and 311413	311507
5	FLAT WASHER	311412 and 311413	302068
6	HUB INSERT WITH LOGO	311412 and 311413	311352
7	CABLE HARDWARE KIT	311412 and 311413	311411

NOTE:

A NEUTRAL SAFETY SWITCH IS OPTIONAL ON BERKELEY JET CONTROLS. KIT PART NUMBER A-311453.

LIMITED WARRANTY

Teleflex Morse warrants to the first retail (end user) purchaser of this product or a Teleflex Morse product incorporated in another vendors product that, for a period of one (1) year from the date of original purchase, such product will be free from defects in materials and workmanship. **TELEFLEX MORSE MAKES NO WARRANTY AS TO MERCHANTABILITY OR TO FITNESS OF ITS PRODUCTS FOR A PARTICULAR PURPOSE.**

The above warranty does not apply to a product that has not been installed or maintained in accordance with Teleflex Morse instructions, been subjected to damage in an accident or abuse during operation or repaired or modified by persons other than Teleflex Morse. This warranty is also void when Teleflex Morse Marine Products are installed on a boat or engine judged by Teleflex Morse to be an inappropriate application of its product or when Teleflex Morse Products are used with other marine accessory products which in Teleflex Morse's judgement are incompatible with the Teleflex Morse product or adversely affect its performance or durability.

If any Teleflex Morse product is used commercially for such purposes as rental or other income-producing activities, then this warranty is limited to 90 days from the date of original retail purchase. Teleflex Morse's responsibility in respect to warranty claims is limited solely to repair or replacement of product found by Teleflex Morse to be defective. Teleflex Morse **DOES NOT PAY FOR LABOR CHARGES** connected with removal of a product deemed to be defective or with installation of replacement or repaired product or for any other incidental or consequential damages.

To make a claim under this warranty, return the product believed to be defective to your local marine dealer or Teleflex Morse distributor, along with proof of purchase. If your dealer or distributor feels that a warranty claim is justified, he/she should contact Teleflex Morse giving a description of the product and requesting authorization to return it to the factory.

MERCHANDISE SHOULD NOT BE RETURNED TO TELEFLEX MORSE UNTIL A RETURN GOODS AUTHORIZATION FORM IS RECEIVED.

After receipt of an authorization form, he/she should return the product, freight prepaid, to:

Teleflex Morse
6980 Professional Parkway East
Sarasota, FL 34240.

If found to be defective and if all return charges have been prepaid, Teleflex Morse will repair or replace the product and return it freight prepaid.



6980 Professional Parkway East
Sarasota, FL 34240.
941/907-1000
FAX 941/907-1020