GLENDINNING ELECTRONIC ENGINE CONTROL

QUICK REFERENCE GUIDE

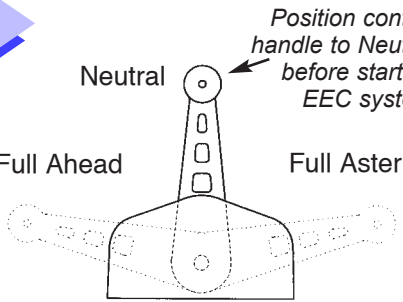
(see Operations Manual for more detailed information)

EEC Quick Reference Guide - Table of Contents

System Startup

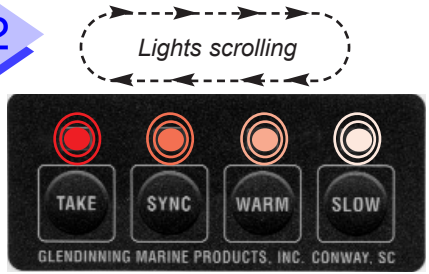
This procedure explains the process of starting up the Electronic Engine Control System.

1



CONTROL HANDLES must be in the Neutral position prior to starting Control System.

2



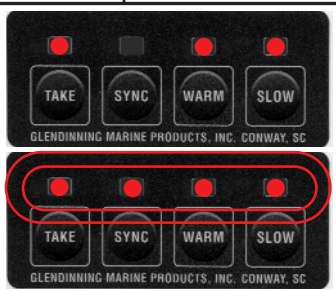
TURN ON EEC power switch. **DIAGNOSTIC TEST** will be performed by the EEC System (indicated by scrolling lights across panel). Do not move handles while lights are scrolling).

3

EEC SYSTEM IS OPERATIONALwhen TAKE light is fully illuminated (not scrolling). *It is strongly recommended that EEC System be placed in WARM mode prior to starting engines (pg. 4).*

!

WHAT DO I DO WHEN I SEE THESE LIGHTS ON THE KEY-PAD?



*If **TAKE, WARM** and **SLOW** lights are on—**control handles are not in neutral.** Leave control system power switch on and move one control handle at a time to verify that the handles are in neutral position. When both handles are in neutral, indication lights will begin to scroll (as in Step #2 above).*

*If all **4** lights on keypad blink in unison—**EEC system is in Alarm Mode** (see pg. 9). Mechanical control will automatically be transferred to main station. Restart EEC system by turning off EEC power switch and then turning back on.*

Cruise Mode

This is the operating mode that the control system will be in during normal cruising operations.

1

TAKE light on at active station

ACTIVE STATION—During normal operation only Active Station will be in command. TAKE light stays on (fully illuminated) indicating that station is active and in command.

2

TAKE light blinks at inactive station

INACTIVE STATION— During normal operation all other stations are inactive. TAKE light will blink every 2 seconds indicating that control head is an inactive station.

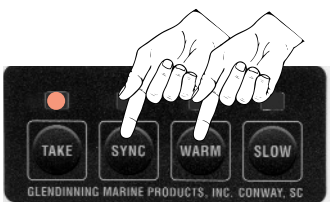
3

All 4 lights blinking in unison

ALARM MODE—During normal operation, the EEC system continuously monitors parameters and will alert operator of alarm conditions (indicated by all 4 lights blinking in unison.)

!

THE LIGHTS ON THE KEYPAD ARE TO BRIGHT. HOW DO I DIM THE LIGHTS ON THE KEYPAD?



Press two middle buttons simultaneously

***To Access the Light Dimmer Feature**—Pressing the two middle buttons at the same time will "dim" the keypad lights. This will only affect the control station keypad lights where the buttons are depressed. To dim the keypad lights at other stations, repeat the above procedure at the other stations. Pressing the two buttons a second time will return the keypad lights to normal brightness.*

Cruise Mode

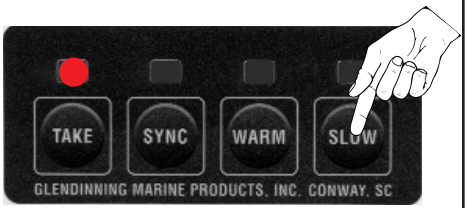
Other operating modes which are available during normal cruising operation.

1

"BUMP" MODE CONTROL (Available in software ver. 5 or later)—During normal operation, small increases in engine speed (approx. 10-15 RPM) may be made by pressing and releasing the WARM button. This action will cause the throttle actuator to increase engine speed. To decrease engine speed press and release the SLOW or TROLL button (depending on the style of keypad your EEC system is equipped with).

To Increase Engine Speed Using Bump Mode, Press and Release WARM button

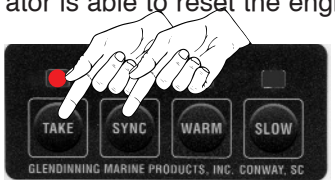
To Decrease Engine Speed Using Bump Mode, Press and Release SLOW or TROLL button



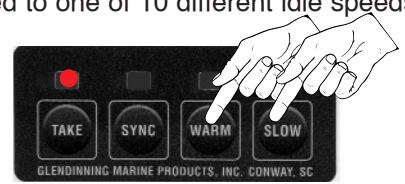
(NOTE: Engine speed can only be "bumped" when control handles are in gear and above idle speed.)

2

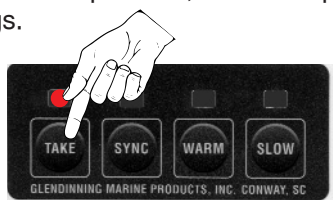
HIGH IDLE MODE CONTROL (Available in software ver. 6 or later)— During normal operation, the boat operator is able to reset the engine idle speed to one of 10 different idle speeds settings.



*To **increase** engine idle speed*



*To **decrease** engine idle speed*



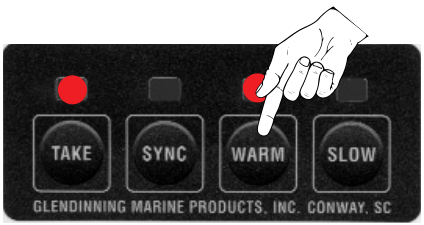
*To **reset** engine idle speed to lowest idle setting*

(NOTE: Idle speed can only be changed while control handles are in neutral.)

WARM UP MODE

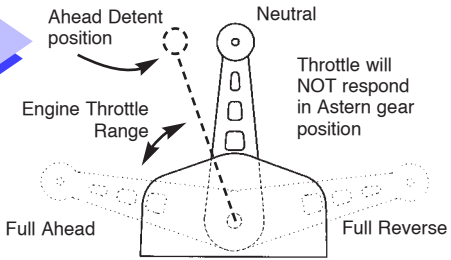
ALLOWS THE BOAT OPERATOR TO OPERATE THE ENGINE THROTTLE BY ITSELF, WHILE LOCKING THE TRANSMISSION IN NEUTRAL.

1 To engage, **PRESS AND RELEASE** WARM button one time (Control handles must be in neutral position to engage Warm Up Mode).



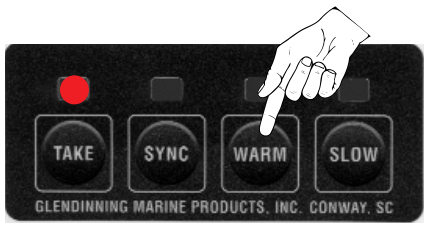
WARM LIGHT WILL BE ILLUMINATED WHEN EEC SYSTEM IS IN WARM MODE

2



ADVANCE CONTROL LEVER into and beyond Ahead detent position. The engine gear will remain in neutral while engine speed is increased (Engine will not respond if handle is moved into or beyond the Astern detent).

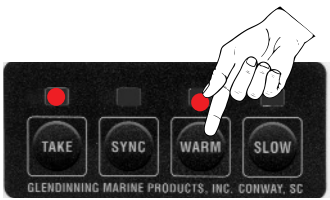
3 To disengage, bring handles back to neutral and **PRESS AND RELEASE** WARM button one time.



WARM LIGHT WILL GO OUT WHEN WARM MODE IS TURNED OFF—EEC SYSTEM IS NOW IN NORMAL CRUISE MODE.

CAUTION:

IMPORTANT SAFETY ALERT



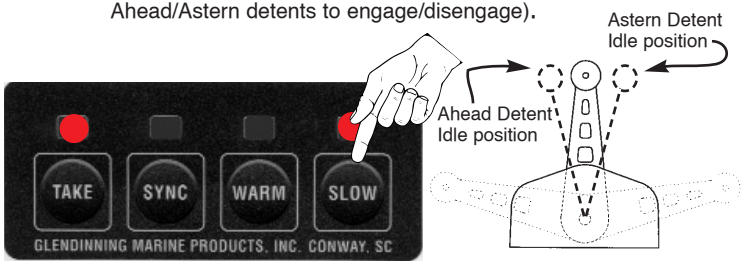
*IT IS **STRONGLY RECOMMENDED** THAT THE EEC SYSTEM BE IN WARM UP MODE AT ALL TIMES WHILE BOAT IS AT DOCK! THIS SAFETY PROCEDURE WILL PREVENT THE ACCIDENTAL ENGAGEMENT OF TRANSMISSION IF THE CONTROL HEAD HANDLES ARE INADVERTENTLY MOVED.*

SLOW MODE

CHANGES ENGINE THROTTLE RESPONSE. FULL HANDLE MOVEMENT WILL ONLY RESULT IN APPROXIMATELY HALF OF NORMAL FULL THROTTLE ENGINE SPEED.

1

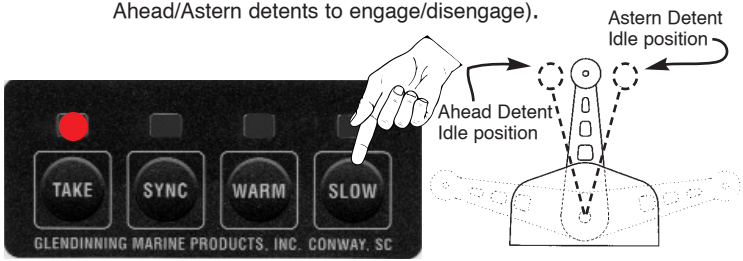
To engage, **PRESS AND RELEASE** SLOW button one time (Control handles must be in neutral position or Ahead/Astern detents to engage/disengage).



SLOW LIGHT WILL BE ILLUMINATED WHEN EEC SYSTEM IS IN SLOW MODE

2

To disengage, **PRESS AND RELEASE** SLOW button one time (Control handles must be in neutral position or Ahead/Astern detents to engage/disengage).



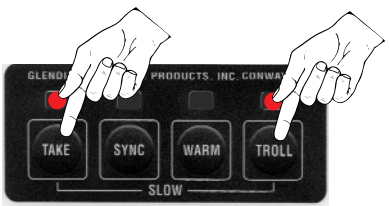
SLOW LIGHT WILL GO OUT WHEN SLOW MODE IS TURNED OFF—EEC SYSTEM IS NOW IN NORMAL CRUISE MODE.

!

NOTES:

A DIFFERENT KEYPAD IS USED ON BOATS EQUIPPED WITH TROLLING VALVES (OTHER THAN BOATS EQUIPPED WITH CATEPILLAR ELECTRONIC ENGINES).

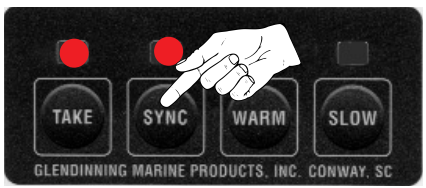
SLOW MODE IS ENGAGED BY PRESSING TAKE AND TROLL BUTTONS SIMULTANEOUSLY. TAKE AND TROLL LIGHTS BLINK WHILE THE EEC SYSTEM IS IN THIS MODE.



AUTOMATIC SYNCHRONIZATION

WHILE AUTOMATIC SYNCHRONIZATION MODE IS ENGAGED, EEC SYSTEM WILL AUTOMATICALLY CONTROL PORT ENGINE SPEED TO EXACTLY MATCH STARBOARD ENGINE SPEED.

1 To engage, **PRESS AND RELEASE** SYNC button one time (Before the SYNC function can engage, both engines must be in the Ahead gear and above 900 RPM. The maximum difference in engine RPM between each engine is 300 RPM prior to engaging SYNC function).

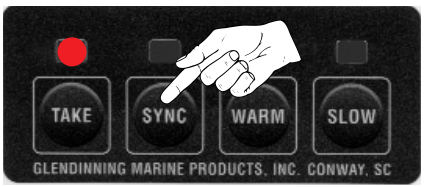


SYNC LIGHT WILL BE ILLUMINATED WHEN EEC SYSTEM IS IN SYNC MODE

2

When SYNC function is energized, EEC system will automatically control port engine speed to match starboard engine speed. If starboard engine speed is changed manually by the boat operator, port engine speed will automatically be changed to match

3 To disengage, bring port handle to match position of starboard engine control handle and **PRESS AND RELEASE** SYNC button one time.



SYNC LIGHT WILL GO OUT WHEN SYNC MODE IS TURNED OFF—EEC SYSTEM IS NOW IN NORMAL CRUISE MODE.

NOTES: 1) SYNCHRONIZATION MODE WILL BE AUTOMATICALLY DE-ENERGIZED IF BOTH CONTROL HANDLES ARE MOVED TO NEUTRAL POSITION TOGETHER. IF STARBOARD HANDLE IS MOVED TO NEUTRAL GEAR POSITION BY ITSELF, SYNCHRONIZATION MODE WILL BE AUTOMATICALLY DE-ENERGIZED. PORT ENGINE OPERATION WILL CONTINUE TO MATCH STARBOARD ENGINE OPERATION (GEAR AND THROTTLE) UNTIL PORT CONTROL HANDLE IS MATCHED TO STARBOARD CONTROL HANDLE POSITION.

2) ON BOATS EQUIPPED WITH CATEPILLAR ELECTRONIC ENGINES, SYNCHRONIZATION IS ACCOMPLISHED BY CATEPILLAR ENGINE ELECTRONICS AND NOT BY THE GLENDINNING EEC SYSTEM.

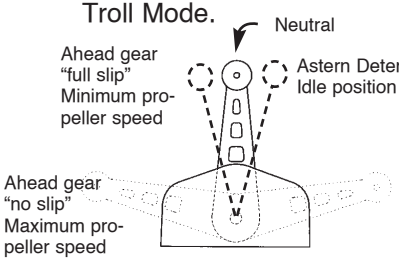
TROLL MODE

TROLL MODE ALLOWS THE BOAT OPERATOR TO CONTROL THE POSITION OF THE TRANSMISSION TROLLING VALVES.

1 To engage, with handles in neutral, **PRESS AND RELEASE** TROLL button one time (Control Handles must be in Neutral to engage TROLL Mode).

TROLL LIGHT WILL BE ILLUMINATED WHEN EEC SYSTEM IS IN TROLL MODE

2 Control troll valve position by movement of control handle. Engine throttle speed is maintained at idle while system is in Troll Mode.



NOTE: For boats equipped with version 6 software, engine idle speed may be adjusted during troll valve operation (see Cruise Mode (pg. 3) for more information.

3 To disengage, move control handles back to neutral and **PRESS AND RELEASE** TROLL button one time.

TROLL LIGHT WILL GO OUT WHEN TROLL MODE IS TURNED OFF—EEC SYSTEM IS NOW IN NORMAL CRUISE MODE.

NOTE: BUMP mode (pg. 3) is available while troll valve is in operation to make small changes in troll valve modulation.

NOTES:

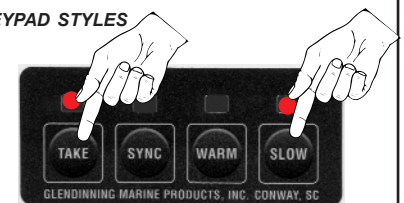
IN SOME CONFIGURATIONS OF THE EEC SYSTEM, TROLL MODE MAY BE OBTAINED BY A DIFFERENT KEY FROM THAT SHOWN ABOVE.

TAKE AND TROLL LIGHTS WILL BLINK WHEN THE SYSTEM IS IN TROLL MODE.

STANDARD "TROLL VALVE ONLY" CONFIGURATION ILLUSTRATED. REVIEW OPERATING GUIDE FOR ALTERNATIVE TROLL VALVE CONTROL CONFIGURATION.

ALTERNATE KEYPAD STYLES

CAT ELECTRONIC ENGINES

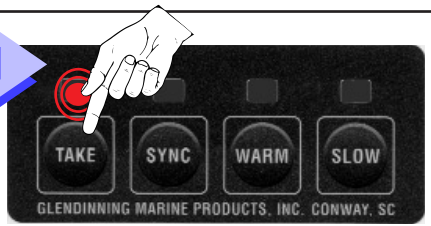


PRE-1999 STYLE KEYPAD

STATION TRANSFER PROCESS

THIS PROCESS ALLOWS PROPULSION SYSTEM TO BE TRANSFERRED FROM ONE HELM CONTROL STATION TO THE OTHER.

1



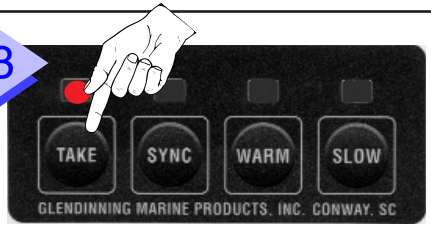
PRESS AND RELEASE TAKE button one time, at the helm station where you want to take control (TAKE light will begin to blink and control head beeper will begin to sound).

2

At the station where you want to take control, MOVE THE CONTROL HANDLES to an appropriate throttle position.

Active Station Handle Position	Station Taking Control Handle Position
In Neutral.	In Neutral.
In gear, at Idle.	In same gear position, at Idle.
In gear, above Idle.	In same gear position, at lower speed setting.

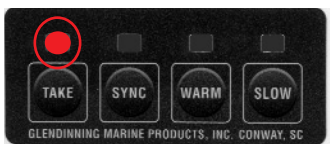
3



PRESS AND RELEASE TAKE button a second time. The new Control station is now the Active station and has control of the engine and transmission.

LIGHT SEQUENCE AT STATION TAKING CONTROL:

1) Prior to pressing button, light blinks 1 time every 2 seconds (Inactive station heartbeat).



Light flashes 1 time / 2 seconds.

2) After pressing button 1 time, TAKE light will blink—blink rate will depend on control handle setting at station taking control.

Slow blink—handles **not** in appropriate position.
Quick blink—handles in appropriate position.

3) Control transfer is complete after pressing TAKE button second time.

Solid TAKE light indicates transfer is complete. New station is now in control.

ALARM MODE

DURING OPERATION THE EEC CONTINUOUSLY MONITORS SYSTEM FUNCTIONS AND WILL ALERT OPERATOR IF A SYSTEM PROBLEM IS DETECTED.

1

ALARM IS INDICATED when all 4 lights are blinking in unison on the control keypad.

2

When Alarm Mode is activated, electronic engine control is no longer available. Propulsion control must be immediately regained at mechanical backup station.

3

RETURN THE MAIN STATION CONTROL HANDLES TO NEUTRAL and turn EEC power switch OFF. Restart the EEC system.

NOTES: If any alarm occurs, the cause of the alarm must be determined as soon as possible after returning to the dock. The alarm codes may be recovered to assist in troubleshooting. Contact Glendinning Marine Products for assistance.

Days (843) 399-6146

Evenings (843) 477-6630

The above number is a digital pager. Enter your phone # after you hear 3 beeps. Service personnel will return your call.

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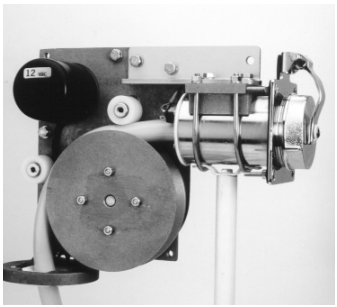

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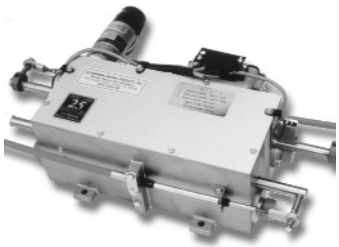
AUTOMATIC SYNCHRONIZER

Makes Two Engines Run as One!



- Cruise control for your boat!
- Turn On/Off at any speed
- Adaptable to any boat
- Built to last!
- Dependable—widely accepted by knowledgeable yachtsmen for 30 years!

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