

Summary Report for Individual Task
551-88L-3060
Troubleshoot an Engine Control System
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD5 - This product/publication has been reviewed by the product developers in coordination with the [installation/activity name] foreign disclosure authority. This product is releasable to students from all requesting foreign countries without restrictions.

Condition: Given an engine control system aboard a vessel, at sea, at anchor or moored alongside a pier, day or night, under all sea and weather conditions, while wearing appropriate PPE, (i.e. hearing protection, Nitrile gloves, eye protection, etc.), with a lock out tag out kit, marine rail tool box.

Standard: The Soldier correctly conducts troubleshooting procedures pertaining to an engine control system aboard an Army vessel, IAW the appropriate Technical Manual and local SOPs, without injury to self or others and without damage to equipment.

Special Condition: None

Safety Risk: Medium

MOPP 4:

Task Statements

Cue: None

DANGER
None

WARNING
None

CAUTION
None

Remarks: None

Notes: None

Performance Steps

1. Demonstrate troubleshooting procedures for a cable and a chain/cable actuated engine control system.

a. Propulsion controls do not affect a clutch or throttle change.

(1) Possible cause(s):

- (a) Check to see if clutch or throttle cables are disconnected.
- (b) Check to see if control head is defective.
- (c) Check to see if throttle and/or clutch control unit is defective.

(2) Corrective action(s):

- (a) Trace entire cable length from control head in pilothouse to the governor or transmission control valve lever.
 - _1_ Re-connect cables.
 - _2_ Adjust any re-connected cables.
- (b) Replace control head.
- (c) Replace throttle/clutch control unit.

b. Engine shutdown controls inoperative.

(1) Possible cause(s):

- (a) Check to see if shutdown cable is disconnected from T-handle.
- (b) Check to see if shutdown cable is defective.

(2) Corrective action(s):

- (a) Re-connect cables.
- (b) Replace shutdown cable.

2. Demonstrate troubleshooting procedures for an air actuated engine control system, refer to figures 551-88L-3060_01 thru 04, for control system normal indications.

a. Pilothouse control station.

(1) No pressure at inlet (supply port #2) with control lever in Neutral Stand-By position.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.

3 Check to see if inlet and outlet levers on air prep system are in the on position.

4 Check for defective inlet ball valves in air prep system.

5 Check for defective safety valves in air prep system.

6 Check for defective venturi meter in air prep system.

7 Check for defective outlet ball valves in air prep system.

8 Defective station selector valve (four-way directional valve).

9 Check for defective linear directional control valve (station transfer valve).

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Turn levers to on position.

4 Replace inlet ball valves.

5 Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

9 Replace linear directional control valve.

(2) Air pressure at ahead (port #1) with control lever in Neutral Stand-By position.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(3) Air pressure at astern (port #3) with control lever in Neutral Stand-By position.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace directional control rotary valve.

(4) No air pressure at inlet regulator with control lever in Neutral Stand-By position.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(5) Air pressure at out regulator with control lever in Neutral Stand-By position.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(6) No air pressure at inlet (supply port #2) with control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.

- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(7) No air pressure at ahead (port #1) with control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(8) Air pressure at astern (port #3) with control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace directional control rotary valve.

(9) No air pressure at inlet regulator with control lever in Ahead Throttle (Initial).

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.

- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(10) No air pressure at out regulator with control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).
- _9_ Check for air pressure at out regulator with control lever in Neutral Stand-By position.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.
- _9_ Refer to paragraph 2.a.5).

(11) No air pressure at inlet (supply port #2) with control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.

5 Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

(12) No air pressure at ahead (port #1) with control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(13) Air pressure at astern (port #3) with control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Replace/Repair directional control rotary valve.

(14) No air pressure at inlet regulator with control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venturi meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Check to see if inlet and outlet levers on air prep system are in the on position.

4 Check for defective inlet ball valves in air prep system.

5 Check for defective safety valves in air prep system.

6 Check for defective venturi meter in air prep system.

7 Check for defective outlet ball valves in air prep system.

8 Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Turn levers to on position.

4 Replace inlet ball valves.

- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(15) No air pressure at out regulator with control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).
- _9_ No air pressure at inlet regulator with control lever in Neutral Stand-By position.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace venturi meter.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.
- _9_ Refer to paragraph 2.a.4).

(16) Air pressure at ahead (port #1) with control lever in Neutral-Astern Delay.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(17) Air pressure at astern (port #3) with control lever in Neutral-Astern Delay.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace directional control rotary valve.

(18) No air pressure at inlet regulator with control lever in Neutral-Astern Delay.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Check to see if inlet and outlet levers on air prep system are in the on position.

4 Check for defective inlet ball valves in air prep system.

5 Check for defective safety valves in air prep system.

6 Check for defective venturi meter in air prep system.

7 Check for defective outlet ball valves in air prep system.

8 Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Turn levers to on position.

4 Replace inlet ball valves.

5 Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

(19) Air pressure at out regulator with control lever in Neutral-Astern Delay.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(20) No air pressure at inlet supply port #2) with control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venturi meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Check to see if inlet and outlet levers on air prep system are in the on position.

4 Check for defective inlet ball valves in air prep system.

5 Check for defective safety valves in air prep system.

6 Check for defective venturi meter in air prep system.

7 Check for defective outlet ball valves in air prep system.

8 Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Turn levers to on position.

4 Replace inlet ball valves.

5 Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

(21) Air pressure at ahead (port #1) with control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(22) No air pressure at astern (port #3) with control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace directional control rotary valve.

(23) No air pressure at inlet regulator with control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Check to see if inlet and outlet levers on air prep system are in the on position.

4 Check for defective inlet ball valves in air prep system.

5 Check for defective safety valves in air prep system.

6 Check for defective venturi meter in air prep system.

7 Check for defective outlet ball valves in air prep system.

8 Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Turn levers to on position.

4 Replace inlet ball valves.

5 Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

(24) No air pressure at out regulator with control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).
- _9_ No air pressure at inlet regulator with control lever in Neutral Stand-By position.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.
- _9_ Refer to paragraph 2.a.4).

(25) No air pressure inlet (supply port #2) with control lever in Astern Throttle. Lever at least 20° in the Astern position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.

- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(26) Air pressure at ahead (port #1) with control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(27) No air pressure at astern (port #3) with control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(28) No air pressure at inlet regulator with control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.

- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(29) No air pressure at out regulator with control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).
- _9_ Check for air pressure at out regulator with control lever in Neutral Stand-By position.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.
- _9_ Refer to paragraph 2.a.5).

b. Engine room control station.

(1) No air pressure at inlet (supply port #2) when control lever in Neutral Stand-By.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.

6 Replace venturi meter.

7 Replace outlet ball valves.

8 Replace four-way directional valve.

(2) Air pressure at ahead (port #1) when control lever in Neutral Stand-By.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(3) Air pressure at astern (port #3) when control lever in Neutral Stand-By.

(a) Possible cause: Check venture meter for correct reading (120 psi).

(b) Corrective action: Replace venturi meter.

(4) No air pressure at inlet regulator when control lever in Neutral Stand-By.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(5) Air pressure at out regulator when control lever in Neutral Stand-By.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(6) No air pressure at inlet (supply port #2) when control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(7) No air pressure at ahead (port #1) when control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Repair/replace engine room control station.

(8) Air pressure at astern (port #3) when control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Repair/replace engine room control station.

(9) No air pressure at inlet regulator when control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(10) No air pressure at out regulator when control lever in Ahead Throttle (Initial). Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Repair/replace engine room control station.

(11) No air pressure at inlet (supply port #2) when control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(12) No air pressure at ahead (port #1) when control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Repair/replace engine room control station.

(13) Air pressure at astern (port #3) when control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Defective engine room control station.

2 Check venture meter for correct reading (120 psi).

3 Check to see if compressor is on.

(b) Corrective action(s):

1 Repair/replace engine room control station.

2 Replace venturi meter.

3 Turn air compressor on.

(14) No air pressure at inlet regulator when control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(15) No air pressure at out regulator when control lever in Ahead Throttle. Lever at least 20° in the Ahead Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Repair/replace engine room control station.

(16) Air pressure at ahead (port #1) when control lever in Neutral-Astern Delay.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Defective engine room control station.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Repair/replace engine room control station.

(17) Air pressure at astern (port #3) when control lever in Neutral-Astern Delay.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(18) No air pressure at inlet regulator when control lever in Neutral-Astern Delay.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.
- _3_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _4_ Check for defective inlet ball valves in air prep system.
- _5_ Check for defective safety valves in air prep system.
- _6_ Check for defective venturi meter in air prep system.
- _7_ Check for defective outlet ball valves in air prep system.
- _8_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.
- _3_ Turn levers to on position.
- _4_ Replace inlet ball valves.
- _5_ Replace safety valves.
- _6_ Replace venturi meter.
- _7_ Replace outlet ball valves.
- _8_ Replace four-way directional valve.

(19) No air pressure at out regulator when control lever in Neutral-Astern Delay.

(a) Possible cause(s):

- _1_ Defective engine room control station.
- _2_ Check venture meter for correct reading (120 psi).
- _3_ Check to see if compressor is on.

(b) Corrective action(s):

- _1_ Repair/replace engine room control station.
- _2_ Replace venturi meter.
- _3_ Turn air compressor on.

(20) No air pressure at inlet (supply port #2) when control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

- _1_ Check venture meter for correct reading (120 psi).
- _2_ Check to see if compressor is on.

(b) Corrective action(s):

- _1_ Replace venturi meter.
- _2_ Turn air compressor on.

(21) Air pressure at ahead (port #1) when control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(22) No air pressure at astern (port #3) when control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(23) No air pressure at inlet regulator when control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(24) No air pressure at out regulator when control lever in Astern Throttle (Initial). Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Defective engine room control station.

2 Check venture meter for correct reading (120 psi).

3 Check to see if compressor is on.

(b) Corrective action(s):

1 Repair/replace engine room control station.

2 Replace venturi meter.

3 Turn air compressor on.

(25) No air pressure at inlet (supply port #2) when control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(26) Air pressure at ahead (port #1) when control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(27) No air pressure at astern (port #3) when control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(28) No air pressure at inlet regulator when control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

(29) No air pressure at out regulator when control lever in Astern Throttle. Lever at least 20° in the Astern Position from Center.

(a) Possible cause(s):

1 Check venture meter for correct reading (120 psi).

2 Check to see if compressor is on.

3 Defective engine room control station.

(b) Corrective action(s):

1 Replace venturi meter.

2 Turn air compressor on.

3 Repair/replace engine room control station.

(30) No air pressure at inlet port of station selector valve (four-way directional valve).

(a) Possible cause(s):

1 Check to see if air compressor is on.

2 Check for defective air prep system.

(b) Corrective action(s):

1 Turn on air compressor.

2 Repair/Replace air prep system.

(31) No air pressure at port # 1 when station selector valve is in Pilot House position.

(a) Possible cause(s):

1 Check to see if air compressor is on.

2 Check for defective air prep system.

3 Check for defective linear directional control valve (four-way transfer valve).

4 Check for defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Turn on air compressor.

2 Repair/Replace air prep system.

3 Replace linear directional control valve.

4 Replace four-way directional valve.

(32) No air pressure at port #2 when station selector valve is in Engine Room Position.

(a) Possible cause(s):

1 Check to see if air compressor is on.

2 Check for defective air prep system.

3 Check for defective linear directional control valve (four-way transfer valve).

4 Check for defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Turn on air compressor.

2 Repair/Replace air prep system.

3 Replace linear directional control valve.

4 Replace four-way directional valve.

(33) Station selector valve still inoperative.

(a) Possible cause: Defective station selector valve (four-way directional valve).

(b) Corrective action: Replace four-way directional valve.

c. Bowthruster/fire pump control system.

(1) No air pressure at inlet (supply port #2) when control lever in neutral position.

(a) Possible cause(s):

1 Check to see if air compressor is on.

2 Check for defective linear directional control valve (4-way transfer valve).

3 Check for defective air prep system.

(b) Corrective action(s):

1 Turn air compressor on.

2 Repair/replace linear directional control valve.

3 Repair/replace air prep system.

(2) Control station does not respond when control lever in bowthruster control position.

(a) Possible cause(s):

1 Check for defective roller operated valve.

2 Check for defective bowthruster cylinder.

3 Check for defective four-way transfer valve.

4 Defective control station.

(b) Corrective action(s):

1 Replace roller operated valve.

2 Repair/replace bowthruster cylinder.

3 Replace four-way transfer valve.

4 Replace control station.

(3) RPM's do not increase when control lever in bowthruster control position.

(a) Possible cause(s):

1 Check for defective governor actuator (throttle actuator).

2 Check for defective bowthruster engine.

(b) Corrective action(s):

1 Replace governor actuator.

2 Refer to Bowthruster Engine Manual.

(4) Control station does not respond when control lever in fire pump control position.

(a) Possible cause(s):

1 Check for defective roller operated valve.

2 Check for defective fire pump cylinder.

3 Check for defective four-way transfer valve.

4 Defective control station.

(b) Corrective action(s):

1 Replace roller operated valve.

2 Repair/replace fire pump cylinder.

3 Replace four-way transfer valve.

4 Replace control station.

(5) RPM's do not decrease when control lever in fire pump control position.

(a) Possible cause(s):

1 Check for defective governor actuator (throttle actuator).

2 Check for defective bow thruster engine.

(b) Corrective action(s):

1 Replace governor actuator.

2 Refer to Bowthruster Engine Manual.

d. Gear mate control system.

(1) Control lever in Neutral Stand-By. Air pressure at ports, 1, 2, 3, 4, 5, and 6 of three-way valves. Red pins at bottom of valves down or extended.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(2) Control lever in Ahead Throttle (Initial). No air pressure at port #1 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause(s):

1 Check for defective exhaust valve.

2 Check for defective shuttle valve.

(b) Corrective action(s):

1 Replace exhaust valve.

2 Replace shuttle valve.

(3) Control lever in Ahead Throttle (Initial). Air pressure at port #2 of threeway valve. Red pin on valve #1 down or extended.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(4) Control lever in Ahead Throttle (Initial). Air pressure at port #3 of threeway valve. Red pin on valve #1 down or extended.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace directional control rotary valve.

(5) Control lever in Ahead Throttle (Initial). No air pressure at port #4 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check valves.

- _2_ Check for defective three-way valve.
- _3_ Check for defective directional control rotary valve.
- _4_ Check to see if compressor is on.
- _5_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _6_ Check for defective inlet ball valves in air prep system.
- _7_ Check for defective safety valves in air prep system.
- _8_ Check for defective venturi meter in air prep system.
- _9_ Check for defective outlet ball valves in air prep system.
- _10_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Adjust valves.
- _2_ Repair/replace three-way valve.
- _3_ Repair/replace directional control rotary valve.
- _4_ Turn air compressor on.
- _5_ Turn levers to on position.
- _6_ Replace inlet ball valves.
- _7_ Replace safety valves.
- _8_ Replace venturi meter.
- _9_ Replace outlet ball valves.
- _10_ Replace four-way directional valve.

(6) Control lever in Ahead Throttle (Initial). No air pressure at port #5 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

- _1_ Check valves.
- _2_ Check for defective three-way valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace three-way valve.

(7) Control lever in Ahead Throttle (Initial). Air pressure at port #6 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective three-way valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace three-way valve.

(8) Control lever in Ahead Throttle (After Delay). No air pressure at port #1 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(9) Control lever in Ahead Throttle (After Delay). Air pressure at port #2 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(10) Control lever in Ahead Throttle (After Delay). Air pressure at port #3 of three-way. Red pin on valve #1 down or extended.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(11) Control lever in Ahead Throttle (After Delay). No air pressure at port #4 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace directional control rotary valve.

(12) Control lever in Ahead Throttle (After Delay). No air pressure at port #5 of three-way valve, Red pin on valve #2 up or retracted.

(a) Possible cause: Check valves.

(b) Corrective action: Adjust valves.

(13) Control lever in Ahead Throttle (After Delay). Air pressure at port #6 of three-valve. Red pin on valve #2 up or retracted.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/Replace direction control rotary valve.

(14) Control lever in Neutral (Astern Delay Mode). Air pressure at port #1 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective three-way valves.

3 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace three-way valves.

3 Repair/replace directional control rotary valve.

(15) Control lever in Neutral (Astern Delay Mode). Air pressure at port #2 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace directional control rotary valve.

(16) Control lever in Neutral (Astern Delay Mode). Air pressure at port #3 of three-way valve. Red pin on valve #1 down or extended.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace directional control rotary valve.

(17) Control lever in Neutral (Astern Delay Mode). Air pressure at port #4 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace directional control rotary valve.

(18) Control lever in Neutral (Astern Delay Mode). Air pressure at port #5 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace three-way valve.

2 Replace/repair directional control rotary valve.

(19) Control lever in Neutral (Astern Delay Mode). Air pressure at port #6 of three-way valve. Red pin on valve #2 up or retracted.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace three-way valve.

2 Replace/repair directional control rotary valve.

(20) Control lever in Astern Throttle (Initial). Air pressure at port #1 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(21) Control lever in Astern Throttle (Initial). No air pressure at port #2 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Check for defective directional control rotary valve.

3 Check venture meter for correct reading (120 psi).

4 Check to see if compressor is on.

5 Check to see if inlet and outlet levers on air prep system are in the on position.

6 Check for defective inlet ball valves in air prep system.

7 Check for defective safety valves in air prep system.

8 Check for defective venturi meter in air prep system.

9 Check for defective outlet ball valves in air prep system.

10 Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/replace directional control rotary valve.

3 Replace venturi meter.

4 Turn air compressor on.

5 Turn levers to on position.

6 Replace inlet ball valves.

7 Replace safety valves.

8 Replace venturi meter.

9 Replace outlet ball valves.

10 Replace four-way directional valve.

(22) Control lever in Astern Throttle (Initial). No air pressure at port #3 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause(s):

1 Check adjustment of valves.

2 Check for defective three way valve.

(b) Corrective action(s):

1 Adjust valves.

2 Repair/replace three-way valve.

(23) Control lever in Astern Throttle (Initial). Air pressure at port #4 of threeway valve. Red pin on valve #2 down or extended.

(a) Possible cause(s):

1 Check for defective three way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/replace three-way valve.

2 Repair/replace directional control rotary valve.

(24) Control lever in Astern Throttle (Initial). Air pressure at port #5 of threeway valve. Red pin on valve #2 down or extended.

(a) Possible cause(s):

1 Check for defective directional control rotary valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/Replace direction control rotary valve.

2 Repair/replace directional control rotary valve.

(25) Control lever in Astern Throttle (Initial). No air pressure at port #6 of three-way valve. Red pin on valve #2 down or extended.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(26) Control lever in Astern Throttle (After Delay). Air pressure at port #1 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(27) Control lever in Astern Throttle (After Delay). No air pressure at port #2 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause: Defective engine room control station.

(b) Corrective action: Repair/replace engine room control station.

(28) Control lever in Astern Throttle (After Delay). No air pressure at port #3 of three-way valve. Red pin on valve #1 up or retracted.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective action: Repair/replace directional control rotary valve.

(29) Control lever in Astern Throttle (After Delay). Air pressure at port #4 of three-way valve. Red pin on valve #2 down or extended.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/replace three-way valve.

2 Repair/replace directional control rotary valve.

(30) Control lever in Astern Throttle (After Delay). Air pressure at port #5 of three-way valve. Red pin on valve #2 down or extended.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/replace three-way valve.

2 Repair/replace directional control rotary valve.

(31) Control lever in Astern Throttle (After Delay). No air pressure at port #6 of three-way valve. Red pin on valve #2 down or extended.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/replace three-way valve.

2 Repair/replace directional control rotary valve.

e. Throttle interlock.

(1) No air pressure at (IN) port of throttle interlock.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/Replace directional control rotary valve.

(2) No air pressure at (OUT) port of throttle interlock.

(a) Possible cause: Check for defective throttle interlock.

(b) Corrective action: Repair/Replace throttle interlock.

(3) No oil pressure at (OIL) port of throttle interlock.

(a) Possible cause: Check to see if reduction gear is in Neutral position.

(b) Corrective action: Ensure reduction gear is in Ahead or Astern position.

(4) No air pressure at (AIR) port of throttle interlock.

(a) Possible cause(s):

- _1_ Check for defective shuttle valve.
- _2_ Check for defective three-way valve.
- _3_ Check for defective directional control rotary valve.
- _4_ Check to see if compressor is on.
- _5_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _6_ Check for defective inlet ball valves in air prep system.
- _7_ Check for defective safety valves in air prep system.
- _8_ Check for defective venturi meter in air prep system.
- _9_ Check for defective outlet ball valves in air prep system.
- _10_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Replace shuttle valve.
- _2_ Repair/Replace three-way valve.
- _3_ Repair/Replace directional control rotary valve.
- _4_ Turn air compressor on.
- _5_ Turn levers to on position.
- _6_ Replace inlet ball valves.
- _7_ Replace safety valves.
- _8_ Replace venturi meter.
- _9_ Replace outlet ball valves.
- _10_ Replace four-way directional valve.

(5) No air pressure at (VENT) port of throttle interlock.

(a) Possible cause: Check for defective throttle interlock.

(b) Corrective action: Repair/Replace throttle interlock.

(6) No air at throttle actuator.

(a) Possible cause(s):

1 Check that reduction gear is engaged.

2 Check for defective throttle interlock.

3 Check for defective shuttle valve.

4 Check for defective three-way valve.

(b) Corrective action(s):

1 Refer to tech manual.

2 Repair/replace throttle interlock.

3 Replace shuttle valve.

4 Repair/replace three-way valve.

f. Gear actuator.

(1) Control lever in Neutral Stand-By. Air pressure at Ahead port of gear actuator.

(a) Possible cause: Check for defective directional control rotary valve.

(b) Corrective actions: Repair/Replace directional control rotary valve.

(2) Control lever in Neutral Stand-By. Air pressure at Astern port of gear actuator.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Check for defective three-way valve.

3 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/replace three-way valve.

3 Repair/replace directional control rotary valve.

(3) Control lever in Ahead Throttle (Initial). No air pressure at Ahead port of gear actuator.

(a) Possible cause(s):

- _1_ Check for defective three-way valve.
- _2_ Check for defective shuttle valve.
- _3_ Check for defective directional control rotary valve.
- _4_ Check to see if compressor is on.
- _5_ Check to see if inlet and outlet levers on air prep system are in the on position.
- _6_ Check for defective inlet ball valves in air prep system.
- _7_ Check for defective safety valves in air prep system.
- _8_ Check for defective venturi meter in air prep system.
- _9_ Check for defective outlet ball valves in air prep system.
- _10_ Defective station selector valve (four-way directional valve).

(b) Corrective action(s):

- _1_ Repair/Replace three-way valve.
- _2_ Replace shuttle valve.
- _3_ Repair/replace directional control rotary valve.
- _4_ Turn air compressor on.
- _5_ Turn levers to on position.
- _6_ Replace inlet ball valves.
- _7_ Replace safety valves.
- _8_ Replace venturi meter.
- _9_ Replace outlet ball valves.
- _10_ Replace four-way directional valve.

(4) Control lever in Ahead Throttle (Initial). Air pressure at Astern port of gear actuator.

(a) Possible cause(s):

- _1_ Check for defective shuttle valve.
- _2_ Check for defective three-way valve.

3 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/replace three-way valve.

3 Repair/replace directional control rotary valve.

(5) Control lever in Ahead Throttle (After Delay). No air pressure at Ahead port of gear actuator.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective shuttle valve.

3 Check for defective directional control rotary valve.

4 Check to see if compressor is on.

(b) Corrective action(s):

1 Repair/Replace three-way valve.

2 Replace shuttle valve.

3 Repair/replace directional control rotary valve.

4 Turn air compressor on.

(6) Control lever in Ahead Throttle (After Delay). Air pressure at Astern port of gear actuator.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Check for defective three-way valve.

3 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/replace three-way valve.

3 Repair/replace directional control rotary valve.

(7) Control lever in Neutral-Astern Delay. Air pressure at Ahead port of gear actuator.

(a) Possible cause(s):

- _1_ Check for defective shuttle valve.
- _2_ Check for defective three-way valve.
- _3_ Check for defective directional control rotary valve.

(b) Corrective action(s):

- _1_ Replace shuttle valve.
- _2_ Repair/replace three-way valve.
- _3_ Repair/replace directional control rotary valve.

(8) Control lever in Neutral-Astern Delay. Air pressure at Astern port of gear actuator.

(a) Possible cause(s):

- _1_ Check for defective shuttle valve.
- _2_ Check for defective three-way valve.
- _3_ Check for defective directional control rotary valve.

(b) Corrective action(s):

- _1_ Replace shuttle valve.
- _2_ Repair/replace three-way valve.
- _3_ Repair/replace directional control rotary valve.

(9) Control lever in Astern Throttle (Initial). Air pressure at Ahead port of gear actuator.

(a) Possible cause(s):

- _1_ Check for defective shuttle valve.
- _2_ Check for defective three-way valve.
- _3_ Check for defective directional control rotary valve.

(b) Corrective action(s):

- _1_ Replace shuttle valve.
- _2_ Repair/replace three-way valve.

3 Repair/replace directional control rotary valve.

(10) Control lever in Astern Throttle (Initial). No air pressure at Astern port of gear actuator.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective shuttle valve.

3 Check for defective directional control rotary valve.

4 Check to see if compressor is on.

(b) Corrective action(s):

1 Repair/Replace three-way valve.

2 Replace shuttle valve.

3 Repair/replace directional control rotary valve.

4 Turn air compressor on.

(11) Control lever in Astern Throttle (After Delay). Air pressure at Ahead port of gear actuator.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Check for defective three-way valve.

3 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair/replace three-way valve.

3 Repair/replace directional control rotary valve.

(12) Control lever in Astern Throttle (After Delay). No air pressure at Astern port of gear actuator.

(a) Possible cause(s):

1 Check for defective three-way valve.

2 Check for defective shuttle valve.

3 Check for defective directional control rotary valve.

4 Check to see if compressor is on.

(b) Corrective action(s):

1 Repair/Replace three-way valve.

2 Replace shuttle valve.

3 Repair/replace directional control rotary valve.

4 Turn air compressor on.

g. Governor actuator.

(1) Control lever in Neutral Stand-By. Governor actuator in extended position.

(a) Possible cause(s):

1 Check for defective throttle interlock.

2 Check for defective governor actuator.

(b) Corrective action(s):

1 Repair/Replace throttle interlock.

2 Repair governor actuator.

(2) Control lever in Ahead Throttle (Initial). Governor actuator in retracted position.

(a) Possible cause(s):

1 Check for defective governor actuator.

2 Check for defective throttle interlock.

3 Check for defective three-way valve.

4 Check for defective directional control rotary valve.

(b) Corrective action(s):

1 Repair/replace governor actuator.

2 Repair/replace throttle interlock.

3 Repair/replace three-way valve.

4 Repair/replace directional control rotary valve.

(3) Control lever in Neutral-Astern Delay. Governor actuator in extended position.

(a) Possible cause(s):

1 Check for defective throttle interlock.

2 Check for defective governor actuator.

(b) Corrective action(s):

1 Repair/Replace throttle interlock.

2 Repair governor actuator.

(4) Control lever in Astern Throttle (Initial). Governor actuator in extended position.

(a) Possible cause(s):

1 Check for defective throttle interlock.

2 Check for defective governor actuator.

(b) Corrective action(s):

1 Repair/Replace throttle interlock.

2 Repair governor actuator.

h. Brake panel assembly.

(1) No pressure at port #1 of brake panel.

(a) Possible cause(s):

1 Check to see if air compressor is on.

2 Check for defective air prep system.

(b) Corrective action(s):

1 Turn on air compressor.

2 Repair/Replace air prep system.

(2) No air pressure at port #2 of brake panel.

(a) Possible cause(s):

1 Check for defective shuttle valve.

2 Refer to Gear Mate Control System.

(b) Corrective action(s):

1 Replace shuttle valve.

2 Repair IAW Gear Mate Control System Troubleshooting procedures 2.f.

(3) No (OUT) air pressure at port #3 of break panel.

(a) Possible cause: Check for defective brake panel assembly.

(b) Corrective action: Repair/Replace brake panel assembly.

LOCATION	PRESSURE	VISUAL
"A" NEUTRAL STAND-BY		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever in Neutral Position
Ahead (Port #1)	No	
Astern (Port #3)	No	
Inlet Regulator	Yes	
Out Regulator	No	
GEAR-MATE PANEL		
Ports 1-2-3-4-5-6	No	Both Red Pins at Bottom of Valves Up or Retracted
THROTTLE INTERLOCK		
(In) Line	No	No Visible Check
(Out) Line	No	
GEAR ACTUATOR		
Ahead Port	No	Shift Lever 1 or Rod in Mid or Neutral
Astern Port	No	
GOVERNOR ACTUATOR		
Supply (In) Line	No	Lever In Retracted Position
"B" AHEAD THROTTLE (INITIAL)		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever at Least 20' in the Ahead Position from Center
Ahead (Port #1)	Yes	
Astern (Port #3)	No	
Inlet Regulator	Yes	
Out Regulator	Yes	
GEAR-MATE PANEL		
Ports		
1	Yes	Red Pin on Valve #21 UP or Retracted
2	No	
3	No	
4	Yes	Red Pin on Valve #22 Down or Extended
5	Yes	
6	No	
THROTTLE INTERLOCK		
(In) Line	Yes	No Visible Check
(Out) Line	No	
(Air) Line	Yes	
(Oil) Line	No	

Figure 551-88L-3060_01
Control system normal indications sheet 1 of 4

LOCATION	PRESSURE	VISUAL
"B" AHEAD THROTTLE (INITIAL) (CONT'D)		
GEAR ACTUATOR		
Ahead Port	Yes	Shift Lever In Actuated or Ahead Position
Astern Port	No	
GOVERNOR ACTUATOR		
Supply (In) Line	No	Lever In Retracted Position
"C" AHEAD THROTTLE (AFTER DELAY)		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever at Least 20' in the Ahead Position from Center
Ahead (Port #1)	Yes	
Astern (Port #3)	No	
Inlet Regulator	Yes	
Out Regulator	Yes	
GEAR-MATE PANEL		
Ports		
1	Yes	Red Pin on Valve #21 Up or Retracted
2	No	
3	No	Red Pin on Valve #22 Down or Extended
4	Yes	
5	Yes	
6	No	
THROTTLE INTERLOCK		
(In) Line	Yes	No Visual Check
(Out)	Yes	
(Air)	Yes	
(Oil)	Yes	
GEAR ACTUATOR		
Ahead Port	Yes	Shift Lever In Actuated or Ahead Position
Astern Port	No	
GOVERNOR ACTUATOR		
Supply (In) Line	Yes	Moved to Control Station Setting
"D" NEUTRAL - ASTERN DELAY		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever In Neutral Position
Ahead (Port #1)	No	
Astern (Port #3)	No	
Inlet Regulator	Yes	
Out Regulator	Yes	

Figure 551-88L-3060_02
Control system normal indications sheet 2 of 4

LOCATION	PRESSURE	VISUAL
"D" NEUTRAL - ASTERN DELAY - CONT		
GEAR-MATE PANEL		
Ports		
1	No	Red Pin on Valve #21 Up or Retracted
2	No	
3	No	
4	No	Red Pin on Valve #22 Down or Extended
5	No	
6	No	
THROTTLE INTERLOCK		
(In) Line	No	No Visual Check
(Out) Line	No	
(Air) Line	No	
(Oil) Line	No	
GEAR ACTUATOR		
Ahead Port	No	Shift Lever Rod at Mid or Neutral
Astern Port	No	
GOVERNOR ACTUATOR		
Supply (In) Line	No	Lever in Retracted Position
"E" ASTERN THROTTLE (INITIAL)		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever At Least 20' in the Astern Position From Center
Ahead (Port #1)	No	
Astern (Port #3)	Yes	
Inlet Regulator	Yes	
Out Regulator	Yes	
GEAR-MATE PANEL		
Ports		
1	No	Red Pin On Valve #21 Down or Extended
2	Yes	
3	Yes	
4	No	Red Pin On Valve Up or Retracted
5	No	
6	Yes	
THROTTLE INTERLOCK		
(In) Line	Yes	No Visual Check
(Out) Line	No	
(Air) Line	Yes	
(Oil) Line	No	

Figure 551-88L-3060_03
Control system normal indications sheet 3 of 4

LOCATION	PRESSURE	VISUAL
"E" ASTERN THROTTLE (INITIAL) - CONT		
GEAR ACTUATOR		
Ahead Port	No	Shift Lever Actuated or Astern Position
Astern Port	Yes	
GOVERNOR ACTUATOR		
Supply (In) Line	No	Lever In Retracted Position
"F" ASTERN THROTTLE (AFTER DELAY)		
CONTROL STATION		
Inlet (Supply Port #2)	Yes	Lever at Least 20' in the Astern Position from Center
Ahead (Port #1)	No	
Astern (Port #3)	Yes	
Inlet Regulator	Yes	
Out Regulator	Yes	
GEAR-RATE PANEL		
Ports		
1	No	Red Pin on Valve #21 Down or Extended
2	Yes	
3	Yes	
4	No	Red Pin on Valve #22 Up or Retracted
5	No	
6	Yes	
THROTTLE INTERLOCK		
(In) Line	Yes	No Visual Check
(Out) Line	Yes	
(Air) Line	Yes	
(Oil) Line	Yes	
GEAR ACTUATOR		
Ahead Port	No	Shift Lever in Actuated or Astern Position
Astern Port	Yes	
GOVERNOR ACTUATOR		
Supply (In) Line	Yes	Moved to Control Station Setting

Figure 551-88L-3060_04
Control system normal indications sheet 4 of 4

(Asterisks indicates a leader performance step.)

Evaluation Guidance: None

Evaluation Preparation: None

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Demonstrated troubleshooting procedures for a cable and a chain/cable actuated engine control system.			
a. Propulsion controls do not affect a clutch or throttle change.			
b. Engine shutdown controls inoperative.			
2. Demonstrated troubleshooting procedures for an air actuated engine control system.			
a. Pilothouse control station.			
b. Engine room control station.			
c. Bowthruster/fire pump control system.			
d. Gear mate control system.			
e. Throttle interlock.			
f. Gear actuator.			
g. Governor actuator.			
h. Brake panel assembly.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	TM 55-1905-217-12	Operator's and Organizational Maintenance Manual: Landing Craft, Mechanized, Steel, DED, Overall Length 74 Feet, Mod 1, Mark VIII, Navy Design LCM-8, Hull Nos. 8500-8560 and 8580-8618 (NSN 1905-00-935-6057) (Reprinted W/Basic Incl C1-3)	No	No
	TM 55-1905-219-14-1	OPERATORS, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR LANDING CRAFT UTILITY (LCU) 1667-1670 (NSN 1905-00-168-5764)	No	No
	TM 55-1905-220-14-1	OPERATORS, ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL FOR LANDING CRAFT, UTILITY, LCU 1671-1679 (NSN 1905-01-009-1056) (NSN 1905-01-009-1056) (REPRINTED W/BASIC INCL C1-5)	No	No
	TM 55-1905-222-14	OPERATOR, UNIT AND INTERMEDIATE (DIRECT AND GENERAL SUPPORT) MAINTENANCE MANUAL FOR LANDING CRAFT, MECHANIZED (LCM-8) (ROHR AND GUNDERSON MODELS) (NSN 1905-01-284-2647) AND (1905-01-284-2648) (REPRINTED W	No	No
	TM 55-1905-223-24-18-1	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS FOR LANDING CRAFT, UTILITY (LCU) BASIC CRAFT (PART 1) (NSN 1905-01-154-1191) (REPRINTED W/BASIC INCL C1-3) (THIS	No	No
	TM 55-1905-223-24-18-2	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS FOR LANDING CRAFT, UTILITY (LCU) (NSN 1905-01-154-1191) BASIC CRAFT (PART II) (REPRINTED W/BASIC INCL C1-2) (THI	No	No
	TM 55-1915-200-10	Operator's Manual for Logistic Support Vessel (LSV) (NSN 1915-01-153-8801) (Reprinted W/Basic Incl C1-6)	No	No
	TM 55-1915-254-10-1	OPERATOR'S MANUAL FOR LOGISTICS SUPPORT VESSEL (LSV-7 & -8)	No	No
	TM 55-1915-254-10-2	OPERATOR'S MANUAL FOR LOGISTICS SUPPORT VESSEL (LSV-7 & -8)	No	No
	TM 55-1925-273-10-2	Operator's Manual for Inland and Coastal Large Tug (LT) (NSN 1925-01-509-7013) (EIC XAG) (This item is included on EM 0272)	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-2054	Maintain an Engine Control System	551 - Transportation (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-2054	Maintain an Engine Control System	551 - Transportation (Individual)	Approved

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O