

GROUND TEST INSTRUCTIONS

SECTION 15

ORDNANCE

LIST OF CONTENTS

- PART 1 — GUNS AND GUNSIGHT

- PART 2 — GUN HEATING VALVE B.191700
I.D. INSTRUCTION H12/1 (Issue 3)

- PART 3 — GUN HEATING AND VENTILATING SYSTEM
I.D. INSTRUCTION H12/2 (Issue 2)

- PART 4 — BOMBS

SECTION 15
ORDNANCE
PART 1
GUNS AND GUNSIGHT

The following tests must be made on the guns and gun-sight installations.

1. **ARMAMENT SAFETY PLUG – WARNING**

The armament safety plug must be removed from its socket prior to commencing loading of guns, stores and all work on ordnance equipment (except circuit and functioning tests). The plug is fitted with a red warning pennant (to prevent oversight of replacement). The pennant must not be removed from the plug.

2. **GUN INSTALLATION**

The gun installation and gunsight must be checked to the gun alignment diagram at the request of A.I.D.

3. **GUNSIGHT**

Test in accordance with A.P.112E-0001-1

4. **GUNSIGHT MOUNTING (Pre Mod.378)**

Test gunsight mounting for functioning by the following operations, which must be made in the sequence given:—

- (i) Connect test lead adaptor (SE.867) between plug and socket 'F36' (located on right of mounting).
- (ii) Press push switch of lead adaptor; hold pressed.
- (iii) Mounting switch 'ON'; check mounting 'ERECTS'.
- (iv) Mounting switch 'OFF'; check mounting 'RETRACTS'.
- (v) Mounting switch 'ON'; erect gunsight.
- (vi) Release push switch of lead adaptor.
- (vii) Mounting switch 'OFF'; check mounting does NOT 'RETRACT'.
- (viii) Pull hood jettison handle very slightly (just enough to operate micro-switch).

4. GUNSIGHT MOUNTING (pre Mod.378) (Contd).
- (ix) Check mounting 'RETRACTS'.
 - (x) Disconnect test lead adaptor; reconnect plug and socket (F36).
 - (xi) Repeat (iii) and (iv).
 - (xii) Remove fuse No.3 (port cabin shelf).
 - (xiii) Check (aurally) as fuse is removed that gunsight voltage regulator (port side of cabin, behind pilot) is rendered inoperative (regulator 'clicks').
 - (xiv) Replace fuse No.3.

SECTION 15

ORDNANCE

PART 2

GUN HEATING VALVE B.191700

I.D. INSTRUCTION H12/1 (Issue 3)

1. TYPE TESTS

GUN HEATING VALVE

- (i) Pressure test to 90 p.s.i.
- (ii) Mount in a cold chamber at -30°C and supply air to inlet connection at 65 p.s.i. and 100°C . Torque to open and close valve should not exceed 35 lb.in.

GUN HEATING VALVE AND ACTUATOR

- (iii) Connect the valve to the air supply through a reservoir or 0.25 cu.ft. capacity. With the valve closed apply an air pressure of 90 p.s.i. shut off the supply and time the interval to drop to 70 p.s.i. This should not be less than 20 seconds.
- (iv) Mount in a cold chamber at -30°C and supply air to inlet connection at 65 p.s.i. and 100°C . Open and close the valve by means of the actuator on a 28 volt supply and repeat this operation 100 times.

The period of operation should be about 1 second, and the braking of the actuator quite positive. Current consumption should be 1.5 to 1.75 amps.
- (v) Repeat test 4 for 10 operations on 22 volt supply. Current consumption should now be 1.4 to 1.6 amps.
- (vi) Open and close the valve with a pressure of 65 p.s.i. applied. Check the leakage after closing and note that this does not exceed 3 cu.ft. free air per minute.

2. PRODUCTION TESTS

GUN HEATING VALVE

- (i) Pressure test to 90 p.s.i.
- (ii) With the supply pressure at 65 p.s.i. measure the torque required to open or close valve. This should not exceed 30 lbs.ins. Repeat with no supply air pressure. The torque should not exceed 5 lbs.ins.

2. PRODUCTION TESTS (Contd).

GUN HEATING VALVE AND ACTUATOR

- (iii)q Connect the valve to the air supply through a reservoir of 0.25 cu.ft. capacity. With the valve closed apply an air pressure of 90 p.s.i. shut off. The supply and time the interval to drop to 70 p.s.i. This should not be less than 20 seconds.

- (iv) With the air supply pressure at 65 p.s.i. 'open' and 'close' the valve by means of the actuator. Carry this out 5 times on 28 volts for which current consumption should be 1.5 to 1.75 amps. and 5 times on 22 volts for which current should be 1.4 to 1.6 amps.
The period of operation should be about 1 second and the braking of the actuator quite positive.

- (v) Open and close the valve with a pressure of 65 p.s.i., applied. Check the leakage after closing and note that this does not exceed 3 cu.ft. free air per minute.

SECTION 15

ORDNANCE

PART 3

GUN HEATING AND VENTILATING SYSTEM

I.D. INSTRUCTION H12/2 (Issue 2)

1. **ISSUE 2**

- (i) Prior to installation in the gun package, check the thermostat unit with a hot air valve actuator. The thermostat should open the valve at $10 \pm 2\frac{1}{2}^{\circ}\text{C}$ and close it at $30 \pm 7\frac{1}{2}^{\circ}\text{C}$. This check may be carried out with the thermostat immersed in water using ice or a heater element to vary the temperature.
- (ii) With the complete aircraft system fitted, close the hot air valve and apply a pressure of 50 p.s.i. at the engine connections. Shut off air supply and check that the pressure in the system has not dropped below 20 p.s.i. at the end of 30 secs. Disconnect pressure supply and reconnect the engine connection at the end of this test.
- (iii) Check that all guns are unloaded then close the butt switch on the starboard cockpit shelf raise the safety cover on the control column and pull the trigger. Check the time of operations of the gun ventilation shutter mounted on the underside of the aircraft between frames 11 and 12; this should be a maximum of $3\frac{1}{2}$ seconds. Release the firing trigger, check the ventilation shutter closes within $3\frac{1}{2}$ seconds. Lower the safety cover and return the butt switch to normal.

SECTION 15
ORDNANCE
PART 4
BOMBS

The following tests must be made on the bombing installation.

1. **ARMAMENT SAFETY PLUG – WARNING**

The **armament** safety plug must be removed from its socket prior to commencing loading of guns, stores and all work on ordnance equipment (except circuit and functioning tests). The plug is fitted with a red warning pennant (to prevent oversight of replacement). The pennant must not be removed from the plug.

2. **BOMB RELEASE CIRCUITS**

Test each bomb release circuit separately as follows:—

- (a) Control switches 'CLOSED'.
- (b) Pre-selector set in 'numerical sequence'.

Insulation resistance for each individual circuit must not be less than 2 megohms.

Insulation resistance for all fusing circuits in parallel must not be less than 500,000 ohms.

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