SECTION 4—AWAY FROM BASE PROCEDURES AND MISCELLANEOUS DRILLS

SHUT-DOWN CHECKS AT AIRFIELDS WITH NO SERVICING FACILITIES

1.	Pitot head heaters	Off	
2.	Undercarriage safety guard	Replaced	
3.	Observer leaves aircraft and checks dispersal clear of obstructions		
4.	Note fuel remaining in each tank		
5.	Flaps	DOWN	Observer inspects, using AEO's I/C lead
6.	Flaps	UP	
7.	Bomb doors	OPEN	
8.	Bomb doors	CLOSED	
9.	Bomb doors	AUTO	
10.	All rear cabin electrical loads	Off	
11.	All services	Off	
12.	Fuel pumps and switches	Off	
13.	Instrument master switch	Off	
14.	HP cocks	CLOSED	
15.	When generator warning lights come on	96 v. and 24 v. battery switches off	
16.	Generator and rotary transformer switches	Off	
17.	Master cocks	Off	
18.	96 and 24 voltmeters	Zero (if not, trip battery contractors manually)	
19.	Main sear and seat-pan firing handle safety-pins	In	
20.	Hood detonator master switch	Safe. Pin in	
21.	Emergency oxygen pins	In	
22.	Swivel seat pip-pins	Out	
23.	Leave aircraft and lock cabin		
24.	Disconnect battery terminals		

REFUELLING

Refuelling without external power

1. Remove 100A inverter fuse (D90)
2. Switch off feel unit heaters (Panel E)
3. Connect tanker to aircraft
4. Reconnect 24 v. battery
5. Switch on 24 v. master switch
6. Refuel, selecting necessary switches
7. Instrument master switch on. Check gauges
8. Instrument master switch off
9. 24 v. battery switch off
10. Check voltmeter zero
11. Replace 100A inverter fuse
12. Switch and wire on feel unit heaters
13. Disconnect 24 v. battery (if applicable)

Refuelling with external 28 v. supply

1. Reconnect 24 v. battery
2. Plug in external supply
3. Refuel normally
4. Disconnect 24 v. battery (if applicable)

NOTES

1. If external supply is 24 v. battery only, leave aircraft battery disconnected and refuel normally.
2. If no adapter is available replace aircraft battery with suitable 24 v. battery for refuelling only.
3. If rectifier is available leave aircraft battery disconnected and post AEO to regulate the voltage.

EXTERNAL CHECKS (AEO)

Bomb bay

1. Bomb door trip switch . . . Trip
2. Bomb door isolate switches . . NORMAL
3. Check all batteries for tightness of connections, acid leakage—no loose equipment
4. Hood detonator circuit breaker . . Made

Upper servicing bay

1. Hydraulic tanks . . . . Check for leakage
2. 153 inverter . . . . . Secure
3. Rotary transformers . . . Secure
4. Busbar covers . . . . . Closed. No loose equipment
5. 350 inverters . . . . . Secure
6. Bay door . . . . . Closed

EXTERNAL CHECKS (PILOTS)

1.	Chocks and fire extinguisher	Positioned
2.	Nose	Condition. Auto-pilot plugs removed
3.	Mainplane	Condition. Engine and air intake plugs removed
4.	De-icing filler covers and Radome hatch	Secure
5.	Demisting plug	Removed
6.	Starboard escape hatch	Secure
7.	Pressure controller static plugs	Removed
8.	Bomb aimer's window	Condition
9.	Nose owing cap, UHF aerial, downward ident light, IFF aerial	Undamaged
10.	Nosewheel tyres and torque arm pin	Condition
11.	Nose oleo extension	Normal for aircraft weight
12.	Lower air conditioning door	Secure
13.	Starboard nosewheel door and radio compass aerial	Condition
14.	Charging bay doors	Secure
15.	Upper air conditioning door	Secure
16.	OAT element and guard	Undamaged
x17.	Fuselage fuelling point cover	Secure
x18.	Engine panels/cooling intakes	Secure/undamaged
x19.	Main undercarriage door	Condition
x20.	Tyres and valves	Condition
x21.	Oleo extensions	As required
x22.	Maxaret units	Free. Pins flush
x23.	Hydraulic leads	Secure. No leaks
x24.	Ground cooling vent	Open
x25.	U/C uplock jaws	Condition
x26.	Fire extinguisher access panel	Secure
x27.	U/C outer door	No signs of rubbing
x28.	Inboard wing cell	Secure. No leaks
x29.	U/W air pressure	450 PSI
x30.	All U/W valves	Off
x31.	Stalk and U/W tank	Condition
x32.	Underwing panels	Secure. No leaks
x33.	Anti-icing, gauze covers	Secure
x34.	Taxi light	Retracted and undamaged
x35.	Wing tip and pitot head	Condition, cover on
36.	Feel intake plug and tail anti-icing blank	Removed
37.	Aileron power control plug	Removed
38.	Feel static plugs	Removed
x39.	Aileron and tabs	Condition and position
x40.	Flaps and airbrakes	Condition and position
41.	Water meth. cover	Secure
42.	TACAN inverter plug	Removed

(*continued*)

x43.	Camera hatch/mainplane illuminating light	Secure/undamaged
44.	Deflector	Condition
45.	Rear hatch	Secure
46.	Lower anti-collision light	Undamaged
x47.	Tail navigation light	Undamaged
48.	Tailplane, elevators and tabs	Condition and position
49.	Rudder and tabs	Condition and position
50.	Orange Putter cone	Secure
51.	Mainplane upper surface	Condition, jet pipe covers removed
52.	Tailplane incidence	0°

Repeat 'X' items and then

53.	Bomb bay green light	On
54.	Bomb bay	Condition, check for fuel leaks
55.	Window chute covers or dispensers	Fitted, port and starboard
56.	OAT element and guard	Undamaged
57.	Nosewheel bay	Condition. Door closed
58.	Port nosewheel door	Condition
59.	Charging bay doors	Secure
60.	Flood-flow covers	Secure
61.	AEO's window	Undamaged
62.	Dispersal clear	

INTERNAL START CHECKS

Preliminary checks

Carry out normal external and rear cabin checks but leave 24 v. battery, generator and rotary transformer, and I/C switches all off. If 24 v. or 28 v. external supply is available see appropriate check list.

1.	Helmets	Off
2.	Rudder pedals	Adjusted (both pilots)
3.	Leg restraining straps	Connected (both pilots)
4.	Wheel brakes	On
5.	Control handwheels	Engage and adjust for reach

Left to right checks

1.	ILS	Off
2.	Engines master start switch	SAFE
3.	Windscreen wipers	Off and PARKED (both pilots)
4.	Emergency de-pressurising switch	NORMAL
5.	Underwing tank jettison switches	Off
6.	Low level radio alt.	Off
7.	Instrument panel emergency lights	Test (both pilots). Leave off
8.	Demist selector	As required
9.	Accelerometer	Reset
10.	Pitot head heaters	Off (both pilots)
11.	Landing light switches	Central
12.	JPT fuel control switch	NORMAL
13.	Water methanol master switch	Off
14.	External light master switch	Off
15.	Refuelling switches	Off
16.	Windscreen de-icing switches	Off
17.	Ram air and vent fan	Off
18.	Cabin air supplies	Off

(continued)

19.	Flood flow switches	DECREASE
20.	Anti-icing master switch	Off
21.	Airframe anti-icing	Off
22.	Bomb bay heating	Off
23.	Engine gate valves	NORMAL
24.	Flowmeters	METER

Central pedestal checks

1.	Friction lever	As required
2.	Undercarriage safety guard	Removed. DOWN button in, override SAFE
3.	Brakes No. 1 system	STARBOARD selected

INTERNAL STARTING (2 & 3 ENGINES)

If a 24 v. or 28 v. external supply is available, make the following additions.

Before item 1 insert:—

(a) Plug in external power supply

After item 9 insert:—

(b) Unplug external power supply

NOTE: If external power is 24 v. battery AEO must check that its potential is greater than the aircraft battery. Do *NOT* use rectifier.

1.	Periscope	In position and retracted
2.	Pitot head covers (ASC to action)	Off and handed into cockpit
3.	All generators and rotary transformers	Off
4.	24 v. battery switch	ON, indicator black
5.	96 v. battery switch	ON, indicator black
6.	No. 3 engine master cock	ON, indicator black
7.	Fire warning lights	Test
8.	Rear bearing overheat lights	Test
9.	Instrument master switch	ON
10.	One fuel pump	Select for starting, warning light out
11.	Starter master switch	START
12.	Start No. 3 engine	
13.	No. 3 generator	ON. No. 3 rotary transformer ON
14.	No. 2 inverter	ON
15.	Oil pressure	Normal
16.	I/C	ON. Helmets on, check I/C
17.	VHF/UHF	ON
18.	Entrance door indicator	Black
19.	VHF/UHF	Test
20.	Pitot heaters	ON, if conditions warrant
21.	Select remaining engine master cocks	On, indicators black
22.	Fuel pumps	Test. Select as required, check warning lights out
23.	Open No. 3 engine to 6,500 RPM	
24.	Select No. 2 engine and start normally	
25.	No. 3 engine	Idling
26.	No. 2 generator	ON, warning light out
27.	No. 2 rotary transformer	ON, lights out

FUNCTIONAL CHECKS

1.	All oxygen connections	Made, check blinkers and emergency	
2.	G4B	Synchronised	
3.	G4B	Compare with standby. Nav. checks true	
4.	G4B changeover	Check and set	
5.	U/C extreme emergency circuit breakers	Tripped	
6.	Auto-pilot power switch	ON	
7.	Elevator load lights	Functioning	
8.	Manual trimmers	Master switches ON	
9.	Manual trimmers	Full travel. Set for take-off	
10.	Feel cut-off levers	Forward	
11.	Feel trimmers	Operate one division each way and return to neutral	
12.	TPI coarse and fine (both pilots)	Operate. Set for T/O	
13.	Unlock controls		
14.	Manual control	Full travel. Check with Crew Chief	
15.	Instrument master switch	ON. PFC lights out	
16.	Control movement and desyns	Check with Crew Chief	
17.	Auto-pilot	Aileron drift check and remove. Instinctive cut-out, both pilots check. Power switch off	
18.	Power control motors	Trip. Warning lights on	
19.	Controls	Lock	
20.	Flying instruments	Serviceable (both pilots)	
21.	Hydraulic pump indicators	Black	
22.	Master power control warning light	Test	
23.	Fuel filter de-icing light	Test	
24.	3 greens 2 ambers	Check changeover	
25.	Undercarriage door indicators	On	
26.	Identification and navigation lights	As required	
27.	Flood flow switches	Off	
28.	Ice detector	TEST (Stbd pitot heater on whilst testing)	
29.	Undercarriage horn	Test	
30.	Cabin temperature control	FRIDGE OUT	
31.	Hydraulic pressures	Normal	
32.	Flap main	Select 40 degrees	
33.	Flap emergency	Test down and up	Check with Ground Crew
34.	Contactor	Reset	
35.	Flap main	Full travel. Set 20 degrees	
36.	Airbrakes	Function and desyn	
37.	Bomb doors	CLOSED, indicators black	
38.	IFF	STANDBY	
39.	Low level radio altimeter	As required	
40.	Call crew and emergency I/C	Test	

FUEL PANEL CHECKS

1. Underwing pumps	Test with Crew Chief. Check indicators
2. Underwing nitrogen	On (Crew Chief)
3. Nose caps	Secure
4. Fuel contents	Check
5. Abandon aircraft switch	Test
6. Reserve tank/interconnect/crossfeed cocks	Test/black
7. Contents gauge changeover	Test
8. Transfer tank pumps	Test
9. Fire protection warning lights	Test

INTERNAL STARTING (1 & 4 ENGINES)

1. Nos. 2 and 3 engines	Select 5,000 RPM
2. Start Nos. 1 and 4 engines normally	
3. Nos. 2 and 3 engines	Idling
4. Nos. 1 and 4 generators and No. 1 rotary transformer	ON, warning lights out

CHECKS AFTER INTERNAL START

1. Starter master switch	SAFE
2. Fuel filter de-icing	Check on and off with Ground Crew
3. Engines 1 and 4 to 5,500 RPM	Water meth master switch ON, red lights on
4. Water meth master switch	OFF, red lights out, engines 1 and 4 to idling
5. Select pumps for taxying	
6. No. 3 inverter	ON
7. Flowmeters	Functioning
8. Hydraulic pressures	Normal
9. Chocks away	
10. Main sear and seat-pan firing handle safety-pins	Removed
11. Emergency oxygen pins	Removed
12. Hood detonator master switch pin	Out and stowed. Switch live
13. Swivel seat pip-pins	In
14. Taxy clearance	
15. External intercomm.	Removed

NOTE: If NBS is not to be used, the following checks are to be completed:—

1. H2S switch	Off
2. Scanner rotation switch	Off
3. Scanner supply switch	ON
4. Scanner stabilisation	EMERGENCY
5. NBC switch	Off
6. NBC supply c.b. (if fitted)	Out

RELIGHTING

1. Below 35,000ft. and 200 knots . .
2. Engine master cocks . . . . ON
3. Fuel . . . . . ON
4. HP cocks . . . . . CLOSED
5. Press relight button for 4 secs. and open HP cock to idling. Maintain button pressed until engine lights. If engine not relit within 30 secs. maximum.
6. A commentary is to be given when relighting in order that the AEO can switch the generator to RESET at 2,800 RPM if required
7. Gate valves . . . . . As required

Failure to relight drill

1. If engine fails to relight, release button and close HP cock
2. Lower 20 flap for 5 minutes and reduce altitude by 10,000ft. if possible
3. Check appropriate relight fuse :—
   No. 1 engine E14
   No. 2 engine E19
   No. 3 engine E34
   No. 4 engine E36
4. Raise flap after 5 minutes and recommence items 1 to 7 of relight drill

INTERNAL TRANSFER OF FUEL IN VALIANT B(K)

The following selections apply to Valiant B(K) aircraft in which the flight refuelling receiver switches on the starboard coaming panel are fully operative. In such aircraft fuel can be transferred between tanks as follows:—

Tank from	*Tank to*	*Pump Switch ON*	*Refuelling Switch ON*
Transfer	Port U/W	Transfer	Port U/W
Transfer	Port wings	Transfer	Port wings
Bomb bay	Port U/W	Bomb bay	Port U/W
Bomb bay	Port wings	Bomb bay	Port wings
Port U/W	Transfer	Port U/W	Transfer
Port U/W	Bomb bay	Port U/W	Bomb bay
Port U/W	Fus. No. 1	Port U/W	Fus. No. 1
Port U/W	Reserve	Port U/W	Reserve
Stbd. U/W	Fus. No. 2	Stbd. U/W	Fus. No. 2
Stbd. U/W	Fus. No. 3	Stbd. U/W	Fus. No. 3
Transfer	Bomb bay	Transfer	Bomb bay

Bomb bay fuel will not transfer to the transfer tank.