

**NORMAL AND EMERGENCY
OPERATING PROCEDURES**

for the

'ENGLISH ELECTRIC' P.11

(AIRCRAFT XL 628 AND 629)

(ISSUE 1)

September 1959

See reverse for ejection seat
checks and cockpit checks.

CONFIRM:

Brakes ON; Instr. master ON (supply indicator BLACK);
Auto. temp. control IN; throttles H.P. COCKS CLOSED

SELECT:

1. BATTERY ON
2. FUEL PUMPS PORT-NO.1 ENG.
STBD-NO.2 ENG.
3. ENGINE START MASTER ON
4. NO.2 IGNITION ON
5. NO.2 THROTTLE FAST IDLING

AND WITHOUT DELAY:

6. NO.2 ENG. STARTER Press for 2 sec &
release

REPEAT ITEMS 4, 5, & 6 FOR NO.1 ENG.

NOTE:

IF J.P.T. REACHES 700°C DURING THE START, CLOSE THE
H.P. COCK IMMEDIATELY.

ENGINE START

1. THROTTLE LEVERH.P. COCK CLOSED

NOTE:

ENSURE WASTE FUEL HAS DRAINED BEFORE ATTEMPTING
ANOTHER START.

TO MOTOR THE ENGINE:

1. ENG. START MASTER SWITCHON
2. IGNITION SWITCHOFF
3. THROTTLE LEVER H.P. COCK CLOSED
4. ENG. STARTER PUSH-SWITCHPRESS 2 SECS.
AND RELEASE

TIMES BETWEEN STARTS:

COLD STARTING-3 ATTEMPTS, IF NECESSARY, AT NOT LESS THAN
1 MINUTE INTERVALS, BUT DO NOT ATTEMPT A THIRD START IF 2
CONSECUTIVE "A" FAILURES HAVE OCCURRED.

IF 3rd ATTEMPT IS UNSUCCESSFUL, WAIT 45 MINUTES.

IF ENG. HAS RUN FOR 10 MINUTES, 1 FURTHER START MAY BE
MADE IMMEDIATELY.

FAILURE TO START

1. FIRE WARNING LIGHTS..... OUT
2. J.P.T. AT IDLING E.S.I. 625°C.
3. OIL PRESSURE WARNING LIGHTS.....If on, open up to 45%
E.S.I. and check again
4. HYD. FAILURE WARNING LIGHTS ...Out not higher than 40%
E.S.I. if controls are
not displaced
5. SET NO.2 THROTTLE TO "FAST IDLING" and have the ground
ELECTRICAL SUPPLY DISCONNECTED.
6. STALL WARNING LIGHTOut
7. GEN. FAILURE WARNING LIGHTOut
8. A.C. FAILURE WARNING LIGHTOut
9. FUEL PRESSURE WARNING LIGHTOut

NOTE:

1. 85% E.S.I. NOT TO BE EXCEEDED WITH BOTH ENGINES RUNNING TOGETHER AT THE SAME SPEED.
2. WITH ONE ENGINE IDLING, 50% E.S.I. SHOULD BE MAINTAINED ON THE OTHER TO AVOID DRAINING THE BATTERY; 58% E.S.I. MUST ALWAYS BE MAINTAINED WHEN A.I. QUICK WARM-UP IS REQUIRED.
3. WHEN RUNNING AN ENGINE AT MAXIMUM E.S.I. THE OTHER MUST BE MAINTAINED AT NOT LESS THAN 50% E.S.I. TO AVOID EXCESSIVE J.P.T. ON THE SLOWER-RUNNING ENGINE.
4. SINGLE-ENGINE RUNNING ON NO.1 ENGINE MUST BE KEPT TO THE ABSOLUTE MINIMUM.

AFTER STARTING

1. FLYING CONTROLSFunctional Check
2. CONTROLS TRIMMINGFunctional check & set neutral
3. AIR BRAKESCheck function and indicator
4. FLAPSCheck function and indicator
5. V.H.F.Select frequency required
6. V.H.F. SET SELECTORAs required
7. CABIN AIRON
8. HEATERSON
9. CANOPY BLOWERON
10. TEMPERATURE CONTROLLERAUTO - As required
11. FACE/FEET AIR DIFFUSERAs required
12. HEADING INDICATOR (MK.5FT)Check heading by E2B
compass & check annunciation
13. AUTOPILOT CONTROLLER
 - (a) MASTER SWITCHOn - Indicator white "ON"
 - (b) I.L.S./ATTITUDE HOLDATTITUDE HOLD
 - (c) OTHER SWITCHESOFF
14. AUTOPILOT TRIM INDICATORCentralized
15. AUTOPILOT ENGAGE SWITCHESOFF
16. TACANON & check functioning
17. WHEEL BRAKES3,000 lb/in²

BEFORE TAXYING

1. NESA (PORT & STBD. W'SCREEN)ON
2. TRIPLEX (SIDE W'SCREEN)ON
3. FLAPS (NORMAL TAKE-OFF)Pupil's: UP
Instructor's: Mid-position
4. AIR BRAKESIN & locked
5. TRIMMERSRudder: Neutral
Aileron: Neutral
T/plane: Take-off incidence
6. AUTO TEMP. CONTROLIN
7. FLYING CONTROLSFINAL FUNCTIONAL CHECK
8. FUEL CONTENTS GAUGES &
LOW PRESSURE WARNING LIGHTSFinal check

NOTE:

1. AT 100% E.S.I. CHECK THAT J.P.T. EXCEEDS 675°C., OTHERWISE THE TAKE-OFF MUST BE ABANDONED DUE TO REDUCED THRUST.
2. BRAKES WILL NOT HOLD ABOVE 95% E.S.I.
3. IF ICING CONDITIONS PREVAIL, USE ANTI-ICING DURING TAKE-OFF, RUNWAY CONDITIONS PERMITTING. IF RUNWAY CONDITIONS DO NOT PERMIT, RUN THE ENGINE AT 85% E.S.I. WITH ANTI-ICING ON FOR ONE MINUTE PRIOR TO TAKE-OFF.
4. RUDDER q-FEEL WILL AUTOMATICALLY CUT-IN WHEN THE U/C IS RAISED.

TAKE-OFF

1. DURING STARTS
J.P.T.700°C. MAX.
2. TAKE-OFF & OPERATIONAL NECESSITY
(with and without reheat)
E.S.I.100 ± 0.5% MAX. FOR 10 MIN
COMBINED DURATION
J.P.T.775°C. MAX.
3. INTERMEDIATE
E.S.I.97.5% MAX. FOR 30 MIN
J.P.T.740°C. MAX.
4. MAX. CONTINUOUS
E.S.I.95.5% MAX. UNRESTRICTED
J.P.T.705°C. MAX.
5. APPROACH
E.S.I.60% MIN. UNRESTRICTED
J.P.T.525°C. MAX.
6. GROUND IDLING
E.S.I.31 + 3% MIN. UNRESTRICTED
J.P.T.625°C. MAX.

NOTE:

1. IF 700°C. SHOULD BE REACHED DURING STARTS, CLOSE THE H.P. COCK IMMEDIATELY.
2. BELOW 25,000 FT MAX. REHEAT IS SUBJECT TO A MAX. SPEED LIMITATION OF 600 KNOTS.
3. REHEAT MUST NOT BE LIT AT MACH NUMBERS GREATER THAN 0.9 BELOW 10,000 FT.
4. ABOVE 10,000 FT, WHEN BELOW 200 KNOTS I.A.S., SLAM ACCELERATIONS AND DECELERATIONS SHOULD NOT BE USED.

ENGINE LIMITATIONS

1. CHECK FUEL DOWNWIND400 lb per side MIN.
2. WHEEL BRAKES GAUGE PRESSURE3000 lb/in²
3. AIR BRAKESOUT
4. UNDERCARRIAGE DOWN at 250 knots max.
3 green lights
5. FLAPSDOWN at 230 knots
6. TAIL PLANE TRIMAs required

NOTE:

RUDDER q-FEEL WILL CUT-OUT ON SELECTING U/C DOWN.

BEFORE LANDING

1. BRAKE PARACHUTEJETTISON at 10 knots approx.
2. FLAPSUP
3. AIR BRAKESIN & locked
4. NO.1 ENGINEShut down

NOTE:

NO.2 ENGINE SHOULD BE MAINTAINED AT NOT LESS THAN
50% E.S.I. (EXCEPT IN EMERGENCY) TO AVOID
DISCHARGING THE BATTERY.

SHUT-DOWN

1. THROTTLESH.P. COCKS CLOSED
2. FUEL PUMPSOFF
3. BATTERYBATT. ISOL.
4. WHEEL BRAKES Parking lock on
5. ALL ELECTRICAL SWITCHESOff
6. RAM AIR VALVEOPEN before opening canopy
7. EJECTION SEAT & CANOPY JETTISON
- FIRING UNIT SAFETY PINSFitted

AFTER LANDING

MINIMUM FUEL REQUIRED400 lb per side

1. THROTTLESOpen up smoothly
2. UNDERCARRIAGE.....UP as soon as possible
3. AIR BRAKESIN
4. FLAPSUP at 180 knots

NOTE:

ACCELERATION TO MAX. THRUST CAN BE ACHIEVED WITHIN
5 SEC FROM 60% E.S.I. OR ABOVE.

MISSED APPROACH

DURING TAKE-OFF, IF BELOW SAFETY SPEED
(160 KNOTS LIGHT WEIGHT, 170 KNOTS WITH STORES)

1. THROTTLES.....H.P. COCKS CLOSED
2. BRAKING PARACHUTEStream
3. WHEEL BRAKESApply fully

DURING TAKE-OFF, IF AT SAFE SPEED
(165 KNOTS PLUS)

CONTINUE AT SHALLOW CLIMB ANGLE & RETRACT U/C.
USE REHEAT FOR SHORT PERIOD IF NECESSARY.

DURING FLIGHT, IF DUE TO OBVIOUS MECHANICAL DEFECT

1. THROTTLE H.P. COCK CLOSED
2. RELEVANT FUEL PUMP SWITCH.....Set to remaining engine
3. DO NOT ATTEMPT TO RELIGHT
4. LAND AS SOON AS POSSIBLE

IF NO.1 ENG.No emergency U/C or
braking parachute

ENGINE FAILURE

CONFIRM:

1. AIRSPEED200 knots or 0.8 I.M.N. max.
2. ALTITUDE30,000 ft max.
3. THROTTLEH.P. COCK CLOSED
4. FUEL PUMP SWITCHTo appropriate engine
5. IGNITIONON

AND THEN

6. RELIGHT BUTTONPress firmly for 2 sec
7. THROTTLEIDLING
8. WHEN J.P.T. OR E.S.I. RISES Open up slowly
to desired E.S.I.

NOTE:

1. RELIGHTS ARE OBTAINED MORE EASILY AT LOWER ALTITUDES AND WITH LOWER AIRSPEEDS.
2. SHOULD THE ENGINE FAIL TO RELIGHT WITHIN 20 SEC, CLOSE THE H.P. COCK; WAIT AT LEAST 1 MIN BEFORE MAKING ANOTHER ATTEMPT AT LOWER ALTITUDE.
3. FOLLOWING FLAME EXTINCTION, A RELIGHT MAY BE ATTEMPTED WHILST E.S.I. ARE DECREASING WITH THE THROTTLE AT ITS SET POSITION. PRESS THE RELIGHT BUTTON FOR 2 SEC; SUCCESSFUL RELIGHT WILL BE INDICATED BY E.S.I. STABILIZING, AND THEN COMMENCING TO RISE.

ENGINE RELIGHT

ENGINE FIRE

1. THROTTLE H.P. COCK CLOSED
2. FUEL PUMP SWITCH OFF, or to remaining eng.
3. SPEED Reduce
4. APPROPRIATE FIRE EXTINGUISHER SWITCH Press
5. OXYGEN REGULATORS 100% OXYGEN

NOTE:

DO NOT ATTEMPT TO RESTART THE ENGINE IN FLIGHT AFTER OPERATING THE FIRE-EXTINGUISHER SYSTEM.

ZONE 3 FIRE

ONE LIGHT GLOWING

1. CANCEL REHEAT ON APPROPRIATE ENG. & REDUCE E.S.I. TO 80%

IF THE WARNING PERSISTS FOR LONGER THAN 30 SECONDS

2. THROTTLE H.P. COCK CLOSED
3. FUEL PUMP SWITCH To remaining engine

TWO LIGHTS GLOWING

1. CANCEL REHEAT ON BOTH ENGINES
2. THROTTLE BOTH ENGINES AS MUCH AS PRACTICABLE
3. JETTISON VENTRAL TANK UNLESS EMPTY

NOTE:

THE VENTRAL TANK MUST NOT BE JETTISONED AT MACH NUMBERS GREATER THAN 0.8 BELOW 25,000 FT.

STANDARD WARNING SYSTEM, TURBINE STALL, & A.C. SUPPLIES
WARNINGS GIVEN

1. CUT REHEAT
2. SWITCH OFF ALL NON-ESSENTIAL D.C. LOADS
3. CABIN/STANDBY ALTIMETERSelect STANDBY
4. STANDBY ARTIFICIAL HORIZON SUPPLY SWITCH.....Select
EMERGENCY

NOTE:

1. AFTER FAILURE THE D.C.-OPERATED FUEL PUMPS WILL CONTINUE TO FUNCTION FROM THE BATTERY SUPPLY.
2. IF FLIGHT CONTINUES BEYOND THE USEFUL LIFE OF THE BATTERY THE MAXIMUM SAFE ALTITUDE IS 15,000 FT, AND THE MOST ECONOMICAL SPEED MACH = 0.8.
3. A TEST, SIMULATING THE ELECTRICAL FAILURE CONDITION, INDICATES THAT THE USEFUL LIFE OF THE BATTERY WILL BE 35 MIN, BUT AFTER 32 MIN THE FALL-OFF IN EFFICIENCY WILL BE VERY RAPID.
4. FUEL GAUGE AND J.P.T. INDICATIONS WILL BECOME INCREASINGLY INACCURATE.

AIR TURBINE FAILURE

D.C. ELECTRICAL FAILURE

GENERATOR FAILURE WARNING APPEARS & REMAINS:

1. SWITCH OFF ALL NON-ESSENTIAL D.C. LOADS, e.g. I.L.S., NO.2 V.H.F. SET, A.I.23, AUTOPILOT, MASTER ARMAMENT SELECTOR, TACAN.
2. RETURN TO BASE IMMEDIATELY - Approx. 35 min useful battery life.

IF BATTERY FAILS FOLLOWING FAILURE OF GENERATOR:

1. EMERGENCY LIGHTSON, if required
2. MAKE PRECAUTIONARY DESCENT TO 15,000 FT. - Above this altitude, should the alternator also fail, the engines would flame-out and it is doubtful if relighting could be effected.
3. USE EMERGENCY U/C LOWERING FOR LANDING.

NOTE:

FOLLOWING BATTERY FAILURE NORMAL U/C LOWERING, FLAPS, AIR BRAKES, AND TRIM CONTROLS WILL BE INOPERATIVE, BUT ENGINE FUEL REQUIREMENTS WILL BE MET BY THE A.C. PUMPS.

A.C. ELECTRICAL FAILURE

A.C. WARNING LIGHT APPEARS, FLT. INSTR. SUPPLY INDICATOR CHANGES TO ON (WHITE):

1. IF IN REHEATCancel immediately
2. IF ENGINES FLAME-OUTAttempt relight
3. CABIN/STANDBY ALTIMETERSelect STANDBY

IF GENERATOR FAILS OR IF INDICATED FUEL FALLS TO 600 LB PER SIDE:

1. DESCEND AND CONTINUE CRUISE AT 15,000 FT.
2. STANDBY ARTIFICIAL HORIZON SUPPLY SWITCHEMERGENCY

D.C. OR A.C. ELECTRICAL FAILURE

NO.1 HYDRAULIC WARNING APPEARS:

FULL CONTROL WITH REDUCED HYDRAULIC PRESSURE, BUT NO
EMERGENCY U/C LOWERING OR BRAKING PARACHUTE

NO.2 HYDRAULIC WARNING APPEARS:

FULL CONTROL WITH REDUCED HYDRAULIC PRESSURE.

HYDRAULIC WARNING GIVEN BY STANDARD WARNING SYSTEM:

SIGNIFIES FAILURE OF BOTH "CONTROLS" SYSTEMS. NO
CONTROL POSSIBLE AFTER HYDRAULIC ACCUMULATORS ARE
EXHAUSTED.

POWER CONTROLS FAILURE

IF AN EMERGENCY LANDING HAS TO BE MADE, GUIDED WEAPONS (EXCEPT NON-FIRING DUMMIES) SHOULD BE JETTISONED AS FOLLOWS:-

1. FIRE-AWAY
IN A CLEAR AIR SPACE, AT ALTITUDE, AND ALL RELEVANT CIRCUMSTANCES PERMITTING - OPERATE THE JETTISON BY FIRING SWITCH
2. SIDE WAYS EJECTION
BELOW THE LIMITS OF 5,000 FT. ALTITUDE AND 300 KNOTS I.A.S. - LIFT THE GUARD AND SQUEEZE THE LEVERS INCORPORATED IN THE DROP TANK - PULL TO JETT. HANDLE.

IF THE HANDLE IS PULLED AT THE SAME TIME AS THE LEVER IS SQUEEZED, BOTH THE MISSILES AND THE VENTRAL TANK WILL BE JETTISONED.

MISSILE JETTISON

COMPLETE LOSS OF AIR SUPPLY

1. DESCEND IMMEDIATELY TO 40,000 FT. OR BELOW.
2. RETURN TO BASE AT 350 KNOTS I.A.S. BELOW 20,000 FT.
(IN I.C.A.N. CONDITIONS THIS SHOULD GIVE A REASONABLE TEMPERATURE LEVEL)
3. USE RAM AIR VALVE IF NECESSARY

OVERHEATING

1. SELECT MANUAL ON TEMPERATURE CONTROLLER AND HOLD AT COOL FOR 13 SECS.

IF AFTER 1 MINUTE APPROX:-

- (a) SYSTEM RESPONDS - COMPLETE THE FLIGHT IN MANUAL CONTROL
- (b) TEMPERATURE INCREASES - SELECT CABIN AIR SWITCH OFF AND FOLLOW INSTRUCTIONS AS IN "COMPLETE LOSS" above

OVERCOOLING

1. SELECT MANUAL ON TEMPERATURE CONTROLLER AND HOLD AT WARM FOR 13 SECS.

IF AFTER 1 MINUTE APPROX:-

- (a) SYSTEM RESPONDS - COMPLETE THE FLIGHT ON MANUAL CONTROL
- (b) TEMPERATURE DECREASES - SELECT CABIN AIR SWITCH OFF AND FOLLOW THE INSTRUCTIONS AS IN "COMPLETE LOSS" ABOVE

COCKPIT TEMP. FAILURE

EJECTION SEAT CHECKS

1. CHECK that SAFETY PINS are in HEADREST & SEAT PAN of each seat.
2. CHECK that CANOPY JETTISON FIRING UNIT SAFETY PIN is in position.
3. CHECK that DROGUE GUN SHACKLE is securely attached to DROGUE GUN PISTON. ASCERTAIN that SAFETY LOCK-PIN is removed from DROGUE GUN TRIP ROD, & TRIP ROD is secured to GUN BEAM.
4. CHECK that DROGUE WITHDRAWAL LINE is not trapped under LIFTING LINE.
5. ASCERTAIN that TIME DELAY MECHANISM is properly secured.
6. ASCERTAIN that SAFETY PIN is removed from EMERGENCY OXYGEN CYLINER, & TELL-TALE WIRE is unbroken.
7. CHECK that HARNESS MANUAL RELEASE LEVER is in down position; ENSURE that SEAT HARNESS is locked by operating "GO-FORWARD" control.
8. CHECK operation of seat raising and lowering. Do not exceed limitations given on seat.

(COCKPIT CHECKS OVRLEAF)

COCKPIT CHECKS

(With a.c. and d.c. ground supplies connected)

1. RAM AIR VALVECLOSED & locked
2. DE-MISTING LEVER (RED)CLOSED
3. ANTI-ICING LEVERCLOSED
4. U/C EMERGENCY LOWERING LEVERCheck locking wire
5. FEEL CUT-OUT SWITCHLocked at FEEL UNIT
- * 6. A.I.23 (PUPIL'S CONTROLLER).....Off unless required
7. STANDARD WARNING SYSTEM..Put INSTR. MASTER ON & press
test switch (T).
Press (C) to cancel
attention lights &
audio warnings
8. THROTTLE LEVERS (PUPIL'S)H.P. COCKS CLOSED
9. THROTTLE SERVODISENGAGED
10. AUTO TEMP. CONTROL CUT-OUTIN
11. U/C SELECTOR (PUPIL'S).....DOWN button fully in
12. FLAPS SELECTOR (PUPIL'S)UP
13. FEEL UNIT CUT-OUT INDICATORBlack
14. U/C POSITION INDICATOR3 green lights. Check
(PUPIL'S) lamp changeover &
night/day
15. TACAN CONTROLLER MODE SWITCHOFF
- * 16. P.A.S. RECORDER SWITCH UNITOFF - no light
17. CABIN/STANDBY ALTIMETER SELECTORCABIN
18. FLT. INSTR. SUPPLY INDICATORBlack
(INSTR. MASTER SW. - ON)
19. STANDBY INVERTERNORMAL & locked
20. STANDBY A.H. SUPPLYNORMAL
21. STANDBY ARTIFICIAL HORIZONGyro erected
22. ALTIMETER Mk.22A "OFF" flags masked
- * 23. MASTER ARMAMENT SELECTOROFF
24. TAXI & NAV. LIGHTSCheck & leave off
- * 25. A.I.23 (INSTRUCTOR'S CONTROLLER)..Off unless required
26. FUEL PUMPSOFF
27. ATTITUDE INDICATORErected & OFF flag masked
28. HEADING INDICATOR (Mk.5 FT)Select compass mode &
check OFF flag masked

* Denotes fitted on XL 629 only

COCKPIT CHECKS - cont.

29. MUTE SWITCH (V.H.F.)OFF
30. VENTRAL TANK INDICATORBlack
31. PORT & STBD. WESA (WINDSCREEN HEATER)OFF
32. TRIPLEX (Port PANEL HEATER)OFF
33. CABIN AIROFF
34. CANOPY BLOWERCheck & leave off
35. HEATERS (PITOT & VENT VALVES)OFF
36. FUEL CONTENTSCheck FULL
37. U/C SELECTOR (INSTRUCTOR'S)DOWN button fully in
38. U/C POSITION INDICATOR3 green lights. Check lamp
(INSTRUCTOR'S)changeover & night/day
39. FLAPS SELECTOR (INSTRUCTOR'S)Mid-position
40. BRAKE PRESSURE3000 lb/in²
41. CANOPY LOCK WARNINGLit
42. BATTERYBATT ISOL
43. IGNITIONOff
44. ENGINE START MASTEROff
45. INTERCOM.OFF & NORMAL
46. AUXILIARY WARNINGSTest, & check night/day
47. CONTROL COLUMNS
 - (a) FIRING TRIGGERSSafety catches engaged
 - (b) AUTOPILOT ENGAGE SWITCHESOFF
 - (c) BRAKE LEVER(S)Parked position
48. OXYGEN
 - (a) CONTENTS GAUGEFULL
 - (b) P.E.C.Connect
 - (c) REGULATOR ON/OFF VALVEWire-locked ON
 - (d) REGULATOR GAUGE200-400 lb/in²
 - (e) AIR INLET VALVEWire-locked at 100% OXYGEN
 - (f) MASK FITCheck at MASK TEST
 - (g) REGULATOR FUNCTIONINGCheck remote blinkers.
Select EMERGENCY and
note pressure increase
49. EJECTION SEAT & CANOPY FIRING UNIT
 - SAFETY PINSRemove & stow
50. CLOSE & LOCK CANOPYWarning light out
51. EMERGENCY LIGHTINGTest
52. ANTI-DAZZLE LIGHTINGTest