CHECK LIST CONVAIR 340/440

PRIOR TO ENTERING AIRPLANE

Gear Pins	Removed
Nose Scissors	Connected
Aircraft Cond.	Checked

RECEIVING THE AIRPLANE

Circuit Breakers	In & Up
Ext. Pwr. Batt. Gens.	On
Emerg. DC Pwr. & F/O Instr. Switch	Normal
Inverter Switches	On
Gear Lock	3-Green
Bypass	Down
Console & Anti-ice	Ckd
Fuel Panel 3 Ckt Brks.	In & 4- Capped
Oil Cooler Control	Auto
Boost Pumps	Off
Water-Oil-Gas Quanty.	Ckd
Seat & Smoke	On
Cowl Flaps	Open
Hyd. Pressure	Ckd
Trim Tabs	Ckd & Set
Water	Off
Blowers	Low
Props	High RPM
Carb. Heat	Cold
Mixtures	Idle Cut Off
Firewall Sel	In-Main
Fire Warning	Ckd
Radios, Altimeters & Clocks	Ckd
*Service Door	Ckd
Main Cabin Door	Closed

ENROUTE BEFORE START

Parking Brakes	On
*Starter Arm	Start
*Rear Service Door (If Door Has Been Opened)	Ckd

AFTER START

*Fuel Boost, Eng. Sel & Ext. Power	Off
* Cowl Flaps	Open
* Starter Arm	Normal
Door Warning Light	Out
All Clear Salute	Recvd

BEFORE TAKE-OFF

*Gas-Oil-Water	Ckd
*Flaps	Set
*Gens-Inverters-Nesa	Ckd
Instrument Panels & ILS X-Over	Ckd
Trim Tabs	Set
*Carb. Heat	Ckd & Cold
Engine Run Up	
Mixtures	Rich
Temps & Pressures	Ckd
Auto Feather	Check
Magneto	Check
Alternator	Check
Blowers	Low
Auto Feather	Green & 2-red
Props	High RPM
Press. Control	Auto
Controls	Free & Full Travel
Water	On & Pressure
*Cowl Flaps	Mid
V_1 & V_2	V_1 & V_2 IAS

DURING TAKE-OFF

F/O Call	
Red Lights	Out
Water	Flowing
Door Warn. Light	Out
VMC, V_1 & V_2	

AFTER 2600

Water	Off

AFTER 2400

*Auto Feather	Off
*By Pass	Up

IN RANGE

*Cabin Press.	Set
*Seat Sign	On
Altimeters	Set
Hyd. Fluid	Ckd
*By Pass	Down
Hyd. & Air	Ckd
*Carb. Heat	As Required
*Blowers	Low
*Fuel Valves	Ckd
Fire Warn.	Prior to CrewTerm.

LANDING CHECK

*Smoke Sign	On
*Mixtures	Rich
*Flaps	Set
*Gear	Lock 3-Green
Brakes	Off
*Reverse Lock	In
Water	On
Props	High RPM

AFTER LANDING

*Water	Off
*Flaps	Up
*Cowl Flaps	Open

PARKING AIRPLANE

Brakes	Set
Ignition	Off
*External Power	On
Anti-Ice	
*Captain's Panel	4-Off
*F/O's Panel	Off & Sftd.
Gust Locks	On
*Roto Beacon	Off
Radar	Off

IF TERMINATING

Oil Coolers	Off
Press. Control	Auto
By Pass	Up
Emer. Light	Off
Time/Log book	Complete

UNFEATHERING

Captain Execute	
Airspeed	130 Kts (Max)
Call	Check List
F/O Execute	
Mixture	Idle Cut Off
Throttle	Closed
Prop	Low RPM
Firewall Cut Off	Open
Carb. Heat	Cold
Fuel Valve	On
Ignition	On
Generator	On
Both Inverters	On

CALL

Check List Completed

Unfeather (2 sec max)
Mixture - Rich after governor takes over (approx 1200 RPM)

* Challenge and response normally by First Officer

ENGINE STARTING PROCEDURES

C		1.	Note MAP reading before start (to use for Mag check.)
C	F/O	2.	Obtain clearance from ground attendant to start right engine.
C		3.	Throttle at 800-1000 RPM position.
C		4.	Right boost pump ON.
C		5.	Engine Starter Selector - Right
C		6.	Starter - engage. (Turn through 12 prop blades if engines have been standing for 30 minutes or longer; through 6 prop blades if less than 30 minutes.) Watch closely for any indication of hydraulic lock.
	F/O	7.	Count prop blades.
C		8.	Call - Ignition.
		9.	Starter Time Limit (If a start is not accomplished within a reasonable time, an investigation should be made to ascertain the cause. Starter should not be operated for more than one minute of continuous cranking. After one minute of operation, one minute should be allowed for cooling before operating starter again. After second and succeeding cranking cycles, allow five minutes for cooling period.)
C		10.	Boost & Prime - Toggle prime until engine has started and RPM stabilized at 800-1000 RPM. (If the engine backfires while starting, use a little more prime and retard the throttle slightly. With an extremely cold engine, it may be necessary to apply intermittent priming after start to keep the engine from backfiring and to maintain engine speed. If the engine becomes loaded during attempted start, disengage primer, place mixture control in idle cut-off and keep engine turning with the starter (with Boost Switch engaged) until cleared out, at which time the engine should start firing. Then prime as required and continue as per normal starting procedure.

NOTE: In cases where the idle cut-off is suspected or known to be leaking, the use of boost pump should be delayed until ignition is turned ON.

Engine Starting Procedure (Continued)

F/O 11. Mixture Rich

C A U T I O N

If engine oil pressure or compressor oil pressure does not register almost immediately, stop engine and investigate.

C 12. Fuel Boost . . . . . OFF
F/O 13. Hydraulic system Pressure. . . . . CHECKED
C 14. Main Cabin Door . . . . . CHECK FOR CLOSED
C F/O 15. Repeat starting procedure for left engine
16. Do not increase RPM above 1000 RPM until engine oil temperature indicates at least 40°C.

AFTER START

F/O FUEL BOOST, ENGINE SELECTOR, AND EXT. POWER . . . . . OFF*
F/O COWL FLAPS . . . . . .OPEN
F/O STARTER ARM. . . . . .NORMAL
C DOOR WARNING LIGHT . . . . . .OUT
C ALL CLEAR SALUTE . . . . . .RECEIVED

* As a standard procedure, the Captain will turn switches OFF immediately after start. The F/O will check these items when going through the After Start Check List.

TAKEOFF

Turn from the warm-up position to the takeoff direction at a slow rate of speed to avoid excessive side loads on the main landing gear tires, skidding of the nose wheel, and passenger discomfort . Start takeoff run from the end of the runway. The calculation of the permissible takeoff gross weight is based on the entire runway; therefore, the use of less runway would in many cases be in violation of FAR. Before starting the takeoff roll, visually checking that the cowls are in the MID position is recommended.

Use the steering wheel to maintain the direction of roll until VMC (87 kts). Rudder becomes effective at approximately 45 knots. Allwing the nose wheel to remain on the runway produces a low drag attitude which results in faster acceleration.

Takeoff (Continued)

In the event of any indication of wheel or tire trouble, such as a blow out, during the take-off run, do not raise the gear until the wheel rotation has stopped. While the gear is still down and locked, gentle and gradual application of the brakes will aid in stopping the wheel rotation. Serious nacelle damage can result from rotation of blown tires or loose treads.

The takeoff warning horn will sound (intermittent beep) if the throttles are advanced beyond the 45" position and flaps are fully up. The horn may be silenced by pressing the button switch on the control pedestal.

There have been some cases where the static vent openings and lines have been obstructed by ice, usually occurring after an aircraft has been washed and then taken outside into freezing temperatures. In the event of any indication of erratic airspeed, altimeter or rate of climb during the take-off roll prior to V_1 speed, consideration should be given to discontinuing the takeoff. If erratic instrument indications occur after passing V_1 speed and insufficient runway remains to stop, the Captain's and First Officer's static selectors should be placed in the alternate position. Lift off should be positive, and primary pilot reference should be to the artificial horizon and an attitude of approximately 1/4 to 3/8 inch climb profile should be maintained in relation to the horizontal bar, together with directional control. Takeoff power should be maintained until clear of all obstacles. Power reduction and changes of altitude are at the discretion of the Captain and accepted operating procedures. It is also recommended that pitot heat be put on at the start of the takeoff run when freezing or near freezing temperatures exist and where it is suspected that the aircraft has been washed.

In the event of engine failure on takeoff after reaching 300 feet, let airspeed accelerate and retract flaps on a suggested schedule of one degree flaps "UP" for each knot of airspeed above V_2. Flap retractions in 5° increments will provide the least loss of altitude and still retain the best attitude and speed control.

LANDING

Power effects at low speed are important in landing operations and an understanding of these effects is vital to the operation of large multi-engine airplanes. Cutting the power at low airspeed results in a loss of wing lift, a large increase in drag due to the windmilling propellers, and a consequent change in glide path angle of the airplane due to the reduced L/D ratio. Large flap deflections reduce the L/D ratio and magnify the power effects since more power is required for operation at a given speed with increased flap deflection. Cutting the power, therefore, produces a great effect both as to drag increase and lift loss. Much improvement is obtained at large flap deflections by maintaining some power during the landing flare. If wing flaps cannot be extended, the following is a procedure that has worked well for training flights: Approach with an attitude profile of approximately one bar width, nose high on the artificial horizon, controlling airspeed generally with the elevators, and the rate of descent with power. It will generally be found that when starting a final approach approximately two miles from touchdown and at 800-900 feet of altitude that 21 inches MAP will be sufficient, and there will be a slow reduction in power to 10-12 inches over the end of the runway. Recommended approach speed of 120 knots and landing speed of 115 knots is recommended for no flap landing.

LANDING ROLL

1. Do not raise the nose wheel after it has been grounded and normally do not use reverse thrust or apply brakes until the nose wheel has made contact with the ground. The nose wheel will be mechanically centered and the steering inoperative as long as the nose wheel shock strut is extended.

PROPELLER LANDING ROLL - PROPELLER REVERSING

1. Reversing is accomplished by placing the throttles in the FORWARD IDLE position, pulling out the reverse override "T" handles and pulling throttles into REVERSE range. The throttles must be placed in the FORWARD IDLE position or the reverse override "T" handles will not latch in the out position. Unreversing is accomplished by moving the throttles just forward of the FORWARD IDLE position. Then the reverse override "T" handles latch will be released and they will snap in and the throttles cannot be reversed. When reversing or unreversing, move the throttles

Propeller Landing Roll - Propeller Reversing (Continued)

slowly but steadily through the detent. Maintain at least 1000 RPM when passing through the detent to prevent loss of generator output.

It should be noted that the reverse override "T" handles will latch out when one throttle is at the idle position and the other throttle is FORWARD. This is representative of the one engine out condition and permits reversing the operative engine in case the pilot prefers stowing the throttle of the inoperative engine at the FULL FORWARD position; however, with one throttle forward, a noticeably greater force is required to pull out the reverse override "T" handle.

Reversing of the propellers, while providing deceleration, may also cause increased propeller erosion at low forward speeds in areas where dirt, stones, etc. can be drawn through the propeller. This exposure to erosion will depend on runway width and cleanliness. Where runways are not clean and/or wide it is suggested that reversing not be applied below a speed of 50 knots.

Propeller reversing should be checked during the landing roll even though an excess length runway does not require use of reverse thrust. In this case, return propellers to forward thrust at first indication that reverse system is operating properly.

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PARKING

If heavy brake applications were made on landing, allow sufficient time for the brakes to cool before setting the parking brakes.

In cold weather (2°C OAT or below) close the cowl flaps after the cylinder heads are below 150°C in order to maintain the engine temperatures within the range at which starts may be made without preheating. Straighten nose wheel before coming to a complete stop. A sudden stop with nose wheel cocked may cause fuselage distortion to the extent that main entrance door cannot be closed if airplane is not moved prior to the next trip. If the stairway hits the ground hard upon extending, it may be due to air in the hydraulic system. A bleed valve, being installed at airplane overhaul, will allow easy air bleeding of the system. Bleeding can be accomplished simply by holding the selector valve to the DOWN position for several minutes.