Flights ADF Navigation, VOR Navigation, Upgrade Checkride and Partial Panel IFR for FS2000

This package consists of four flights that total approximately 2+40 of flying time. When you complete ALL FOUR flights, you will receive credit for 3+00 hours flying time plus a BONUS of 20 hours. You must be a Senior Captain (80 hours) or higher to qualify to fly these missions.

PIREP will be: DCA Pilot Number, Your current total flying time including these flights (1380 minutes), your name, flight name (Upgrade), time of this flight in minutes. Mine would read: 324, 1099.5, PIREP, Achor, Upgrade, 1380

These flights were developed and customized for FS2000. The instructions are specifically for this version.

The four flights are: IFR ADF Navigation with an instrument approach, IFR VOR Navigation with an instrument approach, a check ride including touch and go landing, short field landing & takeoff, single engine IFR approach and go-around plus a VFR pattern and landing. The final challenge is to get from downwind at Meigs Field to O'Hare in IFR conditions using only partial panel instruments.

HONOR SYSTEM - You will fly these flights on the honor system and when you have completed them satisfactorily, send the following single PIREP: calculate your total time with this bonus, add 1380 minutes to your current flying time.

[your pilot number], [total hours INCLUDING this flight], PIREP, [your name], Upgrade, 1380

The FSNavigator (FSN) flights provided with these flights were saved in version 4.3. If they are used, the moving airplane should be turned OFF.

NOTAM - Notices To Airmen

If you do not understand how to enter VFR (Visual Flight Rules) traffic patterns or how to complete a 90 / 270 Procedure Turn or a Teardrop Procedure Turn, do some reading before flying these legs. Check the Technical Editor page on the DC-3 Airways web site for more information. Look for the "Turn yourself around ... " article in the Navigation section.

If you have never flown partial panel instruments, you are in for a treat. Things can happen and go bad in a hurry. I suggest you read my partial panel essay - see the "partial-panel.pdf" file included in the package.

Abbreviations used in the flight plan descriptions:

AGL	Above Ground Level	Length	Length of runway
Approx	Approximately	METO	Max (power) Except Take Off
BOD	Beginning Of Descent	MSL	Mean Sea Level
Dpt	Depart	NDB	Non Directional Beacon
DIR	Direct	OB	Out Bound
DR	Dead Reckoning	Rwy	Runway
Elev	Runway Elevation	VOR	VHF Omni Range
HDG	Heading		

Flight plans - FSNavigator (FSN) are provided for the two navigation legs (ADF & VOR) and the checkride. FS2000 files (WX & FLT) are provided for all four flights.

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INSTALLING FLIGHT PLANS

(1) FSNavigator (FSN) ver. 4.3 plans -If you did a default installation of FS2000 the path to the simulator is:

C:\Program Files\Microsoft Games\FS2000

A default installation of FSN creates folders in FS2000 shown below

C:\Program Files\Microsoft Games\FS2000\Modules\FSNavigator\Plan

Copy the three FSN files to that Plan folder (or a sub folder of your choice under the Plan folder).

upgrade-nav-adf.fsn upgrade-nav-vor.fsn upgrade-checkride.fsn

Open FS2000 and choose the FSN files as you normally would.

(2) Flights and Weather files for FS2000

Copy all eight files shown below to this folder (assuming a default FS2000 installation)

C:\Program Files\Microsoft Games**FS2000\Pilots**

upgrade-nav-adf-2000.FLT	upgrade-nav-adf-2000.WX
upgrade-nav-vor-2000.FLT	upgrade-nav-vor-2000.WX
upgrade-partial-panel-2000.FLT	upgrade-partial-panel-2000.WX
upgrade-checkride-2000.FLT	upgrade-checkride-2000.WX

To open a flight in **FS2000**, use the menu: Flight | Select Flight, and scroll down in the "Available Flights" list and launch the flight:

upgrade-nav-adf-2000
(or) upgrade-nav-vor-2000
(or) upgrade-checkride-2000
(or) upgrade-partial-panel-2000

You will be placed at the proper place (airport runway or in the air for partial panel) with the correct weather set.

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Upgrade flights. Description for ADF and VOR navigation flights

From / To	Flight Description	Course (Leg)	Dist. (Leg)	ETE (Leg)
Upgrade- Nav-ADF	**Hand fly, no autopilot. Print approach plate: UK-Elstree-NDB RWY 08.pdf and use your DC-3 / R4D of choice (default set for FS2000 is R4D NATS v4.10).** **Must be flown with these files installed:** **upgrade-nav-adf-2000.FLT & upgrade-nav-adf-2000.WX** **An FSNavigator map is available for this flight, see upgrade-nav-adf.fsn**			
Castle Mill EGSB to Elstree EGTR	Initial Altitude - 4000 = Dpt Rwy 25, (Elev 68, Length 2100 x 200, grass) = DIR Cranfield, CIT NDB (850.0) ---------- = Fix 01 (Turweston airfield) ---------- = Fix 02 (261 deg radial CIT NDB, 0+20 minutes from takeoff) --- = Intercept the 005 deg radial (185 inbound) BZ NDB (386.0) = Brize Norton, BZ NDB (386.0) ---------- = BOD to 3000 = Wescott, WCO NDB (335.0) ---------- = BOD to 2500 = Chiltern, CHT NDB (277.0) ---------- = At CHT NDB execute NDB RWY 08 approach to Elstree --------- Land Rwy 08, (Elev 331, Length 2137 x 98, asphalt) **Approximate Totals**	 267 261 261 185 080 135 080	 6 21 20 12 25 22 7 106	 0+03 0+09 0+08 0+05 0+10 0+09 0+03 0+47

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From / To	Flight Description	Course (Leg)	Dist. (Leg)	ETE (Leg)
Upgrade- Nav-VOR	**Hand fly, no autopilot. Print approach plate: UK-CRANFIELD-ILS22.pdf and use your DC-3/R4D of choice (default set for FS2000 is R4D NATS v4.10).** **Must be flown with these files installed:** **upgrade-nav-vor-2000.FLT & upgrade-nav-vor-2000.WX** **An FSNavigator map is available for this flight, see upgrade-nav-vor.fsn**			
	Initial Altitude 5000			
Lyneham AB (EGDL) to Cranfield (EGTC)	= Dpt Rwy 25, (Elev 511, Length 7803 x 150, asphalt = Left turn to 147 deg, track inbound 147 deg to Southhampton, SAM VOR (113.35) ---------- = Compton, CPT VOR (114.35) ---------- = Cranfield, CFD VOR (116.5) ---------- = BOD to 2500 = Cranfield, CIT NDB (850.0) ---------- = At CIT NDB, execute ILS 22 to Cranfield Land Rwy 22, (Elev 360, Length 5906 x 151, asphalt)	147 013 038 036	43 33 42 4	0+18 0+13 0+17 0+02
	Approximate Totals		122	0+50

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Upgrade Checkride

Upgrade from 1st Officer to the Captain's seat. Hand fly, no autopilot.

= In real life, you would have a copilot or check pilot to handle radios, etc. Use the Pause (P) key to simulate that second person in the cockpit. Also use Pause to set up the engine out and restart procedures. This flight is not done in the normal charter format. It is presented as if the Check Pilot was issuing the instructions. Fly this with your DC-3/R4D of choice (the default airplane is the R4D NATS ver. 4.10 for FS2000).

= Use an instrument "hood" to simulate the IFR portion of the flight (a "hood" description is available on the DCA Technical Editor page in the "Real Life vs. Flight Simulator" section).

= In case you haven't "caged" an engine before, here's how:

= Simulated Engine Failure (example, shut down left engine)

Type "e" then "1" to specify left engine. Reduce throttle to idle and prop to min rpm (use key commands or the mouse)

Type "e" then "2" to specify right engine - Control of right engine is returned to joystick and key commands

= Restart the engine (example, restart left engine)

Type "e" then "1" to specify left engine - Increase prop to max rpm & throttle to match the right engine (use key commands or the mouse).

Type "e" then "1" then "2" to return control of both engines to the joystick and key commands

This may not exactly duplicate an engine out, but it'll give you enough yaw to challenge you.

Use FSNavigator flight plan “upgrade-checkride.fsn” -- flight time approximately 0+50 minutes.

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Checkride Instructions

Open FS2000 flight: upgrade-checkride-2000

= KBOS, Logan, Boston (elev 19'), Rwy 33L. Take off and climb to 1,500' MSL

- Direct to Shaker Hill, SKR NDB (251.0), heading 320
- Then 310 degrees direct to Hanscomb Field, KBED (elev 131')
- Enter left downwind for Rwy 11 at 1,200'MSL
- Execute a short field landing
- Execute a short field takeoff from landing position on Rwy 11 and climb to 1,500'

= Direct to LW NDB (402.0), heading 037. Don't land at the runway just short of LW.

- Maintain heading to intercept localizer to Lawrence Municipal
- Cleared to land Rwy 05 at Lawrence Muni, KLWM, (elev 147') VOR 112.5, ILS 111.7 (Final Hdg 054)
- Execute a touch & go landing, Rwy 05

= Direct to Topsfield NDB, TOF (269.0) at 1,500' MSL, heading 156

- Direct to Lyndy (LQ) NDB (382.0), heading 197
- Inbound to Lyndy (LQ), simulate an engine failure* - put on the instrument "hood" and complete a single engine ILS to 500' MSL and execute a single engine go around
- Continue inbound to intercept localizer for ILS (110.3, Hdg 215) to KBOS Rwy 22L (elev 19')
- Simulate engine restart* and enter a left downwind, 1,000' MSL for a full stop landing on Rwy 22L and beware of large dock crane left of centerline on short final.

* See instructions on the previous page for simulated engine failure & restart.

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Partial Panel IFR

If you have never flown partial panel instruments, you are in for a treat. Things can happen and go bad in a hurry. I suggest you read the whole story in the "partial-panel.pdf" file included in the package.

Premise (Setup) of Flight

Setup - open flight simulator and select the appropriate partial panel flight.

Select the flight simulator flight
upgrade-partial-panel-2000

When you select this flight in Microsoft Flight Simulator, you will find yourself at 2,000 feet on a right downwind for Runway 36 at Meigs Field (default airfield), USA. Your heading is 180 degrees.

Cockpit settings - most times the R4Ds and DC-3s start with cockpit switches OFF. Make sure the Lights (Landing, Beacon and Nav) are ON (and the door closed). Check the Fuel Boost Pumps are also ON.

The default plane for the flight is the DC-3 Airways R4D-6 NATS v4.10. If you choose to fly another plane, you will have to select it. THEN you must fail the instruments via the menu: Aircraft | System Failures, then in the System Failures dialog box place a tick mark (X) in the "Failed" column for both the Attitude Indicator and the Heading Indicator.

Weather is set to stratus overcast (8/8), tops at 5000, base at 1300, visibility 3 nm and winds light & variable.

The flight is Paused, so hit the "P" key to un-pause. The weather is set to 3-mile visibility; you'll find you are immediately on instruments. As you scan them, you note that the Attitude Indicator has failed and you also suspect the Directional Gyro is gone as well.

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Radios are set to:

VOR 1 (110.5)	ILS O'Hare (KORD) Rwy 27R	OBS is set to 271 degrees (final heading)
VOR 2 (113.9)	O'Hare VOR	Use for DME information
ADF, NDB (414.0)	Outer Marker	Rwy 27R

Your Job - get the plane on the ground

You are facing an overcast down to about 500 feet AGL and 3 nm visibility.

= Get the plane under control on Partial Panel (Airspeed, Vertical Velocity Indicator, Altimeter, Turn & Slip Indicator and Magnetic Compass)

= Turn left to 090 degrees. Climb from 2,000 feet to 2,500 feet

= Turn left to a heading of 360 degrees. Fly north until you intercept the Localizer for Chicago O'Hare (KORD) Rwy 27R. The ADF needle should provide information so you can lead the turn to final approach heading.

= On the glide slope, descend to 1,200 feet (Rwy elevation, about 670 feet) and you should break out of the overcast and be able to see the runway.

= Land Rwy 27R.

CONGRATULATIONS - you've just conquered one of the toughest challenges in flying.

Go back to page 1 and send the PIREP that covers these flights plus the bonus.

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