Attachment 2

Operations Group Chairman's
Factual Report

DCA06MA009

OPC Procedures

Introduction

This chapter provides aircraft performance charts to allow safe completion of a flight in the absence of access to information from the Onboard Performance Computer (OPC). The charts presented here are for backup and are not designed for routine use in daily operations.

Information concerning the use of the OPC to calculate information for off-line airports and shortened runway conditions is presented because these are rarely used features. Complete information on use of the OPC can be found in the Flight Reference Manual.

Onboard Performance Computer

As allowed by FARs, the OPC is an approved, modified presentation of the performance data contained in the FAA Approved Airplane Flight Manual. The Takeoff Module is used to determine the maximum allowable takeoff weight (under FAR requirements) and to provide related operational data such as takeoff speeds, flap settings, and engine power settings.

Dispatch uses the Dispatch Landing Module to determine the maximum allowable landing weight (under FAR requirements) at a destination airport and, if necessary, at an alternate airport.

The Landing Module provides operational landing data, including landing distances, approach and landing speeds, and go-around power settings.

Notes:

- When using the OPC, confirmation of input parameters and output data by both Crewmembers is critically important and must be emphasized. The use of the OPC should be included in the CA's start of the month/sequence briefing.
- Do not leave the OPC lying for an extended period on the glareshield or in any location with direct sunlight. The screen may turn black and become unreadable. The OPC requires the same care as a laptop computer.

OPC Failure Procedure

If any part of the OPC system becomes inoperative, make an entry in the logbook, and contact Dispatch to consult MEL constraints and to request the appropriate takeoff data and Dispatch Release amendments.

Dispatch will require the following Pilot supplied information:

1. Departure airport and runway
2. ATIS information
3. Runway condition
4. Preferred flap setting
5. Anti-ice configuration
6. Actual takeoff weight

Dispatch will calculate and communicate the following information to the Pilot:

1. Flap setting
2. Vspeeds
3. Assumed temperature (SEL TEMP)
4. Maximum takeoff thrust setting
5. Reduced takeoff thrust setting
6. Stopping margin

The Pilot will read back the information to confirm correct data.

OPC Normal Takeoff Planning Overview

When computing takeoff data the following steps will be completed as required:

1. Turn the OPC on and go to the Onboard Performance System Menu screen.

2. Verify that the aircraft tail number is correct.

3. Verify that the Airport Database date is current.

4. Select "Performance Modules" and again verify the tail number and airport database date on the Module Menu screen.

5. Calculate the maximum weights for the desired runways. The maximum takeoff power setting will be displayed on the Takeoff Output screen just below the ATIS box and will enable completion of the "BEFORE START" checklist.

> **Note:** There may be minor differences between the FMC and the OPC for the maximum takeoff N1 because the FMC does not use the actual pressure altitude as does the OPC. If the difference between the FMC and OPC values is greater than 1.0%, use the OPC value.

6. The ATOG value is entered from the Dispatch Release.

7. The zero fuel weight is entered from the Loading Schedule. All five or six digits must be entered to include the last two index unit digits.

8. The Takeoff Weight is entered from the Loading Schedule. All five or six digits must be entered to include the last two index unit digits.

9. Highlight the takeoff runway on the Takeoff Output screen and select "OK" to compute the takeoff data.

Shortened Runways

The OPC provides the ability to calculate performance for shortened runways and temporary obstacles. To enter this NOTAM information:

- Go to the Runway Directory for the effected airport.
- Click on the effected runway.
- Click on the "NOTAM" button at the bottom of the screen.
- Enter the NOTAM data into the appropriate boxes.

Click "OK" to save inputs and return to the runway directory. The runway length displayed will be the new length available. A "#" will also appear next to the runway designator to indicate that NOTAM data has been entered.

Runway Conditions

The following are definitions of runway conditions used by the OPC:

DRY

More than 75% of the runway surface is dry or has insufficient moisture to appear reflective.

WET-GOOD

More than 25% of the runway is covered with sufficient moisture to appear reflective, but there are no significant areas of standing water. Treated runways (i.e., grooved, etc.) should not be considered as having standing water. Braking action is reported as GOOD.

WET-FAIR

More than 25% of the runway surface is covered with sufficient moisture to appear reflective, but there are no significant areas of standing water. Treated runways (i.e., grooved, etc.) should not be considered as having standing water. Braking action is reported as FAIR.

WET-POOR

More than 25% of the runway surface is covered with sufficient moisture to appear reflective, but there are no significant areas of standing water. Treated runways (i.e. grooved, etc.) should not be considered as having standing water. Braking action is reported as POOR.

Note: "WET" runway conditions cover distances for braking actions only.

THIN CLUTTER

More than 25% of the runway surface is covered with the following:

- 0.125 inch to 0.25 inch standing water or slush
- 0.125 inch up to and including 0.50 inch wet snow
- 0.75 inch up to and including 2 inches dry (loose) snow

0.50 IN CLUTTER

More than 25% of the runway surface is covered with the following:

- Greater than 0.25 inch up to and including 0.50 inch standing water or slush
- Greater than 0.50 inch up to and including 1.00 inch wet snow
- Greater than 2 inches up to and including 4 inches dry (loose) snow

Takeoff Limitation Codes

The follow codes may be displayed whenever a takeoff weight is calculated:

Code	Definition
AIOAT	Anti-ice operation not allowed for the entered OAT
ATOG	Limited by entered ATOG
BRAKE	Brake energy limit
CLIMB	Second segment climb limit
MNOAT	Entered OAT is below the minimum certified temperature
MXOAT	Entered OAT is above the maximum certified temperature
NOISE	Limited by airport noise restrictions
OBSXX	Obstacle clearance limit based on obstacle number XX
PRALT	Calculated pressure altitude exceeds the certified environmental envelope
RUNWY	Runway limit
STRUC	Structural limit
TIRES	Tire speed limit
TURNR	Turn radius limit
TWIND	Tailwind limit exceeded
XWIND	Crosswind limit exceeded

OPC Normal Landing Overview

The OPC will compare the actual weight entered against the maximum approach climb limit weight and the maximum structural landing weight. If the actual weight is greater than either of these two values, an "OVERWGT" indication will appear and LANDING IS NOT AUTHORIZED except in an emergency. If an "OVERWGT" indication is shown, the Pilot may try a different flap and/or bleed setting to find a valid landing configuration.

If the RVR is less than 4000, the Landing Module can be used to determine whether or not the low visibility landing requirements can be satisfied for a particular runway. The "RVR<4000" button must be selected on the Landing Input screen. If performance is limited by low visibility requirements, a code of "RWY" will appear for those runways on which you cannot land.

If the AIII mode of the HGS will be used for landing, the "HUD/AIII" button must be selected on the landing input screen. This will increase the required touchdown distance by 1000 feet.

The advisory landing distance information is provided to give an indication of the braking effort necessary to stop the airplane within the available landing length. The 3 distances provided are based on 3 different deceleration rates. Individual Pilot braking technique and experience will provide equivalent braking efforts that can then be related to the OPC output. The MAX distance is based on maximum manual braking (without the use of thrust reversers) at touchdown.

Approximate Stop Margins

The approximate stop margins calculated by the OPC are based on three different levels of deceleration as defined by the auto brake system and are based on touching down 1500 feet from the threshold. The MIN(2), MED(3), and MAX(M) values are calculated using the deceleration rates for auto brake settings 2, 3, and Max, respectively. The stop margins include the effects of reverse thrust (**-300/-500**: stop margins do not include the effects of reverse thrust).

When not using auto brakes, MIN braking can be approximated by accomplishing a normal landing using spoilers and reverse thrust with light manual braking initiated at approximately 80 knots. MED braking can be approximated during a normal landing by initiating manual braking at approximately 100-110 knots. MAX braking can be obtained by smoothly applying full brake pedal pressure immediately after main gear touchdown.

If a runway has brackets ("[ ]") displayed around the MAX stop margin, the required stopping distance for the selected flap setting exceeds the available runway length. DO NOT ATTEMPT TO LAND ON THAT RUNWAY. Use of more flaps may allow landing on the desired runway.

Dispatch Landing Limitation Codes

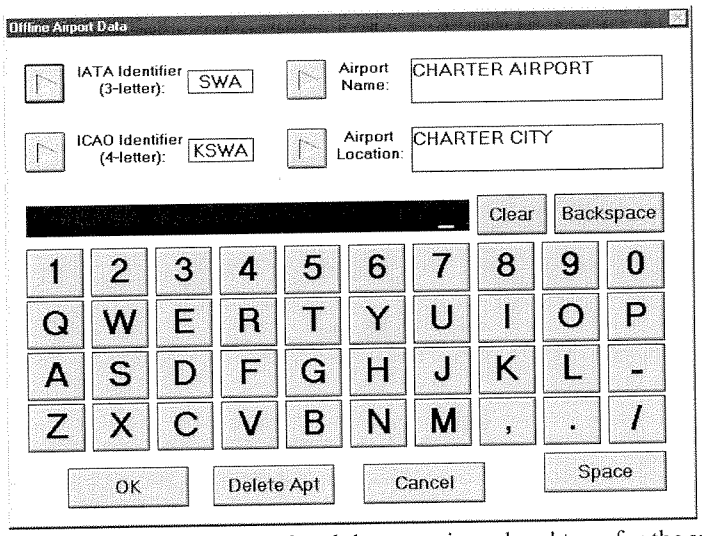
The following codes may display when a Dispatch landing weight is calculated:

Code	Definition
AIOAT	Anti-ice operation not allowed for the entered OAT
BRAKE	Maximum quick turnaround limit
CLIMB	Approach climb limit
FLP40	Flaps 40 landing not allowed
MFAVR	Limited by most favorable runway in still air
MNOAT	Entered OAT is below the minimum certified temperature
MXOAT	Entered OAT is above the maximum certified temperature
PRALT	Calculated pressure altitude exceeds the certified environmental envelope
RUNWY	Landing runway limit
STRUC	Structural limit
TWIND	Tailwind limit exceeded
XWIND	Crosswind limit exceeded

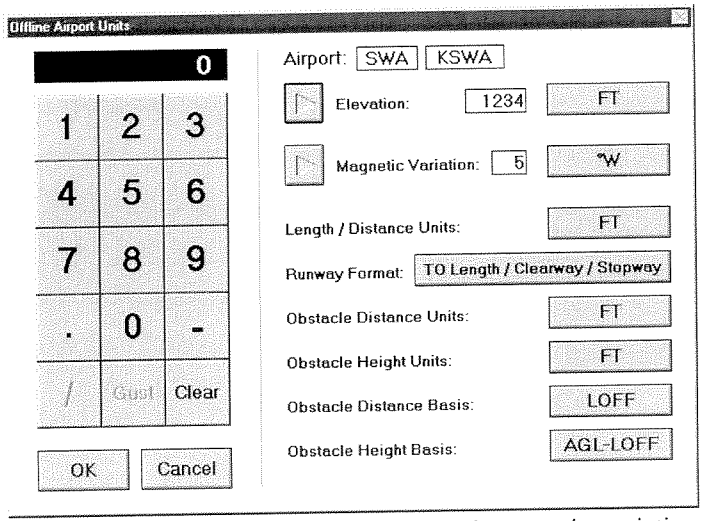
Off-line Airport Data

The program database stores airport and runway data including all line stations and many charter and alternate airports. If operations are required at an airport not in the current database, enter the data using the Offline Airport Data option. Dispatch will provide all required information.

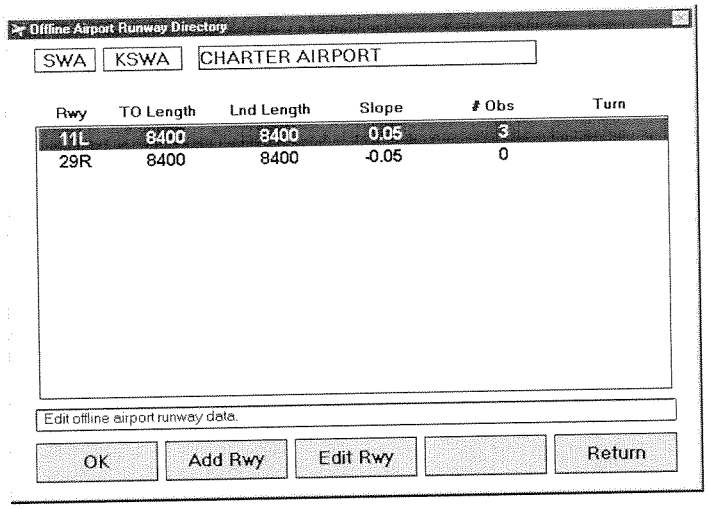
- From the OPS menu screen, click on "Off-line Airport Data," then "Select."



- Enter the 3-letter identifier on the alphanumeric pad and transfer the value to the appropriate location.
- Enter the 4-letter identifier, airport name, and location.
- Click "OK" to continue to the Off-line Airport Units screen.

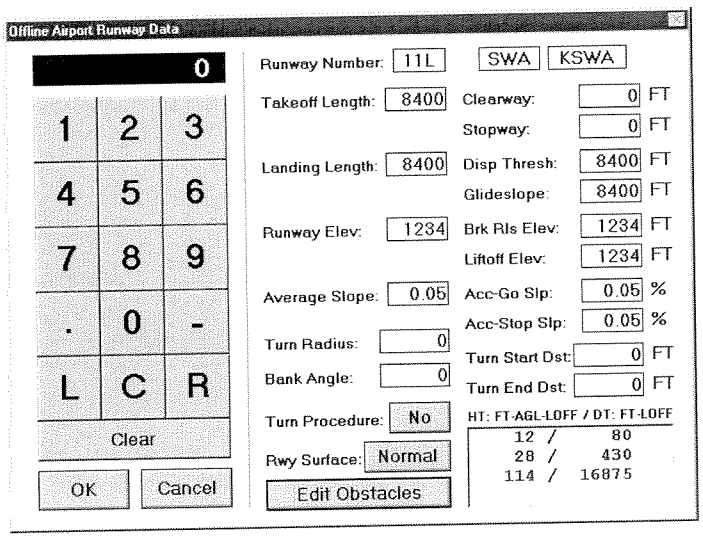


- Click on the keypad the airport elevation and magnetic variation and transfer the values to their respective entries.
- Click on the units buttons if required.
- Click "OK" to continue to the Off-line Airport Runway Directory screen.

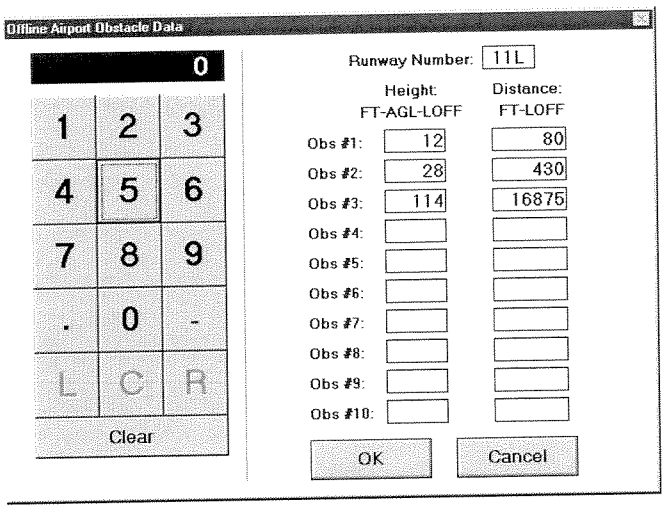


The Off-line Airport Runway Directory is where runways can be added or edited.

- Click the "Add Rwy" function button to continue to the Off-line Airport Runway Data screen to add a new runway.
- To edit an existing runway, scroll to and select the desired runway and click the "Edit Rwy" function button.



- Click on the keypad and transfer the required values.
- Click on "Edit Obstacles" button to add obstacles.



- Click on the keypad and transfer the required obstacle values.
- Click "OK" to return to the Off-line Airport Runway Data screen.
- Click "OK" on the Runway Data screen to return to the Off-line Airport Runway Directory screen.
- Add or Edit additional runways as necessary.
- Click "OK" to return to the OPS Menu screen.

Once Off-line Airport data has been entered, it is stored in the airport database and can be selected the same as any other airport. All off-line airports will appear at the end of the Airport Directory listing and will be identified by an asterisk "*" next to the airport name.

General

Max Climb Power Setting

This table shows the max climb power setting with normal engine bleeds for packs on and anti-ice off.

Go-around Power Setting

This table shows the go-around power setting with normal engine bleeds for packs on and anti-ice off. Enter the table with airport pressure altitude and reported OAT or TAT and read power setting.

V_{REF}

The reference speed table contains Flaps 40, 30, and 15 landing speeds for a given weight. Apply wind correction shown as required.

Flight with Unreliable Airspeed

Pitch attitude and average power setting information is provided for use in all phases of flight in the event of unreliable airspeed/Mach indications resulting from blocking or freezing of the pitot system. The loss of the radome may also cause unreliable airspeed/Mach indications. Pitch attitude is shown since altitude and/or vertical speed indications may also be unreliable.

Max Quick Turnaround Weight

Enter table with airport pressure altitude and OAT to read maximum quick turnaround weight. Apply the noted adjustments as required.

If the landing weight exceeds the maximum quick turnaround weight, wait the specified time and then check that the wheel thermal plugs have not melted before executing a subsequent takeoff.

Max Quick Turnaround Weight Alternate Procedure

In lieu of waiting the requisite predetermined 62 minutes (**-300/-500**: 53 minutes) at the gate, an alternate procedure may be accomplished. This procedure may only be used when brake temperature is measured between 10 and 15 minutes after parking.

Note: If this procedure is used a logbook entry and sign-off is required.

Since brake temperature measurement must be accomplished between 10 and 15 minutes after parking, it is important that the Captain provide adequate notification to the station or Maintenance to allow positioning of appropriate equipment and personnel.