DETAILS AND PRINCIPLES REGARDING PROPOSED NAV CANADA CHARGES FOR AIR NAVIGATION SERVICES

JUNE 1, 1998

1. GENERAL

This document (referred to as the Details and Principles Document) provides additional detail to expand upon the ***Notice of New and Revised Service Charges*** issued on June 1, 1998 (the "Notice"). Under Section 36 of the *Civil Air Navigation Services Commercialization Act*, S.C. 1996, c. 20 (the "*ANS Act*"), NAV CANADA is required to produce a document setting out additional details in relation to the proposed charges ("the Proposal") set forth in the Notice, including a justification of the charges proposal in relation to the charging principles established under Section 35 of the *ANS Act*.

This document sets out the following: (i) a general overview of NAV CANADA and its operations, (ii) the methodologies used in determining charges, (iii) exemptions and reductions from charges, (iv) billing information and terms and conditions of payment, (v) a justification of the proposed charges in relation to the charging principles set out in the *ANS Act* which govern NAV CANADA's imposition of new and revised charges, (vi) information regarding costs of services, (vii) information regarding the determination of charging units, (viii) additional information regarding the Proposal and how to make representations to NAV CANADA, and (ix) illustrations of various charges. A glossary of defined terms is found at the end of this document.

Section 36 of the ANS Act specifies that persons interested in making representations in writing to NAV CANADA with regard to the Proposal may do so by forwarding their submissions to the address set out in the Notice (see Section 8 of this document). Submissions must be received by NAV CANADA not later than July 31, 1998.

1.1 NAV CANADA AND THE COMMERCIALIZATION OF THE CIVIL AIR NAVIGATION SYSTEM

NAV CANADA

NAV CANADA was incorporated on May 26, 1995, as a non-share capital corporation under Part II of the *Canada Corporations Act*, in order to acquire the Canadian civil air navigation system from the Government of Canada, and to own, manage, operate, maintain and develop that system. The head office of NAV CANADA is located in Ottawa, Ontario. NAV CANADA did not carry on a commercial business prior to its acquisition of the Canadian civil air navigation system on October 31, 1996 (the "Transfer Date"). As a non-share capital corporation, NAV CANADA has members, rather than shareholders or other equity holders, comprising one member appointed by the Government of Canada, two members appointed by user groups representing commercial air carriers and business aircraft operators, and one member appointed by unions representing NAV CANADA's employees. The Corporation also has 126 non-voting associate members representing other aviation interests.

THE CANADIAN CIVIL AIR NAVIGATION SYSTEM

The air navigation system provides civil air navigation services to aircraft in Canadian sovereign airspace and other airspace in respect of which Canada has responsibility for the provision of air navigation services ("Canadian-controlled airspace"). These include air traffic control services, as well as aeronautical communication services, aeronautical radio navigation services, aeronautical information services, aviation weather services, emergency assistance services and flight information services. These services are delivered by over 6,000 employees from various facilities including seven area control centres, one terminal control unit, 44 control towers, 81 flight services stations, a national headquarters and six regional offices which collectively support safe aircraft operations. Operators of almost all aircraft, whether carrying passengers or cargo, depend on the air navigation system for the safe and efficient movement of their aircraft.

THE CIVIL AIR NAVIGATION SERVICES COMMERCIALIZATION ACT

In order to facilitate the commercialization of the air navigation system, the *ANS Act* was enacted by the Parliament of Canada on June 20, 1996. The fundamental principles governing the mandate conferred on NAV CANADA by the *ANS Act* include the exclusive right to provide certain air navigation services, the ability to set and collect charges for the provision and availability of air navigation services, and the obligation of NAV CANADA to provide these services. Under the *ANS Act*, NAV CANADA has been granted the exclusive right and obligation to provide air traffic control, aeronautical information and specified flight information services in respect of Canadian-controlled airspace, subject to two limited exceptions. These exceptions relate to air traffic control services provided by the Department of National Defence ("DND") in respect of military aircraft and airspace controlled by DND, and air traffic control services provided at a small airport located at Portage-La Prairie, Manitoba. NAV CANADA is also authorized and required to provide, on a non-exclusive basis, aviation weather services,

emergency assistance services, aeronautical communication services, aeronautical radio navigation services and all other flight information services, and to establish and maintain new radio navigation aids.

AIR NAVIGATION SYSTEM FUNDING

The air navigation system provides an essential service to aircraft flying through Canadian-controlled airspace. NAV CANADA intends to set rates of charges at levels sufficient to recover all costs (including debt servicing requirements and the repayment of principal), as determined in accordance with generally accepted accounting principles, to develop a contingency reserve for unforeseen events, and to maintain appropriate credit ratings. To this end, NAV CANADA has the ability to set and collect charges for air navigation services in accordance with the charging principles set out in the *ANS Act*.

The primary source of revenue for the air navigation system when operated by Transport Canada was the Air Transportation Tax ("ATT"). A reduced ATT continues to be collected by air carriers from passengers at the time of ticket purchase as part of the ticket price. The Government of Canada will continue to impose and collect the reduced ATT until November 1st, 1998, at which time its repeal will take effect.

In conjunction with its acquisition of the air navigation system, NAV CANADA entered into an agreement with the Government of Canada (the "Transition Period Payments Agreement") which provides NAV CANADA with a fixed, pre-determined stream of monthly payments for the two year period following the Transfer Date. The *ANS Act* appropriates up to $1.44 billion for payments to NAV CANADA during this two year transition period following the Transfer Date regardless of traffic levels, which payments are not subject to any risk associated with the collection of the ATT by the Government of Canada or the risk of Parliamentary appropriation. The expected actual transition payments for the two-year period will be $1.19 billion.

The transition period payments are necessary because the air navigation charges currently in effect will not generate sufficient revenues in order to cover all anticipated financial obligations of NAV CANADA in its first two years of operation. In addition, under the Master Trust Indenture, NAV CANADA established, on November 1st, 1996, a $425 million Transitional Funding Reserve Fund and a $630 million Capital Expenditure Reserve Fund. According to plan, these reserves have been reduced, and, on June 1, 1998, amounted to $267 million and $453 million, respectively.

Under the Transition Period Payments Agreement, NAV CANADA will no longer receive any transitional funding from the government as of November 1st. 1998, when NAV CANADA will be fully commercialized through a full set of user charges after elimination of the ATT.

THE TRANSFER AGREEMENT

On April 1, 1996, NAV CANADA entered into an agreement (the "Transfer Agreement") with the Government of Canada to acquire the air navigation system for a purchase

price of $1.5 billion. The completion of the purchase was subject to the satisfaction of a number of conditions in favour of NAV CANADA including the completion of mutually satisfactory transfer and conveyance documentation, the obtaining of consents to the assignment of existing contracts relating to the air navigation system, the entering into of other contracts regarding the future operation of the air navigation system, and the arrangement of financing for the payment of the purchase price and the funding of certain other requirements. Closing of the transaction occurred on the Transfer Date.

ACCOUNTABILITY

NAV CANADA will ensure that system users are fully consulted before any material service realignments are undertaken. In northern and remote locations, service changes will occur only with the consent of the provincial or territorial governments, and a majority of the affected users, or through the direction of the Minister of Transport. NAV CANADA is governed by a 15-member Board of Directors consisting of 10 directors nominated by stakeholders representing aviation users, bargaining agents, the federal government, 4 independent directors and the President & CEO. NAV CANADA also has an Advisory Committee elected by associate members, empowered to analyze and make reports and recommendations to the Board of Directors on any matter affecting the air navigation system.

The system of governance at NAV CANADA is the result of a unique corporate structure intended to make the company a self-sustaining commercial enterprise that is accountable to its stakeholders. By placing Canada's air navigation system in the hands of a non-share capital private sector corporation run by a diverse and representative board of directors, the following important goals are achieved:

- Since there are no shareholders, any surplus will not be distributed by NAV CANADA, but rather will be retained. NAV CANADA's central objective is the safe and efficient operation of the air navigation services as well as making needed technological improvements.
- The representative nature of the Board ensures a greater responsiveness in NAV CANADA operations than was possible when the air navigation system was part of government.
- As key powers, duties and obligations were created by an Act of Parliament, it would take legislation to make any significant changes to the mission and role of NAV CANADA. Corporation by-laws related to governance and accountability can only be modified with the approval of, among others, the Minister of Transport.
- No single stakeholder group is in a position to dominate the Board of Directors.

NOTICE OF NEW AND REVISED SERVICE CHARGES

NAV CANADA will complete a two-year transition period on October 31, 1998 and will no longer receive any government funding related to the ATT.

As of November 1st, 1998, the corporation must be financially self-sufficient and funded totally by user charges.

In its Notice of June 1, 1998, NAV CANADA stated that it is proposing to apply new and revised charges for the following categories of services: (i) terminal; (ii) en route, and (iii) oceanic.

The Notice containing the Proposal consists of eight sections:

(1) Proposed **Charges** for aircraft weighing 3 metric tonnes (6,614 lbs) or less

(2) Proposed **Charges** for propeller aircraft, including helicopters, weighing more than 3 metric tonnes (6,614 lbs) in respect of Terminal and Enroute Services

(3) Proposed **Terminal Services Charge** and **Enroute Charge** for jet aircraft weighing more than 3 metric tonnes (6,614 lbs)

(4) Proposed **Oceanic Charges**

(5) Proposed **Charges for Extra Services**

(6) Proposed **Exemptions and Reductions**

(7) Proposed **Billing Information and Terms and Conditions of Payment** regarding charges

(8) **Additional Information** regarding the Proposal and on **Making Representations** to NAV CANADA

Details on the Proposal set out in the Notice are provided in the subsequent sections of this document.

Note: All references to dollars refer to Canadian dollars.
All references to tonnes refer to metric tonnes.

2. METHODOLOGIES USED IN DETERMINING CHARGES

2.1 Proposed Charges For Aircraft Weighing 3 Metric Tonnes (6,614 Lbs) Or Less

2.1.1 Canadian Registered Aircraft

A Canadian-registered aircraft weighing 3 tonnes or less will be subject to an annual charge for air navigation services provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence. The charge will vary by single and multi-engine aircraft and by aircraft weight.

The aircraft weight used is the maximum permissible take-off weight as reported in the Canadian Civil Aircraft Register.

The Annual Charges cover the 12-month period commencing November 1 each year and terminating October 31 the subsequent year, referred to as the annual fee period.

The Annual Charges will apply to aircraft in service for all or part of the annual fee period.

For new aircraft acquired within an annual fee period, the Annual Charges will be prorated based on the number of months or part thereof between the date of acquisition of the new aircraft and the end of the annual fee period.

The Annual Charges will not be prorated in respect of aircraft changing owner during an annual fee period, with the exception of the acquisition of new aircraft from a manufacturer or a dealer.

A dealer acquiring an aircraft for the purpose of sale will not be charged the Annual Charge for that aircraft.

The Annual Charges are set out in Table 1.

Table 1. Proposed Annual Charges For Canadian-Registered Aircraft Weighing 3 Tonnes Or Less

Weight (metric tonnes)	Annual Charge	
	Single-Engine Aircraft	Multi-Engine Aircraft
0 - 2.0	$ 60	$ 120
2.1 - 3.0	$ 150	$ 300

2.1.2 Foreign Registered Aircraft

With respect to foreign-registered smaller aircraft, their flight frequency in Canada, and hence their use of air navigation services in Canada, is generally much lower than that of Canadian-registered aircraft, as the aircraft are mostly operated in the country of domicile. Also, the vast majority visit Canada perhaps once per year for a limited period of time. Many U.S. aircraft, for example, enter Canada strictly to travel to Alaska and return. For these reasons, a quarterly charge is proposed.

A foreign-registered aircraft weighing 3 tonnes or less will be subject to a quarterly charge of 25 % of the charge set out in Table 1 for air navigation services provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence.

The aircraft weight used is the typical maximum permissible take-off weight for that aircraft type by reference to the Canadian Civil Aircraft Register.

The aircraft will be charged on the basis of the first recorded arrival into a Canadian aerodrome during each quarter of the annual fee period (as defined in Subsection 2.1.1). If the aircraft registration marks are not provided for each flight, each arrival will be charged the Quarterly Charge.

2.2 Proposed Charges For Propeller Aircraft, Including Helicopters, Weighing More Than 3 Metric Tonnes (6,614 Lbs) In Respect Of Terminal And Enroute Services

A propeller aircraft weighing more than 3 metric tonnes will be subject to a daily charge for Terminal and Enroute Services for each day it makes one or more departures at one or more aerodromes with air navigation services staffed either by NAV CANADA or by a person acting under the authority of the Minister of National Defence, hereafter referred to as chargeable days.

An annual minimum charge of $150 for single-engine aircraft and $300 for multi-engine aircraft will apply to Canadian-registered aircraft weighing more than 3 metric tonnes for each annual fee period (as defined in Subsection 2.1.1). For foreign-registered aircraft, the corresponding minimum charge will be a quarterly charge equal to 25% of these amounts.

Propeller aircraft means fixed-wing piston-engine aircraft, turboprop aircraft and helicopters.

The Daily Charge will vary by single and multi-engine aircraft and by aircraft weight.

The aircraft weight will be determined in accordance with Subsection 2.3.3.

For the purposes of applying the Daily Charge, a day is defined as each 24-hour period commencing at 0800 GMT.

The Daily Charges are set out in Table 2.

Table 2. Proposed Daily Charges For Propeller Aircraft Weighing More Than 3 Tonnes

Weight (metric tonnes)	Daily Charge	
	Single-engine aircraft	Multi-engine aircraft
3.1 - 4.0	$ 15	$ 30
4.1 - 5.0	$ 20	$ 40
5.1 - 6.0	$ 30	$ 60
6.1 - 7.0	$100	$ 200
7.1 - 8.6	$150	$ 300
8.7 - 12.0	N/A	$ 600
12.1 - 15.0	N/A	$ 900
15.1 +	N/A	$1,200

To ensure that the Daily Charge is applied to a propeller aircraft only once per chargeable day, the aircraft registration marks are required for each flight by the aircraft. Any flight for which this information is not provided will be subject to the same charges that apply to jet aircraft (Section 2.3) instead of the Daily Charge.

Illustrations of the Daily Charges are provided in Section 9.

2.3 Proposed Terminal Services Charge And Enroute Charge For Jet Aircraft Weighing More Than 3 Metric Tonnes (6,614 Lbs)

A jet aircraft weighing more than 3 metric tonnes will be subject to a Terminal Services Charge and an Enroute Charge as described in Subsections 2.3.1 and 2.3.2.

An annual minimum charge of $150 for single-engine aircraft and $300 for multi-engine aircraft will apply to Canadian-registered aircraft weighing more than 3 metric tonnes for each annual fee period (as defined in Subsection 2.1.1). For foreign-registered aircraft, the corresponding minimum charge will be a quarterly charge equal to 25% of these amounts.

2.3.1 Terminal Services Charge

The Terminal Services Charge is levied for flights departing from aerodromes with air navigation facilities staffed either by NAV CANADA or by a person acting under the authority of the Minister of National Defence, i.e., aerodromes with air traffic control towers and/or flight service stations (FSSs), except the airport located at Portage-La Prairie, Manitoba. Aerodromes which currently meet this criterion are listed in Attachment I.

Terminal services are air navigation services provided or made available to an aircraft at or in the vicinity of an aerodrome, excluding aircraft overflying the aerodrome, such as i) dedicated arrival/departure control services provided by Area Control Centres and Terminal Control Units or ii) aerodrome services including, for example, airport advisories and air traffic control from a tower.

The existing Terminal Services Unit Rate is $7.74 per charging unit.

Charge Calculation

The Terminal Services Charge for a departure is the unit rate multiplied by the number of charging units for that departure.

The number of charging units for each departure is the aircraft's weight expressed in metric tonnes raised to the 0.9 power (i.e., weight $^{0.9}$).

Weight in relation to an aircraft is determined in accordance with Subsection 2.3.3.

The proposed Terminal Services Unit Rate, effective November 1, 1998, is $13.65 per charging unit.

Table 3 presents the Terminal Services Rate Base, the number of estimated charging units and the unit charge for the Test Year.

Table 3 **Calculating the Terminal Services Charge for Test Year**	
Rate base[1]	$335,069,423
Number of Estimated Charging Units [2]	24,542,176
Rate Effective November 1, 1998	$13.65

Notes:

1. See Section 6 for information on the derivation of the cost base for terminal services. To establish the rate base, the cost base has been reduced by $54.5M reflecting flat fees and miscellaneous revenues.
2. Section 7 discusses how the charging units have been estimated.

Illustrations of the application of the Terminal Services Charge are provided in Section 9.

2.3.2 Enroute Charge

The Enroute Charge is applied to flights in Canadian-sovereign airspace or any other airspace in respect of which Canada has responsibility for the provision of air navigation services (hereinafter referred to as Canadian-controlled airspace), excluding the Gander Oceanic FIR/CTA, and relates to the cost of enroute services provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence.

Enroute services are air navigation services other than terminal and oceanic services.

The existing Enroute Unit Rate is $0.03263 for overflights and $0.02174 for flights with a departure or a landing in Canada.

The proposed single Enroute Charge applies to overflights and flights which land or take off in Canada. With respect to flights which land or take off in Canada, the Enroute Charge applies to flights between two airports, at least one of which is an airport where NAV CANADA applies the Terminal Services Charge (refer to Subsection 2.3.1).

For the purpose of NAV CANADA charges, airport means a certified aerodrome, or an uncertified aerodrome with air navigation services staffed either by NAV CANADA or by a person acting under the authority of the Minister of National Defence.

Exemption for flights between two points in the continental United States transiting Canadian airspace

- Currently, flights (other than flights landing or taking off in Alaska of aircraft that weigh more than 200 tonnes) between two points in the continental United States transiting Canadian airspace are exempt from NAV CANADA's Enroute Charge for overflights.

- Should the United States introduce an enroute fee on flights between two points in Canada transiting U.S. airspace, NAV CANADA would terminate this exemption and commence charging the enroute fee (as applicable to overflights) on such flights, following an announcement in accordance with the *ANS Act*.

Enroute Charge Calculation

The Enroute Charge for a flight is the unit rate multiplied by the number of charging units for that flight.

The number of charging units for each flight is the square root of the aircraft weight expressed in metric tonnes multiplied by the distance in kilometres (i.e., weight$^{0.5}$ x distance).

Weight in relation to an aircraft is determined in accordance with Subsection 2.3.3.

For flights between two points in Canada, distance is calculated as the great circle distance between the departure and arrival airports, regardless of whether the flight transits U.S. airspace.

For international flights which enter or exit Canadian-controlled airspace (excluding the Gander Oceanic FIR/CTA), distance is calculated as the sum of the great circle distances of each leg of the flight in that airspace, based on the flight plan, position reports or other records pertaining to the flight.

Enroute distances are reduced to take into account areas around both the arrival and departure airports in Canada in accordance with the following:

- At airports where the Terminal Services Charge applies (refer to Attachment I):
    - If dedicated arrival/departure control services are provided, as indicated in Attachment I, the reduction is 65 km (approximately 35 nautical miles);
    - If dedicated arrival/departure control services are not provided, the reduction for the airport is 35 km (approximately 20 nautical miles).
- At airports where the Terminal Services Charge does not apply, the reduction is nil.

The proposed Enroute Unit Rate, effective November 1, 1998, is $0.03506 per charging unit.

This single unit rate applies to both the overflights and flights which land or take off in Canada.

Table 4 presents the Enroute Rate base, the number of estimated charging units and the unit rate for the Test Year.

Table 4 **Calculating the Enroute Charge for Test Year**	
Rate base[1]	$447,401,133
Number of Estimated Charging Units [2]	12,759,725,417
Unit Rate Effective November 1, 1998	$0.03506

Notes:

1. See Section 6 for information on the derivation of the cost base for enroute services. To establish the rate base, the cost base has been reduced by $10.3 M reflecting flat fees and miscellaneous revenues.

2. Section 7 discusses how the charging units have been estimated.

Illustrations of the application of the enroute charges are provided in Section 9.

2.3.3 Weight Calculation Options

Weights used in calculating a charge will be determined in one of two ways, at the operator's election. The options are:

Option 1: Average Weight By Aircraft Type Within The Operator's Fleet -

The weight of a specific aircraft type would be calculated by NAV CANADA as the average maximum permissible take-off weight for each aircraft of the same type expected to be operated in Canadian-controlled airspace (excluding aircraft that transit only the Gander Oceanic FIR/CTA) during the fleet validity period. The weight as stated in the fleet submission, is expressed in metric tonnes rounded to the first decimal place.

This is the administratively simpler option.

Option 2: Specific Weight Of Each Aircraft -

The weight of the aircraft is defined as the maximum permissible take-off weight of that aircraft as stated in the fleet submission, in metric tonnes rounded to the first decimal place.

Under this option, in addition to providing fleet submissions, the operator must include the correct aircraft registration marks on all flight plans (or, should flight plans not be filed, in other communication provided to identify the aircraft). It should be noted that, with respect to propeller aircraft over 3 tonnes, information on the aircraft registration marks for each flight will be necessary to qualify for the daily charge, regardless of which weight calculation option is chosen.

Provision Of Information:

Fleet submissions are necessary to determine the aircraft weight that is used in the fee calculation for each flight billed by NAV CANADA. In the absence of a fleet submission, or where under Option 2, the aircraft registration marks are not recorded on the flight plan, NAV CANADA calculates the charge for the flight based upon the highest published maximum permissible take-off weight for an aircraft of the same type.

It should be noted that fleet submissions are not needed for aircraft weighing 3 metric tonnes or less.

NAV CANADA issues a letter to customers twice a year requesting current fleet submissions. The validity periods are:

- March 1 to August 31
- September 1 to February 28 (or 29)

At least one month prior to the start of each six-month period, the aircraft operator must provide a fleet submission to NAV CANADA listing each aircraft expected to be operated in Canadian-controlled airspace (excluding aircraft that transit only the Gander Oceanic FIR/CTA). In the fleet submission, the operator indicates the registration marks and the maximum permissible take-off weight of each aircraft, as specified in the aircraft's certificate of airworthiness or in a document referred to in that certificate. *The operator is also required to select one of the two weight calculation options as noted above.*

2.4 Oceanic Charges

NAV CANADA currently levies two Oceanic charges – the North Atlantic Enroute Facilities and Services Charge (NAT) and the International Communication Services Charge (Int'l Comm). Oceanic charges are based on a flat fee per flight, and apply to both propeller and jet aircraft.

The NAT Charge is for air navigation services provided or made available by NAV CANADA or a person acting under the authority of the Minister of National Defence to any aircraft during the course of a flight in the Gander Oceanic Flight Information Region/Control Area (FIR/CTA).

The existing NAT charge is $88.33 per flight.

The Int'l Comm Charge is for air-ground radio frequencies, provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence at one or more aeronautical stations to an aircraft during the course of an international flight, other than a flight between Canada and the continental United States, to obtain communication services.

The existing Int'l Comm charge is $58.49 per flight.

The proposed NAT Charge is $83.81 per flight and the proposed Int'l Comm Charge is $50.61 per flight, effective November 1, 1998.

Where, in the course of a flight, an aircraft lands or takes off from an airport in Canada located north of the sixtieth parallel of north latitude and lands or takes off from an airport in Greenland, the charges per flight will be 40% of the proposed Oceanic Charges otherwise payable.

Table 5 presents the rate base for the NAT Charge, the number of estimated chargeable flights and the unit charge.

Table 6 presents the rate base for the Int'l Comm Charge, the number of estimated chargeable flights and the unit charge.

Table 5 **Calculating the NAT Charge for Test Year**	
Rate base [1]	$23,025,709
Number of Estimated Chargeable Flights [2]	274,750
Unit Charge Effective November 1, 1998	$83.81

Table 6 **Calculating the Int'l Comm Charge for Test Year**	
Rate base [1]	$14,733,735
Number of Estimated Chargeable Flights [2]	291,098
Unit Charge Effective November 1, 1998	$50.61

Notes:

1. See Section 6 for information on the derivation of the cost base. To establish the rate bases, the cost bases for NAT and Int'l Comm have been reduced by $0.1M and $0.05M, respectively, reflecting miscellaneous revenues.

2. Section 7 discusses how the chargeable flights have been estimated.

An illustration of the application of the Oceanic Charges is provided in Section 9.

2.5 CHARGES FOR EXTRA SERVICES

Charges For Services Requested Outside Normal Hours Of Operation

Incremental costs will be charged to users who request services outside normal hours of operation, in addition to the applicable air navigation services charges.

Charges For Services Requested Above The Level Of Service Policy

The cost of services in excess of the Level of Service Policy will be separately identified and recovered through the existing charging methodology for air navigation services.

Such costs will be recovered on a site specific basis with respect to terminal services and on a system-wide basis with respect to enroute or oceanic services.

Charges For Airshows

Any Incremental costs will be recovered. However, an exemption will be provided for any applicable air navigation charges to flights taking part in such events.

3. EXEMPTIONS AND REDUCTIONS

3.1 Exemptions

Certain categories of flights are exempt from air navigation services charges.

Under Subsection 32(2) of the *ANS Act*, air navigation services charges are not imposed on:

a) a user who is a person acting under the authority of the Minister of National Defence; or

b) a user in respect of a state aircraft of a foreign country, unless the foreign country has been designated otherwise by a Canadian federal Order in Council under Subsection 32(3) of the *ANS Act.*

NAV CANADA has requested the government to identify the countries whose state aircraft can be charged NAV CANADA charges. Once the necessary authorization is provided by the government, NAV CANADA will issue an announcement in accordance with the *ANS Act*. A list of the foreign countries whose state aircraft will no longer be exempt, and which will be required to pay air navigation service charges, will be posted on our web site.

Air navigation services charges do not apply in respect of the following flights:

i) Search and rescue flights operated under the direction of the Department of National Defence or police authorities responsible for locating missing persons.

ii) Flights operated for a registered charity within the meaning of the *Income Tax Act* (Canada) or equivalent foreign statute; proof of such status to be provided to NAV CANADA.

In addition, it is proposed to not apply air navigation services charges to:

- gliders, ultralights and balloons.

- flights taking part in airshows

3.2 Reductions In The Terminal Services Charge

Reductions are applied to training and test flights, as follows:

Training Flights:

For a flight operation performed exclusively for the purpose of the training or testing of a person or persons (such as flight crew) to obtain, upgrade or renew a licence, including pilot proficiency checks, a charge will be applied only on the first departure at any given airport.

However, training flights that transit from a main airport to a smaller airport because training flights are not allowed at the main airport will be exempt from the Terminal Services Charge at the main airport.

Test Flights:

A rebate of 50 per cent is applied to flights performed exclusively for the following purposes:

- testing aircraft following overhauls, modifications, repairs and inspections for which a certificate of compliance is to be given; or
- enabling aircraft to qualify for the issue or renewal of a certificate of airworthiness.

To qualify for these reductions in the Terminal Services Charge, flights must not be for commercial gain, i.e. earning revenue, nor for positioning of aircraft.

4. BILLING INFORMATION AND TERMS AND CONDITIONS OF PAYMENT

4.1 Billing Information

4.1.1 **Annual Charges** (Subsection 2.1.1)

The Annual Charges will be billed in November each year commencing in November 1998.

4.1.2 **Quarterly Charges** (Subsection 2.1.2)

The Quarterly Charges will be billed the month following the quarter air navigation services are provided or made available to the aircraft.

4.1.3 **Daily And Other Charges** (Subsections 2.2 to 2.4)

Invoices will be issued every month for flights occurring in the preceding month.

4.2 Terms And Conditions Of Payment

Remittances may be made in either Canadian dollars or equivalent U.S. dollars. U.S. dollar payments will be converted at the exchange rate for buying Canadian dollars on the day the remittance is deposited into a NAV CANADA bank account.

Payments made by mail or through any financial institution will be credited to the customer account on the date of receipt by NAV CANADA.

All charges, except for interest and administration charges, are due and payable by the thirtieth (30^{th}) day after the date on which the invoice is issued in respect of the charges (the “due date”).
When payment in full is not received by the due date, interest shall commence being charged on the first day after the due date on the amount outstanding.

Interest shall be calculated at an annual rate of 18 per cent.

When a payment is made on an overdue account, the period for which interest is charged shall end on the day the payment is received.

NSF cheques and stop payments will be debited to customer accounts together with a $25 administrative charge and any applicable interest charges.

Interest and administrative charges are due upon receipt of invoice for same.

Pursuant to Section 55 of the *ANS Act*, the owner and operator of an aircraft are jointly and severally liable for the payment of any charge for air navigation services imposed by NAV CANADA in respect of the aircraft.

NAV CANADA may apply to the courts for an order authorizing the corporation to seize and detain aircraft in respect of unpaid and overdue charges. For Oceanic Charges and Enroute Charges applicable to overflights which are collected by the UK Civil Aviation Authority (the "CAA"), the CAA may seize and detain aircraft in respect of unpaid and overdue bills.

5. PRINCIPLES GOVERNING NAV CANADA'S USER CHARGES

The principles governing the establishment of new charges or the revision of existing charges by NAV CANADA are set out in Section 35 of the *ANS Act*. Each of the principles is presented below in italics, followed by a discussion of how the Proposal complies with that particular principle.

35 (1) (a) *Charges must be in accordance with a methodology established and published by the Corporation that is explicit and that also includes the terms and conditions affecting charges;*

The Notice of the fee proposal, required under Section 36 of the ANS Act, has been placed on the Internet and sent to aviation associations. The Notice establishes the methodology for applying the proposed charges and the terms and conditions in respect of payment. On the basis of this information, any person subject to NAV CANADA's charges can calculate the amount payable for a given flight.

35 (1) (b) *Charges must not be structured in such a way that a user would be encouraged to engage in practices that diminish safety for the purpose of avoiding a charge;*

For any given flight, NAV CANADA's charges are not structured in such a manner that safety may be affected. For example, any flight involving a jet aircraft of a given weight between (say, Ottawa and Québec City) will be subject to the same Terminal Services Charge

and Enroute Charge, regardless of whether the flight is IFR or VFR.

35 (1) (c) *Charges for the same services must not differentiate between domestic and international flights of air carriers;*

There is no differentiation in proposed charges between domestic and international flights.

35 (1) (d) *Charges for the same services must not differentiate among Canadian air carriers or among foreign air carriers;*

There is no differentiation in the proposed charges for a flight based on which domestic or foreign carrier provides the flight.

35 (1) (e) *Charges must differentiate between the provision of services in relation to the landing and take-off of aircraft and the provision of services in relation to aircraft in flight, and must reflect a reasonable allocation of the costs of providing the services in those circumstances;*

The Enroute, NAT and Int'l Comm charges pertain to services made available or provided to aircraft in flight, whereas the Terminal Services charge relates to services for aircraft arriving at and departing from an airport.

These charges are based on an allocation of costs among the services. The rules for the attribution of costs to the services were arrived at by considering work loads, statistics based on activity reports, management judgment and ICAO guidelines.

The accounting firm of KPMG has provided an opinion to NAV CANADA that the allocation methodology adopted by NAV CANADA reasonably reflects the way in which services are provided, is consistent with approaches used by other air navigation service providers, and is appropriate for use as a basis for establishing the costs of these services.

A copy of this opinion is available upon request from NAV CANADA.

35 (1) (f) *Charges in respect of recreational and private aircraft must not be unreasonable or undue*;

The proposed charges reflect the need for recreational and private aircraft to contribute, along with other users, to the costs of operating the Canadian civil air navigation system. NAV CANADA believes the

charges are neither unreasonable nor undue.

35 (1) (g) *Charges for designated northern or remote services and for services directed to be provided under subsection 24(1) must not be higher than charges for similar services utilized to a similar extent elsewhere in Canada;*

Since NAV CANADA's charges are uniform throughout Canada, northern or remote services are subject to the same charges as services utilized elsewhere in Canada.

35 (1) (h) *Charges must be consistent with the international obligations of the Government of Canada;*

The most relevant international obligations are the Convention on International Civil Aviation of 1944 (the "Chicago Convention") and bilateral air services agreements between Canada and other states.

Article 15 of the Chicago Convention deals with air navigation system charges, and establishes the principle that fees charged for the use of airport and air navigation services not be higher for foreign compared to domestic users engaged in similar international air services. The fee proposal complies with Article 15 because: (i) the charges in respect of international air services are not higher for foreign air carriers than they are for Canadian carriers engaged in similar international air services (i.e., the charges do not differentiate according to the flag of the carrier), and (ii) the charges relate to the availability or provision of air navigation services and are not imposed for the right of entry into Canadian airspace.

The fee proposal is also consistent with bilateral air services agreements between Canada and other states.

35 (1) (i) *Charges must not be set at a level that, based on reasonable and prudent projections, would generate revenues exceeding the Corporation's current and future financial requirements in relation to the provision of civil air navigation services*.

NAV CANADA's charges have been set to recover the corporation's costs, including expenses determined according to Generally Accepted Accounting Principles (GAAP) and the costs of complying with certain financial requirements, as described in detail in Subsection 35(5) below.

The costs recovered through NAV CANADA's charges comply with the list of eligible financial requirements in Subsections 35(5) and

35(6).

35 (2) *The charging methodology may recognize that the value of the services differs among users.*

NAV CANADA's charging methodology does recognize that the value of the services differs among users.

35 (3) *Where the Corporation's charging methodology recognizes the value of the services and aircraft weight is used as a measure of the value of the services, the principle referred to in paragraph (1)(a) is deemed not to have been observed if aircraft weight is taken into account either directly proportionally or greater than directly proportionally.*

The NAT and Int'l Comm charges are levied on a per flight basis and do not take weight into account.

The Enroute and Terminal Services charges take weight into account, but less than proportionally. The Enroute Charges are based on a unit rate multiplied by the square root of aircraft weight multiplied by the distance in Canadian airspace. The Terminal Services Charge is based on a unit rate multiplied by aircraft weight raised to the 0.9 power.

Pursuant to Subsection 35(7), Subsection 35(3) does not apply to flat fees. The proposed Annual and Quarterly Charges for aircraft weighing 3 tonnes or less and the proposed Daily Charges for propeller aircraft over 3 tonnes represent flat fees.

35 (4) *For the purpose of subsection (3), "weight", in relation to an aircraft, means the maximum permissible take-off weight specified in the aircraft's certificate of airworthiness or in a document referred to in that certificate.*

Weight calculations will be based on the maximum permissible take-off weight specified in the aircraft's certificate of airworthiness or in a document referred to in that certificate. For more information, please refer to Subsection 2.3.3 of this document.

35 (5) *For the purpose of paragraph (1)(i), the financial requirements of the Corporation in relation to the provision of civil air navigation services include, without duplication, the Corporation's*
(a) costs incurred before the transfer date,

(b) operations and maintenance costs,
(c) management and administration costs,
(d) debt servicing requirements and financial requirements arising out of contractual agreements relating to the borrowing of money,
(e) depreciation costs on capital assets,
(f) financial requirements necessary for the Corporation to maintain an appropriate credit rating,
(g) tax liability,
(h) reasonable reserves for future expenditures and contingencies, and
(i) *other costs determined in accordance with accounting principles recommended by the Canadian Institute of Chartered Accountants or its successor,*
to the extent that they relate to the provision of those services, less the amount determined in accordance with subsection (6).

35 (6) *The amount to be deducted for the purpose of subsection (5) is the aggregate of*
(a) all grants, contributions and subsidies of a monetary nature received by the Corporation,
(b) all transition period payments pursuant to section 98,
(c) all interest income and investment income earned by the Corporation, and
(d) all profits earned by the Corporation, other than in respect of the provision of civil air navigation services.

Please refer to the discussion dealing with Subsection 35 (1)(i) of the *ANS Act*, and Section 6 of this document for more information on deriving the cost base for the services.

6. COST OF SERVICES

In developing the fee proposal for 1998/99, actual costs of $908.3M for the 12 months November 1, 1996 to October 31,1997 were allocated to services. The resulting percent distribution of costs was applied to the projected total costs of $885.2M for the Test Year to estimate the cost of services for November 1, 1998 - October 31, 1999 (the “Test Year”).

6.1 Cost Allocation Methodology

The cost allocation methodology developed in 1997 was also used for the current proposal, and is summarized below. KPMG has provided an opinion to NAV CANADA that the allocation methodology adopted by NAV CANADA reasonably reflects the way in which services are provided, is consistent with approaches used by other air navigation service providers, and is appropriate for use as a basis for establishing the costs of these services. KPMG has also provided an opinion that the compilation of costs is in accordance with this cost allocation methodology.

6.1.1 Approach

An Activity Based Costing model was used to determine the full cost of NAV CANADA’s three basic services:

- Enroute Services
- Terminal Services
- Oceanic Services (NAT and Int’l Comm)

The model recognizes four Service Delivery Centres through which the services are provided:

- Towers
- FSS’s
- ACC’s/TCU’s
- Maintenance, Communication and Engineering Services

A two step allocation process was used in most cases to determine the cost of each of the three basic services:

- Costs were allocated to the four Service Delivery Centres
- Service Delivery Centre costs were then allocated to the three services

The costs of some activities were allocated directly to the services, e.g., Meteorological reporting and forecasting (“MET services”) provided by Environment Canada.

6.1.2 Cost Allocation Process

Actual NAV CANADA expenses for the period November 1, 1996 to October 31, 1997 served as the basis for allocation of costs.

A summary of the cost allocation methodology, developed in 1997 and used in the current proposal, is provided below:

- The key NAV CANADA activities were identified and the operating costs (resources) were attributed to these activities.

- These operating costs were attributed to the Service Delivery Centres by identifying the drivers which best explain how these resources are consumed. These drivers are operational in nature and wherever possible are capable of being measured. The drivers were identified through analyses, interviews, questionnaires, etc. An example of such an activity driver is the time spent by staff at FSSs in performing their principal activities. These time allocations are then used to attribute the operating costs at FSSs to the activities performed there.

- The costed activities of the Service Delivery Centres were attributed to the three air navigation services using activity/operational drivers, which again were derived from analyses, interviews, questionnaires, etc.

- A number of processes carried out at the Regional Offices or at Ottawa Headquarters support the Service Delivery Centres. These support processes that are not included in Service Delivery Centres include part of Air Traffic Services and Technical Services as well as the traditional head office processes of Finance, Legal, Information Management, etc. These Non-Attributable Costs were allocated proportional to the directly attributed costs.

- The Ownership Costs of Assets (depreciation, amortization, and interest) are allocated to the services on the basis of the replacement costs of assets.

Table 7 provides a summary of the terminal/enroute split for major activities, as reflected in the cost allocation methodology.

TABLE 7

TERMINAL/ENROUTE SPLIT OF MAJOR ACTIVITIES

Allocation To Services	*Terminal*	*Enroute*
ACC's/TCU's • The oceanic portion of Gander ACC was determined based on the proportion of controller positions dedicated to oceanic control (51%) • The remaining portion of Gander, other ACC's and the TCU's was allocated to terminal services and enroute services based on the proportion of dedicated terminal controller positions. • Overall terminal/enroute split (excluding oceanic)	25%	75%
Towers	100%	
FSS's • Allocation to terminal, enroute and oceanic based on standard times for principal FSS activities and activity volumes • Overall terminal/enroute split (excluding oceanic)	40%	60%
Navaids • Overall terminal/enroute split (excluding oceanic)	65%	35%
MET Services provided by Environment Canada • Allocation based on cost of principal functions and judgment consistent with ICAO guidance regarding the terminal/enroute split • Overall terminal/enroute split	24%	76%

Terminal, Enroute and Oceanic Services (NAT and Int'l Comm) for the period November 1, 1996 to October 31, 1997 accounted for 44.01%, 51.71%, and 4.28% (NAT: 2.61%, Int'l Comm: 1.67%) respectively, of the total cost.

6.2 Estimate Of Cost By Service For Test Year

The total cost of services is estimated at $885.2 million for the Test Year (November 1, 1998 - October 31, 1999). Applying the percentage distribution of costs referred to above, the estimated costs for the individual services for the Test Year are as follows:

TABLE 8
ESTIMATE OF COSTS BY SERVICE
FOR TEST YEAR
(November 1, 1998 - October 31, 1999)
$ Millions

			Oceanic		
	Terminal	**Enroute**	**NAT**	**Int'l Comm**	**Total**
Allocation Percentage	44.01%	51.71%	2.61%	1.67%	100.00%
Costs	$389.6	$457.7	$23.1	$14.8	$885.2

7. DETERMINATION OF CHARGING UNITS

7.1 Charges For Aircraft Weighing 3 Tonnes Or Less

7.1.1 Annual Charges For Canadian-Registered Aircraft

The number of aircraft is based on information provided in the Transport Canada Airworthiness Information System. As of December 1997, the total number of active aircraft weighing 3 tonnes or less was approximately 15,000.

7.1.2 Quarterly Charges For Foreign-Registered Aircraft

It is estimated that approximately 11,000 foreign-registered aircraft weighing 3 tonnes or less visit Canada each year. The vast majority of these aircraft would fly to Canada perhaps once per year for a limited period of time.

7.2 Charges For Propeller Aircraft Weighing More Than 3 Tonnes In Respect Of Terminal And Enroute Services

The number of propeller aircraft weighing more than 3 tonnes is in the order of 1300. The estimated average number of days flown per year varies by aircraft weight and engine type, and ranges up to some 300 for turboprop aircraft between 15 and 20 tonnes.

7.3 Terminal Services And Enroute Charges For Jet Aircraft Weighing More Than 3 Tonnes

Charging units are calculated for a base period of actual flight data and then forecasted forward to estimate charging units for the Test Year (Nov. 1, 1998 to Oct. 31, 1999). The base period is as follows:

- Terminal Services Charging Units — Mar 1, 1997 - Feb 28, 1998
- Enroute Services Charging Units
  - for flights landing/taking off in Canada — Mar 1, 1997 - Feb 28, 1998
  - for overflights — May 1, 1997 - Apr 30, 1998

For the base period, information is obtained on every aircraft movement subject to charges in order to estimate charging units for each flight. The sum of the charging units across all of the flights determines the number of charging units for the base period.

The Test Year forecast is based on traffic growth projection of 2 per cent per annum for domestic movements and 3 per cent per annum for transborder and other international movements.

7.3.1 Terminal Services Charge For Jet Aircraft Over 3 Tonnes

As discussed in Subsection 2.3.1, charging units for the Terminal Services Charge are expressed as MTOW $^{0.9}$ for each departure from an aerodrome with staffed air navigation facilities.

Under contract with Statistics Canada, a database was developed which contains information on aircraft movements at Canadian airports for the period March 1, 1997 to February 28, 1998 based on the NAV CANADA Aircraft Movements System (NCAMS). For each movement, the aircraft type was identified, leading to the determination of aircraft weight, and the calculation of MTOW $^{0.9}$.

For the base period, the charging units were summed for every movement, after removing flights subject to flat fees and exempt flights (DND and foreign state aircraft). This resulted in the calculation of 23.6M charging units for the base period.

The forecast of Terminal Services charging units for the Test Year is 24.5M units, after applying growth rates noted above.

7.3.2 Enroute Charges For Jet Aircraft Over 3 Tonnes

As discussed in Subsection 2.3.2, charging units for the Enroute Charges are calculated for each flight in Canadian-controlled airspace (excluding the Gander Oceanic FIR/CTA) based on the square root of the aircraft weight in tonnes multiplied by the distance in kilometres.

As discussed earlier, the database developed from NCAMS contains information on flights landing and taking off in Canada for the period March 1, 1997 to February 28, 1998. For each movement, the aircraft type was identified, as well as the departure and arrival airports, leading to the determination of enroute charging units for flights at Canadian airports.

Within NCAMS, charging units were summed for every flight, after removing flights subject to the flat fees and exempt flights (DND and foreign state aircraft), to arrive at an estimate of 4,144.4M units for the base period. Applying the traffic growth noted above, the forecast charging units for the Test Year are 4,312.4M units for flights landing or taking off in Canada.

NAV CANADA currently has an enroute charge in place for overflights, with information on every billable flight captured in CFBS. Therefore, overflight charging units can be readily determined for the base period and the figure is 8,073.6M units. The forecast for the Test Year, based on the above noted growth rate for international flights, is 8,447.3M units for overflights.

The forecast of total enroute charging units for the Test Year is 12,759.7M units (4,312.4M + 8,447.3M).

7.4 Oceanic Charges

As discussed in Subsection 2.4, the Oceanic Charges are levied on a per flight basis. Therefore, charging units are expressed as the number of flights.

Billing information for the existing charges from NAV CANADA's Consolidated Flight Billing System (CFBS) indicates that for the base period May 1, 1997 to April 30, 1998, 262.5K flights were subject to the NAT charge, and 278.1K flights were subject to the Int'l Comm Charge.

Charging unit forecasts for the Test Year are 274.8K flights for NAT and 291.1K flights for Int'l Comm, after applying the above noted growth rate for international flights.

8. ADDITIONAL INFORMATION REGARDING THE PROPOSAL AND HOW TO MAKE REPRESENTATIONS TO NAV CANADA.

This document is available in both on-line and hard copy versions. An electronic copy may be downloaded from NAV CANADA's internet site at http://www.navcanada.ca. Hard copies of this document may be obtained by contacting NAV CANADA :

in writing: NAV CANADA
P.O. Box 3411, Station "D"
Ottawa, Ontario
Canada
K1P 5L6

Attention: Commercial Relations

by E-mail: service@navcanada.ca

by fax: 1 - 613 - 563 - 3426

by telephone: 1 - 800 - 876 - 46934

Making written representations to NAV CANADA regarding proposed charges:

Pursuant to Section 36 of the *ANS Act,* persons interested in making representations in writing to NAV CANADA with regard to the Proposal may do so by writing to the following address:

NAV CANADA
P.O. Box 3411, Station "D"
Ottawa, Ontario
Canada
K1P 5L6

Attention: Director, Rates and Revenues

The facsimile number for written representations is 1 - 613 - 563 - 7994.

Note: Representations must be received by NAV CANADA by not later than the close of business on July 31, 1998.

9. ILLUSTRATIVE NAV CANADA CHARGES

(The following information is to assist the reader in understanding the application of the proposed charges, effective November 1, 1998, as set out in this Notice.)

ILLUSTRATIVE DAILY CHARGES FOR PROPELLER AIRCRAFT WEIGHING MORE THAN 3 TONNES (Subsection 2.2)**:**

Manufacturer	Model	No. of Engines	Aircraft Weight (tonnes)	Proposed Daily Charge
Piston				
Piper	PA31 350	2	3.17	$30
DeHavilland	DHC 3 Otter	1	3.63	$15
Beech	18	2	3.97	$30
Pezetel	M 18A	1	4.70	$20
Grumman	TBM 3E	1	7.98	$150
Douglas	DC3	2	12.20	$900
Douglas	B26B,C	2	15.88	$1,200
Turboprop				
Cessna	208	1	3.79	$15
Piper	PA31T	2	4.08	$40
Beech	100	2	4.81	$40
DeHavilland	DHC 6 Twin Otter	2	5.67	$60
Swearingen	SA226TC	2	5.67	$60
Fairchild	Metro III	2	6.50	$200
British Areosp.	Jetstream 31	2	6.95	$200
Beech	1900	2	7.60	$300
British Areosp.	Jetstream 41	2	10.89	$600
DeHavilland	DHC 8-102	2	15.65	$1,200
Aerospatiale	ATR 42-300	2	16.70	$1,200
DeHavilland	DHC 8-300	2	18.64	$1,200
Hawker Siddeley	HS 748	2	21.09	$1,200
Helicopters				
Bell	204B	1	3.86	$15
Bell	205A	1	4.63	$20
Sikorsky	S76A	2	4.76	$40
Bell	212	2	5.08	$60
Aerospatiale	AS 332C	2	8.43	$300
Boeing Helicopters	BV 107 II	2	8.62	$300
Sikorsky	S61N, L	2	9.98	$600

For some models of aircraft, the weight varies and may lead to different charges for the same model. Charges given above are for the aircraft weight given in the table, which is the most common weight.

CHARGES FOR JET AIRCRAFT WEIGHING MORE THAN 3 TONNES:

Terminal Charge (Subsection 2.3.1)**:**

The charge is calculated as follows:

R x W

R = unit rate
W= weight factor = $MTOW^{0.9}$

The weight factor (W) is calculated by raising the aircraft weight to the power 0.9; for a more detailed explanation of the weight calculation please refer to Subsections 2.3.1 and 2.3.3.

The proposed unit rate (R) is $13.65.

Enroute Charge (Subsection 2.3.2)**:**

The charge is calculated as follows:

R x W x D

R = unit rate
W= $MTOW^{0.5}$
D = distance expressed in km

The weight factor (W) is calculated by taking the square root of the aircraft weight; for a more detailed explanation of the calculation of aircraft weight, please refer to Subsections 2.3.2 and 2.3.3.

The distance factor (D) is the great circle distance flown in Canadian-controlled airspace (excluding the Gander Oceanic FIR/CTA) in kilometres, net of reductions pertaining to terminal services, as set out in Subsection 2.3.1.

The proposed unit rate (R) is $0.03506.

OCEANIC CHARGES (Subsection 2.4)

The proposed charges per flight:

NAT:	$83.81
Intnl Comm:	$50.61

ILLUSTRATIVE NAV CANADA CHARGES

TORONTO (YYZ) -LONDON, ENGL. (LHR) RETURN **B747**

WEIGHT (W) = 395.0 TONNES DISTANCE (D) = 2129 KM
(IN CDN CONTROLLED AIRSPACE EXCL. GANDER OCEANIC)

CHARGES PER FLIGHT

NAT : $83.81

Int'l Comm : $50.61

return (x 2) = **$268.84**

TERMINAL SERVICES CHARGE (Toronto):

UNIT RATE (R) : $13.65

FORMULA R x W =
13.65 x $395.0^{0.9}$ =13.65 x 217.239 = **$2,965.31**

ENROUTE CHARGE:

UNIT RATE (R) : $ 0.03506

FORMULA R x W x D

0.03506 x $395.0^{0.5}$ x (2129-65) = $1,438.20

return (x 2) = **$2,876.40**

TOTAL CHARGES (YYZ-LHR-YYZ) = **$6,110.55**

ILLUSTRATIVE NAV CANADA CHARGES

VANCOUVER (YVR) - MONTREAL (YUL) RETURN **B767**

WEIGHT (W) = 141.0 TONNES *DISTANCE (D) = 3679 KM*

TERMINAL SERVICES CHARGE (Vancouver and Montreal):

UNIT RATE (R) : $13.65

FORMULA R x W =
13.65 x $141.0^{0.9}$ = 13.65 x 85.96 = $1,173.36
return (x 2) = **$2,346.72**

ENROUTE CHARGE:

UNIT RATE (R) : $ 0.03506
FORMULA R x W x D
.03506 x $141.0^{0.5}$ x (3679-130) = $ 1,477.50
return (x 2) **=** **$ 2,955.00**

TOTAL CHARGES (YVR-YUL-YVR) **=** **$ 5,301.72**

OTTAWA (YOW) - IQALUIT (YFB) RETURN **B727-100**

WEIGHT (W) = 76.9 TONNES *DISTANCE (D) = 2096 KM*

TERMINAL SERVICES CHARGE (Ottawa and Iqaluit):
UNIT RATE (R) : $13.65

FORMULA R x W =
13.65 x $76.9^{0.9}$ = 13.65 x 49.812 = $679.93
return (x 2) = **$1,359.86**

ENROUTE CHARGE
UNIT RATE (R) : $ 0.03506

FORMULA R x W x D
.03506 x $76.9^{0.5}$ x (2096-100) = $613.67
return (x 2) = **$1,227.34**

TOTAL CHARGES (YOW-YFB-YOW) = **$2,587.20**

ILLUSTRATIVE NAV CANADA CHARGES

OTTAWA (YOW) -WASHINGTON (IAD) RETURN **CL65**

WEIGHT (W) = 23.0 TONNES *DISTANCE (D) = 80 KM*

TERMINAL SERVICES CHARGE (Ottawa)**:**
UNIT RATE (R) : $13.65

FORMULA R x W =
13.65 x $23.0^{0.9}$ = 13.65 x 16.81 = **$229.45**

ENROUTE CHARGE:
UNIT RATE (R) : $ 0.03506

FORMULA R x W x D
.03506 x $23.0^{0.5}$ x (80-65) = $2.52
return (x 2) = **$5.04**

TOTAL CHARGES (YOW-IAD-YOW) = **$234.49**

WINNIPEG (YWG) - HAMILTON (YHM) RETURN **B727**

WEIGHT (W) = 76.9 TONNES *DISTANCE (D) = 1520KM*

TERMINAL CONTROL CHARGE (Winnipeg & Hamilton):
UNIT RATE (R) : $13.65

FORMULA = R x W =
= 13.65 x $76.9^{.9}$ = 13.65 x 49.812 = $679.93
return (x 2) = **$1,359.86**

ENROUTE CHARGE:
UNIT RATE (R) : $ 0.03506

FORMULA = R x W x D
= .03506 x $76.9^{0.5}$ x (1520-130) = $427.36
return (x 2) = **$854.72**

TOTAL CHARGES (YWG-YHM-YWG) = **$2,214.58**

ILLUSTRATIVE NAV CANADA CHARGES

CHICAGO-PARIS (RETURN) **B747**

WEIGHT (W) = 395 TONNES *DISTANCE (D) = 2247 KMS*

OCEANIC CHARGES :

CHARGES PER FLIGHT
NAT : $83.81
Int'l Comm : $50.61
return (x 2) = **$268.84**

OVERFLIGHT ENROUTE CHARGE :

UNIT RATE (R) : $ 0.03506

FORMULA = R x W x D
= 0.03506 x $(395)^{0.5}$ x 2247 = $1,565.72
return (x2) = **$3,131.44**

TOTAL ANS COSTS (ORD-CDG-ORD) = **$3,400.28**

Attachment I

AERODROMES WITH STAFFED AIR NAVIGATION FACILITIES [1]

Atlantic

TOWERS	FSSs
Gander	Charlo
St. John's	Charlottetown
Halifax *	Deer Lake
Moncton	Gander
	Fredericton
	Halifax
	Saint John
	St. John's
	St. Anthony
	Sydney
	Wabush

Québec

Dorval *	Gatineau *
Mirabel *	Iles-de-la-Madeleine
Québec *	Iqaluit
Sept-Iles	Kuujjuaq
St-Honoré *	Kuujjuarapik
St-Hubert *	La Grande Rivière
St-Jean *	Mont Joli
	Montréal (Dorval)
	Québec
	Roberval
	Rouyn
	Sept-Iles
	Val d'Or

TOWERS	**FSSs**
Ontario	
Buttonville *	Kingston
Hamilton	London
London	North Bay ROCC
North Bay	Sault Ste. Marie
Oshawa *	St. Catharines
Ottawa *	Timmins
Sault Ste. Marie	Toronto/Buttonville
Sudbury	
Toronto LBPIA *	
Toronto City Centre *	
Waterloo	
Windsor *	
Central	
Regina *	Baker Lake
Saskatoon *	Brandon
St. Andrews *	Churchill
Thunder Bay *	Kenora
Winnipeg *	La Ronge
	Prince Albert
	Rankin Inlet
	Regina
	Resolute Bay
	Saskatoon
	Sioux Lookout
	Thompson
	Thunder Bay
	Winnipeg Int'l

TOWERS	**FSSs**
Western	
Calgary *	Dawson Creek
Edmonton Int'l *	Edmonton Int'l
Edmonton City Centre. *	Ft. McMurray
Springbank *	Fort Nelson
Villeneuve	Fort Simpson
Whitehorse	Fort Smith
Yellowknife	Fort St. John
	Grande Prairie
	Hay River
	High Level
	Inuvik
	Lethbridge
	Lloydminster
	Medecine Hat
	Norman Wells
	Peace River
	Red Deer
	Springbank/Calgary
	Whitecourt
	Whitehorse
	Yellowknife
Pacific	
Abbotsford *	Abbotsford
Boundary Bay *	Campbell River *
Kelowna	Castlegar
Langley *	Cranbrook
Pitt Meadows *	Kamloops
Prince George	Nanaimo *
Vancouver *	Penticton
Vancouver Harbour *	Port Hardy
Victoria *	Prince George
	Prince Rupert/Seal Cove
	Smithers
	Terrace
	Vancouver
	Victoria Harbour *
	Williams Lake

In addition to the aerodromes listed , the Terminal Services Charge applies to departures of civilian aircraft from aerodromes receiving ANS services from DND, including, but not limited to, the following:

Bagotville*	Greenwood*	Borden
Cold Lake*	Moose Jaw*	Petawawa
Comox*	Shearwater*	Valcartier
Goose Bay*	Gagetown	
Trenton*	Namao (Edmonton)	

Notes:

1. The list was prepared in May, 1998 and is subject to change.

2. At aerodromes marked with an asterisk (*), flights receive dedicated arrival/ departure control services, and qualify for a 65 km enroute distance reduction; the reduction for other listed aerodromes is 35 km.

Attachment II

Definitions

Air navigation services - Air navigation services means aeronautical communication services, aeronautical information services, aeronautical radio navigation services, air traffic control services, aviation weather services, emergency assistance services, and flight information services in respect of Canadian airspace or any other airspace in respect of which Canada has responsibility for the provision of air traffic control services.

Airport - A certified aerodrome, or an uncertified aerodrome with air navigation facilities staffed by NAV CANADA or by a person acting under the authority of the Minister of National Defence.

Canadian controlled airspace - Canadian controlled airspace consists of Canadian sovereign airspace or any other airspace in respect of which Canada has responsibility for the provision of air navigation services.

Designated Northern or Remote Services - Those services that are civil air navigation services designated by the Minister of Transport pursuant to section 2(5) of the *Civil Air Navigation Services Commercialization Act*.

Enroute charge - Charge applied to flights in Canadian-controlled airspace (excluding the Gander Oceanic FIR/CTA) , and covering enroute services provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence.

Enroute services - Enroute services are air navigation services other than terminal and oceanic services.

Great Circle - A circle on the surface of the earth, the plane of which passes through the centre of the earth.

Great Circle Distance - The length of the shorter arc of the great circle joining two points.

International Communication Services Charge (Int'l Comm) - A charge for the provision of services related to air-ground radio frequencies, provided or made available by NAV CANADA or by a person acting under the authority of the Minister of National Defence at one or more aeronautical stations to an aircraft during the course of an international flight, other than a flight between Canada and the continental United States, to obtain communication services.

Maximum permissible take-off weight - Maximum permissible take-off weight means the maximum permissible take-off weight specified in the aircraft's certificate of airworthiness or in a document referred to in that certificate.

North Atlantic Enroute Facilities and Services Charge (NAT) - A charge for air navigation services provided or made available by NAV CANADA or a person acting under the authority of the Minister of National Defence to an aircraft during the course of a flight in the Gander Oceanic Flight Information Region/Control Area (FIR/CTA).

Oceanic Services - Air navigation services, including air-ground radio frequencies to obtain communication services, provided or made available by NAV CANADA or a person acting under the authority of the Minister of National Defence to an aircraft during the course of a flight in the Gander Oceanic FIR/CTA.

Overflight – flight that passes through Canadian-controlled airspace (excluding the Gander Oceanic FIR/CTA) which does not land or take off in Canada**.**

Propeller Aircraft - propeller aircraft means fixed-wing piston-engine aircraft, turboprop aircraft or helicopter

State aircraft - an aircraft other than an aircraft operated for commercial purposes, that is owned and operated by the government of a country or the government of a colony, dependency, province, state, territory or municipality of a country.

Terminal services - Air navigation services provided or made available to an aircraft at or in the vicinity of an airport, excluding aircraft overflying the airport, such as i) dedicated arrival/departure control services provided by Area Control Centres and Terminal Control Units or ii) aerodrome services including, for example, airport advisories and air traffic control from a tower.

Test year - The twelve month period beginning November 1, 1998.