

**APPENDIX C TO TIB NO. 11, JUNE 1990
DETERMINATIONS RECENTLY ISSUED BY THE COMMISSIONER UNDER
THE ACCRUALS REGIME**

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DETERMINATION G6B: FOREIGN CURRENCY RATES

This Determination may be cited as "Determination G6B: Foreign Currency Rates".

1. Explanation (which does not form part of the determination)

This determination rescinds and replaces Determination G6A: Foreign Currency Rates, made on 21 November 1988.

Apart from minor amendments, this determination differs from Determination G6A: Foreign Currency Rates only in the replacement of the definition "authorised foreign exchange dealer" by the definition "approved foreign exchange dealer".

The definition of "authorised foreign exchange dealer" set out in clause 5(1) of Determination G6A: Foreign Currency Rates refers to persons designated as such by notice in the Gazette for the purposes of the Exchange Control Regulations 1985.

The Exchange Control Regulations 1985 were revoked as from 1 February 1990 by the Reserve Bank Act 1989.

This determination applies where, for the purpose of calculating the income or expenditure of a person in respect of a financial arrangement denominated in a foreign currency, it is necessary to establish the rate in New Zealand currency of a foreign currency. This will be required in the circumstances outlined in clause 3 of this determination.

This determination sets out the approved markets, sources of information and method, to be used for determining the rate for foreign currency conversion.

2. Reference

This determination is made pursuant to section 64E(1)(a) to (f) and section 64E(6) of the Income Tax Act 1976.

This determination rescinds and replaces Determination G6A: Foreign Currency Rates, made on 21 November 1988.

3. Scope of Determination

This determination applies where it is necessary for the purposes of sections 64B to 64M of the Income Tax Act 1976 to ascertain the value in New Zealand currency of:

- (a) A cashflow paid or received in a foreign currency under a financial arrangement; or
- (b) A financial arrangement denominated in a foreign currency using a method that has regard to market valuation; and
- (c) In any other circumstances, an amount expressed in foreign currency.

4. Principle

(1) Markets in foreign currencies are approved having regard to the following criteria -

- (a) The number of participants in the market or having access to the market;
- (b) Frequency of trading in the market;
- (c) The nature of trading in the market - how the rate for the foreign currency is determined and how the foreign currency is traded on the market;
- (d) The potential or demonstrated capacity of a person or group of persons to significantly influence the market;
- (e) Significant barriers to entry;
- (f) Discrimination on the basis of the quantity bought and sold unless based on the risks involved or the transaction costs or economies of scale.

(2) Sources of information for foreign currency rates are approved having regard to the following criteria

- (a) Reliance on the sources of information by participants in the market;
- (b) The accessibility of the sources of information for participants in the market.

(3) Methods of obtaining a rate for foreign currency at the end of the income year for the purposes of valuing a financial arrangement are approved if -

- (a) The rate is obtained at the cut-off time; and

(b) The method for determining the cut-off time adopted by a person will be consistently applied in respect of each income year.

5. Interpretation

(1) In this determination, unless the context otherwise requires -

Expressions used, except the expression "income year", have the same meanings as in sections 2 and 64B to 64M of the Income Tax Act 1976:

"Approved foreign exchange dealer" means a foreign exchange dealer that is a registered bank for the purposes of the Reserve Bank Act 1989 and is active in the market:

"Contributor page" means a page of information provided by an approved foreign exchange dealer that is displayed on a screen provided by Reuters New Zealand Limited or Telerate New Zealand Limited:

"Cut-off time", in relation to a person and an income year, means the time at the end of the income year when all financial arrangements held or issued by the person are valued in order to determine the assessable income of the person for the income year:

"Forward contract" means a contract, other than a contract traded on any futures market or a spot contract, for the sale or purchase of a foreign currency for delivery at a specified future time:

"Futures contract" means a contract traded on the New Zealand Futures Exchange:

"Income year" means-

(a) Where a taxpayer furnishes a return of income under section 15 of the Income Tax Act 1976 for an accounting year ending with an annual balance date other than the 31st day of March, the annual accounting period ending on that balance date:

(b) In respect of the income of any other person, the year in which that income has been derived by that person:

"New Zealand foreign currency market" means the market in spot contracts and forward contracts:

"Spot contract" means a contract for the sale or purchase of a foreign currency for delivery in 2 days:

"Multicontributor page" means a multicontributor page of information that is displayed on a screen provided by Reuters New Zealand Limited or Telerate New Zealand Limited.

(2) Any reference in this determination to another determination made by the Commissioner shall be construed as referring to any fresh determination made by the Commissioner to vary, rescind, restrict, or extend that determination.

6. Method

(1) APPROVED MARKETS

The New Zealand foreign currency market in European Currency Units and in the currencies of the following countries and territories are approved -

| | |
|-------------------------|---------------------|
| Japan | The Independent |
| Canada | State of Papua New |
| French Republic | Guinea |
| The Territory of Hong | Republic of Ireland |
| Kong | Portuguese |
| Commonwealth of | Republic |
| Australia | Republic of Austria |
| Republic of Singapore | Kingdom of |
| The Swiss Confederation | Sweden |
| Federal Republic of | Kingdom of |
| Germany | Denmark |
| The United States of | Republic of |
| America | Italy |
| Kingdom of the | Kingdom of |
| Netherlands | Norway |
| United Kingdom of Great | Kingdom of Spain |
| Britain and Northern | Republic of Turkey |
| Ireland | The Hellenic |
| The Federation of | Republic |
| Malaysia | Finland |

(2) SOURCES OF INFORMATION

The following sources of information for foreign currency rates are approved

(a) In relation to spot contracts, a multicontributor page that quotes rates for spot contracts:

(b) In relation to forward contracts, a multicontributor page or a contributor page that quotes rates for forward contracts:

(c) Where a person does not have access to a multicontributor page or a contributor page or where the rates for a forward contract are not available from a multicontributor page, advice as to the buy and sell rates for a forward contract or spot contract given to that person by an approved foreign exchange

dealer, which rates shall be derived from an approved source and shall be the rates at which the approved foreign exchange dealer would perform the foreign exchange transaction.

(3) SPOT CONTRACTS

(a) Where, for the purposes of determining the income or expenditure of a person in respect of a financial arrangement, it is necessary to determine the rate for a spot contract at the end of an income year, the rate for the spot contract shall be the midpoint between the buy and sell rates for that spot contract.

(b) Where, for the purposes of determining the income or expenditure of a person in respect of a financial arrangement, it is necessary to ascertain in New Zealand currency the value of a cashflow paid or received in a foreign currency, the rate of exchange to be applied shall be -

(i) Where the cashflow is not converted to New Zealand currency on the day it is paid or received, the midpoint between the buy and sell rates for a spot contract for that currency at any time on that day; or

(ii) The rate quoted on a multicontributor page for the United States Dollar against the New Zealand Dollar.

(c) Where a buy and sell rate for a spot contract is not quoted on a multicontributor page, the rate for the spot contract shall be the cross rate calculated by reference to:

(i) The rate quoted on a multicontributor page for the foreign currency against the United States Dollar; and

(ii) The rate quoted on a multicontributor page for the United States Dollar against the New Zealand Dollar.

(4) FORWARD CONTRACTS

Where, for the purposes of determining the income or expenditure of a person in respect of a financial arrangement, it is necessary to determine the rate for a forward contract at the end of the income year, and

(a) Where the buy and sell points for the forward contract are quoted on a multicontributor page, the rate for the forward contract shall be the midpoint between the buy and sell rates for that forward con-

tract obtained by reference to the multicontributor page;

(b) Where the buy and sell points for the forward contract are not quoted on a multicontributor page, but the buy and sell points for similar forward contracts of shorter term ("the shorter contract") and of longer term ("the longer contract") are quoted on a multicontributor page, then the rate shall be the rate obtained by reference to the multicontributor page using straight line interpolation of the midpoints between the buy and sell rates for the shorter contract and the longer contract which have terms closest to the term of the forward contract;

(c) Where the rate cannot be obtained by reference to points on a multicontributor page and where the rate for that forward contract is available by reference to contributor pages, then the rate shall be the arithmetic mean of the midpoints of not less than 3 buy and sell rates for the forward contract obtained from contributor pages;

(d) Where the rate cannot be obtained by reference to paragraphs 6(4)(a) to (c) of this determination, the rate shall be the arithmetic mean of not less than three rates being any of -

(i) the midpoints of the buy and sell rates quoted for the forward contract by one or more approved foreign exchange dealers; or

(ii) where the points for similar forward contracts of shorter term ("the shorter contract") and of longer term ("the longer contract") are quoted on a contributor page, then the rate shall be the rate obtained by reference to the contributor page using straight line interpolation of the midpoints between the buy and sell rates for the shorter contract and the longer contract which have terms closest to the forward contract.

(5) A person applying paragraphs 6(3)(a) or 6(4) of this Determination may obtain the rate for a spot contract or forward contract using the method prescribed in those paragraphs at any time on the last day of the income year:

Provided that -

(a) The rate applied is the rate obtained at the cut-off time in relation to the person and the income year; and

(b) The method for determining the cut-off time adopted by that person is consistently applied in respect of each income year:

Provided further that where there is no market at the cut-off time, the rate shall be -

(c) The rate obtained at the later of -

(i) The end of trading in forward contracts or spot contracts by that person in the income year:

(ii) 3.00 pm New Zealand Standard Time on the last day in the income year on which there was a market; or

(d) The rate for the earlier of -

(i) The commencement of trading in forward contracts or spot contracts by that person in the following income year:

(ii) 7.30 am New Zealand Time on the first day in the following income year on which there was a market.

7. Example

This is an example of the application of the averaging process and straight line interpolation required for certain forward foreign exchange contracts under the determination.

On its balance date of 30 June 1987 a New Zealand corporate had a forward foreign exchange contract for delivery of 1.2 million New Zealand Dollars for 612,000 United States Dollars on 1 August 1988.

The contract therefore is to be fulfilled in approximately 13 months' time.

At the balance date the foreign exchange quotations for the New Zealand Dollar against the United States Dollar were (from the multicontributor page ASAP on the Reuters system):

| | Buy | Sell |
|-----------|--------|--------|
| Spot Rate | 0.6095 | 0.6100 |

Also at that date the quotations of forward foreign exchange points for the United States Dollar against the New Zealand Dollar by three market participants were (as provided on their Reuters screens):

Forward Points

FX DEALER 1:

| | | |
|---------------------|------|-----|
| Delivery in 1 year | 585 | 555 |
| Delivery in 2 years | 1030 | 960 |

FX DEALER 2:

| | | |
|---------------------|------|-----|
| Delivery in 1 year | 580 | 530 |
| Delivery in 2 years | 1040 | 970 |

FX DEALER 3:

| | | |
|---------------------|------|-----|
| Delivery in 1 year | 575 | 540 |
| Delivery in 2 years | 1035 | 965 |

Note that to obtain the forward rates the forward points need to be subtracted from the spot rate.

The mid-rates for use in the interpolation formula are therefore:

| | Buy | Sell | Mid-Rate |
|--------------|-----|------|----------|
| Forward Rate | | | |

FX DEALER 1:

| | | | |
|---------------------|--------|--------|---------|
| Delivery in 1 year | 0.5510 | 0.5545 | 0.55275 |
| Delivery in 2 years | 0.5065 | 0.5140 | 0.51025 |

FX DEALER 2:

| | | | |
|---------------------|--------|--------|---------|
| Delivery in 1 year | 0.5515 | 0.5570 | 0.55425 |
| Delivery in 2 years | 0.5055 | 0.5130 | 0.50925 |

FX DEALER 3:

| | | | |
|---------------------|--------|--------|---------|
| Delivery in 1 year | 0.5520 | 0.5560 | 0.55400 |
| Delivery in 2 years | 0.5060 | 0.5135 | 0.50975 |

The arithmetic mean of the midpoints of the forward rates is calculated to be:

| | |
|---------------------|---------|
| Delivery in 1 year | 0.55366 |
| Delivery in 2 years | 0.50975 |

A suitable formula for straight line interpolation to obtain the required rate is:

$$\text{So } P_x = P_1 + \frac{(T_x - T_1)}{(T_2 - T_1)} \times (P_2 - P_1)$$

P₁ is the mid-rate for the forward contract with the shorter term (= 0.55366).

P₂ is the mid-rate for the forward contract with the longer term (= 0.50975).

P_x is the required rate.

T₁ is the term till delivery (expressed in days) of the forward contract with the shorter term (= 365).

T₂ is the term till delivery (expressed in days) of the forward contract with the longer term (= 730).

T_x is the term until delivery of the contract held (= 398).

The required rate is therefore calculated as follows:

$$\begin{aligned} \text{So } P_x &= P_1 + \frac{(T_x - T_1)}{(T_2 - T_1)} \times (P_2 - P_1) \\ &= 0.55366 + \frac{(398 - 365)}{(730 - 365)} \times (0.50975 - 0.55366) \\ &= 0.55366 + \frac{33}{365} \times (-0.04391) \\ &= 0.54969 \end{aligned}$$

The current value of the 612,000 United States Dollars receivable on 1 August 1988 is therefore 1,113,354.80 New Zealand Dollars.

This determination is signed by me on the 23rd day of April in the year 1990.

R D Adair
Deputy Commissioner of Inland Revenue

DETERMINATION G10A: PRESENT VALUE CALCULATION METHODS

This determination may be cited as "Determination G10A: Present Value Calculation Methods".

1. Explanation (which does not form part of the determination).

- (1) This determination rescinds and replaces Determination G10: Present Value Calculation Methods, made by the Commissioner on 21 November 1988. This determination differs from Determination G10 in the interpretation of a 360 day basis for calculating the number of days between two given dates.
- (2) For the purposes of the accrual tax accounting regime it may be necessary to calculate present values for a variety of reasons, for example:
 - (a) To calculate the yield to maturity of a financial arrangement. The yield to maturity is the interest rate at which the first amount payable under the financial arrangement is equal to the present value of all subsequent amounts payable under the financial arrangement calculated as at the due date of the first payment:
 - (b) To calculate present values at intermediate times during the term of a financial arrangement in order to calculate the amount of the income derived or expenditure incurred by a person in respect of the financial arrangement.
- (3) The present value of a financial arrangement as at a date excludes any amounts payable under the financial arrangement on that date.
- (4) This determination specifies approved methods of calculating present values for use in other determinations. These methods may be added to or removed from time to time.

Method A is a general purpose method suitable for many applications and gives very similar results to Determination G3: Yield to Maturity Method. Method A may be used on either a 360 or 365 day basis.

Method B is used to calculate prices of government or local authority stock, and other financial arrangements having similar characteristics, employing the formula approved by the International Association of Bond Dealers and used in calculators such as the HP12C.

- (5) Alternative approved methods may not generate exactly identical results.
- (6) Once a person has elected to use an approved method of calculating the present value of a financial arrangement, that method shall be used by the person over the life of the financial arrangement unless the prior consent of the Commissioner is obtained to adopt another method.
- (7) This determination is for use in conjunction with other determinations, for example Determination G11: Present Value Based Yield to Maturity Method.

2. Reference

- (1) This determination is made pursuant to section 64E(1)(a) and 64E(6) of the Income Tax Act 1976.
- (2) Determination G10: Present Value Calculation Methods is hereby rescinded with effect from the day on which this Determination G10A is signed.

3. Scope

This determination shall be used as required by any other determination which will specify -

- (a) The date at which the present value shall be calculated; and
- (b) The interest rate that shall be used in the calculation; and
- (c) The amounts and due dates for which the present value shall be calculated

and which may specify the method to be used.

4. Principle

This determination specifies alternative methods for calculating the present value of a financial arrangement, equal to the sum of the values as at the specified date of all amounts payable under the financial arrangement after that date, discounted at the specified rate.

5. Interpretation

- (1) In this determination unless the context otherwise requires -

“The Act” means the Income Tax Act 1976:

“Income year” has the same meaning as in sections 64B to 64M of the Act:

“Period” and “period between payments” in relation to a person means a term -

(a) Commencing immediately after -

(i) A specified date in relation to a financial arrangement; or

(ii) A date on which an amount is payable under a financial arrangement as the case may be; and

(b) Ending on the next succeeding date on which an amount is payable under a financial arrangement.

Provided that if a period or a period between payments exceeds one year it shall be deemed to comprise one or more periods each of one year followed (or preceded, at the option of the person) by a period of not more than one year:

“Specified date” in relation to a financial arrangement means the date at which the present value of the financial arrangement is required to be calculated:

“Specified rate” in relation to a financial arrangement and a person means the annual rate of interest at which the present value of the financial arrangement is required to be calculated.

- (2) The number of days in a period calculated on a 365 day basis is the actual number of days in the period including the ending date of the period but excluding the starting date of the period.

- (3) The number of days in a period calculated on a 360 day basis means the number of days falling within the period including the ending date of the period but excluding the starting date of the period and calculated as if every calendar month of the period had exactly 30 days;

Provided that if the ending date is the 31st day of the month and -

- (a) The starting date of the period is not the 30th or 31st of a month, the ending date

shall be included in the number of days in the period;

(b) The starting date of the period is the 30th or 31st day of a month, the ending date shall be deemed to be the 30th day of the month.

(4) In this determination, unless the context otherwise requires, expressions used that are not defined in this clause have the same meaning as in sections 2 and 64B to 64M of the Act.

(5) Any reference in this determination to another determination made by the Commissioner shall be construed as referring to any fresh determination made by the Commissioner to vary, rescind, restrict, or extend that determination.

6. Method

(1) A person shall elect to use a method allowed under a determination made by the Commissioner under section 64E(1)(a) of the Act for the purpose of calculating a present value in relation to a financial arrangement, and shall apply that method consistently in respect of that financial arrangement, until it matures or is remitted, sold or otherwise transferred by the person unless the prior consent of the Commissioner (which may be given conditionally) to adopt another method is obtained.

(2) Method A

(a) For the purpose of applying clause 6(2)(b) of this determination, in relation to any person N shall be calculated as follows:

(i) Where the greatest common divisor of all periods between payments is -

(A) A year or 12 months, N shall be taken as 1;

(B) A "halfyear" or 6 months, N shall be taken as 2;

(C) A quarter or 3 months, N shall be taken as 4;

(D) A month, N shall be taken as 12;

(E) A fortnight, N shall be taken as 26;

(F) A week, N shall be taken as 52;

Provided that where 1 or 2 of the periods are shorter or longer than all the other periods this fact shall be disregarded in determining the greatest common divisor, and for the shorter or longer period or

periods N shall be, at the option of the person, taken as

(G) 365 divided by the number of days in the period calculated on a 365 day basis; or

(H) 360 divided by the number of days in the period calculated on a 360 day basis.

(ii) Where N cannot be determined according to the foregoing subparagraph it shall be, at the option of the person, taken as

(A) 365 divided by the number of days in the period calculated on a 365 day basis -

(B) 360 divided by the number of days in the period calculated on a 360 day basis -

for all of the periods.

(b) The amount of the present value of a financial arrangement calculated according to Method A as at a date shall be calculated according to the following formula:

$$\frac{A + B - C}{1 + F}$$

where -

A is the present value (if any) as at the end of the period immediately following the date; and

B is the sum of the amounts receivable by the holder or payable by the issuer at the end of the period immediately following the date; and

C is the sum of the amounts payable by the holder or receivable by the issuer at the end of the period immediately following the given date; and

F is the amount calculated in relation to the financial arrangement and the person and the period immediately following the date according to the following formula:

$$\frac{R}{100 \times N}; \text{ and}$$

R is the specified rate.

(3) Method B

- (a) A person shall apply Method B only to financial arrangements which are debt instruments under which all payments after the issue or acquisition date are at regular "halfyear" or quarterly intervals.
- (b) For purposes of applying clause 6(3)(c) of this determination in relation to any person -
- (i) If amounts are payable at regular half-yearly intervals, N shall be taken as 2 and the preceding due date shall be taken as the date 6 calendar months prior to the date on which the first amount is payable on or after the date of issue or acquisition;
- (ii) If amounts are payable at regular quarterly intervals, N shall be taken as 4 and the preceding due date shall be taken as the date 3 calendar months prior to the date on which the first amount is payable on or after the date of issue or acquisition.
- (c) The amount of the present value of a financial arrangement calculated according to Method B as at a date shall be calculated according to the following formula:

$$\frac{A + B - C}{D}$$

where -

- A is the present value (if any) as at the end of the period immediately following the date; and
- B is the sum of the amounts receivable by the holder or payable by the issuer at the end of the period immediately following the date; and
- C is the sum of the amounts payable by the holder or receivable by the issuer at the end of the period immediately following the date; and
- D is (a) Where an amount is payable at the end of the period immediately following the date is the last amount payable under the financial arrangement, an amount calculated according to the following formula:

$$= 1 + \frac{F \times T1}{T2}$$

- (b) In any other case, an amount calculated according to the following formula:

$$(1 + F)^{\frac{(T1)}{(T2)}} ; \text{ and}$$

F means an amount calculated according to the following formula:

$$\frac{R}{100 \times N} ; \text{ and}$$

R is the specified rate; and

T1 is the number of days in the period immediately following the date calculated on a 365 day basis; and

T2 is the sum of T1 and -

- (i) Where an amount is payable on the date, zero; or
- (ii) In any other case, the number of days between the preceding due date and the date calculated on a 365 day basis.

7. Example

(1) Example A

- (a) This example illustrates Method A, using the same example as in Determination G3: Yield to Maturity Method and Determination G11: Present Value Based Yield to Maturity Method, Example A. The example shows that the present value at the beginning of a period is the same as the principal outstanding during the period.

On 12 March 1987 (the specified date) a holder acquires for \$1,012,500 the right to receive the following income -

| | | |
|------------------|----|-----------|
| 15 May 1987 | \$ | 70,000 |
| 15 November 1987 | \$ | 70,000 |
| 15 May 1988 | \$ | 70,000 |
| 15 November 1988 | \$ | 1,070,000 |

The greatest common divisor of all periods except the first is 6 months, so that N = 2; in the first (broken) period ending on 15 May 1987

$$N = \frac{365}{64} = 5.703125$$

The specified rate R is 16.2308% per annum.

Therefore $F = 0.028459$ in the period ending 15/5/1987 and 0.081154 in all the remaining periods.

(b) The following schedule may then be constructed, starting at the bottom and working up:

| Period Ending | Present Value at Beginning | Payments by Issuer | Present Payments by Holder | Value at End |
|---------------|----------------------------|--------------------|----------------------------|--------------|
| | B | C | A | |
| 15/5/87 | 1,012,500 | 70,000 | - | 971,315 |
| 15/11/87 | 971,315 | 70,000 | - | 980,141 |
| 15/ 5/88 | 980,141 | 70,000 | - | 989,683 |
| 15/11/88 | 989,683 | 1,070,000 | - | - |

The present value at the beginning of the first period is the same as the acquisition price, verifying that the specified rate is equal to the yield to maturity for this transaction.

(2) Example B

(a) This example illustrates Method B, using the same example as in Determination G3: Yield to Maturity Method and Determination G11: Present Value Based Yield to Maturity Method, Example B.

On 12 March 1987 (the specified date) a holder acquires for \$1,012,500 the right to receive the following income -

| | |
|------------------|-------------|
| 15 May 1987 | \$ 70,000 |
| 15 November 1987 | \$ 70,000 |
| 15 May 1988 | \$ 70,000 |
| 15 November 1988 | \$1,070,000 |

All amounts are expressed in New Zealand dollars.

Amounts are payable at regular half-yearly intervals, so that $N = 2$ and the preceding due date is 6 months prior to 15 May 1987, namely 15 November 1986.

Also, $T_1 = T_2$ except for the first (broken) period ending on 15 May 1987 for which

$T_1 = 15/5/87 - 12/3/87 = 64$ days, and
 $T_2 = 64$ days + $12/3/87 - 15/11/86 = 181$ days.

The specified rate R is 16.265% per annum. (See footnote to this Example B for details of calculating using the HP12C calculator.)

Therefore $F = 0.081325$, and $D = 1.028032$ in the period ending 15/5/ 87 (that being $(1+F$ to the power of $64/ 181)$ and 1.081325 in all the remaining periods.

(b) The following schedule may then be constructed, starting at the bottom and working up:

| Period Ending | Present Value at Beginning | Payments by Issuer | Present Payments by Holder | Value at End |
|---------------|----------------------------|--------------------|----------------------------|--------------|
| | B | C | A | |
| 15/5/87 | 1,012,500 | 70,000 | - | 970,884 |
| 15/11/87 | 970,884 | 70,000 | - | 979,841 |
| 15/ 5/88 | 979,841 | 70,000 | - | 989,527 |
| 15/11/88 | 989,527 | 1,070,000 | - | - |

The present value at the beginning of the first period is the same as the acquisition price, verifying that the specified rate is equal to the yield to maturity for this transaction.

(c) Footnote:

The calculations in Example B may be made using the BOND PRICE and BOND YTM functions on the HP12C (or equivalent) calculator.

(i) Calculating the Specified Rate, R

The HP12C assumes that the purchase price excludes accrued interest, whereas the actual purchase price of \$1,012,500 includes accrued interest from 15 November 1986 to 12 March 1987. This accrued interest is calculated as follows, per \$100 nominal:

| | |
|----------------|------------------|
| Set up | (g)(D.MY) |
| Any YTM | 0 (i) |
| Coupon Percent | Pa.14 (PMT) |
| Purchase date | 12.031987 (STO)1 |
| (ENTER) | |
| Maturity date | 15.111988 (STO)2 |
| | (f)(PRICE) |
| | (X Y)4.524862 |

This amount is then subtracted from the purchase price per \$100 nominal, of \$101.25, to give the ex-accrued interest purchase price.

| | |
|----------------|---------------|
| Purchase price | 101.25 (X Y) |
| | (-)96.725138 |

The specified rate (R) can then be calculated using the BOND YTM function;

| | |
|---------------------------|-------------------|
| Ex-accrued interest price | (PV) |
| Purchase date | (RCL)1 |
| Maturity date | (RCL)2 |
| | (f) (YTM) 16.265% |

(ii) Calculating the present values

The "Present Values at Beginning" shown in the schedule may be calculated directly using the BOND PRICE function. The following steps reproduce the value at 15 November 1987 for example:

| | | |
|----------------------|-----------|-------------|
| Specified rate | 16.265 | (i) |
| Coupon % pa | 14 | (PMT) |
| Value date | 15.111987 | (ENTER) |
| Maturity date | 15.111988 | (f) (Price) |
| | | 97.984116 |
| Add accrued interest | | (+) |
| | | 97.984116 |

which is the per \$100 nominal price corresponding to \$97,841.

This Determination is signed by me on the 23rd day of April in the year 1990.

R D Adair
Deputy Commissioner