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# CANSIM

## Users' manual for data retrieval and manipulation

1972





STATISTICS CANADA  
General Time Series Staff

CANSIM: USERS' MANUAL FOR DATA  
RETRIEVAL AND MANIPULATION

1972

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## PROLOGUE

This manual describes part of a system which had its inception in a data storage, retrieval and manipulation computer package developed by M.C. McCracken. This prototype system was developed in 1964 at Southern Methodist University, where there was a need to collect and manipulate time series data in order to estimate parameters for an econometric model. The first version of the system used card images stored on magnetic tape and a small retrieval program which simply reformatted the data for input to statistical utility programs. In January 1965 the development of a more advanced system was started and a working version of this new system was in use by April of 1965.

The Economic Council of Canada provided funds for the development of an expanded system on a CDC 3400 computer at the University of Montreal. The expanded version has been in use, with modifications, since September 1965. In May 1966 the Bank of Canada became the first agency other than the Council to make use of the system and during the Summer and Fall of 1966 the National Energy Board and the Department of Finance also began using the system for maintenance and manipulation of the data necessary in their analytical operations.

In November of 1966 Statistics Canada accepted the responsibility for the entry of data into the base and maintenance of the existing programs. The Economic Council and the Bank of Canada expressed the hope that this system would eventually be modified into a true information system for use in the operations of statistical agencies of the Canadian government.

As a result, in July 1967, an inter-departmental team was set up under the direction of Dr. T.J. Vander Noot to design and implement a national data base for socio-economic data. This manual comprises one volume of the documentation for this system.



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## INTRODUCTION

CANSIM<sup>1</sup> is designed to provide efficient and economic management of a large volume of time-series data. The programs for data storage, retrieval, and manipulation comprising the system were written for an IBM computer. Management, control, and maintenance of the system are the responsibility of Statistics Canada but accuracy of the included data is the responsibility of the agency compiling it.

Operation of the programs is supervised by the General Time Series Staff.

The subject of this manual is the retrieval sub-system of CANSIM which provides for the retrieval of data stored in the base on printouts, or in machine readable formats (tape or in interim direct access storage) suitable for input to data manipulative or table formatting routines.

Release of this revised manual signals the completion of Phase 2-1 in the development of CANSIM, the computerized time series data bank of Statistics Canada. Phase 1 programs, which comprise the data storage and housekeeping sub-systems,<sup>2</sup> and a minimal retrieval capability, have been operational since July 1969 when the availability of data from CANSIM was first publicly announced.

An important option planned for inclusion in Phase 2, which was postponed, is the writing of an integrated manipulative language for use with terminals to the CANSIM computer. Consideration is

being given to the acquisition of one or more languages already developed and in use at computer service bureaus.

The data base and its supporting software, now at Computer Services Bureau, may be accessed via terminals (either a card reader-printer, or a type-writer terminal). The General Time Series Staff currently receives and actions all requests for those who have no terminal access to CANSIM.

A description of the data base (including record formats and explanation of codes) is given in Section 2. Also included are descriptions of the matrix and series numbering system.

Section 3 is a description of the command languages used to retrieve the data, for manipulation or as computer printouts, and of the job control language. Samples of output formats are shown in Appendices.

Section 4 gives a description of the MASSAGER program and other existing utilities which are available for use with data retrieved from CANSIM.

Section 5 covers the use of the system by Statistics Canada, by other government agencies and by private customers.

The final section, Section 6 is a glossary of all words used in the command language or in the control cards.

Statistics Canada again acknowledges the substantial contribution made to CANSIM development by the Economic Council of Canada. The Bank of Canada also has contributed generously through the support and distribution of the MASSAGER program which is the manipulative capability most widely used in conjunction with CANSIM outside Statistics Canada.

<sup>1</sup> CANSIM is a registered trademark of Statistics Canada under the Trade Marks Act, and applies only to the full data base and related specialized programs.

<sup>2</sup> A companion manual is available from Statistics Canada entitled "CANSIM: Operation Manual for Data Entry" (Catalogue 12-530 Occasional - \$1.00) which deals with the clerical and machine procedures used for data entry, up-date and revision.



# DESCRIPTION OF THE DATA BASE

## General

CANSIM contains time series, for the most part published by Statistics Canada. The contents of the data base as of February, 1973 are shown in Table 1. This table is kept current and is printed periodically

in the Canadian Statistical Review (Catalogue 11-003). For all series historical data are in the data base from 1946, or barring this, from the earliest year for which continuous data are available.

Contents of CANSIM Data Base, by Source (after Reorganization), as of February, 1973

Number of Series Source	Divisions			Branch			Field			Total		
	Total	Active	In-active (terminated)	Total	Active	In-active (terminated)	Total	Active	In-active (terminated)	Total	Active	In-active (terminated)
<b>Business Statistics Field</b> .....							<b>29,219</b>	<b>28,146</b>	<b>1,073</b>			
<b>Industry Statistics Branch</b> .....				<b>12,786</b>	<b>12,398</b>	<b>388</b>						
Agriculture .....	7,003	6,914	89									
Transportation and Utilities .....	127	124	3									
MAPID .....	5,045	4,881	164									
Construction and Cap. Expend. ..	189	189										
Merchandising .....	422	290	132									
<b>General Statistics Branch</b> .....				<b>16,433</b>	<b>15,748</b>	<b>685</b>						
External Trade .....	560	481	79									
Prices .....	3,980	3,468	512									
Labour .....	6,703	6,653	50									
Business Finance .....	3,491	3,447	44									
Capital Stocks (CANDIDE) ....	1,466	1,466										
Financial Institutions .....	233	233										
<b>Economics and Statistical Integration Field</b> .....							<b>4,811</b>	<b>4,656</b>	<b>155</b>			
<b>Current Accounts Branch</b> .....				<b>4,461</b>	<b>4,306</b>	<b>155</b>						
National Income & Expenditure ..	1,739	1,630	109									
National Output .....	591	591										
Balance of Payments .....	854	808	46									
Financial Flows .....	1,277	1,277										
<b>Structural Accounts Branch</b> .....				<b>350</b>	<b>350</b>							
Productivity .....	350	350										
<b>Household and Institutional Statistics Field</b> .....							<b>1,633</b>	<b>1,633</b>				
<b>Household Statistics Branch</b> .....				<b>1,521</b>	<b>1,521</b>							
Labour Force Survey .....	1,521	1,521										
<b>Institutions and Public Finance Branch</b> .....				<b>39</b>	<b>39</b>							
Health and Welfare .....	39	39										
<b>Census Branch</b> .....				<b>73</b>	<b>73</b>							
Population .....	73	73										
<b>Total STC</b> .....										<b>35,663</b>	<b>34,435</b>	<b>1,228</b>
<b>Outside STC</b> .....							<b>1,103</b>	<b>1,002</b>	<b>101</b>			
<b>Total All Source</b> .....										<b>36,766</b>	<b>35,437</b>	<b>1,329</b>





## Structure

Each time series in the CANSIM base is entered as part of a matrix of similar files arranged in hier-

archical fashion. An illustration might be a population table arranged as follows:

September, 1972

Table 1: population, by province (thousands)

year and month <sup>1</sup>	Canada	Nfld.	P. E. I.	N. S.	N. B.	Que.	Ont.	Man.	Sask.	Alta.	B. C.	Yukon	N. W. T.
1970 June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
1971 June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
1972 June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36
1970 Apr.	21,244	516	110	780	626	6,005	7,528	981	942	1,589	2,118	17	32
June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
July	21,324	518	110	783	628	6,015	7,566	983	940	1,597	2,134	17	33
Oct.	21,400	519	111	784	628	6,021	7,613	982	933	1,607	2,152	17	33
1971 Jan.	21,465	519	111	785	630	6,017	7,656	984	927	1,616	2,168	18	34
Apr.	21,523	521	111	788	633	6,022	7,683	986	926	1,623	2,178	18	34
June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
July	21,595	523	112	790	635	6,032	7,717	989	927	1,629	2,188	18	35
Oct.	21,668	526	112	791	638	6,041	7,748	989	924	1,638	2,206	19	36
1972 Jan.	21,731	528	112	793	640	6,047	7,777	989	919	1,644	2,227	19	36
Apr.	21,788	530	113	793	642	6,056	7,800	991	917	1,650	2,241	19	36
June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36

<sup>1</sup>As of the first of each month. Source: Estimated population of Canada, by province (91-201), Statistics Canada.

This table appears monthly in the Canadian Statistical Review. In the CANSIM data base, the time series (columns of data) have been restructured:

- 01 Total Canada
- 02 Newfoundland
- 02 Prince Edward Island
- 02 Nova Scotia

The entire "Table" is called a matrix. The "01" level within the matrix signifies that this time series is the total or summary measure. The "02" levels are thus subordinate in some way. Since

data collected as a single time series are almost always interdependent with other data, the matrix arrangement allows a whole set of files to be updated or revised at the same time. Matrices also allow for a greater degree of internal verification of the data entered. For instance, in the above example, the "02" level entries (Provinces) must add to the "01" total level (Canada).

All retrievals are made by either a single number which indicates the matrix and series or the DATABANK number. The numbering scheme is illustrated on the next page in the sample Series Directory.

## Reference Documents

## Summary Reference Index

The Summary Reference Index as the first of two information sources for CANSIM, provides matrix numbers for groups of time series which appear in, or relate to, existing publications. The publications for which data are currently in the system in full or in large part are listed in the Table of Contents. CANSIM or DATABANK numbers may be used for accessing and retrieving matrices or series on the CANSIM base.

The DATABANK series identification numbers which also appear in the directory are not to be confused with CANSIM identification numbers. The retrieval in DATABANK and UTILITY formats

creates a tape with DATABANK numbers to permit use of existing manipulative programs such as MASSAGER or MATOP.

## Series Directory

The CANSIM Series Directory contains matrix and series titles and descriptive detail for series available from CANSIM (see sample below). It is used in conjunction with the Summary Reference Index to order series from Statistics Canada.

The matrix titles, sources and notes included in this Directory cover all time series in the CANSIM base as of the date of the printout. Supplements are released when required.



Descriptive detail given for a matrix (roughly equivalent to "table"), used to identify the series in the matrix, includes the frequency and units, the base in the case of index numbers, whether seasonally adjusted or original etc. Where a major

revision has occurred but the historical unrevised series continue to be of interest and are carried in the base, the series number is prefixed by "T".

A guide to use the Series Directory is given below.

CANSIM SERIES DIRECTORY (Sample)										
SERIES DIRECTORY AS OF OCT. 2, 1972					MATRIX: 000010		First Matrix on this page			
Matrix number(1)	000010	ESTIMATED XXXX OF CANADA BY PROVINCE, QUARTERLY, THOUSANDS					Matrix title			
Source	EST. XXXX OF CANADA BY PROV. (91-000), DBS									
Matrix note	ESTIMATES FOR CALENDAR QUARTERLY PERIODS, FROM JAN. 1946. QUARTERLY DATA RELATE TO JAN. 1, APR. 1, JULY 1, AND OCT. 1. FOR ESTIMATED XXXX BY PROVINCE, AS OF JUNE 1 FOR YEARS 1946 ONWARDS, SEE MATRIX 39. DATA PUBLISHED APPROXIMATELY 75 CALENDAR DAYS AFTER END OF REFERENCE QUARTER.									
Agency and section responsible for this matrix. See Inquiries List.	DBS 2 0000									
Series number (within matrix)	1	CANADA	46-01-00	PUBLIC	D	123456	<u>SECURITY LEVELS</u> "PUBLIC"(2) published or publishable series.  "SECURE" series, cannot be retrieved without the approval of the responsible agency.			
	1.1	NEWFOUNDLAND	53-07-00	PUBLIC	D	123457				
	1.1.1	ALBERTA	55-03-00	SECURE	D	123458				
	T1.20	QUEBEC	55-01-15	PUBLIC	D	123459				
"T" before the series number indicates an unrevised, or discontinued series which is of possible continuing interest.										DATABANK number(1)
										Starting date of series in the base (year, month, day)
(1) The CANSIM identification number (Matrix and series number), or the DATABANK identification number may be used to order series from CANSIM. The DATABANK number is used to manipulate data retrieved from CANSIM in MASSAGER, UTILITY, or RANDOM format. For detailed explanation see <u>CANSIM Users Manual for Data Retrieval and Manipulation</u> , Statistics Canada Catalogue No. 12-531 (revised, 1972). (2) A list is available on request of PART-SEC series. These are PUBLIC series which contain one or more secured data points.										



## THE CANSIM RETRIEVAL SYSTEM

### General Description

The CANSIM retrieval and manipulative language is designed for maximum flexibility, while at the same time staying within staff and time restrictions which exist for programming and analysis.

A problem with some command sets is that they were not designed to be added to, which meant that the entire structure of the language had to be revised if additional commands became necessary.

The CANSIM system provides for adding commands with minimum changes to previously existing commands. The retrieval command language described in this manual provides additional features which were not available with the previous issue of May 1969.

Since CANSIM is operational at the Federal Government Computer Services Bureau (CSB), any government department or agency may use the System. Arrangements must be made with Statistics Canada and Computer Services Bureau. A user code will be assigned to all authorized users of CANSIM.

Non-government users must submit their requests to the General Time Series Staff of Statistics Canada. All inquiries concerning the use of CANSIM should be directed to:

General Time Series Staff,  
Statistics Canada,  
Ottawa, K1A 0Z8  
Telephone: 995-7406 Area Code: 613

### Format and Retrieval Options

Four CANSIM Retrieval Command Cards (RSC1 - RSC4) are required to retrieve series. All are standard 80 column cards. (See pages 3.8 and 3.9 for layout sheets). The formats and functions are described below.

#### 1. RSC1: USER AND JOB IDENTIFICATION

This card, one per job, is identified by "RSC1" in columns 1-4. Each job must start with an RSC1 card. The entries identify the user and the job.

Column(s)	Contents	Description
1-4	RSC 1	Required System Identification.
5-8	ALPHANUMERIC	Required CANSIM User Code. Assigned by General Time Series Staff.
9-27	Blank	Reserved.
28-77	ANY CHARACTERS	Job Title. Any identification desired. Will appear only in listing of diagnostic and retrieval stages.
78-80	001-999, or Blank	Card sequence number. For safety, all cards in a job should be numbered.



## 2. RSC2: RETRIEVAL FORMAT

This card, one per job, is identified by "RSC2" in columns 1-4. Each job requires an RSC2 card. The entries in this card control the retrieval format, diagnostic request, accepting errors, and the type of identifier used.

Option	Column(s)	Contents	Description
1	1 - 4	RSC2	Required System Identification.
	5 - 16	RETRIEVE IN	Required key-word.
	17 - 32	—	<b>FORMAT</b> The format to be specified here depends on the use for which series are being retrieved.
	17 - 26	MASSAGER-D	Creates a file on tape or disk with data in double precision. Serves as input to DATABANK-MASSAGER programs operational on an IBM System/360. Maximum number of data points which may be retrieved is 1200 per series. For record format see Appendix 1. For users with machines not compatible with IBM System/360, a BUILD or ADD Series Card Image tape may be provided which can be used to create a DATABANK file.
	17 - 26	MASSAGER-S	This format is identical to MASSAGER-D except that data are in single precision with a maximum of 2400 data points per series. Due to truncation some inaccuracy may occur if data points exceed six digits.
	17 - 23	UTILITY	Creates a file on tape or disk which can be used as input to FANTOM, MATOP, X-11 Seasonal Adjustment, GROPE (plotter), and to any such utility program for which the input may be described by a format card. For record format see Appendix 4.
	17 - 24	RANDOM-D	Creates a randomly accessible file on disk with data in double precision. Serves as input to the MASSAGER program with random access feature. Maximum of 3500 records or 2298 series on file. See Note on page 66. For record format see Appendix 5.
	17 - 24	RANDOM-S	Identical to RANDOM-D except data are in single precision. Due to truncation some inaccuracy may occur if data points exceed six digits.
	17 - 27	PUBLICATION	Creates a file on tape or disk containing data and all information stored in CANSIM for the series retrieved. It is intended for use with report generating programs for automating publications. For record format see Appendix 2.
	17 - 21	TABLE	Produces a printout of series in columns. Matrix titles, matrix notes, series titles and relevant footnotes are printed out. For sample, see Appendix 6.
	17 - 23	DISPLAY	Produces a printout of one series per page together with matrix title, matrix note, series title, relevant footnotes, and source. For sample, see Appendix 7.
	17 - 24	RE-ENTRY	Use of this format normally requires access to the CANSIM data entry program. It retrieves information to recreate the matrix header, series header and data points (security words are not retrieved). See Appendix 3 for record format.







2. RSC2: RETRIEVAL FORMAT — Concluded

Option	Column(s)	Contents	Description
2	17-23	GENERAL	Creates a file on tape or disk containing data and all information stored in CANSIM for the series retrieved. It is intended for use with the CANSIM Alphatext Interface System (CAIS). For record format see appendix 12.
	17-30	MASS-DIRECTORY	Produces a printout of the DATABANK number and its equivalent CANSIM identifier (Matrix and series number). For record format and sample printout see appendix 13.
	33	—	<b>DIAGNOSTIC REQUEST</b> This option permits editing of CANSIM retrieval command cards without retrieving any series. Since the CANSIM base is not accessed, editing is syntactical only (can not check for missing series, proper starting dates, etc.).
		*	Enter * if you wish a diagnostic check only.
3		Blank	Leave blank if you wish retrieval to continue provided <b>no</b> errors are found.
	34	—	<b>ACCEPTING ERRORS</b> Retrieval of series is normally terminated when job encounters errors such as missing series or no match on dates. This option may be used to continue a job even though error(s) are encountered.
		*	Enter * if you wish job to continue although error(s) are encountered.
		Blank	Leave blank if you wish job to terminate on encountering an error.
4	35	—	<b>TYPE OF IDENTIFIER</b> Series from CANSIM may be retrieved with either the DATABANK or CANSIM series number. Only <b>one</b> identification may be used within a job.
		M	Enter M, when using DATABANK series number.
		Blank	Leave blank, when using CANSIM identification number.
	36-77	Blank	Reserved.
	78-80	002-999, or Blank	Card sequence number, if used.



## 3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL

This card is identified by "RSC3" in columns 1-4. Each job must have at least one RSC3 card.

Option	Column(s)	Contents	Description
5	1 - 4	RSC3	Required System Identification.
	5 - 10	—	<b>FROM MATRIX NUMBER</b> Identifies the matrix number of the series or range of series to be retrieved in columns 18-37 (Required only if retrieval by CANSIM identification number).
		Matrix number	Enter matrix number. <b>Right</b> justified.
		Blank	Blanks are not permitted on the first RSC3 card when using CANSIM series numbers. On subsequent cards, blanks are interpreted as "no change from previous card".
5	11 - 16	—	<b>TO MATRIX NUMBER</b> This option retrieves series or range of series from the FROM matrix number to the TO matrix number. (Applies only to retrieval by CANSIM identification number).
		Matrix number	Enter the TO matrix number. <b>Right</b> justified. The TO matrix number <b>must</b> be greater than the FROM matrix number.
		Blank	Leave blank if FROM-TO matrix option not used.  <b>CAUTION:</b> This field must <b>never</b> be blank if using FROM-TO matrix option.
6	17	—	<b>ALL OR RANGE</b> This option permits retrieval of ALL series in a matrix; a RANGE of series in a matrix; a RANGE of series by <b>MASSAGER</b> numbers, or a specific series. Can be used in conjunction with the FROM-TO matrix option.
		A	Restricted to retrievals using CANSIM identification numbers. Retrieves ALL series in a single matrix, or ALL series as specified in the FROM-TO matrix option.  <b>CAUTION:</b> Columns 18-37 must be blank.  <b>N.B.</b> As a control option, a user may insert, in columns 66-69 (right justified), the maximum number of series to be retrieved. The use of this option is recommended when using ALL with the FROM-TO matrix option.
		R	May be used with either <b>MASSAGER</b> or CANSIM numbers.  Enter the <b>first</b> <b>MASSAGER</b> number in range in columns 18-25 of this card, and the last <b>MASSAGER</b> number in range in columns 18-25 of the <b>next</b> card (the last <b>MASSAGER</b> number must be the only information on the card other than "RSC3" and card sequence number). See columns 18-25 below.
			<b>CAUTION:</b> The first and last <b>MASSAGER</b> numbers must be on CANSIM.



3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL – Continued

Option	Column(s)	Contents	Description
7	18-37		<p><b>CANSIM</b></p> <p>Enter the <b>first</b> series in range in columns 18-37 of this card, and the <b>last</b> series in range in columns 18-37 of the next card (the last series number must be the <b>only</b> information other than "RSC3" and card sequence number).</p> <p><b>CAUTION:</b></p> <p>(1) When a range of series is to be retrieved from a single matrix, the first and last series in range must be in the matrix.</p> <p>(2) When RANGE option is used in conjunction with the FROM-TO matrix option, no check is made whether the first or last series in range is in any of the requested matrices.</p>
		Blank	Leave blank if ALL or RANGE option not used. Identify the series to be retrieved in columns 18-37.
		—	<b>SERIES IDENTIFICATION</b>
		CANSIM number	Enter series number, left justified. The decimal, or period, is part of the series number so it <b>must</b> be entered — refer to Series Directory.
8	18-25		<p><b>CAUTION:</b></p> <p>Column 35 of <b>RSC2</b> must be <b>blank</b>.</p>
		DATABANK number	Enter alphabetic portion in column 18 and numeric portion right justified.
			<p><b>CAUTION:</b></p> <p>There must be an "M" in column 35 of <b>RSC2</b> card, and FROM-TO matrix fields <b>must</b> be blank.</p>
		Blank	Must be <b>blank</b> when used with ALL option.
9	38	—	<b>TABLE FORMAT – PAGE INDICATOR</b>
			This option applies only to series retrieved in Table format. It permits users to control the number of series (columns) to less than the standard seven per page. Cannot be used with RANGE, ALL, or FROM-TO matrix option.
		*	To control number of series to less than seven, enter * on any card which identifies the last series to appear on a page.
		Blank	Series are printed continuously, seven series per page.
9	39-45	—	<b>SECURITY</b>
			Series in CANSIM are classified as either PUBLIC or SECURE (see Series Directory). PUBLIC series are available to the public with no restriction; however, some of the series may contain one or more SECURE data points. All data points in a SECURE series are restricted; the appropriate "Security Word" must be obtained from the data source — refer to the Summary Reference Index or Series Directory for the Inquiries List.
		Public	The word "PUBLIC" must be entered, on the first RSC3 card, to retrieve any non-secure data points.
	39-45	"Security Word"	The "Security Word" must be entered to retrieve any secure data points (left justified).



3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL — Concluded

Option	Column(s)	Contents	Description
10	46 - 57	Blank	<b>CAUTION:</b> The data source is notified each time secure data are retrieved or retrieval is attempted.
		—	Blanks are not permitted on the first RSC3 card of a job. On subsequent cards, blank is interpreted as "no change from previous card".
		—	<b>TIME PERIOD OF DATA TO BE RETRIEVED</b> — This option controls the number of observations to be retrieved for a series, by means of a START and END DATE. The date is described as YYMMDD where: YY — last 2 digits of the year. MM — 01 for January, 02 for February, etc. DD — 2 digit day of the month, 01-31. Refer to Series Directory for START DATE.
	46 - 51	YYMMDD	<b>START DATE</b> — Indicates the date from which data are to be retrieved. For annual series, enter only the YY. For quarterly and monthly series, enter only the YYMM. Series with frequency greater than monthly, enter YYMMDD.
			<b>NOTE:</b> To retrieve a single data point, repeat START DATE in END DATE (columns 52-57).
		*****	Enter 6 asterisks to retrieve data from the earliest date available.
	52 - 57	Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
		YYMMDD	<b>END DATE</b> — Indicates the date to which data are to be retrieved. Complete as per START DATE.
		*****	Enter 6 asterisks to retrieve data to the most current date available.
	58 - 65	Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
—		<b>RENAME</b> This option allows the user to change the DATABANK number on outputs to a more meaningful name. The use of this option with Table format replaces the column number. See Appendix 6.	
Any characters		Enter any name you desire. Must be left justified. Embedded blanks are allowed.	
11	58 - 65	Blank	Leave blank if no change desired.
			<b>CAUTION:</b> May be used only when an RSC3 card is supplied for each series.
	66 - 69	Numeric	<b>Number of series.</b> Used in conjunction with ALL option — see column 17.
	70 - 77	Blank	Reserved.
	78 - 80	003 - 999, or Blank	Card sequence number, if used.





## 4. RSC4: TERMINATE JOB

Option	Column(s)	Contents	Description
	1 - 4	RSC 4	Required System Identification.
	5 - 77	Blank	Reserved.
	78 - 80	004 - 999, or Blank	Card sequence number, if used.



**SECTION 3**  
**Amendment 1**

**CANSIM NEWS FLASH**

The **CANSIM NEWS FLASH** provides information on up-dates to series on **CANSIM**, and any

One control card is required, the specifications are as follows:

news of interest to users. This file is available on-line and can be retrieved daily or less frequently for any specific time period.

If the logo is not required, the control card is as follows:

Column(s)	Contents	Description	Column(s)	Contents	Description
1 - 10	PRINT=NMSG	Required keyword	1 - 10	PRINT=NMSG	Required keyword
11	Blank		11	Blank	
12 - 17	YYMMDD	FROM date	12 - 17	YYMMDD	FROM date
17 - 22	YYMMDD	TO date	17 - 22	YYMMDD	TO date
			23 - 25	,NL	Required
23 - 80	Blank	Reserved	26 - 80	Blank	Reserved



# RETRIEVE SERIES FROM CANSIM (RSC 1, 2, AND 4)

DATE

R S C 1 (1-4)

(5-8) CANSIM USER CODE

(9-27) RESERVED

(78-80) CARD SEQ.

(28-52)

JOB TITLE

(53-77)

R S C 2 (1-4)

R E T R I E V E I N (5-16)

(17-32) FORMAT

(33) DIAGNOSTIC REQUEST OPTION

(36-77) RESERVED

(34) ACCEPTING ERROR OPTION

(35) TYPE OF IDENTIFIER

(78-80) CARD SEQ.

## FORMAT OPTIONS -

{ MASSAGER-D  
MASSAGER-S  
UTILITY  
TABLE  
DISPLAY  
GENERAL

{ RANDOM-D  
RANDOM-S  
RE-ENTRY  
PUBLICATION  
MASS-DIRECTORY

These four format options are restricted to  
Annual, Quarterly, Monthly and Weekly series.

R S C 4 (1-4)

(5-77) RESERVED

(78-80) CARD SEQ.



## DATE \_\_\_\_\_

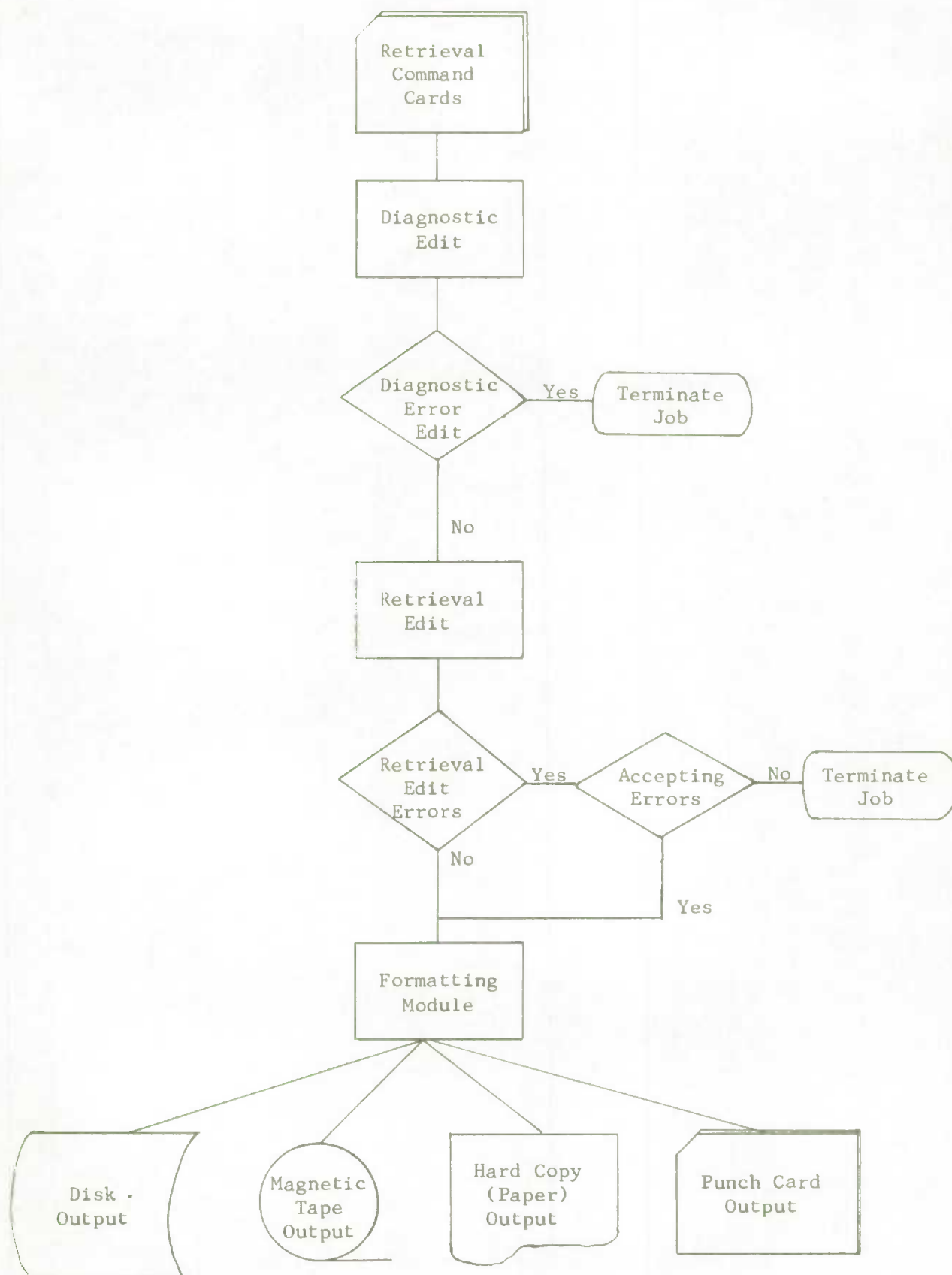
--

[illegible]





## SCHEMATIC DEPICTING DECISIONS AND ACTIONS TAKEN





## Error Messages

This System provides a two-stage edit of retrieval command cards. Any error found during the diagnostic edit (first stage) may cause the job to abort at the **end** of this stage. The command cards will be listed and the fields in error will be underlined and "\*\*\* ERROR \*\*\*" and/or "\*\*\* WARNING \*\*\*" will follow. No job will be processed beyond this first stage until the command cards with \*\* ERROR \*\* are corrected. Command cards with \*\* WARNING \*\* imply that the error is not critical and will not cause the job to abort at the end of the first stage. However, the cards with \*\* WARNING \*\* should be examined to determine if the error has any bearing on the end results.

During the retrieval edit (second stage) two outputs are created. The routine for the first output allocates the "S" sequence number to all **supplied** RSC cards and assigns a "G" sequence number to all **generated** RSC3 statements. Thus, in a single series request, a generated RSC3 statement will appear below the print line of the supplied RSC3 card. When the FROM-TO matrix option is used with a series range or individual series, RSC3 statements will be generated for each and every series which can be retrieved. Serious errors encountered during this stage will cause the job to abort.

In the routine for the second output the command card(s) in error will be referenced by the "S" number and be preceded with either an "R" or "W". "R" means that the transaction was rejected due to a serious error; "W" is a warning that a minor error was encountered. "R" type errors must be corrected before the job is resubmitted. If you are willing to accept errors (R or W) and want the job to continue, use the "accepting error" option (See RSC2 card). Remember, this option applies to the "job" rather than to an individual series. If you do not understand the significance of this option, contact General Time Series Staff, Statistics Canada, Ottawa K1A 0Z8, Phone (Area Code 613) 995-7406.

All users of CANSIM submitting jobs independently must have a User Code which identifies them as having authority to retrieve data, or to enter and retrieve data from CANSIM. An attempt to retrieve data from CANSIM with an invalid Computer Services Bureau code or CANSIM User Code will result in the job being flushed without initiating any of the CANSIM programs.

'R - MATRIX NOT ON BASE' - The matrix number specified in the matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R - FROM MATRIX NOT ON BASE' - The matrix number specified in the FROM matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R - TO MATRIX NOT ON BASE' - The matrix number specified in the TO matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R - SERIES NOT IN MATRIX' - The series number specified in the series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R - FROM SERIES NOT IN MATRIX' - The series number specified in the FROM series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R - TO SERIES NOT IN MATRIX' - The series number specified in the TO series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R - RANGE OF MASSAGER NUMBERS NOT ON BASE' - None of the MASSAGER numbers in the range requested could be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R - MASSAGER NUMBER NOT ON BASE' - The MASSAGER number requested could not be found on the base. Check the Series Directory, correct and resubmit.

'R - FROM MASSAGER NUMBER NOT ON BASE' - The **first** MASSAGER number in range specified could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R - TO MASSAGER NUMBER NOT ON BASE' - The **last** MASSAGER number in range specified could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'W - HIGHER LEVEL DATA NOT RETRIEVED - -----DATAPOINTS REPLACED BY ZERO/SEC' - The supplied security or the word PUBLIC was used in retrieving the data, however data with a higher security level exists in this series. If the data is required, check with the responsible Agency for the security word, correct retrieval card, and resubmit.

'R - INVALID SECURITY WORD, PUBLIC DATA ONLY RETRIEVED-----DATAPOINTS REPLACED BY ZERO/SEC' - The supplied security word does not match either the security words in the matrix or the word in the series headers. If the data is required, check with the responsible Agency for the proper word, correct the retrieval card and resubmit.

'R - START DATE INCOMPATIBLE, SUBSTITUTING DATE-----' - The supplied start date does not match any reference date for this series. If the substituted date is incorrect, check with the subject



matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R - END DATE INCOMPATIBLE, SUBSTITUTING DATE-----' - The supplied end date does not match any reference date for this series. If the substituted end date is incorrect, check with the subject matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R - START-END DATE OUT OF RANGE, NO DATA RETRIEVED' - The supplied start-end dates are either both prior to or both after the period of data available for this series. Check the Series Directory for the start date, correct the retrieval card and resubmit.

'R - NO DATA IN SERIES' - The series header information has been entered on the base, however, no data is currently available. Check with General Time Series Staff for data availability.

'W - ALL SERIES NOT RETRIEVED. LIMITED TO NUMBER SPECIFIED' - Number of series retrieved limited to quantity specified in columns 66-69 of RSC3 card.

'R - REPORT FREQUENCY NOT COMPATIBLE WITH MASSAGER' - The MASSAGER format permits only Annual, Quarterly, Monthly or Weekly series to be retrieved. If an attempt is made to retrieve a series with another frequency, the request is ignored and this message printed out.

'R - NUMBER OF DATA POINTS EXCEEDS LIMIT' - The number of data points allowed by the DATABANK format for one series exceeds 1200 in double precision or 2400 in single precision.

'R - NUMBER OF RECORDS ON RANDOM FILE EXCEED 3500' - Reduce the number of series

requested - see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

'R - NUMBER OF SERIES IN RANDOM FILE EXCEED 2298' - Reduce the number of series requested - see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

**Note:** The upper limit for RANDOM file is either 2298 series or 3,500 records. The number of records per series depends on the number of data points retrieved. The first record of any series accommodates 112 data points, and 122 on subsequent records. For data in double precision reduce number of data points to 56 and 61 respectively.

'JOB TERMINATED - SYSTEM ERROR' - Save all printouts associated with the run and contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada 992-7967 or 996-5366, area code 613.

'R - SERIES FROZEN, DATA NOT AVAILABLE TO USERS' - the series requested is temporarily not available. Retrieve the **CANSIM NEWS FLASH** or check with the data source (Inquiries List) to find out when it will be released.

'R - MATRIX FROZEN, DATA NOT AVAILABLE TO USERS' - the matrix requested is temporarily not available. Retrieve the **CANSIM NEWS FLASH** or check with the data source (Inquiries List) to find out when it will be released.





Catalogued Procedure for the CANSIM Retrieval Package

STATEMENT	USAGE
PROC	is the first control statement in the catalogued procedure and is used to assign default values to the symbolic parameters in the procedure. (CANSIM retrieval procedures are: DIAGNOS, DIRECTR, UTILITY, GENFORM, TABLE, PUBLICT, DISPLAY, REENTRY, MASFORM, RANFORM, and MASSDIR).
EXEC	PGM=CANRET(XX), specifies the program name. 'XX' specifies the version number.
STEPLIB DD	DSN=STC63.P536.PROGLB, partitioned data set containing the CANSIM load library.
CANROB DD	Temporary work file.
CANR1AB DD	DSN=STC63.P536.XXXX2 permanent CANSIM file.
CANR2B DD	SYSOUT=A, a sequential message data set, for displaying edited CANSIM retrieval commands and generated retrieval commands, and Massager Directory format.
CANR2D DD	DSN=&&EDITRC, a sequential work data set containing edited CANSIM retrieval commands.
CANR2E DD	DSN=&&GENRC, a sequential work data set containing generated CANSIM retrieval commands.
CANR2H DD	DSN=STC63.P536.XXXX3 permanent CANSIM file.
CANR3CA DD	SYSOUT=A, defines a sequential data set for output of the Random format availability index; required by the RANFORM procedure.
CANR3CB DD	DSN=&&RANDIR, defines a random access data set for the Random format directory; required by the RANFORM procedure.
CANR3CC DD	DSN=&&RANSER, defines a random access data set for the Random format file; required by the RANFORM procedure.
CANR3E DD	Temporary work file.
CANR3F DD	SYSOUT=A, defines a sequential data set for output of the CANSIM series directory; required by the DIRECTR procedure.
CANR3H DD	DSN=UTILITY, defines a sequential data set for Utility format; required by the UTILITY procedure.
CANR3I DD	DSN=&&GENFM, defines a sequential output data set for the General format; required by the GENFORM procedure.
CANR3K DD	DSN=&&BDAM, defines a temporary random access work data set for Table format; required by the TABLE procedure.
CANR3M DD	SYSOUT=A, defines a sequential data set for output of Table format; required by the TABLE procedure.
CANR4D DD	SYSOUT=B, defines a sequential data set for output in Re-entry format; required by the REENTRY procedure.
CANR4E DD	DSN=&&PUBCAT, defines a sequential data set for Publication format; required by the PUBLICT procedure.





## Catalogued Procedure for the CANSIM Retrieval Package — Concluded

STATEMENT	USAGE
CANR4F DD	SYSOUT=A, defines the output for Display format; required by the DISPLAY procedure.
CANR4HA DD	DSN=MASSAGER, defines a sequential data set for Massager format; required by the MASFORM procedure.
CANR4HB DD	SYSOUT=A, defines a sequential data set for output of the Random and Databank format availability index; required by the MASFORM procedure.
CANR8A DD	DSN=STC63.P536.XXXX4, permanent CANSIM file.
CANR9AA DD	DSN=STC63.P536.XXXX5, permanent CANSIM file.
CANR9AB DD	SYSOUT=A, defines a sequential message data set for output of the error messages.
CBASE DD	DSN=STC63.P536.CANSIM, defines a random access data set for the CANSIM base.
SYSOUT DD	SYSOUT=A, defines a sequential data set for output of system messages.
SYSUDUMP DD	SYSOUT=A, defines a sequential data set for output of a core dump in problem runs.



Use of CANSIM Catalogued Procedure

STATEMENT	USAGE
JOB	THIS statement initiates the job. The TIME and REGION parameters must be specified.
COPY	THIS statement instructs the operating system to load the CANSIM catalogued procedure. It must precede the EXEC statement.  /*COPY CATLG.STC63.COPYLB (procedure name)
EXEC	THIS statement specifies the procedure name to be executed and the output data set optional parameters.  // EXEC procedure name [, see procedure options]
SYSIN DD	THIS statement defines the control data set. The statement should be //SYSIN DD * if the control statements are contained in a card file.
/*	END of card input
//	END of job

Procedure Names:

DISPLAY	Display format
MASFORM	Massager format
RANFORM	Random format
PUBLICIT	Publication format
REENTRY	Re-entry format
UTILITY	Utility format
TABLE	Table format
DIAGNOS	Diagnostic run
NEWSFL	News flash
GENFORM	General format
MASSDIR	Massager Directory format

Procedure Options

[,option name1=option1, option name2=option2, .....,option nameN=optionN]

ODSN THIS parameter is used to modify the output data set name. If not specified it uses the default name.

PROCEDURE	DEFAULT
MASFORM	MASSAGER
RANFORM	'&&RANSER'
PUBLICIT	'&&PUBCAT'
UTILITY	UTILITY
GENFORM	'&&GENRC'

DDSN THIS parameter is used to modify the directory data set name in the RANFORM procedure. If not specified it will default to '&&RANDIR'.

OUNIT THIS parameter is used to specify the physical unit used for the output data set. If not specified the default unit will be used.

PROCEDURE	DEFAULT
MASFORM	'(9TRACK,,DEFER)'
RANFORM	SYSDA
PUBLICIT	SYSDA
UTILITY	'(9TRACK,,DEFER)'



## Procedure Options — Continued

**DUNIT** THIS parameter is used to specify the physical unit used for the directory data set in the RANFORM procedure. If not specified it will default to SYSDA.

**ONREC** THIS parameter is used to specify the number of blocks of output expected on the output data set. If not specified the default value will be used. If tape output is specified this parameter is ignored.

PROCEDURE	DEFAULT
MASFORM	100
RANFORM	3500
PUBLICIT	1200
UTILITY	100

**DNREC** THIS parameter is used to specify the number of directory blocks expected on the directory data set in the RANFORM procedure. If not specified it will default to 20 blocks.

**ODISP** THIS parameter is used to specify the disposition of the output data set. If not specified the default values will be used.

PROCEDURE	DEFAULT
MASFORM	'(NEW,KEEP)'
RANFORM	'(NEW,PASS)'
PUBLICIT	'(NEW,PASS)'
UTILITY	'(NEW,KEEP)'
<i>GEN Form</i>	<i>(NEW, PASS)</i>

**DDISP** THIS parameter is used to specify the disposition of the directory data set in the RANFORM procedure. If not specified it will default to '(NEW,PASS)'.

**OVOL** THIS parameter is used to specify the volume parameter of the output data set. If not specified the volume parameter is omitted, in which case the system will assign a free tape or space on a free direct access device, whichever is appropriate.

PROCEDURE	DEFAULT
MASFORM	Omitted
RANFORM	Omitted
PUBLICIT	Omitted
UTILITY	Omitted

Examples of volume parameters:

OVOL = 'Volume serial number'

**DVOL** THIS parameter is used to specify the volume parameter of the directory data set in the RANFORM procedure. If not specified the volume parameter is omitted, in which case the system will assign space on any free direct access device.

Examples of volume parameters:

DVOL = 'Volume serial number'



## Calculation of ONREC and DNREC.

## METHOD 1

$$(O_1 + F)/E + (O_2 + F)/E + (O_3 + F)/E + \dots + (O_N + F)/E = B$$

FILE	F	E	Approximate
&&RANSER (SP)	121	112	$N \times 3 = B$
(DP)	65	56	$N \times 6 = B$
&&PUBCAT	119	120	$N \times 3 = B$
&&UTILITY	11	12	$N \times 2 = B$

## METHOD 2

$$(N + F)/E = B$$

FILE	F	E
&&RANDIR	116	115

## METHOD 3

FILE	
MASSAGER	1 physical record per series

## DEFINITION OF VARIABLES

B = number of whole blocks  
 O = number of entries in the series  
 F = correction factor for partial blocks  
 E = number of entries per block  
 N = number of series





## MANIPULATIVE PROGRAMS AVAILABLE FOR USE WITH DATA RETRIEVED FROM CANSIM

## GENERAL

The following manipulative programs are available to CANSIM users. The JOBLIB card required to access these programs directly at the Computer Services Bureau will be given to on-line users when a CANSIM user code is assigned.

1. DATABANK<sup>1</sup>

The DATABANK program is designed to maintain a large number of economic time series on a magnetic tape. Generally, this restricts the number of series that can be handled efficiently on one tape to about 10,000. The program allows for the addition, deletion and editing of any series. The data can also be listed, indexed and copied onto other tapes. In other words, the program performs those operations which fall into the general class of file

maintenance. The system is designed to work with any data which is arranged or arrangeable in a time series format.

2. MASSAGER<sup>1</sup>

The MASSAGER program carries out statistical manipulations of data, accepts input from DATABANK tapes, CANSIM tapes (in DATABANK format) or from cards. For sample, see Appendix 8.

Retrieved series are arrayed as columns in core storage and by a sequence of "commands" the columns are manipulated as desired. The commands include simple operations on a single series (column) such as square roots, logarithms, etc., and complex operations on several variables or columns such as multiple regressions, plots, etc. A partial list of operators is given in Table 1.

TABLE 1. MASSAGER Operation Codes

01 $\log_e x$	17 index	32 rank values
02 $\log_{10} x$	18 collapse	33 three-group values
03 $\sin x$	19 $c + x$	34 instrumental variables regression
04 $\cos x$	20 scaling	35 % change
05 $x^w$	21 $x + y$	36 weighted moving sum
06 $e^x$	22 $x - y$	37 output by variable
07 random no. (0, 1)	23 $x*y$	38 output by observation
08 dummy (1, 0....)	24 $x/y$	39 truncation
09 time trend	25 move	40 calls user-supplied subroutine
10 constant term	26 squeeze out	41 user-supplied subroutine XXX1
11 $x_t$	27 multiple plot	42 user-supplied subroutine XXX2
12 $x_t - k$	28 plot	43 user-supplied subroutine XXX3
13 $1/x$	29 multiple regression	44 combined operations
14 cumulator	30 three-pass least squares	46 change location
15 $c*x$	31 nonlinear regression	47 row summation
16 $\sqrt{x}$		

## 3. MATOP

The MATOP program was originally written in Statistics Canada. Other versions have since been

<sup>1</sup> DATABANK 73 and MASSAGER 73 which are the latest recognized versions of these two programs will shortly be available with the CANSIM data base at Computer Services Bureau. For a specific date, check with the CANSIM News Flash or the General Time Series Staff.

developed with added features. It accepts input from DATABANK tapes, CANSIM tapes or from cards. The data may be entered in memory as columns, rows or as a matrix. The program carries out mathematical and statistical manipulations of data. A partial list of operations is given in Table 2.



TABLE 2. MATOP Operation Codes

Description	Oper. Code (Cols. 11 - 12)
<b>Relocation and Transformation Operations:</b>	
Interchange .....	06
Duplicate .....	07
Selection of Elements .....	10
Sorting .....	11
Transpose .....	18
Diagonal Matrix from Row or Column .....	26
Row or Column from Principal Diagonal .....	27
Reverse Row/Column Order .....	39
Special MATOP Sort .....	12
<b>Arithmetic Operations:</b>	
Addition .....	01
Subtraction .....	02
Multiplication .....	03
Division .....	04
Square Roots .....	05
Logarithm (base e) .....	08
Exponential Function .....	09
Summation over Rows or Columns (actual values) .....	14
Summation over Rows or Columns (absolute values) .....	15
Rounding .....	29
Cumulative Row Sums .....	32
Cumulative Column Sums .....	33
Cumulative Row Products .....	34
Cumulative Column Products .....	35
<b>Mathematical and Statistical Operations:</b>	
Matrix Multiplication .....	19
Matrix Inversion .....	20
Solution of Linear Equations System .....	21
Direct Least Squares .....	22
Product Moment Correlation Coefficients .....	23
Norm and Trace .....	25
Moving Average .....	36
Moving Sum .....	37
Weighted Moving Average .....	38



## 4. FANTOM

This package of precoded sub-routines serves basically the same purpose as MATOP. It has been

rewritten with free form English language commands. For sample, see Appendix 9. A list of operation codes appears as Table 3.

TABLE 3. FANTOM Operation Codes

Operation code	Description
<b>Manipulative</b>	
COMPH	Select the greater of corresponding elements of two matrices
COMPL	Select the smaller of corresponding elements of two matrices
COPY	Copy a matrix
INTER	Interchange two matrices
RSORT	Sort row elements in ascending order
CSORT	Sort column elements in ascending order
TRANS	Transpose
REVCOL	Reverse column order
REVROW	Reverse row order
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
KSORTA	Sort rows on column key ascending
KSORTD	Sort rows on column key descending
VTOD	Vector to diagonal
<b>Arithmetic and Transformation</b>	
ADD	Add corresponding elements of two matrices
SUB	Subtract corresponding elements of two matrices
MULT	Multiply corresponding elements of two matrices
DIV	Divide corresponding elements of two matrices
DIV1	Divide corresponding elements of two matrices
DIV2	Divide corresponding elements of two matrices
COMPH	Select the greater of corresponding elements of two matrices
COMPL	Select the smaller of corresponding elements of two matrices
SQRT	Take square roots
SQRT1	Take square roots
SQRT2	Take square roots
NLOG	Take natural logs
NLOG1	Take natural logs
NLOG2	Take natural logs
CLOG	Take common logs
CLOG1	Take common logs
CLOG2	Take common logs



TABLE 3. FANTOM Operation Codes – Continued

Operation code	Description
<b>Arithmetic and Transformation – Concluded</b>	
EXP	Take anti-logs
ROWSUM	Row summation
ARSUM	Row summation (absolute values)
COLSUM	Column summation
ACSUM	Column summation (absolute values)
CRSUM	Cumulative row summation
CCSUM	Cumulative column sum
CRPROD	Cumulative row products
CCPROD	Cumulative column products
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
<b>Mathematical and Statistical</b>	
MMULT	Matrix multiplication
TRANS	Transpose
MSUM	Moving sum
MAV	Moving average
WMAV	Weighted moving average
INV	Matrix inversion
DINV	Matrix inversion with determinant
SEQNS	Solution of simultaneous linear equations
DLS	Direct least squares estimates
DLS1	Direct least squares estimates
DLS2	Direct least squares estimates
DLS3	Direct least squares estimates
DLSO	Direct least squares estimates through origin
DLSO1	Direct least squares estimates through origin
DLSO2	Direct least squares estimates through origin
DLSO3	Direct least squares estimates through origin
CORR	Product moment correlation coefficients
COLMA	Collapse monthly series to annual
COLMQ	Collapse monthly series to quarterly
COLQA	Collapse quarterly series to annual
GRT	Growth rate triangles





TABLE 3. FANTOM Operation Codes — Concluded

Operation code	Description
<b>Miscellaneous</b>	
CONST	Introduce a constant
IFLOW	Compare low and branch
IFEQ	Compare equal and branch
IFHIGH	Compare high and branch
DUMP	Print matrix on detection of control card errors
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
LOOP	Execute the specified set of instructions the number of times indicated
CALL	Call in the specified subroutine
FUNC	Define the specified set of instructions as a subroutine

**5. X-11 Seasonal Adjustment**

This widely used routine from the U.S. Bureau of the Census is the standard adjustment in Statistics Canada. Options available include a choice of

monthly or quarterly programs, and of multiplicative or additive adjustments. Seasonal adjustment by the X-11 method is also available as a user option in the MASSAGER and MATOP programs.



## USE OF THE SYSTEM

The CANSIM system can be used to store time series and for retrieval and manipulation of data. Storage and on-line retrievals of time series is presently restricted to government departments and agencies. Anyone may obtain data from CANSIM in the formats described in Section 3; those without terminal access should submit their requests to the General Time Series Staff.

### Job Submission Procedure

All retrieval requests from users without terminal access should be forwarded to the General Time Series Staff and it is the responsibility of the user to ensure that retrieval cards or request forms are prepared as outlined in Section 3 of this manual. If keypunching facilities are not available, arrangements may be made with the General Time Series Staff.

### Retrieval Costs

#### Non-government Users

Less than 1,000 series:

15¢ per series—minimum of \$5.00 for TABLE or DISPLAY format  
minimum of \$25.00 for output on tape (user supplied).

1,000 series or more: computer cost plus 50% (any output).

#### Government Users

Computer cost plus 10% (any output).

#### Agreement to Purchase Form

Customers purchasing data on cards or tape may be requested to sign an agreement form. Statistics Canada does not guarantee that data purchased are free from error and its use in any matter is entirely at the risk of the purchaser. Requests for Purchase Agreement forms and enquiries should be directed to General Time Series Staff.



## GLOSSARY

<b>Data Base</b> .....	A group of records (individual series) having a common coding and format.
<b>Data Point</b> .....	Refers to a single observation for a series, for example, population of Ontario for the 2nd quarter in 1972.
<b>Diagnostic</b> .....	A syntactical edit of the user supplied retrieval command cards will be carried out. Any serious violations will result in job termination.
<b>Directory</b> .....	A listing of Matrices and Series included in the base is called the Series Directory. Users may obtain these directories from General Time Series Staff.

### FORMAT:

<b>Massager-D</b> .....	A file of the requested series in double precision (contains all significant digits held on the data base). This format may be used with manipulative programs such as MASSAGER or MATOP.
<b>Massager-S</b> .....	A file of the requested series in single precision (contains 6 significant digits, if the data point contains more than 6 significant digits use MASSAGER-D). This format may be used with manipulative programs such as MASSAGER or MATOP.
<b>Utility</b> .....	A file of the requested series in a standard general purpose format of Statistics Canada. It can be used as input to MASSAGER, MATOP, X-11 Seasonal Adjustment, FANTOM, GROPE (PLOTTER) and to any program where the input is described by a format card.
<b>Publication</b> .....	A file of the requested series which is used primarily as input to report generating programs to produce publications. It contains pertinent matrix and series information along with the data.
<b>Table</b> .....	This format produces a "working table" printout with which the user may examine the content and detail of the base. A maximum of seven columns (series) may be produced on one page.
<b>Display</b> .....	This format produces a printout of one series per page and contains all the detail on the base.
<b>Re-entry</b> .....	This format produces a card image tape of the requested series which may be used to create a temporary base. Access to the data entry programs of the CANSIM system is required.
<b>Mass-Directory</b> .....	This format produces a printout of the DATABANK number and its corresponding CANSIM identifier.
<b>General</b> .....	A file of the requested series and all information stored in CANSIM for these series. It is intended for use with the CANSIM Alphatext Interface System (CAIS).
<b>Security option</b> .....	Confidentiality of CANSIM is based primarily on code or passwords. The Directory indicates the status of a series on the data base. Each series is shown as PUBLIC or SECURE.  PUBLIC — as a security level, means that the data are available to the public with no restrictions. However, some of the series may contain one or more SECURE data points.  SECURE — as a security level means that the data are classified as series secure, confidential or secret. The appropriate code or password for retrieving these data may be obtained from the source or originating division. See Inquiries List in Series Directory or Summary Index Reference.
<b>Rename</b> .....	This option allows the user to change the DATABANK number on outputs to a more meaningful name. The use of this option with TABLE format replaces the column number.
<b>Range</b> .....	A set of series and/or matrices to be retrieved.



## APPENDICES





## APPENDICES

### Appendix

1. DATABANK Tape Format (created by CANSIM)
2. PUBLICATION Tape Format
3. RE-ENTRY Tape Format
4. UTILITY Tape Format
5. RANDOM-D Format
6. Sample of TABLE Format
7. Sample of DISPLAY Format
8. Sample of MASSAGER Manipulation
9. Sample of FANTOM Printout
10. Sample X - 11 Seasonal Adjustment Printout
11. Sample of a Publication produced using PUBLICATION Format
12. GENERAL Tape Format
13. MASS-DIRECTORY Tape Format and Sample Printout



*DATA BANK*  
**IBM - 360 MASSAGER TAPE FORMAT layout maximum record length 12536 bytes**  
**(CREATED BY CANSIM)**

Field	Length	Description
1	4 BN	IST1 - 1 number of 8 byte words in KTITLE (always NOTIT * 10)
2	8 AN	LABEL1 - series identification number (DATA BANK MASSAGER)
3	4 BN	M1 - always equal to zero
4	8 AN	NSEC1 - series security code (always blank)
5	8 AN	NOUT1 - date of last update (YY-MM-DD)
6	8 AN	NOPEN1 - blank
7	4 BN	KBEG - beginning year of series (e.g. 1928)
8	4 BN	KEND - ending year of series (e.g. 1970)
9	8 AN	IESEC - edit security code (always '99999999')
10	4 BN	KIND - type of series ANNUAL = 1 QUARTERLY = 4 MONTHLY = 12 WEEKLY SUNDAYS = 51 MONDAYS = 52 TUESDAYS = 53 WEDNESDAYS = 54 THURSDAYS = 55 FRIDAYS = 56 SATURDAYS = 57
11	4 BN	NOTIT - number of cards in KTITLE (N1 + N2 + N3)
12	4 BN	N1 - number of series title cards (always 5)
13	4 BN	N2 - number of source cards (always 2)
14	4 BN	N3 - number of note cards (maximum of 28)
15	4 BN	KSIGDM - number of significant digits SINGLE PRECISION = 6 DOUBLE PRECISION = 10
16	4 BN	KRTDEC - number of places to right of decimal
17	4 BN	ISPDP1 - precision indicator SINGLE PRECISION = 0 DOUBLE PRECISION = 1



*DATA BANK*

IBM - 360 MASSAGER TAPE FORMAT layout maximum record length 12536 bytes - Concluded

Field	Length	Description
18	8*ST1 AN	KTITLE -- (variable length, maximum 2800 bytes) MATRIX LONG TITLE 300 FILLER (blanks) 20 SERIES SHORT TITLE 50 FILLER (blanks) 2 UNIT OF MEASURE 10 FILLER (blanks) 2 SCALAR FACTOR 16 SOURCE INFORMATION 80 FILLER (blanks) 20 CANSIM IDENTIFIER 60 MATRIX NOTE variable length max. 800 FOOTNOTES variable length max. 1440
19	4 BN	IBUF1 -- number of 4 byte words in DATA
20	8 AN	LABEL2 -- same as LABEL1
21	4 BN	M2 -- always equal to one
22	8 AN	NSEC2 -- same as NSEC1
23	8 AN	NOUT2 -- same as NOUT1
24	8 AN	NOPEN2 -- same as NOPEN1
25	4*IBUF1 FSoFD	DATA -- data array containing IBUF1 single precision floating point data values or IBUF1/2 double precision floating point data values depending on ISDP1 (precision indicator) with a maximum length of 9600 bytes.



## PUBLICATION TAPE FORMAT

## Matrix Record

Field	Length	Description
1-6	6N	Date: Date of Publication retrieval
7-12	6N	Matrix number
13-32	20	Series: Blank
33	1	Record type: 'M' (Matrix record)
34-35	2N	Record number: '99'
36-39	4	Agency responsible
40-43	4	Section responsible
44	1N	Crossfoot check
45-344	300	Long title
345-384	40	Short title
385-434	50	Source
435-934	500	Note
935-1054	120X	Footnote 1
1055-1174	120X	Footnote 2
1175-1294	120X	Footnote 3
1295-1414	120X	Footnote 4
1415-1534	120X	Footnote 5
1535-1654	120X	Footnote 6
1655-1774	120X	Footnote 7
1775-1894	120X	Footnote 8
1895-2014	120X	Footnote 9
2015-2025	11	(Not used)

Up to nine footnotes are allowed on each matrix, each footnote can be up to 120 characters.

## Series Record

Field	Length	Description
1-6	6N	Date: Date of publication retrieval.
7-12	6N	Matrix number
13-32	20	Series number
33	1	Record type: 'S' (Series record)
34-35	2N	Record number: Last record is 99
36-39	4	Agency
40-43	4	Section
44-93	50	Title
94-103	10	Unit of measure
104-105	2N	Data mask type
106-108	3N	Variance allowed
109-110	2N	Scalar factor
111-112	2SN	Number of decimal places
113-114	2N	Report frequency
115-117	3N	Expected time of update.
118-2021		Data points
	6N	Date of reference
	6N	Entry date
	1N	Security code
28	4N	Footnotes
	1N	Entry type
	10SN	Data point <sup>1</sup>
2022-2025		(Not used)

<sup>1</sup> There will be 68 data points on each series record.





## Card Format: ADD MATRIX, Operation Code AM

Column number	Contents	Explanation
All cards <sup>1</sup> columns 1-27:		
1 - 4 .....	TSDB .....	System identification.
5 - 8 .....	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12 .....	4 characters maximum, left justified.	Section of Agency responsible
13-19 .....	Blank .....	
20-21 .....	AM .....	Operation code.
22-27 .....	6 digits .....	Matrix number.
Fields varying from card to card		
Card number:		
28-30 .....	001 .....	Card number.
31-51 .....	Blank	
52 .....	1 or 2 .....	Crossfoot 1 = yes 2 = no.
53-79 .....	Blank .....	
80 .....	P,* or S .....	Directory Security
Card numbers 2-7 inclusive:		
28-30 .....	002 to 007 .....	Long title card numbers
31-80 .....	50 characters maximum, left justified	Long title cards are continuous through 6 cards for a total of 300 characters.
Card number 8:		
28-30 .....	008 .....	Short title card number.
31-70 .....	40 characters maximum .....	Short title.
71-80 .....	Blank .....	
Card number 9:		
28-30 .....	009 .....	Source card number.
31-80 .....	50 characters maximum .....	Source title.
Notes		
Card numbers 011 - 020:		
28-30 .....	011 to 020 .....	Note card numbers. One note is allowed per Matrix.
31-80 .....	50 characters maximum, left justified.	Enter title continuously up to 500 characters. Do not use hyphens to continue to next card.

<sup>1</sup> There is no card number 10.



## Card Format: ADD SERIES Operation Code (AS) Header

Column number	Contents	Explanation
All cards columns 1-27:		
1 - 4 .....	TSDB .....	System identification.
5 - 8 .....	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12 .....	4 characters maximum, left justified.	Section of agency responsible.
13-19 .....	Blank .....	
20-21 .....	AS .....	Add series operation code.
22-27 .....	6 digits, right justified .....	Matrix number.
<b>Fields varying from card to card</b>		
Card number 001:		
28-30 .....	001 .....	Card number.
31-50 .....	20 digits maximum, left justified.	Series number.
51-52 .....	00 to 09 .....	Scalar Factor.
53-54 .....	00 to 09 .....	Number of decimal places.
55-56 .....	Always 03 .....	Data mask type code — not used.
57-59 .....	001 to 998 or 999 .....	Variance allowed, expressed as a per cent, as determined by the data source, or 999 = no edit requested.
60-66 .....	Blank .....	
67-68 .....	2 digit code .....	Report frequency.
69-71 .....	3 digits .....	Expected time of update.
72-79 .....	8 characters, e.g. D..... 1	DATABANK series number.
80 .....	P, S or blank .....	Directory Security.
Card number 002:		
28-30 .....	002 .....	Card number.
31-50 .....	20 digits maximum, left justified.	Series number.
51-60 .....	10 characters, left justified	Unit of measure, dollars, bushels, tons, etc.
61-80 .....	20 characters, left justified	<b>TITLE</b> — first part.
Card number 003:		
28-30 .....	003 .....	Card number.
31-50 .....	20 digits maximum, left justified.	Series number.
51-80 .....	30 characters, left justified	<b>TITLE</b> — Second part.



## Card Format: Enter Data, Operation Code (ED)

Column number	Contents	Explanation
All cards columns 1-27:		
1-4 .....	TSDB .....	System identification.
5-8 .....	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12 .....	4 characters maximum, left justified.	Section of Agency responsible.
13-19 .....	Blank .....	
20-21 .....	ED .....	Operation code.
22-27 .....	6 digits, .....	Matrix number.
<b>Fields varying from card to card</b>		
28-30 .....	Blank .....	Normally used for card number.
31-50 .....	20 digits maximum .....	Series number, left justified.
51-56 .....	6 digits .....	Reference date (yr., mo., day).
57-66 .....	10 digits .....	Data point.
67 .....	Always 5 .....	Type of data entry - initial entry of data.
68 .....	1 digit .....	Security level.
69-72 .....	4 digits .....	Footnote indicators. A data point may have upto 4 foot- notes.
73 .....	Always 9 .....	The variance is calculated but no check is made with the variance contained in the series header.
74-80 .....	Blank .....	(Not used)



## UTILITY TAPE FORMAT

Field	Length	Description
1- 8	8 AN	<del>DATA BANK</del> MESSAGE SERIES NUMBER
9- 14	6 N	REFERENCE DATE OF FIRST DATA POINT IN RECORD
15- 20	6 N	REFERENCE DATE OF LAST DATA POINT IN RECORD
21-212	192 EF	12 DATA VALUES (E16.10)
213-214	2 N	REPORT FREQUENCY
215-230	16 N	ALL ZEROS





## STATISTICS CANADA

## RECORD LAYOUT

Page 1 of 1

Data Set Name

JOB Name

R A N D O M D I R E C T O R Y

C A N S I M

Field	Size	Position	Type	Title
I-115	12	1-1380		Directory entries; 12 bytes per entry, 115 entries per record, entry types are First entry, series entries, last entry.
				<b>FIRST ENTRY</b>
1	4	1-4	BN	Number of entries in series directory
2	4	5-8	BN	Relative record number of the first free record on the series file
3	4	9-12	AN	Filler (spaces)
				<b>SERIES ENTRIES</b>
1	8	1-8	AN	Series label ( <del>MASSAGER</del> <i>DATA Base</i> number)
2	4	9-12	BN	LRN = 10,000 + NWD + 10 LRN - relative record number of the first record for the series NWD - number of four byte words used to store all the data points in the series
				<b>LAST ENTRY</b>
1	8	1-8	AN	Dummy label (99999999)
2	4	9-12	AN	Filler (spaces)



## STATISTICS CANADA

## RECORD LAYOUT

Page 1 of 2

Data Set Name

JOB Name

R A N D O M F I L E

C A N S I M

Field	Size	Position	Type	Title
				<b>SERIES RECORD</b>
1	8	1-8	AN	Series label (MASSAGER number)
2	8	9-16	AN	Security code (blank)
3	4	17-20	BN	Beginning year
4	4	21-24	BN	Ending year
5	4	25-28	BN	Series type: ANNUAL - 1
				QUARTERLY - 4
				MONTHLY - 12
				WEEKLY SUNDAYS - 51
				MONDAYS - 52
				TUESDAYS - 53
				WEDNESDAYS - 54
				THURSDAYS - 55
				FRIDAYS - 56
				SATURDAYS - 57
6	4	29-32	BN	Number of significant digits
7	4	33-36	BN	Number of decimal places
8	4	37-40	BN	Precision indicator: single - 0
				double - 1
9	408	41-448		102 single precision floating point data
				points or 61 double precision floating
				point data points







## Sample of TABLE Format

CANSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\*\* DIAGNOSTIC ERROR LISTING \*\*\*\*

PAGE 001

RSC1  
RSC2RETRIEVE IN TABLE  
RSC3000179 1 PUBLIC 7103 \*\*\*\*\*TOTAL  
RSC3 1.1.1  
RSC3 1.1.2  
RSC3 1.1.3  
RSC3 1.1.4  
RSC3 1.1.5  
RSC3 1.1.6  
RSC4

BANKS

JUE CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND

CANSIM DATA RETRIEVAL

DATE: JUN 29 73

PAGE 1

C00175 CONSUMER CREDIT: BALANCES OUTSTANDING OF SELECTED HOLDERS. MONTHLY SUB-TOTALS; TOTAL BY QUARTER: MILLIONS OF DOLLARS, UNADJUSTED FOR SEASONALITY.

## MATRIX NOTE

CREDIT EXTENDED TO INDIVIDUALS CHIEFLY FOR FINANCING PERSONAL CONSUMPTION EXPENDITURES. EXCLUDES IMORTNNESS ARISING FROM RESIDENTIAL MORTGAGES, HOME-IMPROVEMENT AND FULLY-SECURED BANK LOANS. DATA DOES NOT INCLUDE INTER-PERSONAL LOANS AND CERTAIN SERVICE CREDIT EXTENDED BY PROFESSIONAL PRACTITIONERS, SOCIAL CLUBS, ETC. DATA PUBLISHED APPROXIMATELY 55 CALENDAR DAYS AFTER END OF PERIOD.

TOTAL 1  
COLUMN 2 1.1.1  
COLUMN 3 1.1.2  
COLUMN 4 1.1.3  
BANKS 1.1.4  
COLUMN 6 1.1.5  
COLUMN 7 1.1.6

TOTAL CONSUMER CREDIT MTHLY & QRLY. REPS-BY QRLY.  
SALES FINANCING COMPANIES - INSTALLMENT FINANCING  
SMALL LOAN COMPANIES - CASH LOANS UNDER \$1,500.  
OTHER CONSUMER LOAN COYS. CASH LOANS OVER \$1,500.  
CHARTERED BANKS PERSONAL LOANS  
QUEBEC SAVINGS BANKS PERSONAL LOANS  
LIFE INSURANCE COYS. POLICY LOANS

CANSIM DATA RETRIEVAL

DATE: JUN 29 73

PAGE 2

DATE YYMMDD	-- TOTAL DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 2 DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 3 DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 4 DOLLARS MILLIONS	-- FOOT NOTE	-- BANKS DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 6 DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 7 DOLLARS MILLIONS	-- FOOT NOTE
710300	11270.2		909.5 F156		491.3 F3		957.5 F6		4790.3 F2		21.8 F2		767.4	
710400			905.3 F156		484.1 F3		945.8 F6		4899.6 F2		22.7 F2		768.1	
710500			904.9 F156		477.4 F3		987.2 F6		5064.4 F2		23.4 F2		771.3	
710600	11796.0		906.6 F156		470.3 F3		997.6 F6		5249.8 F2		24.4 F2		774.7	
710700			903.5 F156		465.9 F3		1005.2 F6		5333.8 F2		24.7 F2		776.3	
710800			902.4 F156		458.6 F3		1011.6 F6		5383.1 F2		25.2 F2		778.3	
710900	12131.2		896.2 F156		450.8 F3		1019.3 F6		5512.5 F2		25.5 F2		781.9	
711000			898.1 F156		442.1 F3		1025.4 F6		5605.4 F2		25.6 F2		783.4	
711100			892.8 F156		436.4 F3		1038.4 F6		5725.6 F2		25.6 F2		783.3	
711200	12684.1		890.5 F156		439.6 F3		1035.8 F6		5776.6 F2		25.3 F2		784.1	
720100			870.7 F156		430.4 F3		1040.0 F6		5767.8 F2		25.3 F2		783.0	
720200			865.0 F156		421.6 F3		1050.6 F6		5800.1 F2		25.1 F2		783.5	
720300	12786.0		867.7 F156		412.1 F3		1077.3 F6		5897.3 F2		25.8 F2		784.5	
720400			894.5 F156		405.6 F3		1097.2 F6		6027.1 F2		26.7 F2		788.1	
720500			925.0 F156		402.6 F3		1132.2 F6		6261.0 F2		28.1 F2		788.4	
720600	13591.5		954.0 F156		398.7 F3		1157.6 F6		6468.7 F2		28.9 F2		791.0	
720700			978.6 F156		395.8 F3		1170.2 F6		6560.6 F2		29.7 F2		793.4	
720800			987.6 F156		393.6 F3		1183.4 F6		6653.7 F2		30.1 F2		795.0	
720900	14117.2		994.1 F156		387.5 F3		1190.0 F6		6823.6 F2		30.5 F2		796.3	
721000			1017.6 F156		381.3 F3		1197.8 F6		6887.7 F2		30.6 F2		798.6	
721100			1024.3 F156		378.4 F3		1220.0 F6		7013.0 F2		30.4 F2		799.2	
721200	14869.8		1035.4 F156		384.1 F3		1240.8 F6		7144.4 F2		30.2 F2		800.4	
730100			1035.7 F156		376.3 F3		1244.0 F6		7173.9 F2		29.9 F2		801.6	
730200			1032.8 F156		371.3 F3		1258.8 F6		7265.4 F2		30.0 F2		803.0	
730300	15072.8		1033.9 F156		364.6 F3		1281.8 F6		7448.8 F2		31.3 F2		805.8	
730400			1046.8 F156		359.6 F3		1298.0 F6		7541.1 F2		32.7 F2		809.4	

\* \* SEE NEXT PAGE FOR FOOTNOTE(S) \* \*

CANSIM DATA RETRIEVAL

DATE: JUN 29 73

PAGE 3

MATRIX NUMBER: 000179

FOOTNOTES REFERENCED IN PRECEDING TABLE PRINTOUT

FOOTNOTE: 1 CONDITIONAL SALES AGREEMENTS HELD IN CONNECTION WITH THE FINANCING OF RETAIL PURCH. OF CONSUMERS' GOODS & REPAID IN INSTALM.  
2 PERSONAL LOANS OTHER THAN THOSE FULLY-SECURED BY MARKETABLE BONDS & STOCKS & HOME-IMPROVEMENT LOANS.  
3 DISCONTINUITY: TILL DEC. 1956 SMALL LOANS ACT COVERED CASH LOANS UP TO \$ 500 ONLY.  
5 DISCONTINUITY: FROM JANUARY 1970 DATA EXCLUDES PASSENGER CARS FINANCED FOR COMMERCIAL PURPOSES.  
6 DISCONTINUITY: FROM JANUARY 1971 DATA EXCLUDES UNEARNED FINANCE CHARGES.





Sample of DISPLAY Format

CANSIM DATA RETRIEVAL      DATE: JUN 29 73  
\*\*\*\* DIAGNOSTIC ERROR LISTING \*\*\*\*

PAGE 001

RSC1  
RSC2RETRIEVE IN DISPLAY      \*M      PUBLIC 6101      \*\*\*\*\*  
RSC3      0      1  
RSC3      0 602001  
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND

CANSIM DATA RETRIEVAL

DATE: JUN 29 73

PAGE 1

D      I      000001.1      SCALAR FACTOR: THOUSANDS      FREQUENCY: QUARTERLY

MATRIX TITLE: ESTIMATED POPULATION OF CANADA BY PROVINCE, QUARTERLY, THOUSANDS OF PERSONS

SERIES TITLE: CANADA

UNIT OF MEASURE: PERSONS

DATE	1ST	2ND	3RD	4TH
61-01-00	18.092	18.172	18.271	18.363
62-01-00	18.442	18.519	18.614	18.708
63-01-00	18.787	18.864	18.964	19.061
64-01-00	19.142	19.222	19.325	19.420
65-01-00	19.501	19.578	19.678	19.777
66-01-00	19.857	19.939	20.048	20.146
67-01-00	20.226	20.306	20.412	20.509
68-01-00	20.581	20.644	20.729	20.814
69-01-00	20.888	20.950	21.028	21.111
70-01-00	21.182	21.244	21.324	21.400
71-01-00	21.465	21.523	21.595	21.665
72-01-00	21.724	21.781	21.848	21.912
73-01-00	21.984			

SOURCE: CATALOGUE NO. 91-001, CENSUS, STATISTICS CANADA

NOTE: ESTIMATES FOR CALENDAR QUARTERLY PERIODS, FROM JAN. 1946. QUARTERLY DATA RELATE TO JAN. 1, APR.1, JULY 1, AND OCT. 1. FOR ESTIMATED POPULATION BY PROVINCE, AS OF JUNE 1 FOR YEARS 1946 ONWARDS. SEE MAT RIX 60. DATA PUBLISHED APPROXIMATELY 75 CALENDAR DAYS AFTER END OF REFERENCE QUARTER.

FOOTNOTE: NIL FOOTNOTES REFERENCED

CANSIM DATA RETRIEVAL

DATE: JUN 29 73

PAGE 2

0 602001      000193.1      SCALAR FACTOR: UNITS      FREQUENCY: MONTHLY

MATRIX TITLE: CONSUMER PRICE INDEXES FOR CANADA, 1961=100, MONTHLY

SERIES TITLE: ALL-ITEMS

UNIT OF MEASURE: INDEX NO.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
61-01-00	100.0	99.8	99.9	99.9	99.8	99.8	99.8	99.9	99.9	100.0	100.4	100.5
62-01-00	100.4	100.5	100.4	100.9	100.7	101.0	101.4	101.7	101.4	101.8	102.1	102.1
63-01-00	102.2	102.2	102.2	102.4	102.4	102.8	103.3	103.6	103.3	103.4	103.7	103.9
64-01-00	103.9	104.1	104.2	104.5	104.5	104.7	105.4	105.3	105.0	105.0	105.2	105.9
65-01-00	106.0	106.2	106.3	106.6	106.8	107.6	108.0	107.9	107.7	107.8	108.5	109.0
66-01-00	109.3	110.0	110.2	110.8	111.0	111.3	111.7	112.2	112.3	112.5	112.6	112.9
67-01-00	113.0	113.1	113.4	114.4	114.6	115.2	116.3	116.8	116.6	116.5	116.9	117.5
68-01-00	118.1	118.2	118.6	119.3	119.3	119.7	120.4	120.7	121.1	121.4	121.9	122.3
69-01-00	122.6	122.6	123.2	124.6	124.9	125.9	126.4	126.9	126.6	126.8	127.4	127.9
70-01-00	128.2	128.7	128.9	129.7	129.6	129.9	130.5	130.5	130.2	130.3	130.3	129.8
71-01-00	130.3	130.9	131.3	132.2	132.7	133.0	134.1	135.0	134.7	134.9	135.4	136.3
72-01-00	136.7	137.3	137.4	138.2	138.3	138.5	140.2	141.3	141.8	142.0	142.3	143.3
73-01-00	144.5	145.3	145.7	147.3								

SOURCE: PRICES AND PRICE INDEXES (62-002) AND PRICES DIV.

NOTE: THE SERIES (2.) WERE OFFICIAL FOR MARCH 1961 THROUGH APRIL 1973. THE WEIGHTING PATTERN OF THE CONSUMER PRICE INDEX WAS REVISED EFFECTIVE MAY 1973; FOR DETAILED EXPLANATIONS OF CONCEPTS AND METHODS, CONTACT RETAIL PRICES SECTION, PRICES DIVISION.

FOOTNOTE: NIL FOOTNOTES REFERENCED



## Sample of MASSAGER Manipulation

CAUSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\*\* DIAGNOSTIC ERROR LISTING \*\*\*\*

PAGE 001

RSC1  
RSC2 RETRIEVE IN MASSAGER-D \*M PUBLIC 7101 7301  
RSC3 D 762363  
RSC3 D 762418  
RSC3 D 762463  
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND

DATE : JUN 29 73	SERIES IDENTIFIERS	AVAILABILITY	INDEX	DATE OF	FREQ	PAGE
MASSAGER	CANSIM	DATA RETRIEVED	DATA RETRIEVED	LAST ENTRY		DATA PDINTS
		FROM	TO			REPLACED BY 0
D 762363	001801.111.11.3	710100	730100	730219	12	0
D 762418	001801.211.11.3	710100	730100	730221	12	0
D 762463	001801.311.11.3	710100	730100	730221	12	0

MASSAGER PROGRAMME RUN DATED - , USING UNIVAC 1108 VERSION OF MARCH 17, 1971. MAX DATA ARRAY = 15000.

\*\*\*\*\* PHASE ONE \*\*\*\*\*

20 50 DEMONSTRATION RUN

\*\*\*\*\* PHASE TWO \*\*\*\*\*

1 D 762363	19711973	2	0	TOTAL EMPLOYED
2 D 762418	19711973	2	0	EMPLOYED MEN
3 D 762463	19711973	2	0	EMPLOYED WOMEN
C	19	0	0	

\*\*\*\*\* PHASE THREE \*\*\*\*\*

-999	1							
(16F5.0)	4							
	25	DATES SUPPLIED						
	0.7101080000	04	0.7102000000	04	0.7103000000	04	0.7104000000	04
	0.7105000000	04	0.7106000000	04	0.7107000000	04	0.7108000000	04
	0.7109000000	04	0.7110000000	04	0.7111000000	04	0.7112000000	04
	0.7201000000	04	0.7202000000	04	0.7203000000	04	0.7204000000	04
	0.7205000000	04	0.7206000000	04	0.7207000000	04	0.7208000000	04
	0.7209000000	04	0.7210000000	04	0.7211000000	04	0.7212000000	04
	0.7301000000	04						
0	0							

\*\*\*\*\* PHASE FOUR \*\*\*\*\*

5	24	2	1	1	25	0	0	2	RATIDN-MEN
6	24	3	1	1	25	0	0	2	RATIDN-WOMEN
7	15	5	0	1	25	0	1	2	% - MEN
	100.00000000								
8	15	6	0	1	25	0	1	2	% - WOMEN
	100.00000000								
4	0	63	0	0	1	25	6	0	MEN AND WOMEN AS A % OF TOTAL EMPLOYED
1	4	0	0	DATE					
2	4	0	0	TOTAL EMPLOYED (THOUSANDS)					
3	4	0	0	EMPLOYED MEN (THOUSANDS)					
4	4	0	0	EMPLOYED WOMEN (THOUSANDS)					
7	2	2	0	EMPLOYED MEN (% OF TOTAL)					
8	2	2	0	EMPLOYED WOMEN (% OF TOTAL)					

MEN AND WOMEN AS A % OF TOTAL EMPLOYED

DATE	TOTAL EMPLOYED (THOUSANDS)	EMPLOYED MEN (THOUSANDS)	EMPLOYED WOMEN (THOUSANDS)	EMPLOYED MEN (% OF TOTAL)	EMPLOYED WOMEN (% OF TOTAL)
1	7101.	7989.	5345.	2643.	66.90
2	7102.	8010.	5344.	2664.	66.72
3	7103.	8006.	5343.	2651.	66.74
4	7104.	7941.	5316.	2626.	66.94
5	7105.	8022.	5379.	2651.	67.05
6	7106.	8059.	5392.	2662.	66.91
7	7107.	8106.	5408.	2697.	66.72
8	7108.	8114.	5421.	2692.	66.81
9	7109.	8127.	5416.	2711.	66.64
10	7110.	8186.	5439.	2739.	66.44
11	7111.	8169.	5432.	2741.	66.50
12	7112.	8205.	5457.	2760.	66.51
13	7201.	8245.	5484.	2759.	66.51
14	7202.	8270.	5514.	2754.	66.67
15	7203.	8347.	5561.	2774.	66.62
16	7204.	8300.	5545.	2756.	66.81
17	7205.	8279.	5539.	2750.	66.90
18	7206.	8323.	5534.	2767.	66.49
19	7207.	8363.	5546.	2814.	66.34
20	7208.	8359.	5524.	2837.	66.08
21	7209.	8324.	5518.	2807.	66.29
22	7210.	8331.	5530.	2792.	66.38
23	7211.	8380.	5546.	2846.	66.12
24	7212.	8430.	5563.	2876.	65.99
25	7301.	8531.	5630.	2898.	65.99



## A FANTOM Printout

The data points in the top table were retrieved from CANSIM on a tape in UTILITY format which was read into FANTOM. Four FANTOM operations

were used to calculate the percentage changes given in the lower table. FANTOM has about 65 operations.

## \*\*\*\*\* RETAIL TRADE OF CANADA BY PROVINCE, 1968-1969, IN THOUSANDS OF DOLLARS \*\*\*\*\*

	Nfld.	P.E.I.	N.S.	N.B.	QUEB.	ONT.	MAN.	SASK.	ALTA.	B.C.
JAN 68	30127.0	7157.0	57456.0	45840.0	469202.0	721787.0	86434.0	77516.0	143646.0	197354.0
FEB 68	32309.0	6605.0	57155.0	41812.0	461601.0	655373.0	80965.0	71630.0	144404.0	192802.0
MAR 68	34940.0	9059.0	63907.0	48177.0	518646.0	746602.0	93110.0	87363.0	159841.0	222172.0
APR 68	35398.0	9154.0	69026.0	51213.0	534507.0	767780.0	89888.0	93365.0	159718.0	209299.0
MAY 68	39897.0	9656.0	77743.0	60244.0	589616.0	842077.0	97766.0	91638.0	175191.0	234998.0
JUN 68	44173.0	10013.0	68729.0	56762.0	532285.0	827119.0	97830.0	89540.0	167280.0	229063.0
JUL 68	42645.0	12019.0	75767.0	57178.0	515259.0	813261.0	92360.0	86559.0	161536.0	234363.0
AUG 68	42749.0	9611.0	78226.0	53223.0	534623.0	797364.0	97415.0	96812.0	176854.0	252247.0
SEP 68	38018.0	8685.0	68776.0	52099.0	491191.0	764257.0	87104.0	82191.0	162911.0	232929.0
OCT 68	39186.0	9116.0	72268.0	58339.0	561015.0	864594.0	98675.0	93877.0	172592.0	240675.0
NOV 68	42895.0	10018.0	82863.0	63338.0	606472.0	948004.0	109319.0	96316.0	191036.0	258112.0
DEC 68	49033.0	11005.0	95282.0	65690.0	664225.0	1066975.0	115866.0	105091.0	215199.0	293416.0
JAN 69	31803.0	8192.0	63286.0	50848.0	494696.0	817034.0	88903.0	73610.0	155739.0	216366.0
FEB 69	32335.0	6756.0	62665.0	43455.0	476682.0	713387.0	84580.0	68022.0	158505.0	208174.0
MAR 69	35524.0	8734.0	74890.0	57172.0	533178.0	809809.0	97039.0	80222.0	172280.0	240713.0
APR 69	37097.0	9135.0	68905.0	50636.0	568171.0	845091.0	96151.0	93415.0	182626.0	233284.0
MAY 69	40268.0	9490.0	78287.0	59572.0	620032.0	950009.0	106416.0	93531.0	196029.0	273247.0
JUN 69	43852.0	10141.0	69499.0	55830.0	555025.0	879380.0	101063.0	87871.0	182305.0	247230.0
JUL 69	42765.0	12234.0	75783.0	57354.0	548773.0	866239.0	97217.0	84684.0	171073.0	246175.0
AUG 69	41112.0	9685.0	79776.0	51394.0	543401.0	819836.0	97893.0	94001.0	182203.0	256904.0
SEP 69	39753.0	9346.0	75753.0	54347.0	555435.0	846136.0	95991.0	88432.0	177699.0	254984.0
OCT 69	40419.0	9911.0	77439.0	59178.0	622391.0	921896.0	106003.0	93652.0	191467.0	270336.0
NOV 69	39645.0	10162.0	79048.0	60352.0	600716.0	948687.0	108173.0	86453.0	195469.0	265923.0
DEC 69	54206.0	12794.0	101588.0	67568.0	711292.0	1153763.0	124863.0	103328.0	233321.0	330407.0

## \*\*\*\*\* MONTH-TO-MONTH PERCENTAGE CHANGES IN RETAIL TRADE OF CANADA BY PROVINCE \*\*\*\*\*

	Nfld.	P.E.I.	N.S.	N.B.	QUEB.	ONT.	MAN.	SASK.	ALTA.	B.C.
JAN 68 TO FEB 68	7.2	-7.7	-0.5	-8.8	-1.6	-9.2	-6.3	-7.6	0.5	-2.3
FEB 68 TO MAR 68	8.1	37.2	11.8	15.2	12.4	13.9	15.0	22.0	10.7	15.2
MAR 68 TO APR 68	1.3	1.0	8.0	6.3	3.1	2.8	-3.5	6.9	-0.1	-5.8
APR 68 TO MAY 68	12.7	5.5	12.6	17.6	10.3	9.7	8.8	-1.8	9.7	12.3
MAY 68 TO JUN 68	10.7	3.7	-11.6	-5.8	-9.7	-1.8	0.1	-2.3	-4.5	-2.5
JUN 68 TO JUL 68	-3.5	20.0	10.3	0.7	-3.2	-1.7	-5.6	-3.3	-3.4	2.3
JUL 68 TO AUG 68	0.2	-20.0	3.2	-6.9	3.8	-2.0	5.5	11.8	9.5	7.6
AUG 68 TO SEP 68	-11.1	-9.6	-12.1	-2.1	-8.1	-4.2	-10.6	-15.1	-7.9	-7.7
SEP 68 TO OCT 68	3.1	5.0	5.1	12.0	14.2	13.1	13.3	14.2	5.9	3.3
OCT 68 TO NOV 68	9.5	9.9	14.7	8.6	8.1	9.6	10.8	2.6	10.7	7.2
NOV 68 TO DEC 68	14.3	9.9	15.0	3.7	9.5	12.5	6.0	9.1	12.6	13.7
DEC 68 TO JAN 69	-35.1	-25.6	-33.6	-22.6	-25.5	-23.4	-23.3	-30.0	-27.6	-26.3
JAN 69 TO FEB 69	1.7	-17.5	-1.0	-14.5	-3.6	-12.7	-4.9	-7.6	1.8	-3.8
FEB 69 TO MAR 69	9.9	29.3	19.5	31.6	11.9	13.5	14.7	17.9	8.7	15.6
MAR 69 TO APR 69	4.4	4.6	-8.0	-11.4	6.6	4.4	-0.9	16.4	6.0	-3.1
APR 69 TO MAY 69	8.5	3.9	13.6	17.6	9.1	12.4	10.7	0.1	7.3	17.1
MAY 69 TO JUN 69	8.9	6.9	-11.2	-6.3	-10.5	-7.4	-5.0	-6.1	-7.0	-9.5
JUN 69 TO JUL 69	-2.5	20.6	9.0	2.7	-1.1	-1.5	-3.8	-3.6	-6.2	-0.4
JUL 69 TO AUG 69	-3.9	-20.8	5.3	-10.4	-1.0	-5.4	0.7	11.0	6.5	4.4
AUG 69 TO SEP 69	-3.3	-3.5	-5.0	5.7	2.2	3.2	-1.9	-5.9	-2.5	-0.7
SEP 69 TO OCT 69	1.7	6.0	2.2	8.9	12.1	9.0	10.4	5.9	7.7	6.0
OCT 69 TO NOV 69	-1.9	2.5	2.1	2.0	-3.5	2.9	2.0	-7.7	2.1	-1.6
NOV 69 TO DEC 69	36.7	25.9	28.5	12.0	18.4	21.6	15.4	19.5	19.4	24.2



## Part of an X-11 Seasonal Adjustment Printouts

The data points in the table below were read into the X-11 program from a tape in UTILITY format. On the following three pages are five more

tables (out of a possible 59) which the X-11 program can produce.

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P. 1, SERIES A-424

## 9.1. ORIGINAL SERIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1966	119236.	120622.	137287.	152356.	141087.	146741.	138027.	144040.	145491.	152697.	153686.	196296.	1747566.
1967	132352.	128659.	145199.	153215.	160218.	166382.	144137.	155333.	162316.	161805.	166724.	206876.	1883216.
1968	143646.	144404.	159841.	159718.	175191.	167280.	161536.	176854.	162911.	172592.	191036.	215199.	2030208.
1969	155739.	158505.	172280.	182626.	196029.	182305.	171073.	182203.	177699.	191467.	195469.	233321.	2198716.
AVGE	137743.	138048.	153652.	161979.	168131.	165677.	153693.	164608.	162104.	169640.	176720.	212923.	
TABLE TOTAL-	7859706.			MEAN- 163744.				STD. DEVIATION- 23661.					





## SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P. 3, SERIES A-424

C15. FINAL TRADING DAY REGRESSION						
	COMBINED WEIGHT	PRIOR WEIGHT	REGRESSION COEFF.	ST.ERROR (COMB.WT.)	T (1)	T (PRIOR WT.)
MONDAY	1.063	1.000	0.043	0.129	0.488	0.488
TUESDAY	1.181	1.000	0.181	0.137	1.328	1.328
WEDNESDAY	0.614	1.000	-0.386	0.140	-2.750*	-2.750**
THURSDAY	0.843	1.000	-0.157	0.121	-1.300	-1.300
FRIDAY	1.667	1.000	0.667	0.127	5.266*	5.266**
SATURDAY	1.518	1.000	0.518	0.136	3.824*	3.824**
SUNDAY	0.114	1.000	-0.886	0.133	-6.688*	-6.688**
* COMBINED WT. SIGNIFICANTLY DIFFERENT FROM 1 AT 1 PER CENT LEVEL						
** COMBINED WT. SIGNIFICANTLY DIFFERENT FROM PRIOR WEIGHT AT 1 PER CENT LEVEL						

SOURCE OF VARIANCE	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
REGRESSION	12.815	6.	2.136	21.491***
ERROR	3.876	39.	0.099	
TOTAL	16.690	45.		

\*\*\* RESIDUAL TRADING DAY VARIATION PRESENT AT THE 1 PER CENT LEVEL

STANDARD ERRORS OF TRADING DAY ADJUSTMENT FACTORS DERIVED FROM REGRESSION COEFFICIENTS

31-DAY MONTHS-	0.35
30-DAY MONTHS-	0.45
29-DAY MONTHS-	0.44
28-DAY MONTHS-	.00

## SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P. 4, SERIES A-424

C16. TRADING DAY ADJUSTMENT FACTORS DERIVED FROM REGRESSION COEFFICIENTS							
C16A. REGRESSION COEFFICIENTS - MON TUE WED THUR FRI SAT SUN							
	1.063	1.181	0.614	0.843	1.667	1.518	0.114

C16B. REGRESSION TRADING DAY ADJUSTMENT FACTORS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1966	99.02	99.12	98.83	103.95	97.93	98.19	100.96	99.54	101.70	99.02	99.32	103.32	100.07
1967	97.93	99.12	100.40	98.77	99.54	101.70	99.02	98.83	103.95	97.93	98.19	100.96	99.70
1968	99.54	102.10	100.96	100.81	100.40	98.77	99.54	103.32	97.26	98.83	103.95	97.93	100.28
1969	100.40	99.12	99.02	99.32	103.32	97.26	98.83	100.96	100.81	100.40	98.77	99.54	99.81

TABLE TOTAL- 4798.40

C16C. REGRESSION TRADING DAY ADJUSTMENT FACTORS, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1970	103.32	99.12	97.93	98.19	100.96	100.81	100.40	99.02	99.32	103.32	97.26	98.83	99.87



## SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P.10, SERIES A-424

## 100. FINAL SEASONAL FACTORS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1966	87.64	86.20	95.97	100.99	104.20	101.45	93.89	99.09	97.10	102.61	104.91	125.74	99.98
1967	87.63	86.41	96.00	100.99	104.15	101.56	93.95	99.01	96.94	102.68	105.10	125.74	100.01
1968	87.59	86.38	95.96	100.95	104.13	101.55	93.95	99.00	96.95	102.70	105.13	125.79	100.01
1969	87.71	86.41	95.80	100.89	104.09	101.48	94.05	99.07	96.92	102.48	105.25	125.57	99.98

TABLE TOTAL- 4799.76      MEAN- 100.00      STD. DEVIATION- 9.65

## 100A. SEASONAL FACTORS, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1970	87.76	86.43	95.72	100.86	104.08	101.45	94.10	99.11	96.91	102.37	105.30	125.46	99.96

## SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P.11, SERIES A-424

## 101. FINAL SEASONALLY ADJUSTED SERIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1966	137403.	141178.	144744.	145131.	138267.	147306.	145608.	146024.	147342.	150290.	147501.	151101.	1741896.
1967	154230.	150224.	150655.	153596.	154542.	161095.	154938.	158741.	161069.	160914.	161557.	162951.	1884513.
1968	164747.	163740.	164980.	156930.	167574.	166765.	172728.	172903.	172784.	170044.	174808.	174695.	2022698.
1969	176864.	185065.	181624.	182250.	182277.	184709.	184045.	182153.	181858.	186091.	188030.	186664.	2201631.

AVGE 158311. 160052. 160501. 159477. 160665. 164969. 164330. 164955. 165763. 166835. 167974. 168853.

TABLE TOTAL- 7850738.      MEAN- 163557.      STD. DEVIATION- 14772.



## SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969

P.21, SERIES A-424

## F 2. SUMMARY MEASURES

AVERAGE PER CENT CHANGE WITHOUT REGARD TO SIGN OVER INDICATED SPAN

SPAN IN MONTHS	B1 O	D11 CI	D13 I	D12 C	D10 S	A2 P	C18 TD*	F1 MCD	E1 MOD.O	E2 MOD.CI	E3 MOD.I
1	8.64	1.79	1.67	0.61	7.57	0.0	2.24	0.81	8.32	1.21	1.07
2	11.63	2.18	1.76	1.21	10.55	0.0	2.34	1.37	11.75	1.73	1.26
3	12.92	2.47	1.64	1.82	12.88	0.0	1.72	1.95	13.18	2.15	1.08
4	12.35	2.69	1.42	2.42	11.59	0.0	2.28	2.49	12.08	2.50	0.88
5	11.10	3.38	1.60	3.03	10.06	0.0	2.12	3.17	10.93	3.11	1.16
6	9.90	4.02	1.49	3.66	7.73	0.0	1.86	3.83	9.89	3.77	1.10
7	12.48	4.74	1.50	4.32	9.88	0.0	2.34	4.53	12.03	4.47	0.94
9	15.21	5.94	1.64	5.71	14.10	0.0	1.44	5.97	15.43	5.79	1.15
11	12.28	7.47	1.54	7.14	9.70	0.0	1.97	7.42	12.10	7.31	0.90
12	8.11	8.16	1.73	7.85	0.07	0.0	2.25	8.11	7.94	7.99	1.12

RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SERIES

SPAN IN MONTHS	D13 I	D12 C	D10 S	A2 P	C18 TD*	TOTAL	RATIO (X100)
1	4.24	0.56	87.54	0.0	7.66	100.00	87.77
2	2.54	1.21	91.71	0.0	4.53	100.00	89.72
3	1.53	1.89	94.88	0.0	1.70	100.00	104.85
4	1.38	3.98	91.12	0.0	3.53	100.00	96.69
5	2.17	7.83	86.19	0.0	3.81	100.00	95.32
6	2.82	17.00	75.79	0.0	4.40	100.00	80.48
7	1.81	15.03	78.76	0.0	4.40	100.00	79.64
9	1.14	13.80	84.18	0.0	0.88	100.00	102.12
11	1.57	33.69	62.17	0.0	2.57	100.00	100.34
12	4.30	88.42	0.01	0.0	7.28	100.00	105.95

AVERAGE DURATION OF RUN

C1	I	C	MCD
1.68	1.57	47.00	3.00

I/C RATIO FOR MONTHS SPAN

I	2	3	4	5	6	7	8	9	10	11	12
2.75	1.45	0.90	0.59	0.53	0.41	0.35	0.31	0.29	0.26	0.22	0.22

MONTHS FOR CYCLICAL DOMINANCE 3

AVERAGE PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN

PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN												
SPAN IN MONTHS	B1 O	D13 I	D12 C	D10 S	D11 CI	F1 MCD						
	AVGE	S.D.	AVGE	S.O.	AVGE	S.O.	AVGE	S.O.	AVGE	S.O.	AVGE	S.O.
1	2.17	11.58	0.08	2.31	0.61	0.27	1.40	10.71	0.68	2.36	0.63	0.82
2	3.59	14.15	0.11	2.26	1.21	0.53	2.18	13.31	1.33	2.41	1.23	1.16
3	4.48	15.19	0.10	2.29	1.82	0.75	2.51	15.00	1.92	2.52	1.86	1.49
4	4.84	14.84	0.07	2.15	2.42	0.91	2.27	13.93	2.49	2.46	2.49	1.53
5	5.44	14.49	0.17	2.18	3.03	1.03	2.07	13.36	3.21	2.58	3.16	1.57
6	5.66	11.80	0.16	1.95	3.66	1.11	1.68	10.91	3.83	2.34	3.83	1.54
7	6.78	13.84	0.21	2.22	4.32	1.14	2.06	11.97	4.53	2.55	4.53	1.55
9	8.93	16.98	0.22	2.10	5.71	1.17	2.89	16.23	5.94	2.48	5.97	1.63
11	9.69	17.53	0.31	2.24	7.14	1.15	2.01	15.62	7.47	2.56	7.42	1.69
12	8.11	3.95	0.29	2.38	7.85	1.14	0.00	0.09	8.16	2.72	8.11	1.67

\*(TRADING DAY ADJUSTMENT FACTORS WITHOUT LENGTH OF MONTH ADJUSTMENT)



## Publication Produced Using PUBLICATION Format

The sample below and that on the next page together make up a table of an annual publication of the National Income and Expenditure Division. The publication is produced by a report-generating

program which uses a tape in PUBLICATION format; headings and stubs required for each table are introduced on cards or on tape.

TABLE 28. GROSS DOMESTIC PRODUCT AT FACTOR COST, BY INDUSTRY, 1926-1969 (1) (2)

	1958	1959	1960	1961	1962	1963	1964	1965
	MILLIONS OF DOLLARS							
1 AGRICULTURE.....	1,712	1,629	1,681	1,519	2,060	2,296	2,089	2,283
2 FORESTRY.....	375	399	433	383	400	412	469	505
3 FISHING AND TRAPPING.....	98	87	84	91	107	108	123	130
4 MINES, QUARRIES, AND OIL WELLS.....	1,152	1,339	1,400	1,421	1,564	1,685	1,855	1,886
5 MANUFACTURING.....	8,171	8,804	8,976	9,135	10,033	10,793	11,891	13,000
6 CONSTRUCTION.....	2,003	2,037	2,004	2,038	2,148	2,266	2,513	3,060
7 TRANSPORTATION.....	2,107	2,331	2,326	2,414	2,477	2,637	2,857	3,048
8 STORAGE.....	79	83	84	85	82	95	104	104
9 COMMUNICATION.....	687	763	828	891	979	1,042	1,155	1,245
10 ELECTRIC POWER, GAS, AND WATER UTILITIES.....	842	886	957	1,049	1,097	1,171	1,252	1,352
11 WHOLESALE TRADE.....	1,444	1,602	1,656	1,704	1,856	1,957	2,179	2,332
12 RETAIL TRADE.....	2,451	2,617	2,713	2,757	2,917	3,107	3,437	3,644
13 FINANCE, INSURANCE, AND REAL ESTATE (3).....	3,396	3,557	3,794	3,993	4,193	4,572	4,875	5,444
14 PUBLIC ADMINISTRATION AND DEFENCE.....	2,142	2,243	2,377	2,539	2,702	2,851	3,027	3,268
15 COMMUNITY, BUSINESS, AND PERSONAL SERVICE.....	3,705	4,060	4,486	4,947	5,399	5,903	6,608	7,488
16 TOTAL.....	30,364	32,437	33,799	34,966	38,014	40,895	44,434	48,789

(1) FOR A RECONCILIATION BETWEEN GROSS NATIONAL PRODUCT AT MARKET PRICES AND GROSS DOMESTIC PRODUCT AT FACTOR COST, SEE TABLE 3. IT SHOULD BE NOTED THAT THE DATA FOR WAGES, SALARIES, AND SUPPLEMENTARY LABOUR INCOME AND THE INVENTORY VALUATION ADJUSTMENT ARE ON AN ESTABLISHMENT BASIS, WHILE THE DATA FOR NET INCOME OF UNINCORPORATED BUSINESS, INVESTMENT INCOME, AND CAPITAL CONSUMPTION ALLOWANCES AND MISCELLANEOUS VALUATION ADJUSTMENTS ARE ON A COMPANY BASIS.

(2) SEE FOOTNOTE 2, TABLE 30.

(3) INCLUDES OWNERSHIP OF DWELLINGS.





TABLEAU 28 PRODUIT INTERIEUR BRUT AU COUT DES FACTEURS, PAR INDUSTRIE, 1926-1969 (1) (2)

1966	1967	1968	1969	1970	1971	1972	1973		
MILLIONS DE DOLLARS									
2,921	2,324	2,602	2,918					AGRICULTURE.....	1
532	545	555	599					SYLVICULTURE.....	2
135	135	150	139					PECHE ET PIEGEAGE.....	3
2,011	2,291	2,502	2,639					INDUSTRIES EXTRACTIVES.....	4
14,183	14,585	15,739	17,040					INDUSTRIES MANUFACTURIERES.....	5
3,642	3,820	4,007	4,314					CONSTRUCTION.....	6
3,335	3,571	3,874	4,278					TRANSPORTS.....	7
129	133	143	157					ENTREPOSAGE.....	8
1,374	1,501	1,600	1,839					COMMUNICATIONS.....	9
1,457	1,575	1,734	1,935					ELECTRICITE, GAZ ET EAU.....	10
2,677	2,893	3,059	3,507					COMMERCE DE GROS.....	11
4,001	4,344	4,789	5,216					COMMERCE DE DETAIL.....	12
5,816	6,569	7,066	7,714					FINANCES, ASSURANCES ET AFFAIRES IMMOBILIERES (3)...	13
3,716	4,173	4,532	5,115					ADMINISTRATION PUBLIQUE ET DEFENSE (3).....	14
8,664	9,965	11,207	12,740					SERVICES.....	15
54,593	58,424	63,559	70,150					TOTAL.....	16

(1) POUR LA CONCILIATION ENTRE LE PRODUIT NATIONAL BRUT AUX PRIX DU MARCHÉ ET LE PRODUIT INTERIEUR BRUT AU COUT DES FACTEURS, VOIR TABLEAU 3. LES DONNÉES RELATIVES À LA REMUNÉRATION DES SALAIRES ET À L'AJUSTEMENT DE LA VALEUR DES STOCKS SE RÉFÈRENT AUX ÉTABLISSEMENTS TANDIS QUE LES DONNÉES SUR LE REVENU NET DES ENTREPRISES NON CONSTITUÉES EN SOCIÉTÉS, LE REVENU DES PLACEMENTS ET LES PROVISIONS POUR LA CONSOMMATION DE CAPITAL ET LES REÉVALUATIONS DIVERSES SE RAPPORTANT AUX COMPAGNIES.

(2) VOIR NOTE 2, TABLEAU 30

(3) Y COMPRIS LES SERVICES IMPUTÉS DES LOGEMENTS HABITÉS PAR LEUR PROPRIÉTAIRE.





## RECORD LAYOUT

Page 1 of 1

Data Set Name

G E N E R A L

JOB Name

C A N S I M

Field	Size	Position	Type	Title
1	2	1-2	AN	Reserved
2	1	3	N	Record type
3	4	4-7	AN	Agency
4	4	8-11	AN	Section
5	6	12-17	N	Matrix number
6	1	18	N	Crossfoot indicator
7	10	19-28	AN	Reserved
8	300	29-328	AN	Long title
9	40	329-368	AN	Short title
10	50	369-418	AN	Source
11	2	419-420	AN	Reserved
12	500	421-920	AN	Note
13	1080	921-2000	AN	Footnotes
6	20	18-37	AN	Series number
7	50	38-87	AN	Series title
8	10	88-97	AN	Unit of measure
9	1	98	N	Security indicator
10	8	99-106	AN	Re-name
11	2	107-108	BN	Data mask type
12	2	109-110	BN	Variance allowed
13	2	111-112	BN	Scalar factor
14	2	113-114	BN	Number of decimal places
15	2	115-116	BN	Report frequency
16	2	117-118	BN	Expected date of update
17	2	119-120	N	Record number
18	1	121	N	Termination indicator
19	6	122-127	N	"From" date
20	6	128-133	N	"To" date
21	3	134-137	PD	Number of datapoints
22	3	138-140	PD	Number of "zero" secure datapoints
23	61	141-200	AN	Reserved
24	15x120	201-2000		Datapoints



## RECORD LAYOUT

Page 1 of 1

Data Set Name

M	A	S	S	-	D	I	R	E	C	T	O	R	Y			
---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--

JOB Name

C	A	N	S	I	M		
---	---	---	---	---	---	--	--

[illegible]



MASS-DIRECTORY Sample Printout

CANSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\* DIAGNOSTIC ERROR LISTING \*\*\*

PAGE 001

RSC1  
RSC2 RETRIEVE MASS-DIRECTORY \*M  
RSC3 RD 109  
RSC3 D 120  
RSC3 RB 1000  
RSC3 B 1032  
RSC3 RD 310397  
RSC3 D 310460  
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND

CANSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\* MASSAGER CROSS-REFERENCE DIRECTORY \*\*\*

PAGE 001

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
D 109	000005	1	D 110	000005	1.1	D 111	000005	1.2
D 112	000005	1.3	D 113	000005	1.4	D 114	000005	1.5
D 115	000005	1.6	D 116	000005	1.7	D 117	000005	1.8
D 118	000005	1.9	D 119	000005	1.10	D 120	000005	1.12

CANSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\* MASSAGER CROSS-REFERENCE DIRECTORY \*\*\*

PAGE 002

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
B 1000	000916	1	B 1001	000916	1.2	B 1002	000916	1.2.1
B 1003	000916	1.2.2	B 1004	000916	1.2.3	B 1005	000916	2
B 1006	000916	1.2.4	B 1007	000916	3	B 1008	000916	1.3
B 1009	000916	1.3.1	B 1010	000916	1.3.2	B 1011	000916	1.4
B 1012	000916	4	B 1013	000916	1.4.1	B 1014	000916	1.4.1.1
B 1015	000916	1.4.1.2	B 1016	000916	1.4.1.3	B 1017	000916	1.4.1.4
B 1018	000916	1.4.1.5	B 1019	000916	1.4.1.6	B 1020	000916	1.4.1.7
B 1021	000916	1.4.1.8	B 1022	000916	1.4.1.9	B 1023	000916	1.4.1.10
B 1024	000916	1.4.1.11	B 1025	000916	1.4.2	B 1026	000916	5
B 1027	000916	1.4.3	B 1028	000916	1.4.4	B 1029	000916	1.4.5
H 1030	000916	1.5	H 1031	000916	6	B 1032	000916	7

CANSIM DATA RETRIEVAL DATE: JUN 29 73  
\*\*\* MASSAGER CROSS-REFERENCE DIRECTORY \*\*\*

PAGE 003

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
D 310397	000518	1.1	D 310398	000518	1.2	D 310399	000518	1.3
D 310400	000518	1.4	D 310401	000518	1.5	D 310402	000518	1.6
D 310403	000518	1.7	D 310405	000518	2.1	D 310406	000518	2.2
D 310407	000518	2.3	D 310408	000518	2.4	D 310409	000518	2.5
D 310410	000518	2.6	D 310411	000518	2.7	D 310413	000518	3.1
D 310414	000518	3.2	D 310415	000518	3.3	D 310416	000518	3.4
D 310417	000518	3.5	D 310418	000518	3.6	D 310419	000518	3.7
D 310421	000518	5.1	D 310422	000518	5.2	D 310423	000518	5.3
D 310424	000518	5.4	D 310425	000518	5.5	D 310426	000518	5.6
D 310427	000518	5.7	D 310429	000518	6.1	D 310430	000518	6.2
D 310431	000518	6.3	D 310432	000518	6.4	D 310433	000518	6.5
D 310434	000518	6.6	D 310435	000518	6.7	D 310437	000518	7.1
D 310438	000518	7.2	D 310439	000518	7.3	D 310440	000518	7.4
D 310441	000518	7.5	D 310442	000518	7.6	D 310443	000518	7.7
D 310445	000518	4.1	D 310446	000518	4.2	D 310447	000518	4.3
D 310448	000518	4.4	D 310449	000518	4.5	D 310450	000518	4.6
D 310451	000518	4.7	D 310453	000518	8.1	D 310454	000518	8.2
D 310456	000518	9.1	D 310457	000518	9.2	D 310458	000518	9.3
D 310459	000518	9.4	D 310460	000518	9.5			

\*\*\*\* TOTAL MASSAGER NUMBERS PRINTED 000101 \*\*\*\*













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