

CODAP1 TO 3400 COMPASS TRANSLATOR

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CODAP1 TO COMPASS TRANSLATOR

The CODAP1 to COMPASS Translator is a routine which translates 1604 CODAP1 source programs to 3400 COMPASS format.

This translator is a utility routine called into memory in the same way as other utility routines. The 3400 Utility Package Programming Systems Bulletin (publication number 60137100) contains information on calling utility routines.

Input must be from one unblocked tape, i. e. , one card per record.

In the description of card format, if a parameter is to be omitted, only the following comma need be indicated.

TRANSLAT CARD FORMAT

In the bulletin mentioned, the format of this card is described generally as:

<utility routine name> p₁,p₂,...,p_n

col. 1

TRANSLAT,p₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈

p₁ number of logical unit containing translator. It may be omitted, zero, or 70-79; if it is LIB, omitted, or zero, 70 is assumed.

p₂ operating mode

COMPASS All succeeding card images are processed without change until a CODAP card is read.

CODAP All succeeding card images are translated to 3400 COMPASS format until a COMPASS card is read.

p₃ logical unit number of input tape unit containing card images to be translated; must be 1 to 49 or 60. If p₃ = 60, parameters p₅, p₆, and p₇ are ignored.

p₄ logical unit number of punch output tape unit on which Hollerith format translated card images are to be written. It must be 1 to 49.

p₅ number of files to skip on the input tape before translation begins; must be numeric.

FORMAT
TRANSLATION

The location field (columns 1-8) and the address field (columns 20-40) of a CODAP1 card are checked for legal COMPASS characters, except embedded blanks in the location field. Periods are substituted for illegal COMPASS characters. Characters considered legal in the COMPASS Reference Manual are not necessarily considered legal COMPASS characters by this routine.

Legal COMPASS characters in the location field are:

A - Z
0 - 9
. (period)
+
- (minus)
blank

Legal COMPASS characters in the address field include the above plus:

*
** (except **+XX)

An asterisk or an equal sign is not changed when it is the first character in the location field. An equal sign is not changed when it is the first character in the address field; this may produce incorrect results, which are detected by a COMPASS assembly.

The address field is extended to column 72, and a left and right parentheses and a comma are allowed for the following pseudo instructions:

ORGR COMMON IDENT LIB EXT ENTRY

The address field is extended to column 80 for the following pseudo instructions:

BCD BSS DEC REM OCT ZRO BES SPACE BLOCK

The remarks field and sequence field of a CODAP1 card are moved without change.

Example translations:

<u>CODAP1</u>	<u>Changed To</u>	<u>Remarks</u>
<u>Location Field</u>		
(B\$C)	. B. C.	Left and right parentheses and dollar sign illegal
A=+2	A. +2	Equal sign is illegal
*	*	No change because first character
EX1*	EX1.	Asterisk is illegal
=HCONST	=HCONST	No change because equal sign is first character
*ZZ	*ZZ	Error; would be detected in a COMPASS assembly

Address Field

COMMENT* COMMENT* Asterisk legal in address field

POINTS OF INTEREST

- Labels with leading asterisks are not changed.
- Literals are not checked in the address field.
- The suffix D on a constant is not removed.
- ** followed by a character is flagged as an illegal arithmetic option.
- The index designator B1 is changed to 1.

LOGICAL UNIT TRANSLATION

CO-OP monitor logical units 50 through 55 are translated to SCOPE logical units 60 through 65.

**SIMULATED
SUBROUTINES**

Calls to CODAPI subroutines must be removed or substituted with SCOPE calls in the translated COMPASS program, except the calls listed below:

READ* WRITE* EXIT* ERROR*

which are translated to:

READ. WRITE. EXIT. ERROR.

Each of the above calls a subroutine in the SCOPE library tape which simulates the equivalent CO-OP monitor subroutine. If the function code is other than specified below for the READ. and WRITE. simulated subroutine, an error message will be printed during execution of the translated program. The CO-OP Monitor Programmer's Guide, publication number 508, describes the result of each function code listed below.

READ.

<u>Hardware</u>	<u>CODAPI Function Code</u>
Tape Unit	1 - 9
Control Console	1 - 4
Card Reader	1 - 4

WRITE.

<u>Hardware</u>	<u>CODAPI Function Code</u>
Tape Unit	1 - 9
Control Console	1 - 5 - 8
Printer	1
Punch	1 - 4

ERROR.

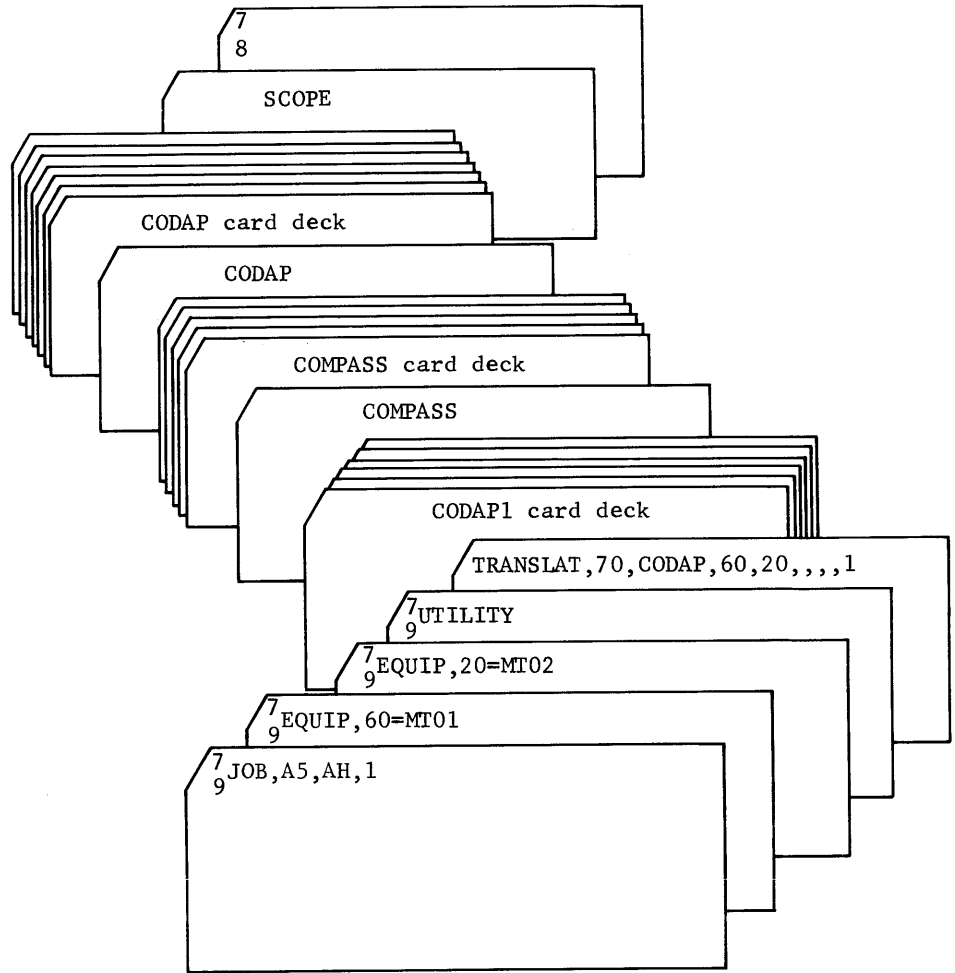
Simulates the CO-OP ERROR* subroutine. An abnormal termination with a core dump (specified by the dump indicator on the RUN card) will result. The dump will be the image of core when this routine is called. At the end of the dump, SCOPE prints:

ABNORMAL EXIT TAKEN, RUN TERMINATED

EXIT.

Simulates the CO-OP EXIT* subroutine; a normal exit to SCOPE is made.

Example of Card Input



Example of Tape Input

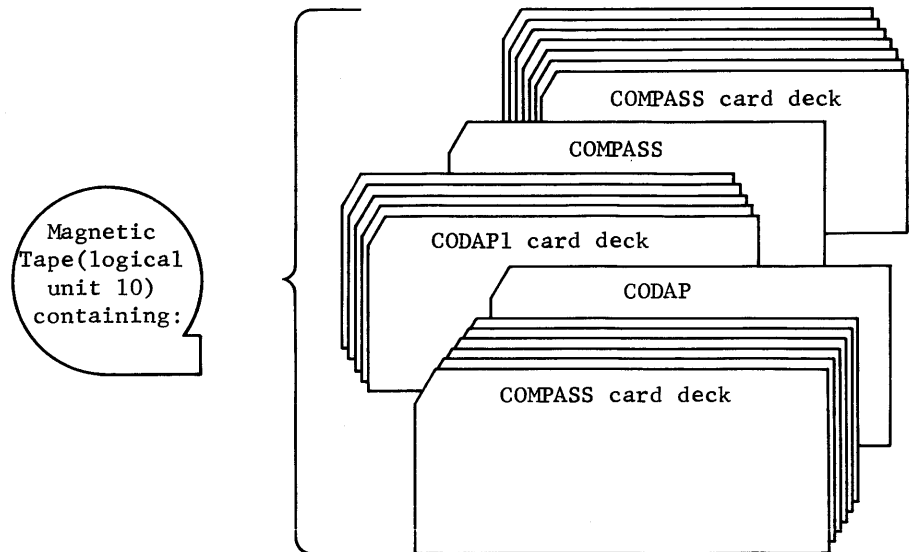
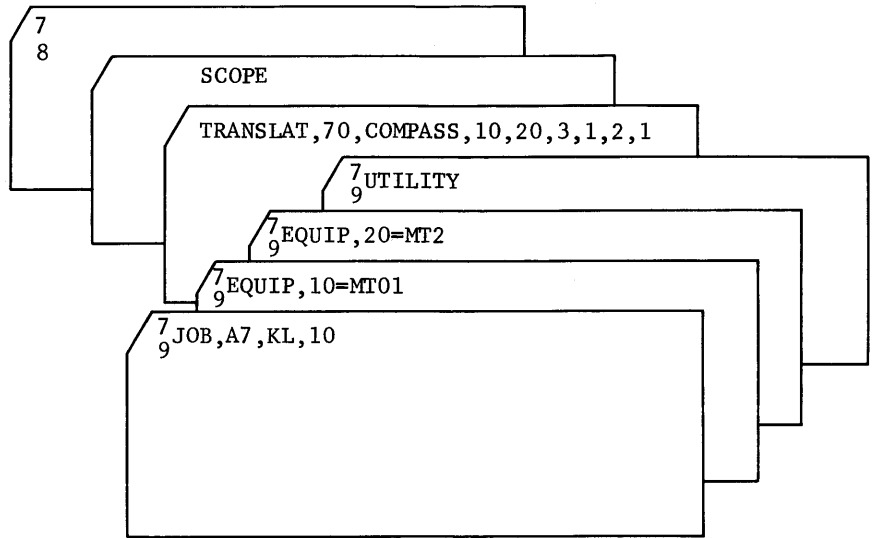


Table 1. PSEUDO CODE EQUIVALENTS

<u>CODAP1</u>	<u>COMPASS</u>	<u>CODAP1</u>	<u>COMPASS</u>
ZRO	00	LITOC T	LITOC T *****
SPACES	SPACE	ONLIST	NOLIST
LIB	EXT	LIST	LIST
SEV	77	TITLE	TITLE *****
TEL	TEL *****	DETAIL	DETAIL *****
I/O	I/O *****	REF	REF *****
FLX	FLX *****	SYSTEM	SYSTEM *****
FINIS	SCOPE	CALL	CALL
ORG	ORG *****	REMARK	REMARK *****
LITDEC	LITDEC *****		

Table 2. MACHINE CODE EQUIVALENTS

<u>CODAP1</u>	<u>COMPASS</u>	<u>CODAP1</u>	<u>COMPASS</u>
ISK	ISK	AJP 3, M	AJP, MI
SLS 0	SLS	AJP 4	ARJ, ZR
SLS 1	SS1	AJP 5	ARJ, NZ
SLS 2	SS2	AJP 6	ARJ, PL
SLS 3	SS3	AJP 7	ARJ, MI
SLS 4 SRJ 0	SRJ	ARJ 0	ARJ, ZR
SLS 5 SRJ 1	SR1	ARJ 1	ARJ, NZ
SLS 6 SRJ 2	SR2	ARJ 2	ARJ, PL
SLS 7 SRJ 3	SR3	ARJ 3	ARJ, MI
SLJ 0	SLJ	QJR	(same as AJP)
SLJ 1	SJ1	QRJ	(same as ARJ)
SLJ 2	SJ2	SEN	SEN *****
SLJ 3	SJ3	MUF	MUF *****
SLJ 4 RTJ 0	RTJ	DVF	DVF *****
SLJ 5 RTJ 1	RT1	INT	INT *****
SLJ 6 RTJ 2	RT2	OUT	OUT *****
SLJ 7 RTJ 3	RT3	ACT	ACT *****
AJP 0, Z	AJP, ZR	EXF	EXF *****
AJP 1, N	AJP, NZ	SEL	SEL *****
AJP 2, P	AJP, PL		

COMPASS codes with following asterisks are considered illegal; table 3 gives the error messages which will be printed on listing for these equivalents.

Table 3. ERROR MESSAGES

<u>Message</u>	<u>Meaning</u>
<u>During Translation (typed on console and printed on listing)</u>	
MODE INCORRECTLY INDICATED	p ₂ incorrect
ILLEGAL LUN FOR INPUT UNIT	p ₃ outside range specified (parameters of TRANSLAT card)
ILLEGAL LUN FOR OUTPUT UNIT	p ₄ outside range specified
<u>During Execution of Translated Program (typed on console and printed on listing)</u>	
ERROR IN CODAP1 CALLING SEQUENCE (READ.)	one of following: Input logical unit number outside range 1 to 50, 53, 56, 57 CODAP1 function code outside range specified in simulation subroutine description
ERROR IN CODAP1 CALLING SEQUENCE (WRITE.)	one of following: Output logical unit number outside range 1 to 49, 52, 54 to 57 CODAP1 function code outside range specified in simulation subroutine description
<u>Printed on Listing Only (columns 81 - 120 on erroneous line of code)</u>	
*****ILLEGAL CODE*****	Illegal COMPASS code; must be corrected by user.
*****EQUATE NEEDED FOR EXT	CODAP1 LIB pseudo code is translated to EXT; however, an EXT is also required. Example: A CODAP1 line of coding AB LIB YZ will be translated to AB EXT YZ The user must follow this line of translated code with AB EQU YZ
***ILLEGAL ARITH IN COMPASS	Illegal arithmetic function
***WARNING**ISK*USED*AS*LOWER	ISK was forced lower

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JANUARY 1966

PUB. NO. 60137400