7.1 Programming by TSX 17 (PL7-2) Adjust Mode

• Principle of Operation

- Pressing the F1 key calls-up speed selection, displaying the message PUMP = - - RPM
- After validating the selection by pressing ENTER, pressing F2 increments counter C0 causing the pump to accelerate. Pressing the F3 key decrements C0, slowing the pump.

The message PUMP SPEED XX RPM is displayed with the additional message REACHED scrolling accross the display when the speed is effectively reached.

When the overspeed threshold is reached, the blinking message OVERSPEED is displayed and the cycle timer is started.

Pressing ENTER to acknowledge freezes the message display. 10 seconds after the OVERSPEED message was first displayed, the sequence is initialized and the message END OF CYCLE is displayed.

• Creating the Application

- Storing messages in the XBT-A terminal

N°	TEXT	T	X	K	C	V	A
001	PUMP = - - RPM	N	00			W000	
002						B1	
003						B10	
004							
005	PUMP SP. - - - RPM	V	00			C0,V	
006	REACHED	V	18			#	
007	OVERSPEED	D	00			#	
008	END OF CYCLE	V	00			#	

Note: digital values are displayed without signs, however the field must still have space reserved.

Programming by TSX 17 (PL7-2) Adjust Mode

- Using TSX 17 Objects:

W000 : Pump speed instruction

C0,V : Current pump speed

C0,P : Overspeed threshold

Reserve constant words (CW) to perform TSX 17 commands

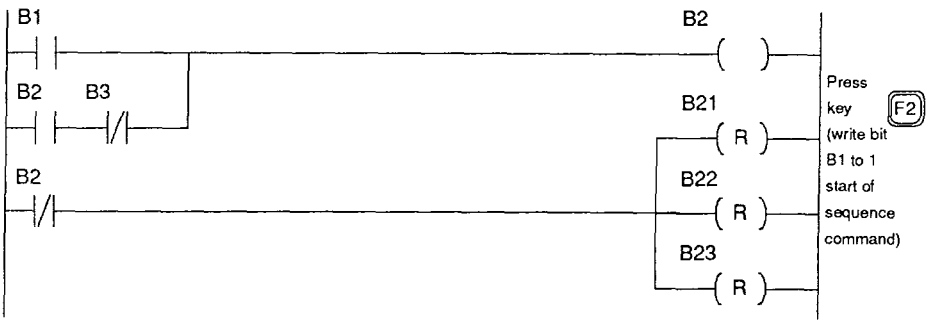
CW 20 V ESC 56 1B	CW 21 0 0 30 30	CW 22 LF 5 0A 35	CW 23 CR 00 0D	Call message 005 (ESC V005 LFCR)
CW 28 V ESC 56 1B	CW 29 0 0 30 30	CW 30 LF 6 0A 36	CW 31 CR 00 0D	Call message 006 (ESC V006 LFCR)
CW 32 V ESC 56 1B	CW 33 0 0 30 30	CW 34 LF 7 0A 37	CW 35 CR 00 0D	Call message 007 (ESC V007 LFCR)
CW 36 Z ESC 5A 1B	CW 37 CR LF 0D 0A			Cancel the command (ESC Z LF CR)
CW 38 V ESC 56 1B	CW 39 0 0 30 30	CW 40 LF 8 0A 38	CW 41 CR 00 0D	Call message 008 (ESC V008 LFCR)

Programming by TSX 17 (PL7-2) Adjust Mode

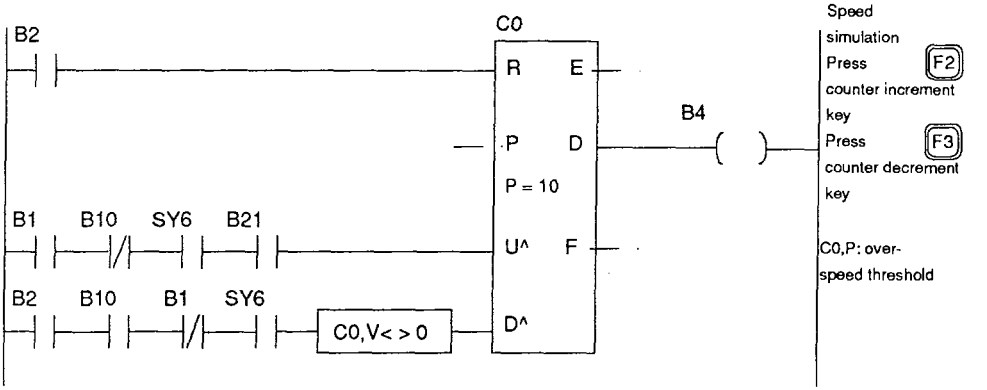
- TSX 17 Application Program

Operator action on the F1 key to display the message PUMP = - - - - RPM and instruction selection in word W000 require NO TSX 7 PROGRAM.

LABEL : 10 "START PUMP"



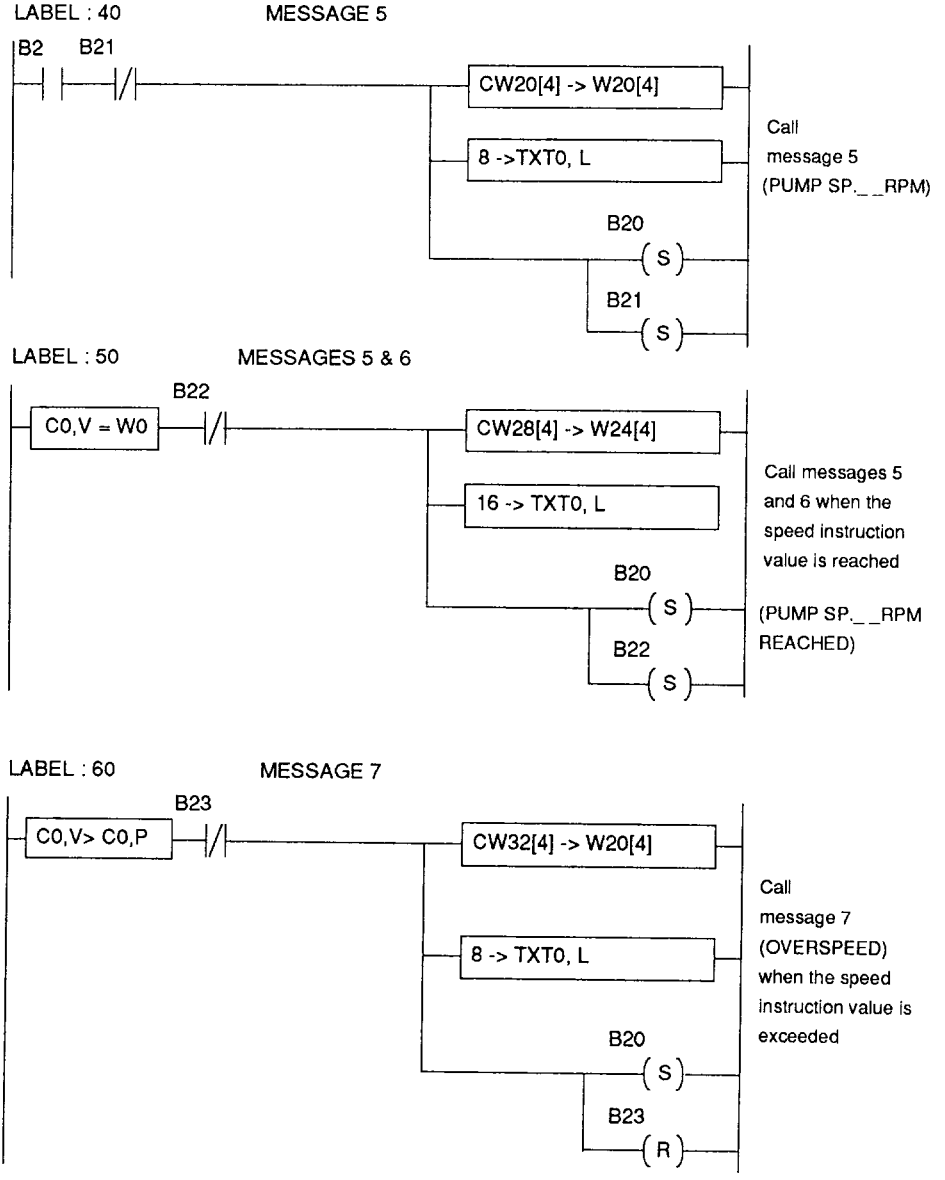
LABEL : 20 "PUMP SPEED"



LABEL : 30 "SPEED INSTRUCTION"

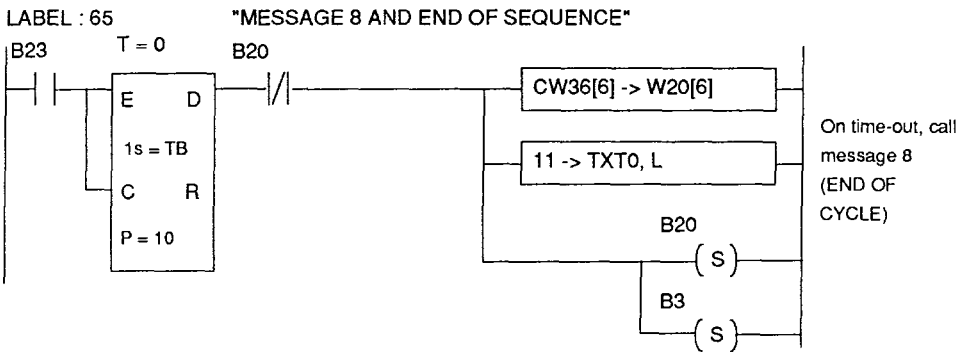
Programming by TSX 17 (PL7-2) Adjust Mode

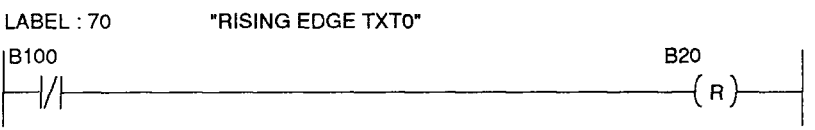
- **TSX 17 application program**

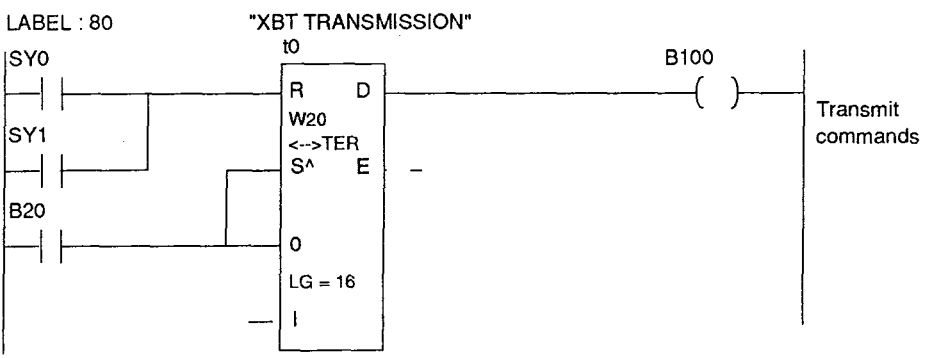


Programming by TSX 17 (PL7-2) Adjust Mode

- TSX 17 application program





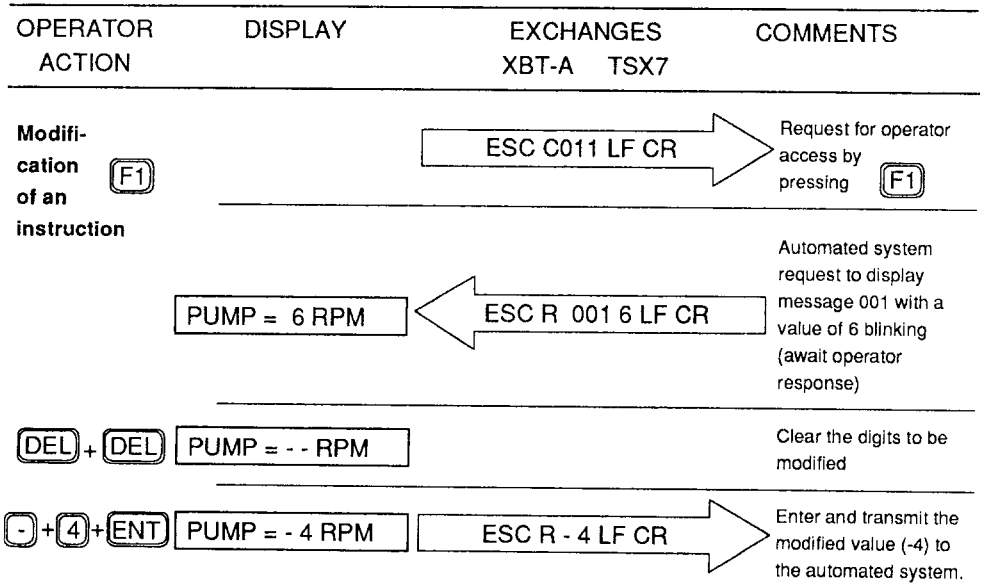


7.2 Programming by TSX 7 (PL7-2) ASCII Mode

• Operating principle:

Message number 001 is stored in the XBT-A terminal:
PUMP = - - RPM (type N message) using the procedure described in section 5.
When called-up by the operator by pressing [F1] , the message [PUMP = XX RPM] will be displayed and will take the value of W000 as a parameter. The operator can then validate the displayed value by pressing [ENTER] or modify the instruction.
Serial data transmission between the TSX Series 7 PLC and the XBT-A terminal takes place via a TSX SCM 20 module. For installation information on the module, refer to the TSX SCM 20/21/22 User's Manual, Ref. TSX D23 004E.

- Exchange Timing



Programming by TSX 7 (PL7-2) ASCII Mode

- Using PLC Objects:

W000: pump speed instruction - $9 \leq c \leq 9$

W010	
W011	
W012	

instruction in ASCII

W020	
W021	
W022	
W023	

reception table for the XBT transmission, press F1 (ESC C011 LFCR)

W024	

transmission (contains the number of characters to receive: 7)

W050	
W051	
W052	

reception table for the operator response (ESC R +/- 0/9 LF CR) (6 bytes)

W053	
W054	
W055	
W056	
W057	
W058	

transmission table (12 bytes)

number of characters to receive: 6

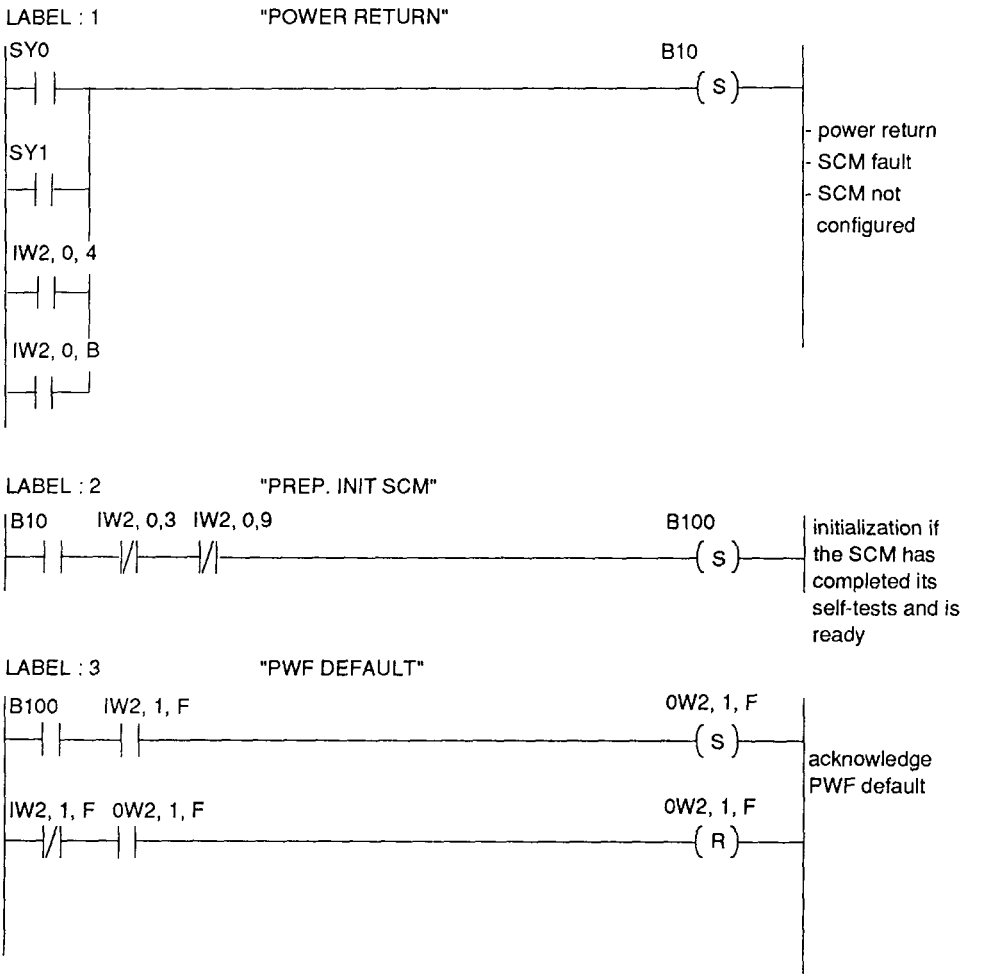
Reservation of constant words (CW)

CW0 H'0821'	CW1 H'9600'	CW2 H'0000'	CW3 H'0000'
CW4 H'1100'	CW5 H'0D00'	CW6 H'1100'	CW7 H'0D00'
		CW10 H'521B R ESC	CW11 H'3030' 0 0
CW12 H'0031' 1			

TSX SCM module configuration

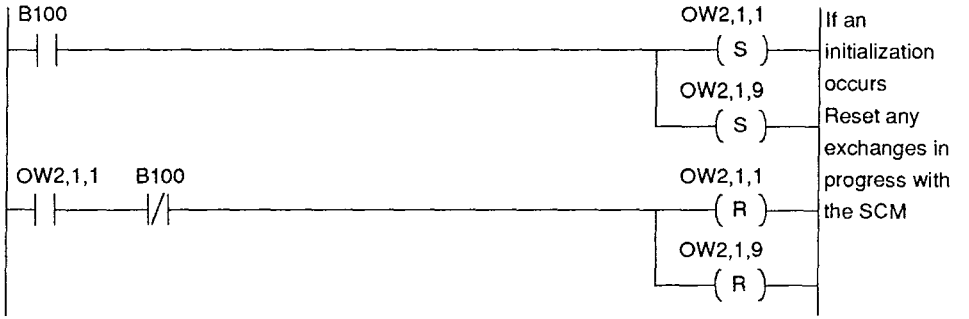
Programming by TSX 7 (PL7-2) ASCII Mode

- TSX 7 application program

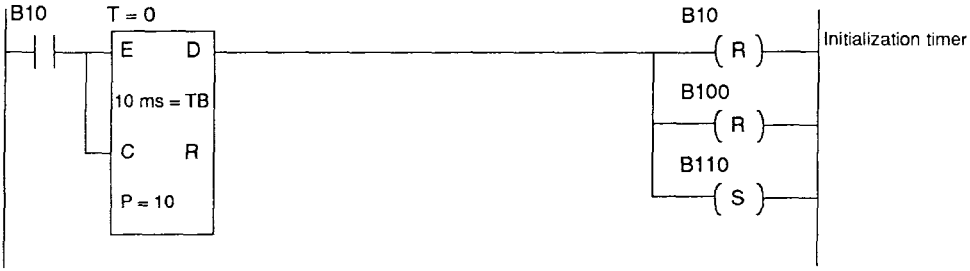


Programming by TSX 7 (PL7-2) ASCII Mode

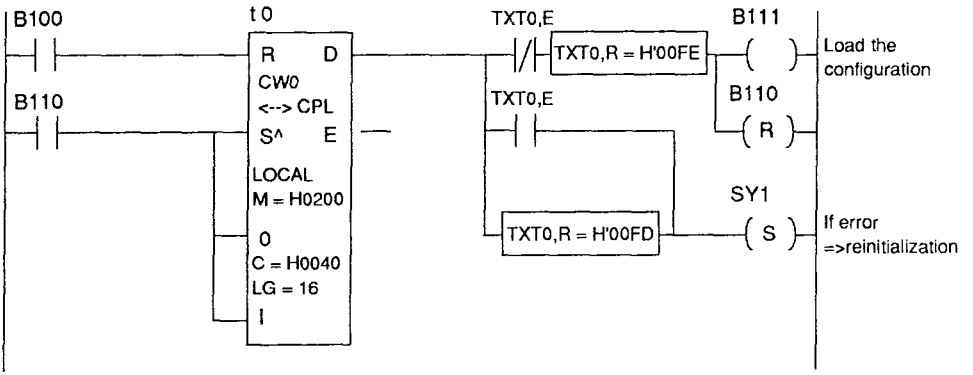
LABEL : 4 "EXCHANGE RESET"



LABEL : 5 "END RESTART"

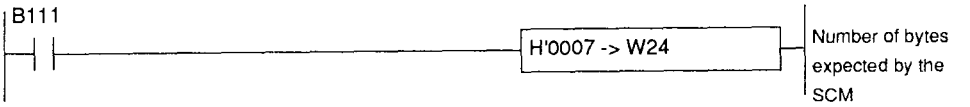


LABEL : 10 "CONFIG. SCM"

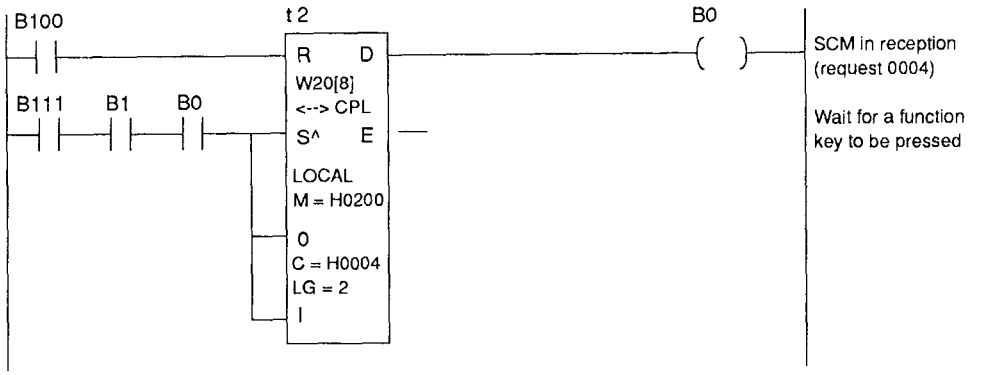


Programming by TSX 7 (PL7-2) ASCII Mode

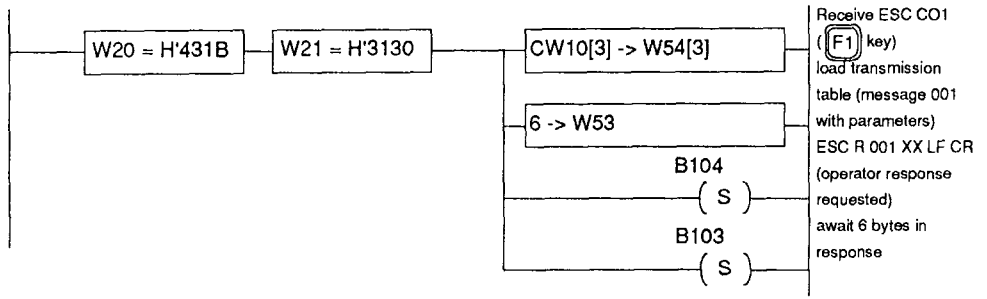
LABEL : 12 "NBR. OF BYTES RECEIVED"



LABEL : 14 "AWAIT KEY PRESS"

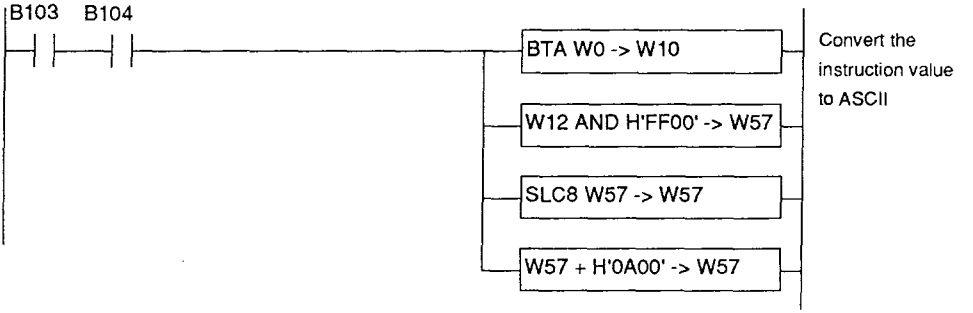


LABEL : 16 "RECEIVED KEY N01"

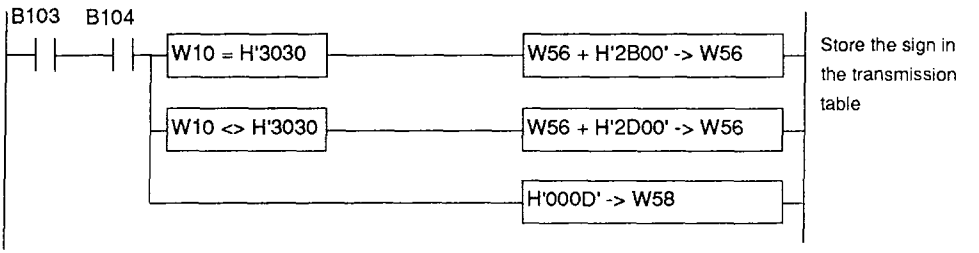


Programming by TSX 7 (PL7-2) ASCII Mode

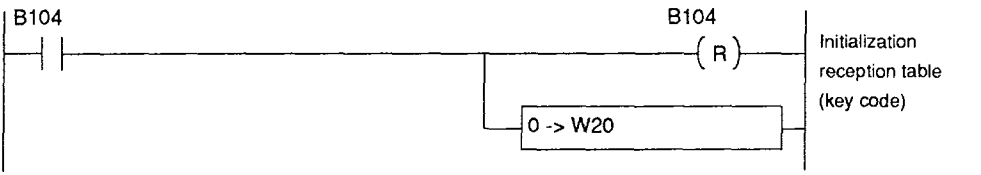
LABEL : 18 "ASCII INST."



LABEL : 20 "INSTRUCTION SIGN"

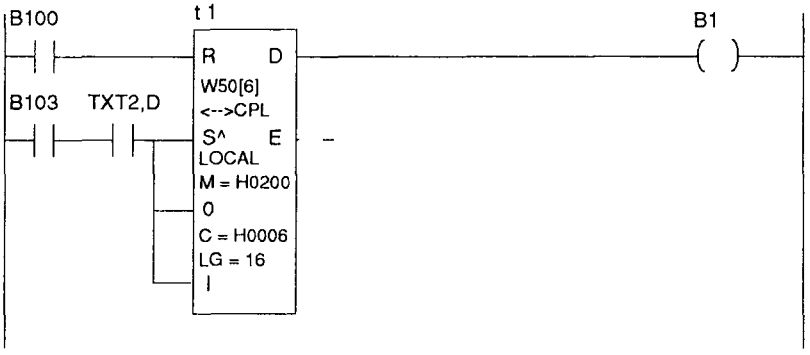


LABEL : 22 " "



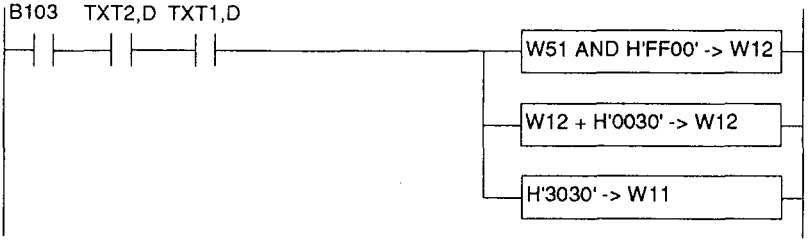
Programming by TSX 7 (PL7-2) ASCII Mode

LABEL : 30 TRANSMISSION - RECEPTION



TSX SCM in transmission reception (request 0006) send message 1 with parameters and await operator response

LABEL : 40 "PREP. CONS BIN"



Response decoding and format memory W10 to W12 for binary decoding in W0

LABEL : 50 "PREP. CONS BIN"