

DISTRIBUTION SHEET

To DISTRIBUTION	From STATION 22	Page 1 of 1
Project Title/Work Order FFTF		Date
		EDT No. ECN No. 622377

Name	MSIN	Text With All Attach.	Text Only	Attach./Appendix Only	EDT/ECN Only
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TECHNICAL REFERENCE CENTER	N2-12	X			
CENTRAL FILES ORIG + 2	L8-04	X			
OSTI (2)	L8-07	X			
KE WALTER	N2-05	X			
NC HOITINK	N2-05	X			

MAKER

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ENGINEERING CHANGE NOTICE	Page 1 of <u>3</u>	1. ECN № 622377 ----- Proj. ECN
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2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedeure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. KE WALTER, FFTF, N2-05, 376-0638	3a. USQ Required? [X] Yes [] No	4. Date 5/4/95
5. Project Title/No./Work Order No. FFTF		6. Bldg./Sys./Fac. No. 4717/23J/400	7. Approval Designator NA
8. Document Numbers Changed by this ECN (includes sheet no. and rev.) → WHC-SD-FF-CSWD-055, REV 0 ← WHC-SD-FF-CSWD-056, REV 0		9. Related ECN No(s). NA	10. Related PO No. NA

11a. Modification Work [] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. NA	11c. Modification Work Complete NA _____ Cog. Engineer Signature & Date	11d. Restored to Original Condition (Temp. or Standby ECN only) NA _____ Cog. Engineer Signature & Date
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12. Description of Change

Revision 1 documents are complete replacements for revision 0 documents referenced in block 8.

13a. Justification (mark one)

Criteria Change <input checked="" type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

13b. Justification Details

Logic software design changes were required to allow automatic starting of a compressor that had not been previously started.

14. Distribution (include name, MSIN, and no. of copies)

KE WALTER, N2-05 [1]
 NC HOITINK, N2-05 [1]

CENTRAL FILES, L8-04 [2]
 OSTI (2), L8-07

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BY WHC 43

DATE JUN 08 1995

Sta 22

ENGINEERING CHANGE NOTICE

15. Design Verification Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	16. Cost Impact <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; text-align: center;">ENGINEERING</th> <th style="width: 50%; text-align: center;">CONSTRUCTION</th> </tr> <tr> <td>Additional <input type="checkbox"/> \$</td> <td>Additional <input type="checkbox"/> \$</td> </tr> <tr> <td>Savings <input type="checkbox"/> \$</td> <td>Savings <input type="checkbox"/> \$</td> </tr> </table>	ENGINEERING	CONSTRUCTION	Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	17. Schedule Impact (days) Improvement <input type="checkbox"/> Delay <input type="checkbox"/>
ENGINEERING	CONSTRUCTION							
Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$							
Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$							

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	<input type="checkbox"/>	Seismic/Stress Analysis	<input type="checkbox"/>	Tank Calibration Manual	<input type="checkbox"/>
Functional Design Criteria	<input type="checkbox"/>	Stress/Design Report	<input type="checkbox"/>	Health Physics Procedure	<input type="checkbox"/>
Operating Specification	<input type="checkbox"/>	Interface Control Drawing	<input type="checkbox"/>	Spares Multiple Unit Listing	<input type="checkbox"/>
Criticality Specification	<input type="checkbox"/>	Calibration Procedure	<input type="checkbox"/>	Test Procedures/Specification	<input type="checkbox"/>
Conceptual Design Report	<input type="checkbox"/>	Installation Procedure	<input type="checkbox"/>	Component Index	<input type="checkbox"/>
Equipment Spec.	<input type="checkbox"/>	Maintenance Procedure	<input type="checkbox"/>	ASME Coded Item	<input type="checkbox"/>
Const. Spec.	<input type="checkbox"/>	Engineering Procedure	<input type="checkbox"/>	Human Factor Consideration	<input type="checkbox"/>
Procurement Spec.	<input type="checkbox"/>	Operating Instruction	<input type="checkbox"/>	Computer Software	<input type="checkbox"/>
Vendor Information	<input type="checkbox"/>	Operating Procedure	<input type="checkbox"/>	Electric Circuit Schedule	<input type="checkbox"/>
OM Manual	<input checked="" type="checkbox"/>	Operational Safety Requirement	<input type="checkbox"/>	ICRS Procedure	<input type="checkbox"/>
FSAR/SAR	<input type="checkbox"/>	IEFD Drawing	<input type="checkbox"/>	Process Control Manual/Plan	<input type="checkbox"/>
Safety Equipment List	<input type="checkbox"/>	Cell Arrangement Drawing	<input type="checkbox"/>	Process Flow Chart	<input type="checkbox"/>
Radiation Work Permit	<input type="checkbox"/>	Essential Material Specification	<input type="checkbox"/>	Purchase Requisition	<input type="checkbox"/>
Environmental Impact Statement	<input type="checkbox"/>	Fac. Proc. Samp. Schedule	<input type="checkbox"/>		<input type="checkbox"/>
Environmental Report	<input type="checkbox"/>	Inspection Plan	<input type="checkbox"/>		<input type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input type="checkbox"/>		<input type="checkbox"/>

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
H-4-302183 Rev 1		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer KE Walter <i>KE Walter</i>	<u>5/4/95</u>	PE	_____
Cog. Mgr. NC Hoitink <i>NC Hoitink</i>	<u>5/4/95</u>	QA	_____
QA	_____	Safety	_____
Safety	_____	Design	_____
Security	_____	Environ.	_____
Environ.	_____	Other	_____
Projects/Programs	_____		_____
Tank Waste Remediation System	_____		_____
Facilities Operations	_____	DEPARTMENT OF ENERGY	
Restoration & Remediation	_____	Signature or Letter No.	
Operations & Support Services	_____		
IRM	_____	ADDITIONAL	
Other	_____		

UNREVIEWED SAFETY QUESTION SCREENING FORM

REFERENCE ITEM # ECN 622377

TITLE AIR COMPRESSOR CONTROL LOGIC SOFTWARE REVISION 1

QUESTIONS

Does the referenced item:

- A. Make PROPOSED CHANGES to the facility or procedures which differ from conditions described in the AUTHORIZATION BASIS?

N/A NO Yes/Maybe

Basis: This ECN makes no physical changes to installed operating plant equipment or procedures. Support Document changes made by this ECN depict a change in only one logic function of the air compressor control panel Programmable Logic Controllers.

- B. Describe an event or condition (DISCOVERY) which differs from those described in the AUTHORIZATION BASIS? N/A NO Yes/Maybe

Basis: _____

- C. Describe tests or experiments which differ from those described in the AUTHORIZATION BASIS? N/A NO Yes/Maybe

Basis: _____

NOTE: This form is not to be used for PHYSICAL PLANT MODIFICATIONS.

QUSQE #1 KE Walter
(print name)

KE Walter Date 5/4/95
Signature

QUSQE #2 M. J. CONTINI
(print name)

M. J. Contini Date 5/4/95
Signature

RELEASE AUTHORIZATION

Document Number: WHC-SD-FF-CSWD-055, Rev. 1

Document Title: R-1 (C-620A) & R-2 (C-620B) AIR COMPRESSOR CONTROL LOGIC SOFTWARE DOCUMENTATION

Release Date: 6/2/95

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Chris Willingham
C. Willingham

6/2/95

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95 W 4/8/95

SUPPORTING DOCUMENT		1. Total Pages 2840	
2. Title R-1 (C-620-A) & R-2 (C-620-B) AIR COMPRESSOR CONTROL LOGIC, COMPUTER SOFTWARE DESCRIPTION		3. Number WHC-SD-FF-CSWD-055	4. Rev No. 1
5. Key Words R-1, R-2, C620-A, C620-B, PLC, SOFTWARE		6. Author Name: KE WALTER <i>KE Walter</i> Signature Organization/Charge Code 18240/B181A	
7. Abstract The purpose of this document is to provide an updated Computer Software Description for the software used on the R-1 (C-620-A) & R-2 (C-620-B) air compressor Programable Controllers.			
8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed. PATENT STATEMENT - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA. DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.		10. RELEASE STAMP <div style="border: 1px solid black; padding: 5px; text-align: center;">OFFICIAL RELEASE 43 BY WHC DATE JUN 08 1995 <i>Save</i></div>	
9. Impact Level NA			

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RECORD OF REVISION	(1) Document Number WHC-SD-FF-CSWD-055	Page <i>1.</i>
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(2) Title
R-1 (C-620A) & R-2 (C-620B) AIR COMPRESSOR CONTROL LOGIC SOFTWARE DOCUMENTATION

CHANGE CONTROL RECORD			
(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
	(7) WHC-SD-FF-CSWD-055 REVISION 0, EDT 606194, 8/15/94		
RS 1	COMPLETE REPLACEMENT FOR REVISION 0 <i>PER ECN 622377 X CW 6/5/95</i>	KE WALTER <i>K E Walter</i>	NC HOITINK <i>N. C. Hoitink 5/4/95</i>

COMPUTER SOFTWARE DESCRIPTION

Document No. WHC-SD-FF-CSWD-056

Revision No. 1

1. Impact Level: NA
2. Software Name: R-189 (C-620-C) AIR COMPRESSOR CONTROL LOGIC
3. Requirements Documents: WHC-S-1081 Specification for Replacement Control Panels for FFTF Plant Air Compressors.
H-4-302182, Electrical Elementary Wiring Schematic.
H-4-302183, Electrical Logic Diagram.
Design Description Document: (Same as #3 above)
User Document: *Operation Procedures for operation of R-189:*
4. Software Custodian: Kenneth E. Walter
Custodian Organization: FFTF ASEE
Software Location: FFTF Engineering & FFTF SOM
5. Interfaces:
Hardware Platform: GE Programmable Logic Controller (PLC), Series 90-30
Operating System: Development - Any Dos platform, with DOS 3.1 or later.
System - Embedded in EEPROM within the PLC *
Development Tools: GE-Fanuc Logicmaster 90-30/205 Serial Software Package
Libraries: Not Applicable *
6. Number of Source Files: Not Applicable *
7. Approximate Lines of Code: Not Applicable *
8. Data on Source Files: Not Applicable *

* A GE PLC, Series 90-30, installed as part of C-620-C, controls the R-189 Air Compressor. The PLC is programmed using the GE-Fanuc Logicmaster 90-30/205 Serial Software Package.

The GE-Fanuc Logicmaster 90-30/205 Serial Software Package provides for:
Offline PLC software development & modification
Storage of PLC software programs on disk, as "folders"
Loading of the software into the PLC
Program Documentation

The Logicmaster Folder which contains the programming for the C-620-C is designated "AC_R189".

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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

Page 1

```

GGGG EEEEE      FFFFF AAA N  N U  U CCCC
G      E        F   A  A NN NU  UC
G GGG EEEE      FFF  AAAAA N N NU  UC
G  G E          F   A  A N NN U  UC
GGG EEEEE      F   A  A N  N UUU  CCCC

```

```

AAA U  U TTTT 000 M  M AAA TTTT IIIII 000 N  N
A  A U  U T  O  O MM MM A  A T  I  O  O NN  N
AAAAA U  U T  O  O M M M AAAAA T  I  O  O NN  N
A  A U  U T  O  O M  M A  A T  I  O  O N  NN
A  A UUU  T  000 M  M A  A T  IIIII 000 N  N

```

```

(*****
*)
*)          Program: AC_R1_2
*)
*)          PLC PROGRAM ENVIRONMENT          HIGHEST REFERENCE USED
*)-----
*)          INPUT (%I):          512          INPUT:          %I0097
*)          OUTPUT (%Q):         512          OUTPUT:          %Q0258
*)          INTERNAL (%M):       1024         INTERNAL:         %M0100
*)          GLOBAL DATA (%G):   1280         GLOBAL DATA:    NONE
*)          TEMPORARY (%T):      256          TEMPORARY:       NONE
*)          REGISTER (%R):       1024         REGISTER:        %R0054
*)          ANALOG INPUT (%AI):   64          ANALOG INPUT:    %AI0033
*)          ANALOG OUTPUT (%AQ):  32          ANALOG OUTPUT:   NONE
*)
*)          PROGRAM SIZE (BYTES): 1120
*)
*)
*)
*)*****

```

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```
(*****  
(*  
(*          BLOCK:  _MAIN          *)  
(*  
(*          BLOCK SIZE (BYTES): 1108 *)  
(*          DECLARATIONS (ENTRIES): 144 *)  
(*  
(*          HIGHEST REFERENCE USED *)  
(*          ----- *)  
(*          INPUT (%I):  %I0097      *)  
(*          OUTPUT (%Q): %Q0258      *)  
(*          INTERNAL (%M): %M0100    *)  
(*          GLOBAL DATA (%G):  NONE  *)  
(*          TEMPORARY (%T):  NONE  *)  
(*          REGISTER (%R):  %R0054   *)  
(*          ANALOG INPUT (%AI): %AI0033 *)  
(*          ANALOG OUTPUT (%AQ):  NONE *)  
(*  
(*****)
```

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[START OF LD PROGRAM AC_R1_2] (* *)
[VARIABLE DECLARATIONS]

VARIABLE DECLARATION TABLE

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0001		UNDER VOLTAGE TRIP
%I0002		UNDER VOLTAGE TRIP RESET
%I0003		NO ELECT FAULT
%I0004		AIR COMP RUNNING
%I0005		MODE TWO SELECTD
%I0006		MODE THREE SELECTD
%I0007		AIR COMP AUTO SWITCH
%I0008		AIR COMP START SWITCH
%I0033		SHUTDWN RESET PB
%I0034		ALARM TEST PB
%I0035		ALARM ACK PB
%I0036		ALARM RESET PB
%I0037		OIL PRESSUR NOT LOW
%I0038		OIL LEVEL NOT LOW
%I0039		OIL TEMP NOT HIGH
%I0040		AIR TEMP NOT HIGH
%I0065		CNDNSAT LEVEL NOT HIGH
%I0066		NO VIBRATN
%I0067		DISCHRG PRESSUR NOT HIGH
%I0068		DISCHRG TEMP NOT HIGH
%I0071		RESET PB
%I0072		AIR COMP RUN SWITCH
%I0097		AIR COMP LOCAL SWITCH
%Q0161		AIR COMP RUN COIL
%Q0162		STOP COOLING WATER FLOW
%Q0164		UNLOADER SOLENOID
%Q0165		ALARM LIGHT
%Q0166		ALARM LIGHT
%Q0167		ALARM LIGHT
%Q0193		ALARM LIGHT
%Q0194		ALARM LIGHT
%Q0195		ALARM LIGHT
%Q0196		ALARM LIGHT
%Q0197		ALARM LIGHT
%Q0198		ALARM LIGHT
%Q0200		ALARM HORN
%Q0225		COMP RUNNING
%Q0226		COMP NOT RUNNING
%Q0227		VIB. SWITCH RESET COIL
%Q0257		HEADER PRESSUR NOT LOW LOW LOW
%Q0258		NO COMMON ALARM
%M0001		AIR COMP RUN
%M0002		LOW OIL PRESSUR
%M0003		LOW OIL LEVEL
%M0004		HIGH CNDNSAT LEVEL

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%M0005	HIGH AIR PRESSUR
%M0006	HIGH AIR TEMP
%M0007	HIGH OIL TEMP
%M0008	LOW OIL PRESSUR ALARM LATCH
%M0009	LOW OIL LEVEL ALARM LATCH
%M0010	VIBRATN ALARM LATCH
%M0011	HIGH CND LVL ALARM LATCH
%M0012	HI AIR PRESSUR ALARM LATCH
%M0013	HI AIR TEMP ALARM LATCH
%M0014	HI OIL TEMP ALARM LATCH
%M0015	ELECT FAULT ALARM LATCH
%M0016	HI DISH AIRTEMP ALARM LATCH
%M0017	LOW OIL PRESSUR ALARM ACK
%M0018	LOW OIL LEVEL ALARM ACK
%M0019	VIBRATN ALARM ACK
%M0020	HIGH CND LVL ALARM ACK
%M0021	HI AIR PRESSUR ALARM ACK
%M0022	HI AIR TEMP ALARM ACK
%M0023	HI OIL TEMP ALARM ACK
%M0024	ELECT FAULT ALARM ACK
%M0025	HI DISH AIRTEMP ALARM ACK
%M0026	ALARM FLASH ON
%M0027	ALARM FLASH OFF
%M0028	ALARM HORN PART 1
%M0029	UNDER VOLTAGE TRIP LATCH
%M0030	UV TRIP
%M0031	UNDER VOLTAGE TRIP OK
%M0032	COMMON ALARM PART 1
%M0033	COMMON ALARM
%M0034	COMMON ALARM LATCH
%M0035	AIR PRESSUR HIGH
%M0036	AIR PRESSUR LOW
%M0037	AIR PRESSUR LOW LOW
%M0038	AIR PRESSUR LOW LOW LOW
%M0039	PRESSUR BELOW MODE SP
%M0040	DELETED LSL ON REV. 1
%M0041	COMPRSR OFF DELAY
%M0042	RUNNING UNLODED TIMER
%M0043	VIBRATN ALARM
%M0044	ELECT FAULT
%M0045	HIGH DISCHRG AIR TEMP
%M0046	ALARM LATCH
%M0047	ALARM LATCH
%M0048	RUNNING CONTACT DELAY TIMER
%M0049	TIMER RESET (OS)
%M0050	PRESS BELOW SP (OS)
%M0100	C-187 CONTROL SWITCH LATCH
%R0001	TIMER
%R0002	TIMER
%R0003	TIMER
%R0004	TIMER
%R0005	TIMER
%R0006	TIMER

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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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%R0007	TIMER
%R0008	TIMER
%R0009	TIMER
%R0010	TIMER
%R0011	TIMER
%R0012	TIMER
%R0013	TIMER
%R0014	TIMER
%R0015	TIMER
%R0016	TIMER
%R0017	TIMER
%R0018	TIMER
%R0019	TIMER
%R0020	TIMER
%R0021	TIMER
%R0022	TIMER
%R0023	TIMER
%R0024	TIMER
%R0025	TIMER
%R0026	TIMER
%R0027	TIMER
%R0028	TIMER
%R0029	TIMER
%R0030	TIMER
%R0031	TIMER
%R0032	TIMER
%R0033	TIMER
%R0034	TIMER
%R0035	TIMER
%R0036	TIMER
%R0037	TIMER
%R0038	TIMER
%R0039	TIMER
%R0040	TIMER
%R0041	TIMER
%R0042	TIMER
%R0043	TIMER
%R0044	TIMER
%R0045	TIMER
%R0046	TIMER
%R0047	TIMER
%R0048	TIMER
%R0049	TIMER
%R0052	HPLSL ON DEL. TIMER REV. 1
%AI0033	PRESSUR XMTR

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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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I D E N T I F I E R T A B L E

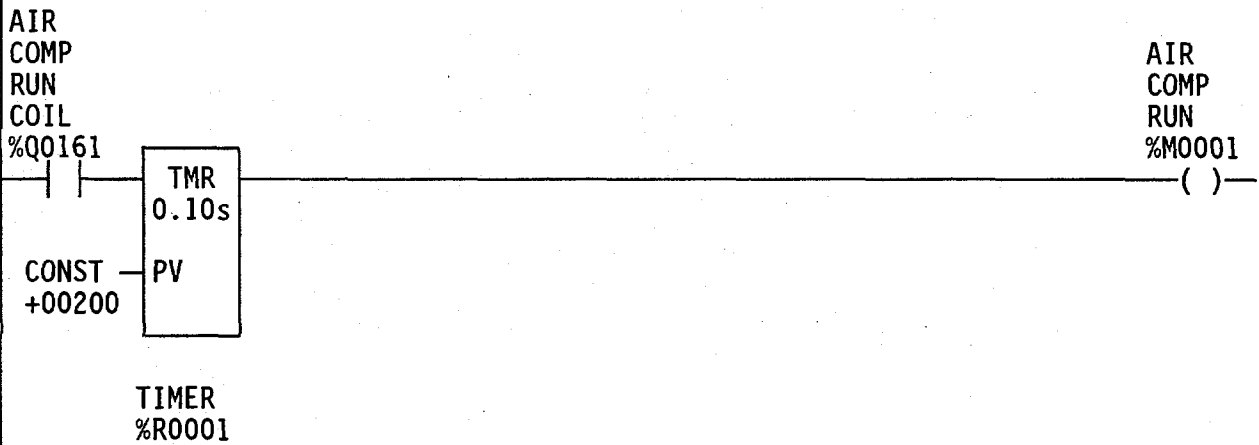
IDENTIFIER	IDENTIFIER TYPE	IDENTIFIER DESCRIPTION
AC_R1_2	PROGRAM NAME	

[BLOCK DECLARATIONS]

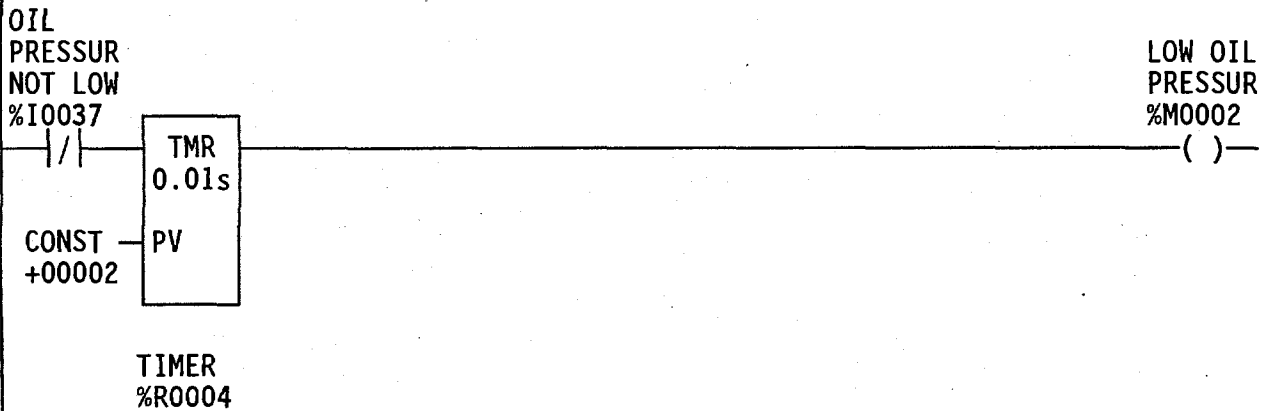
[START OF PROGRAM LOGIC]

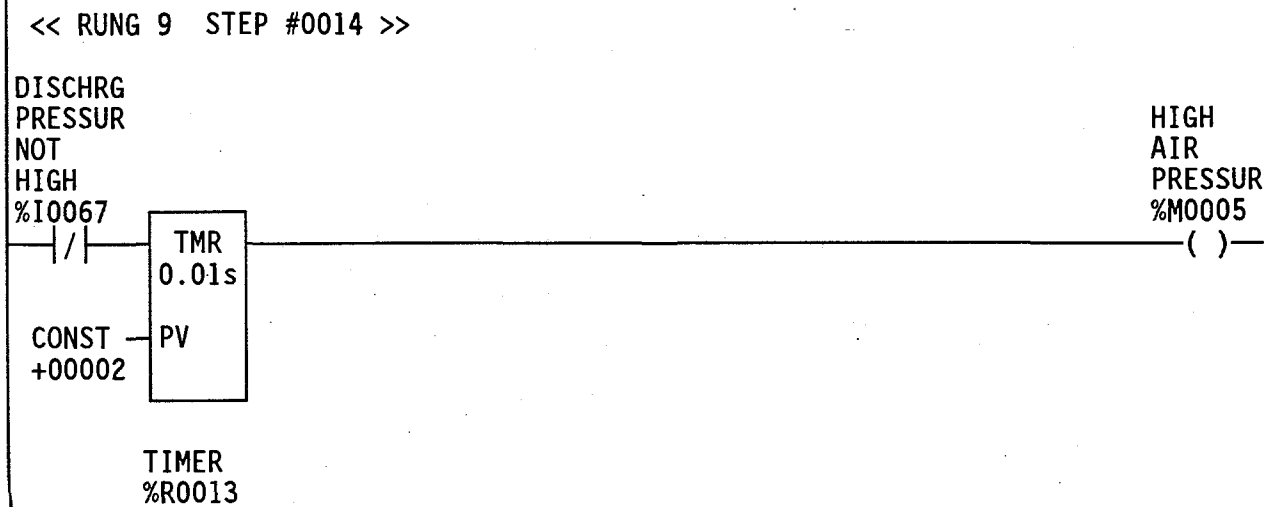
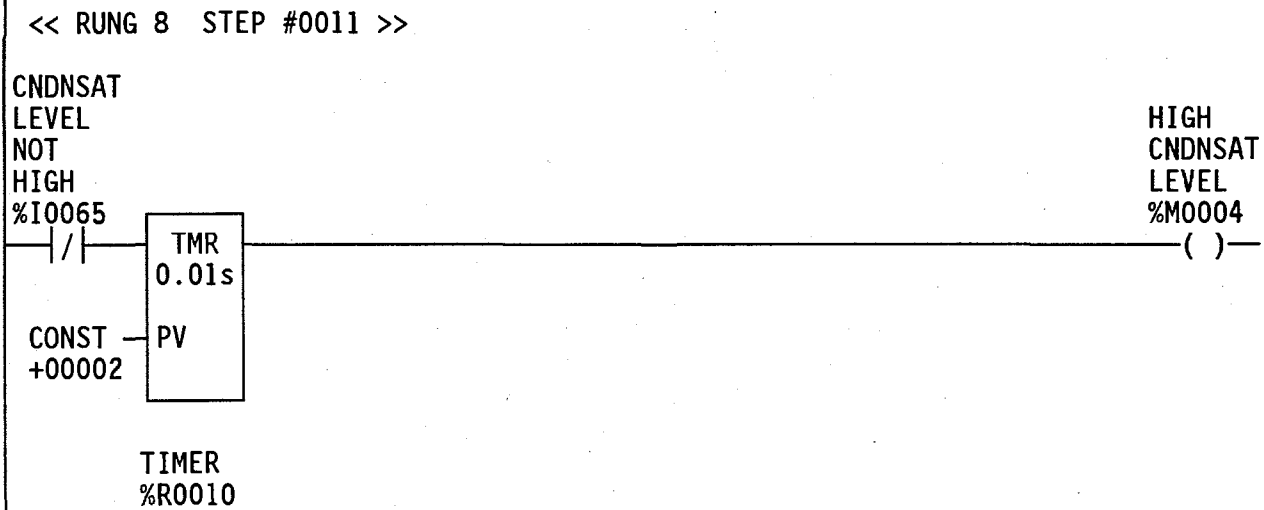
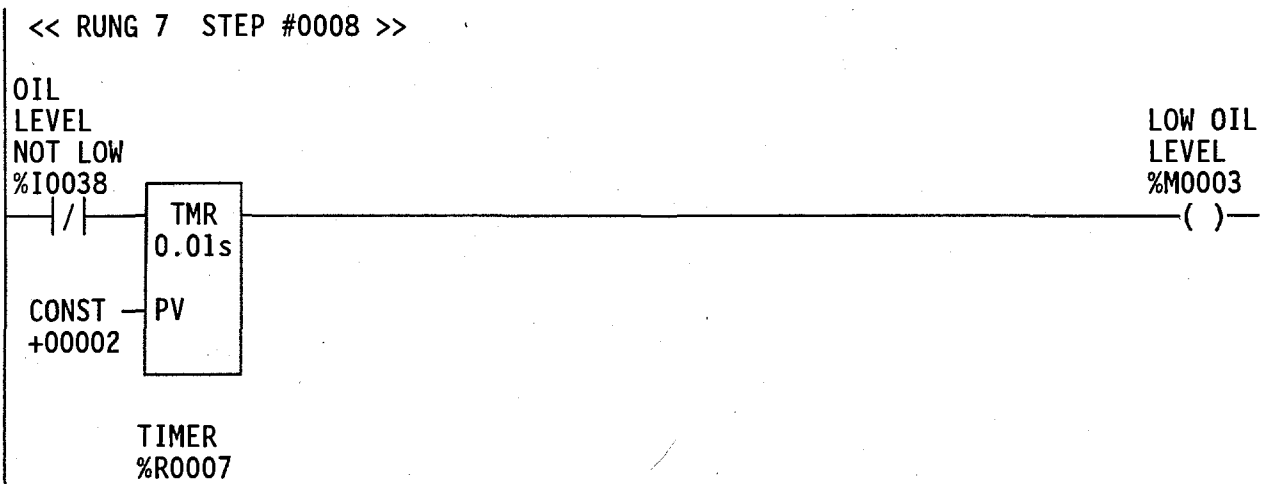
(*****
(* ALARM DELAY TIMERS *)
(***)

<< RUNG 5 STEP #0002 >>

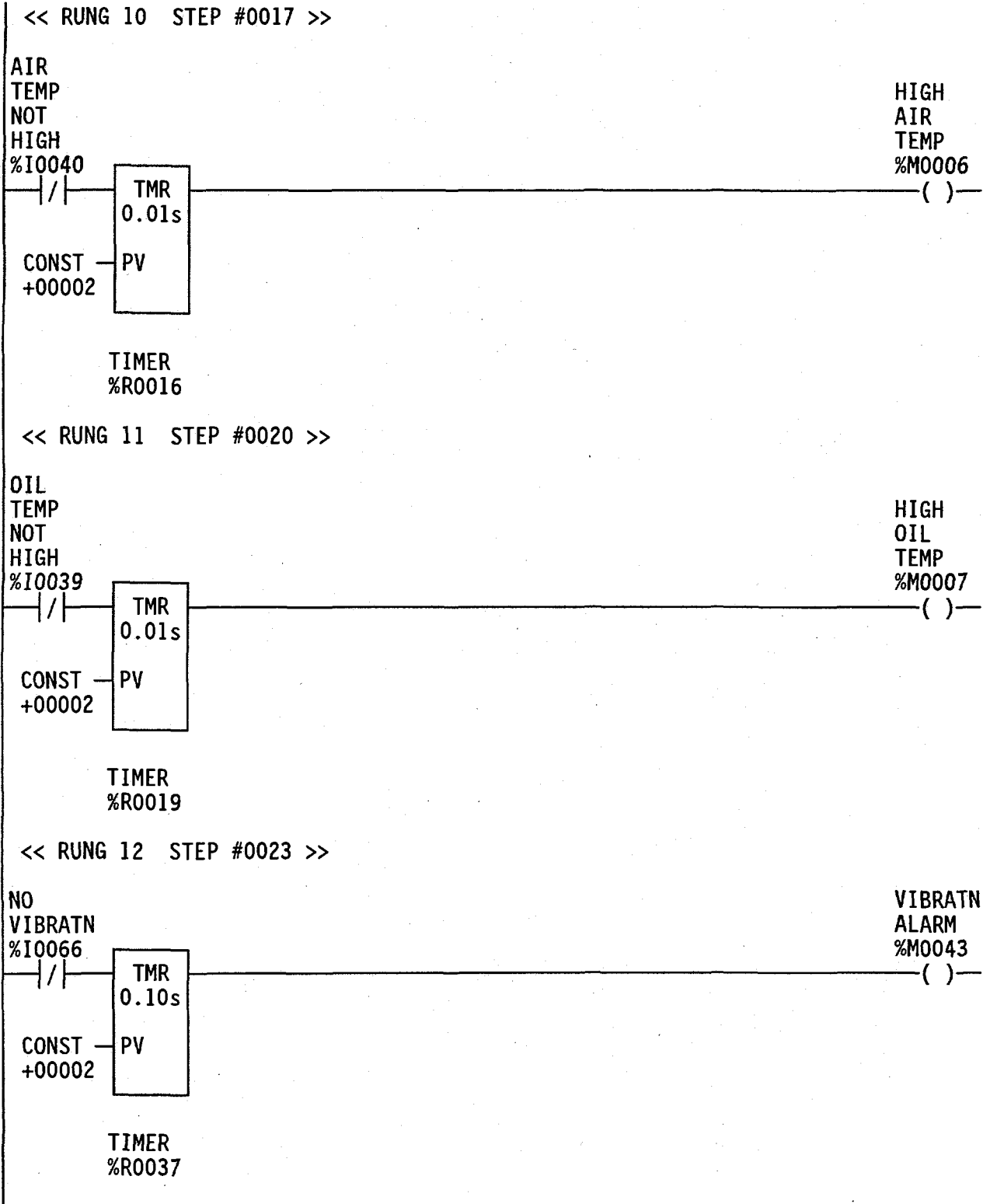


<< RUNG 6 STEP #0005 >>

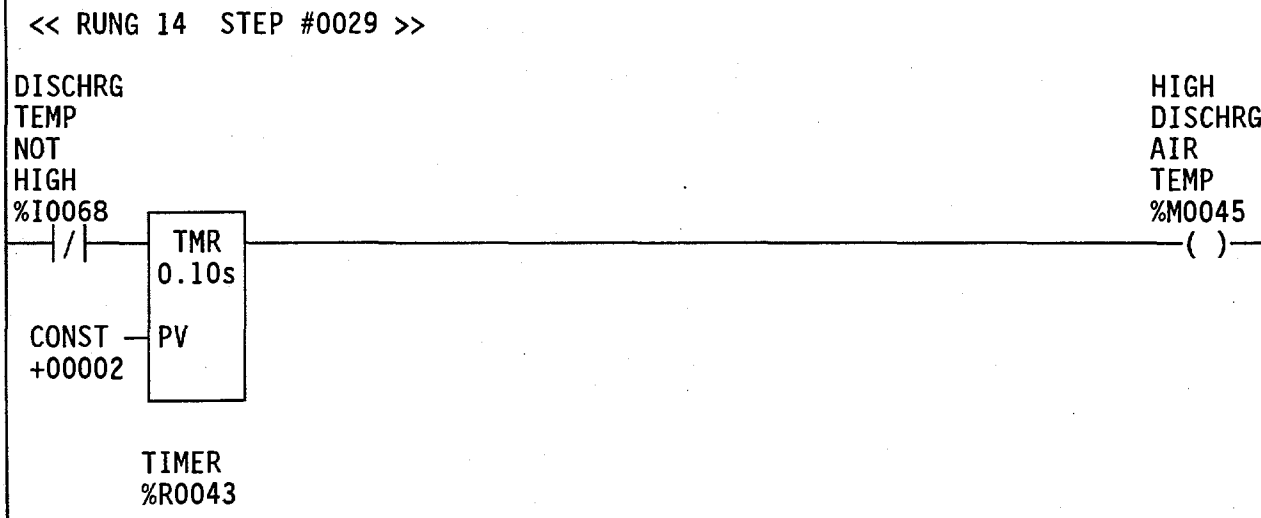
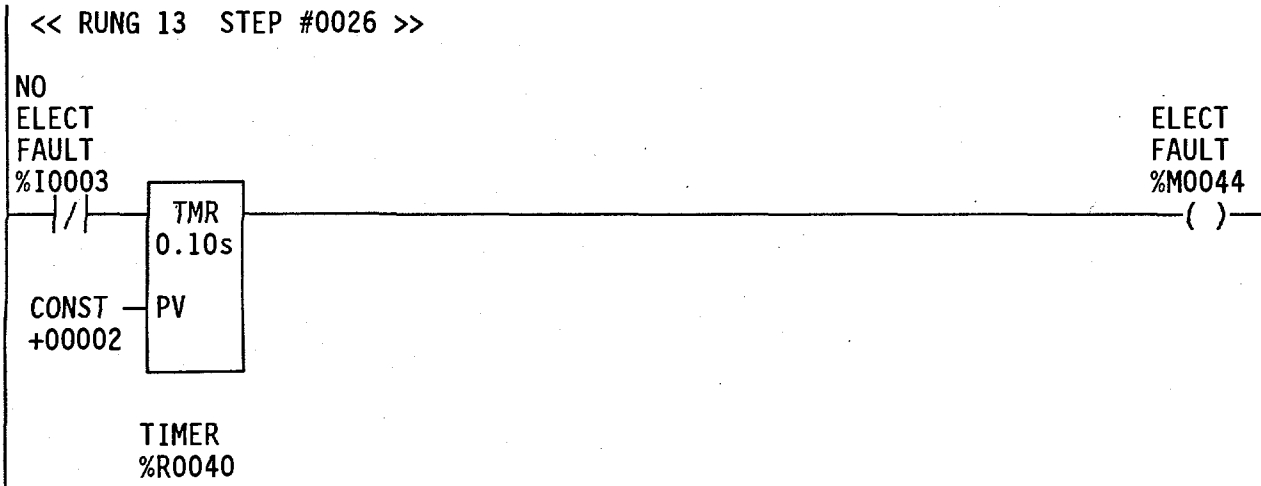




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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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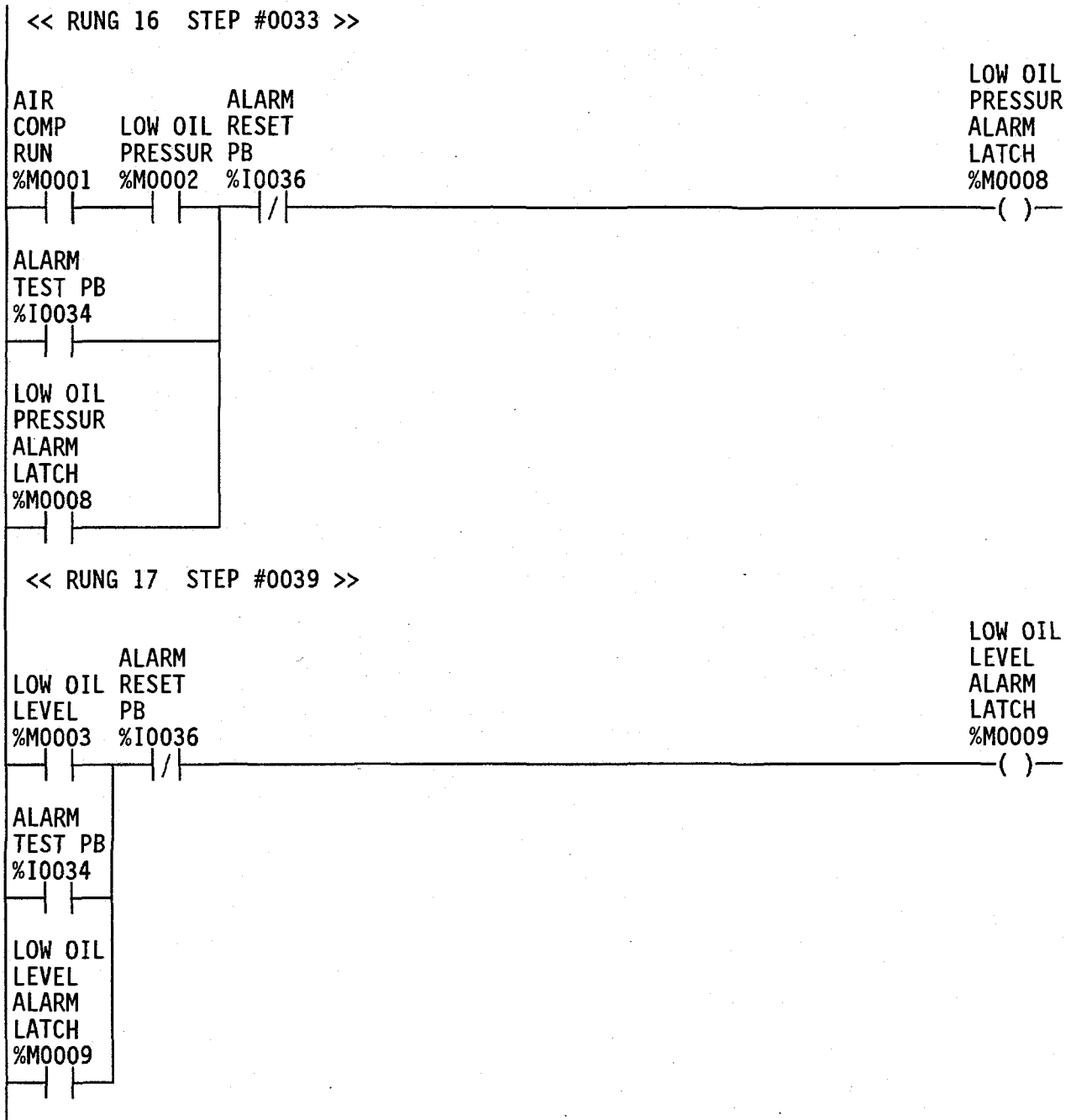


03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736



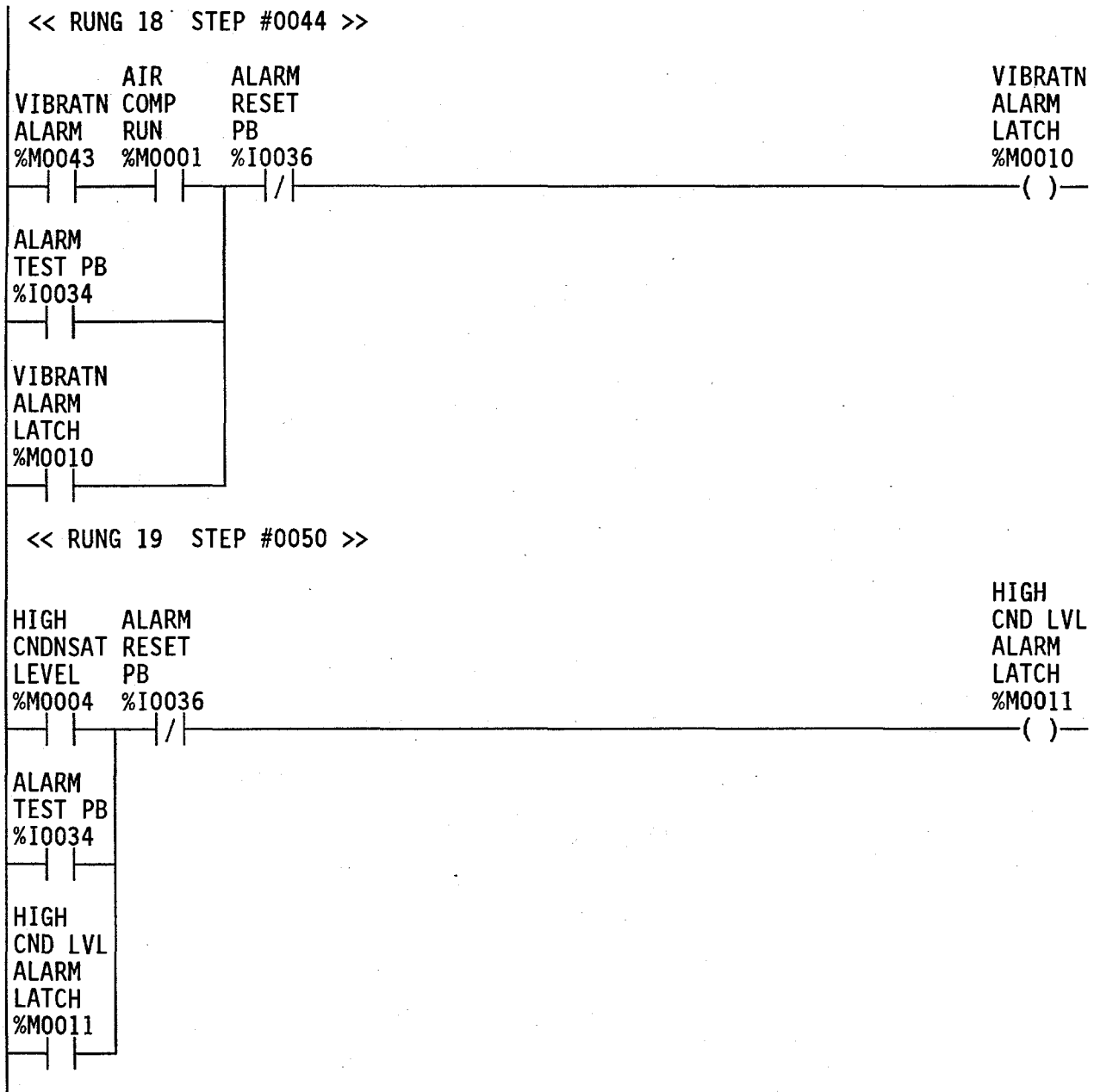
(*****
* ALARM CONDITION OR ALARM TEST LATCH *
*****)

03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02) Page 10
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

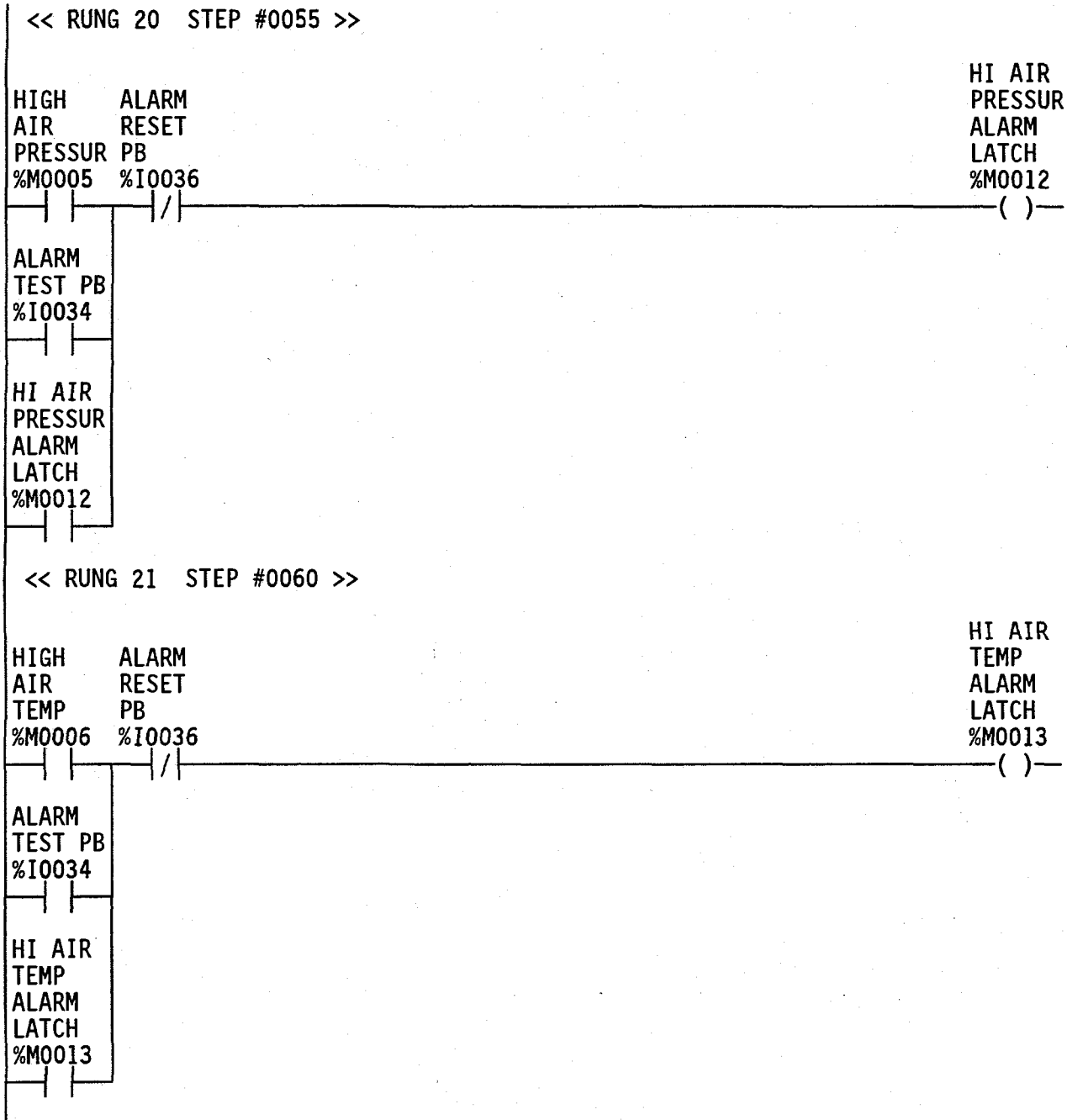


03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

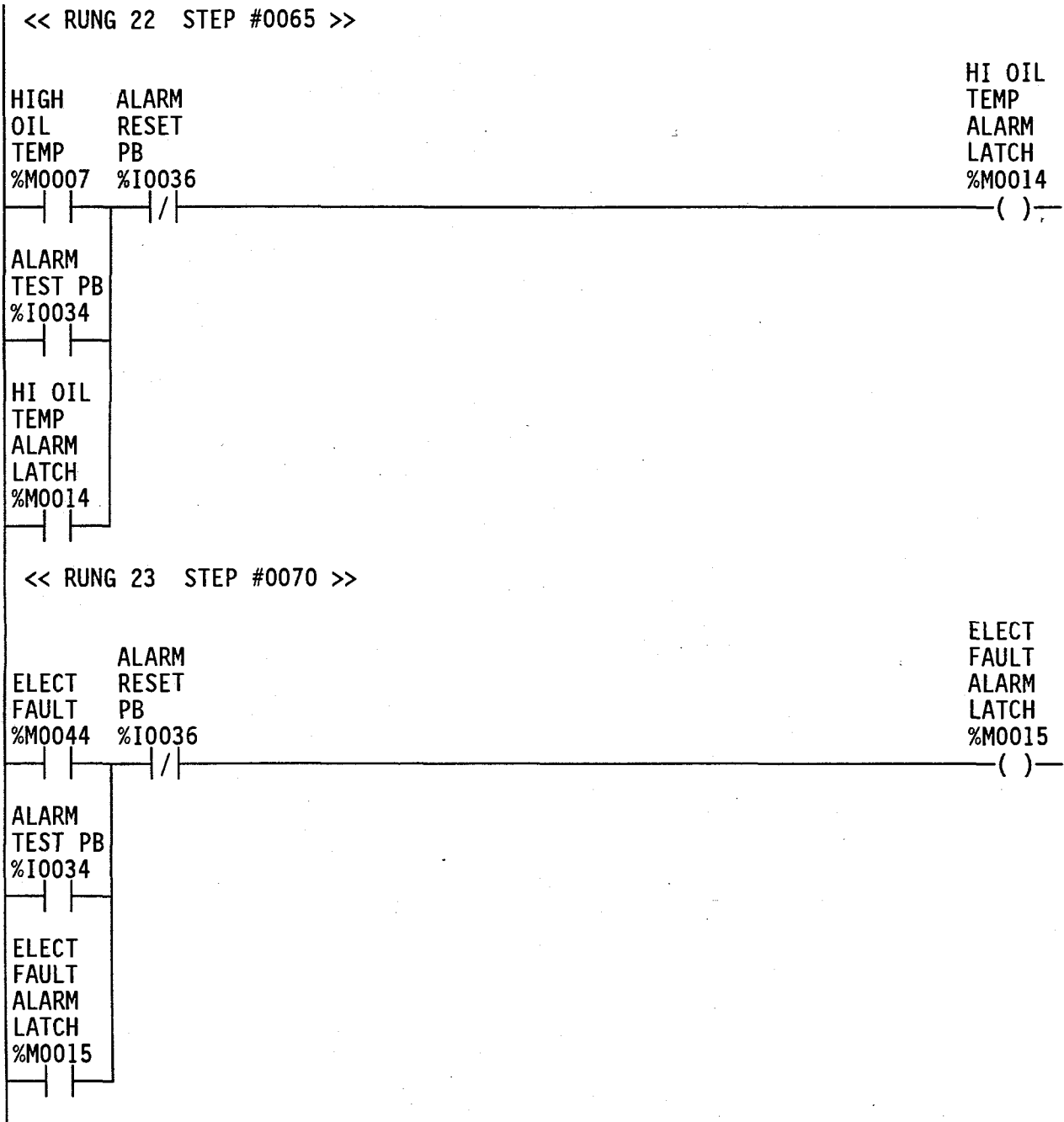
Page 11



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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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<< RUNG 24 STEP #0075 >>

HIGH DISCHRG ALARM		HI DISH AIRTEMP
AIR TEMP	RESET PB	ALARM LATCH
%M0045	%I0036	%M0016
		()

ALARM TEST PB
%I0034

HI DISH AIRTEMP
ALARM LATCH
%M0016

(*****
(* ALARM ACKNOWLEDGE *)
*****)

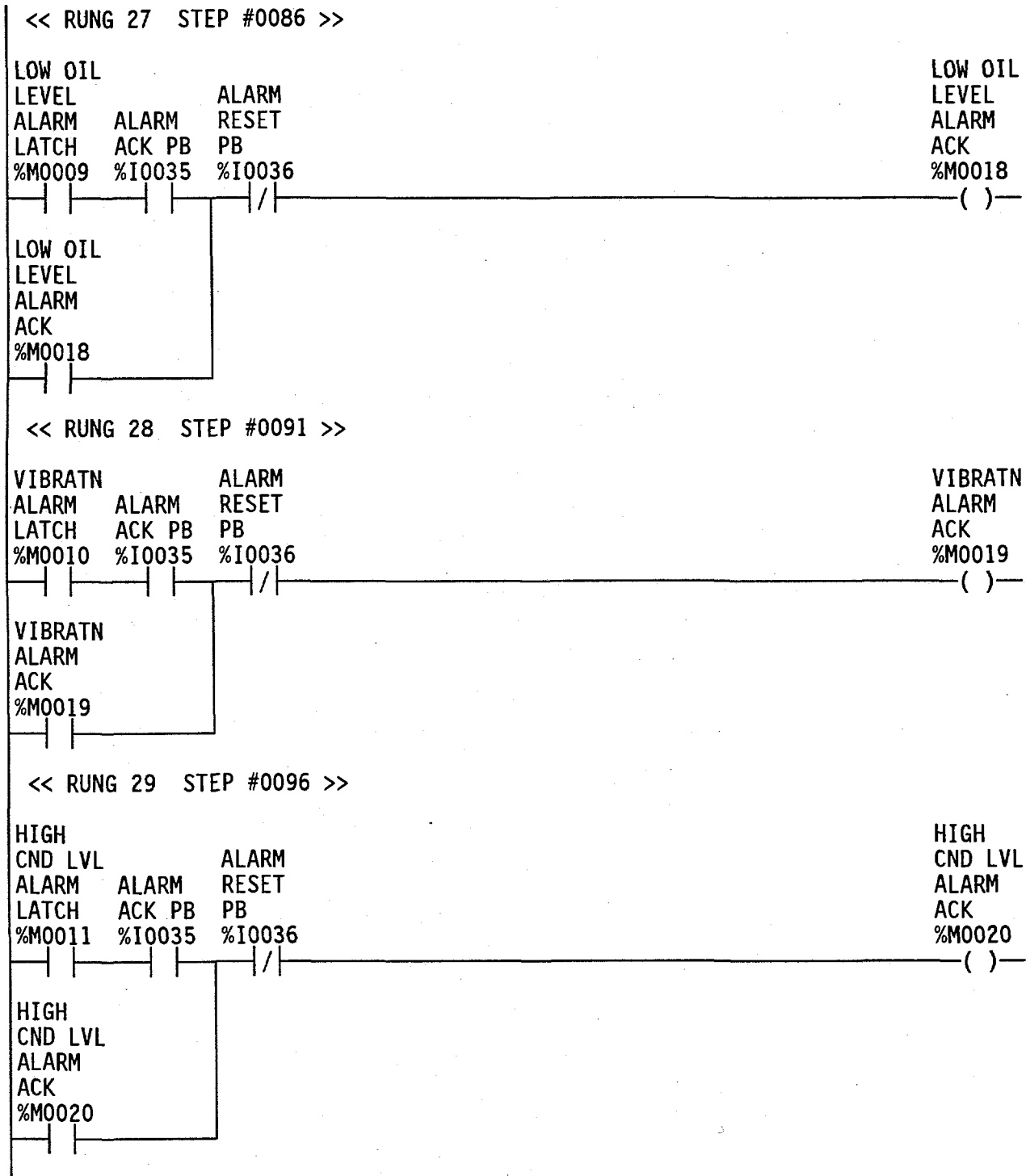
<< RUNG 26 STEP #0081 >>

LOW OIL PRESSUR		ALARM	LOW OIL PRESSUR
ALARM LATCH	ALARM ACK PB	RESET PB	ALARM ACK
%M0008	%I0035	%I0036	%M0017
			()

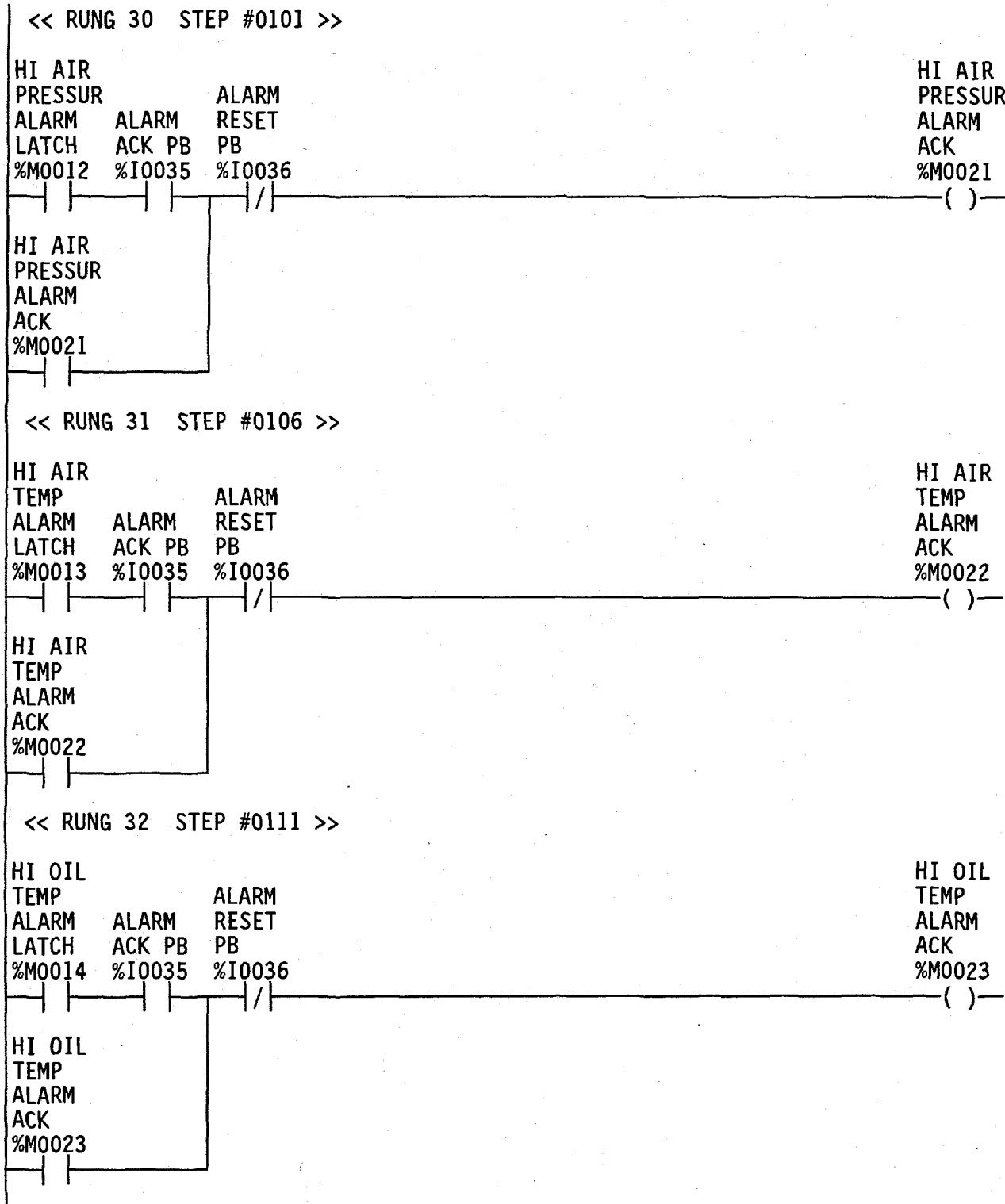
LOW OIL PRESSUR
ALARM ACK
%M0017

03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

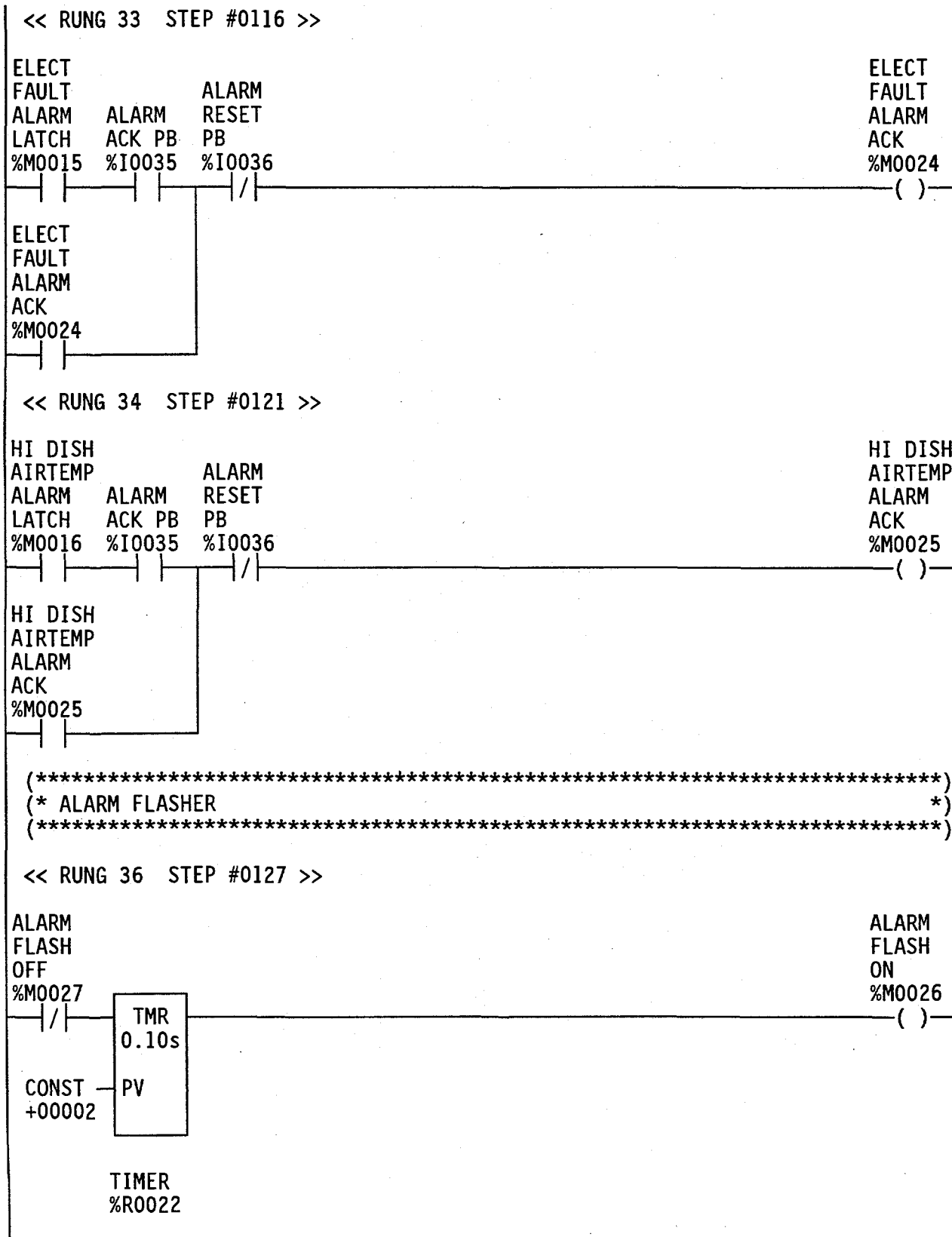
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

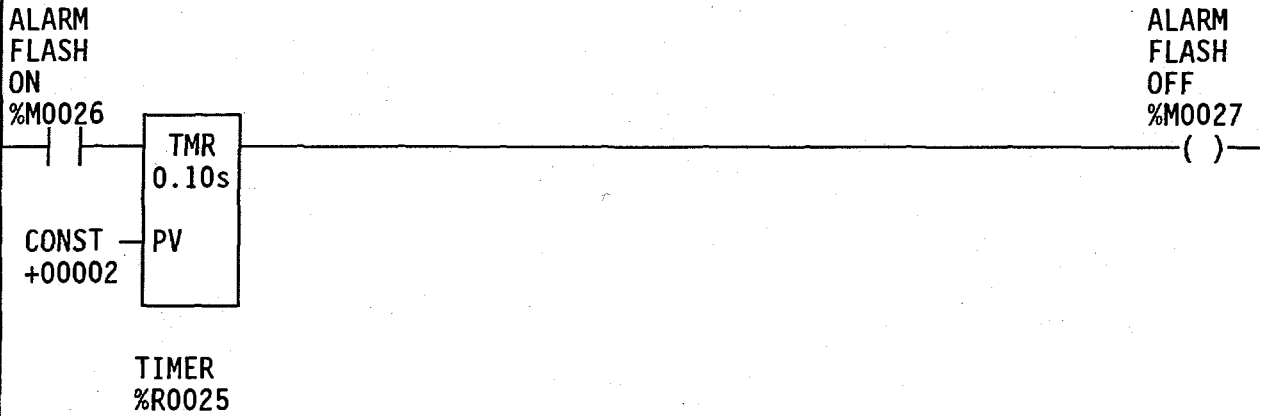


03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736



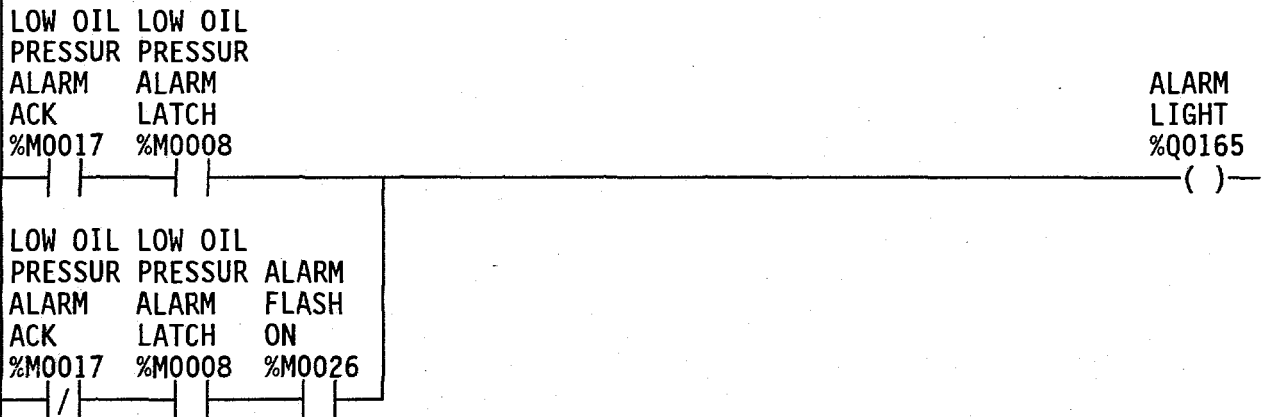
03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02) Page 18
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 37 STEP #0130 >>

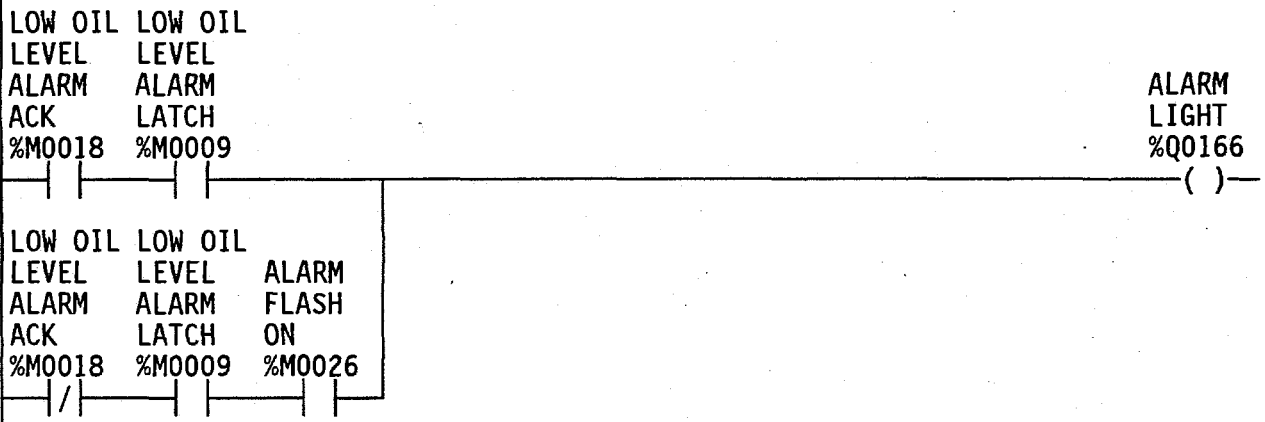


(*****
(* ALARM LIGHTS *)
*****)

<< RUNG 39 STEP #0134 >>



<< RUNG 40 STEP #0141 >>



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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 41 STEP #0148 >>

VIBRATN	VIBRATN			
ALARM	ALARM			ALARM
ACK	LATCH			LIGHT
%M0019	%M0010			%Q0195
				()

VIBRATN	VIBRATN	ALARM
ALARM	ALARM	FLASH
ACK	LATCH	ON
%M0019	%M0010	%M0026

<< RUNG 42 STEP #0155 >>

HIGH	HIGH			
CND LVL	CND LVL			ALARM
ALARM	ALARM			LIGHT
ACK	LATCH			%Q0194
%M0020	%M0011			()

HIGH	HIGH	
CND LVL	CND LVL	ALARM
ALARM	ALARM	FLASH
ACK	LATCH	ON
%M0020	%M0011	%M0026

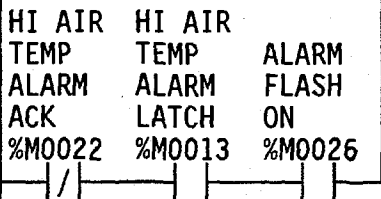
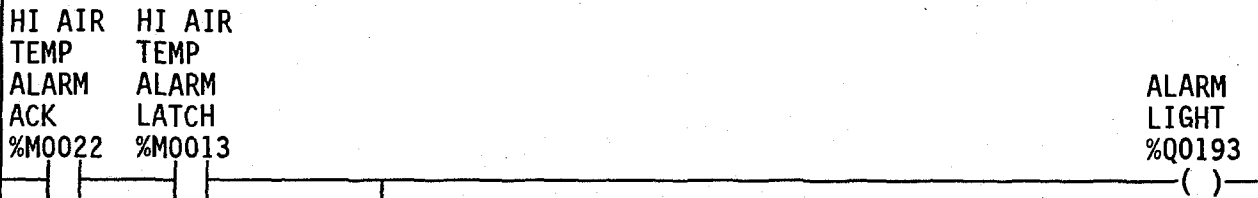
<< RUNG 43 STEP #0162 >>

HI AIR	HI AIR			
PRESSUR	PRESSUR			ALARM
ALARM	ALARM			LIGHT
ACK	LATCH			%Q0196
%M0021	%M0012			()

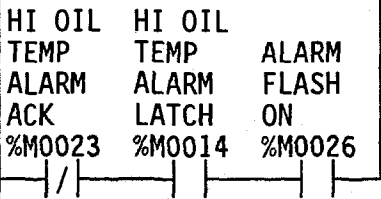
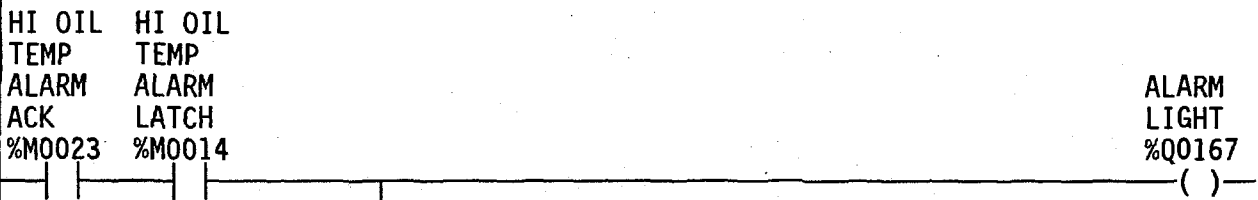
HI AIR	HI AIR	
PRESSUR	PRESSUR	ALARM
ALARM	ALARM	FLASH
ACK	LATCH	ON
%M0021	%M0012	%M0026

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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

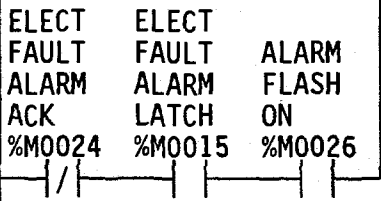
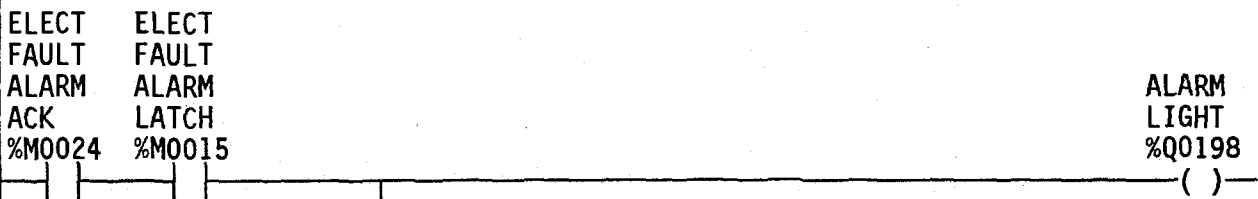
<< RUNG 44 STEP #0169 >>



<< RUNG 45 STEP #0176 >>



<< RUNG 46 STEP #0183 >>



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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 47 STEP #0190 >>

HI DISH HI DISH	
AIRTEMP AIRTEMP	
ALARM ALARM	ALARM
ACK LATCH	LIGHT
%M0025 %M0016	%Q0197
	()

HI DISH HI DISH		
AIRTEMP AIRTEMP ALARM		
ALARM ALARM FLASH		
ACK LATCH ON		
%M0025 %M0016 %M0026		
/		

(*****
(* ALARM HORN *)
(*****)

03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

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<< RUNG 49 STEP #0198 >>

LOW OIL LOW OIL
PRESSUR PRESSUR
ALARM ALARM
ACK LATCH
%M0017 %M0008

ALARM
HORN
PART 1
%M0028

LOW OIL LOW OIL
LEVEL LEVEL
ALARM ALARM
ACK LATCH
%M0018 %M0009

VIBRATN VIBRATN
ALARM ALARM
ACK LATCH
%M0019 %M0010

HIGH HIGH
CND LVL CND LVL
ALARM ALARM
ACK LATCH
%M0020 %M0011

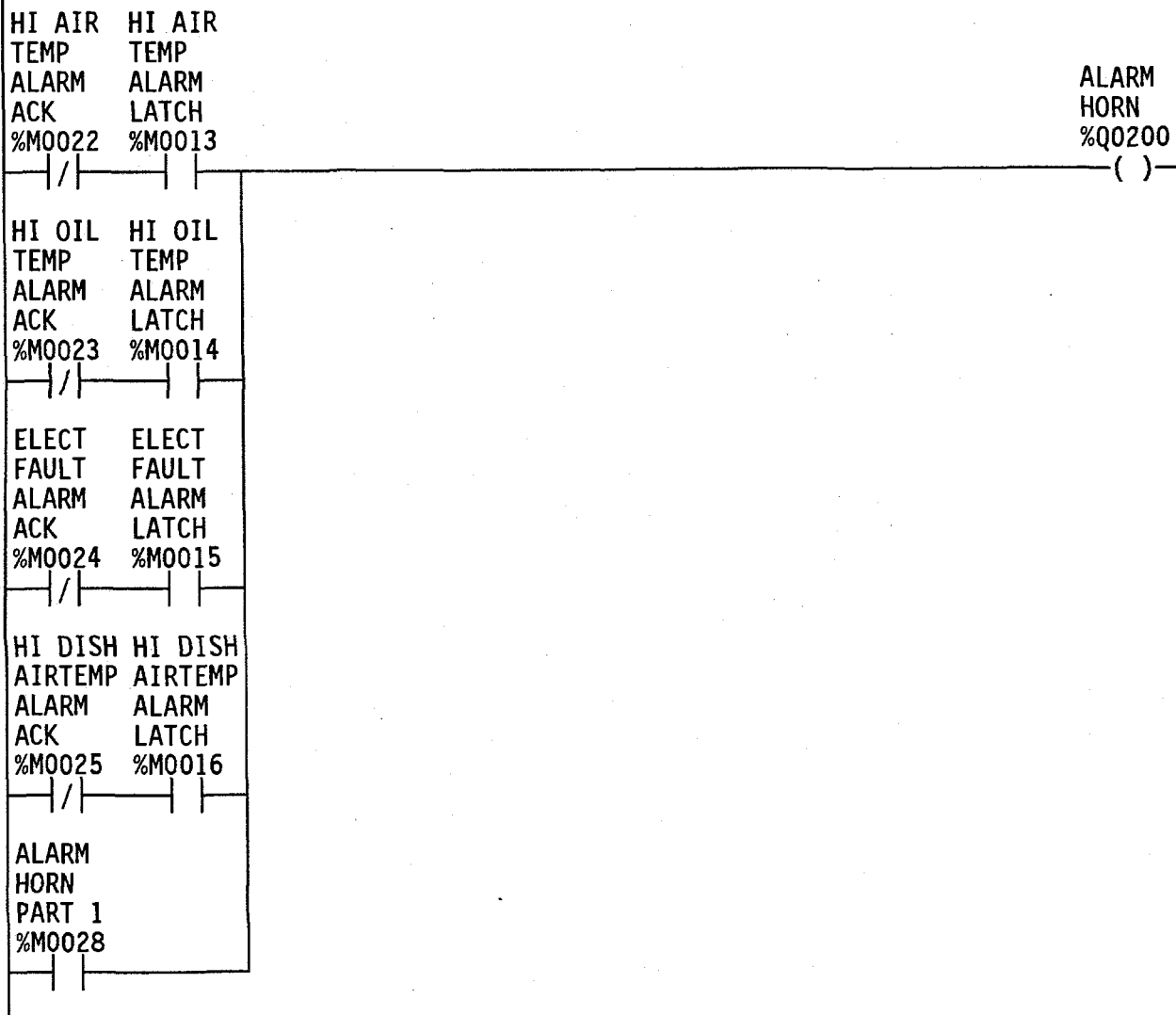
HI AIR HI AIR
PRESSUR PRESSUR
ALARM ALARM
ACK LATCH
%M0021 %M0012

()

03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

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<< RUNG 50 STEP #0213 >>



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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION I BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 52 STEP #0227 >>

LOW OIL
PRESSUR
ALARM
LATCH
%M0008

ALARM
LATCH
%M0046
()

LOW OIL
LEVEL
ALARM
LATCH
%M0009

VIBRATN
ALARM
LATCH
%M0010

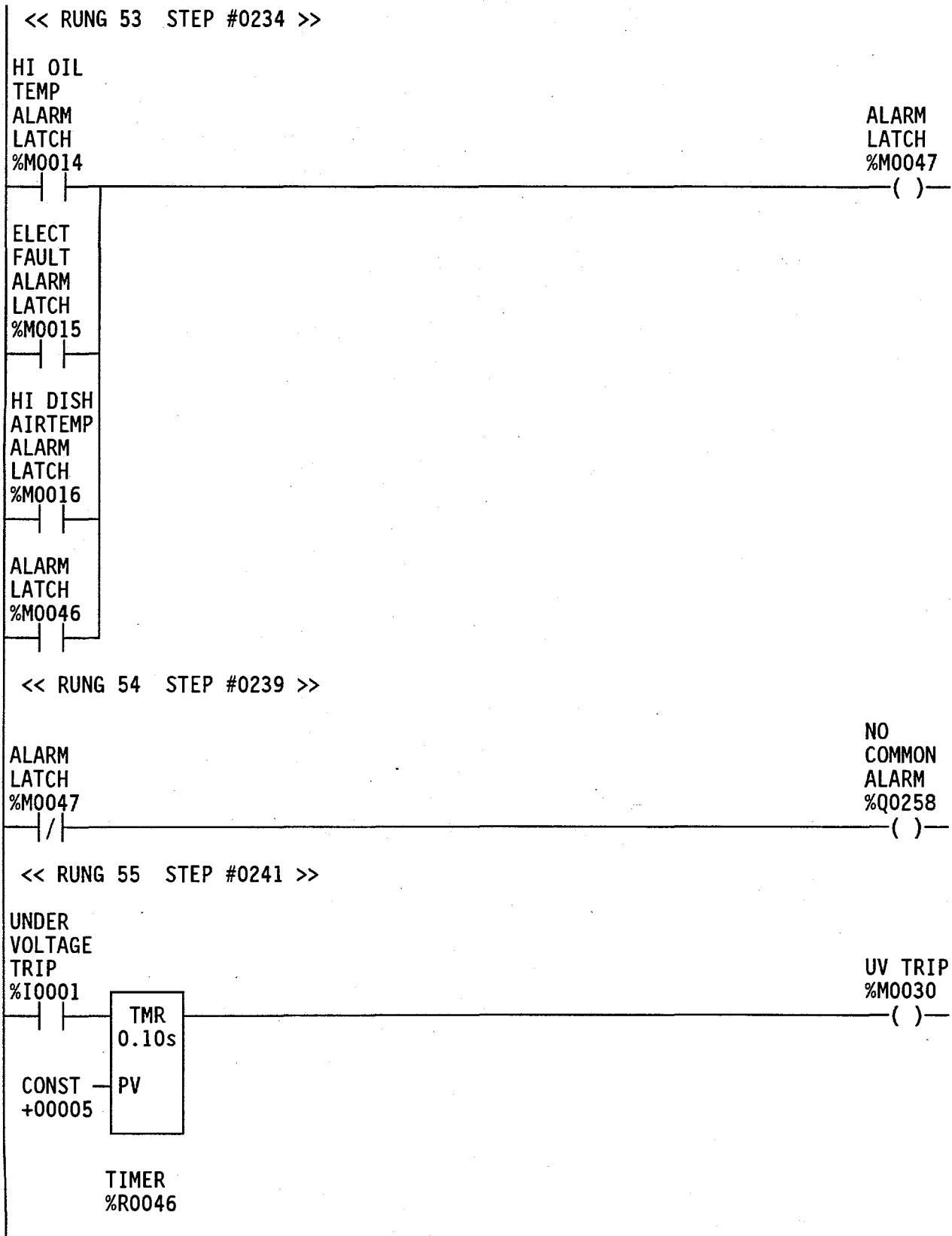
HIGH
CND LVL
ALARM
LATCH
%M0011

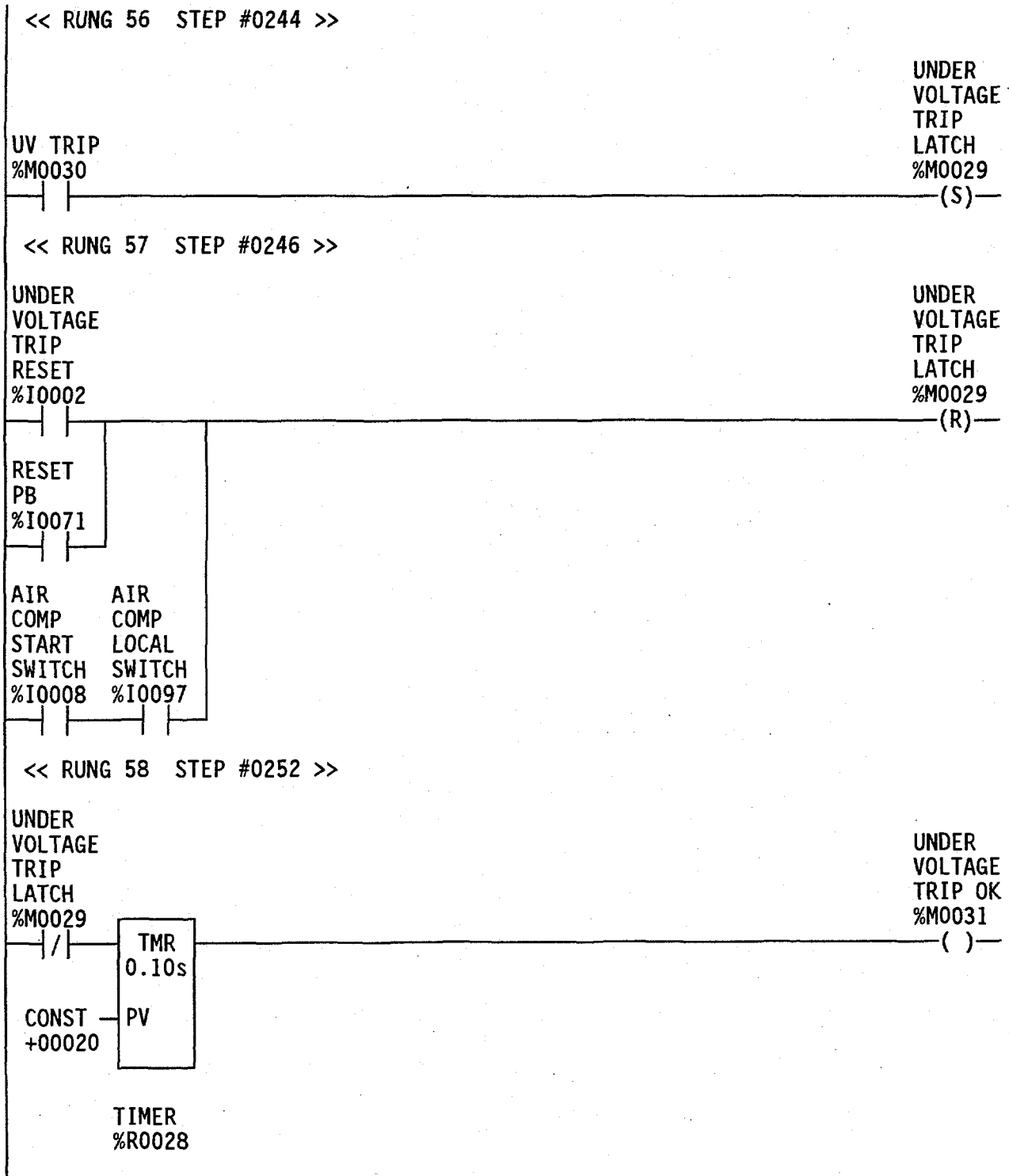
HI AIR
PRESSUR
ALARM
LATCH
%M0012

HI AIR
TEMP
ALARM
LATCH
%M0013

03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

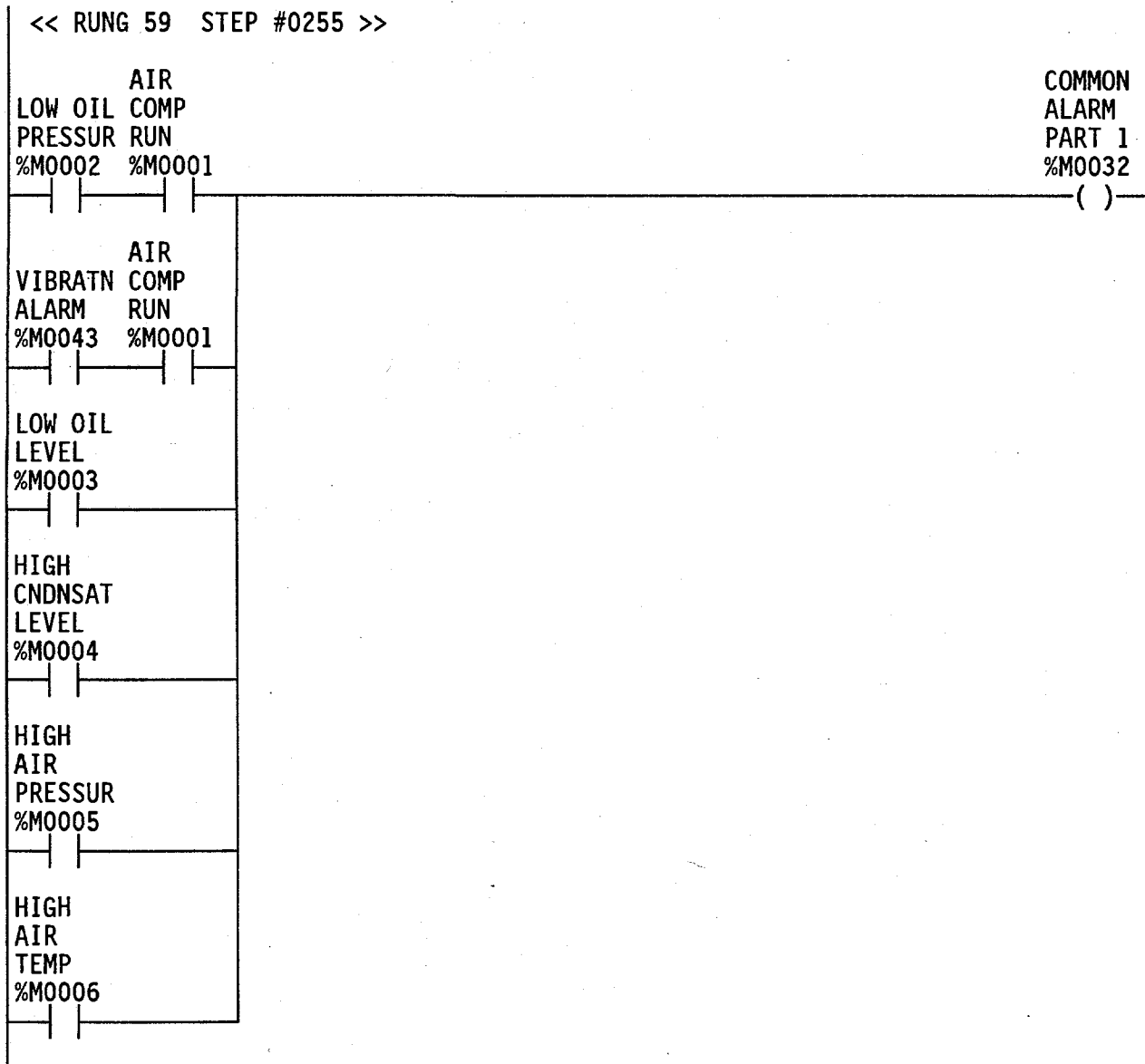
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 60 STEP #0265 >>

HIGH
OIL
TEMP
%M0007

COMMON
ALARM
%M0033

()

ELECT
FAULT
%M0044

HIGH
DISCHRG
AIR
TEMP
%M0045

COMMON
ALARM
PART 1
%M0032

(*****
(* COMMON ALARM FOR RETRANSMISSION/REFLASH *)
*****)

<< RUNG 62 STEP #0271 >>

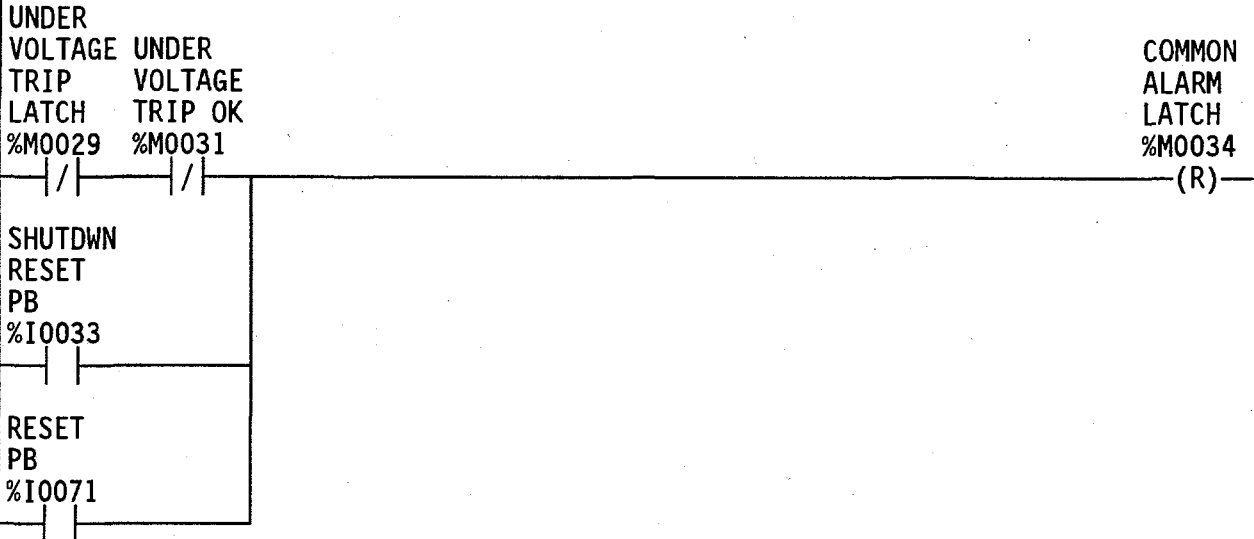
COMMON
ALARM
%M0033

COMMON
ALARM
LATCH
%M0034

(S)

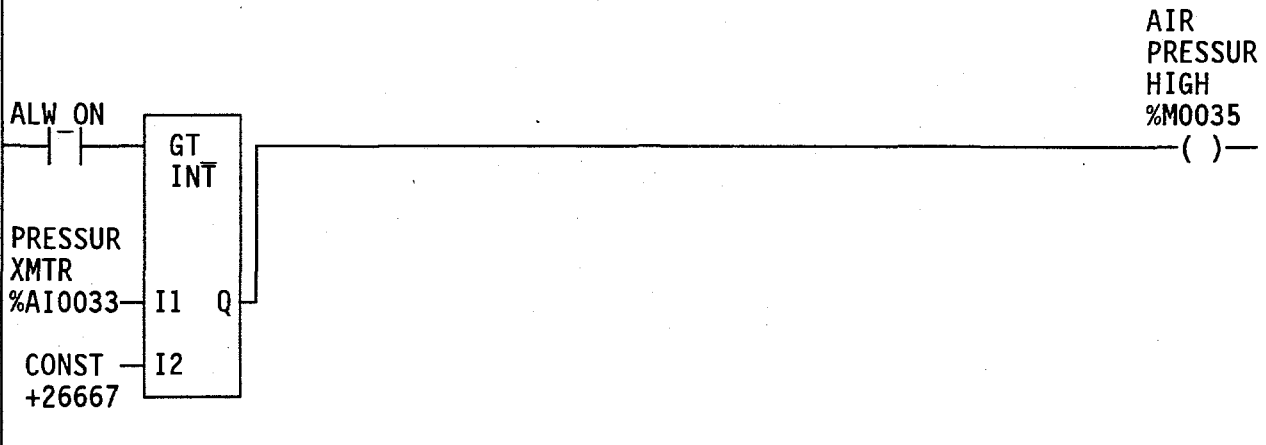
03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02) Page 29
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 63 STEP #0273 >>



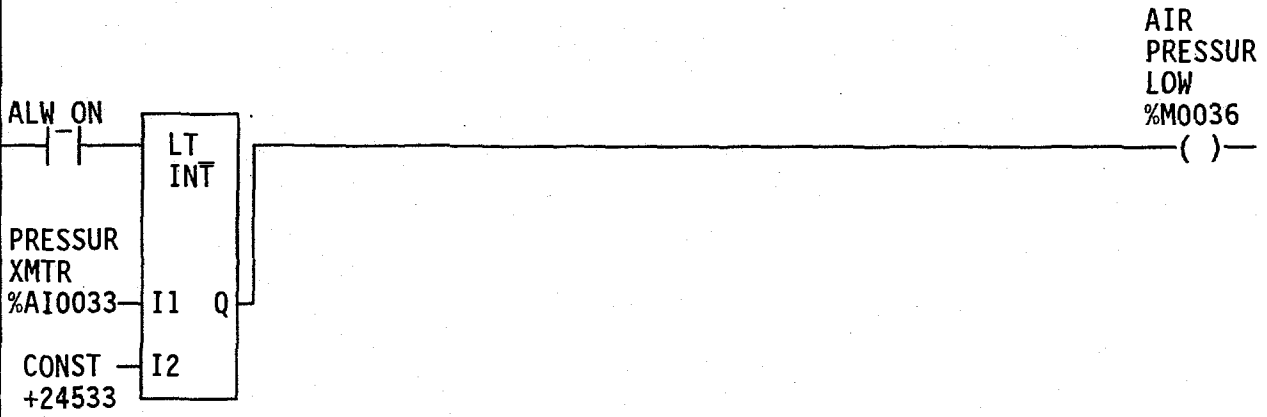
(*****
* COMPARE SIGNAL FROM PRESSURE TRANSMITTER TO SETPOINTS *)
* NOTE: 213.3 COUNTS PER PSI *)
(*****)

<< RUNG 65 STEP #0279 >>

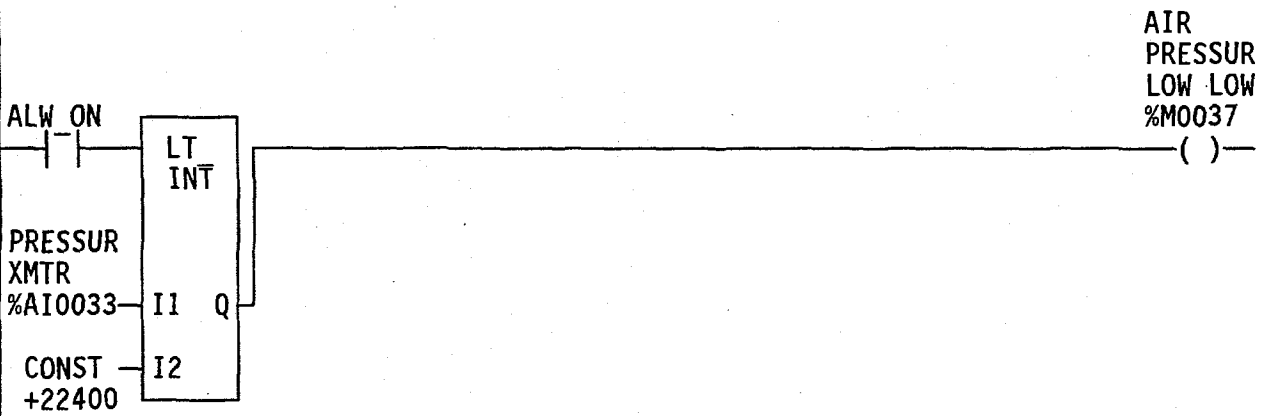


03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02) Page 30
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

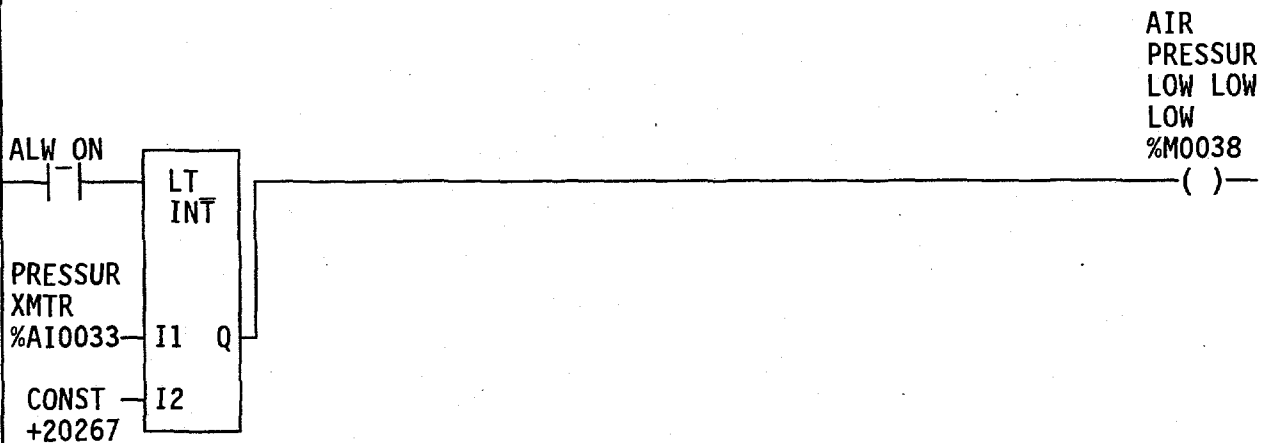
<< RUNG 66 STEP #0282 >>



<< RUNG 67 STEP #0285 >>

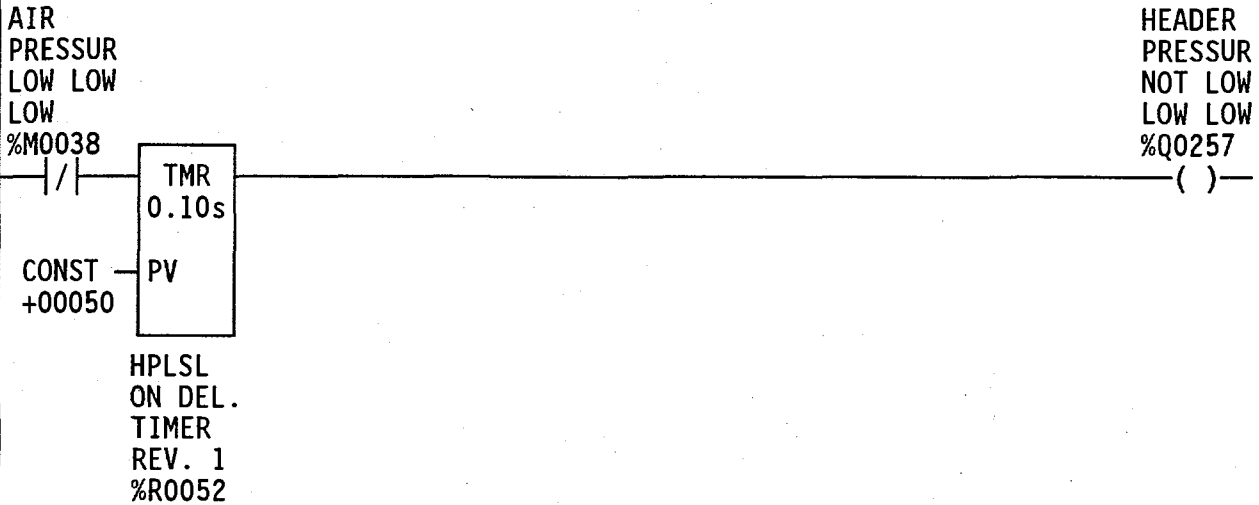


<< RUNG 68 STEP #0288 >>

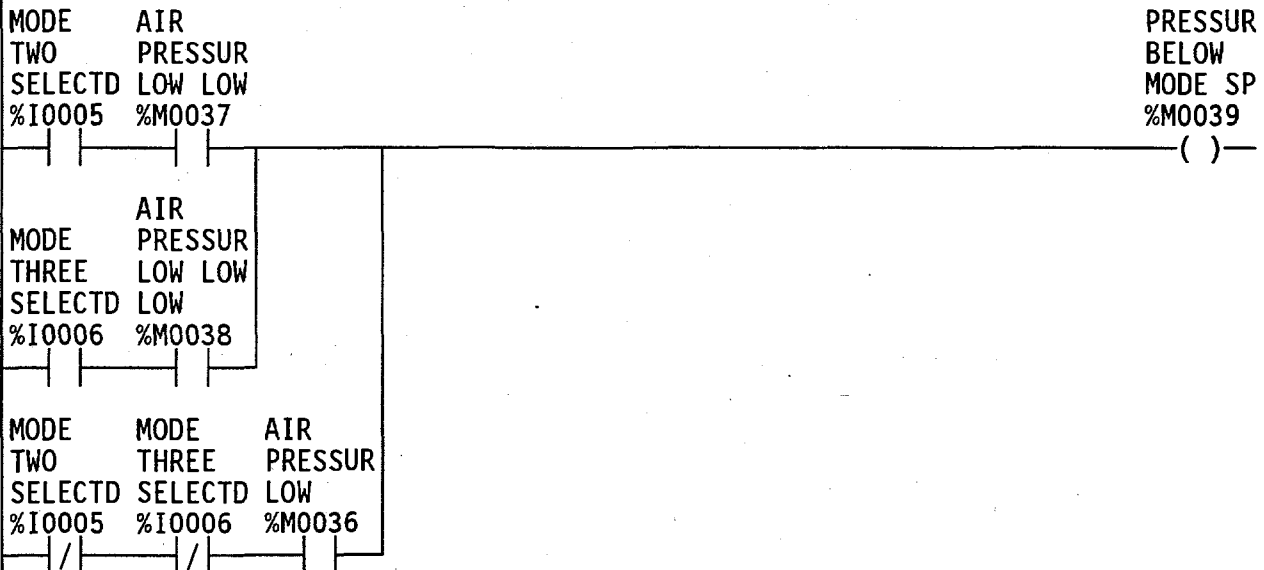


03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02)
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 69 STEP #0291 >>

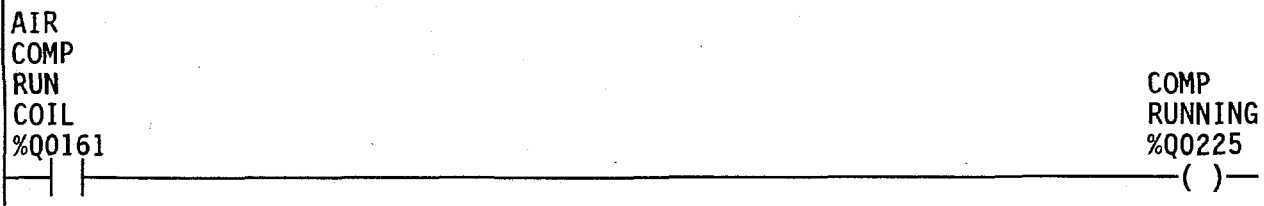


<< RUNG 70 STEP #0294 >>



(*****
(* COMPRESSOR RUNNING LIGHTS *)
(*****

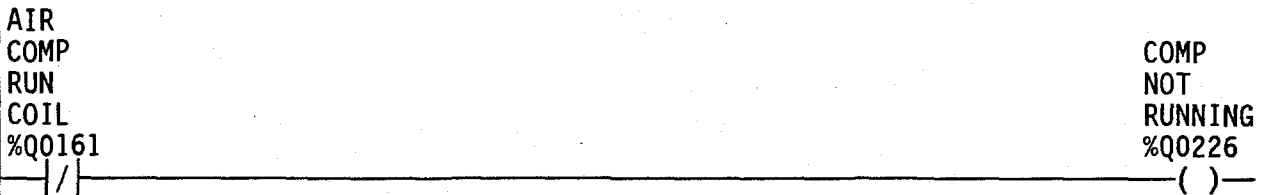
<< RUNG 72 STEP #0305 >>



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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

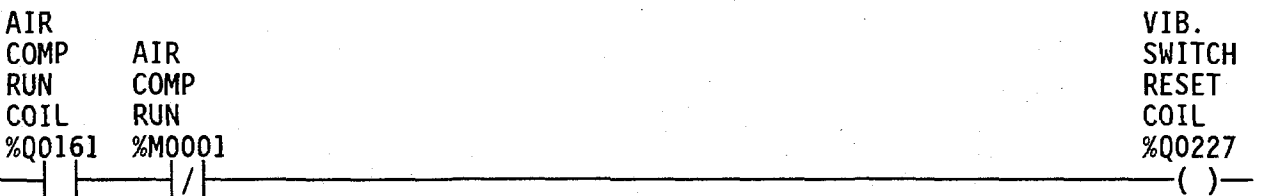
(*****
(* POWER AVAILABLE LIGHTS *)
(*****)

<< RUNG 74 STEP #0308 >>



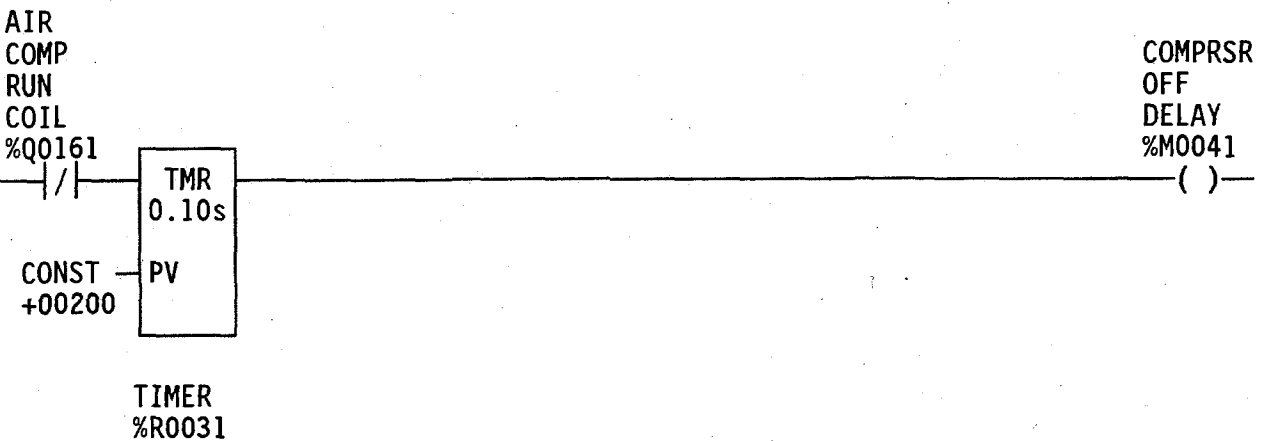
(*****
(* THE FOLLOWING RUNG WAS ADDED TO ENERGIZE THE VIBRATION SWITCH RESET *)
(* COIL. 4/28/94 KEW *)
(*****)

<< RUNG 76 STEP #0311 >>



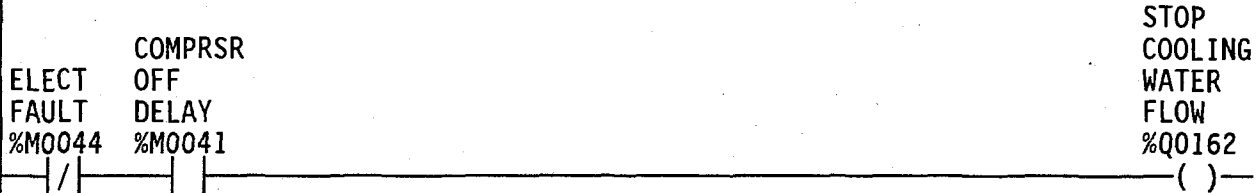
(*****
(* 20 SECONDS AFTER COMPRESSOR STOPS, ENERGIZE SOLENOID TO ISOLATE COOLING *)
(* WATER *)
(*****)

<< RUNG 78 STEP #0315 >>



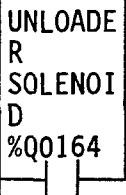
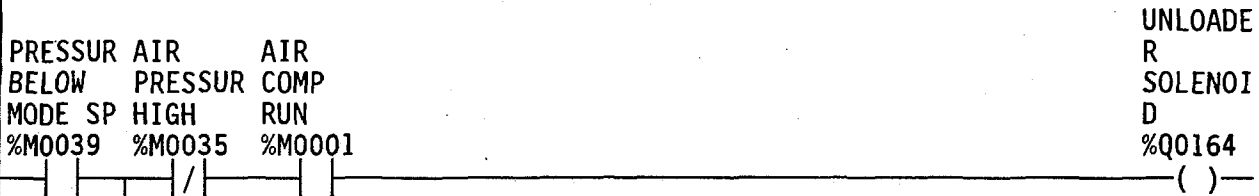
03-13-95 15:33 GE FANUC SERIES 90-30/90-20 DOCUMENTATION (v4.02) Page 33
FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 79 STEP #0318 >>



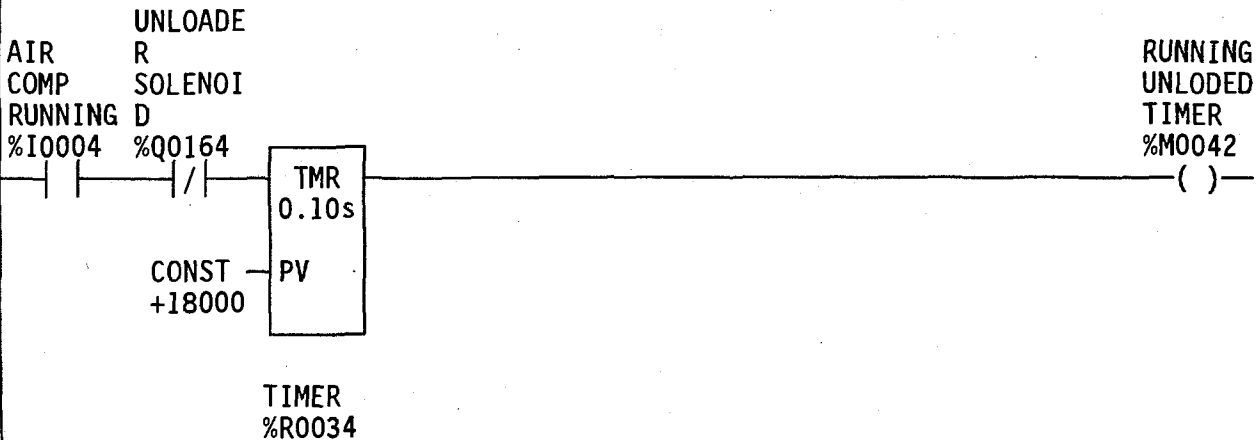
(*****
(* CONTROL LOADING OF COMPRESSOR *)
(*****

<< RUNG 81 STEP #0322 >>

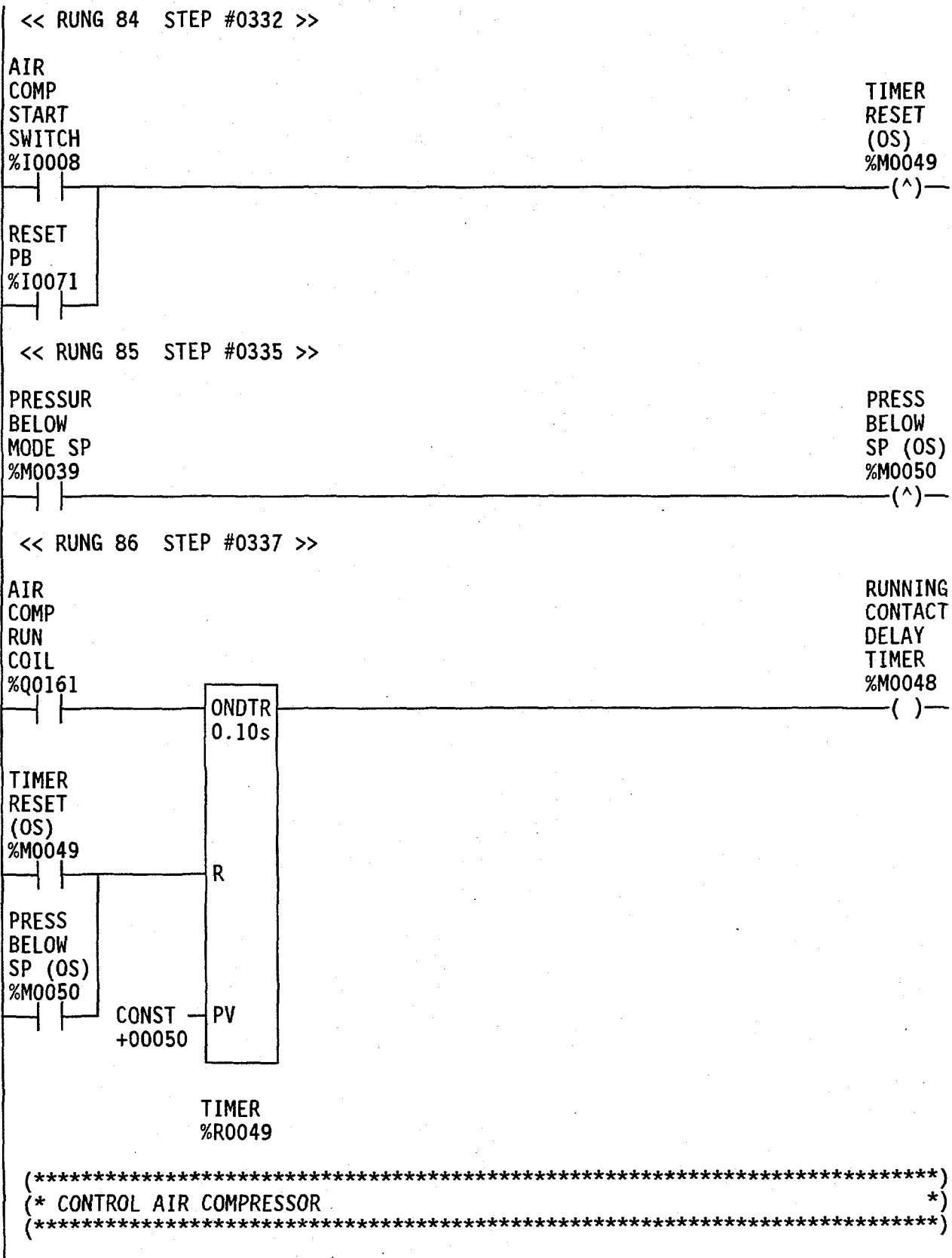


(*****
(* COIL TO INDICATE COMPRESSOR RUNNING UNLOADED FOR GREATER THAN 3 MINUTES *)
(*****

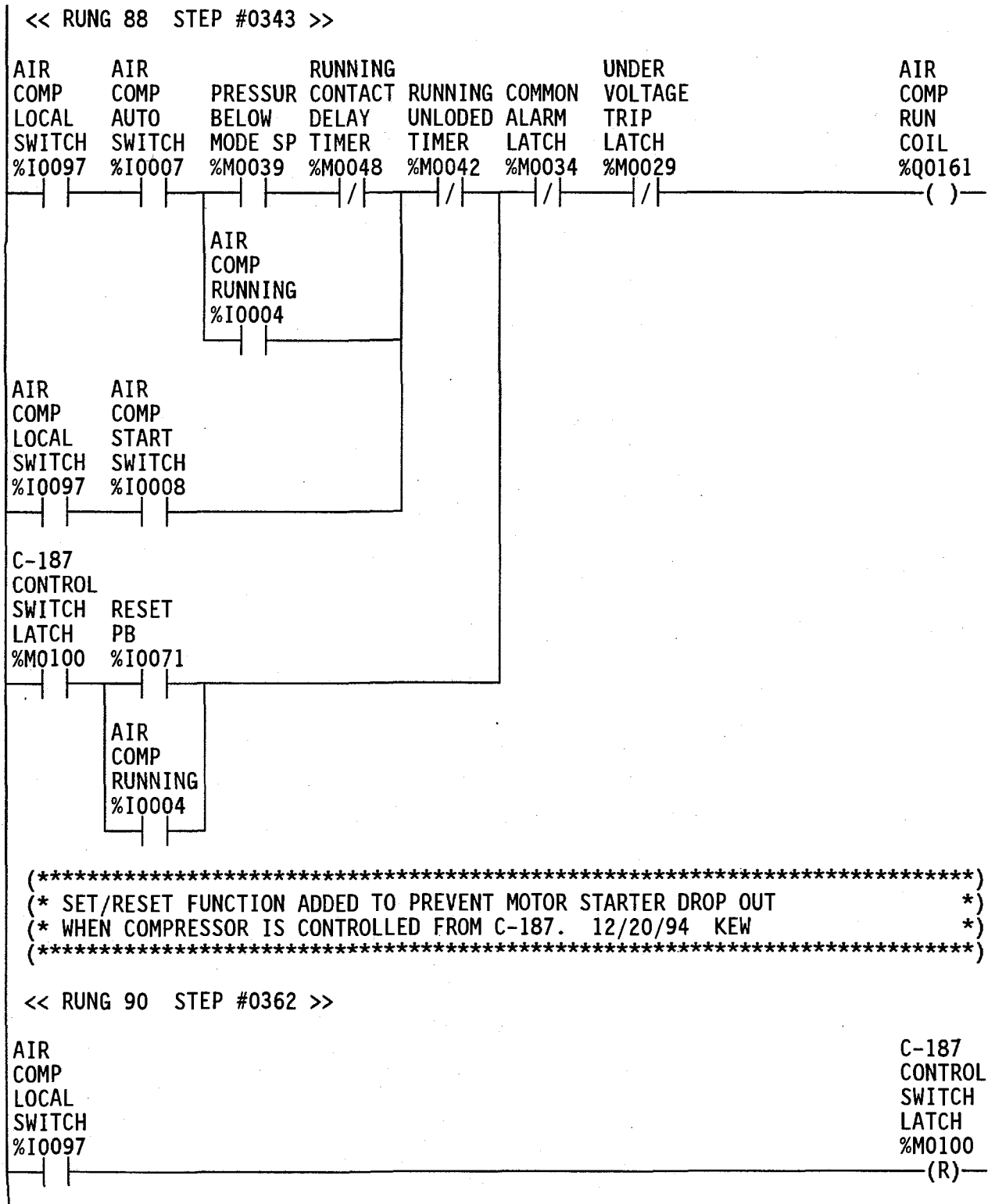
<< RUNG 83 STEP #0328 >>



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 FTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
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FFTF AIR COMPRESSOR CONTROL LOGIC C-620A (R1) & C-620B (R2)
REVISION 1 BY KEW 2/14/95 NOVA CONTRACT WST-XVV-002736

<< RUNG 91 STEP #0364 >>

AIR
COMP
RUN
SWITCH
%I0072

C-187
CONTROL
SWITCH
LATCH
%M0100
(S)

[END OF PROGRAM LOGIC]