


# COVER SHEET

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### REFERENCE DOCUMENTS

SIGNAL LIST	837 017 128
ALARM & TRIP LIST	837 017 129
P & I DIAGRAMS	837 016 878 p 1-4

Verfilmt Microfilm	Index Rev.	Anzahl Number	Art der Änderung Nature of Revision	Datum Date	Bearb./Gepr. Drawn/Checked		
CAD-Zeichnung CAD-Drawing			Zeich.-Nr. des Empfängers Drawing No. of Recipient	Werkstoff Material	Verfilmt Microfilm		
Zul. Abw. Permiss. Dev.	DIN ISO 2768-mK	AP	Typ TYPE	Massst. Scale	Gewicht Weight		
Oberfl. Surface	DIN ISO 1302		RIK 80-1+1+1+1	BG Ass.	TA Part		
Verwendungsbereich Field of application			Abt. Dept.	Benennung Title			
KOSAIR 2004 N 710 0175			SC71	FUNCTION DIAGRAM			
Bearb. Drawn	Datum Date	Name Name		Format Size	Zeichnungs-Nr. Drawing No.	Index Rev.	Bl./Sheet
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	02.11.04	CH.SELINGER					9
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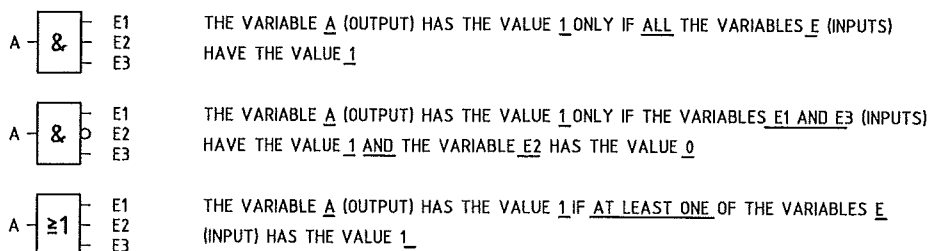
FUNCTION DIAGRAM



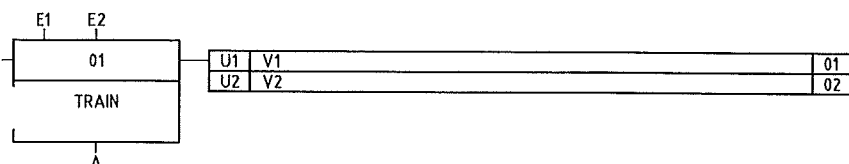
# ABBREVIATIONS USED IN THIS DOCUMENT:

CMD	COMMAND
F	MANUAL RELEASE
ION	INDICATION ON
MCC	MOTOR CONTROL CENTER
P	PULSE SIGNAL
PB	PUSH BUTTON
R	RESET
S	SET
SD	DELAYED SET
=	SIGNAL (MEMORY OR OUTPUT) IS ENERGISED AS LONG AS THE CORRESPONDING STEP IS ACTIVE
SOV	SOLENOID VALVE
VDU	VIDEO DISPLAY UNIT
LCP	LOCAL CONTROL PANEL
CCP	CENTRAL CONTROL PANEL
DCS	DISTRIBUTED CONTROL SYSTEM

# FUNCTION SYMBOLS:



# STEP FUNCTION:



A STEP SET ISSUES COMMANDS OR DEMANDS THAT COMMANDS BE CARRIED OUT

U = NATURE OF COMMAND  
V = DESCRIPTION OF EFFECT OR COMMAND  
01 = IDENTIFICATION NUMBER

# GENERAL NOTES:

- The purpose of this document is to furnish information on the functioning logic required for the MAN TURBO supplied air compressor and its associated auxiliary equipment. The control system used for this compressor train is not MAN TURBO supply and the details of this system are not known to MAN TURBO. This Function Diagram sets out the functioning logic required for the compressor as it must be integrated into the client's control system. This Document should be considered as MAN TURBO's guideline recommendations for the control of this particular compressor in this particular application, the scope generally being to and by the equipment supplied / engineered by MAN TURBO. It must not be considered as start-up / operating instructions. It is essential that the compressor is always started up and operated in accordance with above referenced Operating Instruction, found in the MAN TURBO manual.
- The MAN TURBO commissioning engineer on site will assist with checking of the logic as actually programmed into the controller(s) by the client or sub-contractors to ensure that the essence of these guidelines has been incorporated into the client's logic and to verify the operational safety of the compressor train.
- The logic, set points, delay times, etc. as represented in this document are subject to refinements / alterations which our commissioning engineer may find necessary during commissioning.

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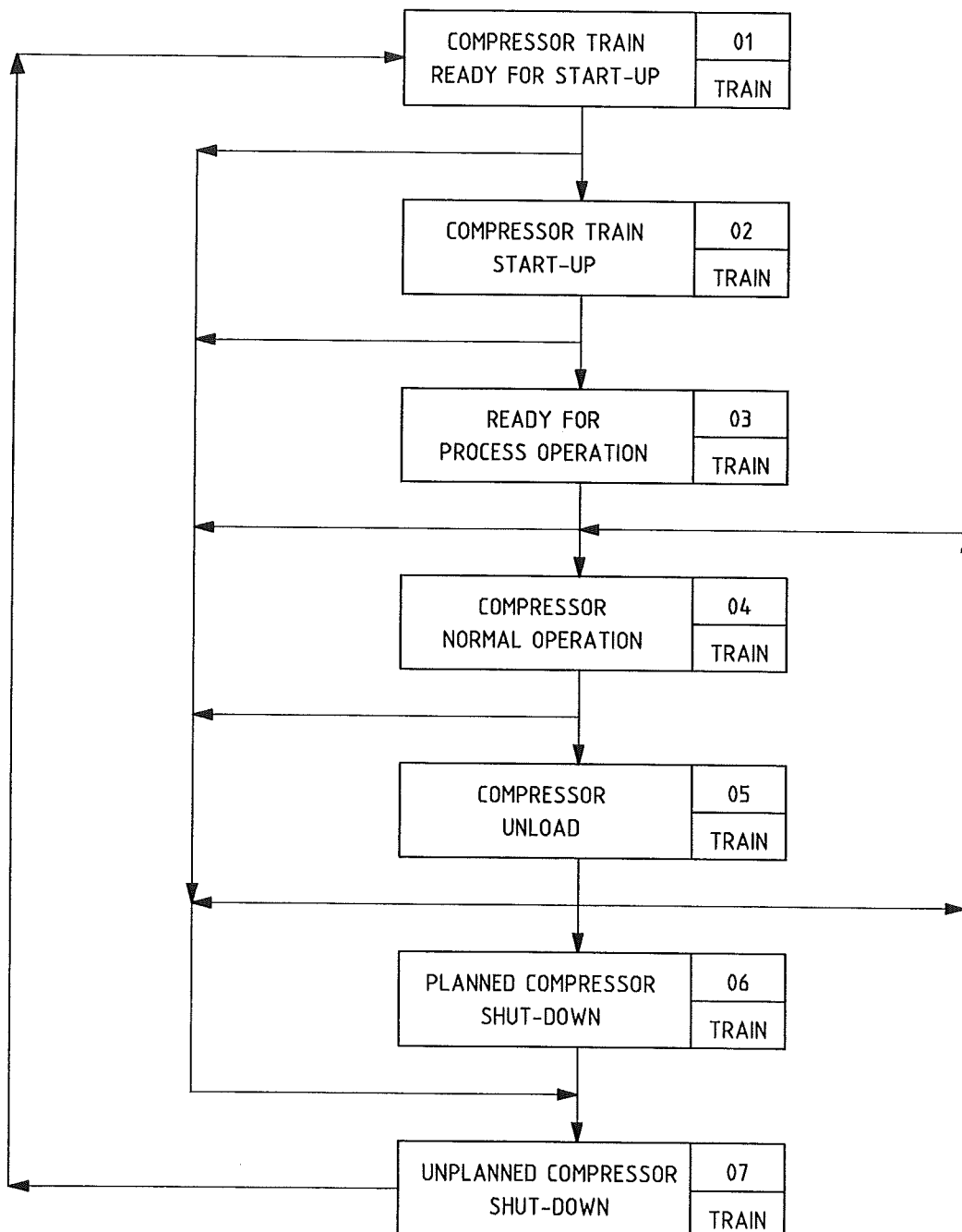
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## OVERVIEW: COMPRESSOR TRAIN STEP SEQUENCE



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## FUNCTION DIAGRAM



### STEP 01: COMPRESSOR TRAIN READY FOR START-UP

TAL 11854	TEMP. DOWNSTREAM OIL FILTER LOW
PAL 11754	SEAL CHAMBER PRESSURE LOW
GAL 11010	POSITION IGV LOW "CLOSED"
GSAH 11074	ANTISURGE VALVE POSITION "OPEN"
NO SHUTDOWN CONDITION IN STEP 07 ACTIVATED	
F- COMPRESSOR TRAIN RESET/READY FOR START-UP (CMD BY OPERATOR)	
PAL 11747	LUBE OIL PRESSURE LOW
TRAIN SPEED AT STANDSTILL	

=	ION:"COMPRESSOR TRAIN READY FOR START UP -SIGNAL TO MCC	01
S	BENTLY NEVADA TRIP MULTIPLY ON	02
S	MAIN MOTOR START PERMISSIVE - SIGNAL TO MCC	03

### STEP 02: COMPRESSOR TRAIN STAR-UP

STEP 01 START-UP INTERLOCKS FULFILLED	
F- COMPRESSOR TRAIN START - CMD BY OPERATOR (PB)	

=	ION:"COMPRESSOR TRAIN START-UP"	01
S	MAIN MOTOR START - SIGNAL TO MCC	02
		03

### STEP 03: READY FOR PROCESS OPERATION

MAIN MOTOR SYNCHRONISED - SIGNAL FROM MAIN MOTOR	
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=	ION:"MAIN MOTOR SYNCHRONISED"	01
R	BENTLY NEVADA TRIP MULTIPLY ON	02

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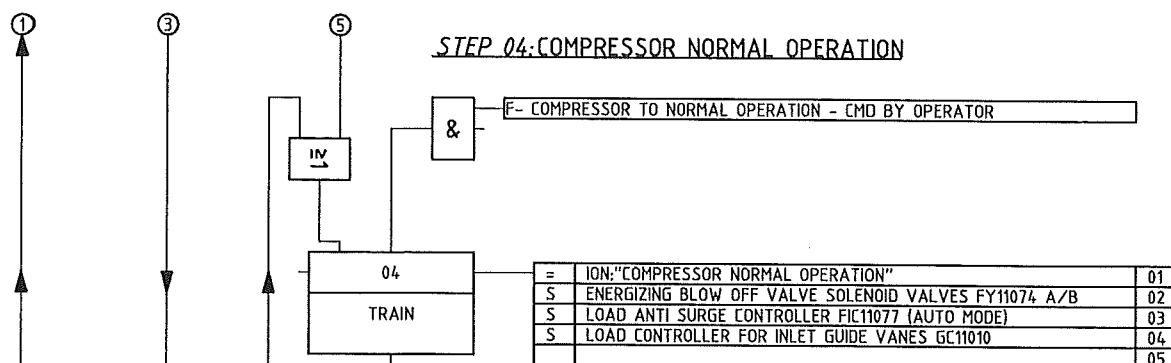
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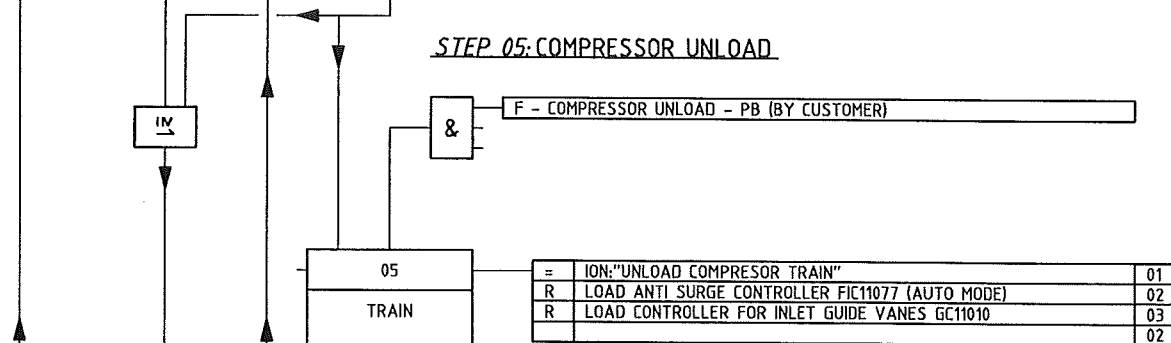
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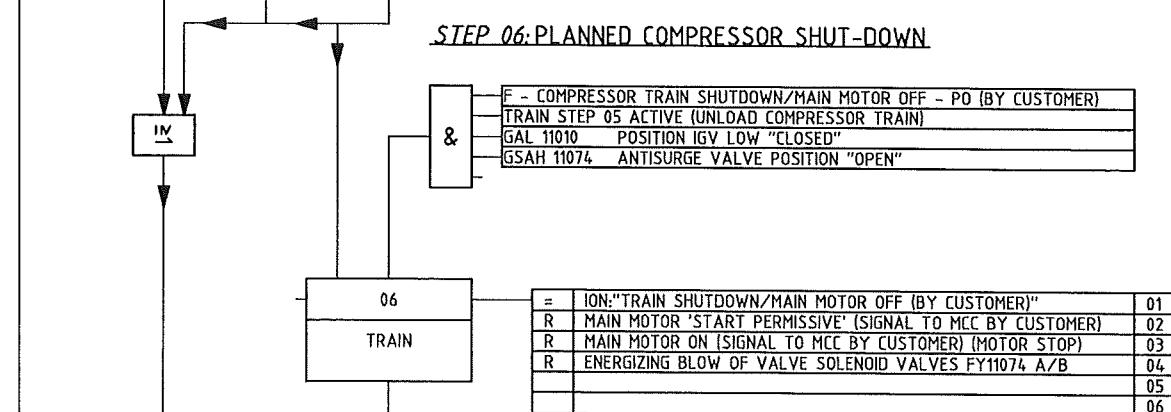
STEP 04: COMPRESSOR NORMAL OPERATION



STEP 05: COMPRESSOR UNLOAD



STEP 06: PLANNED COMPRESSOR SHUT-DOWN



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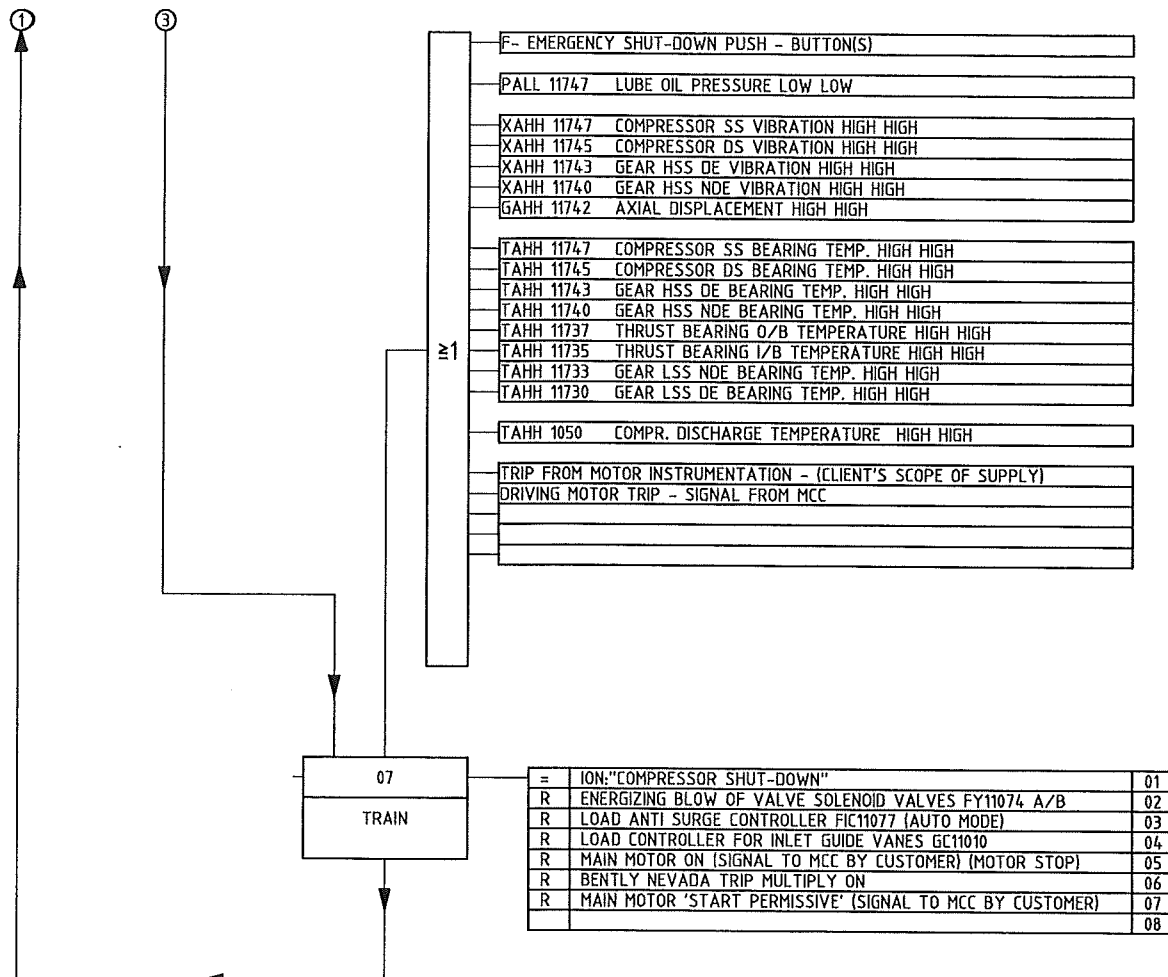
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STEP 07: UNPLANNED COMPRESSOR SHUT-DOWN

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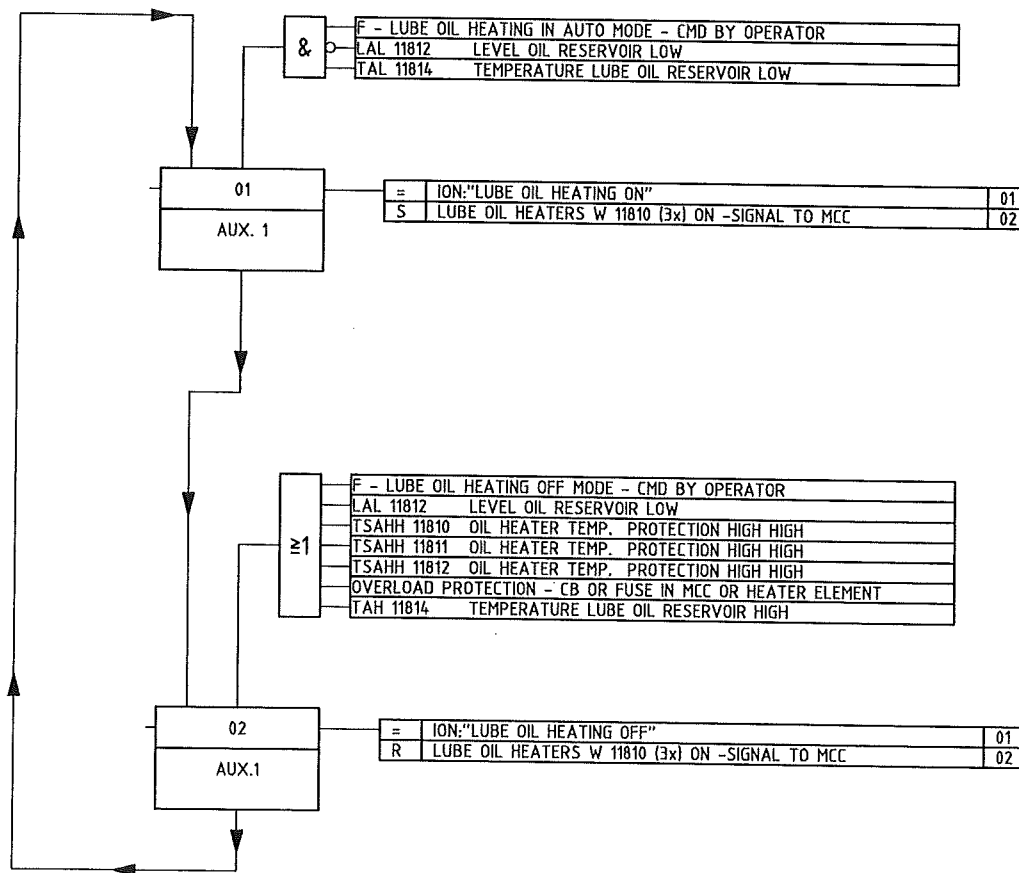


### AUX 1: LUBE OIL HEATER

#### NOTE:

The oil heater system must be switched to the "IN AUTO ON / OFF MODE" several hours before start-up in order to reach the required minimum oil temperature for start-up of 20° C downstream of the oil cooler.

During sandstill periods the oil heating system should stay permanently in operation in order to guarantee the start-up readiness of the compressor train, i.e. a temperature of 20° C downstream of the oil cooler, and to assist in preventing condensation from forming within the oil system



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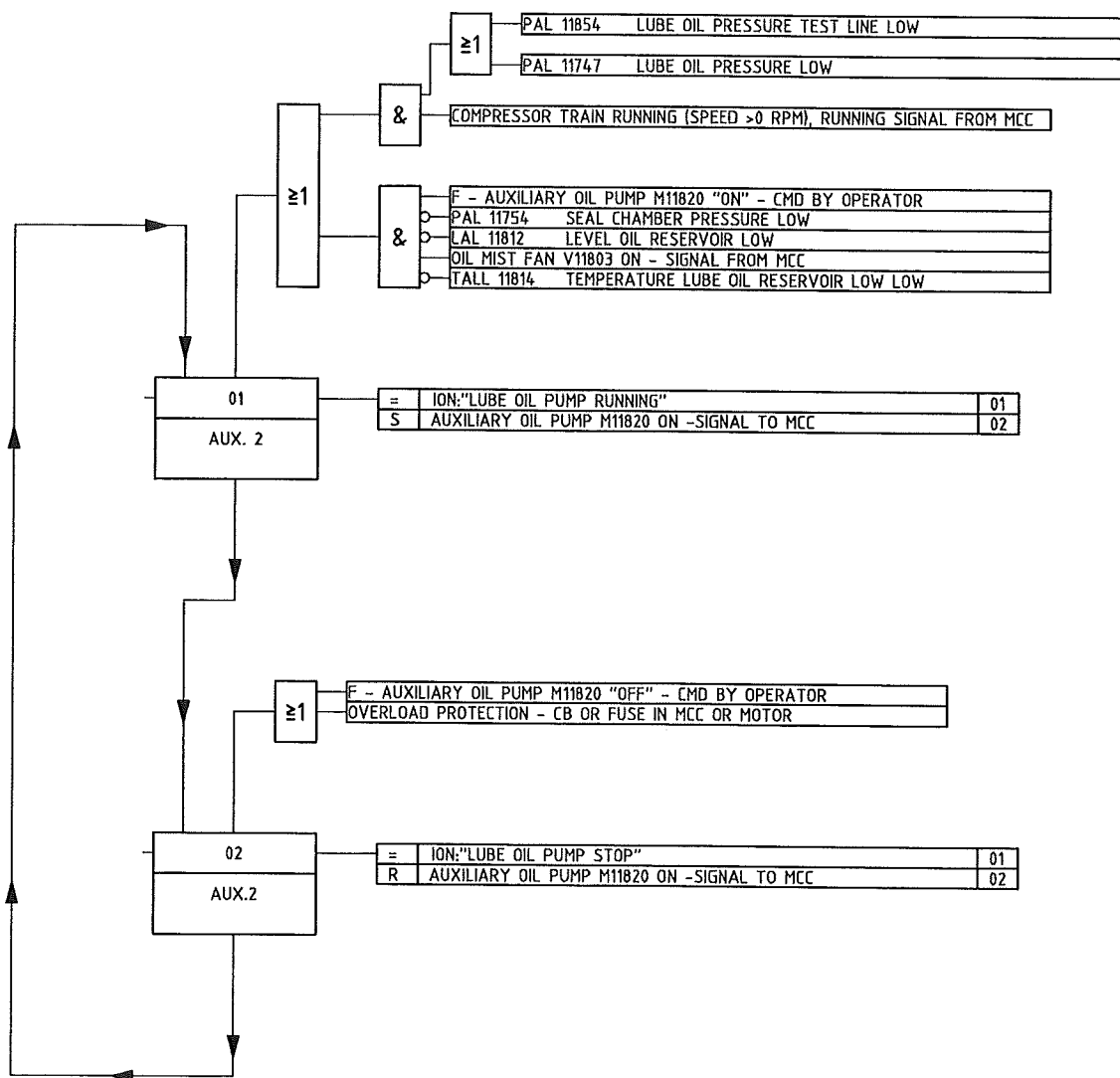
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### AUX 2: AUXILIARY OIL PUMP



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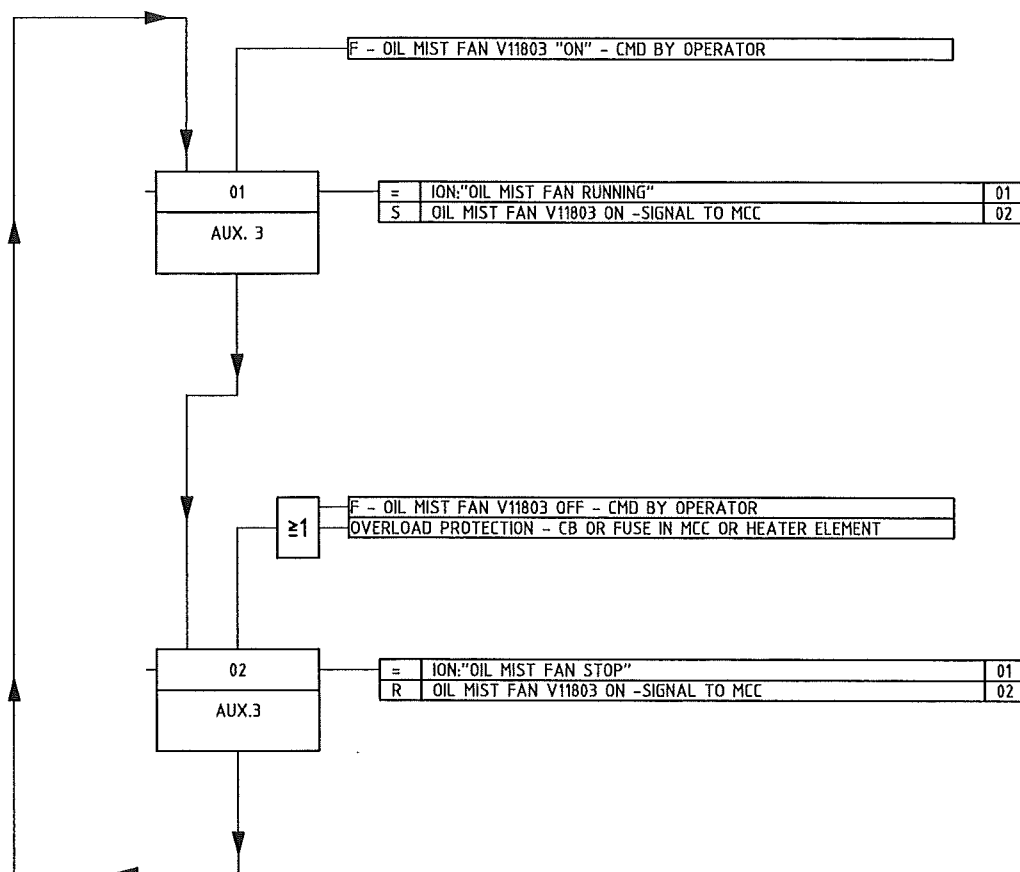
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AUX 3: OIL MIST FAN



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