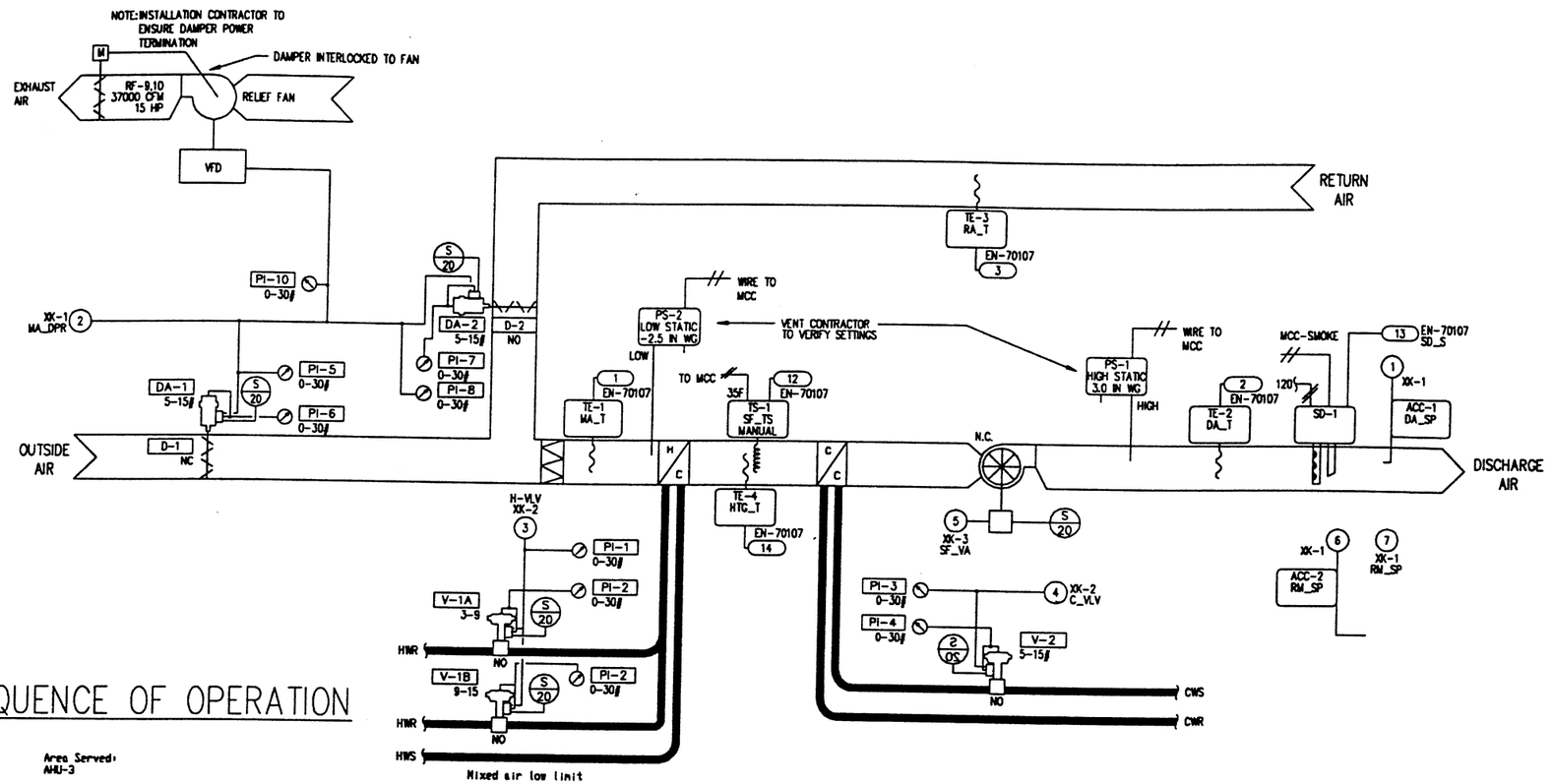
FLOW DIAGRAM AND EQUIPMENT LOCATION FOR AIR HANDLING UNIT AHU-3 (MULTI FUNCTION)



SEQUENCE OF OPERATION

SYSTEM: Area Served:
AHU-3

CONFIGURATION: Supply Air Reset fron Return Air Temperature
Mixed Air Single Path
Supply Fan-VAV

Occupied Mode

The supply and return fans will operate continuously in this mode.

Reset Schedule

The digital controller, EN-70107 will calculate a discharge air setpoint from the return air temperature reset schedule. The return air high limit, 75 F.(Adj.) minus the return air reset band, -5 F.(Adj.) is the return air temperature range, 70 F. to 75 F. This range resets the discharge air setpoint from the discharge low limit, 55 F. plus the discharge reset band, x F. The digital controller compares the actual discharge temperature, TE-2 to the calculated discharge setpoint and will modulate the heating valve, V-1, mixed air dampers, DA-1-3, and cooling valve, V-2 in sequence to maintain the setpoint.

Reset Schedule	
Return Air Temp	Discharge Setpoint
70 F. Adj	xx F. Adj
75 F. Adj	55 F. Adj

Discharge Temperature Loop

The discharge cooling deadband is added to the discharge air setpoint. This value establishes the point at which mechanical cooling begins when the controller uses proportional only control. The digital controller will continually adjust the damper and mechanical cooling command in sequence according to the controller's result of the proportional-intergal cooling loop calculation. The digital controller modulates the controlled devices until the discharge air temperature equals the calculated discharge setpoint. The digital controller will continually adjust the heating command according to the controller's result of the proportional-integral heating loop calculation. The digital controller will modulate the heating control valve, V-1 until the discharge air temperature equals the setpoint. The controller will provide an output between 0 and 100 percent as the discharge air temperature travels through the proportional bands.

The digital controller will control the mixed air dampers between minimum and 100 percent in the occupied mode and from 0 percent in the unoccupied mode.

Mixed air low limit

The mixed air low limit setpoint and the mixed air low limit proportional band will establish a back off effect to the mixed air damper output command. This happens when the mixed air temperature, TE-1 decreases into the range of the mixed air low limit plus the mixed air low limit proportional band. This back-off feature multiplies the damper command by the proportional percentage of the mixed air temperature inside the mixed air low limit proportional band. The mixed air low limit proportional band is reset inversely by 20 degrees between outdoor air temperatures of 40 and -30 degrees F.

Dry Bulb Economizer Switchover

When the outdoor air temperature is greater then the Econo Swithcover setpoint, 68 F.(Adj.) the digital controller commands the mixed air dampers to minimum position(Adj.). When the outdoor air temperature decreases below the Econo Switch Setpoint minus the Econo Switch Differential, the controller modulates the mixed air dampers to provide free cooling. When ECON is ON, free cooling is available.

Supply Static Pressure Control

The digital controller, EN-70107 will modulate the pitch of the supply fan to maintain a duct static pressure setpoint of x.x IN WG(Adj.)

Loss of Air Flow

Upon loss of air flow as determined by current sensing switches, CS-1 and CS-2 the following controlled devices will be commanded to the following states:

- Heating valve, V-1 will remain in control.
- Cooling valve, V-2 will be positioned at zero percent.
- Mixed air dampers, DA-1-3 will be positoned at zero percent.

Unoccupied Mode

The supply and return fans will remain off and the controlled devices will be commanded to the positions indicated above under 'Loss of Air Flow'.

Shutdown

Upon a command from the higher level digital controller, NC-70, the AHU digital controller will command all analog outputs to zero percent and will turn off all binary outputs.

Power Fail Restart

The power fail restart will delay the startup of the digital controller for 1 minute after a power failure for controller reset condition. This logic will hold the controller in the sutdown mode until the restart timer has expired.

Filter Alarm

Sensitive differential pressure switch, PS-2 will close and the AHU digital controller will send a mixed air filter alarm to the FMS network.

Motor Control Low Limit

Mixed air low limit temperature switch, TS-1 will stop the supply fan and the AHU digital controller will issue an alarm to the ISC network in the event that the heating discharge temperature drops below 35 F.(Adj.)

Smoke Detectors

Supply and return smoke detector, SD-1 will open a control circuit and the AHU digital contoller will issue and alarm to the FMS network in the event the device senses smoke at the location.

Space Pressure Control

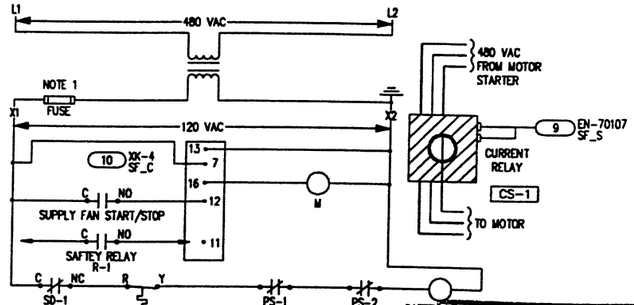
The digital controller will turn on relief fan, RF-1 if the space differential static pressure exceeds x.x IN WG for more than 1 minute and will remain on for a minimum of xx minutes or until the space static pressure drops below x.x IN WG.

FIELD MATERIAL

DEVICE TAG	QTY	CODE NUMBER	DESCRIPTION
ACC-1	1	FTG1BA-600R	REMOTE MTD PROBE
CS-1-CS-2	2	705ND	CURRENT SWITCH-VERIS
D-1-D-2	2	----	SEE DAMPER SCHEDULE
DA-1-DA-2	2	D-3153-1	DPR ACT 8-130 W/POS
PI-1-PI-8, PI-10	10	G-2018-5	AIR GAGE 1-1/2'
PS-1-PS-2	2	1900-5-MR	DUCT PRESS MONITOR-DWYER
SD-1	1	DH400ACDCI	DUCT DETECTOR, ION,
	1	RTS451	REMOTE TEST STATION DUCT
	1	ST-5	SAMPLING TUBE FOR
TE-1-TE-4	4	TE-6100-1	TEMP SENSING ELEMENT 17'
TS-1	1	A70HA-1C	TEMP CONTROL 4 WIRE, 2-C
V-2,V-1A, V-1B	3	-----	SEE VALVE SCHEDULE

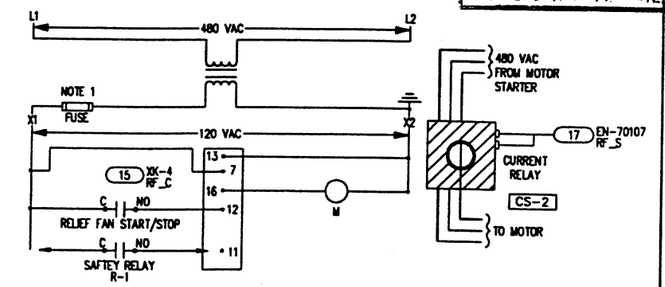
ANY MATERIAL WITH A (P) PRECEEDING THE DEVICE TAG IS CONSIDERED PROPRIETARY EQUIPMENT AND IS BEING SUPPLIED BY JOHNSON CONTROLS, INC. ALL OTHER MATERIAL IS NON-PROPRIETARY EQUIPMENT.

SUPPLY FAN



NOTES:
1. RESIZE CONTROL FUSE FOR AN ADDITIONAL 30 VA
2. USE DETAIL, A-RTD-2TWIST-L

RELIEF FAN



NOTES:
1. RESIZE CONTROL FUSE FOR AN ADDITIONAL 30 VA
2. USE DETAIL, A-RTD-2TWIST-L

DRAWING TITLE					
AHU-6 FLOW DIAGRAM AND EQUIPMENT LOCATION. Single Path, Mixed Air-VAV		2	GENERAL	10/06/94	SF
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