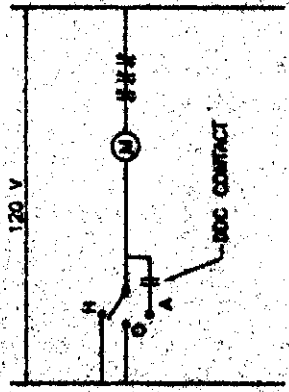
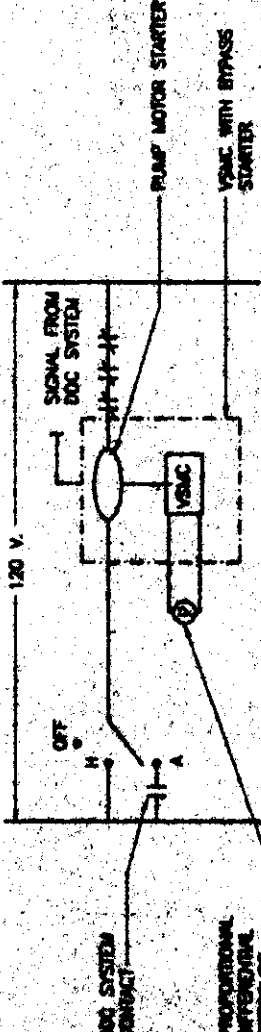


1. TYPICAL EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE

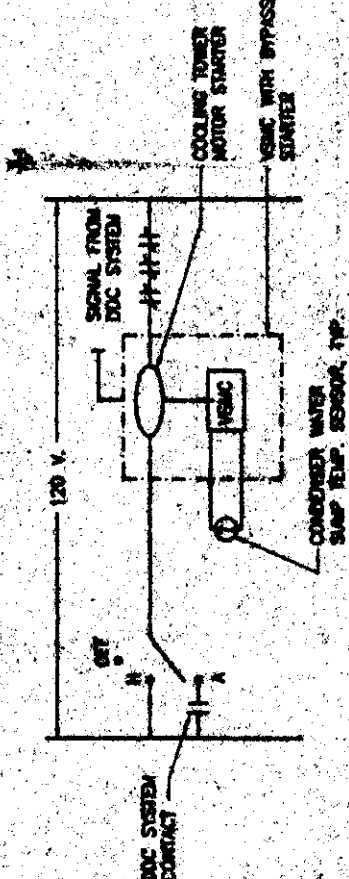
- EXHAUST FAN SEQUENCE OF OPERATION
1. THE FAN SHALL BE MANUALLY OPERATED WHEN PLACED IN THE "MANUAL" MODE.
 2. WHEN IN THE "AUTO" MODE, THE FAN SHALL OPERATE AS REQUIRED BY THE ROOM TEMPERATURE EXCEEDS 104°F. SEE DDC SYSTEM SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION.



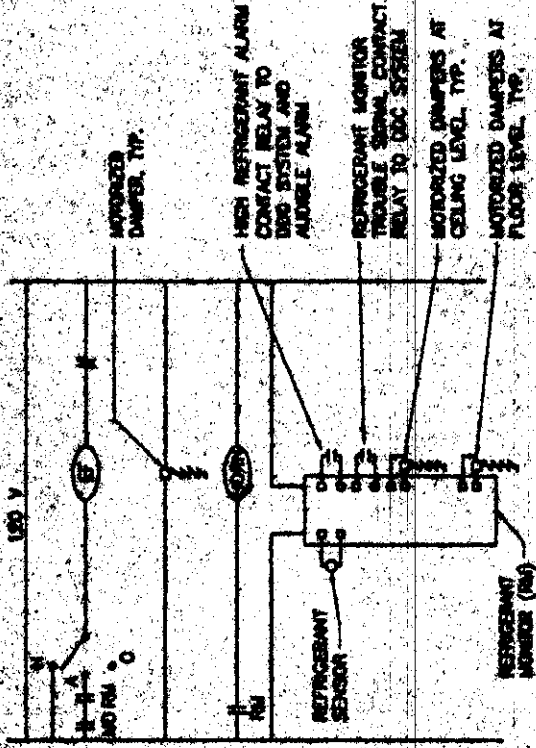
2. TYP. CONSTANT SPEED PUMP CONTROL DIAGRAM
(TYP. FOR 30-P-3, 30-P-4, 30-P-5, 30-P-6, 30-P-7, 30-P-8, 30-P-9, 30-P-10, 30-P-11, 30-P-12)



3. TYP. VARIABLE SPEED PUMP CONTROL DIAGRAM
NOT TO SCALE

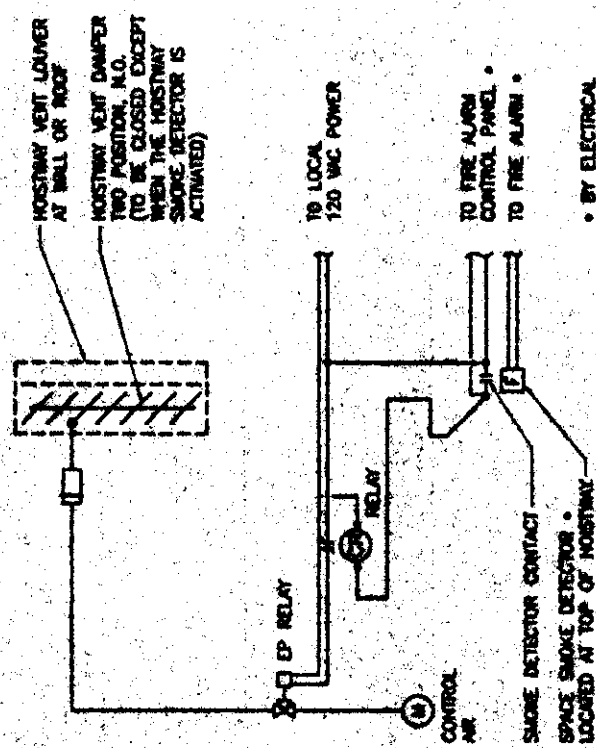


4. COOLING TOWER CONTROL DIAGRAM
NOT TO SCALE

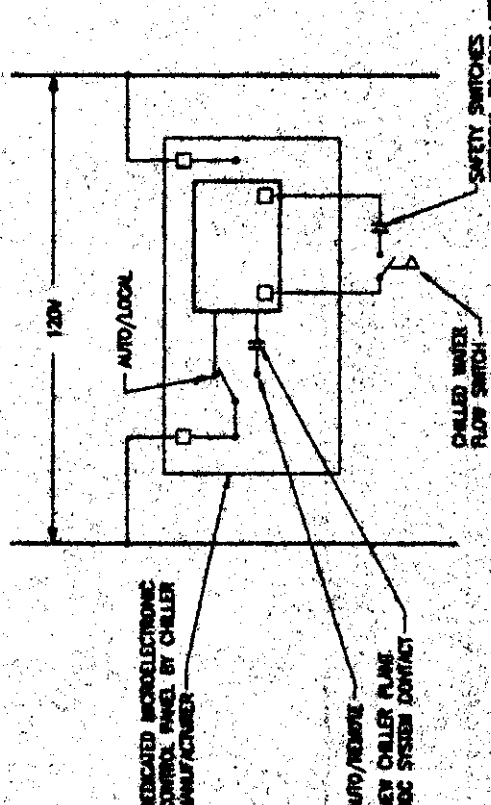


5. 30-ET-10 REFRIGERANT MONITOR CONTROL DIAGRAM
NOT TO SCALE

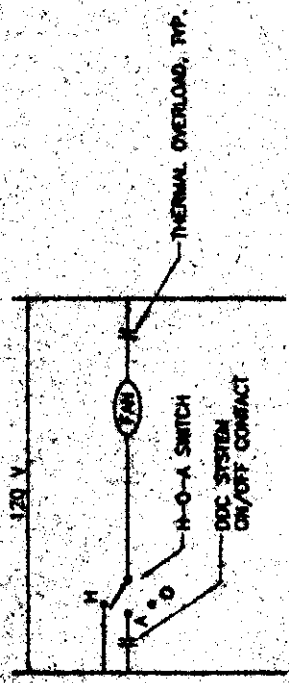
- EXHAUST FAN 30-ET-10 REFRIGERANT MONITOR SEQUENCE OF OPERATION
1. THE DDC SYSTEM SHALL OPERATE 30-ET-10 CONTINUOUSLY WHEN PLACED IN THE "AUTO" MODE.
 2. PROVIDE A REFRIGERANT MONITOR FOR R-22, R-134A OR R-123 AS APPLICABLE. PROVIDE SPARE REFRIGERANT MONITORS FOR EACH TYPE OF REFRIGERANT USED IN THIS CHILLER PLANT.
 3. THE REFRIGERANT MONITOR SHALL ADVISE IN A HIGH REFRIGERANT LEVEL IS DETECTED. THE ALARM CONDITION SHALL ALSO BE RELATED TO THE DDC SYSTEM. THE MONITOR SHALL OPERATE THE MOTORIZED DAMPERS IN THE DUCTWORK TO CLOSE THE EXHAUST REGISTERS OF CEILING LEVEL AND OPEN THE REGISTERS AT FLOOR LEVEL TO PROVIDE FLOOR LEVEL EXHAUST.
 4. THE MONITOR SHALL ALSO SEND A SIGNAL TO THE DDC SYSTEM IN THE EVENT OF A FAULT OR OTHER MONITOR MALFUNCTION CONDITION.



7. HOSTWAY VENT DAMPER (HVD) CONTROLS
NOT TO SCALE

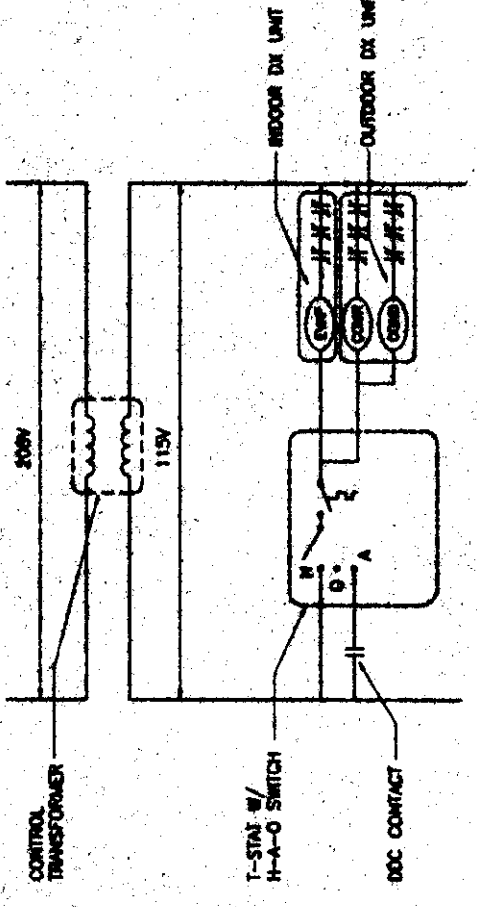


10. TYPICAL NEW CHILLER CONTROL DIAGRAM
NOT TO SCALE



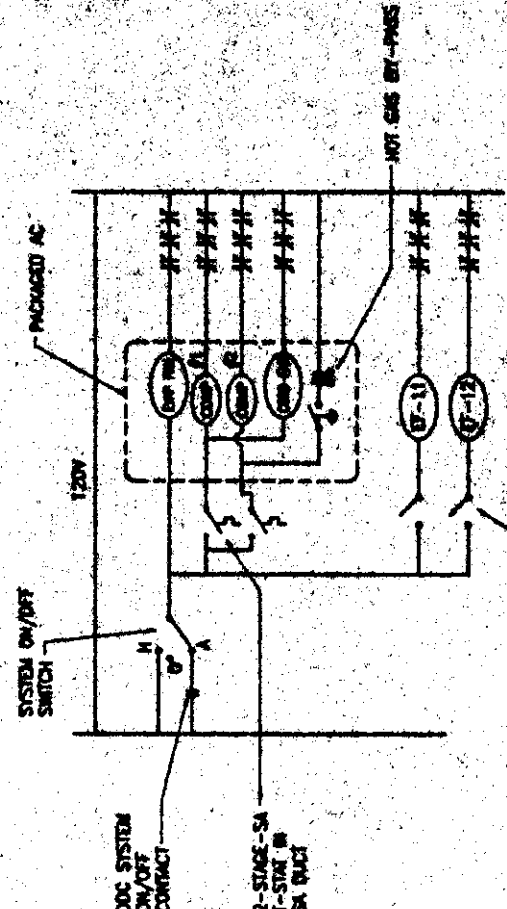
3. TYPICAL EXHAUST FAN / SUPPLY FAN CONTROL DIAGRAM
NOT TO SCALE

- EXHAUST FAN SEQUENCE OF OPERATION
1. THE FAN SHALL BE MANUALLY OPERATED WHEN PLACED IN THE "MANUAL" MODE.
 2. WHEN IN THE "AUTO" MODE, THE FAN SHALL OPERATE AS SCHEDULED FROM THE DDC SYSTEM.
 3. SEE DDC SEQUENCE OF OPERATIONS FOR ADDITIONAL INFORMATION.



8. 30-DX-12.3 AND 4 TYPICAL CONTROL DIAGRAM
NOT TO SCALE

- A/C SEQUENCE OF OPERATION
1. 30-DX-12.3 SHALL OPERATE WHENVER 30-MU-1 IS TURNED OFF.
 2. WHILE OPERATIONAL, UPON A CALL FOR COOLING FROM THE THERMOSTAT, THE COMPRESSOR AND CONDENSER FANS SHALL BE ENERGIZED, AND THE EVAPORATOR FAN SHALL OPERATE (THE UNITS PROVIDE SENSIBLE COOLING ONLY AND DO NOT PROVIDE OUTSIDE AIR VENTILATION WHILE OPERATING.)



11. 30-AC-1 CONTROL DIAGRAM
NOT TO SCALE

- SEQUENCE OF OPERATION
- 30-AC-1 SHALL BE CONTROLLED TO OPERATE AS FOLLOWS
1. 30-AC-1 SHALL OPERATE IN THE "H-O-A" MODE. IN THE "H-O-A" MODE, THE DDC SYSTEM SHALL OPERATE THE FAN AND THE COMPRESSOR TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55°F. THE DDC SYSTEM SHALL BE REQUIRED TO ALLOW THE FAN TO PROVIDE SENSIBLE COOLING ONLY AND NOT TO PROVIDE OUTSIDE AIR VENTILATION WHILE OPERATING.
 2. THE DDC SYSTEM SHALL OPERATE THE FAN AND THE COMPRESSOR TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55°F.
 3. THE DDC SYSTEM SHALL OPERATE THE FAN AND THE COMPRESSOR TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55°F.
 4. THE DDC SYSTEM SHALL OPERATE THE FAN AND THE COMPRESSOR TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55°F.
 5. THE DDC SYSTEM SHALL OPERATE THE FAN AND THE COMPRESSOR TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55°F.

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CONTROL AND REFRIGERANT CHILLER
AND SEQUENCE OF OPERATION

30-AC-1
1806