

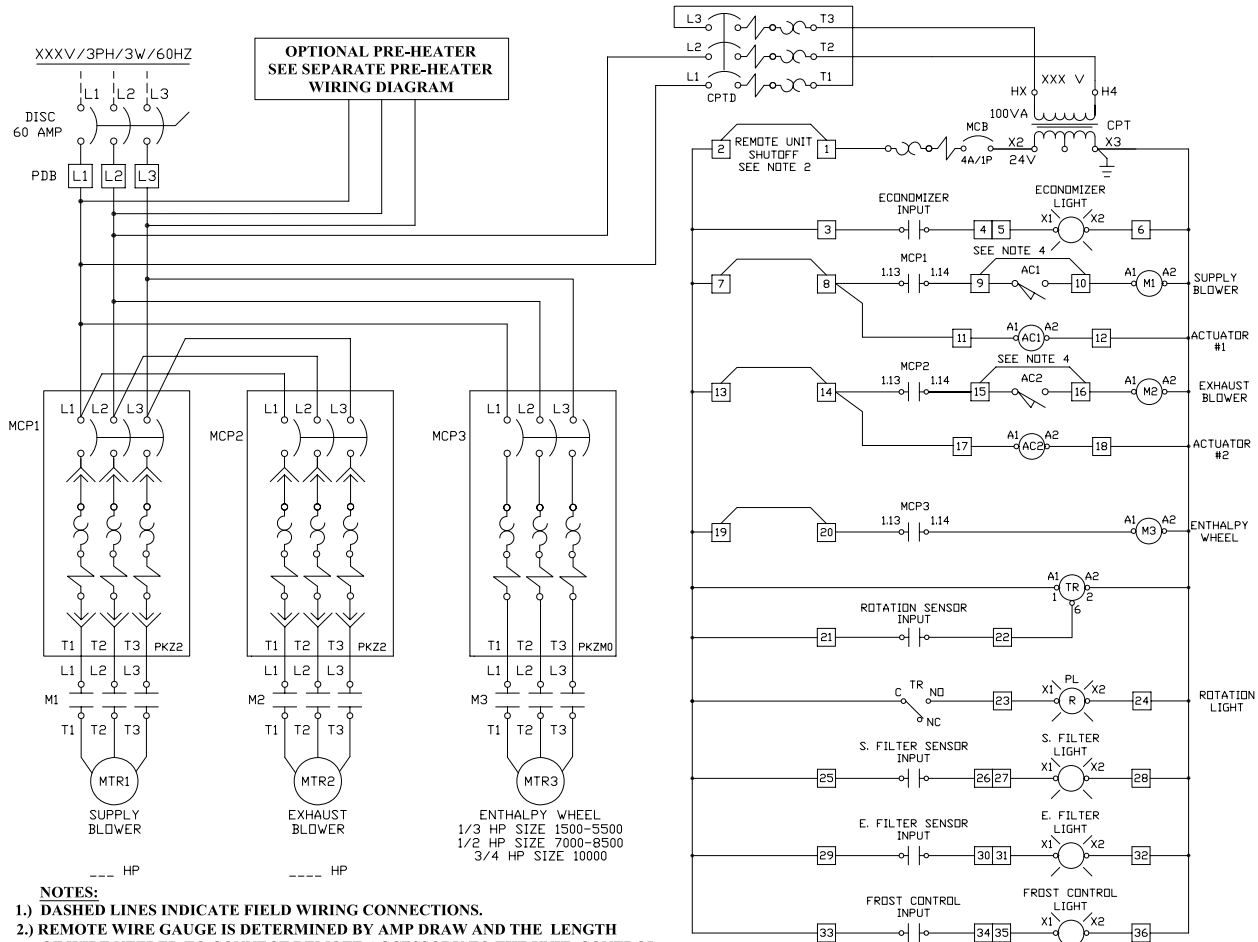


## INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

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- NOTES:**
- 1.) DASHED LINES INDICATE FIELD WIRING CONNECTIONS.
  - 2.) REMOTE WIRE GAUGE IS DETERMINED BY AMP DRAW AND THE LENGTH OF WIRE NEEDED TO CONNECT REMOTE ACCESSORY TO THE UNIT CONTROL PANEL. REFER TO N.E.C. AND LOCAL CODE REQUIREMENTS TO DETERMINE TYPE OF WIRE AND WIRE GAUGE.
  - 3.) MAIN DISCONNECT TO BE PROVIDED BY INSTALLER, MUST BE UL LISTED CIRCUIT BREAKER OR FUSIBLE DISCONNECT SWITCH.
  - 4.) OVERCURRENT PROTECTION MUST BE PROVIDED IN ACCORDANCE WITH N.E.C. ARTICLE 430-53(C)
  - 5.) THE WORKSPACE FOR ELECTRICAL EQUIPMENT MUST BE IN ACCORDANCE WITH N.E.C. ARTICLE 110-26.

- 6.) REMOVE JUMPER BETWEEN TERMINALS 1 & 2 IF REMOTE START IS REQUIRED
- 7.) ALL OF THE 36 CONTROL TERMINALS SHOWN ARE PROVIDED IN THE PANEL EVEN WHEN THE OPTIONAL CONTROLS WERE NOT PROVIDED. THE TERMINALS ARE PRESENT TO ALLOW FOR UNIT CONTROL UPGRADES. IF THERE ARE NO WIRES GOING TO THESE CONTROL TERMINALS, THEN THE NOTED OPTION WASN'T PROVIDED.
- 8.) 100 VA (4.17A @ 24 VOLT) N.E.C. CLASS 1 CIRCUIT

CONTROL TERMINALS (SEE NOTE 7)	
1	REMOTE UNIT SHUTOFF (SEE NOTE 6)
2	ECONOMIZER INPUT (BY COOK)
3	ECONOMIZER LIGHT (OPTIONAL)
4	REMOTE START MOTOR (1)
5	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)
6	REMOTE START MOTOR (2)
7	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	REMOTE START MOTOR (3) FOR ECONOMIZER
20	ROTATION SENSOR INPUT (BY COOK)
21	ROTATION LIGHT (OPTIONAL)
22	SUPPLY FILTER SENSOR INPUT (BY COOK)
23	SUPPLY FILTER LIGHT (OPTIONAL)
24	EXHAUST FILTER SENSOR INPUT (BY COOK)
25	EXHAUST FILTER LIGHT (OPTIONAL)
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	

LEGEND			
ABBREVIATION	DESCRIPTION	MTR1	SUPPLY BLOWER MOTOR
MCP1	STARTER, COMB. SELF PROTECTED (SUPPLY BLOWER MOTOR)	MTR2	EXHAUST BLOWER MOTOR
MCP2	STARTER, COMB. SELF PROTECTED (EXHAUST BLOWER MOTOR)	MTR3	WHEEL DRIVE MOTOR
MCP3	STARTER, COMB. SELF PROTECTED (WHEEL DRIVE MOTOR)	MCB	SUPPLEMENTARY PROTECTION CONTROL TRANSFORMER SECONDARY
M1	SUPPLY BLOWER MOTOR CONTACTOR	CPT	CONTROL TRANSFORMER (SEE NOTE 8)
M2	EXHAUST BLOWER MOTOR CONTACTOR	CPTD	CIRCUIT PROTECTOR CONTROL TRANSFORMER PRIMARY
M3	WHEEL DRIVE MOTOR CONTACTOR	AC1	SUPPLY DAMPER ACTUATOR (OPT.)
		AC2	EXHAUST DAMPER ACTUATOR (OPT.)

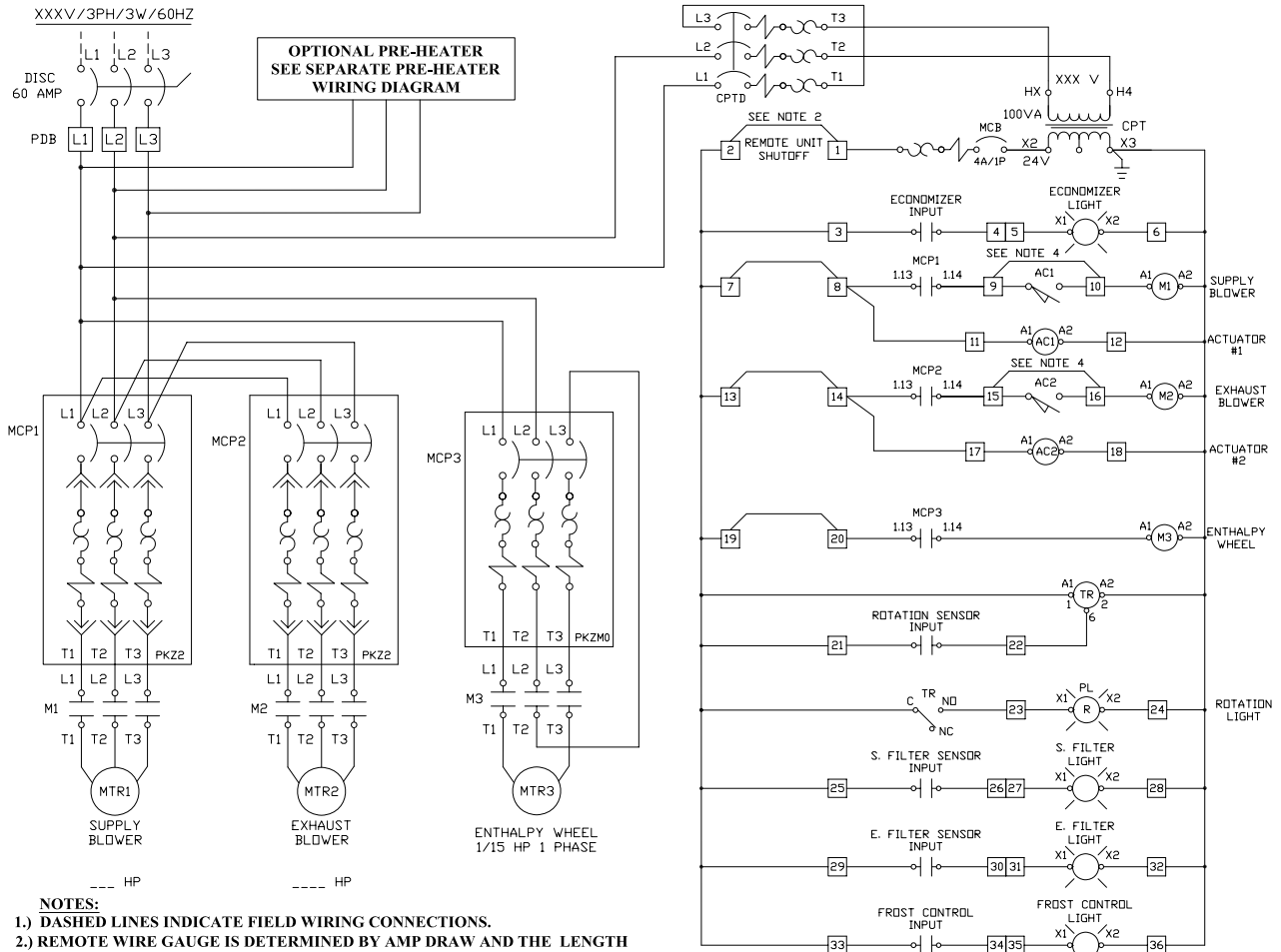


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- 8.) 100 VA (4.17A @ 24 VOLT) N.E.C. CLASS 1 CIRCUIT

**CONTROL TERMINALS (SEE NOTE 7)**

1	REMOTE UNIT SHUTOFF (SEE NOTE 6)	19	REMOTE START MOTOR (3) FOR ECONDMIZER
2	ECONDMIZER INPUT (BY COOK)	20	ROTATION SENSOR INPUT (BY COOK)
3	ECONDMIZER LIGHT (OPTIONAL)	21	ROTATION LIGHT (OPTIONAL)
4	REMOTE START MOTOR (1)	22	SUPPLY FILTER SENSOR INPUT (BY COOK)
5	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)	23	SUPPLY FILTER LIGHT (OPTIONAL)
6	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	24	EXHAUST FILTER SENSOR INPUT (BY COOK)
7		25	EXHAUST FILTER LIGHT (OPTIONAL)
8		26	FRDST CONTROL INPUT (BY COOK)
9		27	FRDST CONTROL LIGHT (OPTIONAL)
10		28	
11		29	
12		30	
13		31	
14		32	
15		33	
16		34	
17		35	
18		36	

**LEGEND**

ABBREV. SYMBOL	DESCRIPTION	MTR1	SUPPLY BLOWER MOTOR
MCP1	STARTER, COMB. SELF PROTECTED (SUPPLY BLOWER MOTOR)	MTR2	EXHAUST BLOWER MOTOR
MCP2	STARTER, COMB. SELF PROTECTED (EXHAUST BLOWER MOTOR)	MTR3	WHEEL DRIVE MOTOR
MCP3	STARTER, COMB. SELF PROTECTED (WHEEL DRIVE MOTOR)	MCB	SUPPLEMENTARY PROTECTION CONTROL TRANSFORMER SECONDARY
M1	SUPPLY BLOWER MOTOR CONTACTOR	CPT	CONTROL TRANSFORMER (SEE NOTE 8)
M2	EXHAUST BLOWER MOTOR CONTACTOR	CPTD	CIRCUIT PROTECTOR CONTROL TRANSFORMER PRIMARY
M3	WHEEL DRIVE MOTOR CONTACTOR	AC1	SUPPLY DAMPER ACTUATOR (OPT.)
		AC2	EXHAUST DAMPER ACTUATOR (OPT.)

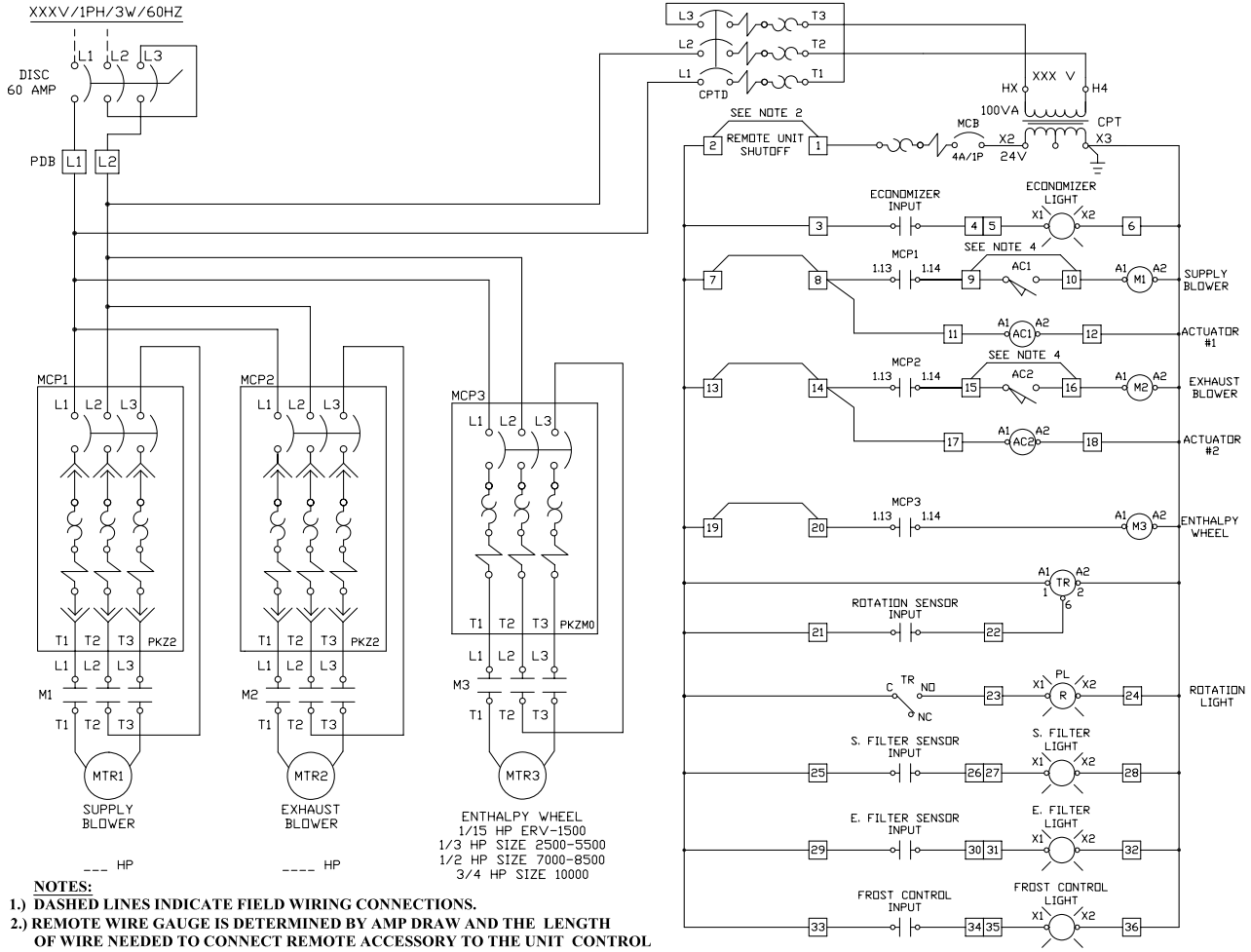


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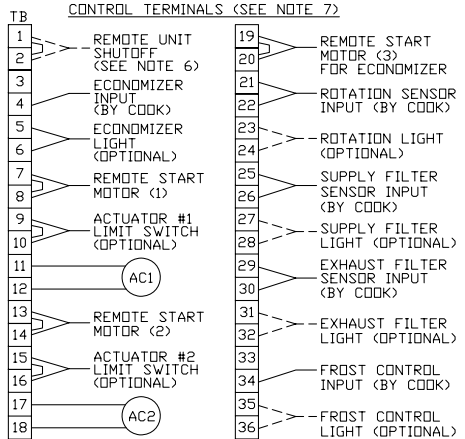
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- 8.) 100 VA (4.17A @ 24 VOLT) N.E.C. CLASS 1 CIRCUIT



LEGEND			
ABBREV SYMBL	DESCRIPTION	MTR1	SUPPLY BLOWER MOTOR
MCP1	STARTER, COMB. SELF PROTECTED (SUPPLY BLOWER MOTOR)	MTR1	SUPPLY BLOWER MOTOR
MCP2	STARTER, COMB. SELF PROTECTED (EXHAUST BLOWER MOTOR)	MTR2	EXHAUST BLOWER MOTOR
MCP3	STARTER, COMB. SELF PROTECTED (WHEEL DRIVE MOTOR)	MTR3	WHEEL DRIVE MOTOR
MCP	SUPPLEMENTARY CONTROL TRANSFORMER SECONDARY	MCB	SUPPLEMENTARY CONTROL TRANSFORMER SECONDARY
CPT	CONTROL TRANSFORMER (SEE NOTE 8)	CPT	CONTROL TRANSFORMER (SEE NOTE 8)
M1	SUPPLY BLOWER MOTOR CONTACTOR	CPTD	CIRCUIT PROTECTOR CONTROL TRANSFORMER PRIMARY
M2	EXHAUST BLOWER MOTOR CONTACTOR	AC1	SUPPLY DAMPER ACTUATOR (CPT.)
M3	WHEEL DRIVE MOTOR CONTACTOR	AC2	EXHAUST DAMPER ACTUATOR (CPT.)



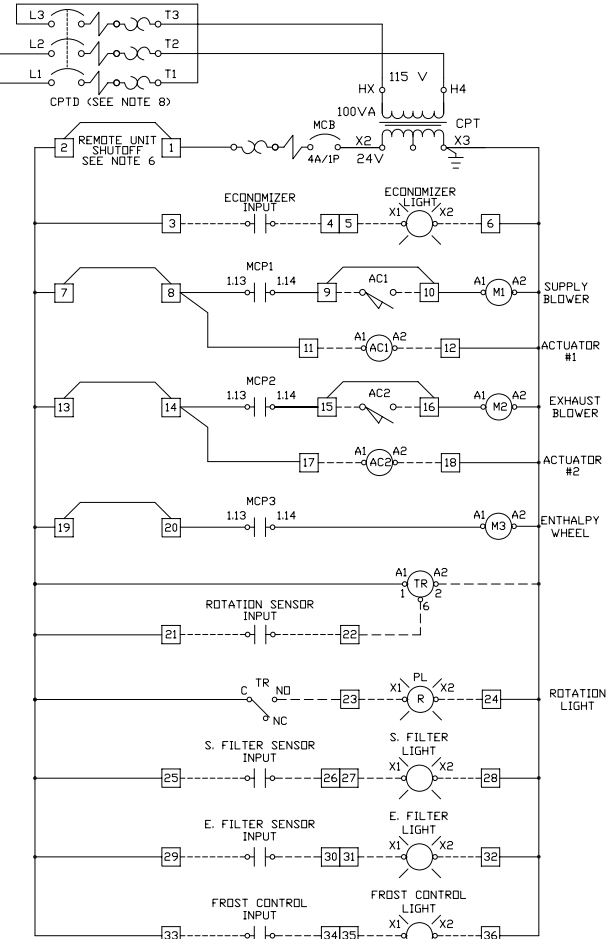
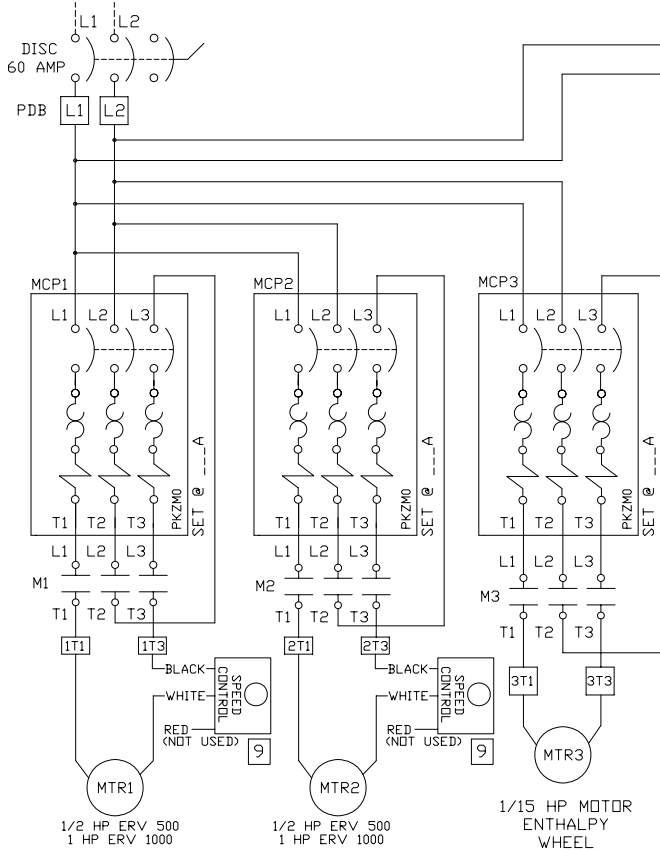
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115V/1PH/2W/60HZ



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- 8.) 100 VA (4.17A @ 24 VOLT) N.E.C. CLASS 1 CIRCUIT
- 9.) FSC'S ARE INSTALLED BY CUTTING BOTH WIRES TO EACH BLOWER MOTOR AND WIRING THE FSC'S INLINE. USE HEAVIER GAUGE WIRE FOR LONG RUNS.

### POWER TERMINALS

TB2
1T1
1T3
2T1
2T3
3T1
3T3

### CONTROL TERMINALS (SEE NOTE 7)

1	REMOTE UNIT SHUTOFF (SEE NOTE 6)	19	REMOTE START MOTOR (3) FOR ECONOMIZER
2	ECONOMIZER INPUT (BY COOK)	20	ROTATION SENSOR INPUT (BY COOK)
3	ECONOMIZER LIGHT (OPTIONAL)	21	ROTATION LIGHT (OPTIONAL)
4	REMOTE START MOTOR (1)	22	SUPPLY FILTER SENSOR INPUT (BY COOK)
5	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)	23	SUPPLY FILTER LIGHT (OPTIONAL)
6	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)	24	EXHAUST FILTER SENSOR INPUT (BY COOK)
7	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	25	EXHAUST FILTER LIGHT (OPTIONAL)
8	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	26	FROST CONTROL INPUT (BY COOK)
9	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	27	FROST CONTROL LIGHT (OPTIONAL)
10	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	28	
11	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	29	
12	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	30	
13	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	31	
14	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	32	
15	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	33	
16	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	34	
17	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	35	
18	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)	36	

LEGEND			
ABBREVIATION SYMBOL	DESCRIPTION	MTR1	SUPPLY BLOWER MOTOR
MCP1	STARTER, COMB. SELF PROTECTED (SUPPLY BLOWER MOTOR)	MTR2	EXHAUST BLOWER MOTOR
MCP2	STARTER, COMB. SELF PROTECTED (EXHAUST BLOWER MOTOR)	MTR3	WHEEL DRIVE MOTOR
MCP3	STARTER, COMB. SELF PROTECTED (WHEEL DRIVE MOTOR)	MCB	SUPPLEMENTARY PROTECTION CONTROL TRANSFORMER SECONDARY
M1	SUPPLY BLOWER MOTOR CONTACTOR	CPT	CONTROL TRANSFORMER (SEE NOTE 8)
M2	EXHAUST BLOWER MOTOR CONTACTOR	CPTD	CIRCUIT PROTECTOR CONTROL TRANSFORMER PRIMARY
M3	WHEEL DRIVE MOTOR CONTACTOR	AC1	SUPPLY DAMPER ACTUATOR (OPT.)
		AC2	EXHAUST DAMPER ACTUATOR (OPT.)

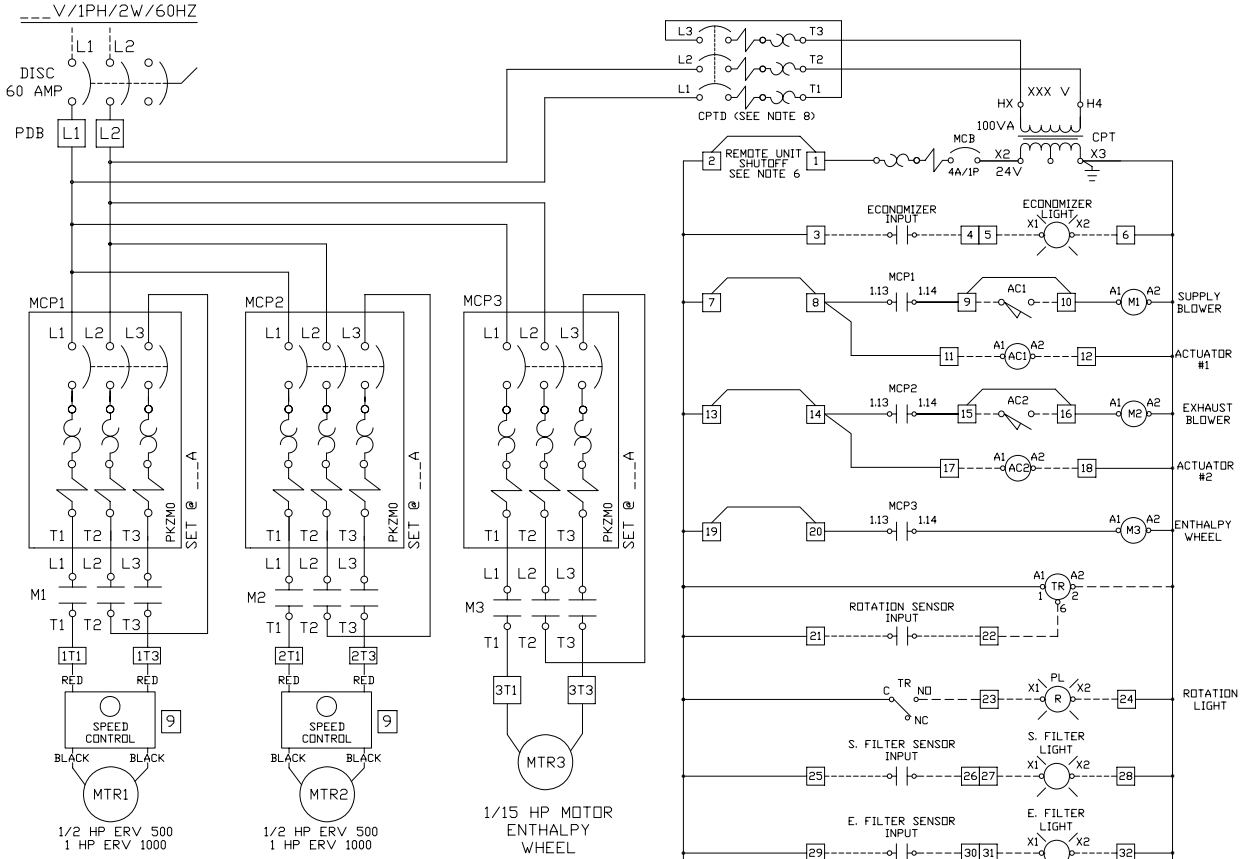


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### POWER TERMINALS

TB2
1T1
1T3
2T1
2T3
3T1
3T3

### CONTROL TERMINALS (SEE NOTE 7)

TB	DESCRIPTION
1	REMOTE UNIT SHUTOFF (SEE NOTE 6)
2	REMOTE START MOTOR (3) FOR ECONOMIZER
3	ROTATION SENSOR INPUT (BY COOK)
4	ROTATION SENSOR INPUT (BY COOK)
5	ECONOMIZER LIGHT (OPTIONAL)
6	ECONOMIZER LIGHT (OPTIONAL)
7	REMOTE START MOTOR (1)
8	REMOTE START MOTOR (2)
9	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)
10	ACTUATOR #1 LIMIT SWITCH (OPTIONAL)
11	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
12	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
13	REMOTE START MOTOR (3)
14	REMOTE START MOTOR (3)
15	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
16	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
17	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
18	ACTUATOR #2 LIMIT SWITCH (OPTIONAL)
19	REMOTE START MOTOR (3) FOR ECONOMIZER
20	REMOTE START MOTOR (3) FOR ECONOMIZER
21	ROTATION SENSOR INPUT (BY COOK)
22	ROTATION SENSOR INPUT (BY COOK)
23	ROTATION LIGHT (OPTIONAL)
24	ROTATION LIGHT (OPTIONAL)
25	SUPPLY FILTER SENSOR INPUT (BY COOK)
26	SUPPLY FILTER SENSOR INPUT (BY COOK)
27	SUPPLY FILTER LIGHT (OPTIONAL)
28	SUPPLY FILTER LIGHT (OPTIONAL)
29	EXHAUST FILTER SENSOR INPUT (BY COOK)
30	EXHAUST FILTER SENSOR INPUT (BY COOK)
31	EXHAUST FILTER LIGHT (OPTIONAL)
32	EXHAUST FILTER LIGHT (OPTIONAL)
33	FRDST CONTROL INPUT (BY COOK)
34	FRDST CONTROL INPUT (BY COOK)
35	FRDST CONTROL LIGHT (OPTIONAL)
36	FRDST CONTROL LIGHT (OPTIONAL)

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LEGEND		
ABBREV SYMBOL	DESCRIPTION	MOTOR
MCP1	STARTER, COMB. SELF PROTECTED (SUPPLY BLOWER MOTOR)	MTR1 SUPPLY BLOWER MOTOR
MCP2	STARTER, COMB. SELF PROTECTED (EXHAUST BLOWER MOTOR)	MTR2 EXHAUST BLOWER MOTOR
MCP3	STARTER, COMB. SELF PROTECTED (WHEEL DRIVE MOTOR)	MTR3 WHEEL DRIVE MOTOR
M1	SUPPLY BLOWER MOTOR CONTACTOR	
M2	EXHAUST BLOWER MOTOR CONTACTOR	
M3	WHEEL DRIVE MOTOR CONTACTOR	
MCB	SUPPLEMENTARY PROTECTION CONTROL TRANSFORMER SECONDARY	
CPT	CONTROL TRANSFORMER (SEE NOTE 8)	
CPTD	CIRCUIT PROTECTOR CONTROL TRANSFORMER PRIMARY	
AC1	SUPPLY DAMPER ACTUATOR (OPT.)	
AC2	EXHAUST DAMPER ACTUATOR (OPT.)	

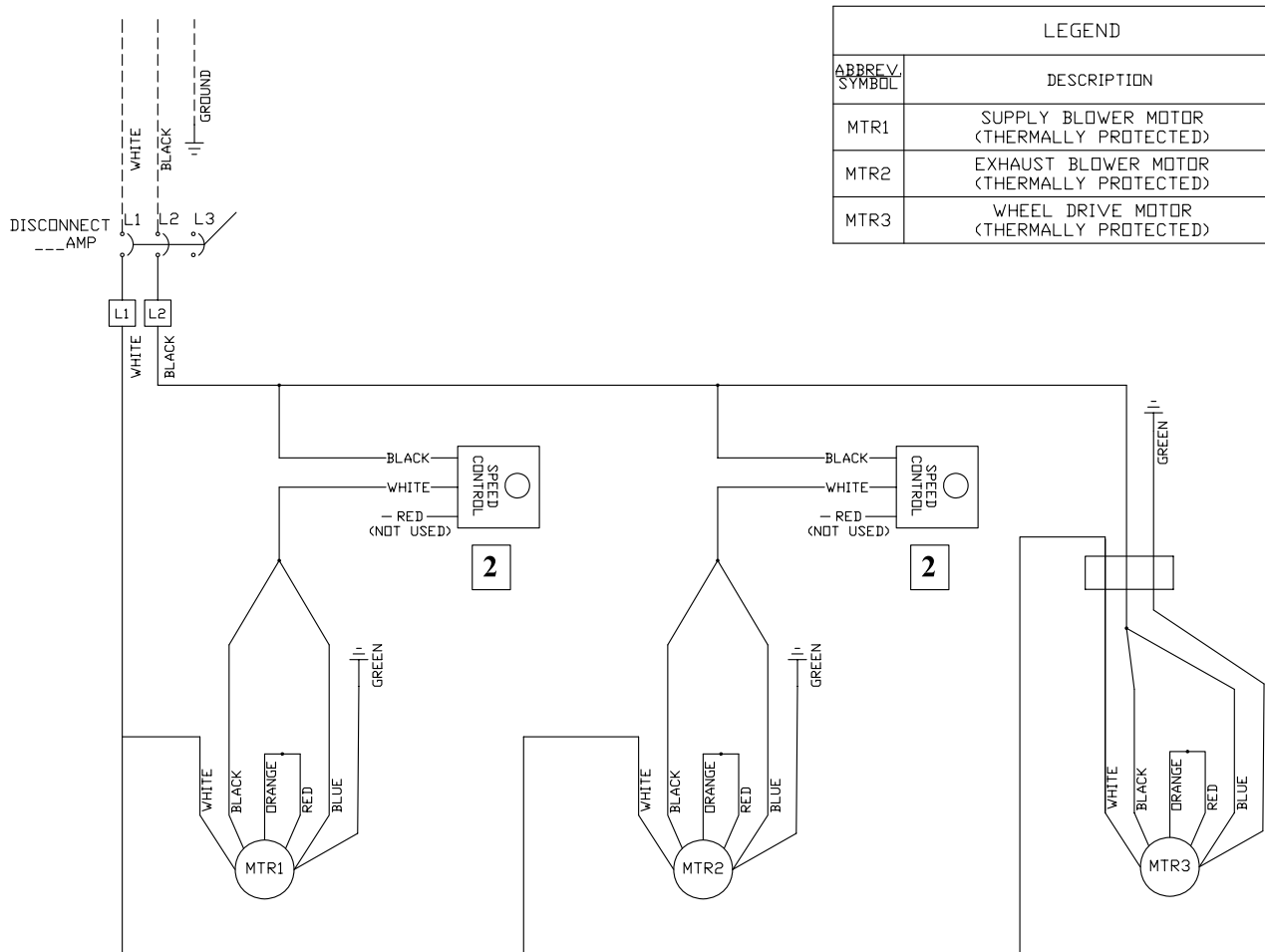


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**2. WIRING DIAGRAM SHOWS PREWIRED FSC'S. IF UNIT WAS NOT ORDERED WITH PREWIRED FSC'S THEN THE FSC'S ARE INSTALLED BY CUTTING THE BLACK WIRES THAT RUN TO EACH BLOWER MOTOR AND WIRING THE FSC'S IN-LINE. FOR LONG RUNS OF WIRE, USE A HEAVIER GAUGE WIRE.**



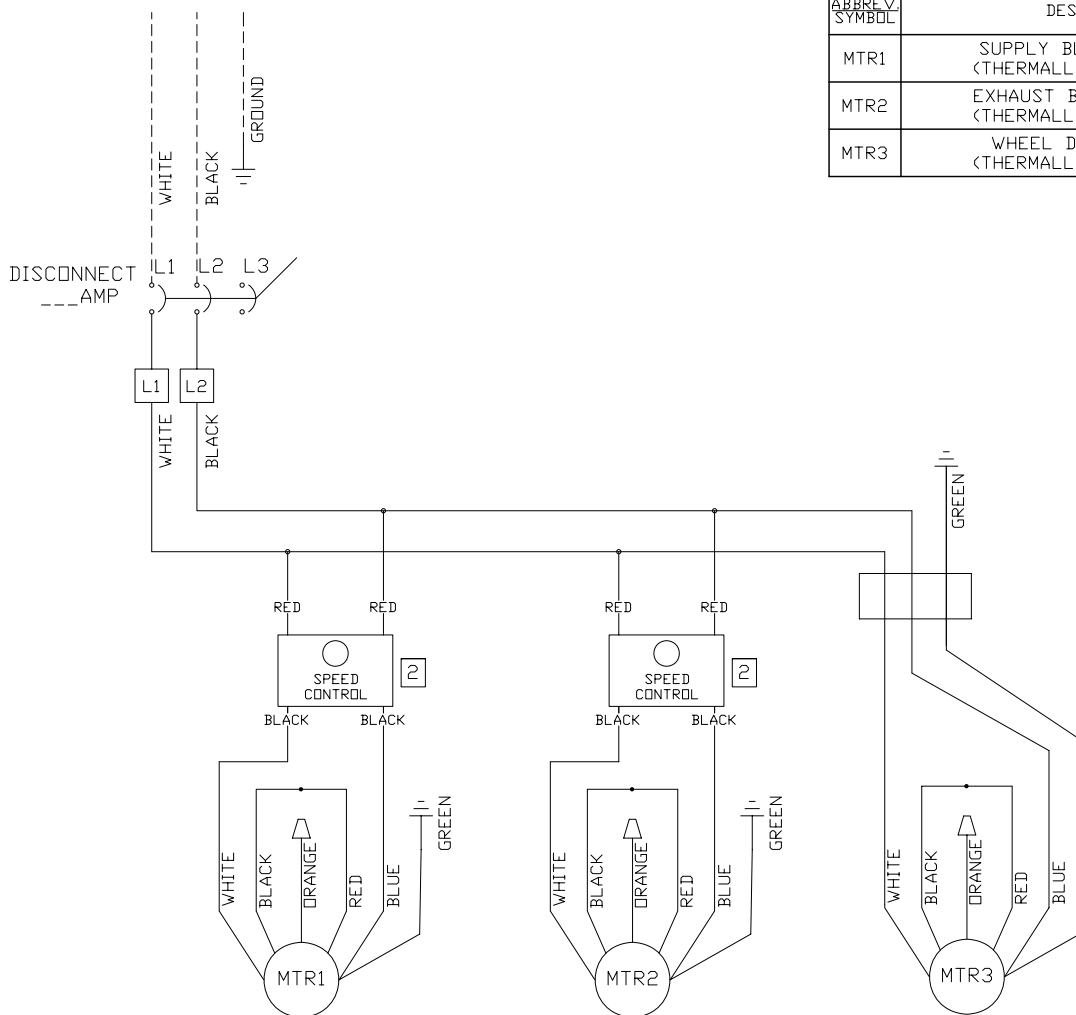
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LEGEND	
ABBREVIATION SYMBOL	DESCRIPTION
MTR1	SUPPLY BLOWER MOTOR (THERMALLY PROTECTED)
MTR2	EXHAUST BLOWER MOTOR (THERMALLY PROTECTED)
MTR3	WHEEL DRIVE MOTOR (THERMALLY PROTECTED)



- NOTE: 1. DASHED LINES INDICATE FIELD WIRING CONNECTIONS**  
**2. WIRING DIAGRAM SHOWS PREWIRED FSC'S. IF UNIT WAS NOT ORDERED PREWIRED THEN FSC'S ARE INSTALLED BY CUTTING BOTH OF THE WIRES TO EACH BLOWER MOTOR AND WIRING THE FSC'S IN-LINE. FOR LONG RUNS OF WIRE, USE A HEAVIER GAUGE WIRE.**

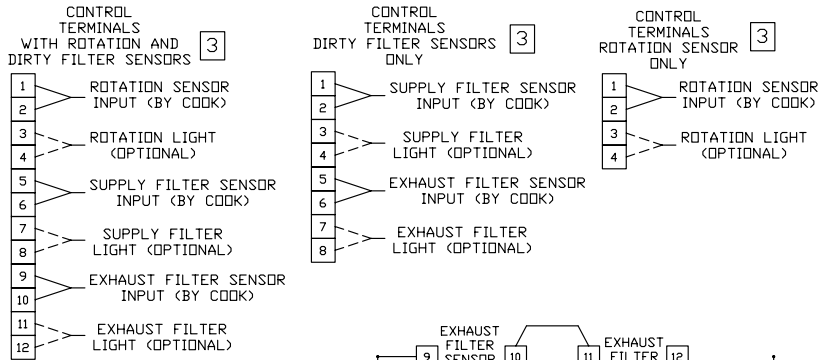


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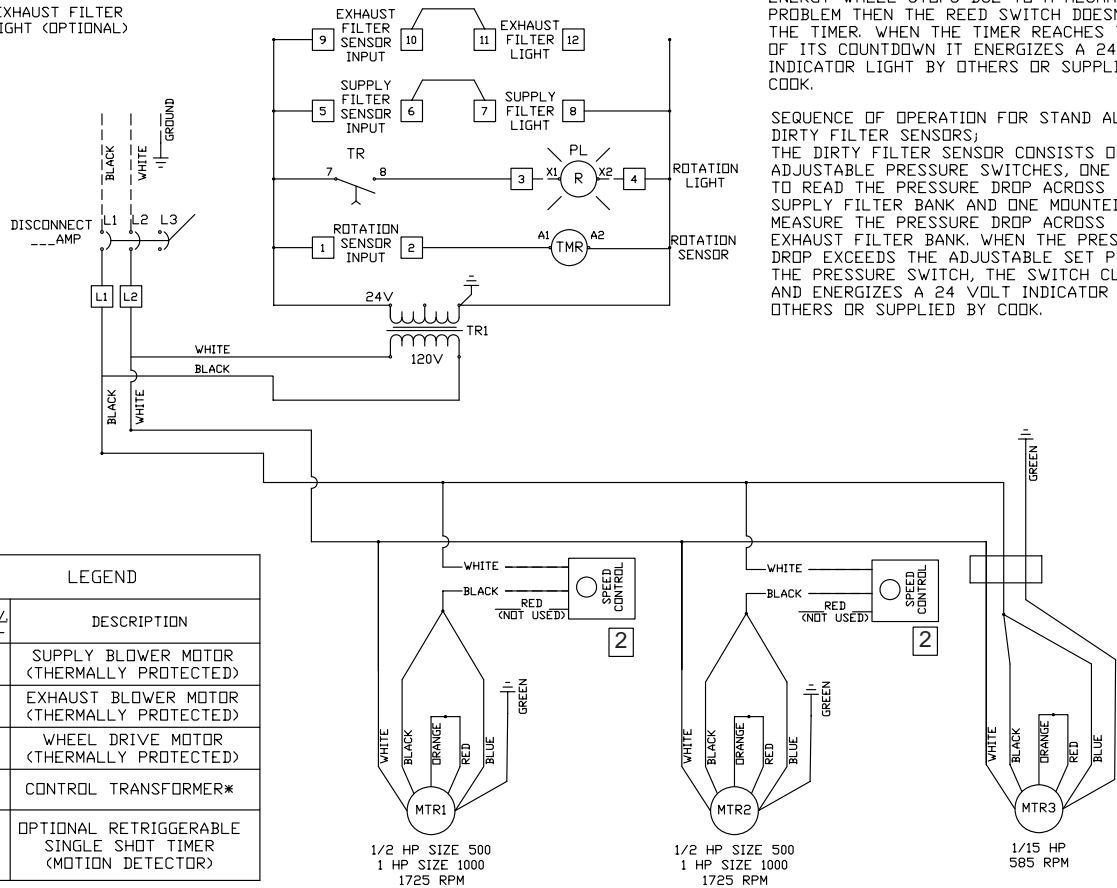
Loren Cook catalog, ERV, provides additional information describing the equipment, fan performance, available accessories, and specification data. For additional safety information, refer to AMCA Publication 410-96, Safety Practices for Users and Installers of Industrial and Commercial Fans.

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CENSOR CONSISTS OF A MAGNET ATTACHED TO THE ENERGY WHEEL, A MAGNETIC REED SWITCH THAT MOUNTS TO THE OUTSIDE PERIMETER OF THE ENERGY WHEEL CASSETTE, AND A TIMER THAT MOUNTS IN THE UNIT ELECTRICAL COMPARTMENT. WHEN THE MAGNET MOUNTED ON THE ENERGY WHEEL PASSES BY THE REED SWITCH IT MOMENTARILY CLOSSES THE CONTACTS ON THE REED SWITCH. WHEN THE CONTACTS CLOSE ON THE REED SWITCH THE TIMERS' ADJUSTABLE COUNTDOWN IS RESET AND THE TIMER COUNTDOWN BEGINS AGAIN. IF THE ENERGY WHEEL STOPS DUE TO A MECHANICAL PROBLEM THEN THE REED SWITCH DOESN'T RESET THE TIMER. WHEN THE TIMER REACHES THE END OF ITS COUNTDOWN IT ENERGIZES A 24 VOLT INDICATOR LIGHT BY OTHERS OR SUPPLIED BY COOK.

SEQUENCE OF OPERATION FOR STAND ALONE DIRTY FILTER SENSORS;  
THE DIRTY FILTER SENSOR CONSISTS OF TWO ADJUSTABLE PRESSURE SWITCHES, ONE MOUNTED TO READ THE PRESSURE DROP ACROSS THE SUPPLY FILTER BANK AND ONE MOUNTED TO MEASURE THE PRESSURE DROP ACROSS THE EXHAUST FILTER BANK. WHEN THE PRESSURE DROP EXCEEDS THE ADJUSTABLE SET POINT ON THE PRESSURE SWITCH, THE SWITCH CLOSSES AND ENERGIZES A 24 VOLT INDICATOR LIGHT BY OTHERS OR SUPPLIED BY COOK.



LEGEND	
ABBREV. SYMBOL	DESCRIPTION
MTR1	SUPPLY BLOWER MOTOR (THERMALLY PROTECTED)
MTR2	EXHAUST BLOWER MOTOR (THERMALLY PROTECTED)
MTR3	WHEEL DRIVE MOTOR (THERMALLY PROTECTED)
TR1	CONTROL TRANSFORMER*
TMR	OPTIONAL RETRIGGERABLE SINGLE SHOT TIMER (MOTION DETECTOR)

- NOTE: 1. DASHED LINES INDICATE FIELD WIRING CONNECTIONS**
- 2. WIRING DIAGRAM SHOWS PREWIRED FSC'S. IF UNIT WAS NOT ORDERED PREWIRED THEN FSC'S ARE INSTALLED BY CUTTING THE BLACK WIRE TO EACH BLOWER MOTOR AND WIRING THE FSC'S IN-LINE. FOR LONG RUNS OF WIRE, USE A HEAVIER GAUGE WIRE.**
- 3. LOW VOLTAGE WIRING DIAGRAM SHOWS BOTH THE ROTATION AND DIRTY FILTER SENSOR OPTIONS. IF BOTH OPTIONS WERE NOT PROVIDED, REFERENCE THE CONTROL TERMINALS FOR JUST THE ROTATION SENSOR OR JUST THE FILTER SENSOR AND DISREGARD WHAT WAS NOT PROVIDED ON THE LOW VOLTAGE WIRING DIAGRAM.**

AND A TIMER THAT MOUNTS IN THE UNIT ELECTRICAL COMPARTMENT. WHEN THE MAGNET MOUNTED ON THE ENERGY WHEEL PASSES BY THE REED SWITCH IT MOMENTARILY CLOSES THE CONTACTS ON THE REED SWITCH. WHEN THE CONTACTS CLOSE ON THE REED SWITCH THE TIMERS ADJUSTABLE COUNTDOWN IS RESET AND THE TIMER COUNTDOWN BEGINS AGAIN. IF THE ENERGY WHEEL STOPS DUE TO A MECHANICAL PROBLEM THEN THE REED SWITCH DOESN'T RESET THE TIMER. WHEN THE TIMER REACHES THE END OF ITS COUNTDOWN IT ENERGIZES A 24 VOLT INDICATOR LIGHT BY OTHERS OR SUPPLIED BY COOK.

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