



**MODELS**  
**MU32A, MU36A, MU36B, MU38A,**  
**MU42A, MU42B, MU48, MU60**

**PACKAGED AIR CONDITIONER**

**INSTALLATION INSTRUCTIONS**

**FOR RESIDENTIAL COMMERCIAL,  
OR MOBILE HOME  
HEATING / COOLING APPLICATIONS**

**BARD MANUFACTURING CO. • BRYAN, OHIO 43506**

*Dependable quality home equipment ... since 1914*

#### UNPACKING THE SELF-CONTAINED UNIT

It is recommended that the unit be unpacked at the installation site to minimize damage due to handling.

1. Cut and remove the metal band from around unit.
2. Remove the carton from the unit.
3. The installation manual is contained in an envelope shipped with the unit. Make sure that it does not get lost.
4. Carefully block up the unit and remove the shipping skid.
5. CAUTION - Do not tip the unit on its side. Oil may enter the compressor cylinders and cause starting or operating trouble. If unit has set on its side, restore to upright position and do not run for several hours. Also run intermittently for a few seconds. Do this three or four times with three minutes in between. Observe abnormal compressor noise.

#### INSTALLING THE SUPPLY AND RETURN FITTINGS ON THE SELF-CONTAINED UNIT

The Supply and Return Fittings are to be fastened with sheet metal screws on three sides. Seal with duct tape on all four sides.

#### LOCATING AND INSTALLING THE RETURN-AIR ASSEMBLY - MOBILE HOME APPLICATION

To avoid complications, locate and install the return-air assembly first. The return-air box with grille and filter can be located anywhere in the floor of the mobile home. Keep in mind that the closer to the cooling unit the better because less duct will be needed. Always use at least one 7' length of duct, however, a good spot is under the television set in a corner or under a table or davenport if a minimum two inch clearance is available. If desired, the return opening can be located inside a closet with louvered doors. The return-air grille can be placed in the wall of a closet and the air conducted into the filter box through a boxed-in area at the closet floor level. Make sure filter is readily accessible.

After determining the location of the return air opening, start the installation from under the home by cutting a small hole in the fiber under-board to determine how the floor joist location will affect the cutting of the opening needed for the box. Floor joists generally are located on 16" centers leaving 14-3/8" between joists. After measuring the return air box cut the hole so the box will fit between the floor joists. In most installations it will be necessary to cut a similar hole in the fiber-board directly under the one in the floor. However, if the floor is more than 10" deep, it will only be necessary to cut a round hole for the collar on the return air box or for the insulated duct.

Finally, set the box into the opening and fasten with screws or nails. Put the filter and the return air grille in place.

#### LOCATING AND INSTALLING THE SUPPLY DUCT CONNECTORS - MOBILE HOME APPLICATION

When locating the supply duct connector, check carefully for floor joists, axes, wheels and frame members that could interfere with the installation of the connector or with the running of the flexible duct. Ideally, the supply duct connector should be located in the bottom of the main duct, forward of center of the mobile home BUT NOT UNDER A REGISTER.

To locate the center of the duct, first cut a 6" hole in the fiberboard below the duct at the desired location. After locating the duct center, increase the hole in the fiberboard to approximately the size of the connector to be used. Next cut an opening in the bottom of the duct 1/8" larger than the actual dimension of the connector being used. After inserting the connector, bend the tabs flat inside the duct.

It is a good practice to seal all connections with duct tape. Seal the opening in the fiberboard around the duct connector.

For double wide homes or for special applications, these connectors are fed by two flexible ducts.

#### CONNECTING THE INSULATED RETURN-AIR AND SUPPLY FLEXIBLE DUCTING

All flexible ducts are furnished with a male and female metal end. The ducts can be connected to the corresponding fitting and sheet metal screwed in place. Slide the insulation and outer jacket over the end and use duct tape to seal joints.

If the flexible ducts are long enough, it will be easier to connect them to the fittings on the unit before sliding the unit into place.

#### RECOMMENDED REGISTER TYPE

Satisfactory heating/cooling of a mobile home will depend greatly on what type register is used. A very open type with no deflection (allowing the air to move straight up) is best. If these are not available, straighten the fins of the present registers as much as possible.

#### DUCT REQUIREMENTS

THE SUPPLY DUCT SYSTEM, INCLUDING THE NUMBER AND TYPE OF REGISTERS, WILL HAVE MUCH MORE EFFECT ON THE PERFORMANCE OF AN AIR CONDITIONING SYSTEM THAN ANY OTHER FACTOR! The duct must be sufficiently large to conduct an adequate amount of air to each register. The registers must be designed to throw the cooled air up to the ceiling. The duct must be built tightly enough to prevent loss of cooled air to the outside.

The output delivery of the system will not cool the home if the air is lost to the outside through leaks in the duct system. Also, the duct can be large enough in dimension but too small because it is collapsed or restricted with a foreign object. See page 2 for airflow and static pressure capabilities.

For rooftop or permanent structure applications, either round pipe or rectangular ductwork can be used, following standard duct sizing and layout techniques.

# SPECIFICATIONS • Packaged Air Conditioning

## PERFORMANCE DATA AND DIMENSIONS

MODEL	MU32A	MU36A	MU36B	MU38A	MU42A	MU42B	MU48*	MU60*
Cooling Capacity BTUH	31,000	34,500	35,500	38,000	41,000	41,000	47,000	55,000
CFM @ ARI Rating	1100	1100	1100	1100	1100	1100	600	1800
Electrical	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz	1-Ph 60 Hz
Cooling Watts (Total)	4200	4400	5200	4200	5600	6000	7700	9500
Operating Voltage Range	197-253	197-253	197-253	197-253	197-253	207-253	197-253	207-253
Compressor Volta	208/230	208/230	208/230	208/230	208/230	208/230	208/230	230
Name Plate Amps	18	20	24	24	25	28	28	34
Lock Rotor Amps	88	97	107	107	115	111	125	147
Outdoor Motor — H.P.	1/5	1/5	1/5	1/5	1/5	1/5	1/2	1/2
Fan Motor — Amps	1.5	1.5	1.5	1.5	1.5	1.5	3.4	3.4
Indoor Motor — H.P.	1/3	1/3	1/3	1/3	1/3	1/3	1	1
Blower Motor — Amps	2.5	2.5	2.5	2.5	2.5	2.5	6.2	6.2
Connections (Inches)								
Supply Air Duct Dia.	12"	12"	12"	12"	12"	12"	12"	12"
Return Air Duct Dia.	14" $\Delta$	14" $\Delta$	14" $\Delta$	14" $\Delta$	14" $\Delta$	14" $\Delta$	12" (2)	12" (2)
Cabinet Elec. Openings (Inches)								
24V	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
230V	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4	1 1/2 1 3/4 1 3/4
Refrigerant 22	47 oz.	77 oz.	48 oz.	89 oz.	79 oz.	76 oz.	85 oz.	80 oz.
Shipping Wt. — Lbs.	315	330	320	335	380	360	485	530

\*Also available in 3 phase  $\Delta$  When Using (1) 12" See Indoor Blower Table

## APPLICATION RATINGS (Btuh)

Model	Outdoor Ambient Temperature							
	80°F.	85°F.	90°F.	95°F.	100°F.	105°F.	110°F.	115°F.
MU32A	34,100	33,170	32,240	31,000	28,450	27,900	26,350	24,800
MU36A	37,950	36,915	35,880	34,500	32,775	31,050	29,325	27,000
MU36B	39,050	37,985	36,920	35,500	33,725	31,950	30,175	28,400
MU38A	41,800	40,660	39,520	38,000	36,100	34,200	32,300	30,400
MU42A	45,100	43,870	42,640	41,000	38,950	36,900	34,850	32,800
MU42B	45,100	43,870	42,640	41,000	38,950	36,900	34,850	32,800
MU48	51,700	50,290	48,880	47,000	44,650	42,300	39,950	37,600
MU60	60,500	58,850	57,200	55,000	52,250	49,500	46,750	44,000

\*Standard rating temperature — Ari Standard 210

## INDOOR BLOWER PERFORMANCE

ESP In. H <sub>2</sub> O	CFM — Dry Coil					
	MODELS				MU48	MU60
	MU32A-MU36A	B-MU38A-MU42A	B			
Hi	Med	Lo				
00	1370	1200	1075	2725	1770	
05	1340	1180	1060	2700	1765	
10	1315	1160	1050	2685	1760	
15	1290	1140	1035	2660	1750	
20	1260	1120	1020	2640	1740	
25	1230	1100	1005	2620	1730	
30	1200	1075	990	2600	1720	
35	1175	1055	970	2580	1710	
40	1150	1035	950	2560	1700	
45	1125	1000	925	2540	1690	
50	1100	980	910	2520	1680	
55	1075	950	880	2500	1670	
60	1050	920	875	2480	1660	
70	—	—	—	1890	1590	
80	—	—	—	1855	1555	
90	—	—	—	1810	1515	
100	—	—	—	1760	1475	
110	—	—	—	1680	1395	
125	—	—	—	1620	1325	
150	—	—	—	1320	1070	

$\Delta$  Max 1000 CFM @ 50" H<sub>2</sub>O minimum when using 12" FA duct  
 $\Delta$  When heaters are installed, deduct 1% of total CFM for each 5kW  
 $\Delta$  Max 1800 CFM @ 50" H<sub>2</sub>O minimum when using 12" FA duct  
 $\Delta$  With 20x20 Permanent Filter and Return Air Filter Box installed

## ELECTRICAL DATA

Model	CURRENT RATINGS					WIRE AND FUSING		
	Volts/Ph	Name Plate Kw	Max Unit Amps	1 KW Amps	Circuit No.	Max Fuses	Minimum Circuit Amperage	Minimum Wire Size
MU32A	230/1	None	22	—	A	40	27	2 #10 Awg
MU36A	230/1	None	24	—	A	45	29	2 #10 Awg
MU36B	230/1	None	28	—	A	50	34	2 #8 Awg
MU38A	230/1	None	28	—	A	50	34	2 #8 Awg
MU42A	230/1	None	29	—	A	60	35	2 #8 Awg
MU42B	230/1	None	32	—	A	60	39	2 #8 Awg
MU48	230/1	None	37.6	—	A	60	48	2 #6 Awg
MU60	230/1	None	43.6	—	A	60	55	2 #6 Awg

\*Nameplate amp values — actual running amps will vary slightly.

\*\*Operating voltage range 197-253V

†Based on copper wire size.

‡For KW ratings @ 240V — See Electric Heat Table No. 2

NEG requires separate fused circuits for electrical loads over 48 amps

## SUPPLEMENTAL ELECTRIC HEAT TABLE NO. 1

MODEL	MU32A	MU36A	MU36B	MU38A	MU42A	MU42B	MU48	MU60
Standard KW	10	10	10	10	15	15	15	15
Max. Installed KW	20	20	20	20	20	20	20	20

## ELECTRIC HEAT TABLE NO. 2

MODEL	EER	
	BTUH	AMP
10KW	34,130	41.7
15KW	51,195	62.5
20KW	68,260	83.3

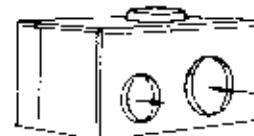
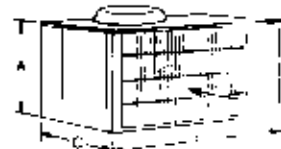
IMPORTANT: The AMP values listed in this Table No. 2 are for electric heating elements only. CIRCUIT B — Some units permit the electric heating element to be wired on the Compressor Circuit A.

MODEL	EER			
	80°F.	85°F.	90°F.	95°F.
MU32A	8.9	8.4	7.9	7.4
MU36A	9.5	8.9	8.4	7.9
MU36B	8.3	7.8	7.3	6.8
MU38A	8.8	8.3	7.8	7.3
MU42A	8.8	8.3	7.8	7.3
MU42B	8.3	7.8	7.3	6.8
MU48	7.4	6.9	6.5	6.1
MU60	7.0	6.6	6.2	5.8

EER — Energy Efficiency Ratio — BTUH Unit Wattage

## NOMINAL DIMENSIONS (In Inches)

MODEL	A	B	C
MU32A, MU36A, MU36B MU38A, MU42A, MU42B	24 1/2"	46 1/2"	35 1/2"
MU48, MU60	31 1/2"	50 1/2"	47 1/2"



MU30-MU36



MU48-MU60  
Two inlet ducts for larger cooling needs.



**BARD MANUFACTURING COMPANY**

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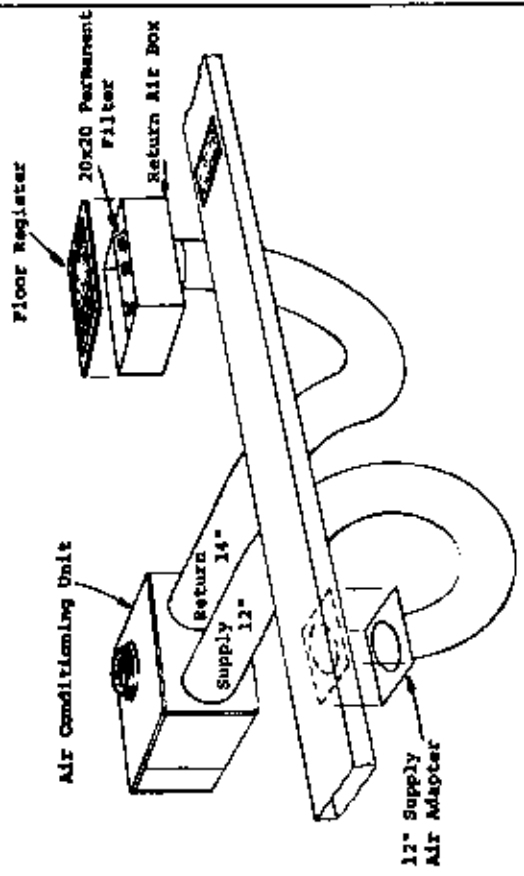
Specifications Subject to Change Without Notice

ELECTRICAL INFORMATION												WIRING INFORMATION 1			
Model	Volts-Ph	Heater Kw @ 240V	Max. Unit Amps	No. Field Power Circuits	Internal Fuses		Req'd. Maximum External Fuses		Min. Ckt. Ampacity		Power Ckt. Wiring		Ground Wire Size 2		
					Ckt.A	Ckt.B	Ckt.A	Ckt.B	Ckt.A	Ckt.B	Ckt.A	Ckt.B	Ckt.A	Ckt.B	
MU32A	230/208-1	0	22	1			40		27		10		10		
		5	23.3	1			40		29		10		10		
		10	44.1	1			60		55		6		10		
		15	65	1	60	30	90		81		2		8		
		20	85.7	2	60	60	60	60	55	52	6	6	10	10	
MU36B	230/208-1	0	28	1			60		34		8		10		
		5	28	1			60		34		8		10		
		10	44.1	1			60		55		6		10		
		15	65	1	60	30	90		81		2		8		
		20	85.7	2	60	60	60	60	55	52	6	6	10	10	
MU42B	230/1	0	32	1			60		39		8		10		
		5	32	1			60		39		8		10		
		10	44.1	1			60		55		6		10		
		15	65	1	60	30	90		81		2		8		
		20	85.7	2	60	60	60	60	55	52	6	6	10	10	
MU48	230/1	0	37.6	1			60		45		6		10		
		5	37.6	1			60		45		6		10		
		10	47.8	1			60		60		4		10		
		15	68.7	1	60	30	90		86		2		8		
		20	89.4	2	60	60	60	60	60	52	4	6	10	10	
MU60	230/1	0	43.6	1			60		52		6		10		
		5	43.6	1			60		52		6		10		
		10	47.8	1			60		60		4		10		
		15	68.7	1	60	30	90		86		2		8		
		20	84.9	2	60	60	60	60	60	52	4	6	10	10	

① Based upon the use of 60°C copper wiring material.

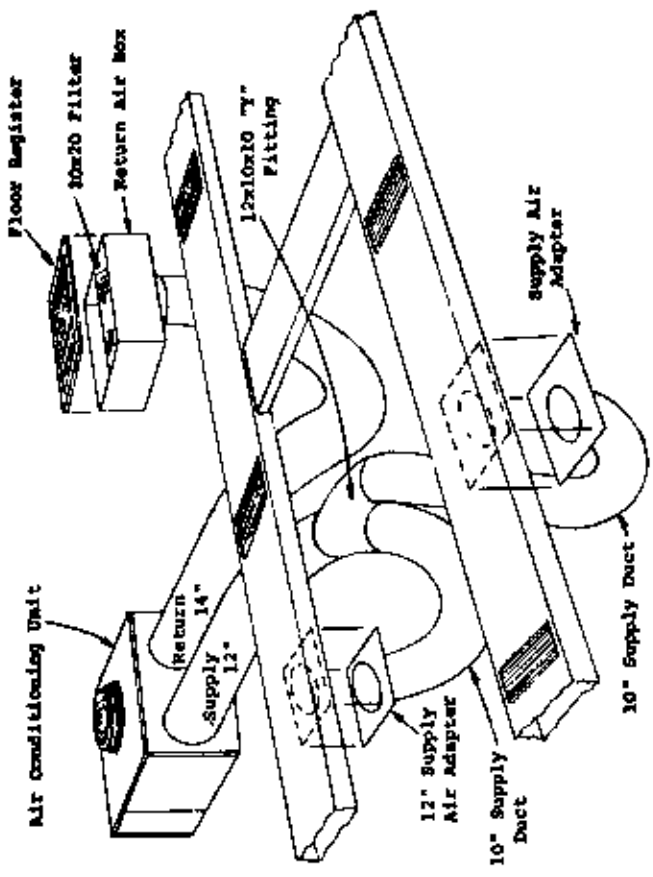
② Based upon Table 250-95 of N.E.C., 1978.

**SINGLE SUPPLY DUCT SYSTEM**  
**MODELS**  
**MU32A, MU36B, MU42B**



- QTY. 1** 7001-014 Fitting Pack  
 (1) 1 1/4 x 20 x 10 1/4 Return Air Box  
 (1) 20 x 20 Permanent Filter  
 (1) 12 x 20 Floor Register  
 (1) 12" Supply Air Adapter
- QTY. 1** 7001-018 Flex Duct Pack  
 (1) 14" Dia. x 7' Insulated Duct  
 (1) 12" Dia. x 7' Insulated Duct

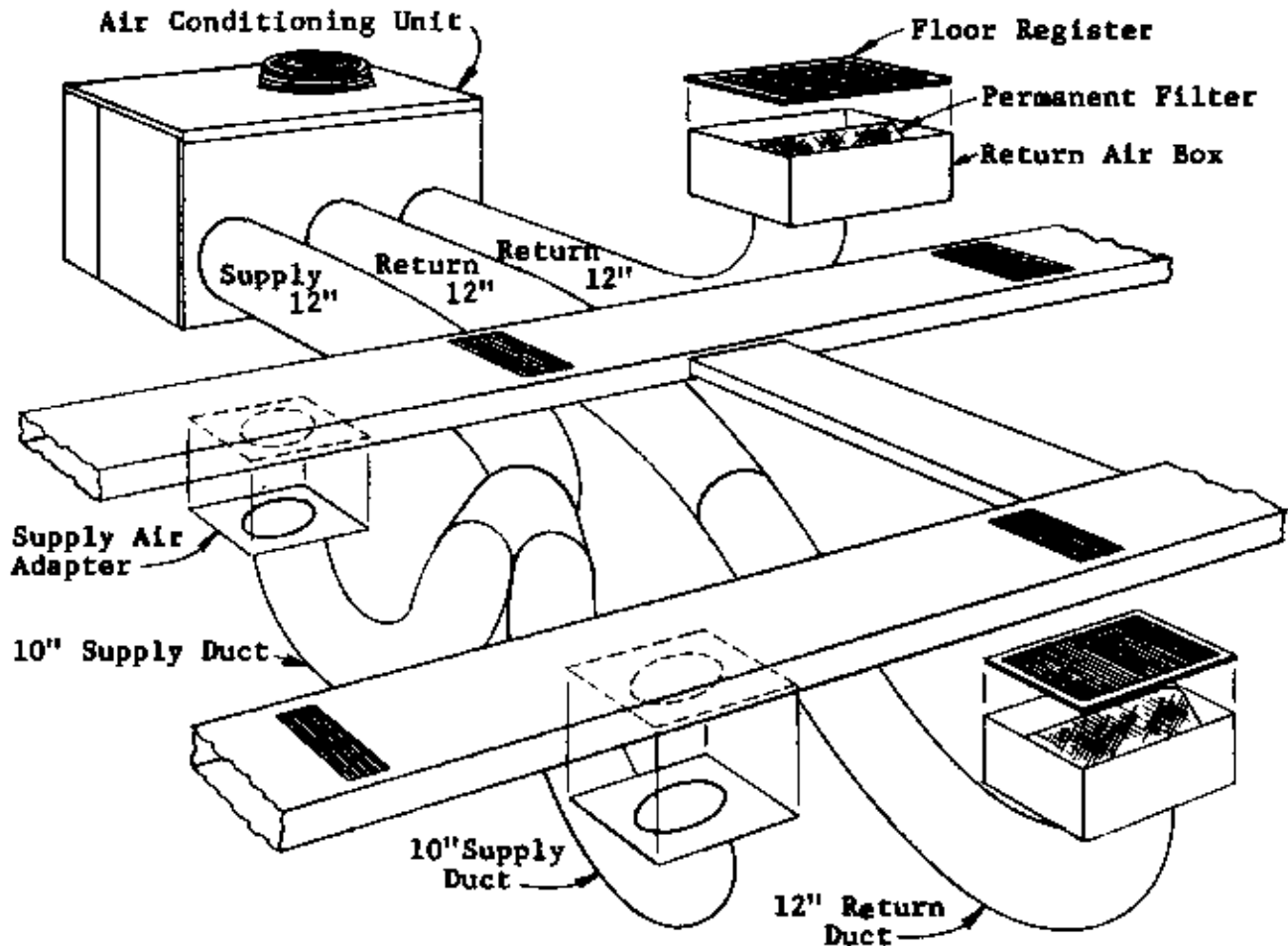
**DOUBLE SUPPLY DUCT SYSTEM**  
**MODELS**  
**MU32A, MU36B, MU42B**



- QTY. 1** 7001-014 Fitting Pack  
 (1) 1 1/4 x 20 x 10 1/4 Return Air Box  
 (1) 20 x 20 Permanent Filter  
 (1) 12 x 20 Floor Register  
 (1) 12" Supply Air Adapter
- QTY. 1** 7001-015 Fitting Pack  
 (1) 12 x 10 x 10 "Y" Fitting  
 (2) 10" Supply Air Adapter

- QTY. 1** 7001-018 Flex Duct Pack  
 (1) 14" Dia. x 7' Insulated Duct  
 (1) 12" Dia. x 7' Insulated Duct
- QTY. 2** 7001-001 Flex Duct Pack  
 (1) 10" Dia. x 7' Insulated Duct

**DOUBLE SUPPLY DUCT  
MODEL  
MU48 or MU60**



- (2) No. 1A Fitting Pkg:  
 (1) 12½ x 20 Return Air Box  
 (1) 20x20 Permanent Filter  
 (1) 12x20 Floor Register  
 (1) 10" Dia. Supply Air Adapter

- (1) No. 3A Fitting Pkg:  
 12 to 10x10 "Y" Fitting

- (2) No. 3 Flex Duct Pkg:  
 (1 pc) 10" Dia. 7' Insulated duct  
 (supply)  
 (1 pc) 12" Dia. 7' Insulated duct  
 (Return and Supply)

- (2) No. 2A Flex Duct Pkg:  
 (1 pc) 12" Dia. 7' Insulated Duct  
 (Return)

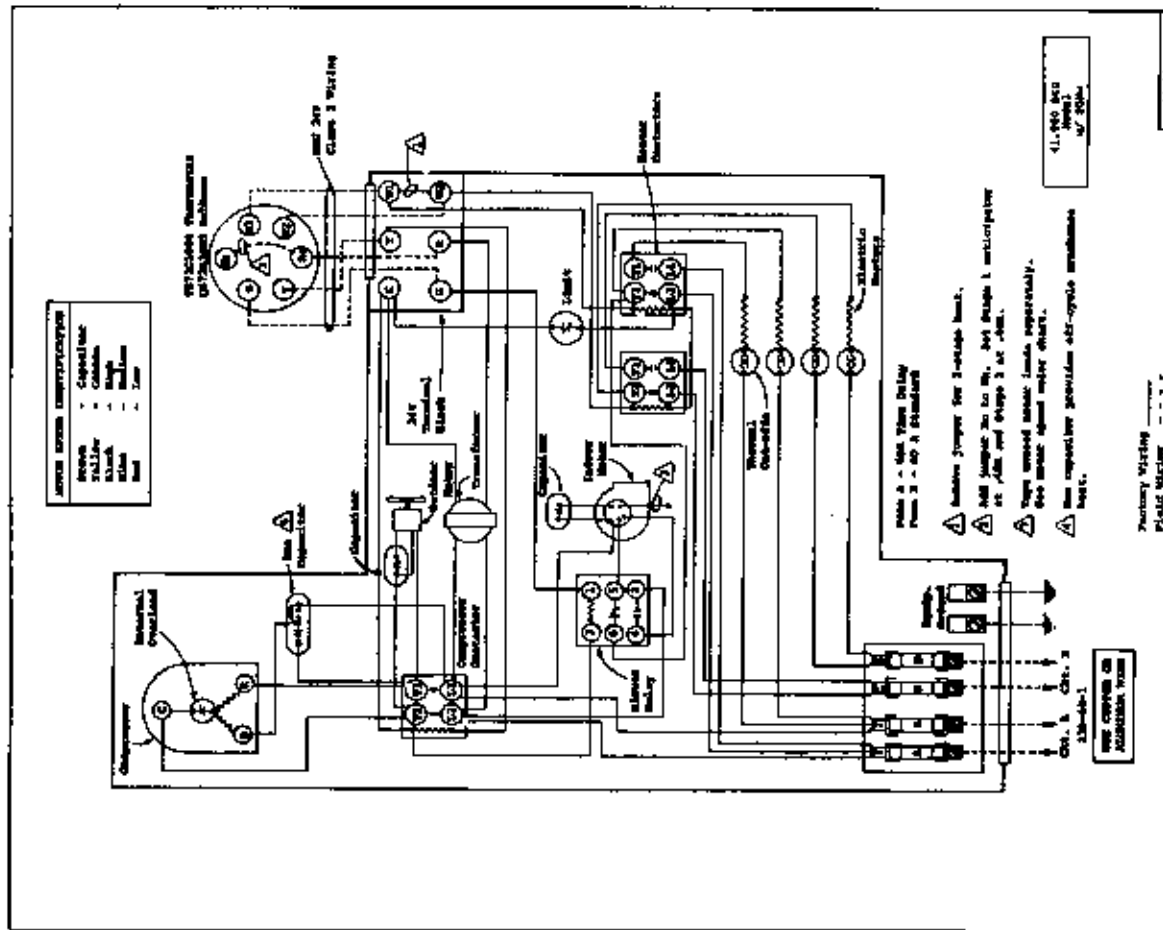
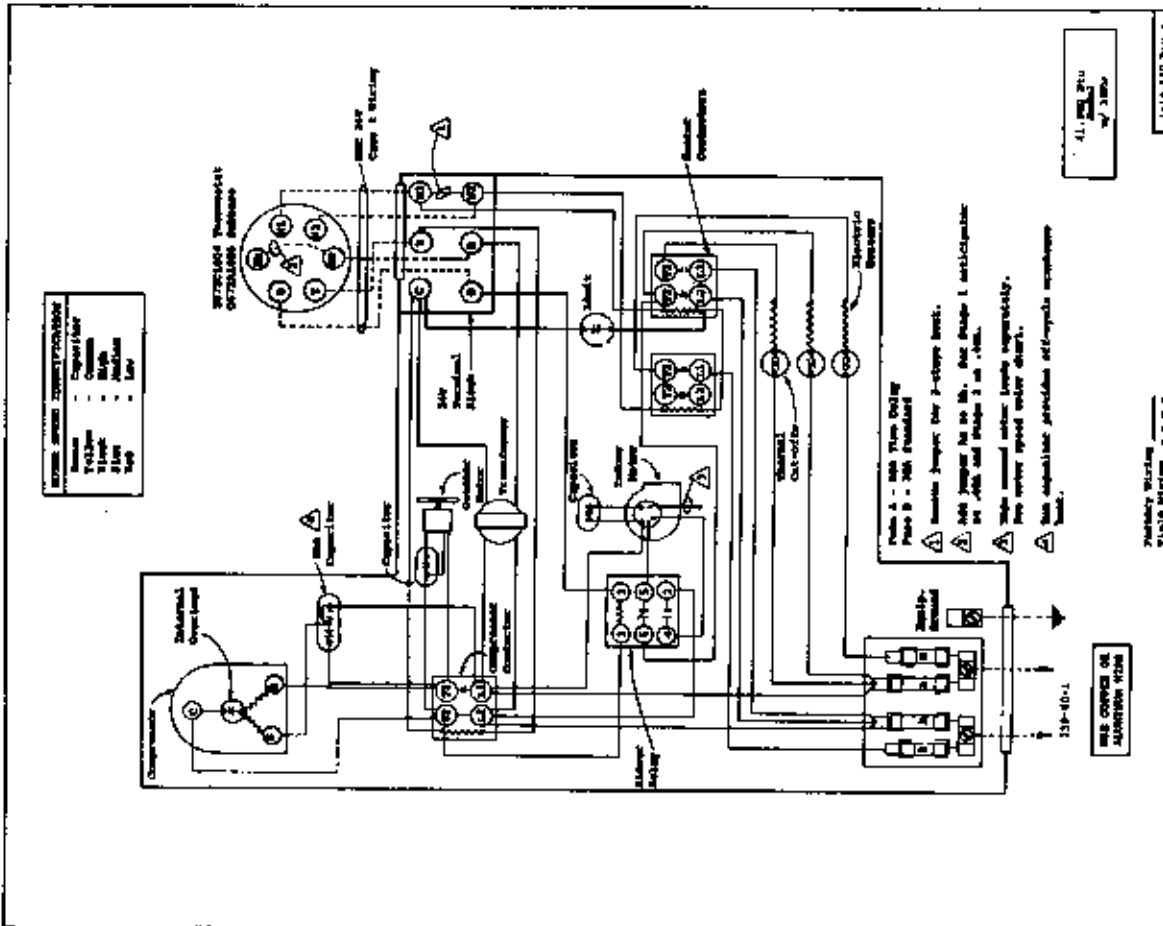








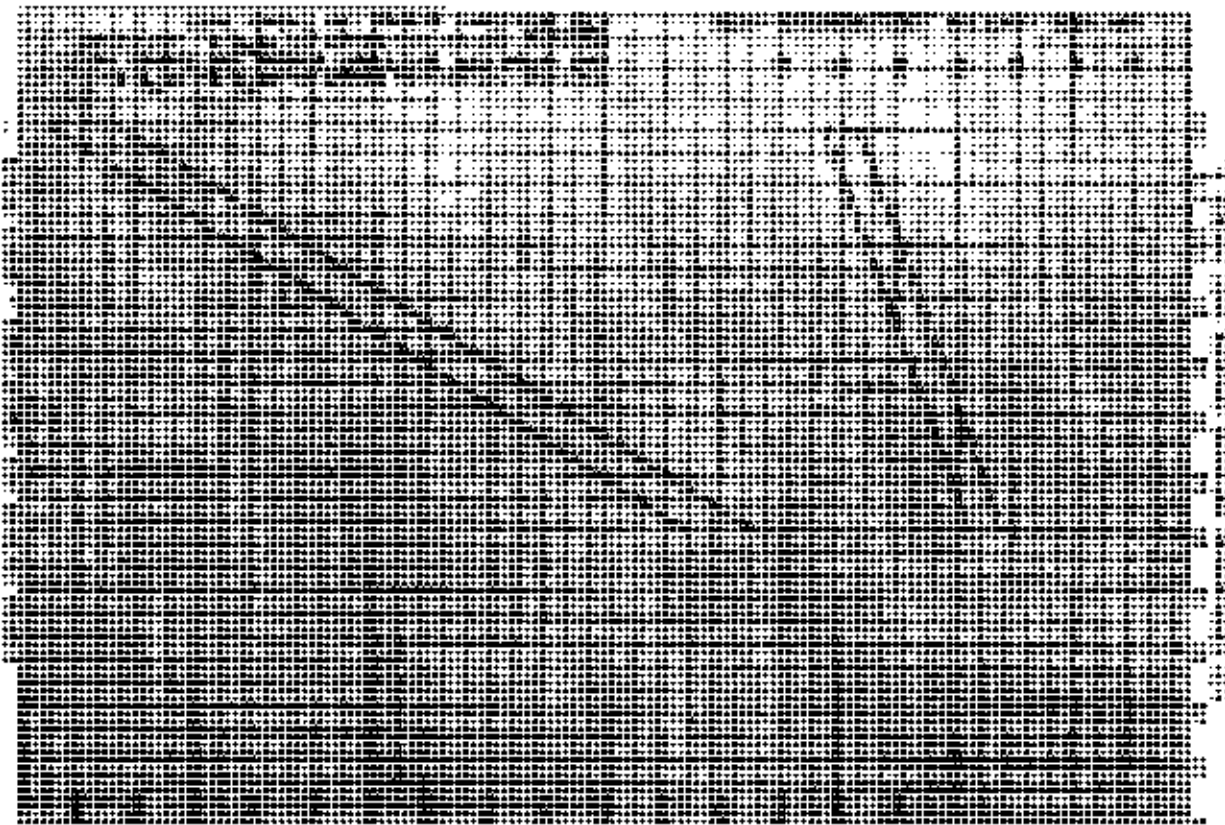




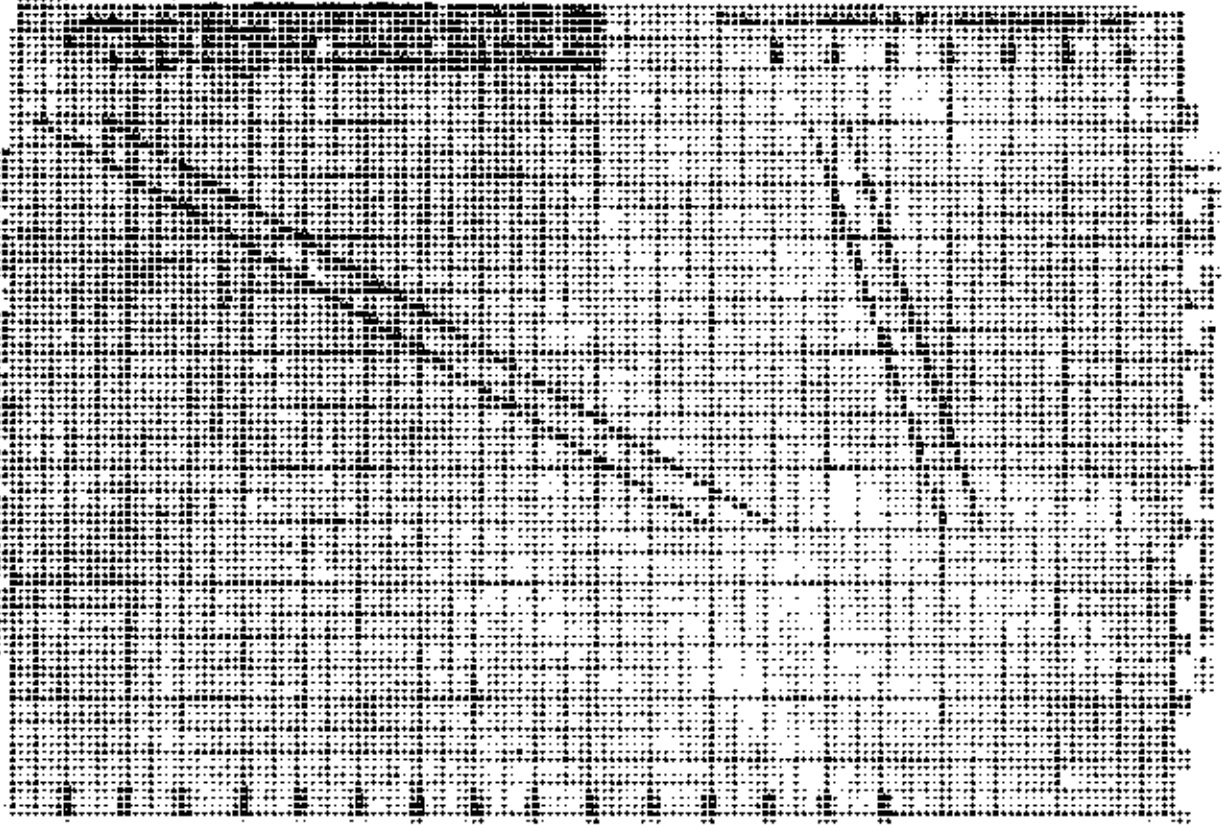




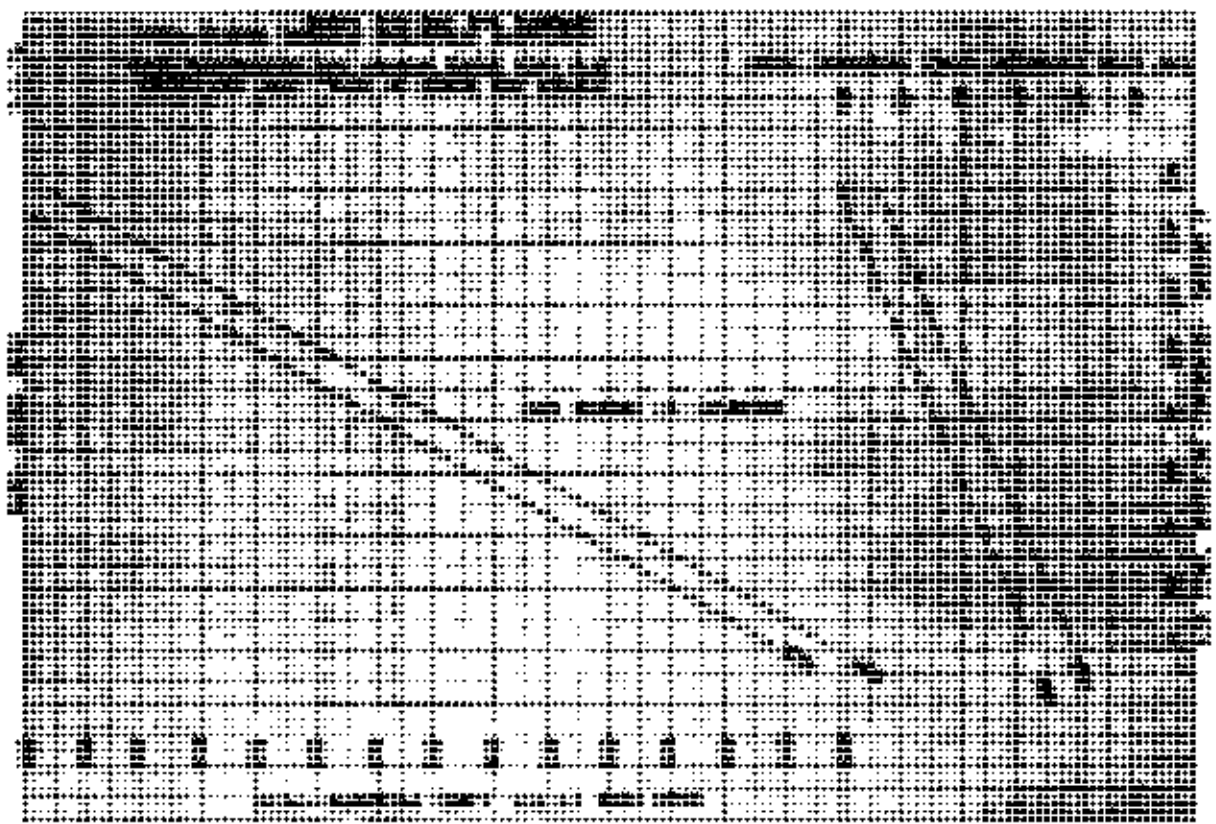
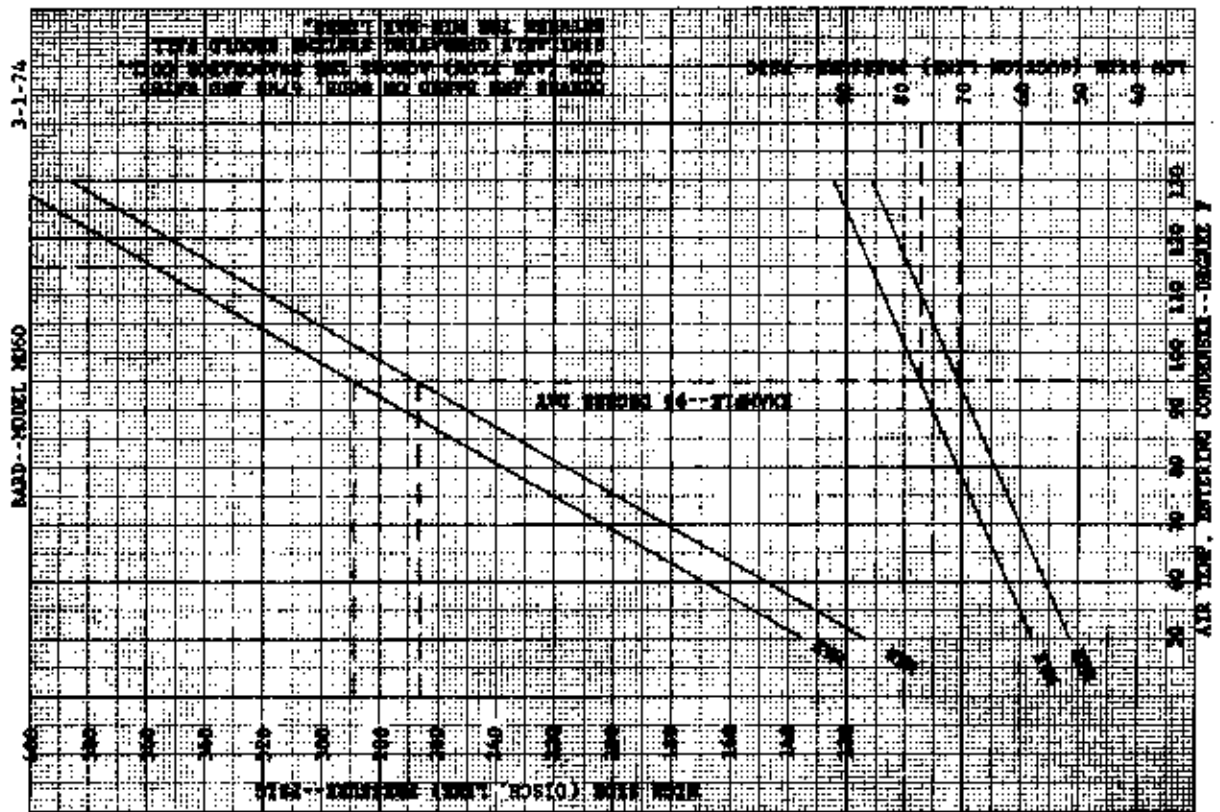




HIGH SIDE (DISCHARGE LINE) PRESSURE--PSIG



HIGH SIDE (DISCHARGE LINE) PRESSURE--PSIG





PART NO.	DESCRIPTION	MU32A	MU36B	MU42B	MU48	MU60
5152-026	Blower Housing 10-8	x	x	x		
5152-027	Blower Housing 10-10				x	x
5152-013	Blower Wheel DD10-8A	x	x	x		
5152-016	Blower Wheel DD10-10A				x	x
8552-020	Capacitor 35/370V	x				
8552-002	Capacitor 5/370V	x	x	x	x	x
8552-012	Capacitor 35/440V		x			x
8552-016	Capacitor 40/440V			x		
8552-019	Capacitor 5/440V	x	x	x		
8552-014	Capacitor 25/20-440V				x	
8552-021	Capacitor 20/440V					x
8552-005	Capacitor 10/370V				x	x
5811-013	Capillary Tube	(3)	(3)			
5811-009	Capillary Tube			(3)		
5811-014	Capillary Tube				(3)	
5811-024	Capillary Tube					(2)
8000-024	Compressor H20A323AB	x				
8000-029	Compressor H20A403AB		x			
8000-013	Compressor YRC4-0350			x		
8000-016	Compressor CL157ET				x	
8000-020	Compressor CL168YT					x
5051-001	Condenser Coil	x	x			
5051-016	Condenser Coil			x		
5051-009	Condenser Coil				x	x
8401-007	Contacto - Comp. 25A	x				
8401-003	Contacto - Comp. 30A		x	x		
8401-001	Contacto - Comp. 40A				x	x
8401-006	Contacto - Heater 20A	x	x	x	x	x
5060-015	Evaporator Coil	x	x			
5060-008	Evaporator Coil			x	x	
5060-014	Evaporator Coil					x
5151-001	Fan Blade TF1839	x	x	x		
5151-018	Fan Blade TE2028				x	x
7051-008	Fan Guard	x	x	x	x	x
8614-007	Fuse - Heater 60A	x	x	x	x	x
8614-022	Fuse - Compressor 60A	x	x	x	x	x
8614-006	Fuse - Heater 30A	x	x	x	x	x
8614-017	Fuse Block 15Kw	x	x	x	x	x
8614-013	Fuse Block 20Kw	x	x	x	x	x
8552-009	Capacitor 25/15-440V			x		

PART NO.	DESCRIPTION	MU32A	MU36B	MU42B	MU48	MU60
8604-023	Heat Strip 5Kw	x	x	x	x	x
8604-024	Heat Strip 10Kw	x	x	x	x	x
8604-025	Heat Strip 15Kw	x	x	x	x	x
8402-011	Limit Switch 140° 1.5	x	x	x	x	x
8105-010	Motor - Blower 1/3	x	x	x		
8108-001	Motor - Blower 1				x	x
8103-007	Motor - Fan 1/5	x	x	x		
8106-009	Motor - Fan 1/2				x	x
8200-003	Motor Mount - Blower	x	x	x	x	x
8200-019	Motor Mount - Fan	x	x	x		
8200-005	Motor Mount - Fan				x	x
5451-011	Motor Mtg. Parts-Blower	x	x	x	x	x
5451-009	Motor Mtg. Parts-Fan	x	x	x	x	x
5153-022	Rain Shield	x	x	x		
5153-010	Rain Shield				x	x
8201-014	Relay - Blower	x	x	x	x	x
5210-003	Strainer	x	x	x	x	
5210-005	Strainer					x
8551-001	Start Capacitor 135-155				x	x
8201-020	Start Relay				x	x
8607-001	Terminal Block 230V	x	x	x	x	x
8607-005	Terminal Board 24V				x	x
8402-030	Thermal Cut-off	x	x	x		
8402-025	Thermal Cut-off				x	x
8407-007	Transformer	x	x	x		
8407-015	Transformer				x	x
8607-006	Terminal Block	x	x	x		

Minimum Net Billing \$15.00. Supersedes all previous lists.  
Subject to change without notice. F.O.B. Bryan, Ohio.

IMPORTANT

PURCHASER'S RESPONSIBILITIES

Below are the responsibilities of the purchaser and these items cannot be considered as defects in workmanship or material.

1. Air filter cleaning or replacement.
2. Failure to operate due to improper air distribution over indoor and outdoor equipment sections.
3. Failure to start due to voltage conditions, blown fuses or other damage due to inadequacy or interruption of electrical service.
4. Damage caused directly or indirectly by improper installation.
5. Damage due to lack of proper and periodic maintenance.
6. Damage resulting from transportation, moving or storage of unit.
7. Unit must be readily accessible for servicing and/or repair at all times.
8. Any adjustment or service to the unit should be made by qualified service personnel.
9. Misapplication of product.

MODEL NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_ DATE  
INSTALLED \_\_\_\_\_

INSTALLER: Please fill in above blanks and leave this manual with equipment owner/operator.