



## Self-Contained Reverse Cycle Air Conditioners

Models MAB 07-10-12-16-24

R-410A Refrigerant

### General Description

Marvair's water source self-contained reverse cycle air conditioners are designed for use in either fresh or salt water. These units are built in capacities of 7,000; 10,000; 12,000; 16,000; and 24,000 BTUH. The self-contained units are complete packaged units, factory charged and wired.

A Marvair Marine first - a universal control board for all products - makes replacement quicker and easier and reduces the stocking requirements of service centers.



MAB16RC



### Less Watts:

- High efficiency Tecumseh and Copeland compressors
- More heat transfer with the cupronickel, eight volute, multi-lead inner tube. The convolutions increase heat transfer and refrigerant turbulence further enhancing the thermal performance, while inhibiting the accumulation of deposits in the water tubing.
- Powerful, backward inclined impeller moves the conditioned air effortlessly through duct.

### More Air Flow with Marvair's Unique Box Blower™:

- Three duct outlets eliminate the need to rotate the blower, saving installation time.
- No air distribution box required on the unit.
- Two to three dBA quieter than conventional centrifugal blowers.

### Less Space – Our Most Compact Unit

- Stainless steel condensate pan – no flimsy condensate connections.
- Baked polyester coil rated to 1,000 hours in salt spray test.
- Rolled and embossed base pan adds structural support to all components

Units are available for operation on 115V, 60 Hz; 208/230V, 60 Hz and 220/240V, 50 Hz. The units are built using R410A refrigerant. R410A is environmentally friendly, non-ozone depleting and accepted for use throughout the European Community.

The reverse cycle air conditioners feature rotary and scroll compressors with a suction line accumulator and high and low refrigerant pressure switches. The coaxial tube-in-tube condenser is constructed of corrosion resistant cupronickel water tubing and copper refrigerant tubing.

To ensure years of dependable performance, the units feature:

- A stainless steel base pan with multiple condensate drain openings allows the rapid disposal of condensate. The base pan is embossed to add rigidity and to keep the components out of the condensate. An insulated pad minimizes movement and sound.
- Structural supports, blower housing and control box constructed of superior corrosion resistant aluminum. The aluminum is primed and then a white heat cured polyester finish is applied for the optimum in durability and aesthetics.

- A five foot long (151 cm), heavy duty multiwire cable harness facilitates the remote mounting of the control box. This complete cable assembly seals all the wires into the harness to minimize the chance of corrosion.
- The evaporator coil is constructed of lanced fins and rifled copper tubing for optimum heat transfer. The coil has a baked polyester enamel finish - no paint - and is rated to 1,000 hours when tested to ASTM B117.
- A compact, motorized impeller type blower moves the conditioned air quietly and efficiently through duct work. Backward curved, corrosion resistant centrifugal fans feature extremely long blades for high efficiency and low noise. Maintenance free ball bearings never need oiling.

All units are built to the requirements of UL standard 484, 7th Edition. Marvair® is an ISO 9001-2008 registered company. All self contained and split systems units (unless designated otherwise) meet applicable ABYC and US Coast Guard regulations, CE directives, and all applicable Air Conditioning, Heating and Refrigeration standards.

## Installation

Installation of units is simplified with a readily accessible terminal strip for both the power and control (low voltage) wiring. The control box is located on the side of the self contained units. However, the control box can be easily mounted on the opposite side or remotely mounted on a bulkhead. A five foot (151 cm) multiwire cable harness provides a durable and quick electrical connection between the unit and the control box. Condensate line ports (5/8" nylon tube) on both ends and both sides of the base pan facilitate the drain line connections. Factory provided hold-down clamps are included.

## Thermostats

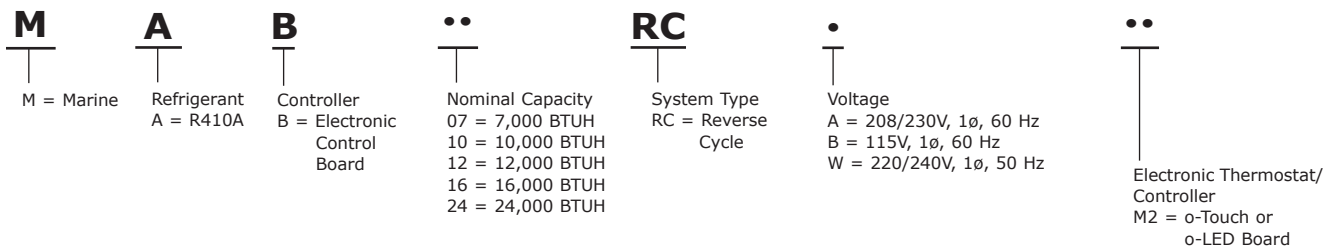
All units can be controlled by either the o-Touch, o-LED or the MachAir I thermostat/controller. The o-Touch, o-LED and the MachAir I thermostat/controller display shows whether the unit is in the heating or cooling or fan only or dehumidification mode, set point temperature (°F or °C), cabin temperature (°F or °C) and fan indicator. The cooling or heating can be selected manually or the Auto mode selects whichever is required automatically. The fan speed can be controlled automatically or manually. Includes wall mounted controller/display. See the Product Data Sheet for complete information on the thermostat/controllers.

## Accessories

**Accessories are required and ordered separately.**

- Sea Water Pump Kit.
- Air duct, supply grille(s) and return grille.
- Plumbing fittings.
- Thermostat/controller.

## Model Identification - Self-Contained Units



## Water Flow Chart

Minimum Water Flow* for Reverse Cycle Systems	
Model (BTUH)	Minimum Water Flow at the Unit
7,000	2.0 GPM / 7.6 LPM
10,000	2.9 GPM / 11.0 LPM
12,000	3.5 GPM / 13.3 LPM
16,000	4.7 GPM / 17.8 LPM
24,000	7.0 GPM / 26.5 LPM

\* Based upon 85°F (29.5°C) inlet water measured at the inlet of the unit.

## Air Flow and Grille Chart

Model Number	Nominal Air Flow		Minimum Opening for Return Air Grille		Minimum Opening for Supply Air Grille(s)		Minimum Hose Size <sup>a</sup>		Marvair P/N of Blower Box to Oval Hose Adapter	Qty of Oval Hose Adapters	Outside Dimensions of Hose Adapter	
	CFM	m <sup>3</sup> /hr	In <sup>2</sup>	cm <sup>2</sup>	In <sup>2</sup>	cm <sup>2</sup>	In	cm			Inches	cm
MAB07RCA, RCB	200	340	100	645	40	260	5	12.7	91565 <sup>b</sup>	2	6 x 2½	15.2 x 6.4
	225	382					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB07RCW	215	365	100	645	60	390	5	12.7	91565 <sup>b</sup>	2	6 x 2½	15.2 x 6.4
	240	408					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB10RCA, RCB	215	365	100	645	60	390	6	15.2	91566 <sup>b</sup>	2	7½ x 2¾	19.1 x 7
	215	365					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB10RCW	190	323	100	645	60	390	6	15.2	91566 <sup>b</sup>	2	7½ x 2¾	19.1 x 7
	190	323					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB12RCA, RCB	325	552	140	900	70	450	6	15.2	91566 <sup>b</sup>	2	7½ x 2¾	19.1 x 7
	310	527					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB12RCW	260	442	140	900	70	450	6	15.2	91566 <sup>b</sup>	2	7½ x 2¾	19.1 x 7
	215	365					7	17.8	91567	1	8¾ x 3-3/8	22.2 x 8.6
MAB16RCA, RCB	320	544	168	1110	84	540	7	17.8	91567 <sup>b</sup>	2	8¾ x 3-3/8	22.2 x 8.6
	305	518					8	20.3	91568	1	10 x 4	25.4 x 10.2
MAB16RCW	275	467	168	1110	84	540	7	17.8	91567 <sup>b</sup>	2	8¾ x 3-3/8	22.2 x 8.6
	290	493					8	20.3	91568	1	10 x 4	25.4 x 10.2
MAB24RCA	700	1189	240	1550	192	1240	8	20.3	91568 <sup>b</sup>	2	10 x 4	25.4 x 10.2
	525	892					8	20.3	91568	1		
MAB24RCW	625	1062	240	1550	192	1240	8	20.3	91568 <sup>b</sup>	2	10 x 4	25.4 x 10.2
	465	790					8	20.3	91568	1		

The blower box on all MAB units has openings for three duct adapters. For optimum performance and air flow, two duct adapters should be used.

<sup>a</sup>Use larger size hose if hose run is greater than 10 ft. (3 meters).

<sup>b</sup>Two oval hose adapters are shipped with each MAB unit.

## Performance & Electrical Data for MAB self-contained units, 208-230v, 60 Hz.

Model Number	Nominal Capacity (BTUH)	Volts / Ph / Hz	LRA <sup>1</sup>	KVA <sup>2</sup>	Unit Run Amps		MCA <sup>5</sup>	MFS <sup>6</sup>
					Cooling <sup>3</sup>	Heating <sup>4</sup>		
<b>MAB07RCA</b>	7,000	208-230/1/60	22.2	0.9	2.97	3.84	5.1	10
<b>MAB10RCA</b>	10,000	208-230/1/60	22.2	1.0	3.34	4.49	5.9	10
<b>MAB12RCA</b>	12,000	208-230/1/60	32.5	1.2	3.89	5.01	6.8	10
<b>MAB16RCA</b>	16,000	208-230/1/60	29.0	1.4	4.58	6.05	8.3	10
<b>MAB24RCA</b>	24,000	208-230/1/60	58.3	2.3	6.96	9.96	17.7	25

<sup>1</sup>LRA = Locked Rotor amps (compressor only)  
<sup>2</sup>KVA = Kilo volt amps  
<sup>3</sup>Cool = 45°F evaporator and 100°F condenser  
<sup>4</sup>Heat = 45°F evaporator and 130°F condenser.  
<sup>5</sup>MCA = Minimum Circuit Ampacity (Wire size amps)  
<sup>6</sup>MFS = Maximum Fuse or HACR breaker size

## Performance & Electrical Data for MAB self-contained units, 115v, 60 Hz.

Model Number	Nominal Capacity (BTUH)	Volts / Ph / Hz	LRA <sup>1</sup>	KVA <sup>2</sup>	Unit Run Amps		MCA <sup>5</sup>	MFS <sup>6</sup>
					Cooling <sup>3</sup>	Heating <sup>4</sup>		
<b>MAB07RCB</b>	7,000	115/1/60	45.6	0.91	6.26	7.95	10.4	15
<b>MAB10RCB</b>	10,000	115/1/60	45.6	1.07	7.01	9.27	12.0	20
<b>MAB12RCB</b>	12,000	115/1/60	63.0	1.24	8.60	10.80	13.3	20
<b>MAB16RCB</b>	16,000	115/1/60	63.0	1.62	11.50	14.09	14.6	20

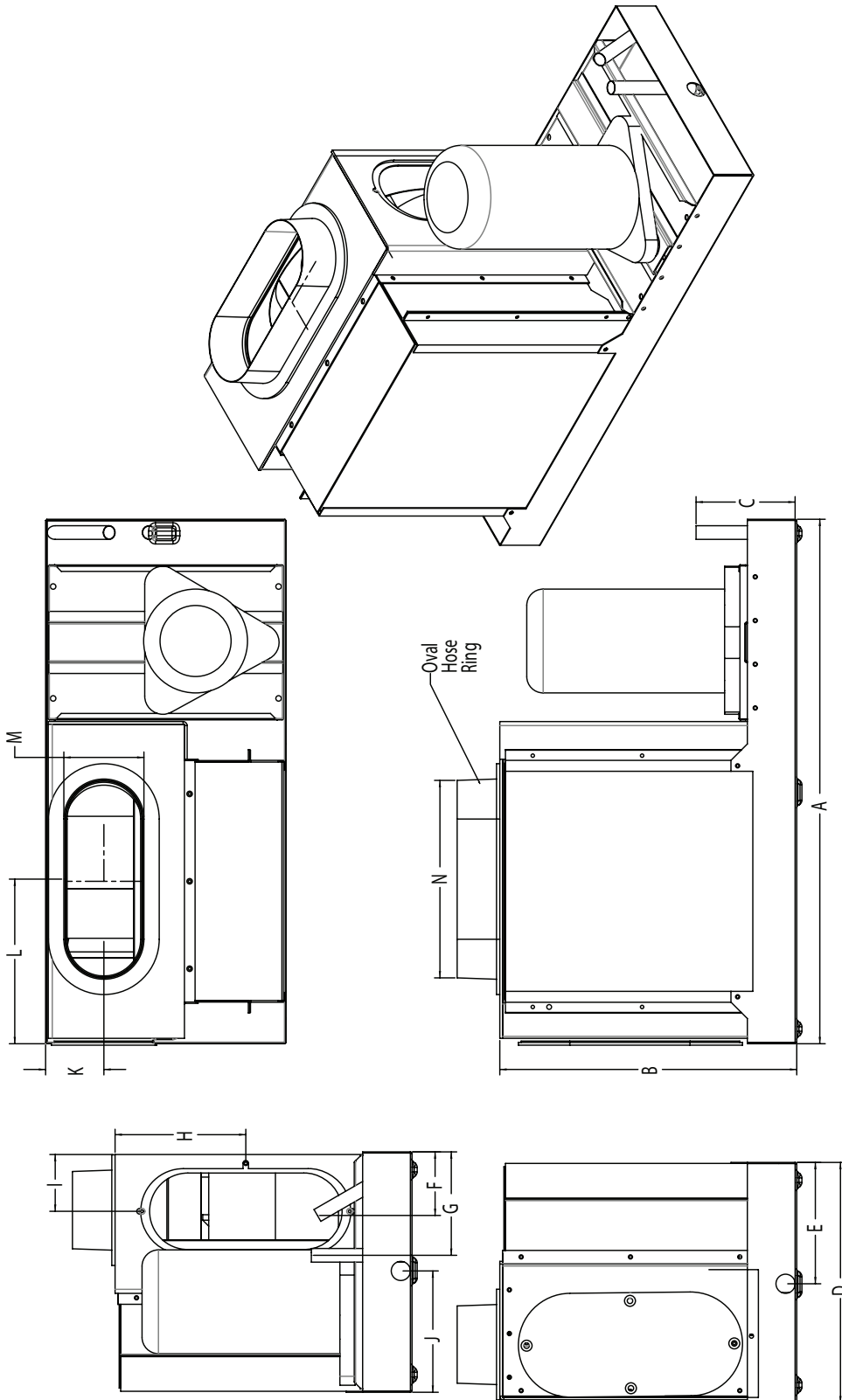
<sup>1</sup>LRA = Locked Rotor amps (compressor only)  
<sup>2</sup>KVA = Kilo volt amps  
<sup>3</sup>Cool = 45°F evaporator and 100°F condenser  
<sup>4</sup>Heat = 45°F evaporator and 130°F condenser.  
<sup>5</sup>MCA = Minimum Circuit Ampacity (Wire size amps)  
<sup>6</sup>MFS = Maximum Fuse or HACR breaker size

## Performance & Electrical Data for MAB self-contained units, 220-240v. 50 Hz.

Model Number	Nominal Capacity (BTUH)	Volts / Ph / Hz	LRA <sup>1</sup>	KVA <sup>2</sup>	Unit Run Amps		MCA <sup>5</sup>	MFS <sup>6</sup>
					Cooling <sup>3</sup>	Heating <sup>4</sup>		
<b>MAB07RCW</b>	7,000	220-240/1/50	18.8	0.9	2.80	3.74	5.2	10
<b>MAB10RCW</b>	10,000	220-240/1/50	21.0	1.0	3.20	4.22	5.2	10
<b>MAB12RCW</b>	12,000	220-240/1/50	21.0	1.0	3.20	4.22	5.2	10
<b>MAB16RCW</b>	16,000	220-240/1/50	24.5	1.4	4.39	5.89	6.4	10
<b>MAB24RCW</b>	24,000	220-240/1/50	61.0	2.8	8.26	11.86	16.5	25

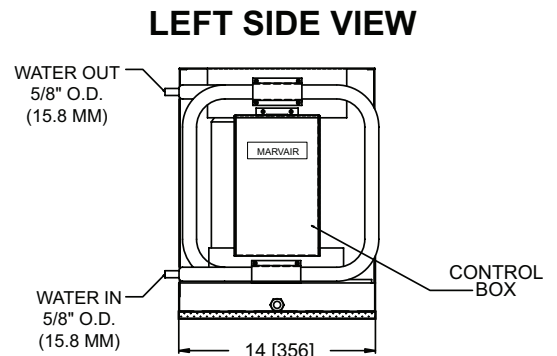
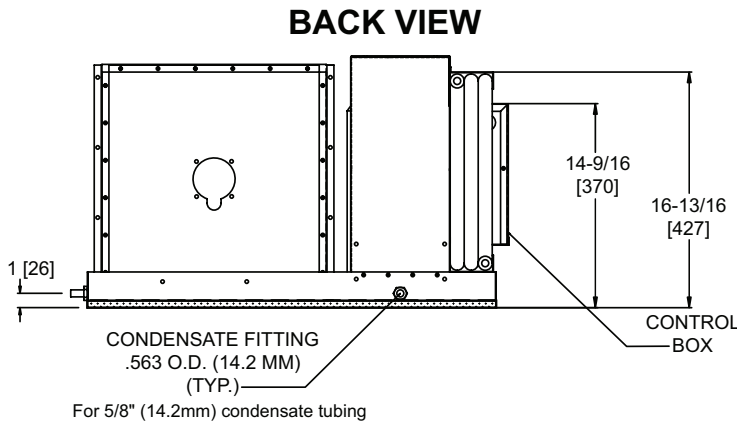
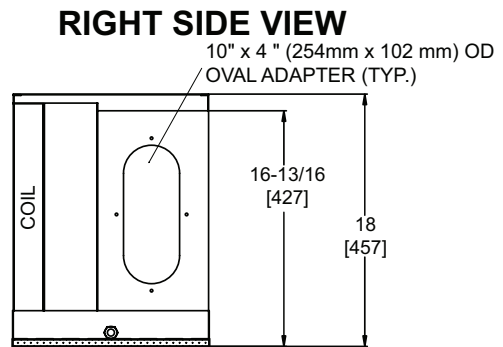
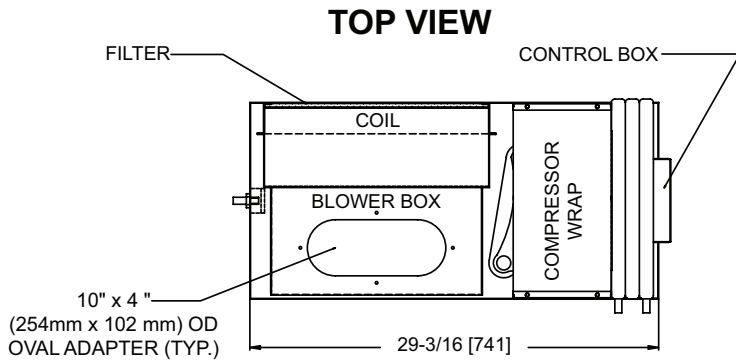
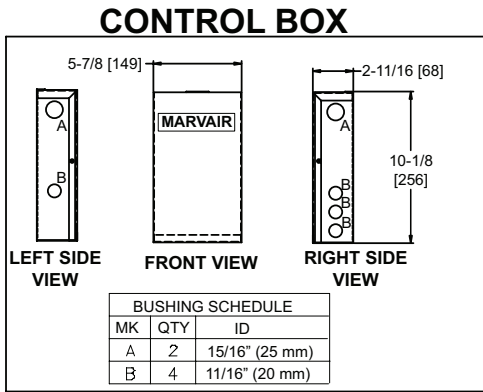
<sup>1</sup>LRA = Locked Rotor amps (compressor only)  
<sup>2</sup>KVA = Kilo volt amps  
<sup>3</sup>Cool = 45°F evaporator and 100°F condenser  
<sup>4</sup>Heat = 45°F evaporator and 130°F condenser.  
<sup>5</sup>MCA = Minimum Circuit Ampacity (Wire size amps)  
<sup>6</sup>MFS = Maximum Fuse or HACR breaker size

# Dimensional Data - Self-Contained Models 07-10-12-16 (inches & mm)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Marvair P/N	Description	
<b>MAB07</b>	In	24	13 5/8	4 1/2	11	5 1/2	2 7/8	4 11/16	6	2.6	5 1/2	2.66	7 5/9	2 5/8	6 1/8	91565	5" OVAL RING
	MM	610	346	114	279	140	73	119	152	66	140	68	191	67	156		
<b>MAB10</b>	In	24	13 5/8	4 1/2	11	5 1/2	2 7/8	4 11/16	6	2 5/8	5 1/2	2 11/16	7 5/9	3	7 1/4	91566	6" OVAL RING
	MM	610	346	114	279	140	73	119	152	67	140	68	191	76	184		
<b>MAB12</b>	In	25	13 7/8	4 1/2	11	5 1/2	2 7/8	4 11/16	6	2 5/8	5 1/2	2 11/16	7 5/9	3	7 1/4	91566	6" OVAL RING
	MM	635	352	114	279	140	73	119	152	67	140	68	191	76	184		
<b>MAB16</b>	In	25	13 7/8	4 1/2	11	5 1/2	2 7/8	4 11/16	6	2 5/8	5 1/2	2 11/16	7 5/9	3 7/16	8 3/4	91567	7" OVAL RING
	MM	635	352	114	279	140	73	119	152	67	140	68	191	87	222		

## Dimensional Data - Self-Contained Model 24 (inches & mm)



**WEIGHT: 111 LBS / 50 KG**

There are two conditioned air outlet openings, one on the top and one on the right side. Each opening is a 9-7/8" x 4" (251mm x 102mm) oval opening. An oval adapter, Marvair part number 91568, should be used as a transition to duct on each opening. This adapter has an outside diameter of 10" x 4" (254 mm x 102 mm). For optimum performance, both openings must be used. Insufficient air flow can cause ice to form on the evaporator coil in the cooling mode and premature activation of the circuit breaker in the heating mode.

**Notes**



## Notes

*Please consult the Marvair® website at [www.marvair.com](http://www.marvair.com) for the latest product literature. Complete installation instructions are in the SeaMach™ Installation and Service Manual. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Owner's Manual, on our website or by contacting Marvair at 229-273-3636. As part of the Marvair continuous improvement program, specifications are subject to change without notice.*

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