AM RAD Engineering, Inc.

Capacitors

A. TurboMeter™ – Simultaneously test and display MFD values for fan and compressor

B. TurboRMAC™ – Replaces any one of 57 different single or dual values up to 52.5MFD, with a voltage rating up to 290VAC

C. Turbo200X® – Run capacitor that replaces any of the higher range single or dual capacitors used in scroll compressors and higher efficiency A/C units, values up to 97.5MFD 370/400V

D. TurboMini® – A permanent replacement run capacitor for fan size values 2.5MFD to 15MFD

E. Turbolytic™ JR – More compact start capacitor offers combined values up to 227MFD

F. Turbolytic™ 50 – Motor start capacitor can replace any of the most popular values up to 302MFD

G. Turbo200®- Run capacitor that replaces over 200 single or dual values up to 67.5MFD

H. Turbo Easy Start 4 – Universal 2-wire hard start

I. TurboMini® Oval – A permanent replacement run capacitor for fan size values 2.5MFD to 15MFD

Made in the USA

5 year Unconditional WARRANTY

Universal Turbo Capacitors									
Specifications	**TurboMini**	**TurboMini Oval**	**Turbo200**	**Turbo200X**	**TES4**	**Turbolytic 50**	**Turbolytic JR**	**TurboRMAC**	**TurboMeter**
Case Qty	50	50	20	16	8	16	20	18	1 ea
Value Range	2.5 to 15MFD	2.5 to 15MFD	2.5 to 67.5MFD	Up to 97.5MFD	Up to 324 MFD	Up to 302MFD	Up to 227MFD	Up to 52.5MFD	All
Voltage Range	370/440V	370/440V	370/440V	370/440V	370/440V	Up to 330V	Up to 330V	Up to 290V	

For your safety and performance, the Turbo®200 series has been tested and approved to the highest certification level of UL (Underwriters Laboratories) Standard 810; 10,000 AFC; Protected. (As required for all "original equipment" motor-run capacitors).

The Turbo®200 is produced under one or more American Radionic patent numbers: 3,921,041; 4,028,595; 4,312,027; 4,312,145; 5,313,360; 6,014,308. Additional US and foreign Patents Pending. The Turbo®200 is designed, developed and manufactured by American Radionic Co, Inc, Palm Coast Florida USA.

AmRad's Turbo200 Motor-Run Capacitors

A Capacitor Warehouse in Your Pocket!

With the Turbo200 you will ALWAYS have the correct motor-run capacitor values on site!

Turbo200- Replaces over 200 single and dual capacitors up to 67.5 mfd at 370/440V

Turbo200X- Replaces over 350 single and dual capacitors up to 97.5 mfd at 370/440V

Turbo200 Mini- Offers 7 popular single values ("fan sizes") up to 15 mfd at 370/440V

The Turbo200 capacitors are industrial-grade, permanent replacement part.

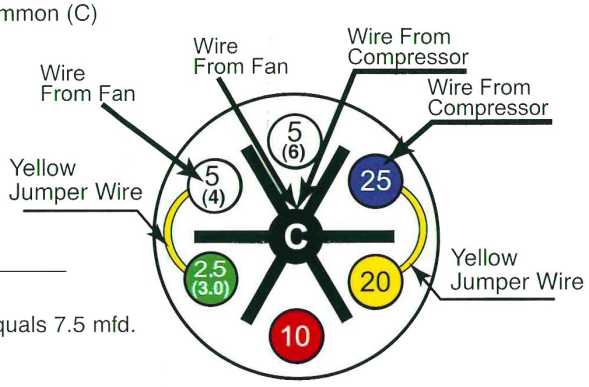
*Incorporated with the same film dielectric technology used in AmRad's motor-run capacitors. Turbo200 capacitors are safety protected using a UL approved safety interrupter- the same safety mechanisms used in all AmRad capacitors.

Turbo200 Capacitor Wiring Instructions

EXAMPLE: Using the Turbo200® to replace a 45+7.5 microfarad dual-value capacitor.

Steps:

1) Make note of the wires which are attached to the fan motor (F), common (C) and compressor (Herm) terminals of the capacitor being replaced.
2) To achieve the 45.0 microfarad for the compressor (HERM): Using one (1) yellow jumper wire, connect the 25 mfd to the 20 mfd which then equals a 45 mfd.
3) Connect one of the wires from the compressor to the 25 MFD.
4) Connect the other wire(s) from the compressor to the common (C). [The common is the center black terminal].
5) To obtain a 7.5 mfd for the fan (F): Using one (1) yellow jumper wire, connect either one of the 5 mfds to the 2.5 mfd which then equals 7.5 mfd.
6) Connect one wire from the fan to the 5.0 mfd which has been jumped to the 2.5 mfd (as shown).
7) Connect the other wire from the fan motor to the common (C). [The common is the center black terminal].



Note: Jumper wires are supplied with the TURBO200®.

This is just a partial list of the many single and dual-value capacitors that can be replaced with AmRad's Turbo® 200									
30/3	25/5	25/7.5	25/10	30/5	30/7.5	30/10	30/12.5	35/4	35/5
35/7.5	35/10	40/5	40/7.5	40/10	45/5	40/3	45/7.5	45/10	50/5
50/7.5	50/10	50/12.5	55/5	55/7.5	55/10	55/12.5	60/7.5	60/4	60/4
30/4	45/12.5	35/12.5	60/6	60/5	35/6	45	50	60	65
This is just a partial list of the many single and dual-value capacitors that can be replaced with AmRad's Turbo 200X									
60/10	70/5	70/10	80/5	80/7.5	80/10	90/5	90/7.5	70	80
25/12.5	30/7.5	30/5	35/5	40/7.5	45/5	50/5	50/10	55/7.5	60/5

FEATURES:

- **All brass plated terminals which have been plated to increase performance, reliability, prevent corrosion and improve conductivity.**
- **TURBO200® conforms to applicable U.L. requirements including 10,000 AFC. U.L. File number E133000. (CYWT2) Internally Protected.**

Voltage Ratings: 370 VAC or 440 VAC @ 60 Hz.

Model	Voltage Range	Includes
Turbo®200	2.5 mfd to 67.5 mfd	Jumper wires and color coded chart to derive the exact values you need
Turbo®200X	5 mfd to 97.5 mfd	

The Turbo®200 is produced under one or more American Radionic United States patent numbers: 8,270,143; 7,835,133, 7,474,519; 7,423,861; 7,203,053; 6,014,308; 5,313,360; 4,312,145; 4,312,027; 4,028,595. The Turbo®200 series is designed, developed and manufactured by American Radionic Co, Inc., Palm Coast, Florida 32137 USA

AmRad's TURBO EASY-START™ 4

Another AmRad Invention for the Service Technician

New for 2013

It's "Easy to Use"
It's "Easy to Start"

ONE UNIVERSAL EASY-START 4 can be used in place of any one of the FOUR commonly used Hard-Start kits on the market today.

Can be used in over 90% of refrigeration and air conditioning applications.

The modern*, high-microfarad capacitor and potential relay are enclosed with in hermetically-sealed aluminum housing (protecting it from harsh environments). No relay wire...

Simply select the capacitance for your equipment.

*Incorporated with the same film dielectric technology used in AmRad's motor run capacitors. The TES4 is safety protected using a UL approved safety interrupter- the same safety mechanisms used in all AmRad capacitors.

Turbo Easy-Start™ 4 Wiring Instructions

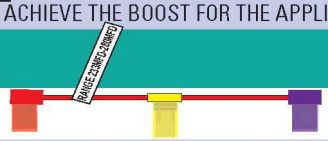
AMRAD MODEL NO. TURBO EASY-START"4"

APPLICATION 2.5 TO 3 TONS

CAPACITANCE 233 TO 280 mfds

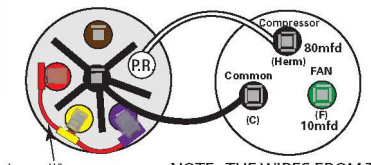
SIMPLY USE THE SUPPLIED JUMPER WIRE ON THE TURBO EASY-START "4" TERMINALS TO ACHIEVE THE BOOST FOR THE APPLICATION.

TURBO EASY-START"4" CAPACITANCE (MFD) RANGE REQUIRED	JUMPER WIRE REQUIRED
[233 to 280 mfds]	Jumper Wire B



EXAMPLE 1

Turbo Easy-Start"4" — Standard Dual-Value Motor-Run Capacitor



Turbo Easy-Start"4" CONNECTED TO STANDARD DUAL-VALUE MOTOR-RUN CAPACITOR

Step 1: Using jumper wire B, connect the purple, yellow and red terminals to the corresponding colored terminals on the Easy-Start "4" as shown.

Step 2: Connect the black wire (common) from the Turbo Easy-Start"4" to the COMMON (C) terminal of the standard dual-value motor-run capacitor as shown.

Step 3: Connect the white wire from the Turbo Easy-Start"4" to the HERM terminal of the standard dual-value motor-run capacitor as shown.

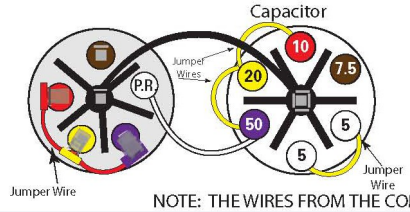
[Shown connected to a 80+10mfd dual-value capacitor].

[Typical Air Conditioning Application]

NOTE: THE WIRES FROM THE COMPRESSOR AND THE FAN TO THE MOTOR-RUN CAPACITOR ARE NOT SHOWN IN THIS ILLUSTRATION.

EXAMPLE 2

Turbo Easy-Start"4" — Turbo®200X Universal Motor-Run Capacitor



Turbo Easy-Start"4" CONNECTED TO A TURBO®200 UNIVERSAL CAPACITOR

Step 1: Using jumper wire B, connect the purple, yellow and red terminals to the corresponding colored terminals on the Easy-Start "4" as shown.

Step 2: Connect the black wire (common) from the Turbo Easy-Start"4" to the COMMON (C) terminal of the Turbo®200X Universal Capacitor as shown.

Step 3: Connect the white wire from the Turbo Easy-Start"4" to the 50MFD terminal of the Turbo®200X Universal capacitor as shown.

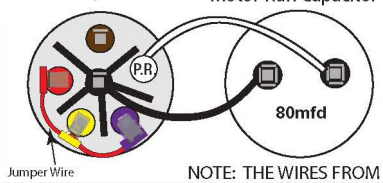
[The Turbo Easy-Start 4 is shown connected to a Turbo®200X which has been wired to provide 80mfd for the herm (compressor) and a 10mfd fan value].

[Typical Air Conditioning Application]

NOTE: THE WIRES FROM THE COMPRESSOR AND THE FAN TO THE TURBO®200X MOTOR-RUN CAPACITOR ARE NOT SHOWN IN THIS ILLUSTRATION.

EXAMPLE 3

Turbo Easy-Start"4" — Standard Single-Value Motor-Run Capacitor



Turbo Easy-Start"4" CONNECTED TO A STANDARD SINGLE-VALUE MOTOR-RUN CAPACITOR

Step 1: Using jumper wire B, connect the purple, yellow and red terminals to the corresponding colored terminals on the Easy-Start "4" as shown.

Step 2: Connect the black wire (common) from the Turbo Easy-Start"4" to one of the terminals of the standard single value motor-run capacitor as shown.

Step 3: Connect the white wire from the Turbo Easy-Start"4" to the other terminal of the standard single value motor-run capacitor as shown.

[Shown connected to a 80mfd single-value capacitor].

[Typical Commercial Refrigeration Application]

NOTE: THE WIRES FROM THE COMPRESSOR AND THE FAN TO THE MOTOR-RUN CAPACITOR ARE NOT SHOWN IN THIS ILLUSTRATION.

AmRad's Easy-Start "4" is produced under one or more of the following U.S. Patents: 8,270,143; 7,835,133, 7,474,519; 7,423,861; 7,203,053; 6,014,308; 5,313,360; 4,312,145; 4,312,027; 4,028,595.

AmRad's Turbolytic™50 and Turbolytic™Jr

The World's First Multiple-Value Motor-Start Capacitors

5year Unconditional WARRANTY

ONE Turbolytic™ 50 can replace any one of 64 DIFFERENT motor-start capacitance values!

Turbolytic 50- Replaces 50 popular values up to 302 mfd at 330VAC

Turbolytic Jr- Replaces 12 of the most popular values up to 227 mfd at 330VAC

The Turbolytic™50 and Turbolytic™Jr are industrial-grade, permanent replacement parts.

*Incorporated with the same film dielectric technology used in AmRad's motor-run capacitors. the Turbolytic™50 and Turbolytic™Jr are safety protected using a UL approved safety interrupter- the same safety mechanisms used in all AmRad capacitors.

Turbolytic™50 Wiring Instructions

By the simple use of jumper wires (supplied), combine the motor start capacitor values needed. See the chart below. These are the most popular motor start capacitance values use in air conditioning and refrigeration.

Items 1 to 14 (up to 270 - 324 microfarads) are available in the Turbolytic™50

For lower capacitance values, the smaller Turbolytic™Jr covers all ranges up to and including 189-227 microfarads

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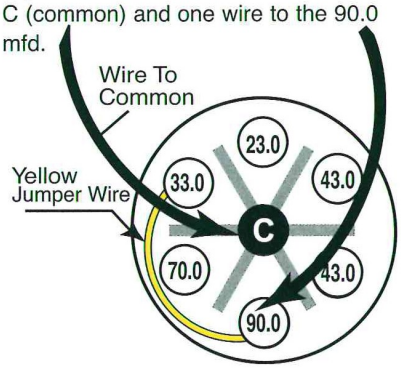
The Turbolytic™50 size is: 2.5 inch round (base) X 5.75 inch height (not including terminals)

The Turbolytic™Jr size is: 2.5 inch round (base) X 4.50 inch height (not including terminals)

EXAMPLE : Using the Turbolytic™ 50 to replace a 108-130 mfd motor-start capacitor - (Item 6)

Step 1) Use one yellow jumper wire and connect the red terminal (33 mfd) and purple terminal (90 mfd) together. This will equal 123 mfd (which falls within the 108-130 mfd range).

Step 2) Take the wires which were disconnected from the old motor-start capacitor and connect one wire to C (common) and one wire to the 90.0 mfd.



THE "COMMON" SIDE OF THE CAPACITOR IS THE BLACK TERMINAL	ITEM	TO REPLACE A CAPACITOR IN THIS RANGE*	USE THESE MFD VALUES ON THE TURBOLYTIC™ 50	FINAL REPLACEMENT VALUE WHICH THEN FALLS WITHIN THE APPROPRIATE RANGE (IN MFD)
	1	21-25 MFD	23 =	23 MFD TOTAL
	2	30-36 MFD	33 =	33 MFD TOTAL
	3	34-53 MFD	43 =	43 MFD TOTAL
	4	72-88 MFD	43 + 43 =	86 MFD TOTAL
	5	88-108 MFD	70 + 33 =	103 MFD TOTAL
	6	108-130 MFD	90 + 33 =	123 MFD TOTAL
	7	124-149 MFD	70 + 43 + 23 =	136 MFD TOTAL
	8	135-155 MFD	90 + 33 + 23 =	146 MFD TOTAL
	9	145-174 MFD	90 + 70 =	160 MFD TOTAL
	10	161-193 MFD	70 + 90 + 23 =	183 MFD TOTAL
	11	176-216 MFD	70 + 90 + 43 =	203 MFD TOTAL
	12	189-227 MFD	70 + 90 + 33 + 23 =	216 MFD TOTAL
	13	233-288 MFD	70 + 90 + 43 + 43 + 23 =	269 MFD TOTAL
	14	270-324 MFD	23 + 33 + 43 + 43 + 70 + 90 =	302 MFD TOTAL

[*Note: Motor-Start microfarad (mfd) capacitance values are always shown as a range (low to high)].

AmRad's Turbo57™RMAC

Innovation for the Appliance and Window A/C Service Technician

Designed specifically to replace capacitors installed in window air conditioning units.

The Turbo57™RMAC can replace any one of 57 DIFFERENT single and dual value capacitors!

Turbo57RMAC- replaces 57 differer single and dual value motor-run capacitors for use with 110, 115, or 120V (AC) rated room air conditione

The Turbo57™RMAC is an industrial-grade, permanent replacement part.

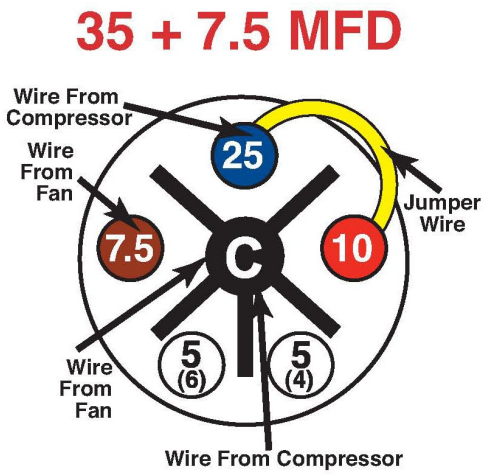
*Incorporated with the same film dielectric technology used in AmRad's motor-run capacitors. The Turbo57™RMAC is safety protected using a UL approved safety interrupter- the same safety mechanisms used in all AmRad capacitors.

TurboRMAC™ Wiring Instructions

EXAMPLE: To replace a 35+7.5 microfarad dual value capacitor

Steps:

1) Make note of the wires which are attached to the fan motor (F), common (C) and compressor (Herm) terminals of the capacitor being replaced.
2) To achieve the 35.0 microfarad for the compressor (HERM): Using one (1) yellow jumper wire, connect the 25 mfd to the 10 mfd (as shown). This now provides 35 microfarads (mfds).
3) Connect one of the wires from the compressor to the 25 microfarad terminal.
4) Connect the other wire(s) from the compressor to the common (C). [The common is the center black terminal].
5) To obtain the 7.5 microfarad for the fan (F), connect one wire from the fan motor to the 7.5 terminal.
6) Connect the other wire from the fan motor to the common (C). [The common is the center black terminal].



The Turbo®57RMAC Enhanced is produced under one or more American Radionic United States patent numbers: 7,835,133, 7,474,519; 7,423,861; 7,203,053; 6,014,308. Additional patents pending. This series is designed, developed and manufactured by American Radionic Co, Inc.