

Service Tips



Note: Information is from our Service Tips located at:

<https://portal.fujitsugeneral.com>

Login to your Contractor Tools

Click on My Documents

Halcyon - Service Tips (Index)

Index Name	Page #
Title Page	1
Index	2
001 Discharge Temperature Thermistor Error (Testing EEV Coil)	3
008 Fan Motor Check (indoor and outdoor)	4-6
010 ACTPM Check (Active Filter Module)	7-8
014 IPM Check (Inverter Power Module chip testing)	9
017 Stepper Motor (fan louver motor)	10
019 Diode Bridge Check	11
065 6 Step Maintenance	12-15
021 Incorrect wiring (Crossed wires between indoor & outdoor units)	16
023 Multi Zones & Auto Mode	17
030 Electronic Condensate Overflow Switch	18
044 Technician Troubleshooting Checklist	19
050 How to Enter Function Settings	20
060 Inverter Compressor Test	21
057 Use of Compression Fittings with Fujitsu Halcyon Equipment	22
Technical Support	23
Intentionally Left Blank	24

Discharge Temperature Thermistor Error

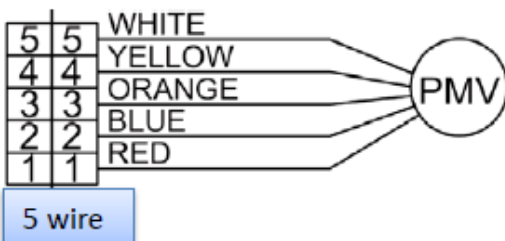
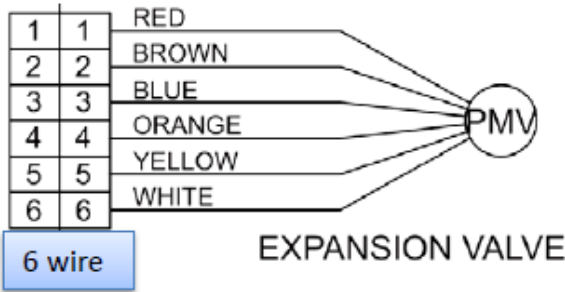
Some examples of a Discharge Temperature Thermistor error on most models:

7x Operation & 2x Timer / 10 Operation & 1x Timer / E:A11 (HFI) / E:A51 (HFI) / 18x LED 1 / E:0F (wired remote)

Conditions:

- Low Charge
- Restrictions
- Defective Electronic Expansion Valve (EEV)

To check running pressure on the system, power off the outdoor unit for 5 minutes. While the power is off check the EEV's resistance and ensure it is operating correctly.



Check Point 2 : Check coil of EEV

Remove connector, check each winding resistance of Coil.

Read wire	Resistance value
White - Red	$46 \Omega \pm 4 \Omega$ at 68°F (20°C)
Yellow - Red	
Orange - Red	
Blue - Red	

► If Resistance value is abnormal, replace EEV.

Check Point 2 : Check coil of EEV

Remove connector, check each winding resistance of Coil.

Read wire	Resistance value
White - Red	$46 \Omega \pm 4 \Omega$ at 20°C
Yellow - Brown	
Orange - Red	
Blue - Brown	

► If Resistance value is abnormal, replace EEV.

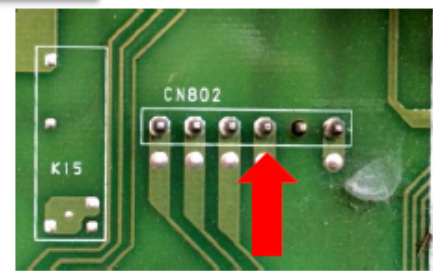
If the EEV's ohm readings are bad replace it. The EEV coil snaps onto the valve. If the EEV is good there is likely a leak in the system. The most common places for leaks are on the flare connections at the indoor and outdoor units. If the EEV coil is good and there is no leak there may be a restriction. Pump down the system and blow the lines out with nitrogen.

Checking for 12 volts DC output from Control Board



Test on all 6 solder points on the board and verify voltage reads 12-13 volts DC.

Find and use a DC ground on the main control board.



On multi-zone systems look for CN802 (fan motor) Use pin 3 for DC ground.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Testing Fan Motors

Some examples of a fan motor error on most models:

5x Operation & 6x Timer / 6x Operation & 2x Timer / 6x Operation & 3x Timer / 9x Operation & 7x Timer / 5x Operation & 1x Timer / 6x Operation & continuous Timer blink / Continuous Operation blink & 14x Timer / E:973 / 15x LED 1 (condenser) / 16x LED 1 / E:1b (wired remote) / E:51 (wired remote) / E:97 (wired remote) / E:12 (wired remote)

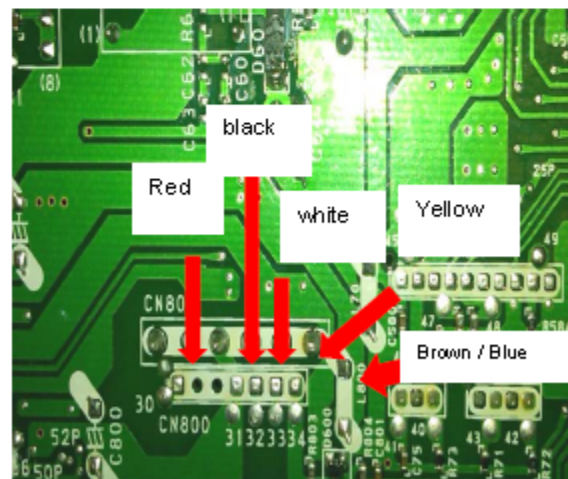
- Use caution when checking DC volts for fan motors.
- When checking ohms, the fan motor must be de-energized.
- Always check the 3.15 amp fuse on the control board with a continuity test. (If fuse is open replace control board and fan motor).
- Unplug fan motor from control board and spin fan blade by hand to check for any resistance.
- It should turn/spin freely over 2 full revolutions.
- Always ohm fan motor when replacing a Main Control Board.
- When ohming fan motor use a meter that has ohm rating of 400k or higher. Unplug fan motor and place black lead of meter on black wire of fan motor and red lead of meter will go to the other fan leads one at a time. See attached charts for proper ohm readings for your specific motor.
- When checking DC volts for fan motor to determine if board is the problem or fan motor is the problem use the charts below.

Check Point 4 : Check Output Voltage of Main PCB

• Check outdoor unit circuit diagram and the voltage.
(Measure at Main PCB side connector)

Read wire	DC voltage
Red - Black	290V (AC115V-10%)~ 360V (AC115+10%)
White - Black	15±1.5V

▶ **If the voltage is not correct, replace Main PCB.**



Disclaimer:

In order to perform some of these repair instructions, refrigerant recovery is required. We strongly advise to check the Service manual for more detailed explanation. Please refer to your local laws and regulations and please contact your local 466-665-4204.

OUTDOOR FAN MOTOR RESISTANCES



Service Tips

Model	Red-Black	White-Black	Yellow-Black	Brown-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black																																																											
Motor MFE-71TVL AOU9RLFC AOU9RLFF AOU9RLFFH AOU9RLS AOU9RLS2 AOU9RLS2H AOU9RLS3 AOU9RLS3H AOU12RLFC AOU12RLFF AOU12RLFFH AOU12RLS AOU12RLS2 AOU12RLS2H AOU12RLS3 AOU12RLS3H AOU15RLS AOU24CL1	300K-OL	110K-130K	70K-90K	Mega Ohms-OL	AOU15RLFF AOU15RLFFH AOU15RLS2 AOU15RLS2H AOU15RLS3 AOU15RLS3H AOU18RLB AOU18RLFC AOU24RLB Motor MFE-71TVL	300K-OL	110K-130K	75K-100K	Mega Ohms-OL																																																											
										Model	Red-Black	White-Black	Yellow-Black	Brown-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black																																																	
										Motor MFE-60VT AOU18RLXFW AOU18RLXFWH AOU18RLXFW1 AOU18RLXFZ AOU18RLXS AOU24RLXFW AOU24FLXFWH AOU24RLXFW1 AOU24RLXFZ AOU24RLXS AOU30CLX1 AOU30RLX AOU30RLXB AOU36CLX1 AOU36RLXB	300K-OL	45K-55K	120K-140K	Mega Ohms-OL	AOU15RLQ AOU18CL AOU18RL AOU18RLQ Motor MFE-18ROM	300K-OL	1K-2K	190K-210K	Mega Ohms-OL																																																	
															Model					Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black																																								
															Motor MFE-45VVT_White (MFE-45ROM_Black) AOU18RLX AOU18RLXFZH AOU24RLX AOU24RLXFZH AOU24RLXQ AOU24RML AOU24RML1 AOU30CLX AOU30RLXQ AOU30RLXEH AOU36CLX AOU36RLX AOU36RLXFZ AOU36RLXFZ1 AOU36RML AOU36RML1 AOU42RLX					300K-OL	40K-100K (1.2K)	120K-140K (190K-210K)	Mega Ohms-OL	AOU24CL AOU24RL AOU24RLQ Motor MFE-24ROM	300K-OL	1K-2K	190K-210K	Mega Ohms-OL																																								
																								Model					Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black																															
																								AOU9RLQ AOU12RLQ Motor MFE-12ROAM					300K-OL	1K-2K	190K-210K	Mega Ohms-OL	AOU9RLFW Motor MFE-28TVL	300K-OL	120K-150K	80K-100K	Mega Ohms-OL																															
																																						Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black																					
																																						AOU48RLXFZ AOU48RLXFZ1 Motor MFE-45WVN	300K-OL	40K-60K	125K-150K	Mega Ohms-OL	AOU12RLFW Motor MFE-40WL	300K-OL	30K-45K	80K-100K	Mega Ohms-OL																					
																																																Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black											
																																																AOU48RLXFZ AOU48RLXFZ1 Motor MFE-45WVN	300K-OL	40K-60K	125K-150K	Mega Ohms-OL	AOU9RL Motor MFE-12TVBM	300K-OL	1K-2K	190K-210K	Mega Ohms-OL											
																																																										Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black	
																																																										AOU48RLXFZ AOU48RLXFZ1 Motor MFE-45WVN	300K-OL	40K-60K	125K-150K	Mega Ohms-OL	AOU9RL2 AOU12RL2 Motor MFE-22AVL	300K-OL	115K-145K	75K-100K	Mega Ohms-OL	
																																																																				Model
AOU48RLXFZ AOU48RLXFZ1 Motor MFE-45WVN	300K-OL	40K-60K	125K-150K	Mega Ohms-OL	AOU36RLXFZH AOU45RLXFZ MFE-2A2VA2N	Mega Ohms-OL	51M	151K	Mega Ohms-OL																																																											
																																																																				Model

INDOOR FAN MOTOR RESISTANCES



Service Tips

Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black
ASU7RLF ASU9RL ASU9RLF ASU12RL ASU12RLF ASU15RLS Motor MFD-12YYAN	300K-OL	30K-120K	225K-260K	Mega Ohms-OL	ASU18RLF ASU18RLXS ASU18RLB ASU24RLB ASU24CL ASU24CL1 ASU24RL ASU24RLF ASU24RLQ ASURLXQ ASU24RLXS ASU30CLX ASU30CLX1 ASU30RLX ASU30RLXB ASU30RLXQ ASU36CLX Motor MFD-50RON	300K-OL	40K-60K	140K-160K	Mega Ohms-OL
Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black
ASU9RLQ ASU9RMLQ ASU12RLQ ASU12RMLQ ASU15RLQ ASU18RLQ ASU18CL ASU18RL ASU18RMLQ Motor MFD-34RON (MFD-34ROAN_White)	300K-OL	1K-2K (40K-60K)	90K-120K (140K-160K)	Mega Ohms-OL	ASU18RLF ASU18RLXS ASU18RLB ASU24RLB ASU24CL ASU24CL1 ASU24RL ASU24RLF ASU24RLQ ASURLXQ ASU24RLXS ASU30CLX ASU30CLX1 ASU30RLX ASU30RLXB ASU30RLXQ ASU36CLX Motor MFD-50RON	300K-OL	40K-60K	140K-160K	Mega Ohms-OL
Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black
ASU9R2 ASU9RQ ASU9CQ ASU12R2 ASU12RQ ASU12CQ Motor MFD-12POM	300K-OL	25K-50K	280K-320K	Mega Ohms-OL	AUU7RLF AUU9RML AUU9RLF AUU12RML AUU12RLF AUU18RML AUU18RLF Motor MFF-24VVL	300K-OL	80K-100K	80K-110K	Mega Ohms-OL
Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black
ASU7RLF1 ASU9RLF1 ASU12RLF1 ASU15RLF1 Motor MFD-12CYAN	OL	110K-140K	260K-310K	OL	ASU9RLS3 ASU12RLS3 ASU15RLS3 Motor MFD-W60XA2F	2M-3M	30K-50K	100K-105K	Mega Ohms-OL
Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black
AGU9RLF AGU12RLF AGU15RLF Motor MFD-145XAN_upper (MFD-14TXAN_lower)	2M/3M OL	30K-35K 45K-50K	155K-160K 150K-155K	OL OL	ASU36RLXB ASU36CLX1 Motor MFD-71TXAN	OL	40K-60K	140K-170K	OL
Model	Red-Black	White-Black	Yellow-Black	Blue-Black	Model	Red-Black	White-Black	Yellow-Black	Brown-Black
ASU9RLS2 ASU12RLS2 ASU15RLS2 Motor MFD-12TYL	300K-OL	100K-125K	240K-265K	Mega Ohms-OL	ARU9RLF ARU12RLF Motor MFG-14WV	300K-OL	20K-50K	80K-110K	Mega Ohms-OL
Model	Red-Black	White-Black	Yellow-Black	Brown-Black	Model	Red-Black	White-Black	Yellow-Black	Blue-Black
ARU18RLF ARU24RLF Motor MFG24WV	300K-OL	25K-55K	70K-100K	Mega Ohms-OL	ASU9RL2 ASU12RL2 Motor MFD-12CWN	300K-OL	100K-125K	240K-265K	Mega Ohms-OL

ACTPM Check

Some examples of an Active Filter Module error on most models:

8x Operation & 2x Timer / 8x Operation & 3x Timer / 6x Operation & 4x Timer / Continuous Operation blink & 12x Timer / E:641
22x flashes LED 1 / E:19

The Active Filter Module on inverter units is a PCB that will filter the harmonic current. It's output is supplied to the IPM PCB. If the unit has been installed and operating normally but suddenly shows an communication error after a power outage or thunderstorm, you may suspect the ACTPM failure. Although your first reaction may be to replace it, test it with an ohm meter and determine if it needs a replacement. Remember to remove power and wait five minutes before unplugging the PCB for testing.

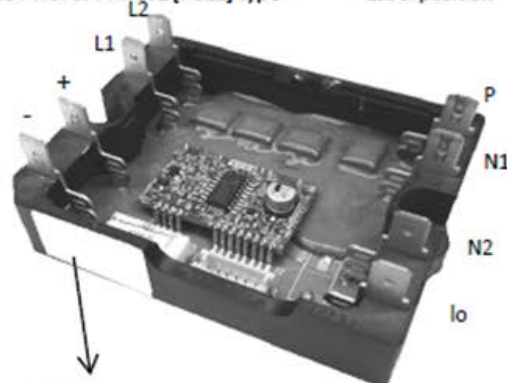
Check Points: Check Open or Short-circuit and Diode.

Remove all connectors first !!!
Check the open or short-circuit

Terminal		Resistance Value			
		Type A		Type B	
Multimeter (+)	Multimeter (-)	SACT32010 [HITACHI]	LACT33020 [HITACHI]	PM-604 [FGEL]	PM-703 [FGEL]
		PM-601 [FGEL]	LOT No. 1302931395	PM-601 [FGEL]	LOT No. 1302931396
+ (+IN)*	- (-IN)*	360kΩ ± 20%		360kΩ ± 20%	
- (-IN)*	N1 (N)*	0Ω		0Ω	
P	+ (+IN)*	720kΩ ± 20%		900kΩ ± 20%	
L1	L2	1.01MΩ (Ref. 1)	0.76MΩ (Ref. 2)	1.01MΩ (Ref. 1)	0.76MΩ (Ref. 2)
P	N1 (N)*	360kΩ ± 20%		540kΩ ± 20%	
L1, L2	Control Box	∞Ω		∞Ω	
L2	N1 (N)*	1.65MΩ (Ref. 1)	1.14MΩ (Ref. 2)	1.65MΩ (Ref. 1)	1.14MΩ (Ref. 2)



LOT No. of PM-601 [FGEL] type Label position



Model name

Lot No. (10 figures)

Check the diode

Terminal		Resistance value	
Multimeter (+)	Multimeter (-)		
L2	P	1.32MΩ (Ref. 1)	0.66MΩ (Ref. 2)
P	L2	1.01MΩ (Ref. 1)	0.76MΩ (Ref. 2)

Standard values change depending on the meter used for testing (Type A and B are the same values).

Ref. 1

Specifications for Multimeter
Manufacturer : FLUKE
Model name: FLUKE11
Power source: DC9V

Ref. 2

Specifications for Multimeter
Manufacturer : SANWA
Model name: PM3
Power source: DC3V

>> If it is abnormal, replace ACTIVE FILTER MODULE.

If error codes shows pointing at the ACTPM PCB:

Check the Output DC voltage (between P and N1) while compressor is stopped and while it's operating. If the output voltage while compressor is operating is less than the output voltage while compressor is stopped, Active Filter Module is defective. Error condition other than communication mentioned above will show. If ACTPM PCB is defective, always test the IPM PCB as well. -----FOR

DETAILS ON 4Ton system ACTPM PCB see Page 2/2-----

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

ACTPM Check

Some examples of an Active Filter Module error on most models:

8x Operation & 2x Timer / 8x Operation & 3x Timer / 6x Operation & 4x Timer / Continuous Operation blink & 12x Timer / E:641
22x flashes LED 1 / E:19

The Active Filter Module on inverter units is a PCB that will filter the harmonic current. It's output is supplied to the IPM PCB. If the unit has been installed and operating normally but suddenly shows an communication error after a power outage or thunderstorm, you may suspect the ACTPM failure. Although your first reaction may be to replace it, test it with an ohm meter and determine if it needs a replacement. Remember to remove power and wait five minutes before unplugging the PCB for testing.

Check Points: Check Open or Short-circuit and Diode.

AOU48RLXFZ / AOU48RLXFZ1

Remove all connectors first !!!
Check the open or short-circuit.

Terminal		Resistance Value
Multimeter (+)	Multimeter (-)	
(+IN)	(-IN)	360kΩ ± 20%
(-IN)	N	0Ω
P	(+IN)	900kΩ ± 20%
L1	L2	2.03MΩ ± 20% / 4.83MΩ ± 20% (Ref. 1) (Ref. 2)
P	N	540kΩ ± 20%
L1, L2	Control Box	∞Ω
L2	N	1.69MΩ ± 20% / 1.23MΩ ± 20% (Ref. 1) (Ref. 2)

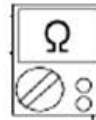
Check the diode

Terminal		Resistance Value
Multimeter (+)	Multimeter (-)	
L2	P	1.12MΩ ± 20% / 504kΩ ± 20% (Ref. 1) (Ref. 2)
P	L2	2.23MΩ ± 20% / 503kΩ ± 20% (Ref. 1) (Ref. 2)

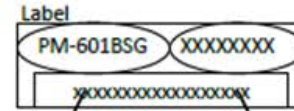
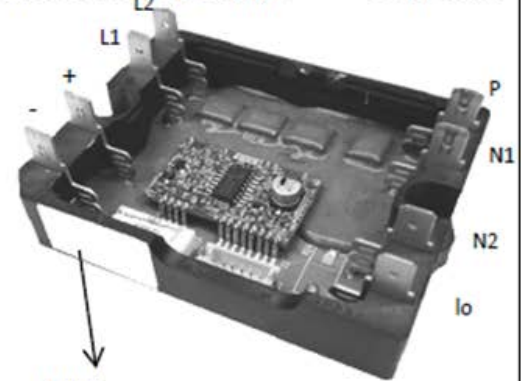
>> If it is abnormal, replace ACTIVE FILTER MODULE.

If error codes shows pointing at the ACTPM PCB:

Check the Output DC voltage (between P and N1) while compressor is stopped and while it's operating. If the output voltage while compressor is operating is less than the output voltage while compressor is stopped, Active Filter Module is defective. Error condition other than communication mentioned above will show. If ACTPM PCB is defective, always test the IPM PCB as well.



LOT No. of PM-601 [FGEL] type Label position



Model name Lot No.(10 figures)

Standard values change depending on the meter used for testing (Type A and B are the same values).

Ref. 1

Specifications for Multimeter
Manufacturer : FLUKE
Model name : FLUKE11
Power source: DC9V

Ref. 2

Specifications for Multimeter
Manufacturer : SANWA
Model name : PM3
Power source: DC3V

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

IPM Check

This Service tip is to be used if you are getting an IPM error and/or the compressor does not start.

Some examples of an IPM error on most models:

5x Operation & 2x Timer / 6x Operation & 5x Timer / E:65 (wired remote) / E:653 (HFI) / Continuous Operation blink & 10x Timer (universal mount/ceiling suspended) / E:17 (wired remote) / 12x flashes LED 1 (condenser)

1. Turn power off to outdoor unit and wait 3 minutes for DC voltage to discharge.
2. Check that IPM is wired correctly. (According to Schematic)
3. Check the following resistance values on the IPM. (Before taking resistance readings remove all wires connected to the IPM. On certain models the red and black wires to the ACTPM and white and black wires to CN200 on control board should also be removed.)
4. All readings on test 1 should be within +/- 20 ohms of each other and test 2 should be within values shown.

The Inverter Power Module (IPM) is located where the compressor leads attach to the printed circuit board(PCB). They are marked U,V and W on the PCB and where the Yellow and Blue wires attach P and N.

5. If the readings on Tests 1 or 2 are incorrect and the wiring is correct replace the board that contains the IPM and depending on model the ACTPM board if it has one.
6. When your IPM is bad you will also need to ohm out compressor and test outdoor fan motor according to Tech Tip #008 and confirm both are good before replacing the IPM or any other boards.

Test 1

Test 2

Place meter in (Mega Ohms)

Terminal		Resistance Value
Tester (+)	Tester (-)	
P	U	Over 2k Ω (Including $\infty \Omega$)
P	V	
P	W	
U	P	Over 20k Ω (Including $\infty \Omega$)
V	P	
W	P	
N	U	
N	V	Over 2k Ω (Including $\infty \Omega$)
N	W	
U	N	
V	N	
W	N	

Place meter in (Diode mode)

Terminal		Tester Display
Tester (+)	Tester (-)	
P	U	∞
P	V	
P	W	
U	P	0.3 V ~ 0.7 V
V	P	
W	P	
N	U	
N	V	
N	W	
U	N	
V	N	∞
W	N	

Disclaimer: In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324. #014
© 2015 Fujitsu General America, Inc. 11/20/13

Louver Motor Testing

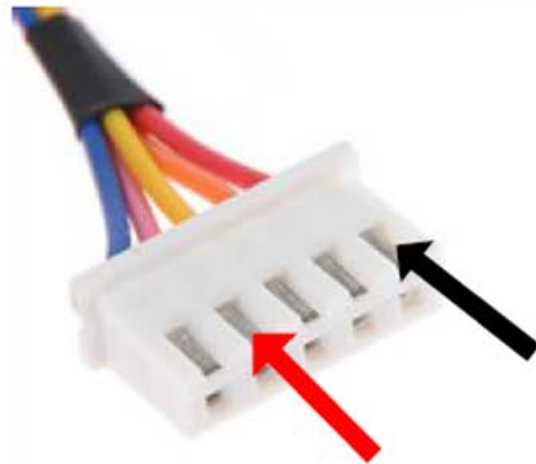


This Service tip is for testing the louver motors used in Fujitsu model indoor units.

To complete this test shut off main power , Unplug stepper motor from board and place your meter in **Ohms Ω**.

Place Your **Black (-)** lead on the **Red** wire and your **Red (+)** lead to each wire and you should read the same values on all wires.

Ohms Ω Readings
(All Fujitsu Stepper Motors)
225-325 Ohms Ω

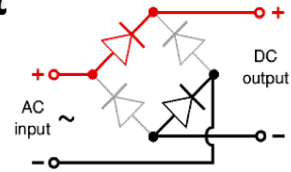


If you read either open or shorted on any of the wires or out of the range listed, replace the stepper motor.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Diode Bridge Rectifier Test



Meter Lead		Resistance
Black	Red	
(+)	~	0.4 – 0.7
	~	0.4 – 0.7
~	(-)	0.4 – 0.7
~	(-)	0.4 – 0.7

Select this symbol on the meter.

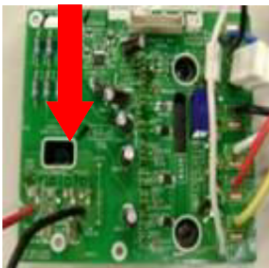


When checking for a communication error and found that the outdoor unit is not communicating, one of the test you are required to conduct will be the Bridge Rectifier Test.

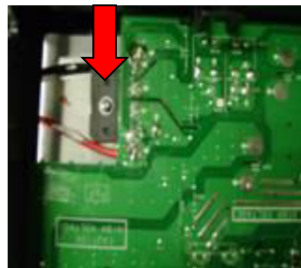
Meter Lead		Resistance
Black	Red	
(-)	~	OL
	~	OL
~	(+)	OL
~	(+)	OL

For the Diode Bridge Rectifier location refer to the below pictures by model.

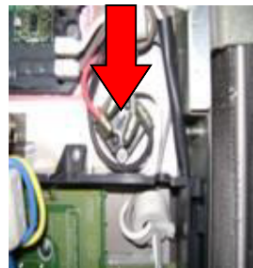
IPM board on a 5 board setup condenser.



Multi-zone, large cassette, & universal model condensers.



42RLX, large cassette condenser.



Main Control board, single board configuration.



Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

6 Steps In Maintaining Your Fujitsu Mini-split Systems **Service Tips**

1) Primary filters must be kept clean.



- a. Airborne dust, debris and hours of operation attract the mentioned elements and will cause restriction in air flow.
- b. Residential - indoor units will require bi-monthly cleaning depending on the usage. (recommended hand wash, not dishwasher safe)
- c. Commercial - highly used areas, clean filters weekly.

The RLQ. (System discontinued)

- **The filters were easily removed and cleaned by hand with mild dish washing liquid. (Vacuum black carbon filter)**

Indoor Air Quality filter (IAQ)



- 2) Fujitsu systems can be programmed to alert end-user to clean the filters after so many hours of operation (optional).
(check install manual for function settings).

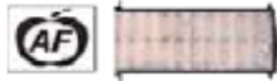
Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

© 2016 Fujitsu General America, Inc.

Current Filters

- ❖ Apple Catechin Filter has a 3 to 12 month life expectancy depending on environment, needs to be replaced.



- ❖ The Ion Deodorizing filter has a 3 year life expectancy which can be washed to restore surface action or can be replaced.



- 3) Visually inspect indoor, outdoor coils for optimum air flow.
 - a) It is recommended to examine coils each year and keep clean.
 - b) It may be necessary to clean the coils every year depending on usage.
 - c) Coil cleaning requires removing front cover of the indoor unit.
 - d) If need be vacuum the indoor coil with a soft bristle brush attached.
 - e) Vacuum the indoor coil up & down, not left to right.
 - f) Remove all dust and debris.
 - g) Coil cleaning solutions being used must be diluted with water.(per manufactures specs).

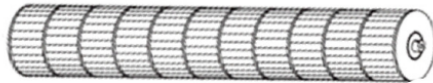
Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

© 2016 Fujitsu General America, Inc.

6 Steps In Maintaining Your Fujitsu Mini-split Systems **Service Tips**

- 4) Drain pan must be clean of any mold, mildew and or algae that would cause unpleasant odor or clogging of drain pan and hose.
 - a) Coil cleaning solutions should be sufficient enough to remove any grime in the drain pan or surrounding plastic.
 - b) Make sure the drain hose is free of all clogs.
- 5) Make sure the blower wheel assembly is free of debris.
 - a) Visual inspection is needed.



6. Make sure the outdoor unit is clean.
 - a) Make sure outdoor unit is level.
 - b) Make sure outdoor unit is raised up off its pad with risers bolted securely to the pad, (per installation manual).
 - c) Make sure line sets have no kinks,
 - d) Make sure line sets insulation has not deteriorated from exposure to UV radiation (**direct sunlight**).
 - e) Make sure that the outdoor unit side discharge is free of debris and raised above anticipated snow fall levels in the area.
(**if snow falls in your area**)

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

6 Steps In Maintaining Your Fujitsu Mini-split Systems

Service Tips

Disconnect Main Power to system



Fig.1



Fig.2

NOTE: Fujitsu suggests visiting: www.speedclean.com when cleaning wall mounted indoor units **Fig.1** (OPTIONAL), can also be hand sprayed and rinsed.

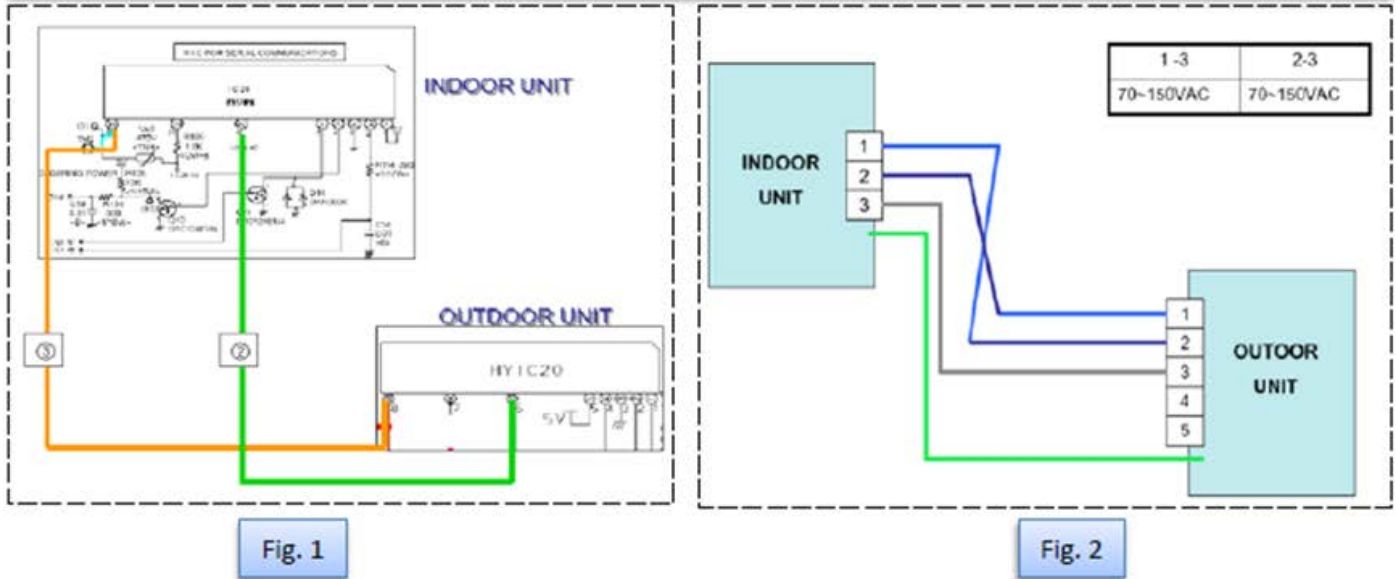
- Arrange plastic sheeting around the indoor unit.
- Protect the wall, floor and around the back of the indoor unit.
- Spray coil cleaner onto the indoor coil and blower wheel, **Fig.2**.
- Let solution sit for the recommended amount of time.
(per manufacturers instructions)
- Rinse with clean tap water.
- Repeat process until coil is clean of dirt, mold and mildew.
- Allow unit to dry for 24 hours.
- Inspect all components ensuring they are completely dry.
- Reassemble the plastic outer cover of indoor unit before startup.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Incorrect Wiring

Halcyon inverters units communicate via terminal 3 and 2. While terminal 1 & 2 is the AC input, terminal 2 also carries data between the indoor and outdoor unit (Fig.1). A common miss wiring mistake done in the field will make the system go into an error lockout mode, and perhaps the most common error is the crossed connection between terminals 1 & 2 (Fig.2).



If an error code (2 green blinks) is shown upon installation of the system, you may suspect terminals 1 & 2 being crossed. How to determine if this your problem, when all the wiring are already between walls or inside conduits? There are two simple tests, one is checking AC voltage and the second is checking continuity. If the oscillating voltage between 1-3 is the same as 2-3 as shown on Chart 1 (70~150VAC), the probability of these two wires being crossed is great, after cutting power to the system you can confirm it with a simple continuity test.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

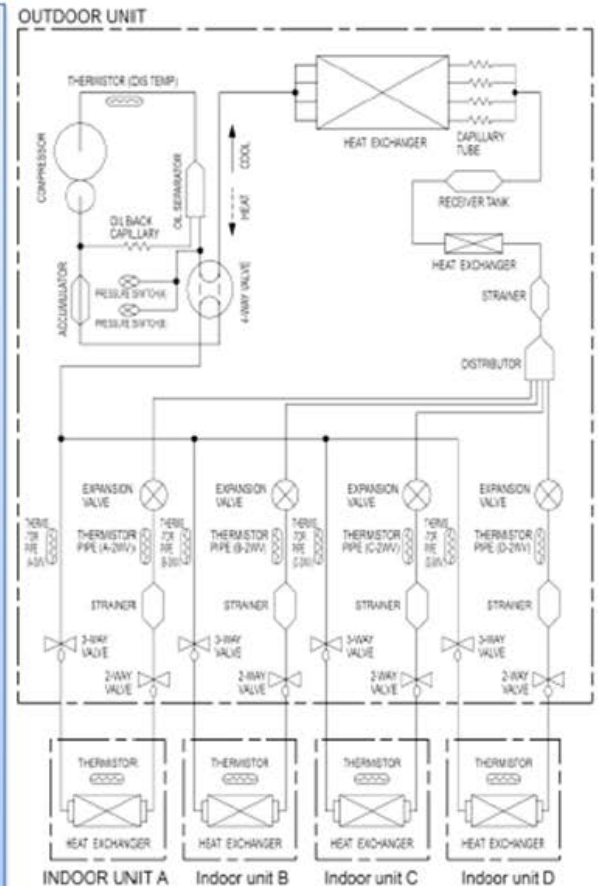
Multi-Zones & Auto Mode

Auto Changeover alternates between heating or cooling if the room temperature falls 4°F below the set temperature when cooling or rises 4°F above the set temperature when heating. Auto changeover is not designed to provide rapid changes between heating and cooling operation or simultaneous heating and cooling. This feature is not recommended for systems with more than one indoor unit unless all indoor units have similar heating and cooling requirements and have similar temperature set points.

Inverter multi-zone units have one refrigerant system Fig. 1, and operation of each indoor unit should be harmonized with the primary settings. The first unit with the heating or cooling settings takes precedence. If an indoor unit is set to operate on a mode it can't perform or not in accordance with the primary settings, the OPERATION LED (Red) of the indoor unit will flash (1 second ON and 1 second OFF) and will go into standby mode.

EXAMPLE:

If indoor unit (A) was started in fan mode and then the indoor unit (B) was then operated in heating mode, indoor unit (A) would temporarily start operation in fan mode but when indoor unit (B) started operating in heating mode, the OPERATION indicator lamp (red) for indoor unit (A) would begin to flash (1 second on, 1 second off) and it would go into standby mode. Indoor unit (B) would continue to operate in heating.



Not Permissible Mode Combination	
Mode	•Heating (COIL DRY) mode and cooling mode (or dry mode)
	•Heating (COIL DRY) mode and fan mode
Permissible Mode Combination	
Mode	•Cooling mode and dry mode
	•Cooling mode and fan mode
	•Dry mode and fan mode
	•Heating mode and COIL DRY mode

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Electronic Condensate Overflow Switch

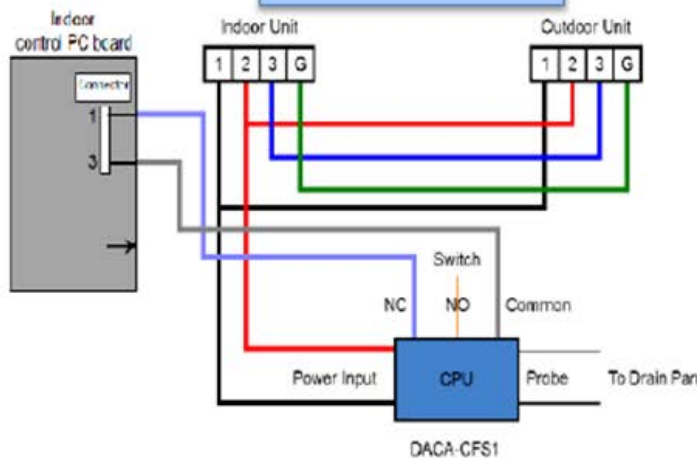
The Safe-T-Switch SS610E condensate switch is compatible with all wall mounted ASU's models. It senses high condensate levels in the drain pan and shuts the system off to prevent condensate overflow.

Option:1

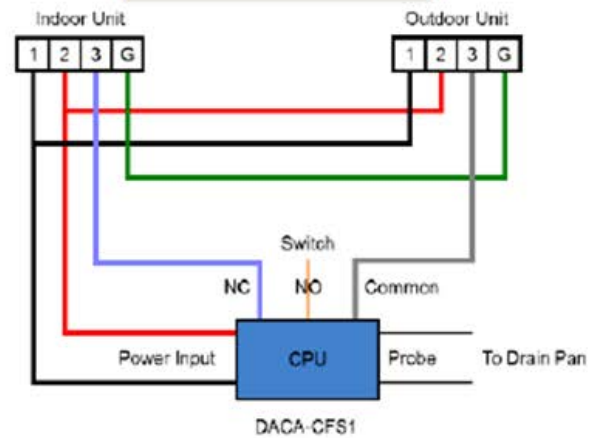
This option is for non-HFI models only. You will need to break the terminal 3 (communication wire) through the NC contacts of the float switch. This will shut off the outdoor unit and create a communication error code.



Wiring Diagram Option: 2



Wiring Diagram Option: 1



NOTE: Keep the wires as short as possible when installing the float switch.

Option:2

This option is only available for HFI models. A forced stop function and dry contact kit are required to use this function. Additional parts are required if you have the following models. ASU7,9,12RLF,15RLS and 15RLS2. Refer to page 10 of our Fujitsu catalog for the right accessories for your system.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Technician Troubleshooting Checklist

Common Questions

1. What are the correct model/s and serial number/s?
2. Do you have a case file number?
3. What is the nature of the problem you are having?
4. Do you have an Inverter model?
5. Are you getting any error codes?
6. What error codes are you getting? (please refer to our troubleshooting guides)
7. Please have a quality mega meter (5megs minimum) as well as a diode reader ()
8. Please verify all wiring is correctly installed per Fujitsu installation manual.
9. Please verify copper line sets are installed and wrapped according to Fujitsu install manual.
10. Please verify drain line is pitched downward (gravity)
11. Please verify if there is a condensate pump installed?
12. Please verify proper distances for indoor unit and outdoor unit (Installation manual)
13. Are you using a wireless remote or wired-in remote? Model of remote being used?
14. Are all coils (evaporator & condenser) and filters (primary & plasma) clean?
15. Have you been to our portal website?

Electrical Questions

1. What is the voltage of the unit you are working on? Is it 115V? Or 208/230V?
2. Is there a dedicated line from main electrical panel to outdoor disconnect?
3. Are you using 14/3 AWG wire? (Refer to Fujitsu Installation manual)
4. Are you wired from outdoor unit to indoor unit, Fujitsu recommends color coding or numerical sequence.
5. Are there any wire nuts, junction boxes, condensate pumps being used? (Main causes for serial signal error codes) Please refer to troubleshooting guide for remaining codes.
6. Have you checked for any crossed wires (between indoor and outdoor)
7. Is there an emergency/safety switch wired in line with the indoor unit (3 pole single throw switch)
8. NEC codes requires switch in eye sight of indoor unit as well as local codes)
9. Please check Diode Bridge
10. Please check Active filter module
11. Please check IPM- Inverter power module (Questions 8,9,10 refer to Engineering Bulletins)

Refrigerant Questions

1. What are the room dimensions?
2. Was the system leak checked?
3. Was there nitrogen used when leak checked?
4. How much nitrogen was used to leak check?
5. How much of a vacuum was pulled?
6. Did you use our load calculator?
7. Was a load calculation done for each room?
8. What is the total load calculation you came up for each room?

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Entering Function Settings

UTY-LNHUM / UTY-LRHUM



Entering the Function Setting Mode:

Press the Fan (Control) button, Set Temp.(^) and the Reset button simultaneously then release the Reset button to enter the function setting mode.

Selecting the Function Number and Setting Value

1. Press the Mode button first then press the Set Temp. (^)(v) buttons to select the function number. (Press the Mode button to switch between the left and right digits.)
2. Press the Fan button to proceed to setting the value. (Press the Fan button again to return to the function number selection.)
3. Press the Set Temp. (^)(v) buttons to select the setting. (Press the Mode button to switch between the left and right digits.)
4. Press the Timer Mode button and Start/Stop button, in the order listed to confirm the settings.
5. Press the Reset button to cancel the function setting mode.
6. After completing the Function Setting, be sure to turn off power to the outdoor disconnect for a minimum of one minute and turn it on again.

AR-REC1U / AR-RED1U / AR-REG1U



Entering the Function Setting Mode:

Press the Powerful button, Set Temp.(^) and Reset button simultaneously then release the Reset button to enter the function setting mode.

Selecting the Function Number and Setting Value

1. Press the Set Temp. (^)(v) buttons to select the function number. (Press the Min. Heat button to switch between the left and right digits.)
2. Press the Powerful button to proceed to setting the value. (Press the Powerful button again to return to the function number selection.)
3. Press the Set Temp. (^)(v) buttons to select the setting. (Press the Min. Heat button to switch between the left and right digits.)
4. Press the Mode button and then the Start/Stop button, in the order listed to confirm the settings.
5. Press the Reset button to cancel the function setting mode.
6. After completing the Function Setting, be sure to turn off power to the outdoor disconnect for a minimum of one minute and turn it on again.

UTY-RVNUM



Entering the Function Setting Mode:

1. Make sure the indoor unit is powered down and not running otherwise you will be restricted from entering the Function Settings menu.
2. From the monitor screen, press the Menu button twice.
3. Once at the submenu, press and hold the Screen Left and Screen Right buttons for 5 seconds.
4. Select the Function Setting option from the list. From there you will be in the Function Settings Menu and free to select function number and setting values.
5. After completing the Function Setting, be sure to turn off power to the outdoor disconnect for a minimum of one minute and turn it on again.

UTY-RNBYU / UTY-RNNUM



Entering the Function Setting Mode:

1. Press the Set Temp. (^)(v) buttons and Fan button simultaneously for more than 5 seconds to enter the function setting mode.
2. Press the Set Back button to select the indoor unit number.
3. Press the Set Time buttons to select the function number.
4. Press the Set Temp. buttons (^)(v) to select the setting value. The display flashes as shown to the right during setting value selection.
5. Press the Timer Set button to confirm the setting. Press the Set button for a few seconds until the setting value stops flashing. If the setting value display changes or if "-.-" is displayed when the flashing stops, the setting value has not been set correctly. (An invalid setting value may have been selected for the indoor unit.)
6. Repeat steps 2 to 5 to perform additional settings. Press the Set Temp. buttons (^)(v) and Fan button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.
7. After completing the Function Setting, be sure to turn off power to the outdoor disconnect for a minimum of one minute and turn it on again.

UTY-RSNUM



Entering the Function Setting Mode:

1. Press both the Temp. Up and Down buttons (^)(v) and FAN together for more than 5 seconds simultaneously. Then, shift to Function Setting Mode.
2. Press the Temp. Up or Temp. Down button (^)(v) and select the indoor unit number. Then, press the Fan button.

Function Number & Setting Number Setting

3. "Function Number" display blinks. Then, display Number by pressing the Temp. Up or Temp. Down button.
4. When the "Setting Number" blinks, press the Fan button to set the Setting number by pressing the Temp. Up or Temp. Down button (^)(v).
5. Fix the setting by pressing the power button. (Data is transferred to the indoor unit).
6. After completing the Function Setting, be sure to turn off power to the outdoor disconnect for a minimum of one minute and turn it on again.

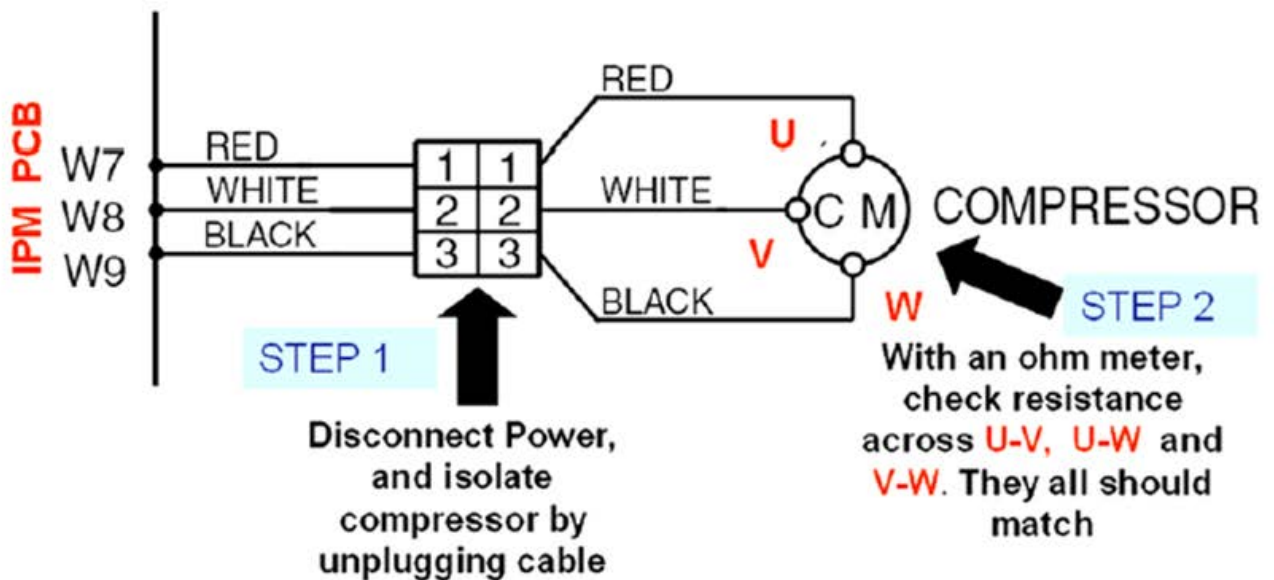
Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Checking an Inverter Compressor

Inverter DC Compressors differ from the AC type. While resistance across the Start, Run and Common terminals of AC compressors are not the same, DC type compressors terminal resistances are.

Terminals on a DC type compressor are labeled U, V and W as opposed to Common, Start and Run. Resistance is the same across of any two terminal of the compressor (U-V, V-W or W-U). Although resistance may be the same, it will vary according to the compressor temperature. Below is a simple way to test if a compressor is open or shorted.



RESISTANCE VALUE WILL VARY DEPENDING ON THE TEMPERATURE OF THE COMPRESSOR.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Use of Compression Fittings with Fujitsu Halcyon Equipment

This bulletin provides an overview of the application of third-party compression fittings with Fujitsu Halcyon equipment. These fittings can be used in place of flared connections in a Halcyon refrigerant piping system.

For most applications, Fujitsu recommends the use of traditional copper refrigerant piping and proper flaring techniques. This combination has proven reliability across many applications and over long periods of use. However, Fujitsu understands that in some cases, the use of compression fittings may have an economic or logistical advantage over flaring.

This bulletin does not condone the use of any alternative piping material. Fujitsu Halcyon systems may only be piped with high-quality copper refrigerant piping as specified in the Design & Technical Manuals and the Installation Manuals.

Fujitsu is not responsible for field installed piping or piping connections, nor for system warranty issues associated with piping leaks or failures. The approved use of compression fittings is dependent on the following guidelines:

1. The installing contractor must be fully trained and qualified for installation by the manufacturer of the compression fitting components.
2. All of Fujitsu's guidelines related to piping and piping components must be strictly followed, including proper pressure testing and evacuation procedures.
3. The installing contractor may not use any piping branches or separators that are not Fujitsu provided separation tubes, headers, and/or outdoor unit branch kits.
4. The burst pressure of the refrigerant piping system with compression fittings must be greater than or equal to 1,800 psig.
5. The compression fittings must be in compliance with all applicable local code requirements.
6. The installing contractor must ensure that no foreign substances are introduced into the refrigerant system, including sealants or other liquids provided by the manufacturer of the compression fittings.
7. The installing contractor assumes all responsibility for the quality and reliability of piping and piping components, with the exception of those components provided by Fujitsu.

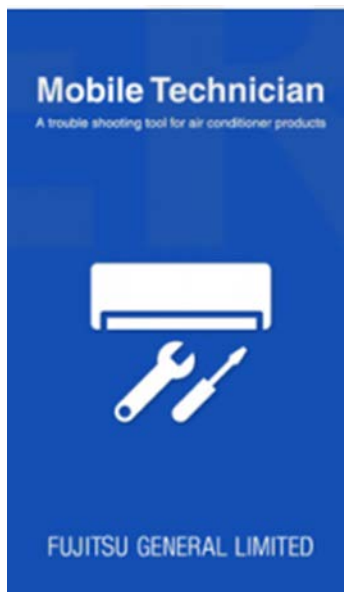
It is the responsibility of the installing contractor to ensure that good refrigeration practices are carried out when using compression fittings and to follow the guidelines provided by the manufacturer of the compression fittings. Fujitsu General America is not responsible for malfunctions of a Halcyon system as a result of installation of the compression fittings, including poor workmanship and/or poor refrigeration practices carried out by the installing contractor.

Disclaimer:

In order to perform some of these tests an electrical and/or refrigerant license is required. We strongly advise to check the Service manual for more detailed explanation. If you are not sure about these recommendations please contact us at 866-952-8324.

Technical Support

- Contact your local Distributor first
- If additional technical support is needed, call Fujitsu Service Department.
- Fujitsu Technical Support Email *servicehvac@fujitsugeneral.com*



Google Play



Android version 4.0 or later



iOS 6.0 or later and is compatible with iPhone, iPod touch and iPad*, it's optimized for the iPhone 5.

Free Technician App

