



SERVICE MANUAL

low temperature -40°C units



Contents

1- Models 3

2- Maintenance 3

3- Operation 4

4- A19/A319 locations 5-6

5- Troubleshooting 7

6- Electrical diagrams 8

7- A19/A319 photos 9

8- Documents and references 10-14

1- Models

Fujitsu low temperature -40°C units

AOU9RL240	AOU18CL40	AOU24CL40	AOU30CLX40	AOU36CLX40	AOU42RGLX40
AOU9RLFC40	AOU18RGLX40	AOU24CL140	AOU30CLX140	AOU36CLX140	AOU48RGLX40
AOU12RL240	AOU18RLB40	AOU24RGLX40	AOU30RGLX40	AOU36RGLX40	
AOU12RLFC40	AOU18RLFC40	AOU24RLB40	AOU30RLXB40	AOU36RLXB40	

2- Maintenance

The most important thing to remember about -40°C units is that maintenance is **essential** on this type of equipment. Too often we neglect to check the external coil properly.

These coils have 2 or 3 layers which collect a significant amount of dust.

For proper cleaning, we must separate the layers. Ideally maintenance should be done annually, at the end of summer.

Required for maintenance: Water and non-corrosive coil cleaner. Use a garden hose or low pressure sprayer.



3- Operation

-40°C units are equipped with an **A19 or A319 thermostats** which start the low temperature mode. They pick up the signal from the outdoor ambient probe and divert it to a fixed value resistor of **35kohm**. The thermostat set point will be **-5°C (25°F)**.

It is imperative that set point is no lower than -5°C (25°F).



4- A19 and A319 locations

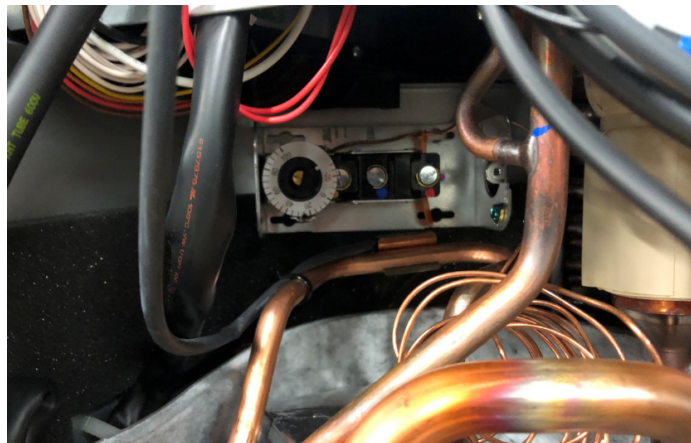
AOU9RLFC40 and AOU12RLFC40



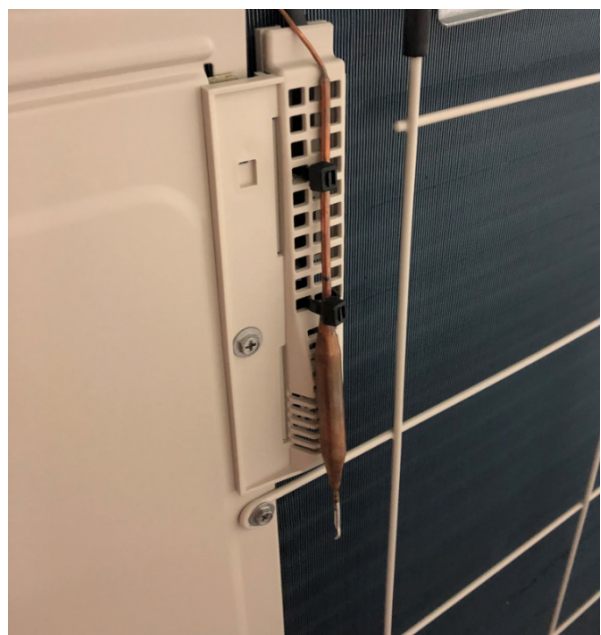
AOU18RLFC40



AOU18RGLX40, AOU24RGLX40, AOU30RGLX40 and AOU36RGLX40



AOU42RGLX40 and AOU48RGLX40



5- Troubleshooting

Problems and frequent error codes

Unit does short cycles.

Temperature discharge - Protection

When discharge temperature exceeds 230°F, the unit slows down, if temperature continues to rise, the unit stops and restarts when the temperature drops to 219,2°F.

Error codes

- 10 x Operation 1 x Timer (new generation)
- 7 x Operation 2 x Timer (old generation)
- Code A1 on the Fujitsu wired controller

These 3 codes indicate: Discharge temperature error

Causes

- Dirty / clogged condenser between the 2 layers of the outdoor coil
- A19 and A319 thermostat adjusted above -5°C in summer or defective thermostat
- Lack of refrigerant or leak
- Defective EEV coil
- Open discharge probe or bad reading

Solutions

- Make sure that coils are clean and that the load is loaded on the scale
- Check components identified among the causes

Symptom

Unit does not start

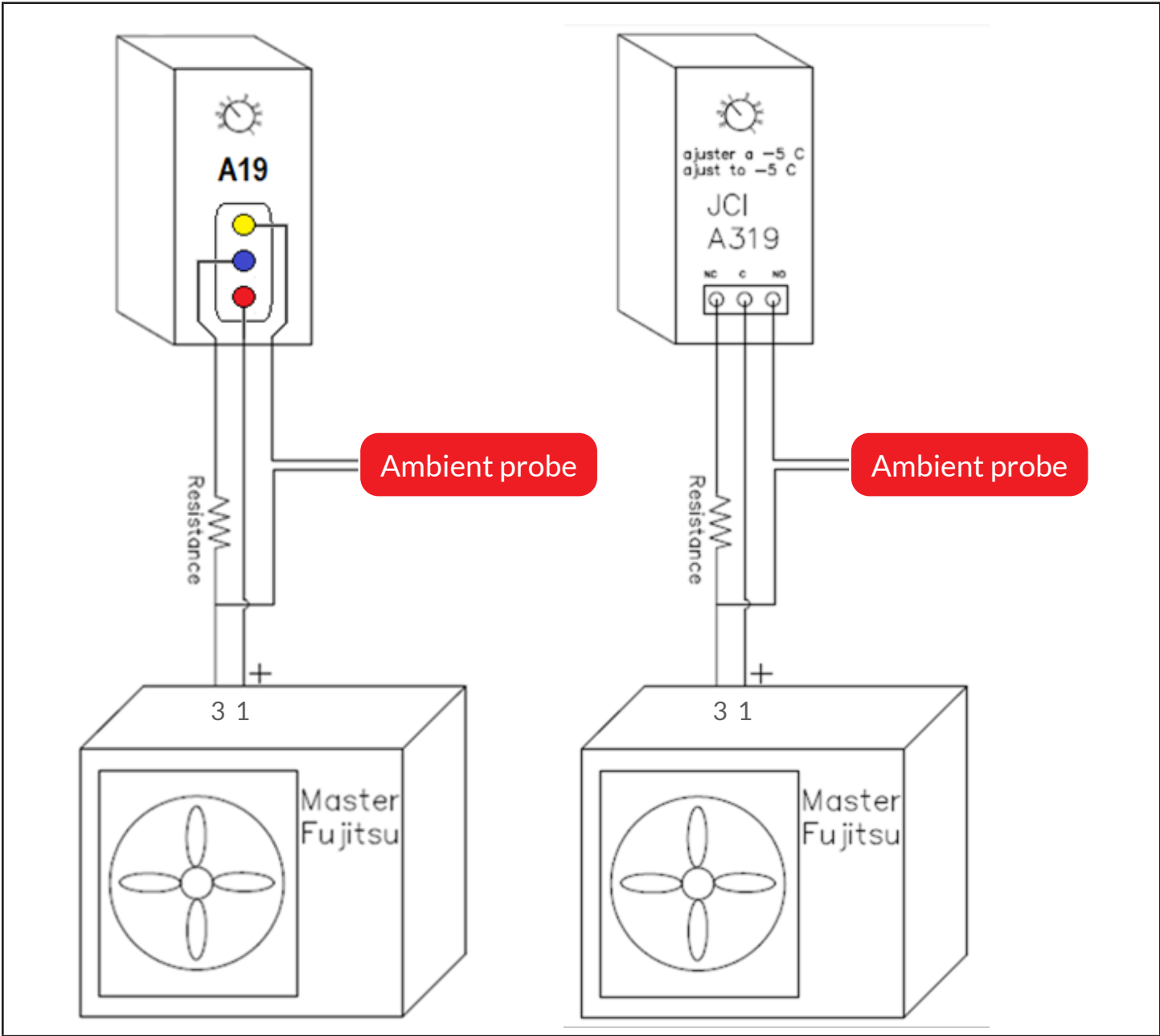
Causes

- Faulty or improperly adjusted thermostat
- Inadequate connection
- Faulty 35k resistor in thermostat
- Room temperature below 16°C

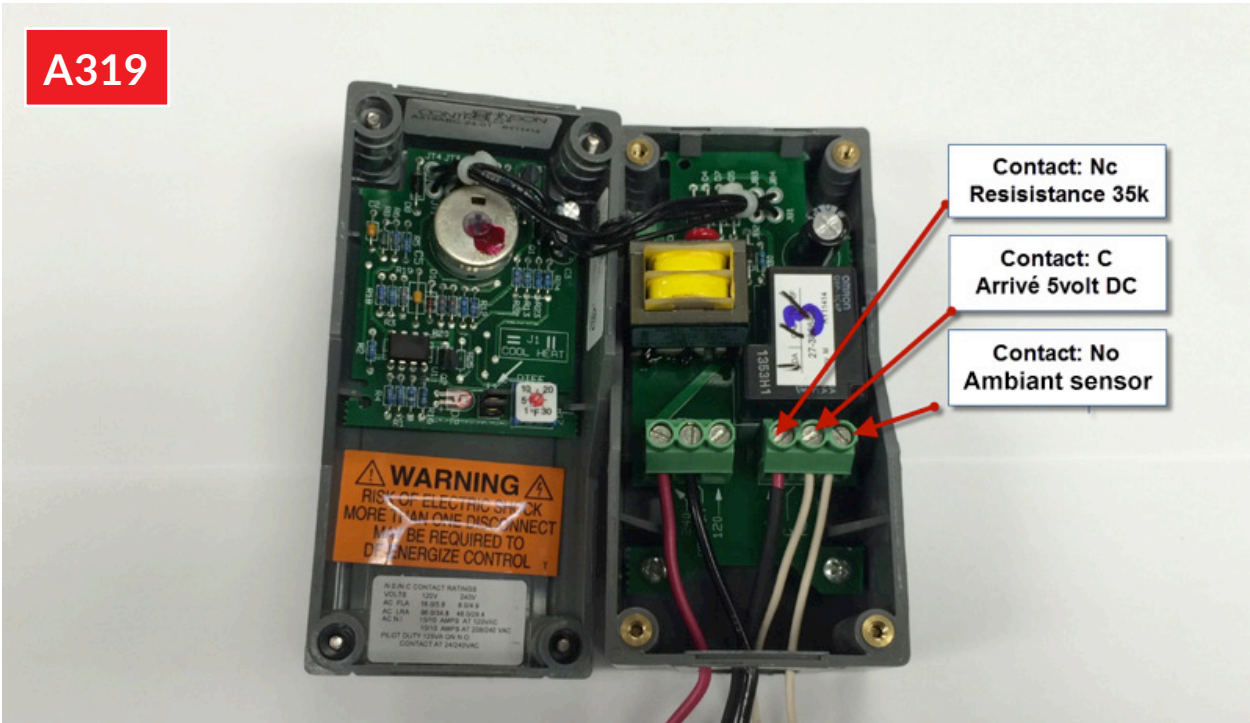
Solutions

- Make sure the thermostat is adjusted to -5°C (25°F)
- Ensure that the positive signal from the card goes to terminal C (common) of the thermostat
- Make sure resistance value is correct, change if necessary

6- Electrical diagrams A19 and A319



7- A19 and A319 photos



8-Documents and references

Wind deflectors

Here are the different deflector models corresponding to -40°C altered units:

Models	WBFUJ7	WBFUJ7A	WBFUJ8A	WBFUJ9	WBFUJ10	WBFUJ11
AOU9RL240	•					
AOU9RLFC40		•				
AOU12RL240	•					
AOU12RLFC40		•				
AOU18RLB40			•			
AOU18RGLX40					•	
AOU24RLB40			•			
AOU24RGLX40					•	
AOU30RLXB40				•		
AOU30RGLX40					•	
AOU36RLXB40				•		
AOU36RGLX40					•	
AOU42RGLX40						•
AOU48RGLX40						•



Testing Fan Motors

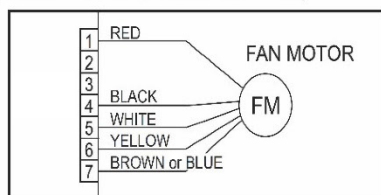
Some examples of a fan motor error on most models:

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.

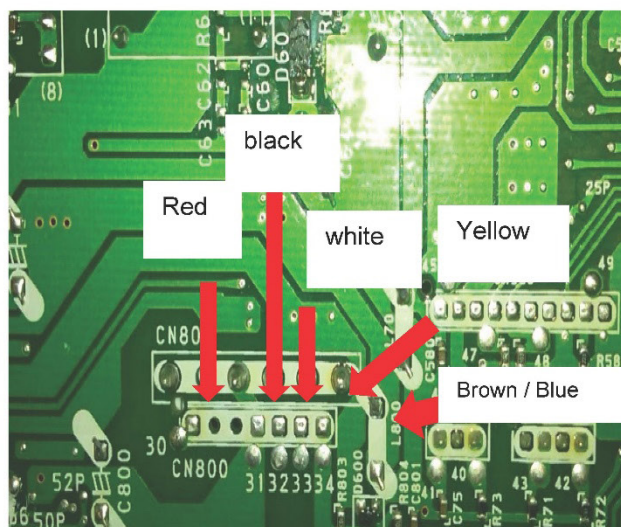
Check Point 4 : Check Output Voltage of Main PCB

- 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 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.



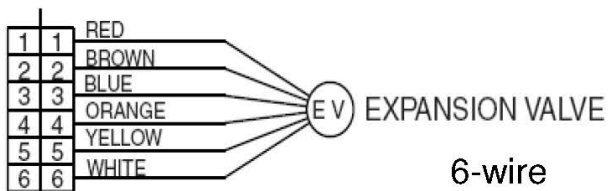
Service Tips

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 AOU24RLXFWH 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 AOU9CQ AOU9R2 AOU9RQ AOU12CQ AOU12R2 AOU12RQ Motor MFE-12POM	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
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 AOU9RLFW Motor MFE-28TVL	300K-OL	120K-150K	80K-100K	Mega Ohms-OL
					Model AOU12RLFW Motor MFE-40WL	300K-OL	30K-45K	80K-100K	Mega Ohms-OL
					Model AOU9RL Motor MFE-12TVBM	300K-OL	1K-2K	190K-210K	Mega Ohms-OL
Model AOU9RLQ AOU12RLQ Motor MFE-12ROAM	300K-OL	1K-2K	190K-210K	Mega Ohms-OL	Model 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	Model AOU36RLXFZH AOU45RLXFZ MFE-2A2VA2N	Mega Ohms-OL	51M	151K	Mega Ohms-OL
Model AOU18RGLX AOU24RGLX AOU30RGLX AOU36RGLX AOU42RGLX AOU48RGLX Motor MFE-60VT (MFE-45VVT)	300K-OL	45K-55K (40K-100K)	120K-140K (120K-140K)	Mega Ohms-OL					

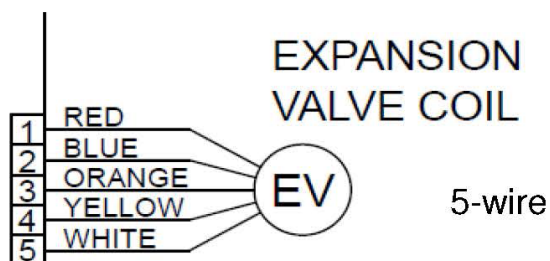
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Electronic Expansion Valve Test (EEV)

To ohm out the expansion valve, set your multi-meter to 'ohms' and conduct the tests using the chart.



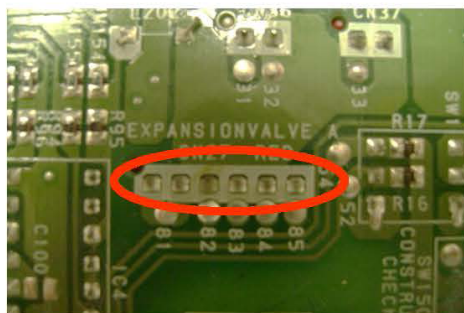
Read wire	Resistance value
White - Red	46 Ω ± 4 Ω at 68°F(20°C)
Yellow - Brown	
Orange - Red	
Blue - Brown	



Read wire	Resistance value
White - Red	46 Ω ± 4 Ω at 68°F(20°C)
Yellow - Red	
Orange - Red	
Blue - Red	

Checking for 12 volts DC output from Control Board

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



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

Thermistor resistance chart

Temp. °F (°C)	MODELS: ALL R410a INDOOR UNITS				MODELS: ALL R410a OUTDOOR UNITS					
	Room Temperature Thermistor	Room Temperature Thermistor w/ board	Indoor Pipe Thermistor	Indoor Pipe Thermistor w/ board	Discharge Thermistor	Compressor Thermistor	Outdoor Pipe Thermistor	Outdoor Temperature Thermistor	Heat Sink Thermistor	2/3 Way Valve Thermistor
	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ	Ohms kΩ
-15 (26)					829.82	783.48	71.84	172.03	71.84	866.9
-6 (21)					601.26	569.61	52.63	123.77	52.63	622.7
-4 (-20)					590.69	531.56	49.2	115.24	49.2	579.59
0 (-17)					488.46	463.75	36.58	100.09	43.07	503.06
5 (-15)					412.49	392.31	36.58	84.21	36.58	422.89
14 (-10)					307.02	292.91	27.51	62.28	27.51	312
23 (-5)					231.05	221.09	20.91	46.58	20.91	233
32 (0)	33.62	8.29	176.03	39.48	175.7	168.6	16.05	35.21	16.1	176
41 (5)	25.93		134.23		134.93	129.84	12.44	26.88	12.4	134
50 (10)	20.18	7.12	103.34	34.1	104.59	100.91	9.73	20.72	9.73	103
59 (15)	15.84		80.28		81.79	79.12	7.67	16.12	7.67	80.3
68 (20)	12.54	5.86	62.91	28.14	64.5	62.55	6.1	12.64	6.1	62.9
77 (25)	10	5.24	49.7	25.15	51.27	49.84	4.89	10	4.89	49.7
86 (30)	8.04	4.64	39.57	22.26	41.07	40.01	3.95	7.97	3.95	39.6
95 (35)	6.51		31.74		33.13	32.35	3.21	6.4	3.21	31.74
104 (40)	5.3	3.58	25.64	17.05	26.91	26.34	2.62	5.18	2.62	25.6
113 (45)	4.35		20.85		22.01	21.58	2.16	4.21	2.16	20.85
122 (50)	3.59	2.71	17.06	12.78	18.1	17.79	1.79	3.45	1.79	17.1
131 (55)	2.98		14.1		14.98	14.75	1.49	2.85	1.49	14.05
140 (60)	2.47	2.03	11.64	9.47	12.47	12.3	1.25	2.39	1.25	11.6
149 (65)	2.09		9.69		10.44	10.32	1.05	1.97	1.05	9.69
158 (70)	1.76		8.12		8.78	8.69	0.89	1.65	0.89	8.12
167 (75)	1.49		6.83		7.42	7.39	0.76	1.39	0.76	6.83
176 (80)	1.27		5.78		6.31	6.27	0.65	1.18	0.65	5.78
185 (85)	1.09		4.91		5.38	5.39	0.56	1	0.55	4.91
194 (90)	0.93		4.19		4.61	4.6	0.48	0.85	0.48	4.19
203 (95)	0.81		3.59		3.97	3.96	0.41	0.73	0.41	3.59
212 (100)	0.7		3.09		3.43	3.43	0.36	0.63	0.36	3.09
221 (105)					2.98	2.98	0.31	0.55	0.31	2.67
230 (110)					2.59	2.6	0.27	0.47	0.27	2.32
239 (115)					2.26	2.27	0.24	0.41	0.24	2.02
248 (120)					1.99	2	0.21	0.36	0.21	1.76
284 (140)					1.21	1.22	0.13	0.22	0.13	1.06
320 (160)					0.77	0.79	0.09	0.14	0.09	0.67
356 (180)					0.51	0.52	0.06	0.09	0.06	0.44