

N. DIAGNOSTICS

The method for displaying a two-digit fault is to display the first digit for one second immediately followed by the second digit – which is also displayed for a duration of one second. A ½ second pause is then displayed. Cycle repeats until the fault is cleared. Each fault is flashed

(displayed) a minimum of two times even if the fault condition has cleared before the fault can be displayed twice.

Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	DESCRIPTION	FAULT LEVEL
0	STANDBY	None
c	COMPRESSOR ON – Low (Flashing if in time delay)	None
C	COMPRESSOR ON – High (Flashing if in time delay)	None
E	Economizer Cooling – No Compressor	None
F	CONTINUOUS FAN	None
4	Comfort Alert Code 4 for Compressor Circuit 1	Shutdown
	ALARM Designation: Locked Rotor Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown and retry after Anti-Short Cycle Delay (ASCD) Maximum is 3 attempts.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Low line voltage	
	2. Excessive Refrigerant in compressor	
	3. Seized bearings in compressor	
5	Comfort Alert Code 5 for Compressor Circuit 1	Shutdown
	ALARM Designation: Open Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown and retry after ASCD.	
	Note: This alarm is sent by the Comfort Alert Module only after the fault has been sensed for a minimum of 4 hours.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Condensing unit power disconnect is open	
	2. Compressor circuit breaker or fuses are open	
	3. Compressor contactor has failed open High pressure switch is open and requires manual reset	
	4. Broken supply wires or connector is not making contact	
	5. Unusually long compressor protector reset time due to extreme ambient temperature	
	6. Compressor windings are damaged	
6	Comfort Alert Code 6 for Compressor Circuit 1	Shutdown
	ALARM Designation: Missing Phase Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor fuse is open on one phase	
	2. Broken wire or connector on one phase	
	3. Compressor motor winding is damaged	
	4. Utility supply has dropped one phase	

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Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	DESCRIPTION	FAULT LEVEL
7	Comfort Alert Code 7 for Compressor Circuit 1	Shutdown
	ALARM Designation: Reverse Phase Circuit 1	
	DESCRIPTION:	
	1. Run outdoor and indoor fans continuously for circuit 1 and change mode of operation to Unoccupied Auto. This procedure prevents the Space Temperature from reaching extreme values.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor running backward due to supply phase reversal.	
8	Comfort Alert Code 8 for Compressor Circuit 1	Shutdown
	ALARM Designation: Welded Contactor Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 shutdown	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Compressor contactor has failed closed	
	2. Thermostat demand signal not connected to module	
9	Comfort Alert Code 9 for Compressor Circuit 1	Shutdown
	ALARM Designation: Low Voltage Circuit 1	
	DESCRIPTION:	
	1. Circuit 1 Shutdown and wait for voltage to return to operational levels.	
	SOLUTION/STATUS/Possible - Troubleshooting Information	
	1. Control circuit transformer is overloaded	
	2. Low line voltage to compressor	
20	DESCRIPTION: REFRIGERANT LOW PRESSURE SWITCH OPEN – CIRCUIT 1	Problem
	CAUSE:	
	1. Low evaporator airflow	
	2. Refrigerant undercharge	
	3. Restriction in liquid line, expansion device or filter drier	
	4. Operating below 65°F outdoors	
	5. Moisture in system	
	SOLUTION: The solution will depend on the cause.	
	1. Increase speed of blower or reduce restriction - replace air filter	
	2. Check for leaks - add refrigerant	
	3. Remove or replace defective component	
	4. Add Low Ambient Kit	
	5. Recover refrigerant - evacuate & recharge - add or replace filter drier	

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Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	DESCRIPTION	FAULT LEVEL
29	DESCRIPTION: REFRIGERANT HIGH PRESSURE SWITCH OPEN – CIRCUIT 1	Problem
	CAUSE:	
	1. Restriction in liquid line, expansion device or filter drier	
	2. Refrigerant overcharge	
	3. Condenser fan not running	
	4. Air or non-condensibles in system	
	SOLUTION: The solution will depend on the cause.	
	1. Recover refrigerant - evacuate & recharge remove or replace defective component	
	2. Remove refrigerant	
	3. Check voltage, Run Capacitor & Outdoor Motor Repair or replace	
	4. Recover refrigerant, evacuate & recharge	
40	REFRIGERANT LEAK DETECTION SYSTEM	Shutdown
	DESCRIPTION:	
	1. The refrigerant leak detection system detects an event and mitigation procedure occurs.	
	2. The mitigation procedure is triggered when no event occurs.	
	SOLUTION: The solution will depend on the cause.	
	1. Check for refrigerant leaks	
49	FREEZE SWITCH OPEN – CIRCUIT 1	Problem
	DESCRIPTION:	
	1. Occurs when sensors are either open or shorted.	
	SOLUTION: The solution will depend on the cause.	
	1. Replace the sensor	
	2. Check sensor is installed correctly on control	
59	Condensate Drain Plugged	Shutdown
	DESCRIPTION:	
	1. Condensate line is blocked water inside of unit	
	SOLUTION: The solution will depend on the cause.	
	1. Remove blockage	
	2. Remove condensate pan and clean	

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Fault Codes with Descriptions and Solutions:

Alarm Codes - Cooling Only		
CODE	DESCRIPTION	FAULT LEVEL
83	Condenser Coil Temp Sensor Fail-OCT	Problem
	DESCRIPTION:	
	1. No defrost operation, but unit continues to operate in either heating or cooling.	
	SOLUTION: The solution will depend on the cause.	
	1. Extreme temperatures	
	2. Replace the sensor	
84	Outdoor Air Temperature Sensor Fail-OAT	Problem
	DESCRIPTION:	
	1. No defrost operation, but unit continues to operate in either heating or cooling.	
	2. The heat source continues to be heat pump, independently of the outdoor air temperature	
	SOLUTION: The solution will depend on the cause.	
	1. Extreme temperatures	
88	Emergency Stop Fault	Shutdown
	DESCRIPTION:	
	1. Complete shutdown	
	SOLUTION: The solution will depend on the cause.	
	1. Cannot be cleared by the 'Clear All Alarms" command. Must be cleared by changing the Emergency Stop Fault network value.	
93	CONTROL Fault	Shutdown
	DESCRIPTION:	
	1. Internal Control fault.	
	SOLUTION: The solution will depend on the cause.	
97	Smoke Detection	Shutdown
	DESCRIPTION:	
	1. RTU-C reads the smoke detection input as open -- complete shutdown.	
	SOLUTION: The solution will depend on the cause.	
	1. If not due to a fire, Replace the sensor, Check sensor is in installed correctly on control	
	2. Check Smoke Detection Circuit, if no Smoke Detector is installed, ensure Economizer Smoke Bypass plug is installed	

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N.2.3. Non-applicable Fault Codes

The controls used in this product are common with a few other product families. Because of this, there are several fault codes that are programmed into the controls but DO NOT APPLY to this product. If one of these fault

codes appear, clear the fault and continue diagnostics. If the code persists, power down the unit and reapply power before continuing diagnostics.

These non-applicable fault codes are listed below:

Alarm Codes - NON-APPLICABLE FAULT CODES		
CODE	Description	FAULT LEVEL
h	GAS HEAT ON - LOW-FIRE	None
H	GAS HEAT ON -HIGH-FIRE	None
11	FAILED IGNITION	Problem
12	LO FLAME SENSE	Warning
13	FLAME LOST	Problem
14	UNEXPECTED FLAME	Shutdown
15	HIGH-FIRE GAS VALVE IMPROPER VOLTAGE	Problem
33	MRLC (Rollout Limit) OPEN	Problem
44	LOW-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
46	LOW-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem
55	2nd stage COMBUSTION PRESSURE SWITCH CLOSED	Problem
57	HIGH-FIRE NEGATIVE PRESSURE CONTROL CLOSED	Problem
61	HIGH-FIRE NEGATIVE PRESSURE CONTROL OPEN	Problem, Shutdown

N.2.4. Phase Monitoring

DDC Units:

- The Phase Monitor is activated by a menu item in the General Information menu on the DDC board.
- When a phase monitoring fault occurs, the control will go into a shutdown. When the error is corrected, the unit will try and operate after the ASCD.

Non-DDC Units:

- The Phase Monitor is connected to the contactor.
- When a phase monitoring fault occurs, the system will go into a shutdown.
- For phase monitoring diagnostics, consider checking the following:
 1. Compressor fuse is open on one phase.
 2. Broken wire or connector on one phase.
 3. Compressor motor winding is damaged.
 4. Utility supply has dropped one phase.

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N.2.5. VFD Codes

N.2.5.2. Mitsubishi VFD Codes

Some units come equipped with a Mitsubishi FR-E800 Variable Frequency Drive attached to the blower assembly in the blower motor compartment.

When the drive detects a fault, an “E” with a Three Character Fault Code will be displayed on the LED display (Example: E.LUP). The drive may not stop the drive from running unless it is not corrected. The drive will store the last 10 fault codes, a condensed list of fault codes and operating codes can be found below.

More fault codes can be found on the manufacturer’s website. In the blower compartment, on the right side VFD assembly there is a label that gives the model number of the VFD. Use that model number to find the VFD Installation Manual on the manufacturer’s website.

Operation Panel Indication	Code	Name
E.OC1	16 (H10)	Overcurrent trip during acceleration
E.OC2	17 (H11)	Overcurrent trip during constant speed
E.OC3	18 (H12)	Overcurrent trip during deceleration or stop
E.OV1	32 (H20)	Regenerative overvoltage trip during acceleration
E.OV2	33 (H21)	Regenerative overvoltage trip during constant speed
E.OV3	34 (H22)	Regenerative overvoltage trip during deceleration or stop
E.THT	48 (H30)	Inverter overload trip (electronic thermal relay function)
E.THM	49 (H31)	Motor overload trip (electronic thermal relay function)
E.FIN	64 (H40)	Heat sink overheat
E.UVT	81 (H51)	Undervoltage
E.ILF	82 (H52)	Input phase loss
E.OLT	96 (H60)	Stall prevention stop
E.SOT	97 (H61)	Loss of synchronism detection
E.LUP	98 (H62)	Upper limit fault detection
E.LDN	99 (H63)	Lower limit fault detection
E.BE	112 (H70)	Brake transistor alarm detection
E.GF	128 (H80)	Output side earth (ground) fault overcurrent
E.LF	129 (H81)	Output phase loss
E.OHT	144 (H91)	External thermal relay operation
E.PTC	145 (H91)	PTC thermistor operation
E.OPT	160 (HA0)	Option Fault

N.2.5.3. Other Suppliers

Some units may be equipped with the VFDs from other suppliers. In the blower compartment, on the right side of the VFD assembly, there is a label with the model number of the VFD. For more information about those VFDs, visit the appropriate website listed below.

Delta MS300: https://downloadcenter.deltaww.com/en-US/DownloadCenter?v=1&CID=06&itemID=060101&downloadID=MS300&dataType=2&sort_expr=cdate&sort_dir=DESC

Control Tech C200: <https://acim.nidec.com/en-us/drives/control-techniques/products/ac-drives/commander-c-general-purpose-drives>

N.3. Common Mistakes

These are a list of common mistakes made during installation.

- Drain Pan connections, drain trap connected to the wrong outlet side, not connected at all, or insufficient trap depth.
- Connecting a W2 call only to try and get full heat all the time. Connect both W1 and W2 together if the job requirement or thermostat is setup for single stage heating.
- Connecting a Y2 call only to try and get full cooling all the time, Connect both Y1 and Y2 together if the job requirement or thermostat is setup for single stage cooling.
- Economizer connections, not installing the 3-wire jumper plug into the economizer wiring harness, if a factory option smoke detector is not used, this will cause a Smoke Detection Fault.

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Appendix A – General Product Data

GENERAL DATA - (-)ACGYB MODELS – 15 - 25 TON [52.4 - 87.9 kW]

Model (-)ACGYB Series	YB180	YB210	YB240	YB300
Cooling Performance^A				
Gross Cooling Capacity Btu/h [kW]	180,000 [52.75]	210,000 [61.55]	240,000 [70.34]	300,000 [87.92]
EER	10.8	10.8	10.8	9.8
IEER ^B	14.0	14.0	14.0	13.0
Nominal CFM/AHRI Rated CFM [L/s]	6,000/5,475 [2,831/2,584]	7,000/7,020 [3,304/3,313]	8,000/7,400 [3,775/3,492]	10,000/8,475 [4,719/4,000]
AHRI Net Cooling Capacity Btu/h [kW]	172,000 [50.4]	196,000 [57.4]	228,000 [66.8]	284,000 [83.2]
Net Sensible Capacity Btu/h [kW]	129,000 [37.8]	147,000 [43.1]	171,000 [50.1]	213,000 [62.4]
Net Latent Capacity Btu/h [kW]	43,000 [12.6]	49,000 [14.4]	57,000 [16.7]	71,000 [20.8]
Net System Power kW	15.12	17.08	20.23	27.43
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
No. Stages	2	2	2	2
Outdoor Sound Rating (dB)^C				
	83	92	96	98
Outdoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	36.3 [3.37]	46.2 [4.29]	46.2 [4.29]	46.2 [4.29]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil - Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1.25 [31.8]
Rows / FPI [FPcm]	23.8 [2.21]	23.8 [2.21]	23.8 [2.21]	23.8 [2.21]
Refrigerant Control	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]	1 / 18 [7]
Drain Connection No./Size in. [mm]	TX Valves	TX Valves	TX Valves	TX Valves
	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan - Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	2/24 [609.6]	2/24 [609.6]	2/30 [762]	2/30 [762]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	12,000 [5,663]	14,000 [6,607]	16,800 [7,928]	19,000 [8,966]
Motor RPM	2 at 3/4 HP	2 at 1 1/2 HP	2 at 1 1/2 HP	2 at 1 1/2 HP
	1,100	1,140	1,140	1,140
Indoor Fan - Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type	2/15x15 [381x381]	2/15x15 [381x381]	2/15x15 [381x381]	2/15x15 [381x381]
No. Speeds	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Motors	Single	Single	Single	Single
Motor RPM	1	1	1	1
Motor Frame Size	1,725	1,725	1,755	1,760
	56 / 184	56 / 184	1	213 / 215
Filter - Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]	(8)2x24x20 [51x610x508]
Refrigerant Charge Oz. [g]				
	167 [4720]/170 [4805]	213 [6038]/213 [6038]	196 [5557]/204 [5783]	210 [5953]/210 [5953]
Weights				
Net Weight lbs. [kg]	1,951 [885]	2,011 [912]	2,045 [928]	2,121 [962]
Ship Weight lbs. [kg]	2,051 [930]	2,111 [958]	2,145 [973]	2,221 [1,007]

NOTES: Please look at the rating plates pasted on the side of the unit to understand the model number of your unit. See Page 17 for Notes.

[] Designates Metric Conversions.

Appendix A – General Product Data

- A. Cooling Performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to 620% of nominal CFM. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 340/360.
- B. EER and Integrated Energy Efficiency Ratio (IEER) is rated in accordance with AHRI Standard 340/360.
- C. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

INDOOR WEIGHTED SOUND POWER LEVEL (dBA)										
Model	Type	Std. Rating (dBA)	Frequency (Hz)							
			63	125	250	500	1000	2000	4000	8000
(-)AGCYB180	Ducted Discharge	79.7	62	72	73	74	73	69	66	56
	Ducted Inlet	67.6	55	55	60	63	61	57	55	47
(-)AGCYB210	Ducted Discharge	75.7	61	66	68	70	69	67	64	55
	Ducted Inlet	69.0	57	60	62	64	60	58	57	48
(-)AGCYB240	Ducted Discharge	83.6	72	78	76	77	75	73	71	62
	Ducted Inlet	72.9	61	67	66	68	63	60	59	52
(-)AGCYB300	Ducted Discharge	85.7	67	76	79	80	79	77	75	67
	Ducted Inlet	78.7	67	72	72	74	68	67	66	58

OUTDOOR WEIGHTED SOUND POWER LEVEL (dBA)									
Model	Std. Rating (dBA)	Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
(-)AGCYB180	83.2	63	67	74	78	79	75	72	64
(-)AGCYB210	92.4	74	75	83	87	88	84	79	71
(-)AGCYB240	96.1	78	83	87	91	91	87	82	74
(-)AGCYB300	98.5	81	84	89	92	93	91	87	83

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Appendix B – Electrical Data

ELECTRICAL DATA - (-)JACGYB SERIES								
		180ACF	180ACG	180ACH	180ADF	180ADG 180ADH	180AYF	180AYG 180AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	73/73	80/80	81/81	36	38	28	29
	Minimum Circuit Ampacity with Power Exhaust	83/83	90/90	91/91	41	43	31	32
	Minimum Overcurrent Protection Device Size	80/80	90/90	90/90	40	45	30	35
	Minimum Overcurrent Protection Device Size with Power Exhaust	90/90	90/90	90/90	45	50	35	35
	Maximum Overcurrent Protection Device Size	90/90	110/110	110/110	45	45	35	35
	Maximum Overcurrent Protection Device Size with Power Exhaust	100/100	110/110	110/110	50	50	40	40
Compressor Motor	No.	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	Amps (RLA), Comp. 1	24.4	24.4	24.4	11.9	11.9	9.4	9.4
	Amps (LRA), Comp. 1	200.0	200.0	200.0	103.0	103.0	78.0	78.0
	Amps (RLA), Comp. 2	24.4	24.4	24.4	11.9	11.9	9.4	9.4
	Amps (LRA), Comp. 2	200.0	200.0	200.0	103.0	103.0	78.0	78.0
Condenser Motor	No.	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1	1
	HP	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	Amps (FLA, each)	4.2	4.2	4.2	2.3	2.3	1.2	1.2
	Amps (LRA, each)	10.1	10.1	10.1	4.9	4.9	3.4	3.4
Evaporator Fan	No.	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	HP	3	5	5	3	5	3	5
	Amps (FLA, each)	9.2	13.6	13.6	4.6	6.3	3.5	5.1
	Amps (LRA, each)	74.5	95.0	95.0	38.1	47.5	30.0	38.0

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - (-)ACGYB SERIES										
		210ACF	210ACG	210ACH	210ADF	210ADG	210ADH	210AYF	210AYG	210AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	518-633	518-633	518-633
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	85/85	90/90	97/97	38	40	43	29	30	33
	Minimum Circuit Ampacity with Power Exhaust	95/95	100/100	107/107	43	44	48	32	33	36
	Minimum Overcurrent Protection Device Size	100/100	100/100	110/110	45	45	50	35	35	35
	Minimum Overcurrent Protection Device Size with Power Exhaust	110/110	110/110	125/125	50	50	60	35	35	40
	Maximum Overcurrent Protection Device Size	110/110	110/110	125/125	50	50	60	35	35	40
	Maximum Overcurrent Protection Device Size with Power Exhaust	110/110	125/125	125/125	50	50	60	40	40	40
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	Amps (RLA), Comp. 1	28.7	28.7	28.7	12.4	12.4	12.4	9.0	9.0	9.0
	Amps (LRA), Comp. 1	207.5	207.5	207.5	100.2	100.2	100.2	78.0	78.0	78.0
	Amps (RLA), Comp. 2	28.7	28.7	28.7	12.4	12.4	12.4	9.0	9.0	9.0
	Amps (LRA), Comp. 2	207.5	207.5	207.5	100.2	100.2	100.2	78.0	78.0	78.0
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.7	2.2	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	14.3	11.0	11.0	11.0
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	3	5	7.5	3	5	7.5	3	5	7.5
	Amps (FLA, each)	9.2	13.6	21.0	4.6	6.3	9.6	3.5	5.1	7.7
	Amps (LRA, each)	74.5	95.0	127.0	38.1	47.5	63.5	30.0	38.0	50.8

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Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - (-)ACGYB SERIES							
		240ACF 240ACG	240ACH	240ADF 240ADG	240ADH	240AYF 240AYG	240AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	89/89	97/97	43	46	34	37
	Minimum Circuit Ampacity with Power Exhaust	99/99	107/107	47	50	37	40
	Minimum Overcurrent Protection Device Size	100/100	110/110	50	50	40	40
	Minimum Overcurrent Protection Device Size with Power Exhaust	110/110	125/125	50	60	40	40
	Maximum Overcurrent Protection Device Size	110/110	110/110	50	50	40	45
	Maximum Overcurrent Protection Device Size with Power Exhaust	125/125	125/125	50	60	45	45
Compressor Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	28.5	28.5	13.5	13.5	10.7	10.7
	Amps (LRA), Comp. 1	255.0	255.0	123.0	123.0	93.7	93.7
	Amps (RLA), Comp. 2	28.5	28.5	13.5	13.5	10.7	10.7
	Amps (LRA), Comp. 2	255.0	255.0	123.0	123.0	93.7	93.7
Condenser Motor	No.	2	2	2	2	2	2
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	1.5	1.5	1.5	1.5	1.5	1.5
	Amps (FLA, each)	5.5	5.5	2.7	2.7	2.2	2.2
	Amps (LRA, each)	28.6	28.6	14.3	14.3	11.0	11.0
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	5	7.5	5	7.5	5	7.5
	Amps (FLA, each)	13.6	21.0	6.3	9.6	5.1	7.7
	Amps (LRA, each)	95.0	127.0	47.5	63.5	38.0	50.8

Appendix B – Electrical Data (Cont.)

ELECTRICAL DATA - (-)ACGYB SERIES								
		300ACF	300ACG	300ACH	300ADF	300ADG 300ADH	300AYF	300AYG 300AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	Hz	60	60	60	60	60	60	60
	Minimum Circuit Ampacity	127/127	132/132	133/133	59	62	43	46
	Minimum Circuit Ampacity with Power Exhaust	137/137	142/142	143/143	64	66	46	49
	Minimum Overcurrent Protection Device Size	150/150	150/150	150/150	70	70	50	50
	Minimum Overcurrent Protection Device Size with Power Exhaust	150/150	175/175	175/175	70	80	50	60
	Maximum Overcurrent Protection Device Size	150/150	150/150	150/150	70	80	50	50
	Maximum Overcurrent Protection Device Size with Power Exhaust	175/175	175/175	175/175	70	80	50	60
Compressor Motor	No.	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	Amps (RLA), Comp. 1	40.8	40.8	40.8	19.4	19.4	13.7	13.7
	Amps (LRA), Comp. 1	270.0	270.0	270.0	147.0	147.0	109.0	109.0
	Amps (RLA), Comp. 2	40.8	40.8	40.8	19.4	19.4	13.7	13.7
	Amps (LRA), Comp. 2	270.0	270.0	270.0	147.0	147.0	109.0	109.0
Condenser Motor	No.	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	HP	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Amps (FLA, each)	5.5	5.5	5.5	2.7	2.7	2.2	2.2
	Amps (LRA, each)	28.6	28.6	28.6	14.3	14.3	11.0	11.0
Evaporator Fan	No.	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3	3
	HP	7.5	10	10	7.5	10	7.5	10
	Amps (FLA, each)	21.0	27.0	27.0	9.6	12.5	7.7	10.0
	Amps (LRA, each)	127.0	152.0	152.0	63.5	76.0	50.8	60.8

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Appendix C – Air Flow Performance Data (Cont.)

AIRFLOW PERFORMANCE - 15TON - [52.7kW] - 60 Hz - SIDEFLOW

Model (-)AC27180A - Sideflow		External Static Pressure - Inches of Water [Pa]																			
Air Flow		CFM [L/s]																			
RPM	BHP	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800 [2265]	—	—	—	—	—	653	1.53	686	1.70	716	1.86	742	2.01	766	2.15	786	2.28	802	2.41	815	2.52
4900 [2312]	—	—	—	—	—	659	1.59	692	1.77	722	1.94	749	2.11	772	2.26	792	2.40	809	2.54	822	2.66
5000 [2359]	—	—	—	—	—	665	1.66	699	1.85	729	2.03	756	2.21	779	2.37	799	2.53	816	2.67	857	2.75
5100 [2407]	—	—	—	—	—	671	1.73	705	1.93	735	2.13	762	2.31	785	2.49	806	2.65	822	2.81	863	2.84
5200 [2454]	—	—	—	—	—	640	1.58	677	1.80	711	2.01	741	2.22	768	2.42	792	2.60	812	2.78	844	2.80
5300 [2501]	—	—	—	—	—	646	1.64	683	1.87	717	2.10	747	2.32	774	2.52	798	2.72	818	2.91	850	2.90
5400 [2548]	—	—	—	—	—	652	1.70	689	1.96	723	2.19	753	2.41	781	2.63	804	2.84	826	3.04	856	3.00
5500 [2595]	—	—	—	—	—	657	1.77	695	2.03	729	2.27	759	2.51	787	2.74	810	2.96	836	3.19	863	3.16
5600 [2643]	—	—	—	—	—	663	1.84	700	2.11	734	2.36	765	2.61	792	2.86	816	3.09	841	3.33	868	3.30
5700 [2690]	—	—	—	—	—	669	1.91	706	2.19	740	2.46	771	2.72	798	2.97	822	3.21	847	3.45	874	3.42
5800 [2737]	—	—	—	—	—	674	1.98	712	2.27	746	2.55	777	2.82	804	3.09	828	3.34	852	3.58	879	3.55
5900 [2784]	—	—	—	—	—	679	2.05	717	2.36	751	2.65	782	2.90	810	3.21	833	3.45	858	3.69	886	3.66
6000 [2831]	—	—	—	—	—	643	1.81	684	2.13	722	2.44	757	2.75	788	3.04	815	3.33	839	3.55	863	3.52
6100 [2878]	—	—	—	—	—	648	1.88	690	2.21	727	2.53	762	2.85	793	3.15	821	3.45	844	3.75	868	3.72
6200 [2926]	—	—	—	—	—	653	1.94	695	2.29	733	2.63	767	2.95	798	3.27	826	3.58	849	3.88	872	3.85
6300 [3020]	—	—	—	—	—	658	2.02	700	2.37	738	2.72	772	3.06	804	3.39	831	3.70	855	3.99	879	3.96
6400 [3020]	—	—	—	—	—	663	2.09	704	2.46	743	2.82	777	3.16	809	3.50	835	3.81	859	4.11	883	4.08
6500 [3067]	—	—	—	—	—	668	2.17	709	2.54	747	2.91	782	3.27	814	3.62	841	3.93	867	4.23	891	4.20
6600 [3114]	—	—	—	—	—	672	2.24	714	2.63	752	3.01	787	3.38	819	3.75	846	4.04	872	4.34	896	4.31
6700 [3162]	—	—	—	—	—	677	2.32	719	2.72	757	3.12	792	3.50	824	3.87	852	4.17	879	4.47	903	4.44
6800 [3209]	—	—	—	—	—	681	2.40	723	2.82	762	3.22	797	3.61	832	3.98	862	4.28	889	4.58	913	4.55
6900 [3256]	—	—	—	—	—	640	2.06	686	2.49	727	2.91	766	3.33	801	3.73	837	4.03	863	4.33	889	4.30
7000 [3303]	—	—	—	—	—	644	2.13	690	2.57	732	3.01	770	3.43	806	3.85	843	4.15	869	4.45	905	4.42
7100 [3350]	—	—	—	—	—	648	2.21	694	2.66	736	3.11	775	3.54	810	3.97	849	4.27	884	4.57	920	4.54
7200 [3398]	—	—	—	—	—	652	2.29	698	2.75	740	3.21	779	3.66	814	4.09	854	4.39	889	4.69	925	4.66

NOTE: F-Drive left of bold lines, G-Drive between the bold lines, H-Drive right of both bold lines.

Drive Package		F										G										H									
Motor H.P. [W]		3 [2237.1]										5 [3728.5]										5 [3728.5]									
Blower Sheave		BK90H										BK95H										BK90H									
Motor Sheave		1VL44										1VP56										1VP56									
Turns Open	0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
RPM	813	777	745	712	681	645	609	573	537	501	465	1012	985	949	912	881	844	807	771	735	699	1052	1016	983	952	916	878	842	805	769	733

AIRFLOW PERFORMANCE - 15TON [52.7kW] - 60 Hz - DOWNFLOW

[illegible]

NOTE: F-Drive left of bold line. G-Drive between the bold lines. H-Drive right of both bold lines.

Drive Package	F						G						H						
Motor H.P. [W]	3 [2237.1]						5 [3728.5]						5 [3728.5]						
Blower Sheave	BK90H						BK95H						BK90H						
Motor Sheave	1VL44						1VP56						1VP56						
Turns Open	0	1	2	3	4	5	6	0	1	2	3	4	5	6					
RPM	806	774	743	707	672	637	600	1000	967	935	901	866	832	1037	1008	978	945	912	878

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum or maximum turns open shown.

3. Re-adjustment of sheave required to achieve rated airflow at AHR minimum External Static Pressure

1. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

5. An RPM meter must be used to receive an accurate airflow reading.

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Appendix C – Air Flow Performance Data (Cont.)

COMPONENT AIRFLOW RESISTANCE - 15 TON [52.7kW]													
CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
	Resistance - Inches of Water [kPa]												
Wet Coil	0.01 [.00]	0.02 [.00]	0.02 [.00]	0.03 [.01]	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]	0.06 [.01]
	0.17 [0.08]	0.18 [0.08]	0.19 [0.08]	0.20 [0.09]	0.21 [0.09]	0.22 [0.10]	0.23 [0.10]	0.24 [0.11]	0.25 [0.11]	0.26 [0.12]	0.26 [0.12]	0.27 [0.12]	0.28 [0.13]
Horizontal Economizer RA Damper Open	0.07 [0.03]	0.07 [0.03]	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.08 [0.03]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]	0.09 [0.04]
MERV 8 Filter	0.075 [0.03]	0.079 [0.03]	0.083 [0.03]	0.087 [0.04]	0.091 [0.04]	0.095 [0.04]	0.099 [0.04]	0.103 [0.04]	0.107 [0.05]	0.111 [0.05]	0.116 [0.05]	0.120 [0.05]	0.124 [0.05]
MERV 13 Filter	0.019 [0.00]	0.026 [0.01]	0.032 [0.01]	0.038 [0.01]	0.044 [0.02]	0.051 [0.02]	0.057 [0.02]	0.063 [0.02]	0.070 [0.03]	0.076 [0.03]	0.082 [0.03]	0.089 [0.04]	0.095 [0.04]
Concentric Grill RX- RN-AD80 or RXRN-AD81 & Transition RXMC-CJ07	0.21 [0.05]	0.25 [0.06]	0.28 [0.07]	0.32 [0.08]	0.35 [0.09]	0.39 [0.10]	0.43 [0.11]	0.46 [0.11]	0.50 [0.12]	0.54 [0.13]	0.57 [0.14]	0.61 [0.15]	0.64 [0.16]

AIRFLOW CORRECTION FACTORS - 15 TON [52.7kW]													
CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
Total MBH	0.97	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.03	1.04
Sensible MBH	0.89	0.91	0.93	0.95	0.97	0.99	1.01	1.03	1.05	1.07	1.09	1.11	1.13
Power kW	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02	1.02

NOTE: Multiply correction factor times gross performance data - resulting sensible capacity cannot exceed total capacity.

Air Flow CFM [L/s]		Model (-)AGCYB210A - Sideflow Voltage 208/230, 460, 575 — 3 phase 60 Hz																																				
		External Static Pressure Inches of Water [Pa]																																				
		0.1 [02]	0.2 [05]	0.3 [07]	0.4 [10]	0.5 [12]	0.6 [15]	0.7 [17]	0.8 [20]	0.9 [22]	1.0 [25]	1.1 [27]	1.2 [30]	1.3 [32]	1.4 [35]	1.5 [37]	1.6 [40]	1.7 [42]	1.8 [45]	1.9 [47]	2.0 [50]																	
RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP																	
5600 [2643]	—	—	—	—	663	1.84	700	2.11	734	2.36	765	2.61	792	2.86	816	3.09	841	3.03	866	3.20	889	3.37	912	3.52	934	3.67	955	3.81	975	3.94	995	4.07	1014	4.18	1040	4.44	1061	4.56
5700 [2690]	—	—	—	—	669	1.91	706	2.19	740	2.46	771	2.72	798	2.97	822	3.21	847	3.13	871	3.31	894	3.48	917	3.64	939	3.79	960	3.93	980	4.07	1000	4.20	1019	4.32	1045	4.56	1066	4.68
5800 [2737]	—	—	633	1.68	674	1.96	712	2.27	746	2.55	777	2.82	804	3.09	828	3.34	852	3.23	876	3.42	900	3.59	922	3.75	944	3.91	965	4.06	985	4.20	1005	4.33	1023	4.46	1049	4.68	1070	4.81
5900 [2794]	—	—	638	1.74	679	2.05	717	2.36	751	2.65	782	2.93	810	3.21	833	3.15	858	3.34	882	3.52	905	3.70	927	3.87	949	4.03	970	4.18	990	4.33	1010	4.47	1028	4.60	1054	4.81	1075	4.94
6000 [2851]	—	—	643	1.81	684	2.13	722	2.44	757	2.75	788	3.04	815	3.33	839	3.25	863	3.44	887	3.63	910	3.82	932	3.99	954	4.16	975	4.31	995	4.46	1014	4.60	1038	4.80	1059	4.94	1080	5.07
6100 [2878]	—	—	648	1.88	690	2.21	727	2.53	762	2.85	793	3.15	821	3.45	844	3.35	869	3.55	892	3.75	915	3.93	938	4.11	959	4.28	980	4.44	1000	4.60	1019	4.74	1043	4.92	1064	5.06	1084	5.20
6200 [2926]	—	—	653	1.94	695	2.29	733	2.63	767	2.95	798	3.27	826	3.58	849	3.46	874	3.66	898	3.86	921	4.05	943	4.23	964	4.41	985	4.57	1005	4.73	1024	4.88	1047	5.05	1068	5.19	1089	5.34
6300 [2973]	—	—	658	2.02	700	2.37	738	2.72	772	3.06	804	3.39	830	3.34	855	3.56	879	3.77	903	3.96	926	4.17	948	4.36	969	4.54	990	4.71	1010	4.87	1029	5.02	1052	5.17	1073	5.33	1094	5.47
6400 [3020]	—	—	663	2.08	704	2.46	743	2.82	777	3.16	809	3.50	835	3.45	860	3.67	885	3.89	908	4.09	931	4.29	953	4.48	974	4.67	995	4.84	1015	5.01	1036	5.14	1057	5.30	1078	5.46	1098	5.61
6500 [3067]	—	—	668	2.17	709	2.54	747	2.91	782	3.27	814	3.62	841	3.55	866	3.78	890	4.00	914	4.21	936	4.42	958	4.61	980	4.80	1000	4.98	1020	5.15	1041	5.27	1062	5.43	1083	5.59	1103	5.74
6600 [3114]	—	—	672	2.24	714	2.63	752	3.01	787	3.38	819	3.75	846	3.66	871	3.89	895	4.12	919	4.33	942	4.54	963	4.74	985	4.93	1005	5										

NOTE: E-Drive left of bold line. G-Drive between the bold lines. H-Drive right of both bold lines.

	F	G	H
Drive Package			
Motor H.P. [W]	3 [2237.1]	5 [3728.5]	7.5 [5592.7]
Blower Sheave	BK90H	BK96H	BK100H
Motor Sheave	1VL44	1VP66	1VP65
Turns Open	0	0	0
RPM	814	1014	1103
	750	943	1035
	718	876	967
	5	6	6
	4	4	4
	3	3	3
	2	2	2
	1	1	1

1. Factory sheave settings are shown in bold type.
2. Do not set sheave below minimum or maximum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHR minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.
5. An RPM meter must be used to receive an accurate airflow reading.

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Appendix C – Air Flow Performance Data (Cont.)

AIRFLOW PERFORMANCE -17.5TON [61.5kW] - 60 Hz - DOWNFLOW

Model CJA6CTB210A - Downflow Voltage 208/220, 460, 575 — 3 phase 60 Hz

Air Flow		External Static Pressure - Inches of Water [kPa]																																											
CFM [L/s]		0.1 [0.02]		0.2 [0.05]		0.3 [0.07]		0.4 [0.10]		0.5 [0.12]		0.6 [0.15]		0.7 [0.17]		0.8 [0.20]		0.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]					
RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
5600 [2643]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5700 [2690]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5800 [2737]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5900 [2784]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6000 [2831]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6100 [2878]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6200 [2926]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6300 [2973]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6400 [3020]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6500 [3067]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600 [3114]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6700 [3162]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6800 [3209]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6900 [3256]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7000 [3303]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7100 [3350]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200 [3398]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7300 [3445]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7400 [3492]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500 [3539]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7600 [3586]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7700 [3633]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7800 [3681]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7900 [3728]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8000 [3775]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8100 [3822]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8200 [3869]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			