

Chapter 2

Troubleshooting

OVERVIEW

This chapter provides troubleshooting information including:

- Introduction to troubleshooting (generic troubleshooting approach and flow diagram)
- How to use the Isolation Procedures troubleshooting flowcharts
- Alphabetical and numerical cross-reference lists
- Isolation procedures (IPs) for:
 - Error codes
 - Banner messages
 - Observed problems
- Results-related problems checklist

The troubleshooting approach used to isolate problems on the ABBOTT SPECTRUM® SERIES II™ Analyzer is described in the **Introduction to Troubleshooting** (page 2-5) and is shown in the **Troubleshooting Flow Diagram** (page 2-7). **Conventions used in the Isolation Procedures flow charts** are described on page 2-6.

Related information: System overview and operating procedures are in **Chapter 1**. For ISE-specific error codes, refer to the ISE Service Manual.

WARNING !

Procedures in this chapter require following biohazard, electrical hazard, and electrostatic discharge precautions.



Always begin the service call by decontaminating the analyzer.

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Isolation Procedures

IP - 1: 24V Power Supply	2 - 27
IP - 2: AD OFFSET IS ZERO. CHANNEL NUMBER: XX (1-16)	2 - 28
Error Code 15	
IP - 3: Calibration Wheel robotics errors	2 - 30
Error Codes: 34, 36, 185	
IP - 4: CODE RAM 19 32781	2 - 32
Banner message	
IP - 5: CRT display is blank	2 - 33
Observed problem	
IP - 6: Cuvette Carrier robotics errors	2 - 34
Error Codes: 20, 104, 175 (Motor 6), 184	
IP - 7: DUAL PORT RAM TIMEOUT OR FAIL	2 - 36
Banner message	
IP - 8: Host communication errors	2 - 37
Error Code: 18	
IP - 9: INCUBATOR WILL NOT FILL	2 - 38
Error Code: 191	
IP - 10: INCUBATOR WILL NOT STABILIZE	2 - 39
Error Code: 231	
IP - 11: LAMP DID NOT TURN ON	2 - 41
Error Code: 218	
IP - 12: Lamp Drive problems	2 - 42
Error Code: 177	
Lockup on AD Offset	
Photometer Check Fail	

IP - 13: MIX ARM NOT MIXING	2 - 43
Observed problem	
IP - 14: Mix Arm robotics errors	2 - 44
Error Codes: 78, 79, 80, 81, 82, 84, 85, 175 (Motor 10), 175 (Motor 11)	
IP - 15: Multi-Output Power Supply	2 - 45
IP - 16: NMI ATTEMPT TO WRITE PROTECTED RAM	2 - 47
Banner message	
IP - 17: NMI ATTEMPT TO WRITE ROM	2 - 48
Banner message	
IP - 18: NMI POWER FAIL	2 - 49
Banner message	
IP - 19: NO MASTER/SLAVE CLOCK INTERRUPT	2 - 50
Banner message	
IP - 20: PACKET LOAD ADDRESS ERROR	2 - 51
Banner Message	
IP - 21: POWER ON CHECK FAIL	2 - 52
Banner Message	
IP - 22: Pumps & Valves errors	2 - 53
Error Codes: 175 (Motor 18), 175 (Motor 19)	
IP - 23: Reagent Arm horizontal robotics errors	2 - 54
Error Codes: 50, 52, 66, 67, 68, 75, 76, 175 (Motor 1), 175 (Motor 2), 226, 227	
IP - 24: Reagent Arm vertical robotics errors	2 - 55
Error Codes: 32, 105, 175 (Motor 0)	
IP - 25: REAGENT ARM WILL NOT DETECT FLUID	2 - 57
Error Codes: 8, 21, 39, 40, 179, 324, 325	

IP - 26: REAGENT BAR CODE READER NOT FUNCTIONING	2 - 58	IP - 39: Sample Syringe robotics errors	2 - 78
Error Code: 176		Error Codes: 24, 53, 175 (Motor 8)	
IP - 27: Reagent Cooler not cooling	2 - 60	IP - 40: WAITING ON TEMP	2 - 79
Observed problem		Banner Message	
IP - 28: REAGENT REFRIGERATOR TEMPERATURE NOT STABLE	2 - 62	IP - 41: Wash Cups overflowing	2 - 80
Error Code: 112		Error Code: 39	
IP - 29: Reagent Syringe errors	2 - 63	IP - 42: WASH WATER PRESSURE HIGH/LOW	2 - 82
Error Codes: 28, 30, 53, 175 (Motor 7)		Error Codes: 188, 189	
IP - 30: Results-related problems	2 - 64	IP - 43: Water Quality Station Light not functioning	2 - 83
		Observed problem	
IP - 31: Sample Arm horizontal robotics errors	2 - 66		
Error Codes: 57, 58, 59, 61, 63, 64, 175 (Motor 4)			
IP - 32: Sample Arm vertical robotics errors	2 - 68		
Error Codes: 60, 65, 175 (Motor 3)			
IP - 33: SAMPLE ARM WILL NOT DETECT FLUID	2 - 70		
Error Codes: 21, 39, 178, 224, 236			
IP - 34: Sample Carousel robotics errors	2 - 71		
Error Codes: 19, 100, 175 (Motor 5), 182, 183			
IP - 35: SAMPLE DILUENT LEVEL LOW	2 - 73		
Error Code: 190			
IP - 36: SAMPLE DILUENT PRESSURE HIGH	2 - 74		
Error Code: 187			
IP - 37: SAMPLE DILUENT PRESSURE LOW	2 - 75		
Error Code: 186			
IP - 38: Sample ID Reader not functioning	2 - 77		
Observed problem			

TROUBLESHOOTING WITH ISOLATION PROCEDURES

Always begin the service call by:

- printing the system files,
- decontaminating the instrument, and
- verifying the reported problem.

Refer to the Error Code List or Alphabetical List. These lists will direct you to the related Isolation Procedure (IP). Each IP focuses on one or more related Error Codes, banner messages, or observed problems. IPs are organized in alphabetical order by description. Each IP has also been assigned a number to facilitate cross-references to it.

Always follow the Isolation Procedure (IP). If an error occurs while performing a procedure specified by the IP, return to the IP for direction. **DO NOT** troubleshoot the new error code.

It is important to follow the sequence outlined on the Isolation Procedure Troubleshooting Flow Diagram because each step assumes all previous steps are correct.

The Isolation Procedure Charts are shown in flowchart manner. The flowcharts provide a step-by-step approach to troubleshooting the analyzer through error codes or observed problems.

Indication	For related IP number and page number, refer to...
Error code	Error code list (numerical list)
Banner message	Alphabetical list
Observed problem	Alphabetical list

NOTE: For additional information regarding ISE-related messages, codes, or observed problems, refer to the ISE Service Manual.

Conventions used in the Isolation Procedures flow charts**Menu Items**

In the Isolation Procedures flow charts, a square bullet indicates a menu selection. To select, touch the item on the screen or press the associated function [F] key to execute the selection.

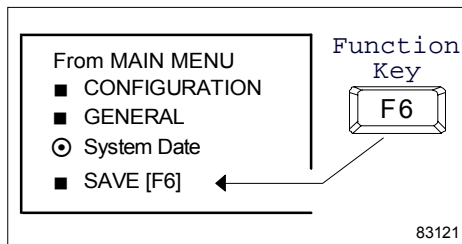
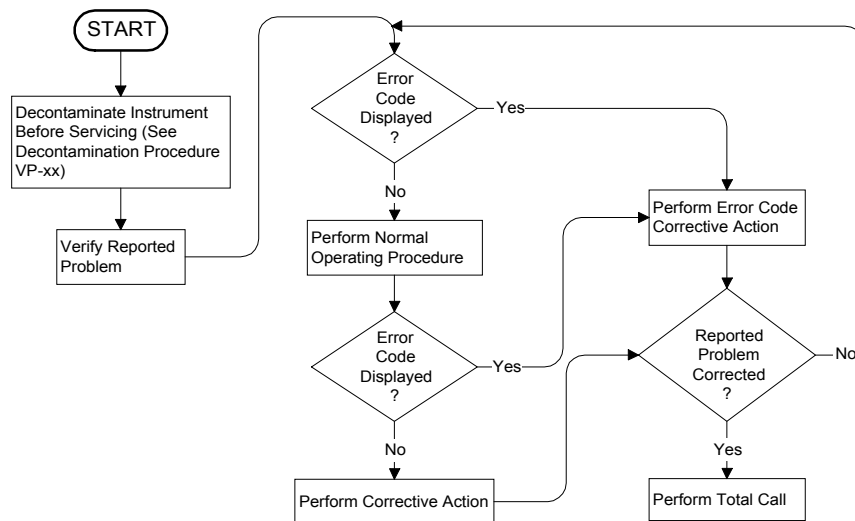


Figure 2-1: Menu Items Example

Direction to turn

CW clockwise
CCW counterclockwise/anticlockwise

	Begin at the START symbol and proceed as directed by the observed condition and logical path directed in the IP. If the IP is multi-page, the START symbol appears only on the first page; subsequent pages will begin with continuation symbols (circles, described below).
	A rectangle illustrates a procedural step. Perform the action indicated in the block. The procedure will be described in the block or provided elsewhere in the manual, with the location referenced.
	A diamond illustrates a decision. Determine the response to the question, then follow the appropriate path. Decisions are typically Yes or No answers, but may be of another nature.
	A circle identifies a link. The procedure continues at another location in the chart.
	A circle with a letter indicates a link to another place on the same page.
	A circle with a number provides a link to another page.

Generic troubleshooting flow diagram*Figure 2-2: Generic Troubleshooting Flow Chart*

CROSS-REFERENCE LIST (ALPHABETICAL ORDER)

This list includes:

- Banner messages
- Observed problems
- Selected error codes (grouped by type of problem)

All error codes are listed in numerical order in the Error Codes List that follows this alphabetical list.

Problem/Error/Message [Related Error Code(s)] **IP** **Page**

24V Power Supply 1 2 - 27

AD Offset is Zero. Channel Number: XX (1-16)
EC 15 2 2 - 28

Banner code messages

CODE RAM 19 32781 4 2 - 32

Dual Port RAM TimeOut or Fail 7 2 - 36

NMI Attempt to Write Protected RAM 16 2 - 47

NMI Attempt to Write ROM 17 2 - 48

NMI Power Fail 18 2 - 49

No Master/Slave Clock Interrupt 19 2 - 50

Packet Load Address Error 20 2 - 51

Power On Check Fail 21 2 - 52

Waiting on Temp 40 2 - 79

Problem/Error/Message [Related Error Code(s)] **IP** **Page**

Calibration Wheel robotics errors 3 2 - 30

EC 34, 36, 185

CODE RAM 19 32781 4 2 - 4

CRT display is blank 5 2 - 33

Cuvette Carrier robotics errors 6 2 - 34

EC 20, 104, 175 (Motor 6), 184

Dual Port RAM Timeout or Fail 7 2 - 36

Host communication errors 8 2 - 37

EC 18

Incubator Will Not Fill 9 2 - 38

EC 191

Incubator Will Not Stabilize 10 2 - 39

EC 231

Lamp Did Not Turn On 11 2 - 41

EC 218

Lamp Drive problems 12 2 - 42

Lockup on AD Offset 12 2 - 42

Mix Arm not mixing 13 2 - 43

Observed Problem

Mix Arm robotics errors 14 2 - 44

EC 78, 79, 80, 81, 82, 84, 85, 175 (Motor 10),
175 (Motor 11)

Multi-Output Power Supply 15 2 - 45

<u>Problem/Error/Message [Related Error Code(s)]</u>	<u>IP</u>	<u>Page</u>	<u>Problem/Error/Message [Related Error Code(s)]</u>	<u>IP</u>	<u>Page</u>
NMI Attempt to Write Protected RAM	16	2 - 47	Sample Arm horizontal robotics errors	31	2 - 66
NMI Attempt to Write ROM	17	2 - 48	EC 57, 58, 59, 61, 63, 64, 175 (Motor 4)		
NMI Power Fail	18	2 - 49	Sample Arm vertical robotics errors	32	2 - 68
No Master/Slave Clock Interrupt	19	2 - 50	EC 60, 65, 175 (Motor 3)		
Packet Load Address Error	20	2 - 51	Sample Arm Will Not Detect Fluid	33	2 - 70
Photometer Check Fail	12	2 - 42	EC 21, 39, 178, 224, 236		
Power On Check Fail	21	2 - 52	Sample Carousel robotics errors	34	2 - 71
Pumps & Valves errors	22	2 - 53	EC 19, 100, 175 (Motor 5), 182, 183		
EC 175 (Motor 18), 175 (Motor 19)			Sample Diluent Level Low	35	2 - 73
			EC 190		
Reagent Arm horizontal robotics errors	23	2 - 54	Sample Diluent Pressure High	36	2 - 74
EC 50, 52, 66, 67, 68, 75, 76, 175 (Motor 1), 175 (Motor 2), 226, 227			EC 187		
Reagent Arm vertical robotics errors	24	2 - 55	Sample Diluent Pressure Low	37	2 - 75
EC 32, 105, 175 (Motor 0)			EC 186		
Reagent Arm Will Not Detect Fluid	25	2 - 57	Sample ID Reader not functioning	38	2 - 77
EC 8, 21, 39, 40, 179, 324, 325			Sample Syringe robotics errors	39	2 - 78
Reagent Bar Code Reader Not Functioning	26	2 - 58	EC 24, 53, 175 (Motor 8)		
EC 176			Waiting on Temp	40	2 - 79
Reagent Cooler not cooling	27	2 - 60	Banner message		
Reagent Refrigerator Temperature Not Stable	28	2 - 62	Wash Cups overflowing	41	2 - 80
Reagent Syringe errors	29	2 - 63	EC 39		
EC 28, 30, 53, 175 (Motor 7)			Wash Water Pressure High/Low	42	2 - 82
Results-related problems	30	2 - 64	EC 188, 189		
			Water Quality Station Light not functioning	43	2 - 83

ERROR CODE LIST (NUMERICAL ORDER)

* Refer to ABBOTT SPECTRUM® SERIES II™ Maintenance & Troubleshooting Manual. For ISE-specific errors, refer to ISE Service Manual.

Code	Definition	IP	Page
00001	INTERNAL ERROR; SID AND/OR TEST REQUEST NUMBER		*
00002	TEST: _____ CALIBRATION CAL FACTOR TOLERANCE HAS FAILED		*
00003	ALL CUVETTES USED - CHANGE TO CONTINUE		*
00004	CALIBRATION ABORTED. TEST: _____		*
00005	INTERNAL ERROR		*

00006	INTERNAL ERROR		*
00007	INTERNAL ERROR		*
00008	REAGENT NOT FOUND. CORE REAGENT POSITION: _____	25	2-57
00009	WRONG MATH MODEL TEST: _____ DATA MAY BE LOST		*
00010	MATH MODEL NEEDS MORE READING TESTS: _____ DATA MAY BE LOST		*

Code	Definition	IP	Page
00011	TEST: _____ INITIAL ABSORBANCE "IA" CHECK FAILED FOR REAGENT: # _____, POSSIBLE REAGENT PROBLEM		*
00012	TEST: _____ REACTION ABSORBANCE "MA" EXCEEDS LIMIT REAGENT: # _____ PROBABLE HIGH ANALYTE CONCENTRATION.		*
00013	LINEAR HIGH OR LOW CHECK FAILURE. TEST: _____		*
00014	INTERNAL ERROR		*
00015	A _d OFFSET IS ZERO. CHANNEL NUMBER: _____	2	2-28

00016	THE PATIENT SAMPLES DATA FILE IS FULL		*
00017	ROTATION TIME MUST BE 1-10 MINUTES. RETRY.		*
00018	HOST INTERFACE TIMEOUT	8	2-37
00019	SAMPLE CAROUSEL STATION NOT DETECTED	34	2-71
00020	CUVETTE CAROUSEL STATION NOT DETECTED	6	2-34

Code	Definition	IP	Page
00021	NO REAGENT FOUND AFTER DISPENSE, CUVETTE # _____ REAGENT # _____, SAMPLE CUP POSITION # _____	25 33	2-57 2-70
00022	IMPROPER SEQUENCE.		*
00023	UNKNOWN CONTROL LEVEL, TEST: _____		*
00024	SAMPLE SYRINGE HOME LIMIT NOT FOUND	39	2-78
00025	CANNOT COMMAND ISE.		*

00026	PRINTER TIMEOUT ERROR		*
00027	LOW ENERGY. CALIBRATOR # _____, TEST: _____		*
00028	REAGENT SYRINGE UPPER LIMIT NOT FOUND	29	2-63
00029	LOW ENERGY. TEST: _____ SAMPLE ID: _____		*
00030	REAGENT SYRINGE HOME LIMIT NOT FOUND	29	2-63

Code	Definition	IP	Page
00031	CALIBRATION TIME HAS LAPSED. TEST: _____		*
00032	REAGENT Z HOME LIMIT NOT FOUND	24	2-55
00033	CUVETTE SPOKE IN PROBE PATH		*
00034	CALIBRATION WHEEL HOME NOT DETECTED	3	2-30
00035	WARNING: WASTE PUMP IS OFF		*

00036	CALIBRATION WHEEL STATION NOT DETECTED	3	2-30
00037	DILUENT VALVE IS CLOSED		*
00039	FLUID SENSE TOO HIGH	25 33 41	2-57 2-70 2-80
00040	REAGENT WASH WATER NOT FOUND	25	2-57

Code	Definition	IP	Page
00041	TEST: _____ INITIAL ABSORBANCE "IA" CHECK FAILED. CALIBRATOR NUMBER: _____ REAGENT: _____		*
00042	TEST: _____ REACTION ABSORBANCE "MA" EXCEEDS LIMIT REAGENT # _____ CALIBRATOR NUMBER: _____ REAGENT: _____		*
00043	LINEAR HIGH OR LOW CHECK FAILURE. TEST: _____ CALIBRATOR NUMBER: _____		*
00044	SAMPLE PROBE NOT OVER OR IN SAMPLE PROBE WASH CUP		*
00045	FLUID POSITIONS ARE NOT ADJUSTABLE		*

Code	Definition	IP	Page
00046	TEST: _____ CALIBRATOR TOLERANCE HAS FAILED FOR CALIBRATOR #: _____		*
00047	ANOTHER DEVICE IS IN PROPOSED PATH		*
00048	Ad ENTERED IS OUT OF RANGE		*
00049	ISE IO ERROR		*
00050	REAGENT OUTER ARM LEFT LIMIT NOT FOUND	23	2-54

00052	REAGENT OUTER ARM RIGHT LIMIT NOT FOUND	23	2-54
00053	SYRINGE FAILED TO DETECT UPPER LIMIT	27 29 39	2-60 2-63 2-78
00054	REAGENT OUTER ARM HOME LIMIT NOT FOUND		*
00055	CUVETTES FULL. CHANGE AND USE CHANGE KEY		*

Code	Definition	IP	Page
00057	SAMPLE ARM FAILED TO DETECT LATERAL HOME	31	2-66
00058	SAMPLE ARM FAILED TO DETECT LEFT LIMIT	31	2-66
00059	SAMPLE ARM FAILED TO DETECT RIGHT LIMIT	31	2-66
00060	SAMPLE ARM FAILED TO DETECT UP LIMIT	32	2-68

00061	SAMPLE ARM FAILED TO DETECT VERTICAL HOME	31	2-66
00063	SAMPLE ARM AT LEFT LIMIT	31	2-66
00064	SAMPLE ARM AT RIGHT LIMIT	31	2-66
00065	SAMPLE ARM AT UPPER LIMIT	32	2-68

Code	Definition	IP	Page
00066	REAGENT INNER ARM FAILED TO DETECT LATERAL HOME	23	2-54
00067	REAGENT INNER ARM FAILED TO DETECT LEFT LIMIT	23	2-54
00068	REAGENT INNER ARM FAILED TO DETECT RIGHT LIMIT	23	2-54

00075	REAGENT INNER ARM AT LEFT LIMIT	23	2-54
00076	REAGENT INNER ARM AT RIGHT LIMIT	23	2-54
00077	REAGENT ARM AT UPPER LIMIT		*
00078	MIXER ARM FAILED TO DETECT LATERAL HOME	14	2-44
00079	MIXER ARM FAILED TO DETECT LEFT LIMIT	14	2-44
00080	MIXER ARM FAILED TO DETECT RIGHT LIMIT	14	2-44

Code	Definition	IP	Page
00081	MIXER ARM FAILED TO DETECT UP LIMIT	14	2-44
00082	MIXER ARM FAILED TO DETECT VERTICAL HOME	14	2-44
00084	MIXER ARM AT LEFT LIMIT	14	2-44
00085	MIXER ARM AT RIGHT LIMIT	14	2-44

00100	SAMPLE CAROUSEL HOME POSITION NOT DETECTED	34	2-71
00104	CUVETTE CARRIER HOME POSITION NOT DETECTED	6	2-34
00105	REAGENT Z UPPER LIMIT NOT FOUND	24	2-55

00106	DUAL PORT TIMEOUT LOCATION = _____ STATUS = _____ ENTER REVIEW AND RUN TO RESTART		*
00108	THE SPECIFIED CAROUSEL POSITION IS FULL		*
00109	CUVETTE CHANGED		*
00110	SAMPLE ID(S) ALREADY EXISTS		*

Code	Definition	IP	Page
00111	SAMPLE ID(S) NOT FOUND		*
00112	REAGENT REFRIGERATOR TEMPERATURE UNSTABLE	28	2-62
00113	PROCEED WITH RERUN?		*
00115	ONLY ONE SAMPLE ALLOWED PER STAT		*

00116	TOO MANY RECORDS SPECIFIED		*
00118	CAROUSEL NUMBER OUT OF RANGE		*
00120	REQUESTED TEST NOT FOUND		*

00121	NO ROOM FOR STATS		*
00122	THIS TEST IS ALREADY BEING RUN		*
00123	THERE ARE (#) READS LEFT		*

00128	NUMBER(S) OUT OF RANGE		*
00130	BAD RANGE FOR POSITION		*

Code	Definition	IP	Page
00131	NOT ENOUGH CAROUSEL POSITIONS AVAILABLE		*
00135	CANNOT DELETE WHEN PATIENTS ARE SCHEDULED		*

00137	NO MORE ROOM FOR PANELS		*
00139	SOME TESTS IN PANEL NOT DELETED		*
00140	SAMPLE FILE FULL		*

00143	CONTROL LEVEL MUST BE SPECIFIED		*
00145	REPORT IN PROGRESS		*

00147	PLEASE WAIT FOR OPERATION TO COMPLETE		*
00148	PROBE MUST BE UP FOR THIS COMMAND		*
00150	EXCEPTION MESSAGE OVERFLOW NO SPACE TO ADD EXCEPTION MESSAGES		*

Code	Definition	IP	Page
00151	CREATING REAGENT		*
00152	TIME OUT WAITING FOR ISE STATUS REPLY		*
00153	NOT ENOUGH CUVETTES TO CALIBRATE TEST: _____ THAT TEST WILL NOT BE RUN		*
00154	SYSTEM IS RUNNING		*
00155	PATIENTS LOADED, CANNOT EDIT PARMS		*

00156	ISE TEST TYPE IS TEST 1-5 ONLY		*
00157	TEST TYPE AND # REAGENTS CONFLICT		*
00158	REAGENTS DEFINED, CANNOT EDIT		*
00159	NOT ENOUGH REAGENT TEST FILES		*
00160	EDITS LOST		*

Code	Definition	IP	Page
00161	SAMPLE VOLUME OUT OF RANGE		*
00162	# OF REAGENTS MUST BE NON-ZERO		*
00163	CANNOT DELETE ISE TESTS		*
00164	FILE DELETED		*
00165	CREATING TEST FILE		*

00166	FILE SAVED		*
00167	REAGENT NOT FOUND		*
00168	REAGENT VOLUME OUT OF RANGE		*
00169	NO REAGENT DEFINED		*
00170	WAIT FOR LAMP WARM UP		*

00171	CANNOT MOVE TESTS		*
00172	REQUESTED POSITION OCCUPIED		*
00173	VALUE OUT OF ACCEPTABLE RANGE OF 175 to 288		*
00174	UPI TIME OUT ERROR. MOTOR NUMBER _____		*

Code	Definition	IP	Page
00175	MOTOR LIMITS ERROR. MOTOR NUMBER _____		
	0	24	2-55
	1, 2	23	2-43
	3	32	2-68
	4	31	2-66
	5	34	2-71
	6	6	2-34
	7	29	2-63
	8	39	2-78
	10, 11	14	2-44
	18, 19	22	2-53

00176	BAR CODE LIMITS ERROR	26	2-58
00177	AD HARDWARE TIMED OUT	12	2-42
00178	SAMPLE DISPENSED IN AIR	33	2-70
00179	NO REAGENT FOUND AFTER DISPENSE	25	2-57
00180	INTERNAL ERROR		*

Code	Definition	IP	Page
00181	INTERNAL ERROR		*
00182	CAROUSEL COUNTER OFFSET	34	2-71
00183	SAMPLE CAROUSEL COUNTER ERROR	34	2-71
00184	CUVETTE CAROUSEL COUNTER ERROR	6	2-34
00185	CALIBRATION WHEEL COUNTER ERROR	3	2-30

00186	SAMPLE DIL. PRESSURE LOW	37	2-75
00187	SAMPLE DIL. PRESSURE HIGH	36	2-74
00188	WASH WATER PRESSURE LOW	42	2-82
00189	WASH WATER PRESSURE HIGH	42	2-82
00190	DILUENT LEVEL LOW	35	2-73

Code	Definition	IP	Page
00191	INCUBATOR WILL NOT FILL	9	2-38
00192	UPI ID ERROR. UPI NUMBER		*
00193	BAD CODE IN PACKET		*
00194	BAD CALC REPLY PACKET		*
00195	TOO MANY CONTROLS SPECIFIED. CONTROL NOT ADDED TEST: _____		*

00196	CAN'T MOVE ISE TEST TYPE		*
00199	SCHED2 BAD STATUS = 0		*
00200	SAMPLE CAROUSEL # CHANGED		*

00204	RMX ERROR CODES ARE _____		*
00205	UNABLE TO LOAD TEST DATA INTO MEMORY		*

00209	NEEDED CALIBRATOR IS NOT LOADED CALIBRATOR TEST: _____		*
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Code	Definition	IP	Page
00211	ILLEGAL POSITION FOR DOUBLE CARTRIDGE		*
00212	AUX REAGENT NAME MUST BE ENTERED		*
00213	ILLEGAL REAGENT INDEX - MUST BE 1-200 ONLY		*
00214	THIS IS NOT A DOUBLE CARTRIDGE		*

00216	ILLEGAL REAGENT CARTRIDGE TYPE ENTERED		*
00218	LAMP DID NOT COME ON	11	2-41

00222	NO CAROUSEL MOUNTED OR MOUNTED CAROUSEL IS EMPTY		*
00223	ILLEGAL CAROUSEL NUMBER ENTERED		*
00224	SHORT SAMPLE, SAMPLE CUP #	33	2- 70

Code	Definition	IP	Page
00226	REAGENT OUTER ARM AT LEFT LIMIT	23	2-54
00227	REAGENT OUTER ARM AT RIGHT LIMIT	23	2-54
00229	UNKNOWN ROBOTICS ABORT. CODE # _____		*

00231	INCUBATOR DID NOT STABILIZE AT TEMPERATURE	10	2-39
00233	TEST: _____ CALIBRATOR LEVEL # _____ IS UNUSED OR NOT FORMATTED CORRECTLY		*
00234	UNABLE TO SCHEDULE ALL OPTICAL TESTS		*
00235	UNABLE TO SCHEDULE ALL ISE TESTS		*

Code	Definition	IP	Page
00236	CALIBRATION CANCELED. SHORT SAMPLED CUP # TEST: ____	33	2-70
00237	ROBOTICS COMMANDS ILLEGAL WHEN SYSTEM IS RUNNING		*
00238	SHORT REAGENT FOR CALIBRATION. TEST: ____ CALIBRATION CANCELED		*
00239	SID RE-ENTERED IN MEMORY, TEST: ____ SAMPLE ID: ____		*
00240	ILLEGAL CHAR "/" IN REAG NAME - REENTER		*

00244	ISE TEST SKIPPED DUE TO RECALIBRATE		*
00245	ISE RS-232 TIME OUT ERROR. ISE OR I/O BOARD SUSPECT SAMPLE ID: ____ CODES: ____		*

Code	Definition	IP	Page
00246	ISE I/O BOARD PORT READS BAD STATUS		*
00247	ISE WILL NOT CALIBRATE. ISE ERROR CODES ARE		*
00248	ISE CHECK SUM ERROR. COMMUNICATION LINK SUSPECT		*
00249	THE TIME HAS BEEN INCORRECTLY ENTERED		*
00250	CASE TOO LARGE FOR DO CASE ENCOUNTERED		*

00251	REAGENT NOT LOADED OR UNABLE TO IDENTIFY BARCODE LABEL. TEST: ____ PLEASE REVIEW REAGENT LOADLIST		*
00252	CALIBRATION FOR TEST: ____ FAILED - THAT TEST WILL NOT BE RUN		*
00253	THERE IS NO USABLE CAL CURVE FOR TEST: ____ THAT TEST WILL NOT BE RUN		*
00254	INVALID USE OF /		*

Code	Definition	IP	Page
00257	PROCEED WITH DELETE?		*
00258	USER DELETED CALIBRATOR W/O REPLACEMENT		*
00259	PROCEED WITH MASTER CAL CHANGE?		*

00264	UNABLE TO REQUEST OR LOAD ALL CALIBRATORS FOR TEST: _____		*
00265	REAGENT LOT ID CHANGED FOR TEST: _____ RECALIBRATING OR REBLANKING		*

00267	NO ISE CHANNELS AVAILABLE FOR USE. REVIEW ISE STATUS BEFORE RUNNING.		*
00268	PLEASE SELECT REAGENT FIRST		*
00269	STOP READER WITHIN 10 MINUTES		*
00270	NO ISE CHANNELS AVAILABLE FOR USE. NO ISE TESTS WILL BE RUN		*

Code	Definition	IP	Page
00271	PARTIAL ISE OFF. SAMPLES USING ANY UNAVAILABLE CHANNEL(S) WILL NOT BE RUN.		*
00272	PARTIAL ISE ON. SAMPLES USING ONLY UNAVAILABLE CHANNEL(S) WILL NOT BE RUN.		*
00273	THE FOLLOWING ISE CHANNEL IS UNAVAILABLE TEST: _____		*
00274	SYSTEM IS HALTED		*

00276	INDICATED COMB TEST NAME DOES NOT EXIST		*
00277	INDICATED COMB TEST NAME IS NOT SIMULTANEOUS		*
00278	KINETIC BLANK FOR TEST: _____ FAILED - THAT TEST WILL NOT BE RUN		*
00279	THERE IS NO USABLE KINETIC BLANK FOR TEST: _____ THAT TEST WILL NOT BE RUN		*
00280	HOST INTERFACE BUSY, PLEASE TRY AGAIN		*

Code	Definition	IP	Page
00281	PROCEED WITH BREAK?		*
00282	KINETIC BLANK HAS FAILED THE TOLERANCE CHECK TEST: _____		*
00283	PRIMARY WAVELENGTH - USE IN MISMATCH		*
00284	SECONDARY WAVELENGTH - USE IN MISMATCH		*
00285	TEST: _____ CONTROL OUT OF RANGE FOR CONTROL LEVEL: _____ ON SAMPLE ID: _____		*

00286	TEST: _____ INTERCEPT TOLERANCE RANGE CHECK HAS FAILED		*
00287	TEST: _____ RATE COEFFICIENT OF CORRELATION CHECK FAILED SAMPLE ID: _____		*
00288	TEST: _____ POLYCHROMATIC RANGE CHECK FAILED FOR SAMPLE ID: _____		*
00289	TEST: _____ POLYCHROMATIC RANGE CHECK FAILED FOR CALIBRATOR: _____		*
00290	OLD PASSWORD IS INVALID		*

Code	Definition	IP	Page
00291	NEW PASSWORD IS INVALID		*
00292	INVALID PASSWORD		*
00293	NO PASSWORD GIVEN. CANNOT EDIT PARMS.		*
00294	TEST: _____ RATE COEFFICIENT OF CORRELATION CHECK HAS FAILED		*
00295	ISE REQUIRES CALIBRATION. SAMPLE ID: _____ ISE TESTS WILL BE REENTERED		*

00296	END OF RUN		*
00297	ATTEMPT TO RUN ISE ON SAMPLE ID: _____ WHILE RUNNING SAMPLE ID: _____		*
00298	TEST BEING CREATED ON POWER - DOWN WAS DELETED		*
00299	ROTATION COMPLETE. PLEASE VERIFY TEMPERATURE CALIBRATION		*
00300	TEMPERATURE CALIBRATION ABORTED		*

Code	Definition	IP	Page
00301	SYSTEM PAUSED		*
00302	BAD BLANK REQUESTED SAMPLE ID: _____ TEST: _____ STATUS # _____		*
00303	SHARED PARAMETER EDITED		*
00304	REAGENT LOW. POSITION #: _____		*
00305	SELECT A LEVEL FIRST		*

00306	ATTEMPT TO RUN INCOMPLETE SIMULT ASSAY TEST: _____ THAT ASSAY MUST BE ASSOCIATED WITH ANOTHER TO BE RUN		*
00309	MISSING CONTROL LEVEL # _____ FOR TEST: _____ THAT TEST WILL NOT BE RUN		*
00310	TRANSFER FROM CORE REAGENT CARTRIDGE # _____ TO CORE REAG CARTRIDGE # _____		*

Code	Definition	IP	Page
00311	INTERNAL ERROR CODE 1: _____ CODE 2: _____		*
00312	CONTROL FAILED OR MISSING FOR TEST: _____ PLEASE REVIEW QUALITY CONTROL STATUS		*
00313	COMB NAME MUST NOT BE CURRENT TEST		*
00314	ROBOTICS ABORT DURING MAINT. RESTART MAINT		*
00315	ROBOTICS BUSY AT START OF MAINT		*

00316	ISE DAILY MAINTENANCE STARTED		*
00317	ISE PACK CHANGE STARTED		*
00318	DAILY MAINTENANCE STARTED		*
00320	ISE IS NOT RESPONDING OR UNAVAILABLE		*

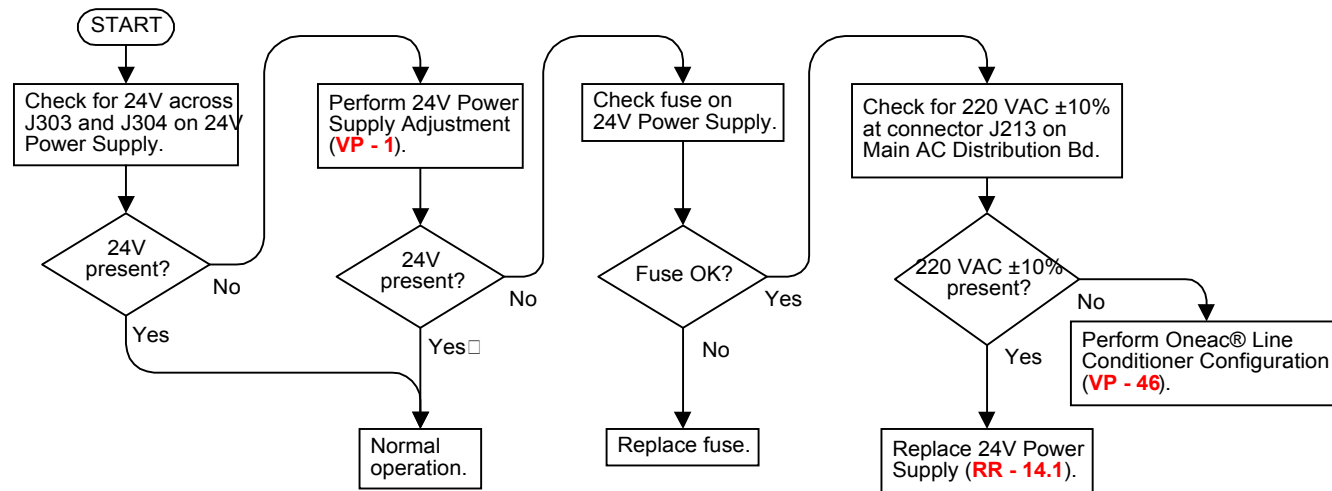
Code	Definition	IP	Page
00321	PLEASE WAIT - INITIALIZING SAMPLE FILE		*
00324	NO REAGENT FOUND AFTER DISPENSE, CUVETTE # _____ PERIMETER REAGENT # _____ SAMPLE CUP POSITION # _____	25	2-57
00325	REAGENT NOT FOUND. PERIMETER REAGENT POSITION # : _____	25	2-57

00327	INCUBATOR DAC OUT OF RANGE		*
00328	THIS TEST IS NOT SIMULTANEOUS		*
00329	CANNOT MIX AUX AND NON AUX SIMULT TESTS		*

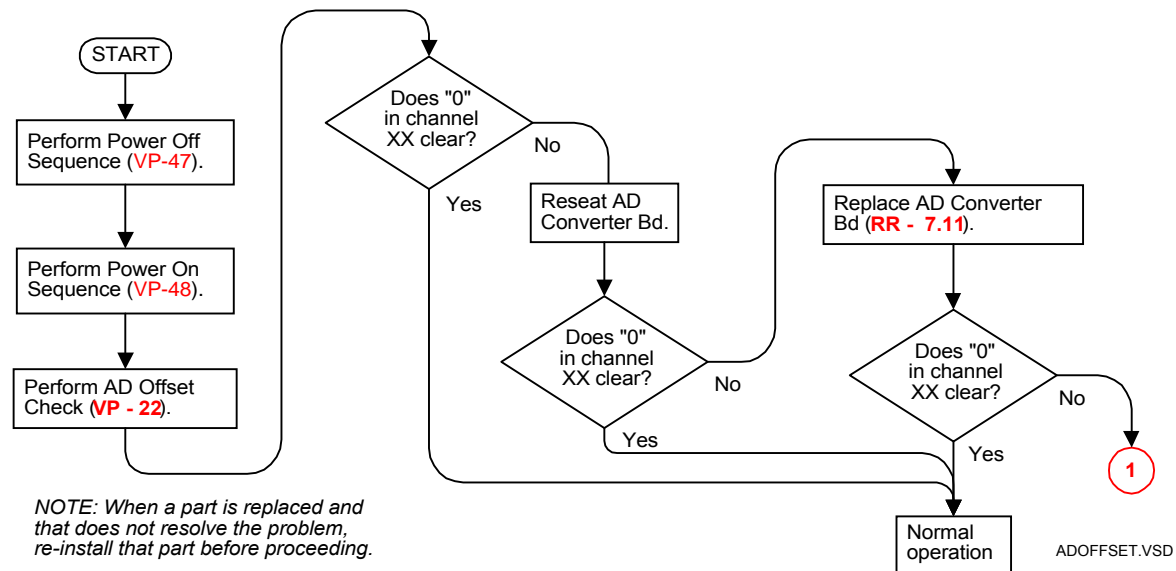
Code	Definition	IP	Page
00331	RTP DUAL PORT TIME OUT # _____		*
00332	RTP DUAL PORT RETRY BUFFER FULL # _____		*
00333	TRANSFER FROM CORE REAG CARTRIDGE # _____ TO PERIM REAG CARTRIDGE # _____		*
00334	TRANSFER FROM PERIM REAG CARTRIDGE # _____ TO CORE REAG CARTRIDGE # _____		*
00335	TRANSFER FROM PERIM REAG CARTRIDGE # _____ TO PERIM REAG CARTRIDGE # _____		*

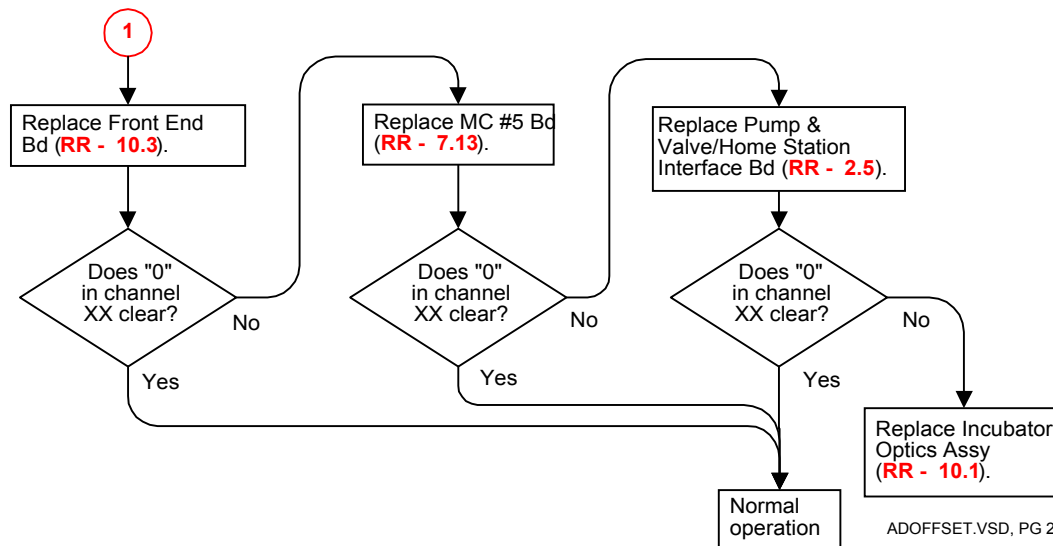
00336	QC OUT OF RANGE FOR TEST: _____ SAMPLE ID: _____ WILL BE REENTERED		*
00337	POLYCHROMATIC RANGE CHECK FAILED FOR WAVELENGTH POSITION #: _____ TEST: _____		*

Code	Definition	IP	Page
00506	REAGENT NOT LOADED FOR TEST: _____ PLEASE REVIEW REAGENT LOADLIST.		*
00507	PROCEED WITH RESET?		*
00508	NO PASSWORD GIVEN. CANNOT RESET COUNTERS		*
00509	BATTERY FAILED, DUMP SYSTEM FILES TO PRINTER		*
00510	INTERNAL ERROR		*

IP - 1: 24V POWER SUPPLY

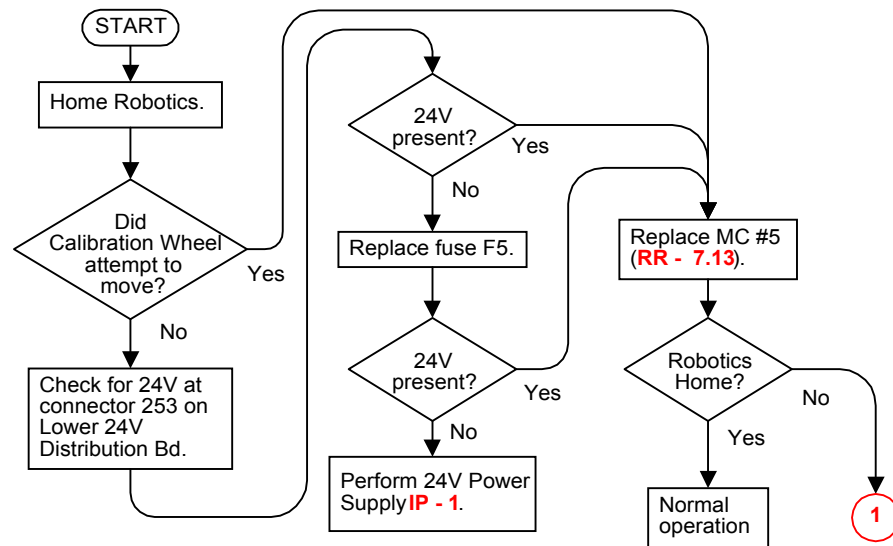
24VPSCHK.VSD

IP - 2: AD OFFSET IS ZERO. CHANNEL NUMBER: XX (1-16)**Error Code 15**

IP - 2: AD OFFSET IS ZERO. CHANNEL NUMBER: XX (1-16) (CONT)

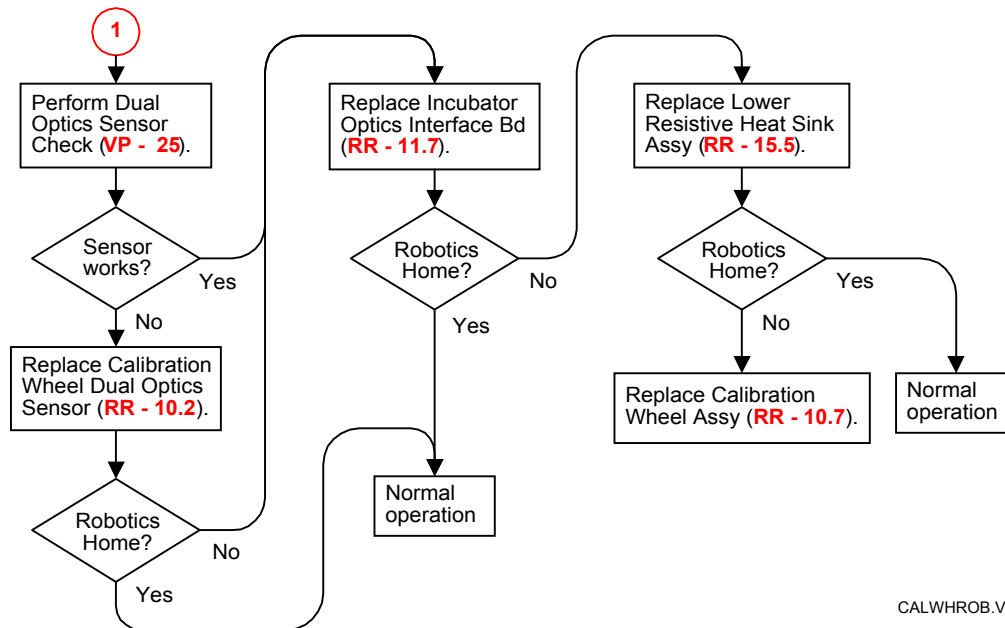
IP - 3: CALIBRATION WHEEL ROBOTICS ERRORS

Error Codes: 34, 36, 185



NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

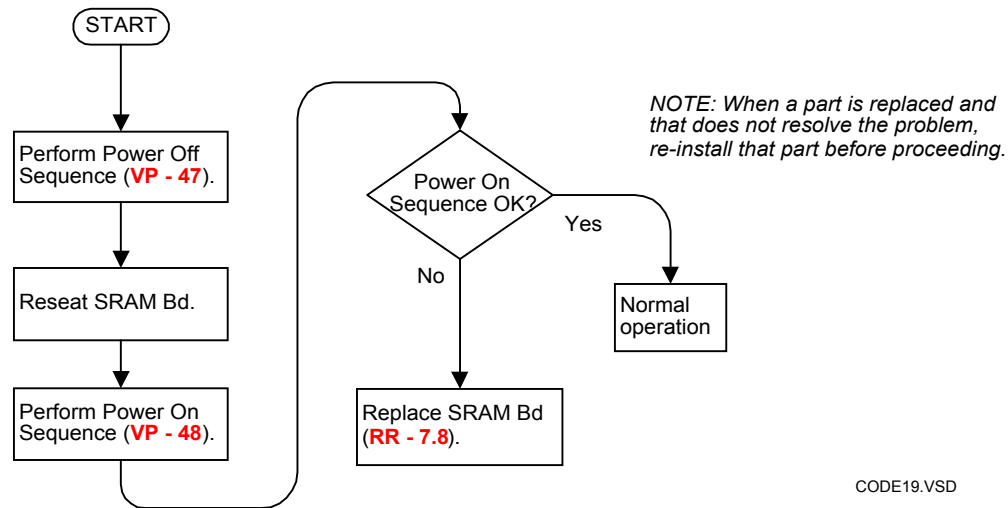
CALWHROB.VSD

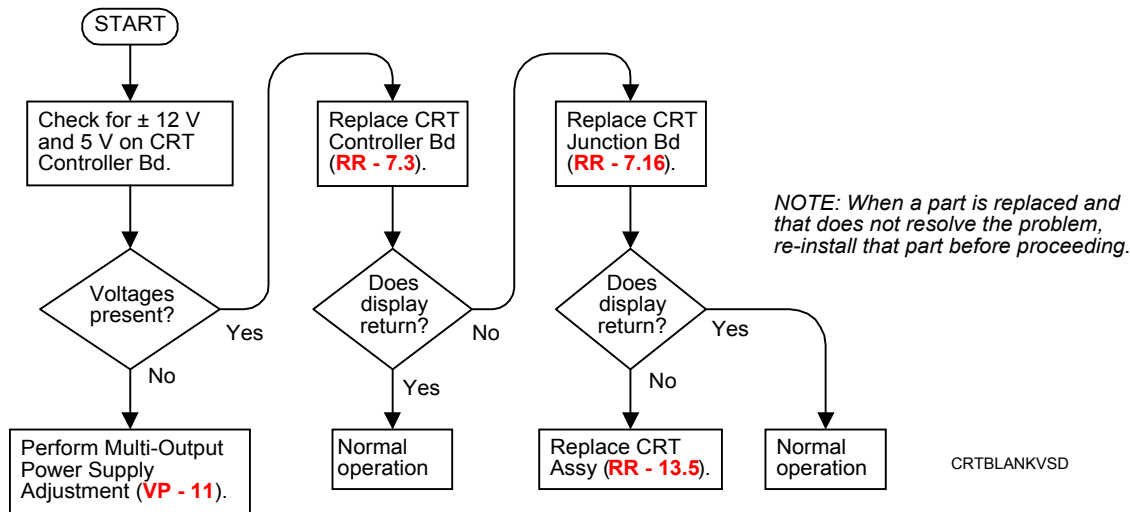
IP - 3: CALIBRATION WHEEL ROBOTICS ERRORS (CONT)

CALWHROB.VSD, PG 2

IP - 4: CODE RAM 19 32781

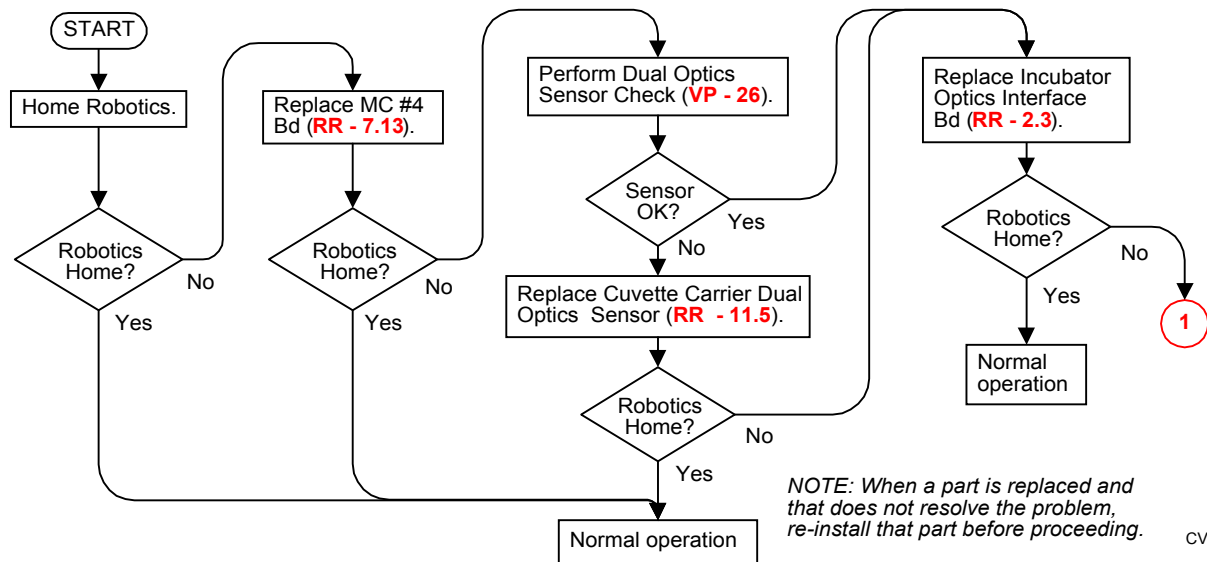
Banner message



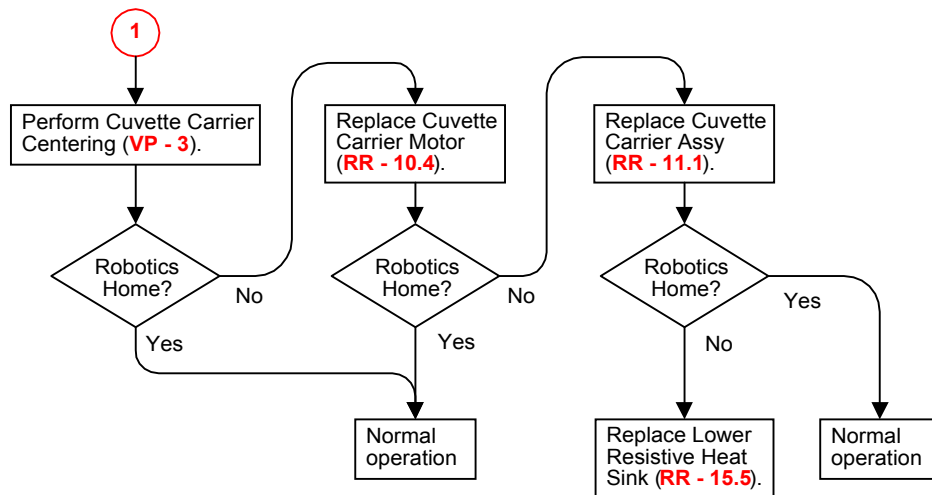
IP - 5: CRT DISPLAY IS BLANK**Observed problem**

IP - 6: CUVETTE CARRIER ROBOTICS ERRORS

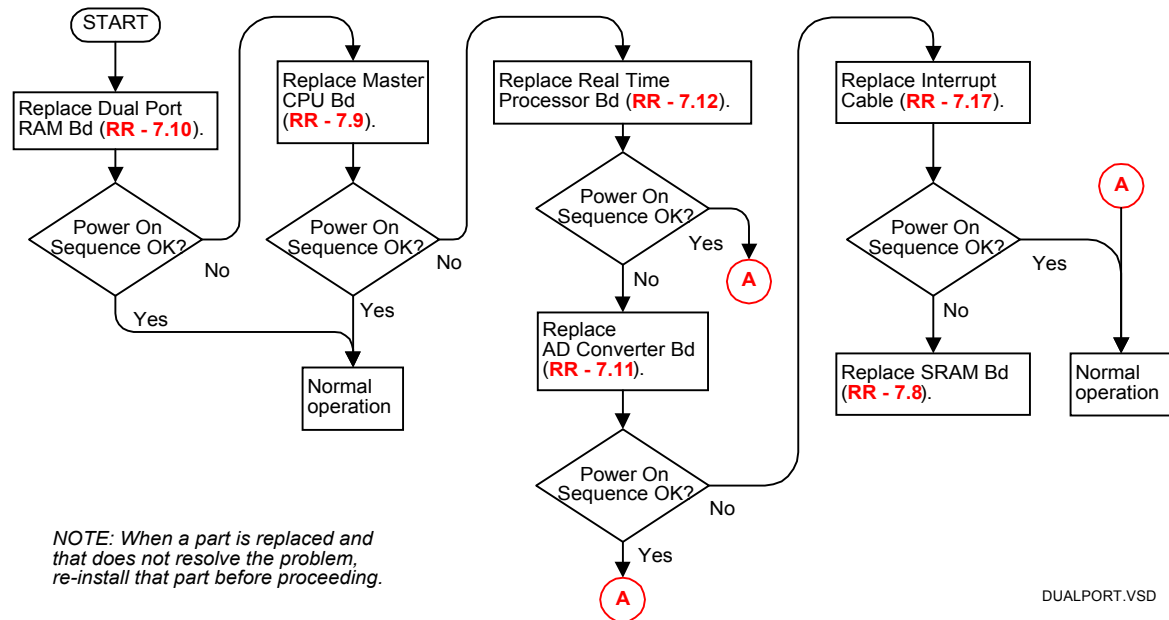
Error Codes: 20, 104, 175 (Motor 6), 184



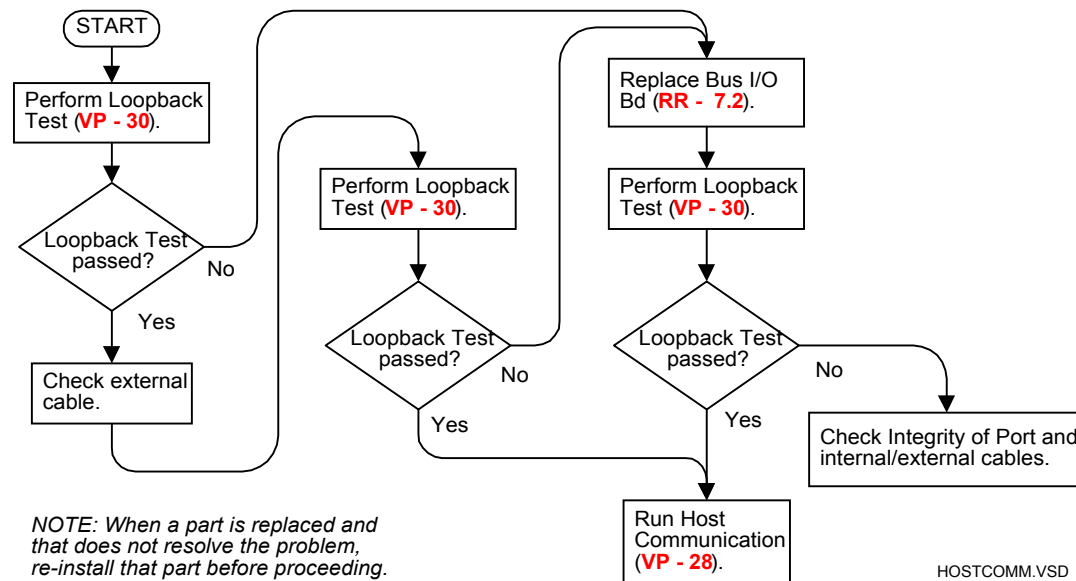
CVCARROB.VSD

IP - 6: CUVETTE CARRIER ROBOTICS ERRORS (CONT)

CVCARROB.VSD, PG 2

IP - 7: DUAL PORT RAM TIMEOUT OR FAIL**Banner message**

DUALPORT.VSD

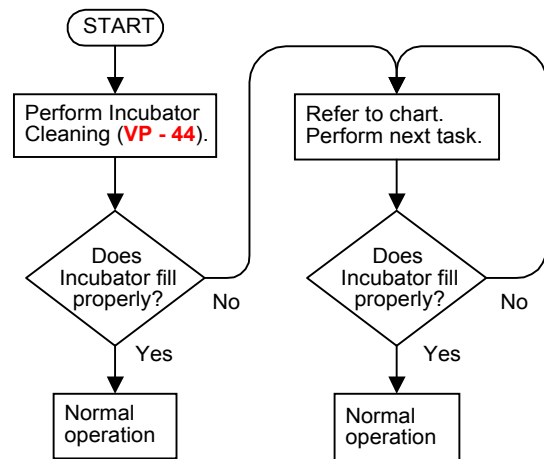
IP - 8: HOST COMMUNICATION ERRORS**Error Code: 18**

HOSTCOMM.VSD

NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

IP - 9: INCUBATOR WILL NOT FILL

Error Code: 191



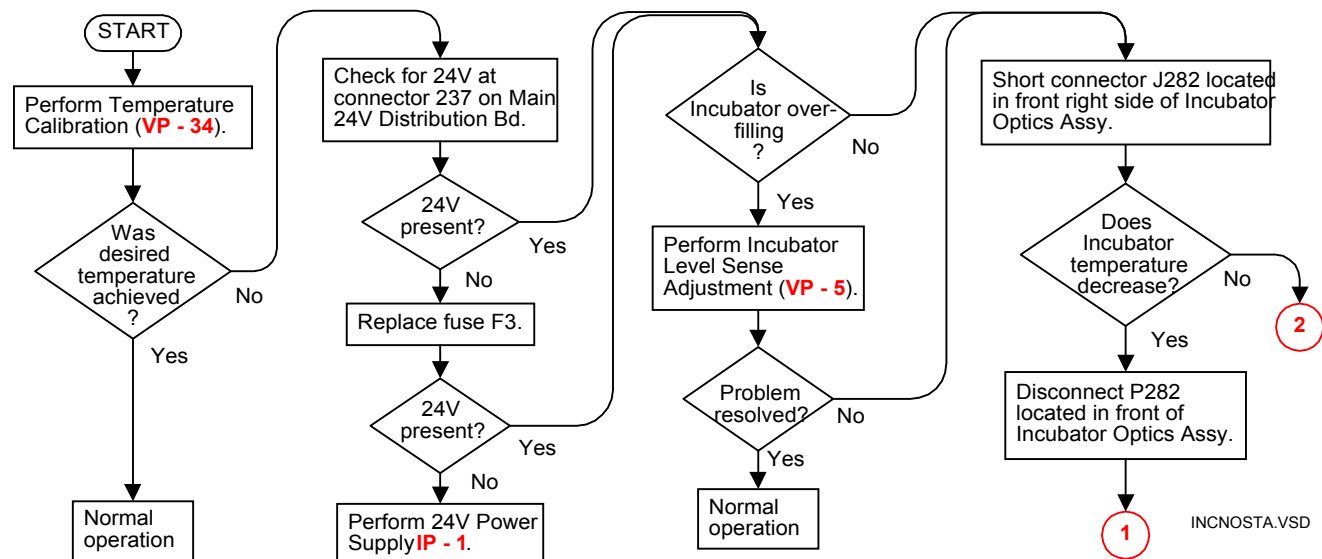
1. Perform Incubator Level Sense Adjustment (VP-5).
2. Replace MC #4 Bd (RR- 7.13) and MC #5 Bd (RR - 7.13).
3. Replace Incubator Level Sense Probe (RR - 11.3).
4. Replace Incubator Optics Interface Bd (RR - 11.7).
5. Replace Pump & Valve/Home Station InterfaceBd (RR - 2.5).
6. Replace Wash Manifold Assy (RR - 9.5).

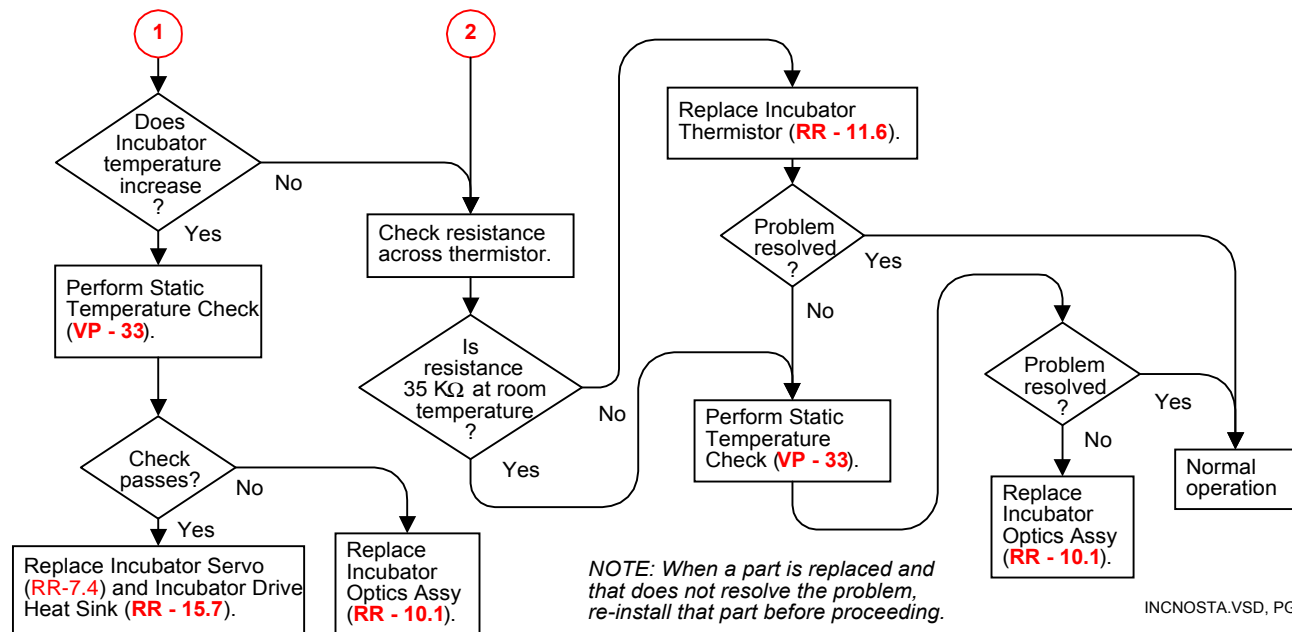
NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

INCNOFIL.VSD

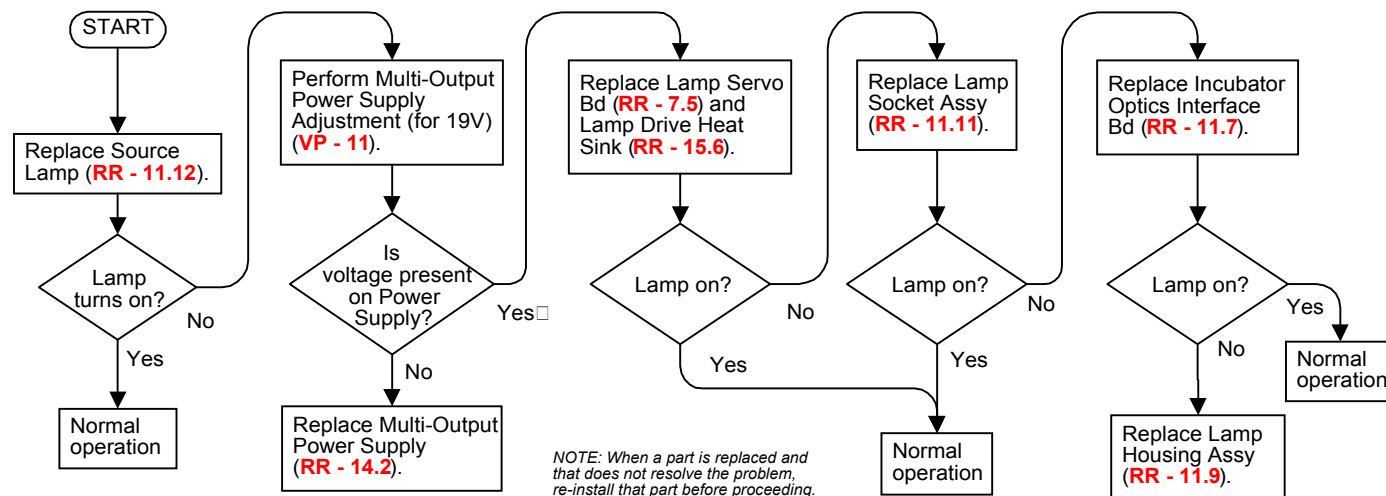
IP - 10: INCUBATOR WILL NOT STABILIZE

Error Code: 231



IP - 10: INCUBATOR WILL NOT STABILIZE (CONT)

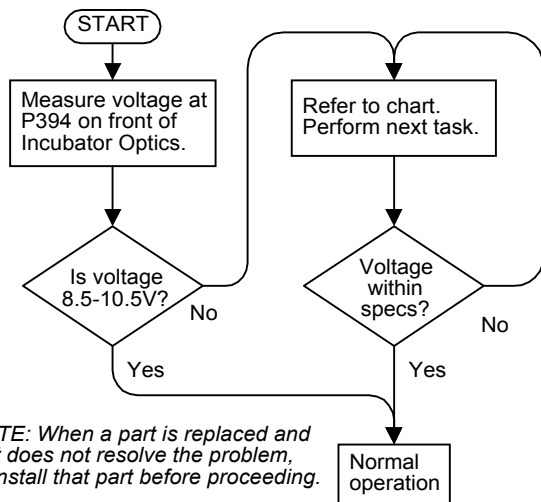
INCNOSTA.VSD, PG 2

IP - 11: LAMP DID NOT TURN ON**Error Code: 218**

LAMPWONT.VSD

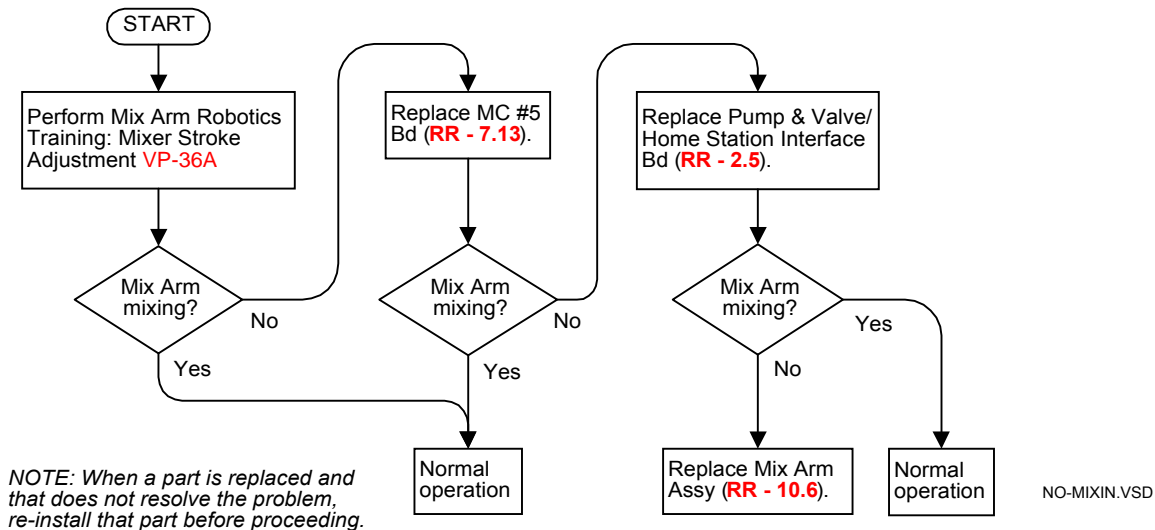
IP - 12: LAMP DRIVE PROBLEMS

Error Code: 177

Lockup on AD Offset
Photometer Check Fail

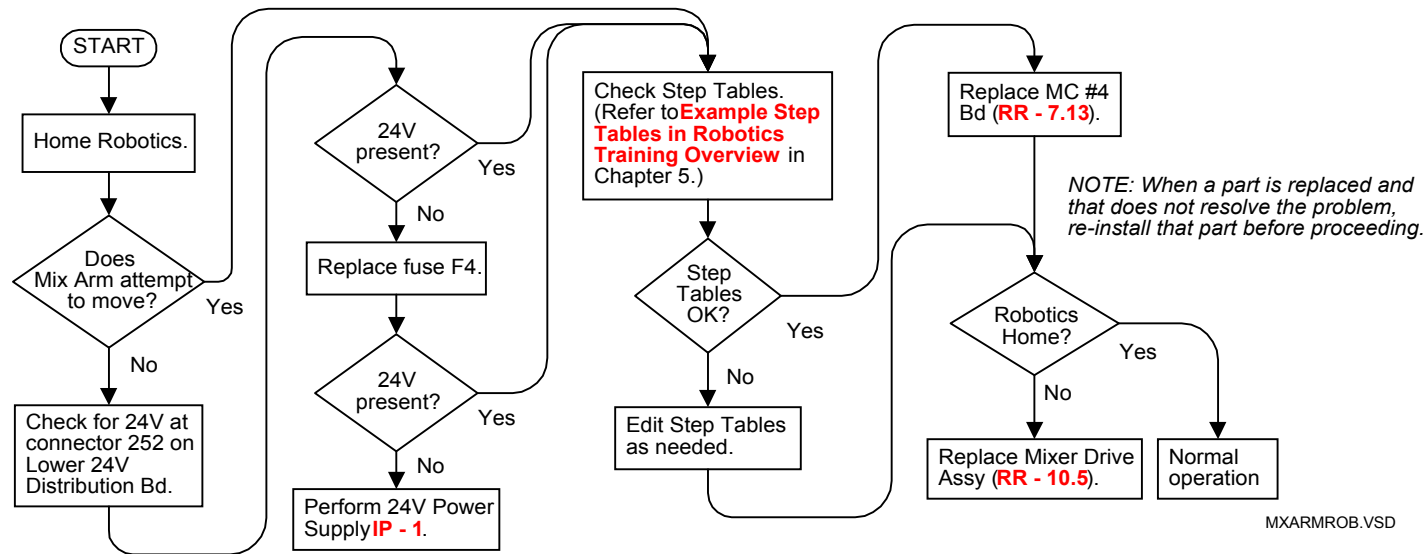
1. Perform Incubator Cleaning (**VP-44**) .
 2. Adjust Lamp (**VP-7**).
 3. Replace Heat Glass (**RR-11.10**).
 4. Replace Source Lamp (**RR-11.12**).
 5. Replace Motor Controller #5 Bd (**RR - 7.13**) .
 6. Perform Multi-Output Power Supply Adjustment (for 19V) (**VP-11**).
 7. Perform Relay Lens Cleaning (**VP-50**).
 8. Replace Incubator Lens (**RR-11.13**).
 9. Replace Lamp Servo Bd (**RR-7.5**).
 10. Replace Lamp Drive Heat Sink (**RR-15.6**).
 11. Replace Front End Bd (**RR-10.13**).
- NOTE:** If Lamp Drive voltage is 8.5V or lower, use Low Gain Front End Bd.
12. Replace Lamp Housing Assy (**RR-11.9**).
 13. Replace Incubator Optics Interface Bd (**RR-11.7**).
 14. Replace Incubator Optics Assy (**RR-10.1**).

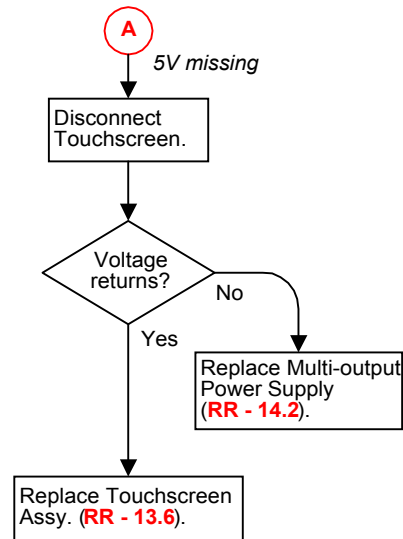
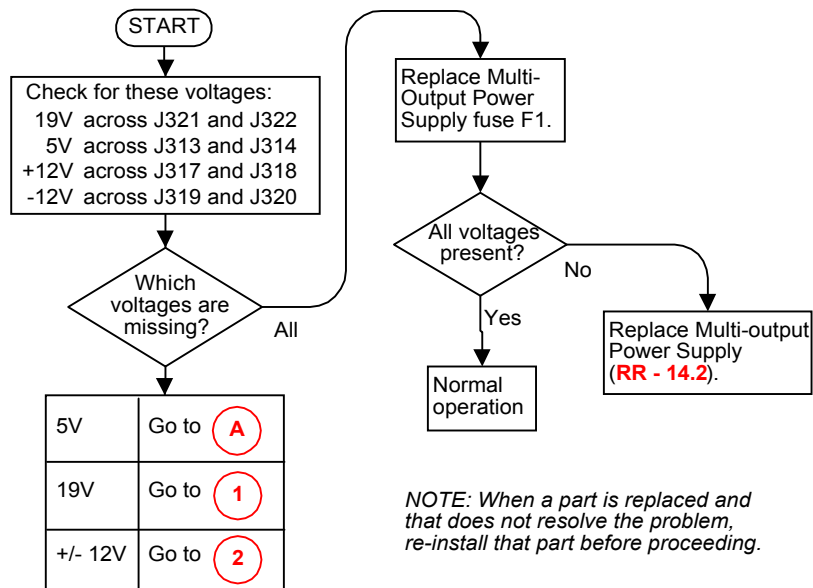
LAMPDRIV.VSD

IP - 13: MIX ARM NOT MIXING**Observed problem**

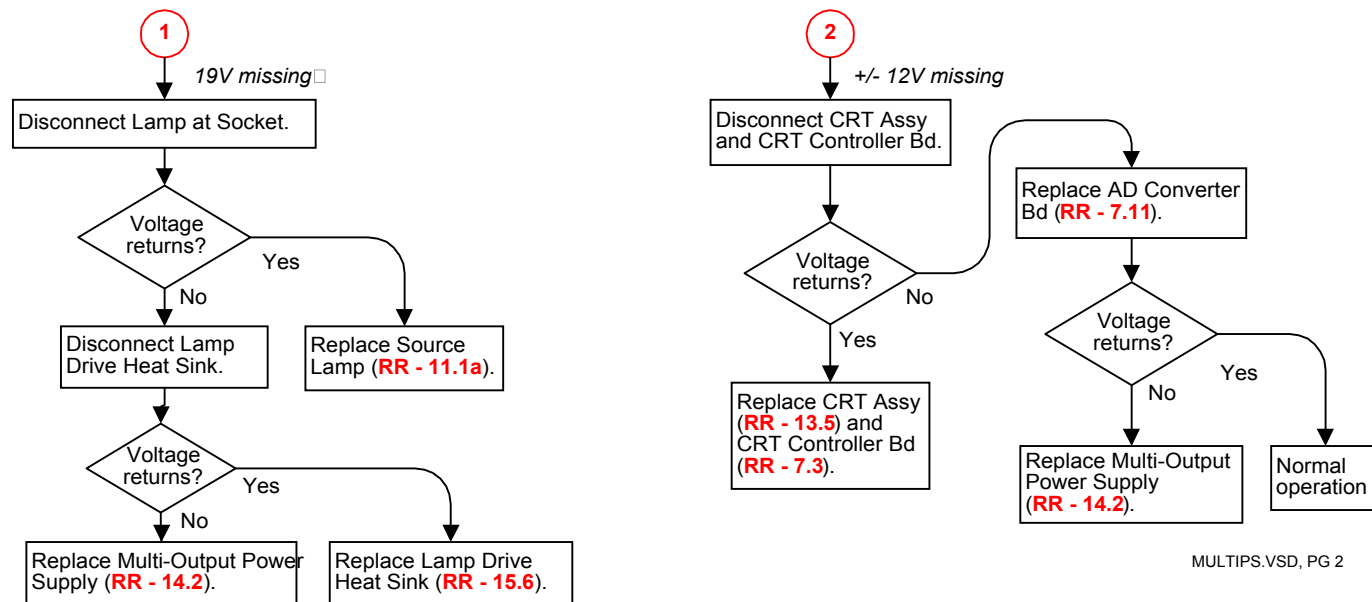
IP - 14: MIX ARM ROBOTICS ERRORS

Error Codes: 78, 79, 80, 81, 82, 84, 85, 175 (Motor 10), 175 (Motor 11)

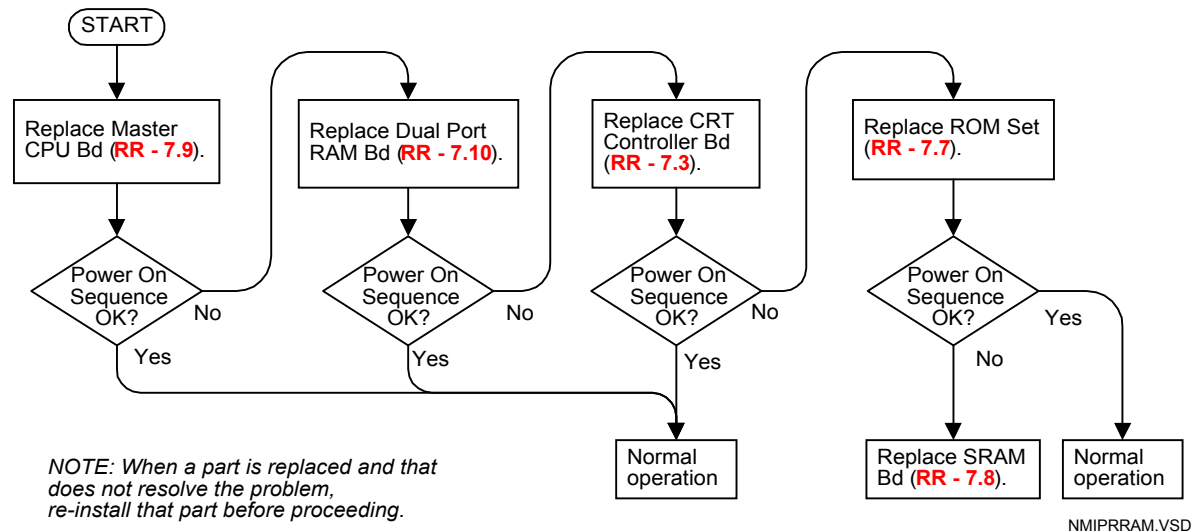


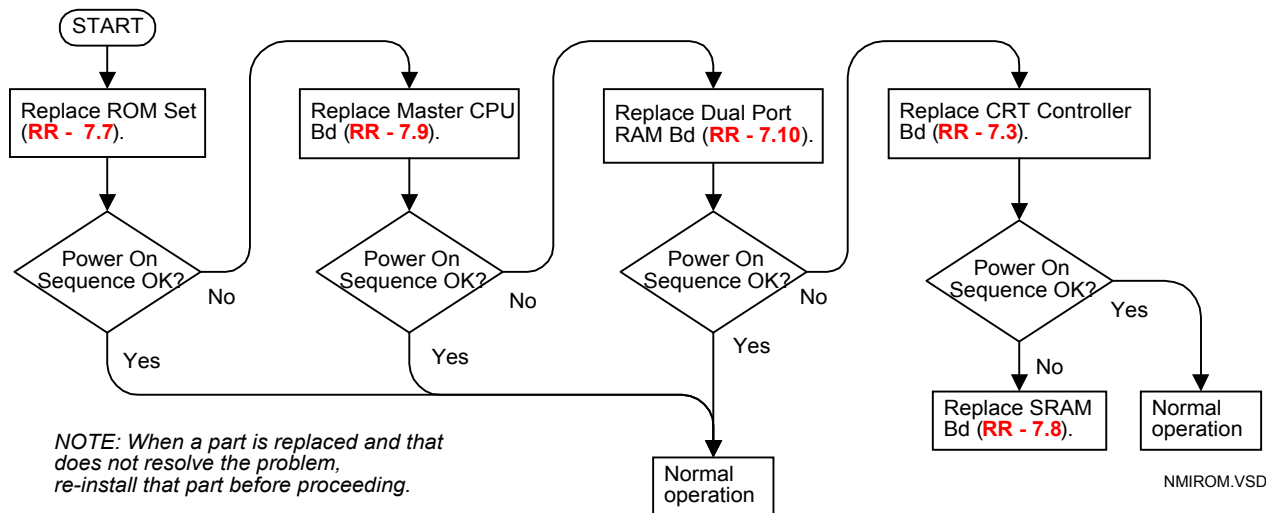
IP - 15: MULTI-OUTPUT POWER SUPPLY

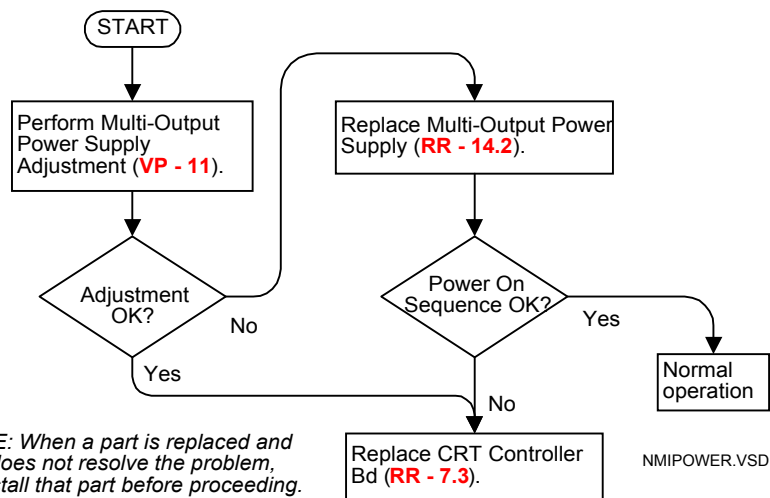
MULTIPS.VSD

IP - 15: MULTI-OUTPUT POWER SUPPLY (CONT)

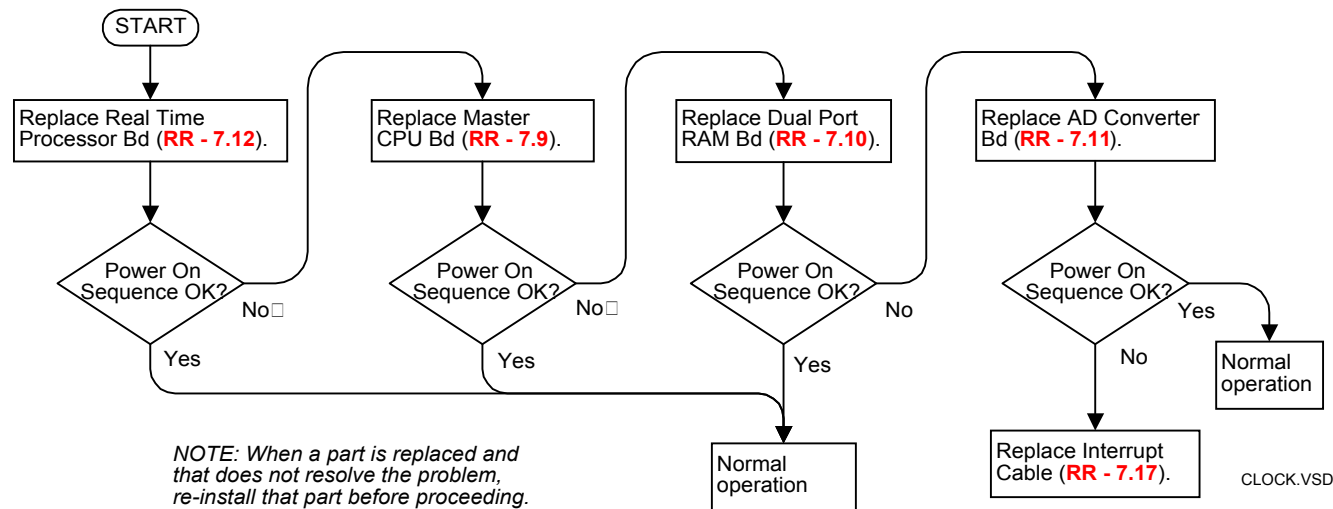
MULTIPS.VSD, PG 2

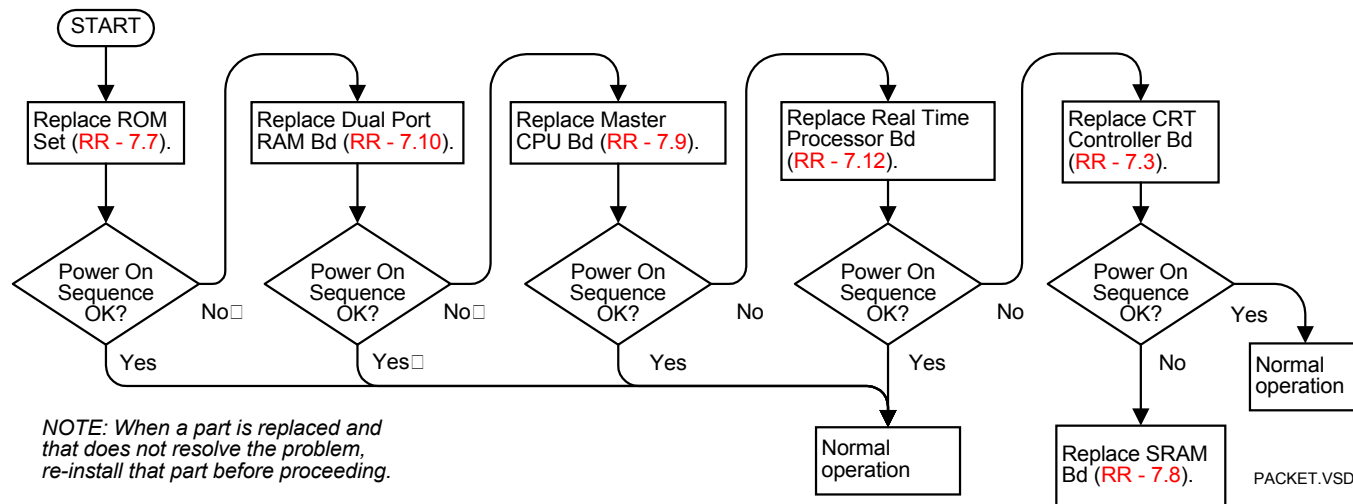
IP 16: NMI ATTEMPT TO WRITE PROTECTED RAM**Banner message**

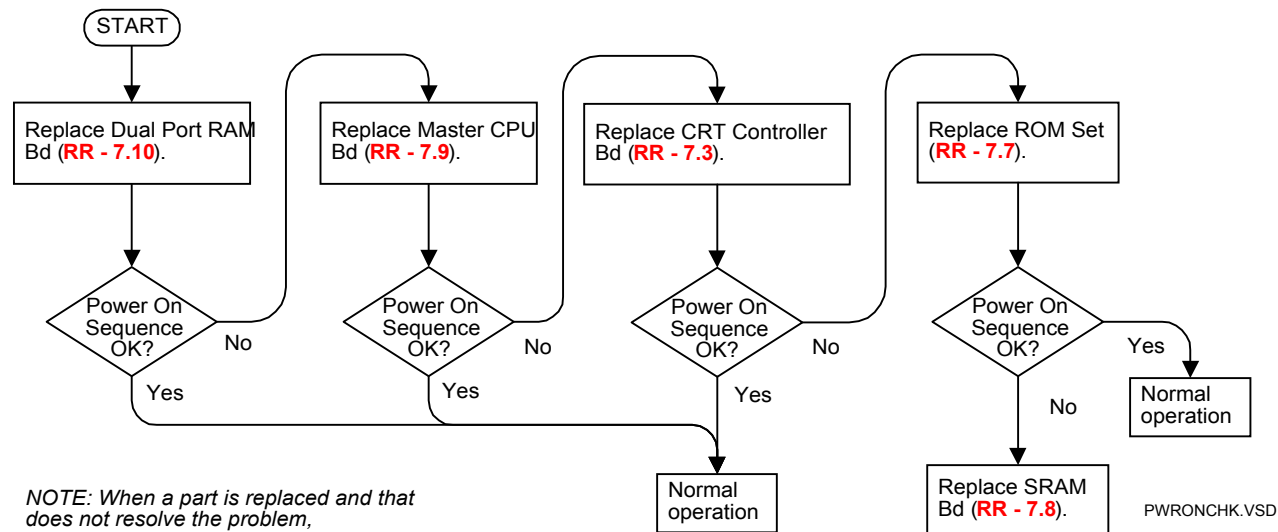
IP - 17: NMI ATTEMPT TO WRITE ROM**Banner message**

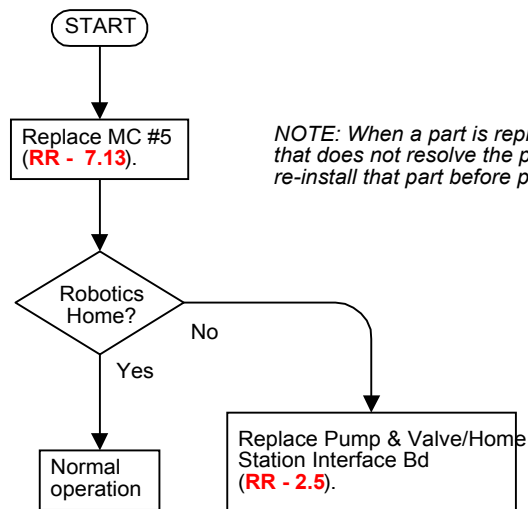
IP - 18: NMI POWER FAIL**Banner message**

NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

IP - 19: NO MASTER/SLAVE CLOCK INTERRUPT**Banner message**

IP - 20: PACKET LOAD ADDRESS ERROR**Banner Message**

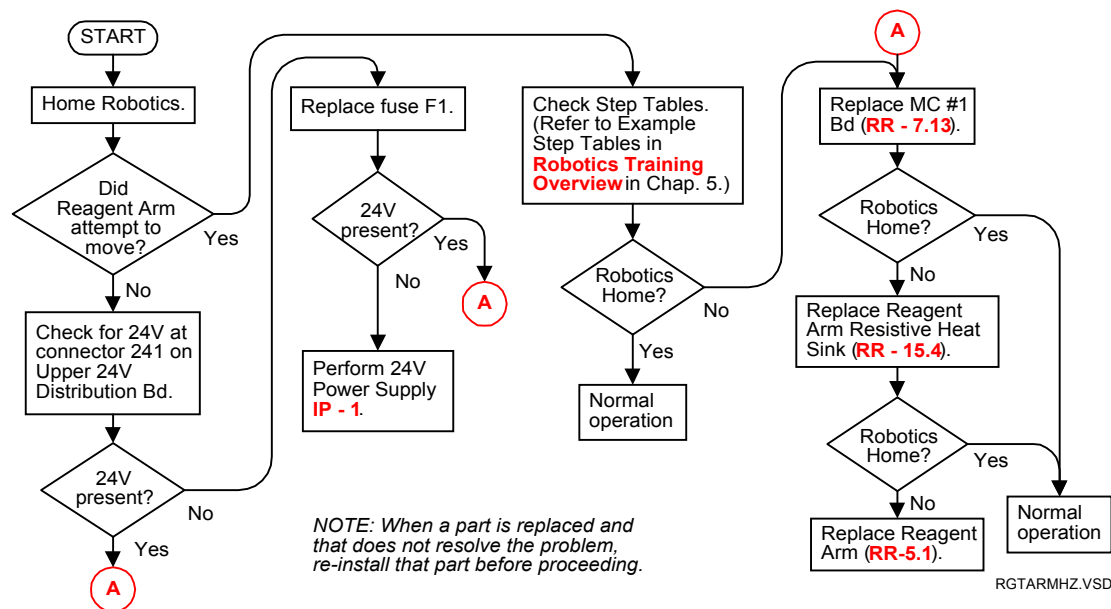
IP - 21: POWER ON CHECK FAIL**Banner Message**

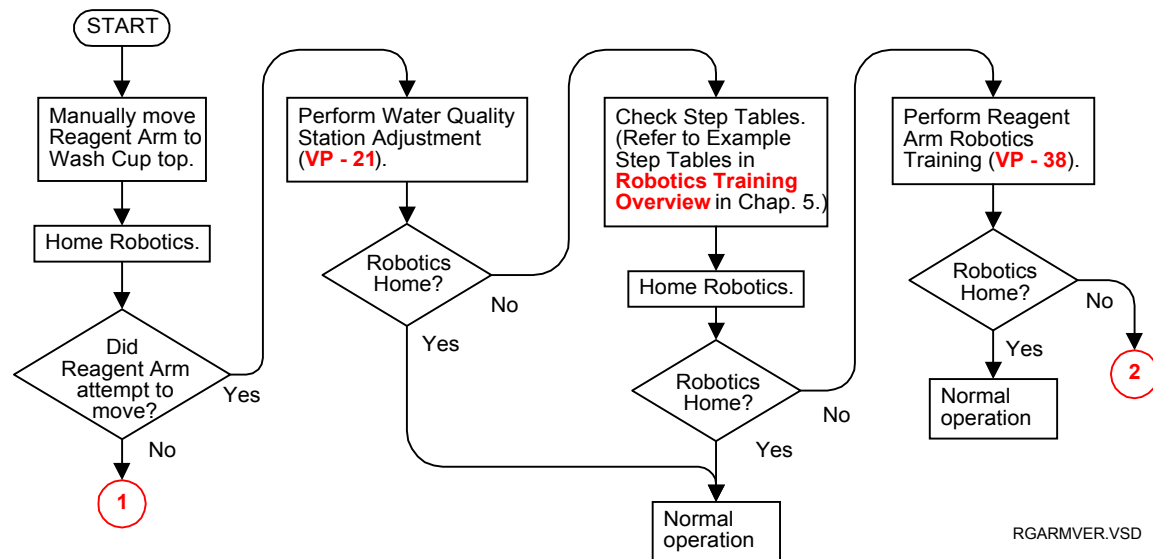
IP - 22: PUMPS & VALVES ERRORS**Error Codes: 175 (Motor 18), 175 (Motor 19)**

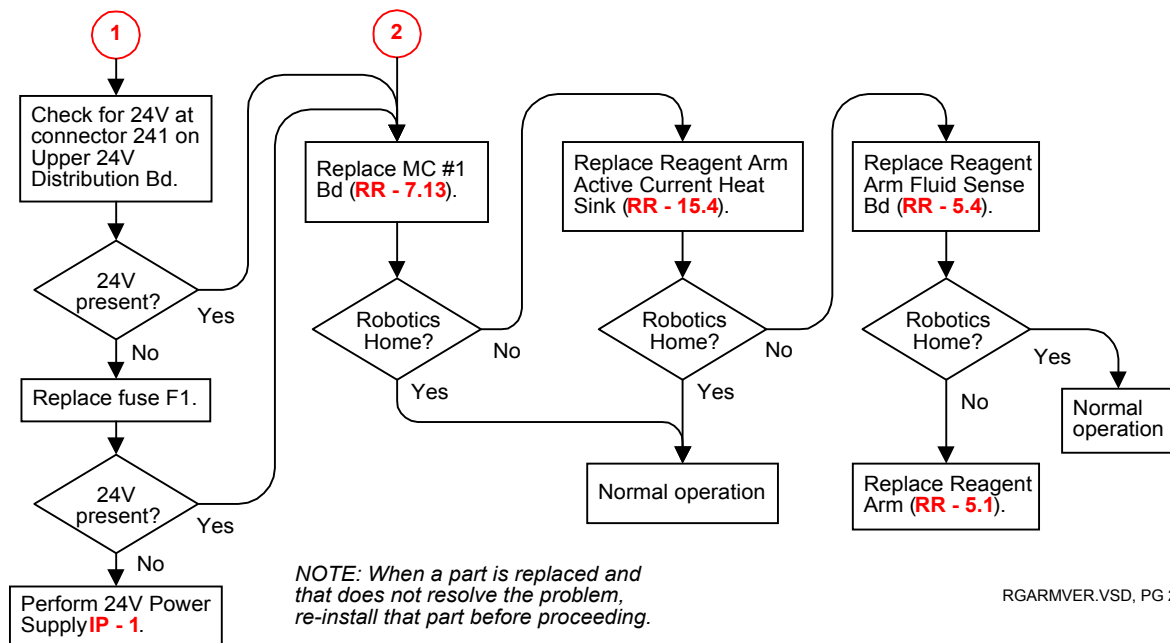
PV-18-19.VSD

IP - 23: REAGENT ARM HORIZONTAL ROBOTICS ERRORS

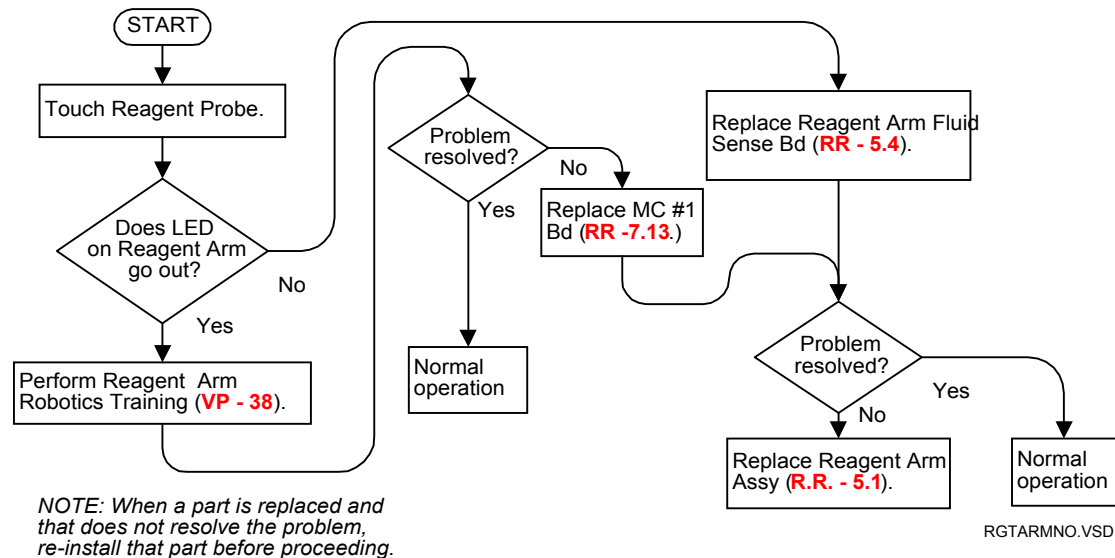
Error Codes: 50, 52, 66, 67, 68, 75, 76, 175 (Motor 1), 175 (Motor 2), 226, 227



IP - 24: REAGENT ARM VERTICAL ROBOTICS ERRORS**Error Codes: 32, 77, 105, 175 (Motor 0)**

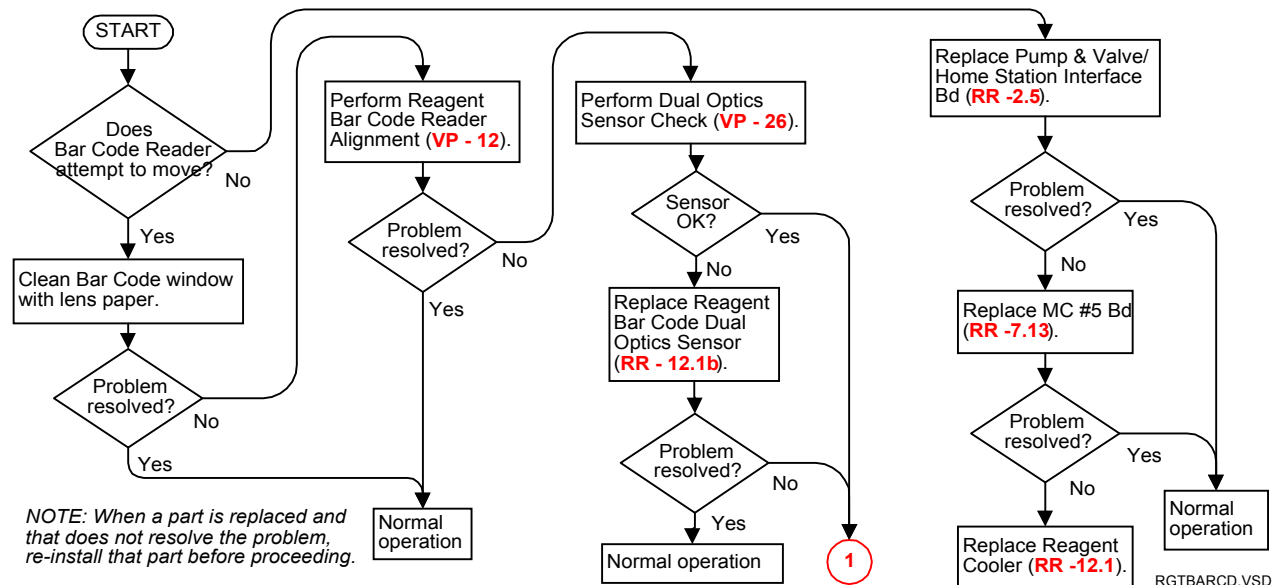
IP - 24: REAGENT ARM VERTICAL ROBOTICS ERRORS (CONT)

RGARMVER.VSD, PG 2

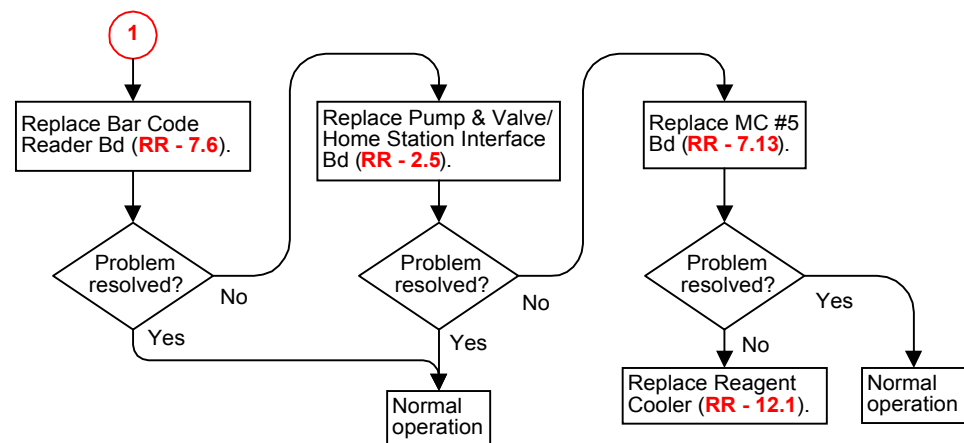
IP - 25: REAGENT ARM WILL NOT DETECT FLUID**Error Codes: 8, 21, 39, 40, 179, 324, 325**

IP - 26: REAGENT BAR CODE READER NOT FUNCTIONING

Error Code: 176



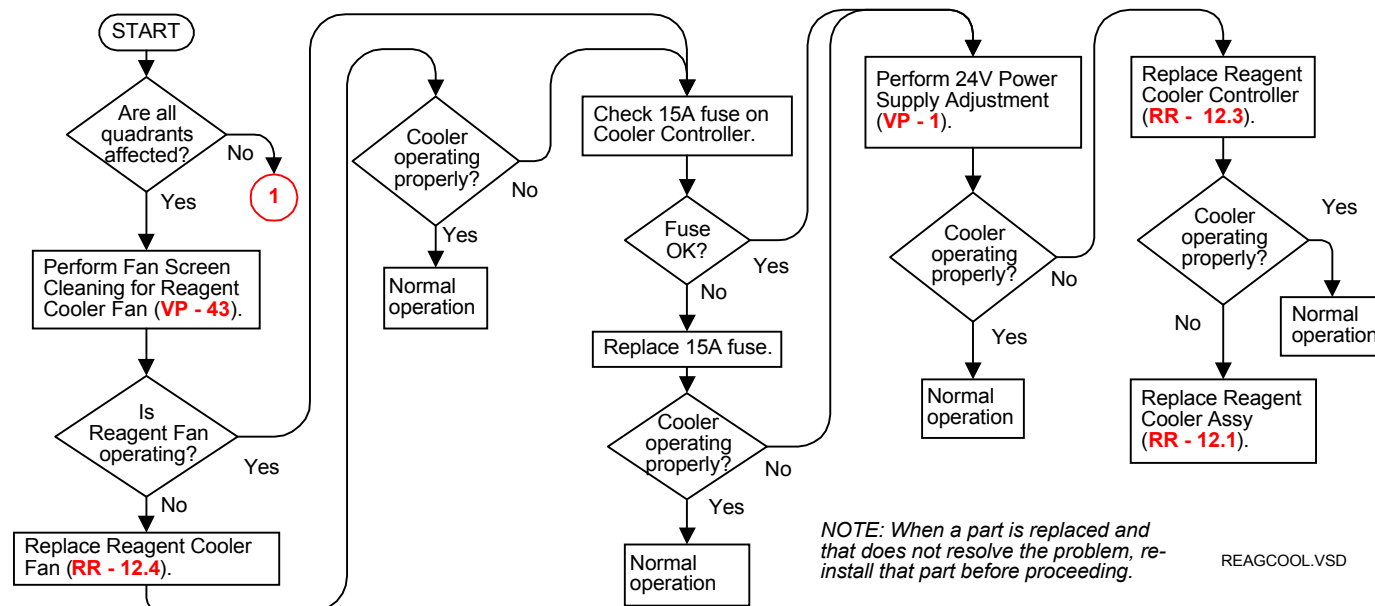
IP - 26: REAGENT BAR CODE READER NOT FUNCTIONING (CONT)



RGTBARCD.VSD, PG 2

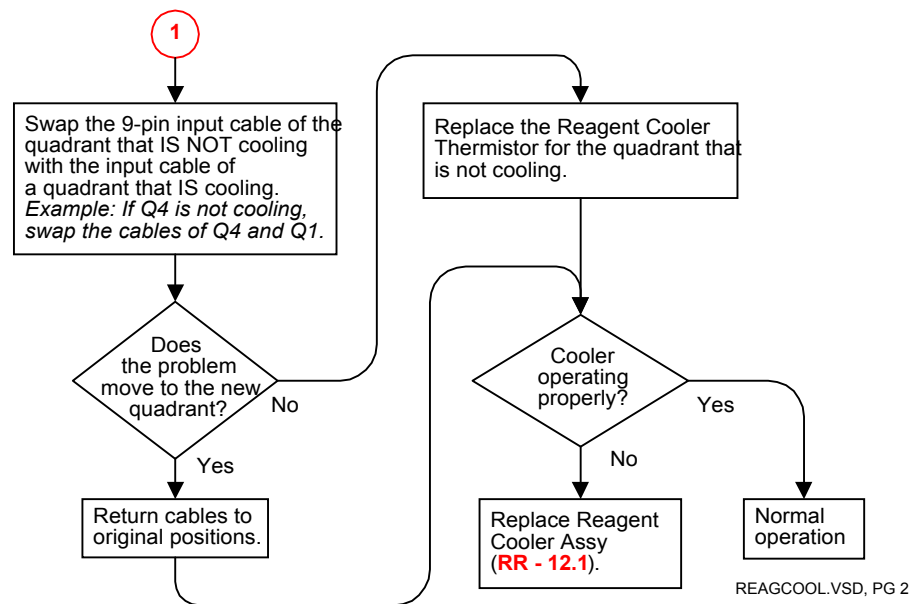
IP - 27: REAGENT COOLER NOT COOLING

Observed problem



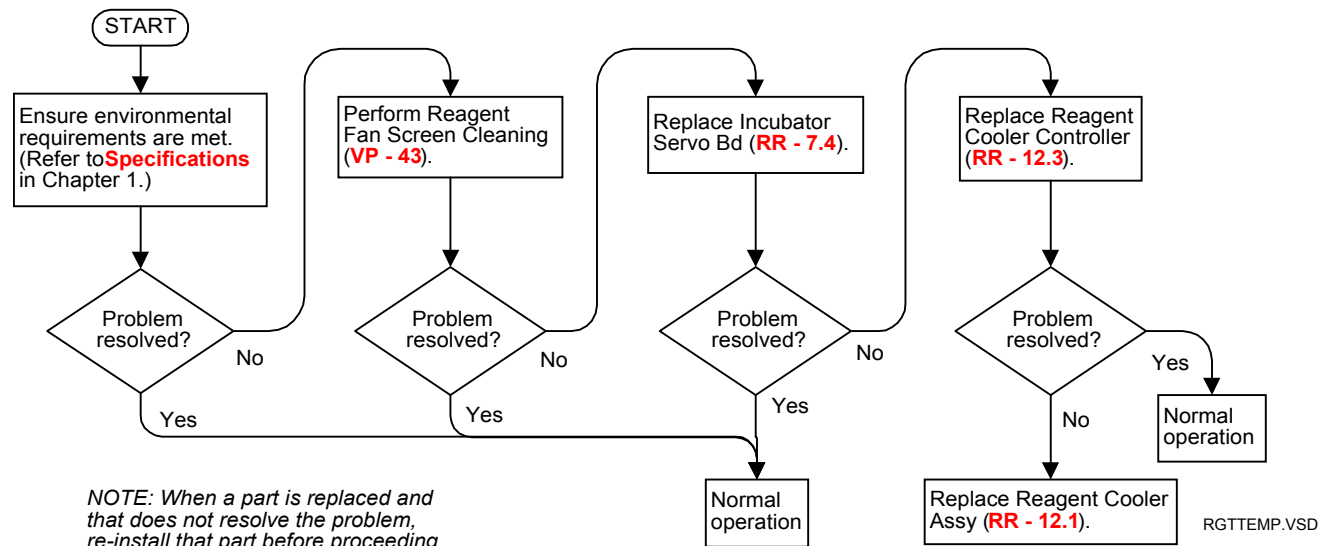
NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

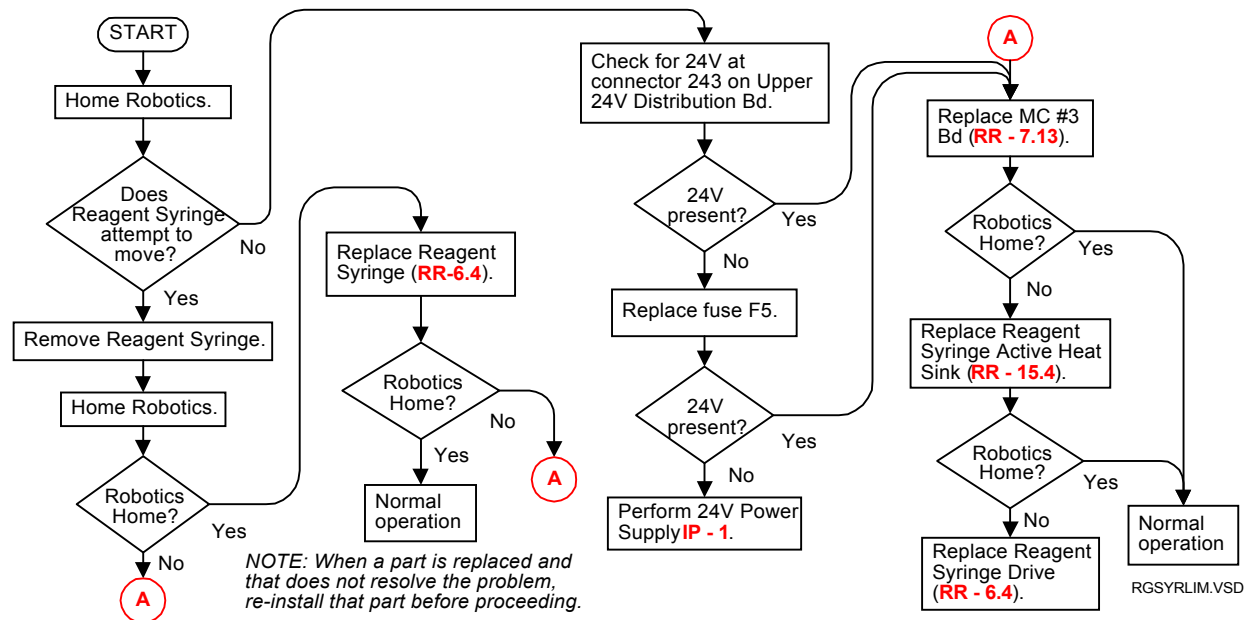
REAGCOOL.VSD

IP - 27: REAGENT COOLER NOT COOLING (CONT)

IP - 28: REAGENT REFRIGERATOR TEMPERATURE NOT STABLE

Error Code: 112



IP - 29: REAGENT SYRINGE ERRORS**Error Codes: 28, 30, 53, 175 (Motor 7)**

IP - 30: RESULTS-RELATED PROBLEMS

When troubleshooting results-related problems, first perform

Run: Calcium/AST (**VP - 51**) to establish a baseline.

This chart lists procedures that can be performed to identify/resolve results-related problems, including problems with:

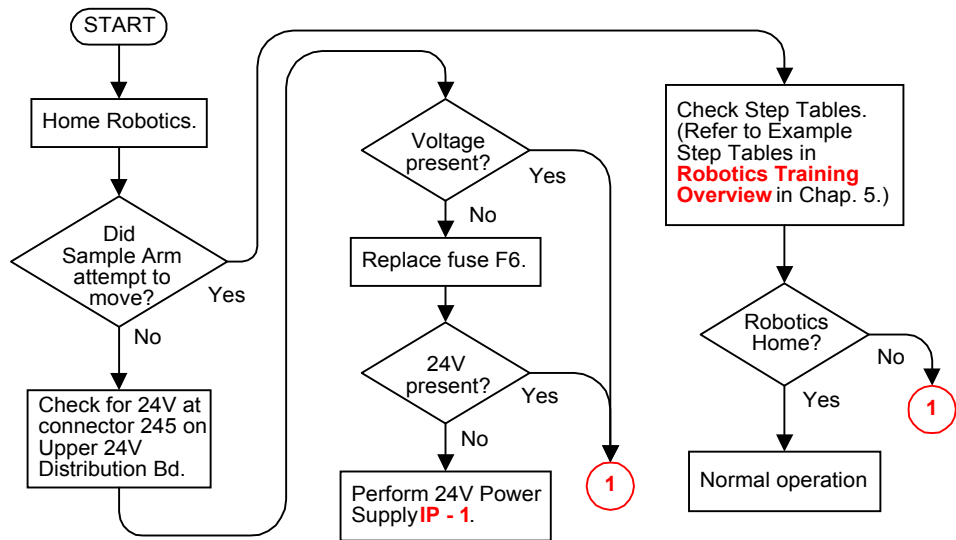
- Calibrations
- Controls
- End Points (Substrate)
- Enzyme
- Patient results
- Reproducibility

The specific order of troubleshooting procedures may vary depending upon the nature of the results-related problem.

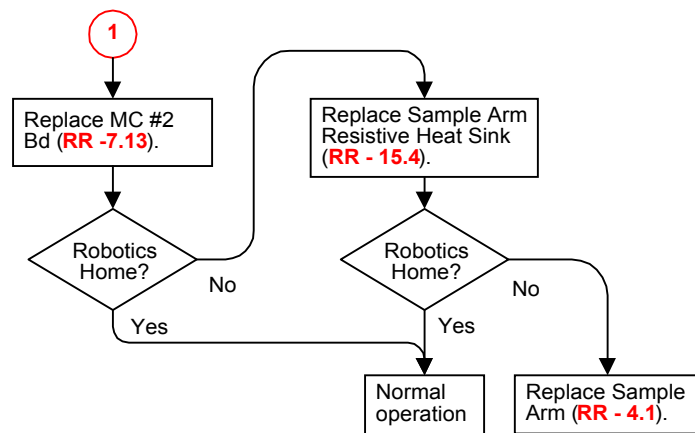
Analyzer Decontamination (VP - 39)	Optics Drift Test (VP - 32)
Bacterial contamination (Check for.)	Peer group ranges (Contact CSC/Tech Support.)
Bubbles in Incubator (Check for.)	Pre-Warming Chamber Maintenance (VP - 49)
Cuvette Carrier Centering (VP - 3)	Reagent Arm Fluid Sensitivity Adjustment [VP - 38 (E)]
Dark Current Test (VP - 24)	Reagent Probe Replacement (RR - 5.6)
Dark Cuvette Test (VP - 25)	Reagent Syringe Replacement (RR - 6.4)
DI water system (Check customer's maintenance schedule.)	Reagents, controls, calibrators (Check expiration dates.)
Diluent System Cleaning (VP - 41), Diluent System Purge (VP - 42)	Reagents, controls, calibrators (Use fresh.)
Environment (See Specifications in Chapter 1.)	Relay Lens Cleaning (VP - 50)
Fans (Check for running, proper air flow direction.)	Robotics Training (VP - 35, VP - 36, VP - 37, VP - 38)
Heat Glass Replacement (RR - 11.10)	Sample Arm Fluid Sense Adjustment [VP - 37 (C)]
Incoming power and system ground (Check Specifications in Chapter 1.)	Sample Diluent Pump Adjustment (VP - 17)
Incubator Cleaning (VP - 44)	Sample Probe Replacement (RR - 4.4)
Incubator Lenses Replacement (RR - 11.13)	Sample Syringe Replacement (RR - 6.6)
Incubator Level Sense Adjustment (VP - 5)	Sample Syringe Tubing Replacement (RR - 6.9)
Lamp Adjustment (VP - 7)	Source Lamp Replacement (RR - 11.12)
Light Beam Alignment (VP - 8)	Temperature Calibration (VP - 34)
Low Kinetic Noise Test (VP - 31)	Test Parameter Files (Check them.)
Mirror 1 Alignment (VP - 9)	Water Quality Station Maintenance (VP - 54)

IP - 31: SAMPLE ARM HORIZONTAL ROBOTICS ERRORS

Error Codes: 57, 58, 59, 63, 64, 175 (Motor 4)



SMPARMHZ.VSD

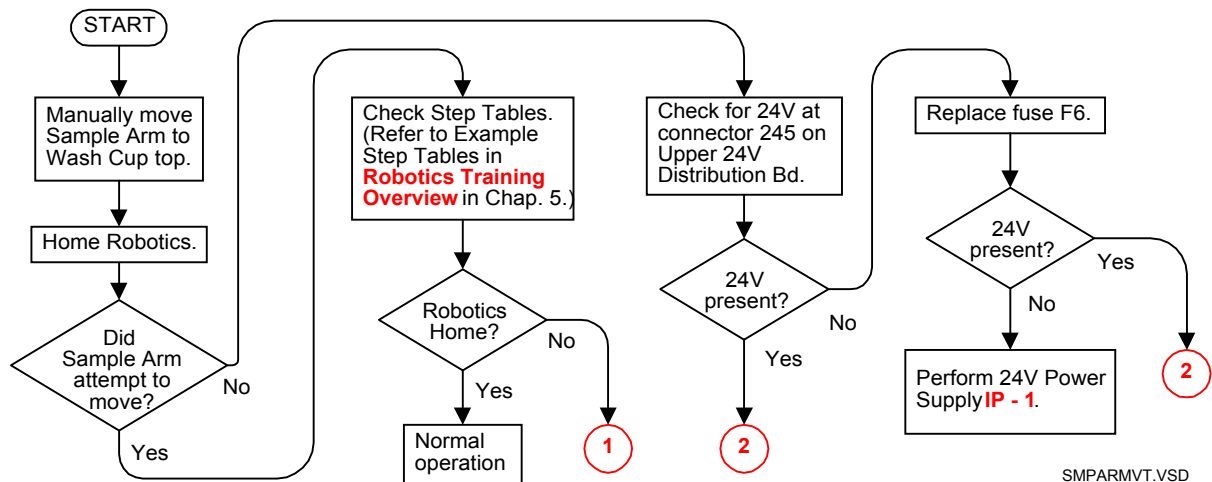
IP - 31: SAMPLE ARM HORIZONTAL ROBOTICS ERRORS (CONT)

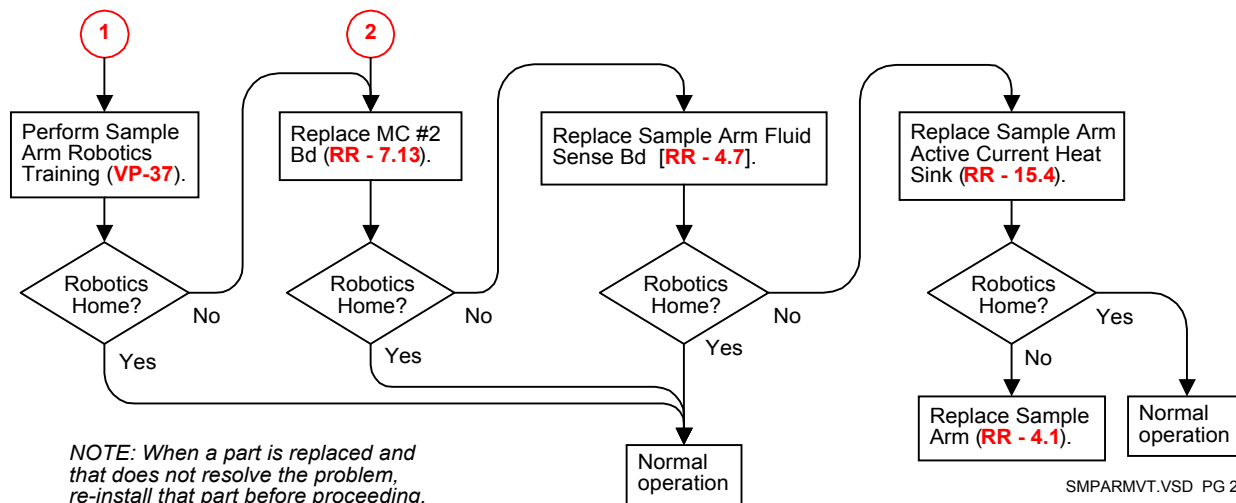
NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

SMPARMHZ.VSD PG 2

IP - 32: SAMPLE ARM VERTICAL ROBOTICS ERRORS

Error Codes: 60, 61, 65, 175 (Motor 3)

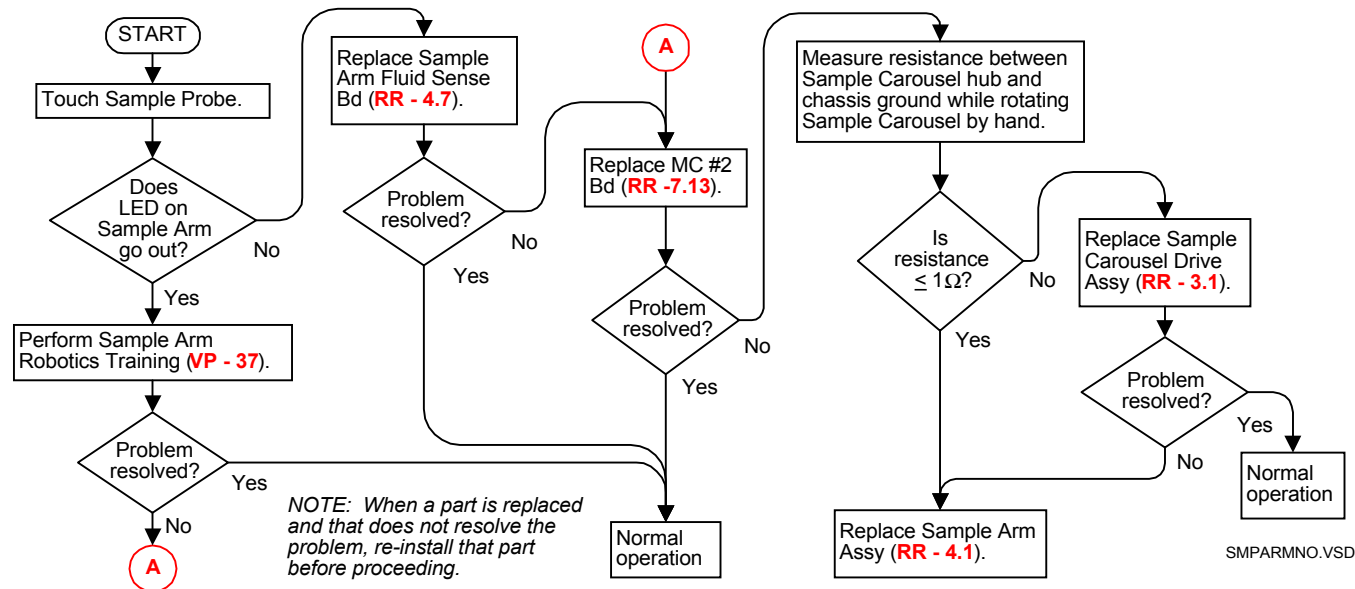


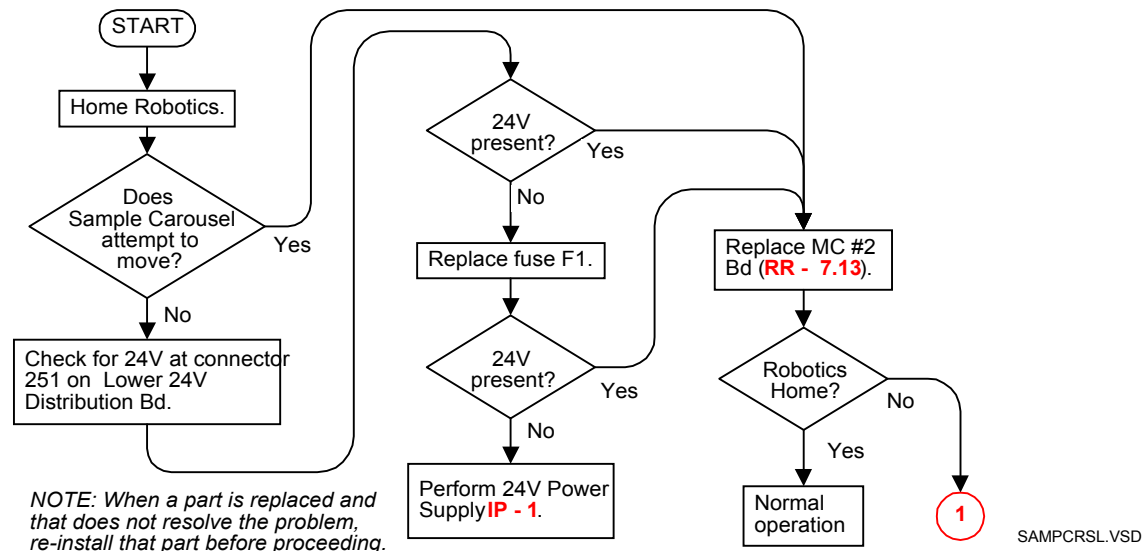
IP - 32: SAMPLE ARM VERTICAL ROBOTICS ERRORS (CONT)

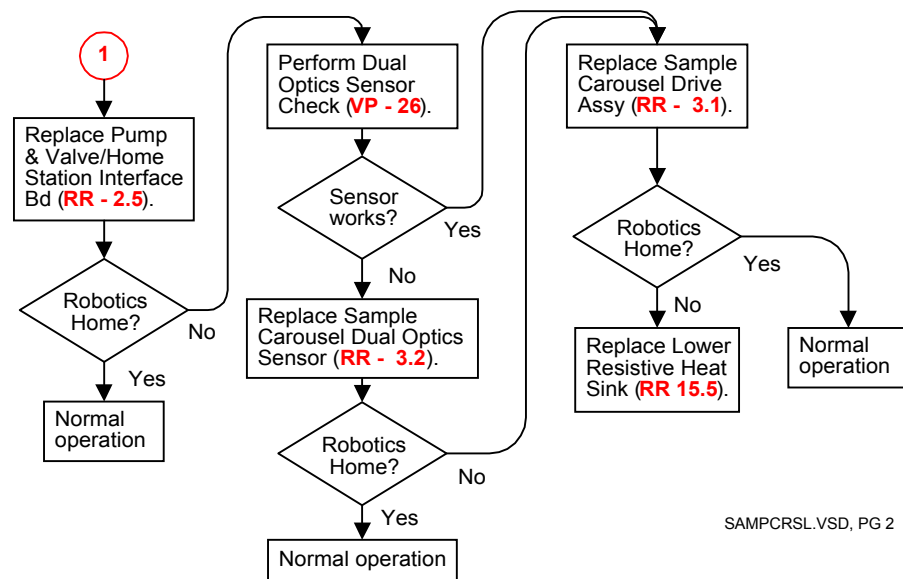
SMPARMVT.VSD PG 2

IP - 33: SAMPLE ARM WILL NOT DETECT FLUID

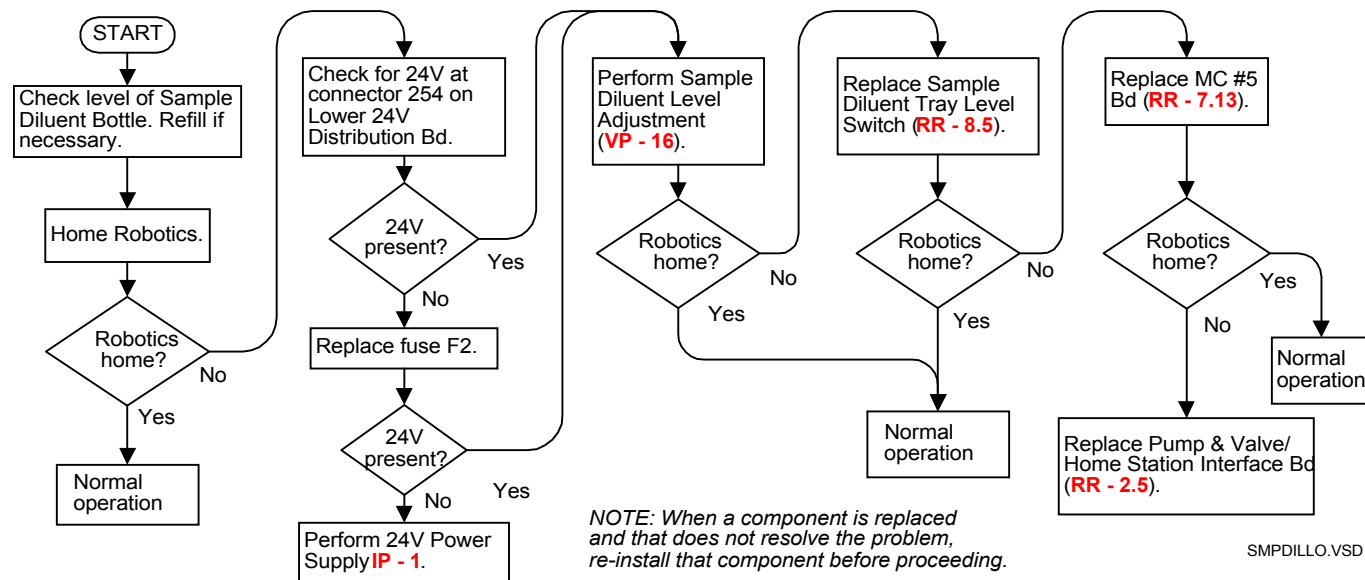
Error Codes: 21, 39, 178, 224, 236



IP - 34: SAMPLE CAROUSEL ROBOTICS ERRORS**Error Codes: 19, 100, 175 (Motor 5), 182, 183**

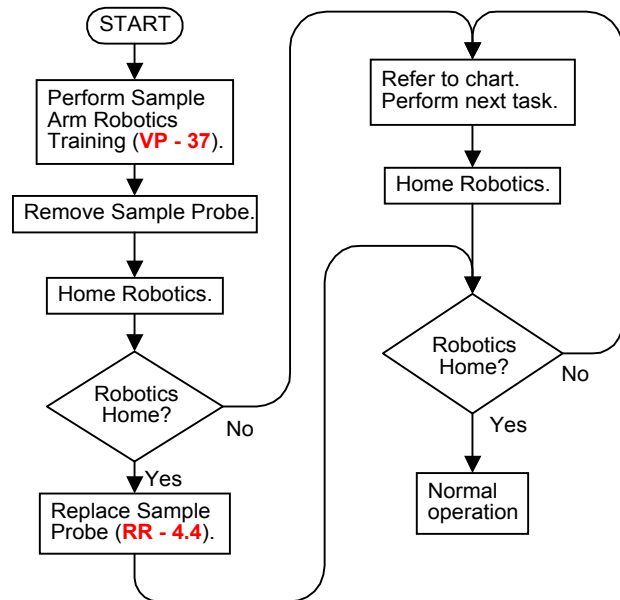
IP - 34: SAMPLE CAROUSEL ROBOTICS ERRORS (CONT)

SAMPCRS.LVSD, PG 2

IP - 35: SAMPLE DILUENT LEVEL LOW**Error Code: 190**

IP - 36: SAMPLE DILUENT PRESSURE HIGH

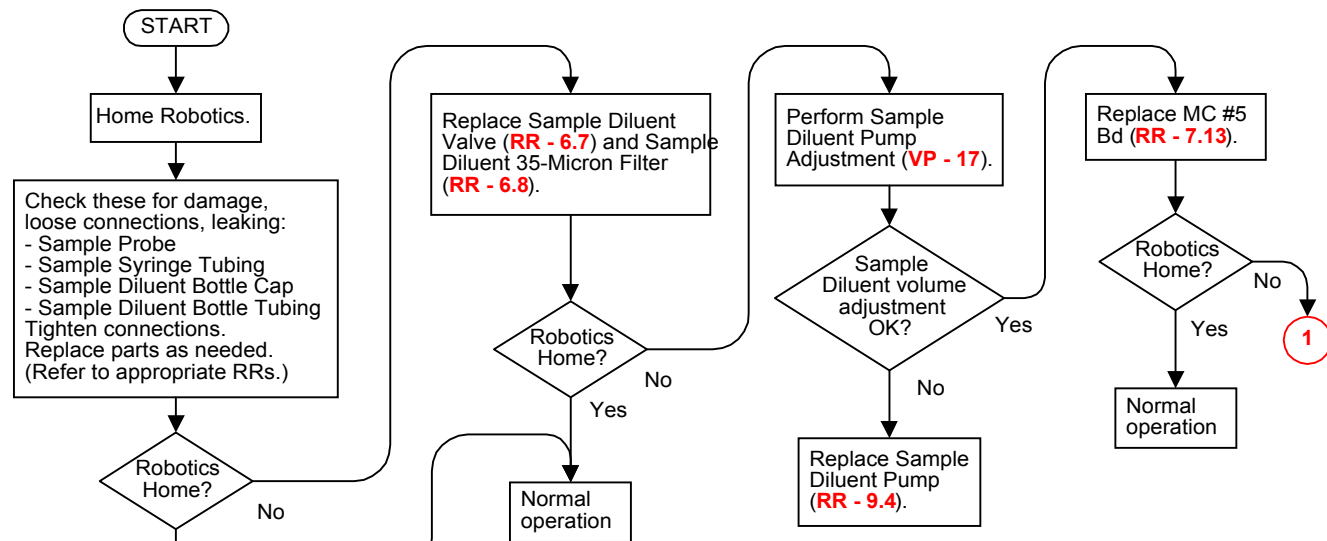
Error Code: 187



1. Replace Sample Diluent Valve (RR - 6.7) and Sample Diluent 35-Micron Filter (RR - 6.8).
2. Replace Sample Syringe Tubing (RR - 6.9).
3. Replace MC #5 Bd (RR - 7.13).
4. Perform Sample Diluent Pump Adjustment (VP - 17).
5. Replace Pump & Valve/Home Station Interface Bd (RR - 2.5).
6. Replace Sample Diluent Manifold Assy (RR - 9.6).
7. Replace Sample Diluent Pump (RR - 9.4).

NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

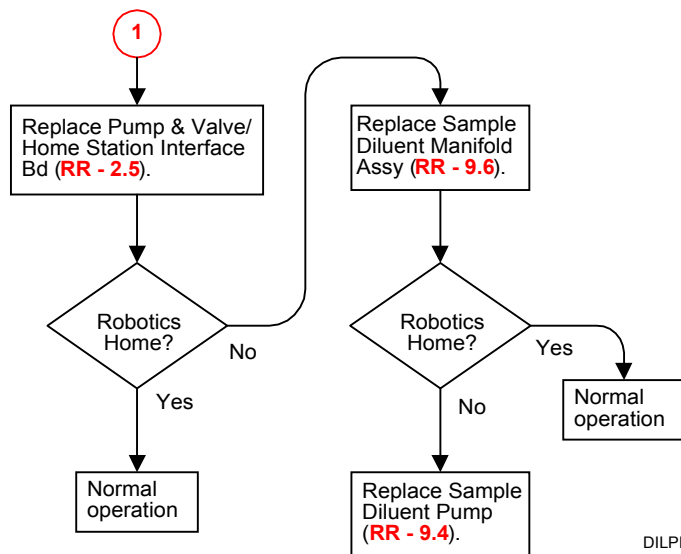
DILPRHI.VSD

IP - 37: SAMPLE DILUENT PRESSURE LOW**Error Code: 186**

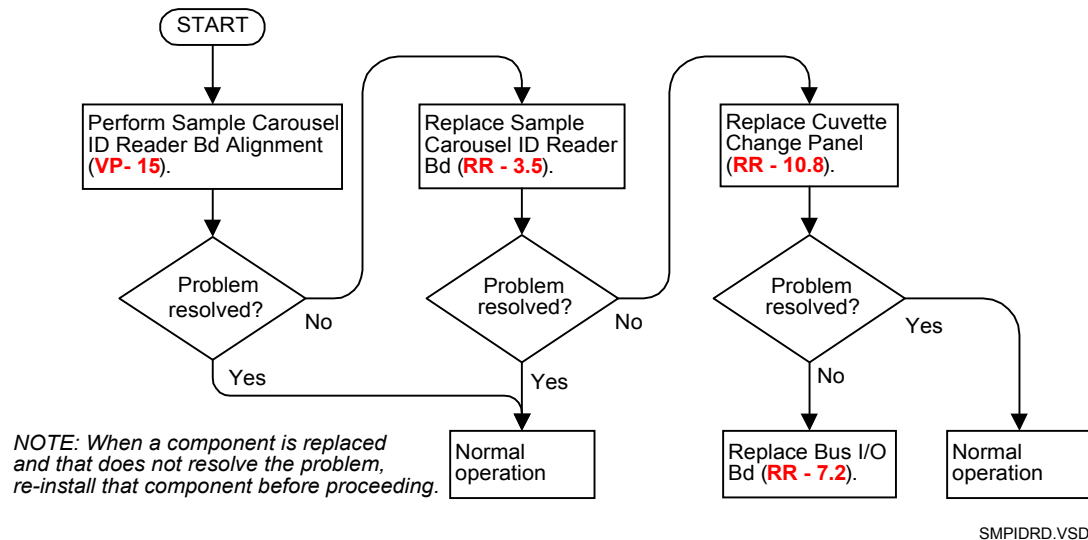
NOTE: When a part is replaced and that does not resolve the problem, re-install that part before proceeding.

DILPRLOW.VSD

IP - 37: SAMPLE DILUENT PRESSURE LOW (CONT)

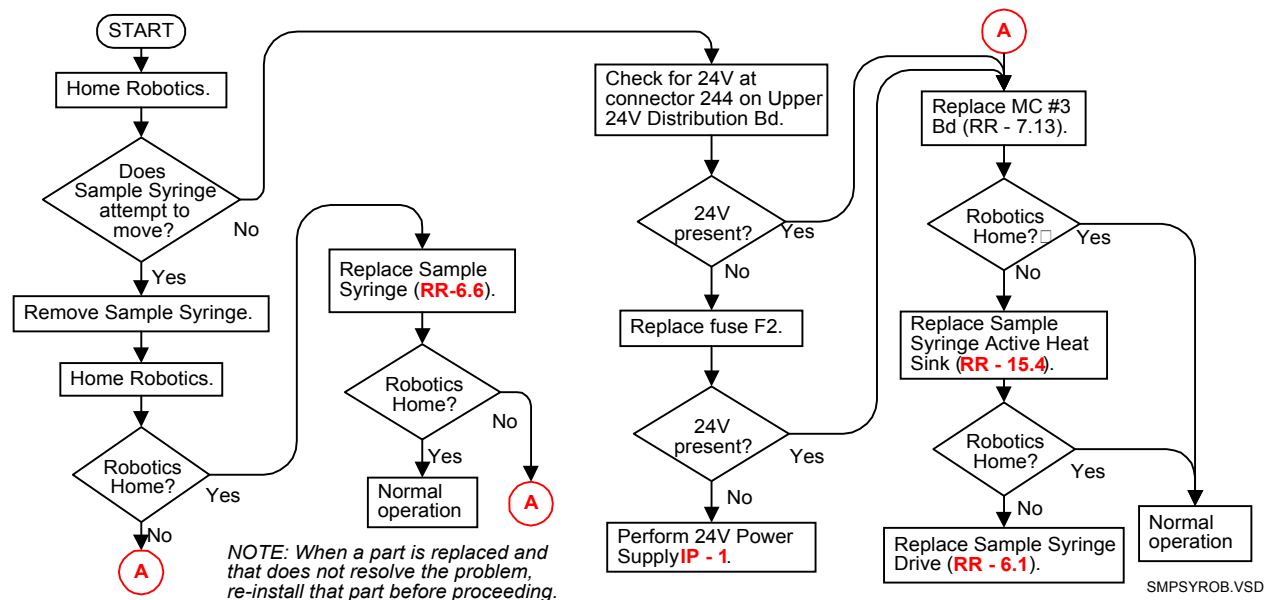


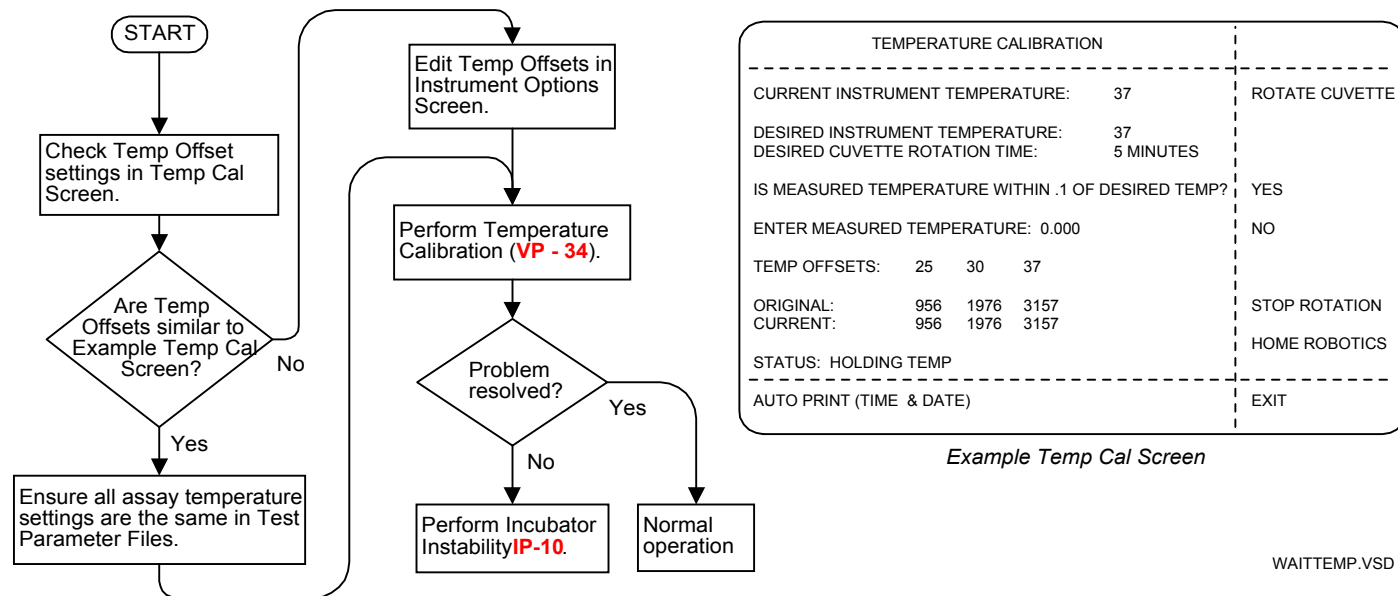
DILPRLOW.VSD PG 2

IP - 38: SAMPLE ID READER NOT FUNCTIONING**Observed problem**

IP - 39: SAMPLE SYRINGE ROBOTICS ERRORS

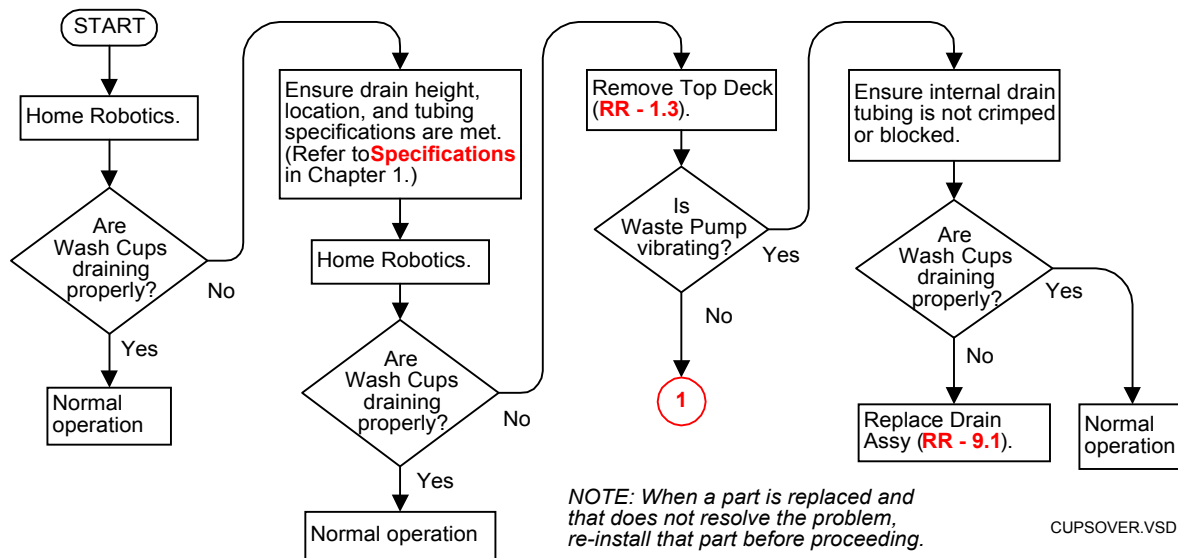
Error Codes: 24, 53, 175 (Motor 8)

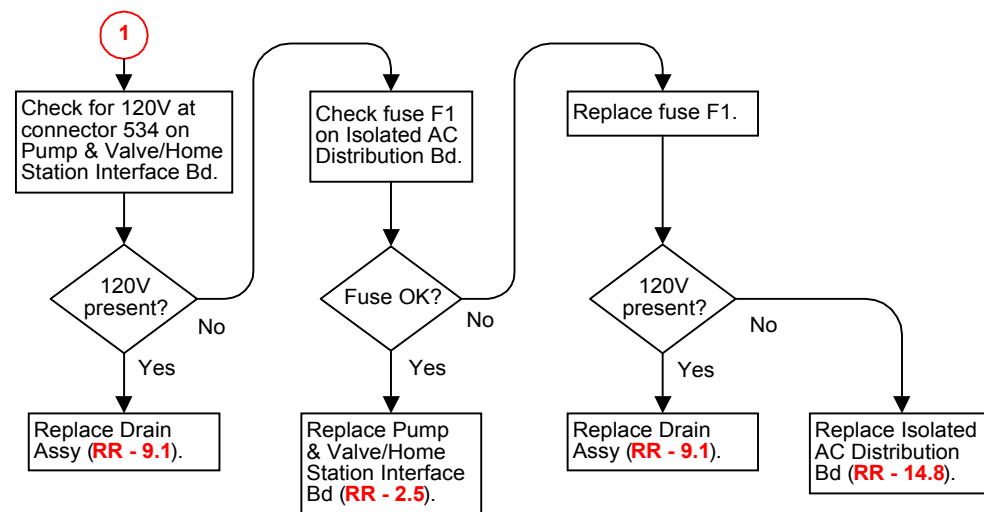


IP - 40: WAITING ON TEMP**Banner Message**

IP - 41: WASH CUPS OVERFLOWING

Error Code: 39

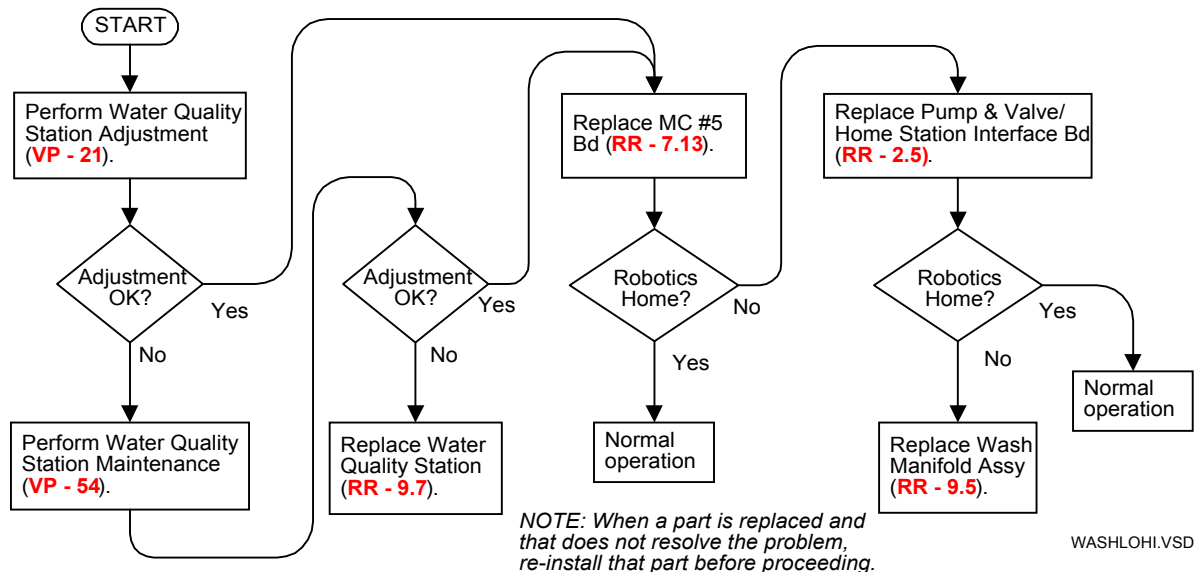


IP - 41: WASH CUPS OVERFLOWING (CONT)

CUPSOVER.VSD, PG 2

IP - 42: WASH WATER PRESSURE HIGH/LOW

Error Codes: 188, 189



IP - 43: WATER QUALITY STATION LIGHT NOT FUNCTIONING**Observed problem**