ABBOTT ADD	INDEX TECHNICAL SERVICE BULLETIN

PRODUCT: **ABBOTT SPECTRUM® CCx(TM) Series II(TM) (66)**	DATE: **20-MAR-97**

TSB #	IMPLEMENTATION	SUBJECT	EFFECTIVITY DATE
66-026A	I - S/N All	New Style Pump and Valve / Home Station Interface PCB	01-OCT-96
66-025		CANCELLED	CANCELLED
66-024		CANCELLED	CANCELLED
66-023		CANCELLED	CANCELLED
66-022	F - S/N 3700 & below	Fluid Level Sense (Sample Arm) FOR INTERNATIONAL USE ONLY	24-JAN-94
66-021	N - S/N 3597 - 3658	New Reagent Cooler Installation and Troubleshooting	28-MAY-92
66-020		CANCELLED	CANCELLED
66-019		CANCELLED	CANCELLED
66-018A	F - S/N 3597 & below	New Sample Carousel Grounding Strap	25-MAY-93
66-017A	N - S/N 3463 & below	New Cuvette Carrier Splash Shield	31-AUG-92
66-016A	F - S/N 3596	Rear Panel Controller Upgrade Kit For New Reagent Cooler Installation	14-JUN-93
66-015A	O - S/N 3362 & below	Grounding Modification	18-AUG-93
66-014		CANCELLED	CANCELLED
66-013	I - S/N 3409 & below	Fan Cable Modification	21-OCT-91
66-012		CANCELLED	CANCELLED
66-011	N - S/N 3430 & below	Right Rear Fan Access Panel	30-DEC-91
66-010	F - S/N 3334 & below	New Cuvette Carrier & Lamp Housing Assembly	15-JAN-92
66-009		CANCELLED	CANCELLED
66-008		CANCELLED	CANCELLED
66-007		CANCELLED	CANCELLED
66-006	N - S/N 3261 & below	Improved Pump & Valves Board	OBSOLETE
66-005	F - S/N 3204 & below	SRAM Lockups	30-MAY-91
66-004	I - S/N 3156 & below	Front-end Board	OBSOLETE
66-003B	O - All Serial Numbers	5 mL or 7mL Primary Sample Tube Carousel	21-SEP-94
66-002	O - 4.8 Software Only	Series II Non-linear Math Model	03-MAR-91
66-001	I - S/N 3085 & below	Series II 4.8 Upgrade	03-DEC-90

PENDING - TSB index number has been reserved for a future TSB.
CANCELLED - TSB index number is cancelled.
INCORPORATED - TSB was incorporated into another document or manual.
OBSOLETE - TSB no longer applies.
COMPLETE - TSB implementation is complete.

END OF DOCUMENT

ABBOTT ADD

TECHNICAL SERVICE BULLETIN

SUBJECT:
New Style Pump and Valve / Home Station Interface PCB

TSB#: **66-026A**

ORIGINATOR: **Steve Lincoln**
APPROVED: **Mark Slater 9/16/96**

PRODUCT:
ABBOTT SPECTRUM® CCx(TM) Series II(TM) (66)

REF. ECN: **P1-9031-031**

IMPLEMENTATION:	TSB Part/Kit #: **2-54905-02**	Upgrade Time: **2.0 Hrs.**
● **Immediate** ○ **Next Service Call** ○ **Next Failure** ○ **Optional**	TSB Effectivity/ Part(s) Availibility: **01-OCT-96**	Validation Time: **1.0 Hr.**
Instruments Requiring Modification: **ALL**	**TSB Tracking by Serial # required (IMMEDIATE TSB's ONLY)** ● YES ○ NO	Total Mod. Time: **3.0 Hrs** ****NOTE** The instrument must be at TSB Level n/a prior to performing this TSB.**

NOTE: THIS TSB SUPERSEDES TSB 66-026. REMOVE THAT TSB AND REPLACE WITH TSB 66-026A. REVISIONS TO THIS DOCUMENT ARE NOTED WITH AN ➔ OUT IN THE MARGIN.

I. DISTRIBUTION:
World wide

II. PURPOSE:
The Pump and Valve PCB and the Homestation Interface PCB have been combined into one PCB that replaces the current Pump and Valve PCB (2-06790-01) and the HomeStation Interface PCB (2-06775-01). The new design incorporates a cover to protect the board from spills and leaks. Fuses for the main sub-assemblies controlled through the Pump and Valve PCB have also been included. To aid in troubleshooting test points have been added to the board.

III. ADMINISTRATIVE NOTES:
➔ This TSB is to be incorporated as an IMMEDIATE upgrade of the Pump and Valve (2-06790-01) and / or the Homestation Interface PCB (2-06775-01).

➔ It is expected that, in most cases, this modification can be incorporated in the course of normal service.

➔ **Europe:** For tracking purposes, Customer Service managers are requested to respond to Area Customer Service, Delkenheim, by the 10th of each month, as to the number of systems upgraded and the number of systems remaining to be upgraded.

➔ **USA and ROW:** For tracking purposes, area managers are requested to respond by fax, (972-518-6153) by the 10th of each month, as to the number of systems upgraded and the number of systems remaining to be upgraded.

IV. SPECIAL TOOLS:
Standard Field Service tool kit.

V. PARTS:
2-54905-02 Pump and Valve / Homestation Interface PCB upgrade kit.

The kit includes:

Potential Biohazard & Voltage Hazard. Observe Proper Safety Precautions.

54905-104	Pump & valve / Homestation Interface PCB
54998-101	Shield
14351-108	Standoff snap/snap .125 x .125 x .25
14351-045	Standoff snap/snap .156 x .187 x .25
14351-107	Standoff foot/snap .125 x .25
14702-037	Standoff Hex male/female 4-40 x .25

DOMESTIC:
Parts will be shipped to FSR's through the normal weekly parts shipments.

INTERNATIONAL:
International Service locations should forecast TSB parts via their regular spare parts channels.

SERVICE KIT IMPACT:
Service Kits will be upgraded with the pump and valve upgrade kit 2-54905-02.

REPLACED PARTS:
The parts replaced by this modification should be properly disposed of. Do not return any parts to Dallas or any restocking location. Existing boards 2-06790-01 and 2-06775-01 in the FSR kits should be retained until notified by Field Service Admin with disposition instructions.

COMPATIBILITY:
This modification is both upward and downward compatible with products 43, 65, 63, 66, and 70.

VI. PROCEDURE:

MODIFICATION STEPS:

1. Power the system down using the main power switch.
2. Remove the instrument top deck and set it aside.
3. Remove the HomeStation Interface PCB and the Pump and Valve PCB.
4. Remove the standoffs for each of these boards. On some of the older systems it may be necessary to remove the ISE in order to gain access to the screws holding the standoffs in place.

SAFETY NOTE: All screws must be removed from the ISE shroud. Failure to do so could cause the new PCB to short to ground.

6. From the drawings in Figure 1 determine the correct standoffs and locations on the ISE shroud to be used for the system that you are working on. This will be dependant on the type of ISE shroud on the system the upgrade is being installed on. There are several different shrouds presently in the field.
7. On the ISE shroud install the correct standoffs as indicated in Figure 1.
8. Ensure that the jumper configuration is correct by comparing the new board to the jumper illustration in Figure 2.
9. Install the new board on the ISE shroud.
10. When installing the plugs to the jacks on the new board note the following:
    a. There are two jacks marked J491. The one marked J491EP is used for EPx® installations. The jack marked J491S is used for Abbott Spectrum® and CCx™ installations.
    b. J492S is also marked J665EP. This jack is common to both EPx and Abbott Spectrum analyzers.
    c. J662 is used only on EPx systems.
    d. All jacks that do not have an "S" or an "EP" next to the jack number are common to all systems.
11. After connecting all of the plugs to the jacks install the shield over the Pump and Valve / HomeStation PCB as illustrated in Figure 3.
12. ➔ Remove the mix arm from the instrument. Allow the mix arm to come to room temperature then using a DVM measure the resistance between the pins of the mix arm. If the resistance is less than 2400 ohms, discard the arm. Replace it utilizing parts from the field service kit.
13. Power the system back up using the main power switch.

CHECKOUT:

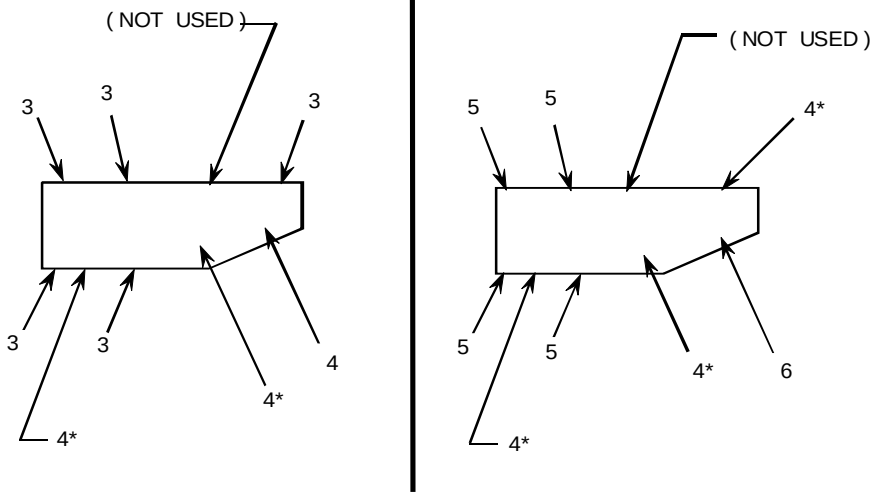
1. Access the **Pumps and Valves** screen. Highlite the appropriate field and check the following functions:
   a. Ensure water flow in the reagent and mixer wash cups.
   b. Ensure that the waste pump can be turned off and back on.
   c. Ensure that water flows for the incubator fill.
   d. Perform a purge on the diluent system. Check and be sure there is water coming from the sample probe. Perform the diluent flow check.
   e. Check the diluent level sensor by lifting the diluent bottle off the platform. Home robotics. The instrument should display a diluent level low error and sound the error alarm.
2. Access the **Mix Arm** screen. Highlite the appropriate field and check the following function:
   a. Turn the mixer on. Ensure correct mix action.
3. Access the **Sample Arm** screen. Highlite the appropriate field and check the following function:
   a. Rotate the sample carousel to at least five random positions. Then home robotics.
➔ 4. Access the **AD Read** screen.
   a. Set the screen up to read the voltage output from the optics. Be sure all wave lengths read correctly. No Reads equal Ø for any wavelength.
5. Reinstall the top deck on the system.

MODIFICATION CONTROL STICKER UPDATE:

1. Check off the modification control sticker to indicate that TSB 66-026 has been incorporated.

ISE SHROUD P / N	USED IN
06475 - 102	SPECTRUM I
19529 - 101	PRIMARY SAMPLE TUBE KIT
19529 - 201	7ML TUBE KIT

ISE SHROUD P / N	USED IN
19130 - 104	EPX® SPECTRUM II SPECTRUM I CCX™ CCX II

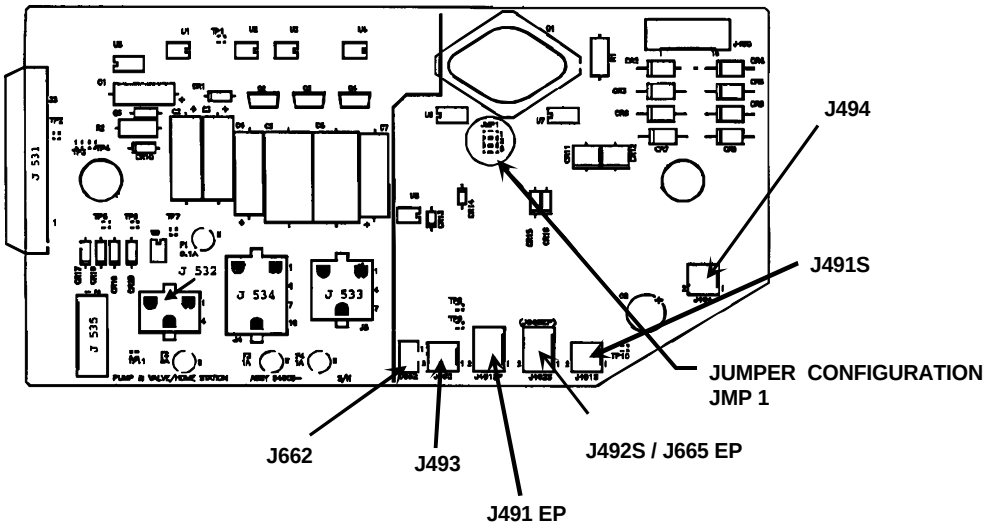


Hardware

3	Standoff, hex 4-40	P/N 14702-037
4	Foot/snap standoff	P/N 14351-107
5	Snap/snap standoff .156 dia	P/N 14351-045
6	Snap/snap standoff .125 dia	P/N 14351-108

Figure 1

*** NOTE: THIS STANDOFF INSTALLED AT THE FACTORY.**



JMP 1

1
3
5

EPx
(ALTERNATE)

JMP 1

1
3
5

SPECTRUM / CCx
(DEFAULT)

CONFIGURE JMP 1
AS SHOWN.

Figure 2

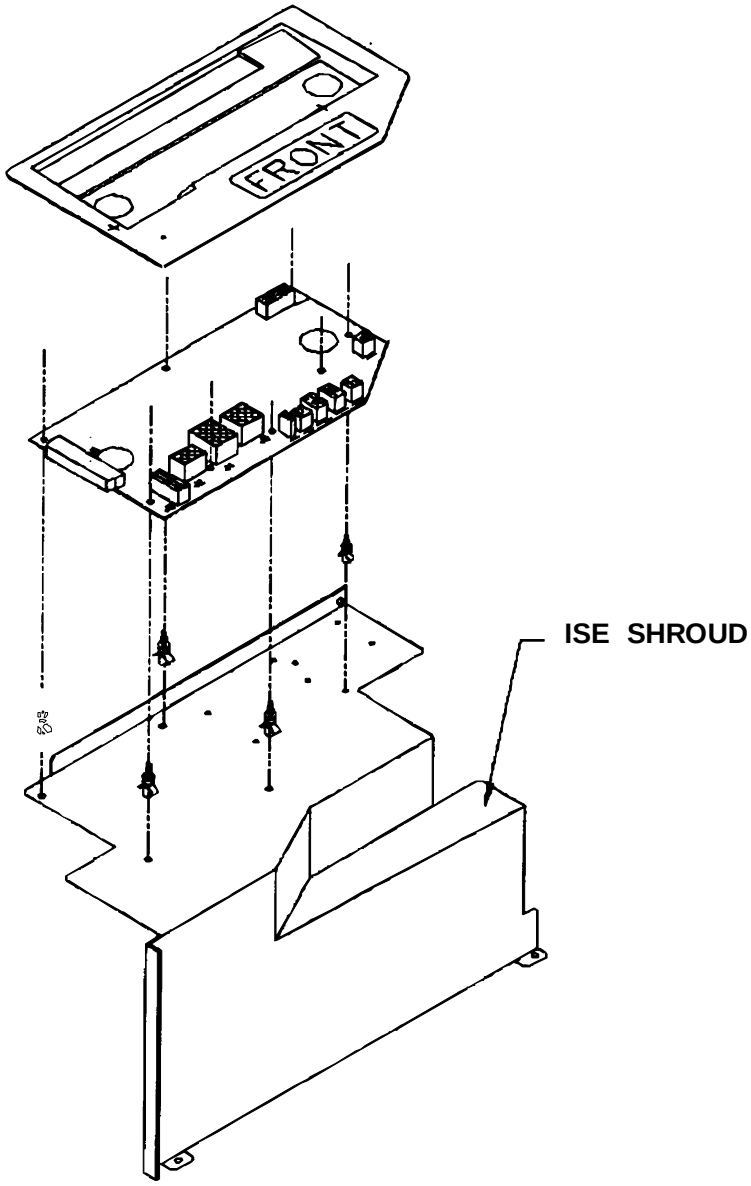


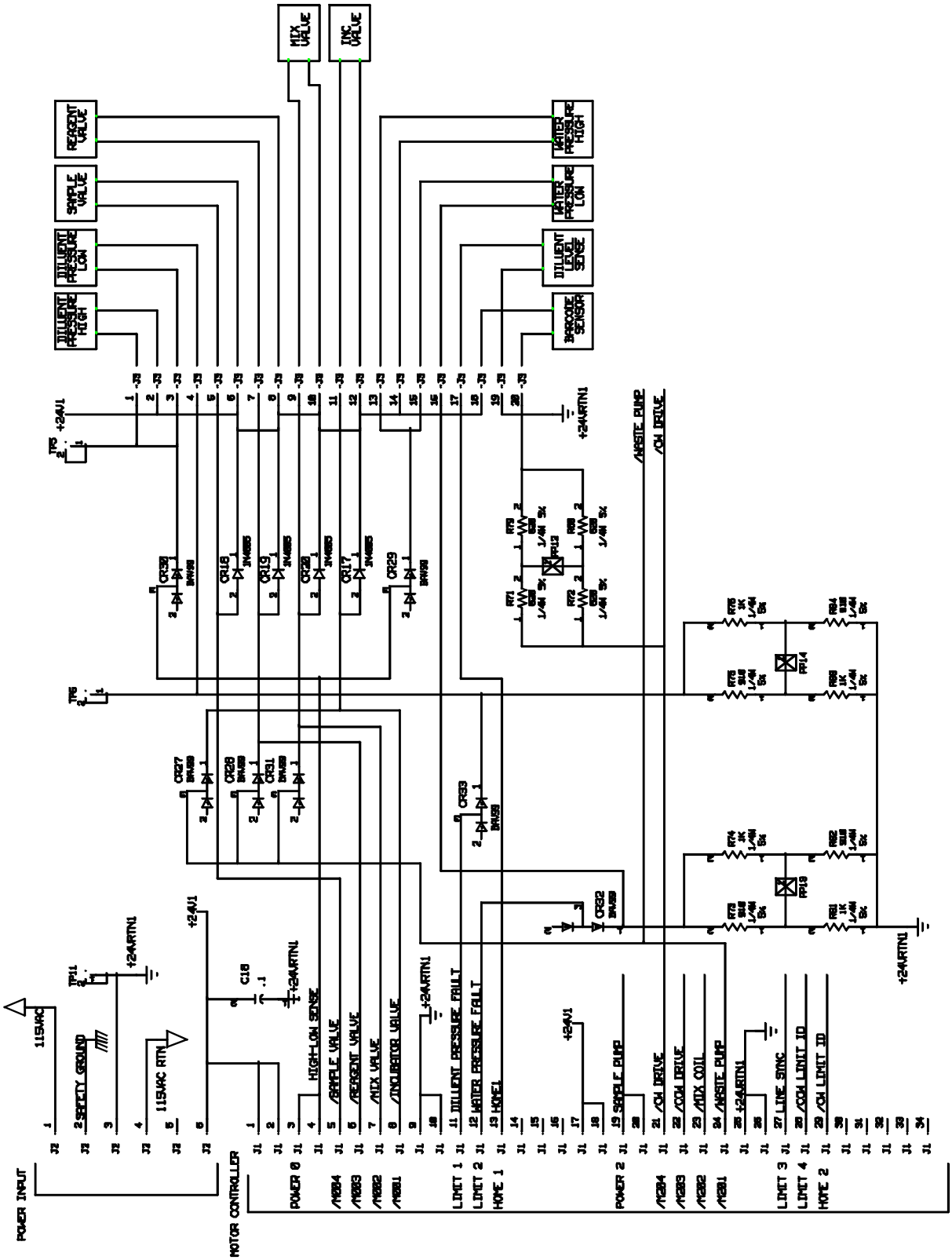
Figure 3

TEST POINTS

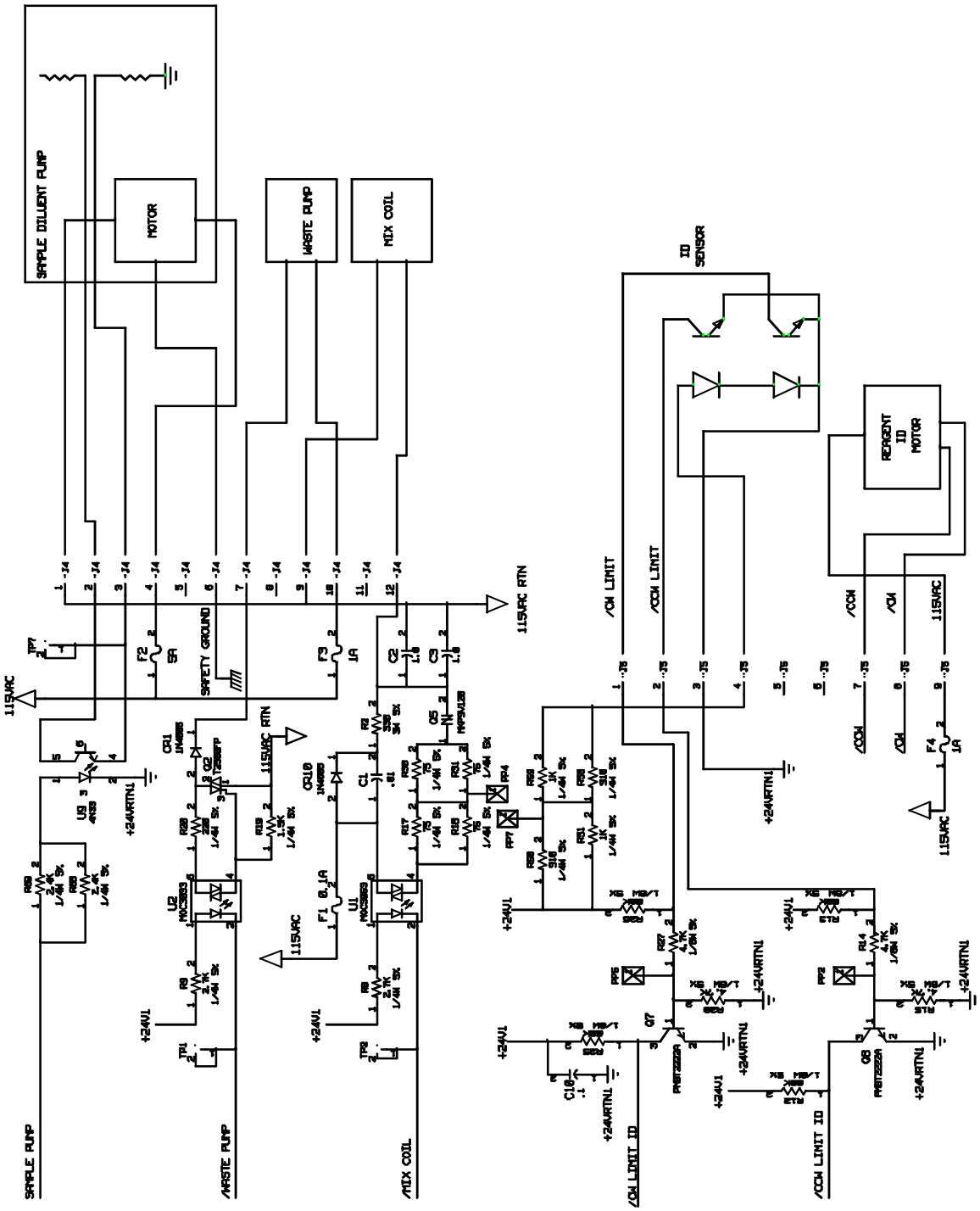
TP1	Waste Pump
TP2	Mix Coil
TP3	Barcode Reader CW Drive
TP4	Barcode Reader CCW Drive
TP5	Diluent pressure switch High
TP6	Diluent pressure switch Low
TP7	Sample Pump
TP8	Sample Carousel Home Sensor
TP9	Sample Carousel Station Sensor
TP10	Ground for Home Station Section
TP11	Ground for Pump & Valve Section

FUSES

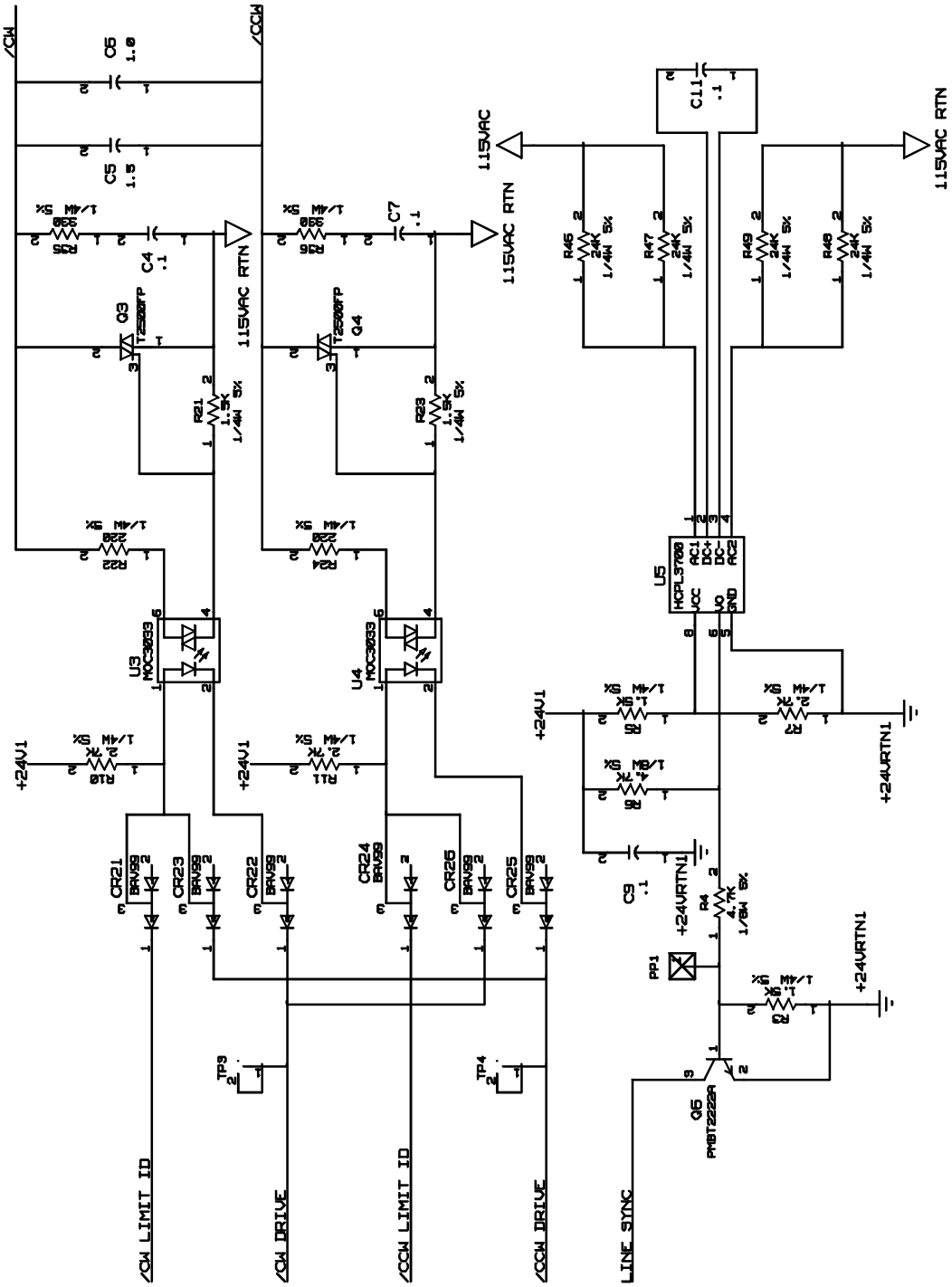
F1	Mix Coil	0.2A
F3	Waste Pump	1A
F4	Barcode Reader Motor	1A



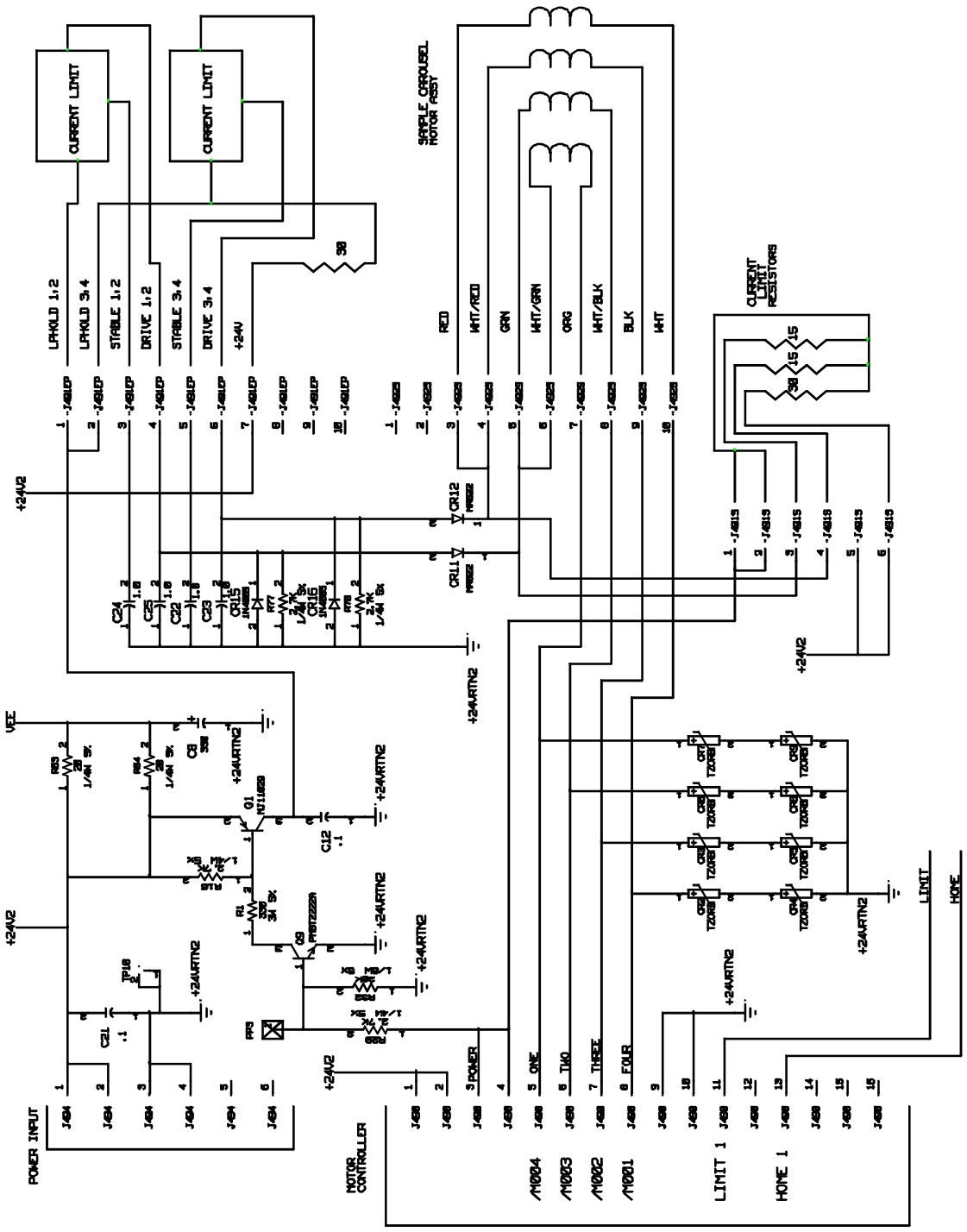
Pump & Valve Board 2



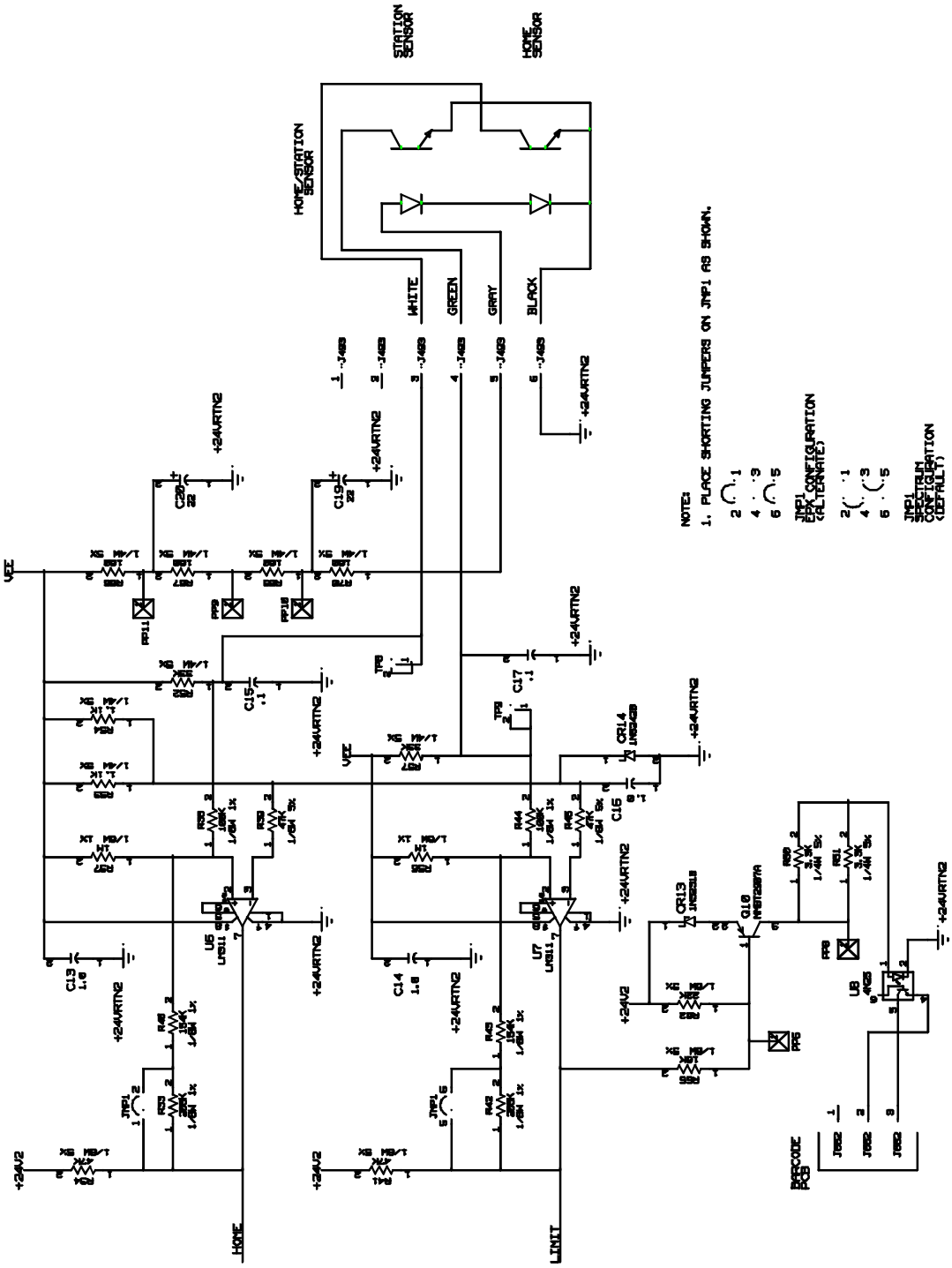
Pump & Valve Board 3



Pump & Valve Board 4



Pump & Valve Board 5



Pump & Valve Board 6

END OF DOCUMENT

ABBOTT ADD	TECHNICAL SERVICE BULLETIN

SUBJECT:
New Style Pump and Valve / Home Station Interface PCB

TSB#: **66-026**

ORIGINATOR: **Steve Lincoln**
APPROVED: **Mark Slater 5/6/96**

PRODUCT:
ABBOTT SPECTRUM® CCx(TM) Series II(TM) (66)

REF. ECN: **P1-9031-031**

IMPLEMENTATION: ○ **Immediate** ○ **Next Service Call** ● **Next Failure** ○ **Optional** Instruments Requiring Modification: **n/a**	TSB Part/Kit #: **2-54905-02** TSB Effectivity/ Part(s) Availibility: **03-JUN-96** **TSB Tracking by Serial # required (IMMEDIATE TSB's ONLY)** ○ YES ● NO	Upgrade Time: **2.0 Hrs.** Validation Time: **1.0 Hr.** Total Mod. Time: **3.0 Hrs** ****NOTE** The instrument must be at TSB Level n/a prior to performing this TSB.**

OBSOLETE. SUPERSEDED BY TSB 66-026A.

ABBOTT ADD

TECHNICAL SERVICE BULLETIN

SUBJECT:
5 mL or 7 mL PRIMARY SAMPLE TUBE CAROUSEL

TSB#: **66-003B**

ORIGINATOR: **Jane Hughes**
APPROVED: **Michael Manion September 21, 1994**

PRODUCT:
CCX II® (66)

REF. ECN: **P1-6154**

IMPLEMENTATION:	TSB Part/Kit #: **LN 1367-14**	Upgrade Time: **5 Hrs.**
○ Immediate ○ Next Service Call ○ Next Failure ● Optional	TSB Effectivity/ Part(s) Availibility: **21-SEP-94**	Validation Time: **4 Hrs.**
Instruments Requiring Modification: **n/a**	**TSB Tracking by Serial # required (IMMEDIATE TSB's ONLY)** ○ YES ● NO	Total Mod. Time: **9 Hrs.** ****NOTE** The instrument must be at TSB Level n/a prior to performing this TSB.**

NOTE: This document supersedes TSB 66-003A. TSB 66-003A should be removed and this document put in its place. This TSB has been rewritten to update parts lists and clarify information regarding fluid sensitivity for both styles of sample arms.

I. DISTRIBUTION:

Complete Distribution.

II. ADMINISTRATIVE NOTES:

United States: Scheduling of this modification will be handled by the Marketing Group.

Scheduling should be coordinated with the availability of parts and trained people. Orders should be placed through RZZ Order Entry in N. Chicago.

International: Service Managers should forecast requirements and place their orders through Field Service Logistics.

III. GENERAL:

The purpose of this modification is to give the instrument the capability of having 7mL Vacutainer tubes placed directly in the sample carousel thus eliminating excess handling of the specimen.

NOTE: The 7 mL (LN: 1367-15) Primary Sample Tube Carousel is not included in this kit and needs to be ordered separately.
NOTE: Only 19534-302 Grounded Sample Cup Carousel can be used on this assembly.
NOTE: Fluid Sensitivity Limits are:

1. Tube:
   2.62 inches in the tube with clot level height checked against gauge shipped with the kit.
2. Primary Sample Tube (PST) Carousel
   A. Old Style Arm (06200-107 or below): 500 uL in sample cup
   NOTE: Samples cups on inner ring only of 5 mL PST carousel
3. New Style Arm
   B. Inner Ring: 50 uL in sample cup
   Outer Ring: 150 uL in sample cup
4. Sample Cup Carousel still allows 50 uL minimum volume.
   NOTE: Use grounded sample cup carousel only.

IV. PARTS REQUIRED:

7 mL PRIMARY TUBE SAMPLE CAROUSEL KIT (LN 1367-14)

PART NUMBER	DESCRIPTION	QTY
P/N 19528-101	Support Enclosure, DI Weight Sensor	1
P/N 19529-201	Bracket, ISE Shield MTG-PCB	1
P/N 19530-101	Wash Plate (Pump)	1
P/N 19539-203	Primary Tube Drive Assembly	1
P/N 18730-101	Template, 7 mL Primary Tube	1
P/N 06586-201	Heat Sink - Sub Assembly	1
P/N 54771-101	Supplement, Prim Sam Tube	1
P/N 19559-101	Container, Primary Samp Tray	1
P/N 14715-003	Standoff, Hex 4-40 x .250 Nyl	4
P/N 14489-132	Screw, #4-40 x .250, PHP	8
P/N 14537-002	Washer, Flat #r x 0.280 Nyl	8
P/N 14702-034	Standoff, Hex 4-40 x .750 Nyl	4
P/N 19534-302	Carousel Assy, P.S.T. Modified Sample Cup	1
P/N 19516-102	Template, 5 mL, Primary Tube	1

NOT INCLUDED IN KIT:

PART NUMBER	DESCRIPTION
1367-15	7 mL Primary Sample Tube Carousel
19534-101	5 mL Primary Sample Tube Carousel (use of 5 mL carousel not recommended since sample cups can not be used on this carousel)

V. MODIFICATION STEPS:

A. SYSTEM SHUTDOWN

1. Perform the ISE shutdown procedure, reference page 39 in the Operations Manual, under Anticipated Power Loss.
2. Remove the reagents from the reagent cooler and place in an appropriate refrigerator.
3. Remove sample probe, reagent probe, and mixer arm from the instrument.
4. Power the instrument off using the main switch and then unplug the A.C. power cord.
5. Turn off the water to the instrument at the Water Quality Station. Disconnect the inlet water from the system.

B. HEAT SINK ASSEMBLY (06586-201) Reference Figure 1.

The resistance value for R9 and R10 were 15 ohms. These two resistors are now 7.5 ohms. This will increase the motor torque by increasing the drive current.

1. Remove the CRT/Keyboard cover.

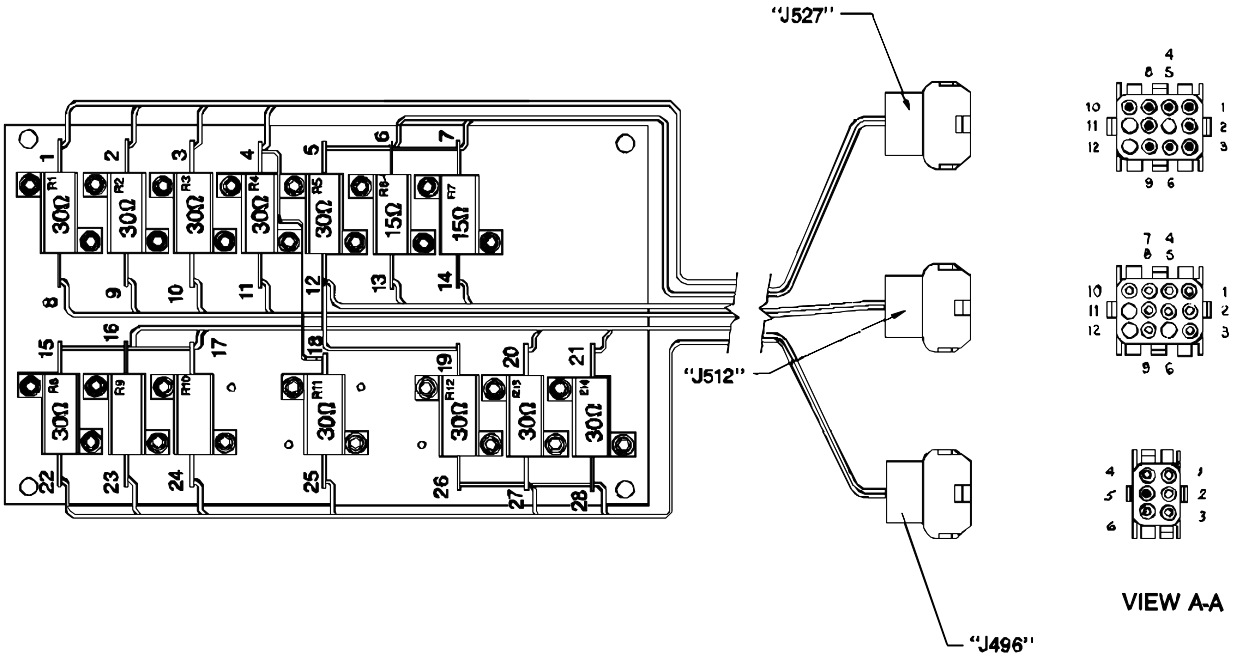


Figure #1

2. Remove the CRT assembly.
3. Disconnect cable connectors J-496, J-512 and J-527 (Heatsink Assembly).
4. Remove the four screws that hold the assembly to the back panel.
5. Install the new Heatsink and perform the previous steps in reverse order.

C. ISE SHIELD

1. Remove the three hole top deck from the CCx™.

NOTE: During the next step use caution when removing the diluent weight sensor assembly, it is possible to damage the two wires that attach to the sample diluent weight switch.

2. Remove the sample diluent reservoir, and tubing from diluent pump. Remove the three screws holding the sample diluent weight sensor assembly. Detach the two wires on the weight sensor switch and remove from the instrument. (Reference Figure 2).
3. Disconnect P-492 sample carousel motor, P-495 carousel sensor, and the green grounding wire which will be attached to the carousel base plate and the grounding bar. If the sample carousel ID reader is mounted on the sample carousel assembly disconnect P-497 from the PCB.
4. Remove the four corner screws holding the carousel base plate to the four standoffs. Lift the drive assembly up and out of the way (Reference Figure 3).
5. Remove the splash plate between the carousel and the incubator optics and discard this plate.

NOTE: If connectors are not already identified do so before removal.

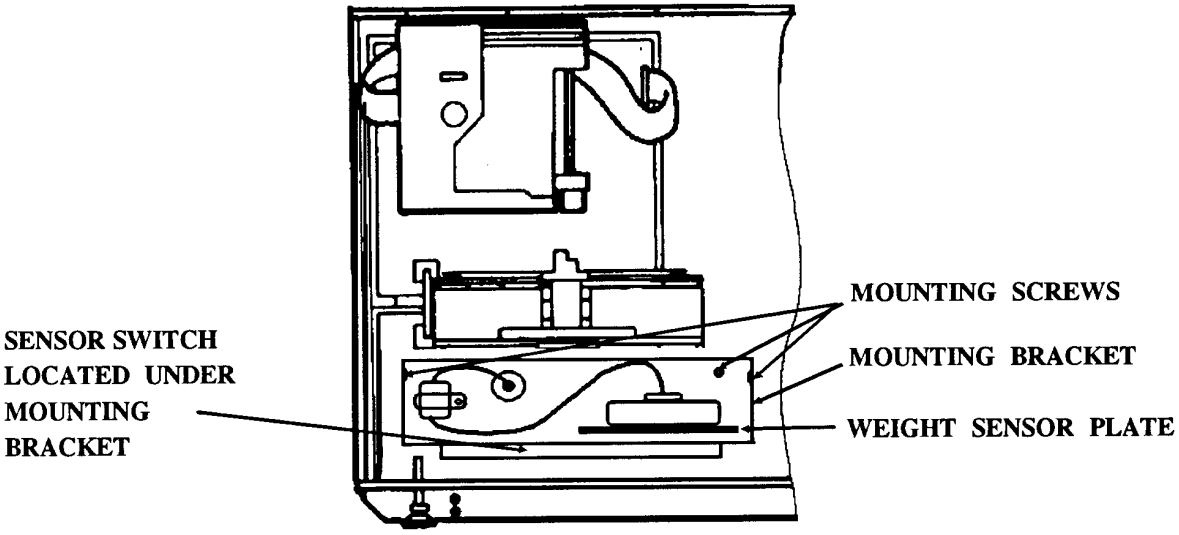


Figure #2
Front View

6. Disconnect from the pump and valve board P-531 (ribbon cable from motor controller #5), P-532 (lower 24 vdc distribution board), P-535 (high and low pressure sensor and reagent wash manifold), P-533 (reagent ID motor and sensor) and P-534 (115 VAC).
7. Remove the 4 nylon standoffs or the 4 hex screws and standoffs holding the Pump and valve board to the ISE shield. Discard the standoffs or the screws and standoffs. Save this board for installation on the new ISE shield.

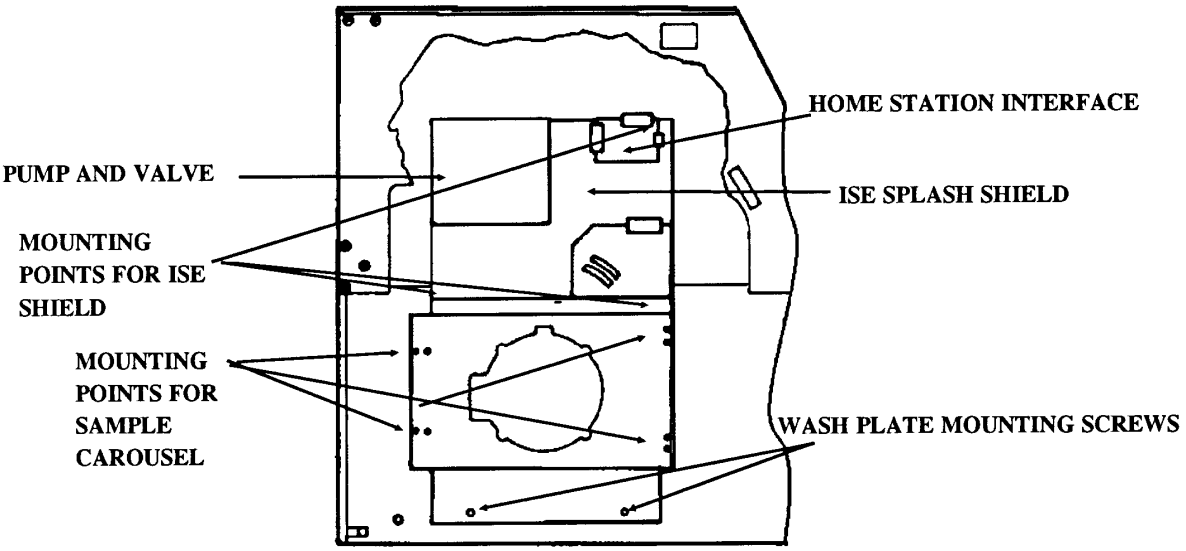


Figure #3
Top View

8. Disconnect from the Home Station Interface board. P-490 (motor controller #2), P-491 (resistive current limiter), P-493 (carousel home station sensor), and P-494 (24 vdc supply).
9. Remove the 4 nylon standoffs or the 4 hex screws and standoffs holding the Home Station Interface board. Discard the standoffs or screws and standoffs. Save this board for installation on the new ISE shield.
10. Disconnect P-497 from the sample carousel ID reader.
11. Remove the two hex screws (left side inside the ISE door) that hold the ISE control module in place. Remove the ISE control unit from the instrument being careful not to damage any of the cables attached to the module.
12. Remove the left back panel of the CCx™ in order to have better access to the ISE shield assembly.
13. Remove the ISE shield assembly, by removing the two hex screws holding the bottom of the shield to the base of the CCx™ and the one screw that supports the top of the shield to the shelf above it (Reference Figure 3).
14. Slide the old shield out of the instrument and discard along with the ID reader board.
15. Install the pump and valve board and the home station interface board onto the new ISE shield assembly. The screws, standoffs and washers are supplied in the kit. The 1/4 inch standoffs are for the Pump and Valve board and the 3/4 inch standoffs are for the Home Station Interface board.

NOTE: Failure to use the nylon standoffs and washers will allow 115 VAC to come in contact with the chassis.

16. Install the new ISE shield in the same place that the old one was. Reinstall the ISE module into its original position in the reverse order that it was taken out.

D. WASH PLATE

1. Remove the two hex screws holding down the wash plate (Reference Figure 2).

NOTE: During the next step do not remove the tubing from the manifolds.

2. Remove the wash manifold (two screws) and the sample pressure manifold (two screws) and lay the manifolds to the side.
3. Disconnect P-565, from the pump and remove the wash plate assembly from the system. Remove the pump from the wash plate and lay it to the side. Remove the wash plate and discard it.
4. Install the diluent pump onto the new wash plate (notice that the pump has been moved forward and the reed switch is clear of the plate). Place the new wash plate onto the base of the CCx™ and reinstall the wash manifold and the sample pressure manifold.
5. Reconnect P-565 and reinstall the two screws holding the wash plate to the instrument base. Ensure that no tubing is being pinched.
6. Reconnect all of the connectors that were previously removed, and any tubing that was disconnected, being sure that the cabling does not interfere with the pump fan.

E. SAMPLE CAROUSEL ASSEMBLY

1. Install the new sample carousel drive assembly onto the four standoffs (Reference Figure 4). Attach the ground strap to the ground strap bar, and reconnect P-492 & P-495.
2. Tie wrap any cabling that may be loose being sure there is no binding or crimping of cabling to the boards.
3. Loosen the screws holding the sample carousel ID reader in place.

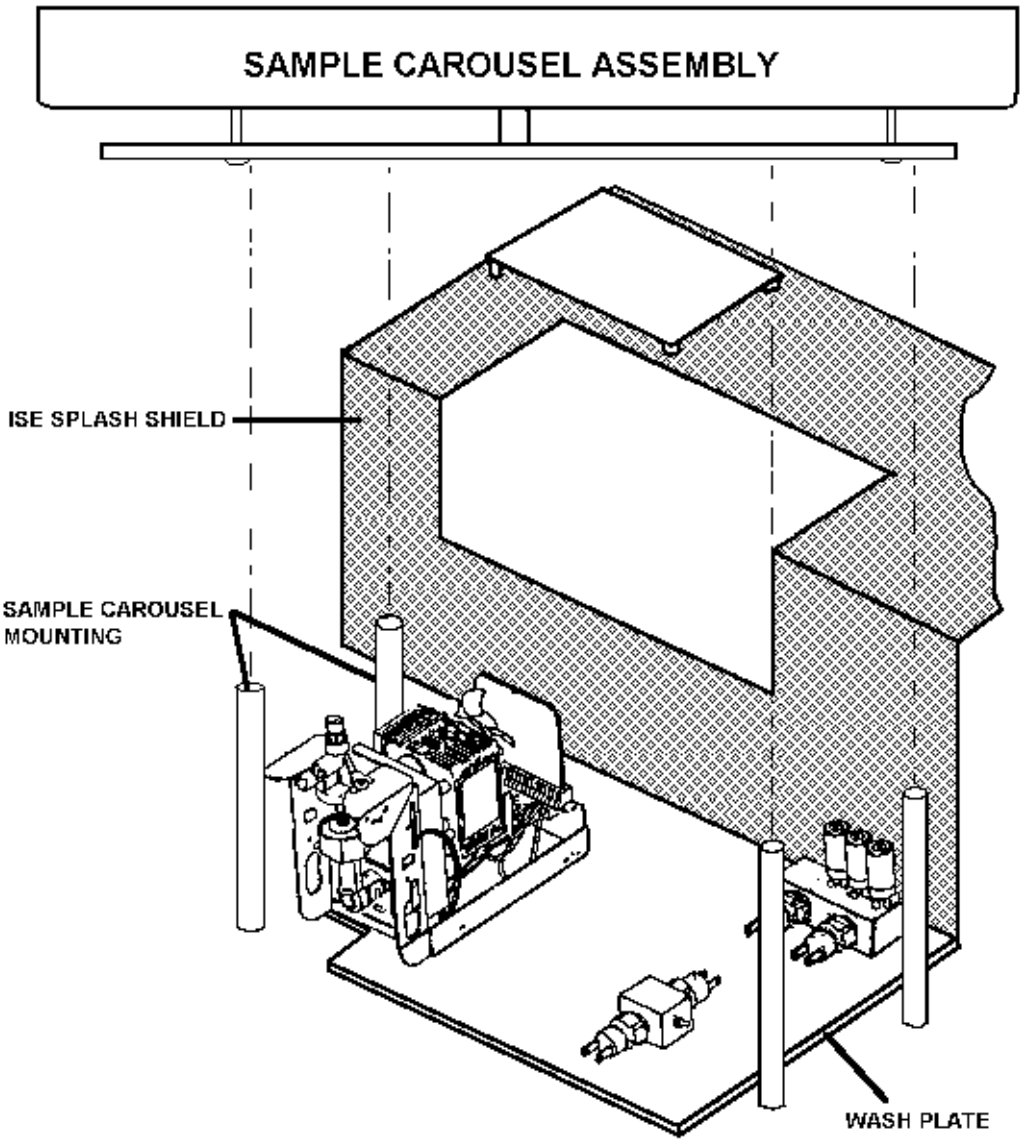


Figure #4
ISE Shield and Wash Plate

4. INSTALL A SAMPLE CAROUSEL FOR ALIGNMENT PURPOSES ONLY. Adjust the reader so that the carousel moves freely when rotated. Tighten the screws after achieving this to install the carousel and test the carousel again.
5. Jumper the two wires going to the diluent weight sensor switch in order to home robotics after the system is powered up. Insulate the jumper so it does not come in contact with the chassis.
6. Apply power to the system.
7. After the homing of robotics install the sample carousel. In order to achieve this, loosen the two screws holding the encoder disc to the carousel (underneath by the motor). The object is to place the number 9 on the sample carousel in the middle of the ID reader. Rotate the encoder disc either clockwise or counterclockwise in order to achieve this.

   A clockwise adjust of the encoder wheel will result in a counterclockwise movement of the carousel and vice-versa.

8. Tighten at least one of the encoder disk screws to prevent the disk from moving and home robotics to see where the carousel is. Tighten both screws once correct position is achieved.
9. The sample probe and ISE probe may not be directly in the center of the sample cup, therefore, you may have to loosen the screws holding the motor plate and adjust the plate so the two probes are centered in the sample cup.

Potential Biohazard & Voltage Hazard. Observe Proper Safety Precautions.

10. Cover an ID notch on the sample carousel and proceed to the review and run screen. Verify that the reader reads the tray correctly. If not, readjust the ID reader board per steps 7 and 8 above.
11. Access the pump & valves screen. Cycle the diluent valve open. Cycle the diluent pump to purge and purge the pump 4 times. Check the diluent dispense mechanism in accordance to ISA 43-033A for correct diluent volume.
12. Remove the jumper from the two wires going to the diluent weight sensor switch and install the new modified weight sensor bracket. Once installed test the diluent pump to be sure it does not rub against the bracket. Reinstall the diluent weight sensor assembly (Reference Figure 3).

VI. SYSTEM CHECKS

Retrain the sample arm as prescribed in the Operations Manual Addendum supplied in the kit (LN1367-14) or as prescribed in Maintenance and Troubleshooting manual.

Sample Arm Retraining

Retrain the sample arm as prescribed in the Operations Manual Addendum supplied in the kit (LN 1367-14).

Minimum serum volume for the tubes is 2.62 inches. Clot level heights should be checked against the gauge shipped with the kit.

Minimum sample volume using sample cups is 500 uL in the inner or outer ring (150 uL with the -108 sample arm). The highest bottom will be on the inner ring, and bottom will be trained on the outer ring.

A. Perform sample arm robotic training per Maintenance and Troubleshooting Manual procedure.

B. Fluid Sensitivity

Perform ISA 43-110 to adjust fluid sensitivity (**DOUBLE CLICK ON THIS DOCLINK TO VIEW THE ISA**). This will not be necessary for the new style sample arm.

C. ISE Top Of Cup

1. Access the CALIBRATION screen, and touch ISE STATUS, SELECT. Touch MOVE CAROUSEL. Enter Position number of the highest bottom on the inner ring. Press ENTER.
2. Move ISE to Inner.
3. Touch TOP OF CUP. The probe should be centered over the cup. If not adjust it using the ISE left to Right Positioning.
4. Touch STEP UP or STEP DOWN to adjust the probe until it is even with the top of the cup. Touch SAVE POSITION.

NOTE: The ISE will allow movement outside the range of 175-288 using step Up and Step Down. However, positions outside the range will not be stored.

5. Touch BOTTOM OF CUP to determine that the probe depth is approximately 1/8" from the bottom of the cup. Lift the sample cup to check. The sample cup should lift up slightly. If an adjustment is necessary, repeat Steps 2 and 3.
6. Go back to TOP OF CUP and Touch SAVE POSITION, then Exit.
7. AFTER COMPLETION OF THE ROBOTICS TRAINING, GIVE THE CUSTOMER THE RECORDED ROBOTICS POSITIONS. THIS IS TO BE DONE EVERY TIME THE ROBOTICS ARE RETRAINED.
8. Probe positioning should be verified with sample carousel in place.
9. Sample carousel cover fit should be verified during operation.

D. Sample Carousel Resistance Check

1. Measure the Resistance between the Sample Carousel hub and chassis ground. (See Figure 1) This measurement should be less than one (1) ohm. If not, ensure that the ground wire and the Sample Carousel hub are not corroded.

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2. Now manually spin the Sample Carousel conductor plate while taking the same Resistance measurement. Ensure that this resistance is less than 10 Ohms.
3. Perform the total service call in accordance with the service manual.

END OF DOCUMENT