



SERVICE MANUAL

EXPLORER[®] BALANCES

EXPLORER[®] *PRO* BALANCES

VOYAGER[®] BALANCES

TABLE OF CONTENTS

	Page No.
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1-1
1.2 Service Facilities	1-2
1.3 Tools and Test Equipment Required	1-3
1.3.1 Special Tools	1-3
1.3.2 Standard Tools and Test Equipment	1-3
1.4 Test Masses Required	1-3
1.5 Specifications	1-4
CHAPTER 2 DIAGNOSIS	
2.1 Troubleshooting	2-1
2.2 Diagnostic Guide	2-1
2.2.1 Diagnosis	2-1
2.3 Explorer / Voyager Error Code Table	2-3
2.4 Explorer Pro Error Code Table	2-5
CHAPTER 3 REPAIR PROCEDURES	
3.1 Repair Procedures	3-1
3.1.1 Analytical Load Cell Removal	3-1
3.1.2 Analytical Load Cell Replacement	3-2
3.1.3 Analytical Load Cell Position Sensor Adjustment	3-3
3.1.4 Analytical Load Cell Position Sensor Adjustment Without Test Points	3-4
3.1.5 Analytical Load Cell Load Flexure (Vertical Link) Removal	3-4
3.1.6 Analytical Load Cell Load Flexure (Vertical Link) Installation	3-4
3.1.7 Analytical Load Cell Upper Flexure Arm and Lower Flexure Arm Removal/ Installation	3-5
3.1.8 Removing the Lever and Coil	3-6
3.1.9 Replacing the Vertical Flexures (Pillow Block Bearings)	3-6
3.1.10 Replacing the Lever and Coil	3-7
3.1.11 Monoblock Load Cell Removal Precision Top Loader Balance and Analytical	3-7
3.1.12 Monoblock Load Cell Replacement for Precision Top Loader and Analytical Balances	3-8
3.1.13 Position Sensor Assembly Removal from Monoblock in Precision	3-9
Top Loader Balance	3-9
3.1.14 Installing the Position Sensor Assembly for Monoblock Precision Top Loader Balance	3-10
3.1.15 Changing the Load Cell Board Precision Top Loader Balance	3-10
3.1.16 Removing the Force Coil Lever from Monoblock in Precision Top Loader Balance	3-11
3.1.17 Installing the Force Coil Lever Assembly in Monoblock for Precision .. Top Loader Balance	3-12
3.1.18 Vertical Stop Adjustment for Monoblock in Precision Top Loader Balance	3-13

TABLE OF CONTENTS (Cont.)

3.1.19 Monoblock Load Cell Removal from High Capacity Top Loader Balance	3-14
3.1.20 Calibration Motor Removal from High Capacity Top Loader Balance	3-14
3.1.21 Position Sensor Assembly Removal from Monoblock in High Capacity Top Loader Balance	3-15
3.1.22 Installing the Position Sensor Assembly for Monoblock High Capacity Top Loader Balance	3-15
3.1.23 Removing the Force Coil Lever assembly from Monoblock in High Capacity Top Loader Balance	3-15
3.1.24 Installing the Force Coil Lever Assembly in Monoblock in High Capacity Top Loader Balance	3-16
3.1.25 Installing Monoblock and Assembling Position Sensor for High Capacity Top Loader Balance	3-16
3.1.26 Changing Servomotor on High Capacity Top Loader Balance	3-17
3.1.27 Vertical Stop Adjustment for Monoblock in High Capacity Top Loader Balance	3-18
3.2 Replacement of Major Components	3-19
3.2.1 Analytical Balances Main Printed Circuit Board (PCB)	3-19
3.2.2 Analytical Balance Position Sensor PC Board	3-21
3.2.3 Precision Top Loader Balances Main Printed Circuit board (PCB)	3-21
3.2.4 High Capacity Top Loader Balance Main Printed Circuit Board (PCB) and Power Supply (PCB)	3-23
3.2.5 High Capacity Top Loader Balance Connector Printed Circuit Board (PCB)	3-24
3.2.6 Removing the Display Module on Explorer Precision Top Loader Balances	3-24
3.2.7 Removing the Display Module on Explorer High Capacity Top Loader Balances	3-25
3.2.8 Display Printed Circuit Board	3-26
3.2.9 Membrane Switch Replacement	3-27
3.2.10 Replacing the Display	3-28
3.2.11 Removing the Display Module Voyager and Explorer Pro Models	3-29
3.2.12 Display PCB/LCD Assembly Replacement	3-30
3.2.13 Bulb Replacement	3-31

CHAPTER 4 TESTING

4.1 Testing	4-1
4.1.1 Operational Test	4-1
4.1.1.1 Segment Display Test	4-1
4.2 Performance Tests All Balances	4-2
4.2.1 Precision/Repeatability Test	4-2
4.2.2 Off-Center Load Test	4-2
4.2.3 Linearity Test	4-8
4.2.4 RS232 Communication Test	4-9

TABLE OF CONTENTS (Cont.)

CHAPTER 5 DRAWINGS AND PARTS LISTS

5-1	Drawings and Parts Lists	5-1
5-2	Parts Lists	5-3
5.2.1	Precision Top Loader Base Parts List	5-3
5.2.2	Analytical Base Parts List	5-5
5.2.3	Precision Top Loader Base Parts List	5-7
5.2.4	Analytical Load Cell Parts List	5-9
5.2.5	Precision Top Loader Monoblock Load Cell Parts List	5-11
5.2.6	High Capacity Top Loader Balance Parts List	5-13
5.2.7	High Capacity Top Loader Balance Parts List	5-15
5.2.8	Monoblock High Capacity Top Loader Balance Parts List	5-17
5.2.9	Explorer Display Parts List	5-19
5.2.10	Explorer High Capacity Parts list	5-21
5.2.11	Explorer Pro, Voyager Display Parts List	5-23
5.2.12	Voyager, Explorer Pro, High Capacity Parts List	5-25

APPENDIX A - EXPLORER EP LOADER

A.1	Requirements for EP Loader	A-1
A.2	Limitations	A-1
A.3	Installing EP Loader Software	A-1
A.4	Run EP Loader Software	A-1
A.5	Setup the Balance in Manufacturing Mode	A-2
A.6	Connect the Balance to a PC	A-2
A.7	Personality Data Label Entry	A-3
A.8	Temperature Compensation (TC) Data Entry	A-5
A.9	Downloading Personality Data and/or TC Data into the Balance	A-7
A.10	Saving Personality Data and TC Data	A-7
A.11	Opening Data Files	A-7
A.12	Clear EP Loader	A-7
A.13	Confirm TC Download	A-7

APPENDIX B - EXPLORER PRO EP LOADER

B.1	Requirements for EP Loader	B-1
B.2	Installing EP Loader Software	B-1
B.3	Run EP Loader Software	B-1
B.4	Setup the Balance in Manufacturing Mode	B-2
B.5	Connect the Balance to a PC	B-3
B.6	Temperature Compensation (TC) Data Entry	B-3
B.7	Personality Data label Entry	B-6
B.8	Downloading Personality Data and/or TC Data into the Balance	B-8
B.9	Saving Personality Data and TC Data	B-8
B.10	Opening Data Files	B-8
B.11	Clear EP Loader	B-8
B.12	Confirm TC Download	B-8

TABLE OF CONTENTS (Cont.)

APPENDIX C - PRODUCTION MODE CALIBRATION

C.1	Preparation	C-1
C.2	Manufacturing Calibration (MFg) Procedure	C-1
C.3	Manufacturing Weight Calibration (MFgWt) Procedure	C-2

APPENDIX D - REPLACING BOTTOM DISPLAY BOARD

D.1	Replacing the Bottom Display Board on Voyager, Explorer Pro and Voyager Pro Balance	D-1
D.2	Explorer Pro, Voyager and Voyager Pro flash Instructions	D-1

LIST OF TABLES

TABLE NO.	TITLE	PAGE NO.
1-1	Calibration Points	1-3
1-2	Analytical Specifications	1-4
1-3	Precision Top Loader Specifications	1-4
1-4	High Capacity Top Loader Specifications	1-4
2-1	Diagnostic Guide	2-2
2-2	Explorer Voyager Error Codes	2-3
2-3	Information Messages	2-4
2-4	Explorer Pro Error codes	2-5
4-1	Types of Performance Tests	4-2
4-2	Center Load Test Masses	4-8
5-1	Precision Top Loader Base Parts List	5-3
5-2	Analytical Base Parts List	5-5
5-3	Precision Top Loader Base Parts List	5-7
5-4	Analytical Load Cell Parts List	5-9
5-5	Precision Top Loader Monoblock Load Cell Parts List	5-11
5-6	High Capacity Top Loader Balance Parts List (Sheet 1)	5-13
5-6	High Capacity Top Loader Balance Parts List (Sheet 2)	5-15
5-7	Monoblock High Capacity Top Loader Parts List	5-17
5-8	Explorer Display Parts List	5-19
5-9	Explorer High Capacity Parts List	5-21
5-10	Explorer Pro, Voyager Display Parts List	5-23
5-11	Voyager, Explorer Pro, High Capacity Parts List	5-25

TABLE OF CONTENTS (Cont.)

LIST OF ILLUSTRATIONS

FIGURE NO.	TITLE	PAGE NO.
3-1	Analytical Sensor Board Adjustment Locations and Connections	3-3
3-2	Analytical Sensor Board Adjustment	3-4
3-3	Removing the Vertical Flexure	3-4
3-4	Installing Vertical Flexure	3-4
3-5	Installing the Shims	3-5
3-6	Hanger Positioning	3-5
3-7	Lever Removal/Installation	3-6
3-8	Vertical Guide (Pillow Block Bearing) Installation	3-6
3-9	Installing Lever and Coil	3-7
3-10	Removing Position Sensor Assembly from Monoblock	3-9
3-11	Position Sensor Assembly Mounting	3-10
3-12	Changing Load Cell Board	3-10
3-13	Monoblock Assembly	3-11
3-14	Contact Board Removal	3-11
3-15	Force Coil Removal	3-11
3-16	Force Coil Lever Installation	3-12
3-17	Monoblock Mounting	3-12
3-18	Position Sensor Connections	3-13
3-19	Calibration Motor Removal	3-14
3-20	Position Sensor Assembly Mounting	3-15
3-21	Force Coil Removal	3-15
3-22	Force Coil Lever Installation	3-16
3-23	Installation Monoblock and Position Sensor	3-16
3-24	Servomotor Installation	3-17
3-25	Position Sensor Connections	3-18
3-26	Display Removal/Installation for Explorer Precision Top Loader Balance	3-25
3-27	Display Removal/Installation for Explorer High Capacity Top Loader Balance	3-26
3-28	Rear View of Display PCB Assembly	3-27
3-29	Membrane Switch Cable Routing	3-28
3-30	Display Removal/Installation	3-29
3-31	Rear View of Display PCB Assembly	3-30
3-32	LCD Assembly Bulb Replacement	3-32
4-1	Segment Display	4-1
4-2	LFT Displays	4-1
4-3	Countdown Display	4-1
4-4	Analytical Off-Center Load Adjustments Diagram	4-3
4-5	Monoblock Off-Center Load	4-4
4-6	Monoblock Adjustments	4-6

TABLE OF CONTENTS (Cont.)

LIST OF ILLUSTRATIONS

FIGURE NO.	TITLE	PAGE NO.
5-1	Overall Exploded View of Precision Top Loader Balance	5-2
5-2	Overall Exploded View of Analytical Balance	5-4
5-3	Exploded View of Precision Top Loader Base Assembly	5-6
5-4	Exploded View of Analytical Load Cell	5-8
5-5	Exploded View of Monoblock Load Cell for Precision Top Loader ..	5-10
5-6	Overall Exploded of High Capacity Top Loader Balance (Sht 1)	5-12
5-6	Overall Exploded of High Capacity Top Loader Balance (Sht 2)	5-14
5-7	Exploded View of Monoblock Load Cell for High Capacity Top Loader Balance	5-16
5-8	Exploded View of Explorer Display	5-18
5-9	Exploded View of Explorer High Capacity Display	5-20
5-10	Exploded View of Explorer Pro, Voyager Display	5-22
5-11	Exploded View of Voyager, Explorer Pro High Capacity Display	5-24
A-1	RF Shield	A-3
A-2	Personality Data	A-3
A-3	TC Data	A-5
B-1	RF Shield	B-2
B-2	TC Data	B-3
B-3	Personality Data	B-6

This is a “Table of Contents preview” for quality assurance

The full manual can be found at <http://the-checkout-tech.com/estore/catalog/>

We also offer free downloads, a free keyboard layout designer, cable diagrams, free help and support.

<http://the-checkout-tech.com> : *the biggest supplier of cash register and scale manuals on the net*