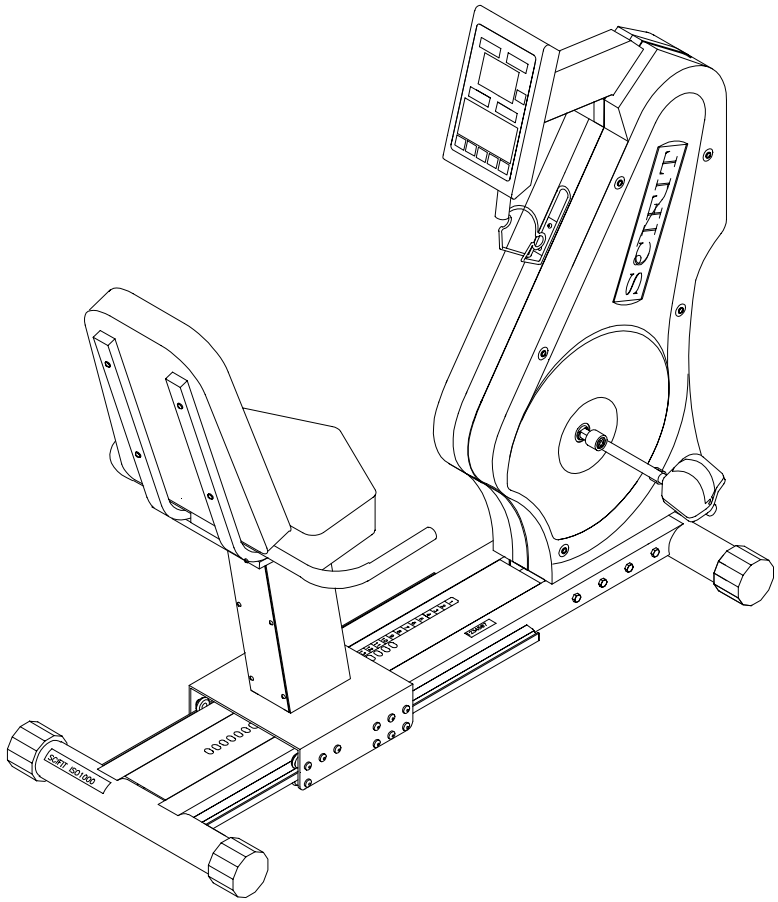

ISO1000R

Service Manual

SALES: 800-278-3933
CUSTOMER SERVICE: 800-745-1373

Revision: August 1999

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I. Overview

Purpose.

This manual is designed to assist in the servicing of **SCIFIT** ISO1000R exercise machines. This manual uses two systematic troubleshooting tables to address any problems that may arise with the ISO1000R. Besides the standard ISO1000R, there is an optional model that has bi-directional capabilities. Sections II and III contain some troubleshooting tables and maintenance procedures for the two models. Figures 1 and 2 show the standard ISO1000R while Figures 3 and 4 show the bi-directional ISO1000R. Figures 5 and 6 are universal. References are made to the figures in the troubleshooting tables and maintenance procedures. A reference given in parentheses, "(See Figure 3)", is for the servicing of a bi-directional unit; a non-parenthesized reference, "See Figure 1", is for a standard unit. Underlined references such as "See Figure 5" refer the technician to a figure that corresponds to each model. Be sure to use the correct reference depending on what type of ISO1000R is being serviced.

A parts list for the two model types is located in Section V of this manual. Item numbers are given that can be used to locate various parts in Figures 1-4.

When troubleshooting, the actions taken to resolve problems should be performed in the order stated. Deviating from this sequence may cause damage to the equipment and lead to unnecessary repairs.

Technical Support.

For further assistance in service of **SCIFIT** products, please call **(800) 745-1373**, extension **21**. The technical support department is staffed from 8 AM to 5 PM CST Monday through Friday. A voicemail service is available 24 hours daily for recording messages to request technical support and to order replacement parts.

Please have the following information prior to calling technical support:

- Model number of equipment
- Serial number of equipment
- Point of contact name and phone number
- Detailed description of symptoms encountered.

II. Troubleshooting Tables

Note: A reference given in parenthesis, "(See Figure…)", is intended for the servicing of a bi-directional unit. A reference without parenthesis is followed when servicing a standard unit.

Table 1 – Electrical Troubleshooting

Problem	Possible Reasons	Solutions
1.1 The machine appears to be off in spite of being plugged in and switched "on".	Faulty power supply board.	If buttons on the control display beep when pressed, replace power supply board. Otherwise, check power supply board. See Procedure 2.
	Faulty fuse.	Check and replace fuse if needed. See Figure 5.
	Loose cable connection.	Check wire connections at power supply and display boards.
1.2 Upper control panel lights are dim.	Power display board is faulty.	Replace power display board. See Procedure 1.
1.3 Upper board accepts commands but pedaling resistance does not change.	Dip switch setting is incorrect.	Set dip switch to 01.
	Power display board is faulty.	Check and replace power supply board as needed. See Procedure 2.
1.4 LED's on upper board blinking off/on, then go dead.	Ribbon cable connections are loose.	Check and replace accordingly. Unplug and re-plug machine to reset.
	Faulty power supply board.	Check and replace power supply board as needed. See Procedure 2.
	Display board is faulty.	Replace display board.
1.5 Heart rate displays zero (0) in window	Chest strap and transmitter improperly worn.	Verify that they are being properly worn.
	Loose sensor lead con-nection at display board.	Check and adjust as needed.
	Faulty receiver.	If there is no audible signal, replace receiver.

1.6 Unit keeps blowing fuses.	Too many units are daisy-chained together. Faulty power supply board.	Do not daisy-chain more than 3 units together. Check and replace power supply board as needed. See Procedure 2.
1.7 The upper display resets after starting a program.	Ribbon cable connection is loose. Power cord is loose. Display board is faulty.	Check cable connection at power supply and display boards. Check and adjust as needed. Replace display board.
1.8 Program stops, lines of dots shoot across screen.	Ribbon cable connection is loose. Display board is faulty.	Check and adjust cable connection as needed. Replace display board.
1.9 Machine shuts down in programs but works in manual.	Display board is faulty.	Replace display board.
1.10 Can't select program or enter information and no beep when buttons are pressed.	Membrane is faulty.	Replace membrane.

Table 2 – Mechanical Troubleshooting

Problem	Possible Reasons	Solutions
2.1 Pedals lock up while operating.	Power supply board is faulty. Brake is bad.	Unplug power cord. If rails move, replace power supply board. If pedals do not move with power cord unplugged, replace brake. See Procedure 4.
2.2 No resistance on pedals when in a program.	No speed signal Wires going to brake are disconnected. Power supply board is faulty.	Check and adjust the speed sensor as needed. See Procedure 3. Check that brake wires are properly connected. Check and replace power supply board as needed. See Procedure 2.
2.3 Very little resistance at any level.	Speed sensor improperly adjusted. Improper speed sensor connection with power supply board.	Check and adjust the speed sensor as needed. See Procedure 3. Check voltage at power supply board. See Procedure 2.
2.4 Belt is slipping	Not enough tension on the brake drive belt.	Tighten the belt to ¼" deflection at 10lbs of force.

III. Maintenance Procedures

Procedure 1 - Removing the Power Supply Board

1. Unplug the unit from the power source.
2. Lay it on its side.
3. Locate the power supply board access plate under front of unit. Refer to item 27 in Figure 1 (Refer to item 27 in Figure 3).
4. Remove the four (4) screws. Be careful when pulling down the power supply board because of the plastic ties and brake wires.
5. Cut all the plastic ties.
6. Before disconnecting any of the wires, make note of the wiring sequence. Refer to the wiring diagram, Figure 6.
7. Disconnect the following:
   a. The two (2) white (110 V) and two (2) black (24 V) transformer wires. These are all the wires from J4 on Figure 6.
   b. The black and white wires from the power entry module – total of two (2). These are the wires at terminals ACIN1 and ACIN2 on the LCB.
   c. The two (2) red brake wires.
   d. The one (1) speed sensor plug – J5 on Figure 6.
   e. The one (1) ribbon cable.
8. Reinstallation is the reverse of removal.
9. After reinstalling the power supply board, perform the following procedure to test correct reinstallation.
   a. Plug into power source and turn on.
   b. The message “SCIFIT FOR SCIENTIFIC SOLUTIONS” should be scrolling across upper display board. If not, see troubleshooting table.
   c. Press the start button.
   d. Turn the crankshaft in a forward motion.
   e. Verify that values are being displayed in the rpm/Watt window.
   f. Press the up arrow key to increase the resistance. It should become more difficult to turn the crankshaft. In not, consult the troubleshooting table.
   g. Press the up arrow and hold until level 22. After 3-5 seconds of turning, the resistance should be at its maximum level. If not refer to the troubleshooting table. If brake loaded up to maximum setting, then the job is complete.

Procedure 2 - Checking voltage at the Power Supply Board

1. Follow steps 1-4 in Procedure 1.
2. Use a voltmeter to measure the DC voltage across the speed sensor pins on the power supply board. Measure the voltage across the pin with the red wire (+) and either one of the center pins (-). The voltmeter should measure 4-5 volts DC.
3. If there is no voltage, replace the power supply board.

Procedure 3 – Checking and Adjusting the Speed Sensor

1. Turn machine on and press start.

2. Turn crank arms at 1 revolution per second. The RPM window should display around 60 ±10 rpm.
3. If the RPM window is displaying a reading outside of the specified range, proceed to the next step to adjust the speed sensor.
4. Remove the hood.
5. The air gap between the brake flywheel and speed sensor should be 1/8" – 3/16".
6. The speed sensor must be pointed directly at the flywheel so the eyes of the sensor will intersect the center of the axis of the brake. Adjust as needed.
7. Rotate the crank arm again at 1 revolution per second. If the RPM window displays a number greater than zero (0) but not within 60 ±10 rpm, repeat steps 1 - 6. If a reading of zero (0) is displayed, proceed to step 7.
8. Use a voltmeter to measure the DC voltage across J5 pin 1 (+) and J5 pin 2
   (-) on the power supply board. Refer to Figure 6. The voltmeter should read 4-5 VDC.
9. If there is no voltage, replace the power supply board. If 4-5 volts are present, replace the speed sensor.

Procedure 4 – Removal and Replacement of the Brake Assembly

1. Remove the two screws holding the bottle cage below the handlebars. Remove the single screw located just above the power entry module.
2. Remove the five screws from side of the left cover. Position the left crank arm pointing backward and parallel to the base frame. Pull the front edge of the cover and slide it inward and backward to clear crank arm.
3. Repeat step 2 for the right side.
4. Disconnect the two red wires on the right side of brake.
5. Remove the ½" nuts and lockwashers from both brake studs.
6. Remove the 10-32 allen-head screw on the right side of brake.
7. Remove the tensioning screws at the top center of the brake on each side of the sheet metal frame.
8. Remove the V-belt from the plastic pulley by wedging a screwdriver blade between the belt and pulley while rotating the brake slowly downward to work the belt off the pulley. Take care not to damage pulley.
9. Lift the brake upward to clear frame and pull the speed sensor bracket off the left brake stud. Remove the brake from the machine and set aside to return to SCIFIT (request a UPS call tag by phone).
10. Hoist the replacement brake above the frame mounting slots and wrap V-belt around brake hub. Position V-belt hanging behind the idler pulley.
11. Put the speed sensor bracket on the left brake stud. Note: If old brake has a smaller diameter (7" vs. 9") a replacement speed sensor bracket must be used. Remove the single screw holding the speed sensor to the old bracket and attach the sensor,

with the same orientation, to the new bracket. Refer to Procedure 3, if needed.

12. Slide the brake studs and speed sensor bracket inside and to the bottom of the frame mounting slots.
13. Connect the two red wires to the brake.
14. Loosely attach the lockwashers and nuts to the brake studs.
15. Rotate the stator of brake to align the screw hole on the right side of brake with sheet metal frame. Loosely attach the 10-32 screw to this hole.
16. Slip the V-belt over the plastic pulley while slowly turning the brake downward to install and center the belt on the pulley.
17. Insert the left tensioner screw and finger-tighten. Repeat this process on the right side.
18. Tighten the left-side tensioner screw with an allen wrench until the angle brackets begin to bend inward. Repeat this process on the right.
19. Position the speed sensor bracket vertically.
20. Snugly tighten the brake stud nuts until the lock washers compress. Do not over-tighten to avoid breaking the studs.
21. Tighten the 10-32 screw on the right side of brake.
22. Rotate the brake assembly to verify the V-belt is centered in the idler pulley. If misaligned, wedge a screwdriver blade between the face of the brake and the belt while turning Assembly to align belt to center of idler pulley.
23. Attach speed sensor tape to the left edge of the brake armature. First peel off tape backing on the end with the wide silver band and stick on the brake surface hanging down. Slowly rotate the brake upward and wrap tape around the circumference of the brake.
24. Perform the following steps 25 through 29 and perform the alignment (Procedure 3), if indicated results are not attainable.
25. Plug in and turn on machine but don't press any buttons. The display will be scrolling the message, "SCIFIT…" Slowly rotate the crank arm assembly and the message will change to a programming prompt. The following values will be displayed: [20.00] in TIME, [0] in RPM, and [4] in LEVEL. If the display doesn't default to these values, perform Procedure 3.
26. Press the START/STOP button once and press the SCAN/HOLD button to hold the RPM function. Press and hold the DOWN ADJUST arrow until 0.0 is displayed in the LEVEL window.
27. Rotate the crank arms at one revolution per second and ensure display accurately reads about 60 RPM.
28. Press and hold the UP ADJUST arrow button to the maximum, level 22. Rotate the crank arms as rapidly as possible. Brake resistance should become increasingly difficult momentarily.
29. Replace the covers and steps 1 through 3 in reverse order.

IV. Figures

Figure 1 – Standard ISO1000R Total Assembly

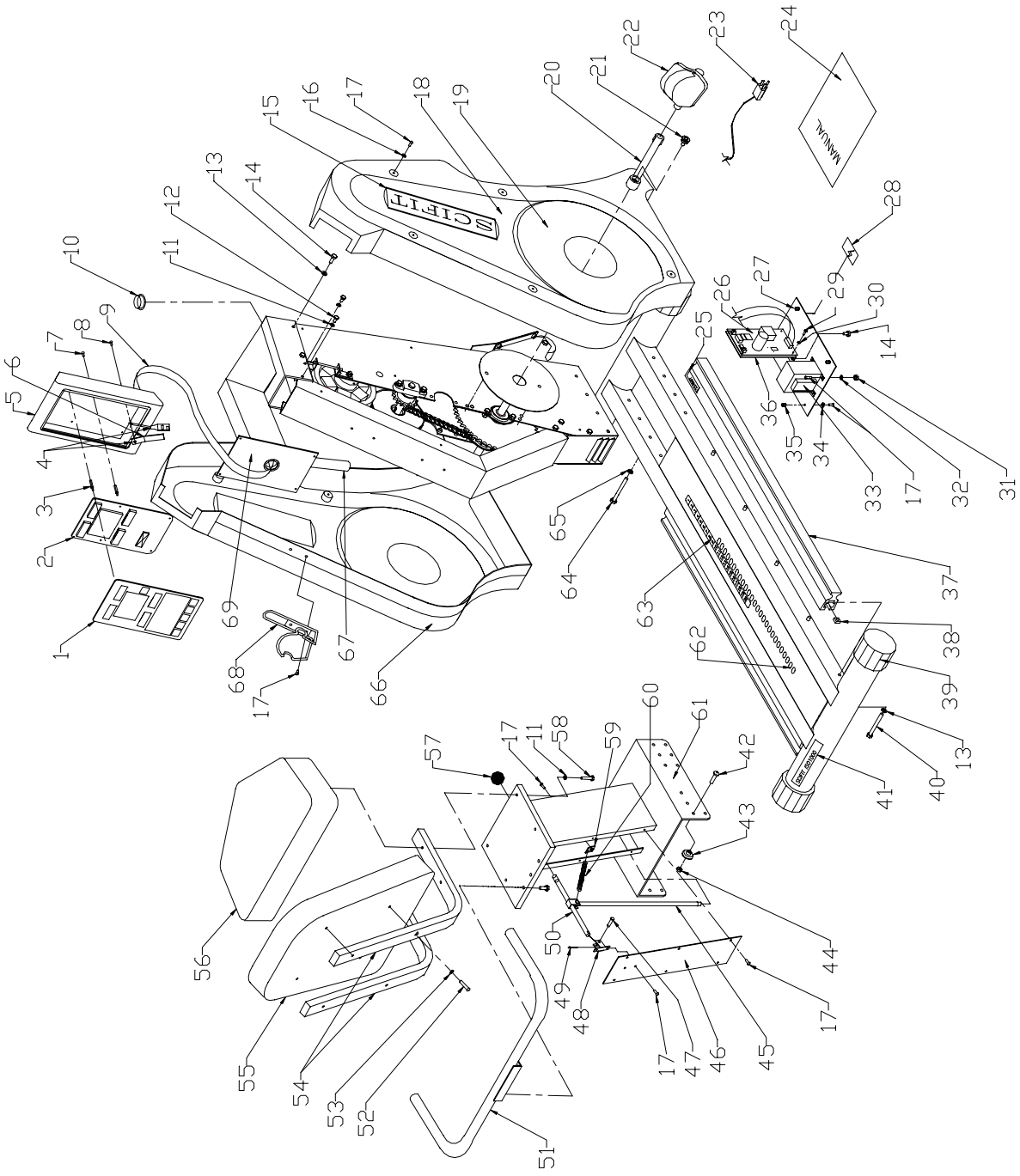


Figure 2 – Standard ISO1000R Main Frame

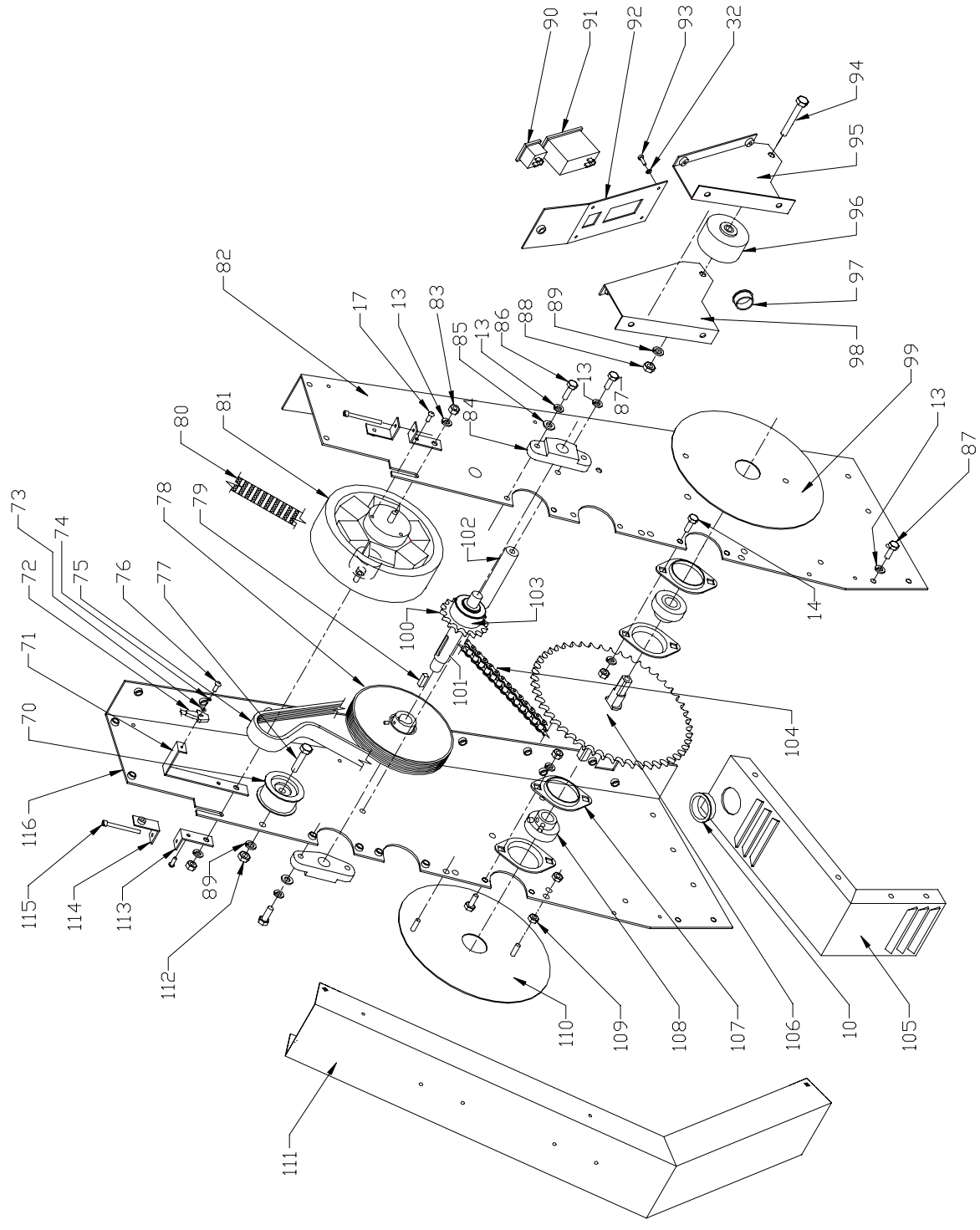


Figure 3 – Bi-Directional ISO1000R Total Assembly

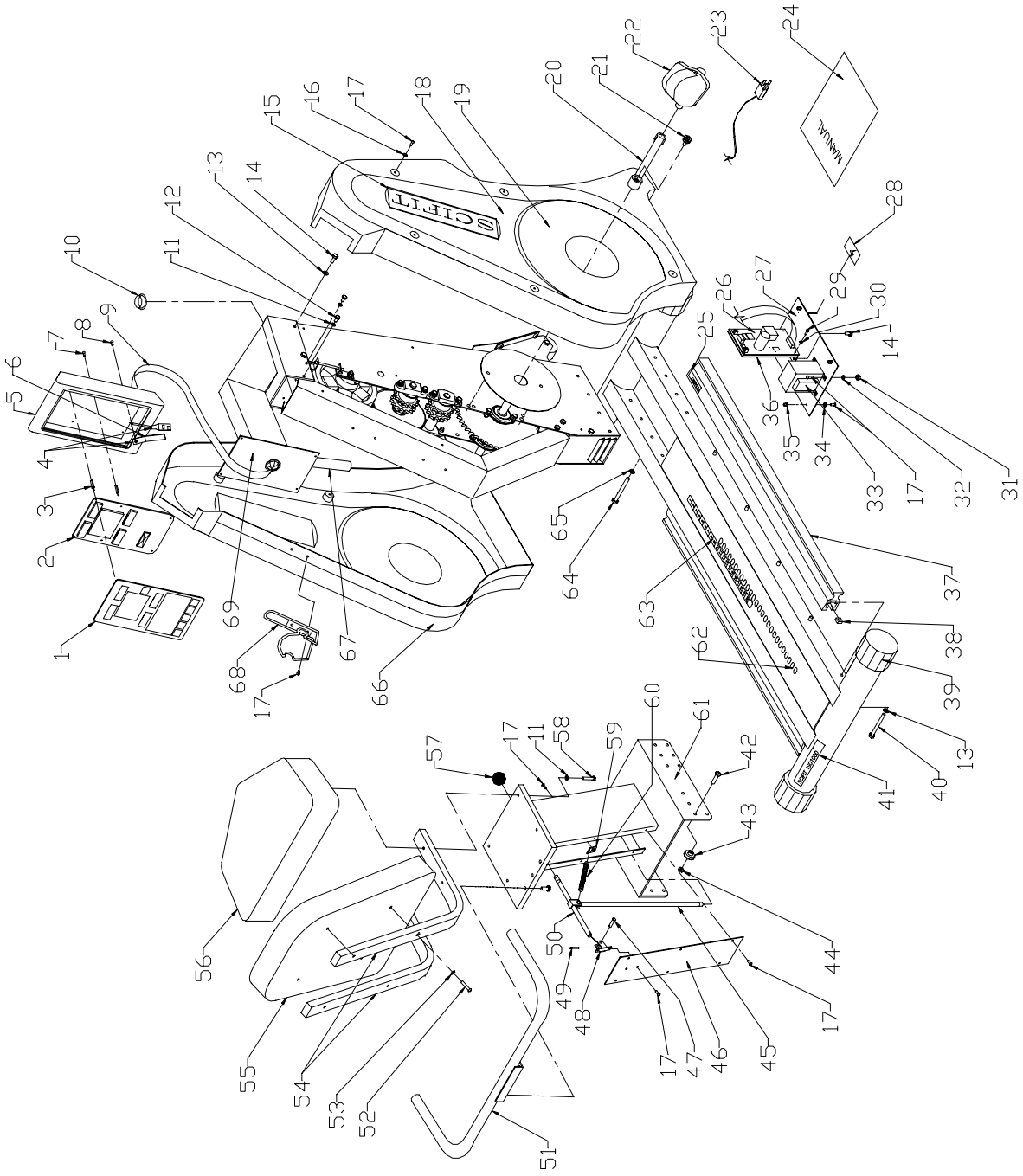


Figure 4 – Bi-Directional ISO1000R Main Frame

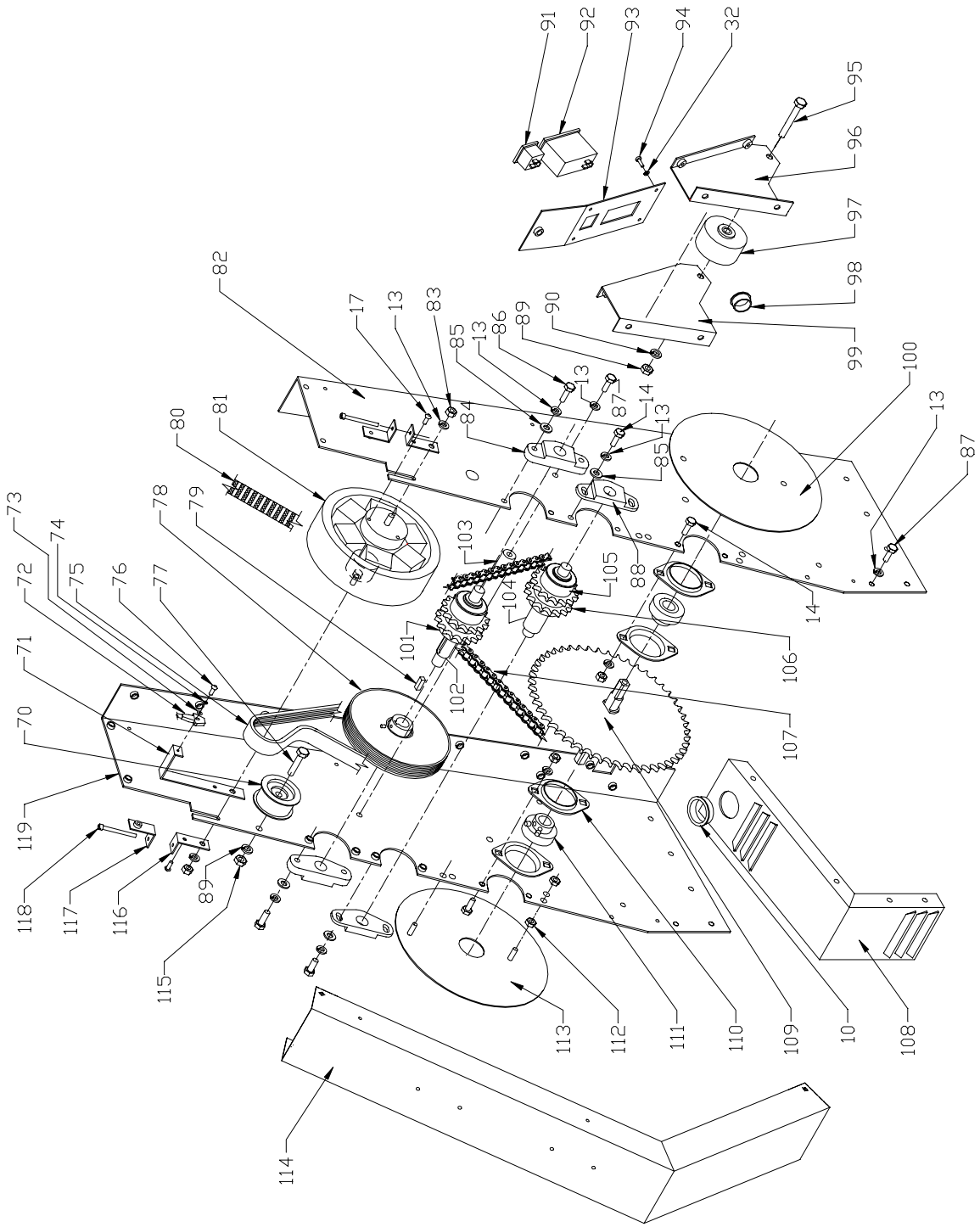


Figure 5 – Electrical Board with Fuse Holder

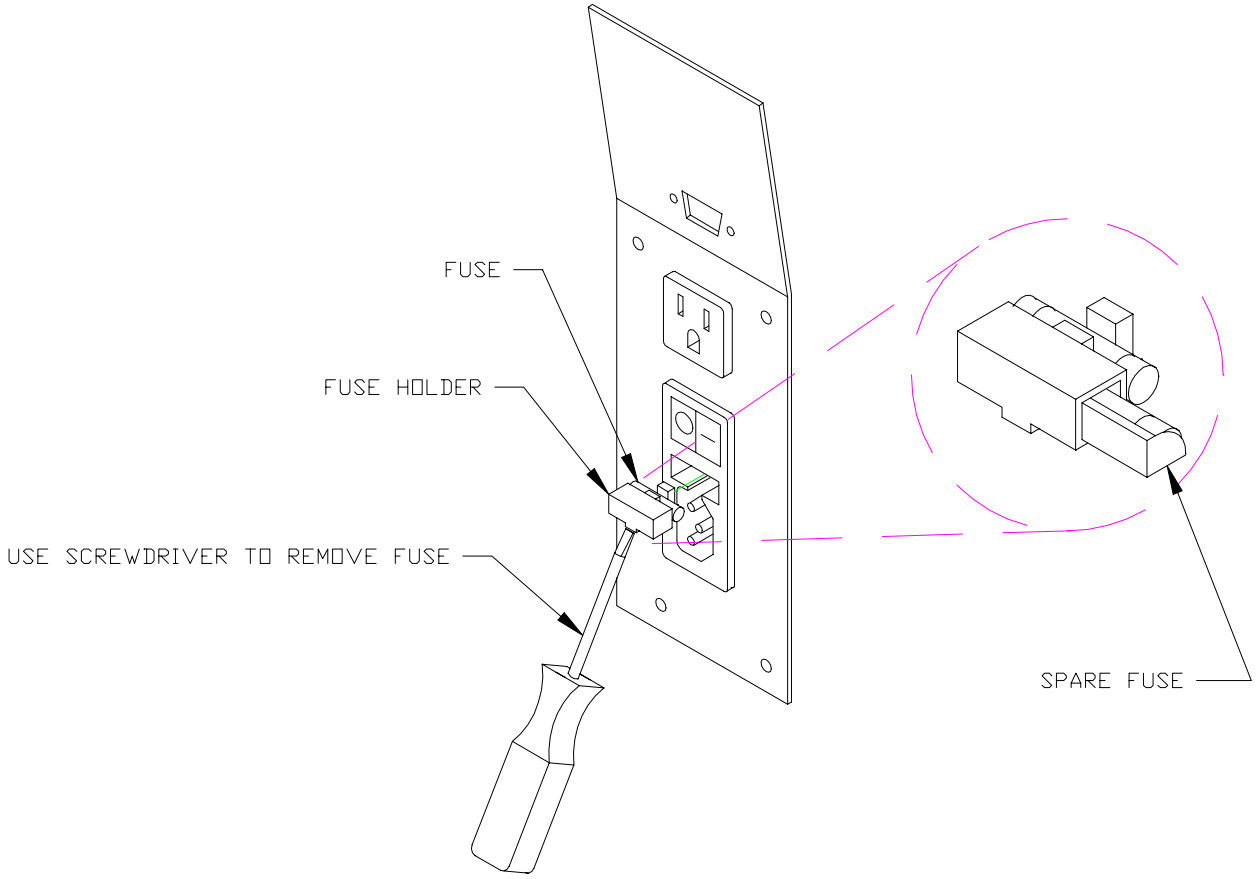
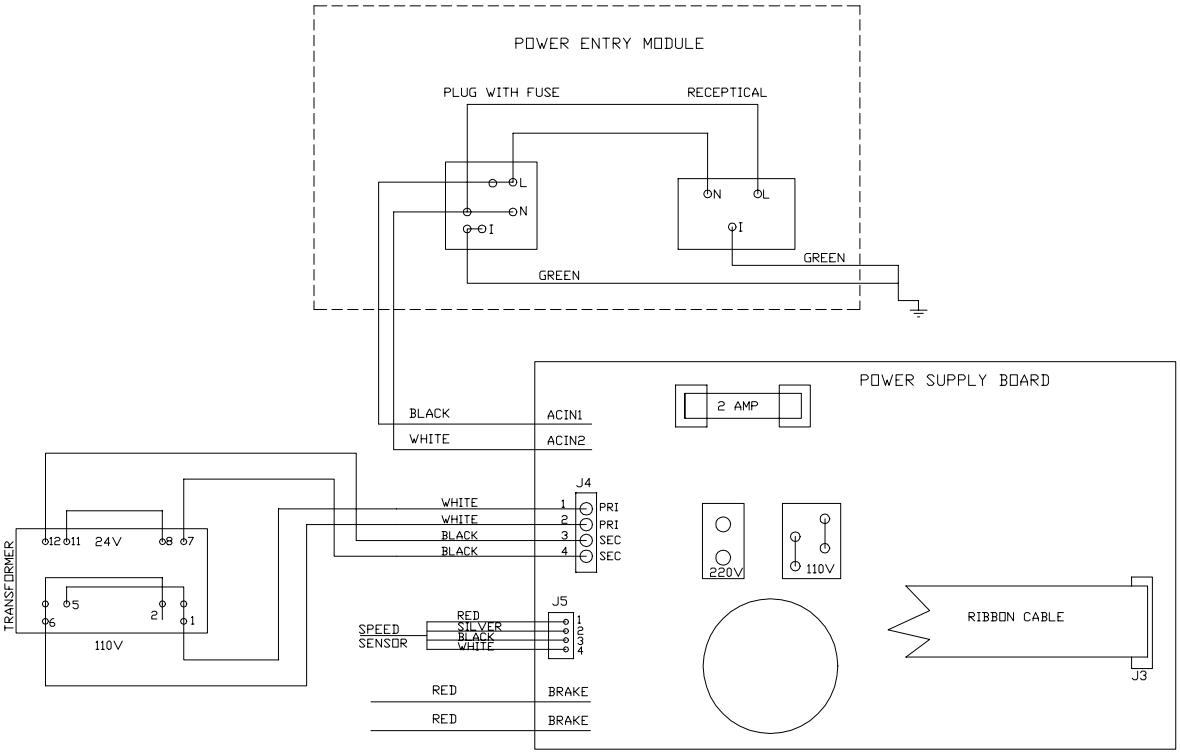


Figure 6 – ISO1000R Wiring Diagram



V. ISO1000R Parts List

Standard ISO1000R

Item	Description	Part No.	Qty.
1	overlay/switch panel	65112	1
2	Display board	65110S	1
3	standoffs, 1", 6-32	P1051	6
4	heart rate pickup/cable, assy	65160	1
5	Console	65202	1
6	Bracket, mounting, pickup, heart-rate	A1124	1
7	screws, 6-32x.250, p.h., cap screw, pltd.		2
8	screws, 8-32 x 3/8 f. h. pltd.		1
9	cable, ribbon, assy	65120	1
10	grommet, hole, 1 1/2 dia.	P1105	3
11	lockwashers, 1/4	P1056	10
12	bolts, 1/4-20 x 5/8 pltd.	P1054	6
13	lockwashers, 5/16	P1059	34
14	bolts, 5/16 - 18 x 5/8 pltd.	P1057	8
15	decal, Scifit	P1100	2
16	washer, cover, plastic, black		13
17	screw, 10-32x.5, black, b.h., socket cap	P1062	29
18	cover, right	P1036	1
19	decal, plate, scuff	P1106	2
20	crank, 170mm	P1191	1
21	bolt, crank, 8mm	P1081	2
22	Pedal, Pro II (pair)	65550	1
23	cord, power, AC	65169	1
24	manual, operator's	P1104	1
25	decal, serial number	P1103	1
26	PCB, supply, power	65150S	1
27	plate, mounting, electronics, lower	A1019	1
28	decal, warning, hi voltage	P1102	1
29	screw, 10-32x.5, p.h., pltd.		4
30	washer, star, #8		4
31	nuts, 10-32, pltd.	P1073	4
32	lockwasher, #10,	P1074	8
33	transformer, supply, power	65180	1
34	washer, star, #10		4
35	standoff, 10-32x3/8		4
36	bracket, PCB, lower	A1047	1
37	extrusion, rail, roller, 34"	A1222	2
38	nut, pan, 5/16-18		10
39	endcap, 3"dia	70330	4
40	bolt, 5/16-18 x 3, pltd.		10
41	decal, iso 1000r		1
42	screw, p.h., black		20
43	roller, urethane, 1 1/4 dia. X 3/8	P1038	20
44	nut, lock, 5/16-18, pltd.		20
45	rod, lock		1
46	cover, seatpost, iso1000r		1
47	pin, clevis, 1/4 x 1"		2
48	brkt., pos., adj., lever	A1115	1

49	pin, cotter, 3/32 x 3/4"		2
50	brkt., pivot, rod, lock	A1147	1
51	handlebar, seat, iso1000r, weldment	A1144	1
52	screw, 1/4-20x1.25, black, b.h., socket cap		4
53	lockwasher, 1/4, black		4
54	frame, seat, Iso1000r	C1113	2
55	seat pad (back)	71101	1
56	seat pad (bottom)	71100	1
57	knob, ball, 7/16-20, 1.375 dia.	P1125	1
58	bolt, 1/4-20x1.25, pltd.		4
59	bracket, spring	A1120	1
60	spring		1
61	seat, base, iso1000r, weldment	C1143	1
62	track, adjustment, stainless	A1149	1
63	sticker, seat adjustment		1
64	bolts, 5/16-18 x 2 1/2, hex, pltd.	P1079	8
65	lockwasher, 5/16, black		8
66	cover, left	P1035	1
67	grip, 1" dia., 8" long, rubber	P1163	1
68	holder, bottle, water	P1092	1
69	mount, display, weldment	B1139	1
70	idler	P1091	1
71	Bracket, sensor, speed	A1031	1
72	sensor, speed, cable, assy	A1089	1
73	washer, #4, flat, pltd.		1
74	washer, #4, split, pltd.		1
75	belt, poly-V	P1090	1
76	screws, 4-40 x 1/2 p.h. pltd.		1
77	bolt, 3/8-16 x 1 1/2 hex, pltd.		1
78	pulley, poly-V, 6" dia	P1097	1
79	key, square, 1/4 x 1/4 x 1	P1098	1
80	Tape, pickup, speed, brake	65141	1
81	brake	68000	1
82	plate, side, drivetrain, right	C1132	1
83	nut, 5/16-18, pltd.		6
84	housing, bearing, jackshaft	A1129	2
85	washer, 5/16, flat		4
86	bolts, 5/16 - 18 x 3/4, pltd.		4
87	bolts, 5/16 - 18 x 1/2, pltd.		22
88	nuts, 3/8-24		1
89	lockwashers, 3/8		2
90	module, outlet, power	65177	1
91	module, power entry	65178	1
92	plate, power entry	A1018	1
93	screws, 8-32 x 1/2, pan head, pltd.		4
94	bolt, 3/8-24 x 2 1/2 hex, pltd.		1
95	bracket, wheel, right	A1016	1
96	wheel, front	P1063	1
97	grommet, hole, 1" dia.,	P1060	1
98	bracket, wheel, left	A1015	1
99	cover, pedal, right	A1041	1
100	sprocket, press-fit, 16T	A1155	1
101	shaft, jack, forward only	A1138	1
102	shaft, spacer	A1131	1

103	hub, sprocket, press-fit, 16T, offset	A1153	1
104	chain, 1/2 pitch, #40, per ft.	P1072	2
105	cover, electronics, lower	A1017	1
106	spindle, crank, square taper, 6" long	A1151	1
107	flangette, bearing	P1095	4
108	bearing,	P1096	2
109	nut, jam, 5/16-18, pltd.	P1099	8
110	cover, pedal, left	A1042	1
111	support, cover	A1033	1
112	nut, 3/8-16		1
113	bracket, tension, lower	A1117	2
114	bracket, tension, upper	A1116	2
115	socket head, 10-32x2.5, flat, d.h., pltd.		2
116	plate, side, drivetrain, left	C1133	1

Bi-Directional

Item	Description	Part No.	Qty.
1	overlay/switch panel	65112	1
2	Display board	65110S	1
3	standoffs, 1", 6-32	P1051	6
4	heart rate pickup/cable, assy	65160	1
5	Console	65202	1
6	Bracket, mounting, pickup, heart-rate	A1124	1
7	screws, 6-32x.250, p.h., cap screw, pltd.		2
8	screws, 8-32 x 3/8 f. h. pltd.		1
9	cable, ribbon, assy	65120	1
10	grommet, hole, 1 1/2 dia.	P1105	3
11	lockwashers, 1/4	P1056	10
12	bolts, 1/4-20 x 5/8 pltd.	P1054	6
13	lockwashers, 5/16	P1059	38
14	bolts, 5/16 - 18 x 5/8 pltd.	P1057	12
15	decal, Scifit	P1100	2
16	washer, cover, plastic, black		13
17	screw, 10-32x.5, black, b.h., socket cap	P1062	29
18	cover, right	P1036	1
19	decal, plate, scuff	P1106	2
20	crank, 170mm	P1191	1
21	bolt, crank, 8mm	P1081	2
22	Pedal, Pro II (pair)	65550	1
23	cord, power, AC	65169	1
24	manual, operator's	P1104	1
25	decal, serial number	P1103	1
26	PCB, supply, power	65150S	1
27	plate, mounting, electronics, lower	A1019	1
28	decal, warning, hi voltage	P1102	1
29	screw, 10-32x.5, p.h., pltd.		4
30	washer, star, #8		4
31	nuts, 10-32, pltd.	P1073	4
32	lockwasher, #10,	P1074	8
33	transformer, supply, power	65180	1
34	washer, star, #10		4
35	standoff, 3/8", 10-32		4
36	bracket, PCB, lower	A1047	1
37	extrusion, rail, roller, 34"	A1222	2

38	nut, pan, 5/16-18		10
39	endcap, 3"dia	70330	4
40	bolt, 5/16-18 x 3, pltd.		10
41	decal, iso 1000r		1
42	screw, 5/16-18, p.h., black		20
43	roller, urethane, 1 1/4 dia. X 3/8	P1038	20
44	nuts, lock, 5/16 -18 pltd.		20
45	rod, lock	A1146	1
46	cover, seatpost, iso1000r		1
47	pin, clevis, 1/4 x 1"		2
48	brkt., pos., adj., lever	A1115	1
49	pin, carter, 3/32 x 3/4"		2
50	brkt., pivot, rod, lock	A1147	1
51	handlebar, seat, iso1000r, weldment	A1144	1
52	screw, 1/4-20x1.25, black, b.h., socket cap		4
53	lockwasher, 1/4, black		4
54	frame, seat, Iso1000r	C1113	2
55	seat pad (back)	71101	1
56	seat pad (bottom)	71100	1
57	knob, ball, 7/16-20, 1.375 dia.	P1125	1
58	bolt, 1/4-20x1.25, pltd.		4
59	bracket, spring	A1120	1
60	spring		1
61	seat, base, iso1000r, weldment	C1143	1
62	track, adjustment, stainless	A1149	1
63	sticker		
64	bolts, 5/16-18 x 2 1/2, hex, pltd.	P1079	8
65	lockwasher, 5/16, black		8
66	cover, left	P1035	1
67	grip, 1" dia., 8" long, rubber	P1163	1
68	holder, bottle, water	P1092	1
69	mount, display, weldment	B1139	1
70	idler	P1091	1
71	Bracket, sensor, speed	A1031	1
72	sensor, speed, cable, assy	A1089	1
73	washer, #4, flat, pltd.		1
74	washer, #4, split, pltd.		1
75	belt, poly-V	P1090	1
76	screws, 4-40 x 1/2 p.h. pltd.		1
77	bolt, 3/8-16 x 1 1/2 hex, pltd.		1
78	pulley, poly-V, 6" dia	P1097	1
79	key, square, 1/4 x 1/4 x 1	P1098	1
80	Tape, pickup, speed	65141	1
81	brake	68000	1
82	plate, side, drivetrain, right	C1132	1
83	nut, 5/16-18, pltd.		6
84	housing, bearing, jackshaft	A1129	2
85	washer, 5/16, flat		8
86	bolts, 5/16 - 18 x 3/4, pltd.		4
87	bolts, 5/16 - 18 x 1/2, pltd.		22
88	housing, bearing, bi-direct. Shaft	A1130	2
89	nuts, 3/8-24		1
90	lockwashers, 3/8		2
91	module, outlet, power	65177	1
92	module, power entry	65178	1
93	plate, power entry	A1018	1

94	screws, 8-32 x 1/2, pan head, pltd.		4
95	bolt, 3/8-24 x 2 1/2 hex, pltd.		1
96	bracket, wheel, right	A1016	1
97	wheel, front	P1063	1
98	grommet, hole, 1" dia.,	P1060	1
99	bracket, wheel, left	A1015	1
100	cover, pedal, right	A1041	1
101	hub, sprocket, press-fit, 16T, centered	A1154	2
102	shaft, jack	A1137	1
103	Shaft, spacer	A1131	1
104	shaft, bi-directional	A1136	1
105	hub, sprocket, press-fit, 16T, offset	A1153	2
106	sprocket, press-fit, 16T	A1155	4
107	chain, 1/2 pitch, #40, per ft.	P1072	2
108	cover, electronics, lower	A1017	1
109	spindle, crank, square taper, 6" long	A1151	1
110	flangette, bearing	P1095	4
111	bearing,	P1096	2
112	nut, jam, 5/16-18, pltd.	P1099	8
113	cover, pedal, left	A1042	1
114	support, cover	A1033	1
115	nut, 3/8-16		1
116	bracket, tension, lower	A1117	2
117	bracket, tension, upper	A1116	2
118	socket head, 10-32x2.5, flat, d.h., pltd.		2
119	plate, side, drivetrain, left	C1133	1