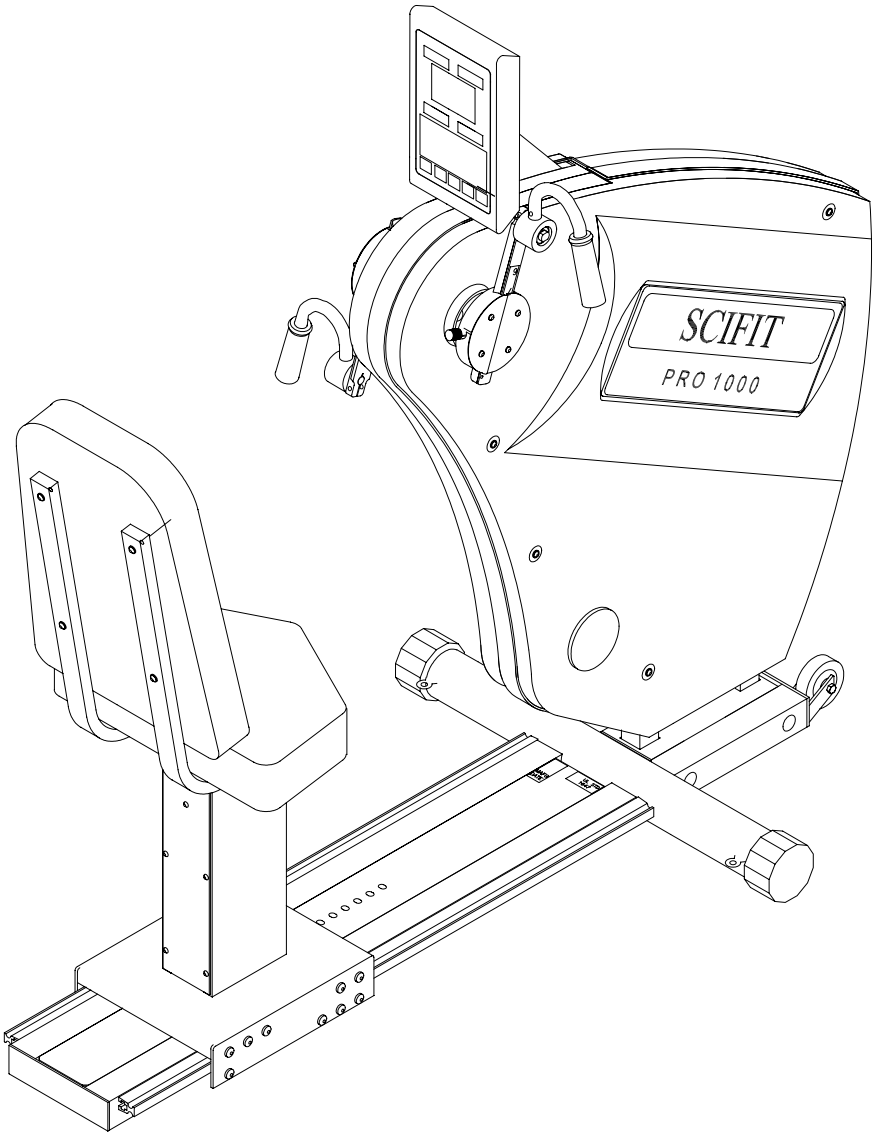

Pro1000

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 service of **SCIFIT** Pro1000 exercise machines. The manual is divided into sections to diagnose and isolate problems. Troubleshooting tables and procedures, along with drawings, are provided to aid technicians in servicing equipment. The Item Numbers given in the parts list in Section V can be used to determine the location of various parts in Figures 1-4.

Figures 1-2 show the standard Pro1000. Figure 3 shows an optional hand crank bar that is adjustable while Figure 4 shows an optional seat assembly that is vertically adjustable. Be sure to consult the correct figures when servicing equipment.

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 C.S.T. 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

Table 1 – Electrical Troubleshooting

Problem	Possible Reasons	Solutions
1.1 The machine appears to be off when plugged in and switched "on".	Faulty power supply board (Item 87).	If buttons on the control display beep when pressed, replace power supply board. See Procedure 1. Otherwise, check power supply board. See Procedure 2.
	Faulty fuse.	Check and replace fuse if needed. (See Fig. 4)
	Loose cable connection.	Check wire connections at power supply and display boards.
1.2 Upper control panel (Item 2) lights are dim.	Power supply board (Item 87) is faulty.	Replace power supply board. See Procedure 1.
1.3 Upper board (Item 2) accepts commands but rotational resistance does not change.	Dip switch setting is incorrect.	Set dip switch to 01.
	Power supply board (Item 87) is faulty.	Check and replace power supply board as needed. See Procedure 2.
1.4 LED's on upper board (Item 2) blinking off/on, then go dead.	Ribbon cable (Item 6) connections are loose.	Check and replace accordingly. Unplug and re-plug machine to reset.
	Faulty power supply board (Item 87).	Check and replace power supply board as needed. See Procedure 2.
	Display board (Item 2) 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 connection at display board (Item 2).	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.	Do not daisy-chain more than 3 units together.
	Faulty power supply board (Item 87).	Check and replace power supply board as needed. See Procedure 2.

1.7 The upper display (Item 2) resets after starting a program.	Ribbon cable connection is loose (Item 6). Power cord is loose. Display board is faulty.	Check cable connection at power supply and display boards (Items 87 and 2, respectively). Check and adjust as needed. Replace display board.
1.8 Program stops, lines of dots shoot across screen.	Ribbon cable connection is loose (Item 6). Display board (Item 2) 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 (Item 2) is faulty.	Replace display board.
1.10 Can't select program or enter information and no beep when buttons are pressed.	Overlay/switch panel (Item 1) is faulty.	Replace overlay/switch panel.

Table 2 – Mechanical Troubleshooting

Problem	Possible Reasons	Solutions
2.1 Poly-V belt (Item 69) is slipping.	Belt tension is not adjusted properly.	See Procedure 5.
2.2 Excessive free play exists when the cranks are turned.	The chain(s) is too loose.	See Procedure 6.
2.3 Machine makes noise and feels rough when the hand cranks are turned.	Bearings (Item 8) in handle (Item9) are faulty.	Rotate hand cranks about the hand crank shaft (Item 12). Replace bearings if source of noise.
	Chains are too tight.	See Procedure 6.
	Bearings on the hand crank axles are faulty (Item 94).	Remove the chains and rotate each axle separately. Replace bearings if source of noise.
	Bearings in Items 62 and/or 90 are faulty.	With chains and poly-v belt (Item 69) removed, rotate each item separately. Replace bearings if source of noise.
	Bearings in the brake assy. (Item 68) are faulty.	With chains and poly-v belt removed, rotate the brake assy. Replace bearings if source of noise.
	Freewheel is faulty.	With the chains removed, rotate each sprocket in the freewheel direction. Replace if source of noise and/or rough operation.
2.4 Crank bars (Item 101) stick and/or slide roughly into the crank hub assy. (Item 105).	Crank bars have dents and/or burrs.	Inspect mating surfaces of crank bars and hubs for burrs and sharp edges. Burnish as required with a fine file or emery cloth.
2.5 Freewheels (Item 64) make grinding noise, operate roughly, and/or stick.	Freewheel is faulty.	Remove the chains and rotate each sprocket in the freewheel direction. Replace if source of noise and/or rough operation.
2.6 Handles lock up while operating.	Power supply board (Item 87) is faulty.	Unplug power cord. If handles and pedals now move freely, replace power supply board.
	Brake (Item 68) is faulty.	If handles do not move with power cord unplugged, replace brake. See Procedure 4.

2.7 No resistance on handles and pedals when in a program.	No speed signal Wires going to brake (Item 68) are disconnected. Power supply board (Item 87) is faulty.	Check and adjust the speed sensor (Item 74) as needed. See Procedure 3. Check that brake wires are properly connected. Check and replace power supply board as needed. See Procedure 2.
2.8 Very little resistance at any level.	Speed sensor (Item 74) improperly adjusted. Bad speed sensor connection with power supply board (Item 87).	Check and adjust the speed sensor as needed. See Procedure 3. Check voltage at power supply board. See Procedure 2.

III. Maintenance Procedures

Procedure 1 - Removal and Reinstallation of the Power Supply Board

1. Unplug the unit from the power source.
2. Remove the crank bars and crank hub assemblies (Items 7 or 105) from the unit.
3. Remove the screws (Item 14) that fasten the covers (Item 16) to the main frame. The covers can be removed now.
4. Locate the power supply cover (Item 83) on side of unit. Remove the four (4) screws and remove the power supply cover. Be careful when removing the power supply cover 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, Fig. 5.
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 Fig. 5.
   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 Fig. 5.
   e. The one (1) ribbon cable.
8. The power supply board (Item 87) can now be removed. 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. If 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. Disconnect the speed sensor from the lower supply board at the J5 terminal. See Fig. 5. 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. See Procedure 1.

Procedure 3 – Checking and Adjusting the Speed Sensor

1. Turn machine on and press start.
2. Turn crank arms (Item 7 or 101) 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 crank arms and cover (Item 7 or 105 and Item 16) from the right side of the machine.
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 rev. per second. If the RPM window displays a number greater than zero (0) but not within 60 ±10 rpm, repeat Steps 1 - 7. If a reading of zero (0) is displayed, proceed to step 8.
8. Use a voltmeter to measure the DC voltage across J5 pin 1 (+) and J5 pin 2 (-) on the power supply board. Refer to Fig. 5. The voltmeter should read 4-5 VDC.
9. If there is no voltage, replace the power supply board (Item 87); see Procedure 1. If 4-5 volts are present, replace the speed sensor.

Procedure 4 – Removal and Replacement of the Brake Assembly

1. Remove all the crank bars (Items 8 and 53) and crank hub assemblies (Item 55) from the unit.
2. Remove the screws (Item 15) that fasten the covers (Items 17 and 59) to the main frame. The covers can be removed now.
3. Disconnect the two red wires on the right side of brake (Item 73).
4. Relieve the tension in the poly-v belt (Item 74) by loosening the ½-20 nut attached to item 62. Loosen the set screw (Item 72). If the pulley brake drive shaft does not move on its own, use a hammer to knock the shaft back a few millimeters.
5. Remove the poly-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 the pulley.
6. Remove the three (3) socket head screws (Item 61) that hold the brake assembly to the main frame.
7. Pull brake away from main frame. Be careful not to damage the speed sensor when removing the brake.
8. Remove the brake from the machine and set aside to return to SCIFIT (request a UPS call tag by phone).

9. Reinstallation is the reverse of removal. Before tightening the tension in the poly-v belt, make sure that it is centered correctly. 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.
10. After brake assembly has been aligned and tension set, attach speed sensor tape (Item 71) 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. The tape should be on center with the speed sensor. Slowly rotate the brake upward and wrap tape around the circumference of the brake.
11. Temporarily install the crank hub/bar assembly. Perform the following steps 12 through 16 and perform the alignment, (Procedure 3), if indicated results are not attainable.
12. 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.
13. 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.
14. Rotate the crank arms at one revolution per second and ensure display accurately reads about 60 RPM.
15. 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.

Procedure 5 – Tightening the Poly-V Belt

1. Loosen the ½-20 nut that fastens the brake drive pulley shaft (Item 57) to the main frame.
2. With the nut still on the shaft, use a hammer to knock the entire brake drive pulley assembly away from the brake assembly (Item 68).
3. After knocking the brake drive pulley shaft a few millimeters away from the brake assembly, tighten the set screw (Item 67) so that it butts up to the brake drive pulley shaft.
4. Tighten the ½-20 nut that holds the pulley shaft.
5. Check that job is complete by rotating crank handles. If there is no noise due to belt slippage, the job is complete. If noise persists, return to step 1.

Procedure 6 – Checking and Adjusting the Tension in the Chains

1. Check the deflection in the two chains along their longest spans. The two chains should never have less than ¼" nor more than 1" deflection at their longest spans. Since some parts of the chain are stiffer than others, the deflection should be checked across the entire length of the chain. This can be done by rotating the crank handles in 45° increments and checking the deflection of the chain between increments.
2. If the chain needs adjusting, loosen but do not remove the ½-20 nut that fastens the shaft assembly (Item 90) to the main frame.
3. To tighten the chain, the shaft assembly needs to be moved in the direction of the seat. To loosen the chain, the shaft assembly needs to be moved towards the brake drive pulley. With the nut still on the shaft, use a hammer to knock the entire shaft assembly a few millimeters in the prescribed direction.
4. Tighten the ½-20 nut and check the deflection as in step 1.
5. Repeat steps 1-4 until the desired stiffness is reached.

IV. Figures

Figure 1 – Pro1000 Total Assembly (Items 1-53)

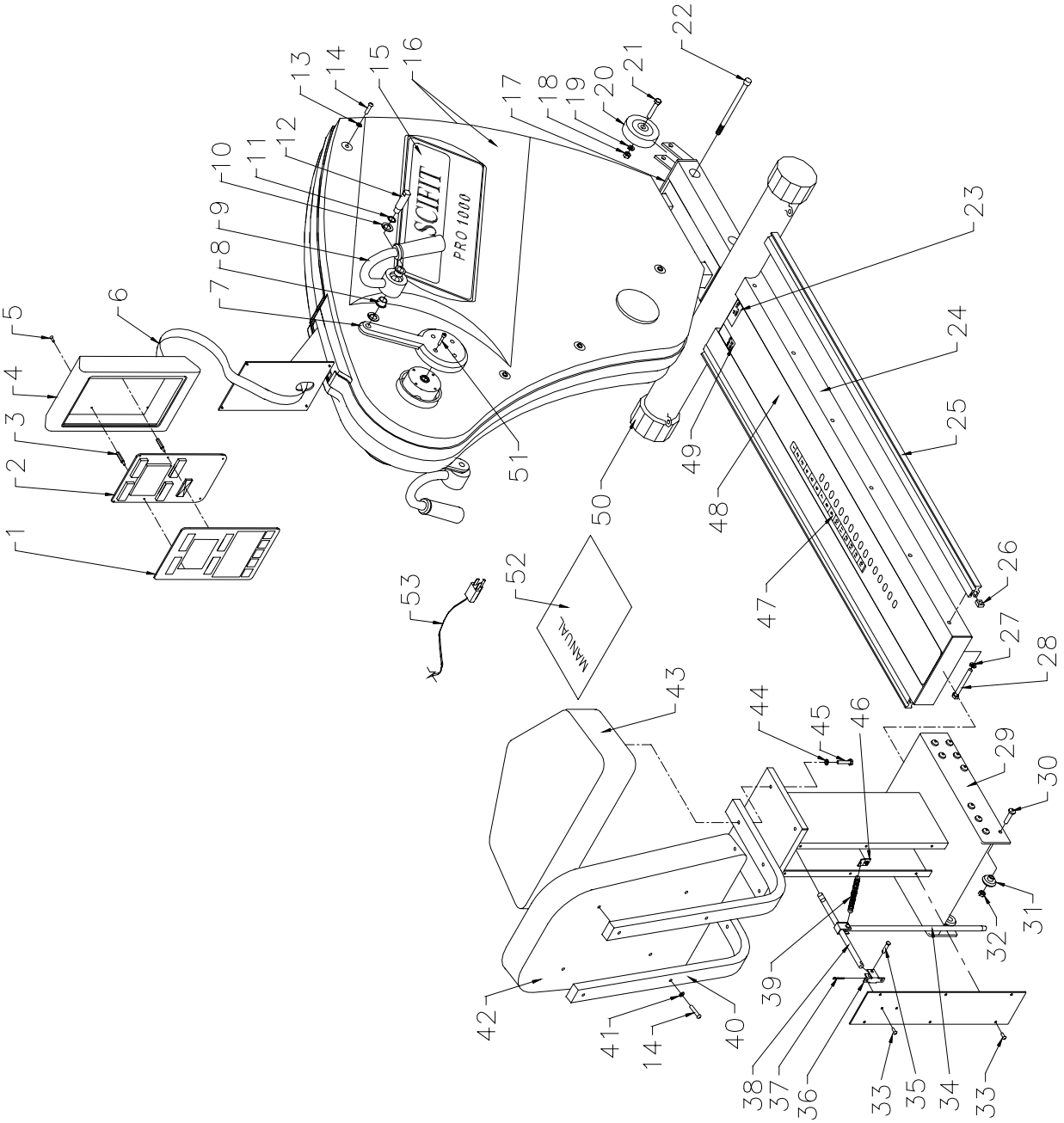


Figure 2 – Pro1000 Main Frame (Items 54-99)

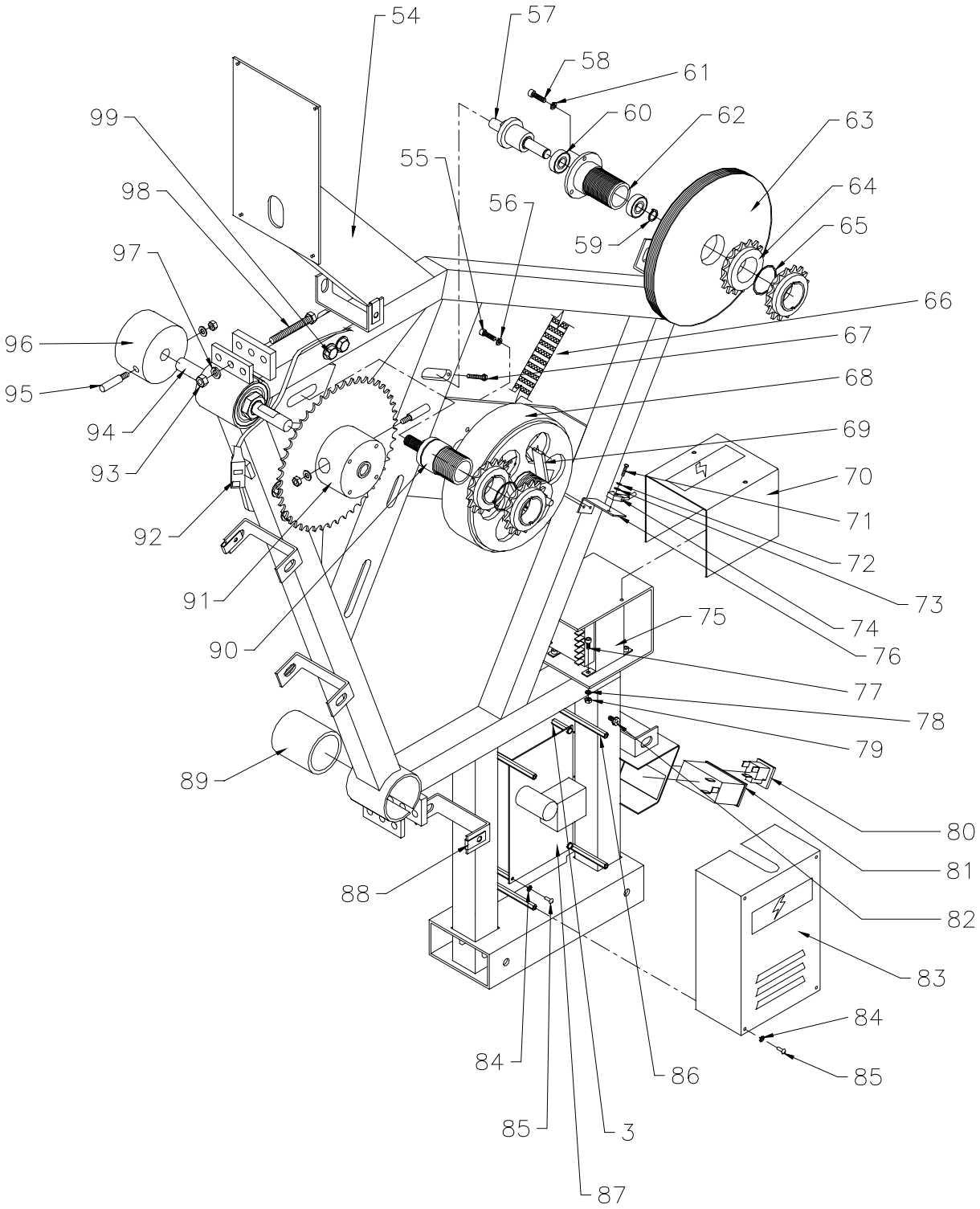


Figure 3 – Pro1000 Optional Parts (Items 100-112)

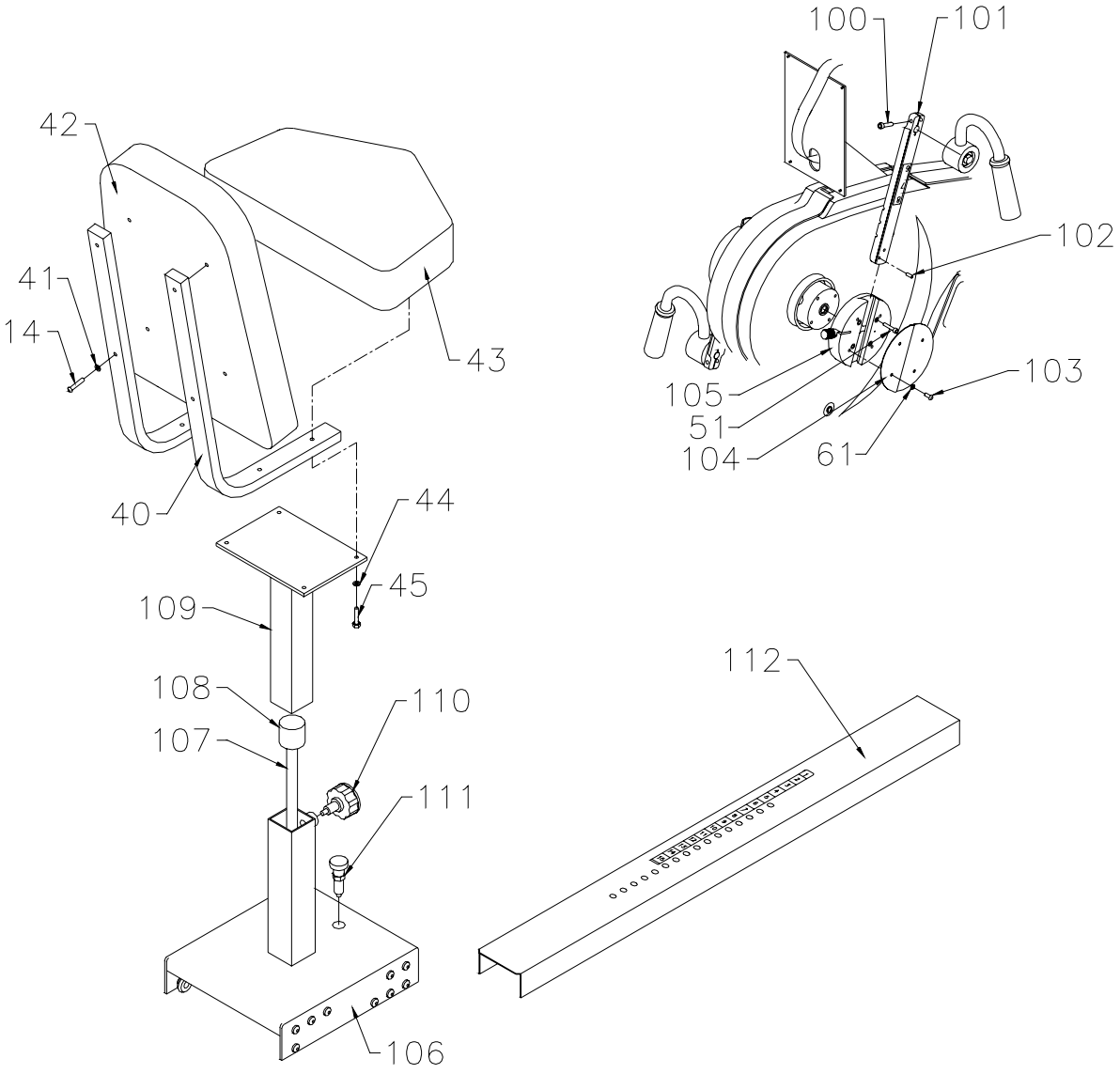


Figure 4 – Power Entry Module with Fuse Holder

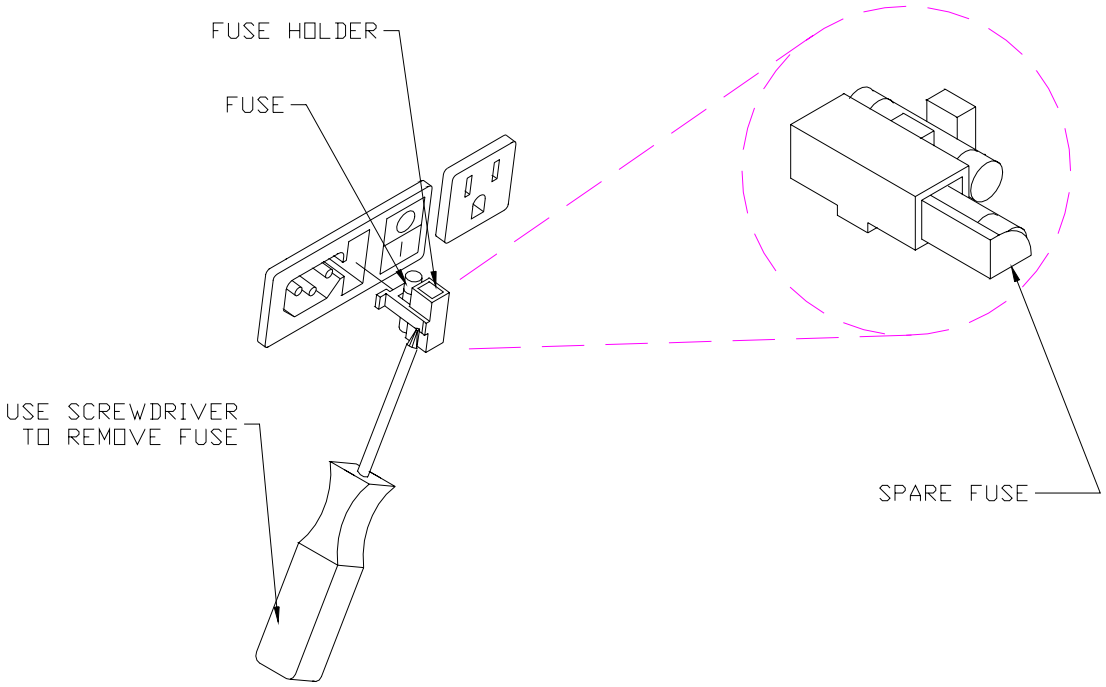
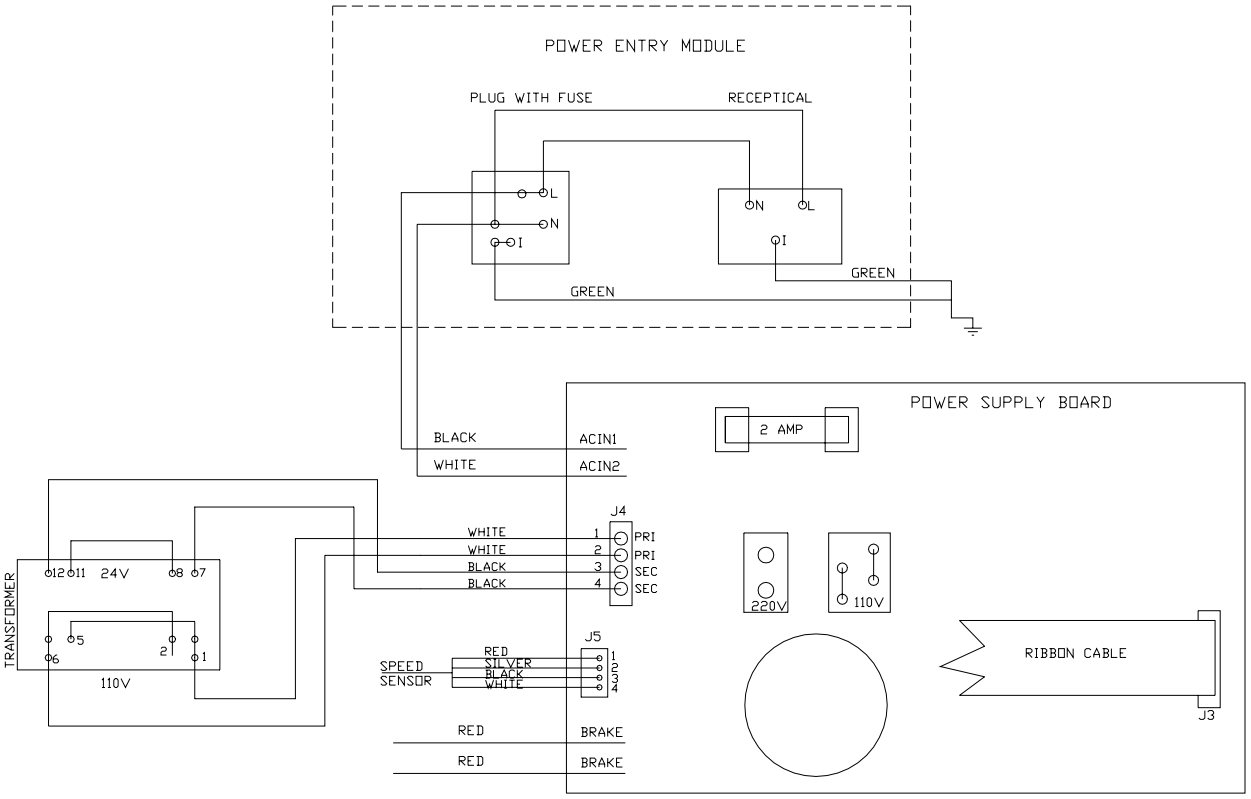


Figure 5 – Pro1000 Wiring Diagram



V. Pro II Parts List

Item	Description	Part No.	Qty.
1	overlay/switch panel	65112	1
2	Display board	65110	1
3	standoffs, 1", 6-32	P1051	10
4	Console	65202	1
5	screw, 6-32x.5, b.h., blk.		4
6	cable, ribbon, assy	65120	1
7	hub, crank, fixed, long, machine	66325M	2
8	bearing, flanged, 5/8 dia., igus	P1173	4
9	handle, handcrank	67356	2
10	washer, 5/8, plastic		4
11	ring, snap, retainer, 5/8		2
12	shaft, crank, hand	67306	2
13	washer, cover, plastic, black		12
14	screw, 1/4-20x1.25, black, b.h., socket cap		16
15	decal, body, Pro 1000	65024	2
16	cover, right, gray, dull cover, left, gray, dull	65201RG2 65200LG2	1 1
17	decal, serial number		2
18	nut, 5/16-18, blk.		2
19	lockwasher, 5/16, blk.		2
20	wheel, front, pro II	70400	2
21	bolt, 5/16-18 x 1.75, blk.		2
22	bolt, 3/4-18x6, blk.		2
23	decal, UL certification		1
24	base, Pro II	70396	1
25	extrusion, rail, roller, seat	A1030	2
26	nut, pan, 5/16-18		12
27	lockwashers, 5/16, pltd.	P1059	12
28	bolt, 5/16-18 x 3, pltd.		12
29	seat base, Pro1000, wldmnt&plate	C1122	1
30	screw, 5/16-18, p.h., black		18
31	roller, urethane, 1 1/4 dia. X 3/8	P1038	18
32	nuts, lock, 5/16 -18 pltd.		18
33	screw, 10-32x.5, black, b.h., socket cap	P1062	9
34	rod, lock, pos., seat, PRO1000	A1121	1
35	pin, clevis, 1/4x1"		2
36	brkt., pos., adj., lever	A1115	1
37	pin, carter, 3/32 x 3/4		2

38	brkt., pivot, rod, lock	A1119	1
39	spring		1
40	frame, seat	71385	2
41	lockwasher, 1/4, blk.		4
42	seat pad (back)	71101	1
43	seat pad (bottom)	71100	1
44	lockwasher, 1/4, pltd.	P1056	4
45	bolt, 1/4-20x1.25, pltd.		4
46	bracket, spring	A1120	1
47	sticker, track adjustment		1
48	track, adjustment, seat, stainless steel, Pro1000	A1114	1
49	decal, manufacturing date		1
50	endcap, 3"dia	70330	2
51	screw, M5x1.0x25, s.h., blk.		16
52	manual, operator's		1
53	cord, power, 110V, 9'10"	65169	1
54	frame, main	69321	1
55	screw, 10-32x.75, s.h., blk.		3
56	lockwasher, #10, pltd.		3
57	shaft, brake, drive, pulley	68312-2	1
58	bolt, M5x.8x19, socket cap		3
59	ring, snap, retainer, 1/2		1
60	bearing, hub, brake drive	68012	2
61	lockwasher, #8, pltd.		11
62	hub, brake drive pulley, hubed	68316-2	1
63	pulley, brake drive	68313	1
64	freewheel, Pro II, shimano	68013	4
65	0.020" and 0.035" shims		NA
66	tape, pickup, speed	65141	1
67	bolt, 8-36x1.188, blk.		1
68	brake, assy.	68000	1
69	belt, brake, poly-v	68014	1
70	channel, transformer	A1359	1
71	screws, 4-40x.5 p.h. pltd.		1
72	washer, #4, split, pltd.		1
73	washer, #4, flat, pltd.		1
74	sensor, speed, assy.	65140	1
75	transformer, 24V, 5.4 A	65180	1
76	bracket, speed sensor	69403	1
77	screw, M4x.7x10, s.h., blk.		4
78	washer, M4, pltd.		4

79	nut, M4x.7, pltd.		4
80	p.e.m., recep for daisychain	65177	1
81	module, power entry, RF/EFI	65178	1
82	screw, 3/16-32x3/8, p.h.		1
83	cover, supply, power	A1043	1
84	starwasher, #6		8
85	screw, 6-32x3/8, p.h.		8
86	standoffs, 3", 6-32		4
87	power supply, (lower), serial	65150S	1
88	clip, u-type		12
89	shell, bearing, crank hub	Sin0407	1
90	hub, brake drive pulley, nohub	68316-1	1
	shaft, brake, drive, pulley	68312-2	1
	bearing, hub, brake drive	68012	2
	ring, snap, retainer, 1/2		1
91	mount, hub, sleeve, sprocket, wide	66355-1	1
92	board, heartrate, PCB	65160	1
93	nut, 5/16-18, pltd.		6
94	axle, long, top	66370L	1
	bearing, axle	66370B	2
	nut, M2x1.5		2
	shell, bearing, crank hub	Sin0407	1
	ring, snap, retainer, 1		2
95	cotter pin, 9mm	66372	2
96	mount, hub, sleeve, wide	66354-1	1
97	lockwasher, 5/16, pltd.		6
98	bolt, 5/16-18x2.5, pltd.		6
99	bolt, 3/8-24x2.75, pltd.		4
100	screw, M6x1.0x25, s.h.		2
101	bar, hand crank	66311	2
102	roll pin, 3/16x1/2		1
103	screw, M5x.8x12, b.h., blk.		16
104	cover, crank hub	66304	2
105	hub, crank, assy.	A1364	2
106	seatbase, ProII, weldment	C1168	1
107	spring, gas	P1177	1
108	adapter, gas shock, seat, sq.	A1166	1
109	extension, seatbase, ProII, weldmnt.	C1169	1
110	pin, popper, turn to release	P1223	1
111	plunger, adjust, seat height	71200	1
112	track, adjustment, stainless	71395	1