

REFERENCE and INSTRUCTION MANUAL

Optec[®] 900 COLOR VISION TESTER NSN 6540 – 01 – 452 – 8207



8600 W. Catalpa Avenue, Suite 703, Chicago, IL 60656 – USA, Phone: 1.800.344.9500
Email: sales@stereooptical.com Website: www.StereoOptical.com

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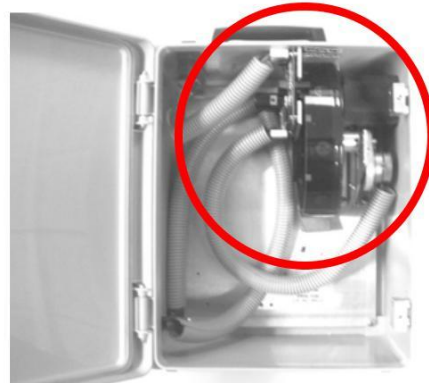
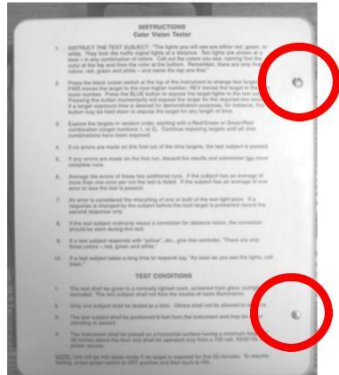
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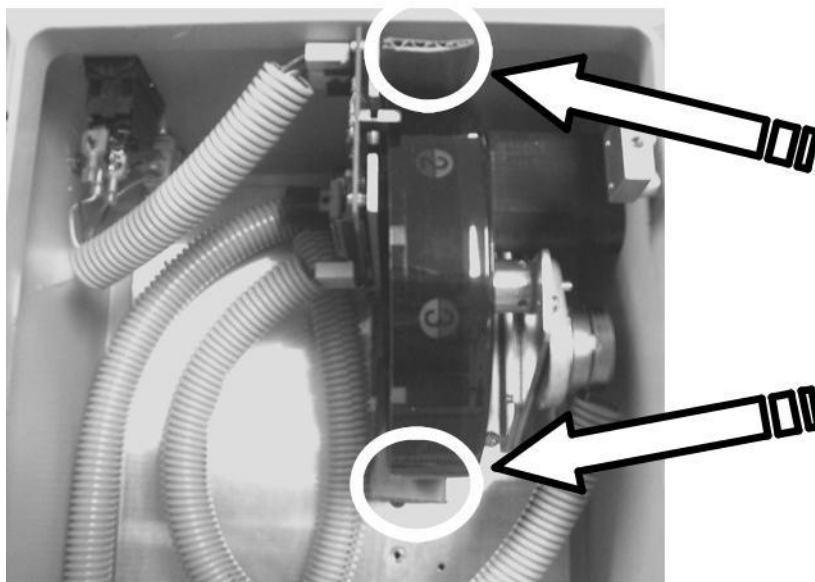
I. IMPORTANT NOTICE

BEFORE OPERATION:

1 – Remove Screws located on operating instructions and open the door



2 – Remove each piece of cardboard (2 pieces) near the color wheel



3 – Close the door and replace Screws in same manner as removed

II. TEST ADMINISTRATION

a. TEST INSTRUCTION

1. Instruct the test subject: "The lights you will see are either red, green, or white. They look like traffic signal lights at a distance. Two lights are shown at a time - in any combination of colors. Call out the colors you see, naming first the color at the top and then the color at the bottom. Remember, there are only three colors: red, green, and white - and name the top one first."
2. Press the black rocker switch at the top of the instrument to change test targets: FWD moves the target to the next higher number; REV moves the target to the next lower number. Press the BLUE button to expose the target lights to the test subject. Pressing this button momentarily will expose the target for the required two seconds. If a longer exposure time is desired for demonstration purposes, for instance, this button may be held down to expose the target for any length of time.
3. Expose the targets in random order, starting with a Red/Green or Green/Red combination (target numbers 1 or 5). Continue exposing targets until all nine combinations have been exposed.
4. If no errors are made on this first run of the nine targets, the test subject is passed.
5. If any errors are made on the first run, discard the results and administer two more complete runs.
6. Average the errors of these two additional runs. If the subject has an average of more than one error per run the test is failed. If the subject has an average of one error or less the test is passed.
7. An error is considered the miscalling of one or both of the test light pairs. If a response is changed by the subject before the next target is presented record the second response only.
8. If the test subject ordinarily wears a correction for distance vision, the correction should be worn during this test.
9. If a test subject responds with "yellow", etc., give this reminder, "There are only three colors - red, green and white."
10. If a test subject takes a long time to respond say, "As soon as you see the lights, call them."

b. TEST CONDITION

1. The test shall be given in a normally lighted room, screened from glare; sunlight excluded. The test subject shall not face the source of room illumination.
2. Only one subject shall be tested at a time. Others shall not be allowed to observe.
3. The test subject shall be positioned 8 feet from the instrument and may be either standing or seated.
4. The instrument shall be placed on a horizontal surface having a minimum height of 30 inches above the floor and shall be operated using only the special adapter that converts the AC power from 110V, 220V or 240V to DC power +12V.

NOTE:

Unit will go into sleep mode if no target is exposed for five (5) minutes. To resume testing, press power switch to OFF position and then back to ON.

c. SCORING INSTRUCTION

SCORING TEMPLATE

1	2	3	4	5	6	7	8	9	ERRORS
GR	WG	GW	GG	RG	WR	WW	RW	RR	

Use this template for every examinee. Place template on top of a sheet of paper. Present to examinee a GR or RG first, record his response in the appropriate space below the template. Put a check mark when the response is correct; write the examinee's response when it is incorrect. Randomly select another light, present it, and again record. Continue selecting different lights at random until each of the nine lights has been presented once. If no errors are made, one run is sufficient; if errors are made on the first run, continue testing for two or more complete runs.

Slide template down to unused portion of paper for recording next examinee's responses. Start again with GR or RG, use another random order, and proceed as above.

III. SAFETY ASPECTS

Use this device properly and safely.

Before use or maintenance, read this manual.

This operator's manual contains information necessary for the operation of the OPTEC® 900 Color Vision Tester. This manual includes operating procedures, safety precautions, and specifications. IEC standards are applied in this manual.

Before Use

Power Supply

Special adapter that converts the AC power to 110V to 220V or 240 V to DC power + 12V
Must be Globtek, Inc. *PART NO: TR9CE1250LCP-Y-MED; MODEL: GTM21089-1512-T3.*

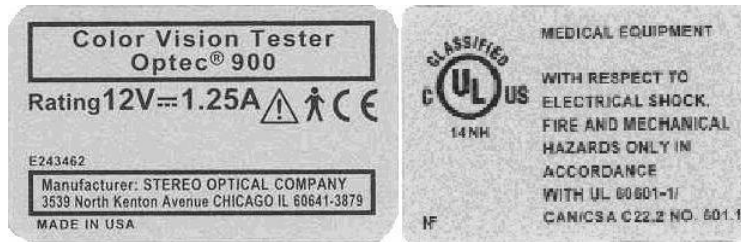
Power Cord

Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked “hospital only” or “hospital grade”.



Labels and indications on the device

Warning labels and indications are affixed on the device. If the labels are removed, contact STEREO OPTICAL or your authorized distributor.



Explanation of symbols



See accompanying documents



Type B degree of protection against electrical shock



MEDICAL EQUIPMENT
WITH RESPECT TO ELECTRIC SHOCK,
FIRE AND MECHANICAL HAZARD ONLY
IN ACCORDANCE WITH UL 60601-1 AND
CAN/CSA C22.2 NO. 601.1

Safety Precautions

In this manual, a signal word is used to designate the degree or level of safety alerting. The definitions are as follows.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage accident.

Even situations indicated by "CAUTION" may result in serious injury under certain conditions. Safety precautions must be strictly followed at all times.

Handling Precautions

Before use of instrument

CAUTION

- f* Do not use the device for other than its intended purpose. STEREO OPTICAL will assume no responsibility for accident or malfunction caused by improper use.
- f* Never modify or touch the internal structure of the device. Electric shock or malfunction may result

Verify that the following specified environmental conditions for transport, storage and installation are met. In addition, verify that usage area meets the following conditions.

- f* Ambient temperature range of +10C to +40C
- f* Relative Humidity range of 30% to 75%
- f* Atmospheric Pressure range of 700hPa to 1,060hPa
- f* No large amount of dust is contained in the air
- f* Place instrument in a place free from vibration or impact Locate instrument on a stable surface
- f* Be sure that a power outlet meets the power requirements. If the supplied voltage is too high or low, the device may not deliver full performance and malfunction, or fire may result.
- f* Be sure to use the power supply that came with the device. Using any adapter other than the supplied one may result in malfunction, or may void the warranty.
- f* Do not use an extension cord when supplying the device with the power.
- f* Be sure to connect using a grounded outlet. Electrical shock or fire may result in event of malfunction or electrical leakage.
- f* Never crush or pinch the power cord with heavy objects. Damage may result in electrical shock or fire.
- f* Before connecting cables to the device turn the instrument OFF and disconnect the power cord of the power supply from the power outlet.

Usage Precautions

CAUTION

The device has been tested and found to comply with the limits for the medical devices to the IEC 60601-1-2 and EN55011. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. This device generates, uses and

can radiate radio frequency energy. If not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that the interference to other devices, which can be determined by turning the device off and on, is caused by this instrument. The user is encouraged to try to correct the interference by one or more of the following measures :

- f* Reorient or relocate the receiving device.
- f* Increase the separation between the device.
- f* Connect the device into an outlet on a circuit different from that which was previously used.
- f* Consult STEREO OPTICAL for help.

In case of malfunction, immediately unplug from the power outlet and contact your authorized distributor for replacement; otherwise, electric shock or fire may result.

In the event that a strange odor or smoke is noticed coming from the device, turn it off and unplug the power cord immediately. After confirming that the odor or smoke is no longer being produced, contact you authorized distributor. Continued use may result in electric shock or fire.

Specifications and classifications

Classifications

[Classification under the provision of 93/42/EEC (MDD)] Class I The OPTEC® 900 Color Vision Tester is classified as a class I

[Type of protection against electric shock]

The OPTEC® 900 Color Vision Tester is classified as Class I. A Class I is a device in which the protection against electric shock does not rely on basic insulation only, but which includes an additional safety precaution in such a way that means are provided for the connection of the device to the protective (ground) conductor in the fixed wiring of the installation in such a way that accessible metal parts cannot become live in the event of a failure in the basic insulation.

[Degree of protection against electrical shock] Type B Applied Part OPTEC® 900 Color Vision Tester is classified as a device with a Type B Applied Part. A Type B Applied Part provides a particular degree of protection against electrical shock, particularly regarding the following:

- f* allowable leakage currents
- f* reliability of the protective earth connection (if applicable)

[Degree of protection against the entrance of liquid] IP20 *1

The OPTEC® 900 Color Vision Tester is classified as an ordinary device without protection against liquid intrusion. Avoid exposing water or other liquid to the device.

IV. MAINTENANCE

CAUTION

- f* Only service technicians trained properly by Stereo Optical Co., Inc. may service the device. Stereo Optical Co., Inc. assumes no responsibility for accidents resulting from improper servicing.
- f* Fuse Replacement Instructions
To be performed by qualified service personal
 1. Disconnect the power before servicing;
 2. Loosen (2) screws on door panel;
 3. Open door and lay unit on side, open side up;
 4. Remove old fuse from circuit board and discard;
 5. Replace fuse at the proper location on the circuit board;
 6. Order replacement fuse; refer to Parts List;
- f* All returns must have a Return Material Authorization number

Troubleshooting

In the event that the device does not work correctly, correct the problem according to the following table before contacting your authorized distributor. Suggested action:

- f* Make sure that the power cord is connected properly
- f* Make sure that the cord of the power supply is connected properly. Make sure that the voltage applied to the power outlet is within the specified range.
- f* Replace Fuse as per "Fuse Replacement Instructions (see above paragraph)
- f* Contact Stereo Optical Co., Inc. or your authorized distributor if the above suggestions do not eliminate the corresponding problem.

V. CLEANING

When the cover or panels of the device becomes soiled, wipe with a soft cloth. For stubborn soiling, immerse the cloth in a neutral detergent diluted with water, wring it well, and wipe. Finally wipe with a dry, soft cloth.

CAUTION

- f* Never use an organic solvent such as paint thinner. The surface of the device may be damaged.
- f* Never use a sponge or cloth containing excessive moisture to wipe the device. The water may leak into the inside of the device and cause device malfunction.

VI. DISPOSAL

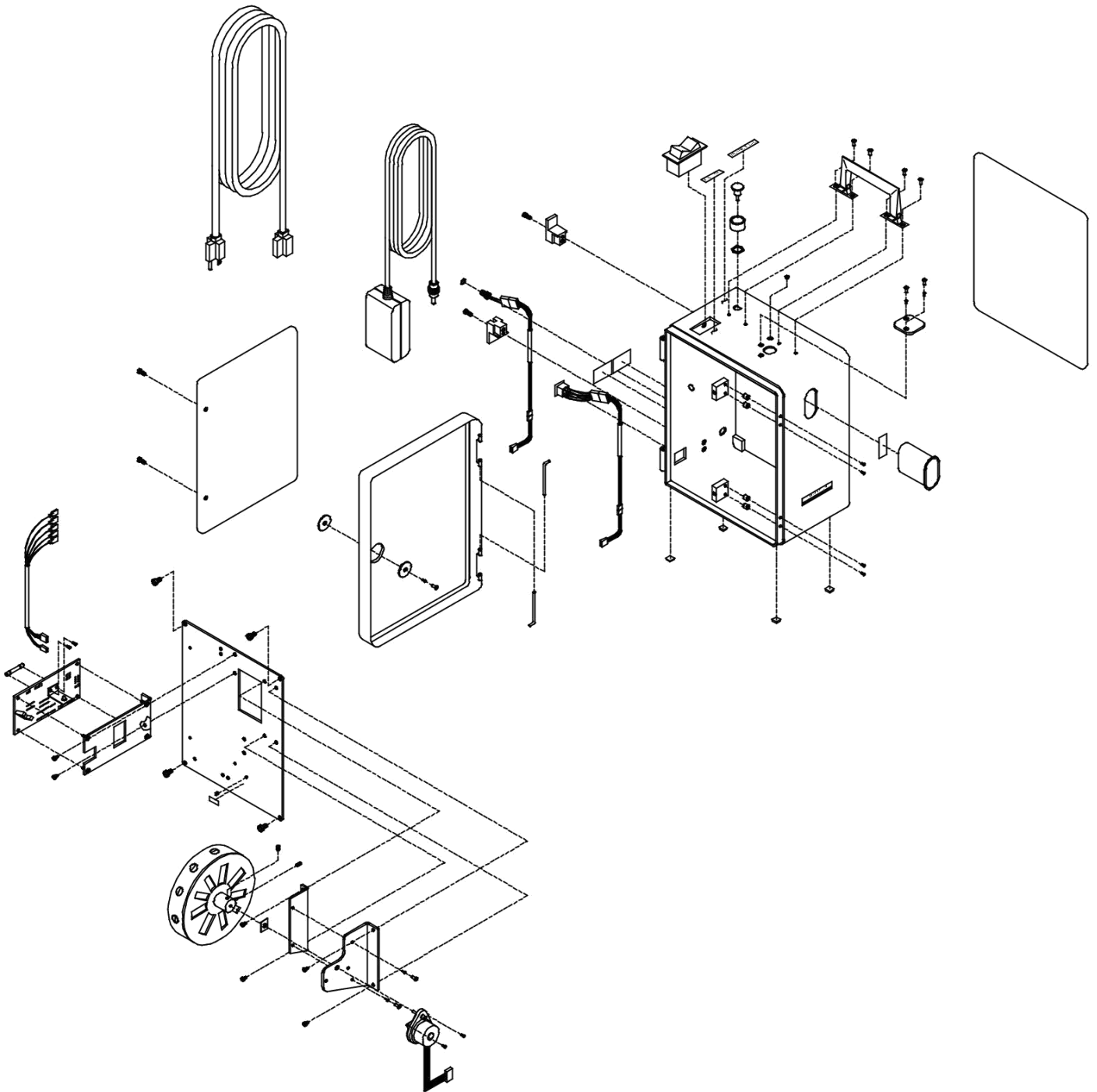
Follow local governing ordinances and recycling plans regarding disposal or recycling of device components. It is recommended to commission the disposal to a designated industrial waste disposal contractor.

When disposing of packing materials sort them by material and follow local governing ordinances and recycling plans.

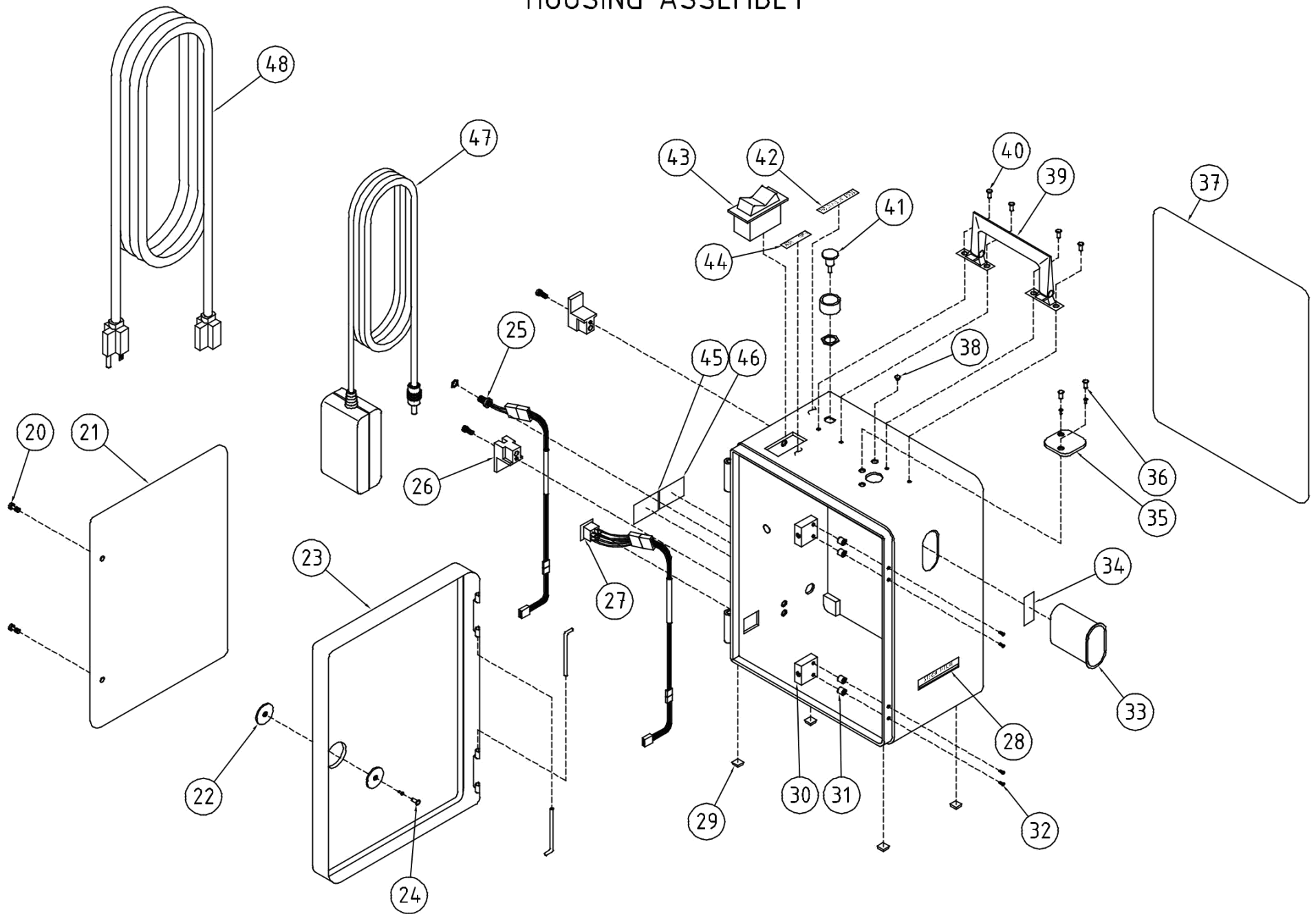
VII. TECHNICAL SPECIFICATIONS

- f* Annex 1: Optec 900
- f* Annex 2: Housing Assembly
- f* Annex 3: Internal Assembly
- f* Annex 4: Spare Parts List

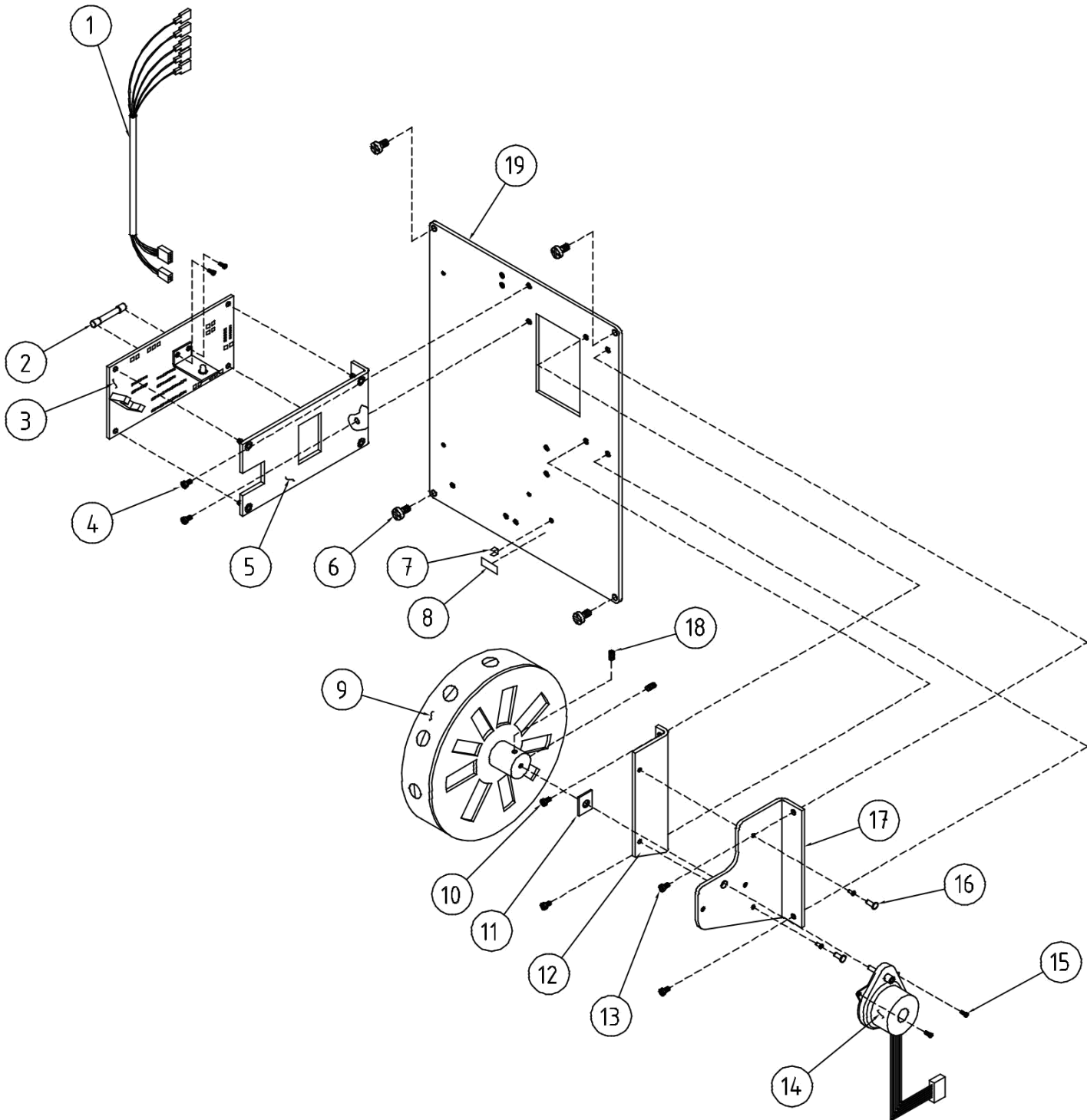
OPTEC 900



HOUSING ASSEMBLY



INTERNAL ASSEMBLY



SPARE PART LIST

ITEM NUMBER	QUANTITY PER UNIT	PART NUMBER	DESCRIPTION
1	1	51235	FWD / REV SWITCH HARNESS
2	2	10610	FUSE 1A @ 250V FAST ACTING
3	1	51212	PC BOARD ASSEMBLY
4	2	10063	SCREW, 8-32x1/4" PHILLIPS PAN HD.
5	1	30910	BRACKET, PC BOARD
6	4	10424	SCREW, 10-32x3/8" PHILLIPS PAN HD.
7	1	10432	SPARE FUSE HOLDER
8	1	30671	LABEL, SPARE FUSE
9	1	51232	COLOR WHEEL ASSEMBLY (900-F2)
10	2	10063	SCREW, 8-32x1/4" PHILLIPS PAN HD.
11	1	10434	VELCRO PAD
12	1	X30661	BRACE
13	2	10063	SCREW, 8-32x1/4" PHILLIPS PAN HD.
14	1	50988	MOTOR SUB ASSEMBLY
15	2	10023	SCREW, 6-32x1/4" SLOTTED PAN HD.
16	2	10577	RIVET, 1/8" DIA. .251 - .312 GRIP
17	1	30661	MOTOR SUPPORT BRACKET
18	2	10396	SCREW, 6-32x3/16" SOCKET SET
19	1	30648	BACK PLATE
20	2	10413	SCREW, 6-32 x 1/2" CAPTIVE
21	1	51007	LABEL, INSTRUCTIONS
22	2	30646	HOLE PLUG
23	1	50972	HOUSING MACHINED
24	1	10405	RIVET, SNAP
25	1	51238	POWER JACK ASSEMBLY
26	1	10408	CORD WRAP (2 PIECE SET)
27	1	51239	POWER SWITCH ASSEMBLY
28	1	30021	LABEL, BASE NAMEPLATE
29	4	10072	RUBBER FEET
30	2	30647	HOLD DOWN PLATE
31	4	10487	SPACER, ROUND 3/8" OD
32	4	10415	SCREW, 6-32 x 1/2" PHILLIPS FLAT HD.
33	1	50975	APERTURE PLATE PAINTED
34	1	10477	DIFFUSER STRIP
35	1	30642	VIEW WINDOW
36	2	10405	RIVET, SNAP
37	1	51007	LABEL, INSTRUCTIONS
38	1	10486	INDICATOR LENS
39	1	10066	HANDLE
40	4	10577	RIVET, 1/8" DIA. .251 - .312 GRIP
41	1	10407	SNAP SWITCH
42	1	30675	LABEL, TEST ACTIVATOR
43	1	10406	SWITCH, FORWARD / REVERSE
44	1	30643	LABEL, FORWARD / REVERSE
45	1	30917	LABEL, OPTEC 900
46	1	32157	LABEL, UL
47	1	10596	POWER SUPPLY GlobTek, Inc. Part No. TR9CE1250LCP-Y-MED
48	1	32110	POWER CORD

