

Thank you for purchasing the TOPCON IS-2500 Ophthalmic Stand.

The IS-2500 stand is a reliable standard for Ophthalmic and Optometric instrument delivery and will provide many years of service.



WARNING : The installation of the IS-2500 stand shall only be performed by a qualified technician.



WARNING : The IS-2500 stand is designed for use with TOPCON equipment. If any other equipment is used, it shall meet the same certification requirements.



WARNING : All service (except replacing the two external fuses) shall be performed by a qualified technician.



WARNING : All replacement parts or optional equipment shall be genuine TOPCON parts. Contact your dealer for those items.

Please read this user's manual carefully in order to familiarize yourself with and to obtain the best performance from your system. Place the manual in a convenient location for future reference.

PRECAUTIONS

1. **Installation**. Never position the unit where it will be exposed to moisture, direct sunlight, dust, salty air, chemical storage areas, excessive temperature or humidity. Install the unit in a stable place, free of uneven floors, vibration and shock.
2. **Prior to operation**. Always check that all the cords are properly connected.
3. **Operation**. Take the proper steps to stop the unit (leaving the patient in a safe condition) if anything is found wrong with the unit.
4. **After Operation**. Never hold and pull the connecting cord for disconnecting plugs. Excessive force may be applied and cause damage to the inside connections. If the unit has not been used for a long period of time, check the operation and safety features prior to using it again.

SAFETY CONCERNS

The IS-2500 has no hazardous elements and it is not subject to electromagnetic interference. Any of the optional equipment defined in this manual can be added to the IS-2500 without introducing any additional safety hazards.

2031005109 Revision: A, 09 /04

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1.0 NOMENCLATURE

1.1 IS-2500 Ophthalmic Stand Main Components

Figure 1 shows the primary components and key features of the IS-2500 Ophthalmic Stand. Use this figure as a reference.

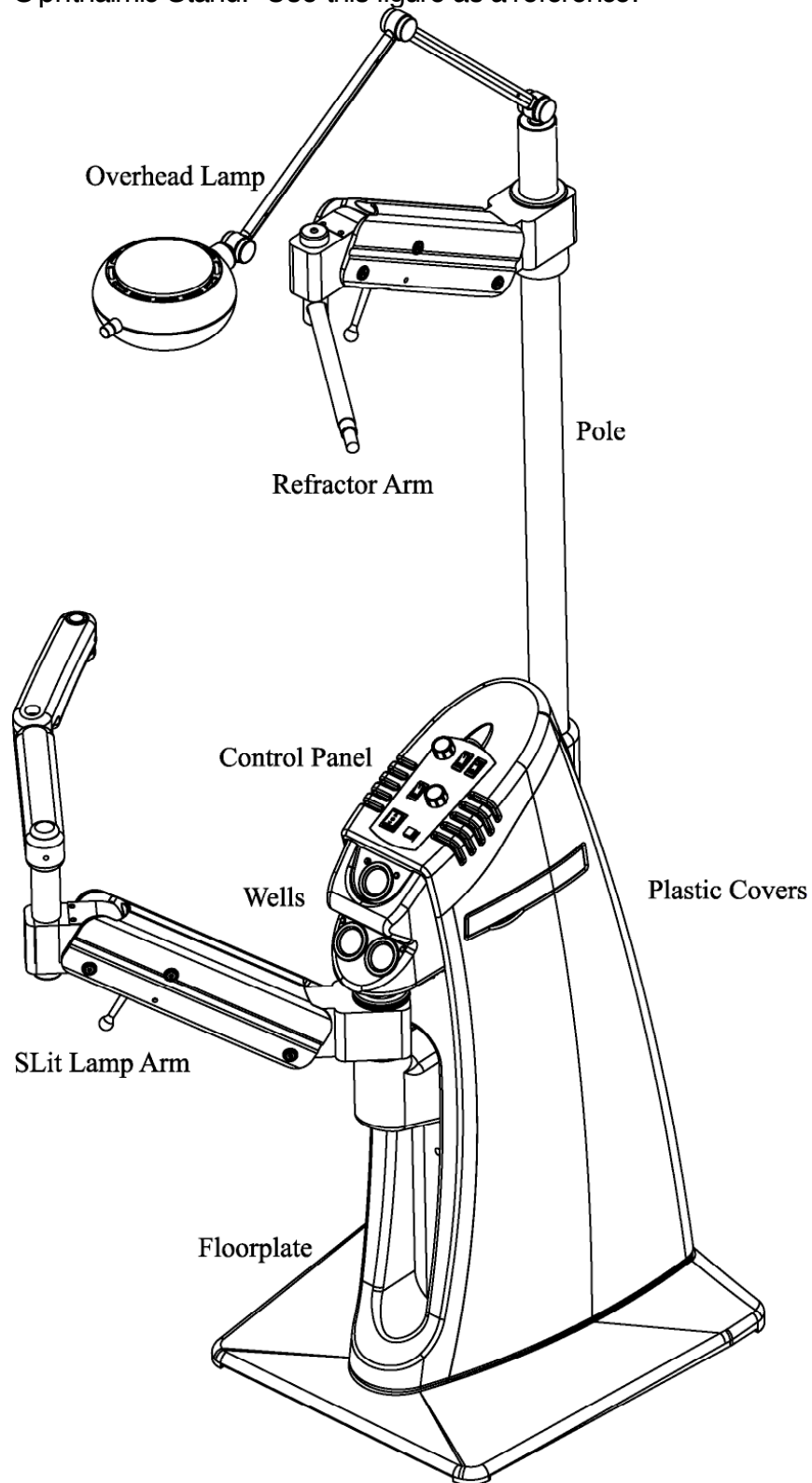


Figure 1: IS-2500 Ophthalmic Instrument Stand

2.0 PERFORMANCE & SPECIFICATIONS

Ophthalmic Stand

- Base Size: 22.0 inch x 22.0 inch (559 mm x 559 mm)
- Stand Size: 13.0 inch x 18.0 inch x 39.0 inch (330 mm x 457 mm x 991 mm)
- Mode of Operation: Continuous Use (Class 1 protection)

Counterbalanced Refractor Arm

- Adjustable Load Range: 8 to 20 lbs. (3.6 to 9.0 kg)
- Vertical Adjustment Range: 12 inch (305 mm)

Counterbalanced Keratometer Arm (Optional)

- Adjustable Load Range: 18 to 45 lbs. (8.2 to 20.4 kg)
- Vertical Adjustment Range: 11.5 inch (292 mm)

Counterbalanced Slit Lamp Arm

- Adjustable Load Range: 35 to 65 lbs. (16 to 29 kg)
- Vertical Adjustment Range: 12 inch (305 mm)

Rechargeable Instrument Wells

- Battery Voltage: 3.5 v
- Charge Rate : Trickle: 15 mA

Electrical

- Voltage: 120 and 220 v AC
- Current: 5 A (120 v), 3 A (220 v)
- Frequency: 60/50 Hz

Weight

- Net weight 305 lbs (138 kg)

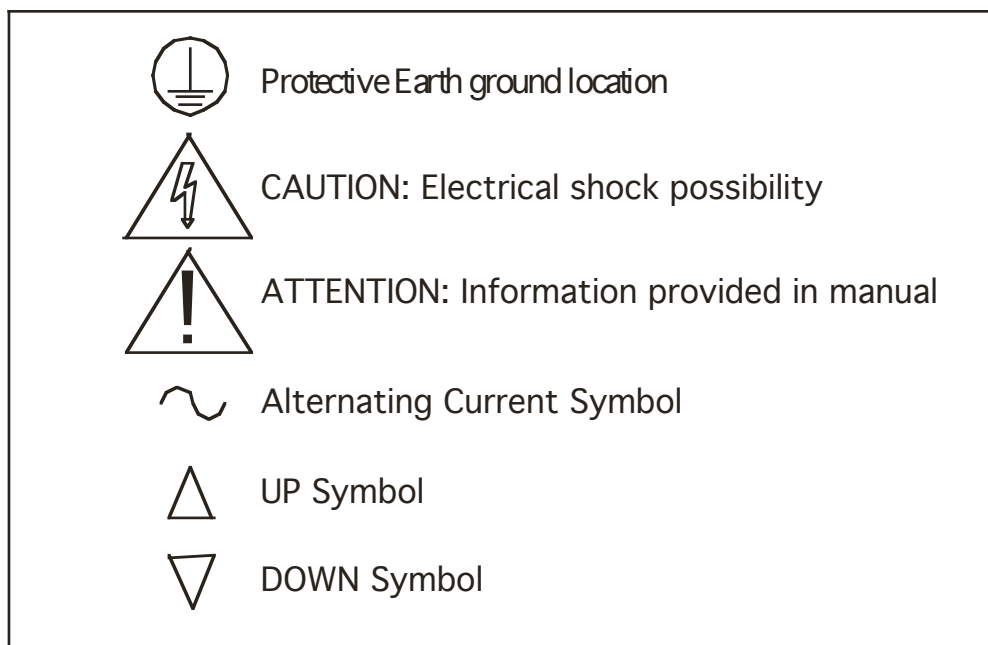
Environmental Operating Conditions

- Ambient Temperature Range: 50 to 104 Degrees F (10 to 40 Degrees C)
- Relative Humidity Range: 30 to 75%
- Atmospheric Pressure Range: 10.1 to 15.4 psi (700 to 1060 hPa)

Environmental Storage/Transportation Conditions

- Ambient Temperature Range: -20 to 130 Degrees F (-23 to 54 Degrees C)
- Relative Humidity Range: 30 to 95%
- Atmospheric Pressure Range: 10.1 to 15.4 psi (700 to 1060 hPa)
- Acceptable Storage Time
(in operating environment): 5 years
(in extreme environment): 20 days

Symbols used on the IS-2500 stand



3.0 ASSEMBLY

3.1 **Tools**

The following tools are required to assemble the Topcon IS-2500 Ophthalmic Stand:

1. #2 Phillips screwdriver (for removing plastic side cover).
2. Hex wrench sizes 3/16, 5/32, 1/8, 3/32 (included in accessory kit).

3.2 **Instrument Stand**

3.2.1 Unpack the IS-2500 and allow the unit to come to room temperature. The standard components of the Ophthalmic Stand are as follows: base unit, overhead lamp, and accessory box.

3.2.2 Tilt the IS-2500 by pulling on the pole, then place a hand truck under the backside of the stand (Use protective padding as required) and roll it into the desired position. Level the IS-2500 by making sure the pole is vertical in two directions. If the pole is not level, shim the underside of the IS-2500 floorplate as required so that it is level.

3.2.3 Unscrew the three (3) captive Phillips screws from the back side of the plastic side cover of the IS-2500 then carefully remove the plastic side cover.

3.2.4 Remove the two nylon-shipping thumbscrews, and raise the pole (with the holes facing the back) until the pole clicks. Lower and rotate the pole until it locks into position. (NOTE: Do not pull pole completely out of the tube.) Remove the protective Teflon sheet from the pole.

Feed the two (2) cup point set screws (included) through the holes in the plastic, then tighten them into the black main tube. Tighten the screws securely against the pole using a 5/32 Hex wrench. Place the two (2) white hole plugs (included) into the setscrew access holes.

3.2.5 Optional. If a Keratometer arm (counterbalanced or fixed) is being installed, remove the refractor arm by loosening the two (2) set screws and sliding it off the pole. Slide the Keratometer arm and trim ring down over the pole

and into position. See Figure 3.2 for the suggested optimum mounting location. Note-The Topcon OMB-1 plug kit may be required to connect the instrument power cord the power cord supplied with the arm.

Securely tighten the setscrews using a 3/16 hex wrench to hold the Keratometer arm in place. Feed the cord from the arm down through the pole and plug into the K arm connector on the electrical receptacle panel. See Figure 3.3 for the IS-2500 connector mounting location.

- 3.2.6 Set the refractor arm to the proper height. See Figure 3.2 for the suggested optimum mounting location. The arm maybe moved to accommodate user comfort by loosening the set screws, moving the arm to the desired position, then re-tightening the set screws securely.

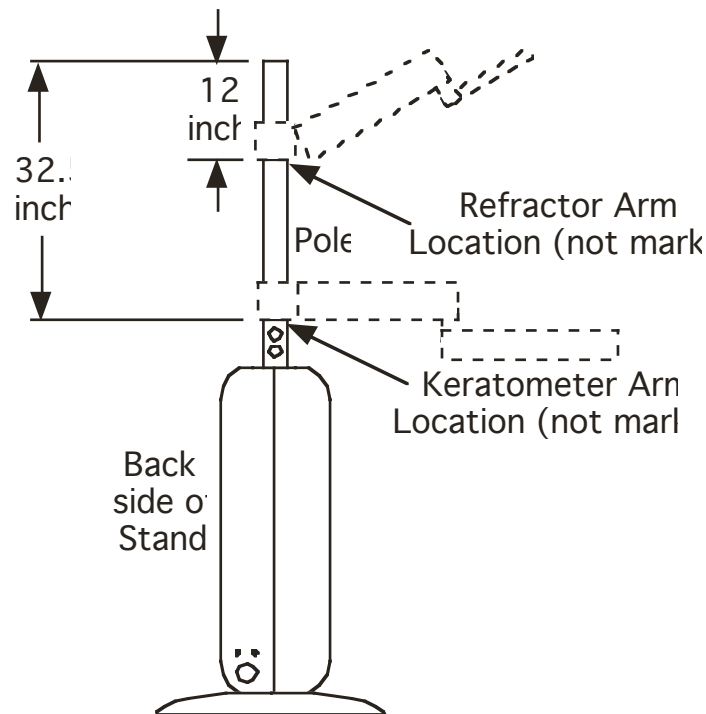


Figure 3.2: Instrument arm mounting locations

- 3.2.7 Optional. Attach the chart projector arm into position on the pole and secure in place.
- 3.2.8 Unpack the overhead lamp with the 60 W bulb (provided). Mount the pole cap onto the end of the overhead lamp and secure it by tightening the small setscrew. (**CAUTION:** Do not over tighten setscrew).

Connect the lamp cable connector to its mating connector from the cable, push the cable down the pole, and then insert the lamp into the top of the pole. Tighten the stainless steel button head screws securely using a 1/8" hex wrench to secure the lamp in place. Plug the lamp cord into the outlet marked "LAMP".



WARNING: Do not use a higher wattage

- 3.2.9 Clamp the fixed indirect (BIO) hanger onto the pole. Secure the indirect hanger clamp by tightening the two screws with a 5/32 Hex wrench.
- 3.2.10 Place the chair cable through the large wire hole in the back, and mate into the 9-pin connector marked CHAIR on the bottom right corner of the electronics board. See Figure 3.3 for the IS-2500 connector mounting location. Plug the power cord of the chair into a grounded wall outlet. (NOTE: Using a non-Topcon chair may require an adapter, see Table 1 for pin functionality. The chair supplies AC power to the IS-2500, and the IS-2500 acts as a switch and returns the power to the chair to make it go up and down.)

Pin	Function	Pin	Function
1	Earth Ground (from chair)	6	N/C
2	AC Neutral (from chair)	7	Down Limit Switch (engaged)
3	AC Hot (from chair)	8	Up (pump engaged)
4	N/C	9	Safety Switch Loop
5	Down (solenoid engaged)		

Table 1: Chair Connector Pins and Functions

3.3 Installing Instruments

The instruments that connect to the IS-2500 must be mounted and configured properly before operation. The IS-2500 was designed for use with Topcon instruments. Adjustments and/or modifications may be required for other brands of instruments or tools.



WARNING: All instruments that are attached to the IS-2500 ~~must~~ be (or UL 60601) and CSA 601 compatible.

3.3.1 Refractor

Mount the refractor onto the end of the refractor arm by removing the set screw in the end of the shaft, sliding on the refractor, tightening the locking clamp, and reinstalling the set screw through the refractor clamp into the shaft. This keeps the refractor from sliding off of the arm. If a computerized vision tester is used, repeat the same process except feed the cable through the wire channel in the top of the arm extrusion then into the top hole in the IS-2500 pole. Connect to the vision tester power supply.

3.3.2 Slit Lamp

Mount the Slit Lamp onto the end of the S-arm by placing the pivot pin (on the bottom of the tabletop) into the S-arm bushing. Lock the Slit Lamp on the arm by tightening the knob. Plug the cord into the transformer box. Refer to section 5 to counterbalance the arm.

3.3.3 Keratometer (optional)

Mount the Keratometer onto the end of the K-arm by placing the pivot pin (on the bottom of the tabletop) into the K-arm bushing. Lock the Keratometer on the arm by tightening the knob. Plug the cord into the transformer box. Refer to section 5 to counterbalance the arm.

3.3.4 Indirect (optional)

The indirect voltage is factory set at 6 volts, but is designed for an easy field change to 7.5 volts. If 6 volts is appropriate, no change is needed. To

change the voltage, remove the IS-2500 side cover and move the black jumper on the circuit board to 7.5 volts. See Figure 3.3 for the jumper location.

Once set, plug the indirect into the twist-lock connector on the back of the IS-2500. Hang the indirect headset onto the fixed hanger.

3.3.5 Rechargeable Instrument Handles

The instrument console is supplied with three recharging wells for use with rechargeable instrument handles. Simply inserting them into the well charges the instruments. Green indicator lights are provided at each well to indicate that the instrument is in a charging condition. If the light is not lit, then the instrument is not charging. The wells are wired at the factory at 3.5 volts DC.

3.3.6 Chart Projector (optional)

The chart projector may be mounted on the wall or on the IS-2500. If mounted on the IS-2500, the chart projector arm supports any automatic chart projector. The arm has a 0.75-inch diameter socket for mounting a projector. The maximum extension of the arm with load, is 7 inches, and has a capacity of 22 lbs. (10 kg).

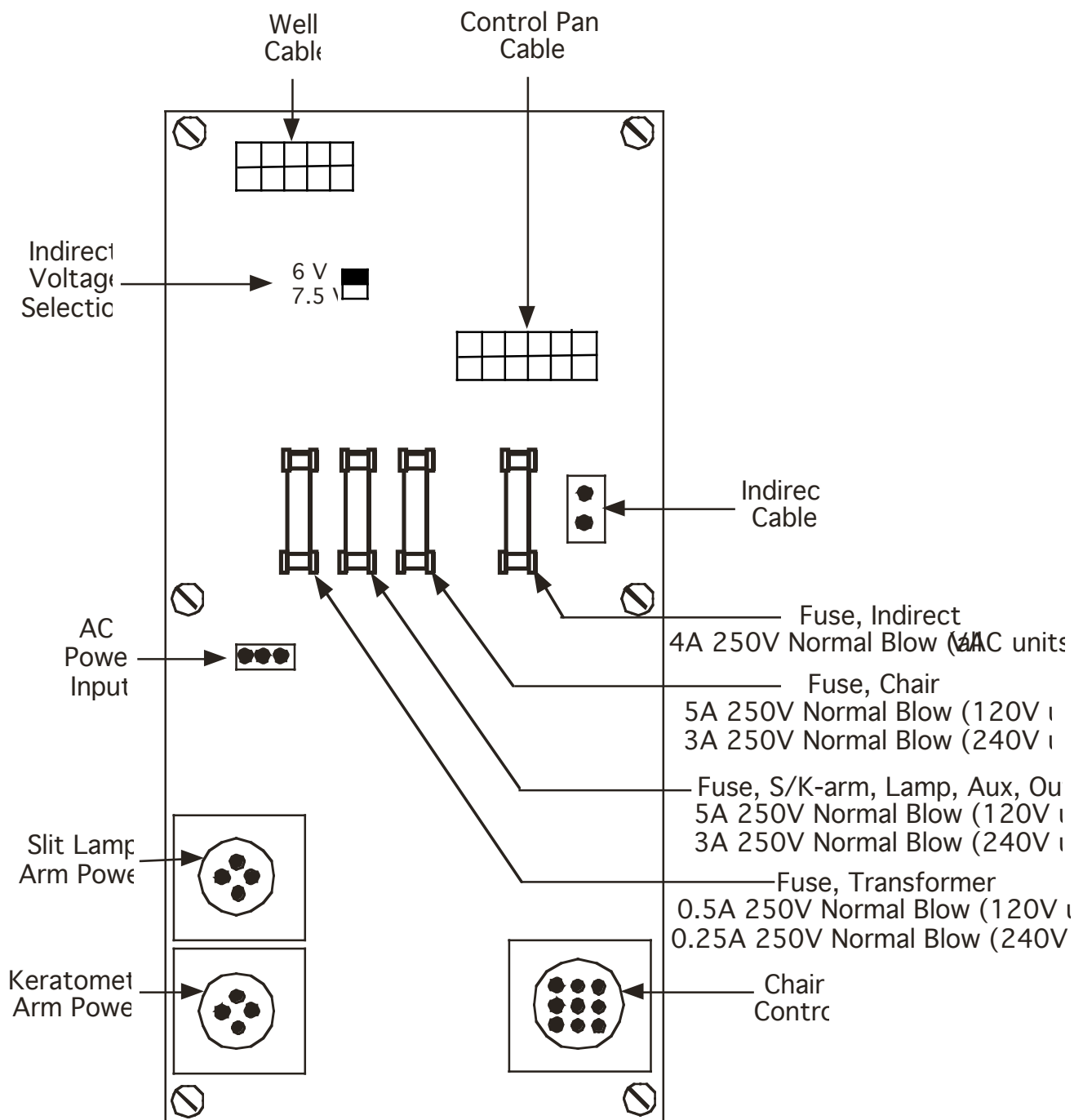


Figure 3.3: IS-2500 Connector Locations

3.4 Power Up

- 3.4.1 Plug in the power cord, and push the power button on the console. The green light in the switch will light when powered.
- 3.4.2 Check the functionality of all the components. Final adjustments will be performed in Section 5: Adjustments.
- 3.4.3 Once satisfied with the connections of all the instruments, close the access panel of the IS-2500. Install the removable side cover by hooking the panel into the top console and tightening the three (3) Phillips screws. Peel and discard the protective clear tape from floorplate.

4.0 SYSTEM OPERATION

Each of the control panel buttons performs a specific function. Refer to Figures 4.1 for the locations of the buttons on the control panel.

4.1 **Main Power Switch**

The main power switch button controls the power to the system and is located on the control panel. Switch the power ON prior to performing any examinations. A green LED, located in the switch, will light to indicate that the system power is ON.

4.2 **Overhead Lamp Switch**

The overhead lamp dimmer switch controls the power to the overhead lamp. The dimmer is located on the control panel. There is also a rotary switch located on the lamp head, which must remain in the ON position in order to control the overhead lamp using the dimmer. To adjust the brightness, simply rotate the dimmer knob.

4.3 **Chair-Control Switch**

The exam chair height can be controlled from the control panel. Press the appropriate arrow button (UP or DOWN) on the control panel to adjust the chair to the desired height.

4.4 **Chair Auto-Return Button**

Pressing the AUTO-RETURN button on the control panel will return only the chair lift to its lowest position.

4.5 **Auxiliary Receptacle Button**

The auxiliary button, labeled "AUX", control the power to the auxiliary receptacle located to the right of the circuit board assembly inside the IS-2500. The auxiliary receptacle is recommended for use with a chart projector or any other desired equipment.

4.6 **Indirect Switch & Dimmer Control**

The Binocular Indirect Ophthalmoscope (BIO) can be controlled from the control panel. The BIO can be turned ON and the intensity adjusted with the dimmer switch.

4.7 **Charging Wells**

Three (3) charging wells are available to recharge hand-held instrument batteries. Normally the handhelds will maintain a full charge if placed in the charging well during the workday. A well is charging if the green LED is lit. Well charging will stop if the main power switch is turned OFF.

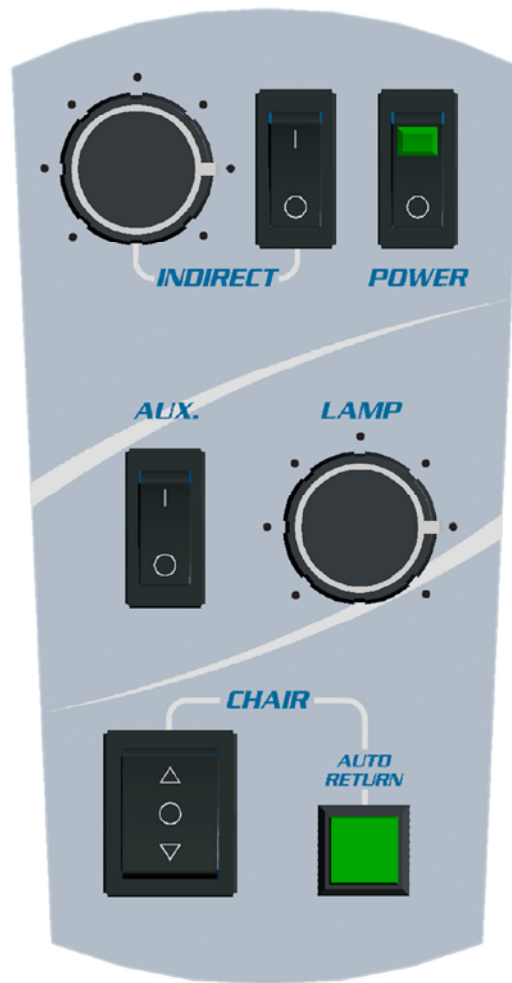


Figure 4.1: Control Panel

5.0 ADJUSTMENTS

The refractor arm and optional Keratometer arm may require adjustment depending upon the weight of the instrument in use.

5.1 Refractor and Slit Lamp Arm

5.1.1 Counterbalance Adjustment

To adjust the counterbalancing of the instrument arm, (refer to Figure 5) remove the black plastic panel located at the instrument end of the arm by unscrewing the (2) round-head Hex screws, then lock the instrument arm at its maximum elevated position.

Underneath the black cover is castellated (slotted) nut. To adjust the refractor arm, insert the end of a 5/32 Hex wrench into the castellated (slotted) part of the nut. The arm counter-balancing spring tension is adjusted by turning the nut in the appropriate direction. (NOTE: Follow the same steps for adjusting the optional middle arm, but use a 3/16 Hex wrench instead.)

Turning the nut clockwise, as viewed from the instrument end of the arm, increases the counterbalance force. Counterclockwise rotation loosens the counterbalance force.

5.1.2 Brake Adjustment

At the instrument end of the arm there is a handle, which activates the brake. This handle locks the three arm functions simultaneously: the instrument end of the arm, the pole end of the arm, and the counterbalance mechanism. Each of these three brakes can be adjusted independently of the others.

At the instrument and pole ends of the arm are two (2) Hex set screws. The small set screw adjusts the brake force. To adjust the brake, lock the handle and turn the screw 1/4 turn. Clockwise rotation increases the braking force and counterclockwise rotation decreases the braking force.

5.1.3 Counterbalance Brake Adjustment

In instances where the brake is not restraining vertical movement, the counterbalancing brake will need to be adjusted. The counterbalancing brake adjustment is located on the diagonal arm (refer to Figure 5). The arm will have three (3) black screws with caps on one end and a small opening underneath the middle black screw.

Lower or raise the arm slowly until the small Hex screw is aligned with the access hole in the arm housing. Once the Hex screw has been aligned, activate the brake, and then turn the screw clockwise approximately 1/4 turn. Note-when activating the handle, place your thumb between the handle and the inner wall when tightening the small Hex screw. Next fully activate the brake and press down on the auxiliary arm. If the resistance is inadequate, repeat the above procedure and turn the small Hex screw another 1/4 turn.

5.1.4 Drift Elimination

Occasionally during regular use the arms may tend to drift slightly. Increasing the drag on the arm will eliminate a slight drift. Drag is adjusted by turning the larger of the two (2) set screws located at both ends of the arm. If drifting persists, use a level and check that the stand pole is vertical. Just a small amount of vertical offset can cause a significant amount of arm drift.

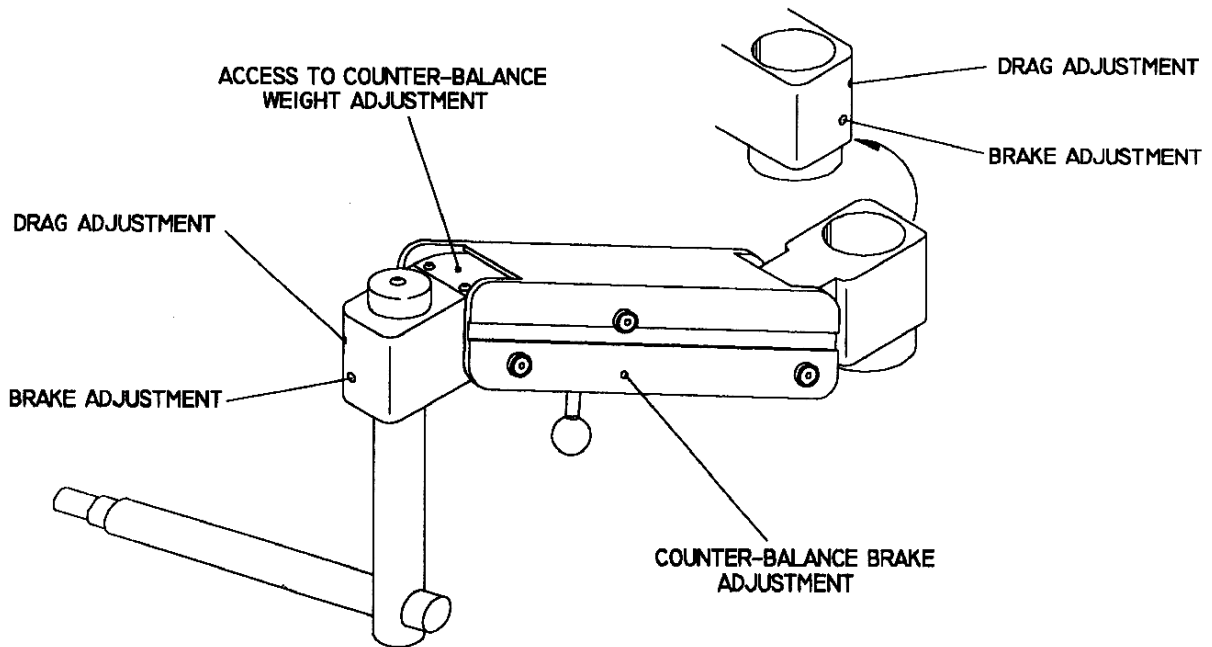


Figure 5: Counterbalanced Arm Adjustments

5.2 Keratometer Arm (Option)

5.2.1 Counterbalance Adjustment

Adjustment is the same as Section 5.1.1.

5.2.2 Brake Adjustment

Adjustment is the same as Section 5.1.2.

5.2.3 Counterbalance Brake Adjustment

Adjustment is the same as Section 5.1.3.

5.2.4 Drift Elimination

Adjustment is the same as Section 5.1.4.

6.0 MAINTENANCE

There are no periodic maintenance requirements for the IS-2500. However, periodic checks of all the functions and safety switches should be performed every six months. If problems arise please refer to the Troubleshooting section of this manual.

It is recommended that the exterior surfaces of the IS-2500 be cleaned with a mild soap, water, and clean cloth to maintain a like-new and sanitary appearance.

7.0 TROUBLE SHOOTING

If the IS-2500 does not function properly, complete the following tests before calling for service. Disconnect the main power cord prior to performing any service.



WARNING: The user shall only change the two external fuses. A qualified should change any internal fuses.

- 1) Read this User Manual to verify the IS-2500 functions. More comprehensive diagnostic information and part descriptions are provided in the IS-2500 Service Manual. (Dealer item only)
- 2) Check to see that all cords and/or cables are securely connected, and that the green power LED comes on when the system power button is pressed.
- 3) Replace any blown fuses as required. See the chart below.
 - a) Turn power switch off and unplug the power cord plug from the wall outlet.
 - b) Push down and turn the fuse holder cap counterclockwise, then pull the fuse retainer out.
 - c) Replace the blown fuse(s) with a new one (refer to Table 2). Push in and turn the fuse holder cap clockwise to replace it.

Location	Fuse	100~120 Volt	220~240 Volt
Base Chassis	Primary	5A 250 v - SB	3A 250 v - SB
Base Chassis	Secondary	5A 250 v - SB	3A 250 v - SB

Table 2: Fuse Information

- 4) Replacing the Overhead Lamp Bulb:
If the overhead lamp does not light, check to make sure that the rotary switch on the lamp head is in the ON position. Rotate the lamp dimmer (clockwise) to turn ON the lamp. If the lamp still does not light, replace the bulb with a bulb of 60 watts (or less).



WARNING: Do not use a higher wattage bulb.

WARNING: All replacement parts or optional equipment shall be genuine parts. Contact your dealer for those items.

- 5) If a problem develops with an instrument used with the IS-2500 system, plug the instrument into a wall receptacle and check for proper function before troubleshooting the IS-2500 system.
- 6) If problems persist, contact your Topcon dealer or Topcon directly.

Topcon Medical Systems

37 West Century Road
Paramus, NJ 07652
800-223-1130

www.Topcon.com

