

Installation and Operations Manual

for the Dental Lights (120V/240V)
(229-188)





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INSTALLATION AND OPERATION MANUAL

Customer Service:

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Warranty

Products sold to and installed by authorized Engle Dental Systems dealers are guaranteed against defects in materials and workmanship for a period of five (5) years after date of purchase. Engle 300 dental chair Electronic Positioning Components have a Limited Warranty of ten (10) years after date of purchase. Upholstery is guaranteed for one (1) year after date of purchase. All hand-piece illumination systems are guaranteed for six (6) months after date of purchase. This warranty does not cover light bulbs of any kind.

Faulty parts as determined by dealer service representative, will be repaired or replaced; no claim for labor or consequential damages will be allowed. Invoices for replacement parts may be subject to adjustment after the manufacturer has inspected the alleged defective parts.

The warranty does not cover normal wear, stains, cuts, or scratches of upholstery surface finishes, or parts sold to O.E.M. customers.

This warranty does not cover damage resulting from the use of cleaning, disinfecting, or sterilization chemicals and processes.

The warranty does not cover damage from improper installation or maintenance, accident, misuse, or accidents incurred in shipping and handling.

In the event of shipping damage, the purchaser must initiate all claims against the freight carrier in writing within twenty-four (24) hours after the damaged items are received. The claim is the responsibility of the customer.

PRODUCT MODIFICATIONS

Engle Dental Systems continually works to better our products. We reserve the right to make modifications without notice or obligation to modify previously manufactured products.

CLEANING AND DISINFECTING ENGLE EQUIPMENT

Infection control in the dental office continues to be a high priority for our customers and end users. O.S.H.A., the A.D.A., and the C.D.C. are also involved in this complex issue.

We will not attempt to specify the required intervals for disinfection nor can we state what is the overall best surface disinfectant. Please refer to the Infection Control Recommendations published by the American Dental Association for further reference.

Barrier Technique

ENGLE strongly advocates the barrier technique be used whenever possible to preserve the finish and appearance of the equipment. Wherever possible disposable barriers should be used and changed between patients. The barrier technique will ensure maximum long term durability of the surfaces and finishes of equipment.

Chemical Disinfection

Regardless of the chemical disinfectant used it is imperative that the equipment be thoroughly washed with mild soap and warm water at least once per day. This wash down will minimize the harmful effects of chemical disinfectant residues being allowed to accumulate on the equipment.

When using a chemical disinfectant, always pay strict attention to the manufacturer's application directions of the disinfectant. When using a concentrated disinfectant, always pay strict attention to the manufacturer's diluting directions of the disinfectant. *"Disinfectant solutions that are relatively harmless to surfaces at their recommended strengths can be corrosive at a higher/purer concentrate."*

Unacceptable Disinfectants

These disinfectants **WILL HARM** the surface finishes of ENGLE equipment and are **NOT RECOMMENDED**.
USE OF THESE PRODUCTS WILL VOID YOUR WARRANTY.

CHEMICAL COMPOSITION	TRADE NAMES
Strong Phenols/Phenol-Alcohol Combinations	Lysol, Lysol 2, Lysol Professional Coe Foam, Coe Spray Pump, Vitaphone, Omni II
Sodium Hypochlorite/Household Bleach	Clorox, Ajax, Purex
Alcohol	
Household Cleaners	

Conditionally Acceptable Disinfectants*

These disinfectants have been found to be the LEAST HARMFUL to the equipment surfaces.
None of these products are recommended for chair upholstery. Use the barrier technique.

CHEMICAL COMPOSITION	TRADE NAMES
Iodophors**	Biocide, Aseptic-IDC Wescodyne, SD5, Promedyne, Ido-Five
Mild Phenols	Procide ES, Asepti-Steryl Aerosol
Glutaraldehyde/Phenol sprays	Sterall Spray, Coldspor
Synergized Super Quat	Dis-cide, Cavicide, Kleenaseptic
Phenol/Water Sprays	Top-Cide, Sporidicin Pump Spray, Birex se

* ENGLE DENTAL SYSTEMS makes no representation as to the disinfectant efficacy of these products. We make no warranty, expressed or implied, that these disinfectants will not damage the surface finishes. Damage and discoloration of the surface finishes is not covered under the warranty.

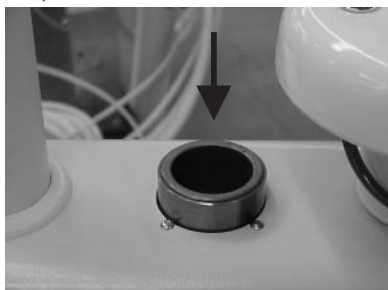
** Iodophor based disinfectants will cause yellow staining on many surfaces. Regular washing with soap and water will minimize this staining. Iodophor neutralizers such as Promedyne are also available.

Step #1



1) Remove the shroud off of the utility center. Remove the 90° light post from the packaging and remove the plastic from the bottom end. Be sure and leave the pre-installed string inside the light post.

Step #2a



2a) If you have purchased the light separate from the dental unit, it may be necessary to insert the bushing into the hole on the utility center. Do this by sliding the bushing into the hole on the utility center until it stops flush with the top.

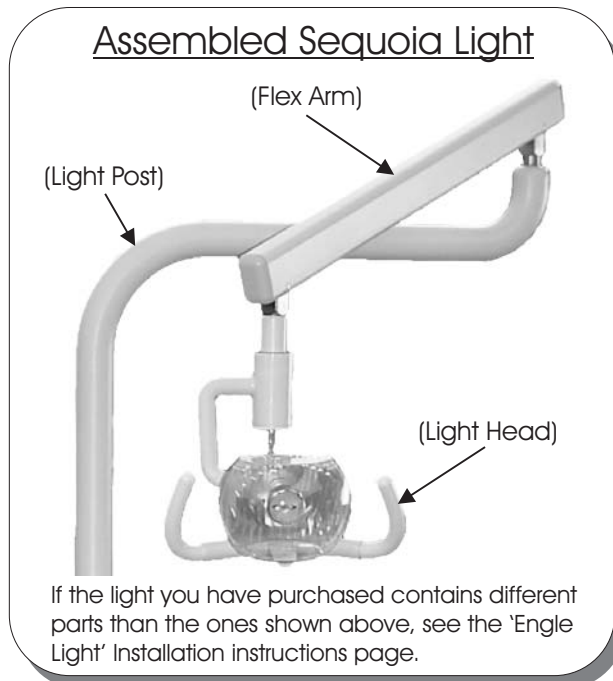
Step #2b



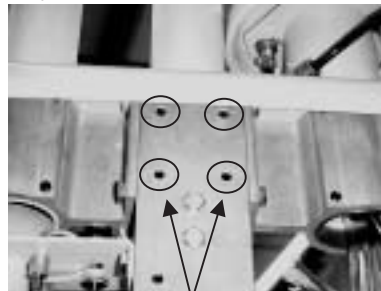
(The mount shown is not the actual mount.)

Then tighten the set screws on the side of the mount to secure it. Do not over tighten these set screws.

2b) Allowing the string to fall through the mount, insert the bottom end of the light post into the mount.



Step #2a



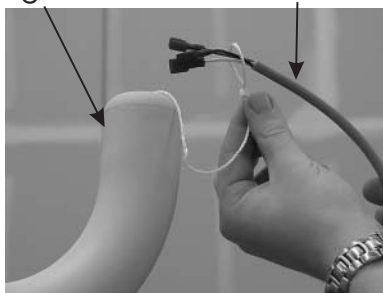
Tighten the circled set screws. (Do not over tighten them)

3) Remove the light arm assembly from its packaging. Be sure NOT to remove the 'safety stop' (marked with a yellow warning tag) at this time. Take the long wire from the arm assembly and feed it through the light post. To do this, thread the end of the wire through the looped string coming from the top of the light post. Then, holding the light arm assembly in one hand, pull the wires through the light post by pulling the bottom end of the string. Once the wires are through, insert the light arm assembly into the top of the light post.

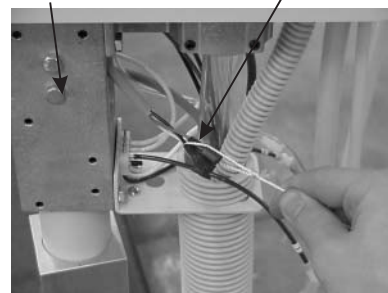
Safety Stop Light Arm Assembly



Top of Light Post Wiring from Flex Arm



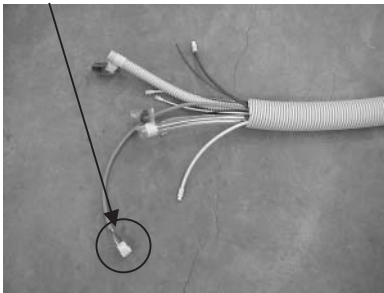
Light Post Mount Wiring After Installation.



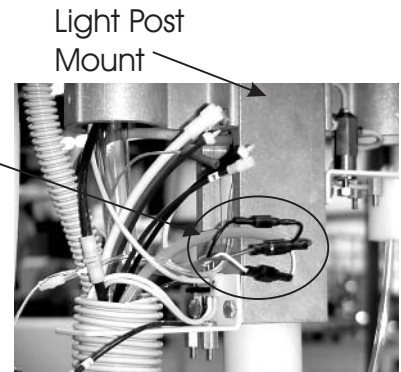
4) If there is already a wiring assembly through the umbilical, simply attach the wires from the flex arm, to the ones from the umbilical. If there is not a wire already in the umbilical, the wiring assembly was shipped with the light. Feed this wiring assembly through the umbilical, making sure that the red wiring connectors end up in the utility center. Now remove the transformer from the packaging. Place the transformer in the desired location (probably in the junction box), and plug the white connector from the wiring assembly into the transformer.

Note: Do not plug the transformer into the power source yet.

Wiring Assembly
Connects to Transformer.



Match the wire color
when connecting wires.

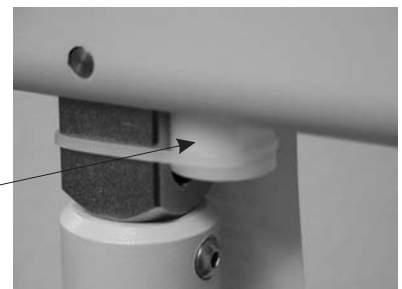


5) Attach the handles to the light head as shown in Detail -A-. Once the light arm assembly is firmly in place, cut the tie wrap that holds the 'safety stop' and warning tag. Now push the flex arm down slightly and remove the 'stop' from its location. The arm should now have its full range of motion. You may now plug the transformer into the power source.

Detail -A-



- Remove the handles from their packaging.
- Remove the screw from the end of the handle.
- Insert the handle into the light head and fasten screw.



Safety Stop

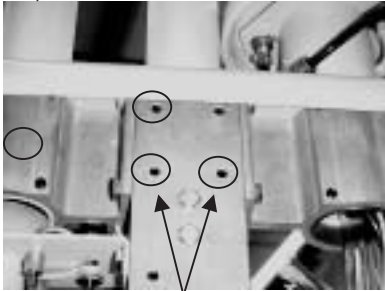
Engle Light Installation Instructions

Step #1



1) Remove the shroud off of the utility center.

Step #2

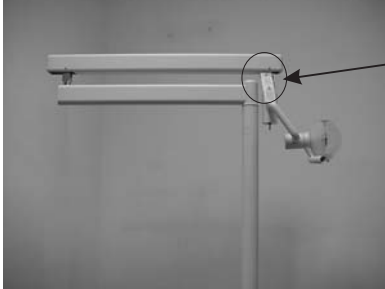


Tighten the circled set screws. (Do not over tighten them)

2) Insert the light post into the utility center. Do this by sliding the light post into the hole on the top of the utility center until it stops. Then tighten the set screws on the side of the mount to secure it. Do not over tighten these set screws.

Note: If you have purchased the light separately, the light post may already be in place.

Step #3



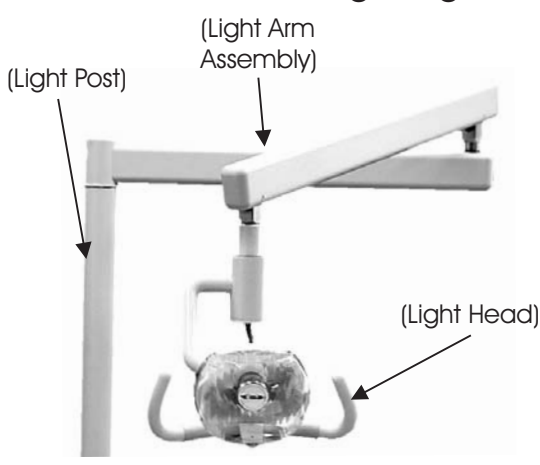
Do NOT remove 'safety stop'

3) Remove the light arm assembly from the packaging. Do NOT remove the 'safety stop' until later instruction. Feed the long wire down through the light post until you are able to insert the light arm assembly into the top of the light post.

Step #3



Assembled Engle Light

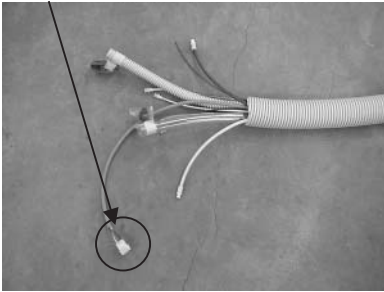


If the light you have purchased contains different parts than the ones shown above, see the 'Sequoia Light' Installation instructions page.

Step #2a

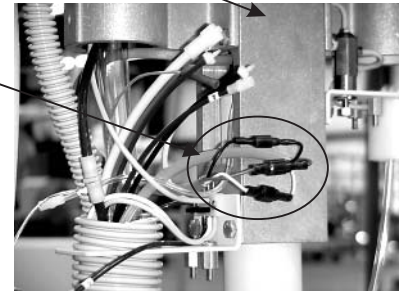
4) If there is already a wiring assembly through the umbilical, simply attach the wires from the arm assembly to the ones from the umbilical. If there is not a wire already in the umbilical, the wiring assembly was shipped with the light. Feed this wiring assembly through the umbilical, making sure that the red wiring connectors end up in the utility center. Now remove the transformer from the packaging. Place the transformer in the desired location (probably in the junction box), and plug the white connector from the wiring assembly into the transformer. Note: Do not plug the transformer into the power source yet.

Wiring Assembly
Connects to Transformer.



Light Post
Mount

Match the wire color
when connecting wires.



5) Attach the handles to the light head as shown in Detail -A-. Once the light arm assembly is firmly in place, cut the tie wrap that holds the 'safety stop' and warning tag. Now push the flex arm down slightly and remove the 'stop' from its location. The arm should now have its full range of motion. You may now plug the transformer into the power source.

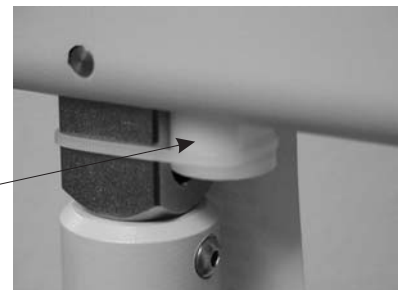
Detail -A-

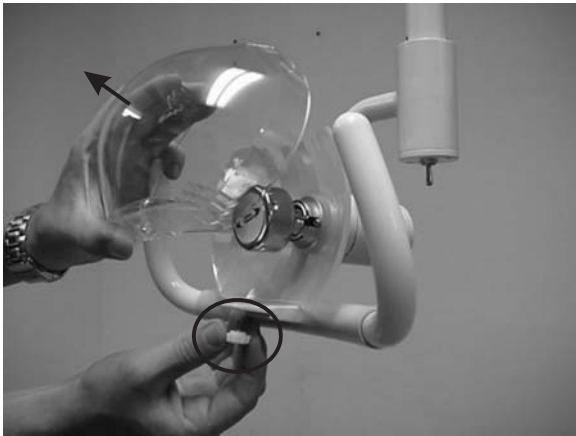


- Remove the handles from their packaging.
- Remove the screw from the end of the handle.
- Insert the handle into the light head and fasten screw.



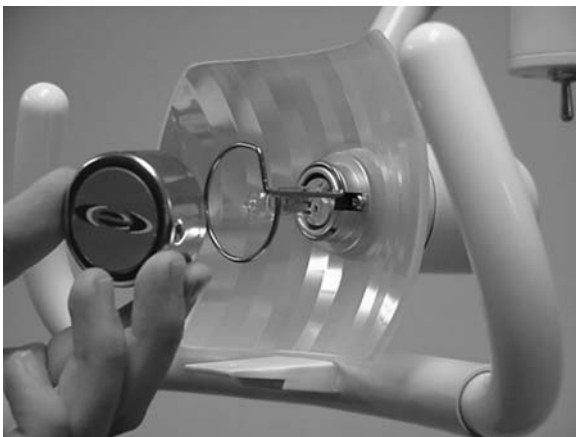
Safety Stop





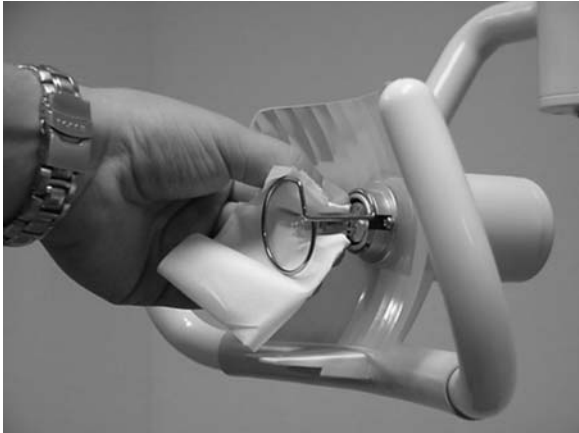
1. Remove the protective lens from the light. To do this, unscrew the thumb screw at the bottom of the light head.

2. Remove the bulb cap. Do this by applying outward pressure where the metal attachment piece connects to the light head, and inward pressure on the opposite side. Twist the bulb cap counterclockwise while applying pressure until it comes off.



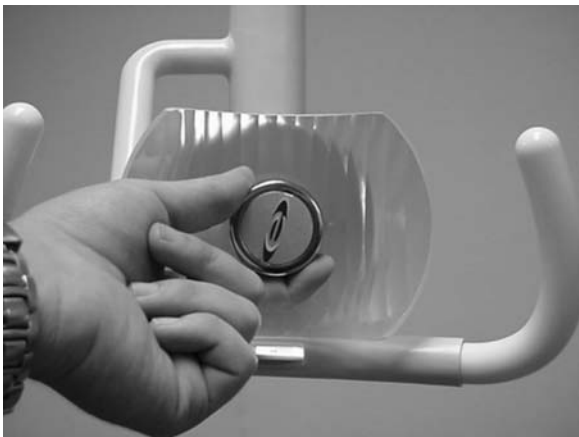
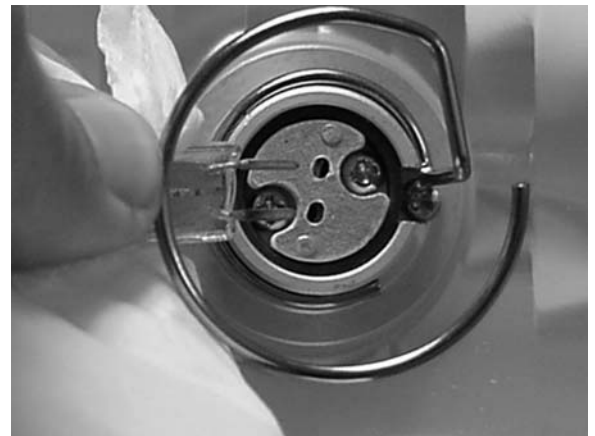
3. The light bulb is now exposed and easily accessible.





4. Carefully remove the used light bulb from the socket and replace it with the new one.

Note: Avoid touching the light bulb with your bare hands. The oils from your skin will severely shorten the life of the bulb. Handle with a tissue or gloves. If you do accidentally touch the bulb, clean it with isopropyl alcohol.



5. Once the new bulb has been inserted into the socket, reattach the bulb cap. Do this by applying inward pressure on the cap where the metal attachment piece connects to the light, while twisting counterclockwise. Continue twisting until the logo is positioned correctly.



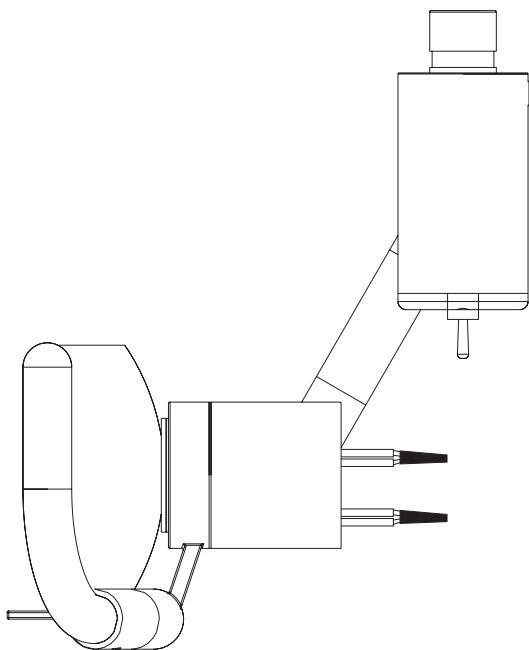
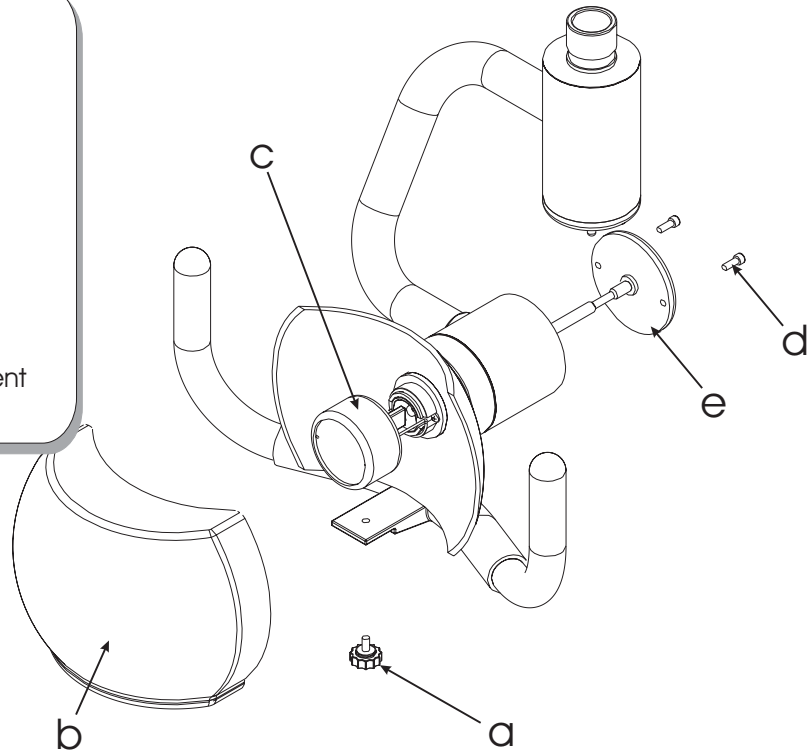
Step 1

Disconnect the light transformer from electrical power.

Step 2

Remove the following items (In Order):

- a) Plastic Thumbscrew
- b) Protective Shield
- c) Bulb Shield
- d) 2x Rear Screws
- e) Rear Cover (unscrew the focus adjustment screw)



Step 3

Disconnect the two sets of wires, by removing the heat shrink wrapping. Be careful not to cut the wires as there is no excess wire to waste.

Clip the zip-tie which holds all 4 wires together.

Step 4

- a) Loosen the set screw ½ turn.
- b) Replace the lamp socket. Insert the new lamp socket as far as it will go.
- c) Tighten the set screw, to hold the lamp socket in place.

Step 5

Reconnect the wires so that each white wire is connected to a brown wire. Secure each connection using the wire nuts provided.

Zip-tie all 4 wires together so that they are not in danger of being crushed by the rotational stop.

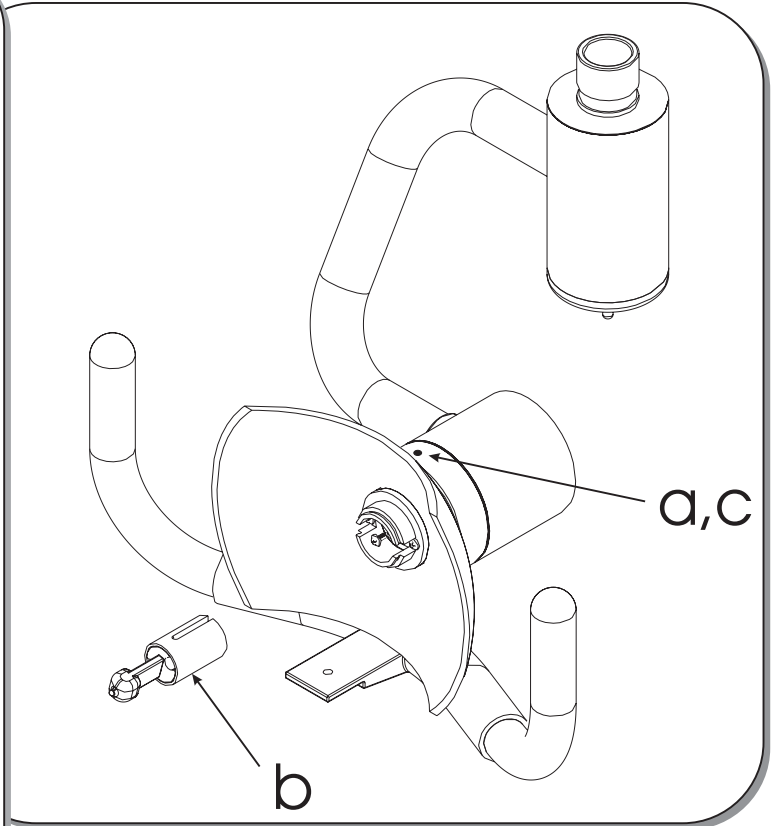
Step 6

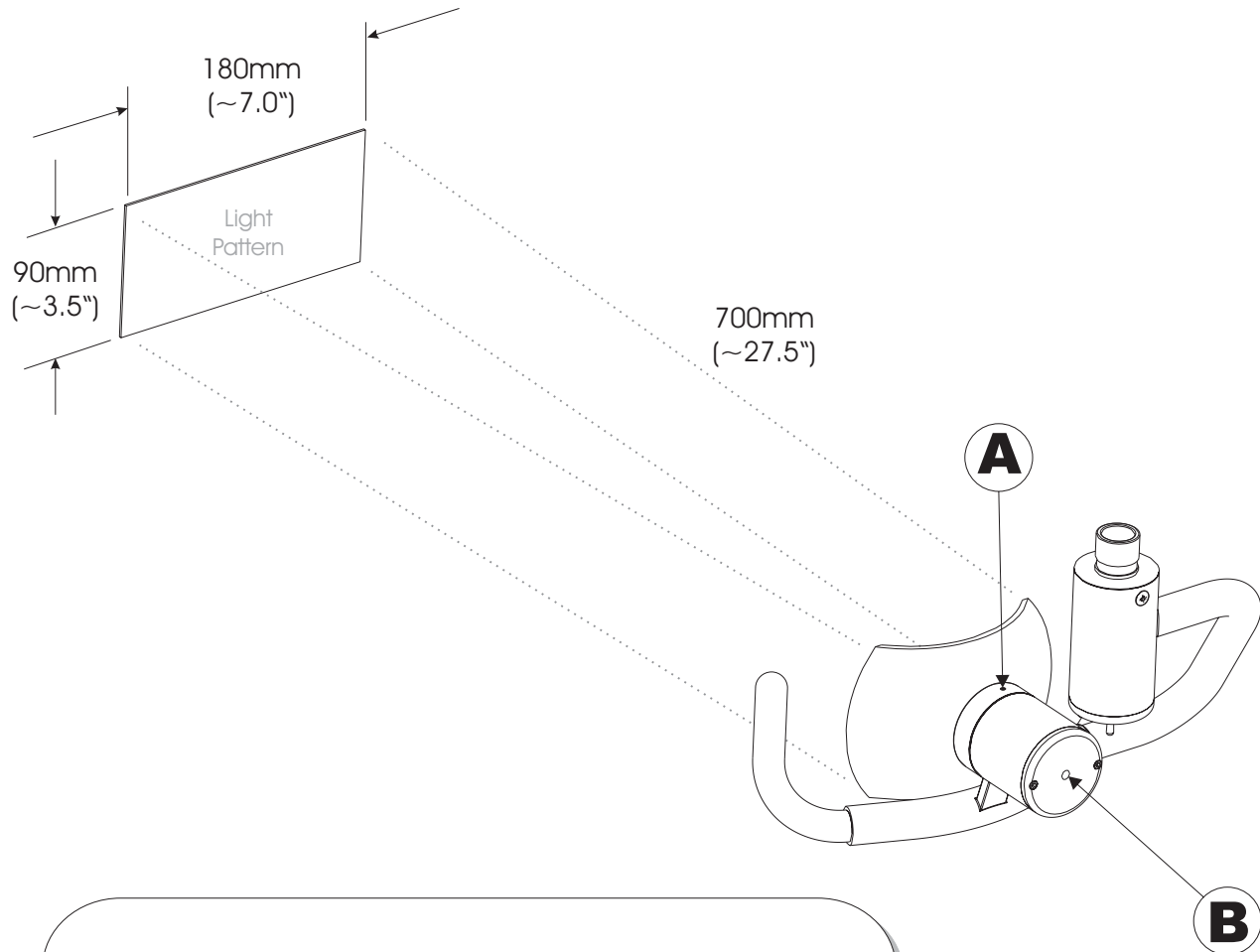
Reattach the Back Cover by first threading the Focus Screw into the new Lamp Socket. Then insert the 2x small screws.

Reattach all other items.

Step 7

Refocus the light (see IL 284 for instructions).

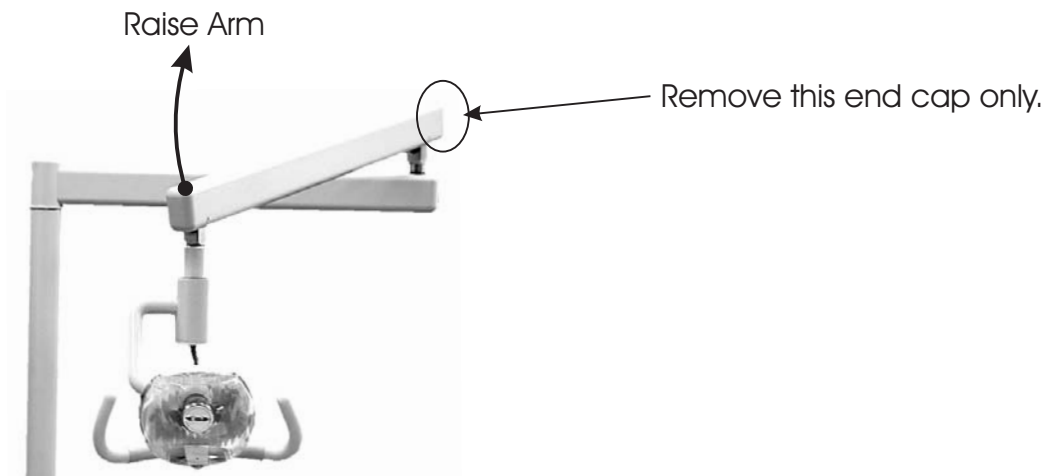




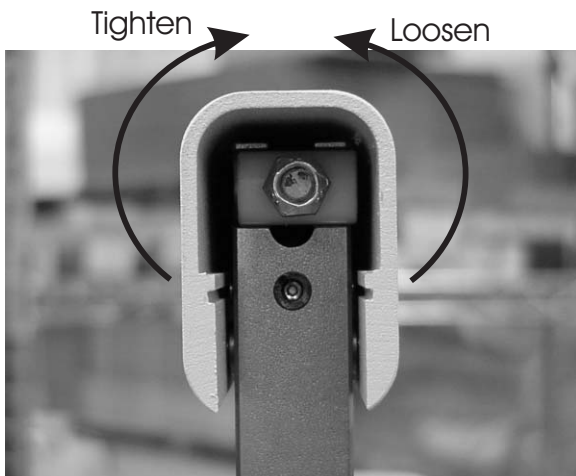
1. Loosen the set screw marked "A" $\frac{1}{2}$ turn, using a 1.5mm allen wrench. Over loosening this set screw will require taking the light head apart.

2. Adjust the screw marked "B", using a 4mm allen wrench, until the desired light pattern is achieved.

3. Tighten the set screw marked "A" until you feel slight pressure on the set screw.



1 - Remove the end cap and attachment piece from the back end of the light arm. Do this by loosening the screw from under the arm and sliding the cap straight out. Next, raise the light head to its highest elevation.



2 - Once the end cap is removed and the arm is raised up, the adjustment nut is exposed. If the light arm is sinking when it should be at rest, tighten the adjustment nut. If the light arm strays upwards, then loosen the nut.
(Note: This step requires a 1/2" hex socket.)

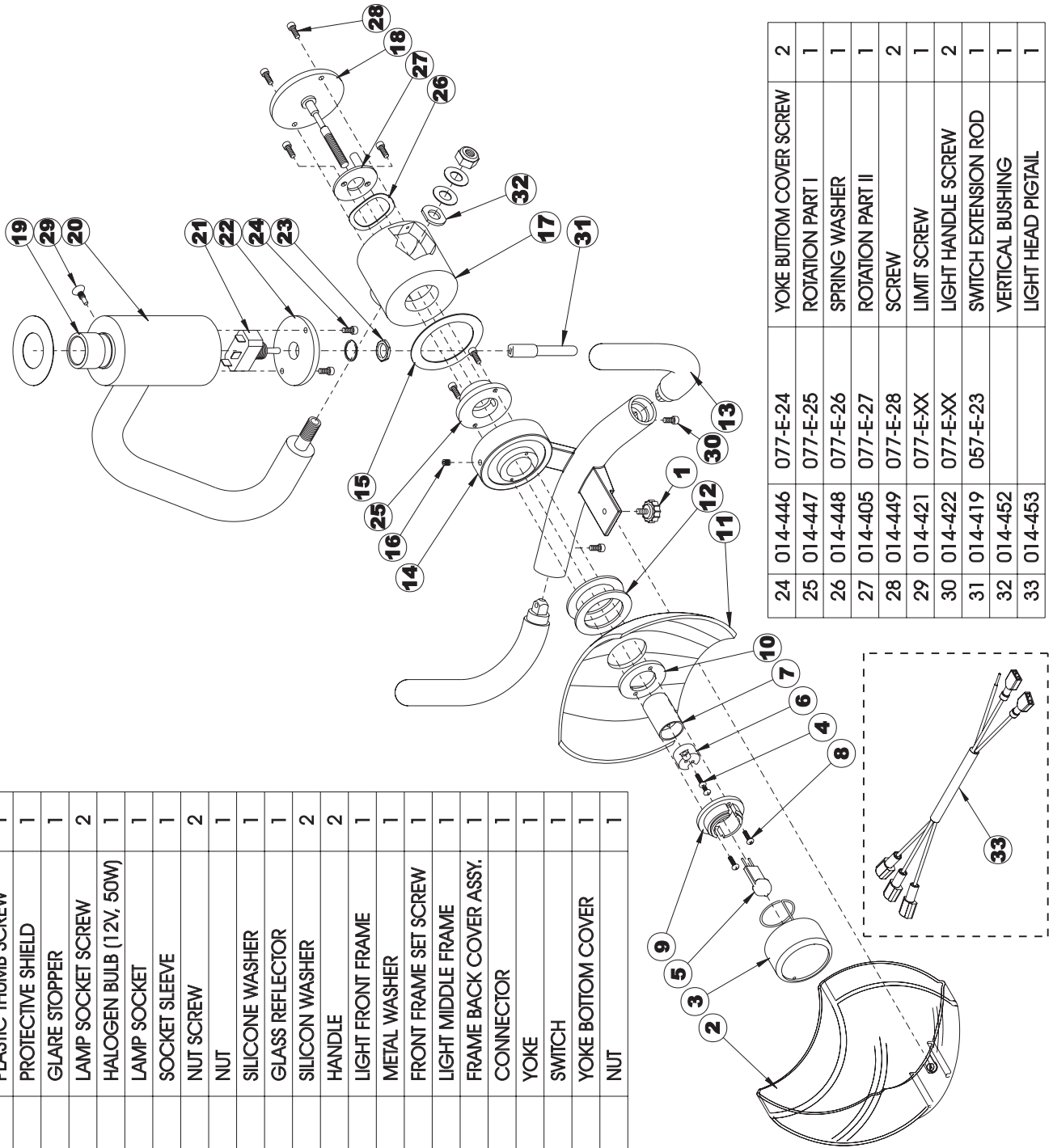
3 - Ensure that the arm tension is satisfactory and adjust as needed. Once you are finished, reattach the end cap and attachment piece.

Sequoia Dental Light Parts List - (014-301-01)

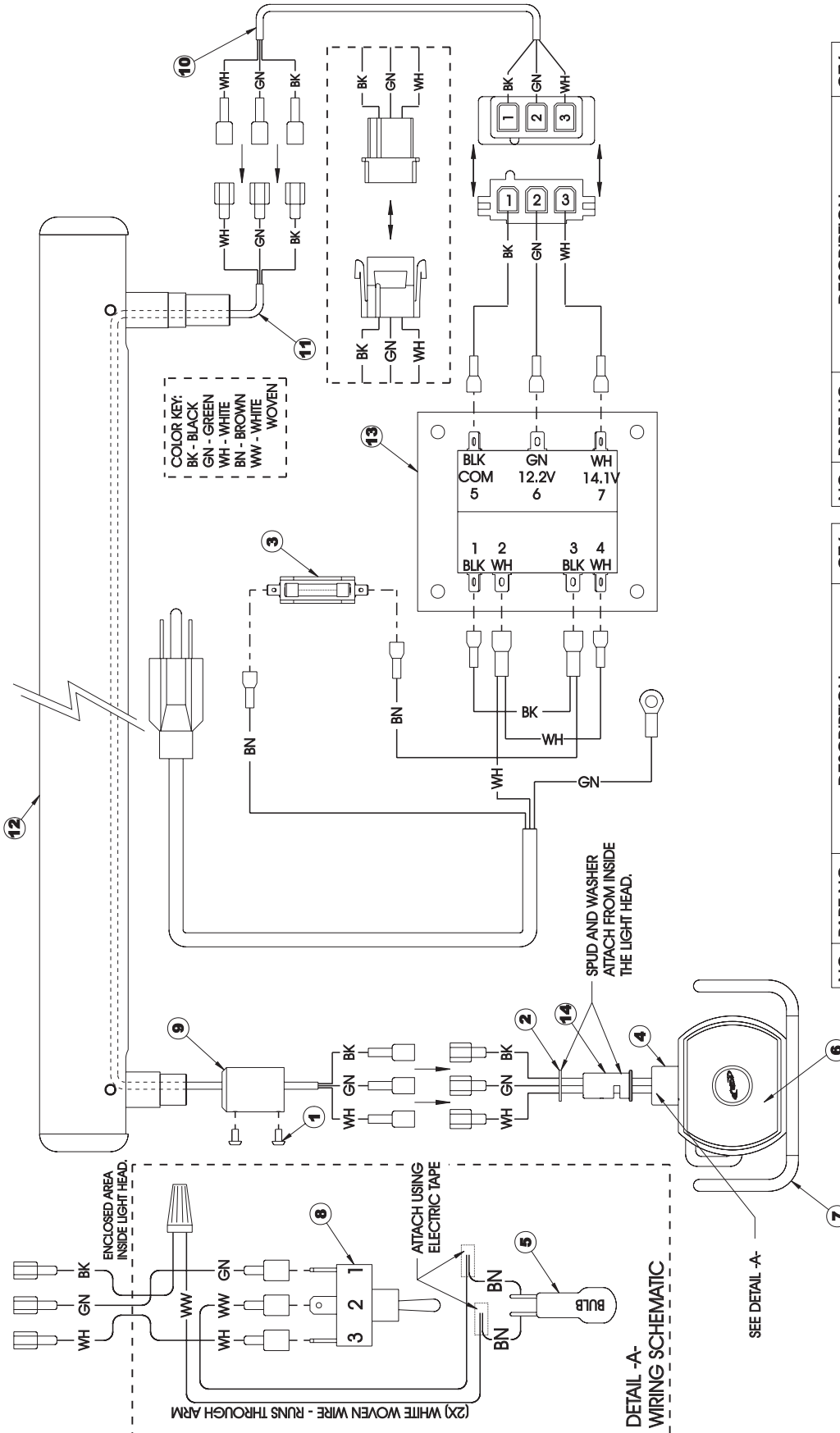
IL 288

Page 1 of 1

NO.	PART NO.	GLOWS PART NO.	DESCRIPTION	QTY.
1	014-400	077-E-01	PLASTIC THUMB SCREW	1
2	014-366	077-E-02	PROTECTIVE SHIELD	1
3	014-401	077-E-03	GLARE STOPPER	1
4	014-432	077-E-04	LAMP SOCKET SCREW	2
5	014-364	077-E-05	HALOGEN BULB (12V, 50W)	1
6	014-387	077-E-06	LAMP SOCKET	1
7	014-433	077-E-07	SOCKET SLEEVE	1
8	014-434	077-E-08	NUT SCREW	2
9	014-435	077-E-09	NUT	1
10	014-436	077-E-10	SILICONE WASHER	1
11	014-365	077-E-11	GLASS REFLECTOR	1
12	014-437	077-E-12	SILICON WASHER	2
13	014-403	077-E-13	HANDLE	2
14	014-438	077-E-14	LIGHT FRONT FRAME	1
15	014-450	077-E-15	METAL WASHER	1
16	014-440	077-E-16	FRONT FRAME SET SCREW	1
17	014-441	077-E-17	LIGHT MIDDLE FRAME	1
18	014-442	077-E-18	FRAME BACK COVER ASSY.	1
19	014-420	077-E-19	CONNECTOR	1
20	014-443	077-E-20	YOKE	1
21	014-404	077-E-21	SWITCH	1
22	014-444	077-E-22	YOKE BOTTOM COVER	1
23	014-445	077-E-23	NUT	1



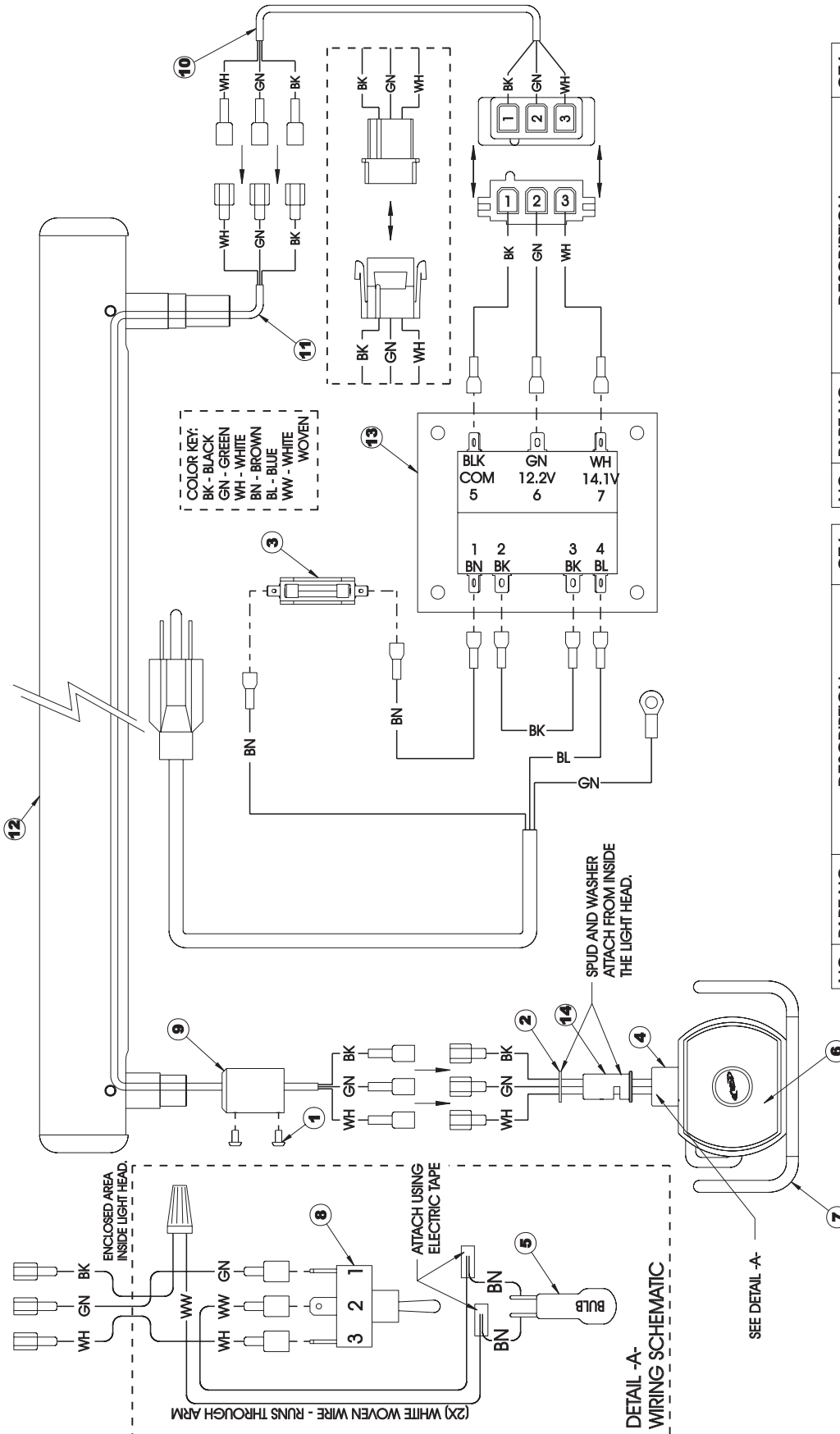
24	014-446	077-E-24	YOKE BOTTOM COVER SCREW	2
25	014-447	077-E-25	ROTATION PART I	1
26	014-448	077-E-26	SPRING WASHER	1
27	014-405	077-E-27	ROTATION PART II	1
28	014-449	077-E-28	SCREW	2
29	014-421	077-E-XX	LIMIT SCREW	1
30	014-422	077-E-XX	LIGHT HANDLE SCREW	2
31	014-419	057-E-23	SWITCH EXTENSION ROD	1
32	014-452		VERTICAL BUSHING	1
33	014-453		LIGHT HEAD PIGTAIL	1



NO.	PART NO.	DESCRIPTION	QTY.
1	001-20	SCREW	2
2	004-78	WASHER	1
3	014-294	FUSE 1 AMP	1
4	014-301	LIGHT HEAD ASSY.	1
5	014-364	BULB (12V,50W)	1
6	014-366	SHIELD	1
7	014-403	HANDLE	2
8	014-404	SWITCH	1
9	24-422	CONNECTOR	1
10	24-452	LIGHT CORD ASSY. - UMBILICAL	1
11	24-453	LIGHT CORD ASSY.- ARM	1
12	24-456	ARM ASSY.	1
13	24-461	TRANSFORMER - 120V 50/60 HZ	1
14	24-484	LIGHT HEAD SPUD	1

120V Light

Dental Light Electrical Diagram (240V)



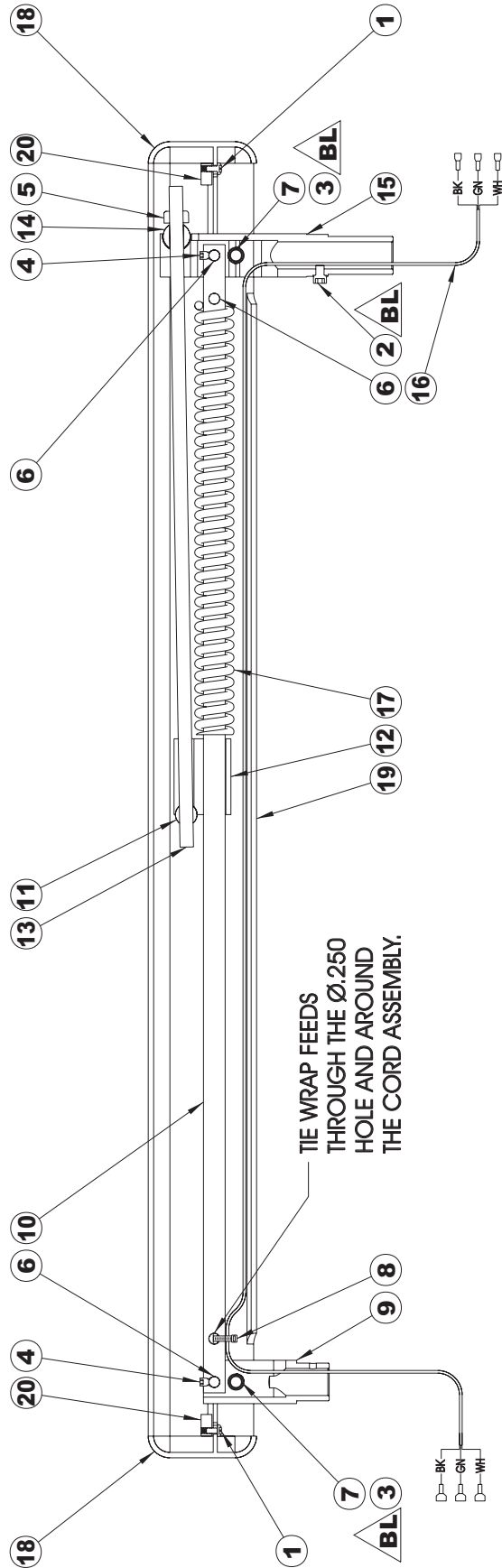
NO.	PART NO.	DESCRIPTION	QTY.
1	001-20	SCREW	2
2	004-78	WASHER	1
3	014-374	FUSE .5 AMP	1
4	014-301	LIGHT HEAD ASSY.	1
5	014-364	BULB (12V,50W)	1
6	014-366	SHIELD	1
7	014-403	HANDLE	2
8	014-404	SWITCH	1
9	24-422	CONNECTOR	1
10	24-452	LIGHT CORD ASSY. - UMBILICAL	1
11	24-453	LIGHT CORD ASSY. - ARM	1
12	24-456	ARM ASSY.	1
13	24-461	TRANSFORMER - 120V 50/60 HZ	1
14	24-484	LIGHT HEAD SPUD	1

240V Light

Front Arm Assembly - Light (24-456)

IL 333

Page 1 of 1

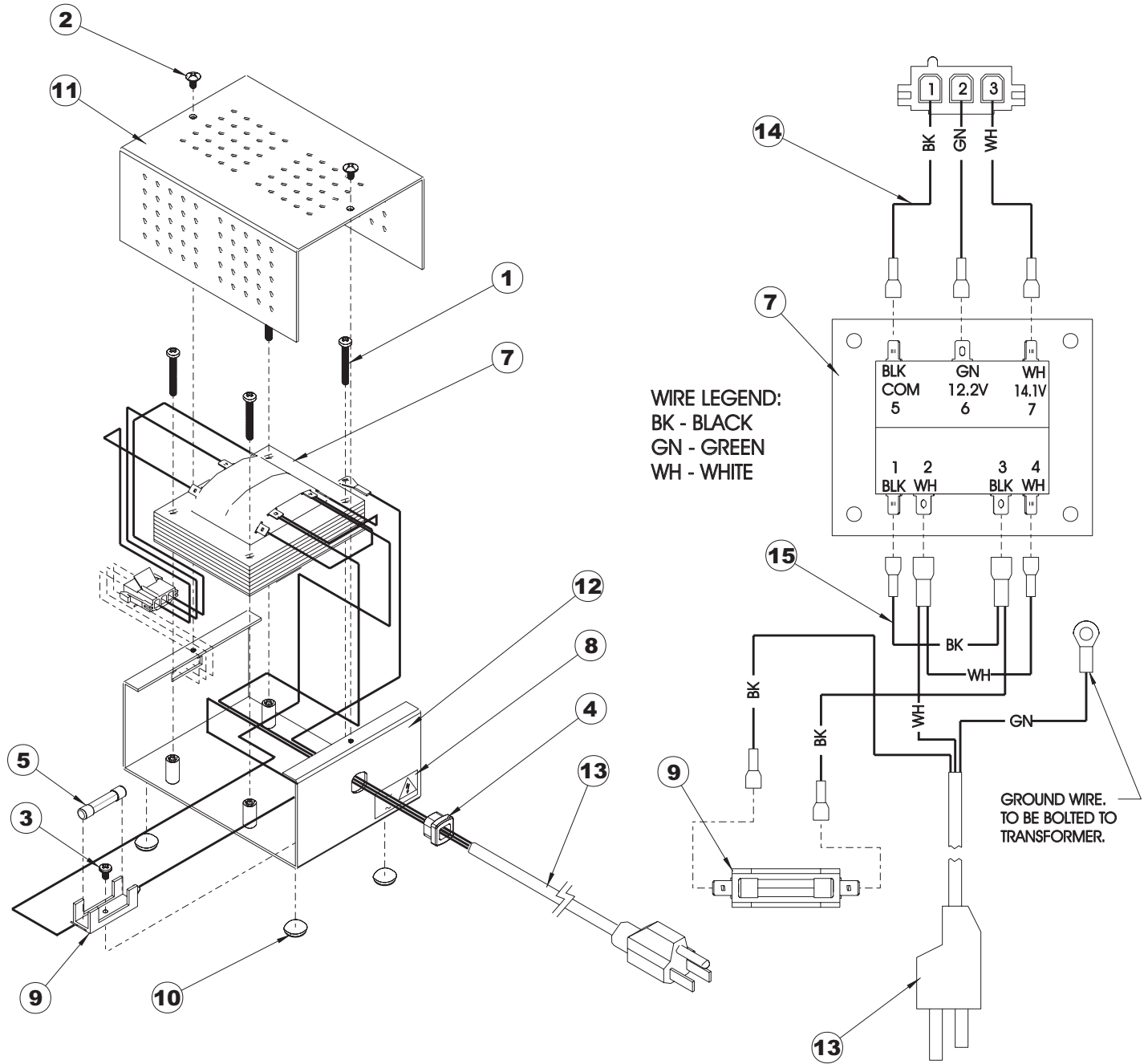


▲BL NEATLY APPLY BLUE LOCITITE TO THREADS.

NO.	PART NO.	DESCRIPTION	QTY.
1	001-18	SCREW	2
2	001-213	SCREW ▲BL	1
3	001-216	SCREW ▲BL	4
4	003-17	SET SCREW	2
5	005-54	LOCK NUT	1
6	006-22	PIN	3

NO.	PART NO.	DESCRIPTION	QTY.
7	006-26	PIN	2
8	007-01	TIE WRAP	1
9	24-424	FRONT KNUCKLE	1
10	24-425	SPRING ROD	1
11	24-426	ADJUSTMENT NUT	1
12	24-427	SPRING CONTAINER	1
13	24-428	ADJUSTMENT ROD	1

NO.	PART NO.	DESCRIPTION	QTY.
14	24-429	ADJUSTMENT ROD BEARING	1
15	24-431	REAR KNUCKLE	1
16	24-453	CORD ASSY.	1
17	71-931	SPRING	1
18	216-047	END CAP	2
19	216-057	ARM HOUSING	1
20	216-044	END CAP MOUNT	2

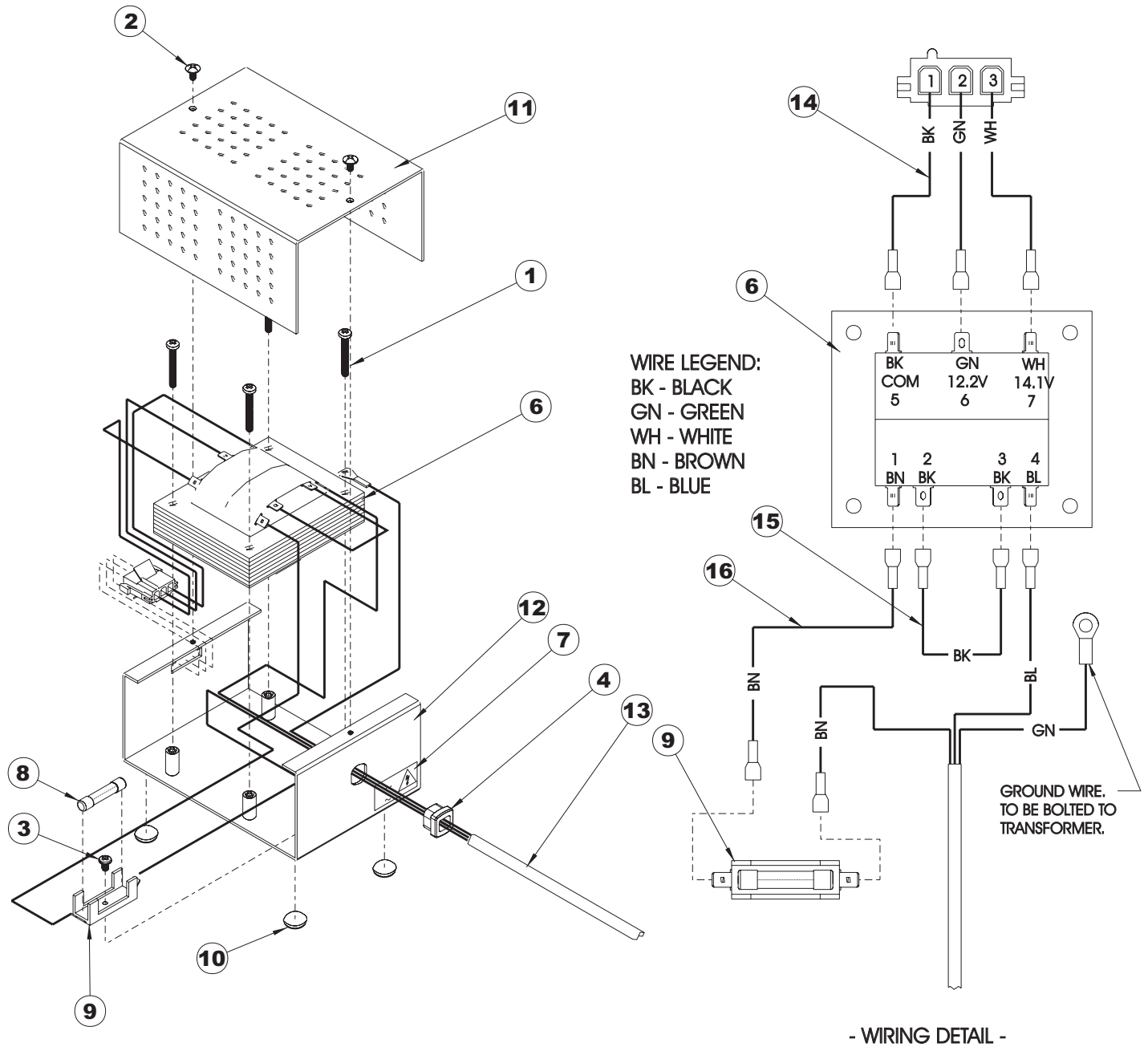


- WIRING DETAIL -

NO.	PART NO.	DESCRIPTION	QTY.
1	001-69	SCREW	4
2	001-70	SCREW	2
3	001-191	SCREW	1
4	014-02	STRAIN RELIEF	1
5	014-294	FUSE - 1 AMP	1
6	014-336	PROTECTIVE GROUND TAG*	1
7	014-369	TRANSFORMER - 65W	1
8	014-370	HIGH VOLTAGE TAG	1

NO.	PART NO.	DESCRIPTION	QTY.
9	014-381	FUSE HOLDER	1
10	020-102	PAD	4
11	24-448	COVER - TRANSFORMER	1
12	24-449	CHASSIS - TRANSFORMER	1
13	24-450	POWER CORD ASSY.	1
14	24-457	SECONDARY POWER WIRE ASSY	1
15	24-458	PRIMARY POWER WIRE ASSY	1

* INDICATES PART NOT SHOWN.



* INDICATES PART NOT SHOWN.

NO.	PART NO.	DESCRIPTION	QTY.
1	001-69	SCREW	4
2	001-70	SCREW	2
3	001-191	SCREW	1
4	014-02	STRAIN RELIEF	1
5	014-336	PROTECTIVE GROUND TAG*	1
6	014-369	TRANSFORMER - 65W	1
7	014-370	HIGH VOLTAGE TAG	1
8	014-374	FUSE - .5 AMP	1

NO.	PART NO.	DESCRIPTION	QTY.
9	014-381	FUSE HOLDER	1
10	020-102	PAD	4
11	24-448	COVER - TRANSFORMER	1
12	24-449	CHASSIS - TRANSFORMER	1
13	24-451	POWER CORD ASSY.	1
14	24-457	SECONDARY POWER WIRE ASSY	1
15	24-459	PRIMARY JUMPER - 240V	1
16	24-460	PRIMARY POWER WIRE ASSY - 240V	1

