Belmont Dental Delivery Systems

Installation Instructions:
Swing Mounted Lights

BDS-2532

Bel-Halo Light
/BDS Series

Model BDS-2532
Bel-Halo Swing-Mount Light

Installation Time: Approximately 2 hours

Shipping Packages:
3 Boxes:

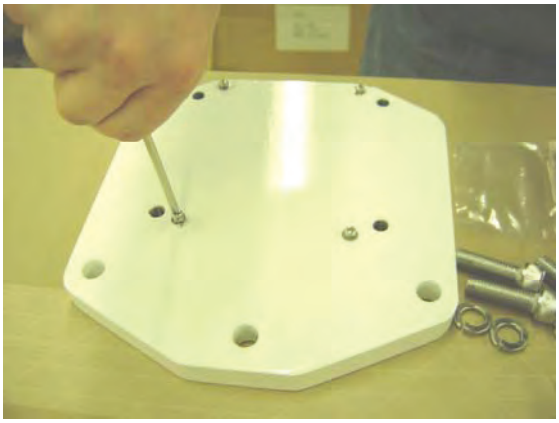
1- Swing Arm Assembly
1- Umbilical & J-Box Components
1- AL-920X Light with curved post, Transformer and Sensor/Switch Box

Tools Needed:

Hex key wrench set or socket drive set
Adjustable wrench
Phillips head screwdriver
Bubble Level
Masking Tape

1. Open large shipping carton that contains the Swing Arm Assembly. This package contains a smaller box where the Swing Mount Bracket and Mounting Hardware are located.
   Remove Swing Mount Bracket and bag of hardware.

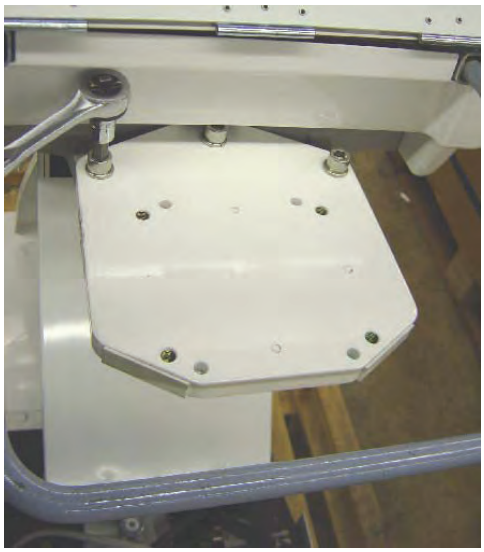
2. Locate and install (**4)** 4mm x10 mm screws into the bottom side of the Swing
   Mount Bracket using a Phillips screwdriver, as shown below. This step clears excess paint from threaded holes.



Bel-20/Bel-20+/Bel-20N/Bel-50 Swing Mount Bracket
(bottom side)

3. Attach the Chair Mounting Plate to Bel-20, Bel-20+, Bel-20N or Bel-50 chair using hardware provided.

The Chair Mounting Plate is attached on the top of the gray chair casting extension as shown below. Attach Plate to chair using a 10 mm hex key wrench to tighten the **(3)** 12mm x 55 mm socket bolts with 12mm spring washers.



Chair Mounting Plate is attached on top of the gray extension casting with M12 bolts on Bel-20, Bel-20+, B-20N & Bel-50 Chairs

Attached mounting bracket, shown from below.
Note (4) 4mm x 10mm Phillips screw heads face down. (These are used for mounting sensor/switch box for Bel-Halo & Clesta lights)

4. Attaching the Swing Arm Assembly

IMPORTANT! :
Reset lower chair limit position after attaching the Swing Arm Assembly to the chair. Damage to J-Box, chair base & lift arm covers and swing arm can result from improperly set lower limit position.
Please refer to chair manufacturer's instructions for setting lower limit of travel.

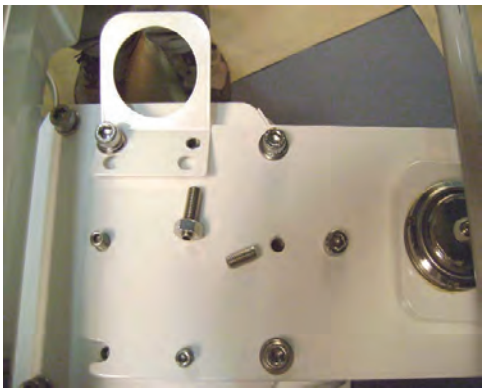
Remove Swing Arm Assembly from shipping package and place Rotation Plate on the top side of the Swing Mounting Bracket.

Use an 8 mm hex key wrench to partially tighten Swing Arm Assembly to Swing Mounting Bracket as follows:

a) Add **(2)** 10mm x 40mm socket bolts with spring washers to front recessed holes on Swing Arm Rotation Plate and partially tighten to support Swing Arm Assembly.

b) Place the Bracket for Umbilical Hose on top of the Swing Arm Rotation Plate and align the holes as show in photos below, then add remaining (2) 10mm x 40mm socket bolts with 10mm spring washers and 10 mm flat washers into the slotted end of the Rotation Bracket.

c) Use an 8 mm hex key wrench to partially tighten assembly.



Bracket for Umbilical Hose is secured using socket bolt with spring washer and flat washer. Note: M10 x 20 leveling set screws & M10 x 35 leveling set screw with nut shown.

Insert long (35mm) leveling set screw with locking nut through hole in Umbilical Mounting Bracket, as shown above. Nut should be tightened after final leveling of swing arms & unit.

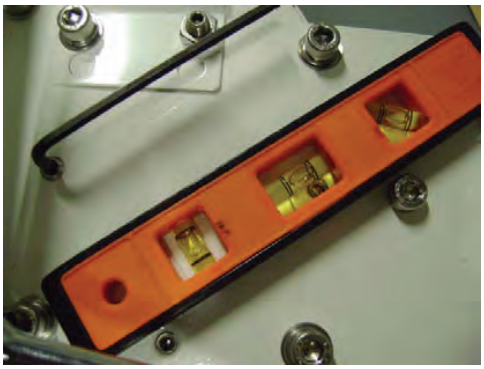
5. Swing Arm Leveling

a) Using an 8mm hex key wrench, add **(1)** M10 x 35 through hole in Umbilical Mounting Bracket (as shown above, at right) and **(3)** M10 x 20 Leveling Set Screws to the top of Rotation Plate.

b) Place a bubble level on top of the flat surface of the Rotation Plate and check Swing Arm Assembly leveling. Adjust the Leveling Set Screws for rough leveling, as indicated by bubble level.

c) Gradually tighten **(4)** M10 x 40 Socket Bolts to secure Rotation Adapter to Swing Mounting Bracket, making adjustments to Leveling Set Screws, as necessary.

NOTE:
Final leveling of Swing Arm Assembly should be repeated and adjusted after Light Assembly has been attached to the Light Swing Arm Assembly.



Adjusting (4) set screws for leveling of Swing Arm Assembly with 8 mm hex key wrench and bubble level

6. Assembling Bel-Halo Light components

a) Unpack Upper Curved Light Post and Bel-Halo AL-920X light from light box.

b) Locate Lower umbilical Wire Harness and set aside for installation into umbilical duct hose in a later step.

c) Loosen the flexible ribbon pull wire on Upper Curved Light Post, but do not remove it. Remove accessory bag taped to Upper Curved Light Post. Bag contains Brass Friction Discs, Set Screws and Hex key wrench.

d) Remove white plastic Washer from bottom of Curved Light Post. Insert Washer over mounting stud on Light Swing Arm.

Slip washer onto mounting stud.

e) Remove Bel-Halo light and Balance Arm Assembly from box.

f) Unpack the transformer and sensor switchbox from the AL-920X shipping carton and set aside for steps 10 and 11.

g) Remove the protective clear plastic tube from the end of the light wire harness.

h) Remove bag taped to end of Light Balance Arm Assembly with **(2)** 5mm x 15mm painted cap screws.

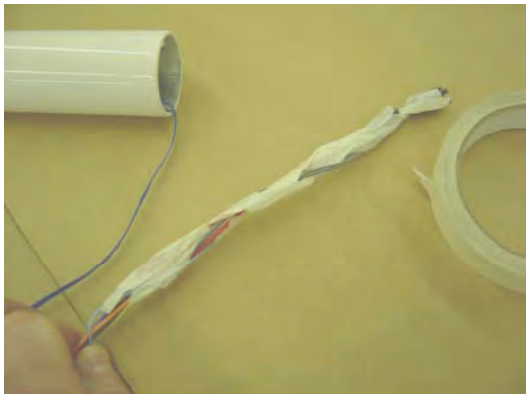
Remove clear plastic tube from connectors, bag with screws and bag with spare bulb and adjustment tool.

7. Assembling AL-920X light to Upper Curved Light Post

a) Remove the clear plastic sleeve from the end of the light wire harness and wrap the wire connectors (sparingly) with a single wrap of masking tape (as shown below) for insertion into the post mounting stud on the top of the light swing arm.

DO NOT OVERWRAP the end of the wire harness with tape or connectors will not fit through mounting stud.

b) Fasten the end of the flexible pull wire on the end of the Upper Light Post that has (2) holes on top to the light wire harness, and GENTLY pull wire harness and connectors out through the bottom of the post. Use care, as excessive pulling may yank the connectors from the wires.



Tape wire harness connectors shown with a single tape wrap in a loose helix.

CAUTION!
Alternately feed wire harness into top of light post, while gently pulling ribbon wire from the opposite (bottom) end.
Electrical connections and wiring can be damaged if wire harness is pulled with excessive force.

Taped wire harness is wrapped with (blue) flexible ribbon wire and pulled through top end of Upper Curved Light Post.
Note: Top of light post has 2 Thru holes as shown above.

Gently pull wire harness connectors and wire harness from the bottom of the light post

c) Insert casting end of AL-920X light Balance Arm Assembly into the Curved Light Post.

d) Using a 3 mm hex key wrench, fasten assembly together using the (2) 5mm x 15mm painted cap screws.

Insert Light Balance Arm into Upper Curved Post. Note: Align through-holes in light post with threaded holes in balance arm prior to insertion.

Tighten cap screws to fasten Light Balance arm to Upper Curved

e) Use the chair foot control to lower the chair base for installation of Bel-Halo Curved Post Light Assembly onto Light Swing Arm.

f) Fold light Balance Arm toward the Curved Light Post and lift Bel-Halo light.

g) Take the end of flexible ribbon pull wire and feed through the mounting stud on the Light Swing Arm.

h) Carefully feed wire harness connectors through the mounting stud and gently pull flexible ribbon wire and wire downward through the Light Swing Arm.

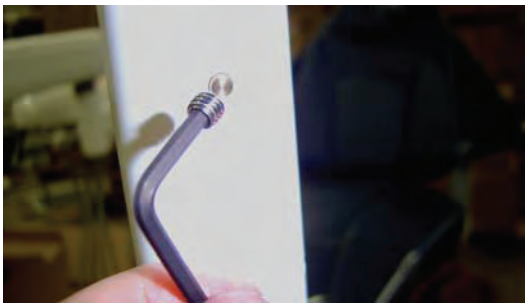
CAUTION!
Alternately feed wire harness through Swing Arm, while gently pulling ribbon wire from the opposite end. Electrical connections and wiring can be damaged if wire harness is pulled with excessive force.

Carefully insert wrapped connectors into the mounting stud on top of the Light Swing Arm.

i) Mount the Bel-Halo light post assembly onto the Light Swing Arm mounting stud.

j) Insert brass friction discs and set screws into the 3 holes around the lower portion of the upper light post using the hex key wrench provided. Tighten set screws only enough to apply friction to minimize drifting of light.

IMPORTANT!
Do Not Over-Tighten Set Screws.
Over-tightening will strip the threads inside the Curved Light Post.



Insert brass discs and set screws to minimize drifting of light.
Do not over-tighten screws!

k) Re-check the leveling of the Unit/Light Swing Arm Assembly. Re-adjust as necessary.

8. Installing the Umbilical Wire Harness

a) Feed the lower umbilical wire harness from the shipping carton and feed it through the Umbilical Duct Hose assembly. The lower end of the wire harness has a single multi-wire connector for attachment to the transformer that will be placed inside of the J-Box. This connector will extend from the lower end of the umbilical duct hose assembly.

b) Clip the upper end of the umbilical duct hose assembly into the umbilical retaining bracket attached to the rotation bracket of the light swing arm assembly. The upper end of the wire harness extends from the top of the umbilical for connection to light wire harness and to the PC board inside of the Sensor Switch Box.

9. Transformer and Sensor Switch Box

a) Place the Transformer/Power Supply on the floor, within the J-Box frame.

The Transformer has a power cord with a molded 3-prong grounded plug, an attached wire harness with a single multi-wire connector for attachment to the lower umbilical wire harness and a brown 1/8” OD tube. (This is an air supply tube for activating the transformer via air/electric relay).

b) Remove the access cover from the Switch Box by unscrewing the two phillips retaining screws on each side side of the cover.

10. Connecting the Lower (Umbilical)Wire Harnesses

(SEE WIRING DIAGRAM ON NEXT PAGE)

Attach the connectors (3) connectors from the lower wire harness as follows:

a) 4 Position connector with Green, Blue, Purple and Gray wires to 4 Position connector with Black, White, Pink and Gray wires attached to the Sensor Switch Box switch & PCB

b) 2 Position connector with Red and Yellow wires to 2 Position connector with Black/White and Brown/White wires from the light balance arm.

c) 2 Position connector with Brown and Orange wires to 2 Position connector with Black and Brown wires from the light balance arm.

d) Connect the Transformer 8 Position wire harness connector to the 8 Position connector on the bottom end of the of the lower wire harness

11. Connecting the Light Wire Harness to the Sensor Switch Box

(SEE WIRING DIAGRAM ON NEXT PAGE)

Attach the connectors (3) connectors from the light wire harness to the Sensor Switch Box PCB as follows:

a) 3 Position connector with Orange and Red wires to the 3 Position connector on the PCB labeled CN9

b) 3 Position connector with Yellow, Green and Blue wires to the 3 Position connector on the PCB labeled CN4

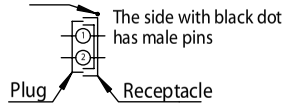
c) 2 Position connector with Purple and Gray wires to 2 Position connector on the PCB labeled CN5

AL-920X Bel-Halo LED Light

Remarks

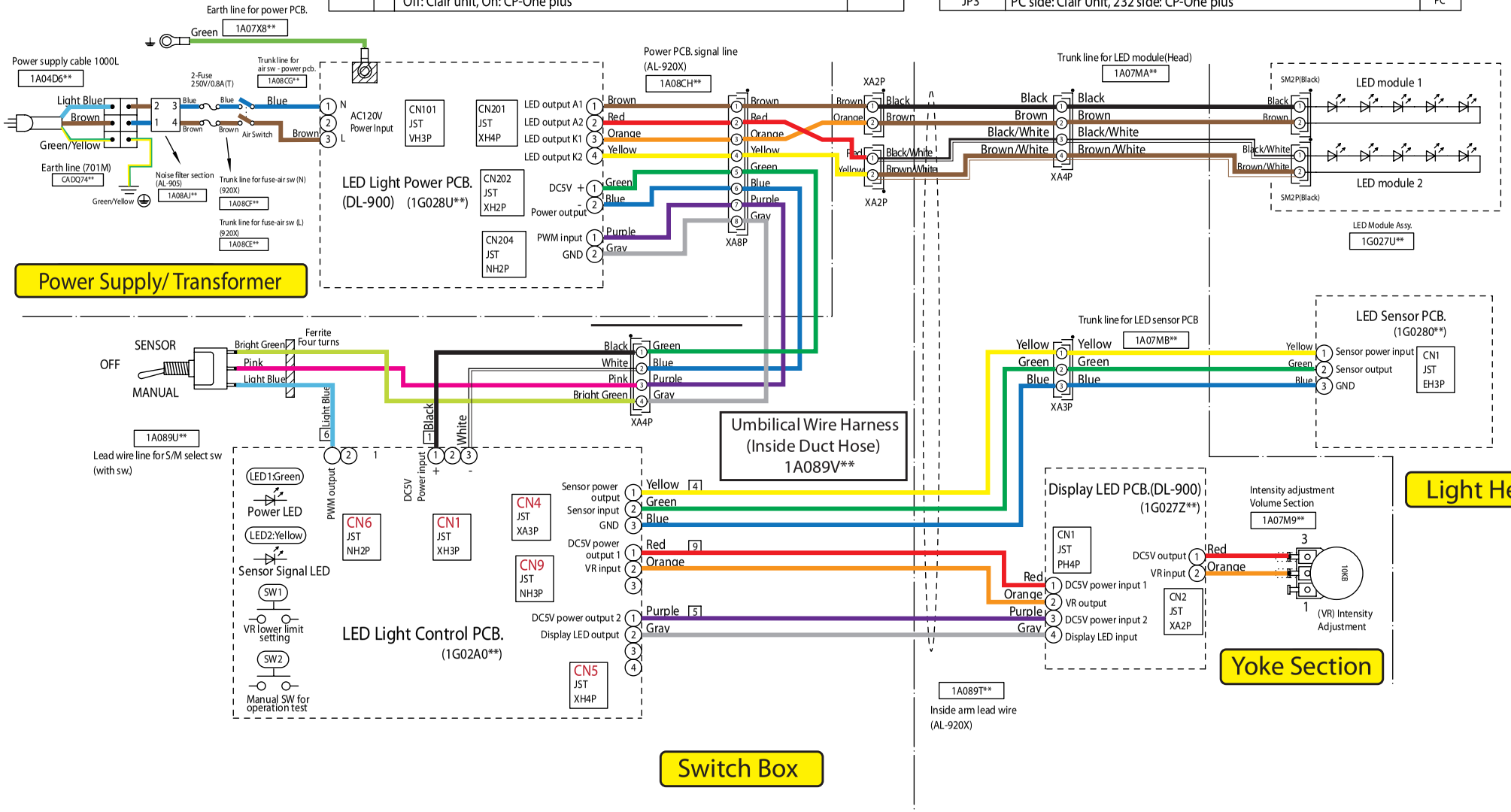
Connector Symbol
- SM ... SM Connector
- XA ... XA Connector
- XM ... XM Connector

Black dot



Settings of PCB dip switches (SW3,4) and jumper pin (JP3).

		Setting condition	Default setting
SW3	1	Test mode (Always OFF) Off: Normal operation, On: Test operation	OFF
	2	Transition time to Composite mode (by a sensor) Off: 1 second, On: 2 seconds	ON
	3	Wake-up brightness setting from light off condition. Off : 1. Composite Mode when a light is turned on by using a sensor. : 2. Keeps on getting on/off signal from dr table, light stays in composite mode. On : 1. Regular Mode when a light is turned on by using a sensor. : 2. Keeps on getting on/off signal from dr table, light goes into regular mode.	ON
	4	Combining dental unit Off: Clair unit, On: CP-One plus	OFF
SW3	5	Sensor activation setting Off: Activate when a hand goes away, On: Activate when a hand comes in.	OFF
	6	6 Includes Composite Mode Off:Yes, On: No	OFF
	7	Speed setting of communication line Off: 4800bps, On: 2400bps	OFF
	8	LED blink setting of Composite Mode Off: Slow blinking, On: Rapid blinking	OFF
SW4		PC side: Clair Unit, 232 side: CP-One plus	PC
JP3		PC side: Clair Unit, 232 side: CP-One plus	PC



12. Connecting the Light Wire Harness to the Sensor Switch Box

a) Secure the wire harness from the light inside of the Sensor Switch Box with the built-in strain relief clamp.

Slip the Upper and Lower wire harnesses through the rectangular hole on the side of the Switch Box housing.

Bundle all wires within the Switch Box enclosure and re-attach the cover using the two Phillips screws.

b) Mount the Switch Box on the underside of the chair mounting plate using the four M4 x 10 Phillips Head screws inserted in step 1.

c) Retain the Lower wire harnesses to the rotation shaft on the Rotation Bracket using the plastic C clamps located on top and bottom of the Swing arm pivot.

13. Finishing Up

Plug the Transformer into a 120 VAC outlet and verify that light is functioning correctly.

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