

Installation
and
Operation Manual for the Engle 300™ Dental Chair (115V/220V)

(229-1007)



Engle 300
with ComfortPlus™





P.O. Box 725 · 4115 24th Avenue Suite A · Forest Grove, Oregon 97116, USA
www.engledental.com

INSTALLATION AND OPERATION MANUAL

Customer Service:

7:00 A.M. to 4:30 P.M. (Pacific Time)
Phone: 800-547-1906
Fax: 503-357-7286
E-mail: info@engledental.com

Technical Support:

7:00 A.M. to 4:00 P.M. (Pacific Time)
Phone: 800-547-1906
Fax: 503-357-7286
E-mail: support@engledental.com

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

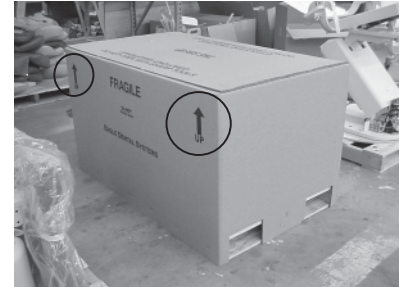
* ENGLE DENTAL SYSTEMS makes no representation as to the disinfectant efficacy of these products. We make no warranty, expressed or implied, that these disinfectants will not damage the surface finishes. Damage and discoloration of the surface finishes is not covered under the warranty.

** 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.

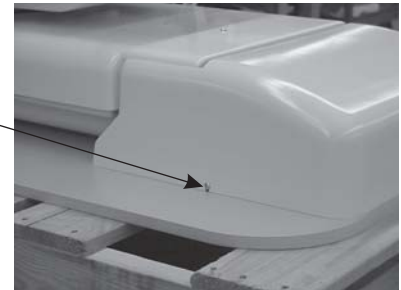
- 1 Open the package from the top.

Remove the shipping box from the chair pallet.

Remove wood cross members.



- 2 Remove the Hydraulic Access Shroud. To do this, remove the "two" Attachment Screws, (one each side) of the shroud, and slowly pull the shroud away from the chair.



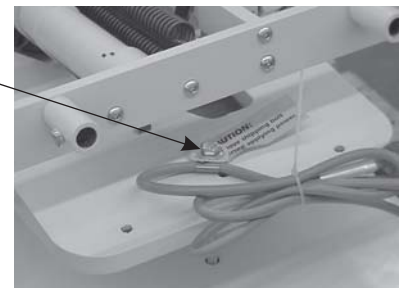
- 3 Detach the chair from the shipping pallet by removing the "two" bolts (one each side) located on the Base Plate.

Reinstall the Hydraulic Access Shroud.

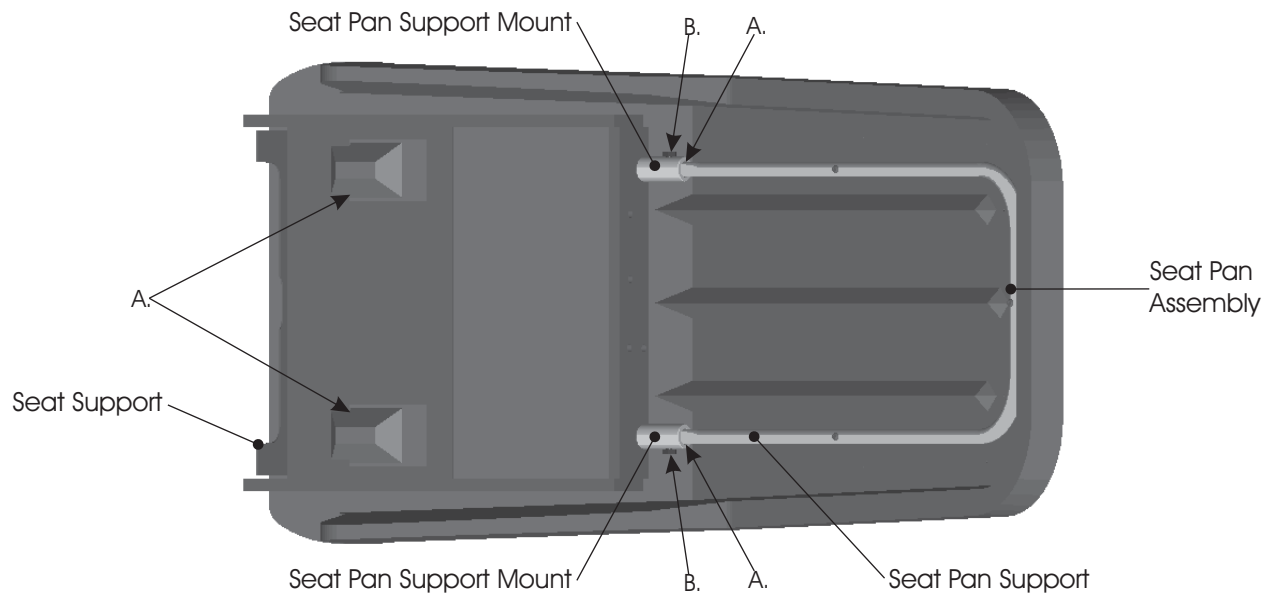
Remove the chair from the shipping pallet and move it to the location you wish to use the chair.



- 4 **CAUTION:** Remove this shipping bolt before raising the chair.



- 5 If your Engle 300™ chair is equipped with the Engle 360™ Delivery System. Stop, and proceed with step one of the "Installation and Operations Manual for the Engle 360™ Delivery System" before proceeding with this step. If not, remove the Seat Pan Assembly from its shipping box and Install.



Partial Bottom View

A. Simultaneously Insert "both" Seat Pan Assembly tabs into the Seat Support and the Seat Pan Support into the Seat Pan Support Mount.

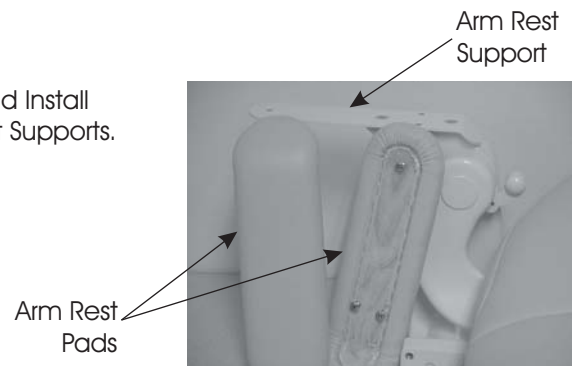
B. Secure the Seat Pan Assembly by tightening the Adjustment Bolts.

- 6** Connect any touch pad controls at this time.
(Use Touch Pad control Installation sheet for control upgrades.)

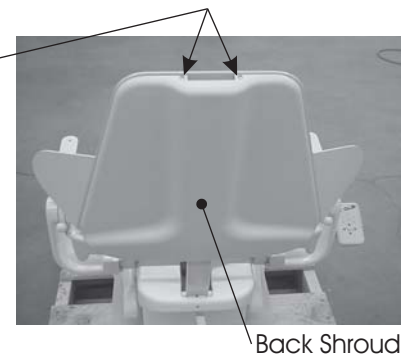
You may now connect the chair's power cord to a
"HOSPITAL GRADE" power source.

If any optional equipment is to be installed, please
do so now. When completed, return to this set of
instructions and proceed to step seven.

- 7** Remove the "two" Arm Rest Pads from there shipping box, and Install
the Arm Rest Pads using the attached screws, to the Arm Rest Supports.



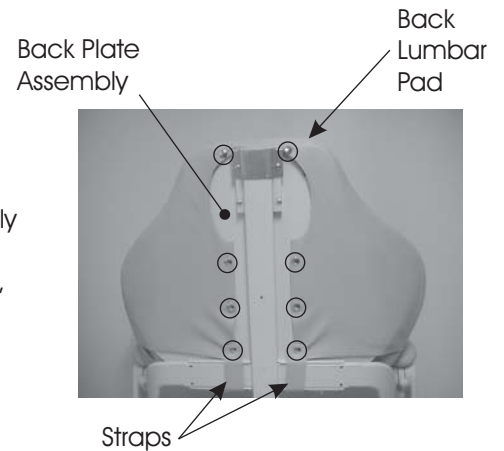
- 8** Remove the Back Shroud. To do this, while securing the Back Shroud,
loosen the "two" Attachment Screws of the Back Shroud and slowly pull
the shroud down and away from the chair.



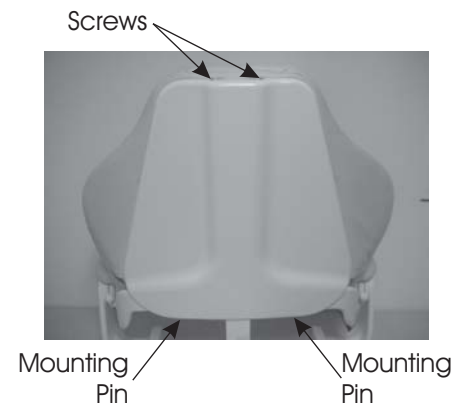
- 9** Remove the Back Lumbar Pad from it's shipping box and Install. Holding the rear flaps open, attach the Back Lumbar Pad to the Back Plate Assembly.

- 10** From top to bottom, attach the Snaps on the rear flaps and two straps of the Back Lumbar Pad to the Back Plate Assembly, "eight" places.

Tip: To easily attach the "two" strap snaps, with one hand simultaneously place the hole located on the corner of the flap over the Male Snap and compress the cushion at the base of the Strap with Female Snap , and attach Female Snap.



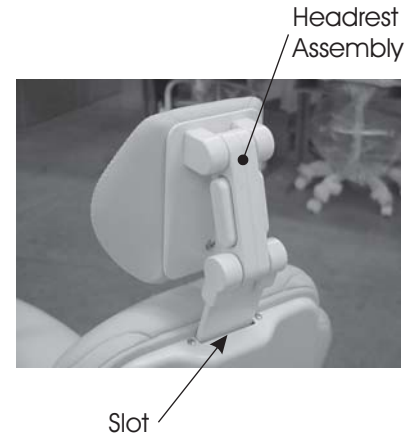
- 11** Reinstall the Back Shroud, to do this guide the "two" Mounting Pins on the bottom of the Back Plate Assembly thru the "two" holes on the bottom of the Back Shroud and secure, then reinstall the "two" previously removed Mounting Screws.



- 12** Finally, if you haven't done so yet, remove the Headrest Assembly from its shipping box and insert it into the top slot of the chair back assembly.

The Engle 300™ Dental chair is now ready for use.
For instructions on preprogramming desired positions, see the page entitled "Description of Functions - Engle 300 Touch Pad" of this manual.

(Test all of the chair's functions to ensure everything works properly)

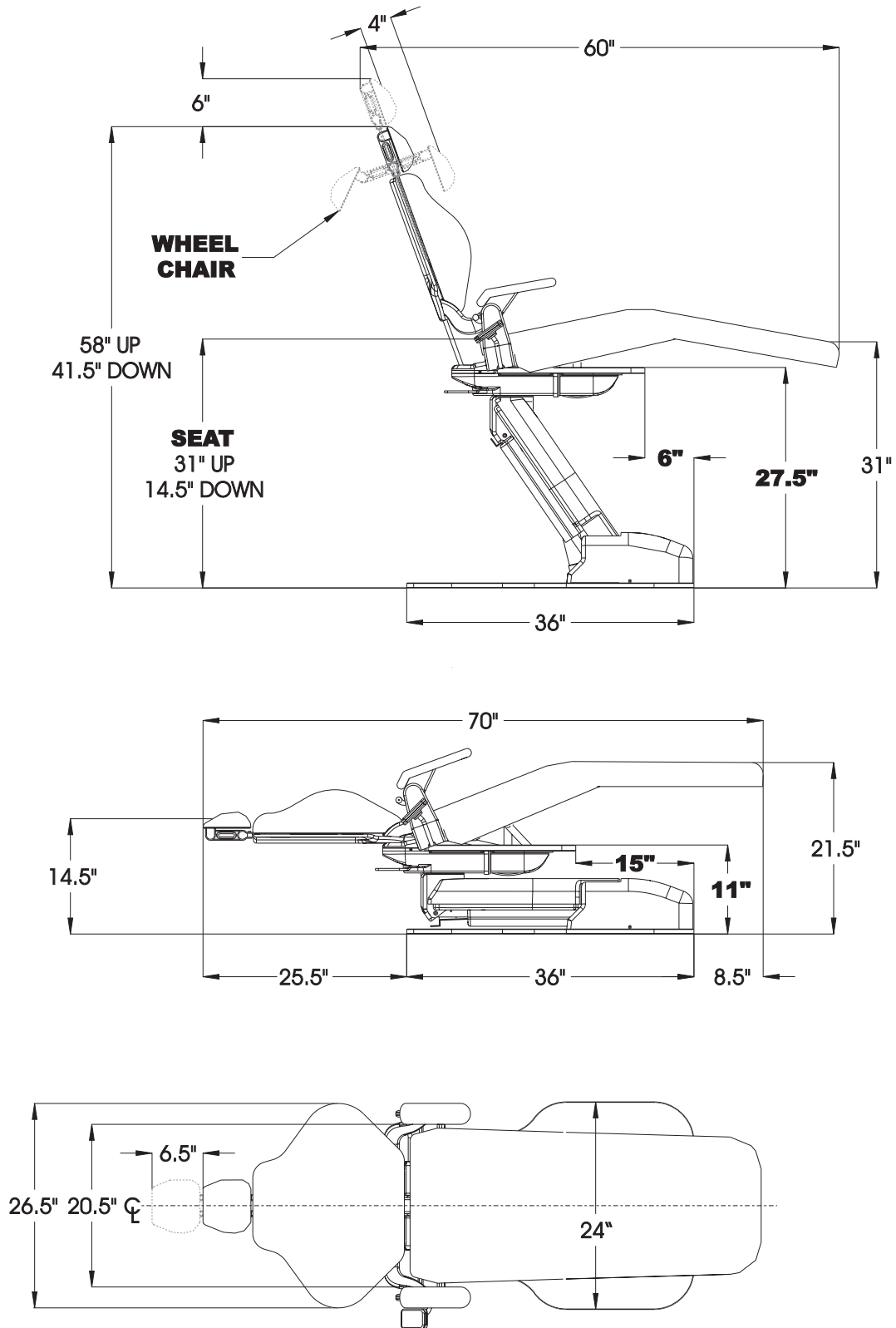


Engle 300™ Dental Chair

General Dimensions of the Engle 300™ Dental Chair

IL 1174

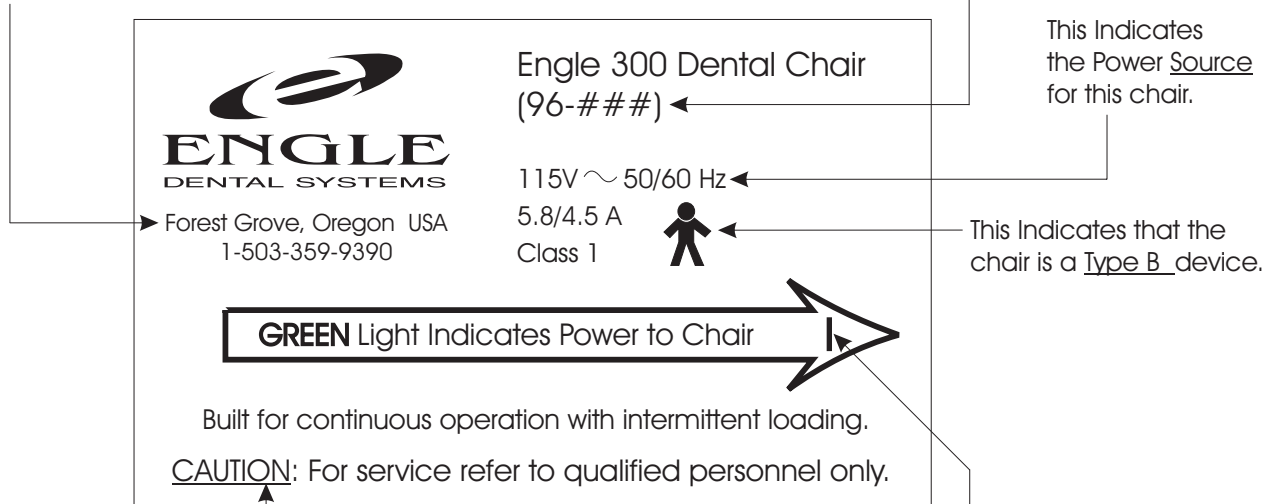
Page 1 of 1



Explanation of Tags and Symbols

Engle Dental Systems Contact Information.
 (See the Technical Support section on the first page of this manual for more contact information.)

Engle 300™
 Part Number



This chair contains dangerous electrical and mechanical elements. It should be serviced by qualified personnel only.

If the green light on the Power Switch of the chair is illuminated, then there is electrical power running to the chair. (115V chair only)

This product is intended only for use with HOSPITAL GRADE electrical receptacles.

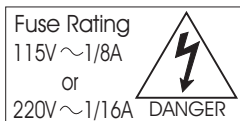
This sticker indicates that this chair should only be used on "Hospital Grade" electrical circuits. Circuits of lesser Grade may not be able to handle the electrical load of this chair and may cause property damage, injury, or death.



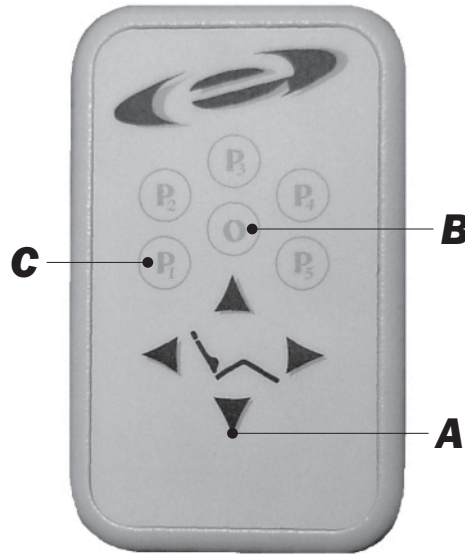
This sticker indicates that this is a protective Ground location.



These stickers indicate that high voltage electrical current is present in this area. DANGER: EXTREME CAUTION should be taken when this area is exposed. It indicates the ratings for the fuses to be used in the Engle 300 chair.



This sticker indicates the chair's identification. Product number, model number, and serial number. This sticker is located below the seat at your left side when you sit on the chair.



Manual Positioning Buttons These arrow buttons manually operate the chair in the direction indicated.

A

"O" Exit Button
(Programmable exit position button)

This button is generally used to automatically and consistently return the chair to a desired preset "Patient Exit" position.

Programming an exit position:

Manually position the chair using the green arrows. Once you have finished positioning the chair, press and hold the "O" button. Once the chair beeps, release the button. The chair will now return to that exit position any time that button is pressed.

B

"P1" thru "P5" Buttons
(Programmable position buttons)

These buttons are used to automatically and consistently position the chair to it's pre-programmed position. One pre-programmed position is allowed per button.

Programming a position:

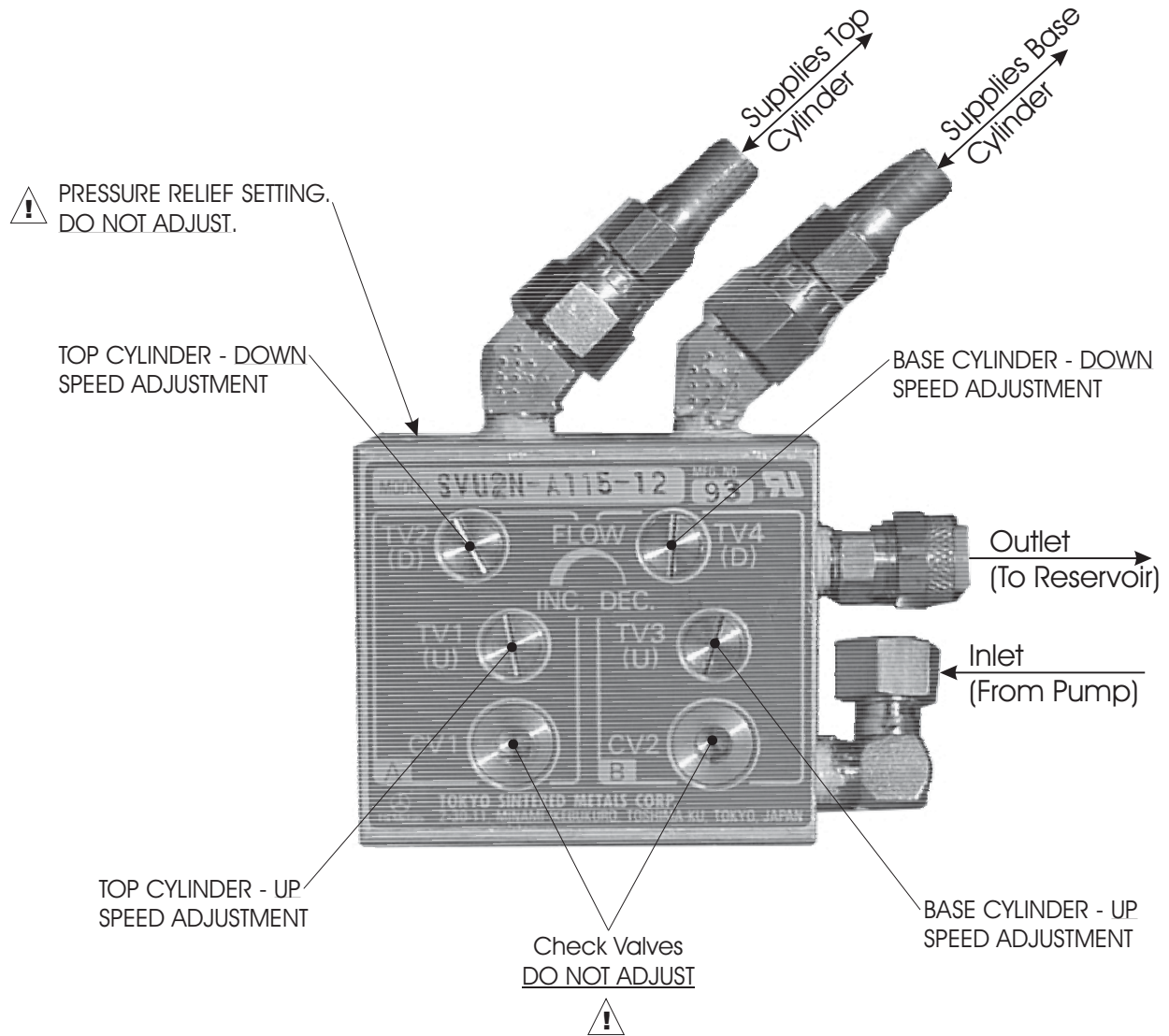
Manually position the chair using the green arrows. Once you have finished positioning the chair, press and hold the "P" button of your choice. Once the chair beeps, release the button. The chair will now return to that programmed position any time that button is pressed.

C

"O" and "P1" thru "P5"
(Programmed buttons)

Returning to a preset position:

After you have programmed a position into "O" or a "P" button, you can automatically and consistently return to that position at any time by simply pressing the designated button. The chair will remember your programmed positions even after loss of power and/or unplugging the chair from its electrical source.



CYLINDER SPEED ADJUSTMENT

To increase speed, turn counter clockwise.

To decrease speed, turn clockwise.

The valve is fully open at "four" turns or when the valve is flush with the valve body.

! Do not adjust the pressure relief setting. If this setting needs to be reset, do so by advancing the screw until it is flush with the body. Then turn the screw down "four" full revolutions.

- 1 Raise the chair all the way up and the back of the chair all the way forward for ease of access, then turn its Power Switch to "off" for safety.
- 2 Remove the Top Mount Shroud Assembly, to do this first remove the "four" Mounting Screws (two each side), See Figure 1. Then slowly slide the Top Mount Shroud Assembly away from the chair as shown, See Figure 2.

TIP: Removing the Upper Elevator Shroud and Lower Elevator Shroud will give easier access to the four Top Mount Shroud assembly mounting screws.

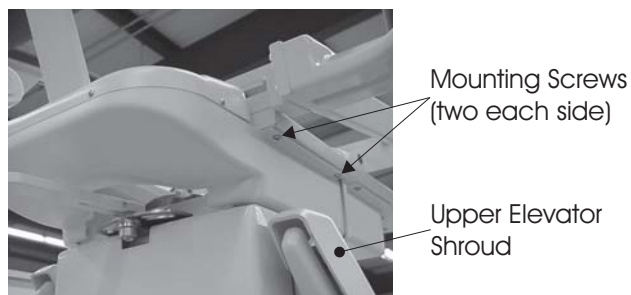


Figure 1.

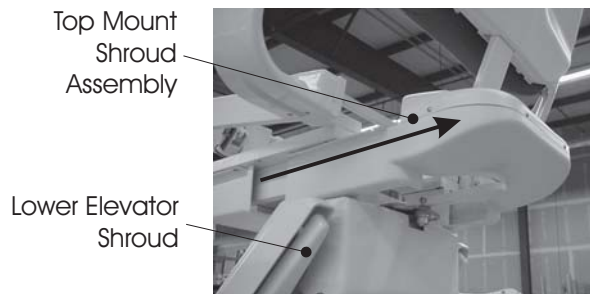


Figure 2.

- 3 As shown, loosen the Brake Lever Bolt with a 3/16" Allen Wrench until the Brake Lever releases it's grip on the large Brake Bolt, See figure 3.



Figure 3.

- 4 As shown, use a 3/8" Allen Wrench to tighten the Brake Bolt until the desired amount of braking resistance is achieved, See figure 4.

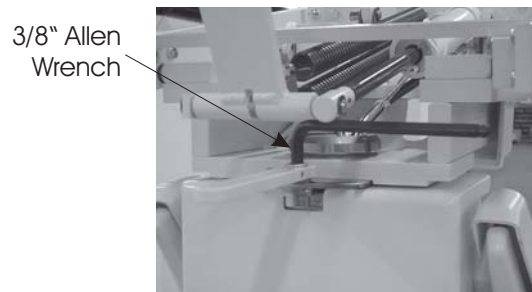


Figure 4.

- 6 Reinstall the Top Mount Shroud Assembly using Step Two in reverse.



The Chair Top Brake is engaged, when the Brake Lever handle is shifted to the left as shown.

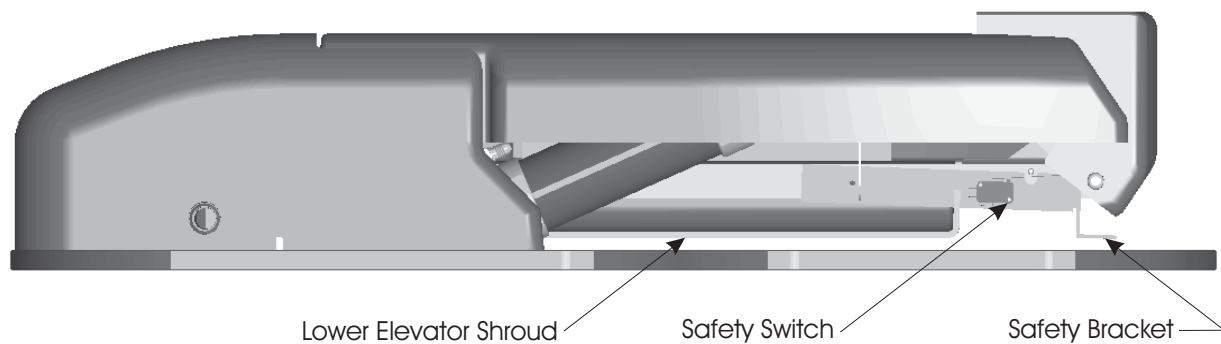
Brake Lever



The Chair Top Brake is disengaged, when the Brake Lever handle is shifted to the right as shown.

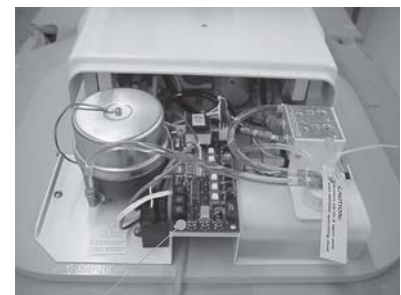
This page explains the many safety devices used to protect the patient, doctor, and chair from injury and or damage. Do not tamper with any safety devices unless specified for the installation of an optional accessory. Engle Dental Systems will not be held responsible for any damage or injury resulting from the adjustment of a safety device. All chairs are tested for correct safety device settings prior to shipment.

Lower Elevator Shroud and Safety Switch Bracket Assembly - When triggered, this Safety Switch automatically stops downward movement of the chair, but still allows the chair to be raised upward. This switch is meant to prevent the chair from crushing anything beneath the Elevator such as a foot or a toe.



Partial Side View

Hydraulic System P.C.B. - This advanced Printed Circuit Board continuously monitors and processes all incoming and outgoing signals from the Safety Switch, Touch Pads, Foot Controls, and Positioning Systems. Then controls the chair's movement accordingly. If the P.C.B. senses a problem with the chair's positioning or safety system, it has the ability to communicate by showing a code on it's status screen that pin points the cause. The P.C.B. will then stop full chair function until the problem is resolved. Note: manual positioning arrow buttons will still work for emergency patient care.



Hydraulic System P.C.B.

Upper Positioning System shown.



Upper & Lower Positioning Systems - These systems constantly monitor the chair's position and allows the Hydraulic System P.C.B. to precisely and repeatedly return the chair to any preprogrammed position. Also, the Positioning Systems allows the Hydraulic System P.C.B. to accurately "know" the end limits of the chair's movement.

(115V)

Hydraulic Motor Pump

115 V ~ 50/60Hz
3.9A
50 µF Capacitor
Maximum Cycle Time - 1 min
Thermally Protected

Hydraulic Solenoid Valve Unit

115 V ~ 50/60Hz
19/13W
Maximum Cycle Time - 10 min
853 psi Maximum Operating Pressure
853 psi Relief Valve Setting

Hydraulic Cylinders

800 psi Maximum Operating Pressure
(Both Cylinders)

Fuses

6A - 250V in-line fuses
1/8A - 250V in-line fuse

(220V)

Hydraulic Motor Pump

220 V ~ 50/60Hz
1.8/2.0 A
50 µF Capacitor
Maximum Cycle Time - 1 min
Thermally Protected

Hydraulic Solenoid Valve Unit

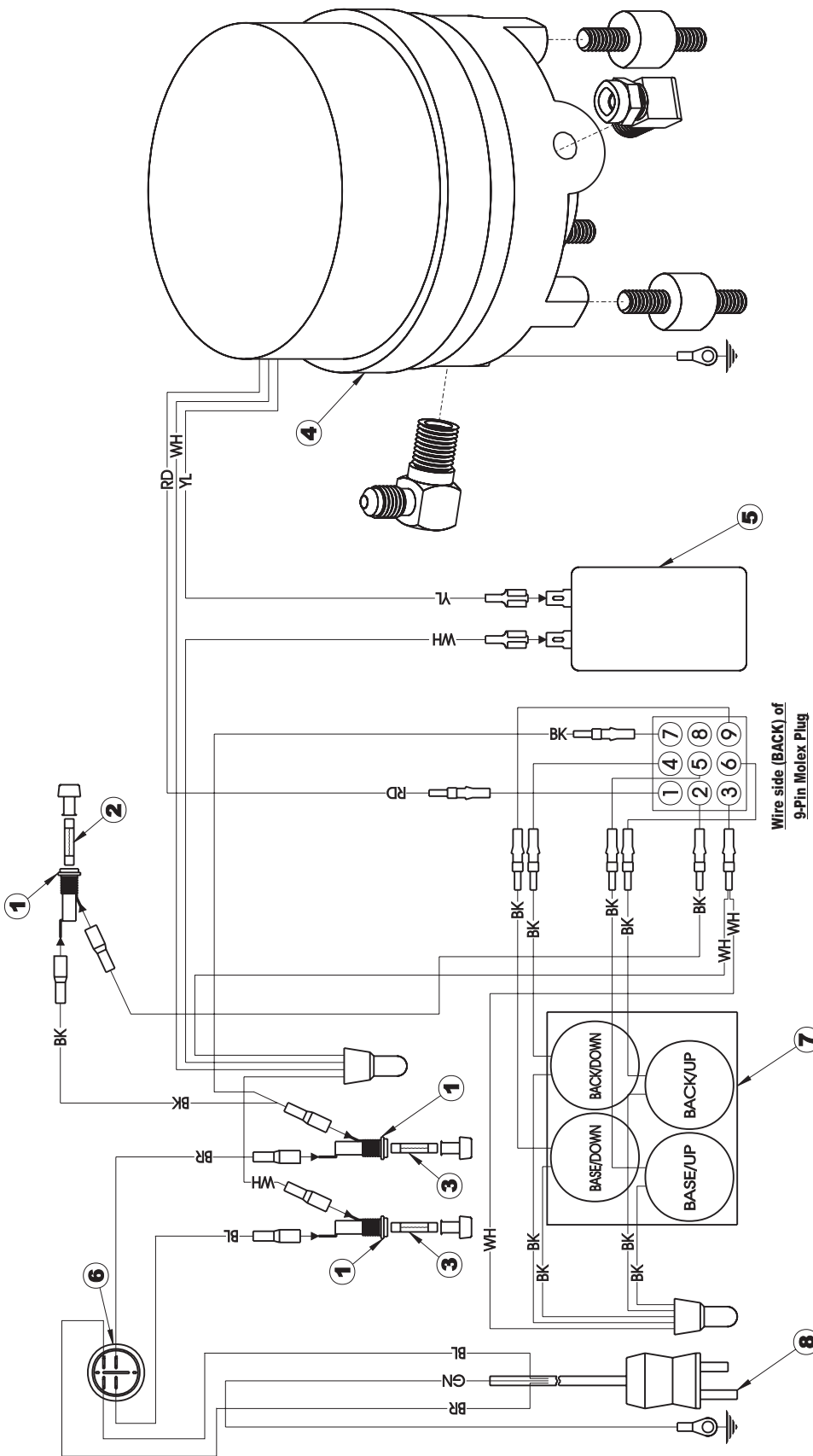
220 V ~ 50/60Hz
19/13W
Maximum Cycle Time - 10 min
853 psi Maximum Operating Pressure
853 psi Relief Valve Setting

Hydraulic Cylinders

800 psi Maximum Operating Pressure
(Both Cylinders)

Fuses

3A - 250V in-line fuses
1/16A - 250V in-line fuse



WIRE LEGEND	
BK	- BLACK
GN	- GREEN
RD	- RED
WH	- WHITE
YL	- YELLOW
BR	- BROWN
BL	- BLUE

- 1 FOR 220V CHAIR USE #014-471 1/16 AMP FUSE.
- 2 FOR 220V CHAIR USE #014-246 3 AMP FUSE.
- 3 FOR 220V CHAIR USE #014-282 HYDRAULIC PUMP ASSEMBLY.
- 4 FOR 220V CHAIR USE #014-289 CAPACITOR.
- 5 FOR 220V CHAIR USE #014-467 SOLENOID VALVE.

GENERAL NOTES:

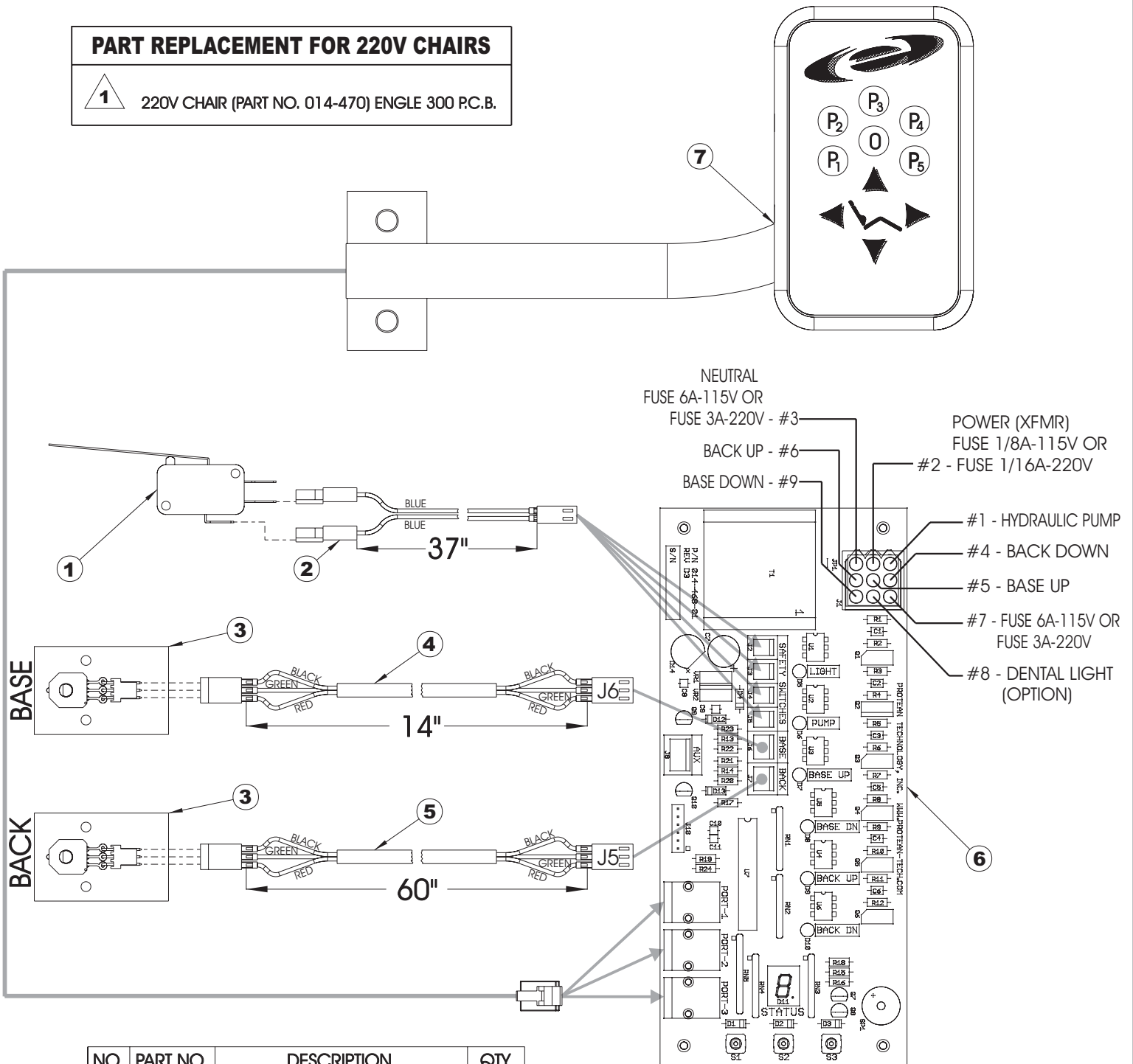
NO.	PART NO.	DESCRIPTION	QTY.
1	014-101	FUSE HOLDER	3
2	014-234	1/8 AMP FUSE (115V)	1
3	014-250	6 AMP FUSE (115V)	2

NO.	PART NO.	DESCRIPTION	QTY.
4	014-280	HYDRAULIC PUMP (115V)	1
5	014-284	CAPACITOR - HYDRAULIC PUMP	1
6	014-397	GREEN POWER SWITCH	1

NO.	PART NO.	DESCRIPTION	QTY.
7	014-466	SOLENOID VALVE (115V)	1
8	96-444	POWER CORD ASSY	1

PART REPLACEMENT FOR 220V CHAIRS

- 1** 220V CHAIR (PART NO. 014-470) ENGLE 300 P.C.B.



NO.	PART NO.	DESCRIPTION	QTY.
1	014-155	BASE SAFETY SWITCH	1
2	014-396	SAFETY SWITCH HARNESS	1
3	014-460	ENCODER P.C.B.	2
4	014-464	BASE ENCODER HARNESS	1
5	014-465	BACK ENCODER HARNESS	1
6	014-468	ENGLE 300 P.C.B. (115V CHAIR) 1	1
7	96-662	ENGLE 300 R.H. TOUCHPAD ASSEMBLY	1

The Engle 300™ Dental Chair requires very little regular maintenance. The following sections outline what functions should be performed and how often.

Regular Maintenance

Check cleanliness of Hydraulic Oil - 1 time per year
 Check for Hydraulic Oil leaks from all fittings - 1 time per year

How to check the cleanliness of the hydraulic oil

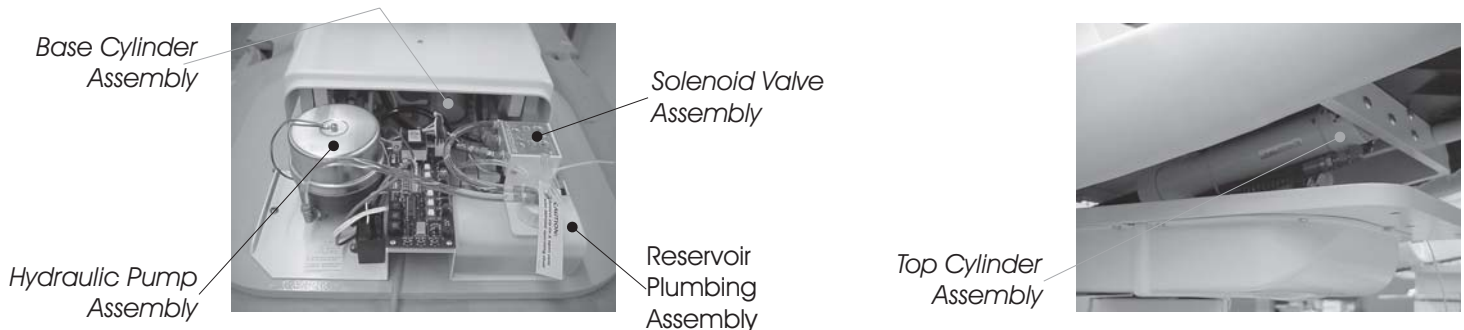
Remove the Hydraulic Access Shroud by removing the “two” Attachment Screws on the sides of the shroud. (See step 2. of “Installation Instructions for the Engle 300 Dental Chair” in this manual for a detailed version of removing the Hydraulic Access Shroud.)

Visibly inspect all clear low-pressure Hydraulic Fluid Lines. The Hydraulic Fluid should be clear or slightly yellow in color.

How to check for a Hydraulic Fluid leak from fittings

Remove the Hydraulic Access Shroud by removing the “two” attachment screws on the sides of the shroud. (See step 2. of “Installation Instructions for the Engle 300 Dental Chair” in this manual for a detailed version of removing the Hydraulic Access Shroud.)

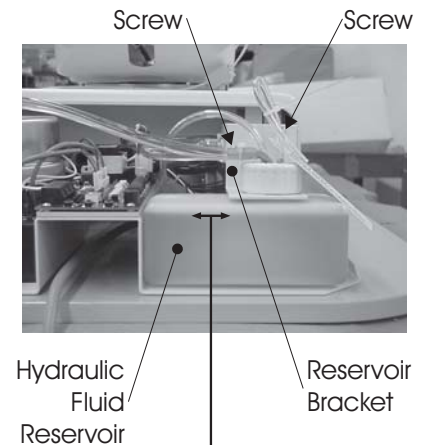
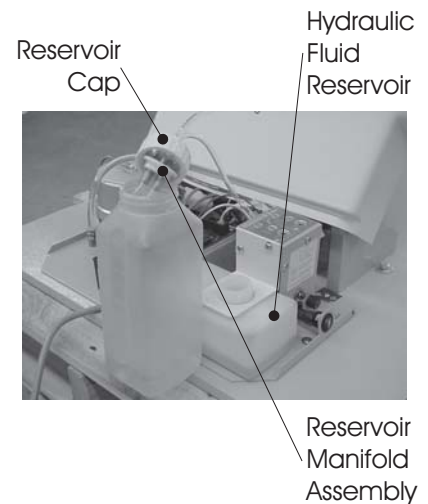
Visibly inspect all fittings (A fitting is a device that connects a hose to a part) attached to the Top Cylinder Assembly, Base Cylinder Assembly, Hydraulic Pump Assembly, Solenoid Valve Assembly, and Reservoir Plumbing Assembly. If a Hydraulic Fluid leak is found from any fitting, contact your local service person immediately. The Hydraulic Fluid can be under pressure. Thus, any leaking could potentially create injury, an unsanitary mess and potentially damage your Engle Dental System.



Caution: Follow safety precautions from the Hydraulic Fluid Mfg.
When handling used and unused hydraulic fluid.

How to replace the Hydraulic Fluid

- 1 Raise the chair base to the "full" up position.
Raise the chair back to the "full" up/forward position.
[This will evacuate "most" of the Hydraulic Fluid from the Hydraulic Fluid Reservoir to "both" Top Cylinder Assembly and Base Cylinder Assembly]
- 2 ***ATTENTION*** - This step has the potential to spill fluid. Take the utmost **CAUTION**. You will need a drip rag, and a pan or bucket that will accommodate at least "32 ounces" of fluid.
 - A. Remove the Hydraulic Access Shroud (See step 2. of "Installation Instructions for the Engle 300 Dental Chair" in this manual for a detailed version of removing the Hydraulic Access Shroud.).
 - B. Now have your drip rag and pan or bucket ready. Unscrew the Reservoir Cap from the Reservoir Plumbing Assembly. Slowly remove the Reservoir Manifold Assembly with tubes attached, out of the Hydraulic Fluid Reservoir and without dripping, position it into your pan or bucket.
- 3 ***ATTENTION*** - Step A. and Step B. will discharge the Hydraulic Fluid, make sure the "two" open large tube ends of the Reservoir Manifold Assembly is aimed inside your pan or bucket.
 - A. Lower the chair base to the "full" down position.
 - B. Lower the chair back to the "full" down position.
- 4 Now uninstall the Reservoir Bracket by removing the "two" screws which secures it; carefully remove the Hydraulic Fluid Reservoir and pour the remaining Hydraulic Fluid from the reservoir into your pan or bucket.
- 5 Reinstall the Hydraulic Fluid Reservoir and Reservoir Bracket by securing them using the "two" screws you previously removed. *With both the chair base and chair back "fully" down.* Fill the Hydraulic Fluid Reservoir with "32 ounces" or until Hydraulic Fluid level is approximately 1/8" below the reservoir ceiling, with new "Mobil DTE Oil Light" (**CAUTION: DO NOT OVER FILL and IT IS IMPORTANT THAT "Mobil DTE Oil Light" FLUID BE USED.**) Contact Engle Dental Systems if you need replacement fluid. (See the first page of this manual for contact information)
- 6 Carefully return the Reservoir Manifold Assembly with tubes attached onto the secured Hydraulic Fluid Reservoir, then install and hand tighten the Reservoir Cap. Using the drip rag wipe of any Hydraulic Fluid drips from the chair (*Hydraulic Fluid will stain paint*) and reinstall the Hydraulic Access Shroud using the "two" screws you previously removed.
- 7 Finally, you must cycle the chair base "full" up and "full" down, a minimum of "3" times, and the chair back "full" up/forward and "full" down a minimum of "3" times.
[This will "purge" the air bubbles that may have gotten into the hydraulic system and retain smooth quiet operatory]



NOTE:
Fluid level.
Base down
"full".
Back down
"full". 1/8"
below
Reservoir
ceiling.

DANGER: Stay away from high voltage components. Make sure to UNPLUG the chair's Power Cord from its POWER SOURCE any time the Hydraulic Access Shroud is uninstalled unless otherwise specified. (See step 2. of "Installation Instructions for the Engle 300 Dental Chair" In this manual for a detailed version of removing the Hydraulic Access Shroud.)

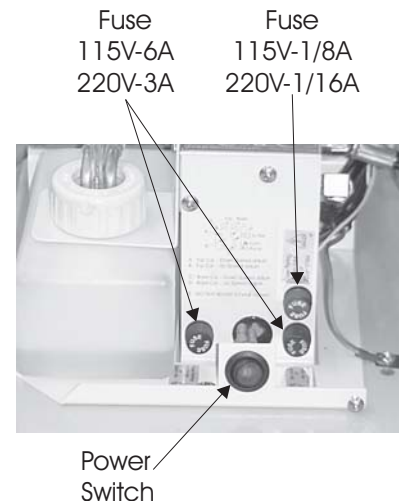
The chair doesn't work: - green Power Light "Off" (115V chair)
- Power Switch "On" (220V chair)

- Is the chair plugged into a working outlet? Make sure to check the circuit breaker.
- Are the fuses blown? (***DANGER: Make sure chair Power Cord is unplugged.***) "The fuses are located inside the Hydraulic Access Shroud, near the Power Switch". If so, replace them with the correct fuses for your chair:

115V Chair - 6A, 250V fuses (P/N 014-250)
115V Chair - 1/8A, 250V fuse (P/N 014-234)

220V Chair - 3A, 250V fuses (P/N 014-246)
220V Chair - 1/16A, 250V fuse (P/N 014-471)

- Has the power cord been damaged? (***DANGER: Make sure chair Power Cord is unplugged.***) Visibly inspect the cord and its connections to the chair base.



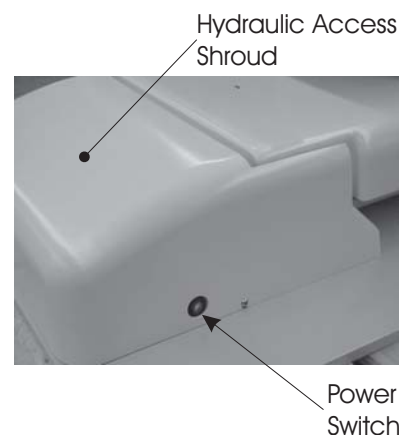
The chair doesn't work: - green Power Light "On" (115V chair)
- Power Switch "On" (220V chair)

- Verify that your Touch Pad and/or Foot Control are each plugged into one of the three control ports on the Printed Circuit Board located inside the Hydraulic Access Shroud.
- Check Hydraulic P.C.B. Status Screen for an error code, and trouble shoot accordingly using page 3 of 3 of this section ("Troubleshooting the Engle 300™ Dental Chair").

If the problem persists, please contact the Engle Technical Support Team for help in diagnosing the problem. (See the first page of this manual for contact information.)

Repeated pressing of a Touch Pad or Foot Control button is required to reach correct position:

- This problem is typically due to a bad connection or broken wire in an Encoder harness. Check Hydraulic P.C.B. Status Screen for an error code, and trouble shoot accordingly using page 3 of 3 of this section ("Troubleshooting the Engle 300™ Dental Chair").



If the problem persists, please contact the Engle Technical Support Team for help in diagnosing the problem. (See the first page of this manual for contact information.)

DANGER: Stay away from high voltage components. Make sure to UNPLUG the chair's Power Cord from its POWER SOURCE any time the Hydraulic Access Shroud is uninstalled unless otherwise specified. (See step 2. of "Installation Instructions for the Engle 300 Dental Chair" in this manual for a detailed version of removing the Hydraulic Access Shroud.)

The chair makes a squealing sound when moving

- There is air in your hydraulic system. Cycle the chair base completely up and down "three" times and cycle the chair back completely up and down "three" times. If this doesn't correct the problem, check your hydraulic fluid level. (The Hydraulic Fluid Reservoir is located inside the Hydraulic Access Shroud.)

How to check and retain correct fluid level:

- Lower the chair base down completely. (**IMPORTANT**)
- Recline the chair back down completely. (**IMPORTANT**)
- The fluid level in the Hydraulic Fluid Reservoir needs to be 1/8" below the reservoir ceiling or "32 ounces" of hydraulic fluid.
- If the fluid level is low; add Mobil DTE Oil Light hydraulic fluid (*It is important that "Mobil DTE Oil Light" fluid be used.*) to the Hydraulic Fluid Reservoir until the fluid level is approximately 1/8" below the reservoir ceiling or "32 ounces" of hydraulic fluid. (**DO NOT OVER FILL**). See the picture of noted fluid level in page 2 of 2 Of ("Scheduled maintenance for the Engle 300") of this manual.
- Now cycle the chair as described above in "The chair makes a squealing sound when moving".

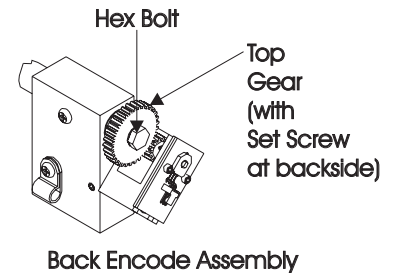
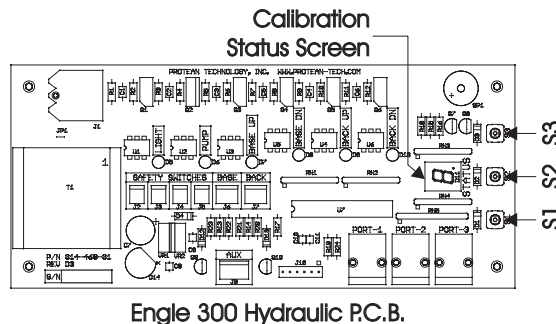
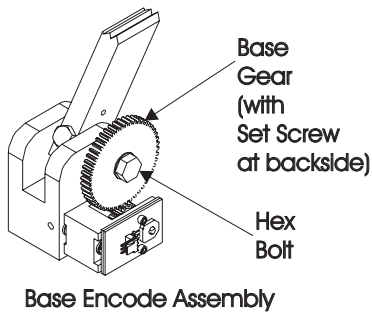
If the problem persists, please contact the Engle Technical Support Team for help in diagnosing the problem. (See the first page of this manual for contact information.)

DANGER: Stay away from high voltage components. Make sure to UNPLUG the chair's Power Cord from its POWER SOURCE any time the Hydraulic Access Shroud is uninstalled unless otherwise specified. (See step 2. of "Installation Instructions for the Engle 300 Dental Chair" In this manual for a detailed version of removing the Hydraulic Access Shroud.)

ENGLE 300 POWER PACK P.C.B. TROUBLE SHOOTING GUIDE

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CODE	DESCRIPTION	ACTION	LOCATION
J	Operating Mode (Running dash)	N/A	N/A
C	Clearing position presets	N/A	N/A
F	Safety switch engaged	Make sure the Safety Switch assembly is functioning properly.	Below seat level at back of chair.
0	In Status and Calibration Mode	Press any chair positioning function on the Touch Pad or Foot Control to exit and return to operating mode.	N/A
1	Base Encoder out of calibration	Refer to Back & Base Encoder Calibration.	Base Encoder assembly location is on chair Base Plate.
2	Back Encoder out of calibration	Refer to Back & Base Encoder Calibration.	Back Encoder assembly location is under seat cushion assembly.
3	Base upward motion not detected	Manually cycle the chair base using the Touch Pad or Foot Control and confirm that it is functioning properly mechanically. Make sure Base Encoder assembly is rotating freely/property and locking set screws and hex bolt are tight.	Base Encoder assembly location is on chair Base Plate.
5	Base down motion not detected	Manually cycle the chair base using the Touch Pad or Foot Control and confirm that it is functioning properly mechanically. Make sure Base Encoder assembly is rotating freely/property and locking set screws and hex bolt are tight.	Base Encoder assembly location is on chair Base Plate.
6	Back upward motion not detected	Manually cycle the chair back using the Touch Pad or Foot Control and confirm that it is functioning properly mechanically. Make sure Back Encoder assembly is rotating freely/property and locking set screws and hex bolt are tight.	Back Encoder assembly location is under seat cushion assembly.
7	Base Encoder connection fault	Make sure Base Encoder wiring harness is installed properly in it's designated ports. Check for broken connections in harness assembly.	Harness location is from the Power Pack P.C.B. to Base Encoder assembly P.C.B. on Base Plate.
8	Back Encoder connection fault	Make sure Back Encoder wiring harness is installed properly in it's designated ports. Check for broken connections in harness assembly.	Harness location is from the Power Pack P.C.B. to Back Encoder assembly P.C.B. under seat.



BACK & BASE ENCODER CALIBRATION

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- Step 1. Locate Power Pack P.C.B. (P/N 014-468-01).
- Step 2. Enter calibration mode by simultaneously pressing S1, S2, & S3, located at the front of the P.C.B. for 5 seconds, and release. Wait for the chair to automatically count down (9 to 0) and locate it's calibration position.
- Step 3. Press and release S1 on the P.C.B. to calibrate the Base Encoder assembly located on the Base Plate or S2 to calibrate the Back Encoder assembly located under the seat.
- Step 4. For this step, remove the Seat Pan assembly and/or the Upper Elevator Shroud, depending on which Encoder assembly needs calibration. After choosing an Encoder assembly as noted in Step 3. Loosen the Set Screw first and Hex Bolt second, from the large gear of the particular Encoder assembly to be calibrated. Rotate the large gear until a dash symbol appears in the Status component on the P.C.B. Adjust it such so that it is located in the middle of that segment. Precisely maintain that calibrated large gear position and tighten the Hex Bolt first then the Set Screw second. That Encoder is now calibrated, repeat for the other Encoder assembly.
- Step 5. Press any Touch Pad or Foot Control chair positioning function to exit calibration mode. The Status component on the P.C.B. will show a circle running dash (Operating mode). Re-Install the Seat Pan and/or Upper Elevator Shroud, and Power Shroud.

Clearing all pre-programmed positions:

- Step 1. Push the Power Switch to the OFF position for a minimum of "two" seconds.
 - Step 2. Press and hold down button S1 on the P.C.B. While pushing the Power Switch to the ON position.
 - Step 3. Release button S1 on the P.C.B.
- All pre-programmed positions are now deleted.

