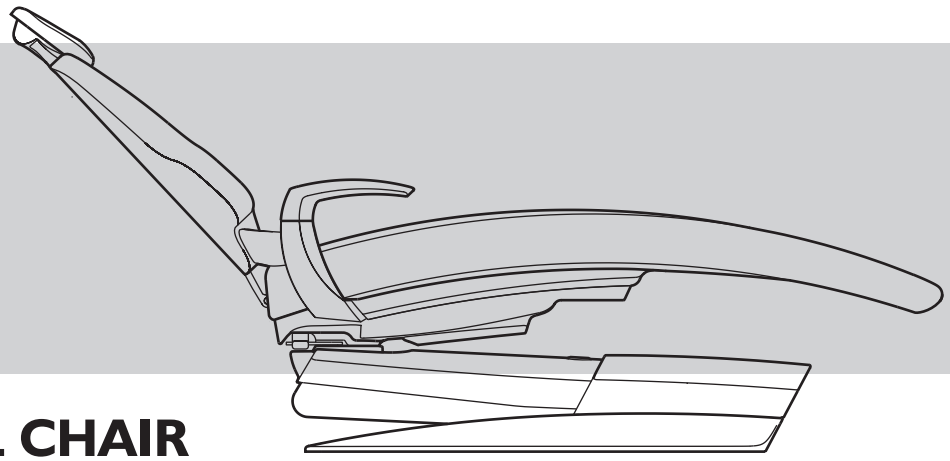
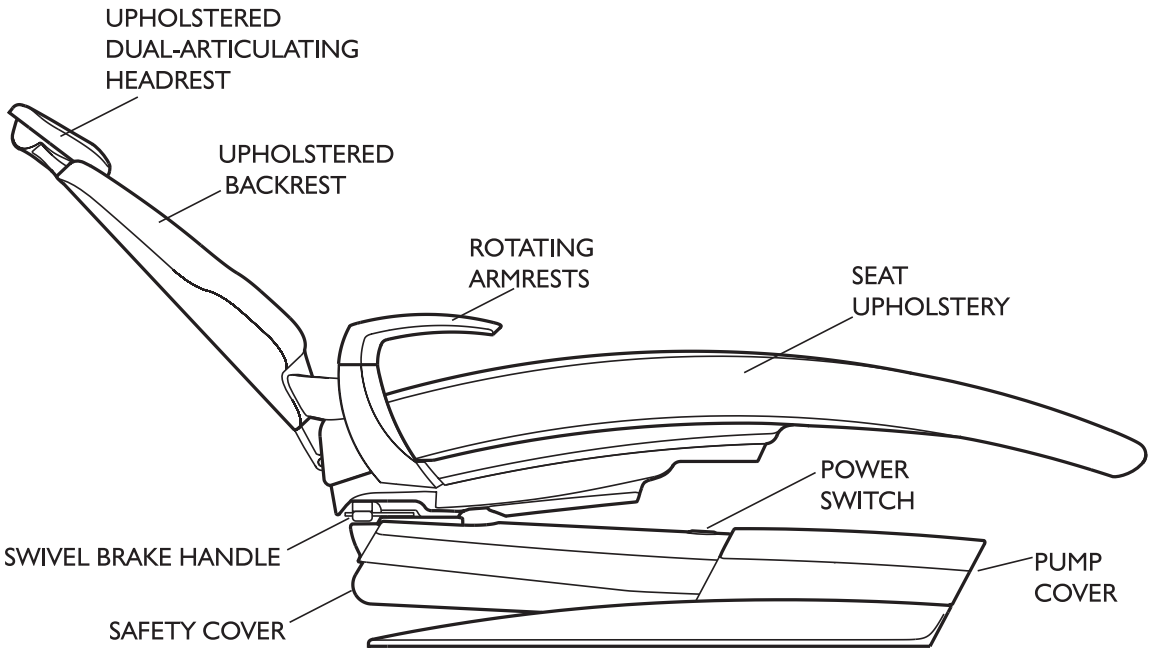


SERIES 5 DENTAL CHAIR

Installation Instructions

OVERVIEW


UPHOLSTERED
DUAL-ARTICULATING
HEADREST
UPHOLSTERED
BACKREST
ROTATING
ARMRESTS
SEAT
UPHOLSTERY
POWER
SWITCH
SWIVEL BRAKE HANDLE
PUMP
COVER
SAFETY COVER

INTRODUCTION

BEFORE YOU BEGIN

Study the chair overview in this booklet and layout dimensions from the owner's manual. Make sure the planned location will have the necessary space available for installation, including room for travel of the chair's base and backrest.

Locate all documentation supplied with the package. Manuals and installation sheets may be found in one or more boxes accompanying their respective components. Set aside the owner's manual for the end user to review.

SYMBOLS USED IN THIS MANUAL

The following symbols may be used throughout this product manual:

WARNING: Failure to carefully follow the described procedure may result in damage to the equipment or the operator.

CAUTION: Failure to carefully follow the described procedure may result in damage to the equipment.

NOTE: Take note of additional important information. Not a warning or caution.

ELECTRICAL HAZARD: Risk of electrical shock present. Ensure that power is disconnected before attempting procedure.

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Introduction **3**

Setup **4**

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Optional Quick Connect Box **8**

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REGULATORY INFORMATION

Regulatory information is delivered with DCI Edge dental equipment as mandated by agency requirements and can be found in the accompanying Instructions For Use for this device.

SETUP

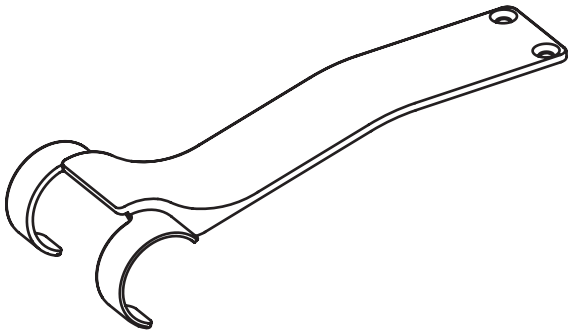
TOOLS NEEDED FOR INSTALLATION

- **Scissors or utility knife**
- **Allen wrench set**
- **Socket wrench set**

INCLUDED HARDWARE AND COMPONENTS

- **Power Switch Cover**

- **Backrest Wire Cover and Fasteners**



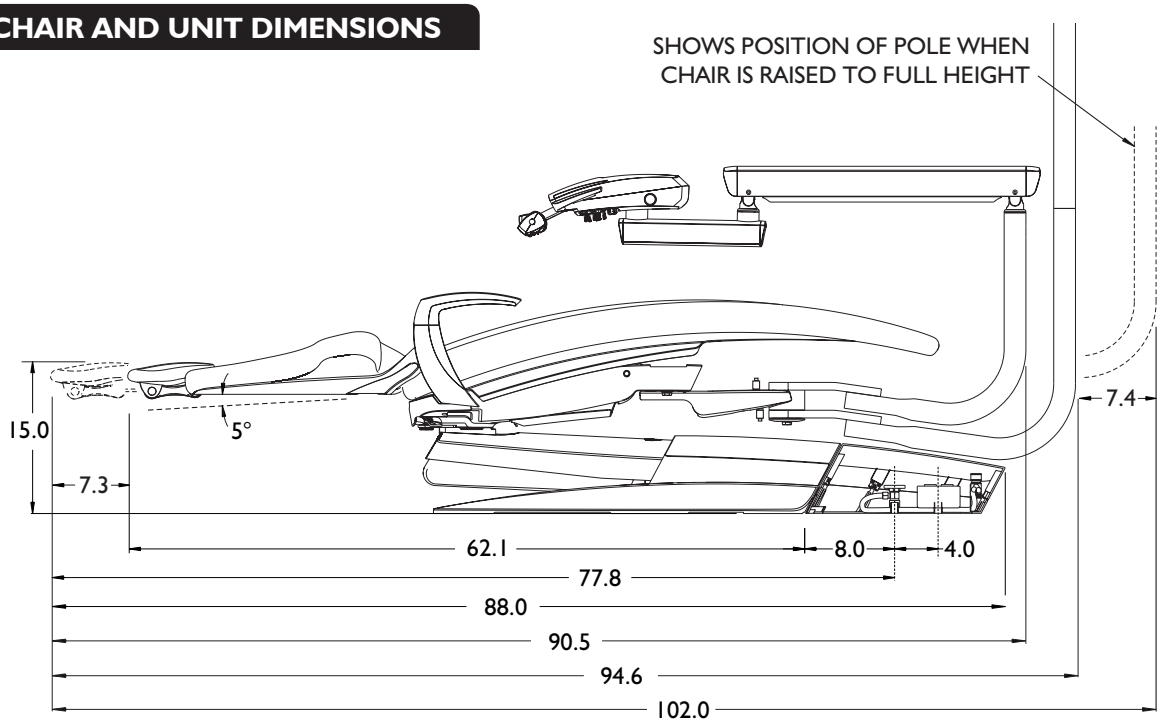
PLACE THE CHAIR IN LOCATION

WARNING: To prevent injury, use an assistant to help safely position the chair in the operatory.

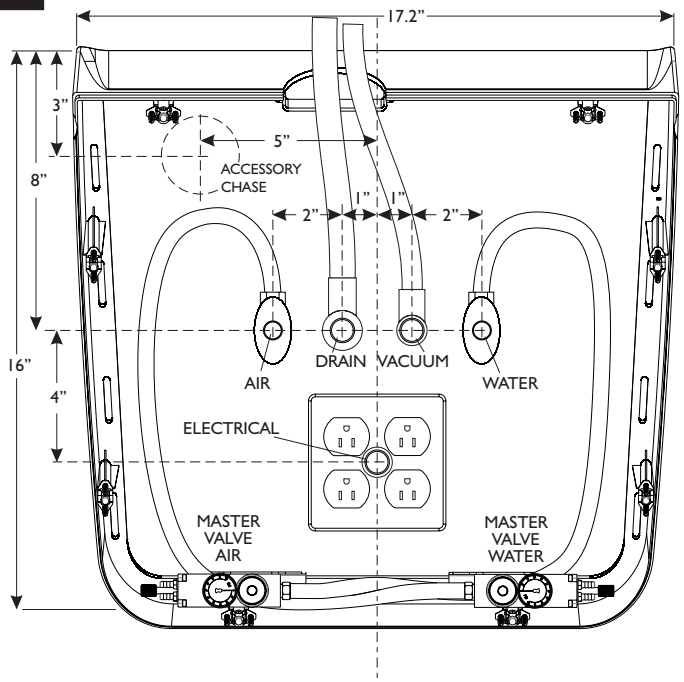
1. Remove the shipping straps and open the crate.
2. Remove the 3/8" bolts holding the chair to the wood pallet.
3. Carefully remove the chair from the pallet and position it in the proper location for installation. Refer to dimensional information on the next page for guidance in positioning the chair.
4. Check that the chair rests flat and level on the floor and that it does not rock due to uneven areas on the floor. Use shims to eliminate gaps if the surface is uneven.

DIMENSIONAL LAYOUT

CHAIR AND UNIT DIMENSIONS



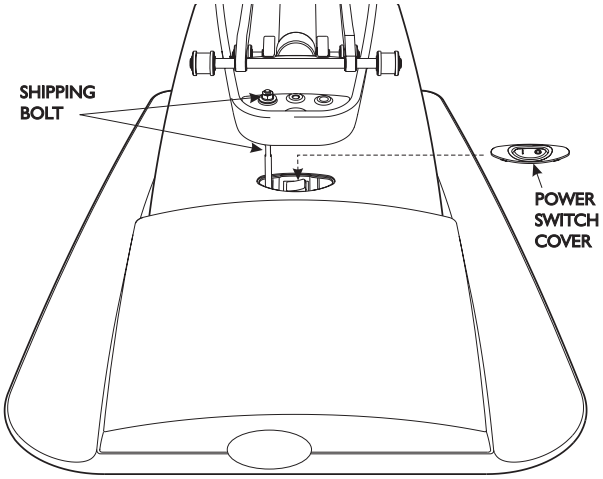
JUNCTION BOX LAYOUT



CHAIR PREPARATION

SHIPPING BOLT

Remove the shipping bolt by unscrewing from above the seat pan casting using a 3/8" wrench. Once unscrewed, removed the bolt and related hardware from the assembly.

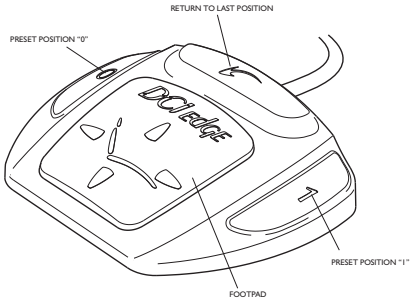


POWER SWITCH COVER

Power Switch Cover: Install the power switch cover into the opening around the power switch by snapping it firmly into place.

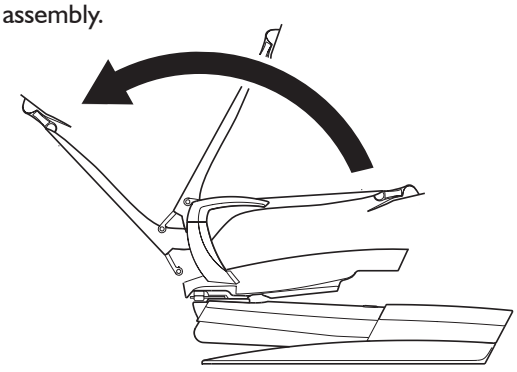
FOOT SWITCH

Foot Switch: Unpack the foot switch and set in position for use.

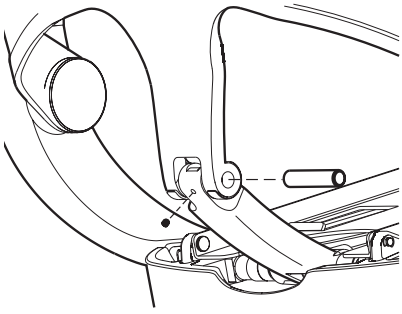


BACKREST

1 Rotate the backrest into position by aligning the backrest bottom holes to the holes in the link bar which extends from the upper hydraulic assembly.



2 Loosen the set screw which secures the steel cross pin. Align the holes of the backrest and the back link and re-insert the cross pin. If necessary, use a rubber mallet to drive the pin until it has fully engaged both parts.

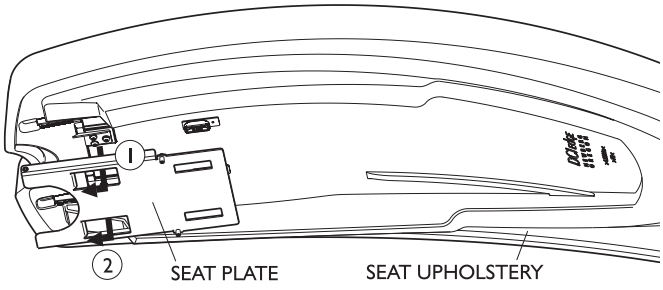


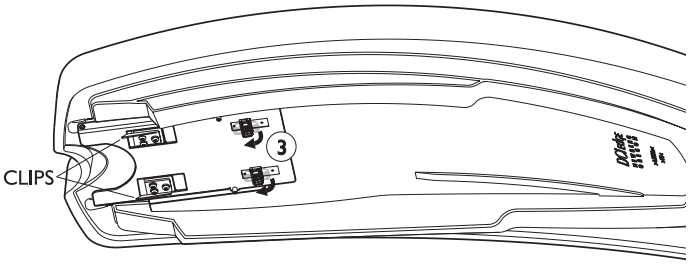
3 Tighten the set screw on the backrest link against the pin to prohibit its movement.

UPHOLSTERY INSTALLATION

SEAT UPHOLSTERY

1. Center and place the seat upholstery on the seat plate so that the clips on the bottom of the seat upholstery drop into the slots of the Seat Plate.
2. Engage the clips by pushing the seat upholstery toward the backrest.
3. Once the clips are engaged, turn the two rotating catches 90 degrees to lock the seat in position.

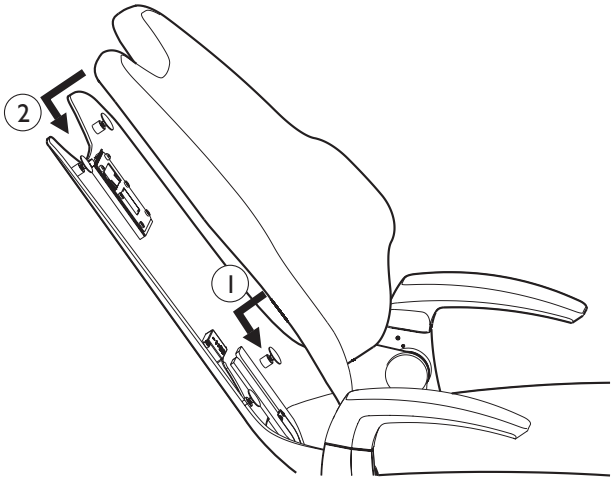




> **WARNING:** Failure to properly assemble the seat upholstery to the chair could result in injury or damage to the equipment.

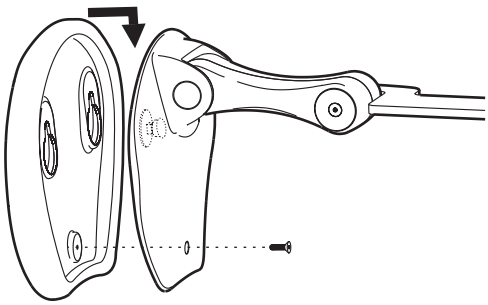
BACKREST UPHOLSTERY

1. Attach the backrest upholstery by aligning the lower keyhole features in the plastic substrate to the flat head elevator bolts on the metal back.
2. Push down and slide the backest upholstery toward the seat until the upper keyhole features catch on the upper elevator bolts.
3. Ensure that the upper elevator bolts engage in the upper keyhole slots of the backrest upholstery substrate and continue to push the backrest toward the seat until it is fully engaged on the metal back.



HEADREST UPHOLSTERY

1. Remove the 6-32 screw from the back of the headrest upholstery and set aside.
2. Align the keyholes of the headrest upholstery to the flat head bolts on the headrest assembly.
3. Push down and slide the headrest upholstery toward the bottom tip of the casting to engage the bolts in the keyhole slots.
4. Complete the assembly by adding the 6-32 screw to the back of the headrest as shown (right).



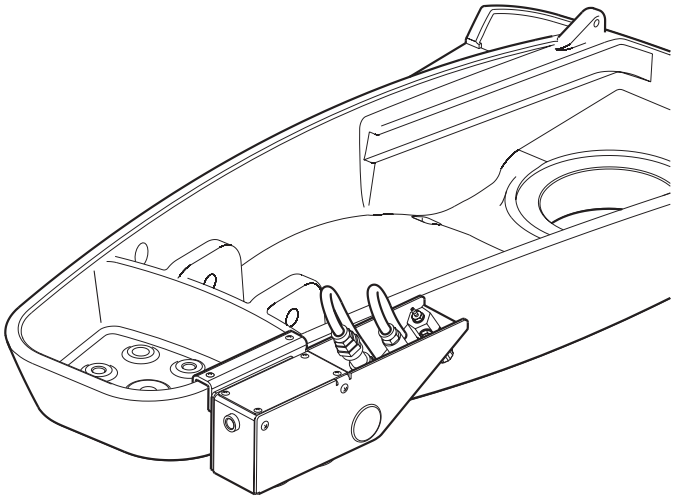
OPTIONAL QUICK CONNECT BOX

ATTACH BOX TO CHAIR

1 Identify to which side of the chair the box will mount.

2 Use two 10-32 fasteners to attach the bracket to the Quick Connection Box. Determine orientation based on the side of the chair to which it will mount.

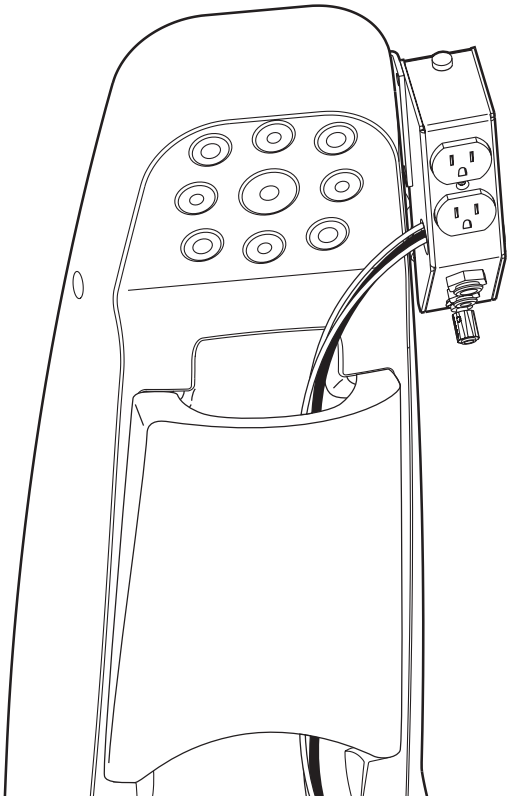
3 Use two 10-32 fasteners to attach to the seat pan casting.



ROUTE LINES

1 Route wires and tubings out the hole on the side of the Quick Connection Box which is closest to the chair casting.

2 Remove the umbilical cover, the wire hanger, the truss cover, and the pump cover, and then route the wires under the seat casting and into the wire channel of the truss casting.



CONNECT TO UTILITIES

1 Connect the power cable to the connector labeled AUXILIARY OUTPUT at the front side of the transformer box in the chair.

2 Remove the top cover of the Junction Box in front of the chair and route air and water lines through the opening at the front of the chair into the Junction Box. Make air and water connections to the incoming air and water lines after the regulator.

ADJUSTING THE CHAIR POSITION SOFT LIMITS

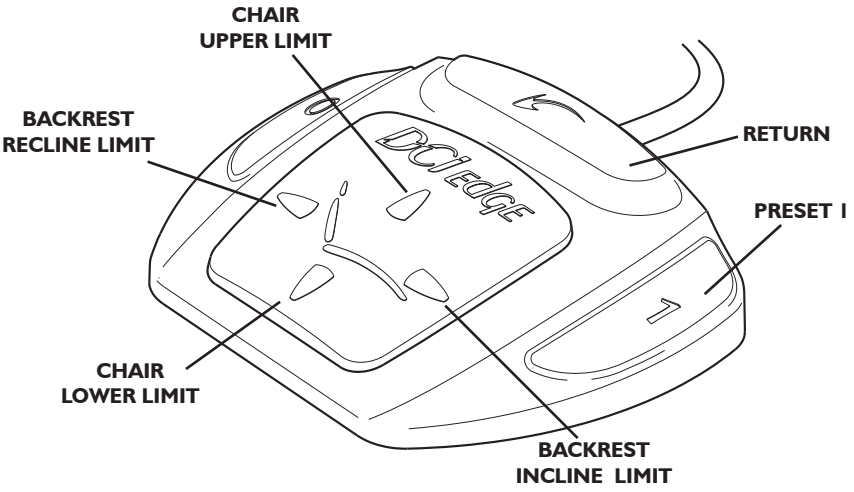
PROGRAMMING SOFT LIIMITS

Soft Limits are the software controlled position limits for the hydraulic chair movements. These can be programmed using the foot switch or any touchpad that controls chair movement. Soft limits are factory set and should only be adjusted by a technician.

1 **Enter Soft Limit Mode:** While holding the "Return" key, press and hold the "Preset 1" key for 6 seconds. Two short beeps followed by one long beep indicate that you have entered Soft Limit Mode. While in Soft Limit Mode, the chair will be able to move through its full mechanical range of travel.

2 **Position the chair:** Press a directional key (up, down, recline, incline) to position the chair at its desired soft limit position.

3 **Set soft limits:** While pressing and holding the "Return" key, press the directional key (up, down, recline, incline) for the direction that you want to limit. Two long audible beeps will indicate successful programming of that soft limit. **Example: To set the lower limit of chair height, press and hold the Return key and the Chair Down arrow key.**

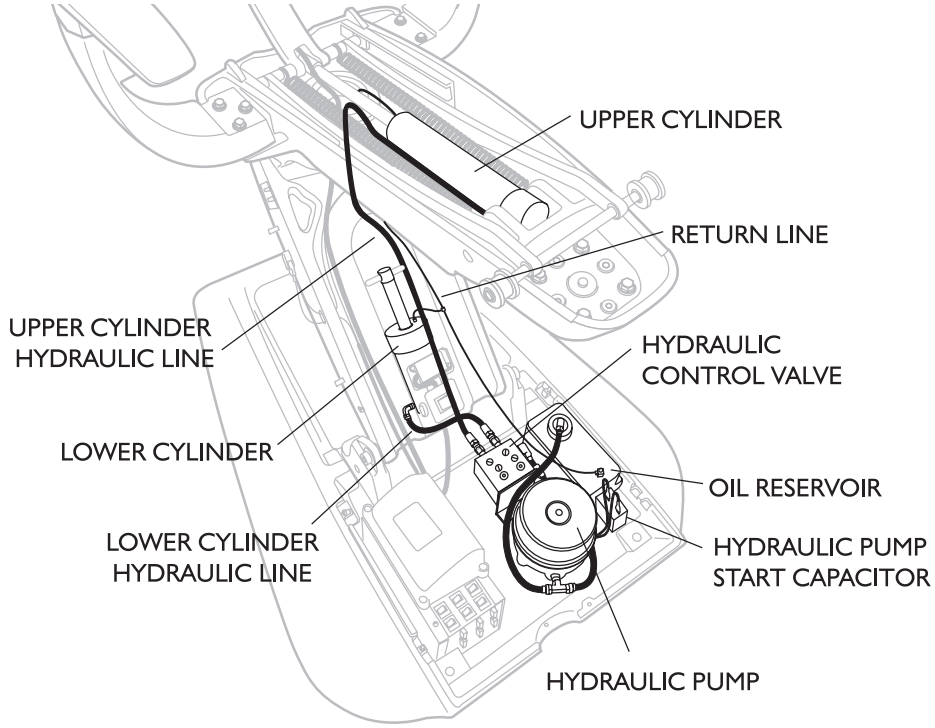


4 **Exit Soft Limit Mode:** while holding the "Return" key, press and hold the "Preset 1" key for 6 seconds. Three audible beeps indicate that you have left Soft Limit Mode. Once exited, the chair will operate within the movement constraints that have been programmed.

If, while in Soft Limit Mode, no keys are pressed for over 60 seconds, the chair will automatically exit Soft Limit Mode, at which time three audible beeps will sound. Once exited, the chair will operate within the movement constraints that have been programmed.

HYDRAULIC SYSTEM

HYDRAULIC SCHEMATIC



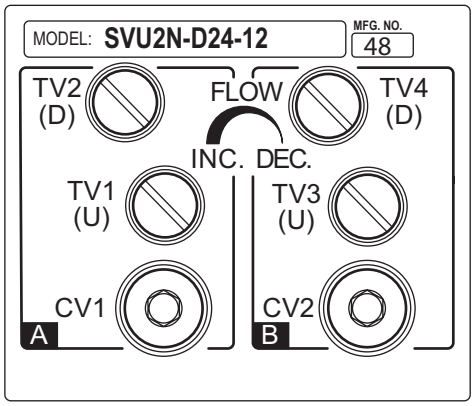
HYDRAULIC CONTROL VALVE

SPEED ADJUSTMENT

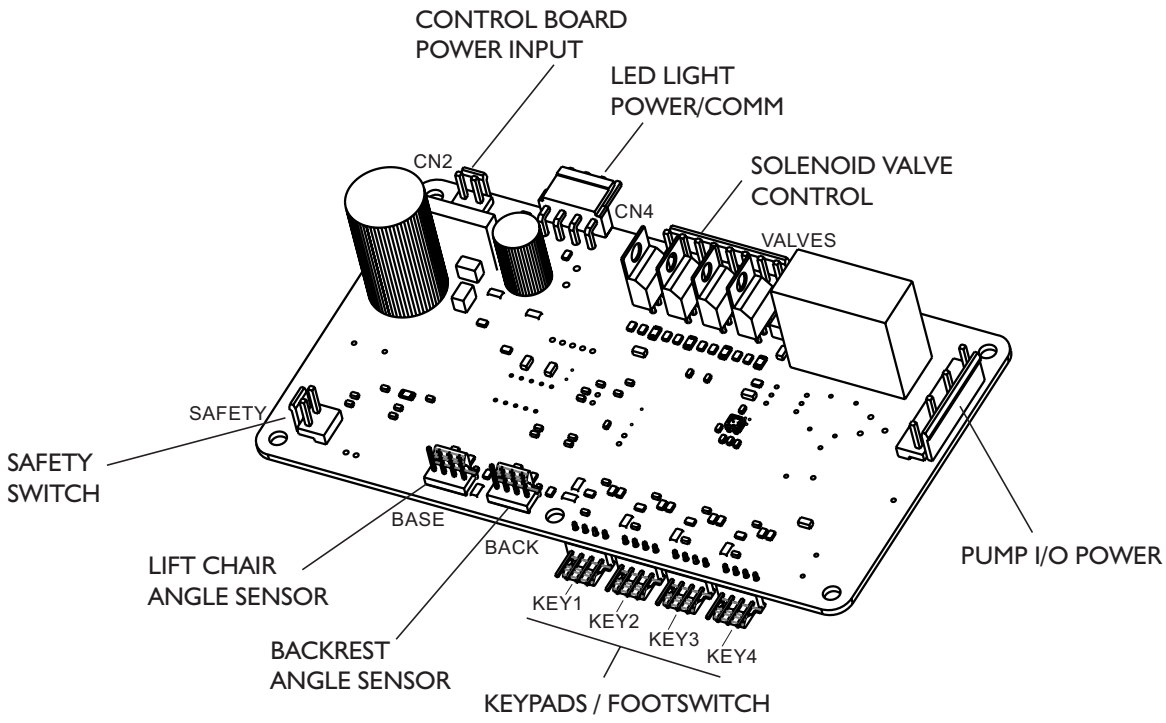
TV1 = BACK UP
TV2 = BACK DOWN
TV3 = BASE UP
TV4 = BASE DOWN

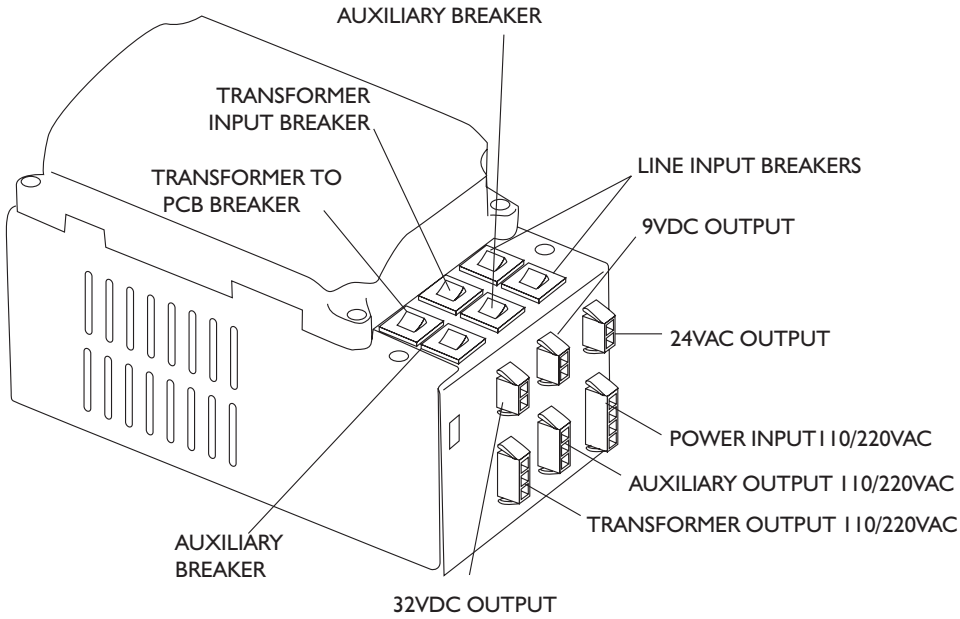
To increase speed turn counterclockwise.

To decrease speed turn clockwise.

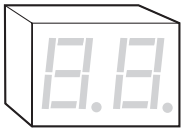


ELECTRICAL


CONTROL BOARD
POWER INPUT
LED LIGHT
POWER/COMM
CN2
CN4
SOLENOID VALVE
CONTROL
VALVES
SAFETY
SAFETY
SWITCH
BASE
BACK
LIFT CHAIR
ANGLE SENSOR
BACKREST
ANGLE SENSOR
KEY1
KEY2
KEY3
KEY4
KEYPADS / FOOTSWITCH
PUMP I/O POWER


AUXILIARY BREAKER
TRANSFORMER
INPUT BREAKER
TRANSFORMER TO
PCB BREAKER
LINE INPUT BREAKERS
9VDC OUTPUT
24VAC OUTPUT
POWER INPUT110/220VAC
AUXILIARY OUTPUT 110/220VAC
TRANSFORMER OUTPUT 110/220VAC
AUXILIARY
BREAKER
32VDC OUTPUT

DIAGNOSTIC STATUS CODES



Status Codes are displayed on a two 7-segment display on the chair control circuit board. These are visible through the clear window of the protective cover. Errors are designated with an 8 as the first digit. While there are error codes displayed, no other status code will be displayed. When more than one code's condition is present, each applicable code will will be displayed, alternating every second.

POSITION CONTROLS

Display	Status	If this status is incorrect
00	System Normal, No current action	Check Green LEDs are lit on the keypad input board
10	Keypad connected to KEY1 is being pressed	1. Check keypad for a stuck key 2. Check keypad cables for damage creating a short circuit
11	Keypad connected to KEY2 is being pressed	
12	Keypad connected to KEY3 is being pressed	
13	Keypad connected to KEY4 is being pressed	
14	No motion in progress while keypad is pressed	
15	Backrest in motion	(normal function)
16	Base in motion	(normal function)
17	Auto-position in progress	(normal function)
18	Auto-position in progress	(normal function)

INDICATORS

Display	Status	If this status is incorrect
20	Signal received to move backrest but it has reached its soft limit	Reprogram soft limits
21	Signal received to move base but it has reached its soft limit	Reprogram soft limits
22	Signal received to move both base and backrest but both have reached their soft limits	Reprogram soft limits
25	Lamp is being activated or deactivated	1. Check keypad for a stuck key 2. Check keypad cables for damage creating a short circuit

SAFETY SWITCHES

Display	Status	If this status is incorrect
30	Safety cover switch engaged	1. Check the safety cover and ensure that it is free to move up and down 2. Check that the safety cover properly activates the switch 3. Check cable connections to the safety switches attached to each side of the truss casting 4. Check cables connecting the switches for continuity 5. Check that safety switches open the electrical circuit when the lever is depressed
31	Auxiliary Switch engaged	1. Check the air switch in the delivery head for proper function 2. Check keypad cable connecting the delivery head Input Board to the Control Board

ERRORS

Display	Status	If this status is incorrect
80	Backrest Position value too low	1. Check soft limits, reprogram as necessary 2. Check for damaged sensor cables 3. Check to ensure the sensor is installed with the text on the box being right side up
81	Backrest Position value too high	
82	Base Position value too low	
83	Base Position value too high	
84	Software fault, watchdog engaged	Replace Control Board if persistent
85	Base Sensor not found	1. Ensure that the sensor is connected to the Control Board 2. Check sensor or input wiring for damage
86	Back Sensor not found	
88	Harware fault	Replace Control Board if persistent
89	No keypads found	1. Check keypad connections both at the Control Board and the Input Board to which the keypad is connected 2. Check for damage to the keypad cables
F0	Fault on Base Port	Check sensor or input wiring for damage
F1	Fault on Base Port	
F2	Fault on KEY1 Port	
F3	Fault on KEY2 Port	
F4	Fault on KEY3 Port	
F5	Fault on KEY4 Port	
Pu	Pump has overrun, chair has been automatically stoped	1. If chair had reached its mechanical limit, adjust soft limits farther away from the mechanical limit 2. Check hydraulic system for leaks

DIAGNOSTIC TOOL

SMART PHONE APPLICATION

You can connect to this chair using an Android based smart phone and the **DCI Edge Diagnostic Tool** App. This application provides the following features:

1. View status information of the chair in its current state along with troubleshooting tips for error conditions.
2. Download a history log of past actions and conditions.
3. Share the history with the DCI Edge Technical Service Team for additional assistance.
4. Gain quick access to other DCI Edge support materials available online.
5. Quickly connect with the DCI Edge Technical Service Team by phone or by electronic message.

CONNECT VIA BLUETOOTH

1 **Getting started:** install the **DCI Edge Diagnostic Tool** onto your smart phone from the GooglePlay Store. Once you have installed the app on your smart phone, open the app and choose Devices from the main menu.

2 **Make the chair discoverable:** Using a keypad or foot-switch connected to the chair, press and hold the '0' and '1' keys simultaneously for 5 seconds until you hear a chime from the chair.

3 **Connect:** Choose Devices from the main menu (Fig. 1). From the Devices Screen, tap on the device listed to connect to it (Fig 2). To avoid confusion, do not make more than one chair discoverable at a time.

4 **View Status:** Once connected, you will be placed into the Status Section of the app (Fig. 3) where you can view the codes that are currently being displayed on the Control Board of the chair along with the definition of the code. A graphical display will also indicate any current actions you are making in real time. Scroll through the troubleshooting section at the bottom of the screen if the current conditions require a corrective action.

5 **View Log:** Tap **Log** in the upper left of the screen to enter the Log Section of the app (Fig. 4) where you can view the Log Entries in real time as you operate the chair. You can also download the log history of the chair for the last 500 log entries, and you can tap the Share icon to email that log information to DCI Edge Technical Service Team for additional assistance. The Log Help window includes additional information for understanding the log entries and viewing the list of troubleshooting tips.

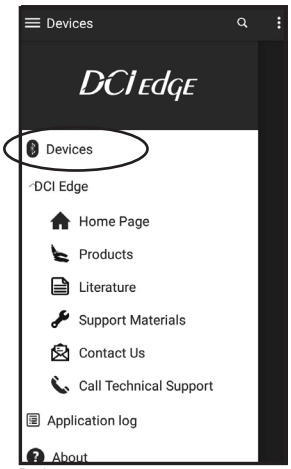


Fig. 1

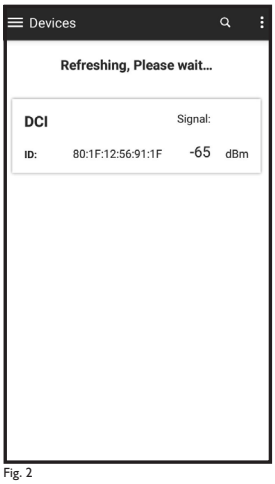


Fig. 2

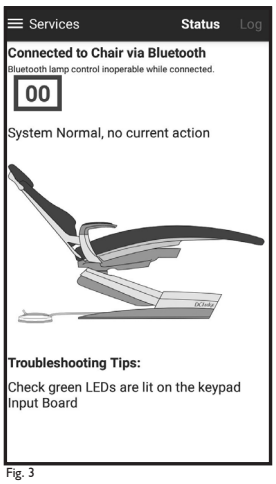


Fig. 3

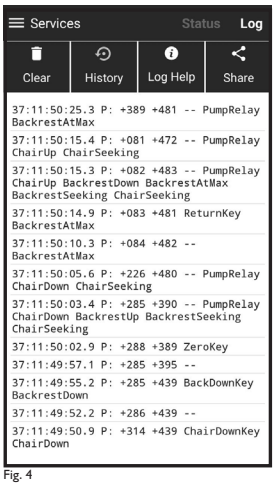


Fig. 4

CE

PN 50051, Rev. F, 2022-12-06

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