

**Royal** Users Guide and Care Manual



Royal Alliant

# Table of Contents

## Section 1: Introduction

Introduction .....	3
Safety Symbols.....	3
Serial Number Location.....	4
Weight Recommendations .....	4
Duty Cycle .....	4
Chair Dimensions .....	5

## Section 2: Operation

Power Light .....	6
Touch Pad Location .....	6
Manual Positioning .....	7
Automatic Positioning .....	7
Auto-Return Operation.....	7
Last-Position Operation.....	7
Programming Auto-Position .....	8
Programming Last-Position.....	8
Optional Foot Controller .....	8
Armrest Positioning .....	9
Armrest Removal .....	9
Rotating the Chair .....	10

## Section 3: Upholstery Adjustments

Backrest Removal .....	10
Backrest Reattachment.....	11
Headrest Adjustments .....	11
Adjusting Headrest Slide Tension .....	11
Seat Cushion installation .....	12

## Section 4: Cleaning/Maintenance

Chair Cleaning Instructions.....	13
----------------------------------	----

## Section 5: Service Information

Wiring Diagram.....	14
Parts List.....	15-18
Warranty Information .....	19

## Section 1: Introduction

Thank you for choosing a Royal Dental Chair. This guide provides instructions for how to properly operate and maintain your **Royal Alliant**.

This guide is intended to be used by doctors and their staff while operating the **Royal Alliant**. Before using the chair, please read this manual to familiarize yourself with the chair and its features.

This document contains:

- Information on how to operate the Chair controls, including how to program automatic positions.
- How to adjust, remove, and re-attach chair parts.
- Chair cleaning instructions
- Warranty information

### Note:

When referring to parts of the chair this manual's references to left and right refer to those of a patient seated in the chair.

## Safety Symbols

SYMBOL KEY



ALTERNATING CURRENT



TYPE B EQUIPMENT

PATIE APPLIQUEE DU TYPE B



CONSULT THIS MANUAL

CONSULTENT DES DOCUMENT



PROTECTIVE EARTH GROUNDING

LA TERRE PROTECTRICE (LA TERRE)

## Section 1: Introduction

### Serial Number Location

The serial number for the upper portion of your **chair** can be found beneath the seat cushion, toward the rear of the chair, attached to the upper frame. The serial number for the base is attached to the inside surface of the base's left upright. Either of these serial numbers allow customer service to quickly reference the specifications of your **Royal Alliant Chair** .



Serial Number



Figure 1.0: Serial Number Location

**Electrical Rating:** 120 volts 60 Hz.  
8 amps Max.

**Duty Cycle:**

Do not run chair continuously for more than one minute or cycle the chair in a way that would require it to move more than 7% of the time. If the chair is used in a manner other than intended the chairs built in protections may not function properly.

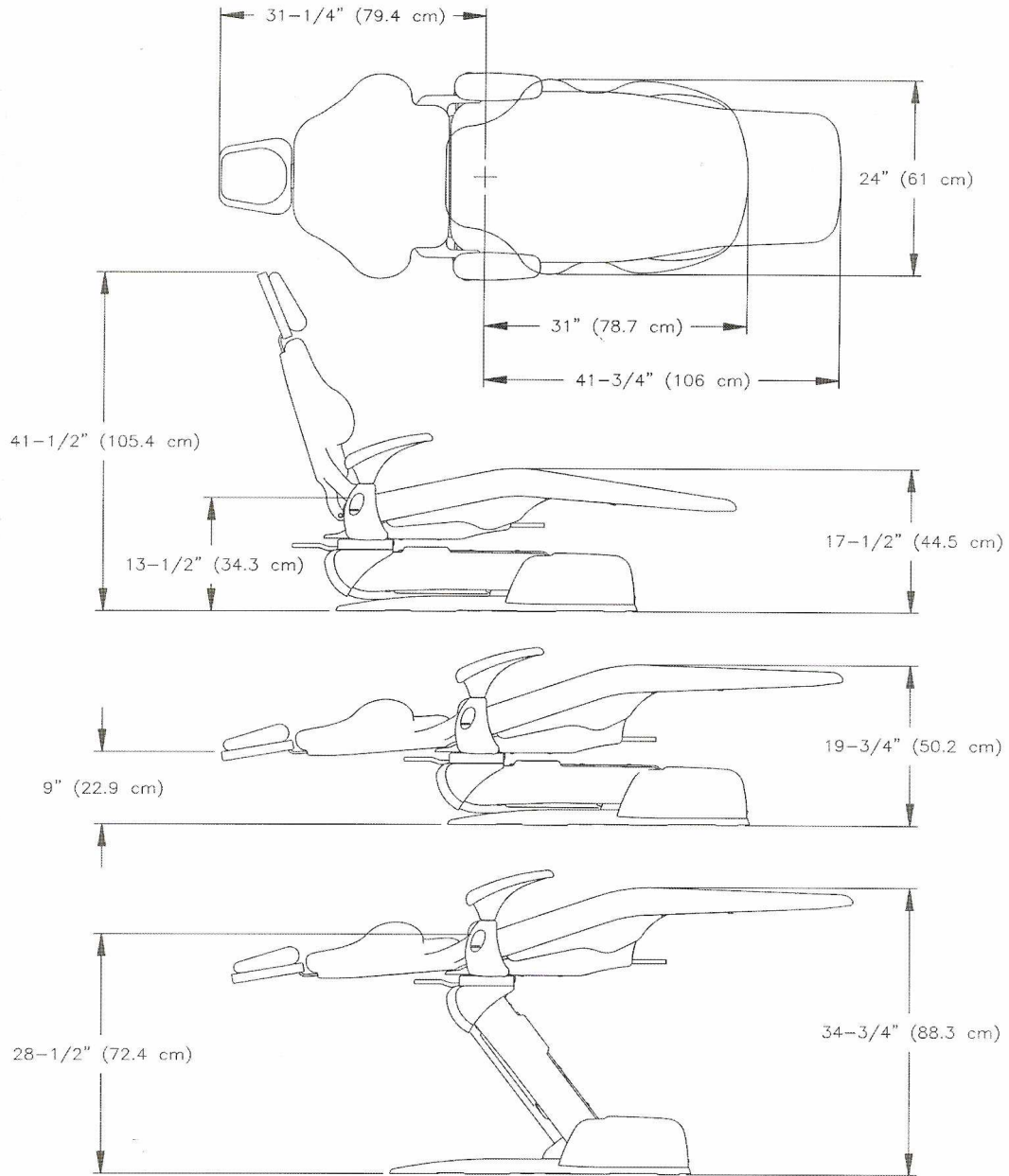
**Weight Recommendations:**

Patient Weight: 300 lbs.  
Accessory Load: 150 lbs  
(Lifting speed will be slower at higher loads)

**Moisture Protection:**

Under UL standards the degree of protection against harmful ingress of water is - Ordinary Equipment.

## Chair Dimensions



## Section 2: Operation

### Power Light

The light mounted on the front base shroud (figure 2.0) indicates that power is reaching the chair. If the light is off, check the outlet the cord is plugged into. If the outlet works, please contact your authorized Royal dealer. If you wish to remove all power from the chair, please unplug it.

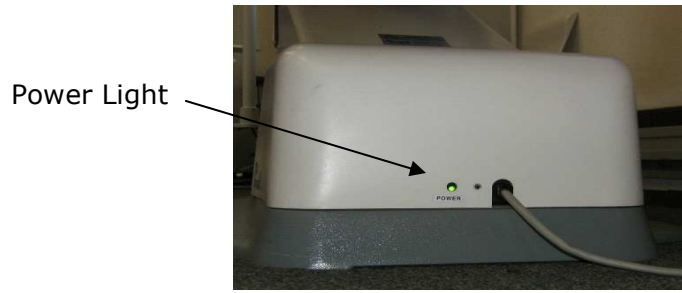


Figure 2.0: Power Light

### Touch Pad Locations

**The Royal Alliant** has two touch pads. These touch pads are located on the sides of each arm-post, facing away from the patient.



Figure 2.1: Touch pad locations

## Section 2: Operation

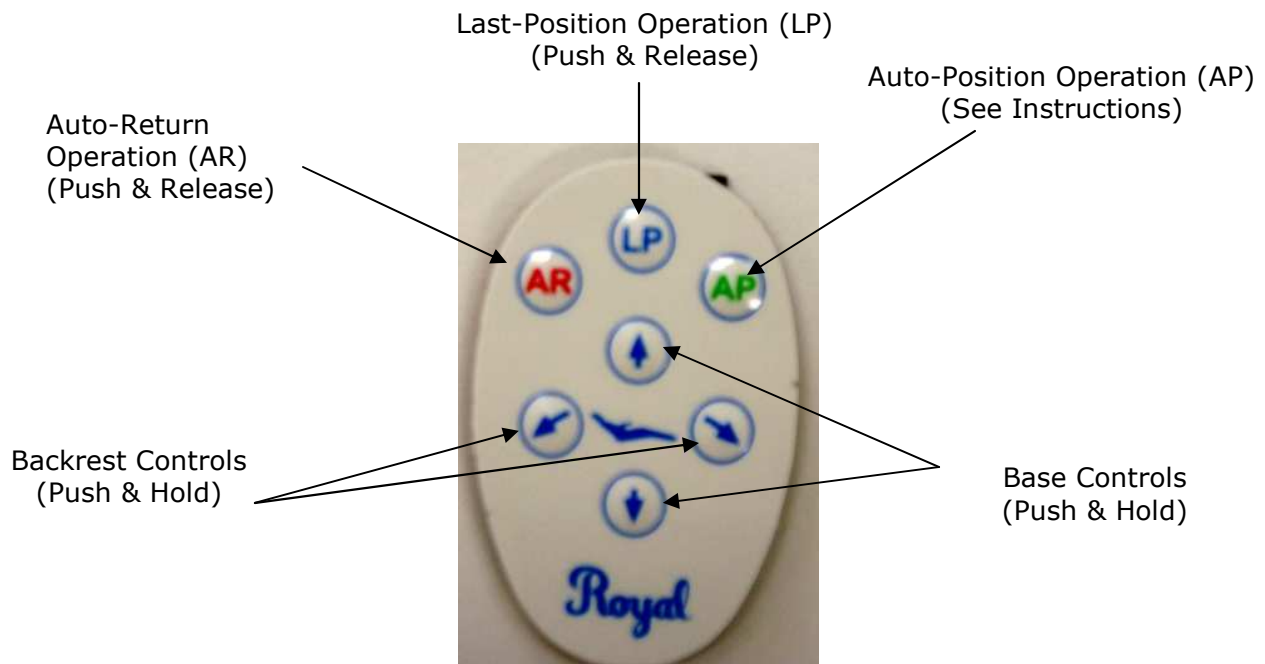


Figure 2.2: Touch Pad

### Manual Positioning

To move the backrest, push and hold the backrest control buttons. The left will lower the backrest, the right will raise it. The seat automatically tilts slightly when the backrest is moved.

To adjust chair height, push and hold the base buttons. The up button will cause the chair base to rise, the down button will lower it.

### Automatic Positioning

To automatically raise the chair and recline the backrest to a pre-set position, press and release the green **AP** button. Then immediately press and release one of the 4 arrowed manual control buttons. Each of the 4 manual buttons corresponds to a different **AP** preset position.

### Auto-Return (Exit) Operation

To lower the chair completely and bring the backrest upright, press and release the red AR button.

**NOTE:** This exit position is set and cannot be programmed.

### Last-Position Operation

If you wish to set the patient up, but later return to where they presently are positioned, use the LP button. The first push and release of the button will set them up. A second use of the LP button will return the patient to the initial position. Pushing other buttons in-between may cancel the process.



## Section 2: Operation

### Programming Auto-Positions

The chair comes preprogrammed. This process allows changing of the programmed positions. Run the chair to the desired position using the manual control buttons. Push and hold the **AP** button. While holding **AP** push and hold the “base down” button until you hear 2 beeps (approx. 5 sec.). The present position is stored in memory and any time **AP** is followed by “base down” the chair will return to this position. A suggested program group follows: base up = lower arch; base down = upper arch; back down = exam; back up = x-ray.

### Programming Last-Position

The chair comes with the LP “interim” position preprogrammed. You can re-program this position by using the manual switches to position the chair where you would like this “interim” position to be. Then press and hold both the **AP** and **LP** buttons until you hear 2 beeps (approximately 5 seconds).

### Optional Foot Controller

The foot controller is an optional feature that works the same way as the touch pad (see page 7).

For manual positioning, use the black foot control actuator like you would the manual control switches. Sliding the actuator left or right will control the backrest. Sliding the actuator up or down will control the base.

The automatic positioning controls operate the same way as on the touch pad and the features have the same colored switches. To program the automatic positions, follow the instructions given in the above section. Use the black foot control actuator to store position settings like you would the manual control buttons on the touch pad.

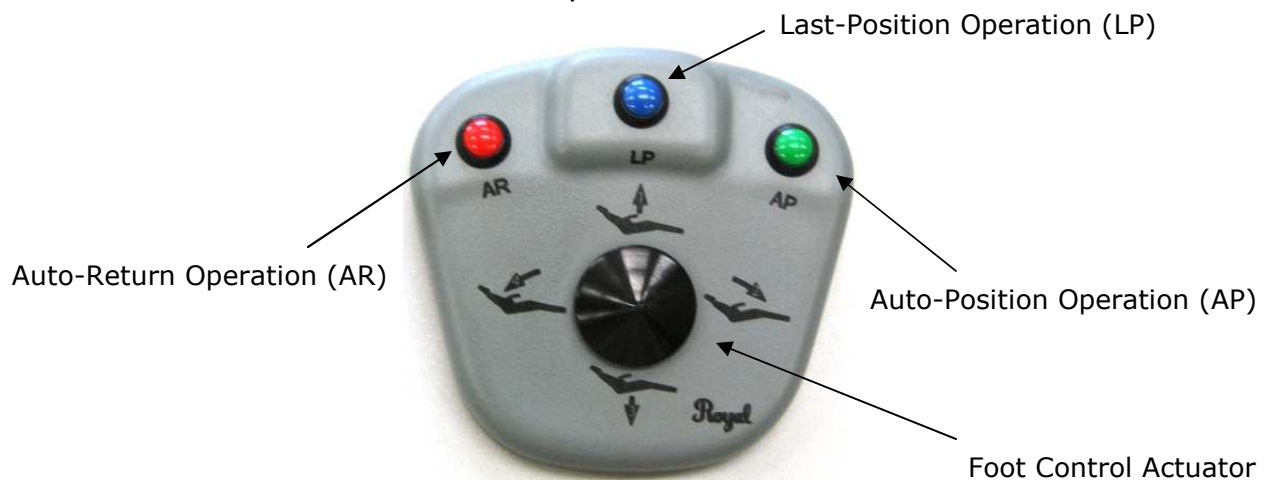


Figure 2.1: Foot Control



### Armrest Positioning

The armrests lock in two positions to insure stable support for the patient. To unlock an armrest, grasp the rear portion of the armrest and pull up. The armrest should automatically drop into locks at the examination and entry/exit position.

Once raised and unlocked, the armrest can be rotated 90 degrees from the examination position (figure 2.4) to the entry/exit position (figure 2.5). This position allows patients to easily enter and exit the chair while using the locked armrest for support.



Figure 2.4: Examination Position



Figure 2.5: Entry/Exit Position

### Armrest Removal

To remove an armrest, pull up to unlock. Once unlocked, rotate the armrest past the entry/exit position until it points behind the chair. Once in removal position (figure 2.6), pull up on the armrest to remove it from the arm-post. The backrest may need to be reclined slightly to make this easier.



Figure 2.6: Removal Position

## Section 2: Operation

### Rotating the Chair

To rotate the chair, locate the black handle directly behind the seat cushion (figure 2.7). To unlock the chair, pull the handle clockwise. The chair can then swivel 30 degrees left or right. To lock the chair after rotation, pull the handle counter clockwise.

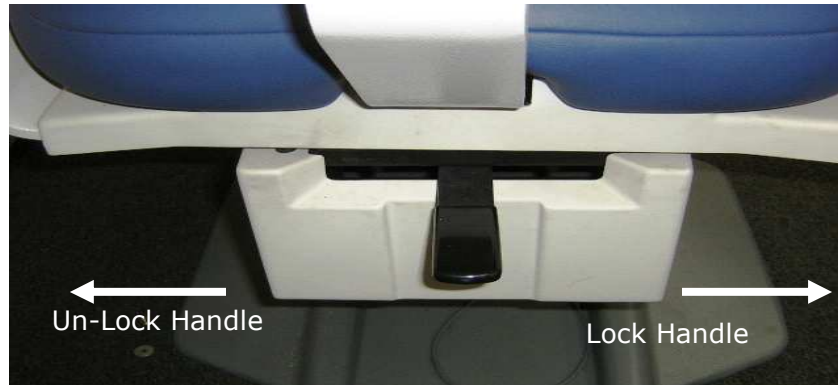


Figure 2.7: Rotation Handle

## Section 3: Upholstery Adjustments

### Backrest Removal

To remove the backrest upholstery, move behind the chair and firmly grip the backrest base (figure 3.0). While slightly pulling out from the bottom, pull up toward yourself to disengage the retaining ridges and slide the key-holes from the chair's back elevator bolts.

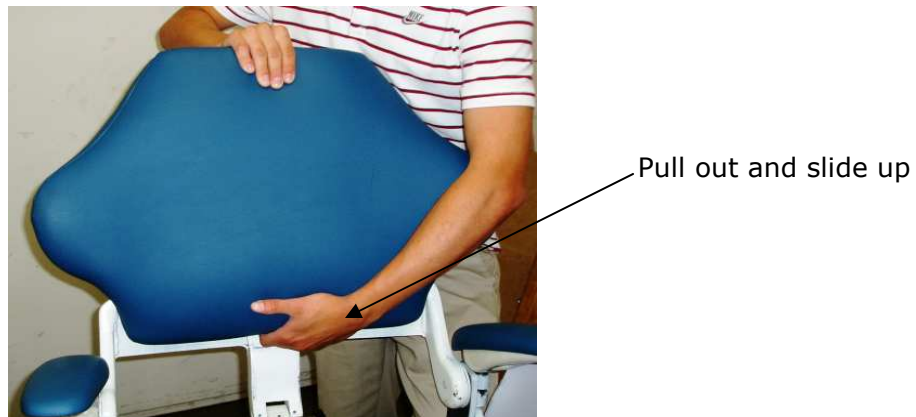


Figure 3.0: Backrest Removal

## Section 3: Upholstery Adjustments

### Backrest Reattachment

Match the four elevator bolts on the chair's backrest (figure 3.1) with the four keyholes on the rear of the backrest upholstery (figure 3.2). Once matched, push down on the top of the backrest until the retaining tabs slide past the retaining pockets and lock into place.

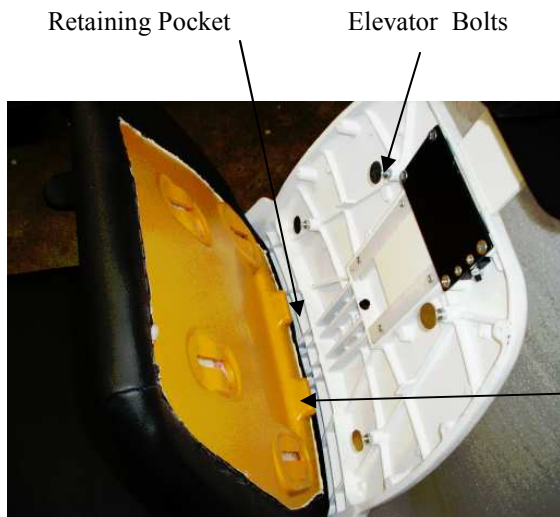


Figure 3.1 : backrest and upholstery

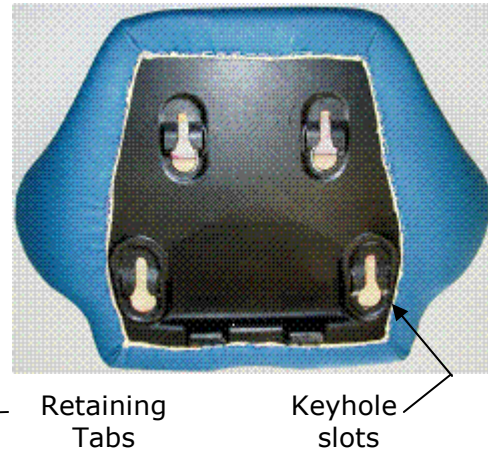


Figure 3.2 back rest upholstery

### Headrest Adjustments

To adjust headrest height, grasp both sides of the headrest backboard and pull up or push down to slide it into the desired position. The pillow may be slid lower than the backboard onto the backrest to accommodate shorter patients.

### Adjusting Headrest Slide Tension

**Note: You will need a 1/8th inch Allen wrench and a 7/16th inch wrench**

In order to adjust headrest slide tension, you must remove the backrest. See previous section for instructions.

After removing the backrest, locate the jam nut and set screw (see figure 3.3). Hold the set screw with a 1/8<sup>th</sup> inch Allen wrench and loosen the jam nut with a 7/16th wrench. After loosening the jam nut, turn the set screw clockwise 1/16 turn to increase slide tension. Turn counterclockwise to decrease tension. Hold the set screw in the new location while tightening the jam nut to lock tension setting.

## Section 3: Upholstery Adjustments

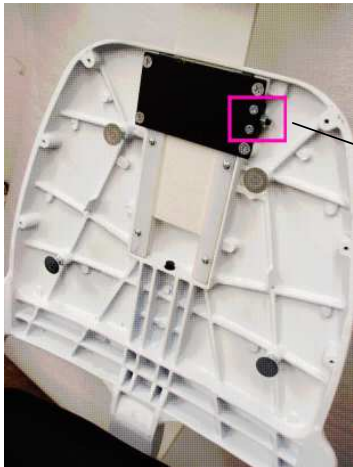


Figure 3.3: Set screw and jam nut location

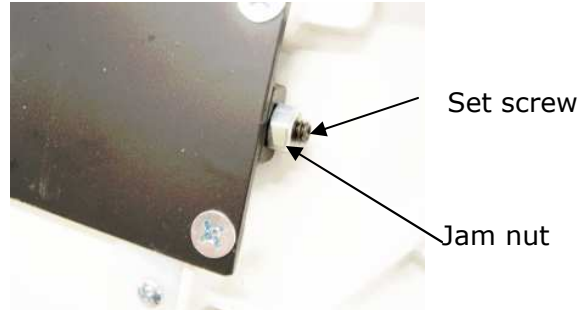


Figure 3.3 Close up

### Seat Cushion Installation

Place the seat cushion on the chair's metal frame so that the two notches at the rear of the cushion sit behind the round metal pins (figure 3.5). Slide the cushion forward so that the notches lock onto the pins, latching the rear of seat cushion into place. Locate the locking plate, hex bolt and washer (figure 3.6) and loosely thread it into the mounting hole. Rotate the plate until it traps the knee end seat frame bar (figure 3.7) between the ribs on the bottom of the cushion. Tighten hex bolt.



Figure 3.5: Notches and pins at rear of cushion

Under side of seat cushion



Figure 3.7: Under chair frame, at knee



Figure 3.6: Bolt, Washer, and Locking Plate

## Section 4: Cleaning/Maintenance

Royal Dental chair upholstery selected from the Royal Standard Color Guide is protected with a special surface coating that resists stains and discolorations.

### **CARE AND CLEANING INSTRUCTIONS FOR ROYAL DENTAL CHAIRS**

**Buildups of disinfectant are known to harm the upholstery's protective coating as well as the chair's other surfaces.**

**Using barriers to control infection in lieu of dental surface disinfectants will most effectively increase the longevity of all of the surfaces on the chair.**

**If you must use disinfectants then clean the chair afterwards as described below.**

**NOTE:** The longer a stain is allowed to set, the more difficult it will be to remove.

**NOTE:** Use damp, not wet, cleaning cloths around control switches and other openings. Do not allow liquid to run into the interior of the chair.

#### **For Daily Cleaning:**

Use a solution of 10% household liquid dish soap mixed with warm water and apply with a soft damp cloth to remove most soiling and buildups. If necessary, rinse, re-dampen the cloth and continue working out remaining residue. Then wipe the surface clean with a soft clean water-dampened cloth.

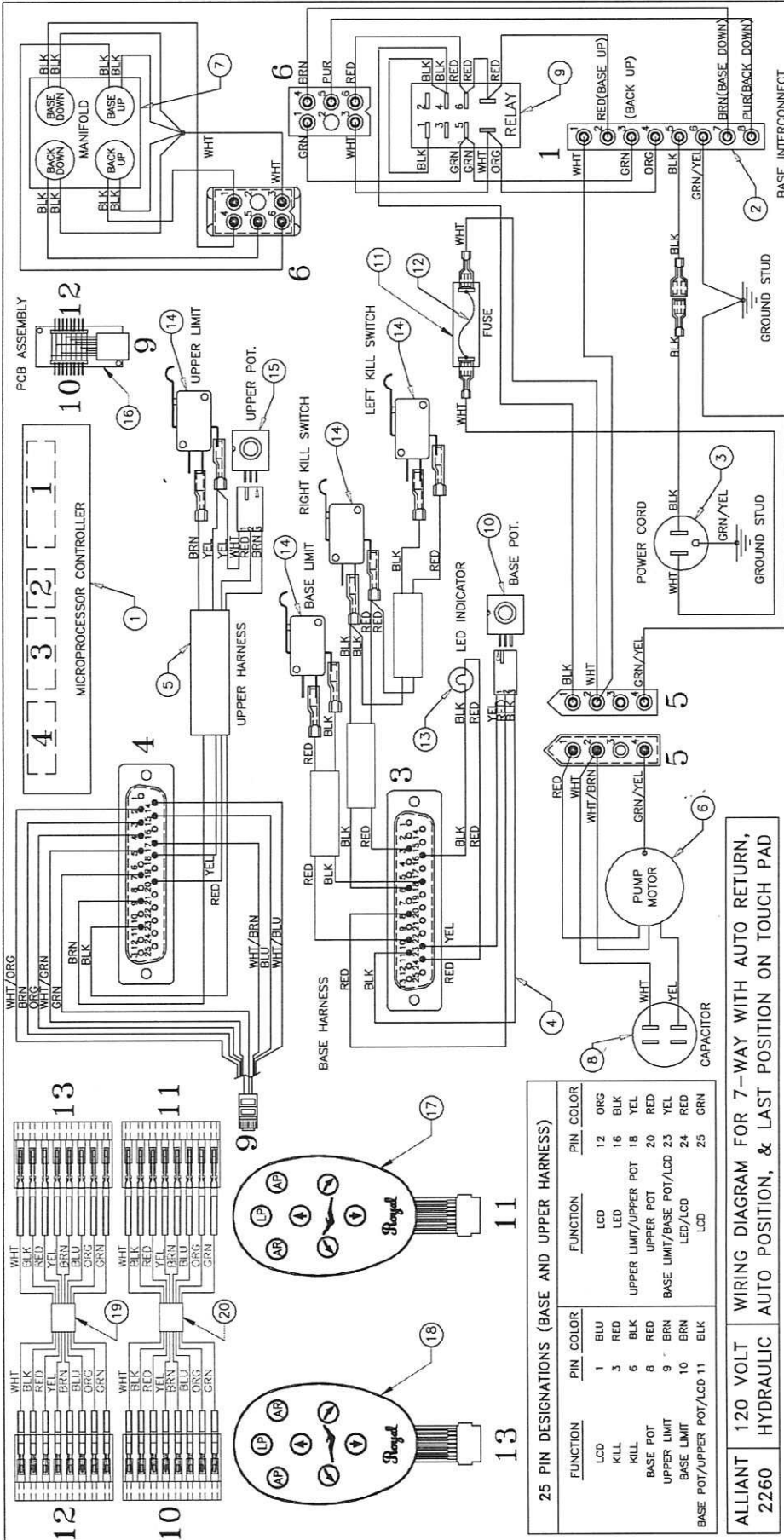
Formula 409 or Fantastik spray cleaners may also be used. Be sure to rinse with a soft clean water-dampened cloth afterwards. **Do not use Citrus, Bleach or other variations of these cleaners, only the original formulas.**

#### **For more difficult stains not solved by above method:**

Dampen a soft white cloth with a standard 70% formulation of Isopropyl (rubbing) Alcohol and rub an inconspicuous area of the material first, insure that no discoloration has occurred, and then rub the stained area gently 6 times. **Note: Use extreme caution with this method. Complete only in a well-ventilated area and away from any open flame.**

Rinse with a water-dampened cloth.

**Do not use Acetone (finger nail polish remover), Sodium Hypochlorite (bleach), Naphtha (lighter fluid) or D-limonene (citrus cleaners). These are known to damage the chair's finish.**



25 PIN DESIGNATIONS (BASE AND UPPER HARNESS)

FUNCTION	PIN	COLOR	FUNCTION	PIN	COLOR
LCD	1	BLU	LCD	12	ORG
KILL	3	RED	LED	16	BLK
KILL	6	BLK	UPPER LIMIT/UPPER POT	18	YEL
BASE POT	8	RED	UPPER POT	20	RED
UPPER LIMIT	9	BRN	BASE LIMIT/BASE POT/LCD	23	YEL
BASE LIMIT	10	BRN	LED/LCD	24	RED
BASE POT/UPPER POT/LCD	11	BLK	LCD	25	GRN

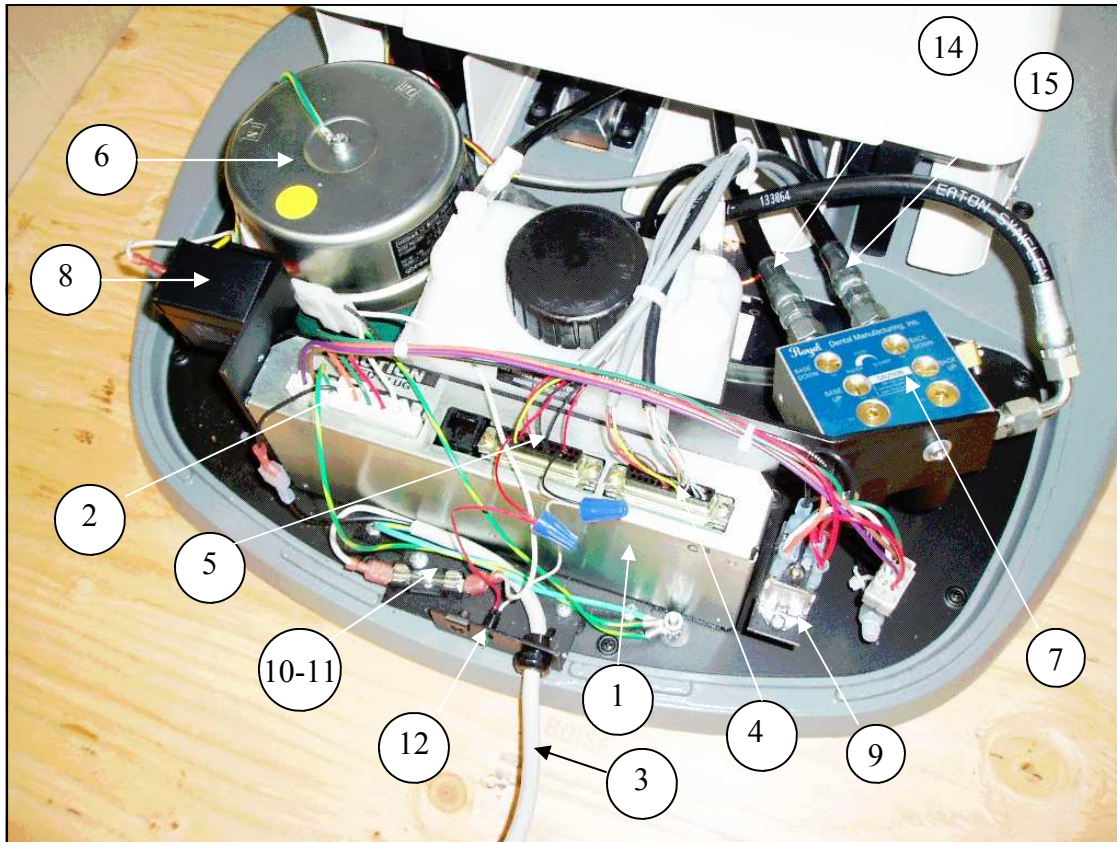
ALLIANT 120 VOLT HYDRAULIC WIRING DIAGRAM FOR 7-WAY WITH AUTO RETURN, AUTO POSITION, & LAST POSITION ON TOUCH PAD

KEY#	QTY	PART#	DESCRIPTION
1	1	10325	MICROPROCESSOR CONTROL 120V
2	1	10320	BASE INTERCONNECT ASSEMBLY 120V
3	1	9302	POWER CORD ASSEMBLY
4	1	10323	BASE HARNESS ASSEMBLY
5	1	10324	UPPER HARNESS ASSEMBLY
6	1	9311	PUMP MOTOR, WIRED 120V
7	1	9654	VALVE MANIFOLD, WIRED 120V
8	1	9576	CAPACITOR 50MFD
9	1	9579	RELAY 120V
10	1	9310	POTENTIOMETER HARNESS ASSEMBLY
11	1	9581	FUSEHOLDER
12	1	2890	FUSE, 8 AMP
13	1	9580	POWER INDICATOR, LED, GREEN
14	4	3732	MICROSWITCH, LONG LEVER
15	1	10319	UPPER POTENTIOMETER HARNESS
16	1	1106	PCB ASSEMBLY
17	1	3778	TOUCH PAD, RIGHT
18	1	1859	TOUCH PAD, LEFT
19	1	10322	LEFT, TOUCH PAD CABLE ASSY, 24"
20	1	10321	RIGHT, TOUCH PAD CABLE ASSY, 21"
21	1	9252	FOOT CONTROL ASSY, 7 WAY RJ45 (OPTION)
22	1	1585	FOOT CONTROL CABLE, 7 WAY RJ45 (OPTION)



# Section 5: Service Information

## Parts List

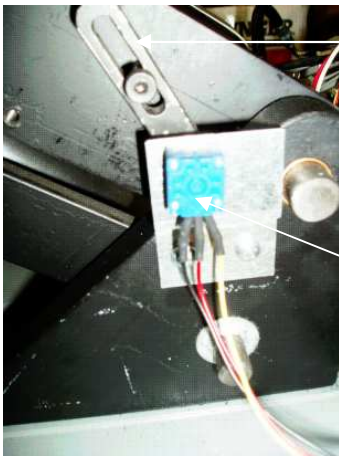
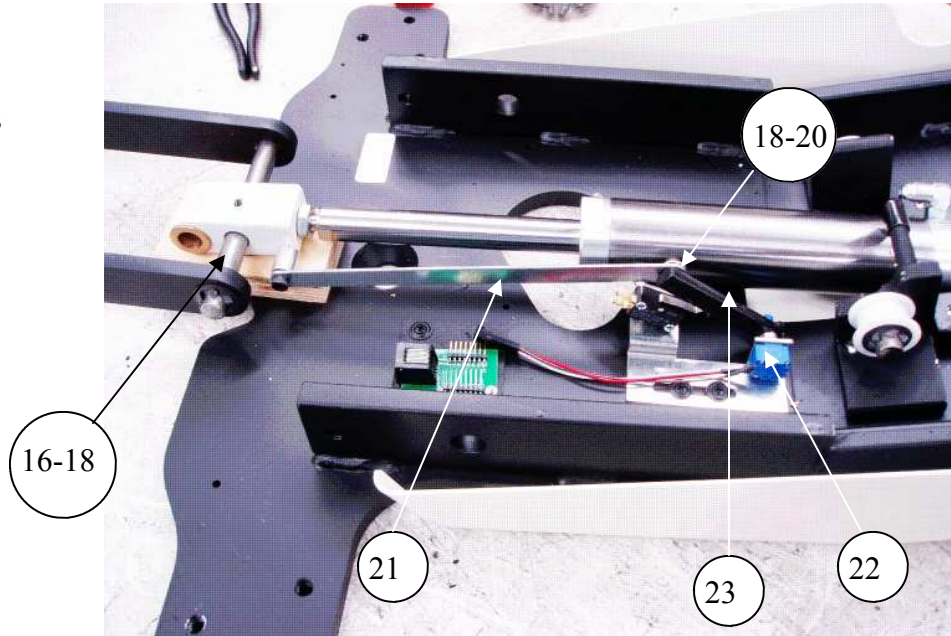


Key #	Quantity	Part #	Description
1	1	10325	Microprocessor Control 120 v
2	1	10320	Base Interconnect Assembly
3	1	9302	Power Cord Assembly
4	1	10323	Base Harness Assembly
5	1	10324	Upper Harness Assembly
6	1	9311	Pump/Motor Wired 120v
7	1	9654	Valve Manifold
8	1	9576	Capacitor 50 MFD
9	1	1092	Relay 120V
10	1	9581	Fuse Holder
11	1	2890	Fuse 8 AMP
12	1	9580	Power Indicator Light



## Section 5: Service Information

Upper positing parts

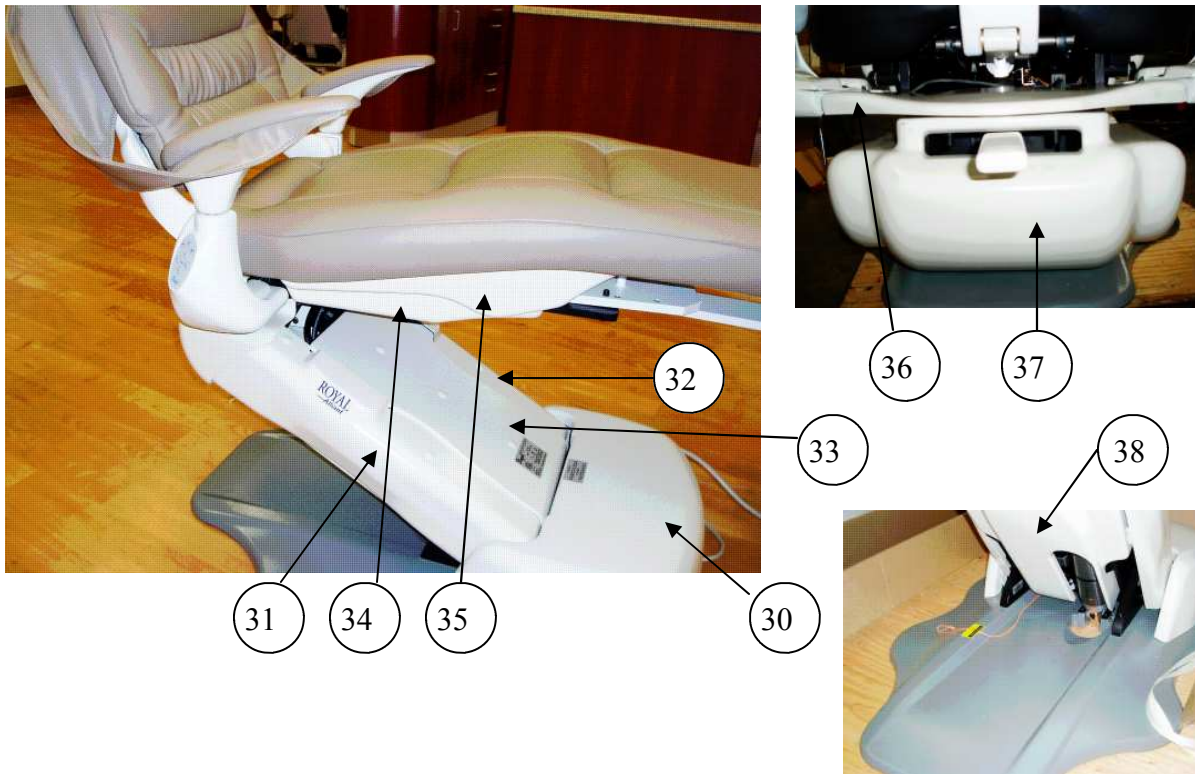


Base positing parts

\* pictured on previous page

Key #	Quantity	Part #	Description
* 14	1	10355	Hydraulic Hose Assembly, Base Cylinder
* 15	1	10356	Hydraulic Hose Assembly, Upper Cylinder
16	1	10212	Screw, Soc. Shoulder, 10-32 X 3/4
17	1	10215	Standoff, Alum., 1/4 I.D. X 5/8 LNG
18	1	10210	Screw, Soc. Hd. Cap, 10-32 X 3/8
19	1	10214	Standoff, Alum., #10 I.D. X 1/8 LNG
20	1	2307	Washer, Plain #10
21	1	10054	Upper Potentiometer Long Bar
22	1	10319	Upper Potentiometer
23	1	10064	Upper Potentiometer Short Bar
24	1	9310	Base Potentiometer
25	1	10040	Base Potentiometer Swing Bar

## Section 5: Service Information



30	1	10107	BASE SHROUD
31	1	10104 -2	LIFTARM SHROUD RIGHT
32	1	10104 -1	LIFTARM SHROUD LEFT
33	1	10106	LIFTARM CAP SHROUD
34	1	10113	UPPER BASE PLATE FRONT SHROUD
35	1	10110	SEAT FRAME SHROUD
36	1	10112	UPPER BASE PLATE REAR SHROUD
37	1	10103	LIFT PLATE SHROUD
38	1	10108	LOWER LIFT ARM SHROUD

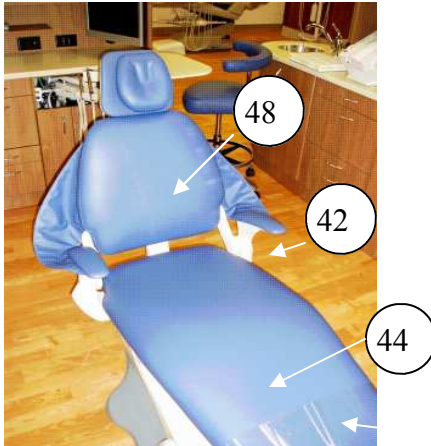
# Section 5: Service Information

## Upholstery Styles

Standard, Easy Care



Standard, Stitched



Slinged Backrest, Easy Care

Slinged Backrest, Stitched

Key #	Quantity	Part #	Description
40	1	10400	2260 standard, stitched upholstery set
41	1	10401	2260 standard, easy care upholstery set
42	2	10402	2260 upholstered arm pad ( Lft. or Rt. )
43	1	10403	2260 seat cushion, stitched
44	1	10404	2260 seat cushion, easy care
45	1	10405	2260 toe cover
46	1	10409	2260 standard backrest, easy care
47	1	10410	2260 standard backrest, stitched
48	1	10411	2260 slinged backrest, easy care
49	1	10412	2260 slinged backrest, stitched
50	1	10415	2260 toe cover stitched

### Royal Limited Warranty

Royal Dental chairs are warranted to be free from defects in material or workmanship as described below. The manufacturer's sole responsibility under this warranty shall be to repair or replace any part which the manufacturer has deemed to be defective. Labor charges, incidental or consequential damages are specifically excluded. The warranty is conditioned upon proper installation and maintenance by an authorized dealer. Freight charges for returned items are the responsibility of the customer. This warranty specifically excludes damage caused by abuse, misuse, freight damage, field alteration, misapplication, or acts of God. This warranty does not cover damage resulting from the application of disinfecting or sterilizing chemicals or procedures. Normal wear and standard service items are excluded from this warranty.

**No other warranties as to merchantability, fitness for use, or otherwise are made.**

All dental chairs and stools manufactured by Royal Dental Manufacturing are warranted for five (5) years from the date of shipment. Standard upholstery is warranted to be free of defects in workmanship for one (1) year from the date of shipment.

**Exclusions:**

- Accessory items not manufactured by Royal are excluded from this warranty. Warranties for these items are the responsibility of the OEM manufacturer.
- Replacement parts purchased from Royal are subject to a 90-day warranty.



Royal Dental Manufacturing Inc.  
12414 Highway 99, #29  
Everett, Washington 98204-5599  
Phone: (425)-743-0988  
Fax: (425)-743-3588