Ramvac

DRY VACUUM

USER MANUAL

MODELS:
RV4, RV5, RV7, RV10 & RV12



DENTALEZ

Ramvac

SECTION I - INTRODUCTION

Product Overview 1
Product Features 2
Specifications (Vacuum Unit) 3
Specifications (LTE Radio) 4
Recommended Environmental Conditions 4
Classifications 5
Explanation of Symbols & Signs 5
Safety Precautions 6

SECTION II - PREINSTALLATION

System Schematic 8
Site Requirements 9

SECTION III - INSTALLATION

Tank Plumbing 12
Exhaust Plumbing 14
Adding Pump Oil 15
Low-Voltage Wiring Connections 16
Electrical Power Connections 20

SECTION IV - OPERATION

How the System Works 22
Getting Started 22
Control Panel 23
Home Screen 24
Information Screen 27
Technical Screen 29
Settings Screen 51

SECTION V - CARE & MAINTENANCE

Overview 58
Key Points for Trouble-Free Operation 58
Cleaning Instructions 59
Preventive Maintenance Schedule 59
Clean Vacuum System Lines 60
Check Oil Drip Rate 61
Check/Replace Air Filters 62
Change Oil 65
Check/Replace Oil Filter Element 67
Check/Replace V-Belt 69
Inspect S-Type Filter 71

SECTION VI - USER SERVICE INFO

Moisture in Pump Intake (Filtrols) 72
Troubleshooting 73
Service Instruction 74
Disposal of Equipment 74

EMC INFORMATION 75

LIMITED WARRANTY 79

PRIVACY POLICY 80

TERMS OF USE 85

Ramvac

PRODUCT OVERVIEW

This manual contains site preparation, installation, operation, care and user service information for the Ramvac® dental dry vacuum systems. To view the latest manual, go to *DENTALEZ.COM* to download a digital (PDF) copy.

The dry vacuums with Aeras® Intel are designed to provide trouble-free service when installed, operated and cared for according to the procedures set forth in this manual. They are NFPA 99C Level 3 dental vacuums.

To ensure proper installation, carefully read all the instructions contained in this manual prior to installing, operating and servicing. For safety, pay close attention to all warnings, cautions, notices and notes.

Before starting installation procedures, review the illustration to become familiar with the components of the vacuum *(FIGURE 1)*.

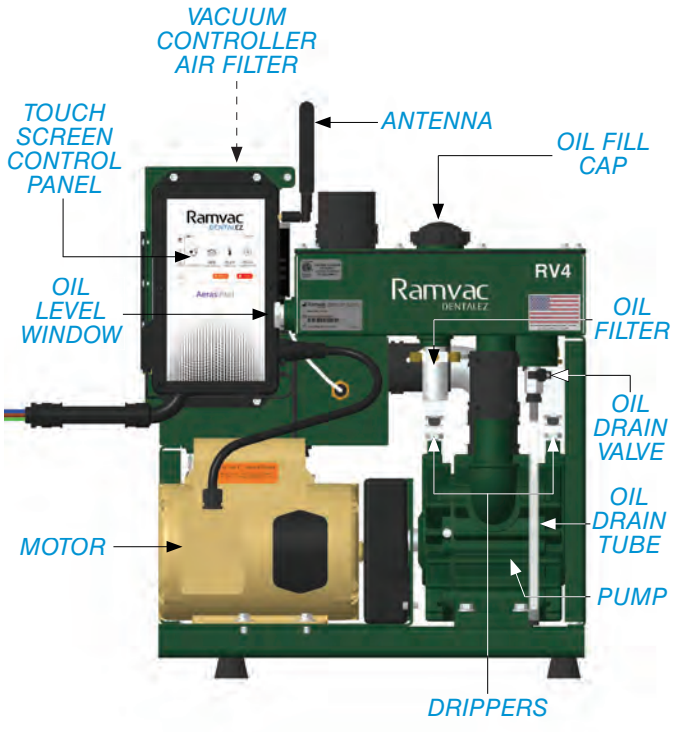
After the vacuum is installed, review the features, operation procedures and care guidelines with the doctor's staff.

LEAVE THIS MANUAL IN THE DOCTOR'S OFFICE.

NOTICE

- Installation by an authorized Ramvac dealer service technician is recommended.
- For any questions about an order, please contact a Ramvac customer service representative at 866-DTE-INFO.

MODEL RV4



MODELS RV5, RV7, RV10 & RV12

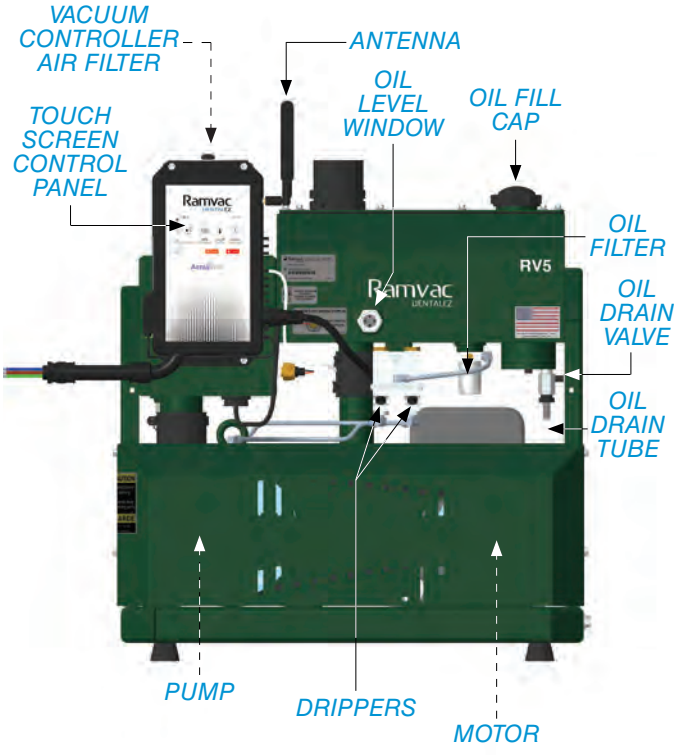


FIGURE 1. MAIN COMPONENTS OF THE DRY VACUUMS

DENTALEZ

PRODUCT FEATURES

Dry vacuums by Ramvac are tough, reliable, and pack a wealth of power in a compact footprint. The RV4 model is sized to power practices with one or two doctors. Models RV5, RV7, RV10 and RV12 provide trouble-free power for practices with up to 12 users.

STANDARD FEATURES

- The latest cloud-based technology that offers active monitoring with data streaming from embedded sensors. When subscribed to smart monitoring service, potential issues are automatically detected, and diagnostic information is relayed to the appropriate person, helping to prevent downtime. Information can be accessed via a web browser on any device. Users also can remotely schedule the equipment to power ON and OFF.
- Compact design saves space.
- 100% water-free operation for years of service and reduced water costs.
- Easy and fast annual maintenance.
- Vacuums are built with oil lubricated rotary vane pumps. Rotary vane pumps require minimal maintenance but are engineered to outlast the service life of non-lubricated systems. The design of a rotary vane pump ensures consistent vacuum performance even as additional HVEs are opened.
- Six-year vacuum system warranty. Ten-year no fail, no wear-out pump warranty (see *LIMITED WARRANTY* section of this manual).
- Models available suited for 4 to 12 users.



Ramvac
DRY VACUUM



Ramvac

SPECIFICATIONS (VACUUM UNIT)

	RV4-12	RV5-2	RV7-2	RV7-23	RV10-2	RV10-23	RV12-23/ RV12-43
Max Users	4	5	7	7	10	10	12
Voltage[1] *(AC)*	115/230 (103-126/ 208-253)	230 (208-253)	230 (208-253)	230 (208-253)	230 (208 - 253)	230 (208 - 253)	230 /460 (208 - 253/ 414-506)
Power Consumption *(Amps)*	9/4.5	16	16	8.4	16	8.4	13.2/6.6
Breaker Size[2] *(Amps)*	20/15	20	20	15	20	15	20/15
Fusetron Size[3]	FRN 25/8	FRN 25	FRN 25	FRN 12	FRN 25	FRN 12	FRN 25/10
THHN Wire Size *(50 ft)*[4]	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge
THHN Wire Size *(100 ft)*[4]	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge	12 gauge
Phase	1	1	1	3	1	3	3
Output HP *(kW)*	1.0 (0.745)	3.0 (2.2)	3.0 (2.2)	3.0 (2.2)	3.0 (2.2)	3.0 (2.2)	5.0 (3.7)
Weight *(lbs)*	200	345	345	345	395	395	395
Dimensions[5] W × D × H *(in)*	25 × 17 × 28	26 × 19 × 31	26 × 19 × 31	26 × 19 × 31	26 × 22 × 31	26 × 22 × 31	26 × 22 × 31
Dimensions *(with Stacked Tank)(in)*	29 × 19 × 48	33 × 21 × 59	33 × 21 × 59	33 × 21 × 59	33 × 22 × 59	33 × 22 × 59	33 × 22 × 71
Drain Valve Centerline to Floor *(in)*	8	8	8	8	8	8	8
BTU/HR *(Heat Released to Room)*	1,082	2,673	2,673	2,673	2,673	2,673	4,454
dBA Levels	71	74	75	75	77	77	79

NOTES:

1. Motors are NEMA rated. See NEMA guidelines for applicable voltage and frequency range.
2. Fuses must have time delays or be otherwise suitable for motor circuit.
3. Disconnect must be fusible and sized per UL 98, UL 489 or UL 508. Must be supplied and installed by a licensed electrician.
4. Recommendation only. Ensure compliance with local and national codes.
5. Height dimensions do not include S-type exhaust filters. For S-type exhaust filters, add 26" to height of RV5, RV7, RV10 and RV12 vacuum units. Add 21" to height of RV4 vacuum unit.

SPECIFICATIONS (LTE RADIO)

The LTE radio of the DENTALEZ products use the U-blox SARA R410-02B LTE Cat M1* modem for use in North America.

*SARA-R4 series modules comply with the Directive 2011/65/EU of the European Parliament and the Council on the Restriction of Use of certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS 2) and its amendment Directive (EU) 2015/863 (EU RoHS 3). SARA-R4 series modules are RoHS 3 compliant. No natural rubbers, hygroscopic materials, or materials containing asbestos are employed.

ITEM	DESCRIPTION
Modulation	QPSK 16-QAM
Frequencies	Band 2 (1900 MHz) Band 4 (1700 MHz) Band 5 (850 MHz) Band 12 (700 MHz)
Power Class	Class 3 (23 dBm)
Radiation Pattern	Omnidirectional antenna
Certifications	FCC ID: 2AEMI-BRN402 https://www.fcc.gov/oet/ea/fccid FCC Compliance Statement (e.g., products subject to Part 15): This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Operating Temperature	Normal operating temperature -20 to +65 C Extended operating temperature -40 to +85 C
Mounting	SMT
Power	Nominal 3.8V at: Minimum = 100 mA Average = 190 mA Peak during Tx = 500 mA

RECOMMENDED ENVIRONMENTAL CONDITIONS

TRANSPORTATION AND STORAGE

- Temperature range: -20°F to 165°F (-29°C to 74°C)
- Relative humidity range: 0% to 95%

OPERATION

- Temperature range: 32°F to 104°F (0°C to 40°C)
- Relative humidity range: 0% to 95%; no condensing moisture
- Atmospheric pressure range: 63 kPa to 105 kPa

Ramvac

CLASSIFICATIONS

ETL CLASSIFIED
c ETL us
Intertek
4007136

Conforms to:
ANSI/AAMI STD ES60601
Certified to:
CAN/CSA STD C22.2 NO. 60601-1
Complies with NFPA 99 Healthcare Facility Code.

Manufactured in a FDA registered
ISO 13485:2016 certified facility.

Ramvac vacuum units meet the most current and highest safety standards.

- Type of Protection Against Electric Shock: Class 1 Equipment.
- Degree of Protection Against Ingress of Water: IPXO.
- Flammable Gases: Equipment not suitable for use in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.
- Not intended for use in an oxygen rich environment.
- Mode of Operation: Continuous

EXPLANATION OF SYMBOLS & SIGNS

= Caution

= Warning

= Biohazard

= Warning - Dangerous Voltage

= Hot Surface

= General Mandatory Action

= Consult Instructions for Use

= Alternating Current

= Direct Current

= Protective Earth (Ground)

= Type B Applied Part

SN = Serial Number

= Manufacture Date

= Manufacturer

= Electromagnetic Radiation

= Box Must Remain Upright

= Do Not Place Box on Unlevel Surface

= Do Not Stack Box

= Box Contents Safe Temperature Range

= Box Contents Safe Humidity Range

SAFETY PRECAUTIONS

To ensure that the safety potential of this equipment is achieved, make sure equipment is installed according to written instructions.

⚠ WARNING

Do not modify this equipment without permission from Ramvac. Unauthorized modification will void the warranty and could result in serious injury. If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of equipment.

Electrical shock could occur as a result of improper grounding. This product must be grounded according to NEC regulations and local codes.

- The vacuum unit should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the vacuum should be observed to verify normal operation in the configuration in which it will be used.
- Exhaust from dental vacuum systems can be hazardous. Make sure the exhaust pipe is terminated outside of your building according to Ramvac's written instructions.
- Nitrous oxide and oxygen can be safetly scavenged in the small concentrations typically encountered in dental analgesia. The additional air drawn into a properly installed and operated vacuum unit will dilute these agents. Never use the vacuum to remove pure nitrous oxide, oxygen or other oxidizing agents directly from the storage vessle or supply hoses. NEVER USE THIS EQUIPMENT IN AN OXYGEN RICH ENVIRONMENT. Large concentrations may cause a fire in the vacuum unit and may cause an exhaust hazard.
- Never use the vacuum to scavenge flammable anesthetic gases. Even small concentrations may cause a fire in the vacuum unit.
- Property damage and/or personal injury may result if directions are not followed or OEM parts are not used.
- Always turn off vacuum and remove power from unit when servicing. (Turn off power at disconnect or service breaker.)
- Danger of fire or explosion when using flammable substances.
- Never leave children unattended when vacuum is in use.

⚠ CAUTION

- Never use the vacuum for housekeeping functions.
- Never use the vacuum to collect lab dust.
- Dispose of used lubricating oil responsibly as recommended in *SECTION V - CARE & MAINTENANCE* of this manual.

SAFETY PRECAUTIONS (CONTINUED)

⚠ CAUTION

- The vacuum has several guards designed to protect against accidental contact with dangerous components. Do not remove these guards until power has been disconnected/turned off from the equipment. If service is required with the guard removed and the power on, it should only be performed by a qualified service technician. Always replace any guards that have been removed for service or that may have been damaged.
- During installation, always ensure all electrical, plumbing or other utilities are properly located to avoid possible tripping or falling hazards. Always follow all local, state and national building codes, as well as any applicable workplace safety regulations.
- Use of a plug for electrical service is not recommended. Incorrect connections will cause a drop in line voltage and/or loss of power. Overheating could result.
- The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

NOTICE

- Medical electrical equipment needs special precautions regarding electromagnetic (EMC) compatibility and needs to be installed according to EMC information. (See *EMC INFORMATION* provided in this manual.)
- The use of accessories, transducers, and cables other than those specified, with the exception of transducers and cables sold by the manufacturer of this device as replacement parts for internal components, may result in increased emissions or decreased immunity of the vacuum.
- Portable and mobile radio frequency (RF) communications equipment can affect medical electrical equipment.
- There may be an instance, in low-humidity environments, that the user of the dental compressed air system may cause the vacuum to stop as a result of electrostatic discharge (ESD) energy. To remedy this issue, cycle the ON/OFF switch on the bottom of the control box.

SYSTEM SCHEMATIC

NOTICE

It is recommended that this equipment only be installed by licensed electrical and plumbing contractors.

1. Prepare Site (see *SITE REQUIREMENTS*).
2. Install Tank Plumbing (see *TANK PLUMBING*).
3. Install Exhaust Plumbing (see *EXHAUST PLUMBING*).
4. Add Oil (see *ADDING PUMP OIL*).
5. Connect Remote Switching (see *LOW-VOLTAGE WIRING CONNECTIONS*).
6. Connect Tank Float (see *LOW-VOLTAGE WIRING CONNECTIONS*)
7. Connect Electrical Power (see *ELECTRICAL POWER CONNECTIONS*).

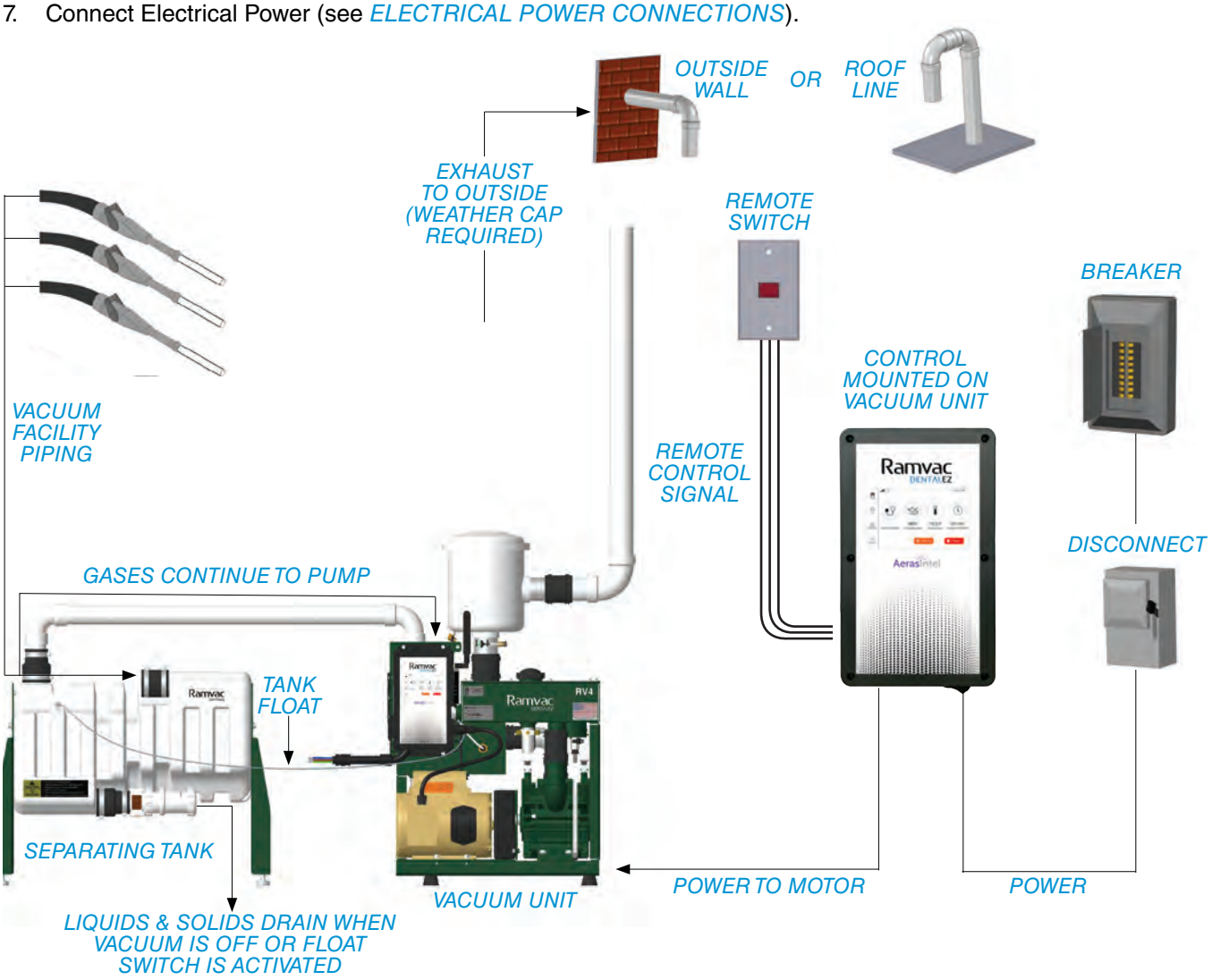


FIGURE 2. SCHEMATIC FOR THE VACUUM SYSTEM (MODEL RV4 SHOWN)

SITE REQUIREMENTS

Ambient Conditions: This utility room equipment is designed to operate in the temperature range designated as follows: 32°F to 104°F (0°C to 40°C). Operating relative humidity range is 0% to 95%, with no condensing moisture. The utility room environment may require additional ventilation and HVAC accomodations in order to maintain an acceptable environment. The operating temperature listed is to be maintained under worst case conditions taking into account seasonal temperature changes.

Protect the vacuum unit from water; controls and motors are NOT waterproof.

Before the vacuum can be properly installed, the following utilities must be supplied.

ELECTRICAL

- A licensed electrician should always complete the electrical portion of the installation process. This device requires proper electrical grounding for safe operation.
- Follow NEC, NFPA 99C, and all local codes.
- Qualified personnel must install a dedicated electrical circuit of sufficient capacity. See *SECTION I - INTRODUCTION - SPECIFICATIONS (VACUUM UNIT)* in this manual for additional electrical information.
- Any means provided to isolate this device from the supply mains shall isolate all poles simultaneously.
- The disconnection means and over-current protection are to be provided by the installer (qualified electrician) in accordance with applicable local and national electric codes. This device should always be attached to a dedicated circuit with appropriate wiring and circuit protection. If this device is being installed as a replacement, always have a licensed electrician inspect the existing facility electrical and complete the electrical portion of the device installation.

WARNING

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

CAUTION

During the performance of any service procedures that may involve the disconnection of a ground wire, take extra precautions to verify the ground wire has been properly re-connected. Never leave a ground wire disconnected, since this can create a significant safety issue.

NOTICE

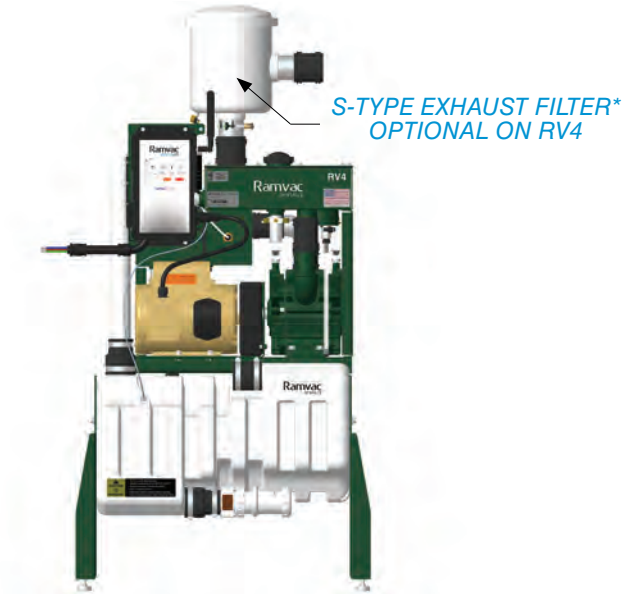
This vacuum has been designed to operate within the following voltage ranges: 115V systems, 103 to 126V AC; 230V systems, 208 to 253V AC. Failure to provide sufficient voltage to this device could result in damage to electrical components and reduced service life.

PLUMBING

- A licensed plumber should always complete the plumbing portion of the installation process. Follow all local and national plumbing codes.
- This device should always be installed with the appropriate plumbing. If this device is being installed as a replacement, always have a licensed plumber inspect the existing facility plumbing and complete the plumbing portion of the device installation.

SITE REQUIREMENTS (CONTINUED)

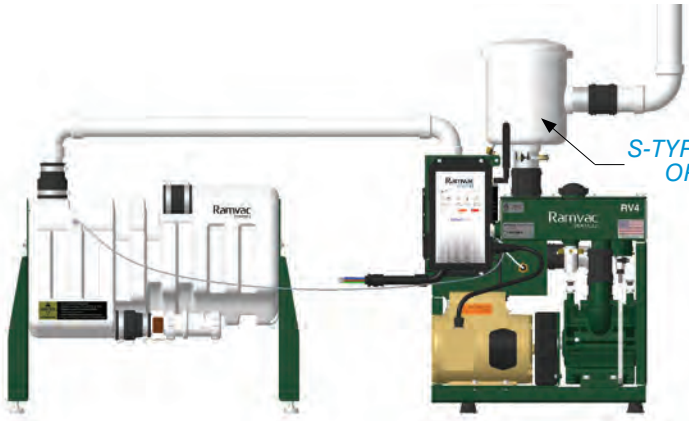
COMMON INSTALLATIONS FOR VACUUM SYSTEMS (MODEL RV4)



VACUUM UNIT RV4 &
15-GALLON TANK STACKED



VACUUM UNIT RV4 &
15-GALLON TANK SUSPENDED



VACUUM UNIT RV4 & 15-GALLON TANK SIDE BY SIDE

PRODUCT DIMENSIONS	VACUUM UNIT RV4	15-GALLON TANK	VACUUM UNIT RV4 & 15-GALLON TANK STACKED
Nominal Width	25"	29"	29"
Nominal Depth	17"	19"	19"
Nominal Height	28"	24"	48"
Drain Valve Centerline to Floor	N/A	8"	8"

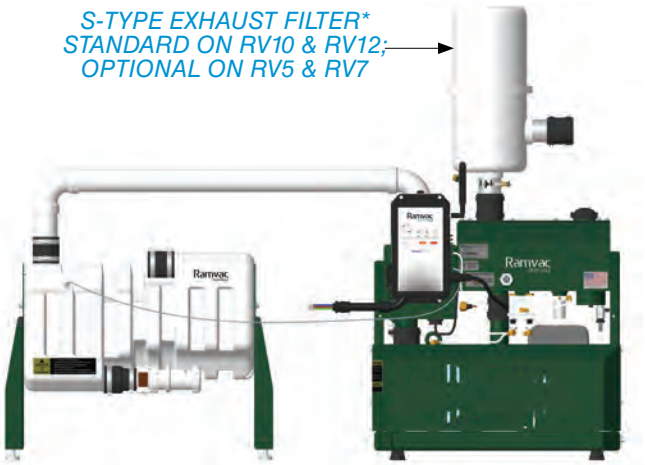
*For S-type exhaust filters, add 21" to height of power unit.

Add 6" (155 mm) to each dimension for working space. It is recommended that this equipment only be installed by licensed electrical and plumbing contractors.

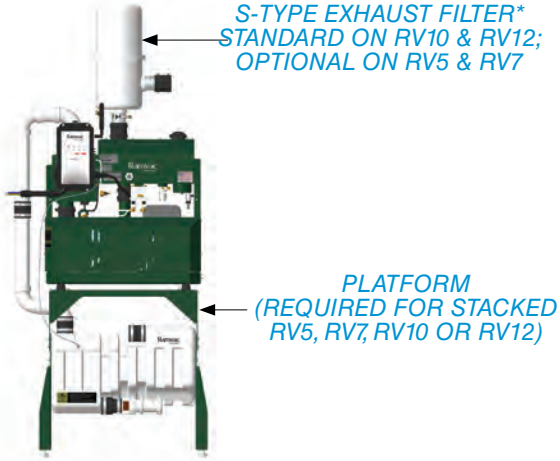
Ramvac

SITE REQUIREMENTS (CONTINUED)

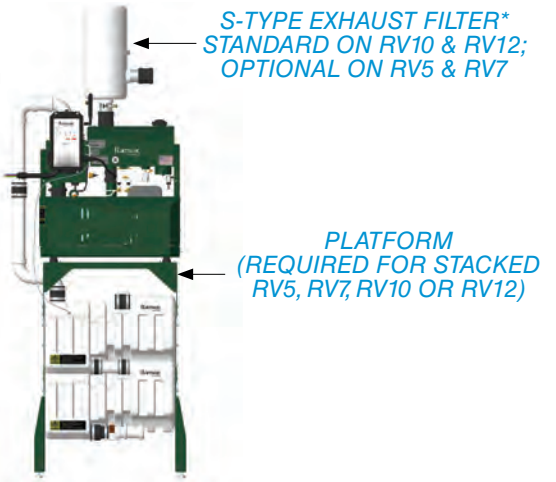
COMMON INSTALLATIONS FOR VACUUM SYSTEMS (MODELS RV5, RV7, RV10 & RV12)



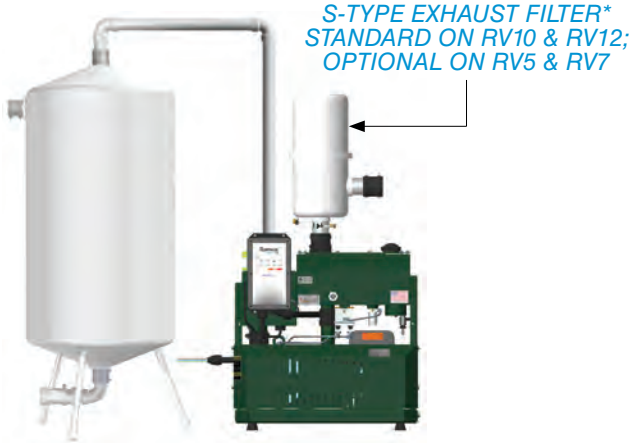
VACUUM UNIT RV5, RV7, RV10 OR RV12 & 15-GALLON TANK SIDE BY SIDE



VACUUM UNIT RV5, RV7, RV10 OR RV12 & 15-GALLON TANK STACKED



VACUUM UNIT RV5, RV7, RV10 OR RV12 & 30-GALLON TANK STACKED



VACUUM UNIT RV5/RV7, RV10 OR RV12 & 50-GALLON CYLINDRICAL TANK SIDE BY SIDE

PRODUCT DIMENSIONS	VACUUM UNITS RV5 & RV7	15-GALLON TANK	VACUUM UNIT RV5/RV7/ RV10/RV12 & 15-GALLON TANK STACKED	VACUUM UNIT RV10/ RV12	30-GALLON TANK	VACUUM UNIT RV5/RV7/ RV10/RV12 & 30-GALLON TANK STACKED	50-GALLON CYLINDRICAL TANK
Nominal Width	26"	29"	33"	26"	29"	33"	26"
Nominal Depth	19"	19"	21" (RV5/RV7) 22" (RV10/RV12)	22"	19"	21" (RV5/RV7) 22" (RV10/RV12)	26"
Nominal Height	31"	24"	59"	31"	36"	71"	62"
Drain Valve Centerline to Floor	N/A	8"	8"	N/A	8"	8"	5"

*For S-type exhaust filters, add 26" to height of power unit.

Add 6" (155 mm) to each dimension for working space. It is recommended that this equipment only be installed by licensed electrical and plumbing contractors.

DENTALEZ

TANK PLUMBING

FACILITY VACUUM LINES FROM OPERATORIES

NOTICE

Follow current NFPA 99c Edition, Ramvac instructions, and all local codes.

Multiple tank setup instructions are located in the *VACUUM TANK INSTALLATION MANUAL* packed with the tank(s).

Vacuum Model RV4:

- Up to 5 rooms: 1½" (or larger) schedule 40 PVC with DMW fittings or equivalent.
- 5 to 15 rooms: 2" (or larger) schedule 40 PVC with DMW fittings or equivalent.

Vacuum Models RV5, RV7, RV10 and RV12:

- 2" (or larger) schedule 40 PVC with DMW fittings or equivalent.

All Vacuum Models:

- Slope: Minimum 1/4" per 10 feet.
- If an in-line low spot is unavoidable, place it in a known location and incorporate a clean-out.
- For overhead plumbing, contact Ramvac.
- For nitrous oxide scavenging, contact Ramvac.

TANK TO VACUUM UNIT LINE/AMALGAM SEPARATOR TO TANK VACUUM LINE

Vacuum Model RV4:

- 1½" (or larger) schedule 40 PVC with DMW fittings or equivalent.

Vacuum Models RV5, RV7, RV10 and RV12:

- 2" (or larger) schedule 40 PVC with DMW fittings or equivalent.

All Vacuum Models:

- Use new, clean pipe to connect tank to power unit; do not use old or existing pipe.

TANK DRAIN LINE

Waste pipe, slide valve and drain check valve:

- 1½" schedule 40 PVC with DWV fittings.
- Slope: Minimum 1/4" per 10 feet.
- Use only Ramvac supplied 1½" drain check valve.
- Drain into building sewer system.

Trap and drain branch:

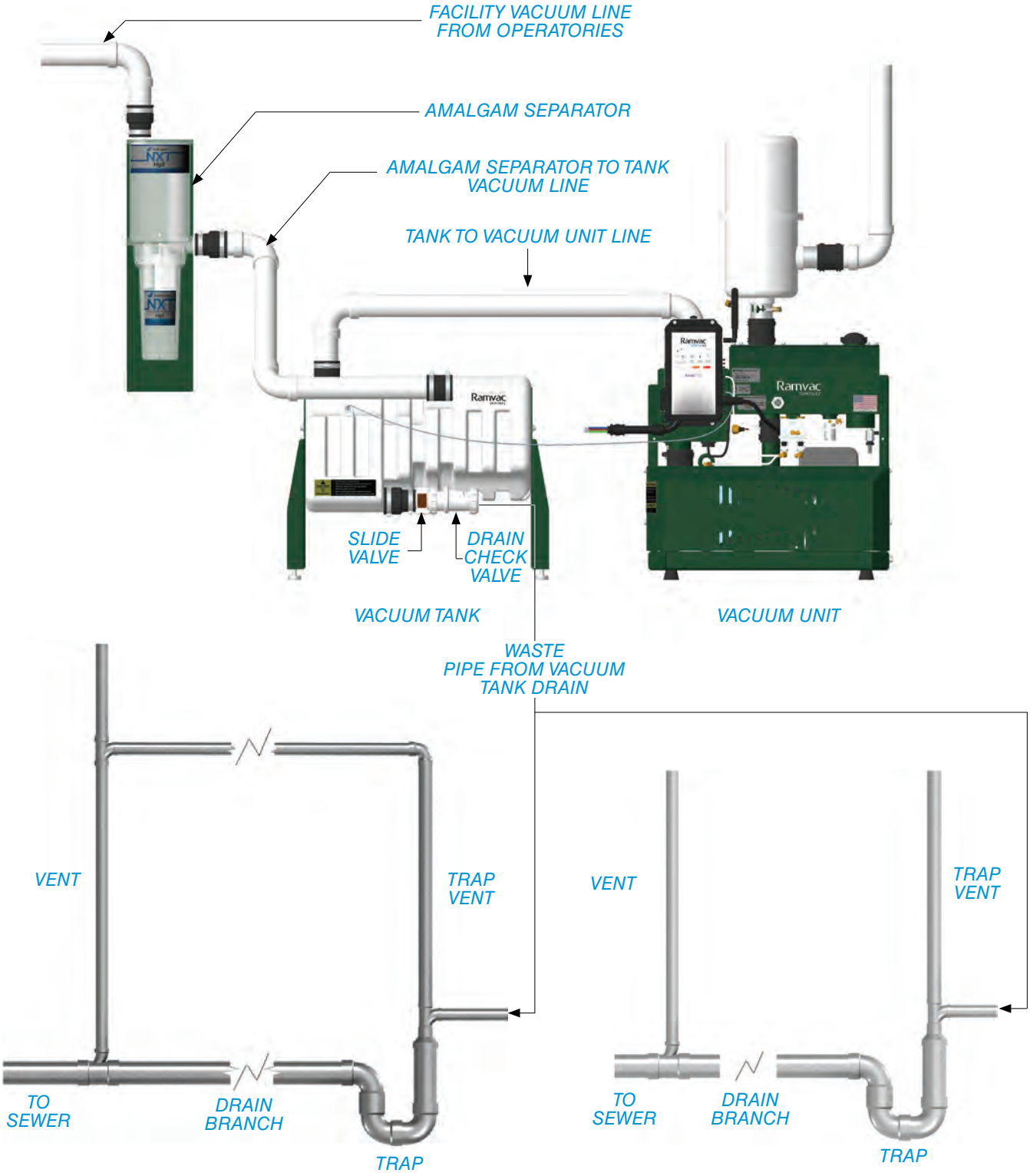
- Trap and drain branch line two sizes larger than waste pipe.
- Trap seal minimum 4" deep.

Vents:

- Trap vent size no less than half the trap and drain branch size.
- Vents no smaller than drain check valve.
- Vents must extend a minimum of 6" above tank top before turning horizontally.

Ramvac

TANK PLUMBING (CONTINUED)



EXHAUST PLUMBING

BIOHAZARD

Breathing dental vacuum system exhaust may be harmful. Exhaust to outside of building. Follow current NFPA 99c edition, Ramvac instructions, and all local codes.

FACILITY EXHAUST LINES

- Model RV4: 2" schedule 40 PVC, schedule 80 CPVC or metal (not tar coated) with DWV fittings or equivalent.
- Models RV5, RV7, RV10 and RV12: 2" schedule 80 CPVC or metal (not tar coated) with DWV fittings or equivalent. Optional schedule 40 PVC or equivalent after first 10 feet of run.
- Slope: All horizontal lines toward the vacuum unit, a standard plumbing slope.
- Minimum exhaust length is 15 feet from Ramvac pump to outside end. Contact Ramvac for shorter distances.
- Run dedicated exhaust lines for EACH vacuum unit installed.
- DO NOT connect to plumbing vents.
- Lines must be installed to prevent condensation.
- Support loosely. DO NOT allow piping to touch ductwork. DO NOT make solid attachment to building structure.
- All joints must have an oil-tight seal.
- **Terminating an exhaust run over a rubber roof is not a recommended practice.** If exhaust termination above a rubber roof is necessary, protect the roof from contact with the exhaust oil vapor or droplets by:
  a. Terminating exhaust pipe a sufficient distance from rubber roof, or
  b. Covering the rubber roof surface with material not sensitive to oil, and
  c. Installing a Ramvac S-type exhaust filter.
- Turn outside end down toward ground and screen to prevent entry of water, debris and creatures. Locate to prevent exhaust from entering building *(FIGURE 3)*.

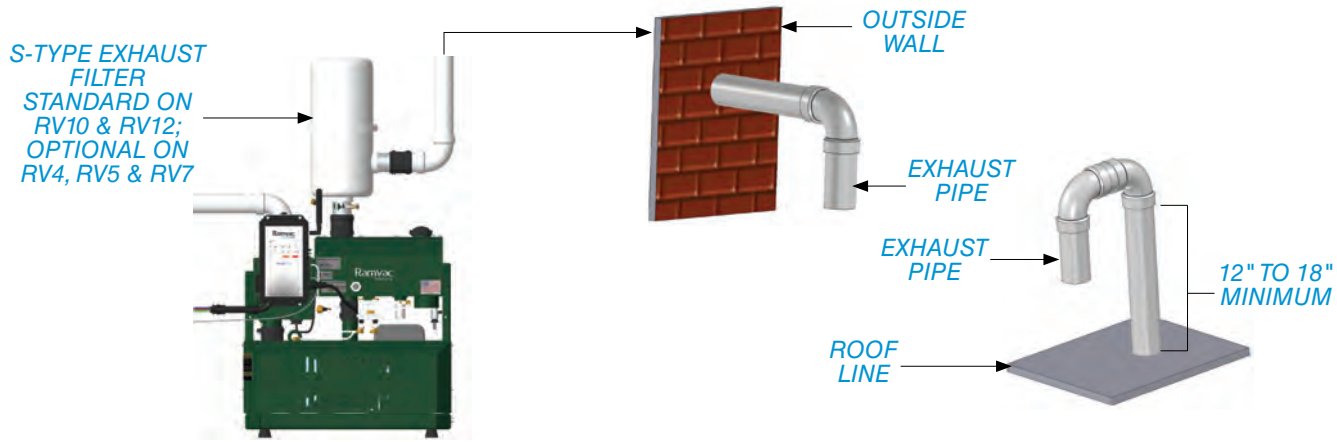


FIGURE 3. OUTSIDE END PLUMBING (INSTALLER SUPPLIED) FOR OUTSIDE WALL OR ROOF LINE

Ramvac

ADDING PUMP OIL

WARNING

Prior to performing any maintenance, proper precautions should be taken to reduce the possibility of contact with infectious substances.

NOTICE

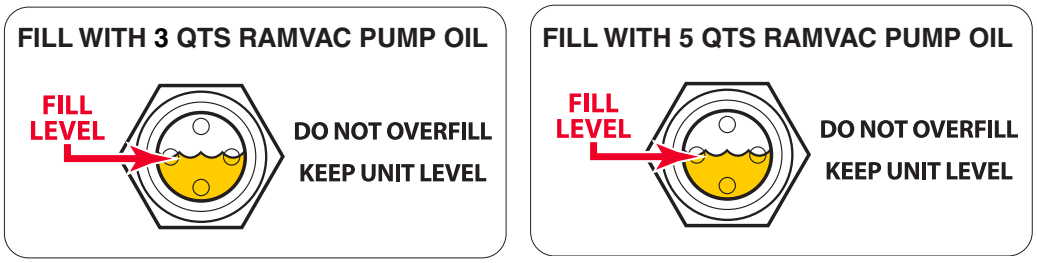
Ramvac Fully Synthetic Vacuum Pump Oil is recommended for use in all Ramvac dry vacuum models.



FILL PUMP RESERVOIR WITH OIL

1. Remove oil fill cap.
2. Add oil* and check oil fill level at sight glass. DO NOT OVERFILL. To read oil levels correctly, get eye level with sight glass while unit is sitting level, and check that oil level is even with the head of the red arrow *(FIGURE 4)*. Add or drain oil accordingly.
3. Securely install oil fill cap.
4. Check oil drip rate. See *SECTION V - CARE & MAINTENANCE - CHECK OIL DRIP RATE* in this manual.
5. Dispose of any used oil at a gas station or lubricant recycling station.

Model	*(RV4)*	*(RV5)*	*(RV7)*	*(RV10)*	*(RV12)*
*No. of Quarts Used	3	5	5	5	5



RV4 MODEL *RV5, RV7, RV10 & RV12 MODELS*

FIGURE 4. ADD VACUUM PUMP OIL TO FILL LEVEL

LOW-VOLTAGE WIRING CONNECTIONS

⚠ WARNING

- Prior to starting this assembly, read, understand and follow the safety information and the assembly instructions in this user manual.
- Always disconnect the vacuum from the electrical power source (disconnect or breaker box) prior to conducting any electrical service of the equipment. The vacuum could start unexpectedly resulting in possible injury to the service technician.
- This procedure may not comply with all safety requirements of federal, state or local agencies or safety requirements of the installer's employer. If a conflict does exist, follow the requirements set forth by the other organizations.

PARTS INCLUDED

- Remote Switch FGH Connector - Used to control power state of this vacuum from a remote location (see *LOW-VOLTAGE REMOTE SWITCHING*).
- Auxiliary Connector - Used to control power state of an alternate controller driven compressor, vacuum or master water control valve (see *LOW-VOLTAGE AUXILIARY DEVICE CONNECTION*).
- Building Maintenance Connector - Used to connect to building maintenance system.



REMOTE SWITCH FGH CONNECTOR


AUXILIARY DEVICE CONNECTOR


BUILDING MAINTENANCE CONNECTOR

Ramvac

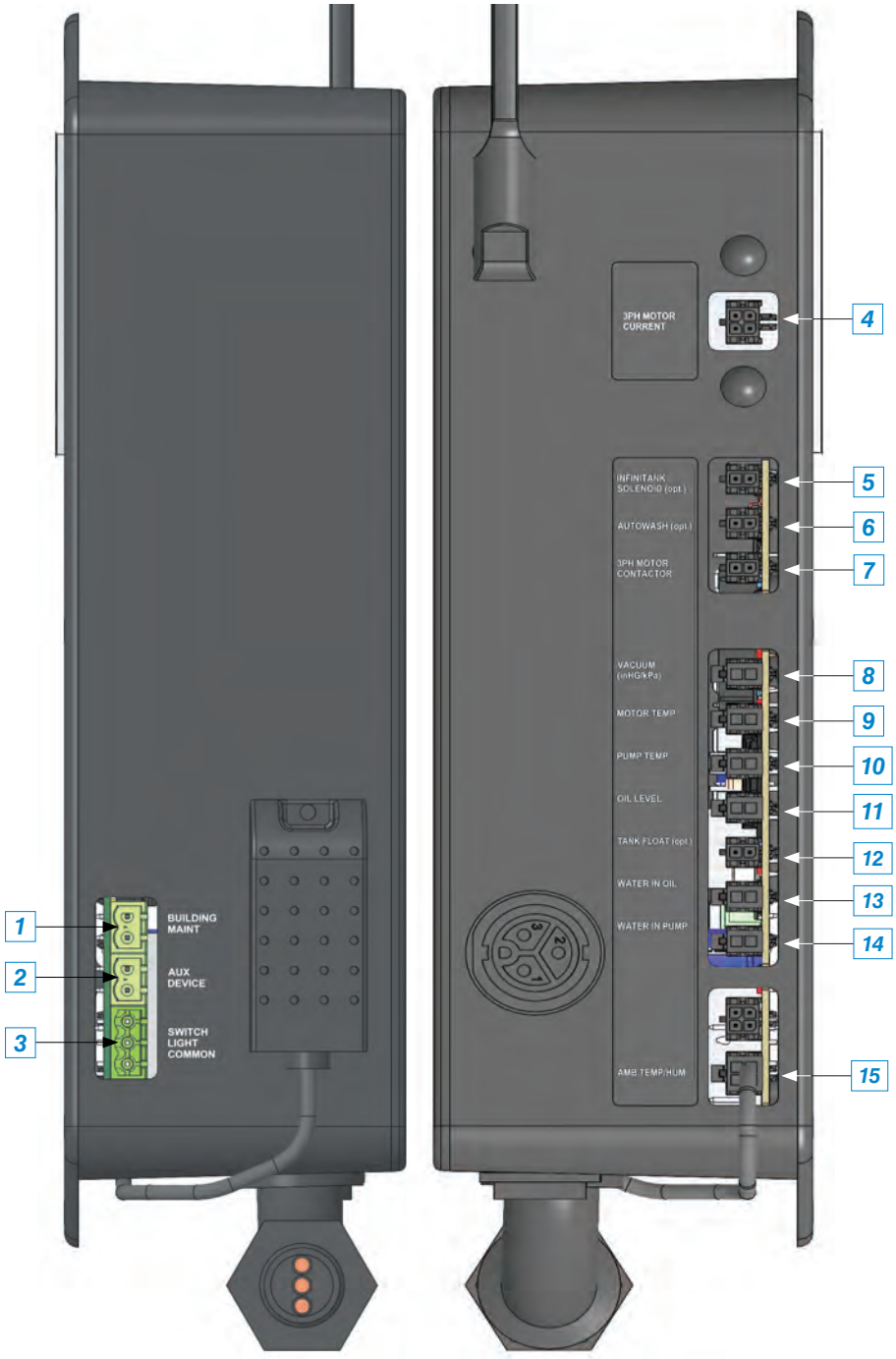
LOW-VOLTAGE WIRING CONNECTIONS (CONTINUED)

CONTROL PANEL CONNECTOR LOCATIONS

CONTROL BOX (LEFT SIDE VIEW)

CONTROL BOX (RIGHT SIDE VIEW)

CONTROL BOX (FRONT VIEW)





1. Building maintenance connector
2. Auxiliary device connector
3. Remote switch FGH connector
4. 3Ph motor current
5. InfiniTank™ solenoid (optional)
6. Autowash (optional)
7. 3Ph motor contactor
8. Vacuum (inHG/kPA)
9. Motor temperature
10. Pump temperature
11. Oil level
12. Tank float (optional)
13. Water in oil
14. Water in pump
15. Ambient temperature/humidity

DENTALEZ

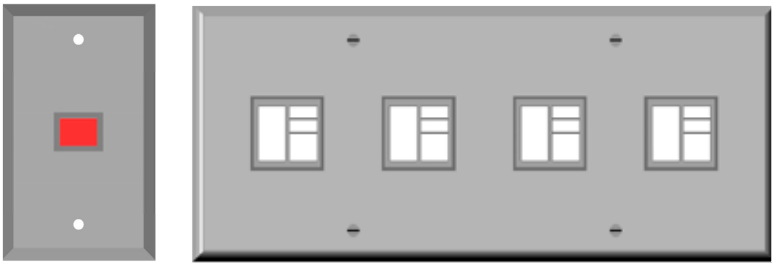
LOW-VOLTAGE WIRING CONNECTIONS (CONTINUED)

LOW-VOLTAGE REMOTE SWITCHING

NOTICE Maximum wire length for 18-gauge wire is 500 feet.

Low-voltage remote switching is used to turn the system on and off from a remote location. Ramvac vacuums are manufactured to continuously run throughout the workday. To conserve power, turn off vacuum if it will not be needed for an hour or more. Power the vacuum off at end of day. *The tank will drain only when no vacuum is present; the vacuum must be turned off at least once per day.*

ILLUMINATED REMOTE PANELS



- Switch light is steady on when system is running normally.
- Switch light flashes slowly for maintenance.
- Switch light flashes rapidly for moisture in filtrols, water in exhaust or low oil level.

NON-ILLUMINATED REMOTE SWITCHES

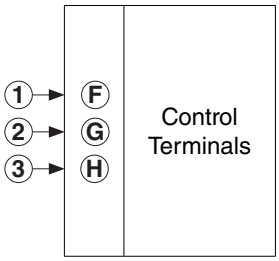


Non-illuminated switches provide no indication for system status.

Recommended Switching



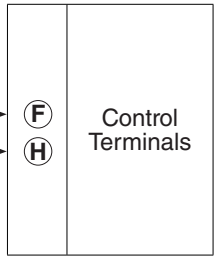
Ramvac Remote Panel (or Equivalent) with Illuminated 24V DC Switch



Alternative Switching



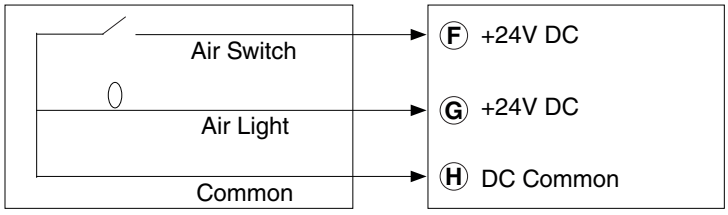
Toggle Switch or Other Non-Illuminated Switch (Option)



CONTROL PANEL



REMOTE SWITCH FGH CONNECTOR



(Continued on the next page.)

LOW-VOLTAGE WIRING CONNECTIONS (CONTINUED)

(Continued from the previous page.)

Alternative Switching



OWL™ Touch | OWL™ Hub | OWL™ Interface | Control Panel

LOW-VOLTAGE AUXILIARY DEVICE CONNECTION

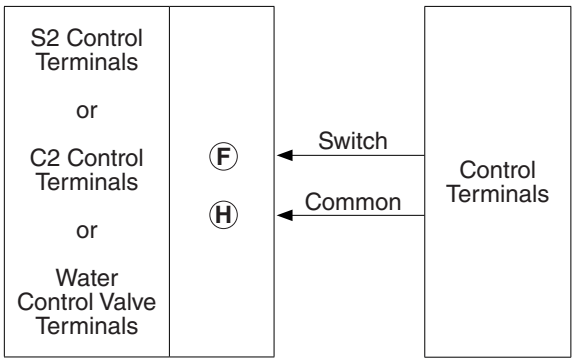
NOTICE

Maximum wire length for 18-gauge wire is 500 feet.

Low-voltage auxiliary device connection is used to connect an alternate controller driven compressor, vacuum or master water control valve to this vacuum. The auxiliary power state will match the power state of this vacuum (ON/STANDBY).

NOTE: *Pins are dry contact (no voltage output).*

Auxiliary Wiring





ELECTRICAL POWER CONNECTIONS

For electrical ratings*, refer to *SECTION I - INTRODUCTION - SPECIFICATIONS (VACUUM UNIT)*.

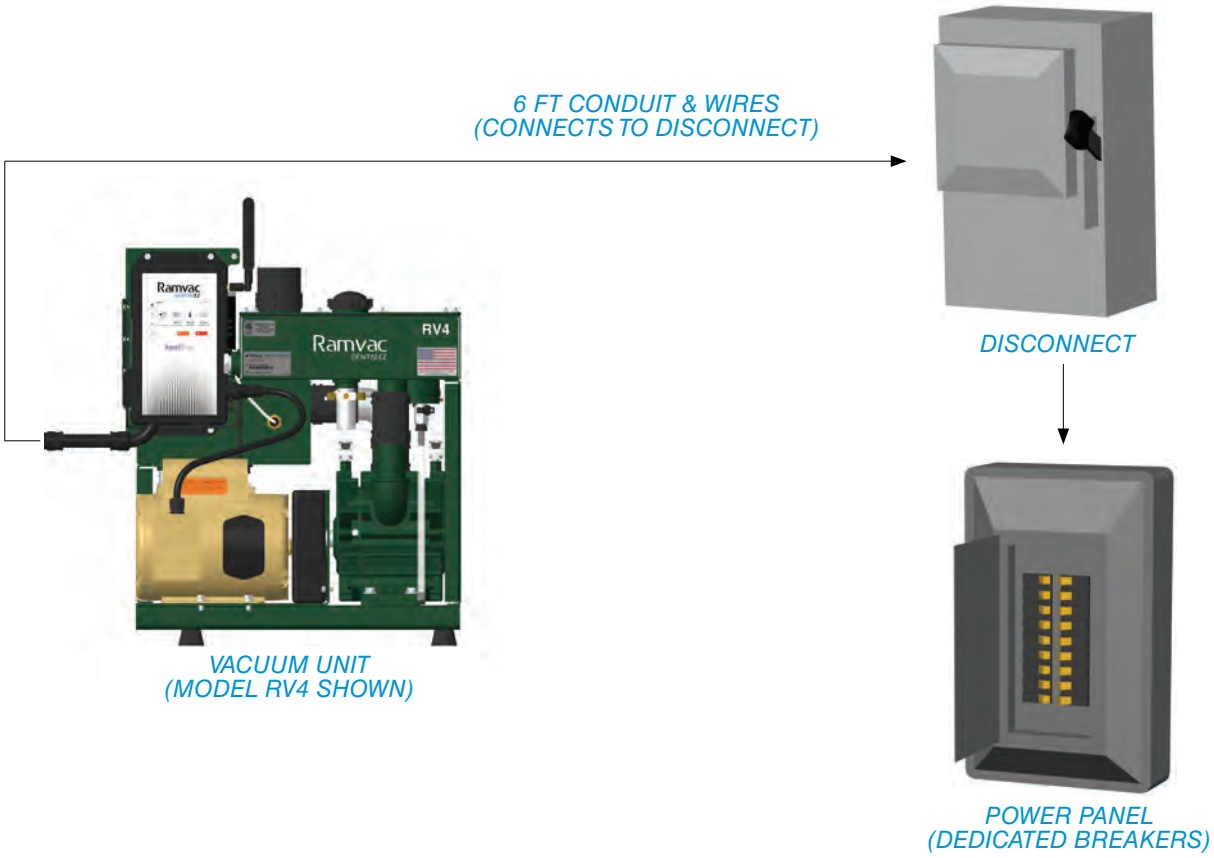
**NOTES:*

1. Recommendations only. Ensure compliance with national and local codes.
2. Fuses must have time delays or be otherwise suitable for motor circuit.
3. Disconnect must be fusible and sized per UL 98, UL 489 or UL 508. Must be supplied and installed by a licensed electrician.
4. Motors are NEMA rated. See NEMA guidelines for applicable voltage and frequency range.

WARNING

To avoid the risk of electrical shock, this equipment must only be connected to a supply mains with protective earth.

SINGLE-PHASE INSTALLATION



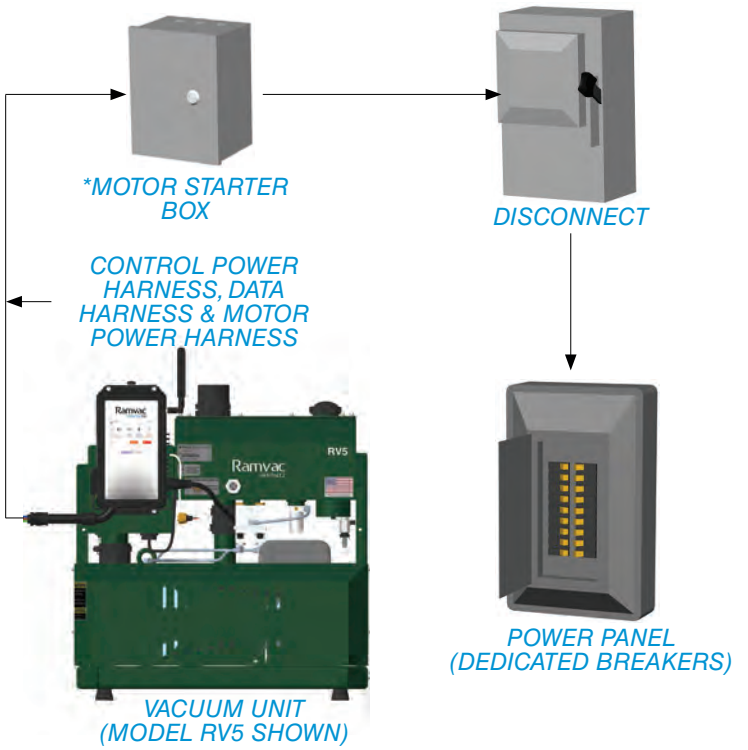
Ramvac

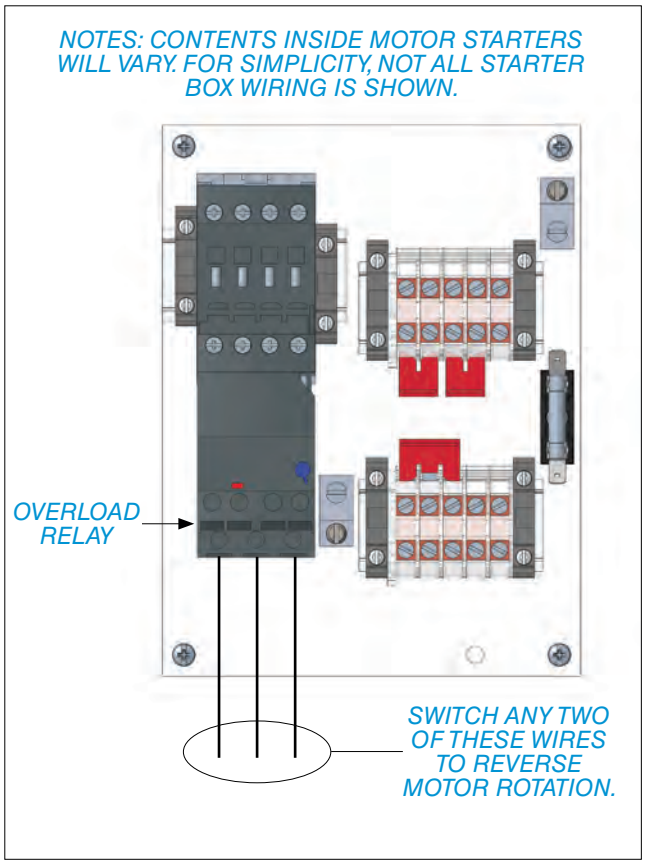
ELECTRICAL POWER CONNECTIONS (CONTINUED)

THREE-PHASE INSTALLATION

RAMVAC SUPPLIED EQUIPMENT

OWNER/CONTRACTOR SUPPLIED EQUIPMENT

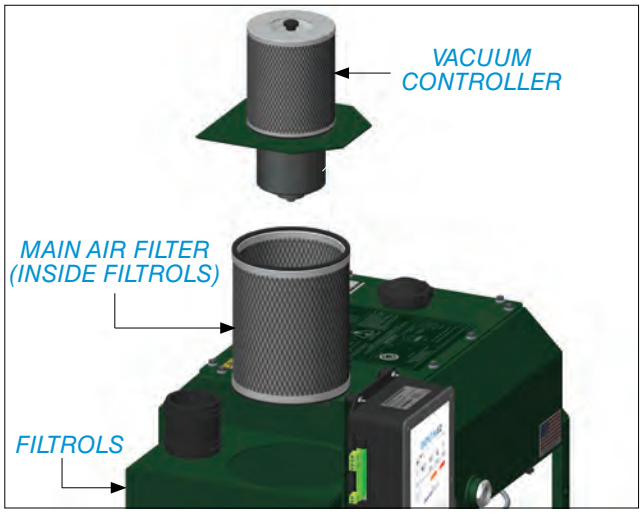




For motor starter box installation, see DRY VACUUM THREE-PHASE MOTOR STARTERS INSTALLATION & SETUP INSTRUCTIONS (PN: 7565-095) included with motor starter box.

INITIAL STARTUP PROCEDURE

1. Remove vacuum controller from top of filtrols.
2. Remove main air filter from inside filtrols.
3. Run motor for one (1) second with hand in filtrols.
4. If air blows into filtrols from pump:
   a. Reverse any two motor power lead wires at motor starter overload relay (2T1, 4T2 or 6T3).
   b. Clean any oil out of filtrols.
   c. Return main air filter and vacuum controller to their places
5. If air sucks out of filtrols towards pump, return main air filter and vacuum controller to their places.



DENTALEZ

HOW THE SYSTEM WORKS

The Ramvac vacuum system utilizes an oil lubricated, rotary vane, positive displacement pump to provide a reliable vacuum source for the dental office. This vacuum unit is intended solely for the removal of dental waste material from the oral cavity during dental procedures.

The pump is powered via a belt drive system by an electric motor that is controlled by the control system. The contol is an electronic smart control that utilizes a microprocessor and sensors to monitor the vacuum system and provide alarms or alerts of system needs.

One reason your Ramvac vacuum will outlast every other dental vacuum system is its lubrication system. A drip oiling system meters lubricating oil into the pump and is then removed from the airflow by filters inside the oil reservoir, creating a closed loop system. The lubrication system supplies oil drop-by-drop through drippers to the pump. Used oil is discharged back into the oil reservoir as a mist, separated from the exhaust, filtered and recirulated.

GETTING STARTED

⚠ CAUTION

DO NOT attempt to operate the vacuum at ambient temperature below 32°F (0°C) or above 104°F (40°C).

The vacuum is easy to operate and maintain.

1. Verify the vacuum is connected to a dedicated circuit.
2. Verify the vacuum is properly connected to the facility plumbing and a fresh air source.
3. Check oil level.
4. Put the antenna (located on the right side of the control panel) in the upright position.
5. Push the control panel power switch to the ON position.
6. To switch the vacuum from STANDBY to ON, press the orange *STANDBY* switch on the *HOME* screen. The switch will turn green and display ON.
7. The vacuum installation is complete.

CONTROL PANEL

The Ramvac dry vacuum control platform utilizes state-of-the-art technology solid state relays to control cycling of the vacuum. When the control panel is first turned on, a Privacy Policy screen will be shown. Press *ACCEPT* to consent and agree to the privacy policy and continue *(FIGURE 5)*.

MAIN NAVIGATION MENU

HOME

Vacuum Pressure
Oil Life Remaining
Ambient Temperature
Equipment Runtime
Update (only appears when a new firmware/software update is available)
System Switch (ON/STANDBY)
Alerts (when alerts are present)

INFORMATION

Firmware (Software) Version
Hardware Version
Brand
Model
Serial Number
DentalEZ Support Contact Number
Service Provider Contact Number

TECHNICAL

Maintenance Mode Switch
Alerts
Motor
Sensors
Tandem (Web app enabled)
Runtimes
Network
Advanced
Service (Maintenance Mode ON)

SETTINGS

Smart Schedule Switch
Metric Switch
Schedule (Web app enabled)
Date & Time
Restore System Defaults (Reset)

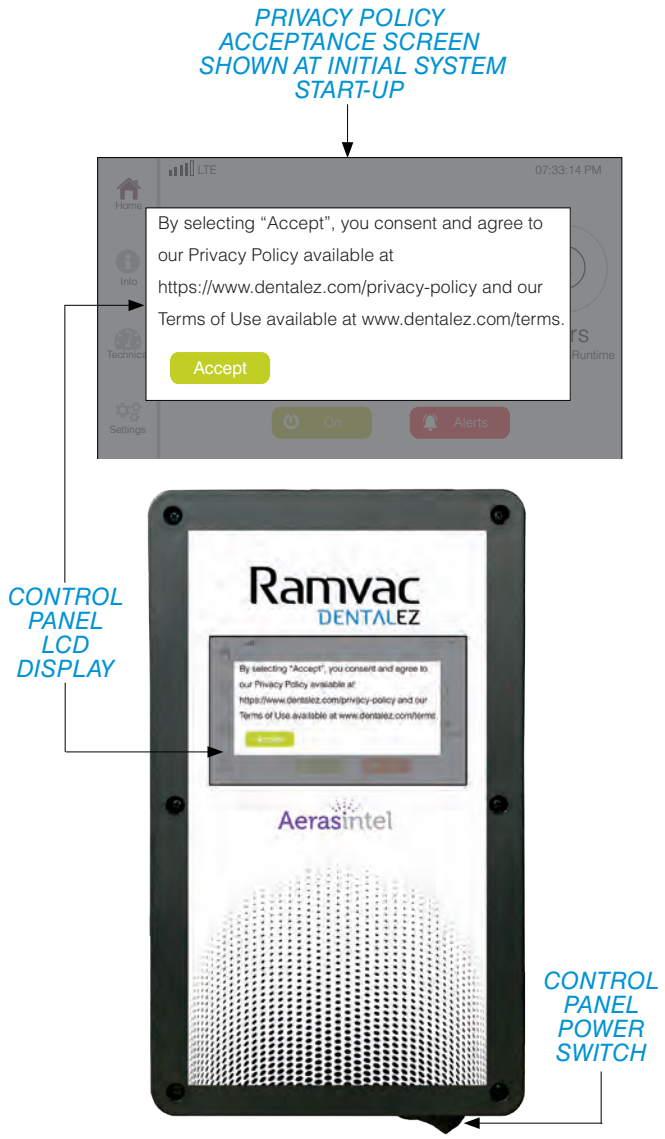


FIGURE 5. DRY VACUUM CONTROL PANEL

HOME SCREEN

The control panel LCD display uses simple touch controls and is easy to navigate. The Home screen of the control panel displays the following information *(FIGURE 6)*:

- Main navigational menu links: *HOME, INFO, TECHNICAL, and SETTINGS*
- Wireless signal strength indicator (for detailed wireless status, go to *TECHNICAL > NETWORK*)
- Time of day (to set/reset time, go to *SETTINGS > DATE & TIME >*)
- Vacuum pressure reading*
- Oil life remaining reading
- Ambient temperature reading*
- Equipment runtime reading
- *UPDATE* (only appears when a new firmware/software update is available)
- *SYSTEM* switch (ON/STANDBY)
- *ALERTS* (only appears when system has an active alert)

***NOTES:** *Temperature (°F) and pressure (inHg) can be set to view in metric mode (°C and kPa) by going to SETTINGS > METRIC).*

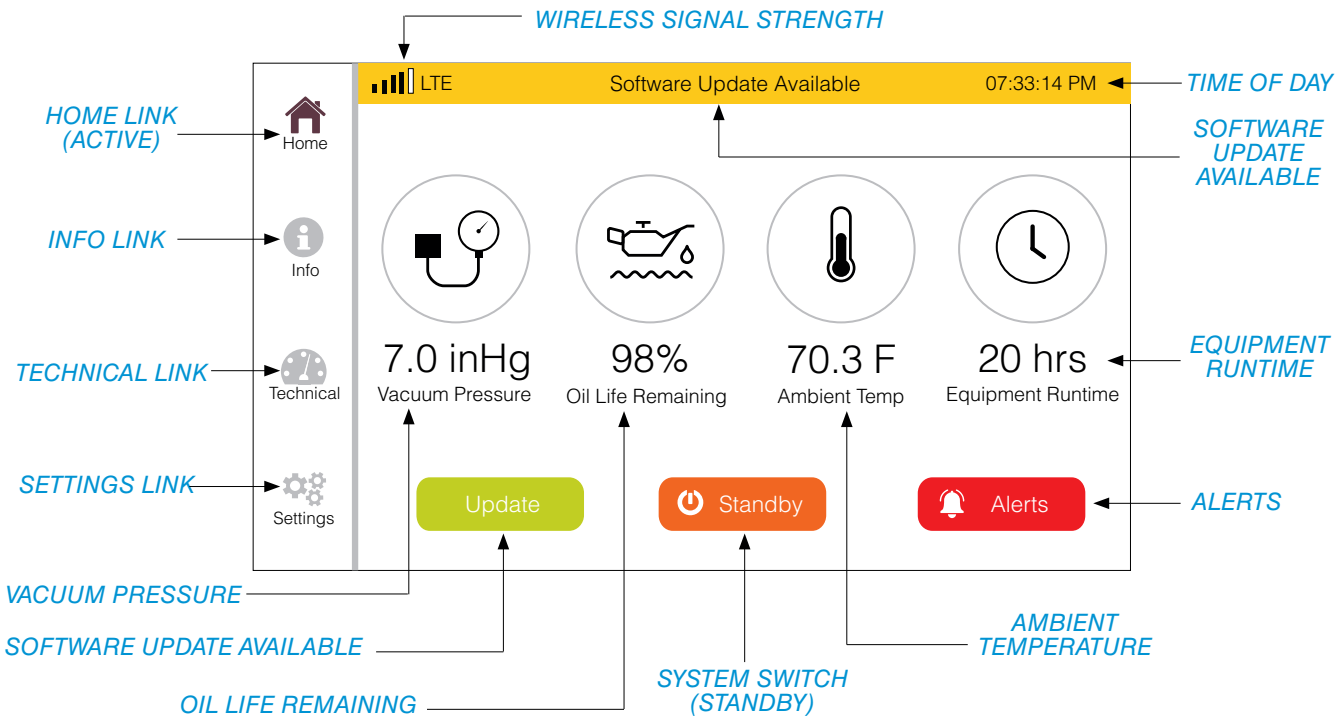


FIGURE 6. HOME SCREEN

HOME SCREEN (CONTINUED)

UPDATE (SOFTWARE)

When a new firmware/software version has been released and is ready to download and install, a green *UPDATE* button will be shown on the Home screen. To update the software, press the green *UPDATE* button. This will open a new screen asking to install the pending update. Pressing *OK* will start download and installation of software. Pressing *CANCEL* will cancel the software update and return to the Home screen *(FIGURE 7)*.

If the *UPDATE* button is not pressed, the update will occur automatically overnight.

NOTE: *The device may be inoperable during the update to the software.*



FIGURE 7. HOME SCREEN SHOWING SOFTWARE UPDATE AVAILABLE

HOME SCREEN (CONTINUED)

SYSTEM SWITCH (ON/STANDBY)

The *ON/STANDBY* switch is used to locally control the power state of the vacuum unit. The vacuum unit can still be controlled non-locally by a remote switch, through the web application or from the schedule. See *SECTION IV - OPERATION - TECHNICAL SCREEN - MAINTENANCE MODE (ENABLE)* to disable non-local switching.

To switch the vacuum system from STANDBY mode to ON, from the Home screen, press the orange *STANDBY* switch. The switch will turn green and display ON. Pressing the green *ON* switch will return the vacuum to STANDBY mode *(FIGURE 8)*.

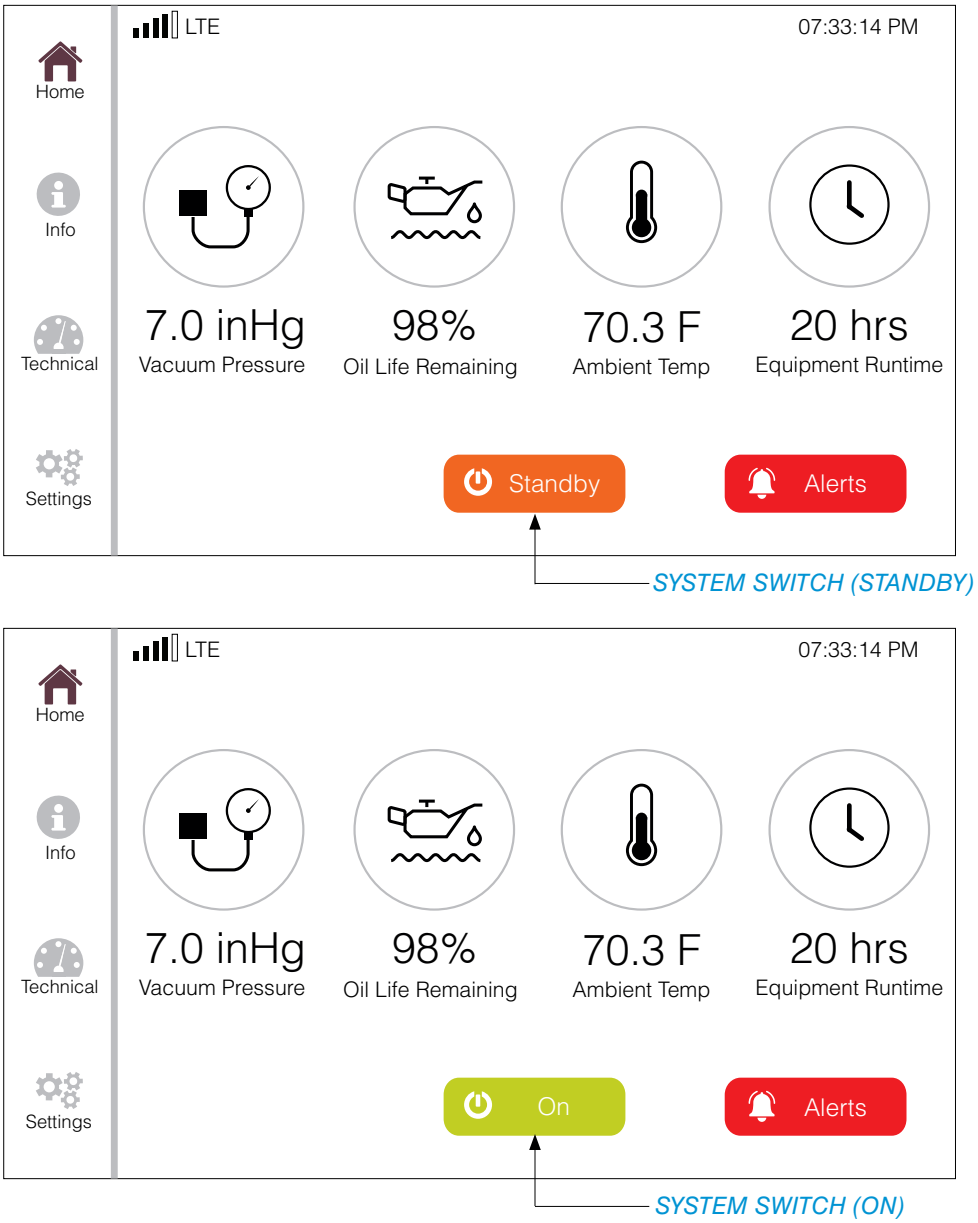


FIGURE 8. HOME SCREENS SHOWING SYSTEM IN "STANDBY" AND "ON"

INFORMATION SCREEN

The Information screen of the control panel displays the following information *(FIGURE 9)*:

- Main navigational menu links: *HOME, INFO, TECHNICAL, and SETTINGS*
- Wireless signal strength indicator
- Time of Day
- Firmware (current version of firmware/software installed)
- Hardware (current version of hardware installed)
- Brand (Ramvac)
- Model of vacuum (RV4-12, RV5-2, RV7-23, etc.)
- Serial Number of the vacuum (set at factory)
- DENTALEZ Support Contact phone number (set at factory)
- Service Provider Contact phone number (set manually by user)
- *SERVICE PROVIDER CONTACT* phone number screen link

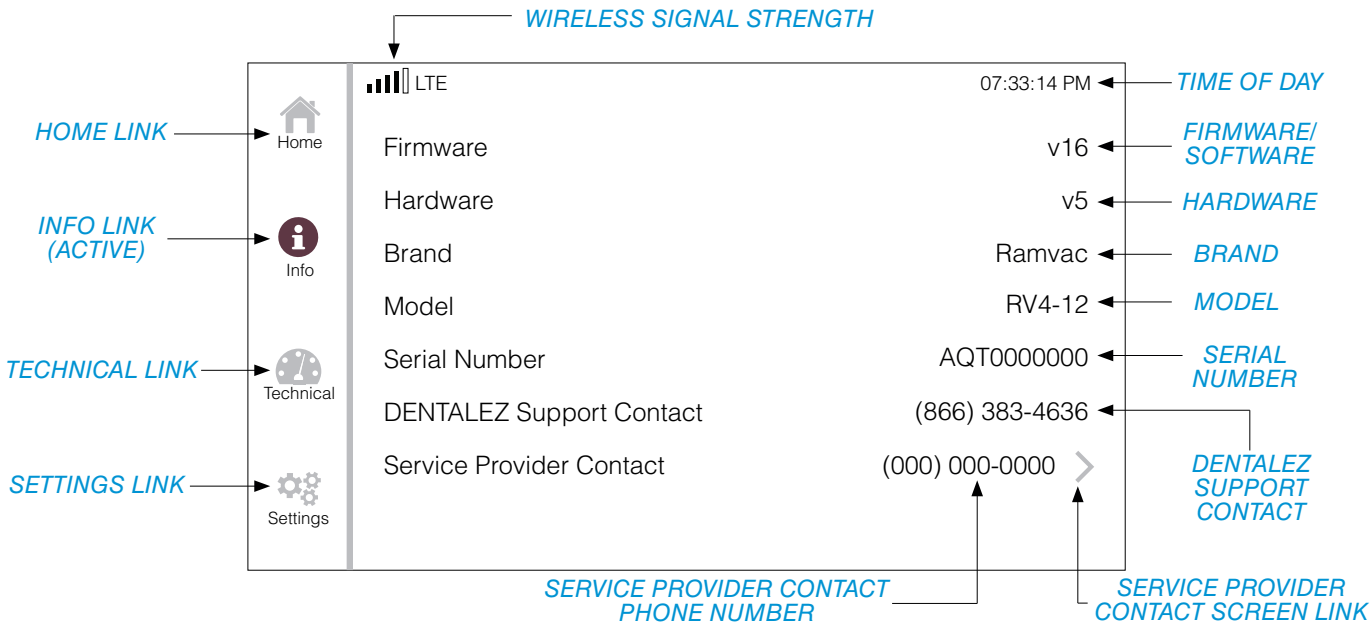


FIGURE 9. INFORMATION SCREEN

INFORMATION SCREEN (CONTINUED)

SERVICE PROVIDER CONTACT

To manually enter the service provider contact phone number, on the Info screen, press *SERVICE PROVIDER CONTACT > (FIGURE 10)*.

This will open a new screen for entering the service provider's phone number. Using the numeric key pad, enter the phone number (area code included) and press *SAVE* key *(FIGURE 11)*.

Press *< INFO* to return to the previous screen.

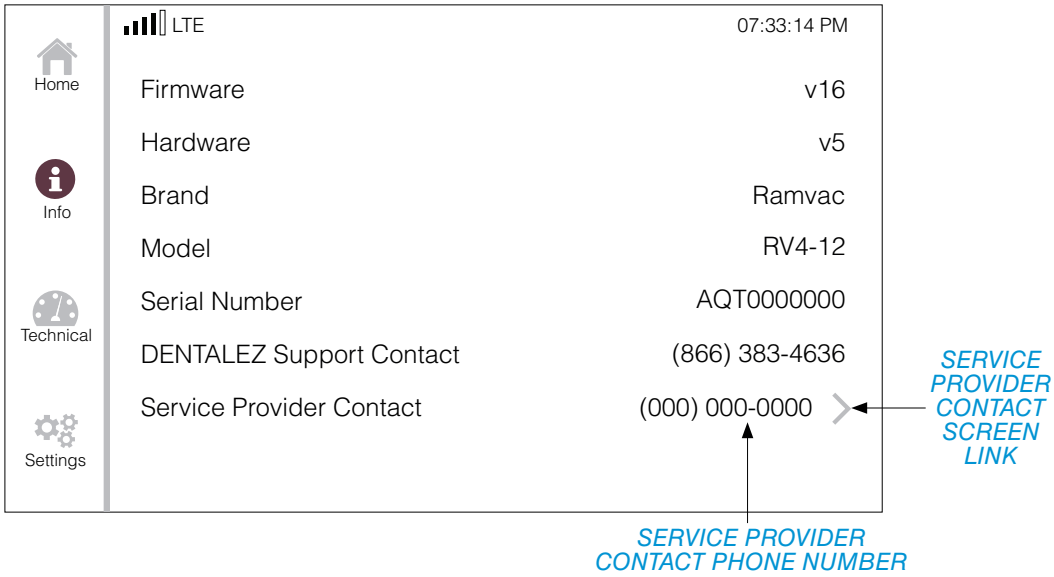


FIGURE 10. ON THE INFO SCREEN, PRESS SERVICE PROVIDER CONTACT >

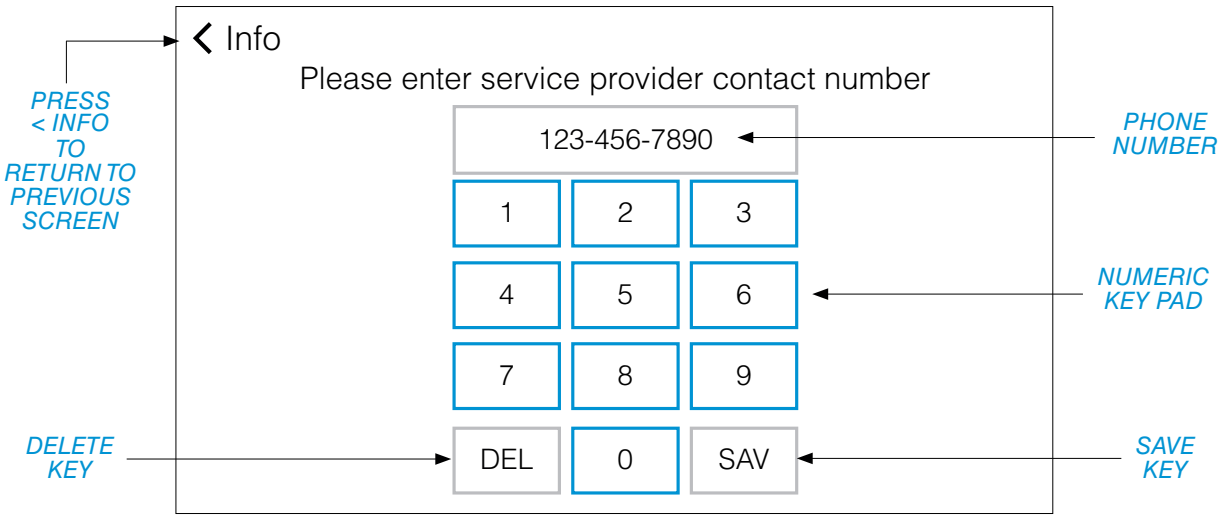


FIGURE 11. ENTER PHONE NUMBER AND PRESS SAVE KEY

TECHNICAL SCREEN

The Technical screen of the control panel displays the following information *(FIGURE 12)*:

- Main navigational menu links: *HOME*, *INFO*, *TECHNICAL*, *and SETTINGS*
- Wireless signal strength indicator
- Time of day
- *MAINTENANCE MODE* switch
- *ALERTS* screen link
- *MOTOR* screen link
- *SENSORS* screen link
- *TANDEM* screen link (Web app enabled)
- *RUNTIMES* screen link
- *NETWORK* screen link
- *ADVANCED* screen link
- *SERVICE* screen link (Maintenance Mode ON)

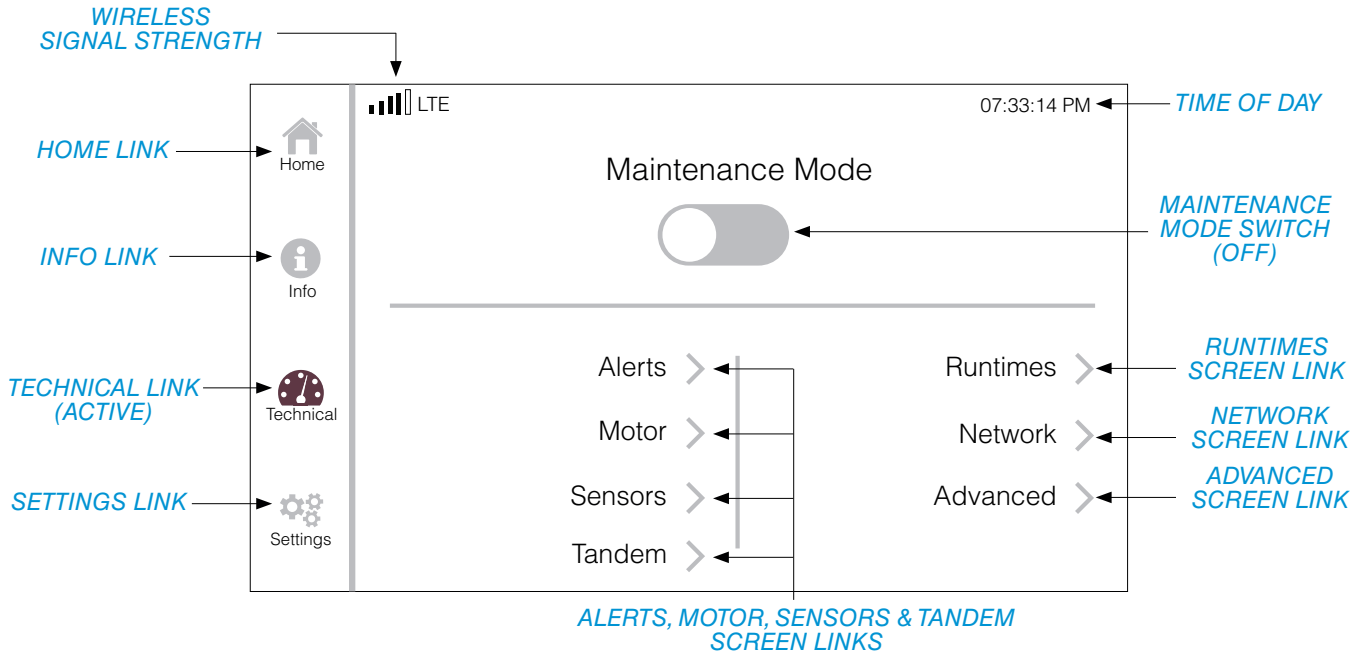


FIGURE 12. TECHNICAL SCREEN

TECHNICAL SCREEN (CONTINUED)

ALERTS

To view the Alerts screen, on the Technical screen, press *ALERTS >*. This will open a new screen for viewing system alerts. After viewing alert message, press message to dismiss it *(FIGURE 13)*.

Press *< TECHNICAL* to return to the previous screen.

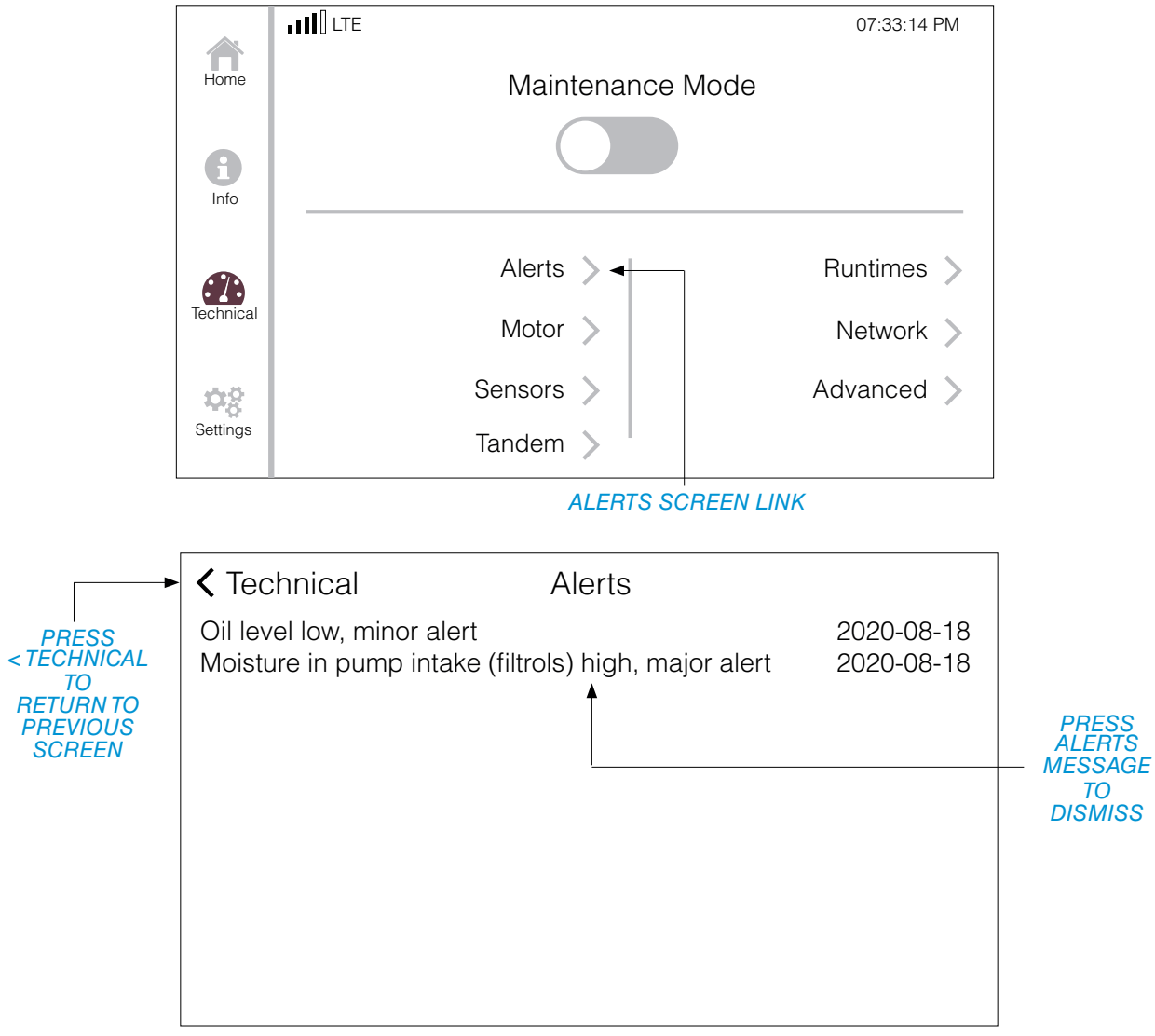


FIGURE 13. ALERTS SCREEN

TECHNICAL SCREEN (CONTINUED)

MOTOR

To view the Motor screen, on the Technical screen, press *MOTOR >*. This will open a new screen for viewing the status of the motor *(FIGURE 14)*.

Press *< TECHNICAL* to return to the previous screen.

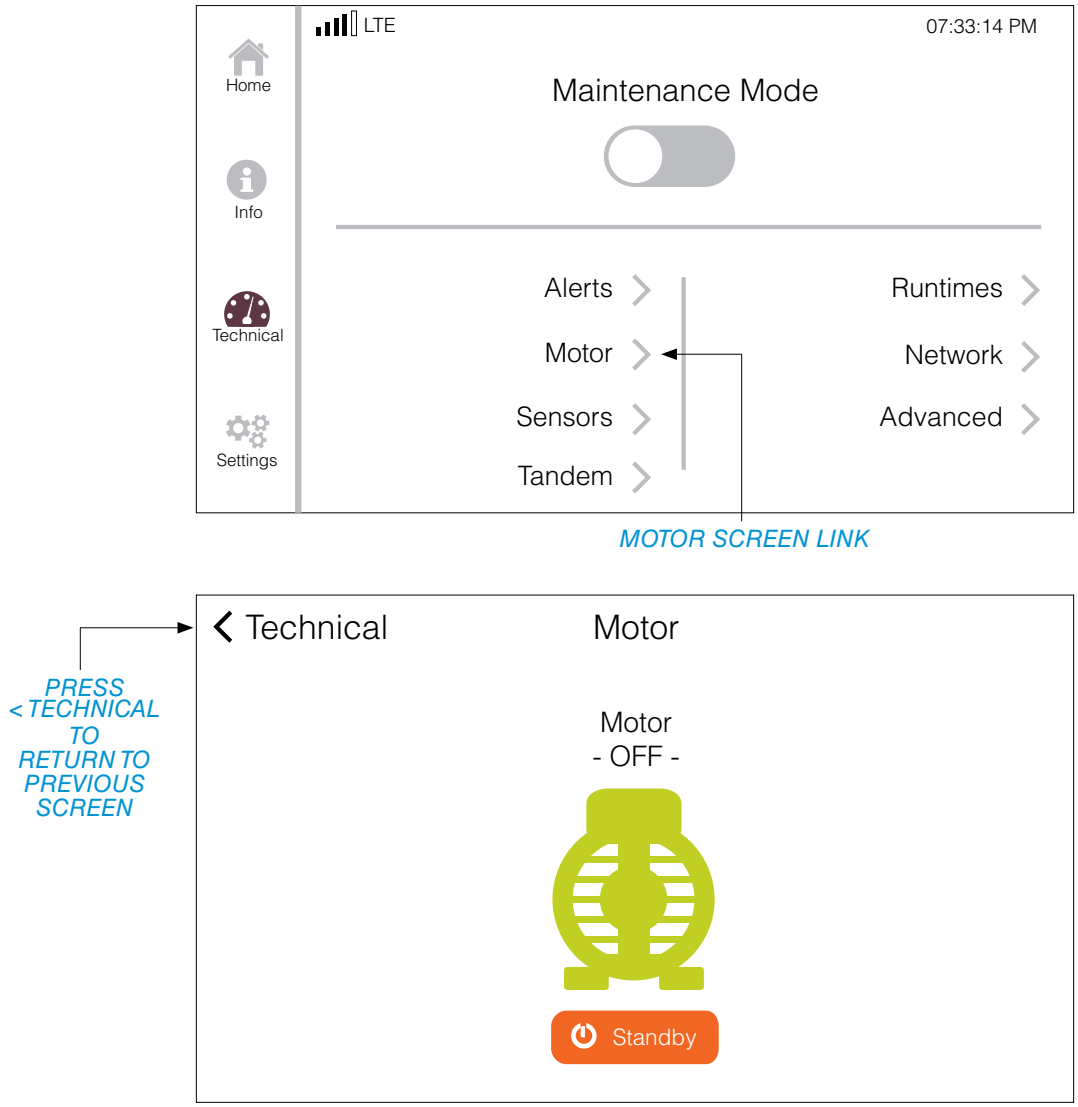


FIGURE 14. MOTOR SCREEN

TECHNICAL SCREEN (CONTINUED)

MOTOR (SYSTEM ON/STANDBY)

To switch the vacuum system from STANDBY mode to ON, on the Motor screen, press the orange *STANDBY* switch. The switch will turn green and display ON. Pressing the green *ON* switch will return the vacuum to STANDBY mode *(FIGURE 15)*.

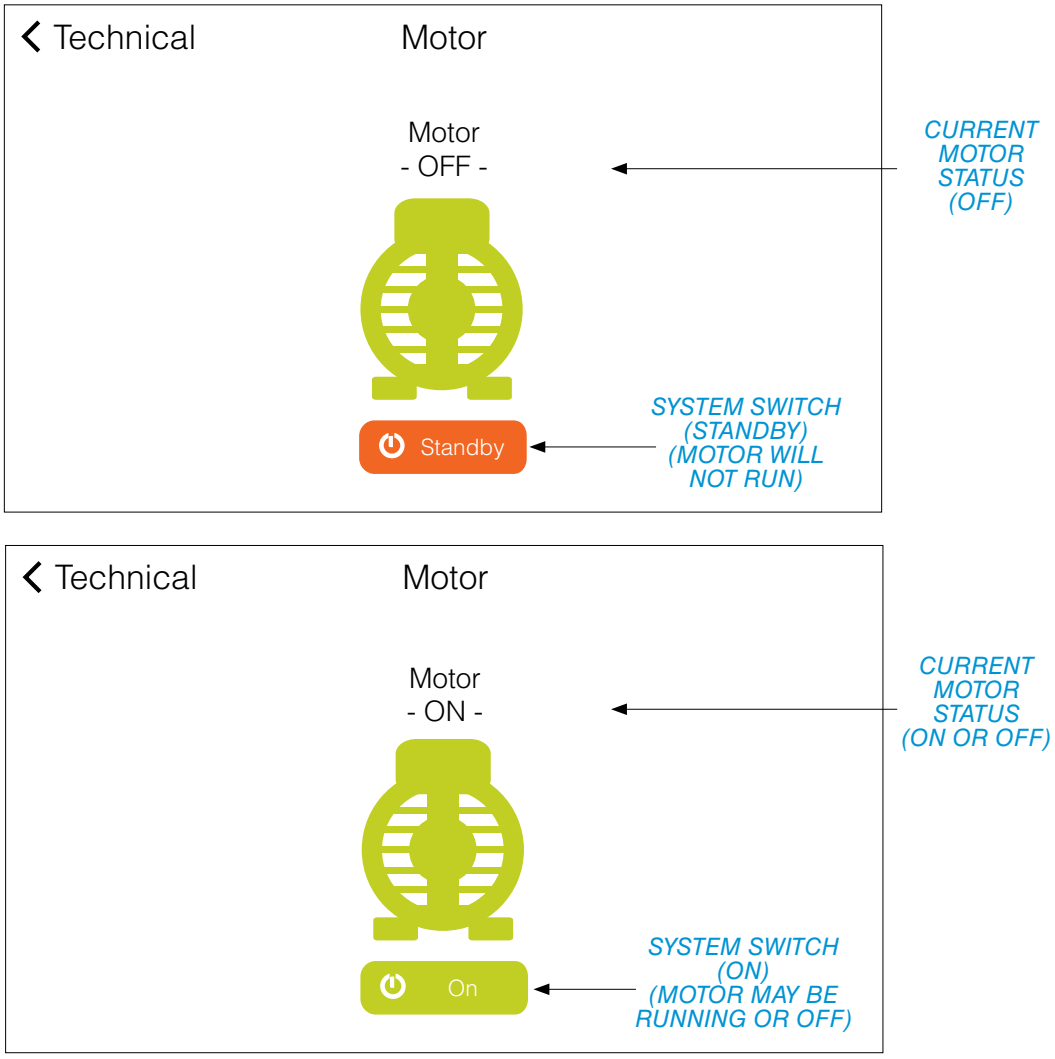


FIGURE 15. MOTOR SCREEN (STANDBY AND ON)

TECHNICAL SCREEN (CONTINUED)

SENSORS

To view the Sensors screen, on the Technical screen, press *SENSORS >*. This will open a new screen for viewing the sensors readings. Press the scroll bar located on the right to move the screen up and down *(FIGURE 16)*.

Press *< TECHNICAL* to return to the previous screen.

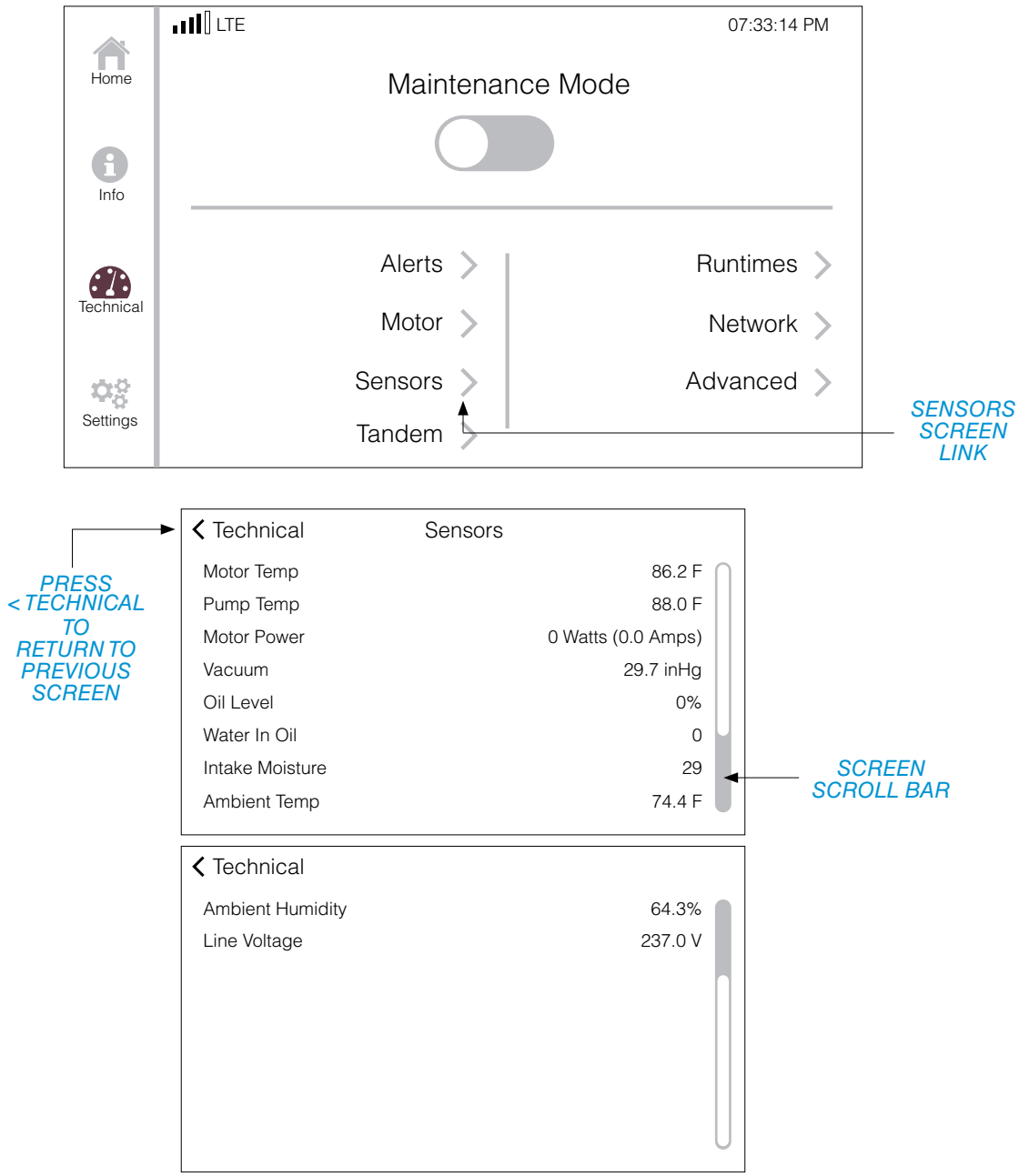


FIGURE 16. SENSORS SCREEN

TECHNICAL SCREEN (CONTINUED)

TANDEM

When vacuum units are put into tandem, they communicate locally with each other and work in a lead (central)–lag (peer) system to maintain facility suction while minimizing energy usage and device runtime.

NOTE: *The TANDEM > link will only display when a vaccum unit has been added to a tandem group via the web application located at AERAS.DENTALEZ.COM.*

To view the Tandem screen, on the Technical screen, press *TANDEM >*. This will open the Tandem (central) or Tandem (peer) screen *(FIGURE 17)*.

Press *< TECHNICAL* to return to the previous screen.

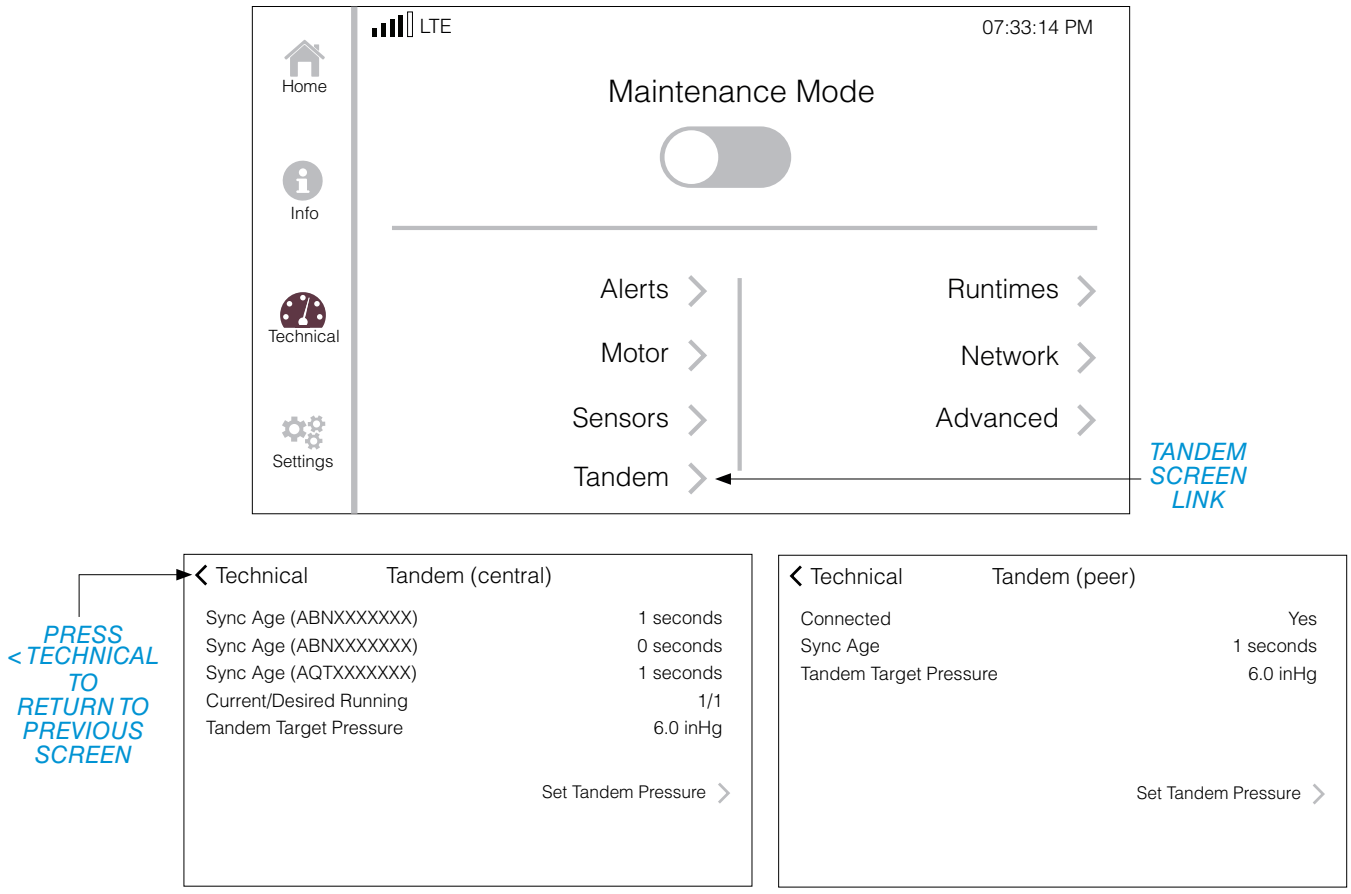


FIGURE 17. TANDEM (CENTRAL) AND TANDEM (PEER) SCREENS

TECHNICAL SCREEN (CONTINUED)

TANDEM SETUP

When the vacuum pressure drops below the tandem target pressure, the system automatically turns on more vacuum units (peers), one at a time, until the vacuum pressure is above the tandem target pressure.

Once the vacuum pressure is back above the tandem target pressure, the system will turn off vacuum units (peers), sequentially, in 15-minute increments.

IMPORTANT: Make sure all devices using vacuum in clinic are closed.

The tandem target pressure defaults to 6.0 inHg. The tandem target pressure should be set to 1.0 inHg less than the current vacuum pressure.

To set the tandem target pressure, on the Tandem (peer or central) screen, press *SET TANDEM PRESSURE >*. This will open a new screen for setting the tandem target pressure. Use the menu option arrows (▲▼) to make changes to the tandem target pressure, then press the *SAVE* button *(FIGURE 18)*.

Press *< TANDEM* to return to the previous screen.

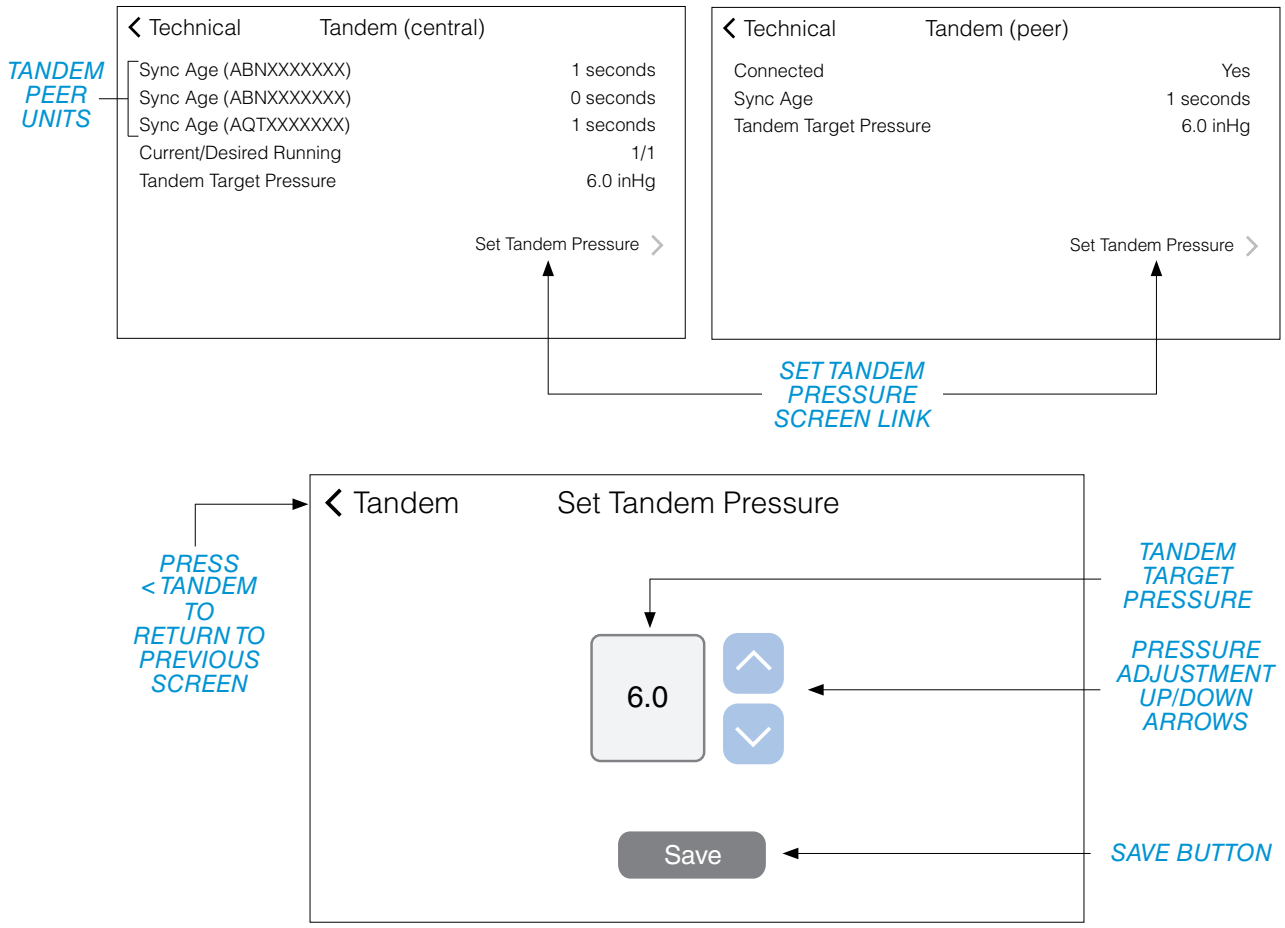


FIGURE 18. SET TANDEM PRESSURE SCREEN

TECHNICAL SCREEN (CONTINUED)

RUNTIMES

To view the Runtimes screen, on the Technical screen, press *RUNTIMES >*. This will open a new screen for viewing runtimes. Use the scroll bar located on the right to move the screen up and down *(FIGURE 19)*.

Press *< TECHNICAL* to return to the previous screen.

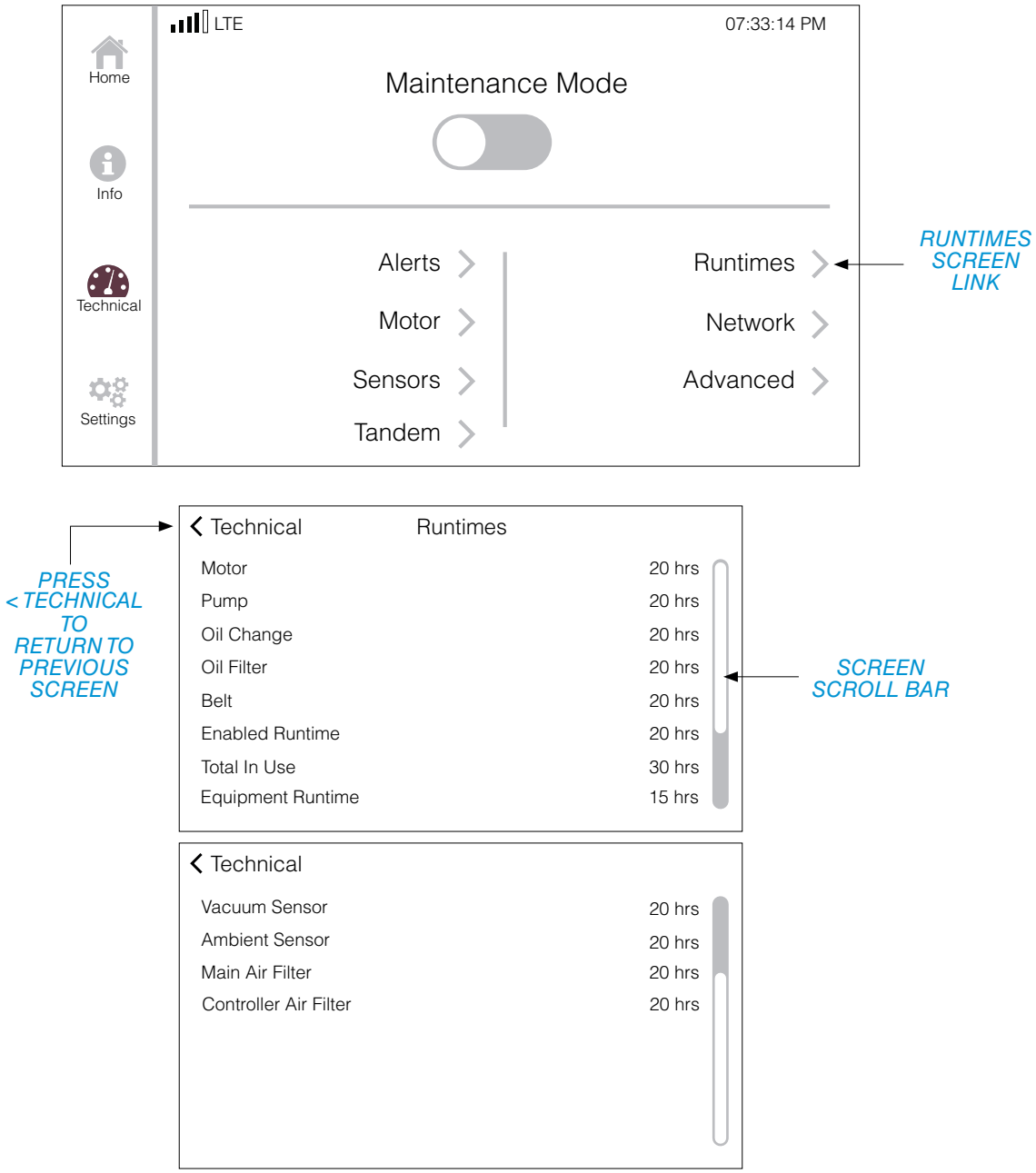


FIGURE 19. RUNTIMES SCREEN

TECHNICAL SCREEN (CONTINUED)

NETWORK

To view network status information, on the Technical screen, press *NETWORK >*. This will open the Network Info screen *(FIGURE 20)*.

The Network Information screen of the control panel displays the following information:

- Access type (LTE-M)
- Signal Strength
- Quality
- Latency (Amount of delay (or time) it takes to send information from one point to the next (milliseconds)

Press *< TECHNICAL* to return to the previous screen.

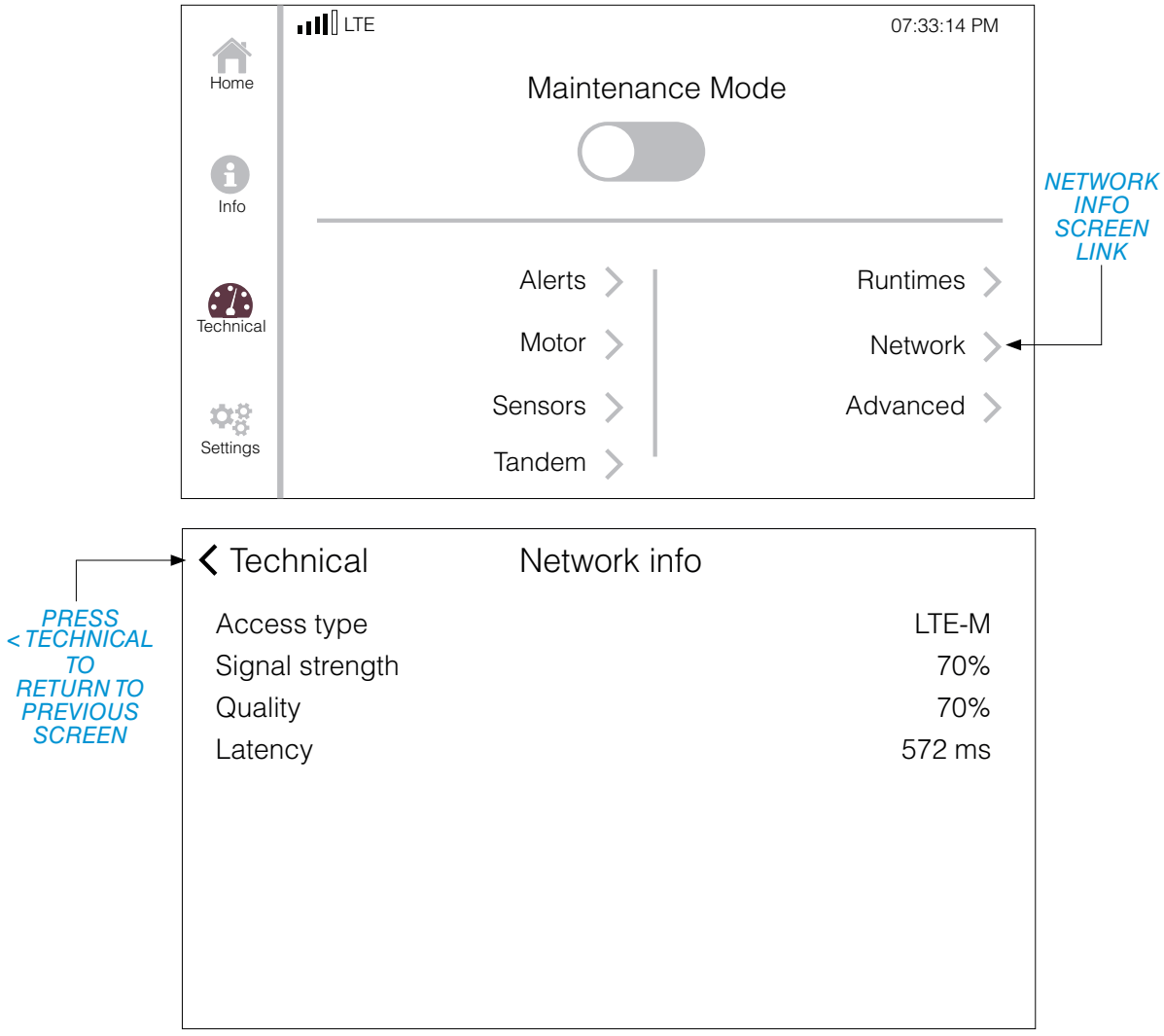


FIGURE 20. NETWORK INFORMATION SCREEN

TECHNICAL SCREEN (CONTINUED)

ADVANCED

To view the Advanced options screen, on the Technical screen, press *ADVANCED >*. This will open a new screen showing the *INFINITANK* switch and *POWER UP OVERRIDE* switch *(FIGURE 21)*.

The *INFINITANK* switch should only be turned ON when using an InfiniTank system. For all other vacuum tanks, the *INFINITANK* switch should be turned OFF.

To enable the InfiniTank option, press the gray *INFINITANK* switch. The switch will turn green, indicating that the InfiniTank option is now ON. Pressing the green switch will turn the InfiniTank option OFF.

Press *< TECHNICAL* to return to the previous screen.

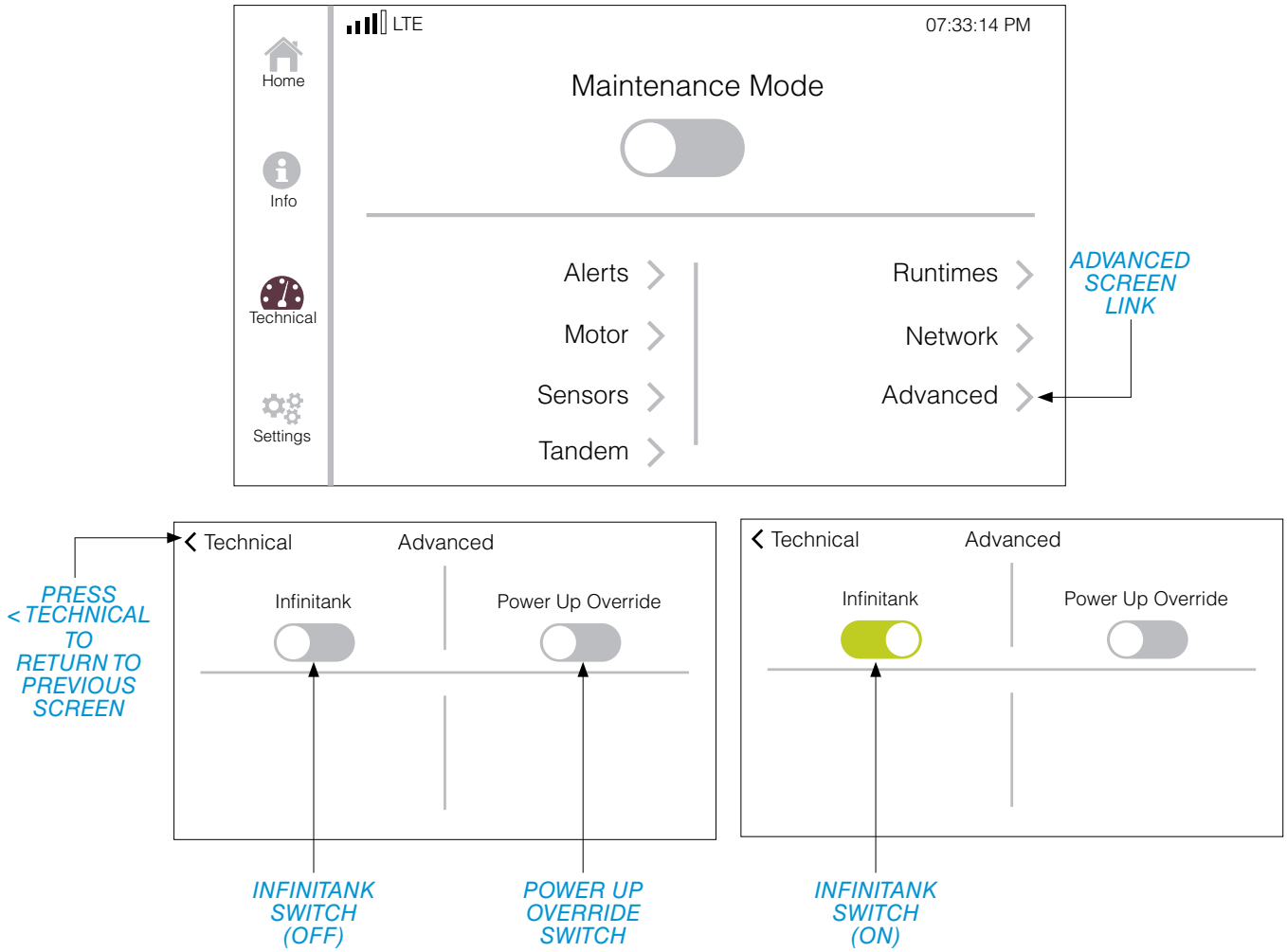


FIGURE 21. ADVANCED OPTIONS SCREEN

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE (ENABLE)

In order to perform maintenance tasks on the vacuum, maintenance mode must be enabled. **This will disable remote switching and put the system in STANDBY mode.** To enable maintenance mode, on the Technical screen, press the gray *MAINTENANCE MODE* switch. The switch will turn green, indicating that the vacuum is now in maintenance mode. The Service screen link will also become available *(FIGURE 22)*.

While in maintenance mode, the system can be switched from STANDBY mode to ON mode, and back again as needed.

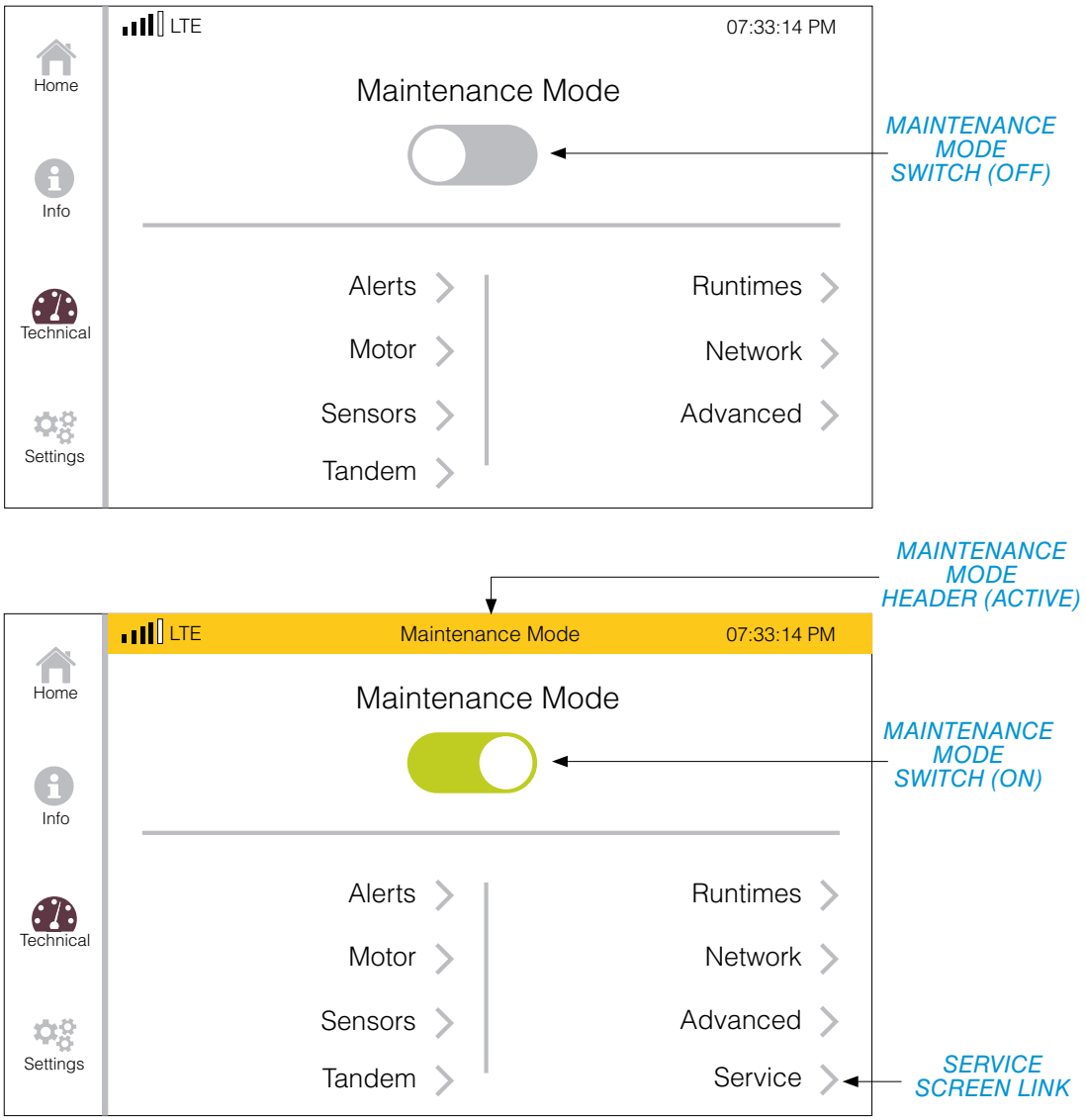


FIGURE 22. MAINTENANCE MODE ENABLE SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE (DISABLE)

To exit maintenance mode, press the green *MAINTENANCE MODE* switch. This will open a new screen asking if there are any service items to record. Pressing *YES* will open the Service screen. Pressing *NO* will return to the Technical screen where maintenance mode will be turned OFF. Turning OFF maintenance mode enables remote switching, but does not return the system to ON mode. *(FIGURE 23)*.

When maintenance is complete, on the Home screen, switch vacuum system from STANDBY to ON.

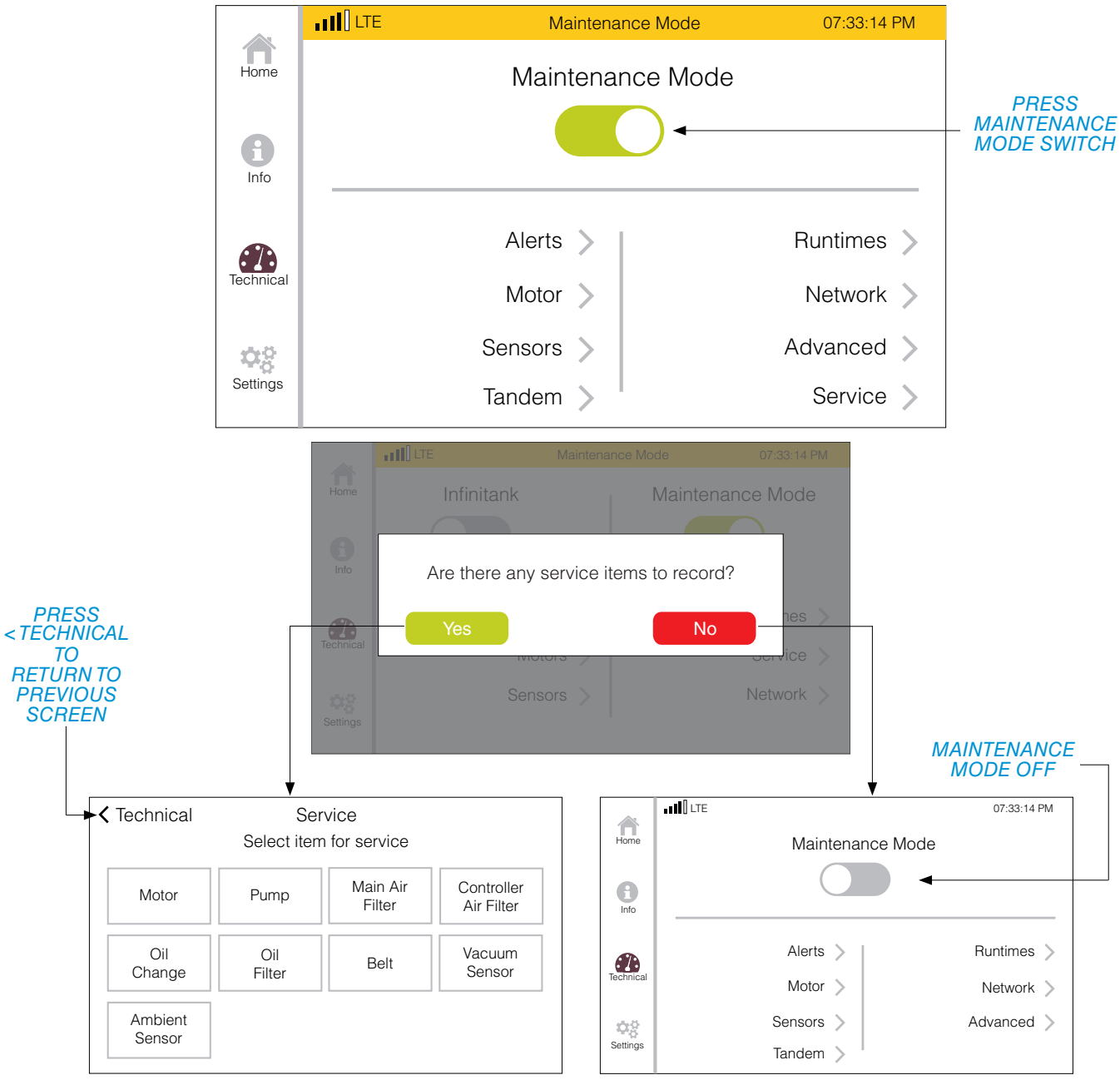


FIGURE 23. MAINTENANCE MODE DISABLE SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE

To view the Service screen, on the Technical screen, press *SERVICE >*. This will open a new screen showing the service options that are available *(FIGURE 24)*.

Press *< TECHNICAL* to return to the previous screen.

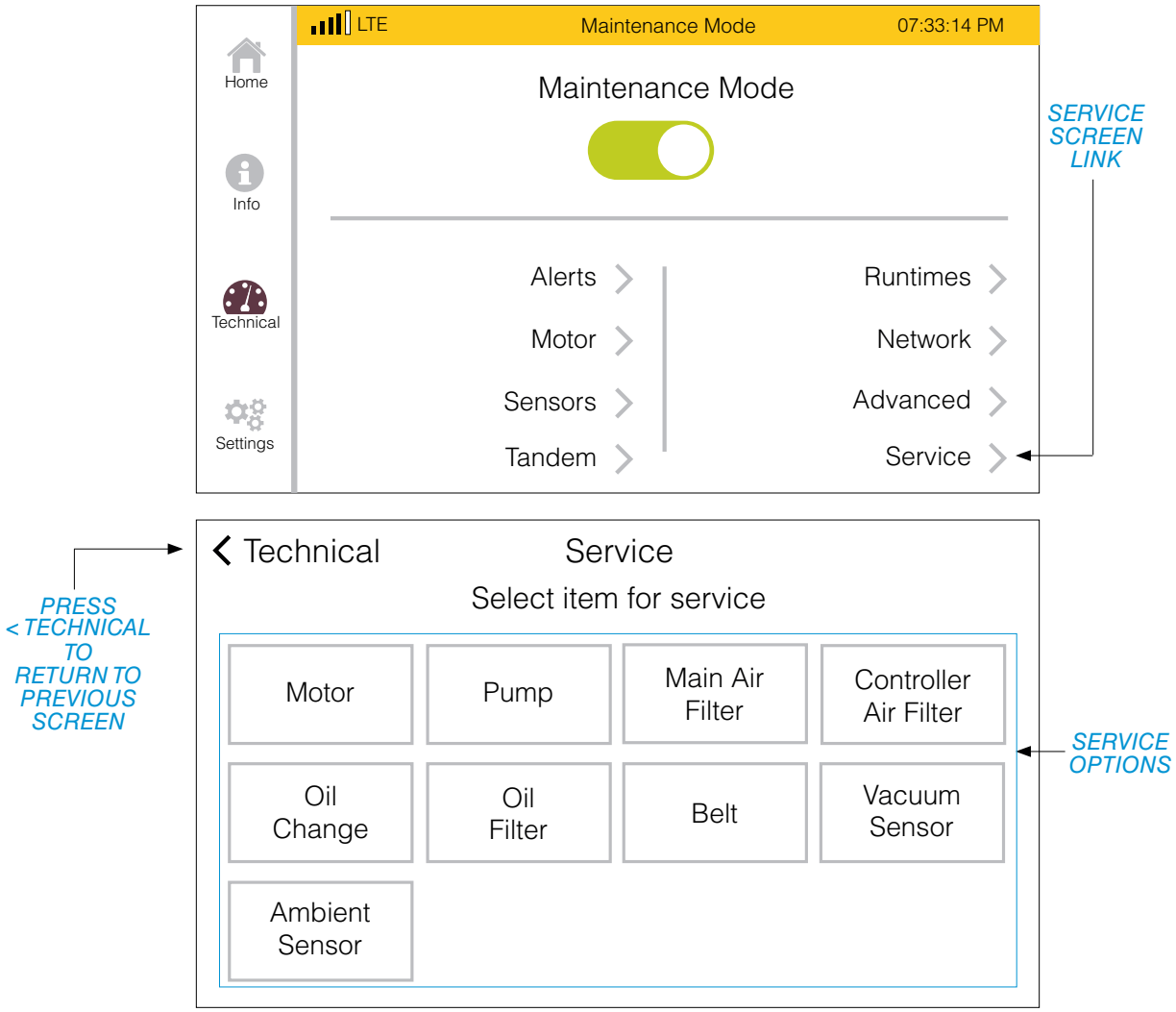


FIGURE 24. SERVICE OPTIONS SCREEN

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > MOTOR

When replacing the motor on the vacuum, a replacement serial number will need to be manually entered, which will reset the current runtime to 0. On the Service screen, press the *MOTOR* button. This will open the Motor Service screen showing current runtime and current or replacement serial numbers. Press *ENTER SERIAL NUMBER >*. This will open the Serial Number data entry screen. Using the numeric key pad, enter the replacement serial number (numbers only). Press *< MOTOR* to return to the previous screen *(FIGURE 25)*.

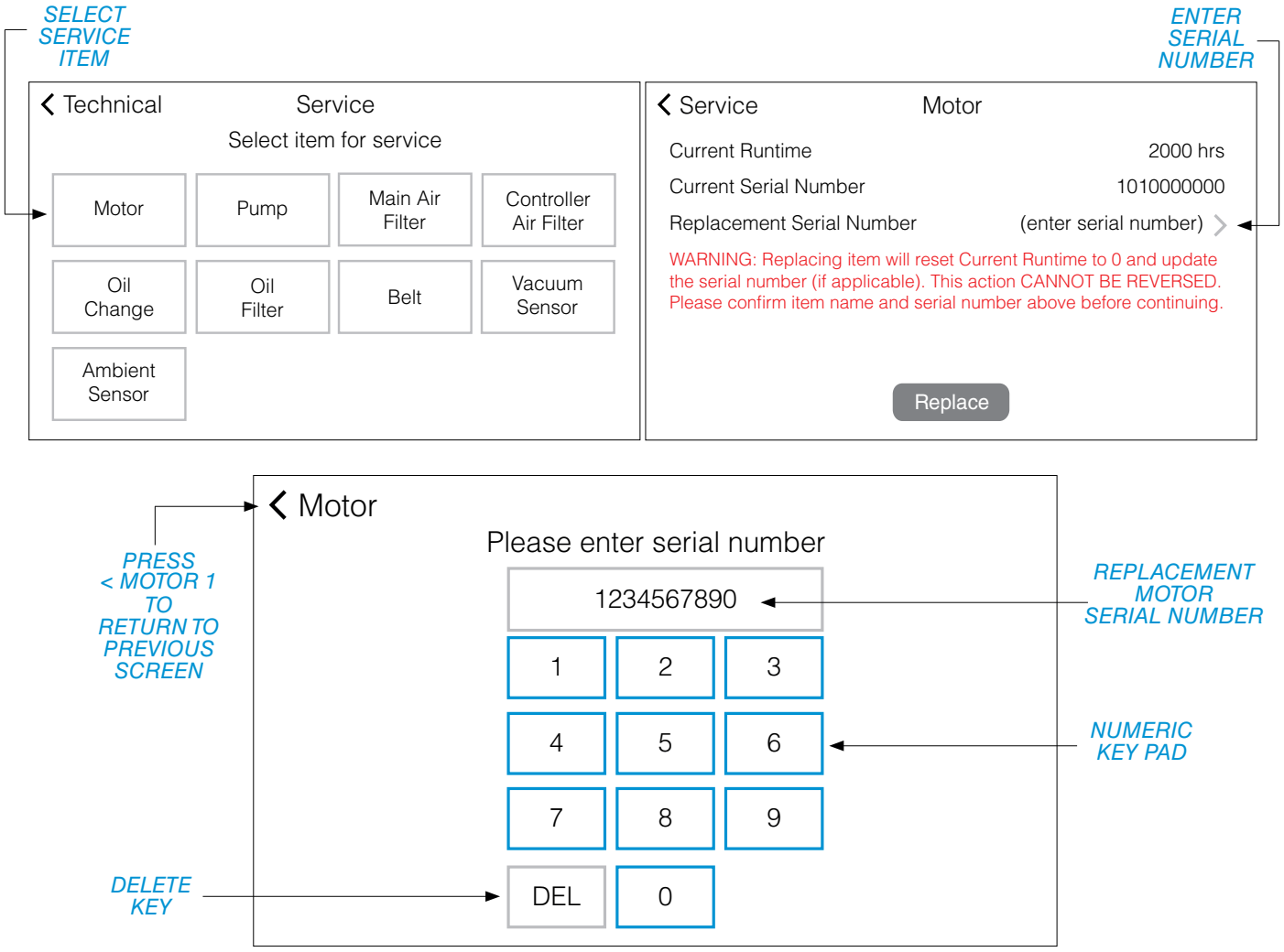


FIGURE 25. MOTOR REPLACEMENT SCREENS

(Continued on the next page.)

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > MOTOR

(Continued from the previous page.)

Confirm the item name (Motor), the replacement serial number (1234567890) and press *REPLACE.*

Press *OK* to replace Motor, reset runtimes and return to the Service screen, or press *CANCEL* to cancel the serial number replacement/runtime reset and return to the Motor screen *(FIGURE 26)*.

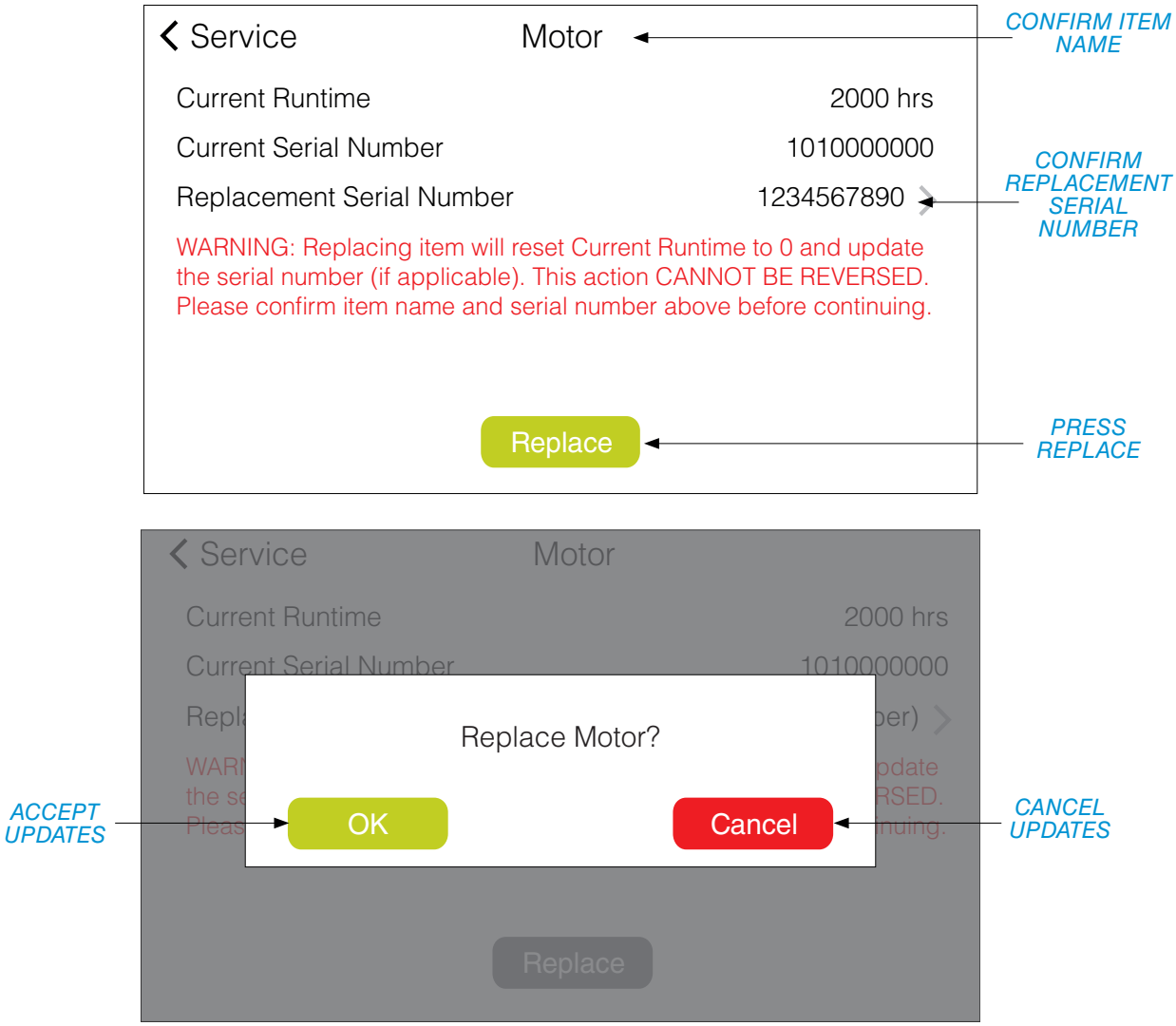


FIGURE 26. MOTOR REPLACEMENT SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > PUMP

When replacing the pump on the vacuum, a replacement serial number will need to be manually entered, which will reset the current runtime to 0. On the Service screen, press the *PUMP* button. This will open the Pump Service screen showing current runtime and current or replacement serial numbers. Press *ENTER SERIAL NUMBER >*. This will open the Serial Number data entry screen. Using the numeric key pad, enter the replacement serial number (numbers only). Press *< PUMP* to return to the previous screen *(FIGURE 27)*.

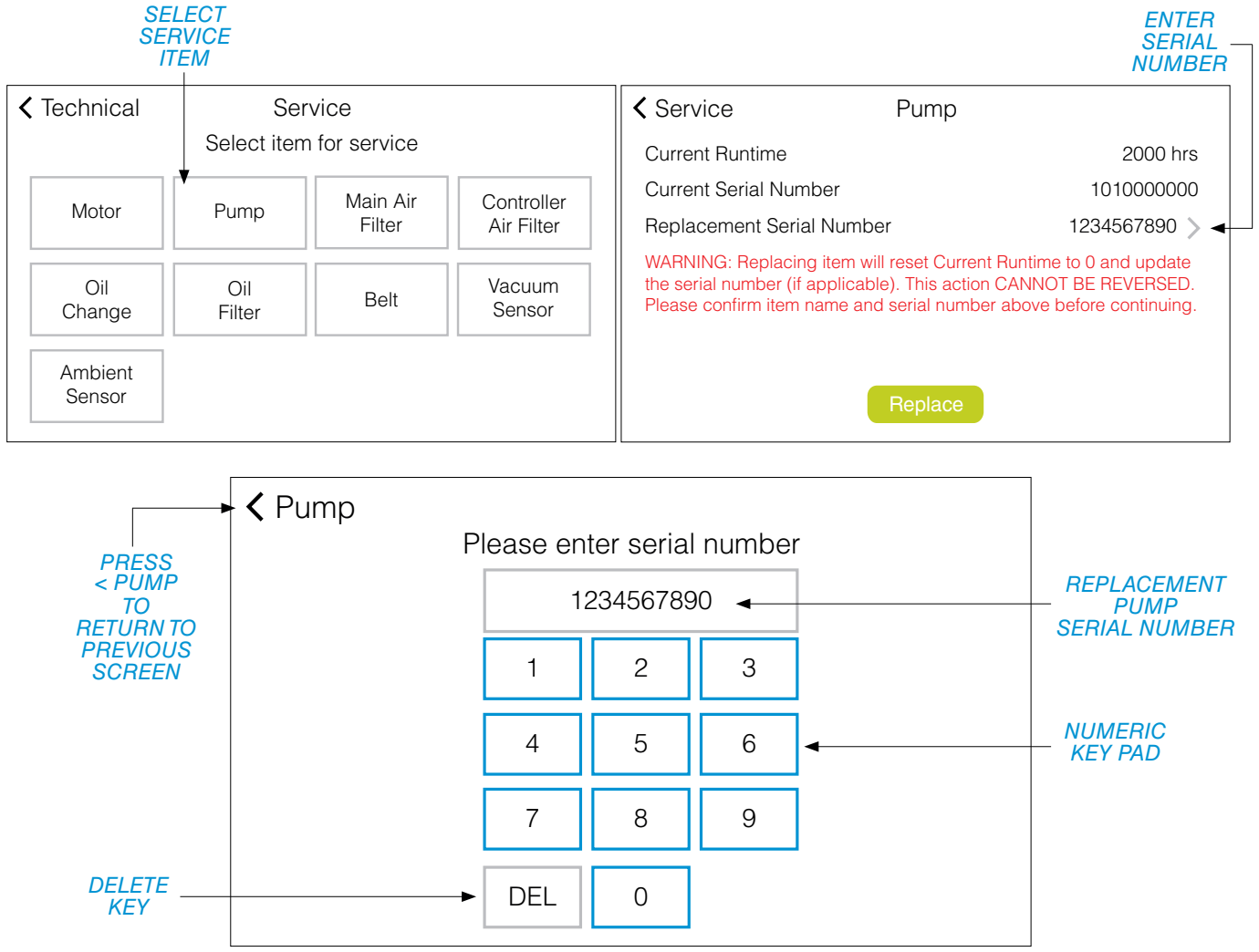


FIGURE 27. PUMP REPLACEMENT SCREENS

(Continued on the next page.)

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > PUMP

(Continued from the previous page.)

Confirm the item name (Pump), the replacement serial number (1234567890) and press *REPLACE.*

Press *OK* to replace Pump, reset runtimes and return to the Service screen, or press *CANCEL* to cancel the serial number replacement/runtime reset and return to the Pump screen *(FIGURE 28)*.

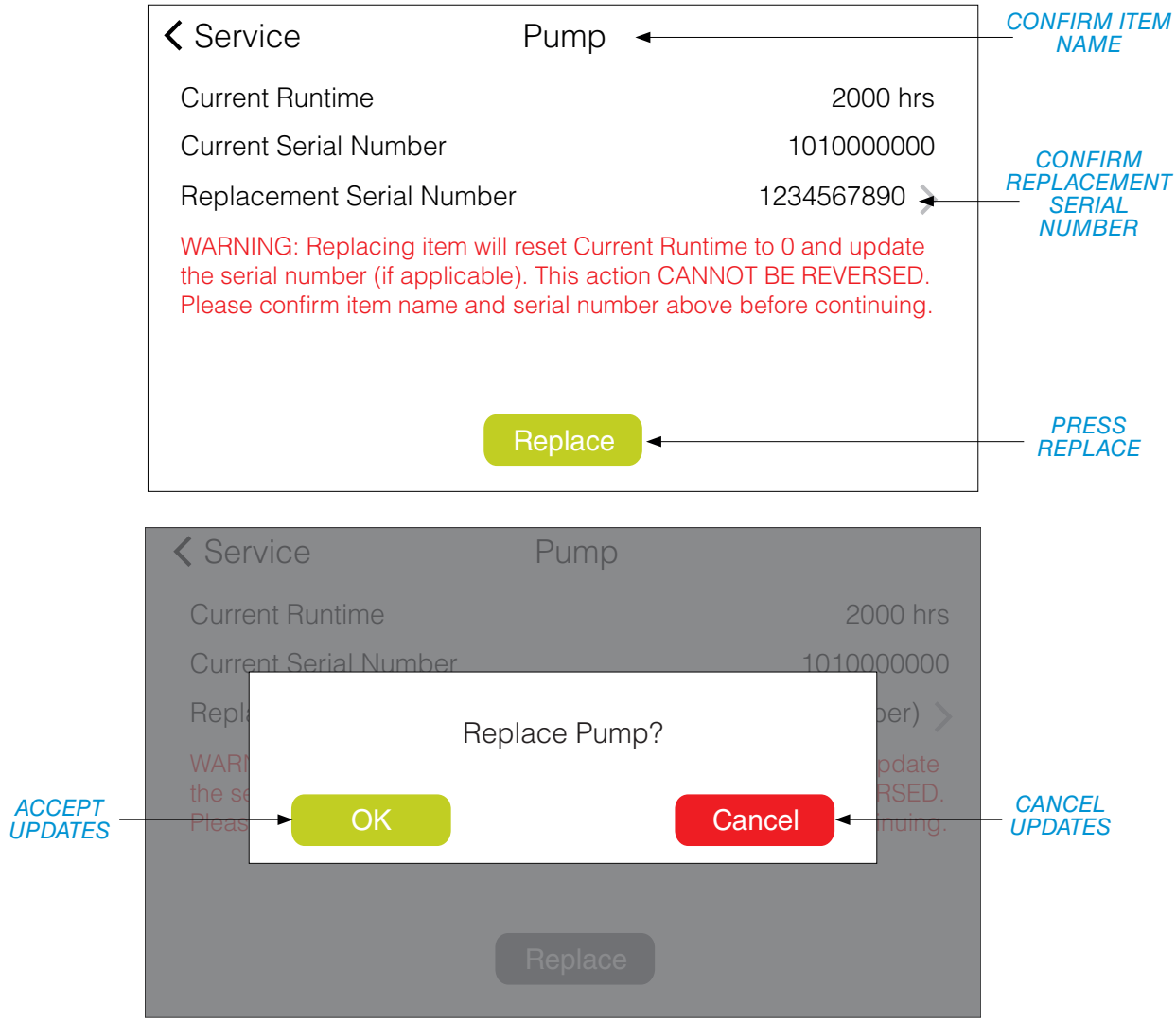


FIGURE 28. PUMP REPLACEMENT SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > MAIN AIR FILTER

After replacing the main air filter, the current and remaining runtimes will need to be reset. On the Service screen, press *MAIN AIR FILTER*. This will open the Main Air Filter screen showing current, max and remaining runtimes. Press *REPLACE*. Press *OK* to replace main air filter, reset runtimes and return to the Service screen, or press *CANCEL* to cancel the runtimes reset and return to the Main Filter screen *(FIGURE 29)*.

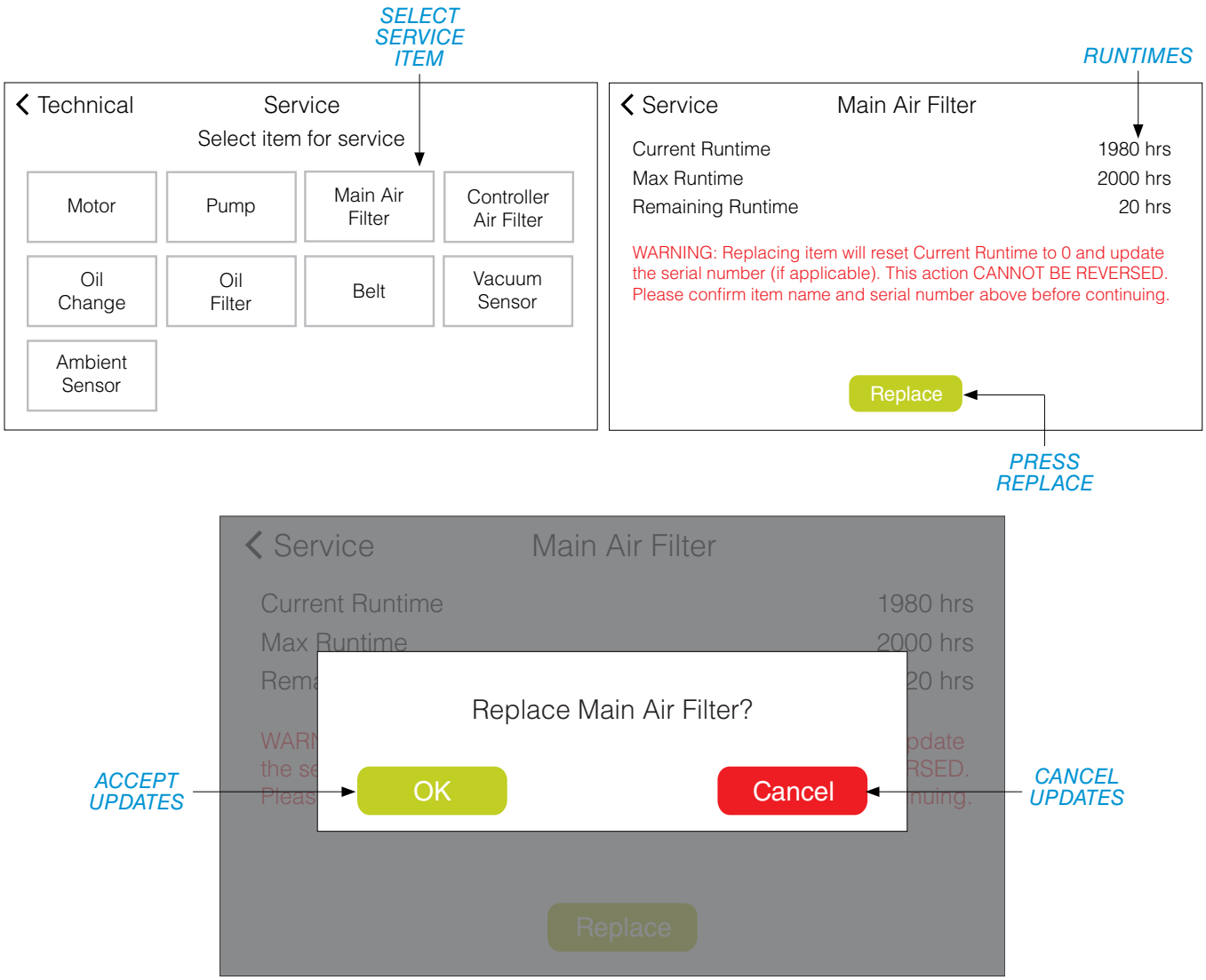


FIGURE 29. MAIN AIR FILTER REPLACEMENT SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > CONTROLLER AIR FILTER

After replacing the controller air filter, the current and remaining runtimes will need to be reset. On the Service screen, press *CONTROLLER AIR FILTER*. This will open the Controller Air Filter screen showing current, max and remaining runtimes. Press *REPLACE*. Press *OK* to replace controller air filter, reset runtimes and return to the Service screen, or press *CANCEL* to cancel the runtimes reset and return to the Controller Air Filter screen *(FIGURE 30)*.



FIGURE 30. CONTROLLER AIR FILTER REPLACEMENT SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > OIL CHANGE

After changing the oil, the current and remaining runtimes will need to be reset. On the Service screen, press *OIL CHANGE*. This will open the Oil Change screen showing current, max and remaining runtimes. Press *REPLACE*. Press *OK* to reset oil change runtimes and return to Service screen, or press *CANCEL* to cancel the runtimes reset and return to the Oil Change screen *(FIGURE 31)*.

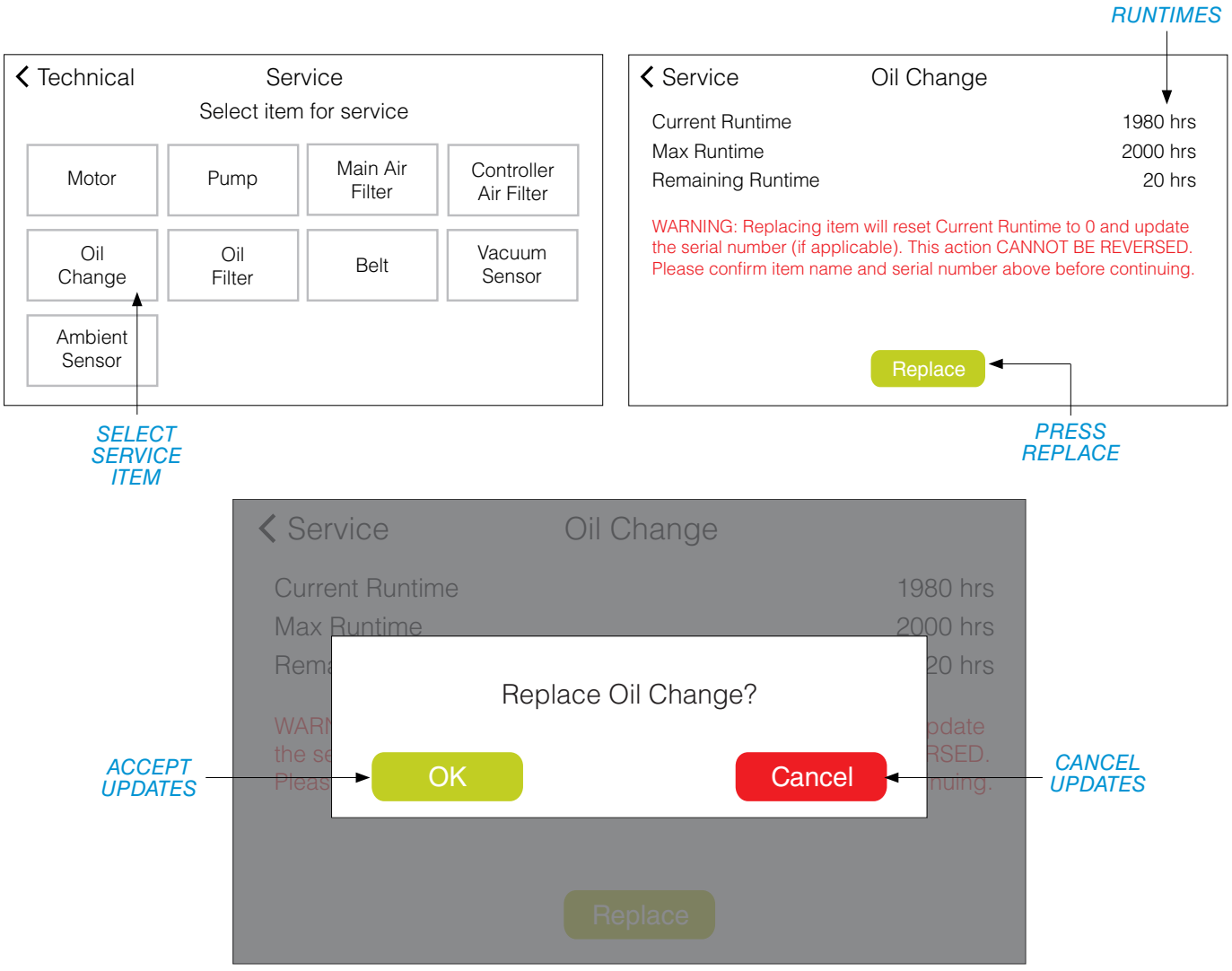


FIGURE 31. OIL CHANGE SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > OIL FILTER

After replacing the oil filter element, the current runtime will need to be reset. On the Service screen, press *OIL FILTER*. This will open the Oil Filter screen showing current runtime. Press *REPLACE*. Press *OK* to replace oil filter element, reset runtimes and return to Service screen, or press *CANCEL* to cancel runtime reset and return to Oil Filter screen *(FIGURE 32)*.

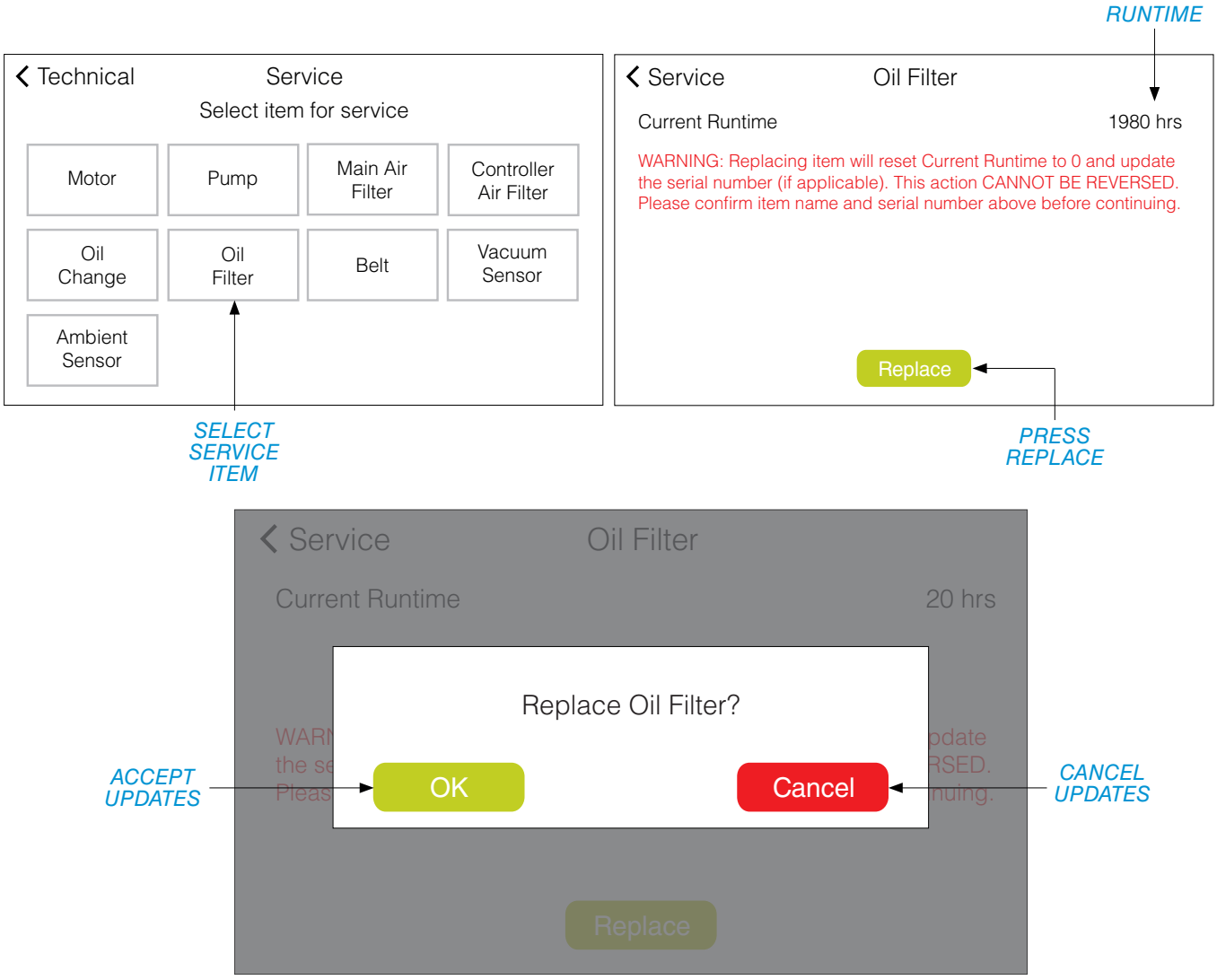


FIGURE 32. OIL FILTER REPLACEMENT SCREENS

TECHNICAL SCREEN (CONTINUED)

MAINTENANCE MODE > SERVICE > BELT

After replacing the vacuum belt, the current runtime will need to be reset. On the Service screen, press *BELT*. This will open the Belt screen showing current runtime. Press *REPLACE*. Press *OK* to replace belt, reset runtimes and return to Service screen, or press *CANCEL* to cancel runtime reset and return to Belt screen *(FIGURE 33)*.

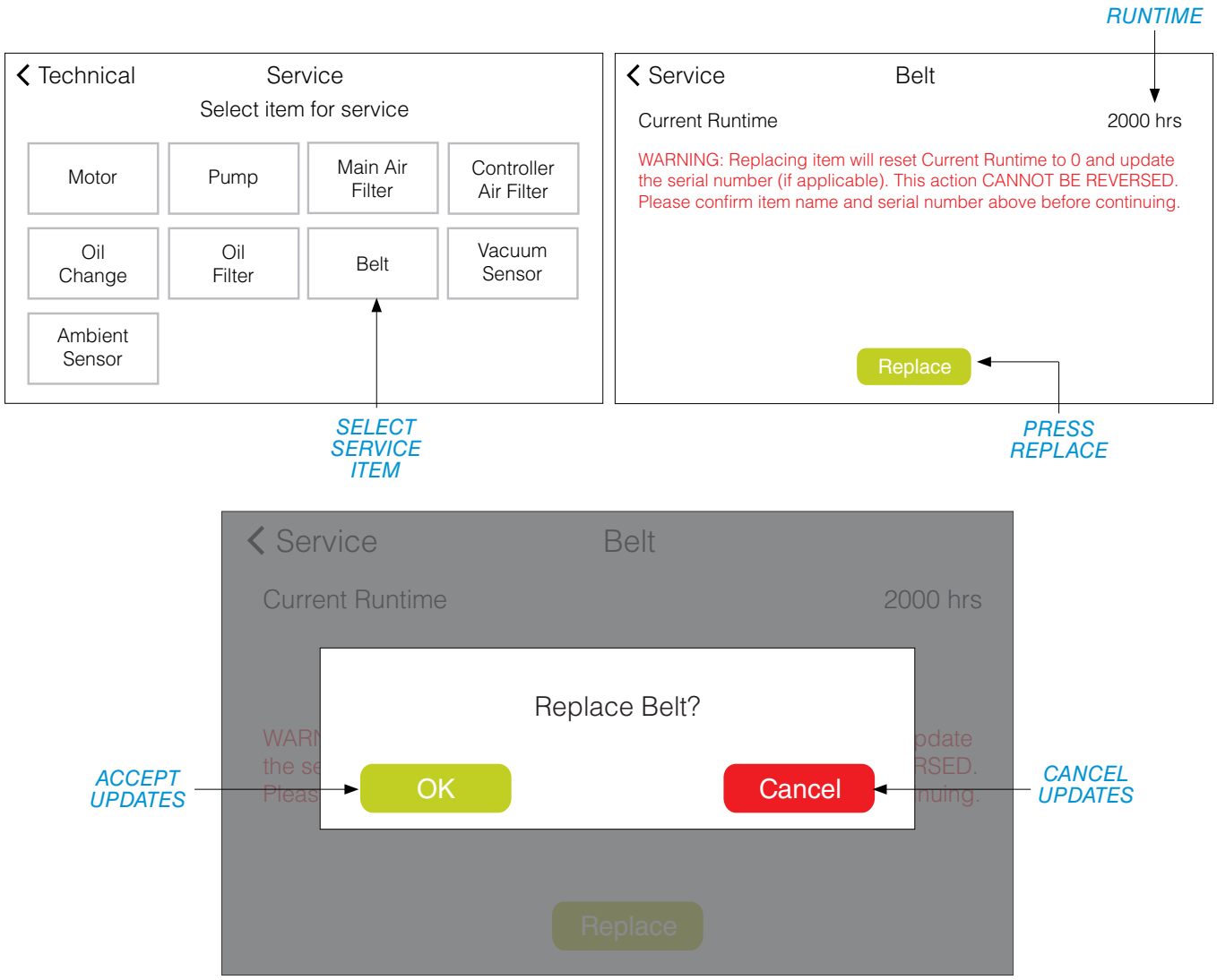


FIGURE 33. BELT REPLACEMENT SCREENS

SETTINGS SCREEN

The Settings screen of the control panel displays the following information *(FIGURE 34)*:

- Main navigational menu links: *HOME*, *INFO*, *TECHNICAL*, *and SETTINGS*
- Wireless signal strength indicator
- Time of day
- *SMART SCHEDULE* switch
- *METRIC* switch
- *SCHEDULE* screen link (Web app enabled)
- *DATE & TIME* screen link
- *RESET* link to restore system defaults (this cannot be undone)

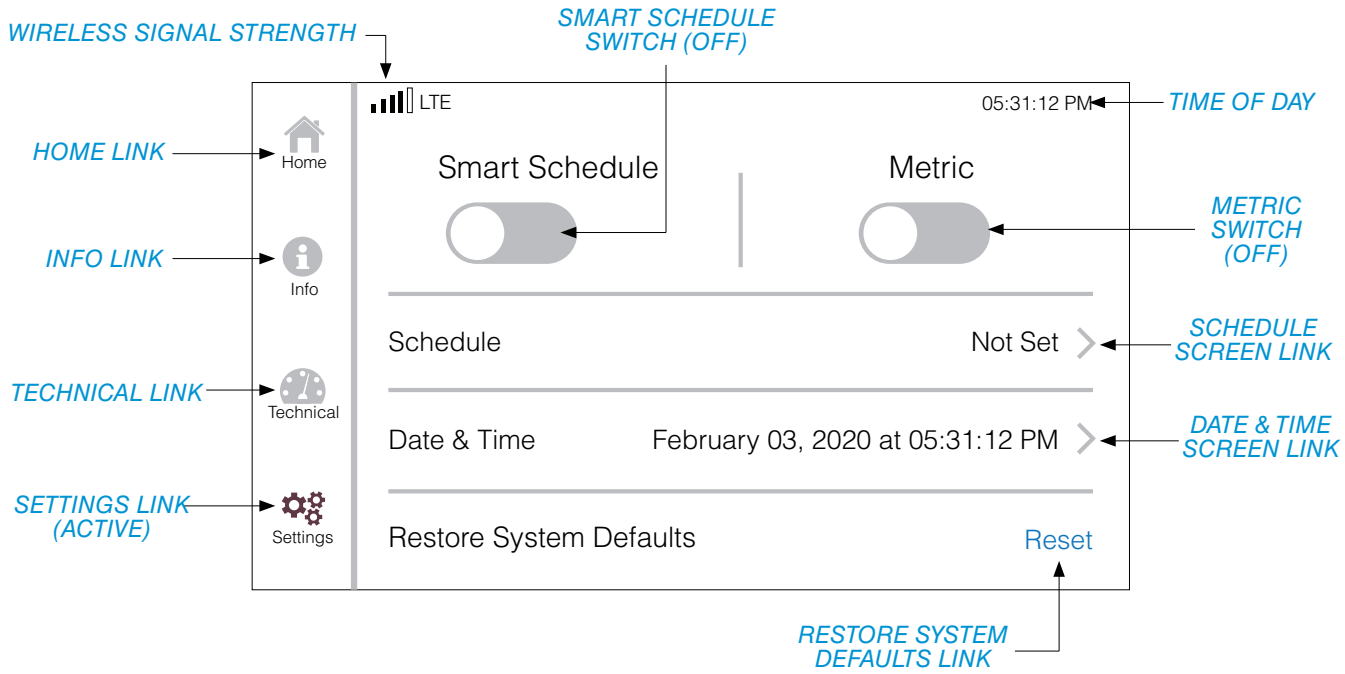


FIGURE 34. SETTINGS SCREEN

SETTINGS SCREEN (CONTINUED)

SMART SCHEDULE SWITCH

To enable the vacuum schedule, on the Settings screen, press the gray *SMART SCHEDULE* switch. The switch will turn green, indicating that the vacuum schedule is ON. Pressing the green switch will turn the schedule OFF *(FIGURE 35)*.

NOTE: *Setting the vacuum schedule must be done via the web application located at AERAS.DENTALEZ.COM. The Smart Schedule detects usage and will keep the system running beyond the scheduled standby time, for up to one hour.*

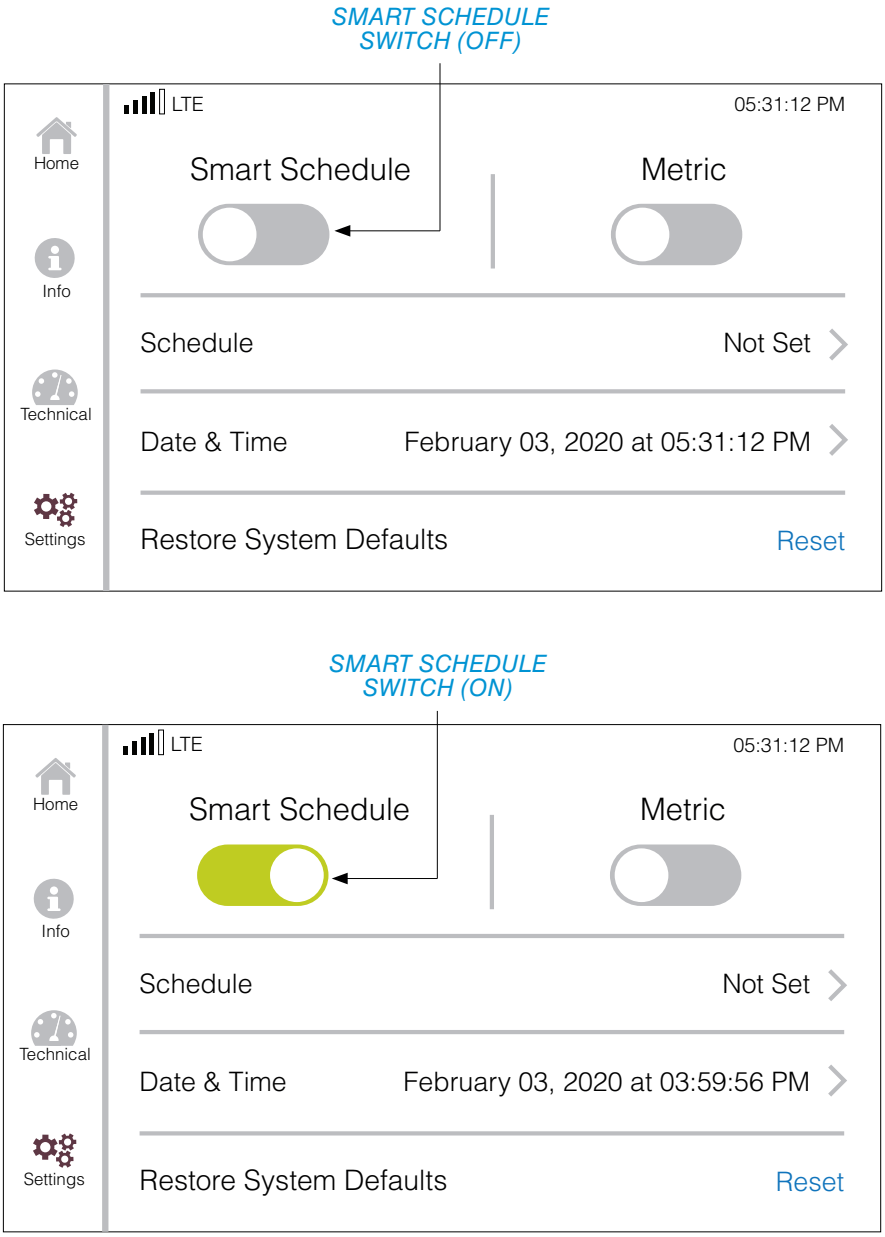


FIGURE 35. SMART SCHEDULE SWITCH

SETTINGS SCREEN (CONTINUED)

SCHEDULE

To view the Schedule screen, on the Settings screen, press *SCHEDULE > (FIGURE 36)*.

Press *< SETTINGS* to return to the previous screen.

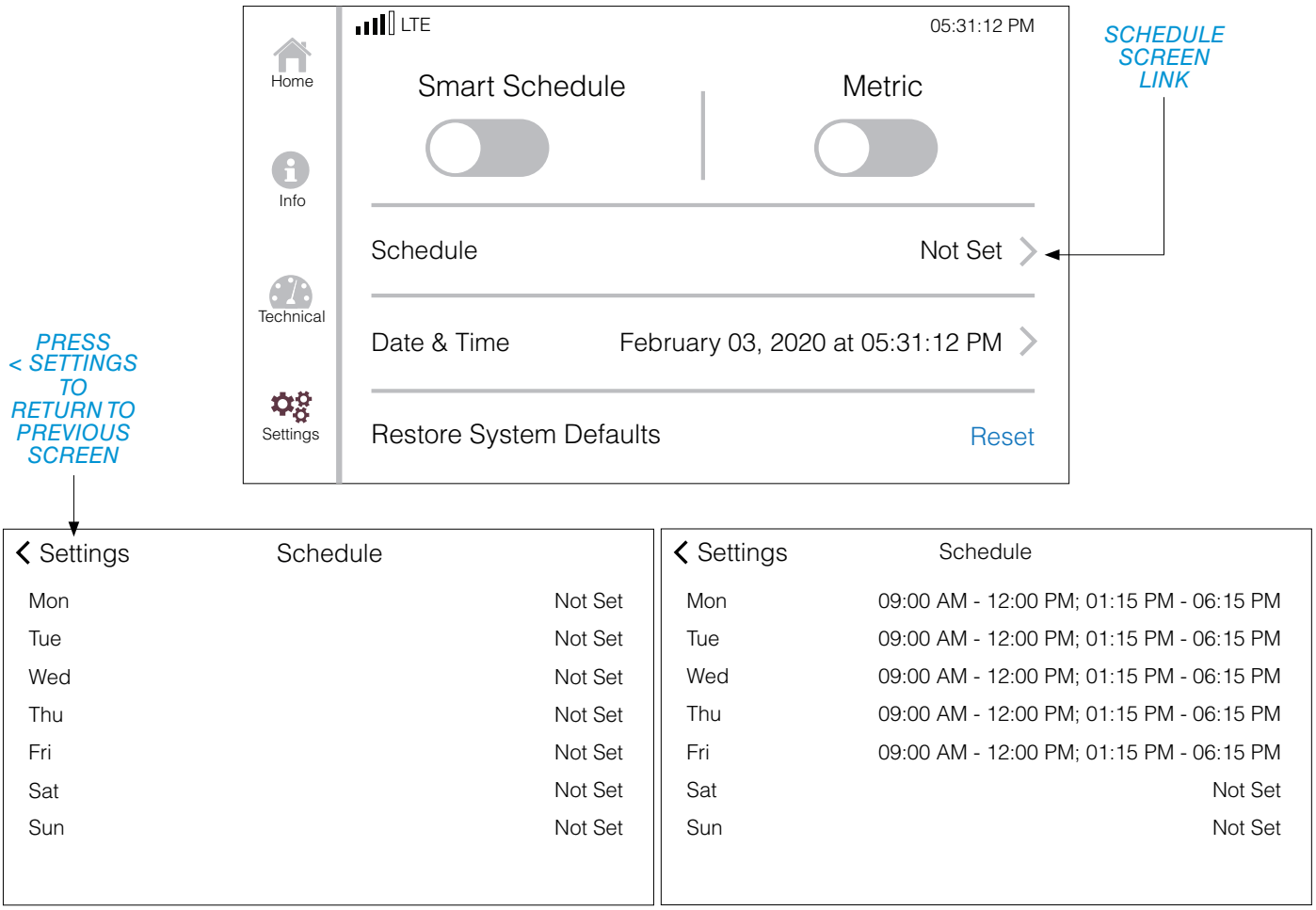


FIGURE 36. SCHEDULE SCREENS WITH NO SCHEDULE SET (LEFT) AND SCHEDULE SET (RIGHT)

SETTINGS SCREEN (CONTINUED)

DATE & TIME (AUTO SET)

When the control is connected to a network (noted by wireless signal strength indicator bars), the date and time are automatically set in the system. The only adjustable options available on the date and time screen, while connected to a network, are *ZONE*, *AUTOMATIC DST*, and *TZ+0:30* (UTC time offset 30 minutes ahead).

To manually set these options, on the Settings screen, press *DATE & TIME > (FIGURE 37)*.

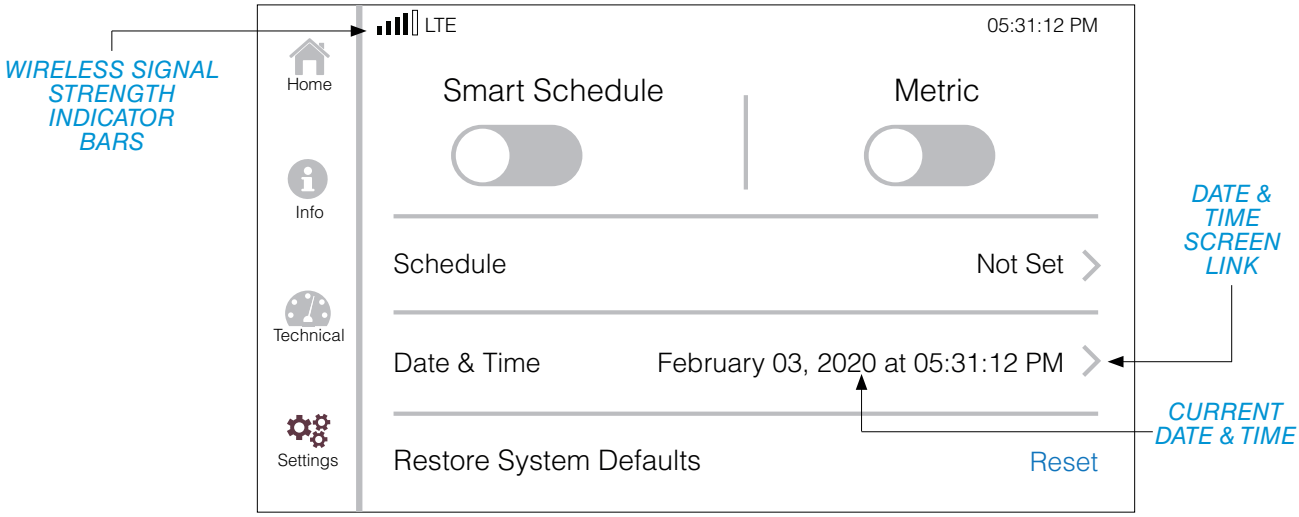


FIGURE 37. SETTINGS SCREEN

The Date & Time screen will open *(FIGURE 38)*.

To change the time zone, press *ZONE* ▲ to move the time zone backward or *ZONE* ▼ to move the time zone forward. To turn ON automatic daylight savings time, press the gray *AUTOMATIC DST* switch. The switch will display green when ON. To add 30 minutes to the time zone (if necessary) press *TZ+0:30*. The switch will display green when ON.

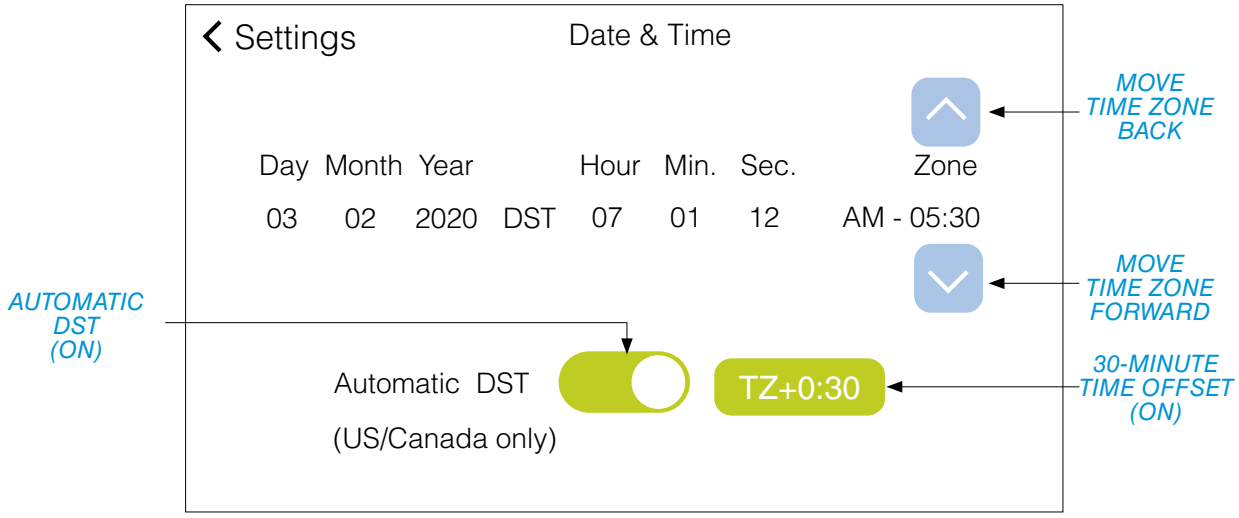


FIGURE 38. DATE & TIME MENU OPTIONS SCREEN

SETTINGS SCREEN (CONTINUED)

DATE & TIME (MANUALLY SET)

When the control is NOT connected to a network, the date and time may be manually set by the user. (**No Service** will appear in place of the wireless signal strength indicator bars.)

To manually set these options, on the Settings screen, press *DATE & TIME > (FIGURE 39)*.

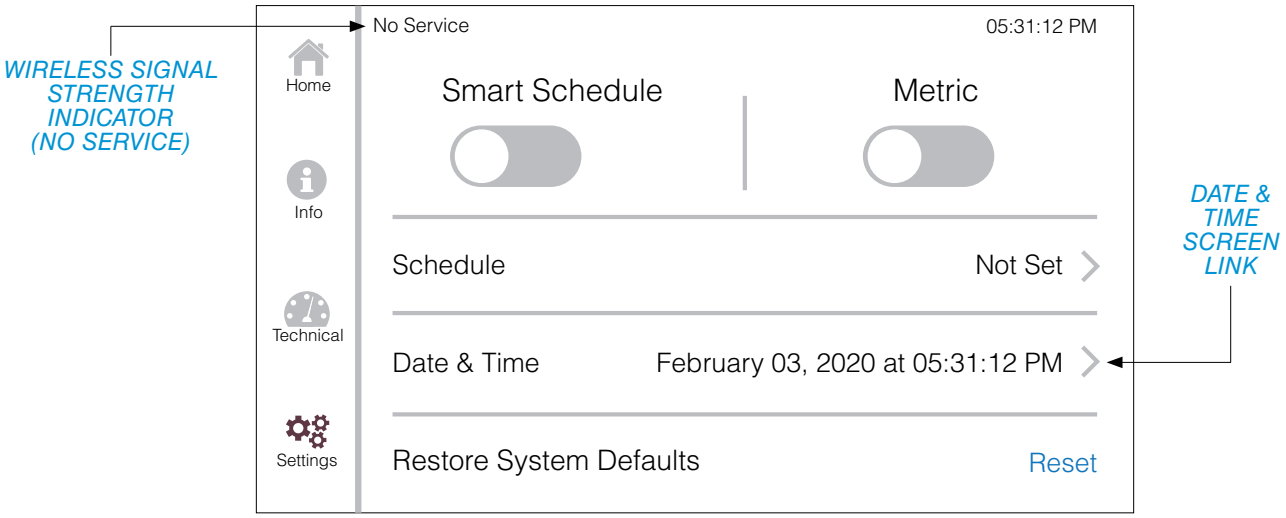


FIGURE 39. SETTINGS SCREEN

The Date & Time screen will open *(FIGURE 40)*.

Pressing the *LEFT* or *RIGHT* arrow button on either side of the screen will move the menu option arrows (▲▼) to each available option: *DAY*, *MONTH*, *YEAR*, *HOUR*, *MINUTE*, *SECOND*, *AM/PM* or *ZONE*.

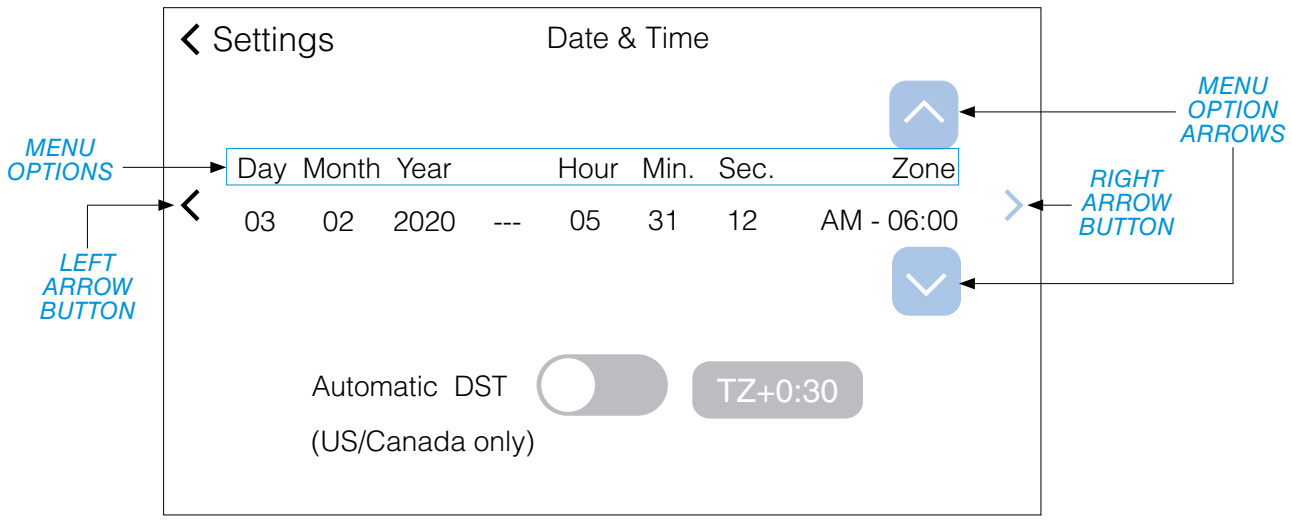


FIGURE 40. DATE & TIME MENU OPTIONS SCREEN

(Continued on the next page.)

SETTINGS SCREEN (CONTINUED)

DATE & TIME (MANUALLY SET)

(Continued from the previous page.)

After reaching the desired menu option, use the menu option arrows (▲▼) to make changes.

To adjust the time zone, press *ZONE* ▲ to move the time zone backward. Press *ZONE* ▼ to move the time zone forward *(FIGURE 41)*.

Repeat this action to adjust each menu option (*DAY*, *MONTH*, *YEAR*, *HOUR*, *MINUTE*, *SECOND* and *AM/PM*).

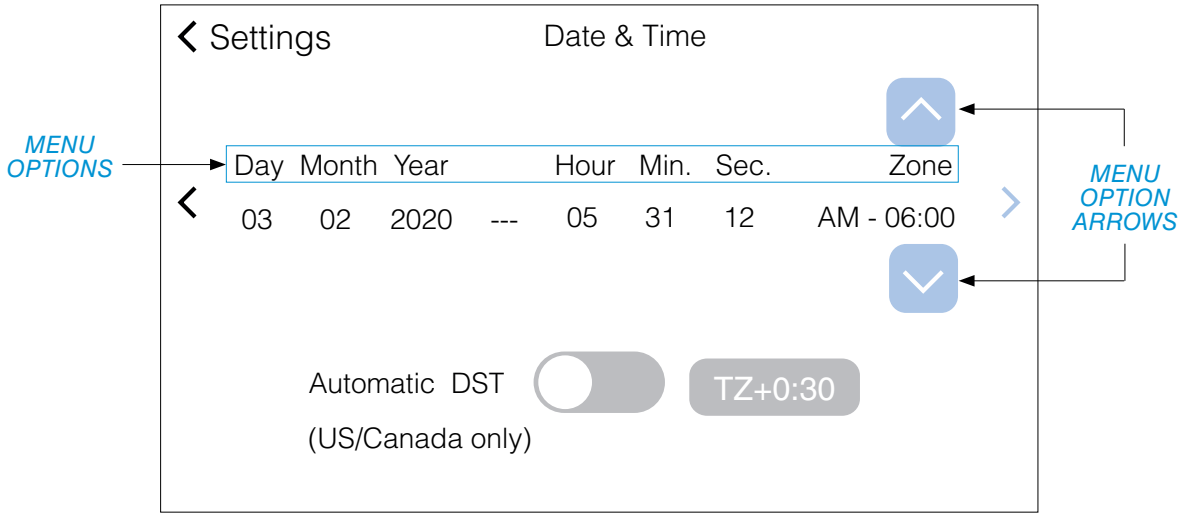


FIGURE 41. DATE & TIME MENU OPTIONS SCREEN

To turn ON automatic daylight savings time, press the gray *AUTOMATIC DST* switch. The switch will display green when ON. To add 30 minutes to the time zone (if necessary) press *TZ+0:30*. The switch will display green when ON *(FIGURE 42)*.

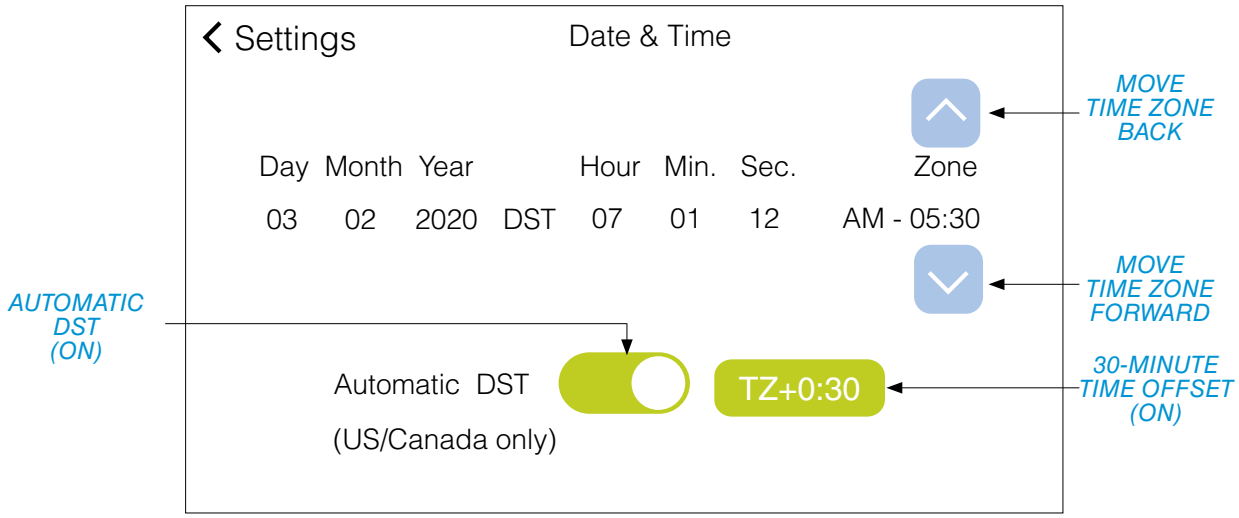


FIGURE 42. DATE & TIME MENU OPTIONS SCREEN VIEW

SETTINGS SCREEN (CONTINUED)

METRIC DISPLAY SWITCH

By default, temperature/pressure measurements on the control panel are displayed in imperial units (Fahrenheit/ PSI). This can be switched to view temperature/pressure measurements in metric units (Celsius/kPa). On the Settings screen, press the gray *METRIC* switch. The switch will turn green, indicating that the vacuum is now in metric mode (*FIGURE 43*).

Pressing the *METRIC* switch again will turn OFF metric mode, returning measurements to imperial units..

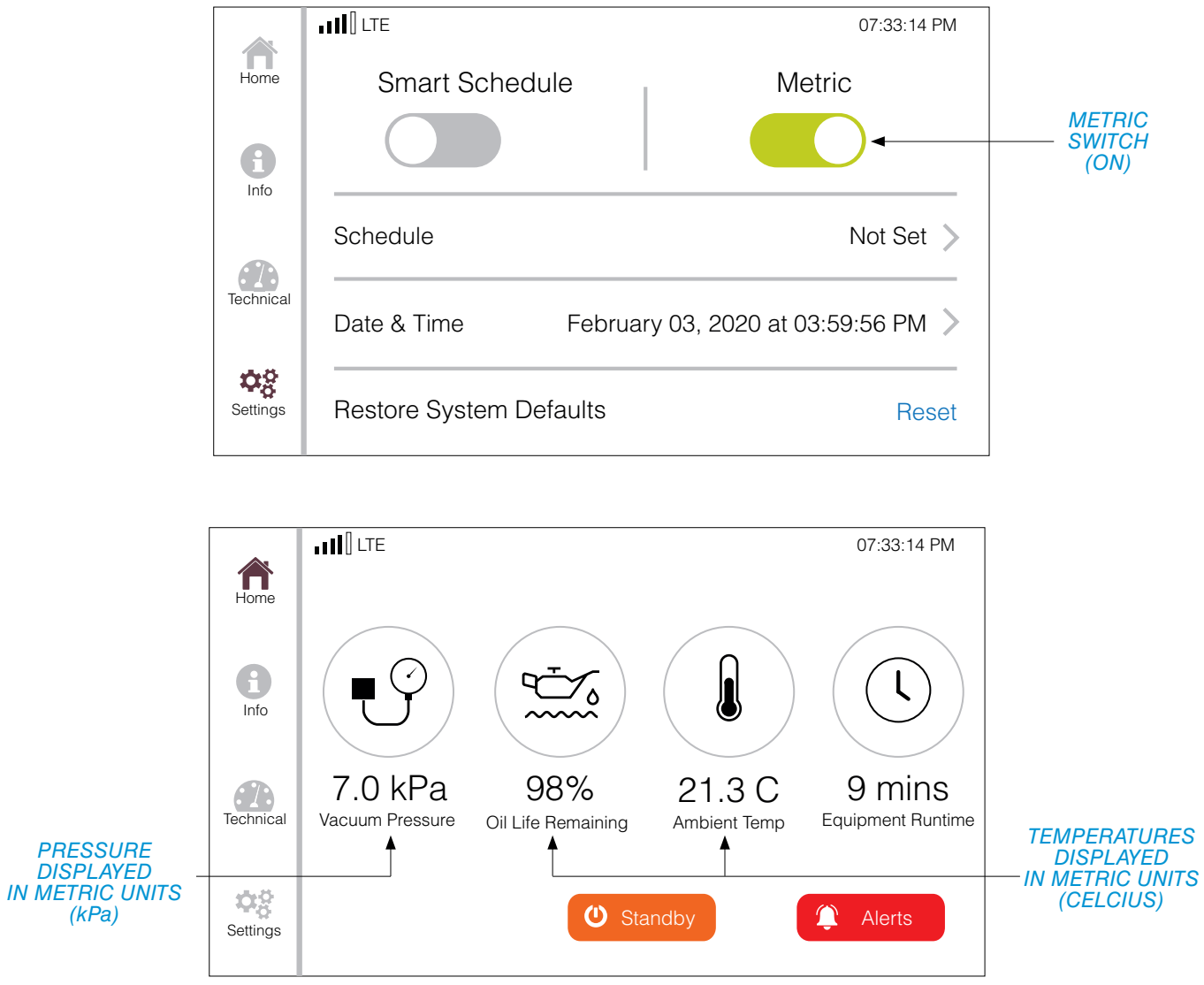


FIGURE 43. METRIC MODE ENABLED

OVERVIEW

WARNING

Prior to performing any maintenance, proper precautions should be taken to reduce the possibility of contact with infectious substances.

Ramvac dry vacuum preventive maintenance is simple, clean and inexpensive. It can help ensure your system provides years of predictable performance. While most maintenance tasks can be performed by the user, Ramvac recommends having all service and maintenance conducted by a dealer service technician.

NOTE: *When servicing this vacuum, only use Ramvac approved service parts. Utilizing non-approved components could lead to system damage and possible termination of product warranty. Circuit diagrams, parts lists and other required information is available to service personnel by contacting Ramvac.*

EXPECTED SERVICE LIFE With proper maintenance and service, Ramvac products are designed for a defined "service life" under normal use (based on approximately 50 patients per week) of 5 years from the date of manufacture, except for serviceable components. Some components may become obsolete due to changes in technology or due to product improvements and may necessitate product updates or upgrades. At the end of the defined service life, all products require examination by a trained service technician prior to continued use. Following this, additional examinations are required every 5 years.

KEY POINTS FOR TROUBLE-FREE OPERATION

- Follow the recommended *PREVENTIVE MAINTENANCE SCHEDULE*.
- Rinse vacuum lines daily with the recommended quantity of liquid (see *CLEAN VACUUM SYSTEM LINES* in this section).
- Keep vacuum pump clean and free of dirt.
- Keep area surrounding vacuum pump free of debris.
- Inspect air filters every 1,000 hours.
- Maintain a controlled ambient temperature between recommended levels of 32°F to 104°F (0°C to 40°C). High temperatures will shorten the life of the vacuum pump (see *SECTION I - INTRODUCTION - SPECIFICATIONS VACUUM UNIT*).

CLEANING INSTRUCTIONS

1. Always disconnect the power from the equipment prior to cleaning.
2. Some parts/components on the vacuum unit get hot during operation; provide the equipment ample time to cool prior to cleaning.
3. All components can be safely wiped down with a damp cloth, wet with water. Using any cleaners or harsh chemicals to clean this equipment is NOT recommended; potentially harmful effects have not been evaluated.
4. Do not heavily wet electrical components.
5. Allow equipment to air dry or dry with clean, soft cloth

PREVENTIVE MAINTENANCE SCHEDULE

This is a recommended schedule for a vacuum in a clean, dry environment. Any site other than specified will decrease maintenance time exponentially.

Clean Vacuum System Lines	Daily
Check Oil Drip Rate	First Week; then Every 6 Months or 1,000 Hours* and After Every Oil Change
Check Air Filters	Every 6 Months or 1,000 Hours*
Replace Air Filters, Change Oil, Check/Replace Oil Filter Element, Check V-belt	Annually or Every 2,000 Hours*

*The control will display the number of hours (remaining runtime) before each maintenance item is due (see *SECTION IV - OPERATION - TECHNICAL SCREEN - RUNTIMES*). If a lighted remote switch is installed, it will also flash the light, indicating that maintenance is due. If the OWL™ Touch is installed, it will indicate the maintenance is due on the display.

CLEAN VACUUM SYSTEM LINES

Clean the vacuum lines daily. Just before turning off the vacuum, rinse lines first with hot water–approximately one (1) quart through each high-volume line and a few ounces through each saliva ejector line. Then aspirate a few ounces of dental vacuum line cleaner through each vacuum line. SlugBuster™ vacuum line cleaner is highly recommended. Cleaner should have these qualities: non-foaming and deodorizing.

⚠ CAUTION

- Foam may cause a “Moisture in Pump Intake (Filtrols)” alert (see *SECTION VI - USER SERVICE INFO - MOISTURE IN PUMP INTAKE*). Avoid interruptions by ensuring your cleaner is truly non-foaming. Test by shaking the mixed solution. True non-foamers will be bubble-free.

Cleaning requirements will vary according to activity. After surgical procedures, aspirate a few ounces of vacuum line cleaner through the lines. For overhead plumbing, be sure to allow air to follow liquids before closing vacuum valves. Check the treatment room solids separator routinely, and clean when dirty.

SLUGBUSTER ORDERING INFORMATION

SlugBuster is a non-foaming, non-chlorinated dental vacuum line cleaner that is compatible with ALL dental vacuum systems and amalgam separators (8 pH). SlugBuster is available in powder and liquid forms, and can be ordered through any authorized Ramvac dealer.

RAMVAC PART NO.	CONTENTS
900143	Powder Starter Pack: Mixing jug, two 40-ounce containers of SlugBuster
900146	Powder Six Pack: Six 40-ounce containers of SlugBuster (makes 480 gallons of solution)
900241	Liquid Single Gallon: One gallon of SlugBuster concentrate and hand pump dispenser
900243	Liquid Starter Pack: Mixing jug, one gallon of SlugBuster concentrate and hand pump dispenser
900246	Liquid Four Pack: Four single gallons of SlugBuster concentrate and four hand pump dispensers



CHECK OIL DRIP RATE

Check the drip rate at the dripper site glass after the first week of operation, after every oil change, and every time the 1,000-hour filter maintenance displays.

NOTE: *The drip rate will vary slightly, depending on the ambient temperature and the oil temperature.*

1. Start the vacuum and run for at least 10 minutes.
2. Look through the sight glass on the bottom of the drippers for drips of oil *(FIGURE 44)*.
3. Count the number of drips of oil per minute in each site glass. Drip rate should be one to three drops per minute at each dripper when the vacuum unit is thoroughly warmed up, the vacuum setting is 7" to 7.5" Hg, and ambient temperature is 70°F to 75°F.
4. If the drip rate does not meet specifications, contact a Ramvac technical service representative at 866-DTE-INFO.

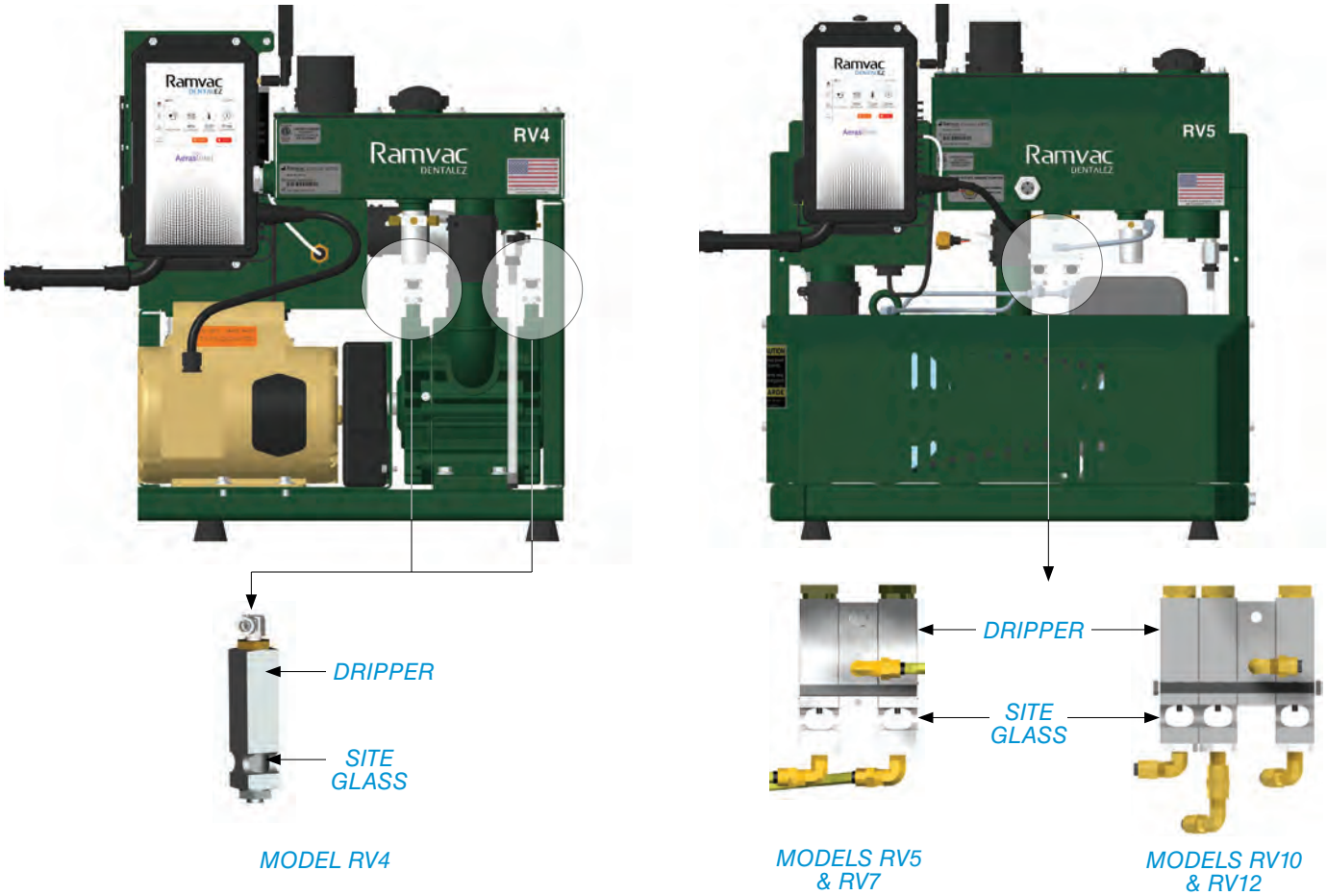


FIGURE 44. COUNT OIL DROPS AT SITE GLASS

CHECK/REPLACE AIR FILTERS

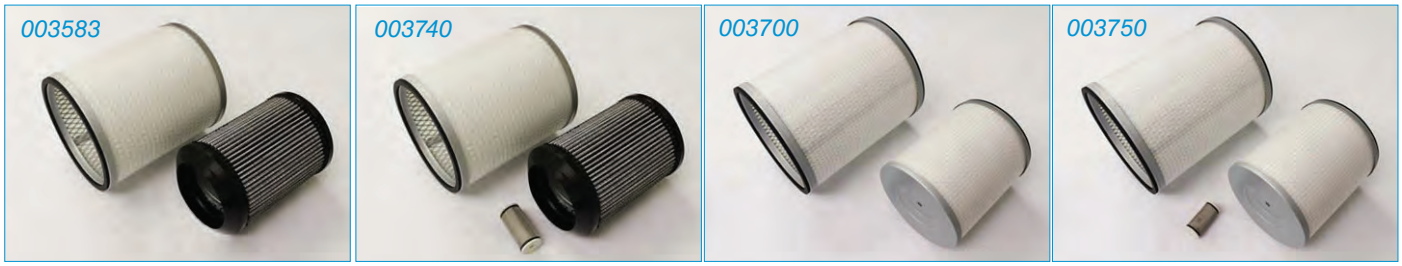
Filter life depends on vacuum usage, nature of environment, and amount of aspirated material. Inspect air filters every 6 months or 1,000 hours. Replace filters every 2,000 hours or when dirt is visible.

NOTE: *The use of personal protective equipment (gloves) is recommended when handling used air filters.*

FILTER SET ORDERING INFORMATION

Vacuum filter sets can be ordered through any authorized Ramvac dealer.

RAMVAC PART NO.	CONTENTS
003583	Model RV4 5mp Air Filter Set: 1 vacuum controller 5mp air filter; 1 main 5mp air filter
003740	Model RV4 Service Filter Set: 1 vacuum controller 5mp air filter; 1 main 5mp air filter; 1 oil filter element
003700	Models RV5, RV7, RV10 and RV12 5mp Air Filter Set: 1 vacuum controller 5mp air filter; 1 main 5mp air filter
003750	Models RV5, RV7, RV10 and RV12 Service Filter Set: 1 vacuum controller 5mp air filter; 1 main 5mp air filter; 1 oil filter element



1. On the control panel LCD display, go to the Technical screen. Press *MAINTENANCE MODE (FIGURE 45)*.

   NOTE: *Turning on maintenance mode disables remote switching and puts the system in standby mode.*

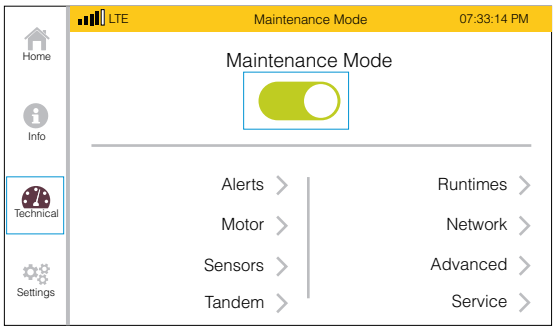


FIGURE 45. ENABLE MAINTENANCE MODE

2. To replace the CONTROLLER air filter (all models):

   a. Remove the retaining nut from the top of the contoller air filter *(FIGURE 46)*.

   b. Lift the controller air filter over the teepee and discard.

   c. Replace with new controller air filter.

   e. Re-attach retaining nut.

3. To replace the MAIN air filter:

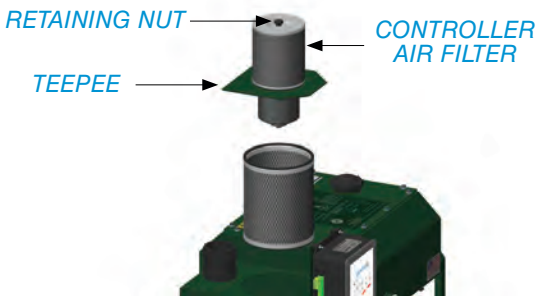


FIGURE 46. REPLACE CONTROLLER AIR FILTER

CHECK/REPLACE AIR FILTERS (CONTINUED)

a. Without removing any bolts or nuts, lift the vacuum controller off the vacuum pump.

b. Remove main air filter:

- Models RV5, RV7, RV10 and RV12 – Lift the main air filter straight out of the filtrols and discard *(FIGURE 47A)*.
- Model RV4 – Slide the main air filter to the access hole; lift filter out of the filtrols and discard *(FIGURE 47B)*.

c. Replace with new main air filter.

d. Place vacuum controller into filtrols.

4. If the main air filter and/or controller air filter was not replaced, then skip to Step 11.

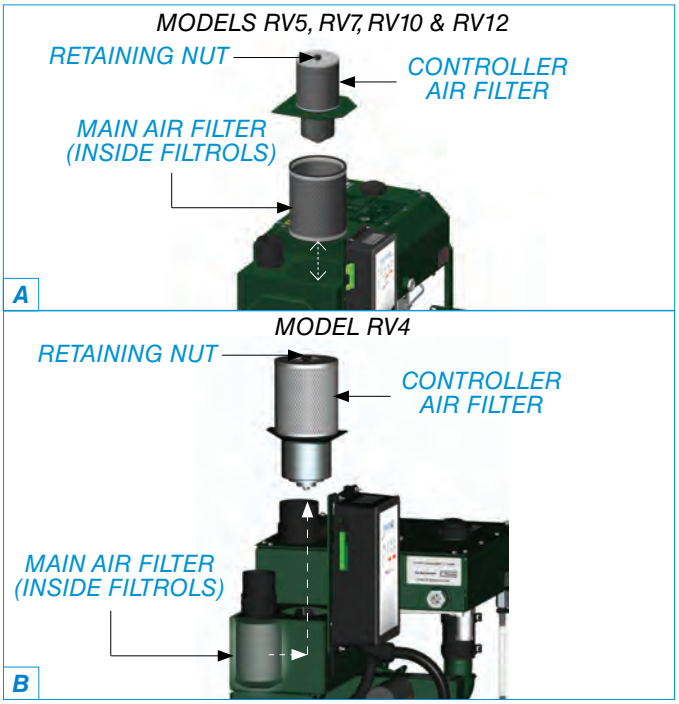


FIGURE 47. REPLACE MAIN AIR FILTER

5. If the main air filter and/or controller air filter was replaced, then reset runtimes for *MAIN AIR FILTER* and *CONTROLLER AIR FILTER*.

6. On the Technical screen press *SERVICE > (FIGURE 48)*.

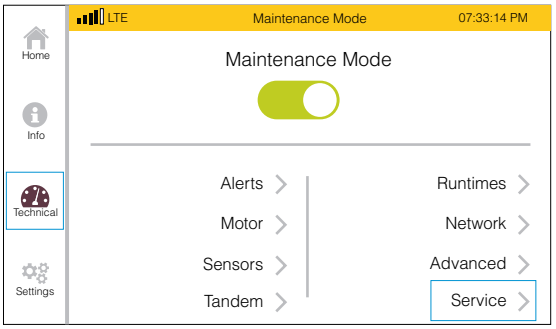


FIGURE 48. PRESS SERVICE >

7. On the Service screen, press *MAIN AIR FILTER (FIGURE 49)*.

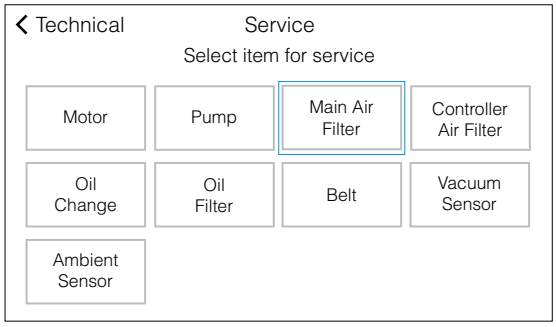


FIGURE 49. PRESS MAIN AIR FILTER

8. On the Main Air Filter screen, press *REPLACE*. Press *OK* on the pop-up dialogue box *(FIGURE 50)*.

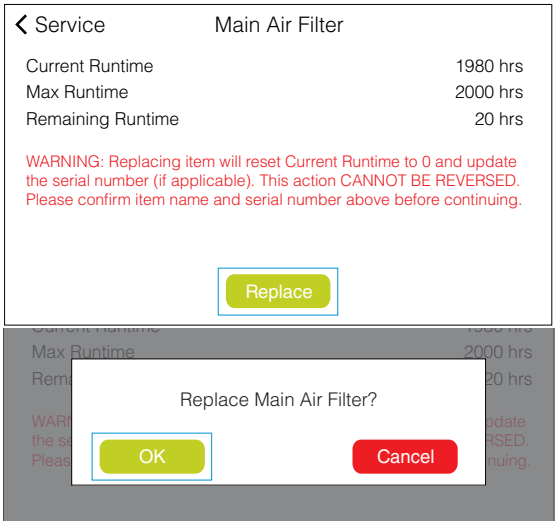


FIGURE 50. PRESS REPLACE; OK

CHECK/REPLACE AIR FILTERS (CONTINUED)

9. On the Service screen, press *CONTROLLER AIR FILTER (FIGURE 51)*.

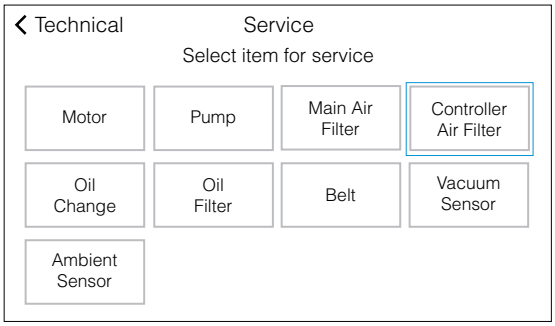


FIGURE 51. PRESS CONTROLLER AIR FILTER

10. On the Controller Air Filter screen, press *REPLACE*. Press OK on the pop-up dialogue box *(FIGURE 52)*.

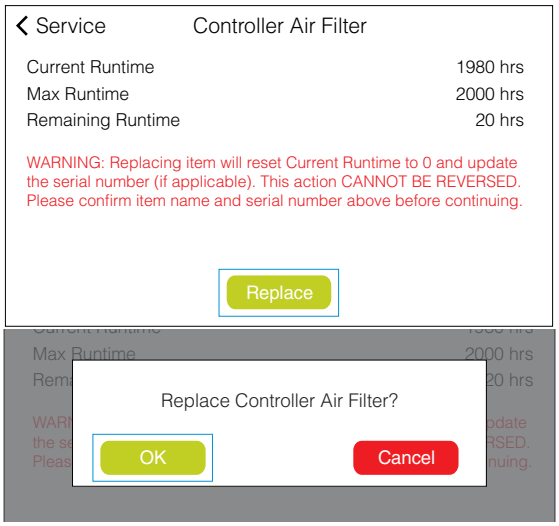


FIGURE 52. PRESS REPLACE; OK

11. On the Technical screen, press and disable *MAINTENANCE MODE*. Press *NO* on the pop-up dialogue box *(FIGURE 53)*.

***NOTE:** Turning OFF maintenance mode enables remote switching, but does not return the system to ON mode.*

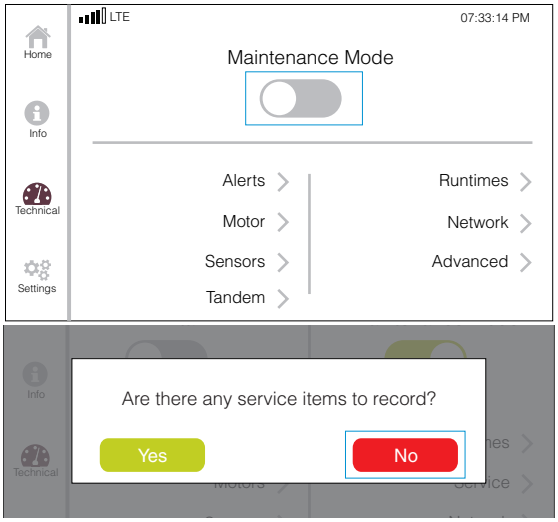


FIGURE 53. DISABLE MAINTENANCE MODE

12. On the Home screen, press *STANDBY* to turn the system back ON *(FIGURE 54)*.

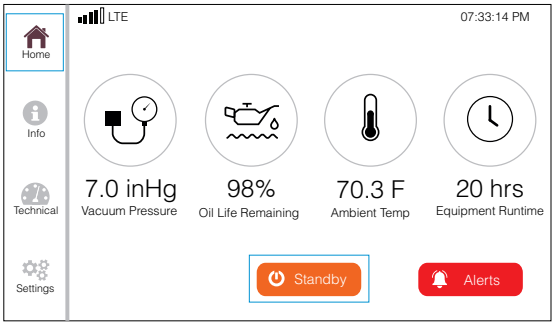


FIGURE 54. PRESS STANDBY

CHANGE OIL

Change oil annually or every 2,000 hours.

NOTE: *The use of personal protective equipment (gloves) is recommended when handling used oil.*

1. Operate the vacuum pump until the oil reservoir is warm to the touch, then turn the vacuum pump OFF.
2. On the control panel LCD display, go to the Technical screen. Press and enable *MAINTENANCE MODE (FIGURE 55)*.

   NOTE: *Turning on maintenance mode disables remote switching and puts the system in standby mode.*

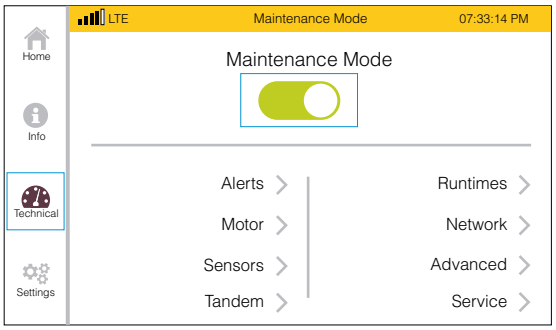


FIGURE 55. ENABLE MAINTENANCE MODE

3. Drain used oil.
   - Place an empty oil container (minimum six quarts) under oil drain tube *(FIGURE 56)*.

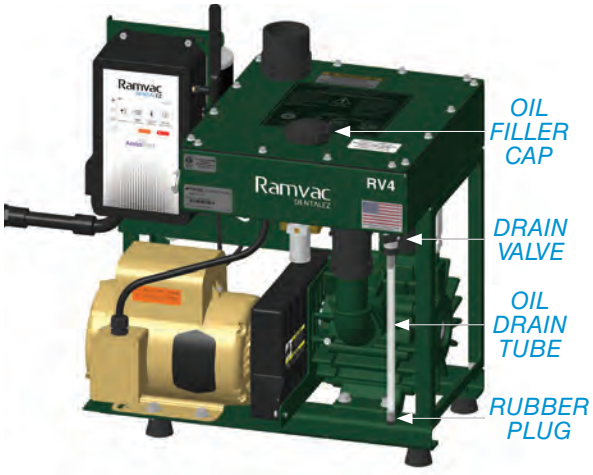


FIGURE 56. DRAIN USED OIL; ADD FRESH OIL

   - Remove oil filler cap.
   - Remove rubber plug and open drain valve. When oil stops draining, close valve and replace rubber plug.
   - If drained oil contains any water, contact dealer or Ramvac technical support at 866-DTE-INFO.
4. Add fresh oil.
   - Use only recommended oil, available from dealer or Ramvac.
   - Add oil. See chart for quantity.

MODEL NO.	NO. OF QUARTS USED
RV4	3
RV5	5
RV7	5
RV10	5
RV12	5



RAMVAC VACUUM PUMP OIL CASE (6 QTS)
ORDER PART NO. 7809-001

   - Check oil fill level at sight glass and add or drain oil accordingly *(FIGURE 57)*.
   - Securely install oil filler cap.



FIGURE 57. CHECK OIL LEVEL AT SIGHT GLASS

5. Check oil drip rate. Refer to *CHECK OIL DRIP RATE* section of this manual.
6. Dispose of used oil at a gas station or lubricant recycling station.

CHANGE OIL (CONTINUED)

7. Reset runtime for oil change.

8. On the Technical screen, press *SERVICE >* *(FIGURE 58)*.

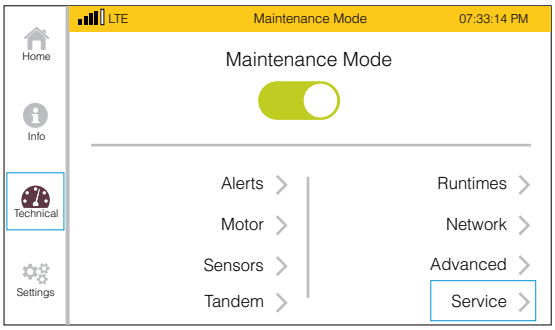


FIGURE 58. PRESS SERVICE >

9. On the Service screen, press *OIL CHANGE* *(FIGURE 59)*.

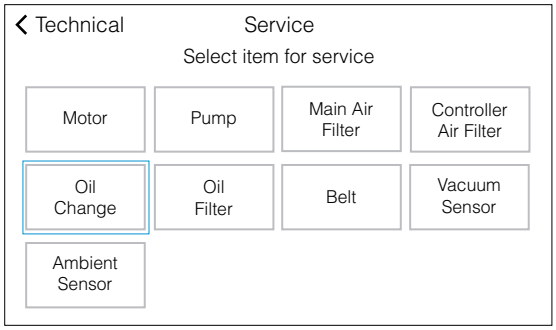


FIGURE 59. PRESS OIL CHANGE

10. On the Oil Change screen, press *REPLACE*. Press *OK* on the pop-up dialogue box *(FIGURE 60)*.

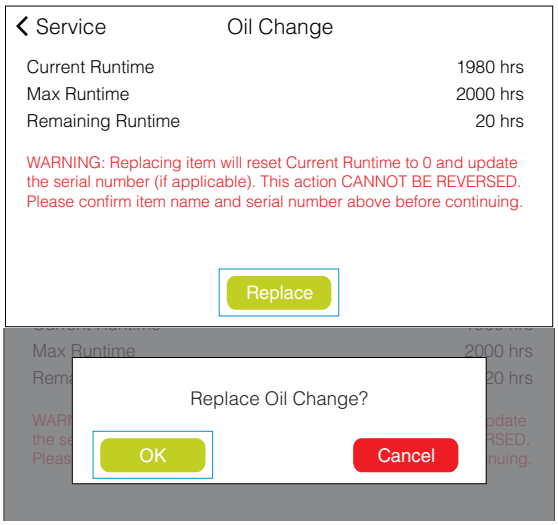


FIGURE 60. PRESS REPLACE; OK

11. On the Technical screen, press and disable *MAINTENANCE MODE*. Press *NO* on the pop-up dialogue box *(FIGURE 61)*.

NOTE: *Turning OFF maintenance mode enables remote switching, but does not return the system to ON mode.*

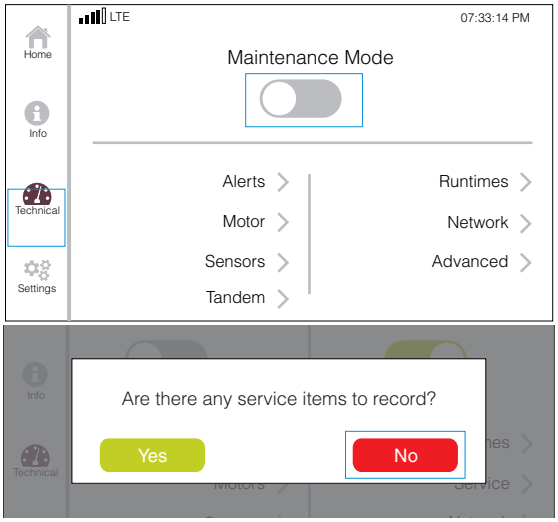


FIGURE 61. DISABLE MAINTENANCE MODE

12. On the Home screen, press *STANDBY* to turn the system ON *(FIGURE 62)*.

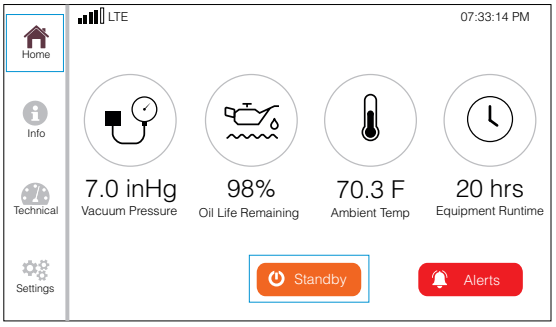


FIGURE 62. PRESS STANDBY

CHECK/REPLACE OIL FILTER ELEMENT

Check oil filter element annually or every 2,000 hours. Replace oil filter element if dirty.

1. On the control panel LCD display, go to the Technical screen. Press and enable *MAINTENANCE MODE (FIGURE 63)*.

   NOTE: *Turning on maintenance mode disables remote switching and puts the system in standby mode.*

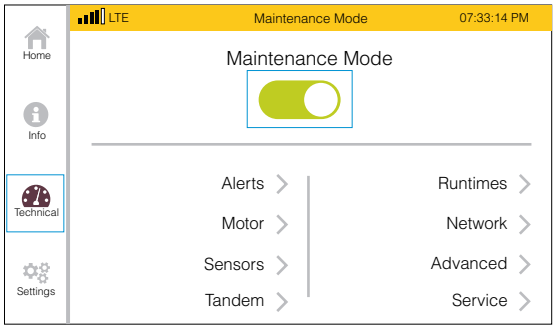


FIGURE 63. ENABLE MAINTENANCE MODE

2. Unscrew oil filter assembly and remove filter element *(FIGURE 64)*.

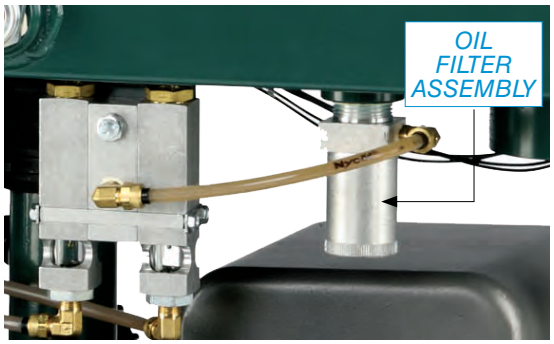


FIGURE 64. UNSCREW & REMOVE OIL FILTER ASSEMBLY; REMOVE ELEMENT

3. If element is dirty, replace with new oil filter element.
4. Reassemble oil filter; hand tighten only.
5. If oil filter element was not replaced, then skip to Step 10.
6. If oil filter element was replaced, then reset runtime for oil filter.
7. On the Technical screen, press *SERVICE > (FIGURE 65)*.

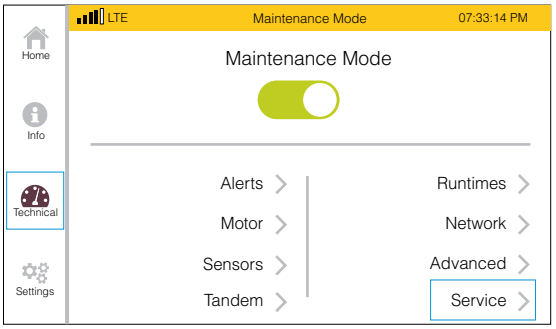


FIGURE 65. PRESS SERVICE

8. On the Service screen, press *OIL FILTER (FIGURE 66)*.

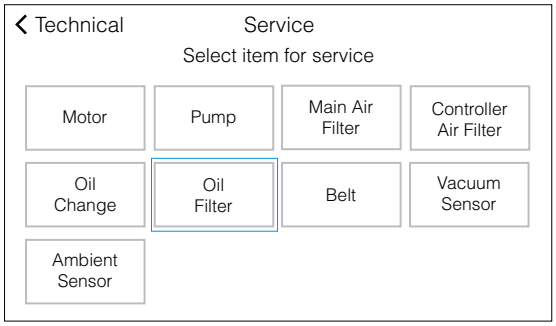


FIGURE 66. PRESS OIL FILTER

9. On the Oil Filter screen, press *REPLACE*. Press *OK* on the pop-up dialogue box *(FIGURE 67)*.

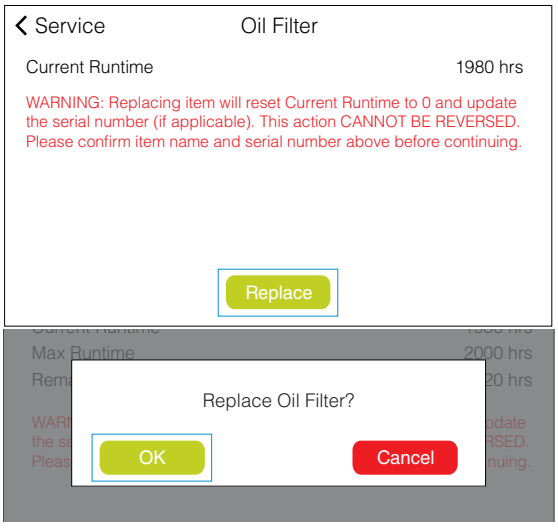


FIGURE 67. PRESS REPLACE; OK

CHECK/REPLACE OIL FILTER ELEMENT (CONTINUED)

10. On the Technical screen, press and disable *MAINTENANCE MODE*. Press *NO* on the pop-up dialogue box *(FIGURE 68)*.

    NOTE: *Turning OFF maintenance mode enables remote switching, but does not return the system to ON mode.*

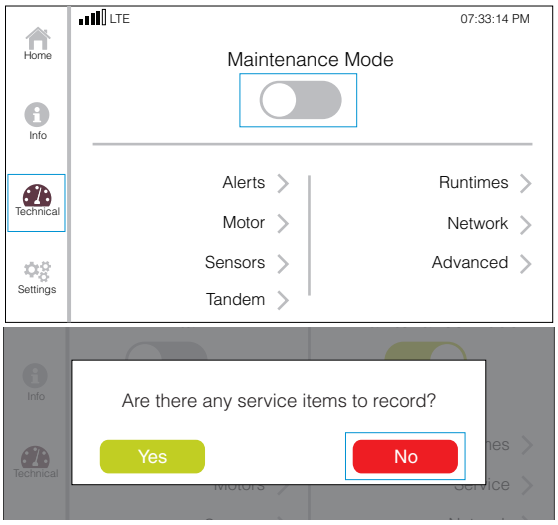


FIGURE 68. DISABLE MAINTENANCE MODE

11. On the Home screen, press *STANDBY* to turn the system ON *(FIGURE 69)*.

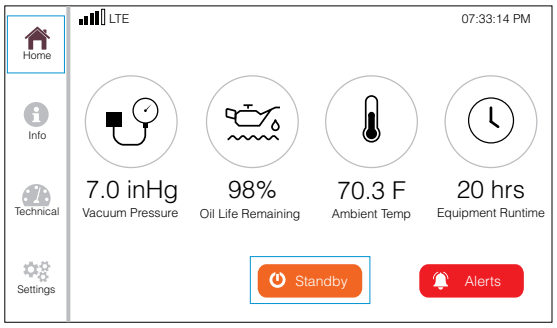


FIGURE 69. PRESS STANDBY

CHECK/REPLACE V-BELT

Inspect V-belt for wear every 2,000 hours. Replace V-belt if frayed or cracked.

V-belt tension will not normally need adjustment; however, tension will need adjustment if belt squeaks at start-up. Contact Ramvac technical support for information.

1. On the control panel LCD display, go to the Technical screen. Press and enable *MAINTENANCE MODE (FIGURE 70)*.

   NOTE: *Turning on maintenance mode disables remote switching and puts the system in standby mode.*

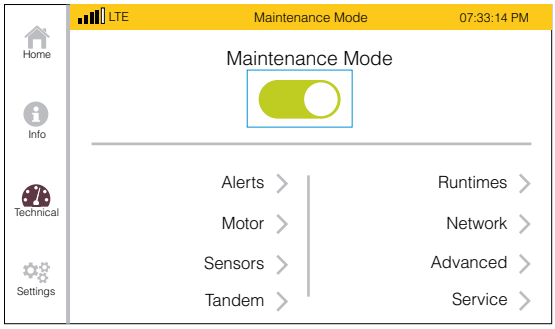


FIGURE 70. ENABLE MAINTENANCE MODE

2. Disconnect power at disconnect box or breaker.
3. Remove belt cover screw(s), then remove belt cover.
4. Inspect belts for frays or cracks. If belts need to be replaced, see *BELT REPLACEMENT, ALIGNMENT AND TENSIONING SERVICE INSTRUCTIONS* (1007DOC) for complete installation instructions.
5. Re-attach belt cover with screw(s).
6. Restore mains power.
7. If belts were not replaced, then skip to Step 12.
8. If belts were replaced, then reset runtime for belt.
9. On the Technical screen, press *SERVICE > (FIGURE 71)*.

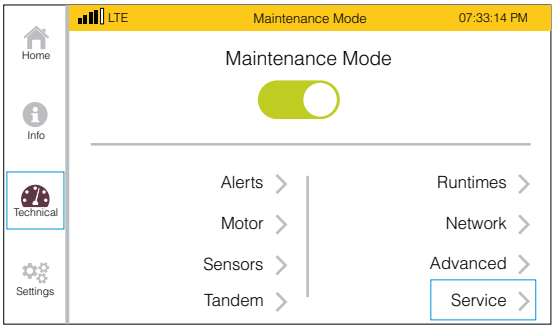


FIGURE 71. PRESS SERVICE

10. On the Service screen, press *BELT (FIGURE 72)*.

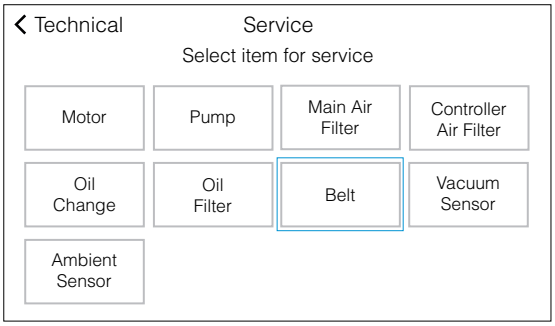


FIGURE 72. PRESS BELT

11. On the Belt screen, press *REPLACE*. Press *OK* on the pop-up dialogue box *(FIGURE 73)*.

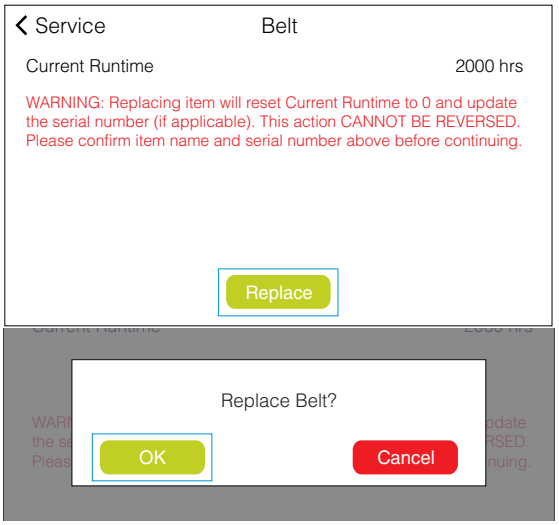


FIGURE 73. PRESS REPLACE; OK

CHECK/REPLACE V-BELT (CONTINUED)

12. On the Technical screen, press and disable *MAINTENANCE MODE*. Press *NO* on the pop-up dialogue box *(FIGURE 74)*.

    NOTE: *Turning OFF maintenance mode enables remote switching, but does not return the system to ON mode.*

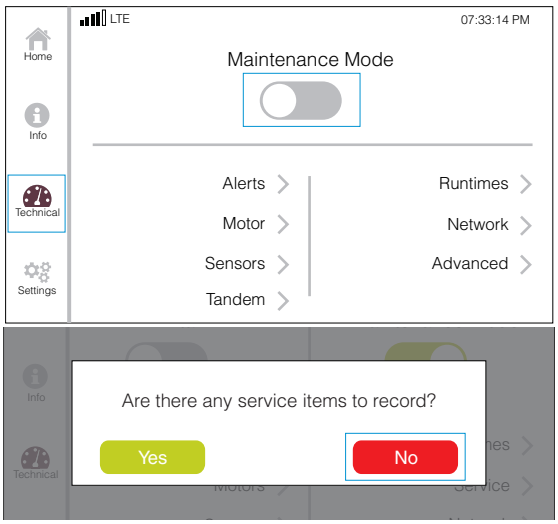


FIGURE 74. DISABLE MAINTENANCE MODE

13. On the Home screen, press *STANDBY* to turn the system ON *(FIGURE 75)*.

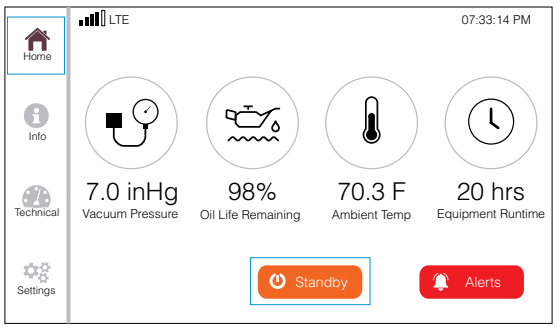


FIGURE 75. PRESS STANDBY

V-BELT ORDERING INFORMATION

Ramvac V-belts can be ordered through any authorized Ramvac dealer.

RAMVAC PART NO.	VACUUM MODEL	NO. OF BELTS REQUIRED
002027SP	RV4	1
002163SP	RV5	2
002164SP	RV7	2
002360SP	RV10	2
002163SP	RV12	2



002027SP



002163SP



002164SP



002360SP

INSPECT S-TYPE EXHAUST FILTER

The S-type exhaust filter is standard on the RV10 and RV12 models and optional on RV4, RV5 and RV7 models. Inspect filter element every 2,000 hours.

Elements can be expected to last 5 to 10 years if oil is uncontaminated by liquids and particles. Unusually dusty environments, aspriating unusual quantities of air abrasives or other particulates, or pump flooding can dramatically shorten the service life of the element. Failure to maintain filter element can increase amperage and possibly trip motor overload.

INSPECT FILTER ELEMENT

1. Loosen band and remove cover, then remove bolt to inspect inside surface for dirt build-up *(FIGURE 76)*.
2. Replace filter element when dirt is visible on inside surface.

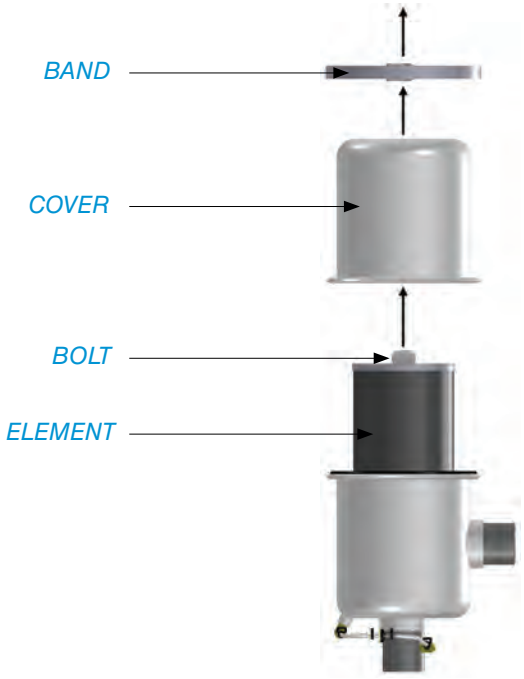


FIGURE 76. S-TYPE EXHAUST FILTER PARTS

MOISTURE IN PUMP INTAKE (FILTROLS)

Moisture in the pump intake (filtrols) is not normal. This fault occurs if liquid or foam is present in the pump intake (normally a dry location).

TO AVOID MOISTURE IN PUMP INTAKE

1. Aspirate only non-foaming substances. Be sure to check vacuum line cleaners (even those that say “non-foaming”) by shaking a mixture in a glass container. Do not aspirate cold disinfecting solutions and ultrasonic solutions.
2. Rinse lines with a known quantity of water.
3. Do not exceed your separating tank’s capacity.

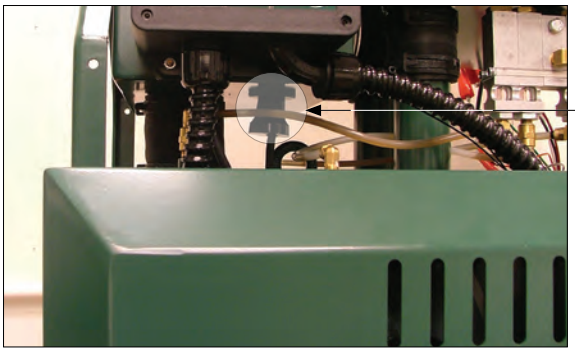
TO CORRECT MOISTURE IN PUMP INTAKE

⚠ WARNING

☣ Prior to performing any maintenance, proper precautions should be taken to reduce the possibility of contact with infectious substances.

1. ALWAYS determine and correct the cause of a moisture in pump intake alert. Trying to operate the vacuum while there is moisture in pump intake can damage equipment and void the warranty.
2. Clear the moisture:
   a. Allow the separating tank to drain.
   b. Lift off the vacuum controller and remove main air filter. Clean out any remaining moisture.
   c. Remove moisture sensor (by twisting and pulling down) and dry the contacts *(FIGURE 77)*.
   d. Install moisture sensor, main air filter and vacuum controller.

MODELS RV5, RV7, RV10 AND RV12



MOISTURE SENSOR

MODEL RV4

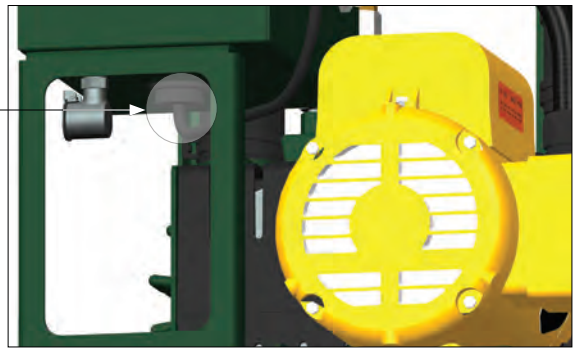


FIGURE 77. MOISTURE SENSORS

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Low or No Vacuum (Motor Running Okay)	Tank Drain Valve Blocked Open	Clean Tank Drain Valve
	Clogged Vacuum Line	Locate and Remove Clog
	Filtrols Check Valve Not Sealing	Repair or Replace Check Valve
	Vacuum Leaks	Locate and Repair Leaks
	Loose or Broken Drive Belt	Tighten or Replace Belt
	Stuck Vanes	Clean and Lubricate Vanes
Motor Does Not Run	Tripped Breaker or Fuse	Reset Breaker/Replace Fuse
	Tripped Motor Overload	Reset Motor Overhead
	Motor Failure	Replace Motor
	Failed Control Component	Bypass, then Replace Failed Component
	Fault Condition	See Appropriate Fault Condition
Drip Rate Slow	Low Ambient Temperature	Raise Ambient Temperature
	Dirty Oil Filter	Clean Filter
	Improper Oil	Change to Recommended Oil
Drip Rate Fast	High Ambient Temperature	Lower Ambient Temperature
	High Vacuum Pressure	Lower Vacuum Pressure
	Improper Oil	Change to Recommended Oil
Oil Comes Out of Exhaust	Incorrect Exhaust Installation	Correct Installation
	Oil Reserve Overfill	Lower Oil Level
	Bypassed Moisture Fault	See Filtrols in Moisture Fault
Moisture in Filtrols	Separating Tank Overfilled	Drain Separating Tank
	Separating Tank Drain Valve Stuck	Clean Separating Tank Drain Valve
	Foaming Line Cleaner Used	Use SlugBuster Line Cleaner
	Cold Sterilization Solution Aspirated	Aspriate only Non-foaming Substances
Water in Exhaust	Water Entered from Exhaust Pipe (No Moisture in Filtrols)	Drain Water from Oil Correct Exhaust Pipe Installation
	Water Entered from Filtrols Side (System was Run in Bypass)	See Fault Response and Avoidance
Maintenenace Alert	Preventive Maintenance Due	Perform Preventive Maintenance

SERVICE INSTRUCTION

If the area of concern is not addressed in this manual, contact DENTALEZ customer service at 866-DTE-INFO. (See *LIMITED WARRANTY*.)

Please have the following product information available. Information may be found on the product model/serial number label on the vacuum *(FIGURE 78)*:

Product Name:
Model Number:
Serial Number:
Date of Installation:
Dealer:



FIGURE 78. MODEL/SERIAL NUMBER LABEL ON THE VACUUM UNIT

DISPOSAL OF EQUIPMENT

DISPOSAL AND DECOMMISSIONING OF DENTALEZ PRODUCTS

NOTE: *All local regulatory requirements for disposal and decommissioning of equipment apply.*

- *ELECTRICAL SALVAGE:* Remove all circuit board and electrical cabling for recycle as electrical salvage.
- *METAL SALVAGE:* Remove all aluminum and steel components for recycle as metal salvage.
- *PLASTIC SALVAGE:* Remove all plastic components for recycle as plastic salvage.
- *BIOLOGICALLY CONTAMINATED SALVAGE:* Cuspidor, waste lines from the cuspidor, and the oral extraction lines should be handled with precaution and disposed of appropriately.
- *NON-SALVAGE COMPONENTS:* All other material unsuitable for recycling should be disposed of properly.

For specific questions regarding material type, contact DENTALEZ customer service. For decommissioning information on associated equipment from other manufacturers, refer to the documentation from the manufacturer.

GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC EMISSIONS		
The vacuum unit is intended for use in the electromagnetic environment specified below. The customer or the user of the vacuum should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF Emissions CISPR 11	Group 1	The vacuum uses RF energy only for its internal function; therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The vacuum is suitable for use in all establishments, other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Not Applicable	
Voltage Fluctuations/ Flicker Emissions IEC 61000-3-3	Not Applicable	

GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC IMMUNITY ALL ME EQUIPMENT AND ME SYSTEMS			
The vacuum unit is intended for use in the electromagnetic environment specified below. The customer or the end user of the vacuum should assure that it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV Contact ±8 kV Air	±2 kV Contact ±4 kV Air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical Fast Transient/Burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±0.5 kV for power supply lines Not applicable for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips, Short Interruptions and Voltage Variations on Power Supply Input Lines IEC 61000-4-11	<5% Ut; (>95% dip in Ut) for 0.5 cycle 40% Ut; (60% dip in Ut) for 5 cycles 70% Ut; (30% dip in Ut) for 25 cycles <5% Ut; (>95% dip in Ut) for 5 seconds	<5% Ut; (>95% dip in Ut) for 0.5 cycle 40% Ut; (60% dip in Ut) for 5 cycles 70% Ut; (30% dip in Ut) for 25 cycles <5% Ut; (>95% dip in Ut) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the equipment or system requires continued operation during power mains interruptions, it is recommended that the equipment or system be powered from an uninterruptible power supply or a battery.
Power Frequency (50/60 Hz) Magnetic Field IEC 61000-4-8	3 A/m	Not Applicable	Power frequency magnetic fields should that of a typical commercial or hospital environment.
NOTE: Ut is the AC mains voltage prior to application of the test level.			

GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC IMMUNITY
ME EQUIPMENT AND ME SYSTEMS

The vacuum unit is intended for use in the electromagnetic environment specified below. The customer or the user of the vacuum should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150kHz to 80 MHz	Does Not Comply	Portable and mobile RF communications equipment should be used no closer to any part of the vacuum, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in meters (m). Field strengths from fixed RF transmitter, as determined by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b]. Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	Does Not Comply	

NOTE 1: At 80 MHz and 800 MHz, higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the equipment or system is used exceeds the applicable RF compliance level above, the equipment or system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the equipment or system.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Ramvac

RECOMMENDED SEPARATION DISTANCE BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE VACUUM UNIT

The vacuum unit is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the vacuum can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the vacuum as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	$d = 1.2 \sqrt{P}$	$d = 1.2 \sqrt{P}$	$d = 2.3 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Test Frequency (MHz)	Band [a] (MHz)	Service [a]	Modulation [b]	Maximum Power (W)	Distance (m)	Immunity Test Level (V/m)
385	380 - 390	TETRA 400	Pulse Modulation [b] 18 Hz	1.8	0.3	27
450	430 - 470	GMRS 460, FRS 460	FM [c] ± 5 kHz Deviation 1 kHz sine	2	0.3	28
710	704 - 787	LTE Band 13, 17	Pulse Modulation [b] 217 Hz	0.2	0.3	9
745						
780						
810	800 - 960	GSM 800/900, TETRA 800, IDEN 820, CDMA 850, LTE Band 5	Pulse Modulation [b] 18 Hz	2	0.3	28
870						
930						
1,720	1,700 - 1,990	GSM 1,800, CDMA 1,900, GSM 1,900, DECT, LTE Band 1, 3, 4, 25, UMTS	Pulse Modulation [b] 217 Hz	2	0.3	28
1,845						
1,970						
2,450	2,400 - 2,570	Blue-tooth, WLAN, 802.11 b/g/n, RFID 2,450 LTE Band 7	Pulse Modulation [b] 217 Hz	2	0.3	28
5,240	5,100 - 5,800	WLAN 802.11 a/n	Pulse Modulation [b] 217 Hz	0.2	0.3	9
5,500						
5,785						

DENTALEZ

NOTES:

LIMITED WARRANTY

DRY VACUUM FROM RAMVAC®

DENTALEZ® and its employees are proud of the products we provide to the dental community. We stand behind these products with a warranty against defects in material and workmanship as provided below and have our own in-house repair facility to service our products. In the event that you experience difficulty with the application or operation of any of our products, please contact our technical service department at our expense at (866) DTE-INFO.

If we cannot resolve the issue by telephone, we will arrange for a representative to contact you or suggest that the product be returned to our factory for inspection.

If product return or repair is required, we will provide you with a **Return Authorization** number and shipping instructions to return the product to the proper facility. If the product is under warranty, we will ask you to provide proof of purchase such as a copy of your invoice. Please be sure to include the **Return Authorization** number on the package you are returning. **Products returned without a return authorization number cannot be repaired.**

Freight costs for product returns are the responsibility of the customer. Products under warranty will be repaired or replaced, at our sole discretion, and returned at our expense. Products outside the warranty limits will be repaired and returned with costs invoiced to the customer. We are not responsible for shipping damages. We will, however, help you file a claim with the freight carrier. Written repair estimates are available.

DENTALEZ warrants all equipment and parts to be free of defects in material and workmanship, under normal usage under the following terms:

Ramvac	Limited Warranty Period*
Dry Vacuums	5 Years from date of installation
Rotary Vane Pumps	10 Years from date of installation

Please note the following additional terms of our warranty and return policy:

- This warranty covers manufacturing defects only and does not cover defects resulting from abuse, accidents, misuse, improper handling, cleaning, care or maintenance. Damage resulting from the use of chemicals, cleaners, disinfectants or sterilization is not covered under this warranty nor is normal wear and tear. Failure to follow or observe our operating/use, maintenance and/or installation instructions voids this warranty as does the use of non-authorized parts and repairs made by an unauthorized repair facility.
- Liability is limited to repair or replacement of the defective part(s) or products at our sole discretion. All other liabilities, in particular liability for damages, including, without limitation, special, exemplary, consequential or incidental damages are excluded.
- THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, REPRESENTATIVE OR DEALER IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR TO GRANT ANY OTHER WARRANTY.

WARRANTY REPAIRS

Parts repaired or replaced on a product that is in warranty will be warranted for the duration of that product's original warranty.

PRODUCT RETURNS

Opened products or product returns more than a year old cannot be returned for credit. There will be a 15% ($25.00 minimum) restocking charge on all items authorized for return.

NOTES:

*See individual Product Manuals for complete warranty details. Provided conditions defined in instruction manual are met.

© 2023 DENTALEZ Alabama, Inc. DENTALEZ is a registered trademark of DENTALEZ, Inc. Ramvac is a registered trademark of Ramvac Dental Products, Inc. AERAS, Inc. is a separate corporation from DENTALEZ, Inc.

DENTALEZ EQUIPMENT PRIVACY POLICY

Effective Date: November 1, 2023.

1. **Introduction and Overview.** This Privacy Policy describes how DentalEZ, Inc. its subsidiaries and affiliates (collectively "DentalEZ," "we," "our," or "us") collects, uses, and shares information about you as well as your rights and choices.

   This Privacy Policy applies to your use of the DentalEZ equipment containing the Aeras platform, or similar "smart technology" in such dental or medical equipment and any online service location that posts a link to this Privacy Policy, and all features, content, and other services that we own, control, and make available through such online service location (collectively, the "Service"). By using the Service or our DentalEZ smart equipment, you agree to our Terms of Use ("Terms") and consent to our collection, use and disclosure practices, and other activities as described in this Privacy Policy and the Terms. If you do not agree and consent, discontinue use of the Service and our equipment. If you have any questions or wish to exercise your rights and choices, please contact us as set out in the "Contact Us" section below.

2. **Information Collection.**

   A. Information You Provide.

   We collect information when you use the Service and our DentalEZ smart technology in your dental or medical equipment, including information you provide when you register an account for the Service, update your profile, access our content, test or use equipment, participate in a DentalEZ sweepstakes, contest, survey, special or promotion ("Promotion"), contact DentalEZ customer support or apply for a job with DentalEZ. We may use Service Providers (defined below) to collect information.

   You represent and warrant that you will only provide information and use the Service acting as an employee, owner, director, officer, or contractor of a company, partnership, sole proprietorship, nonprofit or other legal entity (a "Customer"), and that your communications and transactions with DentalEZ occur solely within the context of DentalEZ providing the Service or equipment to the Customer that you represent.

   Information we and our Service Providers on our behalf collect includes the following:

   - **Contact Data**, including your first and last name, email address, office address, phone number, organization name, dental profession and role.
   - **Account Credentials**, including your username, password, and information for authentication and account access.

   You may choose to voluntarily submit other information to us through the Service that we do not request, and, in such instances, you are solely responsible for such information, and we may immediately delete such information, without liability to you.

   B. Information Collected Automatically.

   In addition, we automatically collect information when you use the Service. Information we automatically collect includes the following:

   - **Service Use Data**, including data about the features you use, the pages you visit, the emails and advertisements you view, the products you purchase, the time of day you browse, and your referring and exiting pages.
   - **Device Connectivity and Configuration Data**, including data about the type of device or browser you use, your device's operating software, your internet service provider, your device's regional and language settings, and device identifiers such as IP address, MAC address, and Ad Id (e.g., IDFA or AAID).
   - **Location Data**, including imprecise location data (such as location derived from an IP address, equipment sensor or data that indicates a city or postal code level) and, with your consent, precise location data (such as latitude/longitude data).

- **Equipment Usage and Performance Data**, including performance data collected from sensors connected to the DentalEZ smart technology in your dental or medical equipment, including by not limited to when the equipment is used and for how long, what equipment functions are being used, how the equipment is running, power surges, tank pressure, voltage, oil or water level, maintenance alert, service history, pump intake, runtime and vacuum efficiency, and other kinds of equipment performance data.

We use various tracking technologies to automatically collect information and other data, including the following:

- **Log Files**, which are files that record events that occur in connection with your use of the Service.
- **Cookies**, which are small data files stored on your device that act as a unique tag to identify your browser. We use two types of cookies: session cookies and persistent cookies. Session cookies make it easier for you to navigate our website and expire when you close your browser. Persistent cookies help with personalizing your experience, remembering your preferences, and supporting security features. Additionally, persistent cookies allow us to bring you advertising both on and off the Service. Persistent cookies may remain on your device for extended periods of time, and generally may be controlled through your browser settings.
- **Pixels** (also known as web beacons), which is code embedded in a website, video, email, or advertisement that sends information about your use to a server. There are various types of pixels, including image pixels (which are small graphic images) and JavaScript pixels (which contains JavaScript code). When you access a website, video, email, or advertisement that contains a pixel, the pixel may permit us or a third party to drop or read cookies on your browser. Pixels are used in combination with cookies to track activity by a particular browser on a particular device. We may incorporate pixels from other parties that allow us to track our conversions, bring you advertising both on and off the Service, and provide you with additional functionality, such as the ability to connect our Service with your social media account.
- **Location-Identifying Technologies**, which are technologies used to collect your location. For example, GPS, WiFi, and Bluetooth may be used to collect precise location data. Location data may be used for purposes such as verifying your device's location.

Some information about your use of the Service and other parties' services may be collected using tracking technologies across time and services and used by us and other parties for purposes such as to associate different devices you use, and deliver relevant ads and/or other content to you on the Service and other services.

For further information on tracking technologies and your rights and choices regarding them, see the "Your Rights and Choices" section below.

C. Information from Other Sources.

We also collect information from other sources. To the extent we combine third party sourced information with information we have collected through the Service, we will treat the combined information in accordance with the practices described in this Privacy Policy, plus any additional restrictions imposed by the source of the data. These sources vary over time, but have included:

- **Dealers and/or Service Providers** that sell or provide our equipment to dental offices and you on behalf of your employer.
- **Publicly available sources**, including data in the public domain.

3. Use of Information.

We use information we collect for legitimate business purposes in accordance with the practices described in this Privacy Policy, including to:

- Manage our Service, including registration of your account, provision of access to product literature, and provision of dental equipment with smart technology to manage and monitor the equipment.
- Perform services requested by you, such as scheduling equipment testing and repairs.
- Respond to your comments, questions, requests, and provide customer service.

- Send you technical notices, updates, security alerts, information regarding changes to our policies, and administrative messages.
- Prevent and address fraud, breach of policies or terms, and threats or harm.
- Monitor and analyze trends, usage, activities and failure analysis.
- For research and analysis purposes, including to improve the Service and other DentalEZ websites, marketing efforts, products, equipment and services, and to develop and create new products, equipment and services.
- Develop and send you direct marketing, including advertisements and communications about our and other party's such as our dealers' products, offers, promotions, events, and services.
- Fulfill any other purpose disclosed to you or with your consent.

We may use information we collect to create data and data sets that are not identifiable to you or any individual by aggregating data and/or de-identifying data ("Aggregated Data"). We may use Aggregated Data for any purpose except as prohibited by applicable law. For more information on your rights and choices regarding how we use information about you, please see the "Your Rights and Choices" section below.

1. Sharing of Information.

We share information we collect, including as follows:

- **Service Providers.** We share information with our agents, vendors, dealers, and various other service providers (collectively "Service Providers") in connection with their work on our behalf. Service Providers assist us with services such as payment processing, data analytics, marketing and advertising, website hosting, and technical support to DentalEZ and to you. Service Providers are prohibited from using information about you for any purpose other than to provide this assistance, although we may permit them to use information that does not identify you (including information that has been aggregated or de-identified and equipment performance data) for any purpose except as prohibited by applicable law.
- **Dealers.** We share information with dealers who sell dental or medical equipment and our products , including to enable Dealers to manage and honor Customer equipment warranties, provide repair services to our Customers, and to advertise their services to you.
- **Affiliates.** We may share information with our related entities including our affiliates and related companies. Our Affiliates may use this information to help us provide our Services and equipment and for their own business purposes. For example, we share information with our affiliates who help us manufacture and distribute the DentalEZ smart technology in dental or medical equipment. Our affiliates may also use the information to develop or enhance their own products and services and to promote their own products and services to you.
- **Business Partners.** We may enter into relationships with third party business partners where we license or otherwise disclose data to them to use for their own business purposes. For example, we may license data regarding equipment performance, wear and maintenance to third party equipment manufacturers.
- **Merger or Acquisition.** We may share information in connection with, or during negotiations of, any proposed or actual merger, purchase, sale or any other type of acquisition or business combination of all or any portion of our assets, or transfer of all or a portion of our business to another business.
- **Security and Compelled Disclosure.** We may share information to comply with the law or other legal process, and where required, in response to lawful requests by public authorities, including to meet national security or law enforcement requirements. We also share information in accordance with the applicable laws in order to protect the rights, property, life, health, security and safety of DentalEZ, DentalEZ personnel, the Service or any third party.
- **Consent.** We may share information to fulfill any other purpose disclosed to you or with your consent.

Notwithstanding the above, we may share information that does not identify you (including information that has been aggregated or de-identified and equipment performance data) with third parties except as prohibited by applicable law. For information on your rights and choices regarding how we share information about you, please see the "Your Rights and Choices" section below.

2. Your Rights and Choices.

A. Account Information.

You may access or update certain information that you have provided to us through your account by visiting your account settings or sending an email to the email address set out in the "Contact Us" section below or by contacting your dealer directly. We may require additional information from you to allow us to confirm your identity. Please note that we will retain and use information about you as necessary to provide the Service, comply with our legal obligations, resolve disputes, and enforce our agreements.

B. Tracking Technology Choices.

- **Cookies and Pixels.** Most browsers accept cookies by default. You can instruct your browser, by changing its settings, to decline or delete cookies. If you use multiple browsers on your device, you will need to instruct each browser separately. Your ability to limit cookies is subject to your browser settings and limitations.
- **Do Not Track.** Your browser settings may allow you to automatically transmit a "Do Not Track" signal to online services you visit. Note, however, there is no industry consensus as to what site operators should do with regard to these signals. Accordingly, unless and until the law is interpreted to require us to do so, we do not monitor or take action with respect to "Do Not Track" signals or other mechanisms. For more information on "Do Not Track," visit http://www.allaboutdnt.com.

Please be aware that if you disable or remove tracking technologies some parts of the Service may not function correctly.

C. Analytics.

Our Service contains tracking technologies owned and operated by other parties. For example, we use tracking technologies from analytics providers to help us analyze your use of the Service, compile statistic reports on the Service's activity, and provide us with other services relating to Service activity and internet usage.

D. Communications.

- E-mails. By registering for an account to use the Service, it is implied that you consent to us sending emails to you about the Service, the status of your account and information about your equipment. As such, we may send emails to the email address you provide for transactional and promotional purposes in regard to the Service, the status of your account and your equipment. You can opt-out of receiving certain promotional emails from us at any time by following the instructions as provided in emails to click on the unsubscribe link or emailing us at the email address set out in the "Contact Us" section below with the word UNSUBSCRIBE in the subject field of the email. Please note that you cannot optout of non-promotional emails, such as those about your account, transactions, servicing, or DentalEZ's ongoing business relations.
- Text Messages. You can opt-out of receiving text messages to your phone number at any time by (i) for text messages, texting "STOP" in response to any text message you receive from us or contacting us as set out in the "Contact Us" section below and specifying you want to opt-out of text messages; and (ii) for calls, requesting opt-out during any call you receive from us or contacting us as set out in the "Contact Us" section below and specifying you want to opt-out of calls.

Please note that your opt-out is limited to the email address, phone number and device used and will not affect subsequent subscriptions.

3. Your California Privacy Rights.

Under California Civil Code Section 1798.83, also known as California's "Shine the Light" law, California residents with whom we have an established business relationship are entitled to request and receive, free of charge, once per calendar year, information about certain personal information we shared, if any, with other businesses for their own direct marketing uses in the previous calendar year. To request a copy, please contact us as set out in the "Contact Us" section below. Requests must include "California Privacy Rights Request" in the first line of the description and include your name, street address, city, state, and ZIP code. Please be aware that not all information sharing is covered by the "Shine the Light" law requirements and only information on covered sharing will be included in our response.

1. Your Canadian Privacy Rights.

If you are a resident of Canada, you may be entitled to additional rights regarding your personal information, including: (i) the right to withdraw consent to processing of your personal information where consent is the basis of processing; (ii) the right to access your personal information and certain other supplementary information, under certain conditions; (iii) the right to challenge improper processing of your personal information, under certain conditions; (iv) the right to demand that we restrict the use or disclosure of your personal information, under certain conditions, if you believe we have exceeded the legitimate basis for such use or disclosure, use or disclosure is no longer necessary, or believe your personal information is inaccurate; and (v) the right to lodge a complaint with applicable Canadian data protection authorities. If you want to learn more about your rights under Canadian law or our privacy practices, you may contact our Privacy Officer (see the “Contact Us” section below).

2. Children.

The Service is intended for a general audience and not directed to children under eighteen (18) years of age. DentalEZ does not knowingly collect personal information of children under the age of thirteen (13). If you are a parent or guardian and believe DentalEZ has collected such information in a manner not permitted by law, please contact us as set out in the “Contact Us” section below, and we will remove such data to the extent required by law.

3. Data Security.

We implement and maintain reasonable administrative, physical, and technical security safeguards to help protect information about you from loss, theft, misuse and unauthorized access, disclosure, alteration and destruction. Nevertheless, transmission via the internet is not completely secure and we cannot guarantee the security of information about you that is transmitted over the internet.

4. International Transfer.

We are based in the U.S. and the information we collect is stored and processed in the U.S. and is therefore subject to U.S. law. If you are accessing the Service from outside of the U.S., please be aware that information collected through the Service may be transferred to, processed, stored, and used in the U.S. Data protection laws in the U.S. and other jurisdictions may be different from those of your country of residence. Your use of the Service or provision of any information therefore constitutes your consent to the transfer to and from, processing, usage, sharing, and storage of information about you in the U.S. and other jurisdictions as set out in this Privacy Policy

5. Changes to this Privacy Policy.

We reserve the right to revise and reissue this Privacy Policy at any time. Any changes will be effective immediately upon posting of the revised Privacy Policy. Your continued use of our Service indicates your consent to the Privacy Policy then posted. If the changes are material, we may provide you additional notice to your email address.

6. Contact Us.

If you have any questions or comments about this Privacy Policy, our data practices, or our compliance with applicable law, please contact us:

By email:

DentalEZIOT@DentalEZ.com

By mail:

Attention: Privacy Officer
310 Lindenwood Drive, Suite 100
Malvern, PA 19355

DENTALEZ TERMS OF USE FOR EQUIPMENT WITH SMART TECHNOLOGY

Effective Date: January 1, 2025.

1. Introduction and Overview.

These Terms of Use ("Online Terms") set forth a legally binding agreement between DENTALEZ, Inc., DentalEZ Alabama, Inc., DTE Oregon, Inc., their subsidiaries and affiliates (collectively "DentalEZ", "we", "our", or "us") and the person or entity identified on the order form or other Service (as defined below) subscription purchase document ("Customer"). These Online Terms govern your access to and use of the DentalEZ "smart technology" contained in certain DentalEZ dental equipment as well as any service that posts a link to these Terms or integrates with certain DentalEZ smart technology contained in certain DentalEZ dental equipment that Customer may have purchased from us or through your local dealer, and all features, content, and other services that we own, control and make available through such online service (collectively, the "Service").

You hereby represent and warrant that you will access and use the Service acting in your capacity as an employee, owner, director, officer, or contractor of a Customer, and that your communications and transactions with DentalEZ occur solely within the context of DentalEZ providing the Service to the Customer that you represent. As such, you hereby represent and warrant that you have the authority to bind such Customer to these Online Terms (in which case "you" or "your" will refer to you and such Customer). By initiating the first use of the Service, you the User acknowledge and agree upon the entire contents of these Online Terms.

In some instances, both these Online Terms and separate terms that we make available to you through the Service or through your local dealer will apply to your use of the Service (the "Additional Terms" and collectively, with the Online Terms, the "Terms"). To the extent there is a conflict between these Online Terms and any applicable Additional Terms, the Additional Terms will control unless they expressly state otherwise.

By accessing or using the Service, you agree to these Terms, and agree to our collection, use and disclosure practices, and other activities as described in our Privacy Policy, as amended from time to time (the "Privacy Policy). If you do not agree to these Terms and our posted Privacy Policy, you must discontinue your use of the Service (and this is your sole remedy).

2. Service Use.

A. About the Service.

Subject to these Terms, the Service may enable you to register and create an Account (defined below), view certain data collected by the sensors in your DentalEZ smart technology enabled equipment, use the configuration manager software to manage your DentalEZ smart technology equipment settings, install software updates on your DentalEZ smart technology enabled equipment, manage access to the Service and communicate with DentalEZ regarding the use and operation of your DentalEZ smart technology enabled equipment. The Service is available at no charge for the first year from the date of the installation of the equipment. After the one-year period, the equipment manufacturer reserves the right to charge for the Service. You will have the option to turn off the Service at that time.

B. Content.

The Service contains: (i) materials and other items relating to DentalEZ and its products and services, and similar items from our licensors and other third parties, including all layout, information, databases, articles, posts, text, data, files, images, scripts, designs, graphics, instructions, illustrations, photographs, sounds, pictures, videos, advertising copy, URLs, technology, software, software documentation, interactive features, the "look and feel" of the Service, and the compilation, assembly, and arrangement of the materials of the Service and any and all copyrightable material; (ii) trademarks, logos, trade names, trade dress, service marks, and trade identities of various parties, including those of Aeras; and (iii) other forms of intellectual property (all of the foregoing, collectively "Content"). All right, title, and interest in and to the Service and the Content, as well as all derivative works thereof, are owned by us or our licensors or service providers, and are protected by U.S., Canadian and international copyright, trademark, trade dress, patent and/or other intellectual property and unfair competition rights and laws to the fullest extent possible.

C. Limited License.

Subject to your strict compliance with the Terms, DentalEZ grants you a limited, non-exclusive, revocable, non-assignable, personal, and non-transferable license to download, display, view, use, and play the Content on a personal computer, browser, laptop, tablet, mobile phone, or other internet enabled device (each, a "Device"), in each case for your personal, non-commercial use only. The foregoing limited license (i) does not give you any ownership of, or any other intellectual property interest in, any Content, and (ii) may be suspended or terminated

for any reason, in DentalEZ' sole discretion, and without advance notice or liability. Your unauthorized use of the Content may violate copyright, trademark, privacy, publicity, communications, and other laws, and any such use may result in your personal liability, including potential criminal liability.

D. Accounts.

Certain features of the Service may require you to register an account, including access to equipment performance data associated with your DentalEZ smart technology enabled equipment purchased directly from DentalEZ, a third-party equipment manufacturer or through your local dealer ("Account"). When registering an Account or using DentalEZ smart technology enabled equipment, you agree to: (i) provide true, accurate, current, and complete information; (ii) maintain and update this information to keep it true, accurate, current, and complete; (iii) protect your Account log-in credentials so as to prevent unauthorized access to your Account or equipment; (iv) not share your Account or log-in credentials with any third party or transfer your Account to any third party; and (v) immediately notify us of any suspected or actual unauthorized use of your Account, equipment or breach of security. Your right to access and use the Service is not transferable by you to any other third party. You are solely responsible for all activities that occur under your Account, whether or not you authorized the activity, and we are not liable for any loss or damage to you or any third party arising from your failure to comply with any of the foregoing obligations.

E. Restrictions.

You may not use the Service unless you are at least eighteen (18) years old and are fully able and competent to agree to and comply with the Terms (in their entirety). If you accept the Terms, you represent that you have the capacity to be bound by them.

You may not: (i) use the Service or Content for any political purpose; (ii) engage in any activity in connection with the Service or Content that is unlawful, harmful, offensive, sexually explicit, obscene, violent, threatening, harassing, abusive, falsely representative of your persona, invasive of someone else's privacy, or otherwise objectionable to DentalEZ; (iii) harvest or scrape any information from the Service or Content; (iv) reverse engineer or modify the Service or Content; (v) interfere with the proper operation of or any security measure used by the Service or Content; (vi) infringe any intellectual property or other right of any third party; (vii) use the Service or Content in a manner that suggests an unauthorized association or is beyond the scope of the limited license granted to you; or (viii) otherwise violate the Terms including these Online Terms and any applicable Additional Terms.

You agree to comply with all local, state, federal, national, foreign, supranational, and international laws, statutes, ordinances, regulations, treaties, directives, and agreements that apply to your use of the Service and Content.

F. Availability.

DentalEZ may suspend or terminate the availability of the Service and Content, in whole or in part, to any Account, individual user or all users, for any reason (including, a failure to pay Service subscription fees when due), in DentalEZ' sole discretion, and without advance notice or liability. Upon suspension or termination of your access to the Service, or upon notice from DentalEZ, all rights granted to you under the Terms will cease immediately, and you agree that you will immediately discontinue use of the Service and Content.

G. Reservation of Rights.

All rights not expressly granted to you are reserved by DentalEZ and its licensors and other third parties. No right or license may be construed, under any legal theory, by implication, estoppel, industry custom, or otherwise. Any unauthorized use of the Content or Service for any purpose is prohibited.

H. Data

The Service may enable the collection of data relating to Customer's use of the Service and Equipment through sensors, the Service features described in Section 7 and information that is transmitted, uploaded and/or submitted to the Service by Customer and its employees, owners, directors, officers, and contractors, including usage information such as logins, button-presses, and maintenance history and records ("Customer Data"). As between DentalEZ and Customer, Customer is the owner of the Customer Data. Customer hereby grants DentalEZ a worldwide, nonexclusive, transferable, sublicensable, perpetual, irrevocable, fully paid up and royalty free right and license to use, reproduce, prepare derivative works of, distribute, perform, display, arrange, de-identify, create Aggregated Data (as defined below) from, and otherwise exploit for DentalEZ' business purposes, any Customer Data, and to use the know-how and analytical results resulting therefrom in connection with the

enhancement, improvement, and provision of Service and derivatives thereof, provided that DentalEZ shall disclose Customer Data that is identifiable to Customer or any individual only as permitted in our Privacy Policy.

You understand that you will not receive any fees, sums, consideration, or remuneration for any of the rights granted in this Section. You waive any and all rights and claims in connection with our use of, or development of any product, content, or other materials using in whole or in part, Customer Data. You represent and warrant that you own or have the necessary rights, licenses, consents, and permissions to grant us the rights granted in this Section.

I. Aggregated Data.

For the purposes of these Online Terms and the Privacy Policy: "Aggregated Data" means data, including data derived from Customer Data, that does not identify you (including information that has been manipulated, de-identified or combined to provide generalized or anonymous information).

As between the you and DentalEZ, DentalEZ owns all right, title and interest in and to Aggregated Data. DentalEZ may use or share Aggregated Data for any purpose including developing, providing, enhancing, and improving the Service, DentalEZ equipment and DentalEZ' other current and future online and offline products and services.

1. Submissions.

When you submit any unsolicited ideas, feedback, opinions, techniques, images, sounds, videos, or other content to us through or relating to the Service ("Submissions"), you grant us a non-exclusive, unrestricted, unconditional, unlimited, worldwide, irrevocable, perpetual, transferable and cost-free right and license to host, store, use, display, reproduce, modify, adapt, edit, combine with other materials, publish, distribute, create derivative works from, promote, exhibit, broadcast, syndicate, sublicense (including, without limitation, to third party media channels, platforms, and distributors), publicly perform, publicly display, and otherwise use and exploit in any manner whatsoever, or grant third parties the right to do any of the foregoing, all or any portion of your Submissions, for any purpose whatsoever in all formats, on or through any means or medium now known or hereafter developed, and with any technology or devices now known or hereafter developed, and to advertise, market, and promote the same. You further irrevocably grant us the right, but not the obligation, to use your name in connection with your Submissions. You also agree to waive any right of approval for our use of the rights granted herein and agree to waive any moral rights that you may have in any Submissions, even if it is altered or changed in a manner not agreeable to you. To the extent not waivable, you irrevocably agree not to exercise such rights in a manner that interferes with any exercise of the granted rights.

You understand that you will not receive any fees, sums, consideration, or remuneration for any of the rights granted in this Section. Our receipt of your Submissions is not an admission of their novelty, priority, or originality, and it does not impair our right to existing or future intellectual property rights relating to your Submissions. You waive any and all rights and claims in connection with our consideration, use, or development of any product, content, or other materials similar or identical to your Submission now or in the future.

You represent and warrant that you own or have the necessary rights, licenses, consents, and permissions to grant us the rights granted in this Section. You alone, though, retain whatever legally cognizable right, title, and interest that you have in your Submission and remain responsible for them.

2. Products.

We do our best to describe every product or service offered on our Service as accurately as possible. However, we are human, and therefore we do not warrant that product specifications, pricing, or other content on the Service is complete, accurate, reliable, current, or error-free. In the event of any errors relating to the pricing or specifications, DentalEZ shall have the right to refuse or cancel any orders in its sole discretion. If we charged your credit card or other Account prior to our cancellation, we will issue a credit to your Account in the amount of the charge. Additional Terms may apply. If a product or service you purchased from DentalEZ is not as described, your sole remedy is to cancel the purchase and receive a credit for the purchase price.

For any purchases made through dealers or resellers, please contact their customer support. Their terms, conditions and policies, and not ours, apply and we do not handle returns or refund requests for purchases through those third-party platform providers.

1. Customer Support; Notice.

If you have any questions or comments, please send an e-mail to us at DentalEZIOT@DentalEZ.com. You acknowledge that the provision of support is at DentalEZ' sole discretion and that we have no obligation to provide you with customer support of any kind. All legal notices to us must be mailed to: 301 Lindenwood Drive, Suite 100, Malvern Pennsylvania19355. When you communicate with us electronically, you consent to receive communications from us electronically. You agree that all agreements, notices, disclosures, and other communications that we provide to you electronically satisfy any legal requirement that such communications be in writing.

2. Other Services.

Our Service contains content from and hyperlinks to websites, locations, platforms, and services operated and owned by other parties ("Other Services"). We may also integrate Other Services technologies into our Service and host our content on Other Services. These Other Services are not owned, controlled, or operated by us, and you acknowledge and agree that we are not responsible or liable for the information, content, products, technologies, or services on or available from such Other Services, or for the results to be obtained from using them. These Other Services are made available as a convenience only and are not part of the "Service" or subject to any of the warranties (whether express or implied) or other obligations with respect to Service hereunder. DentalEZ has no obligation to monitor or maintain Other Services and may disable or restrict access to any Other Services at any time without notice.

If you choose to access, transact with, or otherwise interact with any such Other Services, you do so at your own risk. Your access to and use of any Other Services is solely determined by the relevant third-party provider and may be subject to such additional terms and conditions applicable to such Other Services. You are solely responsible for maintaining appropriate accounts in good standing with the Other Services providers. Aeras will have no liability or other obligation to you for such Other Services or your content or data exported to Other Services, including but not limited to any unavailability of any Other Services, or any third-party provider's decision to discontinue, suspend or terminate any Other Services.

In addition, by using or enabling any Other Services, you are expressly permitting DentalEZ to disclose your content, data or other information to the extent necessary for the Service to interoperate with, or for you to utilize, the Other Services. We are not responsible for any disclosure, modification or deletion of your content, data or other information resulting from access by, or transmission to, any Other Service. For more information on Other Services, see our Privacy Policy.

3. Service Features.

A. Wireless Features.

The Service may offer features that are available to you via your wireless Device including the ability to access the Service's features and upload content to the Service (collectively, "Wireless Features"). By using the Service, you agree that DentalEZ may collect information related to your use of the Wireless Features as described in our Privacy Policy, and may change, alter, or modify the settings or configurations on your Device in order to allow for or optimize your use of the Service. Data rates and other carrier fees may apply.

B. Location-Based Features.

If you have location-based features on your wireless Device, you acknowledge that your Device location will be tracked and shared consistent with the Privacy Policy. You can terminate location tracking by us by adjusting the permissions in your Device. Location-based features are used at your own risk and location data may not be accurate.

C. Communications.

(i) E-mails: By registering for an Account, it is implied that you consent to us sending you emails about the Service and the status of your Account. As such, we may send emails to the email address you provide for transactional and promotional purposes in regard to the Service and the status of your Account. You have the right to opt-out of receiving certain promotional e-mails about the Service or your Account from us at any time by following the instructions as provided in e-mails to click on the unsubscribe link or contacting us at

DentalEZIOT@DentalEZ.com with the word UNSUBSCRIBE in the subject field of the e-mail. We will unsubscribe your email from promotional e-mails sent by us within 10 business days of our receipt of your opt-out request. Your opt-out of promotional emails will not affect nonpromotional e-mails, such as those about your Account, transactions, servicing, or DentalEZ' ongoing business relations with you.

(ii) Text Messages: We may send you reoccurring text messages to the phone number you provide for transactional and promotional purposes in regard to the Service, your Account or DentalEZ products and services. You understand that your consent is not required as a condition of purchase, and that you can opt-out of receiving certain promotional text messages from us at any time by:

- for text messages, texting "STOP" in response to any text message you receive from us or contacting us at DentalEZIOT@DentalEZ.com and specifying you want to opt-out of text messages; and
- for calls, requesting opt-out during any call you receive from us or contacting us at DentalEZIOT@DentalEZ.com and specifying you want to opt-out of calls. For text messages, you can also text "HELP" at any time for more information. We will unsubscribe your phone number from reoccurring texts messages from us within 10 business days of our receipt of your opt-out request. You understand that you may receive a text message confirming any opt-out by you. Standard message, data, and other fees may be charged by your carrier, and carriers may deduct charges from pre-paid amounts or data allowances, for which you are responsible. Not all phone and/or carriers are supported. Contact your carrier for further details.

Please note that any opt-out by you is limited to the e-mail address, phone number and device used and will not affect subsequent subscriptions.

4. Agreement to Arbitrate and Choice of Law.

PLEASE READ THIS SECTION CAREFULLY – IT MAY SIGNIFICANTLY AFFECT YOUR LEGAL RIGHTS, INCLUDING YOUR RIGHT TO FILE A LAWSUIT IN COURT AND TO HAVE A JURY HEAR YOUR CLAIMS. IT CONTAINS PROCEDURES FOR MANDATORY BINDING ARBITRATION AND A CLASS ACTION WAIVER.

A. We Both Agree to Arbitrate.

You and DentalEZ agree to resolve any claims relating to these Terms through final and binding arbitration, except to the extent you have in any manner violated or threatened to violate DentalEZ' intellectual property rights (for example, trademark, trade secret, copyright, or patent rights). Under such circumstances DentalEZ may bring a lawsuit solely for injunctive relief to stop unauthorized use or abuse of the Service, or intellectual property infringement (for example, trademark, trade secret, copyright, or patent rights) without first engaging in arbitration or the informal dispute-resolution process described herein.

B. What is Arbitration.

Arbitration is more informal than a lawsuit in court and seeks to resolve disputes more quickly. Instead of a judge or a jury, the case will be decided by a neutral arbitrator who has the power to award the same damages and relief that a court can. If any provision of this arbitration agreement is found unenforceable, the unenforceable provision shall be severed, and the remaining arbitration terms shall be enforced.

C. Arbitration Procedures.

The Federal Arbitration Act governs the interpretation and enforcement of this dispute resolution provision. Arbitration shall be initiated through JAMS. Any dispute, controversy, or claim arising out of or relating to these Terms shall be referred to and finally determined by arbitration in accordance with the JAMS Streamlined Arbitration Rules and Procedures in front of one arbitrator. If there is a conflict between JAMS Rules and the rules set forth in these Terms, the rules set forth in this Terms will govern. The JAMS Rules and instructions for how to initiate an arbitration are available from JAMS at http://www.jamsadr.com or 1-800-352-5267. To initiate arbitration, you or DentalEZ must do the following things:

(1) Write a demand for Arbitration. The demand must include a description of the Claim and the amount of damages sought to be recovered. You can find a copy of a demand for Arbitration at www.jamsadr.com.

(2) Send three copies of the demand for Arbitration, plus the appropriate filing fee to: JAMS to your local JAMS office or to JAMS, Two Embarcadero Center, Suite 1500, San Francisco, CA 94111.

(3) Send one copy of the demand for Arbitration to the other party.

Payment of all filing, administration and arbitrator fees will be governed by the JAMS Rules. Arbitration under this agreement shall be held in the United States in Pennsylvania, under Pennsylvania law without regard to its conflict of laws provisions. If traveling to Pennsylvania is a burden, you may participate in the arbitration by phone or via document submission to the fullest extent allowable by the arbitrator. Each party will bear their own costs of arbitration unless the arbitrator directs that bearing such costs would be an undue burden and, in that case, we will pay for your portion of the arbitration administrative costs (but not your attorneys' fees). The arbitration may award on an individual basis the same damages and relief as a court (including injunctive relief). Any judgment on the award rendered by the arbitrator may be entered in any court of competent jurisdiction.

D. Authority of Arbitrator.

The arbitrator will decide the rights and liabilities, if any, of you and DentalEZ, and the dispute will not be consolidated with any other matters or joined with any other cases or parties. The arbitrator shall have the authority to grant motions dispositive of all or part of any claim. The arbitrator shall have the authority to award monetary damages and to grant any non-monetary remedy or relief available to an individual under applicable law, the Arbitration Rules, and the Terms. The arbitrator shall issue a written award and statement of decision describing the essential findings and conclusions on which the award is based, including the calculation of any damages awarded. The arbitrator has the same authority to award relief on an individual basis that a judge in a court of law would have. The award of the arbitrator is final and binding upon you and Aeras.

E. Waiver of Class Actions.

You waive any right to pursue an action on a class-wide basis against us and may only resolve disputes with us on an individual basis and may not bring a claim against us as a plaintiff or a class member in a class, consolidated, or representative action. Class arbitrations, class actions, private attorney general actions, and consolidation with other arbitrations are not allowed.

F. Waiver of Jury Trial.

EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY THAT MAY ARISE UNDER THE TERMS IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES AND THEREFORE THE PARTIES HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVE ANY RIGHT THEY MAY HAVE (INCLUDING ANY CONSTITUTIONAL AND STATUTORY RIGHTS) TO GO TO COURT AND HAVE A TRIAL IN FRONT OF A JUDGE OR A JURY, instead electing that all claims and disputes arising in connection with these Terms shall be resolved by arbitration. Arbitration procedures are typically more limited, more efficient and less costly than rules applicable in court. In the event any litigation should arise between you and DentalEZ in any state or federal court in a suit to vacate or enforce an arbitration award or otherwise, YOU AND DENTALEZ WAIVE ALL RIGHTS TO A JURY TRIAL, instead electing that the dispute be resolved by a judge alone.

YOU ACKNOWLEDGE THAT YOU HAVE BEEN ADVISED THAT YOU MAY CONSULT WITH AN ATTORNEY IN DECIDING TO ACCEPT THIS AGREEMENT TO ARBITRATE.

G. Choice of Law/Forum Selection.

In any circumstances where the Agreement to Arbitrate Disputes permits the parties to litigate in court, these Terms shall be governed by and construed in accordance with the laws of the State of Pennsylvania, excluding its conflict of law rules. You further expressly consent and agree to submit to the exclusive jurisdiction and venue of a court of competent jurisdiction located in Pennsylvania.

1. Disclaimer of Representations and Warranties.

YOUR USE OF THE SERVICE AND ALL CONTENT FORMING PART OF OR RELATED TO THE SERVICE INCLUDING ANY OTHER SERVICES, ARE AT YOUR SOLE RESPONSIBILITY AND RISK. THE SERVICE IS PROVIDED TO YOU ON AN "AS IS," "AS AVAILABLE," AND "WITH ALL FAULTS" BASIS. TO THE MAXIMUM EXTENT PERMITTED BY LAW, NEITHER DENTALEZ NOR ANY OF ITS OFFICERS, DIRECTORS, MANAGERS, EMPLOYEES OR AGENTS (COLLECTIVELY, THE "DENTALEZ PARTIES") MAKE, AND THE DENTALEZ PARTIES EXPRESSLY DISCLAIM, ANY REPRESENTATIONS, WARRANTIES, CONDITIONS OR ENDORSEMENTS OF ANY KIND WHATSOEVER WITH RESPECT TO THE SERVICE, THE CONTENT OR OTHER SERVICES, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, OR ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE, INCLUDING THE

IMPLIED WARRANTIES OR CONDITIONS OF TITLE, NONINFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY, COMPLETENESS, QUIET ENJOYMENT, FREEDOM FROM COMPUTER VIRUS AND THE RESULTS YOU MAY OBTAIN BY USING THE SERVICE. BY ACCESSING OR USING THE SERVICE YOU REPRESENT AND WARRANT THAT YOUR ACTIVITIES ARE LAWFUL IN EVERY JURISDICTION WHERE YOU ACCESS OR USE THE SERVICE.

2. Limitations of Our Liability.

TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL THE DENTALEZ PARTIES BE LIABLE TO YOU OR ANY THIRD PARTY ACTING ON YOUR BEHALF FOR ANY LOSS, DAMAGE OR INJURY OF ANY KIND INCLUDING ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY, CONSEQUENTIAL OR PUNITIVE LOSSES OR DAMAGES, OR DAMAGES FOR SYSTEM FAILURE OR MALFUNCTION OR LOSS OF PROFITS, DATA, USE, BUSINESS OR GOOD-WILL, OR THE COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES (EVEN IF DENTALEZ PARTIES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES), ARISING OUT OF OR IN CONNECTION WITH (A) THE SERVICE, (B) THESE TERMS OR (C) YOUR MISUSE OF THE SERVICE OR ANY CONTENT AVAILABLE ON OR THROUGH THE SERVICE. THE LIMITATIONS SET FORTH IN THIS SECTION SHALL APPLY REGARDLESS OF THE FORM OF ACTION, WHETHER THE ASSERTED LIABILITY OR DAMAGES ARE BASED ON CONTRACT, INDEMNIFICATION, TORT, STRICT LIABILITY, STATUTE OR ANY OTHER LEGAL OR EQUITABLE THEORY. IF UNDER ANY CIRCUMSTANCES THE AERAS PARTIES ARE FOUND LIABLE TO YOU OR ANY EMPLOYEE, OWNER, DIRECTOR, OFFICER, CONTRACTOR OR THIRD PARTY ACTING ON YOUR BEHALF AND IF THE DISCLAIMER OF DAMAGES HEREUNDER IS NOT ENFORCED FOR ANY REASON, THE DENTALEZ PARTIES' MAXIMUM AGGREGATE LIABILITY FROM ALL CLAIMS UNDER OR RELATED TO THESE TERMS IS LIMITED TO ONE HUNDRED DOLLARS ($100). TO THE EXTENT ANY APPLICABLE LAW DOES NOT ALLOW THE EXCLUSION OR THE LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE DENTALEZ PARTIES' LIABILITY WILL BE LIMITED TO THE FURTHEST EXTENT PERMITTED BY LAW.

NOTWITHSTANDING THE FOREGOING, THESE DISCLAIMERS HEREIN DO NOT EXCLUDE ANY PRODUCT LIABILITY CLAIMS, STATUTORY CONSUMER RIGHTS, DAMAGES ASSOCIATED WITH PERSONAL INJURY OR RESULTING FROM AERAS INTENTIONAL MISCONDUCT, RECKLESSNESS, FRAUD, OR GROSS NEGLIGENCE.

3. Indemnification.

You agree to defend, indemnify and hold harmless the DentalEZ Parties from and against any and all claims, liabilities, damages, losses, costs and expenses (including, reasonable attorneys' fees and costs) arising out of or in connection with any of the following:

(i) your breach or alleged breach of these Terms;

(ii) your Submissions;

(iii) your misuse of the Service;

(iv) your violation of any laws, rules, regulations, codes, statutes, ordinances or orders of any governmental or quasi-governmental authorities;

(v) your violation of the rights of any third party, including any intellectual property right, publicity, confidentiality, property or privacy right;

(vi) your use of Other Services; or

(vii) any misrepresentation made by you. DentalEZ reserves the right to assume, at your expense, the exclusive defense and control of any matter subject to indemnification by you. You agree to cooperate with DentalEZ' defense of any claim. You will not in any event settle any claim without the prior written consent of DentalEZ.

This provision does not require you to indemnify us for any unconscionable commercial practice by us or for our fraud, deception, false promise, misrepresentation or concealment, suppression or omission of any material fact in connection with the Service.

4. Waiver of Injunctive or other Equitable Relief.

TO THE MAXIMUM EXTENT PERMITTED BY LAW, YOU AGREE THAT YOU WILL NOT BE PERMITTED TO OBTAIN AN INJUNCTION OR OTHER EQUITABLE RELIEF OF ANY KIND, SUCH AS ANY COURT OR OTHER

ACTION THAT MAY INTERFERE WITH OR PREVENT THE DEVELOPMENT OR EXPLOITATION OF ANY WEBSITE, APPLICATION, CONTENT, SUBMISSIONS, PRODUCT, SERVICE, OR INTELLECTUAL PROPERTY OWNED, LICENSED, USED OR CONTROLLED BY DENTALEZ OR A LICENSOR OF DENTALEZ.

1. Updates to Terms.

We reserve the right, at any time in our sole discretion, to modify or replace any part of the Terms or Privacy Policy, without prior notice. You agree that we may notify you of any updated Terms or Privacy Policy by posting them on the Service so that they are accessible via a link from the home page, and/or to send you an e-mail to the last e-mail address you provided to us. All such changes are effective immediately when we post them, or such later date as may be specified in the notice of updated Terms or Privacy Policy. If you object to any such changes, your sole recourse is to cease using the Service. Your continued use of the Service will be deemed irrevocable acceptance of any such revisions. Before you continue, you should print and/or save a local copy of the Terms and our Privacy Policy for your records.

2. General Provisions.

A. You May Cancel Your Account.

You may cancel your Account at any time through the Service or by emailing DentalEZIOT@DentalEZ.com or by contacting your dealer directly. These are the only ways to cancel your Account. Phone requests to cancel your Account will not be accepted. You acknowledge that cancelling your Account will not prevent your equipment from collecting or sending certain equipment performance data to us or dealers sharing information with us in accordance with our Privacy Policy.

B. Data Deletion at Cancellation or Termination.

DentalEZ is under no obligation to store any data or information you submit, upload, or make available to us through the Service and DentalEZ reserves the right to delete your Account and information immediately upon cancellation or termination.

C. Consent or Approval.

No DentalEZ consent or approval may be deemed to have been granted by DentalEZ without being in writing and signed by an officer of DentalEZ.

D. Survival.

The provisions of the Terms, which by their nature should survive termination of your use of the Service, including sections on Service Use (except for the limited license), Unsolicited Submissions, Copyright Infringement, Subscriptions and Products, Customer Support, Other Services, Service Features, Agreement to Arbitrate Disputes and Choice of Law, Disclaimer of Representations and Warranties, Limitations of Our Liability, Indemnification, Waiver of Injunctive or Other Equitable Relief, Updates to Terms, and General Provisions, will survive.

E. Severability; Interpretation; Assignment.

If any provision of the Terms, including these Online Terms or any applicable Additional Terms, is for any reason deemed invalid, unlawful, void, or unenforceable, then that provision will be deemed severable from the Terms, and the invalidity of the provision will not affect the validity or enforceability of the remainder of the Terms. You hereby waive any applicable statutory and common law that may permit a contract to be construed against its drafter. The summaries of provisions and section headings are provided for convenience only and shall not limit the full Terms. DentalEZ may assign its rights and obligations under the Terms, in whole or in part, to any party at any time without any notice. The Terms may not be assigned by you, and you may not delegate your duties under them, without the prior written consent of an officer of DentalEZ.

F. Complete Agreement; No Waiver.

The Terms and the Privacy Policy reflect our complete agreement regarding the Service and supersede any prior agreements, representations, warranties, assurances or discussion related to the Service. Except as expressly set forth in the Terms, (i) no failure or delay by you or DentalEZ in exercising any of rights, powers, or remedies under will operate as a waiver of that or any other right, power, or remedy, and (ii) no waiver or modification of any term of the will be effective unless in writing and signed by the party against whom the waiver or modification is sought to be enforced.

G. International Issues.

DentalEZ controls and operates the Service from the U.S., and DentalEZ makes no representation that the Service is appropriate or available for use beyond the U.S. You agree that the United Nations Convention on Contracts for the International Sale of Goods does not apply to the Terms or to any sale of goods carried out as a result of your use of the Service. Software related to or made available by the Service may be subject to export controls of the U.S., and, except as authorized by law, you agree and warrant not to export or re-export the software to any county, or to any person, entity, or end-user subject to U.S. export controls or sanctions.

H. Investigations; Cooperation with Law Enforcement.

DentalEZ reserves the right to investigate and prosecute any suspected breaches of the Terms or the Service. DentalEZ may disclose any information as necessary to satisfy any law, regulation, legal process, or governmental request.

I. California Consumer Rights and Notices.

Residents of California are entitled to the following specific consumer rights information: you may contact the Complaint Assistance Unit of the Division of Consumer Services of the Department of Consumer Affairs by mail at: 1625 North Market Blvd., Suite N 112, Sacramento, California 95834, or by telephone at (916) 445-1254. Their website is located at: http://www.dca.ca.gov.

3. Contact Us.

If you have any questions or comments about the Terms, please contact us:

By email:

DentalEZIOT@DentalEZ.com

By mail:

Attention: Privacy Officer
310 Lindenwood Drive, Suite 100
Malvern, PA 19355

DENTALEZ

DENTALEZ Alabama, Inc.
2500 Highway 31 South
Bay Minette, AL 36507

T: 866-DTE-INFO

DENTALEZ.COM

© 2025 DENTALEZ, Inc. DENTALEZ is a registered trademark of DENTALEZ, Inc. Ramvac is a registered trademark of Ramvac Dental Products, Inc. AERAS, Inc. is a separate corporation from DENTALEZ, Inc.

PN: 7717-005D
December, 2025
Printed in USA