

# Bennett 621 Interconnection Box (Wayne Fuel Interface)

## Installation, Service, & Parts Manual

**Only Trained Personnel May Work on This Equipment**

INCLUDES INSTRUCTIONS FOR THE INSTALLATION OF 1 TO 24 FUEL POSITIONS AND SERVICING THE 621 Interconnection Box.

P/N 115763 115 VAC FUEL POSITIONS 1 through 24



### READ THIS BOOK

This manual contains important information for safe installation and operation of this equipment. Read and understand this manual before applying power to the 621 Interconnection Box. If instructions are not followed, bodily injury, death, or damage to the equipment may occur.

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# Safety Instructions

## WARNING    ADVERTISSEMENT    ADVERTENCIA

For the safe installation of this equipment, read and understand all warning and cautions. Look for these warnings:

 **“DANGER”** means: If you do not follow the instructions, severe injury or death will occur.

 **“WARNING”** means: If you do not follow the instructions, severe injury or death can occur.

 **“CAUTION”** means: If you do not follow the instructions, damage can occur to the equipment.

 **DANGER:** Gasoline is flammable.  
NO SMOKING OR OPEN FLAME.

 **DANGER:** All power to this equipment must be disconnected during installation, service or any maintenance.

 **WARNING:** You must have training in the installation, service or maintenance of this equipment (dispenser, pump, console, control box or submerged pump) before working on it. Maintenance repairs must be done by authorized personnel only. Warranty work may only be performed by Bennett certified technicians.

 **WARNING:** Electronic components are static sensitive. Use proper static precautions (static straps) before working on the equipment.

 **WARNING:** Make sure this equipment is correctly grounded. Failure to do will cause injury or damage equipment or improper operation. Improper grounding voids the warranty. Ground resistance must be 1 ohm or less.

 **WARNING:** Make sure that all labels, decals, warnings, cautions, and instructions are fastened to the equipment. Order replacement labels from Bennett.

**READ AND UNDERSTAND ALL WARNING LABELS ATTACHED TO THE EQUIPMENT**

## Introduction

The Bennett Model 621 Interconnection Box is an interface device for third party point-of-sale systems. It allows the customer to use Bennett fuel dispensing equipment with consoles supporting the Wayne Fuel protocol.

Configurations for the 621 Interconnection box can be:

1. Fuel only
2. Fuel and DCR with use of POS hardware supporting Wayne CAT protocol.

The 621 Interconnection Box communicates with 1 to 24 fueling positions.

The 621 Interconnection Box has 4 LED indicators to aid the Bennett technician in troubleshooting site occurrences.

The 621 has an external wall mount power supply that converts 100-240 VAC ~ 50/60 Hz to 12vdc 0-1.0A. The power supply limits the incoming voltage so the 621 board is protected from possible surge conditions.

The 621 is “plug and play”, meaning that additional programming is not required after the installation is complete.

# Installation Instructions

## Required Manuals

- Pacific Dispenser Installation Manual (P/N 111102)
- Pacific Dispenser Operators Manual (P/N 111660)
  - Wayne POS and Interface Manuals

## Mounting the 621 Interconnection Box

The 621 Interconnection Box measures 12" x 12" x 4". The enclosure requires 4 mounting screws. These 4 screws are on 10 ½" by 10 ½" centers.

1. Layout screws on wall 10 ½" by 10 ½" centers.
2. Slide enclosure's 4 key hole mounting slots over screws and tighten.

## AC Power Requirements

1. The AC Power Module must be connected to a dedicated AC receptacle.
2. AC voltage must be a minimum of 100Vac or a maximum of 240Vac ~ 50/60Hz
3. A 12 gauge green ground wire must be installed to the lug provided in the box.



Figure 1

# Dispenser Communication Requirements

1. All communication wires must be 18 AWG gas and oil resistant stranded copper THHN per National Electrical Code.
2. DO NOT use wire nuts. Splicing with wire nuts can cause communication failure, system failure, and may void warranty.
3. Connect data wires to terminal strip positions 1-12. Each terminal strip channel will supply two fueling positions. This will allow a maximum of 24 fueling points. See Figure 2
4. A fueling position is one side of a dispenser. A two sided dispenser will have two fueling positions.

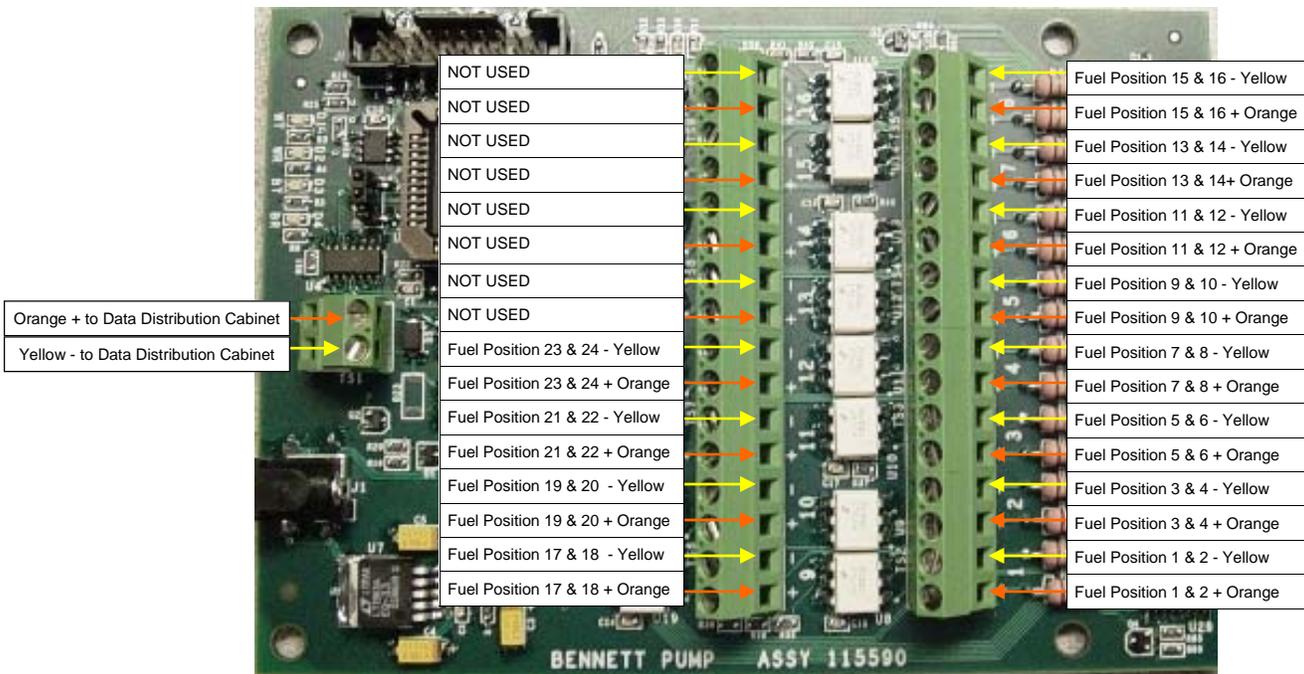
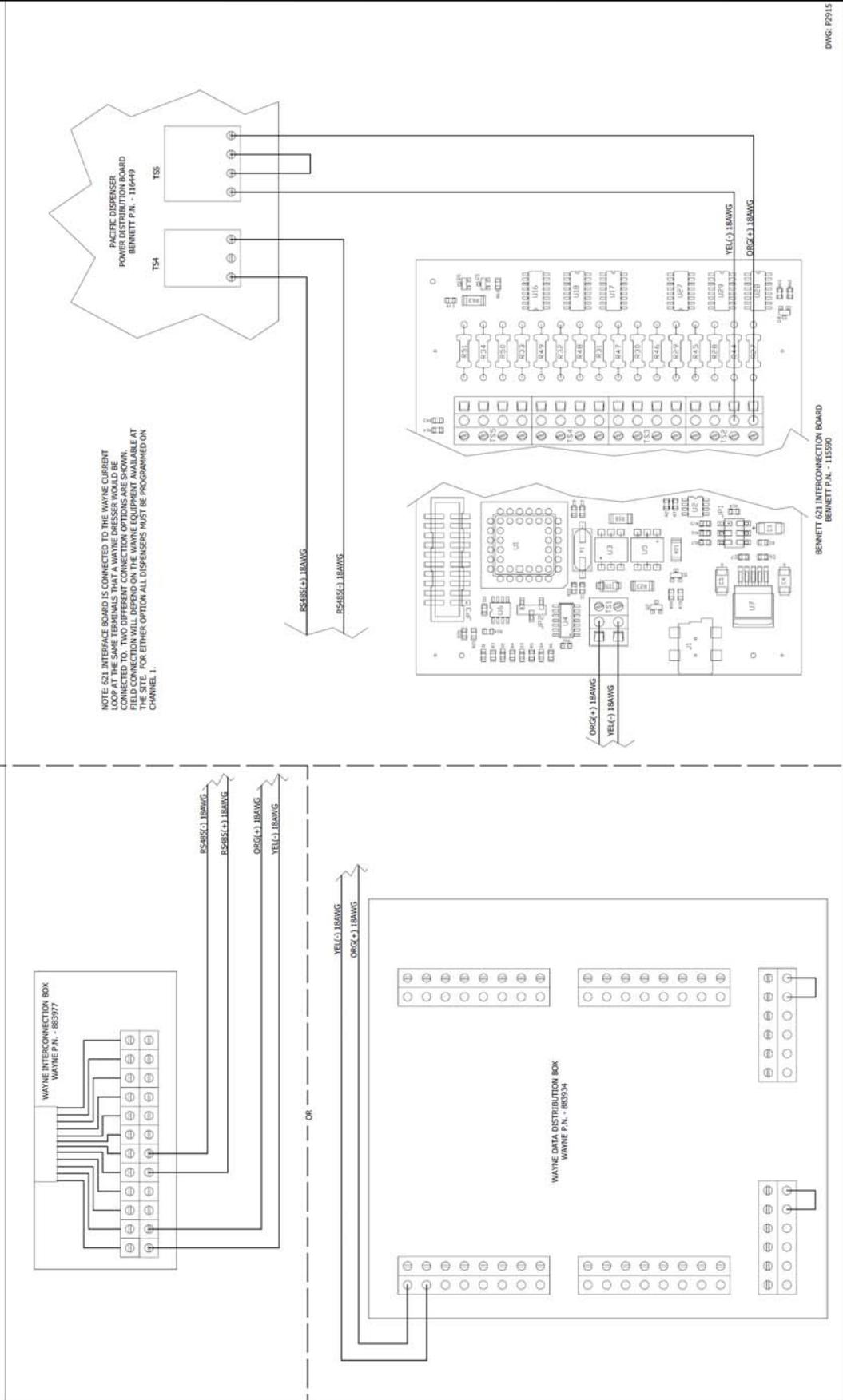


Figure 2

# Connection Diagram



DWG: P215

## Initial Start Up

1. Apply power to the dispensers, program them for operation, and address the fueling positions accordingly. See “Helpful Programming Hints” on page 13.
2. Apply power to the POS, Site Controller, and Data Distribution Cabinet. Note: Program and initialize POS as required. See “Helpful Programming Hints” on page 13.
3. Verify that the communication LEDs are flashing rapidly on the 621 board. See Figure 3. Refer to page 12 for troubleshooting diagnostics.

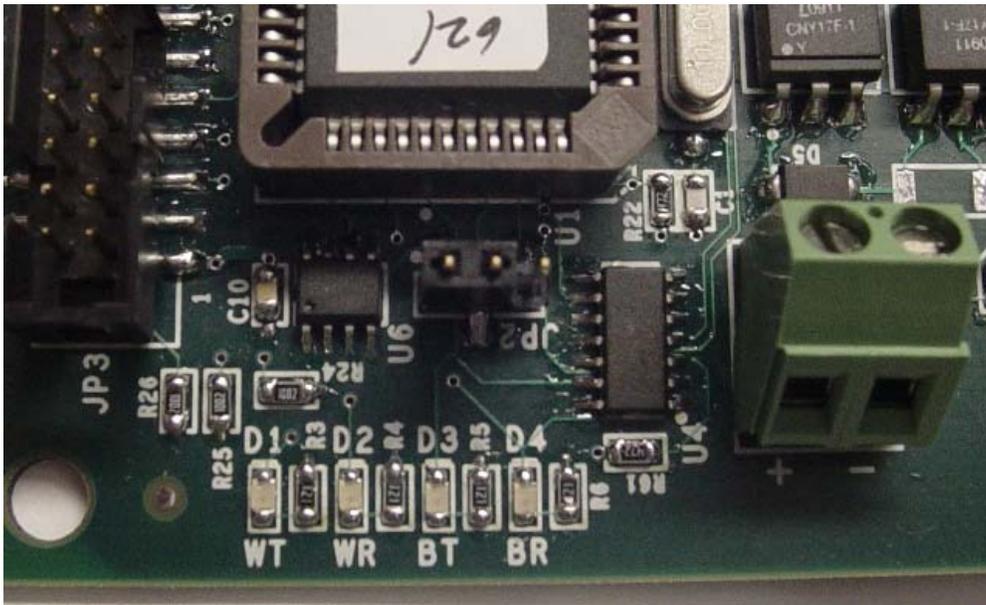


Figure 3

# **Service Instructions**

# System Overview

## SYSTEM OVERVIEW

The 621 Interconnection Boards main function is to send commands to and from the controlling console to each dispenser. The 621 acts as the “translator”.

The 621 Interconnection Box uses optical isolation to isolate the pump data communication lines from the 621’s electronics. Each communication port is designed to handle surges and help protect them from outside occurrences such as lightning.

The 621 is equipped with diagnostic LED’s to aid in troubleshooting the communication circuit.

# Jumper Settings

**JP2** See Figure 4.

**RUN MODE** = Top two pins. This mode **MUST** be used for operation in the field.

**PROGRAM MODE** = Bottom two pins. This mode is for the sole purpose of flash programming at Bennett. This will not be used in the field, and the board will not operate correctly if the jumper is in this position.

**JP1** See Figure 4.

**CURRENT LOOP VOLTAGE**= Center two pins. **MUST** be set for operation in the field. Failure to set jumper in the center position will result in improper operation of the 621 board.

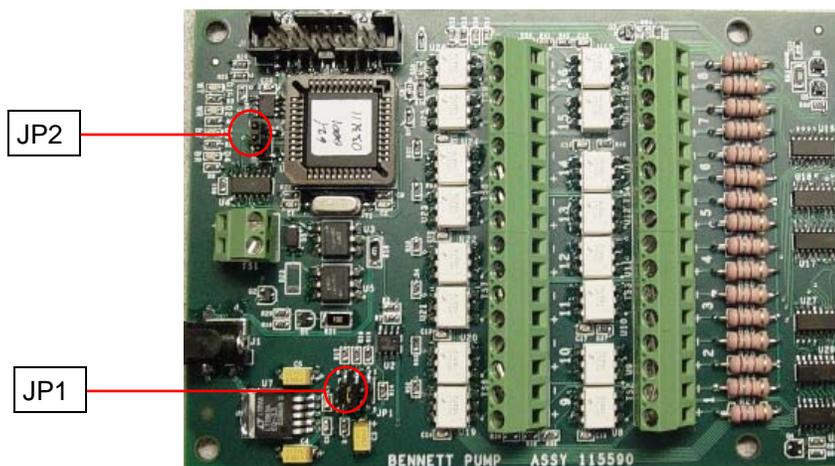


Figure 4

## LED Diagnostics

There are 4 red LEDs on the 621 board that can be used to troubleshoot communication errors. These LEDs are labeled WT (Wayne Transmit), WR (Wayne Receive), BT (Bennett Transmit), and BR (Bennett Receive). If the console and dispensers are communicating, all of the LEDs will be flashing. See Figure 5.

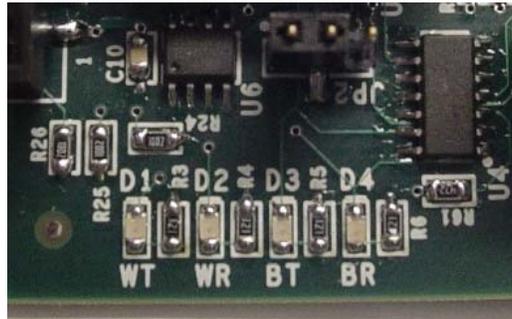


Figure 5

The following assumes that all system components are connected and powered.

Condition	Probable Cause	Corrective Action
No LEDs are flashing	621 Board is not receiving power	Ensure AC/DC power supply is plugged in
	Console is not transmitting commands to dispensers	Ensure console is on and programmed correctly
Only WT LED is flashing	Jumper JP2 is not in the RUN position	Ensure JP2 is on the top two pins
	621 Board is damaged	Replace 621 Board
BT LED is momentarily solid and WT and BR LEDs are flashing	Console is attempting to communicate with a disconnected fueling position or dispenser that is powered off.	Reconnect data wires or restore power to the dispenser.
Only WT, BT, and BR LEDs are flashing	Dispenser communication mode or address is programmed incorrectly	Check dispenser communication mode and address
	Dispenser is in manager's mode	Disconnect managers keypad

## Helpful Programming Hints

The following contains basic communication programming procedures for a Bennett Pacific and Nucleus POS. It is EXTREMELY important that all of the appropriate Bennett and Wayne manuals are reviewed prior to operation.

### **Bennett Pacific Programming**

In order to function properly, the following settings **MUST** be programmed at the dispenser to communicate with the Nucleus.

**Menu Code 21** - Set to 3 for the Dresser Wayne current loop. Display will read “drESSr LOOP”

**Menu Code 22** - Set a unique address for each fueling position. Display will read “drESSr Adr XX” where “XX” will be the current address for that specific fueling position. Each fueling position may have an address from 1-24. Each fueling position must be connected to the appropriate position on the 621 interface board. The 621 polls each channel on the board in search of the correct address. Ex: Channel 1 on the 621 supports address 1 & 2. Channel 2 on the 621 supports address 3 & 4 and so on.

**Menu Code 23** - This menu code controls if push to start is required. Mode must be programmed to match the push to start field within pump programming in the Nucleus. If the two options do not match, the dispensers will not authorize. Option 0 disables push to start, and Option 1 enables push to start.

**Menu Code 99** - This menu code sets the volume unit of measurement . Option 1 is for gallons, 2-Liters, 3 - British Imperial Gallons. Press Enter to access decimal location. Option 1 must be set for 1000th for operation with the Nucleus.

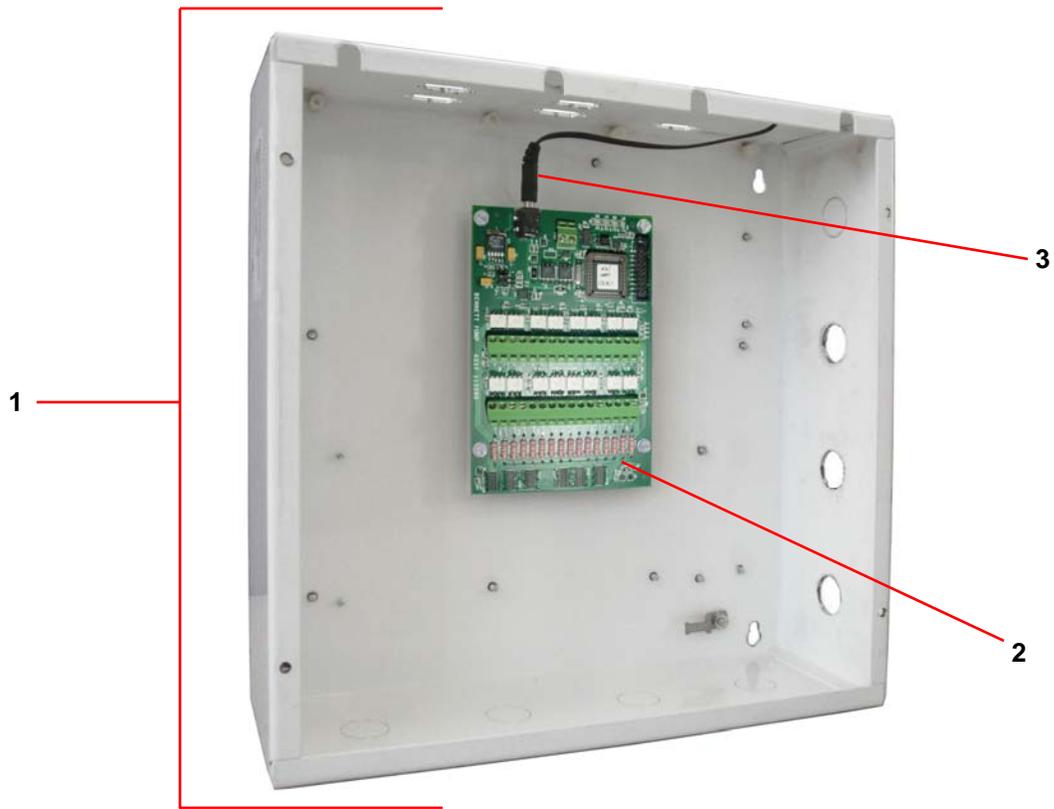
**Menu Code 08** - This menu code controls the decimal placement of the monetary display values. This mode must always be set to option 0 for operation with the Nucleus.

### **Nucleus Programming**

In order for the Bennett dispensers to function properly, the correct settings must be made in the pump programming window of the Nucleus system. There are three settings in the “Pump Options” window that need to be programmed correctly for the dispensers to function. These settings are TYPE, PUSH TO START, and VALID POSITIONS. Other settings in this window will not inhibit dispenser operation. Note: Please refer to the appropriate Nucleus programming guide for complete programming instructions.

Pacific Configuration	Dispenser Type	Push to Start	Valid Positions / Grade Mapping
Three product blender	VRB	None or Select Grade	3-High Grade, 5-Blend, 7 - Low Grade
3+1 Blender	VRB Plus	None or Select Grade	1-Diesel, 4-High Grade, 5-Blend, 6-Low Grade
Three Grade Mixer	MGD Uni-Hose	None or Select Grade	1-Grade A, 2-Grade B, 3-Grade C
One Grade Non-Blender	MGD Uni-Hose	None or Select Grade	1-Grade A
Two Grade Non-Blender	MGD Multi-Hose	None or Select Grade	1-Grade A, 2-Grade B
Three Grade Non-Blender	MGD Multi-Hose	None or Select Grade	1-Grade A, 2-Grade B, 3-Grade C

## Parts



Ref. Number	Part Description	Part Number
1	621 Interconnection Box (Complete Assembly)	115763
2	621 Board Assembly	115590
3	Power Supply	116181

# Bennett Limited Warranty for Products Installed in the United States

**Bennett Pump Company or Bennett Commercial Pump Company guarantees new Service Station Equipment manufactured by Bennett against defects in material or workmanship during the warranty period in accordance with the provisions stated below:**

- The Site Audit Report issued with all equipment must be completed and returned at time of installation to Bennett Pump Company, Spring Lake, MI to initiate warranty.
- Warranty service must be performed by the nearest Bennett Authorized Service Representative qualified to perform service on the defective equipment. Only Authorized and Certified Service Representatives are allowed to perform warranty service. Use of service personnel other than qualified Bennett Service Representatives without prior approval by Bennett Pump Company will void payment of any warranty claims.
- Labor and travel costs incurred while servicing Bennett equipment will be paid at previously contracted rates subject to published standard repair time allowances to qualified Bennett Service Representatives with travel cost limited to 200 miles. Travel cost shall be limited to 4 hours round trip.
- Bennett equipment has been installed according to the manufacturer's instructions and diagrams.
- During the warranty period, Bennett Pump Company will, at its option, repair or replace defective parts returned to its factory, transportation charges prepaid.
- The manufacturer reserves the right to make changes in the design or to make additions or improvements with respect to its products without incurring any obligation to modify or install same on previously manufactured products.

## **Pumps and Dispensers - Pacific, 2300 & 2400 Series**

Warranty on parts, labor, and travel is 24 months from date of installation or 30 months from date of Bennett's original invoice, whichever comes first. An exception is any printer or printer driver board used in a pump or dispenser. For printers and driver boards: parts, labor, and mileage warranty coverage is for 12 months from the date of installation not to exceed 18 months from date of Bennett's original invoice.

This warranty excludes nozzles, hoses and fittings, hose retractor, filters, belt adjustments, paper jams, light bulbs, or any leaks after the installation start-up and audit. Minor adjustments such as meter calibration, pulser adjustments, and handle switch adjustments, customer specified items manufactured by others, and customer requested reprogramming of equipment are not covered by warranty.

## **Pumps and Dispensers - All Other Models**

Warranty on parts, labor, and travel is 12 months from date of installation or 18 months from date of Bennett's original invoice, whichever comes first.

This warranty excludes nozzles, hoses and fitting, hose retractor, filters, belt adjustments, paper jams or light bulbs. Minor adjustments such as meter calibration, pulser adjustments, and handle switch adjustments, customer specified items manufactured by others, and customer requested reprogramming of equipment are not covered by warranty.

## **Field Retrofitted Card Acceptor or Cash Acceptor**

The field retrofit assembly is warranted for parts only for 12 months from date of installation or 18 months from date of original invoice, whichever comes first, except the receipt printer and driver board which is warranted for parts for ninety (90) days from the date of installation or 180 days from original invoice, whichever comes first.

**Consumable Items** such as receipt paper are not warranted. The use of receipt paper not specified by Bennett will void the printer assembly warranty.

## **Model 515 and 621 Pump Controllers**

Warranty on parts, labor and travel is 12 months from the date of installation or 18 months from the date of original invoice, whichever comes first.

## **Software**

Bennett Pump Company warrants Bennett products and software packages, whose operation is controlled by Bennett designed and developed software, shall be free of material defects and conform to current Bennett specifications for a period of ninety (90) days from the date of original invoice. Bennett shall use its best effort to correct such defects and to supply to purchaser at Bennett's expense, a corrected version within a reasonable time after purchaser notifies Bennett in writing of any defects and provides the programs and instructions required to reproduce the claimed defect.

This would not cover any modification to the program, the Bennett product, and/or connection to unapproved equipment made by any person or any defect caused by such modifications/connections.

## **Upgrade Kits**

Bennett offers kits which are installed at the purchaser's option to enhance operating features of an existing Bennett product. These upgrade kits are warranted for parts only for ninety (90) days from date of installation or 12 months from date of original invoice, whichever comes first. This warranty applies to kit components only. The warranty status of the remainder of the product is unchanged.

## **Spare Parts**

For equipment under warranty: The warranty period for all spare parts replaced is the remainder of the original warranty. Spare Parts are warranted for the value of the parts only (no labor, mileage, or other charges).

For equipment not under warranty: The warranty period is 90 days from the date of invoice to the end user, or 12 months from the date of original invoice, whichever comes first. Spare Parts are warranted for the value of the parts only (no labor, mileage, or other charges).

## **General Exclusions**

1. Warranty does not apply to any product which has been altered, subjected to unusual physical or electrical stress, an Act of God, damaged by accident, tampered with, or subjected to misuse or abuse including substituting parts or accessories from other manufacturers without the written consent of Bennett Pump Company. The above warranties shall not exist if the original identification marks have been removed or altered.
2. Bennett makes no warranty with respect to the Bennett equipment or Bennett's performance of services under this agreement, express or implied, and Bennett hereby disclaims the implied warranties of merchantability and fitness for a particular purpose.
3. In no event shall Bennett be liable for any loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages of any kind in connection with or arising out of the furnishing, performance, use or failure of the Bennett equipment, software or services acquired from Bennett, the distributor or the user, whether alleged as a breach of contract or tortious conduct, including negligence. Bennett's liability hereunder for damages shall not, in any event, exceed the amounts paid by the buyer to Bennett for equipment, software or services as to which the claim arose.
4. No action arising out of any claimed breach of the Warranty Agreement or transaction under this Warranty Agreement may be brought by either party more than two (2) years after the cause of action has accrued.
5. Use of non-Bennett replacement parts, unless specified by Bennett, will void the equipment warranty.
6. This warranty only applies to Bennett equipment installed in the United States of America and Canada.
7. Failure to pay the Bennett invoice within stated invoice terms, covering the respective Bennett equipment purchased under this limited warranty may, at Bennett's discretion, void this limited product warranty.

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