Matrix™ TOTAL FLUID MANAGEMENT SYSTEM

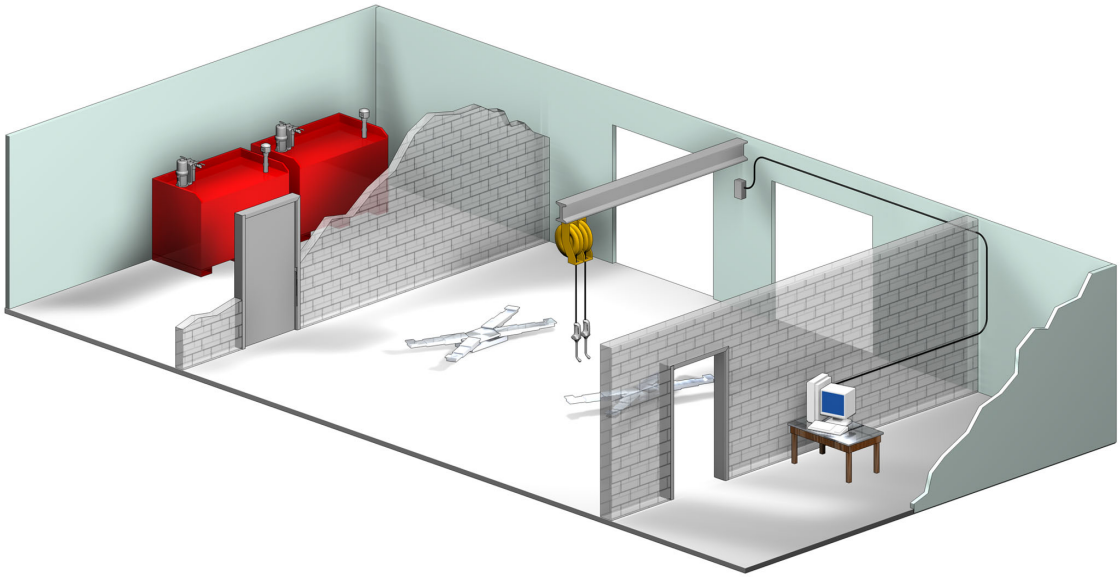
GRACO

Full Line System Design and Installation

309496E
EN

Used for system design and installation of Full Line Matrix and Full Line Matrix with ADP Approved Interface.

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.



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Manual Conventions

Warning

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution

CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage or destruction of equipment.

Note

A note indicates additional helpful information.

Warnings

The following warnings include general safety information for this equipment. More specific warnings are included in the text where appropriate.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment.
- Use only grounded hoses.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a fire extinguisher in the work area.

BATTERY SAFETY

The battery may leak, explode, cause burns, or cause an explosion if mishandled:

- You must use the battery type specified for use with the equipment.
- Sparking can occur when changing batteries. Only replace the battery in a non-hazardous location, away from flammable fluids or fumes.
- Handle and dispose of battery properly - do not short circuit, charge, force over discharge, disassemble, crush, penetrate, incinerate, or heat the battery to a temperature exceeding 185° F (85° C).

SKIN INJECTION HAZARD

High-pressure fluid from dispense valve, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispense valve at anyone or at any part of the body.
- Do not put your hand over the end of the dispense nozzle.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not alter or modify equipment.
- For professional use only.
- Use equipment only for its intended purpose. Call your Graco distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not use hoses to pull equipment.
- Comply with all applicable safety regulations.

Typical Installation

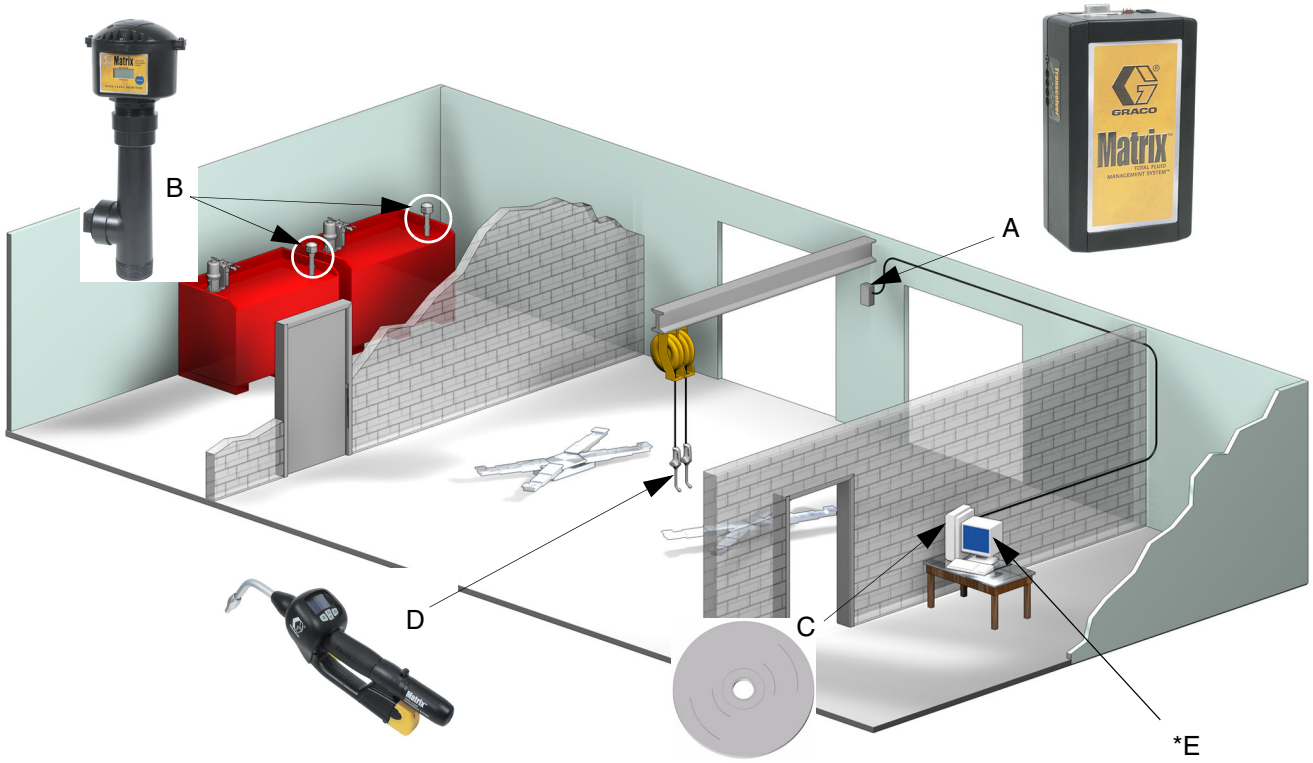

FIG. 1

Ref. No.	Part No.	Description
A	249020	Transceiver with Full Line Matrix software (C), North America (N.A.)
	249884	Transceiver with Full Line Matrix software (C), Australia
B	119274	Tank Level Monitors, N.A.
	102105	Tank Level Monitors, Australia
C		Matrix Software (included with Transceiver (A)
D	246008	Matrix Meter (includes one battery part no. 117310), N.A.
	249881	Matrix Meter (includes one battery part no. 117310), Australia
*E		Customer supplied PC

* Graco strongly recommends that the End User's IS (Information Systems) professional be involved in the selection and/or purchase of the Matrix PC. See Instruction Manual 309501 for a complete list of computer requirements. The computer requirements and the computer configuration instructions are also included on the Matrix Full Line Training CD (324050, N.A.; 324102, Australia). See your Graco Matrix distributor for this resource if required.

Reference Materials

There are references throughout this manual to other Matrix Instruction manuals. It is strongly recommended that the following manuals be ordered and kept for easy reference.

- Matrix Full Line Training CD (324050)
- Matrix Full Line Installation Manual (309496)
- Matrix Meter Instruction Manual (309497)
- Matrix Transceiver Instruction Manual (309498)
- Matrix Tank Level Monitor Manual (309500)
- Matrix Full Line Software Manual (309501)
- Matrix Meter Battery Charger Manual (309502)
- Matrix Anti-freeze Pumping Systems Manual (310650)
- Matrix CleanLine Filtering System Manual (310652)

Quick Reference Installation Checklist

The following 3 pages can be used as a quick reference installation guide for the Matrix Full Line System. Complete Matrix installation information is available in this manual and other Matrix Instruction manuals as listed on page 4.

1 3 to 4 Weeks Before Matrix Installation

1. Matrix software can be networked to multiple PCs in a facility. You should meet with both the fixed operations representative and Information Systems (IS) person from the dealership and discuss the networking requirements prior to the installation date. **Both the fixed operations lead person and the IS lead person should be on-site the day of install for assistance as-required.**
2. **RF Communications Review (RF Signal Tester)** - distributor evaluates the number and location of transceivers that will be required for the application using the Graco Matrix RF Signal Tester (249269, N.A.; 249880, Australia). See instruction manual 311002.
3. **Matrix Facility Layout** - distributor obtains a floor plan drawing of the facility, and labels the location of Matrix components (i.e., meter number, fluid, tank number, transceiver(s), PC and UPS, CleanLine filters, and anti-freeze pump packages). See page 8.
   - Drawing should include overall shop dimensions and major building structures. See page 9.
   - Verify number of transceivers and USB converters (Models: Edgeport/1, Edgeport/4, and Edgeport/8) required. These converters are available on-line from B&B Electronics at www.bb-elec.com in N.A. and from T Data at www.tdata.com.au in Australia.
4. **Complete Matrix Programming Templates** - distributor and end user representative fill out the Matrix Programming Templates.
   - Copies of the Matrix programming templates are provided at the end of this manual. Electronic copies (Excel format) are available on the Matrix Full Line Training CD.
5. **Computer Selection/Purchase** - distributor and end user select (purchase) computers that meet Matrix requirements specified by Graco.
   - Graco strongly recommends that the end user's IS (Information Systems) professional be involved in the selection and/or purchase of PCs.
6. **Computer Setup/Configuration** - distributor sets up recommended security configurations settings for Matrix.
   - By default Windows XP does not activate many security related functions upon installation.
   - Graco strongly recommends that the end user's IS (Information Systems) professional be involved in the setup/configuration of the Matrix PCs.
7. **Create Bill-of-Materials (B.O.M.)** - using the floor plan layout drawing, distributor creates the bill-of-materials and quote for the Matrix system.
   - Be careful to ensure that ***all*** necessary Matrix equipment is ordered to avoid delays during installation.
8. **Order Matrix Equipment** - distributor orders matrix equipment and has it shipped to the distributor's location.
   - Distributor should have an office or meeting room to stage the equipment for programming.

Step 1 is complete

2 Actions at Distributor Location when Matrix Equipment Arrives

1. **Charge Meter Batteries** - with equipment staged in a meeting room or office charge meter batteries.
   - Charge time is 1-2 hours based on state of battery charge.
2. **Install Nozzle Kits** - install nozzle kits on all meters. Wrench tighten extension nut with seal toward valve body.
3. **Set Transceiver Dipswitches** - make sure power is disconnected. Set dipswitches for the transceiver(s) network ID and Transceiver ID.
4. **Connect Transceiver to Distributor PC** - use appropriate cable for transceiver distance from PC.
   - If the PC does not have enough serial port connections a USB convertor must be used. USB converters (Models: Edgeport/1, Edgeport/4, and Edgeport/8) are available on-line from B&B Electronics at www.bb-elec.com.
5. **Set TLM Dipswitches** - remove batteries if necessary (TLMs are factory shipped without batteries installed), then set dipswitches for the Tank Level Monitor(s) (TLM) Network ID and Transceiver ID.
6. **Install TLM Batteries** - wait a minimum of 30 seconds after setting the dipswitches before Installing the tank level monitor (TLM) batteries supplied with product.
   - If the dipswitches are changed at any time, the setting should be done with the batteries removed. If the batteries are not removed, the TLM will revert back to the previous dipswitch settings.
7. **Charge UPS Battery** - attach the loose battery terminal to the Uninterruptible Power Supply (UPS) and charge the battery 4 hours. For complete information on the UPS setup, see manufacturer's instruction manual in the UPS box.
8. **Load Matrix Software to Distributor's Server/Primary Client PC**.
   - When the PC reboots it will self-start the Matrix software.
9. **Programming and RF Testing** - Program tanks then meters. Verify that each TLM and each meter are communicating with the transceiver.
10. **Export Matrix User Information to Media** - this is accomplished using Matrix Reports (icon on PC desktop). Take this CD to the End User Matrix installation for importing.
    - Distributor should purchase blank CDs. Distributor's PC must have a CD burner to export the end user's Matrix system parameters to a blank CD (recommend putting file on C:drive, then copy to the CD).
    - The distributor's PC must be loaded with the same Matrix software version as the end users PC.
    - Be sure to label all meters and TLMs so they match the location on the Matrix facility layout drawing (i.e., Meter 01, 5W30 and/or Tank 01, 5W30).
11. **Schedule Matrix installation** - arrange time with end user for Matrix installation.

Step 2 is complete

3 Actions the Day of the Installation

1. **Install CleanLIne Filters and Flush Supply Lines** - distributor installs the Graco CleanLine filtering systems on all fluids, then flushes the service lines and drops per Graco recommendations. See page 13.
   - Do not flush lines with Matrix meters installed.
2. **Install UPS Software** - double click the APC icon on the desktop of the monitor. See page 10.
3. **Connect UPS to User Server/Primary Client PC**. Load the UPS software.
   - Connect the Server/Primary Client PC and monitor to the battery back-up receptacles on the UPS, not the surge protection side. Use the surge protection side for PC peripherals (i.e., printer, scanners).
   - Configure the UPS software. For complete UPS setup information, see manufacturer's instruction manual in the UPS box.
4. **Install Matrix Full Line Software to User PC** - load Matrix software to end user PC. It will automatically decompress.
   - When the PC reboots it will self-start the Matrix software.
5. **Import Matrix User Parameters from Media** - insert the end user's Matrix parameter CD into the computer CD drive, and import the data to the PC using the Matrix Reports function.
6. **Locate and Connect Transceiver(s) to PC** - locate Transceivers in shop temporarily using double-faced tape. Connect the Transceiver(s) to the PC using RS232 and/or RS422 cable. Connect USB converters at this time if required for the application.
   - Use RS232 cable, RS422 cable, and USB converters as required. Graco recommends transceiver(s) be located in a central location to the Matrix components in the main body of the shop.
7. **Install TLMs** - fluid tank should be level.
8. **Perform TLM RF Test** - after installing each TLM, push blue button to insure proper communication to the transceiver.
9. **Install Meters** - be sure to follow installation instructions.
   - Do not wet-out a meter until RF is verified.
10. **Perform Meter RF Test** - After each meter is programmed, send a test dispense and verify it arrives at the meter dispense information screen with its intended meter name.
11. **Train Personnel** - ensure that all personnel, administrator, and technicians are thoroughly trained on Matrix equipment.
12. **Allow Matrix system to operate for 30 days** - make certain there are no RF communication issues over time.
    - It may be necessary to relocate the transceivers (temporarily installed with double-faced tape) to improve RF communication. When the system operates reliably for 30 days, the Matrix transceiver(s) can be permanently mounted using the mounting bracket(s).

Step 3 is complete

Facility Layout and RF Signal Testing

All fluids in the system must use the Graco CleanLine Filtering System. See Matrix CleanLine Filtration System Instruction Manual 310652. Read the CAUTION below carefully.

CAUTION

- Fluid lines MUST be thoroughly flushed before installing Matrix meters. See Matrix meter instruction manual 309497.
- All Matrix systems MUST use the Graco Matrix Filtering System for initial flushing and ongoing operation for all service fluids. See Matrix CleanLine™ Filtration System, Instruction Manual 310652.
- Pressure relief kits MUST be used on all pumps in the Matrix system to prevent over-pressurization due to thermal expansion. See Pressure Relief Kits, Instruction Manual 308403.

Failure to comply with the following installation requirements may result in warranty coverage being denied.

1. Make a facility layout drawing to help you plan the location of Matrix components. Include facility dimensions and all Matrix components.
2. Label all meters and TLMs so they match the location on the Matrix facility layout drawing (i.e. Meter 01, 5W30 and/or Tank 01, 5W30).
3. The Matrix RF Signal Tester is used to evaluate the RF signal quality within a facility and help locate transceivers, meters, and tank level monitors. The tester is used with an available Transceiver. RF quality can be affected by building characteristics such as building size and type of construction. Other RF devices located in the building or close by can also affect Matrix RF signals. The RF tester will help you locate the Matrix components in the best possible location. Follow the instructions in the RF Signal Tester Instruction Manual 311002.

Complete End User Template

Work closely with the end user to complete the Matrix Programming Template, beginning on page 14 or electronically on the Full Line Matrix Training CD. The worksheets include all the information required to program the Matrix system and its components to the end user's requirements.

After completing the worksheets, you can:
- program all the end user's system parameters.
- program all Matrix Meters and Tank Level Monitors prior to installation.
- export and save the programmed information on a CD or floppy disk to import onto the end user's PC.

Pre-program End User System Parameters

The Matrix system and components can be pre-programmed using the distributor's computer (loaded with current version Matrix software) prior to the installation day. Use a computer that meets the minimum suggested PC requirements. See page 4.

Be sure the current version of Matrix software is loaded on the PC.

Pre-program Matrix components

Using the worksheets mentioned in **Complete End User Template**, page 9, load the programming parameters for all TLMs and Meters for the installation. This will require loading such inputs as tank configurations, TLM reporting schedules, and Meter operating settings.

1. Charge meter batteries and install nozzle kits on all meters.

2. Set the Transceiver(s) Network ID and Transceiver ID dipswitches. Be sure the power is disconnected when setting the dipswitches. See Transceiver Instruction Manual 309498.

3. Set the Tank Level Monitor(s) Network ID and Transceiver ID dipswitches. Be sure the batteries are disconnected during this process. See Tank Level Monitor Instruction Manual 309500.

4. Install the Tank Level Monitor (TLM) batteries supplied with the product at least 30 seconds after the dipswitch settings are set. The time delay ensures that the TLM can read the new dipswitch settings. If you do not wait the 30 seconds the TLM will read the previous dipswitch setting.

5. Attach the loose battery to the Uninterruptible Power Supply (UPS) and charge the battery for 4 hours. The UPS software and its settings will be made on the end users PC on the day of installation. See page **Uninterrupted Power Supply (UPS)** page 10 for more information on UPS setup.

6. Using the completed Matrix Installation Worksheets, program all system components and export them to the PC hard drive. Remember to label the meters and TLMs to coordinate with the descriptions in the facility layout drawing. Transfer the file from the hard drive to a CD.

7. Schedule the Matrix installation.

Exporting Data

1. Double-click the **Matrix Reports** icon on the desktop and navigate to Tools/Database Utilities/Export Database.

2. The *.sql will be highlighted. Type the file name in the File Name text box (i.e., John Doe Dealership).

3. Select location for saving the exported information.

The file should be first saved to the PC hard drive then copied to a CD or floppy disk.

4. Click **Save**. It will take a few minutes, depending on file size.

5. Navigate to the location of the hard drive that the file was saved to. Select the file and right click on it with your mouse. Select copy. Navigate to the drive (floppy disk or CD) that the database is being exported to. Select the drive, right click, and select paste.

Importing Data

1. Insert the CD containing the end user's programmed information.

2. Double-click the **Matrix Reports** icon, and navigate to Tools/Database Utilities/Import Database.

The file should be first saved to the PC hard drive.

3. Click the Look In arrow and select the floppy disk or CD depending on which media you are using.

4. Click on the file (i.e., John Doe Dealership.sql) and click **Open**, The information is saved to the PC.

5. Close Matrix Reporter.

Uninterrupted Power Supply (UPS)

An Uninterruptible Power Supply (UPS), manufactured by APC, is required for every Matrix PC. The UPS provides up to 24 minutes of auxiliary battery back-up power to the PC during power interruption.

The UPS can be programmed to safely shut-down the PC and any open software (Matrix) during a power interruption. This capability prevents potential data corruption of the Matrix software should there be a power outage.

UPS Features:

- Four battery back-up receptacles. The Matrix computer and monitor should be plugged into this section of the UPS.
- Three surge-suppression receptacles. Plug in other computer peripherals like a printer, Fax machine, or scanner.
- Protects two-line phone, Fax, DSL, and modem line from lightning surges.
- Visual alarms include normal function when running on battery power, overload warning (unplug excess equipment) and battery replacement (contact APC).
- Audible alarms include running on battery power, impending shutdown (immediately save data) and overload warning (unplug excess equipment).

Installation

Locate and refer to the APC instruction pamphlet included in the APC shipping box for more information and detailed installation instructions. The following is a brief summary of the steps in the APC manual.

1. The UPS is shipped with one battery wire disconnected (Department of Transportation regulations). First remove the cover, slide out the battery and connect this wire to the battery terminal.
2. Locate the UPS away from direct sunlight, excessive heat, excessive humidity, or contact with liquids. Plug the UPS directly into a wall outlet and allow to charge for 4 hours.
3. Check the building wiring fault indicator light. If the light stays lit, there may be grounding issues with the circuit. See the APC instruction pamphlet.
4. Connect the provided USB cable from the UPS to your computer. **This is not an optional step as outlined in the APC pamphlet.**
5. Connect phone lines to surge protection.
6. Switch on and test the UPS by pressing the On/Test button. After the test is complete only the green On Line indicator should be lit.
7. Connect the USB Cable. **This is not an optional step as listed in the APC pamphlet.** The USB cable must be connected for the Matrix system to function as intended.
8. If a DSL Internet service is used, connect the phone line to the wall outlet fitting on the UPS, then connect the modem/phone/fax connection to the PC. The UPS provides surge protection.

   The UPS does not provide surge protection for Broadband cable customers. This will need to be purchased separately if desired.

9. Plug your computer and monitor into the UPS. Make certain the computer and monitor are connected to the receptacles for battery back-up.
10. Switch on the UPS and test by pressing the ON/TEST button. After the test only the green ON Line indicator should be lit. Then turn on the computer and monitor.
11. Install the APC software provided with the UPS. **This is not an optional step as listed in the pamphlet.** The software must be installed for the Matrix system to function as intended.

Configuring the UPS (APC) Software

After software installation, configure the software as follows.

1. Double click the APC icon that appears on the computer monitor's desktop.

2. Select the Configuration Tab. In the **PowerChute Sounds** box select "Enable Power Chute notification sounds". In the **Battery Backup Alarms** box select the "Enable battery backup alarms at all times".See FIG. 2.

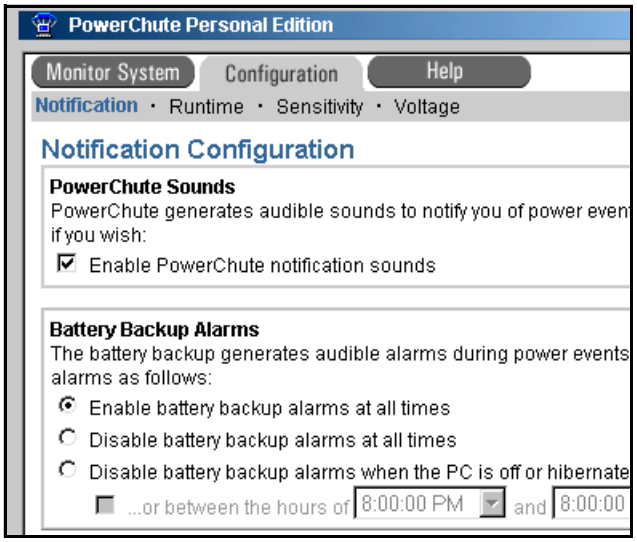

FIG. 2

3. Select the subtab called Runtime. Select "Keep my Computer on as long as possible" and choose 5 minutes from the drop down box. See FIG. 3.

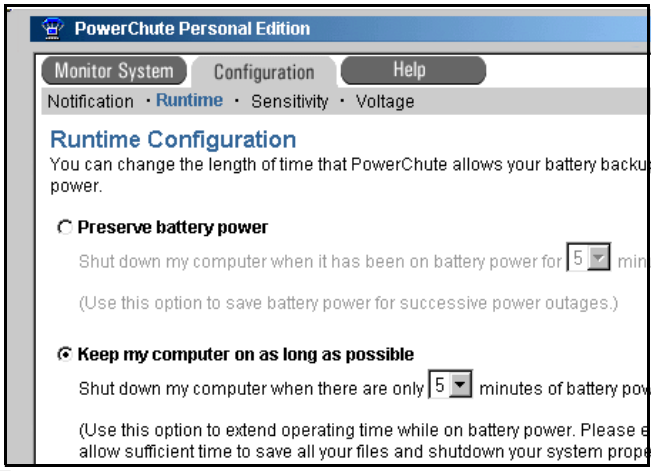

FIG. 3

4. Select the next subtab called Sensitivity. Choose Medium for the sensitivity configuration.See FIG. 4.

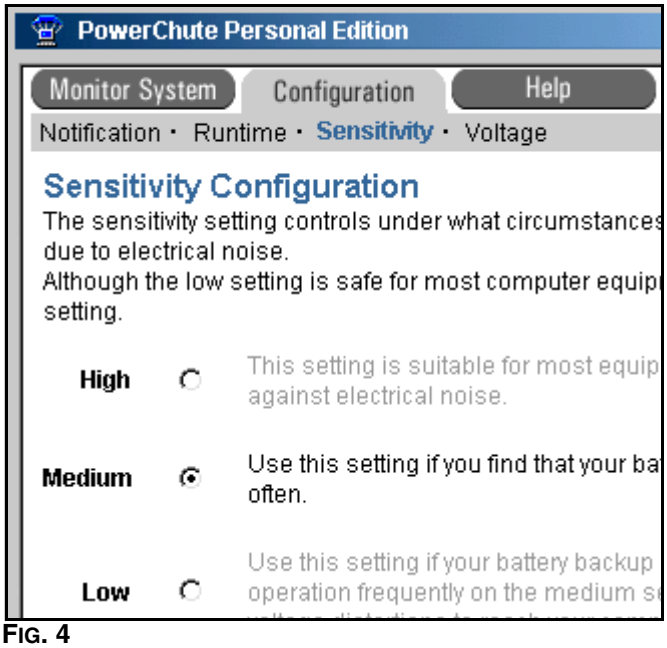

FIG. 4

5. Select the final subtab called Voltage.

   a. In N.A., make sure that 133 is selected from the drop down box next to "If AC utility voltage goes above" and that 106 is selected from the drop

down box next to “If AC utility voltage goes below”. See FIG. 5.

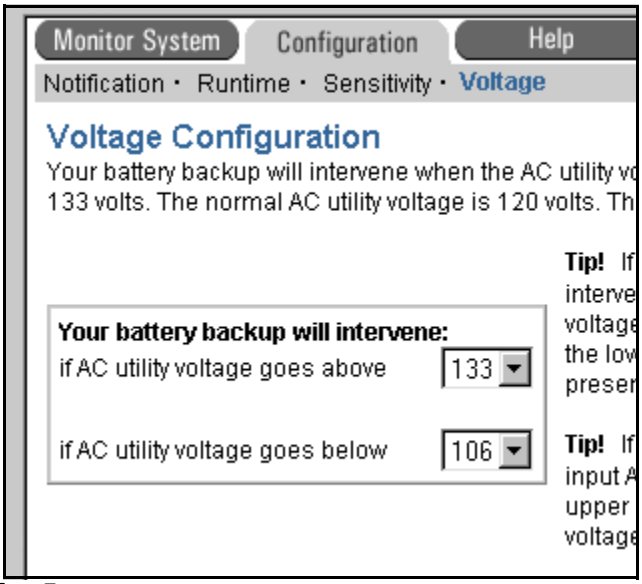

FIG. 5

b. In Australia, make sure that 266 is selected from the drop down box next to “If AC utility voltage goes above” and that 180 is selected from the drop down box next to “If AC utility voltage goes below”. See FIG. 6.

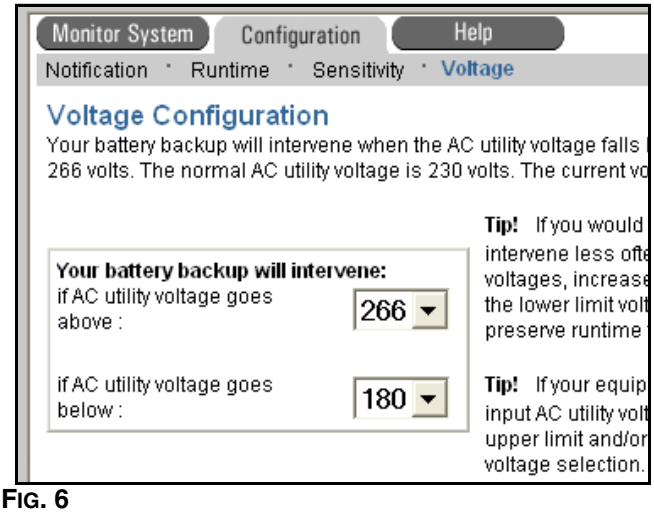

FIG. 6

6. Click **Apply Changes** and close the window. Your software is now configured correctly for the Matrix system.

COM Port Verification & Multiple Transceiver Systems

COM 1 is the default serial port after the Matrix software is loaded. COM port settings are made in the System Configuration section of the Matrix System Setup.

If the Matrix meters and TLMs are unable to communicate to the Matrix PC through COM 1, select another COM port from the serial port drop-down menu. One or more serial ports may be occupied with another device.

Matrix will display all COM ports available for the PC. If the others in the list do not allow communication of the Matrix components to the PC, (after consulting the facility’s IS professional), you may need to obtain a USB to Serial Port converter. If this was a single Transceiver, a single-port converter would be used. Graco recommends using the Edgeport/1 USB converter. This is supplied by B & B Electronic Manufacturing company (www.bb-elec.com) in N.A. and T Data company (www.tdata.com.au) in Australia, not Graco. The converter will be supplied with software that will load another serial port to your PC.

If this is a multiple Transceiver application, and the PC does not have a sufficient number of serial ports for them to be connected, you will need to obtain a USB to serial port converter. A four-port and eight-port converter can be used based on the number of Transceivers in the system. Graco recommends either the Edgeport/4 or Edgeport/8 converter. This is supplied by B & B Electronic Manufacturing company (www.bb-elec.com) not Graco. The converter will be supplied with software that will load another four or eight serial ports to your PC based on the model selected.

Matrix Installation

Pressure Relief Procedure

WARNING

Read warnings, page 3, and follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve pressure.
- stop operation.
- check, clean, or service any of the equipment.

1. Turn off the power supply to the pump.
2. Trigger the dispense valve into a waste container to relieve pressure.
3. Open any bleed-type master air valves and fluid drain valves in the system.
4. Leave the drain valve open until you are ready to pressurize the system.

Grounding.

WARNING

The system must be properly grounded. Read warnings, page 3. Follow the instructions below.

This equipment requires a 120V AC, 60 Hz, 15A circuit with a grounding receptacle in N.A.; and a 240 V AC, 50 Hz, 15A circuit with a grounding receptacle in Australia.

- Do not use an adapter with this product.
- Do not modify plug provided; if it will not fit the outlet, have a proper outlet installed by a qualified electrician.
- Use only an extension cord with an undamaged, 3-prong plug.

Installation

1. With the CleanLine filters installed, lines flushed properly, and UPS connected to the PC, load the Matrix software to the end user PC. The software will automatically decompress, load to the hard drive, and load two icons on the desktop. The Matrix Application icon is for the operation and setup of the Matrix system. The Matrix Reports icon is for import/export and reporting functions.
2. Insert the end user's Matrix parameter CD into the PC's CD drive and import (see page 9) the data to the PC.
3. Install all labeled meters and TLMs using the system layout drawing.
4. Locate the Transceiver(s) in the shop temporarily using double-faced tape (you may want to move these later based on RF issues) using RS232 or RS422 cable. If RS422 is being used, USB converters (119435) will be required for each Transceiver.
5. Verify the COM port communication (see page 12).
6. Test the RF communication of each meter and TLM in the system.
7. Allow the system to operate at least 30 days before permanent installation of the Transceiver(s) is completed.

Matrix Programming Templates

System Configuration								
Note: Example shown in red.								
Security Level (select setting that reflects most meter security settings of meters)								
System Monitoring								
PIN Code Required	X							
Parts Room Authorization								
Measurement System (select English or Metric)	English							
Emergency Code (enter 4 digit number code)	4589							
Contact Information								
Company Name	Bob's Car Dealership							
Address	0000 Elm Street							
City, State, Zip Code	Somewhere, MN 55555							
Phone Number	(123) 456-7890							
Contact Person	John Doe							
	Transceiver 1	Transceiver 2	Transceiver 3	Transceiver 4	Transceiver 5	Transceiver 6	Transceiver 7	Transceiver 8
Transceiver Description	Fast Lube	General Shop	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Network ID (A-H, A is default from factory)	A	A	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Transceiver ID (A-H, A is default from factory)	A	B	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Serial Port (open COM port)	COM 1	COM 3	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8 (etc...)
PC Client (Name or IP Address)	127.0.0.1	PC0001	PC0002	PC0003	PC0004	PC0005	PC0006	PC0007
Client Port Number	8082	8082	8082	8082	8082	8082	8082	8082
Description	Matrix Server	Bobs PC	Freds PC	Gayles PC	Brents PC	Marks PC	Steves PC	Als PC
Client Type (primary or shop)	Primary	Shop	Shop	Shop	Shop	Shop	Shop	Shop

Matrix Programming Templates

System User Setup (example shown in red)						
User Name	**Pin Number** 4 digits	**Security Level** (check one of three options)				Required for Administrators and Work Order Security Levels Only
		Basic	**Work Orders**	**Administrator**	**Full Name**	**Password**
John	2485			X	John Doe	john4fun

Matrix Programming Templates

Customized Fluid List (optional) (example shown in red)			
Matrix has generic descriptions of service fluids. If generic descriptions are acceptable (i.e., 5W30), then move to the next worksheet. If you wish to create a customized fluid list, the information should be described below. An example is provided.	**Fluid Type** (select one for each fluid listed)		
Custom Fluid List (optional)	**Oil/ATF**	**Gear Lube**	**Anti-freeze 50/50**
Mobil 246A		X	

Matrix Programming Templates

Tank Setup (Example shown in red. There are (10) pages provided. One page is completed for each tank.)	
Tank Name (typically a number)	01
Fluid Name	10W30
Tank Capacity	1000
Tank Level Monitor (yes or no)	Yes
Tank Units (gallons or liters)	gallons
Tank Geometry (vertical, cylinder, or obround)	vertical
Vertical Tank Geometry Requirements:	
Fluid Height to Full (inches or centimeters)	52 inches
Fluid Full Lever to Bottom of Monitor	0 inches
Tank Warning Level (expressed as a percentage - 10% default)	15%
Tank Warning Type (low or high level reading)	Low
Battery Warning Level (expressed as a percentage - 10% default)	15%
Transceiver ID (should be defined by installing Matrix Distributor)	A/B
T**ank Schedule** (scheduled on the hour up to 10 reports - recommend one setting to save battery life)	12 a.m.
Cylinder Tank Geometry Requirements:	
Tank Length (inches or centimeters)	Not Applicable
Fluid Height to Full (inches or centimeters)	Not Applicable
Fluid Full Level to Bottom of Monitor	Not Applicable
Tank Warning Level (expressed as a percentage - 10% default)	Not Applicable
Tank Warning Type (low or high level reading)	Not Applicable
Battery Warning Level (expressed as a percentage - 10% default)	Not Applicable
Transceiver ID (should be defined by installing Matrix Distributor)	A/B
Tank Schedule (scheduled on the hour up to 10 reports - recommend one setting to save battery life)	Not Applicable
Obround Tank Geometry Requirements:	
Tank Length (inches or centimeters)	Not Applicable
Tank Width (inches or centimeters)	A/B
Fluid Height to Full (inches or centimeters)	Not Applicable
Fluid Full Level to Bottom of Monitor	Not Applicable
Tank Warning Level (expressed as a percentage - 10% default)	Not Applicable
Tank Warning Type (low or high level reading)	Not Applicable
Battery Warning Level (expressed as a percentage - 10% default)	Not Applicable
Transceiver ID (should be defined by installing Matrix Distributor)	A/B
Tank Schedule (scheduled on the hour up to 10 reports - recommend one setting to save battery life)	Not Applicable

Matrix Programming Templates

Meter Setup	Choose the Work Order option below for each meter.						W.O. @ PC	W.O. @ Meter		
	Option #1: Work orders can be assigned to the meter from the PC only.						Yes	No		
	Option #2: Work orders can be assigned to the meter from the PC or from the meter itself.						Yes	Yes		
Note: Example shown in red.	Option #3: Work orders are not being used in the system.						No	No		
	Meter Mode									
	Manual	Preset		Fluid Type	Units	Security Type	Use Work Orders at PC	Enable Work Orders Entry at Meter	Transceiver ID	Battery Warning Level Percentage
Meter Name		Preset Amount	Top Off Volume Limit Percentage (Choices include: 0, 25, 50, 75, 100, unlimited)		(Choices include: pints, quarts, gallons, or liters)	(Choices include: System Monitoring, PIN Code, and Parts Room Authorization)	(yes or no)	(yes or no)	(this should be specified by the Matrix installing distributor)	(10% is default)
1	Manual	N/A	N/A	10W30	Quarts	System Monitoring	No	No	A/A	20%
2		4.5	Unlimited	5W20	Quarts	PIN Code	Yes	Yes	A/A	20%

Matrix Programming Templates

E-Mail Setup	
IMPORTANT: Contact your Internet Service Provider for the Outgoing Simple Mail Transfer Protocol (SMTP) address. Verify that the Internet provider does not change the SMTP outgoing address for each e-mail exchange (i.e., AOL). If this is the case, a different e-mail provider will be required for Matrix to function properly.	
IMPORTANT: Verify with the customer's IS professional if a user name and password is required for the SMTP server. This information may not be required for every application.	
Company Name (this is the Matrix end user company name)	**Bob's Car Dealership**
"From" E-Mail Address (this is the actual e-mail address of the designated Matrix PC)	matrixsystem@ISP.com
SMTP Server Address For Outgoing Mail	**mail.your_ISP.com**
SMTP Use Authentication (verify with customer's IS professional if a user name and password is required to access the outgoing SMTP address. Record the user name and address information below.	
User Name	Bob's Dealership
Password	cars4sale

Matrix Programming Templates

E-Mail Event Schedule															
	Missed Tank Level Reading		Tank Low Level Warning		Tank High Level Warning		Current Tank Volume				Tank Volume History				
Sent to E-Mail Address	Sent Automatically	Missed Tank Level Reading Tank Assignment	Sent Automatically	Tank Low Level Warning Tank Assignment	Sent Automatically	Tank High Level Warning Tank Assignment	Day of Month	Time	Order Information (fluid type, max volume, current volume, and time stamp)	Ascending or Descending Order	Day of Month	Time	Order Information (fluid type, max volume, current volume, and time stamp)	Ascending or Descending Order	Tank Assignment
jdoe@oildist.com							30	2:00 a.m.	Fluid Type	Descending					
jsmith@oilevac.com					X	Tank 1									
					70										

Matrix Programming Templates

This form is for use with Matrix ADP applications only.

ADP-Matrix Interface Configuration (Parts)		
When the software is loaded by the Matrix distributor, the interface will be in a "disabled" status. This template will allow you to configure the interface screens in Matrix. A		
Note: Example in Red.		
ADP DMS Connection Setup:		
Contact	**Information Required**	**Description**
Consult with IS Contact:	Host (Name or IP Address):	**ADP**
Hard coded value and does not change.	Port Number:	**10224**
Defined by Graco.	Group Name:	**Freewayford**
Consult with Fixed Operation Contact:	Bulk Fluids Managed/Sold By (Service or Parts):	**Parts**
Default software loading is to disabled status. After ADP-Matrix Interface Configuration screens are completed, the End User contacts Graco Technical Support to "enable" the interface and test.	Matrix/ADP Interface State (disabled is default):	**Disabled**
Unit Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 1:**	**Mobil 5W30 Organic**
	Part Number (refers to the part number of a single unit of this fluid, I.e., 1 quart of 5W30 oil):	**5W30**
	Sale Price (if not defined here in Matrix will use the DMS default pricing):	**$1.55**
	Part Comment (used to populate a message that will appear on all work orders using this part number):	**No comment required**
	Accounting Units (pints, quarts, gallons, and liters are listed, but the fluid billing units do not need to match the meter programmed units):	**Quarts**
	Custom Unit Multiplier (used when User uses units other than standard units of measure from the previous entry (I.e., tenths of quarts - 10 would be the custom unit multiplier -- 5 quarts of oil in this scenario would post 50 units of the fluid on the W.O.)	**Not Applicable**
	Adjusted Volume (always round up, always round down):	**Always round up**
	Enable Menu Pricing (If no, the unit pricing will apply. If yes, the interface searches the menu list for a menu whose criteria is satisfied -- if a menu applies that menus configuration is used to apply charges to the W.O. If no menu is found, unit pricing applies):	**No**
Unit Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 2:**	**Mobil 0W4 Synthetic**
	Part Number (refers to the part number of a single unit of this fluid, I.e., 1 quart of 5W30 oil):	**0W40**
	Sale Price (if not defined here in Matrix will use the DMS default pricing):	**$1.55**
	Part Comment (used to populate a message that will appear on all work orders using this part number):	**No comment required**
	Accounting Units (pints, quarts, gallons, and liters are listed, but the fluid billing units do not need to match the meter programmed units):	**Quarts**
	Custom Unit Multiplier (used when User uses units other than standard units of measure from the previous entry (I.e., tenths of quarts - 10 would be the custom unit multiplier -- 5 quarts of oil in this scenario would post 50 units of the fluid on the W.O.)	**Not Applicable**
	Adjusted Volume (always round up, always round down):	**Always round up**
	Enable Menu Pricing (If no, the unit pricing will apply. If yes, the interface searches the menu list for a menu whose criteria is satisfied -- if a menu applies that menus configuration is used to apply charges to the W.O. If no menu is found, unit pricing applies):	**No**

Matrix Programming Templates

Unit Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 7:**	
	Part Number (refers to the part number of a single unit of this fluid, I.e., 1 quart of 5W30 oil):	
	Sale Price (if not defined here in Matrix will use the DMS default pricing):	
	Part Comment (used to populate a message that will appear on all work orders using this part number):	
	Accounting Units (pints, quarts, gallons, and liters are listed, but the fluid billing units do not need to match the meter programmed units):	
	Custom Unit Multiplier (used when User uses units other than standard units of measure from the previous entry (I.e., tenths of quarts - 10 would be the custom unit multiplier -- 5 quarts of oil in this scenario would post 50 units of the fluid on the W.O.)	
	Adjusted Volume (always round up, always round down):	
	Enable Menu Pricing (If no, the unit pricing will apply. If yes, the interface searches the menu list for a menu whose criteria is satisfied -- if a menu applies that menus configuration is used to apply charges to the W.O. If no menu is found, unit pricing applies):	
Menu Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	Dispense Volume Range (min and max):	**0.01-4.9 quarts**
	Line Labor Type (if left blank, line labor type is ignored):	**Ignore**
	Start Date:	**March 1, 2006**
	End Date:	**April 1, 2006**
	Start Time (24-hr):	**07.00**
	End Time (24-hr):	**18.00**
	Menu Schedule (daily, weekly Monday to Friday, and Weekends Saturday and Sunday):	**Daily**
	Fluid Part Number:	**5W30**
	Sale Price (when populated will override the DMS pricing):	**$7.60**
	Fluid Quantity (if populated will add this quantity of this fluid part number to the W.O. If left blank, the adjusted volume is used as the quantity -- this is used when the user wants to unit price the fluid, but charges a flat fee for an oil filter):	**1**
	Fluid Part Comment (appears next to the part number on W.O. if populated)	**Not Applicable**
	Include Selected Oil Filter or Filters (Yes means any parts attached to the W.O. from the oil filter category of parts are charged at the sale price listed in the field below. If left blank, the DMS pricing applies, If no, the feature is not used and normal DMS pricing is applied to any oil filter):	**Yes**
	Filter Sale Price:	**$8.90**
	Include Additional Parts (can list up to three parts, quantities, and sale prices that can be added to the W.O. automatically -- if left blank, DMS price will be used, leaving the quantity blank is the same as specifying zero quantity and the part will not be added to the W.O.):	**Not Applicable**

Matrix Programming Templates

Menu Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	Dispense Volume Range (min and max):	**5.0-8.0 quarts**
	Line Labor Type (if left blank, line labor type is ignored):	**Ignore**
	Start Date:	**March 1, 2006**
	End Date:	**April 1, 2006**
	Start Time (24-hr):	**07.00**
	End Time (24-hr):	**18.00**
	Menu Schedule (daily, weekly Monday to Friday, and Weekends Saturday and Sunday):	**Daily**
	Fluid Part Number:	**5W30**
	Sale Price (when populated will override the DMS pricing):	**$12.40**
	Fluid Quantity (if populated will add this quantity of this fluid part number to the W.O. If left blank, the adjusted volume is used as the quantity -- this is used when the user wants to unit price the fluid, but charges a flat fee for an oil filter):	**1**
	Fluid Part Comment (appears next to the part number on W.O. if populated)	**Not Applicable**
	Include Selected Oil Filter or Filters (Yes means any parts attached to the W.O. from the oil filter category of parts are charged at the sale price listed in the field below. If left blank, the DMS pricing applies, If no, the feature is not used and normal DMS pricing is applied to any oil filter):	**Yes**
	Filter Sale Price:	**$8.60**
	Include Additional Parts (can list up to three parts, quantities, and sale prices that can be added to the W.O. automatically -- if left blank, DMS price will be used, leaving the quantity blank is the same as specifying zero quantity and the part will not be added to the W.O.):	**Not Applicable**
Menu Pricing Setup (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	Dispense Volume Range (min and max):	
	Line Labor Type (if left blank, line labor type is ignored):	
	Start Date:	
	End Date:	
	Start Time (24-hr):	
	End Time (24-hr):	
	Menu Schedule (daily, weekly Monday to Friday, and Weekends Saturday and Sunday):	
	Fluid Part Number:	
	Sale Price (when populated will override the DMS pricing):	
	Fluid Quantity (if populated will add this quantity of this fluid part number to the W.O. If left blank, the adjusted volume is used as the quantity -- this is used when the user wants to unit price the fluid, but charges a flat fee for an oil filter):	
	Fluid Part Comment (appears next to the part number on W.O. if populated)	
	Include Selected Oil Filter or Filters (Yes means any parts attached to the W.O. from the oil filter category of parts are charged at the sale price listed in the field below. If left blank, the DMS pricing applies, If no, the feature is not used and normal DMS pricing is applied to any oil filter):	
	Filter Sale Price:	
	Include Additional Parts (can list up to three parts, quantities, and sale prices that can be added to the W.O. automatically -- if left blank, DMS price will be used, leaving the quantity blank is the same as specifying zero quantity and the part will not be added to the W.O.):	

Matrix Programming Templates

Non-Fluid Parts (Parts):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	List Non-Fluid Parts Categories:	**Oil Filters, Air Filters, Wipers, Drain Plugs, Gaskets**
	Parts List	
	1234	**Oil Filter**
	2468	**Air Filter**
	Continue this chart if required for additional part numbers	

Matrix Programming Templates

This form is for use with Matrix ADP applications only.

ADP-Matrix Interface Configuration (Service)		
When the software is loaded by the Matrix distributor, the interface will be in a "disabled" status. This template will allow you to configure the interface screens in Matrix. A Graco Technical Support person will contact the End User (I.e., Information Systems Contact and Fixed Operations Contact) to verify this information and "enable" and test the interface operation. The distributor and End User should complete this template prior to calling Graco to enable the interface.		
Note: Example in Red.		
ADP DMS Connection Setup:		
Contact	**Information Required**	**Description**
Consult with IS Contact:	Host (Name or IP Address:	**ADP**
Hard coded value and does not change.	Port Number:	**10224**
Defined by Graco.	Group Name	**Freewayford**
Consult with Fixed Operation Contact to determine a list of labor types. These will appear in a list on the Work Order Entry Screen in Matrix for selection.	Service Lube Charge Labor Types:	**CP1, WP1, IP1**
Consult with Fixed Operation Contact:	Bulk Fluids Managed/Sold By (Service or Parts):	**Service**
Default software loading is to disabled status. After ADP-Matrix Interface Configuration screens are completed, the End User contacts Graco Technical Support to "enable" the interface and test.	Matrix/ADP Interface State (disabled is default):	**Disabled**
Unit Pricing Setup (Service):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 1:**	**Mobil 5W30 Organic**
	Unit Cost:	**$1.25**
	Unit Sale:	**$1.55**
	Units (quarts, pints, gallons, liters):	**Quarts**
	Adjusted Volume (no adjustment, always round up, or always round down):	**no adjustment**
	Adjusted Volume can be adjusted to the next whol number (X.0), to tenths X.X or to hundretdths (XX.X).	**tenths (X.X)**
	Charge Type (Lube, Sublet, or Miscellaneous):	**Lube**
	Default Labor Type (list the labor type most frequently used):	**CP1**
	Charge Description (when populated will appear on W.O.'s for this fluid -- the actual dispense amount anf fluid name will automatically be added to any other description you provide in this space):	**None**
	Enable Menu Pricing (If no, normal pricing on the field above will apply to the W.O. If yes, menu pricing will apply.):	**No**
Unit Pricing Setup (Service):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 2:**	**Mobil 0W40 Synthetic**
	Unit Cost:	**$4.22**
	Unit Sale:	**$6.00**
	Units (quarts, pints, gallons, liters):	**Quarts**
	Adjusted Volume (no adjustment, always round up, or always round down):	**no adjustment**
	Adjusted Volume can be adjusted to the next whole number (X.0), to tenths X.X or to hundredths (XX.X).	**tenths (X.X)**
	Charge Type (Lube, Sublet, or Miscellaneous):	**Lube**
	Default Labor Type (list the labor type most frequently used):	**CP1**
	Charge Description (when populated will appear on W.O.'s for this fluid -- the actual dispense amount and fluid name will automatically be added to any other description you provide in this space):	**None**
	Enable Menu Pricing (If no, normal pricing on the field above will apply to the W.O. If yes, menu pricing will apply.):	**No**

Matrix Programming Templates

Unit Pricing Setup (Service):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	**Fluid Name 6:**	
	Unit Cost:	
	Unit Sale:	
	Units (quarts, pints, gallons, liters):	
	Adjusted Volume (no adjustment, always round up, or always round down):	
	Adjusted Volume can be adjusted to the next whole number (X.0), to tenths X.X or to hundredths (XX.X).	
	Charge Type (Lube, Sublet, or Miscellaneous):	
	Default Labor Type (list the labor type most frequently used):	
	Charge Description (when populated will appear on W.O.'s for this fluid -- the actual dispense amount and fluid name will automatically be added to any other description you provide in this space):	
	Enable Menu Pricing (If no, normal pricing on the field above will apply to the W.O. If yes, menu pricing will apply.):	
Menu Pricing Setup (Service):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	Dispense Volume Range (min and max):	**0.01-4.9 quarts**
	Line Labor Type (if left blank, line labor type is ignored):	**Ignore**
	Start Date:	**March 1, 2006**
	End Date:	**April 1, 2006**
	Start Time (24-hr):	**07.00**
	End Time (24-hr):	**18.00**
	Menu Schedule (daily, weekly Monday to Friday, and Weekends Saturday and Sunday):	**Daily**
	Fluid Cost:	**$20.68**
	Sale Price:	**$29.40**
	Lube Charge Calculation (Can either be "Use Cost and Sale as Configured" or "Multiply Cost and Sale by Quantity Dispense." Using Cost and Sale as Configured causes the interface to use the cost and sale directly as entered. Using Multiply Cost and Sale by Quantity Dispensed uses the cost and sale entered, multiplied by the actual dispense amount. This option is used when the user wants to unit price the fluid, but be able to charge a flat fee for the filter.	**Use Cost and Sale as Configured**
	Charge Type (Lube, Sublet, Miscellaneous):	**Lube**
	Charge Description (will appear on all W.O.'s using this fluid -- the actual dispense amount and fluid name will automatically be added to any other description you provide in this space.	**Not Applicable**
	Include Selected Oil Filter or Filters (Yes means any parts attached to the W.O. from the oil filter category of parts are charged at the sale price listed in the field below. If left blank, the DMS pricing applies, If no, the feature is not used and normal DMS pricing is applied to any oil filter):	**Yes**
	Include Additional Parts (can list up to three parts, quantities, and sale prices that can be added to the W.O. automatically -- if left blank, DMS price will be used, leaving the quantity blank is the same as specifying zero quantity and the part will not be added to the W.O.):	**Not Applicable**

Matrix Programming Templates

Non-Fluid Parts		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	List Non-Fluid Parts Categories:	**Oil Filters, Air Filters, Wipers, Drain Plugs, Gaskets**
	Parts List	
	1234	**Oil Filter**
	2468	**Air Filter**
	Continue this chart if required for additional part numbers	

Matrix Programming Templates

Menu Pricing Setup (Service):		
Contact	**Information Required**	**Description**
Consult with Fixed Operation Contact:	Dispense Volume Range (min and max):	**5.0-8.0 quarts**
	Line Labor Type (if left blank, line labor type is ignored):	**Ignore**
	Start Date:	**March 1, 2006**
	End Date:	**April 1, 2006**
	Start Time (24-hr):	**07.00**
	End Time (24-hr):	**18.00**
	Menu Schedule (daily, weekly Monday to Friday, and Weekends Saturday and Sunday):	**Daily**
	Fluid Cost:	**$33.76**
	Sale Price:	**$48.00**
	Lube Charge Calculation (Can either be "Use Cost and Sale as Configured" or "Multiply Cost and Sale by Quantity Dispense." Using Cost and Sale as Configured causes the interface to use the cost and sale directly as entered. Using Multiply Cost and Sale by Quantity Dispensed uses the cost and sale entered, multiplied by the actual dispense amount. This option is used when the user wants to unit price the fluid, but be able to charge a flat fee for the filter.	**Use Cost and Sale as Configured**
	Charge Type (Lube, Sublet, Miscellaneous):	**Lube**
	Charge Description (will appear on all W.O.'s using this fluid -- the actual dispense amount and fluid name will automatically be added to any other description you provide in this space.	**Not Applicable**
	Include Selected Oil Filter or Filters (Yes means any parts attached to the W.O. from the oil filter category of parts are charged at the sale price listed in the field below. If left blank, the DMS pricing applies, If no, the feature is not used and normal DMS pricing is applied to any oil filter):	**Yes**
	Include Additional Parts (can list up to three parts, quantities, and sale prices that can be added to the W.O. automatically -- if left blank, DMS price will be used, leaving the quantity blank is the same as specifying zero quantity and the part will not be added to the W.O.):	**Not Applicable**

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twenty-four months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

The parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés à la suite de ou en rapport, directement ou indirectement, avec les procedures concernées.

Graco Information

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Phone: 612-623-6928 **or Toll Free:** 1-800-533-9655, **Fax:** 612-378-3590

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

For patent information, see www.graco.com/patents.

Original instructions. This manual contains English. MM 309496

Graco Headquarters: Minneapolis
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