User Guide

Gravimetric Gateway

Model G2 version 3.0

Installation

Maintenance

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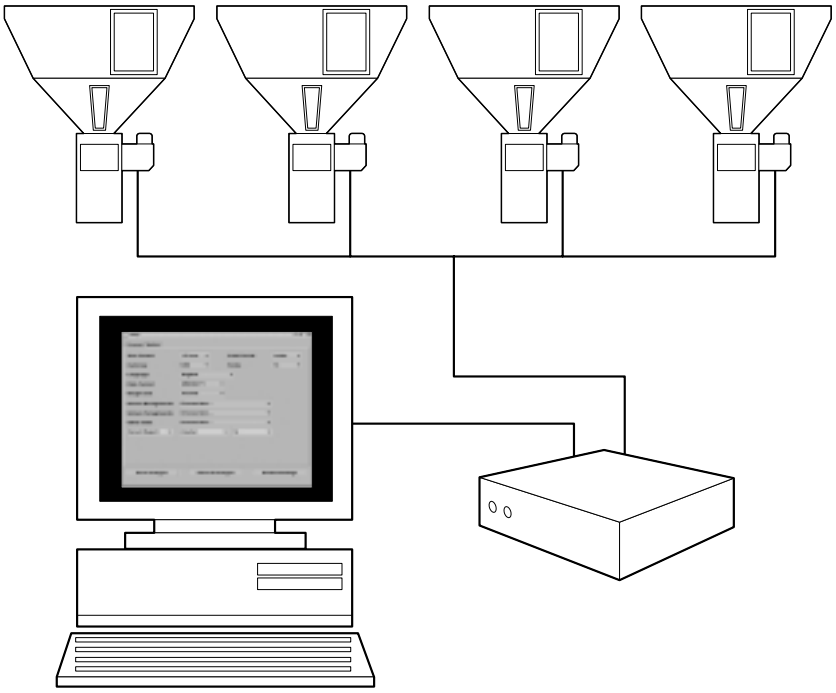
Troubleshooting



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UGB009/0702

Contents

I. Overview

This manual is intended to provide information for individuals who are using the Gravimetric Gateway® Server material management system. The Gravimetric Gateway® Server and Client software is currently available for Windows 95/98/ME/NT/2000 operating systems. The Gravimetric Gateway® Server program, based in concept on the earlier MLAN for Windows software, takes control to a new level of design and functionality. As in the original MLAN for Windows design, the G2 Server provides material usage tracking reports based on retrieval time settings and remote access of the basic control of settings within the Conair Weigh Scale Blender. These include, downloading material settings and recipes as well as, work order numbers and operator numbers. Beyond the original MLAN design the G2 Server allows more complex functions such as creating, downloading and monitoring line recipes, extrusion control, and access security of multiple G2 Client connections across a TCP/IP network. The G2 Client software also is geared for maintenance of a database of multiple G2 Server connections across a TCP/IP network allowing for multiple plant connectivity and database access.

This manual was written and updated based on the most current G2 Server 2.1 version at the time of the release of this documentation. It is possible that the G2 version that you have may be earlier or later than the date of this manual. As of the G2 version 1.2.12 the release date of the G2 version is stored in the About Box. If your G2 version date is newer than this manual it is recommended that you check online for a newer version of the manual and download a more current version of the G2 manual if available. Likewise if your manual is newer than your version date of the G2 software it is recommended that you download a new version of the G2 jar file along with the latest version of the manual. Upgrades to newer versions of G2 are free of charge and may be downloaded at this web address: www.maguire.com/g2. For more information on upgrading your version of G2 to the latest release see *How to Upgrade Gravimetric Gateway*® on page 15.

Gravimetric Gateway® Server utilizes the Maguire Local Area Network (MLAN) protocol for communicating with Conair Weigh Scale Blenders. In addition to Gravimetric Gateway® Server, Conair offers the complete documentation of the MLAN protocol. This documentation can be used by programmers to write custom software intended to communicate with the Conair Weigh Scale Blender. For more information on the MLAN protocol please call Conair and ask for a copy of the MLAN Protocol Manual.

For a complete understanding of the operation of the Weigh Scale Blender (WSB), it is recommended that you have the four and/or twelve component controller manual(s) available as a reference.

All numbers in this document are assumed to be decimal (base 10) unless otherwise noted. Also, when a year is represented by its last two digits, if it is between 90 and 99 its assumed to be between 1990 and 1999 and if it is between 00 and 89 its assumed to be between 2000 and 2089.

For your reference within this manual the Gravimetric Gateway® Server may be referred to as G2 Server or just simply as the server. Also the Gravimetric Gateway® Clients may be referred to as G2 Clients, or as just simply the client or clients.

All references to a Windows system refers to Windows 95, Windows 98, Windows NT, Windows ME or Windows 2000 unless otherwise noted.

II. Hardware Requirements

Hardware requirements for the installation of the G2 Server and/or the G2 Client Software

Computer	--	IBM-PC or Compatible (Pentium 233 or faster). We recommend that the G2 Server computer be dedicated to the purpose of collecting data for G2. Constant COM port communication between the G2 Server and the Maguire Weigh Scale Blenders may cause a noticeable lag in the processor when using the G2 Server computer for additional functions while the G2 Server is collecting data.
Operating System	--	Windows 95/98/NT/2000/ME (Clean Install Recommended)
HD Space	--	6 Gigabyte Hard Drive or larger
Video	--	Super VGA (1024 x 768 resolution)
Memory	--	64 MB or more
Ports	--	2 available serial ports (1 port for mouse if no PS2 port available, 1 port for MLAN) 1 available printer port
Mouse	--	PS2 preferable

G2-SA MLAN Interface, required for most installations

This "black box" device is positioned next to the computer working as a signal amplifier and contains a security key. MLAN networks connected to two or more controllers require the G2-SA registered with a certificate for the number of controllers on the MLAN network. If you are connecting to more than 25 controllers or are running cable over 500 feet, additional signal amplifiers (part # MLAN-SA) may be required. **(see Section III Communication Wiring page 5)**

Communication Cable

A single 4 conductor shielded cable connects all WSB controllers to the computer. This is generally done with a single cable run through the ceiling over all of the process machines with "drops" to each controller. Be sure to read the Wiring Considerations section, page 6.

TCP/IP Network (If G2 Clients are to be used on computers other than the G2 Server)

Provided, as part of the G2 Server, is the capability to connect to the Server through an installed network card's TCP/IP port. This will allow Gravimetric Gateway® Clients to connect to the G2 Server and access all functions remotely across a network.

Gravimetric Gateway® Clients

The Gravimetric Gateway® Clients are IBM compatible PC's with the Windows operating system which have the G2 Client software installed. These PC's remotely connect to the Gravimetric Gateway® Server remotely via a network using the TCP/IP protocol or locally (local host) on the same system as the G2 Client. Connecting to the G2 Server gives the client access to the Conair Weigh Scale Blenders and the information databases on the G2 Server.

Printer

A printer installed on the Windows system is required when you wish to obtain printed reports.

III. Communication Wiring (MLAN or RS-232)

Weigh Scale Blender (WSB) controllers can communicate over two different protocols, MLAN and RS-232. Both are available at the DB9 port on the WSB controller. MLAN should be used in all factory installations; however, RS-232 may be used for lab testing and limited applications. RS-232 is NOT recommended for factory installations.

MLAN Communication

If you are communicating over a distance greater than 50 feet or with more than three WSBs, then you must use the **MLAN Signal Amplifier** (part # MLAN-SA). Users of the G2 Server software with 2 or more WSBs must have a G2-SA. The G2-SA serves as the MLAN Signal Amplifier and contains a registered security key, which is required to operate more than a single WSB. The MLAN-SA and the G2-SA utilize a stronger, more reliable signal transmission method than a standard RS-232 interface. It utilizes optically isolated couplers for all communication lines to reduce the potential of noise and other electrical interference from entering the computer circuitry.

The standard computer RS-232 serial port signal is fed into the MLAN-SA unit or the G2-SA unit and then sent out to the WSB controllers through optically isolated signal drivers. At the controller this MLAN signal is carried onto the board through additional optical couplers for further isolation. The MLAN-SA and G2-SA come with a cable hardwired into it with a DB9 connector on the other end. The DB9 connector is for connecting the MLAN-SA or G2-SA to a computer's RS-232 (serial) port.

The cable from the **MLAN-SA** or **G2-SA** devices to all WSB controllers (or to other **MLAN-SA** devices), utilizes the following pin connection:

MLAN TO CONTROLLER CABLE PINOUT

MLAN-SA DB9 Connector pin # (or terminal strip)	**Wire Color**	**WSB Controller DB9 Connector pin #**
1	Black	1
4	Red	4
6	White	6
7	Green	7
5	*Shield*	**connected to housing (not pin 5)**

Up to 25 WSB controllers may be connected in parallel using one MLAN-SA. If you are connecting more than 25 controllers or all your cabling (including drops) totals over 2000 feet, additional MLAN-SA devices are recommended.

The **shield** is connected at all points **except** at the controller where is connected to the housing of the cable (see wiring diagram). This shield is intended to tie all external noise to ground at the MLAN-SA/G2-SA, at the computer and at the WSB controllers.

MLAN requires four (4) conductor cable with a shield for conveying information. Wire size should be 18 to 22 gauge. Use 18 gauge for the long runs (especially over 500 feet). Twenty-two (22) gauge is recommended for the "drops" to each controller. Twenty-two (22) gauge wire is used at each controller termination because it solders more easily to the DB9 connector required at each WSB controller location.

We recommend: BELDON WIRE, Part #9402
or CAROL WIRE, Part #C2555

Conductors are Black, Red, White, and Green, plus a shield.

Black	is the positive power supply (16 to 24 volts)
Red	is the neutral from the power supply
White	is communication from PC to WSB controller
Green	is communication from WSB controller to PC

Wiring generally requires a single cable run through the ceiling over all the process machines with "drops" to each controller. This main wire may "T" off to other locations if required for more efficient wiring. Be sure to read the WIRE CONSIDERATIONS section on page 6, also see wiring diagram on page 8.

RS-232 Communication (for limited applications)

RS-232 uses a direct connection from the computer to the WSB controller. This type of communication is reliable for short runs where little or no "noise" or static interference is present. This may be the case in a lab or another closely controlled environment. A low noise environment is not common in a factory and we do NOT recommend RS-232 for factory installation. Other restrictions are that the computer must be close (less than 50 feet) to the WSB controller and can only communicate with a few units (maximum of three). If all three conditions are met, then you may cable directly to the RS-232 serial port on your computer without any other hardware interface. Under these circumstances, the MLAN-SA is not required. The proper pin connections are as follows:

RS-232 TO WSB CONTROLLER CABLE PINOUT

WSB DB9 Connector	**Computer Connector**	
pin #	**DB9**	**or DB25**
3	3	2
2	2	3
5	5	7 and 1
	6, 7, 8 pins tied together	4, 5, 6

Do NOT use a standard off-the-shelf cable. Standard cables have ALL pins connected, or at least more than just those listed above. ALL pins connected will NOT work. You must wire a special cable according to the diagram provided. You may also obtain these cables from us.

Wiring Consideration

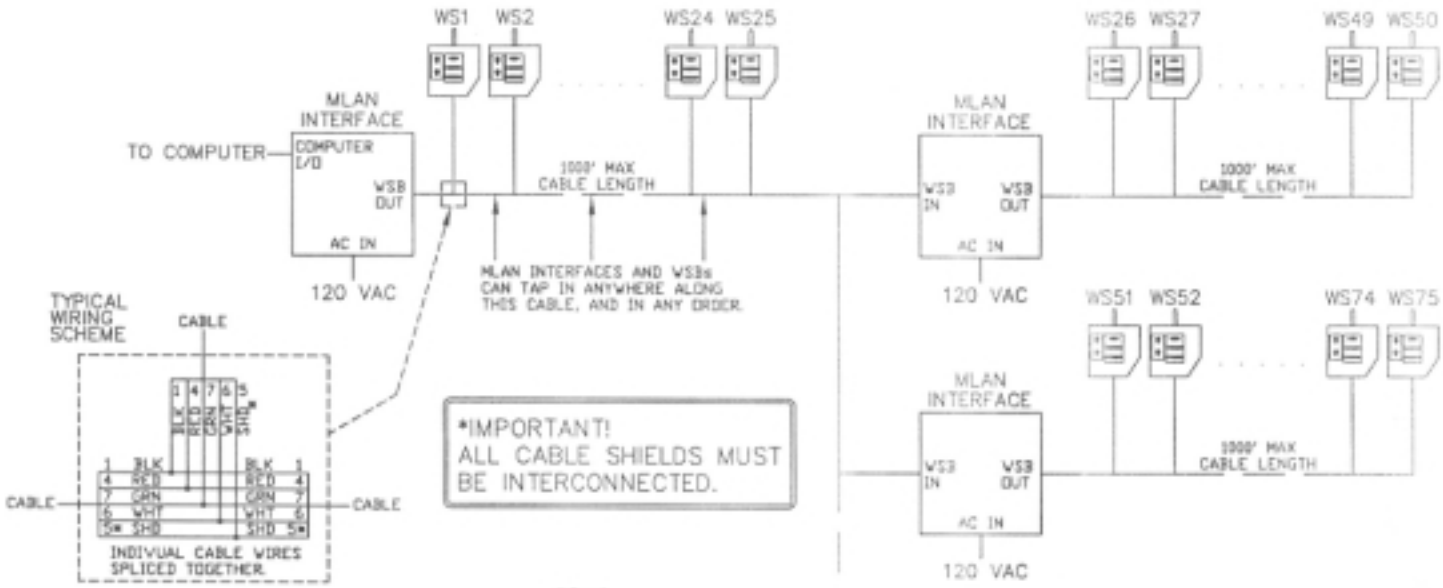
The wiring of your communication lines is very important for reliable operation. To minimize problems, consider the following:

1. Communication lines are **low voltage** lines. Be sure that these lines are not bundled to any high voltage lines. If you run them in conduit, do not run high and low voltage lines together.

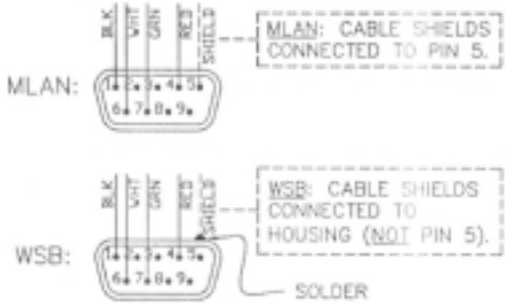
2. It is not necessary to run this wire in conduit. If you do run cables without conduit, do not wire tie these lines to material conveying lines or other conduit containing high voltage or high amperage electrical lines.

3. Keep all **communication lines** away from all **vacuum loader conveying lines**. Conveying plastic produces **extreme** static charges. An electrical line, even in conduit, that runs next to a vacuum line, can introduce extreme static pulses into the processor. Keep these lines **separated** from conveying lines.

MLAN INTERFACE WIRING EXAMPLE



DB-9
FEMALE CONNECTOR
REAR VIEW
(SOLDER SIDE)



DB-9 PIN#	CAROL WIRE #C 2555	BELDEN WIRE #9402
1	BLACK	BLACK
4	RED	RED
7	GREEN	GREEN
6	NATURAL (WHITE)	WHITE
5*	SHIELD	SHIELD

IBM DB-25	IBM DB-9	MLAN DB-9	FUNCTION
3	2	2	MLAN OUT TO IBM
2	3	3	MLAN IN FROM IBM
17	5	5	GROUND

NOTE:
ALL BULKHEAD CONNECTORS ARE MALE DB-9 ON BOTH MLAN INTERFACE UNITS & WSBs.

ALL CABLE ENDS ARE FEMALE DB-9 CONNECTORS.

DONAIR	MLAN INTERFACE WIRING EXAMPLE	
	DRAWN BY: JSH	DATE DRAWN: 5/17/95
	SHEET: 1 OF 1	DATE CHANGED: 9/25/96

Gravimetric Gateway Ethernet

Released in version 3.0, a feature for Ethernet communications to the Conair Weigh Scale has been added to the G2 Server. G2 can communicate via Ethernet to another Ethernet enabled device, which then communications to the weigh scale blenders via RS232, a serial bus.

The Conair Weigh Scale blenders have RS232, serial, communication modules. Communicate speed is limited at most 2400 baud. Currently, by default they communicate at 1200 baud. This speed is also limited by the fact that it is serial communications, which limits communication to a single device at any one time.

Up until G2 version 3.0, previous network topology consisted of blenders interconnected though serial RS232 and a G2 server computer connected to the serial bus. The G2 server acted as a master, and probed the blenders, slaves, for information, one at a time.

Because only one device can communicate on the serial bus at any one time, a bottleneck in communication throughput occurs and limits performance. With this in mind, the new G2 Ethernet feature seeks to improve communication throughput though use of better network topology. Although, the time it takes to communicate with any one blender is not affected, communication can be multitasked though use of Ethernet.

Ethernet
Because the blenders need the serial bus, this remains part of the equation. Ethernet increases throughput by changing the network topology. Typically an MLAN network of blenders use a single serial bus, which is part of the G2 Server computer. This single serial bus of Weigh Scale Blenders can now be separated into two or more groups of WSBs thus dividing the communication load among other satellite computers or other Ethernet devices.

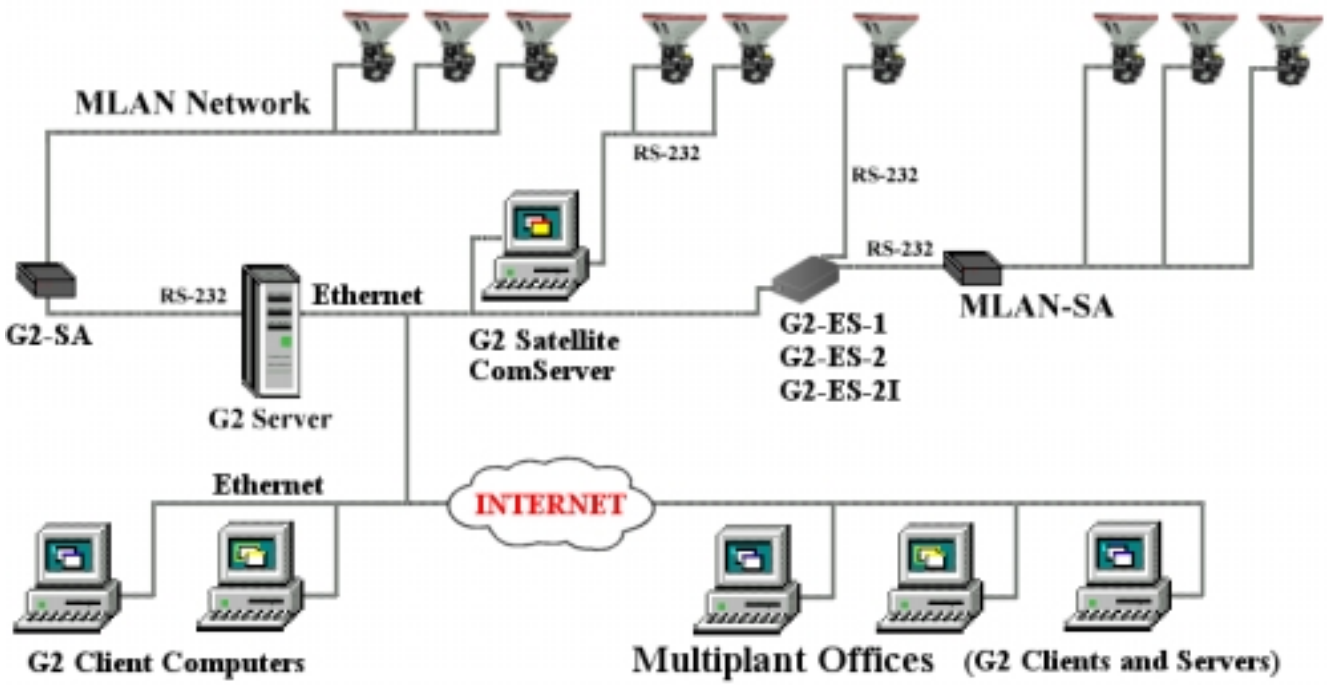
G2 is capable of communication via Ethernet to an Ethernet-enabled device connected to each serial bus. Because Ethernet is built on collision detection protocol, it is much faster than RS232, and G2 can *virtually* communicate in parallel to multiple network devices. Therefore, G2 can communicate with multiple blenders simultaneously, as oppose to one at a time in previous configurations.

In order to divide the serial bus into smaller chunks to take advantage of Ethernet's capability to communicate faster, an Ethernet enabled device must be used to connect the WSBs to an existing CAT 5 Ethernet network.

Ethernet-enabled devices
An Ethernet-enabled device can be described as a device that converts serial communication to Ethernet communication. These devices can be a hardware device build exclusively for the purpose of Ethernet-to-serial conversion or the Ethernet-enabled device can be a computer acting as an Ethernet access device by use of the Satellite ComServer, which is part of the G2 Software. Computers utilizing the Satellite ComServer use the computer's network card and COM port to allow access to WSB's on the MLAN network by the G2 Server. The G2 Satellite Comserver requires only a minimal computer system to operate. Both of these two Ethernet-enabled methods have been tested.

Ethernet-to-Serial Converter hardware is available from Conair in the following configurations:
G2-ES-1 - Single serial port, Ethernet to serial converter
G2-ES-2 - Duel serial port, Ethernet to serial converter
G2-ES-2I – Industrial, duel serial port, DIN Rail mount, Ethernet to serial converter, High speed photocoupler for communication signal isolation, DC-DC converter for power isolation. For more information and pricing, contact Conair Sales at 412.312.6000.
The Satellite Comserver can run on any Windows based computer that has a network card and a COM port. It can run on the same computer as the G2 server and/or a G2 Client or may run independently from the G2 Server or Client software. It uses very little processing power and can be installed on older computers that have at least a Pentium class processor or compatible and 32 Meg of RAM.

The following diagram shows possible network topologies.



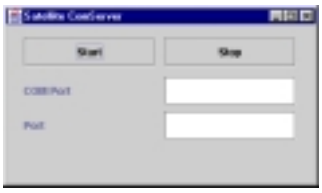
Notes on Diagram:
Only one G2-SA is required per G2 Server. Additional MLAN–SA units may be required if multiple RS-232 networks are to be used as in the diagram above. Ethernet can be run to an approximate maximum distance of 100 meters. RS-232 is stable up to a distance of 50 feet with three or fewer WSBs. If you are communicating over a distance greater than 50 feet or with more than three WSBs, then you must use the **MLAN Signal Amplifier** (part # MLAN-SA). The MLAN-SA utilizes a stronger, more reliable signal transmission method than a standard RS-232 interface. It utilizes optically isolated couplers for all communication lines to reduce the potential of noise and other electrical interference from entering the computer circuitry. The G2-SA is a MLAN-SA with the addition of a built in security key.

Up to 25 WSB controllers may be connected in parallel using one MLAN-SA. If you are connecting more than 25 controllers or all your cabling (including drops) totals over 2000 feet, additional MLAN-SA devices are recommended.

Satellite ComServer Setup

The Satellite ComServer is a G2 utility that enables a computer on a TCP/IP network to *SHARE* it's COM port thus enabling the G2 Server to access one or more blenders attached to that COM port.

The G2 ComServer is an install option during the G2 installation wizard. To install the ComServer on a computer select this option during setup. To run the G2 ComServer select the Satellite ComServer from the start menu. The window pictured below is the G2 Satellite ComServer.



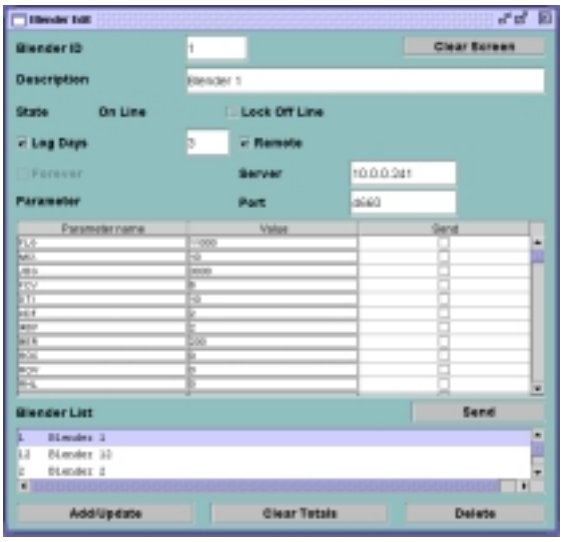
Before starting the ComServer program, you must specify the COM port and the Port number. The COM port is the computers serial port that will be used by the ComServer. This port is the same port that the Weigh Scale Blenders are attached to on this computer. Valid entries for the COM Port are 1, 2, 3 or 4. The "Port" number is the port that the Satellite ComServer listens for requests from Client computers or the G2 Server. The valid range of port numbers is 0-65535. It is recommended that you use ports within the range of 5005 and 6000 to prevent possible conflicts with other programs and protocols. A typical example of a valid port is "5005".

Configuring a WSB as Remotely accessed though G2 Satellite ComServer or G2-ES

Configuring the G2 Client to use a Satellite ComServer on the network is done in the Blender Edit Screen. In the Edit-Blenders screen, a computer can be configured as *remote* or local. By default, a blender is local. Meaning it is connected directly to the G2 Server that the G2 Client is accessing. For a G2 Server to Access a WSB connected to a Satellite ComServer or a G2-ES, the WSB must be configured as a remote blender. Configuring a WSB as remote requires:

1. Checking the remote checkbox
2. Providing the IP address of the Ethernet device (G2-ES or G2 Satellite ComServer)
3. Specify the port on which the Ethernet device or computer listens.

See Blender Edit Screen Diagram for an example - For more information see Blender Edit on page 56.



IV. New Program Chip — Installation

In October 1994, the method MLAN for Windows uses to communicate with all WSB controllers was changed. All of your controllers MUST have software dated October 26, 1994 or later to operate with MLAN to its full capacity. To check the date of each controller's software, watch the display closely when you turn power on. One of the first displays you will see is the **version date** (V=41026A or V=41026T). This number is the **year** (4 for 1994), **month** (10 for October), and **day** (26 for the 26th). A "T" indicates 12-component software. If all version dates are October 26, 1994 or later, you do not need to change the chip.

Chips with version dates before October 26, 1994 **must** be changed. If you need a new program chip and we have not provided one please call. There is no charge for these updated chips.

Installation:

1. DISCONNECT POWER!

2. REMOVE THE LID
   The lid is held on by 10 screws (4 top, 3 left side, 3 right side). Then remove the three screws that hold the panel front to the bottom. This will allow the panel front to lay down flat providing easy access to the circuit board.

3. REMOVE OLD CHIP FROM BOARD
   The program chip is the one with a paper label on it (e.g. TC41026A or WS41026A). Stand in front of the controller and look down into the box at the circuit board. The program chip is located on the bottom edge of the circuit board to the right. It is near the side of the board that lies next to the thumbwheel switches.

   The program chip is right next to the memory chip. The memory chip stands higher off the board and may also have a small paper label on it. Be careful not to remove the memory chip. The program chip is to the right of the memory chip, closer to the thumbwheel switches.

   Use a long thin screwdriver to slip behind the chip and pry it **gently** from its socket.

4. INSTALL NEW CHIP
   One end of the chip has a small notch in it. Be sure that the chip is installed with the **small notch up**. BE CAREFUL NOT TO BEND ANY PINS. All pins should go into the socket. It is very easy to insert the chip one pin too high or one pin too low. The bottom of the chip will be even with the bottom of the socket if you have installed it correctly.

5. REPLACE PANEL FRONT AND LID

6. PERFORM THE “CLEAR ALL - RESTART” ROUTINE

This is necessary to clear old memory information and assign new memory positions to match the new chip.

Do the following:

With power OFF, hold down the following three keys on the keypad: the TOP LEFT, TOP MIDDLE, and TOP RIGHT keys. These are the VIEW, BATCH, and EXIT keys.

With all three keys held down, turn power on, then release. Watch the display. It must say “CLEAR ALL.” If it doesn’t, repeat this step until it does.

7. CONFIRM (OR SET) MODEL NUMBER

All newer versions of software allow the selection of different models. This presets a number of parameters for different types of equipment. Any time power is turned on, the model number is displayed. At this point, **confirm** that you have the proper model selected.

There are various models; the 100 and 200 series display weights in 1/10 grams (x.x), whereas the 400, 900, and 1800 series display weights in full grams (x).

To change models:

Press:	*	Display will say (PASSWORD).
Press:	97531	Display will say (MODEL 220) or current model.
Press:	*	To walk through the available models.

When the model you want is displayed, press EXIT.

8. RECALIBRATE - LOAD CELLS

Follow the **Recalibrate Load Cells** procedure given in the WSB Instruction Manual.

V. WSB Controller Identification Numbers

Each WSB controller **must** have its own **unique** identification number. This number must be entered at the controller using the keypad. These numbers can range from 001 to 254. Do not use 000 or 255. If the same number is assigned to two or more controllers, these controllers will not communicate successfully with the computer. They will both answer to the same request.

This ID number is used for all communications, and for identifying the source of all report information. It may be helpful to you if you choose a numbering sequence that relates in some way to each controller's location.

To enter an **identification** number into a controller, do the following (at the controller):

Turn the "STOP END OF CYCLE" switch OFF (down),
Turn power ON

Press:	*	Display will say:	(PASSWORD)
Press:	22222	Display will say:	(P x.x)
Press:	*66	Display will say:	(ID 000)

Enter: New correct ID
Enter all 3 digits.
Use leading zeros.
Correct entries are 001 to 254.
Do not allow 2 controllers to have the same number.

Repeat this sequence for ALL controllers.

Write down the numbers. This list can be useful when manually entering WSB I.D.'s into the server using the Blender Edit Screen routine.

VI. G2 Server / Client Installation for Windows 95/98/NT/2000/ME

IMPORTANT G2 VERSION UPGRADE NOTES:
To find out the version of G2 see the About Box in the help menu of the G2 Client.

- The Gravimetric Gateway® Server / Client Software may be updated to the latest version easily and free of charge. G2 Updates may be obtained upon request.
- If your current version of G2 is 1.2.x version, a full install is required to upgrade to 2.0.x. or later. Read the *FULL INSTALL / FULL UPGRADE* instructions in page 15.
- If your version of G2 is 2.x or later a single file update of g2.jar may update G2 to the latest version upon request. Read the *SINGLE FILE UPGRADE* instructions on page 16 if your version of G2 can be upgraded without a full install.

FULL INSTALL / FULL UPGRADE

A full install of G2 is required when your version of G2 is a 1.2.x version and you would like to upgrade to G2 2.0.x or later. The full installation program of G2 may be obtained on CD-ROM by contacting Conair .

Follow these instructions to install the Gravimetric Gateway® software.

Download Install

When you download the full G2 install you will save the file somewhere on your computer. A good place to save this file when you download it is on your desktop where it may be easily found when you are ready to install G2. After downloading the G2 Full Installation program, close all other programs including the Gravimetric Gateway® Server / Client Software. Click your Start Button and choose *Run*. Browser your computer to the location of the file g2setup.exe and double-click on *g2setup.exe.* The self-extracting zip file will prompt you for a destination directory to unzip into. By default this directory is *c:\g2temp.* Click Finish to extract the install program. Click *Yes* to creating the G2temp directory. Click *OK* after extraction. Click Ok. Proceed to Installation step 1 below.

CD-ROM Install

When the G2 CD-ROM is inserted into the CD-ROM drive the installation of the G2 Server should automatically start. If, however, it does not auto start, and you would like to install the G2 Server/Client Software, follow these steps:
Click the start button and choose "Run". Type the following replacing CDROM with your CD-ROM's drive letter: "CDROM:\setup.bat" to install the Server/Client software. Click "OK". Proceed to Installation step 1 below.

Installation

1. Select your language for the installation. Selecting the language will also default G2 to starting with this language.
2. Read the welcome message and click *Next*.
3. Choose the destination folder for the G2 Client/Server Software. *C:\g2* is the default location. Click browse to locate or create a different directory. Click Next.

4. Choose your system setup. You may select one or more of the following. Server, Client, Satellite ComServer and/or Demo. If you are running G2 from a single computer without a network connection to a G2 Server in a different location you must install Server as well as Client to run G2. Selecting only *Client* will install the Client software only. The Client only option will require a TCP/IP configured network to connect to a G2 Server located on your network. Satellite ComServer is for creating an access port that a G2 Server may use across a network to access WSB's connected to the COM port located on the ComServer computer. Demo will install a G2 Server for Demo purposes only. After making your selections choose *Next*.

5. Select your data directory. By default this location is *C:\g2\g2data*. This may be changed if necessary. Click *Next*.

6. Select your computer's operating system and click *Next*. G2 will install.

7. Click *Finish*.

8. If you have installed the G2 Client/Server for the first time, please proceed to section VII, *G2 Server Operation for Windows 95/98/NT/2000/ME* on page 16.

9. If you are upgrading with a full install of G2 and want to use your existing databases, copy all database files **EXCEPT "language.data"** and "**language.key"** from the original database location (by default, c:\g2data for version 1.2.x) to the new location, *c:\g2\g2data* by default. An installation of G2 2.0.x or later over an existing 2.0.x will use the same default location of the G2 databases (c:\g2\g2data) and will not be overwritten by the new installation.

SINGLE FILE UPGRADE

If your G2 version is 2.0.x or later updating to the latest G2 version requires only that the g2.jar file be replaced. The most recent g2.jar file is available from Conair. The G2 update is a self-extracting utility that will default to installing the update into the directory "c:\g2". If the directory that the G2 software was installed in is different than the default directory, change the destination directory in the update utility to the directory that G2 was installed in. Click finish to update G2. To verify that G2 was updated click "Help" then "About" in the G2 Client and verify that the version is the same as the update version.

VII. G2 Server, G2 Server Demo Operation

Overview

After a successful installation, the G2 Server's program files will reside, unless otherwise specified during installation, in the directory called "c:\g2". The data that is collected by the G2 Server or the G2 Server Demo is stored by default in the directory c:\g2\g2data". If it is desired to re-install the G2 Server for any reason, it may be done without disturbing the data files. Likewise, if it is desired to move the databases to a new computer where the G2 Server has been install it may be done by copying the files within the data directory, "c:\g2data" for G2 versions 1.2.x or "c:\g2\g2data" for versions after 2.0.x. Place them in the data directory (c:\g2\g2data) of the new system. DO NOT COPY language.data and language.key to the new system's data directory. All Demo databases will be prefixed with "demo". Demo databases are only accessed if using G2 Server in Demo Mode.

Installation of the G2 Server will create a program group in the start menu with the following icons. They are Client, G2 Server, Satellite ComServer, G2 Server Demo. The G2 Server is the program that

communicates with the weigh scale blenders and constantly collects data from the WSBs on the MLAN network. G2 Server Demo simulates communication with an actual MLAN network of blenders. Client is the program that connects to either the G2 Server or the G2 Server Demo. Either G2 Server or G2 Server Demo must be running on the same computer or must be running somewhere on the same network before a Client can connect to a server. Client software is installed with a G2 Server installation, or may be installed as a standalone program without the G2 Server Software. The version of the Gravimetric Gateway® Server that is distributed on the Conair CD-ROM is the complete version. To utilize all of the features of the G2 Server requires a security key, which may be obtained from Conair. Without the security key G2 Server is limited to control of a single weigh scale blender (Lite Mode) and does not have Extrusion Control enabled. G2 Server Demo, without the security key, can simulate all of the features in demo mode, including connecting across a network and Extrusion Control, allowing the user to become familiar with the G2 Server and the Client Software operation.

For the Gravimetric Gateway® Server to properly work with the MLAN network of blenders the MLAN network must be connected to an open COM port on the G2 Server and/or an open COM port of a computer system running the Satellite ComServer .

Starting G2 Server Operation

To start the Gravimetric Gateway® Server click the G2 Server icon in the Gravimetric Gateway® program group. This will start a G2 Server Interface. The G2 server interface has buttons to start and stop the G2 Server and a drop down menu to select the COM port that the MLAN network is plugged into. The G2 Server interface also contains a window of information. The window displays information regarding the Com Server, which is useful in a debugging situation and displays information regarding the MLAN Data Acquisition Center. The windows will, in a normal situation, display the G2 version number, the directory that the Data Server is using, Starting Services such as Inventory Management and AIMS Transaction Server. Next preset log time indicating that the G2 Server is running properly. This information window will be updated as logging times pass, when machines come online or go offline and when a tag is changed.

When you see the following message, the G2 Server is operating correctly and is collecting data.

G2 Version 2.x.xx
(DataServer) using "C:\g2\g2data" for database directory.
Starting Inventory Management
Starting AIMS Transaction Server
Next preset log time is at …(date and Time)…

When this message is displayed then the Gravimetric Gateway® Client may be started. All operations and user interfaces are done from the Gravimetric Gateway® Client.

The G2 Server Does not scan for WSB's on the MLAN network. When WSB's are introduced to the MLAN network, they must be added manually using the G2 Client's Edit Blenders Screen. When a blender goes OFFLINE, G2 will continue to monitor that blender for up to 1 hr. This period cushions any noise or failed communication. However, after the 1 hr is up, the G2 Server will no longer probe the blender. Unless an operator initiates a probe, by clicking on "Add/Update" from the Blender Edit screen, that blender will stay OFFLINE.

G2 Demo Server Notes

When adding WSB to communicate with the G2 Demo Server, the range of the WSB ID number will determine the WSB's software type and components. The range is as follows:

ID Number	Series	Batch Weight Grams	Steady Rate* Kg/hr	Weight Units	4/12 Components
1 - 10	100	1000	120	10ths	4
11 - 20	100	1000	120	10ths	12
21 - 30	200	2000	240	10ths	4
31 - 40	200	2000	240	10ths	12
41 - 50	400	4000	480	grams	4
51 - 60	400	4000	480	grams	12
61 - 70	900	9000	1,080	grams	4
71 - 80	900	9000	1,080	grams	12
81 - 90	1800	18000	2,160	grams	4
91 - 100	1800	18000	2,160	grams	12
101 - 254	not initialized				

For information on how to use the G2 Clients please read section IX, Client Operation and Administration. For information regarding how to set up and configure a TCP/IP network that will allow G2 Client computers to connect remotely to the G2 Server please read the following section, **Setting Up Your Gravimetric Gateway® Client Network.**

VIII. Network Installation and Configuration

Gravimetric Gateway® Client Network

A new feature of the G2 software over the original MLAN software is the ability to control Conair Weigh Scale Blenders over a computer network. While the G2 Server is able to do all of the functions available to the operator as a stand alone unit, it is also capable of providing access to all controlling functions and reports from a remote location using a TCP/IP network. This is done by connecting the G2 Server to a network, which uses the TCP/IP protocol. Once properly connected remote computers running the G2 Client software are able to connect to the server and communicate commands just as an operator using the Client software would on the computer running the G2 Server itself. Using a network to connect clients to the server all operations such as data collecting, data storing and WSB communications remain the job of the computer running the G2 Server. The client computers connect to the server to send commands to the WSBs and access information from the G2 Server's databases. Access to the G2 Server may be restricted through multi-level security.

Before networked G2 clients can connect to the G2 Server, an Ethernet network with TCP/IP must be installed. Installing an Ethernet network is beyond the scope of this document. Basic instructions are provided below to set up a TCP/IP on an existing Windows 95/98/NT/2000/ME network using the G2 Clients. Windows NT and Windows 2000 users should refer to your documentation for network installations.

A basic example of a TCP/IP network

If the category 5 network will be installed using wall plates, jacks and bulk category 5 network cable it is recommended that a qualified technical install your network. The following example covers only a simple network configuration of the G2 Server and one or more G2 Clients connected directly to a 10 Base-T hub using RJ45 CAT5 network cables.

The basic requirements for a TCP/IP network between the G2 Server and multiple G2 Clients are as follows.

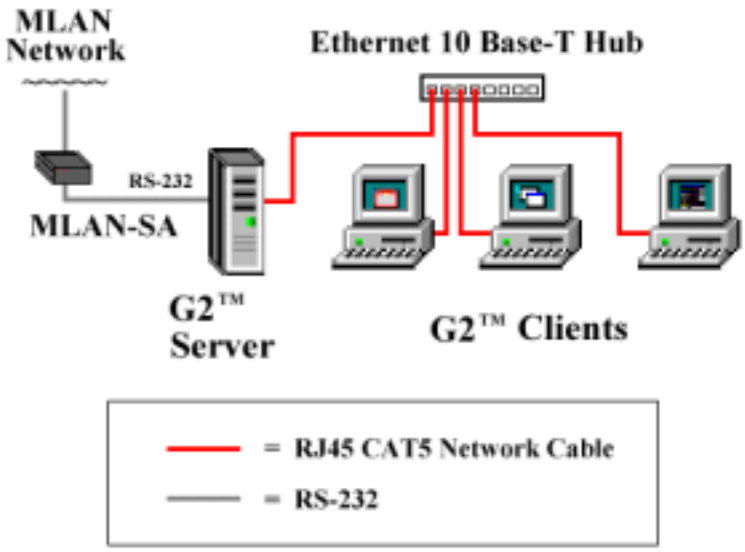
1. The G2 Server running on a Windows 95/98/ME/XP or NT/2000 computer.

2. One or more G2 Clients - Each client computer consists of a Windows operating system with an Ethernet adapter card installed, Client computers must be configured to use TCP/IP and G2 Server/Client software installed on each client computer. The TCP/IP protocol is installed along with the Dialup Adapter so if your computer is configured with he Dialup Adapter installed you probably have TCP/IP also installed.

3. A Category 5 network including a 10 BaseT Hub and one RJ45 CAT5 network cable per client computer connecting each client computer directly to the hub as well as one RJ45 CAT5 network cable connecting the G2 Server directly to the hub.

The following illustration demonstrates a simple example of how the G2 Server may be connected to multiple G2 Clients.

Diagram 1



Each G2 Client as well as the G2 Server's RJ45 CAT5 network cable is plugged into the installed 10 Base-T Ethernet adapter card located on the back of each Client computer and the G2 Server. (Note: If 10 Base-T Ethernet adapter cards have not been installed on the client computers they must be installed before proceeding with setting up a network.) The opposite end of each RJ45 CAT5 network cable is plugged into one of the Ethernet 10 Base-T hub's jacks. Do not use the up-link jack (usually located at one end of the row of jacks on the hub and labeled up-link or daisy chain. These jacks are reserved for linking to other hubs.) The RS-232 is a serial cabled which connects the serial port located on the back of the G2 Server and the MLAN Signal Amplifier.

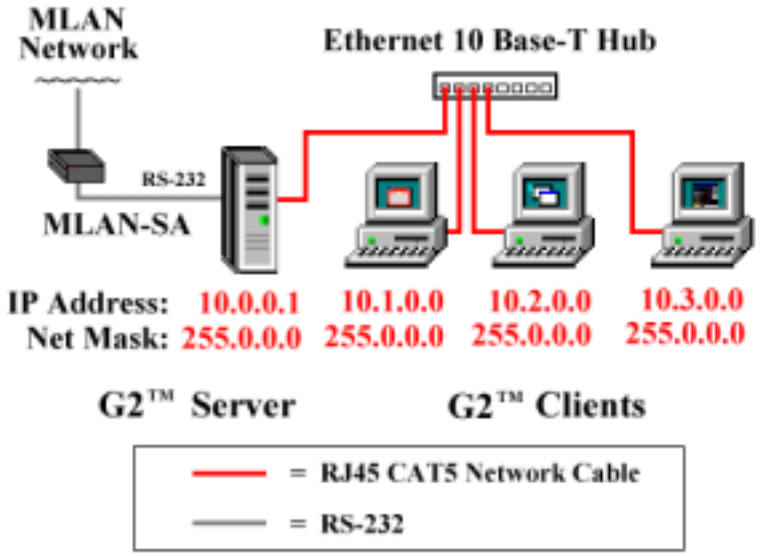
Assigning the IP address, NetMask and Gateway Address

If your network is set up to automatically assign IP addresses the G2 Server and G2 Clients can communicate through the computer name (Host Name) of the G2 Server on the same domain network. The Gravimetric Gateway® Server may need an IP address, a net mask and possibly a gateway address to be able to communicate over TCP/IP to the clients if your network uses IP addresses. Likewise each G2 Client needs to have its own unique IP address, a netmask and possibly a gateway address to be able to communicate over TCP/IP to the Server. If you already have an existing network and you wish to setup the G2 Server and multiple G2 Clients to communicate with the G2 Server you will need to do the following. Give the G2 Server a unique, unused IP address from your network, a netmask and a gateway address (if you are crossing over networks via a router). Before you assign the G2 Server an IP address you must decide what that IP address will be. If the network that the G2 Server is to be connected to is currently part of the internet the network administrator will assign the G2 Server an available IP address from your network as well as the netmask from your network and the gateway address if needed. Have your network administrator follow the section below: **Setting up the G2 Server and G2 Clients on Windows 95/98/NT/2000/ME.**

If your network will not be connected to the internet you will be selecting addresses from RFC 1918, *Address Allocation for Private Internet's*, which lists network numbers that are reserved for private use. (For more information regarding TCP/IP and IP addresses please read chapter 2 of TCP/IP by O'Reilly books).

If your network is to be a private network, a network not connected the internet, it is recommended that you assign IP addresses to the G2™ Clients and the G2 Server in the range of "10.1.0.0" to "10.255.0.0" (examples can be 10.1.0.0, 10.2.0.0, 10.3.0.0, 10.4.0.0 and so on up to 10.255.0.0). Each client computer must have a unique IP address. Each client will also be given a net mask of "**255.0.0.0"**(See Diagram 2). For instruction on setting up a Windows system as a G2 Server or G2 Client see **"Setting up the G2 Server and G2 Clients on Windows 95/98/NT/2000/ME".**

Diagram 2



Setting up the G2 Server and G2 Clients Network on Windows 95/98/NT/2000

A G2 Client would best be described as a computer running the G2 Client software. A G2 Server would best be described as a computer running the G2 Server software. Both the Server and Client software are integrated together as one software package. Both the G2 Server and the G2 Client software can run independently of each other on the same computer. The G2 Server/Client software is designed to run on Windows 95/98 or NT systems. The following instructions will take you step by step though the procedure of setting up a Windows 95/98/NT system as a G2 Server and Client to connect across a TCP/IP network.

1. **Installing the Network Card-** The first step in setting up a network between the G2 Server and the G2 Client is installing network cards in the Windows computers that will be the G2 Server and Clients. Although there are many quality 10 Base-T Ethernet adapter cards on the market the 3 Com Etherlink III has been found to be easy to use and configure on a Windows system. Follow the manufacturer's instructions for installing the 10 Base-T Ethernet adapter card in your system. When the 10 Base-T Ethernet adapter card has been successfully installed and the driver has been installed in Windows, proceed to the next step.

2. **Configuring TCP/IP in Windows 95/98/ME (Applies for Client and Server) -** Once the network card and the network card's drivers have been successfully installed you will install the TCP/IP protocol. Have your Windows installation disk ready in case it is needed for the protocol installation. Before proceeding close all applications.

   To add TCP/IP first click the "Start" button and choose "Settings" and "Control Panel".

   In the Control Panel double-click on "Network".

   In "Network" choose the "Configuration" tab. You should see your network card listed under the header: "The following network components are installed:" If you do not see your network card as an installed component you will need to install it before proceeding. If your network card is listed then choose "Add…" Click Protocol and then click "Add…" From the list of manufacturers click "Microsoft". Then from the list of Network Protocols click "TCP/IP" and click "OK".

   You should now see TCP/IP as one of the installed components in the Configuration. Double-click on TCP/IP to configure the protocol. Click the tab IP Address. Choose specify an IP Address. Now you will fill in the IP address of this particular client machine. For example if this is the first of three client computers on a private network you may choose to use the IP address "10.1.0.0" as in the example above. Next fill in the correct Subnet Mask. If you are following our example, use "255.0.0.0".

   You will now be back at the Network window. Choose the Identification tab. In the field "Computer Name" enter a name of your choice that will identify this computer like "G2Client1" or "client1" or "bob". In the field "Workgroup" enter something like "G2Clients". All clients on this network should have the same name in the workgroup field. All computer names should be different. Click "OK"

At this point you may be asked for your Windows CD ROM.

Your computer is now ready for installation of the G2 Server/Client software. See the following section: "**G2 Server / Client Installation for Windows**" for further instructions.

IX. Client Operation and Administration

Overview

The Gravimetric Gateway® Server, or G2 Server, is the name we give to the server software written exclusively for the Conair GB/WSB Weigh Scale Blenders. The G2 Server enables you to communicate directly from the server with one or more WSB controllers or connect remotely from anywhere over a TCP/IP network using the Gravimetric Gateway® Client software. The Gravimetric Gateway® Server provides **two-way communication** between the server and the MLAN network of blenders through **downloading** and constant **retrieval** of information from WSB controllers for:

- **PRECISE WEIGHT** of all materials processed
- **SETTINGS -** Sending and retrieval
- **EXTRUSION CONTROL -** Monitoring, Controlling and Recipe Downloads
- **LINE RECIPE MANAGEMENT -** Creating, Downloading
- **ADVANCED INVENTORY MANAGEMENT SYSTEM (AIMS) -** Monitoring, Ordering of Material
- **RECIPES**
- **WORK ORDERS**
- **OPERATORS**
- **REPORT GENERATING**
- **DATA ANALYSIS**
- **MATERIAL TRACKING AND RE-ORDERING**
- **PLANT OVERVIEW**

The G2 Server organizes and tracks your **material usage**, allowing you to gather accurate information according to the following factors:

- TIME
- DAY
- BLENDER
- WORK ORDER
- OPERATOR
- RECIPE
- LINE
- LINE RECIPE
- COST

- The G2 Server allows you to maintain a **raw materials** database, and then build recipes from this database for all of the products you manufacture.

- The G2 Server enables the user to build lines of WSBs as well as line recipes for multiple simultaneous recipe downloads and material usage based on lines of WSBs.

- The G2 Server is **menu** driven, and very user friendly. The package is ready to go with very little training or start up time required.

- The G2 Server allows for multiple remote clients to connect to the server simultaneously for controlling, monitoring and accessing data from the network of blenders. Several levels of security limiting access to critical data can control these connections.

Client Alarm Toolbar

In the G2 Client is a movable pane containing six Alarm Icons. These icons are visual aids to help bring the operators attention to alarm states that may occur during operation and allow quick access to important information. The Icon Toolbar may be detached from the G2 Client or may be docked at the top, bottom, on the left or right of the G2 Client. Docking control of the Alarm Toolbar is done though the menu under Main, Toolbar. To detach the toolbar, click the dotted area of the toolbar and drag it off the G2 Client. This is useful if the Client is minimized but the user needs to be aware of alarms. To reattach, either drag the Alarm toolbar back onto the Client or use the menu controls. Alarm icons are as follows:

Network Status Alarm


Connected


Disconnected

Network Status indicates the network connection between the G2 Client and the G2 Server. When the Client has a connection to the G2 Server the icon will show network activity. When the Client loses its network connection to the server it will appear with a red, blinking X. Causes of a network alarm may include a disconnection to the network or the G2 Server has been shut down. A Network Alarm will also be displayed if the G2 Client is started up before the G2 Server is started.

Blender Alarm


Normal


Alarming

The G2 Server detects Blender Alarm states and will visually show an alarm state in a blender as pictured above. Normal operation of blender will appear as a blender controller with normal activity. When an alarm is detected in a blender the alarm light on the blender will appear as a blinking, enlarged light. By clicking on the Blender icon when alarming more immediate information can be viewed in a pop-up window. This information included the date, Blender I.D., the state and any associated messages.

AIMS Alarm


Normal


Alarming

If AIMS is enabled the AIMS alarm icon will be displayed. In a normal state the AIMS alarm will appear to be pointing in the green area with a blinking green light. When AIMS detects that a material is in need of re-ordering the AIMS alarm will appear to be pointing in the red zone and with a blinking, red light. By clicking on the AIMS icon when alarming more immediate information can be viewed in a pop-up window. This information included the material in need of re-ordering, the Quantity on hand and the number of days late for re-ordering this material. For more information on AIMS see *Advance Inventory Management System* on page 69.

Throughput Alarm


Normal

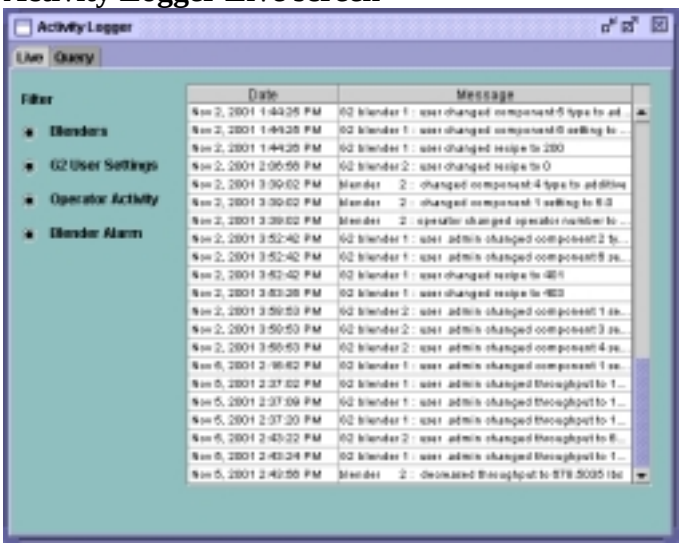

Alarming

The G2 Server monitors throughput of all materials in the material database. If throughput in all blenders is as expected the normal throughput will be displayed as a pipefitting demonstrating a normal flow of material and a gauge in the green zone. If throughput exceeds the expected throughput rate as entered in the material edit screen an alarm state will occur as a bulging pipe with a larger amount of material flowing through it. The gauge will be in the red zone and steam will be exiting the pipefitting. By clicking on the throughput icon when alarming more immediate information can be viewed in a pop-up window. This information will show the material or materials that are exceeding the expected material throughput.

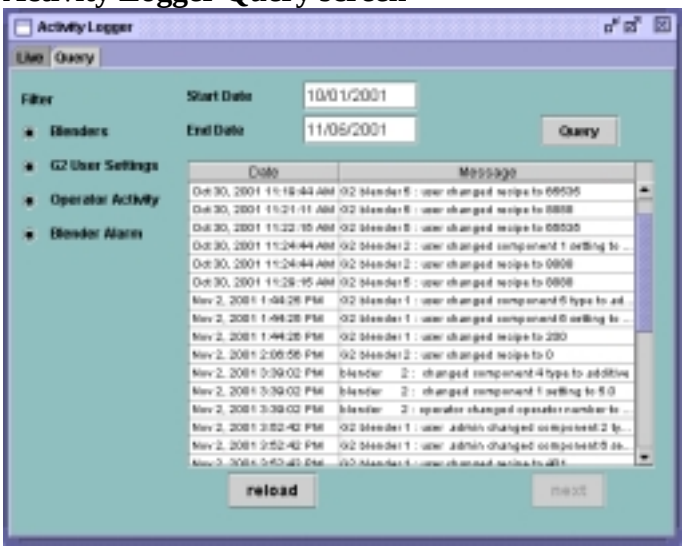
Activity Logger

Clicking the Activity Logger icon will display the Activity Logger screen. The G2 Server monitors, displays and logs activity initiated by any G2 Client connected to the G2 Server. This information can be display in real-time or retrieved and reviewed from the Activity logger database by clicking on the Activity Logger icon. Click either the Live tab to view activity in real time or click the Query tab to review previously collected activity. Both the live and query windows will display activity by date and a brief, descriptive message. Both will have to ability to filter information by Blender, G2 User Settings, Operator Activity and Blender Alarm. Selecting a filter will allow that information to be displayed. When using the Query window, select a date range by clicking in the date window and use the pop-up calendar to change the date range. When the date range has been entered, click the Query button. All records within that date range that fit within the selected filters will be displayed. The Activity Logger window may be minimized or closed and will continue to log activity to the window in a scrollable format. When the G2 Client is close, the logged activity is stored in an activity database.

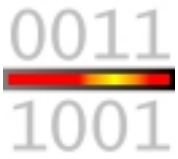
Activity Logger Live screen



Activity Logger Query screen



G2 Monitor



Clicking the G2 Monitor icon will display the G2 Monitor screen. The G2 Monitor displays the status of communication downloads to each WSB on the MLAN network. Each download is displayed on the G2 Monitor screen with the following information.

Finished Time This is the time stamp of the when the download occurred

Item Item is the type of download. Indicated with icons or parameter names. Parameter names can be found in the MLAN Protocol Manual. Possible Icons and what they represent are as follows:

Down Stream Rate Icon – Indicates that a change in the down stream rate has been sent to the WSB.

Down Stream Throughput Icon – Indicates that a change in the down stream throughput has been sent to the WSB.

Down Stream Voltage Icon – Indicates that a change in the down stream voltage has been sent to the WSB.

Throughput Icon - Indicates that a change in the Throughput has been sent to a WSB.

Recipe Icon – Indicates that a recipe change has been sent to a WSB.

Value Value is the parameter value or recipe name.

Blender Blender is the I.D. number of the Blender.

Status Status is the current state of the download indicated by icons.
The icons are as follows:

Download in progress icon – Indicates that the download is currently in progress.

Download complete icon - Indicates that the download has completed successfully

Error icon - Indicates that the download has failed.

Brief Explanation of Menu Options

Whether you are using the Gravimetric Gateway® Client Software on the same machines as the G2 Server or using the Client software on a Windows operating system located somewhere on the network and access the server remotely, the menu of commands are basically the same. The following is a brief description of each menu item.

The Gravimetric Gateway® Client's main menu consists of the following items: Main, Edit, Download, View, Control, Reports, and Help. Each item is a category pertaining to specific functions available through the client software. The following is a brief explanation of each of these functions detailing what they are and how you may use them. Each screen may be resized and moved within the G2 Client interface and multiple client screens may be open and displayed simultaneously.

Main - Main consists of Gateways, Import Data, Export Data, Setup and Exit.

- **Gateways -** Gateways are Gravimetric Gateway® Servers. This screen is used to create, edit and delete gateway information as well as connect to Gravimetric Gateway® Servers. For G2 servers running on the same machine as the client software enter "localhost" otherwise a TCP/IP address or the computer name (Host Name) of the G2 Server on the same domain network is used to connect to remote location G2 Servers. The Client software will automatically attempt to connect to the "localhost" computer unless a default host is specified.

- **Import Data -** Import Data is used for importing database information from previous versions of MLAN for Windows. Importing covers materials and WSB recipes at this time. For more information on how to prepare the data from earlier versions of MLAN for importing into the Gravimetric Gateway® Server see Import Data on page 33.

- **Export Data -** Export Data is used for exporting database information to a file. Several file formats are supported.

- **Setup -** Setup is for setting a standard format of the date, time, weight units, and language across all client screens of a single G2 Client installation. Setup also allows you to set the "end of day" time for report generating, Pop-up messages for alarms, and enabling or disabling security. Screen colors may also me changed in setup as well as the print format.

- **Purge/Archive -** Purge/Archive allows a user with security clearance to archive and purge data from the totals database limited by an end date. Also an advanced purge allows selected files to be purged and archived based on Start and Stop date, WSB, Recipe, Work Order and Operator.

- **AIMS History –** AIMS History is for viewing and purging the AIMS History database. AIMS, short for the Advanced Inventory Management System, logs all activity to the AIMS database. The logged records can be viewed and/or purged though the AIMS history screen and may be filtered based on a Start and stop date, a specific Material Code, Supplier and P.O. number.

- **Security -** G2 Server allows limited access to critical data through 5 levels of security clearance**.**

- **Certificate -** The Certificate screen is used to make changes to the hardware key, such as adding to the number of blenders allowed, enabling extrusion control and AIMS, Advanced Inventory Management System. Updated Certificate Registration numbers are entered here. Certificate numbers are supplied by Conair.

- **TooBar –** This menu item is for setting the toolbar location.

- **Exit -** Exit will exit the client software. Any data that has been entered into the data fields but not saved to the database will be lost when you exit the client. Exiting the Client software does not shut down the G2 Server. G2 Server shutdown is executed in the G2 Server interface.

Edit - Edit consists of WSB Recipes, Materials, Lines, Line Recipes, Retrieval Times and Blenders. This group of functions is for editing the following items.

- **Blender Recipes -** For creating, editing and deleting recipes in the G2 Server's recipe database.

- **Materials -** For creating, editing and deleting materials in the G2 Server's material database.

- **Lines -** For creating, editing and deleting lines of multiple WSBs in the G2 Server's line database.

- **Line Recipes -** For creating, editing and deleting line recipes in the G2 Server's line recipe database.

- **Retrieval Times -** For creating, editing and deleting of retrieval times in the G2 Server's retrieval times database.

- **Blenders -** For manually setting the status of blenders on the MLAN network as well as manually adding a blender to the network.

- **Supplier -** For entering information on suppliers of material. This information is used with the Advanced Material Management System (AIMS).

- **Receive -** For entering information on shipments of material. This information is used with the Advanced Inventory Management System (AIMS).

- **Language -** For multilingual versions of each screen as well as custom translation of individual words.

Download - Download consists of Recipe to WSB and Line Recipe to a Line. This group of functions is for sending recipes and settings to blenders on the MLAN network.

- **Recipe to Blender -** For modifying or downloading a recipe including operator number and work order number to ONE selected WSB.

- **Line Recipe to a Line -** For modifying or downloading a line recipe to a selected WSB line.

View - View consists of Blender, Line, Plant, AIMS and Trend. This group of functions is for viewing current status blenders or lines on the MLAN network.

- **Blender -** For viewing information pertaining to a specific Weigh Scale Blender.

- **Line -** For viewing a selected line of WSBs, including recipes, materials, settings and current status. This screen also allows viewing materials in pie chart format.

- **Plant -** This screen is used for monitoring all activity within a plant including WSBs, lines and material usage including cost per hour.

- **AIMS -** AIMS or Advanced Inventory Management System is used for monitoring material inventory levels. AIMS will prompt the user when material levels reach a predetermined level and can be set to automatically order material from suppliers.

- **Trend –** Trend is used to track data from a single WSB and display the data in a graphical format for quick analysis. Data such as the % of mix, throughput, material usage and variance from the targeted amount of material can be displayed over time or cycle from previously collected data or live as the data occurs.

Control – Control consists of Blender Keypad, Control Line, and DNS Control. This group of functions is for controlling blenders or lines on the MLAN network.

- **Blender Keypad –** The Blender Keypad, when enabled, allows remote access to keypad functions enabling the operator to perform most keypad functions from the G2 Client.

- **Control Line -** Control Line is used for operating extrusion control.

- **DNS Control –** DNS Control is used for Line and Downstream Control.

Report - Reports consists of Filter Edit and Material Usage.

- **Report Filter Edit –** This screen is for creating pre-defined filters, which may be saved for use when generating reports. Pre-defined and saved filters can be used when generating reports in the Material Usage screen. When using a filter in the Material Usage screen, the filter may be adjusted without changing the original filter saved in the filter database.

- **Material Usage** - Reports may be broken down by the following criteria: Weigh Scale Blender, Line, Recipe, Line Recipe, work order, operator number, retrieval time, day and a dump of all

material usage reports. Report may be further refined through an advanced report generating tool using logical operations. Generated reports may then be printed out to a printer, a formatted file or a non-formatted file.

- **Blender Throughput -** The Blender Throughput Report screen is used to generate reports based on average throughput, total throughput and the percentage of total uptime of a particular blender or multiple blenders.

- **Inventory –** The Inventory screen is used for analyzing the current or historical inventory levels of one or more materials.

Help - Help displays information about the G2 Software including the version number, serial number and number of authorized blenders. Also under help is Reinitialize, which is used for re-initializing the G2 Client software.

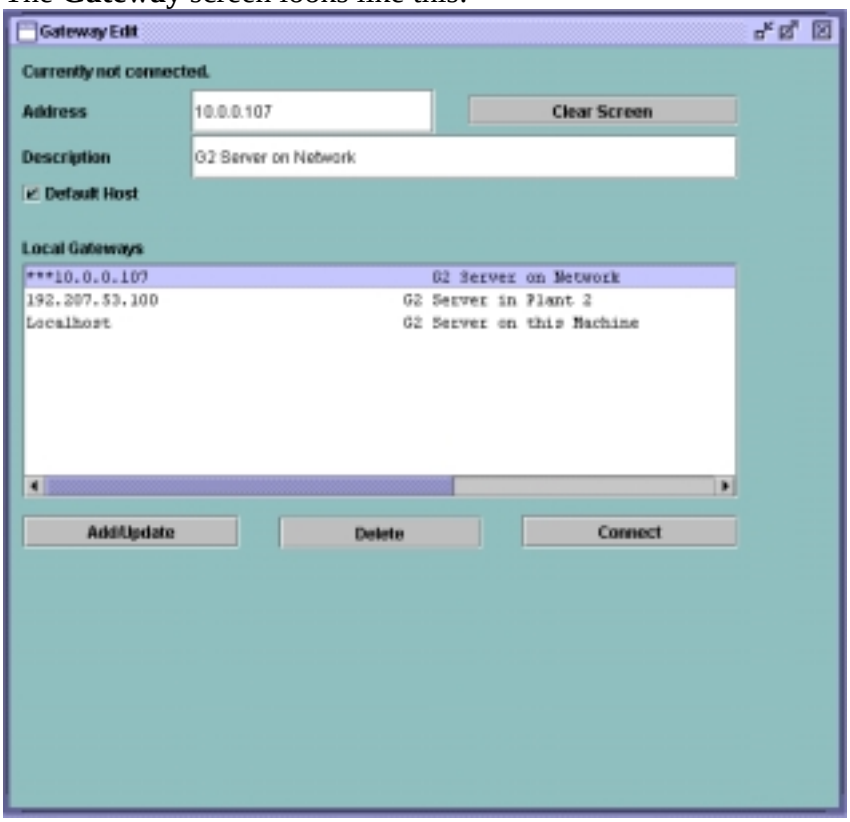
Using the Client Screens

The Gravimetric Gateway® Client is basically how the user will communicate with and operate the Gravimetric Gateway® Server. Although both parts of G2 are integrated together, the G2 Server and the G2 Client operate independently of each other. The G2 Server as a single machine may be used as a stand along computer to communicate and control the WSB network using the locally installed G2 Client software. Using a single computer for both the G2 Server and the G2 Client requires the TCP/IP network protocol to be installed on the computer. In most cases TCP/IP will already be installed on the Windows machine usually along with Dialup Network. If, however it is not configured to use TCP/IP, please read "Configuring TCP/IP in Windows 95/98/ME". In addition it is possible to perform additional installations of the G2 Server/Client software on separate Windows machines located on the same network as the server. These additional installations only require that the G2 Client be run to communicate with the G2 Server located elsewhere on your network. For information about setting up and configuring a TCP/IP network, please read, **Setting Up Your Gravimetric Gateway® Client Network.**

For the client installed on the G2 Server itself the gateway is considered a “localhost” gateway. All data within the G2 databases is stored on the computer running the G2 Server itself and not on any of the G2 Client machines installed elsewhere on the network. Also all communications to the WSBs is initiated from the G2 Server and by the server only. For these reasons it is necessary for all G2 Clients on separate client machines to connect to the server to operate. If no connection is made, the client computers have no control over any aspect of the MLAN network. Note: Screen Shots of the G2 Client listed on the following pages may vary in color.

Gateways

The **Gateway** screen looks like this:



This screen is for adding, editing, and removing local gateways. This screen will be used mainly when you are operating from a client machine that is not running the G2 Server but accesses the Server located somewhere on the network. When you start the G2 Client on the G2 Server machine the client software automatically connects to the G2 Server located on that machine, connecting as "localhost". If you are using the G2 Client on a computer that also runs the G2 server there is no need to connect to a gateway since it is done automatically. In some cases, however, a user may want to connect to another G2 Server from a G2 Server they are operating on. In this case you would provide a local gateway in this screen. If you have installed the G2 Client software on a Windows machine located somewhere on the network, you will need to provide the IP address of the G2 Server, which would be located on the same network as the client itself.

Address: This field is used for the gateway. The gateway is an IP address or the computer name (Host Name) of the G2 Server on the network. For more information on using a network with your G2 server see Network Installation and Configuration on page 18.

Local Gateway - A gateway is considered local if it is on the same network as the client machine. A local network can be as simple as two computers, one a client and the other the server connected together by a network using TCP/IP or as large as the server and the client machines being located somewhere on the world wide web. In short, a local gateway pertains to connecting though a network.

Gateway Description: This field is used to help better identify the gateway. This field may be up to 80 characters in length and may consist of alphabetic characters (including accented), 0 through 9, -, /, @, #, !, $, and % characters.

Default Host – For automatic connection to a G2 Server that is accessed over a network, “Default Host” may be checked off to connect to a specific G2 Server when starting the G2 Client.

To enter a new gateway connection, type the IP address of the G2 Server on the network (For more information on using a network with your G2 server see **Setting Up Your Gravimetric Gateway® Client Network**). Enter a description (optional). If you want to make a specific G2 Server the default Server to connect to when the Client is started, check off Default Host. When you finished, click the Add/Update button to save this entry to the Gateway Database.

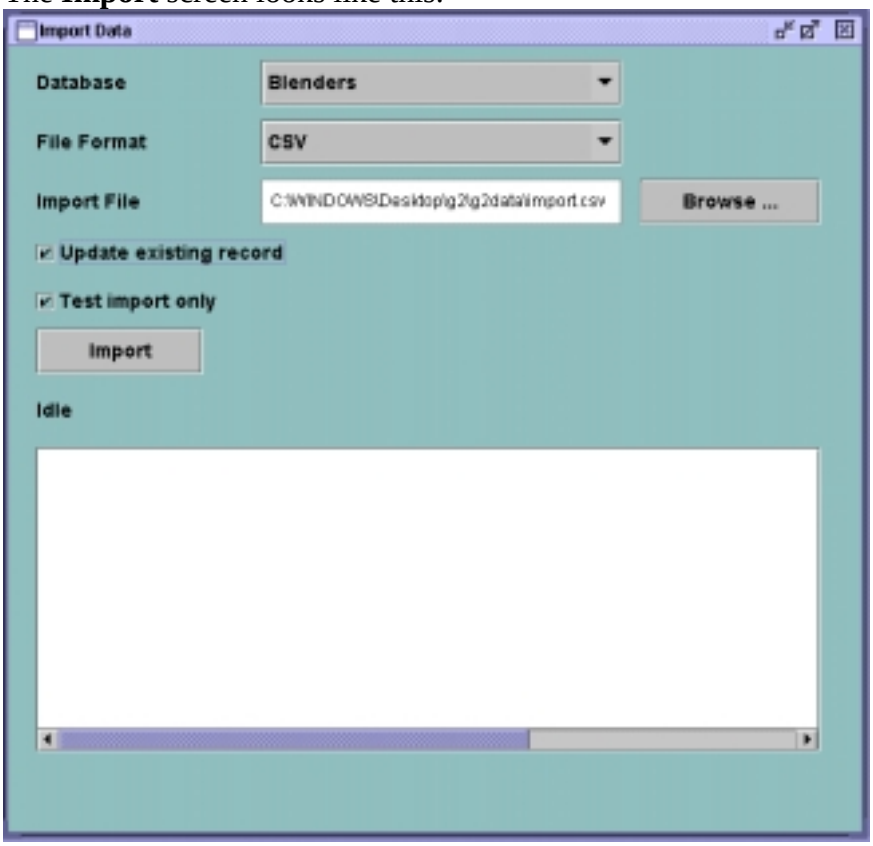
To connect to a gateway that has already been entered into the gateway database simply click on the local gateway in the local gateway list and then click the connect button. Once connected the status located at the to of the gateway screen will display “Currently connected to <IP ADDRESS or Localhost>“

When your G2 Client is connected to the gateway you are ready to begin.

When you wish to re-connect to the G2 Server located on the same computer as your Client, enter "localhost" as a local gateway and connect to that to re-establish communications to the Server.

Import Data

The **Import** screen looks like this:



Import
Overview - The import screen provides the functionality for database files to be imported into the server databases.

Database format - The formats to which the database files must conform are.

1. comma separated (typically ending with the extension .csv)
2. fixed format
3. quoted comma separated
4. tab separated (typically ending with the extension .txt)

Furthermore, the fields must appear in the order described in the tables below.

Importing - The following outlines the steps that are required to properly import a database file to the server.

1. Select a database from the database drop down list,
2. Select the format of the database file from the file format drop down list,
3. Select the database file, Check off options desired, and
4. Import

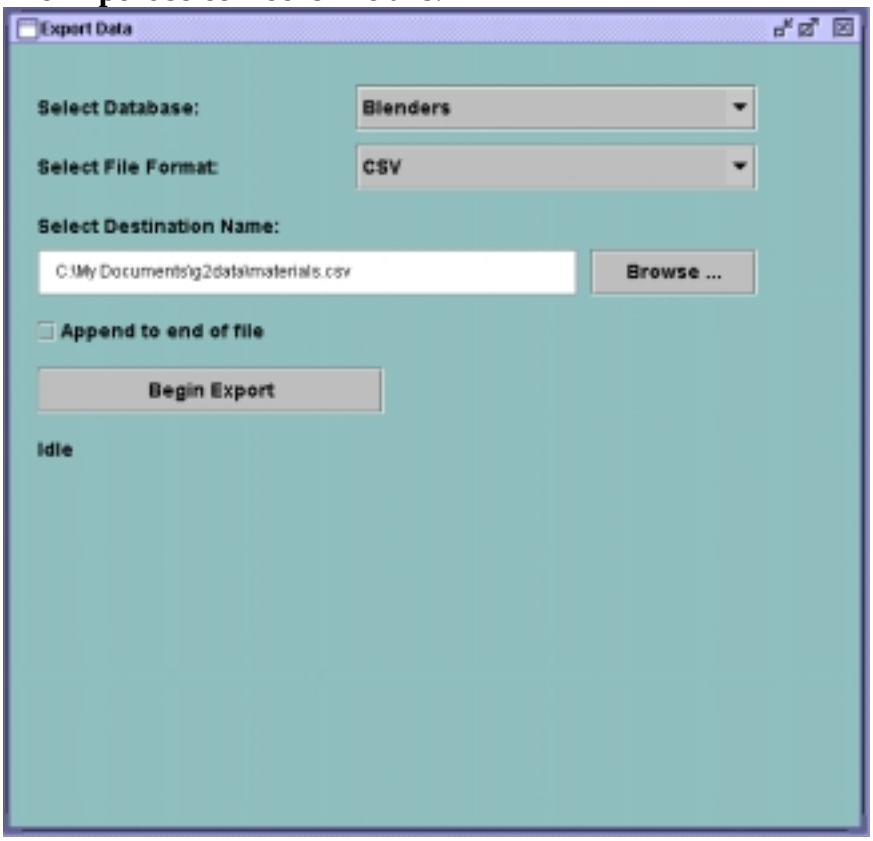
*Note: If importing database file records to the server, the first ten record's import results will be displayed in the import results text field. A dialog will prompt to see whether the import should continue or abort.

Import screen explained

Database	specifies which database will receive the import
File Format	specifies the format of the database file
Browse	invokes a dialog window that allow a database file to be chosen
Update existing record	allows existing records to be updated
Test import only	goes through the import process without actually importing the database file records to the server
Import	imports the database file to the server with respect to the options
Status bar	display status
Import results text field	display results of import
Exit	exits the Import interface

Export Data

The **Export** screen looks like this:



Overview - The export screen provides the functionality to export server databases to database files.

Database format - The following lists the formats to which the database data files can be exported.

1. comma separated (typically ending with the extension .csv)
2. fixed format
3. quoted comma separated
4. tab separated (typically ending with the extension .txt)

The fields will appear in the order described in Tables x.xx.

Exporting - The following outlines the steps required to properly export database information to a database file.

1. Select a database
2. Choose a file format
3. Select a target file
4. Check append option if appending data to the end of a database file, and
5. Export

Export Screen explained

Database	specify which database to import from
File format	specify the format of database file
Browse	allow a destination file to be chosen
Append	append to target database file
Begin export	exports database to target database file
Exit	closes this screen
Status	display status

Database File Formats

The following tables describe one record in a database file. One record occupies exactly one line in a database file.

Note: All digits can be prefixed with a +/- sign.

Blender Table

Blenders Database File Format			
Occurrence	Field	Description	Fixed Field Length
1	Blender Id	Unique blender id	5 digit
	Description	Description of blender	80 character description
	State	State of blender	5 digit
	State Time	Time blender entered current state	19 digit
12	Material Code	Material Code	20 characters
	Material Type	regrind, natural, additive	3 digit
	Material Setting	Settings	5 digit
10	Tag Value		20 characters
	Change Tag Time		19 digit

10 x 12 (There are 12 entries of this field for each occurrence of the 10 above two fields.)	Change Tag Total		19 digit
10	Log Tag Time		19 digit
10 x 12 (There are 12 entries of this field for each of the 10 above entries.)	Log Tag Total		19 digit

Every blender holds a blender id, description, state, and state time. Each blender also holds:
A WSB recipe which includes twelve materials (material code, type, and setting).
10 (xxx), and
10 (xxx)

Each record has the following order:
blender id, description, state, state time,
for I = 1..12 (material code[i], type[i], setting[i]),
for i = 1..10 (tag value[i], change tag time, for j = 1..12 (change tag total[i,j])),
for i = 1..10 (log tag time[I], for j = 1..12 (log tag total[i,j]))

Each record order is as follows:
id, description, state, stateTime,
material code[1], material type[1], material setting[1], //twelve materials a blender can store
material code[2], material type[2], material setting[2],
...
material code[12], material type[12], material setting[12],
tag value[1], change tag time[1], //10 tag value and change tag time fields
change tag totoal[1,1], //12 change tag totals follow each of the above
change tag total [1,2],
change tag total [1,3],
...
change tag total[1,12],
tag value[2], change tag time[2],
change tag total[2,1],
change tag total[2,2],
...
change tag total[2,12],
tag value[3], change tag time[3],
...
tag value[10], change tag time[10]
change tag total[10,1]
change tag total[10,2]
...

```
   change tag total[10,12]
log tag time[1],                          //ten log tag time fields
   log tag total[1,1],                    //twelve log tag total fields follow each
   log tag total[1,2],                    //log tag time field
   log tag total[1,3],
   ...
   log tag total[1,12],
log tag time[2],
   log tag total[2,1],
   log tag total[2,2],
   log tag total[2,3],
   ...
   log tag total[2,12],
log tag time[3],
...
log tag time[10],
   log tag total[10,1],
   log tag total[10,2],
   log tag total[10,3],
   ...
   log tag total[10,12],
```

Line Recipe Table

Line Recipe Database File Format			
Occurrence	Field	Description	Fixed Field Length
1	Name	Line Recipe Name	20 characters
	Description	Description of Line Recipe	80 character description
12	Blender Id	Blender Id	5 digit
	Recipe Name	Recipe Name	20 characters
Each line recipe has a name and an associated description. Each line recipe can include twelve blenders, each with it's own recipe. The following describes each record's order: line recipe id, description, 1st blender, 1st blender's associated recipe, 2nd blender, 2nd blender's associated recipe, ...12th blender, 12th blender's associated recipe			

Lines Table

Line Database File Format			
Occurrence	Field	Description	Fixed Field Length
1	Name	Line Name	20 characters

	Description	Line Description	80 characters
12	Blender Id	Unique blender id	5 digit
Each line record has a name and description, and in each line there can be twelve blenders. Each record entry order is: name, description, 1st blender, 2nd blender, ... 12th blender			

Materials Table

Materials Database File Format		
Field	Description	Fixed Field Length
Code	Material Code	20 characters
Description	Material Description	80 characters
Supplier	Material Supplier	40 characters
Cost	Material Cost	19 digit
Type	Type of Material	3 digit [1..3]
Available	Quantity on Hand	19 digit
Each material record includes the six fields listed above. The following describes each record's order: code, description, supplier, cost, type, available		

Material Usage Table

Material Usage Database File Format		
Field	Description	Fixed Field Length
Blender Id	Unique blender Id	5 digit
Material Code	Material Code	20 character
Tag Type		5 digit
Start Time		19 digit
Stop Time		19 digit
Material Usage		19 digit
Tag Value		20 character
Each record contains the fields listed above in the order: field, id, material code, tag type, start time, stop time, material usage, tag value		

Retrieval Time Table

Retrieval Time Database File Format

Field	Description	Fixed Field Length
Time	Retrieval Time (minutes since midnight)	5 digit
Description	Description	80 characters
Each retrieval time record includes a time and description field. They appear in the order: time, description		

WSB Recipe Table

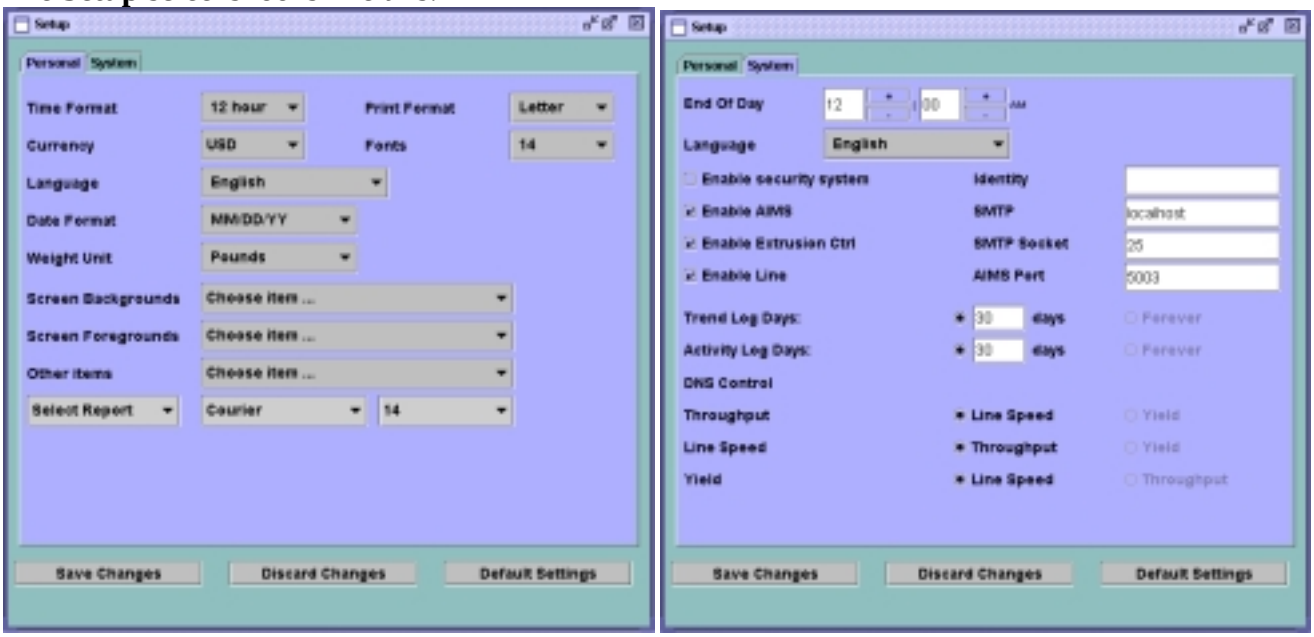
WSB Recipe Database File Format			
Occurrence	Field	Description	Fixed Field Length
1	Recipe Name	Recipe Name	20 characters
	Description	Description of recipe	80 character description
	Batch Weight	Batch weight for recipe	10 digit
	Recipe Number	Recipe's unique number	10 digit
	Recipe Type	4 or 12	3 digit
12	Material Code	Code for each material in recipe	20 characters
	Material Type	regrind, natural, or additive	3 digit
	Material Settings	Setting for each material	5 digit

Each WSB recipe has a name, description, batch weight, recipe number, and recipe type associated with it. Each WSB recipe can consist of 12 materials with type and setting.

The format for each record is as follows: recipe name, description, batch weight, recipe number, recipe type, 1st material code, 1st material type, 1st material setting, 2nd material code, 2nd material type, 2nd material setting, 3rd material code, 3rd material type, 3rd material setting, ... 12th material code, 12th material type, 12th material setting

Setup Screen

The **Setup** screens looks like this:



The Setup screens consist of a personal screen and a system screen. These screens are for setting a standard format for the end of day time, language, date, time, weight units, print format, currency, fonts across all client screens and the option to change client screen colors. Specific font and font sizes can be attributed to specific reports screens as well. The date format options are month/day/year, day/month/year, or year/month/day. The time format is either 12 hour or 24 hour format. Weight units are pounds, ounces, kilograms or grams. From this setup screen the language may be changed across the G2 Server and Client. Choices are listed in their respective language and they are English, Dansk, Nederlands, Suomi, Français, Deutsch, Italiano, Português, Español, Svenska, Türkçe, Custom 1, Custom 2, and Custom 3. Custom 1, 2 and 3 allow for further editing of the language database.

To change the settings choose from the dropdown menus the settings you wish to change. When all selections have been made click save changes. To resort back to the previously saved settings click Discard Changes. To restore the factory default settings click Default Settings. This will restore the settings as follows: Date Format: month/day/year; Time Format: 12 hour; Weight Unit: pounds; Language: English; End of Day: 12:00 AM.

Setup also allows you to set the time that will determine the “end of day” time for report generating. End-of-day time can be broken down to the minute of the 24-hour day. Other setup options are enable or disable of: Security, AIMS, Extrusion Control and Line. Also either *Log Days* or *Forever* may be checked off to archive or purge data recorded by Trend (See Trend for additional information). SECURITY NOTES: When security is enabled only someone logged in as the super user (level 5) has the authority to enable or disable security. When enabling or disabling security, the G2 Client must be closed and reopened before the security change is made in the menu. The G2 Server does not have to be restarted for security changes to take effect.

DNS Control

The Setup screen also allows for setting DNS control priority. Under DNS Control, in the first column, are Throughput, Line Speed and Yield. The user can set DNS Control for Throughput by selecting either Line Speed or Yield. What this indicates is if the user changes throughput then the selected

item, either Line Speed or Yield, will change in responds to the change in the throughput. Likewise for DNS Control for Line Speed and Yield in the first column.

Identity, SMTP, SMTP Socket and AIMS Port are configuration setting for AIMS, Advanced Inventory Management System. For more information on AIMS see page 69.

Identity - Identifies your organization (company name). This information will be used during the ordering process with your suppliers when using AIMS.

SMTP - This is the IP address of your email server. In most cases your Internet Service Provider or ISP also provides email with your dialup account. The information provided by your ISP will include an address for outgoing mail and may be labeled as "SMTP". This address is usually labeled as "smtp.yourprovider.com" or as a period separated number (i.e. 192.192.0.23). Enter this address into the SMTP field. If you do not know what your SMTP address is, please contact your Internet Service Provider.

SMTP Socket - SMTP Socket is the Mail Server's socket number. In most cases this number is 25 unless otherwise noted by your service provider.

AIMS Port - This is the AIMS transaction server port. This should be set to 5003 by default. This port number is configurable in the event that it is necessary to change the port number due to a conflict with another program.

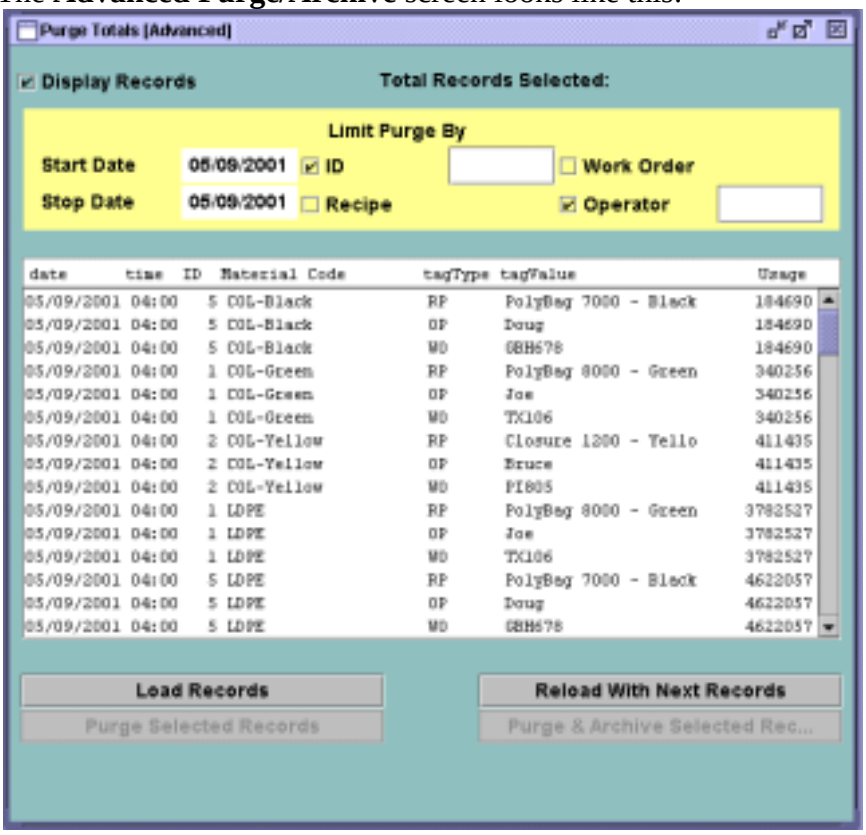
Purge/Archive Screen

The **Purge/Archive** screen looks like this:

The **Purge/Archive** screen is for purging and archiving records from the totals database. Records in the totals database can be purged (removed) from the database based on an end date. Entering an end date means that all records on and before that date will be removed from the database. Purging records will permanently delete record with no means of recovery. Purge and Archive Records will first export the records to a file format that can be re-imported into the G2 Server. For more advanced selection of records for purging or purge/archive select Advanced Purge.

Advanced Purge/Archive Screen

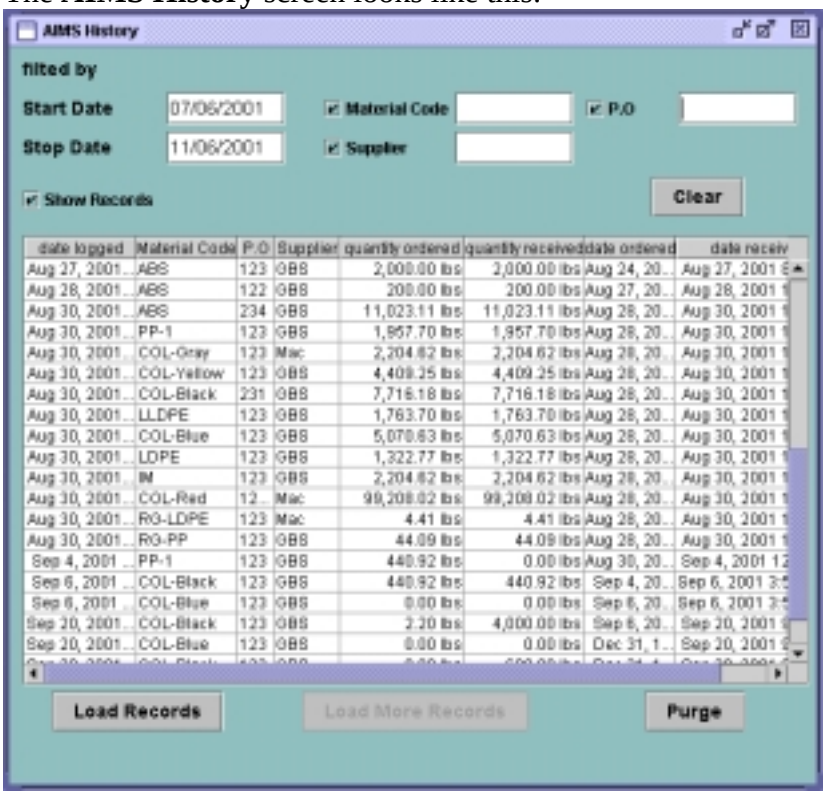
The **Advanced Purge/Archive** screen looks like this:



The Advanced Purge/Archive screen is for selectively purging or purging/archiving records from the totals database. Advanced Purge allows the user to selectively purge records based on a start and stop date, a specific WSB, work order, operator and/or recipe tag. Also the user can selectively choose records individually for purging or purging/archiving. When using Advanced Purge there are two methods the user can use for purging or purging/archiving. First the user can select all records based on the selected *Start Date* and *Stop Date*, *WSB Id*, *Recipe*, *Work Order*, or *Operator*. To do so, enter the *Start Date* and *Stop Date*, and optionally, *WSB Id*, *Recipe*, *Work Order*, or *Operator*. Do not check off the *Display Records* box. Next, click *Load Records*. All records within the entered parameters are selected. If a parameter is changes the records will have to be reloaded. At this time the user may purge or purge/archive the records by clicking the appropriate button. If it were desired to individually select records further, then check off the *Display Records* box and using the mouse, click each record you would like to purge or purge/archive. When the records you wish to remove from the database are selected click either the purge or purge/archive button. To more easily manage the records in the advanced purge screen the number of records that are displayed at one time is limited to 100 records. If the *Reload With Next Records* button is not grayed out then that means there are additional records that meet the desired parameters. Click the *Reload* button to display the next 100 records. If records were selected for purge in the list, they will need to be purged before the next set of records will be displayed.

AIMS History

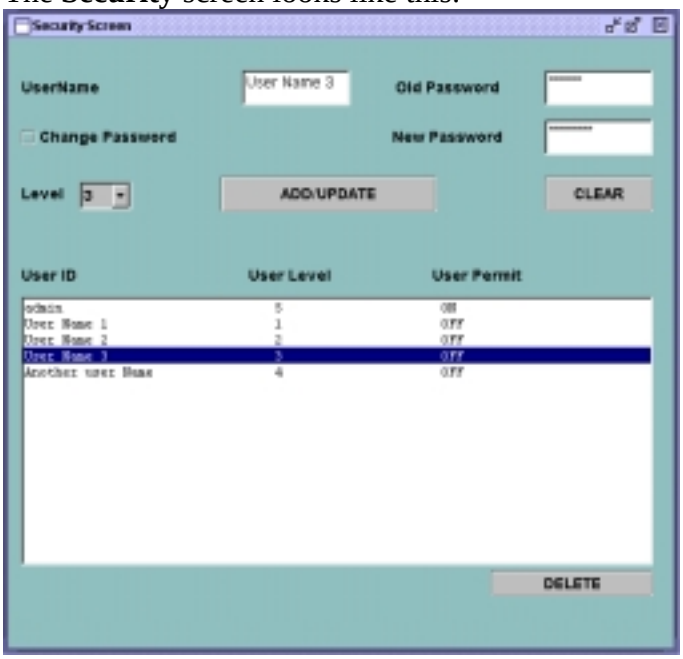
The **AIMS History** screen looks like this:



AIMS History is for viewing and purging the AIMS History database. AIMS, Advanced Inventory Management System, logs all activity to the AIMS database. The logged records can be viewed and/or purged though the AIMS history screen and may be filtered based on a Start and stop date, a specific Material Code, Supplier and P.O. number. Selecting the Material Code, Supplier and/or the P.O. will require information to be entered into that field. To view records that fit the entered criteria, check off the Show Records check box. All displayed records will be displayed with the date the record logged, the material code, the P.O. number, supplier, the quantity ordered, the quantity received, the date the material was ordered and the date the material was received. Records may be purged by simply entering a start and stop date and clicking the Purge button or may be refined to specific records by using the filters. Purging may be further refined though selecting specific records by clicking on and highlighting a displayed a record. Multiple records may be selected by holding the control key down as additional records are selected. A range of multiple records can be selected by first selecting a record, then while holding the shift key down, select a record above or below the selected record. Any records in between the two selected records will also be selected. When the records you wish to purge are selected, click the Purge button. For more information on AIMS see Advanced Inventory Management (AIMS) on page 69.

Security Screen

The **Security** screen looks like this:

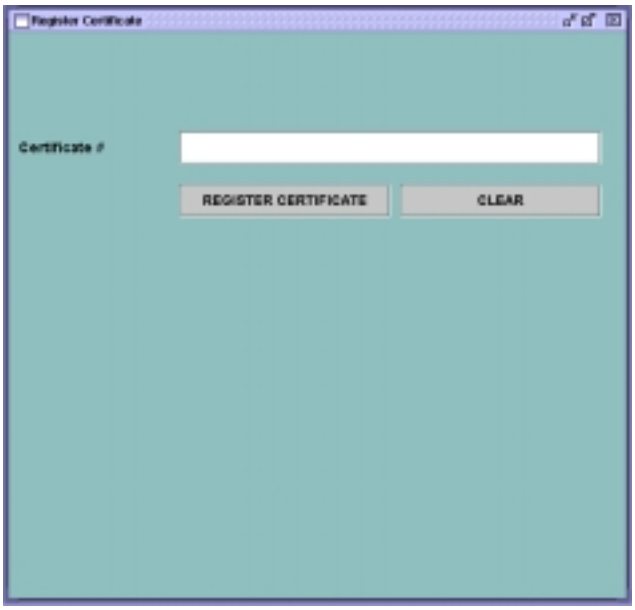


The Security Screen, when enabled in the setup screen, creates a multi level access security system that limits users to specific tasks and privileges. Security is enabled through the setup screen by checking the Enable/Disable security system. If security is changed to either enabled or disabled the G2 Client must be exited and reentered before the change visually takes effect. Depending on the access level of the user some features of the security screen will not be visible. For the super user (level 5) all fields are visible. They are *User Name*, *Old Password*, *New Password*, *Change Password* check box, *Security Level* and add/update, clear and delete buttons. Also displayed for the super user are the accounts of all users in a table labeled with *User ID*, *User Level* and *User Permit*. User ID is the name of the account that will be entered when logging onto the G2 Server from the G2 Client. The *User Level* is the access granted to the user by the super user. Access levels are listed below. *User Permit* indicates whether the user has permissions to change their own password. This is indicated as ON meaning they can change it and OFF meaning they cannot. Users may change their own password only if the super user has granted them the privilege to change their own password. For the super user to create a new account, enter the account name, a password in the *New Password* field, if the user is allowed to change their own password then check off *Change Password*, and select the *Security Level*. Click the add/Update button to add the account. To delete or edit an account, select the account from the list. Changes may be made then click Add/Update. If the account is to be deleted, click the Delete button. The following chart describes the various user levels and the privileges that come with each level.

LEVEL	ACCESS	PRIVILEGES
0	no access	with security enabled no password = no privileges
1	read only	browse, run reports
2	operator	download blender and line recipes
3	edit databases	purge totals, create/delete materials, recipes, lines, line recipes
4	combine levels 2 & 3	
5	super user	user administration, disable/enable security, all other functions

Certificate Registration Screen

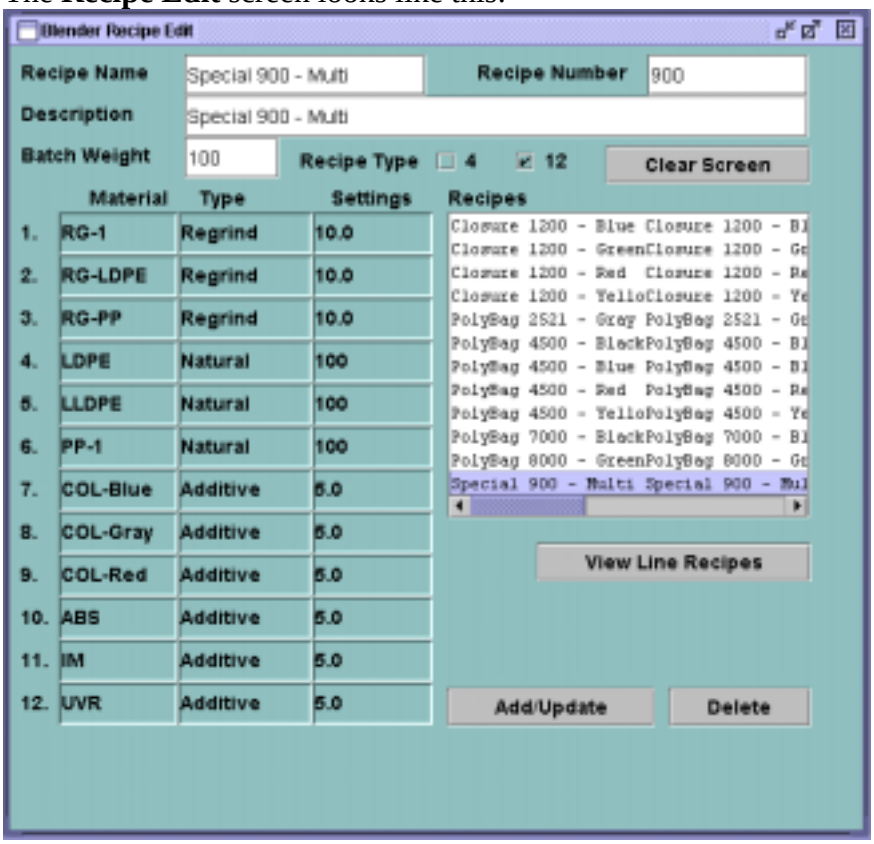
The **Certificate** screen looks like this:



The Certificate screen is used for upgrading your copy of the G2 software to access features that are not accessible. The G2 Server/Client software is distributed free of charge on CD-ROM from Conair. This distributed version is the full version software but in not fully operational. The free software is limited to running as a demo package and/or as G2 Lite, which offers support for a single Conair Blender. In this free release extrusion control is also not available. To unlock the features of the G2 software package, a signal amplifier with a built in security key is required and is available from Conair. The Registration Certificate works in conjunction with the security key within the signal amplifier. If you purchased the Gravimetric Gateway® Software directly from Conair, you will have been provided with a signal amplifier. Every signal amplifier has an individual serial number. When you are provided with a Certificate number based on your package, or as an upgrade, this number will be specifically designed for your signal amplifier's security key. To update your software, simply enter the Certificate number exacted as it is written being aware that it is case sensitive. After entering the Certificate number correctly, you will need to close the G2 Client and start it again for the changes to take effect. The G2 Server will not have to be restarted.

Blender Recipe Screen

The **Recipe Edit** screen looks like this:



This option is for ADDING and CHANGING WSB RECIPES. You will need to add materials to the material database first before building recipes, since the recipes consist of various materials.

FOUR software allows only 3 components to be entered. These are regrind, color, and additive. Natural does not need a setting since natural always consists of the entire mix less the portion designated as the other components. However, you will specify what the natural component is, but you will not give it a setting.

TWELVE software allows entry of up to TWELVE component settings.

NOTE: When you get started building recipes, you will discover that you must have some materials listed in the material database from which to choose. Recipes can only be constructed from materials in the MATERIALS database. To make the job of getting started a little easier, you could place a few generic materials in the MATERIALS file. For example: enter three materials called “additive”, “regrind”, and “natural.” Then if you wish to enter a setting for an additive into a recipe but do not know exactly what color it will be at this time, you may just call it ADDITIVE.

REMEMBER: Without a material in the MATERIAL database, you will not be able to enter a setting into the RECIPE file.

Recipe Name: Identifies the recipe in the recipe database and on printed reports. The name may contain alphabetic (including accented), 0 through 9, -, /, @, #, !, $, and % characters. The number of characters in the name field may be up to 40 characters.

Recipe Number: Identifies the recipe within the WSB controller and is used to cross reference the recipe number in the blender with the recipe in the recipe database. The number can range from 100 to 32767.

> **RECIPE AUTO DOWNLOAD** - Introduced in G2 version 2.2, Recipe auto download enables the operator to cause the WSB controller to automatically download a new recipe from the G2 Server at the end of the next cycle. Auto downloads requires that the recipe that is to be downloaded have a Recipe Number that is unique from all other recipe numbers in the G2 recipe database and the recipe number range must be between 100 and 999. Recipes set for auto download must match the controller in software type if the controller is a 4-component controller. If the controller is a 12-component controller, recipes may be either 4 or 12 component recipes. For more information on recipe auto downloads, see **Auto Download Feature** on page 63.

Recipe Description: This field is used to help better identify the recipe. It is displayed with the recipe on the Recipe Edit Screen, Recipe Download Screen, View Weigh Scale Blender Screen, and the recipe reports. This field may be up to 80 characters in length and may consist of alphabetic characters (including accented), 0 through 9, -, /, @, #, !, $, and % characters.

Batch Wt: The Batch Weight field is used when you want to run Batches with the Weigh Scale Blender. For more information on batches see the blender's manual.

Materials: This column contains the material names that are used in this recipe.

Type: This column contains the material types (i.e. regrind, natural, additive) for each material.

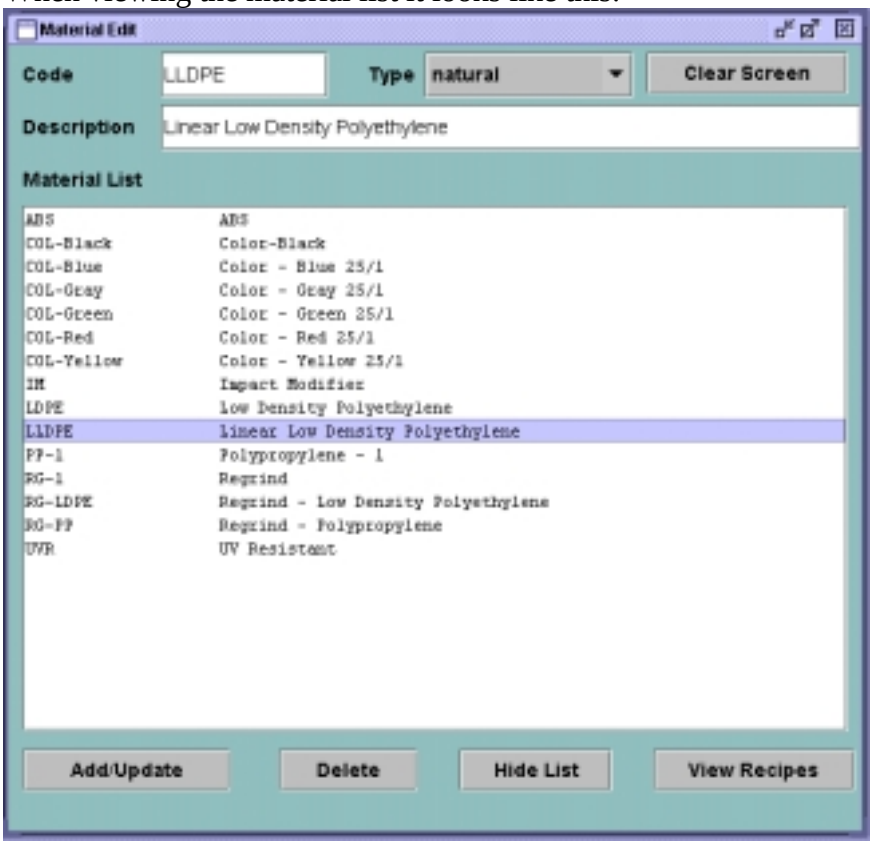
Setting: This column contains the setting for each material. This number is expressed as a percentage. For more information on batches see the blender's manual.

Recipe Type: This is used to determine which controller can receive this recipe (4 Vs 12 component controller software).

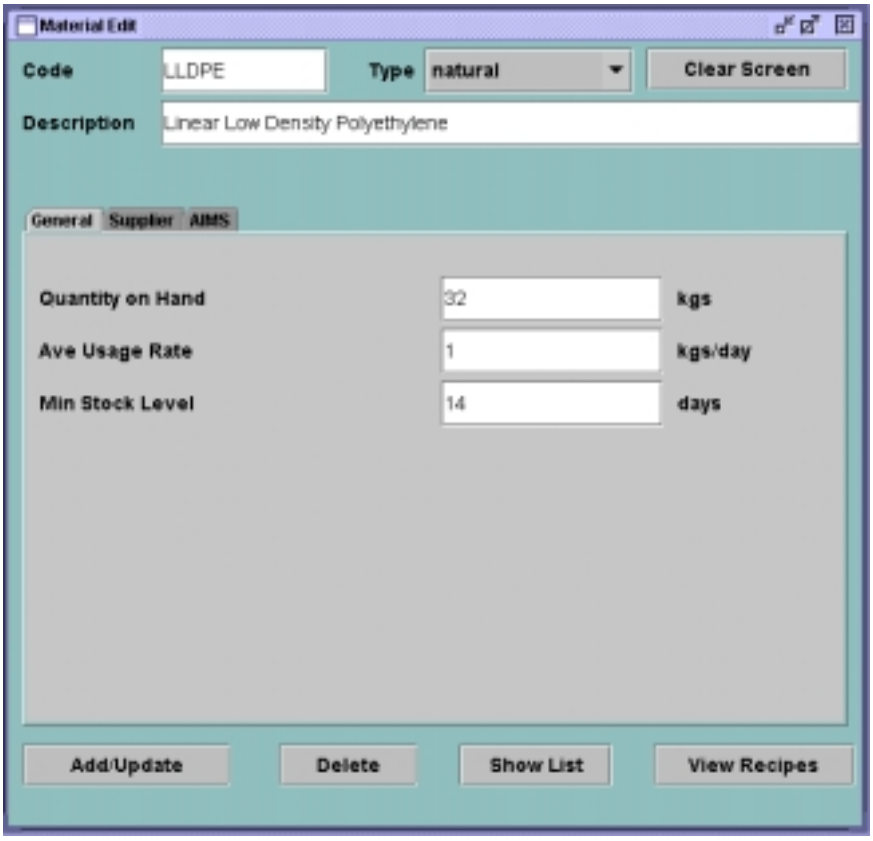
To build a recipe add a recipe name, description, recipe number, batch weight, recipe type and any materials along with their types and settings. Materials are chosen from the material list. When all field and settings are entered click the Add/Update button. To clear the screen of all entries click the clear screen button. To delete a recipe choose the recipe you wish to delete from the recipe list and click the delete button. Recipes which exist in a line recipe can not be deleted until the line recipe has been updated or deleted. Recipes may be updated at any time by editing any field excluding the recipe name. Changing the recipe name essentially creates a new recipe.

Material Screen

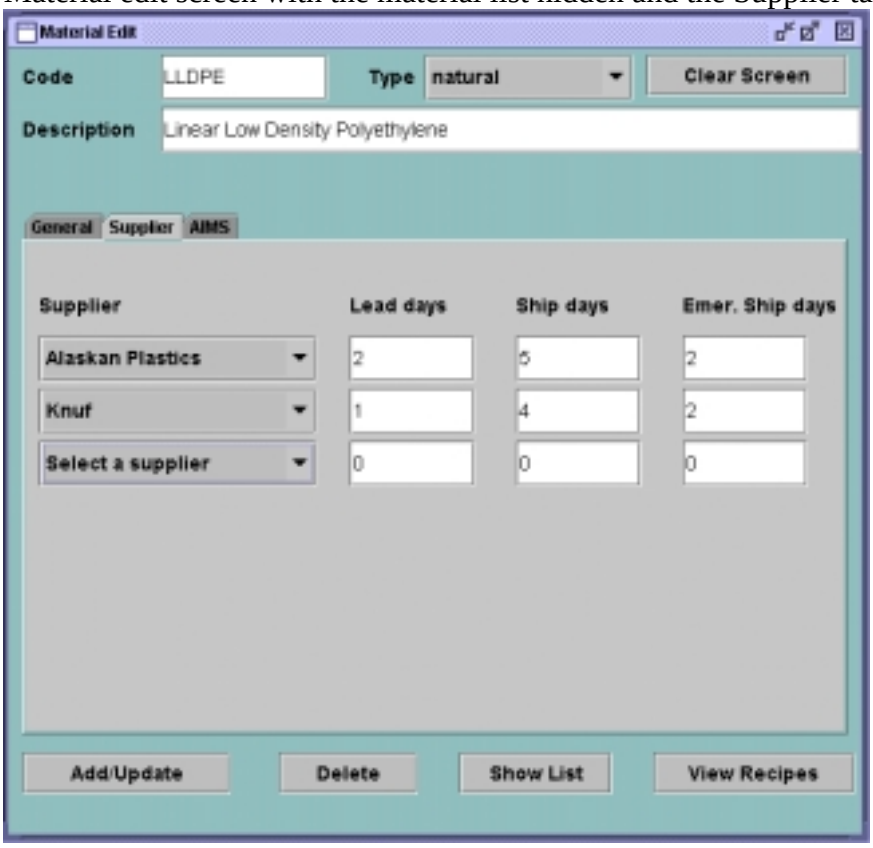
The **Material Edit** screen has two appearances. Hiding the Material List, accesses 3 tabs. When viewing the material list it looks like this:



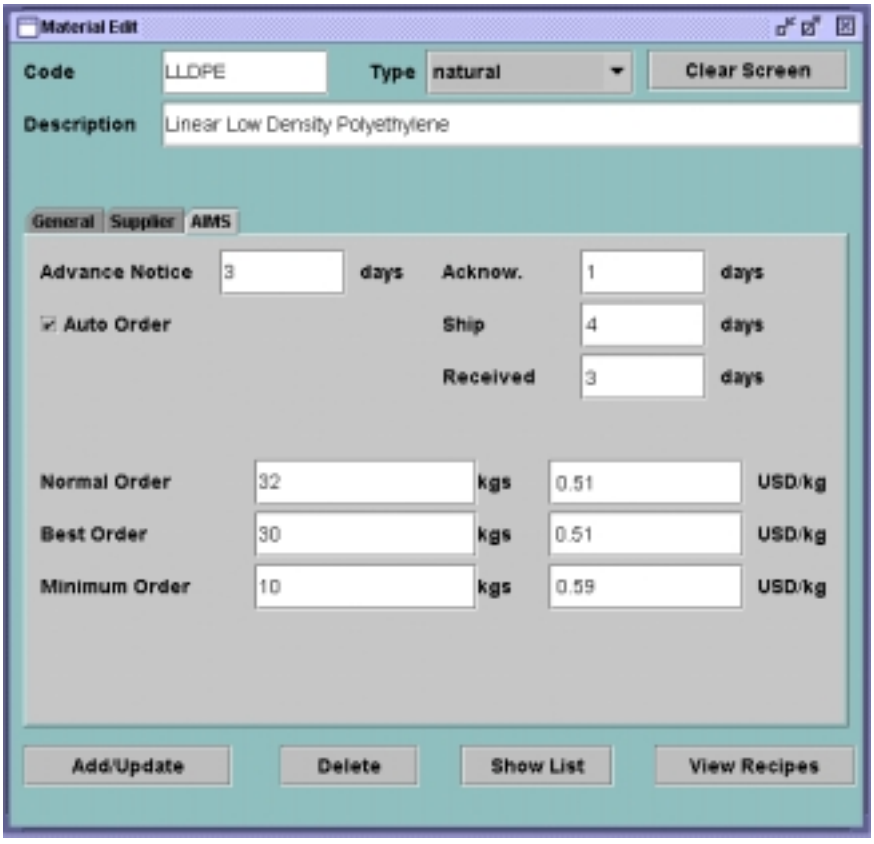
Material edit screen with the material list hidden and the General tab selected:



Material edit screen with the material list hidden and the Supplier tab selected:



Material edit screen with the material list hidden and the AIMS tab selected:



The Material screen is for adding, changing, or deleting the Materials in the material database. This database should contain every material that you may possibly use in your plant. Recipe are built from

these materials therefore you must have all materials that are to be used in recipes entered into the material database to ensure accurate tracking of all materials. Additional information, specified below, is required for each material if the Advanced Inventory Management System (AIMS) is to be used for automated material level monitoring and automated ordering.

Recipes that specify material names are restricted to selecting from materials that are contained in this database. If a recipe uses a material that you have not yet identified, make an entry in the database named something general like REGRIND, NATURAL, MATERIAL, COLOR, or UNKNOWN, and then specify this material in the recipe.

REMEMBER: All materials in a recipe must be found in the material database.

Code: This is the unique name that you give this material. This is an alphanumeric field with a maximum of 40 characters.

Description: This field is a unique description of each material to help you identify the material. This is an alphanumeric field with a maximum of 80 characters and is optional.

Type: This is the drop down menu allows you to choose a default type for the material. When this material is used in recipes it will automatically default to this type that you choose in the material edit screen. You may change the type when the material is used in the recipe. Default types are regrind, natural, additive and color.

To add a material, enter a Code (name), description, default type, and if AIMS is to be used enter data into the above-mentioned AIMS related fields. When all field are entered click the Add/Update button. To clear the screen of all entries click the clear screen button. To delete a material, choose the material you wish to delete from the material list and click the delete button. Materials, which exist in a recipe, cannot be deleted until the recipe has been updated or deleted. Also recipes, which exist in a line recipe, cannot be deleted. Materials may be updated at any time by editing any field excluding the material code. Changing the material code creates a new material.

The following fields are accessible and required if the Advanced Inventory Management System is enabled. They are edited by selecting on of the three tabs, General, Supplier and AIMS

General Tab:

Quantity on Hand: Enter in this field the amount of Material available at the time of setting up the material in the database. Once entered, the material level will automatically adjust according to consumption and incoming material shipments. This field is protected by user level 3 or higher. If AIMS is enabled this number is used to calculate when material must be re-ordered.

Average Usage Rate: Enter in this field your average consumption rate per day of this material. This average is user defined and will determine if material consumption is within acceptable levels. If consumption is off by 15% above the Average Usage Rate the throughput alarm is initiated.

Min Stock Level: This is the minimal level of material on hand. When this level is reached due to material usage AIMS will alert you and your material supplier if enabled to

automatically reorder this material.

Supplier Tab:

Supplier: Select the supplier of the material from this drop down lists. Three separate suppliers may be selected from the Supplier drop-down menus, top being the default supplier and the lower two alternate suppliers. Suppliers are entered in the Supplier screen under the Edit menu. This is an alphanumeric field with a maximum of 40 characters when AIMS is disabled. If AIMS is enabled suppliers listed here are used when material must be re-ordered.

Lead Days: Average number of days your supplier acknowledges your purchase order.

Ship Days: Average number of days required between acknowledgement from your supplier and when the material is actually shipped.

Emer. Ship Days: Shortest number of days required between acknowledgement from your supplier and when the material can be shipped in an emergency.

AIMS Tab:

Advanced Notice: Advanced notice in number of days that the operator of G2 needs to be informed that material is low and needs to be ordered. This number of days is a projection of when you will run out of material based on the minimal stock level of this material.

Auto Order: Checking off this box will enable automatic material ordering from your suppliers through email.

Acknow.: Acceptable number of days for a late acknowledgement. If this number of days exceeds what is specified, an alarm is initiated in AIMS.

Ship: Acceptable number of days for an acknowledgment that the material has been shipped. If this number of days exceeds what is specified, an alarm is initiated in AIMS.

Received: Received in days - Alarm state - Number of days for acceptable lateness Acceptable number of days for an order of material to be received. If this number of days exceeds what is specified, an alarm is initiated in AIMS.

Normal Order: This is the average amount of material ordered from your supplier. The field following Normal Order is price per unit.

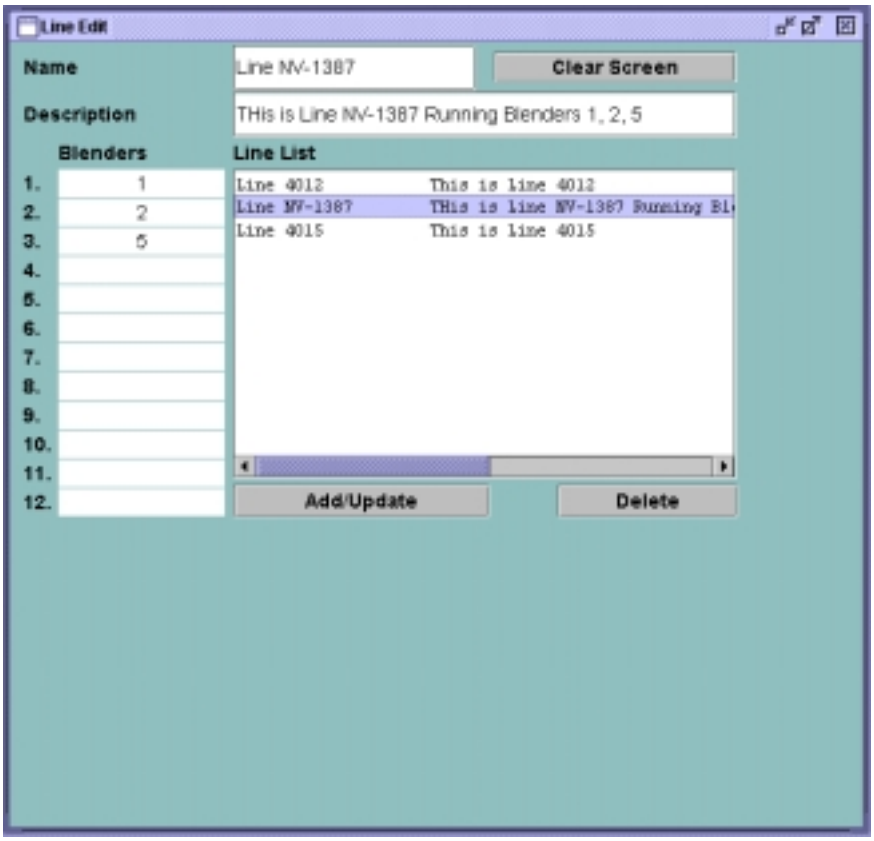
Best Order: This is an amount of material that if ordered, will yield a better price if a bulk purchase is made. The field following Best Order is price per unit.

Minimal Order: This is the minimal amount of material that may be ordered from your supplier in one order. The field following Minimal Order is price per unit.

Line Edit Screen

The concept of a WSB Line and a WSB Line Recipe may or may not be used depending on your setup. A WSB Line is a group of Weigh Scale Blenders, which are, for any particular reason, grouped together and receive recipes from a single download all at one time. The recipes that are downloaded in a single action need not all be the same recipe. Each blender in a line may individually receive it's own predetermined recipe. The only common factor in a line is that each blender in that line receives a recipe when a line recipe is downloaded, all at one time and one download.

The **Line Edit** screen looks like this:



Before you are able to create and download a line recipe you must first create a line. A line is simply a group of blenders. Each blender is identified by it's own WSB I.D. ranging from 1 to 254. Once you have created a line, you will then be able to create a line recipe that may be used with this line. To create a line you must first give the line a name.

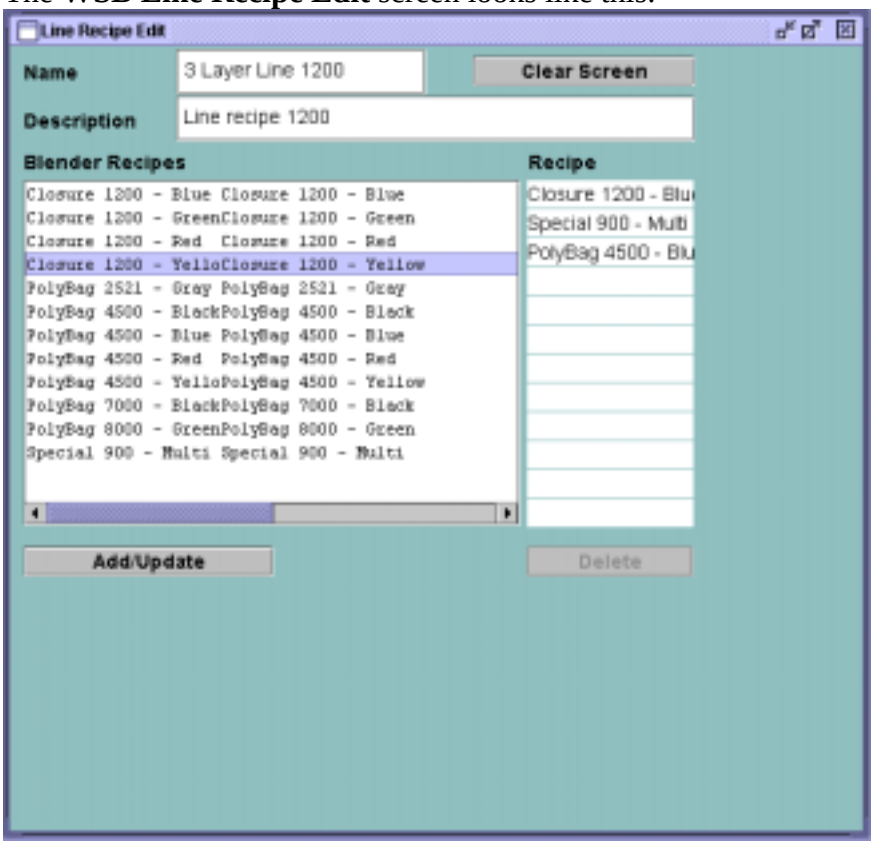
Name: This is the unique name that you give this Line. This is an alphanumeric field with a maximum of 40 characters and is required.

Description: This field is intended for a unique description of each line to help identify this the line. This is an alphanumeric field with a maximum of 80 characters and is optional.

Next you will select a position in the left column for an active blender. The field highlight will “float” until you click in the position you wish to place an active blender. Starting from the top select a position and move the mouse over to the right and select a blender from the list of active blenders. Note: The position of a blender within the 12 possible slots in the left column will be directly associated to that same position when building a line recipe to be used with this line. The position importance will become evident on the download Line Recipe Screen when a line is matched with a line recipe for download. When you have added all the blenders you want to include in the line click the Add/Update button. To clear all entries click the Clear Screen button. To update a line, choose the line from the line list and edit any item you wish to edit excluding the line name. To remove a single blender from the line, highlight that blender ID by clicking on it and press the delete key on the keyboard. To delete a line, choose the line from the line list and click the delete button.

Line Recipe Edit Screen

The **WSB Line Recipe Edit** screen looks like this:



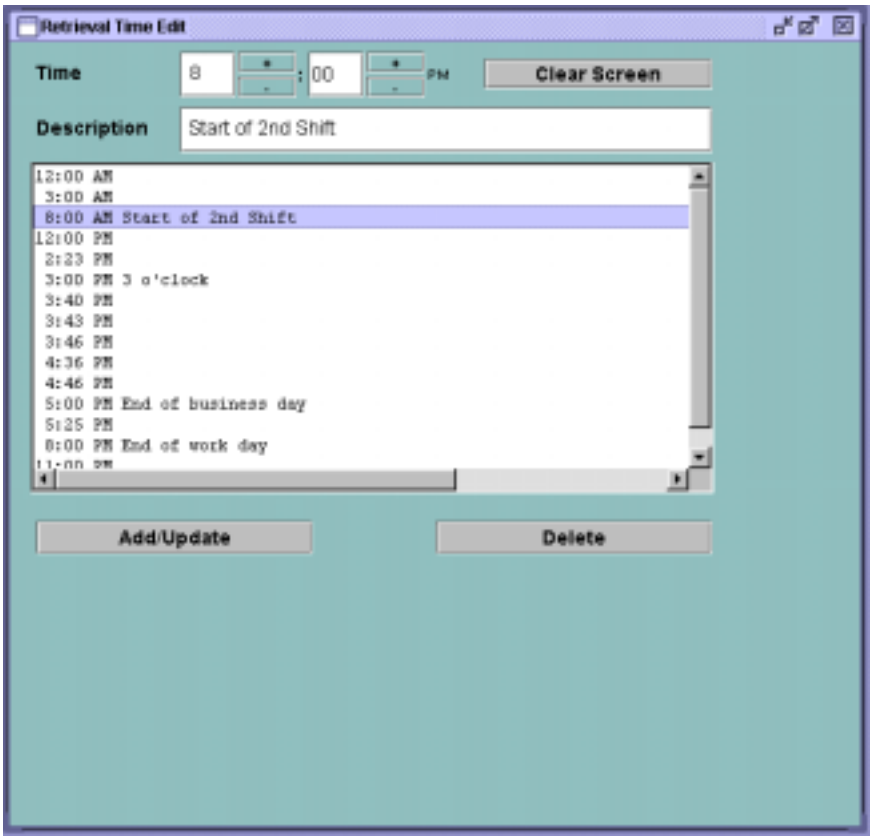
Line recipes are built using lines. Lines, as described in the previous section, are basically a grouped set of blenders. The line recipe screen alternates the center panel to display one of two lists. By using the mouse and placing the cursor over one of two areas the list will change. The lists are display by the following means: Placing your cursor over the line name and description will display the list of Line Recipes. Placing your cursor over the recipe column (on the right side of the screen) will display the list of Blender Recipes.

To build a line recipe you will first type a name and description of the line recipe you want to create or select an existing line recipe for editing. Next move the mouse over to the right column labeled “Recipe”. The blender recipes list will appear to the left. Click on a position from top down in the blender column, which will relate to a WSB in that position of a line. The position will highlight in

yellow. Next choose a recipe from the blender recipe list. This adds the recipe to that particular position. Next click on any additional positions from top down to add a recipe for that position. When you have added the required recipes to your line recipe click the Add/Update button. To edit a line recipe choose the line recipe from the line recipe list, edit any part of the line recipe excluding the recipe's name and click the Add/Update button. To delete a line recipe from the line recipe database click the line recipe you wish to delete and click the delete button. Clicking the clear screen button will clear any entries in the fields.

Edit Retrieval Times Screen

The **Retrieval Times Edit** screen looks like this:



This screen is for adding or changing retrieval times. Data will be retrieved from ALL WSB units at the times that are listed in this database. Totals for material usage may then be summarized for the time periods between these listed times.

Times should be entered in standard AM/PM format. 24 hour time format is NOT used for retrieval time however report may be generated using a 24 hour time format. To enter the time, click in the time field using the mouse or use the tab key to move the cursor to the time field. Times may be typed in or you may use the up and down arrow keys to increment or decrement the hours and minute. Use the right and left arrow keys to move from hours to minutes to AM/PM. AM/PM is toggled using the up/down arrow keys or spacebar. For NOON, enter 12:00 PM.

MIDNIGHT, 12:00 AM, is present in the list as a default time. You do not have to keep it, but you do need to have at least one time in the file at all times. Since reports are run from one selected date to another, it is necessary to retrieve data at least once a day to keep totals properly assigned to the correct date. Therefore, there must always be at least one time in the time list if you wish to generate reports

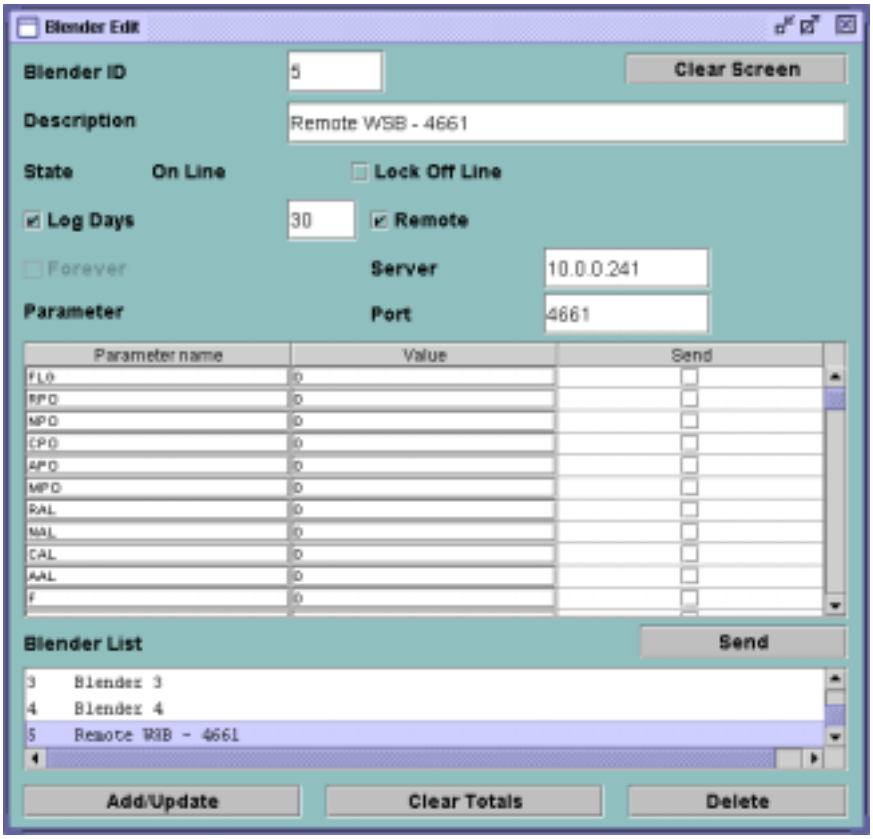
based on material usage. It follows, for the same reason, that all reports will break production at the first time of the day. For example, if the first time in the list is 6:00 am, then all material used from Midnight to 6:00 am will be assigned to the previous day. This gives the ability to indirectly set your end of day at 6:00 am, for example, instead of midnight—the default.

Description is for your reference only and may be up to 80 characters in length. You are only able to edit the description of a retrieval time. If you change the time of a retrieval time you are essentially creating a new retrieval time.

To create a retrieval time select the time using the instructions above. Then enter a description. Next click Add/Update to add the retrieval time to the times database. Clicking clear screen resets the time back to 12:00 AM and clears the description. To delete a retrieval time select the time from the retrieval times list and click the delete button.

Edit Blenders Screen

The **Edit Blenders** screen looks like this:



The Edit Blender screen is used for maintaining a database of WSB ID numbers and direct access to WSB Parameters. All possible WSB ID numbers, 1 though 254 may be manually entered. Clicking Add/Update will force the G2 Server to probe the WSB and if successfully probed, it will display all current parameter names and values. If any of the WSBs that have been probed and added to the Blender database go offline, the G2 Server will continue to probe the WSB for one hour. If the WSB does not come back online within one hour, it must be manually probed again by clicking Add/Update. Blender Edit is also used for locking a WSB offline to prevent the G2 Server from probing it for information and totals and for removing WSB ID numbers from the database.

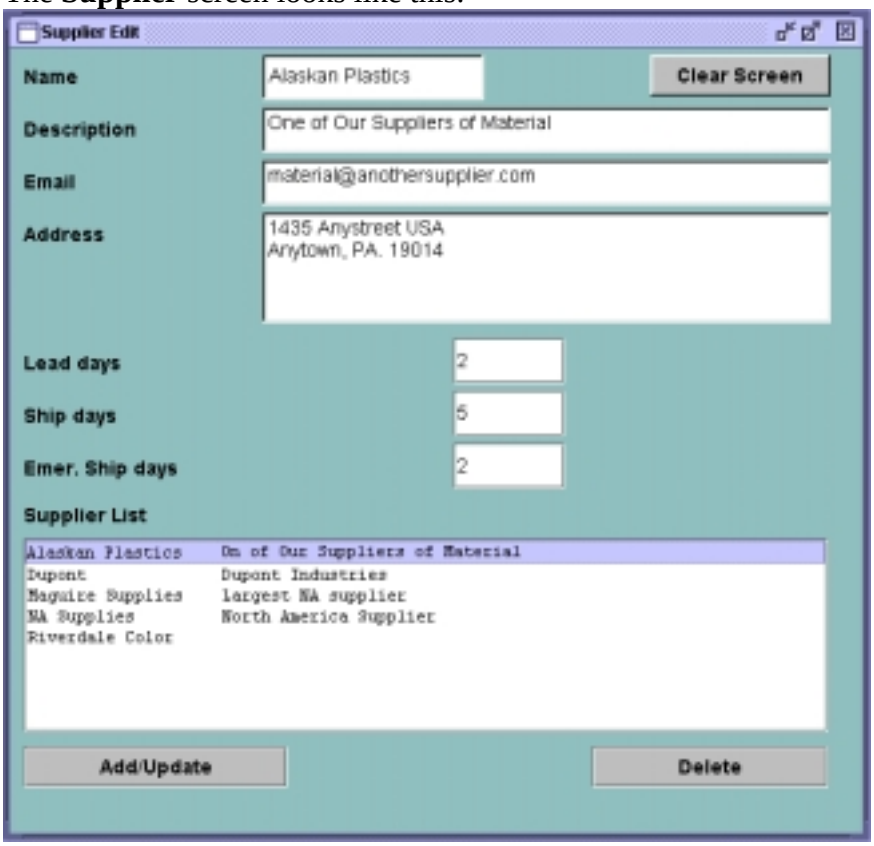
WSBs that are “Remote”, accessed though a G2 Satellite ComServer, will have their information entered here to enable remote access. Remote access requires use of the G2 Satellite ComServer. For more information see G2 Satellite ComServer on page 10. After configuring a G2 Satellite ComServer on your network, the User will enter the Blender I.D., a description and then select “Remote”. Selecting Remote will display an area to enter the Server address (TCP/IP) and the port number that the Satellite ComServer is listening to. Enter the I.P. address of the computer on the TCP/IP network. For example, “10.0.0.241” Please note that your network I.P. addresses may vary. For more info on TCP/IP Networks please see section VIII, Network Installation and Configuration on page 18. Next you will enter the port number that you set the Satellite ComServer to listen on. Typically you will have set this port number to a port number between 5005 and 6000. Such as “5005”. Once these values are set, click Add/Update to enter the information into the database. The WSB will be probed for information and may cause a delay in the G2 Client’s response time until the communications are complete. It may take a few minutes, please be patient.

Parameter adjustment is not recommended without knowledge of the WSB parameters. Do Not adjust parameters without an understanding of WSB parameters. For more information please read the MLAN Protocol Manual, available upon request.

G2’s Trend feature can be configured for individual WSBs by selecting *“Log Days”* and specifying the number of days you want to log before purging the Trend database or select *“Forever”* to log continuously, archiving every 30 days. Data that is archived may be access as historical data using the Trend Screen. For more information on using Trend, See “Trend” on page 84.

Supplier Screen

The **Supplier** screen looks like this:



The supplier screen is used for entering information on suppliers of material and works in conjunction with the Advanced Material Management System (AIMS). If AIMS is to be used to it's fullest potential, supplier information must be entered. The supplier screen consists of the following fields; Name, Description, Email, Address, Lead Days, Ship Days, Emergency Ship Days and the Supplier List.

Name - Name of Supplier

Description - A Brief description of the supplier (optional)

Email - Email address of the supplier's ordering department. A feature of AIMS is automatic ordering of material from your suppliers through email. The email address entered in the email field should be an address that can be contacted for ordering material.

Address - Street address of your supplier.

Lead Days - The number of days between when an order for material is issued and when the supplier ships the material.

Ship Days - The number of days between when a P.O. is shipped by the supplier and when the you receive the order.

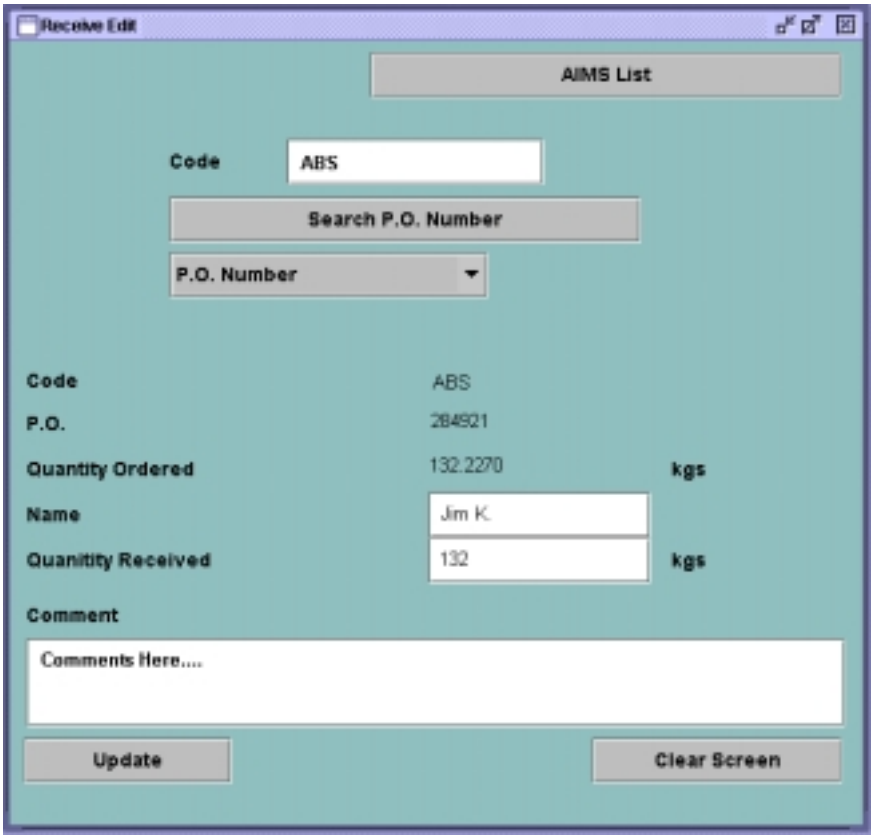
Emergency Ship Days - The shortest time interval that a supplier can ship material to you.

Supplier List - This is the list of suppliers entered into the supplier database. Clicking on a supplier listed in the Supplier List puts the supplier's information in the upper fields for editing.

For more information on how suppliers work with AIMS read the Advanced Inventory Management System section on page 69.

Receive Screen

The **Receive** screen looks like this:



Search P.O. Number - Search for a purchase order from the list materials received.

Code - Enter your material code (name) you wish to search the AIMS database for any purchase order for this material.

Drop Down List - Results from a search for a PO

AIMS List - Displays a list of materials that have been shipped by the suppliers.

Code - Displayed information for any P.O. selected.

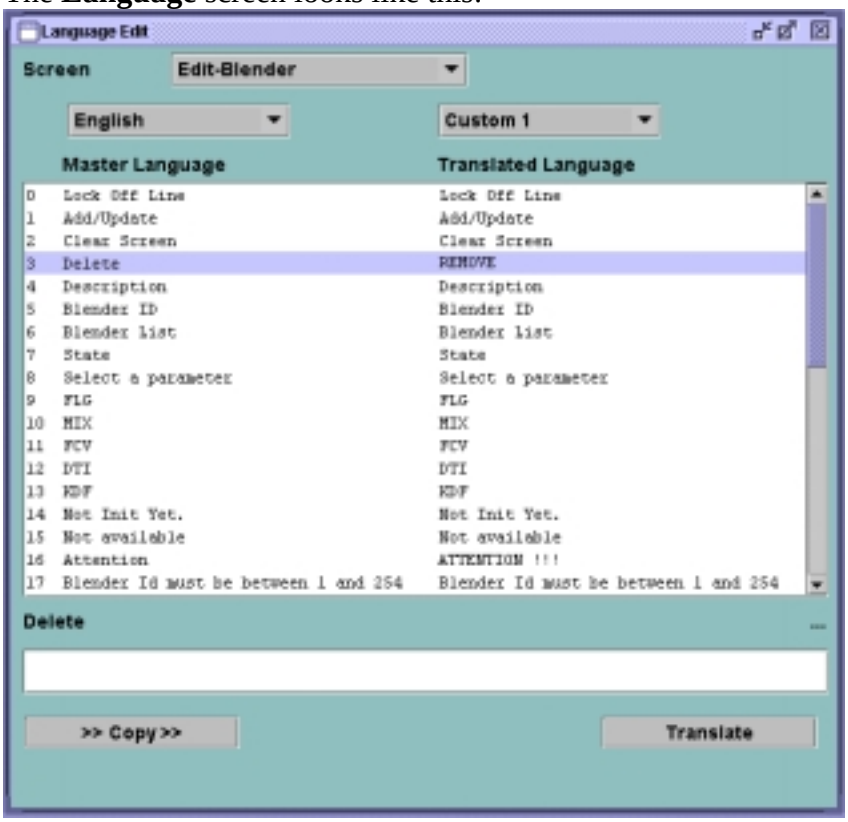
P.O. - Displayed information for any P.O. selected.

Quantity Ordered - Displayed information for any P.O. selected.

Name - The operator in the receiving dock. This is the person who uses this screen.
Quantity Received - How much received in loading dock.
Comments - Comments may be entered here.

Language Screen

The **Language** screen looks like this:



Language selection for the G2 Client in is changed in the Setup Screen under the Main menu. Languages may be further edited here in the Language Screen. To edit the selected language you will be creating a custom language. Up to three custom languages may be created. To create a custom language, choose the master language that you will be working from and then select the custom language (Custom 1, Custom 2, or Custom 3) from the dropdown list. The master language will not update until a custom language is selected or the screen you want to edit is selected. When creating a custom language some or all of the words of phrases may be edited but all must have an entry. This applies to all screens. This is the reason for the **>>Copy>>** button. When creating a custom language, all screens will have to be loaded and at the very least copied to the translated language. It is necessary to copy the database entries each screen before editing some of the entries unless ALL words and phrases will be manually entered. Once entries have been made into the edited custom language the copy button will overwrite *ALL* entries. To create a custom language select the G2 screen you wish to edit (all screens will have to be edited before the custom language can be loaded in setup). If this is the first time translating this screen into the custom language clicking the copy button will put all entries in the master language into the custom language after which, individual entries may be selected and edited. To edit individual words or phrases, select the word or phrase in the "Master Language" column and type how you would like it to appear in the field below and click the "Translate" button. Up to 3 separate custom language databases may be created and edited. They are labeled Custom 1, Custom 2, and Custom 3. To load the edited language into all G2 Clients you must change the language in the Setup screen under the main menu. to the custom language created in the Language Edit screen (Custom 1, Custom 2, or Custom 3). After selecting the custom language from the drop-down list in the setup screen, click the *Save Changes* button. *Please Note:* Selecting a different language in the setup screen changes ALL clients connecting to the G2 Server.

Individual users may run G2 in the language or custom language of their choice without affecting other users. This is done in one of two ways. One way is to select the language during the installation of the G2 Client. The language selected during the installation will be the default language loaded when the client is started. Changing the default language without re-installing the G2 Client may be accomplished by editing the Client command line batch file. This file may be edited using Notepad. The file is located in the directory that G2 was installed. By default this location was c:\g2 unless a new location was specified during the installation.

To edit the Client.bat file, open Notepad from the start menu. In Notepad click *File, Open* and type: *c:\g2\Client.bat (or the custom installation directory)* then click Open. You will see three lines of text. At the end of the third line you will see: *-le English* or the language selected during the installation. Simply change *English* to the language you wish to use as a default language for your Client only. Choose from the list below:

English
Danish
Dutch
Finnish
French
German
Italian
Portuguese
Spanish
Spanish-American
Swedish
Turkish
Custom1
Custom2
Custom3

All screens of *Custom1, Custom2, or Custom3* languages must be edited before loading. An incomplete custom language database will default to English.

The following is a description of the field in the Language Edit screen.

Screen - G2 screens are individually edited by selecting the screen you wish to edit from this drop-down list.

Master Language - This column of words and phrases are the default words for the selected language.

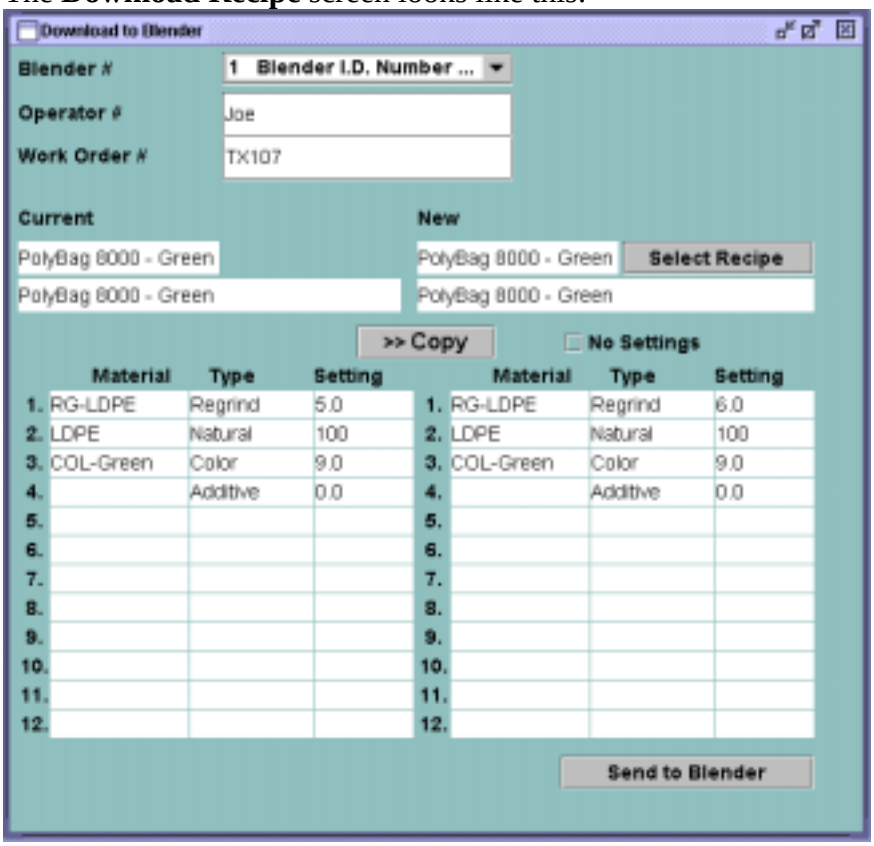
Translated Language - The translated language is one of the three custom language databases selected from the drop-down menu above that column.

>> **Copy** >> **-** Clicking the *Copy* button will copy all the words and phrases from the master language to the custom translated language that has been selected from the drop-down list.

Translate - Clicking the translate button will set the word of phrase in the custom language to what has been typed into the lower field.

Download Recipe to WSB Screen

The **Download Recipe** screen looks like this:



The download screen is used for either downloading recipes to Weigh Scale Blender or altering the current settings of an online Weigh Scale Blender. Select the WSB that you wish to work with from the complete list of online Weigh Scale Blenders in the drop down list.

Next if you wish to download a new recipe to the blender, click the show recipes button. This will display the complete list of recipes from the recipe database. Click the recipe you wish to download to the selected blender by clicking on it. Click the hide recipes button the hide the recipe list. At this point, if needed, you may alter any setting of the materials to be downloaded as well as add an operator number and/or work order number. When you are read to download the recipe click the "Send to WSB" button.

If you want only to change the operator number and/or the work order number or adjust the settings, select the WSB that you wish to work with from the complete list of online Weigh Scale Blenders in the drop down list. Click the copy button to move the recipe to the editing area. You may now edit the operator number, work order number and any settings by clicking on them. Edit the operator number and work order number by typing with the keyboard and settings are adjusted by the use of a pop-up keypad. Note: changing the setting for that recipe does not change the setting in the recipe database.

CAUTION: When a recipe is downloaded with settings to a controller that has FOUR software, the thumbwheels will become DISABLED. You may choose not to send the settings by checking the "No Settings" box. They can only be re-enabled at the controller by using the password and the "set" key. For more information, see the WSB Manual.

Recipe Auto Download

Introduced in G2 version 2.2, Recipe auto download enables the operator to cause the WSB controller to automatically download a new recipe from the G2 Server at the end of the next cycle. Auto downloads requires that the recipe that is to be downloaded have a Recipe Number that is unique from all other recipe numbers in the G2 recipe database and the recipe number range must be between 100 and 65,536. Recipes set for auto download must match the controller in software type if the controller is a 4-component controller. If the controller is a 12-component controller, recipes may be either 4 or 12 component recipes.

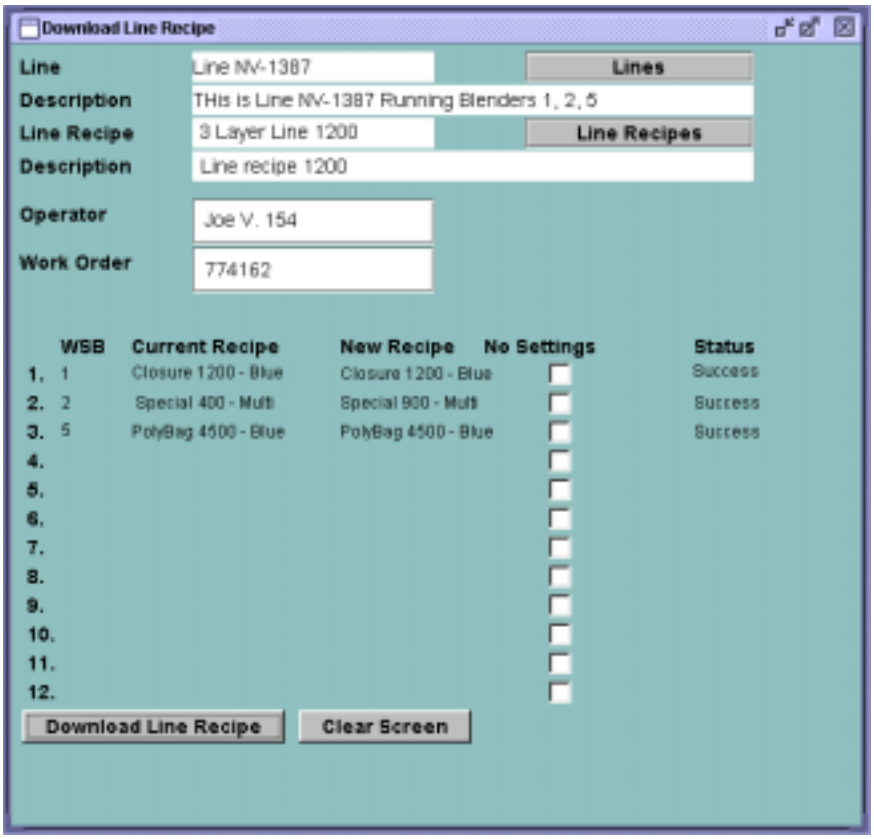
How to Use the Auto Download Feature – Using the auto download feature requires knowledge of the WSB controller. If you are unfamiliar with the controller, please review the controller's manual.

To enable auto download the FLG parameter must be set with the second digit as a 1. Your FLG parameter will read #1### with # being the previously existing number.

To set the WSB to automatically download a recipe at the end of the next cycle, from the WSB keypad press the TAG key three times until you see RCP##### where ##### is the currently loaded recipe number. Enter the recipe number that is to be downloaded automatically. Because the recipe numbers must be a 3 to 5 digit number ranging from 100 to 65,536 and the WSB field for recipe number requires 5 digits, be sure to prefix the recipe number with zeros if necessary. If your recipe number is a 3 digit number this would be entered as 00### where ### is your recipe number. Note: The 3 to 5 digit recipe number must exist in G2 recipe database. If recipe number does not exist in recipe database, the WSB controllers alarm will sound and the WSB will display NO MATCH meaning there is no recipe with a recipe number as you entered it. Also if the controller is a 4 software controller and the recipe number entered is for a 12 software recipe, the controllers alarm will and will display NO MATCH and will revert back to the previous recipe. Four software recipes can be downloaded to 12 software controllers.

Download Line Recipe to a Line Screen

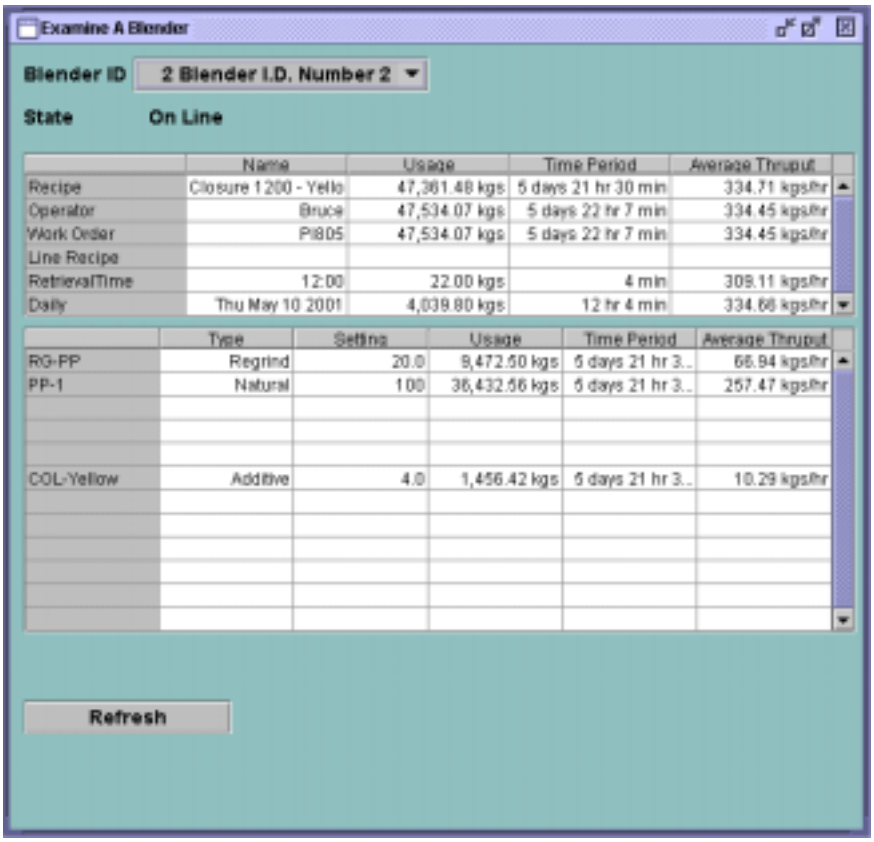
The **Download Line Recipe** screen looks like this:



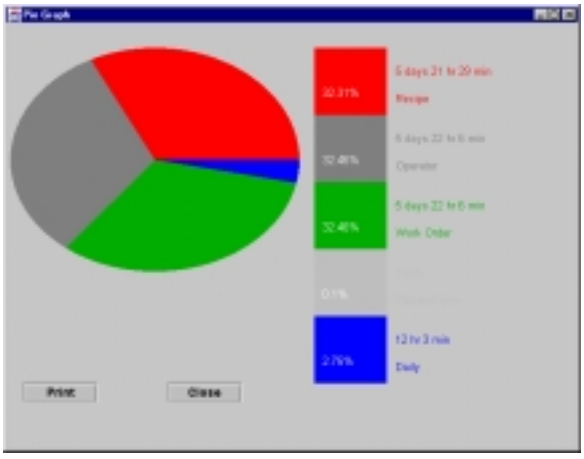
The Line Recipe download screen is used for downloading line recipes to a line of Weigh Scale Blenders. Before downloading a line recipe to a line using this screen at least one line and one line recipe must be created. A line is a group of Weigh Scale Blenders that are grouped together for multiple, simultaneous downloading of recipes and are created using the Line Edit screen. Line recipes are a group of Weigh Scale Blender recipes specifically grouped together for use with a line of Weigh Scale Blenders. Line recipes are created using the Line Recipe Edit screen. To use the Line Recipe Download screen click the “Line” button and select a line from the list of lines. When the line is selected from the list each blender's WSB identification number will be displayed under the WSB column. Also when a line is selected the blenders that are part of that line will be probed to determine the current recipe stored within each blender. The current recipe will be displayed under the Current Recipe column. If no current recipe is displayed, either there is no recipe stored within that blender that exists in the recipe database or possibly the blender is off line. The blender’s current state can be examined by using the Blender Edit screen under Edit in the menu. Next you will click the “Line Recipe” button. Only line recipes that match the line will be displayed. This is why it is important to build your lines and line recipes carefully and match the position of the correct WSB recipe with the intended WSB. Select the line recipe from the list of line recipes. The new recipe that will be downloaded to each blender in the selected line will be displayed under the New Recipe column. If you do not wish to change the current settings of any particular blender in that line when the new recipe is downloaded you must check off "No Settings" for that blender. To download the recipe, click the Download Line Recipe button. After the download has completed the status of the download will be displayed under the Status column. If the recipe has been downloaded correctly the message "Success" will be displayed. Any error in communicating with the WSB will be displayed as "Error".

View Blender Screen (Examine a WSB)

The **Examine a WSB** screen looks like this:

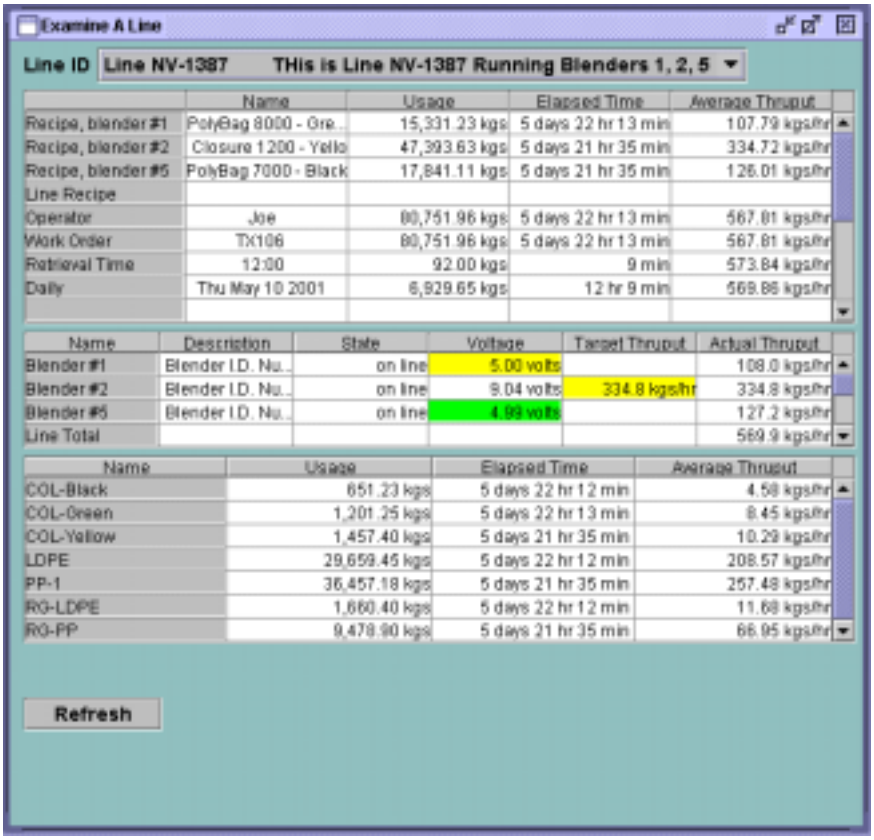


The complete list of WSB units will be displayed in a drop down list. Select the WSB that you wish to examine. Selecting the WSB automatically retrieves information ONE TIME from that particular WSB unit. If you wish to update the information at any time click the Refresh button. The G2 Server will probe the WSB and retrieves information to display in the upper table current recipe, current operator, current work order and current line recipe if applicable, each with material usage, elapsed time and average throughput since the last change of these items. Also displayed in the upper table is material usage, elapsed time and average throughput since the last retrieval time and material usage, elapsed time and average throughput since the beginning of the day. In the lower table each component of the recipe is displayed with their corresponding type, current setting, material usage since the last change, time elapsed since the last change, and average throughput of each material since the last change. Double-clicking columns, usage, time period and average throughput displays a pie chart of information.



View Lines Screen

The View Lines Screen looks like this:



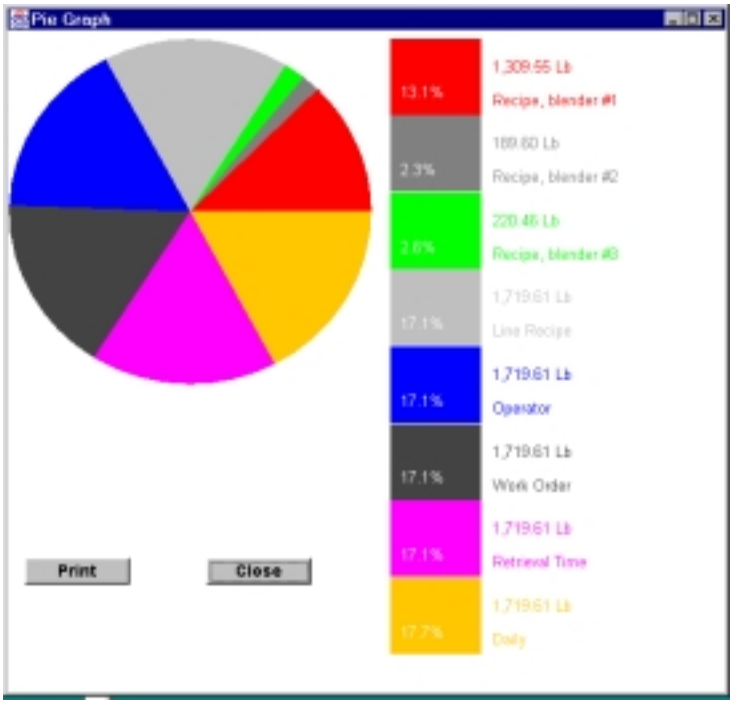
The View Lines Screen is used to view and monitor information generated by the current line being processed. To view information on a particular line you must first choose a line from the Line ID drop down menu. The data will be divided into three tables. The top table lists all data by name in the first column collectively called tags that pertains to this line including recipes, line recipe name, operator number, work order number, last retrieval time, and beginning of day time. The name of these "tags" is displayed in the second column. The third column, labeled Usage, displays the amount of material used since the last change in that particular tag. The fourth column displays the elapsed time since the last tag change. The fifth column displays the average throughput per hour since the last tag change.

The second table displays information related to the weigh scale blenders currently in this line. The second column of this table displays the type of WSB while the third column displays it's state, whether online or offline. The fourth column displays the current voltage the WSB is running. The fifth column displays the targeted throughput set on individual WSBs and the targeted throughput for the total line. The fourth and fifth columns may be displayed in yellow or green. For more information on what each color represents see Line Control Screen above. The last column displays the actual throughput for each WSB and the total line.

The third column displays all materials that are used in recipes in the line. First column displays the name of the material. The second column displays the total usage of the material. The third column displays the time elapsed since the line recipe containing that material had been downloaded and the last column displays the average throughput per hour of that material during the elapsed time.

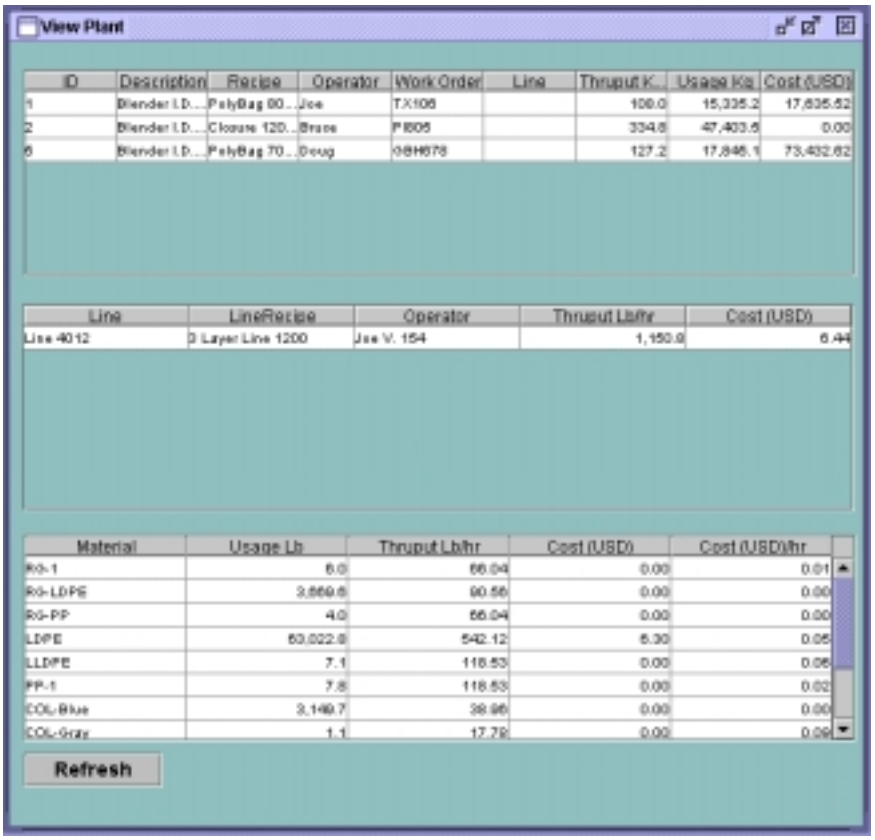
Each column displaying time and usage can be viewed as a pie chart by clicking on any item in that column. Any number of items within the pie chart can be removed from display in the pie chart by

clicking on the table of colored blocks to the right. All number are recalculated when an item or items are X'ed out. The pie chart is for visual purposes and data collecting only. Removing an item from the pie chart has no effect on the function of the line.



View Plant Screen

The **View Plant** screen looks like this:



This screen is used for monitoring all activity within a plant including WSBs, lines and material usage as well as material cost per hour.

WSB monitoring is displayed in the upper table. Information displayed in this table is WSB **ID**, **Description** of WSB, **Recipe** currently running on that WSB, current **Operator**, current **Work Order**, the **Line** that the WSB is part of if applicable, **Throughput** per hour, Material **Usage** and **Cost**. Double clicking on ID, Description or Recipe will display the **View Blender** screen and more detailed information on that particular WSB.

Line monitoring is displayed in the middle table. Information displayed in this table is the **Line** name, the **Line Recipe** currently running on that line, the **Operator** of that line, the **Throughput** per hour of that line, and the **Cost** of that line. Double clicking on **Line** name or the **Line Recipe** name will display the **View Line** screen and more detailed information on that particular Line.

Material monitoring is displayed in the lower table. Information displayed in this table is the **Material** name, total material **Usage**, material **Throughput** per hour, total **Cost** and **Cost** per hour of this material.

Advanced Inventory Management / AIMS

AIMS Overview - AIMS is a "Just in Time" material ordering system. Properly configured AIMS can help prevent down time due to lack of material by tracking material usage and notify the operator that material has reached levels low enough to require the material to be re-ordered. AIMS also has the ability to contact your suppliers and automatically place an order for a specific amount of the needed material.

This section is a brief explanation of how to configure and use the Advance Inventory Management System (AIMS).

Contents

Configuration

Configuring AIMS consists of changing system settings within the setup screen and material configurations within the material edit screen. Using the full potential of AIMS to contact suppliers when material levels need reordering requires that the G2 Server be connected to the Internet using TCP/IP and that you have an email account using a POP3 mail server.

System Configuration

System configuration requires changing the following fields in the Setup Screen. The fields in the setup screen that are used by AIMS include Identity, SMTP, SMTP Socket and AIMS Port.

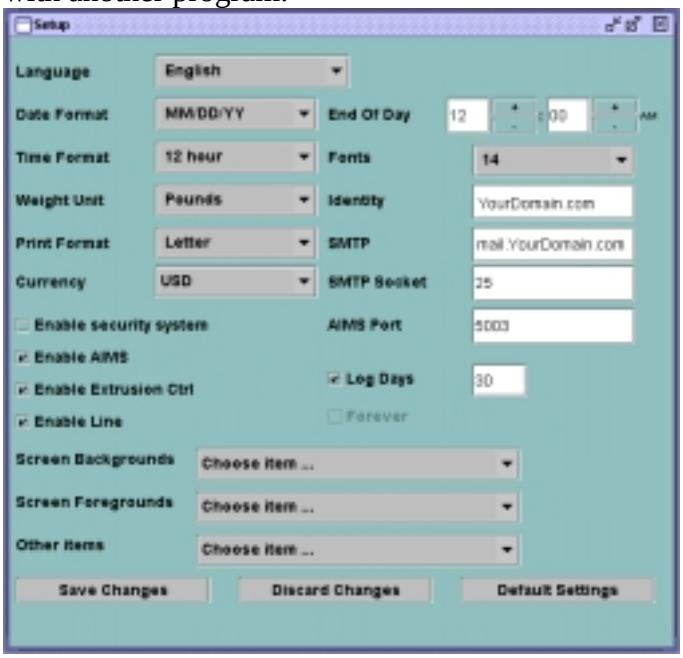
The following describes how each field is used by AIMS.

Identity - Identifies your organization (company name). This information will be used during the ordering process with your suppliers.

SMTP - This is the IP address of your email server. In most cases your Internet Service Provider or ISP also provides email with your dialup account. The information provided by your ISP will include an address for outgoing mail and may be labeled as "SMTP". This address is usually labeled as "smtp.yourprovider.com" or as a period separated number (i.e. 192.192.0.23). Enter this address into the SMTP field. If you do not know what your SMTP address is, please contact your Internet Service Provider.

SMTP Socket - SMTP Socket is the Mail Server's socket number. In most cases this number is 25 unless otherwise noted by your service provider.

AIMS Port - This is the AIMS transaction server port. This should be set to 5003 by default. This port number is configurable in the event that it is necessary to change the port number due to a conflict with another program.

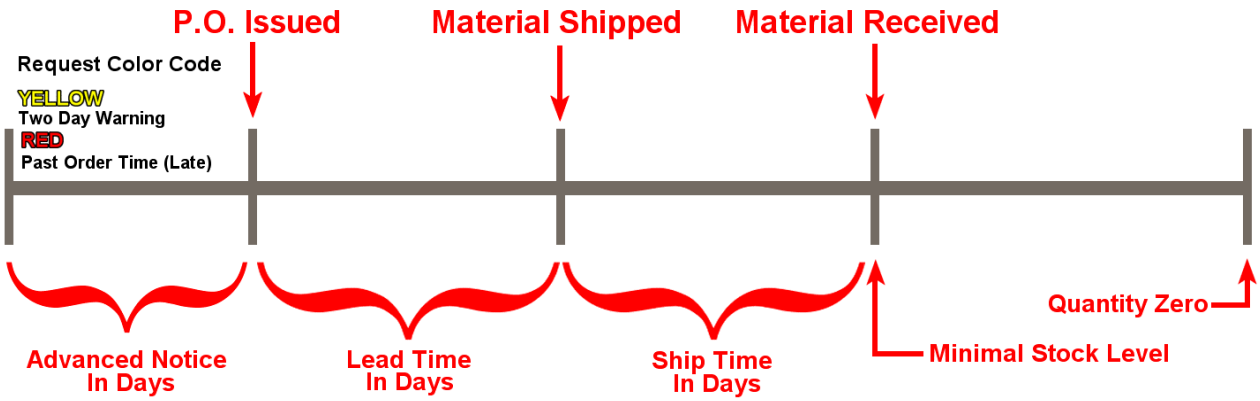


Material Configuration

Each material in the Material Database must be configured to work with AIMS. For more information on how to configure material to work with the Advance Inventory Management System see **Material Screen** on page 48.

Low Levels of Material

AIMS tracks material on hand. When the level of a material becomes low, it has been reduced down to a predetermined level. When the material level reaches the low level, the AIMS alarm is set off on the G2 Client and AIMS adds this material to the AIMS database. The material is also added to the AIMS screen in the Request column. Material in the request column is material that needs to be ordered. It's important to understand what is meant by "low." This section will define how AIMS determines when a material needs to be re-ordered. The time line graph will also help to understand how material-ordering time is calculated.



Time Line Graph

Term	Meaning
Lead Time	The time that expires between when an order is issued to when the supplier ships it
Ship Time	The time that expires between when an PO request is shipped by a supplier to when a customer receives it
Total Time	Lead Time + Ship Time
Minimal Stock Level	Minimal stock level of material in days. Based on average consumption rate per day.
Low	A material becomes low and should be ordered when material quantity on hand/Minimal Stock Level = Total Time + Minimal Stock Level

A material moves into the Request column in the AIMS screen when:

Quantity On Hand /Average Usage Rate <= Days Notice (Setup Screen) + low

Simplified that means a material enters the AIMS database when the Quantity on Hand reaches your Minimal Stock Level plus the amount of material that would be consumed during the reordering process. If you have AIMS set to inform you in advance (*Advanced Notice* in Setup) you will be informed those number of days ahead of time.

So, as you can see, the Lead and Ship days, Quantity on Hand, Min Stock Level, and Ave Usage Rate fields from the Material Edit screen are used by AIMS to trigger when a material is requested.

Late

A material can become late in several of the states through which it moves. This is all determined by the settings set for a material in the Material Edit screen.

When a P.O. is issued

The following describes the three late fields:

Acknowledge	Table cell turns yellow within this number of late days, red if later
Ship	Table cell turns yellow within this number of late days, red if later
Received	Table cell turns yellow within this number of late days, red if later

Supplier

Up to three suppliers who provide this material can be chosen for this material. When operators place an order, they can choose from this list.

Each material's ship and lead times are those of the supplier's from the supplier database. However, if they differ, they can be changed.

Order Quantity

Normal order is used by default. The Best Order and Minimum Order are used only for references at the time of placing the order and may be selected then.

Using the Advanced Inventory Management System

AIMS Screen

The AIMS screen lists all materials that need to be ordered as well as the status of others that were ordered and are still in one of five states in the ordering process. In this example we will follow the progress of ABS through the AIMS ordering process.

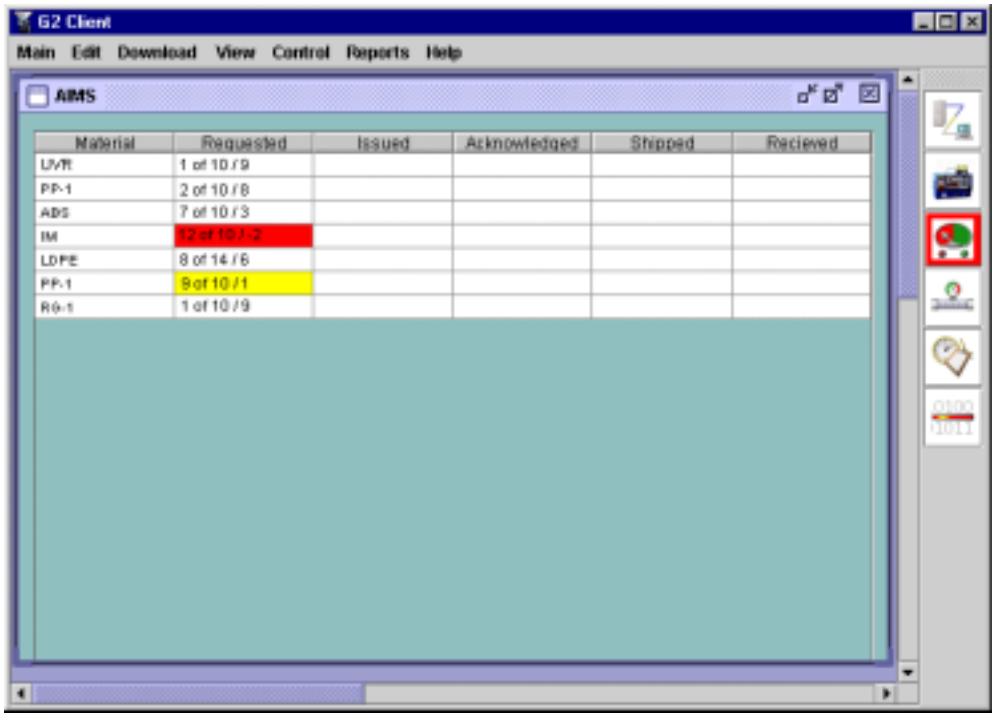


Image 5.0

States

There are five states that a material must go through in an ordering process. These five states are:

State	*Description*
Request	AIMS notifies operators that a material is approaching low (advanced Notice)
Issued	PO is issued
Acknowledge	PO acknowledged by supplier
Shipped	PO shipped by supplier
Received	PO received by customer

See image 5.0

1. Request

A material that needs to be ordered is added to the *Request* state and placed in the request column. The G2 Server does this automatically. If by chance, the quantity on hand should increase (more quantity is available and added), G2 will automatically remove the material from the *Request* column.

The Request column has 3 numbers representing 3 values in days.

The following describes the meaning of the values in the cells in the *Request* column.

x of y/z

x Number of days this material has been in the request state
y Number of days of *Advanced Notice* as specified in the Material Edit screen
z Number of days behind schedule (negative number) or number of days ahead of schedule (positive number).

An example might be: *1 of 5/4*

This example would mean that the material has been placed in the request column 1 day ago. 5 days is the number of days for your advanced notice with 4 days remaining to order material. If material is not ordered within 4 days, at the present consumption rate, assuming that the order and delivering process takes the amount of time as described by the material screen configuration, the material (PO) will not arrive in time to preserve the minimum stock level. If the material is exceedingly late, it's possible that the material will run out before the shipment of the material is received.

Two days before a material must be ordered, the *Request* cell will changed to yellow. After the order date, if material has not been ordered, the *Request* cell will change to red.

Clicking on a cell in the *Request* column will open an Order Panel window. See image 5.1.

In the order panel, the following fields default to the values configured by the Material Edit screen: Material, Quantity, Supplier, and Email. Except for the Material, all other default fields can be changed. This pop-up window allows operators to compose an email requesting the material, which is then sent to the supplier.

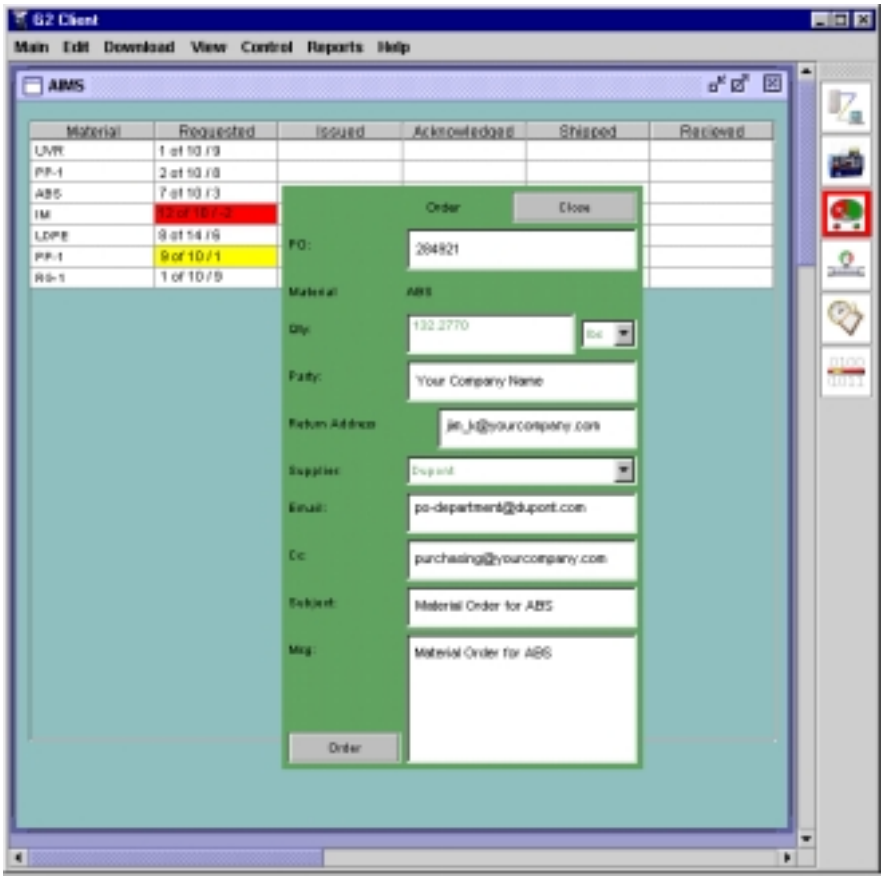


Image 5.1

The fields of the Request Pop-up windows (Image 5.1) are as follows:

P.O. - Purchase Order number assigned by your Company
Material - This is the material that you clicked on and should be ordered.
Qty - This amount is the default quantity of a normal order entered in material screen.
Party - Your Company name.
Return Address - Your return email address.
Supplier - One of up to 3 suppliers that have been entered for this material
E-mail - Your suppliers email address.
CC - Carbon Copy, Another recipients email address may be entered in addition to the suppliers email
Subject - The subject line of your email to the supplier
Msg - The message of the email

This window is used to place an order through an email to the default supplier or to one of your choice in the drop down menu. Filling in the fields and clicking order will send your supplier an email stating your request for material and the material will move to the *Issued* column.

2. Issued

Once a PO has been placed, the material moves into the *Issued* column.

Clicking on the cell will invoke a pop-up window that displays the PO information. This pop-up also provides manual acknowledgement.

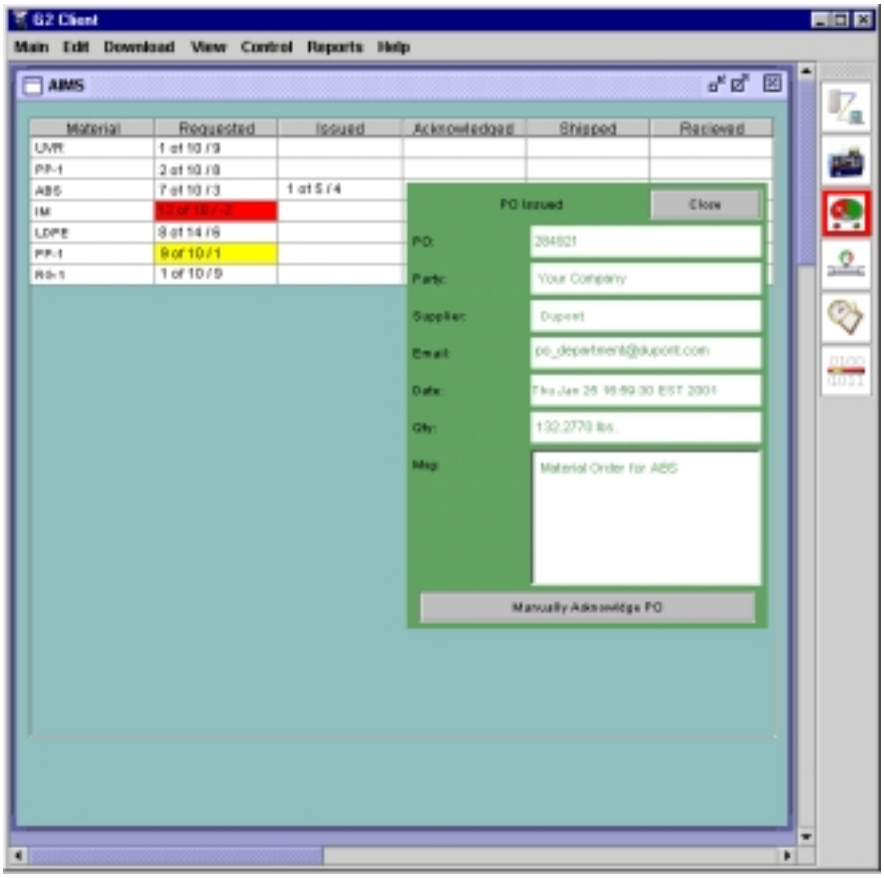


Image 5.2

The following describes the meaning of the values in the cells in the *Issued* column.

x of y/z

x days in the state
y length of state = Lead Days (Material Edit screen)
z days delayed or days in advance

The following image displays a typical email message that was sent by the G2 server, and received by the supplier. If the supplier has a web browser, simply clicking on the link will invoke a web page that allows the supplier to acknowledge the PO has been received.

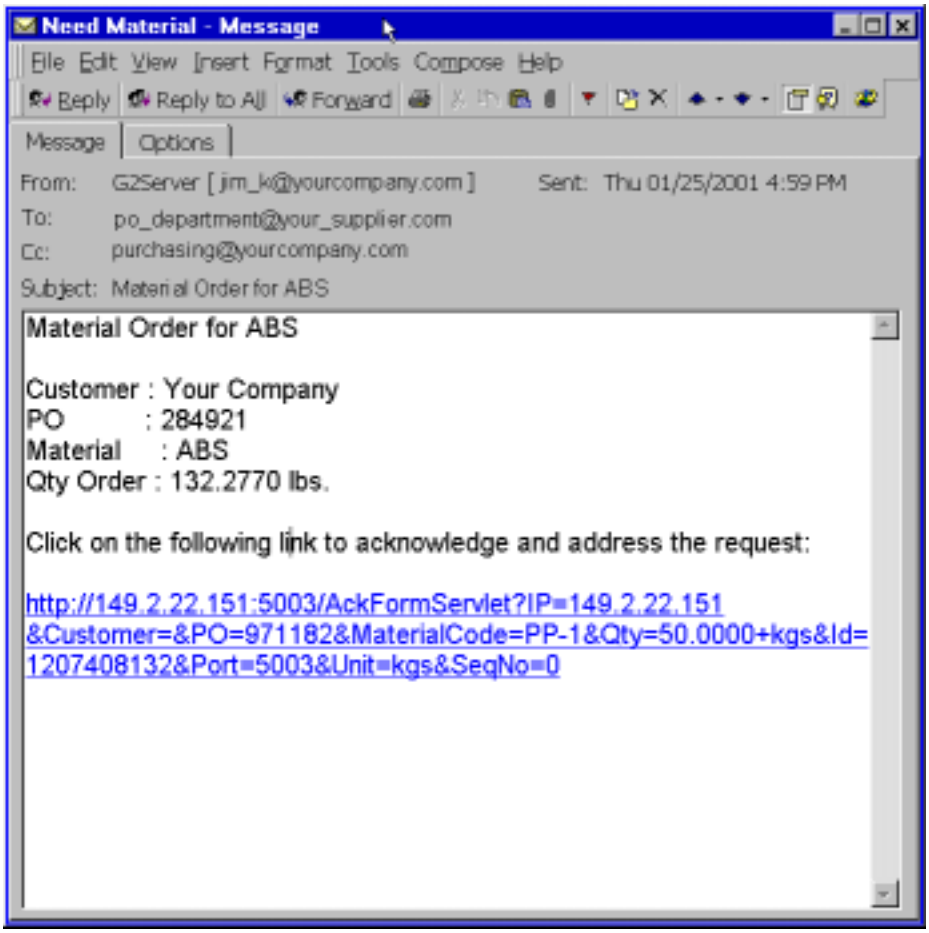


Image 5.3

The following web page appears by clicking on the link. It provides the supplier the ability to acknowledge the PO request, enter a projected ship date, and include brief comments.

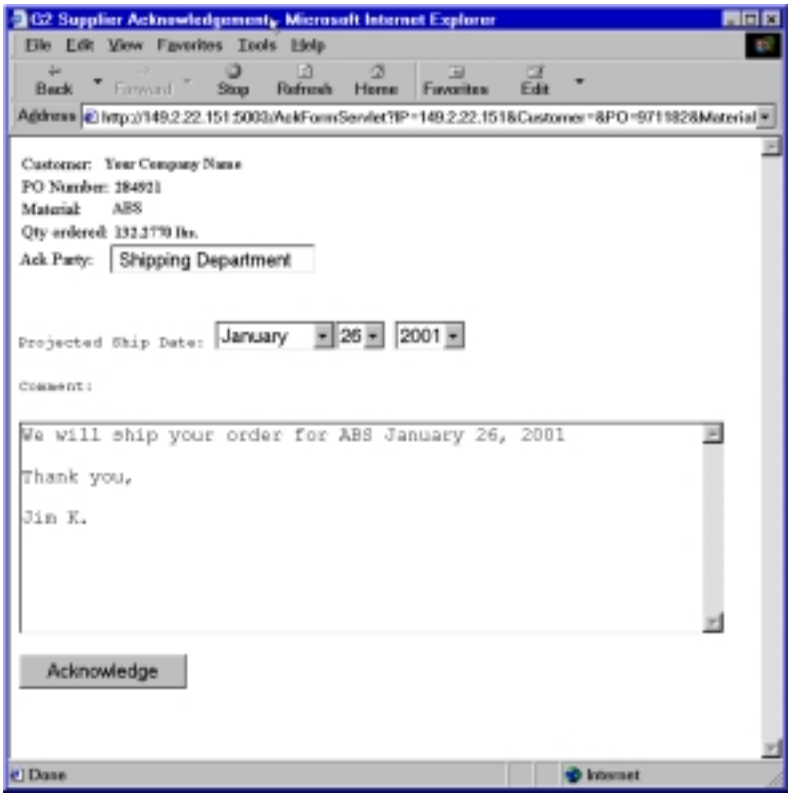


Image 5.4

Submitting this form will move the material to the next state.

3. Acknowledge

After a supplier acknowledges a PO request, that material moves to the *Acknowledge* state.

The following describes the meaning of the values in the cells in the *Acknowledge* column.

x of y/z

x Number of days in the state
y Length of state = Lead Days (Material Edit)
z Days delayed or days in advance (positive number is advanced, negative number is delayed)

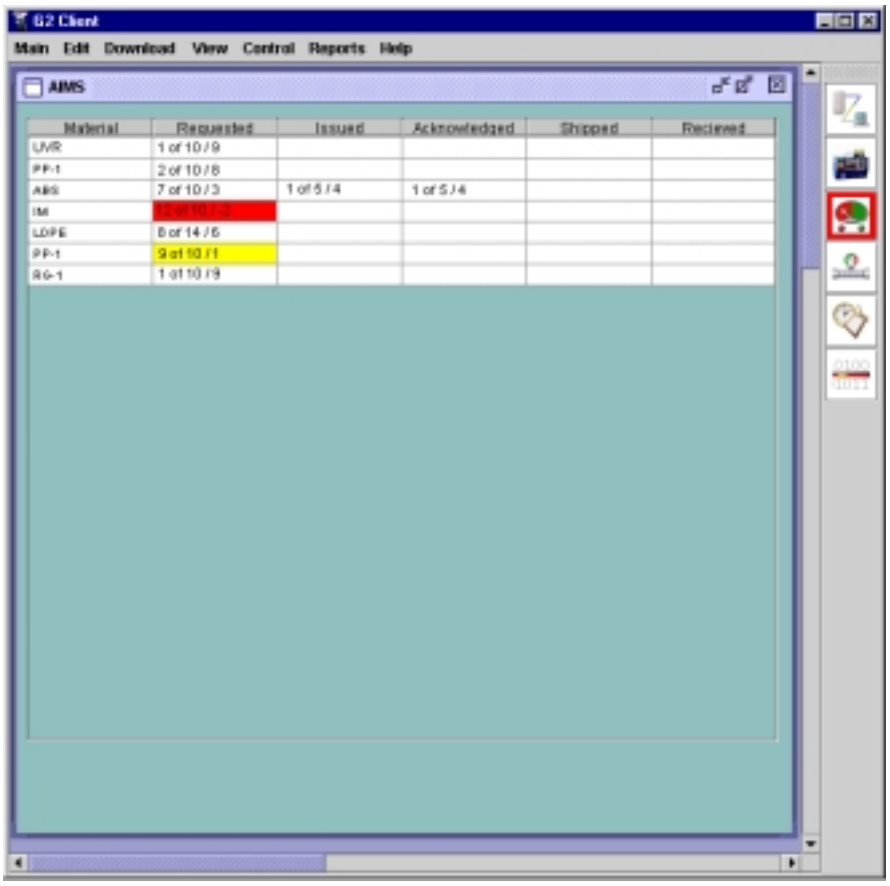


Image 5.5

Clicking on a cell in the *Acknowledge* invokes a pop-up window that displays the acknowledge information *(see image 5.6).* Also, it allows manually acknowledging that a material has been shipped (This is useful, if a supplier calls to let the customer know that the PO has been shipped).

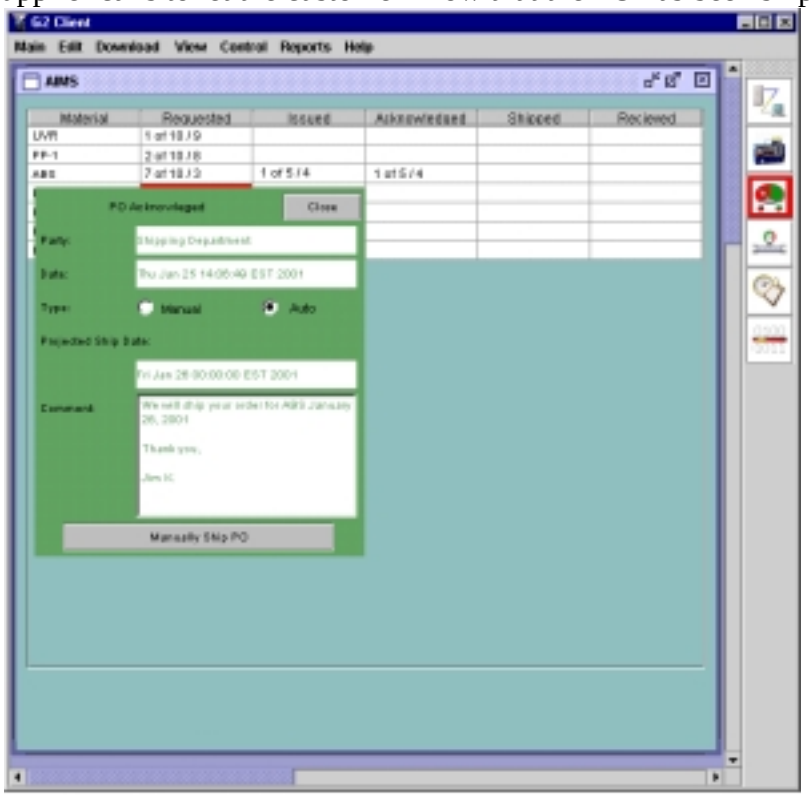


Image 5.6

On the projected ship date, the G2 server will again email the supplier to verify that the PO has been sent. The supplier can acknowledge that the PO has been sent via the web page accessed by the hyperlink in the email. *(see images 5.7 and 5.8)*

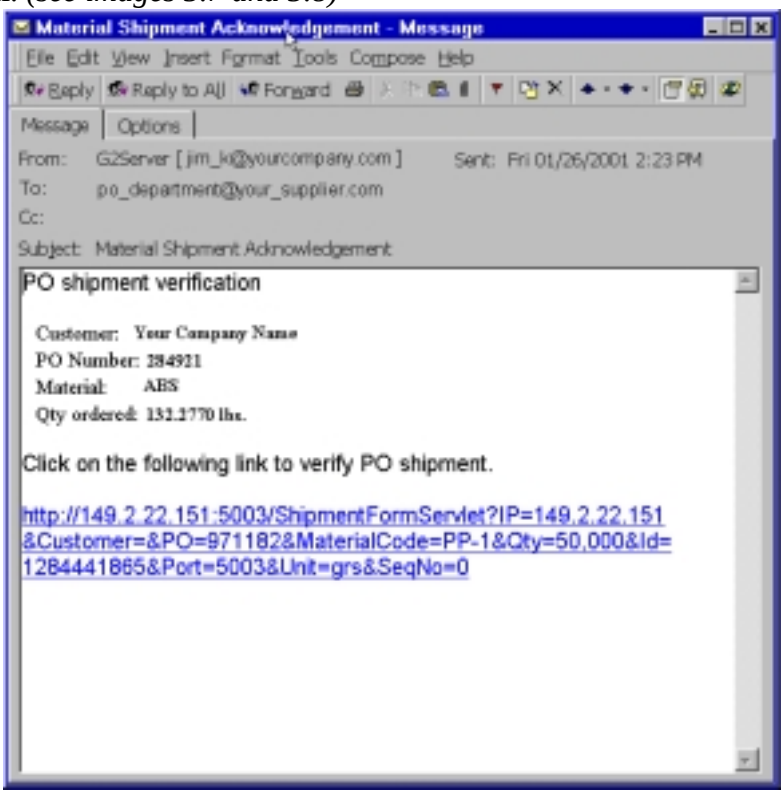


Image 5.7

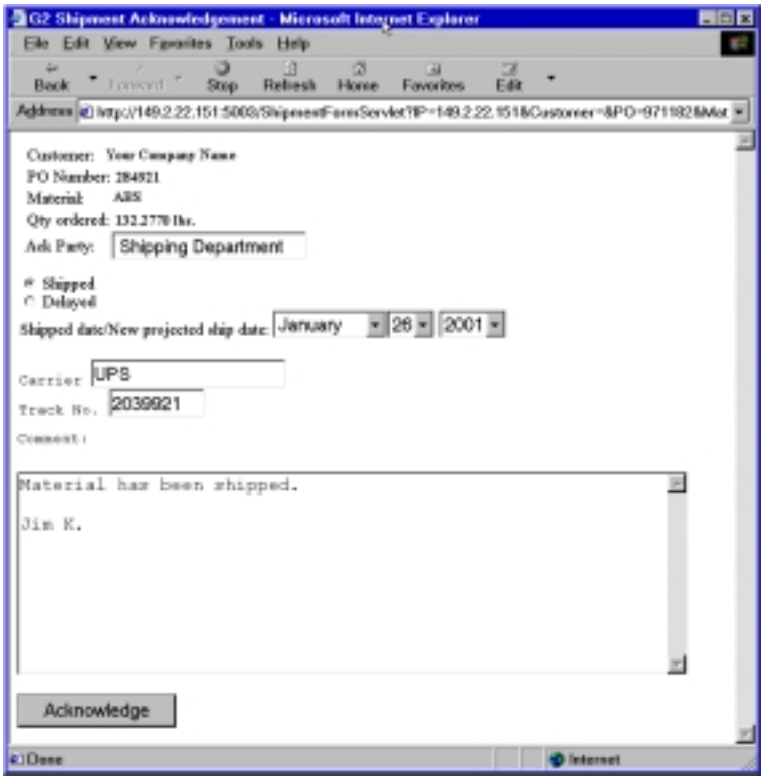


Image 5.8

The web page prompts the supplier for information. After the supplier enters this information, the web page can then be submitted. This moves the material to the next state.

4. Shipped

After the supplier has shipped a material, the material moves into the *Shipped* state.

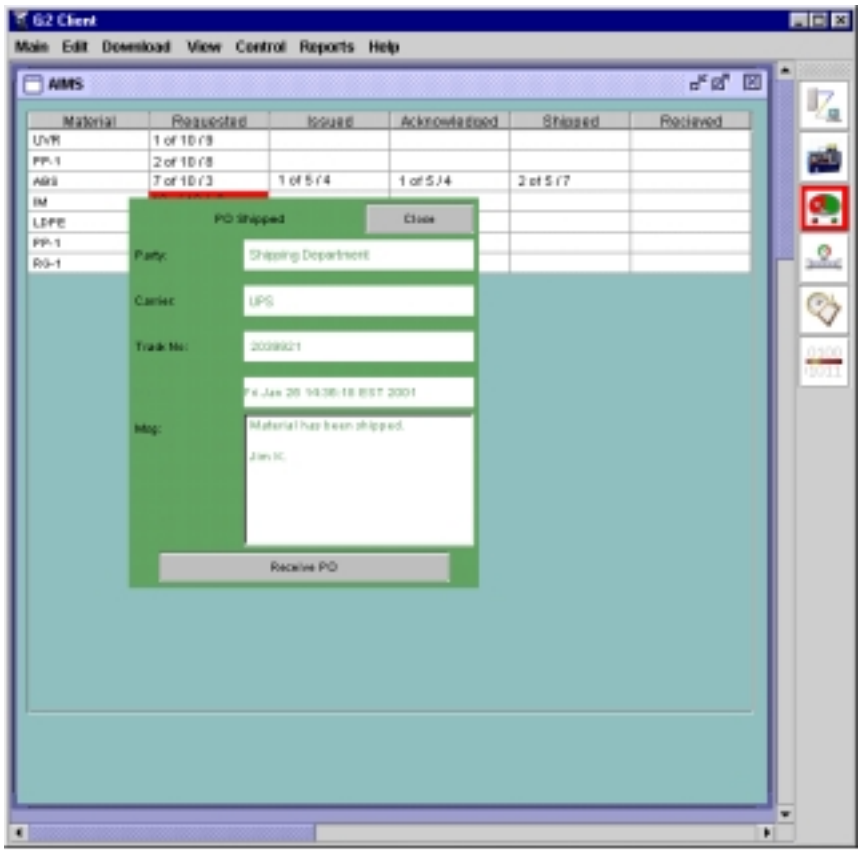


Image 5.9

The following describes the meaning of the values in the cells in the *Shipped* column.

x of y/z

x days in the state
y length of state = Material Edit.Ship Days
z days delayed

Clicking on a cell in the *Shipped* column, invokes a pop-up window that displays shipment information *(see image 5.9)*. It also provides a button that will invoke the *Receive Screen (see image 5.11*.

After receiving the shipment, the material information can be added to the G2 server via the *Receive Screen (see image 5.11 and 5.12).* This will move the material to the last stage.

5. Receive

This is the last stage. The material will be in this state for 2 weeks. After this time, it will be purged from the AIMS database and moved to the AIMS History database. The following describes the meaning of the values in the cells in the *Issued* column. By clicking on the *receive* column cells information on that shipment can be viewed. Right-clicking a material in the received column will invoke a pop-up menu, which can be used to manually move the material to the AIMS history database.

x of y

x days in the state
y length of state = Lead Days (Material Edit screen)

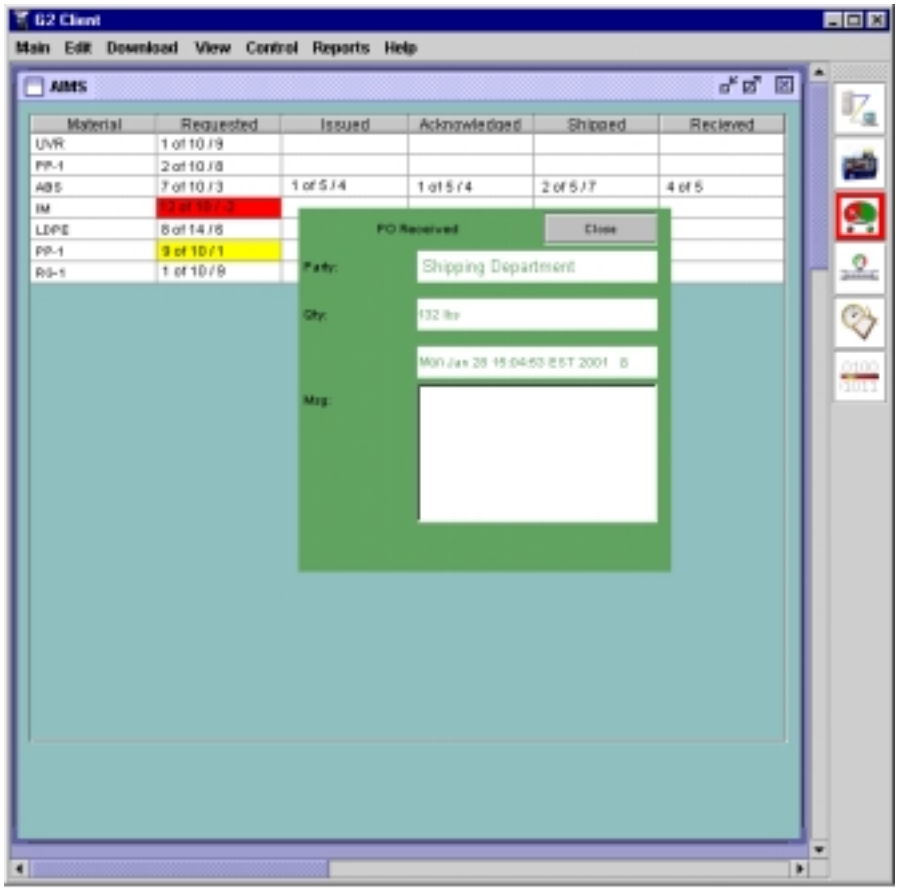


Image 5.10

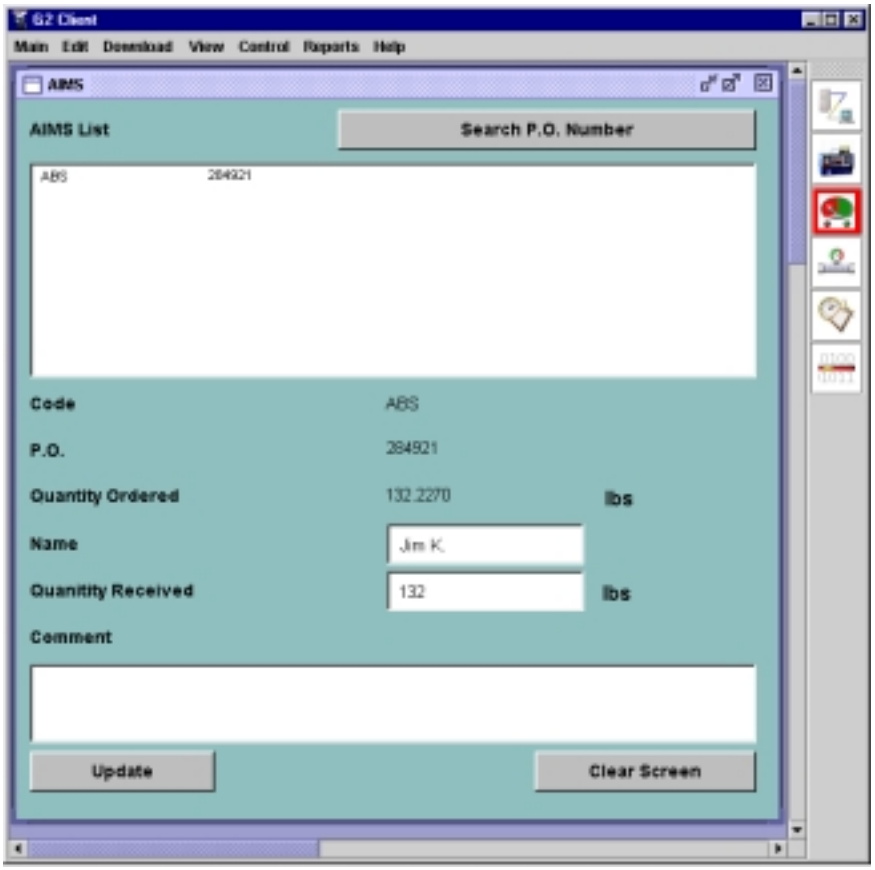


Image 5.11

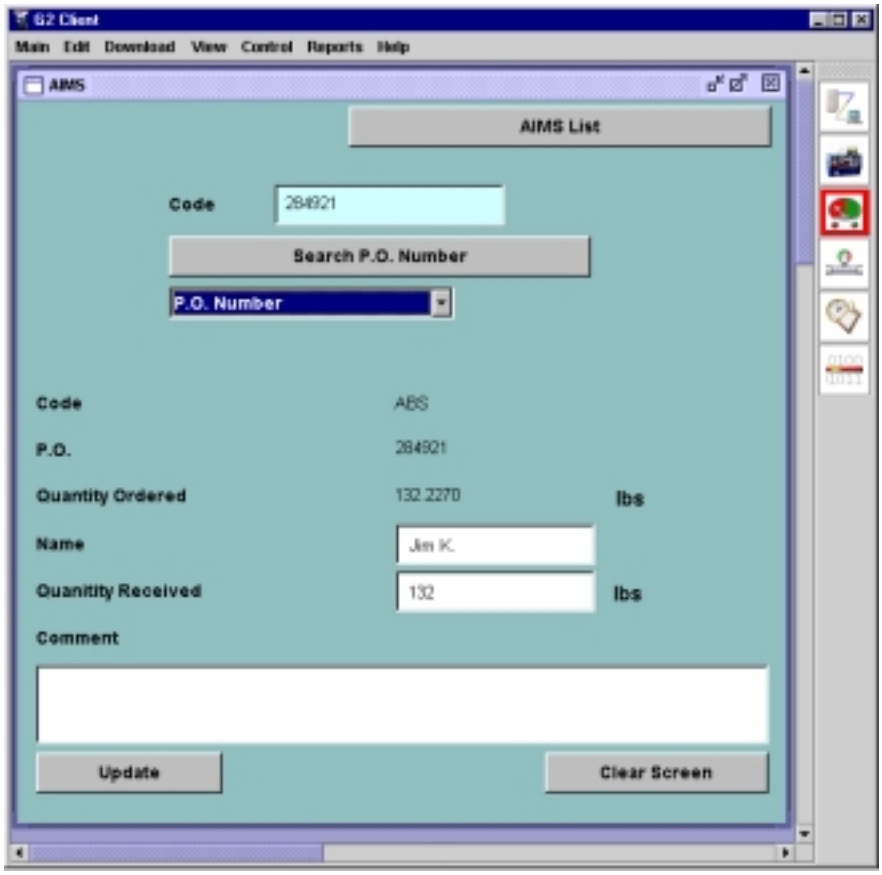
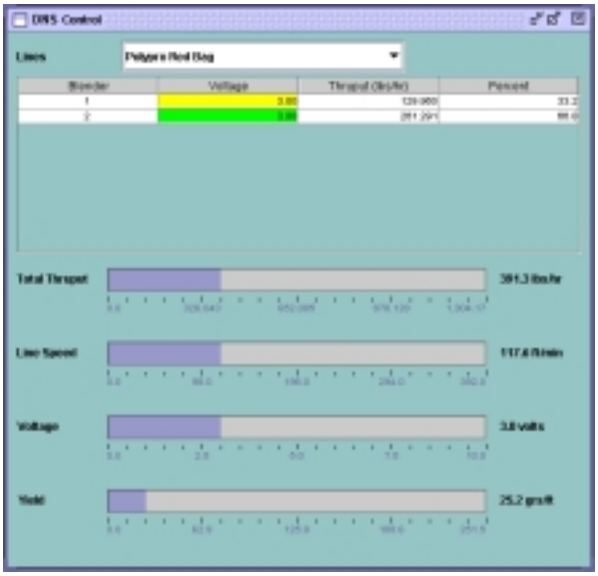


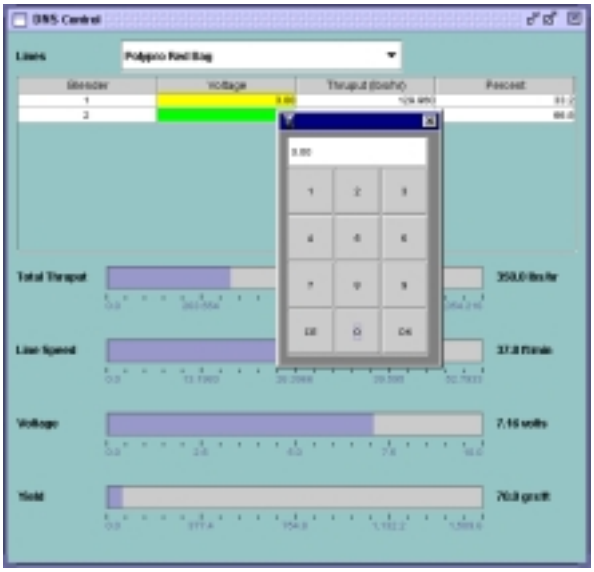
Image 5.12

Down Stream Control

The Downstream (DNS) Control screen is used to control a line that is set up for downstream control. To use the DNS Control screen to control a line, select a line from the drop down menu. The user will enter a voltage by clicking on the voltage field of a particular WSB. Voltage may be entered for each WSB in the table at the top of the DNS control screen. If starting up manually, enter the current voltage value from your interface box. *See image 2.* The voltage control below is always enabled allowing the user to adjust line speed through use of the voltage control in the lower half of the DNS Control Screen. To adjust this voltage, click the voltage status bar.

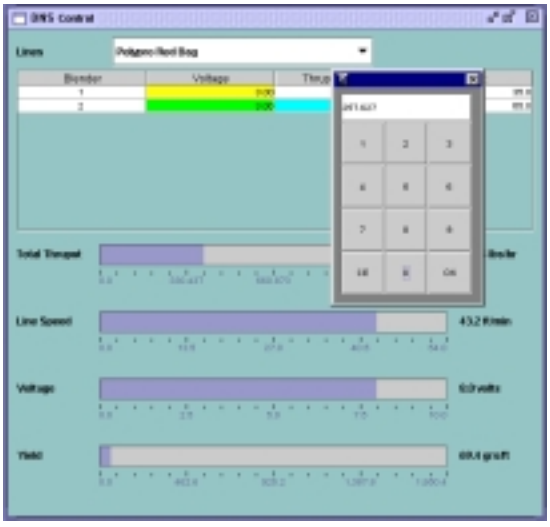


DNS Image 1



DNS Image 2

When the voltage cell color in the table has turned from yellow to green this indicates that the blender has learned the steady rate. Throughput can then be locked. This is done by clicking in the throughput cell to the right of the green voltage cell. *See image 3.* Throughput may be adjusted and then locked by clicking ok in the popup keypad. When the Throughput cell turns green this indicates that the blender is holding throughput by adjusting the voltage. After all blenders have a locked throughput, further refinement of the percentages of the line may be adjusted by clicking on the Percent cell to the right of the green throughput cell for each blender. *See DNS image 4.* When all blenders are in throughput mode, control over downstream is enabled. These controls are located in the lower half of the DNS Control screen. They include control over Total throughput, Line Speed, Voltage and Yield. To adjust these settings, click on the voltage status bar to display the pop-up keypad.



DNS Image 3

DNS Image 4

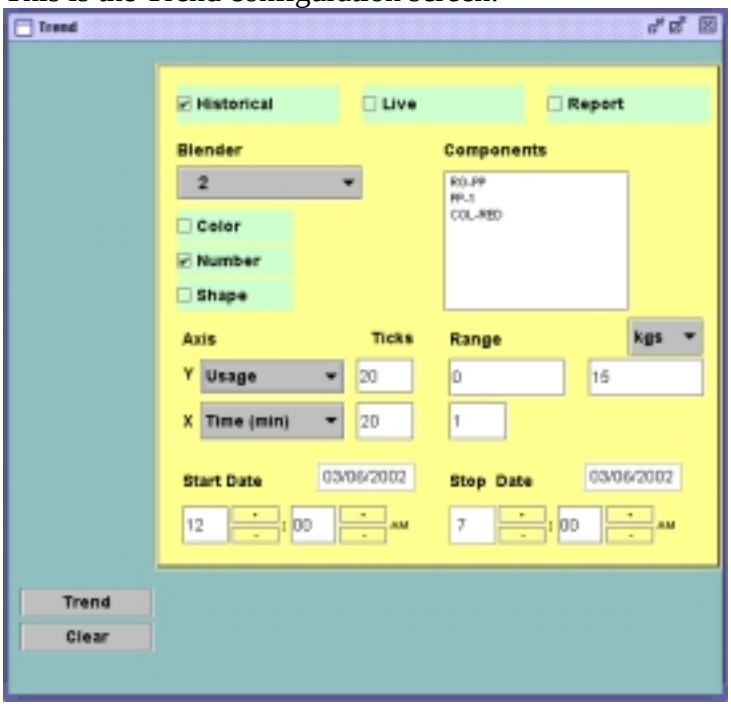
Trend

Trend is used to track data from a single WSB and display the data in a graphical or report format for quick analysis. Data such as the % of mix, throughput, material usage, cycle by cycle reporting, and variance from the targeted amount of material can be displayed over time or cycle from previously collected data or live as the data occurs. In graphical form the graph's x and y coordinates may be setup to reflect the type of data you wish to collect within a set range and how you wish to display the data. In report form Trend displays information based on a start/stop date and time which can then be printed.

To enable Trend select either "Log Days" or "Forever" in the Setup Screen. Enabling Trend in Setup sets Trend configuration settings globally across all WSB's. Individual WSB's can be configured for Trend by using the Blender Edit screen and selecting the WSB you wish to configure, then selecting either "Log Days" specifying the number of days to log or selecting "Forever". How Trend data is stored and archived depends on settings in G2 Setup Screen (also mirrored in the Blender Edit screen for specific blenders). In the G2 Setup Screen or in the Blender Edit screen if *"Log Days"* is checked off and value in days is specified, Trend will log data for that number of days and then will purge (delete) that data. Specifying 0 (zero) as the number of day will effectively disable Trend. If *"Forever"* is check off, Trend will record data for 30 days and then archive that data into a file and start another 30 days of logging data. Trend names the file as a numerical name that contains the Blender I.D., the year, and the number of days into the year followed by a cbc extension. When Trend archives a file, it is stored as a file name contains the Blender I.D., the year, the number of days into the year, and the number of days into the year plus 30 followed by a cbc extension. A file called 0012001113143.cbc is an example of an archived Trend file.

Trend consists of two screens, a configuration screen and a graphical screen.

This is the Trend configuration screen:



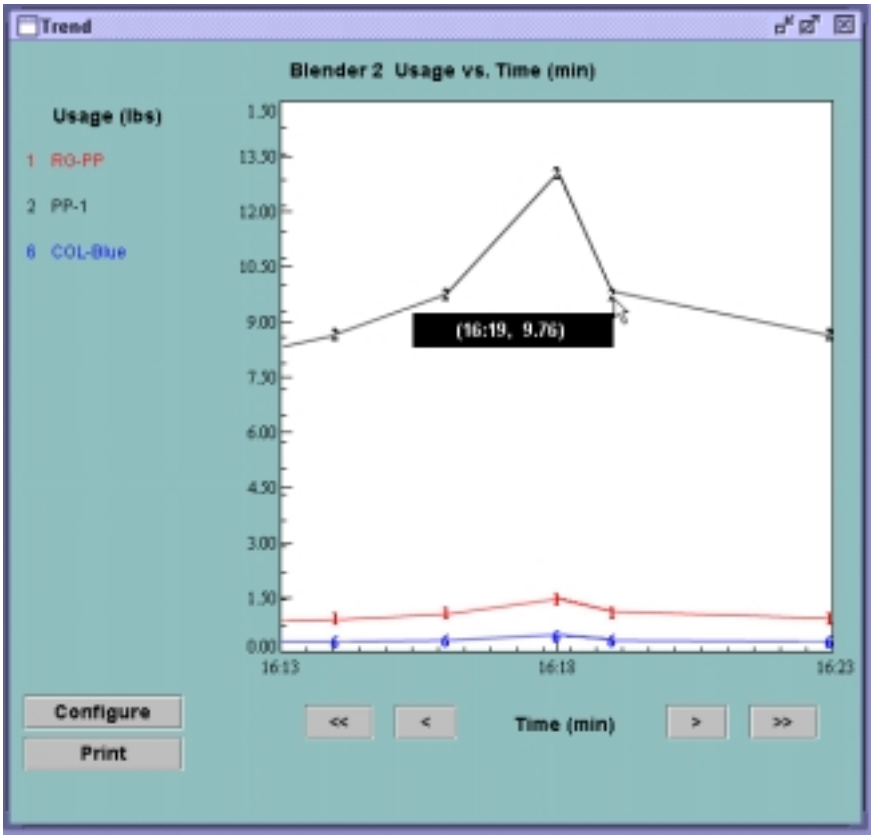
The Configuration Screen is where your analysis is configured. To use Trend select if you want to analyze previously recorded data or current data as it is being generated by selecting *Historical* or *Live.* Historical will generate a graph based on data in the totals database. Live will track data in real time,

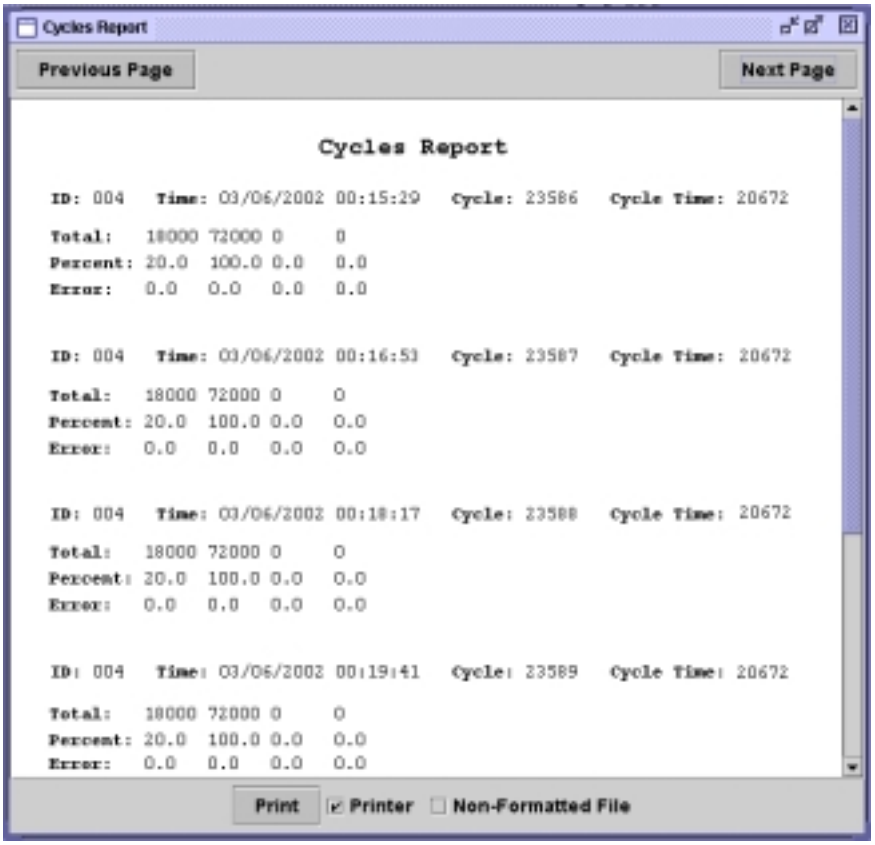
as it occurs. Next you will select the WSB ID you wish to analyze. Components are displayed according to what is currently loading in the WSB. Next you can select what type of graphical representation you want to use. Your choices are by color, number, or shape. Color uses different color lines for each component as it is plotted across the graph. Number displays an assigned number to each component as it is plotted across the graph. Shape assigns a shape to each component as it is plotted across the graph. Axis, Ticks and Ranges all have to do with how the graph will be scaled. For Axis Y is left side of the graph running vertically.

Your choices for the Y-axis are:

% of Mix – % of Mix displays the percent of each component plotted as time in minutes or by cycles.
Throughput – Throughput displays the actual throughput of material plotted in minutes.
Usage – Usage displays material usage plotted in minutes. Usage does not continually add material to display a total but rather displays the amount of material usage in each minute.

Variance – Variance displays the difference between actual throughput and targeted throughput. Live analysis only.
For Historical Trend graphs additional information is needed. This included a Start Date and Time and a Stop Date and Time.
Once all configuration values are set, click the Trend button. A graph will be displayed as in the image below. Trend displays the type of data you are displaying (Y-axis) as % of Mix, Throughput, Usage, or Variance and lists the components currently loaded in the WSB being analyzed to the left of the graph along with a legend of how it is plotted on the graph. In the example below the components are plotted on the graph as numbers and individual colors. Placing your cursor over each plotted point will display the exact amount of material of that point on the graph. The pop-up display of data shows the X-axis data followed by the Y-axis data.




Cycles Report
Previous Page
Next Page
Cycles Report
ID: 004 Time: 03/06/2002 00:15:29 Cycle: 23586 Cycle Time: 20672
Total: 18000 72000 0 0
Percent: 20.0 100.0 0.0 0.0
Error: 0.0 0.0 0.0 0.0
ID: 004 Time: 03/06/2002 00:16:53 Cycle: 23587 Cycle Time: 20672
Total: 18000 72000 0 0
Percent: 20.0 100.0 0.0 0.0
Error: 0.0 0.0 0.0 0.0
ID: 004 Time: 03/06/2002 00:18:17 Cycle: 23588 Cycle Time: 20672
Total: 18000 72000 0 0
Percent: 20.0 100.0 0.0 0.0
Error: 0.0 0.0 0.0 0.0
ID: 004 Time: 03/06/2002 00:19:41 Cycle: 23589 Cycle Time: 20672
Total: 18000 72000 0 0
Percent: 20.0 100.0 0.0 0.0
Error: 0.0 0.0 0.0 0.0
Print
Printer
Non-Formatted File

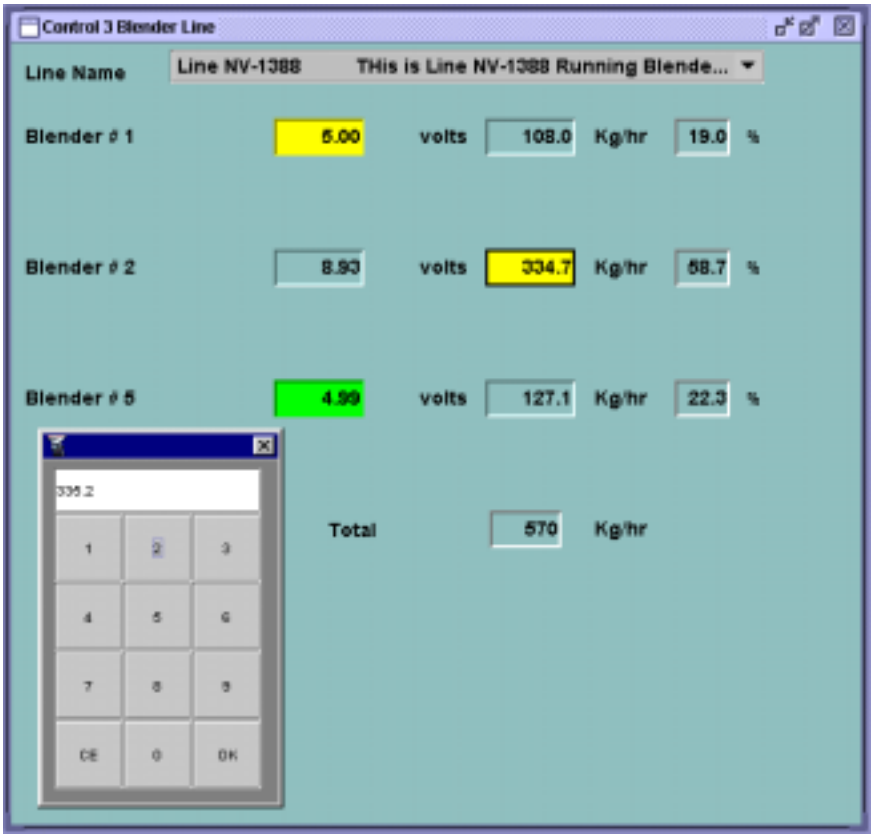
Remote Keypad

The Remote Keypad Screen looks like this:

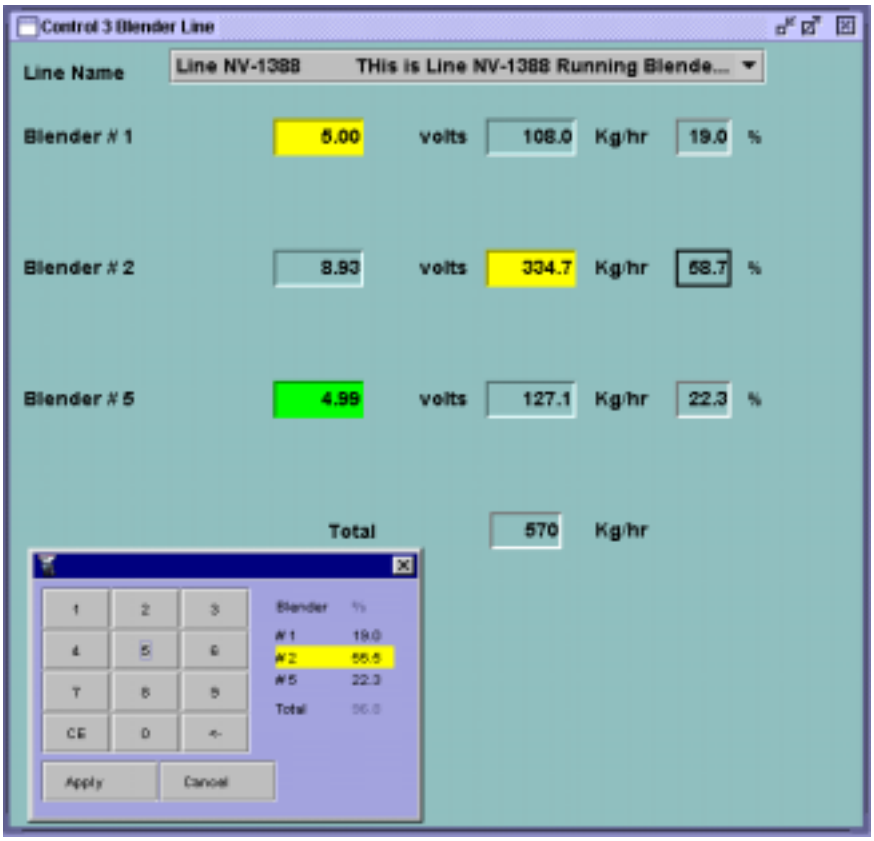
The Remote Keypad screen is used to control and adjust individual WSBs from the G2 Client screen in much the same manner as an operator would control and adjust the WSB directly from the keypad located directly on the WSB itself. Before using the keypad whether you are using the Remote Keypad or the keypad directly on the WSB, you must first understand how to correctly use the keypad functions. For more information on how to use the keypad to control the WSB controller, read the manual that came with your WSB. Manuals are available by request in booklet form or on CD-ROM which cover the WSB controller functions. These manuals are, “Weigh Scale Blender with 4 Software”, **“**Weigh Scale Blender with 4 Software Tutorial”, “Weigh Scale Blender with 12 Software” and **“**Weigh Scale Blender with 12 Software Tutorial”. To use the Remote Keypad enter the I.D. of the WSB that you want to access remotely and click Enable Remote. When the Remote Keypad is enables in the G2 Client, the Keypad on the WSB that is being access is disabled at the controller to prevent the possibility of a conflict at both locations. Also when the Keypad is enabled from the G2 screen, a SoftStop command is sent to the blender to stop it. When communication has been established with the WSB, the keypad will be enabled and you may click keys using the mouse. Be aware that the Remote Keypad may not respond instantaneously. This is because the Remote Keypad is competing with the G2 Monitor for time in communicating with the WSB. Keys will remain grayed out while the keypad is attempting to communicate with the WSB. When the keystroke is sent to the WSB, the display will update and the previously pressed key will revert to a normal state. At that point you may press the next key. The Update Display button will update the display as it is currently displayed on the WSB. Also the user can send a Softstop command to the WSB through use of the Start and Stop buttons at the bottom. Radio buttons located in between the Start and Stop buttons indicate the current state of the WSB. When the G2 user is has completed use of the G2 Keypad screen, clicking the Disable Remote button will re-enable the keypad location on the WSB controller.

Line Control Screen

The Line Control Screen looks like this:



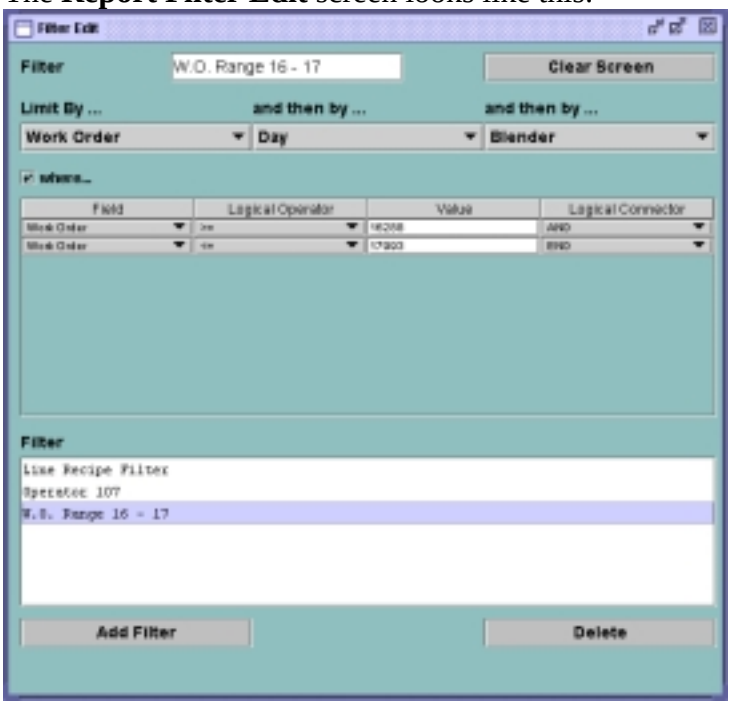
The Line Control screen is used to control and adjust and lock the voltage, throughput per hour and percentages of each extruder in the line. When choosing a from Control in the main menu you must choose the control screen that will view the correct number of WSBs that are in the line you want to control. For example, if the line you want to control has 3 blenders you must choose the selection "3 Blender Line". Then select the line from the drop down menu in the Control screen. Each blender's voltage will be displayed. Placing your mouse over the voltage and using the popup keypad can adjust the voltage. To change the number first clear the keypad screen, then enter the voltage for that blender and click OK. The blender will display its voltage in a colored state. Yellow means the blender is trying to determine it's rate at that voltage.



After the blender has run several cycles and has learned its throughput rate per hour the voltage display will turn green. Green means it has learned its throughput, which will be reflected on the display of the blender as a "T". Once a blender has learned its throughput, the throughput can now be targeted. By placing your cursor over the throughput numbers of a blender that has learned it rate, a target throughput can be entered. The throughput numbers display will be in yellow until the targeted throughput matches the actual throughput. When all blenders in the line have learned their rate total throughput and percentages can also be targeted.

Report Filter Edit

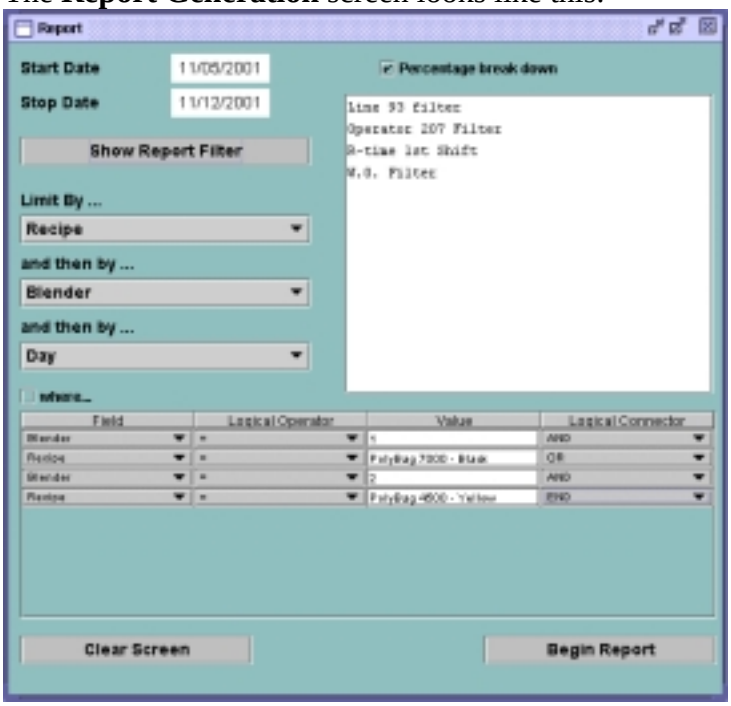
The **Report Filter Edit** screen looks like this:



Filter Edit – This screen is for creating pre-defined filters, which may be saved for use when generating reports. Pre-defined and saved filters can be used when generating reports in the Material Usage screen. When using a filter in the Material Usage screen, the filter may be adjusted without changing the original filter saved in the filter database. Simply filter may be created as well as more complex filters using logical operations. To create a filter, type a name for the filter. Then select what you want to limit your report by from the three drop down menus. For greater refinement on a report, use the logical operations by checking off the "where" checkbox. For more information on how to use the logical operations, see Material Usage Reports on page 90.

Material Usage Reports

The **Report Generation** screen looks like this:



This screen is where you will begin the process of generating reports. All material usage reports are based upon the data collected by the G2 Monitor. The G2 Monitor is constantly collecting data. This data is then used to produce all of the reports. The reports are limited to information that can be derived from this data. For you to obtain meaningful reports, the times file must be set up to retrieve information at times that are meaningful to your operation.

G2 produces material usage reports showing separate totals for all materials blended between two dates broken down by date, time period, machine number, line, recipe, line recipe, work order, operator number, and end of day tag. All reports may be limited to certain a date range and then broken down by each category. Further limiting of reports may be used in the advanced reports by building mathematical “and” and “or” statements.

OUTPUT DEVICE: Reports will be generated to a separate satellite window. Printing from this window will allow the user to choose a printer or send the report to a file. This window will give the user the option of choosing the report to be in pounds, ounces, kilograms, or grams.

Start Date / Stop Date: All material usage reports request a start date and stop date. To enter dates click on the start and stop dates. A calendar will appear and using the arrows you the user can change the date. Formats are specified in the setup screen, such as MM/DD/YY. All reports are limited to information between and including these two dates.

Percentage Breakdown: When percentage breakdown is checked, reports will display a percentage column as well as totals.

Limiting Reports: When limiting a report, begin with the upper dropdown of limiting parameters and moving down the user may further limit a report. If you want to build a report and limit it to specific values such as blender and operator you must specify these limiting parameters in the

dropdown menus. Selecting Retrieval Times as a limiting parameter in the dropdown menus will display all available retrieval times in a table. Retrieval times may be selected individually for further breakdown.

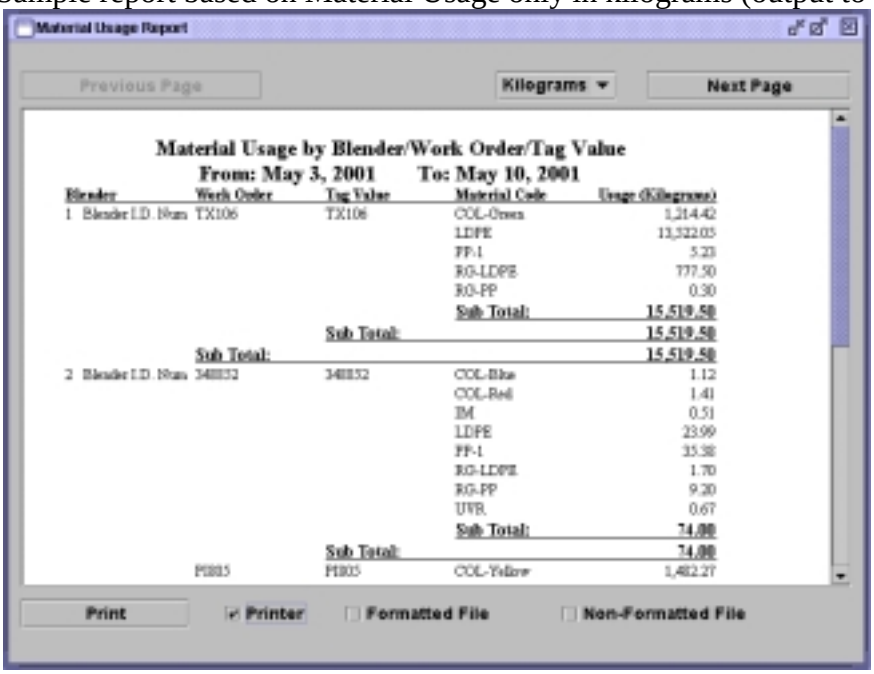
Additional advanced control over reports generating may be attained by checking off the "where…" checkbox. This will display very flexible and powerful report generating operations. Your choices in the advanced reports are based on what is selected above under the "Limit By" rules. For instance, if you limit the report by "Work Order" and then by "Blender", you choices in the advanced report under field will be "Work Order" and "Blender". By using the Report Filter Screen, report limiting filters may be created and saved for repeated use. These filters may be viewed by clicking the "Show Report Filter" button and selecting a pre-defined filter from the report filter list.

How to use the "Where" feature

To use the advanced report building operations, you must first understand how to correctly read and build an advanced report. Under the Advanced Reports (where…) are four columns labeled *Field*, *Logical Operation*, *Value* and *Logical Connector*. When building an advanced report, start in the left column, *Field*, and select what your first report statement will pertain to. Your choices may be one or more of the following; *Blender*, *Line*, *Recipe*, *Line Recipe*, *Work Order*, *Operator* or *Retrieval Time*. After making your selection for the first statement move to the next column labeled "*Logical Operator*". Logical Operator's choices consist of > (greater than), >= (greater than or equal to), = (equal to), <= (less than or equal to), and < (less than). These logical operators are used to target a specific selection from the first column by using the = *(equals)* logical operator or to target a range by using the > (*greater than)* and < (*less than)* operators as well as the <= and >= to include the targeted value. The next column, *Value*, contains a field to enter a value. Your value will depend on what you selected in column one, *Field*. For instance, if you selected Blender in column one (*Field*), you will enter a blender I.D. If you selected Work Order, enter a work order number exactly as it was entered into the G2 database. The value for a Retrieval Time is entered as a 24-hour format (i.e. 17:00 for 5 pm). Other values such as the name of a *Recipe*, *Line*, *Line Recipe* and *Operator* must be entered the same as it is entered into the G2 Database. Only values for Retrieval Time, Blender, and Work Order will work with Logical Operators of > (greater than), >= (greater than or equal to), <= (less than or equal to), and < (less than). Values for all Fields will work with the = (equals) Logical Operator.

The last column is the "*Logical Connector*". All statements will use the "*Logical Connector"* either to finish the report query or to continue to build the report query. "*Logical Connector"* consists of "END, "AND", "OR". Selecting END will finish the statement and you will be ready to click "Begin Report". If you want to continue to narrow your report by adding another line you can select "OR", or "AND". The *Logical Connectors* "AND" and "OR" derive their meaning in mathematical statements and to properly use them you must be familiar with what they mean. As in the example screenshot above, a blender is connected to a recipe using the "AND" *Logical Connector*. The AND *Logical Connector* means that the reports query MUST be this AND this. In the example above it would read this reports query MUST be Blender 1 AND Recipe PolyBag 7000 – Black. The AND *Logical Connector* can be used several times to narrow your report. The OR *Logical Connector* connects additional queries. So in the example above, the additional query is Blender 2 AND Recipe PolyBag 4500- Yellow.

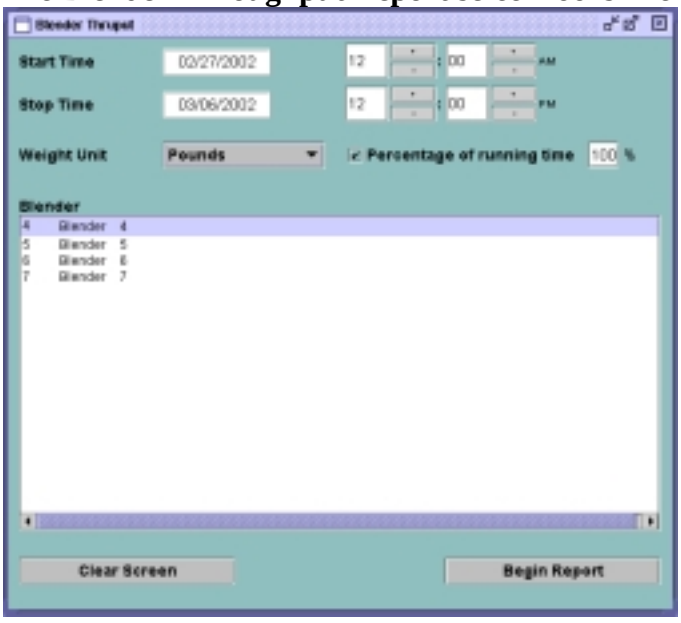
Sample report based on Material Usage only in kilograms (output to window)



Blender Throughput Reports

The Blender Throughput Report screen is used to generate reports based on average throughput, total throughput and the percentage of total uptime of a particular blender or multiple blenders. Reports are based a start/stop date and time, weight units and percentage of running time. Only currently active blenders are displayed on the Blender Throughput screen. To select multiple blenders, hold the Ctrl key down while selecting blenders. Selecting Percentage of running time allows the user to enter the total percentage of time that the blender is actually running during the report's start and stop range. This percentage would be based on the typical daily running time of the blender. For example, if a blender is used for a single 8 hours shift each day, the percentage of running time would be 33% (8 hours out of every 24 hours). If the blender is running 24 hours a day, 7 days a week, the percentage of running time would be 100%.

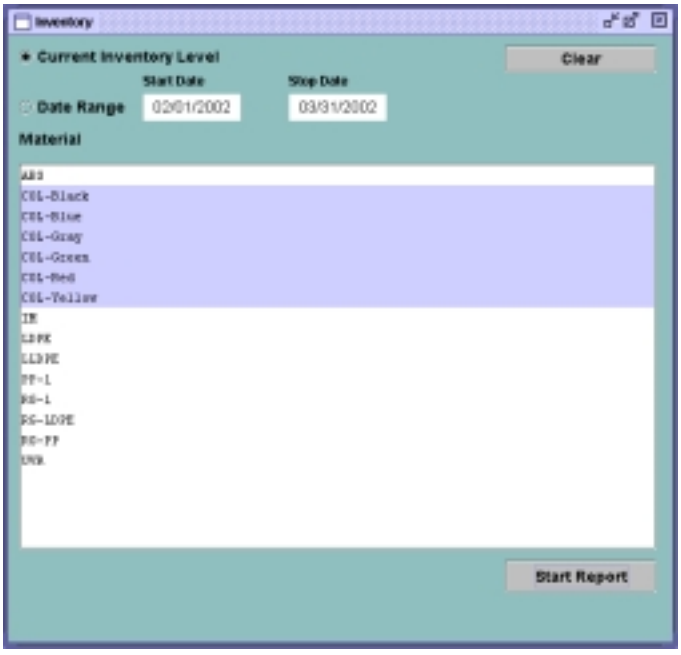
The **Blender Throughput Report** screen looks like this:



An example report output is pictured below. Reports may them be printed.

Inventory Reports

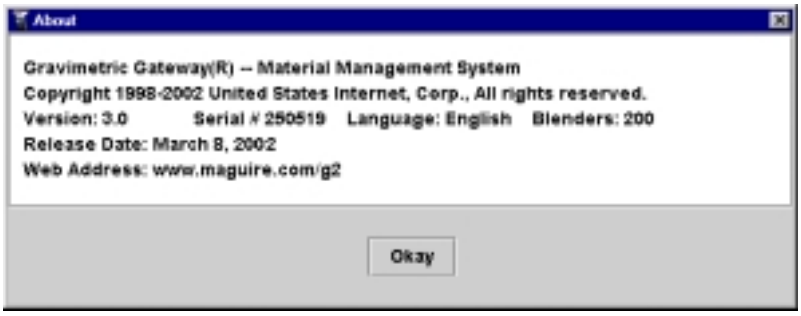
The Inventory screen is used for analyzing the current or historical inventory levels of one or more materials. These levels are based from the Material Edit screen's Quantity on Hand and the quantity on hand database. As material is consumed the quantity on hand amount is reduced. Likewise, when material quantity is added in the Material Edit screen these changes are stored in the quantity on hand database and can be viewed through the Inventory screen. The Inventory screen is used to display one or more materials and their respective Quantity on hand and/or a historical level change based on the start and stop date. To select multiple materials, hold the Ctrl key down while selecting additional materials to display.



Help

The Help menu contains About and Reinitialize.

The **About** box will look like this:



The about box displays information about the program. It displays the name of the client software, copyright information, the version number, Serial Number of your signal amplifier, the current language of the G2 installation, number of licensed WSBs, the release date of the G2 software version and the Maguire web address. If you have any questions pertaining to the client software you will need to know your version number.

Reinitialize is used to reset the client interface.

X. Quick Start - Using the G2 Server

Installing the Gravimetric Gateway® Server/Client Software

The Gravimetric Gateway® Server/Client Software can be installed on an IBM-PC or Compatible (Pentium 233 or faster). The G2™ Server is currently available for Windows 95/98/ME/NT/2000 operating systems. A fresh install of the Windows operating system is recommended before installing the G2 software to help reduce the potential for Windows related problems. We recommend that the G2 Server computer operate as a dedicated machine for the purpose of Weigh Scale Blender data collection. Constant COM port communication between the G2 Server and the Conair Weigh Scale Blenders may cause a noticeable lag in the processor when using the G2 Server computer for additional functions while the G2 Server is collecting data.

IMPORTANT G2 VERSION UPGRADE NOTES:
To find out the version of G2 see the About Box in the help menu of the G2 Client.

- The Gravimetric Gateway® Server / Client Software may be updated to the latest version easily and free of charge. G2 Updates may be obtained upon request.
- If your current version of G2 is 1.2.x version, a full install is required to upgrade to 2.0.x or later. Read the *FULL INSTALL / FULL UPGRADE* instructions in page 15.

If your version of G2 is 2.x or later a single file update of g2.jar will update G2 to the latest version unless otherwise noted in the G2 download available from Conair. Read the *SINGLE FILE UPGRADE* instructions on page 16 if your version of G2 can be upgraded without a full install.

Download Install

When you download the full G2 install you will save the file somewhere on your computer. A good place to save this file when you download it is on your desktop where it may be easily found when you are ready to install G2. After downloading the G2 Full Installation program, close all other programs including the Gravimetric Gateway® Server / Client Software. Click your Start Button and choose *Run*. Browser your computer to the location of the file g2setup.exe and double-click on *g2setup.exe.* The self-extracting zip file will prompt you for a destination directory to unzip into. By default this directory is *c:\g2temp.* Click Finish to extract the install program. Click *Yes* to creating the G2temp directory. Click *OK* after extraction. Click Ok. Proceed to step 1 below.

CD-ROM Install

When the G2 CD-ROM is inserted into the CD-ROM drive the installation of the G2 Server should automatically start. If, however, it does not auto start, and you would like to install the G2 Server/Client Software, follow these steps:
Click the start button and choose "Run". Type the following replacing CDROM with your CD-ROM's drive letter: "CDROM:\setup.bat" to install the Server/Client software. Click "OK". Proceed to step 1 below.

1. Select your language for the installation. Selecting the language will also default G2 to starting with this language.
2. Read the welcome message and click *Next*.

3. Choose the destination folder that G2 will be installed in. By default the directory is c:\g2. To change the directory, click Browse. After selecting the folder, click next.

4. Choose your system setup. Each part of the G2 Software may be selected independently. Choices are *Server, Client, Satellite ComServer and Demo.* After making your selections choose *Next*.

5. Select your data directory. By default this location is *C:\g2\g2data*. This may be changed if necessary. Click *Next*.

6. Select your computer's operating system and click *Next*.

7. You may choose or create the Program folder in the start menu that G2 will appear in. By default that folder is Gravimetric Gateway. Click *Next*. The G2 program will now install.

8. Click *Finish*.

9. If you have installed the G2 Client/Server for the first time, please proceed to section VII, G2 Server, G2 Server Demo Operation on page 16.

10. If you are upgrading with a full install of G2 and want to use your existing databases, copy all database files **EXCEPT "language.data"** and "**language.key"** from the original database location (by default, c:\g2data for version 1.2.x) to the new location, *c:\g2\g2data* by default. An installation of G2.x or later over an existing 2.0.x will use the same default location of the G2 databases (c:\g2\g2data) and will not be overwritten by the new installation.

SINGLE FILE UPGRADE
If your G2 version is 2.0.x or later updating to the latest G2 version requires only that the g2.jar file be replaced. The most recent g2.jar file is online upon request. The G2 update is a self-extracting utility that will default to installing the update into the directory "c:\g2". If the directory that the G2 software was installed in is different than the default directory, change the destination directory in the update utility to the directory that G2 was installed in. Click finish to update G2. To verify that G2 was updated click "Help" then "About" in the G2 Client and verify that the version is the same as the update version.

Starting the G2 Server for the first time

Installation of the G2 Server will create a program group in the start menu with the following icons. They are Client, G2 Server Demo and G2 Server. The Gravimetric Gateway® requires the TCP/IP network protocol to be installed for communication between the G2 Server and the G2 Client. In most cases TCP/IP is installed with Dialup Networking so your system probably will have the TCP/IP protocol installed. For more information on installing the TCP/IP protocol see section *VIII / Network Installation and Configuration* on page 18. The G2 Server must be started first before the G2 Client can be started unless the client is to be connected to another G2 Server running elsewhere on the network. The Client will communicate with the Server and the Server communicates with the MLAN network. To open the G2 Server Interface click the G2 Server icon in the Gravimetric Gateway® program group. To open the G2 Server in Demo mode click G2 Server Demo, which simulates actual communications with blenders. The G2 server interface has buttons to start and stop the G2 Server and a drop down menu to select the COM port that the MLAN network is plugged into. Select the COM port that the MLAN network is plugged into on your computer and click the start button. The G2 Server interface contains a window of information. The window displays information regarding the

MLAN Data Server and reports upon startup the database directory. The windows will, in a normal situation display the G2 Version number, the database directory and the COM port that the server is communicating to the MLAN network on. It will also report WSB's that are online as well as those that have gone offline and the next preset log time. The information in the window will be updated as logging times pass, when machines come online or go offline and when a tag is changed.

When you see the following message in the window that indicates the G2 Server is operating correctly and is collecting data.

G2 Version2.0.xx
(DataServer) using "C:\g2\g2data" for database directory.
G2 Server communicating on COM#
Next preset log time is at …(date and Time)…

When this message is displayed then the Gravimetric Gateway® Client may be started. All operations and user interfaces are done from the Gravimetric Gateway® Client.

Running the Gravimetric Gateway® Client for the first time

The version of the Gravimetric Gateway® Server that is distributed on the Conair CD-ROM is the complete version. To utilize all of the features of the G2 Server requires a security key, which may be obtained from Conair. Without the security key G2 Server is limited to control of a single weigh scale blender and does not have Extrusion Control enabled. G2 Server Demo, without the security key, can simulate all of the features in demo mode, including connecting across a network and Extrusion Control, allowing the user to become familiar with the G2 Server and the Client Software operation.

Each installation of the Gravimetric Gateway® Server also installs a Gravimetric Gateway® Client as well. While the server continuously runs in the background the operator may run one or more G2 Clients on the server itself. Exiting the G2 Client does not exit the server. The Server continues to run as long as the G2 Server interface is running. If the operator chooses to exit any G2 Client, whether local or remote, after changing settings, downloading recipes or running reports they may do so without affecting the monitoring of the MLAN network by the Server. Also it should be noted that if more than one G2 Client is connected to the same G2 Server, any changes that are made from any one particular G2 Client will be updated immediately on all other G2 Clients that are currently connected to that server.

Start a Gravimetric Gateway® Client

To start a Gravimetric Gateway® Client click Start/Programs/Gravimetric Gateway and then the Client icon to run the Client software.

Connecting to a Gateway

The Gravimetric Gateway® Client must connect to the server before accessing the G2 Server's databases. By default the G2 Client attempts to connect to the computer that the client software is running on (localhost). If the localhost computer is not running the G2 Server, you may be prompted that it could not connect to the localhost computer. Click Abort then in the Client menu, click Main/Gateways. This will bring up the Gateway screen. Enter the IP address or the computer name (Host Name) of the G2 Server on your network and click add/update. Select the G2 Servers address in

the list and click connect. For more information on setting up a TCP/IP network, please read **Setting Up Your Gravimetric Gateway® Client Network.**

Setting up Retrieval Times

If you are running your G2 Server for the first time you will probably want to set up retrieval times. Retrieval times are specific times when the server will record the accumulated totals of each WSB that is currently online when the retrieval time passes. Times should be entered in standard AM/PM format. Military times are NOT used. To set up retrieval times click Edit / Retrieval Times (Ctrl+T). This brings up the retrieval times edit screen. To enter in a new retrieval time, click in the "Time" field. To enter the time, click in the time field using the mouse or use the tab key to move the cursor to the time field. Use the up and down arrow keys to increment or decrement the hours and minute. Use the right and left arrow keys to move from hours to minutes to AM/PM. AM/PM is toggled using the up/down arrow keys or spacebar. For NOON, enter 12:00 PM.

MIDNIGHT, 12:00 AM, is present in the list as a default time. You do not have to keep it, but you do need to have at least one retrieval time in the database to collect totals for your reports. Since reports are run from one selected date to another, it is necessary to retrieve data at least once a day to keep totals properly assigned to the correct date. Therefore, there must always be at least one retrieval time in the retrieval times database if you wish to generate reports based on material usage. It follows, for the same reason, that all reports will break production at the first time of the day. For example, if the first time in the list is 6:00 am, then all material used from Midnight to 6:00 am will be assigned to the previous day. This gives the ability to indirectly set your end of day at 6:00 am, for example, instead of midnight—the default.

Description is for your reference only and may be up to 80 characters in length. You are only able to edit the description of a retrieval time. If you change the time of a retrieval time you are essentially creating a new retrieval time.

Adding your Materials

If you wish to build and download recipes you must first enter your materials into the material database since all recipes consist of one or more materials. To enter materials into the material database, click from the main menu Edit / Materials (Ctrl+M). This brings up the materials edit screen. Within the database a material consists of a "Code" (or name), which may be up to 20 alphanumeric characters, a "Description" which may be up to 80 alphanumeric characters, a "Supplier" which may be up to 40 alphanumeric characters, the default "Type" for this material (regrind, natural or additive), "Material Cost" and "Available". Only the "Code" is required for a material to be entered into the database. All other fields are optional. Also if the material's default "Type" is specified it does not lock the user into classifying the material as only that type when building a recipe, it just defaults to that predefined type in the recipe edit screen at which time it may be changed. "Available" (quantity on hand) and "Material Cost" are for inventory tracking.

To add a new material simple enter a unique "Code" (required), a "Description" (optional), the default "Type" (optional although if nothing is selected then the default is regrind). When all entries have been made, click the "Add/Update" button. Clicking *Hide List* will display additional fields that are used with the Advanced Inventory Management System or AIMS for short. For more information on AIMS see *Advanced Inventory Management (AIMS)* on page 69. To clear all data from the entry fields and deselect the list click the "Clear Entry Fields" button. Materials may be changed after they are added to the material database. You may make changes to a material by clicking on the material in the material list. This will put the material's information into the entry fields. You may edit any field

except the code field. Editing the code field will create a new material. When you have made your changes click the "Add/Update" button. To delete a material click on the material in the material list to bring it up to the editing fields. Click the "Delete" button to permanently remove the material from the material database. Note: If a material is being used in an existing recipe the user will not be able to delete the material. To see what recipes a material is being used in click the "View Recipes" button. To toggle back to the material list, click the *View Materials* button.

Building Recipes

After material has been added to the material database you are now ready to create WSB recipes. To enter recipes into the recipe database, click from the main menu Edit / WSB Recipes (Ctrl+R). This brings up the recipe edit screen. Within the recipe database a recipe consists of the unique "Recipe Name" which may be up to 20 alphanumeric characters, a "Recipe Number" which may range from 0 to 999999999, a "Description" which may be up to 80 alphanumeric characters, a "Batch Weight" which may range from 0 to 999999999, the "Recipe Type" which is either type 4 software or type 12 software and up to 12 materials with type and settings. "Recipe Name" and "Recipe Type" are the only required entries for a recipe to be added to the recipe database. All other fields are optional however a recipe with no materials cannot be downloaded to a WSB.

To build a recipe, first enter a recipe name unique from any other recipe name. Next you may enter the recipe description (optional), recipe number (optional), the batch weight (optional) and choose the recipe type. Next you will add the materials each with a material type and setting. With the mouse, click in the material field that pertains to the hopper number of the WSB (field 1 = hopper 1, field 2 = hopper 2, etc…). When you click on the material field the recipe list will be replaced by the material list. Using the mouse click on the material you wish to be added to the recipe. When a material has been selected it will be added to the field and the material list will be replaced by a list of material types to choose from. Select the type for that material. Once selected you will now have a keypad to enter the setting for that material. Enter the proper setting and click OK. The material fields will cycle one to the next in that order. You may choose at any time a material field, type field or setting field to edit. The type field and settings field are only editable if a material has been selected for that row in the recipe. To remove a material from a row click on the material you wish to delete and press the delete key on your keyboard. To change a recipe, click on the existing recipe in the recipe list. The recipe will be displayed in the edit fields. You may change any field in the recipe excluding the name of the recipe. If you change the name of the recipe you are creating a new recipe.

Creating Lines

A line can be defined as group of blenders that would receive downloaded recipes at the same time. The group of recipes that would be downloaded to this "Line" is called a "Line Recipe". Before a line recipe can be built a line must first be created.

To create a line, click from the main menu Edit / Lines (Ctrl+E). This brings up the line edit screen. The line database stores the line's name, description and up to 12 WSB ID numbers. Only the line's name is required to store the line in the database. To build a line, first enter a unique name for the line. Then, if you wish enter a description for this line. Next you will click in a field under "Blenders". The position you click in will remain highlighted in yellow. Next you will see a list of active blenders on the right. Clicking on a blender will add that blender to the position you chose in your line. You cannot have two blenders in the same line with the same ID number. The positions in the line (1 through 12) have no effect on how the line is processed. You may organize the blenders in your line however you wish. When you have finished adding blenders to your line click the Add/Update button.

To remove a blender ID from a position in the line, highlight the blender ID and press the delete key on your keyboard. To permanently remove a line from the line database, select the line you wish to delete from the line list and click on the delete button with the cursor.

To toggle between the line list and the list of active blenders simply move the cursor over the name and description fields to bring up the list of lines or to bring up the list of active blenders move the cursor over the blender fields 1 through 12.

Building Line Recipes

A line recipe is a group of recipes that, when downloaded, go to a predefined group of blenders. As previously mentioned you must first create a line to work with before building a line recipe.

To create a line recipe, click from the main menu Edit / Lines Recipes (Ctrl+N). This brings up the line recipes edit screen. Only the line recipe's name is required to store the line in the database. To build a line recipe first enter a unique name for the line. Then, if you wish enter a description for this line. Next you will choose a line to use with this line recipe by moving your cursor over the "Blender" fields 1 through 12 on the left which will pop up the list of lines in the center of the screen. Next you will move your cursor over the recipe column on the right, which will pop up the recipes in the recipe database. By clicking on the position directly across from the blender you wish to assign a recipe to, the position will remain highlighted in yellow. Next you will select from the list of recipes in the center the recipe you wish to assign to that blender. When you have finished adding recipes to your line recipe click the Add/Update button.

To remove a recipe from a position in the line, highlight the recipe and press the delete key on your keyboard. To permanently remove a line recipe from the line recipe database, select the line recipe you wish to delete from the line recipe list and click on the delete button with the cursor.

Toggling the list in the center between "Line Recipes", "Lines" and "Blender Recipes" is done by moving the cursor over the name and description fields at the top for "Line Recipes", moving the cursor over the blender fields 1 through 12 for "Lines", and moving the cursor over recipe for "Blender Recipes".

Download Recipes

The recipe download screen is for downloading recipes to Weigh Scale Blenders on the MLAN network one recipe at a time. For the Gravimetric Gateway to accurately track material usage recipes must be downloaded into the WSB from the G2 Client's download screen.

To download a recipe to a WSB, click from the main menu Download / Recipe to WSB (Ctrl+D). This brings up the recipe download screen. To choose the WSB you wish to download a recipe to, select a blender from the WSB # drop-down list located in the upper left corner of the download screen. Selecting a blender will retrieve the selected blenders current recipe's name, description, operator number, work order number, and materials with their type and current setting.

> Note: If this is the first time a blender is probed by the server it may return the message "Recipe NOT found in database" and all materials are Unknown. This is because the blender's current recipe is not stored in the recipe database until a recipe has been downloaded from the server to that blender. The blender's current settings will be retrieved from the blender and put in the

proper hopper field under the current recipe in the download screen. If the recipe the blender is running has been enter into the database including setting (see Building Recipes) then by downloading that recipe to the blender in question the current recipe will be stored in the server's database. If it is not known if the settings of that blender match the recipe's settings in the recipe database then you can check off "No Settings" which will cause the server to NOT download the settings of the recipe to the blender.

To download a recipe to a blender select the active blender from the WSB # dropdown list. To bring up the list of recipes to choose a recipe from click the "Show Recipes" button. This will bring up a list of recipes. Choose the recipe you wish to download by clicking on the recipe. To hide the recipe list click the "Hide Recipes" button. At this time you may add the operator number and the work order number by clicking in their perspective fields, which will bring up a keypad to enter your number. When finished click ok. Also settings of the recipe may be adjusted at this time by clicking on the settings you wish to change under "New Recipe" on the right side of the download screen. When the recipe is ready to be downloaded click the "Send to WSB" button. Within a few seconds all fields will clear and the recipe has been downloaded. To verify that the recipe has been downloaded choose that blender from the WSB # dropdown list. Recipe may be adjusted simply be choosing the WSB # from the dropdown list, clicking the "Copy" button, adjusting the operator number, work order number, or any of the settings. When all changes have been made, click the "Send to WSB" button.

Download Lines

The line download screen is for downloading multiple recipes to a predefined group of Weigh Scale Blenders on the MLAN network in a single download.

To download a line recipe to a line of blenders, click from the main menu Download, Line Recipe to a Lines (Ctrl+L). This brings up the line recipe download screen. When viewing the download screen you will see a list of line recipes that exist in the line recipe database. When you choose a line recipe from the line recipe list the information regarding that line will be brought to the screen. Below the list you will see a maximum of 12 WSB ID's that belong to that line in the first column. In the second column will be the WSB's current recipe. In the third column is the recipe from the line you chose that will be downloaded to that particular WSB. The fourth column allows you to prevent settings from being downloaded to that particular WSB by checking the "No Settings" box. The fifth column is the status of the WSB. Status may be one of the following:

Generating Material Usage Reports

Reports can be generated based on material usage.
To generate a report based on material usage over time click from the main menu Reports / Material Usage (Ctrl+U). This brings up the report generation screen. You begin by selecting a start date. To select a start date click on "Start Date" or the date to the right of "Start Date". This will give a calendar from which you can select a date. To change the month of the start date, click on the opposing arrows to the left and right of the month. To change the year click, on the opposing arrows to the left and right of the year. When you have the month and year on the calendar select the day by clicking on the day. Doing so sets the start date. The same action is taken when selecting a stop date. Click on "Stop Date" or the date to the right of "Stop Date", choose the month and year using the arrows and then click on the day. This set the stop date. You may change the start or stop date by clicking on the date and reselecting what you have entered. You may also clear the start and stop date by clicking clear entries.

When you have made your selection click begin report. This will bring up a report window with the requested report. You may recalculate the report based on pounds, kilograms, ounces or grams from the report window. If you wish to print the report clicking print will do so.

WE'RE HERE TO HELP

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

HOW TO CONTACT CUSTOMER SERVICE

To contact Customer Service personnel, call:

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

BEFORE YOU CALL ...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

WARRANTY LIMITATIONS

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.