

**ChargeMate**  
**Scrap Management System**  
**For Charge Bucket Loading**  
**Base Station Manual**  
**- Inventory**  
**- Recipe Editor**  
**- Portal**

**For**

**Inventory Version 01.01.0004**

**Recipe Editor Version 01.01.0012**

**Portal Version 01.06.0010**

*By: Encompass Automation & Engineering Technologies, LLC*

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**Table of Contents**

1. Introduction .....	3
2. Inventory: MDB Operation .....	4
2.1 Adjustments Button .....	5
2.2 Inbound Button .....	5
2.3 Delete Button .....	6
2.4 View Inventory Button .....	6
2.5 Current Inventory Report .....	7
2.6 Print Daily Charge Report .....	8
3. Recipe Editor Operation .....	9
3.1 Recipe Editor Window .....	9
3.2 Scrap Editor Window .....	11
4. ChargeMate Portal Operation .....	13
4.1 ChargeMate Portal Configuration .....	14

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## 1. Introduction

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This manual describes the operation of the EAET ChargeMate base station software. This consists of three programs, which reside on the base station computer. They are:

Inventory.MDB. This is a database module with an internal software package. It does the following:

1. Provides a level 2 interface to the charge data through a standard SQL database and a network interface.
2. It also prints a series of reports for scrap inventory
3. This database also stores the scrap list that is used by the Recipe editor

EAETRecipeEditor is a stand-alone program that runs in conjunction with the Inventory database. It does the following:

1. This module allows the operator to create charge recipes for the crane operators to use. It will also format and sends the recipes to a download module (CM Portal) which sends the recipes to the crane
2. The module also is a scrap list editor for the database. This allows the operator to keep an up-to-date list of the scraps for use in the recipes. The scrap list can also be sent down to the cranes, for use by the crane operators.

CM Portal is intended for use as a supplement to the ChargeMate Scrap charging system is operated on the computer at the base station. The program has two primary functions:

1. Downloads recipes and scrap lists to the crane scale system through a radio serial Modem link.
2. Uploads charge reports from the crane to the base station computer through the radio serial Modem link.

The ChargeMate system consists of the following components:

1. Desk Top computer – This is a Windows NT based PC that provides a place to run the programs and a storage area for the level 2 database.
2. Radio Modem – Provide communications between the Crane Controller, the Weighing System, and the Base Station Server system.



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## 2. Inventory: MDB Operation

This section describes how the base station operator uses the Inventory program. The inventory program is started when the computer is booted up and typically runs in the background. This program automatically retrieves logs that were downloaded from the crane and inserts them into the database. The 'CurrentForm' window shows the most recently stored log on the lower window half. It is there

The screenshot displays the 'StockMate' application window with a menu bar (File, Edit, Insert, Records, Window, Help) and a 'CurrentForm' sub-window titled 'Scrap Inventory'. The interface is organized into three main sections: 'Maintain', 'View', and 'Reports'. The 'Maintain' section contains buttons for 'Adjustments', 'Inbound', and 'Delete'. The 'View' section has a 'View Inventory' button. The 'Reports' section includes 'Current Inventory' and 'Daily Charges' buttons. Below these sections are input fields for 'Date' (12/5/2000), 'Time' (09:48:16 AM), 'Crane' (1), 'Oper' (KLM), 'Scale' (1), and 'Bucket' (11). A 'Recipe' field is set to 'NoRecipe'. A table lists scrap items with their respective counts and totals:

Scrap1:	Pillows	23	9612	Scrap8:	-	-	0
Scrap2:	Grindings	25	9612	Scrap9:	-	-	0
Scrap3:	Wheels	22	6408	Scrap10:	-	-	0
Scrap4:	-	-	0	Scrap11:	-	-	0
Scrap5:	-	-	0	Scrap12:	-	-	0
Scrap6:	-	-	0	Scrap13:	-	-	0
Scrap7:	-	-	0	Scrap14:	-	-	0

At the bottom, a 'Status' section shows 'Last Report Scan: 10:43:47 AM', 'T1= 4', and 'Press F9 to refresh'. A 'Last Report File' field is also present. The footer indicates 'Copyright 2000. Ver. 01.00.0004'.

for diagnostic purposes and to show the operator that the logs are being received in a timely fashion. This log would get old if the crane Modem link were to fail. This could indicate failure in the crane software, the Modems, or the CM Portal program that is running on the base station computer.



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## 2.1 Adjustments Button

The **Adjustments** button permits the operator to change the amount of material that is recorded for a pile. The button opens the 'Adjustment Form' as shown.

1. The operator opens the drop down box for the ScrapName and a list of valid scraps appear. The operator selects the scrap material that is to be adjusted.
2. When the scrap is selected, the Pile-ID is filled in automatically. The operator then has the opportunity to change the Pile\_ID by typing over it.
3. Then enter the adjusted weight.
4. Enter a comment as to why.
5. Press **Commit** to enter it into the database.
6. The window will stay open for additional adjustments and can be closed using the **Cancel** button after the final commitment.

## 2.2 Inbound Button

The **Inbound** button permits the operator to change the amount of material that is recorded for a pile. The button opens the 'Inbound form'

1. The operator opens the drop down box for the ScrapName and a list of valid scraps appear. The operator selects the scrap material that is to be adjusted.
2. When the scrap is selected, the Pile-ID is filled in automatically. The operator then has the opportunity to change the Pile\_ID by typing over it.
3. Then enter an inbound weight.



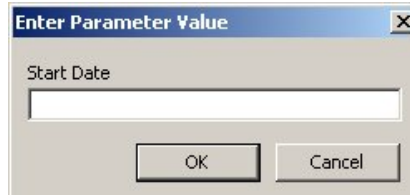
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4. Enter a comment as to why.
5. Press **Commit** to enter it into the database.
6. The window will stay open for additional adjustments and can be closed using the **Vancel** button after the final commitment.

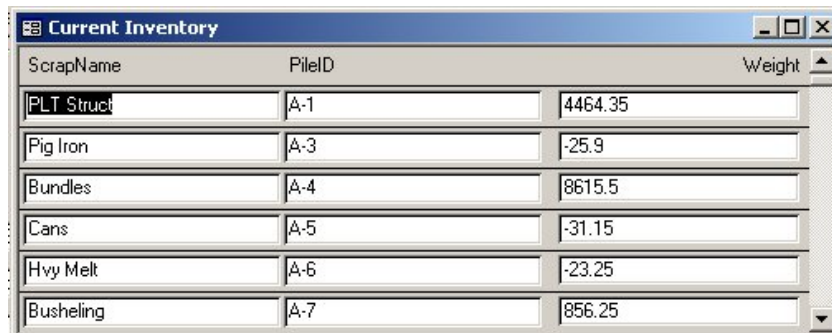
## 2.3 Delete Button

The delete button opens a small window that permits the operator to specify a **Start Date** and an **End Date**. The program then deletes all files found on and in-between those dates. Note: the program does **not** give you a second chance to change your mind. You are committed to do the delete if you press OK.



## 2.4 View Inventory Button

The view inventory button permits the operator to see the scrap inventory, its location, and weights. The button opens the 'Current Inventory' form. This is a 'view only' window and the operator is only allowed to look at the scrap data. The scroll bar on the right side permits scanning all of the scraps in the database. The window can be stretched downward for viewing more scraps at a time.



ScrapName	PileID	Weight
PLT Struct	A-1	4464.35
Pig Iron	A-3	-25.9
Bundles	A-4	8615.5
Cans	A-5	-31.15
Hvy Melt	A-6	-23.25
Busheling	A-7	856.25



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## 2.5 Current Inventory Report

The Current Inventory button permits the operator to print an inventory report. Note: the report is printed without any additional Query. The report will be printed on the default printer.

<i>Current Inventory</i>		<i>12/5/2000 2:06:39 PM</i>
<i>Commodity</i>	<i>File</i>	<i>Inventory</i>
<i>Brack Iron</i>	B-10	5479.5
		<u>5479.5</u>
<i>Bundles</i>	A-4	8615.5
	C-3	27
		<u>8642.5</u>
<i>Busheling</i>	A-7	856.25
	B-12	3420.6
		<u>4276.85</u>
<i>Chms</i>	A-5	-31.15
	B-7	868.6
		<u>837.45</u>
<i>Chrys Slabs</i>	B-8	-79.65
		<u>-79.65</u>
<i>HBI</i>	B-3	1110.45
		<u>1110.45</u>
<i>Hy Melit</i>	A-6	-23.25
	B-11	1110.75
	C-1	35
		<u>1122.5</u>

*Tuesday, December 05, 2000* *Page 2 of 2*



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## 2.6 Print Daily Charge Report

The Print Daily Charge Report button will pop open a window that will ask for the day/date of the report to be printed. After the date is entered, it will be printed on the default printer.

<i>Daily Charge Report</i>						
<i>Date</i>	<i>Time</i>	<i>Operator</i>	<i>Crane</i>	<i>Scale</i>	<i>Bucket</i>	<i>Recipe</i>
4/25/200	02:37:11					
		SRB	11	2	2	<i>MEX13 2</i>
					SKULL BLOCK	Invalid 25.00
					CROPS SLABS	B-3 143.00
					PIF SCRAP	B-5 81.00
					PLT'S TRUCT	A-1 229.00
					RAIL CROP	B-4 30.00
					PIG RON	B-1 111.00
					HBI	B-2 291.00
					SHREDDED	A-opp 219.00
					<i>Total</i>	1231.00
4/25/200	03:12:23					
		368	3	2	2	<i>MEX12 2</i>
					HEAVYMELT	Invalid 41.00
					CANS	A-5 2.00
					PLT'S TRUC	Invalid 229.00
					BUSHELING	A-1 129.00
					<i>Total</i>	412.00
4/25/200	04:19:19					
		368	1	2	2	<i>MEX12 2</i>
					BUSHELING	A-1 219.00
					HEAVY MELT	Invalid 54.00
					PLT'S TRUCT	A-1 229.00
					SHREDDED	A-opp 220.00
					<i>Total</i>	322.00
4/25/200	04:36:50					
		368	3	2	2	<i>MEX12 2</i>
					BUSHELING	A-1 219.00
					HEAVYMELT	Invalid 89.00
					BUNDLES	A-4 125.00
					<i>Total</i>	403.00
4/25/200	07:13:41					
		SRB	1	2	2	<i>MEX12 2</i>
					SKULL	Invalid 21.00
Tuesday, December 05, 2000						
Page 1 of 1						



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### 3. Recipe Editor Operation

The recipe editor has four basic functions:

1. Make/Modify Recipes
2. Send Recipes to Crane
3. Make & maintain a scrap list
4. Send scrap lists to the crane.

#### 3.1 Recipe Editor Window

The recipe editor window is designed to let the operator:

1. Modify an existing recipe.
  - a. Click on the recipe name drop down box and select the recipe to modify. The recipe scrap window then display the recipe sequence for the recipe.
  - b. Click on the step number to select a scrap item to modify.
  - c. Change the appropriate column data, or
  - d. Press **Clear Step** button and remove the scrap item entirely.
  - e. To save the data permanently, press **Save Recipe** button.

Step	Type	Material	Weight	Code
1	Std	Grindings	18000	A
2	Std	Wheels	20000	A
3	Std	Heavy #1	23000	A
4	Std	Light # 6	24000	-
5	Std	Pigs	25000	-
6	Std	Bundles	21000	-
7	Std	Low Ni	19000	-
8	Std	Shred	22000	-
9	Std	bush	27000	-
10	Std	Dealer Bundles	26000	-



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2. Create a new recipe
  - a. Click on the recipe name window and highlight the recipe name.
  - b. Type over the name or modify the name as desired. Note: the window will turn yellow to indicate that a new name is being created.
  - c. Press the enter key on the keyboard to force the name into the system. The window will turn back to white
  - d. Add scrap data to the recipe in the order desired.
  - e. To save the data permanently, press **Save Recipe** button.
3. Save a recipe to the database: The recipes changes are stored only temporarily. To save them for future use, press the **Save Recipe** button.
4. Send a recipe to the crane: Press the **Send Recipe to Crane** button. Confirm that this is the intended activity. The program will confirm that the recipe file was created. **CM Portal** will actually send the file to the crane.
5. Send a scrap list to the host: Press the **Send Scrap List to Crane** button. Confirm that this is the intended activity. The program will confirm that the recipe file was created. **CM Portal** will actually send the file to the crane.

Three buttons are used to aid in the editing of the recipes.

1. **Insert Step:**
  - a. Select the step where you would like to insert a scrap step.
  - b. Press the Inset Step button to move the scraps down and open a blank row for editing.
2. **Clear Step:**
  - a. Select the step where you would like to delete a scrap step.
  - b. Press the Clear Step button to blank the row for editing.
  - c. If the step is to be deleted, just leave it blank. A save will close up the space the next time the recipe is selected.
3. **Undo Clear:** Will permit a scrap data that had been cleared to be pasted into any row.
  - a. First, **Clear a step** that you want to copy.
  - b. Press **Undo Clear** to paste the data back into the cleared row.
  - c. Select another row and press **Undo Clear** again and it will paste the data into the new row. Repeat as desired.

Five Buttons are used to do additional editing.

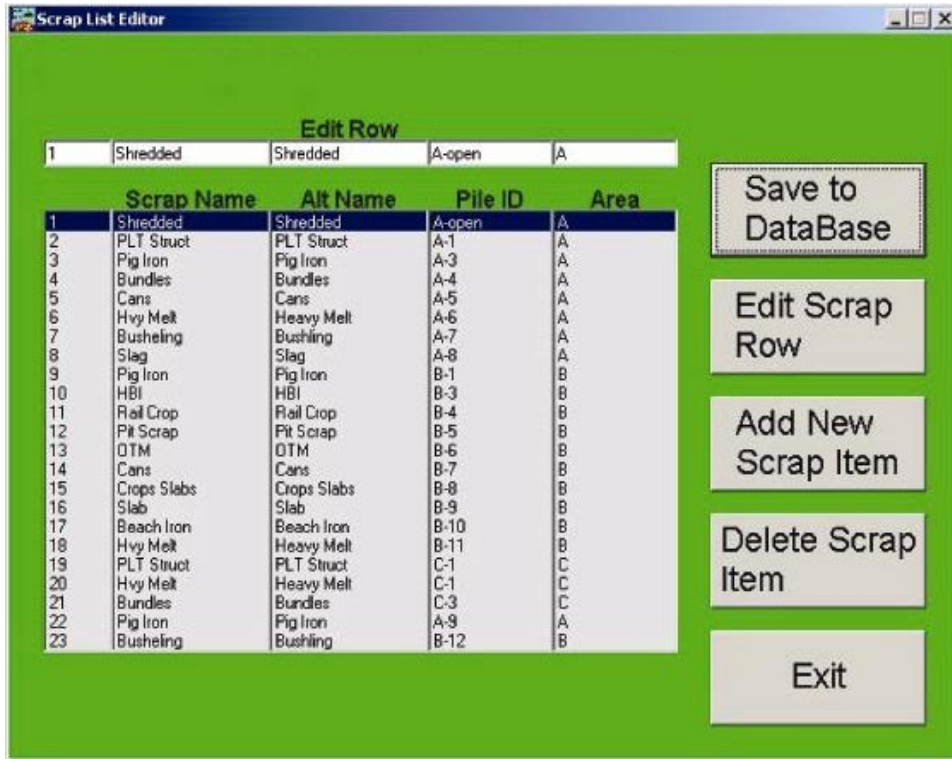
4. **Disable List Edit:** This button enables the following four buttons that are not often used. Click it once to enable and click again to disable the buttons.
5. **Delete Recipe Item:** A recipe item is deleted by deleting all of the scrap entries in that recipe and saving the recipe list. The name, however, remains in the list until the program is restarted. The list name can be deleted by using this button.
  - a. Select the recipe name to delete.
  - b. Press **Delete Recipe Item** button.
6. **Delete Type Item:** The Type Item is rarely changed **Std** is the default value. Adding a name is done the same way as adding a recipe name. And to delete the name, select the type item in the box and press the **Delete Type Item** button.
7. **Save Type List** This makes a permanent save of the type changes that were made.
8. **Edit Scrap List:** This button initiates the scrap editor mode, which is explained in the following section.



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Note: if a recipe name is configured with a hyphen '-', the name in front of the hyphen will become the recipe name, and the portion after the hyphen will become the comment when it is sent down to the crane. For example, "Mix 3 – Light Charge Only" will translate to a recipe name of "Mix 3" and the comment will be "Light Charge Only".



### 3.2 Scrap Editor Window

The scrap editor window allows the scrap list to be modified as needed for use with the recipe editor and the crane software. There are three parts to the scrap editor: the buttons, the scrap display window, and the Edit Row.

The Buttons are after-the-fact buttons, that is, they perform the operation after the row is selected and after the data is entered in the edit row. To:

1. **Save To Database:** Press the **Save To Database** button to save any changes permanently
2. **Edit a Scrap Row:**
  - a. Select the line to edit by clicking anywhere on the row Note: that the row data was automatically entered into the **Edit Row**.
  - b. Modify the **edit row**, as the scrap data should appear.
  - c. Press the **Edit Scrap Row** to transfer the data into the scrap list.
3. **Add New Scrap Item:**
  - a. Edit the **Edit Row** as desired for the new scrap.
  - b. Press **Add New Scrap Item** button and the new scrap will appear at the end of the list. The item will be selected so that it can be viewed and changed if needed.
4. **Delete Scrap Item:** Select the row to be deleted, and Press the **Delete Scrap Item** button.



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**5. Exit Back to Recipe Editor:** Press the **Exit** Button. Note: if there were any changes in the scrap list, you will be asked if the list should be saved.

The scrap display window will adjust its size from 1 to 30 rows in attempt to show all of the scraps. The window will become a scrolling window at scrap 31. The window and database supports up to 100 recipes.

The scrap list information that is sent to the cranes is the **Scrap Name** and the **Pile-ID**. When a charge report is loaded into the database, the scraps are cross-referenced to both the **Scrap Name** and **Alt Name**. If a match is found, the other items are linked to the data.

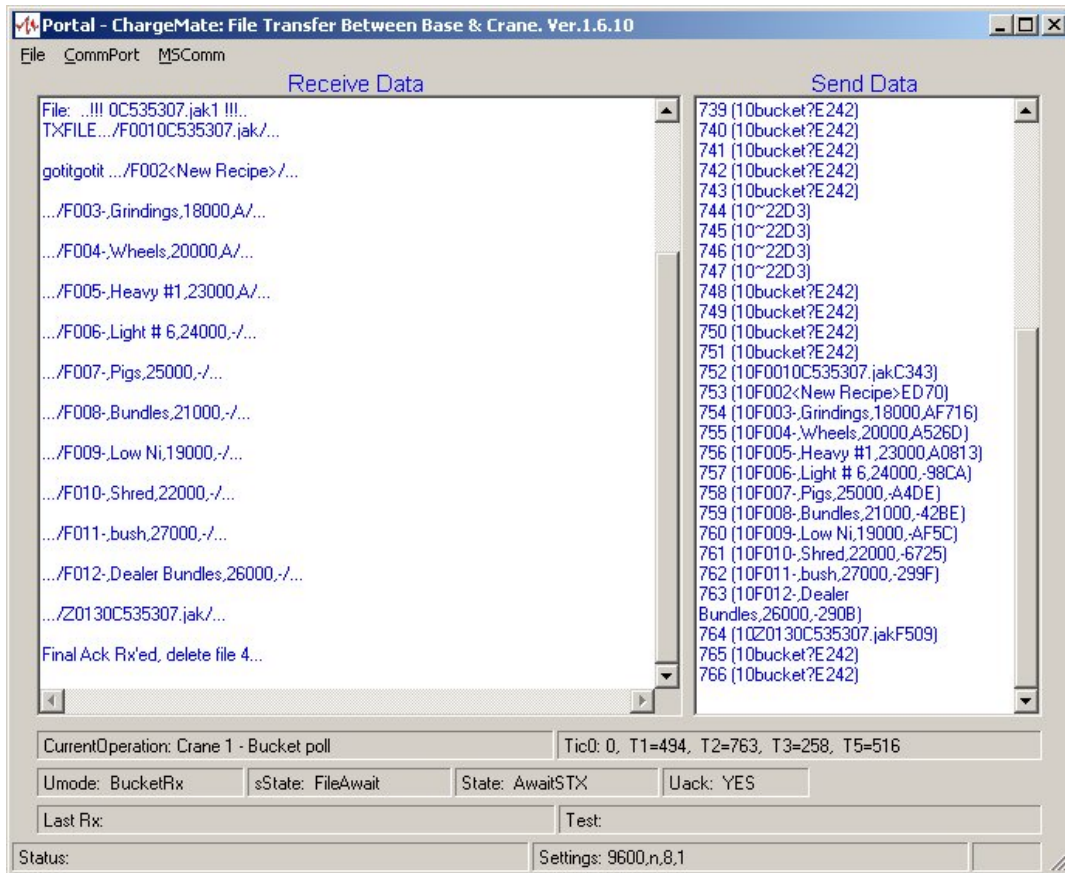


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## 4. ChargeMate Portal Operation

CM Portal is a background program and the operator does not generally access it once the software has been configured for proper operation. The program is started automatically when the computer is booted and it is left running, unattended, in the minimized mode.



The window on the left is used to see that data is being received from the cranes. The window on the right is the data being sent to the crane. It includes both queries to download and upload data. Below the window is a series of diagnostic status lines. The top line indicates the operational mode the program is in and shows a series of timers that indicate the program is running properly. The bottom line right side shows the serial Modem port setup configuration.



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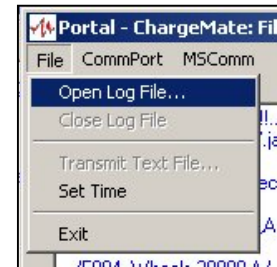
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## 4.1 ChargeMate Portal Configuration

CM Portal must be configured for proper operation. This needs to be done only once as the setup data is recorded and reused each time it is started. There are drop-down boxes in the top left corner of the window and they are labeled: File, CommPort, and MSComm.

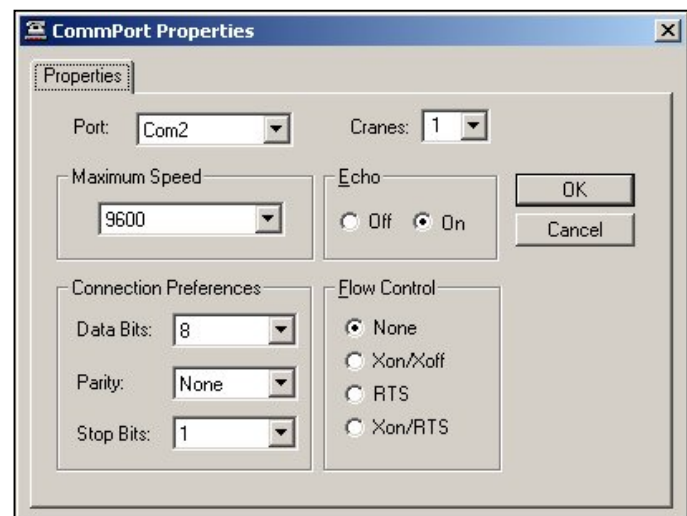
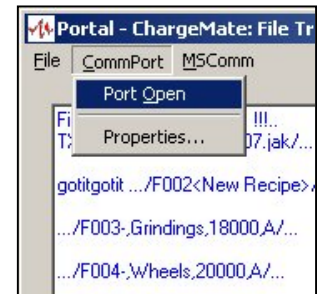
1. **File:** Opens to the following options:

- a. **Open Log File:** This allows the program to make a log of all transactions. This is normally used for testing purposed and is usually not enabled.
- b. **Close Log File:** This option permits the log file to be closed or terminated once it has been opened.
- c. **Transmit Text File:** Is used to send a text file over the serial modem link to the crane computer. It is not recommended that this be used during normal system operation. This is primarily a testing function.
- d. **Set Time:** Diagnostic tool, forces a 30 second delay. Do not use.
- e. **Exit:** Closes the program window and stops the program.



2. **CommPort:** Opens to the following options:

- a. **PortOpen:** Turns ON and OFF the serial port to the Modem. This should always be ON (checked). If the serial setup properties are changed, for any reason, The PortOpen must be turned OFF (unchecked) and then turned ON (checked) to install the new changes.
- b. **Properties:** The serial properties define the communication port set-up so that the program can talk to the Modem.
  - i. **Port:** This is the computer serial Comm channel that is physically connected to the Modem. Generally, the computer will use ports 1 or 2.
  - ii. **Maximum Speed:** This is the Baud Rate setting for talking to the Modem. This should be set to the highest practical speed that the modem can handle.



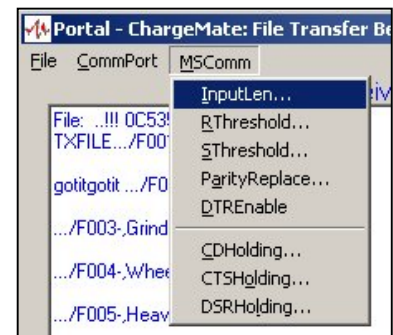
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- iii. **Connection Preference – DataBits:** The data bits value is the number of bits used to send a single character to the Modem. Set this to 8.
- iv. **Connection Preference – Parity:** Parity is used for error detection in sending data over a Modem. This serves no useful purpose in modern systems so it is set to NONE.
- v. **Connection Preference – Stop Bits:** Stop Bits is always set to 1 for all data rates except 110 Baud, then it is set to 2.
- vi. **Flow Control:** This is the hardware control interface to the Modem and this is usually set to NONE. It may be set to some other mode only if the Modem supports the mode and communications conditions warrant the change.
- vii. **Echo:** This is for testing purposes only and should be set to OFF
- viii. **Cranes:** This is set to the number of remote cranes that will be serviced by this system.
- ix. **OK:** Closes the window and saves the settings that were selected.
- x. **Cancel:** aborts all of the setting changes that may have been made while viewing this window.

3. **MSComm:** This section is for testing of the program and should not be changed.

- a. **InputLen** is the minimum length of an input string
- b. **Rthreshold** is the number of characters that must be received before the program notices that anything has arrived.
- c. **Sthreshold** is the number of characters that must be sent before the program will actually send them to the Modem.
- d. **ParityReplace** substitutes another character for the parity delimiter character.
- e. **DTREnable** turns on a signal to the Modem to let it know that the computer is turned ON and operating.
- f. **CDHoldind** monitors the Carrier Detect signal from the Modem.
- g. **CTSHolding** monitors the Clear To Send signal from the Modem.
- h. **DSRholding** monitors the Data Set Ready signal from the Modem.



Finis.



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