



**DS0498**

**Freight Calculation**



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## Problem Definition

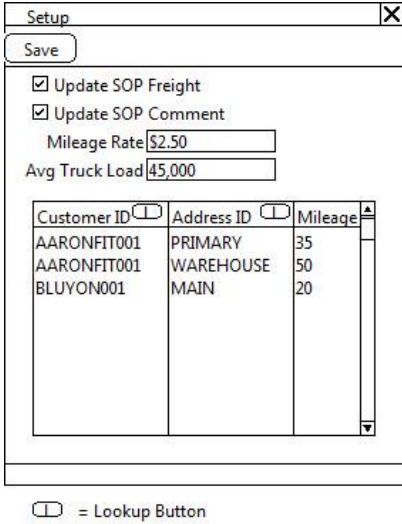
<b><i>Problem Definition</i></b>	<b>CCDA</b>
<p>ACME Co. has 17 locations across the state, and a manufacturing facility which produces electrical poles.</p> <p>When poles are sold, a user manually calculates the estimated Freight Amount and Number of Loads based on knowing:</p> <ul style="list-style-type: none"><li>1) The location of the customer and distance from the manufacturing facility</li><li>2) The average weight of each type of pole</li><li>3) The cost per mile to transport a given weight</li><li>4) The average load capacity of a truck</li></ul> <p>The freight amount is entered into the Sales Transaction Entry "Freight" field, and the Comment is used to store a note with the Number of Loads, Load Rate, and Freight Cost.</p> <p>ACME Co. would like the software to perform this task automatically.</p>	



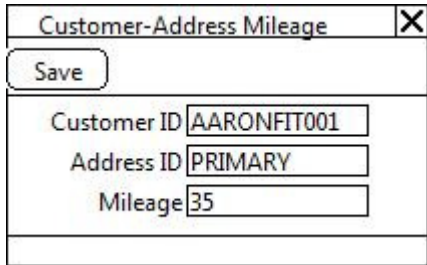
## Solution Overview

<b><i>Solution Overview</i></b>	<b>CCDA</b>
<p>A new Setup window will be provided to store:</p> <ul style="list-style-type: none"><li>• Load capacity of the trucks</li><li>• Mileage Rate</li><li>• Customer-Address Mileage</li></ul> <p>The Customer-Address Mileage will also be maintainable from the Customer Address Maintenance window. This information is maintainable in two locations because they meet different needs. The Setup window provides an easier way to enter this information for many customers more quickly, and also to find/change it for one customer. The Setup window is more of an administrator-level window to maintain this information. The Customer Address Maintenance window would be user-level access, for a user who is viewing the Address and needs to see/edit the Mileage for that address.</p> <p>The existing ACME_FREIGHT table data will be migrated into a new table created by this app. There are a number of unique attributes that tables have when they are created by the GP system, which are required for GP to read from/write to those tables.</p> <p>In Sales Entry, a new Additional Menu option will execute the “Freight Calculation” routine, which will update the Freight Amount and create a note about the calculation in the SOP Comment.</p>	

## Design Features

Setup	CCDA						
<p><b>Navigation: Tools &gt;&gt; Setup &gt;&gt; Sales &gt;&gt; Setup</b></p>  <p>Two options are provided for controlling how the software functions. Although the ACME Co. request is to both update Freight and update the SOP Comment, these two behaviors can be controlled individually so that ACME Co. can shut one or the other off, if needed, in the future.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Update SOP Freight</td> <td>When marked, the system will calculate freight for poles and update the Freight field on Sales Transaction Entry.</td> </tr> <tr> <td>Update SOP Comment</td> <td>When marked, the system will calculate freight and add a note to</td> </tr> </tbody> </table>	Field	Function	Update SOP Freight	When marked, the system will calculate freight for poles and update the Freight field on Sales Transaction Entry.	Update SOP Comment	When marked, the system will calculate freight and add a note to	
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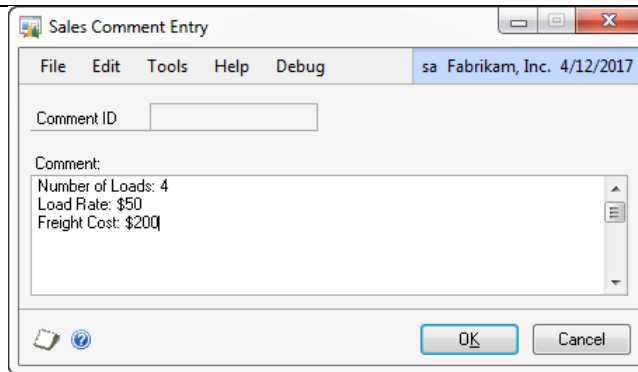
Comment	the SOP Comment with the calculated values for Number of Loads, Load Rate and Freight Cost.	
Mileage Rate	The amount per mile per pound used to calculate the Load Rate.	
Avg Truck Load	Stores the Average Truck Load (currently 45,000 lbs), used to calculate the Number of Loads.	
	<b>SCROLLING WINDOW – Customer-Address Mileage</b>	
	This information can be entered/maintained from this window for all Customer Addresses. Another maintenance window is provided on the Customer Address Maintenance window where Mileage Rate can also be maintained.	
Customer ID	User enters a Customer ID, or selects one from the Lookup.	
Address ID	User enters an Address ID, or selects one from the Lookup. Invalid Customer-Address combinations will result in a warning, and the user will be asked if they want to add the new address.	
Mileage	No decimals. Valid values are 0 to 32,767.	

<b>Customer Address Mileage</b>		<b>CCDA</b>			
<p><b>Navigation:</b> Cards &gt;&gt; Sales &gt;&gt; Addresses. Select a Customer &amp; Address, then Additional &gt;&gt; Address Mileage (or CTRL+ 1).</p> <div data-bbox="512 480 936 743" data-label="Form">  </div>					
<table border="1"> <thead> <tr> <th>Field</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Mileage</td> <td> <p>This is the only editable field. Customer ID and Address ID are display only, showing the selected Customer Address on the Customer Address Maintenance window.</p> <p>The Mileage value entered here updates the same table as the Mileage values which can also be entered in Setup.</p> </td> </tr> </tbody> </table>	Field	Function	Mileage	<p>This is the only editable field. Customer ID and Address ID are display only, showing the selected Customer Address on the Customer Address Maintenance window.</p> <p>The Mileage value entered here updates the same table as the Mileage values which can also be entered in Setup.</p>	
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<b>Pole Freight</b>	<b>CCDA</b>
<p>A new table will be created to store the Pole Freight information. ACME Co. will migrate data from the ACME_FREIGHT table to the new table. Details on the table name and column names will be provided in the documentation when the software is shipped.</p> <p>The new table is strongly recommended, but not required, because it is easier for the software to read from tables created by GP. The presence of DEX_ROW_ID in the ACME Co. table does not make the table usable by GP. Also, should ACME Co. at some point want a user interface to view/edit/maintain this information, having a GP table will be a requirement.</p> <p>The table will include:</p> <ul style="list-style-type: none"> <li>• Item Number</li> <li>• Length</li> <li>• CubicFeet</li> <li>• AvgLoadQty</li> <li>• AvgPoleWt</li> </ul> <p>Product Description and Class are not included because they are in the Item Master.</p> <p>Average Load Weight is not included because it can be calculated from AvgLoadQty * AvgPoleWt.</p> <p>NOTE: the estimate is based on the assumption that the data will be migrated to the new table.</p>	



<b>Sales Transaction Entry</b>	<b>CCDA</b>
<p>An Additional Menu option will be added to execute the Freight Calculation.</p> <p><b>Navigation:</b> from Sales Transaction Entry &gt;&gt; Additional &gt;&gt; Freight Calc (CTRL + F).</p> <p>The Freight Calculation will:</p> <ul style="list-style-type: none"> <li>(1) Calculate the Number of Loads (NL) as:               <ul style="list-style-type: none"> <li>a. <math>(\text{Quantity Ordered} * \text{Pole Weight}) / \text{Avg Truck Load from Setup}</math>. Round this result to 2-decimals. If there is a value in the decimals (i.e. 3.25), round to a whole truckload as follows:                   <ul style="list-style-type: none"> <li>i. If the remainder is 0.25 or less, round down. So 3.25 becomes 3.</li> <li>ii. If the remainder is greater than 0.26, round up. So 3.26 becomes 4.</li> </ul> </li> </ul> </li> <li>(2) Calculate the Load Rate (LR) as:               <ul style="list-style-type: none"> <li>a. <math>\text{Mileage Rate from Setup} * \text{Mileage on the Customer-Address}</math></li> </ul> </li> <li>(3) Calculate Freight Cost (FC) as:               <ul style="list-style-type: none"> <li>a. <math>\text{LR} * \text{NL}</math></li> </ul> </li> </ul> <p>This calculation is performed per-line, for each line that includes a Pole (it is a Pole if the Item Number is in the Pole Freight table). The Total FC is a sum of the FC calculated for each line.</p> <p>If the Update SOP Freight box is marked in Setup, the FC amount will be set in the Freight field on Sales Transaction Entry.</p> <p>If the Update SOP Comment box is marked, the SOP Comment will be populated as shown below:</p>	



If a user manually changes the information in the Comment, it will not have any effect on the Freight Amount on the Sales Transaction. Likewise, changing the Freight Amount will not update the Comment.

If the user re-executes the Freight Calculation routing, it will re-populate the Comment and re-update the Freight fields (depending on Setup). Any changes to the Comment will be overwritten.