Goal: Implement Inventory controls and materials management and kitting systems for replenishment

Action Steps Accountable Timeline Resources Required

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| 1. Identify standardized truck stock lists. This list does not include Field Supplies, which will be replenished via a paper re-order system. In compiling this list consider: 2. Type of truck:   Plumbing  HVAC Service  Plumbing & Service  HVAC   1. 80/20 rule. 20% of the parts of the universe of possible parts represent 80% of actual usage. It’s the 20% of parts we want on the trucks. These will be truck stock items in the flat-rate pricing system. Know the repairs you do most often. 2. Seasonality. For HVAC service trucks, the items carried may change between the heating and cooling seasons. 3. Get input from the technicians and look at historical usage to compile the list of truck stock items. Use a lead technician to do this. Also discuss truck replenishment with all technicians to let them know what is coming and how it will benefit both them and the company. 4. Use generic parts whenever possible. |  |  |  |
| 1. Establish universal and OEM parts for all warehouse stocked items (truck stock and non-truck stock). Establish part numbers in Software for all stocked items.   Utilize supplier relationships to help you link vendor part numbers to Carney Software part numbers.  Also collect vendor parts cost in database. You may want to get a history of part purchases to help in identifying standardized truck stock as well as minimum and reorder stocking levels.  Create a supplier bid list for parts to get the best costs on the stock items you need. Provide each supplier the opportunity to get your parts and materials business by meeting cost and service criteria. For example, you may be willing to pay higher prices from vendors that provide superior service, such as providing daily replenishment or even individual truck replenishment.  Identify primary and secondary vendors for each part. |  |  |  |
| 1. It may be beneficial to establish kit numbers for certain flat rate repairs. Those repairs may have multiple part numbers that make up one kit number. Use the kit to replenish the truck usage. All parts come back that are not used to the warehouse. |  |  |  |
| 1. Identify minimum and maximum levels for each truck stock item. In doing so consider: 2. The anticipated daily usage of the part. Get input from technicians and look at historical usage to set the minimum and maximum levels. 3. The replenishment period, usually one day. 4. Seasonality. |  |  |  |
| 1. Identify Field Supplies needed for each type of truck. Expendable items (i.e. wire nuts) will not be replenished via Software and will use a manual paper system. |  |  |  |

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| 1. Retrofit trucks to the standardized truck stock. In most cased the existing trucks will be over stocked. Put the excess stock back into warehouse inventory or make provisions to return to suppliers. |  |  |  |
| 1. Establish dispatch procedures to get non-truck stock parts out to technician when needed: 2. Parts runner. 3. Rescheduling service call to when part comes in. 4. Allow technician to go to supply house to pick up part. Should this ever be needed, be sure to conform to Purchase Order procedures. |  |  |  |
| 1. Be sure flat-rate system charges extra for non-truck stock parts. This covers the expense to get part to the field. ABC HVAC currently charges $40 for this. |  |  |  |
| 1. Establish and train technicians on truck replenishment procedures. Here are some points to consider: 2. Tech identifies parts used on service calls for the day. This can be done on the back of service ticket or with a requisition form. 3. Tech returns the requisition with daily paperwork. Some companies provide individual cubicles for techs to submit paperwork. 4. Warehouse takes the requisition and pulls parts for each truck. This is done during the day for the next day’s replenishment. Warehouse puts in individual technician cubicle or in individual truck bins. 5. Technician picks up replenishment parts from the previous day when they submit daily paperwork. Technician verifies they received all parts requested and sign for them. |  |  |  |
| 1. Establish after-hours procedures for technicians to gain access to parts when on call. |  |  |  |
| 1. Periodically do truck inventory counts. Recommend once a quarter to begin with. Establish inventory count procedures. This will be much easier when standardized truck bin locations are established. Hold technicians responsible for shrinkage. |  |  |  |
| 1. Compile a kit list for all Cookbook equipment replacement options. This should be the same list used to establish Cookbook material costs.   Once the repairs and parts are identified, a kit number is assigned so that the warehouse replaces based on kits and not based on part numbers used. This minimizes the overall number of part numbers and focuses the tech on easier system of replenishment and paper-flow.  Create an exception form for Comfort Advisors to communicate add-on tasks not covered in the Cookbook price.  Establish staging procedures for warehouse and installation technicians. |  |  |  |
| 1. Compile installation kits for common installations such as 80% furnaces.   The kit contains common parts used in the installation such as venting material, duct connections, etc.  The kit is included in job staging  Technicians identify items used from kit and return kit at the end of job.  Warehouse replenishes kit after it is returned. |  |  |  |
| 1. Create material requisition forms for replacement to requisition materials used on a job. Establish replenishment procedures for field expendables. |  |  |  |
| 1. Organize HVAC parts in warehouse. Establish warehouse bin locations for all warehouse stock items. Input warehouse bin location into Software. |  |  |  |
| 1. Identify minimum and maximum levels for each warehouse stock item. In doing so consider: 2. The anticipated daily usage of the part. 3. The replenishment period. 4. Seasonality. 5. Vendor discounts for stocking promotions. |  |  |  |
| 1. Implement Kanban warehouse replenishment controls. In doing so consider collecting following information to input on part cards: 2. Part description. 3. Part number. 4. Minimum stock quantity 5. Reorder quantity. 6. Primary vendor. 7. Part cost. 8. Bin location.   Insert cards into bins. Count out minimum stocking amount. Place Kanban card between minimum stock quantity and the balance of the stock.  Warehouse uses Kanban card to re-order part from vendor (when last part behind card is pulled).  When parts arrive replace Kanban card. |  |  |  |
| 1. Extend fencing and create a cage for inventory and assign one person the key to the cage. Count the inventory to start. Then count this inventory each quarter. Assign an inventory champion. |  |  |  |
| 1. Set purchase order system to match the parts through requisitions – So one person orders parts for warehouse replenishment. All materials bought now require a purchase order and assignment to a department and job. |  |  |  |
| 1. Link Software to flat-rate system. Can either create price book in Software or can bride to flat-rate database. Think through this in regards to flat-rate repair codes that may use different vendor parts (i.e. – capacitors). See Amy’s notes below. |  |  |  |
| 1. Transition from manual Kanban reorder procedures to Software batch ordering. |  |  |  |
| 1. Work with suppliers to replenish the materials you order daily from Kanban reorders or from Software batch ordering. |  |  |  |
| 1. Establish standardized truck part locations and input into Software system of choice. |  |  |  |
| 1. Train office on: 2. Invoicing procedure in Software to tie parts to service ticket. 3. Procedures within Software on Special Orders, Warranty and Damaged Parts. |  |  |  |
| 1. Train warehouse person to: 2. Transfer items from warehouse to truck. 3. Using the PO system in Software. 4. How to receive parts in Software. |  |  |  |
| 1. Update minimum and maximum stocking levels based on history and history. |  |  |  |

Software inventory control Considerations

**For Example:**

As for the Pricebook, an example of my initial thoughts are as follows:

* There will be very easy ones to create internal part numbers and task numbers that match.  A very basic example would be a replacement of a thermocouple (we only carry 36” thermocouples now).

The thermocouple itself would have an internal part number of say GHTC360000 (Gas Heat ThermoCouple 36 inches the zero’s would be there so that all parts had the same number of digits, in this case those last 4 are unused) and a corresponding task code of GH01 (Gas Heat 01).  I wanted to keep the quantity of repairs in each category less than a hundred – Hopefully far less – Therefore the 01 as it would be the first repair in the gas heat section.

Getting off the subject here, but we may want to use GH0001 just to build flexibility into it for future use???

Anyway, tech calls in GH01, there is only one part in that repair, GHTC360000.  The inventory guy can run a report for all posted invoices for the day and pull the parts as required.  Very simple and efficient – And **NO PAPERWORK REQUIRED**.

* Getting a bit more complicated…run capacitors for example.  There are probably over 20 different ones that a single tech will replace over the summer, some dual caps.  I do not want to have a Pricebook that the techs will carry having 20+ repair codes just for run capacitors.  So let’s say we have a 50+5 dual run cap.  Part number is ERRC500500 (Electrical Repair Run Capacitor 500500).  The last two zeroes are unused and the 5005 shows a 50 + 05.  In the actual physical Pricebook the tech carries around, there will be only one task for ALL run capacitors, ERRC000000.  When the tech calls in his completion, he will be required to insert the numbers so that the code is entered in correctly and the proper inventory adjustment is made.  The dispatcher will confirm – “OK, that was a 50+05 run capacitor you replaced?”  If so, he posts the invoice and we’re good.  Other items would have similar nuances – air filters, ignitors, motors, etc.
* Then, the more complicated ones, more of these would be plumbing oriented.  Under the sink repair has say 6 - ½” copper 90’s in it, 2’ of ½” pipe.  Tech only uses 2 90’s.  Now what?  First of all, I’ve yet to meet a tech than can remember what the hell he did on a call earlier in the day, let alone how many parts he used on it.  Even if he could, the dispatcher is tied up altering all of this stuff in the computer b/c the parts don’t perfectly match the code.  This one has me kind of stumped right now but I don’t want to get carried away with these scenarios until we have the simpler ones solved.

My bottom line is that I want to make this as automated as possible, make it as inclusive as possible, have it tied into the Software Pricebook as much as possible, and build as much flexibility for future changes as possible.  Obviously, this will require a heavier investment in terms of time, but I think it will be worth it in the long run.  My thought is that higher degrees of automation will allow for lower cost support personnel in the future as we grow (to compliment, rather than replace, skilled internal employees).

Obstacles:

Contingency Plans: