Work Order Functionalities*

Work Orders

- Capture, track, maintain and report fleet maintenance and repair activities, events and costs at the individual, group, class, subclass asset levels to include time and materials, in-house and sublet (commercial) repairs, mechanical and accident repairs, deferred work, warranty work, schedule/non-schedule work, etc.
- Work Order Types include: CWO (Customer Work Order – for job site billing), IWO (Internal Work Order – For in-house jobs such as cleaning shop floors, loading/unloading rigging, etc), SWO (Shop Work Order – For repairs and maintenance of equipment).
- Utilize customizable, hierarchical, alpha-numeric identification coding systems (e.g., location codes, employee codes, task codes, priority codes, repair types, repair status, etc).
- Utilize fleet industry-standard task codes (e.g., VMRS, APWA, NAFA, NTEA).
- Unlimited numbers of active and historical W/Os.
- Multiple open W/Os on the same asset, in various phases of work completion.
- Multiple employees to charge/post labor and materials to any one W/O or task.
- Allows W/O assignments and change of assignments at any time.
- Allocate costs to more than one department in any one W/O or task.
- Do job estimates and record Approvals granted.
- Capture, track, maintain and report all Complaint, Cause and Correction events.
- Capture, track, maintain and report all abuse, neglect, and accident events.
- User-defined access rights to manage workflow (e.g., service writer to initiate W/O, mechanic to post labor, storekeeper to post parts, supervisor to close W/O, manager to audit work, etc).
- System-defined required data fields (e.g., meter readings) and user-defined required fields (e.g., driver contact).
- Search W/O by asset, number, date, location, tasks, type, status, employee, etc.
- Alerts at W/O initiation when another open W/O exist for same asset (message window with beep).
- Alerts at W/O initiation and at posting of work within user defined parameters, any PM due, deferred work, planned retirement, potential warranty/come-back, etc. Warnings shall be both audio and visual.
- Cancel entire W/O and retain for audit purposes.
- Modify and/or cancel work requests.
- Enter additional work on existing W/O.
- Convert work request or estimate into W/O and print with instructions, tasks and part requirements.
- View W/O detail for quality control when W/O is completed.
- List predetermined parts and tasks required for a specific repair task/type.
- Edit individual task without the need to complete or cancel the whole W/O.

- Maintain audit trails of any and all W/O records.
- Print W/Os as required.
- Affix notes to each W/O tasks and/or to the entire W/O.
- Use of task time standards (e.g., standard time of 40 minutes on a 4-cyliner sedan oil change).
- Enter data of work completed when system was unavailable, with times based on when work was completed and not on when data was entered.
- Control mechanics and supervisor access to the inventory master to obtain stock status and to order parts not in stock.
- Supervisors issue parts to a W/O and reserve parts.
- Post commercial (sublet) repairs without first initiating a W/O and requiring the completion of the W/O.
- Issue incidental parts (e.g., a bulb) without first initiating a W/O and requiring the completion of the W/O.
- Multiple repair types allowable on W/O (e.g., scheduled oil change and non-scheduled flat tire repair).
- Associate purchase orders/invoices to W/O for non-stock purchases and outside contractor services.
- Assign work to commercial vendors and monitor job performance (e.g., turn-around time).
- Automatically print user-defined mechanic check-lists with W/Os.

Inventory Management - Parts and W/Os

- Issue, return, and requisition parts from storerooms.
- Automatically perform costing parts to each W/Os.
- Query inventory to ensure assigned task has available parts before assigning W/O to mechanic.
- Returns against W/Os and automatically adjust costs as well as usage.
- Add parts against a W/O at storerooms that were not initially part of the W/O.
- Perform stock reservation and allocation against W/O.
- Stage materials and parts at storerooms against pending W/Os and produce part pick lists.
- Prompts user to issue the part(s) to the W/O(s) when parts are received, if needed for an open W/O.
- View open W/Os from storerooms and issue and/or order parts for the W/O, directly from the same screen.
- Define parts that are allowed and not allowed to be issued without a W/O.
- Storerooms can issue and return parts from multiple inventory locations to W/Os.

Work Order Management

Sample equipment information includes: year, make, model, VIN/serial number, engine size, AC, transmission size, tire size(s), fuel types, GVW, department, equipment class, site, monitor code, license number, color, status, replacement status, replacement date, warranties in effect for the equipment plus any attached component(s), PM schedule for equipment plus any attached component(s), and most recently stored meter reading(s).

- Capture PM services, other repairs, sublets and miscellaneous costs/credits on a single W/O; multiple repair codes on a W/O (such as the inclusion of a warranty repair on a PM W/O) and accomplish detailed analysis by repair code.
- Isolates all work of a specific type by a defined period and restrict the analysis to any department and/or class of equipment.
- Allows determination of cause, repair, W/O and vehicle for any defined period on all parts issued.
- Track all commercial or sublet repairs to enable analysis by cause and repair code. Link a repair to an operator/driver/employee so driver abuse and accidents are identified and/or billed back. Display all active warranties and PM due messages for the asset and associated component(s) when the W/O is opened. Provide job estimates that can be converted into active W/Os. Print lists of parts and tasks required for any specific repair code.
- View all W/Os online in real time by status. Real-time review of the direct/indirect labor activities for all logged-on technicians.
- Review online all W/O detail information for quality control when a W/O is closed.
- Search for a W/O by each (or a combination) of the following: [Equipment number, Class of vehicle, W/O number, Technician identification, Date(s), Usage-type, Repair code, Shop, Status of the W/O]
- Report allows: wild card (partial information) searches; add notes and print them separately or with the W/O.
- Add all required repairs to complete the W/O; Alert the user when a repair is covered under a warranty.
- Defer repairs and automatically include them on the next opened W/O for that piece of equipment.
- Provide the ability to assign deferred repairs to a specific technician and/or shop.
- Automatically display a technician specific window listing any deferred repairs upon opening any W/O.
- Alert technicians upon sign-on that assigned repairs are pending.
- Set authorization requirement for closing or reopening a closed/completed W/O and allow user-defined employees to make changes, edits and modifications.
- View summary of all costs associated with each W/O.
- Add user-defined costs, mark-up/margin and description to the W/O.
- Enter and process credits to the W/O.
- List from the W/O window existing parts and tasks lists associated with any repair. Generate Repair Order with or without parts and tasks.

- Customer copy of W/O may include or exclude labor hours and/or notes.
- Notify customer via email when the equipment is ready for pick up.
- Allows a W/O to have a credit balance.
- Store unlimited images associated with the W/O.
- Receive, track and allocate customer inquiries, complaints and work requests via phone, in person, fax, mail, email, or website.
- Track or search for requests based on caller name, date, location reported, time opened, or various other combinations of data.
- Track or search for requests based on caller name, date, location reported, time opened, or any other information.
- W/O can be initiated from the request, if needed, with data from the request populating the order.
- Multiple requests can be linked to an existing W/O.
- Assign priority code to requests both automatically or manually and be able to escalate or reduce priority.
- Automatic and manual generation of correspondence and status of work to customers via email or letter.
- W/O close causes close of associated customer inquiry or service request.
- W/Os can be initiated, tracked, monitored, searched, reported from initiation to completion.
- Query by type, asset, location, status, or any data parameter combination thereof.
- Link images, videos, or documents to a service request and W/O.
- Automatically notify technician when ordered material is available for pick-up.
- User can create new copy of W/O (including history, costs, parts, and tasks), eliminating the need for repetitive data entry.
- User can add information to an existing W/O at any time without affecting the current information.
- Display total cost (personnel and resources) of a W/O, both open and closed, at all times.
- Work tasks can be closed while the W/O open.
- User may complete a group of selected W/Os at one time.
- Comment field in the W/O form allow users to add comments to all scheduled work.
- W/O creation form allows user to create a separate W/O for each asset inventory item or a composite work order containing all asset inventory items.
- W/O Generation form allows user to specify the opened date, required date, and priority as well as include additional comments in the generated.
- Preview and print a summary list of generated scheduled W/Os.
- Create or edit W/O Templates that contain W/O activities, costs, parts, tasks for a particular job type, and tools. The system allows user to select W/O template, if required, when a new W/O is created.
- Copy W/O into another W/O.
- Track estimated vs. actual usage of W/O items.

- Enter data for a transaction type, location, bin number, unit of measure, transfer location, cost per unit, quantity, order number and comments.
- Generate appropriate W/O number for a transaction as required and the total cost of the transaction (number of units multiplied by unit cost) will be calculated.
- Automatically enter the transaction number, transaction date and user ID when a transaction detail line is entered. W/O processing causes parts allocated to open W/Os to be removed from stock on-hand.
- Notifies user when parts inventory falls below pre-determined minimum quantity levels.

- Track work performed for other agencies.
- Track contracted services.
- Service requests tracked separately from W/Os, allowing multiple requests to be tied to a single W/O, records complete history of all maintain activities and accounts for those costs including personnel, materials, equipment and contractors.
- Manages the inventories of said equipment.
- Provide technicians with detailed component information; mechanical, electrical, and instrumentation.
- W/O system identifies inventory (child assets) associate with components (parent assets) and their availability.
- Clocks time labour data collection as follows:
    - Labour transactions entered into the system directly to the W/O as the work occurs.
- Capture and/or bill labour at actual time, or flat rate (hours or dollars):
    - By repair type, and/or by predetermined amount;
    - Allow for manual (user) adjustment of overhead rates;
    - The ability to accommodate multiple employee pay rates;
- Actual or burdened pay rates;
    - Manual entry of actual cost adjustments;
    - Allow / disallow timesheet data to be entered against in-process and/or complete W/Os;
    - Authorized users can adjust time spent on a job (E.g. if employee erroneously coded /failed to record time);
    - Ability to record time that is not spent directly on W/Os (i.e. shop cleaning);
    - Track clock time by task code/vehicle type/work centre/resource;
    - Create running average of clock time for tasks;
    - Establish relationships between maintenance events, vehicle status, W/Os, and work location.
    - Consolidate W/Os for multiple repairs/process across a vehicle; asset-centric as opposed to W/O-centric:
    - Resource assignments based on skill levels tied to schedules tied to W/Os;
    - Audit tracking for all changes.
    - Assign more than one department/trade to a W/O:

  - Assign associated material from multiple departments;
  - Assign costs from multiple departments;
- Perform shift patterning/vacation planning:
  - 24/7 capabilities;
  - Span calendar days;
  - Account for different process/procedures in different locations/branches;
  - Schedule resources using HR integration.
  - Validate mechanics have required permits for certain work.
  - Use operation codes to trigger permit process:
- Establish and maintain training database:
  - Track mechanic certifications / qualifications / skills / specialties;
  - Provide notifications of certification renewals.
  - Electronically sign-out a unit when a vehicle leaves the shop.
  - Create a maintenance event that releases the vehicle back into service when a part is backordered:
- Without incurring any downtime:
  - Track backorders from location to location
  - Track and record when a received part is installed.
  - Set status of W/O such as: Waiting for Labour; Waiting for Part;, etc.
  - Establish client specific triggers on W/O process: Specific clients have specific requirements around paperwork, invoicing, repair tracking.
- Vehicle gets assigned when it comes in for repair and do not limit where they can be repaired;
- Assign W/Os to mechanics electronically.
- Manage tooling as follows:
  - Attach specific tools to specific jobs;
  - Schedule and track how tools are deployed;
  - Track tool calibration;
  - Track hoist maintenance.
- The approval process gathers required approvals at the W/O and job levels:
  - User can set a maximum allowable repair cost per asset.
- Track road calls:
  - Track the dispatch and management of resources, number of requests, type of requests, status of requests.
- Use VMRS codes to track repairs and failure diagnosis.
- Track and report trends by vehicle class and unit.
- The ability to track all costs (oil, car washes, washer fluids):
  - Costs/expense are captured and maintained in vehicle history.
  - Compares cost spent on maintaining the fleet versus the rates charged.
- The Incident Investigation Process is initiated when Department is notified of a collision involving a vehicle/equipment that it maintains. The process tracks the reporting of the incident,

the repair (or not) of the vehicle/equipment, and the insurance claims reporting and claim recovery process.

  - Supports automated incident notifications. Allow notifications that were not reported as collisions to be changed to show they were collisions and vice versa;
  - Supports entry of damage estimates (including parts, labour, overhead, other associated collision costs i.e. towing, etc) and tracking of completion of the repair with actual costs (including external vendor costs-system should provide a reminder to include these external vendor costs) for collisions;
  - Supports automated submission of the estimate information from collisions for insurance recovery and fleet safety investigation;
  - Track recovered amounts and purchase orders to external vendors from incidents;
  - Report incident, estimates, and recovered amounts to support reconciliation of estimates and actuals, claims and budgeting;
  - Tracks of status: vehicle and W/O status;
  - Filter out vehicles that are in service but have an outstanding WO for an old incident.
- Track location of vehicle.
  - Ability to draw information from vehicles to drive the preventative maintenance;
  - Capture multi-tiered resource time requirements.

Work Order Planning

- Pre-Delivery Management
  - Inspection tracking and recording

Model Work Orders:

- Model Work Tasks - standard tasks for a job
- Standard List of PM schedules for given Asset Model
- Work standards - Setting Standard Hours
- Model Work Activities: standard activities for a job
- Model Parts and/or materials List: standard parts for a job / unit
- Models linked to Vehicle/Equipment/Asset Models
- Copy a past work W/O and modify for current order

Work Requests:

Typical Data Elements in Work Request includes: Request number, Date of request, Time of request, Requesting party's name, Requesting party's address, Requesting party's telephone number, Narrative description of request, Division assigned to respond, Date to respond by, Narrative description of response, Location of work to be done, Personnel performing work, Supervisor in charge of work, Completion date, Completion time, Comments on completion of work.

- Manual Submission: Record requested work
- Repair Request - Off-line load of requests (from PDA, etc)
- Batch/Bulk creation of W/Os for a common group of (new) assets
- Service Requests - Off-line load based on vehicle On-board computer & fault codes
    - Part Assignment/Selection
        - Stock
        - Stock PO Request - Trigger PO through Inventory Control
        - Non-Stock Order - Creation of PO / link PO to W/O
    - Accident/Incident Link cross reference to accident system
    - Multiple W/O Types
        - Accounting - W/O Type determines which accounts are hit
        - Costing - Flag work as warranty work and thus manage charge-back processing
        - Costing - Some external W/Os will not trigger a direct cost (part of general maintenance contract) yet need to record the service

Warranty:

- Component Tracking: Separate terms for warranties for each component
- Pre-expiration PM: what's coming due soon
- Recall Notice lookup: which assets have recalled component
- Repeat Flaw Query: Trend reporting on potential flawed product based on repeated repair

Work Scheduling:

- Roster - List of staff availability and skills to assign to the work
- Automated Work Scheduling Development
    - Labour Constraint Technique
    - Production Constraint Technique
    - Asset Constraints
    - Parts Availability
- Preventative Maintenance
    - interval set by vehicle/equipment
    - interval hierarchy/priority
    - interval rules
        - some PMs cannot be accelerated
        - some can be consolidated with other PMs
        - set planning notice tolerances
    - generate Work Request for review and approval
    - Flexible PM schedule
- Interval Triggers
    - calendar every x days for service kms
    - every x kms for service hours

  - every x hours of use for service
  - seasonal: Example: Every fall (snow tires)
- Internal/External work
  - Assign W/O to outside provider
  - External provider list by work type / PM
- Warranty: Warning/message that component is under warranty
- Quality Control Warning: User defined review period to flag repairs on component that recently had related repair (provides reporting/warning on parts, component and repair quality)
- Multiple yard / garage assignment
  - unique garage to vehicle/asset assignment
  - issue parts from assigned garage
- Attachment-to-Equipment W/O Management
  - W/O planned for Attachment triggers main unit scheduled.
    Example: A plow has scheduled W/O; the plow is attached to truck; hence truck notified to come in.

Scheduling-Planning workbench

- Links work request symptoms to potential repair codes
- Links this analysis to asset type
- Prioritization: Predefine repair priorities and leverage those during work assignment scheduling
- Consolidation:
  - Consolidate a number of W/Os and work requests onto one W/O
  - Consolidate pending W/Os for a main unit and its attachments
  - Block W/O consolidation for specific Asset or Asset type
- Backordered
  - flag a W/O as incomplete; flags such as awaiting part + part has arrived.
  - Inventory Check: Availability (in stock); On order
  - Substitution: Possible part substitutions and availability
- Assignment Notification
  - Email of W/O document(s)
    - to dispatch supervisor (for asset delivery planning)
    - to maintenance supervisor (for service staff planning)
    - to outside vendor for service planning
    - Send out to multiple contacts
  - Fax of W/O document(s)
    - To outside vendor for service planning
    - Send out to multiple contacts
- Check List Attachment
  - Inspection Check Sheet attached to WO
  - Electronic Check Sheet completion recording
  - Scan/Attach results to Asset

- **Work Planning Template**: Example of fields use in the template includes:
  - Template Code
  - Description
  - Tasks List
  - Activities List
  - Start Dates - Expected and Actual separately
  - Materials Costs - Expected and Actual separately
  - Assigned Staff
  - Labor Hrs - Expected and Actual separately
  - SubContract Costs - Expected and Actual separately
  - Escalation Staff
  - End Date - Expected and Actual separately
  - Asset Code
- **Some Assets Project Management Data:**
  - Project Code
  - Description
  - Fund Data: Sources, Amount, Balance
  - G/L Account Link: Required for Fund Accounting; Causes transactions to be transferred into general ledger accounts internally/externally
  - Number of Phases: Dates, Count, Budget/Actual, Task-Count, etc
  - Tasks List: Identified by Phase, Staff, Start/End/Review Dates
  - Activities List: Identified by Phase, Staff, Start/End/Review Dates
  - Asset Code
  - Template Code
  - Zone/Region ID: Identifies each community or region or zone
  - Asset Tag Number: Unique link to Asset Accounting
  - Unit Number: Visible and transferable (but unique if active)
  - Maintenance Budget: Preventative and Reactive separately
  - Repair Budget: Third Party (outside) Repair Costs
  - Labor Budget: Time and cost separately
  - Material Budget: Time and cost separately
  - Maintenance Actual: Preventative and Reactive separately
  - Repair Actual: Third Party (outside) Repair Costs
  - Labor Actual: Time and cost separately
  - Material Actual: Time and cost separately
  - Budget History: Maintains past years records
  - Interface: MS Project Data Transfer: Maintenance, Repair, Labor and Materials

Outside Service Providers

- Assign W/O to outside service provider
- User can "draw down" on existing Blanket PO / Contract

- Ship Zone-owned parts to service provider
- Direct ship Zone-ordered parts to service provider
- Reassign to another vendor (without cancel/recreate)
- Reassign (internal vs. outside) (without cancel/recreate)

Work Order Execution

- Manage Roster of:
  - Technician / Staff list
  - -Staff Skills inventory
  - -Supervisor / Foreman
- Skills/Certification:
  - Staff - Certification
  - Certification Expiry Notice
  - Re-certification Tracking
  - Certification Document Scan filing/link
- Work Completion Reporting:
  - Time / Task Reporting
  - Standard Rates: Rates set by staff certification
  - Exception Rates: Premium set for specified tasks or W/O Types
  - Overtime rates: Indicate which work attracts overtime premium
  - Indirect Hours: Indicate indirect hours during time entry (not associated with a work-order)
- Task/Repair Codes:
  - User Defined
  - Pre-populated with Industry Codes
- Parts Issue/Consumption:
  - standard use/costs
  - Lot control recording
  - Serial Number assignment recording
- Ability to add other tasks and parts
  - By mechanic/technician based on work done
  - Restricted to only supervisor
- Partial Completion
  - Set portion of work as deferred/pending for later completion
  - Mechanic/technician can add comments to W/O
- Bar Code Reporting:
  - Items
  - Tasks
  - Personnel

  - Status/Completed
- Work-order close reconciliation:
  - Multiple W/O Statuses
  - Tasks Completed
  - Electronic/interfaced external vendor status reporting
  - Electronic/interfaced external vendor invoicing received
  - External vendor invoicing approved
  - Auto Close based on invoice close & time/material recording

Work Order Processing

- Assign user-defined repair reasons for each repair order and task; Identify repair work as warranty or non-warranty. Assign pending complaints to a W/O or defer them. Print PM checklist items on PM W/Os; Enter comments. View messages that identify whether the unit is late, due, or soon due for PM or inspection; is under warranty; is experiencing a potential comeback; is ready for disposition; or has other open W/Os. Post unlimited numbers of labor, parts, and commercial charges. Track work delays due to insufficient resources such as bays, labor, parts, etc. Close work orders online, and print a fully costed report. Create estimate W/Os and post estimated labor, parts, and commercial charges to them without generating any actual charges.

Approval: Work Order to Purchase Order Management

- Track information about service work (activities) performed by the Service Centres. Manage all information related to processing service requests, service orders, service centre invoices, and material purchases.

User-defined service order Approval limits.

- Capture scheduled start and end dates, versus start and end dates of work actually performed (calculating the number days out of service).
- Estimate costs based on rates in the service centre data.
- Update the Accident Module if data is updated in the Approval / Work Orders.
- Updates and tracks status of Approvals, including Created, Approved, Cancelled, Invoiced.
- Electronic workflow for Approvals.
- Generates automated service order and applies the activity based costing.

  Example: Automatic generation of a service order based on odometer readings and the designated service work as determined by user-defined parameters such as distance: [5,000km = $200; 25,000km = $500; 80,000km = $750; 150,000km = $900]
- Auto-generates unique **Approval** for Work Order to purchase order numbers.
- Generate Approval for Work Orders by printable-email.
- Associate an Approval for Purchase Order to vehicle history as soon as the Approval to Purchase Order is created.

Outside Service:

- Record outside service time and material costs
- Support multiple vendors on single work-order
- Reconcile multiple W/Os to a single service invoice
- Online - Invoice approval for payment
- Quality tracking of outside service
- Vendor volume reporting (transactions & dollar volumes)

In-Sourcing

- Supports branch / department from another branch or department (ie a lower tier municipality department)
- Invoice a third party for service we complete on their behalf
- Maintains third party items within system for jobs and billing but not in our Fleet Pool

Reports and Outputs - Sample:

- Generate report of work done by [W/O number, Task number]; All requests received in a certain user-specified date range; Classification of request; Work done in a user-specified date range [Of all types, Of a specified type]; Print individual W/Os; Print list of outstanding W/Os [Sorted by priority and class, Sorted by status]

* **Some versions and/or modules of the HemSys application may not have all of the functionalities stated above.**