
User's Guide for the

ADRES-Pro

Installation and Maintenance Tracking User Guide for the

ADRES *Automated Demand Response
and Energy Savings Solution*

Installation and Maintenance Generator Units

Version 1.2



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This is a draft of the new maintenance tracking ADRESpro User Guide additions in the Service Log tab. This guide is a preliminary issue for comments and review only. A more detailed and accurate final User Guide will be issued once the Service Log maintenance tracking software functionality is finalized and approved.

The Service Log maintenance tracking functionality will support all ADRES control module types, (i.e. Generator, HVAC, Lighting, etc.). Each type will be unique in its reporting.

The maintenance tracking is defined in the Service Log tab. The original Service tab has been relabeled as Notes Tab. The Notes tab will provide a method of communication between the various Service Log contractors and End Clients.

The Service Log appears in the bottom tab panel once a given ADRES controller is selected from the Buildings / Units tree and is shown below:

Each ticket is assigned a unique Service Ticket Number. No ticket number is the same. At the moment it is an auto-generator number. If desired, instead of just a number, we can use an alphanumeric Ticket Number, entered by the contractor, for example matching up with the corresponding invoice.

The screenshot displays the ADRESpro Service Log interface. At the top, there are two tabs: 'ADRESpro Service Log Tab' and 'ADRESpro Service Notes Tab'. The main panel shows 'Unit Details' for 'APM802 - Office Bench', including a 'START' and 'STOP' button, a 'Master Switch' set to 'AUTO', and various sensor readings like Voltage L-L Avg (481), Current Avg (51), Frequency (60.1), kW Total (41), KWAR Total (0), PF Total (0.90), Battery Volts (24.5), Engine RPM (1800), Oil Pressure (14.5), Oil Temperature (87.8), Ambient Temp (77.0), Coolant Temp (86.0), Fuel Temp (84.2), Fuel Pressure (14.6), and Run-Hours (0). A 'GET READINGS' button is also present. Below this is a 'System Status' section with radio buttons for 'System Ready', 'Common Warning', 'Gen Running', and 'Common Fault'. A 'Unit Description' box provides details like 'Generator Type: KOHLER KD2500', 'Controller Type: APM802', 'Serial Number: 1234', 'Fuel Type: Diesel', 'Bldg Number: Shop #2', and 'Address: 5091 Niagara Ave, SAN DIEGO, CA 92107'. At the bottom, the 'Alarms/Service' section features a table with columns for 'Edit', 'Service Ticket #', 'Type', 'Status', 'Assigned To', 'Other Recipients', 'Date Opened', 'Date Completed', 'Service Report', and 'Photos'. A single row is visible with '1' in the 'Service Ticket #' column, 'Preventive Maintenance' in 'Type', 'Opened' in 'Status', and 'Demo User' in 'Assigned To'. The 'Date Opened' is '11/06/18'. Callout boxes provide instructions: 'Select the Add Ticket button to create a new Service ticket.' (pointing to the 'Add Ticket' button), 'Check the box to select an existing ticket to view or edit.' (pointing to the '1' in the 'Service Ticket #' column), 'Auto-generated service ticket number' (pointing to the '1'), 'Select events will be presented in the grid with most recent at top.' (pointing to the table), 'Select the Service Report View Button to create a formatted Service Report that can be downloaded and printed.' (pointing to the 'Service Report' column), and 'Select the Photos View button to view the before and after photographs of the Service event. The photos can be downloaded, saved and printed.' (pointing to the 'Photos' column).

ADD TICKET TAB

If the Add Ticket button is selected and pressed by the User, the following pop-up menu will be presented. The ticket type is a pull down menu to allow the User to select either ADRES Install, Preventive Maintenance, or an Unscheduled Maintenance event.

The new Service Ticket can be initiated by selecting Ticket Type and assigning a User. They are described in the Yellow text below.

The Maintenance Checklist, Engine / Generator Performance, Parts Replaced, and Photo Upload tabs are described in following pages.

The screenshot shows a web application window titled "Preventive Maintenance" with several tabs: "Ticket Info", "Maintenance Checklist", "Engine/Generator Performance", "Parts Replaced", and "Photo Upload". The "Ticket Info" tab is active, displaying a form for creating a new ticket. The form includes the following fields and controls:

- Ticket Type*:** A dropdown menu with "Select One" selected. Callout: "Select from ADRES Install, Preventive, or Unscheduled Maintenance ticket type."
- Description:** A text input field. Callout: "Enter Custom Description for Service Ticket."
- Status:** A dropdown menu with "Opened" selected. Callout: "Select from either Open or Close status of the ticket."
- Creator:** A dropdown menu. Callout: "Creator will be automatically filled out with the User creating the ticket."
- Assigned To:** A dropdown menu with "Select One" selected. Callout: "Select the User that will be assigned the Service Ticket to perform."
- Date Opened:** A date picker showing "11/30/2018". Callout: "The Service Ticket Open date can be selected from the pull down calendar."
- Date Completed:** A date picker. Callout: "Select the Date the Service ticket was Closed using the pull down calendar."
- Other Recipients (Separated by a comma):** A text input field. Callout: "Enter email addresses of other Users or Recipients to communicate the Service ticket and performance."

At the bottom of the form are two buttons: "Update" (green) and "Cancel" (red). Callouts for these buttons are:

- "Update": "To create and save the ticket or any changes press update or cancel button to exit without saving."
- "Cancel": "To create and save the ticket or any changes press update or cancel button to exit without saving."

MAINTENANCE CHECKLIST TAB

After creating a new ticket as either a preventive or unscheduled event, the technician or mechanic performing the service should select the Maintenance Checklist tab for the Ticket being executed. A pop-up menu will be displayed to allow the technician to report the work performed and also identify specific deficiencies found during the maintenance event that will require a follow-up visit or new Service ticket created. The Maintenance checklist allows to technician to simply select by check box the specific additional work required to fix or repair noted deficiencies.

The Maintenance checklist should be used by the technician as a checklist to ensure all systems are reviewed for satisfactory condition.

The Maintenance Checklist is shown on the following pages. Note, not all maintenance items are shown in this User Guide but are included in the checklist as viewable with a navigation bar on the right side of the checklist in the software.

The screenshot shows the 'Preventative Maintenance' window with the 'Maintenance Checklist' tab selected. The interface includes a navigation bar at the top with tabs for 'Ticket Info', 'Maintenance Checklist', 'Engine/Generator Performance', 'Parts Replaced', and 'Photo Upload'. The main area is titled 'Checklist Questions' and is divided into two columns. The left column lists various systems and components, with 'COOLING SYSTEM' selected. The right column lists specific items with checkboxes and 'Unsatisfactory' labels. Some items are checked, indicating they are unsatisfactory. At the bottom, there is an 'Update' button (green) and a 'Cancel' button (red). A scroll bar is visible on the right side of the checklist items.

ADRESpro Maintenance Checklist

Checklist is displayed by individual systems as shown.

The Other box allows the technician to add an issue not listed.

Technician should select only those items which need additional attention.

Once the Maintenance Checklist is completed press the Update button to save entry values or cancel button to exit without saving.

Use the scroll bar to view the entire checklist.

Additional Generator Maintenance Checklists for referenced accessed with Scroll Bar.

Preventive Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

D.C. ELECTRICAL SYSTEM	1	BATTERY(S) ELECTROLYTE LEVEL/SPECIFIC GRAVITY	<input type="checkbox"/> Unsatisfactory
	2	BATTERY CONNECTIONS/CABLES, CLEAN & TIGHT	<input type="checkbox"/> Unsatisfactory
	3	SHUT DOWN MECHANISMS	<input type="checkbox"/> Unsatisfactory
	4	ELECTRIC STARTER/ALTERNATOR	<input type="checkbox"/> Unsatisfactory
	5	ELECTRICAL SYSTEM, ACCESSORIES & COMPONENTS	<input type="checkbox"/> Unsatisfactory
	6	DRIVE BELTS	<input type="checkbox"/> Unsatisfactory
	7	OTHER	<input type="checkbox"/> Unsatisfactory
A/C ELECTRICAL SYSTEM	1	A/C WIRING	<input type="checkbox"/> Unsatisfactory
	2	BATTERY CHARGER	<input type="checkbox"/> Unsatisfactory

Enter Other Item

Update Cancel

Preventive Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

A/C ELECTRICAL SYSTEM	1	A/C WIRING	<input type="checkbox"/> Unsatisfactory
	2	BATTERY CHARGER	<input type="checkbox"/> Unsatisfactory
	3	CONTROL PANEL/SWITCH GEAR	<input type="checkbox"/> Unsatisfactory
	4	A/C GENERATOR VOLTAGE	<input type="checkbox"/> Unsatisfactory
	5	A/C GENERATOR FREQUENCY	<input type="checkbox"/> Unsatisfactory
	6	ELECTRICAL SYSTEM ACCESSORIES & COMPONENTS	<input type="checkbox"/> Unsatisfactory
	7	OTHER	<input type="checkbox"/> Unsatisfactory
AIR INDUCTION & EXHAUST SYSTEM	1	AIR CLEANER UNITS/DRY & OIL BATH	<input type="checkbox"/> Unsatisfactory
	2	AIR INDUCTION PIPING & CONNECTIONS	<input type="checkbox"/> Unsatisfactory
	3	TURBOCHARGER/BLOWER	<input type="checkbox"/> Unsatisfactory

Enter Other Item

Update Cancel

Preventive Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

AIR INDUCTION & EXHAUST SYSTEM	1	AIR CLEANER UNITS/DRY & OIL BATH	<input type="checkbox"/> Unsatisfactory
	2	AIR INDUCTION PIPING & CONNECTIONS	<input type="checkbox"/> Unsatisfactory
	3	TURBOCHARGER/BLOWER	<input checked="" type="checkbox"/> Unsatisfactory
	4	EXHAUST MANIFOLD/PIPING/CONNECTIONS	<input type="checkbox"/> Unsatisfactory
	5	COLD ENGINE HEATED AIR INDUCTION SYSTEM	<input type="checkbox"/> Unsatisfactory
POWER UNIT	6	OTHER	<input type="checkbox"/> Unsatisfactory
	1	GENERATOR FRAMEWORK/HOUSING/CASING/STRUCTURE	<input type="checkbox"/> Unsatisfactory
	2	CLUTCH ASSEMBLY	<input type="checkbox"/> Unsatisfactory
	3	COUPLING(S)	<input type="checkbox"/> Unsatisfactory
	4	VIBRATION MOUNTS	<input type="checkbox"/> Unsatisfactory

Enter Other Item

Update Cancel

Preventative Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

POWER UNIT	1	GENERATOR FRAMEWORK/HOUSING/CASING/STRUCTURE	<input type="checkbox"/> Unsatisfactory
	2	CLUTCH ASSEMBLY	<input type="checkbox"/> Unsatisfactory
	3	COUPLING(S)	<input type="checkbox"/> Unsatisfactory
	4	VIBRATION MOUNTS	<input type="checkbox"/> Unsatisfactory
	5	OTHER	<input type="checkbox"/> Unsatisfactory
LUBRICATION SYSTEM	1	ENGINE LEVEL OIL	<input type="checkbox"/> Unsatisfactory
	2	ENGINE OIL CHANGE	<input type="checkbox"/> Unsatisfactory
	3	ENGINE OIL FILTER CHANGE	<input type="checkbox"/> Unsatisfactory
	4	OIL PUMP PRESSURE	<input type="checkbox"/> Unsatisfactory
	5	CRANK CASE BREATHER	<input type="checkbox"/> Unsatisfactory

Enter Other Item

Update Cancel

Preventative Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

LUBRICATION SYSTEM	1	ENGINE LEVEL OIL	<input type="checkbox"/> Unsatisfactory
	2	ENGINE OIL CHANGE	<input type="checkbox"/> Unsatisfactory
	3	ENGINE OIL FILTER CHANGE	<input type="checkbox"/> Unsatisfactory
	4	OIL PUMP PRESSURE	<input type="checkbox"/> Unsatisfactory
	5	CRANK CASE BREATHER	<input type="checkbox"/> Unsatisfactory
	6	OIL LEAKS (HOSES, CONNECTIONS, SEALS)	<input type="checkbox"/> Unsatisfactory
	7	GENERATOR BEARINGS	<input type="checkbox"/> Unsatisfactory
	8	ALL GREASE FITTINGS	<input type="checkbox"/> Unsatisfactory
	9	ACCESSORIES & COMPONENTS	<input type="checkbox"/> Unsatisfactory
	10	OTHER	<input type="checkbox"/> Unsatisfactory

Update Cancel

Preventative Maintenance

Ticket Info Maintenance Checklist Engine/Generator Performance Parts Replaced Photo Upload

Checklist Questions

FUEL SYSTEM	1	FUEL TANK/DAY TANK - PRODUCT LEVEL	<input type="checkbox"/> Unsatisfactory
	2	FUEL FILTERS - PRIMARY/SECONDARY	<input checked="" type="checkbox"/> Unsatisfactory
	3	FUEL SYSTEM COMPONENTS/HOSES/PIPING/CONNECTIONS	<input type="checkbox"/> Unsatisfactory
	4	GAUGES & SAFETY MECHANISM	<input type="checkbox"/> Unsatisfactory
	5	CONDENSATION/WATER IN FUEL	<input type="checkbox"/> Unsatisfactory
OPERATION	6	OTHER	<input type="checkbox"/> Unsatisfactory
	1	START & RUN ENGINE	<input type="checkbox"/> Unsatisfactory
	2	CHECK ALL GAUGES & LIGHTS	<input type="checkbox"/> Unsatisfactory
	3	LISTEN FOR ENGINE SMOOTHNESS, NOISES, ODDITIES	<input type="checkbox"/> Unsatisfactory

Enter Other Item

Update Cancel

Checklist Questions

	4 GAUGES & SAFETY MECHANISM	<input type="checkbox"/> Unsatisfactory
	5 CONDENSATION/WATER IN FUEL	<input type="checkbox"/> Unsatisfactory
	6 OTHER	<input type="checkbox"/> Unsatisfactory
OPERATION	1 START & RUN ENGINE	<input type="checkbox"/> Unsatisfactory
	2 CHECK ALL GAUGES & LIGHTS	<input type="checkbox"/> Unsatisfactory
	3 LISTEN FOR ENGINE SMOOTHNESS, NOISES, ODDITIES	<input type="checkbox"/> Unsatisfactory
	4 OTHER	<input type="checkbox"/> Unsatisfactory
ADDITIONAL WORK REQUIRED	1 ADDITIONAL WORK REQUIRED	<input type="checkbox"/> Unsatisfactory
	2 COMMENT	<input type="radio"/> Yes <input checked="" type="radio"/> No

Enter Other Item

Enter Other Item

|

Update Cancel

ENGINE GENERATOR PERFORMANCE TAB

The Engine Generator Performance Tab either automatically records the performance data reported to the ADRES controller if the Engine / Generator controls are capable through the communication link or if the Engine / Generator does not support communication, then the Technician must enter these values manually recorded at the time the Engine / Generator was run tested to confirm maintenance or repairs performed.

All Engine / Generator performance data will be recorded and displayed in the preformatted report that is created through the ADRESpro. The Engine / Generator manual entry data form is shown below:

The screenshot shows the 'Preventative Maintenance' window with the 'Engine/Generator Performance' tab selected. The form contains several sections with callout boxes:

- Performance test Day, Date, Time select from drop down Calendar.** Points to the 'Month' dropdown menu.
- Engine Generator Performance Tab.** Points to the tab header.
- Manual performance data entry boxes.** Points to the grid of input fields for various performance metrics.
- Engine hour meter start hours, end hours and run time. Run time automatically calculated.** Points to the 'Start', 'End', and 'Run Time' fields in the Hour Meter section.
- Generator start performance time. Time entered is seconds with the beginning of the engine start until the generator is at frequency and ready to assume load.** Points to the 'Time Until Gen Start' dropdown.
- Generator and Transfer Switch performance time. Time entered is the total time in seconds at the beginning of the engine start until load is on the Generator through the first transfer switch.** Points to the 'Time Until Transfer Switch Pickup' dropdown.

The form fields include:

- Month: SELECT
- Coolant Temp: [Input Field]
- Battery Volts: [Input Field]
- Gen Volts: [Input Field]
- Gen Amps: [Input Field]
- Fuel Level: [Input Field]
- EGT: [Input Field]
- Oil Pressure: [Input Field]
- Oil Level: [Input Field]
- Hour Meter: Start: 10, End: 30, Run Time: [Input Field]
- Transfer Time: Time Until Gen Start: [Input Field], Time Until Transfer Switch Pickup: [Input Field]
- Switch Transfer Order: LS: [Input Field], CR: [Input Field], EQ: [Input Field]

The Engine Performance page entry values is continued on the following page.

Manual performance data entry boxes . All entries will be in XXX.X format supporting one decimal place.

Resulting Run Time is automatically calculated and saved as Maintenance Run Time. Emergency Run Time is calculated between End Time from last Maintenance and Start Time of next Maintenance.

The screenshot shows a software window titled "Preventative Maintenance" with a close button in the top right corner. The form is organized into several sections:

- Performance Data:** A grid of six yellow input boxes for "Gen Volts:", "Gen Amps:", "Fuel Level:", "EGT:", "Oil Pressure:", and "Oil Level:". A callout points to the "Gen Volts:" box.
- Hour Meter:** Three yellow input boxes for "Start:", "End:", and "Run Time:". The "Start:" box contains the value "10" and the "End:" box contains "30". A callout points to the "Run Time:" box.
- Transfer Time:** Two yellow input boxes with dropdown arrows for "Time Until Gen Start:" and "Time Until Transfer Switch Pickup:".
- Switch Transfer Order:** Three yellow input boxes for "LS:", "CR:", and "EQ:". Callouts point to each of these boxes.
- Buttons:** At the bottom left, there are two buttons: a green "Update" button and a red "Cancel" button. A callout points to the "Update" button.

Once the Engine Generator Performance tab is completed, press the Update button to save entry values or cancel button to exit without saving.

LS Transfer Switch performance time. Time entered is the total time in seconds at the beginning of the engine start until load is on the Generator through the LS transfer switch.

CR Transfer Switch performance time. Time entered is the total time in seconds at the beginning of the engine start until load is on the Generator through the CR transfer switch.

EQ Transfer Switch performance time. Time entered is the total time in seconds at the beginning of the engine start until load is on the Generator through the EQ transfer switch.

PARTS REQUIRED TAB

The Parts Required Tab provides the technician the ability to record all parts and supplies by Name, Part Number, Quantity and Vendor installed during the maintenance event. The Parts list allows previously created parts to be selected for new Service Tickets. This allows the technician to select parts created prior to save time and minimize errors.

The ADRESpro software provides an ability to identify all parts and supplies replaced during the maintenance event.

The screenshot shows the 'Preventative Maintenance' window with the 'Parts Replaced' tab selected. The interface includes an 'Add Part Replaced' form with fields for Description, Quantity, Manufacturer, and Part Number, along with an '+ ADD' button. Below the form is a table with columns for #, Description, Quantity, Manufacturer, and Part Number. The table contains one entry: # 1, Description oil filter, Quantity 1, Manufacturer blah, and Part Number 1234. There are 'Update' and 'Cancel' buttons below the table, and a trash icon in the right margin. Callout boxes provide instructions for each element.

Select a previously used part or add a new part number.

Select or enter the description of the part or consumable.

Enter the quantity of the same part installed or replaced.

Enter or select the Manufacturer of the part or consumable.

To save the part, use the Update button, to cancel use the Cancel button.

Allow time for the data to save. The page will refresh automatically.

To delete a part number saved, use the Trash icon.

Added or selected parts are shown in the grid below the add entry boxes.

To edit a part from the grid, select the Orange Edit Button.

PHOTOS TAB

The Photos Tab provides the ability for the technician to photograph service and maintenance issues that allow both Service contractor and End Customer supervision to review the noted issue and disposition the recommended repair, as well as quality control the work with the After photograph showing the work completed.

These photographs can be uploaded directly by the Service technician with either a Smart phone, Tablet or Laptop directly to the ADRESpro. Each photograph can be uniquely described with the associated text box.

The resulting before and after photographs uploaded will remain with the specific Service Ticket it was uploaded under. The photographs will be included in the actual maintenance report that is available to create, display, download, print through the Service Report View button. A sample of the report is at the end of this guide.

The screenshot shows the 'Preventative Maintenance' interface with the 'Photo Upload' tab selected. The interface includes a 'Before Photos' section with a 'Drag File Here' area and a 'Select an file for upload...' button. Below this is a table of uploaded photos with columns for ID, description, and Creation Date. A 'REFRESH GRID' button is located above the table. Callout boxes provide instructions on how to upload photos and how to view them.

Callout boxes:

- Add and upload Before Photos using the Before Photo upload portal.
- Select the Delete Icon to delete the associated image.
- Uploaded list of before photos with associated description.
- Creation date automatically created by the ADRESpro.
- Select the view button to display the photograph.
- Photos can be added by selecting the photo to upload from the client phone, tablet or PC and select Enter on the client device to begin the upload.
- Photos can be added by dragging the photo from the client phone, tablet or PC and dropping in the ADRESpro photo container here.

ID	Description	Creation Date	View
1	Dip switch.PNG	11/9/2018 4:07:40 PM	View
2	Comm Board.PNG	11/9/2018 4:07:25 PM	View

Add and upload After photos using the After Photo upload portal. The After photo upload operates identical to the Before described above.

Preventative Maintenance

After Photos

REFRESH GRID

No Records Found

Drag an file here

Select an file for upload...

You can upload .jpg, .jpeg, .gif, .png files.
Maximum file size is 10MB.

SERVICE TICKET REPORT

Once the Service ticket is completed, a preformatted report can be generated using the View button in the Service log for any of the current or past Service Tickets.

A sample Service Ticket Report is shown on the following page.

Preventative Maintenance For Emergency Generators

Ticket#: 2

Unit#: 102

REPRESENTATIVE: Demo User

DATE: 11/28/2018

LOCATION: Surf Supply Co - San Diego Ca - Shop #2 - Apm802 - Office Bench - 5091 Niagara Ave San Diego Ca 92107

UNIT MFG: KOHLER

MODEL: N/A

S/N: 1234

Month	Hour Meter Start	Hour Meter End	Hour Meter Run	Oil Press	Oil Level	Temp	Batt Volts	Gen Volts	Gen Amps	Transfer Time Gen Start	Transfer Time Trans	Genset Load LS	Genset Load CR	Genset Load EQ	Fuel Level	E G T
11	1005.0	1006.0	1.0	78.2	95.0	179.1	26.4	480.0	758.2	8	11	2	1	3	90.0	968.0

Unsatisfactory If Checked

COOLING SYSTEM

- 1 ENGINE COOLANT LEVEL
- 2 RADIATOR CORE/HEAT EXCHANGER

D.C. ELECTRICAL SYSTEM

- 1 BATTERY(S) ELECTROLYTE LEVEL/SPECIFIC GRAVITY

LUBRICATION SYSTEM

- 1 OIL PUMP PRESSURE

FUEL SYSTEM

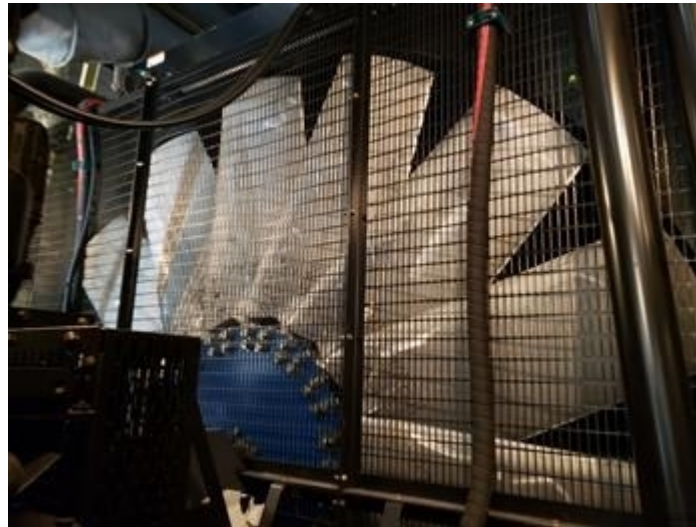
- 1 FUEL TANK/DAY TANK – PRODUCT LEVEL

Parts Replaced

Description	Qty	Manufacturer	Part Number	Date Added
Oil Filters	2	Kohler	230510002	11/28/2018

Before Photos

Radiator Fan prior to cleaning



Oil Filter Replacement



After Photos

Radiator Fan After Cleaning



New replacement Oil Filters

