

OPERATION

SAFETY RECOMMENDATIONS

Use extreme safety measures when working around a running engine, pressurized storage vessels, and automotive chemicals.

Always block the vehicle's drive wheels.

Ventilate the vehicle's exhaust if engine will be started.

Always wear safety glasses.

Protective gloves are recommended.

PREPARATION

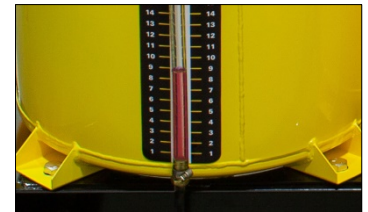
Inspect the engine and the visible coolant system components for any signs of damage or unusual wear.

Note the coolant level before beginning the service. If low, see "COOLING SYSTEM PRESSURE / LEAK CHECK" procedure to verify the system's condition.

Depending on the desired service, make appropriate connections (lowest and highest point) on the vehicle's coolant system.

Plug any open ports venting to the atmosphere (i.e. overflow hose or a system vent cap).

To prevent running out of coolant and ingesting air, ensure both **new** and **used** coolant tank levels are showing at least 3 gallons on the sight tubes.



PERFORM COOLANT RECOVER, CLEAN, AND RETURN (RCR) OPERATION

DRAIN COOLANT FROM VEHICLE INTO USED COOLANT TANK

Obtain a coolant sample if needed.

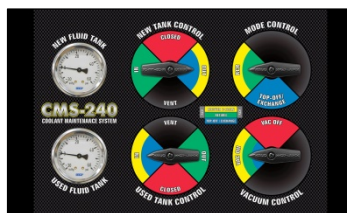
Move the **Switch Hose Valve** to "N" and connect shop air.

Connect the **red** service hose to highest point, the **black** service hose to the lowest point, and open the ball valves.

Turn **all** control panel valves to the **YELLOW** position.

Move the **Switch Hose Valve** to "1".

The system will begin to drain.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

When air is seen in the **black** hose, turn **New Tank Control** and **Used Tank Control** to **VENT** and **Vacuum Control** to **OFF**.

When air pockets/coolant stop moving in the service hoses, move the **Switch Hose Valve** to “N”.

Close the ball valves and remove the service hoses.



RETURN USED COOLANT TO VEHICLE AFTER SERVICING

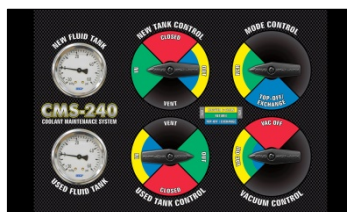
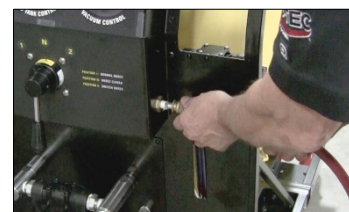
Move the **Switch Hose Valve** to “N” and connect shop air.

Connect the **red** service hose to highest point, the **black** service hose to the lowest point, and open the ball valves.

Turn **all** control panel dials to the **GREEN** position.

Move the **Switch Hose Valve** to “1”.

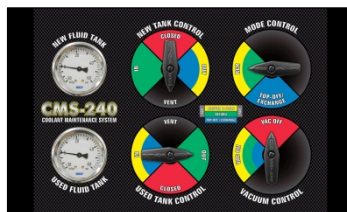
The system will begin to fill.



When the coolant level is at the “cold” level of the expansion tank or seen in the **red** hose, the system is full.

Turn **New Tank Control** to **VENT** and **Vacuum Control** to **OFF**.

The coolant level will adjust.



When the coolant returns to the “cold” level on the expansion tank, turn **Used Tank Control** to **VENT**.

When the cooling system stabilizes and both gauges show zero, move the **Switch Hose Valve** to “N”.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

To adjust the coolant level if it is too high:

Move the **Switch Hose Valve** to “1”.

Turn **New Tank Control** and **Used Tank Control** to **YELLOW** until the desired coolant level is reached.

Move the **Switch Hose Valve** to “N” and turn **New Tank Control** and **Used Tank Control** to **VENT**.

If the coolant level is too low, see “Top-Off” procedure.

Close the ball valves and remove the service hoses.

NOTE: If cooling system overfills and coolant is seen in the top service hose going into the vacuum generator overflow filter, stop flow immediately by moving the **Switch Hose Valve** to “N”. See “VACUUM GENERATOR OVERFLOW FILTER REPLACEMENT” procedure to empty overflow filter assembly.



TOP-OFF PROCEDURE FROM NEW COOLANT TANK

NOTE: The following procedure is performed with the red and black service hoses still connected from filling the cooling system in the above procedure.

Turn **all** control panel dials to the **BLUE** position.

Move the **Switch Hose Valve** to “2”.

When the coolant is at the correct level, move the **Switch Hose Valve** to “N”.

Turn **New Tank Control** and **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.

When the cooling system stabilizes and both gauges show zero, close the ball valves and remove the service hoses.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

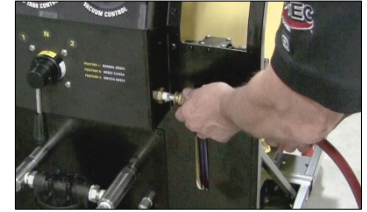
COOLANT EXCHANGE – METHOD 1 (Push New / Extract Old Simultaneously)

Move the **Switch Hose Valve** to “N” and connect shop air to the machine.

Connect the **red** service hose to highest point, the **black** service hose to the lowest point, and open the ball valves.

Turn **all** control panel dials to the **BLUE** position.

Move the **Switch Hose Valve** to “1”.



When clean coolant is observed in the **black** service hose, turn **New Tank Control** and **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.

When the cooling system stabilizes and both gauges show zero, move the **Switch Hose Valve** to “N”.

Close the ball valves and remove the service hoses.

Check the coolant level, and if necessary, use the “TOP-OFF PROCEDURE” to add fluid.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

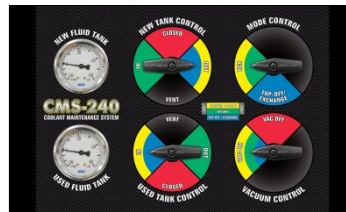
COOLANT EXCHANGE – METHOD 2 (Fully Drain Old and Fill with New)

Move the **Switch Hose Valve** to “N” and connect shop air to machine.

Connect the **red** service hose to highest point, the **black** service hose to the lowest point, and open the ball valves.

Turn **all** control panel dials to the **YELLOW** position.

Move the **Switch Hose Valve** to “1”.



When air is seen in the **black** service hose, move **New Tank Control** and **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.

When air pockets/coolant stop moving in the hoses, move the **Switch Hose Valve** to “N”.



Turn **Mode Control** to **BLUE**, and **New Tank**, **Used Tank**, and **Vacuum Control** to **YELLOW**.

Move the **Switch Hose Valve** to “2”.

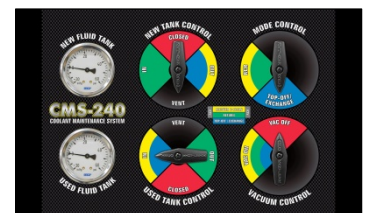
NOTE: This effectively switches the service hose positions without disconnecting the service hoses. New coolant will fill the system from the bottom service hose with pressure while the upper service hose, under a vacuum, removes air and aids in filling the system.



When the coolant level is at the “cold” level of the expansion tank, or seen in the **red** service hose, the system is full.

Turn **New Tank Control** to **VENT** and **Vacuum Control** to **OFF**.

The coolant level will adjust.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

When the coolant returns to the “cold” level on the expansion tank, turn **Used Tank Control** to VENT.

When the cooling system stabilizes and both gauges show zero, move the **Switch Hose Valve** to “N”.



To adjust the coolant level if it is too high:

Move the **Switch Hose Valve** to “1”.

Turn **New Tank Control**, **Used Tank Control**, and **Mode Control** to **YELLOW** until the desired coolant level is reached.

Move the **Switch Hose Valve** to “N” and turn **New Tank Control** and **Used Tank Control** to VENT.

Check the coolant level, and if necessary, use the “TOP-OFF PROCEDURE” to add fluid.

Close the ball valves and remove the service hoses.



ADDITIONAL FUNCTIONS

COOLING SYSTEM PRESSURE / LEAK CHECK

Move the **Switch Hose Valve** to “N” and connect shop air to the machine.

Close the ball valve on the **red** service hose. Connect the **red** service hose to the top of the radiator using the appropriate adapter, and open the ball valve.



CMS-240 Coolant Management System

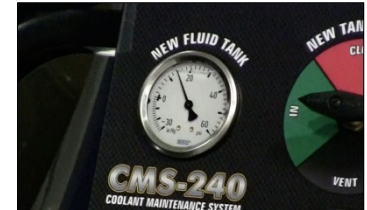
QUICK START INSTRUCTIONS

Turn **New Tank Control** and **Mode Control** to **YELLOW** position.

Move the **Switch Hose Valve** to "1".

The system will pressurize to 10-15psi.

Turn **New Tank Control** to **RED** and observe the **new** coolant tank pressure gauge. If there is a loss of pressure, then there is a leak in the cooling system.



When enough time has elapsed to properly perform a pressure check, move the **Switch Hose Valve** to "N" and **New Tank Control** to **VENT**.

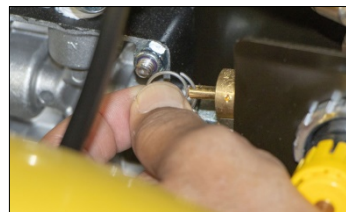
Close the ball valve on the **red** service hose and remove the **red** service hose. Remove the adapter from the radiator and replace the cap.



FILL NEW TANK – METHOD 1 POUR IN

Ensure there is no pressure or vacuum in the **new** coolant tank by pulling up on the relief valve ring on top of the tank.

Remove the fill cap. Add the required amount of new coolant and replace the fill cap.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

FILL NEW TANK - METHOD 2 VACUUM MODE

If the **new** coolant tank gauge indicates pressure or a vacuum, turn **New Tank Control** to **VENT** to equalize the tank to zero.

Close the ball valve on the **red** service hose and connect the open-end adapter.



Turn **Mode Control** and **Vacuum Control** to **BLUE**, **New Tank Control** to **GREEN**, and **Used Tank Control** to **VENT**.

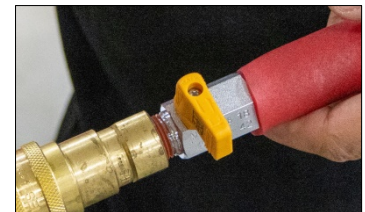
Move the **Switch Hose Valve** to "1".

Place the open-end adapter into a new coolant container and open the ball valve



When the coolant level in **new** coolant tank reaches the desired level, move the **Switch Hose Valve** to "N" and close the ball valve on the **red** service hose.

Move **Vacuum Control** to **OFF** and move **New Tank Control** to **ENT**.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

DRAIN NEW COOLANT TANK

Close the ball valve on the **black** service hose and connect the open-end adapter.

Turn **New Tank Control** to **YELLOW** and **Mode Control** to **BLUE**.

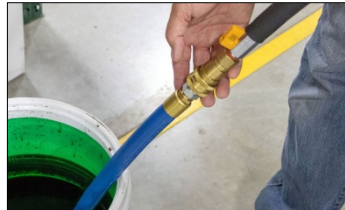
Move the **Switch Hose Valve** to "1"



Place the open-end adapter into an approved coolant waste container and open the ball valve. Drain until the tank is empty.

Move the **Switch Hose Valve** to "N" and **New Tank Control** to **VENT** to release the pressure in the tank.

Dispose of used coolant in accordance with local and state requirements.



TRANSFER COOLANT FROM NEW TANK TO USED TANK

Move the **Switch Hose Valve** to "N" and connect shop air to the machine.

Install the hose transfer fitting between the **red** and **black** service hoses and open the ball valves.



CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

Turn **all** control panel dials to the **BLUE** position.

Move the **Switch Hose Valve** to “2”.

When the coolant is at the correct level in the **used** coolant tank, move the **Switch Hose Valve** to “N”.

Turn **New Tank Control** and **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.



When the cooling system stabilizes and both gauges show zero, move the **Switch Hose Valve** to “1” to equalize the hoses, then back to “N”.

Close the ball valves and remove the hose transfer fitting.

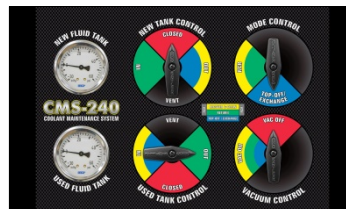
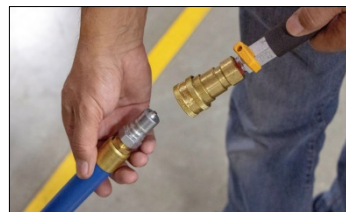


DRAIN USED COOLANT TANK

Close the ball valve on the **black** service hose and connect the open-end adapter.

Move **Used Tank Control** to **GREEN** and **Mode Control** to **BLUE**.

Move the **Switch Hose Valve** to “1”.



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QUICK START INSTRUCTIONS

Place the open-end adapter into an approved coolant waste container and open the ball valve. Drain until the tank is empty.

Move the **Switch Hose Valve** to “N” and **Used Tank Control** to **VENT** to release the pressure in the tank.

Dispose of used coolant in accordance with local and state requirements.



EMPTY OVERFLOW BOTTLE

Release the Velcro strap and remove the overflow bottle.
Empty contents into an approved coolant waste container.
Rinse out and replace using Velcro strap.



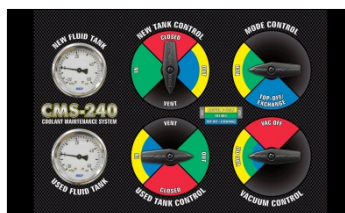
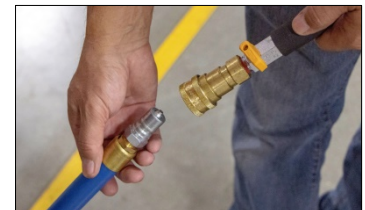
VACUUM GENERATOR OVERFLOW FILTER REPLACEMENT

The vacuum generator overflow filter should be emptied when it is more than 1/3 full.
Remove the reservoir by turning it counterclockwise. Empty the reservoir contents into an approved coolant waste container, rinse out the reservoir, and replace the filter if necessary.
After ensuring the rubber O-ring is in place, reinstall the reservoir by turning clockwise until seated.



USED COOLANT FILTER REPLACEMENT

If pressure or a vacuum is shown on either tank gauge, depressurize the tanks by turning **New Tank Control** and **Used Tank Control** to **VENT**.
Close the ball valve on the **black** service hose and connect the open-end adapter.
Turn **Used Tank Control** and **Vacuum Control** to **GREEN** and move the **Switch Hose Valve** to “1”.



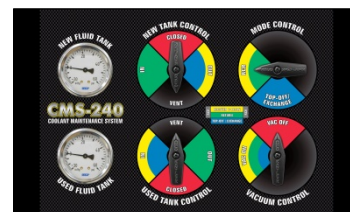
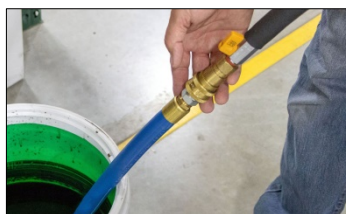
CMS-240 Coolant Management System

QUICK START INSTRUCTIONS

Place the open-end adapter into an approved coolant waste container and open the ball valve.

NOTE: The reservoir will not completely empty and will only empty past the threads, so the reservoir may be removed without spillage.

Once at this level, move the **Switch Hose Valve** to "1", turn **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.



Remove the reservoir by turning it counterclockwise. Empty the reservoir contents into an approved coolant waste container, rinse out the reservoir, and replace the filter if necessary.

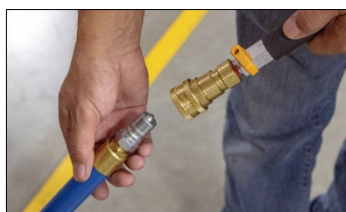
After ensuring the rubber O-ring is in place, reinstall the reservoir by turning clockwise until seated.



REMOVE COOLANT FROM EXPANSION / DE-GAS BOTTLE

Move the **Switch Hose Valve** to "N" and connect shop air to the machine.

Close the ball valve on the **black** service hose and connect the open-end adapter.



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Coolant Management System

QUICK START

INSTRUCTIONS

Turn **Used Tank Control** and **Vacuum Control** to **YELLOW**, and move the **Switch Hose Valve** to "1".

Remove the cap on the expansion / de-gas tank and insert the open-end adapter.

Open the ball valve to adjust coolant to the desired level.

Once at the desired level, close the ball valve and replace the expansion / de-gas tank cap.

Move the **Switch Hose Valve** to "N", turn **Used Tank Control** to **VENT**, and **Vacuum Control** to **OFF**.

