

Snap-on®

USER'S MANUAL



Snap-on® ***Coolant*** ***Exchange***™

**Drain and Fill
with Continuous Flush**

Snap-on Coolant Exchange User's Manual

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Snap-on Coolant Exchange™ User's Manual

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Safety Information

Safety Notice

For your safety, read this manual thoroughly before operating your **Snap-on Coolant Exchange™** unit.

Your **Snap-on Coolant Exchange™** unit is intended for use by properly trained, skilled professional automotive technicians. The safety messages presented below and throughout this user's manual are reminders to the operator to exercise care when using this unit.

There are many variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. Because of the vast number of test applications and variations in the products that can be serviced with this instrument, **Snap-on®** cannot possibly anticipate or provide advice or safety messages to cover every situation. It is the automotive technicians responsibility to be knowledgeable of the system that is to be tested. It is essential to use proper service methods and test procedures and to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the vehicle or equipment being tested.

It is assumed that the operator has a thorough understanding of vehicle cooling systems before using the **Snap-on Coolant Exchange™** unit. This understanding of principles and operating theories is necessary for competent, safe and accurate use of this instrument.

Before using your **Snap-on Coolant Exchange™** unit, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested.

Read All Instructions

Read, understand and follow all safety messages and instructions in this manual. Safety messages in this section of the manual contain a signal word with a three-part message and, in some instances, an icon.

The signal word indicates the level of the hazard in a situation.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or bystanders.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or bystanders.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or bystanders.

IMPORTANT

Indicates a situation which, if not avoided, may result in damage to the equipment or vehicle.

Safety messages in this section contain three different type styles.

- Normal type states the hazard.
- **Bold** type states how to avoid the hazard.
- *Italic* type states the possible consequences of not avoiding the hazard.

An icon, when present, gives a graphical description of the potential hazard.

IMPORTANT SAFETY INSTRUCTIONS

General

WARNING



Risk of fire.

- **Wear safety goggles and protective gloves, user and bystander. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.**
- **Do not position head directly over or in front of carburetor or throttle body. Engine backfire can occur when air cleaner is out of normal position.**
- **Keep a dry chemical (Class B) fire extinguisher rated for gasoline, chemical electrical fires in the work area.**

Fire can cause death or serious injury.

WARNING



Risk of entanglement.

- **Do not place test equipment or tools on fenders or other places in engine compartment.**
- **Keep yourself, clothing and tester leads clear of moving parts such as fan blades, pulleys, hood and doors.**
- **Barriers are recommended to help identify danger zones in test area.**
- **Prevent personnel from walking through immediate test area.**

Contact with moving parts can cause injury.

WARNING



Risk of burns.

Do not remove radiator cap unless engine is cold. Pressurized engine coolant may be hot.

Burns can cause injury.

WARNING



Risk of expelling fuel, oil vapors, hot steam, hot toxic exhaust gases and other debris.

- **Wear safety goggles and protective clothing, user and bystander.**
- **Engine systems can malfunction expelling fuel, oil vapors, hot steam, hot toxic exhaust gases and other debris.**

Fuel, oil vapors, hot steam, hot toxic exhaust gases, and other debris can cause serious injury.

WARNING



Risk of burns.

- **Do not touch hot exhaust systems, manifolds, engines, radiators, etc.**
- **Wear gloves when handling hot engine components.**

Hot components can cause injury.

WARNING

Risk of unexpected vehicle movement.

- **Block drive wheels before performing a test with engine running.**
- **Unless instructed otherwise, set parking brake and put gear selector in neutral for standard transmissions or park for automatic transmissions.**
- **If vehicle has an automatic parking brake release, disconnect release mechanism for testing and reconnect when testing is completed.**
- **Do not leave a running engine unattended.**

A moving vehicle can cause injury.

WARNING

Misdiagnosis may lead to incorrect or improper repair and/or adjustment.

Do not rely on erratic, questionable, or obviously erroneous test information or results. If test information or results are erratic, questionable, or obviously erroneous, make sure that all connections and data entry information are correct and that the test procedure was performed correctly. If test information or results are still suspicious, do not use them for diagnosis. Contact *Snap-on*® customer services.

Improper repair and/or adjustment may cause vehicle or equipment damage or unsafe operation.

WARNING



Risk of flying particles.

- **Wear safety goggles user and bystander. Rotating engine parts can cause flying particles.**
- **Make sure gauge reads zero before connecting or disconnecting hose connections to adapters.**
- **Make sure cooling system pressure has been relieved before connecting or disconnecting hose connections and adapters.**
- **Make sure gauge reads zero before removing supply tank cap.**

Flying particles can cause eye injury.

Using this Manual

This manual contains instructions for use and setup of your **Snap-on Coolant Exchange™** unit. A table of contents and table of illustrations are provided to make this manual easy to use.

Some of the information shown in text or illustrations is obtained using optional equipment.

Conventions

This section contains a list of conventions used in text.


Check Note

A check note provides additional information about the subject in the preceding paragraph.


Example:

- ✓ A pulsating recovery hose is a normal condition while draining.

Equipment Tips

Equipment tips provide information that applies to specific equipment. Each tip is introduced by this icon  for easy identification.

Example:

-  When servicing coolant systems, the coolant in the overflow bottle should also be removed. Use the suction wand to remove the coolant.

SAVE THESE INSTRUCTIONS

Safety Messages

Safety messages are provided to help prevent personal injury and equipment damage. All safety messages are introduced by a signal word indicating the hazard level. The types of safety messages are:

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

Some safety messages also contain visual symbols with signal words.

Example:

⚠ WARNING



Engine systems can malfunction expelling fuel, oil vapors, hot steam, hot toxic exhaust gases, acid, refrigerant and other debris.

Wear safety goggles and protective gloves, user and bystander. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.

Engine systems that malfunction can cause injury.

Introduction

The **Snap-on Coolant Exchange™** unit, part number EESE336A, is a device that removes and refills engine coolant and also pressure tests the cooling system. Coolant is extracted and refilled through the upper radiator hose connection without the vehicle engine running. Before coolant refill, a vacuum is applied to the cooling system to eliminate any air in the system. This coolant unit also has the capability to flush the cooling system for an extended amount of time, using water from an external source.

Functional Description

Front Panel



Figure 1: Front Panel

- A — New Coolant Supply Tank Fill Port**
Filler neck for supply tank reservoir.
- B — New Coolant Supply Tank Sight Tube**
Sight tube used to determine level of fresh coolant in supply tank.
- C — Old Coolant Recovery Tank Sight Tube**
Sight tube used to determine level of used coolant in recovery tank.
- D — Control Panel**
Houses air regulator valve, pressure gauge and control valves A and B.
- E — Tray**
Use for tool and adapter storage.

Introduction

Back Panel

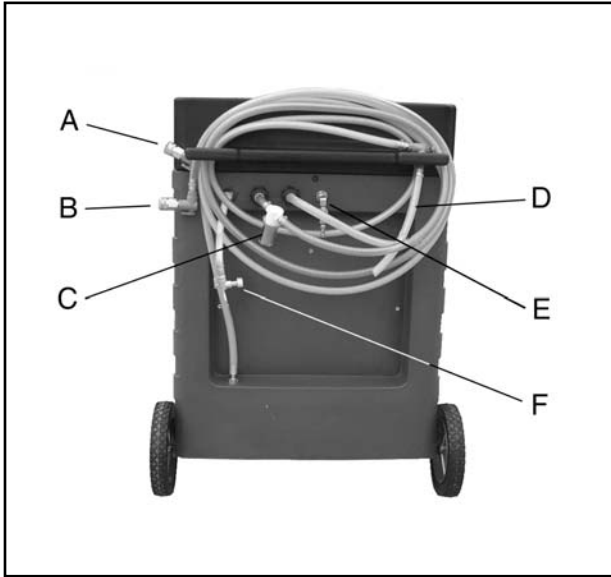


Figure 2: Back Panel

- A — Supply Tank Hose (blue) and Valve**
- B — Recovery Tank Hose (red) and Valve**
- C — Recovery Hose Strainer**
Strainer used to filter large contaminants from recovered coolant.
- D — Power Drain Hose and Valve**
Used for draining of recovery tank.
- E — Air Inlet Valve**
Switches shop air supply ON or OFF.
- F — Flush Water Inlet Hose and Valve**
Used to connect water supply hose to *Snap-on Coolant Exchange™* unit.

Control Panel

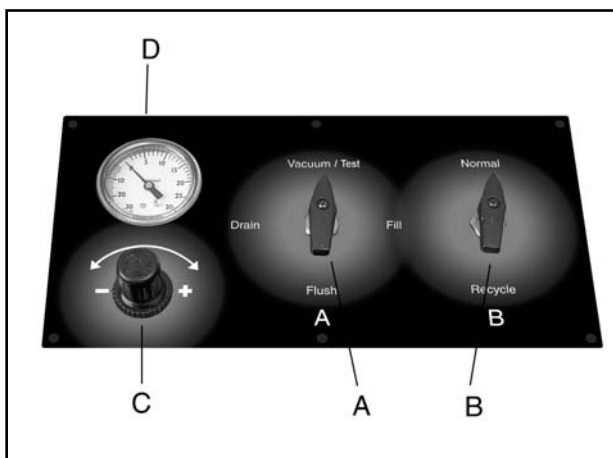


Figure 3: Control Panel

- A — Control Valve A**
Switches *Snap-on Coolant Exchange™* unit between DRAIN, VACUUM/TEST, FLUSH, and FILL operations.
- B — Control Valve B**
Switches *Snap-on Coolant Exchange™* unit between NORMAL and RECYCLE operations.
- C — Air Regulator Valve**
Used to regulate air pressure applied to cooling system.
- D — Air Pressure/Vacuum Gauge**
Used to monitor pressure and vacuum applied to cooling system.

Accessories

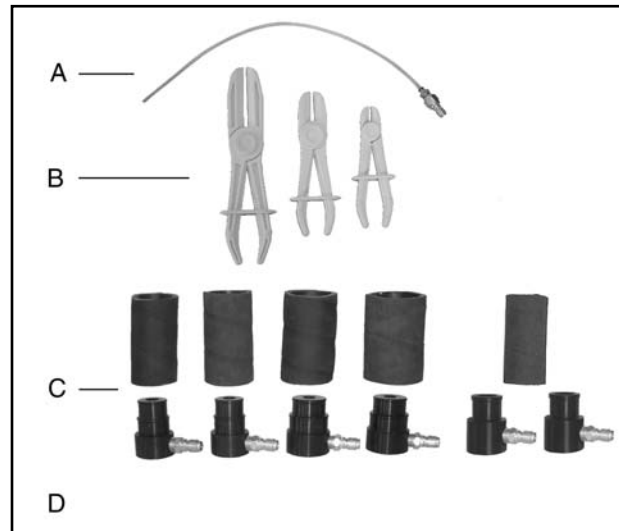
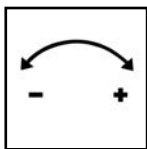


Figure 4: *Snap-on Coolant Exchange™* Accessories

- A — Suction Wand**
Used to extract coolant from radiator or surge tank to lower coolant level.
- B — Hose Pinch Pliers**
Small, medium and large pliers. Used to pinch-off hoses.
- C — Multi-size Hoses and Adapters**
Used to connect recovery (red) and supply (blue) hoses to the vehicle cooling system. Adapters sizes are 1-1/4, 1-3/8, 1-1/2, 1-3/4, and 28mm (1-1/8”).
- D — Flush Water Drain Hose (not shown)**
Use to drain water from the vehicle during the continuous flush operation.

Control Panel Key Terms

Use the following definitions for a description of control panel figures.



REGULATOR

Changes the air pressure setting higher or lower.

- Pull knob out to unlock position.
- Push knob in to lock position.

Control Valve A

DRAIN

Air pressure is applied to the supply hose (blue) to assist in cooling system draining or to apply pressure for the pressure test.

VACUUM/TEST

The supply hose (blue) is closed to allow a vacuum to evacuate the remainder of the coolant in the cooling system during the drain process, or to isolate the cooling system during the pressure test.

FILL

New coolant from the supply tank is directed through the supply hose to fill the cooling system.

FLUSH

The unit is in the *Continuous Flush* mode. A flush operation can be conducted with an external water supply for an unlimited amount of time.

Control Valve B

NORMAL

The unit is in the mode for all drain and fill operations, including suction wand, pressure test, and flush.

RECYCLE

The unit is in the mode for draining the recovery tank or directing its contents through the optional recycler kit.

Specifications

Dimensions

Height	Width	Depth
41.5"	33"	25.75"

Weight

123 lbs (tanks empty)

Power

Compressed shop air
90 PSI Maximum Input Pressure

Operating Temperature

35° to 120°F (1.7° to 48.9°C)

Storage Temperature (Tanks Empty)

-4° to 150°F (-20° to 65.5°C)





















Installation and Operation

Testing Tips






















- When servicing coolant systems, the coolant in the overflow bottle should also be removed and the bottle flushed with clean water. Use the suction wand to remove the coolant.
- When performing a *Pressure Test*, if coolant seeps into the overflow bottle before the system is at the pressure specified on the radiator cap, the pressure relief valve is bad and the radiator cap needs to be replaced.
- Always remove and inspect the underside of the radiator cap for cracked seal, damaged spring or excessive rust or contamination.
- DO NOT OVER FILL THE SYSTEM.
- Always refer to manufacturer's capacity specifications to properly fill systems.
- Normal expansion rate for coolant is 4–7%. Fill overflow bottle after the engine reaches normal operating temperature to assure system will not be overfilled. An overfilled system will seep any additional coolant during normal system expansion.
- When looking for coolant leaks:
 - Check all hose connections prior to, in operation, and after all tests are performed.
 - Check heater core, water pump*, thermostat housing, freeze plugs, and radiator for any visible leaks.
 - * Water pumps are sometimes located under timing belt covers.
 - If leaks are evident, but no visible leaks are found, check the internal engine. The leak may be from a cracked head, head gasket, intake, etc.

Valve Position Chart

Refer to this quick reference for correct valve positions during operations.

	Valve A	Valve B	Supply Hose (blue) Valve	Recovery Hose (red) Valve
SUCTION WAND			CLOSED 	OPEN 
DRAIN			OPEN 	OPEN 
EVACUATE			OPEN 	OPEN 
HOLD VACUUM			OPEN 	CLOSED 
FILL			OPEN 	CLOSED 

Installation and Operation

	Valve A	Valve B	Supply Hose (blue) Valve	Recovery Hose (red) Valve
TOP OFF COOLING SYSTEM			OPEN 	CLOSED 
PRESSURE TEST – APPLY PRESSURE			OPEN 	CLOSED 
PRESSURE TEST – HOLD PRESSURE			OPEN 	CLOSED 
<p>✓ Flush water inlet hose valve must be closed during all of the preceding operations.</p>				
CONTINUOUS WATER FLUSH			OPEN 	CLOSED 
<p>✓ Recovery tank drain hose valve must be closed during all the preceding operations.</p>				
DRAINING THE RECOVERY TANK or RECYCLING USED COOLANT (If equipped with optional recycler kit.)			CLOSED 	CLOSED 
<p>✓ Recovery tank drain hose valve must be open and Valve B must be in the RECYCLE (down) position during this operation.</p>				

Tank Scale and Capacity

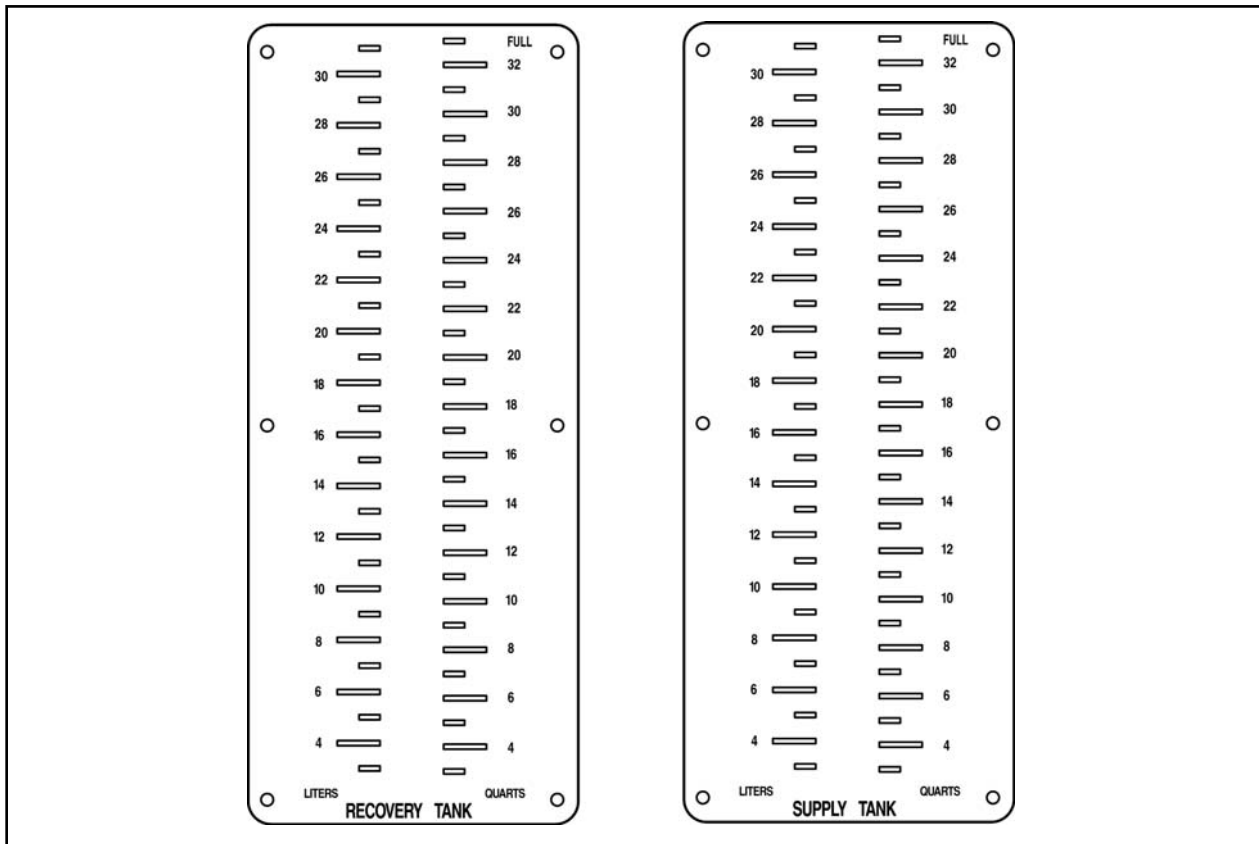


Figure 5: Recovery and Supply Tank Sight Tube Level Indicators

- Tank Capacity = 32 quarts
- Do not overfill the Supply/Recovery Tanks
- If Recovery Tank becomes full an internal check valve will close and shut off vacuum to recovery tank and hose to prevent spillage.

Example of Use

Vehicle cooling system capacity: 8 quarts*
New coolant supply tank level indicator reading is: 20 quarts
Add fresh coolant to the vehicle until the level indicator shows 12 quarts remaining

- ✓ The amount of coolant that goes into the vehicle equals the amount of coolant that goes into the recovery tank. Verify that the recovery tank is not full and that there is enough room to complete a Drain and Fill process.

*Always refer to manufacturer's capacity specifications to properly fill systems.

Preparing Vehicle for Service

Engine cooling systems run at high temperatures and pressures. Allow coolant system to cool before attempting service.

⚠ ✓ Pressurized engine coolant may be hot and cause injury.

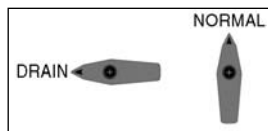
1. Remove radiator or surge tank cap after coolant system has cooled.

Pressure Test

Perform a pressure test on vehicle cooling system before draining or refilling the system. Follow this procedure to pressure test the cooling system. Refer to *Valve Position Chart* in this section for proper valve positioning during operations.

1. Follow the steps in *Preparing Vehicle for Service*.
2. Close all hose valves and air inlet valve on **Snap-on Coolant Exchange™** unit.

3. Turn Valve A to DRAIN position.



4. Turn Valve B to NORMAL position.

✓ Always keep manual valve on optional recycler kit in the BYPASS position, except when recycling coolant.

5. Pull to unlock air regulator knob and turn counterclockwise until it stops. Connect shop air to **Snap-on Coolant Exchange™** unit.

✓ Maximum input air pressure should not exceed 90 PSI (620.5 kPa).

6. Attach suction wand to the recovery hose (red).
7. Open air inlet valve and recovery hose valve. See page 6, Figure 2.
8. Use suction wand to extract coolant from radiator or surge tank until coolant level is below upper radiator hose port.

9. Close recovery hose valve.
 - Close air inlet valve if desired to reduce noise.

10. Disconnect upper radiator hose from radiator, thermostat housing, or intake manifold.
11. Connect recovery hose (red) and adapter to radiator side of disconnected radiator or hose. See Figure 6.

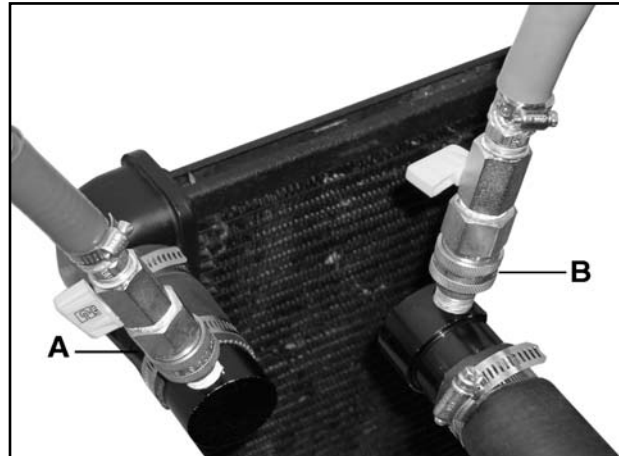


Figure 6: Recovery Hose and Adapter Attached to Radiator

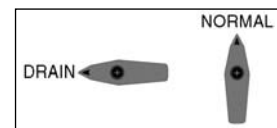
A – Recovery Hose (red)

B – Supply Hose (blue)

12. Connect supply hose (blue) and adapter to engine side of disconnected radiator hose. See Figure 6.
13. Replace radiator or surge tank cap.
14. Open air inlet valve and supply hose (blue) valve.
 - Make sure recovery hose (red) valve remains closed.
15. SLOWLY turn the air regulator knob clockwise until gauge pressure reaches the cooling system pressure rating.
 - Cooling system pressure rating can be found on radiator cap, or verify rating in owner's manual or factory repair manual.
- ✓ Never exceed manufacturer's rated pressure
16. Turn Valve A to VACUUM/TEST position when gauge reads the specified pressure and inspect cooling system for leaks.

If Leak is Found

1. Close air inlet valve on rear of unit.
2. Turn Valve A to DRAIN position.
3. Close supply hose (blue) valve when gauge reads zero.



Installation and Operation

4. Drain coolant from vehicle cooling system using the **Snap-on Coolant Exchange™** unit and refer to *Drain and Fill* in this section.

✓ DO NOT refill the system; skip “fill” instructions.

5. Disconnect **Snap-on Coolant Exchange™** unit from vehicle and repair leak.
6. After leaks are repaired, repeat *Pressure Test*.

If No Leaks are Found but Pressure Gauge Drops

1. Observe pressure gauge.
2. Pressure should not drop below pressure indicated in *Table 1* after 1 minute.
 - No pressure drop, proceed to *Drain and Fill* in this section.
3. If pressure drops, check radiator and/or surge tank cap(s) for inadequate holding capacity.
 - If air or coolant is venting into overflow reservoir or out of the surge tank at pressures below those specified in *Table 1*, replace the radiator or surge tank cap.
4. If pressure drops and radiator or surge tank cap is okay, a leaky head gasket or other internal engine problem may exist.
 - Consult factory service and diagnosis procedures for vehicle cooling system.
5. Disconnect **Snap-on Coolant Exchange™** unit from vehicle and repair leak.
6. After leaks are repaired, repeat *Pressure Test*.

If No Leaks are Found and Pressure Gauge is Stable

1. Pressure test is complete.
2. Close air inlet valve on rear of unit.
3. Turn Valve A to DRAIN position.
4. Perform *Drain and Fill* if desired.

Radiator or Surge Cap Pressure Ranges

Cap Rating	Minimum Pressure
4 PSI Cap	3 lbs
7 PSI Cap	6 lbs
10 PSI Cap	9 lbs
13 or 14 PSI Cap	12 lbs
15 or 16 PSI Cap	14 lbs
18 PSI Cap	16 lbs
20 PSI Cap	18 lbs
30 PSI Cap	28 lbs

Subtract one lb from lbs reading for used caps.

e.g.: 15 or 16 PSI Cap would be 13 lbs.

Table 1: Cooling System Pressure Ranges

Drain and Fill

Conventional Thermostat Location

Follow this procedure to drain and fill the cooling system.

✓ Check filter screen on recovery hose (red) to make sure it is free of debris or other contaminants, refer to *Maintenance* section.

1. Turn the air regulator valve counterclockwise until it stops.
2. Verify recovery tank of **Snap-on Coolant Exchange™** unit is not full and there is enough room left to complete a *Drain and Fill* process.
3. Verify supply tank level of **Snap-on Coolant Exchange™** unit is adequate enough to complete a *Drain and Fill* process.

✓ Add the proper mixture of antifreeze/coolant and water to new coolant supply tank fill port.

✓ Check vehicle owner's manual for cooling system capacity.

- Pinch off overflow hose between radiator neck and overflow reservoir with supplied hose pinch pliers.

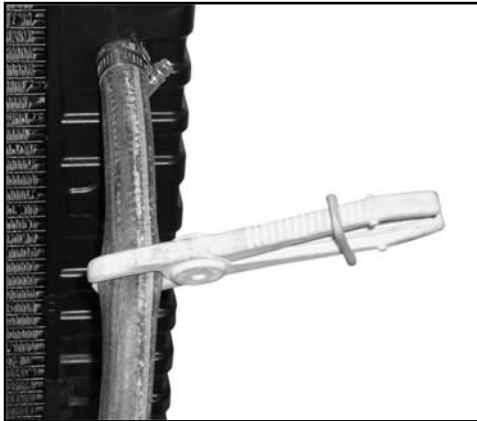
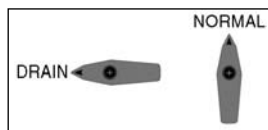


Figure 7: Pinched Off Heater Return Hose

- ✓ On vehicles with a heater return hose connected to the radiator, pinch off heater hose also. This is required to ensure that the drain and fill process does not bypass the engine block by going through the heater core.
 - Use two or three hose pinch pliers to pinch off hoses connected to surge tank, including the overflow hose connected to the surge tank neck, if applicable.
- Make sure all tester hose valves are closed.
 - Make sure adapters and hoses are connected to vehicle as described in *Pressure Test on page 11*.
 - Turn Valve A to DRAIN position.
 - Turn Valve B to NORMAL position.
 - ✓ Always keep manual valve on optional recycler kit in the BYPASS position, except when recycling coolant.
 - Open air inlet valve on rear of unit.
 - Adjust air regulator to 8–12 PSI. See *Figure 3, C*.
 - Open supply (blue) and recovery (red) hose valves and observe old coolant flowing through the recovery hose into the recovery tank.
 - ✓ A pulsating recovery hose (red) is a normal condition while draining.



- Turn Valve A clockwise to VACUUM/TEST position when stream of old coolant stops.
 - ✓ Cooling system hoses will collapse.
- When vacuum gauge reading reaches 13–17 in. Hg., close recovery hose (red) valve.
 - Gauge should not deviate from 13–17 in. Hg. If gauge reading drops, check system for leaks.
 - In some instances the vacuum gauge reading will not reach 13–17 in. Hg. due to the upper or lower radiator hose collapsing. If this occurs continue to step 14.
- Turn Valve A clockwise to FILL position. A rush of new coolant will pass through the supply hose and into vehicle's cooling system.
- When gauge reads 8–12 PSI, open recovery hose (red) valve to allow more old coolant to flow out of vehicle cooling system.
- Close recovery hose (red) valve when coolant flow through recovery hose turns from old to new coolant.
- Close supply hose (blue) valve.
- Remove recovery hose (red) and supply hose (blue) quick couplers from adapters.
 - Open recovery hose (red) valve for about 2 seconds to bring coolant level low enough to remove adapters with minimal spillage.
- Reinstall upper radiator hose to the engine/radiator.
- Remove radiator or surge tank cap.
- Remove all hose pinch pliers from hoses.
- Fill overflow reservoir or surge tank with new coolant to proper level.
- Top off radiator with new coolant, if applicable.

The supply hose (blue) can be used with the suction wand to top off the cooling system. To fill:

 - Connect suction wand to end of supply hose (blue).
 - Turn Valve A to FILL position.
 - Open air supply and supply hose valves.

Installation and Operation

24. Reinstall radiator or surge tank cap.
 - ✓ If cooling system contains a bleed screw or cap, follow manufacturer's instructions to ensure the system is properly purged of air.
25. Start vehicle engine and allow it to run until it reaches normal operating temperature and the thermostat has opened.
 - Verify vehicle's heat is operating properly while engine is running.
26. After coolant has cycled through the engine, let the engine cool down and recheck the freeze point of the coolant.
 - ✓ Pressurized engine coolant may be hot and cause injury.

Alternate Thermostat Location

On some vehicles the thermostat is located at the point where the lower radiator hose is connected to the engine.

1. These applications may require connecting the recovery hose (red) to the engine side and the supply hose (blue) to the radiator side of the upper radiator hose.
2. If insufficient coolant flow is observed in the recovery hose (red) during drain cycle:
 - Close air inlet valve,
 - Wait for gauge to read zero,
 - Close both hose valves and disconnect hoses from adapters,
 - Reverse connection of hoses on adapters, and
 - Continue *Drain and Fill* process.

Continuous Flush

The **Snap-on Coolant Exchange™** unit has the capability to perform a continuous flush with minimal connection changes. Follow this procedure to perform a more thorough cleaning than typically achieved with a simple drain and fill operation, such as when servicing contaminated or extremely dirty systems, removing chemical cleaners, etc.

1. Follow steps 1–10 of *Drain and Fill on page 12* to remove contaminated coolant from the vehicle's system.

2. Turn Valve A counterclockwise to FLUSH position when stream of old coolant stops.
 - ✓ Cooling system hoses will collapse.
3. When vacuum gauge reading reaches 13–17 in.Hg., close recovery hose (red) valve.
 - Gauge should not deviate from 13–17 in.Hg. If gauge reading drops, check system for leaks.
 - In some instances the vacuum gauge reading will not reach 13–17 in.Hg. due to the upper or lower radiator hose collapsing. If this occurs continue to step 4.
4. Disconnect recovery hose (red) from vehicle, and connect Flush Drain Hose to vehicle at the same point. Position other end of hose to desired container to collect flush water.
5. Connect the fresh flush water to the Flush Water Inlet Hose on the rear of the **Snap-on Coolant Exchange™** unit. This connection uses a standard garden hose fitting.
 - ✓ Properly dispose of used flush water.
 - ✓ Do not use hot water.
6. Open valve on Flush Water Inlet Hose on the rear of the unit.
7. Allow flush operation to proceed until water runs clear.

Vehicles with heater hoses attached to engine

- Continuous flush will flush both the engine and the heater core at the same time. Be sure to set the vehicle temperature controls to "heat" so that any water control valves between the engine and the heater are open.

Vehicles with heater hoses attached to the radiator:

- Heater hose attached to the radiator must remain pinched off until engine flush is done, then remove the pinch pliers to flush the heater core. Reattach the pinch pliers to this hose in step 10.
8. When finished flushing, close valve on Flush Water Inlet Hose (rear of unit).

9. Disconnect Flush Drain Hose from vehicle and reconnect the recovery hose (red) at the same point.
10. Open recovery hose (red) valve and turn Valve A to DRAIN position to resume the drain and fill process. Observe flush water flowing through the recovery hose (red) into the recovery tank.
 - ✓ Reattach the pinch pliers to the heater hose that is attached to the radiator. Continue the Drain cycle until all flush water is removed.
 - ✓ A pulsating recovery hose (red) is a normal condition while draining.
11. Complete steps 12–26 of Drain and Fill operation to complete the drain and fill process.

Power Drain Recovery Tank

The recovery tank needs to be drained when full. Shop air is diverted to the recovery tank to assist the draining process. Follow these steps to drain the recovery tank.

1. Close all hose valves on **Snap-on Coolant Exchange™** unit.
2. Turn Valve A to DRAIN position.
3. Turn Valve B to RECYCLE position.
 - ✓ Always keep manual valve on optional recycler kit in the BYPASS position, except when recycling coolant.
4. Turn the air regulator valve counterclockwise until it stops.
5. Connect shop air to the rear of the **Snap-on Coolant Exchange™** unit and adjust air regulator valve to achieve 8–12 PSI.
6. Turn drain hose valve on the rear of the unit ON and drain used coolant.
 - ✓ Properly dispose or recycle used coolant.

Recycle Used Coolant from Recovery Tank

Used coolant in the recovery tank can be filtered using the optional Drain and Fill Add-on Recycler Option Kit (see *Optional Accessories on page 17*). If the optional recycler kit is installed, follow these steps to recycle coolant.

1. Follow steps 1–5 in *Power Drain Recovery Tank*.
2. Turn manual valve on recycler kit to RECYCLE position.
3. Position the end of drain hose to direct filtered coolant into the new coolant supply tank or other coolant collection container.
4. Open drain hose valve and drain filtered coolant.
 - ✓ Add proper inhibitor additives to the filtered coolant per manufacturer's recommendation.
5. When the old coolant recovery tank is empty, close the valve on the recovery tank drain hose and return the manual valve on the optional recycling kit to the BYPASS position.

Maintenance

Use this chapter to maintain the **Snap-on Coolant Exchange™** unit.

- ✓ Troubleshooting information and a list of parts and accessories are also included.

Recovery Hose Strainer

The **Snap-on Coolant Exchange™** unit is equipped with an inline filter/strainer on the recovery hose (red). This reduces the amount of debris entering the equipment. Excess sludge, debris or chemical “stop leak” will result in slow operation or malfunction of the **Snap-on Coolant Exchange™** unit.

The recovery hose (red) strainer screen needs to be inspected after every *Drain and Fill* operation. It should be cleaned as soon as visible sludge or debris is present on the screen, refer to *Cleaning Recovery Hose Strainer*.

- ✓ Failure to clean the screen will result in debris buildup on the screen which will allow little or no coolant to pass through, and slow down or stop the drain cycle from working.

⚠ WARNING
DO NOT OPERATE THE UNIT WITH THE STRAINER SCREEN REMOVED. Operation of the unit without the filter/strainer screen in place will allow sludge, debris, or chemical “stop leak” to enter the unit and possibly cause clogging of the unit internally.

Cleaning Recovery Hose Strainer

The recovery hose (red) strainer screen needs to be inspected after every *Drain and Fill* operation. It should be cleaned as soon as visible sludge or debris is present on the screen. Follow this procedure to clean the strainer screen.

1. Unscrew strainer bowl from housing.
 - ✓ Be careful not to lose rubber bowl gasket.
2. Remove strainer screen and clean with running water and/or wipe clean with a shop towel.
 - ✓ Be careful not to deform strainer screen.
3. Clean rubber gasket if necessary.

4. Reinstall strainer screen, rubber gasket and strainer bowl. Strainer bowl should be installed onto housing finger tight.

- ✓ Do not overtighten strainer bowl.



Figure 8: Strainer Assembly

Cleaning New Coolant Supply Filler Neck Screen

Used to protect against debris or other foreign objects that may fall into the new coolant supply tank. Foreign objects should be removed as soon as visible. Follow this procedure to clean the filler neck screen, if necessary.

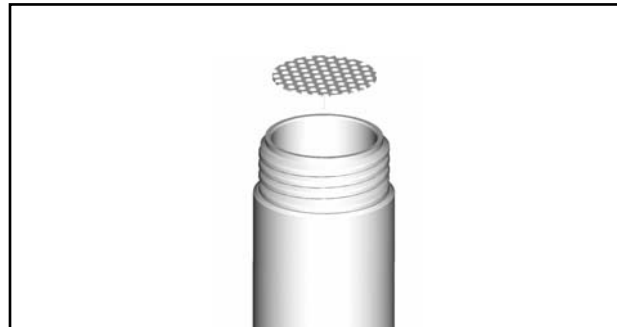


Figure 9: Filler Neck and Screen

1. Lift screen from filler neck. Clean with running water and/or wipe clean with a shop towel.
 - ✓ Be careful not to deform filler neck screen.
2. Reinstall filler neck screen into filler neck.
 - ✓ Make sure screen falls flat in place.

Changing Filter Cartridges on Optional Recycler Kit

Change filter elements when coolant flow becomes restricted.

- ✓ See chemical manufacturers instructions for adding conditioners to recycled coolant.

1. Relieve pressure in Recovery Tank as follows:
 - Turn Air Inlet Valve to OFF.
 - Turn Valve A to DRAIN.
 - Turn Valve B to NORMAL.
 - Close both the red and blue vehicle hose valves.
 - Place recovery hose into a suitable container to catch fluid.
 - Slowly open the recovery hose (red) valve to relieve pressure at the filters.
 - Allow pressure to completely vent, then close recovery hose (red) valve.
2. Carefully remove filter housing (housing will be full of fluid). Use the supplied filter wrench to loosen if necessary.
3. Discard used filter cartridges. Rinse out filter housings.
4. Clean o-ring on housing if necessary and make sure it is properly seated in the groove.
5. Insert the new filter cartridges, making sure the 20 micron filter is on the left and the 5 micron filter is on the right, when viewed from the rear.
6. Screw filter housings onto caps and hand-tighten. DO NOT OVERTIGHTEN.

Replacement Parts

Part Number	Description
EAA0196L47AR	Suction Wand Assembly
EAA0195L31AR	Radiator Adapter Assembly 28mm (1-1/8")
EAA0195L26AR	Radiator Adapter Assembly 1-1/4" to 1-3/8"
EAA0195L27AR	Radiator Adapter Assembly 1-1/2" to 1-3/4"
8-850	Hose Pinch Pliers, Large
8-950	Hose Pinch Pliers, Medium
8-1150	Hose Pinch Pliers, Small
5-06235A-030	Rubber Coolant Hose, 1-1/8" I.D.
5-4835-030	Rubber Coolant Hose, 1-1/4" I.D.
5-4935-030	Rubber Coolant Hose, 1-3/8" I.D.
5-5035-030	Rubber Coolant Hose, 1-1/2" I.D.
5-5135-030	Rubber Coolant Hose, 1-3/4" I.D.
EAK0239L05A	Strainer and Filter Bowl Kit for Recovery Hose (Includes Gaskets)

Optional Accessories

EAK0239L01B	Drain and Fill Add-on Recycler Option Kit
1-12781A	20 Micron Recycler Filter
1-12881	5 Micron Recycler Filter
1W12681	Filter Housing, O-ring, and Cap
8-750	Filter Wrench
EAK0239L02A	Extended Adapter Kit (for 2", 2-1/4", and 2-1/2" hose I.D.)

For service or to order replacement parts contact **EquiServ®** or call 1-800-225-5786.

Troubleshooting

Symptom	Possible Cause	Remedy
Machine does not work, works very slow, or gauge pressure does not reach desired reading	<ul style="list-style-type: none"> • Low or no shop air pressure • Shop air not connected to machine • Leaky hose or connection • Supply tank fill cap off or not tight 	<ul style="list-style-type: none"> — Check shop air pressure, 30–90 PSI (206.8–620.5 kPa) — Connect shop air hose to air inlet valve — Check shop air and Coolant Exchange™ hose connections and fittings — Install or tighten filler cap. check gasket in cap
Gauge does not reach desired vacuum during evacuation cycle	<ul style="list-style-type: none"> • Low shop air pressure • Hose(s) not pinched off on surge tank or overflow tank • Leaky hose or connection • Hose end valves not all closed 	<ul style="list-style-type: none"> — Check shop air pressure, , 30–90 PSI (206.8–620.5 kPa) — Check all hoses connected to surge tank and/or overflow are pinched off and sealed — Check shop air, hose connections, and fittings — Close all unused hose end valves, such as recovery tank drain hose valve
Machine drains very little or no coolant during drain cycle	<ul style="list-style-type: none"> • Recovery tank full (The check valve on recovery tank has closed, shutting off vacuum to recovery tank and hose) • Recovery and supply hose connections reversed • Recovery hose strainer is blocked with debris 	<ul style="list-style-type: none"> — Drain recovery tank (refer to <i>Power Drain Recovery Tank</i>) — Reverse recovery and supply hose connections (refer to <i>Drain and Fill</i>) — Clean strainer (refer to <i>Cleaning Recovery Hose Strainer</i>)
Machine does not completely fill cooling system with new coolant	<ul style="list-style-type: none"> • Supply tank level too low before starting drain and fill process • Manual valve on optional recycler kit not in BYPASS position 	<ul style="list-style-type: none"> — Add coolant to supply tank and repeat drain and fill cycle — Place valve in BYPASS position

One (1) Year Warranty Professional Use

The **Snap-on** company distributing the equipment identified in this Operator's Manual ("**Snap-on**") provides the following warranty to customers who purchased the equipment from an authorized **Snap-on** distribution channel for use in their profession ("Buyer").

Snap-on warrants that the equipment will be free from defects in workmanship and materials for a duration of one (1) year from the original invoice date. Consumable products are warranted, at the time of sale, only against defects in workmanship and materials that prevent their use. Consumable products are goods reasonably expected to be used up or damaged during use, including but not limited to drill bits, saw blades, grinding discs, sanding discs, knife blades, leads, probes, external hoses, adapters, files, O2 sensors and batteries. **Snap-on** does not provide a warranty for accessories used with the equipment that are not manufactured or distributed by **Snap-on**. This warranty only extends to the original Buyer and cannot be transferred or assigned. No warranty is provided with filter elements.

During the stated warranty period, at its option, **Snap-on** will repair or replace the product which fails to give satisfactory service due to defective workmanship or materials, or provide a refund by repaying or crediting Buyer with an amount equal to the purchase price of the product. Repair, replacement or refund shall be at the sole election and expense of **Snap-on**, and is Buyer's exclusive remedy in place of all other rights and remedies. To obtain warranty service, contact **Snap-on**, or a **Snap-on** representative or dealer. All requests for warranty service must be made during the stated warranty period and proof of purchase must be provided with all warranty service requests. By repairing or replacing the product, or providing a refund, **Snap-on** does not waive a claim that the product nevertheless has been subject to abnormal use.

Snap-on does NOT provide any warranty for product subjected to "abnormal use". "Abnormal use" includes misuse, accident, modification, alteration, unreasonable or improper use, abuse, neglect, lack of maintenance, use in product-related service, or use after the equipment is significantly worn. Further, this warranty does NOT cover any damage to, or inoperability or improper operation of the product caused by, resulting from or attributable to (1) installation or maintenance; (2) fire, water, wind, lightning or other natural causes; (3) damage caused by adverse environmental conditions, including without limitation, excessive heat, moisture, corrosive elements, dust or other air contaminants, radio frequency interference, electric power failure, power line voltages beyond those specified for the equipment, unusual physical, electrical or electromagnetic stress and/or any other condition outside of **Snap-on's** environmental specifications; (4) use of the product in combination or connection with other equipment, attachments, supplies or consumables not manufactured or distributed by Snap-on; or (5) failure to comply with any applicable federal, state or local regulation, requirement or specification governing emission analyzers and related supplies or consumables.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Snap-on and its affiliated companies shall not be liable for any incidental, special or consequential losses, costs or damages incurred by Buyer or others, directly or indirectly arising from the sale, handling or use of the products, or from any other cause with respect to the products or this warranty, whether such claim is based upon breach of contract, breach of warranty, strict liability in tort, negligence or any other legal theory (including without limitation, lost profits, revenues, anticipated sales, business opportunities, goodwill, or interruption of business or other injury or damage).

To the extent allowed by applicable law, this warranty and all rights and obligations hereunder, including matters of construction, validity and performance, shall be governed by the substantive laws of the State of Wisconsin, without giving effect to the principles of conflicts of law thereof.

The Snap-on Warranty Information Center
2801 80th Street
Kenosha, Wisconsin 53143

