



**TECHNICAL TIPS**

**FILE NO. T97-8**

**DATE: 4/30/97**

**Subject: SCU10, 12, and 13 Performance Labels**

**Purpose:**

Armstrong has been receiving some calls requesting performance charts for SCU10, 12 and 13 SEER condensing units.

**Discussion:**

Attached are unit performance sheets. These are attached to each unit on the backside of the access door. These labels contain coil match, charge weight, pressures, and superheat.



## TECHNICAL TIPS

FILE NO. T97-9

DATE: 4/30/97

### **Subject: SCU 10, 12 Refrigerant Orifices**

**Purpose:** Armstrong's piston matching procedure has changed to improve the ease of installation for the dealer.

**Discussion:** Armstrong now installs the extra evaporator piston in the control compartment area of the condensing unit. If the evaporator being used does not have the correct piston in the coil, the correct piston will be in the condensing unit. On the outside of the condensing unit's access door will be an orifice label chart. These charts will list supplied and required orifices with the various coils. Attached are label copies for your reference.

**Reason:** Orifices are included with the condensing unit to ensure the correct piston will be on the job for various coil and condenser matches.



**TECHNICAL TIPS**

**FILE NO. T97-10**

**DATE: April 30, 1997**

**Subject: SCU10, 12 & 13 SEER, PGE, & SHP Compressors**

**Purpose:** Armstrong has been receiving calls requesting compressor information.

**Discussion:** Armstrong uses a variety of Copeland, Tecumseh, and Bristol compressors on the SCU10-3 current production units. The SCU12 and 13, PGE, and SHP use the Copeland scroll compressor.

Attached is a compressor listing identifying the compressor, supplier and capacitor.

UNIT	ARMSTRONG PART#	DESCRIPTION	VENDOR	SUPERSEDE # CAP/COMP	CAPACITOR #
SCU10A12A-3	39008C003	RK5512E	TECUMSEH		38514D002 25/5 370V
SCU10A18A-3	40905-001	H23B153ABCA	BRISTOL	/42520-001	38514D002 25/5 370V
SCU10A24A-3	42520-002	CR22KF-PFV-130	COPELAND		38514D003 30/5 370V
SCU10A30A-3	42520-003	CR28KF-PFV-130	COPELAND		38514D004 35/5 370V
SCU10A36A-3	42520-004	CR34KF-PFV-130	COPELAND		38514D018 50/5 370V
SCU10A42A-3	39594C005	CR38K6-PFV-230	COPELAND		38514D006 40/5 440V
SCU10A48A-3	38867B002	AVB5549EXN	TECUMSEH		38514D011 45/5 370V
SCU10A60A-3	38867B005	AVB5558EXN	TECUMSEH		38514D011 45/5 370V

SCU10A30A-4	35136C001	ZR28K1PFV	COPELAND		38514D004 35/5 370V
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SCU10A12A-2	39008C003	RK5512E	TECUMSEH		38514D002 25/5 370V
SCU10A18A-2	41343-001	RA16B1SA-A	ALLIANCE	38514D2/38862C001	38514D001 20/5 370V
SCU10A24A-2	41343-002	RA22B1SA-A	ALLIANCE	38514D3/38863C001	38514D005 40/5 370V
SCU10A30A-2	41195-001	CR26K6PFV	COPELAND		38514D004 35/5 370V
SCU10A36A-2	38867B008	AVB5533EXN	TECUMSEH		38514D008 45/7.5 440V
SCU10A42A-2	39594C004	CR38K6PFV	COPELAND		38514D007 40/7.5 440V
SCU10A48A-2	41347-001	RA4761SA-A	ALLIANCE	38514D8/38867B002	38514D012 55/7.5 440V
SCU10A60A-2	41347-004	RA5961SA-A	ALLIANCE	38514D18/38867B005	38514D019 50/7.5 440V

SCU10A12A-1	39008C003	RK5512E	TECUMSEH		38514D002 25/5 370V
SCU10A18A-1	41343-001	RA16B1SA-A	ALLIANCE	38514D2/38862C001	38514D001 20/5 370V
SCU10A24A-1	41343-002	RA22B1SA-A	ALLIANCE	38514D3/38863C001	38514D005 40/5 370V
SCU10A30A-1	41195-001	CR26K6-PFV	COPELAND		38514D004 35/5 370V
SCU10A36A-1	38867B008	AVB5533EXN	TECUMSEH		38514D008 45/7.5 440V
SCU10A42A-1	39594C004	CR38K6-PFV	COPELAND		38514D007 40/7.5 440V
SCU10A48A-1	41347-001	RA47G1SA-A	ALLIANCE	38514D8/38867D008	38514D012 55/7.5 440V
SCU10A60A-1	41347-004	RA59G1SA-A	ALLIANCE	38514D18/38867B005	38514D019 50/7.5 440V

SHP10C18A-3	35136C004	ZR18K1-PFV	COPELAND		38514D003 30/5 370V
SHP10C24A-3	35136C005	ZR23K1-PFV	COPELAND		38514D003 30/5 370V
SHP10C30A-3	41579-008	ZR30K3-PFV030	COPELAND		38514D004 35/5 370V
SHP10C36A-3	42811-004	ZR36KC	COPELAND		38514D005 40/5 370V
SHP10C42A-3	41738-009	ZR45KC	COPELAND		38514D005 40/5 370V
SHP10C48A-3	41738-001	ZR49KC-230	COPELAND		38514D015 45/5 440V
SHP10C60A-3	41738-003	ZR61KCPFV230	COPELAND		38514D016 60/5 370V

SHP10B18-1	35125C006	AWC5517EXD	TECUMSEH		38514D004 35/5 370V
SHP10B24-1	35125C007	AWC5522EXD	TECUMSEH		38514D004 35/5 370V
SHP10B30-1	35125C008	AWC5528EXD	TECUMSEH		38514D008 45/7.5 440V
SHP10B36-1	40057B001	AVB5533EXD	TECUMSEH		38514D008 45/7.5 440V
SHP10B42-1	39594C001	CR38K6PFV	COPELAND		38514D007 40/7.5 440V
SHP10B48-1	40286-001	H25A460CBCA	BRISTOL		38514D012 55/7.5 440V
SHP10B60-1	40324-005	H25A620CBCA	BRISTOL		38514D013 60/7.5 370V

\*ZR=SCROLL COMPRESSOR

UNIT	ARMSTRONG PART#	DESCRIPTION	VENDOR	SUPERSEDE # CAP/COMP	CAPACITOR #
SHP10A18A-1	35125C006	AWC5517EXD	TECUMSEH		38514D004 35/5 370V
SHP10A24A-1	35125C007	AWC5522EXD	TECUMSEH		38514D004 35/5 370V
SHP10A30A-1	35125C008	AWC5528EXD	TECUMSEH		38514D011 45/5 370V
SHP10A36A-1	40057B001	AVB5533EXD	TECUMSEH		38514D011 45/5 370V
SHP10A42A-1	39594C001	CR38K6PFV260	COPELAND		38514D007 40/7.5 440V
SHP10A48A-1	40286-001	H25A460CBCA	BRISTOL		38514D012 55/7.5 440V
SHP10A60A-1	40324-005	H25A620CBCA	BRISTOL		38514D013 60/7.5 370V

SHP12B24A-2	35136C005	ZR23K1	COPELAND		38514D003 30/5 370V
SHP12B30A-2	41579-001	ZR28K3	COPELAND		38514D011 45/5 370V
SHP12B36A-2	41579-003	ZR34K3	COPELAND		38514D019 50/7.5 440V
SHP12B42A-2	41579-003	ZR36K3	COPELAND		38514D019 50/7.5 440V
SHP12B48A-2	40478-005	ZR46K3	COPELAND		38514D013 60/7.5 370V
SHP12B60A-2	40478-011	ZR54K3	COPELAND		38514D013 60/7.5 370V

SHP12A24A-1	35136C005	ZR23K1PFV	COPELAND		38514D003 30/5 370V
SHP12A30A-1	35136C001	ZR28K1PFV	COPELAND		38514D004 35/5 370V
SHP12A36A-1	35136C002	ZR34K1PFV	COPELAND		38514D009 35/7.5 440V
SHP12A42A-1	35136C003	ZR40K1PFV	COPELAND		38514D009 35/7.5 440V
SHP12A48A-1	40478-005	ZR463PFV	COPELAND		38514D013 60/7.5 370V
SHP12A60A-1	40478-006	ZR57K3PFV	COPELAND		38514D014 80/7.5 370V

SHP13A24A-1	41579-005	ZR22K3PFV	COPELAND		38514D005 40/5 370V
SHP13A30A-1	41579-006	ZR26K3PFV	COPELAND		38514D005 40/5 370V
SHP13A36A-1	41579-002	ZR34K3PFV	COPELAND		38514D019 50/7.5 440V
SHP13A42A-1	41579-003	ZR36K3PFV	COPELAND		38514D019 50/7.5 440V
SHP13A48A-1	40478-005	ZR46K3PFV	COPELAND		38514D013 60/7.5 370V
SHP13A60A-1	40478-011	ZR54K3PFV	COPELAND		38514D014 80/7.5 370V

PGE10A24-3	42520-002	CR22KF-PFV	COPELAND		38514D003 30/5 370V
PGE10A30-3	42520-003	CR22KF-PFV	COPELAND		38514D004 35/5 370V
PGE10A36-3	42520-004	CR34KF-PFV	COPELAND		38514D018 50/5 370V
PGE10A42-3	39594C004	CR38K6-PFV	COPELAND		38514D004 40/5 440V
PGE10A48-3	38867B002	AVB5549EXN	TECUMSEH		38514D015 45/5 440V
PGE10A60-3A	38867B005	AVB5558EXN	TECUMSEH		38514D015 45/5 440V
PGE10A60-3B	40478-006	ZR57K3-PFV	COPELAND		38514D017 80/5 370V
PGE10A24-2A	38863C001	CR22K6PFV	COPELAND		38514D003 30/5 370V
PGE10A30-2A	38864C002	CR28K6PFV	COPELAND		38514D004 35/5 370V
PGE10A36-2A	38867B009	AVB5533	TECUMSEH		38514D011 45/5 370V
PGE10A42-2A	39594C004	CR38K6PFV	COPELAND		38514D006 40/5 440V
PGE10A48-2A	38867B002	AVB5549	TECUMSEH		38514D015 45/5 440V
PGE10A60-2A	38867B005	AVB5558	TECUMSEH		38514D015 45/5 440V

\*ZR=SCROLL COMPRESSOR

UNIT	ARMSTRONG PART#	DESCRIPTION	VENDOR	SUPERSEDE # CAP/COMP	CAPACITOR #
PGE10A24-1	38863C002	CR22K6PFV	COPELAND		38514D003 30/5 370V
PGE10A30-1	38864C003	CR28K6PFV	COPELAND		38514D004 35/5 370V
PGE10A36-1	38867B008	AVB5533EXN	TECUMSEH		38514D011 45/5 370V
PGE10A42-1	39594C001	CR38K6PFV	COPELAND		38514D006 40/5 440V
PGE10A48-1	38867B002	AV5549G	TECUMSEH		38514D015 45/5 440V
PGE10A60-1	38867B005	AV5558G	TECUMSEH		38514D015 45/5 440V

PGE12A24-1A	41579-005	ZR22K3-3	COPELAND		38514D005 40/5 370V
PGE12A30-1A	41579-001	ZR28K-3	COPELAND		38514D015 45/5 440V
PGE12A36-1A	41579-002	ZR34K-3	COPELAND		38514D018 50/5 370V
PGE12A42-1A	41579-007	ZR40K-3	COPELAND		38514D020 55/5 370V
PGE12A48-1A	40478-005	ZR46K-3	COPELAND		38514D016 60/5 370V

PLE24A-2A	38863C001	CR22K6PFV	COPELAND		38514D003 30/5 370V
PLE30A-2A	38864C002	CR28K6PFV	COPELAND		38514D004 35/5 370V
PLE36A-2A	38867B009	AVB5533EXN	TECUMSEH		38514D011 45/5 370V
PLE42A-2A	39594C004	CR38K6PFV	COPELAND		38514D006 40/5 440V

PHP12A24A-1A	41579-005	ZR22K3PFV	COPELAND		38514D005 40/5 370V
PHP12A30-1A	41579-001	ZR28K3PFV	COPELAND		38514D015 45/5 440V
PHP12A36-1A	41579-002	ZR34K3PFV	COPELAND		38514D018 50/5 370V
PHP12A42-1A	41579-007	ZR40K3PFV	COPELAND		38514D020 55/5 370V
PHP12A48-1A	40478-005	ZR46K3PFV	COPELAND		38514D016 60/5 370V

PHP10A24-2A	38863C002	CR22K6-PFV	COPELAND		38514D003 30/5 370V
PHP10A30-2A	38864C003	CR28K6-PFV	COPELAND		38514D004 35/5 370V
PHP10A36-2A	38867B008	AVB5533EXN	TECUMSEH		38514D011 45/5 370V
PHP10A42-2A	39594C001	CR38K6-PFV	COPELAND		38514D006 40/5 440V
PHP10A48-2A	41738-001	ZR49KC-PFV	COPELAND		38514D015 45/5 440V
PHP10A60-2A	41738-003	ZR61KC-PFV	COPELAND		38514D016 60/5 370V

PHP10A24-1	38863C002	CR22K6-PFV	COPELAND		38514D003 30/5 370V
PHP10A30-1	38864C003	CR28K6-PFV	COPELAND		38514D004 35/5 370V
PHP10A36-1	38867C008	AVB5533EXN	TECUMSEH		38514D011 45/5 370V
PHP10A42-1	39594C001	CR38K6PFV-260	COPELAND		38514D006 40/5 440V
PHP10A48-1	41738-001	ZR49KC-PFV	COPELAND		38514D015 45/5 440V
PHP10A60-1	41738-003	ZR49KC-PFV	COPELAND		38514D016 60/5 440V

\*ZR=SCROLL COMPRESSOR

# ARMSTRONG

## TECHNICAL TIPS

FILE NO. T95-2

DATE: June 26, 1995

**Subject: Service Valve (O-Ring) Leaks**

Numerous requests have been made for service valve o-rings. The following is intended to describe the function of the service valve o-ring.

Armstrong condensing and heat pump units come with a full function sweat service valve. When this service valve is fully opened, fully closed, or any point in between, leakage may occur past the o-ring. The o-ring is not intended as a true seal from atmospheric pressure during the unit's normal lifetime hours. The large brass caps metal to metal contact is the final seal from atmospheric pressure. The brass cap must be tightened with a wrench. If the valve continues to leak through the cap's threads, the valve will have to be replaced.

O-rings which are suspected to be damaged from overheating may be replaced. O-ring kits are available from Armstrong's Service Parts Department. This letter is being provided as information only and does not alter or extend any warranties.

JLR:hz

**SUBJECT:** Service Valve Caps on Split System Product

**MODELS:** Affects all SCU, CCU, CHU, and SHP split system product.

**DISCUSSION:** It has recently been determined that in some instances the caps of two valve suppliers (Aeroquip and Parker) may have become intermixed during production. A thread change was implemented on the caps of the service valves. A new coarse thread was used to standardize between the two valves. Product prior to the coarse thread introduction used a fine thread (see figure below). A third valve is also used, Chatleff, but it is not affected by this issue.

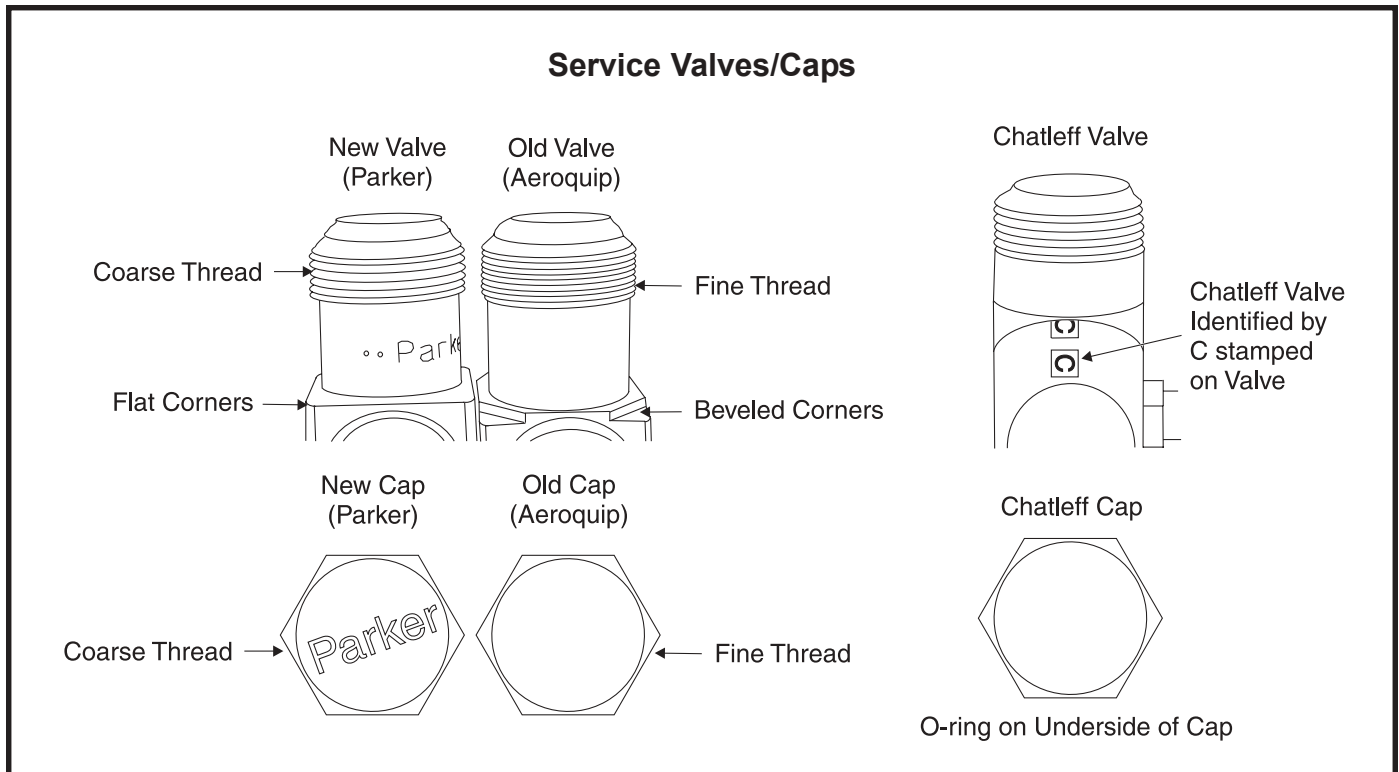
A fine thread cap will start on a coarse thread valve and a coarse thread cap will start on a fine thread valve. Although 1-2 turns may be achieved, they will not seat properly. Chatleff caps will only fit on the Chatleff valves, and Aeroquip and Parker caps will not fit Chatleff valves.

**FACTORY CORRECTIVE ACTION:** Although occurrences and leakage rates are minimal, we feel it is imperative to take proactive measures of notification in the event a customer encounters some incorrect fitting caps.

All valves now use the coarse thread cap and coarse thread valve. Suspect units have serial number dates codes 1602M, 1603A, 1603B, and 1603C. All inventory from 1603D and on have minimal, if any, occurrence.

**FIELD CORRECTIVE ACTION:** Replacement valve cap kits are available through Armstrong Technical Services. Kits contain 3/8", 3/4", and 7/8" coarse and fine thread caps. These kits will be provided on an "as needed" basis.

**WARRANTY INFORMATION:** In the event this occurs, please contact the Armstrong Technical Services at 1.800.448.5872 ext. 2610.





**SUBJECT:** Sticking Service Valves on Split System Product

**MODELS:** Affects all SCU, CCU, CHU, and SHP split system product.

**DISCUSSION:** It has recently been determined that in some instances the service valves on the split system units may have been tightened beyond the specified settings. Generally it is the liquid line service valve (the smaller of the two) that is the more difficult valve to open. While occurrences have been low, we are providing a few valve opening guidelines in the event that a stuck valve should be encountered..

**FACTORY CORRECTIVE ACTION:** All inventory from 1603E and on are under strict calibration procedures. Liquid line valve (3/8") are torqued at 6-8 ft. lbs.; suction valves (3/4" and 7/8") are torqued at 18-20 ft. lbs.

Sixty units of various sizes from the suspected date codes were tested. Although some difficulty was encountered in opening several of the units, all were able to be opened.

**FIELD CORRECTIVE ACTION:** If the valve is difficult to open, the following procedure should be used.

1. Make sure the hex wrench is completely inserted all the way to the bottom of the hex socket in the valve stem body (see figure below). Inserting the hex wrench only partially into the socket reduces the surface area that the wrench locks on to. The hex sockets in some of the sampled units were found to be slightly larger in the top 1/3 of the socket. Ensuring that the wrench is fully inserted and seated reduces the chances of the hex socket stripping while being opened.
2. Once the wrench is properly seated, use a backup wrench on the square valve body to secure the service valve while the hex socket is being turned.
3. If necessary, use a larger wrench on the hex wrench (such as an adjustable wrench, locking pliers, etc.) to gain more leverage when turning the hex wrench.

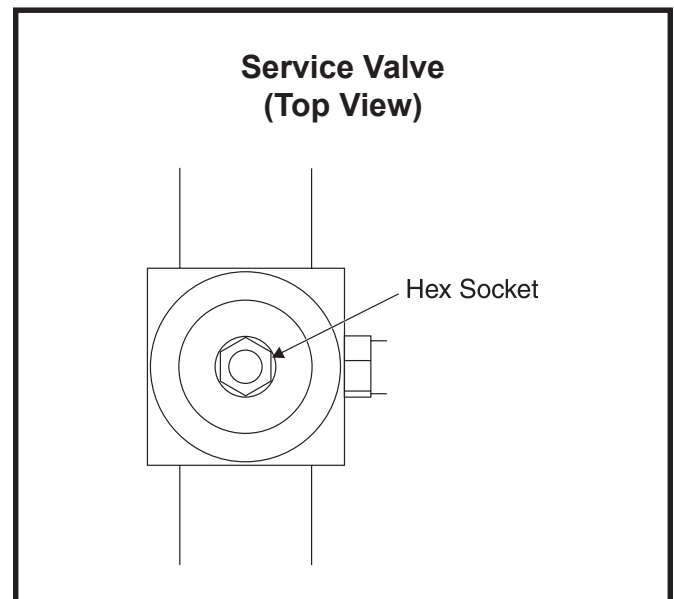
**WARRANTY INFORMATION:** In the event the valve is stripped while an attempt is made to open it or the valve will not open, we recommend the following options.

1. Replace the valve and file a warranty claim for the valve and \$165 in labor.

**⚠ WARNING**

When changing a service valve, refrigerant may be trapped in the high side of the system. Recovering from the valve stems of the service valve will not necessarily recover all the refrigerant. A tap valve will need to be placed on the high side of the system between the valves and the compressor to ensure complete refrigerant removal. Failure to install a tap valve and remove any trapped refrigerant may result in personal injury.

2. Replace the entire unit (\$150 in labor).



**SUBJECT:**

Filter-Driers on Split System Heat Pumps and Condensers

**DISCUSSION:**

Armstrong, Air Ease, and Concord brand heat pumps use a bi-directional heat pump drier. Models include SHP and RH heat pumps. SCU series split condensers use a copper spun dessicant drier. CCU series split condensers do not come with a filter-drier assembly installed. When installing the CCU series unit, a filter-drier must be field installed.

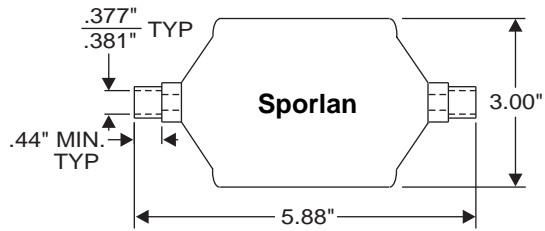
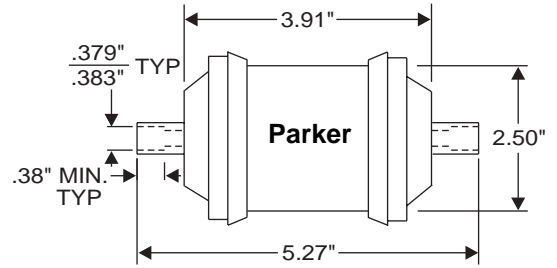
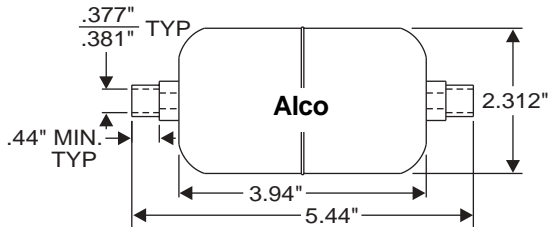
Table 1 lists the filter-driers used on the Armstrong and Air Ease heat pumps and condensers and the Concord heat pump units. Figures 1 and 2 on page 2 show the different filter-driers used.

<b>Filter-Driers Used on Armstrong, Air Ease, and Concord Split System Heat Pumps and Condensers*</b>		
Model	Armstrong Filter-Drier Part #	Vendor Filter-Drier Part #
SHP Heat Pump	43346-001	Parker BF083S, Sporlan HPC-103-S, or Alco BFK-083S
RH Heat Pump	43346-001	Parker BF083S, Sporlan HPC-103-S, or Alco BFK-083S
SCU Condensor	02974A002	Alco ADK-053S, Alco EK-053S, Sporlan C-053S, or Sporlan CG-05E65
	40782-001	Spinco 1118170-1 or Parker 056243-03

\* Concord CCU split system condensers do not come from the factory with a filter-drier assembly installed. A filter-drier must be installed in the field.

**Table 1**

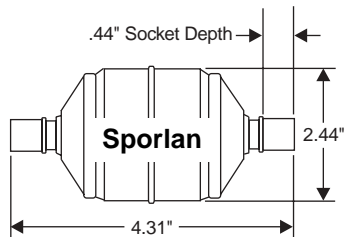
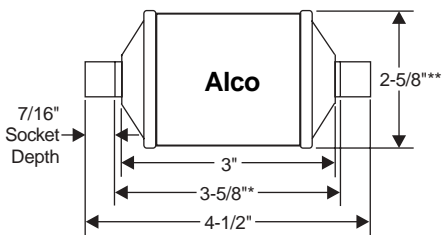
**Filter-Driers used in SHP and RH Heat Pumps  
Armstrong #43346-001**



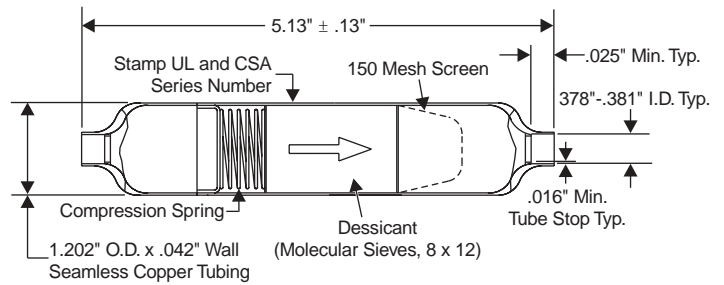
**Figure 1**

**Filter-Driers used in SCU Condensers**

**Armstrong  
#02974A002**



**Armstrong  
#40872-001**



**Figure 2**



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SERVICE BULLETIN

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**FILE NO. SVB97-3**

**DATE: April 30, 1997**

**SUBJECT: Submerged and Water Damaged HVAC Equipment**

**Purpose:** To insure the safe operation, reliability and performance of heating and air conditioning equipment it is recommended that units that have suffered excessive water damage be replaced.

**Discussion:** The safety and performance of either indoor or outdoor equipment that has been submerged and/or exposed to excessive water damage cannot be verified. And, it is recommended that such equipment be removed from service and scrapped.

A determination of excessive water damage should be made by a qualified technician.

Equipment that has been submerged should always be removed from service and scrapped.

**Warranty:** Armstrong warranty does not cover flood/water damage.



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**SERVICE BULLETIN**

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**FILE NO. SVB96-6**

**DATE: July 1, 1996**

**SUBJECT: SCU48 & 60 FAN BLADES**

Armstrong has determined that models SCU10A48A-3 and SCU10A60A&B-3 units have an incorrect fan blade installed. Units produced from April to May (8496D to 8496E) have an 18" blade instead of a 24" blade. It is not mandatory for the blades to be changed. If the blades are not changed the high side pressure will run approximately 10% higher. Performance degradation will be more noticeable in high ambient temperature climates. If you choose to change fan blades the following labor rates apply:

A) Installed units = \$40

B) Units in inventory/supply blades to dealer at time of sale = \$20

Attached with this bulletin are the model and serial numbers which have been shipped to you. A supply of blades have been shipped to you at this time. Should you need more, please contact Jeff Rife at extension 359 to arrange delivery dates.

This service bulletin will expire on October 31, 1996. All warranty claims must be filled by November 30, 1996.



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**SERVICE BULLETIN**

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**FILE NO. SVB95-3**

**DATE: July 6, 1995**

**SUBJECT: SCU10A36 DISCHARGE TUBE**

Armstrong has determined that some SCU10A36 units manufactured during the months of May and June 1995, may have discharge tube vibration problems upon installation that may result in leaks and ultimate shutdown of the unit.

A detailed list of potentially-affected units has already been mailed to each distributor. The fix for units not yet installed is the addition of a harmonic compensator kit. These kits have already been shipped to each distributor in a quantity equal to the number of affected SCU10A36's shipped to that distributor.

For units already installed that have not experienced problems, the distributor is authorized to allow a \$40 labor charge for the dealer to add the kit in the field. A warranty claim form will be required for this additional labor credit to be processed.

For units installed that have failed, the addition of a newly designed tube (part number 42256-001) will be handled under standard warranty guidelines. A quantity of these parts have been shipped to each distributor as well. Additional quantities may be ordered no charge.

All paperwork must be received by Armstrong by August 15, 1995. This Service Bulletin terminates at that time.

BFT:hz