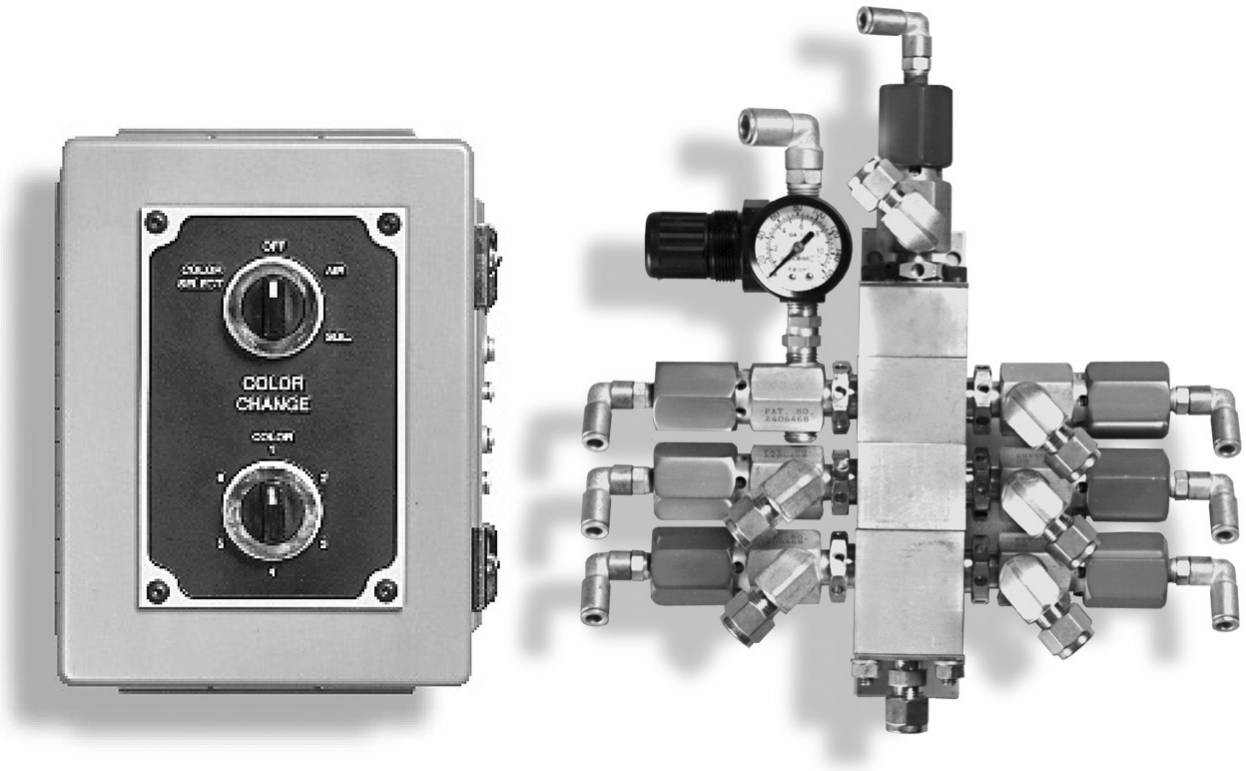
Ransburg

SERVICE MANUAL
CS-95-01.2
(Replaces CS-95-01.1)
March 2013

COLOR SELECT SYSTEM™



MODEL: CCV-6100

IMPORTANT: Before using this equipment, carefully read SAFETY PRECAUTIONS, starting on page 1, and all instructions in this manual. Keep this Service Manual for future reference.

Service Manual Price: $30.00

CONTENTS

SAFETY

SAFETY PRECAUTIONS

Before operating, maintaining or servicing any Ransburg electrostatic coating system, read and understand all of the technical and safety literature for your Ransburg products. This manual contains information that is important for you to know and understand. This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the following symbols. Please pay particular attention to these sections.

A WARNING! states information to alert you to a situation that might cause serious injury if instructions are not followed.

A CAUTION! states information that tells how to prevent damage to equipment or how to avoid a situation that might cause minor injury.

A NOTE is information relevant to the procedure in progress.

While this manual lists standard specifications and service procedures, some minor deviations may be found between this literature and your equipment. Differences in local codes and plant requirements, material delivery requirements, etc., make such variations inevitable. Compare this manual with your system installation drawings and appropriate Ransburg equipment manuals to reconcile such differences.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier troubleshooting. If you do not have the manuals and safety literature for your Ransburg system, contact your local Ransburg representative or Ransburg.

⚠ WARNING

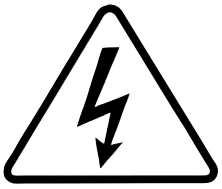
► The user **MUST** read and be familiar with the Safety Section in this manual and the Ransburg safety literature therein identified.

► This manual **MUST** be read and thoroughly understood by **ALL** personnel who operate, clean or maintain this equipment! Special care should be taken to ensure that the **WARNINGS** and safety requirements for operating and servicing the equipment are followed. The user should be aware of and adhere to **ALL** local building and fire codes and ordinances as well as **NFPA-33 SAFETY STANDARD,** prior to installing, operating, and/or servicing this equipment.

⚠ WARNING

► The hazards shown on the following page may occur during the normal use of this equipment. Please read the hazard chart beginning on page 2.

AREA Tells where hazards may occur.	**HAZARD** Tells what the hazard is.	**SAFEGUARDS** Tells how to avoid the hazard.
Spray Area 	Fire Hazard Improper or inadequate operation and maintenance procedures will cause a fire hazard. Protection against inadvertent arcing that is capable of causing fire or explosion is lost if any safety interlocks are disabled during operation. Frequent power supply shutdown indicates a problem in the system requiring correction.	Fire extinguishing equipment must be present in the spray area and tested periodically. Spray areas must be kept clean to prevent the accumulation of combustible residues. Smoking must never be allowed in the spray area. The high voltage supplied to the atomizer must be turned off prior to cleaning, flushing or maintenance. When using solvents for cleaning: Those used for equipment flushing should have flash points equal to or higher than those of the coating material. Those used for general cleaning must have flash points above 100˚F (37.8ºC). Spray booth ventilation must be kept at the rates required by NFPA-33, OSHA, and local codes. In addition, ventilation must be maintained during cleaning operations using flammable or combustible solvents. Electrostatic arcing must be prevented. Test only in areas free of combustible material. Testing may require high voltage to be on, but only as instructed. Non-factory replacement parts or unauthorized equipment modifications may cause fire or injury. If used, the key switch bypass is intended for use only during set-up operations. Production should never be done with safety interlocks disabled. Never use equipment intended for use in waterborne installations to spray solvent based materials. The paint process and equipment should be set up and operated in accordance with NFPA-33, NEC, and OSHA requirements.

AREA Tells where hazards may occur.	**HAZARD** Tells what the hazard is.	**SAFEGUARDS** Tells how to avoid the hazard.
General Use and Maintenance 	Improper operation or maintenance may create a hazard. Personnel must be properly trained in the use of this equipment.	Personnel must be given training in accordance with the requirements of NFPA-33. Instructions and safety precautions must be read and understood prior to using this equipment. Comply with appropriate local, state, and national codes governing ventilation, fire protection, operation maintenance, and housekeeping. Reference OSHA, NFPA-33, and your insurance company requirements.
Electrical Equipment 	High voltage equipment is utilized. Arcing in areas of flammable or combustible materials may occur. Personnel are exposed to high voltage during operation and maintenance. Protection against inadvertent arcing that may cause a fire or explosion is lost if safety circuits are disabled during operation. Frequent power supply shutdown indicates a problem in the system which requires correction. An electrical arc can ignite coating materials and cause a fire or explosion.	The power supply, optional remote control cabinet, and all other electrical equipment must be located outside Class I or II, Division 1 and 2 hazardous areas. Refer to NFPA-33. Turn the power supply OFF before working on the equipment. Test only in areas free of flammable or combustible material. Testing may require high voltage to be on, but only as instructed. Production should never be done with the safety circuits disabled. Before turning the high voltage on, make sure no objects are within the sparking distance.
Explosion Hazard/ Incompatible Materials 	Halogenated hydrocarbon solvents for example: methylene chloride and 1,1,1,-Trichloroethane are not chemically compatible with the aluminum that might be used in many system components. The chemical reaction caused by these solvents reacting with aluminum can become violent and lead to an equipment explosion.	Aluminum is widely used in other spray application equipment - such as material pumps, regulators, triggering valves, etc. Halogenated hydrocarbon solvents must never be used with aluminum equipment during spraying, flushing, or cleaning. Read the label or data sheet for the material you intend to spray. If in doubt as to whether or not a coating or cleaning material is compatible, contact your material supplier. Any other type of solvent may be used with aluminum equipment.

AREA Tells where hazards may occur.	**HAZARD** Tells what the hazard is.	**SAFEGUARDS** Tells how to avoid the hazard.
Toxic Substances 	Certain material may be harmful if inhaled, or if there is contact with the skin.	Follow the requirements of the Material Safety Data Sheet supplied by coating material manufacturer. Adequate exhaust must be provided to keep the air free of accumulations of toxic materials. Use a mask or respirator whenever there is a chance of inhaling sprayed materials. The mask must be compatible with the material being sprayed and its concentration. Equipment must be as prescribed by an industrial hygienist or safety expert, and be NIOSH approved.

INTRODUCTION

DESCRIPTION

Color Select System

The CCV-6100 Color Select System is a manually controlled pneumatic color change system. The system consists of one or two color change boxes, a Color Change Valve Stack, and 1/4 inch OD poly tubing. The system allows for up to and including (15) different colors. Color changes are made using CCV-403-SS color change valves.

Valve

The CCV-403-SS is a pneumatically operated fluid valve designed for use in paint spray application systems. The valve can be used in a variety of other applications. The valve can be used separately for on/off control of paint to a spray atomizer; or, as part of a multi-color manifold assembly where colors can be quickly flushed and changed when a color change is desired.

All parts that come in contact with the fluid material are made of either stainless steel or PTFE that is impervious to most solvents. All other parts of the valve are made of brass, stainless steel, nickel-plated brass or hard coated (anodized) aluminum. The valve is constructed with a smooth, unobstructed fluid path that allows for faster flush cleaning, and also less pressure restriction. The valve body has two fluid inlet ports that allow fluid to circulate through the valve on a continuous basis. A plug is provided when this feature is not to be used. The double inlet ports also allow two valves to be used as a fluid on/off control and dump system.

Main Box

The main box consists of two six-position pneumatic switches. The top switch switches between off, air solvent and color. The color select position activates the bottom color switch and the secondary box (if more than five colors are to be used). The bottom switch is used to select colors 1 through 5. All internal plumbing is 5/32 nylon tubing. The external bulkhead fittings are for 1/4 inch O.D. tubing, including the supply air fitting.

When High Voltage is on, both Solvent Flush and Air Push are locked out so they cannot be triggered.

Secondary Box

The secondary box also consists of two six position pneumatic switches. The top switch selects color 6 through 10, the bottom 11 through 15. All internal and external tubing connections are the same sizes as the main box.

NOTE

➤ When using the secondary box, all color select switches not in use must be set in the OFF position.

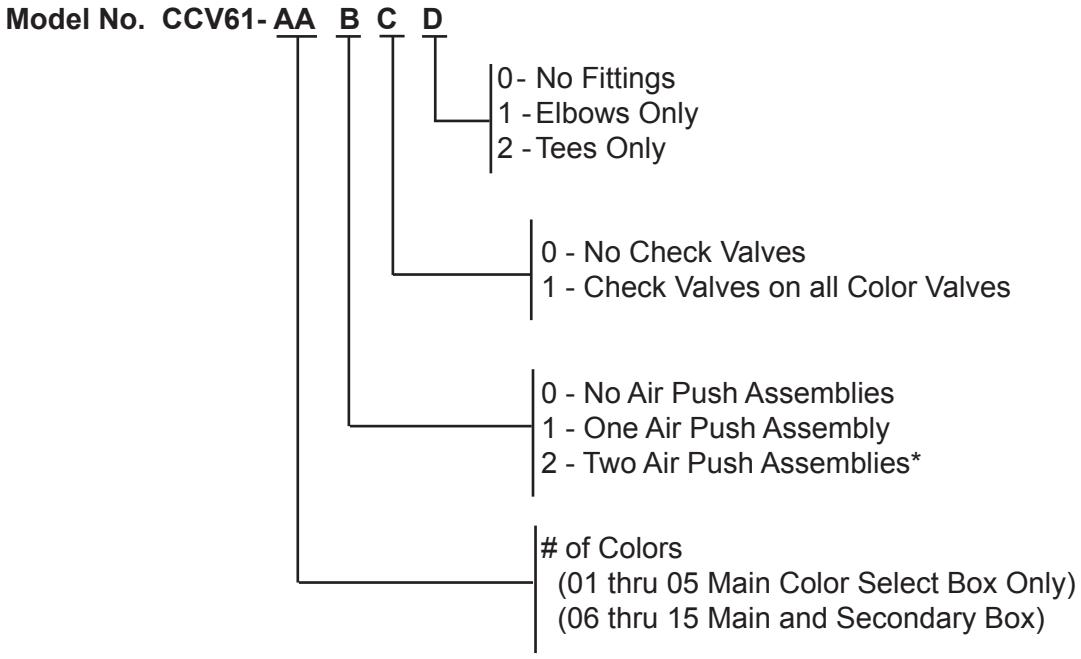
SPECIFICATIONS

Air Requirements:	70-100 psig(4.8-6.9 bar) Operating Pressure
Air Inlet / Outlet Connections:	1/4” OD Tubing
Fluid Pressure:	300 psig (20.6 bar) max.
Fluid Inlet:	1/4” NPT (F) X 2 ports (Fittings installed 3/8” OD tubing)
Fluid Outlets:	1/4” NPT (F) (Fitting installed a 3/8” OD tubing)
Fluid Flow:	3800 cc/min @ 47 psi pressure drop (Paint viscosity @ 700 centipoise) Varies according to material pressure and viscosity.
Valve Actuation Speed, On-Off Cycle:	55 cycles/min
Colors:	Up to and including 5 colors, main box only. Up to and including 15 colors total.

NOTES

The Color Select System is available in many major configurations with several minor options as follows:

COLOR SELECT SYSTEM MODEL IDENTIFICATION



* If “B” is “2” (two Air Push Assemblies), the Secondary Color Select box must be used for colors 05 thru 15.

Part Number CCV61XX-XXX identifies the configuration of the Color Selection System.

CCV-61XX-XXX - COLOR SELECT SYSTEM

Includes the main box, top block, solvent valve and 1/4 inch O.D. poly tubing. The solvent valve is always supplied with a solvent proof check valve and a 3/8-inch ODT stainless steel female elbow for fluid inlet.

CCV-61(XX)-XXX - NUMBER OF COLOR VALVES

(Selection 00-15). These two numbers indicate the number of valves required for paint to the stack assembly. Also number of color select boxes.

CCV-61XX-(X)XX - AIR PUSH VALVES

(Selection 0, 1, 2). This number indicates the number of “air push” valves required. Each valve is supplied with a solvent proof check valve; gauge, regulator and 3/8-inch ODT brass push style fitting for air inlet. The air push is used to push out residual paint in the fluid supply line. This air is also pulsed on and off with the solvent to create a scrubbing action. In the event that two different pressures are required, two air push valves can be supplied.

CCV-61XX-X(X)X - CHECK VALVES

(Selection 0, 1). This number indicates whether check valves are supplied on the paint inlet valves. Check valves are used to prevent materials from contaminating each other in the event that two valves would be opened at the same time. NOTE: Check valves will always be supplied on solvent and air valves, regardless of selection made here.

CCV-61XX-XX(X) - FLUID INLET FITTINGS

(Selection 0, 1, 2). This number indicates whether no fitting, elbows, or tees are supplied for the fluid inlet to the color valves. Elbows are typically utilized for fluid inlet. Tees are used for circulating the paint at the color valve. The elbows and tees are stainless steel and accept a 3/8-inch OD fluid line.

All valves are supplied with a brass push style swivel elbow for the air pilot. This fitting accepts a 1/4-inch OD tube.

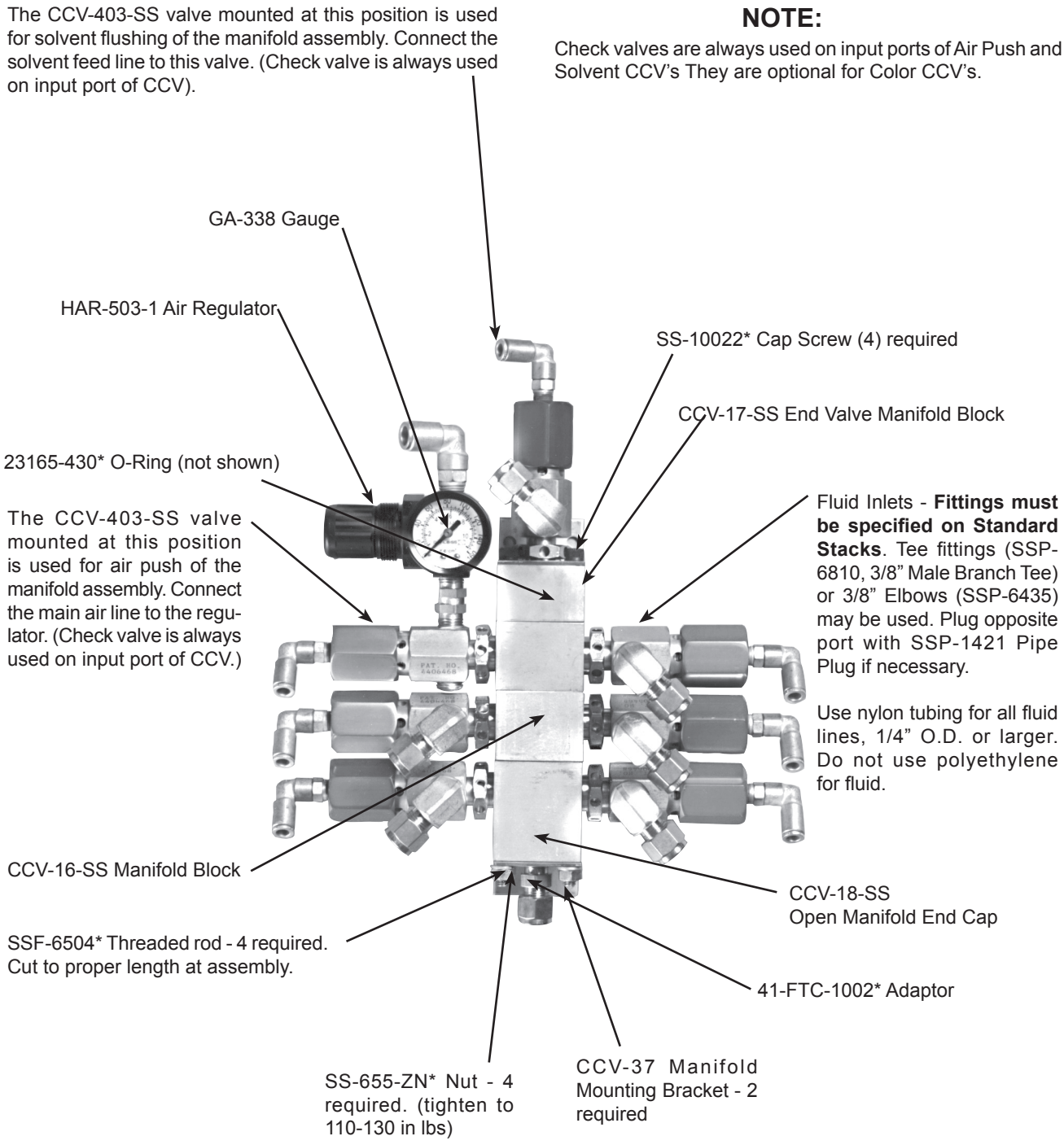


Figure 1: Typical Color Change Stack

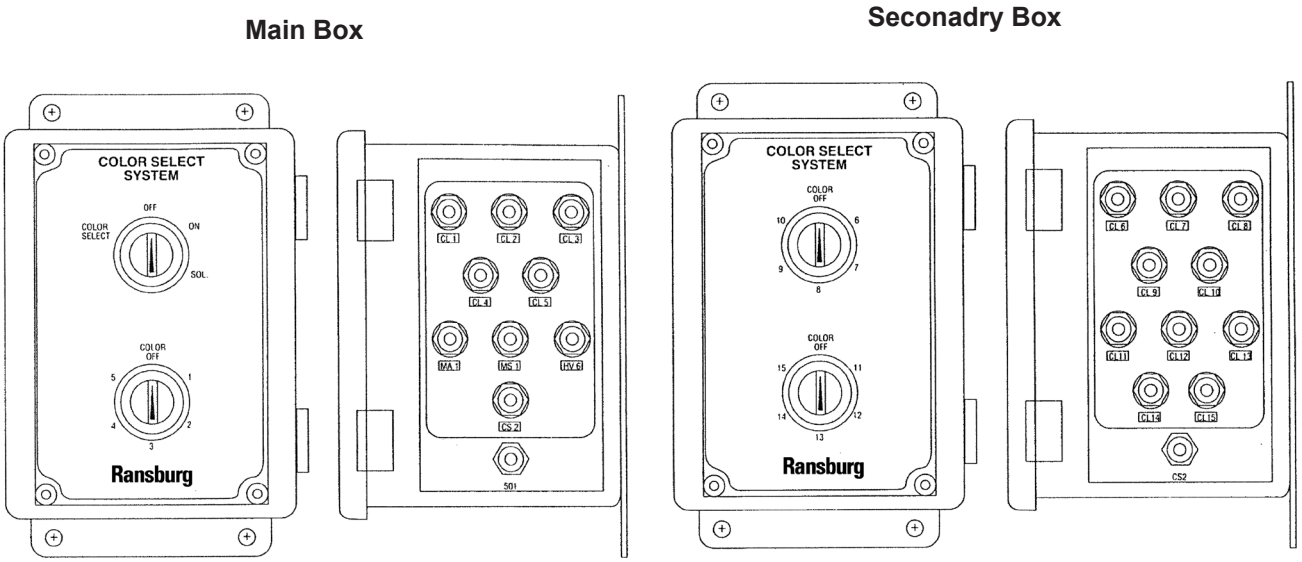


Figure 2: Color Select Boxes

Color Select System Function Description	
Color Select	Supplies air to all color select switches
Off	No air flow
Air	Supplies air to air push valve
Sol	Supplies air to solvent flush valve
Color - Off	Off position for individual color select valves (activates next valve)
Color - 1 - 15	Supplies air to color valves

Color Select System Output Description	
CL1 - CL15	Activation air for color valves 1 thru 5
CS2	Supply air for secondary color select box
HV6	High voltage on signal air (to HV6 on pneumatic control panel)
MA1	Activation air for air push valve
MS1	Activation air for solvent flush valve
501	Main supply air

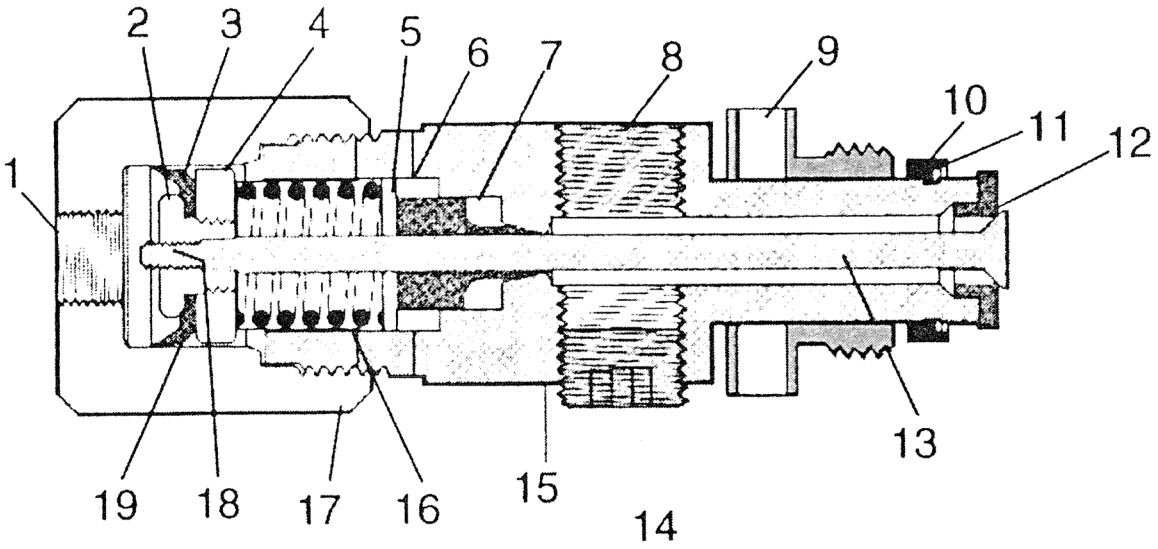


Figure 3: CCV-403-SS Cutaway

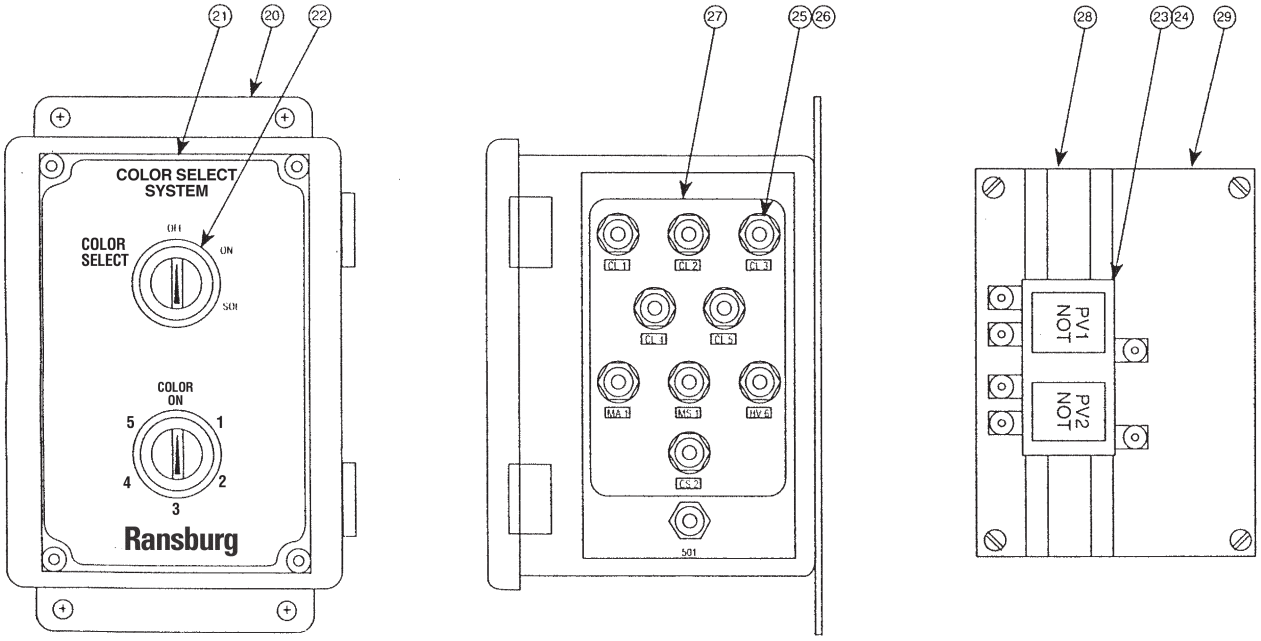


Figure 4: Color Select Box

CCV-403-SS - PARTS LIST (Figures 3 and 4)

Item #	Part #	Description
1	----	Air Inlet, 1/8” NPT (F)
2	CCV-45	Clamping Nut *
3	VA-246	Cup *
4	CCV-3	Nut
5	CCV-41-K2	Spring Kit
6	CCV-4	Spring Washer
7	CCV-8-K2	Valve Needle Seal Kit *
8	----	Fluid Inlet (2 ports), 1/4” NPT (F)
9	CCV-13	Spanner Nut
10	CCV-44	Ring Retainer
11	SST-8436-K5	Retaining Ring Kit
12	CCV-40-K2	Poppet Seat Kit *
13	CCV-39	Stem (Order KK-4841) *
14	SSP-1421	Pipe Plug (Shipped loose with valve) (Not used if material is recirculated)
15	CCV-15-SS	Valve Body
16	CCV-42	Valve Indicator
17	CCV-43	Valve Cap
18	----	Use Adhesive (Medium Strength, Grade #242) on threads - 2 places
19	----	Apply a thin film of lubricant (light grease) to bore and cup at assembly.
--	CCV-7	Spanner Tool (Not Shown)
--	CCV-403-SS	Color Change Valve Assembly
	Color Select Box Assembly:	
20	LPNE0005	Enclosure
21	LPNE0003 (Main Box)	Bulkhead Faceplate (Front)
	LPNE0006 (Secondary Box)	
22	41-VMC-1002	Air Selector Switch
23	41-VAP-1004	Air Pilot Valve **
24	41-BAS-1000	Pilot Valve Base **
25	41-FBH-1000	Bulkhead Fitting
26	41-FTP-1015	Reducer Fitting, 1/4” T X 5/32” T (Not Shown)
27	LPNE0004 (Main Box)	Bulkhead Faceplate (Side)
	LPNE0007 (Secondary Box)	
28	LS0079	Din Rail
29	LPNE0008	Mounting Plate

* Supplied in Repair Kit KK-4841.
** Main Color Select Box Only

Torque Specifications

1. Tighten CCV-45 to CCV-3, with VA-246 in between, using 12-18 lbs•in torque.

2. Tighten CCV-45, DDV-3, VA-246 assembly to CCV-39 using 3 lbs•in torque maximum (finger tight). **DO NOT OVER-TIGHTEN.**

3. Tighten CCV-43 to CCV-15-S valve body using 75-125 lbs•in torque.

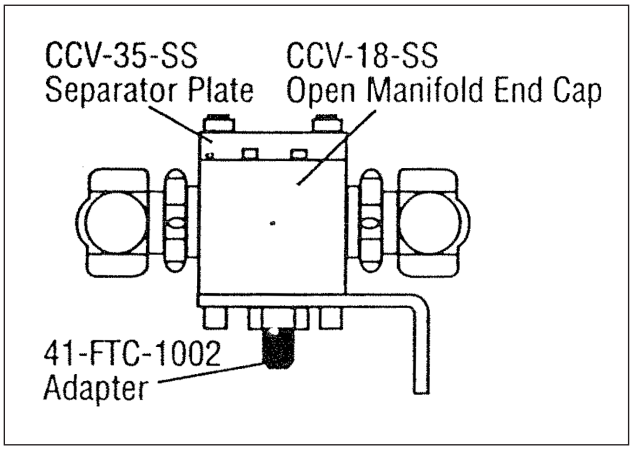


Figure 5: Two-Valve Manifold Assembly

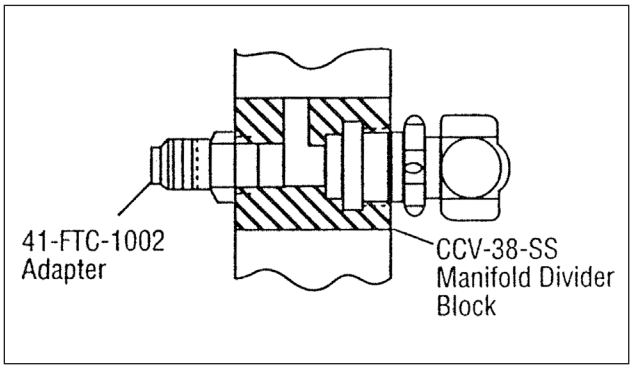


Figure 6: Manifold Divider Block

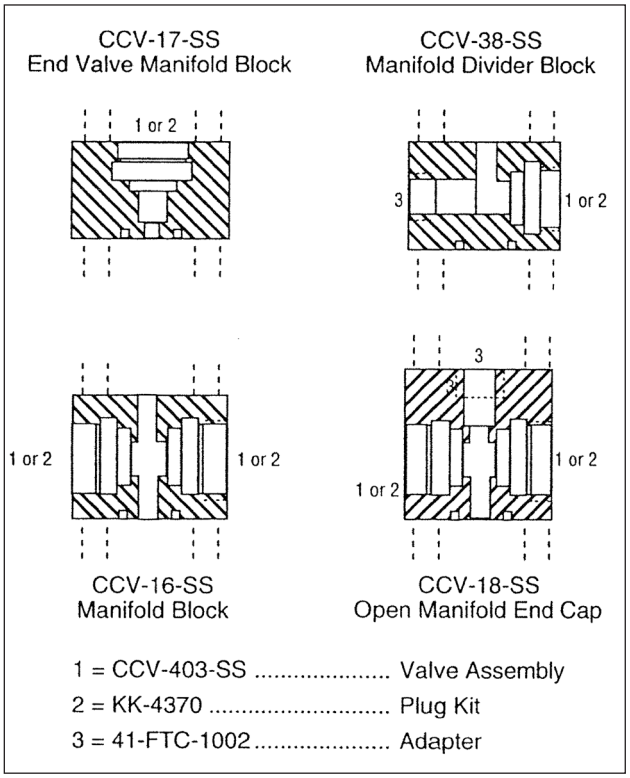


Figure 7: Available Manifold Blocks

Figure 7 shows the four manifold blocks that can be used in a manifold system. In addition, CCV-36-SS separator plate (Figure 5) can also be used. In Figure 7, shown by the block inlets/outlets, are numbers indicating hardware be installed at these locations. The dotted lines indicate the path of the mounting studs that hold the blocks in place. The o-ring slots are shown (o-rings are not included on CCV-18-SS). O-rings are included in KK-4901 Manifold Assembly Kit.

KK-4901 Manifold Assembly Kit

This kit includes threaded rod, lock washers, nuts, two (2) mounting brackets and twelve (12) o-rings that will allow assembly of up to 25 valves in the manifold assembly. A spanner tool, part CCV-7, is also included in this kit. This tool inserts into any one of the holes in the spanner nut and is used to tighten or loosen the nut. This is convenient in close clearances where a wrench may not fit.

NOTE

► Tighten CCV-403-SS valve assembly and KK-4370 plug kit (when used) to manifold using 132-156 lbs•in torque. **DO NOT OVER-TIGHTEN.** Use a good quality pipe sealant on all threads of air and fluid connections. Do not use sealant or tape on CCV-403-SS valve when asembling to manifold.

INSTALLATION

Mounting

The Color Select Box and the Color Change Valve stack have mounting brackets for easy mounting. The Color Select Boxes may be mounted using the pattern supplied in this manual (See Figure 10). Mounting hardware can be any type 1/4-inch bolt with washers. A minimum of six inches should be left between the air outlets on the box and the Color Change Stack, to allow room for the air tubing to be run later.

Air Tubing Connections

For the proper connection locations on the Color Select Box, refer to Figure 2. The main supply air must be dried and filtered. Using Figure 2, and the "Installation Diagram," Figure 9, the air tubing can be run to the color Change Stack. The high voltage signal air, "HV6," may be used only if a pneumatic control panel is being used. In this case, HV6 is connected directly to HV6 on the pneumatic control panel.

Coating Material Connections

Number the coating materials to correspond to the numbers of the Color Select System. 3/8-inch OD tubing is to be used to connect the Color Change Valves to the coating material.

Connect the tubing from material (#1) to CCV (#1), tubing from material (#2) to CCV (#2), and so on, matching materials with the proper CCV.

NOTE

➤ The coating material must be pressurized for the Color Select System to function properly.

Solvent Connection

The solvent is connected in the same way as the Coating Material, using 3/8-inch OD tubing.

NOTE

➤ The solvent must be pressurized for the Color Select System to function properly.

Installation of the Color Select System is made simple by its ability to be placed in a Class I, Division I environment. The color change valves can be mounted as close to the paint or the applicator as is desired. The color select box can be mounted right on the wall of the spray booth, allowing for fast color changes, since the operator does not have to leave the booth.

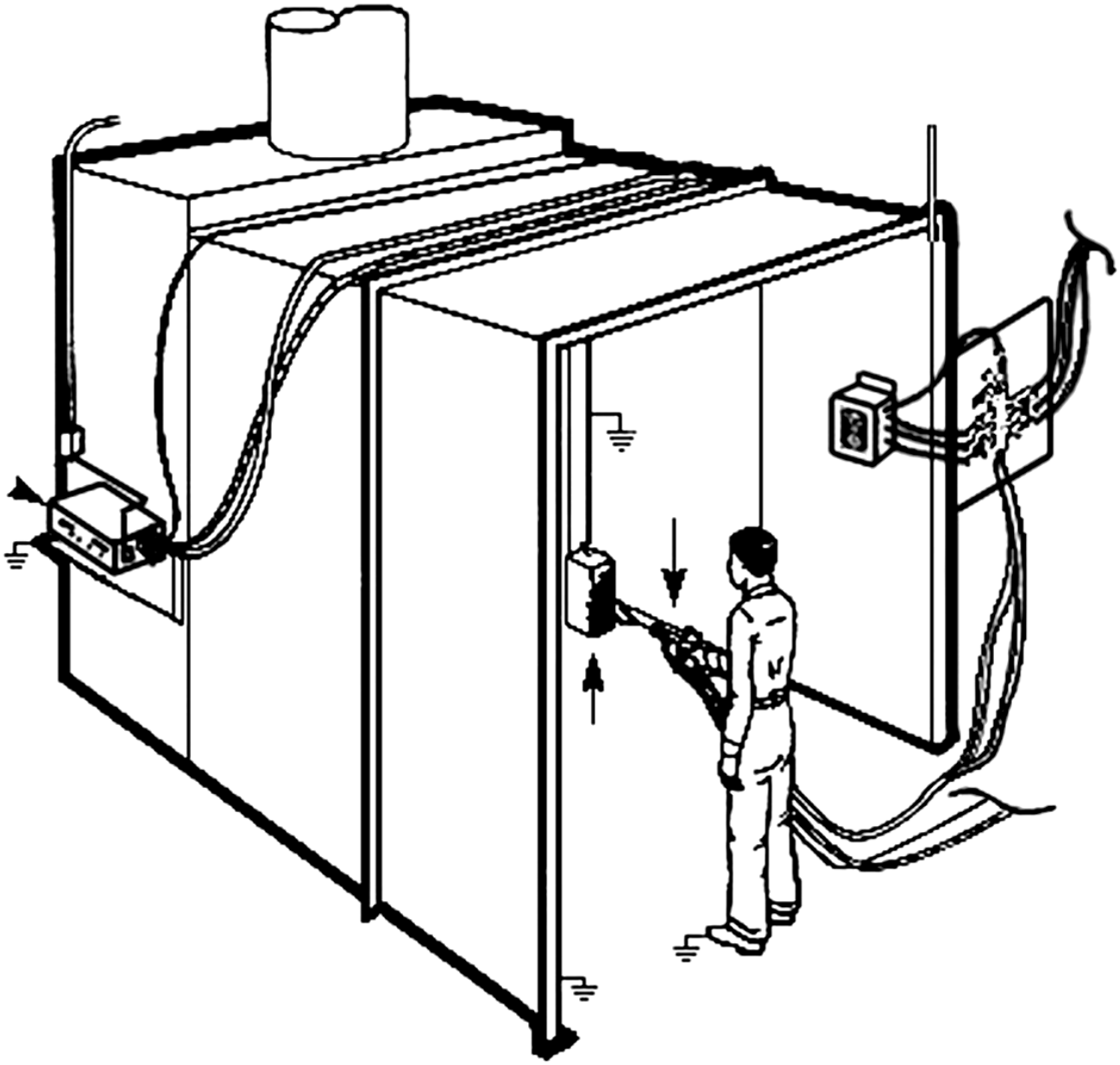


Figure 8: Typical Color Select System Installation

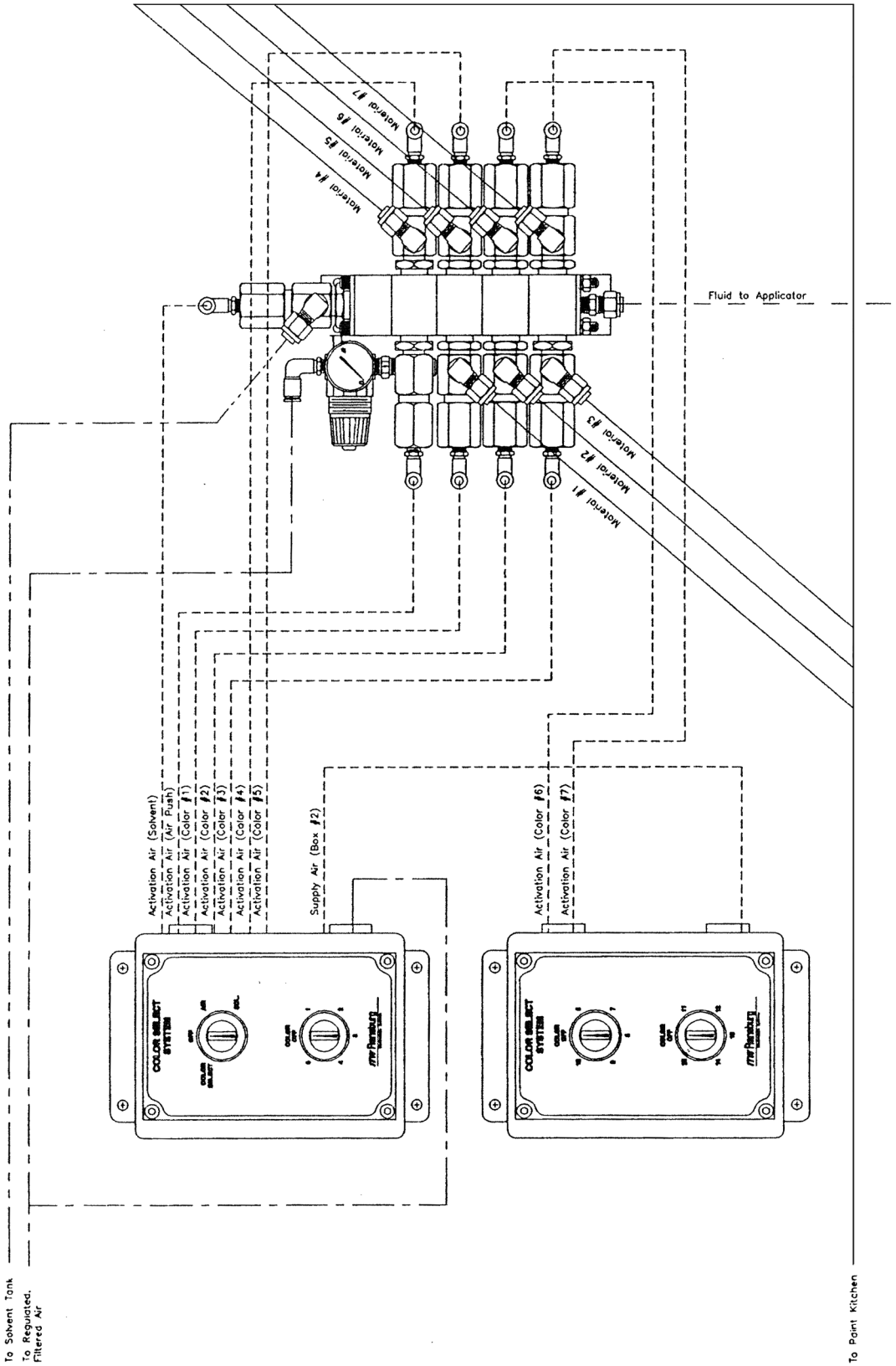


Figure 9: Installation Diagram

OPERATION

The flow of the coating material is controlled by selecting the proper color number on the Color Select Boxes. If two Color Select Boxes are used, all Color Select Switches not in use **must** be set to the **OFF** position. After the proper color number is selected, the coating material is activated by selecting the “Color Select” position.

NOTE

► To select a new “Color”, the main switch must be moved from the “COLOR SELECT” to the ‘OFF” position.

To flush the coating material from the coating system, select the “SOL.” position, which will activate the solvent. The “AIR” position can be used to blow the coating material or the solvent out of the coating system.

Installation and Operation Overview

The coating material is supplied from the users pressurized system that may be a pressure tank, paint circulating system or other suitable pressure paint supply system. 3/8-inch OD fluid tubing is connected between the users paint supply and the CCV.

An air signal supplied to the CCV activates the paint being delivered to the applicator. The air signal is controlled by the Color Select Boxes. 1/4-inch OD air tubing is used to connect the control air between the Color Select Boxes and the CCV.

NOTES

MAINTENANCE

COLOR CHANGE VALVES

Cleaning

The valve and associated parts through which fluid passes should be cleaned after use by flushing with an appropriate solvent. While flushing, the valve should be triggered several times in order to flush particles from the seat and stem seal areas.

Wear Parts

Wear parts include the poppet seat, stem, valve needle seal, and piston cup. All of these parts are PTFE except for the stem that is stainless steel. Wear parts should be inspected and replaced on a regular maintenance schedule. The frequency of replacement depends upon cycle rate and material abrasiveness. Valves should be inspected after six months usage. If any parts are worn, or if paint leakage is evident, replace all wear parts with valve repair kit KK-4841.

Valve Removal

1. Disconnect air and fluid lines from valve.

2. Insert the Spanner Tool (CCV-7) into one of the holes in the spanner nut and rotate counterclockwise (as viewed from the rear air inlet fitting in valve). If the Spanner Tool is not available, a 1-1/6-inch open-end wrench can also be used to loosen the spanner nut.

CCV-403-SS Valve Disassembly

1. Remove valve cap (CCV-43) from valve body. hold hex valve body with 1-1/16-inch wrench while turning cap counterclockwise with a 1-1/8-inch wrench.

2. Place 7/16-inch socket on clamping nut (CCV-45), and insert a 9/32-inch socket onto the end of the stem at opposite end of valve (Note: Older style valves used a Phillips screwdriver slot on the end of the stem. Use a Phillips screwdriver in place of nut driver). Rotate the socket counterclockwise until the clamping nut is free from the stem.

NOTE

➤ The stem should be held steady while the nut is rotated. Rotating the stem can scratch the stem finish causing premature valve needle seal wear and valve leakage.

3. The piston cup (VA-246) is held onto the clamping nut by a brass nut (CCV-3), which has an 11/16-inch hex. Use a 7/16-inch hex socket and an 11/16-inch wrench to disassemble the nut from the clamping nut so that the PTFE piston cup can be removed.

4. The valve indicator (CCV-42) and piston spring (CCV-41-K2) will be free and can be removed when the clamping nut is off the stem.

5. The stem can now be pulled from the front of the valve body. After the stem is removed, reach into the rear of the valve body and pull out the spring washer (CCV-4) and the needle seal (CCV-8). The poppet seal (CCV-40) that is behind the stem seat can be removed from the body after the stem is removed.

Valve Reassembly

Reassemble the CCV-403-SS valve in reverse order, but follow these additional instructions:

1. Use Adhesive (medium strength, grade #242) on the threads of the clamping nut and stem a shown on the “CCV-403-SS - Parts List - Item #18” in the “Introduction” section).

2. With stem fully inserted into assembly, tighten the clamping nut onto the stem and torque to specifications shown on the “CCV-403-SS Parts List” in the “Introduction” section. Do not rotate the stem during assembly.

3. Apply a thin film of lubricant (light grease type) to the valve cap bore and cup as shown on page 1. Tighten the valve cap to the torque specification on the “CCV-403-SS Parts List” in the “Introduction” section.

NOTE

➤ Make sure all seating surfaces of the stem, poppet seat, needle seal, and cup are clean and free of nicks and scratches to prevent leakage.

Color Select Boxes

Air Switch Removal

Disconnect all air lines to the air switch.

While holding the front of the air switch, loosen nut on rear of air switch and remove nut.

Remove air switch.

Air Switch Reassembly

Insert air switch into front panel of the Color Select box.

Align air switch so selector is in the “OFF” position.

Install nut on rear of air switch, making sure to hold the front of the air switch firmly in place while tightening the nut.

Air Pilot Valve Removal

Disconnect all air lines to the pilot valve.

Loosen two (2) screws on top of pilot valve. Do not remove screws entirely.
Remove pilot valve.

Air Pilot Valve Reassembly

Align pilot valve alignment pin with base, and place pilot valve on base.

Tighten two (2) screws on top of pilot valve.

TROUBLESHOOTING GUIDE

General Problem	Possible Cause	Solution
DELIVERY		
Fluid	1. No main supply air	1. Turn supply air on or reconnect to box
	2. No color selected	2. Select a color
	3. Wrong color selected	3. Select proper color
	4. No paint connected to CCV	4. Reconnect paint or select proper color
	5. Paint not pressurized	5. Check users supply
Air (To CCV)	1. No main supply air	1. Turn supply air on or reconnect to box
	2. No color selected	2. Select a color
	3. Wrong color selected	3. Select proper color
	4. Loose connection	4. Tighten connection
	5. Defective air switch	5. Replace defective switch
LEAKAGE		
Air	1. Hole in tubing	1. Replace worn tubing
	2. Loose connection	2. Tighten connection
Air (Insided Color Select Box)	1. Loose connection	1. Tighten connections
	2. Hole in air tubing	2. Replace air tubing
	3. Bad switch	3. Replace defective switch
Fluid	1. Loose connection	1. Tighten connections
	2. Worn fluid tubing	2. Replace worn fluid tubing
DEFICIENT DELIVERY		
Air	1. Insufficient supply air	1. Check air regulator
Fluid	1. Low supply pressure	1. Increase supply pressure
	2. Clogged or obstructed fluid lines	2. Clean or replace
	3. Clogged or obstructed CCV stack	3. Clean as required

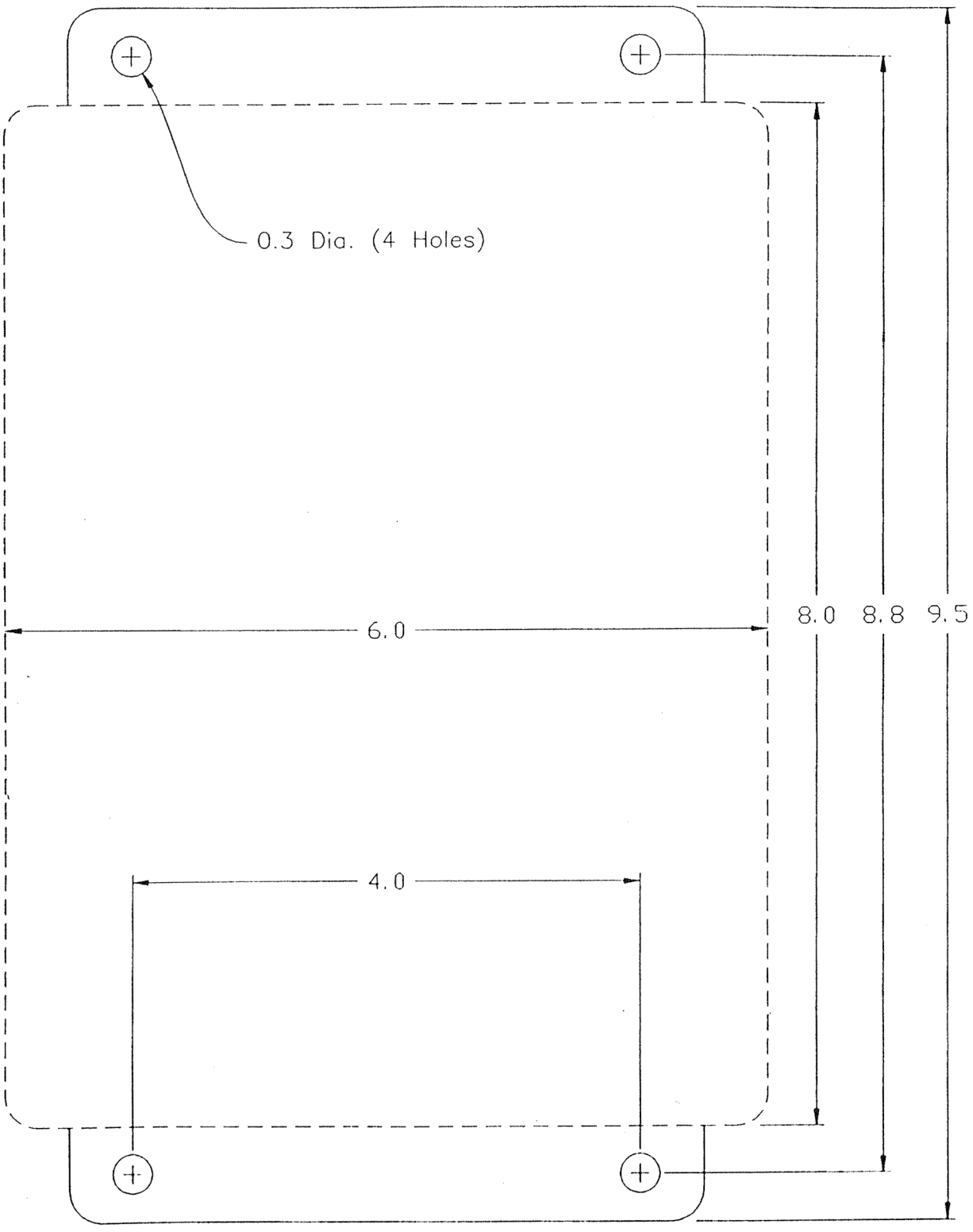


Figure 10: Color Select Box Mounting Pattern

WARRANTY POLICIES

LIMITED WARRANTY

Ransburg will replace or repair without charge any part and/or equipment that falls within the specified time (see below) because of faulty workmanship or material, provided that the equipment has been used and maintained in accordance with Ransburg's written safety and operating instructions, and has been used under normal operating conditions. Normal wear items are excluded.

THE USE OF OTHER THAN RANSBURG APPROVED PARTS, VOID ALL WARRANTIES.

SPARE PARTS: One hundred and eighty (180) days from date of purchase, except for rebuilt parts (any part number ending in "R") for which the warranty period is ninety (90) days.

EQUIPMENT: When purchased as a complete unit, (i.e., guns, power supplies, control units, etc.), is one (1) year from date of purchase. **WRAPPING THE APPLICATOR IN PLASTIC, ASSOCIATED VALVES AND TUBING, AND SUPPORTING HARDWARE IN PLASTIC, SHRINK-WRAP, OR ANY OTHER NON-APPROVED COVERING, WILL VOIDE THIS WARRANTY. RANSBURG'S ONLY OBLIGATION UNDER THIS WARRANTY IS TO REPLACE PARTS THAT HAVE FAILED BECAUSE OF FAULTY WORKMANSHIP OR MATERIALS. THERE ARE NO IMPLIED WARRANTIES NOR WARRANTIES OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. RANSBURG ASSUMES NO LIABILITY FOR INJURY, DAMAGE TO PROPERTY OR FOR CONSEQUENTIAL DAMAGES FOR LOSS OF GOODWILL OR PRODUCTION OR INCOME, WHICH RESULT FROM USE OR MISUSE OF THE EQUIPMENT BY PURCHASER OR OTHERS.**

EXCLUSIONS:

If, in Ransburg's opinion the warranty item in question, or other items damaged by this part was improperly installed, operated or maintained, Ransburg will assume no responsibility for repair or replacement of the item or items. The purchaser, therefore will assume all responsibility for any cost of repair or replacement and service related costs if applicable.

Service Manual Price: $30.00 (U.S.)

Manufacturing
1910 North Wayne Street
Angola, Indiana 46703-9100
Telephone: 260/665-8800
Fax: 260/665-8516

Technical/Service Assistance
800/ 233-3366 Fax: 419/ 470-2071

Technical Support Representative will direct you to the appropriate telephone number for ordering Spare Parts.

ISO 9001 Quality Systems

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