

1200 A Inertia Engineering Switch Interrupter Replacement



1. Scope

This work practice outlines the steps for replacing 1200 A, AmpVac interrupter assemblies on 27 kV, Inertia Engineering gang-operated, overhead, loadbreak switches.

The manufacturer's detailed instructions for replacing interrupters are included for the reader's convenience.

Field personnel sometimes refer to disconnect switch loadbreak interrupters as snuffers.

Steps for replacing 600 A interrupter assemblies or entire switches are outside the scope of this work practice.

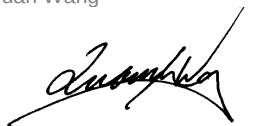
Installation of modified interrupter shunts is outside the scope of this work practice.

2. Application

This work practice is directed at overhead and underground line personnel who have been tasked with replacing 1200 A, AmpVac interrupter assemblies on 27 kV, Inertia Engineering gang-operated, overhead, loadbreak switches.

In 2014, a safety hazard was identified with 1200 A, AmpVac interrupters manufactured between 2009 and 2011. The interrupter body can fracture when the switch is operated. Refer to Figure 2. At that time, Seattle City Light (SCL) had approximately 100 switches (300 single-phase units) with the suspect interrupters in service. Even though there has never been a case where a fractured unit has failed to successfully interrupt load or present a workman hazard, Standards recommended Operations initiate a proactive replacement program of suspect interrupters.

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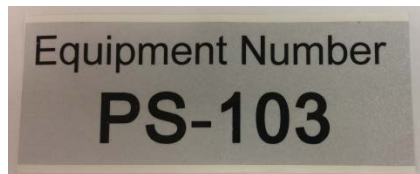
Figure 2. Fractured AmpVac Interrupter



3. Required Material

Item	Quantity	Description	Stock No.
1	3	Replacement interrupter, single pole, 1200 A, horizontal or vertical, loadbreak style for inertia switch stock numbers 250152 and 250153	012121
2	1	Sticker marked with equipment number. See Figure 3.	—

Figure 3. Example Equipment Number Sticker



4. Procedure

Note: Follow all safety and clearance procedures before performing any work on the switch. Proper personal protective equipment (PPE) is required to perform this procedure.

Step 1

Either from the ground or in the air, confirm the interrupter is the style that requires replacement.

An old Lexan tube with no label (Fig. 4a) indicates a suspect interrupter that should be replaced.

A new E-glass tube with an aluminum label indicates a redesigned interrupter (manufactured after December 1, 2011) that is safe to operate. Look for the label at the end of the tube (Fig. 4b) or on the underside of the interrupter housing (Fig. 4c).

Figure 4a. Old Lexan Tube with No Label (Suspect)



Figure 4b. New E-Glass Tube with Aluminum Label (Safe)



Fig. 4c. New E-Glass Tube with Aluminum Label (Safe)



Step 2

Record the following pole information:

- Pole tag number (see Figure 4d)
- Systems Operations Center (SOC) switch number (see Figure 4e)

Figure 4d. Example of Pole Tag No.



Figure 4e. Examples of SOC Number



Step 3

Identify, isolate, test, and ground the switch per SCL standard practice.

Step 4

Remove old interrupters.

Step 5

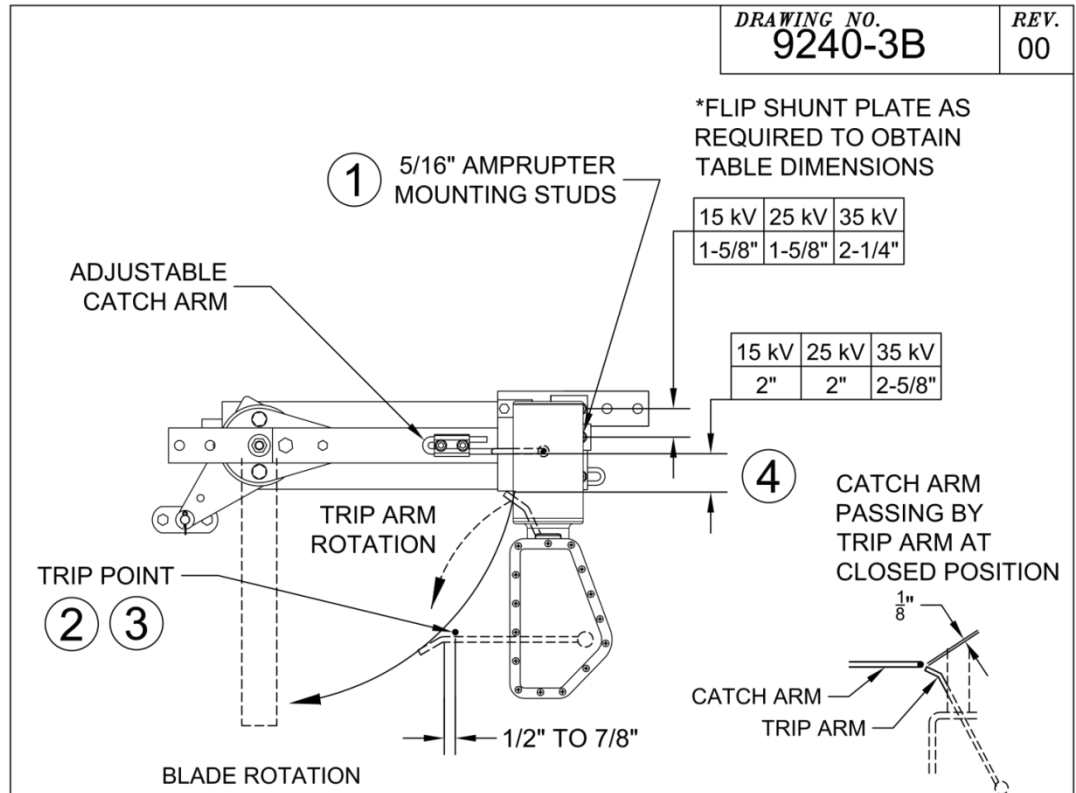
On each old interrupter, using a permanent marker, write the following information:

- Date removed
- SOC (System Operations Center) switch number
- Crew Chief's name

Step 6

Install the new interrupter according to the manufacturer's instructions. See Figure 4f.

Figure 4f. Installation Instructions, Interrupter



INSTALLATION / ADJUSTMENT INSTRUCTIONS:

1. INSTALL INTERRUPTER WITH EXISTING 5/16" MOUNTING BOLTS AS SHOWN.
2. ATTACH CATCH ASSEMBLY TO BLADE WITH CATCH KEEPER. SECURE WITH EXISTING 5/16" SILICONE BRONZE BOLTS. TORQUE 5/16" BOLTS 18-20 FT-LBS
3. VERIFY THAT CATCH ARM PASSES BY THE TRIP ARM AS SHOWN.
4. OPERATE THE SWITCH AND VERIFY THAT THE INTERRUPTER TRIP POINT IS AS SHOWN.
5. ADJUST CATCH ARM AND RE-TORQUE BOLTS IF REQUIRED.

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						INERTIA ENGINEERING AND MACHINE WORKS		
						DESCRIPTION LBS 15,25,35 KV AMPVAC INSTALLATION W/ SHUNT		
					SCALE:	NTS		DRAWING NO. 9240-3B
					DRAWN BY:	EG		
					UNITS			
					DATE:	08/04/10		REV. 00
NO.	REVISION	DATE	BY					

Step 7

Place the new equipment number sticker as follows:

- Place the equipment number sticker so that other signage, such as a warning sign, remains visible. See Figure 4g.
- If a warning sign exists, place on the same side of, and as close as possible to, the nameplate. See Figure 4g.
- If no warning sign exists, place next to the nameplate on the switch support beam as shown in Figure 4h.

Note: Inertia Engineering switch nameplates are located at the center of the steel, interphase support beam.

Figure 4g. Warning Sign



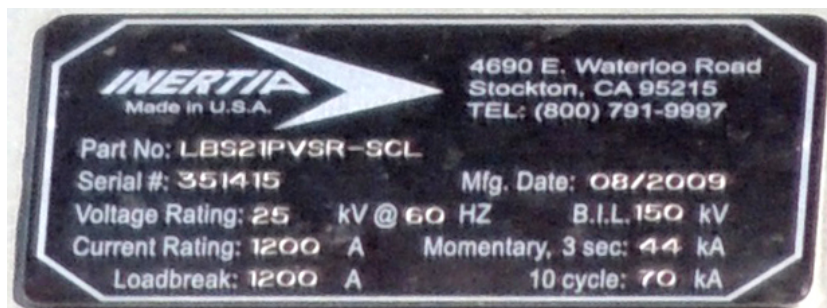
Figure 4h. Installing Location: To the Left of Nameplate



Step 8

Take a photo of both the nameplate and equipment number. Check the image on the camera to confirm the nameplate text is readable. See Figure 4i.

Figure 4i. Example of a Readable Nameplate Photo



Return the switch to service.

Complete a Salvage Material Returned (SMR) form for the removed interrupters (snuffers).

Figure 4j. Salvage Material Returned (SMR) form

[illegible]

Return the interrupters along with the SMR to salvage personnel at the South Service Center (SSC) or warehouse personnel at the North Service Center (NSC).

Salvage and warehouse personnel only: After a dozen interrupters have been collected at the service centers, transfer the interrupters to the Quality Assurance Lab at the SSC.

Step 13 Upload the nameplate and equipment number photos to the WAMS photo repository under the appropriate work order number.

Step 14 Send the following information to the Strategic Advisor in the Asset Data Services Group:

Description	Field Data (fill in)	Source	Step	Fig.
Pole tag no.		Pole	2	4d
SOC switch No.		Pole	2	4e
Date removed		Removed interrupter	5	N/A
Crew chief name		Removed interrupter	5	N/A
New equipment no.		Switch support beam	7	3
Part no. or type		Nameplate	8	4h
Serial no.		Nameplate	8	4h
Manufacture date		Nameplate	8	4h

5. References

SCL Material Standard 4501.50; "Overhead Distribution Switch, 27 kV Gang-Operated"

6. Sources

Bamer, Cecile; SCL Planning and Scheduling Supervisor and subject matter expert for 0175.44 (cecile.bamer@seattle.gov)

Caddy, Tom; SCL Field Operations Supervisor and subject matter expert for 0175.44 (tom.caddy@seattle.gov)

Drawing No. 9240-3B, Rev. 00; "Lbs 15, 25, 35 kV AMPVAC Installation," Inertia Engineering and Machine Works, Inc., August 4, 2010

Gramling, Peggy; SCL Strategic Advisor, Asset Data Services Group (peggy.gramling@seattle.gov)

Shipek, John; SCL Standards Supervisor and originator of 0175.44 (john.shipek@seattle.gov)

Standards Alert, Potential Hazard Operating Inertia Engineering, 27 kV, 1200 A, Overhead Loadbreak Switches, September 16, 2014

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