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1	ECD 8981023	8-4-88	
2	ECD 8981013	8-26-88	
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# INSTALLATION INSTRUCTION FOR ARC CHUTE ON AKR-75 AND AKR-100 BREAKERS

## WARNING:



THE PARTS REMOVED MAY CONTAIN ASBESTOS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO INVESTIGATE AND FOLLOW ALL LOCAL AND NATIONAL REGULATIONS AND RECOMMENDATIONS FOR HANDLING AND DISPOSAL OF MATERIAL. FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN A HEALTH RISK TO PERSONNEL. TYPICAL RECOMMENDATIONS INCLUDE CARE TO AVOID ANY DUST GENERATION AND PROTECTION AGAINST BREATHING OR INGESTION OF ANY THAT MAY BE PRESENT.

THE INTENT OF THIS INSTRUCTION SHEET IS TO PROVIDE A GUIDE FOR INSTALLING NEW NON-ASBESTOS PARTS IN THE BREAKER. THIS INSTRUCTION SHEET REQUIRES BEING FAMILIAR WITH THE BREAKER'S MAINTENANCE MANUAL AND CAREFULLY FOLLOWING ALL SPECIFIC INSTRUCTIONS WHEN REQUIRED.

### 1. PROCEDURE FOR REMOVING BREAKER FROM SERVICE

1. WITH PERMISSION FOR THE OUTAGE ESTABLISHED, ELIMINATE THE LOAD THROUGH THE AKR-75 OR AKR-100 BY FIRST OPENING DOWN STREAM FEEDER OR OTHER BREAKERS. THIS IS TO ENSURE THAT THE BREAKER TO BE INSPECTED IS OPENED WITH NO CURRENT GOING THROUGH IT.

ONCE THE BREAKER IS OPEN, IT MUST BE RACKED OUT AND REMOVED FROM THE CUBICLE. THE BREAKER SHOULD THEN BE MOVED TO A WORK AREA FOR INSPECTION AND MODIFICATION. THE NORMAL SAFETY PRACTICES OF THE USER AND AS REQUIRED BY LOCAL CODES SHOULD BE FOLLOWED. THIS INSTRUCTION DOES NOT COVER ALL PRACTICES ASSOCIATED WITH ELECTRICAL EQUIPMENT.

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	12/20/88	
	12/21/87	
	12/1/87	
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2. ARC CHUTE REPLACEMENT

1. START WITH BREAKER IN OPEN POSITION AND LOCATED AT WORK STATION AND WITH ALL CONTROL POWER REMOVED. BREAKER SHOULD BE SETTING UP-RIGHT AND BLOCKED UP ABOUT 1.0" OFF WORKBENCH. THIS WILL PERMIT BREAKER TO OPEN OR CLOSED WITHOUT INTERFERENCE OF SPRING DISCHARGE INTERLOCK.
2. MANUALLY CHARGE CLOSING SPRING AND USING PIN PROVIDE GAG CLOSING SPRING.
3. REMOVE THE TWO (2) BOLTS ON SECONDARY DISCONNECT BAR AND MOVE BAR OFF TO SIDE. NOTE THE NUMBER AND LOCATION OF SHIM WASHERS UNDER BAR AND INSURE THAT THEY ARE IN PLACE FOR REASSEMBLY. MEASURE AND RECORD THE DISTANCE FROM THE BREAKER'S SIDE FRAME AND A CONVENIENT MEASURING POINT ON THE BAR. THIS DIMENSION WILL BE REQUIRED WHEN THE BAR IS REASSEMBLED WITH THE CORRECT SIDE TO SIDE ADJUSTMENT OF THE SECONDARY CONTROL PINS.
4. REMOVE THE TWO (2) JACKING BOLTS AT CENTER OF ARC CHUTE CLAMPING BAR. REMOVE THE TWO (2) BOLTS AT EACH END OF CLAMPING BAR AND REMOVE BAR.
5. WITH THE BREAKER OPEN, REMOVE SECONDARY DISCONNECT PROTECTIVE BARRIER ACROSS THE TOP OF ARC CHUTES AND ATTACHED TO THE OUTBOARD PHASE BARRIERS. REMOVE THE FOUR (4) PHASE BARRIERS AND THE FRONT MECHANISM BARRIER ATTACHED TO THE ARC CHUTE CLAMPING BAR. REMOVE THE TWO (2) SIDE CLIPS USED FOR MOUNTING THE SECONDARY DISCONNECT BAR AND THE PROTECTIVE BARRIER. REFER TO FIGURE #8 IN GER-6100 ITEMS #7, #8 AND #9. REMOVE THE THREE (3) ARC CHUTES FROM BREAKER

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PL DECIMALS ± .010 3 PL DECIMALS ± .010 ANGLES ± .5° FRACTIONS ±</p>	<p>SIGNATURES</p> <p>DRAWN DDM 12/05/89</p> <p>CHECKED AEP 12/8/89</p> <p>ENGRG AEP 12/8/89</p> <p>ISSUED</p> <p>N.E.</p> <p>D.A.</p> <p>DRAWING FILE 323A6049SH1</p> <p>REFERENCE FILE</p>	<p>DATE</p> <p>12/05/89</p> <p>12/8/89</p> <p>12/8/89</p>	 <p><b>GE ED&amp;C</b></p> <p>BURLINGTON, IA</p> <p>TITLE</p> <p><b>INSTALLATION INSTRUCTIONS FOR ARC CHUTE REPLACEMENT</b></p> <p>FIRST MADE FOR ASSEMBY</p> <p>SIZE <b>A</b> CALMA FORG RD GENERATED <b>323A6049</b></p> <p>PL ISSUED</p>
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BY TIPPING BOTTOM OUT AND RAISING COMPLETE ASSEMBLY UP AND OUT. DISPOSE OF THE ARC CHUTES, THE SECONDARY DISCONNECT BARRIER, THE FRONT MECHANISM BARRIER, THE PHASE BARRIERS AND THE TWO SIDE CLIPS.

6. WITH THE OLD ARC CHUTES REMOVED, SLOW CLOSE THE BREAKER ACCORDING TO "SLOW CLOSING THE BREAKER" SECTION IN CEK-64460. DO NOT OPEN THE BREAKER UNTIL THE POLE UNIT IS REBUILT. OPENING THE BREAKER WITH PARTS REMOVED WILL CAUSE SPRING LOADED PARTS TO BE RELEASED.

REMOVE THE FOUR (4) SCREWS RETAINING THE STATIONARY ARCING CONTACT STOP ASSEMBLY, REFERENCE FIGURE #20 IN "MAINTENANCE MANUAL" #CEK-64460. REMOVE AND DISCARD THE ASSEMBLY PARTS CONSISTING OF TWO INSULATION BLOCKS, AN ANGLE SUPPORT AND A CONTACT STOP. REPEAT FOR EACH PHASE.

7. INSTALL THE CONTACT STOP #323A6028P1, ITEM #11, THE SUPPORT PLATE #201C9005P1, ITEM #3, AND THE ARC RUNNER #201C0993P1, ITEM #4 USING SOCKET HEAD SCREWS WITH LOCK WASHERS ITEM #5, #7 AND #8. REFER TO THE ILLUSTRATION SHEET OF THESE INSTRUCTIONS FOR PART NUMBERS AND LOCATION OF PARTS. INSTALL FLAT HEAD #10 SCREW ITEM #6, AND FLAT HEAD #10-32 SCREW WITH NUT AND LOCK WASHER ITEM #5, #9 AND #10. TORQUE ALL SCREWS TO 25 IN-LBS. REPEAT THIS PROCEDURE ON EACH PHASE. AVOID DROPPING HARDWARE INTO THE CONTACT ASSEMBLY AS IT MAY BECOME TRAPPED AND CAUSE DAMAGE.

OPEN THE BREAKER.

DIMENSIONS SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ON: .000 .010 .015 .020 .030 .040 .050 .060 .070 .080 .090 .100 .125 .150 .175 .200 .250 .300 .375 .400 .500 .625 .750 .875 1.000 1.250 1.500 1.750 2.000 2.500 3.000 3.500 4.000 4.500 5.000 5.500 6.000 6.500 7.000 7.500 8.000 8.500 9.000 9.500 10.000	SIGNATURES	DATE	 <b>GE ED&amp;C</b> BURLINGTON, IA TITLE <b>INSTALLATION INSTRUCTIONS FOR ARC CHUTE REPLACEMENT</b> FIRST MADE FOR ARBOR SIZE <b>A</b> CALMA DWG NO <b>323A6049</b> GENERATED PL ISSUED
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1	ECO 89BL013	9-26-89	
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3	ECO 89BL017	12-6-89	11/3/90 AEP


3 OPENING BUFFER REPLACEMENT

1. WITH BREAKER OPEN AND CLOSING SPRING GAGGED, REMOVE THE NUT AND JAM NUT ON THE CARRIAGE BOLT ON EACH END OF THE MAIN OPERATING BAR. USING THE MANUAL SPRING CHARGING HANDLE, SLOW CLOSE THE BREAKER ABOUT HALF WAY. THIS WILL ALLOW THE CARRIAGE BOLTS WITH BUFFERS TO BE REMOVED. BEING SURE TO KEEP THE STACK OF BUFFER AND SHIM WASHERS TOGETHER FOR EACH SIDE. MEASURE THE TOTAL THICKNESS OF THE STEEL WASHERS AND SHIMS AND REPLACE WITH SAME THICKNESS PERMITTED BY THE NEW LARGER DIAMETER WASHERS ITEM #18 AND #19. THE REPLACEMENT STEEL WASHERS MAY REQUIRE THAT THE STACK-UP BE THICKER.

A TYPICAL REPLACEMENT WILL REQUIRE TWO (2) THICK AND TWO (2) THIN STEEL WASHERS ARRANGED WITH A THICK ONE AT HEAD OF CARRIAGE BOLT (BEING SURE THAT WASHER IS DRIVEN DOWN ON CARRIAGE BOLT HEAD) AND REMAINDER ON OTHER SIDE OF RUBBER WASHERS. REPLACE THE THREE (3) RUBBER WASHERS WITH NEW ITEM #17. REPLACE BUFFER AND BOLT ON CROSS BAR AND TIGHTEN SUCH THAT WASHERS ARE FREE TO TURN THEN LOCK ADJUSTMENT WITH JAM NUT. TRIP BREAKER OPEN.

4. BREAKER REASSEMBLY

1. WITH BREAKER OPEN REPLACE ALL THREE (3) ARC CHUTES BY ALIGNING THE ARCING BLADES WITHIN THE SLOTS AT THE BOTTOM OF THE CHUTE, SLIPPING IT DOWN OVER THE BLADES AND LATCHING THE BACK OF THE CHUTE OVER THE UPPER END OF THE ARC RUNNER.

CHECK DIMENSIONS SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PL DECIMALS ± .010 3 PL DECIMALS ± .010 UNLESS NOTED OTHERWISE FINISHING IS	SIGNATURES DRAWN BY CHECKED AEP INCD AEP ISSUED S.A. S.A. DRAWING FILE 323A6049SHT REFERENCE FILE	DATE 12/09/89 12/07/89 12/01/89	 <b>GE ED&amp;C</b> BURLINGTON, IA TITLE <b>INSTALLATION INSTRUCTIONS FOR ARC CHUTE REPLACEMENT</b> FIRST MADE FOR ORDER SIZE A CALMA GENERATED DWG NO 323A6049 PL ISSUED
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2. INSTALL THE TWO (2) NEW BRACKETS #242B7026P1 ITEM #16, ONE ON EACH SIDE USING THE HARDWARE FROM THE REMOVED BRACKETS.
3. WITH THE FOUR (4) PHASE BARRIERS IN PLACE REPLACE THE ARC CHUTE CLAMPING BAR BEING SURE THAT THE PHASE BARRIERS ARE IN THE NOTCHES PROVIDED ON THE BRACE AND THE OVER HANG OF THE BARRIER IS RESTING ON THE BRACE. USING THE TWO (2) SLOTTED JACK SCREWS #323A6049P1 ITEM #15 INSTALL THEM BETWEEN THE FRAME AND THE CROSS BRACE. TORQUE THE TWO (2) END BOLTS AND THE NUT ON THE TWO (2) JACK SCREWS 5 TO 6 FT-LB.
4. REPLACE THE CROSS BAR SECONDARY DISCONNECT FINS BEING SURE THAT THE VERTICAL SPACER WASHERS ARE THE SAME AS FOUND ON REMOVAL AND THE HORIZONTAL ADJUSTMENT IS ALSO THE SAME AS FOUND.
5. WITH THE BREAKER COMPLETELY REASSEMBLED REMOVE THE CAGE PIN ON THE CLOSING SPRING AND USING THE MANUAL CHARGING HANDLE OPEN AND CLOSE THE BREAKER A NUMBER OF TIMES. INSPECT THE BREAKER FOR SATISFACTORY OPERATION. INSTALL THE BREAKER BACK IN TO IT'S CUBICLE AND OPERATE THE BREAKER ADDITIONAL TIMES. INSPECT BREAKER LAST TIME BEFORE PLACING BACK IN SERVICE.

NOTE: UPON COMPLETION OF THE ABOVE PROCESS REMOVE ALL LABELS AFFIXED TO THE BREAKER THAT INDICATE THE BREAKER CONTAINS ASBESTOS.

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