

SIEMENS

Static Trip III Retrofit for Westinghouse Type DB Low Voltage Power Circuit Breakers

Installation Instructions

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⚠ DANGER

Hazardous voltages are present in the equipment which will cause severe personal injury and equipment damage. Always de-energize and remove the breaker from its cubicle before maintenance or retrofit work. Maintenance or retrofit should be performed only by qualified personnel. The use of unauthorized parts in the repair of the equipment or tampering by unqualified personnel will result in dangerous conditions which can cause severe personal injury or equipment damage.

Follow all safety instructions contained herein.

WARNING

The Power Circuit Breakers discussed in the manual may contain a spring charged mechanism that can cause severe injury. Before working on any breaker assure that the springs are discharged and the contacts are in the open position. Some procedures may require the breaker to be closed. In such cases, assure that the contacts are securely wedged to prevent on inadvertent opening of the breaker. Remove wedge, open and discharge the breaker as soon as the procedure is completed that required the breaker to be closed.

IMPORTANT

The information contained herein is general in nature and does not relieve the user of the responsibility to use sound practices in application, installation, operation, maintenance and retrofit of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material, the latter shall take precedence.

NOTE

For the purpose of this manual a qualified person is one who is familiar with the installation, construction, assembly and operation of the equipment and the hazards involved. In addition, he has the following qualifications:

- (a) is trained and authorized to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) is trained in the proper care and use of protective equipment such as rubber gloves, hard hats, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.
- (c) is trained to perform maintenance and assembly work on low voltage power circuit breakers.
- (d) is trained in rendering first aid.

SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local sales office, listed on back of this instruction guide.

The contents of this instruction manual should not become part of or modify any prior or existing agreement, commitment, or relationship. The sales contract contains the entire obligation of Siemens Energy & Automation, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

Table of Contents

1	Introduction	1-1
1.1	General Information	1-1
1.2	Breaker Exclusion	1-1
1.3	Static Trip III Retrofit Catalog Number System	1-1
1.4	Static Trip III Retrofit Kit - contents	1-4
1.5	Kit Identification	1-4
2	Retrofit Kit Assembly	2-1
2.1	Danger and Warning Information	2-1
2.2	Assembly Instructions	2-1
2.2.1	Instructions for Sensors and Basic Trip Unit Kit Installation	2-1
2.2.2	Instructions for Cubicle Mounted Communications Disconnect Installation	2-24
2.2.3	Instructions for Breaker Display Unit Installation	2-28
3	Breaker Testing and Breaker Labeling	3-1
3.1	General Test Description	3-1
3.2	Testing	3-1
3.3	Low Frequency Withstand Test	3-1
3.4	Trip Unit Test	3-3
3.5	Labeling	3-3

1 Introduction

1 Introduction

This manual is intended for mechanics with breaker experience, to guide them in retrofitting Westinghouse type DB and DBL breakers with Static Trip III trip units, its associated trip circuit components and auxiliary devices.

This manual does not replace other Siemens manuals covering detailed information, installation, operation or maintenance of the equipment discussed in this manual. Be sure to completely read and understand Danger, Warnings and other Important Notices on the page preceding the "Table of Contents" before you attempt any procedures described in this manual.

1.1 General Information

Static Trip III Retrofit Kits contain all materials needed, including hardware and drilling fixtures to retrofit Westinghouse type DB and DBL Low Voltage Power Circuit Breakers with Static Trip III trip units and their auxiliary components.

Unless otherwise specified, Static Trip III retrofit components are packaged in one cardboard box per breaker. Each box contains factory assembled and factory wired assemblies required for installation on the breaker. These assemblies are assembled and wired up to the point required to installation on breaker. The assemblies and parts contained in each box are according to the kit catalog number you have specified.

1.2 Breaker Exclusion

The Static Trip III Retrofit Kit will not fit with all accessories available on the original Westinghouse breakers.

- For breaker with Under Voltage Relays, the Static Trip III Retrofit Kit cannot be used.
- For breakers with Bell Alarm, consult factory.

1.3 Static Trip III Retrofit Catalog Number System

Table 1.1 illustrates the catalog number system for Static Trip III Retrofit Kits. As shown in the table on the following page, trip unit models are identified by a three digit code number. Table 1.2 tells what functions each model contains.

In the event you prefer a different trip unit model other than you had specified or received inadvertently, use the eleven-digit trip unit part number of Table 1.2 for ordering purpose.

1 Introduction

Example:

Catalog Number
ST III Retrofit Kits

K **DBU** **025** - **522** - **A** - **06** - **1** - **A**

K designate "kit"

Breaker Type

DBU = Type DB unfused

DBL = Type DBL fused

Breaker Frame Size

025 = 600 amps

050 = 1600 amps

075 = 3000 amps

100 = 4000 amps

Static Trip III Model

See Table 1.2 for code identification

Sensor Type

A = Standard (single winding)

T = Tapped winding

D = Dual winding with 2000A NEC ground winding

Sensor Rating

01 = 150 amps

02 = 200 amps

:

40 = 4000 amps

Breaker Display Unit

0 = Not included

1 = Included

Standard / Special

A = Standard

S = Special order

Table 1.1 Catalog Numbering System

1 Introduction

1 Introduction

1.4 Static Trip III Retrofit Kit - Contents

Definition: “Static Trip III Retrofit Kit”:

One container consisting of factory assembled and factory wired assemblies, as specified per Static Trip Retrofit Kit Catalog Number, as needed to retrofit one breaker.

All Static Trip III Retrofit Kits (Trip Unit code numbers 504 through 515 and 546 through 551) include the following:

- a) trip unit kit - factory wired and assembled kit including
 - Static Trip III unit
 - trip actuator
 - bus splice bars (DB-25, DBL-25, DB-50, & DBL-50 only)
- b) sensors

Communications trip units without the power metering or protective relaying options, (Trip Unit code numbers 510 through 515) include the following additional items:

- c) communications disconnect (breaker mounted umbilical cable)
- d) communications disconnect (for mounting in cubicle).

Trip units with power metering or protective relaying options, (Trip Unit code numbers 546 through 551) include the following additional items:

- e) potential transformer module and fuses - factory wired and assembled with basic trip kit.

Note that the Breaker Display Unit (BDU) requires Static Trip III units with communications capability. The BDU is included if specified in the Kit Catalog Number and provided that the trip unit model selected includes communications.

1.5 Kit Identification

Each Static Trip III Retrofit Kit is labeled on the outside of its cardboard box with the catalog number and a brief description of the sub kits included. Each kit also includes a bill of material, listing all sub kits by name and part number.

Each sub kit is labeled with its part number. In addition, a bill of material inside the enclosure of each sub kit allows you to verify the contents of each sub kit.

2 Retrofit Kit Assembly

Figure 2.2 **Rear View of DB-25 Breaker (DB-50 similar)**

2 Retrofit Kit Assembly

Figure 2.3 Front View of DB-100 Breaker (DB-75 similar)

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2 Retrofit Kit Assembly

Figure 2.4 Rear View of DB-100 Breaker (DB-75 similar)

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2 Retrofit Kit Assembly

Figure 2.5 DB-25 Kit Bill-of-Material - p/n 18-824-921-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-754-765-001	
1	1	1	EA	2	DB25 ACTUATOR ASSY	18-754-763-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-658-145-286	
5	2	2	EA	4	SCR #10-32 x .5	15-171-399-010	USE 503, QTY 3 IN ITEM 14
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG, ITEM 14
3	3	3	EA	9	CABLE SLEEVING	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
10	8	6	EA	13	TYRAP	00-857-271-100	PLACE QTY 5 IN BAG, ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-038	PLACE ON BAG, ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
3	3	3	EA	19	BUS LINK	18-661-621-001	PLACE IN BAG, ITEM 14
3	3	3	EA	20	BUS SHIM	18-661-622-001	PLACE IN BAG, ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-658-145-289	
2	2		EA	24	SCR #8-32 x 1	00-615-471-181	
6	6	4	EA	25	#8-32 NUT	00-631-109-108	
6	6	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
4	4	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-658-110-126	
3	3	1	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-538-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
10			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG, ITEM 14
1			EA	41	4 PIN CONNECTOR	18-658-143-055	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG, ITEM 14
1			EA	43	INSULATOR 1"	00-871-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-039	PLACE ON BAG, ITEM 14
1			EA	47	LABEL	18-751-783-040	PLACE ON BAG, ITEM 14
YES	YES	YES	EA	48	LABEL	18-658-145-293	CALLED FOR IN ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALLED FOR IN ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-824-921-503	PLACE IN BAG, ITEM 14
6	6	6	EA	51	BOLT, G5, .5-13 x 2.5	00-611-315-556	PLACE IN BAG, ITEM 14
12	12	12	EA	52	FLATWASHER	00-651-007-300	PLACE IN BAG, ITEM 14
6	6	6	EA	53	NUT, 1/2	00-631-059-108	PLACE IN BAG, ITEM 14
6	6	6	EA	54	L/W	00-655-017-036	PLACE IN BAG, ITEM 14

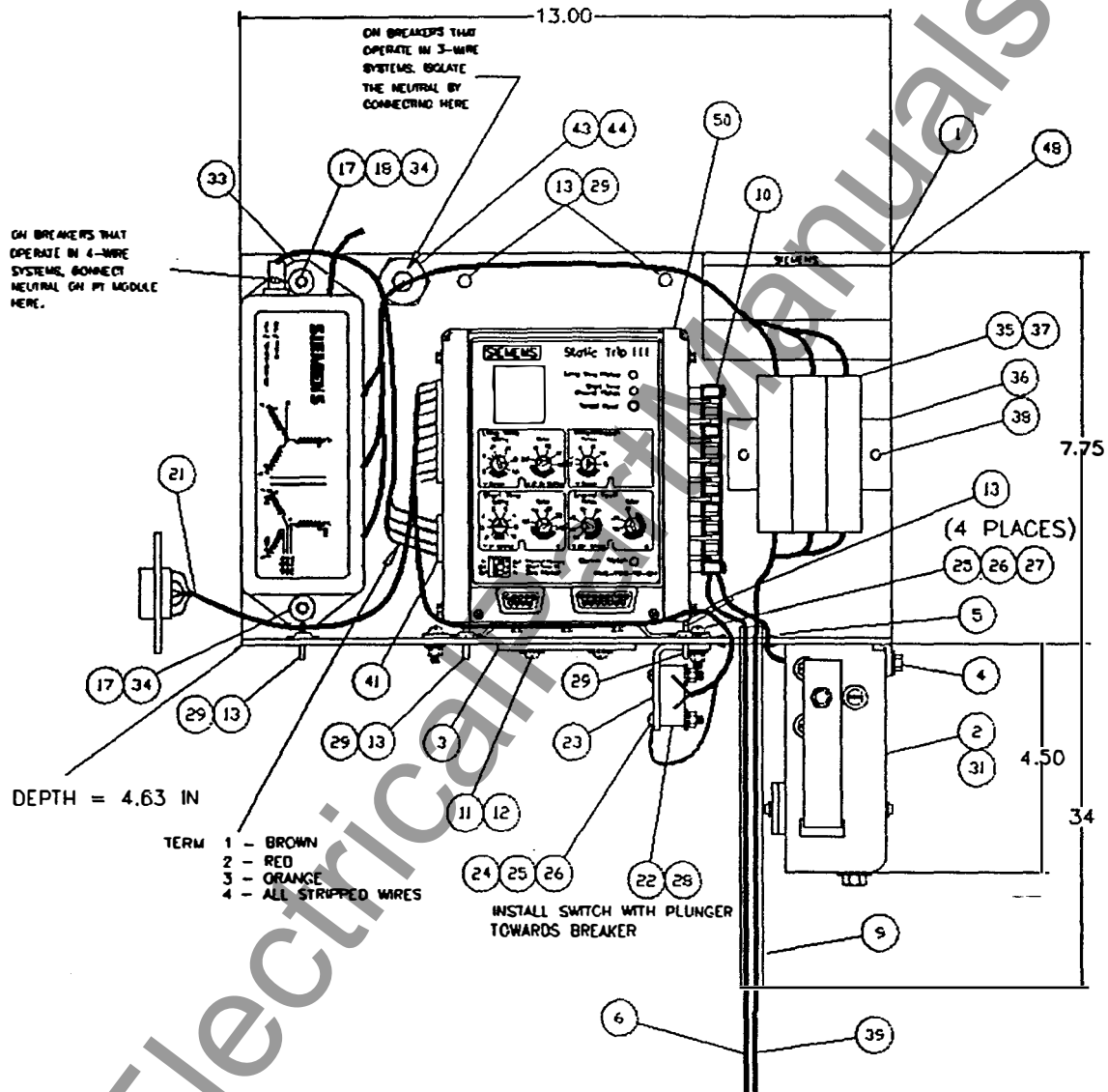
Com & PT's

With Com

Basic Kit

2 Retrofit Kit Assembly

Figure 2.6 DB-25 Kit Assembly PIX



2 Retrofit Kit Assembly

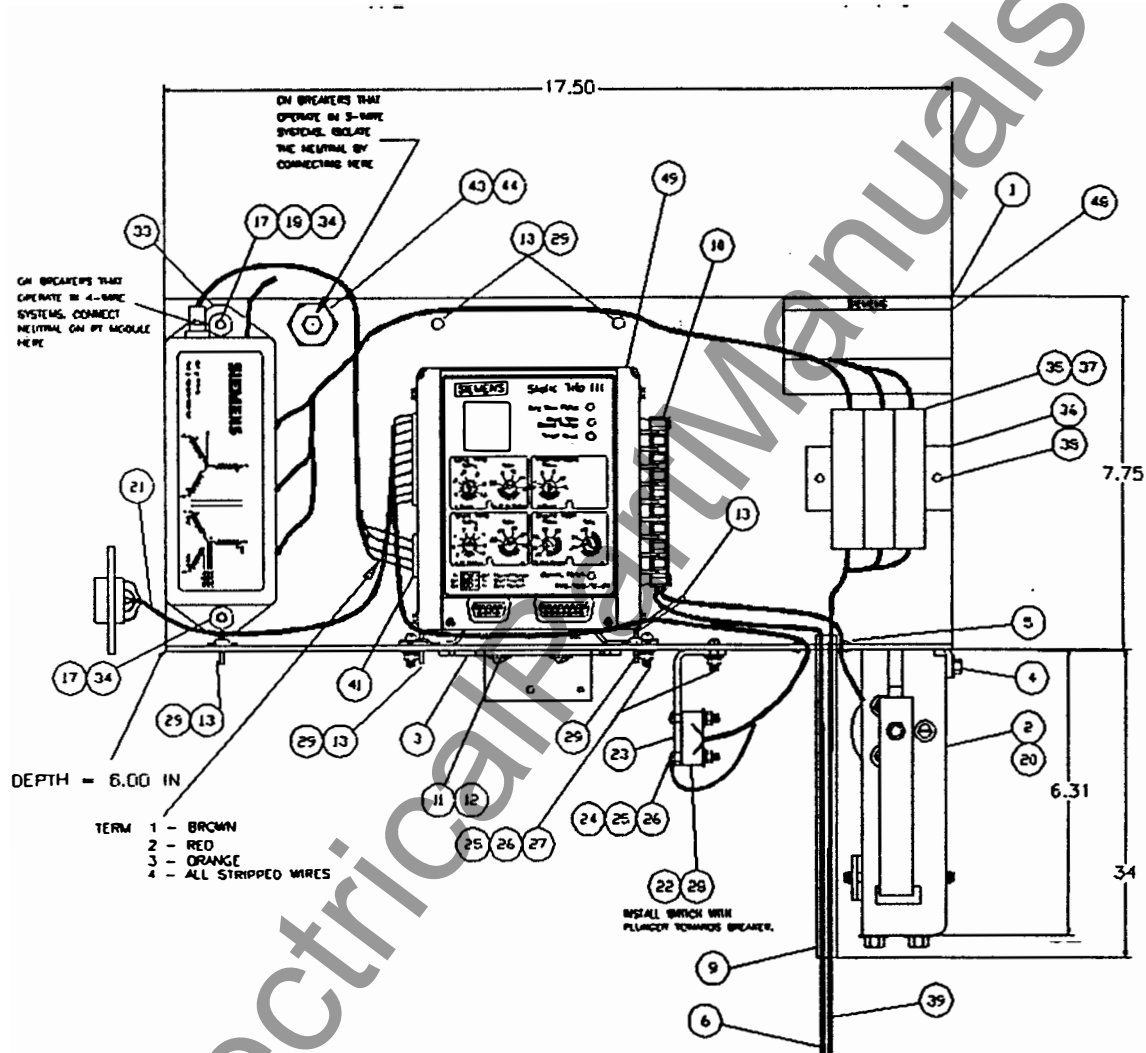
Figure 2.7 DB-50 Kit Bill-of-Material - p/n 18-824-922-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-754-773-001	
1	1	1	EA	2	DB50 ACTUATOR ASSY	18-755-736-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-658-145-296	
5	2	2	EA	4	SCR #10-32 x .5	15-171-399-010	
2	2	2	EA	5	BUSHING	00-555-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG ITEM 14
1	1	1	EA	8	DRILL TEMPLATE	18-658-669-584	PLACE IN BAG ITEM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
10	8	6	EA	13	TYRAP	00-557-271-100	PLACE QTY 5 IN BAG, ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-042	PLACE ON BAG ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
3	3	3	EA	19	BUS LINK	18-661-623-001	PLACE IN BAG ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-620-001	
2	2		EA	24	SCR #8-32 x 1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-108	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-658-110-126	
5	3	1	EA	29	PUSH-IN CLEAT	15-172-781-027	
1			EA	33	PT MODULE	18-617-538-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG ITEM 14
1			EA	41	4 PIN CONNECTOR	18-658-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG ITEM 14
1			EA	43	INSULATOR 1"	00-871-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-043	PLACE ON BAG ITEM 14
1			EA	47	LABEL	18-751-783-044	PLACE ON BAG ITEM 14
YES	YES	YES	EA	48	LABEL	18-658-145-293	CALL FOR CN ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALL FOR CN ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-824-922-503	PLACE IN BAG ITEM 14
12	12	12	EA	51	BOLT, G5, .5-13 x 3.0	00-611-315-560	PLACE ON BAG ITEM 14
24	24	24	EA	52	FLATWASHER	00-651-007-300	PLACE IN BAG ITEM 14
12	12	12	EA	53	NUT, 1/2	00-631-059-108	PLACE IN BAG ITEM 14
12	12	12	EA	54	L/W	00-655-017-036	PLACE IN BAG ITEM 14

Com & PT's
With Com
Basic Kit

2 Retrofit Kit Assembly

Figure 2.8 DB-50 Kit Assembly PIX



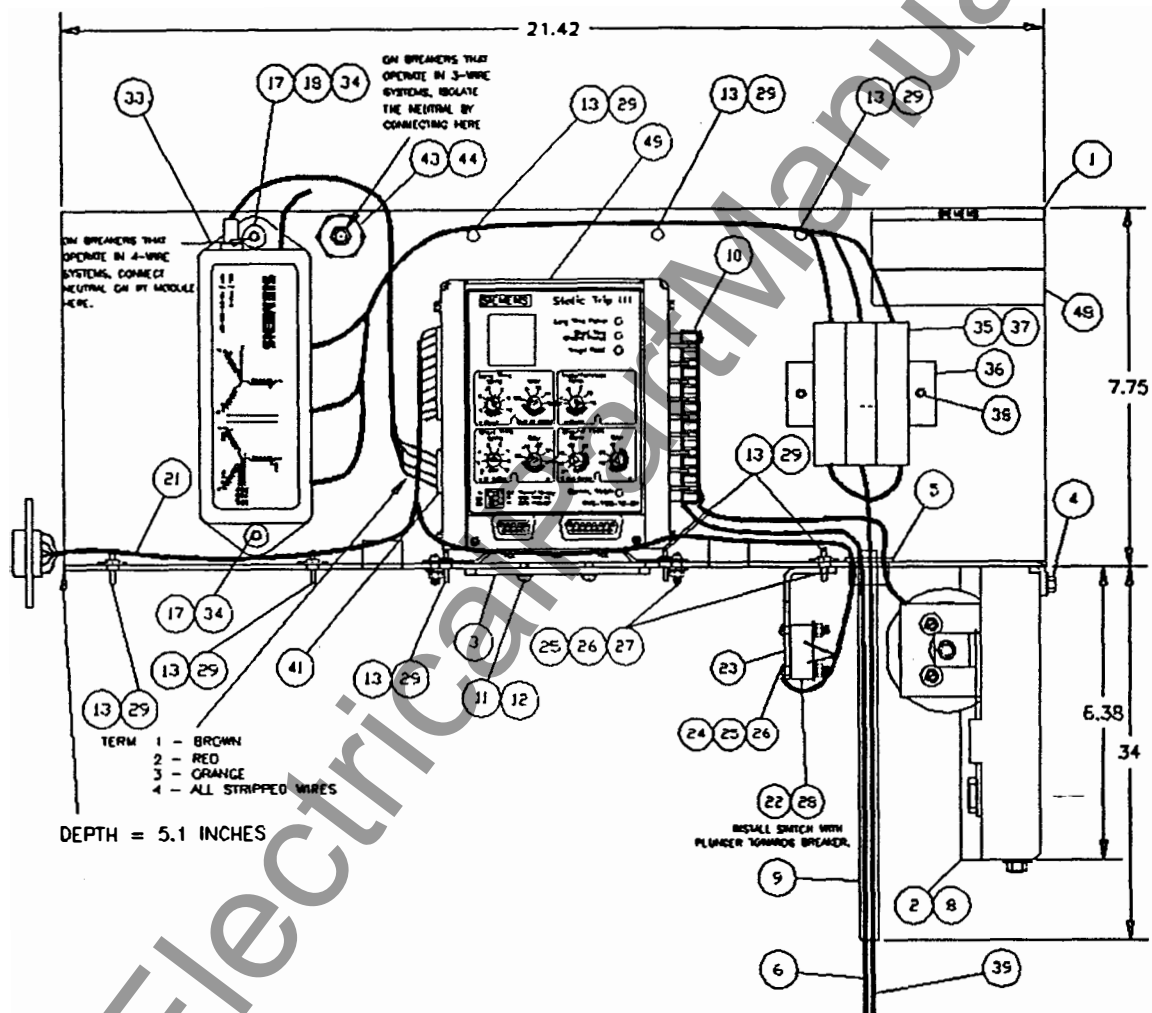
2 Retrofit Kit Assembly

Figure 2.9 DB-75 Kit Bill-of-Material - p/n 18-824-923-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-755-731-002	
1	1	1	EA	2	DB75 ACTUATOR ASSY	18-755-730-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-661-631-001	
6	3	3	EA	4	SCR #10-32 x .5	15-171-399-010	CHK 503, QTY IN REM 14.
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG, REM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
14	11	7	EA	13	TYRAP	00-857-271-100	PLACE QTY 8 IN BAG, ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-045	PLACE ON BAG, ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
1	1	1	EA	19	TRIP SHAFT CLAMP	18-658-669-887	PLACE IN BAG, ITEM 14
			EA	20			
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-634-001	
2	2		EA	24	SCR #8-32x1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-108	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-658-110-126	
9	6	2	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-535-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG, REM 14
1			EA	41	4 PIN CONNECTOR	18-658-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG, REM 14
1			EA	43	INSULATOR 1"	00-571-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-046	PLACE ON BAG, REM 14
1			EA	47	LABEL	18-751-783-047	PLACE ON BAG, REM 14
YES	YES	YES	EA	48	LABEL	18-658-145-293	CALL FOR ON ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALL FOR ON ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-524-923-503	PLACE IN BAG, REM 14

2 Retrofit Kit Assembly

Figure 2.10 DB-75 Kit Assembly PIX



2 Retrofit Kit Assembly

Figure 2.11 DB-100 Kit Bill-of-Material - p/n 18-824-956-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-757-841-001	
1	1	1	EA	2	DB75/100 ACTUATOR ASSY	18-755-730-501	
1	1	1	EA	3	MECHANISM TOP PLATE	18-661-631-001	
6	3	3	EA	4	SCR #10-32 x .5	15-171-399-010	MR 603. QTY 3 IN ITEM 14
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG. ITEM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
14	11	7	EA	13	TYRAP	00-857-271-100	PLACE QTY 5 IN BAG. ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-048	PLACE ON BAG ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
1	1	1	EA	19	TRIP SHAFT CLAMP	18-658-669-887	PLACE IN BAG ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-634-001	
2	2		EA	24	SCR #8-32x1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-108	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32x1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-655-110-126	
9	6	2	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-538-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG. ITEM 14
1			EA	41	4 PIN CONNECTOR	18-655-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG. ITEM 14
1			EA	43	INSULATOR 1"	00-871-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-049	PLACE ON BAG ITEM 14
1			EA	47	LABEL	18-751-783-050	PLACE ON BAG ITEM 14
YES	YES	YES	EA	48	LABEL	18-655-145-293	CALLED FOR ON ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALLED FOR ON ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-824-923-503	PLACE IN BAG ITEM 14

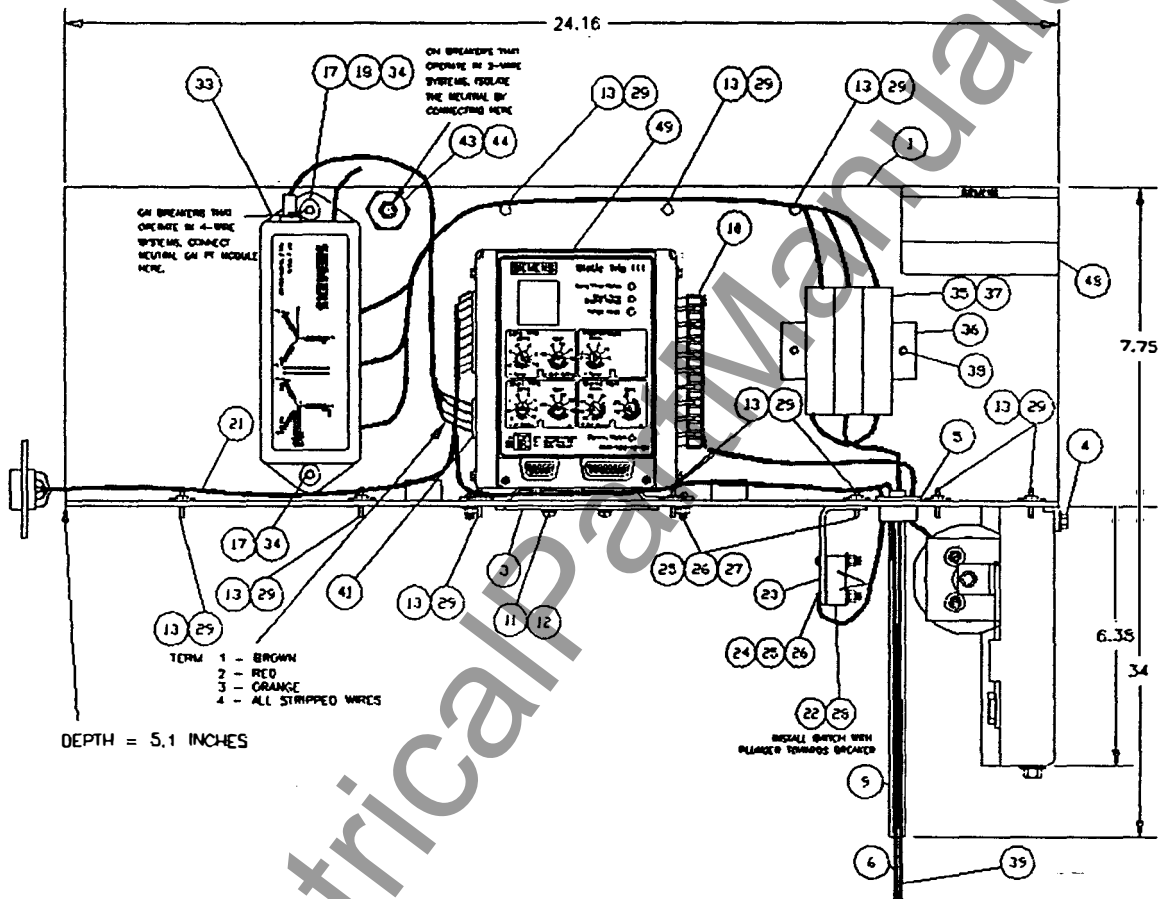
Corn & Pts

With Corn

Basic Kit

Only

Figure 2.12 DB-100 Kit Assembly PIX



2 Retrofit Kit Assembly

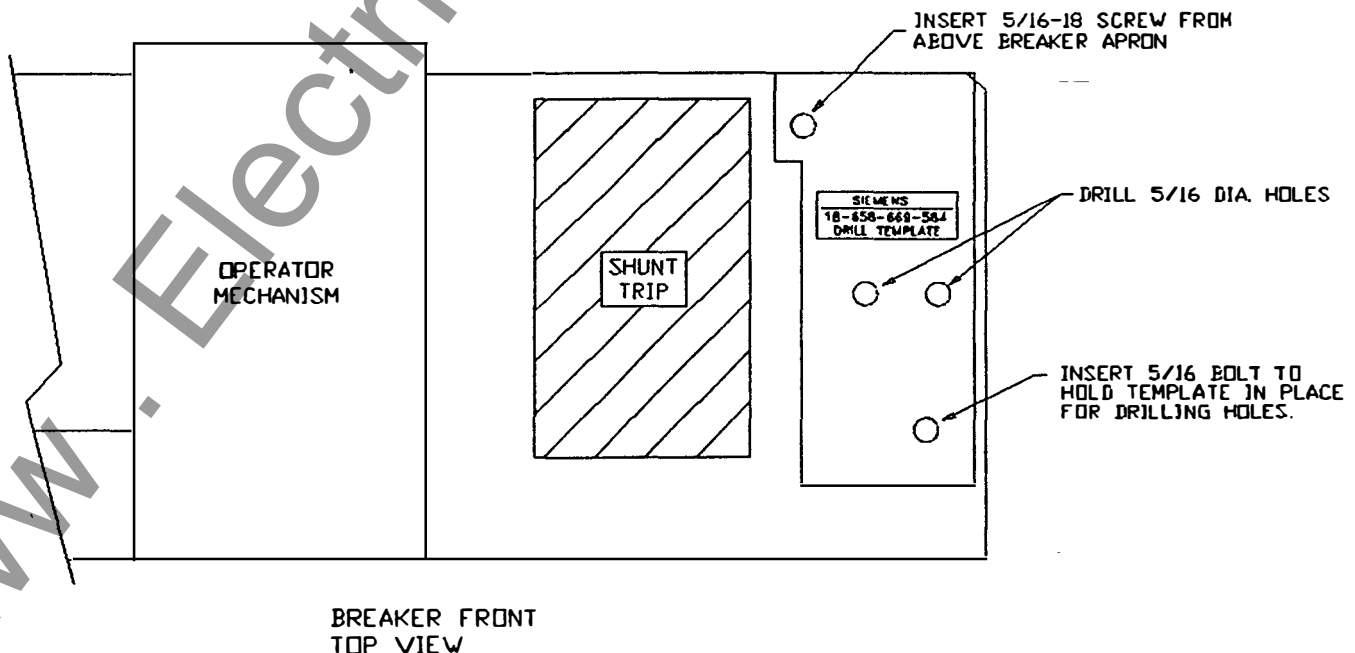
Tools Required:

- 5/16 diameter drill bit
- Screw Driver 1/4" Blade
- 7/16" Socket Wrench with Extension
- 3/4" Socket Wrench
- 3/4" Box End Wrench
- 5/16" Nut Driver
- 3/8" Nut Driver
- Drill Template 18-658-669-584 (provided DB-50 only)

Installation Steps

- 1 Removal of existing parts
 - 1.1 remove current sensors and associated wiring
 - 1.2 remove trip unit(s) and associated wiring
 - 1.3 remove trip actuator and associated wiring
 - 1.4 remove operating mechanism top plate.
- 2 Prepare Breaker for Kit Installation - see figure 2.13
 - 2.1 DB-50 only, add Trip Actuator mounting holes
 - 2.1.1 Mount drill template 18-658-669-584 with one (1) 5/16-18 screw (from old trip actuator mounting) and one (1) 5/16-18 bolt (for alignment only - does not screw in) using exiting holes on breaker apron.
 - 2.1.2 Drill two (2) 5/16 diameter hole.
Remove drill template and discard.

Figure 2.13 Actuator Drill Template Mounting (DB-50 only)



2 Retrofit Kit Assembly

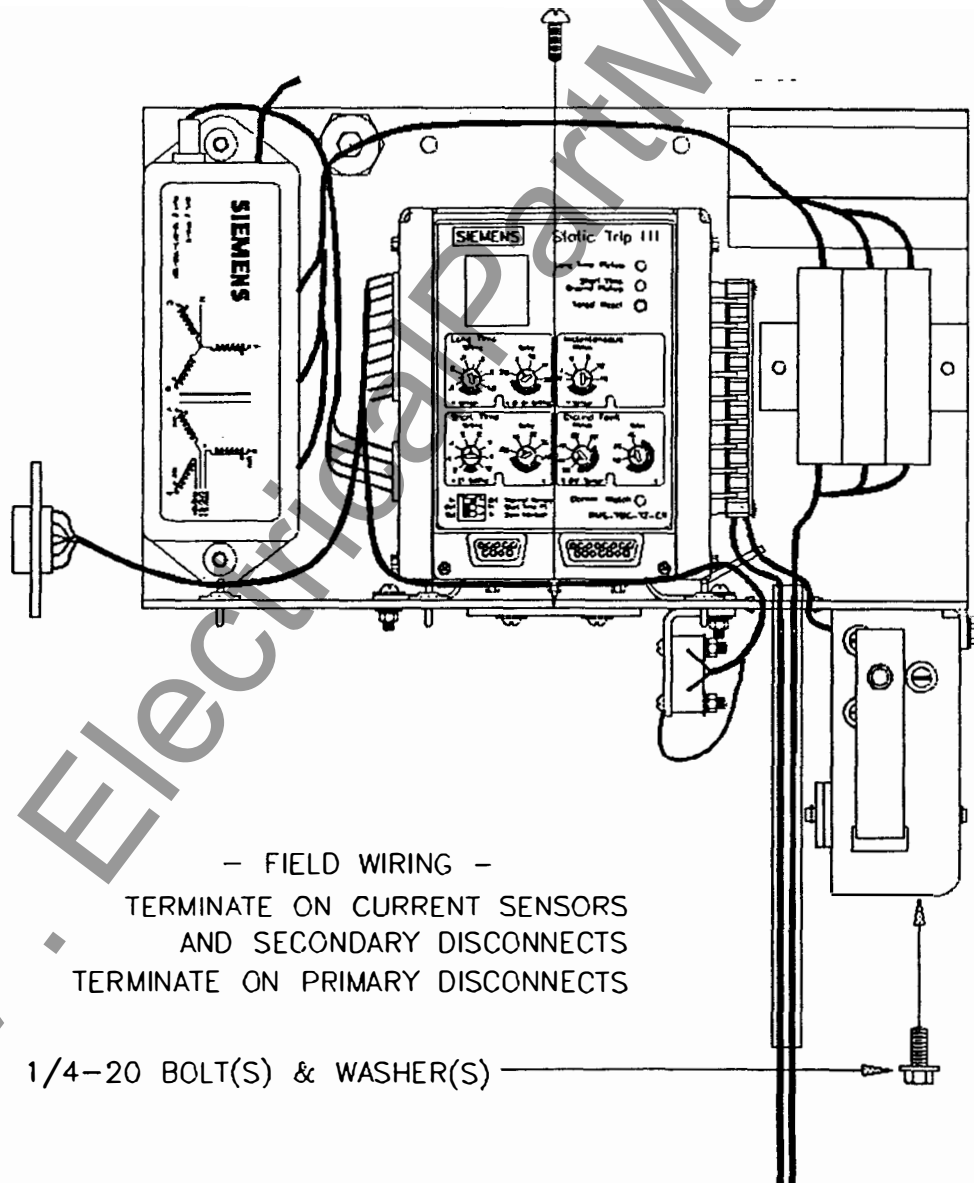
- 3 **Mount New Devices**
 - 3.1 Mount phase current sensors on the lower primary bus stabs. Mount such that the H1 face is towards the primary disconnect.
 - 3.2 DB-75 and DB-100 only, install Trip Shaft Clamp - see figure 2.14. The Trip Shaft Clamp must be located on the breaker trip shaft to line-up with the Trip Actuator Trip Bar.

Figure 2.14 Trip Shaft Clamp Mounting - DB-75 and DB-100 only

2 Retrofit Kit Assembly

- 3.3 Mount Basic Trip Unit Kit on top of the operation mechanism in front of the arc chutes. **WARNING** - The breaker Main Contact Cross Bar must be moved towards the closed position to install the Trip Actuator. **USE THE BREAKER SLOW CLOSE FEATURE TO MOVE THE BREAKER CROSS BAR AWAY FROM THE TRIP ACTUATOR.** The Basic Trip Unit Kit attaches to the breaker with screw into the top of the operating mechanism and 1/4-20 bolt(s) from the bottom side of the breaker into the actuator housing - see figure 2.15.
- 3.4 Return breaker to the open position.

Figure 2.15 Basic Trip Unit Kit Mounting (DB-25 Kit shown)



2 Retrofit Kit Assembly

3.5 DB-25 and DB-50 only

Install Bus Links and Bus Shims using 1/2" hardware. These parts and hardware are provided with each Basic Kit and are used to replace the three electro-mechanical trip unit coils - see figure 2.16.

**Figure 2.16 Bus Link and Bus Shim Installation
(DB-25 Shown)**

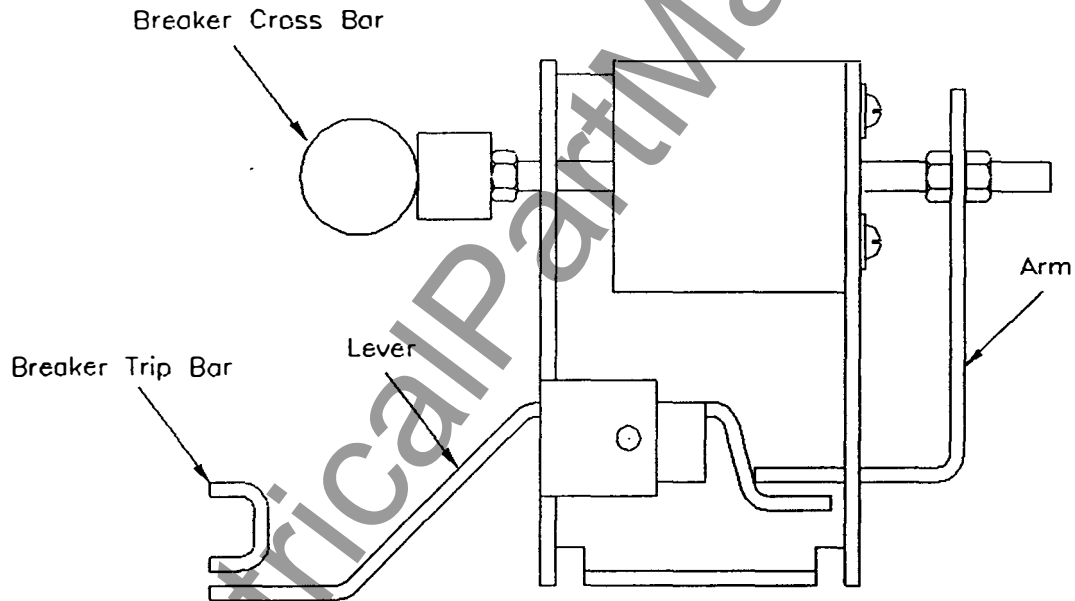
2 Retrofit Kit Assembly

4 Adjust Trip Actuator

4.1 DB-25 and DB-50 Kits - see figure 2.17

- 4.1.1 Adjust nuts on actuator shaft so that arm is in contact with lever and lever is just starting to rotate
- 4.1.2 Adjust rubber bumper and nut on end of trip actuator shaft so that when breaker is open, breaker cross bar is in contact with trip actuator shaft and trip actuator is reset.

Figure 2.17 DB-25 and DB-50 Trip Actuator

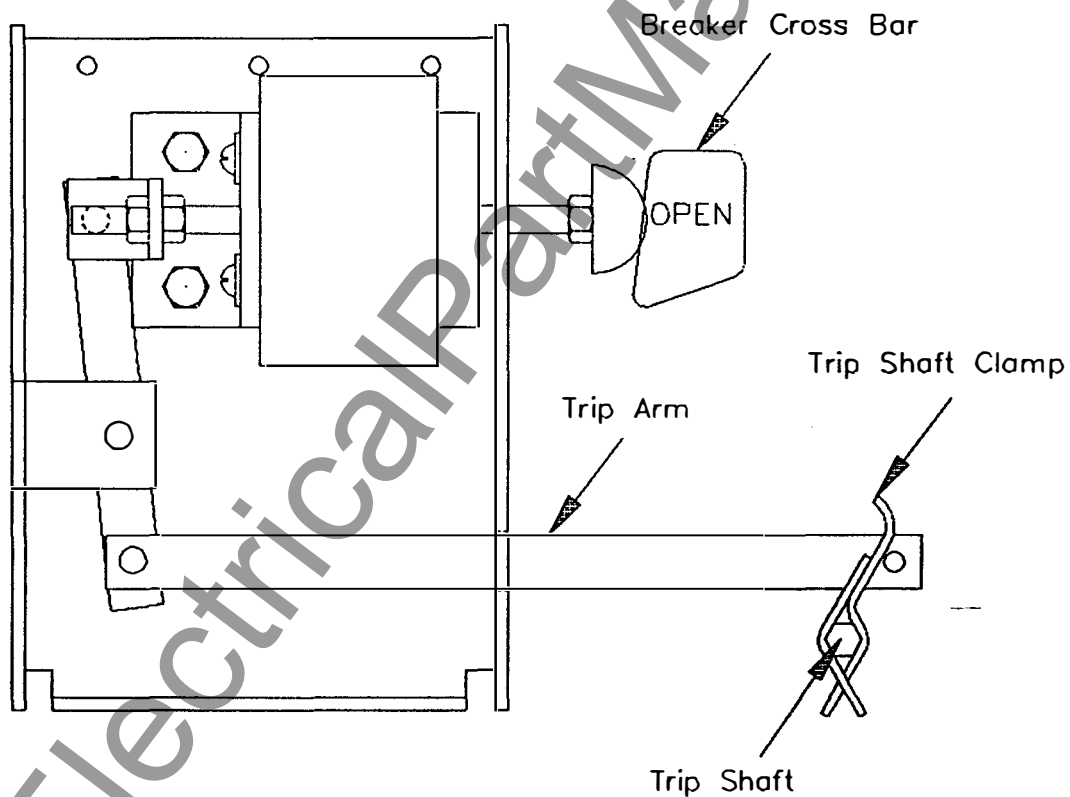


2 Retrofit Kit Assembly

4.2 DB-75 and DB-100 Kits - see figure 2.18

- 4.2.1 Adjust nuts on actuator shaft so that trip arm is in not in contact with the breaker trip shaft clamp but such that the trip arm will operate the trip shaft clamp to trip the breaker.
- 4.2.2 Adjust rubber bumper and nut on end of trip actuator shaft so that when breaker is open, breaker cross bar is in contact with trip actuator shaft and trip actuator is reset.

Figure 2.18 DB-75 and DB-100 Trip Actuator



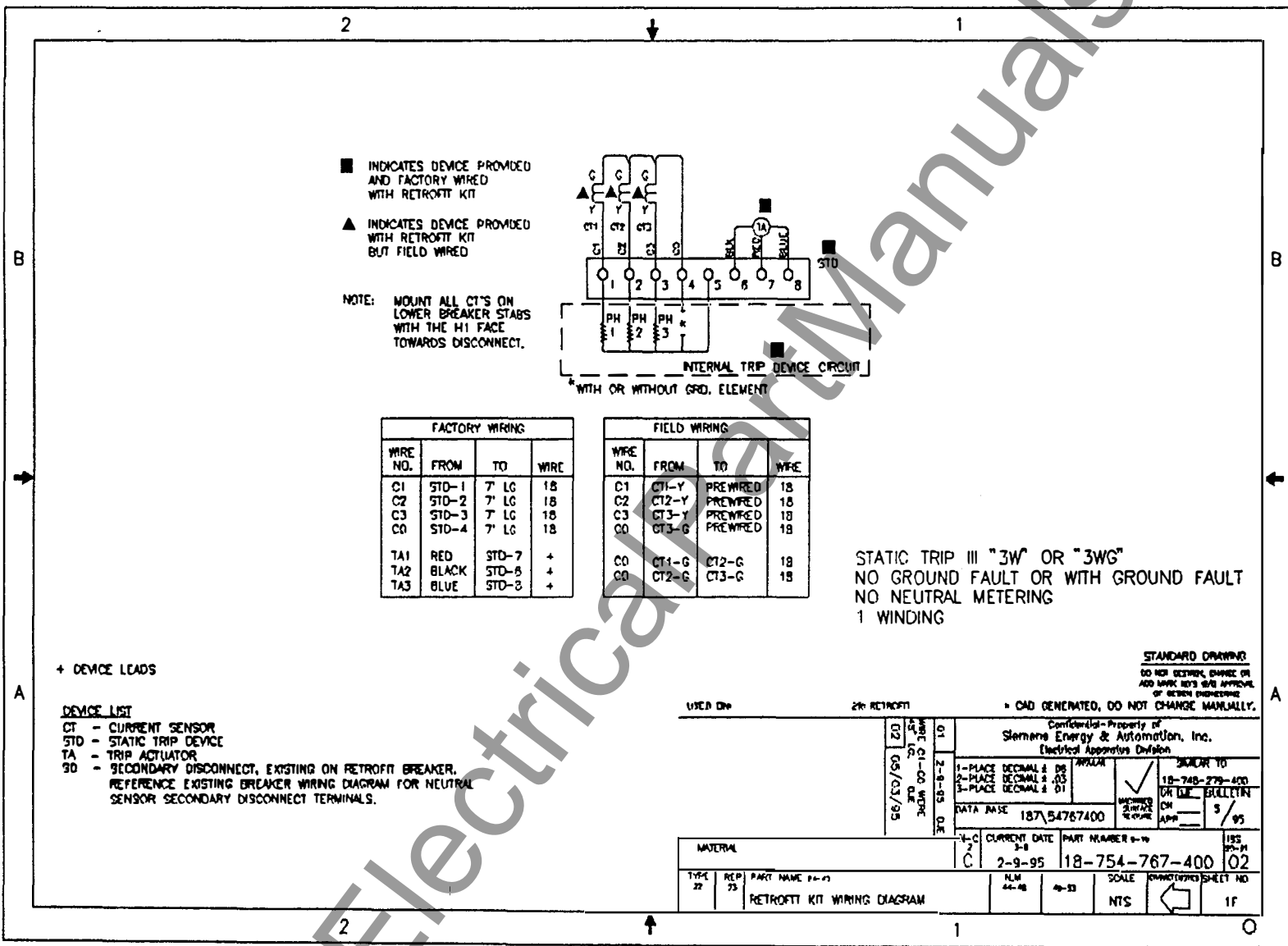
2 Retrofit Kit Assembly

- 5 Complete Field Wiring - see figure 2.19 (three (3) sheets)
- 5.1 Reference the Bill-of-Material for required wiring diagram
- 5.2 Complete the "Field Wiring" using prewired conductors on kits (one end loose) and Sensor Ground Wiring Kit.
- connect to breaker mounted sensors
 - connect to primary bus (if PT module is present)
Connect to source (line side) of breaker primary disconnect. Spade lugs connect under head of primary disconnect mounting bolts.
 - connect to secondary disconnect (if neutral sensor required).
Reference existing breaker wiring diagram for neutral sensor secondary disconnect terminals.

Bundle wires and retain with tyrap. Route wire to avoid moving parts, sharp edges, and primary conductors.

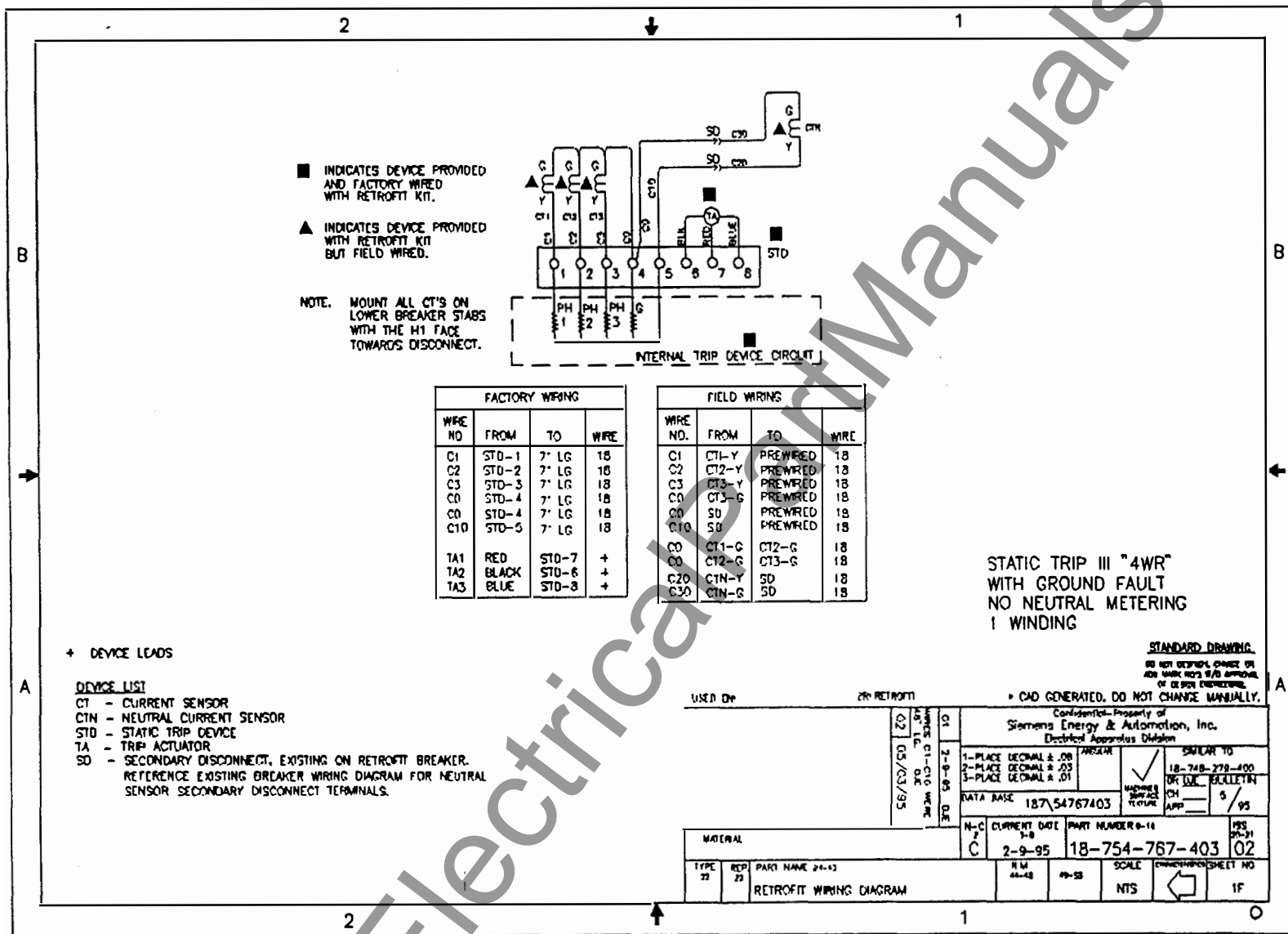
2 Retrofit Kit Assembly

Figure 2.19 Wiring Diagram



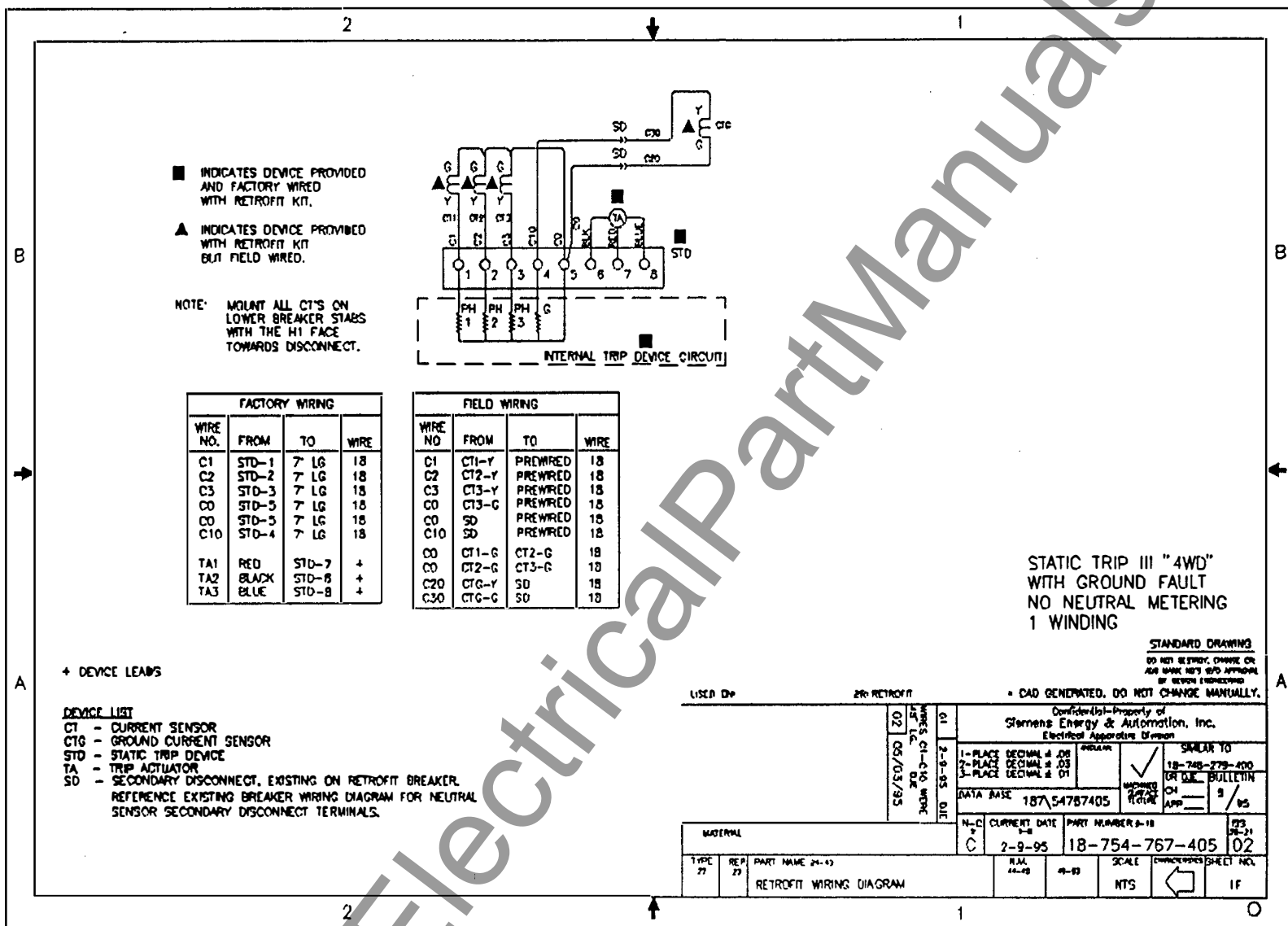
2 Retrofit Kit Assembly

Figure 2.19 Wiring Diagram (continued)



2 Retrofit Kit Assembly

Figure 2.19 Wiring Diagram (continued)



2 Retrofit Kit Assembly

2.2.2 Instructions for Cubicle Mounted Communications Disconnect Installation

The assembly instructions in this section detail the installation of the Cubicle Mounted Communications Disconnect.

Tools Required: 7/16" Wrench
 13/63" Drill Bit

Installation Steps

- 1 Check contents of Signal Disconnect Kit against Bill-of-Material 18-658-669-582 (figure 2.20).
- 2 Mount Signal Disconnect Kit per Installation Instructions 18-754-770-401 (figure 2.21).
- 3 Wire Signal Disconnect Kit per Installation Instructions 18-754-770-401 (figure 2.21) and ST III-C Communication Kits Diagram 18-754-771-401 (figure 2.22).

2 Retrofit Kit Assembly

Figure 2.20 Signal Disconnect Kit Bill-of-Material

501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	EA	1	CUBICLE DISCONNECT	18-732-790-546	
1	EA	2	INSULATOR	18-658-110-154	
1	EA	3	WASHER	00-651-007-071	
1	EA	4	SPACER	18-658-110-156	
2	EA	5	#10-32 x 1PEM STUD	15-172-630-003	
2	EA	6	#10-32 STOP NUT	00-633-059-210	
18	EA	7	TERMINAL	15-172-099-020	
1	EA	8	MOUNTING PLATE	18-754-769-001	
2	EA	9	1/4-20 x .625 PEM STUD	15-172-630-013	
2	EA	10	FLAT WASHER	00-651-007-147	
2	EA	11	LOCK WASHER	00-655-017-026	
2	EA	12	1/4-20 NUT	00-631-059-204	
	EA	13			
	EA	14			
1	EA	15	ENVELOPE	18-751-736-001	
	EA	16			
	EA	17			
1	EA	18	CONNECTION DIAGRAM	18-754-771-401	
YES	EA	19	SIGNAL DISC RETROFIT DB	18-658-669-582	
1	EA	20	CUBICLE MOD STIII (PRINT)	18-754-770-401	
	EA	21			
1	EA	22	LABEL	18-751-783-041	
1	EA	23	PLASTIC BAG	15-171-004-041	

INCLUDE THE FOLLOWING PRINT IN PLASTIC BAG (ITEM 23):

- CONNECTION DIAGRAM 18-754-771-401
- SIGNAL DISCONNECT BOM 18-658-669-582
- CUBICLE MODIFICATION STIII 18-754-770-401

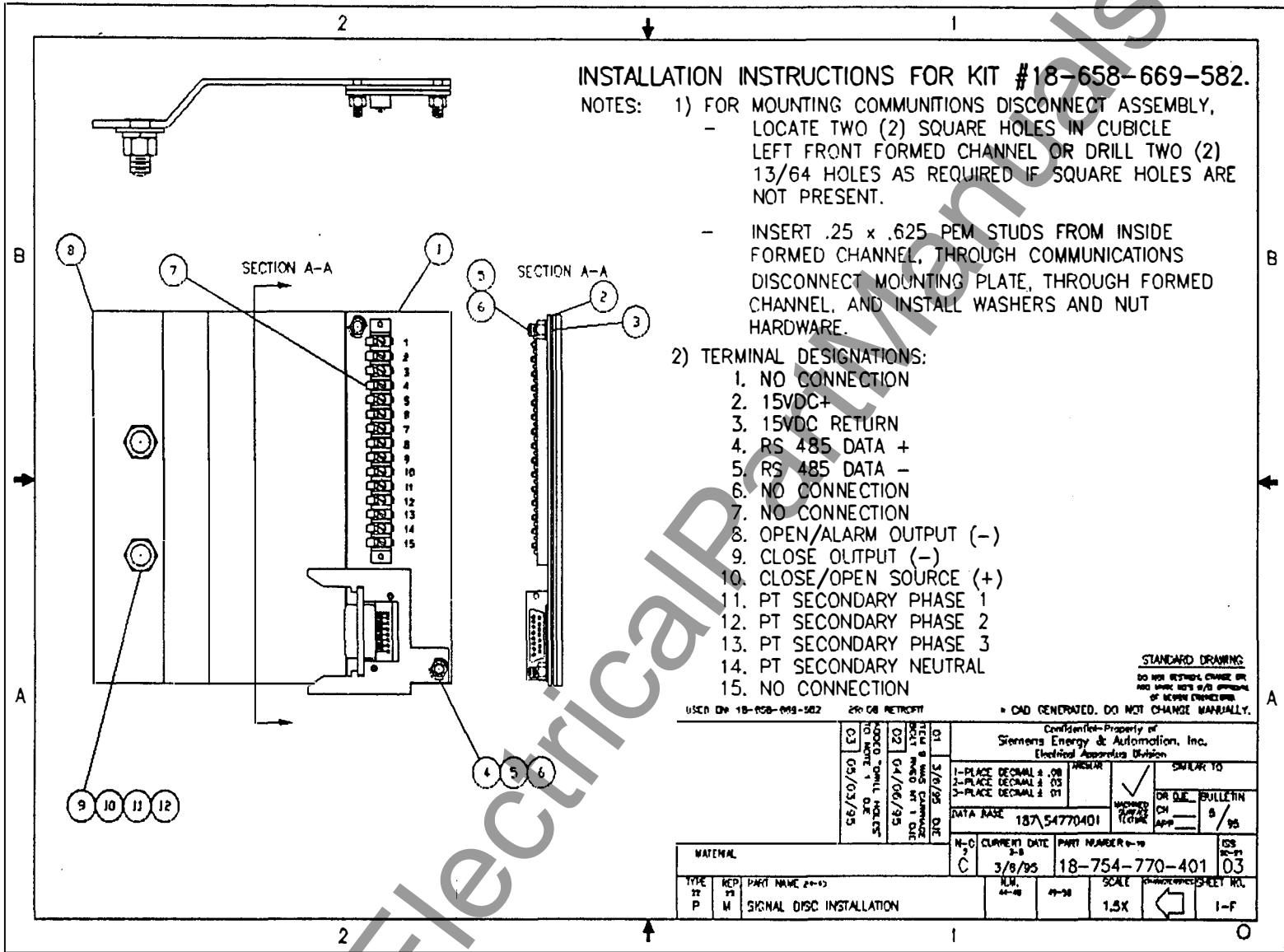
STANDARD DRAWING
DO NOT DESTROY, CHANGE OR
ADD MARK. NO'S W/O APPROVAL
OF DESIGN ENGINEERING

USED ON: 2R: DB RETROFIT * CAD GENERATED. DO NOT CHANGE MANUALLY.

ADDED NOTES DUE 03/21/95		01 3/7/95		Confidential-Property of Siemens Energy & Automation, Inc. Electrical Apparatus Division	
1-PLACE DECIMAL ± .06 2-PLACE DECIMAL ± .03 3-PLACE DECIMAL ± .01		ANGULAR		SIMILAR TO 18-658-143-547	
DATA BASE		BKKWILA		OR DUE CH 3 / 95	
MATERIAL		N-C 2 C		CURRENT DATE 3-8 3/7/95	
		PART NUMBER 9-19 18-658-669-582		ISS 26-21 02	
TYPE 22 A	REP 23 M	PART NAME 24-43 SIGNAL DISC KIT		N.W. 44-48 48-53	SCALE 1X
				CHARACTERISTICS SHEET NO. 1-F	

2 Retrofit Kit Assembly

Figure 2.21 Signal Disconnect Kit Installation Instructions





2 Retrofit Kit Assembly

2.2.3 Instructions for Breaker Display Unit Installation

The assembly instructions in this section detail the installation of the Breaker Display Unit (BDU).

The BDU is mounted on the cubicle door and is plugged via a cable connector into the Static Trip III.

Kit contains materials and instructions necessary to mount Breaker Display Unit (BDU) on a breaker cubicle door. External 15 VDC power supply is required. See Instruction Bulletin SG-3118-01 included in Trip Unit box for operating instructions.

Tools Required:

- Drill .187 diameter
- Drill .750 diameter
- Deburring Tool
- 1/4" Hex Socket or Nut Driver

Installation Steps

- 1 Check contents of BDU kit against Bill-of-Material (see figure 2.23) for completeness.
- 2 Locate BDU on cubicle door as required to avoid interference with cubicle internal parts and to allow wire routing.

Drill holes per figure 2.23 using template 18-658-143-574, remove all burrs.
- 3 Mount BDU on cubicle door using three (3) #6-32 screws from kit. Insert screws from inside cubicle door.
- 4 Plug cord set into BDU, route wires from BDU to breaker, tie cord set in position with ty-raps. Route wire to:
 - avoid sharp edges, pinch points, and moving parts,
 - allow opening and closing of cubicle door, and
 - allow for breaker travel.
- 5 Double check wire route and plug connector into Static Trip device.
See Instruction Bulletin SG-3118-01 for operating instructions.

CAUTION

BDU cable must be connected and disconnected to breaker to allow removing breaker from cubicle.

2 Retrofit Kit Assembly

Figure 2.23 BDU Kit Bill-of-Material

573 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	EA	1	INSTRUCTION - PRINT	18-754-766-401	
1	EA	2	BREAKER DISPLAY UNIT	18-658-582-544	
1	EA	3	CORD SET	18-658-582-546	
3	EA	4	SCREW, #6 x .38 LG.	15-171-074-010	
10	EA	5	TYRAP MOUNTING PLATE	15-171-949-093	
20	EA	6	TYRAP	00-857-271-230	
1	EA	7	DRILL TEMPLATE	18-658-143-574	
1	EA	8	PLASTIC BAG	15-171-004-041	
1	EA	9	LABEL	18-751-783-037	

STANDARD DRAWING
DO NOT DESTROY, CHANGE OR
ADD MARK. NO'S W/O APPROVAL
OF DESIGN ENGINEERING.

USED ON: 2R:RETROFIT KITS + CAD GENERATED, DO NOT CHANGE MANUALLY.

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Siemens Energy & Automation, Inc.
Electrical Apparatus Division

1-PLACE DECIMAL ± .06
2-PLACE DECIMAL ± .03
3-PLACE DECIMAL ± .01

ANGULAR

SIMILAR TO
18-658-701-573
OR DUE BULLETIN
CH 2/95
APP

DATA BASE 8KKW1L7

MACHINED SURFACE TEXTURE

N-C 2
N

CURRENT DATE 3-8
2/3/95

PART NUMBER 9-19
18-658-669-579

ISS 20-21
01

MATERIAL

TYPE 22
A

REP 23
M

PART NAME 24-43
BREAKER DISPLAY UNIT

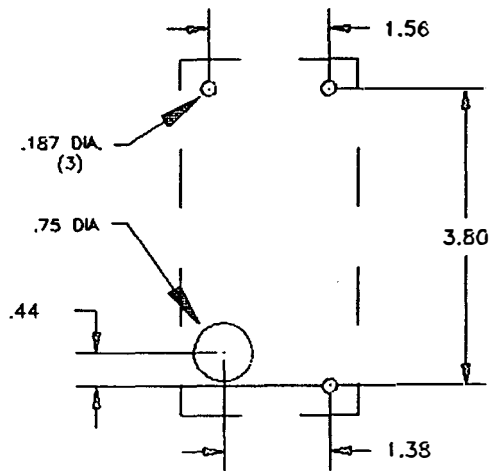
N.M. 44-48
49-53

SCALE 1X

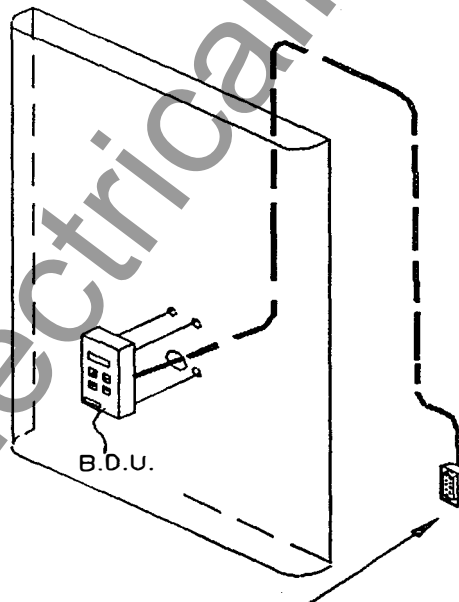
CHARACTERISTICS SHEET NO.
1F

2 Retrofit Kit Assembly

Figure 2.24 BDU Kit Installation Instructions



HOLE PATTERN FOR MOUNTING
BREAKER DISPLAY UNIT, (B.D.U.)
LOCATE AS REQUIRED IN CUBICLE
DOOR TO AVOID INTERNAL PARTS
AND TO ALLOW RACKING OF
BREAKER.



Plugs into Trip Unit ST III
L.H. receptacle at front.

3 Breaker Testing and Breaker Labeling

3 Breaker Testing and Breaker Labeling

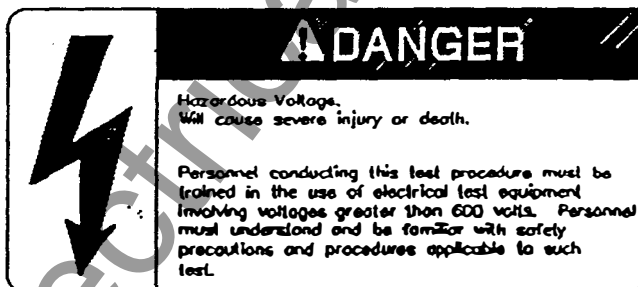
3.1 General Test Description

The test procedures described in this section apply to Static Trip III Retrofit Kits for Westinghouse type DB and DBL circuit breakers.

Test recommendations described in this section focus on electrical clearance testing of the new components involved and the assurance that the newly installed breaker trip circuit is functioning properly. The test procedures described do not cover and breaker performance testing; breaker performance testing, means to test whether or not a breaker is still capable of meeting its interruption rating as expressed on its rating plate. It is the responsibility of the retrofitter to inspect, test and perform any necessary work to confirm the electrical and mechanical integrity of the breaker. The retrofit Kit components when properly installed per our procedures have no impact on breaker performance. Breaker performance is simply a function of the overall breaker condition.

3.2 Testing

Completely read and understand the **Danger, Warning and Safety Instructions** on page i of this manual before attempting operation, maintenance or modification of the equipment discussed in this manual.



3.3 Low Frequency Withstand Test

Low Frequency Withstand Test is in accordance with ANSI C37.59-1991 (Requirements for Conversion of Power Switchgear Equipment) and C37.50-1989 (Low-Voltage AC Power Circuit Breakers Used in Enclosures - Test Procedures).

1. Apply ground potential to all secondary disconnects and also ground all trip unit terminals at the top of the Static Trip III device.

3 Breaker Testing and Breaker Labeli

2. Jumper upper primary disconnects, jumper lower disconnects and apply 1320 VAC for one (1) minute between the jumpered primary disconnects with the breaker in the open position. Some more sensitive highpots may buzz or trip due to magnetizing current of the PT module, if installed. In such case the PT module fuses may be removed for this test.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

3. Jumper all six primary disconnects. Leave all other ground jumpers in place and apply 1320 VAC for one (1) minute between jumpered primary disconnects and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

4. Jumper top and bottom primary disconnects of Phase B and Phase C (four (4) terminals jumpered) and connect to ground. Jumper upper to lower primary disconnect of Phase A and apply 1320 VAC for one (1) minute between Phase A and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

5. Repeat step 4 for voltage applied to Phase B, jumper Phase A to Phase C.
6. Repeat step 4 for voltage applied to Phase C, jumper Phase A to Phase B.
7. Repeat steps 4, 5 and 6 with the breaker closed.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

8. Remove all previous jumpers with the exception of the jumpers on the communication disconnects and trip unit terminals. The jumpers should still be connected to ground. Jumper all six (6) primary disconnects and connect to ground. Jumper all secondary disconnects and apply 600 VAC for one minute between the secondary disconnect and ground. The breaker may be open or closed for this test. This test will assure that the motor (on electrically operated breakers only) is in good operating condition.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

9. Disconnect the motor leads and repeat step 6, except using 900 VAC instead of 600 VAC for one minute.

Breaker Testing and Breaker Labeling

Frequency Withstand Test, otherwise, determine cause of problem and retest.

Previous jumpers.

As follows:

- six (6) primaries to ground
- all communication disconnects to ground
- all secondary disconnects to ground
- disconnect the "ground" wire on Static Trip III C versions
- jumper terminal one (1) through eight (8) on the trip unit terminal block

Apply 300 VAC for one minute between trip unit jumper and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

3.4 Trip Unit Testing

Testing of the trip unit is described in Static Trip III trip unit Bulletin SG3118-01, pages 29-35. The bulletin is enclosed.

3.5 Labeling

ANSI/IEEE C37.59-1991(Requirements for Conversion of Power Switchgear Equipment) requires a nameplate with the converter (retrofitter) name, address, identification number, date, and rating information. The Retrofit Basic Trip Kit includes a partially completed nameplate describing the Siemens Retrofit Kit. The converter (retrofitter) must complete the remaining information (see figure 3.1).

Figure 3.1 Converted By Label

SIEMENS	
Type	Serial No.
Trip W/D	
Comm W/D	
Sensor Ratings: Tap Used	Mfg.Date
Grd. Sensors (when used)	Inst.Book
Siemens Energy & Automation, Inc. Raleigh, NC Made in U.S.A.	
Converted By	
Address	
Address	
ID No.	Mfg.Date

SIEMENS

Static Trip III Retrofit for Westinghouse Type DB Low Voltage Power Circuit Breakers

Installation Instructions

www.ElectricalPartManuals.com



⚠ DANGER

Hazardous voltages are present in the equipment which will cause severe personal injury and equipment damage. Always de-energize and remove the breaker from its cubicle before maintenance or retrofit work. Maintenance or retrofit should be performed only by qualified personnel. The use of unauthorized parts in the repair of the equipment or tampering by unqualified personnel will result in dangerous conditions which can cause severe personal injury or equipment damage.

Follow all safety instructions contained herein.

WARNING

The Power Circuit Breakers discussed in the manual may contain a spring charged mechanism that can cause severe injury. Before working on any breaker assure that the springs are discharged and the contacts are in the open position. Some procedures may require the breaker to be closed. In such cases, assure that the contacts are securely wedged to prevent an inadvertent opening of the breaker. Remove wedge, open and discharge the breaker as soon as the procedure is completed that required the breaker to be closed.

IMPORTANT

The information contained herein is general in nature and does not relieve the user of the responsibility to use sound practices in application, installation, operation, maintenance and retrofit of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material, the latter shall take precedence.

NOTE

For the purpose of this manual a qualified person is one who is familiar with the installation, construction, assembly and operation of the equipment and the hazards involved. In addition, he has the following qualifications:

- (a) is trained and authorized to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) is trained in the proper care and use of protective equipment such as rubber gloves, hard hats, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.
- (c) is trained to perform maintenance and assembly work on low voltage power circuit breakers.
- (d) is trained in rendering first aid.

SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local sales office, listed on back of this instruction guide.

The contents of this instruction manual should not become part of or modify any prior or existing agreement, commitment, or relationship. The sales contract contains the entire obligation of Siemens Energy & Automation, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

Table of Contents

1	Introduction	1-1
1.1	General Information	1-1
1.2	Breaker Exclusion	1-1
1.3	Static Trip III Retrofit Catalog Number System	1-1
1.4	Static Trip III Retrofit Kit - contents	1-4
1.5	Kit Identification	1-4
2	Retrofit Kit Assembly	2-1
2.1	Danger and Warning Information	2-1
2.2	Assembly Instructions	2-1
2.2.1	Instructions for Sensors and Basic Trip Unit Kit Installation	2-1
2.2.2	Instructions for Cubicle Mounted Communications Disconnect Installation	2-24
2.2.3	Instructions for Breaker Display Unit Installation	2-28
3	Breaker Testing and Breaker Labeling	3-1
3.1	General Test Description	3-1
3.2	Testing	3-1
3.3	Low Frequency Withstand Test	3-1
3.4	Trip Unit Test	3-3
3.5	Labeling	3-3

1 Introduction

1 Introduction

This manual is intended for mechanics with breaker experience, to guide them in retrofitting Westinghouse type DB and DBL breakers with Static Trip III trip units, its associated trip circuit components and auxiliary devices.

This manual does not replace other Siemens manuals covering detailed information, installation, operation or maintenance of the equipment discussed in this manual. Be sure to completely read and understand Danger, Warnings and other Important Notices on the page preceding the "Table of Contents" before you attempt any procedures described in this manual.

1.1 General Information

Static Trip III Retrofit Kits contain all materials needed, including hardware and drilling fixtures to retrofit Westinghouse type DB and DBL Low Voltage Power Circuit Breakers with Static Trip III trip units and their auxiliary components.

Unless otherwise specified, Static Trip III retrofit components are packaged in one cardboard box per breaker. Each box contains factory assembled and factory wired assemblies required for installation on the breaker. These assemblies are assembled and wired up to the point required to installation on breaker. The assemblies and parts contained in each box are according to the kit catalog number you have specified.

1.2 Breaker Exclusion

The Static Trip III Retrofit Kit will not fit with all accessories available on the original Westinghouse breakers.

- For breaker with Under Voltage Relays, the Static Trip III Retrofit Kit cannot be used.
- For breakers with Bell Alarm, consult factory.

1.3 Static Trip III Retrofit Catalog Number System

Table 1.1 illustrates the catalog number system for Static Trip III Retrofit Kits. As shown in the table on the following page, trip unit models are identified by a three digit code number. Table 1.2 tells what functions each model contains.

In the event you prefer a different trip unit model other than you had specified or received inadvertently, use the eleven-digit trip unit part number of Table 1.2 for ordering purpose.

1 Introduction

Example:

Catalog Number
ST III Retrofit Kits

K **DBU** **025** - **522** - **A** - **06** - **1** - **A**

K designate "kit"

Breaker Type

DBU = Type DB unfused

DBL = Type DBL fused

Breaker Frame Size

025 = 600 amps

050 = 1600 amps

075 = 3000 amps

100 = 4000 amps

Static Trip III Model

See Table 1.2 for code identification

Sensor Type

A = Standard (single winding)

T = Tapped winding

D = Dual winding with 2000A NEC ground winding

Sensor Rating

01 = 150 amps

02 = 200 amps

:

40 = 4000 amps

Breaker Display Unit

0 = Not included

1 = Included

Standard / Special

A = Standard

S = Special order

Table 1.1 Catalog Numbering System

1 Introduction

X = Protective Relaying																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</
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1 Introduction

1.4 Static Trip III Retrofit Kit - Contents

Definition: “Static Trip III Retrofit Kit”:

One container consisting of factory assembled and factory wired assemblies, as specified per Static Trip Retrofit Kit Catalog Number, as needed to retrofit one breaker.

All Static Trip III Retrofit Kits (Trip Unit code numbers 504 through 515 and 546 through 551) include the following:

- a) trip unit kit - factory wired and assembled kit including
 - Static Trip III unit
 - trip actuator
 - bus splice bars (DB-25, DBL-25, DB-50, & DBL-50 only)
- b) sensors

Communications trip units without the power metering or protective relaying options, (Trip Unit code numbers 510 through 515) include the following additional items:

- c) communications disconnect (breaker mounted umbilical cable)
- d) communications disconnect (for mounting in cubicle).

Trip units with power metering or protective relaying options, (Trip Unit code numbers 546 through 551) include the following additional items:

- e) potential transformer module and fuses - factory wired and assembled with basic trip kit.

Note that the Breaker Display Unit (BDU) requires Static Trip III units with communications capability. The BDU is included if specified in the Kit Catalog Number and provided that the trip unit model selected includes communications.

1.5 Kit Identification

Each Static Trip III Retrofit Kit is labeled on the outside of its cardboard box with the catalog number and a brief description of the sub kits included. Each kit also includes a bill of material, listing all sub kits by name and part number.

Each sub kit is labeled with its part number. In addition, a bill of material inside the enclosure of each sub kit allows you to verify the contents of each sub kit.

2 Retrofit Kit Assembly

2 Retrofit Kit Assembly

2.1 Danger and Warning

Completely read and understand the **Danger, Warning and Safety Instructions** on page i of this manual before attempting operation, maintenance or modification of the equipment discussed in this manual.

2.2 General Assembly Information

This manual assumes that the breakers to be retrofitted are in good working condition, i.e., meaning the breaker meets its nameplate rating. General overhaul and maintenance procedures are outside the scope of this manual. It is therefore the responsibility of the retrofitter to inspect, test and perform any necessary work to confirm the electrical and mechanical integrity of the breaker.

2.2.1 Instructions for Sensors and Basic Trip Unit Kit Installation

The assembly instructions in this section detail the installation of the Sensors and Basic Trip Unit Kit.

See representative pictures - figures 2.1 through figure 2.4.

2 Retrofit Kit Assembly

Figure 2.1 Front View of DB-25 Breaker (DB-50 similar)

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2 Retrofit Kit Assembly

Figure 2.2 Rear View of DB-25 Breaker (DB-50 similar)

www.ElectricalPartManuals.com

2 Retrofit Kit Assembly

Figure 2.3 Front View of DB-100 Breaker (DB-75 similar)

www.ElectricalPartManuals.com

2 Retrofit Kit Assembly

Figure 2.4 Rear View of DB-100 Breaker (DB-75 similar)

www.ElectricalPartManuals.com

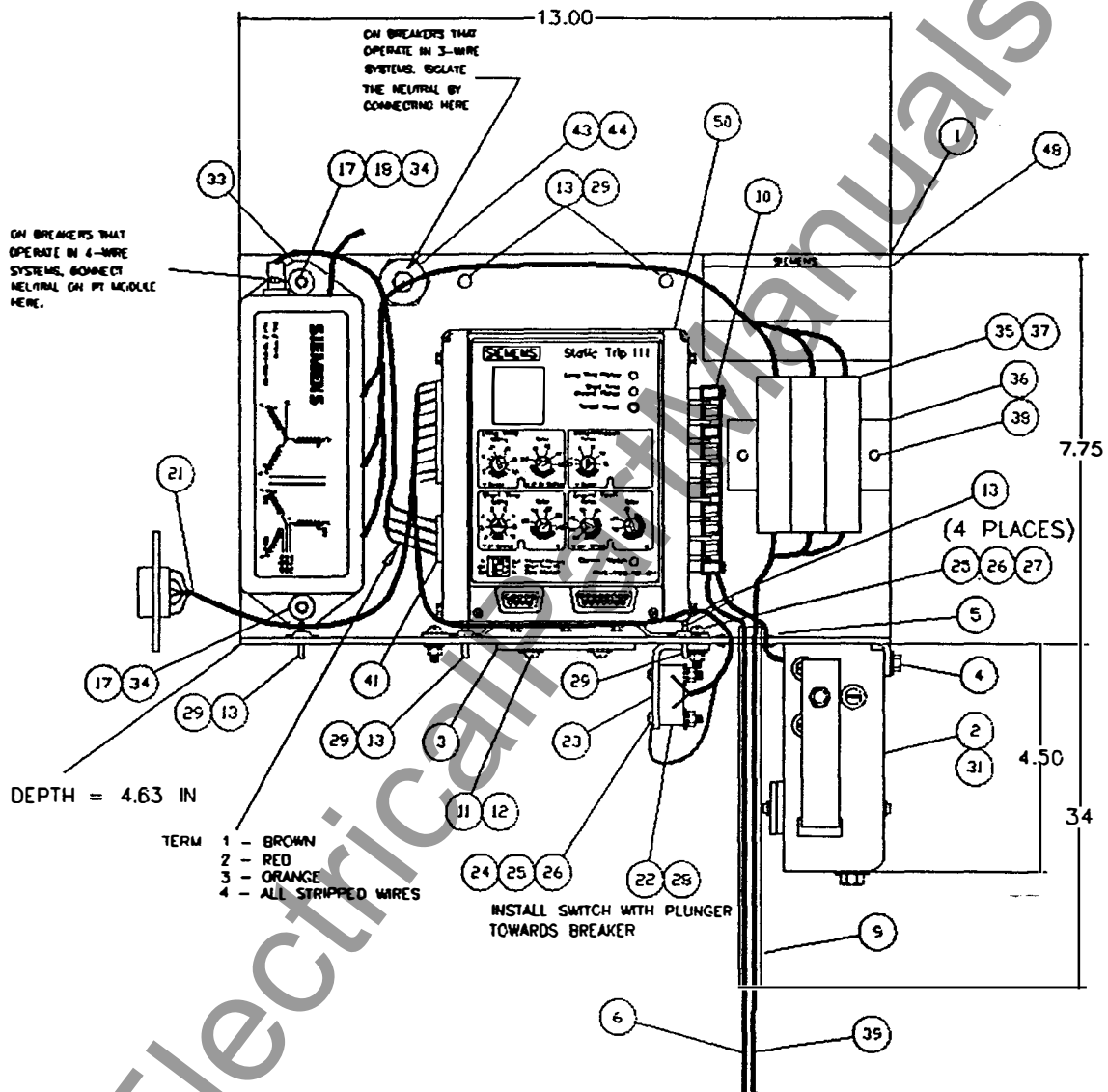
2 Retrofit Kit Assembly

Figure 2.5 DB-25 Kit Bill-of-Material - p/n 18-824-921-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-754-765-001	
1	1	1	EA	2	DB25 ACTUATOR ASSY	18-754-763-501	
1	1	1	EA	3	MECHANISM TOP PLATE	18-658-145-286	
5	2	2	EA	4	SCR #10-32 x .5	15-171-399-010	USE 503 QTY 3 IN ITEM 14
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG ITEM 14
3	3	3	EA	9	CABLE SLEEVING	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-616-245-214	
10	8	6	EA	13	TYRAP	00-857-271-100	PLACE QTY 8 IN BAG ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-038	PLACE ON BAG ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
3	3	3	EA	19	BUS LINK	18-661-621-001	PLACE IN BAG ITEM 14
3	3	3	EA	20	BUS SHIM	18-661-622-001	PLACE IN BAG ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-259-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-658-145-289	
2	2		EA	24	SCR #8-32 x 1	00-615-471-181	
6	6	4	EA	25	#8-32 NUT	00-631-109-108	
6	6	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
4	4	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-658-110-126	
3	3	1	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-538-501	
2			EA	34	SCR #10-32 x 1	00-615-465-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
10			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG ITEM 14
1			EA	41	4 PIN CONNECTOR	18-658-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG ITEM 14
1			EA	43	INSULATOR 1"	00-671-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-039	PLACE ON BAG ITEM 14
1			EA	47	LABEL	18-751-783-040	PLACE ON BAG ITEM 14
YES	YES	YES	EA	48	LABEL	18-658-145-293	ORDERING DRAWING CALLED FOR ON
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	ORDERING DRAWING CALLED FOR ON
YES	YES	YES	EA	50	PRINT	18-824-921-503	ORDERING DRAWING CALLED FOR ON
6	6	6	EA	51	BOLT, G5, .5-13 x 2.5	00-611-315-556	PLACE IN BAG ITEM 14
12	12	12	EA	52	FLATWASHER	00-651-007-300	PLACE IN BAG ITEM 14
6	6	6	EA	53	NUT, 1/2	00-631-059-108	PLACE IN BAG ITEM 14
6	6	6	EA	54	L/W	00-655-017-036	PLACE IN BAG ITEM 14
Com & PT's	With Com	Basic Kit					

2 Retrofit Kit Assembly

Figure 2.6 DB-25 Kit Assembly PIX



2 Retrofit Kit Assembly

Figure 2.7 DB-50 Kit Bill-of-Material - p/n 18-824-922-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-754-773-001	
1	1	1	EA	2	DB50 ACTUATOR ASSY	18-755-736-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-658-145-296	
5	2	2	EA	4	SCR #10-32 x .5	15-171-399-010	
2	2	2	EA	5	BUSHING	00-555-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG ITEM 12
1	1	1	EA	8	DRILL TEMPLATE	18-658-669-584	PLACE IN BAG ITEM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
10	8	6	EA	13	TYRAP	00-657-271-100	PLACE QTY 5 IN BAG ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-042	PLACE ON BAG ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
3	3	3	EA	19	BUS LINK	18-661-623-001	PLACE IN BAG ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-620-001	
2	2		EA	24	SCR #8-32 x 1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-105	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	15-655-110-126	
5	3	1	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-517-538-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #5-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG ITEM 12
1			EA	41	4 PIN CONNECTOR	18-655-143-055	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG ITEM 14
1			EA	43	INSULATOR 1"	00-871-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-043	PLACE ON BAG ITEM 14
1			EA	47	LABEL	18-751-783-044	PLACE ON BAG ITEM 14
YES	YES	YES	EA	48	LABEL	18-655-145-293	CALLS FOR CN CROCKING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALLS FOR CN CROCKING DRAWING
YES	YES	YES	EA	50	PRINT	18-824-922-503	PLACE IN BAG ITEM 14
12	12	12	EA	51	BOLT, G5, .5-13 x 3.0	00-611-315-560	PLACE ON BAG ITEM 12
24	24	24	EA	52	FLATWASHER	00-651-007-300	PLACE IN BAG ITEM 14
12	12	12	EA	53	NUT, 1/2	00-631-059-108	PLACE IN BAG ITEM 14
12	12	12	EA	54	L/W	00-655-017-036	PLACE IN BAG ITEM 14

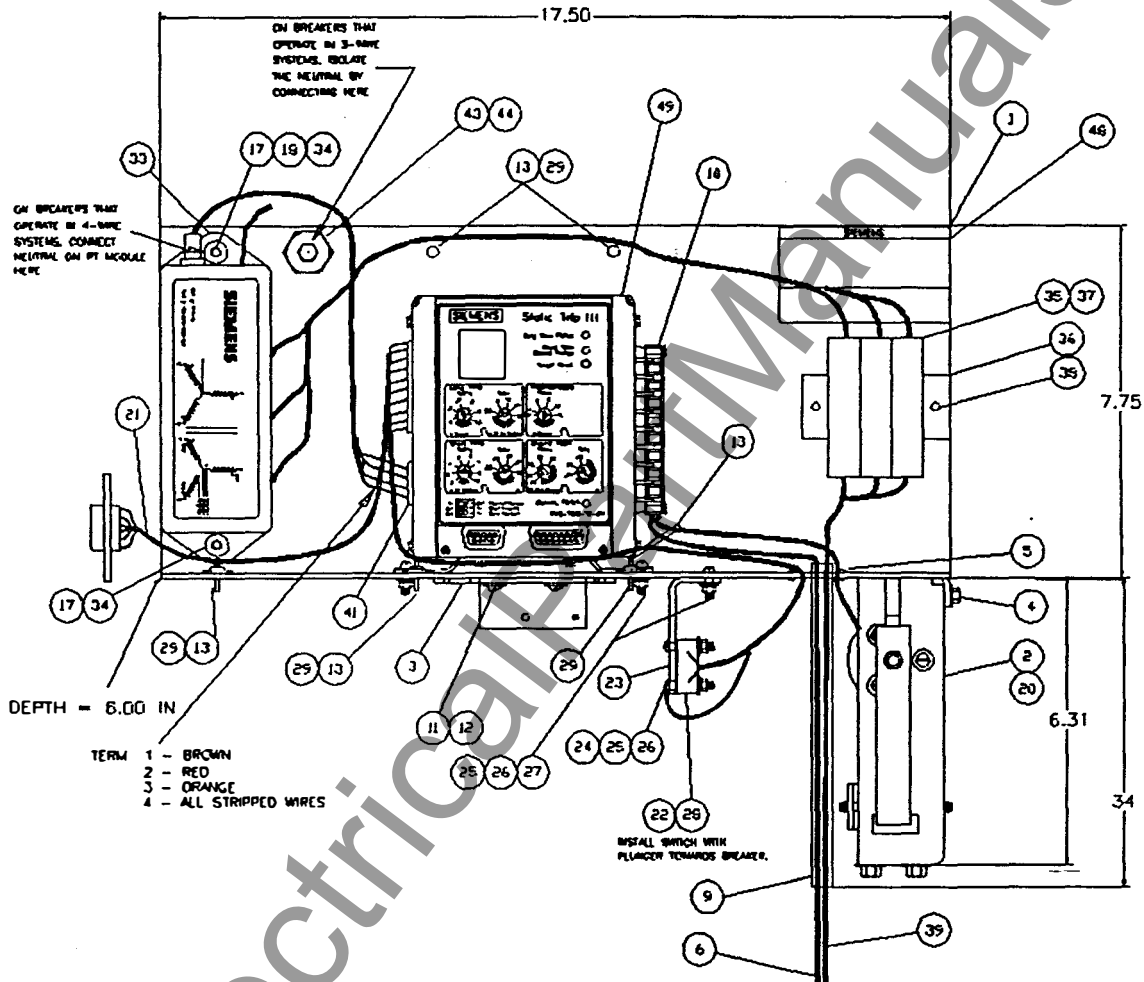
Com & PT's

With Com

Basic Kit

2 Retrofit Kit Assembly

Figure 2.8 DB-50 Kit Assembly PIX



2 Retrofit Kit Assembly

Figure 2.9 DB-75 Kit Bill-of-Material - p/n 18-824-923-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-755-731-002	
1	1	1	EA	2	DB75 ACTUATOR ASSY	18-755-730-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-661-631-001	
6	3	3	EA	4	SCR #10-32 x .5	15-171-399-010	PK 503 QTY IN BOM 14
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG, ITEM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
14	11	7	EA	13	TYRAP	00-857-271-100	PLACE QTY 8 IN BAG, ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-045	PLACE ON BAG ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
1	1	1	EA	19	TRIP SHAFT CLAMP	18-658-669-887	PLACE IN BAG ITEM 14
			EA	20			
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-634-001	
2	2		EA	24	SCR #8-32x1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-108	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32 x 1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-658-110-126	
9	6	2	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-535-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG, ITEM 14
1			EA	41	4 PIN CONNECTOR	18-658-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG, ITEM 14
1			EA	43	INSULATOR 1"	00-571-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-046	PLACE ON BAG ITEM 14
1			EA	47	LABEL	18-751-783-047	PLACE ON BAG ITEM 14
YES	YES	YES	EA	48	LABEL	18-658-145-293	CALLLED FOR ON ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALLLED FOR ON ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-524-923-503	PLACE IN BAG ITEM 14

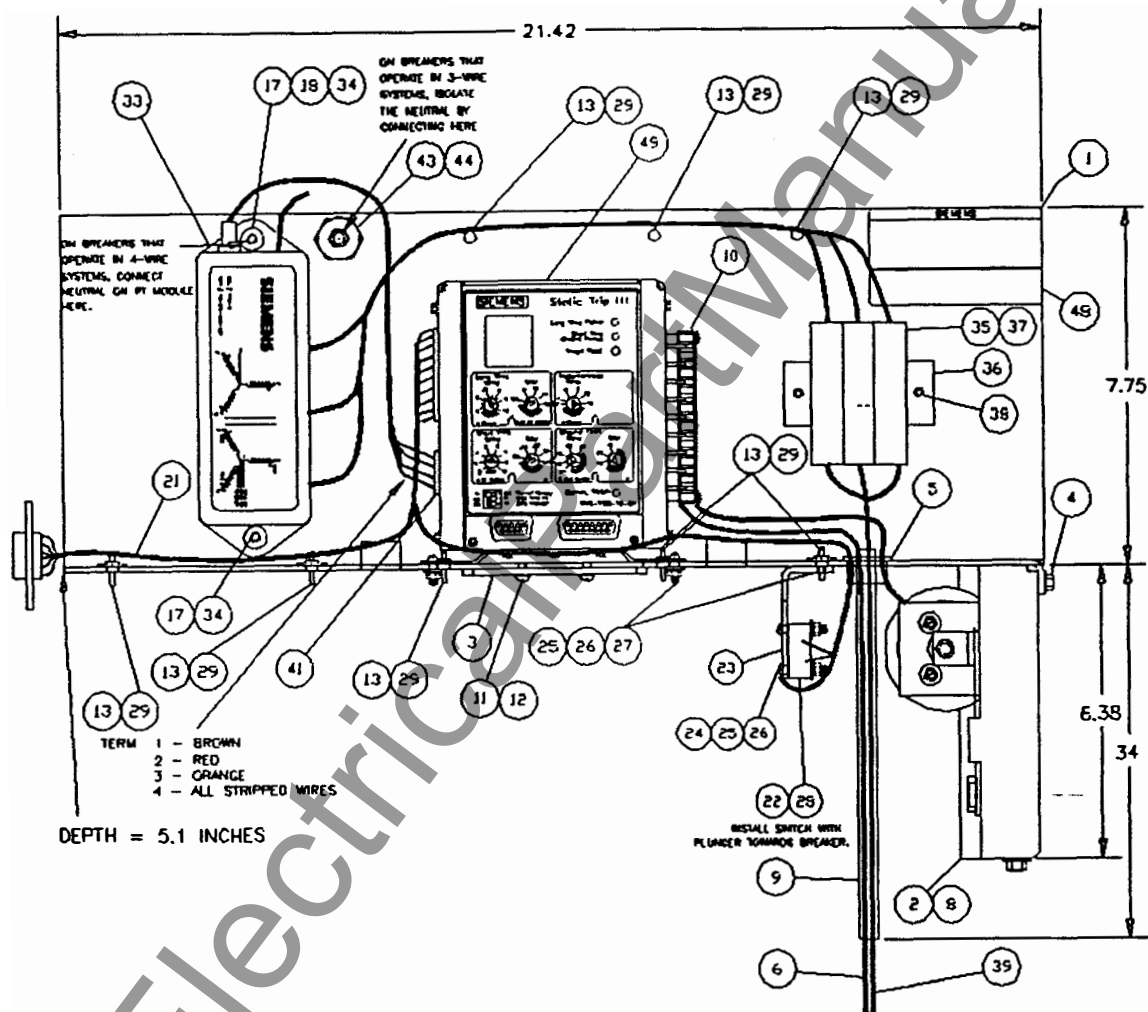
Com & Pts

With Com

Basic Kit

2 Retrofit Kit Assembly

Figure 2.10 DB-75 Kit Assembly PIX



2 Retrofit Kit Assembly

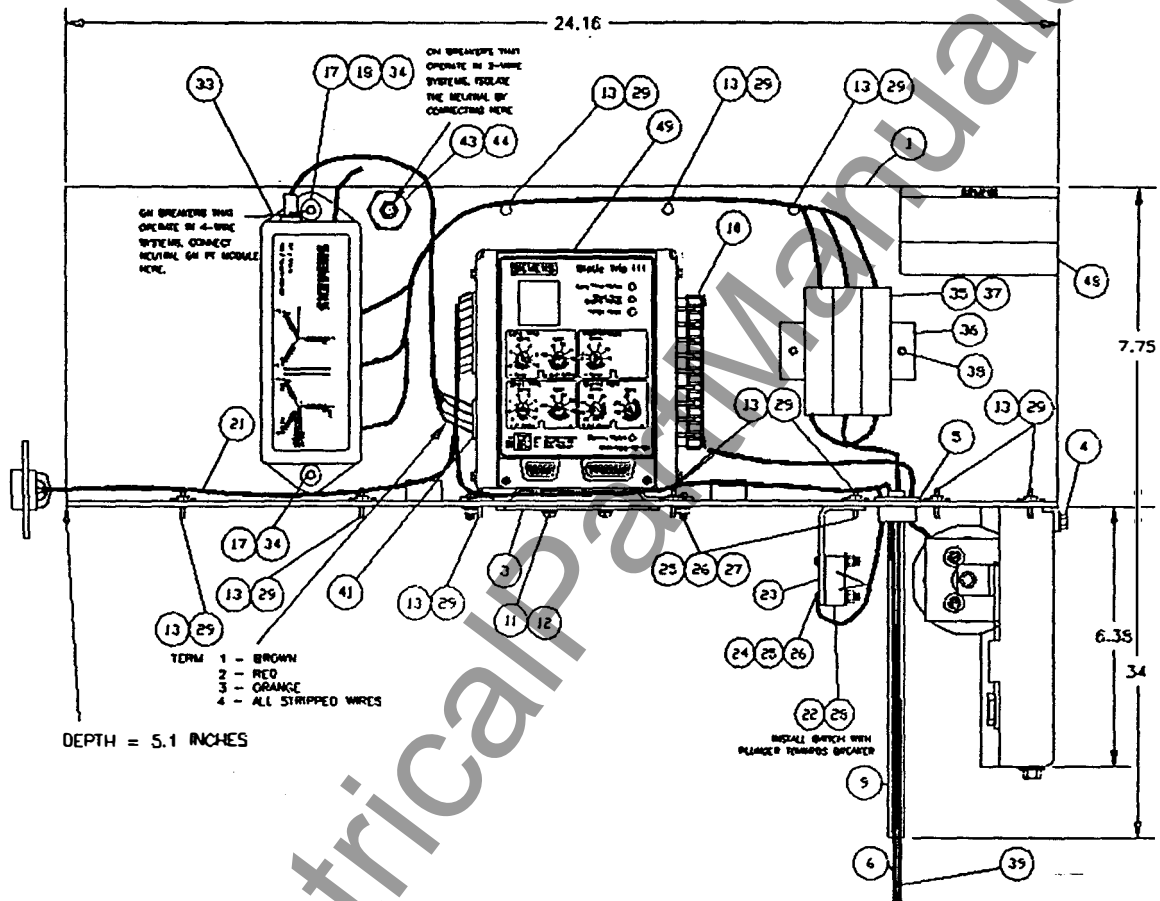
Figure 2.11 DB-100 Kit Bill-of-Material - p/n 18-824-956-5xx

503 QTY	502 QTY	501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	1	1	EA	1	SHELF	18-757-841-001	
1	1	1	EA	2	DB75/100 ACTUATOR ASSY	18-755-730-501	
1	1	1	EA	3	MECHANSIM TOP PLATE	18-661-631-001	
6	3	3	EA	4	SCR #10-32 x .5	15-171-399-010	MAX 603, QTY 3 IN ITEM 14
2	2	2	EA	5	BUSHING	00-855-517-051	
28	28	28	FT	6	WIRE #18 SIS	00-557-286-003	
7	7	7	EA	7	TERMINAL #10 RING	15-172-099-003	PLACE IN BAG, ITEM 14
3	3	3	EA	9	CABLE SLEEVE	15-171-054-011	
4	4	4	EA	10	TERMINAL #6 RING	15-172-099-001	
4	4	4	EA	11	#10 L/W	00-655-067-100	
4	4	4	EA	12	SCR #10-32 x .25	00-615-245-214	
14	11	7	EA	13	TYRAP	00-857-271-100	PLACE QTY 5 IN BAG, ITEM 14
1	1	1	EA	14	PLASTIC BAG	15-171-004-041	
		1	EA	15	LABEL	18-751-783-048	PLACE ON BAG, ITEM 14
3			EA	17	#10-32 STOP NUT	00-633-059-210	
2			EA	18	#10 FLAT WASHER	00-651-007-087	
1	1	1	EA	19	TRIP SHAFT CLAMP	18-658-669-887	PLACE IN BAG, ITEM 14
1	1		EA	21	COMMUNICATION WIRE HARNESS	18-398-289-564	
1	1		EA	22	BREAKER POSITION SWITCH	00-000-466-771	
1	1		EA	23	MOUNTING ANGLE	18-661-634-001	
2	2		EA	24	SCR #8-32x1	00-615-471-181	
8	8	4	EA	25	#8-32 NUT	00-631-109-108	
8	8	4	EA	26	#8 EXT TOOTH L/W	00-655-067-080	
6	6	4	EA	27	SCR #8-32x1/2	00-615-471-174	
1	1		EA	28	INSULATOR	18-655-110-126	
9	6	2	EA	29	PUSH-IN CLEAT	15-172-791-027	
1			EA	33	PT MODULE	18-817-538-501	
2			EA	34	SCR #10-32 x 1	00-615-485-225	
1			EA	35	FUSEBLOCK	77-901-001-029	
1			EA	36	DIN RAIL	25-135-714-006	
3			EA	37	FUSE	15-172-704-002	
2			EA	38	SCR #8-32 x .25 W/ LW	00-615-641-904	
12			FT	39	WIRE HI-TEMP	15-172-756-010	
3			EA	40	TERMINAL SPADE	15-172-099-022	PLACE IN BAG, ITEM 14
1			EA	41	4 PIN CONNECTOR	18-655-143-058	
2			EA	42	TYRAP TIE DOWN	25-135-181-001	PLACE IN BAG, ITEM 14
1			EA	43	INSULATOR 1"	00-871-311-109	
2			EA	44	SCR 1/4-20 x 1/2 HEX W/ L/W	00-611-435-371	
	1		EA	46	LABEL	18-751-783-049	PLACE ON BAG, ITEM 14
1			EA	47	LABEL	18-751-783-050	PLACE ON BAG, ITEM 14
YES	YES	YES	EA	48	LABEL	18-655-145-293	CALLED FOR GN ORDERING DRAWING
YES	YES	YES	EA	49	STATIC TRIP III	18-486-475-	CALLED FOR GN ORDERING DRAWING
YES	YES	YES	EA	50	PRINT	18-824-923-503	PLACE IN BAG, ITEM 14

Com & PT's	With Com	Basic Kit
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2 Retrofit Kit Assembly

Figure 2.12 DB-100 Kit Assembly PIX



2 Retrofit Kit Assembly

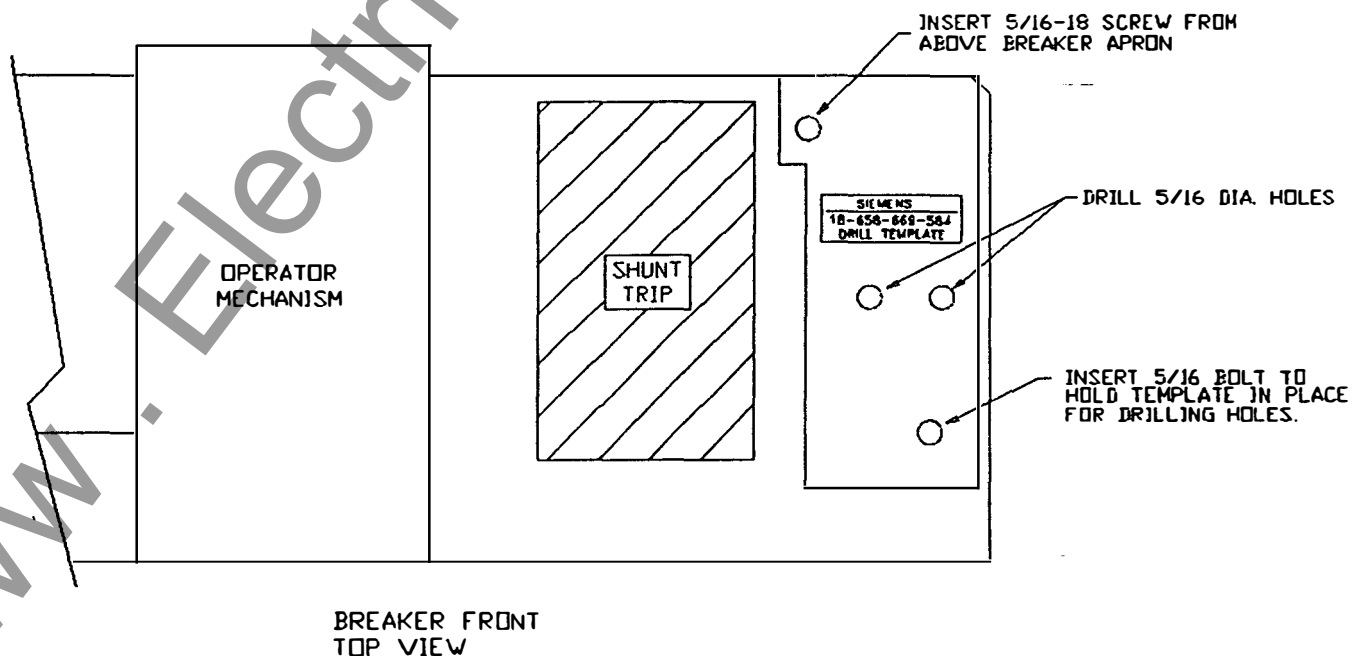
Tools Required:

- 5/16 diameter drill bit
- Screw Driver 1/4" Blade
- 7/16" Socket Wrench with Extension
- 3/4" Socket Wrench
- 3/4" Box End Wrench
- 5/16" Nut Driver
- 3/8" Nut Driver
- Drill Template 18-658-669-584 (provided DB-50 only)

Installation Steps

- 1 Removal of existing parts
 - 1.1 remove current sensors and associated wiring
 - 1.2 remove trip unit(s) and associated wiring
 - 1.3 remove trip actuator and associated wiring
 - 1.4 remove operating mechanism top plate.
- 2 Prepare Breaker for Kit Installation - see figure 2.13
 - 2.1 DB-50 only, add Trip Actuator mounting holes
 - 2.1.1 Mount drill template 18-658-669-584 with one (1) 5/16-18 screw (from old trip actuator mounting) and one (1) 5/16-18 bolt (for alignment only - does not screw in) using exiting holes on breaker apron.
 - 2.1.2 Drill two (2) 5/16 diameter hole.
Remove drill template and discard.

Figure 2.13 Actuator Drill Template Mounting (DB-50 only)



2 Retrofit Kit Assembly

3 Mount New Devices

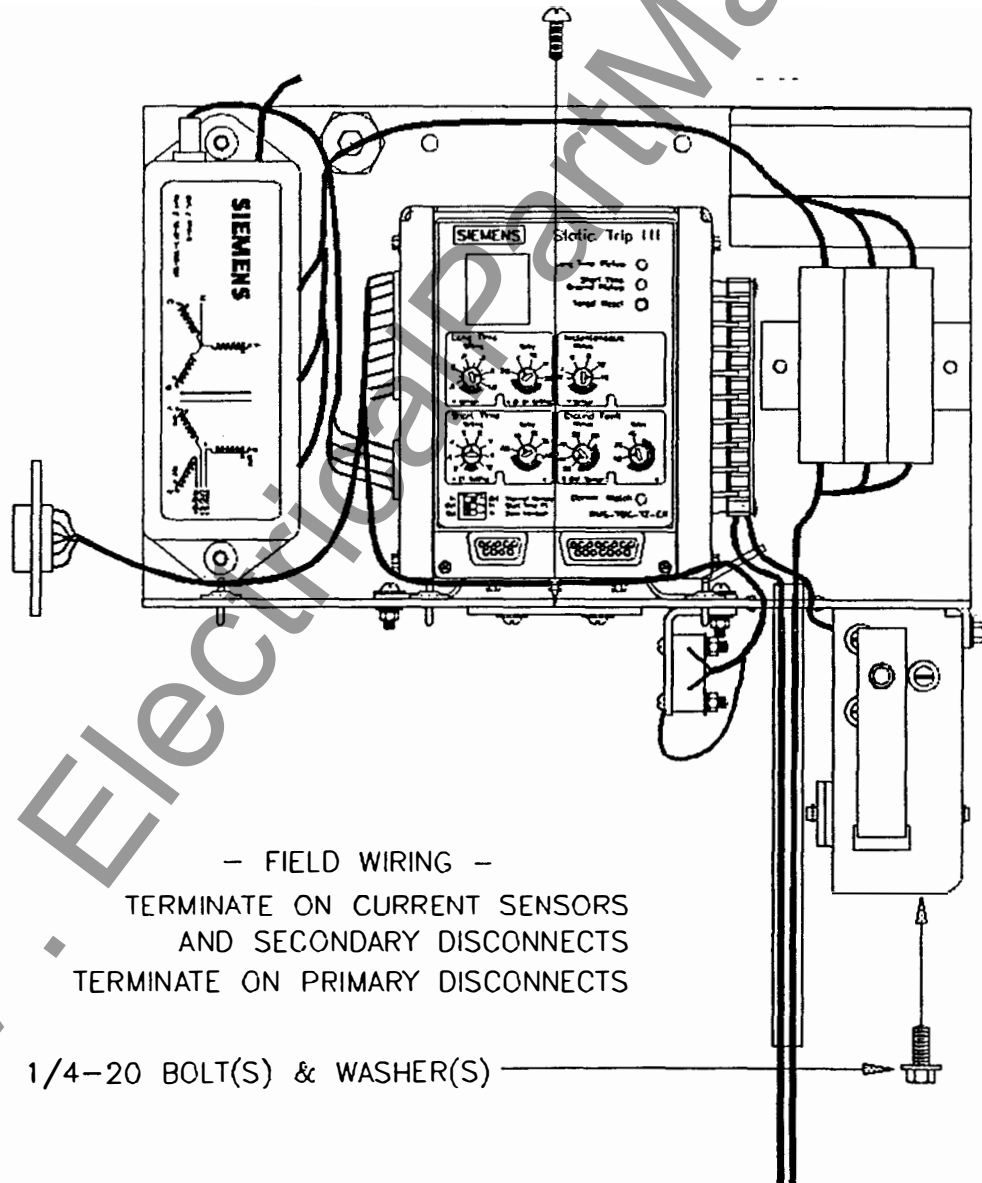
- 3.1 Mount phase current sensors on the lower primary bus stabs. Mount such that the H1 face is towards the primary disconnect.
- 3.2 DB-75 and DB-100 only, install Trip Shaft Clamp - see figure 2.14. The Trip Shaft Clamp must be located on the breaker trip shaft to line-up with the Trip Actuator Trip Bar.

Figure 2.14 Trip Shaft Clamp Mounting - DB-75 and DB-100 only

2 Retrofit Kit Assembly

- 3.3 Mount Basic Trip Unit Kit on top of the operation mechanism in front of the arc chutes. **WARNING** - The breaker Main Contact Cross Bar must be moved towards the closed position to install the Trip Actuator. USE THE BREAKER SLOW CLOSE FEATURE TO MOVE THE BREAKER CROSS BAR AWAY FROM THE TRIP ACTUATOR. The Basic Trip Unit Kit attaches to the breaker with screw into the top of the operating mechanism and 1/4-20 bolt(s) from the bottom side of the breaker into the actuator housing - see figure 2.15.
- 3.4 Return breaker to the open position.

Figure 2.15 Basic Trip Unit Kit Mounting (DB-25 Kit shown)



2 Retrofit Kit Assembly

3.5 DB-25 and DB-50 only

Install Bus Links and Bus Shims using 1/2" hardware. These parts and hardware are provided with each Basic Kit and are used to replace the three electro-mechanical trip unit coils - see figure 2.16.

**Figure 2.16 Bus Link and Bus Shim Installation
(DB-25 Shown)**

2 Retrofit Kit Assembly

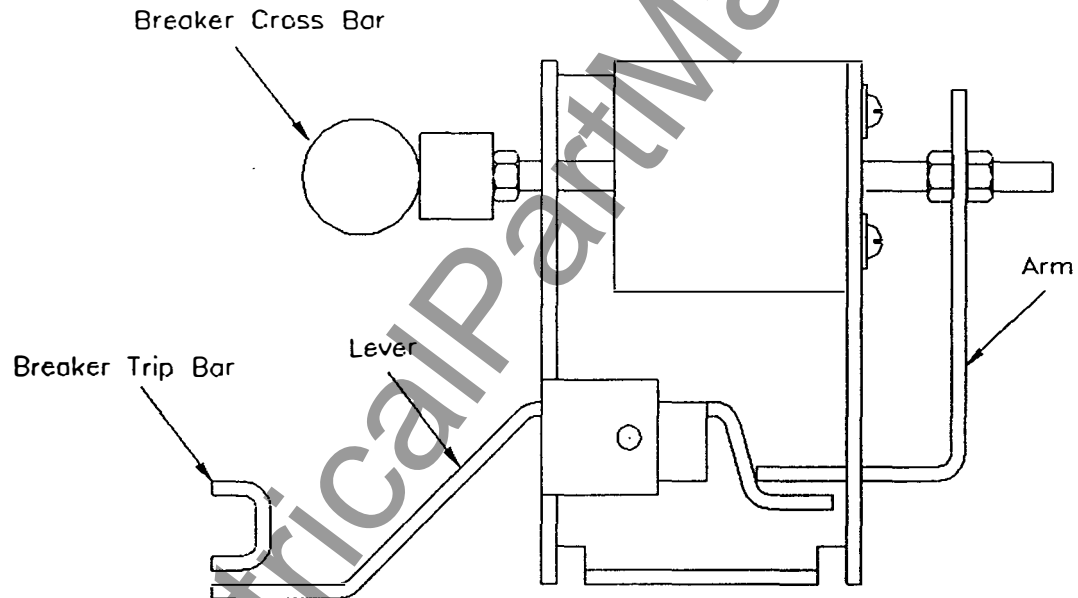
4 Adjust Trip Actuator

4.1 DB-25 and DB-50 Kits - see figure 2.17

4.1.1 Adjust nuts on actuator shaft so that arm is in contact with lever and lever is just starting to rotate

4.1.2 Adjust rubber bumper and nut on end of trip actuator shaft so that when breaker is open, breaker cross bar is in contact with trip actuator shaft and trip actuator is reset.

Figure 2.17 DB-25 and DB-50 Trip Actuator

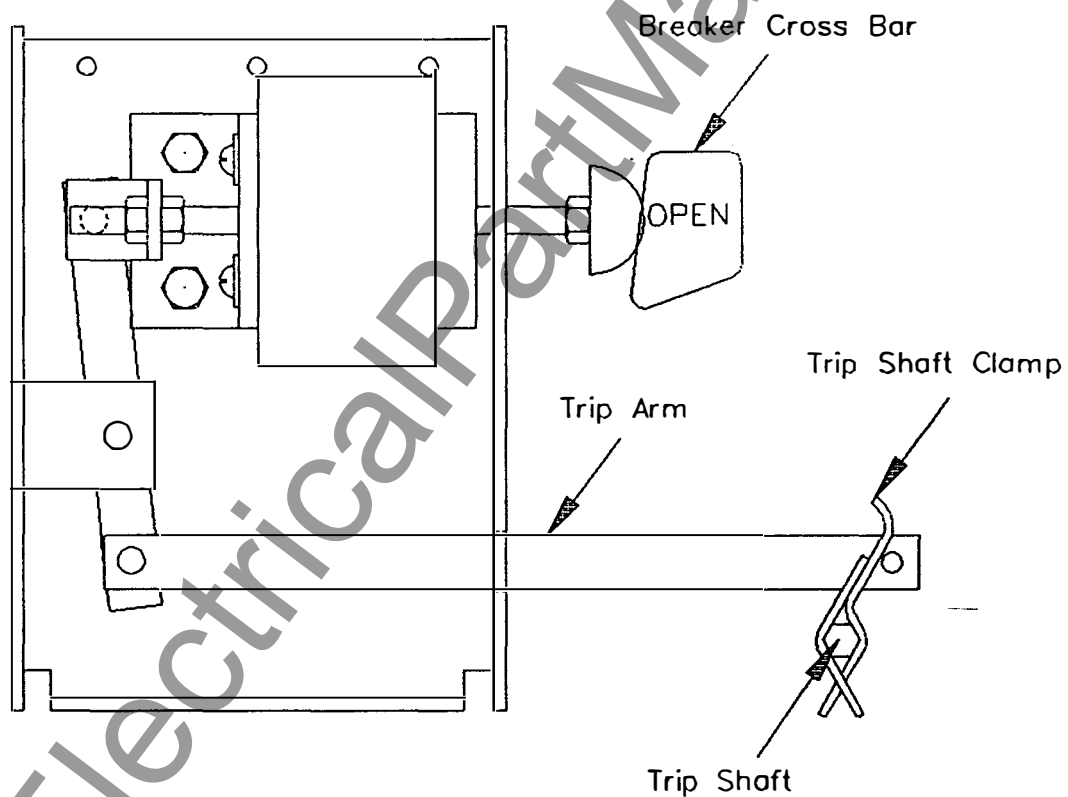


2 Retrofit Kit Assembly

4.2 DB-75 and DB-100 Kits - see figure 2.18

- 4.2.1 Adjust nuts on actuator shaft so that trip arm is in not in contact with the breaker trip shaft clamp but such that the trip arm will operate the trip shaft clamp to trip the breaker.
- 4.2.2 Adjust rubber bumper and nut on end of trip actuator shaft so that when breaker is open, breaker cross bar is in contact with trip actuator shaft and trip actuator is reset.

Figure 2.18 DB-75 and DB-100 Trip Actuator



2 Retrofit Kit Assembly

- 5 Complete Field Wiring - see figure 2.19 (three (3) sheets)
 - 5.1 Reference the Bill-of-Material for required wiring diagram
 - 5.2 Complete the "Field Wiring" using prewired conductors on kits (one end loose) and Sensor Ground Wiring Kit.
 - connect to breaker mounted sensors
 - connect to primary bus (if PT module is present)
Connect to source (line side) of breaker primary disconnect. Spade lugs connect under head of primary disconnect mounting bolts.
 - connect to secondary disconnect (if neutral sensor required).
Reference existing breaker wiring diagram for neutral sensor secondary disconnect terminals.

Bundle wires and retain with tyrap. Route wire to avoid moving parts, sharp edges, and primary conductors.

Figure 2.19 Wiring Diagram

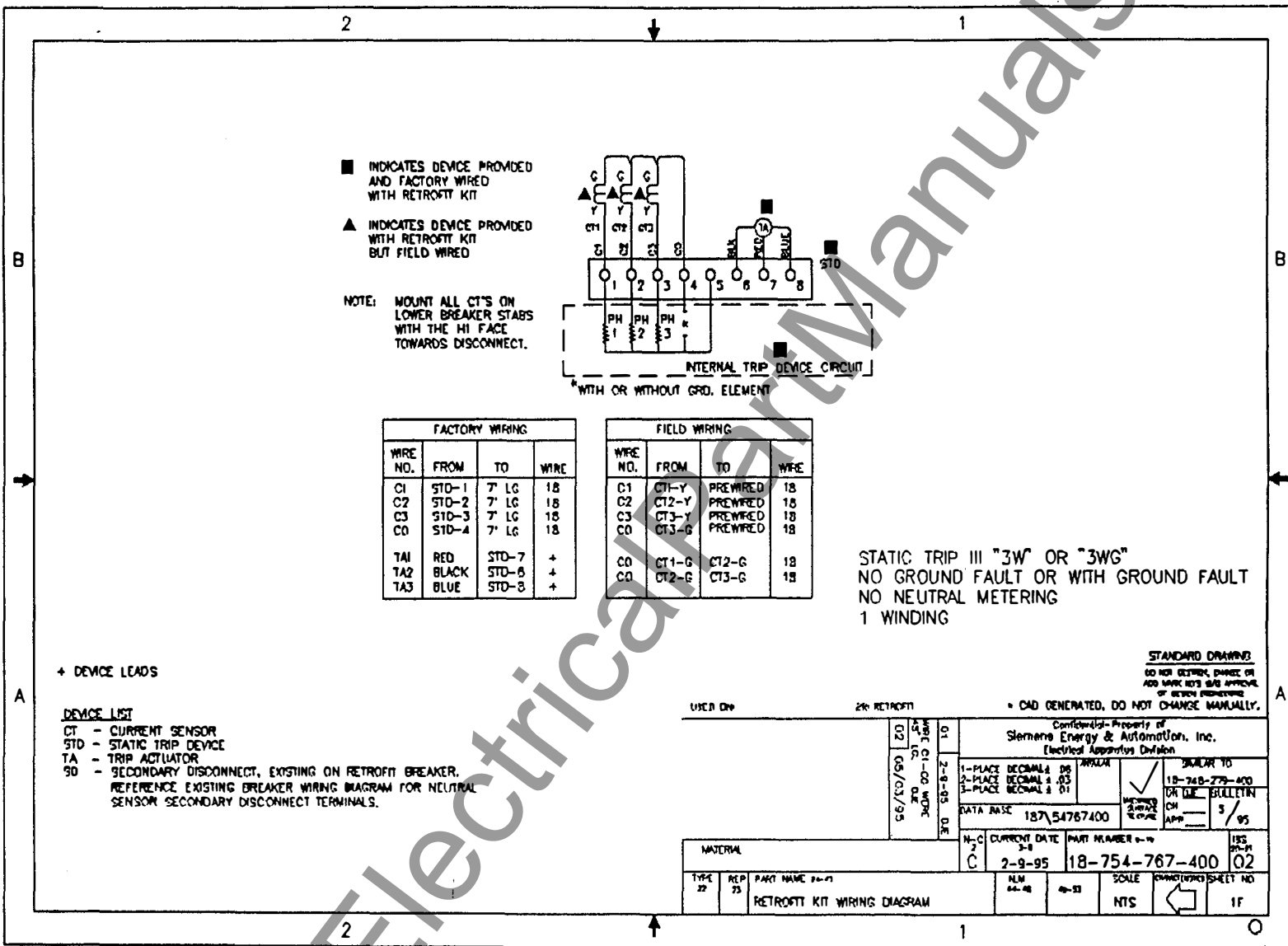
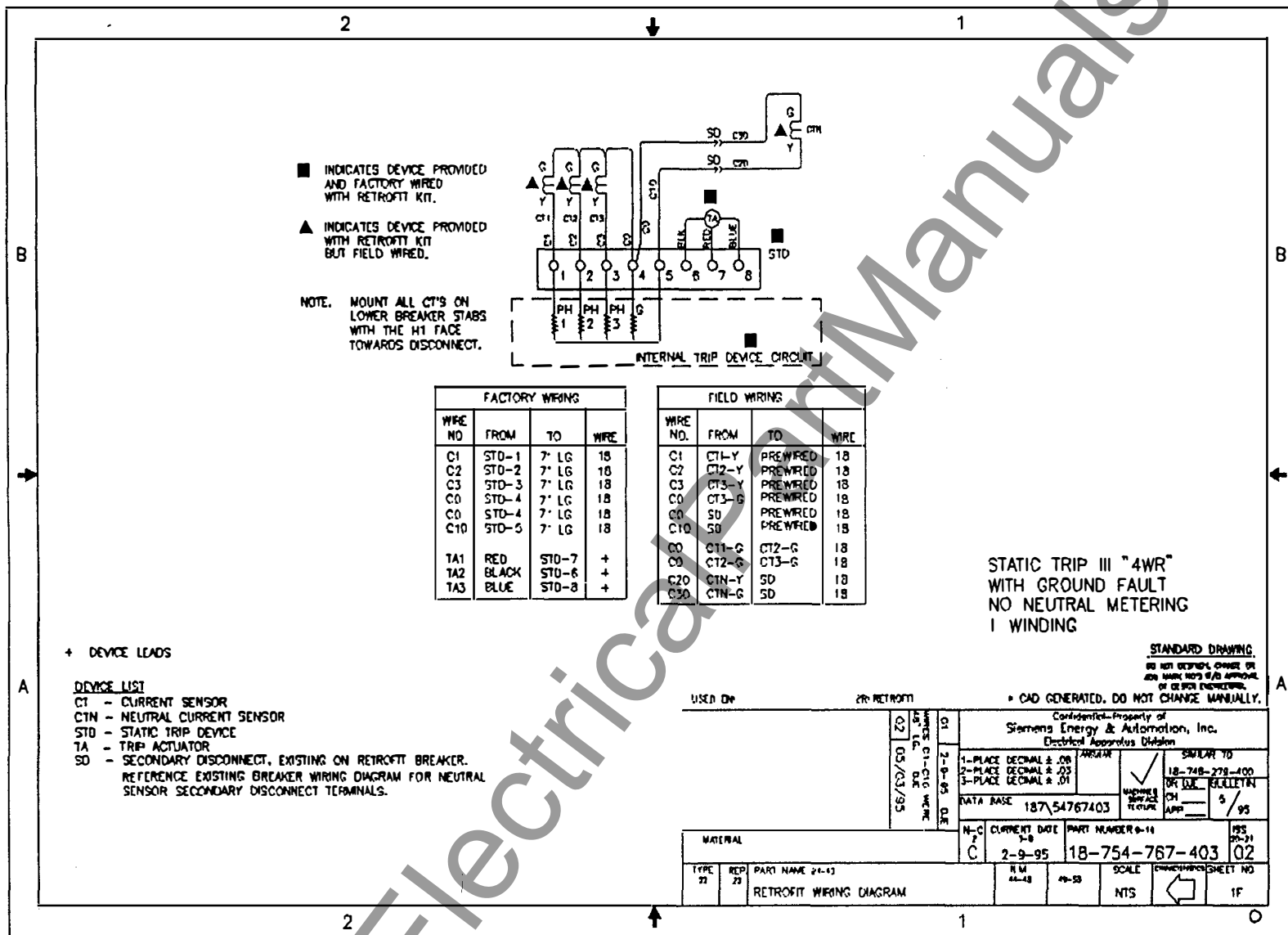
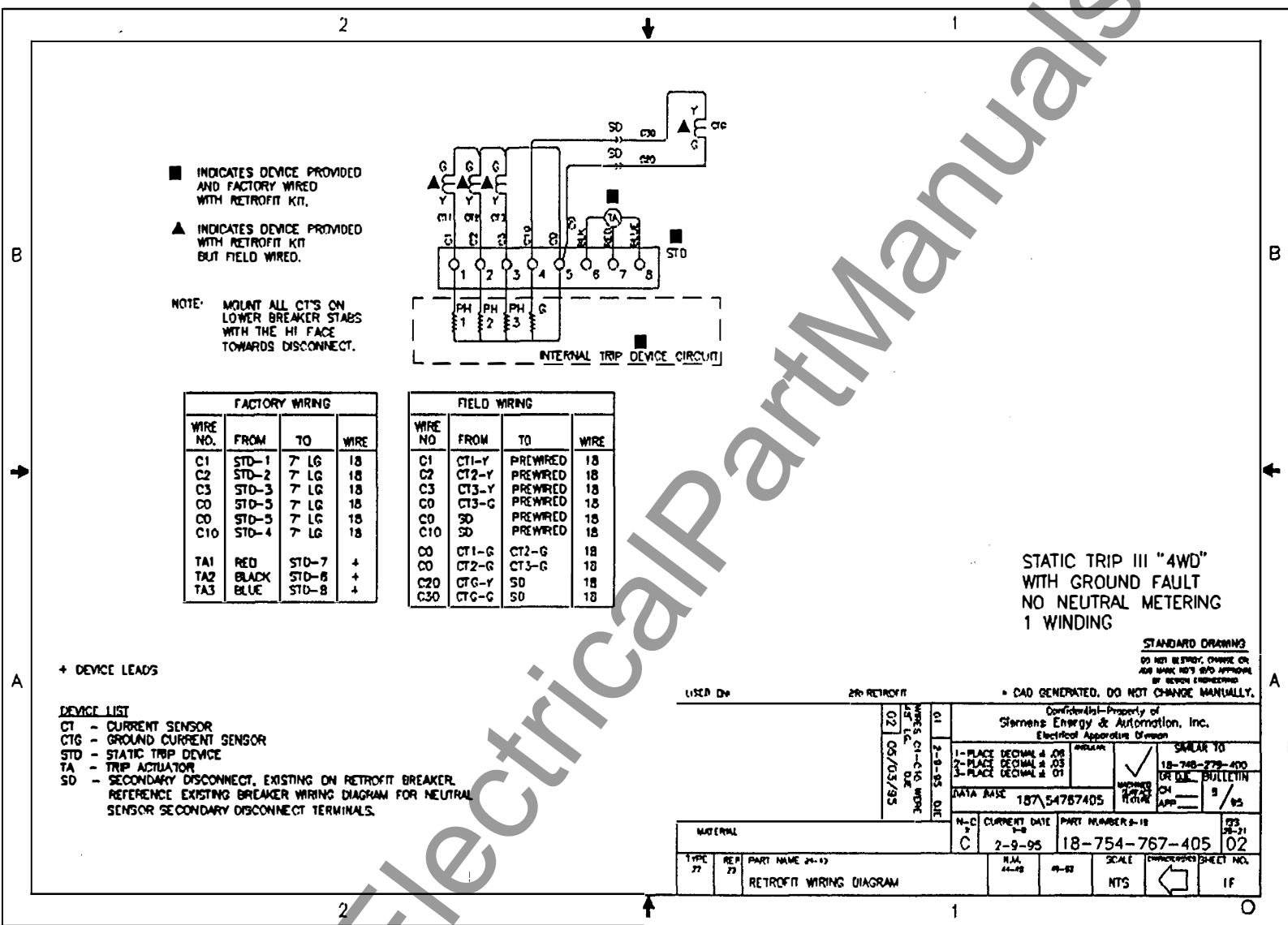


Figure 2.19 Wiring Diagram (continued)



2 Retrofit Kit Assembly

Figure 2.19 Wiring Diagram (continued)



2 Retrofit Kit Assembly

2.2.2 Instructions for Cubicle Mounted Communications Disconnect Installation

The assembly instructions in this section detail the installation of the Cubicle Mounted Communications Disconnect.

Tools Required: 7/16" Wrench
 13/63" Drill Bit

Installation Steps

- 1 Check contents of Signal Disconnect Kit against Bill-of-Material 18-658-669-582 (figure 2.20).
- 2 Mount Signal Disconnect Kit per Installation Instructions 18-754-770-401 (figure 2.21).
- 3 Wire Signal Disconnect Kit per Installation Instructions 18-754-770-401 (figure 2.21) and ST III-C Communication Kits Diagram 18-754-771-401 (figure 2.22).

2 Retrofit Kit Assembly

Figure 2.20 Signal Disconnect Kit Bill-of-Material

501 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	EA	1	CUBICLE DISCONNECT	18-732-790-546	
1	EA	2	INSULATOR	18-658-110-154	
1	EA	3	WASHER	00-651-007-071	
1	EA	4	SPACER	18-658-110-156	
2	EA	5	#10-32 x IPEM STUD	15-172-630-003	
2	EA	6	#10-32 STOP NUT	00-633-059-210	
18	EA	7	TERMINAL	15-172-099-020	
1	EA	8	MOUNTING PLATE	18-754-769-001	
2	EA	9	1/4-20 x .625 PEM STUD	15-172-630-013	
2	EA	10	FLAT WASHER	00-651-007-147	
2	EA	11	LOCK WASHER	00-655-017-026	
2	EA	12	1/4-20 NUT	00-631-059-204	
	EA	13			
	EA	14			
1	EA	15	ENVELOPE	18-751-736-001	
	EA	16			
	EA	17			
1	EA	18	CONNECTION DIAGRAM	18-754-771-401	
YES	EA	19	SIGNAL DISC RETROFIT DB	18-658-669-582	
1	EA	20	CUBICLE MOD STII (PRINT)	18-754-770-401	
	EA	21			
1	EA	22	LABEL	18-751-783-041	
1	EA	23	PLASTIC BAG	15-171-004-041	

INCLUDE THE FOLLOWING PRINT IN PLASTIC BAG (ITEM 23):

- CONNECTION DIAGRAM 18-754-771-401
- SIGNAL DISCONNECT BOM 18-658-669-582
- CUBICLE MODIFICATION STII 18-754-770-401

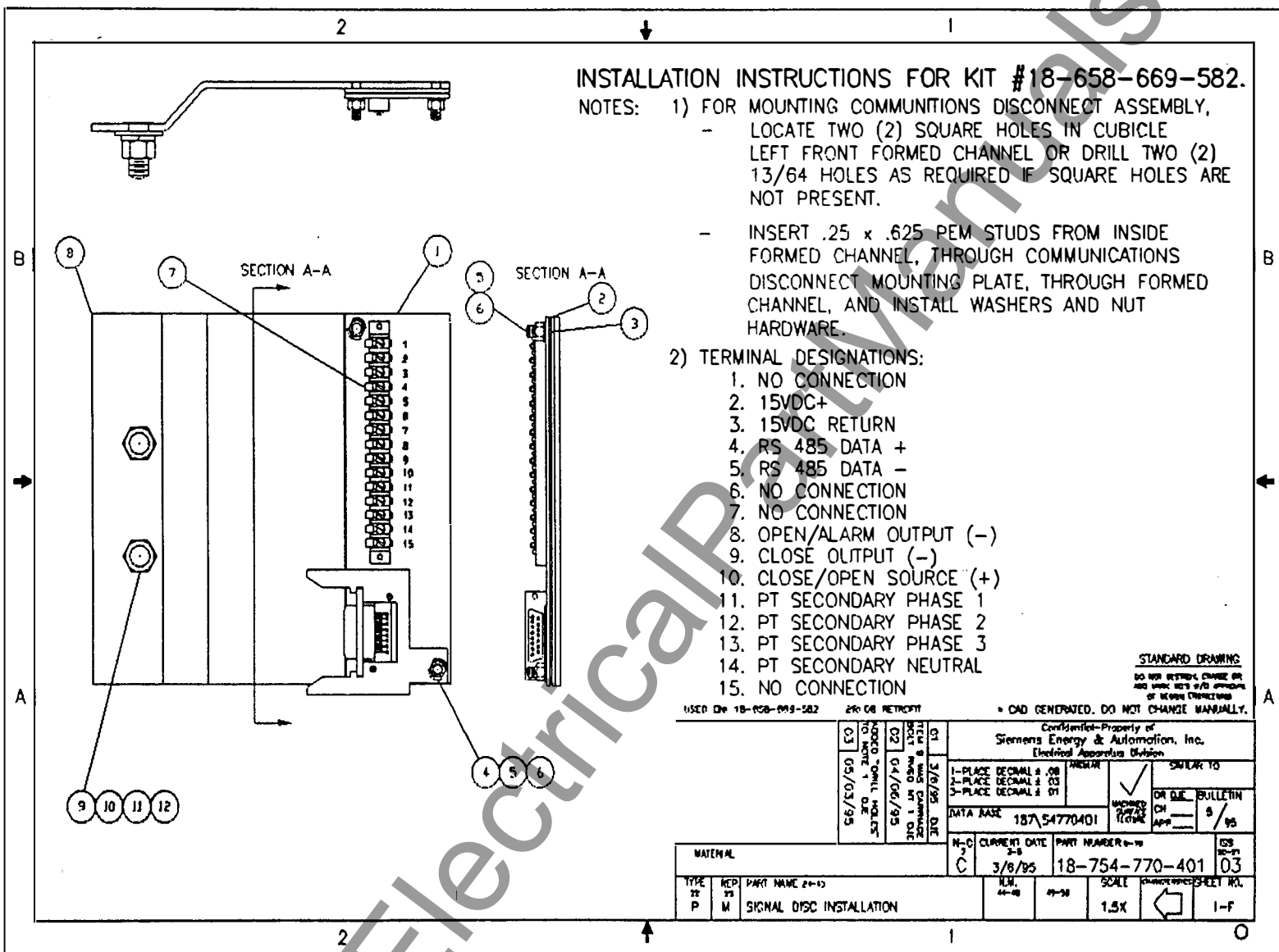
STANDARD DRAWING
DO NOT DESTROY, CHANGE OR
ADD MARK NO'S W/O APPROVAL
OF DESIGN ENGINEERING

USED ON: 2R: DB RETROFIT * CAD GENERATED. DO NOT CHANGE MANUALLY.

ADDED NOTES 02 03/21/95		01 3/7/95		Confidential-Property of Siemens Energy & Automation, Inc. Electrical Apparatus Division	
		1-PLACE DECIMAL ± .06 2-PLACE DECIMAL ± .03 3-PLACE DECIMAL ± .01		ANGULAR ☒	
		DATA BASE 8KKW1A		SIMILAR TO 18-658-143-547 DR DUE CH 3/95 APP	
MATERIAL		N-C 2		CURRENT DATE 3/7/95	
		C		PART NUMBER 9-19 18-658-669-582	
TYPE 22 A		REP 23 M		PART NAME 24-43 SIGNAL DISC KIT	
		N.M. 44-45		48-53	
		SCALE 1X		CHARACTERISTICS 	
				SHEET NO. 1-F	

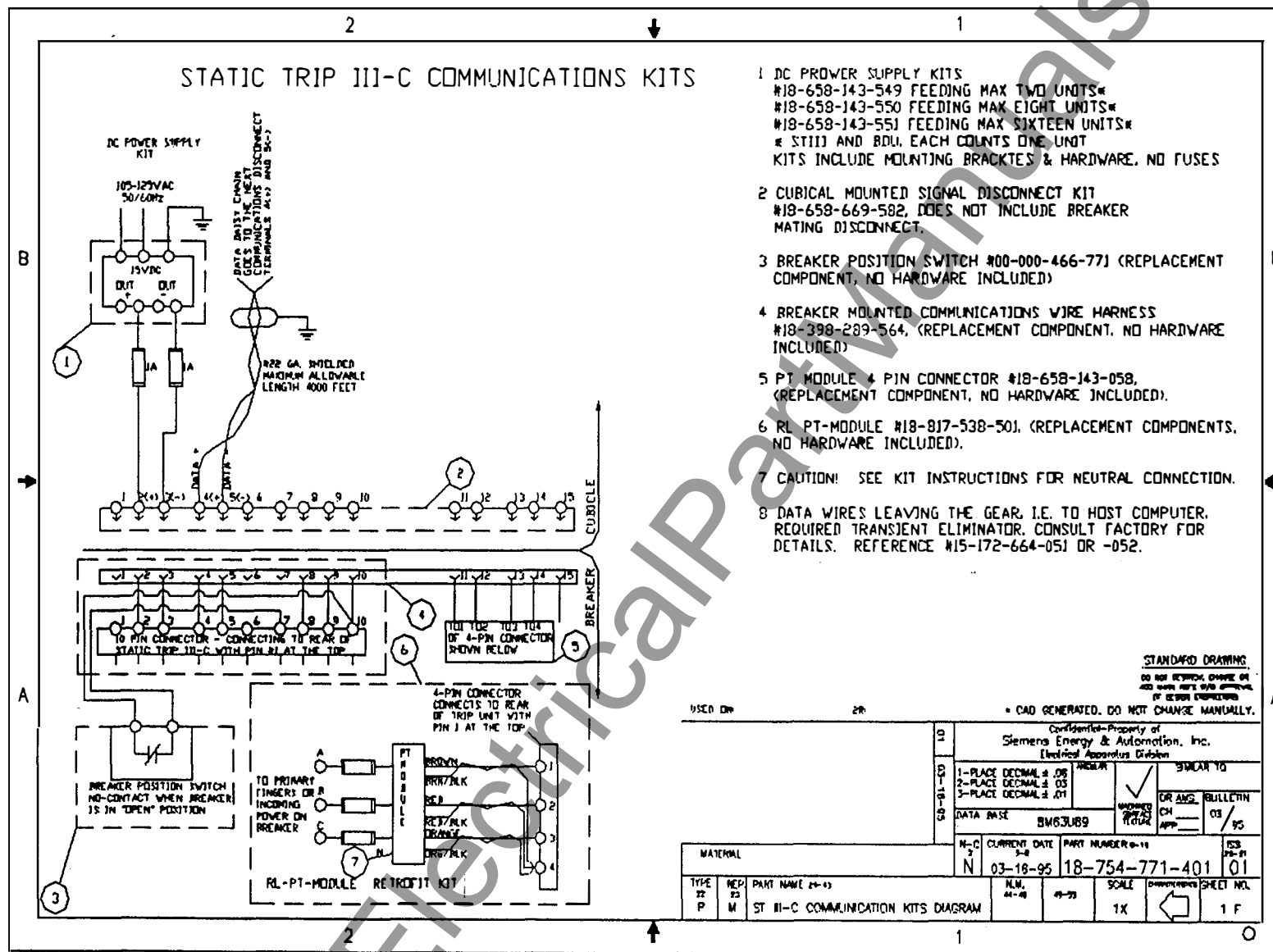
2 Retrofit Kit Assembly

Figure 2.21 Signal Disconnect Kit Installation Instructions



2 Retrofit Kit Assembly

Figure 2.22 ST III-C Communication Kits Diagram



2 Retrofit Kit Assembly

2.2.3 Instructions for Breaker Display Unit Installation

The assembly instructions in this section detail the installation of the Breaker Display Unit (BDU).

The BDU is mounted on the cubicle door and is plugged via a cable connector into the Static Trip III.

Kit contains materials and instructions necessary to mount Breaker Display Unit (BDU) on a breaker cubicle door. External 15 VDC power supply is required. See Instruction Bulletin SG-3118-01 included in Trip Unit box for operating instructions.

Tools Required: Drill .187 diameter
 Drill .750 diameter
 Deburring Tool
 1/4" Hex Socket or Nut Driver

Installation Steps

- 1 Check contents of BDU kit against Bill-of-Material (see figure 2.23) for completeness.
- 2 Locate BDU on cubicle door as required to avoid interference with cubicle internal parts and to allow wire routing.

 Drill holes per figure 2.23 using template 18-658-143-574, remove all burrs.
- 3 Mount BDU on cubicle door using three (3) #6-32 screws from kit. Insert screws from inside cubicle door.
- 4 Plug cord set into BDU, route wires from BDU to breaker, tie cord set in position with ty-raps. Route wire to:
 - avoid sharp edges, pinch points, and moving parts,
 - allow opening and closing of cubicle door, and
 - allow for breaker travel.
- 5 Double check wire route and plug connector into Static Trip device.
 See Instruction Bulletin SG-3118-01 for operating instructions.

CAUTION

BDU cable must be connected and disconnected to breaker to allow removing breaker from cubicle.

2 Retrofit Kit Assembly

Figure 2.23 BDU Kit Bill-of-Material

573 QTY	U/M	ITEM	DESCRIPTION	PART NO.	REMARKS
1	EA	1	INSTRUCTION - PRINT	18-754-766-401	
1	EA	2	BREAKER DISPLAY UNIT	18-658-582-544	
1	EA	3	CORD SET	18-658-582-546	
3	EA	4	SCREW, #6 x .38 LG.	15-171-074-010	
10	EA	5	TYRAP MOUNTING PLATE	15-171-949-093	
20	EA	6	TYRAP	00-857-271-230	
1	EA	7	DRILL TEMPLATE	18-658-143-574	
1	EA	8	PLASTIC BAG	15-171-004-041	
1	EA	9	LABEL	18-751-783-037	

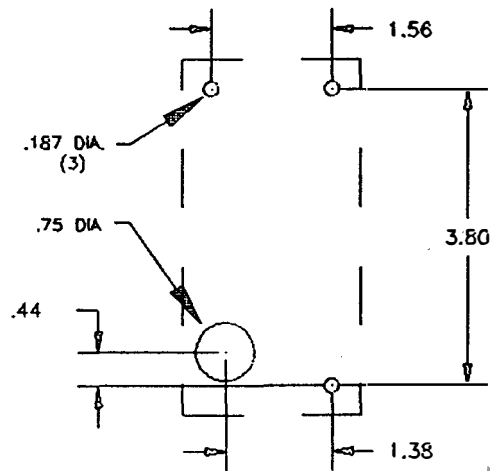
STANDARD DRAWING
DO NOT DESTROY, CHANGE OR
ADD MARK. MGS W/O APPROVAL
OF DESIGN ENGINEERING.

USED ON: 2R: RETROFIT KITS * CAD GENERATED, DO NOT CHANGE MANUALLY.

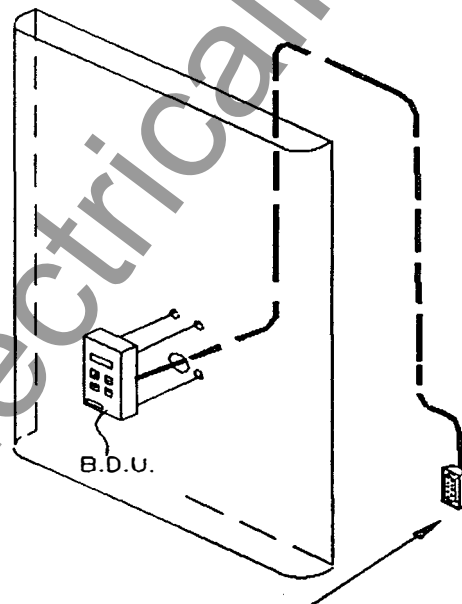
10		Confidential-Property of Siemens Energy & Automation, Inc. Electrical Apparatus Division	
1-PLACE DECIMAL ± .06 2-PLACE DECIMAL ± .03 3-PLACE DECIMAL ± .01	ANGULAR	✓	SIMILAR TO 18-658-701-573 OR DUE BULLETIN CH 2 / 95 APP
DATA BASE 8KKWIL7		MACHINED SURFACE TEXTURE	
N-C 2 N	CURRENT DATE 3-8 2/3/95	PART NUMBER 9-19 18-658-669-579	ISS 20-21 01
TYPE 22 A	REP 23 M	PART NAME 24-43 BREAKER DISPLAY UNIT	N.M. 44-48 49-53 SCALE 1X SHEET NO. 1F

2 Retrofit Kit Assembly

Figure 2.24 BDU Kit Installation Instructions



HOLE PATTERN FOR MOUNTING
BREAKER DISPLAY UNIT, (B.D.U.)
LOCATE AS REQUIRED IN CUBICLE
DOOR TO AVOID INTERNAL PARTS
AND TO ALLOW RACKING OF
BREAKER.



Plugs into Trip Unit ST III
L.H. receptacle of front.

3 Breaker Testing and Breaker Labeling

3 Breaker Testing and Breaker Labeling

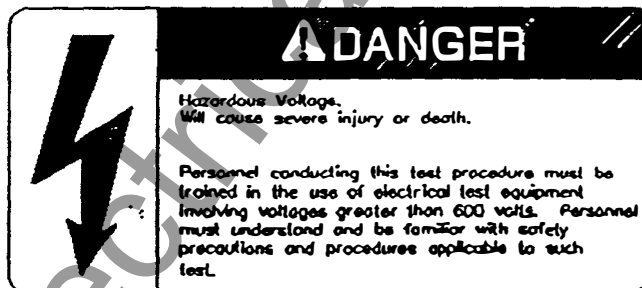
3.1 General Test Description

The test procedures described in this section apply to Static Trip III Retrofit Kits for Westinghouse type DB and DBL circuit breakers.

Test recommendations described in this section focus on electrical clearance testing of the new components involved and the assurance that the newly installed breaker trip circuit is functioning properly. The test procedures described do not cover and breaker performance testing; breaker performance testing, means to test whether or not a breaker is still capable of meeting its interruption rating as expressed on its rating plate. It is the responsibility of the retrofitter to inspect, test and perform any necessary work to confirm the electrical and mechanical integrity of the breaker. The retrofit Kit components when properly installed per our procedures have no impact on breaker performance. Breaker performance is simply a function of the overall breaker condition.

3.2 Testing

Completely read and understand the **Danger, Warning and Safety Instructions** on page i of this manual before attempting operation, maintenance or modification of the equipment discussed in this manual.



3.3 Low Frequency Withstand Test

Low Frequency Withstand Test is in accordance with ANSI C37.59-1991 (Requirements for Conversion of Power Switchgear Equipment) and C37.50-1989 (Low-Voltage AC Power Circuit Breakers Used in Enclosures - Test Procedures).

1. Apply ground potential to all secondary disconnects and also ground all trip unit terminals at the top of the Static Trip III device.

3 Breaker Testing and Breaker Labeling

2. Jumper upper primary disconnects, jumper lower disconnects and apply 1320 VAC for one (1) minute between the jumpered primary disconnects with the breaker in the open position. Some more sensitive highpots may buzz or trip due to magnetizing current of the PT module, if installed. In such case the PT module fuses may be removed for this test.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

3. Jumper all six primary disconnects. Leave all other ground jumpers in place and apply 1320 VAC for one (1) minute between jumpered primary disconnects and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

4. Jumper top and bottom primary disconnects of Phase B and Phase C (four (4) terminals jumpered) and connect to ground. Jumper upper to lower primary disconnect of Phase A and apply 1320 VAC for one (1) minute between Phase A and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

5. Repeat step 4 for voltage applied to Phase B, jumper Phase A to Phase C.
6. Repeat step 4 for voltage applied to Phase C, jumper Phase A to Phase B.
7. Repeat steps 4, 5 and 6 with the breaker closed.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

8. Remove all previous jumpers with the exception of the jumpers on the communication disconnects and trip unit terminals. The jumpers should still be connected to ground. Jumper all six (6) primary disconnects and connect to ground. Jumper all secondary disconnects and apply 600 VAC for one minute between the secondary disconnect and ground. The breaker may be open or closed for this test. This test will assure that the motor (on electrically operated breakers only) is in good operating condition.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

9. Disconnect the motor leads and repeat step 6, except using 900 VAC instead of 600 VAC for one minute.

3 Breaker Testing and Breaker Labeling

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

10. Remove all previous jumpers.

Reconnect as follows:

- all six (6) primaries to ground
- all communication disconnects to ground
- all secondary disconnects to ground
- disconnect the "ground" wire on Static Trip III C versions
- jumper terminal one (1) through eight (8) on the trip unit terminal block

Apply 300 VAC for one minute between trip unit jumper and ground.

Breaker must pass Low Frequency Withstand Test, otherwise, determine cause of failure, correct the problem and retest.

3.4 Trip Unit Testing

Testing of the trip unit is described in Static Trip III trip unit Bulletin SG3118-01, pages 29-35. The bulletin is enclosed.

3.5 Labeling

ANSI/IEEE C37.59-1991(Requirements for Conversion of Power Switchgear Equipment) requires a nameplate with the converter (retrofitter) name, address, identification number, date, and rating information. The Retrofit Basic Trip Kit includes a partially completed nameplate describing the Siemens Retrofit Kit. The converter (retrofitter) must complete the remaining information (see figure 3.1).

Figure 3.1 Converted By Label

SIEMENS	
Type	Serial No.
Trip W/D	
Comm W/D	
Sensor Ratings: Tap Used	Mfg. Date
Grd. Sensors (when used)	Inst. Book
Siemens Energy & Automation, Inc. Raleigh, NC Made in U.S.A.	
Converted By	
Address	
Address	
ID No.	Mfg. Date