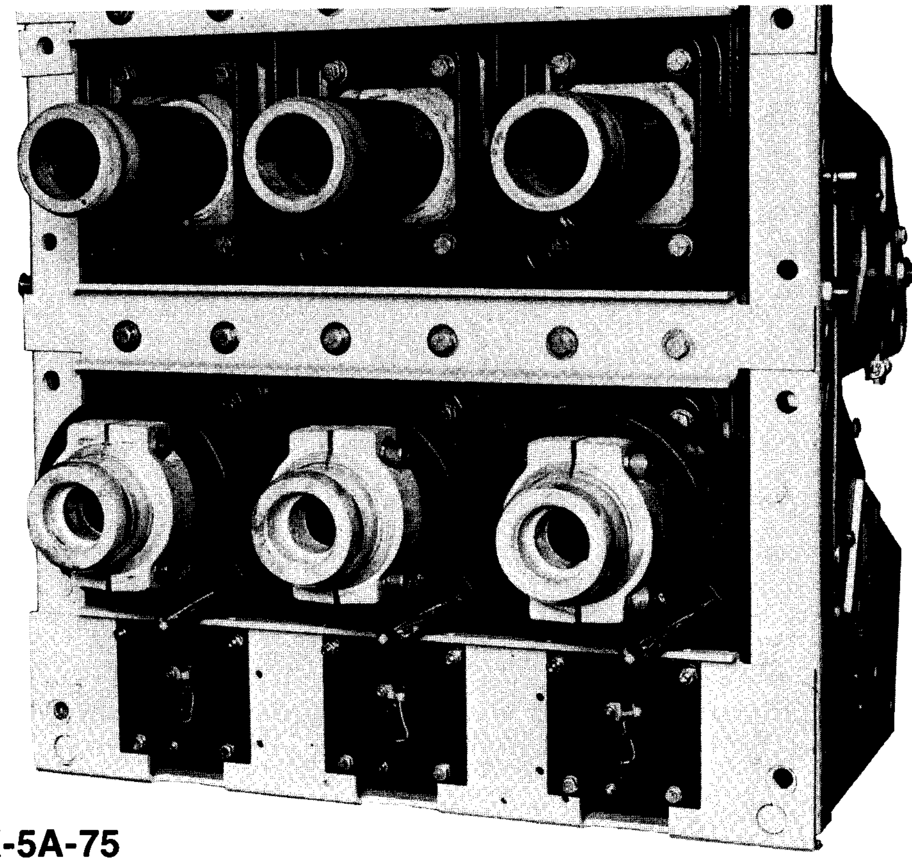
MAINTENANCE MANUAL
(SUPPLEMENT)

GEI-86135B
Supplement to
GEK-7303

LOW-VOLTAGE POWER CIRCUIT BREAKERS

This manual when used in conjunction with Publication GEK-7303 (Maintenance Manual for the AK-50, 75 & 100 frame breakers) provides maintenance instructions on the breaker models and trip devices tabulated below.

Frame Size (Amp)	Breaker Type & Mounting		Trip Device Type	
	Stationary	Drawout	ECS	SST
3000	AK-4-75, 75C	AK-4A-75, 75C	X	
	AK-5-75, 75C	AK-5A-75, 75C		X
4000	AK-4-100	AK-4A-100	X	
	AK-5-100	AK-5A-100		X



AK-5A-75
Rear View

FIG. 1. SST Programmer Unit

CONTENTS

Introduction 3

Type SST Overcurrent Trip Device 3
  Components 3
  Trip Characteristics 6
  Flux Shift Trip Device 7
  Troubleshooting 10
  SST Test Set TAK-TS1 10
  False Tripping (Ground Fault) 11
  Replacement of Current Sensors 11
  Cabling Diagrams 12
  Ground Fault Defeat Cable 13

Type ECS Overcurrent Trip Device 14
  Components 14
  Trip Characteristics 15
  Cabling Diagram 15

ECS & SST Time-Current Curves 16

MAINTENANCE MANUAL SUPPLEMENT

LOW-VOLTAGE POWER CIRCUIT BREAKERS

TYPES AK-75/100 WITH ECS™ AND SST™ TRIP DEVICES

INTRODUCTION

The data in this supplement pertain to AK-75 and AK-100 frame breakers equipped with type ECS and SST solid-state trip devices. The latter are not treated in the primary maintenance manual (publication GEK-7303) covering these breaker frame sizes.

In scope, this supplement supplies the essential descriptive and instructional material applicable to the new trip devices. Although breakers so equipped carry new type designations (AK-4/4A and AK-5/5A), the basic breakers and their other accessory devices are identical to those equipped with Power Sensor or EC trip devices. Accordingly, the general operational and maintenance information contained in publication GEK-7303 is equally relevant to ECS or SST equipped breakers and is not duplicated here.

Unless otherwise noted, the contents of this supplement are to be interpreted as applicable to both the AK-75 and AK-100 frames. Except for the programmer and sensor differences noted below, the hardware elements (e.g., cabling, flux shift trip actuators and linkage) and the test/adjustment procedures are identical.

Examples: Programmer units without the Ground Fault element are identical; with Ground Fault, however, the programmers have different pickup ranges. Sensor tap ratings also differ for each frame.

TYPE SST OVERCURRENT TRIP DEVICE

The SST is a solid-state, direct-acting, self-powered trip device system. Referring to Figures 1 through 8, it comprises the following individual components:

Programmer Unit—provides the comparison basis for overcurrent detection and delivers the energy necessary to trip the breaker. Contains the electronic circuitry for the various trip elements. Their associated pickup and time delay adjustments (set-points) are located on the face plate. Depending on the application, programmer units may be equipped with various combinations of Long Time, Short Time, Instantaneous and Ground Fault trip elements. See Table 1 for available ratings, settings and trip characteristics.

Note: In the event that a programmer set knob is left untightened, the trip function reverts to operation at its minimum or maximum set point value as follows:

Trip Element	Pickup		Delay	
	Min.	Max.	Min.	Max.
Long Time		X	X	
Short Time	X			X
Instantaneous	X		---	---
Ground Fault	X			X

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 General Electric Company.

The SST programmer units can be optionally equipped with trip indicators (targets). These are pop-out, mechanically-resettable plungers located across the top of the programmer's front. Units with a ground fault element employ three (3) targets: from left to right, the first is for overload, the second for short circuit (actuated by the short time and instantaneous elements) and the third for ground fault. The latter is omitted on units without ground fault.

Each target pops out when its associated trip element operates to trip the breaker. After a trip, the popped target must be reset by hand. However, neglecting to reset does not affect normal operation of any trip element or prevent the breaker from being reclosed.

Current Sensors—each pole mounts a single sensor coil (CT) which supplies the power and signal inputs necessary to operate the trip system. Each sensor has four taps which provide field adjustment of the trip device's continuous ampere rating.

The SST Ground Fault trip element operates on the principle that the instantaneous values of current in the three conductors (four on 4-wire systems) add to zero unless ground current exists. On SST's equipped with Ground Fault, the ground trip signal is developed by connecting each phase sensor in series with a companion primary winding on a ground differential transformer mounted in the programmer unit. Its secondary output is zero as long as there is no ground current.

Application of the Ground Fault element to 4-wire systems with neutral grounded at the transformer requires an additional, separately mounted sensor (Fig. 6) inserted in the neutral conductor; its secondary is connected to a fourth primary winding on the ground differential transformer. See Fig. 15. This "fourth-wire" neutral sensor is an electrical duplicate of the phase sensor, including taps. Therefore, when taps are changed on the phase sensors, those on the neutral sensor must be correspondingly positioned.

Flux Shift Trip Device—a low-energy, electromagnetic device which, upon receipt of a trip signal from the programmer unit, trips the breaker by actuating the trip shaft. See Fig. 8.

COMPONENT LOCATION

All components except the neutral sensor are mounted on the circuit breaker. The phase sensors are mounted around the lower studs at the rear of the breaker (see Fig. 4). The programmer unit and the flux shift trip device are mounted on the breaker's front frame. These components are interconnected by wiring harness and disconnect plugs as shown on the cabling diagrams (Figs. 13 and 14).

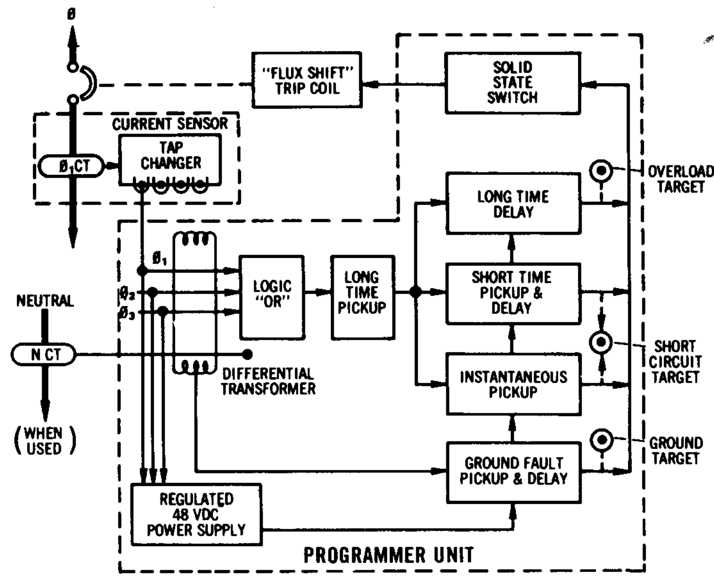


Fig. 2. SST Block diagram

When used, the neutral sensor (fig. 6) is separately mounted in the bus or cable compartment of the switchgear. In drawout construction, its output is automatically connected to the breaker via secondary disconnect blocks. See Figs. 4, 5 and 15.

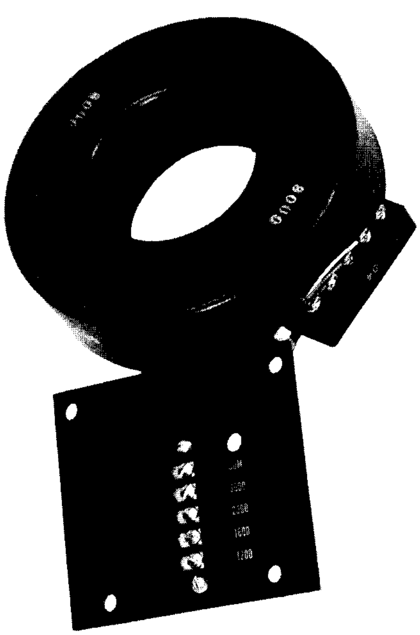


Fig. 3. SST phase sensor with tap board

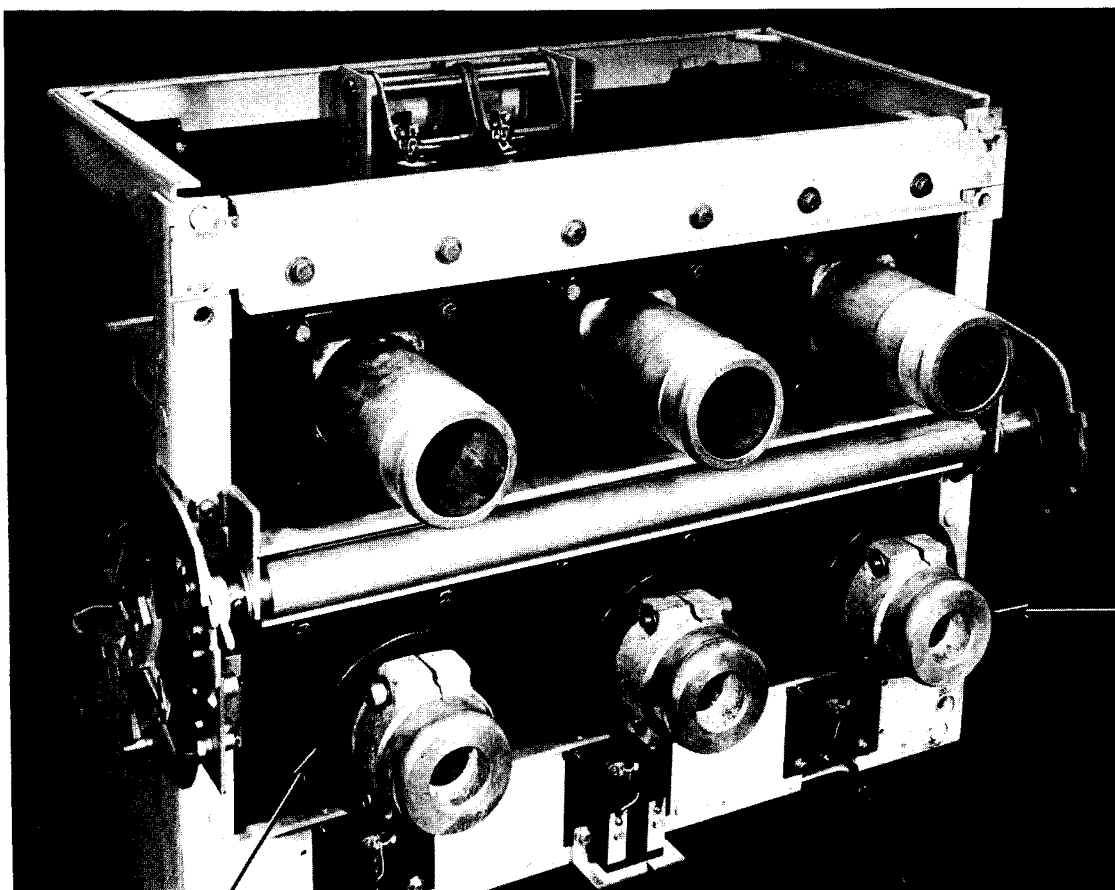


Fig. 4. Rear view, AK-5-100

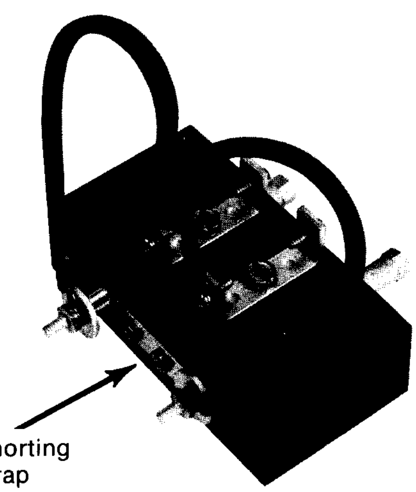


Fig. 5. Neutral sensor secondary disconnect block (equipment mounted).

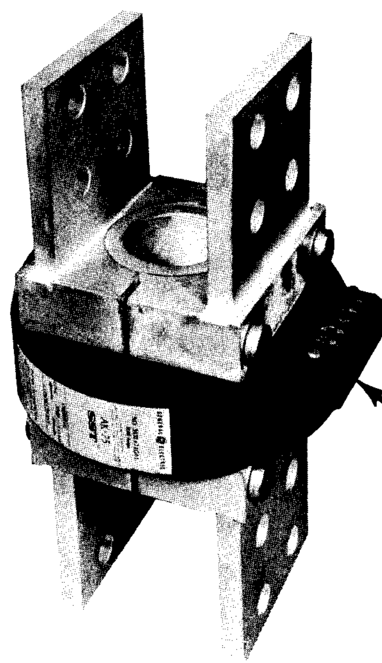


Fig. 6. SST neutral sensor (equipment mounted)

Sensor tap board

SST Programmer Unit

Fig. 7. AK-5A-100 (front view)

TABLE 1—SST TRIP CHARACTERISTICS

Breaker Type	Frame Size (Amperes)	Sensor Ampere Taps ① (X)	SST PROGRAMMER ADJUSTMENT RANGE (Set Points)						
			Long Time		Short Time		Instantaneous Pickup ② (Multiple of L)	Ground Fault	
			Pickup (= L) ② (Multiple of X)	Time Delay Band ③ (Seconds)	Pickup ② (Multiple of L)	Time Delay Band ④ (Seconds)		Pickup ② (Multiple of X)	Time Delay Band ④ (Seconds)
AK-75	3000	1200, 1600, 2000, 3000	.6, .7, .8, .9, 1.0, 1.1 (X)	Maximum 22 Intermed. 10 Minimum 4	3, 4, 5, 6, 8, 10 (L) - or - 1.75, 2, 2.25, 2.5, 3, 4 (L)	Maximum 0.35 Intermed. 0.21 Minimum 0.095	4, 5, 6, 8, 10, 12 (L)	.20, .22, .25 .30, .35, .4 (X)	Maximum 0.30 Intermed. 0.165 Minimum 0.065
AK-100	4000	1600, 2000, 3000, 4000						.18, .20, .22, .25, .27, .30 (X)	

① X= Sensor ampere tap = trip rating
② Pickup tolerance is ±10%
③ Time delay at lower limit of band @ 6L.
④ Time delay at lower limit of band.

(See pages *17* and *19* for applicable time-current curves)

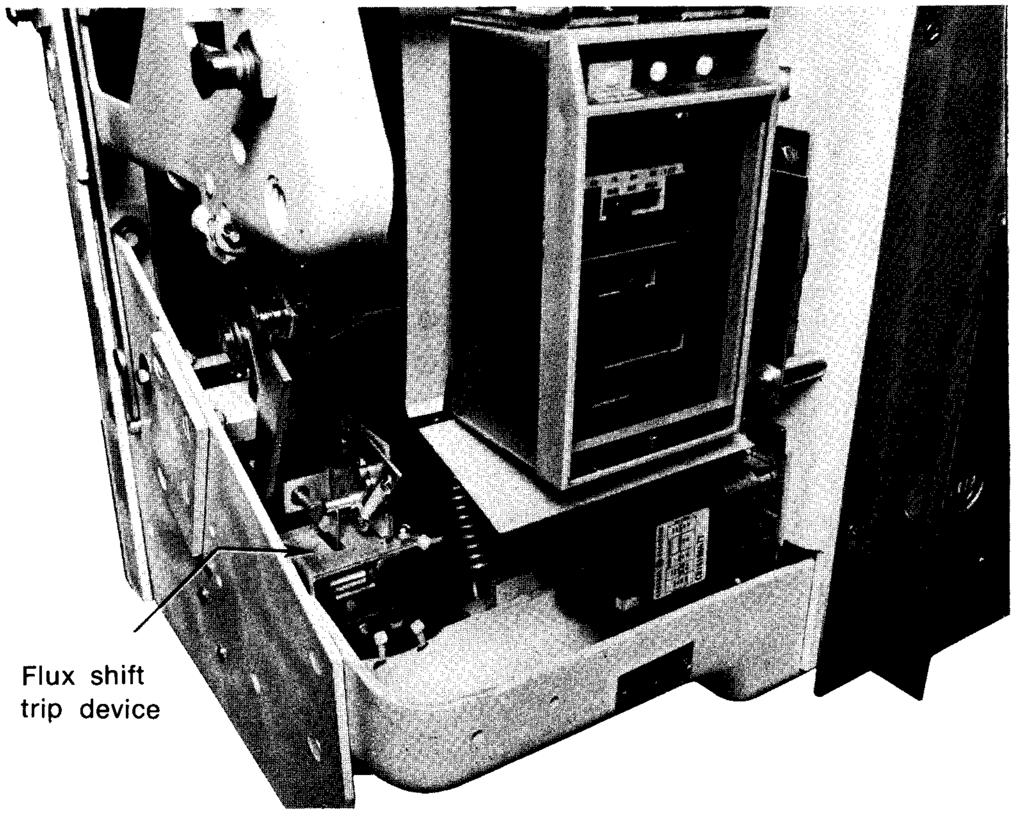


Fig. 8. AK-5A-75 (front view)

FLUX SHIFT TRIP DEVICE

The mounting arrangement of this component is illustrated in Figures 8, 9 and 10. An electromagnetic actuator mounted to the left side of the front frame is coupled to the breaker's trip shaft via a trip rod driven by the actuator arm. The actuator is a solenoid whose armature is spring-loaded and held in its normal (reset) position by a permanent magnet. In this state the spring is in tension.

As long as the actuator remains in the reset position, the breaker can be closed and opened normally at will. However, when a closed breaker receives a trip signal from the programmer unit, the actuator is energized and its solenoid flux opposes the magnet, allowing the spring to release the armature; this drives the trip rod against the trip shaft paddle, tripping the breaker.

As the breaker opens, the actuator arm is returned to its normal (reset) position via linkage driven by a bracket attached to the breaker's crossbar. The permanent magnet again holds the armature captive in readiness for the next trip signal. See Fig. 9.

The trip device requires one basic adjustment—the trip rod length. As shown in Fig. 11, the clearance between the trip rod end and the trip shaft paddle is gaged by a .093" dia. rod. To adjust, open the breaker and restore the breaker mechanism to its "reset" position. Loosen the jam nut, rotate the adjuster end until the proper gap is attained, then retighten the jam nut.

While operating the breaker, insure that the actuator bracket does not interfere with the buffer stud. Adjust if necessary.

The actuator is a sealed, factory-set device and requires no maintenance or field adjustment. In case of malfunction, the complete actuator unit should be replaced. When making the electrical connection to the replacement unit, it is recommended that the breaker harness be cut at some convenient point and the new actuator leads solder-spliced thereto. An alternate method is to untie the breaker harness and remove the old actuator leads directly from the female AMP connector on the end of the breaker harness. However, AMP extraction tool Cat. No. 305183 is required for this method.

CAUTION: *IN THE EVENT THAT THE SST TRIP DEVICE MUST BE RENDERED INOPERATIVE TO ALLOW THE BREAKER TO CARRY CURRENT WITHOUT BENEFIT OF OVERCURRENT PROTECTION, THE RECOMMENDED METHOD IS TO SHORTEN THE TRIP ROD BY TURNING ITS ADJUSTER END FULLY CLOCKWISE. THIS PREVENTS ACTUATION OF THE TRIP SHAFT PADDLE.*

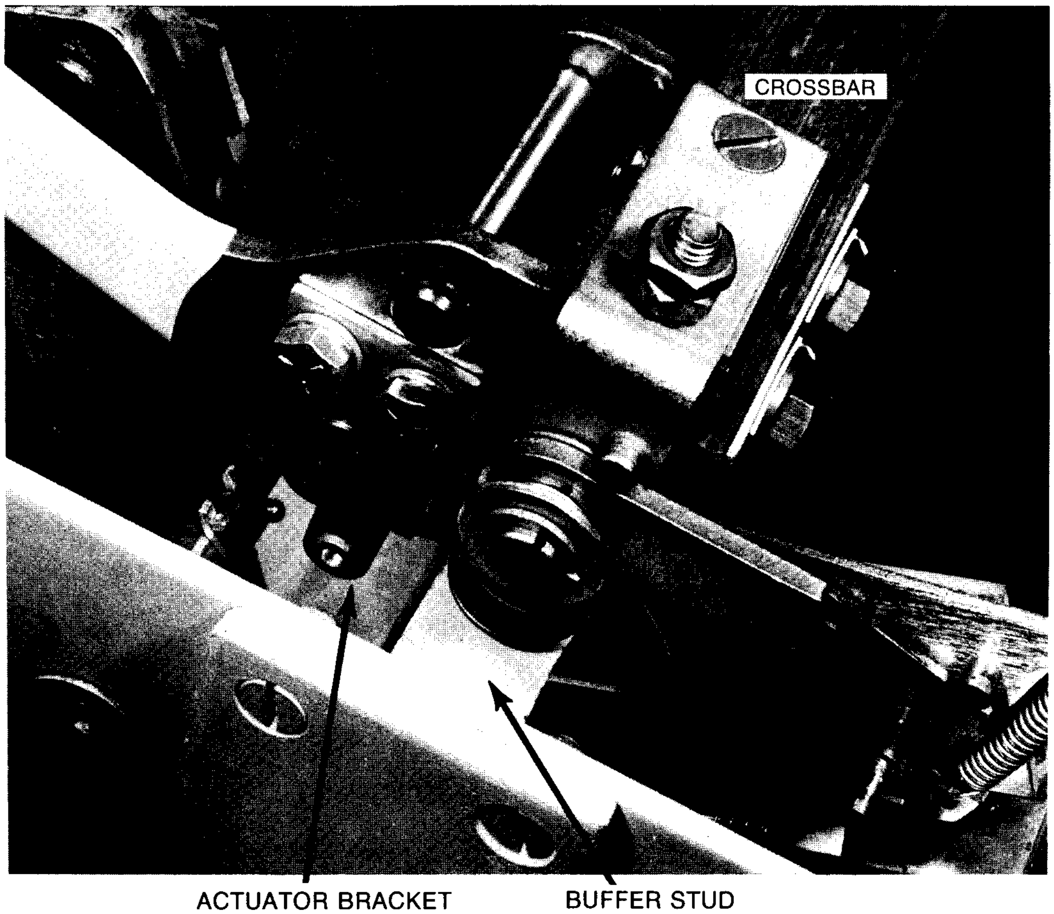
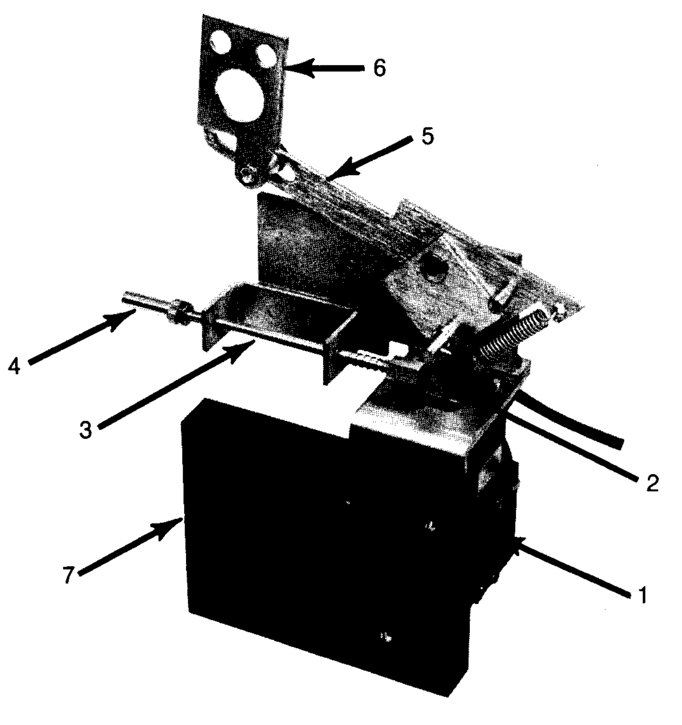


Fig. 9. Flux shift trip device—reset linkage attachment



1. Actuator
2. Actuator arm
3. Trip rod
4. Trip rod adjuster end
5. Reset linkage
6. Actuator bracket
7. Mounting base

Fig. 10. Flux shift trip device with operating linkages

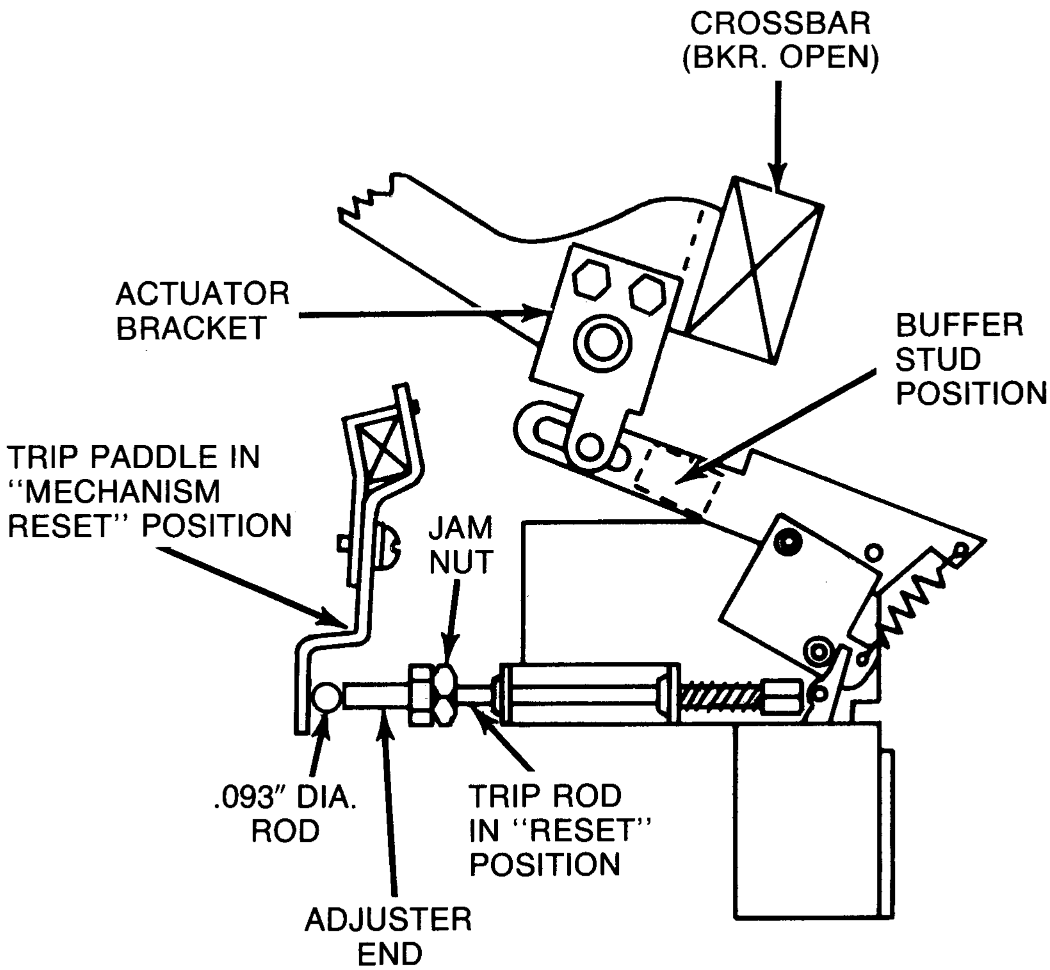


Fig. 11. Flux shift trip device adjustments

SIDE VIEW

1. Trip rod length: Adjust gap to 0.093″ ± 0.015″ using 0.093″ diam. rod as shown.

2. Actuator bracket: As the crossbar travels between the "breaker closed" and "breaker open" positions, the tang of the actuator bracket must clear the buffer stud. If insufficient clearance exists, loosen it's two mounting screws and rotate the bracket clockwise to take up mounting hole slack. Retighten screws.

TROUBLESHOOTING

When malfunctioning is suspected, tne first step in troubleshooting is to examine the circuit breaker and its power system for abnormal conditions such as:

a. Breaker tripping in proper response to overcurrents or incipient ground faults.

b. Breaker remaining in a trip-free state due to mechanical interference along its trip shaft.

c. Inadvertent shunt trip activations.

WARNING: *DO NOT CHANGE TAPS ON THE CURRENT SENSORS OR ADJUST THE PROGRAMMER UNIT SET KNOBS WHILE THE BREAKER IS CARRYING CURRENT.*

Once it has been established that the circuit breaker can be opened and closed normally from the test position, attention can be directed to the trip device proper. Testing is performed by either of two methods:

1. Conduct high-current, single phase tests on the breaker using a high current-low voltage test set.

NOTE: *For these single-phase tests, special connections must be employed for SST breakers equipped with Ground Fault. Any single-phase input to the ground differential transformer will generate an unwanted "ground fault" output signal which will trip the breaker. This can be nullified either by:*

a. testing two poles of the breaker in series or,

b. Using the Ground Fault Defeat Cable as shown in Fig. 16. This special test cable energizes all the primary windings of the differential transformer in a self-cancelling, series-parallel connection so that its secondary output is always zero.

2. Test the components of the SST system using portable Test Set type TAK-TS1 (Fig. 12). The applicable test procedures are detailed in Instruction Book GEK-64454 and are summarized below.

USING THE SST TEST SET

The TAK-TS1 Test Set is a portable instrument designed for field-checking the time-current characteristics and pickup calibration of the SST's various trip elements. It can verify the ability of the Flux-Shift Trip Device to trip the breaker and, in addition, includes means for continuity checking the phase sensors.

WARNING: *BEFORE CONNECTING THE TEST SET TO THE BREAKER TRIP DEVICE SYSTEM, ENSURE THAT THE CIRCUIT BREAKER IS COMPLETELY DISCONNECTED FROM ITS POWER SOURCE. ON DRAWOUT EQUIPMENT, RACK THE BREAKER TO ITS DISCONNECTED POSITION. VERIFY THAT THE BREAKER IS TRIPPED.*

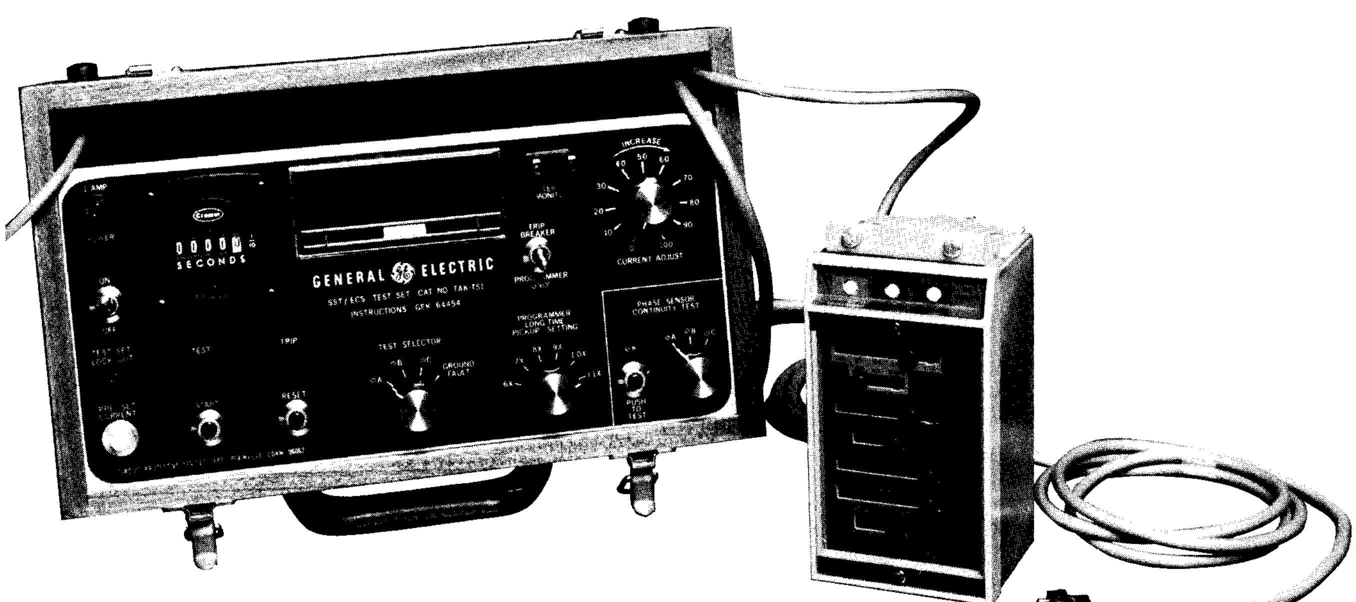


Fig. 12. SST / ECS test set, CAT. NO. TAK-TS1

Either of two test modes may be employed:

"A"—*Programmer Unit Only.* These tests are conducted with the programmer unit disconnected from the breaker. During test, the unit can remain attached to the breaker or may be completely removed from it.

CAUTION: *NEVER DISENGAGE THE HARNESS CONNECTOR FROM THE PROGRAMMER UNIT ON A BREAKER THAT IS ENERGIZED AND CARRYING LOAD CURRENT. THIS WILL OPEN-CURCUIT THE CURRENT SENSORS, ALLOWING DANGEROUS AND DAMAGING VOLTAGES TO DEVELOP.*

Test scope:

1. Verify the time-current characteristics and pickup calibration of the various trip elements.

2. Verify operation of the SST target indicators on programmer units so equipped.

"B"—*Complete Trip Device System.* For these tests, the programmer unit must be mounted on the breaker and connected to its wiring harness.

Test scope:

1. All "A" tests previously described, plus provision for optionally switching the programmer's output to activate the Flux-Shift Trip Device and verify its operation by physically tripping the breaker.

2. Check phase sensor continuity.

In the event that any component of the SST system does not perform within the limits prescribed in test instructions GEK-64454, it should be replaced.

FALSE TRIPPING—BREAKERS EQUIPPED WITH GROUND FAULT

When nuisance tripping occurs on breakers equipped with the Ground Fault trip element, a probable cause is the existence of a false "ground" signal. As indicated by the cabling diagram of Fig. 14, each phase sensor is connected in series with a primary winding on the Ground Fault differential transformer. Under no-fault conditions on 3-wire load circuits, the currents in these three windings add to zero and no ground signal is developed. This current sum will be zero only if all three sensors have the same electrical characteristics. If one sensor differs from the others (i.e., different rating or wrong tap setting), the differential transformer can produce output sufficient to trip the breaker. Similarly, discontinuity between any sensor and the programmer unit can cause a false trip signal.

If nuisance tripping is encountered on any breaker whose SST components have previously demonstrated satisfactory performance via the TAK-TS1 Test Set, the sensors and their connections should be closely scrutinized. After disconnecting the breaker from all power sources,

a. Check that all phase sensors are the same type (ampere range).

b. Insure that the tap settings on all 3 phase sensors are identical.

c. Verify that the harness connections to the sensors meet the polarity constraints indicated by the cabling diagram, i.e., white wire to COMMON, black wire to TAP.

d. On Ground Fault breakers serving 4-wire loads, check that the neutral sensor is properly connected (see cabling diagram Fig. 15). In particular,

   1. Verify that the neutral sensor has the same rating and tap setting as the phase sensors.
   2. Check continuity between the neutral sensor and its equipment-mounted secondary disconnect block. Also check for continuity from the breaker-mounted neutral secondary disconnect block through the female harness connector (terminals L and N).
   3. If the breaker's lower studs connect to the supply source, then the neutral sensor must have its "LOAD" end connected to the source.
   4. Insure that the neutral conductor is carrying only that neutral current associated with the breaker's load current (neutral not shared with other loads).

e. If the preceding steps fail to identify the problem, then the sensor resistances should be measured. Since the phase and neutral sensors are electrically identical, their tap-to-tap resistances should closely agree.

REPLACEMENT OF CURRENT SENSORS

Phase sensors are removed as follows (see Fig. 4):

1. From front of breaker, disconnect the harness wiring from the sensor tap board.

2. From rear of breaker, unbolt the tap board; loosen and remove the stud connector; the sensor and tap board can now be removed as a unit.

3. Reassemble in reverse order, taking care to align projections on rear of sensor with notches in positioning ring mounted on stud.

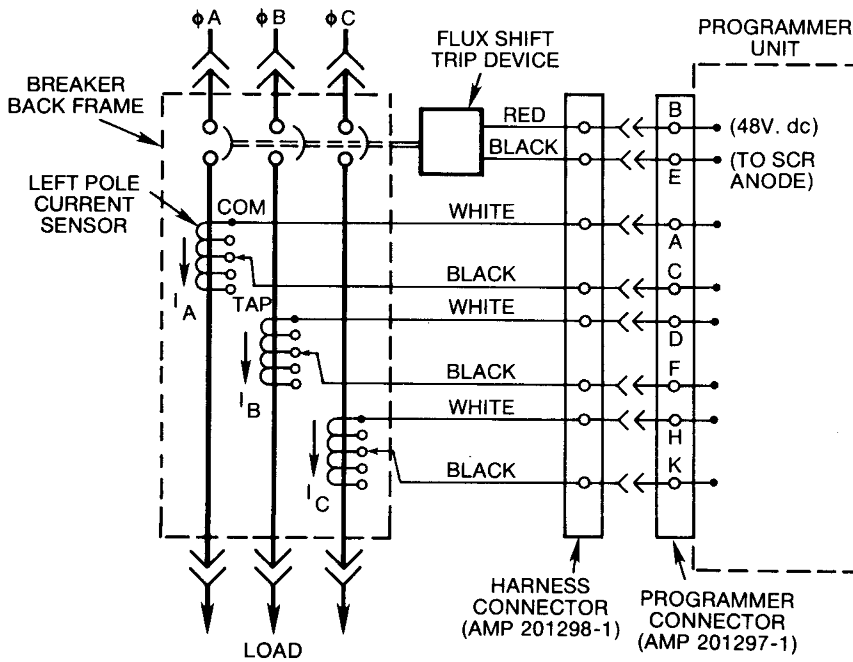


Fig. 13. Cabling Diagram—SST without Ground Fault

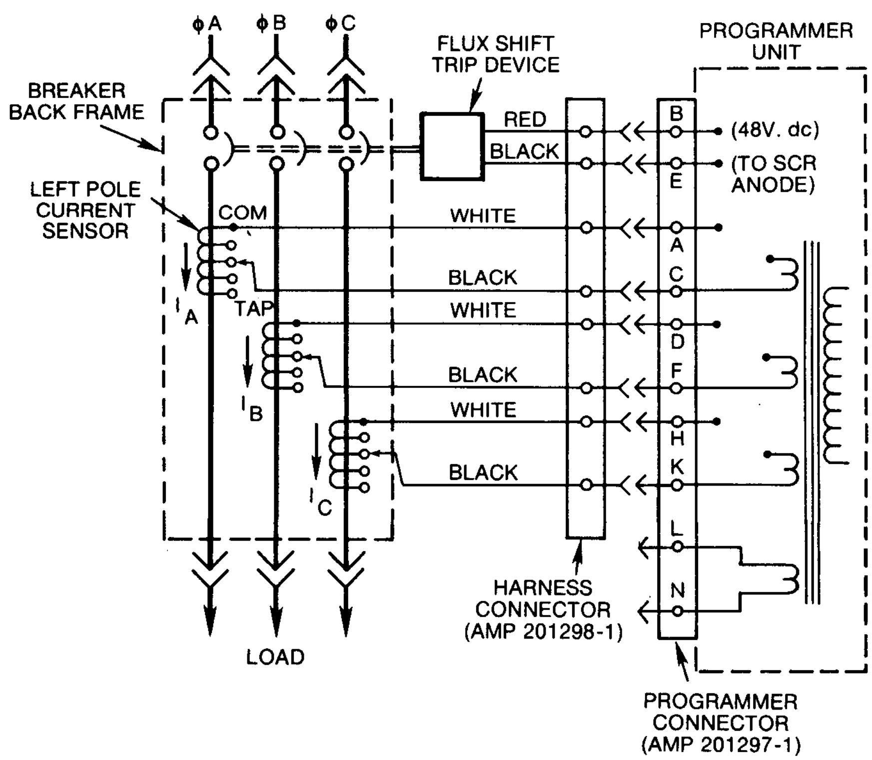


Fig. 14. Cabling Diagram—SST with Ground Fault on 3-wire load.

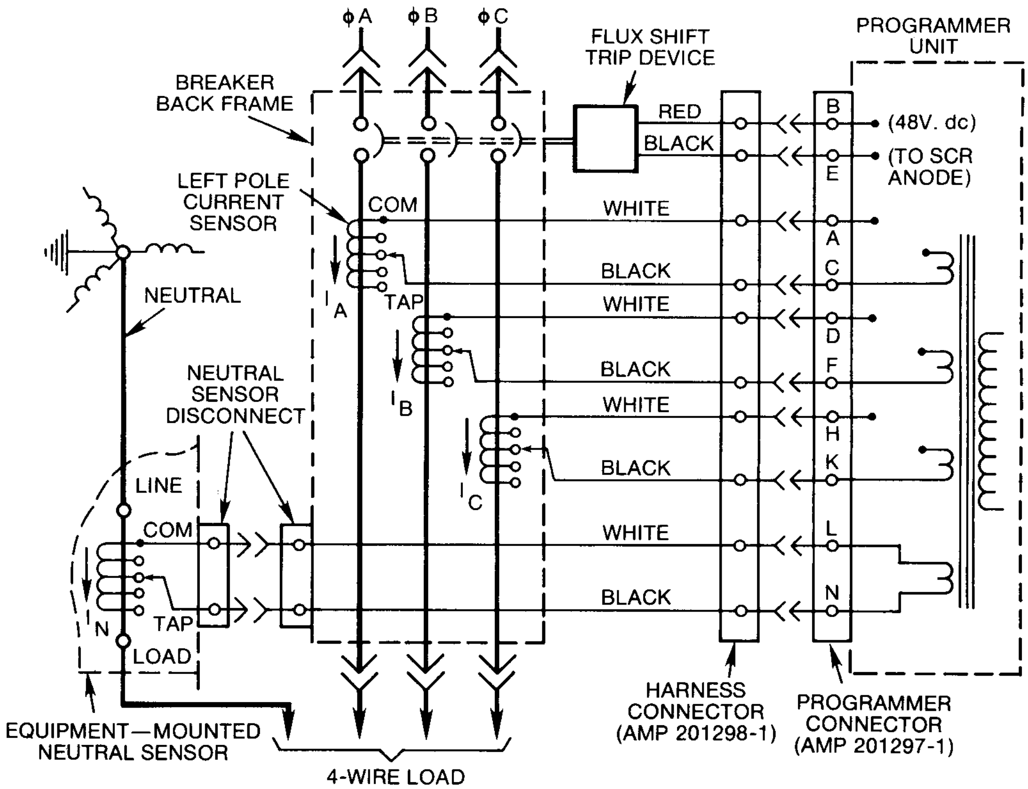


Fig. 15. Cabling Diagram—SST with Ground Fault on 4-wire load

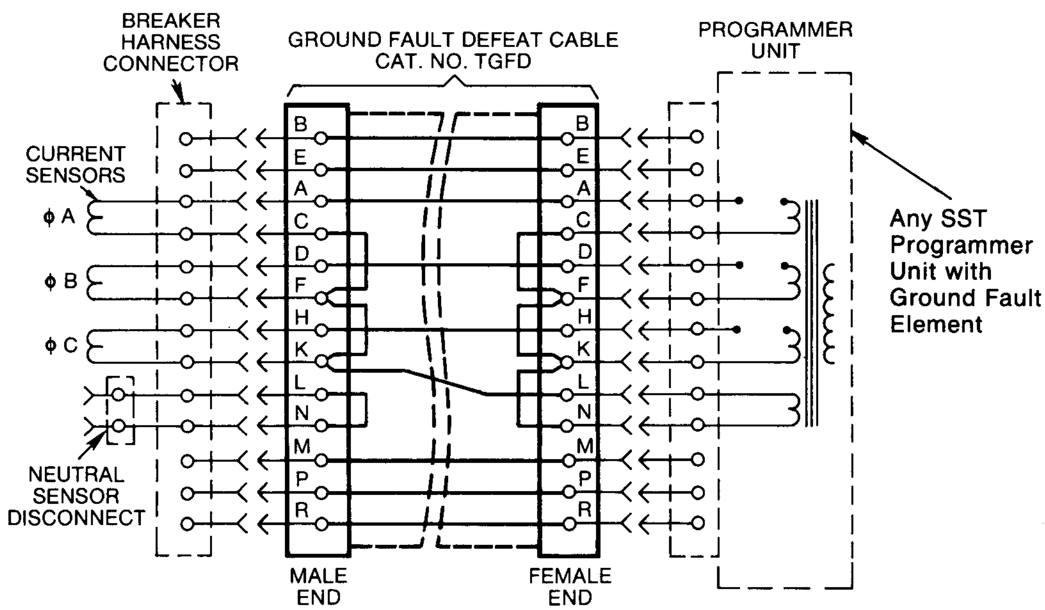


Fig. 16. Cabling diagram with Ground Fault Defeat Cable inserted between breaker harness and SST Programmer Unit —for use during single-phase, high current—low voltage testing.

TYPE ECS OVERCURRENT TRIP DEVICE

The ECS is a solid-state, direct-acting, self-powered trip device system that essentially duplicates SST except for the following:

1. Programmer units (Fig. 17) are limited to combinations of Long Time, Short Time and Instantaneous trip elements only. The Ground Fault element is not available.

2. Phase sensors (Fig. 18) are not tapped. As listed in Table 2, each sensor has only a single ampere rating. A different sensor is available for each of the tabulated ampere ratings, which span the same range as SST.

3. There being no Ground Fault function, neutral sensors are not required.

In all other respects the ECS trip device system operates and can be treated identically to SST. This includes circuitry, size, construction, component location, programmer unit set points, performance characteristics, operating range, quality, reliability and the flux shift trip device. Use the same troubleshooting and test procedures for single-phase, high current-low voltage tests or those employing the TAK-TS1 Test Set. The Ground Fault test procedures, of course, do not apply.

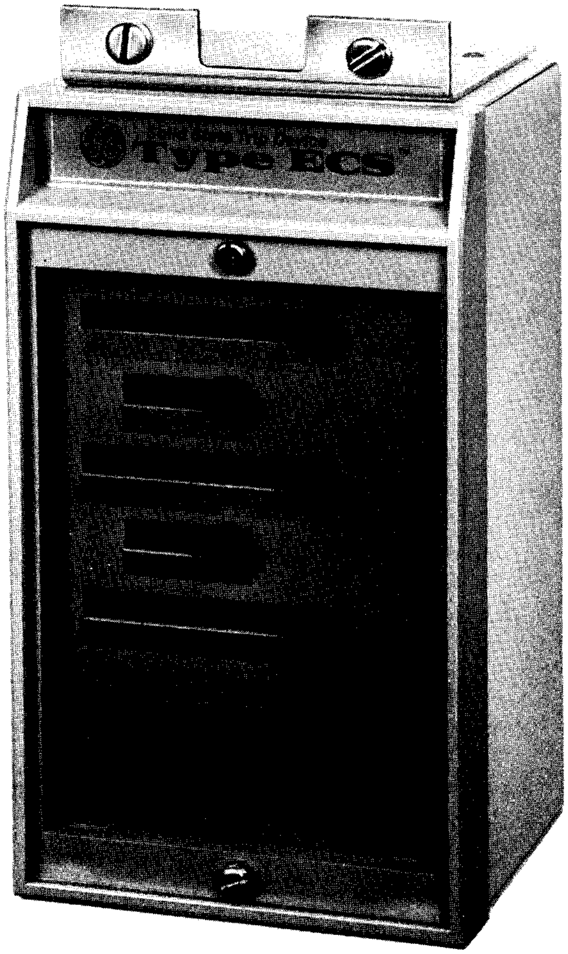


Fig. 17. ECS Programmer Unit

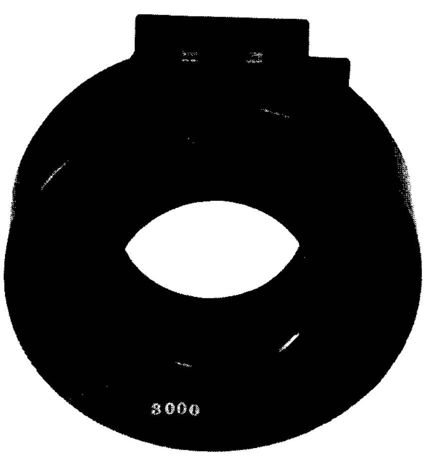


Fig. 18. ECS phase sensor

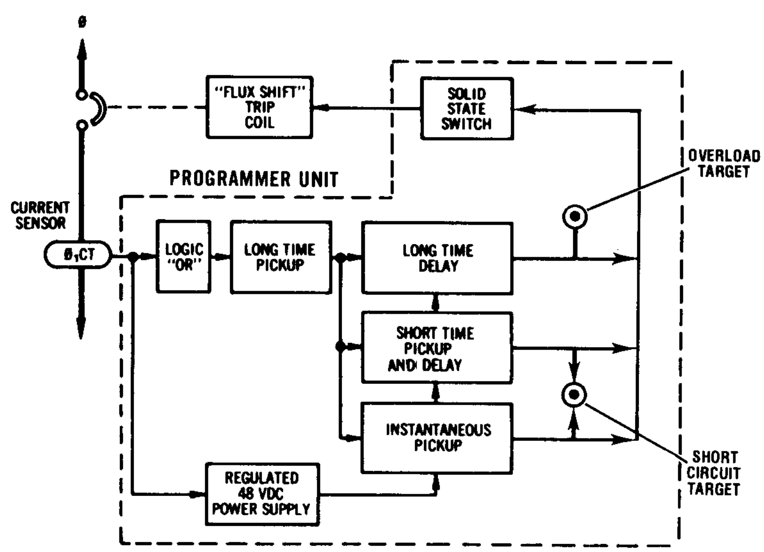


Fig. 19. ECS Block diagram.

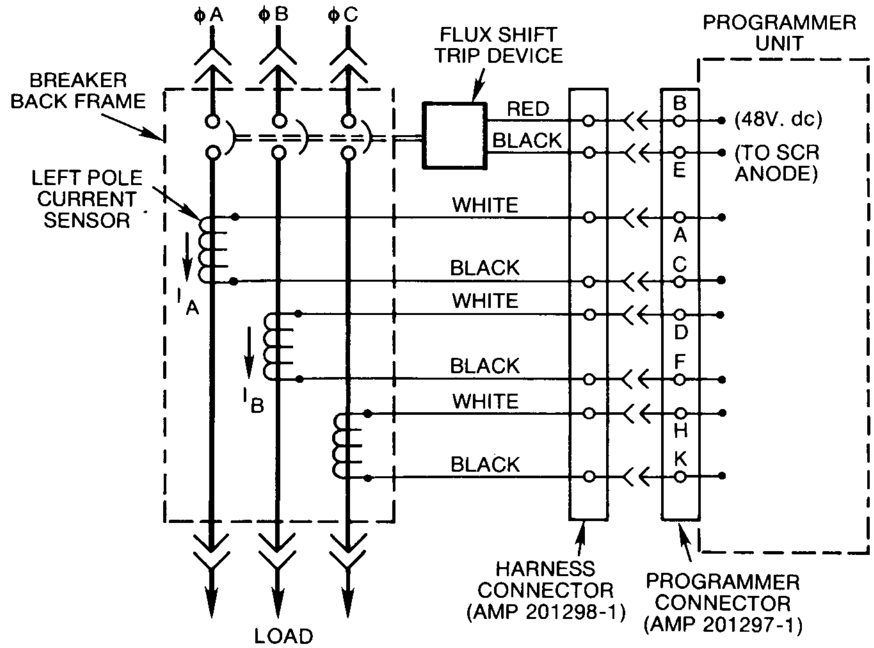


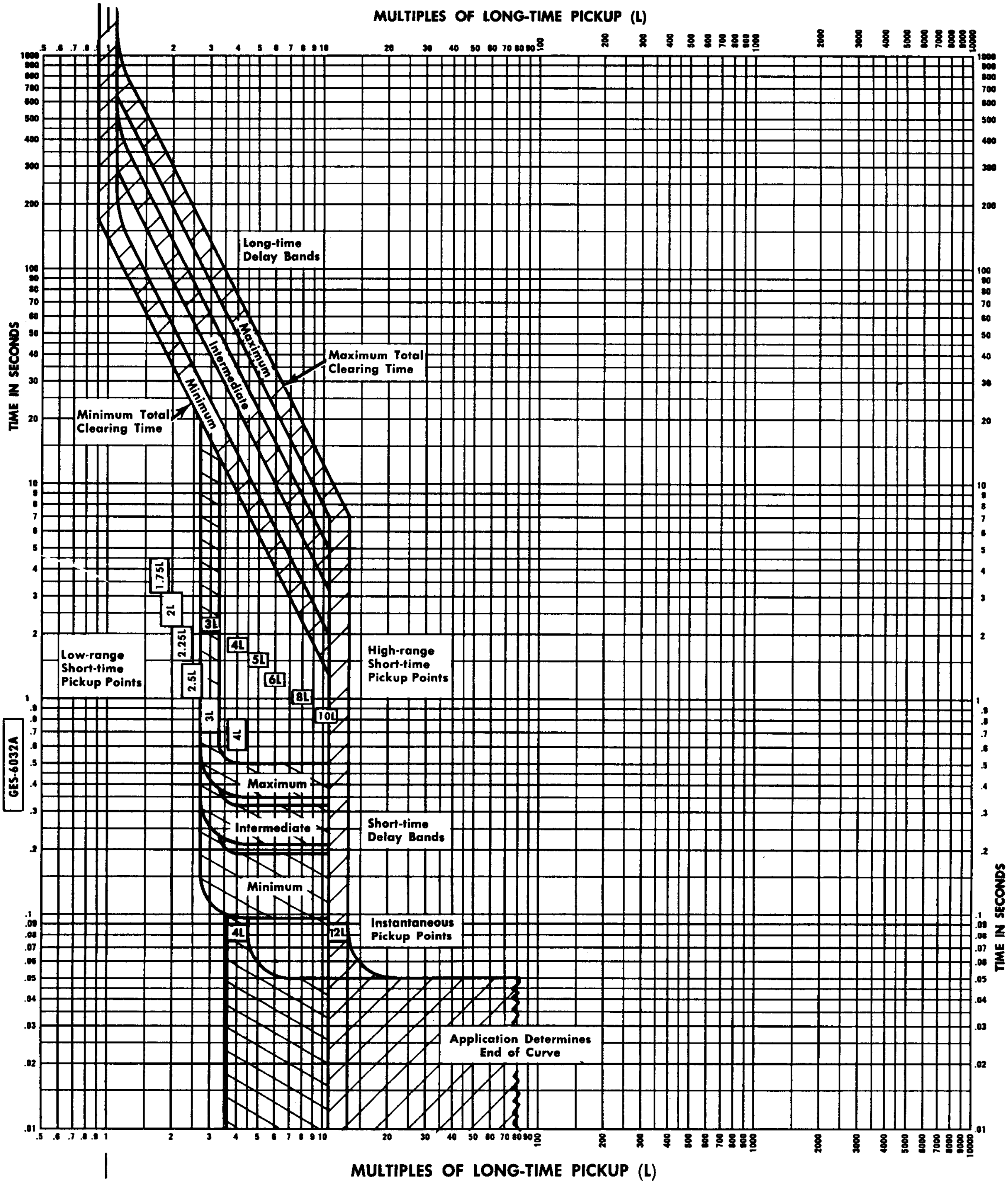
Fig. 20. Cabling diagram for ECS Trip Device

TABLE 2—ECS TRIP CHARACTERISTICS

<table>
<tr><th rowspan="3">Breaker Type</th><th rowspan="3">Frame Size (Amperes)</th><th rowspan="3">Sensor Ampere Rating ① (X)</th><th colspan="5">ECS PROGRAMMER ADJUSTMENT RANGE (Set Points)</th></tr>
<tr><th colspan="2">Long Time</th><th colspan="2">Short Time</th><th rowspan="2">Instantaneous Pickup ② (Multiple of L)</th></tr>
<tr><th>Pickup (=L) ② (Multiple of X)</th><th>Time Delay Band ③ (Seconds)</th><th>Pickup ② (Multiple of L)</th><th>Time Delay Band ④ (Seconds)</th></tr>
<tr><td>AK-75</td><td>3000</td><td>1200, 1600, 2000, 3000</td><td rowspan="2">.6, .7, .8, .9, 1.0, 1.1 (X)</td><td rowspan="2">Maximum 22
Intermed. 10
Minimum 4</td><td rowspan="2">3, 4, 5, 6, 8, 10 (L)
- or -
1.75, 2, 2.25, 2.5, 3, 4 (L)</td><td rowspan="2">Maximum 0.35
Intermed. 0.21
Minimum 0.095</td><td rowspan="2">4, 5, 6, 8, 10, 12 (L)</td></tr>
<tr><td>AK-100</td><td>4000</td><td>1600, 2000, 3000, 4000</td></tr>
</table>

① X= Sensor rating = trip rating
② Pickup tolerance is ±10%
③ Time delay at lower limit of band @ 6L.
④ Time delay at lower limit of band.

(See page *16* for time-current curves)



NOTE: Short-time delay is optional. Instantaneous can be omitted.

GENERAL ELECTRIC

AK/AKR LOW-VOLTAGE POWER CIRCUIT BREAKERS

ECS™ SOLID-STATE OVERCURRENT-TRIP DEVICE

Long-time-delay, Short-time-delay and Instantaneous Time-current Curves

Curves apply at 50/60 Hertz
From − 20C to + 70C Programmer Ambient

GES-6032A

X = Current Sensor Rating (Amperes)

AKR-30	100, 150, 225, 300, 400, 600, 800
AKR-50	300, 400, 600, 800, 1200, 1600
AKRT-50	800, 1200, 1600, 2000
AK-75	1200, 1600, 2000, 3000
AKR-75	1200, 1600, 2000, 3000, 3200
AK/AKR-100	1600, 2000, 3000, 4000

Programmer Set Points

PICKUP

Long-time: .6, .7, .8, .9, 1.0 & 1.1 multiples of current sensor rating (X). (Settings higher than 100% of the frame size do not increase the continuous current rating.)

Short-time: 1.75, 2, 2.25, 2.5, 3 & 4 or 3, 4, 5, 6, 8 & 10 multiples of Long-time pickup setting (L).

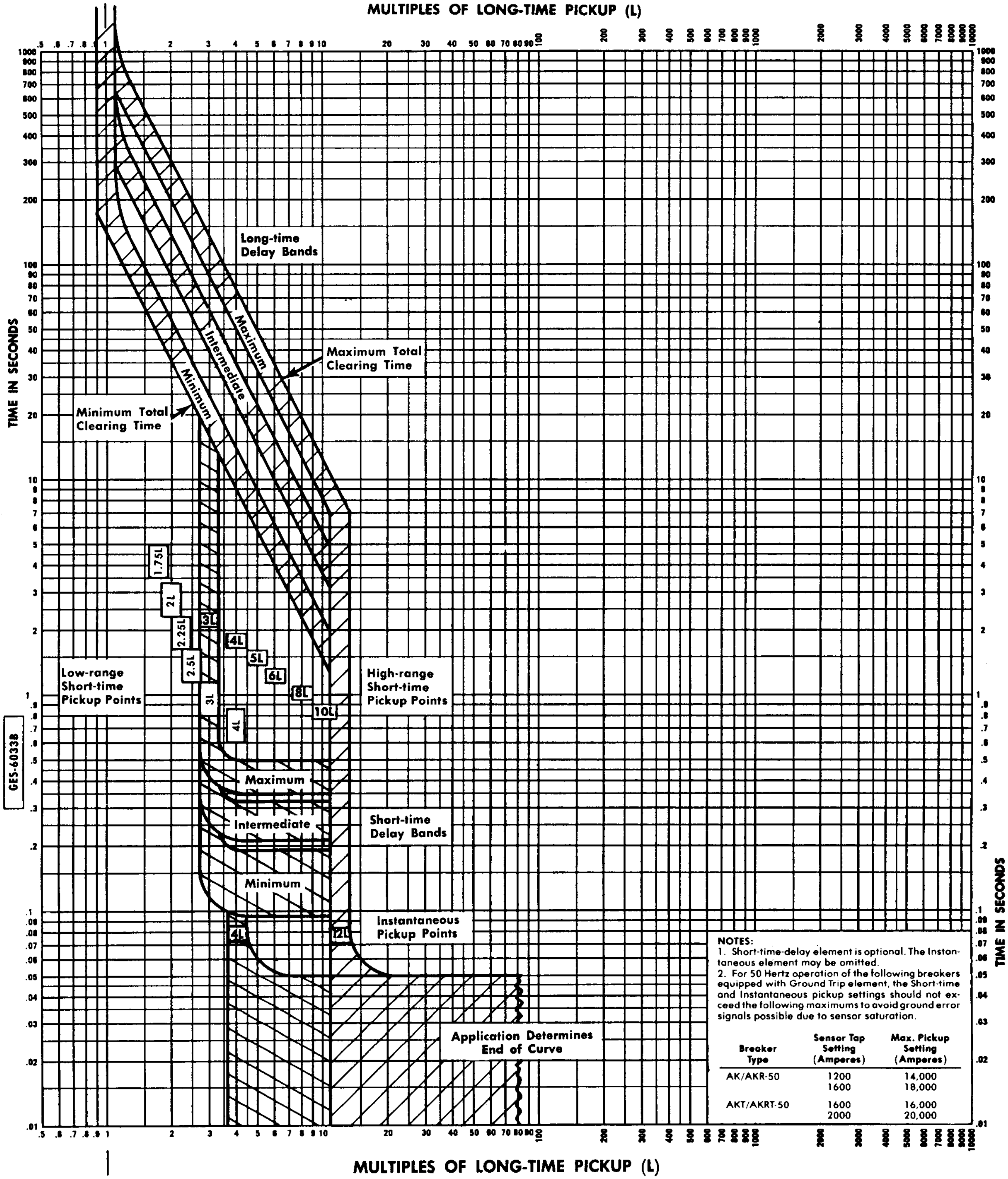
Instantaneous: 4, 5, 6, 8, 10 & 12 multiples of Long-time pickup setting (L).

TIME DELAY BANDS

Long-time and Short-time: Max., Int. & Min.

8-78 (1.2M)

GENERAL ELECTRIC CO., CIRCUIT PROTECTIVE DEVICES DEPT., PLAINVILLE, CONN. 06062



NOTES:
1. Short-time-delay element is optional. The Instantaneous element may be omitted.
2. For 50 Hertz operation of the following breakers equipped with Ground Trip element, the Short-time and Instantaneous pickup settings should not exceed the following maximums to avoid ground error signals possible due to sensor saturation.

Breaker Type	Sensor Tap Setting (Amperes)	Max. Pickup Setting (Amperes)
AK/AKR-50	1200	14,000
	1600	18,000
AKT/AKRT-50	1600	16,000
	2000	20,000

GENERAL ELECTRIC

AK/AKR LOW-VOLTAGE POWER CIRCUIT BREAKERS

SST™ SOLID-STATE OVERCURRENT TRIP DEVICE

GES-6033B

X = Current Sensor Taps (Amperes)

AK-15	70, 100, 150, 225
AK-25	70, 100, 150, 225 or 200, 300, 400, 600
AKR-30	100, 150, 225, 300 or 300, 400, 600, 800
AK/AKR-50	300, 400, 600, 800 or 600, 800, 1200, 1600
AKT/AKRT-50	800, 1200, 1600, 2000
AK-75	1200, 1600, 2000, 3000
AKR-75	1200, 1600, 2000, 3200
AK/AKR-100	1600, 2000, 3000, 4000

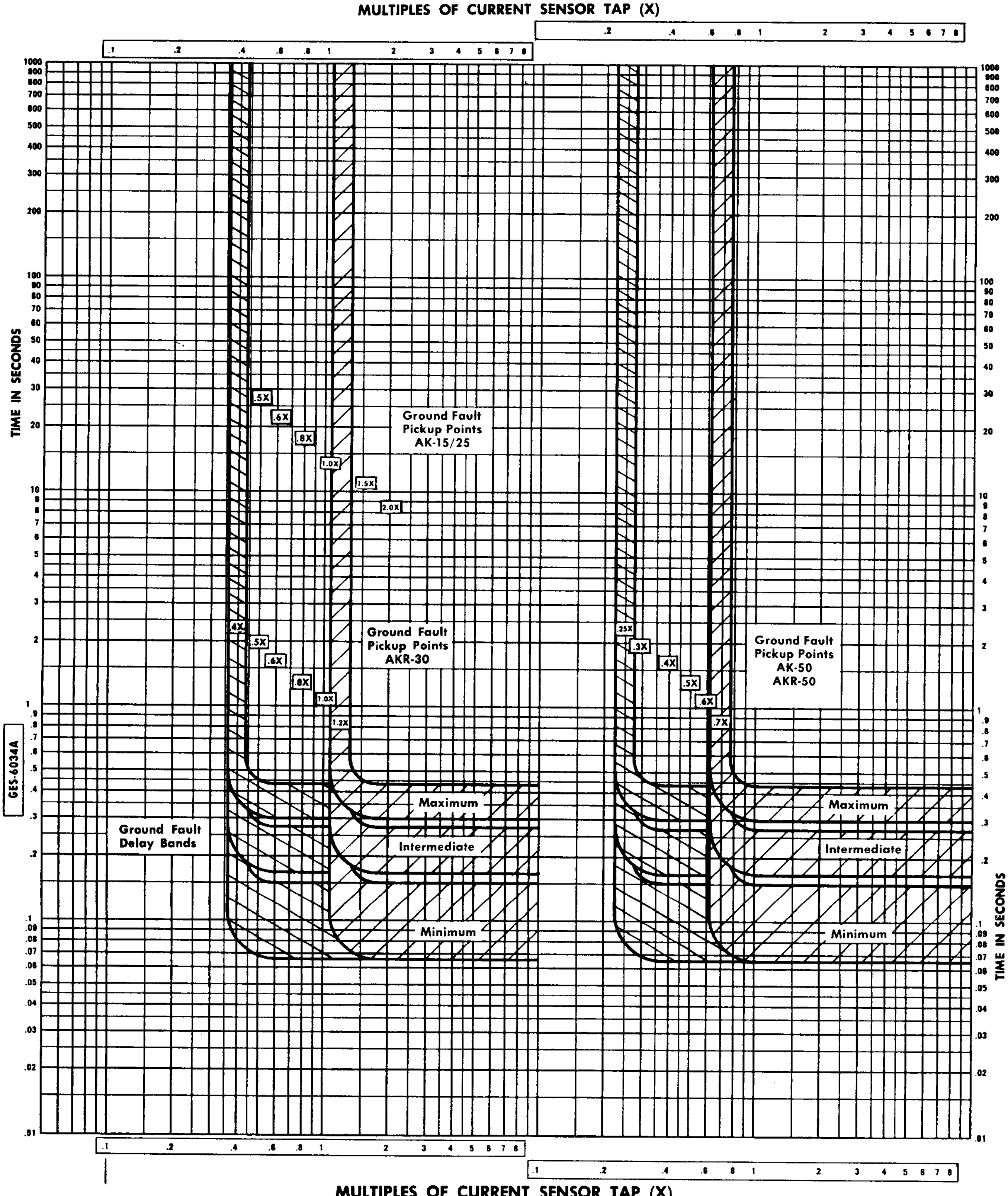
Long-time-delay, Short-time-delay and Instantaneous Time-current Curves

Curves apply at 50/60 Hertz
From — 20C to + 70C Programmer Ambient

Programmer Set Points

PICKUP
Long-time: .6, .7, .8, .9, 1.0 & 1.1 multiples of current sensor tap setting (X). (Settings higher than 100% of the frame size do not increase the continuous current rating).
Short-time: 1.75, 2, 2.25, 2.5, 3 & 4 or 3, 4, 5, 6, 8 & 10 multiples of Long-time pickup setting (L). For 50 Hz. operation, see Note 2.
Instantaneous: 4, 5, 6, 8, 10 & 12 multiples of Long-time pickup setting (L). For 50 Hz. operation, see Note 2.
TIME DELAY BANDS
Long-time and Short-time: Max., Int. & Min.

8-78 (1.2M)
GENERAL ELECTRIC CO., CIRCUIT PROTECTIVE DEVICES DEPT., PLAINVILLE, CONN. 06062



NOTE: 4th wire Ground sensor tap must be set same as phase sensor tap.

GENERAL ELECTRIC

TYPE AKR LOW-VOLTAGE POWER CIRCUIT BREAKERS

SST™ SOLID-STATE OVERCURRENT TRIP DEVICE

Ground Trip Time-current Curves

GES-6034A

	Current Sensor Taps (Amperes)
AK-15	70, 100, 150, 225
AK-25	70, 100, 150, 225 or 200, 300, 400, 600
AKR-30	100, 150, 225, 300 or 300, 400, 600, 800
AK/AKR-50	300, 400, 600, 800 or 600, 800, 1200, 1600

Curves apply at 50/60 Hertz
From − 20C to + 70C Programmer Ambient

Programmer Set Points

Ground Fault Pickup:

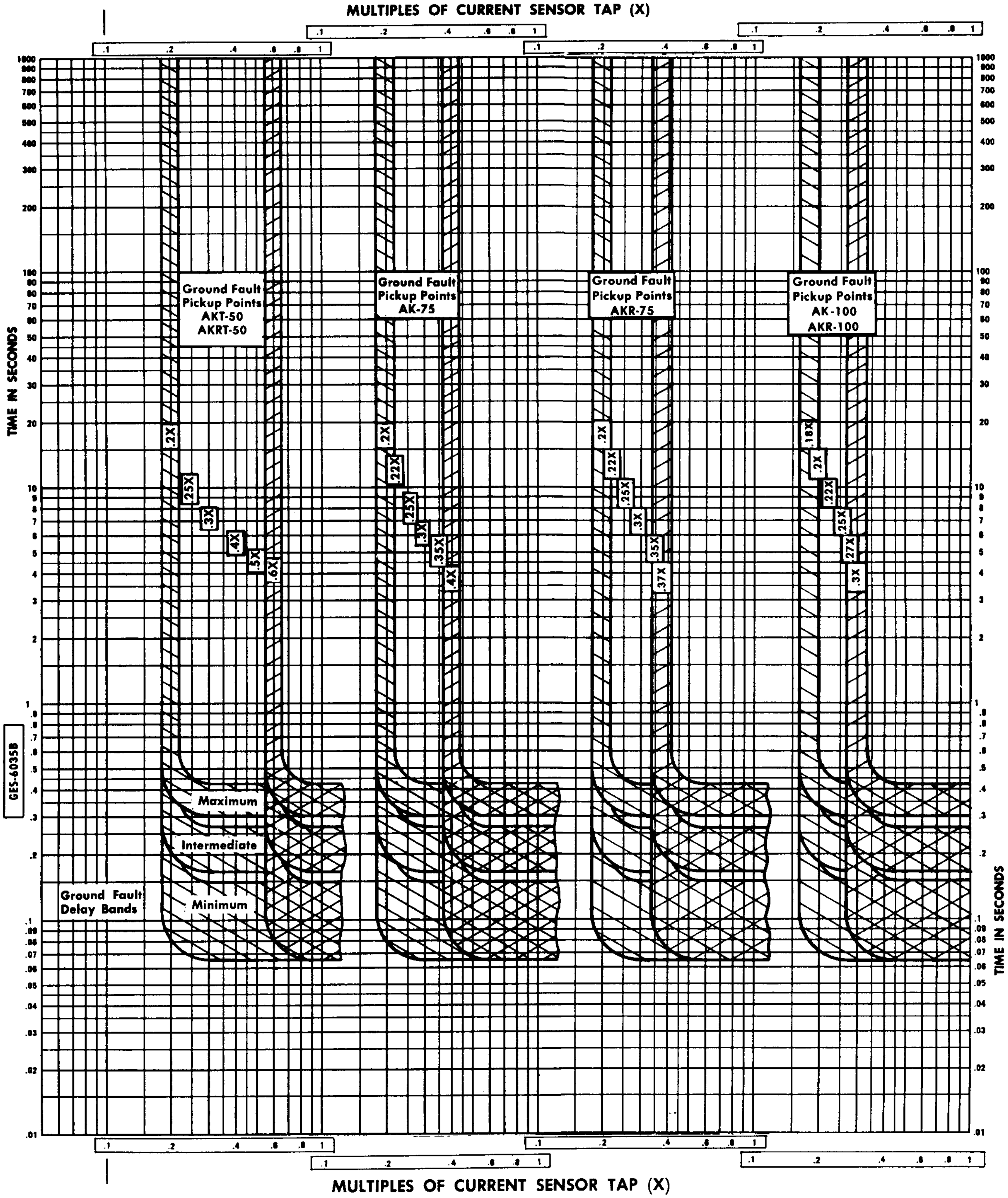
AK-15/25	.5x, .6x, .8x, 1.0x, 1.5x, & 2.0x
AKR-30	.4x, .5x, .6x, .8x, 1.0x, & 1.2x
AK/AKR-50	.25x, .3x, .4x, .5x, .6x, & .7x

Where X = sensor tap setting

Ground Fault Delay Bands: Maximum, Intermediate & Minimum

8-78 (1.2M)

GENERAL ELECTRIC CO., CIRCUIT PROTECTIVE DEVICES DEPT., PLAINVILLE, CONN. 06062



NOTE: 4th wire Ground sensor tap must be set same as phase sensor tap.

GENERAL ELECTRIC

AK/AKR LOW-VOLTAGE POWER CIRCUIT BREAKERS

SST™ SOLID-STATE OVERCURRENT TRIP DEVICE

Ground Trip Time-current Curves

GES-6035B

X = Current Sensor Taps (Amperes)

AKT/AKRT-50	800, 1200, 1600, 2000
AK-75	1200, 1600, 2000, 3000
AKR-75	1200, 1600, 2000, 3200
AK/AKR-100	1600, 2000, 3000, 4000

Curves apply at 50/60 Hertz
From − 20C to + 70C Programmer Ambient

Programmer Set Points

Ground Fault Pickup:

AKT/AKRT-50	.2x, .25x, .3x, .4x, .5x, & .6x
AK-75	.2x, .22x, .25x, .3x, .35x, & .4x
AKR-75	.2x, .22x, .25x, .3x, .35x & .37x
AK/AKR-100	.18x, .2x, .22x, .25x, .27x & .3x

Where X = sensor tap setting

Ground Fault Delay Bands
Maximum, Intermediate & Minimum

2-78 (3M)

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