OPERATION AND MAINTENANCE
1 X N FREQUENCY DIVERSITY
DR 6/11-135A AND 135EC
SIGNALING FAIL ALARM

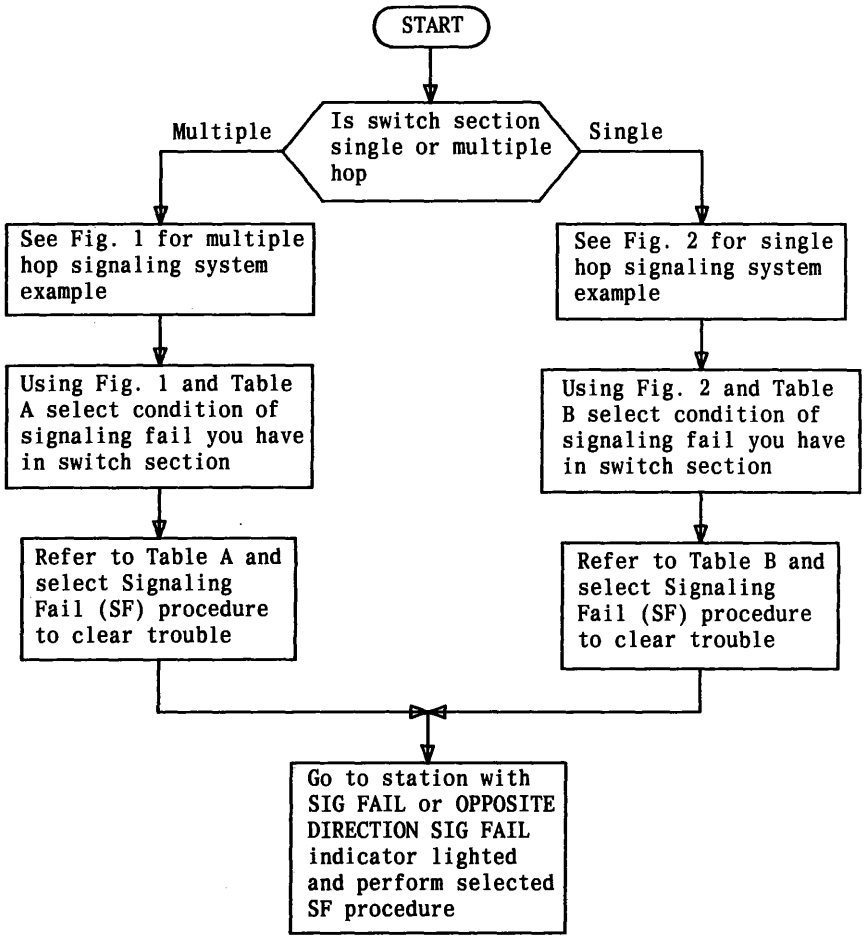
The Signaling Fail Alarm Trouble Isolation Flowchart is used to isolate a signaling problem and to direct the user to the SF (signaling fail) procedure to clear the OPPOSITE DIRECTION SIG FAIL alarm (regenerator) or SIG FAIL alarm (terminal). All trouble-clearing starts at the station with the SIG FAIL alarm. If more than one station has a SIG FAIL alarm, trouble-clearing should start with the most upstream station with the alarm.

This practice is reissued to revise the procedures for clearing signaling fail alarms at a terminal or regenerator station and to include the error correction option. The practice is used in binders 421-102-001, 421-102-001AC, 421-102-080, 421-102-002AC, 421-102-090, 421-102-003AC, 421-102-100, 421-102-004AC, 421-103-001, 421-103-001AC, 421-103-080, 421-103-002AC, 421-103-090, 421-103-003AC, 421-103-100, and 421-103-004AC.

Printed in U.S.A.

PREREQUISITES

1. Clear all other alarms in the switch section and reset any local manual operations before clearing signaling fail alarm troubles



Signaling Fail Trouble Isolation Flowchart

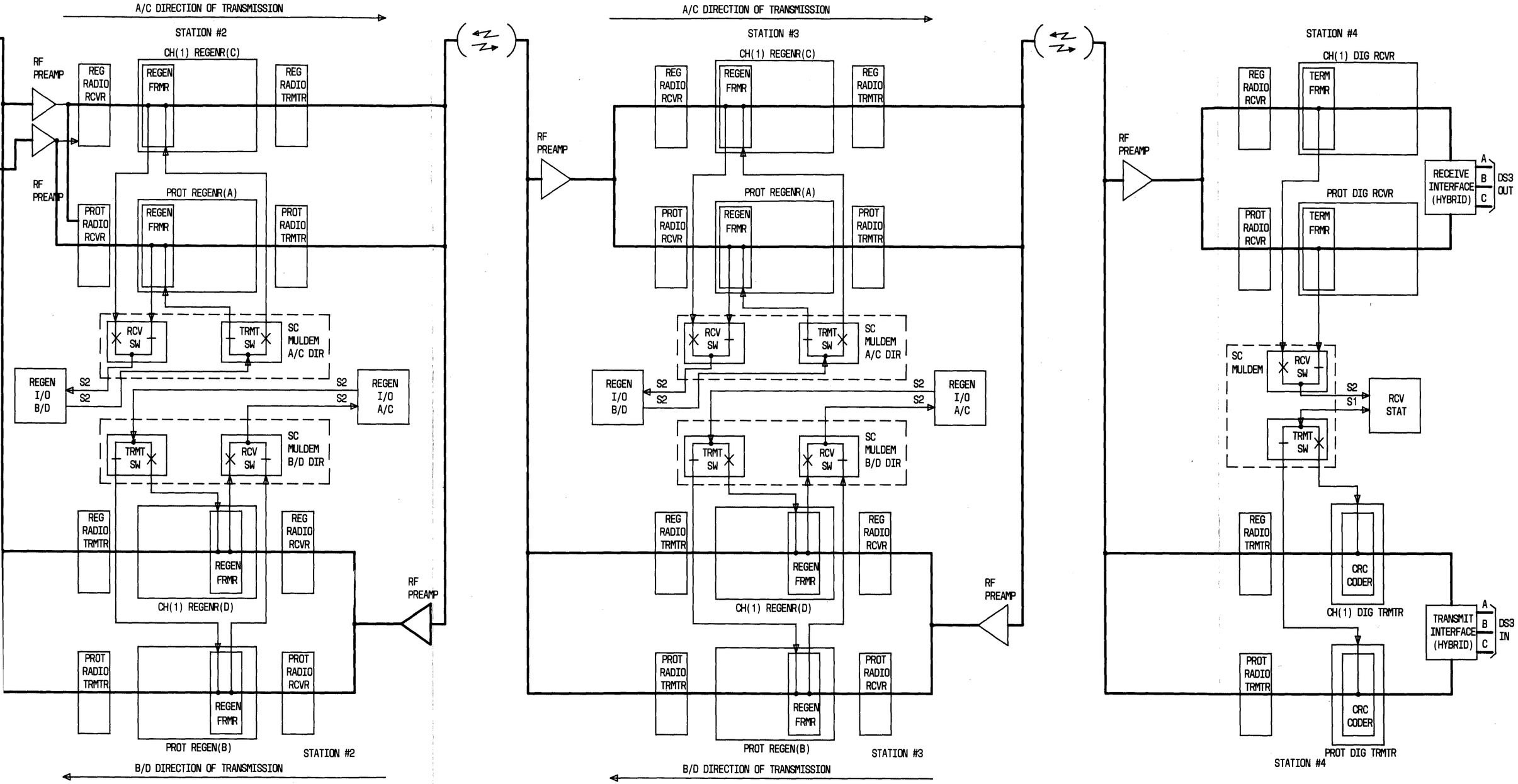
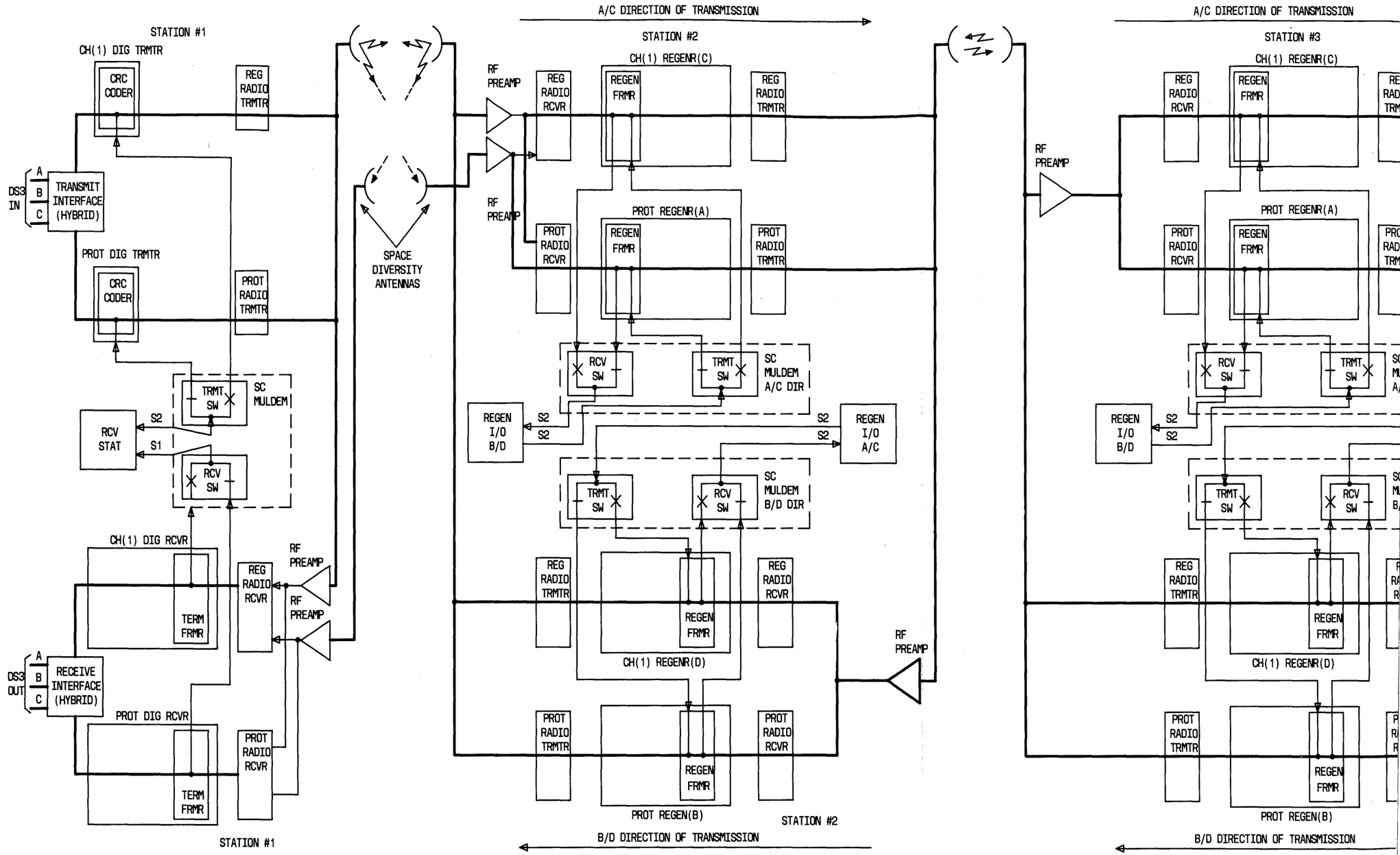


Fig. 1—Multiple Hop Switch Section


STATION #1
CH(1) DIG TRMTR
CRC CODER
REG RADIO TRMTR
DS3 IN
A
B
C
TRANSMIT INTERFACE (HYBRID)
PROT DIG TRMTR
CRC CODER
PROT RADIO TRMTR
SPACE DIVERSITY ANTENNAS
TRMT SW
SC MULDEM
RCV STAT
S2
S1
RCV SW
CH(1) DIG RCVR
RF PREAMP
REG RADIO RCVR
TERM FRMR
RF PREAMP
DS3 OUT
A
B
C
RECEIVE INTERFACE (HYBRID)
PROT DIG RCVR
PROT RADIO RCVR
TERM FRMR
STATION #1
A/C DIRECTION OF TRANSMISSION
STATION #2
CH(1) REGENR(C)
RF PREAMP
REG RADIO RCVR
REGEN FRMR
REG RADIO TRMTR
RF PREAMP
PROT REGENR(A)
PROT RADIO RCVR
REGEN FRMR
PROT RADIO TRMTR
RCV SW
TRMT SW
SC MULDEM A/C DIR
REGEN I/O B/D
S2
S2
S2
S2
REGEN I/O A/C
TRMT SW
RCV SW
SC MULDEM B/D DIR
REG RADIO TRMTR
REGEN FRMR
REG RADIO RCVR
CH(1) REGENR(D)
RF PREAMP
PROT RADIO TRMTR
REGEN FRMR
PROT RADIO RCVR
PROT REGEN(B)
STATION #2
B/D DIRECTION OF TRANSMISSION
A/C DIRECTION OF TRANSMISSION
STATION #3
CH(1) REGENR(C)
RF PREAMP
REG RADIO RCVR
REGEN FRMR
PROT REGENR(A)
PROT RADIO RCVR
REGEN FRMR
RCV SW
TRMT SW
REGEN I/O B/D
S2
S2
TRMT SW
RCV SW
REG RADIO TRMTR
REGEN FRMR
CH(1) REGENR(D)
PROT RADIO TRMTR
REGEN FRMR
PROT REGEN(B)
B/D DIRECTION OF TRANSMISSION

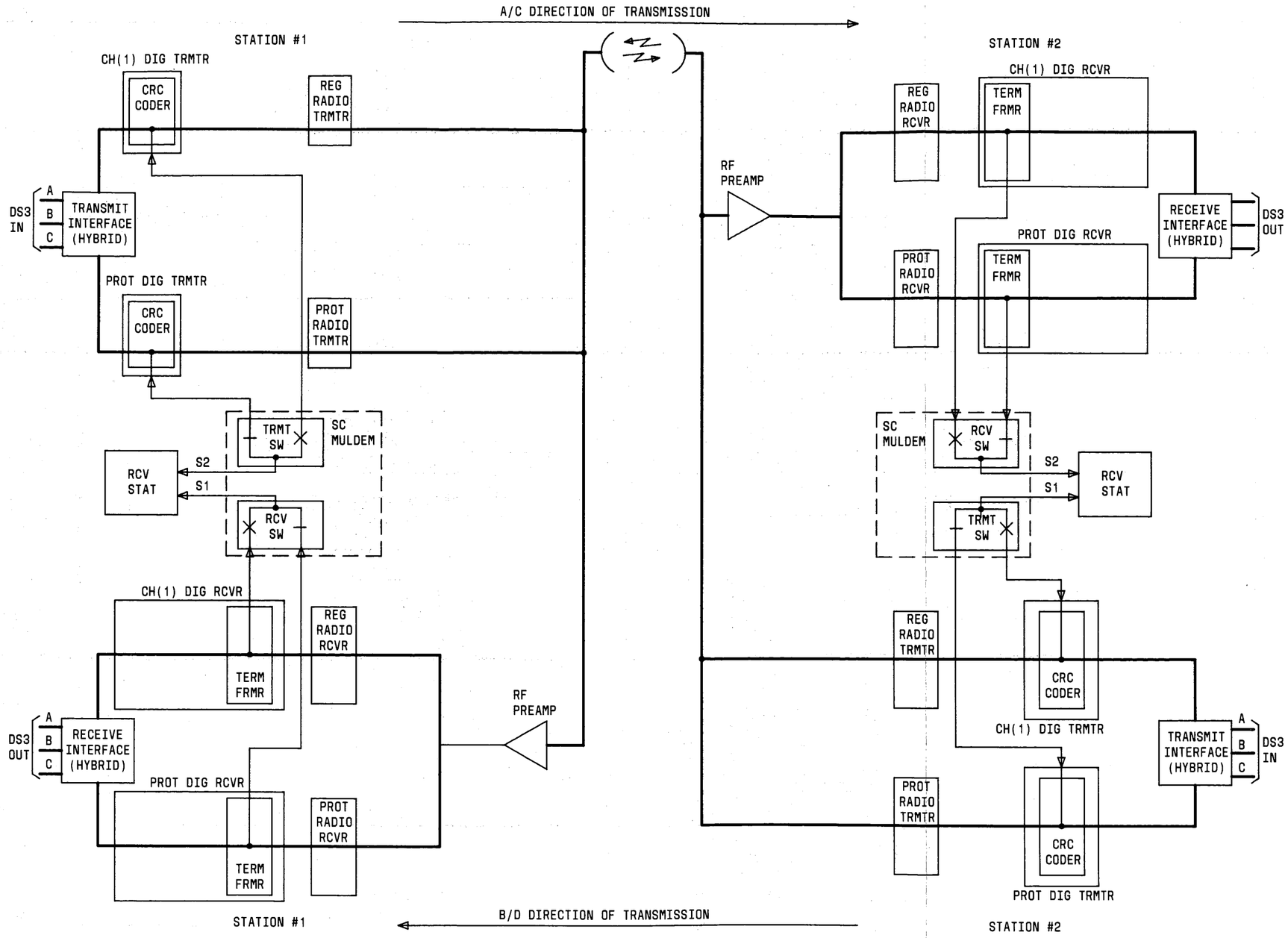


Fig. 2—Single Hop Switch Section

TABLE A

MULTIPLE HOP SWITCH SECTION (FIG. 1)

UNIT WITH SIG FAIL ALARM (TERM) OR OPPOSITE DIRECTION SIG FAIL ALARM (REGEN)	TROUBLE BETWEEN STATIONS	TROUBLE IN TRANSMISSION DIRECTION	SIGNALING FAIL PROCEDURE
TRMT STAT (Station #1)	#1 (Receiving) and #2 (Transmitting) or #1 (Receiving) and #4 (Transmitting)	B/D B/D	SF(A)
TRMT STAT (Station #4)	#4 (Receiving) and #3 (Transmitting) or #4 (Receiving) and #1 (Transmitting)	A/C A/C	SF(B)
REGEN I/O A/C (Station #2)	#2 (Receiving) and #3 (Transmitting)	B/D	SF(C)
REGEN I/O B/D (Station #2)	#2 (Receiving) and #1 (Transmitting)	A/C	SF(D)
REGEN I/O A/C (Station #3)	#3 (Receiving) and #4 (Transmitting)	B/D	SF(E)
REGEN I/O B/D (Station #3)	#3 (Receiving) and #2 (Transmitting)	A/C	SF(F)

TABLE B

SINGLE HOP SWITCH SECTION (FIG. 2)

UNIT WITH SIG FAIL ALARM	TROUBLE BETWEEN STATIONS	TROUBLE IN TRANSMISSION DIRECTION	SIGNALING FAIL PROCEDURE
TRMT STAT (Station #1)	#1 (Receiving) and #2 (Transmitting)	B/D	SF(G)
TRMT STAT (Station #2)	#2 (Receiving) and #1 (Transmitting)	A/C	SF(G)

SIGNALING FAIL PROCEDURE A—SF(A)

The following flowchart is used to clear a SIG FAIL indicator on the TRMT STAT unit at a terminal station with signaling trouble in the B/D direction of transmission. Trouble-clearing is performed at the terminal station with the SIG FAIL alarm, the next regenerator station, and/or the opposite terminal station.

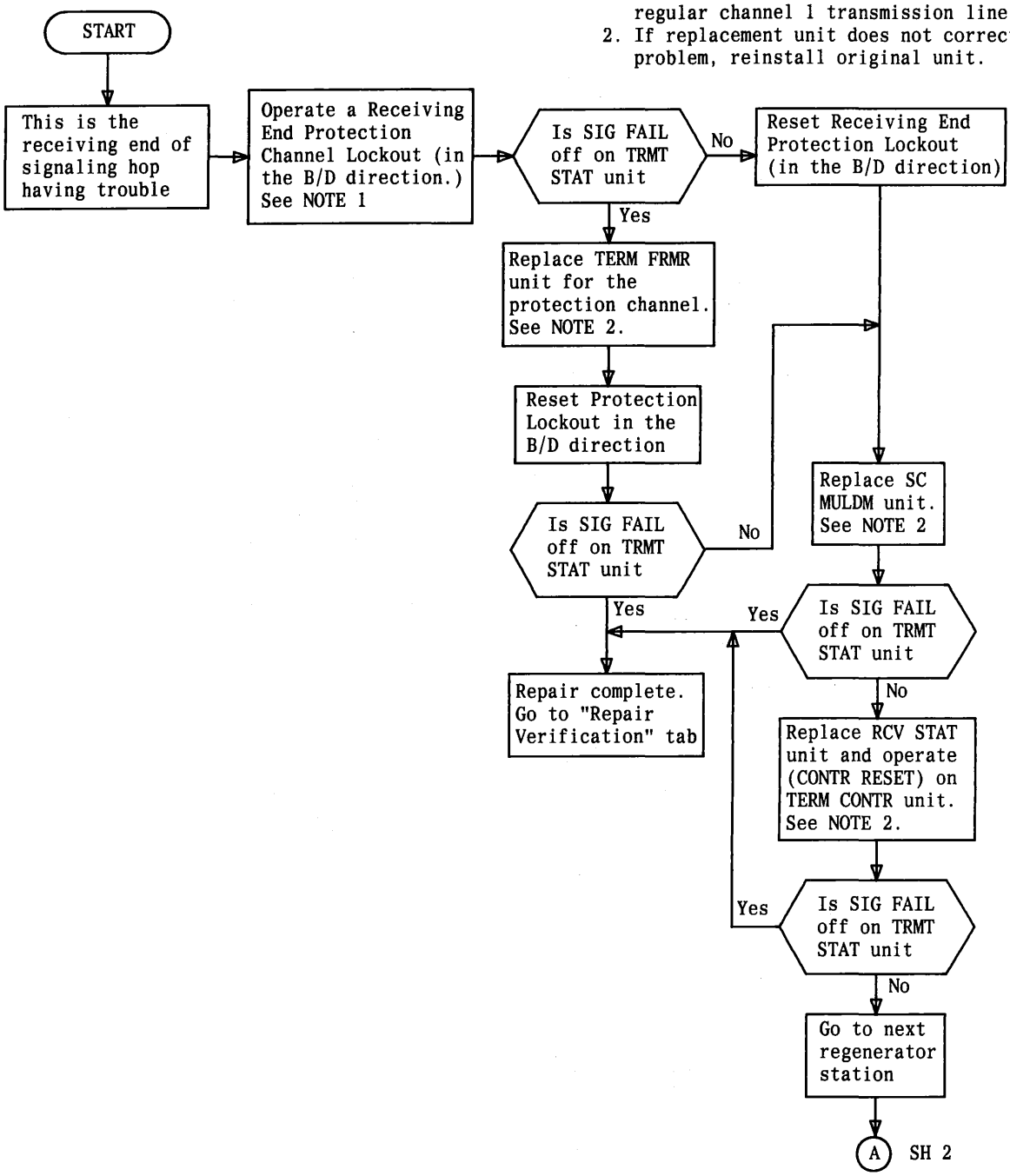
When trouble-clearing at a station other than the station with the SIG FAIL alarm, use the order wire or alarm center to determine if the SIG FAIL has cleared.

When it has been determined which unit has failed, refer to the appropriate " Terminal" or " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

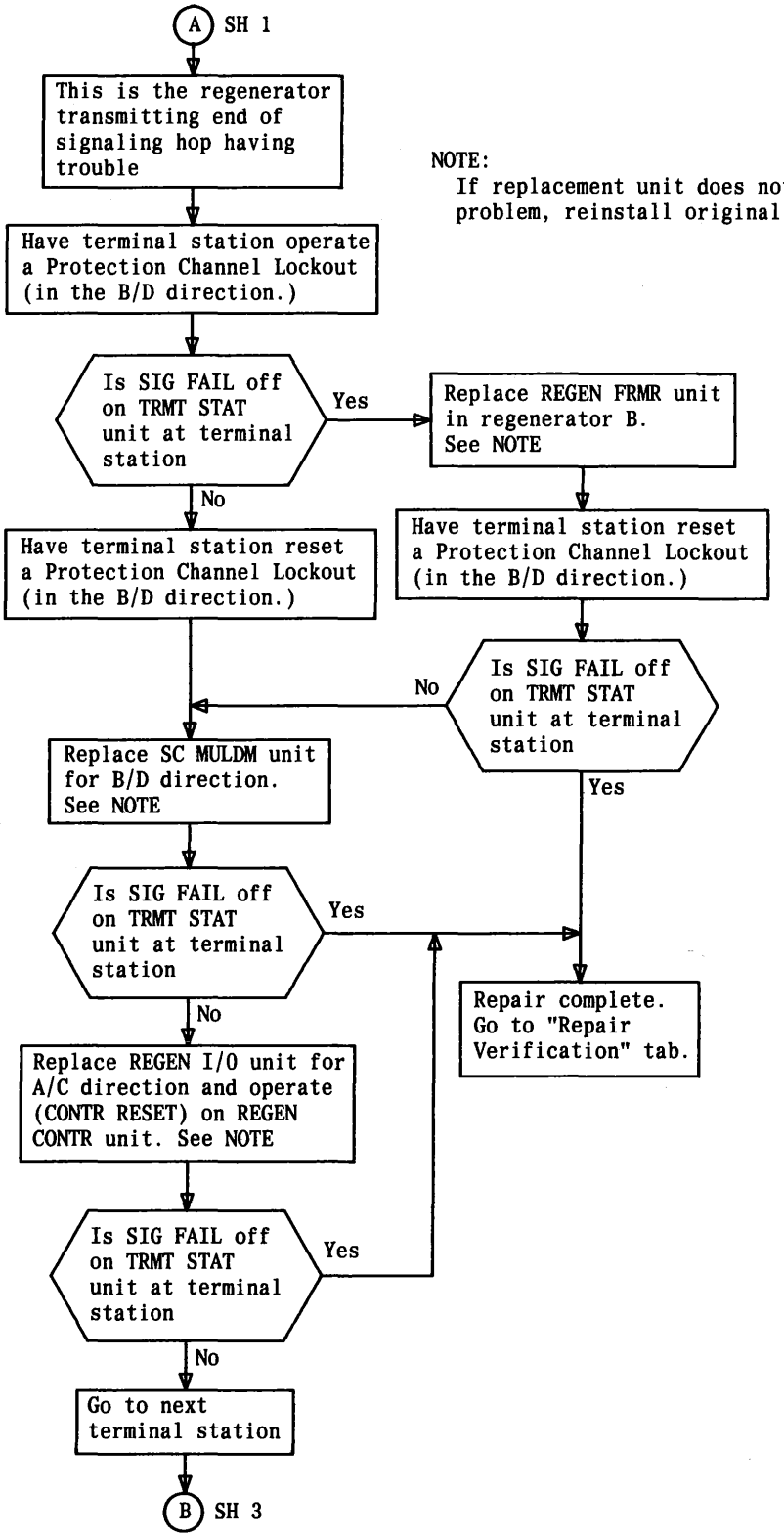
Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.

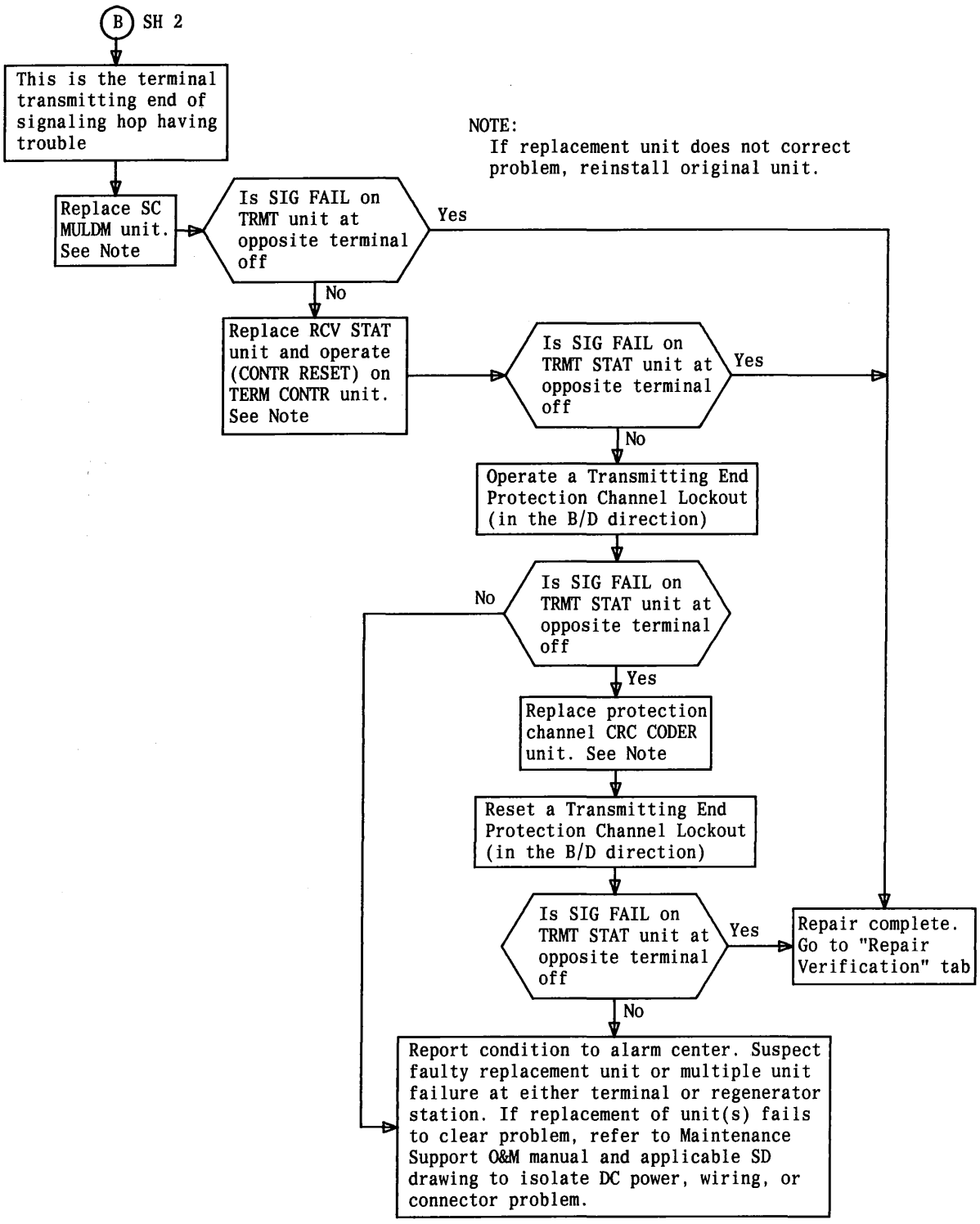
NOTES:
1. A protection lockout operation switches the service channel information to the regular channel 1 transmission line.
2. If replacement unit does not correct problem, reinstall original unit.



SF(A) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) B/D Direction of Transmission (Sheet 1 of 3)



SF(A) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) B/D Direction of Transmission (Sheet 2 of 3)



SF(A) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) B/D Direction of Transmission (Sheet 3 of 3)

SIGNALING FAIL PROCEDURE B—SF(B)

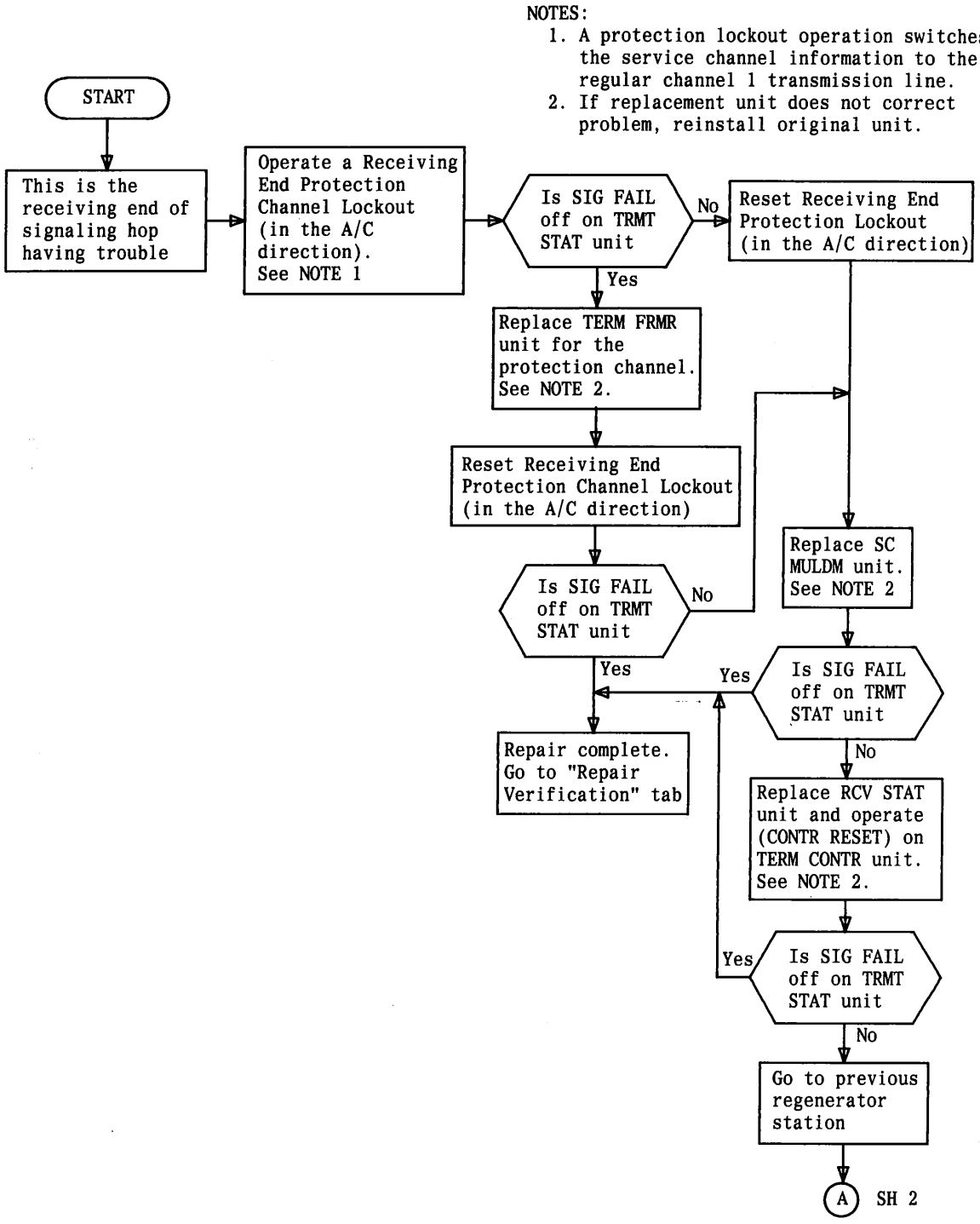
The following flowchart is used to clear a SIG FAIL indicator on the TRMT STAT unit at a terminal station with signaling trouble in the A/C direction of transmission. Trouble-clearing is performed at the terminal station with the SIG FAIL alarm, the previous regenerator station, and/or the opposite terminal station.

When trouble-clearing at a station other than the station with the SIG FAIL alarm, use the order wire or alarm center to determine if the SIG FAIL has cleared.

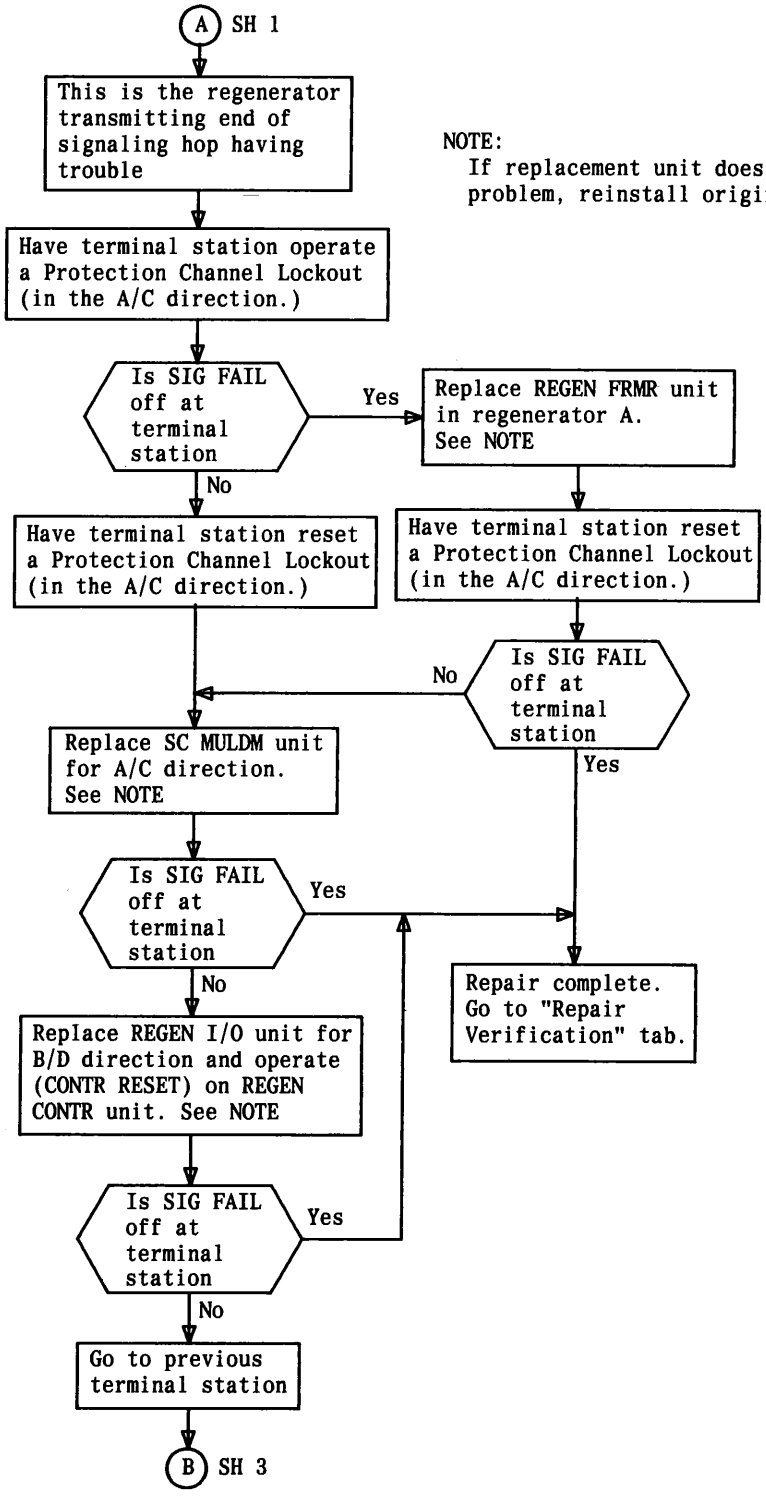
When it has been determined which unit has failed, refer to the appropriate " Terminal" or " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

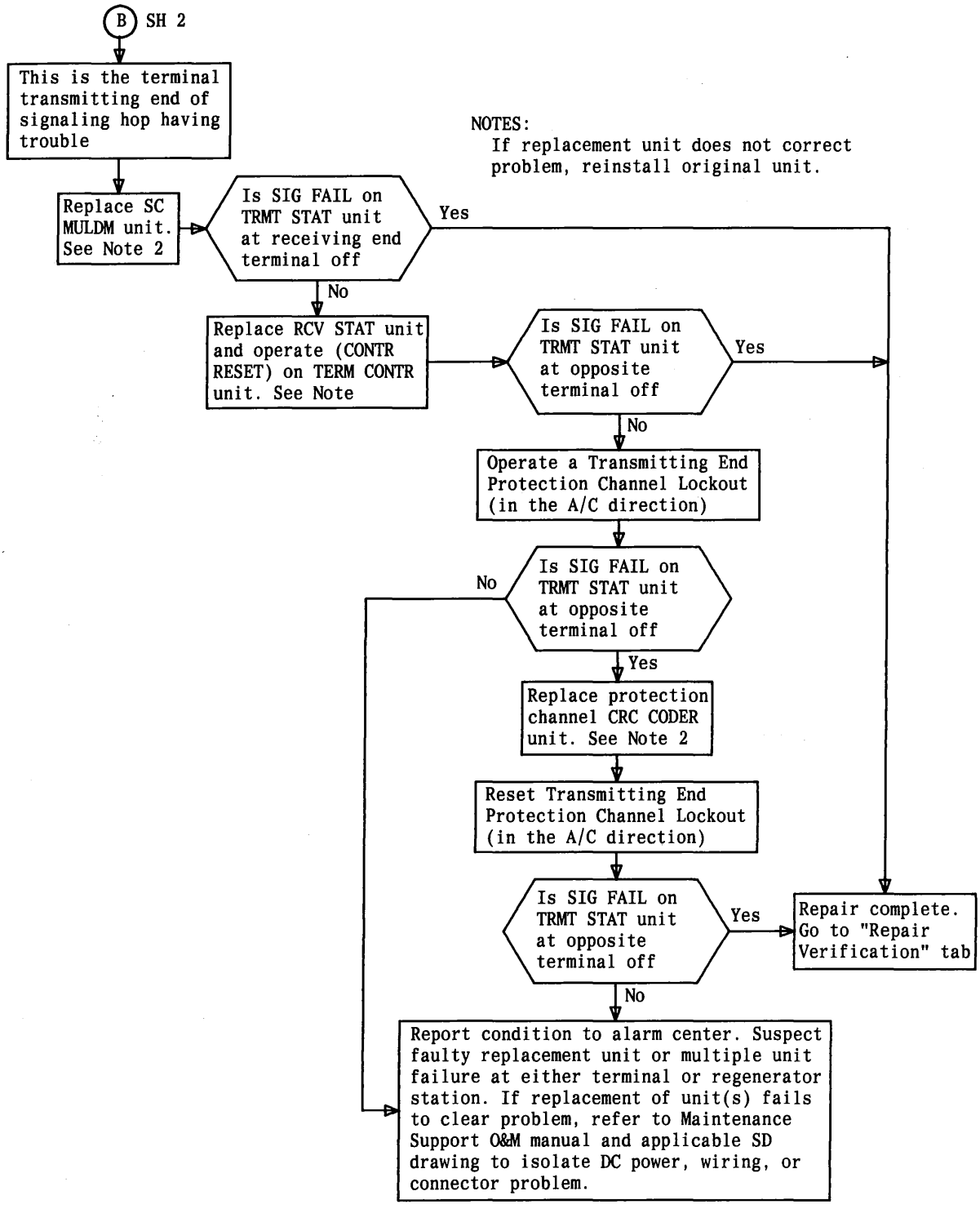
This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.



SF(B) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) A/C Direction of Transmission (Sheet 1 of 3)



SF(B) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) A/C Direction of Transmission (Sheet 2 of 3)



SF(B) Signaling Fail Alarm-Clearing Flowchart—Terminal (Receive) Regenerator or Opposite Terminal (Transmit) A/C Direction of Transmission (Sheet 3 of 3)

SIGNALING FAIL PROCEDURE C—SF(C)

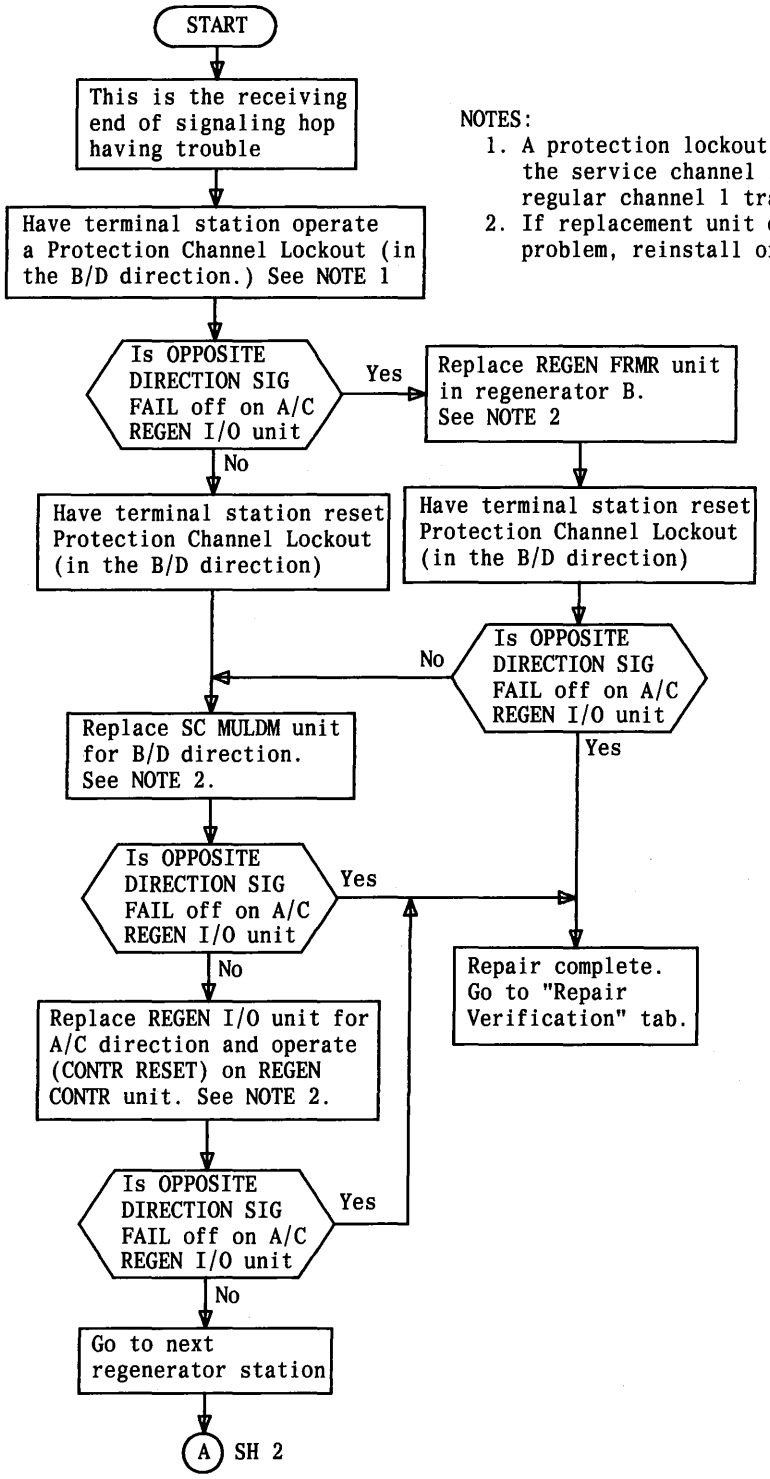
The following flowchart is used to clear an OPPOSITE DIRECTION SIG FAIL indicator on the A/C REGEN I/O unit at a regenerator station with signaling trouble in the B/D direction of transmission. Trouble-clearing is performed at the regenerator station with the OPPOSITE DIRECTION SIG FAIL alarm and the next regenerator station.

When trouble-clearing at a station other than the station with the OPPOSITE DIRECTION SIG FAIL alarm, use the order wire or alarm center to determine if the OPPOSITE DIRECTION SIG FAIL has cleared.

When it has been determined which unit has failed, refer to the " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

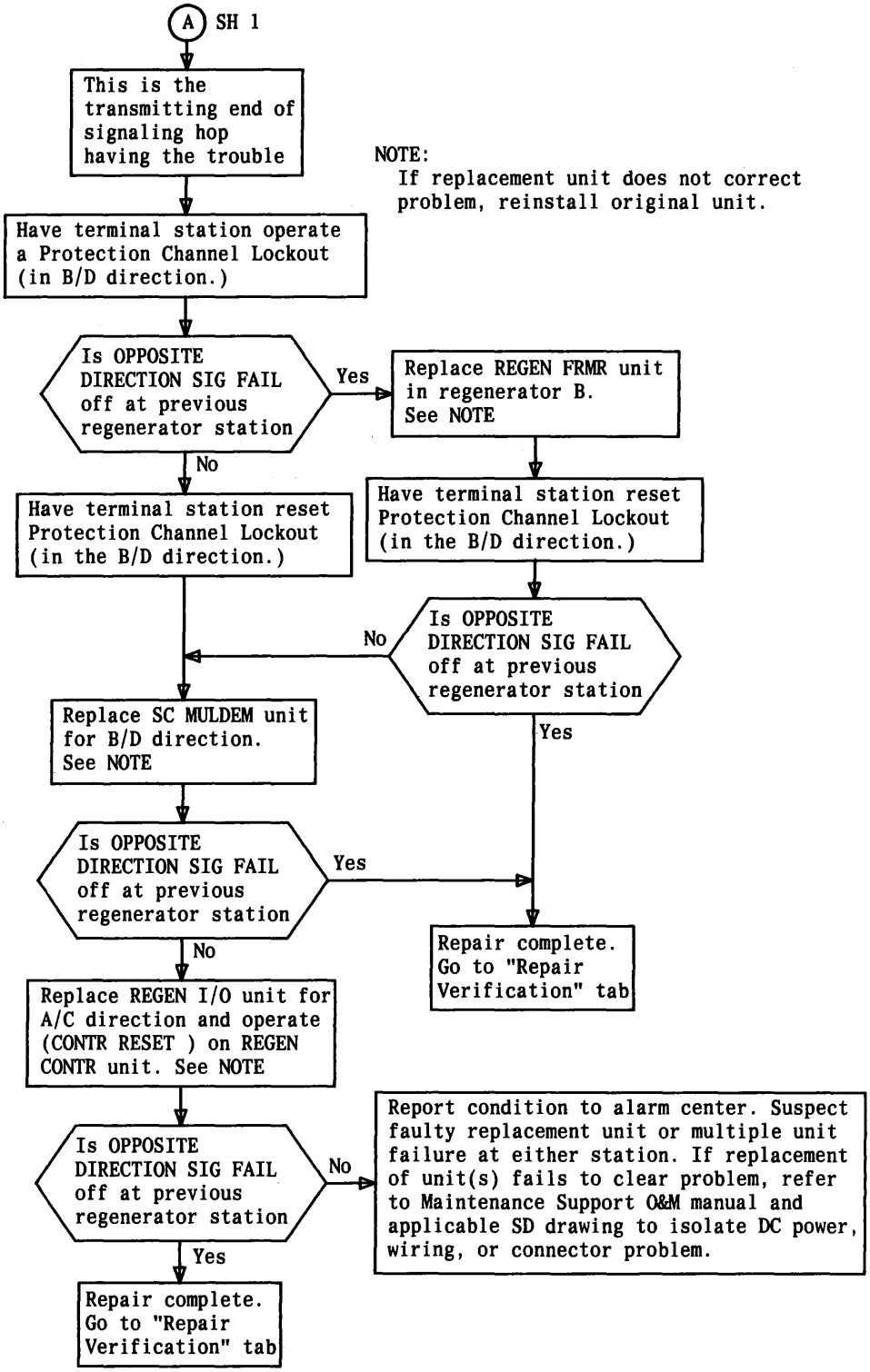
Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.



NOTES:
1. A protection lockout operation switches the service channel information to the regular channel 1 transmission line.
2. If replacement unit does not correct problem, reinstall original unit.

SF(C) Signaling Fail Alarm-Clearing Flowchart--Regenerator to Regenerator—B/D Direction of Transmission (Sheet 1 of 2)



SF(C) Signaling Fail Alarm-Clearing Flowchart—Regenerator to Regenerator—B/D Direction of Transmission (Sheet 2 of 2)

SIGNALING FAIL PROCEDURE D—SF(D)

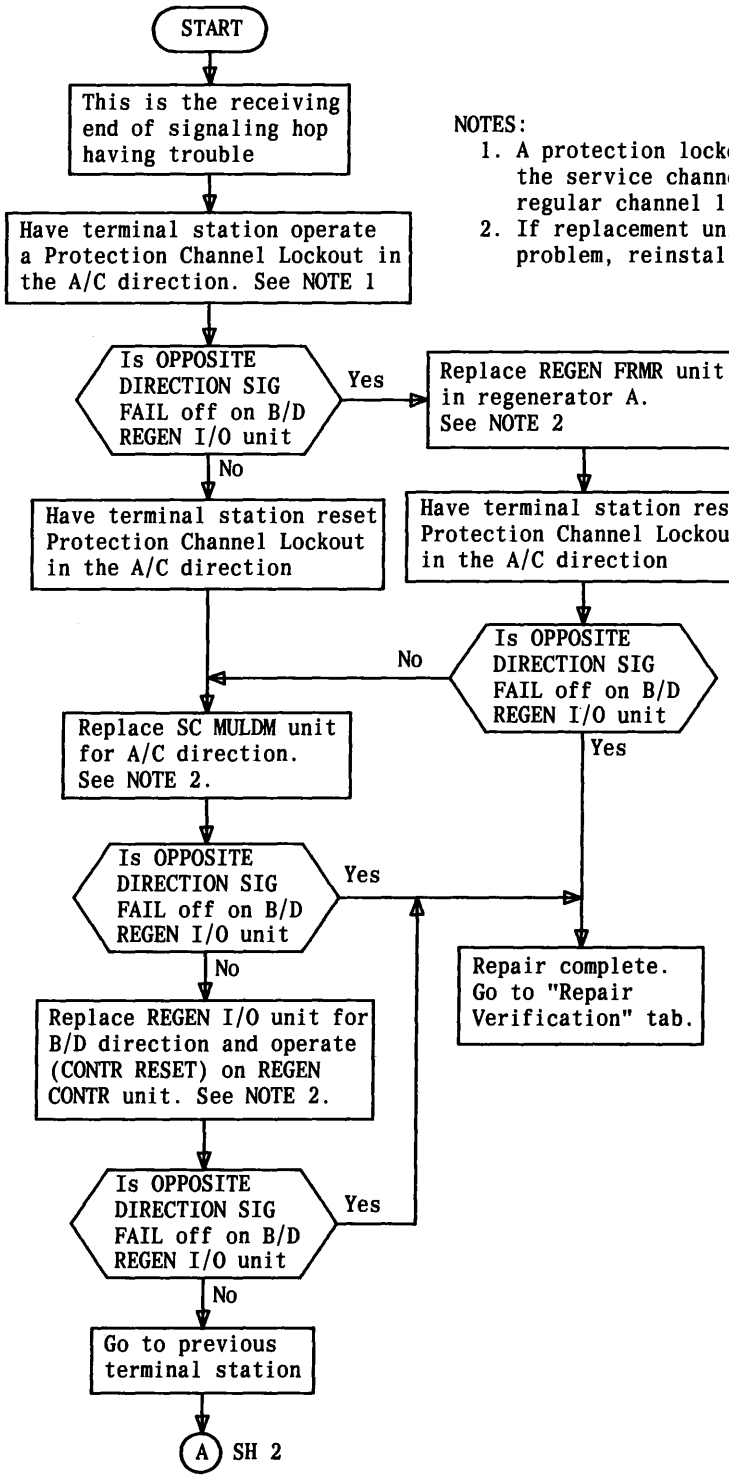
The following flowchart is used to clear an OPPOSITE DIRECTION SIG FAIL indicator on the B/D REGEN I/O unit at a regenerator station with signaling trouble in the A/C direction of transmission. Trouble-clearing is performed at the regenerator station with the OPPOSITE DIRECTION SIG FAIL alarm and the previous terminal station.

When trouble-clearing at a station other than the station with the OPPOSITE DIRECTION SIG FAIL alarm, use the order wire or alarm center to determine if the OPPOSITE DIRECTION SIG FAIL has cleared.

When it has been determined which unit has failed, refer to the appropriate " Terminal" or " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

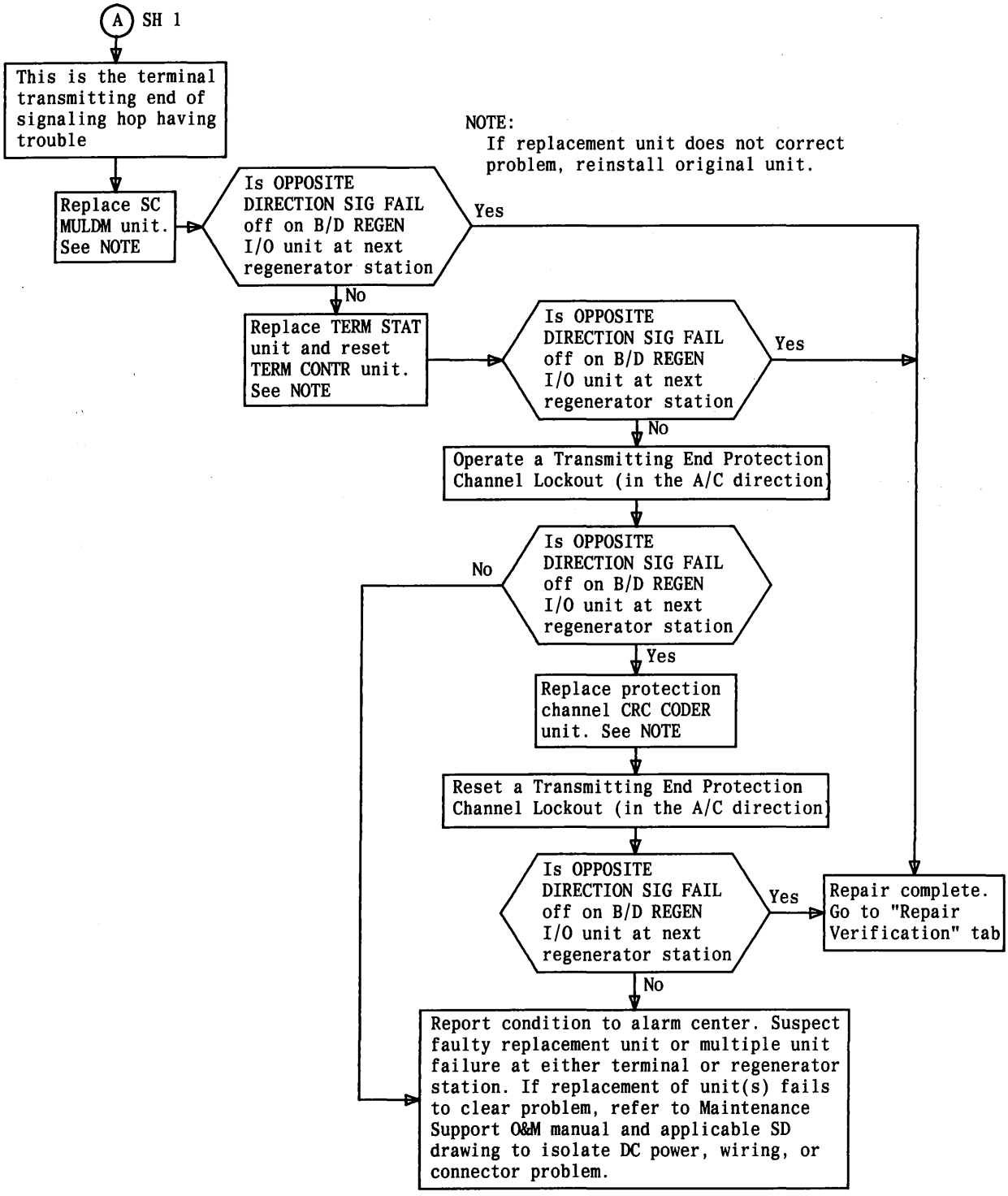
Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.



NOTES:
1. A protection lockout operation switches the service channel information to the regular channel 1 transmission line.
2. If replacement unit does not correct problem, reinstall original unit.

SF(D) Signaling Fail Alarm-Clearing Flowchart—Regenerator (Receiving) to Terminal (Transmitting)—A/C Direction of Transmission (Sheet 1 of 2)



SF(D) Signaling Fail Alarm-Clearing Flowchart—Regenerator (Receiving) to Terminal (Transmitting)—A/C Direction of Transmission (Sheet 2 of 2)

SIGNALING FAIL PROCEDURE E—SF(E)

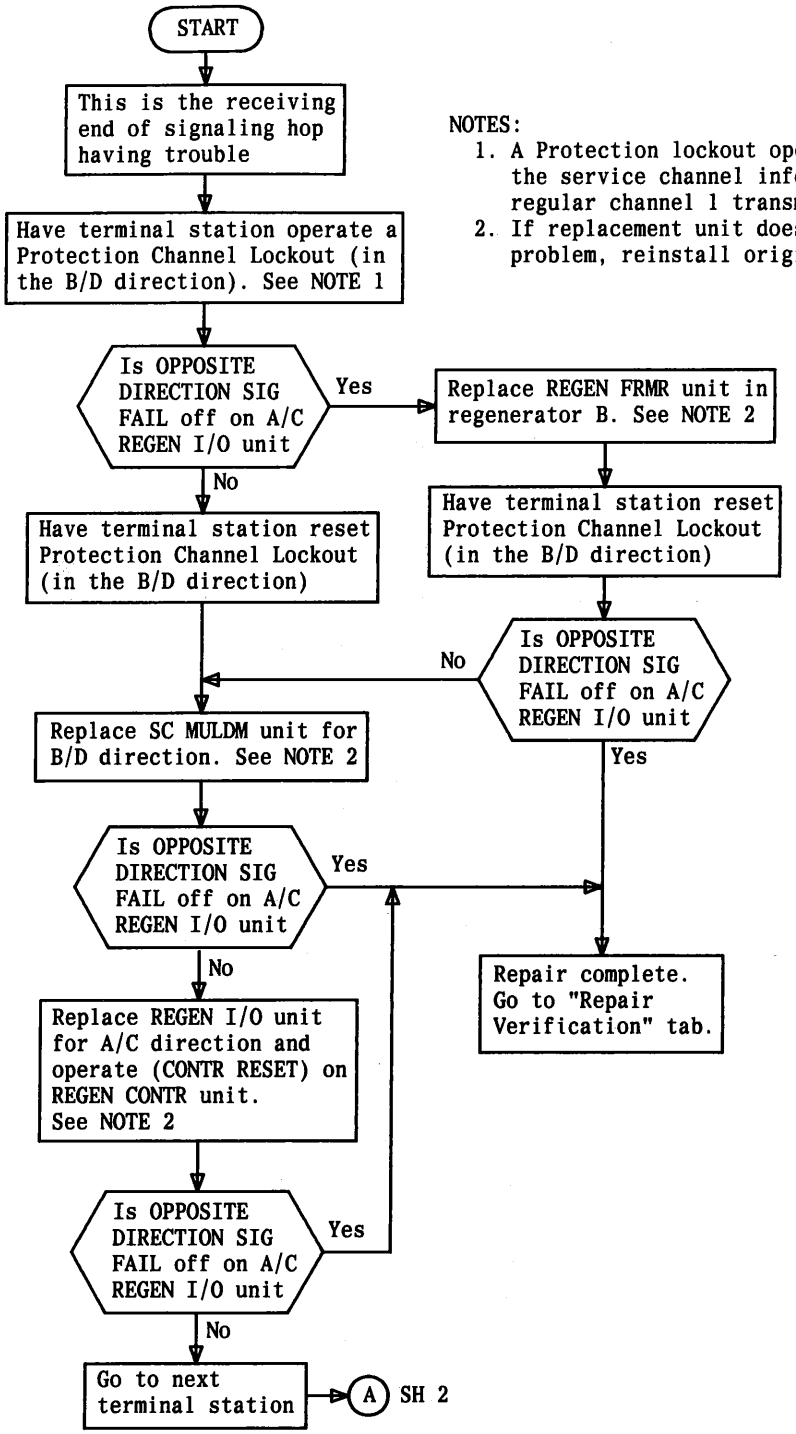
The following flowchart is used to clear an OPPOSITE DIRECTION SIG FAIL indicator on the A/C REGEN I/O unit at a regenerator station with signaling trouble in the B/D direction of transmission. Trouble-clearing is performed at the regenerator station with the OPPOSITE DIRECTION SIG FAIL alarm and the next terminal station.

When trouble-clearing at a station other than the station with the OPPOSITE DIRECTION SIG FAIL alarm, use the order wire or alarm center to determine if the OPPOSITE DIRECTION SIG FAIL has cleared.

When it has been determined which unit has failed, refer to the appropriate " Terminal" or " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

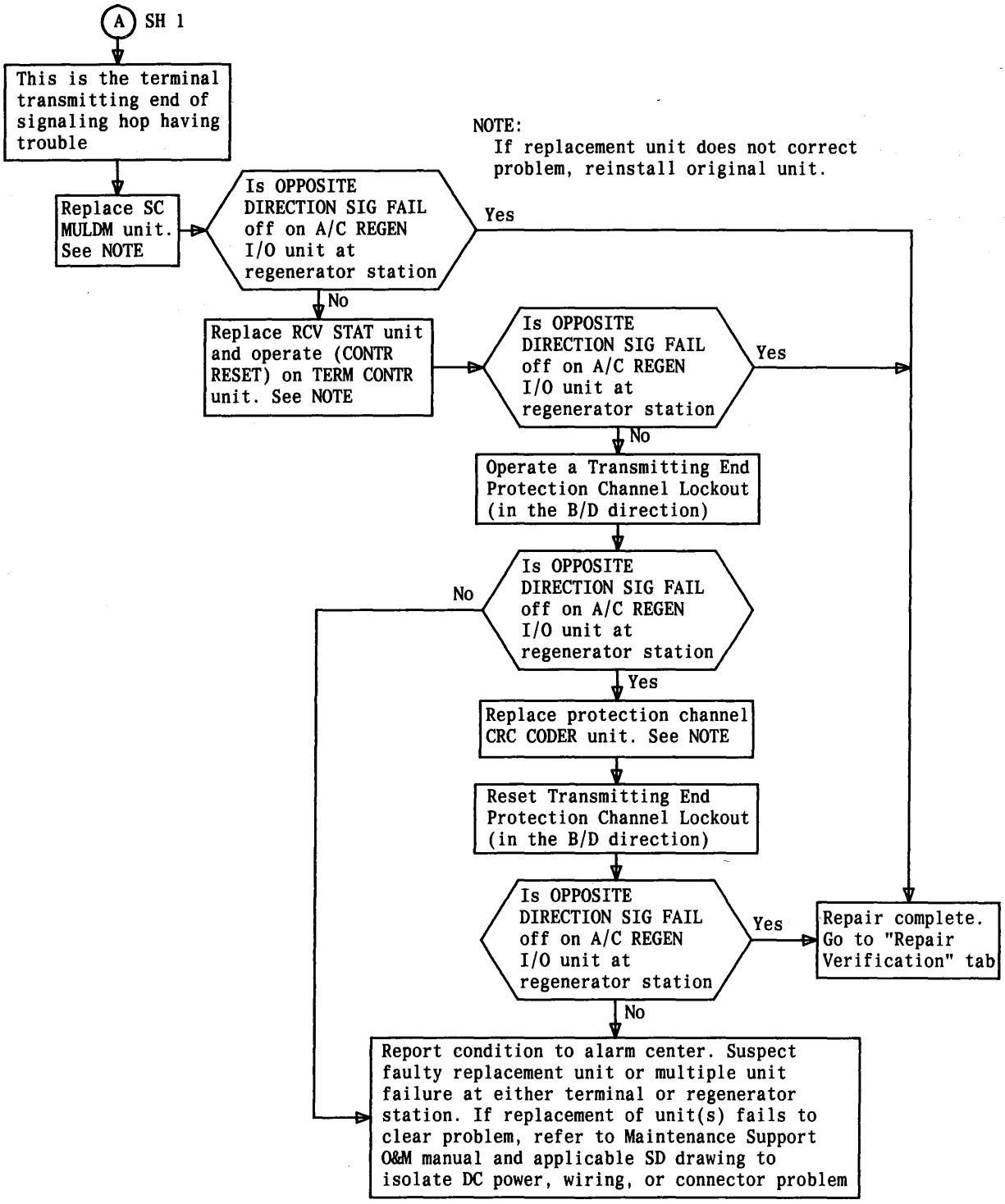
Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.



NOTES:
1. A Protection lockout operation switches the service channel information to the regular channel 1 transmission line.
2. If replacement unit does not correct problem, reinstall original unit.

SF(E) Signaling Fail Alarm-Clearing Flowchart—Regenerator (Receiving) to Terminal (Transmitting)—B/D Direction of Transmission (Sheet 1 of 2)



SF(E) Signaling Fail Alarm-Clearing Flowchart—Regenerator (Receiving) to Terminal (Transmitting)—B/D Direction of Transmission (Sheet 2 of 2)

SIGNALING FAIL PROCEDURE F—SF(F)

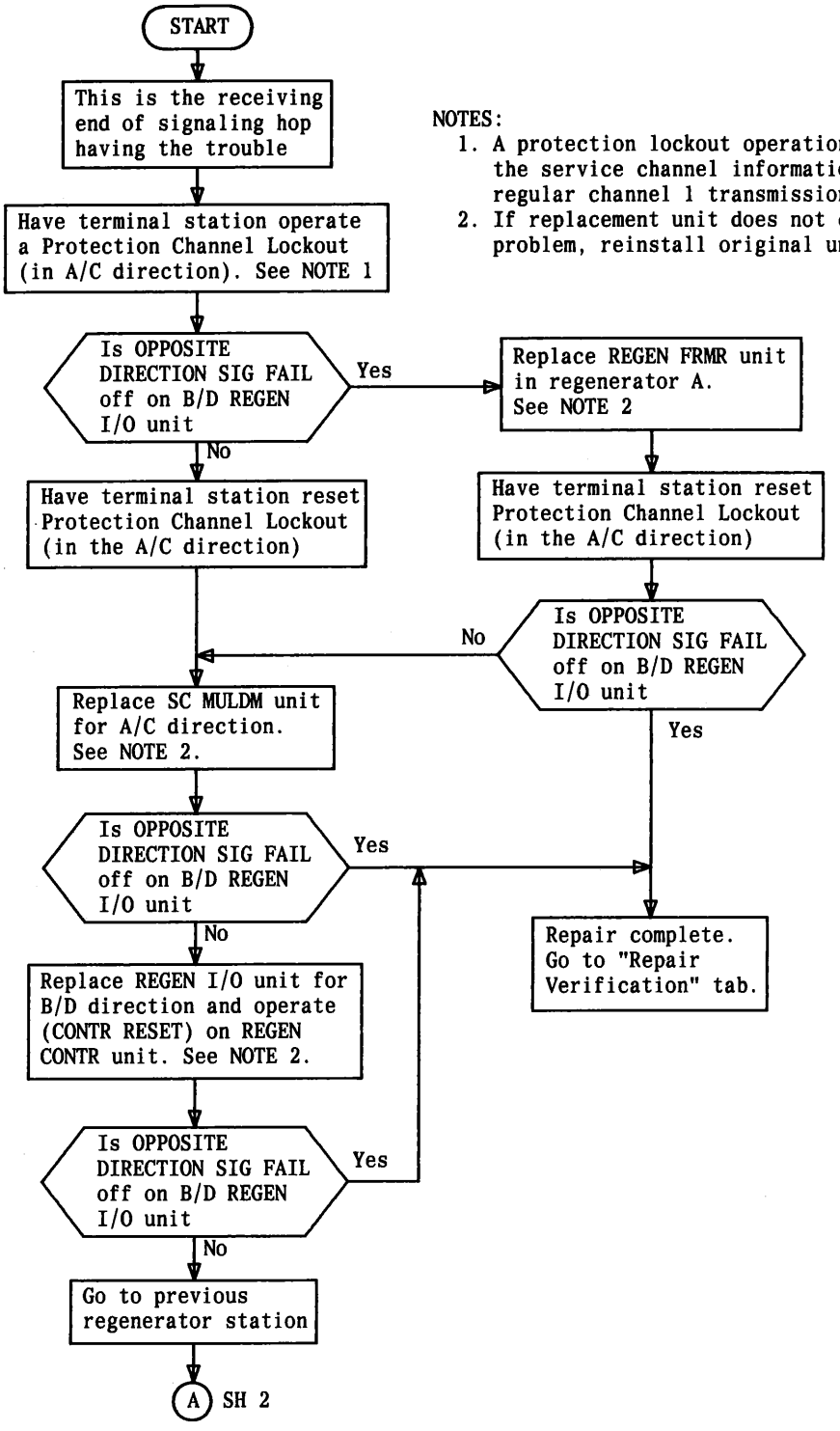
The following flowchart is used to clear an OPPOSITE DIRECTION SIG FAIL indicator on the B/D REGEN I/O unit at a regenerator station with signaling trouble in the A/C direction of transmission. Trouble-clearing is performed at the regenerator station with the OPPOSITE DIRECTION SIG FAIL alarm and the next regenerator station.

When trouble-clearing at a station other than the station with the OPPOSITE DIRECTION SIG FAIL alarm, use the order wire or alarm center to determine if the OPPOSITE DIRECTION SIG FAIL has cleared.

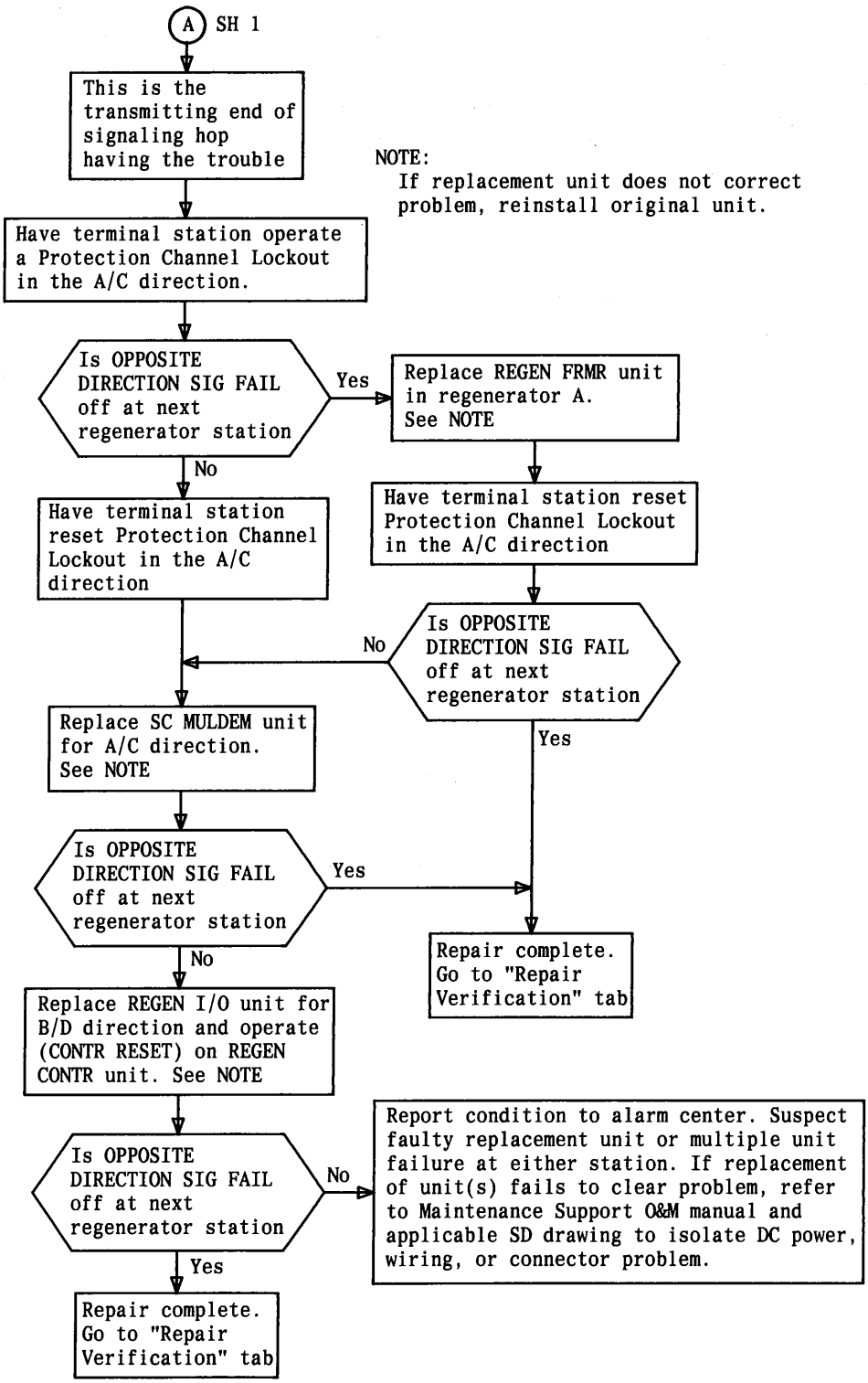
When it has been determined which unit has failed, refer to the " Regenerator" tab in the " Replacement Procedures" tab to replace the unit.

Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure. Remote protection switching may not be possible until the alarm is cleared. If necessary, refer to the " Operations" tab to perform local manual operations.



SF(F) Signaling Fail Alarm-Clearing Flowchart—Regenerator to Regenerator—A/C Direction of Transmission (Sheet 1 of 2)



SF(F) Signaling Fail Alarm-Clearing Flowchart—Regenerator to Regenerator—A/C Direction of Transmission (Sheet 2 of 2)

SIGNALING FAIL PROCEDURE G—SF(G)

The following flowchart is used to clear a SIG FAIL indicator on the TRMT STAT unit at a terminal station with signaling trouble in the A/C or B/D direction of transmission. Trouble-clearing is performed at the terminal station with the SIG FAIL alarm and the opposite terminal station.

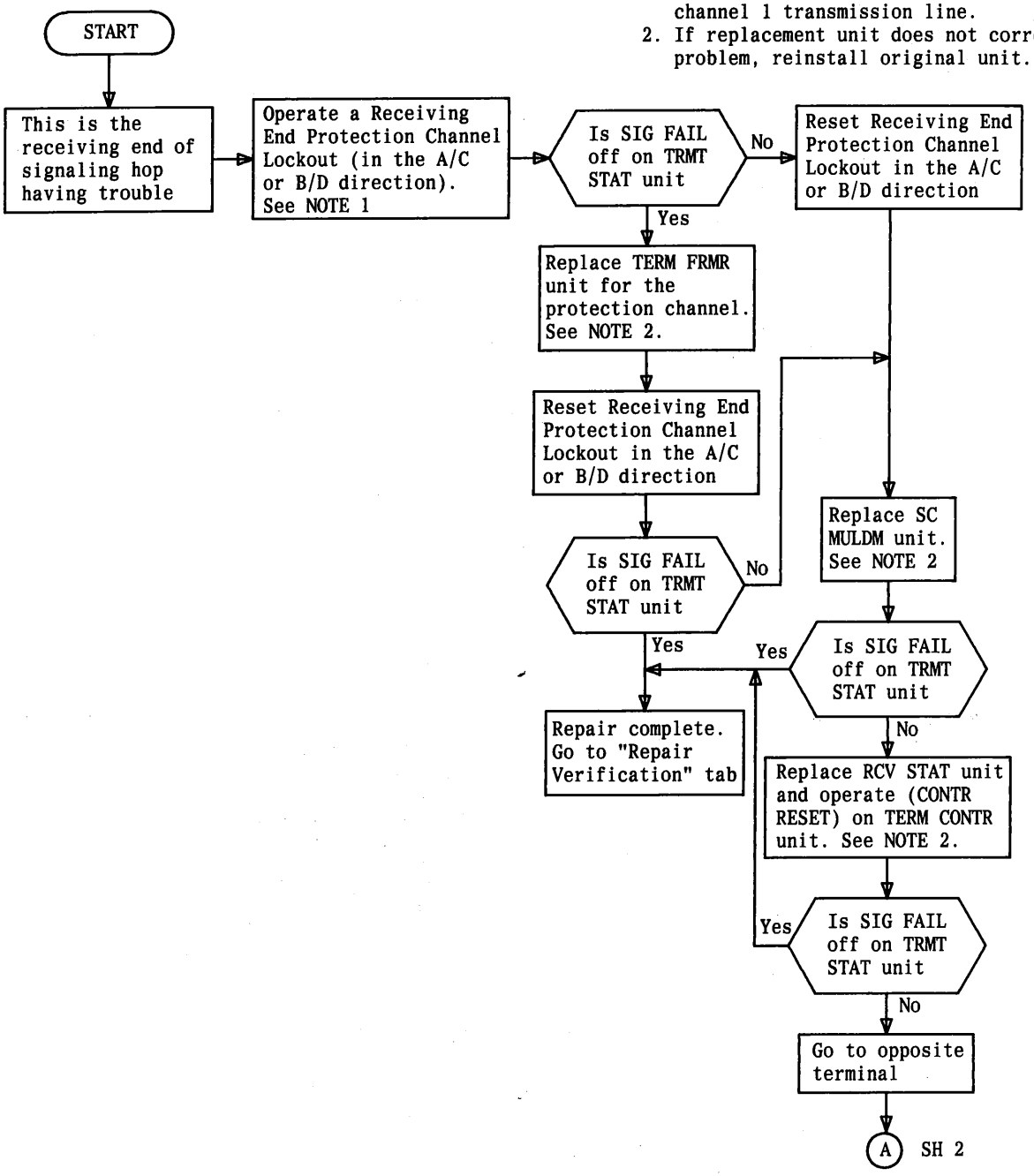
When trouble-clearing at a station other than the station with the SIG FAIL alarm, use the order wire or alarm center to determine if the SIG FAIL has cleared.

When it has been determined which unit has failed, refer to the " Terminal" tab in the " Replacement Procedures" tab to replace the unit.

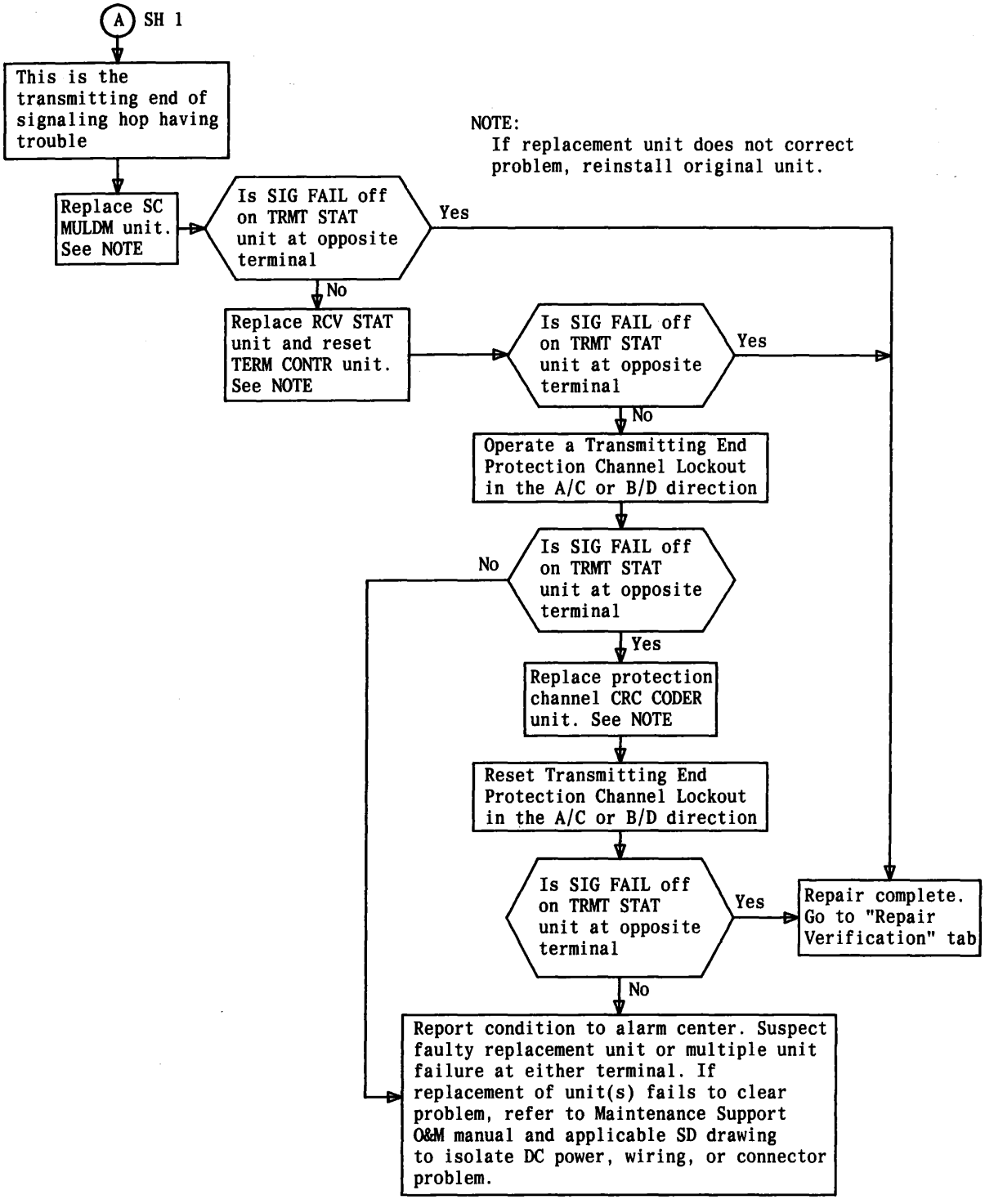
Warning: To prevent damaging a unit, ensure all ESD (electrostatic discharge) precautions are followed.

This is an in-service procedure.

NOTES:
1. A protection lockout operation switches the service channel information to the regular channel 1 transmission line.
2. If replacement unit does not correct problem, reinstall original unit.



SF(G) Signaling Fail Alarm-Clearing Flowchart—Terminal to Terminal—A/C or B/D Direction of Transmission (Sheet 1 of 2)



SF(G) Signaling Fail Alarm-Clearing Flowchart—Terminal to Terminal—A/C or B/D Direction of Transmission (Sheet 2 of 2)